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ABSTRACT

DOCUMENTS ANNOUNCED WITH VT NUMBERS ONLY IN THE WINTER 1969 ISSUE (VT 010 430) OF "ABSTRACTS OF RESEARCH AND RELATED MATERIALS IN VOCATIONAL AND TECHNICAL EDUCATION" (ARM) ARE INCLUDED IN THIS MICROFICHE SET. MICROFICHE AVAILABILITY FOR THESE DOCUMENTS IS SHOWN ON THE ARM RESUME AS MF AVAILABLE IN VT-ERIC SET. THE MICROFICHE SET IS ARRANGED IN THE FOLLOWING SEQUENCE: (1) A VOCATIONAL TECHNICAL (VT) NUMBER INDEX TO DOCUMENTS IN THE MICROFICHE COLLECTION, (2) THE AUTHOR INDEX, THE VOCATIONAL AND SUPPORTING SERVICES INDEX, AND THE SUBJECT INDEX FROM ARM, AND (3) THE FULL TEXT OF DOCUMENTS LISTED IN THE VT NUMBER INDEX. THE TEXTS ARE FILMED CONTINUOUSLY IN VT NUMBER SEQUENCE. (CD)

VT 010 464

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(ARM)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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WINTER 1969

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INTRODUCTION

This collection of microfiche consists of the documents which are announced with VT number only in the Winter 1969 issue of Abstracts of Research and Related Materials in Vocational and Technical Education (ARM). Microfiche availability is shown in the resume as MF AVAILABLE IN VT-ERIC SET. The documents are grouped in VT number sequence and filmed continuously as a microfiche set. These documents are not available on microfiche as individual items, but are obtainable only through purchase of this set, or from agencies who have this set and have the capability of reproducing microfiche. The microfiche set includes the following sections:

1. Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Winter 1969.

2. Selected indexes from ARM, Winter 1969.

   a. Personal and Institutional Author Index.
   b. Vocational and Supporting Services Index.
   c. Subject and Identifier Index.

   The documents identified in the indexes with an ERIC Document (ED) number are usually available as separate documents from the ERIC Document Reproduction Service (EDRS). Information about EDRS Service can be found in ARM or Research in Education (RIE).[1] Items not available through EDRS will include a source of availability. The page numbers shown in these indexes refer to the location of the abstracts in ARM, Winter 1969.

3. The full text of documents listed in the Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Winter 1969.

[1] Research in Education is published 12 times a year. The first issue was no.11, November 1966. Subscription: Domestic $21.00 a year; foreign $5.25 additional. Single copy: Domestic, $1.75. Send check or money order (no stamps) to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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SOUTH CAROLINA

The purpose of the study was to identify the nursing needs of South Carolina and to propose goals for the role of the South Carolina Nurses' Association. More nurses were employed in South Carolina in 1965 than in any previous year, and, according to employers' projections in 1966, the demand will increase 43.6 percent by 1970 with the need for licensed practical nurses jumping 60.3 percent. The report is organized into three major sections. "The South Carolina Setting" presents data on supply and demand, types of employment, age and marital status, educational preparation, enrollment in schools of nursing, and economic and general welfare. "The Provision of Nursing Care" discusses various levels of nursing practice (professional, technical, practical, and assistant), nursing service, organization, and patient safeguards. "Nursing Education" discusses the various kinds of education for nursing practice (baccalaureate diploma, associate degree, practical nursing, graduate, continuing education, and refresher programs), faculty, accreditation, and community planning. Recommendations include: (1) pressure for a baccalaureate program in the Piedmont area and continued support of graduate program at the University of South Carolina, (2) better utilization of nurses, (3) improvement of working conditions and salaries, (4) planning for state wide recruitment, and (5) encouragement of community planning. (JK)

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Nurses For South Carolina

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A Study of Nursing Needs and Resources

A Report Prepared

by

Committee on Current and

Long-Term Goals

for

Board of Directors

South Carolina Nurses' Association

1301 Hampton Street

Columbia, South Carolina

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

Nurses For South Carolina

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INTRODUCTION

Civilized man in the last few decades has been subject to more change than in any other period of history. The explosion of knowledge alone in all fields of endeavor is startling. The impact of change in the twentieth century has been so great and forceful that man in general finds it necessary to re-examine his goals, values, and beliefs. Particularly have the fields of health care felt the impact of change in this century. In these fields, therefore, man must stop and take a long hard look at where he is or should be going.

Nursing is no exception. To give direction in these challenging times, the Board of Directors of the South Carolina Nurses' Association in April 1964 appointed a committee to identify the nursing needs of South Carolina and to propose definite goals for the Association's role in meeting these needs. An interim report in November of that year endorsed statewide planning for nursing education, called for associate degree nursing program in tax supported colleges, reaffirmed need for additional baccalaureate programs for nursing, and identified approaches to improved nursing practice.

The committee continued its work, updating information and refining ideas. It has identified several major areas of need upon which attention must be focused if South Carolina is to provide the quality of nursing care that an intelligent society demands today.

Thus this report is a study of present and projected nursing needs and resources. It will hopefully serve as a basis for planning which will provide for meeting the needs of the people of South Carolina.

CHAPTER I

THE SOUTH CAROLINA SETTING

More nurses were employed in South Carolina in 1965 than in any previous year. Yet the well-publicized shortage of nurses continues to plague this state as it does other states across the nation.

Many factors contribute to this shortage: the increase in population, the increase in life expectancy with accompanying increases in long-term and chronic illnesses, improving economic conditions, group hospitalization plans, increased availability and use of a variety of health facilities, and the national awareness of needs for improved health services. According to employer's projections reported in 1966, the demand for nurses will increase 43.6 per cent by 1970 and the need for licensed practical nurses will jump 60.3 per cent.[1]

How do these figures compare with the need as seen by organized nursing? How many nurses do we have? How many do we need? What plans should be made to ensure that sufficient numbers of nurses will be available to meet the growing nursing care needs in South Carolina's future?

Supply and Demand

In 1910, South Carolina had 287 nurses, 19 per 100,000 population. By 1960, this figure had jumped to 5,405 or 227 per 100,000 population.[2] (See Tables I and II.) Since 1960, both population and nurse supply have increased and it seems likely that the population will continue its upward spiral.

Table I. Number of Active Nurses in South Carolina Census Years 1910-1960

1910	287
1920	1,052
1930	1,601
1940	2,225
1950	3,193
1960	5,405

Table II. Active Nurses Per 100,000 Population in South Carolina: Census Years 1910-1960

1910	19
1920	62
1930	92
1940	117
1950	151
1960	227

[1] South Carolina Employment Security Commission. *Manpower Requirements for Health Facilities in South Carolina*, Columbia, 1966, p. 17.

[2] U.S. Department of Health, Education and Welfare, Public Health Service. *Health Manpower Source Book*, Section 2, Nursing Personnel, Revised January 1966, p. 10.

With this continuing growth in population and demand for nursing services, efforts must be directed toward providing the 350/100,000 cited by the Surgeon General's Group[3] as essential to adequate health care by 1970.

In 1964, the South Carolina Nurses' Association projected the numbers of nurses and practical nurses needed by 1970 if the ratio of nurses to population were not to decrease. At that time, goals set for 1970 were 7,626 registered nurses and 4,766 licensed practical nurses,[4] an increase over the 1964 supply of more than 3,000 in each of the two categories. Some progress has been made; however, much remains to be done to reach these goals.

Where Nurses Work

Nurses are employed in public health programs, in industry, in schools and colleges, in physicians offices, in nursing homes, in hospitals, in private practice, and in the armed services. According to statistics compiled by the State Board of Nursing for South Carolina, there were 6,780 registered nurses in South Carolina in 1965. Of these, 5,422 were employed. Also employed were 2,266 licensed practical nurses. Table III shows the distribution by field of employment.

Table III. S. C. Nurses By Field of Employment—1965

	R.N.	*L.P.N.*
Hospital or other agency	3,088	1,229
School of Nursing	157	6
Private Duty	786	286
School Nurse	55	5
Public Health	283	2
Industrial Nurse	200	16
Office Nurse	581	99
Other	170	71
Not Specified	1,460	522
	5,422	2,266

Source: State Board of Nursing

Positions Nurses Hold

Table IV shows the nurse distribution by position held. It can readily be seen that more than half the employed nurses hold positions in which they give direct care to patients. The majority of LPNs are employed in direct-care positions also.

[3] *Toward Quality in Nursing: Needs and Goals.* (Report of the Surgeon General's Consultant Group on Nursing, Public Health Service Publication No. 992) Washington: Government Printing Office, 1963, pp. 15-23.

[4] Proceedings Fifty-Seventh Convention, South Carolina Nurses' Association, Greenville, South Carolina, 1964.

Table IV. S. C. Nurses by Position—1965

	R.N.	*L.P.N.*
Administrator or Assistant	94	0
Consultant	18	0
Supervisor or Assistant	543	0
Instructor	165	0
Head Nurse or Assistant	592	0
General Duty or Staff	2,445	1,229
Other	650	71
Not Specified	1,455	522
	5,422	2,266

Source: State Board of Nursing

Married Nurses

Since one-third of the work force in the United States is made up of women and two out of every three of these women are married,[5] it is not surprising to find that 67 per cent of the active registered nurses in South Carolina are married.[6] While many of these are the sole support for their families, others works on a part-time or full-time basis to supplement family income or because they desire to remain active in nursing. Still others state that they cannot afford to work because salaries earned do not offset expenses incurred in providing part-time housekeepers and child care.

Married nurses may well be a manpower resource that should be tapped since 85 per cent of the South Carolina nurses not employed in nursing are married.[7]

Age Ranges of Nurses

There is a wide age range among nurses in South Carolina. Table V shows this distribution. While the figures show that the majority are between the ages of twenty and fifty-nine, nearly four hundred are between sixty and sixty-nine and almost one hundred are seventy years or older. Nearly six hundred gave no indication of their age. It must be noted, however, that the figures in this table are for all registered nurses in the state rather than for those employed in nursing. Table V differs from the other tables in this respect.

Of the nurses not employed in nursing, a national publication[8] shows that, in South Carolina in 1962, 27.7 per cent were under thirty and 34.4 per cent were between thirty and thirty-nine while 17.6 per cent were between forty and forty-nine, 11.1 per cent were between fifty and fifty-nine and 6 per cent were over 60 years of age. An examination of these figures reveals that over

[5] *American Women*, Report of the President's Commission on the Status of Women, 1963, p. 28.
[6] American Nurses' Association. *The Nation's Nurses*, Inventory of Professional Registered Nurses. The Association, 1965, p. 25.
[7] Ibid. p. 26.
[8] Ibid. p. 28.

60 per cent of the nurses not actively employed in nursing in 1962 were under forty years of age. There is no reason to believe that these percentages have changed markedly since that time.

Table V. Age Ranges of Nurses in South Carolina—1965

20-29	1,531
30-39	1,710
40-49	1,375
50-59	1,095
60-64	278
65-69	121
70 and up	91
Unknown	579
	6,780

Source: State Board of Nursing

Educational Preparation

The majority of nurses employed in this State received their preparation in hospital programs and hold a diploma in nursing. Some of these nurses have additional preparation and are included in Table VI among those with baccalaureate and/or master's degrees. Only 338 South Carolina nurses held baccalaureate degrees in 1965, although it has long been recognized that at least one-third of the nurse population should have such degrees. Increased graduation from B.S. degree programs is a goal toward which increased effort should be directed.

Table VI. Education of Active Nurses in South Carolina—1965

	1965
Associate Degree	54
Diploma	5,030
Baccalaureate Degree	293
Master's or Higher Degree	45
	5,422

Source: State Board of Nursing

Enrollment in Schools of Nursing

The Surgeon General's Report indicated that professional nursing schools now admit 5.2 per cent of all girls who graduate from high school.[9] This report further recommends that to meet 1970 goals, nursing programs should attract better than six per cent of the girls who graduate from high school.[10]

[9] The Surgeon General's Consultant Group in Nursing, *Toward Quality in Nursing: Needs and Goals*, p. 20.
[10] Ibid. p. 20.

Table VII compares the number of girls graduating from high schools in South Carolina with the enrollments in schools of nursing.

Table VII. Graduations (of Girls) from High Schools And Enrollments in Schools of Nursing in South Carolina

Year	*Total Number of Girls Graduating from High School*[11]	*Total Entering Schools of Nursing*[12]	*Percent Entering Schools of Nursing*
1961	13,040	481	3.6
1962	12,592	542	4.3
1963	12,557	451	3.6
1964	Not Available[13]	422	
1965	Not Available	506	....

Figures in Table VII reveal that admissions to schools of nursing fluctuate slightly from year to year. Percentages show that South Carolina schools of nursing attracted only 3.6% to 4.3%, much lower than the 6% needed. It is evident that enrollments must increase substantially if the nurse manpower needs of South Carolina are to be met.

A planned state-wide recruitment program might serve to interest more high school graduates both men and women to enter nursing.

Economic and General Welfare of Nurses

In 1962, salaries for professional registered nurses in general duty staff positions in non-governmental hospitals averaged $3,336 in South Carolina as compared to the national average of $3,900.[14] By 1965, South Carolina salaries had risen to just under $4,000 compared to the national average of $4,800. In 1966, substantial gains were made across the nation. The South Carolina Nurses' Association at its annual convention in November 1966 endorsed the national salary goal of $6,500 for the registered nurse entering the profession and set a three-step timetable for meeting the goal: by July 1967, $5,400; by July 1968, $6,000; and by July 1969, $6,600 per annum.[15] Increases in salaries have been realized but additional strides must be made if nursing is to compete successfully for the numbers of young people who must be recruited for the profession and if it is to retain qualified practitioners.

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[11] Annual Report of the State Superintendent of Education, 1960, 1961, p. 25; 1961-1962, p. 24; 1962-1963, p. 23.

[12] Report of the Governor's Committee to Lend Support and Leadership to Nursing in South Carolina, pp. 22-24.

[13] Figures no longer available by sex.

[14] South Carolina Hospital Association. *Nursing in South Carolina,* A Statistical Study of the Quantity of Nurses and the Quality of Their Training. Columbia, The Association, 1963.

[15] Proceedings Fifty-Ninth Convention, South Carolina Nurses' Association, November 1966.

While salary is a major consideration, fringe benefits and favorable working conditions are of great importance. As was shown across the nation in 1966, the conditions that prevented nurses from providing adequate nursing care for patients have become the determining factors where nurses have resigned in large numbers. The New York city hospital story made this very clear.[16]

In addition to substantially increasing salaries, South Carolina health care agencies must find ways to eliminate from the nurse's workload those clerical and other non-nursing tasks that can be performed as well or better by other classifications of employees. Freedom from non-nursing tasks would make it possible for nurses to concentrate on assessing patients' nursing needs, and planning, providing and evaluating nursing care. Utilization of progressive patient care systems and assignment of personnel according to ability would do much toward implementation of quality nursing care.

[16] Edith P. Lewis, "The New York City Hospital Story," *American Journal of Nursing*, Vol. 66, No. 7, July 1966, p. 1526.

CHAPTER II

THE PROVISION OF NURSING CARE

Nurses today find themselves functioning in very complex health care situations. No longer is the "laying on of hands" the only essential in nursing. Instead, nursing requires knowledge and skills of a high order.

Professional Nursing Practice[1]

The essential components of professional nursing are care, cure, and coordination. The care aspect is more than "to take care of;" it is "caring for" and "caring about" as well. It is dealing with human beings under stress, frequently over long periods of time. It is providing comfort and support in times of anxiety, loneliness, and helplessness. It is listening, evaluating, and intervening appropriately.

The promotion of health and healing is the cure aspect of professional nursing. It is assisting patients to understand their health problems and helping them to cope. It is the administration of medications and treatments. And it is the use of clinical nursing judgment in determining, on the basis of patients' reactions, whether the plan for care needs to be maintained or changed. It is knowing when and how to use existing and potential resources to help patients toward recovery and adjustment by mobilizing their own resources.

Professional nursing practice is sharing responsibility for the health and welfare of all those in the community, and participating in programs designed to prevent illness and maintain health. It is coordinating and synchronizing medical and other professional and technical services as these affect patients. It is supervising, teaching, and directing all those who give nursing care.

Professional nursing practice is constant evaluation of the practice itself. It provides an opportunity for increasing self-awareness and personal and professional fulfillment. It is asking questions and seeking answers —the research that adds to the body of theoretical knowledge. It is using this knowledge, as well as other research findings, to improve services to patients and service programs to people. It is collaborating with those in other disciplines in research, in planning, and in implementing care. Further, it is transmitting the ever-expanding body of knowledge in nursing to those within the profession and outside of it.

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[1] American Nurses' Association. *Position Paper: Educational Preparation for Nurse Practitioners and Assistants to Nurses.* The Association, 1965, p. 5.

In accordance with accepted formulae,[2] one-third of South Carolina's registered nurse group (2,517 out of 7,626 needed by 1970) should be prepared to practice nursing at the professional level.

It is obvious that all of the nursing needs of people cannot be met by the professional nurse practitioner alone. Supporting personnel with considerable understanding of theory and a high degree of technical skill in the application of principles are needed to augment the efforts of the professional practitioner of nursing.

Technical Nursing Practice[3]

Technical nursing practice is carrying out nursing measures as well as medically delegated techniques with a high degree of skill, using principles from an ever-expanding body of science. It is understanding the physics of machines as well as the physiologic reactions of patients. It is using all treatment modalities with knowledge and precision.

Technical nursing practice is evaluating patients' immediate physical and emotional reactions to therapy and taking measures to alleviate distress. It is knowing when to act and when to seek more expert guidance.

Technical nursing practice involves working with professional nurse practitioners and others in planning the day-to-day care of patients. It is supervising other workers in the technical aspects of care.

Technical nursing practice is unlimited in depth but limited in scope. Its complexity and extent are tremendous. It must be rendered, under the direction of professional nurse practitioners, by persons who are selected with care and educated within the system of higher education; only thus can the safety of patients be assured. Education for this practice requires attention to scientific laws and principles with emphasis on skill. It is education which is technically oriented and scientifically founded, but not primarily concerned with evolving theory.

Two-thirds of the registered nurse force should be prepared to practice at the technical level.

Practical Nursing Practice

For over a decade, South Carolina has accepted as one level of practice that of vocational or practical nursing.

The licensed practical nurse gives nursing care under the supervision of the registered nurse or physician to patients in simple nursing situations. In more complex

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[2] National League for Nursing. *Nurses for a Growing Nation.* New York: NLN, 1957, p. 21.

[3] American Nurses' Association. *Position Paper: Educational Preparation for Nurse Practitioners and Assistants to Nurses.* The Association, 1965, p. 7.

situations, the licensed practical nurse functions as an assistant to the registered nurse. The licensed practical nurse will continue to be an integral member of the nursing care team in South Carolina in the immediately foreseeable future.

Assistants to Nurses[4]

In addition to the services of nurse practitioners, people in need of health services require the services of health occupation workers who can function as assistants to nurses. These workers — aides, orderlies, nursing assistants, and others with on-the-job training — have long been employed by nursing services to perform delegated tasks in the care of the sick in the hospital. This will continue to be true. However, health services today are provided in homes as well as in a variety of organized health facilities and all health professions are utilizing the services of these auxiliary workers. Therefore, hospital training courses conducted by nurses no longer are adequate or appropriate for training this group of workers. The functions of workers assisting in the health fields are sufficiently general in nature to be appropriate to many of the health and helping professions. It seems logical, then, that such assistants be prepared in short, intensive, preservice programs in vocational education institutions rather than on-the-job training programs.

Since most of such preservice preparation might be done by others than nurses, workers assigned to nursing services should be given orientation and on-the-job training to perform specific tasks delegated by nurses.

Organization of Nursing Service

One recognized need in providing quality nursing care is a well organized nursing service. There is abundant evidence that the delivery of nursing services can be improved through application of principles of administration and supervision.

A statement of standards for organized nursing services in hospitals, public health agencies, nursing homes, industries and clinics has been prepared by experts in this area and is available from the American Nurses' Association.[5] The statement may be used as a guide for effectively upgrading nursing services in health care facilities.

Quality nursing care depends largely on adequate numbers of qualified personnel. However, utilization of the skills of all personnel for the best delivery of nursing services is not possible without an effectively organized and administered nursing service department.

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[4] Ibid. p. 8-9.
[5] American Nurses' Association. *Standards for Organized Nursing Services*. New York: The Association, 1965, 16pp.

Safeguarding the Patient

When the public purchases a professional service, safeguards must be established to protect the unsuspecting from the dangers of practice by unqualified persons. In nursing, as in most other professions, such safeguards are provided through legal and voluntary controls.

Legal controls are those imposed by the state and administered by the State Board of Nursing, an agency of the state government. Referred to as "The Nurse Practice Act" or "Laws Governing Nursing," these controls consist of statutory laws passed by the State Legislature and regulations established by the Board which, when filed with the Secretary of State, have full force and effect of law. The statutory law of South Carolina provides for licensing qualified candidates and for the suspension or revocation of licenses of persons who violate the nurse practice act. Essentially a good act, it falls short of full protection of the public because it permits but does not require all persons who nurse for hire to be licensed.

Voluntary controls are placed upon the profession by the practitioners themselves. Nurses are responsible individually for adherence to and enforcement of the Code for Professional Nurses. Based upon the fundamental beliefs and concepts of the Nightingale Pledge, the Code is a statement of accepted beliefs, principles, and rules of conduct for the individual nurse.

CHAPTER III

NURSING EDUCATION

Paramount is a consideration and evaluation of available nursing education programs, clinical facilities, faculty and accrediting agents if South Carolina is to continue to provide and improve "quality" nursing care.

Education for Nursing Practice

Programs which propose to prepare practitioners of nursing have a primary obligation to provide their students with the educational background fundamental to their practice as it is legally defined. It is also essential that programs of various types be offered if diverse groups are to be attracted to nursing and be prepared to enter useful and satisfying careers. Practitioners prepared to function at different levels are needed to meet the nursing needs of society.

Individual programs of each type vary in many details but the four types currently available in this state may be briefly differentiated as follows:

- Vocational education or hospital programs in practical nursing leading to a certificate or diploma.
- Junior or community college programs leading to an associate degree.
- Hospital programs leading to a diploma.
- Senior college or university programs leading to a baccalaureate degree.

Graduates of these programs are eligible for examinations for licensure; graduates of the first type as licensed practical nurses, graduates of the last three as registered nurses.

Each type of program has its own distinctive purposes and characteristics, but they all have some in common:

- Each type is complete and satisfactory for its own purpose.
- Each is concerned with optimum development, within the scope of the program, of the potentials of individual students as persons, citizens, and competent practitioners of nursing.
- Each includes, in the due proportion to its scope and purpose, foundations in theoretical learning, and guided practice in skills based on this learning.
- Each includes student learning activities in the nursing care of patients.
- In each, a qualified faculty in nursing, in cooperation with appropriate faculty colleagues, develops, implements, and controls the curriculum within

the framework of standards for the type of program and the policies of the institution offering it.

In each case, the institution offering the program provides for the resources or facilities that are needed for the education, arranging by contract with another institution or agency for any not available in the institution itself.

The new graduate of any of these types of programs is a beginning practitioner who is competent to give nursing care within the scope for which he or she has been prepared. Expertness in nursing, as in any occupation, develops as a result of continued learning through experience and practice.

Baccalaureate Programs. The baccalaureate nursing program is located in an institution of higher education and is usually four academic years in length. As a college or university program, it is financed in the same manner as other college programs—tuition, fees, public and private funds. The curriculum is built upon a base of humanistic, cultural and scientific education and provides the knowledge and skills not only for genuine competence in the practice of nursing, but also the skill for organizing and directing the work of others who provide nursing care. Graduates are prepared to function analytically, humanely and creatively rather than technically. Baccalaureate education also provides a sound basis for graduate study.

Currently, two institutions of higher education in South Carolina—the University of South Carolina, Columbia, and the Medical College of South Carolina, Charleston—offer baccalaureate programs leading to a B.S. in Nursing.

Registered nurses who are graduates of hospital or associate degree programs may also seek a B.S. in Nursing degree through enrollment in a baccalaureate program.

Diploma Programs. The diploma nursing education program is a unique program in that it is not located in a formal education setting but is hospital owned and operated. Financed by the sponsoring hospital in addition to a student's tuition and fees, and hospital carries the brunt of the financial burden and passes the cost on to its paying patients. The program is terminal in nature and is 33-36 months in length. The hospital-oriented curriculum is composed of general education and nursing. Some hospital schools of nursing contract for liberal arts and science courses with institutions of higher learning, giving graduates of these schools some college credit hours.

The graduate of a hospital school of nursing is more technically and less professionally oriented than a graduate of a baccalaureate nursing program. The diploma graduate is prepared for first level nursing positions in hospitals and related health agencies and institutions.

In the last few years South Carolina, like many other states, has been witness to the phasing out of hospital schools of nursing which were for years the main supply of registered nurses. This phenomenon is the result of several societal forces. First, money with accompanying affluence has resulted in more and better education for more people, making a college degree a status symbol. Second, the explosion of knowledge resulted in a need for improving quality of education making the apprenticeship-type of nursing education less and less adequate. Third, the increased cost of nursing education today has resulted in too large a deficit for hospitals to assume.

Currently, Greenville General Hospital, Greenville, and Orangeburg Regional Hospital, Orangeburg, are the only two hospital schools admitting students. Five others have some students enrolled but are presently phasing out; two in 1967, two in 1968 and one in 1969.

Associate Degree Programs. The associate degree program is found within the framework of higher education; that is in a junior college, a senior college or a university. It is terminal in nature and is usually two academic years and one summer session in length. It is financed similarly to other college programs. The curriculum is divided equally between general education and nursing subjects. The graduate of this program is prepared to give direct nursing care to the individual patient, utilize opportunities to teach principles of optimum health, communicate with members of the health team and direct the activities of auxiliary personnel.

Started in 1952 as a research project, associate degree nursing programs have grown rapidly in the last several years and now number more than 200 across the nation. The first such program in South Carolina was opened at Lander College in 1957. Currently, associate degree programs in nursing are offered by Lander College at Greenwood, Clemson University at Clemson, and the University of South Carolina at Columbia, Florence, Lancaster, Conway, Aiken and Spartanburg.

Practical Nursing Programs. Practical nursing programs are found both in the vocational education and hospital settings and, in South Carolina, are 12 months in length. If it is hospital controlled, the program is financed by the sponsoring hospital; when located in a vocational education setting, it is financed mainly by State and Federal funds. The curriculum is composed of fundamentals of nursing, principles of related sciences, communication skills and family living.

The graduate of the practical nursing program is prepared to function: first, under the supervision of a registered nurse or a physician, to give nursing care to patients in situations relatively free of scientific complexity; second, in a close relationship to assist the registered nurse in giving nursing care to patients in more complex situations.

South Carolina has 18 schools of practical nursing of which about three-fourths are located in the Vocational Education Division of the State Department of Education.

Graduate Programs in Nursing

Graduate education in nursing is usually concerned with the master's degree programs although there are a few doctoral nursing programs. The accepted pattern for graduate work in nursing provides for study in depth based upon an undergraduate major in nursing.

The objectives for programs of nursing leading to a master's degree are: To develop increasingly high level of competence in a field of clinical nursing (for example, medical nursing, psychiatric nursing, public health nursing); to develop a comprehensive and creative understanding of the theory relevant to a specialized function (for example, administration, teaching, consultation) and competency in the practice of this function; to develop an inquiring attitude toward and a scholarly grasp of the content of the central subject matter and the problematic features of its progress; to develop a high degree of understanding and a practical command of the skills that are necessary for communication with patients, professional and academic colleagues, and community members; and to develop an attitude of responsibility for assuming a place in the forefront of the nursing profession and for utilizing one's abilities for the advancement of the objectives of the profession.

At present, South Carolina has no graduate program in nursing, although this is the program from which clinical experts, teachers and nursing administrators come.

Continuing Education Programs

Continuing education is a prime function of employers in our society today. No pre service educational program can prepare personnel wh. can function at maximum effectiveness without it. A hospital or other health agency regardless of size or specialized nature, has the responsibility of staff development as a means of improving its service and helping personnel to find satisfaction in knowing their jobs and understanding how they contribute to the total operation. Health agencies must engage in orientation for all employees and on-the-job training when it is necessary to hire untrained workers or when staff are promoted to new positions without formal preparation.

Continuing education for practicing nurses is also a concern and responsibility of the nursing profession. Because of need and interest, various short-term courses are offered by universities with the intent of providing opportunities for nurses to increase their clinical knowl-

edge, skills, and understanding and to help them become better prepared for the positions they hold or aspire to. Often, short-term traineeship grants are available to cover the cost of tuition and fees as well as an allowance for daily living costs when a change of address is necessary to take the course. The School of Nursing at the University of South Carolina frequently offers such short-term courses.

Another continuing education program available to selected administrative nursing personnel in South Carolina began in the spring of 1965 and is sponsored jointly by the South Carolina Hospital Association, the South Carolina League for Nursing and the South Carolina Nurses' Association. Administered for the three organizations by the South Carolina Nurses' Association, the program's purpose is to improve nursing administrative practices on the assumption that such improvement will result in improved patient care. The program, now in its third year of operation, enrolled nearly 300 nursing service administrative personnel from 21 hospitals whose clinical facilities are used as practice fields for nursing students. Federal funds provide short-term traineeship grants for enrollees.

In addition to health agency, university, or organization-planned continuing education, the individual practitioner has an imperative obligation for keeping up to date and informed through reading, attending discussions and debates, and enrolling in short-term courses and conferences with the intent of ensuring to patients the best care possible at any given moment.

Refresher Courses for Nurses

Figures given in Chapter I indicate that many nurses in South Carolina hold a current valid license to practice but are not, in fact, employed in the practice of nursing. Some reasons for this pool of unemployed nurses are their responsibilities as wives and mothers, the shortage of high quality child care facilities, and the inadequate salaries and unsatisfactory working conditions available. Still another reason is that there are many women who have been out of active practice and hesitate to return without taking a course to refresh and update them in requisite knowledge and skills.

Refresher programs have been offered periodically by hospitals and by district nurses' associations. Late in 1966, a national program was initiated to provide refresher programs in an attempt to return to active practice at least 10 percent of the inactive nurse pool. With a grant from the U.S. Department of Labor, the American Nurses' Association has begun a project to provide guidelines to the several states involved in a program sponsored jointly by the American Nurses' Association, the Department of Health, Education and Welfare, and the Department of Labor.

South Carolina has approval for a program to refresh 105 registered nurses in 1967. Through this program, registered nurses who apply to the State Employment Service may be enrolled for a six-week refresher course planned to prepare them for return to active practice. Funds for the program are provided through the Manpower Development and Training Act and cover cost of tuition and some head-of-household expenses for qualified candidates.

A nurse to coordinate activities aimed at returning inactive health professionals to active practice is provided through funds made available by the Public Health Service to the South Carolina Hospital Association.

Faculty

Basic to the provision of any educational program, regardless of level, is the provision of adequate numbers of qualified teachers. Nurse faculty members should have master's preparation in teaching with special knowledge and skills in at least one field of clinical nursing practice. It is expected that nurse faculty will have qualifications and academic preparation comparable to that of other college or university faculty members.

Of the 133 nurse faculty members employed by 11 schools of nursing in South Carolina during the 1964-1965 school year, only 85 or 64% held baccalaureate or higher degrees. Of these 85, 22 or 26% were employed in the one baccalaureate program and 63 or 74% were employed in diploma or associate degree programs. In 1963 by comparison, of the 105 faculty members in 13 schools of nursing, only 67 or 64% held a baccalaureate or higher degree. Of these 67, 15 or 22% were employed in the one baccalaureate program and 52 or 78% were employed in all other schools.[1] These figures suggest that, while faculty numbers rise, the percentage of qualified faculty remains constant.

Forward moving plans must be made for the preparation of qualified teachers of nursing. To meet this pressing need, at least 20 active nurses with master's degrees should be added to the nurse population annually. Since persons going out of state for graduate education frequently accept out-of-state positions after graduation, at least one program of graduate education for nursing seems essential if this state is to meet its dire need for qualified nurse faculty.

Accreditation of Nursing Programs

Accreditation of schools has been looked upon as this country's approach to insisting that standards be set and adhered to by health agencies and educational institutions. In keeping with its responsibility for police power, the state sets certain minimum requirements. Beyond these, there are the regional accrediting bodies

[1] Source: State Board of Nursing for South Carolina.

for educational institutions and national accrediting bodies for both schools and health agencies. It is expected that schools and clinical facilities involved with education for nursing will be accredited by the appropriate accrediting bodies.

The legal accrediting body for this state's educational programs in nursing is the State Board of Nursing for South Carolina. Accreditation by this body (or approval to begin a new program) is essential for the operation of an educational program in nursing. It is the duty of this agency to see that minimum standards required by law are maintained and to warn or withdraw accreditation from programs that do not meet prescribed standards.

Voluntary accreditation for nursing is available from the National League for Nursing, the natior accrediting body for nursing. While such accreditation is not required in order to operate a school of nursing, it is a mark of excellence and raises the standing of the educational program locally as well as nationally.

Community Planning for Nursing Education

In recognition of the many changes taking place in the health field and the need for appropriate education for nursing personnel to meet present and future requirements, both in quantity and quality of nursing services, sound planning for nursing education is essential. In South Carolina, attention of the governor and the state legislature as well as health agencies and educational institutions has been focused in recent years on nursing. Change has, thereby, been partially controlled and directed.

Nursing cannot altogether separate itself out from among the other health professions and occupations. It must, however, concern itself with seeing that the best possible nursing care is available. And this will require increasing numbers of nursing personnel with quality preparation to meet the changing health care needs of the community and to fill the needs of institutions and agencies providing nursing services.

Planning for nursing education is desirable both to prevent needless duplication of effort and as a basis for pooling of resources. Today when major changes are taking place in the type and placement of nursing education programs, it cannot be left to chance that the right number of nurses with the appropriate level of education can or will be produced in South Carolina. Educational, health, and welfare authorities, professional and volunteer groups in the health field and community planning bodies must plan and work cooperatively with nursing to ensure an adequate nursing supply. And this planning should be done on a statewide basis as well as in the local communities of this state.

Decisions about types of nursing education programs to be retained, revised, or newly developed must take into account some very basic questions: What are the nursing care needs of the community? What kinds of nursing personnel are required to meet these needs? What are the physical resources now available or planned in the community for educating nursing personnel? What junior and senior colleges, universities and clinical laboratory facilities are available for educational excellence? Are qualified faculty available? What financial resources are available which can be utilized for nursing education? How can available resources be channeled into a new design of education for nursing personnel to meet the current and anticipated needs of the community?

With the far-reaching changes in patterns of the provision of health care services currently being implemented or on the horizon in South Carolina, there is no choice. Nurses, along with others, must study and plan for meeting the health care needs of the people of this state. Only through such study and planning is it possible to assure that nurses will be prepared in accordance with the needs of society and to assure the most effective use of available resources.

RECOMMENDATIONS

The Current and Long-Term Goals Committee believes that ways must be found to increase both the quality and quantity of nursing services available to people in South Carolina. The Committee, therefore, recommends that the South Carolina Nurses' Association:

1. Acknowledge progress that has been made through establishment of associate degree nursing programs at the University of South Carolina and Clemson University and the baccalaureate program through the School of Nursing at the Medical College of South Carolina.
2. Press for a baccalaureate program in nursing to be located in the Piedmont area, preferably at Clemson, a state university.
3. Continue strong support for a graduate program in nursing at the University of South Carolina in order to provide faculty for nursing programs.
4. Encourage better utilization of the nursing manpower available through staff development programs, assignment of personnel according to ability and the use of progressive care systems.
5. Continue efforts to improve nurses salaries and working conditions in order to recruit and retain qualified practitioners.
6. Cooperate with appropriate agencies to provide refresher courses with the intent of returning inactive nurses to the work force.
7. Plan for a state-wide recruitment program to encourage qualified men and women into the nursing programs best suited to their goals and abilities.
8. Join with other appropriate groups to sponsor a state-wide study of health care needs and resources with planning for a patient care system that more nearly meets patients needs than the system now in operation.
9. Encourage community planning for nursing education.
10. Insist on passage of a law that provides protection for the public through requiring all who nurse for compensation to be licensed.
11. Encourage wider use of the Code for Professional Nurses as an individual set of standards by which to live and practice nursing.
12. Support an indepth study of nursing needs and resources.

Approved by SCNA Board of Directors
April 8, 1967

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Designed to assist instructors and prospective instructors to build and use tests that will measure student attainment of nursing abilities, the booklet is organized into five major sections. The introduction discusses some uses of evaluation tools, facets of evaluation of student achievement, standardized versus teacher-made tests, and the choice of methods for evaluation of student achievement. "Constructing Test Items" considers essay and objective tests which are discussed in terms of general guides; completion, true-false, multiple choice, combination-response, analogy, and matching items; special options; and nonverbal material. "Constructing Teacher-Made Tests" discusses developing a blueprint, constructing items based on the blueprint, validity and reliability, assembling the test, scheduling and administering the test, and scoring objective tests. "Analyzing and Interpreting Test Data" covers item analysis and analysis and interpretation of test scores. "Using Teacher-Made Tests" discusses integrated tests, pretests and diagnostic tests, test difficulty levels, grading, and purposes other than measurement in the use of tests. (JK)

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PAMPHLET NUMBER 5

THE USE OF TESTS IN SCHOOLS OF NURSING

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The Construction and Use of Teacher-Made Tests

SECOND EDITION

NATIONAL LEAGUE FOR NURSING

1965

THE USE OF TESTS IN SCHOOLS OF NURSING

Pamphlet No. 1

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THE USE OF TESTS IN SCHOOLS OF NURSING

The Construction and Use of Teacher-Made Tests

Pamphlet No. 5

Prepared by

Mary R. Shields

Second Edition

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Foreword

This manual is designed to assist instructors in schools of nursing to build and use tests that will measure their students' attainment of nursing abilities that are measurable by written tests. It may also be useful to students who are preparing for positions in nursing education and to teachers in other fields. The manual is not intended to cover the entire field of evaluation, nor is it intended as a statistical text. The section on analysis of test data is confined to those concepts that the Test Services of the National League for Nursing are most frequently called upon to explain.

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Introduction

In identifying the abilities that are prerequisite to graduation from an educational program, the faculty makes a judgment about the needs of society and the student. The objectives, the content, and the organization of an educational program reflect the faculty's interpretation of these needs. When students are graduated to go out to exercise their abilities in human society, the school has passed judgment on their competence. Ultimately, the school's decisions are evaluated by society, but the school, as an agency with a social conscience, is also concerned with self-evaluation. The recurring issue for any faculty is whether or not the school is turning out graduates with the required abilities. This issue presents the faculty with two major problems: (1) Are the abilities established as prerequisites for graduation those that will best meet society's and the student's needs? and (2) Have the students attained the requisite level of achievement? It is the responsibility of every faculty to develop a program of evaluation that will provide the answers to these questions.

Evaluation of a school's over-all aims generally arises out of philosophical insights and is based on evidence relative to human needs and resources. It involves comparisons with the goals of similar educational institutions and at best, reflects some of the leading thinking of the day from a variety of fields that affect human well-being, including the political, economic, and spiritual realms. Although faculty participation in this phase of educational evaluation is extremely important, it is not the subject of this pamphlet. We are concerned here with the second problem: Are the students attaining the desired level of achievement? It is here that data from devices for measuring student attainment, including tests, are especially useful.

Some Uses of Evaluation Tools in Schools

As teachers know, the job of assigning course grades is only one aspect of a teacher's concern with the problem of evaluation. Teachers evaluate the curriculum in its broadest sense, the total learning milieu; that is, they not only measure student achievement but also appraise the effectiveness of their methods of instruction and of different educational settings. To

base their evaluations of the learning milieu on evidence more tangible than personal opinion, teachers use tests and other data-gathering devices. An educational test may be thought of as a device consisting of a series of questions or exercises designed to measure aptitudes, capacities, or achievement. The emphasis in this manual is primarily upon written achievement tests.

What kind of evidence is provided by tests and other evaluation tools used in schools? What is their basic utility? If the fundamental goal of an educational program is to effect a change in its students (in a direction dictated by the needs of society) by enabling the students to react to various learning experiences, then evaluating the educational program depends upon measuring the change. This change has been labeled student achievement. When unassisted, a teacher's appraisal of student achievement tends to be based on gross and subjective sensory impressions. (For example, an attractive, friendly, and somewhat glib student may be thought to have more understanding of a subject than she really has.) Evaluation devices, including tests, are developed for the purpose of obtaining more objective evaluations of student performance.

To what use may teachers put this more objective, more discriminating knowledge of student growth? The data, of course, can be used to compare the levels of achievement of an individual student at various stages in her program and also to compare her achievement with that of others in her group or with some absolute standard. The data may also be used to compare the achievement of a group of students with that of another group or groups. However, not only the attainment of the students but also the effectiveness of the other two major components of the learning milieu—the teacher and the course of study—may be assessed by using evaluation data.

In formal reasearch, each component may be appraised by maintaining "control" over the remaining two. For example, the adequacy of the content of a particular course may be evaluated by comparing the performance of students in that course with the performance of students in similar courses throughout the country. Comparisons of this kind presuppose students of equal potential, teachers of equal competence, and educational settings that provide equal opportunities for learning. Similarly, to determine whether one method of instruction is superior to another, two equally able teachers would use two different methods of instruction to help two equally able groups of students to learn the same content. If an evaluation device such as an achievement test is then administered to both groups, differences in student growth may be regarded as reflecting differences in methods of instruction. Of course, conclusions based on such data

must necessarily be limited to those abilities measured by the tool. Carefully controlled experimentation of this kind is more easily described than done. But whether or not such research is possible in an individual school, teachers learn to use a variety of means to evaluate the curriculum and student attainment.

Facets of Evaluation of Student Achievement

The teacher in nursing must, of course, evaluate behavior—observable behavior in the broad sense, including all actions, such as dressing a wound or answering a toddler's question, and within these actions evaluate a host of factors, such as dexterity, gentleness of touch, tone of voice, and quality of silence. Behavior, in the sense in which it concerns the teacher, may be thought of as the complex product of a number of reactants, among which are understanding, emotion, and motor-sensory aspects.

Tools for the evaluation of clinical performance, such as rating scales, generally deal with behavior involving all three of these realms (cognitive, affective, and motor-sensory). When we say, for example, "The nurse should be observant," the observation of which we speak is not a discrete ability, but a behavior. Observation in this sense requires, of course, the physical processes of seeing and hearing and, perhaps, touching and smelling. The affective realm is involved also: attitudes that determine what one is willing to pay attention to, feelings about values, emotion that may help or may hinder the acuity of the observation. Observation involves, too, some aspects of cognition; even when we attempt to minimize the cognitive aspects, observation involves, at the very least, some identification by the observer of that which is observed, a decision as to whether the phenomenon is the same as or different from those she has observed previously or elsewhere, and the formulation of some simple idea about the phenomenon. In the evaluation of clinical performance, where the teacher sets out to observe the student who is observing the patient, what complexity is involved!

Since our only reasonable clues as to what another human being *is* are in terms of his behavior in the broad sense, the emphasis on evaluation of behavior in professional education is certainly warranted. The behavior of the product is, after all, the proof of the educational pudding. But evaluation of behaviors of nursing students is expensive, much of it demanding that teacher and student be in a one-to-one relationship for long periods of time. Such evaluation tends also to be unreliable, because the behaviors

under observation are complex and variable, the rater herself is a constantly changing person, and tools used as guides for rating are often clumsy and sometimes misleading. In addition, when the teacher has decided that the behavior evidenced by a student is inadequate (in terms of educational goals) she may have little evidence as to whether the impediment or defect lies mostly in intellectual understanding or in emotion or in the motor-sensory realm. And if all of these are involved in the impediment or defect, which aspect is mostly cause and which ones are mostly effect? Economy of human and material resources in teaching demands the garnering of available information on the components of behavior, to supplement information on behavior itself.

The component (or reactant) of behavior that can most easily be gotten at is the area of cognition, and a large part of formal evaluation of nursing student attainment pertains to that realm—that is, to the measurement of knowledge, understanding, judgment, application, and (to some extent, let us hope) ingenuity and intellectual creativity. It is in this realm that achievement tests, both standardized and teacher-made, are especially useful.

There is no intent to deny here the fact that physical and emotional factors can color a student's responses to a paper-and-pencil achievement test; nevertheless, the test deals more directly and purely with the cognitive aspects than do most other measurement devices used in nursing education.

Standardized vs. Teacher-Made Tests

Teachers use tests for two different purposes—to discriminate among students exposed to different learning milieus, and to evaluate students exposed to the same learning milieu. Standardized tests are especially useful for the first purpose, although they may be partially effective for the second purpose. Teacher-made tests are generally constructed specifically for the second purpose.

A teacher is primarily concerned with the degree to which her students achieve the objectives of the course she is teaching, but she is also interested in knowing how well her students compare with students who are enrolled in similar courses elsewhere. When educators wish to compare students in different classes and different schools, they require tests that will evaluate in terms of a common core of achievement—that is, tests that do not favor the unique curricular emphases of any instructor, school, or region. Now, just as it is true that the only person completely equipped to construct a test to reflect the objectives of a particular course

is the course instructor, so is it true that no individual teacher or faculty is likely to construct a test that will represent fairly the emphases of teachers throughout the country. Because the construction of standardized tests requires time, funds, and specialized knowledge, faculties usually entrust the construction of such tests to agencies equipped to build them.

The special utility of standardized achievement tests stems from the fact that they can be constructed in terms of nationally representative educational objectives. They are constructed to measure the common core of achievement in the cognitive realm. Such a test, standardized on the basis of a representative group of examinees, yields a score that makes it possible to compare a student's performance with the performance of students throughout the nation. Standardized tests, therefore, can be used to compare the performance of students in one school with the performance of students in other schools. Thus, faculties may get clues as to the effectiveness of various learning milieus. Interpretations must be made with caution, for the students are compared only with regard to commonly accepted objectives and not with regard to the special emphases of the particular teacher or school.

Every teacher is aware of the fact that selection procedures rather than the curriculum may be responsible for the performance of students on achievement tests. A school might conceivably have better students, not better teachers or more meaningful objectives. On the other hand, a school may have students of such low potential that the finest educational program would not help them to achieve the national average level of performance. For this reason, when comparing the merits of schools in terms of the performance of students, attention should always be given to what the student has brought to the school—that is, the selection data. These facts do not mean that achievement tests are relatively less important, but rather that adequate selection devices are also highly important. It is evident, too, that important educational decisions should be based, not on isolated facts, but on data gathered from an integrated program of evaluation.

While the special worth of a standardized achievement test is derived from its ability to measure the student's attainment of widely accepted objectives, the particular merit of a teacher-made test stems from its capacity to reflect the teacher's own curricular emphases. The teacher-made test can appraise student growth in terms of the teacher's particular educational objectives, which, of course, take into consideration the student's own objectives. Many of the teacher's objectives may be the same as those upon which standardized tests are based, but it is unlikely that they will all be identical.

Because of its direct relationship to the objectives of a specific course, a teacher-made test can be used as a partial basis for determining a student's achievement in that course. This is to say that, in conjunction with other evaluative devices such as interviews, student self-evaluation records, nursing care studies, and special assignments, a teacher-made test can be utilized in the determining of student grades. Moreover, a teacher-made test can be used as a teaching aid that reflects to the student the teacher's course emphases and as a diagnostic tool that reports to the teacher those aspects of the course with which students are having the most difficulty. These uses are considered more fully in a later section of this manual.

In summary, then, it can be stated that the well-constructed, nationally standardized achievement test can evaluate student attainment of widely accepted educational objectives and hence provide a method for the evaluation of a school's curriculum, whereas the well-constructed teacher-made test helps to evaluate student attainment of a school's own objectives, which may be similar to, but which are not likely to be identical with, nationally accepted objectives.

Choosing Methods for Evaluation of Student Achievement

Teachers constantly must make decisions as to what evaluation methods will best measure different aspects of student growth. To make the problem of choice of evaluation methods clearer, let us first consider briefly the basis for an instructor's choice of teaching methods.

The instructor has the responsibility of choosing from among many different teaching methods those that will most effectively and efficiently attain the objectives of the course. It is obvious that the large-group-in-a-classroom situation is the most economical with respect to teaching time. Teachers would agree that some objectives in nursing education may be attained very well in such large classroom groups, while some objectives call for the use of small groups with increased individual student participation, and others require that the individual student and teacher think and work together in planning for and with a patient. The last kind of teaching is by far the most expensive in terms of the instructor's time, but teachers would agree that it is essential for the attainment of some of the most important objectives of nursing education. The instructor who is responsible for a course decides what objectives can be attained effectively only by using the expensive one-to-one student-

teacher ratio, what objectives seem to require that students learn in small groups, and what objectives can be attained just as well in large classroom groups. Such an analysis is basic in course-planning.

The same kind of analysis is necessary for the thoughtful planning of the evaluation of student achievement. The evaluation of attainment of some objectives requires the instructor to work with and observe the individual student while she is caring for a patient in a nursing situation. Evaluation of some other aspects of student growth may require the use of the personal interview. In terms of the teacher's time these may be the most expensive kinds of evaluation. In order to assess the attainment of some other objectives such as social poise, speaking ability, and the ability to get along with co-workers, personal observation of students, in small or large groups, is probably the only means of evaluation. There are, however, many objectives pertaining chiefly to the cognitive realm (knowledge, understanding, et cetera) that can be tested just as well by group paper-and-pencil tests, and since this is the most economical means of appraising student growth, such tests should be employed whenever feasible. This manual is concerned specifically with the improvement of teacher-made paper-and-pencil tests.

The first step in developing a plan for the evaluation of student achievement in a course or a unit of instruction is to make an outline, or "blueprint," of measurable abilities and course content. The development of such a blueprint, however, requires knowledge of the kinds of test questions and techniques of construction. The technical aspects of item construction, therefore, are presented next, and the development of the blueprint is described later. It must be understood that the following section deals primarily with the mechanics of individual test items, not with their value in measuring the attainment of objectives.

Constructing Test Items

Teacher-made paper-and-pencil tests may be classified into two types—the essay test and the objective test. Good tests of both kinds are useful to the teacher in measuring achievement.

The Essay Test

In an essay examination, the student is presented with a few questions to which she must formulate her own answers. The student receives credit to the extent that her answer satisfies the instructor's criteria for accuracy and completeness. Answering an essay question always involves the student's recalling something and presenting the answer in writing. It frequently involves, also, the organization of knowledge and the making of judgments. It may involve, if constructed to do so, a probing of the depths of the student's understanding or of aspects of her practical ingenuity and creativity.

The essay test is a suitable tool for evaluating the student's ability to communicate in writing. If, however, the essay test is being used for some other purpose, the communication-ability factor may be a contaminating one. Students who write well may sometimes be able to "bluff" in an essay test. It is difficult for a teacher to remain uninfluenced by such factors as vocabulary, sentence structure, and spelling—not to mention handwriting! Obviously, it is important for the teacher to decide what she wants to test with an essay question, to construct the question accordingly, and to score as objectively as possible on the basis of her decision.

Answering an essay question generally takes a considerable amount of the student's time, so that only a few questions can be used in most essay tests. This may result in a narrow sampling of the student's knowledge; a narrow, deep "wedge" is obtained rather than the broad sampling obtainable with objective tests. Essay and objective tests, therefore, complement each other.

Because the essay examination includes only a few questions, it generally takes a shorter time to prepare than does an objective test. It must be remembered, however, that *good* essay questions cannot be formulated hastily and also that since the scoring is time-consuming, any time

saved in the preparation by using an essay test will be lost in the scoring unless the class is quite small.

It is sometimes stated as an advantage of essay tests that they can be written on the blackboard and do not require special reproducing equipment. Few blackboards, however, are large enough for a series of well-constructed essay questions unless the questions are at a very simple level. With the increased use of classroom projectors in presenting short tests of either the essay or the objective type, this point becomes less important.

Whatever other limitations essay examinations have, the major difficulties are in scoring. Difficulties of scoring arise from the fact that students produce answers of varying degrees of completeness and accuracy. Teachers must often make distinctions among very subtle differences. For this reason, grading is likely to be wearisome and is almost certain to be somewhat subjective and unreliable. Other equally expert teachers would be likely to give the same papers quite different scores. Unless the teacher is aware of the many variables that can affect the score the student is given, the value of the essay examination is seriously limited.

The advantages and disadvantages of essay examinations, therefore, may be summarized as follows:

Advantages

1. Take a comparatively short time to prepare.
2. Test the ability to select, organize, and communicate facts and concepts in writing.
3. May probe depths of student knowledge; may test ingenuity.

Disadvantages

1. Take a long time to score.
2. Only a narrow sampling of knowledge may be tested.
3. Scoring is unreliable.

There are ways by which the instructor may overcome some of the scoring difficulties. The first step is to write essay questions that do not permit the student too wide a range of interpretation. In a very real sense, if the essay question is too vague, students will be reacting to different tests; evaluation of student achievement, therefore, will not be based on a common yardstick. For the same reason, it is usually inadvisable to permit students to select the questions they will answer. Although students may like choosing "six questions out of ten," the technique results in a comparison of students on different yardsticks of achievement.

Essay questions may be thought of as lying on a continuum of generality to specificity; the more specific or structured the question, the less its ambiguity. Because the student's opportunity for interpretation is directly related to the ambiguity of the question, a teacher must decide on how general or how specific the examination will be. This is, of course, a problem, for if a question is too specific, it loses its major value of appraising a student's ability to select and organize information, and if it is very general, it permits too much opportunity for interpretation. Somewhere between the too general and the too specific is the desirable location. But the exact point depends on the teacher's purposes, as shown in the following example of an essay question of the "situation" type:

> One day when you are visiting a friend's home, a woman neighbor whom you do not know comes to the door and says, "I heard you were a nurse. We need help. Will you come with me?" You go immediately with the woman to a near-by house, questioning her on the way but getting little information other than that her name is Marion Thompson and that her sister Gladys is bleeding badly. On entering the house, you find the sister in bed, pale and weak and obviously terrified. She whispers over and over, "I'm going to die." You discover that she is bleeding severely from the vagina and has passed large clots and fragments of membrane. You ask, "Have you called your doctor or the hospital?" Marion Thompson, much upset, answers, "No, we don't want a doctor. Don't call anyone. It would get in the newspaper. And she's not married."
>
> (Explain in detail your course of action and the reasons for it.)

There is real justification for the use of an essay question to measure achievement related to the problems involved in this situation. A complete answer will undoubtedly require the student to integrate knowledge from a number of courses. Is it a "fair" question? That, of course, depends on the directions given to the students and the expectations of the teacher. If this question is used for a professional adjustments course for senior students, and if the teacher wants a complete answer to the question, it might be better to preface the question, or the whole test, with directions such as this:

> In answering (this) (these) questions, draw upon all of your nursing knowledge, including clinical knowledge, and not just the understandings gained in this course.

Otherwise, the student who responds primarily in terms of the subject matter learned in the professional adjustments course might complain that it was a "catch" question. Whether such a complaint would be justified is, of course, for the teacher to decide.

A difficulty in scoring essay questions is that students answer with

different degrees of specificity. The instructor probably would wish to guard against such generalizations as "reassure the patient" or "explain the reasons for my actions." If so, it would be well to include in the directions a statement such as this:

Use direct quotations to show exactly what you would say to the sisters.

Even with this additional direction, is the question specific enough? One way to find out is for the teacher to make careful preparations for scoring the test papers *before* the test is given, and even before the question is finally decided upon. Such preparation is necessary for reliable scoring; it may also help to point out defects in the question. The preparation involves the teacher's preparing a complete, detailed, written answer to the question—an ideal answer from the teacher's point of view.

For this essay question, the teacher's analysis might include such points as immediate physical measures for the sick woman, responses to her emotional needs, the nurse's legal responsibilities, the nurse's ethical responsibilities, and so on. Under each heading the teacher might write guide questions for her own use such as: Did the student mention shock position for Gladys Thompson? Did she respond helpfully to Gladys' fear? Did she recognize the obligation to obtain medical aid immediately? Each aspect of the analysis might then be weighted. By weighting is meant assigning a specific numerical value for each of the aspects according to its importance. The numerical points will add up to the total point value of the question. (Students should be informed of the total point value of each essay question in order that they may allot their time wisely in answering.)

Should the instructor make this essay question more specific for the students? Certainly the intent of the question would be clearer and the scoring would be far easier if the nursing situation described were accompanied by directions such as the following:

Explain your course of action and the reason for it.
Consider especially

a. the physical care of Gladys Thompson.
b. how you would respond to her emotional needs. [Use direct discourse (quotations).]
c. your legal responsibility to her.
d. the implications for your own professional status.
et cetera.

It is evident that while the preceding analysis will make the question clearer to the students, it gives them many cues and therefore has less power to test their ability to integrate and organize knowledge.

It must be emphasized that these directions are not suggested as the

"right" way to present this essay question. The "right" way depends entirely upon what the teacher is trying to get at in asking the question. The outline might have been broken down into detailed questions, each requiring only one or two sentences for a complete answer. In this way the pure essay question is changed into a series of short-answer questions and scoring is made easier, but the question's power to test the ability to select, organize, and communicate knowledge is almost completely lost by providing such cues. The teacher must make the decision as to how specific the question should be in terms of the objectives to be tested.

Suppose that the teacher words an essay question in the following manner:

Discuss the nursing care of Billy Holmes, a 4-year-old with severe burns.

This question is much too broad and vague to be useful. The student faced with it may be in a complete quandary, asking herself such questions as these: Am I to consider all aspects of nursing care from the initial treatment through the care needed after Billy is discharged? Am I to discuss those aspects of care which are true for all severely burned patients, or only those which are different for a child? What is Billy like? Should I discuss the details of preparation of equipment? What are the medical orders? Where are the burns located? Am I only to describe the care or to give reasons for it as well?

The instructor will find it advisable to make the description of the situation and the directions explicit, so that these points will be clear. She may wish to confine the question to a particular stage or a particular aspect of Billy's illness. It may be helpful to have the students prepare their answers in two columns, one for the nursing care that is individualized for 4-year-old Billy and one for the aspects that would be true for most burned patients. Or, if a different approach is being used, the students may be asked to list points of nursing care in one column, the immediate reasons in a second column, and the underlying scientific principles (stated from the physical, biological, or social sciences) in a third column. Or the instructor may decide to divide the question into a series of short questions, thereby providing more cues for the students and decreasing the question's power to test the ability to organize information. The "best" way to state the question will depend on the teacher's purpose in asking it. As was stated in regard to the previous essay question, the teacher will need to prepare an ideal answer and weight the various aspects as an aid in scoring.

Here is another essay question:

Give an example of the psychological mechanism "reaction formation."

Answers to this question would be very difficult to score objectively. Inevitably, some students would give very specific and detailed examples while others would give general examples, hardly more than a definition of the term. What does the teacher really want to test in asking this question? Apparently, more than a definition is desired. Perhaps the teacher wants to find out if the student can recall a use of the mechanism of reaction formation in a life situation. If so, the wording should make this clear. Will examples relating to mental illness be as acceptable to the teacher as examples relating to ordinary life situations? If not, this, too, should be clarified. If the question is being used in psychiatric nursing, the instructor might find it helpful to use the following modification:

> Describe two actual situations that are likely to have involved the use of the mechanism "reaction formation." The first situation is to be drawn from ordinary life; the second is to be one in which a psychotic patient appears to have used the mechanism.

(This question has teaching value in addition to its value in measurement. It reinforces the student's understanding of normal and abnormal behavior as occurring on a continuum. The instructor will balance such an advantage against the possible disadvantage, inherent in all questions of this nature, of requiring the student to label, or "pigeonhole," the behavior of others.)

Even when the directions state clearly that an actual situation is to be described, there will be many pitfalls in scoring such a question. The student may not describe the behavior or the probable motives in sufficient detail, or she may not make it clear which person in the situation is manifesting the reaction formation. Or the student may describe a situation in which more than one defense mechanism is apparently involved. Does she know which aspect exemplifies reaction formation? The directions may be improved by adding statements such as the following:

> Be explicit as to which person seems to you to have demonstrated this mechanism in his behavior, and how. State the probable motives and impulses, and describe the behavior that leads you to believe that these motives and impulses were working. Underline the words that exemplify the use of the mechanism.

Obviously, the teacher cannot prepare an ideal answer to this essay question, since each student will be writing about a different situation. It is possible, however, for the teacher to prepare some guiding questions to use as a basis for scoring. The following are examples.

> Does the student make it clear that the behavior involved an unconscious, repressed, underlying motive?
>
> Is a disguised impulse apparent?

Is the described behavior clearly the opposite of that likely to have been originally associated with the impulse?

Is some insecurity manifest—a "razor's-edge balance"—in the behavior? (For example, sarcasm creeping into the courteous, social-amenity-conscious behavior of a person who is apparently reacting against his repressed hostile feelings.)

Is the behavior described as being a part of the regular pattern of the person concerned, rather than as being an isolated incident?

Such a scoring guide, along with explicit and carefully worded directions, will help to increase objectivity in scoring.

In evaluating the achievement of students at an advanced level, it is sometimes useful to present an essay question in objective-type format, that is, to present a problem situation along with several possible actions or interpretations, and to ask the student to write an evaluation of each of the actions or interpretations. Here, for example, is such an essay question based on three objective items from a psychiatric setting.

Mr. Hardy, forty years old, is admitted because of behavior based on the idea that the "Martians" are after him. He believes that "the band is closing in" on him. The nurse, approaching him, finds him quiet and surly, sitting in a corner with his back to the wall. At this point, an elderly patient, Mr. Sims, who has a chronic brain syndrome associated with arteriosclerosis, approaches Mr. Hardy for the first time. Mr. Hardy gets up in agitation and points to Mr. Sims, shouting, "That's one of them. He's got a gun in his pocket." Mr. Sims looks on uncomprehendingly but a bit fearfully.

Here are some possible things the nurse might say and do. Read them and follow the directions. Your score will be based on the evidence you give of understanding the principles involved.

1. Say to Mr. Hardy immediately:
   a. Let's ask Mr. Sims to show us what he has in his pockets.
   b. You think this is true, I know, but you are wrong.
   c. Mr. Sims is a patient here. I'm sure he doesn't have a gun.
   d. Would you like to tell me more about why you feel that Mr. Sims wants to harm you?

DIRECTIONS

Select the response that you think would be best, and state exactly why—that is, state the principle on which the response is based. If you believe that this response is imperfect, criticize it and formulate a better one, stating why you believe the one you have developed is better. Then, for each of the three options you believe are less preferable, state the principle upon which you reject it.

2. Say to Mr. Sims (who is capable of understanding any of the following comments or questions):
   a. Hello, Mr. Sims. Would you like to tell us why you came over here?
   b. Mr. Hardy thinks you're someone else, Mr. Sims. It would be better for you to leave us alone now.
   c. Mr. Hardy won't be afraid of you when he gets to know you. Come and shake hands, Mr. Sims.
   d. Go away please, Mr. Sims. I'll see you later.

DIRECTIONS

Same as for item 1.

3. Do next, after the initial responses:
   a. Take Mr. Hardy for a walk.
   b. Encourage Mr. Hardy to join a group activity.
   c. Leave Mr. Hardy alone for a period until he is calmer.
   d. Get Mr. Hardy and Mr. Sims into conversation with each other.

DIRECTIONS

Same as for item 1.

As decribed for the other essay questions, the teacher will prepare for weighting and scoring by writing her own answers to each aspect.

Even at best, some subjectivity is inevitable in scoring essay questions. If it is possible for a group of expert instructors—even two—to score an essay test, the scores will be more dependable. This is not often possible, but there are other aids that will help to increase the teacher's objectivity. It will be helpful if the teacher scores the papers without knowing which student wrote which paper. By this means, the teacher escapes being influenced by her previously acquired knowledge of the students. One way to do this is by numbering the test papers in sequence before the test is given and providing the students with cards bearing the corresponding numbers. Each student writes her name on the card given to her. Cards and test papers are turned in separately. In addition, it is desirable to grade the papers one question at a time—that is, to read all the answers to question 1 before going on to question 2, and so on.

Essay tests, then, have their place in the evaluation of student achievement. But unless the instructor makes a conscientious attempt to evaluate the papers objectively, the values of the essay test will be lost.

Objective Tests

The essential features of objective tests place them in contrast to the essay examination. These tests present the student with completely defined problems, usually a large number of them. The correct answer to each question is determined at the time the question is written, and except for

completion items, the student selects the correct answer from a given set of possible answers. The test paper is then scored by means of a previously prepared key.

Objective questions can be constructed to measure not only factual information but comprehension at a high level and the application of principles to new situations. In fact, objective tests can measure the attainment of all abilities which are measurable by written tests except those abilities related to ingenuity and certain aspects of written communication.[1]

As a consequence of their special features, objective tests have unique advantages and limitations. A principal asset of the objective test is that the examinee's responses may be evaluated objectively and quickly with the previously prepared answer key. Once the key has been developed by the knowledgeable instructor or group, the person scoring the test needs no special knowledge of the subject matter. In fact, when objective tests are administered to large numbers of examinees, the test papers are usually evaluated by mechanical or electrical devices.

A second advantage of the objective test is its uniformity of measurement, which is derived from the fact that the test items are almost completely defined. Because the examinee is given less opportunity to interpret the question to her own liking, each examinee is evaluated by the "same" test to an extent greater than is possible with the essay test. Moreover, because the student does not spend much time on any test question, the objective test may include many more test items than the essay examination and can sample a wider area of knowledge. Consequently, the objective test also tends to produce a more accurate measure of achievement, for the student's score does not depend so much on her luck in being asked the questions to which she knew the answer. Again, because in most objective tests the answers are already worded, the examinee cannot "bluff her way through" on the basis of verbal ability. Scores made on objective tests are not influenced by factors of expression.

On the other hand, the student is given a greater opportunity for guessing in an objective test than she is in an essay test because she selects rather than produces the answers. If the test contains only a small number of items, chance successes become a factor of major proportion. But if the number of items is large, the chance factor becomes less important, particularly if all the examinees have time to answer all the items thoughtfully. Guessing is inevitably increased when students have insufficient time to complete the tests. If a test consists solely of true-or-false items, it is

[1] Objective tests have been devised for the measurement of mechanics and effectiveness of English expression, such as those of the Cooperative Test Division of the Educational Testing Service, Princeton, New Jersey.

especially important to use a large number of items, since a student guessing wildly has a 50 percent chance of guessing the right answer to each question. Some students will guess more often than others. It is important, therefore, that directions for taking the test be worded so that each student has the opportunity to react to the chance element in the same manner. In summary, the teacher can reduce the importance of the guessing factor by including a large number of items, allowing enough time for all students to finish, and making certain that test directions are worded so that all students understand the teacher's policy regarding guessing.

Both essay tests and objective tests can be appropriately used to measure student achievement. The teacher's objectives determine the choice. The objective test can sample a wider area of knowledge. In addition, it provides for greater uniformity and objectivity of measurement.

The worth of an objective test depends largely on the skill of the item writer. Objectivity and uniformity of measurement are derived only as a consequence of carefully written, explicitly formulated test problems. To attain these goals, the item writer should be aware of some of the generally useful guiding rules of item writing.

General Guides For Writing Objective Test Items

When an idea for a test item occurs, it is well to ask oneself three questions: (1) Is it a worthwhile point—does it involve a fact or application important for the examinee to know? (2) Is the idea well accepted by experts in the field, sufficiently proved, and not too regional or local? (3) Can misconceptions about the idea be expected to exist at the examinees' level? Inexperienced teachers are most likely to come a cropper in not giving sufficient attention to the last point, and so write questions that are too easy for students. These three questions are merely exploratory, before pencil is set to paper, as a basis for deciding whether to develop the proposed test item.

Experience has indicated that the application of the following rules helps the writer to avoid some of the common errors of item construction.

1. Items should test worthwhile content only. Items that deal with trifles should be avoided. Include in a test only those items that can be considered to make a difference in determining a student's competence in an area. Inexperienced teachers may tend to overtest terminology and simple factual knowledge and to undertest judgment and the ability to apply principles, simply because it is much easier to do so. When testing for terminology and knowledge, test only for meaningful terms and concepts rather than for trivia.

2. The meaning of each item should be explicit. Try to avoid ambiguous statements. Most rules on item construction are, essentially, attempts to assist the item writer in ruling out elements of ambiguity.

Example

Poor:[2] Mrs. Smith is to have a high-protein, high-vitamin diet. Which one of these dinner menus would you recommend to her?

1. Creamed chicken, white rice, apple-and-nut salad, fruitcake.
2. Broiled beefsteak, broccoli, tomato and endive salad, ½ cantaloupe.
3. Lamb loaf, beets, olives and raw celery, fresh pear.
4. Pan-broiled bacon and tomato, corn, applesauce with ginger cookie.

Option 2 is clearly the best choice from a nutritional point of view. But is the student to consider only the nutritional content, or is she to consider, also, such factors as economy and availability? If the latter factors are to be taken into account, the patient's history (the description of the "case") should provide the basis for a logical answer. If only the nutritional principles are to be considered, the statement of the problem should provide the basis for a logical answer.

Better: Mrs. Smith is to have a high-protein, high-vitamin diet. Which one of these dinners would be nutritionally best for her?

3. The level of reading difficulty should be kept low in relation to the group being tested. Unless the purpose of the test is to measure verbal and reading skills, it is well to avoid language that is unnecessarily difficult to read and understand. Sometimes it is merely a matter of using very simple words rather than more difficult ones.

Example

Poor: In which age group is the ingestion of deleterious chemical agents most important in relation to the mortality rate?

Better: In which age group are deaths from poisoning at their highest?

Sometimes, however, the language used may be simple but there may be too much of it. Examinations in nursing are often constructed around specific patients. Such situational tests have advantages; they provide a meaningful focus for the student's application of learning, and they are generally more interesting than tests that consist of unconnected items. There is always the danger, however, of building up the "case histories" in the situational tests to such a point that they become burdensome to

[2] The terms "poor" and "better," when used to describe items, refer to the mechanics of item construction, not to whether the items measure specific abilities. An item may be mechanically perfect but test something that is not worth testing. On the other hand, a mechanically poor item may test nothing.

the student and contain information that has little relationship to the questions asked.

4. Trick or catch questions are undesirable. Questions of this kind very often trap the brighter students.

Example[3]

Poor: T F When a muscle trunk contracts, moving its origin towards its insertion, the muscle trunk becomes shorter and thicker.

Better: T F When a muscle trunk contracts and its insertion is movable, the muscle trunk becomes shorter and thicker.

or

T F When a muscle trunk contracts in lifting a weight, its insertion remains fixed.

The first statement is a catch question because it contains two concepts, and especially because the part that makes it false is included in the subordinate clause—"sneaked in," so to speak—and does not appear to have any relevancy to the major idea of the sentence. Sometimes, however, students unjustifiably use the epithet "catch" or "tricky" to describe questions that are merely difficult. A trick question is one that, by its wording, deliberately leads the student astray.

5. Statements should not be lifted directly from textbooks. This practice tends to encourage rote memory rather than understanding. The flaw is particularly likely to occur in true-false items, but it may creep in elsewhere. If the knowledge of specific factual information is to be tested, the textbook statement should at least be paraphrased. (An exception to this rule could occur, of course, when the instructor wishes to have the students identify the ideas of specific authorities. See guide 9 on page 21.)

6. Items should be independent. An item whose answer depends on the response to the previous question gives additional emphasis to that preceding question.

Example

A. The name of a natural alkaloid used in the treatment of benign tertian malaria is (quinine).

B. An isomer of this alkaloid, which has a greater effect in prolonging the refractory period of the heart is called (quinidine).

The student who selects an incorrect answer to question A is thereby at a disadvantage in approaching B. This would not be true if the latter were changed to read as follows:

[3] Throughout this manual, the numbers or letters of correct options are in boldface type.

B. The cinchona alkaloid most commonly used to prolong the refractory period of the heart is called

This criticism does not relate to all items that have similar or related content, of course, but only to those wherein the answer to one item must be used directly in approaching a second item.

It is legitimate to ignore this rule in some circumstances—for example, in developing a test made up of pairs of items, each pair consisting of a "fact" item and an "application" item. In this case, the student understands that if she gets the "fact" item wrong, she gets the "application" item wrong. Her "application" raw score, then, cannot be higher than her "knowledge of fact" raw score.

7. One item should not give away the answer to another item. While this seems like an obvious admonition, faults of this kind creep into hastily prepared examinations and must especially be guarded against when more than one instructor contributes to a test.

Example

A. Before administering digitalis, it is especially important for the nurse to take the patient's
   1. pulse.
   2. blood pressure.
   3. temperature.
   4. respirations.

B. The ideal method of taking the apical and radial pulse of a patient who is receiving digitalis is to
   1. take the radial first and the apical immediately afterwards.
   2. take the apical first and the radial immediately afterwards.
   3. take the radial and apical pulses simultaneously.
   4. take the apical pulse first, allow a rest period, and then take the radial pulse.

It is apparent that the stem (the statement of the problem) of question B tends to give away the answer to question A. Both questions may be included in the test if the phrase "of a patient who is receiving digitalis" is removed from the stem of item B and if questions A and B are widely separated in the test.

8. It is undesirable to favor any particular response pattern. The correct answers should assume essentially random positions. Some test-wise students can detect an instructor's tendency to favor a particular pattern or response position—for example, the second or third choice in a multiple-choice item—or a consistent tendency to ask nearly all "true" items in a true false test, and when in doubt, they will often guess accordingly.

9. If an item is based on authority and is likely to be controversial, the authority should be indicated, since it is important to know who holds what position.

Example

Poor: The correct method of measuring for crutches is . . . .

Better: The initial method of measurement for crutches for a patient who wears braces, suggested by Buchwald in *Physical Rehabilitation for Daily Living,* is . . . .

10. If an item is intended to test the ability to apply facts and principles in a new situation, the situation presented should be genuinely new to the students. Consider the following example:

Which disinfectant, when used for instruments, is both effective and noncorrosive?

1. Bichloride of mercury.
2. Boric acid.
3. Silver nitrate.
4. Zephiran chloride.

This is a perfectly good item in itself, but if it is given to students who have already had clinical experience, the instructor will be unable to tell whether the students who select the correct answer are applying their knowledge of microbiology and of reactions studied in chemistry or just happened to have seen Zephiran used for instruments.

The Completion Item

The completion item provides a transition between the short-answer essay question and the usual objective item. When the short-answer question is rephrased as an incomplete sentence, it becomes a completion item.

Example

Short-answer: What was the name of the nurse in charge of the English nursing staff at Scutari in the Crimean War? (Florence Nightingale)

Completion: The name of the nurse in charge of the English nursing staff at Scutari during the Crimean War was _____ (Florence Nightingale).

The completion item, then, is a statement with a few key words omitted. The item requires the student to produce the answer rather than to recognize it; hence, it is a little closer to the free-response or essay question. Note that the answer space has been placed to the right to facilitate scoring.

The completion item is useful when testing for the recollection of

specific knowledges—for example, names of persons or equipment—and in problems involving numerical answers. The completion item is not particularly suited for the measurement of more complex processes.

The following guides will be found helpful in writing completion items.

1. The statement should be sufficiently structured so that it clearly demands a specific answer. If the statement is vague, examinees will misinterpret its intent and will produce a variety of answers. The instructor will then face scoring problems similar to those of the short-answer essay.

Example

Poor: The man chiefly responsible for the development of a vaccine for poliomyelitis is _____ (Jonas Salk).

Better: The name of the man chiefly responsible for the development of the first useful dead-virus vaccine for poliomyelitis is _____ (Jonas Salk).

The first statement of the problem is poor because: (1) any number of adjectives could have satisfactorily provided the answer (for example, brilliant, American), and (2) the specific vaccine was not described. The second statement clearly specifies that the name of a man is desired and it denotes that Salk is the name required.

Sometimes the lack of sufficient structure is due, partly or wholly, to the use of too many blanks—that is, the omission of too many words.

Example

Poor: _____ (Insulin) is used to control the _____ (blood-sugar level) in patients with diabetes mellitus.

Better: The hormone used to control the blood-sugar level in patients with diabetes mellitus is known as _____ (insulin).

The first statement is poor because the problem is not sufficiently defined to require either "insulin" or "blood-sugar level" as the answers. "Diet" and "symptoms" could have been used as well. The second statement is better because it clearly indicates that the name of a hormone is required. The best criterion to use in developing a question, however, is not that there should be just one blank, but that there should be just one possible correct answer.

2. It is best to place the omitted words at the end of the sentence in order to facilitate reading. Note that in the examples given under rule 1 above, the answer line is placed well to the right of the item. A series of completion items can be scored more easily if set up in this manner.

3. If units of measurement are involved, the kind of units should be specified. This rule is suggested to facilitate scoring; for example, if some students answer in terms of grams and others in terms of pounds, or if some answer in minims and others in cubic centimeters, the scoring task will be harder. Also, if the item fails to mention the unit of measurement and the student does likewise, the instructor cannot be certain whether the student's omission was inadvertent or caused by ignorance.

Example

Poor: The highest temperature that free-flowing steam can attain at sea level is _____.

Better: The highest temperature that free-flowing steam can attain at sea level is _____°C.

The True-False Item

The true-false item presents a statement and requires the student to indicate whether it is true or false. True-false items have been greatly misused. It is possible, of course, to copy statements from textbooks and by changing one word or another, to present them to students in the form of true-false tests. This practice has been justly criticized because it encourages students to memorize insignificant and unrelated bits of information. In addition, because the true-false item presents the student with only two alternatives, it provides the greatest opportunity for guessing.

True-false items should be written only for statements that are either completely true or completely false. For this reason, the true-false item is best suited for measuring knowledge of specific facts and is not easily adapted to the measurement of more complex mental processes.

The following guiding rules will be found helpful in writing true-false items.

1. The true-false item should present only one idea that is either completely true or completely false. It is not good practice to write items that are both partially true and partially false.

Examples

Poor: T F The isles of Langerhans, located in the small intestine, secrete insulin.

Better: T F Insulin is secreted by the isles of Langerhans.

or

T F The isles of Langerhans are located in the small intestine.

The first statement is poor because the phrase that makes it false is in a subordinate clause, not in the main part of the statement. This kind of

item becomes a catch question (see general guide 4, page 19) because unless the student reads very carefully, she is likely to err. The item then tests reading ability rather than knowledge of the subject matter.

2. True items should not be consistently longer (or shorter) than false items. It generally takes more words to make an item completely true, in all circumstances and for all cases, than it does to make the item false. After writing a series of true-false items, it is advisable for the teacher to review them to be sure the length and the complexity of the items do not provide clues.

3. Items should be positively stated whenever possible. Negative items tend to become catch questions because the negative is often overlooked, and double negatives are especially confusing.

Example

Poor:	T	F	It is unsafe practice not to use sterile technique in catheterization.
Better:	T	F	Catheterization should be carried out with sterile technique.

4. Qualifying terms relating to amounts, frequency, recency, et cetera, should be used cautiously. Pitfalls commonly occur in the use of items that include such indefinite terms as "often," "rarely," "for the most part," and "usually," and also in the use of definite terms such as "always," "all," "never," and "none." One pitfall produced by the misuse of *indefinite* qualifying terms is ambiguity. How seldom is "seldom"? How often is "usually"? How recent is "recently"? If the student's answer depends on her exact interpretation of such words, the item is unfair. In some subject areas, including clinical nursing areas, a qualifying term such as "most" or "generally" must be used in many items. Few questions could be answered in nursing if the correct response must be true for 100 percent of the patients 100 percent of the time. But if the answer clearly depends, for example, on whether "most" is interpreted as 51 percent or as 90 percent, the instructor should make a better effort to delineate the range of occurrence.

Example

Poor:	T	F	Cardiovascular diseases have accounted for most of the deaths in the United States in recent times.
Better:	T	F	Cardiovascular diseases have caused more than half of the deaths in the United States each year for the past decade.

Another pitfall, occurring with the misuse of both *definite* and *indefinite* qualifying terms, is quite different from the first one. It is the giving

away of clues to the right answer. When qualifying terms do this, they are called *specific determiners.* Words such as "always," "never," "all," and "none" indicate to the test-wise student that the item is probably false because there are exceptions to almost every rule. Expressions such as "on the whole," "usually," and "generally" tend to be found in items that are true because they reflect the teacher's attempt to limit the degree of generalization. However, when "always" and "never" can be used in true statements and "usually" and "generally" can be used in false statements, the words are likely to catch those students who do not know the answer and are only guessing. Even this rule, if always followed, may set a pattern that the student could conceivably recognize. The most useful rule when using specific determiners would be to make certain that there is no tendency for the answers to fall into any particular pattern that might be recognized.

Example

Poor:	T	F	Subcutaneous injections are always given at a 90° angle.
Better:	T	F	Subcutaneous injections are usually given at a 90° angle.

The student who knows nothing about the angle at which subcutaneous injections are given might mark the first statement false on the basis of the specific determiner "always" and hence get credit for the item. The second example is better because the term "usually," which is found too frequently in poor "true" questions, here appears in a "false" question.

The Multiple-Choice Item

The multiple-choice item consists of two parts—the stem, or lead, and the options. The stem presents the problem, while the options present the set of possible answers, only one of which is correct. The stem may be written as an incomplete sentence or as a direct question.

Examples

Incomplete sentence:

(Stem) → A hole in the iris through which light passes is known as the

(Distracters, Decoys, Wrong choices, Wrong options) → 1. cornea. 2. lens. 3. sclera.

(Key, Correct choice, Correct option) → 4. pupil.

options or alternatives

Direct question:

(Stem) ⟶ What is the name of the hole in the iris through which light passes?

(Distracters / Decoys / Wrong choices / Wrong options) ⟶ 1. Cornea. 2. Lens. 3. Sclera.

(Key / Correct choice / Correct option) ⟶ 4. Pupil.

options or alternatives

Inspection of the foregoing examples will reveal that when the multiple-choice item is written as an incomplete sentence, the stem without the options is the usual completion item. When each of the options is added in turn to the stem, a series of related true-false items is generated. When the stem is presented in question form without the options, the item is similar to the short-answer essay question.

The multiple-choice item can be used to measure all of the abilities measurable by objective items. Not only can it be used to measure for specific information, such as definitions, amounts, and names, but it is also effective in measuring understanding, the application of principles, and judgment in the selection and use of nursing measures, whether physical or interpersonal. In short, it can measure all the educational objectives that are measurable by paper-and-pencil tests except those related to creativity and written verbal ability.

After the instructor has decided upon the general idea for a test question that will be useful for her students (see page 17) and decides that a multiple-choice form will be suitable, she will find it helpful to focus next upon the correct option. The teacher here asks herself, "What is the exact point I'm trying to get at? What do I really want the student to know? What words will express most exactly the description or definition or action or interpersonal reaction that I want as the correct answer?" This initial concentration on the correct answer requires a specific exposition of the ability that is being measured. When the correct answer has been carefully worded, then the stem, or lead, of the item and three or four distracters at an appropriate level of difficulty can be completed. This system saves time. Otherwise, one may find oneself with an interesting stem and a set of wrong options but unable to decide upon a clearly correct answer!

In building multiple-choice items, a common error in the use of the incomplete-sentence form of stem is to fail to structure the problem sufficiently. The direct question requires the writer to state the problem clearly.

Example

A. The most dangerous occupation for a person with epilepsy is
   1. bookkeeping.
   2. gardening.
   3. housepainting.
   4. filing.

B. Which one of these occupations is likely to be most dangerous for a person with epilepsy?
   1. Bookkeeper.
   2. Gardener.
   3. Housepainter.
   4. File clerk.

Item A does not really constitute a valid question inasmuch as there are other occupations that are just as dangerous as housepainting—truck driving, for example. It could be made valid if the phrase "Of the following" were prefixed to the stem. Reading a series of questions beginning with "Of the following," however, is very tedious, and the teacher may ignore this precaution in her own tests if the directions to the student are clear in this regard.

When it is important that a test be found acceptable by large numbers of people of varying backgrounds and opinions, it is often advantageous to use the question form rather than the incomplete sentence. This is especially true when the keyed option (the correct answer) to a question is merely better than the distracters and is not the *one best answer* of all possible answers. For example, a test question in nursing that describes a despondent patient and ends with "The nurse should say" followed by four or five alternatives is likely to prove irritating to many instructors as well as students. They may resent the "should," feeling that some other response than those given might be preferable. If the stem is worded, "Which one of *these* responses would be preferable?" the reader is less likely to resent the item. Science tests and items dealing with factual information can use the incomplete-sentence stem very freely; in tests dealing with matters in which general practice and opinion are important, it may be better at times to use the question form.

There is no pat answer as to the exact number of options that should be developed for each multiple-choice item. Obviously, if there are just two choices, the item is only the equivalent of a true-false item, because the student who is guessing blindly has a 50-percent chance of getting the item right. With five options, the student has a 20-percent chance of guessing right. More than five options are likely to prove unnecessarily fatiguing and time-consuming for the teacher to develop and for the

students to take. (A special type of question with six options, however, is presented on page 47, but it is probably more accurately classified as a matching item.) In some fields it is difficult to get five plausible distracters for many items. At least four are desirable, but occasionally it is impossible to get more than three. Consider the following item:

In comparison with air, oxygen is
1. heavier.
2. lighter.
3. of equal weight.

Since oxygen must be either heavier or lighter or the same weight as air, it is fruitless to look for other wrong options, and it would be better to leave the item with three options than to add a distracter that will not distract. A skillful item writer, however, can often find several plausible distracters where the less experienced person would give up.

In addition to these general suggestions, some specific guides are helpful in constructing multiple-choice items. Some of the guides relate to the item as a whole, and some relate specifically to the stem or to the options.

1. The options should include one and only one correct answer to the problem raised in the stem. The beginning item writer will find that this seemingly obvious rule is frequently broken if items are written hastily without careful study of each option. The flaw sometimes occurs when attempts are made to make distracters more plausible (too much truth is injected) and when the item writer has incomplete knowledge of the subject matter.

Here is an example of an item that does not have one clearly correct answer.

Poor: The appearance of meconium-stained amniotic fluid in a woman in labor generally indicates
1. placenta praevia.
2. fetal distress.
3. rupture of the membranes.
4. an abnormal presentation.

The more a student knows, the more confusing such an item is likely to be. The student may know that meconium-staining is an indication of fetal distress in vertex presentations but not necessarily in breech presentations. Is a breech presentation "normal"? Is the student supposed to weigh the incidence of breech presentations against the incidence of fetal distress in other types of presentations? The student may finally decide that the only thing sure is that the membranes have ruptured and choose that answer in desperation.

Better: The appearance of meconium-stained amniotic fluid in a woman in labor *with a vertex presentation* generally indicates

1. placenta praevia.
2. fetal distress.
3. premature rupture of the membranes.
4. abruptio placentae.

Sometimes the incorrect use of a *range* in presenting options may mean that there is no clearly correct answer. Suppose, for example, that some of the references used by students indicate that 100°F. is a desirable temperature for the solution used in a cleansing vaginal irrigation. The teacher writes the following test question:

Poor: The solution should be administered at a temperature of

1. 95° F. to 100° F.
2. 100° F. to 105° F.
3. 105° F. to 110° F.
4. 110° F. to 115° F.

Since 100°F. is in both the first and second options, there is no clearly correct choice.

Better: The solution should be administered at a temperature of

1. 90- 95° F.
2. 100-105° F.
3. 110-115° F.
4. 120-125° F.

However, it is possible to use overlapping ranges as options if the limits of the range are important and not a specific point within a range.

2. The item should consist of a stem that presents a single, complete problem and a number of homogeneous options. It is considered good item writing to have the stem present a thought sufficiently complete that the student will know what the item is about as soon as she has finished reading the stem. A stem such as "Cells are" is frowned upon, partly because it does not prepare the student for what is coming, but even more because it tempts the item writer to use heterogeneous options.

Example

Poor: Hyperthyroidism is

1. more commonly found in men than in women.
2. apparently related in some way to preexisting severe stress.
3. primarily a disease of persons over 50 years old.
4. generally accompanied by intolerance to cold.

Better: The onset of hyperthyroidism is frequently related to a preexisting state involving

1. long-continued obesity.
2. psychic stress.
3. excessive ingestion of dietary iodine.
4. deterioration of arterioles.

The options in the "poor" item relate to occurrence of the disease, predisposing factors, and symptoms. The options in the "better" item are more homogeneous, and the stem helps to focus the student's attention immediately on what is coming. With very short items, it may sometimes be justifiable to ignore the rule about completeness of the stem. For example, the stem of the first item on page 28 does not completely define the problem, but substitutes would be clumsy.

3. To control the difficulty of an item, choose (1) an appropriate cognitive level and (2) options that are suitably near each other in meaning. Generally speaking, multiple-choice items may be made difficult or easy by varying the kind of ability measured and the similarity or dissimilarity of the options. Cognitive abilities may be thought of as lying on a continuum extending from knowledge of terminology and simple facts, through comprehension of principles, to application of principles in new situations, and on to skills of synthesis. Obviously, items that measure simple recollections of facts such as names of people or things are likely to be easier than items that measure the ability to apply principles in new situations.

Rule 2 states that options should be homogeneous. But how homogeneous they should be depends upon the level of difficulty desired. Items with options that are more homogeneous are generally more plausible, demand more subtle differentiations by the student, and are therefore likely to be more difficult than items with options that call for gross discriminations. Consider the following examples:

A. The position wherein patients lie on their backs with their legs flexed and turned outward is called the

1. prone position.
2. knee-chest position.
3. dorsal recumbent position.
4. Sims' position.

B. The position that is generally most suitable for the catheterization of a woman patient in bed is the

1. prone position.
2. knee-chest position.
3. dorsal recumbent position.
4. Sims' position.

C. The position that is generally most suitable for the catheterization of a woman patient in bed is the
   1. horizontal recumbent position.
   2. dorsal recumbent position.
   3. dorsal elevated position.
   4. dorsal lithotomy position.

Item A is likely to be the easiest item of the three because it is testing only the simple knowledge of a definition. Item B is probably more difficult than item A because it demands the application of a technique in a specific situation; the process being measured is on a higher level. Although item B and item C are both measuring the same mental process, item C is likely to prove more difficult than item B because the options in C are nearer to each other in meaning. Similarly, item A could be made more difficult by using options such as those provided in item C.

Occasionally an item will be developed that seems to contradict rule 3; that is, options that appear somewhat dissimilar may make the item difficult if they have a special, intrinsic attractiveness. The rules given here are guides, not universal laws.

4. Items should be worded positively whenever possible. This rule, suggested for true-false items, is equally true for multiple-choice items. The instructor will not usually wish to include in a test many questions worded like these:

Which one of these steps is *incorrect?*
Which action does *not* result from the administration of this drug?
Which nursing measure is *undesirable?*

Whenever possible, negative wording should be avoided. Sometimes, however, all attempts at wording an item positively will fail because of the lack of a sufficient number of plausible distracters. If the teacher believes that the subject matter is important and should be tested, she has two choices. One is to reconstruct the item into a "combination-response" type (see page 39). The other is to retain the negative wording but to call attention to it by capitalizing or underlining the negative words.

Which one of these measures is LEAST important?
Which lunch menu would be <u>unsuitable?</u>

Generally speaking, the more complex and involved a question is, the more desirable it is to have the question stated positively. There is, of course, an aspect of negativity in all objective multiple-choice items and true-false items in that the options present "bad" as well as "good" choices. Some teachers feel that it sometimes may be just as negative to present the student with choices that include several wrong options, asking her to

choose the one correct one, as it is to present her with several correct options, asking her to choose the one wrong one. Some common phrases in nursing—for example, "preventing infection"—are negative in a sense. "Promoting health" would be positive but might be too indefinite for the desired use. (See also rule 3 for true-false items, page 24.)

5. It is advisable to include as much of the item as possible in the stem. This will save printing space and reading time and, in general, will make the problem clearer.

Example

Poor: A psychiatric patient tells a nurse about a dream he has had, and the nurse records the dream on the patient's chart for the doctor. This information is primarily useful for

1. helping the doctor to understand the basis of the patient's conflicts.
2. helping the doctor to predict the patient's probable future behavior.
3. helping the doctor to understand the patient's cultural background.
4. helping the doctor to establish a diagnosis.

Better: A psychiatric patient tells a nurse about a dream he has had, and the nurse records the dream on the patient's chart for the doctor. The doctor uses such information primarily in

1. understanding the basis of the patient's conflicts.
2. predicting the patient's probable future behavior.
3. evaluating the patient's cultural background.
4. establishing a diagnosis.

6. The stem should be free from extraneous material even though it is desirable to include as much of the item as possible in it. Unless the objective of the item is to determine the examinee's ability to identify and use only pertinent facts, as it may sometimes be, the question should not be disguised with irrelevant factors. The points made in relation to situational tests under general guide 3, page 18, apply here.

Example

Poor: Jackie is a 3-year-old boy who injured his hand while playing. The doctor sutured the wound and applied a dressing. Jackie is to return to the hospital to have the dressing removed. For this procedure, which approach would be most likely to minimize his anxiety?

1. Help him to understand the details of each step of the procedure.
2. Distract his attention with friendly conversation.
3. Appeal to his pride in bearing the discomfort.
4. Explain that the dressing must be changed in order to help him get well.

This item can be improved by changing the stem to read as follows:

> Better: When a dressing is to be removed from a 3-year-old, which approach is most likely to minimize his anxiety?

If more questions relative to this 3-year-old are to be asked, however, it may be desirable to name him, and the necessary history may be included as an introduction to the first item.

Rules 7 through 13 refer to the options.

7. The length and the complexity of the correct options should show no consistent pattern. In test-making, it is "harder to tell the truth than to tell a lie." There is a tendency for the correct answer to be longer than the others. If necessary, some of the distracters should be lengthened to correct this tendency. This is not to say that the correct answer should never be longer than the incorrect answers. It is just as wrong for the correct answer never to be the longest one as it is for it always to be the longest one. The important point is that a test should have no consistent pattern in this respect. The best rule to follow is that if the items have four options, the correct answer should not be the longest in more than approximately one-fourth of the items, and if the items contain five options, the correct answer should not be the longest in more than approximately one-fifth of the items. In this way, the student who selects all long answers will get no more correct than she would if she had chosen on the basis of chance alone.

Correct answers tend to be not only longer but more carefully worded, more qualified, than the distracters. If this is not guarded against, the test-wise student may be able to attain a higher score than her knowledge of the subject merits.

8. Each distracter should seem plausible. The desirability of having homogeneous options was pointed out in rule 2; the relationship between increased similarity of options and increased difficulty, in rule 3 (pages 29 and 30). Obviously, if a distracter is not plausible, it will not "work"—that is, it will not attract any of those students who, not knowing the correct answer, are attempting to guess. A distracter that distracts nobody is completely useless and might as well not be in the item at all. Generally speaking, the more homogeneous the options are, the more plausible they will seem; occasionally there are exceptions to this rule, as was mentioned on page 31.

9. Qualifying terms relating to amount or frequency should be used cautiously. The warning about specific determiners that was made in regard to true-false questions (see page 24) applies equally to the options of multiple-choice questions. That is, the test-wise student

who has taken many poorly constructed tests knows that definite terms such as "all," "none," "never," and "always" are likely to be found in distracters, whereas less definite terms such as "generally" and "often" are more likely to be found in the correct options.

Example

Poor: When a patient makes a remark to a nurse, a nondirective response is

1. always useful.
2. often useful.
3. rarely useful.
4. never useful.

The ambiguity of the correct option, "often," helps to make this a poor item. In addition, a sophisticated examinee who has not the slightest idea what a nondirective response is will immediately discount options 1 and 4, because very few things in this world merit the term "always" or "never." The item is now the equivalent of a true-false item; that is, the student has a 50 percent chance of guessing the correct answer because it must be either 2 or 3. (The next rule, number 10, shows how the student may eliminate choice 3 and decide on 2.) It might be well for the teacher to stay completely away from items like this one and to develop, instead, more useful questions relating to the subject, such as the following one:

Better: To which one of these comments or questions by patients is it *most* probable that a nondirective (Rogerian) reply by the nurse will be helpful?

1. "It's a gorgeous day, isn't it?"
2. "If I don't get my breakfast soon, I'm going to walk out of here."
3. "I'm so mad at my husband, I could scream."
4. "When do you think the doctor will operate?"

10. When options are quantitative, care should be taken to insure that the variations in amounts do not provide clues. Consider the following options, without a stem:

1. 2 minutes.
2. 5 minutes.
3. 20 minutes.
4. 50 minutes.
5. 60 minutes.

Note that the difference between options 1 and 2 is only 3 minutes, and the difference between options 4 and 5 is only 10 minutes. The differences between options 2 and 3 and between options 3 and 4 are considerably greater. Option 3, the "lonesome" option, therefore, is more likely to be

the correct answer in a poorly constructed item. Perhaps the stem of the item is "A suitable autoclaving period for rubber catheters is" and the instructor, consciously or unconsciously, was attempting to have the correct option "stand out." Making the variations equal in amount (in this case, for example, 10, 20, 30, or 5, 20, 35) is sometimes but not always the best method. Other multiples such as 5, 10, 20, 40 may sometimes be preferable. And sometimes, in spite of the rule, the instructor may decide that the students are more likely to be attracted by distracters like those in the first set because the distracters relate to some other procedure that the students are likely to confuse with the one being asked about. If so, the instructor would do well to stand by her convictions and break the rule. It would be interesting for her to experiment with various groups of distracters and test out her hunches.

On a more subtle level, clues may be provided by unequal "distances" between other than numerical qualifying terms. In relation to the "poor" item on a nondirective response under rule 9, we left the test-wise student deciding that the correct answer was either option 2, "often useful," or option 3, "rarely useful." The four qualifying terms used in that item lie on a continuum, but other terms, not used, also lie on that continuum.

never . . . **rarely** . . . sometimes . . . **often** . . . almost always . . . **always**

"Never," "rarely," "often," and "always" were the options used. "Sometimes" and "almost always" were not used. It is evident that "often" is the lonesome option in this item and therefore is more likely to be the correct answer.

It is not suggested that the student goes through a formal thought process in arriving at the correct answer this way; it is more a matter of hunches. The teacher may protest this interpretation, believing that if the student is smart enough to figure all that out, she deserves to get the correct answer. That would be true if this were an item on an intelligence test, but not if it is on an achievement test.

11. All the options should have equivalent, or parallel, grammatical structure. This makes the item easier to read and understand.

Example

Poor: Which one of these measures is most essential in gavaging a baby?

1. Using a sterile tube.
2. To restrain the baby's arms.
3. The nurse should make certain that the inserted tube is in the proper place.
4. Have the temperature of the feeding at exactly 100° F. (38° C.)

Better: Which one of these measures is most essential in gavaging a baby?

1. Using a sterile tube.
2. Restraining the baby's arms.
3. Making certain that the inserted tube is in the proper place.
4. Having the temperature of the feeding at exactly 100° F. (38° C.)

12. All the options should answer or complete the stem grammatically. Care must be taken to avoid clues from the number or tense of the verb.

Poor: Which body joint is involved in Russell traction?

1. Wrists.
2. Knee.
3. Elbows.
4. Ankles.

Better: Which body joint is involved in Russell traction?

1. Wrist.
2. Knee.
3. Elbow.
4. Ankle.

The first item is poor because while the verb "is" in the stem calls for a singular noun, "knee" is the only *single* body joint listed—the others are presented as plurals. The second statement presents all the options in the singular, as the stem requires.

Care must also be taken to prevent cues from the article "a" or "an." If some of the options require "a" and others "an," the article must, of course, be included in each of the options rather than being placed in the stem.

Example

Poor: Morphine is classified chemically as an

1. alkaloid
2. fixed oil
3. glycoside
4. resin

Better: Morphine is classified chemically as

1. an alkaloid.
2. a fixed oil.
3. a glycoside.
4. a resin.

In the first item, "alkaloid" is the only option requiring the use of the article "an," so the answer is obvious. The second item does not provide

this clue. In addition, the stem and the options should be punctuated correctly. Since each option completes a sentence, the options should end with a period.

Since "a" and "an" often have to be included in the options, some test makers always place them there, and some may prefer also to place the article "the" in the options rather than at the end of an incomplete-sentence stem. For example, in items A, B, C, pages 30-31, the "the" could have been placed at the beginning of each option. Either method is correct—the choice is a matter of style preference.

13. Avoid cues provided by phrases or words that sound alike. If the stem and the keyed (correct) answer sound alike, the student may get the correct answer from this superficial cue. However, having phrases in the distracters that resemble those in the stem is sometimes a means of attracting students who do not know the correct answer.

Example

Poor: For which reason is it especially undesirable for a woman to contract German measles during the first trimester of pregnancy?

1. The high fever occurring during the course of this disease at this time tends to upset her water balance and disturb kidney function.
2. The coughing that occurs during this disease tends to increase the possibility of abortion.
3. The rash is likely to become secondarily infected with streptococci.
4. Women who contract German measles early in pregnancy are likely to have babies with congenital defects.

Better: For which reason is it especially undesirable for a woman to contract German measles during the first trimester of pregnancy?

1. The high fever occurring during the course of this disease at this time tends to upset her water balance and disturb kidney function.
2. The coughing which occurs during this disease tends to increase the possibility of abortion.
3. The rash of German measles early in pregnancy is likely to become secondarily infected with steptococci.
4. Having the disease at this time is associated with congenital defects in the infant.

The first item is poor because of the similarity of the keyed option (4) to the wording in the stem. Taking the phrase "German measles early in pregnancy" out of option 4 and inserting it in option 3 makes the item better because those who do not know the answer may be attracted to

3 by the "sound-alike" phrases. As changed, option 4 no longer provides a sound-alike clue.

Sometimes the sound-alike association may be introduced by inserting a word that suggests the sound of another rather than by repeating the exact wording of the stem. The following item illustrates the use of this technique to make a distracter attractive.

Example

When a leg is in traction, countertraction is best obtained by

1. elevating the foot of the bed.
2. lowering the relative position of the leg by raising the headrest.
3. maintaining the leg and trunk in a continuous straight line.
4. counterbalancing traction by the use of a footboard for the unaffected leg.

The similar sounds of "countertraction" in the stem and of "counterbalancing traction" in option 4 are likely to be attractive to those who do not know the answer. Thus, option 4 may prove to be a useful distracter.

14. Options should be placed in a logical order if there is one.

Example

Poor: gr. 1/32 is approximately equal to

1. 5.0 mg.
2. 0.2 mg.
3. 0.5 mg.
4. 2.0 mg.

Better: gr. 1/32 is approximately equal to

1. 0.2 mg.
2. 0.5 mg.
3. 2.0 mg.
4. 5.0 mg.

The order may not always be numerical; it may be in terms of steps in a procedure. Sometimes an alphabetical list is desirable, but this is less important in multiple-choice items than in matching items because the list of options is generally shorter.

Special Options

The phrase "none of the above" sometimes proves to be very useful in both multiple-choice and matching items. It is especially effective in computation items. In general, it tends to make the item more difficult. Consider the following two forms of an item.

How many cc. of a 1:1000 disinfectant solution are needed to make up 2 liters of a 1:5000 solution?

A	B
1. 40 cc.	1. 40 cc.
2. 50 cc.	2. 200 cc.
3. 400 cc.	3. 500 cc.
4. 500 cc.	4. None of the above.

The use of "none of the above" in form B is likely to make the item more difficult because it forces the student to do the problem and get the exact answer, rather than to make a shrewd guess at the approximate amount.

It is a temptation to use "none of the above" as an option when it is difficult to find more than three options (including the correct answer) and four are desired; but this is generally undesirable, and the use of this option for this purpose should be rare. Moreover, guard against overusing "none of the above" as the correct answer.

"All of them" or "all of the above" is another special option. This option cannot be used in the conventional multiple-choice item with a stem beginning "Which *one* of the following. . . ." The option "all of them" is logically used in an item where *one or more* statements may be correct. Consider the following example:

Example

Which of these effects are produced by the use of air-conditioning apparatus in the summertime?

A. Reduction of temperature.
B. Alteration of humidity.
C. Removal of dust.
D. Removal of impurities.

Select the number corresponding to the correct letter(s).

1. A only.
2. A and D.
3. A, B, and C.
4. All of them.

In this item, several reasons are offered for the use of air-conditioning, and the student is asked to choose the valid reasons. In this case, all of them happen to be correct.

The item form shown here, the combination-response item, deserves a special comment.

The Combination-Response Item

It may be desirable at times to have questions in which a group of choices rather than just one choice may be correct. It is advisable to set

up these question in such a way that they may be scored on the same basis as regular multiple-choice questions. Some such direction as the following will be required.

Select the number corresponding to the correct letter(s).

The form of the following item is suitable.

Which of these diseases are classified as *highly* communicable?

A. Chickenpox.
B. Leprosy.
C. Measles.
D. Tuberculosis.
E. Pneumococcal pneumonia.

1. A and C.
2. A, B, and D.
3. B, C, and E.
4. All of them.

Suppose, for the above question, the options presented were as follows:

1. C only.
2. A and C.
3. B, C, and D.
4. All of them.

Note that C occurs in each of the four options. This is permissible, since "C only" was one of the options.

Now consider the following set of options:

1. A and C.
2. B and C.
3. B, C, and D.
4. All of them.

In this last set of options, C is completely functionless, since it occurs in each one in combination with the other letters. It is best to avoid such useless padding of items.

Frequently, but not always, the use of the combination-response form increases a question's difficulty. It necessitates the students' considering similarities as well as differences among the options. This may be desirable.

The combination-choice type of question may also be used when the instructor finds that the area of content to be tested does not provide a suitable supply of plausible distracters. Suppose, for example, that the instructor wishes to develop a question about the posture of a patient with hemiplegia but decides that the students' knowledge is too limited at this time for the inclusion of a question that would have several distracters based on details. The following question might answer:

Which of these positions will Mrs. Hull's affected extremities tend to assume if they are not properly supported?

A. Dorsiflexion of the foot.
B. External rotation of the hip.
C. Abduction of the upper arm.

Select the number corresponding to the correct letter(s).

1. A only.
2. B only.
3. A and B.
4. B and C.

The options "none of them" and "all of them," of course, may be used in such a question. In constructing such questions, however, there is a tendency to overuse "all of them" as the correct answer. This should be avoided.

When a regular multiple-choice question has been stated negatively, it may sometimes be thought advisable to change it to a combination-response type of question in order to get rid of the negative wording.

Example

Which one of these steps is incorrect in giving a hypodermic injection?

1. Expelling air from the syringe before inserting the needle in the skin.
2. Sponging the skin with an antiseptic before inserting the needle.
3. Inserting the hypodermic needle at a 15-degree angle to the skin.
4. Withdrawing the needle quickly after injecting the solution.

It is evident that the negative wording of this question can be avoided if this is deemed advisable (not all test constructors would agree that it is), by changing to the combination-choice type as follows:

Which of these steps are correct in giving a hypodermic injection of insulin?

A. Expelling air from the syringe before inserting the needle in the skin.
B. Sponging the skin with an antiseptic before inserting the needle.
C. Inserting the hypodermic needle into the skin at a 15-degree angle.
D. Withdrawing the needle quickly after injecting the solution.

1. B only.
2. A and B.
3. A, B, and C.
4. A, B, and D.

The question in this form may be somewhat more difficult than in the regular form, since the student might have answered it in the regular form correctly merely by knowing that option 3 in it is absolutely wrong and without knowing that options 1, 2, and 4 are completely correct.

Generally speaking, the combination-response type of question is most useful when the instructor wishes to test a student's understanding of a constellation of facts or principles, rather than a single fact or principle.

The Analogy Item

An additional technique for measuring some of the more complex mental processes such as insights and understandings is the analogy item. Essentially, the analogy item is another means of presenting a problem in either a completion, true-false, or multiple-choice type of item.

The analogy item presents the student with a specific relationship between two objects or ideas and requires her to educe the relationship. The student demonstrates her understanding of the relationship by carrying it forward between a third object or idea (given) and a fourth which must be produced or recognized.

Example

Vitamin C: scurvy : : vitamin D: ?

1. night blindness.
2. rickets.
3. pellagra.
4. sterility.

The student reads the stem: Vitamin C is to scurvy as vitamin D is to——? The student would have to understand the relationship between vitamin C and scurvy and would then have to demonstrate her understanding by showing an analogous relationship between vitamin D and rickets.

Analogy items may be made difficult or easy, depending upon the type of relationship demonstrated. If unusual relationships are used, the item becomes much more difficult.

Example

Atropine: parasympathetic stimulation : : caffeine: ?

1. diuresis.
2. depression of the central nervous system.
3. stimulation of the sympathetic nervous system.
4. increase in respiratory rate.

In this example, the analogy is one of *opposites*, which would tend to make the item more difficult.

The analogy item can also be presented as a completion item by omitting the options and requiring the examinee to produce the answer, or as a true-false item by including any option and requiring the examinee

to reply "true" or "false." Analogy items, however, seem to be most useful in multiple-choice form.

Unless the teacher uses care, she may find that her analogy items are more a measure of general intelligence than of achievement. Items should be inspected with this in mind.

The Matching Item

A matching item consists of a list of problems and a list of options. It differs from the multiple-choice item in that several problems instead of one are presented and each must be answered from one list of options. The matching item is especially efficient as a space- and time-saving means of measuring factual information such as knowledge of terminology and names. It may also be used for testing the ability to classify and interpret on a higher level.

The options in matching items may be objects or drawings. An instructor who labels the parts of a skeleton with numbers and provides a list of names of bones for the student to identify in terms of the numbers is asking a matching question. So is the teacher who places before the students a row of numbered instruments and asks the students to match them with a list of terms consisting of the names or the uses.

If the instructor expects to keep a permanent file of item-analysis data (discussed on pages 75-81), she may find matching questions that have lengthy sets of options quite cumbersome and may prefer to reorganize such questions into the multiple-choice format.

Many of the rules relating to the construction of multiple-choice items apply equally to matching items. It is important to observe the following ones:

1. Make certain that there is only one correct answer for each problem. (See rule 1 for multiple-choice items, page 28.)

2. Have all of the problems homogeneous and all of the options homogeneous. Each option should be a plausible answer to every problem presented. (See rules 2 and 8 for multiple-choice items, pages 29 and 33.) If this rule is not followed, the student is subjected to a useless clerical task of sorting sense from nonsense.

3. Use equivalent grammatical construction in all of the options. (See rule 11 for multiple-choice items, page 35.)

4. Avoid giving clues from grammatical construction. (See rule 12 for multiple-choice items, page 36.)

5. Avoid giving clues from "sound-alike" words or phrases in the problems and the correct options. (See rule 13 for multiple-choice items, page 37.)

6. Place the options in a logical order if there is one. (See rule 14 for multiple-choice items, page 38.) This rule is more important for matching questions because the option list is generally longer.

In addition, the following rules are specific to matching questions.

7. The directions should state whether or not an option may be used repeatedly, unless the form of the item makes this obvious.

8. The option list should be short—not necessarily shorter than the problem list, but short enough that the student will not waste a lot of time looking through it repeatedly. About ten options is generally considered the maximum for efficiency, while as few as three or four may sometimes be useful in "classification" items. Note that it is the option list (the list to which the student refers for the answer) that should be short. The problem list can be as long as the value of the question warrants if the problems are kept homogeneous.

9. The number of options should be greater than the number of problems, unless some of the options are to be used more than once. If the same number of problems and options are used, the final problem may be answered mechanically, without the need for any understanding, and the next to the last problem may have only the value of a true-false item because the student has a 50-percent chance of guessing the right answer.

The following example will illustrate some of the common faults in the construction of matching items.

Poor: Directions: Match the terms in column II with the terms in column I.

Column I	Column II
C 1. Breast	A. Hepat
A 2. Liver	B. Phleb
E 3. Gland	C. Mast
B 4. Vein	D. Gloss
D 5. Tongue	E. Aden

This item is poor because (1) the directions are vague—they do not specify the basis for matching; (2) the number of choices in column II is equal to the number of problems in column I; and (3) the choices in column II might better have been arranged in alphabetical order. The item has one good feature—all the problems and the choices are homogeneous.

Better: Directions: On the line in front of each word in column I place the letter of the combining form in column II that is related to it.

Column I	Column II
E 1. Breast	A. Aden
D 2. Liver	B. Chole
A 3. Gland	C. Gloss
G 4. Vein	D. Hepat
C 5. Tongue	E. Mast
	F. Nephr
	G. Phleb
	H. Trachel

This example is better because the directions are more explicit, the number of choices is greater than the number of problems, and the student's task is made easier because the choices have been arranged in alphabetical order.

Sometimes differentiating between a matching question and a multiple-choice question becomes rather academic. For example, suppose that the teacher presents as options the following three relationships:

> (is greater than)
< (is less than)
= (is equal to)

and asks the student to use the symbols in identifying the relationship between a pair of quantities, such as:

1 milligram . . . 1 grain

If only one or two such problems are presented, they will be three-option multiple-choice items; but if a series of pairs is presented, e.g.,

½ ounce . . . 20 grams
2 grams . . . 20 grains
1000 grams . . . 1 kilogram
etc.

the series will probably be described as a single matching question.

Questions such as the foregoing, in which the same set of options is used repeatedly, are sometimes called classification or master-list items. This form has been found effective in testing the examinee's range of understanding of a concept or a series of closely related concepts. Consider the following example on understanding the functions and activities of the nurse.

Instructions: Below is a numbered list of activities that a nurse may perform.

For each of these, you are to mark the activity according to the function it chiefly demonstrates. Mark the activity

A if it demonstrates providing physical care or emotional support for the ill and disabled.

B if it demonstrates carrying out the physician's directives.

C if it demonstrates teaching the patient and his family in relation to the restoration of health and the prevention of disease.

D if it demonstrates coordinating the services of all groups contributing to patient and family health care.

E if it demonstrates a function other than those listed above.

Letters may be used more than once, but only one letter is to be chosen for each statement.

A 1. Remains with a patient undergoing a new and painful procedure.

B 2. Before administering Dicumarol, notes that the prothrombin time reading lies within limits set for the individual patient.

D 3. Informs the recreational therapist of the special needs of a child who is to have a burn dressing changed on a particular day.

D 4. Plans a patient's preoperative care so that special blood tests, visits from his pastor, etc., can all be accomplished without interfering with each other.

A 5. In response to the request of a dying patient, permits a close relative to remain at his bedside.

E 6. Orients a newly appointed practical nurse to the physical facilities of the clinical unit.

C 7. Explains to a postpartum patient how to administer perineal care to herself following each elimination.

The instructor could have added many other activities to the list and in this manner could have examined the student's understanding of the various aspects of the nurse's role.

Questions having a master list of options may be used in testing the students' understanding of relationships between occurrences. Suppose that two statements, A and B, are presented. One or both or neither of them may be true. That is one kind of judgment the student can be called upon to make. But another pertains to relationships: Does A cause or explain or confirm or support B? Or are A and B contradictory? Or do none of these relationships exist?

Some of the possibilities can be presented as options in test questions. Here is a list of six options, followed by a series of pairs of statements. The student is asked to decide which option describes each pair.

1. Both A and B are true, and A helps to explain or confirm B.
2. Both A and B are true, but A does not help to explain or confirm B.
3. A is true, B is false, and A contradicts or indicates the falsity of B.
4. A is true, B is false, but A does not contradict or indicate the falsity of B.
5. A is false, B is true.
6. Both A and B are false.

I. A. The contraction of a cut artery and its retraction beneath the wound surface promote clotting.
B. Arterial hemorrhage is more likely to stop spontaneously in a young person than in an elderly person. (1)

II. A. Scar tissue contracts, reducing its own blood supply.
B. Scar tissue is especially resistant to ulceration and infection. (3)

III. A. In the healthy gravida, loss of blood up to 500 ml. may occur during the first 24 hours after the birth of the infant.
B. A decrease in urine formation is normal in the early postpartum period. (4)

IV. A. Leukocytes respond to tissue injury by increased migration through walls of capillaries.
B. Trauma to the lining of a blood vessel predisposes to intravascular clotting. (2)

V. A. Intracellular fluid contains more sodium than does extracellular fluid, per unit volume.
B. Extracellular fluid contains less potassium than does intracellular fluid, per unit volume. (5)

VI. A. Organisms capable of reproducing in urine are incapable of producing disease.
B. Cystitis is as likely to develop in the presence of free-flowing urine as in the presence of urinary stasis. (6)

VII. A. Extensor muscles tend to be stronger than flexor muscles.
B. In tetanic spasm, the body commonly arches with the head back. (1)

VIII. A. Positions that best promote drainage of respiratory secretions tend to interfere with contraction of the diaphragm.
B. Trendelenburg position is generally advisable for a patient who has a severe chest injury. (3)

If the teacher prefers, she may present the above items as true-false questions and ask the student to write a word or symbol indicating the relationship or the lack of relationship between A and B. For example, an arrow could be used to designate a confirming, supporting, or causal relationship and double lines to designate contradiction where A points out the falsity of B.

If this system were to be used, students would write the answers to the above items as follows:

	A		B
I.	T	$\longrightarrow$	T
II.	T	//	F
III.	T		F
etc.			

Recognition of the truth or falsity of A and B can be considered "knowledge," and recognition of the relationship or lack of relationship between A and B can be considered "application." Whether the teacher wants to score separately for "knowledge" and "application" will depend on her purposes and on her convictions about whether having pieces of information is valuable in the absence of ability to use them. The comment on page 20 about the deliberate use of dependent test questions (final paragraph under guide 6) would apply to the scoring of this type of item.

Drawings and Other Nonverbal Material

At times, the instructor may find it helpful to use sketches or other illustrations in test questions. Obviously, such illustrations should present clearly the points on which students are asked to discriminate. When a drawing is used in which parts are to be recognized and named, it is better to letter or number the parts than to have the students draw lines from the names to the appropriate parts. Such lines can become a mystifying web, impossible to score objectively. It is generally advisable to use the actual articles or specimens rather than drawings whenever this is feasible. For example, the instructor is more certain of the students' knowledge if they identify actual surgical instruments, or needed equipment, or bones of the skeleton, and so forth, rather than drawings of these things. A good set of drawings or photographs of a nursing situation (for example, of good and poor bed-posture of a patient), however, will permit large-scale testing on content that it would be difficult to test objectively by other means. Films, filmstrips, and slides may be used to present nursing problems as a basis for either objective or essay tests.

* * *

Many variations on the types of items presented here are possible. Instructors will find it interesting and useful to experiment with a variety of forms.

Constructing Teacher-Made Tests

Instructors who work together for the attainment of curriculum goals need to have a common basis for planning evaluation of student achievement. Building evaluative devices requires essentially the same planning as building a house—first a discussion of needs, then a blueprint, and finally the construction. The first statements of needs are likely to be in the form of objectives of the curriculum and of courses of study. These objectives are often stated in broad terms, which require interpretation if they are to guide the construction of examinations. Sometimes teachers write their objectives entirely in behavioral terms, like these:

Organizes assigned care effectively on the clinical unit.
Anticipates patients' needs.
Responds helpfully to anxious patients.

The student's attainment of such objectives will not be measured by achievement tests. Observation of the student in the clinical setting will be essential. However, even these objectives have cognitive components—that is, components pertaining to intellectual comprehension—that are testable by paper-and-pencil tests.

For instance, "*Understands* which nursing needs should have priority" is part of "Organizes care effectively" and is measurable by written tests. An example would be an item worded, "All of the following nursing measures are to be carried out. Which one should be done first?" or "Which one is most essential?"

"*Knows* what needs patients with specific illnesses and in given age groups are likely to evidence" is part of "Anticipates patients' needs" and is measurable by written tests. The question on Mrs. Hull on page 41 is an example.

"*Identifies* situations in which different types of responses are likely to be useful" is part of "Responds helpfully to anxious patients" and is partly measurable by written tests. An example is the item on a nondirective reply on page 34.

Practically all aspects of behavior in which the teacher is interested have cognitive components (or reactants) and hence are measurable by tests to that extent. It is the task of the faculty to identfy not only the level of behavioral abilities expected of the student at different stages in her educational program but also the cognitive aspects that can most readily and most economically be measured by paper-and-pencil tests.

It is useful to consider abilities in the cognitive realm as ascending from a low level, knowledge of terms and facts, to understanding or comprehension, then to application of generalizations, and on to intellectual creative abilities. It is assumed that the higher ability includes the lower one—for example, that one does not understand without knowing terms and facts, that one does not apply without understanding, and so on. It is common practice to evaluate test content in terms of the numbers of questions in each category. As mentioned on page 17, a common error of the inexperienced test-maker is to have too many low-level questions (on terms and isolated facts) and too few at the higher cognitive levels. Classification of items by cognitive level is not always possible, however. In a question about a nursing measure, one group of students may get the correct answer by applying principles, whereas another group gets the answer because they read the particular point in a textbook, and still others may get the answer correct because of having recently seen the measure used with a patient. A question tests for application of principles only when it presents the student with a problem that is at least partly new to that student. The individual teacher is in a better position to judge what will be an application question for her own students than is anyone who does not know how and what the students have been taught.

It will be helpful if faculty members come to agreement on definitions of abilities to be measured and state them in such terms that they will be useful for evaluation blueprints in many courses. For example, a group of instructors might decide that a statement of abilities such as the following would be workable in planning evaluation blueprints for their courses.

ABILITIES

1. Knows the meaning of important terms and concepts.
2. Has a store of basic factual information.
3. Is able to find pertinent information.
4. Understands broad principles and generalizations, including developmental sequences and causal relationships.
5. Is able to evaluate evidence critically and to interpret it.
6. Applies principles and generalizations to new situations.
7. Shows evidences of socially desirable feelings and attitudes.
8. Exhibits necessary manipulative (motor) skills.

The first six of these abilities are largely in the cognitive realm, and the seventh has some cognitive aspects. The list is not a statement of the objectives of a curriculum or of a specific course. It is a framework for evaluation such as might be developed by one group of instructors. The objectives of a curriculum, of specific courses, and of units of courses can

be related to it. Such a framework can provide a common basis for exchange of information among faculty members on problems of evaluation.[1]

Steps in Developing a Blueprint

Let us follow the planning of one clinical instructor in developing an evaluation blueprint to cover a unit of instruction in health problems of the aged. For this unit, as for any other, the instructor will need to keep a number of principles in mind.

1. Planning for evaluation of student attainment should start with the planning of the objectives of the course and should progress with the planning of content and learning experiences. Evaluation that is a hurried afterthought is not likely to be valid.

2. The plan for evaluation covering the unit should fit into the evaluation plan for the course. The plan for evaluation in the course should fit into the over-all curriculum plan for evaluation of student attainment. (This means that faculty members have agreed upon the range and limitations of the abilities to be taught—and measured—in the curriculum.)

3. The instructor will need to differentiate between the abilities *used* relative to the unit or the course and the abilities actually *taught* in the unit or the course. In this case, for example, the student caring for a geriatric patient as part of her course or unit experience will probably use skills learned in courses or units other than the one in health problems of the aged. Such skills (understandings, appreciations, and so on), if *adequately* measured elsewhere, may be measured incidentally in the evaluation plan for the unit in health problems of the aged, but the teacher is not likely to include them in the formal evaluation plan for this unit unless there seems good reason for doing so.

Let us suppose that the instructor has prepared the following content outline for a unit in geriatric nursing:

OUTLINE FOR CONTENT OF A UNIT IN HEALTH PROBLEMS OF THE AGED[2]

I. Cultural and Social Attitudes toward Aging

A. Common ideas about the aged, including misconceptions and superstitions

B. Concepts of the aged in various societies

1. Biblical times
2. Far East

[1] For an exhaustive analysis of objectives in the intellectual realm, together with examples of questions for measuring the attainment of many of them, consult Bloom, et al. (ed.), *Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain.* (See bibliography, page 112.)

[2] Such a content outline, of course, is only one part of the instructor's plan for the unit, a plan that includes student activities, teaching methods, and so on.

3. Western Europe
4. United States
5. Etc.

C. The impact of scientific study of the aged on cultural attitudes

D. Common problems of the aged
1. Social
2. Economic
3. Health
4. Recreational
5. Etc.

E. Life expectancy and social planning

II. Physical Aspects of Old Age

A. The aging process in animals and man

B. Chronologic and physiologic aging

C. Aspects of physiologic aging
1. Integumentary
2. Metabolic
3. Etc.

D. Physical manifestations of physiologic change
1. Changes in tissues—hair, skin, blood vessels, etc.
2. Changes in functioning—posture, gait, digestion, etc.

E. Meeting the physical needs of the aged
1. Hygienic
2. Environmental
3. Nutritional
4. Etc.

F. Results of research and studies
1. Acuity of senses
2. Physiologic efficiency
3. Etc.

III. Mental and Emotional Aspects of Old Age

A. Basic psychosocial needs of all human beings, including elderly people. Building on students' previous learnings
1. Love
2. Companionship
3. Sense of personal worth, self-esteem
4. Acceptance of unalterable limitations
5. Security (other aspects)
6. Etc.

B. Fundamental aspects of creative living for all people, including elderly people. Building on students' previous learnings
1. Close, warm relationships with a few people
2. Friendly and interesting relationships with larger numbers of people
3. A satisfying religious philosophy
4. Opportunities for maximum utilization of personal resources and abilities
   a. Opportunities for self-assertion, creative self-projection, other personal fulfillment

b. Opportunities for contributing to welfare of self and others
5. Etc.

C. Sources or manifestations of emotional conflicts in elderly people
1. Incidence of illness and physical disability
2. Forced occupational change
3. Failure in a competitive situation
4. Change in social or interpersonal relationships
a. Intergeneration conflicts
b. Etc.
5. Loss of friends, family, and possessions
a. Emotional effects of "aloneness" in different people
b. Etc.
6. Attitude toward death—conscious, unconscious
7. Etc.

D. Indications of adjustment problems in the aged
1. Denial of illness or weakness
2. Drives to achieve youth by affectations and dress
3. Manifestations of mild anxiety
a. Sleeplessness
b. Irritability
c. Etc.
4. Resentment of members of younger generation
5. Development or accentuation of feelings of suspicion
6. Reversion to less mature behavior
7. Collecting and hoarding trifles
8. Etc.

E. Prevention of and ways of dealing with emotional conflicts of the aged
1. Attitudes and understandings basic to helpful communication (verbal and nonverbal) with the aged and with persons or groups concerned with the aged
2. Etc.

F. Results of research and studies
1. Mental alertness
2. Personality inventories
3. Etc.

IV. Old Age and Illness

A. Incidence of diseases according to age
1. Physical
2. Mental

B. Relationship between chronic illness in the aged and previous health status

C. Physiologic aging and chronic illness

D. Prevention of complications in the aged
1. Nurse's attitude
2. Medical supervision
3. Physical care and hygiene
4. Etc.

E. Statistical data (local, regional, worldwide) relating to the elderly sick
1. From official agencies
2. From voluntary agencies

V. Social Progress in Helping the Aged

A. Role of agencies (local, regional, worldwide) in the care of the aged
   1. Official agencies
   2. Voluntary agencies

B. Trends in social planning

C. Etc.

The instructor develops the evaluation blueprint by analyzing the above content outline in terms of the abilities listed on page 50 that have been agreed to by the faculty. Let us suppose that the instructor decides that all of those abilities except ability 8 shall be measured relative to the unit in health problems of the aged. That is, the instructor decides that no new motor skills are to be taught in this unit and that the purely motor skills needed in the care of geriatric patients have been measured sufficiently in previous units and courses. The evaluation blueprint for the unit, therefore, is developed relative to abilities 1 through 7. The abilities and the content outline are used to develop a two-dimensional grid for the evaluation blueprint, as shown on pages 56-58. (If ability 8, on motor skills, had been included, its columns would probably have been empty except for D, "old age and illness.")

Note that combinations of the abilities listed at the left of the grid and the content headings across the top constitute the major unit objectives—for example, 2: "Has a store of basic factual information" (about) A: "cultural and social values and attitudes toward aging." With the last two words, "toward aging," removed, the sentence may be an accurate statement of a *course* objective. The subabilities in boxes 2-A1, 2-A2, and so forth, therefore constitute subunits of the course objectives as well as of the unit objectives, major abilities, and content headings.

There is, of course, no one blueprint that is the "right one" for evaluating a unit or a course. Since teaching is an art, the teacher's evaluation plan will be influenced by the same personal, creative elements that influence her teaching. The individual differences of teachers, like those of students, should be respected.

The instructor, having developed a satisfactory evaluation blueprint for the unit in health problems of the aged, next inspects each item of the blueprint to see how attainment of the understanding or skill or appreciation can best be measured. It would be foolish to plan to spend valuable, individually supervised "patient-side" time in testing a student's knowledge of terminology or basic factual information that can be tested more economically and more objectively by paper-and-pencil tests. On the other hand, it would be unwise to try to evaluate attainment of 6-D3, "Plans comprehensive nursing care," solely by written tests, and

some of the abilities (such as 7-C1) are not likely to be tested at all by teacher-made paper-and-pencil tests. For this unit, each item has been coded according to the kind of measurement deemed most appropriate and effective.

The fact that this unit relates to the care of human beings affects the number of abilities that must be tested, at least in part, by some other means than paper-and-pencil tests. In a chemistry test, probably nearly all the subabilities related to ability 6, "Applies principles and generalizations to new situations," could be measured by written tests, but this is not likely to be true for a unit of instruction in nursing. Observation of the student as she gives care in the actual nursing situation is almost always an essential part of an evaluation plan in nursing.

Since this manual is on teacher-made written tests, it will not deal with evaluation in the clinical setting. It is obvious, however, that the clinical nursing instructor needs to plan for both kinds of evaluation. Even the instructor of nonclinical courses taught primarily in the classroom will find some abilities more amenable to evaluation by observation than by written means.

Once the instructor has decided what abilities can be measured effectively by written means, the plan for such measurement can be developed. The teacher will need to decide how much emphasis to give each ability area and each content area and how many items the test should contain. Emphasis is determined by the proportion of items allocated to each subability in the boxes of the content-ability framework. If the teacher-made test is to retain its value, it must reflect the teacher's own curricular emphases. The teacher, therefore, must determine what proportion of the items will be devoted to each of the measurable abilities, that is, to terminology, factual information, understanding of principles, and the like, in terms of the content areas. It may be helpful at this point to consider how much of the course time was spent in learning experiences related to each phase of the blueprint. This assignment of emphasis to each ability and subability is called "weighting." For example, the instructor might decide that ability 6, "Applies principles and generalizations to new situations," is so important that 30 percent of the points of a test should be devoted to it. The instructor would then divide that 30 percent among the subabilities relating to ability 6 according to their importance and according to their testability by written means.

Decisions as to the total number of questions in the test will be based on the time available, the kind of questions asked (essay or short-answer), the objectives being tested (recollection of facts, application of principles, and so on), and the relative emphasis on speed and pure ability.

EVALUATION BLUEPRINT—UNIT: HEALTH PROBLEMS OF THE AGED

Abilities	A *Cultural and Social Values and Attitudes Toward Aging*	B *Physical Aspects of Old Age*	C *Mental and Emotional Aspects of Old Age*	D *Old Age and Illness*	E *The Aging Population: Trends and Social Progress*
1. Knows the meaning of important terms and concepts.	*1-A Defines—aged, aging, cultural lag. etc.	*1-B ..overlaps with. Defines—chronologic age; physiologic age; senescence, aging process, gerontology. etc.	..*1-C Defines—disorientation, maturity, senility, psychosocial needs. etc.	*1-D Defines—chronic illness, geriatrics, ultimate life limit, life expectancy. etc.	*1-E Defines—social security, home for the aged, Golden Age Club, adult education, etc.
2. Has a store of basic factual information.	Knows— *2-A1 common problems of the aged. *2-A2 misconceptions and superstitions about the aged. *2-A3 role of the aged in various cultures. etc.	Knows— *2-B1 physiologic changes of aging. *2-B2 structural changes of aging. *2-B3 dietary needs. etc.	Knows— *2-C1 similarities and differences of psychosocial needs of various age groups. *2-C2 tendency for deterioration and retention of specific mental abilities. etc.	Knows— *2-D1 incidence of diseases of the aged. *2-D2 possible complications of diseases. *2-D3 nursing measures likely to be helpful in the care of the aged. *2-D4 influence of modern medical science on morbidity and mortality of the aged. etc.	Knows— *2-E1 roles of specific voluntary and official agencies (local, national, international) and programs in providing care for the aged. *2-E2 trends in social-political planning. etc.
3. Is able to find pertinent information.	*3-A1 Knows specific sources of authoritative information—organizations, reference books, etc. *3-A2 Distinguishes between reliable and unreliable sources. †3-A3 Uses library effectively. (relative to origins and manifestations of social attitudes, etc.)	Same as 3-A *3-B1 ..... *3-B2 ..... †3-B3 ..... (relative to physical performance of the aged, etc.)	Same as 3-A *3-C1 ..... *3-C2 ..... †3-C3 ..... (relative to mental health and capacity of the aged, etc.)	Same as 3-A *3-D1 ..... *3-D2 ..... †3-D3 ..... (relative to morbidity and mortality data, the care of the aged sick, etc.)	Same as 3-A *3-E1 ..... *3-E2 ..... †3-E3 ..... (relative to community needs in planning for the aged, etc.)

4. Understands broad principles and generalizations, including developmental sequences and causal relationships.	Understands (or appreciates)— †4-A1 effects of a materialistic philosophy in defining attitudes toward persons who are no longer productive. *4-A2 effect of socioeconomic dependency on the status of the aged. †4-A3 effects of nonacceptance of death in defining attitudes towards persons who are constant reminders of debility and mortality. *4-A4 changing attitudes toward scientific research in the study of problems of the aged; effects of large numbers of aged on such attitudes. etc.	Understands— *4-B1 the concept of aging as a process —from conception to death. General impairment of physiologic functions. *4-B2 physical manifestations of aging. *4-B3 relationship between mental and physical stress conditions. etc.	Understands— *4-C1 effects of increased longevity and social forces (e.g. compulsory retirement) on psychosocial needs of aged. *4-C2 personality of the aged, as a product of total life experience. *4-C3 the aged as individuals with individual habits and problems. *4-C4 the need to fulfill psychosocial needs throughout life. etc.	Understands— *4-D1 relationships between food intake, physiologic decline, and illness. *4-D2 relationship of general physiologic decline to illness. *4-D3 relationship of health status of the aged to previous health status. *4-D4 rehabilitation as a part of the nursing plan in the care of the aged. etc.	Understands— *4-E1 factors affecting population trends. *4-E2 effect of longevity and increased leisure time on living habits. *4-E3 ways in which forces are organized when society at large is faced with a problem (professional services, governmental expenditure of funds, etc.). *4-E4 trends in policies of labor and management (employment of the elderly, retirement, etc.). etc.
5. Is able to evaluate evidence critically, and to interpret it. (Overlaps with 6.)	*5-A1 Differentiates between facts and opinions about the aged. *5-A2 Understands the functions and limitations of the scientific method in the study of the aged. Etc.	†5-B1 Evaluates and interprets evidence relating to physical aspects of old age. †5-B2 Recognizes differences between usual and unusual physical manifestations of age, and recognizes implications. Etc.	†5-C1 Evaluates and interprets evidence relating to mental and emotional aspects of old age. †5-C2 Differentiates between usual and unusual mental and emotional behavior of the aged, and recognizes implications. Etc.	†5-D1 Evaluates and interprets evidence relating to illness of the aged. (Within the medical framework.)	*5-E1 Evaluates data relating to community needs and resources in terms of assistance to the aged. Etc.

CODING SYSTEM: *Can be measured wholly or in large part by teacher's paper-and-pencil tests of some type.
†Can be measured in some part by teacher's paper-and-pencil tests but requires other means for adequate measurement.
‡Measurement almost wholly by other means than teacher's paper-and-pencil tests.

EVALUATION BLUEPRINT—*Continued*

Abilities	A *Cultural and Social Values and Attitudes Toward Aging*	B *Physical Aspects of Old Age*	C *Mental and Emotional Aspects of Old Age*	D *Old Age and Illness*	E *The Aging Population: Trends and Social Progress*
6. Applies principles and generalizations to new situations.	Applies— †6-A1 In nursing situations and community situations, interprets and evaluates the attitudes shown toward the elderly by self, co-workers, families, and other persons and groups. Etc.	Applies— †6-B1 Interprets range and limitations of physical abilities of elderly persons (within framework established by physician and on the basis of observed data). ‡6-B2 Helps the older person to live, work, and play within physical limitations. Etc.	Applies— †6-C1 Interprets range and limitations of mental ability and of emotional capacity and stability of elderly persons (within framework established by physician and on the basis of observed data). ‡6-C2 Communicates with old people in helpful way, both verbally and non-verbally. ‡6-C3 Provides learning experiences in terms of the mental and emotional capacity of the older person. Etc.	Applies— †6-D1 Defines special nursing problems of individual aged patients. †6-D2 Selects and modifies nursing measures for aged patients on the basis of their needs. Evaluates effects of nursing measures. †6-D3 Plans comprehensive nursing care, including rehabilitative aspects, in terms of the physical and mental limitations of aged patient. Etc.	Applies— †6-E1 Assists in developing and using methods to stimulate citizens' interest in the well-being of the aged. †6-E2 Participates effectively in community planning for the aged. Etc.
7. Shows evidences of socially desirable feelings and attitudes.	‡7-A1 Has formulated, at least tentatively, a satisfying, realistic philosophy relative to society's and the individual's responsibility for preparing for old age and its concomitants. †7-A2 Makes a positive effort to affect helpfully the attitudes of others toward the aged. Etc.	‡7-B1 Accepts the physiologic decline coming with old age that, at present, cannot be prevented. Etc.	‡7-C1 Likes old people †7-C2 Is tolerant of aged person's habits and mannerisms. †7-C3 Accepts wishes of the aged as real and meaningful. ‡7-C4 Accepts the mental decline coming with old age that, at present, cannot be prevented. ‡7-C5 Accepts concept of own old age. Etc.	†7-D1 Helps to plan for the recovery, revitalization, and possible redirection of the patient's interests, habits, and aspirations. ‡7-D2 Accepts the desire of aged people to live, and perhaps to die. ‡7-D3 Faces the fact of death without excessive anxiety. Etc.	†7-E1 Accepts the need of the aged to have a place in the community. †7-E2 Accepts own responsibility, as a citizen and health worker, for the welfare of the aged. Etc.

Constructing Test Items Based on the Blueprint

It must be remembered that at this stage, the blueprint is still tentative. When the teacher begins to construct test items for a unit she is teaching for the first time, she is almost certain to find that some elaboration or revision of the blueprint is necessary. If a good test question that is clearly related to the unit objectives does not fit the blueprint, then it is probable that the blueprint needs to be modified. It must be realized, too, that the subabilities in the blueprint will inevitably tend to overlap and that the categorizing of some test questions in terms of subabilities tested may be difficult. The blueprint is intended as a guide, not a straitjacket.

As the blueprint code explains, the instructor of the unit in health problems of the aged has marked those subabilities that can be fully or partially evaluated by paper-and-pencil tests. The next step is to decide what kinds of questions are appropriate. There is no point in using more types of questions than are necessary. It would be unwise for the instructor to predetermine the type of question, deciding, for example, "I will construct 20 true-false questions and 20 multiple-choice questions." Study of the subabilities provides a sounder basis for decisions.

Ability 1, "Knows the meaning of important terms and concepts," is probably the easiest ability to test, and the instructor has a variety of choices as to types of questions. Terminology lends itself to completion, true-false, and multiple-choice questions, as shown in the following three examples, and a matching question would be equally easy to construct. (Of course, only one of these three items should be used in the same test.)

Examples

Completion: The study of the aging process is called (gerontology).

True-False: T F Geriatrics is defined as the study of the aging process

Multiple-choice: Which one, if any, of these terms is defined as the study of the aging process?

A. Geriatrics.
B. Gerontology.
C. Senescence.
D. None of the above.

Each tests subability 1-B

A little more imagination can be injected into terminology questions by requiring the student to interpret the meaning of terms when they are expressed in entirely new ways or when a concept related to the term is presented.

Example

Which one of these sayings is most closely related to the concept of physiologic age?

A. "You can't teach an old dog new tricks."
B. "Life is the sum of the forces which resist death."
C. "A man is as old as his arteries."
D. "To stay young, act young."

Tests subability 1-B

Ability 2, "Has a store of basic factual information," also is easy to test, and all types of objective questions are suitable for such measurement. Here is a multiple-choice question that tests ability 2.

A single, 70-year-old, formerly self-employed junkman is no longer able to pay for his room and board. Which source of financial aid would be available to him regardless of the part of the United States in which he lives?

A. Old-Age, Survivor's, and Disability Insurance.
B. Old-Age Assistance.
C. Housing for the Elderly.
D. Home Relief.

Tests subability 2-E1

Some questions, such as those based on physical laws, may continue to have the same correct answer year after year. The answer to this item, however, may be changed by social legislation. The instructor who reuses test items with succeeding classes needs to inspect each item carefully to make sure it is up to date.

Ability 2 may be tested equally well by other types of questions, of course, including matching questions. The question on the following page is a classification or master-list type of matching question that tests ability 2 and some other abilities as well. It should be recalled that the rule regarding restriction of the number of parts of a matching question (see rule 8, page 44) applies only to the list of options that the student must inspect in order to choose her answers. The rule does not apply to the problem list. In the case of this question, the option list consists of only three alternatives, so there is little danger of "clerical fatigue." If the value of the question warranted it, the number of problems presented could be increased at will.

Directions: Below are listed some statements about elderly people. For each of them you are to mark the statement

A if it is supported by scientific evidence.

B if it is unsupported by scientific evidence but lies within the scope of scientific investigation.

C if it is outside the scope of scientific investigation.

A 1. Elderly people need high-quality protein for optimum health.
Tests subability 2-B1

B 2. Women tend to lose their sexual drive at an earlier age than men do.
Tests subability 2-B1

C 3. A senile, incontinent, and completely vegetative person is a valuable human being.
Tests subability 5-A2. (This question does not test ability 7. The question does not ascertain how the student feels about such persons.)

B 4. The fact that older people's memories frequently focus on experiences of the past rather than recent ones is due primarily to a slight, gradual mental deterioration.
Tests subability 2-C2

B 5. Verbal comprehension deteriorates more rapidly with advancing age than does reasoning ability.
Tests subability 2-C2

A 6. Most of the organs of the body have started to atrophy by the mid-thirties.
Tests subability 2-B2

A 7. Older people who have hobbies are likely to be better adjusted socially than those who do not.
Tests subability 2-C1 and possibly 4-C4

C 8. People ought to love and respect their elderly parents, even though the parents may be stubborn and irascible.
Tests subability 5-A2

B 9. In psychoses of the aged, the degree of disturbed behavior is in direct proportion to the degree of arteriosclerotic changes in the brain.
Tests subability 4-D2

Part of ability 3, "Is able to find pertinent information," can best be measured by means other than written tests—for example, by giving the students individual assignments that require the use of libraries or by requiring documentation of materials in written or oral reports. Part, however, can be measured by such questions as the following one:

Cumulative indices of which of these publications would provide the most complete reference to materials published over a period of many years on the medical treatment of the elderly sick?

A. *Journal of the American Geriatrics Society.*

B. *The Journal of the American Medical Association.*

C. *Gerontology and Geriatrics.*

D. *Index Medicus.*

Tests subability 3-D1

Most of the subabilities of ability 4, "Understands broad principles and generalizations, including developmental sequences and causal relationships," can be measured in large part by written tests. Here are three multiple-choice items testing this ability.

Which statement best describes why comparatively little research has been done on the process of human aging?

A. Individuals living to advanced years have been unable to provide reliable data.
B. Opportunities for the sharing of related data have not been available.
C. The goals of action research programs have been indefinite.
D. The public has shown greater interest in supporting research in more dramatic aspects of health.

Tests subability 4-A4

The process of aging, in its broadest interpretation, is defined as extending from conception to death because

A. various body tissues follow a similar pattern of deterioration.
B. involutionary, as well as evolutionary, changes occur throughout life.
C. the age of an individual can be determined readily by the state of tissue destruction.
D. the deterioration of body tissues is determined by the age of the composite cells.

Tests subability 4-B1

The "causal relationship" aspect of subability 4-B2 and 4-D2 could be tested with item I on page 47.

A rough numerical estimate of the degree of aging in a population may be determined by the formula:

$$\text{Index of aging} = \frac{\text{Persons 60 years and over}}{\text{Children 0-14 years}} \times 100$$

If the birth rate declined and the mortality rate relating to degenerative diseases remained stable, you would expect the index of aging to

A. rise.
B. become lower.
C. remain unchanged.
D. fluctuate.

Tests mathematical ability basic to subability 4-E1

Ability 5, "Is able to evaluate evidence critically and to interpret it," overlaps considerably with some of the other abilities. Some instructors believe, however, that it is an area so frequently neglected in teaching and testing that it deserves a separate category. Some aspects of this ability would need to be measured by observation of the student in actual nursing situations. Here is an example of a test question measuring this ability.

A nurse over 60 years old who has been doing private duty in homes for many years takes a position as a hospital staff nurse. The nurses working with her find that she does not learn readily those hospital procedures that differ in method from the way she has been accustomed to do them, though she gives satisfactory nursing care in all other respects, including new nursing procedures. On the basis of the evidence given, which one of these statements is used most justifiably as an explanation?

A. Speed of learning depends to a considerable extent on motivation.

B. Learning ability decreases slowly but steadily as a person grows older.

C. Behavior resulting from overlearning is not readily modified.

D. Discouragement significantly affects the rate of learning.

Tests subability 5-C1

Probably none of the subabilities of ability 6, "Applies principles and generalizations to new situations," could be measured completely by written test questions, and in a unit in nursing, some of them could not be tested at all in this manner. Economy of time demands, however, that written tests be used for those aspects that they can measure. It is true, also, that when time and resources are limited, measurement in the actual situation (the community, for example) may not always be possible, and other evaluation devices such as written tests must suffice. In such situations, the objectives and the blueprint should be constructed to indicate that the abilities are being developed in the students only to the point of general appreciation rather than being thoroughly developed. The following question tests ability 6.

A group of nurses become aware that the community offers little opportunity for recreation and social communication among the aged. Which first approach to this problem by the nurses would be most appropriate?

A. Recognizing that nurses without special training in social communication skills cannot effectively solve such problems, and confining their efforts to reporting the need to existing welfare agencies.

B. Gathering together a selected group of elderly persons who are especially vigorous and intelligent, and proposing to them that a social club for "senior citizens" be established to meet their needs.

C. Investigating the availability of convenient meeting places and recreational equipment that might be used for large groups of elderly persons meeting socially.

D. Finding out how the elderly members of the community feel about the problem, and learning their opinions on needed resources.

Tests subability 6-E2 (insofar as possible in a written test)

When test questions are used for the measurement of ability 6, answering them often requires more knowledge of the patient's background and needs than is usually provided in individual objective questions. This is true, also, for ability 7, "Shows evidences of socially desirable feelings and attitudes," insofar as the ability is measurable by written tests. The instructor may resolve this problem by using an essay question, presenting

it in a manner similar to the example given on page 10. Or the instructor may decide to use a group of objective questions set up as a "situation," like the following ones:

Mrs. Wilma Howe, a 70-year-old widow, has recovered from a slight stroke with no residual paralysis and is about to be discharged from the hospital. She wishes to return to live in her two-room, second-floor apartment, which is without elevator service. Her married daughter and son-in-law, who have a comfortable and spacious home, want her to live with them. Their children are grown up and away from home.

Mrs. Howe talks to her nurse about the problem of whether to stay in her own home or move. Which response best describes the nurse's responsibility?

A. To encourage Mrs. Howe to take advantage of the offer of her son-in-law and daughter, since it obviously will be better for her physical welfare if she does so.

B. To assist Mrs. Howe to explore her real feelings about her daughter and son-in-law, to find out why she is hesitating.

C. To help Mrs. Howe to think through the advantages and disadvantages of both situations and come to her own conclusion.

D. To listen to Mrs. Howe in a friendly way but without mentioning the problem, since no one can successfully decide such matters for other people.

Tests appreciations basic to subabilities 7-C3 and 6-C2. Measurement of the subabilities themselves is not likely to be accomplished by written means.

Mrs. Howe's daughter says to the nurse, "Mother has ridiculous food habits when she's living alone. I can't understand why she continues to eat fried foods when she knows they are not good for her. We have all cautioned her about this so many times. Before Dad died, she had ample opportunity to see how he accepted his dietary limitations in a good spirit."

Which one of these responses by the nurse would probably be most helpful to the daughter?

A. "Fortunately, you didn't have to face this problem twice. Does your mother seem to be able to withstand the temptation of fried foods when you visit her while she is preparing meals?"

B. "Since your father didn't have to prepare his own meals, perhaps it was easier for him to be cooperative. Have you tried complimenting your mother when she eliminates these foods from her diet?"

C. "I can understand something of how you feel. Could it be that this happens to be important to your mother? Different things are important to different people."

D. "Strength of character varies from person to person. Being tolerant of your mother is very important, for she may never learn to resist temptation as your father did."

Tests appreciations basic to subability 6-A1 and 7-A2

Which interpretation by the nurse of the source of the daughter's attitude is most justified?

A. It derives from her earlier family relationships.

B. It probably is caused by a number of unpleasant experiences with older people.

C. It is due to her high regard for her father's personality.

D. It is based on her understanding of how habits develop.

Tests appreciations basic to subability 6-A1

Once Mrs. Howe's situation has been explained, many questions relating to it can be constructed to test both simple and complex abilities. Some space and reading time are saved by doing this. Just as important, students and teachers generally enjoy situation-type questions because their relation to actual nursing is obvious and because the people mentioned in the questions become "persons."

Validity and Reliability

When a teacher says to herself, "Does this achievement test really cover what I want it to cover and measure the abilities I think it ought to measure?" she is considering content validity. Content validity will be high if all of the test questions relate to the over-all competence that is being measured, with an appropriate balance of subject-matter topics, and if no ability that ought to be assessed has been left out. Content validity is the most important kind of validity for an achievement test. (For a selection test, on the other hand, one is more concerned with predictive validity—that is, the test's success in foretelling how well the applicant will perform in the future.)

The teacher who pulls last year's test out of a file and uses it without inspecting it in terms of her current course emphases is committing a sin against content validity. The teacher who says to her experienced instructor-friend, "Be a pal and look at this final examination I have developed. I want to know what you think of it—are the questions useful and clear? Are the important topics covered?" is taking a useful step to obtain information on content validity. An achievement test consisting solely of questions on medical terminology could be valid if the purpose were to ascertain the students' knowledge of medical terms; it would not be valid for use as the sole instrument for ascertaining the students' knowledge of medical nursing. Just as the thermometer on the living room wall may be valid for measuring the room's temperature but invalid under a patient's tongue, so a test is never just "valid," but always valid for a purpose.

The instructor will certainly feel that some of the areas of a blueprint

are more important than others. As was implied previously (page 55), the best way to provide weight or emphasis for an important area in an objective test is to include a larger number of questions in such an area. This is more justifiable than to weight a single question by counting more points for it. When the latter is done, measurement of the ability rests on the question like a heavy roof supported by a single column. (The wild guesser lucky enough to guess that particular item correctly topples the teacher's plan for evaluation of the ability.) And no single question is likely to be a perfect instrument of measurement; when a number of questions relating to an important ability are asked, the measurement is likely to be much more reliable. That is, several items provide several estimates of the ability, and it is the pooling of several estimates that provides a more reliable measurement. Reliability refers to an instrument's consistency of measurement—that is, its ability to get the same results each time under identical conditions.

Logically enough, if increasing the number of test questions pertaining to one ability increases the reliability of measurement of that ability, increasing the number of abilities to be measured within one test of a given length may decrease the test's reliability. Generally speaking, the more homogeneous a test's content is, measuring attainment of one restricted ability rather than of several loosely related abilities, the more reliable the test will be. This is related to the point mentioned above, that having a large number rather than a small number of questions concerned with a single ability will increase the reliability by providing a larger pool of estimates. Other things being equal, a 20-question test on "management of urinary drainage apparatus" is likely to be more reliable than a 20-question test attempting to cover the entire range of medical-surgical nursing, with one question on symptoms, one on interpersonal relations, one on nutrition, and so forth. Hence, in the discussion above, although a medical terminology test was described as *invalid* for use as the sole instrument for measuring the students' knowledge of medical nursing, the terminology test might be a highly *reliable* instrument—i.e., it might measure the narrow ability "knowledge of specific medical terms" in such a way that it distinguishes consistently between students who do know the terms and those who do not. Reliability pertains only to consistency of results, not to whether the test content relates to the stated purpose of the test or to the course objectives. There is nothing wrong with giving tests covering narrow topics or measuring relatively discrete abilities—such tests may be very useful. Misuse arises when the teacher fails to consider the relationship between the narrow topic and the entire course, or the relationship between the discrete ability and the over-all competence.

The instructor may sometimes hear reference to a relatively superficial aspect of tests termed "face validity." This term is used with respect to the general impression a test gives as being related to its subject. For example, a nursing test that uses the words "nurse," "patient," and "nursing plan" frequently is likely to have more face validity than one that does not, even though the same abilities are measured in both. Face validity is not genuine validity; it is really "consumer appeal."

Assembling the Test

While it is true that the final form of the test is essentially a product of the thinking that went into the construction of the test blueprint and the ingenuity that went into the writing of the test items, teachers can ensure a more efficient testing program if the less stimulating tasks of test assembly are also carried out with care. An important difference in test assembly between most teacher-made tests and standardized tests lies in the amount of time allotted to reviewing and editing. It is important to allow sufficient time to examine items carefully for errors and ambiguities. Having another teacher review the items is helpful.

When the items are as well constructed as they can be, they are ready to be assembled for reproduction. In grouping the items, it is important to pay attention to three factors—content similarity, item type, and item difficulty. It is advisable to **group together those items that are related to the same content.** This practice avoids giving the test a piecemeal look and saves the student from having to shift her thoughts continually from one topic to another. There is some indication that tests in which the content is "mixed up" are more difficult for students than tests in which the content is presented in an orderly manner. It is also desirable to **group test items according to item type;** that is, if a test contains a variety of item forms, such as matching, true-false, and multiple-choice, it is helpful to keep items of the same type together. This procedure will minimize the number of test directions needed and will reduce confusion on the part of the students. Finally, if the items vary in difficulty, it is good practice to **arrange the items in order from easiest to hardest.** If the test has any time limits, those students who do not finish will at least not have reached the most difficult test questions—questions that they would have been more likely to answer incorrectly anyway. Moreover, if the test begins with the easier items, students will have a greater opportunity to build up their self-confidence and will regard the test situation more warmly.

It is obviously impossible for the instructor to follow all three of these suggestions completely if the test questions differ in content, difficulty,

and item type. The instructor must decide which principle of organization is most important and subordinate the other two principles.

Clear directions to the student are another important characteristic of the well-made test. Examples of directions for matching questions were given on pages 44-47. Here are some sample sets of directions for multiple-choice and true-false items. Note that the policy regarding guessing is stated in each case.

Examples

MULTIPLE-CHOICE—SEPARATE ANSWER SHEET #1

Directions:

Write your name on the separate answer sheet before you read further.
Read each item carefully and decide which choice best completes the statement or answers the question.
Indicate your answer on the separate answer sheet by printing the letter of your choice next to the question number. For example, if your choice on question 1 is "C," print the letter "C" in the space next to question number 1 on the answer sheet. Your score will be the number of items you answer correctly. There is no penalty for guessing, so it is to your advantage to answer every question.
Make no marks in the test booklet.

MULTIPLE-CHOICE—SEPARATE ANSWER SHEET #2

Directions:

Fill in the top of the separate answer sheet before you read further.
Read each item carefully and decide which choice best completes the statement or answers the question.
Make no marks in the test booklet. Mark your answer on the separate answer sheet by blackening the letter that corresponds to your choice. For example, if your answer to question 1 is choice "D," black out the "D" next to item number 1 on the answer sheet. Your score on the test will be the number of questions you answer correctly minus one-third of those you answer incorrectly.[3]
You will have 50 minutes for the test. Begin immediately.

MULTIPLE-CHOICE—ANSWERS RECORDED ON TEST PAPER

Directions:

Write your name in the space provided on each page of the test paper before you begin the test.
Read each item carefully and decide which choice best completes the statement or answers the question.
Indicate your answer by printing the letter of your choice on the line to the right of each item. For example, if your answer to question 1 is "B," print the letter "B" on the line to the right of question number 1.
Your score will be the number of items you answer correctly. There is no penalty for guessing, so you should try to answer every question.

[3] Correction for guessing is discussed on pages 72-74.

TRUE-FALSE—ANSWERS RECORDED ON TEST PAPER

Directions:

Write your name in the space provided on each page of the test paper before you begin the test.

Read each of the following statements carefully. If you think a statement is completely true, draw a circle around the "T" in front of the statement. If you think a statement is completely false, or if any part of the statement is false, draw a circle around the "F" in front of the statement.

Your score will be the number of items you answer correctly minus the number of items you answer incorrectly.

Omitted questions do not count for you, but neither do they subtract from your score.

Having completed editing and organizing the items, the teacher has then to consider the manner in which the test will be administered. While it is possible to administer an objective test orally, it is not advisable to do so except for short quizzes of such types as true-false or single-word-or-phrase-answer items. Oral presentations generally introduce an element of speed into the test, which may or may not be desirable. Any extraneous noises in the classroom will put some students at a disadvantage. Also, if the teacher is not careful, she can cue various answers by the inflection and tone of her voice. The use of a projector to present questions avoids some of these disadvantages. For long tests, especially of the multiple-choice type, it is much better to reproduce the test.

The type of duplication process does not matter as long as the quality of reproduction is good. Stencils or master copies should be designed with care and typed without crowding. Each item should be complete on one page if at all possible. It is particularly disturbing if it is continued to the back of the same page. Also, the provision for placement of answers should make for ease in scoring.

The use of separate answer sheets saves a good deal of the teacher's time. If they are not used, it is desirable at least to have the answer spaces lined up on one side of the page so that the key can be placed alongside it. The items on page 22 show a suitable placement for the blanks of completion items.

If a separate answer sheet is used, care should be taken that the numbers and headings of the answer spaces correspond exactly to the numbers and option headings of the questions. The answer spaces on an answer sheet should not be crowded. Furthermore, if a standard answer sheet is used for items of many different types, changes in the

TEACHER-MADE ANSWER SHEET

Name ..... Course .....

Raw score ..... Exam ..... Date .....

Directions:

Be sure you have read the directions and understand them before you start. Read each question carefully. To indicate your answer, blacken the letter corresponding to your choice. Be sure you mark opposite the number of the item you are answering.

Part I. Multiple-Choice	Part II. True-False
Score = number right	Score = number right — number wrong
1. A B C D	1. T F
2. A B C D	2. T F
3. A B C D	3. T F
4. A B C D	4. T F
5. A B C D	5. T F
(Etc.)	(Etc.)

form of response should be noted on the answer sheet. For example, if an answer sheet contains options for four choices, A through D, and true-false items also appear on the test, the change from multiple-choice to true-false items should be noted and directions for indicating "true" or "false" should be given. Teachers would probably do better to prepare their own answer sheets than to use a standard form.

For use with exceptionally large student groups, the instructor may save time by preparing a special scoring key, punching out the correct answer spaces, laying it over each student's paper, and counting the number of visible blackened spaces. When preparing this or any other type of scoring key, it is essential to make certain that the key is absolutely accurate.

Scheduling and Administering the Test

The testing situation should be as favorable as possible for the examinees. It is true that students who are on their mettle, challenged by a test, can often marshal their resources to the point that their perform-

ance is relatively unaffected by undesirable environmental factors, such as excessive heat or cold, poor ventilation, inadequate lighting, extraneous noise, crowding, and so forth. However, being tested under such circumstances is tension-producing, and some students will be more adversely affected than others. The teacher recognizes her responsibility, therefore, for controlling the testing situation.

Here are some suggestions for scheduling and giving tests.

1. Notify the students ahead of time when a major test is to be given, and indicate the general content area it is to cover. When quizzes are given in almost every class hour, notification about them is, of course, not necessary.
2. Schedule major tests early in the day if possible in order to minimize the effects of fatigue; this, however, is often beyond the control of the teacher.
3. Have sufficient space between chairs so that one student's gaze does not fall naturally on another's paper. In the unfortunate situation in which a test must be given to a large group in an overcrowded room, it is sometimes necessary to have two forms of the examination duplicated, each including the same questions but in a different order. (This, of course, necessitates having two answer keys.) In such shifting of test content, it is important to make sure that both forms present material in a logical sequence and framework (see suggestions on assembling the test, page 67).
4. Organize materials and prepare the room so as to avoid interruptions and distractions to the students during the test period. Decide ahead of time whether students completing the test early are to hand in their papers at that time or retain them, whether they are to leave the room or remain till the end of the period, et cetera, and make such points part of the directions.
5. Give oral directions slowly, clearly, and calmly. Evidence of tension in the teacher adds to the students' tension.
6. Tell the students how much time they will be allowed to work on the test, so that they can pace themselves.
7. Be sure the students understand the directions before they start. Ask if there are any questions about what they are to do.
8. Engage in no chatting, and permit none, in the room where the test is in progress. Whispering is particularly distracting.
9. Remain in the room during the entire testing period to answer questions, deal with emergencies, and observe student behavior. Move about the room occasionally to be sure the students are following directions, but avoid disturbing them.

10. Allow all students the same maximum time for the test. All students should start at the same time, and when the time is up, those who are still writing should stop and turn in their papers.

Scoring Objective Tests[4]

Most educational and psychological achievement tests are simply devices used to obtain a rank order of the class with regard to a particular area of achievement. For this purpose, scoring test papers on the basis of the number right is sufficient. Sometimes, however, the chance element is too large a factor in determining the number right to be completely ignored. This is particularly true of the true-false item, where the student who is guessing blindly has a 50 percent chance of guessing the right answer. It is less important in 4- or 5-choice multiple-choice items, where the student has only a 25 or 20 percent chance of guessing correctly. It is advisable to employ a "correction for guessing" when scoring true-false items, but it is not essential when scoring multiple-choice items.

The usual formula that is applied to correct for guessing is based on the assumption that when an examinee does not know the correct answer, she will guess randomly—that is, select her answer on the basis of chance alone. While this assumption is not always tenable, use of the formula does provide a means of discouraging wild guesses. The correction formula is usually written as

$$\text{Score} = R - \frac{W}{k-1}$$

R = the number of items answered correctly, or right; W = the number of items answered incorrectly, or wrong; and k = the number of options or choices per item.

The correction factor, $W/k - 1$, is seen to vary as the number of options varies. In a true-false test, the number of options is two, so that $k = 2$, $k - 1 = 1$, and the scoring formula becomes Rights — Wrongs. For example, in a true-false test containing 48 items, if a student gets 30 right and 12 wrong and omits 6, her score will be 30 — 12, or 18. The "omits" do not count.

It is easy to remember what fraction of the wrong answer to subtract

[4] Some suggestions for the scoring of essay tests were given on pages 9-15.

if one recalls that the denominator is designated by the number of *distracters* in a question (*i.e.*, the number of options minus the correct answer). Hence, in a test of 5-option questions, one subtracts one-*fourth* of the "Wrongs" from the "Rights."

If the instructor wishes to apply the formula to a 4-option multiple-choice test, the formula becomes R — W/3, or Rights — ⅓ Wrongs. Consider a theoretical situation in which two students each know and select the correct answer to 40 questions in a test of 100 questions but do not even have a hunch about the other 60 questions. Suppose that one of them, being cautious, omits the other 60 questions and that the other one guesses wildly on all 60. If each question has 4 options, the guesser will, on the average, get 15 of the 60 guessed items correct. If no formula for correction for guessing is used, the guesser's score will be 40 plus 15, or 55, while her cautious comrade's score will be 40. Thus, there would be a real advantage in wild guessing. If the formula for correction for guessing is used, the score for each of the examinees will be 40. Note that even when the formula is used, the person guessing wildly is, on the average, at no disadvantage—her score is as high as that of the examinee who omits items. (Interpretation is complicated, of course, by the fact that students often, perhaps usually, select wrong answers, not by guessing, but with a real belief that they are right; good test questions have plausible, attractive wrong options.)

If the number of options in a multiple-choice test varies from item to item, the instructor may ascertain the average number of options and correct for guessing on this basis. Generally speaking, however, the instructor may legitimately apply the correction for guessing to true-false items only and ignore it in the case of multiple-choice tests except in special instances. The instructor might wish to use it in tests that are timed—that is, in tests in which speed is a factor—in order to penalize the student who races carelessly through the test and to discourage wild guessing at the close of the examination period.

Combination-response multiple-choice items such as those described on pages 39-42 are scored like any other multiple-choice items—*i.e.*, one point per item. But the question is often asked, "Why bother to set up combination items in that manner? Why not present them in ordinary multiple-choice format, but tell the student that more than one of the options may be correct, and give her a point for each option that she chooses or rejects correctly?" For example, for the question pertaining to hypodermic injection on the bottom of page 41, the correct choices would be as follows:

Which of these steps are correct in giving a hypodermic injection of insulin?

A. Expelling air from the syringe before inserting the needle in the skin. (True—1 point)

B. Sponging the skin with an antiseptic before inserting the needle. (True—1 point)

C. Inserting the hypodermic needle into the skin at a 15-degree angle. (False—1 point)

D. Withdrawing the needle quickly after injecting the solution. (True—1 point)

The teacher should understand that when such a procedure is used, one no longer has a multiple-choice item but *a series of true-false items bundled together with a common stem!* In such a procedure, the teacher would need to consider the desirability of using a correction-for-guessing formula. Also, the thoughtful teacher is likely to find herself unhappy about the weight (credit-value) such questions contribute to the test as a whole. The practice of standardized test makers of having each multiple-choice item count one point was not decided upon lightly.

Analyzing and Interpreting Test Data

Item Analysis

If the teacher discusses a test with the students immediately after they have taken it (as is desirable), the teacher may ask, "How many of you got the correct answer to the first question?" The raised hands will give her an idea of the item's difficulty for that group. Suppose that the teacher also notes that Mary and Helen are among those who missed the answer and that Leslie got it right and says to herself, "Well, I'd expect that." This kind of evidence gives the teacher a very rough idea of the item's discriminating power—its ability to differentiate among students of high and low ability. The procedure of item analysis is carried out to obtain more exact information on these same points, the item's difficulty and discriminating power. The term *discriminating power* is here concerned with item-test correlation—that is, the relation between the functioning of the item and the functioning of the test as a whole.

The simplest way of looking at the **difficulty** of an item is to consider it as nothing more or less than the percentage of the class that got the item right. (It would be more logical if it were called the "easiness" of the item instead, but the term *difficulty* has been used for years.)

To determine an item's discriminating, or differentiating, power (sometimes called item validity), an item-test correlation is obtained. This requires using the papers of a top and a bottom slice of the class—that is, of a high-scoring and a low-scoring group in terms of the scores on the test as a whole. The top and bottom quarters of the class are satisfactory for most classroom purposes. Employing the top and bottom quarters is more useful than employing thirds or halves because the difference between the upper and lower groups is more clearly defined.

The first step in **item analysis** is to arrange the papers in sequence from the highest-scoring to the lowest-scoring paper. Then the papers are divided into three piles, the top and bottom quarters and the middle 50 percent. (The third pile, the middle 50 percent, may be discarded if desired, as may be so when classes are large. In that case, the difficulty of each item will be an approximation obtained only on the basis of the top and bottom quarters.)

Once the test papers have been divided, the teacher can begin to tabulate the responses to each item, recording the number of students who chose each option of each item and the number of omits.

In order to facilitate the recording and the interpretation of the item analysis data, the instructor may use an item card similar to the one shown below. This card should be kept in a permanent item file for possible use of the item in later examinations.

ITEM CARD

Item Number ..... Test ..... Course .....

Key* ..... Date of Examination ..... No. of Students .....

Text of Item

Options

	A	B	C	D	Omits	
Upper 25%						
Lower 25%						$d =$
						$c =$

* The letter of the correct option.

Information obtained from the item analysis is recorded on the item card. The text of the item may be typed on the card, or the item may be cut out and pasted on the card. The keyed response may be indicated by underlining or circling the correct option in the item text and by checking the appropriate option heading in the tally box. While the sample card is designed for a multiple-choice item with four options, it can be used for five-option questions by adding another column. It may also be used for true-false items by recording information in columns A and B alone.

When the responses to each option, including omits, have been tallied separately for each ability group, U_{25}, M_{50}, L_{25} (or just for the upper and the lower 25 percent if desired), it is advisable to convert the numbers into percentages in order to facilitate the comparison of the performance

of groups of different sizes on successive administrations of the same item. The percentages for each group should be based on the total number of examinees in the group. In other words, the percentages corresponding to all of the options for the lower group of students should add up to 100 percent, and likewise for the middle and the upper group.

The difficulty of the item (*d*) is, as stated before, the percentage of the total number of examinees who got the item right. The difficulty of each item may be found by counting all of the students who gave the correct answer and ascertaining what percentage this figure is of the total group who took the test. (If only the upper and lower quarters are being considered, an approximation to the performance of the total group can be obtained by counting the number of students in these groups who got the item right, multiplying the result by 2 to approximate the number in the entire class who got the correct answer, and then calculating what percentage this figure is of the entire class.) Suppose that the instructor finds that the following numbers of students select the correct answer:

Class of 80 Students

U_{25}: 16 students out of 20, or 80 percent
M_{50}: 20 students out of 40, or 50 percent
L_{25}: 8 students out of 20, or 40 percent

Since 44 out of 80 students answered the question correctly, the difficulty is 44/80, or 55 percent. (Approximated on the basis of just the upper and the lower group, it would be $2\ (16 + 8) \div 80$, or 60 percent.) To arrive at the difficulty by averaging the percentages at the right, double the middle percentage and divide the sum of the percentages by 4, since the middle group is twice the size of the others.

A simple measure of an item's discriminating power—that is, an item-test correlation indicating whether or not the item is differentiating effectively between better and poorer students,[1] may be obtained by computing the difference between the percentages of the upper and lower groups that answered the item correctly. In our example, since 80 percent of the upper group and 40 percent of the lower group answered it correctly, then *c*, the index of the item's differentiating power, or its so-called validity, becomes 80 — 40, or 40. If *c*, the difference between U_{25} and L_{25}, is positive (+), as it is in our example, the item is functioning in the desired direction. The greater the magnitude of *c*, of course, the more differentiating the item. If the difference $U_{25} - L_{25}$ is negative (—), then the item is discriminating against the better students and is

[1] Other measures of item-test correlation are used for standardized tests which, while more satisfactory statistically, are more difficult to obtain and are not considered here.

not working in the desired direction, since a greater proportion of low-scoring students than of high-scoring students got the item right.

Sometimes a negative result will appear when the item is keyed incorrectly; computing *c*, therefore, will provide an additional check on the validity of the key. At times, despite all attempts at editing the item, the item still remains ambiguous and "catchy" and tends to penalize those students who know "too much" by leading them away from the correct answer, while those students who know less do not recognize the ambiguity and answer the item correctly on the basis of half-knowledge. It is important, therefore, to examine carefully all negatively differentiating items.

Since the discriminating power of test items is directly related to the internal consistency of the test as a whole, it is obvious that if all the questions in a test are homogeneous, their *c*'s will probably be higher than would be true if the test covered a variety of content. Even if all the questions are suitable and worthwhile, a test in clinical nursing that includes items on human relations, nutrition, pharmacology, clinical knowledge, and so forth, is not likely to have an internal consistency as high as that of a test in, say, nutrition alone. The more "integrated" a test is, including content from many subjects, the lower the *c* indices of its items are likely to be. This understanding is important when tests are compared. For an individual item, a negative discriminating power may possibly indicate that the item tests an ability different from those abilities tested by the other items.

To demonstrate how item-analysis data may help the teacher to determine what materials have been learned and what materials need additional review, and to indicate how these data can help the teacher to improve future tests, let us examine the results of an item analysis carried out on some of the items presented in the unit in health problems of the aged. The results are based on the responses of a hypothetical sample of 80 students. In Example I the scores are those which have just been presented as an illustration for figuring item difficulty and discriminating power.

Example I (from situation presented on pages 64-65)

Which interpretation by the nurse of the source of the daughter's attitude is most justified?

A. It derives from her earlier family relationships.
B. It probably is caused by a number of unpleasant experiences with older people.
C. It is due to her high regard for her father's personality.
D. It is based on her understanding of how habits develop.

The following analysis will give the instructor further insight into the effectiveness of each distracter.

PERCENT OF STUDENTS CHOOSING OPTIONS

	A	B	C	D	Omits	
U_{25}	80	00	05	15	00	
						$d = 55\%$
M_{50}	50	05	15	25	05	
						$c = 40$
L_{25}	40	10	15	25	10	

All the distracters seem to be working properly, so no additional editing is required. An item of this type is considered good from the point of view of statistical considerations and would be suitable for reuse.

Example II

Extension of the ultimate life limit of a species is dependent upon

1. genetic changes.
2. prevention and control of degenerative diseases.
3. reduction of mortality rates.

A. 1 only.
B. 2 only.
C. 2 and 3.
D. All of them.

PERCENT OF STUDENTS CHOOSING OPTIONS

	A	B	C	D	Omits	
U_{25}	05	00	15	80	00	
						$d = 25\%$
M_{50}	10	10	30	45	05	
						$c = -10$
L_{25}	20	25	25	30	00	

The illustration above presents a rather difficult item ($d = 25$) that is at the same time negatively discriminating ($c = -10$). Inspection of the data reveals that only 15 percent of the high-ability group responded correctly, while 25 percent of the low-ability group selected the right option. Additional inspection of the data and the item may give the instructor a better understanding of what really happened. The responses made by the L_{25} group follow an essentially random distribution—that is, the distribution of responses could have resulted from wild guessing. The distribution of responses for the high-ability group shows that 80 percent selected option D. The teacher must ask herself, "Am I really certain that the answer I have keyed is the correct one? If so, why did the abler

students go astray? What information, or misinformation, about the effects of genetic changes influenced their choice of answer?" As it stands, this item should not be used again without further teaching unless option D is changed. If the keyed answer is legitimate, the item may be presented again later to determine whether or not additional review has clarified the concept.

Example III

A 55-year-old widow who has not worked for over 30 years finds it necessary to get a job.

Which of these agencies would be most helpful to her?

A. Local guidance clinic.
B. Local private employment agency.
C. U. S. Department of Labor.
D. U. S. Employment Service.

PERCENT OF STUDENTS CHOOSING OPTIONS

	A	B	C	D	Omits	
U_{25}	00	00	10	90	00	$d =$ 89%
M_{50}	00	00	10	90	00	$c = +5$
L_{25}	00	10	05	85	00	

For this item, $d = 89$ percent, which indicates that almost all of the students in the class selected the correct answer. The item is very easy, and its power to differentiate between better and poorer students is low—$c = +5$. (An item that is so easy that all students get it right will obviously have a c, or discriminating ability, of zero.) The plus sign, however, indicates that the item is working in the desired direction. If the item is to be made more difficult, it will need to be completely restructured.

The illustrations discussed here are typical of the kinds of information teachers may get as a consequence of carrying out an item analysis on test results. Besides furnishing diagnostic information, the data guide the improvement of future tests.

If an instructor has used an item or a series of items in another examination, or if she has revised some items and has presented them for a second time, she will usually wish to compare item analysis results to note whether or not any changes she had made in teaching or in the items themselves are manifest. It is interesting to use a "core" group of items from year to year; data from such items help in assessing the ability of successive student groups. To facilitate the comparison of two or more sets of item statistics, the instructor may wish to develop an item card for repeated use such as that shown below.

ITEM CARD FOR REPEATED USE

Item No.....Key.....Course.....

Text of Item

Dates Given	No. of Students	Percentage of Students Selecting Options						
		A	B	C	D	Omits	*d*	*c*
1.								
2.								
3.								
4.								
5.								

Such a card permits the instructor to note quickly whether or not the item's difficulty or its discriminating power has varied and whether the percentages of responses to the various options have changed. The instructor should be forewarned, however, that item statistics based on a small number of cases, even 100 cases, are somewhat unstable. While *d* is more stable than *c*, both are shaky when based on a small number of cases. Only major changes in *d* or *c* should draw serious consideration.

A file of test items of proved worth is extremely valuable to the instructor. Whenever a test is to be developed, however, it is important to consider recent trends and developments in the field covered by the test. It is very unwise to pull an old test from the file and use it without careful study.

Analyzing and Interpreting Test Scores

A "raw," or "gross," test score in itself is meaningless. It derives meaning only by comparison with the performance of the group in general. For this reason, test scores should be organized to reflect the attainment of

the total group. A good beginning is to list all the possible raw scores between the lowest and the highest in one column and to record in a second column the number of students making each score. A list of this kind is called a **frequency distribution,** with "distribution" referring to the spread of scores and "frequency" to their incidence, including zero.

Part of a frequency distribution of the scores of 80 students who took the test prepared for the unit in health problems of the aged is presented in Table 1. From a complete table it is possible to ascribe general meaning to any score in the total distribution—that is, the instructor can note that scores in the 60's are near the top of the distribution, that scores in the 50's are about average, and that scores in the 30's reflect poor performance.

Although this arrangement is orderly and helpful, the data are too scattered and fragmentary for any group pattern to emerge. In order to determine the general shape of the distribution, it is desirable to prepare a frequency distribution of the scores grouped into categories, or **score intervals.** While this procedure loses information regarding the performance of specific students, it provides a clearer picture of group performance.

Table 1

FREQUENCY DISTRIBUTION OF SCORES ON UNIT EXAMINATION "HEALTH PROBLEMS OF THE AGED" FOR 80 STUDENTS

(Ungrouped Data)

Score	*Frequency*
73	1
72	0
71	0
70	1
69	2
68	1
67	0
66	2
65	3
64	2
..	..
..	..
..	..
32	1
31	1
30	0
29	0
28	0
27	0
26	1
	Total = 80

Table 2

FREQUENCY DISTRIBUTION OF SCORES ON UNIT EXAMINATION "HEALTH PROBLEMS OF THE AGED" FOR 80 STUDENTS

(Grouped Data)

Score Interval	*Midpoint*	*Frequency*
71-73	72	1
68-70	69	3
65-67	66	6
62-64	63	7
59-61	60	9
56-58	57	10
53-55	54	8
50-52	51	7
47-49	48	7
44-46	45	9
41-43	42	5
38-40	39	4
35-37	36	3
32-34	33	2
29-31	30	1
26-28	27	1
		N = 80

Table 2 presents a frequency distribution of the original 80 scores grouped into score intervals. Notice that the general pattern of the group is more easily discerned, although it is impossible to state exactly the number of students making any particular score. In general, the data show that most of the class scored near the top of the distribution, indicating that the test was easy for the group as a whole and that it was not particularly effective for differentiating among the abler students. A piling up of the majority of scores near the bottom of the distribution would have meant that the test was difficult for the group.

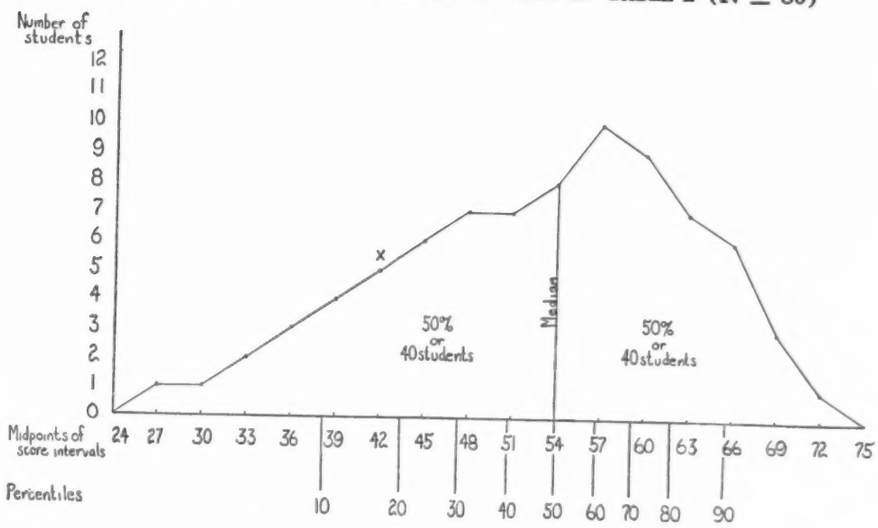
In grouping data, the instructor has to decide upon the number of score intervals and the width of each interval—that it, the number of scores in it. The students may, of course, be classified into just one large interval, the range. The smaller the number of intervals, the larger the span, or width, of each interval and the greater the loss of information about individuals. The greater the number of intervals, the smaller the span of each interval and the smaller the loss of information about individuals. In order to balance loss of information against unwieldiness, it is advisable to use from 10 to 20 intervals; 15 is a desirable compromise.

An estimate of the width of the interval is easily obtained by dividing 15 into the range and rounding the result to the nearest whole number. Generally speaking, for computational purposes, odd interval widths such as 3 and 5 are preferred to even widths such as 4 and 6 because the mid-

score in the interval is then a whole number. To illustrate from the data in our sample, the range, 73 minus 26 or 47, was divided by 15 to yield 3 2/15, which, rounded to the nearest whole odd number, yielded a score interval of 3. Starting with the lowest score, the first interval included scores 26, 27, and 28; the next interval, scores 29, 30, and 31; and so on. Once the score intervals had been established, the number of students falling into each interval was determined and recorded in the frequency column.

Figure 1

FREQUENCY POLYGON OF DATA PRESENTED IN TABLE 2 (N = 80)



Another way of presenting the data in Table 2 is to use a graphic device. The line graph in Figure 1 is known as a **frequency polygon.** To prepare this graph, the midpoints of the score intervals were recorded on the horizontal line, while the vertical line contained the frequency scale. A dot corresponding to the appropriate frequency of each interval was placed on the graph above the midpoint. Thus, the point labeled X in the line graph indicates that 5 students achieved scores of 41 to 43 points. The dots were then connected by straight lines to furnish a picture of the distribution presented in Table 2. Notice that the lopsidedness, or **skewness,** of the distribution is more obvious in the polygon than it is in the frequency distribution. The distribution is said to be negatively skewed because the tail is toward the left. If the tail pointed toward the right with the scores piled up at the bottom, the distribution would be positively skewed.

Measures of Central Tendency

After ascertaining the general shape of the distribution, the instructor will wish to know what score represents the group average, or central tendency. Statisticians use a variety of averages; the commonest are the mode, the median, and the arithmetic mean.

The mode is by far the easiest to note, for it is simply the score with the greatest frequency. If the scores have not been grouped, the chances are that no one score will clearly emerge as the mode, especially if the number of students is small. If the scores have been grouped, the midpoint of the score interval with the greatest frequency may be called the mode. The mode, however, is a very unstable average. For an explanation of the instability of the mode, the reader should consult statistical references. In our illustration, the mode is 57 (see Figure 1). Sometimes a distribution shows two intervals with high frequencies (two "humps") and is termed bimodal. Such a distribution on an achievement test is likely to occur when two groups of different abilities are tested in one group.

The median is a more generally useful estimate of the average score. The median is the score that divides the group into two equal halves, so that 50 percent of the students score above it and 50 percent below it. The line drawn vertically to the baseline of the graph in Figure 1 at the median divides the area of the graph into two equal parts. The simplest way to get the median is to arrange the test papers in the order of their scores and count halfway up or down. If the number of cases is even, the median is the score halfway between the scores of the two middle persons. In our data, for example, the total number of cases is 80, so the median is halfway between the scores of the 40th and 41st persons and happens to be 54. If the number of cases were 81, then the median would correspond to the score of the middle, or 41st, person. Somewhat similar procedures are used to compute the median from grouped data, and interested instructors may refer to standard statistical texts for detailed explanations. Most instructors in schools of nursing, however, work with small numbers of students and will find it more feasible to obtain the median from ungrouped data.

The arithmetic mean is the commonest measure of central tendency. The mean may be obtained from ungrouped data by adding all of the scores and dividing the sum by the total number of scores. In our own example, the total number of scores is 80. Suppose that the sum of these 80 scores is 4,215. The mean, then, is equal to 4,215 divided by 80, or 52.69. The mean may be obtained from grouped data in the same way except that the midpoint, or midscore, in each interval is used instead of

4

the individual scores. A number of methods of computing the mean from grouped data are presented in standard elementary statistical textbooks. In general, the difference between the means computed from ungrouped and grouped data will be negligible. If the number of scores is small—say, less than 30—it is probably easier to use the direct, or ungrouped-data, method; if the number of scores is large, the grouped-data method is preferable.

An average is generally the best single index of the performance of a group on a test. If the performance of two or more groups is to be compared, the instructor will wish to examine their respective averages. If visual inspection alone is to determine the meaningfulness of the differences, either means or medians may be used. (Of course a mean should be compared only with another mean, and a median only with another median.) When, however, statistical methods are used to determine the meaningfulness of score differences among groups, the mean is almost always used. The mean is greatly influenced by the addition of new scores at either end of the range; the median is less influenced. If the instructor requires an average free from the influence of extreme results, the median should be used; if the average is to enter into other statistical operations, the mean is preferable. Generally, the mean and the median will yield similar but not identical scores. If the distribution is symmetrical, the mean and the median will be identical. To the degree that the distribution is skewed, the mean and the median will differ.

Measures of Variability

Once the general shape and average score of a distribution have been ascertained, it is desirable to obtain a measure of how the scores spread out or vary around the measure of central tendency. A measure of score variability or scatter is an indication of the homogeneity or heterogeneity of the group. It reflects the degree to which the scores differ from the average. Two groups may have the same average, but they may have entirely different distributions. Consider the following example of the scores of two groups, of four students each, on one test:

scores of one group: 59, 51, 47, 43

scores of second group: 83, 64, 31, 22

Both sets of scores have the same mean, 50, but whereas the scores of the first group cluster about the mean, the scores of the second group show considerable variation. Instructors would plan their teaching differently for the two groups. It is important, therefore, to obtain a measure of the variability of the scores.

One measure of dispersion, the **range,** has already been mentioned. It is the difference between the lowest and highest scores in the distribution. The greater the range, the more variable the scores. But like the mode, the range is rather unstable; the addition or deletion of a score at either extreme can drastically change its value.

Another measure of dispersion that has merit because it is easily computed and understood is the **average deviation.** This statistic, however, is not highly regarded by statisticians and test specialists because it cannot be used in a number of other statistical procedures. If relationships with other statistics are unimportant, however, the average deviation may be used.

The average deviation means the "average deviation from the mean"; that is, if the mean were subtracted from every score in the distribution and the absolute values of the deviations were added together and averaged, the result would be the average deviation.

If all the deviations from the mean are totaled, the sum will always be equal to zero, because the mean is the point of balance in the distribution and plus and minus distances will cancel each other out. If, however, we ignore the plus and minus signs in our addition and add only the absolute values, we will obtain a number other than zero, which when divided by the number of scores will yield the average deviation. For example, suppose 1, 2, 3, 4, and 5 are our test scores. If the mean, 3, is subtracted from every score, we obtain -2, -1, 0, $+1$, and $+2$. If, in adding the 5 deviations, we take account of the plus and minus signs, the sum will be zero; on the other hand, if we ignore the signs and add only the absolute values, we obtain a sum of 6. Dividing 6 by 5, the number of scores, we obtain 1.2, which is the average deviation of each score from the mean. The greater the magnitude of the average deviation, the greater the amount of variability in test scores.

The standard deviation is based on the same principle as the average deviation but is more useful mathematically. In computing the standard deviation, the plus and minus deviations from the mean are squared and thereby become positive numbers. The average of the squared deviations may then be computed and the square root of this average obtained to yield the standard deviation.

As an illustration, let us compute the standard deviation from the same data that we used for the average deviation (see Table 3). Column 3 in Table 3 is derived by subtracting the mean, 3, from each score in the distribution. The results of Column 3 are then squared to yield Column 4, the squares of the deviations. The sum of the squared deviations, 10, is now divided by 5 to yield 2, the average of the squared deviations. To

obtain the "unsquared" average of the deviations, we need to obtain the square root of 2, which is 1.414, the standard deviation. Comparing this value with 1.2, the value of the average deviation, we note that they are rather similar. (The standard deviation of the data presented in Table 2 is 10.2.) The standard deviation is used more because it fits neatly into other statistical theory. Its chief value lies in its direct relation to the theoretical normal curve, a relationship that will be discussed briefly in the section on standard scores.

Table 3

COMPUTATION OF THE STANDARD DEVIATION

Column 1 *Score*	*Column 2* *Frequency*	*Column 3* *Score minus Mean*	*Column 4* *(Score minus Mean)*^{2}
5	1	2	4
4	1	1	1
3	1	0	0
2	1	−1	1
1	1	−2	4
Sum = 15	N = 5		Sum = 10

Average = 10/5 = 2

Square root of average = $\sqrt{2}$ = 1.414

While the procedure illustrated above is adequate for small numbers of test scores, the computation becomes burdensome when the number of scores is large or when data are grouped. Interested readers may consult any introductory statistical text to find methods of computing the standard deviation from grouped data or for large numbers of cases.

So far, we have used the mean as the focal point in computing measures of dispersion. The median, too, is sometimes used. We have defined the median as the score that divides the distribution into halves, so that 50 percent of the scores fall above it and 50 percent below it. If, instead of halves, the distribution is divided into equal quarters, the median represents the point below which two quarters fall, or the second **quartile.** Similarly, the point below which 25 percent of the distribution falls is the first, or lower, quartile, and the point below which 75 percent of the scores fall is the third, or upper, quartile. The difference between the upper and lower quartiles provides a measure of dispersion, known as the quartile range, within which fall the middle 50 percent of the scores.

The measures of central tendency and variability discussed in the preceding sections provide the instructor with indices by which the distribu-

tion of test scores may be understood. Presented within the frame of reference provided by these indices, individual scores themselves take on meaning.

Percentiles

Educators have converted raw scores into scales whose values are meaningful from test to test and from group to group. The raw score transformations which have been widely adopted are percentiles and standard scores. Both percentiles and standard scores reflect the status of the individual as compared with other members of the group. But, whereas a percentile score indicates the percentage of individuals in a group falling below a specified score, a standard score reflects the position of the individual with regard to the group average. The median and quartiles are part of the percentile system, while standard scores are directly related to the mean and the standard deviation.

In discussing the lower quartile, the median, and the upper quartile, it was stated that 25 percent, 50 percent, and 75 percent of the group, respectively, fell below these points. Similarly, every score in the distribution may be characterized by the percentage of the group that falls below it. Translating raw scores into percentiles, then, is a useful means of reporting test results, for percentiles have the same meaning from test to test or group to group. Knowing, for example, that a student scored at the 60th percentile is meaningful, for it tells one immediately that 60 percent of the group scored below that student.

To translate each score into percentile ranks, we merely follow the procedure used to determine the median, or 50th percentile. For example, to find the 20th percentile, the number of cases that compose the lowest 20 percent of the group is determined by multiplying the total number of cases by .20. In Table 2 on page 83, the total number of cases is 80; multiplying 80 by .20, we obtain 16 cases. Counting up 16 cases from the bottom of the frequency column, we arrive at the upper limit of the interval 41-43. The score 43 (actually 43.5), then, has a percentile rank of 20, indicating that 20 percent of the group scored below 43. Other percentiles are computed similarly. The ten percentile values, 10, 20, 30, and so on to 100, are known as the **deciles.**

It should be understood that while there are equal numbers of students between equal percentile differences (for example, the number of students between the 40th and 50th percentiles is the same as the number between the 10th and 20th or the 70th and 80th, and so forth), the differ-

ences between percentiles do not necessarily relate to equal differences in performance. Differences in performance are reflected by the number of items answered correctly. Because most students tend to pile up near the center of most score distributions, the number of points separating students in the middle of the distribution is smaller than the number of points separating students at the extremes. Differences in performance, therefore, are greater between the 10th and 20th percentiles, for example, than between the 40th and 50th percentiles or the 50th and 60th percentiles. It is important to understand this point when using percentile scores as a basis for interpreting student progress.

Figure 2

NORMAL DISTRIBUTION OF EXAMINEES DIVIDED INTO DECILES

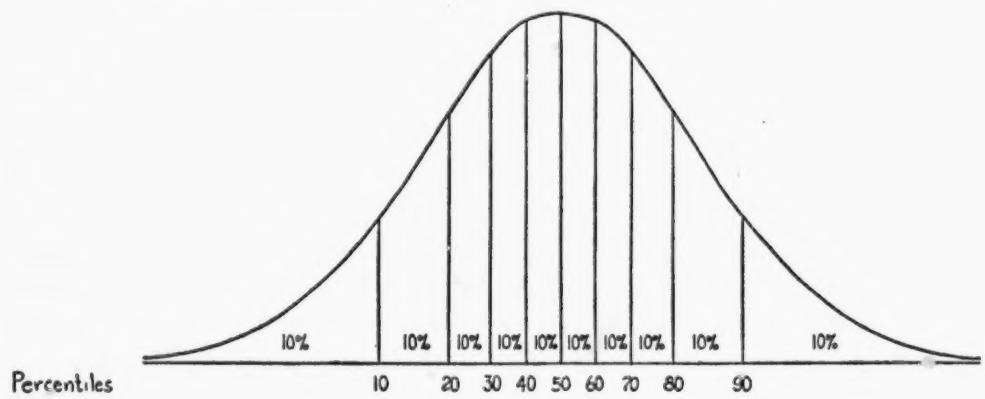


Figure 2 presents a "normal distribution" graphically. The deciles corresponding to the appropriate raw scores are presented on the baseline. Between each pair of deciles there is, of course, 10 percent of the test score distribution; that is, the deciles divide the distribution into 10 equal parts. The number of students in each of the segments is the same, since each segment includes 10 percent of the area under the curve. The middle segments are narrow and high, while the extreme segments are squat and elongated. Therefore, the number of raw score points that separate students at the center of the distribution is smaller than the number of raw score points that separate students at the extremes. This can be seen in Figure 1 and Figure 3.

Workers in the health field tend to interpret the word *normal* as meaning healthy. But the normal curve is the curve of chance; there is nothing intrinsically "good" about it. Confusion results when instructors get the idea that their tests *ought* to provide scores falling into a normal curve, regardless of either the purpose of the test or the abilities of the students.

Percentiles of Average Scores

A teacher may wish to obtain the mean of two or more test scores. For example, if her students have taken an examination that was also given to another group, she may wish to find out how the average performance of her group compares with that of the other group or with the average of the total number who took the test. Again, if the students in her class have taken several tests, she may wish to compute, for each student, an average score on all the tests. A faculty group may also find that an average of the scores that individual students have made on tests in several courses is of assistance in evaluating the composite, or over-all, performance of each student.

Often, the scores to be averaged will have been reported in percentiles. Moreover, since the teacher or the faculty group will probably want to utilize the final results for purposes of comparison, it will be convenient to have the average scores expressed in percentiles. At first glance, therefore, it might seem that the easiest course to follow would be to average the percentiles.

Percentiles should not be averaged for these purposes, for an "average of percentiles" is not the same as a "percentile of the average score." As has been pointed out, when raw scores are represented by equally spaced points along the base of a curve, the percentiles are not spaced at equal intervals. For instance, in Figure 3, the raw score 63 is exactly midway between the raw scores 53 and 73 of which it is the average. The percentiles that correspond to the raw scores 53, 63, and 73 are 50, 84, and 98; but 84, the percentile of the average score 63, cannot be obtained by averaging 50 and 98.

To further clarify why percentiles should not be averaged, let us suppose that a teacher wishes to obtain the average of one student's performance on several different tests. The teacher will realize that an individual who is outstanding in one area tends to be outstanding in other areas also, and that a student who is markedly deficient in one area is below the average in other areas more often than not. There is, however, another factor to be considered—namely, the regression effect that results from the fact that individuals are not likely to be equally proficient in all areas.

If we consider a thousand individuals who are at the 90th percentile in language ability, they will tend, on the average, to be somewhere above the 50th percentile but below the 90th percentile in mathematical ability. An individual in this group at the 90th percentile in language ability who happens also to be at the 90th percentile in mathematical ability is unusual even for this group. It is for this reason that the composite score on a

battery of several tests tends to be more extreme than an average of the percentiles would indicate. In fact, the composite score may fall outside the range of the percentile scores on the individual tests. The percentile rank of a composite score, therefore, must be obtained from the original raw scores. An example may help to clarify this.

Suppose that ten students took two tests and ranked as shown. Each student is designated by a letter. Percentiles of 5, 15, and so on are used because each of the students is considered to "fill" an interval of 10 points, and each interval is designated by its midpoint.

FIRST TEST

	A	B	C	D	E	F	G	H	I	J
RAW SCORE	31	35	36	40	43	44	46	50	54	56
PERCENTILE	5	15	25	35	45	55	65	75	85	95

SECOND TEST

	B	I	F	J	G	C	A	H	D	E
RAW SCORE	60	70	78	81	83	84	86	90	94	99
PERCENTILE	5	15	25	35	45	55	65	75	85	95

Note that student H was at the 75th percentile on both tests. At first glance, one might suppose that the 75th percentile could be said to be her average. But note what happens when the raw scores are averaged (supposing that no other weighting is desired than the raw scores provide).

AVERAGE SCORES

STUDENT	A	B	C	D	E	F	G	H	I	J
SCORE ON 1ST TEST	31	35	36	40	43	44	46	50	54	56
SCORE ON 2ND TEST	86	60	84	94	99	78	83	90	70	81
SUM	117	95	120	134	142	122	129	140	124	137
AVERAGE	58	48	60	67	71	61	64	70	62	68

PERCENTILES OF AVERAGE SCORES

	B	A	C	F	I	G	D	J	H	E
AVERAGE SCORE	48	58	60	61	62	64	67	68	70	71
PERCENTILE	5	15	25	35	45	55	65	75	85	95

Student H, who was at the 75th percentile on both tests, is at the 85th percentile when the scores are averaged. And note that student E, who was at the 45th percentile on the first test and at the 95th on the second, has an average at the 95th percentile, not the 70th. Student A's average is at the 15th, not the 35th, percentile.

It is clear that the percentile of a composite score may be higher or lower than the average of the percentiles of the contributing scores. It may even be higher or lower than the percentiles of any of the contributing test scores. (Student H's was higher.) This is true even if the contributing

tests happen to have the same number of questions and are to be given the same weights.

In computing percentiles, the instructor will find it easier to work with ungrouped data, especially if the number of cases is small. Methods of computing percentiles from grouped data are presented in all introductory statistical texts.

Standard Scores

Nursing instructors often use percentile scores for their own tests, and the results of NLN achievement tests are reported in percentile scores. Standard scores are less commonly used in schools of nursing, but because the results of State Board Test Pool Examinations are reported in standard scores, a brief explanation is included here.

As has been stated, the standard score is a measure of the distance between an individual score and the group average—in this instance, the mean. However, if we compute the difference between a raw score and the mean, the result is still expressed in raw score units; for example, if the mean is 53 and the score is 49, the difference is —4 raw score units. It is obvious that a score of 49 is below average, but how much below average is it? Is a deviation from the mean of —4 on one test equal to a difference of —4 on another test? We still face the difficulty of interpreting raw score units.

In order to deal with this difficulty, the differences in raw score units may be transformed to differences expressed in standard deviation units. This is accomplished by dividing the raw score deviation by the standard deviation.[2] Then, by virtue of the relationship between standard deviation units and the theoretical normal curve, the standard deviation unit assumes universal meaning. In this system, a score at the mean yields a difference of 0, a score 1 standard deviation below the mean yields a value of —1 standard deviation unit, while a score 2 standard deviations above the mean yields a value of +2 standard deviation units.

In order to avoid having to work with plus and minus signs and decimals, test specialists have adopted a number of practices. One possibility is to multiply the standard deviation unit by 100 and add 500 to the result. This makes a score at the mean equal to 500, a score 1 standard deviation above the mean equal to 600, and a score 1 standard deviation below the mean equal to 400. Other scores are interpreted similarly. These scores are known as **standard scores.**

This system is used for the State Board Test Pool. Other standard score systems use scores at the mean equal to 50 or 100 rather than 500.

[2] For the method of obtaining the standard deviation, see pages 87-88.

Figure 3

THE THEORETICAL NORMAL CURVE AND ITS RELATIONSHIP TO STANDARD SCORES AND PERCENTILES

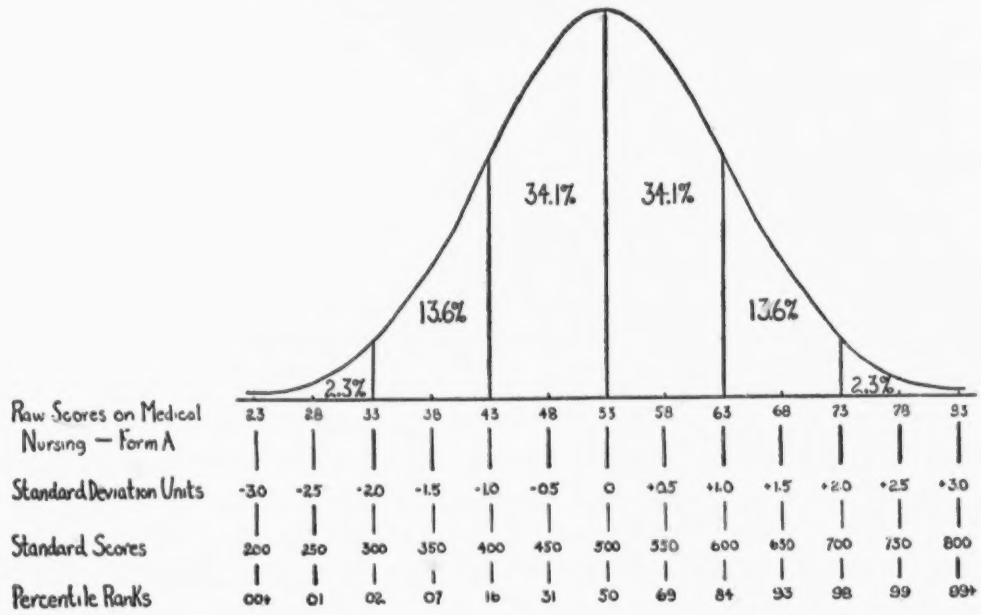


Figure 3 shows the general relationship between the standard score and the normal curve, and also the relationship between standard scores and percentile ranks.

The normal curve is symmetrical, which means that the distribution of scores on one side of the mean is a mirror image of the distribution on the other side. Fifty percent of the cases fall above the mean, and 50 percent fall below it. This indicates that in a normal curve, the mean and the median coincide. Between the mean and 1 standard deviation above it lie 34 percent of the cases. Similarly, because the curve is symmetrical, 34 percent of the cases lie between the mean and 1 standard deviation below it. Between 1 standard deviation above the mean and 2 standard deviations above the mean lie 14 percent of the cases. The same is true between 1 and 2 standard deviations below the mean. Beyond 2 standard deviations above the mean lie only 2 percent of the cases; the same is true for the lower end of the distribution.

The properties of the normal curve, therefore, may be used as follows. A student who scores 1 standard deviation above the mean will get a standard score of 600. But scoring 1 standard deviation above the mean also indicates that the student did better than the 50 percent below the mean plus the 34 percent between the mean and 1 standard deviation above it, or 84 percent of the class. This is the same thing as saying that

the student scored at the 84th percentile. In like manner, all standard scores can be translated through the normal curve to yield the corresponding percentile rank. If the distribution is skewed, however, the properties do not correspond.

One of the questions commonly asked about tests on which standard scores are provided is "What is the highest possible score?" Being told that each test may have a different highest possible score can make the scoring process seem very mysterious. Yet the variations in top possible standard scores become obvious when one understands that standard scores are related to the means, standard deviations, and length of tests, and that these vary from one test to another.

Suppose that a test is made up of 120 questions, that the mean (average) score is 60, and that the standard deviation is 15. The highest possible score will be 4 standard deviations above the mean, because $60 + 15 + 15 + 15 + 15 = 120$. The scores falling at 1, 2, 3, and 4 standard deviations above the mean are therefore as follows:

60	**75**	**90**	**105**	**120**
Mean	1 SD	2 SD	3 SD	4 SD

Since 120 is the total number of questions in the test, no one can get a score higher than 4 standard deviations above the mean. If the mean is assigned an arbitrary value of 500 and the standard deviation a value of 100, the highest possible score will be 900.

Original Score	**60** Mean	**75** 1 SD	**90** 2 SD	**105** 3 SD	**120** 4 SD
Standard Score	**500**	**600**	**700**	**800**	**900**

If the mean were 90, with a standard deviation of 12, the highest possible standard score would be only 2.5 standard deviations above the mean, or 750.

90	**102**	**114**	**120**
Mean	1 SD	2 SD	2.5 SD
500	**600**	**700**	**750**

This same procedure used in figuring highest possible standard scores can be used for ascertaining lowest possible scores. However, it should be remembered that if a correction-for-guessing formula is used in determining original scores, it is theoretically possible for examinees to get original scores below zero; the lowest possible standard score would be one that is equivalent to the lowest possible below-zero original score.

Unlike percentiles, standard scores can be averaged. For example, a person who achieves a score of 500 on one test and 600 on another test is in the same average position as a person who has a standard score of

550 on each of the two tests. The results of such averaging, however, no longer have the same standard deviation as the originals. This is because it is much rarer for persons to have extreme averages (either very high or very low) than it is for persons to have extreme scores on a single test. This fact has implications for classroom grading, as well as for formal standard scores.

Letter grades assigned to classroom tests are often an approximation of standard scores. If, for example, A is assigned to the top 4 percent of the group, B to the next 24 percent of the group, and C to the middle 44 percent of the group, and so on, in effect standard scores have been assigned. Suppose several tests have been so graded during a course. If the instructor wishes to assign final grades on the same basis of strictness as the previous tests, she will not assign A's just to those who have an A average; she will assign A's to those students whose averages are in the upper 4 percent of the class, B's to the next 24 percent, and so forth.

For further discussion of standard scores and percentiles, the reader should refer to introductory statistical or measurement textbooks.

Using Teacher-Made Tests

It was pointed out in the first pages of this manual that test scores, when regarded as a criterion of student growth, provide valuable data for assessing the merits of various aspects of the learning milieu. The present section is concerned with further aspects of the utility of tests in improving instruction and their use as a partial criterion in assigning student grades.

Tests in the Integrated Curriculum

Faculties of schools of nursing experiment with different curriculum structures, endeavoring to interweave subject matter in a way that will assist students to synthesize learnings. Both the external manipulation of the curriculum and the internal synthesis within the student are called integration, though one is cause and the other is hoped-for effect. Integrated tests, which cut across a number of broad curriculum strands and include questions pertaining to a whole constellation of abilities that compose an over-all nursing competence, can help the student to see relationships. Insofar as the integrated test does this, it is a teaching tool; it may also be an excellent measuring tool, but its function in teaching should not be confused with its measuring function.

The student's total score on an integrated test provides measurement information only on the over-all competence to which the test content pertains. The total score does not help the teacher or the student in assessing the student's attainment of individual abilities included within the competence. The fact that a student's score is at the sixtieth percentile on an integrated medical-surgical nursing test does not help the teacher to decide how well the student understands diet therapy or the needs of patients having chest surgery. The fact that the average student in the class got a mean raw score of 82 on an integrated maternal-child nursing test of 140 questions is of little assistance to the instructor who wants to compare her students' understandings of normal child development with their understandings of sick children. A total score, even on a subject-matter area such as biochemistry, does not provide information on the students' ability to apply principles as compared with their knowledge of facts. These teachers will obtain the information they want only

from tests narrower in content than the integrated tests mentioned, or by classifying the individual test questions on integrated tests according to the ability or the topic to which they pertain and obtaining subscores.

An integrated test may not contain enough questions to warrant subscores on all of the areas on which the teacher desires information. Perhaps the obstetric nursing instructor would like a subscore on interpersonal aspects, but the test covering the first unit of her course includes only a few questions on interpersonal relationships. A subscore based on these few questions would not be justified (would lack content validity and doubtless be low in reliability—see page 65). But perhaps if these questions are added to other questions on interpersonal relationships that have been or will be included in tests on other units of the course, a subscore will be justified. There is no magic number to suggest as the minimum justifying a subscore; it depends on the subject, and attention must be given to the quality as well as the quantity of questions. In fact, proper range and balance of content within the subarea being tested are even more important than is the number of questions.

The teacher may wish to code items for subscores in terms of levels of cognitive abilities tested (see page 50) or in terms of subject matter divisions (for example, antepartal, partal, and postpartal care, or diseases of the circulatory system, diseases of the digestive system, et cetera). She may use a grid specifically designed for her own course or unit, such as the one presented on pages 56-58, classifying each test question according to its appropriate "box" in the grid. Or perhaps the faculty has developed a subject-matter classification system for use in all clinical areas and the instructor wishes to study student attainment in terms of that ability classification. Here is such a classification system.

A. The selection and carrying out of physical measures
B. The theory of nursing and medical care, exclusive of psychological aspects
C. Interpersonal responses to patients, families, and others, and measures to provide kinds of emotional climates
D. The theory of psychological aspects of care
E. Differentiation between normal and abnormal (not in terms of specific diseases); knowledge of physical and mental health, growth, and development
F. Manifestations of specific diseases and abnormalities
G. Cause and control of disease
H. Roles and functions of other workers, and those of nurses as differentiated from other workers
I. Roles and functions of agencies and institutions; sources of information

Suppose that a teacher of medical-surgical nursing has coded in categories A through I all of the items in a test she is giving at the end of the first unit of her course. Her recording might be as shown in the following table:

TEST GIVEN AT END OF UNIT 1

Ability Categories	Total Possible Points	Flora Amber	Joy Green	Iris White			Class Mean
A	21	16	18	20			
B	17	10	14	12			
C	5	4	5	3			
D	6	3	5	4			
E	7	6	7	5			
F	12	9	10	11			
G	8	4	5	6			
H	2	2	1	0			
I	2	1	1	0			
Total Test	80	55	66	61			

The number of items pertaining to each ability in this single test probably would not warrant subscores, but the number of items in several tests, summed, might provide meaningful subscores.

If the teacher has categorized the items in the other tests given in the first unit of her course, she can obtain totals for whatever categories interest her. For example, the record for category A might be as shown in the table below. The summing of the scores assumes that the teacher wants the raw scores to exert their weight (influence) without any manipulation.

(One of the values of keeping such continuous records of raw-score

CATEGORY A IN UNIT 1 TESTS

Test	Total Possible Points	Flora Amber	Joy Green	Iris White
Quiz 1	6	3	5	4
Quiz 2	9	5	7	6
Mid-unit test	17	11	14	12
Quiz 3	7	4	5	4
End-of-unit test	21	16	18	20
Total	60	39	49	46

achievement in a course is that the relative achievement of the students can be determined at any time.)

A young instructor, feeling swamped by the sheer multitude of possibilities for evaluation, may protest, "But I can't possibly get subscores for every aspect of my course that has some degree of importance. It would take thousands of questions and a large number of the students' course hours." The answer would seem to be for the instructor to plan to obtain data routinely for only a restricted and reasonable number of abilities but to study other abilities occasionally for purposes of curriculum evaluation. An over-all faculty plan to provide for an organized approach to such studies is desirable.

Identifying Strengths and Weaknesses by Means of Pretests and Diagnostic Tests

The scores and subscores of an individual student on any valid achievement test will of course provide information on the student's strengths and weaknesses, while the class means and item analysis data can provide clues as to curriculum strengths and weaknesses. When a test is given at the beginning of a course to aid the teacher in course planning, it is called a pretest.

Pretesting

Data, especially item analysis data, from a thoughtfully planned pretest, will provide the instructor with valuable information for the organization and modification of course content. Such a pretest is very useful when the subject matter of the course tends to overlap with that of other courses; pretesting makes it possible to avoid needless repetition and undesirable gaps in teaching. A pretest is also useful whenever the content of a previous course must serve as a foundation on which to build learnings in the present course. Most courses in nursing are in one or both of these categories. The instructor teaching a course for the first time, or teaching in a new situation, will find pretests especially useful. Pretests are also helpful in determining whether individual students need to take a course or parts of a course. If deficiencies in a student's knowledge are identified by a pretest, the student is less likely to consider her hazy familiarity with the subject to be adequate.

A pretest may relate to a single area of content, as, for example, when an instructor teaching communicable disease nursing decides to find out how well her new class understands immunology. It may relate to many

areas, as when an obstetric nursing instructor samples in a pretest her new students' attainment in pertinent aspects of anatomy and physiology, pharmacology, nutrition, clinical nursing areas, and so on. In this case, the total score on the test will have little meaning; subscores in the different areas and item analysis data will be more helpful.

It may often be useful to look upon the examination in one course as constituting a pretest, in whole or in part, for another course, as, for example, when a physiology course follows biochemistry, or when the care of patients with communicable diseases is given consideration in more than one course. Such sharing of test data among faculty members is highly desirable; it will not necessarily, however, eliminate the need for the instructor to construct a pretest for her own specific purposes.

Diagnostic Testing

When a test is constructed to identify specific weaknesses of students for the purpose of individual or group remedial work, it is called a diagnostic test. If a group of students is not performing satisfactorily, a test may be devised to find out whether the weakness lies in lack of knowledge of basic facts or in inability to apply principles, or whether the weakness is in specific portions of the subject matter. Findings will be useful in course planning and in the guidance of individual students. Diagnostic tests analyze content areas in a detailed and highly specific way. Points made in the previous section about tests with narrow content and about the use of subscores apply here.

Although the word *diagnosis* is usually used in reference to finding out what is "wrong," it should be remembered that such tests can also be used to find out what is "right" about student ability, *i.e.*, to ascertain strengths of individuals and groups. When a curriculum is organized in broad strands, evaluation to determine both the strengths and the weaknesses of threads within the strands becomes important.

Pretests and diagnostic tests are, of course, merely achievement tests developed with a specific purpose in mind, course planning or planning for remedial teaching.

Test Difficulty Levels

An achievement test permits greatest differentiation among the attainments of students when the test questions are at a level of difficulty such that the average score falls at 50 percent of the items. This is because such a test provides for a wide spread of scores above and below

the average score. This does not mean that each item should have a 50 percent difficulty, but refers to the mean item difficulty, that is, the difficulty of the test as a whole. Such a test, which spreads out all of the examinees' scores in a rank order differentiating the relative attainments, provides a basis for deciding on grades. Confusion arises when it is supposed that this differentiation of students is all that a faculty should have in mind in testing.

There are many other legitimate purposes in achievement testing, and these affect the difficulty level that is desirable for the test. For example, if the major task at hand is to distinguish the superior student from the almost-as-good student (as for some scholarship awards), the test should be made up largely of difficult items. In this case, it would not matter how crowded together some of the low-achieving students' scores were at the bottom of the distribution as long as the high-achieving students' scores were spread out at the top of the distribution, permitting discrimination among them. If, on the other hand, the purpose of a test is to differentiate those who know least from those who know a little more (as required for some kinds of screening), the test should be made up of easy items. On such a test, it would not matter if many of the superior students answered all of the questions correctly, for the purpose of the test is not to discriminate among them but among the low-achieving students.

Sometimes, however, the teacher wants to test, not with the purpose of discriminating among the attainments of the individual students, whether throughout their range of ability or at the higher or lower extremes of it, but rather, simply to make certain that all students know a specific body of crucial subject matter. Such knowledge might be related directly to patient safety, or it might be a matter of basic concepts without which further teaching would be unintelligible and meaningless.

This teacher-objective is certainly legitimate in a program that prepares students for a health field. Test questions developed on such content may be quite easy because the points have been stressed so much in class. But (assuming well-constructed items, with distracters as plausible as can be devised) whether the items are easy or hard is not in itself a matter of concern: the content has been designated as essential by the teacher. Such test items may be incorporated, singly or in groups, in tests given throughout the course of study, and a subscore obtained (see pages 97-100). Or the teacher may find it more feasible to give one or more separate tests entirely on such content.

Suppose that the instructor develops a test of, let us say, 60 items on essential content that has been so strongly emphasized in class that

it is very easy for the students. Suppose that 50 of the items are answered correctly by all students. The teacher now has the information she needs about the student's understanding of this essential material. The error would come if this instructor attempted to use the differences in the students' attainment, which refer to only 10 items, as if they referred to 60 items. In other words, if she decides to assign A's, B's, C's, et cetera, on the basis of the test, she should be aware that she is working with only a 10-item instrument. The effects of errors of measurement, guessing, and so on, are relatively great with such a short instrument; a change of a few raw-score points could shift a student from an A to a C, or vice versa. No manipulation of the scores is going to change the facts about those 10 items. Counting more points for each of the 10 questions does no good; the increase in points would be accompanied by an increase in the effects of guessing, errors of measurement, and so on.

The answer to this dilemma is for the teacher to give enough other tests throughout the course to provide for adequate measurement of the more difficult aspects of the nursing competency with which the course is concerned, and to permit even the most superior student to demonstrate her ability. A single test should not be condemned for what it has omitted any more than a breakfast should be criticized because it doesn't include a salad. In order to criticize a test's coverage intelligently, one must know its precise purpose and how it fits into the whole evaluation plan.

Grading

Whatever system of grading is used, the grades assigned to students should have a defined meaning, and the meaning should be clear both to faculty members and to students.

There are at least three ways of looking at a student's achievement. Each has its merits and each has its proponents defending it as being the "right" basis for grading. One way is to consider the student's attainments in terms of her own personal growth, without comparison with other persons or with any so-called absolute standard. From this point of view, the student who makes good progress in spite of starting with a poor background, or the student who gives evidence of overcoming a personal defect, would be graded in terms of these attainments. This is the point of view on which is based the grading for "effort" in some elementary schools. Every nursing instructor sensitive to the hopes and needs of students considers such factors and incorporates them in written

descriptions of the student's progress. Less often are these factors allowed to determine formal grades. This, no doubt, is because the nursing school faculty believes that assessment of individual growth, important though it is, is not enough in education for a profession that must serve the public.

A second way of considering a student's achievement is to look at it in terms of the attainment of the group. In testing, percentile ranking provides such information, and so does any grading system that involves use of the standard deviation, or any system that requires giving a certain percentage of A's, B's, and so on. Many faculties believe that such comparison of the student with her peers is the only fair basis for grading. This method inevitably stimulates competitiveness, and some educators dislike it for that reason. A difficulty arises when an entire class happens to be unusually bright or unusually dull, or when extraneous factors affect the attainment of the entire group. Small classes are especially likely to cause difficulty by being, as a whole, unlike other groups in their achievement.

Sometimes it is proposed that this difficulty can be overcome by grading students, not in terms of their own class alone, but in terms of the expected proficiency of all students at that stage of the program, as, for example, all second-year students. This approach may imply a lack of change in the curriculum and in tests, which is not often warranted in nursing education. It smacks somewhat of the "absolute," and we are led to consider the third way of looking at attainment.

The instructor who wishes to grade in terms of an "absolute" has some kind of ideal in mind. In clinical nursing, the ideal may be that of the "perfect nurse" as envisioned by the instructor. In formal classroom testing, the ideal is generally in terms of "100 percent," the highest possible score on a percentage basis. Users of this approach set arbitrary standards in terms of the ideals; for example, a concept of "minimum acceptable effectiveness in nursing practice," or 70 percent as a "passing score." One argument generally made in favor of this approach is that it allows every student the chance of getting a high grade or score; the student is not penalized by the brilliance of her classmates. Secondly, the proponents claim, in a profession that serves the public, the proportion of course content that the individual student has learned is a better criterion of achievement than is a comparison that is dependent upon the vagaries of group attainment.

Impressive though these arguments may be, critics of this approach believe that an arbitrary setting of a specific passing score for a test, in terms of percentages of correct responses, is hard to justify. They point

out that the "absolute" is usually a very subjective standard; the instructor's concept of the "ideal" nurse or of "minimum acceptable effectiveness" may be quite different from the concepts of other faculty members. They further maintain that teachers' tests vary in difficulty and levels of ability tested (knowledge, understanding, application, and so on) and that it is inappropriate to use the same percentage passing score for such different tests. Then, too, when a percentage passing score is used, the instructor naturally tends to set up the test so that most students can attain a passing score. This may mean that the achievement of the brighter students will not be adequately measured.

The reader who expects to find in this manual a pat answer to these difficult problems of grading will be disappointed. Each of the three approaches has its advantages and disadvantages. The third approach is considered traditional, the second more modern, and an instructor who used the first approach as the major criterion for grading would probably be considered very avant-garde—or perhaps just wayward. A faculty may decide that some combination of the approaches will be most desirable. For instance, it might be decided that achievement relating to subject matter that is essential for safe practice will be evaluated in the traditional manner, that attainment relating to other subject matter will be evaluated by comparison with group achievement, and that the personal growth of individual students will become a factor in grading at least in borderline cases, as, for example, when the question of a student's "failing" or of selection of recipients for scholarships is under discussion. At any rate, it is most essential that the faculty come to a common understanding on the approaches to be used.

Faculties often argue about such questions as these: What proportion of the students should get A? What does a D mean? And so forth. There is no mathematical answer to these questions; they are not statistical problems but philosophical and practical problems. How, then, might these questions be approached?

Suppose that the only information recorded permanently in regard to a student's attainment was as to whether she was in the top half or the bottom half of the student group. Would this be enough information? "No," most faculties would be inclined to say, "we should differentiate attainment more finely than that, and there are so many students who are average or barely above average or barely below average that separation of the group into halves isn't the most useful kind of identification of ability." How about separation of the student group into a top third, a middle third, and a bottom third, so that we can differentiate the superior and the inferior achiever from the average? Or how about

quarters? tenths? twentieths? At this point, some faculty members might state that it would be useful to have a record of which students are in the top and the bottom 5 percent (or 4 or 10 percent, et cetera) but that it would not be useful to record in terms of such fine differentiation for the rest of the group. In other words, the students who are average, somewhat above average, and somewhat below average, would be lumped in larger groups than the students whose attainment is most superior or most inferior. This, in general, is the system used in many schools, whereby a smaller number of the students are given A's than are given B's, and a smaller number E's than D's or C's, et cetera. To repeat, there is no statistical answer to these matters—they are answered in terms of philosophy and utility. Some faculties designate the proportions of students to get specific grades in terms of particular points along the curve of a normal distribution. This implies that the competence being measured exists among the students in accordance with the laws of chance, or that somehow it ought to. The assignment of failing and near-failing grades is a responsibility that inevitably causes anxiety in teachers. Such grades should be assigned in terms of definitions of minimum acceptable performance, within a framework that all faculty members agree to and understand. The idea that somebody "ought" to fail in each course is an erroneous one. When selection of students is such that all students have appropriate potential, and when their motivation is high and their teacher well prepared, it is quite legitimate for every student to "pass" a course. Evidence from objective external sources, such as national standardized tests, can be useful to the faculty in examining the justification of their decisions.

Assigning grades in terms of where the students' scores fall in standard deviations above and below the mean is one of the more defensible methods in the testing program (see pages 87-89). However, a difficulty arises with this system, as with others, when relatively precise results of testing are to be "averaged" with rougher (less precise) grading or scoring, such as that generally provided by ratings of clinical performance, or that given on nursing care studies, et cetera.

If two numbers are to be averaged, and one is, let us say, 62.8 and the other is "approximately 70," the average is not 66.4. It is "approximately 66." The average can never be more specific than the most indefinite of the numbers being averaged. Suppose that an instructor evaluates students in terms of a clinical demonstration, or scores their papers from a written assignment, by designating four groups: excellent, good, satisfactory, poor. The instructor may decide to turn these descriptive terms into four sets of figures and to assign point values in

terms of the weight desired for this assignment in the determination of the course grade—for example, 40 points to all the "excellent" performances, 30 to all the "good" ones, and so on. An error is likely to occur when the instructor attempts to average these rough groupings with test scores that include a greater number of "significant digits," such as 10.0 (meaning exactly 10), or 25.0, or 78.2. If they are averaged, the result can give only approximate figures, because the grouping of the assignment papers was rough rather than exact.

Evaluation in nursing education, then, is not just a matter of adding up figures, manipulating them mathematically, and coming out with a comfortingly specific numerical result. This is true in all courses, but especially so in clinical nursing courses, in which many of the objectives are not measurable by formal tests. In fact, in our present state of knowledge, if a specific numerical score is used as the final grade for a clinical nursing course, it may mean either that the instructor has not attempted to assess nursing abilities that should be assessed or that she has averaged factors unjustifiably and so has obtained misleading results.

Does this mean that the conscientious teacher should disown all but exact measurements—that she should omit assessment by such means as written assignments, oral reports, nursing care studies, and observation of nursing practice? Certainly not. It means only that the results of such measurement should be used in justifiable ways and that when methods of evaluation have been made as objective as possible, those aspects that are inevitably subjective should be faced courageously. It means not hiding behind numerical scores that have no right to exist.

What, then, is the advantage of specific scores obtained by formal testing? They enable the faculty to obtain fairly exact data for those aspects of student achievement that can be so measured. For example, there is no reason to be content with inexact measurement of students' understandings merely because we must at present get along with inexact assessment of students' attitudes. The results of well-thought-out, carefully constructed tests are important because the abilities they measure are important.

An inexperienced teacher may find grading such a burden that she will tend to undertest the students even though, in theory, she believes in frequent testing. Part of the difficulty often arises from the teacher's attempting to assign letter grades to every test, no matter how short. Actually, after a student has taken a test, she is likely to want to know the answers to two questions: How many items did I get right out of the total in the test? How did I do in comparison with the other students? (The student should also be concerned, or course, with her

own progress, her own personal growth, as evidenced by the test, but in our competitive society, it sometimes takes long and patient guidance to make this aspect of achievement seem important to the student.)

If the teacher continuously records the students' raw scores on quizzes and tests throughout the course, as is suggested in the discussion of subscores (page 99), the student can at any time compare her total raw score on all tests with the highest possible score. The teacher need not translate each individual quiz or test score into a grade but can reserve this task for specific times in the course, then translate the total scores achieved into whatever grading system is used. In fact, it may be undesirable to give letter grades on brief quizzes. Not many tests are so perfect that just a few raw score points of difference among students justifies a range of grades from A to D or E. At intervals the teacher may wish to provide students with a rough graph showing the cumulative score frequency distribution (see page 84). If grades are to be assigned in terms of the attainment of the group, it is almost essential to provide the students with such information. Such tools, used in conjunction with personal interviews, will often provide the teacher and the student with all the information needed about test scores throughout most of the course.

It was mentioned previously (page 65) that when the instructor wishes to have certain subject matter count more in an objective test, it is preferable to have more questions on that topic rather than to weight each question with more points. If this is done, when the time comes to sum up the scores and consider grades, the number of points in a test will determine the weight of that test in the total. Sometimes when the instructor looks back over the course, however, she may wish to modify the weighting. Perhaps a series of quizzes on terminology piled up an excessive number of points in comparison with other values measured in the course. In this case, the instructor may wish to decrease the weight of the terminology scores by using some suitable fraction of their point value. Or, perhaps a certain test has such a wide range of scores that it distorts the picture of student achievement when its scores are averaged with scores of other tests; the instructor may wish to decrease the weight of this test. Or, in retrospect, the instructor may decide that a test was more important than its point value would indicate and may increase its weight by increasing the scores proportionately. It may be inadvisable to change the weighting of tests in retrospect unless the students are also agreed that this should be done. Students may justifiably resent arbitrary changes from the initial point values they have received. It is desirable for the evaluation in the course to have been

planned to the extent that the original point values will provide the desired weighting.

Uses of Tests for Purposes Other Than Measurement

A teacher may have many purposes in asking questions, and some of them have little to do with measurement. A teacher may ask a question to emphasize a point, or to stimulate discussion, or to demonstrate a relationship. In other words, questions may be an aspect of *teaching*. Their use for teaching is not the same thing as their use for *measurement*. The very term *test* implies that the examinee is put on trial, that some aspect of her is being measured. It is legitimate for the teacher to use questions, written or oral, for any purpose she finds useful; the important thing is that the teacher know what purpose or purposes she has; to measure, to stimulate, or to impart knowledge, and not confuse one aspect with the others even when the three purposes exist together.

Even in formal testing, in which the teacher's chief purpose is certainly measurement, other effects are likely to occur. A good test is a good learning experience. The course emphasis is reinforced in the student's mind by taking the test. In the process of thinking through the test questions, the student may come to see relationships that were not clear to her before. And certainly, examinations motivate students to learn. Students have other and longer-term goals to stimulate them in seeking knowledge, which teachers prefer to encourage, but since students are human, the teacher may sometimes find the artificial prod of a forthcoming examination useful. Giving short but frequent tests, especially in long courses, encourages students to study regularly rather than "cram for the final." Also, the teacher who is in the habit of giving well-constructed tests that measure understandings, insights, and the application of principles will find that the tests themselves encourage learning for comprehension. On the other hand, tests made up of bits of factual information tend to encourage rote memorization and piecemeal learning. In a sense, tests provide the student with a model for the kind of learning that the teacher advocates.

Conclusion

The ability to accept objective evidence of one's attainment is an essential aspect of maturity. Equally important, of course, is the ability to accept subjective opinion for no more and no less than what it is. A personal interview with a student regarding her achievement is often an emotion-fraught experience for the student and sometimes for the teacher also. It is often said that the student must be helped to recognize her disabilities. Perhaps it would be more accurate to say that the student needs to be helped first to accept herself, including her disabilities, before she is asked to accept others in spite of theirs. An apparent "don't care" attitude is often only the armor of a frequently hurt young person. To help the student, the teacher must deal with the basis of attitudes, not just the expression of the attitudes. Then the student may be freed to make reasonable decisions.

A student's strong points should, of course, be emphasized as well as her weak points. But the student needs to learn to hold even the strong points lightly in her hand, so to speak, not clutched as being the only things that justify her as a person. Otherwise the student will be insecure and, along with other disabilities, will be unable to learn to bear weaknesses in others.

Teachers can learn much from students to the benefit of their teaching and, of course, their evaluation methods. But the teacher, too, must be ready to learn. The self-acceptance described in relation to the student is also the teacher's need.

An Ongoing Task

Faculties of schools need to work together continuously on problems of evaluation, including the improvement of tests. Groups of instructors will find it helpful to analyze the tests and other measurement devices that are being used in their courses in terms of the abilities that are being measured. They might ask themselves the following questions:

Are these the abilities that ought to be measured as outcomes of our courses?

Which of the abilities are measurable by tests? Which by other evaluation tools?

Which tools are being used for evaluation of the student's attainment of each of these abilities in our program?

When such basic questions as these have been considered, the faculty groups can continue with the internal improvement of their measuring instruments, pooling their knowledge to assist each other in the analysis of subject matter and performance. Such study is essential if the curriculum is to promote attainment of the aims of the educational program, which are based upon people's needs.

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MARYLAND

The purpose of this report is to account for what was accomplished during the previous year in vocational education and to briefly illustrate the broad up-to-date programs available to all citizens through Maryland's new "world of work" program (vocational education). Vocational development and occupational training covering over 150 skills and occupations are available in seven major areas of employment: agriculture, business and office, trades and industry, distributive education, technical occupations, health occupations and home economics. The annual statistical report for fiscal 1967 presents data on enrollment by purpose (secondary, post-secondary, adult, and special needs), enrollment by program (service areas), and by total expenditure. Data are presented on actual and projected employment by major occupational groups from 1960 through 1975. (CH)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VOCATIONAL EDUCATION

VT000587

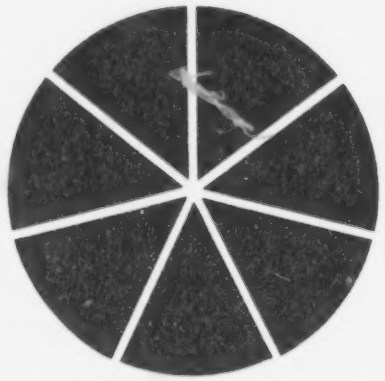
division of
vocational education
state of maryland
department of education

1967
1967

On April 27th, 1967, a new vocational-technical department of a Maryland high school was visited by the President of the United States, and dedicated. It was the first time in history that the nation's chief executive had toured a vocational-technical high school facility.

The significance of his visit requires no commentary.

In particular, Maryland educators are proud of having this distinctive honor, by which the President demonstrated his active interest in the total national program.



VOCATIONAL EDUCATION 1967 — AN INFORMATION AND ANNUAL REPORT

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our commitment in maryland's new "world of work" programs

James L. Reid, Director

Division of Vocational Education

On our exacting planet of computerized business systems, automated production methods, and data processed answers, there is little room, even at the bottom, for unskilled, untrained job-seekers.

To enter, to succeed in business, industry or government, the new worker today must qualify to perform at higher levels of skill and have more and more special knowledge.

To meet such qualifications, the beginning employee must, from the start, have an educational background of previously acquired skills and occupational orientation.

In this vital matter, Maryland's new "World of Work" program, through public Vocational Education, is building a modern, new bridge over which our citizens, young or old, may confidently travel the complex road to employment opportunity.

The purpose, therefore, of this report is not only to account for what was accomplished last year in Vocational Education, but also to illustrate, briefly, the broad, upgraded programs available to all citizens through this vital new avenue to employment success.

IN PEOPLE

. . . providing up-to-date occupational training for persons of all ages and learning levels who seek to gain or retain successful employment in a world of changing occupational methods and techniques. These persons may be: high school students; community college students seeking higher technical specialties; youths who have completed or dropped out of school; unemployed or underemployed adults who must learn new occupational skills or upgrade their present ones; persons who, because of social and economic disadvantages, have special training needs.

IN JOBS

. . . performing constant surveys of community job opportunities and occupational qualifications in order to adapt vocational programs to the manpower needs of business, industry, and government — an important factor in attracting new employers and promoting economic development.

PROGRAMS

Vocational Development and Occupational Training is available in Seven Major Areas of Employment:

AGRICULTURE
BUSINESS AND OFFICE
TRADES AND INDUSTRY
DISTRIBUTIVE EDUCATION
TECHNICAL OCCUPATIONS
HEALTH OCCUPATIONS
HOME ECONOMICS

This Training covers over 150 Skills and Occupations

OCCUPATIONS IN AGRICULTURE

Forestry Assistants, Farm Products Graders, **Farm Mechanics,** Wild Life Conservationists, **Nurserymen,** Farm Store Salesmen, **Animal Husbandmen,** Poultrymen, **Floral Designers,** Farm Equipment Operators, **Gardeners,** Soil Conservationists, **Dairymen,** Hatcherymen, **Farm Business Managers.**

BUSINESS AND OFFICE OCCUPATIONS

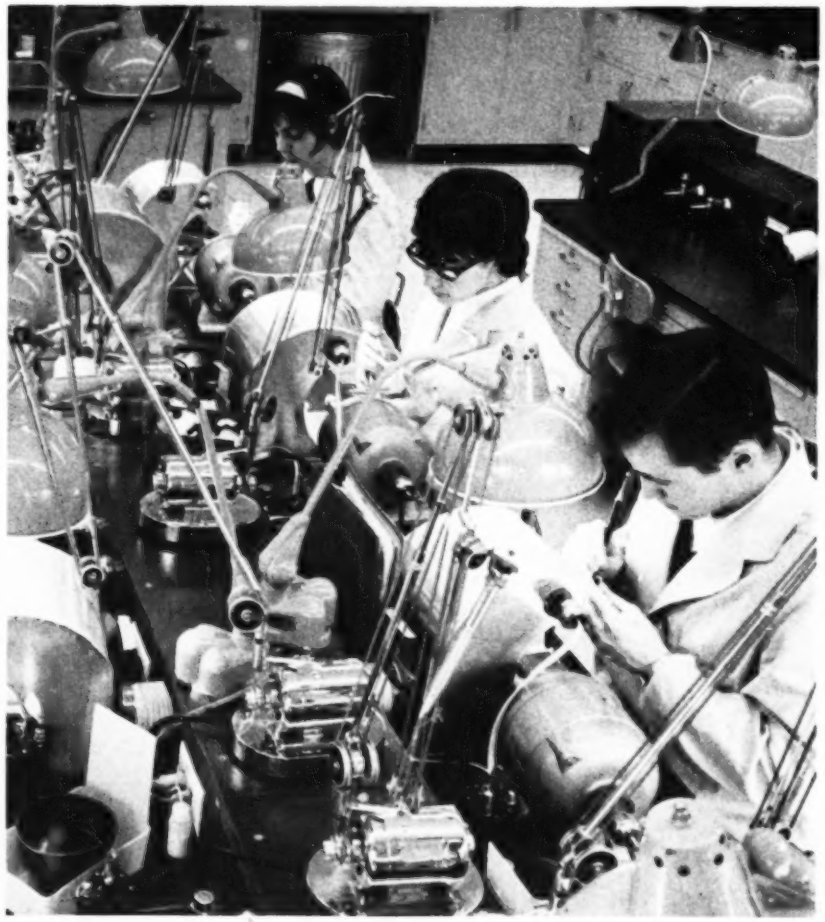
Junior Accountants, Bookkeepers, **Cashiers,** Machine Operators, **Tellers,** Computer and Console Operators, **Peripheral Equipment Operators,** Programmers, **Systems Analysts,** Duplicating Machine Operators, **File Clerks,** General Office Clerks, **Office Machine Operators,** Communications Systems Clerks and Operators, **Correspondence Clerks,** Mail and Postal Clerks, **Mail Preparing and Mail Handling Machine Operators,** Messengers, **Receptionists,** Planning and Production Clerks, **Shipping and Receiving Clerks,** Traffic, Rate and Transportation Clerks, **Executive Administrative Secretaries, Secretaries,** Stenographers, **Medical Records Technicians,** Clerk Typists, **Accountants,** Marketing and Advertising Assistants and Executives, **Business and Industrial Managers and Assistants.**

TRADE AND INDUSTRIAL OCCUPATIONS

Operating Engineers, Assemblers, **Inspectors,** Examiners, **Manufacturers Durable Goods,** Manufacturers Non-Durable Goods, **Machine Tool Operators,** Grinders, **Polishers,** Draftsmen, **Packers and Wrappers,** Sewers and Stichers, **Welders,** Firefighters, **Policemen,** Barbers, **Business Machine Operators,** Linemen, **Bricklayers,** Carpenters, **Cabinetmakers,** Electricians, **Floor Covering Installers,** Air-Conditioning Workers, **Auto Mechanics,** Marine Mechanics, **Airplane Mechanics,** Printers, **Bookbinders,** TV and Radio Repairmen, **Painters,** Bakers, **Tool and Die Makers,** Metal Workers, **Plumbers,** Upholsterers, **Pipefitters,** Plasterers, **Shoe Repairmen,** Sheet Metalmen, **Valets,** Custodial Servicemen, **Dry Cleaners and Pressers,** Cosmetologists, **Sign and Display Board Painters,** Surveyors, **Radiator Repairmen,** Electro-Mechanics.

OCCUPATIONS IN DISTRIBUTIVE EDUCATION

Retail Salesmen, Wholesale Salesmen, **Insurance Agents and Brokers,** Manufacturers' Salesmen, **Real Estate Agents,** Security Salesmen, **Food Demonstrators,** Appliance Demonstrators, **Personal Shoppers,** Florist Assistants, **Window Designers,** Fashion Designer Assistants, **Buyers,** Commercial Artists, **Purchasing Agents,** Department Store Heads, **Advertising Workers,** Over-the-Counter Salespersons, **Display Assistants,** Credit Assistants.



TECHNICAL OCCUPATIONS

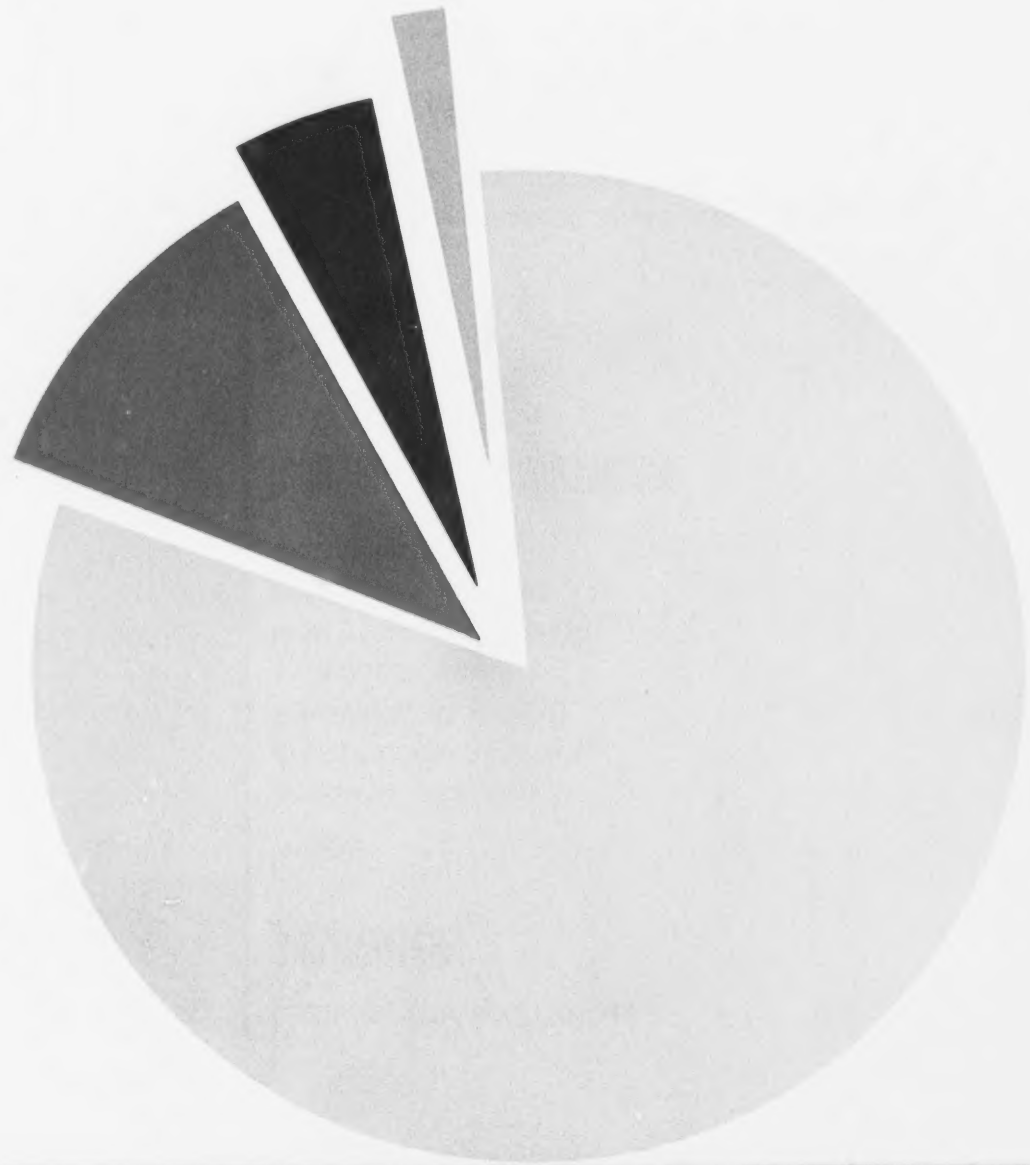
Laboratory Technicians, Aeronautical Technicians, **Urban Development Assistants,** Environmental Technicians, **Electronic Technicians,** Engineering Technicians, **Chemical Technicians,** Metallurgical Technicians, **Design Draftsmen,** Architectural Assistants, **Data Processors,** Programmers, **Library Assistants.**

HEALTH OCCUPATIONS

Licensed Practical Nurses, Nurses' Aides, **Nursing Assistants,** Dental Assistants, **Medical Assistants,** Registered Nurses, **Mental Health Technicians,** Medical Laboratory Assistants, **Medical Secretaries,** Medical Technologists, **Pre-Optometry Technicians,** Pre-Dentistry Technicians, **Pre-Medicine Technicians,** Pre-Pharmacy Technicians, **Medical Record Technologists,** Radiation Technologists.

HOME ECONOMICS OCCUPATIONS

Child Care Aides, Assistant Cooks, **Waitresses and Waiters,** Short Order Cooks, **Bakers,** Caterers, **Hotel and Motel Housekeepers,** Aides in Nursing or Convalescent Homes, **Custom and Shop Workers in Draperies and Slipcovers,** Custom Dressmakers, **Clothing Alterers,** Industrial Sewers.



VOCATIONAL EDUCATION ENROLLMENT AND EXPENDITURES BY PURPOSE AND PROGRAM

FISCAL 1963-1967

ENROLLMENT BY PURPOSE	63/64	64/65	65/66	66/67
SECONDARY (GRADES 9-12)	16,914	95,779	107,133	133,887
POST SECONDARY (COMMUNITY COLLEGES)	561	1,013	2,238	3,315
ADULT	20,506	21,180	22,092	23,905
SPECIAL NEEDS	—	2,225	2,571	1,286
TOTAL	37,981*	120,197	134,034	162,393
ENROLLMENT BY PROGRAM				
AGRICULTURE	4,488	4,187	4,899	3,635
BUSINESS AND OFFICE	—	81,575	89,959	97,586
DISTRIBUTIVE EDUCATION	1,865	2,157	2,332	2,841
HOME ECONOMICS	17,407	14,809	16,260	28,685
HEALTH OCCUPATIONS	130	151	169	916
TECHNICAL OCCUPATIONS	1,523	2,407	4,277	2,835
TRADES AND INDUSTRY	12,568	14,911	16,188	25,895
TOTAL	37,981*	120,197	134,034	162,393
EXPENDITURE				
EXPENDITURES (ALL SOURCES)	$686,845	$9,563,315	$14,958,853	$12,782,383

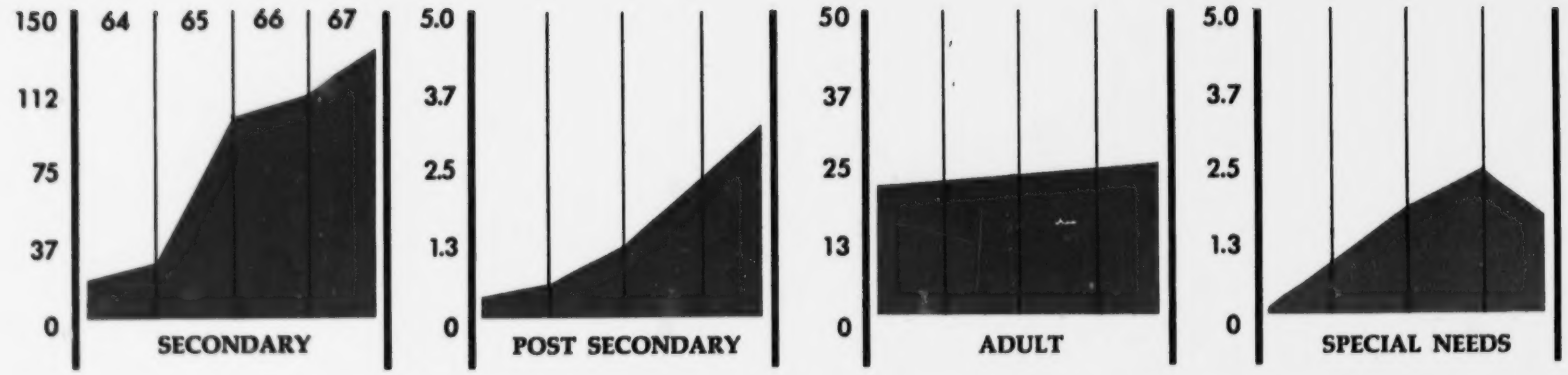
(*) PRIOR TO VOCATIONAL EDUCATION ACT OF 1963

NOTE ▬ SOME STUDENTS ARE ENROLLED IN MORE THAN ONE CLASS; THEREFORE THE ABOVE FIGURES CONTAIN SOME DUPLICATES.

ENROLLMENT BY PURPOSE

RATIO SCALED

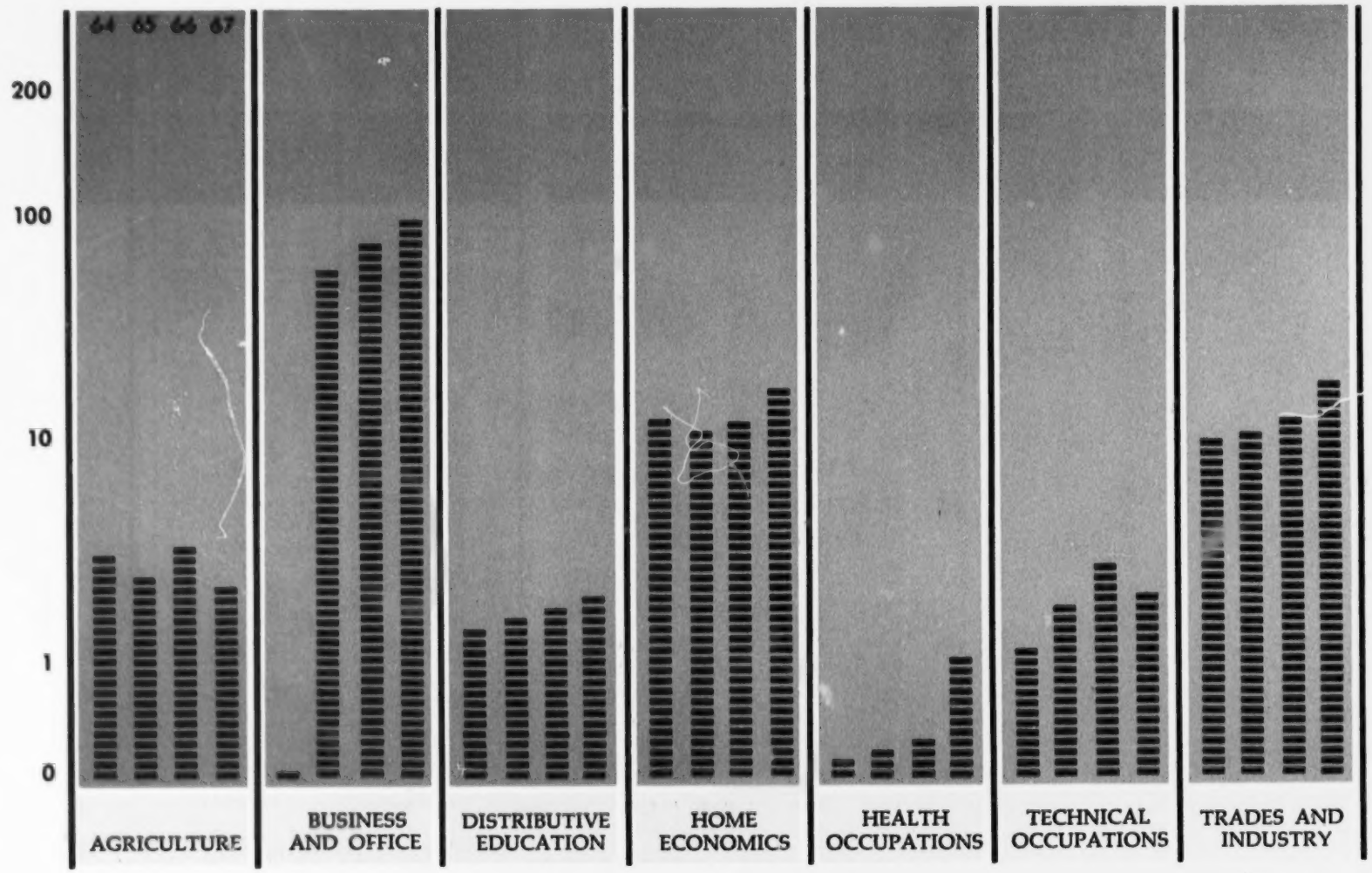
(IN THOUSANDS)



ENROLLMENT BY PROGRAM

RATIO SCALED

(IN THOUSANDS)



VOCATIONAL EDUCATION ENROLLMENT AND EXPENDITURES BY PURPOSE AND PROGRAM

FISCAL 1967

PERCENT OF TOTAL ENROLLMENT

PERCENT OF EXPENDITURES (ALL SOURCES)

PURPOSE	ENROLLMENT	PERCENT	EXPENDITURE	PERCENT
SECONDARY (GRADES 9-12)	133,887	82.5%	$5,345,920	41.6%
POST SECONDARY (COMMUNITY COLLEGES)	3,315	2.0	664,768	5.1
ADULT	23,905	14.7	319,454	2.4
SPECIAL NEEDS	1,286	0.8	14,820	0.1
TOTAL	162,393	100.0%	$6,344,962	49.2%
PROGRAM				
AGRICULTURE	3,635	2.2%	$ 634,907	4.9%
BUSINESS AND OFFICE	97,586	60.1	3,008,831	23.4
DISTRIBUTIVE EDUCATION	2,841	1.8	219,440	1.7
HOME ECONOMICS (HOME MAKING)	28,042	17.3	978,035	7.6
HOME ECONOMICS (GAINFUL)	643	0.4	123,181	1.0
HEALTH OCCUPATIONS	916	0.6	171,680	1.3
TECHNICAL OCCUPATIONS	2,835	1.7	300,795	2.3
TRADES AND INDUSTRY	25,895	15.9	2,192,354	17.0
TOTAL	162,393	100.0%	$7,629,223	59.2%

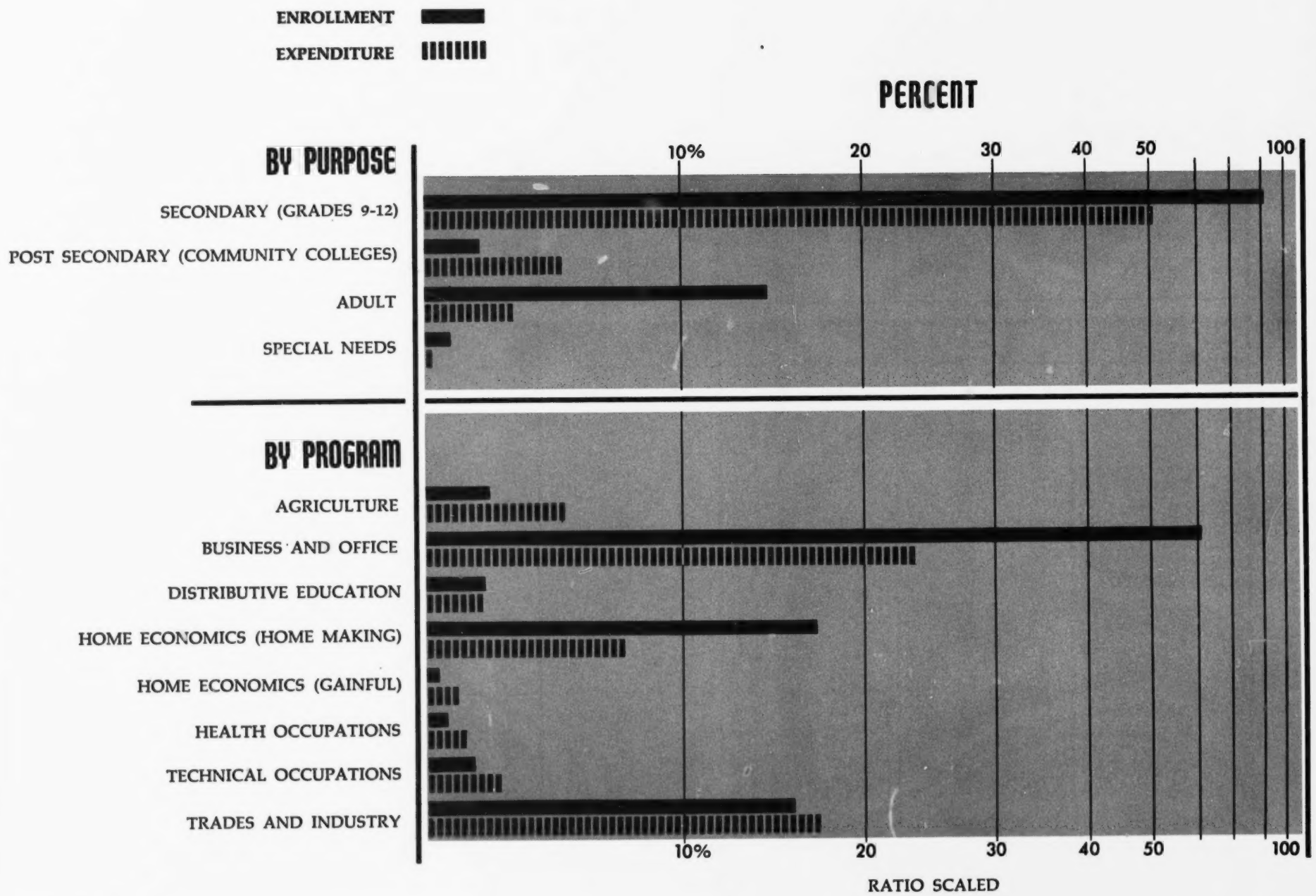
100% ENROLLMENT = 162,393

100% EXPENDITURES (ALL SOURCES) = $12,782,383

NOTE ▬ SOME STUDENTS ARE ENROLLED IN MORE THAN ONE CLASS; THEREFORE THE ABOVE FIGURES CONTAIN SOME DUPLICATES.

PERCENT OF VOCATIONAL EDUCATION ENROLLMENT AND EXPENDITURES

FISCAL 1967

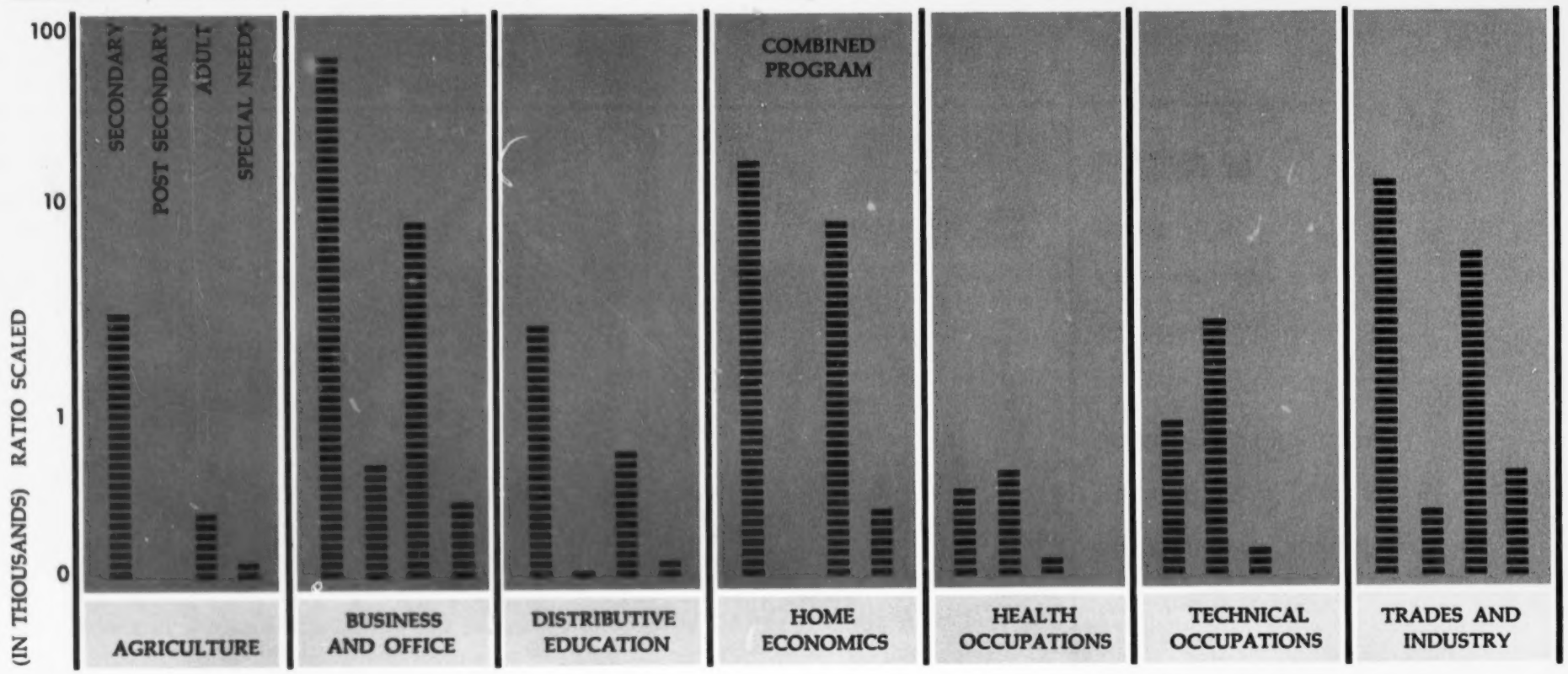


VOCATIONAL EDUCATION ENROLLMENT BY PROGRAM AND PURPOSE

FISCAL 1967

BY PURPOSE

BY PROGRAM	SECONDARY	POST SECONDARY	ADULT	SPECIAL NEEDS	TOTAL
AGRICULTURE	3,261	—	275	99	3,635
BUSINESS AND OFFICE	88,019	499	8,734	334	97,586
DISTRIBUTIVE EDUCATION	2,209	27	545	60	2,841
HOME ECONOMICS (HOME MAKING)	19,103	—	8,757	182	28,042
HOME ECONOMICS (GAINFUL)	443	—	77	123	643
HEALTH OCCUPATIONS	398	434	84	—	916
TECHNICAL OCCUPATIONS	667	2,056	112	—	2,835
TRADES AND INDUSTRY	19,787	299	5,321	488	25,895
TOTAL	133,887	3,315	23,905	1,286	162,393



NOTE ▬ SOME STUDENTS ARE ENROLLED IN MORE THAN ONE CLASS; THEREFORE THE ABOVE FIGURES CONTAIN SOME DUPLICATES.

VOCATIONAL EDUCATION EXPENDITURES BY PROGRAM AND PURPOSE

FISCAL 1967

EXPENDITURES

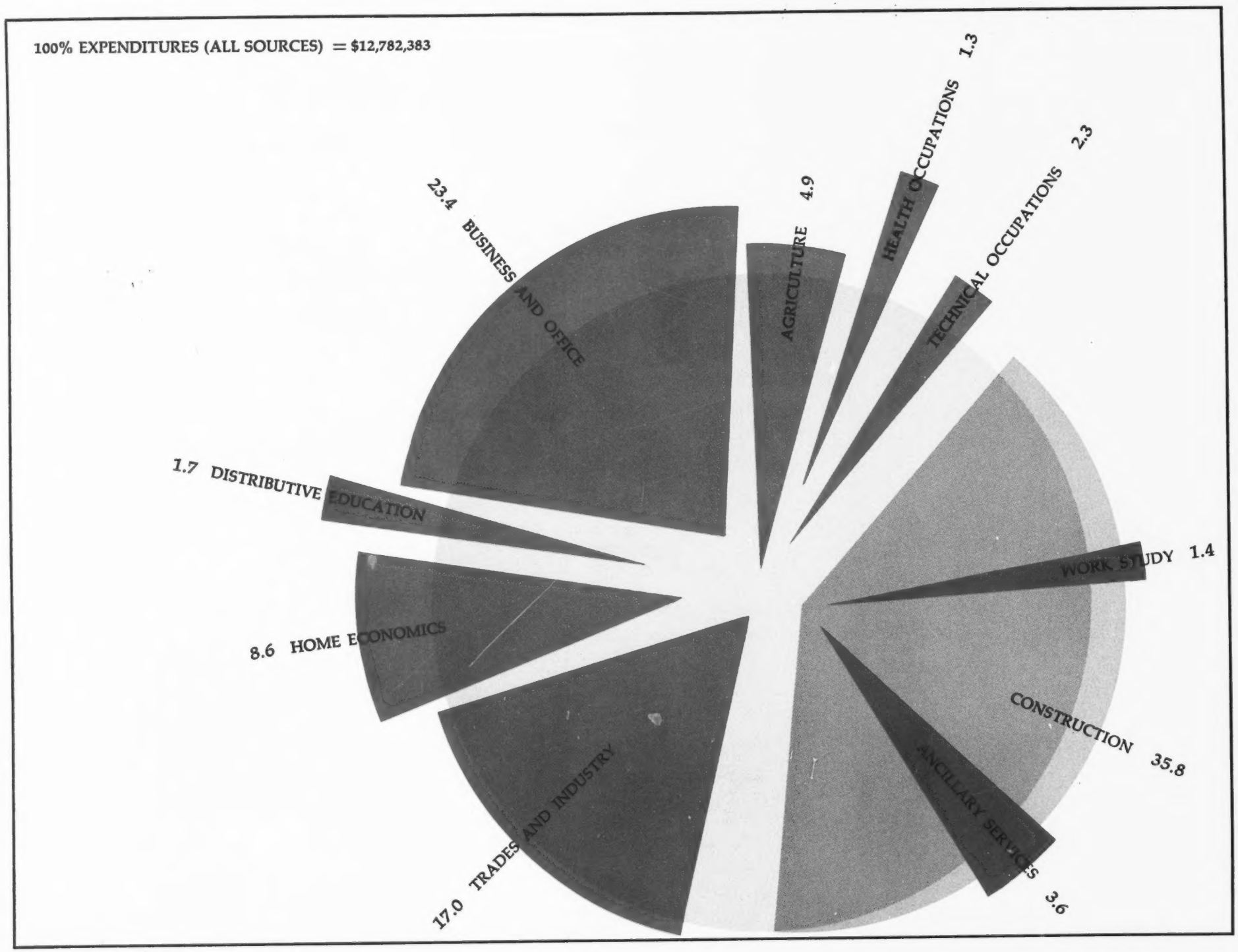
PROGRAM	LOCAL	STATE	FEDERAL	TOTAL
AGRICULTURE	$ 383,412	$ 75,186	$ 176,309	$ 634,907
BUSINESS AND OFFICE	1,964,861	263,805	780,164	3,008,831
DISTRIBUTIVE EDUCATION	143,395	19,231	56,814	219,440
HOME ECONOMICS (HOME MAKING)	872,866	7,350	97,819	978,035
HOME ECONOMICS (GAINFUL)	57,394	16,681	49,105	123,181
HEALTH OCCUPATIONS	98,328	13,231	60,122	171,680
TECHNICAL OCCUPATIONS	176,914	25,335	98,546	300,795
TRADES AND INDUSTRY	1,078,963	165,798	947,593	2,192,354
TOTAL	$4,776,133	$ 586,617	$2,266,472	$ 7,629,223

PURPOSE				
SECONDARY (GRADES 9-12)	$3,342,294	$ 321,347	$1,682,278	$ 5,345,920
POST SECONDARY (COMMUNITY COLLEGES)	380,826	62,606	221,336	664,768
ADULT	130,499	20,000	168,954	319,454
SPECIAL NEEDS	4,855	—	9,965	14,820
WORK STUDY	46,594	—	139,783	186,378
GEORGE-BARDEN ACT	885,178	7,350	110,132	1,002,660
ANCILLARY SERVICES	195,798	185,727	262,189	643,714
CONSTRUCTION	517,859	2,582,113	1,504,697*	4,604,669
GRAND TOTAL	$5,503,903	$3,179,143	$4,099,334	$12,782,383

(*) EXCLUDES $600,000 APPALACHIAN FUNDS.

PERCENT OF VOCATIONAL EDUCATION EXPENDITURES

FISCAL 1967



TEACHERS

. . . the most important person in any educational program is, of course, the man in the classroom. As in any endeavor, however, it takes many supportive services to back him up. Before the teacher convenes his first class, decisions must be made concerning what and whom he shall teach. His program must be planned so that it meets the stated objectives. It must be directed and planned at all levels. The services that promote such efforts include:

TEACHER TRAINING AND EDUCATIONAL REQUIREMENTS

CURRICULUM DEVELOPMENT AND EVALUATION

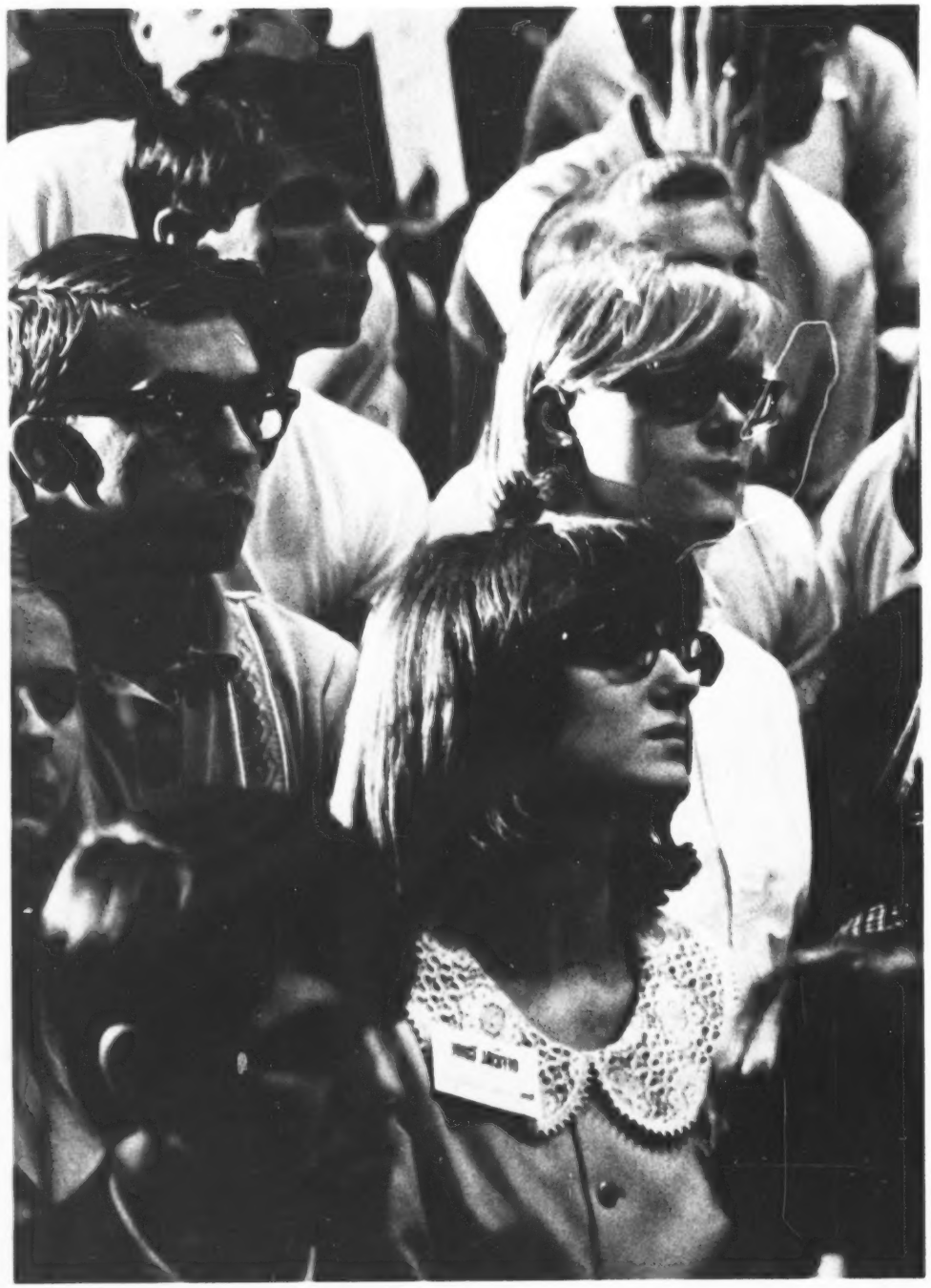
RESEARCH AND EXPERIMENTATION

DEVELOPMENT OF INSTRUCTIONAL MATERIALS

IMPLEMENTATION OF IMPROVED TEACHING METHODS

NEW PROGRAM DEVELOPMENT INFORMATION EXCHANGE

supportive services to assure quality



STUDENTS

. . . vocational and technical training, regardless of the curriculum concerned, fails to meet its objectives unless the students involved have interests, abilities, and motivation for the occupational training given. The following supportive services are designed to aid in this area of the program:

VOCATIONAL GUIDANCE . . .

. . . helps form an objective foundation on which the student and counselor may gain insights into interests and abilities that help in choosing career objectives and a corresponding program of vocational training.

APTITUDE TESTING . . .

. . . adds enrichment and realism to the occupational training of many vocational-technical students who are learning on the job as well as in the classroom.

JOB PLACEMENT

. . . through their schools and a cooperative arrangement with the Maryland State Employment Service find good employment for the occupationally oriented graduate of a vocational education program. Vocationally trained students are generally in demand by employers, large and small.

FOLLOW-UP

. . . studies of vocational graduates on the job are helping educators to assist young workers in determining their future post-graduate training needs. Such follow-up also enables vocational educators to constantly evaluate the quality of training which the graduate received while in school.

INDUSTRIAL ARTS

. . . Industrial Arts is a general education curriculum with learning experiences that provide the student with a better understanding of the world of work and of the highly industrialized society in which he lives.

This understanding is accomplished through the study of, and experience with, the materials, tools, products, and occupations of an industrial society.

At the junior high school level, Industrial Arts is usually required for all students, serving not only as an orientation to the processes of industry, but also helping many students to plan their career choices more intelligently.

Industrial Arts education continues as an elective throughout high school, cultivating avocational skills, good work habits, home mechanics skills, consumer knowledge, and an over-all appreciation of the social and economic factors that comprise our industrially oriented civilization.

HOME ECONOMICS

. . . patterned to prepare students for the responsibilities of homemaking and family life, this fundamental program of Home Economics concerns itself with the basic unit of society — the family. The program serves as a systematic study of home and family living. Its emphasis is on the personal development of the individual as a family member. The program is planned for both boys and girls and contains learning experiences in all areas of home economics, with special emphasis on relationships, self-development and self-improvement, and the beginning development of homemaking skills.

It must be pointed out that this home and family-living program of home economics often serves as a prevocational guide and orientation for students who later may pursue a career specialty in one of several home economics occupations.

Courses covered in the program include such subjects as child development, family nutrition, budgeting, food selection, clothing design, and family relationships.

MANPOWER DEVELOPMENT AND TRAINING

. . . designed especially to provide realistic occupational training for unemployed and under-employed adults and young adults who need salable work skills with which to successfully enter and remain in the labor market. Persons who qualify for this special program often receive a regular training allowance while learning a demand occupation. In 1963, its first year in operation, the Manpower Program provided training opportunities for 393 persons. During fiscal year 1966-67, the program encompassed nearly 7,000 trainees throughout the State, 4,200 being from the Baltimore and Inner City area.

Training in some forty-six different occupations has been offered by Maryland's program. It may be noted that the State's average cost per trainee during fiscal year 1967 was $523 as compared with the national average of $770.

Recruitment, aptitude testing, and job referral of MDTA trainees are carried out by the Maryland State Employment Service.

OCCUPATIONS WITH THE LARGEST TRAINING ENROLLMENT

Licensed Practical Nurse, Nurse's Aide, **Machine Tool Operator,** General Duty Nurse Refresher, **Auto Body Repair,** Clerk Typist, **Auto Service Station Mechanic,** Auto Mechanic, **Cook,** Salesperson.

AREA VOCATIONAL SCHOOLS

. . . Area Vocational-Technical Schools are located in:

COMPREHENSIVE HIGH SCHOOLS
COMMUNITY COLLEGES
ADULT OR HIGH SCHOOL VOCATIONAL-TECHNICAL CENTERS

In 1963, there were eight Area Vocational schools in the entire State. Since the Vocational Education Act of 1963, there has been $26,500,000 expended for the construction of Area Vocational schools in Maryland. Of this amount, approximately $13,700,000 was provided by State funds, $5,700,000 federal funds and $7,200,000 by local educational units.

Today, 14 new Area Vocational schools are in operation, and 17 additional ones under construction or in advanced stages of planning. Altogether, there are 56 schools throughout the state that can be classified as Area Vocational schools offering courses in five or more occupational areas.

. . . human resources and technological change, in terms of student enrollments and occupational qualifications for employment, continue to shape the new look of Vocational Education in Maryland.

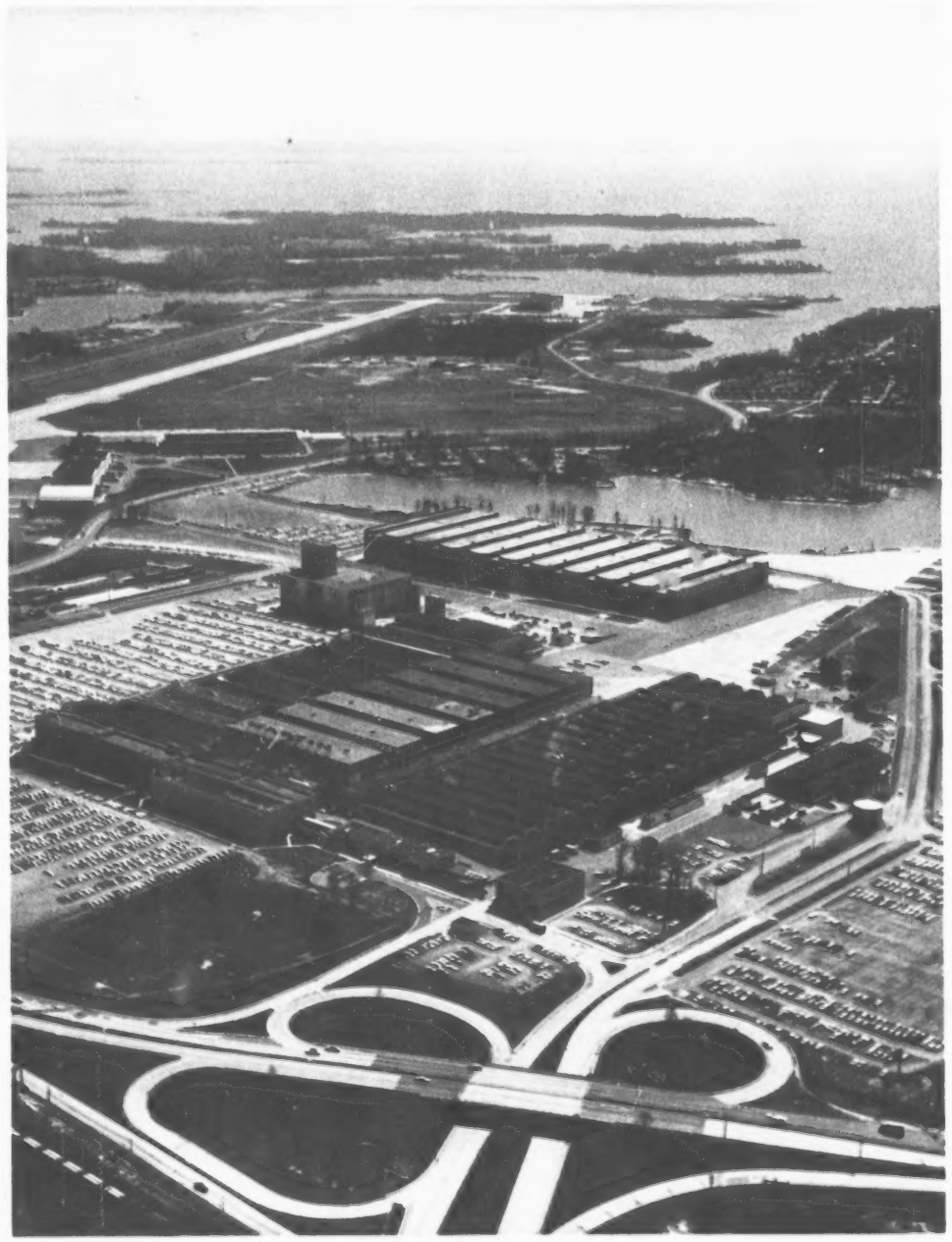
ACTUAL AND PROJECTED EMPLOYMENT BY MAJOR OCCUPATION GROUP (*) 1960-1975

ACTUAL 1960
PROJECTED 1975

(IN MILLIONS)

MAJOR OCCUPATION GROUP	PERCENT OF DISTRIBUTION	EMPLOYMENT ACTUAL 1960	EMPLOYMENT PROJECTED 1975
PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS	11.2 % / 14.5	7.5	12.9
MANAGERS, OFFICIALS, AND PROPRIETORS, EXCEPT FARM	10.6 / 10.4	7.1	9.2
CLERICAL AND KINDRED WORKERS	14.7 / 16.5	9.8	14.6
SALES WORKERS	6.6 / 6.5	4.4	5.8
CRAFTSMEN, FOREMEN, AND KINDRED WORKERS	12.8 / 12.9	8.6	11.4
OPERATIVES AND KINDRED WORKERS	18.0 / 16.9	12.0	15.0
SERVICE WORKERS, INCLUDING PRIVATE HOUSEHOLD	12.5 / 14.2	8.3	12.6
LABORERS, EXCEPT FARM AND MINE	5.5 / 4.2	3.6	3.7
FARMERS – FARM MANAGERS, LABORERS AND FOREMEN	8.1 / 3.9 %	5.4	3.5
	TOTAL EMPLOYMENT (IN MILLIONS)	66.7	88.7

(*) SOURCE: AMERICAN EDUCATION DEC/67—JAN/68



SKILLS OVER BRAWN . . .

. . . according to industrial reports, an estimated 5.2 million jobs for skilled workers in the United States will have opened during this decade. Nevertheless, so limited have been the occupational training resources for these jobs that authorities are predicting an annual shortage of a half-million skilled craftsmen. Maryland, because of its notably high variety of industries, requires a large selection of skilled and semi-skilled workers. As indicated in an economic forecast by the Chamber of Commerce of Metropolitan Baltimore, a future shortage of skilled workers in the Greater Baltimore area could be a hindrance to the expected industrial growth of Baltimore and the large counties that surround it.

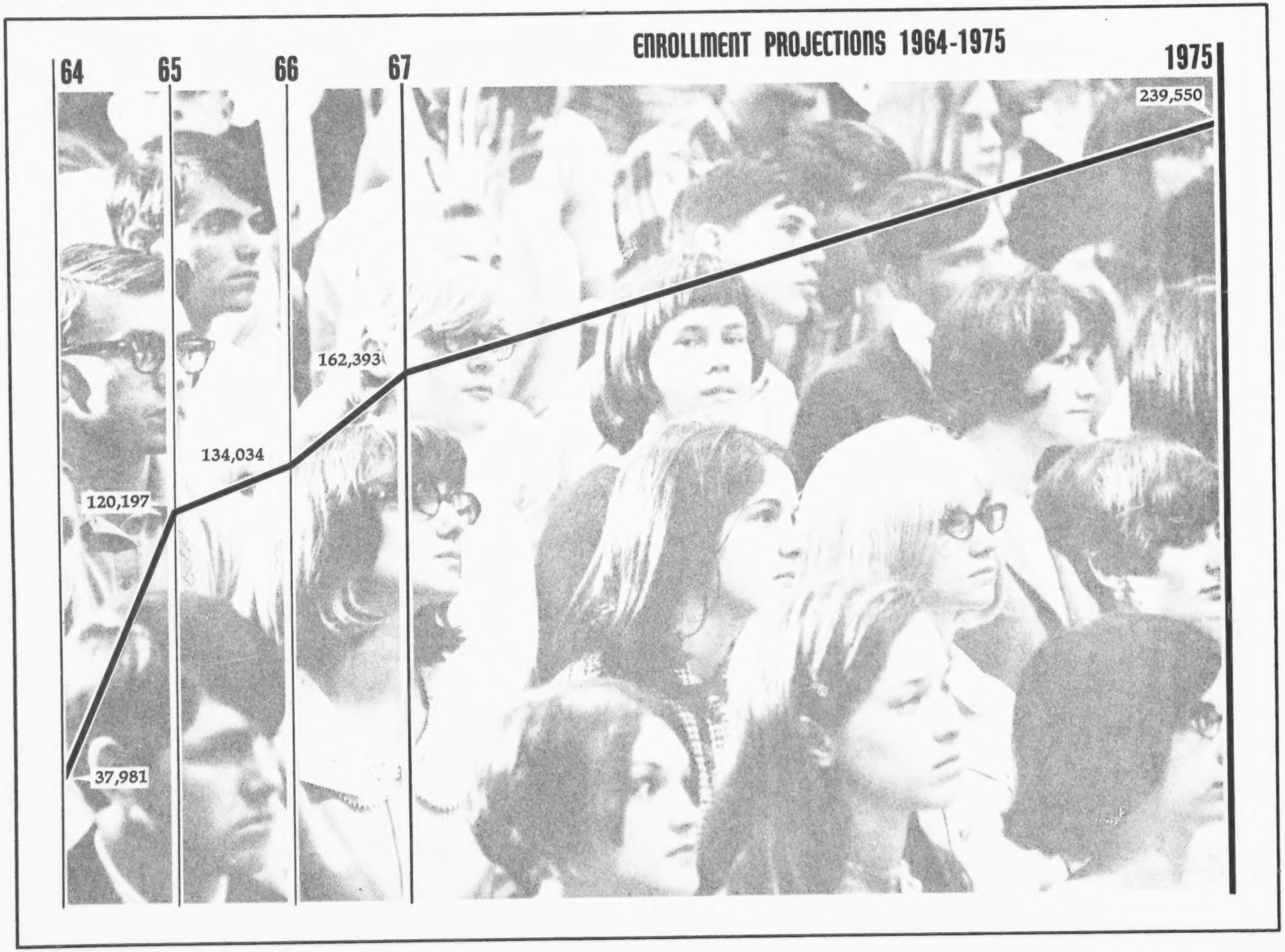
NOT LESS GIFTED THAN OTHERS . . .

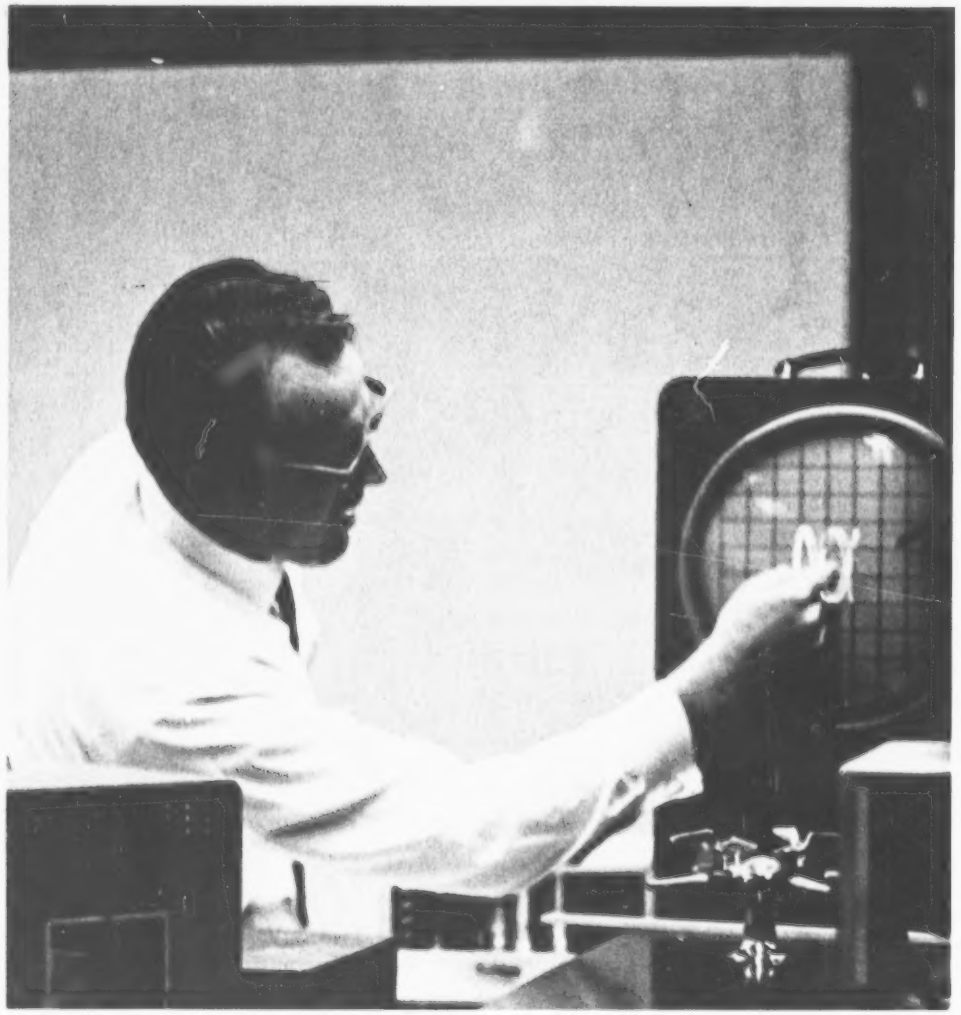
. . . one look at spiraling enrollments show that wherever vocational-technical facilities spring up they are heavily used by both adult learners and students.

Gradually, an increasing number of parents are coming to recognize that their child, not less gifted than others, should pursue a vocational path to achieve his maximum potential. Throughout the United States, vocational enrollment, helped by streamlined new buildings and modern up-to-date equipment, has climbed by 350 percent.

STAYING AHEAD . . .

. . . as opportunities multiply and population figures climb steadily upward, vocational training must also grow if a serious imbalance between employment openings and qualified workers is to be prevented.


ENROLLMENT PROJECTIONS 1964-1975
64
65
66
67
1975
37,981
120,197
134,034
162,393
239,550



QUANTITY...

. . . by 1970, only two years away, vocational enrollments in high school, community college, and adult out-of-school programs are expected to reach 212,000. These figures represent a sizable increase of 50,000 persons over this past year's enrollments. This means more facilities — and more teachers.

QUALITY...

. . . continued studies of occupational qualifications and changing employment patterns must serve as a foundation for new and enlarged vocational offerings. Creative, flexible curricula will make the world of education come alive for more students and discourage dropping out.

This means more research and evaluation, more curriculum development, more guidance services, and more information about career choices.

It means continued dollar support at the local, state, and national levels.

Not the least, it means more community involvement and a greater flow of public information about job training opportunities throughout Maryland.

PHOTO ACKNOWLEDGEMENTS

Baltimore News Post
Maryland Department of Economic Development
American Vocational Association

VT 000 877

Effecting Excellence in Management Practice in Vocational Rehabilitation. A Study for the Vocational Rehabilitation Administration.

Saint Thomas Coll., St. Paul, Minn. Management Center
Chicago Univ., Ill. Industrial Relations Center
Vocational Rehabilitation Administration, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
VRA 561-T-65
Pub Date - Jan66 168p.

VOCATIONAL REHABILITATION; *ADMINISTRATIVE PERSONNEL; *MANAGEMENT DEVELOPMENT; *CURRICULUM; PILOT PROJECTS; RESEARCH PROJECTS; PROGRAM EVALUATION; SEMINARS; SURVEYS; *MEASUREMENT INSTRUMENTS; *STATE AGENCIES

The objectives of the study were: (1) to prepare for the establishment of a center for the development and education of state rehabilitation agency administrative and management personnel, (2) to plan a program of research, curriculums and publication for improving the management and administrative effectiveness of state vocational rehabilitation agencies, and (3) to plan, prepare and conduct a single pilot test program for a test group from State Rehabilitation Agency administrative management personnel. This report has been designed in book form to enable management in public enterprise organizations, researchers, and graduate students to make broader use of the data and research than if the format were too narrowly conceived. The 8 chapters contain the following material: (1) the concept of management development including program steps for teamwork and individual development, (2) a proposed core curriculum utilizing seminars, (3) a proposed schedule of seminars from 1966-71, (4) survey results from 82 state agencies, who returned 446 questionnaires (57.69 percent) giving characteristics of the management personnel reporting, (5) the use of job descriptions as a means to determine development needs, (6) the reactions of 20 experienced vocational rehabilitation management personnel relative to a rank order of seminar topics, (7) the use of television to replace seminars, and (8) three seminars conducted as part of the Vocational Rehabilitation Administration grant. (SL)

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EFFECTING EXCELLENCE IN MANAGEMENT PRACTICE IN VOCATIONAL REHABILITATION

A STUDY FOR THE VOCATIONAL REHABILITATION ADMINISTRATION

by the

Management Center
College of St. Thomas
St. Paul, Minnesota

in affiliation with

Industrial Relations Center
University of Chicago
Chicago, Ill.

VT008277

Director of Project - Howard P. Mold
VRA Grant No. 561-T-65

Associate Director
Management Center
College of St. Thomas
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EFFECTING EXCELLENCE

IN

MANAGEMENT PRACTICE

IN

VOCATIONAL REHABILITATION

January, 1966

This report does not necessarily reflect standards, policies or practices either approved or recommended by the Vocational Rehabilitation Administration. It should be considered as representing the findings of the Management Center, College of St. Thomas, resulting from its study of the 90 state agencies, the literature and with the assistance of the Industrial Relations Center, University of Chicago.

FOREWORD

The objectives of VRA Grant No. 561-T-65 were as follows:

1. To plan for the establishment of a center for the development and education of State Rehabilitation Agency administrative and management personnel in those areas which will increase their capability of achieving agency objectives and goals.

   A. To develop a planning approach and methodology to determine the relationship between the effectiveness of State Rehabilitation Agency product and the development and training needs of the management and administrative personnel of the agencies.

   B. To plan and design an organizational assessment instrument to identify the professional management development and training needs for improvement of management and administrative practices in State Vocational Rehabilitation Agencies.

2. To plan a program of research, curricula and publication for improving the management and administrative effectiveness of State Vocational Rehabilitation Agencies.

3. To plan, prepare and conduct a single pilot test program available for a first test group for the State Rehabilitation Agency administrative and management personnel upon approval of VRA.

This report has been designed in book form to enable management in public enterprise organizations, researchers and graduate students to make a broader use of the data and research than if the format were too narrowly conceived. It is our conviction that this work supported by the Vocational Rehabilitation Administration and directed to the accomplishment of specific objectives for Vocational Rehabilitation has value beyond the area of the state agencies. To some extent we believe it will benefit the general good.

We are particularly grateful to Messrs. James Garrett and Joseph Hunt, and Miss Cecile Hillyer and Mrs. Emiley Lamborn for their guidance and support. Continuing thanks must go to our Advisory Council for their interest and effort. Our special thanks to Mr. August Gehrke, Assistant Commissioner for Rehabilitation and Special Education, State of Minnesota and Mr. Axel Peterson, Assistant Director of Rehabilitation and Special Education, State of Minnesota for their incisive criticism and continuing friendship.

General thanks and appreciation are extended to the Vocational Rehabilitation Administration under the direction of Miss Mary Switzer for making financial support available for the project. This educational institution is stronger and more capable as a resource to Vocational Rehabilitation as a result.

SPECIAL FOREWORD

Special thanks are directed to the directors of the state agencies whose cooperation made the survey portion of this study possible. Their cooperation under a continuing barrage of correspondence and other pressures is especially appreciated.

Howard P. Mold
Associate Director
Management Center
College of St. Thomas
(Director of the Project)

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CHAPTER 1

A Concept of Management Development

CHAPTER I

A CONCEPT OF MANAGEMENT DEVELOPMENT

Part 1: General Statement

It is a common mistake in organizations and institutions to assume that after a plan has been developed, a procedure determined upon and people selected to carry it out, a satisfactory result automatically follows. With this goes the idea that the process, having produced a satisfactory result, will continue to do so. Like everything else this is subject to constant change. There are always better plans, improved methods, more modern equipment and more adaptable materials to be used. Outside of this there are the constantly changing political factors and public reactions.

The people in the organization change. Some develop and show unexpected capacity and others the reverse. People, equipment and ideas depreciate and become obsolete and must be replaced or brought up-to-date. The public, on whom the organization depends for its support, changes. Whatever the problem and the situations that exist today, they will be different tomorrow or will change over any given period of time. The serious problem has an unexpected answer or circumstances alter it so it becomes a minor one. The minor problem suddenly becomes serious.

Nothing is fixed. Any tabulation of these influences shows very pointedly the necessity for flexibility in executive and management work.

It is common practice to set up schedules and rules, make charts, detail and fix methods and to determine and set procedures. This is one of the first steps in good management because it records the best practice, contributes to standardization at a high level and eliminates scrambling around for answers to routine matters. The great danger is a belief in their finality and permanence and the resulting feeling of accomplishment and security.

However, none of this is the final answer. It is only the answer today to a temporary group of conditions. Its value depends upon how easily and rapidly it is adjusted to changed conditions and necessary improvements.

This is just as true but not so readily recognized with respect to the human side of the organization. The specific abilities of people change because of their inherent qualities of adaptability and development, through the process of experience and also because of their health, age and other conditions.

Not only does the ability of the human unit change but also its relationship to every other human unit in the organization because of the change. So, the individual is variable not only within himself but in his relations to every other individual. These changes take place faster and more markedly than most people realize and alter the combinations of abilities as they have been set up for meeting the requirements of the organization. As a result, the organizing of an institution or organization is a continuous process and the human structure must be rearranged and adjusted to meet the changing inter-relationship of relative abilities and their application to the various functions of the operation.

Part 2: A Teamwork Theory of Management and the Development of Management

The principal elements of a public enterprise are generally recognized to be people, money, materials and facilities (or equipment). There is also general acceptance of the proposition that the basic objective of a public enterprise is provision of continued services at the lowest cost and organization continuity. Finally, it is generally agreed that the principal job of management is to organize the elements of the enterprise in a way which maximizes the chances of achieving the basic objectives.

Let's consider a manager starting from "scratch" (planning a new organization or a major new program or the substantial extension of an existing program). Suppose he tentatively accepts the premise that people are the prime movers of money, materials and equipment. This suggests that the first aim of an organization plan might be to devise both principles and "people structures" which are most likely to encourage people to give generously of their talents and their innovative and creative energy to achieve the objectives of the organization.

The "scientific management" theory and the military and church organizations from which conventional administrative theory is drawn both contain a base of coercion or punishment implicit or explicit in their concept of "people structures". Authority of the superior over the subordinate carries with it the right to punish and it is essentially the fear of punishment that holds together organizations based on these theories. There is, of course, also a hope of reward but it is much less explicit.

If we look outside the enterprise for organizations in which people may seek and find satisfaction for their self-fulfillment needs away from the job, we find some significant differences from the assumptions which go into conventional management theory. In political groups, PTA's, volunteer charitable organizations and

voluntary, non-hierarchical church groups, we find people giving generously of their talents and their innovative energy and skills. We find them assuming responsibility, exercising leadership and integrating their personal objectives with those of the organization. There is no coercion, no punishment and often there is no reward other than the satisfaction of accomplishment.

Looking at such organizations through a "wide-angle lens" permits some empirical observations:

1. Voluntary organizations seem generally to be built around the interests and natural abilities of people rather than around the designation of functions.

2. Small, freely communicating face-to-face groups, under articulate and dedicated leadership, appear to be important elements in such organizations.

3. There is a considerable amount of leadership displayed but it is based on the ability to lead rather than on the power to direct or coerce.

4. The more successful of these organizations appear to have a clear and often difficult objective toward which they are working.

5. The more successful of these organizations also appear to be held together by a sense of common committment to objectives, based on both logical and emotional involvement in the problems of achieving these objectives.

6. The presence or lack of this "involvement" appears to be a critical factor in discriminating between vital and successful organizations on the one hand and apathetic and unsuccessful organizations on the other.

From these observations we can draw a tentative statement of organizational principle:

More effective organizations are made up of interested and able people; in small, freely communicating face-to-face groups; under articulate and dedicated leadership; deeply committed to a clear and attainable objective; and thoroughly involved in solving the problems which stand in the way of achievement of the objective. This statement would seem to constitute an effective guideline for the development of management in the state agencies.

How might this principle be applied to vocational rehabilitation organizations? In voluntary organizations we have hypothesized that

"involvement" is a most critical factor. In governmental organizations, because hierarchy is omnipresent, "leadership" also becomes of prime importance. How do people become "involved," and what kind of "leadership" is needed? A discussion of the other factors of effective organization should lead us to some tentative answers to these questions.

Returning to our manager who is planning an organization or a program from "scratch", let's suggest that his first concern will be his own immediate associates--those people who are going to report directly to him. This is the first of the freely communicating face-to-face groups which he must create. He wants interested and able people. How might he go about getting them?

If his organization is like most American organizations, there will be certain people available to him for transfer and there will be others in whom he has an interest. (Hopefully, he will have available adequate information on at least the previous experience of people from whom he might draw his first group.) Presumably our manager must move through normal channels to "clear" the availability of people but he will insist that there will be no "deals cut at the top" with other managers in which the potential transferee is a pawn. He will insist that negotiations will be between the man and himself with the right of rejection on either side without prejudice.

1. An organization in which each member will participate in setting objectives and in which each member will be as free as possible to contribute what he wishes to the achievement of those objectives and to assume responsibility for that achievement.

2. An organization in which the individual becomes responsible for decisions and the group becomes responsible for supporting him.

3. An organization in which information is freely shared and many minds are brought to bear on the problems which must be solved.

It seems likely that the imagination and spirit of many people can be challenged by such an approach and that the manager will end up with a receptive group of associates who are eager to continue the process.

Our manager will have contrived sufficient "lead time" to allow for several group sessions with his new associates during which the objectives and operational principles of the function are thrashed out. The group will benefit from asking itself a number of questions.

1. Assuming our organizational objective to be the continued service achievement existence, how can our function best contribute to that objective?

2. Looking at the special knowledge, experience and functional responsibility which each of us hopes to contribute, are they mutually exclusive? Should we draw lines around them? Or should each of us feel free to call on any or all of the others for assistance, comment, criticism and/or support?

3. If we are going to base our internal operation on confidence in each other, what implications does this have for our relationships with other functions within the organization of which ours are a part.

4. If we believe in the integrity and ability of each other and in our freedom to strive to accomplish, how do we view other people and their right to similar freedom and accomplishment? What about the people (if any) who report to us?

5. What is the greatest constructive impact we can think of for our function (principal objective)? What would each subfunction need to accomplish to achieve this impact (sub-objectives)? How do we begin?

The process of participatively setting objectives is, of course, a powerful "involver" itself. If the objectives are broad, long-term, and difficult, they should serve as a "standard measure" against which each member of the group can compare his day-to-day activity and the direction in which it is headed.

Beyond this, our manager will initiate group discussions which take a very candid look at involvement. The group will probably consider such questions as:

1. Should we have any "organization secrets" as individuals?

2. How much current and forecasted financial and economic information do we need?

3. How can we broaden our own jobs so as to operate with the fewest number of people possible?

4. How should the budget be constructed?

5. Who should have spending authority?

6. Who should decide the "when," "where," and "how much" of travel, attendance at conferences and conventions, etc?

7. Do we need restrictive channels for communications outside the department?

The group will not attempt to make decisions in these areas but they will contribute to the decision-making process. When the questions are considered against the previously discussed organization principles, the direction of the answers will become very clear and our manager, if he is adequate to the challenge, will make some bold and untraditional decisions.

What kind of leadership do we need to make this sort of organization work in a government environment? In looking back at the role we have suggested for the manager, it is obvious that he cannot be an abdicator of responsibility. He has powerful and continuing responsibilities as an innovator, a communicator, a leader and an assistant to his subordinates and an "upward influencer" in the larger organization.

On the other hand, he just as obviously cannot be a dictator or an authoritarian. His strength of leadership will come not so much from his position in a management hierarchy but from confidence in himself and in the people associated with him. It will not be enough for him simply to believe in the ability, integrity and motivation of his people; he will need to talk about his belief and demonstrate his belief by his behavior. He will need to exercise his power upward in the organization to vigorously pursue the objectives of his function as they relate to possible higher levels of management.

Because of the traditional idea that authority flows down from the top, the typical government hiearachy is made to order for a weak manager and our hypothetical manager will need to be constantly alert to the danger of becoming "comfortably weak." It takes a strong manager to reject such notions as:

1. The authority of a position automatically confers leadership on its incumbent.

2. Granting power to subordinates diminishes the power of the manager.

3. The manager should know more than his subordinates about what's going on.

4. No manager can be secure unless he makes all final decisions.

5. A manager loses his individuality when he involves subordinates in the decision-making process.

6. The right to communicate with higher levels of management is reserved to the manager.

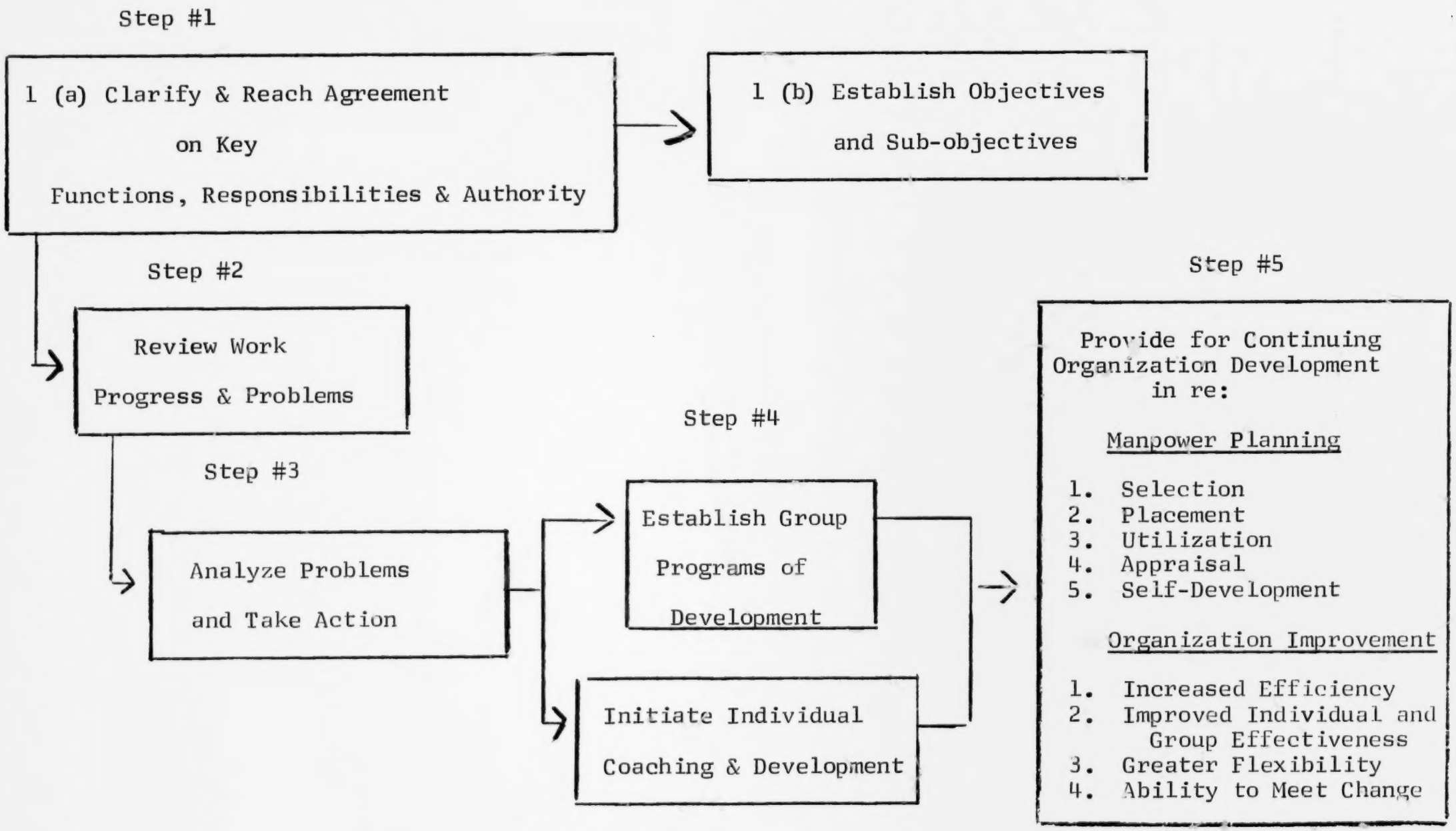
By approaching organization from this altered viewpoint of people as prime movers, we can dispose of some "human relations cliches" which have colored management thinking and action for many years. There is no exclusive talk here of the "delegation" of authority and responsibility but rather an acceptance of the fact that authority and responsibility will be "assumed" in varying degrees by people of varying capacity to assume them. There is no artificial emphasis on "two-way communication," no "management development" gimmicks, no use of "participation" as a subterfuge.

The "happiness" of the people involved is not an objective, nor is "self-fulfillment" as a sociological goal. It is true that more people are likely to find happiness and self-fulfillment in such an organization than in a traditional one but it is equally true that the man who fails to measure up will be mercilessly exposed in such an environment.

On the other hand, such an approach to organization should enable us to operate with considerably fewer people than we now use and the cost of accomplishing work should go down while the opportunity for individual financial rewards go up. It is a concept which could be "researched to death," but which really needs only a measure of risk-taking ability to make it a reality. The earlier such risks are taken, the sooner we shall solve the problem of utilizing our human resources in government as skillfully as we now use money, materials and facilities.

The next question is how do we carry this teamwork concept over into a large-scale program? The following chart, a flow diagram, will help supply the answer with pages 9 and 10 providing amplification.

DEVELOPING ORGANIZATION TEAMWORK
Flow Chart - Steps in the Program
(Chart No. 1)



DEVELOPING ORGANIZATION TEAMWORK

Explanation of Program Steps

Program Aims:

1. To set up a systematic procedure for developing the teamwork needed to get the work of the organization done.

2. To determine what is to be done, how it is to be done, who is to do it and how effectively the job is getting done.

3. To provide a basis for reviewing work progress and problems and for planning individual and group development.

Step I. <u>Clarifying and Reaching Agreement on Key Job Functions, Responsibilities, and Authority (F, R, & A)</u>

A. Clarify key job functions, responsibilities and authority--what they are or should be as the man sees them.

B. Review these with his supervisor for suggestions and/or revisions and approval.

C. Develop a common understanding as a basis for teamwork.

D. Establish objectives as a basis for the management of work.

Step II. <u>Reviewing Work Progress and Problems</u>

A. Review progress and problems in getting the work done.

B. Identify problems for analysis and action.

Step III. <u>Analyzing and Taking Action on Problems</u>

A. Analyze key problems--their nature and causes.

B. Weigh possible solutions and action to be taken.

C. Decide:

1. What is to be done?
2. Who is to do it?
3. When is it to be completed?

Step IV. <u>Providing Programs of Group and Individual Development</u>

A. Through group programs of development

B. Through individual coaching and development

Step V. <u>Providing for Continuing Organization Development</u>

A. Through manpower planning, including:

1. Forecasts of manpower needs
2. Improved methods of selection
3. Accurate systems for placement
4. Increased utilization of human resources
5. Improved systems for appraisal
6. Self-directed self-development

B. Through programs for organization improvement including:

1. Increased group, departmental and functional efficiency
2. Personnel development and leadership effectiveness
3. Greater operational flexibility
4. Ability to meet change through increased utilization of innovative and creative talent

This teamwork theory of organization builds upon all that works best in existing organization theory. It uses fully all the tools of scientific management, cost accounting and similar technologies and developments. These include:

1. The elimination of waste and inefficiency through functionalization, work simplification and related processes and the establishment of specific work goals through the use of objectives.

2. Measurement of work accomplished and the continual examination of the extent to which specified goals are being achieved.

3. Budgeting, cost accounting and other cost controls.

Under the team theory, however, these resources are used in a different manner, based on a different set of motivational assumptions and with a different logic or philosophy from that upon which the traditional theories are based. The team theory is concerned with obtaining the highest possible level of motivation. Such motivation involves not only economic motives but also ego motives, including the desire for growth and significant achievement in terms of one's values and goals, as well as the desire for status, recognition, approval and acceptance. In short, an organization will not be effective unless it can fully motivate its members and then successfully utilize, coordinate, and focus their efforts. In order to accomplish this, two factors are essential--efficient interaction at all levels in the organization and mutual influence in determining goals, objectives, plans and courses of action. These two factors require:

1. Full and candid communication of all relevant information between the various levels of the organization and across them.

2. Opportunity for members of the organization to exert appropriate and adequate influence on others in ways related to their experience, knowledge and information.

3. Decision-making processes which use fully and intelligently all the information available in the organization and which are designed in such a way that the members of the organization are highly motivated to carry out these decisions.

4. Measurement not only of operation costs, waste and earnings but also of those human dimensions which affect the organization's capacity to produce, i.e.

a. Motivation of its members

b. Communication between members and groups

c. Decision-making of both the individual and the group

How does an organization develop operating procedures which fit the teamwork concept, namely, the achievement of a high level of motivation throughout the organization?

1. The organizational structure and its manner of functioning must insure a maximum probability that in all interactions each of the individuals involved will, in the light of his background, experience and expectations, view the interaction as supportive and one which contributes to his sense of personal worth.

2. Management will make full use of the potential capacities of its human resources only when each person in an organization is a member of one or more well-knit, effectively functioning work groups that have high skills of interaction and high performance goals.

3. The alternative to teamwork in most cases is conflict and competition between individuals and groups. Effects of this competition between functions develop these kinds of problems:

   a. Encroachment on other functions
   b. Struggle for power
   c. Staffing for peak loads
   d. Tighter control from the top
   e. Hostility between subordinates
   f. Competition and conflict between subordinates
   g. Creative energy dissipated

4. Advantages of well-developed teamwork:

   a. There are effectively functioning group pressures for acceptance of solutions which are in the best interest of all the members and rejection of solutions which unduly favor a particular member or segment of the group.

   b. Subordinates in this situation find they cannot get special favors or preferred treatment from the "chief".

c. The motivation is high to communicate fully and accurately.

d. The group also is likely to be hard on any member who withholds important information from them.

e. Members are highly motivated to achieve goals set by the group.

f. The creative capacity of both individuals and groups is focused on the problems facing the organization.

An organization should be outstanding in its performance if it has the overlapping group form of structure, effective communication and influence, decentralized and coordinated decision-making and high performance objectives coupled with high motivation. We would expect such an organization to have high productivity, a high quality service and production, low cost, low turnover, high capacity to adapt effectively to change, a high degree of satisfaction on the part of its employees, clients and relevant publics and good relations with society. In short, it would be an ideal organization, a theoretical model toward which existing organizations can move.

The task of improving the present organization consists of three major aspects: (A later chapter will detail this more general statement.)

<u>Inventory</u> of management positions, personnel and problems

<u>Appraisal</u> of organization and of management performance and potential

<u>Development</u> of the organization and management through individual and group programs.

In order to fulfill this essential aspect of improving organization and building a management team, three factors should be inventoried: positions, present personnel and organization problems.

The step of inventorying positions consists of clarifying and defining managerial objectives, functions and responsibilities. It involves spelling out what managers are to do--in terms of functions and responsibilities--and making

clear how it is to be done. It is obvious that individuals can only do the things they know and understand. Clarification of functions and responsibilities should be done vertically between the manager and those who report to him, as well as horizontally between the manager and his associates to whom his job relates. If the program never goes any further, vertical and horizontal clarification and understanding of work assignments makes for better performance of individuals and better cooperation between individuals and work groups.

A management inventory should be used to help single out those who are qualified for openings in terms of their work interests, aptitudes and abilities, work habits, personality characteristics and experience. Such a procedure gives each individual an opportunity to furnish management with current and complete information covering his personal history, background and qualifications on the one hand and his career interests and aspirations on the other. This greatly facilitates the identification of those with skill and potential in the organization. It also enables management to do a better job in the placement and utilization of personnel.

The next step involves identifying personnel and organization needs and problems and following up to solve them. The operating effectiveness and efficiency of the organization and the morale and work satisfaction of the people can be established by using an instrument like the Organization Inventory, an outgrowth of years of research at The University of Chicago. This inventory measures and provides information in 14 key categories. An important part of this process is the "feedback" discussion held with the various management groups.

The appraisal and assessment of performance is an essential part of building and maintaining a strong organization and management team. This involves three sequential steps, dealing with performance, potential and finally, selection.

Performance is reviewed in terms of work objectives, functions, responsibility, authority and relationships. As mentioned above, making explicit what a person should do and how he should do it is essential to having him do it well. The clarification of objectives, functions, responsibilities, etc. constitutes a framework for observing and recording the actual behavior of people on the job in terms of what the job requires of them. As such, this constitutes a yardstick against which the performance of understudies can be observed and appraised.

By systematically observing and recording important examples of on-the-job behavior, the manager can develop a continuing record of the individual's actual performance in terms of what the work requires. This provides a factual basis

for coaching, counseling and developing the individual in terms of the specific job situation.

Gauging capacity for growth and development is the next step. Only after we clarify what is expected of people in terms of the job and how they are doing in terms of performance are we in a position to gauge their capacity to grow, to become more fully functioning and to take on more responsibility. The important factor here is to assess accurately the performance of an individual and to translate this in terms of his potential to perform a more responsible job. We are assessing here the extent to which we think a man is adaptable and trainable and his ability to learn, grow and develop.

If efforts are being directed to upgrade and improve performance and potential of present members of management, equally great care should be taken to select new members of management.

The problem here is to determine what candidates can do--in terms of their physical and mental abilities, their background and their education, experience and skill. A second basic consideration is to try to determine what they will do--whether they have the desired attitudes, motivation, work habits and maturity. This is essentially the selection process focused primarily on promotions.

A basic need of most people is to grow, develop and become more fully functioning. At certain stages in an individual's career, if he is denied such an opportunity (through inadvertence or otherwise) he tends to become thwarted, frustrated and dissatisfied.

The development process begins with a review of the individual's progress in carrying out his functions and responsibilities. Also, a careful analysis of the problems he faces in improving his performance should be completed. At this stage, then, a great deal of information has been gathered and both individual and group programs of development can be selected to meet the developmental needs.

When we consider the development of people through individual and group programs, there are at least five aspects to be considered:

1. Climate and conditions
2. A specific plan of development for the individual
3. A program for coaching the coach to coach
4. Individual programs and procedures for developing understudies and reserves

5. Group programs for management development

Let us consider each of these aspects briefly.

In order to create the atmosphere and situation in which all members of management will be encouraged to develop and grow, all must be included in the program, from top to bottom. There is an old saying that what is honored in a country will be cultivated there. If we make explicit our interest in people and our desire to help them grow and develop, they will be positively motivated to do so. This means creating learning situations for them, offering challenges to them and encouraging them to improve and develop.

We need to work out with the individual, on the basis of his needs, interests and problems, a plan for his development. This plan should largely be based on what his job requires and what kind of qualifications must be developed. In general, the plan of development should grow out of the process mentioned above. In doing this, the program has always placed the emphasis on the job--in terms of objectives, functions and responsibilities--and on the problems the individual has encountered in carrying out the job. The focus should always be on the problems and not on the personality of the individual. By reviewing progress and problems in terms of the job, it is possible to be much more objective and less threatening to the individual. This results in a plan of development based upon the individual's needs and problems, in which he recognizes what he can do and how he can improve.

Just as we seek to get the individual to recognize and accept the responsibility for his own development, similarly the manager should recognize his responsibility for helping to coach and develop his people. All members of management should be given the opportunity to acquire skill in coaching and counseling their subordinates. This includes developing an understanding of the coaching process and how it can be used to build a constructive relationship with subordinates. Managers should be given the opportunity in this program to acquire and practice some of the coaching and counseling skills they will later apply.

The program of Coaching and Developing Reserves should use many different types of programs for developing individuals. Some are as follows:

1. Performance reviews and interviews with the subordinate

2. Coaching by the manager in terms of work requirements with particular reference to areas for improving the individual's performance on the job

3. Attendance at conference programs within and outside the company

4. Distribution of printed material--management bulletins, recommended readings and the like

5. Various types of courses and programs of study, both within and outside the company

6. Position rotation, to give an individual broad, extensive experience and an understanding of different jobs within a department or in other departments

7. Problem or committee assignments, to help the individual develop specialized skill in analyzing problem situations, solving difficulties and getting results

8. Understudy or "assistant to" positions, to provide individuals with training opportunities under supervisors and managers of demonstrated competence

9. Individual counseling, on either a regularized or informal basis, in terms of the individual, his work requirements and his on-the-job and off-the-job problems

The next chart shows the interrelationship of the elements of this process. (Wheel of Individual Development)

The Management Center of the College of St. Thomas has developed group programs involving all of the people in the management group.

Among others, a preparatory program should be given to a selected management group to develop skills in participating in and conducting meetings, in exchanging ideas and in working effectively within groups. This includes leading group and departmental conferences as well as being an important resource group in preparing developmental materials.

This training can be followed by content-oriented programs which cover a number of specific areas:

1. Leadership and Human Relations is studied to give the management group a clear understanding of the leadership role of a manager and an increased awareness of individual and group

needs which must be compatible with organizational objectives.

2. Programs in planning, organization structure and management by objective are necessary to give structure and guidance to the agency at all levels.

3. Effective communication is another extremely important area. Communicating effectively involves not only the getting and giving of information but the transfer of understanding and emotion as well.

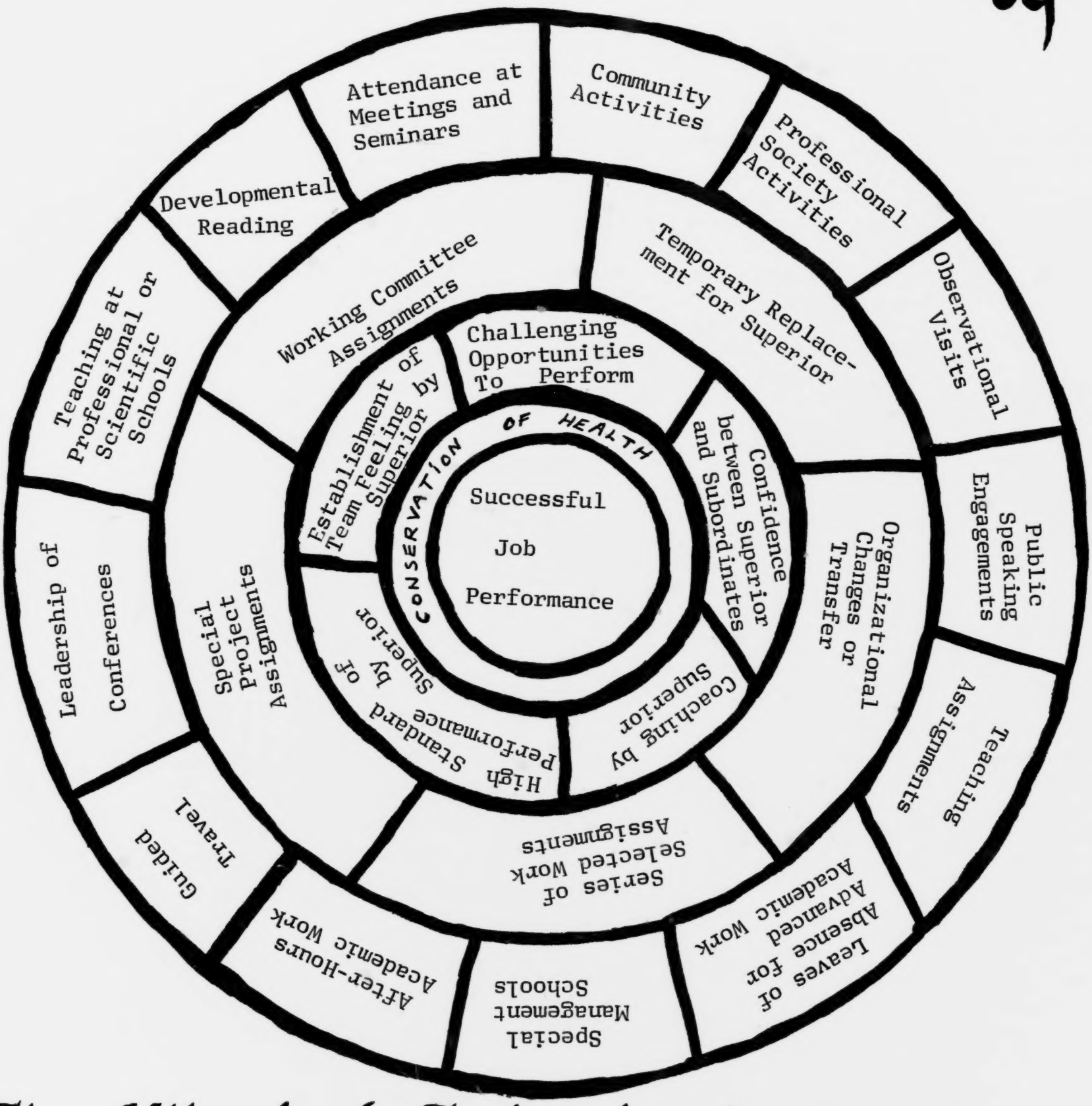
4. Public and community relations is another area where group programs can be used. The purpose here is to have an understanding of how to build a constructive relationship with the public on a day-to-day basis and how this relationship can be maintained.

5. The economics of the organization and the state is studied and the application of economic reasoning to the competitive position and problems of the state agency.

6. Programs in cost reduction, productivity improvement and systems analysis are designed to improve cost-consciousness and to develop an understanding of the ways in which cost can be reduced and productivity improved.

Finally the program should include conferences which are mixed into the content conference program dealing with essentials of management and administration. Time should also be devoted to problem-solving conferences or information-giving conferences dealing with specific problems of the moment. Management functions are changing constantly, as does the environment and it is necessary for all of us to keep abreast of the best thinking and practice in the field of management.

Development is to be Accomplished by



The Wheel of Individual Development Progress

CHART #2

Part 3: An Organized Approach to Management Development

Organization problems are always problems of people - the people in the organization and the people with whom the business of the organization is done. It is the quality of the individual in the organization which measures the quality of the organization itself. He, multiplied, is the organization. It is as much a routine part of good management to continuously value and re-value the individual as it is to inventory the tools and equipment and keep track of supplies on hand. If this is not done as a matter of policy and practice, emergencies force it.

It is possible to arrive at many operational definitions of the role or function of management in an organization. One which emphasizes the role of the manpower resource is: "The key function of management may be defined as the selection, assignment and organization of individuals for the effective and successful use of tools, facilities and money".

Management can then be arbitrarily divided into: (1) Executive Management whose function is to set the goals and policies (and to develop management for the future) and (2) Supervisory Management whose function is to implement achievement of the objectives (and to develop themselves for the future).

If it is true that people can do only that which they have learned to do and, if we accept the premise that management is different from any other profession, then we need to help people learn how to manage.

Management Development may be described as <u>all those activities and influences, which recognized and controlled, have a substantial influence in changing the capacity of the individual to perform his present assignment better and in so doing, are likely to increase his potential for future managerial assignments</u>.

With this goes the notion that the best single indicator of capacity for future assignment is performance on the present job.

The philosophy of management development states, therefore:

1. The best approach for development for the future is doing <u>today's</u> job under the guidance of an able and sympathetic superior.

2. People learn to do an activity
   a. Only by <u>doing</u> the job to be learned
   b. Only when they have "the will" to learn the job
   c. Only in terms of their ability to relate the new to past experiences

3. Every member of management must be continuously and permanently in the program.

4. A systematic and organized approach to development is superior to the "informal" approach -- for the latter is usually an excuse for doing nothing.

The operational implications of this philosophy are:

1. The "core" of management development is in "on-the-job" learning with coaching.

2. The individual is responsible for his own development. The superior is responsible for providing the individual with opportunities to learn -- and with evaluations of progress.

3. Growth is a never-ending process. Assumption of a management position carries with it the responsibility for personal development as well as responsibility for the management of an activity.

4. There must be a plan for each unit of the organization and for each individual -- a systematic approach to achieve the objective.

The objectives of management development are:

1. Improved performance on all present assignments.

2. A reserve of well-developed management personnel available for possible future assignments

and the schema consists of the following:

1. Analysis of the organization to provide needs determination.

2. Selection of personnel into management and for promotion.

3. Evaluation of the performance of personnel to determine individual development needs.

4. Development activity on part of individuals.

5. Inventory control to constantly provide resources of manpower when needed.

In organization analysis one must determine and fix functions of the operation, position requirements and manager qualifications.

An audit of the organization provides the balance sheet from which progress may be measured and from which present needs and inadequacies may be determined.

Assuming an organization and management structure satisfactory to the needs of the organization, the analysis must determine two things additionally.

The first consideration is to determine the requirements of each of the management positions in the organization structure. The relationships which exist between the higher and lower elements in the organization should be established as well as the relationships horizontally with other managerial positions at the same level.

The second consideration is the need for determining not only the technical qualifications of the individual essential to fill the position but also his personal qualifications. It's generally true that the ability of the manager to associate and work with his colleagues and superiors as well as with his subordinates often exceeds in importance his immediate technical abilities.

In selection one must look for skill in management and growth potential as paramount with technical skill and years of experience as secondary. Of critical importance is the notion that the first line supervisor is the cornerstone of the management structure. It becomes critical to provide for more careful attention to first level supervisory selection than has been true in the past in most organizations.

In evaluation the elements are:

1. Develop the standard
2. Develop the measuring instrument
3. Measure
4. Evaluate the data

so that you know this about the individual:

His performance on his present assignment
His growth on managerial assignments
His potential for future managerial assignments

Most management specialists are apparently close to agreement as to the need for periodic evaluation of the individual members of management. The form that rating takes follows no

common pattern, leading to the conclusion that the fact of periodic rating is of prime importance, whereas the form is less so. This is especially true as we move to the approach called "Results Management".

The elements of evaluation are easy to reach agreement on. The objectives here stated for which we may seek the answer through evaluation are not reached in every instance. In composite, however, the conclusion is inescapable that for evaluation to be complete as one solution to the problem of improving performance of management, three essential determinations must be made:

1. The rating of an individual should estimate and evaluate performance since the time of the previous rating period and always against mutually accepted criteria.

2. In addition to the evaluation of past performance, a measure of the growth of the individual during the same period of time should be taken.

3. An estimate of the individual's future potential should be made, including the outline of a program for further development and training. This is essential if the organization's plans for future management replacement are to be fully realized.

Development involves:

1. Helping the individual see his deficiencies

2. Development specific plans to overcome specific deficiencies

3. Continuous follow-up on action plans

The objectives of development are as set above and these are easily agreed to. The problems lie rather in the area of <u>HOW</u> and in the area of <u>DOING</u>.

The evaluation process determines the areas where development and training are needed to reach the goals of development.

Successful development is, practically, a question of constant emphasis and continued follow-up to assure progress in keeping with management's planned replacement schedule.

Inventory Control is the control of assets of manpower. This involves:

1. Identifying organizational needs

2. Continuous evaluation of manpower assets

3. Programming for replacement

so that we have the right man in the right place at the right time.

The essential objective of any organization in establishing management reserves is to provide the right man at the right place at the right time.

An examination of the experiences of many organizations leads to the conclusion that those organizations which have recognized the vital necessity of maintaining a perpetual inventory of management assets are organizations which are apparently satisfactorily approaching this essential objective of management. These organizations are consciously controlling the growth and progress of the individual, are planning for his future and are anticipating and scheduling replacement actions against a forecast of future management needs.

Just as practical experience has demonstrated to the progressive organization the necessity for cataloging, inventorying and controlling material and financial assets, so also have those organizations realized the need for and applied this same technique to their most valuable asset - the man.

We must keep in mind that "measurement permits control" and "control tends to produce achievement of desired results".

A summary of the organized process of management development states: Know what the management structure of your operation must be.

This means plotting out on paper an organization course not only for present needs but also for those which will be met in the future. You might say that this course contains two parts: the first being a manual or guide which describes the principles and objectives of the operation and, in detail, what each position in the organization unit involves. This guide, for example, outlines the functions and responsibilities of supervisors who will fill the jobs, the limits of the authority to be exercised and the relationships each must satisfactorily maintain with other individuals or with groups within the organization. The other document personalizes this guide. It is the organizational chart of the operation, job by job. Upon it the names of candidates for specific positions will be entered and reviewed from time to time.

This double-barreled course is really the expression of management's expectations of what its present organization can grow to become - more efficient, more responsive to the pressures upon the organization while giving more room for individuals to be successful and productive. The course will do this successfully only if both the organizational manual and chart remain flexible instruments. Changing conditions will mean different management functions and it is important that this need for change be recognized. But, still, the first great forward step is for the present management of an operation to know exactly what positions are needed for the organization's best welfare and what each position involves.

At time of initial selection or promotion, identify candidates who have the management qualifications required by the jobs.

This, all must recognize, is the heart and soul of any management development program. Identification provides a working list of specific people who show the best prospects for carrying on an organization's management. Yet this must be a broad flexible identification. Listed on the organizational chart will be the "replacement table" of those persons who seem to have the essential qualities of experience, integrity, growth potential, ability to delegate, technical competence, etc. along with the willingness and ability to accept responsibility and make decisions.

Any worthwhile selection program will not put excessive emphasis upon promotion. Superiors are unwise to think--and subordinates often disillusioned in believing--that selection into management means automatic elevation to a higher place in the managerial system. The main emphasis rightfully belongs on development, not promotion. Very often men who are given special opportunities for development may keep the same jobs throughout the rest of their careers. But still the experience has made them far more capable and given them a much greater sense of real achievement than they would otherwise have had.

Establish a simple method of appraising the candidates selected.

The specific methods of appraisal will naturally vary from one unit of the organization to another. But any workable method of appraising performance in the managerial area based on objectives will probably be effective. It will help determine what the individual will need in the way of additional training or background to equip him for other specific positions. Periodic appraisals usually reveal whether selections on the so-called replacement table have been accurately made. They do so by showing whether a man is promotable, adequate, or unsatis-

factory for specific positions. Based on these findings, the temporary replacement tables can then be revised.

Good evaluation of supervisors not only helps management, it is of great value to the individuals concerned. Sometimes it reveals an unrealized weakness--the lack of a specific skill, unfamiliarity with basic technical background, a poor attitude or something similar which can be corrected. What it usually discloses, however, is how unbalanced in their backgrounds today's organization men tend to become. Because of the nature of previous work experience, men are found to be greatly overweighted as to certain aspects of the organization and only sketchily acquainted with the rest.

Provide the training necessary to complete the candidate's experience.

One notion of training is to make a man the understudy of someone and let him learn how to handle a job by looking on. This is not possible. But there is a type of learning-by-doing which is far more comprehensive. And it has the added advantage of giving the individual a chance to think and act for himself, as well as exposing him to new and stimulating experiences. This technique is called Coaching.

Most of this development can be acquired in the organization. We will need, in addition, special courses designed to give management talent a grounding in the basic techniques of management as well as in many specialized subjects. Along with these courses, we should maintain a program of providing special work experience. This gives promising managers an acquaintance with many sides of a modern organization to give themselves balance. Employees may work for periods with different departments or sometimes in different departments of the division so as to give them the kind of background they will need for greater responsibility. We might go so far as to earmark certain positions as training slots and make sure that they are filled at proper intervals with new faces. Opportunities provided by vacations or leaves-of-absence should also be seized upon.

Off-the-job training is important, too, for our management development program. Very often men can acquire orientation in a shorter time from outside specialists than they would when kept isolated within an organization. We should take advantage of advanced management training courses.

These experiences are directly helpful in the work of the people involved, of course. But perhaps the greatest value is the fact that it gives them a bonus in the form of a greater appreciation of things not directly connected with their day-to-day affairs. And - by letting them move off and get a new look

at their job and their organization - it gives them the opportunity to understand better the purpose of their work and new approaches to effectively doing it.

This process is rightfully called an organized approach to management development. Certainly evidence today clearly indicates that any other approach is not adequate. The old "cream will rise to the top" theory in particular has been largely discredited. An organized approach is vital to achievement of the objectives of the organization.

Supporting an organized approach to the question, "How Do People Grow in a Public Enterprise?" must be agreement on principles. Here are ten principles which have special significance for managerial development.

The principles are simple and even obvious. In reading them one may be inclined to say, "Of course, of course--everybody knows that." However, study and observation indicates that these "obvious" principles are more often violated and ignored than observed and honored. Here they are:

PRINCIPLE I *

The development process is a highly individual matter.

No person is just like any other person. The individual is unique. The individual is an individual and he changes with time. No man today is the same man he was last year.

It follows that we cannot successfully develop people by means of cut-and-dried, over-standardized methods. Human development can never be an assembly-line or stamping-machine process. There is no "average man" to whom you can apply uniformly the same method. What is good for one may not be good for another. Not one but many manager development plans are needed, each tailor-made to fit the strengths and needs of a particular person and aimed at helping him develop in the direction that is best for him.

PRINCIPLE II

Every man's development is SELF-development.

The organization naturally has an interest in the man's development and the organization can and will help but it has no obligation, moral or otherwise, to "develop" the man. The motivation, the desire, the effort, the obligation and the responsibility for development lie with the man himself.

*Adapted from a talk by Dr. Moorhead Wright

Development is not something you do "to" a man. If the approach is manipulative, it is very apt to fail or fall short.

Thus we ought to say to our people something like this: "We'll give you a real opportunity to grow and plenty of orientation and educational activities. But please don't come in here unless you want to work hard and earn your pay and develop yourself. Don't come to us unless you recognize that the responsibility for your development is primarily yours."

The obligations and responsibilities for development rest with the individual. However much and however often it may be obscured, this principle is finally unavoidable.

PRINCIPLE III

The development of people cannot be based upon any set of ideal or specific "personality characteristics or traits."

A serious difficulty arises if you are going to work toward any sort of ideal "personality pattern": What, in the face of such a pattern, are you going to say to the managers now in place? Shall we say that they must conform to this ideal pattern or be fired?

How do we account for the fact that we now have some managers--good managers--who are tough and rugged "personalities," others who are quiet and thoughtful men, others who are agressive, salesmen type and others just as widely assorted--all good managers?

The truth is that there just isn't any standard pattern of personality traits that make a good manager.

The conclusion is that "personality traits" are not something upon which we can base our development approach. We cannot define them; we cannot measure them and only with the greatest difficulty and with a very high degree of unpredictability can we change them. There are only a few really effective ways to change personality traits. One is psychoanalysis; another is religious conversion. Obviously for most of us these are resources we cannot introduce into our operation. In the judgment of those who have tried "rating sheets" based upon "personality traits", they generally failed in actual application. Time and again men who rate poorly turn out to be good managers and vice versa. We have to take men as they are, with the "traits" that they have and try to bring about their development from that basis.

So the focus is upon the "work" rather than the individual "personality." Work can be seen -- identified -- analyzed -- measured. Work is specific, tangible, get-at-able. And work is basic: This whole organization is a group of people who are banded together to do work. That is what we are all here for: to do work in return for money and personal fulfillment.

In the field of management particularly, there is an important checkpoint in evaluating a man's work, because there is a single common denominator among all managerial jobs. Whether he is in charge of a research laboratory, a cafeteria, or whatever, the management must get results through the efforts of other people. This is the common element. The manager's assignment is always too big for one man to do by himself, so he has other people working with him to get it done.

There are three things that a manager must know: (1) the objectives to achieve, (2) the specialized work of the operation he is managing and (3) the common denominator of getting results through other people. The third factor is the particular work of the manager. With a reasonable amount of breaking-in, he can often learn the first two. But his ability in the common denominator is what really qualifies him.

Therefore, on one's search for managerial talent, one should seek not men with certain "personality traits", but men who indicate or demonstrate an ability to do this kind of work. Further, education or development activities should be directed at teaching or helping to develop abilities to do this kind of work. Managing work can be identified as a separate and distinct kind of work which is becoming more scientific and professional and which can be taught and learned.

PRINCIPLE IV

A man's development is 90% the result of his experience in his day-to-day work.

Researching this subject a group of interviewers talked to three hundred industrial managers, men who had developed to the point where they had actually been appointed to positions of managerial responsibility.

The interviewers asked these men: "What do you consider the thing that was most important in your development? What did your company do to help or hinder your development?"

90% of them said, "I got my greatest development when I was working for so-and-so in such-and-such a place. Only 10% attributed major developmental importance to educational

background, special courses, rotation, etc., etc. The outstanding factors by a wide margin in the development of these managers were the manner in which the man was managed in his daily work, the climate in which he worked and his relationships, particularly with his immediate managers. These are the things that helped him develop more than any others. Of course, outside seminars may help provide the climate for on-the-job development.

This same point is proved by another quite intensive (and expensive) piece of research. The records of 890 managers were punched on IBM cards and run off for correlations. The objective was to find out if any significant number of managers had arrived at their positions due to any one significant factor among the 45 factors studied. For example, had they progressed because they had held a lot of different jobs, that is, because of rotation? The answer was "no". Managers held an average of 1.1 assignments since coming with the organization. Significant correlations with education, functional background and many other things were looked for and none was found.

Here was further proof that when the first group interviewed gave only a 10% weight to civic activities, outside courses, rotation, etc., they were probably rating them about right. All these things are important but the direct daily experience is so much more important that there is just no doubt about where the major attention should be directed. Every man is having experience in his day-to-day work that tends to develop him or to retard his development. He is daily reacting to the climate in which he works and to his relationship with his immediate manager. And these appear to be the most important factors in the development process.

PRINCIPLE V

Opportunity for development must be universal.

Everybody in the organization must be given opportunity to develop. Not just a small group, not even a large group but everybody. There can be no dividing lines between "promising men" who will be developed and "unpromising men" who will be ignored. There can be no separation of the sheep from the goats. Opportunity must be available for everyone who is motivated to accept it and go to work on it.

Very many development programs today have been based on this idea of selecting the "high potential men," picking ten out of a thousand and saying, "These are the men we will develop." So these are anointed and all attention is put on them and the others just are "not on the development program."

During the process of researching the merits and demerits of this very common practice in a large industrial firm, one of the "promising young men" lists of ten years ago was dug out. There were 143 names on it. The question arose: "Where are these men today?" The researchers proceeded to look around and find out. Only 37 per cent of them achieved the success predicted for them. It shows how wrong these arbitrary "crown prince" theories can be.

It follows, as a basic principle, that everybody must be given a chance and that no artificial distinctions can be made during the developmental process. Obviously the man of limited ability is not presented with the same opportunity that is given to one of your real up-and-coming bright young men. But each of them gets the appropriate opportunity. The lesser man is not cut off from all opportunity. He is offered appropriate opportunity in the beginning and subsequent opportunities as earned. The brighter man will earn them faster and bigger than the dull man. But this is a matter of degree, not of black and white. Nobody gets left out. And room is provided for happy surprises, dark horses, poor starters and strong finishers.

This is a considerably different approach from that of the past. It is the hard way in the beginning but the best way in the end--because it looks as if it is the way that works.

PRINCIPLE VI

Primary emphasis must be on development in the present assignment, rather than emphasis on a promotional ladder.

There is no attempt here to ignore the importance of promotion as a developmental factor. But if undue stress is laid upon the promotional ladder, everyone begins to feel that he is in his present job only temporarily; that he is on his way up the ladder; that he must devote most of his attention to looking ahead to the next rung and not to getting his present work done. This means that the organization's work doesn't get done and you couldn't have a worse result from a development activity. Furthermore, when main emphasis is on promotion, the inevitable outcome is a lot of expectations that cannot be fulfilled and a lot of promises that cannot be kept. The final result is apt to be unnecessary disappointment all around.

Research to date points to doing something like this: Keep the personnel on doing today's job particularly well. This is the base from which all advancement is made. It also

has the great advantage for the man's incumbent manager that it helps get the work done. Thus, while a manager is helping people develop, at the same time he is making his own job easier, not more difficult. It is wise to hold down super-imposed special development activity which cuts too much into the day's work or takes time away from getting results. Most of the development process should be integrated with the normal conduct of the organization so that they work together instead of competing for the manager's time and energy. The manager's work is actually simplified, rather than being made more complex, by the development process.

PRINCIPLE VII

Managing is a separate and distinct kind of work which has emerged as another profession, if not a science.

This fact must be recognized both in planning a man's development and in actually appointing people to managerial positions. We must, therefore, get the best possible answer to the question: "Does this man have the capabilities and drives to enter the profession of managing, or should he continue to progress in his present field?"

Quite often, in the past, the best counselor was made District Manager--and too often he failed. The star individual becomes the manager--and he failed. Not always, but often--there are many exceptions. So, many times the outstanding individual performer is made a manager and we lose the good individual performance and get a mediocre manager; all because of failure to realize that managing, in itself, has emerged as a profession, with its own particular professional requirements.

In planning a man's development, the first question is: "Is this man in the right kind of work? Is he headed in the right direction for him?" It is really a difficult decision to make but if man and manager look at it from this point of view, the chances of making good choices are considerably improved.

There are many advantages in being an individual contributor. An adult may yearn after the trappings of prestige but can get them in fulfillment in his work. He wants a clear area of work and teamwork and he often seeks primarily recognition for his professional capability rather than in the social hierarchy of the organization. It often happens that an individual contributor who is getting full recognition professionally

is unhappy because in the social life of the organization he sees men who he believes to be lesser men than he is intellectually but who, nevertheless, are getting certain perquisites that he is not getting and naturally, it causes him concern. The solution to this lies in other dimensions of the organization.

PRINCIPLE VIII

Decentralization of decision-making is a prime instrument of development.

Decision-making muscle is developed only by making decisions with risk. As in golf, bridge and any other skill, learning is done not only with the head but with the muscles and the intestines and this kind of learning comes primarily from doing.

Decision-making opportunities from men working on their development are not available if most of the decision-making power is concentrated among a few of the top executives instead of being spread out at the periphery. Organization in structure, therefore, is an important and inherent part of the development process because it opens or limits the field for individual decision-learning.

PRINCIPLE IX

The incumbent line manager at all levels is responsible for the development of people who work under his direction.

This principle is somewhat of a departure from previous practice, so the reasons for it need particularly to be understood.

Many managers say: "My main job is to get the work done and bring it in within the budget. I'll let the personnel man do the developing work or I'll get a staff man or I'll send the man to a school and let them develop him."

It is not possible for a manager to delegate the development process to someone else. He can delegate the legwork and some of the educational activities but primarily he has to carry the responsibility himself.

Very often, in cases where the development activity is carried on as a separate and special "program", the results can be detrimental instead of constructive. A man may be "appraised"

by someone other than his own manager, he may take special courses and engage in other "developmental" activities and acquire considerable information and inspiration. This may lead him to see some of the shortcomings and faults in the organization in which he works and he will return to the job full of enthusiasm for improving the whole operation. In many cases this is a good result, but in many others he finds a very apathetic or even hostile reception to his ideas. If the manager with whom he works regularly is not interested in his development and is on the defensive (as they often are) a frustration and resentment will be built up in the individual, which may lead to retrogression instead of development.

Further, as indicated in Principle IV, a man's development is heavily dependent on the climate in which he does his daily work and is particularly sensitive to the relationship that exists between himself and his immediate manager. Thus, it is almost certainly true that the line manager, himself, must recognize his responsibility for helping people develop.

Actually, development work can be one of the most satisfying parts of a manager's job. And rather than hindering or interrupting, it helps him in getting his work done when he operates on an integrated, reciprocal basis rather than on a basis of command, giving orders and holding the whip. The man who feels he is developing through his work performs voluntarily at a much higher level of effectiveness. This is motivation in the true sense.

PRINCIPLE X

Moral and spiritual values are basic in the development process.

If there is too much emphasis on science, budget and accuracy, the obligations that stem from this key principle may be overlooked. As a matter of fact, not only American society but American history is at a crossroads in this connection. For a long time now we have been growing more and more materialistic, making more and more progress along lines of material science, making great discoveries about the atom and electronics and chemistry and many other things. This multiplying knowledge of the physical world gives man enormous power and with it, enormous obligation to be right.

It seems absolutely necessary that we reach out and try to find somewwisdom greater than our own, greater than the merely human. We have to find and clear a guide from some higher source. We have to reach out and up for the great help we need in making decisions withrregard to these physical things and to the people involved in them. The decisions of American public enterprise

managers are going to have great effect upon the course of the world. This is a management oriented society. Managers have real leadership in this country. And this country has real leadership in the world.

The quality of our decisions--particularly those in regard to people--must be really good and really high.

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CHAPTER 2

A Curriculum for An Academy of Management

CHAPTER 2

A CURRICULUM FOR AN ACADEMY OF MANAGEMENT

General

The following subject matter by title is proposed as the core curriculum for an Academy of Management. It is based upon the analysis of the national survey (Chapter 4), the analysis of job descriptions (Chapter 5), the actions of the Advisory Council (Chapter 6) and the Concept of Management derived from the literature study (Chapter 1).

Seminars to Constitute Core Curriculum

1. The Process of Self-Management for the Manager - Concepts and Practices in Discipline, Motivation, Efficiency and Control.

*2. Management by Objective.

*3. Developing Organizational Teamwork.

*4. Work Simplification and Systems Analysis.

*5. Coaching and Developing Subordinates.

*6. Developing Creative Abilities.

*7. Leadership and Human Relations.

*8. Making More Effective Use of Meetings.

*9. Communications and Community Relations - The Process of Image Building.

10. Fiscal Management Policies.

11. Appraisal of Employee Performance.

*12. Advanced Concepts and Practices in Administration.

13. Case Problems in Human Relations.

14. Management of Information Systems.

15. Practices in Organizational Assessment.

*Those seminars marked with an asterisk are presently available for presentation. The balance are in process of preparation except for No. 10.

Seminars to Constitute the Supportive Curriculum

*16. Elements of Supervision.

17. Advanced Elements of Supervision.

18. How to Make Effective Presentations of Complex Ideas and Programs.

19. The Practical Science of Politics.

20. PERT - Work Planning.

21. Elements of Persuasion.

*22. Recruiting, Selection and Staffing.

23. How to Write Policies and Procedures.

24. Semantics and Symbolic Logic in Planning and Decision-Making.

25. Management Understanding of Current Psychological and Philosophical Systems.

26. The Use of Science in Aiding Management Decisions.

*27. Ethics in Public Enterprise.

*28. Basic Economics.

*29. Managerial Economics.

30. Current Methodology in Computer Technology for Managers.

*Those seminars marked with an asterisk are presently available for presentation. The balance are in process of preparation except for 19, 24 and 25.

Details of Seminars

1. The Process of Self-Management for the Manager - Concepts and Practices in Discipline, Motivation, Efficiency and Control.

   a. Causes of Failure Among Managerial Personnel.

   b. Individual Goals versus Organization Goals.

   c. Styles of Leadership and Personal Needs' Satisfaction.

   d. Sensitivity Training - Yes or No?

e. The Blake Managerial Grid.

f. Management by Objective Applied to the Individual.

g. Standard Approaches to Compensation and Problems of Promotion.

h. Delegation and Self-Motivation.

i. Managerial Work Philosophies - Maslow, Herzberg and McGregor.

j. Administration - Getting the Job Accomplished versus Popularity Contests.

k. Use of Staff and Deputies in Supportive Roles.

2. <u>Management by Objectives and Results</u>

1. The Concept of Management by Objective.

   a. Executive Failure -- Causes
   b. A Profile of Successful Managers
   c. Concepts of Control, Policy, Delegation
   d. Management Matrix

2. Writing Objectives.

3. The Objectives Formulator - A Planning Tool.

4. Completed Work Concept.

5. The Technique of Programming.

6. The Functions of Execution Developed Through the Management Matrix.

7. The Edwards Case - Management by Objectives Applied to Policy Formulation in Vocational Rehabilitation Agencies.

8. Management by Objective Applied to Human Relations and Problems of Personal Productivity.

9. Management by Objective and Budgeting.

10. Converting the Objectives to a Balance Sheet.

11. Ratios and Indexes.

12. Management by Objective and Objectives Training.

13. Criteria to Validate Organizational Objectives.

14. Miscellaneous Applications of Management by Objective.

15. Management by Objective and the Function of Supervision.

16. Efficiency and Cooperative Behavior.

17. Evaluating Achievement of Objectives.

18. The Delegative Process and Subordinate Programs of Objectives.

3. <u>Developing Organizational Teamwork</u>

1. CLARIFYING AND REACHING AGREEMENT ON KEY JOB FUNCTIONS, RESPONSIBILITIES AND AUTHORITY (F, R, & A)

   a. Clarifying key job functions, responsibilities and authority -- what they are or should be as the man sees them.

   b. Review these with his supervisor for suggestions and/or revisions and approval.

   c. Develop a common understanding as a basis for teamwork.

   d. The Work Coordinator - Tool Number One to Implement the Process.

2. REVIEWING WORK PROGRESS AND PROBLEMS

   a. Review progress and problems in getting the work done.

   b. Identify problems for analysis and action.

   c. The Review Coordinator - Tool Number Two.

3. ANALYZING AND TAKING ACTION ON PROBLEMS

   a. Analyze key problems--their nature and causes.

   b. Weigh possible solutions and action to be taken.

   c. Decide: What is to be done? Who is to do it? When is it to be completed?

   d. The Problem Analyzer - Tool Number Three

4. THE COMPARATOR - TOOL NUMBER FOUR

   a. The forced choice, paired comparison approach to job clarification and work unit organization is brought about through the comparator.

   b. How to prepare a card deck for a unique job and function.

5. PREPARING WORK OBJECTIVES

   a. Objectives and Budgeting.

   b. Formulating objectives and the department plan.

6. THE OBJECTIVES FORMULATOR - TOOL NUMBER FIVE

7. PROVIDING PROGRAMS OF GROUP AND INDIVIDUAL DEVELOPMENT

   a. Through group programs of development.

   b. Through individual coaching and development.

8. PROVIDING FOR CONTINUING ORGANIZATION DEVELOPMENT

   a. Through manpower planning.

   b. Through programs for organization development.

9. DEFINE THE WORK

   a. Clarify key functions, responsibilities, authority and relationships.

   b. Reach agreement between man and boss.

10. APPRAISE PERFORMANCE

   a. Rank functions and responsibilities.

   b. Rank men on comparative basis in terms of overall performance.

11. ASSESS POTENTIAL

   a. Ascertain demonstrated potential
      (1) Education and experience
      (2) Record of accomplishment
      (3) Performance appraisal

   b. Determine future potential
      (1) Interests
      (2) Aptitudes and abilities
      (3) Temperament
      (4) Emotional adjustment

4. <u>Work Simplification and Systems Analysis</u>

   1. Work Simplification: Its Philosophy and Benefits.

   2. The 'Project' Approach.

3. A Review of Successful Programs.

4. The Challenge Method of Work Analysis.

5. The Flow-Process Chart and How to Use It.

6. The Flow-Process Chart Applied to an Office Problem.

7. How to Calculate Economic Value.

8. The Combined Activity Chart Applied to Office and Office Machine Operations.

9. Work Count Approaches.

10. "Lick the Problem" Analysis.

11. Introduction to Systems Analysis Charting.

12. Systems Analysis Charting Applied to a Vocational Rehabilitation Problem.

13. Systems Analysis Charting of Large Scale Paperwork Systems.

14. Installing and Maintaining a Systems Analysis Program.

15. Human Relations and Leadership Aspects of Work Simplification.

5. <u>Coaching and Developing Subordinates</u>

1. COACHING AND MANAGEMENT

   a. Coaching situations and difficulties.
   b. Job Problems: Boss's and Man's point of view.
   c. Resolving differences in viewpoint.

2. CLARIFYING THE JOB

   a. Rethinking company and departmental objectives.
   b. Observing the individual's performance on the job.
   c. Clarifying the individual's job functions and responsibilities.

3. STRENGTHENING THE MAN-BOSS RELATIONSHIP

   a. Key characteritics of the man-boss relationship.
   b. Dealing with problems in the relationship.

4. QUESTIONING TECHNIQUES IN COACHING

a. Observing job performance.
b. Basic questioning techniques.
c. Practice session on questioning techniques.

5. ACTIVE LISTENING IN COACHING

a. The nature and objectives of listening.
b. Active listening techniques.
c. Practice questioning and listening skills.

6. COACHING PATTERNS AND PRACTICES

a. Reviewing job performance versus rating the man.
b. Alternative approaches in coaching situations.
c. Practice session.

7. REVIEWING JOB PROGRESS AND PROBLEMS

a. Requirements in performance review.
b. Pinpointing problems and diagnosing difficulties.
c. Conducting the performance interview.

8. WORKING THROUGH PROBLEMS AND PLANS

a. Setting the climate, identifying and analyzing problems.
b. Recognizing mutual interests in a problem.

9. DELEGATION AND COACHING

a. Delegation in terms of functions and responsibilities.
b. Requirements for effective delegation.
c. The dynamics of delegation.

10. SELF-DIRECTED SELF-DEVELOPMENT

a. A workable philosophy of self-development on the job.
b. A careful examination of the concept of "self-directed self-development".
c. A plan for self-development.

6. <u>Developing Creative Abilities</u>

1. A LOOK AT CREATIVITY

a. The importance of habits and attitudes.
b. The program aims and content.
c. The assessment of creative ability.

2. RELEASING CREATIVITY

   a. The concept of creativity, attitudes and habits which hinder creative effort (personal, cultural, organizational).
   b. How we can overcome barriers to creativity.

3. CREATIVE PEOPLE AND THE CREATIVE PROCESS

   a. Characteristics of creative people.
   b. How we think creatively; aspects of the creative process.

4. THE CREATIVE PROBLEM-SOLVING PROCESS

   a. Steps in creative problem-solving.
   b. Use of the problem-solving workbook.
   c. Selection of a problem to work on.
   d. Problem definition.

5. ANALYZING PROBLEMS CREATIVELY

   a. Creative questioning.
   b. Ways to analyze problems creatively.

6. CREATIVE TECHNIQUES FOR INDIVIDUALS

   a. Checklists as aids.
   b. Laws of association attribute listing.
   c. Input-output system.
   d. Model building.
   e. Other individual techniques.

7. CREATIVE TECHNIQUES FOR GROUPS

   a. Brainstorming; operational creativity.
   b. Other group techniques.
   c. Practice in one type of brainstorming.

8. DEVELOPING AND EVALUATING IDEAS

   a. Small-group brainstorming.
   b. Evaluation of brainstorming.
   c. Techniques for evaluating ideas.

9. PUTTING IDEAS TO WORK

   a. Selling and implementing ideas.
   b. Handling resistance to change.
   c. Building an organization climate which encourages creativity.

10. CREATIVE SELF-DEVELOPMENT

a. Re-assignment of creative ability.
b. Personal program of creative self-development.
c. Program review and evaluation.

7. Leadership and Human Relations

1. LEADERSHIP AND HUMAN RELATIONS IN THE ORGANIZATION

a. Introduction to the program.
b. The meaning of leadership.
c. The LEADERSHIP INVENTORY, a test to measure current leadership practices and patterns of the participants.

2. LEADERSHIP PATTERNS AND PRACTICES

a. The characteristics of leaders.
b. The essentials of effective leadership.

3. UNDERSTANDING OTHERS - THE CAN-DO FACTORS

a. How people differ.
b. Why people differ.
c. Heredity and experience.
d. What people "can" do.

4. UNDERSTANDING OTHERS - THE WILL-DO FACTORS

a. The individual's attitudes, motivation and work habits.
b. Emotional maturity.
c. Ways of understanding people.
d. Barriers to effective understanding.

5. UNDERSTANDING AND DEALING WITH BEHAVIOR ON THE JOB

a. Problem behavior and its causes.
b. The complexity of behavior.
c. Ways of changing behavior.

6. HOW ATTITUDES AND FORMED AND CHANGED

a. The nature and importance of attitudes.
b. On and off the job attitudes.

7. HOW TO MOTIVATE OTHERS MORE EFFECTIVELY

a. Needs and goals.
b. Individual differences.
c. Tip-offs to more effective motivation.

8. UNDERSTANDING AND HANDLING FRUSTRATION ON THE JOB

a. Goals and barriers.
b. Causes and symptoms of frustration.
c. Prevention and relief of frustration.

9. THE INDIVIDUAL IN THE WORK GROUP

a. Types of groups and their influence on the individual.
b. Their effect on morale and attitudes.
c. Ways of working with groups.

10. PROBLEMS OF HUMAN RELATIONS

a. The "Leadership Inventory", post-test.
b. Comparison of scores.
c. Analysis of results.
d. Basic problems in human relations.
e. The supervisor looks at himself.

8. <u>Making More Effective Use of Meetings</u>

1. OVERVIEW OF MEETINGS

a. Three kinds of meetings.
b. Jobs in a meeting.
c. A way of thinking about leadership and groups.
d. Half-truths about conference leadership.
e. If people want to change.

2. METHODS AND TECHNIQUES

a. The leader's presentation.
b. Improving your leadership in discussion groups.
c. Participation and democracy?
d. Encouraging participation and utilizing contributions.
e. An introduction to new audio-visual aids.

3. PLANNING AND CONDUCTING THE MEETING

a. Planning and conducting the meeting.
b. Steps in a discussion meeting.
c. Meetings: before, during and after.
d. Objectives and planning.

4. THE ADVISORY MEETING

a. The advisory meeting.
b. The "helping" relationship.

5. DISCUSSION WORKSHEETS

a. Meeting observations.
b. Discussion leader's meeting outline guide.

6. QUESTIONING AND LISTENING

a. Questioning and listening techniques.
b. Barriers and gateways to communication.
c. Questioning and listening check list.
d. Directive questions and objectives.

7. GROUP DEVELOPMENT

a. A good group atmosphere.
b. Understanding what your members do.
c. The case of the hidden agenda.
d. Frustrations in conferences.
e. How to diagnose group problems.
f. How groups develop.

8. PROBLEM-SOLVING METHODS

a. The case method.
b. Role-playing technique in business and industry.
c. Reaching a decision.
d. Brainstorming: Cure or Curse?

9. GROUP PROBLEM-SOLVING PRACTICE

a. Worksheet for sorting ideas.
b. Meeting reactions
c. Preparing for brainstorming as problem solving.
d. Evaluating the brainstorming process.
e. The non-directive meeting - a case in nonsense.

10. EVALUATION

a. Questions for observers.
b. End-of-Meeting evaluation form.
c. Self-help questions for the leader.
d. Selected bibliography on discussion leadership.

9. <u>Communications and Community Relations</u>

1. THE NATURE OF COMMUNICATION

a. The Process of Communication.
b. The Persuasive Process.
c. The Decision-Making Process.
d. The Communications Model.

2. OVERCOMING BARRIERS - 1

a. Statements that Lead Us Astray.
b. Creating Mis-understandings.
c. Clues to the Closed Mind.
d. Identifying the Important Publics.

3. OVERCOMING BARRIERS - II

   a. What Does It Mean?
   b. Recognizing Differences.
   c. A Successful Federal Agency Public Image Program as a Guide for State Agencies.
   d. Conflict and Solutions to Conflict Field Dependence.

4. COMMUNICATIONS IN AN ORGANIZATION

   a. Communication within an Organization
   b. Case Problems in Communication
   c. Observation and Perception
   d. District Office Community Relations Program Implementation.

5. COMMUNICATION AND COMMUNITY RELATIONS IN ACTION

   a. Organizing our Program.
   b. Problem of Managerial Productivity in Organization Influence.
   c. How to Talk with People Who are Important.
   d. Fallacious Projection.
   e. The State Legislature, the Media, the Client - Programs for Effective Relationships.

10. Fiscal Management Policies

This program needs to be developed with the assistance of key state agency personnel.

11. Appraisal of Employee Performance

This program is in the process of development as a joint effort of the Management Center, College of St. Thomas and the University of Chicago, Industrial Relations Center.

12. Advanced Concepts and Practices in Administration

1. A LOOK AT THE MANAGEMENT TEAM

   a. The basic concepts of the team theory of management.
   b. The functions of the manager.

2. THE MANAGEMENT TEAM IN ACTION

   a. The application of the concepts of the team theory to vocational rehabilitation management.
   b. McGregor vs. Directive Methods.

3. THE DECISION-MAKING PROCESS

   a. Study of the process of decision.
   b. Developing situation awareness.
   c. Analyzing the problem situation.
   d. Locating the critical factors.
   e. Determining alternative solutions.

4. FURTHER ASPECTS OF DECISION-MAKING

   a. Choosing the best alternative and administering the decision.
   b. Applying the six steps of decision.
   c. The rational manager.

5. PRACTICE SESSION ON DECISION SKILLS

   a. A case study or problems from the group's own experience used for practice in decision-making.
   b. Evaluation.

6. COMMUNICATION SYSTEMS IN BUREAUCRACY

   a. Informing the team.
   b. Correcting organizational communication difficulties.
   c. Using advanced information technology.

7. WORKSHOP ON COMMUNICATION PROBLEMS

   a. Using informal methods of communications.
   b. Analysis of organizational communication problems.

8. THE IMPORTANCE OF RULE SYSTEMS

   a. Definition.
   b. Typology
   c. Construction
   d. Evaluation and use of rule systems.

9. ETHICS IN MANAGEMENT DECISIONS

   a. The role of ethics.
   b. The problem of ethics.
   c. Alternative ethical positions seen through cases.

10. SOLVING ETHICAL ISSUES

   a. Recognition of own ethical problems.
   b. Ethical issues in executive action.

11. RUDIMENTS OF POWER

a. Political aspects of management.
b. Developing of an intelligence system.
c. Building of a strategy.

12. TIMING YOUR TACTICS

a. Using power tactics.
b. The timing of action.
c. The use of time.
d. Review of the seminar.

13. Case Problems in Human Relations

This program is currently being developed for television and will be available with adaptation for the VRA project.

14. Management of Information Systems

1. INTRODUCTION TO INFORMATION SYSTEM

a. Introduction to computers.
b. Their role in the information system.
c. The stored program concept.
d. Programming a computer.

2. COMPUTER LANGUAGES

a. The specification of computational procedures.
b. Languages for scientific and engineering use.
c. Languages for business use.
d. Special purpose languages.
e. Advantages and disadvantages of "higher-level" languages.

3. COMPUTER CHARACTERISTICS

a. Components of a computer system.
b. Classification of different computers.
c. Hardware features of different computers.

4. DATA COLLECTION AND ERROR CONTROL

a. Importance of error control.
b. Means of reducing the cost of data collection.
c. Prevention, detection and correction of errors.

5. DATA CLASSIFICATION, STORAGE AND RETRIEVAL

a. Role of classification.
b. Storage hierarchy.
c. Retrieval of information for decision making.
d. Data base management systems.

6. SEQUENTIAL AND RANDOM PROCESSING SYSTEMS

a. Logic of sequential processing.
b. Logic of random processing.
c. Advantages and disadvantages of each.
d. On-line real-time systems.
e. Time-shared computer systems.

7. THE PLANNING PROCESS AND THE INFORMATION SYSTEM

a. The role of planning.
b. Steps in planning.
c. The use of analytical and simulation models for planning.
d. The relation of planning and the information system.
e. Integrated information system.

8. IMPLEMENTATION OF INFORMATION SYSTEMS

a. Value and cost of information.
b. Approaches to installing an information system.
c. Steps in implementation.
d. Personnel requirements.
e. Management's role in systems design.
f. Organizational implications of information technology.

15. Practices in Organizational Assessment

This seminar is currently under development. It is based on ten years of the University of Chicago and Management Center experience in assessing organizational effectiveness and behavior.

16. Elements of Supervision

1. THE ROLE OF THE SUPERVISOR AS PART OF THE MANAGEMENT TEAM

a. Management and supervision responsibility for accomplishing organization objectives at the lowest possible cost.
b. How does the supervisor contribute to this objective?

2. THE SUPERVISOR'S JOB AS A LEADER

a. What does the supervisor do in order to lead the work group more effectively?
b. Results of the research used in practice.

3. HUMAN RELATIONS AND INCREASED EMPLOYEE PRODUCTIVITY

   a. The supervisor is not to run a "popularity contest".
   b. How does he use knowledge of human needs to effectively motivate the work group?
   c. The "Supervisor's Dilemma" - a case study.

4. COACHING AND DEVELOPING EMPLOYEES TO HIGHER PRODUCTIVITY

   a. The laws of learning and employee on-the-job behavior.
   b. How to coach for increased productivity.

5. JOB INSTRUCTION TRAINING FOR INCREASED SKILLS

   a. The four step JIT approach to on-the-job skill training.
   b. How to organize and apply employee training programs.

6. LABOR LAW, COLLECTIVE BARGAINING AND PREVENTIVE LABOR RELATIONS

   a. Collective bargaining.
   b. How to work with the Union.
   c. Handling grievances in the presence or absence of an agreement.

17. Advanced Elements of Supervision

This seminar is under preparation as a regular program of the Management Center. It will be available shortly as an "on the shelf" program.

18. How to Make Effective Presentations of Complex Ideas and Programs

This seminar has been conducted experimentally. It can be developed on short notice out of available material and experience.

19. The Practical Science of Politics

This seminar is not currently available nor are research materials at hand. It would take some twelve months to develop.

20. PERT - Work Planning

This seminar is in the process of development. It will apparently be available in nine months.

21. Elements of Persuasion

This seminar has been presented several times and is currently being put into a formal program. It will be available in three months.

22. Recruiting, Selection and Staffing

1. Philosophy of Sound Personnel Selection Program.

2. Job Qualifications Write-up -- The First Step in Staffing.

3. Recruiting as a Personnel Selection Tool
   a. Want-Ads in Your Recruiting Program
   b. Working with Employment Agencies
      - How to Get Service from the State Employment Agency
   c. Recruiting through a College Placement Office.

4. The Application Blank as a Tool in Personnel Selection.

5. The Reference Check as a Tool in Personnel Selection.

6. Testing as a Tool in Personnel Selection.

7. The Patterned Interview As a Tool in Personnel Selection.

8. The Special Problem of Selecting Women.

9. Making Your Preliminary Management Decision.

10. Handling the Physical Examination as a Part of Personnel Selection.

11. Ethics Associated with and Essential to a Professionalized Selection Program.

12. The Orientation and Training Necessary to Best Utilize High Quality Potential Employees.

23. How to Write Policies and Procedures

This seminar is conceived largely to be a workshop. It would take 18 months to develop a program tailored with materials from state agency operations.

24. Semantics and Symbolic Logic in Planning and Decision-Making

This seminar is not currently available and not in the process of development.

25. Management Understanding of Current Psychological and Philosophical Systems

This seminar is not currently available and is not under development.

26. The Use of Science in Aiding Management Decisions

This seminar is not currently available and is not under development.

27. Ethics in Public Enterprise

1. WHAT IS ETHICS?

   a. What does ethics have to do with objectives.
   b. Should religiously based ethical codes apply to government ethics?
   c. How do different views of man affect the concept of ethics?

2. BASIC ETHICAL PRINCIPLES

   a. The "Golden Rule" - how "golden"?

   b. "Enlightened Self-Interest"

      (1) What is it?
      (2) And what isn't it?
      (3) What is wrong with it?

   c. Long range expedience versus short-range advantage

3. APPLIED ETHICS

   a. The "ethically" just versus the "legally" just.
   b. Ethics of decision making.
   c. Applied ethics: Going beyond good principles to good judgment.
   d. How ethical is compromise?

4. CURRENT ETHICAL PROBLEMS

   a. In relation to the Public: The Agency and the community. Why must the agency be involved in community problems (e.g. racial discrimination in hiring and promotion; businessmen in government and conflict of interest)?

   b. In relation to the client:

      (1) fraud
      (2) falsehood
      (3) policies that are legal but ethically questionable.

c. In relation to employees:

(1) Has the agency any responsibility for retaining the technologically unemployed?
(2) Conflicts of interest within the Agency

d. In relation to other agencies:

(1) Pirating personnel
(2) Espionage

This seminar needs additional work to make it current and relevant.

28. Basic Economics

This seminar is currently available but needs considerable adaptation to make it of value to public enterprise operations.

29. Managerial Economics

This seminar is currently available but needs considerable adaptation to make it of value to public enterprise operations.

30. Current Methodology in Computer Technology for Managers

This seminar is currently under development.

Each of the seminars listed above take approximately 2½ days to present. Some require pre-reading in order to establish a common basis for the seminar. None require any pre-requisites except that the participant currently be the incumbent in a management position.

It would be strongly recommended that seminars No. 16 and No. 17 be reserved for pre-supervisory training. These would be used for counselors and others nominated by the State Director. These qualified non-supervisory personnel would be admitted to these two seminars for orientation purposes.

Certificates in Management Science would be awarded to management completing any ten seminars from the list (200 hours). Attendance at any VRA approved management seminars in other educational institutions could be substituted for seminars on the list for the purpose of being awarded a certificate.

It would be hoped that each State Director would establish a Management Development and Management Replacement Program for his Agency - to be administered personally by him. (See Chapter 1). Periodically these plans and the development needs derived from them should be used as the basis for modifying the curriculum of the Academy.

This cross fertilization with support of the research and development effort of the University of Chicago through the Management Center of the College of St. Thomas, should result in a program of major value in assisting in the accomplishment of expanding programs in Vocational Rehabilitation. In addition it should result in more case closures at a lower unit cost.

CHAPTER 3

Administrative Implementation of Academy

CHAPTER 3

ADMINISTRATIVE IMPLEMENTATION OF ACADEMY

Discussion during one session of the Advisory Council revolved around the question of ~~members~~ numbers of DVR management, turnover and expansion needs. One estimate developed the following:

1.	Present DVR Management and Key Administrative Personnel (estimated)	1,100
2.	Estimated loss from Retirement in 15 years (est. 22/yr.)	350
3.	New Program Needs (est. 40/yr.)	225
4.	Turnover not caused by Retirement (each year)	125
5.	Enrichment Trend (2% of base - 1st year only)	25
6.	Total estimated potential Personnel for Program first year and each year for five years (1,100 + 22 + 40 + 125 + 25)	1,312

If every member of DVR management (hypothetical) were to take each seminar in the next five year period, 2,190 seminar offerings would be required. This is obviously not feasible. The only alternative which would seem to be practical would be to offer 20 seminars (or some limited number) a year with the attendance carefully controlled by each Agency Director based on his evaluation of needs. This would require that he make a management manpower utilization forecast for a five year period. In addition, he would need to supplement this with a personal performance appraisal of each manager to determine individual needs. These two acts will provide a forecast of future plus the more important act of deciding level of improvement needed for today's programs.

From the point of view of current manpower capability of the Management Center, College of St. Thomas, the Proposed Schedule of Seminars found on 3 - 3 and 3 - 4 is feasible.

This schedule constitutes a basis for future planning but is based on most of the realities developed by this study. One of the major difficulties is to develop specific scheduling in the absence of committed needs on the part of the agencies. This must be controlled by VRA. In any case the proposed plan provides for the distribution of a major portion of the seminars on a regional basis. These in turn can be rescheduled or

relocated based on the identification of specific needs. It would be suggested that a plan be distributed to all state agencies each year for a two year period with a one year roll ahead provided each year. This would enable registration two years in advance with the needed flexibility of changing the schedule to meet demonstrated needs. Following is a "Seminar Title Code" to be used to interpret the schedule found on Page 3.

Seminar Title Code

No.	Code	Title
2	Mgt by O	Management by Objective
4	W/S	Work Simplification and Systems Analysis
3	DOT	Developing Organizational Teamwork
5	Coach	Coaching and Developing Subordinates
7	Lead	Leadership and Human Relations
1	Self-Mgt	The Process of Self-Management for the Manager
10	Fiscal	Fiscal Management Policies
8	Use of M	Making More Effective Use of Meetings
9	C & C	Communications and Community Relations - The Process of Image Building
6	Creat	Developing Creative Abilities
11	APR	Appraisal of Employee Performance
12	A/A	Advanced Concepts and Practices in Administration
14	Inf Sys	Management of Information Systems
15	Org Ass	Practices in Organizational Assessment

Location Code

St Th	St. Thomas - St. Paul, Minnesota
Bos	Area of Boston, Massachusetts
Salt L	Area of Salt Lake City, Utah
San F	Area of San Francisco, California
Dall	Area of Dallas, Texas
Rich	Richmond College, Richmond, Virginia
Atl	Area of Atlanta, Georgia

	Seminar Location (1966-67)		Seminar Location (1967-68)		Seminar Location (1968-69)		Seminar Location (1969-70)		Seminar Location 1970-71)	
June	Mgt by O W/S	St Th St Th	Mgt by O Lead	Bos Bos	Fiscal Lead	Rich Rich	Mgt by O W/S	Rich St Th	APR A/A	St Th St Th
July	Mgt by O W/S	Bos Salt L	Mgt by O Lead	St Th St Th	Fiscal Lead	St Th St Th	DOT Coach	St Th Bos	A/A A/A	Bos Salt L
Aug	Mgt by O W/S	San F San F	W/S Lead	Dall St Th	Fiscal Use of M	Bos Salt L	Lead Fiscal	St Th St Th	W/S DOT	San F San F
Sept	Mgt by O W/S	St Th St Th	W/S Lead	Atl Salt L	Fiscal Use of M	San F St Th	Fiscal Use of M	Salt L Salt L	Mgt by O Coach	Dall Salt L
Oct	DOT W/S	Dall Atl	DOT Self M	St Th St Th	DOT Self M	St Th Bos	Self M Self M	Bos Salt L	Lead Self M	St Th San F
Nov	DOT W/S	St Th St Th	DOT Self M	Rich St Th	Mgt by O Self M	St Th St Th	C & C C & C	Bos Salt L	Fiscal Use of M	St Th San F
Feb	DOT DOT	Atl Salt L	Coach Self M	Atl Dall	W/S Self M	St Th St Th	C & C Creat	St Th St Th	C & C Inf Sys	San F St Th
Mar	DOT Coach	Rich Rich	Coach Self M	San F St Th	Coach C & C	Dall St Th	Creat Creat	Atl Rich	Inf Sys Inf Sys	St Th St Th
Apr	Coach Coach	St Th St Th	Coach Self M	St Th St Th	Lead C & C	San F St Th	W/S W/S	St Th St Th	Inf Sys Inf Sys	St Th St Th
May	Coach Coach	St Th St Th	Fiscal Use of M	St Th St Th	Lead C & C	St Th St Th	APR APR	St Th Dall	Org Ass Org Ass	Bos Salt L
TOTAL	20		20		20		20		20	

Proposed Scheduling of Seminars (See Preceding Page for Title and Location Code)

	1966-67	1967-68	1968-69	1968-70	1970-71	
Mgt by Obj	4	2	1	1	1	9
W/S	6	2	1	3	1	13
DOT	5	2	1	1	1	10
Coach	5	3	1	1	1	11
Lead	0	4	4	1	1	10
Fiscal	0	1	4	2	1	8
Use of Mgt	0	1	2	1	1	5
Self Mgt	0	5	3	2	1	11
Comm & Comm Rel	0	0	3	3	1	7
Creativity	0	0	0	3	0	3
Ap of Perf	0	0	0	2	1	3
Adv Adm	0	0	0	0	3	3
Inf Sys	0	0	0	0	5	5
Org Assess	0	0	0	0	2	2
TOTAL						100

Summary of Offerings by
Subject by Year

CHAPTER 4

Analysis of Data Obtained From Survey Instrument Application

CHAPTER 4

ANALYSIS OF DATA OBTAINED FROM SURVEY INSTRUMENT APPLICATION

Introduction

As one step, but a most significant one in the determination of the Academy curriculum was the completion by the 90 state agencies of a specially designed survey instrument.

The survey instrument* was developed jointly by Verl Franz, Director, Organization Research, Industrial Relations Center, University of Chicago; Howard P. Mold, Associate Director, Management Center, College of St. Thomas; and James Lindsay, Director of the Computing Center, College of St. Thomas, St. Paul, Minnesota.

Of the 90 state agencies, 82 participated in this study. The first questionnaires were mailed on September 3 and the cut-off date was established as December 9. Since then and as of the writing of this report, an additional 25 questionnaires have been received increasing the percentage to 60.10%. The analysis of the returns on this survey instrument is based upon the 446 questionnaires returned as of December 9.

In order for the reader to understand the point of view of the analysis which will follow, it is important to note the basic hypothesis of those responsible for the interpretation of the data.

This hypothesis may be stated as follows. In spite of a high level of professional competency at the case load and counselling level, the end results of rehabilitative programs are never attained unless the agency is effectively managed at all levels.

Thus, this analysis constantly searches for reliable and valid data to support this hypothesis. We considered that the hypothesis has been adequately validated in other studies.

Biographical and Demographic Characteristics of Respondents to Survey

48% of the managers in the survey were 46 years old or older with 33% being 51 years old or older. Assuming a retirement age of 65, approximately 1/3 of all the managers contained in this study will have to be replaced within the next 15 years. When the head of an agency reflects on his manpower development needs, he must not only consider this fact but also the likelihood that he will be expanding his total agency managerial needs in light of

*This instrument is contained in total in Appendix 1 of this report. This Appendix includes not only the instrument but inserted into the instrument are the totals of the replies for the 446 returned questionnaires which constitutes 57.69% of the 773 which were sent out.

present plans. What makes the problem even more critical is that the men who are leaving are the very ones who must be counted on to develop competent subordinates and are more likely to be men occupying high management positions and thus not so available for this job. (Refer to Chart A for details of the age of population. All charts are to be found at the end of this chapter.)

Even though this report does not have data for managerial and supervisory experience except in the broad category of more than six years, we know that 37% of the survey population has less than seven years experience. This indicates that while on the one hand there is probably the need for more mature managerial personnel as well as replacements for retirees (as shown on Chart A), it also indicates that the agencies are not building a backlog of experienced managers to step into this managerial vacuum of the future. If we assume the age distribution as described in Chart A distributed across Chart B, "Managers' Supervisory Experience", then 1/9 of the people who are under six years of experience in management will retire in the next fifteen years and 2/9 of the people who retire will have six or more years of experience. Viewing this problem in light of projected plans for expansion of operations, it leads inevitably to the conclusion that when the personnel in the supervisory experience category under six years are promoted, it will leave a tremendous gap in lower level supervisory positions as well as creating the dilemma of having more senior supervisors with considerably less experience than presently.

Of importance here is not just the problem of the direction of the activities of the agency but the problem of utilizing these less experienced senior supervisors to train and develop a very large number of relatively inexperienced supervisors.

The total problem described above is made more difficult for the agency when one considers the new trend which is taking place in management ranks, that of enrichment. By this is meant that new types of managerial positions are coming into being as is evidenced by the specialists now being used in the area of data processing and management systems. A demographic forecast of industrial management needs was made by Keith Davis in CURRENT ISSUES AND EMERGING CONCEPTS IN MANAGEMENT* and a summary is contained in Chart C.

DVR management should be concerned not only with retirement turnover and the need for more managers caused by expansion of activity but the additional problems brought on by change in management positions and, of course, the very real fact that not all personnel who go into management will be successful or will wish to stay in it. This will create an additional turnover factor.

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*Dauten, Paul M., Jr., Ed. Current Issues and Emerging Concepts in Management. Houghton Mifflin Co., Boston, 1962, Davis, Keith, p. 300.

An examination of Chart D shows that in our sample of the total population, 80% have been in vocational rehabilitation work seven or more years and 20% have been in vocational rehabilitation work six years or less. This corroborates the fact brought out in Charts A and B - that it appears that we are not building up a backlog of young managers with which to meet the growing needs of DVR agency programs.

Chart E is a graphic representation of the educational distribution in our sample. It shows that 5% have less than a college degree, 46% have a college degree with some work beyond the bachelors and that 45% have a master's degree with some work beyond it. Of the last category, only 3% have a Ph.D. or a medical degree. The likelihood of drawing non-college trained personnel into vocational rehabilitation work, from which group come few DVR managers, is clearly indicated by Chart E as not being great.

It can be anticipated that with the projected new programs in vocational rehabilitation, there will be higher training and educational requirements for counsellors, case workers and other professionals - that in all likelihood this will produce a well solidified core of professional workers which will minimize their upward mobility into management positions. As Chart F shows, the educational background of people presently in management would indicate that their managerial aspirations during their college career was not taken into consideration when they made vocational and curriculum choices. Chart F shows that of the people presently in managerial positions, 20% had a major in education, 10% in psychology and 19% in sociology. If this curriculum trend were to continue, and there seems to be no evidence to contradict this, then people who will be brought into vocational rehabilitation will be of the education, psychology and sociology majors. They will not likely aspire to management as a total career pattern on the basis of interest in work.* It is true, however, that the managers of vocational rehabilitation agencies are drawn largely from this group but there is a very direct and positive correlation at the financial level. This in turn raises many other serious questions about managerial competency and succession.

This would seem to indicate that when we take a large group of service-oriented professionals and force them into management work because this is the major avenue open to them for salary advancement, we fill find that we have a large managerial group who must acquire their managerial competency either through current on-the-job training and/or with outside seminar and leadership type activities.

The contrary situation would be where people exist as a pool of professionals who have strong motivation to become

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*Rosenberg, Morris. Occupations and Values. The Free Press, Glencoe, Illinois, p. 17.

managers and spend a great deal of their time on an individual and voluntary basis acquiring insight and skill in managerial work albeit much of it off the job.

As a footnote to this, one might reflect on the number of industrial supervisors who are promoted out of the union ranks where they have demonstrated their talent and competency by leadership activities of one kind or another or on the other hand, the situation where industrial management brings into the firm, college graduates trained in business administration and starts them on the staff level, then into the supervisory level and then feeds them into the managerial ranks. This is not to conclude that vocational rehabilitation professionals do not, in fact, make good managers but it is to emphasize that where in some organizations the "bubble-up" method might, in fact, work to some degree, in this kind of an organizational millieu, it is not likely to work. If this is true, then we must depend upon very sophisticated, highly organized development programs.

Job Functions Causing Problems vs. The Time Spent on Job Functions

The forced choice ranking method was used to get managers to rank ten functions considered by a wide range of managers to make up the core of the managerial job. It was hypothesized that when DVR managers were asked to rank these job functions according to "which functions caused them the most problems", they would tend to rank those highest which they were least capable of performing. Conversely, when asked to rank these ten job functions according to "where they spend their time", it was hypothesized that managers would tend to spend most of their time working in the areas that caused most problems. Thus, it was assumed that a high positive correlation would exist between "functions causing most problems" and "functions on which most time was spent". If this hypothesis obtained, it was felt that this relationship would point up the areas of management where a need for additional management skill and development was present. This relationship, however, did not exist. Instead, the empirical evidence demonstrates a more complex relationship.

An examination of Chart G in which the job functions have been ranked from "function causing most problems" to "function causing the least problems" and then compared with "where the managers spend their time", shows a Spearman rank order correlation of -.08. This indicates that no significant relationship exists between the way managers rank these managerial functions based on "the problems which they present" and "the time which they spend in their solution". In short, this apparently means that the pressures of the managerial job and/or level of managerial skills, techniques and competence are such that managers are unable to devote time to those managerial functions which present the most problems.

The complete lack of relationship between "problems" and "time spent" dramatizes the need for managerial development as being even greater.

It is significant to note that the four functions viewed as presenting most problems have to do with (1) work systems, (2) performance requirements, (3) getting work done and (4) developing individuals. These are functions that are most often identified with the management of people. This is stated in spite of the fact that improving work systems is sometimes superficially viewed as being systems charting, etc. or the management of things. It is a matter of current managerial knowledge that improving work systems is more largely related to people problems than to intellectual approaches of problem solving.

In spite of the obvious overall lack of relationship between "problem areas" and "areas of time consumption", it is well to note that of those problem areas ranked third and fourth, which are relatively higher - managers ranked "time spent" in the first and second position. This indicates that an inordinate amount of their time is spent on "getting the work done" and "developing and training individuals". In view of the fact that managers do spend a great amount of time on these two functions but considering the overall lack of correlation between the two rankings, it would indicate that his techniques and capabilities "to get the work done" and "to develop and train individuals" could be improved.

Relatively speaking then, he has a medium amount of problems in "getting the work done" and "developing and training individuals" but spends a great amount of time to get this accomplished. On the other hand, while the managers are the most perplexed with "improving work systems" and "determining performance requirements", as evidenced by ranking them first and second, when it comes to spending time to solve these problems, they are ranked fifth and ninth.

This is almost directly opposite of what would appear to be the time requirements to accomplish these two functions. It is interesting to note that the job function ranked ninth, "written and verbal communication", gets a third ranking on amount of time spent. This certainly has something to say about the kind of supervision a manager gets. The fact that "planning and scheduling work" is ranked seventh, relatively low in problems presented, yet is is ranked third in terms of amount of time spent, tends to indicate that managers spend considerable time planning and scheduling work even though they do not view it as a problem. This can be interpreted to mean:

1. That their subordinates have not been trained to plan and schedule work.
2. That planning and scheduling work is a psychologically satisfying function - consequently managers spend time on it.

3. That even though it is relatively unimportant in terms of the problems it presents, this is true only because of the vast amount of time spent on it.

In conclusion, this would seem to indicate a highly significant degree of role conflict intrinsic to the managerial position in vocational rehabilitation agency work. This suggests further then that assisting a manager to acquire skills to reduce role conflict would provide great values to any agency if it attempts to secure effective achievement of its plans and programs.

Analysis of Managerial Development Needs - Self Part IV (a)

In order to construct a meaningful inventory of managerial and supervisory knowledge and skills, it was necessary to differentiate the skill requirements in terms of:

A. Management of work
B. Management of people
C. Management of ideas and relationships
D. Management of self-development

In analyzing the needs of managers and supervisors for knowledge and skills, this four-fold breakdown will be followed.

The respondents were asked to respond in two ways. First, they were asked to check the various managerial functions in terms of whether or not they, themselves, require greater skill and knowledge to do a more effective job. After this, each manager was asked to respond to these same functions with the instructions, "To do a more effective job, my boss requires greater skill in the following functions". The assumption on which this portion of this section rests is that a subordinate being on the "receiving end" of supervision is frequently more sensitive and aware of what his superior could better do or know that would enable him, the subordinate, to respond more effectively.

When one views Charts H, I, J and K, it is noteworthy that in all of them for almost all items, at least 25% or more of the managers indicate they need greater skill and knowledge in all functions and while they tend to not be as critical of their superiors as of themselves, this conclusion as to all management needs is still valid.

Note that Chart H shows that the seven functions which managers feel they need the greater skill and knowledge in in order to do an effective job of managing are items 12, 7, 14, 18, 9, 13 and 6:

Analyzing work units for more effective operations.
Co-ordinating activities within and between work units.

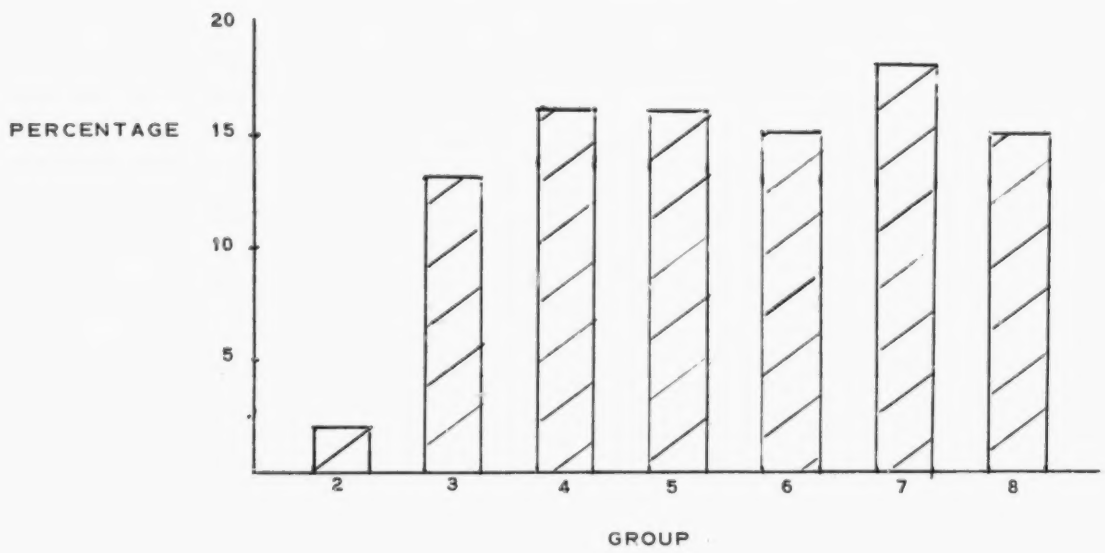
Utilizing cost control methods
and procedures.
Measuring work unit output.
Seeing that people know and do what is
expected of them.
Making improvements where or when required.
Preparing directions that are clear,
understandable and specific.

It is also interesting that of these six items within the frame of "Management of Work", items 12, 14, 9 and 13 can be interpreted to be items which are related to a managers' evaluation of his organization. In short, he is saying that he needs greater skill and knowledge in those managerial functions which would give him the skill to evaluate the effectiveness of his own organization.

In summary, of the six items in which managers seem to be asking for greater skill and knowledge, four are skills which would be essential to him to evaluate the effectiveness of his own organization.

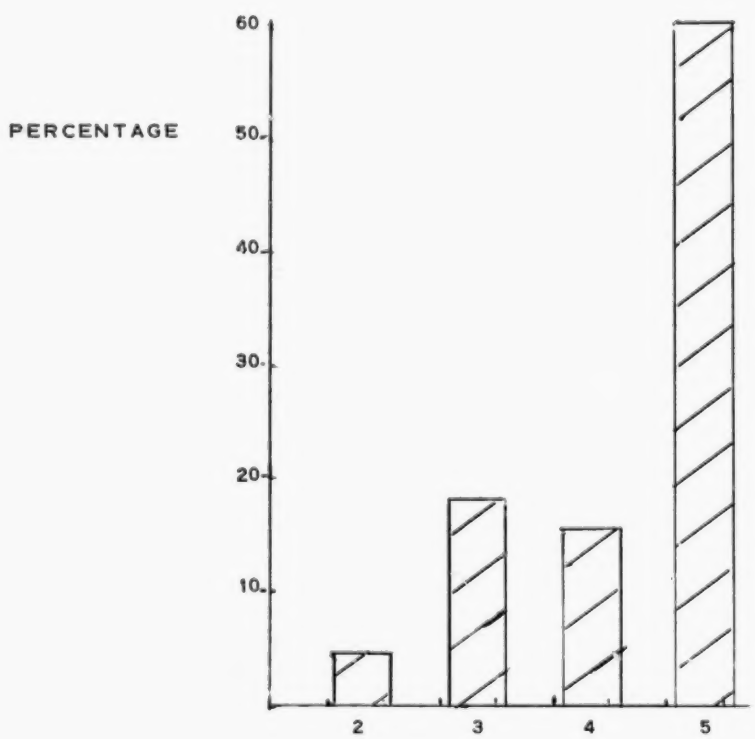
Many other aspects of the managerial position in vocational rehabilitation agencies evident from the survey could be discussed but they are not directly relevant to the problem under consideration in this study. Certainly the responsiveness of vocational rehabilitation agency management is significant in a major way in helping to determine the Academy curriculum as specified in Chapter 2.

CHART A (Age)



GROUP	AGE	%
2	26-30	2
3	31-35	13
4	36-40	16
5	41-45	16
6	46-50	15
7	51-55	18
8	56 & OVER	15
	NO REPLY	5

CHART B (Managers' Supervisory Experience)



GROUP	YEARS OF EXPERIENCE	%
2	LESS THAN ONE	4
3	1-3	18
4	4-6	15
5	MORE THAN 6	60
	NO REPLY	3

CHART C

MANAGEMENT NEEDS BY 1975*

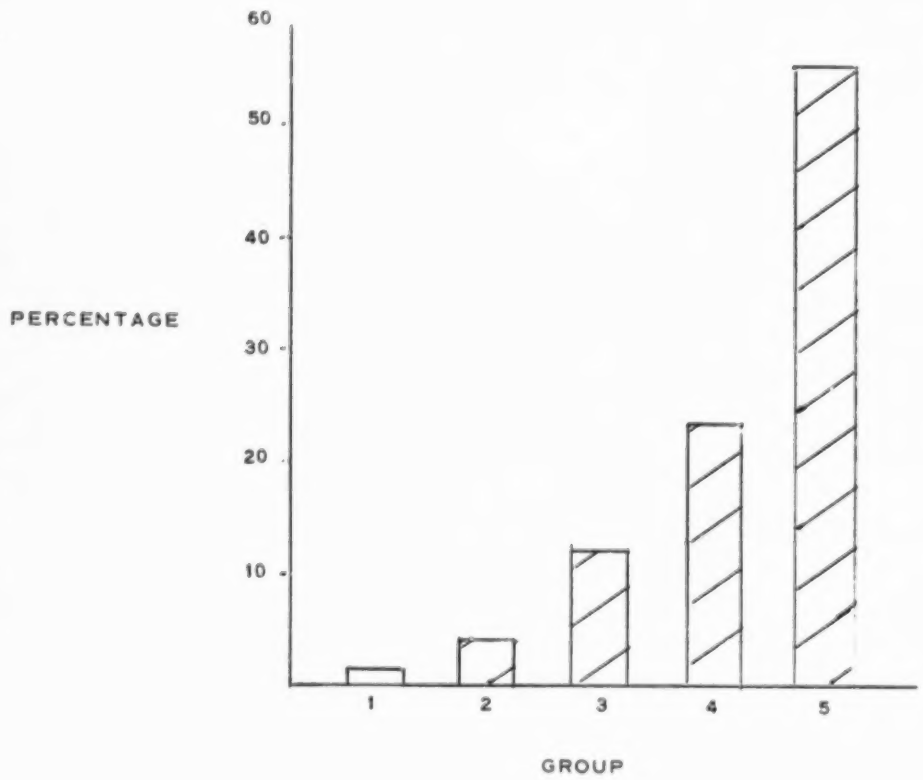
1.	Work Force - Add	20 Million
2.	12½ Per Cent To Be Managers	2½ Million
3.	Enrichment Trend - Add 1½ Per Cent	Add 300,000
4.	Shrinkage - 10 Per Cent	Add 280,000
5.	Sub-Total 3,080,000	
6.	Present Work Force	66 Million
7.	12½ Per Cent Are Managers	8,250,000
8.	Average Work Life - 30 Years	
9.	Replace 50 Per Cent	4,125,000
10.	Enrichment Trend and Shrinkage	1,402,500
11.	Total Replacement	5,527,500

New Managers Needed by 1975 8,607,500

AND UPGRADE THE REST

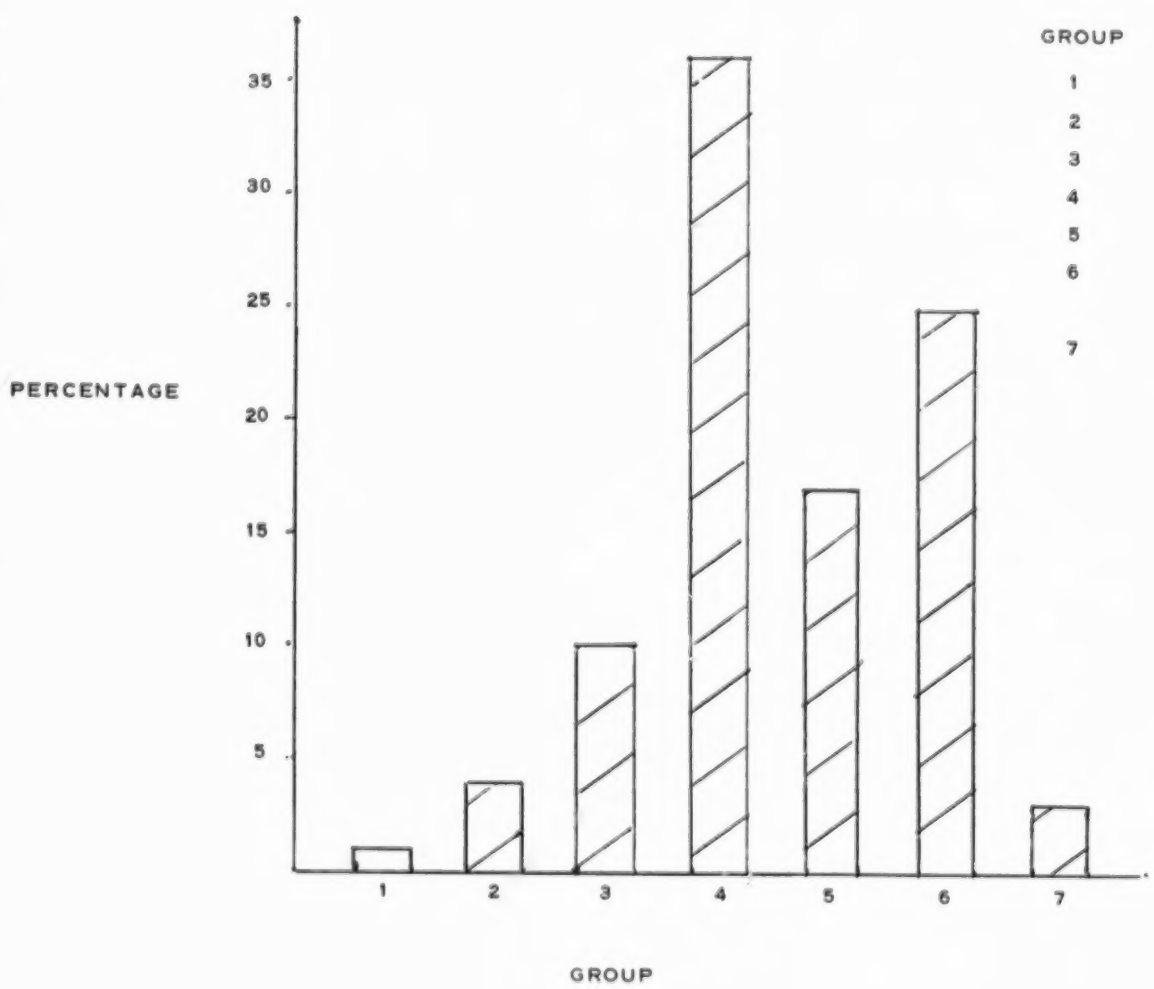
*"Management Brain-Power Needs for the 1970's" by Keith Davis, P. 300 from CURRENT ISSUES AND EMERGING CONCEPTS IN MANAGEMENT, Edited by Paul M. Dauten, Jr.

CHART D (Years in V.R. Work)



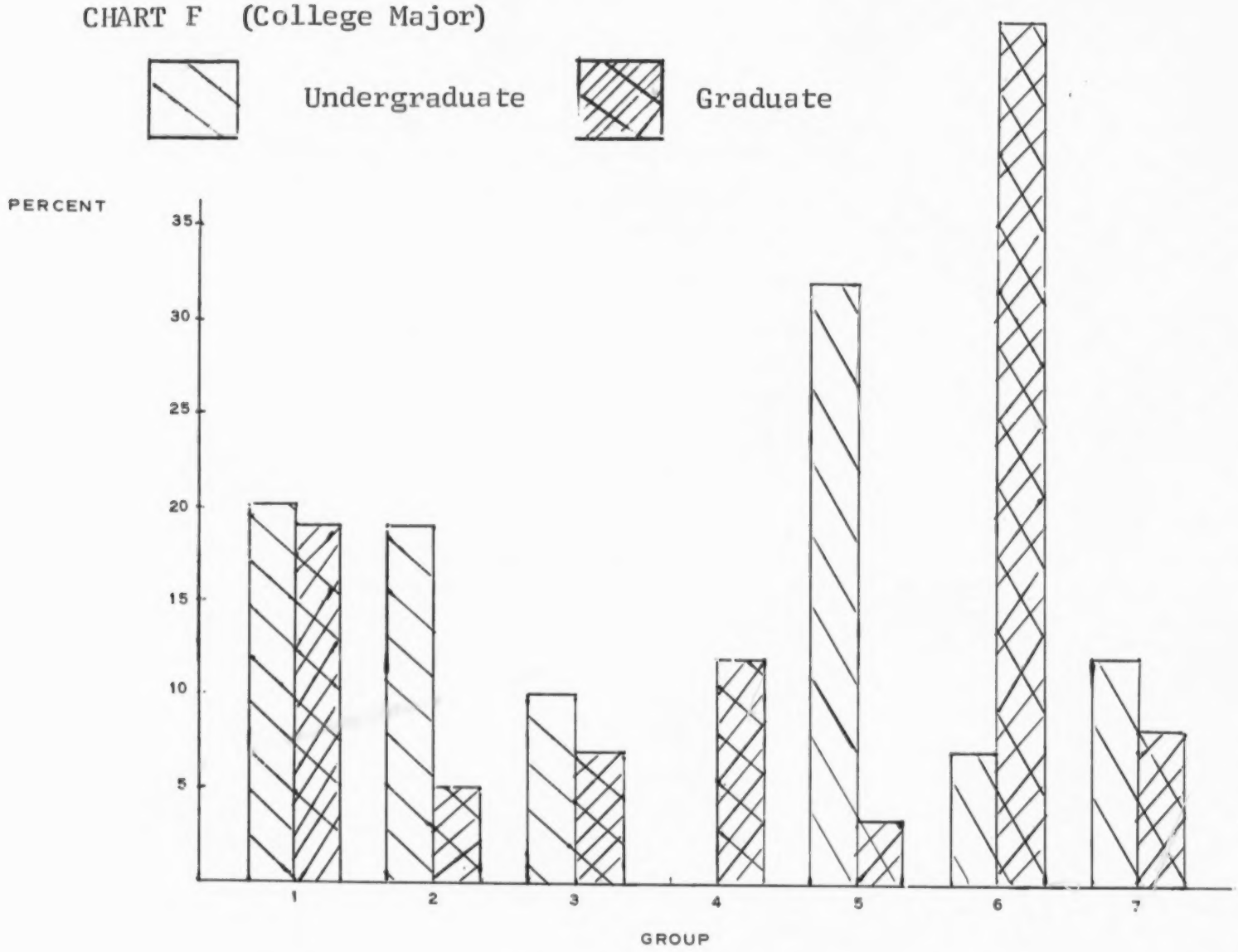
GROUP	YEARS IN V.R. WORK	%
1	LESS THAN ONE	1
2	1-3	4
3	4-6	12
4	7-10	23
5	OVER 10 YEARS	57
	NO REPLY	3

CHART E (Education Background)



GROUP	EDUCATION	%
1	HIGH SCHOOL ONLY	1
2	PART COLLEGE	4
3	COLLEGE DEGREE	10
4	SOME GRADUATE WORK	36
5	MASTER'S DEGREE	17
6	SOME WORK BEYOND MASTERS	25
7	PH.D. OR M.D.	3
	NO REPLY	4

CHART F (College Major)



GROUP

GROUP	MAJOR	PERCENT U	PERCENT G
1	EDUCATION	20	19
2	SOCIOLOGY	19	5
3	PSYCHOLOGY	10	7
4	COUNSELING & REHABILITATION	0	12
5	OTHER	32	3
6	NO MAJOR FIELD	7	46
7	NO REPLY	12	8

CHART G (Job Functions)

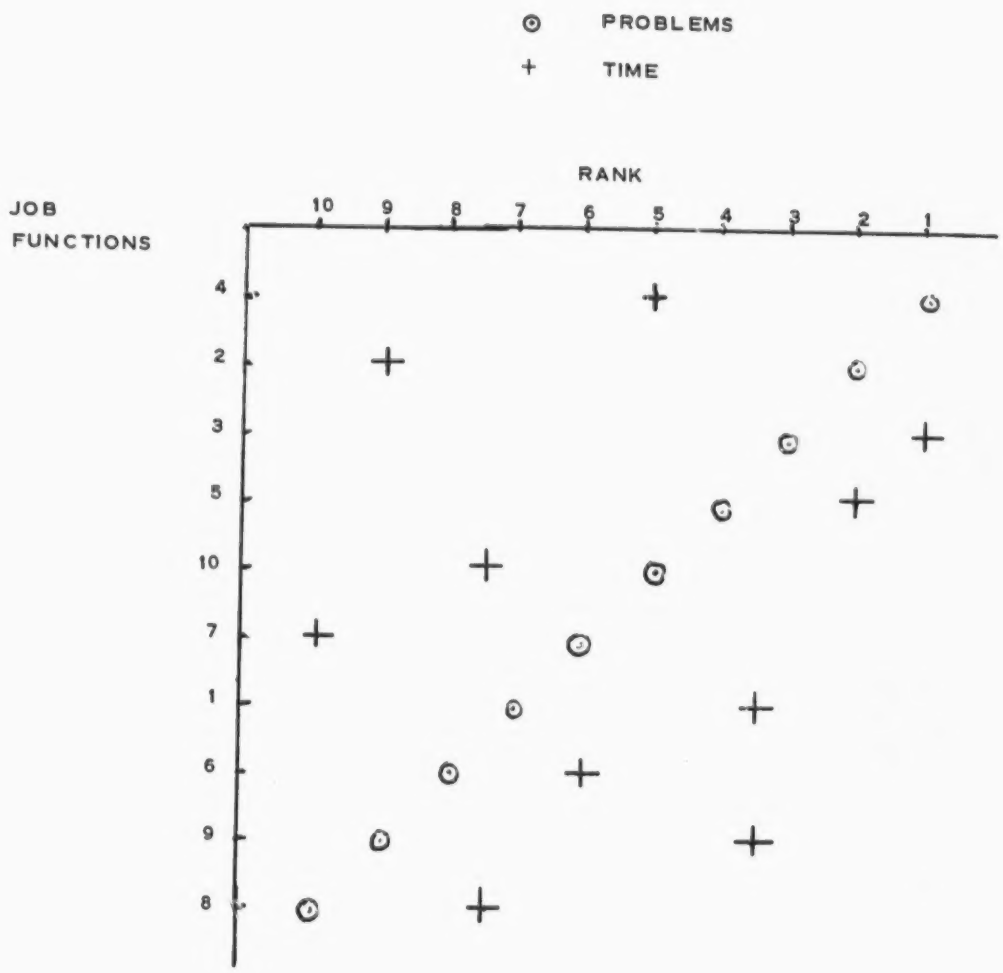


CHART H

Management of Work

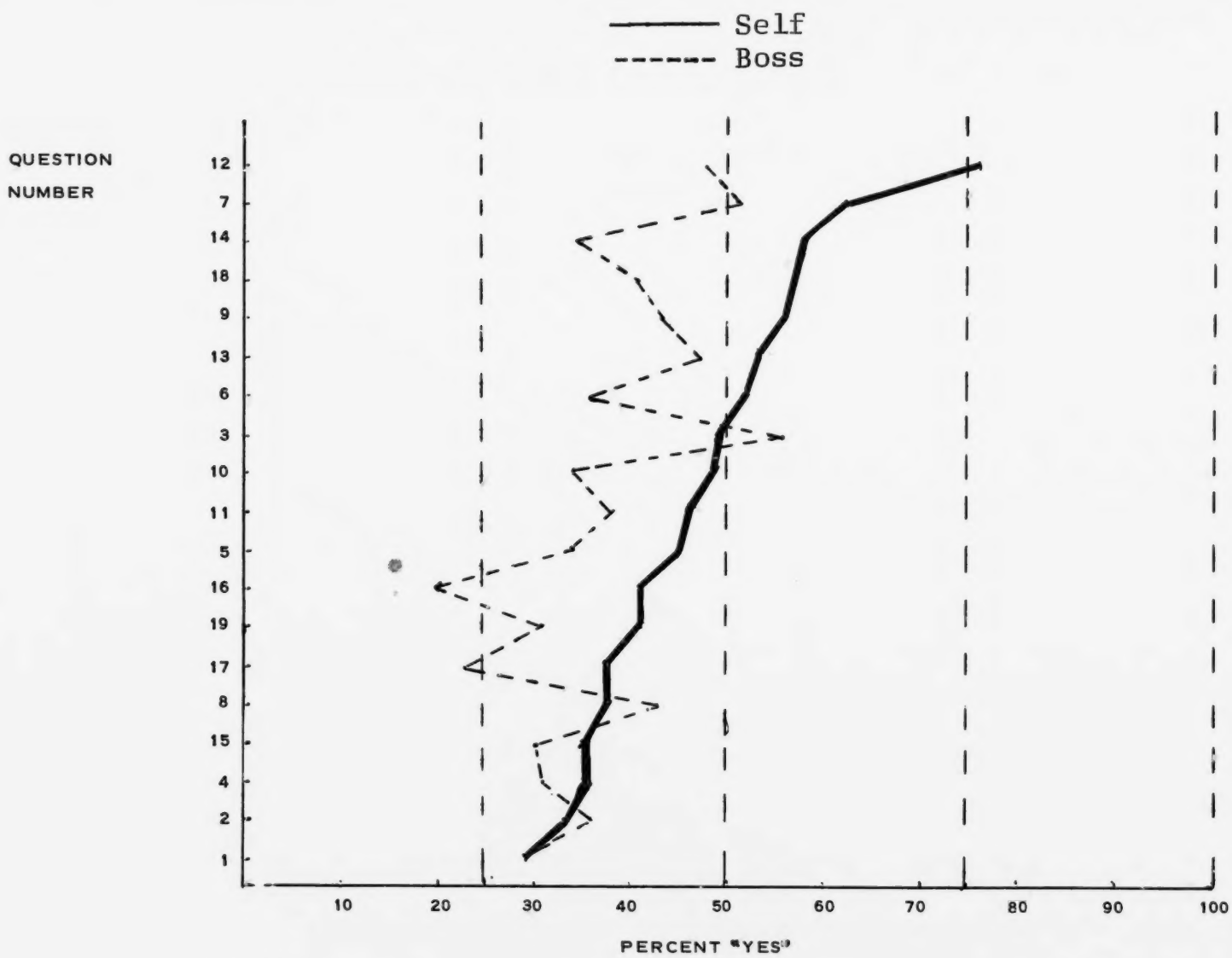


CHART I

Management of People

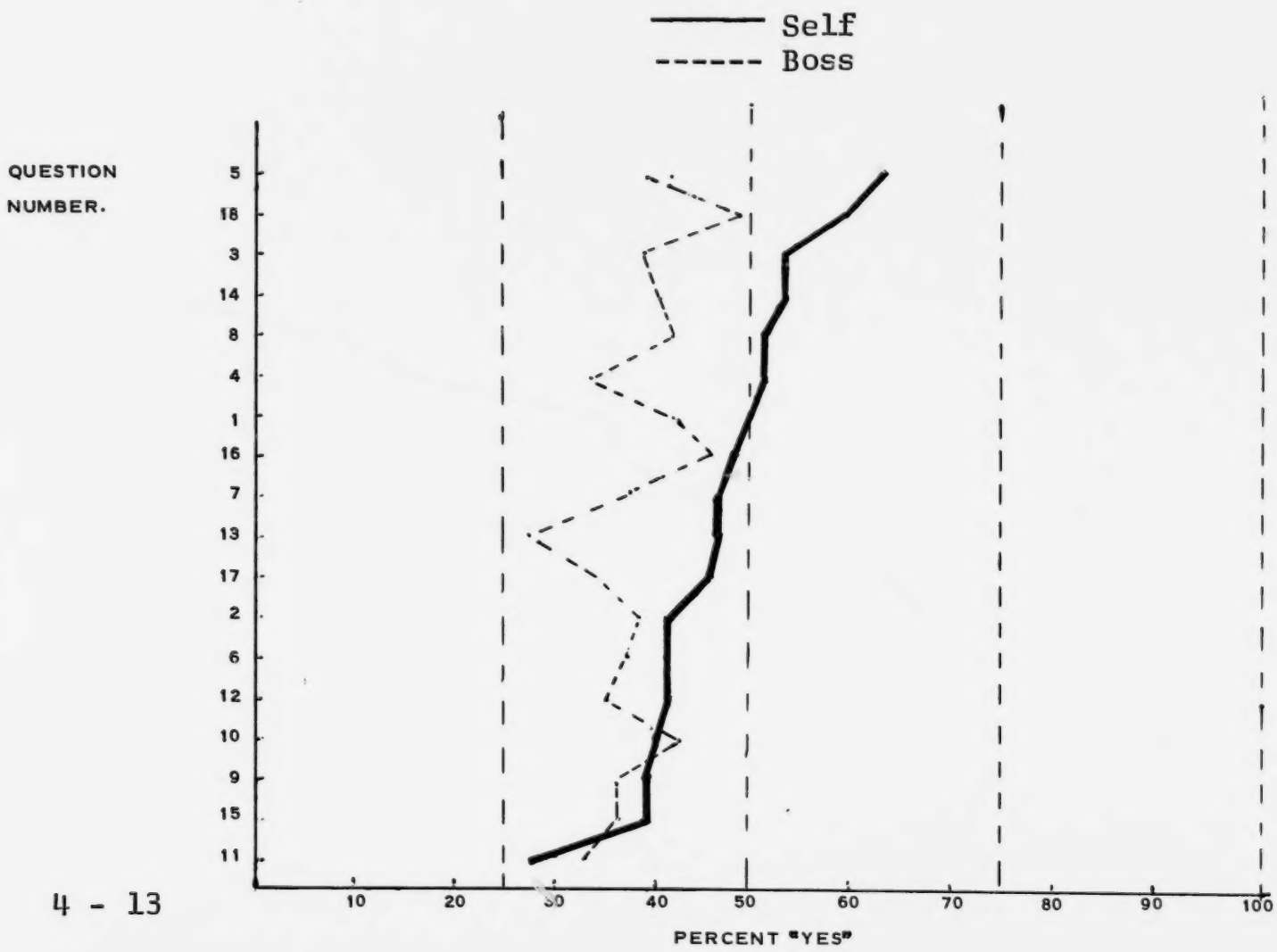


CHART J Management of Ideas and Relationships

——— Self
------ Boss

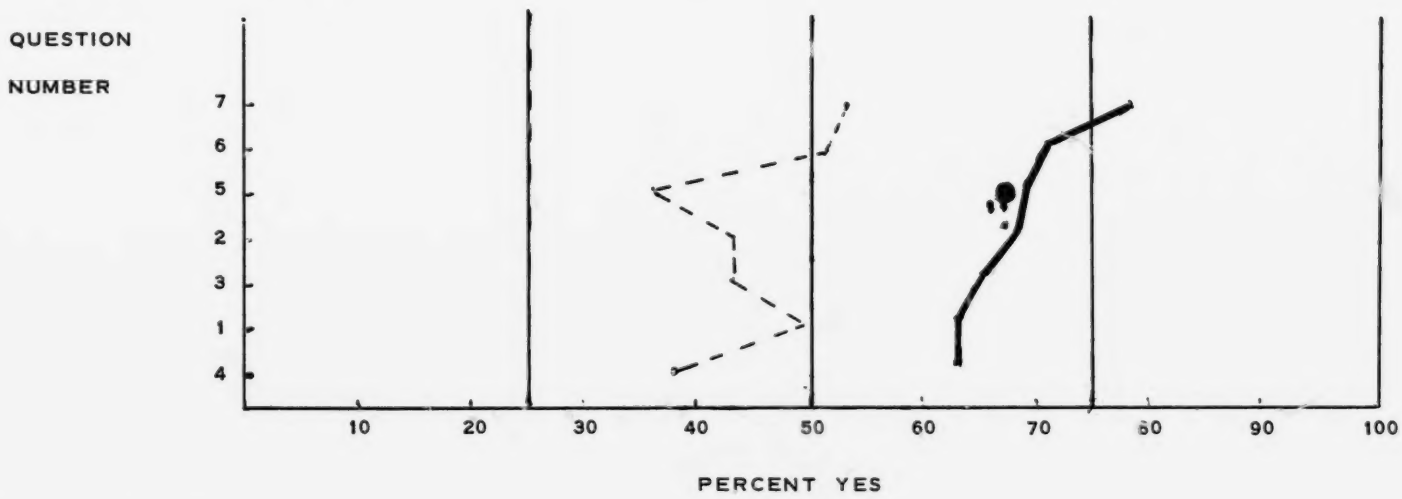
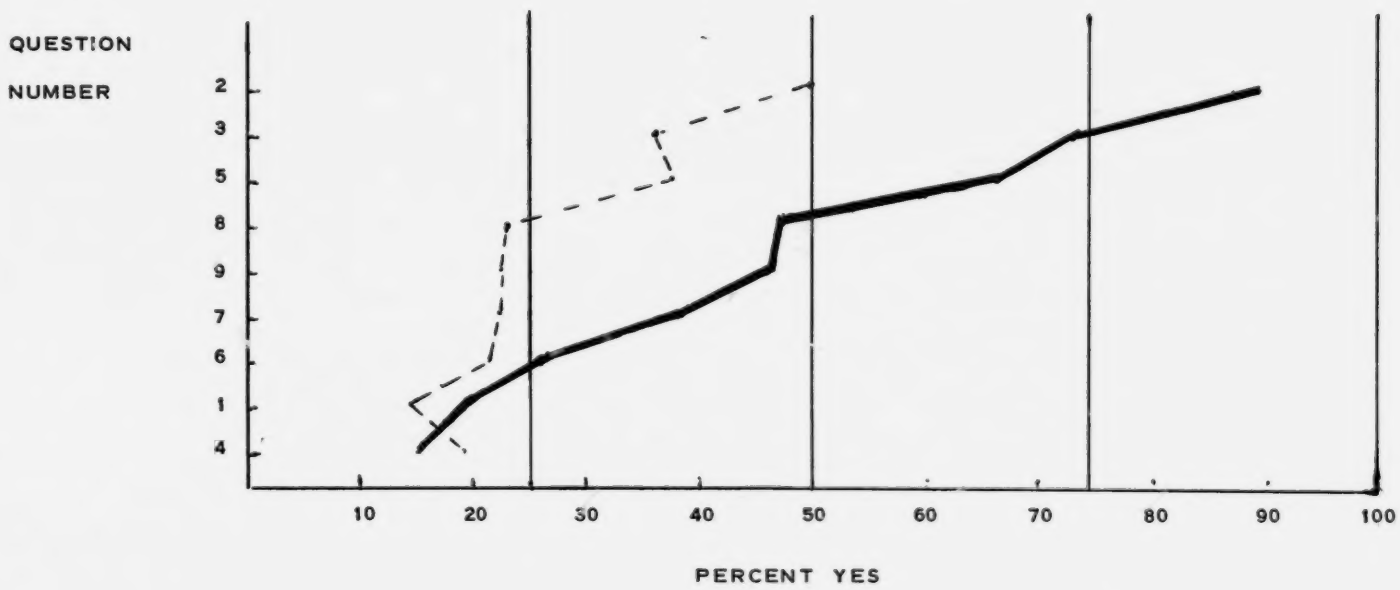


CHART K Management of Self Development

——— Self
------ Boss



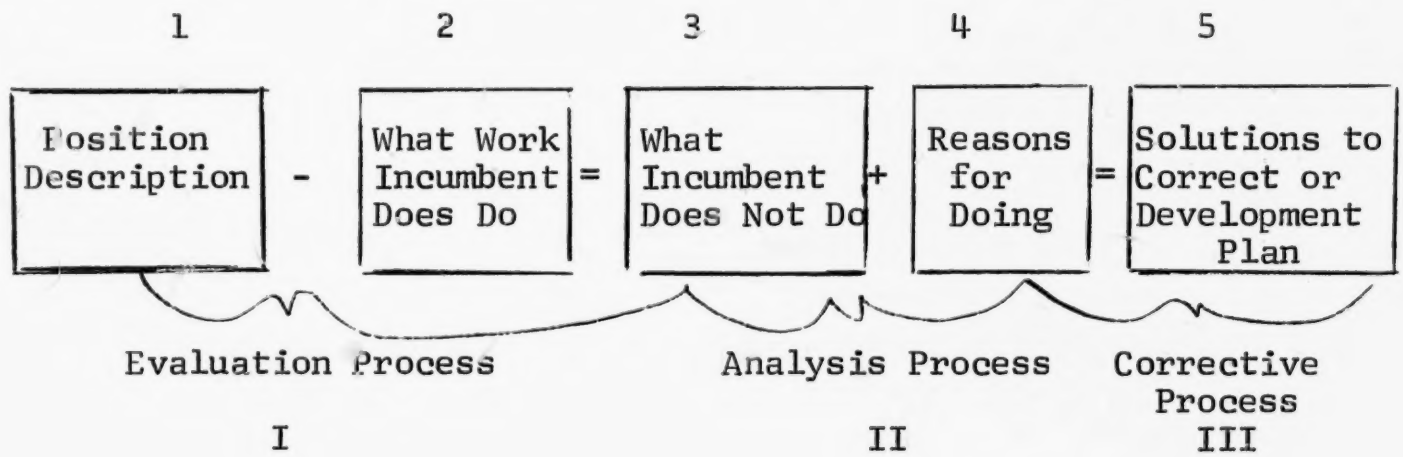
CHAPTER 5

Analysis of Agency Job Descriptions

CHAPTER 5

ANALYSIS OF AGENCY JOB DESCRIPTIONS

A favorite methodology which management development specialists use to determine development needs is to evaluate the performance of the individual incumbent of a position against the requirements of the position or against the requirements of a known future position. In schematic it may be diagrammed as follows:



A major error lies in the tacit assumption, so often present, that the job description is in fact a valid current description of the position incumbent. Most job descriptions are not built for the purpose described above but rather as one step in the process of wage and salary administration. Thus, they tend to be rather deliberately designed to be general in nature rather than specific. They tend not to change over a time period whereas most managerial positions, in fact, are subject to recurring change.

Recognizing this, as well as the likelihood of wide variance in job titles between states, it was still felt that some values to the project could be obtained from an analysis of job descriptions, if the analysis could identify major areas of common functions and/or skills and knowledge required.

Operating on the assumption that the job descriptions had been prepared by trained job analysts and that the intention was to specify functions, it was felt that these very functions could help to determine development needs if they appeared to any degree of consistency. As a result of request by the Management Center, 42 state agencies supplied job descriptions of their managerial, supervisory and key administrative positions.

The job descriptions ranged in detail from the comprehensive to the relatively simple. As examples of this, two have been selected. Example No. 1 came from a southeastern state while Example No. 2 came from an agency with a small staff. They illustrate the range of material available to work with rather than the quality of preparation.

Example No. 1

JOB DESCRIPTION

Position No. 11-54

Date June 30, 1965

A. ORGANIZATIONAL RELATIONSHIPS

Department, Agency, or Institution State Dept. of Education

Work Unit And Section Div. Voc. Rehab.

Working title Asst. Voc. Rehab. Program Supervisor for Blind

Location

What is the title of your immediate supervisor? Voc. Rehab. Program Supervisor for the Blind

Position Number 11-36

If you supervise units, sections or divisions give the title of each such unit, section, or division and the titles of their heads:

Give the title (s) of any employees you supervise through immediate contact: see attachment

Position Number (s)

B. SPECIAL EQUIPMENT REQUIRED

(See Instructions)

C. SUPERVISOR'S COMMENTS

As the immediate supervisor of this work I have studied this description and with the following comments and suggestions find it to be otherwise complete, true, and correct.

Date _____ Signed _____

D. OFFICIAL APPROVAL OF ASSIGNMENT OF DUTIES AND SUGGESTED QUALIFICATIONS

1. As the head of this agency, or the official designated to organize and assign the work of the agency or division, I have reviewed this description, comments, and suggestions and with the following noted changes in assignment I approve this delegation of duties and responsibilities.

2. If the position were vacant and I had to provide a suitable new appointee, I would desire the following qualifications as the least that should be accepted:

Date _____ Signed _____

INSTRUCTIONS FOR COMPLETING THE JOB DESCRIPTION

(Please read carefully)

A. Under Section A be sure that ALL items are completed. If they are not applicable, insert 'not applicable' in the proper blank. Be sure to insert the title and position number of the immediate supervisor (the individual who gives day-to-day instructions to the incumbent) and the title or titles and position number or numbers of those supervised (those to whom the incumbent gives day-to-day supervision).

B. Under Section B please list the major types of equipment used such as typewriter, bookkeeping machine, tabulating machine, etc.

C. The immediate supervisor (as defined in A above) is to complete Item C after reviewing Sections A, B, and E. He should note any omissions or any discrepancies in these sections.

D. Section D should be completed by the Department Head or his designee. It is particularly important that for new positions the paragraph on The Qualifications of Appointees be completed.

E. Under Section E, first give a capsule summary of the duties of the position and the supervision (close, general, etc.) received. Then list the duties performed in detail. All duties should be listed. Please do not use vague words as 'assist', 'prepare', 'review', 'supervise', without explaining just how you do these things. It should be emphasized that Section E should be as complete as possible.

E. ASSIGNED DUTIES *(See Instructions)*

1. GENERAL Nature of work and supervision received.

2. Enumerated detailed description of duties and responsibilities.
(Use Additional pages if necessary)

E. 1. Give assistance to the Supervisor of the State-wide Program of Vocational Rehabilitation Services to the Blind in administering the total program with special emphasis on case load management; study and review of reports; analysis of and assistance in solving problems; develop good staff moral to motivate professional staff to accept their duties and responsibilities as a challenge.

E. 2. A. Give general assistance to the State Supervisor of Services for the Blind in planning, directing and administering a state-wide program of services to visually handicapped clients within the local definition of blindness by:

1. Help plan ways and means of broadening and expending the program to provide more and better services to the blind of the state.
2. Give assistance in making plans, organizing and supervising Adjustment Centers for the newly blind.
3. Assist Supervisor in planning and conducting staff conferences for personnel in the Program for the Blind.
4. Attend Supervisory Staff Conferences in the total rehabilitation program and participate in the over-all planning.
5. Interpret the program to Civic, Professional and Lay groups. Hold conferences with individuals and lay groups who are seeking aid and information relative to services to blind clients.

B. Provide supervision to the ten counselors, two placement specialists, home teacher and agricultural specialist in the following areas:

1. Make periodic reviews of casework folders followed by face-to-face conferences with individual counselors to discuss methods, progress, problems, etc.
2. Examine all authorizations, plans and closures for accuracy and quality followed by discussion of problems or deviations from regulations.
3. Check weekly report of allotments, encumbrances and balances and discuss with counselors.
4. Examine carefully economic need portion of surveys, case histories and certificates of eligibilities and discuss any irregularities.
5. Encourage reasonable quantity and quality rehabilitation.

Signature of person preparing description_____

(Job Description cont.)

6. Accompany counselors into the field to visit clients and lend assistance in "hard core" rehabilitation cases.
7. Prepare written communications to go out to counselors giving guidance, changes in policy and general or specific information.
8. Review with counselors the regulations in the Manual of Policies and State Plan.
9. Observe counselor techniques and practices, discuss these with him and offer suggestions for improvement.
10. Examine counselors' case loads and assist them in determining which cases should be referred to Medical Consultants for review.
11. Help counselor to evaluate his low vision clients who may need and can benefit from examination at Optical Aids Center.
12. Explain values to be received from client's attendance at an Evaluation Center or Adjustment and Orientation Center and lend assistance to counselor in evaluating clients who could benefit from such services.
13. Make periodic study of referrals as to number, source, movement and analyze with counselors any pertinent information said study may indicate that would need attention.
14. Examine travel itineraries of all professional staff under his supervision to see how they plan and make use of the time in the field. Offer suggestions for improvement of itineraries where indicated.
15. Observe and make specific suggestions on the kind of supervision counselor is giving to training cases.
16. Study adequacy of services being provided physical restoration cases and help in interpreting medical data as it relates to Vocational Rehabilitation.
17. Observe and make studies of kinds of vocational objectives selected for clients by counselors and encourage counselor to use imagination in ferreting out a wider choice of vocational objectives for his clients.
18. Lend assistance to counselors in selecting cases that should be referred to Placement Specialists for placement.
19. Work with the Placement Specialists in locating and securing more employment opportunities for the blind clients.
20. Offer specific suggestions and give assistance to the Home Counselor in her work with homemakers who are blind.
21. Study small business enterprises and agricultural projects submitted for approval and offer suggestions that should provide better services to the blind in these areas.
22. Hold individual conferences with counselor and agricultural specialist as they plan and develop projects in this area.
23. Examine case work records to see if counselor is using medical and vocational data to arrive at suitable objectives. Give suggestions and advise in these areas.
24. Make frequent check on all old referrals to determine why they are not moving. Give assistance to counselor in planning vocational programs for these old referrals.
25. Provide assistance to counselor in determining how to write a case history; what should and should not be included and pointing out ways of using this as a means of providing better

(Job Description cont.)

services to his clients. Provide counselor with examples of good case recording as a guide, including an example of good narrative case history recording.

26. Provide or see that intensive instruction is given to counselors:
    (1) In how to use evaluation data to provide good counseling.
    (2) In how to make and write a good vocational rehabilitation appraisal.
27. Encourage counselors to promote and help establish good vocational diagnostic aids and referral sources in their territories.
28. Study adequacy of completion of survey form and encourage improvement in this area.
29. Provide counseling, guidance and training to new staff members.
30. Work with all staff members in planning and organizing their office work for maximum efficiency.
31. Check and review assigned reports (OASI, expense, etc.) and records of the staff in the various offices in the state.
32. Tabulate and distribute to counselors periodic reports on progress being made in all areas which are being done to meet the objectives of the total rehabilitation program for the blind.

Example No. 2 DEPARTMENT OF EDUCATION

Job description for Vocational Rehabilitation Director

The director is responsible for administering, planning and directing all phases of the program for the rehabilitation of the disabled of the _____ including the public relations aspects, the formulation of policies and determination of standards and procedures, estimation of program and personnel needs, the preparation of budgets and budget justifications, the overall supervision of all phases of the work of the agency with related programs throughout the _____.

Job description for Rehabilitation Counselors

A counselor has the responsibility for carrying out rehabilitation processes for the physically and mentally handicapped. The duties of the counselor include the determination of eligibility; evaluation of clients' needs and potentials; interpreting agency policies to clients, employers and others; counseling disabled persons in the attainment of satisfactory vocational adjustment; job placement for clients and follow up counseling. Duties also involve working with other agencies and professions in the community and using these resources in relation to the needs of the client.

Abstracted from the job descriptions of managerial, supervisory and key administrative positions is the following list of primary functions. This list makes possible identification of skills, knowledge and attitudes which the job descriptions indicate are significant if a manager is to effectively carry out the function.

LIST OF KEY FUNCTIONS ABSTRACTED FROM JOB DESCRIPTIONS

1. Make recommendations regarding field operations
2. Communicate recommendations to superior
3. Represent superior in all types of conferences
4. Conduct training
5. Direct daily operations of department
6. Interpret policies and procedures in reference to current operations
7. Cooperate laterally with staff specialists
8. Provide for supervisory development
9. Conduct inspections of remote offices and programs
10. Provide higher level decision
11. Conduct performance evaluation of subordinate supervisors
12. Keep informed of case status and financial status
13. Control budget
14. Directly supervise special projects
15. Recruit staff
16. Provide leadership activity to motivate staff
17. Develop procedures
18. Write reports
19. Be responsible for public relations
20. Conduct research into programs
21. Conduct program evaluations
22. Planning
23. Determine professional techniques needed
24. Provide for technical training
25. Handle correspondence
26. Make studies of staff needs
27. Promote establishment of training centers
28. Coordinate internal activities with external opportunities
29. Provide on-the-job coaching of subordinates
30. Develop new rehabilitation programs
31. Plan and conduct staff conferences
32. Interpret the program to non-agency groups
33. Evaluate time planning of subordinates
34. Evaluate effectiveness of services to agency clients
35. Check compliance with state plan and policies
36. Keep records
37. Evaluate effectiveness of techniques
38. Supervise and inspect contract facilities
39. Assist subordinates to solve difficult client problems
40. Plan and conduct problem-solving conferences
41. Provide work direction to subordinates
42. Check all work for conformance to procedures
43. Provide "correspondence supervision" of subordinates
44. Assist subordinates with details of their travel and work schedules

45. Evaluate end point effectiveness of subordinates' work
46. Study resource fields for utilization in accomplishing objectives of state program
47. Make effective use of all other departments in order to achieve success of own department program
48. Maintain up-to-date knowledge in areas of merchandising and vending stand layout and designs
49. Prepare articles for publication
50. Attend national and regional conferences
51. Speak at appropriate functions
52. Make decisions regarding the discharge of personnel
53. Supervise merchandising and promotion programs for vending stand installations
54. Seek out new vending locations, secure leases and contract for installations
55. Supervise reference library
56. Interpret all services necessary for the successful rehabilitation of disabled individuals
57. Act as liaison officer and consultant for various special rehabilitation projects within the jurisdiction of his district
58. Establishes roles and duties of all personnel working under his direct supervision
59. Approves roles and duties of all personnel working indirectly under his supervision
60. Stimulate and promote professional growth of personnel
61. Expand rehabilitation services through cooperative planning and joint effort with other public agencies and resource groups
62. Continuing evaluation of programs
63. Plans, organizes and administers the operation of a comprehensive Regional Rehabilitation Center
64. Actively participate with the administrator and other chiefs of service in policy decisions, program planning, review and evaluation of center operations to assure coordinated progress toward the achievement of established goals
65. Develop, present and justify annual and quarterly budget requests of the Counseling Service to the Business Manager and/or the Administrator
66. Recruit and select (in accordance with Merit System and Center Rules and Regulations, policies and procedures) the professional and clerical staff of the Counseling Service
67. Determine equipment and supply needs of the Counseling Service and authorize requisitions
68. Make oral and/or written presentations of the philosophy, function, problems, operations, needs, failures and achievements of the Counseling Service or the center or publication at conferences, seminars and workshops or for administrative use
69. Represent the counseling function and the Counseling Service to the staff of the center, the field counselors, the clients, and the public
70. Maintain effective communication between the Counseling Service and other services to assure coordination and effectiveness of program
71. Act for the Director in his absence

72. As Deputy Administrator, participate in the over-all policy decisions and maintain a continuing knowledge and appreciation of the operating policies and procedures of all service. In a general way supervise the inter-related day-to-day functions of the various services.
73. Participate in the development of policies and plans in daily contact with the Assistant Superintendent by making formal and informal recommendations based on surveys, studies and continuing evaluation of program operations.
74. On the basis of general policies and plans as authorized, develop specific operation details and procedures, interpret administrative decisions and take all necessary or appropriate action to assure that such decisions are implemented.
75. Serve as member of advisory committees for special facilities.
76. Direct through two assistants, the operation of a general services and programs section and a special disabilities and facilities section, holding each accountable for effective services in the area of his assignment but assuring coordination and cooperation between the two so that the services are supplementary and not duplicated.
77. Consults with the executive head of the agency in the formulation of major administrative policies.
78. Directs the fiscal, personnel, office service and general business activities of the agency.
79. Directs the budgetary and fiscal control program and the preparation of the budget.
80. Exercises over-all direction of the office service units such as stenographic pool, duplication service, mail and messenger service, communication service, supply, central files and information units and building services.
81. Develops and improves programs for the effective utilization of office space, forms and supplies and equipment and other property.
82. Makes time and cost studies of service and maintenance unit operations.
83. Makes changes to promote more efficient production; develops production standards.
84. Directs the preparation and revision of rules and manuals of procedure on administrative matters and directs the instruction in their use; directs the maintenance of property records.
85. Represents the department at budget and legislative hearings.
86. Supervises and coordinates the preparation and management of a large and complex budget.
87. Provides direction to insure conformance with departmental policies and business management activities.
88. Assists in the presentation of the budget to the Department of Finance.
89. Is responsible for planning and organizing the preparation of the budget for the department.
90. Consults with, advises, and makes recommendations to the administrative head of the agency or his deputy on personnel policies, standards, rules and procedures.
91. Develops and maintains effective working relationships with agency administrators, supervisors and employees.

92. Makes recommendations for improvements in the personnel program of the agency.
93. Develops materials and techniques to implement it, assists in its installation.
94. Plans, organizes, administers and coordinates the statewide program of vocational rehabilitation for the adult handicapped.
95. Formulates rules, regulations and policies for the operations of the program.
96. Directs the counseling, vocational testing, physical restoration, educational vocational placement and other services of the department.
97. Interprets program objectives and promotes the interest, cooperation and support of the public, community and industrial groups and professional groups including educational, psychological medical and para-medical groups.
98. Develops and maintains in-service training programs and promotes the development of college level training programs in vocational rehabilitation.
99. Directs the preparation of State and Federal budgets for the vocational rehabilitation program and exercises internal control over the expenditure of funds; develops and maintains cooperative relationships with liaison and interested agencies.
100. Consults with advisory groups on vocational rehabilitation programs.
101. Serves on various state, national or organizational committees promoting interest and research in vocational rehabilitation.
102. Reviews the operation of the program for conformity with the provisions of the basic legislation and the state plan.
103. Develops plans for program emphasis and growth.
104. Provides for research on various aspects of the program and conducts surveys to evaluate the effectiveness of operation.
105. Supervises the development of special projects in new areas of vocational rehabilitation research.
106. Writes articles for publication; and prepares reports.
107. Develops management standards for regional, district and branch offices.
108. Participates in the planning and developing of sound organizational structure for regional, district and branch offices.
109. Assists the Chief of the Division in management functions of the division in developing and maintaining fiscal procedures and controls.
110. Contracts for and directs the services of special consultants to workshop programs.
111. Plans and organizes in-service training on the program.
112. Examines, negotiates and advises on the form and sufficiency of contracts, services and agreements used in the physical restoration program.
113. Reviews applications for Federal and State funds for proposed rehabilitation and allied facilities and programs.
114. Makes studies to identify training needs.
115. Makes surveys of referral sources, training facilities and employment opportunities.
116. Supervises and is responsible for the administrative and professional rehabilitation programs of the Division of Vocational Rehabilitation in an assigned region.

117. Reviews work, gives instructions, maintains discipline and makes decisions on difficult administrative and technical problems.
118. Evaluates the performance of employees and takes or recommends appropriate action.
119. Evaluates the effectiveness of the Division's rehabilitation programs throughout the region.
120. Recommends changes in policies, procedures and organization.
121. Participates in the planning and development of sound organizational structure and sound interdistrict and interprogram relationships.
122. Establishes and maintains cooperative working relationships with State, Federal and community agencies, organizations and groups.
123. Makes special studies and surveys pertaining to methods and objectives of assigned programs.
124. Coordinates the Division's programs with public and private agencies in developing interest and participation in the vocational rehabilitation or disability certification program and in solving mutual problems.
125. Assists in developing, conducting and evaluating programs of staff development and in-service training for the maintenance of quantity and quality of case work and other services in accordance with appropriate standards and techniques.
126. Prepares statistical and administrative reports.

This list provided the basis for comparison of job functions against the Management Profiles developed by the Industrial Relations Center of The University of Chicago. Their profiles were developed as the result of factor analysis of a large sample of industrial management positions. This has served as the springboard to similar on-going studies in other types of institutions. All these profiles with small changes in language can be adapted to their counterpart management positions in DVR agencies.

Examination of these profiles clearly indicates that the DVR job descriptions lack standardization, do not provide for priority agreements between superior and subordinate and lack the flexibility necessary for the dynamics of current programs.

It would seem that the agencies would be benefited by standardized job descriptions which could be used across the nation as guides for training, recruiting and communications.

The suggested profiles developed by the Industrial Relations Center of The University of Chicago and referred to above are found on the following pages.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Business and Public Relations									
Coaching and Development									
Communication									
Controls									
Coordination									
Creativity and Innovation									
Motivation									
Facilities and Equipment Utilization									
Morale									
Objectives and Priorities									
Organization Planning									
Performance Review									
Planning and Forecasting									
Policies and Procedures									
Self-Development									
Work Assignments									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				
				4					

The plotted profile is a record of how you sorted the 16 Function Cards earlier. Remember, the final layout of your sorted cards looked like the layout at the right.

Add up column and enter here

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INTERPRETING COORDINATOR SCORES

Norms are in the process of being established for the Work Coordinator. The interpretations given below, therefore, are tentative. They may be revised as further data accumulates.

Work Coordinator Score	Interpretation
10 and below	HIGH AGREEMENT. Subordinate and supervisor agree very closely on the ranking of key functions. Any differences of opinion are probably slight. However there is the possibility of sharp difference of opinion about one function. Check the profile for this possibility.
11 - 35	HIGH AVERAGE AGREEMENT. Subordinate and supervisor are in substantial agreement on the relative importance of key job functions. There is some possibility, however, that there are rather sharp differences of opinion about certain of the functions. Check the profile for this possibility.
36 - 60	LOW AVERAGE AGREEMENT. Scores in this range may result from the cumulative effect of many small differences of opinion. It is very likely, however, that there are sharp differences of opinion about three or four of the functions.
61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

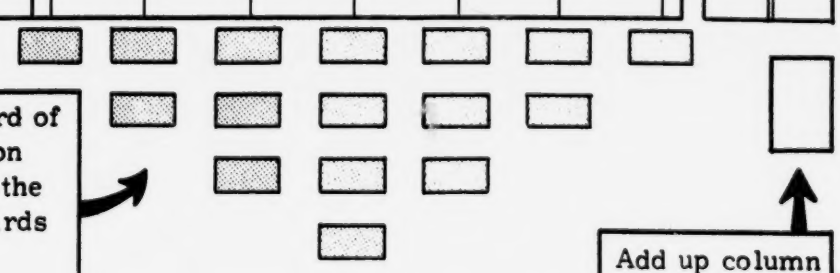
Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Budget									
Communication									
Coordination									
Costs									
Facilities and Equipment									
Financial Reports									
Morale									
Performance Review									
Planning									
Policies and Procedures									
Priorities and Schedules									
Security and Housekeeping									
Self-Development									
Training									
Work Assignments									
Work Operations									

The plotted profile is a record of how you sorted the 16 Function Cards earlier. Remember, the final layout of your sorted cards looked like the layout at the right.



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EV-622
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INTERPRETING COORDINATOR SCORES

Norms are in the process of being established for the Work Coordinator. The interpretations given below, therefore, are tentative. They may be revised as further data accumulates.

Work Coordinator Score	Interpretation
10 and below	HIGH AGREEMENT. Subordinate and supervisor agree very closely on the ranking of key functions. Any differences of opinion are probably slight. However there is the possibility of sharp difference of opinion about one function. Check the profile for this possibility.
11 - 35	HIGH AVERAGE AGREEMENT. Subordinate and supervisor are in substantial agreement on the relative importance of key job functions. There is some possibility, however, that there are rather sharp differences of opinion about certain of the functions. Check the profile for this possibility.
36 - 60 →	LOW AVERAGE AGREEMENT. Scores in this range may result from the cumulative effect of many small differences of opinion. It is very likely, however, that there are sharp differences of opinion about three or four of the functions.
61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Communication									
Coordination									
Costs									
Creativity									
Business Contacts									
Engineering Operations									
Facilities and Equipment									
Morale									
Performance Review									
Planning									
Policies and Procedures									
Priorities and Schedules									
Process Development									
Selection and Training									
Self-Development									
Work Assignments									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				

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INTERPRETING COORDINATOR SCORES

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	LOW AVERAGE AGREEMENT. Scores in this range may result from the cumulative effect of many small differences of opinion. It is very likely, however, that there are sharp differences of opinion about three or four of the functions.
61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Benefit Plans Administration									
Communication									
Community Relations									
Compensation Administration									
Coordination									
Costs									
Departmental Planning									
Employee Training / Development									
Morale									
Organization Manning									
Priorities and Schedules									
Planning									
Safety and Health									
Self-Development									
Work Assignments									
Work Operations									

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8-3-500

INTERPRETING COORDINATOR SCORES

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61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Communication									
Coordination									
Costs									
Creativity									
Customers and Business Contacts									
Morale									
Performance Review									
Planning									
Policies and Procedures									
Priorities and Schedules									
Product Development									
Research Operations									
Safety and Housekeeping									
Selection and Training									
Self-Development									
Work Assignments									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				
				4					

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INTERPRETING COORDINATOR SCORES

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61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Communication									
Coordination									
Costs									
Customers and Community									
Facilities and Equipment									
Morale									
Performance Review									
Planning									
Policies and Procedures									
Priorities and Schedules									
Quality									
Safety and Housekeeping									
Self-Development									
Training									
Work Assignments									
Work Operations									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				
				4					

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INTERPRETING COORDINATOR SCORES

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36 - 60	LOW AVERAGE AGREEMENT. Scores in this range may result from the cumulative effect of many small differences of opinion. It is very likely, however, that there are sharp differences of opinion about three or four of the functions.
61 and above	LOW AGREEMENT. Functions which the subordinate has ranked high the supervisor has ranked low, and vice versa. Check to see if subordinate and supervisor are interpreting the meaning of the functions in the same way.

COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Communication									
Costs									
Creativity									
Customer Relations and Service									
Morale									
Performance Review									
Planning									
Product Line									
Priorities & Schedules									
Work Assignments									
Sales & Market Development									
Market Research & Forecasts									
Coordination									
Work Operations									
Selection and Training									
Self-Development									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				
				4					

The plotted profile is a record of how you sorted the 16 Function Cards earlier. Remember, the final layout of your sorted cards looked like the layout at the right.

Add up column and enter here

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INTERPRETING COORDINATOR SCORES

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COORDINATOR SCORE PROFILE

Man's Name _____ Boss's Name _____

Man's Position _____

Date _____

Subtract the lower from the higher ranking and enter difference here

Square each difference & enter here

Most ← Importance → Least

FUNCTIONS	1	2	3	4	5	6	7		
Communication									
Costs									
Creativity									
Customer Relations and Service									
Morale									
Performance Review									
Planning									
Pricing and Credit									
Profit									
Sales Assignments									
Sales Contacts									
Sales Forecasts									
Sales Goals									
Sales Operations									
Selection and Training									
Self-Development									
	1	2	3	4	5	6	7		
		2	3	4	5	6			
			3	4	5				
				4					

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INTERPRETING COORDINATOR SCORES

Norms are in the process of being established for the Work Coordinator. The interpretations given below, therefore, are tentative. They may be revised as further data accumulates.

Work Coordinator Score	Interpretation
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CHAPTER 6

Actions of the Advisory Council

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ACTIONS OF THE ADVISORY COUNCIL

Two meetings of the Advisory Council were held, one to assist in planning the tactics for the implementation of the grant, the second to assist in the interpretation of the data available from the computer analysis of the survey instrument.

Rather than providing an anecdotal summary of the two meetings, it would seem that this chapter would serve greater value in reporting on the results of the special curriculum review designed by the council.

The council felt that one method of validating the survey results would be to secure the point of view of twenty highly experienced vocational rehabilitation management personnel on a national cross section basis. A list of personnel who were to be queried was drawn. This list included nine VRA regional representatives, four VRA Washington executives and the seven members of the Advisory Council. A curriculum list was prepared during the first council meeting and mailed to the twenty person list shortly after the meeting. The instructions were as follows:

> "INSTRUCTIONS FOR RANKING THE CHECKLIST OF POSSIBLE SEMINAR TITLES
>
> Attached is a checklist of 33 possible seminar titles to be included in an Academy of Management curriculum. Some of these programs are in existence, some would have to be developed. Attached as supplementary information are brochures or definitions to clarify those titles which seem to need amplification to assist you in making a choice.
>
> This is one step in seven guiding our selection of a curriculum.
>
> Specifically - Pick the three seminar topics you think are most important for the average supervisor in a vocational rehabilitation agency. Place the number one (1) to the left of each of these three. Select the next three and place number two (2) to the left of each of these three and so on.
>
> If you would like to add titles to the list, please do so but do it on the extra sheet of paper. Number them with their own independent numbers. For example, if you added four seminar topics, they would be numbered: 1, 2, 3, 4."

On the following two pages is the seminar list, arranged by weighted rank order.

SEMINARS RANKED IN ORDER BY SPECIAL COMMITTEE

1. The Process of Self-Management for the Manager - Concepts and Practices in Discipline, Motivation, Efficiency and Control.

2. Practices in Organizational Assessment.

3. Management by Objective and Planning Effective Use of Resources.

4. Communications and Community Relations - The Process of Image Building.

5. Advanced Elements of Supervision.

6. Appraisal of Employee Performance.

7. Leadership and Human Relations.

8. Advanced Administration.

9. Developing Organizational Teamwork.

10. Work Simplification and Systems Analysis.

11. Coaching and Developing Subordinates.

12. Elements of Supervision.

13. Fiscal Management Practices.

14. The Use of Science in Aiding Management Practices.

15. Developing Creative-Inventive Abilities.

16. Case Problems in Human Relations.

17. The Practical Science of Politics.

18. Recruiting, Selection and Staffing.

19. PERT - Work Planning.

20. Management of Information Systems.

21. How to Make Effective Presentations of Complex Ideas and Programs.

22. Making More Effective Use Of Meetings.

23. Legal Environment of State Agency Vocational Rehabilitation.

24. How to Write Policies and Procedures.

25. Elements of Persuasion.

26. Management Understanding of Current Psychological and Philosophical Systems.

27. Semantics and Symbolic Logic in Planning and Decision-Making.

28. Ethics in Public Enterprise.

29. Managerial Economics.

30. Elements of Contract Administration with a Rehabilitation Facility.

31. Legislation and Practices in Employment and Effective Utilization of Minority Group Employees.

32. Basic Economics.

33. Special Practices in Supervising Women Employees.

It is interesting to note that the above list, when compared to the curriculum content of a number of management and similar type centers, holds up as being more comprehensive. It was decided to use this list as one basis for the Academy curriculum.

While this informal approach to structuring a possible curriculum is subject to all the criticism of the scientific approach, it does have the pragmatic value of representing the considered judgment of skilled executives who sit in positions where they can see the objectives of VRA programs and the problems which impede their achievement. Certainly then, points of view as reflected in curriculum selection can serve as guidelines for interpretation of other data in the study.

This point of view is reflected in the curriculum structure established in Chapter 2 and the recommended administrative support described in Chapter 3.

CHAPTER 7

Non-Seminar Approaches to Improved Management Practice

CHAPTER 7

NON-SEMINAR APPROACHES TO IMPROVED MANAGEMENT PRACTICE

In line with today's rapid development of electronic and space technology, a great deal is heard about the communications "explosion." For years, those of us in the noncommercial communications business have emphasized that all our hardware is merely a tool. In a country where that hardware reached the zenith of its use as a medium of entertainment and educators were constantly seeking to divest it of glamor, it has been constantly pointed out that what was important was the use to which the tool was put.

The talk is not about a new tool. Commercial television in this country is about a quarter of a century old. Educational television has had only half that time to demonstrate its usefulness.

Municipal television is a relatively new application of the medium to local needs. The large cities of the United States have been searching every available means of management improvement. The ways of providing public services in local government have been the subject of vast numbers of surveys and studies. Foundations have made a variety of grants for training, research and action programs. Overhauls in civic programs as well as methods of operation have been continually undertaken, although the residents of urban areas have not been conscious of them - except perhaps in the tax-spending areas.

For the past three years, New York City has been using television for the training of its civil service personnel as a means of increasing efficiency and speed and for the attainment of economies in municipal management improvement. Training through this medium has been provided for firemen, policemen, hospital nurses, doctors and social workers. Similar programs have been conducted by KTCA-TV and the Management Center of the College of St. Thomas for industry and for police, postal employees and nursing supervisors.

Skill training, attitude training and administrative training are not necessarily new to television. What is important is the application of this type of training to a growing urban need.

The obvious uses of television by departments of city and state government which need and require communication with the general public do not require too much discussion. The same number of difficulties, problems and objections which face television generally face all these units, too, in many areas. For the purposes of this discussion it is sufficient to say that there has been identified hitherto unexpressed needs in the area of government administration. Nobody can foresee the tremendous potentialities that lie ahead.

The cities and towns of America, by comparison with the educational establishment and commerce and industry, have been slow to use new electronic and technological developments in the area of television. It is the considered opinion of experts that the cities of America are, in their relationship to television, where the educational institutions of the country were a dozen years ago when educational television was on a weak springboard.

Interesting experiments have been conducted by the Air Force. The Lowry Technical Training Center at Denver, Colorado has undertaken a project of far-reaching significance; one that may produce extensive changes in Air Force-wide training procedures. Lowry is applying closed-circuit television to technical training needs.

The significant thing about Lowry's project is that, in this case, all of a complex technical course is being taught by television. Television is being used at Lowry, not as a supplement, but as the method of instruction.

The course originally chosen for programming was the Bomb Navigation System Mechanic Course. This course was selected because of its length (720 academic hours), its content (basic electronic fundamentals through system troubleshooting of an electro-mechanical computer), and its student entry (basic Airmen through Master Sergeants, retraining into the 32 career field). A course of this type is very representative of the type of technical training the Air Force does, and was a good trial balloon for television training.

Initially, the program was begun to minimize or offset a basic and serious training problem: shortage of qualified instructors. This problem exists in any training institution. In military training situations, it seems particularly severe. Due to discharge, re-assignment and transfer, it is difficult to retain the truly skilled and experienced instructor. He is constantly being replaced by younger, less-skilled men. Studies conducted at Lowry indicated that, at any given moment, only 20% of the instructor staff was fully qualified in terms of classroom and field experience. The remaining 80% was somewhere between the extremes of newly-assigned and nearly qualified. Due to the continual instructor turn-over rate, this ratio held consistently true, in spite of continuing and extensive cross-training programs.

The problem, then, was how to best utilize the qualified 20%. Television offered a solution. If the 20% were placed in the studio, there was no limit to the number of students they could reach and teach; they could do 100% of the teaching job. This would have the effect of standardizing training quality of the highest level, instead of a lesser average point. The remaining 80% of the instructor staff would remain in the classroom with the students. These less-skilled instructors would take care

of the normal, routine duties of the classroom but would not have to carry any of the teaching burden. Their instructional skill, or lack of it, would not affect the quality of the TV training the students were receiving. An important aspect of the plan was that these unskilled instructors would be receiving training along with the students. They would learn what to teach and most important would learn how to teach by observing really skilled instructors doing the job the way it should be done, over television.

Lowry decided to approach televised training from a production viewpoint. This means making full use of all available studio techniques; close-ups, fades, superimpositions, audio effects, zoom lenses, dollying, panning, special lighting effects, etc. So-called "minimal" television techniques, where a camera is merely placed in a front-row seat of the classroom and used to televise normal classroom procedures, expand the size of the audience that can be reached but do not reach that enlarged audience with the full force and effect available in television.

Students who are in televised training at Lowry have a six hour academic day, divided approximately into one-half television and one-half laboratory. During the first three hours, the students watch their television monitors in the classrooms. The television instructor discusses, explains and demonstrates in detail the equipment they will work on. During the second three hours, the students do their laboratory work, repeating the procedures that have just been demonstrated and discussed on television. During the laboratory period, the television instructor leaves the studio and goes to the laboratory area. He acts as supervisor of the students, the laboratory area and the classroom proctors. In this way, the television instructor meets his students personally and observes their work. He critiques the laboratory period over television the next day.

By contrast, in conventional instruction of the course, students spend their first three hours reading and discussing a prepared, written lesson. The classroom instructor demonstrates the equipment, discusses it and illustrates it on his blackboard. The conventional laboratory period is the same as the television laboratory period.

The major distinction between the two methods is in the way information is presented to the students. The television student receives all of his technical information over television and with maximum visual impact; the conventional student receives all of his technical information in the form of printed lessons which he reads and then discusses with his classroom instructor. Television at Lowry is being used, not to supplement classroom instruction but to replace it with what is felt to be a more effective method.

Results were analyzed by statistical means, which compared television students with conventional students. Matched classes were closely observed; the same tests were given to both types of classes and these results were carefully tabulated and analyzed.

While the quantity of data obtained is not yet large enough to be statistically significant, certain trends are apparent:

TV students learn more and learn more thoroughly.

TV students are better prepared to begin their laboratory periods and make more effective use of them.

TV produces savings in total training time needed. TV students learn faster and the TV method saves time.

While establishing a national network for management development on educational TV might not be feasible at this time, a built-in flexibility based on a technical capability does exist. When a 30 minute video tape has been made of a production, it is possible to make a kinescope (16 mm. sound motion picture film off of the tape) for about $75.00. If a series were produced at a local level, national distribution of the series could be made fairly inexpensively. More experimentation needs to be accomplished in this area but if offers great promise.

Through television, the quality of education can be improved and maintained, unlimited numbers can be taught and the cost per person taught can be decreased. In other words with television, education, at last, can do what industry has done, namely mass production with quality control and a continuously decreasing cost per unit.

Increased efficiency or increased productivity are words foreign to education. Yet the principle involved must be applied to education and training if we are to assume the full development of all our citizens through education.

From 1951 - 1961 an estimated 60 million dollars was spent on educational television by foundations, public and private interests. The U. S. Office of Education has spent millions more in research projects. Foundations, institutions and individuals have spent money, time and energy in using and evaluating teaching by television.

This research has answered some basic questions about learning by television presented here in very brief summary form.

CAN PERSONS LEARN BY TELEVISION?

"Persons can learn as well or better by instruction over television as they do in traditional classroom work." This statement is a direct quotation of Alvin C. Eurich, of the Fund for the Advancement of Education. Former Governor Collins of Florida, now head of the National Association of Broadcasters, says, "It is now an established fact that students learn as well through televised instruction and in some cases better." This conclusion has been proven again and again by "The National Program" and by several hundred colleges and school systems.

WHAT COURSES HAVE BEEN TAUGHT BY TELEVISION?

"Today, practically every course in the school and college curriculum, from first grade arithmetic to college zoology and management science is being taught somewhere over television." - Teaching by Television, Report from the Ford Foundation, 1961.

CAN SKILL COURSES BE TAUGHT?

Yes. Typewriting, shorthand, use of slide rule, mathematics, oral and written communications and foreign languages are only a few examples of the skill courses now being taught over television.

CAN VOCATIONAL COURSES BE TAUGHT?

The Air Force has made extensive use of television for technical training and has drawn the following specific conclusions:

1. The use of television is very effective in technical training.
2. Television enables maximum use of the most-qualified instructors; as a result, it raises the level of teaching quality to the highest available and standardizes quality at that level.
3. Television is very valuable and effective in demonstrations of complex equipment and procedures.
4. Television saves class time in many ways; the cumulative saving of time is significant.
5. Television is well-liked and accepted by both students and instructor.
6. Supervision of instruction is easier and more effective in televised training.
7. Instructor up-grading from unskilled to highly skilled is more rapid and more effective in televised training.
8. Television forces observance of many sound educational rules which are all too frequently overlooked in the classroom. Conventional instruction would be benefitted by observance of these rules if they were followed; televised instruction requires that they be followed, and the benefit is inevitable.

9. The maximum gains from televised instruction depend upon the use of a studio production approach. "Minimal" television reaches more students, but merely scratches the surface of the potentialities of the television method. Full realization of its capabilities requires that television be regarded, not as a supplement to classroom methods, nor a mere extension of them but a new and powerful training tool in its own right.

CAN LABORATORY COURSES BE TAUGHT?

Laboratory instruction can be given effectively over television. Laboratory demonstrations can be substituted for student laboratory exercises when the objective is the development of ideas and not manipulated skills. The military has successfully taught manipulative skills over television such as assembling a machine gun. Electrical engineering students at Massachusetts Institute of Technology are doing some of their homework with "take home" kit laboratories. The kit of components for electronic circuits is about the size of a large textbook. This type of device for home study laboratory could well be adapted for use with televised course presentations.

DO TELEVISION STUDENTS DO THEIR HOMEWORK?

Yes. With adequate methods of assignments, reports and tests, they do as much or more than students taught in the classroom. In addition, television students develop the habit of independent study and self reliance in study.

DO TELEVISION STUDENTS NEED SPECIAL STUDY MATERIALS?

It is essential that a special study guide be prepared for each course. This is in addition to any text books and other instructional materials normally used. Depending on the nature and objectives of the course, practice exercises and tests are very helpful to the learner.

COST OF PRODUCING TRAINING PROGRAMS ON TELEVISION

Costs here are based on a course of twelve one-half hour presentations on television. It is rather generally agreed that a one-half hour presentation on television is equivalent to the usual 50 minute classroom presentation. Costs of longer programs can be estimated by dividing the costs presented here by 12 and multiplying by the number of lessons or television presentations.

Estimated cost of one 12 period course:

Teachers compensation	6,000.00
Offset printing of 1000 study guides	500.00
Offset printing of 1000 work books	4,000.00
Preparation for live presentation - minimum cost	$10,500.00

Typical of what can be accomplished is one of the more popular courses, the Role of the Supervisor.

1. Getting Work Done Through People - Work Simplification
2. Planning and Organizing Your Time
3. Appraisal of Performance
4. Motivation and Incentives
5. Responsibilities of the Supervisor
6. Job Instruction
7. Getting Work Done Through People - Delegation and Working with Subordinates
8. Personal Development
9. Maintaining Discipline
10. Orientation and Induction of New Employees
11. Communications
12. Interviewing, Selection and Placement of Employees

Since the beginning of Supervisory Training on Educational TV in the Twin Cities, some 13,000 supervisors and managers throughout the United States have received training in the following programs:

1. Role of the Supervisor
2. Coaching and Developing Subordinates
3. Elements of Supervision
4. Advanced Concepts and Practices in Supervision

The courses have been conducted in Minnesota, Virginia, Pennsylvania, New Hampshire, North Carolina, South Carolina and Georgia.

There is the real possibility of providing a full range of TV or Kinescope management training programs for every state at their convenience and in terms of their needs. This approach can be an effective supplement to live seminars, increase flexibility in scheduling and serve as a foundation for individual agency programs.

CHAPTER 8

Pilot Seminars

CHAPTER 8

PILOT SEMINARS

As a requirement of Grant No. VRA 561-T-65, three pilot seminars were conducted as follows:

1. Pilot Seminar #1, Developing Organizational Teamwork, was conducted at the Management Center, College of St. Thomas, January 5, 6 and 7, 1966.
   (outline of seminar follows)

2. Pilot Seminar #2, Management by Objectives and Results, was conducted in a seminar room of the Health, Education & Welfare Building, Washington, D.C. on January 19, 20 and 21, 1966.
   (outline of seminar follows)

3. Pilot Seminar #3, Work Simplification and Systems Analysis, was conducted in Denver, Colorado on March 23, 24 and 25, 1966.
   (outline of seminar follows)

FOUNDATIONS OF MANAGEMENT

DEVELOPING ORGANIZATIONAL TEAMWORK

Wednesday, Thursday, and Friday – January 5, 6, and 7, 1966

8:30 a.m. – 5:00 p.m. (Friday to 12:30)

Wednesday, January 5

CLARIFYING AND REACHING AGREEMENT ON KEY JOB FUNCTIONS, RESPONSIBILITIES, AND AUTHORITY (F.R. & A.)

Clarifying key job functions, responsibilities, and authority -- what they are or should be as the man sees them.

Review these with his supervisor for suggestions and/or revisions and approval.

Develop a common understanding as a basis for teamwork.

The Work Coordinator – Tool Number One to Implement the Process

REVIEWING WORK PROGRESS AND PROBLEMS

Review progress and problems in getting the work done.

Identify problems for analysis and action.

The Review Coordinator – Tool Number Two

ANALYZING AND TAKING ACTION ON PROBLEMS

Analyze key problems--their nature and causes.

Weigh possible solutions and action to be taken.

Decide: What is to be done? Who is to do it? When is it to be completed?

The Problem Analyzer – Tool Number Three

Thursday, January 6

THE COMPARATOR – Tool Number Four.

The forced choice, paired comparison approach to job clarification and work unit organization is brought about through the comparator.

How to prepare a card deck for a unique job and function.

PREPARING WORK OBJECTIVES

Objectives and Budgeting

Formulating objectives and the department plan

THE OBJECTIVES FORMULATOR – Tool Number Five.

Friday, January 7

PROVIDING PROGRAMS OF GROUP AND INDIVIDUAL DEVELOPMENT

Through group programs of development

Through individual coaching and development

PROVIDING FOR CONTINUING ORGANIZATION DEVELOPMENT

Through manpower planning

Through programs for organization improvement

DEFINE THE WORK

Clarify key functions, responsibilities, authority, and relationships

Reach agreement between man and boss

APPRAISE PERFORMANCE

Rank functions and responsibilities

Rank men on comparative basis in terms of over all performance

ASSESS POTENTIAL

Ascertain demonstrated potential
- Education and experience
- Record of accomplishment
- Performance appraisal

Determine future potential
- Interests
- Aptitudes and abilities
- Temperament
- Emotional adjustment

Abstract of brochure from Pilot Seminar #1

MANAGEMENT BY OBJECTIVES AND RESULTS

Wednesday, Thursday, and Friday, January 19, 20, 21, 1966

8:30 A.M. to 4:30 P.M. (Friday to 12:30 P.M.)

THE PROGRAM

Wednesday, January 19

THE CONCEPT OF MANAGEMENT BY OBJECTIVE

- Executive Failure -- Causes
- A Profile of Successful Managers
- Concepts of Control, Policy, Delegation Management Matrix

WRITING OBJECTIVES

THE OBJECTIVES FORMULATOR – A PLANNING TOOL

COMPLETED WORK CONCEPT

THE TECHNIQUE OF PROGRAMMING

THE FUNCTIONS OF EXECUTION DEVELOPED THROUGH THE MANAGEMENT MATRIX

Thursday, January 20

THE EDWARDS CASE – Management by Objective Applied to Policy Formulation

MANAGEMENT BY OBJECTIVE APPLIED TO HUMAN RELATIONS AND PROBLEMS OF PERSONAL PRODUCTIVITY

MANAGEMENT BY OBJECTIVE AND BUDGETING

CONVERTING THE OBJECTIVES TO A BALANCE SHEET

RATIOS AND INDEXES

MANAGEMENT BY OBJECTIVE AND EMPLOYEE TRAINING

CRITERIA TO VALIDATE ORGANIZATIONAL OBJECTIVES

Friday, January 21

MISCELLANEOUS APPLICATIONS OF MANAGEMENT BY OBJECTIVE

MANAGEMENT BY OBJECTIVE AND THE FUNCTION OF SUPERVISION

EFFICIENCY AND COOPERATIVE BEHAVIOR

EVALUATING ACHIEVEMENT OF OBJECTIVES

THE DELEGATIVE PROCESS AND SUBORDINATE PROGRAMS OF OBJECTIVES

Abstract of brochure from Pilot Seminar #2

WORK SIMPLIFICATION

Wednesday, Thursday, Friday, February 2, 3, 4, 1966
8:30 a.m. to 4:30 p.m. (Friday to 12:30 p.m.)

THE PROGRAM

Wednesday, February 2
8:30 a.m. – 4:30 p.m.

WORK SIMPLIFICATION: ITS PHILOSOPHY AND BENEFITS

THE 'PROJECT' APPROACH

A REVIEW OF SUCCESSFUL PROGRAMS

THE CHALLENGE METHOD OF WORK ANALYSIS

THE FLOW-PROCESS CHART AND HOW TO USE IT

THE FLOW-PROCESS CHART APPLIED TO AN OFFICE PROBLEM

HOW TO CALCULATE ECONOMIC VALUE

Thursday, February 3
8:30 a.m. – 4:30 p.m.

THE COMBINED ACTIVITY CHART APPLIED TO OFFICE AND OFFICE MACHINE OPERATIONS

WORK COUNT APPROACHES

"LICK THE PROBLEM" ANALYSIS

INTRODUCTION TO SYSTEMS ANALYSIS CHARTING

Friday, February 4
8:30 a.m. – 12:30 p.m.

SYSTEMS ANALYSIS CHARTING APPLIED TO A VOCATIONAL REHABILITATION PROBLEM

SYSTEMS ANALYSIS CHARTING OF LARGE SCALE PAPERWORK SYSTEMS

INSTALLING AND MAINTAINING A SYSTEMS ANALYSIS PROGRAM

HUMAN RELATIONS AND LEADERSHIP ASPECTS OF WORK SIMPLIFICATION

Abstract of brochure from Pilot Seminar #3

While the literature is substantial that a questionnaire submitted to the participants of a seminar produces only limited value, nevertheless, some insight can frequently be gained by the use of this approach. The insight serves largely for follow-up investigation.

It was with this thought in mind that the questionnaires on the following pages were administered to all participants in the pilot seminars.

As in the case of Appendix 1, the summation of the responses is super-imposed on original copies of the questionnaire.

PILOT SEMINAR #1

Summary of Participant Responses

To Questionnaire

EVALUATION OF SEMINAR

1. PERIOD OF TRAINING
FROM: January 5, 1966 THRU: Jan. 7, 1966

2. TITLE OF SEMINAR: Developing Organizational Teamwork

3. PLACE WHERE SEMINAR TOOK PLACE: College of St. Thomas, St. Paul, Minn.

PART I — SEMINAR MATERIAL

4. INFORMATION RECEIVED IN SEMINAR IS (Check One)
- (7) ☐ A GREAT HELP IN MY JOB
- (4) ☐ OF SOME HELP IN MY JOB
- ☐ OF NO USE IN MY JOB

5. VALUE TO MY AGENCY (Check One)
- (6) ☐ GREAT VALUE
- (3) ☐ SOME VALUE
- (2) ☐ MORE TO ME THAN AGENCY
- ☐ SEE 18

6. SEMINAR IS (Check One)
- ☐ TOO LONG
- (7) ☐ TOO SHORT
- (4) ☐ LONG ENOUGH

7. SEMINAR MATERIAL IS CONSIDERED TO BE (Check One) (See Item 18 for detailed information)
- (9) ☐ OUTSTANDING
- (2) ☐ ADEQUATE
- ☐ NOT ADEQUATE & CAN BE IMPROVED

PART II — SEMINAR PRESENTATION

8. MAJORITY OF LESSONS WERE (Check One)
- (11) ☐ VERY WELL PRESENTED
- ☐ ADEQUATELY PRESENTED
- ☐ POORLY PRESENTED

9. INSTRUCTOR'S PRESENTATIONS WERE (Check One)
- (9) ☐ EASY TO FOLLOW
- ☐ DIFFICULT TO FOLLOW
- (2) ☐ EASY TO UNDERSTAND
- ☐ DIFFICULT TO UNDERSTAND

10. THE INSTRUCTOR (Check One)
- (6) ☐ FOLLOWED THE SUBJECT
- ☐ DID NOT FOLLOW THE SUBJECT
- (6) ☐ GAVE ADEQUATE OPPORTUNITY TO ASK QUESTIONS
- (1) ☐ DID NOT GIVE ADEQUATE OPPORTUNITY TO ASK QUESTIONS

PART III — VALUE OF TRAINING AIDS (Charts, Mock ups, Sketches, Photos, Models, Motion Pictures, Filmstrips, etc.)

11. THEORY (Check One)
- ☐ TOO MUCH THEORY
- (11) ☐ THEORY ABOUT RIGHT
- ☐ NOT ENOUGH THEORY

12. PRACTICE (Check One)
- ☐ TOO MUCH PRACTICE
- (8) ☐ PRACTICE ABOUT RIGHT
- (3) ☐ NOT ENOUGH PRACTICE

13. USE OF AIDS (Check One)
- (8) ☐ EXCELLENT APPLICATION
- (2) ☐ ADEQUATE APPLICATION
- (1) ☐ POOR APPLICATION

PART IV — TRAINING AIDS AND FACILITIES

14. QUANTITY (Check One)
- ☐ TOO MANY
- (11) ☐ ABOUT RIGHT
- ☐ INSUFFICIENT

15. QUALITY (Check One)
- (6) ☐ EXCEPTIONALLY WELL SELECTED
- (5) ☐ ADEQUATELY SELECTED
- ☐ COULD BE IMPROVED (Indicate in Item 18 all Recommendations for Improvement)

16. SEMINAR ROOMS (Check One) ne)
- (11) ☐ ADEQUATE LIGHT & VENTILATION
- ☐ INADEQUATE IN _____
- ☐ INADEQUATE IN BOTH

PART V — OPINION, REMARKS, AND RECOMMENDATIONS OF OVERALL SEMINAR

17. OPINIONS (Check One) (10) ☐ VERY GOOD 1 ☐ GOOD ☐ FAIR ☐ POOR

18. MY REMARKS AND RECOMMENDATIONS FOR IMPROVING THIS TRAINING ARE:

_____

19. JOB TITLE:

21. DATE FORM COMPLETED:

CDC 242

REMARKS AND RECOMMENDATIONS FOR IMPROVING THIS TRAINING:

Provide more outlines on matrixes and have students fill in themselves. Might be good to number "hand outs" to insure keeping in right order.

I would like to see the course offered to the Director of our agency and the District Supervisors.

A follow-up training session may have merit.

This has been a very informative seminar and I cannot recommend any improvements but would certainly be in favor of a follow-up session or additional seminars in management.

I think the seminar was well handled. The interest and enthusiasm was felt by participants and certainly motivates one to apply and use principles learned.

Concepts, materials and applications warrant increased time of the seminar for extended study. An additional day is certainly indicated.

This has been a very fine workshop which has stimulated me. I wish I could have attended such a workshop several years ago just before or just after promotion to my present job. This one went one step beyond most in pointing out the responsibility for implementation and how it might be done. The only suggestion I have is that if possible, lists of participants be mailed to each participant to enable those so desiring to arrange to room together and keep groups small if possible.

If these seminars continue on an extensive basis, it would be beneficial for blind people if material were on tape and/or talking book records and recorders be made available at the seminar sessions.

Implementation of this training should be encouraged for all supervisory levels in vocational rehabilitation.

Visual aids not applicable to visually handicapped. Technical management vocabulary - business - at times difficult to understand and apply.

Other than a longer period which I feel should be devoted to such an interesting subject, I have no recommendations for improvement - the seminar was enlightening and informative. The gentlemen who conducted the seminar were outstanding in their presentations - the practical aspects were most welcome - the "down-to-earth" presentation was most helpful.

Try five days - or consider it. Keep working rehabilitation into the illustrations as you are.

Registration List

DEVELOPING ORGANIZATIONAL TEAMWORK

NAME	AGENCY
Allert, Donald	Minnesota Department of Education Division of Vocational Rehabilitation
Auch, Arnold Supervisor-Counselor	Service to the Blind State of South Dakota
Gehrke, August W. Asst. Commissioner for Rehab. and Special Educ.	Minnesota Department of Education Division of Vocational Rehabilitation
Hoge, Frank F. Voc. Rehab. Supervisor	Vocational Rehabilitation State of Kansas
Kolber, Philip Training Specialist	Division of Vocational Rehabilitation State of Illinois
Lorenzen, Lorenz Supv. of Voc. Rehab.	Services for the Visually Impaired State of Nebraska
Nielsen, Clinton Asst. Dir. Voc. Rehab.	Vocational Rehabilitation Division State of South Dakota
O'Keefe, James Assistant Director	Department of Public Welfare State of Minnesota
True, Thomas Asst. Dir., Special Services	Division of Vocational Rehabilitation State of Nebraska
Zaccagni, Mrs. Mary Sup., Personnel Services	Division of Vocational Rehabilitation State of Illinois

PILOT SEMINAR #2

Summary of Participant Responses

To Questionnaire

EVALUATION OF SEMINAR

1. PERIOD OF TRAINING
FROM: Jan. 19, 1966 THRU: Jan. 21, 1966

2. TITLE OF SEMINAR: Management by Objectives and Results

3. PLACE WHERE SEMINAR TOOK PLACE: Washington, D.C.

PART I — SEMINAR MATERIAL

4. INFORMATION RECEIVED IN SEMINAR IS (Check One)
- (14) ☐ A GREAT HELP IN MY JOB
- (5) ☐ OF SOME HELP IN MY JOB
- ☐ OF NO USE IN MY JOB

5. VALUE TO MY AGENCY (Check One)
- 5 ☐ GREAT VALUE
- (10) ☐ SOME VALUE
- (3) ☐ MORE TO ME THAN AGENCY
- (2) ☐ SEE 18

6. SEMINAR IS (Check One)
- ☐ TOO LONG
- (4) ☐ TOO SHORT
- (15) ☐ LONG ENOUGH

7. SEMINAR MATERIAL IS CONSIDERED TO BE (Check One)
- (10) ☐ OUTSTANDING
- (9) ☐ ADEQUATE
- ☐ NOT ADEQUATE & CAN BE IMPROVED

(See Item 18 for detailed information)

PART II — SEMINAR PRESENTATION

8. MAJORITY OF LESSONS WERE (Check One)
- (18) ☐ VERY WELL PRESENTED
- ☐ ADEQUATELY PRESENTED
- ☐ POORLY PRESENTED

9. INSTRUCTOR'S PRESENTATIONS WERE (Check One)
- (9) ☐ EASY TO FOLLOW
- (13) ☐ DIFFICULT TO FOLLOW
- ☐ EASY TO UNDERSTAND
- ☐ DIFFICULT TO UNDERSTAND

10. THE INSTRUCTOR (Check One)
- (11) ☐ FOLLOWED THE SUBJECT
- ☐ DID NOT FOLLOW THE SUBJECT
- (12) ☐ GAVE ADEQUATE OPPORTUNITY TO ASK QUESTIONS
- ☐ DID NOT GIVE ADEQUATE OPPORTUNITY TO ASK QUESTIONS

PART III — VALUE OF TRAINING AIDS (Charts, Mock ups, Sketches, Photos, Models, Motion Pictures, Filmstrips, etc.)

11. THEORY (Check One)
- ☐ TOO MUCH THEORY
- (19) ☐ THEORY ABOUT RIGHT
- ☐ NOT ENOUGH THEORY

12. PRACTICE (Check One)
- ☐ TOO MUCH PRACTICE
- (6) ☐ PRACTICE ABOUT RIGHT
- ☐ NOT ENOUGH PRACTICE

13. USE OF AIDS (Check One)
- (6) ☐ EXCELLENT APPLICATION
- (13) ☐ ADEQUATE APPLICATION
- ☐ POOR APPLICATION

PART IV — TRAINING AIDS AND FACILITIES

14. QUANTITY (Check One)
- ☐ TOO MANY
- (17) ☐ ABOUT RIGHT
- ☐ INSUFFICIENT

15. QUALITY (Check One)
- (9) ☐ EXCEPTIONALLY WELL SELECTED
- (10) ☐ ADEQUATELY SELECTED
- ☐ COULD BE IMPROVED (Indicate in Item 18 all Recommendations for Improvement)

16. SEMINAR ROOMS (Check One) ne)
- (17) ☐ ADEQUATE LIGHT & VENTILATION
- ☐ INADEQUATE IN _____
- (1) ☐ INADEQUATE IN BOTH

PART V — OPINION, REMARKS, AND RECOMMENDATIONS OF OVERALL SEMINAR

17. OPINIONS (Check One) (19) ☐ VERY GOOD ☐ GOOD ☐ FAIR ☐ POOR

18. MY REMARKS AND RECOMMENDATIONS FOR IMPROVING THIS TRAINING ARE:

19. JOB TITLE:

21. DATE FORM COMPLETED:

CDC 242

REMARKS AND RECOMMENDATIONS FOR IMPROVING THIS TRAINING:

I have attended many institutes designed to train in the areas of administration and supervision and rate this as the best. The method of presentation was tops - in fact exciting. Sessions were never dull or boring. Would like VRA to engage St. Thomas Management Center in conducting many more such sessions for other supervisory staff.

Seminar was interesting, challenging and presented new concepts for planning and supervision. It was well worthwhile.

Re. Item #5. If my agency will adopt this method of management, it will be of great value to it.

Re. Item #15. Practice problems would have resulted in a clearer understanding of the use of this method of management.

I think there should be more of these seminars for supervisory personnel in vocational rehabilitation.

The opportunity of disseminating this organizational scheme to a wider number of people engaged in rehabilitation supervision within the regions.

1. The overall rating is higher than the average of the individual factors because the factors do not cover all the important parts of the seminar. 2. X's outside boxes were placed there purposely. 3. In respect to materials, I believe the Lonergan article is poorly written. 4. The seminar subject does not lend itself to easy or delightful learning, therefore, the success of the seminar is due to the instructor's presentation which included transfer of principles from other areas of knowledge.

Could be more formal in the identification and the statement of "lessons" to be discussed.

Perhaps a little more time to give more detailed discussion to points brought out which would pertain directly to rehabilitation. The method of presentation and the instruction were excellent. The instructor was very impressive and his thoughts and ideas should be helpful to any agency or business.

Very good program.

The system is workable and would facilitate agency operation but State Directors should be the persons to attend. The period of the seminar should be longer and more practice be provided.

Poor room on the first day, second and third day room for conference was adequate. I do not think this was the fault of the instructor but DVR. The film was not critiqued, I think more time should be spent on this.

This seminar was a new approach to our problem in vocational rehabilitation in "getting the job done". It is a practical approach and if implemented in an agency, would substantially improve both quantity and quality of production.

Extend training period. Increased use of practicing problems of individuals attending. Follow-up of several types.

If the concept can be accepted and adapted to the needs of the agency, the benefits should be substantial.

The material and presentation of this seminar is very good. This type of thinking and planning should be widely known throughout our country. The more people who become acquainted with this program, the more helpful it will be to all agencies in my estimation.

3½ days might allow enough time to present 2/3 of the seminar material. The seminar conference area and lodging should be under one roof. More than a week would be too long. It is difficult to really assess the seminar at this time as to quality, unless the individual puts into practice, successfully, this approach. If this is a pilot, you might consider a follow-up evaluation. A lot depends on the individual as to what he wants to get out of a seminar.

Registration List

MANAGEMENT BY OBJECTIVES AND RESULTS

NAME	AGENCY
Beckman, Dill D. Director	Vocational Rehabilitation Dept. State of South Carolina
Braun, Thomas D. Supervisor	Div. of Vocational Rehabilitation State of Maryland
Breeding, Paul A. Director, Field Services	Rehabilitation Dept. State of Virginia
Canerday, Sam	Vocational Rehabilitation Division State of Alabama
Corban, Sidney S. Supervisor of Health Referral Services	Division of Vocational Rehabilitation State of Tennessee
Donaldson, Hale C. Supv.of Training Centers	Division of Vocational Rehabilitation State of Tennessee
Floyd, Robert D. Acting Chief	Division for the Blind State of South Carolina
Furr, W. H. Supervisor, Technical Services	Division of Vocational Rehabilitation State of Mississippi
Green, Britt L. Chief, Rehabilitation Services	Commission for the Blind State of North Carolina
Hay, Don L. State Supervisor	Division of Vocational Rehabilitation State of Florida
Lindberg, Frederick C. Director of Rehabilitation & Social Service	Office for the Blind State of Pennsylvania
McKenna, Francis J. Supervisor of Rehab. Services	Division of Vocational Rehabilitation State of Rhode Island
Manderfield, E. J. Director of Rehabilitation	Florida Council for the Blind
Meenach, Leon Director	Division of Rehabilitation Services State of Kentucky
Pittard, Thomas L. District Director	Division of Vocational Rehabilitation State of Florida
Palmer, Gary	Vocational Rehabilitation Division State of West Virginia

Seibert, Julian C. District Supervisor	Rehabilitation Commission Boston, Massachusetts
Wiggins, Joseph H. Supervisor, Rehab. Services	Commission for the Visually Handicapped State of Virginia
Yates, James T. Sup. of Prog. Dev.	Division of Vocational Rehabilitation State of North Carolina

PILOT SEMINAR #3

As of the writing of this report, Pilot Seminar #3 has not been conducted. Following is a list of participants:

WORK SIMPLIFICATION AND SYSTEMS ANALYSIS IN OFFICE OPERATIONS

NAME	AGENCY
Aud, Edward J. Assistant Director	Division of Vocational Rehabilitation State of Oklahoma
Barnett, L. Owen Field Services Coordinator	Division of Vocational Rehabilitation State of Wyoming
Crawford, Donald C. State Sup. in Voc. Rehab.	Services for the Blind State of Washington
Darr, Aud F. Director	Division of Vocational Rehabilitation State of New Mexico
Dunham, Jerome Administrator - Rehab. Center	Services for the Blind State of Washington
Fahrenbruch, H. R.	Division of Vocational Rehabilitation State of New Mexico
Haymes, Miss Billie Business Officer	Rehabilitation Services for the Blind State of Arkansas
Hom, Benton Administrative Analyst	Dept. of Rehabilitation State of California
James, Terrence C. Assistant Director	Division of Vocational Rehabilitation State of Oregon
Odom, Max C. Asst. Director, Admin. Serv.	Vocational Rehabilitation and Special Educ. State of Texas
Reichert, Edward Dist. Supervisor	Department of Rehabilitation State of Colorado
Risley, Burt L. Executive Secretary-Director	Commission for the Blind State of Texas
Rivera, Orlando	Vocational Rehabilitation Division State of Utah
Ryan, Dr. Charles O. State Director	Division of Vocational Rehabilitation State of Nevada
Sibley, Mrs. Jerry Chief Statistician	Vocational Rehabilitation State of Wyoming
Tatsuno, Aiko Office Manager	Division of Vocational Rehabilitation State of Hawaii
Williams, H. C. Comptroller	Arkansas Rehabilitation Service

APPENDIX 1

Survey Instrument

Management Development

and

Management Practices Survey*

in

Vocational Rehabilitation Agencies

*This is a research instrument. Items in this survey have been placed under a copyright by the Industrial Relations Center, The University of Chicago.

APPENDIX 1

SURVEY INSTRUMENT

The design of the sixteen page survey instrument, "Management Development and Management Practices Survey in Vocational Rehabilitation Agencies" is the result of the cooperative effort of the Organization Research Section of the Industrial Relations Center, The University of Chicago and the Management Center of the College of St. Thomas.

The design work was directed by Verl Franz, The University of Chicago and Howard Mold, College of St. Thomas. The numerical data was typed in after the computer analysis was completed and the document was photographed and reprinted so that the Appendix contains not just the original instrument but the summation of the 446 returns analyzed.

The statistical analysis of the survey results was conducted in the Computing Center of the College of St. Thomas by a team under the supervision of its Director, Mr. James Lindsay. The team was composed of Messrs. Darril Wegscheid, James O'Melia, Joseph Komar, Steven Nachtscheim and Tom Sturm, students in Mathematics at the College of St. Thomas. The dedicated work of these men under the inspired leadership of Mr. Lindsay was a major contribution to the success of this project.

Additional assistance from Mr. Derek Ruston, Project Research Specialist of The University of Chicago and Joy Cohen, Project Secretary, is also much appreciated.

MANAGEMENT DEVELOPMENT

&

MANAGEMENT PRACTICES SURVEY

IN

VOCATIONAL REHABILITATION AGENCIES

Management Center
College of St. Thomas
St. Paul, Minnesota

&

Industrial Relations Center
University of Chicago
Chicago, Illinois

This project is supported in part by Grant No. VRA 561-T-65 from the Vocational Rehabilitation Administration, U. S. Department of Health, Education and Welfare, Washington, D. C.

Appendix 1 - 2

Director of Project - Howard P. Mold

Associate Director
Management Center
College of St. Thomas

Project Advisory Council

August W Gehrke (Chairman)
Assistant Commissioner for
Rehabilitation and Special Education
Division of Vocational Rehabilitation
State of Minnesota

Parnell McLaughlin, Director
Department of Rehabilitation
State of Colorado

Alfred Slicer, Director
Division of Vocational Education and
Rehabilitation
State of Illinois

Howard H. Hanson, Director
Service to the Blind and Visually
Handicapped
State of South Dakota

F Ray Power, Director
Vocational Rehabilitation Division
State Board of Vocational Education
State of West Virginia

O. F. Wise, Director
Rehabilitation and Crippled Children
Department of Education
State of Alabama

Purpose of Survey - To evaluate current management practices and to identify areas for management development assistance in Vocational Rehabilitation Agencies.

General Information - The questionnaire is made up of five sections and specific instructions for the completion of each section are given at the beginning of each. There are no right or wrong answers. All that is required is that you carefully read each question and record your honest opinion.

Statements about the "organization" refer to the organization as a whole. "Management" refers to all persons who are above your "Boss" in the organization all the way up to the top. "Boss" refers to your immediate supervisor.

Be sure to answer every question, and do not sign your name.

PART I - BIOGRAPHICAL AND DEMOGRAPHIC DATA

Instructions: Read each question carefully and check the box which best describes you.

1. What is your age?

0	0%	☐ Less than 21
1	0"	☐ 21 - 25
2	2"	☐ 26 - 30
3	13"	☐ 31 - 35
4	16"	☐ 36 - 40
5	16"	☐ 41 - 45
6	15"	☐ 46 - 50
7	18"	☐ 51 - 55
8	15"	☐ 56 and over
Blank	05"	

2. Check one of the following which best describes your educational background.

0	0%	☐ Less than high school graduate
1	1"	☐ High school graduate
2	4"	☐ Part college
3	10"	☐ College degree
4	36"	☐ Have done graduate work but did not receive degree beyond Bachelor's
5	17"	☐ Master's degree
6	25"	☐ Have done graduate work beyond the Master's level but did not receive degree beyond Master's
7	3"	☐ Have Ph. D. or M. D. Degree
Blank	04"	

3. Which of the following categories best describes your father's (or guardian's) usual occupation? (Check one.)

1	16%	☐ Professional
2	24"	☐ Proporietor or manager
3	4"	☐ Sales (other than sales manager or administrator)
4	2"	☐ Clerical
5	22"	☐ Skilled Worker
6	5"	☐ Semi-skilled Worker
7	02"	☐ Service Worker
8	03"	☐ Unskilled
9	19"	☐ Farmer or farm worker
Blank	1"	

4. How many years of managerial or supervisory experience have you had?

1	0%	☐ None
2	4"	☐ Less than one
3	18"	☐ 1 - 3
4	15"	☐ 4 - 6
5	60"	☐ More than 6 years

Blank 3"

5. Do you presently supervise:

1	15%	☐ Other supervisors?
2	43"	☐ Clerical workers and/or counsellors?
3	40"	☐ Both 1 and 2

Blank 2"

6. How many years have you been engaged in Vocational Rehabilitation work?

1	1%	☐ Less than one
2	4"	☐ 1 - 3
3	12"	☐ 4 - 6
4	23"	☐ 7 - 10
5	57"	☐ Over 10 years

Blank 3"

7. What was your undergraduate major? (If no degree, write N/A.)

8. What was your graduate major? (If no graduate degree, write N/A.)

PART II - IMPORTANCE OF JOB CHARACTERISTICS

The following statements deal with various characteristics of any job and are of varying importance to each individual in the selection of a job; consequently there are no right or wrong answers. Read each statement carefully and decide how important the characteristic is to you. Then rate it by circling one of the five numbers opposite the statement. For example, if you feel that statement number 1. is neither important nor unimportant to you, the appropriate response would be to circle the number 3.

		Job Characteristics	Very Important		Important		Neither Important nor Unimportant		Unimportant		Very Unimportant	
1.88	1.	A stable and secure future	1	24%	2	64%	3	08%	4	01%	5	0%
2.60	2.	Freedom from pressure to conform in my personal life	1	08%	2	41%	3	33%	4	13%	5	01%
1.55	3.	Opportunity to use my special abilities and aptitudes	1	49%	2	46%	3	2%	4	0%	5	0%
1.73	4.	Opportunity to be useful to society in general	1	34%	2	57%	3	6%	4	0%	5	0%
1.66	5.	Opportunity to be helpful to others	1	39%	2	54%	3	5%	4	0%	5	0%
2.00	6.	Chance to exercise leadership	1	22%	2	57%	3	16%	4	3%	5	0%
2.67	7.	Social standing and prestige in the community	1	02%	2	42%	3	41%	4	10%	5	0%
2.05	8.	Opportunity to be creative and original	1	19%	2	58%	3	16%	4	3%	5	0%
1.81	9.	Chance to earn enough money to live comfortably	1	24%	2	69%	3	05%	4	0%	5	0%
1.74	10.	Opportunity to work with people	1	34%	2	56%	3	07%	4	0%	5	0%
2.38	11.	Chance to achieve recognition from others in my occupation	1	07%	2	54%	3	30%	4	6%	5	0%

PART III (a) - JOB FUNCTIONS

Listed below are ten management functions commonly performed by persons in managerial and supervisory positions. Read each function carefully and decide whether or not you perform it as a part of your job. If you do not perform a particular function, cross it off the list. Be sure, however, to cross off only those functions that never enter into your job.

Now please consider the remaining functions on the list with respect to the problems associated with each function. Select the function which causes you the greatest amount of problems, and on the right-hand side of the page in the space next to the statement "causes most problems" write the number of that function. Now study the remaining functions on this list and decide which one gives you the least amount of problems. Write the number of the selected function in the space next to the statement "causes least problems" at the bottom of the list on the right-hand side of the page. Repeat this process alternating between functions causing most problems and functions causing least problems until all of the functions which apply to your job have been ranked.

1. Planning and scheduling work
2. Determining performance requirements
3. Getting the work done
4. Improving work systems and methods
5. Developing and training individuals
6. Maintaining a cooperative work force
7. Developing own managerial competence
8. Participating in public, community and political relations
9. Written and verbal communication
10. Developing and applying controls

Causes most problems	4
Second most problems	2
Next most problems	3
Next most problems	5
Next most problems	10
Next least problems	7
Next least problems	1
Next least problems	6
Second least problems	9
Causes least problems	8

PART III (b) - JOB FUNCTIONS (amount of time spent)

Listed below are ten management functions commonly performed by persons in managerial and supervisory positions. Read each function carefully and decide whether or not you perform it as part of your job. If you do not perform a particular function, cross it off the list. Be sure, however, to cross off only those functions that never enter into your job.

Now please consider the remaining functions on the list with respect to the amount of time you spend on each function. Select the function on which you spend the greatest amount of time, and on the right-hand side of the page write in the space next to the statement "spend most time" the number of that function. Now study the remaining functions on the list and decide on which one you spend the least amount of time. Write the number of the selected function in the space next to the statement "spend least time" at the bottom of the list at the right-hand side of the page. Repeat this process alternating between functions on which you spend most time and functions on which you spend least time until all of the functions which apply to your job have been ranked.

1. Planning and scheduling work
2. Determining performance requirements
3. Getting the work done
4. Improving work systems and methods
5. Developing and training individuals
6. Maintaining a cooperative work force
7. Developing own managerial competence
8. Participating in public, community and political relations
9. Written and verbal communication
10. Developing and applying controls

Spend most time	3
Second most time	5
Next most time	1,9
Next most time	
Next most time	4
Next least time	6
Next least time	10,8
Next least time	
Second least time	2
Spend least time	7

PART IV (a) - MANAGERIAL AND SUPERVISORY KNOWLEDGE AND SKILLS INVENTORY (Self)

Following is a list of functions and activities normally performed by managers and supervisors. This list has been developed over a number of years at the Industrial Relations Center of the University of Chicago from the responses of managers and supervisors to the questions. In what areas and activities on your job do you feel you are highly skilled? In what areas do you feel adequately skilled? In what areas do you feel you could be more skilled?

These management activities have been grouped into four categories: A. Management of work. B. Management of people. C. Management of ideas and relationships. D. Management of self-development. Within each category are a number of statements to be answered. This is not a test. It is an inventory; consequently there are no right or wrong answers. Read the question at the beginning of each category and respond to the statements as objectively as possible by checking the appropriate blank.

A. Management of work.

To do a more effective job of managing work I require greater skill and knowledge in the following functions:

		Yes Percents	No	Blank
1.	Understanding the over-all function of my work and how it contributes to the total operation.	29	69	02
2.	Determining the type and number of people required to do the job.	33	66	01
3.	Clarifying each individual's functions, responsibilities and authority.	49	50	01
4.	Making logical job assignments based on work objectives.	35	63	01
5.	Transferring and re-assigning individuals for best use of their abilities.	45	53	01
6.	Preparing directions that are clear, understandable and specific.	52	47	01
7.	Co-ordinating activities within and between work units.	62	36	02

		Yes	No	Blank
8.	Delegating authority and responsibility.	37	61	02
9.	Seeing that people know and do what is expected of them.	56	43	01
10.	Planning to meet emergencies.	48	50	02
11.	Resolving work problems without delay.	46	52	02
12.	Analyzing work units for more effective operations.	76	23	01
13.	Making improvements where or when required	53	45	01
14.	Utilizing cost control methods and procedures.	58	37	03
15.	Understanding own functions, responsibilities and authority.	35	63	02
16.	Understanding and administering of contracts.	41	54	05
17.	Inspecting contracted facilities.	37	58	05
18.	Measuring work unit output.	57	40	03
19.	Applying policies and procedures.	41	57	02

B. Management of People

To do a more effective job of managing people I require greater skill and knowledge in the following functions:

		Yes	No	Blank
1.	Formulating realistic work objectives and plans for the group.	50	47	03
2.	Planning work priorities and scheduling.	41	57	02
3.	Having individuals participate in setting their own work goals.	53	45	02
4.	Showing each individual how effective performance of his job is required for efficient operation.	51	47	02
5.	Encouraging creative thinking and origination of new ideas.	63	36	01
6.	Encouraging and accepting new ideas.	41	58	01
7.	Encouraging subordinates to make decisions.	46	52	02
8.	Reviewing each individual's progress and problems.	51	47	02

		Yes	No	Blank
9.	Discussing training needs with employees.	39	58	03
10.	Seeing that employees are rewarded for jobs well done.	40	58	02
11.	Discussing career opportunities with employees.	28	68	04
12.	Developing cooperative relationships with "Boss," associates, and individuals in the work unit.	41	57	02
13.	Planning of and participating in meetings.	46	52	02
14.	Helping individuals to adjust to new responsibilities	53	45	02
15.	Rewarding entire group performance when deserved.	39	58	03
16.	Building a group spirit and sense of belonging	48	49	03
17.	Developing and maintaining effective discipline.	45	53	02
18.	Developing reserves and replacements.	59	38	03

C. Management of Ideas and Relationships

To do a more effective job of managing ideas and relationships, I require greater skill and knowledge in the following functions:

		Yes	No	Blank
1.	Keeping informed and ensuring that work unit is kept informed.	63	35	02
2.	Improving own communication skills, verbal and written.	68	30	02
3.	Developing a program to improve relations between community agencies and the State D. V. R.	65	33	02
4.	Making effective presentations to legislative groups.	63	32	05
5.	Knowing and working with key influential groups which can influence and effect Vocational Rehabilitation with the State.	69	27	04
6.	Learning to make use of data processing.	71	26	02
7.	Learning the management of information systems.	78	19	03

D. Management of Self-Development

To do a more effective job of self-development, I require greater skill and knowledge in the following functions:

		Yes	No	Blank
1.	Developing a positive attitude toward the job.	19	80	01
2.	Improving own managerial ability.	89	10	01
3.	Developing own technical knowledge and skills.	73	25	02
4.	Accepting responsibility for own decisions.	15	83	02
5.	Learning conference leadership and meeting management.	66	32	02
6.	Understanding agency policies and procedures.	26	73	01
7.	Preparing reports.	38	60	02
8.	Understanding legal requirements.	47	52	01
9.	Understanding Federal agency standards.	46	52	02

PART IV (b) - MANAGERIAL AND SUPERVISORY KNOWLEDGE AND SKILLS INVENTORY (Boss)

The next part is the same as the last, except that instead of a "self-inventory" this section is an inventory of your immediate boss's managerial knowledge and skills. Again there are no right or wrong answers. Read the question at the beginning of each category and respond to the statements as objectively as possible by checking the appropriate blank.

A. Management of Work

To do more effective job of managing work, my boss requires greater skill and knowledge in the following functions:

		Yes	No	Blank
1.	Understanding the over-all function of his work and how it contributes to the total operation.	29	67	04
2.	Determining the type and number of people required to do the job.	36	59	05
3.	Clarifying each individual's functions, responsibilities and authority.	56	40	04
4.	Making logical job assignments based on work objectives.	31	64	05
5.	Transferring and re-assigning individuals for best use of their abilities.	34	61	05
6.	Preparing directions that are clear, understandable and specific.	36	60	04
7.	Co-ordinating activities within and between work units.	51	44	05
8.	Delegating authority and responsibility.	43	52	05
9.	Seeing that people know and do what is expected of them.	45	50	05
10.	Planning to meet emergencies.	34	59	06
11.	Resolving work problems without delay.	38	57	05
12.	Analyzing work units for more effective operations.	48	47	05
13.	Making improvements where or when required.	47	47	06

		Yes	No	Blank
14.	Utilizing cost control methods and procedures.	35	58	07
15.	Understanding his functions, responsibilities and authority.	30	65	05
16.	Understanding and administering of contracts.	20	73	07
17.	Inspecting contracted facilities.	23	70	07
18.	Measuring work unit output.	41	53	06
19.	Applying policies and procedures.	31	64	05

B. Management of People

To do a more effective job of managing people, my boss requires greater skill and knowledge in the following functions:

		Yes	No	
1.	Formulating realistic work objectives and plans for the group.	42	53	05
2.	Planning work priorities and scheduling.	39	56	05
3.	Having individuals participate in setting their own work goals.	39	56	05
4.	Showing each individual how effective performance of his job is required for efficient operation.	34	60	06
5.	Encouraging creative thinking and origination of new ideas.	40	54	06
6.	Encouraging and accepting new ideas.	38	56	06
7.	Encouraging subordinates to make decisions.	38	57	05
8.	Reviewing each individual's progress and problems.	42	52	06
9.	Discussing training needs with employees.	37	57	06
10.	Seeing that employees are rewarded for jobs well done.	43	52	05
11.	Discussing career opportunities with employees.	34	60	06
12.	Developing cooperative relationships with boss, associates, and individuals in the work unit.	36	59	05

		Yes	No	Blank
13.	Planning of and participating in meetings.	28	67	05
14.	Helping individuals to adjust to new responsibilities.	41	54	05
15.	Rewarding entire group performance when deserved.	37	57	06
16.	Building a group spirit and sense of belonging.	46	48	06
17.	Developing and maintaining effective discipline.	35	60	05
18.	Developing reserves and replacements.	49	45	06

C. Management of Ideas and Relationships

To do a more effective job of managing ideas and relationships, my boss requires greater skill and knowledge in the following functions:

		Yes	No	
1.	Keeping informed and ensuring that work unit is kept informed.	49	45	06
2.	Improving his communication skills, verbal and written.	43	51	06
3.	Developing a program to improve relations between community agencies and the State D. V. A.	43	52	05
4.	Making effective presentations to legislative groups.	38	55	07
5.	Knowing and working with key influential groups which can influence and effect Vocational Rehabilitation with the State.	36	58	06
6.	Learning to make use of date processing.	51	41	08
7.	Learning the management of information systems.	53	40	07

D. Management of Self-Development

To do a more effective job of self-development, my boss requires greater skill and knowledge in the following functions:

		Yes	No	
1.	Developing a positive attitude toward the job.	14	80	06
2.	Improving his managerial ability.	50	44	06

		Yes	No	Blank
3.	Developing his technical knowledge and skills.	36	57	07
4.	Accepting responsibility for his decisions.	19	75	06
5.	Learning conference leadership and meeting management.	37	58	05
6.	Understanding agency policies and procedures.	21	73	06
7.	Preparing reports.	22	71	07
8.	Understanding legal requirements.	23	70	07
9.	Understanding Federal agency standards.	22	72	06

PART V - COMMENTS

1. What do you think needs to be accomplished (in your state organization) to improve management practices of your state agency?

2. What do you think you need to accomplish to improve your own management practices?

3. What do you think your boss need to accomplish to improve his management practices?

4. What do you think of this survey?

APPENDIX 2

Participating State Agencies

81 of the 90 state agencies eligible to participate in the survey (Appendix 1 and Chapter 4) did so. Those who did not had currently valid reasons for being unable to do so. Following are the agencies which participated in the survey.

State of Alabama
Division of Vocational Rehabilitation

State of Alaska
Division of Vocational Rehabilitation

State of Arizona
Division of Vocational Rehabilitation

State of Arizona
Department of Public Welfare

State of Arkansas
Arkansas Rehabilitation Service

State of Arkansas
Division of Rehabilitation Services for the Blind

State of California
Department of Rehabilitation

State of Colorado
Department of Rehabilitation

State of Connecticut
Bureau of Vocational Rehabilitation

State of Connecticut
Board of Education and Services for the Blind

State of Delaware
Rehabilitation Division

State of Delaware
Delaware Commission for the Blind

Department of Vocational Rehabilitation
District of Columbia

State of Florida
Division of Vocational Rehabilitation

State of Florida
Florida Council for the Blind

State of Georgia
Rehabilitation Services

Guam
Division of Vocational Rehabilitation

State of Hawaii
Division of Vocational Rehabilitation

State of Hawaii
Department of Social Services

State of Illinois
Division of Vocational Rehabilitation

State of Indiana
Vocational Rehabilitation Division

State of Iowa
Division of Vocational Rehabilitation

State of Iowa
Commission for the Blind

State of Kansas
Division of Vocational Rehabilitation

State of Kansas
Services for the Blind

State of Kentucky
Rehabilitation Division

State of Louisiana
Division for the Blind, Department of Public Welfare

State of Maine
Vocational Rehabilitation Division

State of Maine
Division of Eye Care and Special Services
Department of Health and Welfare

State of Maryland
Vocational Rehabilitation Division

State of Massachusetts
Massachusetts Rehabilitation Commission

State of Massachusetts
Division of the Blind

State of Michigan
Vocational Rehabilitation Division

State of Michigan
Office of Services for the Blind
Department of Social Welfare

State of Minnesota
Division of Vocational Rehabilitation

State of Minnesota
Services for the Blind, Department of Public Welfare

State of Mississippi
Vocational Rehabilitation Division

State of Mississippi
Vocational Rehabilitation for the Blind

State of Missouri
Vocational Rehabilitation Division

State of Missouri
Bureau for the Blind, Division of Welfare

State of Montana
Division of Vocational Rehabilitation

State of Nebraska
Division of Rehabilitation Services

State of Nebraska
Department of Services for the Visually Impaired

State of Nevada
Vocational Rehabilitation Division

State of Nevada
Bureau of Services for the Blind
Nevada State Welfare Division

State of New Hampshire
Vocational Rehabilitation Division

State of New Jersey
Rehabilitation Commission

State of New Jersey
Commission for the Blind

State of New Mexico
Division of Vocational Rehabilitation

State of New Mexico
Division of Services for the Blind
Department of Public Welfare

State of New York
Commission for the Blind, Department of Social Welfare

State of North Carolina
Division of Vocational Rehabilitation

State of North Carolina
Commission for the Blind

State of North Dakota
Division of Vocational Rehabilitation

State of Ohio
Bureau of Vocational Rehabilitation

State of Oklahoma
Vocational Rehabilitation Division

State of Oregon
Division of Vocational Rehabilitation

State of Oregon
Rehabilitative Services for the Blind

State of Pennsylvania
Bureau of Vocational Rehabilitation

State of Pennsylvania
Office for the Blind, Department of Public Welfare

Puerto Rico
Vocational Rehabilitation Division

State of Rhode Island
Division of Vocational Rehabilitation

State of Rhode Island
Division of Services for the Blind

State of South Carolina
Vocational Rehabilitation Department

State of South Dakota
Division of Vocational Rehabilitation

State of South Dakota
Service to the Blind and Visually Handicapped

State of Tennessee
Division of Vocational Rehabilitation

State of Tennessee
Blind Services Section, Department of Public Welfare

State of Texas
Vocational Rehabilitation Division
Texas Education Agency

State of Utah
Division of Vocational Rehabilitation

State of Vermont
Vocational Rehabilitation Division

State of Vermont
Division of Services for the Blind
Department of Social Welfare

Virgin Islands
Vocational Rehabilitation Division

State of Virginia
Department of Vocational Rehabilitation

State of Virginia
Virginia Commission for the Visually Handicapped

State of Washington
Vocational Rehabilitation Services

State of Washington
Services for the Blind

State of West Virginia
Division of Vocational Rehabilitation

State of Wisconsin
Division of Vocational Rehabilitation

State of Wisconsin
State Department of Public Welfare
Division of Public Assistance

State of Wyoming
Division of Vocational Rehabilitation and Special Education

VT 001 171

Improving Vocational Education in Lapeer County. An Area Vocational Study Commissioned by the Lapeer Intermediate School District and the Five School Districts of Lapeer County.

Michigan State Univ., East Lansing
Lapeer Intermediate School District, Mich.
Michigan State Dept., Lansing. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep66 188p.

*SCHOOL SURVEYS; OCCUPATIONAL ASPIRATIONS; *OCCUPATIONAL SURVEYS; PROGRAM PLANNING; *VOCATIONAL EDUCATION; PARENT ATTITUDES; EDUCATIONAL PLANNING; *MASTER PLANS; QUESTIONNAIRES
MICHIGAN; LAPEER COUNTY

Lapeer County had a population of 45,000 in 1965, five public high school districts, seven primary districts, and four non-public elementary schools with a total enrollment of 10,179 students. A study was made to determine the effectiveness of current vocational programs, the programs and facilities needed in the area, and recommendations for improvement. Questionnaires were received from 84 percent of all 11th grade students, 48 percent of parents of 11th grade students, and 389 of the high school graduates and dropouts of the class of 1964. Business, industry, and government employers were interviewed to determine number of employees, job titles, annual entry opportunities, and kinds of training needed by new and present employees. The school programs studied were agriculture, distributive education, home economics, health occupations, industrial arts, trade and industrial education, and business and office occupations education. Conclusions were: (1) industry's requirements were not being met by existing educational programs at the high school level, (2) there was no need for additional collegiate-level institutions in the county because of community colleges available, (3) each high school in the county should strengthen its present programs of exploratory, pre-vocational education, and (4) because of the present potential enrollment of only 180 students, a relatively small area vocational school was needed. (PS)

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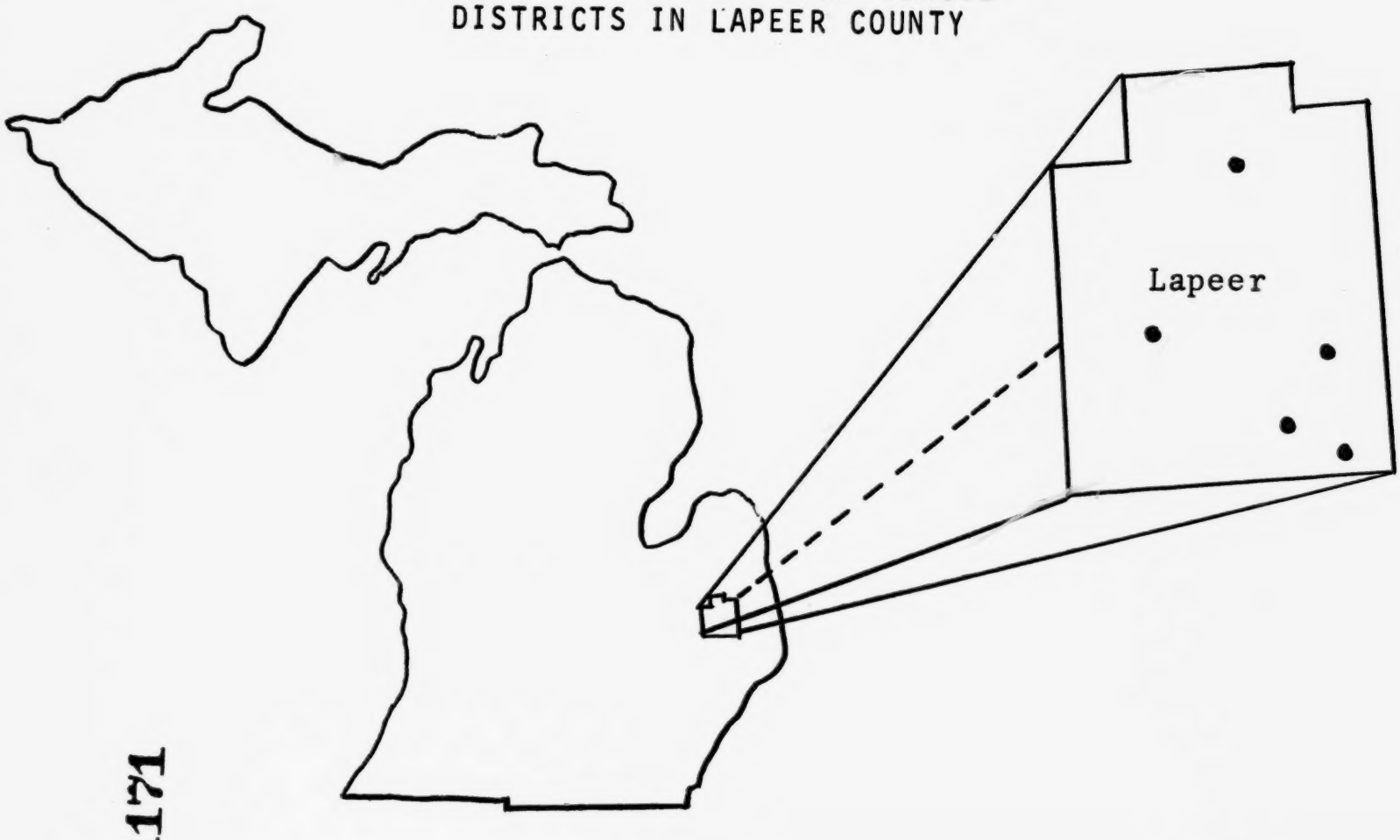
IMPROVING VOCATIONAL EDUCATION

in

LAPEER COUNTY

AN AREA STUDY COMMISSIONED BY
THE LAPEER INTERMEDIATE SCHOOL
DISTRICT AND FIVE HIGH SCHOOL
DISTRICTS IN LAPEER COUNTY



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THE LAPEER INTERMEDIATE SCHOOL DISTRICT

in cooperation with

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September, 1966

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OFFICE OF EDUCATION

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IMPROVING VOCATIONAL EDUCATION IN LAPEER COUNTY

An Area Vocational Study Commissioned by the
Lapeer Intermediate School District
and the Five School Districts
of Lapeer County

And Carried Out by

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Published by

Lapeer Intermediate School District
in cooperation with
The Vocational Division, Michigan Department of Education

September, 1966

TO THE CITIZENS OF LAPEER COUNTY:

HOW THIS STUDY WAS MADE . . . AND WHY

Foreword

A high-ranking official in the nation's capitol who has much experience in vocational education at the grass-roots level has stated very well the reason why this study was made:

> Vocational education is . . . everybody's business--industry, business, labor, education, and all of the citizens of the country . . . . one of America's greatest resourses.[1]

And it is this kind of concern for the economic welfare of Lapeer County and for the welfare of its youth and adults that provided the spark which resulted in the commissioning of this study. The Intermediate School District superintendent and his colleagues, the superintendents of the five districts, shared a common concern for the occupational competence of those who are now in high school and will enter the labor market. Likewise, these educational leaders and their boards were concerned about those adults who are now in the labor market and who need additional training or retraining.

The research staff talked with many citizens and with teachers and school administrators and found in these discussions a mutual concern for the development of vocational education opportunities which will:

--assist each individual with his deep-felt need to be employable and to lead a satisfying and productive life,
--contribute to the economic base of the community by aiding business and industry, including farming in building not only capable management, but also a competent work force,
--help maintain the economic growth of the local community as well as that of the state and of the nation.

This study of vocational-technical education concentrated on Lapeer County but took into careful consideration the

---

[1]Walter M. Arnold in the Bulletin of the National Association of Secondary School Principals, May, 1965, pp. 142-43.

educational opportunities in counties to the east, west, and south. Since Lapeer County residents are within commuting distance of large industrial concentrations, the study team was particularly mindful of occupational opportunities in adjacent counties.

This study was sponsored by the Intermediate School District in cooperation with the Boards of Education of the five K-12 school districts in the county. Partial funding for the study was provided by the Division of Vocational Education, State Department of Education. Many educators, employers, and citizens aided and assisted the research team and to each of these the study staff acknowledge their debt.

This study was designed by permission of the sponsors to parallel that of three previous studies completed by the Michigan State University research team. Similar instruments and study techniques were used as in prior studies. This parallelism makes studies comparable so that a more comprehensive picture of vocational education in Michigan can be obtained. However, the bulk of the study report is completely original dealing specifically with the situation in Lapeer County and the Master Plan for improvement was tailored specifically for Lapeer County, its problems, its resources, and its needs.

Put into the very simplest of terms, the basic design of this study rests in:

1. Determining "what now is"--school facilities, programs, faculties. . . .

2. Determining "what ought to be"--educational needs, and occupational opportunities . . . .

   and thus . . . .

3. Recommending the steps to be taken to transform "what is" into "what ought to be."

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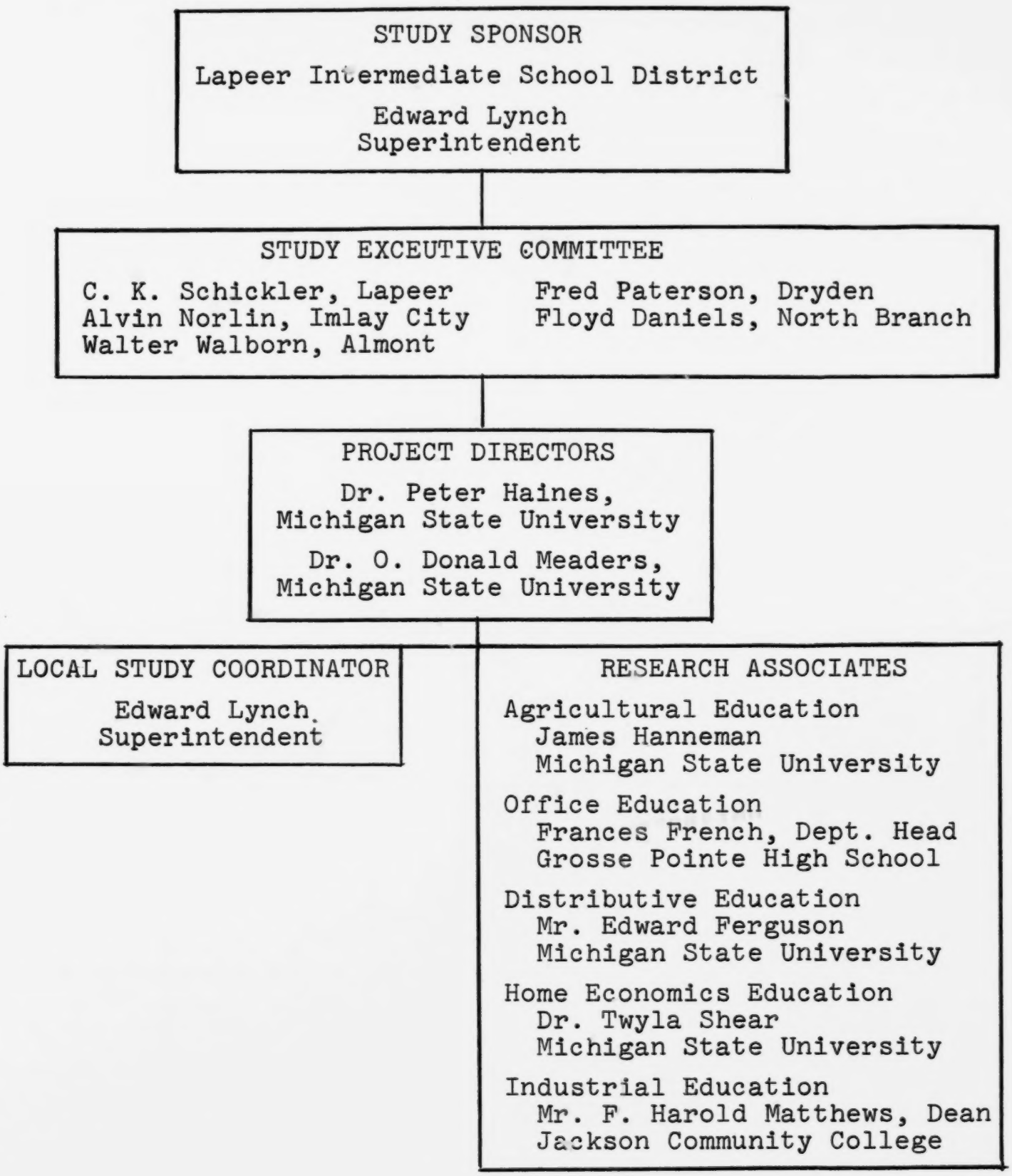

Figure 0.1

ORGANIZATION CHART--LAPEER AREA VOCATIONAL STUDY

(Note: The study area included the school service areas for the five high school districts in Lapeer County.)

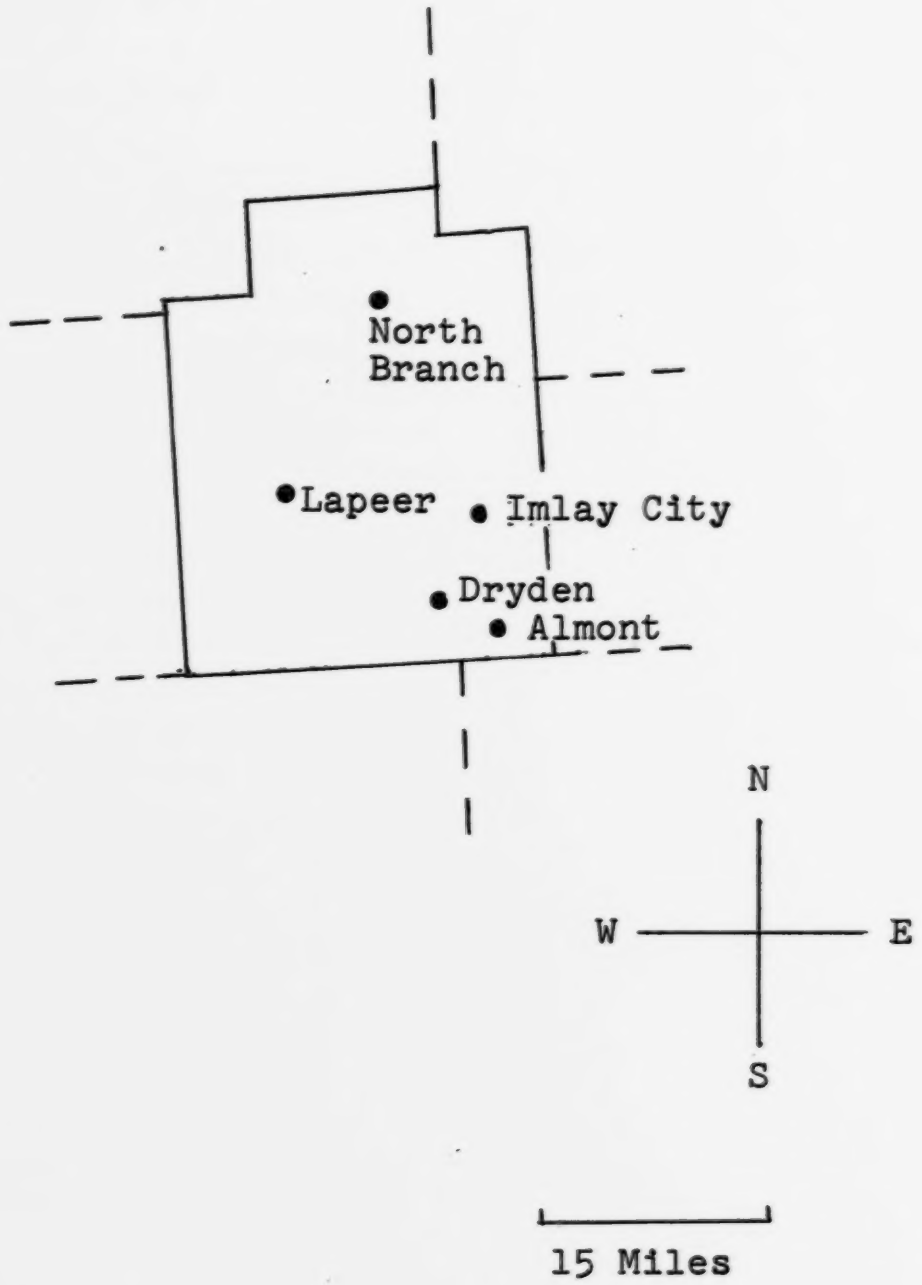

Figure 0.2

LAPEER COUNTY MAP

A. PURPOSES OF THE STUDY

The basic purposes of the Lapeer County study as defined by the study sponsors were: . . . to conduct an evaluative survey of existing vocational-technical education programs in the county area . . . and make recommendations for improvement and implementation.

The central problem identified by area superintendents and business leaders lay in planning the future direction of vocational-technical education in Lapeer County. The kind and amount of vocational education available and needed became one focal point for the study; how to provide adequate programs in a non-industrial county near populous, metropolitan areas was the second focal point.

Seven major objectives guided the study team in designing a feasible study plan:

1. To determine vocational needs in Lapeer County.

2. To determine effectiveness of current programs of occupational education in the high schools and the availability of post-high school education in nearby community colleges (Flint, Port Huron, Oakland).

3. To determine areas where improvement in the occupational programs at various levels of instruction is needed.

4. To assess the views about occupational education held by teachers, administrators, parents, and business and industrial leaders.

5. To create a greater awareness and deeper understanding of the value of occupational education among the citizens and educators in Lapeer County.

6. To develop a program plan that would eliminate deficiencies found in the present program of vocational and technical education.

7. To present guidelines for implementation of the proposed plan.

The researchers used data describing local, state, and national situations. The mobility of people from community to community and from state to state dictated the use of

descriptive data such as trends in the labor force, population, levels of income and enrollments in occupational education programs from more than the local community. However, the major concern of the executive committee for the study was shared by the research team: What vocational and technical education is needed by youth and adults in Lapeer County, and what is a feasible and economic way to provide it?

B. PROCEDURES OF THE STUDY

The study was conducted primarily through the use of a team of researchers, all professional vocational educators with experience in programs of vocational education at local and state levels and in similar area vocational studies. Considerable data were assembled for the researchers by superintendents, principals and teachers in the schools. Other sources of data included:

11th Grade Students	Questionnaire to determine educational and occupational aspirations.
Parents of 11th Graders	Questionnaire to determine their educational and occupational aspirations for their children.
Class of 1964	Questionnaire to graduates and dropouts to determine educational and occupational attainments, job satisfaction, present location, interest in additional training, etc.
Employers (Business, Industry, Government)	Interviews to determine number of employees, job titles, annual entry opportunities, kinds of training needed by new and present employees, etc.
U. S. Census and Other Reports	Data about employers, labor force, population, levels of income, etc.
Schools, Teachers, and Administrators	Visits to schools to observe facilities, equipment, programs and students; questionnaires to teachers and discussions with administrators.

As in the Grand Traverse, Top O' Michigan, and Thunder Bay area studies, the research team used the following guidelines for accomplishing the study:

1. Public schools have a responsibility for providing educational leadership for planning and conducting educational programs designed to enhance occupational competence of youth and adults within a given service area.

2. Public schools, other public agencies and organizations, and private sectors of the community should work together to provide the best occupational education programs possible.

3. Evaluation of vocational education programs should, to the extent possible within the limitations of the resources available, be based on goals and outcomes.

4. Persons affected by evaluation should be involved in the process of evaluation.

5. Consideration must be given to established patterns of educational administration and organization in the area.

6. Unique characteristics of the area should be considered for developing vocational and technical education programs rather than assuming that similar programs should be developed in all parts of the state.

7. The present educational laws and policies concerning vocational education in Michigan provide an important basis for planning new and improved programs of vocational and technical education.

8. A master plan should be developed which reflects long-range views and comprehensive programs rather than short-range views and isolated vocational programs for one or two families of occupations.

This report is based on the combined years of experience and best judgments of the staff along with their findings during the days of field work and analysis of objective data.

The research team, individually and collectively, wish the citizens of Lapeer County much success in their continued efforts to assure youth and adults the type of education, and the quality, that enables them to compete in the economic market place.

Peter G. Haines
O. Donald Meaders

Study Co-Directors

September 1966

SECTION I

VOCATIONAL EDUCATION AS IT OUGHT TO BE IN LAPEER COUNTY

. . . Chapter 1

The Goal: A Quality Program of Vocational Education

. . . Chapter 2

Achieving the Goal: A Master Plan With Recommendations

CHAPTER 1

THE GOAL: A QUALITY PROGRAM OF VOCATIONAL EDUCATION

When citizens and educational leaders plan a program of education, or when they evaluate an existing program, they necessarily must have a goal in mind. The target is an image, a concept of what outcomes they want to achieve through the new or restructured program.

The research team which conducted this Lapeer Vocational Study had a definite target in mind and present it in broad outline for those citizens and educational leaders who will review this study report, discuss it, and implement the actions to which they accord priority.

The goal is: a quality program of vocational education which provides the youth and adults of the county with the opportunity for economic security. But, this boardly stated goal must be given more body--the outlines must be focused more sharply. The beginning of this focus is the definition of vocational education.

The Nature of Vocational-Technical Education Today

The term, vocational education, is not always well understood, being all too often thought of as "shop training," "manual skill training," or "Ag and Home Ec." A much broader definition is needed by educational planners.

Viewed in a broad sense, vocational education is any education which specifically prepares an individual to perform successfully in his chosen occupation. By this definition, such diverse efforts as the one-day company training program for the semi-skilled machine operator and the curriculum of the medical school are both vocational education. Yet, for this study a more restrictive definition must be found.

The definition used in this Lapeer Study is that, vocational education consists of that formal instruction which prepares an individual for entry into employment or upgrades those who are already employed. The definition includes instruction for all occupations except those which are usually classified as "professional" with the meaning that a baccalaureate degree is required. However, vocational education, as used in this study, does refer to education designed to upgrade and improve those who in managerial capacities already possess a college degree.

Vocational education can be equated with education for occupational competence. It concerns itself with teaching those skills, knowledges, and attitudes that are requisite to success in a given occupation.

This study was concerned with that formal vocational instruction which is offered at the high school, post high school (13th and 14th grades), and adult education levels. No maximum age for enrollees in vocational courses is envisioned for the purpose of vocational education in the development of a trained manpower tool.

The term, pre-vocational education, is used in this study to mean that formal instruction which is specifically designed to provide the prospective student with: career orientation, basic knowledges, attitudes, and skills useful in a broad family of occupations, social and basic skills as they apply to an occupation.

A Vocational Education Program Is a Totality

Developing marketable skills in students is much more complex than simply teaching about an occupation or its processes. Some of the factors involved in the development of an adequate vocational education program are:

1. A curriculum--a series of sequential courses, within occupational areas, with subject matter conceived and clearly defined, and based upon competencies required in the occupational family.

2. Length of preparation (or length of curriculum) determined by the amount of time required to acquire useful skills and the technical information necessary for entry into the occupation rather than determined according to the traditional schedule in the school.

3. Year-round operation for most of the instructional programs.

4. Adaptation to unique community problems and employment opportunities.

5. Physical facilities and/or environment in which the instruction is given are, or simulate, the actual working conditions to the maximum possible degree.

6. The teacher or coordinator is experienced and skilled in the occupational family for which he is providing instruction.

7. The students enrolled have made a tentative occupational choice on the basis of their interests, abilities and the requirements of the occupation.

Differences Between Vocational Education and Technical Education

Most vocational educators use the term, vocational education, to describe formal instruction for occupations at the skilled and semi-skilled levels while education for those jobs between the skilled classification and the professional category is usually termed technical or sub-professional education. The basic difference between vocational education and technical (subprofessional) education rests in the amount of cognitive knowledge versus manipulative skill required by a given occupation. Thus, to use the terms correctly one must determine the occupational requirements of skill and knowledge in any given occupation. Figure 1.1 provides some idea of the relationship between occupations which require vocational preparation and those which require technical or even professional education.

Some individuals claim that vocational education is high school level while technical (subprofessional) educational) education is post high school level. Such a distinction is not valid because a 40-year-old may need retraining for a skilled trade, but will secure his vocational education in a post high school institution. Perhaps a more valid point is that vocational education is non-collegiate in quality and in credit while technical education is collegiate in quality and may be awarded collegiate credit.

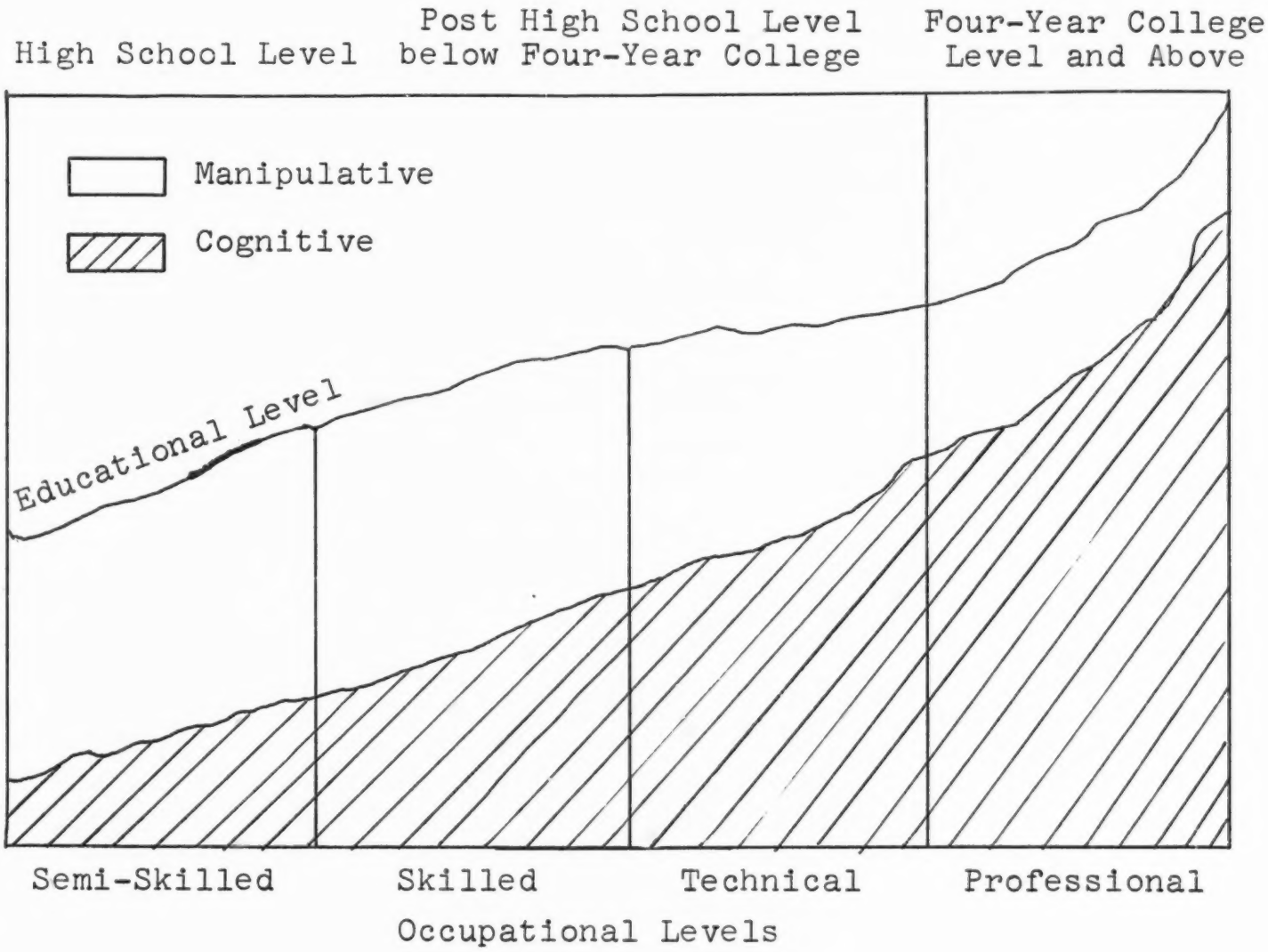

Figure 1.1

RELATIVE PROPORTIONS OF MANIPULATIVE AND COGNITIVE ELEMENTS IN EDUCATION PROGRAMS FOR DIFFERENT OCCUPATIONAL LEVELS

Source: Vocational and Technical Education in Illinois (Urbana: University of Illinois, Bureau of Educational Research, 1960).

A sample occupational classification is given in Table 1.1 which provides clues as to the relative amounts of manipulative skill and knowledge required in occupations. It should be noted that business occupations at the technical level are usually called sub-professional because some educators think of the phrase, technical information, as referring only to industrial, engineering, or other scientifically related knowledges. But, the basic point is that there are, and there will be many more of, a group of occupations which require more than vocational preparation but less than four-year degree preparation.

TABLE 1.1

CLASSIFICATION OF SOME SAMPLE OCCUPATIONS*

Professional	Technical	Skilled	Semi-Skilled
Electrical Engineer (003.081)	Instrument Maker (729.281)	Electrician (824.281)	Electric Range Assembler (723.884)
Mechanical Engineer (007.081)	Production Illustrator (017.281)	Machinist (600.280)	Engine-Lathe Set-Up Operator (609.380)
Architect (001.081)	Architectural Draftsman (001.281)	Carpenter (860.381)	Floor-Sanding Machine Operator (864.884)
Tax Accountant (160.188)	Clerical Technician (161.268)	Bookkeeper (210.388)	Typist (203.588)
Lawyer (110.108)	Business Agent (191.118)	Secretary (201.368)	Clerk (209.388)
Economist (150.088)	Account Analyst (219.388)	Teller (212.368)	Key-Punch Operator (213.582)
Horticulturist (040.801)	Tree Surgeon (409.181)	Log Grader (941.387)	Nursery Worker (406.887)
Agronomist (040.081)	Dairy Tester (469.381)	Meat Dresser (525.884)	Farm Hand (421.883)
County Agent (096.128)	Livestock Commission Man (162.158)	Farm Mechanic (624.281)	Log Scaler (941.488)
Home Economist (096.128)	Interior Decorator (142.051)	Cosmetologist (332.271)	Manicurist (331.878)
Home Demonstration Agent (096.128)	Cloth Designer (142.081)	Dressmaker (785.361)	Maid (306.878)
Dietician (077.168)	Laboratory Tester (I.029.181)	Chef (313.131)	Waitress (311.878)
President (189.118)	Buyer (162.158)	Floor Mgr. (299.138)	Sales Clerk (290.478)
Book Editor (132.068)	Commercial Photographer (143.062)	Motion Picture Projectionist (960.382)	Stage Floorman (962.887)
Advertising Director (164.118)	Display Man (298.081)	Advertising Salesman (258.358)	Telephone Operator (235.862)

*Number designations were taken from the U. S. Department of Labor, Bureau of Employment Security, Dictionary of Occupational Titles, Vol. I (Washington, D. C., 1965). The classification shown would be subject to re-evaluation following a complete occupational analysis. Adapted from Vocational and Technical Education in Illinois (Urbana: University of Illinois, Bureau of Educational Research, 1960).

A Total Program of Vocational-Technical Education

Every community needs to use a model of a complete program of vocational-technical preparation against which to measure itself even though not every community should meet every functional need shown by the model. But every community must know what functions it is not meeting and satisfy itself that no need exists locally. The model is shown below:

1. Preparation for entry jobs

   . . . semi-skilled/skilled = vocational education.
   . . . technical/subprofessional = technical education
   . . . professional = professional education

2. Retraining for a new job

   . . . (a form of preparatory instruction for the levels in #1)

3. Upgrading

   . . . helping the individual do his present job better and gain greater satisfaction
   . . . preparing the individual for promotion to a higher ranking position in his present occupation

In providing for the functional occupational needs shown in the model above, a community should consider the following levels in its program of occupational preparation:

1. General education--Is it adequate to provide those personal characteristics, social skills, and basic skills requisite to success in a given occupation?

2. Prevocational education--Does it provide occupational orientation and exploration as well as general occupational skills and information applicable to a broad spectrum of jobs?

3. Vocational education--Is there preparation for semi-skilled and skilled jobs?

4. Technical education--Does there exist preparation for technical and sub-professional occupations?

Another way a local community should view its program of occupational preparation is by level of occupations: Is education provided for

1. Rank-and-file jobs?

2. Supervisory positions?

3. Managerial positions?

Lastly, the community should ask itself the following questions:

1. Are we offering preparation of the length required and according to a time schedule suitable to those who need the education?

2. Are we offering the kind of education adults need part time for those who are employed or wish to be employed?

   a. Short unit courses--four/ten sessions of 2-3 hours each

   b. Intensive clinics--four-twenty hours covering a few days successively

   c. Long unit classes--one or two sessions per week for a semester

   d. Sequenced programs--a series of courses leading to a certificate of competency

   e. Extension courses--offered during the working day with the cooperation of the employer

   f. Evening courses--offered during the non-working hours of the adult

3. Do we offer to adults occupational counseling services?

4. Are we making use of advisory committees of employers and employees to provide occupational education where and when it is needed?

5. Are we providing vocational education for:

   a. those who dropped out of school?

   b. those who attended schools where vocational education was not offered?

   c. those who graduated from high school but who did not take the vocational education that was offered? (See Figures 1.2 and 1.3)

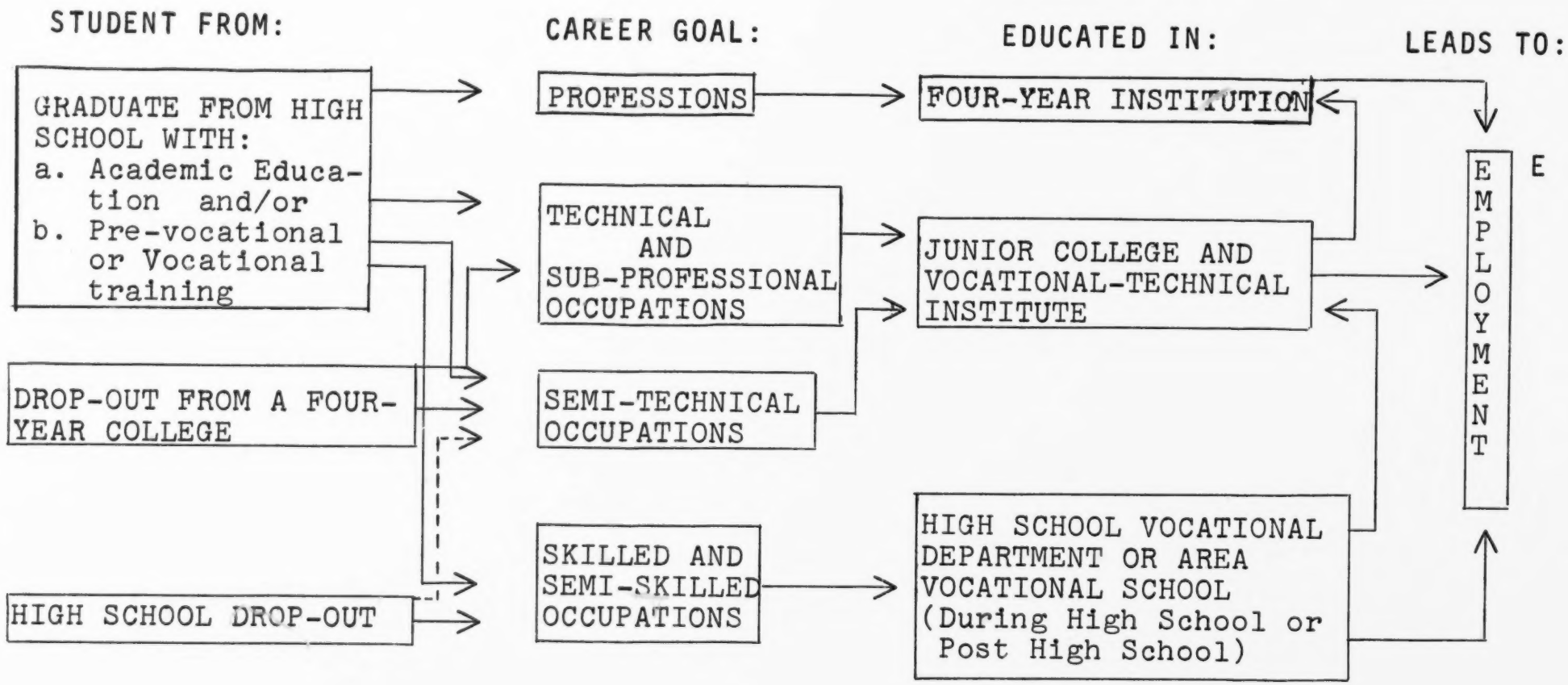

Figure 1.2

PATHWAYS FROM EDUCATION TO EMPLOYMENT VIA THE POST-HIGH SCHOOL

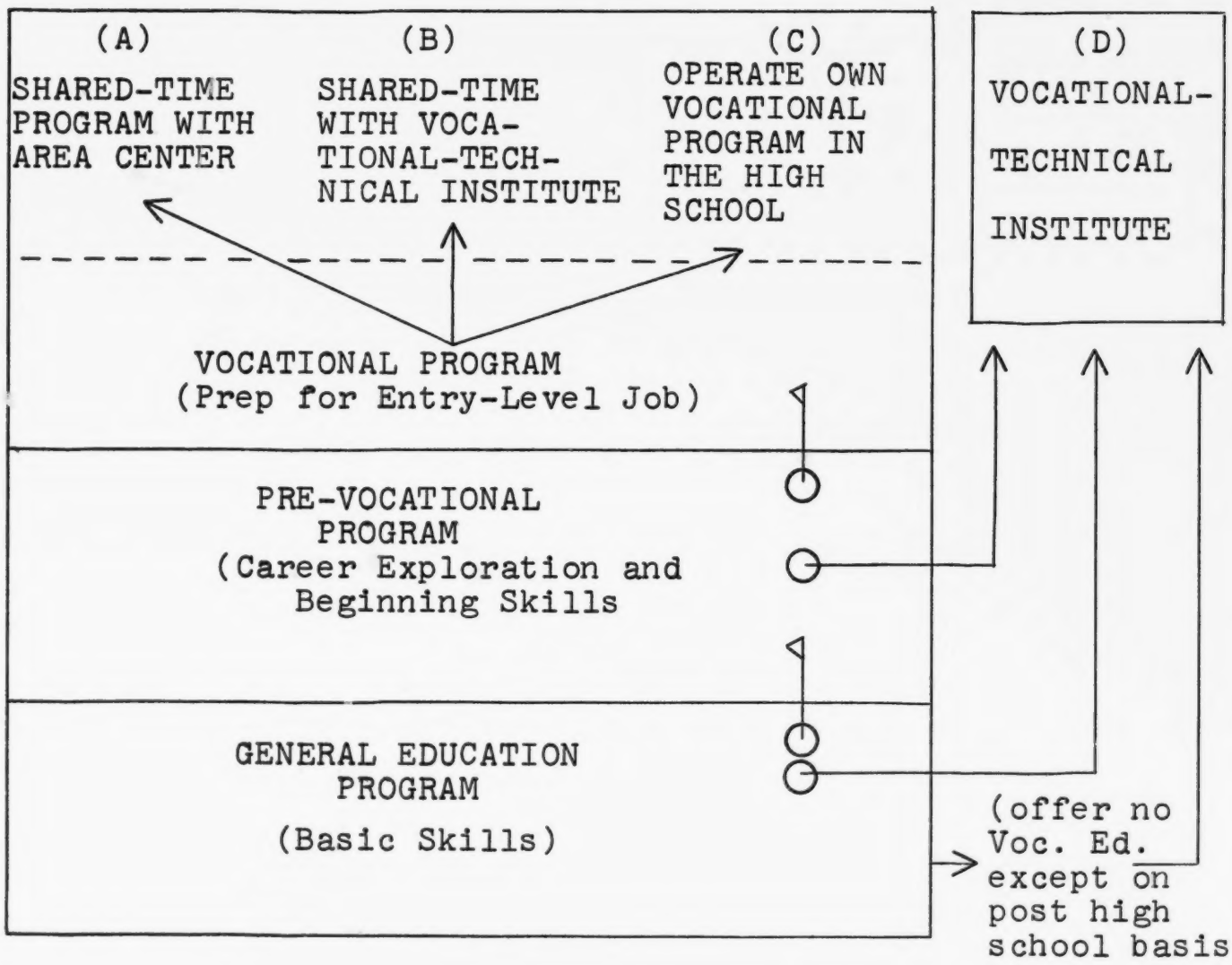

Figure 1.3

ALTERNATIVES FOR LOCAL HIGH SCHOOLS
IN PROVIDING EDUCATION FOR EMPLOYMENT
FOR THEIR STUDENT BODY

CHAPTER 2

ACHIEVING THE GOAL: A MASTER PLAN WITH RECOMMENDATIONS

Chapter 1 has outlined what constitutes a quality program of vocational education--one which meets the demands of a changing society and enables youth and adults to achieve economic independence and job satisfaction.

This chapter presents first the major conclusions of the research team--strengths, weaknesses, needs. This in turn, is followed by a Master Plan--a guide to program development which local citizens and their professional educators should review, discuss, and decide about.

A. MAJOR FINDINGS AND CONCLUSIONS

General Findings

1. At present (1965) property tax valuations, a one-mill levy voted by the citizens of the Intermediate School District would net slightly more than $90,000 in operating funds for vocational education.

2. Present rates of reimbursement by The State Department of Education for instructional salary costs of local vocational programs approximates 25 per cent. This rate should be assumed to be typical of the next five years.

3. There are about 650 seniors in the high schools of the county; the number is predicted by school administrators to increase slowly (about 3 to 5 per cent per year) unless unforeseen urbanization of the county occurs. Of this number of seniors, about 40 per cent can be expected to enroll in collegiate institutions (640 × 40% = 260). Thus, of the remaining 390, if half desire vocational training, instruction must be provided for 180 students.

4. There are many institutions adjacent to Lapeer County offering collegiate level vocational-technical instruction in a wide variety of occupational fields. Within easy driving distances are: Flint Junior-Community College, Port Huron Junior College, Oakland Community College, and Oakland University. Both daytime and evening college courses are available for both full- and part-time students.

5. Improvements in highways now underway and planned will provide county residents with quick access to junior colleges and other educational institutions in adjacent counties. The Flint-Port Huron Expressway is scheduled for completion in 1970.

6. Knowledgeable businessmen foresee a residential building boom in the country especially along the southern and western boundaries. Estimates are that 75 per cent of the new homes built this year west of Lapeer are tenanted by individuals who commute to work in Flint.

7. Considerable business expansion is forecast for the county, particularly in and around the city of Lapeer. For example, a large shopping center is under construction, and employment at the State Hospital is reported to be planned for an increase of 100 per year for at least five years.

8. The economic base of Lapeer County is diversified and expanding quite rapidly. Small manufacturing plants and light industry, along with the agricultural services to support farm production, provide the basis for most of the employment, outside of employment by the government, schools, and hospitals.

9. A non-profit foundation, the Vocational Fund, was established two years ago with contributions from private citizens, including a major share from a local philanthropist. The Fund provides adult education for high school graduates and dropouts of any age to enable them to improve their employment opportunities. The first phase of the program provides general education courses to enable adults to complete high school diploma curricula. The second phase is to provide vocational-technical education. The fund in 1965-66 provided for 84 individuals who enrolled in 136 courses.

10. The Lapeer School District has adequate land available on the site of the high school to provide for a vocational-technical facility. The $3 million bond issue approved by the Lapeer District voters in 1966 has sufficient funding flexibility to provide for construction of vocational-technical facilities for Lapeer

District students who comprise about 50 per cent of the county high school enrollments.

11. Lapeer County ranks well below the state average in public expenditures per child for education. Expenditures are not only below the average for Northern Michigan counties, but are significantly below the southern county average.

12. Gauged by effective per capita buying income, Lapeer County is below the average of Southern Michigan counties and only slightly above the average for 45 Northern Michigan counties.

13. Tourism is not a major source of income for Lapeer County.

14. More than 4500-5000 persons (estimated) daily commute outside of Lapeer County for employment. Most of these persons go to the Flint area although some go toward Detroit and others toward Marlette.

15. Major decreases have occurred in the number of persons employed in farming although the value of farm products sold in 1964 was estimated to be more than $16.6 million, or nearly $8000 per farm. Income to farm operator households from sources other than farm operated were estimated to be nearly $9.95 million, or about $1760 per household.

16. Employment as craftsmen and operatives accounts for nearly 50 per cent of the male employment; employment as service and clerical/sales workers accounts for nearly one out of every two employed women.

17. Administrative attitude, in general, recognized the severe problems in the development of adequate vocational education programs. Problem areas included:

    --Sufficient number of interested students.
    --Qualified instructional staff.
    --Appropriate instructional facilities.
    --Adequate financial base for construction and operation.

18. Administrative attitude, in general, indicated a strong desire to have quality programs available to students as more important than where such programs might be located.

    --Transportation time was considered a significant factor.

--Some interest expressed in having one school district act as the "parent district" for the entire county. This district would have the entire responsibility for developing, implementing and operating such a program.

19. Successful vocational education requires:

--Specialized leadership, fully qualified in this type and kind of education.
--Promotion, and initial program development activities.
--Educational programming "tailor-made" to the needs of the geographical area in which it exists.
--Vocational courses developed for a specific purpose, not only for transfer purposes.
--Appropriate, adequate staff; space; and facilities.

20. The follow-up study of 1964 graduates indicated less mobility among the graduates than might have been expected and that, although many jobs are available in the adjacent areas, the lack of specific job training is a major factor in the graduates and dropouts taking employment in jobs requiring low-level skills.

21. Both the 11th grade students and their parents indicated considerable support for vocational education programs at the high school and post-high school levels.

22. The 11th grade students indicated the most important aspects of a job were liking one's work, security, and chance for advancement while their parents indicated security, nice working conditions, and opportunity for advancement were most important.

Major Conclusions

Based upon the data, the results of questionnaires, interviews, a periodic check of "Want Ad" needs in the Lapeer County paper, and an analysis of information available in the census tract, the following conclusions have been reached:

1. Industry's requirements, in general, are not being met by available educational programming at the high school level. Their needs include additional: (a) Vocational Education at the high school level; and, (b) Other types of educational services including the promotion, development, and implementation of apprenticeship activities within the county. This is an area-wide function and not the

particular responsibility of one school district. This requires an area-wide service.

2. Area labor market requirements indicate an urgent need for individuals in the skilled trade areas and a somewhat lesser requirement for personnel in the technical classifications. This requirement conflicts with the point of view expressed by some educational personnel that vocational education could be delayed until after high school graduation; and that whatever need that really existed could be met by the availability of technical education offered at adjacent community colleges.

3. Industry indicated an interest in those individuals who had vocational education skill training.

4. Industry now requires more individuals who have completed vocational education programs--high school as well as post high school--and fewer and fewer people who have little or no specialized occupational competency.

5. High school graduates and other out-of-school adults have ample opportunity for collegiate-level instruction in sub-professional and technical fields since three community-junior colleges are within 30-60 minutes' driving time from the center of Lapeer County. Flint Junior-Community College is a very large institution and offers a variety of curricula aimed at those wishing preparation for employment. Port Huron Junior College and the new Oakland Community College also offer various employment-oriented curricula. The Evening College of Oakland University is also within easy commuting distance of the residents of Lapeer County.

   Further, a new community college has been proposed in the vicinity of Cass City, a location within 30 minutes' driving time of the northern part of Lapeer County.

   The research team concludes that there is no need for a collegiate-level institution in Lapeer County offering curricula for employment-bound youth and adults.

6. The numbers of students in Lapeer County who would probably enroll in vocational cirricula at the high school level is well below the level

needed to sustain a full-scale institution serving both high school youth and those who are out of school. A relatively small area vocational school is needed. The present enrollment potential is 180 students if 50 per cent of the non-college bound students attend. If these students attend half-days, 90 student stations in the area school will suffice. If the majority of curricula enrolled both 11th and 12th grade students, then 180 stations would suffice. (See Table 2.1)

7. There is a great need for each high school in the county to strengthen its present program of exploratory, pre-vocational education. This is particularly true of the fields of home economics and industrial arts. Also, the field of business needs additional emphasis in exploratory courses.

8. The private, non-profit Vocational Fund has shown itself as a real contributor to meeting the needs of adults for adult counseling and education relating to improving their employment potential. The Fund should continue to widen its program emphasizing especially such activities as: providing scholarships for worthy students who can profit from post-high school training, awarding prizes and trophies for outstanding performance in vocational education by students and teachers, and enlisting support of citizens and employers in providing equipment and technical library holdings for vocational programs. The Fund is an excellent illustration of the value of local initiative and school-community cooperation.

9. Since 31 per cent of the respondents (class of 1964) indicated they had pursued education beyond high school through community colleges and four-year colleges, it is possible that a minimum of 50 per cent of the class could have profited from some type of vocational education while in high school.

10. There appears to be less mobility among the former students than might be expected; thus:

    --Vocational education courses must be in harmony with the needs of the immediate labor market area;
    --For every dollar invested in vocational education, this county will obtain immediate return by having available appropriately trained people for the jobs available.

11. Data from the student and parent questionnaires indicated:

--Adequate support for the establishment and operation of vocational education programs, and
--The parents indicate reasonable willingness to support vocational education if it were available in the high schools for 11th and 12th grades.

TABLE 2.1

ANTICIPATED ENROLLMENTS IN VOCATIONAL CURRICULA IN THE PROPOSED LAPEER AREA VOCATIONAL SCHOOL

Occupational Area	Enrollments*	Classrooms Needed
Vocational Agriculture	60	2
Vocational Office Education	50	2
Vocational Distributive Education	50	1
Home Economics Wage-Earning Occupations and Health Occupations	20-40	1
Vocational Industrial Education	75	3

*Some enrollments on half-day basis for students on shared-time basis from cooperating schools; others on full-time basis for out-of-school youth and adults.

B. A MASTER PLAN FOR IMPROVING VOCATIONAL-TECHNICAL EDUCATION IN LAPEER COUNTY

An acceptable goal for public education is that each individual may become economically self-sufficient, regardless of when the individual completes his or her formal education.

The study team finds that there are three alternatives open to the citizens of Lapeer County in providing an improved program of vocational-technical education for youth and adults of the county:

1. Assume that all needs can be taken care of by post-high school institutions in the adjacent counties, since these institutions offer a variety of curricula and part-time courses in vocational fields. This alternative appears desirable at first since it involves no direct costs to the taxpayers. Yet it has some disadvantages:

   a. Lapeer County residents would have to pay out-of-district tuition as well as costs of transportation.

   b. Those individuals with marginal motivation are less likely to enroll in an institution away from their home community.

   c. The needs of adults for part-time education geared to their desires are less likely to be met by educational agencies in adjacent counties than would be true of a responsive agency in Lapeer County.

   d. The needs of high school youth would remain unmet since most vocational education would of necessity be deferred until after high school.

2. Build a post-high school vocational-technical institute in Lapeer County. This alternative has the advantage of creating an institution responsive to the needs of Lapeer County, yet it has several disadvantages:

   a. The institution would have an enrollment potential far below that deemed necessary for an efficient operation, and a restricted number of curricula could be offered.

   b. The operation would of necessity be high cost, especially since Lapeer County residents have access to institutions nearby which offer a variety of curricula.

3. Create a county-wide area vocational school (AVS) which will serve as an educational resources center for high school youth and adults who desire vocational education.

a. The AVS should be operated by the Lapeer Public School District under contract to the Intermediate School District Board; this procedure is in accordance with State law.

b. The AVS should be administered by:
   1. A principal who would bear the title of Director and who would be a line officer reporting to the superintendent of the contracting district (Lapeer) and co-equal to principals of all secondary schools in the county.
   2. Basic guidelines developed by the Intermediate District Board.
   3. A policy and planning committee with advisory powers and consisting of the superintendents of all K-12 districts in the county.
   4. Local advisory committees relating to major vocational curriculum areas.

c. The AVS should offer vocational education to high school students from all cooperating districts, non-graduates of high schools, and adults who wish vocational education on a part-time basis and of a non-collegiate level. Also, the AVS could be the site of community college courses offered to Lapeer residents by adjacent community colleges.

d. To accomplish its goal, the Lapeer AVS would require a facility of at least nine specialized vocational classroom-laboratories, two general classrooms, a technical library, and supporting offices, student lounge, etc. About 30,000 square feet would be necessary with adjacent parking.

e. Two sites for the AVS are possible. The first would be one separate from any existing school and would provide identity as a "county" facility and one that is not "just a high school." The study team rejects this alternative in favor of a site adjacent to the present Lapeer High School in a building physically separated from the present high school. Such a location would use ground presently available and save investment costs, as well as permitting use of Lapeer High School facilities such as cafeteria and existing utilities. This location seems appropriate also since the Lapeer District has about 50 per cent of the county school enrollments.

f. No tuition should be charged to high school pupils or out-of-school youth and adults who enroll full-time in vocational curricula, a policy in accordance with State law. Tuition may be charged adults in part-time classes or in collegiate-level courses offered in cooperation with neighboring junior colleges. Assuming the school enrolls 150 full-time equivalent students (FTE) with an average operating cost of $700 per student, the annual operating cost of approximately $105,000 can be covered by a one and one-quarter mill levy voted by the Intermediate School District.

The study research team makes the following additional recommendations:

4. The Vocational Fund should be enlarged in both sources of funding and scope of operation. There is need for the Fund to provide more comprehensive adult vocational counseling and to improve student aspirations by provision of career programs and financial assistance for worthy students. Further, the Fund could develop a program of awards which recognize outstanding performance by students and teachers in vocational programs. The Fund should engage in a county-wide effort to enlist the support of businessmen and citizens to work for improving vocational-technical education, including the provision of gifts of equipment and technical library materials.

5. An extensive program of vocational teacher upgrading should be undertaken by the office of the Intermediate School District superintendent in concert with superintendents of local districts. This program should provide for in-service meetings, credit courses both on and off campus of a major university, and occupational experience internships. Concurrently, a program of curriculum improvement should be undertaken. The Vocational Fund should consider assisting in the support of this teacher upgrading program by sharing with teachers the cost of further graduate training and by enlisting support of employers in providing paid internship experiences in employment for teachers.

6. Local school districts should recognize their responsibility to provide for vocational counseling. Each district should support such needs as vocational counselors, occupational information libraries, and career days. This program should be developed in close cooperation with the MESC and representatives of business and industry in the more populous adjacent counties.

7. The sponsors of this area vocational study should form immediately an "ACTION" committee of school personnel and local citizens which would review recommendations and assist in informing the citizens of the need for vocational education as well as implementing the Master Plan.

C. RECOMMENDATIONS FOR EACH OCCUPATIONAL FIELD

C-1 Recommendations Regarding Agricultural Occupations

General.--A county-wide advisory committee for the agricultural education program should be established with representation from farmers, agricultural businesses and professional agricultural services. The purpose of the committee should be to advise on the development of courses and programs to serve the entire county.

High School Level Programs of Instruction

1. The major objectives for the high school program should focus on the development of competencies needed by high school youth to (1) enter and advance in production agriculture, or (2) enter agricultural and advance in other agricultural occupations, or (3) develop an understanding of career opportunities in agriculture, or (4) pursue further education beyond high school for agricultural occupations.

2. The agricultural courses should be available to all students, regardless of sex, place of residence, or prior experiences in agriculture.

3. The courses designated Agriculture I, II, III, and IV should be discontinued, and more appropriate program units should be developed: animal science, plant science, soil science, farm management, agricultural machinery, agricultural structures, ornamental horticulture, agricultural businesses, etc.

4. Sequences of courses, both vocational and general (such as English, math, and industrial arts) should be outlined for all students, depending upon their career objectives, previous experiences, and levels of achievement.

5. An orientation program regarding career opportunities in agriculture should be developed through the cooperative efforts of the counselors and agricultural teachers to acquaint 9th grade students and their PARENTS with the job opportunities, education and experience requirements for entry, and the availability of post-high school educational programs to prepare for the jobs.

6. The following areas of instruction should be provided within the county:

   a. Basic instruction in applied soil, plant and animal sciences, including instruction in agricultural occupations (9th and 10th grade level courses)

   b. Production oriented courses to prepare for entrance and advancement in full-time and part-time farming (11th and 12th grade level courses)

   c. Horticultural production courses in the areas of landscaping, nursery, and floriculture (11th and 12th grade level courses)

   d. Agricultural machinery courses designed to develop basic competencies in the maintenance and repair of equipment appropriate to the area (11th and 12th grade level courses)

   e. Agricultural business and service oriented courses designed to develop competencies in the activities performed by beginning workers in selected functions of the agricultural businesses (11th and 12th grade level courses)

7. All of the agricultural courses, regardless of the grade level, should be considered laboratory-type courses with provisions made for appropriate "doing" experiences at school, on a farm, or in some other agricultural business.

8. The agricultural machinery course(s) should be preceded by appropriate industrial education courses and should be cooperatively planned and taught with the industrial education department. The agricultural business and service courses should be cooperatively planned and taught with the business department.

9. The sites for instruction should be developed so as to provide for multiple teacher departments, specialized facilities, optimal utilization of

facilities, and access of other specialized but closely related programs such as industrial education and distributive education.

The following criteria are suggested for determination of teacher load:

a. Maximum of 60 students per teacher (20 students/class for 9th and 10th grades; and 10 students/class for 11th and 12th grades).

b. One period assigned for supervision of student experiences for each two periods of classes taught.

c. Travel time must be allowed if a teacher is expected to teach at more than one center.

Post-High School Level Programs of Instruction

1. The post-high school program should be based on up-dating and up-grading persons already employed and/or seeking employment in agricultural occupations: farm laborers, farm owners and managers, skilled and technical level employees in agricultural businesses and services, and supervisors and managers of agricultural businesses and services.

2. The content of the program should be developed through the use of an occupational advisory committee and might include courses in such areas as (1) agricultural machinery maintenance and repair; (2) landscaping; (3) nursery and greenhouse management and operation; (4) floriculture production and marketing; (5) vegetable production and marketing; (6) farm labor supervision and management, and (7) production and management of such farm enterprises as beef, dairy, corn and vegetables, as well as farm management.

3. The structure of the programs should be flexible and enable the offerings to be variable in length as well as seasonal and to be conducted at the most appropriate site.

Sites and Staffing

1. It is recommended that four-year programs of instruction with appropriate laboratory facilities (land laboratory, greenhouse, and agricultural mechanics facility) be developed at Lapeer and Imlay City for high school students. Students

in 11th and 12th grades at the three other high schools interested in agricultural occupations should be transported to these centers on a shared-time basis for their specialized instruction.

2. A program of instruction in basic agriculture for 9th and 10th grade students should be offered at North Branch and Almont (Dryden 9th and 10th graders might be transported to Almont for their instruction in agriculture). The advanced students (11th and 12th grades) should be transported for shared-time programs: North Branch students to Lapeer, and Almont and Dryden students to Imlay City.

3. The estimated enrollments, as shown below, are one of the bases for recommending three full-time instructors at Lapeer (one to go to North Branch on a half-time basis to instruct the 9th and 10th

Center	Participating Schools	Miles to Center	Est. High School Enrollments*	
			9 & 10	11 & 12
Lapeer	North Branch	20	20 At North Branch	
			70 At Lapeer	61
	Dryden	9	27 At Almont	
Imlay City	Almont	8	27 At Imlay City	31
	Estimated Totals		146	92

*Estimates for enrollments in 9th and 10th grades based on 10 per cent of total enrollments in grades 9 and 10; estimates for 11th and 12th grades based on 7 per cent of total enrollments in grades 11 and 12.

grade agricultural classes and the other half of his time assigned to coordination of the public school adult education in agriculture for the entire county). Two full-time instructors should be located at Imlay City (one to go to Almont on a half-time basis to instruct the 9th and 10th grade agricultural classes and the other half of his time assigned for instruction of adults in cooperation with the coordinator of adult programs in agriculture).

4. The adult program should be developed at various sites throughout the county and should draw upon the technical competencies of skilled workers and managers from the agricultural industry for some of the instruction.

Facilities

1. Each land laboratory should include a multi-purpose building for housing poultry or livestock. The land and buildings should be used for demonstration purposes when teaching principles and practices of production and management. Minimum size areas for use with landscape horticulture and floriculture is 1-1.5 acres.

2. A classroom of approximately 900 square feet, shop of approximately 2400 square feet, and a greenhouse of not less than 10 feet of bench space per student in the largest class (15 to 20 feet preferred) should be available. (Note: Specific details and consultant service for planning facilities and equipment are available from the Agriculture Service, Michigan Department of Education, Lansing, Michigan.)

Other Recommendations

1. Each school should develop a set of objectives for the agricultural instruction and a plan for achieving the objectives. This should be a five-year plan which incorporates subject matter offerings, equipment replacements and additions, consumable supplies needed, purposes and program of the F.F.A., and adult program directions. The plan should be adjusted each year and extended another year so as to have a continuous five-year plan of operation.

2. The teachers of agriculture should actively participate in a county-wide agricultural council composed of representatives from the U. S. Department

of Agriculture agencies, the Cooperative Extension Service, State Department of Conservation, and other professional agricultural workers. The purpose of the agricultural council is to provide a means for communication, coordination, and cooperation in planning and implementing agricultural education programs.

3. No full-time post-high school agricultural technician program should be developed in the immediate future. The need and feasibility for such a program to serve the entire Thumb Area (Lapeer, Tuscola, Huron, Sanilac, and St. Clair Counties) should be studied in the near future.

C-2 Recommendations Regarding Distributive and Marketing Occupations

a. That the present diversified program of cooperative education at Lapeer High School be split into three separate programs, and that competent staff be secured, staff who hold vocational certification in the areas of distributive education, office education, and trade and industrial education.

b. That the schools located within Lapeer County, with the exception of Lapeer High School, not attempt to offer courses in distribution and marketing.

c. That all schools outside the City of Lapeer and within the county enter into a shared-time program with Lapeer High School, whereby Lapeer High School would provide a full program of instruction for both 11th and 12th grade students in the field of distribution and marketing.

d. That a vocational education director located within the county be appointed to have as part of his responsibility the organization and operation of adult distributive education courses and manpower training and development courses in the field of distribution and marketing.

e. That no post-secondary or community college programs in distribution and marketing be initiated in Lapeer County because of the easy access to an adequate program in this field at Flint Community College.

f. That an advisory committee made up of businessmen directly concerned with the field of distribution be established in Lapeer County, with its central

purpose that of advising on policy for guiding future developments in distribution and marketing both at the high school and adult levels.

g. That library holdings in the county be upgraded and expanded in the fields of distribution and marketing.

h. That Lapeer High School obtain distributive education laboratory equipment in order to provide more meaningful instruction in distribution and marketing.

C-3 Recommendations Regarding Home Economics and Health Occupations

1. Each of the five high schools should continue its present homemaking program with emphasis on preparation for home and family life.

2. Each of the programs should be evaluated with regard to its purposes and present emphases in light of the demands of the homemaker role today. Not more than one-fourth of the class time should be allotted to clothing study nor more than one-fourth time allotted to foods study in any one year. Also within the time devoted to these two areas, considerable emphasis should be given to decision-making relative to the selection, purchase, and consumption of clothing and foods. Greater emphasis should be given to family relations, home management, child guidance, and family finance than is evident in the present programs. Laboratory lessons and products made should be recognized as means and not ends in the homemaking program. Such experiences are not to be eliminated, but they should be scrutinized closely to make sure they serve useful ends.

3. All of the high schools should take steps to provice homemaking education for boys. Besides the general education function of such classes for boys, there should be opportunity to explore possible occupational interests that involve use of certain skills and/or knowledge taught in home economics. Some suggested possibilities are:

   a. Offer homemaking to boys in the 7th grade.

   b. Offer mixed classes in home and family living at the senior level.

c. Offer special pre-vocational classes specifically for boys at the 11th or 12th grade level.

d. Permit enrollment of boys in any regularly scheduled homemaking class.

4. Study should be made of other possible plans of scheduling where homemaking is offered at the junior high school level on alternate days. Alternate day plans are very undesirable for continuity of teaching-learning. To alternate by the week would be preferable to alternating days.

5. Almont and North Branch should work toward meeting standards for vocational reimbursement since the teachers are qualified. The money, which would not be great in amount, could be used in the department for improvements in equipment and facilities.

6. A new homemaking facility should be built at Almont. It should be planned so that it will adequately provide for both junior and senior high school homemaking. Guidelines for planning and consultant help are available through the State Department of Education.

7. Text and reference materials should be kept up to date in each of the departments. An annual budget should be provided for replacing old references and for adding new timely pamphlet materials. Text books of a general scope should be available in quantity so that there is at least one for each two persons in the largest class.

8. Each department should have a budget for supplies and services necessary to teaching. If the total amount allowed cannot be designated then at least some money should be available for teacher and pupil budgeting for department use as it can be a valuable learning experience in homemaking classes.

9. Occupational training programs are not recommended for the individual high schools with the exception of Lapeer. Individual school enrollments are too small and interests are too diversified as evidenced by the Student Questionnaire.

10. At the Area Vocational School in Lapeer, Lapeer High School could probably successfully offer pre-occupational courses as well as specialized training classes on a cooperative basis in nurse aide training and other areas on an occasional basis as demand indicates.

11. The area vocational school, as recommended in the Master Plan, should consider provision for pre-vocational classes to explore opportunities in the health field. Training programs should be established for nurse aides and orderlies, physical therapy aides, child care aides, and food service workers.

C-4 Recommendations Regarding Industrial Occupations

The following recommendations are based on the study findings. They are:

For Industrial Arts:

a. The exploratory functions of the junior high school Industrial Arts program need to be re-identified, boardened and emphasized. Each boy and girl should be required to take a minimum of one year during junior high school. The instructional program should provide for a series of exploratory experiences in several areas of instruction, with major emphasis upon the discovery of aptitudes, abilities and interests.

b. An adequate program of Industrial Arts exploratory experiences should precede any type of vocational education program. These programs should be available at the 9th and 10th grades with specialized education and training in vocational programs available in the 11th and 12th years (see Chart). Exploratory instructional experiences in Lapeer County should include: (1) Drafting; (2) Electricity/Electronics; (3) Graphic Arts; (4) Metalworking; (5) Power Mechanics; and, (6) Woodworking.

c. Planning an Industrial Arts program within a particular school, potential enrollment should be considered. The numbers, type of facility, and instructional program could be as shown on the chart, p. 29.

If this recommendation cannot be achieved by individual school districts, consideration of some type of cooperative arrangement between two

Total School Enrollment	Number of Shops	Type of Facility	Instructional Areas
To 250	One	Comprehensive	Drafting Electricity General Metals Woods (including plastics)
250-500	Two	General Woods	General Woods, plastics (drawing)
		Metals	General Metals, plastics (electric)
500-700	Three	Metals	General Metals, plastics (electric)
		Woods	General Woods, plastics
		Drafting	Drawing

or more school districts should be taken to accomplish this reasonable level of education in the Industrial Arts.

For Trade and Industrial Programs:

a. School districts within Lapeer County--in order to achieve the goals of Vocational Education, should devise a method by which they can make available realistic education programs that relate to the world of work; which are educationally sound, financially feasible, and socially acceptable to all concerned--teachers, school districts, parents and students. This requires: (1) Pooling of students; (2) Adequate facilities; (3) Qualified staff; (4) Sufficient financing; (5) Programming, which would include Industrial Arts exploratory subjects; (6) Trade exploratory; and, (7) Post-high school vocational education in appropriate occupational areas.

b. Lapeer County high schools and adjacent community colleges--should cooperatively develop pre-

technical high school programs which will provide entry into the existing, available community college occupational programs.

c. Vocational Education Programs--Should include those programs which are in harmony with the labor force requirements of this geographical region, as well as in meeting the needs and interests of students--regardless of where they seek employment. Specialized education and training should be available at the 11th and 12th grades.

Instructional programs with occupational significance include: (1) Drafting; (2) Electricity/Electronics; (3) Machine Shop; (4) Automotive Service; and, (5) Welding/Fabrication. The objectives of the above mentioned programs should be: (1) Employment at an appropriate level; (2) Pre-apprenticeship programs; (3) Apprenticeship programs registered with the Bureau of Apprenticeship and Training; (4) Cooperative occupational training as a continuum of Vocational Education programs in the area center; and/or, (5) Continuing Education in the Vocational/Technical Education programs available in the adjacent community colleges in Flint, Port Huron and Oakland County.

d. That one area center be established, preferably where the population density is the greatest, in which a complete program of Vocational Education can be offered to all individuals who can profit from this type of instruction. Enrollment shall be based on interest, aptitude, and willingness of the individual to participate.

e. Advisory Committees--An appropriate formal structure which would keep those programs in the Industrial Education spectrum, that have occupational significance, in harmony with community and regional needs and within community expectations. This committee should be appointed by the major school administrators within Lapeer County to: (1) Assist the development of a program; (2) Function in a consultive capacity; and, (3) Be responsible for making recommendations to those school authorities who are empowered to act upon their advice.

For Specific High Schools:

a. Almont.--Broaden the industrial arts program to include adequate exploratory experiences for junior high school students and appropriate industrial arts areas which have occupational significance for senior high school students. There should be two industrial arts shops:

--General woodworking, to include instructional units in woods, plastics, and drawing.
--General metals, to include instructional units in metals, electricity, and power mechanics.

Also, develop cooperative arrangements with neighboring school to provide an educational opportunity for students desiring pre-vocational training and/or specific job training.

b. Dryden.--Offer industrial arts only at the junior high school level. Develop cooperative arrangements with an adjacent school to provide industrial education opportunities--general education for some students, pre-vocational education for others, and specific job training for still other students.

c. Imlay City.--Existing industrial arts program should be expanded to become more comprehensive through additional professional staff as well as facilities. The following changes are recommended:

--Existing woodworking program to be broadened to include other soft materials such as plastics and laminates.
--Establish a general metals shop. The instructional program could include units in metals, power mechanics and electricity.
--Establish a general graphics area. The instructional program could include units in mechanical drawing, drafting (mechanical and architectural) and the graphic arts.

In addition, make vocational industrial education available to interested students at the high school level as a regular part of the high school program.

d. Lapeer.--Make a complete curriculum study of the industrial arts area as it relates to (1) the

philosophy of the school, (2) the relationship of junior and senior high school programs, (3) the establishment of goals, objectives, and desirable outcomes, and (4) the occupational pursuits of the community. Establish additional instructional courses such as power mechanics, and electrical/electronics. Some changes relative to personnel should include

--Establishment of some type of departmental organization which would provide for overall direction of the industrial arts program within the high school.
--Qualified personnel to work in the areas of cooperative training, apprenticeship and on-the-job training, and placement activities of high school graduates.
--The establishment of an advisory committee(s) for the purpose of program evaluation and effectiveness.
--More effective relationships and understanding between administration and faculty members.

d. North Branch.--The industrial arts department should be expanded to include two shops (one for woods, plastics and electricity, and another for metals and power mechancs), development of a drafting program, re-establishment of a broad junior high school program and participation in some type of area vocational education which would be structured as an integral part of the regular student program.

C-5 Recommendations Regarding Office Occupations

1. Vocational office education should be limited to the Area Vocational School which is recommended in this study. An office education laboratory should be planned in order to provide an opportunity for independent study, individual practice sessions in the skills areas, small group and large group instruction.

   Approximately thirty student stations would be sufficient in order to accommodate sixty students on a half-day basis.

   The vocational office education program should be operated on larger segments of time than the normal one-hour class period in order to provide for realistic integrated office activities and

to create maximum flexibility in terms of allowing students to progress at their own capacity levels.

2. The specific occupational areas with which the area school should concern itself are secretarial, stenographic, typist, general clerical, junior accounting, and those bookkeeping occupations which are in keeping with the needs of the business community in Lapeer County and surrounding areas.

3. Every effort should be made to maintain a program which is unique in its operation and successful in the accomplishment of its vocational competency goals.

4. A staff member should be educated in the area of automated data processing so that provision can be made for future development of data processing courses which are in keeping with technological changes and which have sound educational concepts.

5. The area vocational school should be designed to provide refresher programs for adults who are returning to the labor market. It should also serve as a retraining center for people who wish to move from one occupational segment of office employment to another, for those who have dropped out of school and for those who graduated without obtaining sufficient vocational education to be employed.

   These programs should have definite time variations in keeping with the needs and abilities of the individuals and in keeping with the requirements of the business community.

6. The individual high schools in the county should provide adequate basic business education for all students. This might include a two- or three-year sequence which would begin in the 10th grade with a revised and up-dated version of our general business course. Some of the traditional topics such as travel, shipping services, and the dialing of telephone numbers should be removed and depth should be added to those topics which are basic to the understanding of the business economy. The method of instruction should stimulate thinking and reasoning power and include a maximum of problem solving experiences.

   The 11th grade course might concentrate on consumer problems and consumer economics. The 12th

grade course might be labeled "American Business" and have as its primary objective the development of a method of thinking about economic matters.

7. The individual high schools should continue to offer typewriting for one year and/or one semester. The course should be taught in such a manner as to develop good basic skills and habits as well as an ability to use the typewriter as a communication tool.

8. There should be a program of in-service education for the business teachers in the county. This could include a series of workshops on curriculum development as well as occupational experiences in business.

9. An advisory committee should be formulated to maintain a close liaison with the business community.

10. A leadership role should be created for business education. This is important for the development of curriculum and for the coordination of the area vocational school program with the general business programs in each individual school.

SECTION II

THE FOUNDATIONS FOR VOCATIONAL EDUCATION IN LAPEER COUNTY

. . . Chapter 3

Community Resources: The Lapeer County Area

. . . Chapter 4

An Evaluation of Present Educational Programs and Needs

. . . Chapter 5

Occupational Interests and Accomplishments of Youth

CHAPTER 3

COMMUNITY RESOURCES: THE LAPEER COUNTY AREA

Lapeer County, located in southeastern Michigan (some might prefer to describe the location as the lower part of Michigan's "thumb") is essentially a rural county but located adjacent to Flint and within 40-60 miles of Detroit. There are several outstanding wildlife and recreation areas within the county and many other natural resources. Yet, the people, their business and industrial establishments; their hospitals, churches and school; their service organizations, local governmental units and other agencies constitute additional resources which are very important when considering improvement of vocational education in the county.

The People

The number of people in Lapeer County has increased in recent years at a much slower rate than for the entire state. While the population of Michigan increased nearly 23 per cent during the period 1950-60, the population of Lapeer County increased 17 per cent (and the population in the city of Lapeer increased 0.3 per cent) during the same ten-year period, as shown in Table 3.1, p. 36.

Estimates of the population in Lapeer County, and the entire State of Michigan, were recently released by the Michigan Department of Commerce. They have estimated Lapeer County's population in 1965 to be slightly under 45,000 with a projected estimate of about 51,000 in 1980, or an increase of about 14 per cent in 15 years.[1] Lapeer County is expected to experience a much slower rate of growth, as shown in Table 3.2 than Genessee or Oakland Counties and slower than the growth rate for the entire state. However, the location

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[1]The report on Future Land Use Plan in Lapeer City prepared by Vilican-Leman & Associates, Inc. contains their projected estimated population for Lapeer County in 1970 to be 52,250 and in 1980 to be 67,837.

TABLE 3.1

POPULATION: CHANGES AND PROJECTIONS

	Population			1950/1960 % Change	Projection 1970*
	1940	1950	1960		
Lapeer County	32,116	35,794	41,926	17.1	48,050
City of Lapeer	5,365	6,143	6,160	0.3	---
Michigan	5,256,106	6,372,009	7,823,194	22.8	9,600,000

*Corrected for under-registration of births.

Source: J. F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24 (East Lansing: Michigan State University, Continuing Education Service, March, 1962).

TABLE 3.2

TOTAL POPULATION 1965 AND PREDICTED FOR 1975 IN LAPEER COUNTY AND ADJACENT COUNTIES

County	Population		Per Cent Increase Expected
	1965 (est.)	1980 (est.)	
Lapeer	44,690	51,116	14
Genesee	418,610	553,990	32
Oakland	776,532	1,136,367	46
St. Clair	107,985	117,133	8
Sanilac	33,784	36,610	8
Tuscola	44,851	49,044	9
MICHIGAN	8,200,000	9,868,000	20

Source: Michigan Population 1960 to 1980, Working Paper No. 1, State Resource Planning Program, Michigan Department of Commerce, January 1966.

within the county of some additional industries requiring large number of employees could drastically alter the predicted growth.

The 1965 high school age population (ages 15-19) in Lapeer County is expected to increase by approximately 6 per cent while the numbers in the age group of 60 and over may increase 16 per cent. The population by years and age groups for Lapeer County with estimates of change, are shown in Table 3.3

TABLE 3.3

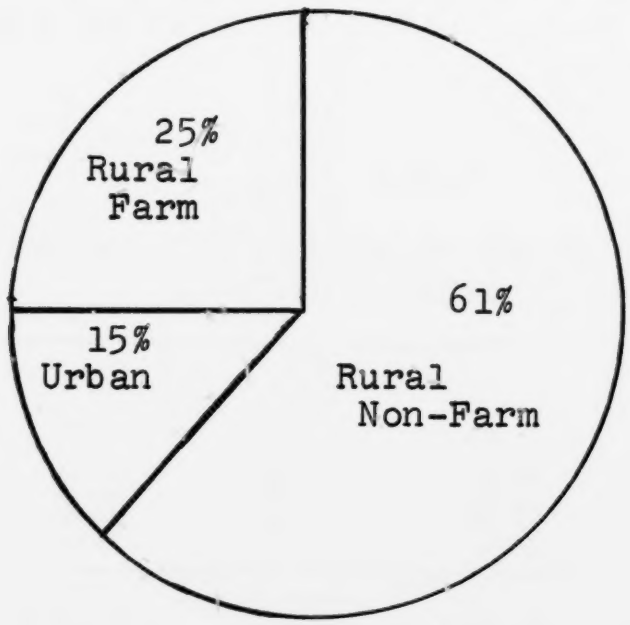
POPULATION BY YEARS AND AGE GROUPS:
LAPEER COUNTY

Age	1960	1965 (est.)	1970 (est.	1975 (est.)	1980 (est.)	Per Cent Increase 1965-1980
Under 20	17,529	18,901	19,474	19,869	20,654	9
20-39	10,508	11,023	11,555	12,766	14,722	34
40-59	8,476	9,198	9,517	9,437	9,278	1
60 and Over	5,413	5,567	5,707	6,055	6,464	16
Total	41,926	44,689	46,253	48,127	51,118	14

Source: Michigan Population 1960 to 1980, Working Paper No. 1, State Resource Planning Program, Michigan Department of Commerce, January 1966.

One of the common ways used to describe the population of an area is through three general classifications: urban, rural farm, and rural non-farm. In general, according to census definitions, the urban population comprises all persons living in urbanized areas (an area containing at least one city of 50,000 persons or more in 1960) and in places of 25,000 inhabitants or more outside of urbanized areas; rural farm population consists of persons living in rural areas on farms; and the rural non-farm population comprises the remaining population. Persons living on farms but not farming, in other words living in the country, are classified as rural non-farm population.

Lapeer County is usually considered a "farm county." However, the farm population as a percentage of the total population was 39 per cent in 1950 and 25 per cent in 1960. Obviously, as shown in the following figure, the population in 1960 was mainly rural non-farm; and Lapeer County is more accurately described as a rural county (64 persons per square mile vs. state average of 137 persons per square mile).



High School Districts and Enrollments

Lapeer County had five public high school districts, seven operating primary districts, and four non-public elementary schools at the time of this study. The public schools had an enrollment of nearly 10,200 during the school year 1965-66 as shown in Table 3.4.

The enrollment in the schools has been increasing slowly, according to other published reports, reflecting the slow rate of population growth discussed earlier in this chapter. The Lapeer Public Schools, the largest school system in the county, has experienced increases in enrollment over the previous years of 227, 204, and 189 during the past three years, or a total increase of just over 1200 during the past eight years. In general, it appears to the researchers that small, but steady annual increases of 5 to 7 per cent may be expected in total enrollments in the schools in the county over the next ten years.

High School Enrollments

The number of students enrolled in the grades 9-12 determine, to a large extent, the comprehensiveness of the program of studies which is feasible. Some authorities have recommended that a school should have at least 100 students

TABLE 3.4

CENSUS AND ENROLLMENT FOR PUBLIC SCHOOLS IN LAPEER COUNTY

School	1965	
	Census	Enrollment Total
PUBLIC HIGH SCHOOL DISTRICTS		
Lapeer Public Schools	5489	4726
Almont Community Schools	903	932
Dryden Community Schools	509	648
Imlay City Community Schools	2060	1857
North Branch Area Schools	1859	1721
PRIMARY DISTRICTS		
Metamora Public School	286	175
Retherford School, Almont	33	19
Montgomery School, Marlette	36	14
Deanville School, Brown City	34	17
Dryden Center, Dryden	70	(closed)
Folsom, Imlay City	28	15
Flansburg, Imlay City	48	29
Shepherd, Imlay City	40	26
Total	11,395	10,179

Source: Directory, 1965-1966, Lapeer County Intermediate School District.

in the graduating class or an enrollment of approximately 500 in grades 9-12. Others have recommended an enrollment of 2000 students in grades K-12 as a minimum size school enrollment. The larger enrollments become very important when determining feasibility for offering a comprehensive vocational education program.

The combined enrollments of about 2700 in the five high schools (grades 9-12) is rather unequally divided among those schools as shown in Table 3.5. If the two districts of Dryden and Almont were combined into one district, they would still make a relatively small high school, by Michigan standards, but would have considerably more flexibility for scheduling classes than exists at the present time. However, a rather decisive vote regarding reorganization of Lapeer County school districts (including a proposed merger of

TABLE 3.5

CURRENT SECONDARY ENROLLMENT IN FIVE HIGH SCHOOLS
IN LAPEER COUNTY, MICHIGAN

School	Reported Enrollment by Grades										
	9th		10th		11th		12th		Totals		
	M	F	M	F	M	F	M	F	M	F	Total
Almont	37	41	36	32	35	25	22	25	130	123	253
Dryden	32	23	33	24	25	24	35	15	125	86	211
Imlay City	64	77	77	48	60	65	48	58	249	248	497
Lapeer	175	176	161	189	174	175	157	146	667	686	1353
North Branch	58	61	51	47	65	50	54	45	228	203	431
Total	366	378	358	340	359	339	316	289	1399	1346	2745

Source: Questionnaires sent to the participating high schools in Lapeer County.

Almont and Dryden) was decisively defeated by the voters (about three no votes for every two yes votes) during the spring of 1966.

Education After High School

The teachers and administrators evidenced concern for the success of their students after high school. From a report completed by administrators at each school it was determined that about 42 per cent of the graduates for the years 1963, 1964 and 1965 were known to have entered some kind of post-high school educational programs, and about 58 per cent either had not entered a college or their status was unknown, as shown in Table 3.6. The administrators were concerned about the lack of staff time to make the thorough follow-up studies which are needed. Data reported elsewhere in this study indicate that perhaps an additional 18 to 20 per cent of the graduates have attended some kind of post-high school educational program within two years after graduation.

Distance to Post-High School Educational Programs

At first glance, it appears that the youth from Lapeer County have ample opportunity to attend post-high school educational programs without having to drive beyond 25-40 miles. The existing community colleges in Flint, Port Huron, and Oakland place nearly all of the youth within 40 miles of one or more of the community colleges. The proposed community college for the three-county area of Tuscola-Huron-Sanilac probably would be within 30 miles for many of the youth in the North Branch School District. These data are shown in Table 3.7, page 43.

However, as shown in the chapter with data from the follow-up study, only students from the Lapeer area seem to be utilizing the educational services of Flint Community College and relatively few go to the other community colleges. Perhaps there is a lack of information about the courses available, maybe the courses desired by the students are not available, the driving conditions (roads, distances, etc.) make the costs too great, or other factors are more important. In general, the researchers believe the comumnity colleges in the adjacent counties are not now serving the vocational-technical education needs of youth from Lapeer County.

TABLE 3.6

FURTHER EDUCATION OF HIGH SCHOOL GRADUATES (1963-65) REPORTED BY SCHOOL ADMINISTRATORS IN LAPEER COUNTY, MICHIGAN

School	Entered Four-Year Colleges		Entered Less Than Four-Year Colleges		Did Not Enter a College or Status Unknown		Mean Number High School Graduates
	No.[1]	%	No.	%	No.	%	
Almont	17	31.4	10	18.2	27	50.3	54
Dryden	8	18.2	8	18.2	28	63.6	44
Imlay City	13	18.8	13	18.8	43	62.3	69
Lapeer	51	19.8	45	17.5	161	62.6	257
North Branch	20	25.3	18	22.8	42	53.2	80
Total	109	22.7	94	19.1	301	58.4	504

[1]Mean number for years 1963, 1964, and 1965.

Source: Questionnaires sent to the participating high schools in Lapeer County.

TABLE 3.7

APPROXIMATE MILEAGE FROM SELECTED TOWNS AND CITIES TO INSTITUTIONS FOR HIGHER EDUCATION

Institution for Higher Education	Almont	Dryden	Imlay City	North Branch	Lapeer
Flint Community College	37	41	33	40	20
Port Huron Community College	33	33	33	53	46
(Proposed) Thumb Community College*	48	48	40	26	53
Oakland Community College (Pontiac)	27	25	35	48	28
Wayne State University	42	47	50	70	55

*Location assumed to be in the Cass City area.

Source: Official State Highway Map; distances estimated to exact sites.

Educational Level of the Population

The median number of school years completed by persons 25 years old and over in Lapeer County (1960 census) was found to be 9.7 while the mean for the state is 10.8. The proportion of the Lapeer County population 25 years old and over with various levels of education was found to be as follows (based on U. S. Census of Population, 1960):

Level of Education	Per Cent	
	Lapeer County	Michigan
1-8 Years of Schooling	41	36
1-3 Years of High School	20	23
4 Years of High School	28	26
1-3 Years of College	7	8
4 Years or More of College	4	7

In comparison with the entire state, the population of Lapeer County appears to have a lower proportion with education beyond high school, a significant factor when considering the potential for technicians and mid-management and supervisory personnel so essential to the success of many businesses and industries. This fact could be a deterrant to the location of new industry which in turn becomes a limiting factor for overall economic growth and development.

The Lapeer Vocational Fund

A private, non-profit organization, called the Vocational Fund, was established two years ago with a large donation from a local citizen, Mr. Harry Meyers, editor emeritus, Lapeer County Press. The aim of the Fund is to provide out-of-school youth and adults with the opportunity to improve their education and qualify for better employment situations. The first phase of the Fund's program consists of providing part-time courses in general education to assist high school drop-outs complete their high school diplomas. The second phase of the program provides vocational instruction part-time. Both phases are undergirded by provision of adult counseling.

Records of student performance are impressive for the initial two years of the Fund's program. For example, 67 out of 69 individuals completed the first year program. In 1965-66, the courses provided by the Fund enrolled 84 different individuals who took 136 different courses. More than 40 per cent of the enrollees are over 30 years old.

The Fund provides a coordinator, sharing his salary with the Lapeer School District which provides the courses. Adults are charged $5.00 per course if financially able to pay. The Fund is administered by Lapeer Public Schools with the program supervised by Ronald Thuring. A Board of Trustees reviews all program recommendations.

The Economy of Lapeer County

Most of the families within Lapeer County (U. S. Census, 1960) had incomes of $3000 or more, and about 22 per cent reported having incomes of less than $3000. The effective buying income per capita was $1,958 in 1964 but still, Lapeer County ranked 30th out of the 38 counties in southern Michigan. These and other economic data are shown in Table 3.8. Lapeer County had (in 1960) a larger proportion of families with incomes under $3000 and a much smaller proportion of families with incomes of $6,000 or more than for the entire southern part of Michigan, an indication of less financial

TABLE 3.8

SELECTED ECONOMIC FACTORS FOR
LAPEER COUNTY, MICHIGAN

Factors		Lapeer County	Rank*	Southern Michigan Regional Median	Northern Michigan Regional Median
% Distribution of Income of Families for Total Population, 1959					
Less than $1,000		5.3%	--	3.6%	5.6%
$1,000-$1,999		8.4	--	5.2	10.6
$2,000-$2,999		8.7	--	5.8	10.9
$3,000-$5,999		38.5	--	30.2	42.0
$6,000-$9,999		28.3	--	36.8	24.2
$10,000 or more		10.9	--	18.4	6.7
Effective Buying Income Per Capita:	1950	$955	--	$1,261	$1,242
	1960	$1,366	--	$1,783	$1,326
	1964	$1,958	30	$2,103	$1,662
Bank Deposits Per Capita:	1950	$410	--	$530	$397
	1960	$644	--	$803	$741
	1964	$969	24	$1,070	$948
Value of Retail Sales Per Capita:	1948	$696	--	$832	$756
	1958	$842	--	$1,053	$1,068
	1963	$1,120	27	$1,229	$1,148
Value of Wholesale Sales Per Capita:	1948	$275	--	$411	$244
	1958	$569	--	$620	$388
	1963	$514	31	$790	$466
Estimate of Tourist Spending Per Capita,	1963	$19	36	$92	$84
Total Local Government Expenditures/Capita,	1962	$229	12	$128	$209
General Property Taxes Levied Per Capita,	1964	$68	36	$92	$84
Public Educational Expenditures Per Capita,	1962	$73	37	$104	$91
Population Count Per Full-Time Teacher,	1962	124	2	98	99

*Lapeer is ranked in comparison with 38 Southern Michigan counties, south of a line from Bay City to Muskegon.

Source: R. A. Loomis and M. E. Wirth, An Economic Survey of the Northern Lake States Region, Part II--Statistical Supplement, In-process (East Lansing: Economic Development Division, ERS, U.S.D.A., and Agricultural Experiment Station, Michigan State University) November 1965.

ability to support education for their children. Some other general findings were:

1. Bank deposits per capita of $969 in 1964 placed Lapeer County 24th among the 38 southern Michigan counties.

2. Retail sales per capita of $1,120 in 1963 placed Lapeer County 27th among the 38 southern Michigan counties.

3. Wholesale sales per capita of $514 in 1963 placed Lapeer County 31st among the 38 southern Michigan counties.

4. Tourism is relatively unimportant compared to other southern Michigan counties.

5. Expenditures per capita in 1962 for local government were relatively high.

6. General property taxes of $68 levied per capita in 1964 were relatively low and placed Lapeer County 36th among the 38 counties.

7. Public educational expenditures per capita of $73 in 1962 were relatively low and placed Lapeer County 37th among the 38 counties.

8. The population count of 124 per full-time teacher in 1962 was very high and placed Lapeer County 2nd among the 38 counties.

Employment in Lapeer County

More than 30 per cent of the Lapeer County labor force (approximately 13,000) was reported to be working outside of the county in 1960. Current estimates indicate approximately 4500-5000 daily commute to jobs outside of the county.

The labor force increased approximately 40 per cent from 1940 to 1960, but the increase was primarily through the entrance of more women into the ranks of employed. The major occupations which had increases in employment by men were professions, craftsmen, operatives and service workers. The major occupations which had increases in employment by women were clerical and sales, operatives, and service workers. Major decreases occurred in the number of persons employed in farming, as shown in Table 3.9. (Additional labor force data are in the appendices.)

TABLE 3.9

EMPLOYED WORKERS IN LAPEER COUNTY BY MAJOR OCCUPATIONS, SEX AND SELECTED YEARS, 1940, 1950, AND 1960

Major Occupation	1940		1950		1960		% Increase 1940-1960	
	Male	Female	Male	Female	Male	Female	Male	Female
Total Employed	8,051	1,447	9,903	2,222	9,489	3,819	18	160
1. Professional	262	338	315	351	552	591	111	75
2. Farmers	2,819	39	2,317	18	1,267	32	-55	-18
3. Managers	499	70	561	95	690	101	38	44
4. Clerical	389	298	298	430	302	691	78	240
5. Sales	*	*	372	219	392	322	--	--
6. Craftsmen	763	18	1,299	20	1,942	25	154	39
7. Operatives	1,006	94	2,100	278	2,661	486	165	417
8. Private Household Workers	12	241	5	109	8	295	-33	22
9. Service Workers	194	269	365	487	424	998	119	271
10. Unpaid Farm Laborers	1,010	10	233	104	536	120	-66	53
11. Farm Laborers (except 10)	539	9	529	16	*	*	--	--
12. Laborers, except farm & mine	436	16	451	11	453	16	4	0
13. Occupations Not Reported	122	45	185	84	262	142	115	216

*Included in above figure.

Source: U. S. Census of Population, 1940, 1950, and 1960.

Major Sources of Employment

Manufacturing provides the major source of employment for persons living in Lapeer County as shown in Table 3.10. Other industry groups each employing approximately 15 per cent of the total employed persons from Lapeer County are agriculture, trade (including wholesale and retail), and other services (including medical and health, education, and other professional and related services).

TABLE 3.10

SUMMARY OF EMPLOYMENT IN LAPEER COUNTY
BY MAJOR INDUSTRY GROUP, 1960

Major Industry Group	
1. Agriculture, Fisheries & Forestry	2,045 (15.37)*
2. Mining	84 (0.63)
3. Construction	539 (4.05)
4. Manufacturing	4,125 (31.00)
5. Utilities, including transportation, communication, and other utilities	530 (3.98)
6. Trade, including wholesale & resale	2,120 (15.93)
7. Finance, Insurance & Real Estate	255 (1.92)
8. Business, Repair, & Personal Services	742 (5.58)
9. Other Services, including medical & health, education and other professional & related services	1,951 (14.66)
10. Public Administration	238 (1.79)
11. Industry Not Reported	319 (2.40)
Total	13,308

*Indicates percentage item of county total.

Source: Michigan Statistical Abstract (5th Ed.; East Lansing: Michigan State University, Bureau of Business and Economic Research, 1964), Table III-20, pp. 106-107.

Most of the persons employed in positions covered by workmen's insurance within Lapeer County were in manufacturing industries (50 per cent), according to a report from the Michigan Employment Security Commission for June 1965.

CHAPTER 4

EVALUATION OF PRESENT PROGRAMS AND NEEDS

It is the purpose of this chapter to present and describe "what now is" in each major field of occupational education. Thus, this chapter has five sub-parts, each dealing with a specialized field. Each sub-part is written by a specialist in that field and deals with such major questions as (a) description of a quality program, (b) evaluation of present offerings, and (c) occupational needs and opportunities. Each sub-part closes with the summary of the findings of the research specialists.

The sub-parts of this chapter are:

A. Agricultural Occupations

B. Distributive and Marketing Occupations

C. Home Economics and Health Occupations

D. Industrial-Technical Occupations

E. Office Occupations

PART A

AGRICULTURAL OCCUPATIONS[1]

The purposes of this part are: (1) to describe and interpret the present program of vocational agriculture in Lapeer County; (2) to describe the agricultural trends in Lapeer County and in the State of Michigan; and (3) to reccommend a plan of action for developing an agricultural education program in light of a changing agriculture and the available resources of the area.

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[1]Written principally by O. Donald Meaders and James Hannemann.

A PROGRAM OF EDUCATION FOR AGRICULTURAL OCCUPATIONS

Agricultural occupations are those concerned with growing and harvesting plant and animal products and those occupations providing services supporting production occupations. The occupations concerned with production include farm owner-operators, farm managers, farm supervisors, farm laborers, and others associated with the production of food and fiber. In addition to these traditional production occupations, agricultural occupations include those identified with the production of nursery products, greenhouse products, and forest products. Agricultural occupations also include those occupations supporting agriculture such as marketing services, credit services, feed, seed and fertilizer services, and other technical and professional occupations where a knowledge of agriculture is essential and/or desirable.

A comprehensive program of agricultural education includes instruction for both full-time and part-time students; high school and post-high school programs; preparation for initial employment, and either up-grading or retraining for those already employed. The program should provide education and training in the following categories:

1. Development of competencies for entering, maintaining and advancing in production agricultural occupations;

2. Development of competencies for job entry, upgrading and updating in the service occupations supporting production agriculture; and

3. Development of competencies necessary for the continuation of formal education in preparing to enter a professional agricultural occupation.

In addition to developing technical agricultural competencies, the program should prepare students for leadership positions in their chosen occupations and for responsible participation in society.

The preceding description of a vocational/technical program in agriculture is based on the major objectives[1] of vocational/technical program of agriculture:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.

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[1]Objectives for Vocational and Technical Education in Agriculture, OE-81011, Bulletin 1966, Number 4 (Washington, D. C.: U. S. Department of Health, Education and Welfare).

2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agriculture occupations other than production agriculture.

3. To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.

4. To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.

5. To develop those abilities in human relations which are essential in agricultural occupations.

6. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities.

AGRICULTURAL EDUCATION PROGRAMS IN LAPEER COUNTY

Instruction in vocational agriculture is offered in four of the five schools. The secondary school enrollment in agriculture was reported to be 298 students. An adult program at Almont enrolled approximately 40 adults. Enrollment per school according to class level is shown in Table 4.1.

TABLE 4.1

ENROLLMENT IN AGRICULTURAL COURSES: MARCH 1966

Agricultural Classes	Almont	Dryden	Imlay City	Lapeer	North Branch	Total
9th Grade	8	0	33	35	26	102
10th Grade	12	0	23	28	10	73
11th Grade	18	0	10	19	10	57
12th Grade	16	0	14	24	12	66
Total	54	0	80	106	58	298
Per Cent of Total Boy Enrollment in High School	42	0	32	16	25	21
Per Cent of Total Enrollment in High School	21	0	16	8	13	11

Source: Reports from the high schools.

Each of the schools has an active chapter of Future Farmers of America with 53 members in the Lapeer Chapter, 58 members in the Imlay City Chapter, 29 members in the Almont Chapter, and 29 in the North Branch Chapter.

A diversified program of vocational agriculture is offered in the four schools and students, depending on individual differences and preferences, can initiate preparation for a career in production agriculture, agriculture occupations serving production agriculture, and for a professional agriculture career. Subject matter offerings in the four schools are shown in Table 4.2 and the exact content of the course varies according to the composition of the class.

TABLE 4.2

VOCATIONAL AGRICULTURE COURSE TITLES:
MARCH 1966

Course Title	School				
	Almont	Dryden	Imlay City	Lapeer	North Branch
Animal Science	x		x	x	x
Plant Science	x		x	x	x
Soil Science	x		x	x	x
Horticulture				x	
Farm Management	x		x	x	
General Mechanics	x				
Agricultural Mechanics			x	x	
Agricultural Business					x
Agricultural Skills			x		

Source: Reports from teachers of agriculture.

Each of the schools has adjoining classroom-shop facilities with the exception of Lapeer which does not have a designated agriculture shop. Almont's classroom and shop were demolished as of April 1, 1966, to provide space for new school facilities. The absence of an agricultural mechanics facility at Lapeer limits the offering in agricultural mechanics as shown in Table 4.2 and the present course is a classroom course. None of the departments have a functioning advisory council and Almont was the only one

to offer an adult program this year, although North Branch and Imlay City have offered adult programs in the past years.

Land laboratories are used to enrich the classroom offerings at each school: Almont (35 acres), Imlay City (10 acres), North Branch (15 acres), and Lapeer (14 acres). North Branch and Lapeer have small greenhouses adjoining the agricultural classrooms which are used for basic instruction in plant propagation, plant care, and nursery management.

Occupational experience to supplement the classroom, shop, and laboratory instruction varies greatly since the schools and community resources for such programs are not identical. Experience programs in production agriculture are represented in each of the schools and compose the largest percent of student projects. However, the scope of these programs varies with the students' home farm situations and opportunities for this type of program. Realizing the limitations of this type of project for broad occupational experience in agriculture, two of the schools, Lapeer and Imlay City, have students on farm placement whereby they may obtain experience in production agriculture on other than their home farm. This also provides the opportunity for city and rural non-farm students to obtain experience in the production phase of agriculture. Imlay City and Lapeer have provided opportunities for job experience in agricultural businesses and services. Eight students from Imlay City and 23 Lapeer students participate in job experience programs.

FORMER VOCATIONAL AGRICULTURE STUDENTS

A report of the 1964 class (graduates and dropouts) is reported in Chapter 5. Some of the characteristics of the former students in agriculture, and their educational and occupational experiences, are as follows:

1. Approximately 14 per cent of the graduates and dropouts (who responded) reported they had taken one or more semesters of vocational agriculture.

2. Approximately one-half of the students who took one or more semesters of vocational agriculture took agricultural courses either three or four years.

3. Of the 54 former students taking one or more semesters of vocational agriculture, 34 had farm residences, 11 had rural non-farm residences, 6 resided in Lapeer, and 3 failed to designate their residence at the time they graduated from (or left) high school.

4. Thirty of the former vocational agricultural students indicated their high school curriculum was a General Curriculum, 11 reported as Vocational Curriculum, and 12 said they followed a College Preparatory Curriculum.

5. Seven of the 54 former students were dropouts. The other 47 were identified, according to scholastic rank in their graduating class, as follows: Top quartile, 7 per cent; second quartile, 21 per cent; third quartile, 34 per cent; and bottom quartile, 38 percent. In other words, nearly three-fourths of the former vocational agriculture students were in the bottom one-half of their graduating class.

6. The present employment of students from the class of 1964 who took one or more semesters of vocational agriculture was reported to be:

Occupational Group	Number
Electrical, Mechanical, Structural, etc.	8
Farming and Related	6
General Labor, Assembly Line, etc.	15
Military Service and Misc.	16

OCCUPATIONAL INTERESTS IN AGRICULTURE OF 11TH GRADERS AND THEIR PARENTS

The decline in numbers of persons engaged in farming during the past 30-40 years has contributed significantly to a false image of agriculture as a declining industry. Consequently, many youth and frequently their parents are unaware of the opportunities for employment in agricultural occupations other than farming even though they may evidence interest in taking agricultural courses. The following data were taken from questionnaires completed by 11th graders and their parents.

1. Some of the parents of both boys and girls expressed interest in having their 11th graders enroll in agricultural courses in the 11th and 12th grades. The three broad occupational areas designated for courses and numbers of responses were: (1) Farming--Farm Operator and Farm Manager, 24; (2) Agricultural Technician--Soils, Animal Breeding, Building Construction, Landscaping, etc. 35; and (3) Agricultural Professions--Teaching, Research,

Extension, Industry and Government, 29. (Note: At the time of the study there were 57 11th graders enrolled in agricultural courses compared with the 88 "potential" indicated by responses from only one-half of the parents of all 11th graders.

2. Ten per cent of the parents of male 11th graders indicated they would like to have their child enter an agricultural occupation. (This 10 per cent, or 15 parents, contrasts with the 88 who want their child to take an agricultural course.)

3. About 9 per cent of the male 11th graders indicated their first choice for life's work was an agricultural occupation. And, the same proportion indicated they would like to enroll in an agricultural curriculum in a post-high school vocational-technical education program.

AGRICULTURAL BUSINESSES AND SERVICES

The four teachers of agriculture in the county and members of the research team conducted interviews with owners, managers and directors of 24 agricultural businesses and services in Lapeer County. Through these interviews data were gathered about the number of full-time and part-time employees, job titles, and employment trends. The major findings were:

1. 107 full-time and 111 part-time employees were employed by the 24 agricultural businesses and services. Two large dairy farms were included which employed 22 people and one large nursery-greenhouse-floral shop which employed more than 20 persons.

2. There was a shortage of qualified employees in all of the businesses and services contacted. The occupational areas with the most acute shortage of workers were: Floriculture--greenhouse workers, flower graders and sales personnel; and Agricultural Equipment workers--machinery mechanics, mechanics helpers and parts managers.

3. There appears to be a very limited amount of interaction between the owners and/or managers of agricultural businesses and high school counselors, other teaching staff members and parents regarding the nature, and extent, of employment and employment opportunities in agricultural occupations.

FARMING IN LAPEER COUNTY

Farming has been and will continue to be an important business in Lapeer County. Despite downward trends in number of farms, number of farmers and number of acres in farms, the value of farm products sold by source climbed from an average of about $6,000 per farm in 1959 to $8,000 per farm in 1964. The total value of farm products sold exceeded 16.6 million dollars with the major portion coming from dairy products, as shown in Figure 4.1.

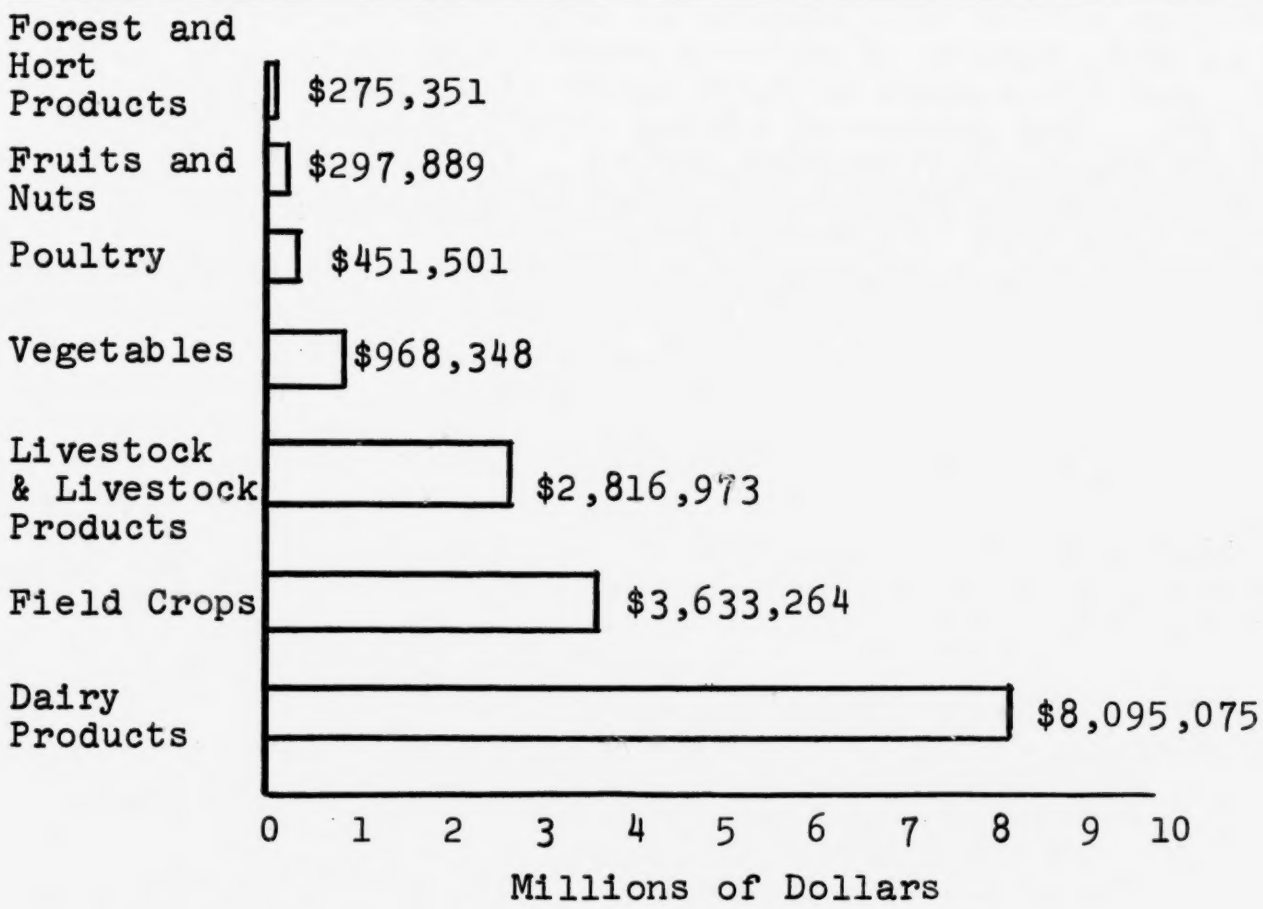

Figure 4.1

VALUE OF FARM PRODUCTS SOLD, 1964, LAPEER COUNTY
(U. S. Census of Agriculture)

The number of farms in Lapeer County has declined from 3,808 in 1910 to 2,076 in 1964. The average Lapeer County farm in 1964 consisted of 141 acres and was valued at about $250 per acre or nearly $35,000 per farm. These 2,076 farms may be classified into commercial farms (1,225) and other farms (851) which include 620 part-time operators and 231 part-retired farmers.

The number of commercial farms, farms with a commercial value of all products sold amounting to $2,500 or more, dropped 18 per cent in Lapeer County during the five-year period 1959 to 1964. However, the number of large farms, farms with value of products sold amounting to $20,000 or more, increased from 130 to 240; the number of farms with value of farm products sold amounting to between $2,500 and $20,000 dropped from 1,220 to 839, a decline of 31 per cent.

The increase in size of farms and the increase in the number of large farms has been accompanied by an increase in the farm machinery and other farm equipment. However, the size and kind of farm equipment has changed considerably. For example, from 1959 to 1964 the number of dairy farms declined from 875 to 624, number of milk cows decreased from 1,203 to 847, number of milking machines dropped from 1,065 to 631, and the number of bulk tanks (for milk) dropped from 395 to 381. The number of pickup balers increased from 820 to 879 in the same five-year period. (Data from U. S. Census of Agriculture for 1964.)

Twenty-five vegetable farmers in the muck area east of Imlay City were interviewed[1] to secure information about problems with hired labor, especially the supervision of hired labor. The twenty-five vegetable farms included more than 3,100 acres and produced carrots, potatoes, lettuce, dry onions, celery, pickles, tomatoes, radishes, and many other vegetable crops. The major problems related to hired labor were identified as: (1) insufficient supply, (2) undependable, (3) unskilled, and (4) factory wage scales too high for farmers to compete for hiring labor.

Some other characteristics of farm operators in Lapeer County are:

1. Average age of the farm operators is 50.6 years.

2. Forty-six per cent of the farm operators who worked at off-farm jobs, work 100 days or more per year in that off-farm job.

3. Educational attainments: 38 per cent no high school education, 50 per cent from 1-4 years of high school, and 11 per cent had one or more years of college.

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[1]The study of vegetable farmers and their problems with supervision of hired labor was conducted in cooperation with the Rural Manpower Center, Michigan State University.

TRENDS IN AGRICULTURE

Because of an increasing population, total consumption of nearly all farm products is expected to increase during the years ahead. Farms will become more specialized, will be larger, and will hire more labor. However, family farms will continue to dominate the Michigan farm scene. These, and many other trends have been reported by agricultural scientists at Michigan State University.[1]

PROJECTED NEED FOR AGRICULTURAL OCCUPATIONS

If every farm family had one son and one daughter and if the number of farms remained the same or increased, each rural youth could expect to find a place in farming. The number of young men growing up on the farms would not exceed the number of older men leaving farming.

For the first if to be fulfilled, farm birth rates would have to be lower than the average of the nation. They are not. The second if, an increase or stable number of farms, has not occurred since World War II. The rate of decline has been quite constant and will continue to decline.

National figures indicate that at the most, one farm boy in two or three who is between the ages of 5 and 14 has a chance of still being on a farm in ten years, when he will be between 15 and 24 years old.

The occupational prospect for farm children has implications for training programs. There will be entry opportunities for rural youth in high-management level production units where a good standard of living exists and will continue to exist. These individuals, of necessity, will require a vocational program which prepares them for job entry into this specialized area and also provide the opportunity for continuing education. However, this specialized type of agriculture--be it muck farming, dairy farming, fruit production, or red meat production--cannot exist without qualified supporting agricultural technicians and agricultural businesses.

Many of the youths born and raised in the rural home realize the opportunity does not exist to return to their home farm but are interested in an agriculture career. Therefore, they can utilize their 17 years of farm experience in preparing for a career in the field of (1) farm production supply

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[1]Project '80, Agricultural Experiment Station, Michigan State University, East Lansing, Michigan

and service, (2) processing of agricultural products, (3) wholesaling of agricultural products, (4) retail sales of agricultural products, and (5) professional agriculture services.

Professional agriculture careers are increasing faster than the schools and universities are preparing students to fill them. Non-farm rural youths have been attracted to these jobs as the compensation and opportunities for advancement compare favorably with and often exceed those of other professional careers.

SUMMARY OF FINDINGS

1. Programs of vocational agriculture, offered at four schools (Almont, Imlay City, Lapeer and North Branch) enroll 298 secondary students. Each of the four schools has an active chapter of Future Farmers of America with a total membership of 169. Almont is the only school which offered an agricultural program for adults this past year.

2. The vocational agriculture program in the four schools is diversified but oriented primarily toward production. Lapeer is the only school without an agricultural shop.

3. Occupational experience is provided through traditional on-farm production projects and placement in agricultural businesses, services and on farms.

4. Fourteen per cent of the class of 1964 (from the five schools) had taken one or more semesters of agriculture. Most of these had either a farm or rural-residence background.

5. Nearly 75 per cent of the former students of vocational agriculture (from the class of 1964) were from the bottom one-half of their class.

6. The present employment of the class of 1964 (March, 1966) shows 5 per cent of the boys in agricultural occupations.

7. There is an acute shortage of skilled labor in floriculture production and in agricultural machinery service and repair (mechanics and mechanic helpers).

8. Parents expressed interest in having their 11th graders enroll in agricultural courses to prepare

for agricultural occupations: 7 per cent for agricultural production; 11 per cent for agricultural technicians; and 9 per cent for career as a professional agriculturalist.

9. Ten per cent of the 11th grade boys and five per cent of the 11th grade girls indicated a career choice in the field of agriculture.

10. Farming is important in Lapeer County. The number of farms has decreased but the average size of each remaining farm has increased. The number of farms in Lapeer County with the value of all farm products sold amounting to $20,000 or more has increased 85 per cent since 1959.

11. The number of pieces of farm equipment has reached a peak and appears to be at a plateau.

12. Thirty-eight per cent of the farm operators have an 8th grade education or less, 50 per cent have attended or graduated from high school, and 12 per cent have attended or graduated from college.

13. Trends in agriculture include increased total consumption of nearly all farm products, increased export of farm products, higher farm prices and costs, increased specialization, increased mechanization, continued price support programs, and continued dominance of the family farm.

PART B

DISTRIBUTIVE AND MARKETING OCCUPATIONS[1]

It is the purpose of this part: (1) to present and describe the present offerings in education for the field of distribution and marketing in the County of Lapeer; (2) to focus upon the needs of the county regarding education for distribution and marketing; and (3) to formulate a plan of action for implementing a program of distributive education which would be feasible for the county under consideration.

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[1]Written principally by Edward T. Ferguson, Jr., Teacher Educator for Distributive Education, Michigan State University.

THE TOTAL PROGRAM OF DISTRIBUTIVE EDUCATION

When the terms Distributive Education or Education for Distribution and Marketing are used in this chapter, they denote the courses, groups of courses, or programs of study on the high school or post-secondary school levels that provide the necessary information, skills, and attitudes to adequately prepare the learner for employment in the fields of wholesaling, retailing, and the service industries. A total program of education for distribution and marketing will prepare the learner not only for the job entry level but also for career advances in the fields of distribution and marketing.

Distribution plays a most vital role in the economy of this country; over half the consumer dollar is used to cover the cost of transferring goods from producer to ultimate consumer. Michigan is rapidly becoming a center of distribution and marketing for the Mid-Western portion of the country. With over one-fifth of the nation's civilian labor force employed in distributive-related occupations, distributive education can no longer be left to evolve on its own. It must become a planned part of the educational framework of every state and local community.

If provision is to be made for effective distributive practices, then society must provide the trained practitioners and specialists at all points in the channel of distribution. Training must be provided for those youths and adults who will assume responsibilities in the field of retailing, advertising, wholesaling, transportation, sorting, and in the allied service industries such as insurance, real estate, banking, feeding and lodging establishments, together with the varied other industries that make up the total field of distribution. Within these areas are found the distributive occupations which may be defined as:

> . . . those followed by proprietors, managers, or employees engaged primarily in marketing or merchandising goods or services. Such occupations may be found in various business establishments, including, without being limited to, retailing, wholesaling, manufacturing, sorting, transportation, financing, trade, industrial, or office occupations.[1]

If an educational program in distribution and marketing is to be an effective economic and community endeavor, it

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[1] Administration of Vocational Education, Vocational Education Bulletin Number 1 (Washington: U. S. Office of Education, 1958), p. 13.

must provide for the educational needs for both the young and the adult populations in the area to be served; it must serve those who seek employment in the field as well as those who are already employed. It must provide training for those who have been displaced by automation as well as for those high school age boys and girls who plan to enter the labor market upon graduation.

A total program for education for distribution would then serve as refresher training for those already in the distributive field as well as for those who desire positions of leadership and management. A complete program must, then, include education on all levels--secondary, post-secondary, and community college or vocational-technical school or adults.

PROCEDURES USED IN THE STUDY

As described in the introduction to the study, several methods were used to compile information that would be pertinent in determining the educational needs pertaining to distribution and marketing in Lapeer County. Information was obtained through the use of questionnaires, analysis of existing data and reports, personal interviews, group discussions, and observations.

Interviews were conducted by the writer with businessmen-owners, managers, and personnel directors. These personal interviews were also gained with civic leaders of the county who were most helpful in revealing an insight into the employment needs and training demands of Lapeer County.

The writer also interviewed high school superintendents, principals, vocational directors, guidance counselors, and vocational education teachers, to determine what is now being done to provide the vocational-technical training needs in distribution and marketing in Lapeer County. Combined with these interviews, information was also secured from local boards of education, the Michigan Employment Security Commission, and through an opinionnaire sent to all teachers of business and distributive education in Lapeer County.

DISTRIBUTIVE CONDITIONS IN LAPEER COUNTY

The retail, wholesale, and service industries, according to most businessmen in Lapeer County are in sound economic condition. Residents of the Lapeer trading area, according to the 1960 census figures, spent 49.5 million dollars a year on retail goods and services. It is estimated that by 1980 the amount will be in excess of 86 million each year

that will be spent by Lapeer County residents on retail goods and services. Retail sales per capita in 1963 amounted to $1,120 for Lapeer County, with wholesale sales per capita amounting to $514. During 1964 effective buying power per family in Lapeer County amounted to $7,643--an amount that ranked 17th in counties within the southern part of the state.[1]

The labor force in Lapeer County includes about 3000 persons employed in retail trades, according to 1960 data shown in Table 4.3. This includes both men and women, with most of the women employed in service occupations and most of the men employed in positions classified as managers, officers and proprietors.

TABLE 4.3

NUMBER OF WORKERS IN THE RETAIL TRADES, 1960 IN LAPEER COUNTY

Sales Workers		Service Workers (except Private Household)		Managers, Officers, and Proprietors (except Farm)	
Male	392	Male	424	Male	690
Female	322	Female	998	Female	101

Source: U. S. Census, 1960, Table 84, pp. 24, 309-316.

In addition to the retail trades, many persons are employed in wholesale trade, finance, insurance, real estate, business, repair and personal services. Employment in distributive firms (1960) represented approximately 22 per cent of the total employed persons in the county, as shown in Table 4.4.

[1]Source: A. R. Loomis and E. M. Wirth, An Economic Survey of the Northern Lakes States Region, Part II--Statistical Supplement, in-process (East Lansing: Economic Development Division, Economic Research Service, U. S. Dept. of Agriculture and Agricultural Experiment Station, Michigan State University), November, 1965.

TABLE 4.4

EMPLOYMENT IN DISTRIBUTIVE FIRMS, 1960 IN LAPEER COUNTY

Trade (Retail/Wholesale)	Finance, Insurance, and Real Estate	Business, Repair and Personal Services
2,120 (15.1)*	255 (1.8)	742 (5.1)

*Denotes that percentage items are of county totals.

Source: Michigan Statistical Abstract (5th Ed., East Lansing, Mich.: Michigan State University), Table III-20, pp. 104-107.

Businessmen are, at this time, feeling some pinch regarding finding adequately-trained personnel in the fields of distribution and marketing. It thus becomes apparent that the county must begin to provide itself with a well-planned program of education for distribution and marketing. It is apparent to the writer that there is need for a minimum of one hundred well-trained distributive employees that could be readily absorbed into the fast-growing economy of Lapeer County. Many of the presently employed distributive workers are, according to their employers, in need of upgrading and additional training.

The retail sales trade in Lapeer County (1964) was dominated by two general areas, food and automotive, as shown in Table 4.5.

TABLE 4.5

MICHIGAN RETAIL SALES BY TYPE OF STORE, 1964 IN LAPEER COUNTY

($1,000)	Food	Eat and Drink	General Merchandise	Apparel	Furniture & Appliance	Auto	Gas Station
	10,891	2,145	2,566	2,168	1,323	9,655	4,013

Source: Survey of Buying Power, Sales Managements, Inc., 1964.

It is safe to generalize that the economic future of Lapeer County at least in the fields of distribution and marketing is sound and showing a move upward. At the time of the study, an additional 100,000 square feet of retail selling space had been planned for in a proposed shopping center on the north side of Lapeer. Three firms--Hamady Brothers' Good Store, Yankee Stores, and Zimmer's Drug Company--have already contracted for space in the new center.

THE PRESENT PROGRAM FOR DISTRIBUTION AND MARKETING

The writer found evidence of limited organized programs of the diversified occupation type in two schools of the county--Lapeer High School and North Branch High School. These diversified programs to some extent offer generalized training in distribution and marketing, although neither instructor holds Vocational Certification in the specific field of distribution and marketing.

These two schools are offering what might be called a "work experience program" for a limited number of students. At the present time, North Branch High School is providing the only type of vocational education in the field of distribution and marketing that is feasible under their present conditions. Lapeer High School, on the other hand, could well support an expanded program in the field of distributive education.

It should be pointed out that this type of work experience program does not meet vocational-technical standards and provides little or no instruction that is related to on-the-job experiences. No vocational experience program can be effective without adequate classroom experience that will supplement on-the-job training. It is the opinion of this writer that such programs of "work experience" become a hinderance to the establishment of true cooperative occupational experience programs. While such programs do have a place in the comprehensive high schools, their position should be primarily for those students who need to earn money, who need the motivation of working, and who have no intention of preparing for a future career in the particular occupational field. Perhaps the most damaging effect that results from general work experience programs is that teachers cannot assist students in learning who have had little or no collegiate course work or recent experience in the field about which they are providing vocational-technical information. It is truly a rare situation in which a school system can find a teacher competent in two vocational-technical fields and a near impossibility to find a teacher competent in all vocational-technical fields. It is not, therefore, sound

practice to proceed toward the so-called "diversified programs of vocational education" as the method of providing a vocational-technical education in the larger high school which presumes to be comprehensive.

There exists a need for courses of the supervisory or sales-oriented nature to be offered within Lapeer County on the adult education basis. Many businessmen expressed the desire to have such an educational opportunity available to them and to their employees. An organized adult education program in distribution and marketing does not now exist to the needs of a large segment of the adult population within Lapeer County. The responsibility for providing an organized program of adult education cannot be altogether relinquished to Flint, Port Huron, or Oakland Junior Colleges. Flint Junior College, though, might provide a good many of the credit courses in the area of distribution and marketing.

WHAT A PROGRAM OF EDUCATION FOR DISTRIBUTION AND MARKETING COULD BECOME

The following programs of education for distribution and marketing have been carefully prepared to serve as models for several communities similar to Lapeer County. It is the purpose of the writer to present a guide as to what a total program of education for distribution and marketing should entail so that the particular study area in question can adapt its local wants and needs to the model, thus producing a workable program for the study area.

The High School Program

The Preparatory Program.--The preparatory program gives students an opportunity to learn about careers in marketing and distribution prior to going on the job. Its chief purposes are to assist the students in appraising their individual aptitudes, interests, and abilities in terms of employment in distribution and to develop in the students an appreciation for the importance of the field of distribution and how it functions to serve our American system of free enterprise.

Such a program at the high school level should be one year in length, one period a day, five days a week, carrying one unit of credit. The class is best taught by the project method, with work experience desirable but not mandatory. The student would not participate in a released-school time occupational experience program. This course of study should be limited to no more than 25 students.

Units of study for the preparatory course might include: self-analysis as a step toward the world of work, development of personal characteristics for employability, the customer's viewpoint in selling, the importance of distribution in our economy, the kinds of distributive businesses, the kinds of employment in distribution, education for distribution, how distributive businesses serve the customer through advertising and visual merchandising, how products are packaged and tested to serve the customer, how credit serves the customer and the distributor, how mathematics is used in distribution, planning occupational goals in distribution, and securing employment in distribution.

The Cooperative Program.--The cooperative program is a program which is a cooperative enterprise using both the facilities of the school and the marketing and merchandising resources of the community, primarily in the retail, wholesale, and service fields. The student attends his school in the morning, participating in three or four regularly scheduled classes. One of these would be a class of instruction in distributive education. In the afternoon the student would receive part-time employment in the business community. Instruction in the classroom situation would be correlated to the students' on-the-job experience by means of regularly scheduled visitations to the work stations by the distributive education coordinator.

One organization for such a program at the high school level would be a course of study at least one year in length offered at the 12th grade level. The course would be offered five days a week, for one period a day with one unit of credit. The on-the-job experience would range from 20 to 25 hours a week, also carrying one unit of credit.

Units of study might include: employment orientation, self-service selling, product information for selling efficiently, development of goals for self-improvement, blueprint for retail selling, sales-supporting activities and customer services, individual product information workshop (non-durable goods), using advertising as a selling aid, good housekeeping in distribution, distribution in a free economy, the functions of marketing, display principles and techniques, types of credit, merchandising mathematics, human relations, and sales demonstrations.

Another approach could be the offering of a two-year sequence in distributive education whereby the student at the 11th grade level would be given the opportunity to participate in the occupational experience phase of the program of education for distribution. This two-year course of study would also be offered one period a day, five days a week for the two-year span of time. Only students who had completed Distributive Education I would be allowed to take Distributive

Education II. The second year would always be cooperative, with the student working from 20 to 25 hours a week.

Another approach concerning time apportionment could be a double period held three days a week for one year. This would prove feasible if shared-time programs in distributive education are undertaken by joining students together from several schools.

Units of study for a two-year course might include: job evaluation related to individual development, advanced selling techniques in specialized areas, marketing research projects, standards and grades and labels, merchandise planning and stock control, advertising layout and copywriting, individual product information workshop (durable goods), visual merchandising (window and interior display), sales presentations to groups, and education for supervision.

Ordinarily no prerequisites are needed for the cooperative program, but a foundation course such as basic business or business mathematics would be beneficial to the student.

The Post-Secondary School Program

Although it is not suggested that Lapeer County enter into a transfer program of post-secondary education in distribution and marketing, this model is provided to give the reader a guide to measure the adequacy of existing programs on the post-secondary level in nearby junior colleges.

The Two-Year College Program.--This program, sometimes called the junior college marketing and management program, is designed for those students who desire an education that will enable them to participate effectively in a variety of business activities in marketing and management. Although this program can terminate in an associate's degree, it is primarily designed for transfer to a four-year school of business.

The student enrolled in the junior college marketing and management curriculum would have a strong offering of courses in general education. These would consist of English, physical and social sciences, and the humanities. Along with these courses would be the foundation courses in the business administration curriculum, such as introduction to business, principles of economics, principles of retailing, management processes and principles of accounting.

The Technical School Program or the One-Year Vocational Program.--This program is designed for those students who desire a concentrated program of study in the field of distribution at the post-secondary school level, combined with

on-the-job work experience. Often this program is designed for students who desire to achieve employment skills as rapidly as possible.

It could take the form of a program designed to benefit those students who did not have the opportunity on the high school level to receive training in the field of distribution. The work done on such a program would by necessity be of less than college grade with no possibility of transfer either to the two-year management or marketing curriculum or to any other institution of higher learning.

Such a program would have a high concentration of the technical content-type courses such as sales, marketing, applied accounting, retailing, advertising, and applied economics. These content courses would be complemented by an internship or occupational experience program.

The Two-Year Sub-Professional Program.--This mid-management training program is an area of vocational study carried on at the junior college level which prepares those seeking careers in merchandising, marketing, and management. It provides occupational training at the middle-management level (buyers, department managers, managers of small businesses, assistant managers, etc.) in marketing and merchandising and training for technical and specialized sales positions (wholesaling, insurance, real estate, etc.). The classroom instruction is combined with planned on-the-job training in which the student gains the kind of experience necessary to achieve a career goal.

If the student chooses to terminate his education at the end of two years, he would choose, together with many of the professional courses given in the two-year degree program, several technical courses that would prepare him in some depth for a position upon graduation. The courses might be drawn from salesmanship, advertising, and personnel and management practices. Although the program is basically terminal in nature, many of the courses the student takes can be transferred to a junior college or four-year institution.

The Adult Program

The adult program in distributive education is a service being rendered to employees, supervisors, managers, and proprietors. Courses of study are organized in cooperation with consultative and advisory groups from several occupational areas. Instruction is usually undertaken by part-time instructors who come from business, education, government, and the professions. A continuous regular program of study may be established, leading toward a diploma in adult distributive education.

Courses on the managerial level might include merchandising, retail organization and operation, speech, and managerial techniques. On the mid-management level, courses in techniques in buying, human relations, personnel management and principles of merchandise control could be offered. On the sales level the offerings could include stockkeeping, merchandise information, display and techniques of selling.

The courses on all levels could range from 10 to 20 hours in length. Frequently, courses on the sales level are offered not only at night but also during slack times of the work day and could be conducted in stores with adequate training facilities. Management and mid-management courses are usually offered at night in extended blocks of time; most common are two and a half to three hours for five sessions.

Instructional Staff, Facilities, and Equipment for the Total Program

At the vocational-technical level, a well-trained instructor with a major in business administration and/or marketing with a well-founded understanding of the cooperative method can usually teach the basic courses and undertake the coordination activities that would be required for the post-secondary program in distribution. The specialized sections of the cirriculum might well necessitate the teaching be done by someone from industry or a person from the related subject area field. The instructor for the post-secondary school program should possess, at minimum, a master's degree relating to the area he is teaching and should have completed the requirements for vocational certification as stated in the Michigan State Plan for Vocational Certification.

The high school teacher-coordinator of distributive education should have an undergraduate major in the field of marketing or distributive education, together with all the required professional courses that are called for under a Michigan Provisional Teaching Certificate. The high school teacher-coordinator must also have or be in the process of obtaining vocational certification under the Michigan State Plan for Vocational Education. This plan calls for at least two years of practical work experience, with at least one of these years being in an area directly related to what the teacher-coordinator will be teaching.

The preparatory program teacher should also possess the same qualifications as the teacher-coordinator.

Facilities for the high school and post-secondary programs in distribution are similar. A laboratory containing

furniture and fixtures representative of the retail, wholesale, and service industries must be an integral part of the learning program. Such a laboratory would contain cabinets, showcases, open racks, bins, wrapping counters, display windows, and a cash register, together with other equipment the instructor sees necessary for carrying on training unique to the area served.

Versatility of equipment must be kept in mind; equipment that is portable will enable the instructors to reproduce fascimiles of several different retail, wholesale, and service situations. Versatility of equipment will also relieve the necessity of equipping more than one room in the learning center, but will insure that all areas of distribution can receive appropriate learning situations. The cost of such a laboratory for the high school or post-secondary levels, including all necessary store furniture, tables, chairs, and window display fixtures, would be approximately $3,000. This laboratory could also be used for a seminar room for adult classes.

FINDINGS REGARDING DISTRIBUTIVE EDUCATION

1. There is some need in the City of Lapeer and within the county as a whole for well-trained distributive workers to enter the labor force as new workers.

2. A need has been expressed by businessmen of the county for upgrading and further training of distributive workers already engaged in the field of distribution.

3. At the time of this study, only Lapeer High School and North Branch High School were offering any opportunity for their students to work cooperatively with distributive businesses located in their communities. Neither of these programs offers specialized instruction related to a student's on-the-job experiences.

4. At the present time there is no faculty member in any of the schools in Lapeer County who holds vocational certification in distribution and marketing.

5. There are at present no facilities and equipment in any of the schools in Lapeer County that are appropriate for educating students in the field of distribution and marketing.

6. Library holding appropriate for high school students and adults in the fields of distribution and marketing are inadequate in all schools and public libraries in the county.

7. Adult and post-secondary school courses in the field of distribution and marketing are nonexistent in Lapeer County, but two-year marketing programs are available at Flint and Port Huron Junior Colleges.

8. Businessmen in Lapeer County generally see a need for providing an education in distribution and marketing for both students who remain in the county and for those who plan to leave upon completing school.

9. A majority of the high school graduates who pursue a further education in distribution and marketing do so by attending Flint Community College.

PART C

HOME ECONOMICS AND HEALTH OCCUPATIONS[1]

The purpose of this part is to discuss the home economics program as it exists in the five high schools of Lapeer County and to present recommendations for home economics in the county. This part also discusses needs in health occupations. The writer visited each of the home economics programs in the five high schools, talked informally with the teachers in the programs, and had access to data from opinionnaires completed by the home economics teachers as well as the data from the follow-up study, student aspiration questionnaires, and parent aspiration questionnaires. In addition, data were obtained by questionnaire and personal interviews with hospital personnel and restaurant managers.

HOME ECONOMICS EDUCATION PROGRAMS

Home economics education provides for two dimensions at the high school level. One dimension concerns homemaking as a vocation. The emphasis in homemaking education is upon the several broad task areas of the homemaker:

Clothing and textiles--selection, care, repair, and construction of clothing; consumer purchasing of clothing and textiles.

Food and nutrition--family meal planning, preparation, and service; nutrition needs of the family and individuals at various developmental stages; food buying and storage.

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[1]Written principally by Dr. Twyla Shear, Program Coordinator for Home Economics Teacher Education, Michigan State University.

Child development--care and guidance of children by providing for physical, social, and emotional needs at various developmental stages.

Housing and home furnishings--family housing needs; selection, care and use of home furnishings and equipment.

Health and home care of the sick--maintenance of mental and physical well-being; maintenance of safe, sanitary environment.

Family and social relationships--personal development; responsibilities and rewards of constructive group living in family and community.

Home management and family economics--recognition and effective use of human and material resources to achieve goals; consumer problems in relation to personal and family food, clothing, and shelter.

Art in the home--principles of design elements as they apply to family food, clothing, and shelter.

Quality homemaking education programs are comprehensive in that they provide learning experiences in each of the above eight areas over a four-semester period of time. In other words, a comprehensive program is defined as one that includes a minimum of four of the broad areas in any one given school year.

But quality homemaking programs are not judged on subject matter alone. The task of being a homemaker, which is still a major function of women in our society, is not less but rather more complex today than in years past. Like work in the aggregate, homemaking is becoming more cognitive, meaning that the mental or thinking skills are more critical in the task than they have ever been. As the demand increases for the development of cognitive skills, the more necessary it is to provide education for developing those skills. Thus good homemaking programs should be placing major emphasis upon the development of decision-making skills relative to homemaking functions.

The second dimension in home economics education is home economics for employment. This program is narrower in scope in that it provides training for a specific home economics related occupation. Examples of such occupations are: child care aide, child care assistant, clothing maintenance specialist, housekeeping aide, waitress, homemaker assistant.

The following chart illustrates some of the important differences between the two dimensions in home economics education:

CRITERIA FOR PROGRAMS IN HOMEMAKING AND FOR EMPLOYMENT IN HOME ECONOMICS[1]

Home Economics for Homemaking	Home Economics for Employment
Total curriculum is broad in scope and content.	Curriculum is based on the job analysis of a specific occupation.
Attitudes and behavioral development necessary to strengthening family well-being are stressed.	Emphasis is placed on the development of attitudes and behavior necessary to secure and hold a job.
All students are accepted because of the belief they can benefit from the program.	Qualities and aptitudes are the basis for selecting enrollees in a job-oriented program.
Marriage and maintaining a home are common to practically everyone, so programs are justifiable in all communities.	Programs are established only when evidence shows sufficient job opportunities are available for placement trainees.
Counseling is an aid but not necessary.	Vocational counseling service is necessary to help the teacher in determining needs, employment opportunities, and placement of students in the most satisfactory program.
Advisory committees have not been a "recommended" requirement.	The establishment of a local advisory committee helps determine work available and to advise and evaluate the specific phases of the training program.

[1]Clio Reinwald, "Education for Employment," The Bulletin of the National Association of Secondary School Principals, Vol. 48, No. 296 (December, 1964), p. 33.

As the chart indicates, there are certain criteria for establishing occupational training programs that cannot be met in some communities. However, pre-occupational or job orientation training could be provided. Such programs would help students to prepare for the labor market by studying job opportunities, skills required, and assessing themselves as to how their personal abilities measure up to the required skills.

Also the homemaking program as well as the occupational program should stress individual qualities that make a person more employable regardless of intellectual capacity or the job description. Such qualities and/or characteristics as human relationships and social skills; personal grooming; positive mental and physical health; habits of neatness, promptness, and dependability all lend themselves to teaching-learning in home economics classes. And not to be forgotten are the basic tools of reading, writing and arithmetic which can become meaningful through application in life-like situations encountered in home economics classes.

HEALTH OCCUPATIONS

It has been estimated by a committee of the American Medical Association that there are over 50 allied medical occupations and that a ratio of eight persons in this group to every one physician is engaged in patient care.[1] Predictions for the future include more health related occupations and a greater number of persons involved.[2] The demand for trained persons in the allied medical occupations is bound to increase due to the medicare program, scientific advances in medical care, and the general affluence of the population which means more money for better health care. Not only is the problem one of perennial shortage in the nursing field, but in all the medical technologies.

Health occupations are of special importance in Lapeer County because of the State Hospital located in Lapeer. Approximately 1200 persons are employed at the State Hospital with the possible addition of 100 employees annually for each of the next five years. Finding these additional employees plus replacements for a normal 10 to 20 per cent turnover will be a serious matter unless something is done to prepare persons to fill the positions.

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[1]Robert E. Kinsinger, Education for Health Technicians: An Overview (Washington, D. C.: American Association of Junior Colleges, 1965), p. 11.

[2]Ibid.

FINDINGS REGARDING PRESENT HOME ECONOMICS PROGRAMS AND HEALTH OCCUPATIONS NEEDS

1. All five of the high schools offered a homemaking program. Table 4.6 indicates the percentage range of girls from grades 9 through 12 enrolled was 37.5 at Lapeer to 64.2 at Almont. In Lapeer, however, both teachers had what appeared to be capacity loads in homemaking. If more students wanted homemaking, the teaching staff and facilities would need to be increased.

TABLE 4.6

ENROLLMENTS IN HOME ECONOMICS CLASSES, GRADES 9 THROUGH 12

	School Enrollment		Home Ec. Class Enrollment		Percent Enrolled in Home Economics	
High School	Boys	Girls	Boys	Girls	Boys	Girls
Almont	130	123	0	79	0	64.2
Dryden	125	86	0	49	0	57.0
Imlay City	250	247	0	141	0	57.1
Lapeer	667	686	0	257	0	37.5
North Branch	228	203	7		3.1	46.8

2. North Branch was the only program in homemaking that had boys enrolled. This was in a grade 12 home and family living class. North Branch was also the only school that reported homemaking as being available to boys.

3. Home economics was not only offered but required for one semester each in the 7th and 8th grades in four of the five schools. North Branch did not offer home economics at all at the junior high school level.

4. All but one of the homemaking teachers was vocationally certificated, but Almont, Dryden and North Branch did not have vocationally reimbursed

programs. North Branch reported that it was striving to meet the standards for remibursement.

5. The facilities and space for instruction were quite adequate for the programs offered at Imlay City, Lapeer and North Branch. Space was adequate at Almont for the senior high school program but the furnishings, equipment, lighting and plumbing were extremely poor. The space and equipment at Dryden were only fair.

6. Small equipment for teaching child guidance and home care of the sick was lacking in all of the departments.

7. Text materials as references in the several areas of home economics appeared to be available in sufficient quantity at all schools except Almont. Some extremely old references were on open shelves at Dryden. Texts least in evidence were in the areas of child development.

8. On the whole teachers in the five schools reported positive support of the administration for homemaking programs. Teachers said that they got "what they asked for" in the way of supplies and equipment but there were no budgets for the departments that teachers were aware of.

9. The curricula in the five high schools were comprehensive in scope. Cooking and sewing, however, were the areas where students were reported to be the most proficient following homemaking education, and management and consumer economics were areas of least proficiency. Another lack appeared to be in child guidance judging from the dearth of references and equipment for teaching in that area.

10. There were no programs for occupational training or for pre-occupational training in any of the five schools. One teacher in the Lapeer High School was actively promoting an experimental course for child care aides and a course for nurse aides. At the time of this study the child care aide course was to be taught at night.

11. Representative persons in the restaurant industry and hospital administrators who were interviewed were in general agreement that training programs were needed for food service workers. Also these representatives, with the exception of one, said they would be willing to participate in the training through providing cooperative work experience.

12. Hospital personnel in short supply were male attendants, practical nurses, nurse aides, physical therapy aides, and laboratory technicians and assistants to laboratory technicians.

13. There was a need for trained persons to work with elderly patients in nursing homes. The elderly patient is little understood, and thus not readily accepted, by persons who do not have training directly with such persons.

PART D

INDUSTRIAL-TECHNICAL OCCUPATIONS[1]

The consultant for Industrial Education has observed the current Industrial Education programs to determine those that should continue unaltered, those which need strengthening and the occupational areas requiring Vocational Education which could be made available in a separate or centralized facility.

This part includes the following sections: (1) The Scope of Industrial Education; (2) A Model Industrial Education Program; (3) Curriculum Implications for Industrial Education; (4) Occupational Trends and Implications for Industrial Education; (5) Existing Programs of Industrial Education; and (6) Study Findings.

PROCEDURES AND SOURCES OF INFORMATION

Questionnaires, visitations and personal interviews were used to study and analyze the programs in the various schools. Faculty and administration were interviewed in each school to gain an understanding of the kind and type of programs being conducted and to ascertain their attitude and willingness to cooperate in some type of an area vocational education program.

To a lesser degree, surveys and visitations to industry within the study area were also used to determine labor force requirements and attitudes toward the need for vocational education within this area.

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[1]Written principally by F. Harold Matthews, Dean for Vocational-Technical Education, Jackson Junior College.

THE SCOPE OF INDUSTRIAL EDUCATION

Industrial Education is the term used in this report in reference to all types of shop work and drafting for any purpose at the junior and senior high school level. The advanced courses reflect, to a degree, the variety of industrial employment possibilities found in a particular community, or within the normal service area of the educational institution. All of these programs are concenred with the industrial phases of work and society, and while the emphasis and major purpose of each program is different, they are not mutually exclusive, but rather should be considered as complementary to each other.

The term "Industrial Education" as used in this chapter includes program areas of: (1) Industrial Arts; (2) Trade and Industrial Education; and, (3) Technical Education. For the purposes of clarification, the following definitions are presented and used throughout.

Industrial Arts is a study of industry, its materials, processes, products and organization through laboratory experiences with tools and materials that provide students with an understanding and appreciation of industry, its development and contributions to our industrial way of life, and the associated problems--socially as well as technologically. It is designed primarily to familiarize students--boys and girls --with materials, basic manipulative processes and the tools of industry. Industrial Arts is general education in that it is not specialized. The instructional program emphasizes the discovery of aptitudes, abilities, and interests. The program develops some manipulative skills and provides some opportunity for student-directed activities through the construction of worthwhile projects. The project method is used as a vehicle for presenting some industrial experiences and knowledges.

Trade Education is designed to prepare the individual for gainful employment in an industrial occupation. Some programs prepare individuals for entrance into an occupation(s), while others are so developed as to upgrade and/or update the competency level of employed adults. The instructional program emphasizes the development of skills, abilities, understandings, attitudes, work habits and appreciations; encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. These programs are located at both the high school and post-high school levels.

Technical Education is designed to prepare the individual for gainful employment in an occupation in which success is dependent upon technical knowledge (information) and an understanding of the lwas of science, mathematics, and

technology as they apply to modern design, production, distribution and service. Technical education generally applies to occupational instruction beyond the high school level; in Michigan it is most frequently identified with the community college. Technical occupations and the corresponding jobs vary from simple technical tasks requiring only brief periods of training to very complicated responsibilities which require considerable education and training.

BASIC CHARACTERISTICS OF A MODERN PROGRAM OF INDUSTRIAL EDUCATION

Junior High School.--Industrial Education should begin with a quality Industrial Arts program at the 7th grade level providing exploratory experiences in as many Industrial Arts areas as is possible. One year of Industrial Arts for all students should be required--either in the 7th, 8th, or 9th grade, with additional courses available on an elective basis. The instructional program in general shops should emphasize exploration of many material areas including experiences in electricity, metals, woods, and drawing. The purpose of Industrial Arts at this level is to assist the student to become familiar with materials, processes and industry, as well as assess his abilities, interests, and perhaps his potentialities to work successfully in one or several occupational fields.

Senior High School.--Industrial Education at the senior high school level should be available to all students on an elective basis. Programs should provide the opportunity(s) for students to receive advanced work in the various Industrial Arts areas located at the junior high school level.

The courses reflect to a degree the variety of industrial employment possibilities available in the community. Vocational education needs cannot be fulfilled by Industrial Arts programs which are primarily general education oriented.

In addition to the Industrial Arts courses at the 10th, 11th, and 12th grades, specific programs of Industrial Education known as vocational trade programs should be available to all students who desire to take them commencing at the 11th grade level. Vocational education refers to a curriculum which is developed primarily to prepare the student to enter the labor force, to earn an income and become economically self-sufficient. The instructional program is structured around the modern industrial methods and procedures in unit shops equipped comparably to those used in the occupation for which the student is being educated. Programs of Industrial Vocational Education at the high school level may provide for cooperative occupational training opportunities.

Cooperative training has as its primary purpose the training of in-school youth for basic competency in specific occupations which fit their abilities, aptitudes, and interests. It is an integral part of the regular instructional program which more effectively enables them to bridge the gap between school and full-time employment.

Cooperative occupational training programs are full-time school programs. Students spend one-half day in school and one-half day receiving on-the-job training in business or industry located in the community. This program represents an extension of the educational programs into the community, and gives students an opportunity to continue the training that they have received in school.

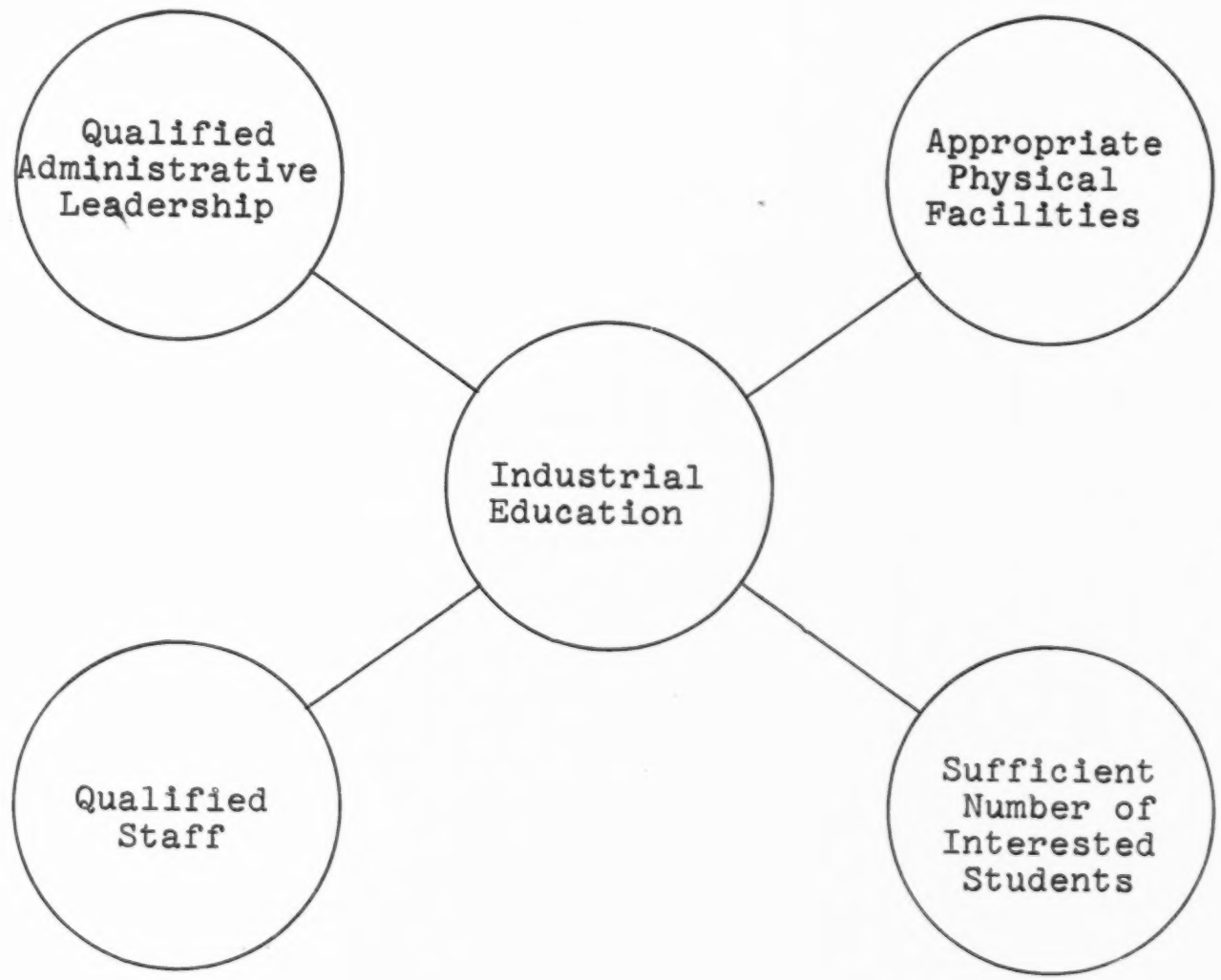
Cooperative training correlates work experience and school instruction, thus making the greatest possible use of the school and the community in the development of a sound educational program. These programs provide for supervised, practical, on-the-job training coordinated by the school district.

Post-high school programs should include pre-apprentice and apprentice training, one-year trade courses, technical education curricula available in a community college setting, and other industrial training opportunities available for retraining, upgrading, and updating, insuring training as required in the community. These programs could be offered by vocational-technical institutes, operated independently or as part of a community college district.

In general, a quality program of Industrial Education should assist in providing for the maximum development of each student's talents and abilities regardless of differences in talents and abilities between individual students.

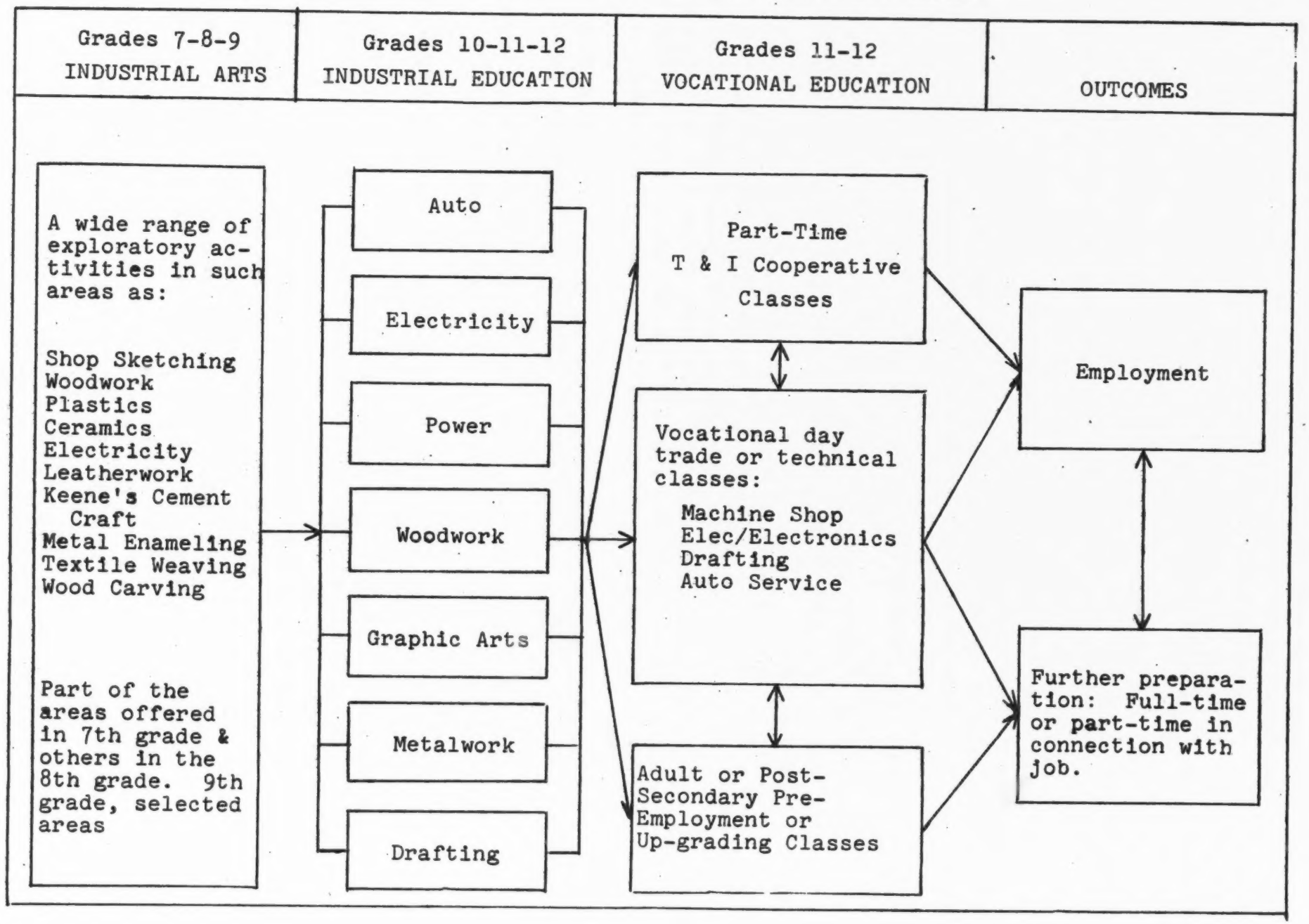
The following graphic material (see pages 83-85) is presented to suggest courses, sequence, grade placement and relationship of subjects within an industrial education curriculum.

REQUIRED COMPONENTS FOR INDUSTRIAL EDUCATION



Courses	Jr. H. S.	Sr. H. S.	Post H. S.
Exploratory Courses - Required. General education experiences in a broad range of Industrial Arts areas. A minimum of one year should be required of all students.			
Basic Courses - Elective - Exploratory experiences in a single Industrial Arts area; several areas should be available for students to select from--each with some occupational significance.			
Advanced Courses - Elective - Entrance into occupational preparation course with some development of occupational competence as the objective. In some occupations this will require training beyond high school.			
Trade Courses - Elective - Occupational experiences in a single Industrial Arts area. Previous experience in the same instructional area required.			
Pre-Technical Education - A curriculum composed of appropriate courses in engineering science, technical laboratory, drafting, English, and mathematics.			
Cooperative Occupational Training - Full time high school or post high school programs--student spends one-half time in a regular school program and the remainder of the day receiving training on-the-job in a local business or industrial establishment.			
Trade Courses - for occupational competency, high school level, but post-high school in sequence.			
Technical Education - A curriculum to assist the individual to enter an occupation in which success is dependent upon technical knowledge and an understanding of the laws of science and mathematics.			

INDUSTRIAL EDUCATION CURRICULUM FLOW CHART



CURRICULUM IMPLICATION FOR INDUSTRIAL EDUCATION

The program of Industrial Education in Lapeer County should be developed recognizing that developing marketable skills in students takes more time than to merely learn about an occupation or its processes. Some factors involved in the development of adequate vocational education are:

--Job requirements require additional technical knowledge.
--Changes in job opportunities require additional physical facilities.
--Unique community problems which require special consideration.
--Length of preparation must be determined by the amount of time required to acquire useful skills and technical information necessary for entry into the occupation rather than accommodate the traditional school schedule.
--Other instructional personnel, in addition to the teacher, are absolutely essential for successful programs.
--Year around operation is required for many instructional programs in vocational education.
--The term program implies a curriculum approach to education--this should include a series of sequential courses within specific occupational areas of subject matter conceived and clearly defined.

Ultimately, any plan adopted to provide Industrial Vocational Education in Lapeer County must provide for:

--A wide range of student needs including high school, out-of-school, community college students, and adults.
--A wide range of community needs including training required for several entry levels of jobs.
--Qualified staff, and an administrative organization that is knowledgable in this highly specialized area of education.
--Adequate facilities including shops, laboratories, classrooms, and other instructional requirements.
--An educational continuum; adequate financing; adaptability to changing requirements; and, flexibility--Amount of training required for saleable skill varies greatly.
--Blending with existing vocational education programs.
--Programs of vocational education preceded by Industrial Arts exploratory courses.
--Actual realization that the economic base of a community depends on a well-trained labor force--today, as well as tomorrow.

--National survival will be determined by appropriately trained personnel.

OCCUPATIONAL TRENDS AND IMPLICATIONS FOR INDUSTRIAL EDUCATION IN LAPEER COUNTY

Occupational needs are constantly changing as new technological developments occur. Some of the more important trends predicted by the U. S. Bureau of Labor Statistics are as follows:

--Fewer unskilled occupational opportunities will be available, but an increasing number of skilled and semi-skilled workers will be required. However, the needs for semi-skilled workers will not increase as rapidly as some other major occupational groups, but will continue to rank with the clerical workers category as the two top occupational groups with one worker in every six employed in a semi-skilled job.
--Of the professional-technical occupational group, the needs for technicians will continue to rise in existing and new areas as technological developments and changes are made.
--The most rapidly growing industrial occupational area is the service worker group, while the electronics industry is one of the more rapidly expanding in-industries.
--Construction workers will be needed in increasingly larger numbers with an estimated 400,000 carpenters needed by 1975. In the manufacturing industries, it is estimated that 200,000 general machinists will be needed by the same year.
--The labor force (employed and unemployed) is growing faster than our population growth, but because of the changing nature of occupational needs and trends, workers of the future may have to change occupations three or more times in order to remain employed.

The number of people employed or seeking employment in the United States will increase by nearly 20 per cent between 1960 and 1970. Although 15.5 million workers will cease employment because of retirement, marriage, death, etc., 26 million young workers will be added and 3 million women will have re-entered the labor force by 1970. These changes indicate a net gain in the labor force of 13.5 million persons.

In Michigan, the number of people employed or seeking jobs will increase by 24.5 per cent by 1970, a rate of

growth somewhat greater than the nation as a whole. Although 600,000 workers will leave the labor force during the decade, they will be replaced by 1,200,000 young persons and 120,000 adult women, a net increase of 720,000.

Those who seek steady employment during the 1960's must have the necessary education. Education does not in itself guarantee employment, but there is little hope for those without preparation. With an increasing number of persons seeking employment, the competition for jobs will be greater than ever.

Michigan's labor force and employment opportunity growth to 1970 indicates the following trends:

Service Industries--Service will grow 15 per cent
Trade will grow 15 per cent
Government employment will grow 9 per cent
Transportation and public utilities industry will grow 5 per cent

Production Industries--Construction will grow 15 per cent
Manufacturing will grow 3 per cent

Employment in Michigan's Occupational Groups--Professional and technical workers will grow 26 per cent
Service workers will grow 14 per cent
Clerical and sales workers will grow 14 per cent
Proprietor's and managers will grow 6 per cent
Skilled workers will grow 5 per cent
Mining and allied will decline by 5 per cent
Other groups expected to decline:
--Semi-skilled workers by 6 per cent
--Unskilled workers by 14 per cent
--Farmers and farmworkers by 10 per cent

EXISTING PROGRAM OF INDUSTRIAL EDUCATION IN LAPEER COUNTY

A primary purpose of this part of the total study was to evaluate the status of the total program of Industrial Education within the participating school districts, and to plan for the future. In no sense of the word should any attempt be made to interpret the findings and comments as stated as a complete evaluation of individual programs.

A review of the qualifications of the instructional staff in the area of industrial education reveals that none of the eight hold vocational certificates, as shown in Table 4.7. The general scope of the course offerings and enrollment in the industrial courses is shown in Table 4.8.

TABLE 4.7

QUALIFICATIONS OF INSTRUCTIONAL STAFF IN INDUSTRIAL EDUCATION

Community	Highest Degree Held	Years of Teaching Experience	Occu-pational Experience	Valid Teaching Certificate	Vocational Certificate
North Branch	B.S.	2	6	Yes	No
Lapeer	B.S.	11	-	Yes	No
	B.S.	8	-	Yes	No
	B.S.	12	-	Yes	No
Imlay City	B.S.	7	Some	Yes	No
	B.S.	25	3	Yes	No
Dryden	B.A.	1	-	Yes	No
Almont	B.A.	3	1	Yes	No

Source: Reports submitted by school administrators.

TABLE 4.8

SCHOOL SIZE, ENROLLMENTS AND COURSE OFFERINGS

Community	School Size	Course Offerings and Enrollments							
		9th Grade		10 Grade		11th Grade		12th Grade	
North Branch	431	General Shop	52	General Shop	19	General Shop	18	T & I Coop	4
		Drafting		Woodworking		Print Reading			
		Woodwork		Metals		Woods			
		Electricity				Metals			
						T & I Coop			
Lapeer	1353	Metal Shop	85	Metal Shop	30	Metal Shop	14	Coop	9
		Wood Shop	102	Wood Shop	37	Wood Shop	13		
		Drafting	69	Drafting	63	Drafting	15		
						Coop	13		
Imlay City	497	General Shop	--	General Shop	--	Adv. Gen.		Same	--
				Adv. Gen.		Shop	--		--
				Shop	--	Mech. Draw.	--		--
				Mech. Draw.	--	Metal Shop	--		
Dryden	211	General		General		Adv. Gen.			
		Shop I	27	Shop II	21	Shop	24		
		Drafting I	16	Drafting II	10	(comb. 11th & 12th)			
Almont	253	Wood Shop I	27	Wood Shop I	1	Drafting	23	Drafting	6
				Wood Shop II	19	Wood Shop	3	Wood Shop	3

Source: Reports submitted by school administrators.

The observations and interviews in each school revealed some strengths and weaknesses in the facilities and programs. In brief the findings were as follows:

Almont Community Schools: Instructional program essentially woodworking and activity centered. Existing equipment, space and facilities seemed adequate for the present program. The instructor and administration agreed that a major function of this area is to provide broad experiences in several areas for general education and pre-vocational purposes. Further, there was general agreement that curriculum broadening and enrichment would be desirable.

Dryden Community Schools: The Industrial Arts program was severely handicapped by the lack of qualified personnel. There was little evidence of a program, although, some activities were in progress. There was faculty and administrative evidence which indicated recognition of the problems involved when attempting to provide an educationally sound program within the present limitations of space, equipment, instructional "know-how," and administrative support.

Imlay City: There was evidence of a good instructional program shown through student interest, instructor pride, and administrative enthusiasm. The program was found to be basically wood-centered. There was some evidence of student exploratory experiences in other "soft" materials. Space was inadequate--too much activity for the actual floor space available. This affects class size, project assembly, and student safety.

If a more comprehensive instructional program were to be offered, additional space, equipment, and personnel would be required.

Lapeer Community Schools: The existing Industrial Education courses include Wood Shop, Metal Shop, and Mechanical Drawing. Essentially, all shops emphasize a unit approach. The drafting program, while oriented toward the college-bound student, is well conceived and provides general education for some students and pre-vocational training for others. The metals program emphasizes some exploratory experiences in machine operation, welding, and some fabrication as well as related instruction appropriate to the units of instruction. The woodworking course appeared traditional with a well-equipped shop.

There was little evidence of curriculum articulation between the junior high and senior high programs.

Curriculum study and revision which would emphasize some occupational significance in each of the above-mentioned areas would provide a more meaningful total program of industrial education.

Some interest was expressed in an area vocational education program. However, professional personnel expressed the opinion that this need could be met by program availability at the post-high school level. Further, little interest was evident in the development of supporting courses such as applied mathematics, physics, and other physical science courses, for post-high school vocational-technical education.

North Branch Schools: The program included courses in woodworking, drafting, and trade and industrial cooperative occupational training. It was evident that the instructor was adequately prepared, and had spent a great amount of time in developing the shop. "This is a good instructor who has an interest in students and a feeling of a moral obligation to produce a good industrial arts program for the high school." Program development is impeded without the availability of industrial arts courses at the junior high level.

Faculty and administration expressed a willingness to participate in some type of area vocational program.

FINDINGS REGARDING INDUSTRIAL OCCUPATIONS

The analysis of the findings of the data, interviews, with education personnel (administrative and instructional staff), industrial leaders and other interested individuals within Lapeer County revealed the following findings:

1. There is no Vocational Industrial Education available to students of this county--only Industrial Arts. Available industrial arts programs are somewhat less than adequate in that they do not include a series of braod exploratory experiences. Five schools provide instruction in woodworking, three schools provide instruction in drafting, three in metal shop, and two in general shop. There are no programs in electricity, electronics, graphic arts, or power mechanics.

2. Modern Industrial Arts subjects are so designed that the instructional program emphasizes the discovery of aptitudes, abilities and interests of the student.

3. There is only slight evidence of interest in the development of pre-technical education courses in any of the five high schools.

4. School administrators and Industrial Arts faculty, generally agreed that: (1) Each school needs to strengthen and broaden its Industrial Arts offerings. This requires: (a) additional space, (b) additional instructional equipment, (c) additional teaching personnel in each school, and, (d) in-service training of existing staff.

5. Vocational Industrial Education in several occupational areas is not only desirable, but absolutely essential for the youth of Lapeer County.

6. School administrators expressed general agreement that the role of the post-high school institution for vocational education should include: (a) Two-year associate degree curricula providing education for sub-professional jobs in industry; (b) Career curricula should include one- and two-year skill development programs; (c) Adult education--part-time and full-time to build and/or improve skills for initial employment, retraining and/or updating when required.

7. All communities indicated the need for Adult Education; however, only one school district indicated they were able to cope with this need satisfactorily.

8. Lapeer County is surrounded to the east, west, and south with excellent community colleges within commuting distance; each community college offers a relatively wide range of vocational-technical offerings. School personnel expressed limited knowledge of post-high school vocational education opportunities available in adjacent community colleges.

9. Survey responses indicated that fewer high school graduates attended the adjacent community colleges than would be expected.

10. Industrial personnel interviewed, indicated that the economic base of the geographic area depends upon a well-trained labor force today, as well as tomorrow.

11. Industrial personnel indicated that their employment needs could be met for the most part by high school graduates who have had vocational education during high school.

12. Educational personnel seemed to express a tendency that vocational education (specific job training) should be left to post-high school institutions. However, industrial preference indicated that the need was for vocational training and not for technical education which is available at the three adjacent community colleges.

13. "Kinds of Jobs" reported by high school graduates and dropouts indicated job placement commensurate with occupational training--or rather the lack of the same.

14. Sufficient interest was expressed by the respondents to the "Follow-up Study" to indicate that a minimum of three trade areas could be easily supported by student interest; community needs could support four trade areas.

15. The purpose of industrial arts is not concerned with specialized skills. Modern industrial arts subjects are so designed as to be part of the total pattern of general education. It is a set of broad exploratory experiences. Students are guided through a series of shop experiences not limited to isolated manipulative procedures for the sole purpose of producing attractive projects.

16. Industrial Arts programs at the high school level should include exploratory experiences that have some occupational significance. These programs should precede any type of vocational education program.

17. While individual teachers express a willingness to expand existing industrial arts programs, certain problems make this almost impossible to do under existing circumstances. These problems include:

    --Teacher background in certain industrial arts areas
    --Restricted budget
    --Low total school enrollments
    --Space and equipment
    --Additional teaching time is required

18. Every student should have cooperative occupational training programs available to him and participate in them if he so desires.

PART E

OFFICE OCCUPATIONS[1]

The main purposes of this part of the report are (1) to describe the need for vocational office education in Lapeer County, (2) to establish criteria for organizing such programs, and (3) to make recommendations based on these needs and criteria.

In addition to providing for vocational competence, the business education curriculum in the comprehensive high school should (1) provide pre-vocational experiences for office and distributive occupations, (2) contribute to the ability of all students to live as citizens in a business-oriented society, and (3) provide an opportunity for all students to develop personal-use skills. Thus, the total business education curriculum is given consideration in this report.

SOURCES OF INFORMATION

The present business education curricula in Lapeer County were evaluated by classroom visitations as well as interviews conducted with the administrators and the business education teachers. Course offerings and enrollments in each school system were studied. Teachers were given an opportunity to express their ideas through a written opinionnaire. Although only five of the business education teachers returned the opinionnaire which gave them an opportunity to express their views about the strengths and weaknesses of the present curricula, their feelings about the extent to which vocational office education should be included in the program as well as their recommendations for change. These responses were summarized and gave support to the general findings.

The visitations to the classrooms and with the business teachers were brief; however, they contributed to the writer's knowledge of the effectiveness with which course objectives are being met, the physical layout of the department, and the inventory of machines and equipment.

The office employment needs of the community were evaluated after a series of twenty-three business interviews were conducted in all five communities. The businesses included 6 banks, 7 manufacturing concerns, 2 municipal

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[1]Written principally by Miss Frances French, Department Head, Grosse Pointe High School.

government offices, a bookkeeping service, board of education office, an insurance company, an automobile dealership, and the State Hospital.

The statistics gathered for the total study included data pertinent to this report on business education. The mobility factor, the percentage of graduates and dropouts who actually entered office occupations and those who felt they were in high school, the number of students who continued their education in the area of office occupations either through a private business school, a two-year program in a community college, or at a four-year university or college--all evidence was used.

The general office employment needs were established through available economic and labor force data and information received from the offices of the Michigan Employment Security Commission in adjoining counties.

PRESENT PROGRAMS OF OFFICE EDUCATION

The following summary of the course offerings (Table 4.9) in the county serves as a basis for discussing the present programs:

TABLE 4.9

COURSE OFFERINGS

Course	No. Schools Offering Course	Approximate Total Enrollment
General Business	3*	161
Personal Typewriting	1	33
Typewriting I	5	500
Typewriting II	5	205
Bookeeping	5	210
Shorthand I	3	100
Shorthand II	2	19
Office Practice	4	90
Business Mathematics	2	(In Math. Dept.)
Business English	2	57
Economics (In Bus. Ed. Dept.)	1	24
Diversified Occupations Coop	2	(office) 12

Source: Reports submitted by school administrators.

Two of the schools do not offer any exploratory or basic business courses and the 1966 Curriculum Summary indicates that "Junior Business" is to be replaced by record keeping in Lapeer next year. One of the three schools offering basic business has a minimal enrollment. There are no other courses in the business curriculum which provide a general background knowledge and understanding of the field of business except in one instance where economics is considered a part of the business education sequence of subjects.

The office practice class in one school consists of six students and it is apparently a service group connected with the publication of the school newspaper. While this does give practical application of the typewriting skill, it is only a minor phase of the total office function.

The mortality rate between beginning shorthand and advanced shorthand is very high. Only one-fifth of the students who begin shorthand continue into the second year.

In addition to the diversified occupations cooperative education programs, there are other students on a work experience program without related instruction, and in one school the office practice students work in the school offices for practical experience.

The enrollment in the bookkeeping classes appears to be very heavy in comparison to the occupational needs in this field.

The two smallest schools in the county do not have adequate equipment to develop a vocational office education program--equipment is basically limited to manual typewriters.

The other three schools have a moderate inventory of business machines--sufficient for the present enrollment in the courses offered. While Lapeer has a complete room of electric typewriters, the other two schools are limited to six and eight electric typewriters.

The machine transcription equipment in Imlay City is attached to a master machine so that the students must transcribe at approximately the same rate. This does not appear to be too realistic.

Five (45 per cent) of the teachers in the county returned the opinionnaire form in which they were asked to comment on curriculum, job preparation of their students, and the needs for change. A breif summary follows:

a. All five agreed that any post-high school institution serving the county must offer an intensive

3-9 month program, full-time for high school graduates or dropouts, giving entry level skills.

b. All five indicated that their students are minimally qualified for entry jobs in bookkeeping but they are well qualified for entry jobs in the stenographic occupations.

c. Their comments on curriculum needs were varied but they indicated a need to have a wider range of courses, more help for the low level students, more challenge for the high-level students, and more economic and basic knowledge courses.

There is no leadership role in business education in the county whereby curriculum development within the field can take place either on an individual school basis or countywide.

Of the 11 business education teachers in the county, only one has a master's degree. Five of the teachers have had actual office experience according to the report submitted by the administrators for this study. However, none of the teachers indicated they are vocationally certified.

THE BUSINESS COMMUNITY SURVEY

A questionnaire form was used in conjunction with the visitation to the business offices in order to determine the supply of qualified office personnel in the county, the strengths and weaknesses of the high school graduates, and employer's opinions about the need for additional vocational education in office occupations.

Seventeen (77 per cent) of the 23 business places visited in the county hire high school graduates for office positions. Six (26 per cent) indicate that they hire graduates of private businss schools.

Sixteen of the 23 businessmen interviewed responded to the questions which related to the adequate supply of qualified office employees. The positions for which most of the businessmen felt there is not an adequate supply of qualified people are as follows:

Job Title	No.	Per Cent
Clerk typists	8	50%
Stenographers	7	53.75%
Bookkeepers	6	37.50%
Junior Accountants	7	43.75%

9

The bankers indicated some need for tellers and assistant cashiers. Although only four (4) indicated a need for data processing personnel (key punch, machine operators, and programmers), the number is large in terms of the number of businesses now using automated equipment in this area.

The three most popular methods of selection of new office employees according to the 16 who answered this question are:

School records and recommendations	14	87.5%
Probationary period of employment	10	62.5%
Recommendations from previous employment	8	50.0%

Two employers mentioned specifically that their new employees are hired from the school's diversified occupations or work experience programs.

In answer to the question about how well the new office employees are prepared, the 16 who completed this portion of the questionnaire indicated weaknesses in the following areas:

	No.	Per Cent
Spelling, punctuation, grammar	9	56.3
Knowledge of business economy	9	56.3
Ability to make decisions	6	37.5
Ability to detect and correct errors	6	37.5

The employers indicated the following traits as satisfactory for new employees:

	No.	Per Cent
Typing production rate	10	62.5
Ability to take dictation and transcribe	8	50.0
Ability to transcribe from a machine	8	50.0
Use of duplicating equipment	12	75.0
Ability to get along with co-workers	12	75.0
Attitude toward work	9	56.3
Ability to deal with public	10	62.5

There is a friendly attitude on the part of the businessmen toward the young people of the community and a willingness to help in their preparation for the world of work. Of their own initiative, two employers indicated a willingness to have students visit their offices for a day in order to give them some actual experiences.

The businessmen interviewed were asked what levels or types of business education for office occupations should be available in the county. Of the 16 who responded, the following summary is tabulated:

Type of Program	Must Offer	Could Offer	Total %
Intensive 3-9 months, full-time for high school graduates or dropouts, giving entry level skills	9	0	56.3
One- or two-year full-time programs for technical training--not collegiate credit	4	1	31.3
Two-year associate degree curricula for sub-professional jobs	3	3	37.5
Part-time adult education to build skills and prepare for advancement of those already working	6	2	50.0
Intensive, full-time retraining programs	5	9	87.5

One of the factors which should be taken into consideration when discussing vocational office education is mobility. This has a bearing upon the specific occupations for which training is given as well as upon the standards for evaluation. For instance, the fact that there are not many businesses in Lapeer County which have automated their billing, payroll, inventory, etc. is not justification for eliminating education about the automated office from the school program.

The mobility figures for the 1964 graduates and dropouts indicate that at the time of the survey of the 73 per cent responding about one-third of them had left the county as follows:

13% had moved to an adjacent county
11% had moved to a non-adjacent county
9% had moved out-of-state or entered military service

In the same survey, 15 per cent of those who responded held an office or clerical position as a "first job." At the time of the survey, the percentage remained the same. When these figures are broken down into boys and girls, 24 per cent of the girls and 7 per cent of the boys are still employed in clerical and office positions.

Seventeen per cent of those responding indicated that they now think they would have taken a vocational office occupations program if it had been available.

Fourteen per cent of those who have attended school beyond high school indicated that they are in office programs. Of these, eight per cent are enrolled in two-year programs. Nearly half of those continuing their education for office occupations are attending private business schools in and out of the state.

About 25 per cent of the parents of the 11th grade students said that they would like their daughters to enroll in vocational office education programs.

In regard to employment needs in general, the Michigan Employment Security Commission offices in Flint, Port Huron, and Detroit all stipulate that there is a great need for well-trained, well-qualified secretaries, stenographers, and typists. Experienced secretaries are at a premium. Some need was also indicated for account auditors in big plants for men who are willing to travel.

The Detroit office especially emphasized that there are positions available for those who have good skill training, but that many of the high school graduates fail the shorthand and typing tests.

National statistics indicate that the largest white-collar occupation is still the clerical group, numbering nearly 10 million today and expected to grow to 14 million by 1975.[1]

CRITERIA FOR A BUSINESS EDUCATION PROGRAM

Business education should strive to prepare <u>every</u> student to enter the world of business in any capacity--citizen, owner of a business, or employee in business. In this broad category, the term "employee" is not limited to the office

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[1]Statistics taken from U. S. Department of Commerce, Statistical Abstract of the U. S., 1965 (86th edition, Washington, D. C.: Bureau of Census, 1965).

and distributive occupational areas with which we are most concerned in the secondary schools. In order to accomplish this goal, the department should have four basic objectives: help the students (1) to think, (2) to express themselves both in writing and in speech, (3) to arrive at sensible decisions, and (4) to develop a scale of values.

A good business education program probably should be described more in terms of the method of teaching than by the names and lengths of the courses and sequences offered.

A good program provides ample opportunity for the student to experience or test in a realistic situation his business principles, knowledges, and skills: A course which faithfully adheres to chapter after chapter in the textbook usually does not include the "application" phase of learning, nor sufficient student-oriented activities in the classroom.

The basic business courses should be of sufficient stature to be of value to all students as citizens in this business-oriented world. Thus, these courses should attempt to develop economic concepts which are realistically related to daily living.

The basic business subjects should have some exploratory objectives. This implies exploring the total field of business (seeking knowledge of the economy as well as the job opportunities) and not a "trial run" of the basic business office skills of shorthand, typewriting, bookkeeping, and filing.

There should be an opportunity for all students to enroll in typewriting for personal use. The course should be taught with great emphasis upon composition at the typewriter. This includes personal business letters as well as themes and term papers. This is teaching the typewriter as a communication tool instead of a copying machine. The length of time necessary for development personal-use typewriting skill is normally a half year.

The pre-vocational courses should be taught in such a manner that there is easy transfer to the vocational programs. For instance, the first year of typewriting could be considered as pre-vocational in nature. It should be taught with a great deal of emphasis upon developing skills, techniques, habits and production abilities which will lead to success in the advanced programs. The classroom words-per-minute standard should be used more as a motivational device and less as an evaluation factor.

A good business education program is supplemented by an youth organization such as Future Business Leaders of

America or Distributive Education Clubs of America. These programs are effective avenues for vocational counseling on the part of the business teacher and the business community.

CRITERIA FOR VOCATIONAL OFFICE EDUCATION

The vocational office education programs should be composed of meaningful sequences or experiences which will result in an occupational competency.

The term "occupational competency" refers not only to business skills at a level in keeping with the demands of the businessman but also to a broad basic education and understanding of our economic society.

Vocational office education should serve both youth and adults (in school and out of school) in a community.

The youths who are entering the labor market for the first time should possess the basic skills for entry-level positions and sufficient background and knowledge to lead toward promotion in an occupational family.

Adults who are returning to the labor market--mostly women who have raised a family--have educational needs at all levels. Adults whose occupational competency has remained at a low-level position are entitled to retraining opportunities within the community since it is often these low-level positions which disappear from the labor market as a result of automation and other business changes.

Thus, a community should provide refresher as well as upgrading programs for adults. These programs must be flexible, diversified, and comprehensive.

Other criteria upon which a vocational office occupations program may be evaluated are as follows:

1. There should be evidence that the staffs are constantly studying and evaluating the offerings and outcome in terms of occupational needs as well as educational objectives.

2. There should be a follow-up on the graduates who are employed, partially by means of interview of the employee and the supervisor. This places the business teacher in the community which is a secondary outcome of this technique.

3. The vocational office education teachers must be personally acquainted with the operation of the

local business offices. This allows for illustrations in the classroom from local situations instead of from the textbook.

4. The vocational office education teachers must maintain vocational certification through the proper course work and proper practical experiences in the business office.

5. Emphasis should be upon programs, not individual courses. These programs should be planned in terms of expected occupational competency outcomes instead of "so many semesters or years" of a subject.

6. Although each business skill must first be taught separately--typewriting, shorthand, and transcription--there should be evidence that these skills are integrated into a realistic office situation either through a cooperative plan, a simulated office organization within the classroom, or a series of integrated office projects which are preceded by problem-solving sessions.

7. There should be an office laboratory which has adequate space for discussions and then adequate equipment for testing the suggested solutions to the problem.

8. Standards must be realistic and in keeping with occupational competency. Flexibility should be in terms of the time it takes for various ability level students to complete the program instead of level of achievement for a set time pattern.

9. Business machines should be used as tools in the laboratory with which to solve practical office problems in preference to the continuous rotation from machine to machine.

10. There should be a shorthand tape laboratory and other means of individualizing instruction according to the needs of the students.

11. Clerical training is an important aspect of office education. It should be in keeping with the current business needs and practices.

12. There should be instruction about the automated office.

13. There should be cooperative education. The related classroom instruction should not only provide the knowledges, skills, and attitudes which

are important for success in the immediate work situation but should include education related to a future career in office occupations. There could be some variation on the standard program where the students work a half day and attend school a half day during their senior year as this would remove the students completely from their individual high schools where an area vocational school facility is in operation.

There should be an orientation of the subject of electronic data processing and its effect on the office occupations. The vocabulary used in the various business classes should be in line with the modern office. For instance, such terminology as "encode," "decode," and "information retrieval," should be a natural part of the instructor's classroom vocabulary. A constant study of the occupational trends in this phase of the office operation is necessary since predictions have not always proven themselves in later years.

SUMMARY

The problems related to business education in Lapeer County are typical of those found throughout the state. Small enrollments in individual schools prevent the development of a sound office education program with specific goals of occupational competency. Furthermore, the excessive cost of adequate equipment and the availability of space for housing this equipment create barriers for the development of future programs. Also, faculty members find it difficult to remain knowledgeable in a field which is being affected by technological changes.

A related problem exists where there is a one- or two-teacher department; there is little occasion to exchange ideas about how to teach business subjects, and there is no opportunity to work together toward improvement of the total curriculum.

National, state, and local statistics all indicate there is a need for more qualified office employees and sound judgment implies that much of this education should be accomplished in our secondary schools.

This section shows that in Lapeer County vocational office education should be a part of an area vocational school. It has also pointed out that the function of the individual schools in Lapeer County should be to develop a strong background in basic business and to provide personal use skills for all students.

FINDINGS REGARDING OFFICE EDUCATION

1. Most of the businessmen interviewed indicated that there is not an adequate supply of qualified clerk typists, stenographers, bookkeepers, and junior accountants in the county.

2. The Michigan Employment Security Commission offices in Flint, Port Huron, and Detroit all stipulated that there is a great need for well-trained, well-qualified secretaries, stenographers, and typists. Experienced secretaries are at a special premium. Some need was also indicated for account auditors in big plants for men who are willing to travel.

3. The major weaknesses of the new employees according to the businessmen are: (1) lack of ability in the basic areas of spelling, punctuation, and grammar, (2) lack of knowledge of the business economy, (3) inability to make decisions, and (4) inability to detect and correct errors.

4. Three-fourths of the employers interviewed indicated that new employees have the ability to get along with co-workers and that they are able to use duplicating equipment satisfactorily.

   Typing production rates, ability to deal with the public, and attitude toward work were three traits which also were considered satisfactory by more than half of the employers.

5. Two types of post-high school vocational office occupations programs which the majority of the businessmen interviewed felt the county must or could offer were: (1) Intensive, full-time retraining programs and (2) Intensive 3-9 months, full-time programs for high school graduates or dropouts, giving entry level skills.

6. Only three of the five schools in the county offer a basic business course and one of these schools plans to drop it for the coming school year.

7. There are about 200 students enrolled in bookkeeping classes in the county--about the same number as are enrolled in the second year of typewriting.

8. Office practice is listed among the subjects offerred in four of the five schools; however, in one case there are only six students and the course is operated in conjunction with the publication of the school newspaper.

9. The mortiality rate at the end of one year of shorthand is very high--about one-fifth of the students continue their work into the second year.

10. Office equipment is not available for vocational education in the two smallest schools; they are limited to manual typewriters except for two or three electric machines. Lapeer and North Branch both have adequate equipment for their present programs. However, North Branch is in need of more floor space.

11. There is no leadership role in business education in the county, including Lapeer where the staff is sufficiently large to operate with a department chairman.

12. Only one business teacher in the county has a master's degree; the others have bachelor's degrees or a life certificate. None of the teachers have been vocationally certified.

CHAPTER 5

OCCUPATIONAL INTERESTS AND ACCOMPLISHMENTS OF YOUTH IN THE COUNTY

PART A

ASPIRATIONS OF 11TH GRADERS AND THEIR PARENTS

The occupations youth whould like to enter and the education they think important to help them attain those occupational aspirations are important to educational planners. Equally important are the aspirations parents hold for their children--those aspirations toward both education and occupations.

The researchers selected the 11th grade students and their parents for a determination of aspirations because of several factors: (1) 11th grade students usually have given more consideration than either junior high school students or 10th graders to their plans for education and work after high school; (2) high school seniors normally would be graduated before the results of the study could be reported; and (3) parents of 11th graders are more likely to feel they know the interests and capacities of their children for work and education than parents of youth in earlier grades.

About one out of every two families with children in the 11th grade completed a questionnaire, and more than eight out of ten 11th graders completed a questionnaire. However, these proportions of responses were considered by the researchers to be considerably smaller than desired (at least 95 per cent of the 11th graders should have completed questionnaires and at least 75 to 80 per cent of their parents), although the responses from some of the schools approached the desired standards as shown on page 109.

Questionnaire	Per Cent of Responses					
	Almont	Dryden	Imlay City	North Branch	Lapeer	Total
Student	87	92	85	97	79	84
Parent	38	29	61	79	37	48

Occupational Aspirations of 11th Graders

The occupations youth would like to enter affect their educational goals and, obviously, their preferences for courses while in high school. Usually, many high school juniors and seniors indicate aspirations for occupations classified as professional, a much higher proportion than probably will ever qualify to enter such occupations. The 11th graders in the five high schools in Lapeer County were no different than 11th graders in other high schools. As shown in Tables 5.1 and 5.2, more than 30 per cent of the girls indicated their first choice for life work was some kind of professional occupation.

The occupations most frequently reported by the students as first choice for their life's work were:

1. Boys--Industrial, technical, and skilled, draftsman, mechanic; engineering, and other professional

2. Girls--Nursing, social worker, teacher, secretary, stewardess, and beautician

Occupational Aspirations of Parents for Their 11th Graders

The parents listed fewer occuaptions than did their children--the parents were less specific in their indication of the occupations which they would like to see their children follow. The most frequently listed occupations were nursing (22), teacher (33), bookkeeper or accountant (23), stenographer or secretary (23), engineer (20), and farm or ranch owner (12). The preferences of the parents for their 11th graders are shown by occupational group in Table 5.3.

TABLE 5.1

FIRST AND SECOND CHOICE LIFE'S WORK REPORTED
BY 11TH GRADERS: MARCH 1966

Occupational Group	Per Cent			
	Boys (N = 301)		Girls (N = 288)	
	First	Second	First	Second
Agriculture	10	9	2	3
Distributive: Sales, Marketing, etc.	4	7	4	5
Office: Clerical, Stenographic, etc.	1	0.3	20	18
Industrial: Technical & Skilled	31	33	1	2
Health & Related, incl. Doctors	3	2	19	11
Food, Clothing, Personal Service, etc.	2	2	16	8
Engineering & Other Prof., N.E.C.	29	20	10	10
Teaching	4	6	12	12
Miscellaneous	6	6	11	17
No Response	10	15	5	14

Source: Questionnaires administered by school administrators.

TABLE 5.2

OCCUPATIONS MOST FREQUENTLY FOUND IN VARIOUS OCCUPATIONAL GROUPS AS CLASSIFIED FROM STUDENT ASPIRATIONS

Occupational Groups	Occupations
Agriculture	Specialist in agricultural science, veterinarian, florist, butcher, farmer, forester, farm hired hand, conservationist, and related
Distributive: Sales, Marketing and Related Services	Businessman, advertising manager, banker, buyer, marketing, salesclerk, auto salesman, economist, gas station attendant, and related
Office: Clerical, Typist, Stenographic and Related	Computer programmer, C.P.A., personnel administration, bookkeeper, punch card machine operator, typist, stenographer, medical secretary, legal secretary, receptionist, PBX operator, and related
Industrial: Technical Skilled, and Related	Draftsman, electrician, electronic technician, mechanic, machinist, diemaker, construction job, plumber, bricklayer, carpenter, welder, heavy equipment operator, truckdriver, printer, bartender, barber, and related
Health and Related	Medical doctor, psychiatrist, dentist, nurse, practical nurse, nurse aide, dental hygenist, physical therapist, medical technician, X-Ray technician, psychologist, social worker, and related
Food, Clothing, Personal Service and Related	Interior decorator, fashion designer, waiter, chef, baker, home economist, hairdresser, beautician, stewardess, and related
Engineering and Other Professionals Not Elsewhere Classified	Chemist, civil engineer, engineer, mechanical engineer, architect, biochemist, historian, sociologist, lawyer, clergyman, geologist, and related
Teaching	Elementary teacher, secondary teacher, mathematics teacher, English teacher, home economics teacher, art teacher, physical education teacher, and other teachers
Miscellaneous	Housewife, writer, artist, radio announcer, pilot, armed forces personnel, sheriff, factory worker, and related

Source: Questionnaires administered by school administrators.

TABLE 5.3

OCCUPATIONAL PREFERENCES OF PARENTS FOR THEIR 11TH GRADERS: MARCH 1966

Occupational Group	Per Cent	
	Boys (N = 157)	Girls (N = 173)
Agriculture	10	1
Distributive: Sales, Marketing, etc.	4	3
Office-Clerical	1	25
Industrial: Technical & Skilled	32	0
Health & Related, Incl. Doctors	4	18
Food, Clothing, Personal Service, etc.	1	3
Engineering and Other Professional N.E.C.	18	5
Teaching	4	19
Miscellaneous	2	6
No Response	25	19

Source: Questionnaires administered by administrators.

There was considerable similarity between the first choice occupational aspirations of the 11th graders and the preferences of their parents for them, as shown in Figures 5.1 and 5.2.

In general, neither the parents nor the 11th graders appeared to recognize desirable career opportunities in many of the service occupations at the skilled and technical levels. Perhaps there is a lack of sufficient information about the newer and emerging occupations. Also, the researchers recognize that the parents who failed to respond to the questionnaire (and the one out of five Lapeer High School 11th grade students who failed to respond) hold opinions which could be significantly different than the opinions of those who responded.

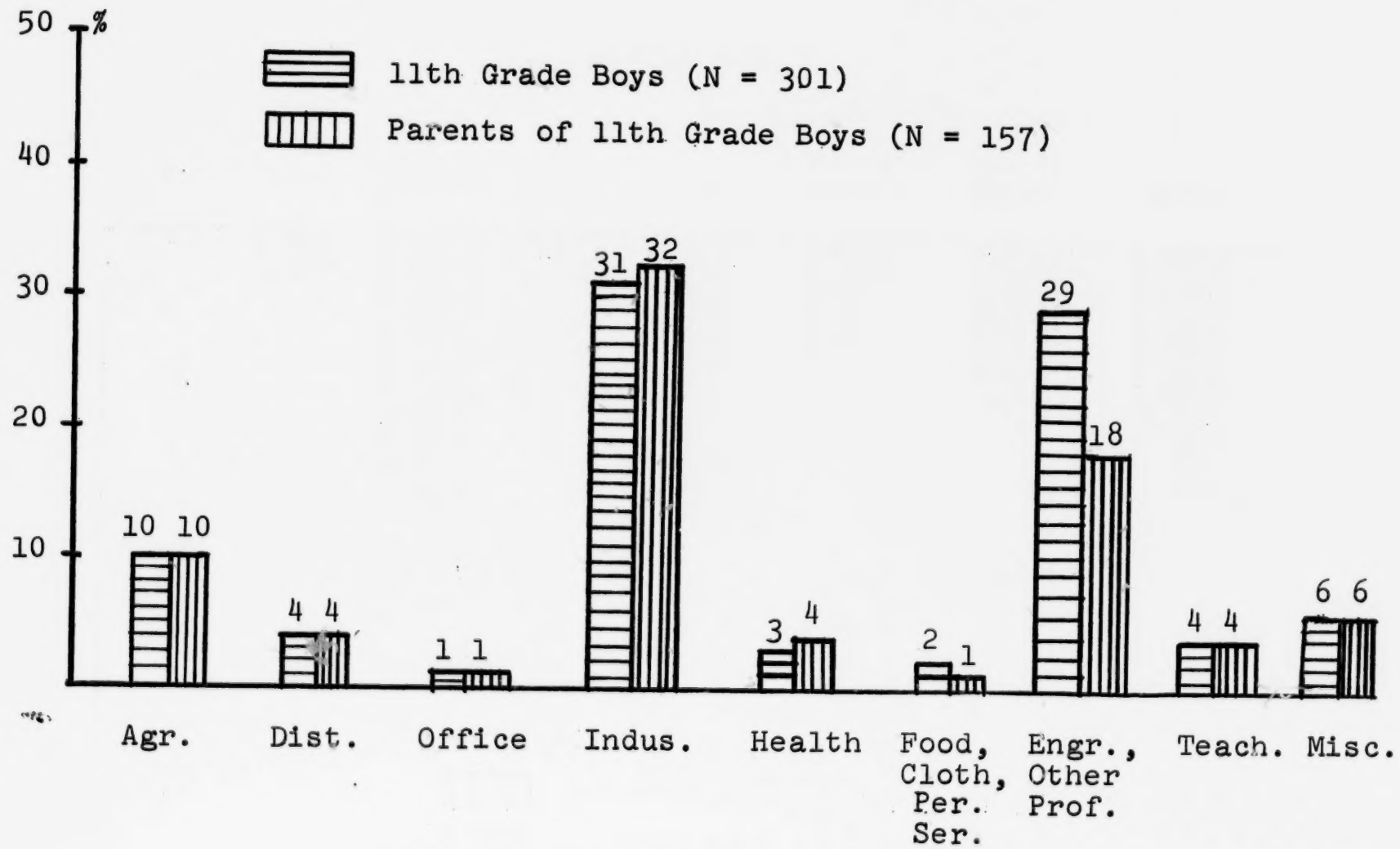

Figure 5.1

FIRST CHOICE OCCUPATIONAL ASPIRATIONS OF 11TH GRADE BOYS AND THEIR PARENTS' PREFERENCES FOR THEM

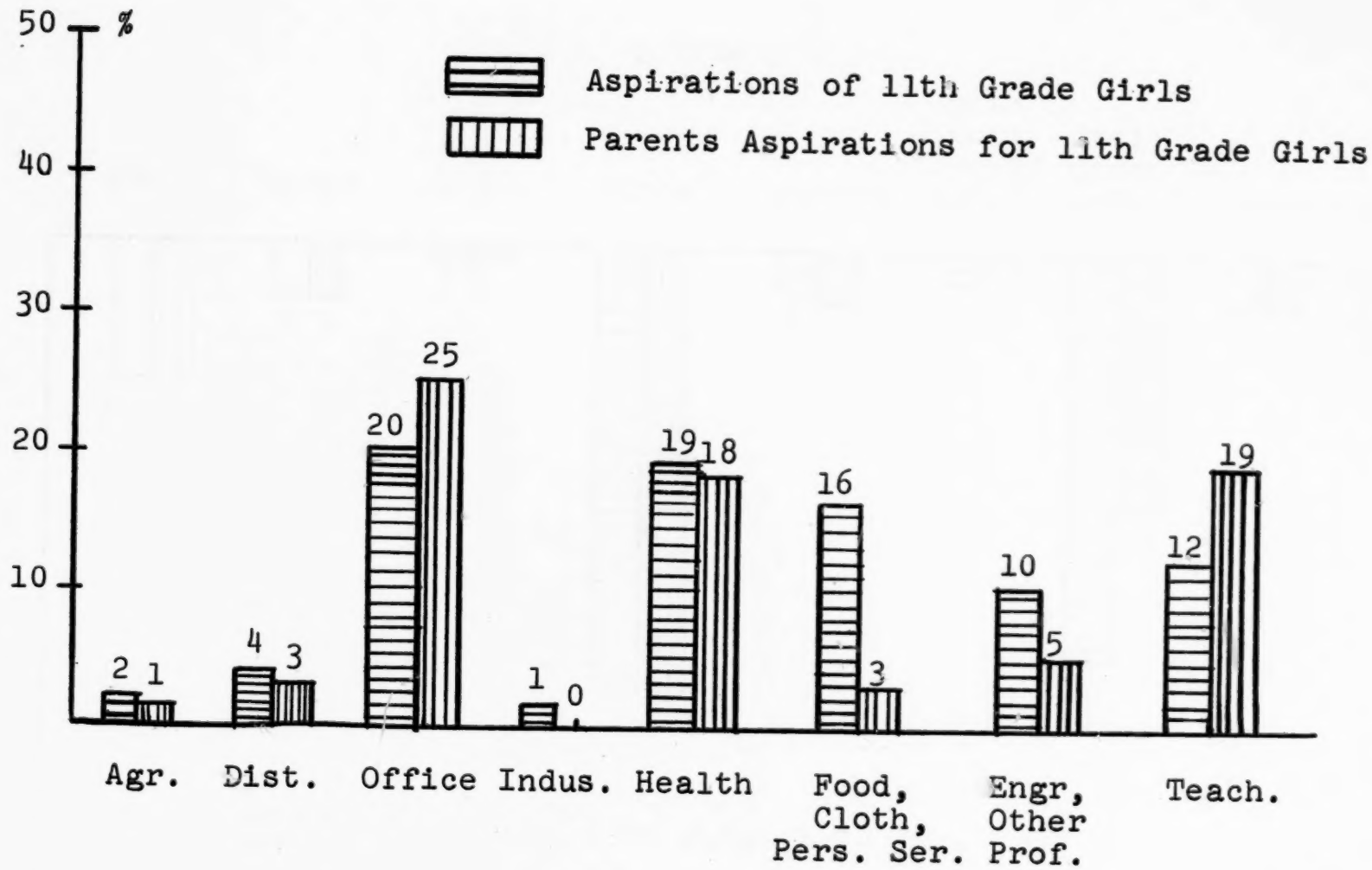

Figure 5.2

FIRST CHOICE OCCUPATIONAL ASPIRATIONS OF 11TH GRADE GIRLS AND THEIR PATENTS' PREFERENCES FOR THEM

Work Experience of 11th Graders

At least four out of every five of the 11th graders reported they had some work experience during the summer and/or after school. The most frequently reported kinds of work were as follows:

Kind of Work	Number
Hired hand or other farm worker	112
Babysitter	80
Waiter, waitress or carhop	29
General laborer (unspecialized)	27
Janitor	15
Maid or day worker	13
Car washing, window washing, etc.	10
Gas station attendant	10
Salesclerk, checker, cashier, etc.	8

The boys most frequently reported work experience in farming (38 per cent), and the girls most frequently reported personal service such as babysitting (45 per cent). The job entry opportunities represent significant opportunities for the youth to learn many of the general competencies necessary for their future success. The researchers believe the school should help the youth learn even more through these jobs by the use of related instruction in the school and through on-the-job supervision, especially during the summer between the junior and senior years and during the senior year. A true vocational cooperative occupational program can be a very significant part of the high school program for most of the youth.

However, the entry occupation should not be viewed as being the career objective for the youth--most of the youth do not hold such views. For example, the 125 youth who reported work experiences in farming and other agricultural jobs gave their first choice life's work as follows:

First Choice Life Work	Per Cent (N = 125)
Agriculture	14
Distributive: Sales, marketing and related	1
Office: Clerical, stenographic and related	4
Industrial: Technical and skilled	30
Health and related, incl. doctors	3
Food, clothing, personal services, etc.	2
Engineering and other professional services, etc.	26
Teaching	4
Miscellaneous	5
No Response	11

In addition, 16 persons who had no work experience in agriculture reported their first choice for life's work was in an agricultural occupation. The pattern of occupational aspirations of youth with work experience in other areas was similar to that reported above. For example, only 27 of the 151 who reported work experience in food, clothing, and personal service occupations indicated occupational aspirations in the field of food, clothing, and personal services.

What Is Most Important In a Job

The viewpoints of youth and their parents often differ as to what is most important in a job. During periods of economic prosperity, such as during the past several years, when opportunities for employment are abundant, the youth may be expected to place less importance on security than their parents who, perhaps, have experienced difficulty in getting and keeping a job sometime in the past. Data in Table 5.4 show that the parents placed much more importance on "security" and "chance for advancement" than either the 11th graders or the 1964 graduates, some of whom had been in the labor force for nearly two years. Many of the graduates considered "high pay" and "earning money for school" important, perhaps indicating some intensity of aspiration for additional education.

TABLE 5.4

WHAT 11TH GRADERS, THEIR PARENTS, AND 1964 GRADUATES THINK MOST IMPORTANT IN A JOB: MARCH 1966

What Is Most Important In A Job	11th Graders (N = 589)	Parents* (N = 333)	1964 Graduates (N = 389)
	Per Cent	Per Cent	Per Cent
Security	11	42	10
High Pay	4	4	18
Nice Working Conditions	3	11	3
Prestige (importance of work)	0.3	2	3
Chance for Advancement	8	44	2
Being Able to Find a Job	2	4	--†
Liking Your Work	65	--†	10
Serving Others	--†	--†	3
Earning Money for School	--†	--†	15
Other	1	--†	3

*Parents were given an opportunity to respond with more than one choice.

†This item not included on this particular questionnaire.

Source: Questionnaires administered by school administrators.

Occupational Counseling

Who influences youth in their occupational planning? Do parents discuss occupations with their children? Is more occupational counseling through the schools seen as desirable by the parents? These as well as many other questions could have been asked to try to determine some of the influences on the career planning being done by youth.

During these years of rapid change in the nature of work and in the jobs available, one of the problems faced by youth, their parents, and the schools is the problem of having access to adequate amounts and kinds of information and experiences about the nature of jobs such as what jobs are available, what education and experience are required for entry, what is the outlook for that occupation field, and where can the necessary education and training be secured.

High school youth usually indicate parents and relatives as being most influential on occupational choice, although many different persons usually have some influence. The 11th grade boys and girls in the five high schools in Lapeer County most frequently indicated parents and relatives as very influential regarding occupational choice. Other generalizations from data in Table 5.5 are:

1. Boys indicate father more frequently than mother as the influential person; girls more frequently indicate mother.

2. Teachers are usually indicated more frequently than counselors as influential persons, even in schools with counselors.

3. Other persons outside of the home and school are frequently listed as most influential.

Most of the parents (85 per cent) reported they had discussed occupations with their 11th grader. However, it was noted that nearly all (95 per cent) of the parents who reported they wanted their child to take a college preparatory program at school reported they had discussed occupations with their child. The smallest proportions were among those parents who wanted their child to be in a technical or skilled industrial job, or some retailing, or personal service occupation.

About five out of every ten parents indicated the school should have a placement service upon graduation--the proportion was higher among the parents who wanted their children to enter the manual and service industrial occupations. In addition, eight out of ten parents indicated the school should provide more occupational counseling.

From these and other data, the researchers have concluded:

1. Occupational and educational information should be made available to parents and other influential persons as well as the youth.

2. The schools should expand the occupational counseling services.

3. The schools should develop a placement service for students in cooperation with local business groups and the Michigan Employment Security Service.

TABLE 5.5

11TH GRADERS' BELIEFS REGARDING WHO HAS INFLUENCED GREATLY THEIR OCCUPATIONAL CHOICE

Persons	Per Cent*							
	Boys (N=301)	Girls (N=288)	Almont (N=52)	Dryden (N=45)	Imlay City (N=106)	North Branch (N=112)	Lapeer (N=274)	Total (N=589)
Mother	31	48	29	42	35	42	41	39
Father	54	31	46	60	38	45	41	43
Grandparents	5	8	8	7	3	2	9	6
Older Brothers and Sisters	19	13	17	24	15	16	15	16
Teachers	25	26	23	22	20	30	27	25
Counselors	15	16	10	20	24	4	18	16
Fellow Students	11	18	19	27	14	13	12	15
Others	23	28	19	36	29	21	25	25

*Per cents do not total 100 since students could respond by checking more than one answer.

Source: Questionnaires administered by school administrators.

Educational Aspirations of Parents for 11th Graders

The kind of educational program parents desire for their children is conditioned by many factors such as their economic status, their own educational background, and their perception of the ability of their child to attain various levels of education. Usually parents with very limited financial resources often perceive their children to have less ability to continue their education than do parents with ample financial resources.

More than one out of three parents who responded to the questionnaire reported they believed their child had the ability to take a four-year college program; about one out of three believed their child had the ability to take further training at a business school, trade, or technical school; and only one out of seven indicated their child had the ability to complete junior or community college. About one out of seven either did not respond to the question or indicated they did not know the ability of their child (see Table 5.6).

In general, two out of every three of the parents did not indicate either positive or negative attitudes toward the specific 12 vocational course areas listed on the questionnaire. When the number of parents who failed to return a questionnaire is added to this, then about six out of every seven gave no expression of opinion about each of the 12 vocational courses areas which might be offered at the 11th or 12th grade levels (see Table 5.6). However, the courses for which the largest number of parents indicated interest were for the office occupations, followed by courses for industrial occupations.

The parents' responses to a question dealing with the kind of high school program which should be provided indicated about one out of two believed the school should provide a program which included training for employment. Even the parents (20 per cent) who wanted their 11th graders to have only a general college preparatory program reported that the school should provide training for employment, as shown by the data on page 122.

TABLE 5.6

PARENT INTEREST IN VOCATIONAL COURSES FOR THEIR 11TH GRADERS AND PERCEPTION OF CHILD'S ABILITY TO PURSUE FURTHER EDUCATION: LAPEER COUNTY MARCH 1966

Factors	Number Responding "Yes"					
	Almont (N=23)	Dryden (N=14)	Imlay City (N=76)	North Branch (N=91)	Lapeer (N=129)	Total (N=333)
"If the following areas were available in your high school in the 11th-12th grades to give vocational education, in which of them would you like to have your child enroll?" (May have responded to more than one course)						
Drafting	10	2	16	15	21	64
Metals	5	1	16	10	24	56
Power Mechanics	8	2	12	7	16	45
Building Trades	5	1	16	11	16	49
Electricity	8	1	19	13	24	65
Farming	4	0	7	8	6	25
Agricultural Technician	4	0	9	11	12	36
Agricultural Professions	3	0	8	10	9	30
Sales, Marketing. . .	4	2	17	7	24	54
Homemaking	3	4	17	16	30	70
Office, Clerical	5	8	23	22	40	98
Office, Stenographic	3	8	23	26	38	98
NONE OF THESE--College Preparatory Only	6	3	12	13	31	65
"Do you think your child has the ability to take further educational training?"						
--business school, technical or trade school	9	4	23	34	44	114
--to complete junior or community college	5	0	11	13	19	48
--to take a four-year college program	8	7	26	28	52	121
--don't know	1	2	13	11	10	37

Source: Questionnaire administered by administrators in the schools.

Kind of Program the School Should Provide	Parents Who Want Their 11th Graders in College Preparatory Only (N = 65)	All Parents Who Responded (N = 333)
	Per Cent	Per Cent
General Academic Program	10	7
General Academic Program With Some Training for Employment	42	50
General Education Program With a Program to Provide Vocational Competency	40	44
College Preparatory Program	82	51

11th Graders' Aspirations for Education After High School

If a post-high school vocational-technical program is to succeed, among other things, it needs to have sufficient enrollment to justify the expenditures necessary to conduct the program. The responses of the 11th graders indicated the following numbers interested in the various course areas (see Table 5.7). The most frequently checked course areas for boys were industrial (skilled and technical) and agricultural; the girls most frequently checked the office and health occupations course areas.

Financing Post-High School Education

Financing post-high school education involves public as well as private expenditures. Buildings, equipment, supplies, staff, and other items must be provided; students who enroll for one or two years in a vocational-technical program have need for financing books, supplies, transportation, living expenses, and some personal needs as well as tuition.

Most of the parents who responded to the questionnaire indicated their willingness to vote for additional levies to support expanded and improved vocational-technical education programs if tuition for such programs were free or quite low. More than one out of every two (56 per cent) indicated they would vote yes to support such a program; only five per cent indicated they would vote no.

TABLE 5.7

11TH GRADERS' INTERESTS IN SELECTED POST-HIGH SCHOOL VOCATIONAL-TECHNICAL CURRICULA

Curricula for Various Occupational Areas	Numbers		
	Boys (N = 301)	Girls (N = 288)	Total (N = 598)
Agriculture (farming or other agricultural occupations)	28	3	31
Secretarial/Office	1	75	76
Retailing/Sales/Marketing	8	5	13
Food: Preparation, sales & service	2	4	6
Other Distributive: Real estate, hotel-motel, etc.	1	0	1
Skilled Trade: Auto mechanic, carpenter, electrician	92	1	93
Technical Job: Electronics, draftsman, etc.	65	0	65
Nursing/Health	5	59	64
Bookkeeping/Accounting	5	8	13
Other	31	46	77
None--Either No Schooling or Prefer Four-Year College	39	67	106

Source: Questionnaires administered by school administrators.

Table 5.8 shows that about 23 per cent of the parents reported they could meet completely the financial needs of their son or daughter while enrolled in a vocational-technical program, and 47 per cent indicated they could give partial support. Thus, over two-thirds could get major support from home to cover their expenses of one or two years of further education. Generally, about one out of ten parents could give their child no financial support.

Most of the 11th graders indicated they were willing to work part-time and summers to earn money for tuition and other expenses. If we assume they averaged 20 hours per week for 30 weeks part-time and 40 hours per week for 10 weeks during the summer, they would each gross (at $1.25 per hour) about $1250. If tuition costs per year were about $300 (community college), then it is quite possible for most students to finance their education with partial support from their parents.

The location of the institution for the educational and training programs could be a major limiting factor for some of the students. Although about half of the students indicated willingness to commute up to 25-40 miles, the other half either did not know if they could commute (32 per cent) or said they could not (6 per cent). This range of 25-40 miles, although considered by many persons to be a "normal" service area for community colleges, appears to the researchers conducting this study to be "maximum" driving distance. If a community college is developed in the Cass City area, then nearly all of the youth would be within approximately 30 miles of a community college (Flint, Port Huron, "Cass City," and Oakland County).

Student Plans For After Graduation From High School

How do the students feel about moving from Lapeer County? About one out of three definitely plans to remain in the Lapeer County area if a job can be secured. Only about one out of twenty indicated a desire to move to the Flint area. Significantly, about 60 per cent of the 11th graders say, "It depends . . ." Presumably, based on a review of the write-in responses, the chance for employment and the opportunities for further education to prepare for skilled and technical level jobs are two main factors which may contribute to youth staying or migrating.

TABLE 5.8

11TH GRADERS ABILITIES TO BE SUPPORTED WHILE ATTENDING ONE-TWO YEARS IN A VOCATIONAL-TECHNICAL PROGRAM
(ALL FIGURES ARE IN PERCENTAGE)

	Almont (N=52)	Dryden (N=45)	Imlay City (N=105)	North Branch (N=112)	Lapeer (N=274)	Total (N=588)
A. Student Report on Self:						
1. Could commute up to 24-40 miles						
No	8	9	10	1	7	6
Yes	54	42	51	63	51	53
Don't Know	29	47	30	22	34	32
2. Would work . . . to earn tuition and expenses						
No	6	2	1	2	3	3
Yes	71	91	78	73	78	78
Don't Know	13	4	13	13	12	12
	(N=23)	(N=14)	(N=76)	(N=91)	(N=129)	(N=333)
B. Parents' Beliefs:*						
1. Would not be able to help	9	7	12	13	8	10
2. Would be able if he lives at home	30	14	20	25	36	28
3. Partial support	57	86	38	48	44	47
4. Completely support him	17	7	37	18	22	23

*Question: "Do you anticipate being able to support your son or daughter in a vocational-technical institute giving 1-2 years of post-high school education?"

Source: Questionnaires administered by school administrators.

Summary of Findings From Study of Aspirations of 11th Graders and Their Parents

1. The relatively low proportion of parents (48 per cent) who responded to the questionnaires restricts the opportunity for the researchers to make generalizations about the aspirations of the parents and also may be indicative of other orientations of some parents toward the schools.

2. The 11th graders tend to aspire to well-known, traditional professional occupations. There appears to be very limited recognition by the 11th graders (or their parents) of career opportunities in the fields of distribution (sales, marketing, advertising, etc.) at any of the levels from the semi-skilled to professional occupations.

3. Four out of every five 11th graders reported some work experience during the summer or after school. Farming, babysitting, waitressing, and unspecialized general labor were most frequently reported as kinds of work experience.

4. The entry occupations, or first jobs, held by youth should not be viewed by educational planners as indicative of the "career aspirations" of the youth. Such jobs reflect available opportunities for employment.

5. Parents and their 11th graders differ in their views as to what is most important in a job: Parents tend to indicate security and chance for advancement as being most important; the 11th graders overwhelmingly indicated "liking your work" was most important.

6. The 11th graders most frequently indicated parents and other relatives as those who had influenced greatly their occupational choices. Teachers were more frequently listed than counselors.

7. Although most of the reporting parents indicated they had discussed occupations with their 11th graders, eight out of ten indicated the schools should provide more occupational counseling, and about one out of every two reported the school should have a placement service available to help students locate satisfactory employment.

8. Most of the parents indicated neither positive nor negative attitudes toward the enrollment of their

11th graders in each of the vocational courses in the 11th or 12th grades. However, apparently most of the parents responded favorably to one or more of the course offerings listed with the largest numbers expressing a desire to have their 11th graders in office or industrial courses.

9. About one out of every two of the parents indicated the schools should provide educational programs to prepare youth for employment.

10. The 11th graders indicated considerable interest in post-high school vocational-technical curricula in such occupational areas as industrial trades and technicians, nursing, office/secretarial, and agriculture.

11. More than two-thirds of the students could expect major financial support for 1-2 years of post-high school education, and more than one out of every two of the parents indicated they would vote yes to provide additional levies to support additional vocational-technical education programs if tuition were free or quite low.

12. About half of the students indicated willingness to commute up to 25-40 miles to attend a vocational-technical school.

13. Existing and proposed community colleges in areas surrounding Lapeer County place most of the students within 30 miles of a post-high school educational institution. The course offerings at any particular institution may be appropriate for some but not all of the students within commuting distance.

PART B

ACCOMPLISHMENTS OF GRADUATES AND DROPOUTS

The evaluation of an educational program should take into consideration the goals which have been set and the outcomes, in addition to the means (buildings, equipment, materials, staff, etc.). In other words, what do the citizens want the schools to accomplish (GOALS) and what have they accomplished (OUTCOMES)? Finally, are the citizens well pleased with the GOALS and OUTCOMES--what values do the citizens assign to the program? The information contained in this part of Chapter 5 is based on replies from former students who were in the class of 1964 (both graduates and dropouts). If more time and money

had been available, it would have been desirable to collect additional data and to involve more graduates and dropouts. Since stated goals for the various programs of instruction in each school were available to the researchers, the questionnaire for gathering data was developed to measure some aspects of migration, education after high school, employment, job satisfaction, interest in additional education and training, and hindsight (courses that would have been taken if available, based on present opinion).

The class of 1964 was selected because they had been out of school long enough to have secured employment and to have entered post-high school educational programs but had not been out so long that major changes had occurred in the programs of instruction at the high schools which they attended. Useable replies were received from 389 of the graduates and dropouts, representing about 70 per cent of the reported graduates and dropouts, or 73 per cent of the graduates and dropouts for whom addresses could be located, as shown in Table 5.9.

TABLE 5.9

POPULATION STUDIED AND PROPORTIONS RESPONDING

	Rank in Graduating Class					
	Top 25%	Second 25%	Third 25%	Bottom 25%	Drop-outs*	Total
Reported Population	121	121	121	119	69	551
Net Pop. (Addresses Known)	121	121	119	114	61	536
Respondents	108	96	91	68	26	389
% Net Pop. Responded	89	79	77	60	43	73

*Includes all school leavers who were not known to have continued their high school education at another school.

Source: Reports submitted by school administrators.

Place of Residence at Time of Leaving School

Most of the graduates and dropouts lived in Lapeer County (94 per cent) at the time they left school. In

addition, nearly 46 per cent lived in rural, non-farm areas (defined as places with population less than 2500); about three out of every ten lived on a farm, and less than two out of every ten lived in Lapeer. The background of most of the youth (three out of four) could be described as rural. (Additional data from the following questionnaires may be found in Appendix C.)

Educational Program Taken in High School

Less than 10 per cent of the respondents described their high school program of courses as VOCATIONAL; 35 per cent said they took a "General Program," 45 per cent took a "College Prep Program," and 4 per cent reported some "Other Program." However, this does not tell the whole story about courses taken in high school since many students may have taken one or more "vocational" courses but did not identify their total high school program as a "Vocational Program." This is shown in Table 5.10 which contains data about the proportions of the graduates and dropouts who took four or more semesters of

TABLE 5.10

PROPORTION OF FORMER STUDENTS WHO TOOK FOUR OR MORE SEMESTERS OF SELECTED COURSES

Course Areas	Reported H.S. Program of Study		
	General (N = 135)	Vocational (N = 36)	College Prep (N = 174)
Vocational Agriculture	13*	22	5
Homemaking	29	14	18
Retailing-Sales	1	6	1
Typing, Shorthand, Office Practice, etc.	28	39	25
Industrial--Drafting, Metals, Machine Shop, Day Trades, etc.	22	28	21
Mathematics	47	61	87
Science--Biology, Chemistry, Physics	31	42	76
Vocational Co-op	7	8	1

*Each student could have responded to more than one course area.

Source: Follow-up study questionnaire.

various course areas. For example, 13 per cent of the 135 students who reported they had a general course in high school also reported they took four or more semesters of vocational agriculture; and 5 per cent of the 174 who reported they took a college preparatory program also took four or more semesters of vocational agriculture. In general, it appears that four or more semesters of mathematics and science have been included in the programs of many students in addition to those planning a four-year college program to prepare for a career as a professional.

When viewed in terms of the rank in graduating class, more than eight out of ten of the students who took a college preparatory program were from the top half of their class (83 per cent), and one out of five of the students in the general program were from the top half of their class. Or viewed still another way, one out of every two dropouts, three out of every four from the bottom quartile of the graduating class, and one out of every two in the third quartile had been enrolled in a general program.

Occupations of Parents

Most of the fathers of the graduates and dropouts had been employed in manual and service occupations when the respondents left high school. Less than 5 per cent of the fathers were reported "unemployed" and about 50 per cent of the mothers were employed. The general type of employment is shown in Appendix C.

Many of the farmers also work off-the-farm. Nearly four out of every ten respondents who reported their residence on a farm, and only one out of fifty who reported their residence as rural non-farm, indicated their father was a farmer.

Migration of Former Students

Nearly two out of three former students indicated their present address was in the same county as at the time they left school. This was similar for the former students from all of the schools except Almont, where one out of two had moved beyond the "home" county (see Appendix C). Fewer of the graduates who gave "farm" as their residence at the time of leaving school had "moved" than of those from either Lapeer or rural, non-farm residences.

The move was most frequently made more than one month after leaving school. The reasons most frequently given for moving were:

Reason	Per Cent
To go to school	24
Got married	19
Military service	10
To take a job	6
Parents moved	5
To seek a job	3
Other	3

Employment of Former Students

The boys most frequently found their first full-time employment and were currently employed in industry on an assembly line or in some other general, semi-skilled labor. The girls most frequently found their first full-time employment and were currently employed in clerical-office occupations. Seven per cent of the boys found full-time employment in sales occupation, but only 2 per cent were currently employed in such positions. The proportion getting into electrical-mechanical-construction type jobs increased from their first full-time employment to their present employment, as shown in Figure 5.3.

Girls frequently find employment, soon after graduation from high school, in office-clerical positions. Nearly one-fourth of the responding girls indicated employment in such occupations. More than half of those who found first full-time employment in food service/preparation occupations reported they were no longer in such occupations as shown in Figure 5.4.

Place of Employment

Even though only a few of the former students indicated they had moved to either seek a job or to take a job, obviously many were commuting for their employment, primarily to the Flint area, but some to other adjacent counties as shown on page 134.

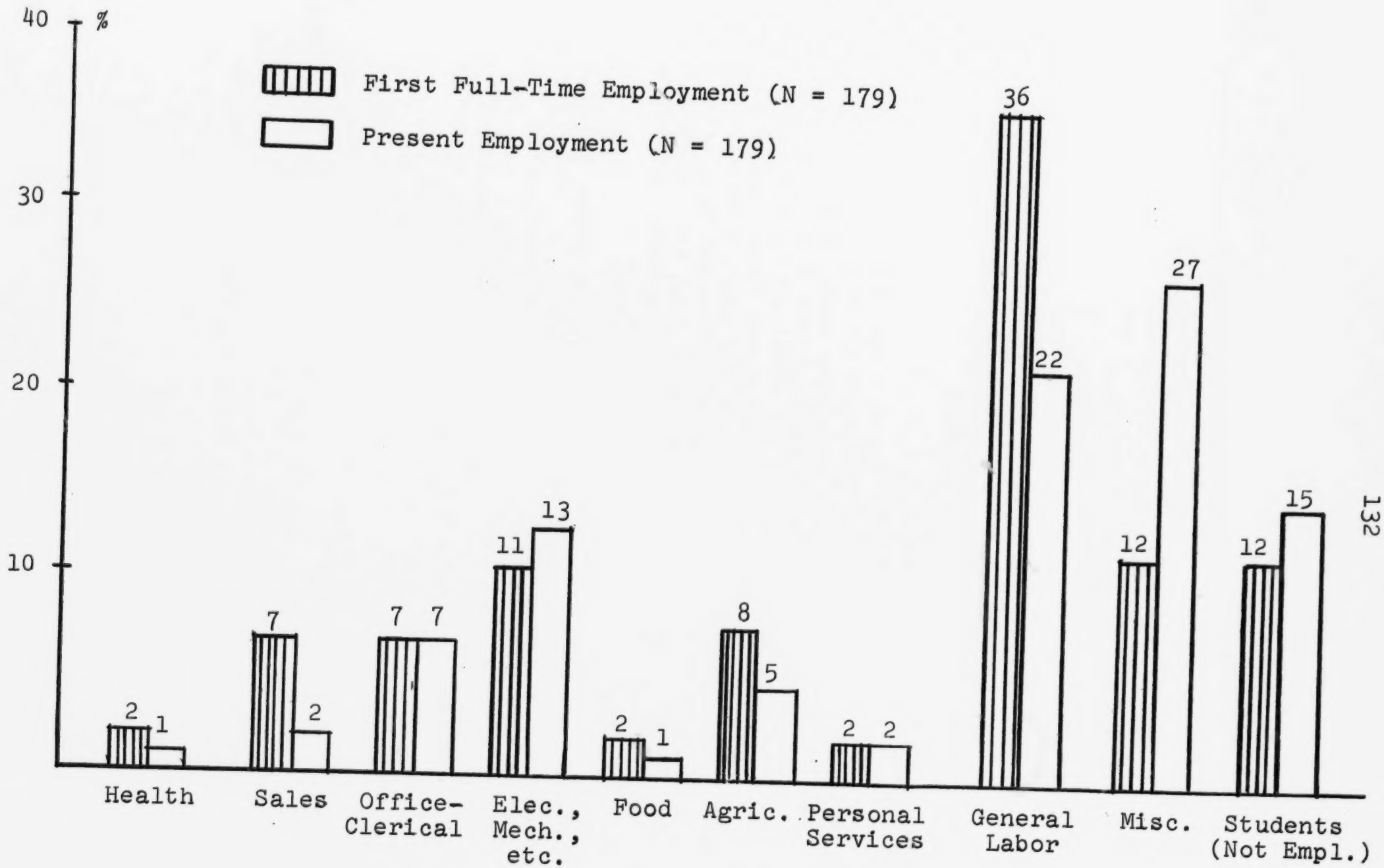

Figure 5.3

FIRST FULL-TIME EMPLOYMENT AND PRESENT EMPLOYMENT,
MALE GRADUATES: MARCH 1966

Figure 5.4

FIRST FULL-TIME EMPLOYMENT AND PRESENT EMPLOYMENT, FEMALE GRADUATES: MARCH 1966

Where Employed	Per Cent	
	First Full-Time Employment (N = 389)	Present Employment (N = 389)
Same county as at graduation	44	19
County adjacent to Lapeer	22	24
Non-adjacent county in Michigan	6	9
Out-of-state, incl. military	6	13

Earnings

One out of every three former students who replied indicated their earnings on their first full-time job were less than $62.50 per week (before deductions). The highest wages were paid in the general labor (production line) category and the electrical-mechanical-construction type occupations. In their present jobs only one out of five reported weekly earnings (before deductions) of less than $62.50; in addition, nearly one out of five reported weekly earnings of more than $122.50 before deductions. Again, the highest wages were received by those employed in "General Labor" and "Electrical-Mechanical-Construction Trades and Kindred." (See Appendix C for additional data.)

Job Satisfaction

Liking your work is frequently given by youth as one of the most important aspects of a job. In response to questions about their first full-time job and also their present employment, approximately three out of five former students indicated they either liked their job "Fairly well" or "Very well." The least job satisfaction for first job appeared to be for those persons employed in "General Labor," in spite of the fact that the wages in such jobs tended to be considerably higher than for many other jobs. In general, job satisfaction tended to be higher for the present employment than for the first full-time employment, as shown in Figure 5.5.

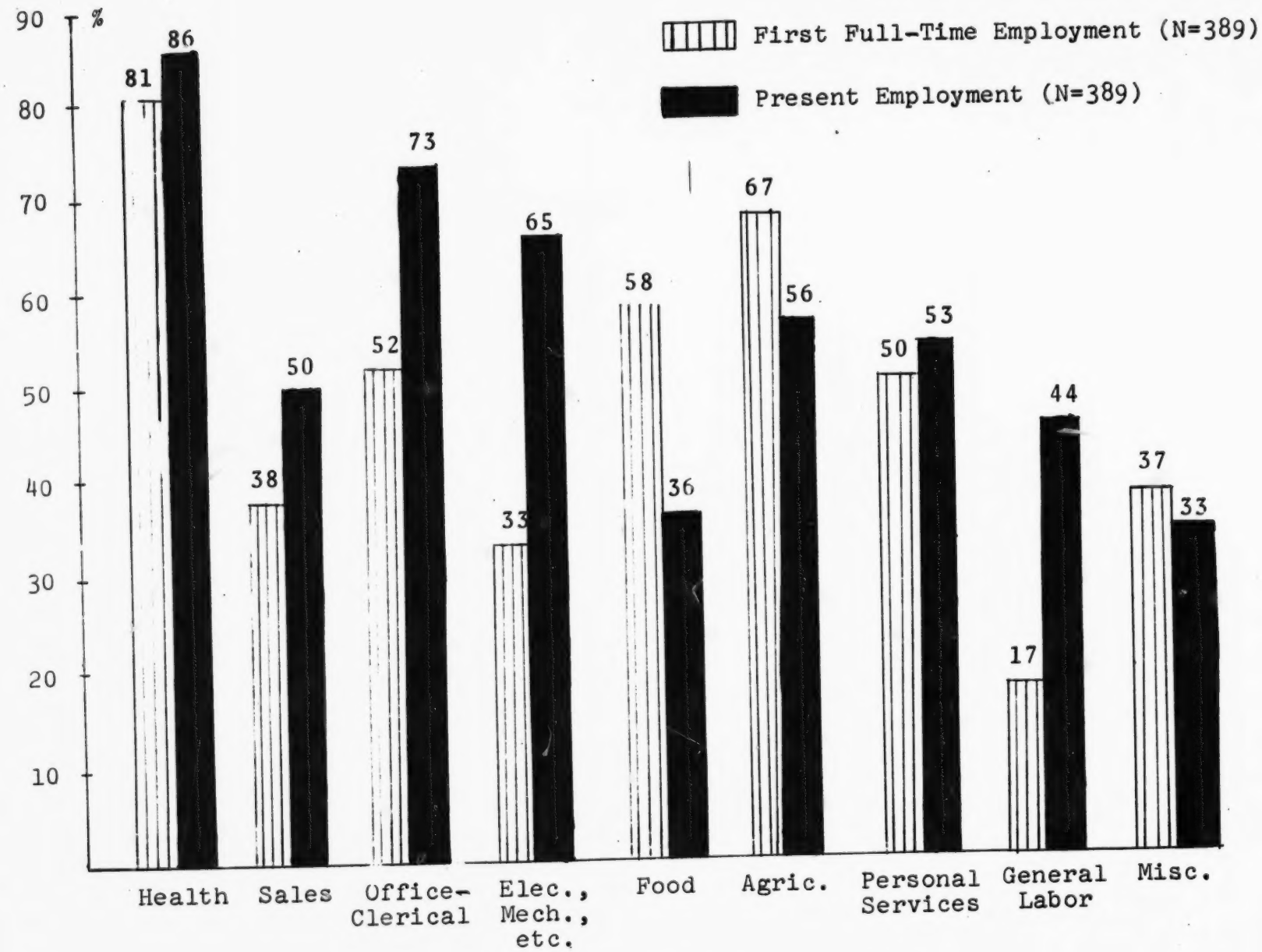

Figure 5.5

JOB SATISFACTION (LIKE JOB "VERY WELL") OF FORMER STUDENTS IN VARIOUS OCCUPATIONS: MARCH 1966

Education After High School

A high school education is no longer considered sufficient as a credential for employment in the future. Many jobs, in fact most jobs, require education and training after high school. Do the graduates from the high schools in Lapeer County continue their education? If so, where and what kind of education do they seek? The class of 1964 may or may not be a typical class, but their experiences provide a guide as to what may have happened to other classes.

About three out of five former students reported attendance at some kind of post-high school program. According to the responses from the class of 1964, a higher proportion of the graduates from Almont, Imlay City, and North Branch attended some kind of post-high school program than did the graduates from Dryden and Lapeer, as shown below (Also see Appendix C):

High School	Per Cent Reporting Post-High School Education
Almont (N = 44)	64
Imlay City (N = 62)	63
North Branch (N = 65)	63
Dryden (N = 30)	57
Lapeer (N = 188)	54
All Five Schools (N = 389)	58

Relatively few graduates reported having attended community colleges, in spite of the presence of community colleges in Flint, Port Huron, and Pontiac. The proportions attending (or having attended) various kinds of schools were as follows:

Kind of School	Per Cent (N = 389)
Trade, Business, Other Similar Schools	23
Four-Year College or University ONLY	20
Community College ONLY	11
Community College and Four-Year College	4

Schools Attended

Flint and Port Huron Community Colleges accounted for 59 of the 63 former students who reported attendance at community colleges. There were 47 who had attended Flint Community College, nearly four times as many as had attended the Port Huron Community College.

Michigan State University (24) and Central Michigan University (22) accounted for 46 of the 98 who reported attendance at four-year colleges and universities. Other institutions attended by 5-10 of the former Lapeer County high school graduates were Oakland University, University of Michigan, and Western Michigan University.

Trade and business schools were attended by 84 of the former students. Except for the St. Joseph School of Practical Nursing, there was no single school attended by more than five of the graduates from the class of 1964. About 50 different schools were reported, many located at great distances from Lapeer County. It appears to the researchers that adequate information about educational opportunities and an absence of desired educational programs within the area are two possible contributing factors to the situation noted.

Who Attended

The graduates who were in the top quartile of their graduating class were the ones who attended colleges and universities in the largest porportions but some of them also attended trade and business schools. Nearly 85 per cent reported attendance at some kind of post-high school while only 15 per cent of the dropouts reported attendance at some kind of post-high school educational program. There was very little difference as to the proportion of former students from farms, rural non-farm, or Lapeer who attended college. More girls (61 per cent) than boys (58 per cent) attended schooling after high school, and considerably more of the girls (28 per cent) than boys (19 per cent) attended trade and business schools.

Most of the students who took a college preparatory program in high school attended some kind of post-high school education (87 per cent). About one out of five of the former college preparatory students enrolled in a trade or business school.

However, 58 per cent of the former "Vocational" students and only 31 per cent of the former "General" students continued their education beyond high school. It appears to the researchers that the nature of the "General" program must be reviewed by the teachers and administrators in each of the schools to determine what "ends" or "goals" are being served by it.

Courses of Study After High School

About one out of every two of the 222 students who pursued education after high school was in a course of study leading to a baccalaureate degree. About two out of every five of the 100 boys were enrolled in degree programs.

The teacher preparations programs were the most frequently entered degree programs while preparation for office and health occupations were the most frequently entered "terminal" programs by the GIRLS. The boys more frequently entered the business and liberal arts curricula in the degree programs and the mechanical-electrical-trade courses in the terminal programs. (See Appendix C for additional data.)

Interest in Additional Training

Most young people today will have to take additional training to maintain employability and/or advance in their jobs. About 20 per cent of the former students responded that they were not interested in taking additional training for their present work (16 per cent) or for other work (4 per cent). However, about 43 per cent stated they would like to receive additional training for their present work (18 per cent) or for other work (25 per cent). For example, 48 per cent of the former students presently employed in "General Labor" indicated a desire for additional training for other work, and 32 per cent of those employed in clerical-office occupations were interested in additional training for their present work.

"Hindsight"

Often youth who have been out of high school a few years are quick to reflect on their high school experiences and to suggest changes, "if they had it to do over again." One question on the questionnaire gave them an opportunity to indicate which, if any, vocational courses they now think they would have taken, if the courses had been available in their high school. The most frequently checked course areas were industrial (18 per cent) and office (17 per cent). Further, analysis showed the proportion of students who had taken a general, vocational, or college preparatory program in high school who would want to take certain vocational courses. The interests of the former students are shown in Table 5.11.

TABLE 5.11

"HINDSIGHT" VOCATIONAL COURSE PREFERENCES BY FORMER STUDENTS WHO TOOK GENERAL, VOCATIONAL, OR COLLEGE PREPARATORY PROGRAMS IN HIGH SCHOOL

". . . if available in your high school, which one do you now think you would have taken?"	Per Cent		
	Vocational (N=36)	General (N=135)	College (N=174)
Office Occupations: Clerical, Steno, & Others	39	21	10
Retailing for Sales Occupations	3	3	5
Food Sales & Service Occupations	6	3	2
Health Occupations	8	14	14
Farming, Conservation, Forestry	17	7	3
Industrial: Mechanic, Machinist, Carpenter, Electrician & Others	19	27	14
Policeman, Fireman, & Other Protective Services	0	4	3
Others	3	4	7

Source: Follow-Up Study Questionnaire.

The "hindsight" interests of the boys and girls were somewhat different as shown by the following:

Courses for Occupational Areas	Per Cent	
	Boys (N=179)	Girls (N=202)
Office . . .	9	30
Retail and Sales	4	4
Food Sales and Service	3	3
Health . . .	1	23
Industrial . . .	38	1
Farming and Other Agriculture	12	0

Summary

1. Nearly three out of every four members of the class of 1964 (graduates and dropouts) from the five high schools in Lapeer County responded to a mail questionnaire. A higher proportion of the graduates who were in the top quartile of the graduating class responded than did those in either the bottom quartile or the dropout group.

2. The residence at the time of graduation or leaving school for about half of the respondents was "rural, non-farm," about 30 per cent on farms, and 20 per cent in Lapeer.

3. The program of courses taken in high school by the 389 former students was reported to be one of three general types: 45 per cent took a college preparatory program, 35 per cent took a general program, and 10 per cent took a vocational program.

4. Some vocational subjects were studied by students who described their high school program as "College Preparatory" and "General."

5. Half of the dropouts and 75 per cent of the students from the bottom quartile of the graduating class had been enrolled in a general program.

6. Most of the fathers of the former students had been employed in manual and service occupations, but only 50 per cent of the mothers had been employed. Many of the farmers also worked at jobs off-the-farm.

7. About two out of every three former students still had addresses in Lapeer County. The reasons most frequently given for moving were to go to school, get married, and military service.

8. The boys most frequently found employment in industry on an assembly line or in some other general, semi-skilled job. Electrical-mechanical-construction type jobs were held by more of the male graduates at the time of the study (March 1966) than had found their first full-time employment in similar jobs.

9. The girls most frequently found employment in clerical-office occupations. Food service and preparation occupations were entry occupations for some of the girls, but employment in other

type jobs was taken by most of the girls when such jobs were available.

10. First full-time employment was found in Lapeer County by four out of every ten graduates; present employment tended to be in an adjacent county such as Genesee (Flint).

11. Highest wages were received by the former students working in industry at assembly-line (semi-skilled) positions, in the construction industry, and in other industrial type occupations.

12. The least job satisfaction for first full-time jobs was expressed by those persons employed in industry at assembly-line positions. More of the former students were satisfied with their present employment than with their first full-time job.

13. About 60 per cent of the former students had attended some post-high school educational program. Flint Community College was the most frequently listed community college for attendance, but only 15 per cent indicated they had attended any community college. Nearly one-fourth of the respondents had attended a trade, business, or other similar school.

14. More than eight out of every ten of the graduates who were in the top one-fourth of their graduating class reported participation in post-high school educational programs.

15. About half of the former students who enrolled in post-high school educational programs entered a course of study which normally leads to a degree.

16. About 43 per cent of the respondents to the questionnaire indicated interest in additional education and/or training either for their present job or for some other job.

17. If they had it to do over again and the vocational courses were available in high school, many of the respondents indicated they would take courses to prepare for certain occupational areas. The greatest interest for boys was in industrial areas and agricultural areas; the girls were most interested in office and health occupational areas.

APPENDICES

APPENDIX A

CHANGES IN LABOR FORCE IN LAPEER COUNTY BY MAJOR OCCUPATIONS, 1940 to 1960

Occupation In Which Employed	1940	1960	% of 1960 Total Empl.	% Change of Empl.
Total Employed--Male & Female:	9,489	13,308	100.00	40.11
1. Professional, Technical & Kindred Workers	600	1,143	8.59	90.50
2. Farmers & Farm Managers	2,858	1,299	9.76	-54.55
3. Managers, Officials, & Prop., except farm	569	791	5.94	39.02
4. Clerical & Kindred Workers	687	993	7.46	44.54
5. Sales Workers	*	714	5.37	---
6. Craftsmen, Foremen, & Kindred Workers	781	1,967	14.78	151.86
7. Operatives & Kindred Workers	1,100	3,147	23.65	186.09
8. Private Household Workers	153	303	2.28	98.04
9. Service Workers, except private household	463	1,422	10.69	207.13
10. Farm Laborers, Unpaid Family Workers	1,020	656	4.93	-35.69
11. Farm Laborers (except 10) & Farm Foremen	548	*	---	---
12. Laborers, except farm & mine	452	469	3.52	3.76
13. Occupations Not Reported	167	404	3.04	141.92

*Included in figure on above line.

Source: U. S. Census of Population, 1940 and 1960.

APPENDIX B

INDUSTRY GROUP OF EMPLOYED PERSONS FOR LAPEER COUNTY

Group Numbers		1940 Male	1940 Female	1950 Male	1950 Female	1960 Male	1960 Female
1.	Number employed	8,051	1,447	9,093	2,222	9,489	3,819
2.	Agriculture	4,385	60	3,163	138	1,885	160
3.	Forestry & Fisheries	1	---	3	---	---	n
4.	Mining	3	---	33	---	84g	m
5.	Construction	335	3	505	5	527	12
6.	Manufacturing	1,242	116	2,723	319	3,552	573
7.	Furniture	5	---	38	1	60g	x
8.	Primary metal industries	344	43	301	6	337g	x
9.	Fabricated metal ind. (Incl. not spec. metal)	9	2	174	82	524g	x
10.	Machinery, except electrical	29	8	88	10	220	77
11.	Electrical machinery equip., and supplies	x	x	11	3	55g	x
12.	Motor vehicles & motor vehicle equipment	610	12	1,838	142	2,164g	x
13.	Transportation equip., other than motor vehicle	1	2	8	---	150	210
14.	Other durable goods	22b	1b	25	24	41	204
15.	Food & kindred products	70	4	85	8	131	9
16.	Textile mill products	90	22	6	2	---	8
17.	Apparel & other fabricated textile products	---	---	2	1	4	4
18.	Printing, publishing & allied industries	27	10	41	17	82g	x
19.	Chemical & allied industries	12	1	16	3	16g	x
20.	Other non-durable goods	3	1	9	2	m	m
21.	Not specified manufacturing industries	141	11	81	18	13	20
22.	Transportation, Communication, and Utilities	262	48	356	107	530g	88
23.	Railroads & railway express services	84	2	88	1	61g	x
24.	Trucking service and warehousing	61	1	113	3	211g	x
25.	Other transportation	14	1	25	---	81g	x
26.	Telecommunications	28	33	51	90	71g	x
27.	Utilities & sanitary services	75	11	79	13	106g	x
28.	Wholesale trade	127	9	195	28	303	32
29.	Food & dairy prod. stores and milk retail	137	50	184	89	167	146
30.	Eating and drinking places	45	62	66	103	55	200
31.	Other retail trade	424c	114c	581	218	900	317
32.	Finance, Insurance, and Real Estate	79	29	90	56	146	109
33.	Business Services	99e	---	14	6	44	20
34.	Repair Services	48	4	175	6	111g	n
35.	Private Households	18	252	6	118	332g	x
36.	Hotels & Lodging places	27	13	14	11	x	x

37. Other personal services	71	44	83	50	235	201
38. Entertainment & recreation services	52	3	58	14	23	12
39. Medical and Other Health Services	x	x	323	511	164h	459h
40. Government	119k	33k	105	224	159	398
41. Private	x	x	12	38	18	73
42. Other Professional & Related Services	330j	553j	69	23	387i	619
43. Public Administration	n	n	151	53	163	75
44. Industry Not Reported	132	54	184	105	229	90

[b]Logging, sawmills, and planing mills

[c]Includes motor vehicles and access. retail, and filling stations

[e]Includes automobile storage and rental

[g]Includes both male & female

[h]Hospitals ONLY

[i]Includes welfare, religious, & non-profit membership organizations

[j]Includes all other professional services, except government

[k]All government

[m]Included in below

[n]Included in above

[x]Not indicated by source

Source: U. S. Census of Population: 1940 (Table 23, p. 811), 1950 (Table 43, pp. 22-141), 1960 (Table 85, pp. 24-320).

APPENDIX C

SELECTED DATA FROM FOLLOW-UP STUDY OF 1964
GRADUATES AND DROPOUTS: MARCH 1966

Questions

1. How many graduates and dropouts responded?

2. What was the place of residence of the graduates and dropouts at the time of graduation or leaving school?

3. Where were the graduates and dropouts living at the time they replied to the questionnaire?

4. If they moved from the community . . . about how long after graduation did they move?

5. Did more of the graduates who lived on a farm move than graduates who lived in Lapeer and who lived in a rural non-farm area?

	Schools					
	Almont	Dryden	Imlay City	North Branch	Lapeer	TOTAL
Number Replies	44	30	62	65	188	389
% of Known	73	79	68	75	73	73
	N=43	N=30	N=62	N=65	N=188	N=388
	%	%	%	%	%	%
On a Farm	35	50	21	49	20	29
Rural Non-Farm*	51	43	71	45	37	46
Lapeer	2	3	0	5	35	18
	*Includes towns with population under 2500					
	%	%	%	%	%	%
Same County	50	70	65	66	66	65
Adjacent County	25	13	8	14	12	13
Non-Adjacent in Michigan	18	10	10	12	9	11
Other State (incl. military serv.)	2	7	16	6	9	9
	%	%	%	%	%	%
Have Not Moved	50	63	40	31	37	40
Within 1 Month	5	7	8	11	6	7
1-6 Months	25	13	34	25	24	25
6 Months or More	7	13	15	32	20	19

Place of Residence When Graduated	Per Cent			
	Have Not Moved	Within One Month	1-6 Months	6 Months or More
On a Farm (N=113)	47	9	21	20
Rural Non-Farm (N=178)	40	9	26	19
Lapeer (N=71)	35	3	28	21

6. What kind of college, university, or schools have you attended since high school?

	Per Cent				
	None	Community College Only	Community College and 4-Year College	4-Year College Only	Trade, Business School, etc.
A. School					
Almont (N=44)	36	5	0	43	16
Dryden (N=30)	43	10	3	20	24
Imlay City (N=62)	37	19	2	19	23
North Branch (N=65)	37	11	2	12	38
Lapeer (N=188)	46	10	6	18	20
TOTAL (N=389)	42	11	4	20	23
B. Rank in Class					
Top ¼ (N=108)	13	10	7	48	22
Second ¼ (N=96)	29	16	4	23	28
Third ¼ (N=91)	57	13	3	4	22
Bottom ¼ (N=68)	68	4	1	0	27
Dropouts (N=26)	85	4	0	4	7
C. Place of Residence					
On a Farm (N=113)	39	12	3	23	23
Rural Non-Farm (N=178)	43	11	3	17	26
Lapeer (N=71)	37	8	10	27	18
D. Sex					
Male (N=179)	42	15	7	17	19
Female (N=202)	39	7	2	24	28
E. Now Enrolled in School					
No (N=222)	62	8	1	5	25
Yes (N=138)	3	17	9	47	23
F. Kind of High School Program					
General (N=135)	69	6	0	1	24
Vocational (N=36)	42	14	3	3	39
College Prep. (N=174)	13	15	8	43	21
Other (N=16)	50	6	0	6	38

7. If you have attended or are now enrolled at school, what was (or is) the course of study called?

	Per Cent Reporting Various Courses of Study								
	Four Year					Two-Year or Less			
	Education	Business	Engineering	Liberal Arts	Other 4-Year	Office	Health	Mech-Elec.	Other 2-Year
A. Sex									
Male (N=100)	8	19	9	12	5	1	2	23	21
Female (N=122)	24	3	1	10	3	25	23	0	11
TOTAL (N=222)	17	10	5	11	4	14	14	10	16
B. Rank in Graduating Class									
Top ¼ (N=92)	27	10	7	15	5	7	17	4	7
Second ¼ (N=73)	11	12	5	11	5	19	10	4	12
Third ¼ (N=43)	7	7	0	5	0	16	9	23	26
Bottom ¼ (N=26)	0	4	0	0	0	15	12	23	23
Dropouts (N=10)	10	10	0	0	0	0	0	0	30
C. Kind of Post-High School Institution Attended									
Community College Only (N=42)	10	10	5	10	0	5	14	19	21
Community College and 4-Year College (N=15)	20	40	13	0	0	0	7	13	0
Four-Year College Only (N=79)	38	11	5	23	11	6	1	0	3
Trade, Military, Business, etc. (N=91)	0	4	2	2	0	26	24	13	24

8. What was the occupation of your parents at the time you graduated?

	Father (N=389)	Mother (N=176)
No Response	5	0
Professional, Technical, Managerial & Kindred	21	23
Clerical, Sales, & Related	11	29
Manual, Service, & Related	44	47
Farming	13	--
Other, Including Military	1	--
Unemployed	2	--
Deceased	2	1

9. Employment of graduates and dropouts

Kind of Job	First Full-Time Job			Present Job		
	Boys (N=179)	Girls (N=202)	Total (N=389)	Boys (N=179)	Girls (N=202)	Total (N=389)
	%	%	%	%	%	%
No Response, Housewife, Student	13	30	22	21	46	34
Health	2	6	4	1	6	4
Sales	7	8	7	2	4	3
Clerical-Office	7	24	15	7	24	15
Elec., Mech., Structural	11	1	5	13	0	6
Food Preparation & Service	2	10	6	1	4	3
Farming & Other Ag. Occup.	8	0	4	5	0	2
Personal Services	2	7	5	2	6	4
General Labor, Incl. Industrial Assembly Line	36	9	22	22	4	12
Misc., Inc. Military Service	12	4	9	27	6	16

10. What was your weakly pay (before deductions) on your first full-time job?

Kind of Job	Per Cent Receiving Various Weekly Earnings (before deductions)								
	No Response	Less Than $42.50	$42.50-$62.50	$62.50-$82.50	$82.50-$102.50	$102.50-$122.50	$122.50-$142.50	$142.50 or more	Military Service
No Response, Housewife, Student (N=87)	99	0	0	0	0	0	0	1	0
Health (N=16)	0	6	19	38	38	0	0	0	0
Sales (N=29)	3	48	24	17	3	3	0	0	0
Clerical-Office (N=60)	3	8	45	35	7	2	0	0	0
Elec., Mech., Constr., Kindred (N=21)	5	0	10	29	19	5	5	29	0
Food Prep. & Service (N=24)	4	54	33	8	0	0	0	0	0
Agricultural (N=15)	20	13	40	27	0	0	0	0	0
Personal Serv. (N=18)	17	33	22	22	6	0	0	0	0
General Labor (N=84)	4	2	24	26	12	17	5	11	0
Misc., Incl. Military Service (N=35)	0	9	29	20	3	3	0	0	37*
TOTAL (N=389)	26	12	22	20	7	5	1	4	3

*Thirteen were in military service.

11. What is your weekly pay (before deductions) on your present job?

Kind of Job	Per Cent Receiving Various Weekly Earnings (before deductions)								
	No Response	Less than $42.50	$42.50-$62.50	$62.50-$82.50	$82.50-$102.50	$102.50-$122.50	$122.50-$142.50	$142.50 or More	Military Service
No Response, Housewife, Students (N=133)	99	0	1	0	0	0	0	0	0
Health (N=14)	7	7	21	36	29	0	0	0	0
Sales (N=12)	0	25	42	8	25	0	0	0	0
Clerical-Office (N=60)	7	18	23	42	5	3	2	0	0
Elec., Mech., Constr., Kindred (N=23)	4	0	0	0	4	9	30	52	0
Food Prep. & Service (N=11)	9	82	9	0	0	0	0	0	0
Agriculture (N=9)	22	33	33	0	0	0	0	11	0
Personal Serv. (N=15)	7	20	27	33	7	0	7	0	0
General Labor (N=48)	2	0	6	4	8	19	31	29	0
Misc., Incl. Military Service (N=64)	2	19	5	5	5	2	2	2	61*
TOTAL (N=389)	37	11	9	11	5	4	6	7	10

*Thirty-nine were in military service.

12. How well did (do) you like your employment?

	Per Cent	
	First Full-Time Job (N=389)	Present Job (N=389)
Not at All	4	2
Not Very Well	10	2
Fairly Well	30	21
Very Well	31	37
No Response	25	38

13. Are you enrolled in school now?

	Total (N=389)
No	57
Yes	35

If enrolled in school, are you also employed?

	Total (N=138)
No	46
Yes, part-time	33
Yes, full-time	14

14. How long do you plan to stay in the same kind of work (present employment)?

Present Employment	Per Cent				
	Plan to Make it a Career	At Present No Plans To Change	Probably Few Years	Want to Change Soon	No Response
Health Occupations (N=14)	21	43	21	7	7
Sales Occupations (N=12)	8	42	8	42	0
Office Occupations (N=60)	7	57	18	15	3
Elec., Mech., & Struc. Occupations (N=23)	35	39	13	9	4
Food Preparation & Service (N=11)	0	9	9	45	36
Farming & Related (N=9)	44	11	11	22	11
Personal Service (N=15)	13	40	7	27	13
General Labor (N=48)	10	46	13	29	2
ALL RESPONDENTS (N=389)	9	25	10	15	41

15. Are you interested in taking additional training?

	Total (N=389)
No, for present work	16
Yes, for present work	18
No, for other work	4
Yes, for other work	25
No Response	37

16. If vocational programs in the following areas had been available in your high school, which one do you now think you would have taken?

	Boys (N=179)	Girls (N=202)
Office occupations ...clerical, stenographic, and others	3	30
Retailing for sales occupations	4	4
Food sales and service occupations	3	3
Health occupations such as nurse aide	1	23
Farming, conservation, forestry, or other agricultural occupations	12	0
Industrial...mechanic, machinist, carpenter, electrician & others	38	1
Policeman, fireman, or other protective services	5	1
Other	4	6
No Response	30	33

APPENDIX C--Continued

17. How many semesters of courses did you take in each of the following areas?

	Per Cent*				
	None	One or Two	Three or Four	Five or Six	Seven or More
Vocational Agriculture	86	4	3	2	5
Homemaking	55	21	14	5	5
Retailing-Sales	93	5	2	0	0
Typing, shorthand, office practice, etc.	27	42	16	6	9
Industrial--drafting, metals, machine shop, day trades, etc.	67	12	8	6	7
Mathematics	21	12	20	18	29
Science--biology, chemistry, physics	25	22	22	15	16
Vocational co-op	87	9	2	1	1

*Based on N=389 for each area of courses

18. What best describes the kind of high school school program you took?

	Per Cent					
	Almont (N=44)	Dryden (N=30)	Imlay City (N=62)	North Branch (N=65)	Lapeer (N=188)	TOTAL (N=389)
General	25	47	32	31	37	35
Vocational	9	7	19	9	6	9
College Prep	52	43	42	48	43	45
Other	5	3	2	9	3	4
No Response	9	0	5	3	10	7

APPENDIX D

SELECTED DATA FROM STUDY OF EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS OF 11TH GRADERS: MARCH 1966

	Per Cent
1. Father's occupation:	(N=589)
Professional, technical, managers (except farm), proprietors, officials and kindred	17
White collar (clerical, sales, and kindred)	3
Manual & service (craftsmen, foremen, operatives, mechanics, and kindred)	61
Agriculture (farmers, farm laborers, farm managers, forest occupations and kindred)	10
Unemployed and not in labor force	2
Deceased	1
Military	3
Miscellaneous	1
2. Where father is employed:	(N=589)
Lapeer County	46
Adjacent County	39
Non-adjacent county, Michigan	5
Out-of-state, including military	1
No response	9
3. Mother employed:	(N=589)
No	55
Yes	44
4. Proportion of mothers employed, according to the school attended by the respondent:	
Almont (N=52)	38
Dryden (N=45)	39
Imlay City (N=106)	44
North Branch (N=112)	42
Lapeer (N=274)	49
5. Nature of occupation of the employed mothers:	(N=261)
Professional, technical, manager (except farm), proprietors, officials and kindred	24
White collar (clerical, sales, and kindred)	21
Manual & service (craftsmen, foremen, operatives, mechanics and kindred)	47
Employment not reported	8

APPENDIX D--Continued

6. Educational background of parents:

	Per Cent	
	Mother (N=589)	Father (N=589)
Not a high school graduate	32	42
Graduated from high school	41	25
Business school or trade school	7	8
Some college	7	7
Graduated from college	5	7
Do not know how much education	5	8

7. Who influenced greatly your occupational choice? (More than one response possible)

	Boys (N=301)	Girls (N=288)	Total (N=589)
Mother	31	48	39
Father	54	31	43
Grandparents	5	8	6
Older brothers and sisters	19	13	16
Teachers	25	26	25
Counselors	15	16	16
Fellow students	11	18	15
Others*	23	28	25

8. Who influenced greatly your occupational choice (more than one response possible; data arranged according to school attended by respondents):

	School Attended				
	Almont (N=52)	Dryden (N=45)	Imlay City (N=106)	North Branch (N=112)	Lapeer (N=274)
Mother	29	42	35	42	41
Father	46	60	38	45	41
Grandparents	8	7	3	2	9
Older bros., sis.	17	24	15	16	15
Teachers	23	22	20	30	27
Counselors	10	20	24	4	18
Fellow students	19	27	14	13	12
Others	19	36	29	21	25

*Included in the written comments were persons such as nurses, secretaries, mechanics, military service personnel, ministers, social workers, engineers, and many others.

APPENDIX D--Continued

9. Which do you think is most important in a job:

	Boys (N=301)	Girls (N=288)	Total (N=589)
Security	13	9	11
Chance for advancement	12	4	8
Nice working conditions	3	2	3
High pay	5	2	4
Being able to find a job	1	2	2
Prestige	1	0	0.3
Liking your work	57	74	65

10. Do you or have you participated in any type of work experience during the summer or after school hours?

	Per Cent (N=589)
No	18
Yes	80

If yes, (may respond to more than one)	(N=472)
a. Regularly after school	31
b. Full-time during the summer	46
c. Occasionally	39
d. How many hours per week--	
10 hours or less	18
11-20 hours	17
21-30 hours	13
31 hours or more	26
e. What were your weekly earnings (before deductions)--	
Less than $42.50	60
$42.50-$62.50	7
$62.51-$82.50	6
$82.51-or more	3

11. Could you commute up to 25-40 miles to attend a vocational-technical program in this area?

Per Cent

Could Commute 25-40 Mi.	Almont (N=52)	Dryden (N=45)	Imlay City (N=106)	North Branch (N=112)	Lapeer (N=274)	Total (N=588)
No	8	9	10	1	7	6
Yes	54	42	51	63	51	53
Don't Know	29	47	30	22	34	32

APPENDIX D--Continued

12. Would you work part-time and summers to earn your tuition and expenses to attend a vocational-technical program in this area?

	Per Cent					
	Almont (N=52)	Dryden (N=45)	Imlay City (N=106)	North Branch (N=112)	Lapeer (N=274)	Total (N=589)
No	6	2	1	2	3	3
Yes	71	91	78	73	78	78
Don't Know	13	4	13	13	12	12

13. If an expanded vocational-technical education program were available in this area after your graduation, what curriculum would you be interested in?

	Per Cent (N=589)
None--prefer not to attend a vocational-technical school or want to attend a four-year college	18
Agriculture (farming, other agricultural occupations including forestry and conservation)	5
Secretarial/Office	13
Bookkeeping/Accounting	2
Retailing/Sales	2
Distributive (such as real estate, hotel-motel, etc.)	0.2
Skilled trade: auto mechanic, carpenter, electrician, etc.	16
Technical: electronics technician, draftsman, etc.	11
Nursing or other health occupations	11
Other (such as beautician, commercial art, teaching, airline hostess, interior decorating, music, and heavy equipment operator)	13

APPENDIX D--Continued

14. What vocational-technical education curriculum was designated by students with first choice vocations in the following general area:

Vocational- technical Curriculum Preferred (same as in No. 13)	First Choice Occupational Preference					
	Agricul-tural (N=34)	Distri-butive (N=24)	Office (N=61)	Industrial (N=96)	Health (N=64)	Food, Cloth., Per. Ser. (N=51)
None (not attend vocational school or attend 4-year college	12	17	3	5	16	8
Agriculture . . .	62	0	0	4	0	0
Secretarial/Office	0	8	74	0	5	14
Bookkeeping/ Accounting	0	21	8	0	0	0
Retailing/Sales	0	21	0	1	0	2
Distributive . . .	0	0	0	0	0	0
Skilled trade . . .	12	8	3	57	2	2
Technical . . .	6	4	0	17	3	0
Health	0	0	0	1	67	20

15. After finishing high school, what are your plans?

	Per Cent (N=589)
Prefer to remain in the Lapeer area if a job is available	32
Want to move to a larger community away from the Lapeer area	5
Don't know--it depends on . . . (such as) future decisions, college education, job opportunities, pay and type of job, marriage, military service, plans after graduation, career training available, where husband is sent, miscellaneous	61

APPENDIX E

SELECTED DATA FROM STUDY OF ASPIRATIONS OF PARENTS FOR THEIR 11TH GRADERS: MARCH 1966

1. If available, in which of the following areas would you like to have your child enroll?

	Per Cent Parents of Boys (N=157)	Per Cent Parents of Girls (N=173)
Trade and Industrial:		
a. Drafting	36*	3*
b. Metals--mach. oper., machinist, etc.	32	2
c. Power mechanics	25	2
d. Building trades--carpentry, masonry	26	3
e. Electricity--elec., radio/TV repair	36	3
Distributive Education--sales, marketing, etc.	13	19
Home Economics--homemaking	1	38
Agricultural Education:		
a. Farming--farm operator/manager	11	3
b. Ag. tech.--soils, animals, etc.	18	3
c. Ag. prof.--teaching, ext., etc.	11	6
Office Education:		
a. Clerical occupations	9	47
b. Stenographic occupations	5	50
None of These--College Prep only	13	25

*Parents could respond to more than one course, and many did.

2. Occupational guidance and counseling: (Per cent responding YES)

	Total (N=333)
Have you discussed occupations with your child?	85
Think the school should have placement service upon graduation?	56
School should provide more occupational counseling?	82

APPENDIX E--Continued

3. Do you think your child has the ability to take further educational training?

	Parents of Boys (N=157)	Parents of Girls (N=173)
My child has ability to take further training--business school, technical or trade school	41	29
My child has the ability to complete junior or community college	13	15
My child has the ability to take a four-year college program	32	40
Don't know	10	12

4. What do you believe your high school program should provide? (Check one or more.)

	Total (N=333)
A general academic program	7
A general academic program with some training for employment	50
A general education program with a program to provide vocational competency	44
A college preparatory program	51

5. How many of the parents who indicated they wanted their children to take a college preparatory program only also indicated the school should provide:

	Total (N=65)
A general academic program	9
A general academic program with some training for employment	42
A general education program with a program to provide vocational competency	40
A college preparatory program	82

6. If an expanded and improved vocational-technical program were to be developed, would you vote for additional levies to support it if tuition were free or quite low?

A. By School:	Almont (N=23)	Dryden (N=14)	Imlay City (N=76)	North Branch (N=91)	Lapeer (N=128)	TOTAL (N=332)
Vote No	4	0	9	3	3	5
Vote Yes	74	57	53	55	55	56
Don't Know	22	36	36	37	38	36

APPENDIX E--Continued

B. By kind of high school program which should be provided:

	Gen. Acad. Program (N=23)	Gen. Acad. w/some Tng. for Employ. (N=167)	Gen. Ed. with Voc. Competency (N=147)	College Prep (N=168)
Vote No	9	5	3	4
Vote Yes	61	52	59	54
Don't Know	30	40	33	39

7. Assuming your son or daughter had the aptitude and capacity and that any education necessary could be financed, which occupation would you like to see your child follow?

	Per Cent (N=333)
Agricultural	5
Business (distributive)	4
Office	14
Industrial (technical & skilled)	15
Health	11
Food, clothing, personal services, related	2
Engineering and other professional N.E.C.	11
Teacher	11
Miscellaneous	4
No response	23

VT 001 211

Tri-State Conference for Trade, Industrial and Technical Education (2nd Annual), Southern State College, Springfield, South Dakota, August 28-30, 1966. Summary.

Southern State Coll., Springfield, S.D.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 63p.

*CONFERENCE REPORTS; *TRADE AND INDUSTRIAL EDUCATION; *TECHNICAL EDUCATION; *PROGRAM PLANNING
NORTH DAKOTA; SOUTH DAKOTA; NEBRASKA

The Tri-State Conferences were established to provide a closer working relationship among the states of North Dakota, South Dakota, and Nebraska and to provide the vocational trade, industrial, and technical education personnel with an opportunity for professional growth. The participants included state department personnel, administrators, industrial representatives, and teachers. The presentations were: (1) Building and Equipping Vocational Facilities, (2) The Role of the Technician in the Aerospace Electronics Industry, (3) Report from the Regional Office and a Look into the Future. and (4) Organized Labor and Vocational Education. State reports were presented for North Dakota, South Dakota, and Nebraska. The conference summary included reports of representatives from Wyoming, Iowa, the South Dakota Industrial Development Expansion Agency, and The United States Office of Education. (HC)

VT 001 211

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SUMMARY

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ANNUAL
TRI-STATE CONFERENCE
for
Trade, Industrial and Technical Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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August 28-30, 1966

SOUTHERN STATE COLLEGE
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F O R W A R D

The following report is a summary of the Second Annual Tri-State Conference which was held at Southern State College, Springfield, South Dakota, on August 28th, 29th, and 30th, 1966.

The three state area is composed of North Dakota, Nebraska, and South Dakota. The conferees in attendance at the conference were primarily from the three state area with representatives from Wyoming and Iowa.

These conferences were established to provide a closer working relationship between the three states and to provide the Vocational Trade, Industrial and Technical personnel with an opportunity for professional growth.

It is hoped that this report on the conference presentations will serve as a source of reference and assistance as we in Vocational Education attempt to meet the challenge with which we have been charged.

Thomas C. Stone, Coordinator
Second Annual Tri-State Conference

Presentor: Mr. Ike Olson for Mr. Roy Ziegler. Introduction for Mr. Mandell speaking in place of Mr. Michael Russo, U. S. Office of Education, Washington, D. C.

* *

Mr. Olson.

I always accuse Roy of leaving me high and dry when it comes to a little job like this one to be done. But Roy was called away because of a manpower program which needed urgent attention. I told Roy I didn't know what this MDTA stands for --- whether it is "more delay than action" or "more damn trouble ahead" or just what it is! Seems like we get into many predicaments because of the manpower program. It needs a great deal of attention.

It is most gratifying to see such a large turn-out for the Tri-State Conference and I'm sure that we will have a fruitful conference here today and tomorrow.

As I told you last night at the banquet, I'm going to make a rush trip over to Sioux Falls. I rushed over but we took our time coming back.

It gives me a great deal of pleasure to introduce to you the first speaker of our program today. Hi Mandell brings to us a past background in the field of facilities construction in which there certainly is a great deal of interest because of the construction of vocational schools.

Mr. Mandell is a civil engineer and a construction management consultant. He attended school at George Washington University, the University of Maryland and the UnitedStates Army Engineer School; he has spend over 25 years as an officer with the army corp of engineers. During this time, he served as a faculty branch chief at the U. S. Army Engineer School. He was a projects engineer in Alaska where he directed and administered construction contracts. He was the director of construction planning group at the joint army- air force headquarters. He was chief of the facilities branch for the first amy headquarters. Some of his responsibilities of these assignments included design, construction, and maintenance of airfield complexes, powerplants, hospitals, housing, pipelines in schools and other training facilities.

On our way back from Sioux Falls last evening, I thought I would talk a little bit about the fishing in South Dakota. I quieted down in a hurry because I found out that I was just strictly a neophyte in this area!

Mr. Mandell is married and has two boys, ages 17 and 14.

At this time I'd like to present to you Mr. H. S. "Hi" Mandell of the United States Office of Education. Mr. Mandell.

* *

Mr. Mandell - U. S. Office of Education, for Mr. Michael Russo.

TOPIC: Building and Equipping Vocational Facilities.

Thank you, Mr. Olson. You know, I almost sound like an expert. They ask you when you are going to attend one of these sessions to please send us a resume. You are almost ashamed to put down some of the things, but this is the way life goes.

I should greet you by says lady and gentlemen. As you know, my topic is building and equipping vocational Bacilities. This is all the information I had for what I was supposed to discuss this morning.

One of the problems that we are running into, that we see at the national level, is the inability of school's people to talk to architects. That is why this morning I want to present my topic in two ways.

One in the light of what you as educators and school planners must be prepared to pass on - to communicate to your architects and engineers. What they must know to adequately design your facility. Now, before I go further, I'd like to know by show of hands how many people here are directly involved in the design or the construction of educationa l facilities. May I see the hands, please? About a quarter - good. Thank you.

I have a question I want to start with. It is a quote from Dean Evans, the University of Illinois - I didn't have sense enough to think of it myself, so I've got to rely on him. His question that he presented in front of a conference quite similar to this -- is it reasonable to issue bonds which be paid off in 30 years for construction which is useful only for an occupational training program which has a 10 year life expectancy?

Now I understand that there are more than three states represented here and I just found this out last night. But I know that for Nebraska, South Dakota and North Dakota, you're planning some 23 new area vocational educational facilities. For how long will they prove to be efficient educational facilities? So you have my two questions.

Now, first we're going to talk in general terms about the relationship of the architect and then we'll give you what we call food for thought or food for consideration.

Now the building can be designed most effectively for its intended functions only when all revelent information is collected and submitted to the architect before he draws a single line. The invelent information is usually referred to as educational specifications and constitute the basis for the architect as he refers to the program of requirements. Specks provide the data requisite to planning and design. The architect should be able to determine from them the type and amount of area needed for each program offering. Each program offering which is to be accommodated as well as the relationship of that space to the other space requirements. From them he should also be able to determine and for our other requirements we've got; accoustics, heat, light, ventilation, you nameit.

Mr. Mandell - continued.

Now there are some architects who prefer to have precise area needs specified for each student teaching station, each office or other space. Most of them, however, have a little pride in their work - more pride - that's how I look at it. They have a preference for such fair and exact description of activity, the quantity of people involved, that they can design spaces needed for projected as well as current requirements. In the first situation the extent to which the space requirements are m et satisfactorily will depend upon the judgment of those supplying the information and the care used in investigating area needs. The second method requires a description of how the space in each instance will be used - tje amount- the size - the type - and other characteristics of all equipment which is to be utilized. Now this second method does require more work on the part of you, as planners, and on the architect. But if carried out properly, a skillful and creative architect will be much more likely to design the building superior to that which would have resulted from requirements stated simply as area of so many square feet.

You might also consider the same standards in giving them to the architect for guiding him in designing the lighting, the decoration, the heating and ventilation and air conditioning and so forth. At very least, you must be prepared to discuss all these things with your architect. The successful interpretation adaptation of your educational specifications depends upon the employment of an able architect under terms which allow him to utilize his competencies to your best interest.

The major responsibility is his for translating speeks into architectural drawings and specifications. The drawings must provide for the functional requirements of the people and the activities which are to occupy the building. They must also provide a building aesthetically pleasing, structurally strong, safe in every regard and economical to build and operate. I call your attention to this word aesthetically. More and more our school builders are giving the type of recognition to the aesthetic requirements. The drawings must provide adequate detail to assure competition for construction contract and to make clear to the successful bidders the exact kind, quality and quantity of work to be provided. The range and complexity of the duties of the architect and the compelling need for cooperative working relationship between school construction planners and the architect make the selection of the architect a vital step in the building program.

Now our aim, both yours and mine, must be to build facilities with inherent flexibility; adaptable to what we call the always current educational need; with multi-purpose; multi-program and multi-costs ever in mind. I really do not think that we have any choice in the matter. But, there may be those among you who are thinking what does this character from the University of the Potomic know about our needs. I can tell you this. By 1975 we are going to need, as a minimum figure, some 1986 schools across the country, that will be offereing vocational and technical education. If we look at the construction cost of these schools at todays' dollars, this runs a little bit better than one and a half million dollars. This is just the constructional cost. We add the land costs, the site costs, site development, the various fees involved including the architects and engineers fees, the interest on the

Mr. Mandell continued.

money, the cost of the equipment, which can run from 40 to 60% of the total evaluation - we put these into this hopper of costs that y ou and I even as tax payers have more than a passing interest utility of public supported educational facilities.

To the architect the functions of the people and the activities inside of a building or group of buildings serve as references for exterior design and lay-out. The several publications, the many plans we have seen indicate that there is no such things as a conventional school building. Their outlines today are fan shaped, circular, high rise, square, rectangular, snow flaked and some are even dome shaped. Some combine the various forms. In fact, the most similar characteristic lies in the fact that they have differences.

The materials now used for school construction vary almost as much as their design. Local cost considerations naturally being a major factor. We find brick, stone, enamelized metal panel, monolithic concrete, pre-cast tilt up concrete; all of these are being used in school buildings today. To digress for a moment, there is a problem in an area such as yours, which requires a great deal of consideration. You're planning right now, I think, on some four schools that will be under way shortly under construction, yet you have communities of 100 souls, a 1,000 souls, it is rather difficult to take care of these people educationally. I wonder what consideration you have given to the use of prefab school buildings - or portable school buildings or to movable school buildings, call it what you will.

One feature that we find appearing so often today, as a matter of fact, Mr. Olson showed me a picture of a school which follows through on this, they are windowless buildings. For years we have been saying that natural light is necessary in the classroom. That staring at four walls is depressing to the students. So schools were built with broad expansions in glass. Then what did we do. To command the students attention we went out and purchased venetian blinds, drapes, window shades and the like. We wanted to block out the light. We wanted to retain the student's attention. Recent studies indicate that it is not the students that have problems staring at four walls, but rather the teacher who is confined to the same classroom all day. Some of these studiesindicate that there is a solution to taking care of the teacher through the use of color patterns in our furniture, our furnishings, the walls, the ceiling and so forth. And very often the same classroom is used for more than one subject and a very simple rearrangement of furnishings can provide enough change to satisfy the teacher and keep them from getting claustrophobia. We should bear in mind that a windowless building has a number of good attractions. One is that savings in drapes, venetian blinds, etc., another savings sometimes not realized is the elimination of the overhand of the roof. Now right quickly, a 60 by 90 building with a two foot overhang runs 116 square feet that can be saved. I don't know what it costs to build a roof out here, but I know in some sections of the country this roofing can run 5- 6- 8 dollars a square foot. So you can seejust how your savings can be realized right there.

Now, different from yesteryears is our recognition that the school plant site contributes to the learning environment. A pleasingly land scaped area provides an impact to the student observer that might well set the daily tone from his receptivity to learning.

Mr. Mandell continued.

Graceful and attractful walks and drives accent the aesthetic qualities. Unfortunately, we're finding that too many of the construction contracts which are let leave the landscaping, leave the walks and drives for future accomplishment. And you know what the demand is for money. So the result is that years may pass before this landscaping is completed. Before all the walks and drives are in the way they should be. Here we would recommend that you try for a complete package.

The parking facilities, their location, can add to or detract from the efficiency and appearance. I looked at a design just last week, or excuse me, two weeks agao, and I saw the neatest job of the funneling of traffic that I had seen in a long time. They had a circular parking lot. One entrance - one exit and both led to a funnel point.

Where you are building more than one building, and you are using the thought or the concept of clustering, you might investigate interior parking. Putting your vehicles inside the circle of buildings. We have to remember that we're getting more and more adult participation in our educational programs. Consider their parking needs. We're finding from your experience or experience out amongst the states, that a ratio of 4 to 1 works well for adultparking. Four adults to each parking space.

Now we come to the site itself. National statistics for 1965 and these are the actual construction costs reveal that site development cost range from 1.7 to 14.5% of total construction costs. No small amount even at the lower figure. As to important factors of size of the land - the cost of the land - again we can find no pattern. These figures may run from next to nothing, a donation, or to astronomical figures. Basically, school boards are encouraged to obtain sufficient land to satisfy current and foreseable needs. I say this with tongue in cheek, when I consider the cost basis in a rural community such as you have, versus that to some cities today where the land is sold by the square foot and even by the square inch. And it runs to dollars by the square inch also, not pennies. So the land you might want - consider these items also. I don't know whether air rights are a problem in your states. In some states they are. But make sure you have clearance on these air rights. Make sure or check into at least, the availability of public transportation to service this school - this particular site that you have. Have an investigation made - find out what is in place of the land that you want in the way of utility services. Do they offer any depth restrictions? At the same time, check out what you need and what is available in the way of getting these services - these utilities - gas, water, electricity, storm sewer lines and so forth to your particular school site. You might find that by properly locating your school on a particular site the fact that the access to these utility lines is such that you may realize a savings in dollars.

There is one other thing that you should check out and this might also be true in your state, and that's the mineral rights to the land. In California, Nevada and places like this, we know that this is a problem. We know of huge tracts of land owned by Uncle Sam - the use of the land is owned, but the land itself, you can't remove a stone because someone else owns the mineral rights. Check and make sure you have this clear.

Mr. Mandell continued.

I'd like to add a criteria for the location of this school site. Would you select it for a junior or a four-year college? If the answer is yes then it's good enough for a vocational-technic-a l school. If the answer is no, we would recommend that you for-get it.

Now I told you there was two parts to this and this is my 2nd part. Much has been said and will be said about flexibility and adaptability. To provide the same, the architect must have factual information about the curriculum. This is his keystone which binds the facility into a coordinated whole. The school boards and the teachers philosophy in educational information should be reflected in the curriculum guide and discussed with the designer. Or, let me put it another way. Hook into the educational specifications, the schools philosophy as well as factual curriculum data so flexibility may be made inherent to the design. In fact, if you have a copy of the curriculum itself, give this to the architect. He can glean much idear from the curriculum itself. Now as part of that flexib-ility and to be a little more specific, here is the other food for thought and decision on the part of you school planners.

To para phrase a wall is a wall is a wall is no longer true. Some schools already schedule their custodian staff to move walls in or out between classes or over week-ends. Now we must recognize that flexible, movable walls can result in some loss of wall space. On the other hand, the efficient use of total space is generally much better accomodated.

Now certain elements of a building have usually been a permanent type of installation. We ask that you consider the possiblity of core units - your lavatories, your administrative suites and the l ike. When you use these core unites you will find they fit well, with the concept of clustering related activities within a building. The pipechasers generally eat up a substantial amount of the gross floor area, even worse, sometimes we find that they become barriers to expansion or contraction. Your architect has answers to these problems if you will but let him know what your thoughts are on the matter. A number of school now under construction or on the drawing boards provide for both major and minor administrative suites. The m ajor suite contains the principal school offices, the major records, the records of personnel and serving the day school stud-ents. The minor suite is usually located in that section of the facility that can best serve adult registration, adult guidance, and adult counsel. Now more and more of the administrative suites are providing a conference room for civic groups, for civic balls, for teacher and advisoree conference meetings. What is happening is that adults are being accorded adult accomodations. What is happen-ing is that the school is servicing more of the community needs, and rightly so.

Space for guidance. Here too, the trend is for a major and a minor unit. Here too, the minor unit is for adults for testing and counseling. One of the distinctive features of these guidance counseling units is that they are being divorced from the administ-rative units, plus when this happens we are taking away any connot-ation of discipline. And this is good.

Mr. Mandell continued.

How many times have you sided down a long corridor and wished that some of that space had been emp loyed for classrooms? Corridors as such can be eliminated or reduced. If you will consider the clustering of teaching units or cross-sectional corridors that permit traffic mobility without a main convergent area. You can get rid of a lot of corridor space. Let your architect offer you several ideas, several sketches on how this canbe done. The overall space savings may be balanced by the fiscal limitations that may equate with them. I understand from our conversation last night you have one school that goes far towards eliminating corridors. This is an idea that people are carrying out more and more and should carry out more and more. I personally fight with architects that I talk to when they start talking about alleys of traffic. You don't need them really. The architect has other solutions to the problem.

Now, my secretary when she was typing these notes, made the comment that, and she was trying to be a little facetious, that eating facilities are a problem aren't they? But they needn't be. And I said eating facilities ---- I'm talking about cafeterias! Cafeterias are being built to serve as teaching stations for culinary arts and services. This use might well be part of the justification for providing the cafeteria in the first place. You should investigate the practicality of using stand up tables versus seating facilities. Weigh the pros and cons. Which will best serve your purposes. your aims, your philosophies. Without question these eating facilities should be kept away from the student lounges. Don't get them together or you're looking for problems. Now with the growth in adult students - many of them coming directly from work, we should be considering canteen meals, so that they might grab a bite to eat before they start their lessons. Now we have found in not to many units, in some 3 to 4, to be exact, or as exact as I can be at the moment, that these schools are offering hot meals to the adults coming in at night to attend the evening classes. These schools maintain that this program is paying for itself. Now the details of their operation I don't know. But you might investigate it where you have large adult enrollments.

We mentioned student lounges, both they and teachers lounges, if provided, should be of adequate size, with adequate furnishings and adequate ventilation. Many adults still smoke. And we're finding that in a number of schools that have been recently build, this little comfort item is not provided for. Again, keep both the student and the teachers loungers, keep them away from the administrative units -- keep them away from the eating units.

Now with the growth in all types of audio-visual aids, teachers require a preparation room. With the growth forecast for team teaching, here we have need for further room where teachers can meet and prepare their materials. This room should include some large drawer units so teachers can store their unfinished projects. Storage units. Generally a gathering place for dust, odds and ends, and more seriously, for non-learning people. Have you considered a central receiving unit? A teaching station where warehousing, ordering, stockcare, stock inventory, can be taught. Along with this idea, consider portable tool clips and storage racks. If you want a room divider why not use these portable racks and clips as artificial dividers?

Now I don't remember the last time I was in a classroom as such, that didn't have a finished ceiling of some type. But I do know and I'm sure tha t you do too, of many shops that have no finished ceiling. Accoustics - heat - light - air conditioning needs are all beginning to swing to full ceilings in the shop areas. I think the reasons are rather obvious. There is usually quite a bit of empty space that must be heated and that costs money to heat it - the space is usually non-usable. Why we heat it - I don't know. The benefits that we can get in sound, air and light control by having a ceiling in their shop area is tremendous. And this has been well proven.

Now, helping accoustically and in reducting maintenance costs is the growing use of rugs. We find them more and more often in your designs for your administrative offices, your guidance rooms, your student and teacher lounges, your preparation rooms, and in many of the related classrooms they are now using rugs. Now if you are going to use Terrazzo or Sprayglaze or an epoxy floor mixture on your walls and floors consider the initial cost versus the future maintenance factors. Which outlay can you best afford? Is it best to be dollar saving today and penny wise saving tomorrow?

Now as a token of what can be afforded, 70 percent of all the new buildings, school buildings, voaational-technical buildings, that are going up are completely air conditioned. 90 percent of all the new buildings have some air conditioning. The cluster units we mentioned earlier are ideal for zoning, for air conditioning. Also, in this area, flexible units on the market today are adjustable to room size. They can be provided to maintain the over-all flexibility of your classroom areas. I don't know how it is here in your state, but you might want to explore the use of electricity for year-round air conditioning. This is total air control. We are finding that the end rates in many parts of the country indicate that there are economic as well as the other required benefits from all around electricity.

I don't know how cold it gets here in the winter but I'm sure that it doesn't get any colder here than it does up in Northern New Hampshire near the Canadian border and they have an all electric school up there, where they've already figured out some 40 or 50 thousand dollars in savings in two years that the building has been up.

Now the potential benefits of a central library is too often overlooked. That is a library that furnishes truck service to all shops, to all laboratories and all class rooms. One that is a technical library that is accessible to the public - open at all hours. What other resource do you have in many of your towns and cities for technical information for the local townspeople. Why not offer them the school's library. Get your full dollar valuation out of that school. We see libraries today which can put out closed circuit TV, they can provide all types of autio-visual programs and the library itself is a multiple resource student learning station. Now when I am talking about the central library unit there is not implication here that you do not need a reference shelf in your shops. We think it is necessary there.

Mr. Mandell continued.

You might consider the next item a bit of a digression. However, I ask that in any of your facility planning you give due consideration to the needs of the physically handicapped. All too often the nature of our school buildings has met the termination of education at grade 8 for many of these people. We look kindly on our young children. We make it easy for them to move in or out- up and down our buildings. The toilet facilities and the drinking fountains are positioned fairly reasonably for these youngsters. It appears it is difficult to appreciate the fact that 1 out of 7 has a physical handicap. I assume that if we took a census here right now, we'd find that the statistic would stand up. Let us make our ramps, both interior and exterior, let us make our hand rails usable by these people who have physical handicaps. You might even want to go so far as to consider electronically controlled doors, appropriate faucets in our lavoratories. Let's at least five this some consideration. What is the population like in your particular community. Does this 1 out of 7 hold true there? Or is it of a lesser ratio? Or greater? Make these needs known to your architect.

I have eight items I'd like to summarize with that you as school planners should be prepared to communicate with and on with all your co-thoughts in school planning and particularly with the architect. I'll tick them off by number.

1. The checking of preliminary floor plans against preliminary space requirements.

2. The checking of the preliminary room and shop arrangements.

3. Checking of preliminary equipment layout.

4. Checking of the preliminary mechanical drawings and sections against the tentatively approved equipment layout in room arrangement.

5. Checking of the preliminary specifications - make sure that everything is covered that is supposed to be covered. Make sure you have your safe guards built into your specifications.

6. Checking of the final plans prior to submission to the board of education for formal approval. And the same for the specifications. The checking of the final specifications before submission to the board of education for formal approval.

7. Checking, and this one is sometimes quite difficult, checking of all sub-contractors shop drawings prior to the architect's approval. You should know what they contain.

8. Checking of the preliminary and the final punch list. And in the event that our lady does not know what a punch list is, I'm sure you men do, a punch list is that list of items you find unsatisfactory once the contractor considers the work completed.

Mr. Mandell continued:

I'm on time to sign off and to bring down my curtain through the kind cooperation of many of the state directors of vocational education. We, of the University of Potamic, now have on hand a goodly number of plans of vocational-technical education schools that are now under construction or just recently constructed. We at the University of Potamic are in the process of editing these. We are going to extract the innovative features and we hope within about six months to have some type of pamphlet ready for distribution to the field. Surprisingly, or not surprisingly, I should say, American ingenuity has not quit. The ideas coming from people like yourselves, the innovated features being incorporated into these schools is something fabulous. What we are going to try to do is set up models of these innovated features so that in the future you might have a reference where you can adapt some of these things to your requirements, ----- as you see them.

Thank you!

Mr. Walter E. Miller, Jr., Manager, Industrial Relations, Field Service and Support, Aerospace Group Hughes Aircraft Company, Los Angeles, California.

TOPIC: The Role of the Technician in the Aerospace Electronics Industry.

I. The Technician-Engineer challenge:

a. Represent a highly technical industry.

b. We are not unlike much of industry in this day and age.

c. The stress is on greater and greater technical competence.

d. As our national technology advances we can expect greater industrial demands for highly skilled, technically trained personnel.

e. The challenge to us in this auditorium and to industry is at least two-fold:

1) We need to train people in increasing numbers in the many engineering and scientific disciplines required by industry.

2) We must also learn to most effectively plan, organize and otherwise manage our technical talent. In this latter regard, we have much to learn.

f. The Congressional Record for the United States Senate, from April 5, 1966, contains the following pertinent information from a speech by Senator Ribicoff: "A nationwide survey indicates that the overall industry and Government ratio was 2.5 engineers to each technician, when the need was almost the opposite - three technicians to each engineer."

g. If the Senator's remarks are valid, then we have much to learn to more effectively manage technical manpower. It also means that a far greater number of technicians are needed and must be trained.

h. As near as I have been able to ascertain, the ratio of engineers to technicians in the Aerospace-Electronics industry is estimated to be one technician to one engineer. At Hughes our ratio is approximately 1.5 engineers to each technician. Thus the industry I am representing is utilizing more technicians than industry in general.

i. In any case, whether it be industry nationally, or the Aerospace-Electronics Industry more specifically, there is a need for technicians and a tremendous need for industry to learn to utilize them.

j. Speaking of this need for technicians, Secretary of Labor Wirtz has stated: "Our particular need is for semi-professional personnel who can assist engineers, scientists, and other professional workers."

k. A report of the National Society of Professional Engineers is similar in tone: "One incontrovertible fact stands out with brilliant clarity: there is virtual unanimity of agreement among manpower specialists, both in and out of Government, that there is an urgent need to train impressively more numbers of 2-year technical institute graduates."

Mr. Walter E. Miller -- cont.

1. I have not been able to find or develop statistics showing today's need for technicians. If we take the present 2.5 engineers to 1 technician ratio and say it should be reversed, we can easily develop a number. However, I feel such a number would be meaningless. Suffice to say that our industry, in todays labor market, is really suffering from a lack of qualified technicians. Any qualified technician can just about write his own ticket.

II. What is a Technician?

a. The technician's role tends toward the practical application of principles.
b. He provdes the important link between the engineer and the craftsman or manufacturing assembler.
c. His job is partly engineering and partly crafts or skills.
d. In the Aerospace-Electronics Industry, we find technicians working in three broad fields:
   1) Research and Development. Here the technician works very closely with the engineer or scientist.
   2) Production. Here the technician follows a procedure established by an engineer in testing the products being manufactured.
   3) Installation and Maintenance. The technician here fabricates, installs, adjusts or modifies, and maintains, various types of equipment, some of which is of a technologically advanced nature.

III. Background for Hire:

a. The Aerospace-Electronics Industry, not unlike other industries which utilize the technician level of personnel, required that these people have some formal educational background beyond high school.

b. In most cases the applicant should have two years of schooling beyong high school.

c. The applicant who has completed Navy or Air Force electronics schools and who has several years of service experience usually makes a good employee.

d. The main point I want to make is that our industry, because of our advanced technology, absolutely requires technicians with Junior College or Technical Trade School level work.

e. I have developed a slide which shows the education and experience required for different levels of technician classifications.

f. Another important consideration in discussing the technician in the Aerospace-Electronics Industry is his rate of pay. This next slide shows the compensation picture. Remember that to each wage increment, you must add the cost of fringe items which runs around 70¢ per hour or $1,400.00 per year.

IV. Types of Assignments:

a. The use of the general term "Technician" has nearly lost

its meaning. The following slide will tend to prove this point and also to show you the wide range of job classifications found for Technician in the Aerospace-Electronics Industry.

b. I have a copy of each of the job descriptions for the many classifications noted on the slide. Because of the great number of different jobs, it is impossible to discuss the exact nature of each. However, let me, at random, briefly describe several. Also, the descripts I have are available to any of you to study.

c. What better proof do we need that this is the age of specialization?

V. Promotability:

a. In considering the role of the technician, I would be remiss if I did not discuss the promotional opportunities available to such employees. With their technical backgrounds, and by being a part of a highly technical industry, the technician in the Aerospace-Electronics Industry can expect to be promoted if, as in the case of other employees, he chooses to put out that extra effort.

b. To help us consider the more obvious channels of promotion, let us look at this next slide.

c. As you see, the future is excellent for a person soundly educated in the technical disciplines involved in being a technician who acquires good work experience and develops good work habits. As with any walk of life, nothing is for sure but the technician has the prospect of a bright future.

VE. Educational Assistance:

a. The Aerospace-Electronics Industry has an aggressive program to assist the technician to earn both basic and advanced educational credentials.

b. I make a special item of this subject because I feel that the programs I will outline for you tend again to point up the importance of the technician's role in the Aerospace-Electronics Industry. Our industry, like all human endeavors, tends to spend effort, time and money on those items of business which are most apt to further the cause: a successful company.

c. The programs that I would like to briefly describe are these:

d. At Hughes we have a fine Engineering Support Technician Apprentice Program. It is a comprehensive training program designed to graduate knowledgeable technicians. The following slide outlines the salient features of this apprentice program.

e. There is not a technical project, past or present, in the Aerospace-Electronics Industry in which technicians have not played an important role. Whether we are discussing missiles, missile systems, computers, satellites, lunar exploration vehicles, spaceships, or the newest experimental aircraft, technicians have and are playing an important role. This is true whether we are discussing the R&D phase or the operational phase of a given program. The technician is there -- performing his function of assisting the engineer.

VIII. Summary and Conclusion:

a. In summary, let me reiterate that the technician is an important contributor to the success of the Aerospace-Electronics Industry.

b. Technicians, now in a ratio of 1 to every 3 engineers nationally, and 1 to 1.5 in our industry, should, by the best authority, be in a ratio of 2 to 3 technicians to each engineer.

c. The educational and promotional opportunities for technicians are tremendous. As time goes on, with our technology advancing as it is, the future is even brighter for the technician.

d. The technician finds himself working in assignments from R&D to support of operations. The general technician field is becoming more and more specialized as we noted from the many technician classifications.

e. Industry is footing much of the educational bill that is involved in technician training. This is because of the great need for these people. Government MDTA (Manpower Development Training Act) funds are also supporting these programs.

f. Because of the tremendous contributions being made daily by technicians to highly technical programs, c coupled with the fact that all expert opinion indicates we need many more technicians in comparison to engineers, there develops a sizeable and important management challenge. In short, we need to learn to better plan, organize and effectively utilize our technical manpower.

IX. The Challenge to You:

a. I feel that each of you can make a real contribution to the solution of this management problem.

b. We are here specifically discussing the Aerospace-Electronics Industry. However, the principles we have discussed a pply generally to all industry.

c. The most obvious contribution you can make is to train

Mr. Walter E. Miller, cont.

more and more technician caliber personnel. This is important.

d. I also feel that you can have a real impact on business and industrial leaders by discussing with them the logic, the means, the ways in which industry can utilize more technicians in comparison to engineers.

Presentor: Mr. Ike Olson, State Director of Vocational Education. Introduction for Mr. Thaine McCormick, Regional Director, Department HEW, Region VI, Kansas City, Missouri.

* *

Mr. Olson.

Our next speaker for this afternoon is not new to many of you. I'm sure most of you have had the opportunity to be in conferences where Mr. McCorm ick has been either on the panel or discussion leader or main speaker, but we are most happy to have him here with us this afternoon.

I had the opportunity to attend a conference not too long ago where Mr. McCormick's wife was in attendance. As Thaine got up to give his talk, she passed him a note. On this it had K.I.S.S. and Thaine thought that this meant kiss and then he looked in the front to see his wife and she said "Keep It Short, Stupid"!

Well, I won't ask him to keep it short because I'm sure that Thaine will have a great message to bring to us this afternoon.

First, I would like to give you a little background of his experiences, both educationally and the different positions that he has held.

Mr. McCormi ck is a native Oklahoman, but we won't hold that against him! He took his college work at Oklahoma State in Stillwater, Oklahoma and for eight years was a day trade vocational teacher at Pacca City, Oklahoma - adult and high school vocational education. He had two years as a technical instructor at Oklahoma State and Okinowa University. Three years of T & I Teacher Education at Oklahoma State. Four years as T & I Educator at Pittsburg State at Pittsburg, Kansas.

I don't know how he lasted this long, knowing the problems the state directors have, but he served as state director four years in the state of Kansas.

At the present time, since September 1st, 1965, he has served in the capacity of Regional Director of the U. S. Office of Education and is located in Kansas City, serving our region six.

And, so, at this time, I would like to present to you, Mr. Thaine McCormick.

* *

Mr. Thaine McCormick, Regional Director, Department of Health, Education and Welfare, Region VI, Kansas City, Missouri.

TOPIC: Report from the Regional Office and a Look Into the Future.

Thank you, friend Oleson, and my wife is not in the au dience today, I don't think, but I've noticed that this conference is a respector of time and to give you confidence at the end of a warm hard day, I am taking off my watch and placing it right here in front of me. For your information, this watch has a minute hand, an hour hand, a second hand and a calendar on it, so if we get into the next day, why somebody throw something.

At the top of my notes and I am speaking from not a script, but one page on which I have jotted down some quide lines, I have written 3:50 to 4:30, so at 4:30 I am going to stop and we are going to get out of here unless it is snowing outside, and I think that is reasonably safe.

Frankly, I have been looking forward to this conference for some time and had it on my calendar for some time. Since taking this position in this region, now nearly a year past, it has been my privilege to visit the school at Wahpeton and the school at Milford and with a busy travel schedule, I have had to delay visiting this school until this conference. After having seen the activities on these three campuses it gives me a pretty good idea and I'm sure you're proud in the vocational-technical activities that have taken place in these stateooperated institutions in the states represented here at this conference.

As mentioned here, I came into broad field of vocational education and administration out of the field of trade and industrial education and I'm proud of my background in trade and industrial education and I enjoy working with trade and industrial people and as Charlie Weaver would say - "you're my kind of people" and I enjoy the association - I enjoy being with you.

I do not stand before you today, however, as an expert in trade and industrial education. I think I was a pretty good trade and industrial educations man at one time but having surcummed to this business of administration, a process set is, you know, which causes one to know less and less about more and having been an administration man for five years, I get the feeling sometimes I know darned near nothing about dammed near everything! So I am no longer in a position to talk to you about the details of your work. I sometimes wonder how I would get along today as a tradesman and on some days I feel like I would like to give it a try.

I am going to visit with you rather informally for the next 20 minutes or so and I say visit with you rather than address you. I have already mentioned that I have no script before me - I simply want to talk to you about some plans and issues in vocational education as I have observed them from the vantage point of state directorship and more recently as regional representative which by nature of my job has provided me an opportunity to attend a lot of meetings of all kinds and will all facets of our society and our educational program . I have observed some training issues that

are before us today and I'd like to just visit with you as to what I think these trends and issues mean to you and me in vocational education. We in the Kansas City regional office like to feel that we are working as part of the graduates team in this whole field of vocational-technical education and I'll admit that when I visit with you I am probably less elegant than when I talk from a script but I can tellyou, I'm a whole lot more honest when I approach it from this point of view, and I intend to be honest wihh you and speak quite frankly. There's not one in here but us chickens and I think we need to always, constantly take a very good look at ourselves in the mirror of the society of which are are developing a program and working with youth and the facet of our total education program which is dear to your heart and mine.

I stand before you as an educator first, a vocational educator second and as a past trade and industrial educator. This leads me into one of the trends and issues of the day which I want to visit with you about.

I have a feeling that to make a contribution today in vocational education with its re-direction and expansion and the change in basic philosophy which has been dicatated by the vocational-education act of 1963 which resulted from recommendations from the present panel of consultants which represented 22 rather influential people of which two were from the field of vocational education. I have a feeling that we need to approach it from a philosophical base of being an educator first. In vocational education today we no longer even have the distinction of being the only program receiving federal assistance. We are more than ever before an intrical part and must be an intrical part of the total vocational system in this country. To do this, I think we must make of ourselves and do the necessary study and self examination to develop a broad educational philosophy. But in saying this, I am not saying it, and I think in this issue it is misunderstood on many levels and some of our people in positions of leadership in vocational education say this but they don't go the one step further. I'm not saying when I say that we must be educators first that we no longer need to be vocational educators or that you teachers need no longer to have the competency that you must have in the specific field to be capable vocational and technical teachers. I think as never before in addition to being educators, we must be sound vocational educators. We must be competent vocational and technical education teachers. The film we saw this morning and the presentation that you heard earlier this evening about the technician in industry - I think is proof enough that the vocational education program cannot be turned over and run on and taught by educators who are only educators.

A group of us had quite a heated discussion and aggument, if you please, and it was quite a difference in point of view with Mr. Loomis who just recently left the commissioner's office when Keppel was commissioner - on this very issue in terms of the types of individuals the types of backgrounds they would recruit into the positions, the new positions which are occupied as regional representatives for the bureau of adult and vocational education. And Loomis asked a group of us that was brough in for interview if we did not think that the appropriate person for these jobs would be some bright young college president. A good general educator. Now there

are a lot of good bright college presidents, respected educators, and I'll respect them to the utmost, but I want to inform you that after one year's experience that these individuals, friends of mine as they are, could not provide the technical assistance that our office has been requested to provide in this past year, without a good solid background and experience and know-how in the field of vocational education. Now vocational education is seeing with a tremendous visibility at the present time, and still the eyes of Texas are upon us, the eyes of the world are upon us. Sometimes I think they expect the new vocational technical schools that are springing up all over the country to be the solution to all the economic problems that confront us today; that relate to the out of school out of work youth in the time of technological development. These schools will not be hatchall schools - good as they are. They will not solve all the school dropout problems because dropouts are not dropping out because of the curriculum that is offered in our schools, they are dropping out for other reasons. But this system of vocational technical education will contibute to the solution of the dropout problem. Make a very real contribution.

The development of vocational technical schoolsin the state of South Dakota will not put an end to juvenile delinquency. Because all of you know that delinquency doesn't have it's roots in a school curriculum or a school facility that is not appropriately geared to the needs of the individual. But these schools will offer a real contribution to the solution to this problem.

The point that I am trying to make is that with all this increased interest that we are experiencing in vocational and technical education today make magazines the best seller. You go to any newstand -- take a look at the magazines and the articles featuredon the cover and regardless of the audience the magazine is geared to appeal to, it can be the sportsman magazine, the moviestar magazine, it can be the housewife's magazine. Just make a little survey. Eight out of ten of those magazines will feature articles on two subjects -- one being sex & marriage and the other vocational education. Both very popular in today's society. Incidentally, since it falls my lot to be the administrator of one or the other -- I'm glad that I'm in vocational education.

With all this kind of attention being vocused on us we have a lot of new found friends. Well I hope so. Just a few weeks ago I was in the neighboring state of North Dakota keynoting a one week conference for school administrators on vocational and technical education - the subject for a one week workshop on school administration. It was well attended and I told these administrators with the same frankness that I'm talking to you, that I was glad to see a man and a great many of them 5 - 10 years ago would have not honored the session with their presence, if the topic for discussion would have been vocational and technical education. They would have sent a subordinate but now they were there. Partly because they were afraid they might miss out on some goodies, because we have had a rather publicized increase in appropriations, but partly because they have come to realize that the education system in their community is not geared as well as it should be to the needs of the community. I frankly welcome them aboard and I welcome all of these people aboard who have a new and sincere interest in vocational and technical

education. But I am attained to you and me, the professionals in vocational education, this presents us the challenge of becoming broader and better informed educators than has been necessary in the past. It is up to us to keep this new development, this expansion and re-direction in vocational education on a sound basis and one that will approach, as nearly as possible, the development of a nation wide system of, if you please, hahall students that will make a real contribution solution of social economic problems that confront us today in technological development in automation and many other forces that are at work on our people. But, in addition to this, we have the added responsibility of becoming better vocational teachers than ever before and maintaining the occupational competency at a degree never before required in teaching in vocational and technical education. So our work is cut out for us - and you're already tired! You know - they say there is no rest for the wicked and from my point of view there is no rest for the vocational educator and we're about out of time, so I recommend that you guard yourself to becoming habitually tired and get on with the work at hand. It is going to take that kind of dedication - that kind of devotion if we're to get the job done.

There is another trend and issue which is related together. As we develop an expanded andredirected system of vocational and technical education in this one and I hope a coordinated system, and with this increased interest and the federal legislation leaves it to the states to determine what levels and what types of institutions this will be carried on. My personal friends, the junior college people, have been saying this can only be done in junior colleges and I have friends in state institutions such as this that have been saying it can only be done when affiliated with a four year state institution. I have friends who maintain that it can only be done in a comprehensive high school. I have friends that maintain it can only be done in the area of vocational technical schools. The federal congress has made a bill providing it can be done in any or all of the combination of these. It has been my observation, my personal observation, that there are fine programs in all types of institutions! There are some dangers, and disadvantages related to instigating these programs on all types of institutions. And on the other side of the ledger there are some advantages. I think it behooves the educational leadership and the statesmanship the legislative leadership and it has been my observation in working directly under the governor for three to four years, that you cannot depend upon statesmanship in these matters unlesseducation leadership is in there pitching.

You take a look at your state - you take a look at your existing facilities - your existing organizations and through the combined efforts of statesmanship and educational leadership, and setting aside to expect possible invested interest of individuals and do some good solid soul searching and planning and develop a state-wide coordinated system of vocational technical education, making for utilization of the organization and the facilities that you have, so we can ill afford to side step any of this. But to draw from minds to make some free determs determinations as to who is going to do what, and why, we'll have some overlapping, you'll have some competition for students, with the same apptitudes and interest, and I'm opposed to this. I think that when we as educators get so

involved in our own particular vested interests and politics that we forget the students that we are to serve, we have served our usefulness and an early death of retirement would be the best contribution we can make to the organization.

But there are some dangers as were are being involved more directly as an intrical part of the total educational system. There are some dangers as I see it and I'm not anti-junior college even though some people will tell you I am. I believe some very fine vocational and technical programs can be worked into the junior colleges. But I Haven't forgotten everything that I knew as a cabinet-maker and I think some of us can relate to this situation and as I recall, we had a combination saw that will rip and it will crosscut. It won't rip as good as a rip saw and it won't crosscut as good as a crosscut saw. And if the material on which you work is a little tough, and the power that drives that saw is a little weak, you can reach the path where you can't do either, with a combination saw. And this is the change that I see in the junior college movement. The community junior college movement and our interest in vocational and technical education wanting to take on too much in terms of the financial support and the student body from which they can grow. We got out on the principal of the combination tool too much and that left us a real problem in which they do nothing very well. Another factor of this which I'll get into in the next trend that I want to discuss is the failure to assume responsibility.

The Federal Congress and the President and the Presidents before have and the recent commissioners of education in this country and it is one that we cannot ignore, and was the last presentation that the President made for the budget for education. He asked for the commitment in this country to provide an educational program that will enable every individual to partake of education to the extent that he is able to profit from it. I never will forget the comment that Commissioner McMillan made to the state directors of vocational education behind closed doors in which he said the greatest challenge lurks in front of us today in vocational education in this country is to provide educational programs geared to the needs of society both from the standpoint of the individual and from the standpoint of our people. Now, he didn't say anything about vocational education but I thought it was a comment made in the interest of vocational education because if this is achieved, it is inevitable that vocational and technical education will be emphasized a great deal more than it has been in the past. If we are to develop, and this is our goal, an educational program which will meet the needs of all individuals, all, and I want to talk about that all. An educational program geared to the needs of society. We are going to have more to do in vocational and technical education than we can all do combined, junior college - comprehensive high schools and area vocational technical school and what have you. I think we are committed to that and I think that congress is committed to that. The act of 1963 permits us to that, expand and develop a program both horizontally and vertically and back to the philosophy of any institution, junior college or otherwise that wants to become a part of this, I think have a responsibility to accept the total change.

Thaine McCormick- continued.

We have heard a testimony here today from industry about how hard it is to get technicians. I could bring you a speaker who could tell you it is just as hard to get custodians. I could bring hotel and motel management in here and tell you just how hard it is to get competent hotel and motel maids. You see, all students won't enroll in this. I can show you a program that is in its first year of operation training hotel and motel maids that has sixty on the waiting list. Sixty on the waiting list. What is happening to these young girls is that most of them are from who knows where, it is good for the soul because these young girls are coming out of there and they can stand tall because they are wanted by the best hotel and motel managment in that community, and incidently they are financed and supported and given guidance to and developed by the action of the state.

The purpose for the 1963 act gives us a charge of developing programs for those that are not in the upper 25 percentile this takes a full imagination, experimentation and it is a responsibility which we have not accepted - one which we must accept or I will predict that we won't catch "Hail Columbia" from the first evaluation which is also man dated by the act because we have not done more than we have in this area.

The final trend and I will cover it very rapidly is this business of cooperative effort. From where I sit I am constantly pushed and observed and pushed for more cooperative efforts. The federal congress has handed us a bucket full of tools with which to try to cope with problems of people. Most of them from high up and down the line are dreaming oriental. The tax payers, including myself, are beginning to say how about all this overlapping? Who is doing what? And school administrators are in a real dilemna as to what programs to implement, what facets of what programs to use and what have you. This involves a federal - state - local relationship; I don't know what you attitude is towards federal aid to education, but I would say it is here to stay and I would say that the school administrators in the future would be finding his programs cooperatively with federal, state and local dollars, and filling out the necessary red tape and what have you and polls impossed by the federal congress and state legislation to do this job. Recognizing that one cannot dabble in vocational education and is a level below which in terms of instructional topics, the equipment, potential students, which if we drop below by the very nature of vocational education ceases to be vocational because your product is not employed.

I think we have got to take a cooperative effort, federal, state and local relationship. We have got to pull schools together that have been playing football opposed to one another for years, in the joint fending in the joint staffing and the joint administration in order to get a big enough unity to offer a curriculum that offers opportunities in a broad enough field to pull enough students together to appropriately place students in curriculums that are geared to their apptitudes and interests. Particularly, if you develop a horizontal as well as vertical and offer everything from the highest technical fields to a good custodian training program to good hotel and motel maids and other worthy occupations for which there are well paying jobs appropriately for part of our

Thaine McCormick- continued.

society. But you have got to get a big enough unit through a cooperative effort and you have got to cooperate with other agencies as tough as it may be sometimes - welfare, bureau of apprenticeship and what have you, and develop a total coordinated program geared to the needs of society.

To very quickly summarize, I will try to visit with you about three basic trends which I think affect you and me in vocational education.

This business of a generalist versus a specialist in the professional field and I will try to make the point that we shall be educators as well as vocational educators, but we must also be vocational educators. We must be good trained and industrial education people -- better than ever before if we are to stay in the running in today's society. We have got to develop programs if we are to meet the challenge presented to us by our president and our congress, to meet the needs for all people, not just the upper 25 percentile, those that make us look good even if our program is not too good. We have got to develop programs from custodian training to highly technical fields - many of which you and I cannot even discuss intelligently here today. We have got to do this through cooperative efforts. The federal, state, local relationships and inner relationships between schools of our type which you have in your particular state and between communities so we can get a financial choise and a potential enrollment through joint administration and joint funding that we can offer a quality program beyond that which we have even dreamed of in the field of vocational and technical education. This is the challenge as I see it, those are the things that we in the professions in vocational education must be alerted to and devote our thinking and our efforts to with a devotion and a committment far in excess of any we have dreamed of before if we are to achieve what must be achieved. If the many yet unborn are to have the same opportunities that you and I have, to find a place in a changing world of work, to become a good American worker - cizen and take in the fact that many of us who resist change; who would rather fight than switch, have the same characteristics as all other human beings, of wanting to get too comfortable in a program that we are working on.

Thank you and it has been my privilege.

Mr. Garfield Bauman, International Representative, International Brotherhood of Electrical Workers, Sioux Falls, South Dakota.

TOPIC: Organized Labor and Vocational Education.

I'd like to say that first of all I'd like to make it very clear that organized labor is very much, I believe very strongly, in vocational training and its crafts. The apprenticeship-training type of thing is something that we inherited way back from the European countries where you just didn't become a craftsman over night, but somewhere along before my time in this country, why, we were so busy conquering the frontiers of this country of ours that a lot of this training from an apprentice to a journeyman lost it's effects and the organized labor has had a lot to do in putting this training program back into being again into the scope of making a craftsman. We fully understand and realize that on the job training is not the complete answer to any craftsman, whether he be an electrician, or carpenter, or a plumber. So, this is how we get into the close connection with vocational training.

I'm going to use electrical training standards and subject today, but I want you to understand that all of the fields and crafts are similar, in other words, every craft has the same outlook on this thing as one craft would have. I'm going to explain a little bit the standards of our electrical training that we have adapted here in South Dakota and give you a little bit of an idea - a little background - of our training program before I go on and discuss how we feel about vocational training and then I would like to sum it up with a few things that we feel jeopardize our training. I'm sure I'm going to bring out some views that are probably foreign to you people, but the way we feel.

First of all, I'd like to give you an outline of our standards that we try to maintain in our apprenticeship training programs today. Our standards say that we shall have a high school education. He shall have two years of trade school or experience equivelant to. He must have an apptitude test that shows that he is qualified for the trade, and of course, all his grades from his grade school on up to high school shall be of high standards. Now, so far, in our standards, we say two years trade school or equivelant experience to, now this is an awful loophole, but in looking at the people that we have to select from, you can see why we have to have this open here. We can't demand that everyone of our apprentice training or industrial apprentices would have a trade school experienee. We hope to see the day when we can. When we can demand this standard because we know that we have gone one step higher in getting the qualified mechanic that we want to eventually have trained. The reason we can't demand this two years of training is because when we look at the people that make application to this trade, I'll go back two years ago, two years ago in a Sioux Falls office which covers the Eastern half of South Dakota, we got 52 applications for apprentices in this trade. Out of these 52 applications, we had 18 of them that were not qualified because they did not meet the high school standards. We had 12 of them that had the high school education but didn't have the grades that we could consider applicableto the trade. When we actually had out interviews, we ended up with 18 boys called in for interviews out of 52 applications. We got down to selecting now, the 18, there was 10 of them placed in the trade so

after the final interview, we had to pick 10 out of the 18. Now, if we had, in our standards, the qualifications that you had to have 2 years trade school experience, we wouldn't have had any of these boys qualified, because it just so happened in that class there wasn't a one out of a trade school. They did, I must say, they did have college education. Some of them were two years, some of them three years of college, but you know that when they started this college, they didn't have it in their mind that they were going to become an electrician. They had something else in mind so there was some lost training in this college that might be of secondary value to them, but it definitely wasn't training them for this trade. We find that these young fellows come into the office and make application for apprenticeship come right out of high school. That's the first step. As soon as high school closes, why the senior class is usually down to the office making application for those that are interested.

It has been the practice for the last 7 or 8 years that we advise them and try to convince them that they should go to trade school. Well, we are sorry to say that most of the boys that come down to see us about getting a trade, come down to see us because they want to get away from school. They don't choose to go to school any longer. So, consequently, we haven't been doing the best job of selling some of these young fellows, that probably have a lot of potential being a craftsman, we haven't sold them on going to trade school. For some reason or another, whether it is his personal lacking, I'm sure that in a lot of cases it is not his ability not to continue on to school. So, this is the thing I think we have in common, is trying to get these boys into a trade school.

Now, I said before that I was going to try to bring out some of the points that we feel is of an interest to both of us, it is certain of rights that we have and not necessarily very important to education program but toward the training program or the finished product is this. First of all, we in what we call the organized section of the electrical industry, are quite proud of our training program, because about 90 percent or better of the cost of this training after they leave your class room is sponsored by the industry itself. But there are a lot of training or lot of people, lot of industry, that chose not to use this route and they like to have training at government cost. Now we realize that our training program receives aid from the government, we're not about to turn that down either, but, we did carry about 90 percent of the cost of our program. I think that it is on these training programs, which come about with no cost to the industry which it will help is what is bringing us a lot of problems and why, another reason why, these students out of high school don't want to go into vocational training classrooms. Because they are convinced that they can get this training without any facts, in other words, they figure that from high school on out, that if somebody wants them to be trained, they should carry the load to train them. We find this in our young fellows. They come up to us and say, "Well, I understand that you have a school. Why should we go to trade school when you have a school, one we could get for four years", and we say "That's for your training after you get out of trade school". Then there are, of course, the trade schools, that are commercially operated that

are bad reputation of the efforts that you people are trying to do. That is these trade schools that are advertised in Popular Mechanics and so forth that can make a mechanic out of you in six weeks or two months, something like that. Of course, the amount of money involved here is about what it would take in the way of tuition in some of your schools for maybe a nine months course or even a two year course. But, this six weeks element is what impresses them. Man — six weeks from now I could be a mechanic, and I'll say this that when they go to these schools they come back and I think one thing that the instructor did get across to them on this short term school is the fact that when he got out of here he was a mechanic and that no more training would be necessary. He knew all of the answers, he wasn't apprenticed or anything else, he was a finished mechanic. These are th e type of things that we run into and of course all our explanation to this boy before he got out of high school doesn't do any good, because when we talked him in to trade school and he comes back in six weeks and says "I've gone to trade school - now I want to get into your training program", these are the types of things that we run into.

Another thing that I'd like to tell you about that we are quite concerned about in training programs of various kinds and I know that you people get involved in some way or another, because you come up with various surveys for a given area as to what the demands are. I know that this is especially true in the last couple of years. We live in a non-industrial state - we're trying to encourage industry to come in here and consequently this vocational training is coming more into light in this state because we know that when this state becomes more industrialized, why you're classrooms will start getting fuller.

But, we have this problem from my stand point of view - we don't want these people in industry to use apprentice trainees as a cheap form of labor. This is one position that the unions take. That it is wonderful to talk about a training program and stuff like this - industry has a way of doing this. But unless they use it for one sake, to train and mechanic a journeyman, and any other reason than that, the training program is no good. In many many cases when we get into this thing, industry wants a training program only for cheap labor.

This is why sometimes your surveys in a certain geographical area will show that there is a demand for so many of this type of craft or that type of craft. I can give you an example of the electrical trade some three years ago, I saw a survey made in the state of South Dakota, that showed that we needed 30 some linemen, journeymen linemen, and at the same time, the very same year that this survey was made, I could show you that there was 60 some linemen who left this state. They left this state for one reason. They couldn't secure work at their wage level. So that the demand for 30 men was not true if the basic wage rate would have been considered at that time, they would have had all the linemen they needed. There is, I am sure that you people are a ware of it, we are, being part of the electrical industry in this state, we recognize that every man that we train - he is a potential for somebody outside this state. We know that the population of this state is decreasing, our youth especially, are leaving. We can't blame them, I mean, your child and

my child, is looking for opportunities probably to better himself and I'm sure that every time you get into your classroom, you look at your students and wonder how many will work in our state and how many will have to venture out. We also, in our apprenticeship training program, recognize the fact that on a national average, we consider that in electrical industries, it costs $5,000.00 to train an apprentice to a journeyman. This is a figure that the industries come up with. This is an average throughout the 50 states. So we sit and look at these young youths coming in - trying to get into the program, as an investment, just about like a banker would, whether he want to invest this $5,000.00 in this young fellow or if he is a bad gamble, or so on. So when we select these people, we know that for every eight apprentices we train, we know we are going to loose two of them, after they become journeymen. This has worked out - this has traditionally worked out, but we still continue to train them and mark this cost against our industry right here in this state, because we know that this is the only answer to getting a qualified journeyman.

Another thing that I would like to point out to you people that we feel very strongly about and I'm sure that you people agree with us, as instructors, we got quite concerned about two years ago, I'd say it started about two years ago, the nation as a whole got concerned about drop outs. Drop outs and their educational program. And they are making surveys and comments on this thing, they decided, or at least it was the consensus of opinion, in various areas, that while we should be getting some trade-vocational schools on the junior college level out here, so that they could take care of these drop outs out of the colleges and if anybody has got any experience on this, let me tell you that if a man is going to be a drop out, in a college, he is going to be a drop out in a craft. Oh yes, let me explain why we feel this way, or we know this. In screening young apprentices to go into our trade today, we have the assistance of a lot of other people in departments, we can tell everything about this man, everything about him but his own personal attitude. Now how he thinks today, but how he is going to think on his approach on life, and for this trade or this apprentice training period and also into journeyman. We have apptitude tests, that we have found are over 90 percent correct. In our own industry, we know that the apptitude test is this accurate. The grades that you people supply us with, or the educational system supplies us with from high school on or college - these tell us how we can handle the man, for example, we can't miss on this type of thing. We can call this lad up at our personal interviews, boy, he can give us a good pitch about his ambitions and what he wants to do - you know - how he feels he will fit into the electrical industry, but this is strictly the act, this is one place we can't run a test on and this is the same place that these so-called dropouts, they can give you a wonderful interview - man they can give you all kinds of good strong arguments like why they should be in the industry - what their ambitions are, but if they haven't got the initiative to carry through on their original goal in college, then nine times out of ten, he will not become a full fledged journeyman in any craft.

On the drop out situation I want to clearify one thing and this is dropouts because of grades, not because of financial reasons. I mentioned before that we have about 60 percent of our apprentices in the state now are on the college level, somewhere in the college

level, with say two or three years of college. Now that's because when we find out - one of the first things that we want to find out is why he has not completed his college and his financial reasons. If it is anything but that, he is a bad risk. But we all know that this financial thing is a pretty rough goal.

So, these are some of the things that we are concerned about in the crafts. I thought maybe you people would be interested in them. And that is what I have just pointed out. These people want to use apprenticeship training as a cheap source of labor. The people that want to get into the trade that aren't qualified or they maybe have qualifications physically and mentally, but they haven't got the ambition. We have no way to test them. These are the things that are concerning us about our training program.

And then another thing that is concerning us is how we could get these people into the vocational training schools in demanding them, when our standars, when we know that we can supply our ranks- our apprentices and enough of them for our industryusing the trade school qualification, we certainly will, but we have to watch out now, and we do find this to, we find that in interviewing our apprentices, we find that sometimes we have boys that are highschool graduates and maybe one or two years in college and a little bit of background in the trade, can out qualify some of the boys from the technical schools. So, we can't say that technical background is the only answer, because again it is on the individual merits. So we haven't got any pat answer by saying if we could get them all out of a trade school. We know that if we had a class right here of say 50 students taking a certain craft, we know that there is going to be a top center and a low white in this class and that we again after we leave this class and go into the field, they are going to have to compete for their positions. Now, this is natural and I don't think that we would want to change that because we know that this is a competitive world and that's whatmakes these boys with a lot of ambition try to get on the top. If they are tops in their class, nine times out of ten, they will be tops in their training program.

We have another problem in our crafts, when I speak of crafts, it is the basic crafts, carpentering, plumbing, electrical work, is that when we do get into these technical schools, and we find that we have got stiff competition in getting the top class. We can get the medium class or the bottom of the class grades, but we can't get the top of them unless we make something real attractive, because there is industry that don't use a regular training program such as we do or apprenticeship program, are out there trying to obtain these students. And they again are offering, and it's not a cheap labor market, I'm talking about now, it is sponsored strictly by the cost of the industry itself, but as servicemen or for their individual product, they want to specialize train this guy, and they are in competition with us. Of course, when a young student in a top grade of the class has an opportunity either to become a, let's say an electrician or plumber to apprentice training program right out here and get his dirty coveralls on and stuff like this, or he has an opportunity to go to work for an XYZ Company that has go plants all over the United States, you know where the attraction is, we can't compete with them.

So, I think that in looking at our trades, and looking at your field, the technical field, that we will be working close together, closer together as time goes by, because we are a non-industrial state today. But, either we are going to become industrialized or I don't think there is going to be a South Dakota. One of the two, I mean, this is economics as far as I am concerned. We just can't continue to operate like we have. Industry is going to find us eventually - they are going to discover that there's a spot between the Rocky Mountains and the Ohio River, I'm sure, and that's when we'll have to work close together. I think both of us have got quite a challenge before us, because if this industry takes a look at this state, there are a few things they would probably look at first, such as water and power and transportation. But when they start thinking about manning their plants, and I'm talking about a legitimate industry that's used everything from the highest skilled people in the engineering fields on down to the blow layer. When they look at our people in South Dakota, and they say now what kind of man power have you go, how can we train them, and so forth, that's when I think you'll be seeing more of us and we'll be seeing more of you. Because I think when industry wants to come into this state, and use the skilled and semi-skilled people, short-trained people, or anything, this is when we should get our heads together. This is how we can help sell the state. When we can take these people that we have instead of exporting them to the other states where there is more industry, I think that by training them here we can invite industry in here. I think that this is probably a bigger potential then a lot of our people here in this state realize. Because I know the quality of material that we have to work with from this state as far as ambition and natural ability, I mean often before he ever reaches the primary grade I know the stalk and the material we're working from. Because these people that I'm talking about that leave our area, when they are journeymen in this state, this area, they are journeymen in 50 states and they can hold a job, they are journeymen just in name - they can hold a job. The midwest stalk is good stalk to work from.

So, these are the things that bother us in our training program, as I mentioned before, and I'm sure that as time goes by, that we will be able to bridge some of these, and that's about all of the chips that I have in my mind this morning, as the things that are bothering us. I hope that you can see some of our views and how we look at their training of our youth. I'm sure that the next time, two or three years from now, that through your efforts in the classroom and our efforts through our standards and our own job training, we can continue to train in a given length of time, some of the best craftsmen that are know into the trade. We have original stalk, you can get them in your classroom, we can get them in our training programs, get the right people in the right place, we'll always be producing the best mechanics in the state, or in the 50 states!

Thank you.

Bob Peterson for Gill Mowers, State Supervisor, Trade & Industrial Education, North Dakota.

Thank you Lowell, let me assure you that I've never heard any of these stories that Gill passes on - and I don't think I can fill his shoes either, he is quite a bit bigger than I am. Gill wanted me to pass on his regrets that he could not be here, he had a very important meeting - vocational board, to review the budgets for the next biennium and of course this is very important, since it includes my salary, so I say- "You better go! I'll come down here!" But he did give me this report, and this I will read to you at this time.

Although many of us have seen tremendous changes in vocational education in the last few years, we have had what is known as the vocational or educational congress. All of the acts have been passed by congress to be administed by the U. S. Office of Education for the fiscal year 1966 amounts to $3,308,374,992-he forgot the cents. These programs cover all areas in the field of education. In these programs, vocational education has been in the limelight. Most of you as students have read some articles about vocational education printed in the newspapers, which deplore the conditions which existed in the class rooms and shops in the vocational schools throughout our nation . Why shouldn't they have been in that condition? Who gave a second thought to vocational education at that time? When they did think of them, they thought of these programs as being for those people without brains, or spirit of ambition. It was stepping ground for the youth with whom the average education could not cope. It was a section of the school such as a shop or classroom which was provided. It was not looked at by the activated educator as being a part of the total education. Many do not know the difference between trade & industrial education and industrial arts.

Now that we have money in the picture we are growing fast. Many precautions have to be taken so tha t they do not water down our vocational programs and waste the money that congress is putting into them. To some, rules and regulations are meaningless, they feel that they are to be twisted to fit the needs. Although I will say that in the last year a good many of them are getting to know the difference. Whether it be the right way or not. Standards are to be watered down so as not to meet the needs for the community or the student. That is if it fits the purpose of the educator, who still does not know vocational education. A word of caution to all of us who are in vocational education -- we're not playing a game of tiddly winks. We are ernest to fulfill our jobs and we're trying to meet the challenge that is being set up for us by our nation.

It irks some of us that even before monies were made available we were being told that we would be watched to make sure we do a good job. There were some of the old timers who felt that the records should have been thrown back into the faces of those who were making these remarks. They would have shown that a tremendous job is being done with little or no money.

We are also told that we will be evaluated by teams from a federal level, so they can make sure they are getting their federal dollar's worth. I am sure no one objects to this, providing that those who are making the evaluation have the proper information with which to m ake the evaluation and then make a complete follow-up on the evaluation. I would hate to see a team not

working with the state making evaluations in the state without working closely with the people for whom the evaluation is being made. Most generally the people in the state know best their problems, their needs and how best they can satisfy these on the state level. Evaluations do not come easy, nor are they always correct, even though they are made by experts. We must face the fact - we are going to be evaluated.

We have seen changes on the Washington level on vocational education on region level and on our state levels. We have seen changes in the organization on all levels. We have seen changes in organization which allow other agencies to do the work of educators. Private industry has made inroads into the education field. We have new agencies with the government in our poverty program which are trying to cope with the educational program. The Department of Labor is working full steam with the educational system through the employment security division and the bureau of apprenticeship and training. There is no doubt -- much can be gained by working with these other agencies.

However, the other agencies as well as the department of vocational education have to look at the total problem and try to work out the problems together if there is to be harmony between the agencies and if they expect to get the job done. There is much to be desired at this time in communications between the agencies at all levels - both state andfederal. There is much to be desired in guidelines which rules the regulations affecting programs for more money more than one agency is involved. It is high time that these guidelines are established and the rules and regulations put in right so that all understand their responsibilities. An individual who could make up their own set of rules is all wrong.

Yes, vocational education has a lot of work to do, and I might say that it is striding at a pretty good pace at the present time. I believe that we are going to meet the challenges that face us. And, I think that the evaluation will surprise many of us.

This concludes Gill's report and I would like to say thank you for being able to present it for Gill at this time. Thank you.

Mr. Walter Erdkamp, State Supervisor, Trade & Industrial Education. Nebraska state.

It is a please to be here and I'll have you know that I was in bed by 10:30 last night so I'm not living up to his expectations. Well, I don't have a written speech for you this morning - I don't have any miracles for you - I've got a few notes for you scratched down here - in fact, just 5 little lines I want to cover.

Since we have last met here, we have actually put into operation what our last legislature of 1965 designated that we were to have - one more state vocational-technical school. We have it now at Sidney, Nebraska, we will open this fall. We are going to start small, but we can grow out there. They also designated that we were to have 5 area vocational-technical schools with local governing boards, a local tax, but not to exceed 2 mils from the area. The state would give them $100,000.00 for the first five that came in -- $100,000.00 each per biennium. Now this was just a starter, and we have started. We open this fall, next month, at Hastings, Nebraska. It is about a 36 million dollar campus and will work into a really good school. The facilities are there, the population is there, the money is there, so we have a wonderful opportunity there at Hastings.

At the present time, the Midplains Area, which runs from Kansas to the South Dakota border, about 3 counties wide, with North Platte being the large community there. They have been designated as an area school and they are to be on the November ballot. We feel sure that it will carry there as on the ballot last spring, in the Hastings area, about 83 percent - carried by 83 percent. Now if we can carry it by 63 or 73 percent in the MidPlains area, we will be very happy.

We have another group working in the Northeast section of Nebraska with Norfolk as the head up there. Now they were ready to go and should have been on the November ballot, but there is another item that is going to be on the ballot, we call it 301, it is the Special Services where several school districts get together and they can have a little tax to bring special education to their children. This is quite controversial up there. That's why they didn't want to put it on the ballot at the same time. So this one has been laid aside until the Spring election. We feel that it will go.

Now we have two others. We have in Lincoln and Mancaster county we have the east high school is being constructed at the present time. A multi-million dollar building. We have some federal money involved in it - vocational money - in a wing which will bring much more vocational education to that area. It is set up on a community college basis. Lincoln has been doing a real good job in their adult education and this past year on their secondary education. So, we expect this to grow. Now they cannot participate in the LD581 - the $100,000.00 bill we are talking about, because they do not meet all of the criteria. It says in there that the smallest unit that can come in is a county. They have done that for construction purposes - but it also says that it must be governed by a board of governers, not the school board or the school district. So this eliminates them at the present time from participating in this. In Omaha it is the same thing. The school district of Omaha wants to come in and participate on this as an area school but they are

not a full county. If they were to take in a fullycounty, there is another school district in there that is quite comp etitive and they fight quite a bit. It just wouldn't work out. We don't know exactly what is going to happen there. The next legislature may do something about it -- we don't know. But, we are moving ahead.

Our school at Milford is doing a wonderful job. I'm not exactly sure of the enrollment but it is around 700 at the present time. It is one of the best schools in the nation, we feel. We will put it up against any of you. We're going to invite you out there next year to see it and see if you don't agree with us. We have made some progress in our state this past year. Due to the fact that we have had some ample funds. Not anymore state funds than we had before we we did have more federal funds. And we have found local matching for these federal funds, which is good. I'm not exactly sure of these figures, I don't imagine your states are much different than ours, but I believe that the average state puts in $4.50 of state money for every federal dollar that comes into the state in vocational education. Well, our state of Nebraska puts in 17¢ of state money. So you can see that we have a little handicap with the lack of state funds. But we are going to overcome that - we hope with this next legislature.

Now we have moved along, up until this last year we had no teacher training for trade & indistrial education in the state of Nebraska. We had to go to Fort Collins we had to go to Pittsburg, Kansas, or elsewhere to get it. Our party state college Dr. Krubeck is here with us - most of you have met him now - he heads up the vocational department out there and is doing a tremendous job, we feel. We opened with 3 or 4 programs out there this summer. It will be in the regular curriculum starting this fall. We hope to produce teachers, we hope to upgrade our present teachers, and it is a must that they go back to school and pick up 6 to 9 vocational hours and they must get their professional growth every five years. So we feel that we are in business there. Something that hasn't been done for a long while.

N ow on the secondary program - we haven't been able to do much through out the years - Omaha had a fairly good program at one time. It slipped, of course, or a couple two or three reasons. Lincoln at one time did have some vocational education - they dropped it. We had vocational education at Grand Island - at Hastings, and Beatrice, and this was about the height of it in our high schools, until the advent of the 1963 act. When we had a little more money - a little more money - a little more leeway, and well, it took a lot of work. It took a lot of 18 hour days, 3 or 4 of them a week, working Saturdays and Sundays, and what have you, but we did expand this.

The first year that I was at the state office was the largest enrollment we had ever had in V & I in the state and we had served 489 students. We thought this was quite good. Thispast year, as you know, we have our statistical reports and so on, all of these reports have been finished, and there are a few figures that are still in my mind and I can't quite believe them, yet we have chedked and re-checked and we have found that in this past year, we brought Vocational Education - this is T & I now, to 4,125 students, in the sta te. Now this was with the extra fun ds that we had, we got

plenty of local matching and went to work. Now I have to credit Bob, who is here with us a lot for this because he and I have been working together. Up until this time there was only one person that headed up the T & I - the technical education and the health occupation. Now I have got Bob with me and he is a real good man and real good worker - we hope to keep right on expanding. And we are expanding, we are hoping, with quality programs.

I am going to throw one more thing at you this morning. There aren't too many of you that are secondary teachers here. How many, by the way? Could I see your hands - are there any? I guess not. Well, you are involved and so I feel I shall tell you about it. What we are doing. We are trying it out. We don't know whether it is going to work or not. We think it is - we have a lot of faith in it. But we have about 10 pilot programs in the state in the high schools now on the truster concept basis. In our state, such as North Dakota and South Dakota, we have a lot of small schools. Too many school districts - naturally too many small schools, and we haven't gone into the real small schools with these programs at all. We don't want to keep giving them any money and keep them alive. They should consolidate - there is no question about it. Before we get down on this truster concept and we have set up the objectives of it, and they are two. It is to give a student a saleable skill in one of many occupations, in other words, he can become an apprentice-in most of the apprenticeable trades. Also in trades that do not have a formal indentured apprenticeship set up. He can do this. He will have the basic fundamentals and knowledges. A basic foundation upon which he can build his career. It is also a preparation for the post secondary school - the area vocational school, the junior college, the community college, whatever you want to call it. It gives him basic fundamentals that no matter what course he takes at these schools, it will be of help to him. We insist that he - I don't have the whole list of the cirriculum here, but math is definitely one of them, so is science, the basic fundamentals of this. He must have basic electricity in this course. He gets industrial relations poundedinto him. Safety. Some blue print reading - drawing - not in depth - we're not making a draftsman out of this boy, or anything else, but we are giving him the basic fundamentals of all of these. Because we feel, and we're not the only ones, I understand there is a research going on at Maryland university on the same thing. We feel, they feel, and many others feel that there are many many things that are basic to all of our trade occupations. And, as I've said, we are just trying this, we don't know how it will work. We are doing it on a team teaching basis in a couple of schools.

We have a real good versatile man in one school that is trying to handle it all alone. We don't know whether he can or not. We have another school where we have learned that 80 boys that are juniors - we have divided them up into groups of 20 - and there will be some drop ou t. We hope. Well, not necessarily we hope, but we think they will. So there will probably be about 16 will wind up at the end. We are putting them into - we have four vocational shops in this school, and they will be in there for a block of two hours a day for two years. Their junior and senior year. Twenty in each shop - they will rotate each semester. Now we think this will broaden them out, it won't give them depth in anyone of the area, but it

will broaden them out, give them the basic fundamentals, the basic foundations that we are sure they will be able to use in whatever trade they finally decide o n. Now this is another thing. They don-'t have to make up their mind in the 9th or 10th grade - that is what they want to be. I want to be a plumber, I want to be an electrician. You know and I know that people change their minds. Along about the third grade they want to be a policeman or fireman. Fourth grade they want to be an airplane pilot, and so on, and it's no different clear up through college. A lot of boys go to college for a couple of years before they ever make up their mind what they want to be. We feel it has value this way. That the kid doesn't definitely have to make up his mind and say I want to be a machinist. Spend his high school years in a machine shop and then find out that he would rather and can get a job as a brick layer and have to start all over again. So we feel it has a lot of value. We are working on it. We are experimenting with it. We are finding a few bugs in it, naturally, but we have a lot of faith in it. We think it might do the job. Now, time alone will tell - our follow-up will tell. It is going to take p robably five years before we even realize whether or not we are getting the job done that we are trying to do. But we are sincere about it. We think it will work.

We feel that a lot of schools - another thing that is good about it - a lot of schools in the communities of 4 and 5,000 population, they might be able to afford it. Now listen to this --- they might be able to afford one machine shop that would probably cost a hundred thousand dollars to equip. They probably couldn't afford to equip it - these communities. If they could, even, would every boy there want to become a machinist. No. This would be all they would have to offer. So, they haven't done it in the past and we don't expect them to. This would be true in electronics or any of the other courses. It is pretty expensive.

Now we have found that ag is fading out in our state - the ag boys are loosing. We hate to say that, but they are. We have been picking up their shops - inheriting - if you want to call it that, their shops and the equipment that they had. Most of our schools have quite a bit of industrial arts equipment and shop space. By combining the two areas, we find that it doesn't take too much more equipment to put on this program . The average small community, the small school district, can afford this program. We have the school administrators feeling that this is the program that will do more good for more of their students. They are very very happy with it.

So, I thought I would clue you in as to what we are doing there-as far as we know everythin g is legal. We meet all of the requirements of the 1963 act - we hope that it is the answer to come of our problems, we have lots of them, there is no question about it. We hop e that this is part of the answer. We are not going to be satisfied. We are going to keep working at it. We'll probably never be satisfied with it. We will want to improve it. But, we have made a start in this way. And we're not Tareyton smokers, because we would rather switch than fight, but we do fight to get these programs in. And we haven't come up with a black eye yet!

So that is about it. I could go on and give you a lot of figures, but I don't think that you are interested in that this morning - as to dollars and cents - I can put it this way though. With the new money, the 1963 money that came into our state, federal

money, we in Trade & Industrial Education and Health occupations, and technical, of course, used up quite a bit over one-half of it-against all of the other divisions, including business education. Which is very very easy to take up. Nearly every high school in the state has a business ed course and they lengthened it an hour or so a day and met a few other requirements and they were in.

So, you see, we have been working, there is no question about that - we are trying to get our share. It was mentioned this morning, something about a budget, well, we are doing the same thing at home, but they were glad to get rid of me. They didn't send someone else in my place to keep me home. Because they figure that they will get a more fair share of the budget than they did last year. Because I was there and hopped onto it. But I did slip a little bit ahead of them. I had mine made up before I left. So yesterday I imagine the roof and walls shook on the tenth floor of the state capitol when they opened up my two budgets - the area vocational school budget and the health occupations. These were the large ones. Because of the advent of medicare and what have you, we are expanding quite a bit in Nebraska and this area.

We hope some day that we will have a registered nurse setting this up instead of an old T & I man, but I do a pretty good job of it at that. After all I did have a little health occupations training. I was a licensed embalmer at one time - I covered up the doctor's mistakes! So I do know a little bit about it.

Anyway, we have three practical nurse programs in the state and have had them for a number of years now. One at Lance, one at Carnie - one at Omaha. And about threeyears ago we put in a dental assistance program in Omaha. Manpower opened up the dental assistance program in Lincoln. Because of fund difficulties we are taking over the dental assistants starting in October we will have a new class. We take it over for man power, along with the Lincoln public school. They are going to pick up the matching dollar with local taxes there until we can get more money from our state legislature, which goes into session next January.

We are going to take over a new practical nurse program on the same basis in Lincoln next March. We are hoping to take this over with state matching money after the next legislature meets. The Northeast area of our state - Norfolk, for instance, has been after a practical nurse program for a good number of years, they have the need for it. They have had everything up there necessary except all of the clinical facilities. At the present time now they have met this requirement. So we are planning on - we are asking the State Legislature to appropriate money to us to do this with.

We have done quite a bit for the nurse aid - 328 nursing homes in the state and we were challenged to bring training to their aids in all of these and they go from one end of the state to the other-some 450 miles. We had a problem. But we didn't give up. We got an advisory committee together and we worked on it and this is what we came up with and this is what we did. We brought 21 registered nurses in from all over the state and we gave them a fast hard three day course in teacher training. We worked them from 8 o'clock in the morning til 9 o'clock at night. We sent them back to their own

areas then and through the local public schools they brought in their nurse aids. We trained some 700 of them from January til June. We don't know how good a job we did. We used the cirriculum that was put out by the U. S. Office, Health Occupations Chief, and they said this was the one to use -- we used it and we're going to expand this program. Because we did not cover the complete state -- all 328 homes; we got fairly close to about 70 homes we represented is all so we have a long way to go there. The challenge that is facing these people is that they have just got to get to work. We've got to keep moving - we can't stop because we haven't got too much behind us to brag about. We are going to have to prove that we can do it.

I have one more point that I would like to get across and then I will let you have your break for coffee - if you are going to get one.

Anyway, as you know, a few years ago the emphasis was all on math and science because of sputnik. Boy - everything went in that direction. And then with the advent of the president's council, the vocational act of 1963, we are in the limelight right now for technical education. Actually the way the bill is written up this is only one part of it, but there are too many of us that are just looking at the technical aspect of it. Training technicians - this is all we are thinking about. We want the people that are above average intelligence to make technicians, and we need them. They have to be. I agree with you. But, let's don 't forget that there are just as many people below the 100 IQ as there are above, or it wouldn't be average. We have to take care of them too.

Let's don't forget our T & I programs. I think we can do more good for more people there than we can do giving all our emphasis-allof our stress on the 10 percent of technicians that are needed in the world of work. We would be making the same errors that our general educators have in the past. They have been gearing their education 95 percent college preparatory as you know and I know. When in the world of work it is less than 20 percent of the jobs that require a college education. They have made this error for a long time. We are going to try and change it. In changing it - don't let's us do the same thing and make their error and try to train everybody for technicians. Let's not forget the rest of them.

Thanks a lot - it has been a pleasure.

Ike Olson, State Director of Vocational Education for Roy Ziegler, State Supervisor, Trade & Industrial Education, South Dakota.

I can assure you that there was no money in the budget to pay for that kind of remark - Lowell. Roy couldn't be here again today, he did manage to get down for the banquet last night.

If you would mention a problem to Roy his first remark would be there isn't such a thing as a problem - it is a challenge. This is p retty much the attitude that he has taken in the field of T & I the past years. He typed out his presentation which I am going to try and give you here at this time. I'm sure that it won't be as effective as if he could have been here to report it himself.

He says that it is often said that confession is good for the soul. This presentation must then be a confession of the inaccuracy of the Trade & Industrial Education in South Dakota rather than a report on the status. During the 1965-1966 school year only seven percent of the senior boys in the state received the service of vocational trade and industrial education. It is felt by school administrators that this percentage should be closed to 50%. But they also tell us that the cost is prohibitive because of the already strained budgets. The next question is usually how much money can we get from your office? The 383 secondary students pursuing vocational courses in trade and industrial education fall into the following occupational classificiations. There were 110 in the diversified occupations program; 26 in welding; 9 in printing; 12 in cabinetmaking; 121 in auto mechanics and other courses related to the auto mechanic; 53 in machine shop; 22 in carpentry; and 30 in drafting. This is on the secondary level. The full secondary training reached a total of 332 students during the past school year. Of this total, 128 were in the field of licensed practical nurses and 14 in cosmology. The remainder of these students were enrolled in the campus here at Southern in areas of auto mechanics, aarpentry, diesel mechanics, machine shop, auto body repair; electronics and drafting.

Adult education in this state still has the largest outreach at the present time. There were 2,038 persons enrolled in a variety of courses, some of which will require a second look this coming year to determine the elgibility for reimbursement. By this he means that we have got to improve the image of this adult education in some of our larger centers. A few of these courses were a little fuzzy and I'm sure that Mr. Erdkamp and Mr. Peterson will go along with me when I say that they are fuzzy. They were actually training for the jobs that they were employed in. A report shows that they were, but this is questionable. So, obviously then, the question is what is South Dakota's plan to upgrade it's total vocational program. The answers to this are many. There is presently a four point program in operation and we feel substantial gains are being made. The first point in this program is a re-evaluation of all the present programs that are in operation. We want to clean them up and have true Bonafide vocational programs that will meet the need of labor and management and these people will be employed upon completion.

Second point would be the establishment of the area vocational and technical schools. Under this section the state board has designated six service areas within the state with the idea of accepting proposals from any school districts within these service areas. If they can meet the criteria, the state board will then make a selection and approve one proposal from each of those areas. This was

done July 1st, 1965. At the present time, we have four school districts that have submitted proposals and can meet the criteria of the 1963 vocational act. They came up with their matching monies because these communitiesbelieve in foresight. The fact that our state laws say that any school district can assess 5 miles per cap itol outletting. And these school districts have built up a sizeable sum of money to use for this matching purpose in vocational education.

In two other areas - we've had several meetings, one in the Northern Hills area with two administrators and they are working on a proposal, but they tol d me last week they don't have the money. It will be some time to come before we will be able to come up with this unless there is enabling legislation which would permit a mil levy on county basis or something like this.

The North Central region, which is the scarcely populated section of the state, we have two communities at the present time that are making studies. What will be the outcome I'm not sure just yet.

The status of the area schools - Watertown has started construction on a $600,000.00 building which will take approximately $180,000.00 to $200,000.00 worth of equipment to equip. The brick work is almost complete. They are ready to start putting the roof on this building. They have approximately 37,000 square feet housing man occupational areas. They are to meet all of the requirements of the vocational act of 1963 for the purposes set forth in that act.

Mitchell and Rapid City are at about the same point. The preliminary plans are done for their buildings. The architects are getting ready to work on the detailed plans. Contracts should be let some time in December. Both of these facilities will be a $600,000.00 building with approximately the same square footage as the Watertown facility. Tonight the Sioux Falls school board is accepting bids for the licensed practical nurse facilities - a new facility there going in, which will be a part of their area school. The addition of their construction will be done over on the same grounds as Lincoln High School in the Southeast part of the city. They have 12 occup ational areas going at the present time and this will be an expa nsion. The funds of their building project are strictly from local funds before the passage of the 1963 act. They have complete new facilities there. That will take care of our constructions funds through fiscal 1967. It appears now that things look good for full funding under the 1963 act as well as our Smith-Hues and George Barton fund.

All together when these first four schools are completed, we will have occupational offerings in approximately 27 different occupations.

The 1965 session of the legisla ture passed a bill concerning the area vocational school where each school district within our state has the right - one district to contract with another for any or all of the education for a student within their district. They also, alsong with this bill, appropriated a few hundred thousand dollars for matching fun ds - to be used on a local level for anything that the State Board saw fit to give out this money for.

Ike Olson - cont.

This was not a token, so they tell me, but it was an indicator to move ahead in this direction. Along with this bill they passed another one which pulled the division of vocational and technical education out and set it aside and upped the state administration budget so that we would be able to employ a full time state supervisor in business and office education. A full time supervisor works in the joint capacity with the manpower development and training. At the present time, we have been able to utilize all of our funds, our allecations to South Dakota under manpower development training. We have eleven projects in operation at the present time - the 11th one Roy was trying to hang onto today if we can extend the lease on a building. There are approximately 420 trainees involved in this program. I would like to comment when Roy meets with John Schneider of the Regional Office, for approval of program, Roy says now John put your red pencil away and sit down and approve this p roject. You gotta know John Schneider to really appreciate this!

Being a Norweigen, I'm getting ready for that transfusion--- the coffee break, so----I'm not going to take a lot more time here, Lowell, so in conclusion I would like to say that all the problems and challenges that confront us in Vocational Education can be worked out if we are cautious to the point that we may never be accused of committing the so-called national crimes, one of the so=called national crimes. Which, in reality, are nothing but an unwholesome attitude. These being listed as "I don't think" - "I don't know" - "I don't care" - "I'm too busy" - "I leave well enough alone" - I have no time to read and find out" --- "I am not interested".

Thank you.

To continue on them, we have a number of persons that came in to the conference here that have been representatives and so on that have not had an opportunity to get before the group to say a few words to the total group, and so at this time I would like to call upon some of these different individuals to say just a few words.

I think we should start off -- I think it is fitting to call upon our lady that is with us. We are very happy to have her with us. It is always nice to add a little color to a conference of this type, and I think that Mrs. Truax certainly has done this very thing. And so, at this time, I would like to call upon Mrs. Truax from Honeywell, Minneapolis, to say just a few words if she would, please. Mrs. Truax.

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Mrs. Truax, Honeywell, Minneapolis.

First, I'd like to thank all of you for the opportunity I've had to speak individually with you; to learn about your school; I've gathered a great deal of information in the last coup le of days, moreso than I've been able to obtain from all the behind the desk work that I've been doing since last December. I might give you a very brief description of my problems.

I head the staffing section of Honeywell, Minneapolis, that is concerned with the direct worker. By direct I mean the worker who is going to produce dollars for Honeywell. As someone else pointed out yesterday, industry is interested in just that -- what's going to make money. Now when I say direct, I mean eliminating all the administrative people, the professional. I am speaking about the long professional engineering and the skilled; semi-skilled and so-called trainee type in the factory. So within this group of some 9,000 workers, I meet many kinds of people.

I need to hire at least 200 electronic men within the next year. I shouldn't say men, because we don't care if they are male or female. There are equal opportunities. I need toolmakers now in an amount close to 50. Thirty of which we are willing to train in our Grade C toolmaker program. We need machine operators, we need sodderers, assemblers, stockmen, you name it - we need it. Someone mentioned custodians yesterday. That is no joke. Mou can't keep janitors today because the janitor today can pick up a newspaper and go out and find a job as a machine operator or stockman. He doesn't have to settle for being a janitor. Personally, I think the answer to that is to quit talking about janitors and talk about maintenance custodians. There is a whole lot more to keeping up a building than sweeping the floor. Someone mentioned training these fellows - they need it. Today's industrial maintenance equipment requires knowledge and it requires apptitude and so the so-called unskilledpositions that existed a short time ago are less and less.

I guess every body is getting to be a specialist, and rightly so. This is the area in which your training is going to be so meaningful.

I'm here in a dual role. I'm here selfishly to find out where can these people come from; how can I find them; how can we talk to

them and how can we talk to you. Up until a year ago, Honeywell had no need to do this and therefore it wasn't done. The magic name of Honeywell in the Twin City area drew enough people and still does draw a great number of people -- but not enough. We've got many competitors seeking the same kind of skills that we seek and all of us looking for the best. The only way industry will continue to grow is by obtaining the best and keeping the best. Our turnover is a very small problem at Honeywell. Less than one percent per month overall and in the technical areas - about half of that. I like to toss that out because it compares so very beautifully with the national figures. I don't want to take up a whole lot of time - I did want to get that plug in because I'm proud of what we're doing - our section has great need for the kind of people you are training and I hope to be able to continue to work closely with the schools. All of the schools in this upper midwest area.

I mentioned to several ofyou that I feel the odds - male and female that is - present here in the last two days, are nothing more than justice. I was on this campus in 1943 and 1944 and 1945 when the ratio was 300 girls to 2 fellows. I am happy with this now! Thank you.

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Conference Summary - Thomas Stone.

Thank you - Mrs. Truax. We're indeed privileged to have you with us at this conference.

At this time I would like to call upon the representatives from the two states outside of the Tri-State area, for a few words if they would. First of all, Harlan Giese from Iowa. Harlan-

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Harlan Giese - representative from Iowa.

I feel qu ite honored to have Tom ask me to come up here and say a few words. You will notice that I'm not quite as professional as my friend over here to the right - I didn't know in advance that I was going to have this opportunity to talk with you a little bit and so didn't wear my suit coat. You've probably pinpointed who we are talking about!

How many of you were at the conference at Wahpeton last year? Will you raise your hands for a minute? Well --p----- okay. That just killed my joke!!

I feel that we ought to get a few comments in here about the great state of Iowa. I moved in to the state of Iowa so I've been slowly converted. I'm a believer now. The state is moving quite rapidly and I'll take this opportunity to give an annual report. We've got about 2 million population in the state which is not a great deal to brag about when you look at Chicago and they've got that much in one city. The state has been quite fortunate in attracting quite a few industries and the economy of the state has reflected the attraction of these industries.

I think that there is a movement afoot to erect a stone wall similar to the Berlin wall that would run from Council Bluffs up to

Conference Summary continued - Harlan Giese representative from Iowa.

Sioux City to keep them in Iowa so they don't get to Nebraska! In other words we want to take care of ourselves first!

We've got quite an active democratic government in the state at the present time. They've come up with a new idea here and this is: SEE IOWA - FIRST. One of the major ways that they've implemented this slogan is that they've organized through the Iowa development commission about 10 to 12 farms in the state that are resort farms. And you'd be surprised at the number of people coming out of Chicago-Milwaukee and St. Louis that come up to live on a farm. And you know what they do when they get on the farm? These farmers are pretty sharp. They say - well wouldn't you like to have the experience of being out on a hay wagon or -- you've never fed a cow before? We want to show you what it is like. Pretty soon they had these people paying them to work and live on this farm for a two week period - and then they get the free labor out of it besides!

We are in the process of establishing 16 area vocational technical schools or community colleges and these community colleges will offer both or when an area is designated as a community college it will offer a college transfer program as well as at least five years in the vocational-technical field. Since we have got 16 of these schools, it appears that there will not be residential institutions such as you have here in these three states. There are advantages and disadvantages to our set up. I won't take the time to discuss this.

Our set-up is rather unique in this respect. Each area school is supported or isoperated by the multi-county area school board of education that has the authority to levy a 3/4 mil tax on the entire area for operating expenses and 3/4 mil for construction. In addition, the state legislature camethrough with a real good healthy chunk two years ago and we've been working at a feverish pitch to get these area schools started. We have only three counties in the state that are not in an area school. If they want to get in later, I'm afraid it is going to cost them too, if they don't want to be part of the pioneers.

As a result of the establishment of these area schools, many of these area schools will have programs operating this fall, some of these programs that we will have operating will have been transferred from a local school operation to the area school control and others will be entirely - an entirely new program.

In one case that we were discussing just a few minutes ago -- where the vocational director is reporting for work September 1st and the County Superintendent in that area has already lined up six occupations in which he wants training operating by October 1st of this year. So if you fellows think you work a 24 hour day - this guy is going to be working 28 to get that job done.

I've mentioned also that we've been working on a state staff and local staff for the development of programs. We are going into more specialized programs and we think that our concentration of industry in the state can warrant more specialized programs. In these efforts we've been working on the state level with industrial associations and labor organizations.

Conference Summary continued - Harlan Giese-representative from Iowa.

I would like to rock the boat at the meeting here for a minute, Tom, and say this. Is Mr. Bauman still in the crowd? He had to leave. I wish that he was here because I'd like to say this in his presence. We are very sincere about our desire to work with labor in establishing the training program. We don't feel that we can afford to overtrain in a given occupation and yet in our experiences working at the state level which is a new concept that is working out in the state to develop training program, we have met with considerable resistance from organized labor. I realize that IBEW in the state may have a very fine working relationship with you, but I'm afraid - and we have certain working relations - certain labor organizations. Some of these you would think would be the toughest ones to work with ; we are getting the finest cooperation. I wish there was some way to communicate with the state labor group of our state and to disseminate this information that we're not trying to put people out of jobs - we're not trying to put union people and journeymen out of jobs. We haven't found the way to accomplish this. We're just not getting a great deal of labor cooperation and I just wish there were some way we could accomplish this in fairly rapid order. This may be asking too much. Maybe this is something that we are going to have to develop on a state level over a period of years.

One other comment that I have and that is - I suspect you have the same philosophy in your state, but I don't recall that it has been mentioned. We, in establishing our training programs, are taking the attitude that we don't care whether the people we train are exported out of the state of Iowa. Ours is a highly academically oriented state -- everybody goes to college. I think we've got something like 70% that graduate from high school go to college. But you ought to look at our drop out rate, folks, it is pathetic. But we can still say they go to college. Anyway, of those that graduate, they are all leaving the state, they are finding employment elsewhere. Our attitude is that we'll do the same thing in vocational-technical education, and if we do this, the industries will begin to come to us for trained people in particular specialties. Pretty soon when this industry is looking for a place to re-locate, we sure hope that they will come to Iowa. At least this is our thinking at this point. This is our formula or guess as to what is going to happen.

We, as I mentioned before, are trying to locate or we are in the process of establishing area schools - we want these to be highly successful. In order to accomplish this, and this is more chamber of commerce information, we feel that the salary of the people heading up the schools, that is the superientendents and the local local directors need to be high enough to attract the best qualified people we can claim and we've got about three positions in our state that are not filled at these vocational-directorship level and I shouldn't do this, since I'm a guest, but they're paying about $15,000.00 a year for a local director in these schools. So, if you're interested, well we'd be happy to have some of you come in and apply for these jobs. I think you can see where the salary is good. These area schools are going to be very picky in what they are doing and the more the applications, the happier they are.

Well, I'm afraid I've taken enough time. I've used up enough time so we are almost back on schedule, I think. I would like to express my sincere appreciation for the three states that have operated these conferences and I realize this is a rotating schedule

Conference Summary continued - Harlan Giese-representative from Iowa.

of their extending their hospitality when inviting the staff of the trade and industrial secion in our division of vocational education, to sit and participate in these active conferences. We sincerely appreciate this and I would like to compliment you for operating both at Wahpeton and at Springfield here. A very excellent and superior conference. I am impressed by the way you people do your work.

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Conference Summary - Thomas Stone.

Thank you, Harlan. We're happy to have you with us for our second annual Tri-State conference.

Continuing on, I would like now to call the other representative outside the Tri-State area, Chuck Klein from Wyoming, Chuck-

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Chuck Klein- representative from Wyoming.

Thank you, Tom. It is a please for me to be here on behalf of the great state of Wyoming. I want to compliment you people for your participation in this conference. You've worked diligently and hard and it would appear to me that there have been a lot of benefits reaped from it.

As a matter of fact, I'm a little bit envious that maybe we're not doing something like this out in the west. One of the things that was of a great benefit as far as I am concerned is in a particular conference, such as this, we are getting the people involved in it that really count then - are the teachers. I spent several years as a teacher in a T & I program, and one of the things that I was a little bit ciritcal of when I attended my first AVA conference out in San Franciscok about 1954, was the fact that it was by and large a group of administrators. Now I realize that it is difficult for teachers to get to these conferences such as this which is held during the regular school year, but the ones that can really benefit from a situation like this, are the teachers. I went that year as a representative of the trade-industrial education section of our Wyoming vocational association. I had to be president of the session that year. I got a lot of good out of it, but this is what - this is the one thing that I was quite critical of. Several years lapsed before I was able to attend another AVA conference and interum they haven't figured out a way of getting more teachers there. One way maybe to do this would be to get us administrators back into the classroom situation which I am sure many of us would welcome because I still have a warm spot in my heart for the student and the contact is one of the things that I really miss in the job that I'm in.

In Wyoming, I'm sure it is not unlike North Dakota, South Dakota and some of these other states in this Midwest area or the Rocky Mountain area - we have a minimum population . As a matter of fact, I think according to some of the latest census data, Wyoming is about two of the fifty states as far as scarcity of population is concerned. I think our latest census cap italization was something like 338,000 people in the entire state. Scattered over something like 98,000

Conference Summary continued - Chuck Klein - representative from Wyoming.

square miles. Regardless of where you are in Wyoming - you're a long ways from someplace! Perhaps I shouldn't go into as much detail a s Mr. Geise did, because he is really closer to South Dakota as I am.

I might mention just a couple of things, however, Tom asked me a while ago, if I would say a few words, and being a little bit modest -- well, I didn't come right out and say that I would, but then he came back and said we'd appreciate it if you would say a couple words. I realize that I've said more than that. However, I would like to just mention a little bit of the program that we're developing in our area.

One of the things that presents a great handicap to us in Wyoming is the fact that we're operating on change as far as our state allocation is concerned. We also have a binding situation as far as our appropriations are concerned. Our legislature meets every two years and they appropriate a sum of money to last two years. And to give you some idea of our particular situation, we are right now in the last half of biennium of $50,000.00 of state money for vocational education. This is ridiculous. It is an insult to a person's intelligence. I don't know who to blame for this. I'm sure that I'm perhaps somewhat to blame for it. The individual who represented our department with ways and means apparently was shot right out of the saddle. I guarantee that this time when we go to the legislature - we're going to be loaded for them and we hope that we're gonna get that million and a half dollars that we're going to ask for. They will probably think that we are crazy -$50,000.00 compared to a million and a half - but we need it. And we hope that we are going to be able to present a program that they will be able to buy!

We are, however, utilizing all of our federal money that we're getting and we're matching this out at the state level. So there is a tremendous local effort in the state which is good. I think we need this. We do not have any vocational-technical schools, as such. However, one of the early state board meetings this year, designated the existing community colleges, right now we have six in Wyoming, only five are organized - the sixth is in the process of being organized - they designated those community colleges as area vocational technical schools. This doesn't imply that they are area vocational technical schools at the present time, but it does open up the door for those schools to go ahead and develop programs an d develop vocational-technical programs at the post-secondary level. We hope that we can implement more secondary programs. Wyoming is no different than Iowa and these other states where everybody goes to college. Over fifty percent of our high school graduates in the state of Wyoming go on to college.

It was real interesting to get ahold of a 1949 study that was done at University of Wyoming - we have only one four year state university in Wyoming - of the 1949 freshmen who entered the University of Wyoming, there was only about 23 percent of them that graduated four years later. I feel, as many people do, that college drop out is really at a greater disadvantage than high school drop out psychologically. Particularly because they come back into their community- if they dare to go back to the community, and people say

Conference Summary Continued - Chuck Klein - representative from Wyoming.

well he flunked out of college - he couldn't make it. So, phychologically I think that they are at a greater disadvantage than a high school drop out.

Again Tom, and all you other folks, it was a real pleasure for me to be here and renew some old acquaintances that I made a few years ago, and to make new ones, and if you ever come to Wyoming, why be sure to stop by at the capitol building and see me.

Thank you ver much.

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Conference Summary Continued - Skip Howard -- IDEA representative.

of May for the State Technical Service Act, of all of the industries here in South Dakota. The number one problem facing our industries here is skilled labor. This is the point in which they expressed that they can do a certain amount of training, but the demand for that labor is so great, that by the time they have invested the money in training this individual - someone else hires him away. They can import an individual from another state, but this again is transplanting an individual from a community where he is used to -- and it involves a big change over. They go to another state for another job. This means that we must cultivate our own people, training them in these skills to the point where we can invite industry in to utilize them.

They all admit that the productivity of the midwestern is greater than they are other places. In fact we have some companies operating in South Dakota that have branch offices here and their main offices are in the Eastern part of the United States. And they actually usedthese plants for recruiting trainees for foremen and higher skilled personnel for their other plants. Right up here on 212 there is a company that transferred four personnel out within the last month to otherplants to take over jobs that could not be filled out of those plants. So we do have a big asset here. Let's utilize it. Let's get these training programs. We have power, we have water, we have methods with which to finance buildings and equipment in South Dakota. We have many communities that would strive harder to get a small industry here than they would in some of these other states, Minnesota or Illinois, because they already have some there. Here they don't. Therefore, these problems can be resolved. These communities will work hard to get an industry in there. We have to come up with something extra. Something that we can go to industry with and say you can make more money here than you can where you're at, with productivity. We can show them companies that are here that are doing that. Therefore, this is the missing link. This is the key in which we have been waiting for in South Dakota in Industrial Expansion Agency and that is trained personnel. If we had 100 machinists right now at Igloo, South Dakota, we could bring i n a very large manufacturer. It is just that critical.

Therefore, we applaud you in your efforts here. And hope that you receive money to increase your program and we hope to be able to supply the jobs and keep these people in South Dakota and bring with it some of those eastern class that will be good for our states.

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Conference Summary continued - Thomas Stone.

Thank y ou. At this time I would like to again call upon Mr. Mandell from the U. S. Office of Education. He said that he had a few additional words that he would like to convey to the conference, so Mr. Mandell, will you please come up.

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Mr. Mandell - U. S. Office of Education.

These will be some rather unconnected comments based on what I

have been listening to for the last couple of days and particularly today. I picked up a magazine in the lounge this morning and I'd like to extract a comment from one of the articles. It says a major cause of world troubles and world problems is faulty education. This is your problem. It is not a world problem. Forget the world. Start at home - take care of your problem and the world's problem will gradually take care of themselves.

I'll start with a compliment but I expect to end with criticism. You're all great states. All 50 states are great. The four territories are great. The only thing is that some are exerting a little greater effort than others and therefore in my personal eyes, some states are greater than others in what they are accomplishing in the way of providing educational benefits to all.

We were talking in the back of the room earlier about one of the biggest problems that we can see is that educators are not being educated. And here I am referring to the fact that you are vocational educators. How much contact do you have with the trade in dustrial arts educators? How much contact do you have with your academic educators? Do you ever get together over a cup of coffee? Do you ever try to find out what your mutual problems are? How you can assist one another? How you can work together? How you can devise a wholly coordinated program for the education of your students?

Let's get away from this fact that we as vocational educators are something special. That we are new. The Vocational Education act of 1963 didn't release something new. It took something that was in being and tried to give it more force. Personally I'm new to this program - I've got to admit that in my nieveness that I cannot understand why academic educators talk about academics and its problems and the industrial arts man comes along and says well those people don't know what they are talking about - we're the only ones that know what to do.

Mainly, and again I come back to this comment that Mrs. Truax gave me the lead to, the main problem is communications. None of you really understand or appreciate what the other man's problems are. You haven't even discussed them with each other. Isn't it about time we did that?

There is another thing that rather rankles me and that is that a number of speakers get up on platforms like this and it happened here, and they cite all the problems that they have in trying to get their programs going. Now I call this a negative approach. Thank God this morning I heard a cou ple of people actually take a positive approach. They said what they're doing.

You know when you start off with children in the first grade, or second grade, or maybe even up to the fifth grade, you have those Tell Shows or Show and Tell sessions in class where the youngsters say what they did over the weekend or on vacation or what no. We've got to do more of this -- to ourselves and to the other people in the other branches in the field of education. This is part of this communications process.

This will enable us to come around to a wholly coordinated educational program. And very frankly, we're trying to do this at the U. S. Office and we're having some success. You may know Dr. Ben or you may have heard of him or read his book. He has taken the lead and he has had the commissioner commit himself to where the people, the bureau chiefs and the division chiefs at the U. S. Office are now really for the first time communicating with one another - what their problems are. How they can work together. How they can get together to resolve these problems.

I have to give credit to Mrs. Truax and the other industry representatives we've had, but I can't help but think that industry on a whole is emotionally excited. As part of this wholly coordinated program of education, we need them in the picture. The problem with industry today is that all they've been worrying about is what do I need in the way of talent today to make the product I'm going to sell today. Yet, I think big industry has some type of research and development activity - everyone of them. If you don't believe me, come into the Washington-Baltimore area. In the last five years there must be at least a hundred new buildings have gone up just for the purpose of having a research and development agency in the Washington-Baltimore area. Everyone of these are a source for determining what are the job requirements; the skill requirements, going to be a year from now - five years from now and even ten years from now. Industry doesn't study this, our universities don't study this, you and I aren't studying it. Why not? Here is a tremendous source of data for us. You and I as individuals can be both salesmen and buyers of this type of information.

Fortune magazine last spring had an article called "BRAIN GAINERS -vs- BRAIN DRAINERS" and here it was referring to the states which loose the brain power developed and the states which gain the brain power developed. Now the last speaker reminded me of this particular article. He talked about some of the basic reasons why industry moves from state to state. And in this particular article someone asked Mr. Macnamara, Secretary of Defense, why is it that so many of the defense department contracts go to so few states? Well, lady and gentlemen, there are only about 5 states in the whole United States that are really brain gaining states. The rest of you are all contributors. You're all brain training states. You're training people who are being exported to these 5 states. California, New York, Massachusetts, the section around Washington-Baltimore and Virginia, Texas, other than these states, the rest of you are loosing brains.

Now what kind of brains am I talking about. I'm talking about the type of brain that is really, I think, the basic reason why industry locates where it does. Forgetting transportation, forgetting skill trained, forgetting everything else, there is only really one basic reason why most of these industries are moving where they are moving.

Now I'm going to talk about higher education. Your Ph.D.'s. Where your Ph.D.'s go - so go your major industries. You know we have a chain or chain reaction whichever way you want to look at it, which is broken right now and it's up to you to make this chain whole. We have a man who is developing basic ideas, basic concepts, basic theory, you also have following him the man who applies this basic concept, basic theory, following him is the man who must take

this application from the desk, if you will, and put it on a production bench and this is where your skilled trainees come in. You might make an effort again through your academic people, working together with them, trying to improve your standards so far as the number of Ph.D.'s your turning out; their remaining in your state. You build up you universities - your colleges - to retain these Ph.D.'s; to work on these basic concepts and develop these basic ideas and let your applied people come in and work with them beca use they will attract one another. Once they have become a nucleous, if you will, they will start attracting basic research. The basic research attracts the application industry or the production industry. Now I don't know if this makes sense to you or not, but it makes a tremendous amount of sense to me. This is not something you can do over night. It is long range planning. It is much communication. You have to advertise at this higher education l evel. You have to attract them. You have to have something there to hold them and one of the things that will hold them is when Professor John Doe, or excuse me, Dr. John Doe realizes that Dr. James Smith now a member of this university and leader in his field is located in the state of Iowa or the state of South Dakota. He'll want to work with this Dr. James Smith. The two of them together will then attract a third doctor and maybe a fourth and maybe a fifth. And they're working on basic items in development; developing ideas, developing concepts. They will bring in the man who does an application because they will want to be connected with Dr. James Smith and once this happens, your requirements for skilled people is going to grow. Your industry will move where these people are.

Now just another angle. What I'm trying to do is tell you one way we can attract industry, to improve your education, to take care of that industry.

One thing that I didn't do which I ordinarily like to do, and that is to answer questions, and if I may, Tom, I'd like to open for about two minutes, if you will, just any question from the federal level that I might be able to answer.

Do I have any questions at all? --- Yes. I don't know if you all heard the question. You are all familiar with music - where they pipe music into a factory, and the question is --"What is my opinion on having music in a learing environment." Do I have it correct?

There have been many studies made on the benefits of music in a learing environment. Some of the studies have rather conclusively proved that it makes not a darned bit of difference. Some of the studies indicated that it helps. One of the big problems - I'm sure that Mrs. Truax can support this, and any other industry representatives, is that when music is first introduced into the factory system, the foreman or the supervisors soon find out that here is a way to increase production over a short month by the type of music that is played - the tempo of the music. Unfortunately, this was done in too many instances. Well, I'm not sure that music in a learning environment or a working environment is to good. However, the only way this can be answered is to try it. But study it at the same time that you're trying it. Try to find some measure for evaluating its benefits or its detractions. Many industries that have had it - cut it out.

Conference Summary continued - Mr. Mandell - U. S. Office of Education.

Are there any other questions?

Now, there is one thing that I failed to tell Mr. Olson, and everyone that is here that has gotten on the platform has kinda bragged about his vocational status or vacational background - yet it suddenly occured to me, I failed to mention mine! I served two years as an apprentice in a millwright program. I didn't serve it under a Norweigen - I served it under a Swede and he was about 75 years old - about 5 foot 5 inches and about as thick as a broomstick --- so you know who did all the work!

Thank you very much.

* *

Conference Summary - Thomas Stone.

Thank you.

At this time I would like to try to briefly summarize our conference. Looking back over the past two days now, we assembled Sunday afternoon - Sunday evening for registration. Sunday evening we held our first session. At this time we tried to bring in a man from industry to give us the feeling from industry relative to vocational education. What we in vocational education need to be doing as seen in the eyes of those in industry. Continuing on from Sunday evening to Monday morning, there we then turned to the area of building and equiping vocational education facilities. As we look throughout the three state area, we well as across the nation, we see at this time that this is something that is a major factor. Something that is at the foremost as far as many of our thinking and that is this thing as far as building and equiping new facilities to take care of the expansion program which we have underway. So as we try to look at this, we hope that in breaking down into various groups, you've had a chance to discuss items relative to building and equipping facilities in each of your specific areas.

As we move from Monday morning to Monday afternoon, there we again change somewhat in that we're taking a look at the programs within these particular facilities. Again breaking down into small groups, gave you an opportunity to discuss the programs within each of your particular areas. Now we had hoped through these small group sessions that you would be able to gain some knowledge that you could take back with you. We hope that this is not just a conference for administrators but a conference which will be of benefit to the instructional staff as well.

Also, Monday afternoon, we had an opportunity to hear more about this Aero-Space age which we are now in. I think all of us enjoyed the film which we had an opportunity to see. At least, I know I did and we're looking forward to obtaining copies of this film and others, to have them back on our campus to show our students and faculty and so on.

Last evening we had an opportunity for a somewhat lighter program - which I think fit in very well with our dinner and we

were happy to have with us a representative of the administrative branch of our state government. And I think that this is a branch which we should not forget. Many times we overlook these people. Many times we are quick to criticize but slow in sitting down and visiting with these people, letting them know of our problems and so on. And so I think we need to work with these people.

Continuing then to this morning, at this time we have tried to bring in organized labor - giving them an opportunity to present their side of the picture - relative to vocational education and what needs to be done as far as they are concerned.

To finalize this morning's activities, we asked each of you to fill out an evaluation sheet. We sincerely hope that you filled this out honestly; wrote down your ideas. These will not be of any benefit to this particular conference this year, but I am sure will be of benefit as we look forward into future conferences. We sincerely hope that this Tri-State annual conference which was started a year ago will not stop with the second, but will continue on and I'm sure that they will. As they continue on, through your comments, I'm sure that they will grow and even become better conferences.

So this now brings us up to this particular point. We do have one other man in our midst that we've had in our conferences or on the program before - this is Mr. Thaine McCormick who is our Regional Director and before I close this conference I am wondering if he has any other comments. Mr. McCormick.

* * * *

the weekend over Labor Day and this was quickly voted down. So, consequently, we had to go back to a second best choice and at this point we have set a tentative date for June 8th, 9th, and 10th. Now thiswould be the first part of June. This would be right after the public schools would be out and it looks like this might work out better than some of the other dates. Jot this down- if you have any comments or suggestions, why I'm sure that we'd be more than happy to receive them. Along with this, the class of vocational-technical school has extended an invitation to hold a conference in their facilities next year unless there is any objection, we are certainly going to accept their invitation. We want to thank them for this. So, consequently, if you have suggestions or ideas relative to the third annual Tri-State Conference, I would ask that you direct them to Mr. Lowell Welsh, the director- the Vocational-Technical School of Nebraska at Milford, Nebraska.

A couple of ideas that have come up relative to other things that might be done during a conference: 1st of all - Lowell has suggested the possibility of possibly a golf tournament the first afternoon, so if we have any golf enthusiasts, you might make a note of this if you have any suggestions or ideas about this you might drop a line to him on that. Possibly we could have a 3 state tournament -- I don't know.

Also, another idea that has been brought up as we travel around and visit the various vocational-technical schools, we see many visual aids - instructional aids that have been developed by various instructors in the particular areas. Many of these are tremendous. Consequently, we are wondering if it might be possible to set up an exhibit of these instructional aids that have been developed at the conference. We ask that you give this some thought. And we will be doing further checking into this and giving it further thought relative to the possibility of setting up this type of display at the next conference.

With this as announcements I certainly want to thank all of our industrial representatives that have attended here; have been part of our conference - we certainly appreciate them taking of their time to come and be part of our conference and sincerely hope in the future that we will have a larger representation from industry throughtout the area, as we continue on with our Tri-State conferences.

Also, we want to thank all of our guest speakers - they have put forth a lot of effort - have brought a lot of information to us and I'm sure we'll all go back and prepare to go to work with many new ideas, enthused and do a better job than we did in the past.

Are there any other announcements before we close the conference? One announcement - Mr. Horton. (Note: Not on tape) This brings up one thing that I failed to mention-the boat basin says they will have the noon luncheon ready at 11:30 so that anyone that is interested in leaving -- so that you fellows can get on the road -- they will be ready for you at 11:30.

Conference Summary continued - Thomas Stone.

Any additional announcements at this time? If not we thank you for attending.

At this time I then declare the second annual Tri-State Conference adjourned.

Thank you.

* *

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Thaine D. McCormick	Regional Representative	Regional Representative Adult and Vocational Education Kansas City, Mo.
H. S. Mandell	Facilities Specialist	U. S. Office of Education Washington, D. C.
Walter E. Miller, Jr.	Manager	Industrial Relation Hughes Aircraft Company Santa Ana, California

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Duane C. Ballweber	Instructor	Breckenridge, Minnesota
Alfred Bang	Placement Sup.	Nebraska Voc-Tech School Milford, Nebraska
Carol Bengtson	Instructor	Nebraska Voc-Tech School Milford, Nebraska
Julia Berg	Instructor	
Clair Blikre	Dean of SSC	Springfield, South Dakota
William O. Bohl	Field Service Rep.	St. Paul, Minnesota
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CONFERENCE CONFAREES continued

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Wm. Butler	Manager	Engineering Products St. Paul, Minnesota
Virgil Canning	Instructor	Nebraska Voc-Tech School Milford, Nebraska
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Duane S. Jansen	Instructor	Southern State College Springfield, South Dakota
Grant Johnson	Coordinator	Fargo Public Schools Fargo, North Dakota
Lorentz Johnson	Instructor	Breckenridge, Minnesota
Bob E. Klarenes	Consultant	StateDepartment of Education Lincoln, Nebraska
Mr. Larry E. Koch	Instructor	Nebraska Voc-Tech School Milford, Nebraska
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Henry Lehman		N. D. State School of Science Wahpeton, North Dakota
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David Merrill	Director of Vocational Ed.	State Training School Plankinton, South Dakota
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CONFERENCE CONFAREES continued --

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CONFERENCE CONFAREES continued---

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Schmidt, Paul, And Others

Pre-Vocational Training Program for Hard-Core Handicapped. Research and Demonstration Project. Final Progress Report.

Indianapolis Goodwill Industries, Inc., Ind.
Indianapolis Foundation, Ind.
Lilly Endowment, Inc.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug67 48p.

*PREVOCATIONAL EDUCATION; *MENTALLY HANDICAPPED; *PHYSICALLY HANDICAPPED; *DEMONSTRATION PROGRAMS; VOCATIONAL REHABILITATION; COMMUNITY PROGRAMS; PROGRAM EVALUATION; PROGRAM COSTS; *REHABILITATION PROGRAMS

The purposes of this 3-year project were: (1) to explore the probability of a hard-core, multiply disabled population making the transition from dependency to a significant level of employability by developing, through pre-vocational services, good work habits, desire to work, appropriate social and work skills, and a positive self-image, (2) to study the cost of such services, and (3) to identify the need for an intermediate workshop, defined as one which employs handicapped clients who cannot sustain traditional standard performance requirements of Indianapolis Goodwill Industries, although they exceed the performance of "work activities centers" clients as defined by Federal regulations. Of the 83 who entered the project, 23 were considered candidates for the intermediate workshop because of emotional problems which were resistant to any kind of lasting control, coordination problems so severe they could not do anything quickly, or seizure problems which prevented some from consistent performance. Recommendations resulting from this project include: (1) the use of extended evaluation in training, and (2) the implementation of an intermediate workshop having the availability of medical, nursing and psycho-social services. (CH)

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TRAINING
the
HARD-CORE DISABLED
Final Progress Report

by Paul Schmidt, Maurine Miller,
Joseph Zimmerman, and Thomas Stuckey

INDIANAPOLIS GOODWILL INDUSTRIES, INC.

This project made possible
by grants from:

THE INDIANAPOLIS FOUNDATION
LILLY ENDOWMENT, INC.

VT001289

PRE-VOCATIONAL TRAINING PROGRAM FOR HARD-CORE HANDICAPPED

Research and Demonstration Project

Final Progress Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

This fourth and final report covers the period, August 1, 1966, through July 28, 1967. Although the funding lasts through December, 1967, the Rehabilitation Advisory Committee to the Community Service Council asked for a summary report at this time in order that the report might assist in community planning for the groups of handicapped whom these clients represent.

Indianapolis Goodwill Industries extends its gratitude and thanks to the Indianapolis Foundation and to Lilly Endowment for the financial sponsorship without which this Project could not have been carried out. Appreciation of the request by the Community Service Council to initiate this Project is also felt because with their stimulation and encouragement the Project became a reality rather quickly. The staff members of Goodwill Industries have continued their fine cooperation and ready assistance in working through many of the problems of the clients. Miss Norma Campbell and Mrs. Betsy Garlick were especially helpful in data collection and processing. Members of the Goodwill Service Guild gave many hours of valuable volunteer service and added a dimension to the quality of various activities which paid staff can not supply.

Paul Schmidt,
Project Director

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CHAPTER I

Background and Methods

Background and Methods

In support of a recommendation from the Marion County Advisory Committee for Rehabilitation, the Community Service Council of Metropolitan Indianapolis and Marion County requested Goodwill Industries in 1963 to provide vocational services for a group of handicapped individuals who were not being served by present programs. This group consisted of multiply disabled individuals who were being turned down for service by both state and private agencies. Many were victims of mental retardation or neurological dysfunction. Funds for the proposed project were granted by the Indianapolis Foundation and the Lilly Endowment, beginning January 1, 1964. The first report was made August 1, 1964, on 17 clients, the second on July 1, 1965, on 33 clients and the third on August 1, 1966, with 65. This report covers the total period from January 1, 1964, to July 31, 1967.

The purposes of the Project are to (1) to explore the probability of a hard-core, multiply disabled population making the transition from dependency to a significant level of employability by developing through pre-vocational services good work habits, desire to work, appropriate social and work skills and a positive self-image; (2) to study the cost of such services; (3) to identify the need for an intermediate workshop defined as one which employs handicapped clients who cannot sustain traditional standard performance requirements of Indianapolis Goodwill Industries, although they exceed the performance of "work activities center"* clients as defined by Federal regulations.

Intake Criteria

Clients admitted to the project have failed previous workshop experience or have been denied entrance because of poor prognosis for productive employment. They must be capable, however, of

*A work activities center as defined by the U.S. Department of Labor "shall mean a workshop, or a physically separate department of a workshop having an identifiable program, separate supervision and records, planned and designed exclusively to provide therapeutic activities for handicapped workers whose physical or mental impairment is so severe as to make their productive capacity inconsequential. This will be determined on the basis of whether the average productivity per handicapped worker is less than $750.00 per year as measured by dividing the total annual earned income of the work activities center work program, less the cost of purchased materials used, by the average number of clients in the work program, or in the case of a work activities center paying primarily at piece rates, whether the average annual labor rate per client is less than $500.00 as measured by dividing the total annual wages of the clients by the average number of clients in the work program."

A sheltered workshop means "a charitable organization or institution conducted not for profit, but for the purpose of carrying out a recognized program of rehabilitation for handicapped workers, and/or providing such individuals with remunerative employment or other occupational rehabilitating activity of an educational or therapeutic nature."[1]

commuting to and from work; they must manage personal needs and be sufficiently motivated to come to work. No one whose behavior would endanger the safety of other workers is admitted.

Admissions Process

Admissions are screened through the social service department. When referrals or direct applications are made to it, it interviews both client and family. The interview serves to inform the prospective client of the service and the nature of the workshop and to assess the suitability of the client for the program. If both client and social worker are interested, arrangements are then made to have psychological and medical evaluations and to collect medical, vocational and social histories. When this is done the client's case is presented to the professional staff for admission or other recommendations.

Workshop Procedures

Clients work a six-hour day with thirty-five minutes for lunch, five days per week. Work exposure is first given in the Industrial Services Division on light assemblies, under close supervision, by Project supervisors. When clients have improved enough they are given trials on jobs in other production departments of the plant. Jobs in the regular sorting and repair departments or in any of the service areas (cafeteria, material handling, janitorial) have greater pressures and less intensive supervision. When enough progress has been attained, clients are then placed in formal job training programs or as a regular worker in one of the many Goodwill Industries jobs. Some are place in outside competitive employment. Throughout the period of time they are in Goodwill Industries, six-week progress reviews are held by the Project staff to discuss problems, assess progress and set goals. Regular, small group discussion meetings are held to discuss problems, improve social interaction, and provide a sense of belonging. Selected and trained volunteers lead these meetings. Individual counseling is available as needed, even after placement. Parent meetings are held monthly. Recreational activities, remedial reading classes and grooming classes are conducted by volunteers. Medical consultation and referrals are also available as needed. Social workers provide liaison with family and other agencies and assist on problems of maintenance.

The professional services have been useful in merely keeping a client in the program, in counseling and helping him through a personal crisis, in providing the relationship which the client could utilize in mobilizing his resources and in helping him with his employment problems once placed.

Techniques Utilized in Developing Employability

The supportive services of social work, psychology and medicine, as mentioned above, have provided avenues of reaching individuals and influencing them toward better work habits and more satisfying personal adjustment. In addition to these services, supervisory techniques used in the Project to improve both behavior and productivity are discussed below.

1. Work simplification has altered methods of doing manual assemblies to improve production or by-pass an individual's particular physical handicap.
2. Manipulation of the work environment to provide either more isolation, competitive stimulation, or closer monitoring by the supervisor has proved effective for certain clients.
3. Consistent supervisory attitudes in line with the client's need are adopted. Sometimes this means an encouraging, supportive interaction. Sometimes it means a more impersonal, demanding, authoritarian role.
4. Emphasis on goal setting either in terms of production or attendance, or behavior on the job has encouraged clients to evaluate themselves more readily.
5. Disciplinary lay-offs are used to impress certain clients with the seriousness of their inappropriate behavior.
6. Immediate correction of mistakes of procedure, production counts, inattention, or inappropriate behavior has prevented many bad habits from crystallizing.
7. Operant conditioning techniques have been systematically applied with a small group of clients to determine their applicability in the workshop. These are reported on in detail in Chapter IV.

Workshop Structure Which Contributes to Good Work Habits

1. Time clocks provide a typical equipment of many work settings into which clients may graduate after training. In addition they provide an example of ethical behavior expected of a good worker--no card is punched except by the worker himself.
2. Safety practices are rigidly adhered to. Clients learn the necessity of keeping their work materials out of aisleways, watching moving material-handling equipment, of wearing safety gloves when indicated.
3. Clients learn to hand in production counts. Here again they learn not to pad their counts and if they need special aids for counting, they are taught how to use them.
4. Lunch and coffee breaks provide the setting in which social skills are improved and in which time awareness is fostered.
5. A wide variety of available jobs is one of the strongest assets of a workshop. A variety of tasks gives opportunity to teach flexibility. In addition in an evaluation process the more tasks to choose from, the greater the chance there is to find the right spot for a client.

6. Strong industrial management is more conducive to learning good work habits and attitudes than is sloppy management. Efficient material handling can add to a worker's productivity. Regularly available work in a sub-contract department provides stability from day to day which is needed to shape behavior. Well maintained equipment minimizes idleness or broken work rhythms.
7. Systematic, regular staffings of client progress and problems not only lead to better planning but are conducive to staff cooperation and teamwork. The staff meeting provides an area for ironing out differences of opinion about a client and for developing a plan of action which staff members must then honor.

CHAPTER II

Population

Age

The Project has been composed of young, single adults. Only four people have been admitted over the age of 30. It is likely that after this age, dependency among those who have never worked becomes so ingrained that there is little hope of changing this pattern. Table 1 shows the age distribution.

TABLE 1

AGE DISTRIBUTION BY SEX AND MARITAL STATUS
N = 83

Age	Male	Female	Single	Married
18-20	24	18	43	0
21-30	21	15	36	0
31-40	1	1	1	0
41-50	2	1	3	0

Disabilities

The mentally retarded make up a large proportion of the Project clients. Sixty-four, or 73 percent, are mentally retarded or borderline. All but six have other handicaps which seriously interfere with employability. Table 2 shows the distribution of disability when the two most handicapping categories are selected for each individual. The greater complexity of rehabilitation for these clients can be seen by noting how few of them have only one major disability. Only four of those with emotional problems have no other complications. All of those with epilepsy have concurrent disabilities. The more detailed description of each client's handicap is shown in Appendix A.

TABLE 2

Distribution of Major Disabilities (limited to two categories) for Each Client)
N = 83

	N	Ment. Ret.	Emot.	Epil.	C.P.	Neuro.	Sens. Spch.	Ortho.	Other
Ment. Retarded	61	6	14	10	5	2	13	5	6
Emotional	27	14	4	2	4	0	1	1	1
Epilepsy	13	10	2	0	0	0	0	1	0
Cerebral Palsy	12	5	4	0	0	0	3	0	0
Neurological	4	2	0	0	0	0	1	1	0
Sensory, Speech	19	13	1	0	3	1	0	1	0
Orthopedic	11	5	1	1	0	1	1	1	1

Intelligence

Table 3 shows that approximately 75 percent of the admissions fall in the Borderline or Mentally Retarded classification according to the Wechsler Adult Intelligence Scale. Not all clients could take both parts of the WAIS because of their disability but all clients took at least one part.

TABLE 3

WAIS I. Q.'S
N = 83

Score Range	WAIS Verbal	WAIS Performance	WAIS Full Scale
60 and below	15	15	15
61-70	20	21	26
71-80	19	28	20
81-90	12	12	8
91-110	15	6	11

Achievement Grade Levels

Table 4 shows that 77 percent of the clients are severly deficient in arithmetic skills and 77 percent in reading skills (below 6th grade level). The limitations in these basic academic skills show that instruction must be verbal, that daily quantity counts must be closely monitored to insure accuracy, that certain contract jobs in the workshop cannot be assigned without special provision for quality control.

TABLE 4

Distribution of Wide Range Achievement Scores

Grade Level	Arithmetic N = 77	Reading N = 73
1.0-1.6	6	10
1.7-2.9	14	10
3.0-4.4	28	17
4.5-6.0	19	19
6.1-8.0	7	9
Above 8	3	8

Education

Sixteen of the clients have graduated from high school but several of these have been certificate graduates. In general the

educational histories of these clients have been filled with erratic attendance, repetition of grades, and special class enrollment. The table below serves more to show the number of years in school than the educational attainment.

TABLE 5

Educational Levels
N = 83

Grade	N
Less than 5	11
6-8	28
9-11	28
H.S. Graduate	15
Some College	1

Work Experience

Table 6 is another reflection of the serious nature of the clients' disabilities. Few have ever worked before coming to Goodwill Industries, and those who have worked have had only occasional, unskilled jobs.

TABLE 6

Work Experience
N = 83

Type of Work	N
Unskilled	13
Semi-Skilled	2
Skilled	0
Goodwill Plant	3
Goodwill Work Evaluation	3
Goodwill Work Adjustment	12
None	50

Referral Sources

Table 7 indicates that the greatest source of referrals is the Indiana Division of Vocational Rehabilitation. It is this agency to which most of the clients have gone when first trying to get help. Under the new legislation allowing for longer evaluations, an even greater percentage of clients should be serviced by it. A list or referral sources might also change if the service changed from a limited pilot study to an ongoing community service. In the latter case more attention would be given to publicizing and promoting the service.

TABLE 7

Referral Sources of Clients
N = 83

	N
Division of Vocational Rehabilitation	39
Indiana University Medical Center	8
Goodwill Industries Plant	7
Family Members or Friends	4
Psychologist	3
Mental Hospitals	3
Psychiatrist	2
Church Pastor or Social Worker	2
Noble School for Retarded Children	2
Marion County Department of Public Welfare	2
Indiana Employment Security Division	2
Ben Davis High School	2
State School for the Retarded	1
Wood High School	1
Attucks High School	1
Labor Union	1
Business College	1
Chamber of Commerce	1
Crossroads Rehabilitation Center	1

CHAPTER III

Results

Improvement as Indicated by Employment

In the 43 months of the Project 83 clients have been served. Table 8 shows the distribution of those terminated, employed or still active according to the weeks they were in the Project. This table reveals that many hard-core, multiply-disabled individuals can made the transition from dependency to a significant level of employment. It also points out that employability is seldom developed before six months and that for a sizable number of individuals, significant improvement takes place in the second year. The evaluation and training of these clients is slow. Of the 19 clients (23%) unemployed ten had medical or psychiatric problems which were too severe to warrant continuation. Eight withdrew voluntarily. One died. Forty one (49%) clients are at present either in regular Goodwill Industries employment, other sheltered employment, or in competitive employment. A few have shifted from competitive employment to Goodwill Industries employment and contrariwise. Twelve at present are in competitive employment. Average elapsed period of time for these twelve since they entered competitive jobs is ten months. The clients who were placed on regular jobs in the Goodwill Industries plant must meet certain levels of productivity to maintain their jobs. Wages are not subsidized and a client's graduation from the Project into regular Goodwill employment is a distinct recognition of his improvement.

TABLE 8

TENURE AND STATUS OF CLIENTS AS OF JULY 28, 1967
N = 83

Weeks in Project as of July 28, 1967	In Employment Competitive	In Employment Sheltered	Still Active in Project	Unemployed
1 - 6	0	0	0	4
6 - 24	3	1	3	8
25 - 52	5	9	9	6
53 - 70	4	8	3	0
71 - 88	0	6	3	0
89 - 106	0	2	0	1
107 - 24	0	1	1	0
125 - 177	0	2	4	0
TOTAL	12 (14%)	29 (35%)	23 (28%)	19 (23%)

At the present time 23 (28%) clients are still active in the Project. Some have been in too short a time for graduation into placement or formal skill training. Some are candidates for an

intermediate type workshop because they cannot produce well enough to make minimum wage requirements even in Goodwill Industries ($.80 per hour under new wage and hour regulations). A few are candidates for an intermediate workshop because of behavioral problems which require a controlling, manipulative environment.

Improvement as Measured by Increased Earnings

Throughout the Project most clients have been started on the Western Electric Terminal Boards, an assembly task requiring fine finger dexterity. As the client shows improvement on this task, he is tried on additional manual assembly tasks in the Industrial Services (sub-contract) Department. If he seems to be unduly penalized by the requirements of the Terminal Board assignment because of his physical handicap, he is more quickly assigned other jobs. However, the most available and uniformly assigned task by far is the Western Electric Terminal Boards. These and other assemblies, as well, are piece-rated and thus a basis for measuring improvement. Table 9 shows the average hourly earnings (AHE) for clients at progressive stages in their training. The average earnings over a week's time improved from $.53 per hour during the first week, to $.99 per hour in the 38th week. Since clients are often shifted after the 38th week to several jobs which may be more complex to learn, their average weekly earnings on any arbitrarily selected week after this time may be rather low. For this reason their best week after the 38th was taken and the $1.34 AHE shows their optimum weekly performance. This average includes 17 clients who averaged more than $1.44 per hour. These rates of increase have been impressive throughout the Project and reflect not only increased dexterity but improved span of attention and concentration.

TABLE 9

Average Hourly Earnings Per Week on Piece Rated Jobs

Week	1	6	24	32	38	Best
AHE	.53	.78	.87	.92	.99	1.34
N	77	74	55	40	34	37

This gradual improvement of productivity over a long period of time shows the importance of extended evaluation and training for the hard-core handicapped. Even after 24 weeks, improvement is substantial and a number who might be judged as capable of earning less than sheltered workshop minimum at 24 weeks turned out over a longer period of time to have good earning potential.

Improvement as Indicated by Personal Development

Although improvement in work habits is certainly reflected by increased earnings, it is by no means the only criterion of employability. Often it is the personal characteristics of the handicapped which keep them from being employed. Poor emotional control has interfered with rehabilitation as well as low productivity. Or a body odor so strong as to be offensive may stand in the way of placement. Improvement in personal traits is always difficult to measure objectively. However, an attempt has been made to measure this intangible characteristic by two methods, the global rating scales on which clients are rated each six weeks and the personal check list which was devised at the suggestion of Dr. Arthur Drew, Research Consultant. Further observations on the personal development of clients are furnished by the parent group discussions and by the group counseling sessions.

The Personal Check List (Appendix B) has been checked on all Project clients active in the Project who have entered the Project since September, 1966. The clients were rechecked July 28th, to determine whether or not improvement had taken place as measured by this instrument. The average number of checks on the first supervisory check, N=14, was 13.4 When the clients were rechecked, the average score was 9.4, indicating an improvement of four checks. Improvement in personal development as rated by supervisors is indicated by this Check List.

Another method of measuring personal growth and adjustment is the rating of clients at the time of each six-week staffing on the Workshop Employability Scale.[2] The purpose of this scale is to provide a more global estimate of the individual's effectiveness as a worker; ability to get along with supervisors and co-workers; ability to tolerate interpersonal and work pressures; ability to utilize energy and skills effectively; ability to derive satisfaction

TABLE 10

Average Workshop Employability Scale Ratings on Clients at the First Rating and Most Recent Rating.

	N	Employability First Rating	Employability Last Rating	Improvement	N	Placeability First Rating	Placeability Last Rating	Improvement
Active	77	3.9	3.4	.5	77	3.9	2.1	1.8
Reg. Goodwill Employment	22	3.9	2.3	1.6	22	3.9	2.7	1.2

from work; and the ability to see one's self realistically as a worker. Employability (whether a person can hold a job) and placeability (whether a person can get a job) are each rated on a four-point scale with a rating of one being high. Table 10 shows the average ratings (based on four-point scale) of Project clients working on regular Goodwill Industries jobs and those still in the program who have not graduated. These ratings likewise point out the improvement of each group as reflected on the ratings of the Workshop Employability Scale.

Although the results of the discussion groups meeting weekly are hard to assess objectively, a number of subjective impressions indicate that clients are better able to express their ideas and to interact with each other during the meetings. The discussion groups have about six or seven clients each and there is ample opportunity for self expression. Sharing their learning about what makes a good worker serves to reinforce good work habits. The following excerpts from recordings of group meetings show their comprehension of what they feel is expected of them.

"I was fired because of excessive talking."

"You should be clean and neat and not in rough work clothes."

"I am going back to my old job starting Saturday and I'm taking half as much money. They said I stood around too much so I'm just asking half."

"General behavior is important. I learned that the hard way--kept horsing around."

". . . made a guy mad--he doesn't understand why I do more bags than he does--told him while he was talking to me he could be doing more bags himself."

"I got to sit by myself all the time. It's cause I talk too much and I've got to be by myself. Today I threw some terminals across the room at somebody. I'm always doing something mean. I try to stop but I haven't yet."

"If you go out there buggy and dirty you won't get any place. You have to have your shoes shined, your clothes clean. I shave all the time. First thing I do when I know I'm going to have an interview, I get shaved."

"If I keep on working good and behave, I can graduate."

"I went to Kentucky. I got laid off because I acted up."

"I got mad at my supervisor and was laid off for two weeks

and when I came back I did 10 boxes instead of only six. I know why I was laid off--two months I was laid off. I realize it was my fault."

"People at my table talk too much. I tell them to be quiet, can't get as much production out. Shouldn't talk or run around when you're working, lowers everyone's production."

For the first time many of these clients are able to examine their feelings about themselves or others and express them without fear of reprisal.

"I like Mary Moore except she is against colored people and I like people who like everyone."

"If he had love and understanding wouldn't be the way he is now."

"I would like for people to talk to me more. I want to feel important, wanted."

"I can't talk too good and I have seizures."

"It's a sickness or affliction you can't help, and you can't be hired anyplace until it's corrected."

"My supervisor is a creep from outer space. I don't know what to do. What should I do . . . go to Evansville . . . get lost, come back and hope to get a new supervisor?"

"I'm mad because I just got a bawling out from my supervisor. She said I couldn't bring my coffee in here to group meeting."

"I worry a lot but don't show it. I worry about my grandmother. She has to be operated on."

Increased participation in the picnics and parties which the Project clients have during the meetings show a greater social awareness and interest. In fact, the planning activity itself, in contrast to the earlier parties which the parents planned, shows added maturity. Client interest in attending the weekly meetings in general remains high even though some clients have been in them for a long time.

An improvement in the personal appearance of some clients has been very apparent. The grooming classes for women, given when volunteers can be secured, have been effective in teaching cleanliness and hair care. Problems of grooming have been handled on an individual basis with those young men who need help and one was even taught how to wash himself. The counselor's work in following

up the instruction on personal appearance and the supervisors' comments on how the client looks on a particular day have worked together to improve appearance. At the present time the personal appearance of most of the clients would be satisfactory in any vocational situation for which they could qualify. In addition to grooming classes and personalized instruction, the medical department has interested a few of the clients in weight reduction and has supervised them in diet and weighing.

CHAPTER IV

Application of a Token Reinforcement Program for Increasing Productivity

In the past five years many reports have appeared in the psychological literature which indicate that operant-reinforcement techniques can be successfully employed to generate and maintain socially acceptable behaviors in individual psychiatric patients. More recently several investigators have shown that token reinforcement programs applied to groups of people can be employed to effectively modify the behavior of the majority of individuals within a group. In most such group applications emphasis is usually placed upon the application of a reinforcement program to the problem of effecting qualitative behavioral changes in individuals. In addition, each of these programs has taken place in an institutional setting.

The purpose of applying these techniques to Project clients was to determine whether it was possible to effect quantitative changes in work performance under conditions (1) in which the clients have a previous history of working on the job to be examined and (2) under which the work is paid for on a standard piece-work basis which is independent of the reinforcement program.

Subjects and Overview

Sixteen clients age 16 to 33 served as subjects in this investigation. Twelve of these clients took part in a preliminary phase of the program during which they were exposed to those aspects of the program which had to do with receiving and exchanging token reinforcements (point cards) for tangible goods and services. All sixteen of the clients were subsequently exposed as a group to a series of successive experimental and control conditions which were designed to examine the effect of reinforcement procedures on productivity. Throughout this formal phase of the program, 15 of the clients performed each work day on the Western Electric terminal board assembly task while one client folded Goodwill bags each work day. While the 16 clients were treated as a group with respect to the introduction and removal of experimental conditions, each client served as his own control in the sense that he received token reinforcement, when programmed, on the basis of his own recent work history. One client might habe to produce much more to earn 200 points than another if he showed himself to be a high producer during the baseline period. Throughout the investigation, the work rate for each client in units per hour was calculated daily and these values were employed both for feedback to the client when appropriate and for the analysis of the results.

Preliminary Procedure (token and token-exchange training)

Twelve clients were exposed to a two-week reinforcement training procedure after each had worked at his task for a minimum of four weeks. The purpose of employing this procedure was (a) to expose each client to the delivery of point cards and to the use of these cards and (b) to examine the effect of the new stimulation and activity on productivity. Immediately prior to the onset of the two-week training condition the 12 clients were instructed as a group as follows by the chief supervisor: "The volunteers are always anxious to provide some recreational and social activities for Goodwill workers. They have raised some money to start a program in which you will get some points every day to spend in various ways." The group was then shown a catalogue which listed each of the activities for which points could be exchanged together with the costs (in points) of the activities. Among the activities and items for which points could be exchanged were (a) tours of industrial facilities and points of interest around Indianapolis (300 points per tour), (b) a weekly 1-1/2 hour "arcade" which took place in the employees' lounge and which included the opportunity to participate in table games, purchase refreshments with points, and be entertained by a local celebrity (200 points per arcade), (c) the opportunity to work extra hours (10 points per hour for each extra hour elected), (d) the opportunity to hold a conversation with (be counselled by) a staff member of the client's choice (10 points per minute), and finally (e) tangible goods such as games, jewelry, candy, etc. which could be purchased from a portable canteen located in the guest dining room (cost of items in points approximately equal to the number of pennies for which the item wholesales).

During each of the training days each of the twelve clients who was present received 200 points (two, 100-point cards which had his name and clock number printed on them) at the end of each work day regardless of his work performance on that day. Throughout the two-week period each client had the opportunity to exchange the points for the activities and items listed above. Each of the clients gained experience with the points since each spent at least half the points given to him and most spent the points in two or more different ways. Unfortunately we were unable to evaluate the effect of the new material and stimulation during this period since over the course of most of the period the work material was faulty.

Experimental Procedures

Following the preliminary training period described above and the reinstatement of good work material, each of the 12 clients and four additional clients were exposed to at least 20 work days during which each worked his particular job. During this baseline (B_1) period, we obtained a distribution of daily work rates (units/hour) which was employed subsequently to (a) determine the point rein-

forcement criteria for each client and (b) assess the effects of experimental manipulation on work performance. For each client, the 20 B_1 rates were ordered from lowest to highest. The median (middlemost), third quartile, and highest rates were employed (after being rounded to the closest whole numbers) as those rates which a client would have to reach on subsequent appropriate days in order to earn 100, 200, and 400 points, respectively.

Following the termination of the B_1 condition, the clients were instructed as a group by the research assistant (chief supervisor) as follows:

> "The volunteers are anxious to get the recreation program going again. They told the supervisors that they will be able to start it again in two weeks. It was a little too expensive for them to just give you the points like the last time so they decided that you could help pay for the program by earning the points. The way you will earn the points is by working. The points will serve as a bonus for good work. If you do as well as you usually do, you will get 100 points. If you do better than you usually do, you will get 200 points. If you do as well or better than you have ever done you will get 400 points. Now this might be a little confusing to you right now. Therefore, since the program will not start for two weeks the supervisors thought that we could help you out by having you practice so that you will know how to earn the points. For the next two weeks, the supervisors will check your production at the end of the day and tell you how many points you would have earned if the program had already started. So you will have two weeks to practice earning points. When the supervisors start giving out the point cards from the volunteers, you will be able to use them to buy any of the things in the catalogue."

The catalogue was then discussed and explained again (and for the first time in the case of four clients). The clients were exposed to the practice (Pr_1) condition for two weeks. At 2:00 P.M. daily, the rates were calculated and each client was given his rate. He was also told whether it represented production which was lower than usual, about the same as usual, better than usual, or as good as or better than his best production. Finally, he was told the number of points that this production would earn when the points are available. The purpose of employing this two-week (Pr_1) procedure was to assess the behavioral effects of providing all the work information feedback that the clients would subsequently obtain under the point condition to follow, but to obtain it in the absence of the point reinforcement and point exchange.

After the termination of the two-week Pr_1 condition, the clients were instructed as follows: "The points start today. We will be checking your rates and giving out the points at the end of the day." The clients were then exposed to the work contingent point (Pt_1)

condition for two weeks. They were treated as in the previous two weeks but in addition 100, 200, or 400 points were given to a client at the end of the work day when and if earned. Furthermore, during this period they had the opportunity to exchange the points for the various services, events and items described earlier.

After the termination of the two-week Pt_1 condition the clients were instructed as follows:

> "The volunteers are running short of money so rather than stop the program completely they decided that they would just give the points every other day. On the days you don't get points you could practice. We will remind you at the beginning of each day whether you will get points or whether you are practicing. On the point days you can earn points and on the practice days work as hard as you can to see how many points you could have earned."

The clients were then exposed to two weeks during which the Pts condition and Pr condition alternated on a daily basis (Pt_A and Pr_A). The purpose of employing this experimental condition was (a) to obtain a comparison of the two conditions within the same general time period and (b) to control for the effects of the point-exchange activities which occurred throughout this period and independent of the nature of the feedback available on a given day.

After the termination of the two-week Pt_A and Pr_A alternation condition, the clients were informed that points were no longer available for a while and they were exposed to a two-week period during which the baseline conditions were reinstated (B_2).

Results

The data obtained for the fifty working day period which included the final two weeks of B_1 and the two-weeks each of Pr_1, Pt_1, alternation of Pt_A and Pr_A, and B_2 have been thoroughly analyzed. For each of the 16 clients and for the group as a whole, production was assessed as a function of experimental manipulations with respect to (1) average pay/hour, (2) average units/hour, (3) average rank of units/hour, (4) average points per day, and (5) the distribution of units/hour in terms of quartiles (Q_1, Q_2, Q_3) and high score. In addition a day by day analysis of the alternation condition in terms of all of these measures and a day by day analysis of all conditions in terms of points/day were also made.

The group results were similar with respect to every analysis listed above and strongly indicated that:

1. Group productivity increased markedly (compared to B_1 productivity) under the Pr_1 condition.
2. Group productivity increased again under the Pt_1 condition.
3. The difference in group productivity generated under the Pr and Pt conditions (Pt_1 and Pr_1 production) was replicated

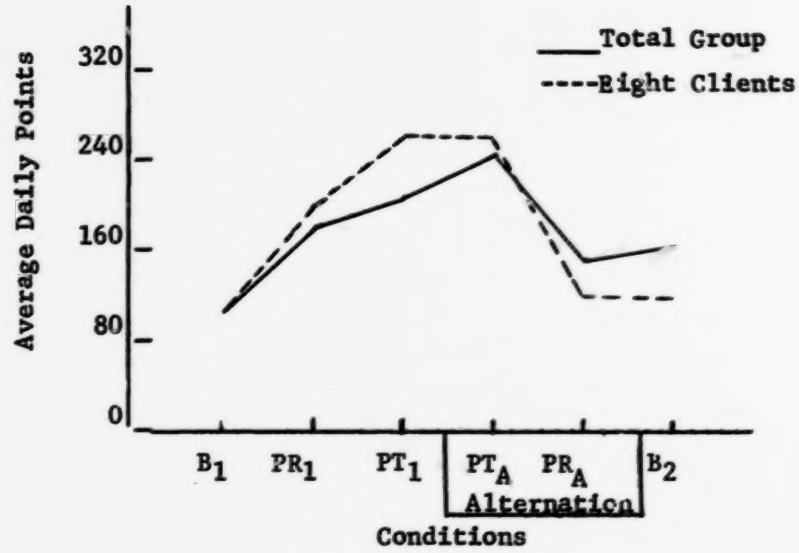
under the alternating Pt_A and Pr_A condition and, in fact, the difference was greatly increased.

4. Group productivity decreased markedly (compared to productivity generated under the Pt_1 and Pt_A conditions) when the baseline conditions were reinstated (B_2).
5. Group productivity under the second baseline (B_2) conditions was higher than that obtained under the first baseline (B_1) conditions.

Figure 1 presents the average number of daily points earned by the group under each of the separate conditions and within the Alternation condition. The dotted line presents data obtained from the eight clients most controlled by the program while the solid line presents the data for all sixteen clients. The figure clearly shows that group productivity increased during the Practice condition (points plotted for the Baseline condition indicate merely the number of points that would have been earned) and increased further during the Point condition.

FIGURE 1

Average Daily Point Per Condition



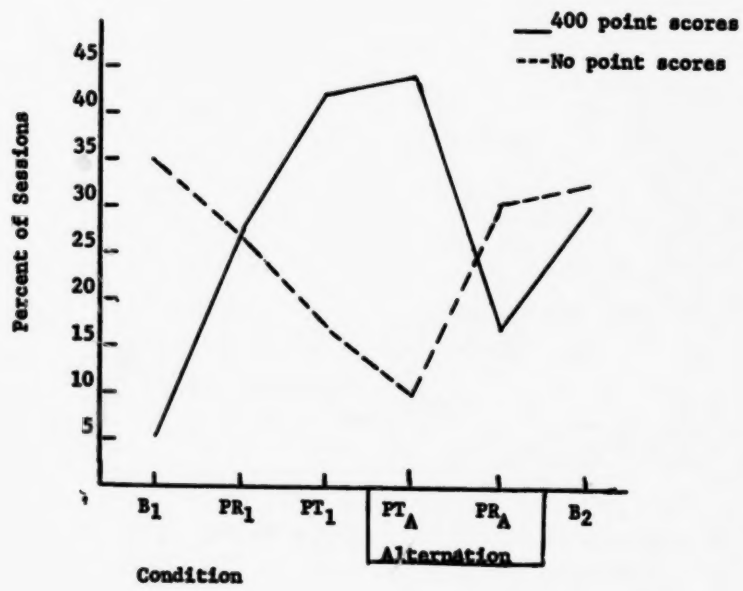
Because (a) the upward trend could have been accounted for merely as a function of the passage of time and (b) the further increase under the Points condition was smaller in magnitude than the first increase, the Points and Practice conditions were subsequently alternated. The results obtained during the Alternation condition clearly show the superiority of the Point condition, even though points could be earned on only every other day. Group

productivity decreased under the second Baseline condition, but it should be pointed out that this productivity did not fall to the original Baseline level.

Figure 2 breaks down the same data as it would appear if only the best and poorest (400 points and no points) production rates are considered. On only five percent of the work sessions during baseline were 400 points earned. This rises to 27 percent during the first Practice period. During the first Point period 42 percent of the work sessions resulted in 400 points being earned. This increased slightly more on the point days when points and practice were alternated. Conversely 35 percent of the baseline days produced rates on which no points would have been earned,--during Practice there were fewer work sessions with productive rates at the no-point level and during the first period of points, only 17% of the total work sessions resulted in no points being earned. In other words, on almost every work day when points were issued (whether on the points or alternation period) productivity was above average.

FIGURE 2

Percent of 400 point scores and no point scores per condition



CHAPTER V

Cost

Even the most grandiose of humanitarian plans must be given a price tag. A government, a school, or a United Fund is entitled to and, in fact, is obligated to calculate the costs of any subsidized program. Only when the costs are known, can the decision about appropriate action be made. In rehabilitation workshops in this country a chronic problem is excessive cost per client, one which is so burdensome that the workshop's potential contribution to rehabilitation is never realized. The new wage and hour legislation requiring higher minimum wage rates in sheltered workshops has recently spotlighted the problem of wage subsidies. Many have reclassified themselves as work activities centers where piece-rate wages are limited to $500 per year because their emphasis on productivity had been so limited that they cannot stay in business as sheltered workshops and meet the higher minimum wage rates.

Table 11 shows the total cost of the project for the 43 months of its existence. This represents the cost of the clients while they are

TABLE 11

TOTAL COST OF PROJECT
1-1-64 to 7-31-67

Expenditures		Percent of Income	Income	
Wages	$119,408	47	Sale of Product	$254,059
Overhead	101,624	40		
Project Staff, Supervisors, Secretary	95,734			
Non-Project Staff, Supervisors	32,546			
Operant Conditioning	7,440			
Materials, Travel	1,230			
Total:	$357,892			
	254,059	Income from sale of product		
	$103,833	Net cost		

in active training in the Project before they are graduated and placed. Some costs have accrued for the graduated and placed clients which are not listed in this Table. For example, Project clients placed in Goodwill Industries continued to be staffed every six weeks as a precaution against failure and as an in-service training method for line supervisors. An additional expense has been the use of the placement counselor in continuation of the search for the best and most suitable jobs for graduates. Some graduates have been placed several times. The overhead cost of $102,118 is also somewhat low since it is based on the average percent of sales for the total Goodwill Industries. Overhead includes occupancy, material handling, offbearing, administrative services, accounting, cafeteria, and janitorial. Naturally these costs for the low producer are as much as for the average producer and the low producer contributes less to defraying these costs.

Another way of looking at the costs is to consider the entire amount of wages which have gone to both active and placed clients in this period of time. This is approximately $190,000. The initial costs of stimulating $190,000 in increased earning capacity have been $103,833. Those who are placed will continue to earn and maintain themselves as independent, self-supporting citizens. Even those who are now active who are nominees for an intermediate workshop will probably retain their gains and continue to earn. Thus this Project will show its effects long after expenditure of its funds. If, by offering an intermediate workshop as well as long term evaluation and training, the community can stimulate earnings of this magnitude, the initial investment is justified.

CHAPTER VI

Conclusions

The final conclusions resulting from a project lasting almost four years must be made in relationship to its goals. Essentially the stated goals of this project at various times fall into three categories: methods of developing vocational potential of the hard core handicapped, costs, and feasibility of the Project for continuation as a community rehabilitation resource.

The status of the clients in both competitive and sheltered employment at this time indicates that many of these clients can become acceptable workers if given intensive instruction and supervision. If the period of evaluation and training is long and expert these clients will not need a supportive work environment or, at least, will need a mild one. However, even after an extended period of workshop therapeutic techniques some individuals will need a manipulative, supportive and professionally staffed work environment. They can never be counted on to perform with enough consistent speed, quality or appropriate behavior to meet various requirements of steady employment at Goodwill Industries. Psychiatric patients have regressions, people with many physical problems need operations and mentally retarded find themselves in personal difficulties which reduce efficiency. These handicapped need a workshop which can move with alacrity to meet a client's needs. However, they are unsuited for a work activities center as defined legally (a workshop where clients' productive capacity is inconsequential and where average annual piece-rate wages average less than $500). Their motivation and productive capacity is too great for this limited kind of activity. Some of these people as noted in Chapters III and IV can, when highly motivated or at a peak of emotional health, earn over the minimum wage. An intermediate workshop with its own supervisory staff can serve a distinct need for these clients and for those averaging between $500 and $1600 per year.

Of the 83 who have entered the Project, 23 are considered candidates for an Intermediate Workshop. Some of these 23 have emotional problems which are resistant to any kind of lasting control; some are those with coordination problems so severe they cannot do anything quickly, while seizure problems of some prevent them from consistent performance. If these 23 are typical of those who cannot be employed without an intermediate workshop, a point should be made for their great eagerness to work. Only a few of the 23 have shown problems of absenteeism or tardiness. These clients overcome great obstacles to arrive at work and for many a disciplinary lay-off is a severe punishment. They are eager to join a working group but are not satisfactory in meeting the demands of work. The social rewards of work appear to be their real rewards.

The cost of serving these intermediate 23 or others like them naturally will be a projection based on past experience. They will need skillful supervision, psycho-social services and an active, aggressive workshop management. With such support many of them can earn reasonably good wages. Average hourly earnings per best week for these 23 was $.88 per hour. This figure shows what the nominees for the intermediate workshop can do when working on a suitable job at a high level of motivation. As the significant data of Chapter IV shows many do not maintain their peak levels unless the workshop provides special incentives. When the incentives are removed, their production falls. Likewise, when the clients are moved from job to job as would be likely in most workshops, their earnings take a dip. Earnings data over a longer period are thus more accurate for prediction. The average hourly earning for the last four weeks of these 23 is $.81. This figure provides a more realistic estimate of the probable average over a year's time assuming the availability of the same industrial contracts and supervisory techniques.

Table 12 shows the projected costs of maintaining each of five clients who vary in productive capacity in an intermediate workshop. The reader should keep in mind that for 1966, 47 percent of income from sale of industrial contracts went into client wages and 40 percent into overhead (occupancy, offbearing, administrative services such as janitor, personnel, and accounting), 15 percent into supervision. The overhead costs, however, are calculated on the productivity of all Goodwill Industries workers. The average overhead per worker is $1750 annually. Table 11 shows that as productivity goes up, subsidy needed declines. For the $.81 monthly AHE of the 23, it can be seen that $746.00 subsidy would be needed per client. Maintaining a workshop for the "intermediate" client will thus necessitate help from the community. For a workshop employing 30 such clients total community support would need to be $22,380 per year, for 40 clients $29,840. These costs are based on an eight-hour day and supervisor-client ratio of one to 15.

TABLE 12

Projected Costs for Various Levels of Productivity

Av. Hr. Earn.	Annual Wage 2000 Hrs.	Occupancy & Admin. Services*	Superv.	Prof. Services	Total Cost	Income from Sale	Net Cost
$ .40	$ 800	1750	400	400	3350	1702	1648
.80	1600	1750	400	400	3800	3404	746
.88	1760	1750	400	400	4311	3745	566
1.10	2200	1750	400	400	4750	4681	69
1.15	2300	1750	400	400	4850	4894	None

*Average overhead cost per worker at Goodwill Industries

These costs are also based on clients entering an intermediate workshop after an evaluation period of six to twelve months. The extended evaluation and training prior to placement in an intermediate workshop for this type of client serves three purposes: (1) an opportunity to explore a number of work areas to determine interest and aptitude (2) a determination of the emotional and personality attributes of the client as they relate to work pressures over a period of time (3) an evaluation of how much improvement the client can make in a therapeutic milieu. Based on the experience of this Project about half of those entering extended evaluation and training will be able to be placed in competitive employment or in regular sheltered employment. The remaining number who are capable of earning more than $500 per year but who cannot go into competitive or sheltered employment will enter the intermediate workshop. Even from here an occasional placement outside will occur.

At this point two recommendations from the present Project emerge. One is for the use of extended evaluation and training. The other is for an intermediate workshop which will give employment to those whose productive capacity is below that required for regular Goodwill Industries employment and to those whose behavioral traits will not permit successful placement.

Whether an intermediate workshop should be a completely new workshop in the community or whether it should be part of a larger operation is a question for the community to decide. Establishing a new facility in the community would have the advantage of bringing a larger number of citizens into active participation in social welfare activities. A certain amount of enthusiasm is always engendered by the starting of a new facility.

On the other hand, an intermediate workshop, if it is to serve those with severe coordination problems and hyperactive retardates who need big muscle activity, will need a wide variety of work opportunities. A large workshop has so many more job classifications and its flexibility in combining and restructuring job tasks is so much greater that more suitable tasks are apt to be found for these clients. Compare the wide selection of tasks available in a contract department which has sales of $400,000 compared to one that has, for example, sales of $100,000. Add to this selection the many jobs arising from processing and selling one and a quarter million dollars of used goods per year and an advantage of having this larger facility becomes apparent.

Although the factors of job variety and experienced industrial management are important to the successful operation of an intermediate shop, the availability of medical, nursing and psycho-social services in a large workshop also reflect its superiority. They may mean the difference between a client giving up during crisis and

working through his problems. Even life itself can hinge on the immediate aid an industrial nurse can supply to an epileptic or a heart case. In order to have these professional services available at a reasonable cost, a large operation is essential.

Although the expense of a research component is not included in the amount of money recommended for an intermediate workshop, a discussion of conclusions arising from the experience of the Project would be lacking if this were not included. Any facility serving a difficult group of clients should be continually searching for more effective rehabilitation methods. When the future of individual lives is at stake, rehabilitation workers have an obligation to seek out the methods which are most effective in helping individual clients reach their true potential. Much of this methodology in a workshop will have to do with motivation. The relatively small and modest research activity connected with this Project has already revealed new ways to motivate productivity and suggested needed areas for additional investigation. Likewise the effort expended to summarize and interpret the data presented by many aspects of the Project has resulted in a better service to the handicapped and should be continued. The problem of measuring personal changes in clients needs more study and development. Financing such activities should ideally be part of the total budget of a workshop; if this is not possible special grants should be secured for research.

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APPENDIX A

Disabilities of Non-mentally Retarded Clients

Client No.	
1	Emotional disorder; epilepsy; no depth perception; poor convergence
2	Emotional disorder; severe vision loss; speech defect
3	Emotional disorder; cardiac involvement
4	Emotional disorder
5	Epilepsy
6	Multiple sclerosis; vision loss; impaired speech; spasticity and ataxia of upper extremities
7	Cerebral palsy; emotional disorder; spastic quadruparesis; poor convergence; severe speech defect
8	Cerebral palsy; speech defect; nystagmus; choreo-athetosis
9	Cerebral palsy; speech defect
10	Paraplegia
11	Spastic paraparesis; severe juvenile diabetes mellitus; extreme myopia; emotional disorder
12	Epilepsy; right hemiparesis; sensory extinction of the hands; mild expressive aphasia, weakness of right upper extremity; vision defect
13	Bilateral spastic cerebral palsy; choreo-athetosis upper extremities; choreo-athetoidic speech; visual perception defect; impaired sensory perception
14	Emotional disorder; mild spastic right hemiparesis; post traumatic epilepsy
15	Profound deafness; mutism; left hemiparesis; visual perception defect; emotional disorder
16	Cerebral palsy; mild right hemiparesis; speech defect; decreased visual acuity, left eye; blind right eye; paresis of lateral eye movement to left; obesity
17	Brain damage, orthopedic, speech defect
18	Schizophrenia, scoliosis
19	Brain damage, hypothyroid, vision defect
20	Schizophrenia
21	Schizophrenia
22	Visual perception defect; speech defect

Other Disabilities of Mentally Retarded Clients

1	Microcephaly; vision loss; speech defect
2	Obesity
3	Obesity; scoliosis; upper left extremity weakness
4	Chronic schizophrenia; decreased visual acuity; no depth perception
5	Speech defect
6	Corrected club feet; obesity; poor convergence
7	Microcephaly; marked nystagmus; hearing loss; visual perception defect; probable mongolism; cardiac involvement
8	Epilepsy; speech defect; sensory suppression; visual motor defect
9	Epilepsy; spastic hemiparesis; visual motor defect
10	Speech defect; poor convergence; acne
11	Scoliosis; nystagmus; visual perception impairment
12	Chronic schizophrenia; poor convergence
13	Epilepsy; acne; hypertension; poor convergence; nystagmus; chronic brain syndrome
14	Epilepsy; hearing loss; poor convegence; sensory suppression
15	Dyke-Davidoff syndrome; spasticity of lower extremity
16	Microcephaly; spasticity of all extremities; sensory suppression; visual perception defect
17	Auriculo-facial-digital syndrome; scoliosis; hearing loss; speech defect
18	Cerebral palsy; visual motor defect; hypoplasia of the entire right side of the body

APPENDIX A cont'd

Other Disabilities of Mentally Retarded Clients cont'd

Client No.	
19	None
20	None
21	Cerebral palsy; speech defect; sensory suppression; poor convergence; marked choreo-athetosis
22	None
23	None
24	Left hemiparesis; no convergence
25	Epilepsy; poor convergence; aphasia; dysphasia; visual perception defect; obesity; poor balance
26	Cerebral palsy; spastic gait; severe speech stammer; no convergence; emotional disturbance
27	Speech defect; severe exotropia; poor balance
28	Speech defect; visual perception defect; no convergence; decreased visual acuity; poor balance and coordination
29	Severe speech defect; visual perception defect; obesity; poor coordination
30	Epilepsy; right temporal lobectomy; mild left hemiparesis; impaired sensory perception; visual perception defect; decreased visual acuity dysphasia; emotional disturbance; poor balance
31	Severe speech stammer; poor convergence; ocular dyspraxia
32	Obesity; visual perception defect; poor balance; poor coordination
33	Congenital blindness left eye; decreased visual acuity right eye; hearing defect
34	Epilepsy; visual perception defect
35	Speech defect; visual perception defect; decreased visual acuity; Klinefelter's Syndrome; poor balance; emotional disturbance
36	Epilepsy; poor convergence; sensory defect; emotional disorder; stutter; poor balance
37	Cerebral palsy with dystaxic gait; cerebellar tremor and athetosis of upper extremities; impaired speech; no convergence
38	Decreased visual acuity; poor convergence; visual perception defect; poor balance
39	Deformed feet; obsety; poor convergence; emotional disorder; poor coordination
40	Post traumatic left hemiparesis; speech defect; obesity; myopia
41	Speech defect; obesity; poor convergence; poor balance
42	Epilepsy; mild right hemiparesis; poor convergence; poor visual Perception; poor balance; dysphasia
43	Simple schizophrenia; visual perception defect
44	Emotional disorder
45	Impaired speech; vision defect
46	Epilepsy; dislocated right patella; bilateral temporal optic atrophy; blind in right eye; psycho-neurosis
47	Emotional disturbance; speech stammer
48	Epilepsy; spinal fusion; scoliosis; passive dependent personality with conversion reaction; sensory impairment of right hand; decrease in strenth on right side
49	Epilepsy, orthopedic
50	Epilepsy
51	Poor vision
52	Right hemoplegia, aphasia, right homonymous hemianopsia
53	Rheumatic heart
54	Postpolio; emotional disturbance
55	Speech, cerebral palsy, hearing defect
56	None
57	None
58	Speech defect; hearing loss
59	Visual, psychoneurotic
60	Epilepsy
61	None

APPENDIX B

Personal Check List

NAME:

DATE:

NO. CHECKS:

I. Dress and Grooming Men

Dirty clothes
Hair uncut
Hair uncombed
Unshaven
Clothes untidy and dirty
Clothes mismatched or ill-fitting
Body odor
Dirty fingernails
Clothes not well chosen & innappropriate
Trousers sag below waist
Shoes run down or unshined
Very overweight

II. Dress Women

Dirty clothes
Dirty hair
Hair seldom combed attractively
Poor use of make-up
Very overweight
Dirty fingernails
Shoes rundown - not in good taste
Poor choice of hosiery styles
Body odor
Clothes ill-fitting, mismatched
Clothes inappropriate

III. Social Habits

No expression when meeting people in hall
Avoids others by turning away, etc.
Does not say "hello" to others when meeting them
Does not say "hello" or "good morning" to supervisor
Never initiates conversation
Does not go to lunch or break in company of others
Sits in dining room or lounge alone
Does not come to any recreational events
Never sees co-workers outside of Goodwill Industries
Makes odd gestures
Overly social while working or during breaks

NAME:

DATE:

IV. Temperament

Gets argumentative when corrected
Gets angry with co-workers
Makes excuses for poor production
Walks off job when angry
Gossips about other workers
Complains about work assignments
Slows production when objecting to supervision
Shows evidence of hallucinating

V. Work Station Behavior

Is late for work in morning
Is late from breaks
Is late from lunch
"Goofs up" in absence of supervisor
Talks too much
Looks up when people pass by station
Calls loudly to others in work area
Stares into space
Sleeps on job
Is absent without notifying Goodwill Industries

VI. Use of Money

Squanders money on non-essentials
Has no interest in amount of pay
Has no savings
Spends nothing

VII. Social Interests

Does not participate in group discussions
Seldom comes to Goodwill Industries parties
Does not go to church or church activities
Seldom goes to movies or other events with friends
Has no one he is especially friendly with at work

VIII. Dining Room Etiquette

Chooses poorly balanced foods
Stuffs food in mouth
Does not use napkin
Does not wash hands before coming to dining room
Sits with staff rather than own group
Talks loudly
Runs in dining room
Crowds ahead in cafeteria line
Does not use proper eating utensils

APPENDIX C

Case Summaries

"JIM"

Jim is a single young man who was 25 years of age at the time he came to Goodwill Industries. He entered the Project in August, 1965, on referral from Indiana's Division of Vocational Rehabilitation. He was motivated to apply because he had a friend working here.

His father brought him for all the preliminary interviews and testing, and it was soon apparent that the father was the only member of the family who was interested in obtaining rehabilitation for Jim. The social worker attempted to schedule an appointment with the mother, but was told that she could not get away from her work without making an explanation to her boss and that she had no intention of letting him know she had a son who was retarded.

Jim's major problems on referral were his mental retardation and emotional disturbance. Psychological testing done at Goodwill in 1965 revealed a Verbal I.Q. of 66, a performance I.Q. of 80, and a Full Scale I.Q. of 70. (NOTE: previous testing evaluated his I.Q. this way - Mental age of 11 years; 2 percentile of his age group!) He also had a mild speech problem. He was overweight and while he was in the program, it was necessary to refer him for evaluation and treatment of diabetes.

The mother was described to us as a very nervous, high strung person who would be inclined to argue constantly and complain, except that the father said he had learned to keep quiet and avoid scenes. The father is a college graduate and works in research.

The cause for Jim's retardation was unknown in spite of the fact that the parents had made every effort to get medical care for him as a child through numerous specialists.

When he was first seen at Goodwill, he gave the impression of being a large, overgrown boy who was not sure what was expected of him and he was overanxious to please. He had attended special schools, including high school without graduating. He could not read or do the simplest arithmetic problems. He could sign his name and count change. Our psychologist reported that his ability to reason and to think abstractly was extremely limited, but when given a concrete social activity he did demonstrate that he could function adequately. He was reported to make friends easily and his major interests were sports and movies. He could ride the bus independently and frequently attended these

activities on his own. He had gone to an employment office seeking work prior to application at Goodwill, but had had no success. Neither the father nor the mother had ever pressured him to make any previous attempt to find employment.

While in the project, he performed various assembly jobs in our Industrial Services Department. He had trials in loading and off-bearing on our sorting belt; a service job supplying materials in our clothing finish department and he worked as a kitchen helper in our cafeteria. All of his evaluation reports show that he made an effort to please. His quality of work was generally good and he attempted to improve his production out-put. He did particularly well on assembly work and as bus-boy and dish washer in the cafeteria.

The major problems noted were his extreme dependency on supervision, his inability to work except in a routine, well-structured work situation and his inability to take correction without becoming extremely fearful and passive. Our efforts were concentrated on decreasing his need for support from a supervisor and building his confidence so that he could perform without anxiety and take correction without becoming completely immobilized. By the end of the 30th week of his program he was able to make good use of his energies and to perform well on a job if it was well-structured. An increase in his self-confidence could also be observed, especially in the cafeteria setting.

After 8 months of training, Jim was placed on a cafeteria job in a large office building. He remained on this job for three months and then was laid off and re-entered our program. He was terminated from the job because he was too slow during rush hours and unable to learn all the duties required for the job.

Jim's self-confidence needed to be rebuilt when he returned and he was somewhat fearful when we attempted another placement for him, working on the dishwasher in a local hospital. This job was a better job selection for him in that he had only a simple operation to perform, he was paced in his work and the pressure for production was not too heavy.

Jim made a good adjustment to the work, but after he had been there a few days we received a letter from his mother asking that he be taken off the job because of the long hours, transportation difficulties, and the fact that he really did not need the money. At this point, Jim's father was requested to talk with the social worker in an attempt to obtain the cooperation of the family for this job placement. In the interview, the father complained about the hours of work and also stated that he and the mother were concerned over the state of Jim's health

and whether he could stand up under the hours required. There was much concern because Jim had become anxious about the previous job trial and failure and they were fearful that this would reoccur.

The father was informed that our Medical Director had been consulted and that from a physical standpoint there was no reason why Jim could not work on this job. We reviewed Jim's progress with the father, interpreted reasons for his anxiety and asked for the father's support for Jim on this placement. The father was able to say that he considered that this was an excellent opportunity for Jim and that the objections to the placement were mainly made by his wife who apparently still was unable to see their son as being able to function and succeed in any kind of work.

After some discussion with the father of immediate goals and plans for the future for Jim, he agreed to reconsider their request to withdraw him from the job and at this point arrangements were made for Jim to visit the hospital and learn exactly about the duties and work requirements there. After this discussion, Jim did remain on the job at the hospital and has been employed there for the past 11 months. He returns to Goodwill periodically to report on his progress.

IN SUMMARY, we find that Jim was an emotionally disturbed, mentally retarded young man from a middle class background whose parents expected little or nothing from him at the time he came to us for service. The mother could not accept his disability when he was an infant and was embarrassed by his retardation and attempted to hide him as he grew older. As a result of his parental rejection, Jim was extremely anxious to please. He had also learned to do some things on his own and could entertain himself (movies and sports activities) when the family did not include him in their activities.

While in the program here, he learned to do some simple jobs quite successfully; gained self-confidence and required less and less supportive supervision. By the time of the second competitive placement opportunity, Jim had acquired considerable job readiness. Fortunately there was some identification with Jim's problems on the part of the father, but in the past he had seldom asserted himself in the planning for Jim. He felt justified in rejecting the job opportunity for Jim on the basis of his son's "health problems" and the failure on the prior outside placement. The father was able to take control of the situation and give Jim another chance when the problem was discussed with him as he was given support by the social worker. The assistance given by the placement counselor at this time in arranging for

the opportunity for the father to visit the hospital to become acquainted with the job requirements and staff personnel was also an important factor in influencing his decision.

A number of factors were needed to affect a successful rehabilitation program for this young man. Most important were the opportunities for work trials on jobs structured to his limitations and the types of supervision provided. Also important was special help of the placement counselor, the medical department, and the social service department at the crucial time when the job placement was about to fail.

"BOB"

Bob was age 20 and single at the time he came to Goodwill Industries. He had been referred by Indiana's Division of Vocational Rehabilitation office . He entered the training project for Hard Core Handicapped in December, 1965 and remained in the program until July, 1966, when he was transferred to an on-the-job training program. He was terminated from Goodwill in February, 1967 when he obtained outside employment.

Bob had had cerebral palsy since early infancy and was primairly affected in his lower extremities. There is considerable spasticity in his legs and he walks with difficulty, using a shuffling gait. Bob also had a severe speech problem (stammering) which was not related to cerebral palsy, but apparently psychogenic in origin. In addition, he had a vision problem, but this was well corrected with contact lenses.

Bob had been brought up in a rural area some distance from Indianapolis where the father has a large farm. When we discussed Bob's history, the father was found to be a dominating, defensive individual and the mother passively hostile toward her husband. They obviously had not agreed on the handling of their son - the mother being overprotective and the father ambivalent, sometimes rejecting and at other times also overprotective. The father demonstrated an inability to accept his son's disability, by minimizing Bob's physical problems and boasting about the various kinds of work he could do on the farm although it is fairly obvious that Bob was not physically able to pursue a career as a farmer. The father did not believe that Bob could succeed in any rehabilitation effort and probably thought of this attempt to get training as a waste of time.

In an interview with the psychologist, when her husband was not present, Bob's mother achknowledged that he had been overprotected all of his life and not encouraged to become independent. Bob, at this time, also expressed his need for independence but the psychologist reported that he looked upon himself as incapable of doing anything. (Note: psychologist stated, "overwhelming weight of parental admonitions have created a self-concept of incapable boy.) Yet he had very unrealistic goals such as college and a social work career. The only positive factor for rehabilitation was his desire to be independent of his family and to achieve this he was willing to undertake any program suggested.

Bob had graduated from his local high school and had received considerable help and encouragement from his teachers and counselors there. He was well accepted in the school by fellow students, but had no close friends, nor did he take part in social activities. The support and encouragement of these teachers and

one of Bob's two sisters were importnat factors in enabling him to seek out rehabilitation help.

Bob's performance on psychological evaluation at Goodwill revealed a Full Scale I.Q. of 75, with a Wechsler Classification of borderline-mentally retarded. The psychologist, however, thought that he had greater potential but was penalized by his speech problem and the testing time limits on verbal answers. (Note: statement from the psychologist - "He spoke without any trace of difficulty as long as he was guiding the conversation. But as soon as he was placed in the position of having to answer test questions, he became almost totally unable to communicate"). Personality testing revealed his feelings of social and physical inadequacy, anxiety and fright at the thought of having to leave his family and try to make it on his own.

When Bob began his program here, he was placed on small assembly work in our Industrial Services Department. He was slow and his production output was low, but he used his energies well and applied himself steadily to the job. His major problem at that time was some absenteeism due to illness which was caused mainly by anxiety. Bob's production gradually increased on the assembly jobs and he required little support from his supervisor when assigned to this type of work.

Eventually an opportunity was arranged for him to have a trial as a file clerk. The staff anticipated this experience would arouse anxiety in Bob. At this point, he required a great deal of support from his supervisor and after a week on this job he had to be discontinued. Interestingly, he did not demonstrate his anxiety on this job by the usual speech problem; when he was asked to get a folder from the files he seemed to freeze and was completely unable to locate the record. He was given a great deal of support by his supervisor and his counselor at the time of this failure and was placed on some simple clerical work figuring payroll before being returned to his work in the Industrial Services Department. For a period thereafter Bob's production fluctuated and there was a problem with absenteeism due to colitus resulting from nervous tension. He was also off for two weeks to return home to help his father with the farm work.

His father did not want him to return to Goodwill and told him that he did not think he was benefiting here. Nevertheless, Bob did come back and showed more interest and determination in his work here.

After Bob had had four months of evaluation and adjustment, he was given a trial as a stock clerk in our Central Supply Office. Here he received supervision from another man with cerebral

palsy and he worked indirectly under our plant manager who gave him considerable support. Bob did well in the trial in Central Supply. As a result, his self-confidence increased rapidly and his speech difficulty improved. We then discontinued Bob from the long-term (Project) program and transferred him to a regular training program as stock clerk in Central Supply.

Bob was on the training program for a period of 6 months, sponsored by The Division of Vocational Rehabilitation. Again personal problems developed, particularly in regard to supervision and responsibility toward th job. As Bob's self-confidence and speech improved he began to reach out for the first time to form interpersonal relationships within the plant. He spent too much time away from his job. He took it upon himself to reorganize some of the department and could not always be relied on to follow all the instructions and procedures which were required to maintain his department. His ego strengths were still very fragile because he was completely unable to take matter-of-fact constructive criticism from his supervisor.

After several months of training on the job, we concluded that Bob was not capable of taking full responsibility for the depatment and he would probably always require direct supervision on a more simple, routine type of clerical work. Anxiety and physical complaints increased as Bob's program was drawing to a close. During this period he was able to work through a better relationship with his supervisor. Toward the end of the program Bob was able to take supervision without resentment and without becoming personally involved and letting it bother his work.

Throughout his program at Goodwill, Bob received fairly regular and intensive counseling. This was required early in the experience because of his anxiety over whether or not he could succeed. The counselor supported him in his desire to achieve independence from his family. He was encouraged to build up his production so that he could maintain himself in Indianapolis without support from his family.

Bob lived at the YMCA throughout the time he was on the program. When he was taken off assembly work for other job trials, it was necessary to work out arrangements so that he would not have to ask his family for money. The counselor assisted him at that time to apply for maintenance through the DVR office which, when granted, did allow him to become financially free from the family.

Much of Bob's motivation to succeed was his desire to prove to his father that he could become independent. Support for this motivation through the counseling was very meaningful to Bob. There was a close relationship built between the counselor and

Bob. He was able to accept and use the counselor's directive help when he began to develop poor work habits. The counselor gave him considerable support when his anxiety increased as the close of his program came and also assisted him in working through his plans for eventual job placement.

Bob was also assisted throughout his program here by our Medical Department and Social Service Department. He was helped in the Medical Department to begin to take more responsbility for his physical probelms. As he began to develop and his confidence grew, he was encouraged to depend less on this department.

In the beginning Bob needed considerable help in learning to manage his maintenance money and taking care of his necessary expenses. His desire to become financially independent motivated him to begin to take responsibility in this regard fairly rapidly. Because of his need for assurance and financial support, he would turn periodically to the Social Service Department to discuss a financial problem.

When he developed a vision problem with his contact lenses, he was referred by Social Service to the I.U. Medical Center for an evaluation. An interpretation of his problems was given to the Social worker in the eye clinc. Bob was insisting at this point on attempting to finance and buy another pair of contact lenses, although they would be extremely expensive and had caused him many problems on the job here. It was necessary for both social workers involved and the doctor at the medical center to work fairly intensively with him before he was able to accept the recommendation that he use regular glasses. He used regular glasses from that time on and eliminated the many physical complaints and absenteeism he had been having.

An experience which added to Bob's growth while he was here at Goodwill was his undertaking of some social work with another client of Goodwill who was also living at the "Y". This young man was a personality disorder, passive-aggressive type and the social worker knew that Bob was doomed to disappointment in his efforts to help, in plans to move into a room with him and his attempt to manage his financial affairs. Bob consulted with Social Service several times about these plans. When his friend gave up his program here, Bob was not too disappointed and knew he was not qualified to handle such difficult situations.

After Bob finished his training, he was quite desperate to find work in order to maintain himself in Indianapolis. Since he had lived at the "Y" throughout the entire period, he was well known to their staff. For a period of time he had done some work on their desk in the evenings. On his own, Bob talked to the business office at the "Y" about some work in their bookkeeping department.

With the help of his counselor, he was able to arrange for a trial at the "Y" in this department. He went to work two weeks after his training program was completed and has been employed since that time.

IN SUMMARY, it was a combination of many elements working together in the sheltered shop which achieved the eventual, successful job placement for this young man. One of the most important factors was the element of time allowed in the program, because of the crippling physical and emotional factors involved. When he started the program about all that Bob had to offer was a mind functioning at the borderline-mentally retarded level and hands with which his dexterity for assembly work was rated below average. The major positive factor was a kind of stubborn determination on Bob's part to break away from parental over-protection. Because of his long, passive-dependent orientation, time to work through these problems was needed to utilize his motivation. With the help of his counselor and the understanding supportive female supervision in the beginning of his program and the firm matter-of-fact male supervision during the training period, he was able to mature and grow.

Other important factors related to his success were the financial assistance given by DVR at the crucial time when he needed to break away from his family and the support and assistance he was given in the medical and social service departments in working out his medical and social problems. Last, but not least was the excellent psychological testing and diagnositc work-up done by the psychologist with the DVR office prior to Bob's referral.

"DON"

The case of Don presents a type of problem which was not amenable to a determined effort of the clinical team and workshop supervisors over a period of seven months.

Don is a twenty-four year old negro who's referral for rehabilitation came through a physician in a local hospital. The original referral of the doctor for training for Don was rejected due to findings in the diagnostic work-up. However, after a second referral and some pressure from the hospital, Don was accepted for a program.

Don had been in a bicycle accident two years prior to entrance into the project and suffered a severe brain concussion which caused a right side hemiplegia, motor aphasia and visual deficits. Don had had intensive therapy in the physical medicine department at the hospital for two years prior to his admission to the Project and it was arranged for him to continue this therapy while he took part in the training. The evaluation at the time he began speech therapy revealed that he had a primary expressive aphasia and predicted that he would be a good candidate for therapy. After a year of speech therapy, Don had been cooperative and had been going for therapy five times a week. At that time there was no report of receptive difficulties. His expressive speech was said to consist of short words and phrases. The major problems noted in intake at Goodwill Industries were: 1. his inability to communicate; 2. his mental deficiency (Wechsler Adult Performance Scale I.Q. score of 59); 3. physical limitations due to the right hemiplegia causing Don to walk with a dragging foot, and leaving him with a right hand and arm which were almost useless. The chief positive factor for rehabilitation was reported to be Don's motivation for a rehabilitation program. He demonstrated this by coming to the receptionist several times without scheduled appointments to check on the progress of his intake to re-emphsize that he had come because he wanted to work.

Don is the oldest of three children. He dropped out of high school at age seventeen to get married, but prior to the accident, had gone back to night school and had graduated. Both of Don's parents were high school graduates, his father having had two years of college training. Both held clerical jobs in the local Army Finance Center. His father and mother were separated and Don lived with his mother and sister. The mother was an attractive looking woman, well dressed, cooperative and anxious to have Don in a program. She talked frankly about Don's behavioral and school problems as a child; his inability to get along with superiors; to accept responsibility on a job; and his problems

in his marriage. She said, however, that she considered he had begun to mature and to realize the importance of education and was prepared to take more responsibility when he had the accident. Don had been separated from his wife prior to the accident. Although he had two children by this marriage, he had maintained little or no contact with his wife or his family since he was disabled. He received a disability allotment from the local Welfare Department.

It was noted from the beginning of his training that Don required an excessive amount of time of his supervisor. As the days passed he also required more and more time from his counselor and from the Social Service Department. These problems arose from his inability to communicate. At the outset it was observed that he seemed to know what he wanted to say but could not find the words. He would say one or two words, then it became necessary for the listener to try to guess at the remainder of the sentence. He would become quite frustrated when he could not say the words he intended to speak, or if the listener found it difficult to understand him.

Don was very slow in any work that he undertook. He was given trials on assembly work, sanding furniture, brush painting and shoe repair. He had had prior experience in sanding while in therapy at the hospital. He had a five-week trial in our sanding department. He had to be removed from this job however because of inability to retain the instructions. He would sand through a veneer or deep into the wood instead of removing the stain, paint,or smoothing a surface area.

One job which Don seemed to like and perform best was a simple routine assembly job which required gross hand movements. However, much time and effort had to be devoted to structuring the job and repeating instructions in order for him to perform. Although he spent more time on this job then any other in the seven months he was here, his maximum production reached was only 35% of the norm.

Throughout the program, Don's attendance was his one major asset. His major motivation for his attendance was socialization, due to an obsessive interest in girls. Because of his inability to communicate, Don did not make friends on the job but in conferences with his supervisor or his counselor he would repeatedly express a desire to date one of the girls he had seen on the job. He attended all our social gatherings. Toward the end of his program he appeared to be living in a fantasy world. Much of the time he sat starring at girls or gazing into space.

Fairly early in the program Don was seen for an evaluation by a neurologist who noted that he seemed to understand speech

quite well but was unable to express himself and unable to understand written material. The neurologist recommended that he could be helped with reading if we could devise a series of signs and symbols to which he could point when he wanted to communicate. In addition the neurologist recommended that we teach him to use his left hand to write by supplying him with a large crayon and slate board. When these recommendations were worked out by his supervisor, Don at first seemed interested and pleased, but he soon grew impatient particularly with any efforts or attempts to write. Although he did continue to want to try to talk and made some progress in his ability to communicate, the major topic about which he wished to talk was his interest in girls. Much of his discussion was quite inappropriate to the work situation. A month before the staff came to a decision to terminate, he was seen and evaluated by the consulting psychiatrist. His diagnosis was that Don had an aphasia of both expressive and receptive types. (A considerably different diagnosis from the one we had had earlier). The psychiatrist also noted confusion and disorientation, to some degree, for time, place and persons. He particularly noted the loss of sensibility and sensitivity in social behavior. Our psychologist who had been Don's counselor, was concerned at this time about the lack of control over his impulses and his poor judgement in social situations.

He became very difficult to control in the work setting. He would wonder off the job and return without reporting. The supervisor never knew where or when he would turn up. He had decided he wanted a divorce, although he had no money to pay for it. He went from place to place trying to work out plans for the divorce as this became his chief concern; Goodwill and his job now meant little or nothing to him.

It was the combination of all the problems experienced on the job which eventually lead to the staff decision to terminate.

IN SUMMARY, it does not seem that there was any area where further service could have been provided within the framework of the present program. An inordinate amount of staff time and effort went into the case of Don while he was here for seven months. Time given the work planning, for instruction and support by his adjustment supervisor was extremely great. Don also received a great deal of personal counseling due to the nature and extent of his emotional problems. Our Social Service Department worked regularly with him in planning and coordinating clinic visits, arranging for welfare supplementation and handling contacts with his family. Social Service attempted to keep his mother informed of Don's progress, but in spite of this, there was considerable resentment on the part of both parents at the time of termination. The explanation of reasons for his discontinuation had to be handled by special appointments for the parents with our psychiatrist and social worker.

How might the resources of the workshop have been more effectively marshalled against the hard-core physical, psychological and social problems which still bind Don to almost total dependency in spite of his strong motivation? Perhaps for rehabilitation to be achieved in such a case, it would take a longer period of time and much more intensive services than can be provided in our present setting. A curative workshop which provides therapeutic activities and does not place major stress upon vocational goals might have been more suitable for Don. On the other hand, a workshop such as the Goodwill facility might have been able to provide better service for Don with continuous assistance from a neurologist in structuring the work program and also in handling the behavioral problems caused by the break down of social control.

VT 001 339

Machine Drafting Course: State Survey of Industry on the Course Requirements for Technical School Graduates. Summary of Results.

Connecticut State Dept. of Education, Hartford. Bureau of Vocational-Technical Schools
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 16p.

*STATE SURVEYS; *JOB SKILLS; EMPLOYMENT QUALIFICATIONS; DRAFTSMEN; OCCUPATIONAL SURVEYS; QUESTIONNAIRES; *EDUCATIONAL NEEDS; *DRAFTING; *CURRICULUM PLANNING

As a basis for course revision, survey responses from 122 manufacturing establishments furnished information about kinds and degrees of drafting skills and job needs and availability. Mechanical drafting units were rated on a five-point scale of importance. A numerical average was computed for each unit by dividing the number of responses into the total points for the unit. Course outlines should be revaluated using a 2.0 mean: (1) Instructional units are to be revised and evaluated to agree with the numbered averages, (2) New units of instruction are to be added for those above the 2.0 means, (3) Units below the 2.0 mean are to be revised, and (4) The progress record is to be revised to agree with units of instruction. Mathematics, science, English, and machine shop practical outlines are to be revaluated to agree with demands of industry. The survey form and response data are given. (EM)

VT 001 339

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STATE OF CONNECTICUT

MACHINE DRAFTING COURSE

State Survey of Industry on the Course Requirements for Technical School Graduates.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SUMMARY OF RESULTS

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CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
BUREAU OF VOCATIONAL - TECHNICAL SCHOOLS
HARTFORD, CONNECTICUT

VT 01339

SUMMARY OF RESULTS

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I. Introduction

II. Purpose of the Survey.

III. Companies included in the survey.

IV. Sample Survey

V. Rating, Factor and Average.

VI. Survey rating of reporting companies.

VII. Conclusions

VIII. Bar graph survey mean.

I - Introduction

The machine drafting profession in the United States has undergone a rapid revision in the last two decades. This change was brought about by our nation being catapulted into automation, electronics, mechanisms and the atomic era.

The draftsman of today must have a knowledge of industry greater than that of his counterpart in the pre-war period and for this reason the Connecticut State Department of Education, Division of Vocational Education, in conjunction with the Connecticut Manufacturers Association have conducted a survey to establish this medium of industrial knowledge.

The schools involved in the survey were:

1. Bullard-Havens Regional Vocational-Technical School
   Bridgeport, Connecticut

2. Harvard H. Ellis Regional Vocational-Technical School
   Danielson, Connecticut

3. Henry Abbott Regional Vocational-Technical School
   Danbury, Connecticut

4. Eli Whitney Regional Vocational-Technical School
   Hamden, Connecticut

5. Albert I. Prince Regional Vocational-Technical School
   Hartford, Connecticut

6. Howell Cheney Regional Vocational-Technical School
   Manchester, Connecticut

7. Horace C. Wilcox Regional Vocational-Technical School
   Meriden, Connecticut

8. Vinal Regional Vocational-Technical School
   Middletown, Connecticut

9. E. C. Goodwin Regional Vocational-Technical School
   New Britain, Connecticut

10. Norwich Regional Vocational-Technical School
    Norwich, Connecticut

11. J. M. Wright Regional Vocational-Technical School
    Stamford, Connecticut

12. Oliver Wolcott Regional Vocational-Technical School
    Torrington, Connecticut

13. Warren F. Kaynor Regional Vocational-Technical School
    Waterbury, Connecticut

14. Windham Regional Vocational-Technical School
    Willimantic, Connecticut

II. Purpose of the Survey

The survey was conducted to secure the following information:

1. To establish what skills a draftsman in Connecticut must need.
2. What degree of skill is necessary.
3. The availability of jobs in industry for skilled mechanical drafting technicians.
4. The emphasis placed on certain skills in various sections of the state.

III. Companies Included in Survey

The Drafting Steering Committee of the Connecticut State Department of Education with the assistance of the Connecticut Manufacturers Association distributed the surveys to 1000 manufacturing concerns in Connecticut which were listed in the C. M. A. Directory. Of the 1000 industries, 25% did not have drafting departments, and thus were not counted in the survey. Of the other 75% of the small and large companies, 16.3% or 122 companies answered the survey.

The Connecticut State Department of Education, Vocational Education Division, wishes to express its thanks to the Connecticut Manufacturers Association for their unselfish efforts to make this project a success. It is through the cooperation of such people as Mr. Frederick H. Waterhouse and Mr. Chariese Reiche of the Connecticut Manufacturers Association that it continues to prove that education and industry working hand in hand will continue to provide the best in vocational education the nation has to offer.

Our thanks also goes out to the guidance coordinators; Angelo J. Tedesco, Curriculum Coordinator and the fourteen area vocational-technical schools for their assistance in compiling information that is included in this report.

IV. Sample Survey (see attachment)

V. Rating, Factor and Average.

The rating factors given to the survey columns are points.

5	Most essential
4	Essential
3	Important
2	Desirable
1	Immaterial

The industries receiving the survey were requested to check each item and rate it according to its importance, listed in the five classifications noted previously.

Upon receiving the returns of the survey from participating companies, they were catalogued by area according to the location of each of the fourteen vocational-technical schools.

The over-all state survey was conducted by dividing the total number of companies reporting in the state into the total point value in each item. By doing so, it gave a numerical average for each item, on a state-wide basis.

$$\text{Numerical average of item} = \frac{\text{Total no. of points}}{\text{Total no. of companies reporting}}$$

The following report will give the state point ratings and the numerical averages of reporting companies.

The bar graph is enclosed to give a clearer understanding of the items and their importance in accordance with industry's demands.

VI. Survey rating of reporting companies.
(see attachment)

VII. Conclusions

The course outline should be revaluated to agree with the survey tabulation using a 2.0 mean as shown on the bar graph.

1. Instructional units to be revised to agree with the numbered averages.
2. New units of instruction to be added above 2.0 mean.
3. Revise units of instruction below the 2.0 mean.
4. Schools to evaluate units according to the local numerical averages.
5. Revise the progress record to agree with units of instruction.
6. Mathematics, science, English and machine shop practices outlines to be revaluated to agree with demands of industry.

VIII. Bar graph survey mean.
(see attachment)

CONNECTICUT STATE DEPARTMENT OF EDUCATION
Division of Vocational Education
Bureau of Vocational-Technical Schools
Hartford

A SURVEY OF THE NEED FOR _____ IN _____

Company _____ Town _____

Type of Industry & Product _____

1. How many workers are employed in the above category? _____
   (please list number and specific job title) _____
   _____

2. How many of these do you supervise? _____

3. What is the average annual replacement for this group? _____

4. Assuming business conditions do not deteriorate, how many additional do you believe you will need for expansion? Indicate number per year and years of expected expansion.

YEAR	NUMBER
____	____
____	____
____	____
____	____
____	____

5. How many employees in this category would you employ now? _____

6. How are you currently obtaining personnel for these positions?

   Please check one:

   State Employment Service _____
   Local high school _____
   Vocational-Technical School _____
   Union _____
   Other _____

_____
Name and Title of Person completing this Form

ITEM	MECHANICAL DRAFTING SUBJECT	MOST ESSENTIAL	ESSENTIAL	IMPORTANT	DESIRABLE	IMMATERIAL
1.	Lettering					
	a. Capital Vertical and Inclined					
	b. Mechanical Lettering Aids					
	Comments:					
2.	Basic Geometric Constructions					
	Comments:					
3.	Freehand Sketching					
	a. Orthographic					
	b. Pictorial					
	Comments:					
4.	Orthographic Projection					
	a. Primary Views					
	b. Normal Views of Oblique Surfaces					
	c. Rotation of Views					
	d. Intersections of Surfaces					
	e. Drawing with Ink					
	Comments:					
5.	Pictorial Projection					
	a. Isometric Drawings and Projection					
	b. Oblique Projections					
	c. Perspective Drawings					
	Comments:					
6.	Developments for Sheetmetal Parts					
	Comments:					

ITEM	MECHANICAL DRAFTING SUBJECT	MOST ESSENTIAL	ESSENTIAL	IMPORTANT	DESIRABLE	IMMATERIAL
7.	Detailing Procedures for:					
	a. Sand Castings					
	b. Precision Castings					
	c. Plastic Molded Parts					
	d. Forging					
	e. Pressed Metal Parts					
	f. Machined Parts					
	Comments:					
8.	Fasteners and Standardize Parts					
	a. A.S.A. Thread Representations					
	b. A.S.A. Standardized Fasteners & Parts					
	Comments:					
9.	Springs					
	Comments:					
10.	Assembly Drawings and Details					
	a. Sectioning					
	b. Tolerances					
	c. Surface Finishes					
	d. Surface Quality					
	e. Tabulation Drawings					
	f. Sub Assemblies					
	g. Drafting Procedures					
	h. Functional Dimensioning					
	i. Checking					
	j. Selection of Materials					
	k. Heat Treating Processes					
	Comments:					

ITEM	MECHANICAL DRAFTING SUBJECT	MOST ESSENTIAL	ESSENTIAL	IMPORTANT	DESIRABLE	IMMATERIAL
16.	Bearings					
	a. Plain Bearings					
	b. Roller Bearings					
	c. Ball Bearings					
	d. Needle Bearings					
	e. Fits and Tolerances					
	Comments:					
17.	Linkages and Rotary Feed Motions					
	Comments:					
18.	Basic Electronic Circuits					
	Comments:					
19.	Hydraulics and Air					
	a. A.S.A Standards					
	b. Piping Diagrams					
	Comments:					
20.	Piping					
	a. A.S.A. Symbols					
	b. Layouts and Dimensioning					
	Comments:					
21.	Gaging Devices and Quality Control					
	Comments:					
22.	Graphs and Charts					
	Comments:					

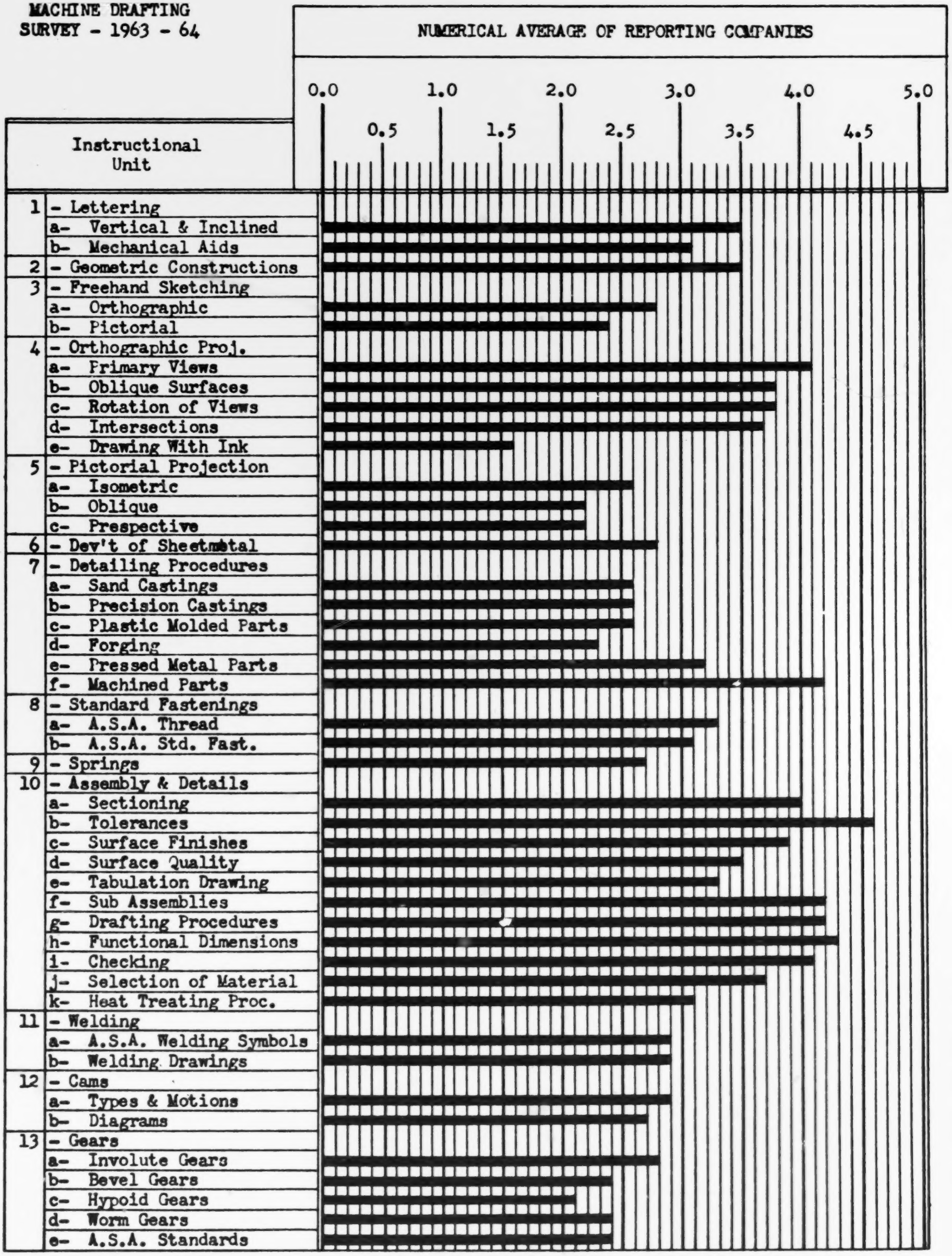
ITEM	MECHANICAL DRAFTING SUBJECT	MOST ESSENTIAL	ESSENTIAL	IMPORTANT	DESIRABLE	IMMATERIAL
23.	Simplified Drafting					
	Comments:					
24.	Equipment and Plant Layouts					
	Comments:					
25.	Reproduction Processes (Theory)					
	a. B. W. Prints, Ozalid Prints, Blueprints					
	b. Photostat Prints					
	c. Duplicating Tracing					
	d. Lithoprinting					
	e. Photo Copying					
	f. Photography and Photo Drawings					
	Comments:					
26.	Production Tooling (Theory)					
	a. Form Tools					
	b. Drill Jigs					
	c. Fixtures					
	d. Press Work Dies					
	Comments:					
27.	Engineering Organization (Theory)					
	a. Drafting Orientation and Organization					
	b. Scheduling and Routing					
	c. Cost-Analysis					
	Comments:					

ITEM	MECHANICAL DRAFTING SUBJECT	MOST ESSENTIAL		ESSENTIAL	IMPORTANT	DESIRABLE	IMMATERIAL
28.	Mathematical Skills						
	a. Basic Arithmetic						
	b. Algebra						
	c. Trigonometry						
	d. Geometry						
	Comments:						
29.	Understanding of Scientific Principles						
	Comments:						
30.	Command of English						
	Comments:						
31.	Machine Practices						
	Comments:						

No. of Reporting Companies		24	11	17	17	1	4	2	3	6	17	11	5		
MACHINE DRAFTING SURVEY - 1963 - 64	Instructional Unit	HAMDEN	BRIDGEPORT	NEW BRITAIN	HARTFORD	DANIELSON	NORWICH	MANCHESTER	WILLIMANTIC	TORRINGTON	WATERBURY	STAMFORD	DANBURY	Total Rating of Reporting Companies	Numerical Average of Reporting Companies
1	- Lettering														
	a- Vertical & Inclined	82	37	55	64	1	14	7	11	22	64	38	22	417	3.5
	b- Mechanical Aids	53	15	28	38	-	5	4	6	12	36	26	12	370	3.1
2	- Geometric Constructions	86	45	54	56	3	14	8	13	25	55	33	21	413	3.5
3	- Freehand Sketching														
	a- Orthographic	61	42	52	40	5	12	4	13	17	44	31	14	335	2.8
	b- Pictorial	58	28	40	36	5	10	2	12	11	34	28	16	280	2.4
4	- Orthographic Proj.														
	a- Primary Views	102	45	71	63	3	19	8	13	27	68	48	20	487	4.1
	b- Oblique Surfaces	93	45	70	56	3	17	7	13	27	61	41	19	452	3.8
	c- Rotation of Views	88	45	71	55	4	14	4	13	26	66	41	20	447	3.8
	d- Intersections	86	43	69	56	4	17	4	12	21	62	38	19	431	3.7
	e- Drawing With Ink	40	13	23	26	1	6	1	7	10	25	22	9	183	1.6
5	- Pictorial Projection														
	a- Isometric	61	32	44	37	4	9	10	12	19	44	27	12	311	2.6
	b- Oblique	46	31	42	31	4	6	8	11	13	33	24	12	261	2.2
	c- Prespective	48	28	37	34	4	8	7	12	15	32	23	11	259	2.2
6	- Dev't of Sheetmetal	65	38	57	38	5	12	5	12	11	38	34	12	327	2.8
7	- Detailing Procedures														
	a- Sand Castings	62	34	52	38	2	10	7	9	11	26	41	15	307	2.6
	b- Precision Castings	56	27	49	44	2	8	7	9	13	38	39	15	307	2.6
	c- Plastic Molded Parts	51	29	54	35	5	10	7	10	16	42	34	12	305	2.6
	d- Forging	49	28	42	39	2	8	7	7	12	31	32	12	269	2.3
	e- Pressed Metal Parts	67	40	59	39	5	11	9	11	23	63	35	17	379	3.2
	f- Machined Parts	93	47	77	69	5	20	5	12	25	69	48	23	493	4.2
8	- Standard Fastenings														
	a- A.S.A. Thread	71	33	64	52	3	15	9	11	22	58	35	16	389	3.3
	b- A.S.A. Std. Fast.	71	33	58	40	3	15	9	11	23	49	32	16	360	3.1
9	- Springs	58	28	54	38	3	14	4	10	17	51	29	14	320	2.7
10	- Assembly & Details														
	a- Sectioning	100	44	74	65	5	19	10	14	18	67	39	20	475	4.0
	b- Tolerances	111	50	80	77	5	20	9	14	25	75	51	24	541	4.6
	c- Surface Finishes	94	38	69	66	5	14	6	13	22	72	42	21	462	3.9
	d- Surface Quality	73	38	64	60	5	9	6	12	22	63	40	19	411	3.5
	e- Tabulation Drawing	80	38	57	51	5	5	7	11	13	62	38	17	384	3.3
	f- Sub Assemblies	95	49	70	69	5	20	8	14	24	73	43	23	493	4.2
	g- Drafting Procedures	97	47	73	68	5	19	7	13	20	74	46	23	492	4.2
	h- Functional Dimensions	100	44	75	74	5	18	8	13	26	72	45	23	503	4.3
	i- Checking	94	49	72	68	5	18	10	13	20	67	45	23	484	4.1
	j- Selection of Material	85	39	68	61	5	14	5	12	13	75	41	16	434	3.7
	k- Heat Treating Proc.	75	28	62	56	5	12	3	12	10	51	35	13	362	3.1
11	- Welding														
	a- A.S.A. Welding Symbols	66	31	52	52	3	11	10	10	16	45	29	14	339	2.9
	b- Welding Drawings	68	34	53	52	3	15	10	9	10	39	31	18	342	2.9
12	- Cams														
	a- Types & Motions	61	36	58	44	2	16	5	11	18	54	29	14	348	2.9
	b- Diagrams	56	34	51	38	2	16	5	11	14	52	23	13	315	2.7
13	- Gears														
	a- Involute Gears	53	27	52	41	3	14	5	10	14	62	32	12	325	2.8
	b- Bevel Gears	51	27	51	35	3	10	5	10	14	43	26	12	287	2.4
	c- Hypoid Gears	44	24	45	33	3	10	5	9	13	34	19	9	248	2.1
	d- Worm Gears	52	27	49	36	3	11	5	9	14	42	26	12	286	2.4
	e- A.S.A. Standards	44	26	51	37	3	11	4	9	18	49	23	12	287	2.4

No. of Reporting Companies		24	11	17	17	1	4	2	3	6	17	11	5		
MACHINE DRAFTING SURVEY - 1963 - 64	Instructional Unit	HAMDEN	BRIDGEPORT	NEW BRITAIN	HARTFORD	DANIELSON	NORWICH	MANCHESTER	WILLIMANTIC	TORRINGTON	WATERBURY	STAMFORD	DANBURY	Total Rating of Reporting Companies	Numerical Average of Reporting Companies
14	- Belts & Pulleys														
	a- V Belts	62	30	44	45	3	11	5	11	10	40	21	15	297	2.5
	b- Flat Belts	50	22	39	36	3	9	5	9	8	34	18	12	245	2.1
	c- Cone Drives	43	24	40	33	3	9	5	10	8	37	13	10	235	2.0
	d- Adjusting Devices	55	30	43	43	3	12	5	11	9	44	18	12	285	2.4
	e- A.S.A. Standards	53	27	45	40	3	10	6	10	13	45	10	13	275	2.3
15	- Chain Drives														
	a- Types of Chains	62	22	41	43	3	12	5	11	9	41	18	13	280	2.4
	b- Sprocket Designs	54	19	39	39	3	12	5	11	8	37	18	11	256	2.2
	c- Adjusting Devices	59	22	42	44	3	12	5	11	9	44	18	12	281	2.4
	d- A.S.A. Standards	52	19	47	40	-	12	6	10	13	45	18	11	273	2.3
16	- Bearings														
	a- Plain Bearings	70	34	49	53	3	20	5	12	15	42	30	18	351	3.0
	b- Roller Bearings	68	33	47	49	3	13	5	12	13	45	24	18	330	2.8
	c- Ball Bearings	71	36	47	50	3	15	5	12	17	48	30	18	352	3.0
	d- Needle Bearings	64	28	50	46	3	13	5	12	13	41	22	18	315	2.7
	e- Fits & Tolerances	85	37	57	53	4	20	8	12	20	49	34	20	399	3.4
17	- Linkage	49	29	43	41	3	15	4	6	14	45	26	13	288	2.4
18	- Electronic Circuits	54	36	36	36	4	8	5	10	10	32	27	15	273	2.3
19	- Hydraulics & Air														
	a- A.S.A. Standards	57	25	51	42	3	8	5	10	12	37	15	13	278	2.4
	b- Piping Diagrams	55	19	48	42	3	11	3	11	12	31	15	11	261	2.2
20	- Piping														
	a- A.S.A. Symbols	49	20	41	39	3	8	5	9	14	25	15	13	241	2.0
	b- Layouts & Dimensions	50	26	41	40	3	11	6	10	15	23	16	12	253	2.1
21	- Gaging Devices	68	33	56	50	4	12	7	11	13	57	24	14	349	3.0
22	- Graphs & Charts	62	34	37	44	5	12	7	7	14	44	24	16	306	2.6
23	- Simplified Drafting	66	33	41	40	2	12	5	8	12	55	32	15	321	2.7
24	- Equip. & Plt. Layouts	45	25	45	40	2	9	5	9	13	40	19	14	266	2.3
25	- Reproduction & Proc.														
	a- B.W. Ozalid & B/P	72	30	43	47	2	8	6	9	18	46	25	18	324	2.7
	b- Photostat Prints	52	20	31	34	2	5	5	7	11	37	22	13	239	2.0
	c- Duplicating Tracing	53	24	34	40	2	5	2	9	8	45	23	12	257	2.2
	d- Lithoprinting	31	21	29	27	2	5	2	3	8	27	19	8	182	1.5
	e- Photo Copying	41	19	29	29	2	5	4	3	11	26	19	10	198	1.7
	f- Photograph & Photo.	32	21	27	29	1	6	3	3	12	27	23	9	193	1.6
26	- Tooling														
	a- Form Tools	71	37	64	54	3	9	7	9	11	54	28	13	360	3.1
	b- Drill Jigs	77	33	65	58	3	13	7	10	11	62	30	14	383	3.2
	c- Fixtures	80	33	65	58	3	13	7	10	12	63	29	14	387	3.3
	d- Press Work Dies	68	38	62	46	3	11	10	12	11	62	26	13	362	3.1
27	- Engineering Organization														
	a- Draft. Orien. & Organ.	72	33	46	39	1	8	10	9	11	45	22	14	310	2.6
	b- Scheduling & Routing	59	27	41	38	1	8	9	8	6	40	23	12	263	2.2
	c- Cost Analysis	61	29	38	42	2	11	8	7	9	46	21	11	285	2.4
28	- Mathematical Skills														
	a- Basic Arithmetic	115	44	82	78	5	20	10	15	26	74	50	24	543	4.6
	b- Algebra	94	41	74	69	5	12	9	15	25	67	41	21	473	4.0
	c- Trigonometry	101	43	77	72	5	18	10	15	24	75	47	23	510	4.3
	d- Geometry	103	39	80	73	5	18	9	15	25	72	47	21	507	4.3
29	- Scientific Principle	103	34	55	58	-	15	10	9	20	41	33	19	397	3.4
30	- Command of English	89	38	59	60	3	14	10	13	21	65	42	19	433	3.7
31	- Machine Practices	92	36	58	56	3	16	5	10	14	56	42	21	409	3.5

MACHINE DRAFTING
SURVEY - 1963 - 64



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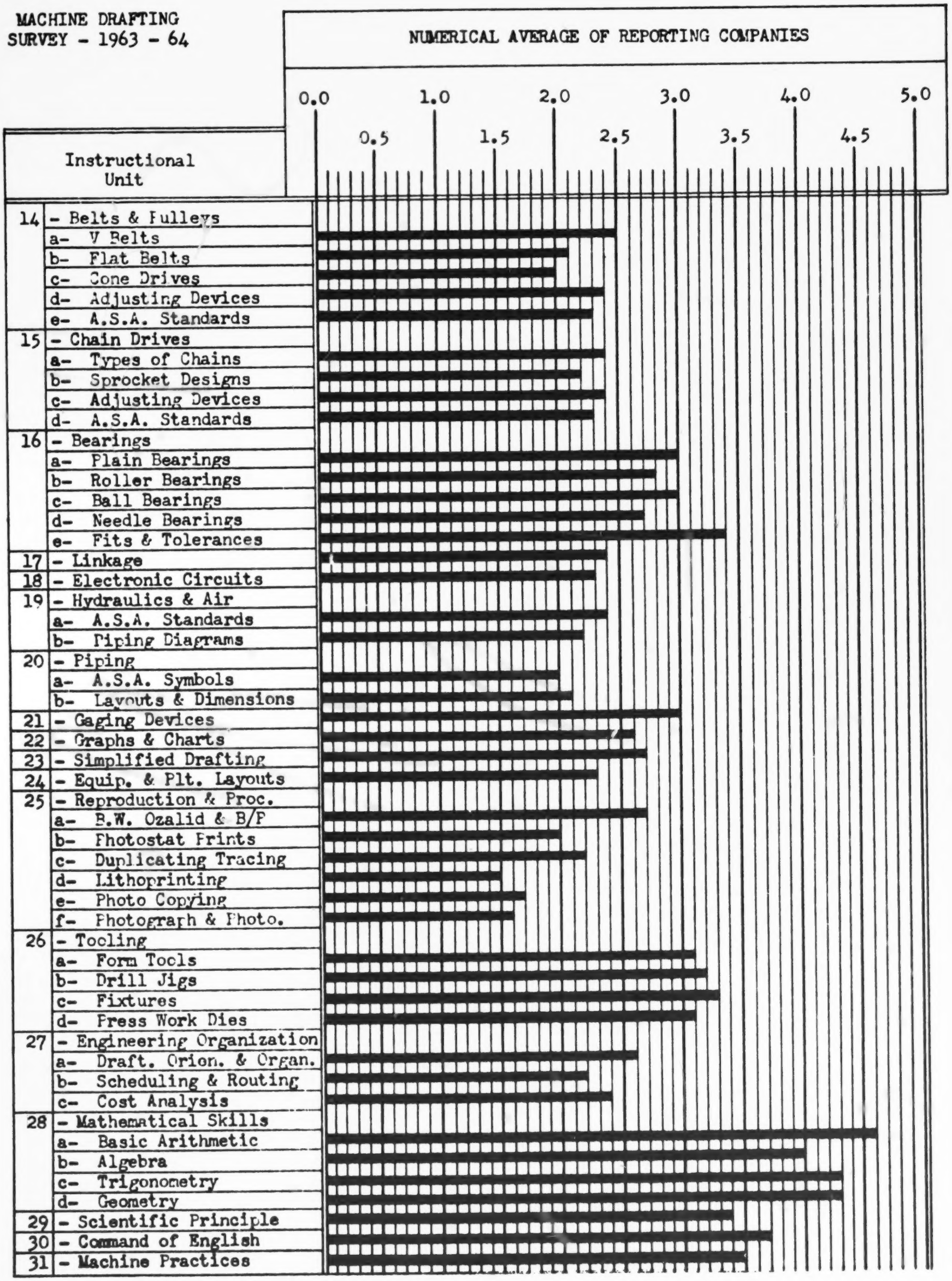

VT 001 390

Conference Proceedings: Distributive Education's Role in Florida's Community Junior Colleges, April 15-16, 1964.

Florida State Dept. of Education, Tallahassee. Distributive, Cooperative, and Business Education Section
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*DISTRIBUTIVE EDUCATION'S ROLE IN FLORIDA'S COMMUNITY JUNIOR COLLEGES, APRIL 15-16, 1964

Educational leaders of Florida's junior colleges and state department of education personnel met to discuss the 2-year curriculums and short courses for adults in distributive education. Included are (1) a speech, "The Community Junior College's Responsibility for Occupational Programs," by Thomas M. Baker, (2) a panel summary, "The Community Junior College and Mid-Management Cooperative Programs," by Maurice F. Buckner and Marion West, (3) summary statements of committees reporting on 12 statements relative to "Suggested Minimum Standards--Mid-Management Distributive Education Programs," (4) an address, "Education for the Entrepreneur," by L.T. White, and (5) summary statements of committees reporting on nine questions concerning the responsibility of the community junior college in the area of distributive education for adults. Also included are (1) a proposed professional framework for a program of mid-management, (2) alternative plans of organization and operation--vocational education services, and (3) the conference agenda. (SL)

VT 001 390

Bulletin 74E-3

October, 1964

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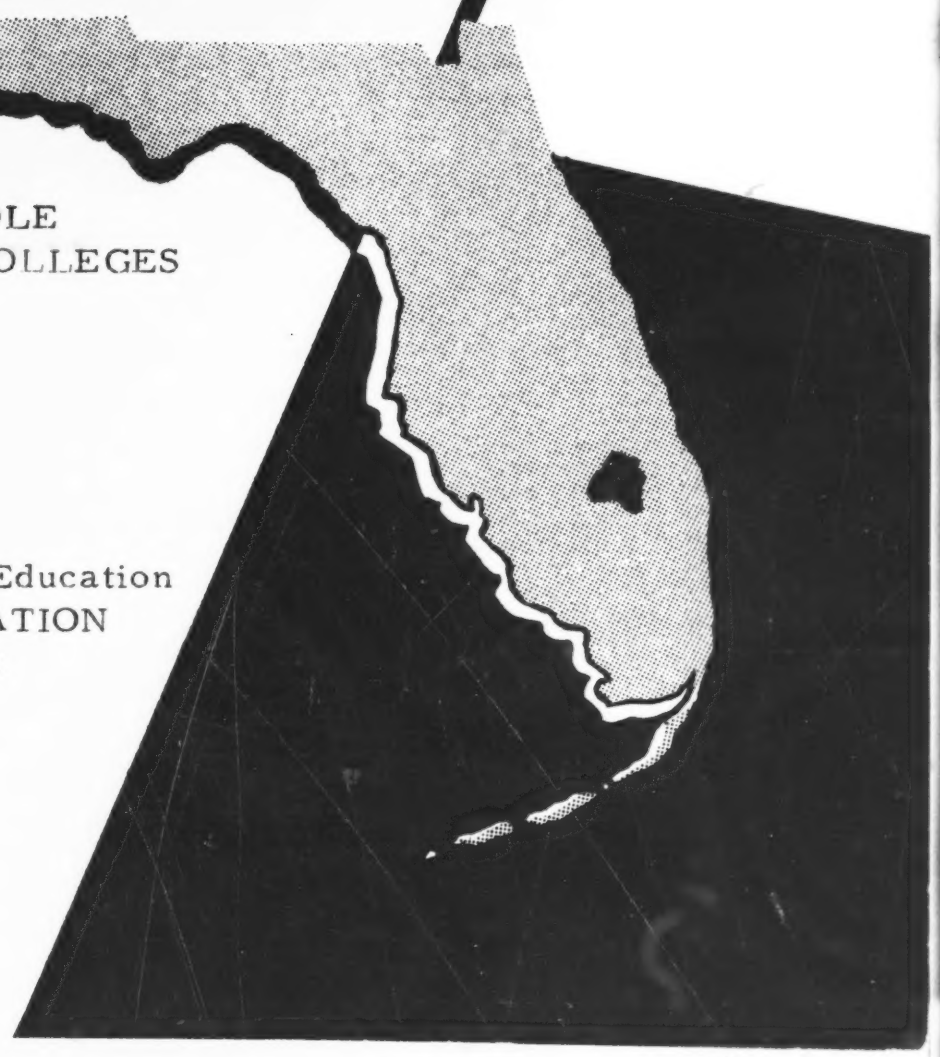

CONFERENCE PROCEEDINGS:

DISTRIBUTIVE EDUCATION'S ROLE IN FLORIDA'S COMMUNITY JUNIOR COLLEGES

APRIL 15 - 16, 1964

Division of Vocational, Technical, and Adult Education
THE STATE DEPARTMENT OF EDUCATION
Thomas D. Bailey, Superintendent
Tallahassee, Florida

VT 01390

PREFACE

On April 15 and 16, 1964, a number of educational leaders representing some of Florida's junior colleges met with members of the State Department of Education in Tallahassee to share ideas and experiences relative to the rapidly expanding two-year curriculums and short courses for adults in the area of distributive education. The proceedings and considerations of this conference are contained in this report for your interest and information.

Gratefully acknowledged are the contributions of those who made formal presentations, as well as those who participated in committee work.

The work of this conference should serve as a springboard to the further development and refinement of the role of distributive education in the program of Florida's community junior colleges.

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THE COMMUNITY JUNIOR COLLEGE'S RESPONSIBILITY FOR OCCUPATIONAL PROGRAMS

Address by
Thomas M. Baker, Specialist
Division of Community Junior Colleges
State Department of Education

If someone were to ask you what you considered the most important educational development during the second half of the 20th century, you would probably think of the increasing emphasis on higher education; and if you were to be asked what you considered the fastest growing phase of education during this period, you would probably think of the Community Junior College. Of almost all the studies conducted in the last 10-12 years relating to higher education, in nearly every instance there's been a recommendation to the states that junior colleges be developed or existing systems expanded. Probably the main reason for this is beacuse of the recognition that there is a need for diversity of educational opportunity in post-high-school education. Of course, there are other reasons for the establishment of Community Junior Colleges such as the impact of the increasing costs, higher admission standards in our colleges and universities, and others.

The movement which produced the Community Junior College in Florida was based upon the premise that there were many types of intelligence and abilities and that all are not only valuable in the post-high-school cultivation of intelligence and ability but necessary to the progress of our state. The law passed by the Legislature in 1957, authorizing the establishment of the public junior colleges, stated that a junior college shall mean an educational institution operated by the county board as part of the county school system offering a program of general education consisting of classical and scientific courses in the 13th and 14th grades parallel to that of the first and second year work in a four-year institution of higher learning--terminal courses of a technical and vocational nature--courses for adults.

In junior colleges we usually refer to technical and vocational programs as occupationally oriented programs. Like many other fields, business and distributive education has its problems with semantics. Generally in a junior college a semi-professional program is a college-level program which is organized into curriculums of two years in length, leading to an associate degree and designed to prepare the student for entry into employment in one or more selected fields. In the junior college catalogs you will sometimes find programs similar in content--one listed as a specialized, semi-professional program; another as a specialized business-technical-professional program; another as a semi-professional business program. Last fall's enrollment report from the junior colleges listed 30 different course or curriculum titles in the business and distributive education areas.

In the fall semester of 1962 there were approximately 7,500 students (individuals) enrolled in occupational programs in the publis junior colleges in Florida. From a report we have just compiled for the fall of the current year, we find that there is in excess of 12,000 students enrolled in the terminal-occupational courses or programs in the junior colleges. This represents a 60% increase in the number of students enrolled in occupational

courses in a period of one year. However, of significance here I believe is the fact that in the fall semester of 1962, according to our reports there were 2,733 students enrolled in the business and distributive education areas. However, this has increased to 6,211 students for the Fall of 1963--an increase of over 100% in one year. If these reports are correct, and I believe they are, the business and distributive field seems to be the fastest growing occupational field in the junior college in Florida. A study was conducted some years ago in which responses from 243 junior colleges indicated that 79 different terminal programs were offered. The field of business headed the list, both in terms of number of institutions offering terminal-business programs and in terms of enrollment.

Each year the Division of Community Junior Colleges submits fall enrollment figures to the Higher Education Division of the USOE. According to the U. S. Office Report in the Fall of 1963, there were in excess of 4.8 million students enrolled in institutions of higher learning taking courses creditable toward a bachelors or higher degree. Of these there were in excess of 1 million students which were enrolled first-time-in college. One significant thing which relates to the recognition of terminal programs in higher education is the fact that last year the U. S. Office incorporated into the fall enrollment report a section which asked for the number of students enrolled in occupational or general studies programs not chiefly creditable toward a bachelors degree. This is the first time this information has been requested, and I am informed that they will continue to ask for it.

Also, last Fall (1963) of the first-time-in-college students enrolled in public supported institutions of higher learning in Florida, 69% were enrolled in public junior colleges. There were 13,888 first-time-in-college students in the public junior colleges and 6,195 in the state universities. Of all the freshmen in the Fall of 1963, there were approximately 20,000 in the public junior colleges and 8,000 in the state universities.

The faculty and administration of the community college have the responsibility of developing occupational programs to attract students and meet the needs of business and industry. Sometimes there is an unwillingness on the part of the staff to accept the comprehensive function of the community junior college. They may give a little "lip" service to it, but no strong effort is made to undertake the development of occupational programs. Sometimes the prestige factor gets in their view. True, it does take some extra effort and extra finances to implement such programs. If an occupational program is not undertaken in a true spirit, it may begin with poor planning, and probably be poorly explained to the students and to the public.

Another responsibility in the occupation programs is in the field of counseling. If the counsellors do not believe in or understand the philosophy and objectives of the institution, they may do more harm than good to the program. An in-service training program for new counselors is sometimes desirable.

The administration and faculty should strive to interpret the objectives, service, and programs to the rest of the faculty, to the students and to the public .

We may have all heard of counselors who would encourage students to go into science programs, math programs, or parallel programs other than

occupational programs because of their high school records and high attainment on the senior test scores in high school. How many of us would encourage a young lady to take a two-year secretarial course if she ranks in the upper 5 percentile of her class in ability. It is sometimes natural for us to indicate preference toward four-year programs. Each counselor will have to work out within himself the clarification of his role with this type of student. How far can we go or how far should we go in encouraging these students to alter their programs to, quote, "a higher program." A counselor has the responsibility for encouraging the student to look at all areas of education.

It would seem then in the final analysis that the community junior college should continue to be the logical agency to provide for occupational training. It is designated this responsibility by law. If it does not meet this responsibility, the alternative may be another type of institution. This would seem unnecessary and unfortunate.

An old teacher of mine once said that it takes more time, more work, more emphasis to develop a good occupational program, but it's more than worth it.

PANEL: THE COMMUNITY JUNIOR COLLEGE AND MID-MANAGEMENT COOPERATIVE PROGRAMS

Summary by Panelist: Maurice F. Buckner

Because of the need for properly trained people within the distributive businesses of Brevard County, Brevard Junior College launched the Cooperative Distribution and Marketing program in September, 1962. An advisory committee composed of representatives from the areas of retailing, service, technical, business, and the Chamber of Commerce assisted with the development and planning for the overall operation of the program.

The program followed by the student encompasses certain basic studies along with the subject in distribution and marketing and complemented with on-the-job training. One-the-job training is listed as Distribution and Marketing Practice in our sequence of courses which is outlined in our brochure.

Interested students who were admitted to college were allowed to enroll in the program. Virtually little, if any, screening was done to assure top-quality students. Seven students who were already employed enrolled the first semester. A conference was held with each employer to explain the operation of the program and to evaluate the establishment as a suitable training agency. All employers offered to cooperate with the program, and the Coordinator and the Director of Business and Distribution division decided that they were worthwhile training agencies.

The coordinator did not and does not look for job openings for those students not employed. The philosophy of the school is that the student should be responsible for obtaining a position. After the student secures his position, the coordinator checks with the managers to see if they are willing to cooperate. A number of job openings are known to the coordinator, but he reveals these openings only after considerable initiative and effort has been expended by the student.

The coordinator attempts to have conferences with each manager a minimum of twice each month. Progress reports are sent out once each month. Conferences with students follow each manager conference and each progress report.

Summary by Panelist: Marion West

At the Junior College of Broward County, Mid-Management in Distribution and Marketing is a natural and logical component of the Business Administration Department. The prospective student files a preliminary application to be accepted in the program. He is counseled on the objectives and operation of the program. If it appears he may profit from the plan, the student is advised by the program supervisor to take the course recommended for the first term.

If the prospective student demonstrates that he is capable of successfully pursuing these college studies, he is urged to take various aptitude, achievement, and interest inventories administered by the college guidance department and Florida State Employment Service. He is then advised of career opportunities. In the light of the student's school performance, his test results, his expressed interests from actual experiences, and information regarding many occupations (as explained in the Occupational Handbook of the Department of Labor), a projected five year career choice is made.

Upon successfully completing the first term and convincing the mid-Management supervisor that he is interested and mature enough to benefit from the program, the student is given permission to register for the second term studies. This work includes a seminar course BA 173, Distribution and Marketing Practice. The class meets weekly for one hour and includes approximately fifteen hours of actual on-the-job experience and training each week in some phase of distribution or marketing. This work experience is carried out in an approved "training agency" which has agreed to provide valuable learning experiences in knowledge, skills, and attitudes essential to progress in this particular business.

The hourly class session each week is used to interrelate a wide range of information that will aid the student in advancing more rapidly on his job. Essentially it covers two areas: First, breaking the job down into a job description or job analysis and on this basis the student uses reference books to better understand the job and the over-all business. The second area which sounds simple, but which in fact seems to be most important, is the development of proper attitudes and an understanding of the importance of good human relations. In a number of interesting studies, it has been found that people lose jobs not because of their inability to do the job well, but their inability to get along with people. Therefore, it seems logical that if we are interested in establishing programs in junior colleges which will assist capable young men and women in business administration and a career in the dynamic fields of distribution and marketing, special consideration should be given to the development of proper attitudes.

No doubt, the Mid-Management program can aid students to intelligently make a career choice, acquire business knowledge and skills necessary to cope with the increasingly complex business competition of today and tomorrow and the capacity to make important business decisions. The above possibilities, along with the importance of distribution to our economy, as well as strengthening the free enterprise system and our democratic form of government, all seem to point to the urgent need for the junior college cooperative Mid-Management program.

COMMITTEE REPORTS

Regarding Discussions on the Various Statements Relative to Suggested Minimum Standards - Mid-Management Distributive Education Programs

Statement #1 - The program should have the endorsement of a representative advisory committee.

Summary conclusion: The program should have the endorsement of a representative advisory committee prior to its inception and the committee should be informed as to its functions in the program operation.

Statement #2 - Coordinators and teachers should be properly qualified. Proper qualification would include a master's degree, work experience in the field of distribution, and some type of formal experience in the coordination of such a program.

Summary conclusion: A diversity of opinion existed leaving the statement intact with one exception. Degree requirements would state that a bachelor's degree is required, but a master's degree is preferred.

Statement #3 - The cooperative method would be initiated at the end of the first semester's work upon recommendation of coordinator.

Summary conclusion: The cooperative method would be initiated upon recommendation of coordinator and advisory committee.

Statement #4 - Exception to the above may be made in case of students who have satisfactorily completed DE programs in high school. The students might continue their training without interruption.

Summary conclusion: The adoption of the recommendation for statement #3 would obviate this statement.

Statement #5 - Students should work a maximum average of 15 hours per week at a training agency approved by the school.

Summary conclusion: The committee recommended that students should work a minimum of fifteen (15) hours per week at a training agency approved by the school.

Statement #6 - Curriculum should include a minimum of one course per semester taught by the coordinator in areas of marketing, merchandising, retailing, sales promotion, or advertising, as a requirement for each student.

Summary conclusion: The group recommended that "taught by the coordinator" be deleted from the statement. Courses in "Salesmanship" and "Principles of Accounting" should be added. Scheduling difficulties would be surmounted by having the statement read that "four of these courses must be taken" rather than "one course per semester."

Statement #7 - Curriculum should also include one required course each semester in related areas (e.g., Introduction to Business, Business Mathematics, Economics, Human Relations, etc.) for each student, taught by other staff members.

COMMITTEE REPORTS

Summary conclusion: The committee recommended that the curriculum should include "Principles of Accounting" and "Business Law." Also, "by other staff members" should be deleted. It was recommended that the student take twelve or more hours in related areas.

Statement #8 - Each student would be enrolled in a work experience laboratory or seminar conducted by the coordinator, which would meet an average of one hour per week as scheduled by coordinator.

Summary conclusion: The committee agrees with this statement in its entirety.

Statement #9 - Credits would be granted by the junior college based on a 3 to 1 ratio of work experience laboratory time for attendance credit, the total not to exceed six hours for the combined seminar and work experience per semester.

Summary conclusion: Credit should be a minimum of three (3) semester credit hours for his combined seminar and work experience. Although the group was reticent in defending it, their feeling was that the work experience credit rule could provide a disproportionate amount of the sixty-four (64) credit hours required for graduation.

Statement #10 - The instructor would carry a maximum classroom teaching load of nine hours (minimum of six hours in distribution) plus the seminar and coordinating activities for the program.

Summary conclusion: The coordinator should be given sufficient time to organize, plan, and supervise the program which would necessitate carrying less than the full teaching load.

Statement #11 - Suggested minimum enrollment: 20-25 students.

Summary conclusion: A developmental period of light enrollment should be allowed after which a sufficient number of students should be served to justify offering the program.

Statement #12 - The coordinator should be actively involved in the admission of students to the program.

Summary conclusion: The coordinator should play an active part in the selection of the students and it is advisable that the coordinator be the students' counselor.

EDUCATION FOR THE ENTREPRENEUR

Address by
Mr. L. T. White, Business Consultant
Washington, D. C.
Formerly Vice-President for Business Education and Research
Cities Service Petroleum, Inc., New York City

Delivered at a State-Wide Conference on Distributive Education's Role in Florida's Community Junior Colleges, April 16, 1964.

You probably were not watching your television set yesterday morning, since the Conference was in session. Frank Blair, on the Today program, stood at Hampton Roads and said, "We are opening man's greatest engineering construction project, a bridge-tunnel crossing the Chesapeake Bay -- 17 miles. Mr. Kellam, at my right, has been the chairman of this project for 10 years. To do a thing of this kind requires imagination, daring, and courage. And, for 10 years, Mr. Kellam has supplied those qualities. What is your salary, Mr. Kellam?"

"If we meet once a month," Mr. Kellam said, "it is $20 a month."

"Well, you must have another source of income."

"Yes," he said, "I am an oil jobber."

People with the ability, imagination, daring, and courage for a project of this kind will solve many of our great problems of the moment. They are the type of fellow we are talking about now -- today. They are the entrepreneurs. There was no money in this for Kellam. I suppose he won't lose any money, but it certainly isn't much of a stipend -- $20 a month.

It's a pleasure to meet with educators because you are the ones who can find these people and develop them. Educators and businessmen today see themselves as partners. You give people wider vision, higher aspirations, and the desire to live better. We carry on and provide the products and services through which these new ideals can be reached. Incidentally, profits accrue which pay the taxes that keep our education institutions going. So, this is a partnership situation.

A few years ago, while I was an advisor to the vocational education division of the Board of Education for the city of New York, some businessmen wanted to meet Dr. Jansen, who was then superintendent of schools. They wanted to put him on the "hot seat." He knew it. He was ready for them. We met at the University Club one night, and when dinner had been finished, one fellow said, "Dr. Jansen, what is the school budget for this year?"

"$300,000,000," Dr. Jansen answered.

"Goodness!" the man said, "Is that justified?"

Like any good man on his feet, Jansen parried the question - and may I inject this: Whenever you're stung, say, "I'm glad you asked." This throws the other fellow off guard for a minute. So Jansen said, "I'm awfully glad you asked; you can help me decide. It costs us $2,700 to give a boy a vocational education in the city of New York."

Now, the $300,000,000 looked an awful lot less when you got it down to $2,700 per boy. So, Dr. Jansen said, "Now, this boy, if the city is attractive enough and provides opportunities, will live here the rest of his life -- 100,000 working hours." (This is a neat figure to remember if you ever get in this kind of jam yourself. One hundred thousand hours -- 40 hours a week, 50 weeks, a year, and so on. You can work it out yourself.) "If we add $1 an hour to this boy's earning capacity, he may get $3 an hour instead of $2. We have known to add $5 an hour. So, we will have added $100,000 of income, you may call it, or purchasing power. Now, you know your margin of profit better than I. Can you afford to spend $2,700 to create $100,000 ?" That was a pretty neat sale in a very few minutes. But it does illustrate the partnership between educators and businessmen.

The most important, recent additions to our economy, in my opinion, were the Educational Acts of 1962 and 1963. These will be the force that adapts our people to the new era of service to people. This is the first civilization in the history of the world in which the majority of those who work are in the service of others. We are now in a distributive economy. No other civilization has ever reached this point.

But we must push on and take care of the unemployed. Can we do it? Many wring their hands at the unemployment caused by mechanization, automation, and computers. Can we absorb these people?

I think so. If you doubt it, remember what was here when your forefathers settled in North Carolina or Florida or Virginia or Massachusetts. There were no jobs; there were no employment agencies; there was no payroll. There was nothing but opportunity. Now we have 68,000,000 jobs. I think we can do it again. All we need to do is to create perhaps two to four million jobs per year to absorb all the young people that graduate from our educational system.

While these educational bills were being debated, I talked to James Roosevelt. He is a congressman from California. I said, "Do you think they will pass?"

"Sure," he said.

So I asked him, "Why are you so sure?"

And these were his words - note the stark simplicity of them. "Because unemployment demands more vocational education." That's all the reasoning Congress needed. Then he added, "We're going to change the 'UE' -- unemployment, to 'VE' -- vocational education." And he held up his two fingers like Churchill used to do during World War II.

That is why the bill went through Congress. I don't know whether it will go through your school board or not, but it went through Congress.

This philosophy related education to employment. In the future, you may be considered successful as the president of a junior college, or whatever your title may be in education, if employment in your locality increases -- not nationally, but locally. If employment in your locality declines, you may be criticized. One thought has recurred throughout this discussion: The purpose of our enlarged expenditures for education, liberal, or vocational, is to provide skills for the available jobs. What is the most available job in your community or mine -- Florida or the United States? It is that of the business proprietor, the owner.

I met with the men who were publishing the Dictionary of Occupational Titles - the new one coming out this year. There were 40,000 job titles in the old one, so I said, "Will Business Owner or Business Proprietor be in the new one?" No, no. Is this a subject? Can you find it in a college catalog? Can you find it in a high school list of subjects? No. Nevertheless, we have nearly 106,000 of them in Florida This is the most common, the most numerous of all occupations. If you like the fancy word -- which I avoid except in hallowed halls such as this -- it's "entrepreneur!"

Let's take these fellows apart in the State of Florida. Let's judge them by the number of employees they have, which is our purpose here. We have in the State 1,104,457 employees. We have 105,706 firms. Now, every firm has a proprietor, an owner. There may be no employees, but there's always an owner or proprietor. Overall, there are about 10 employees per firm in the State of Florida. That's not a good figure to use, though, because the average firm in the State is not that big. Fifty-seven percent have 31 employees or fewer; 19 percent have 4 to 7; and 14 percent have 8 to 19. Ninety percent have fewer than 20. You see what we're dealing with here. We're dealing with small business. Not with General Motors, General Electric, General Foods, but with "Ma and Pa" stores.

Now, let's look at them by function. Excluding farms, and unclassified businesses, 18 percent are in production (mining, contract construction, and manufacturing) and 62 percent in distribution (transportation, communication, and public utilities, wholesale and retail trade, finance, real estate, insurance, and services). So, now we have two new parts of the picture -- to me, they are new -- a small business, and in the field of distribution.

What kind of fellow is this man? You see him all around your school. You see him all around town. Someone says that the word with the greatest appeal in Washington at this moment is enterepreneur, because those who think of the state of the economy at the moment and our dangers and our opportunities realize this is where the research must be applied.

What kind of man is this? Someone said the best stories are made by women, and I believe that. This is true of studies of the type of man we are talking about. The great authority on this subject is Dr. Mabel Newcomer of Vassar. Her study of the businessmen of the Hudson Valley, entitled The Little Businessman, is still a classic, published by Harvard and used by Harvard.

Why did the little businessman start his own business instead of getting on someone else's payroll? He knew about security, tenure, pension, and all that goes with salary payrolls, but he didn't want that. Maybe he's crazy, but let's look at him.

Dr. Newcomer found that he had ambition, partly financial; he wanted status; he wanted to control his own income; he never wanted to get fired. (You can't be fired as the owner of the business. You can fail, but that's your business. Nobody else is going to say, "That'll be all, Joe; here's the pink slip!") He wanted an opportunity to invest his own savings. (This is the classic phrase of putting your eggs in one basket and then watching the basket. The French have been saying this for centuries: "There is nothing as fertile as the hands of the owner." If you want money to grow, use it in your own investment.) He wanted less arduous employment; he wanted to think; he wanted to relieve himself of routine things and drudgery and unpleasant things. And then, another reason of a few of them getting into business was the inheriting of the business.

A very careful study of the entrepreneur that will soon be published by Michigan State University confirms a great many things that Dr. Newcomer said. But here is an example of one fellow who asked a millionaire how he started. The millionaire said, "Well, I was poor when I began, and I'm pretty well off now. My first job was a summer job and I was working for a painter. We painted the side of a house one day, and we were taking a little break when he said, 'What do you want to become?' And I said, 'Rich.' 'Good,' he said. 'But, you'll never get rich if you know how much you are going to make per hour, per day, or per month.' I said, ' I know how much I am going to get.' 'That's what I was

telling you,' he said. 'You'll never get rich painting houses.' "So", said the millionaire, "I quit and became a contractor, and I made it."

Let me give you another aspect of this fellow, the entrepreneur. The British are studying him, too. They've made some very wonderful studies of him -- the type of man most likely to succeed as the owner of a business after he starts it. Suppose this were you, now-put it in the first person. Have you the ability to carry people with you to put a plan across? Can you choose the right employee and expert and weld them into a team? Can you evoke loyalty and devotion to the work? Every one of you is in an administrative capacity now. Think about that. Can you bring out self-discipline in your people without the use of power? Can you praise and reprove -- and know when to do each? Can you admit error and know when and where to make a change? A man who can make two pennies bread does us all a favor. That's what a business man does. He takes a dollar of investment and a dollar of expense; and with his own imagination, daring and courage, he creates three, four, five dollars worth of profit.

Several years ago, I managed a research and education department. There were five young women, high-school graduates, good girls, in the department. We were publishing books on small business management. One day, the girls came to me and said, "Why don't we get a book on how to find a husband?"

"Well," we said, " is there no such book as that?"

They said, "No."

"Well, let's outline one, then. What kind of husband do you want?"

"What do you mean, what kind?" They asked.

"Well," we said, "how tall should he be. What age? What should he weigh? Should he be blond or dark? Should he have blue eyes or brown eyes?"

"Well," they said, "leave that out. We'll know him when we see him."

I doubted that, but that's what they said, so we had to move onto surer ground. "All right, so you don't care about appearance."

"We do care about appearance, but we can't specify it."

"What do you want him to make?"

Now we were on firm ground. "One hundred dollars a week."

"What day?"

"Friday."

"So," we said, "Friday. One hundred dollars a week -- every Friday."

"That's right."

"But," we said, "what would you think about a fellow who made $135 one week and $75 the next week?"

"No, no."

Four out of five said no. But the fifth girl said, "Why that would average more than $100 a week."

"That's right"

"What kind of man is that?"

He is the man who works for commissions, or fees, or profits. The $100 a week fellow works for wages or salary. These girls had never thought of a man on this basis - they were in their early twenties - but they thought now about this fellow working for commissions and fees and profits.

The first gal married a lawyer. The second girl married a public accountant. The third married a man who ran a boatyard. When these girls left to become home makers, the girls applying for their jobs were interested in why their predecessors had left. They would say, "What happened to the girl who was here?"

"She got married."

"What kind of fellow did she marry?"

"Oh, she married well."

We had a waiting list. The other departments said, "Girls don't want to work on Wall Street. Girls don't like conditions in this office, in this building, in this firm." Well that didn't apply to us. We had all the girls needed.

These girls would come back in a couple of years with a baby, dressed up, and with their own car. They weren't doing anything but showing off --they'd always find a way to drop the parking ticket by accident in front of the poor girl who had to take the subway home. So the president said, "What are you doing, running a marriage bureau?"

I said no, but I guess we were. And all we did was to tell then about the kind of fellow who will work for commissions, or fees, or profits. As time goes on, this kind of man makes a good husband. Some of the girls married policemen and firemen, and this kind of fellow makes a good husband, too.

All right now, how do these fellows move forward? An English writer said this: "The manager's an ordinary chap. He's just an average man who plods along until he has responsibility and influence. He doesn't duck responsibility - he seeks it. He becomes an owner if he saves his money and dares to put it on the line. If he combines intelligence and humanity with enthusiasm, he's sure to grow." So, these 106,000 entrepreneurs that you have in this State are that kind of fellow. Now, can you find the next batch and develop them?

I talked to 500 school counselors in North Carolina a few weeks ago, and said, "Can you identify them?" They weren't very sure; as a matter of fact, they hadn't been looking for them. They hadn't thought about this.

One of the advantages of being retired with enough income to eat regularly is that you can live in Washington and move from one bureau to another and never get heartburn. You see, if I were identified with one bureau, I'd have to stay there till I died. It's good to be free and old so that I can go from the Small Business Administration to the Department of Commerce, to the Department of Labor, to the Employment Service. So I have been going around saying that we ought to have a job analysis of the entrepreneur and a battery of aptitude tests. There has never been one in the history of the world.

A few weeks ago, we got one. It's for the service station proprietor. It's pretty elementary and pretty crude; but it is No. 1, and now we have it. When I said this to a group of educators in Kentucky last week, they said, "This is wonderful, Now you have given us a target to shoot at. You have given us a pattern, you have given us a guide, you have given us an outline. Now we can really do something about this proprietor thing." And so, this battery of aptitude tests for proprietor-manager of a service station business will flow through the 50 States and down through the 1,200 Employment Service offices, and you can have one. I hope you take it and begin to look at the students who are with you to see if they can become entrepreneurs. I am sure you can teach them that. Mind you, we've got millions of them now -- self-educated. How many better and more effective ones can we have in your hands? Isn't that a wonderful thing to think about?

I'd like to add one other thought to this. At the moment, we are worried about unemployment. With approximately four million unemployed, we have approximately four million business firms, so somebody got this idea: Why doesn't each firm hire one more employee. Now, the problem of unemployment is solved. It sounds sensible, we thought; why don't they?

Working with the Ford Foundation and the University of Wisconsin, we took one county in Wisconsin with a thousand businessmen in it, and we said, "Are you getting satisfaction out of this business as you had hoped for when you started it?"

"Yeah."

They'd say that anyway. They didn't know but what we were thinking of buying the business and they wouldn't say anything else to a prospect. So we said, "Do you plan to add any more employees?"

Fourteen percent said yes. We had hoped a hundred percent would say yes, you see, but only 14 percent did. Four percent said, "No, we are going to lay one off."

Now, what do you say to a fellow who says, "I don't want any; the less help, the better?" What do you say to him? We've got to say to four million businessmen, "You've got to hire one more." This is when business will measure up to its social responsibilities. Profit is not enough any longer. You've got to do more than make a profit to stay in the society of the future. Business must measure up to its responsibilities, and its No. 1 responsibility is employing people.

We made another study of businesses that grow and those that don't. We paired up, in different towns and lines of businesses, a grower and a non-grower-- 218 of them. We had interviewers study these fellows, and then I followed up and studied 44 carefully.

Let me tell you what makes a businessman grow. Those who like their business most, grow the most. What makes you like a business? Business is a social process. You like dealing with people. You like helping people -- customers, employees, suppliers, competitors, and so on.

Then, the businessmen who grow learn something every day. (They're the fellows you're looking for. If they want to learn, you can help them.) And they share their gains. They'll raise wages, they'll reduce prices, they'll raise dividends to stockholders, they don't try to keep it all.

Ask the student bodies that you address at the next general assembly this question: "How many of you would like to own your own business?" Few hands will go up -- 3 to 5 percent. This may startle you. I have tried it in schools of business administration in more than 60 colleges. Students in schools of business administration don't think about owning their own businesses.

Then move it down one more notch and say, "How many of you are determined to own your own business?" Very few hands will stay up. Afterwards, somebody -- one or two boys -- will follow you into the hall and say, "I'd like to do this, Dr. So-an so, but you can't get the money."

I had this happen to me one time in Brooklyn when we presuaded the Brooklyn automotive high school to put in a course for prospective service station operators. The instructor saw me come in at the back of the room and said, "Here's a fellow from the oil business. Maybe you'd like to ask him a few questions." So I went forward and stood in front of these fellows the Union didn't like. These were smartalecs, you see. They were nonconformists. They were entrepreneurs in the youth stage. One boy said, "What's a third party deal?"

I said that a third party deal comes in when you want a service station and have no money, and a landlord has a station but no operator. A third party steps in and says, "I'll guarantee that he'll pay the rent."

Another boy said, "What do I have to buy when I get the rent guaranteed?"

"You have to buy the gas in the tanks and tires and oil and the inventory."

"How much does that cost?"

"Twenty-five hundred dollars."

He looked at the boy next to him and grinned, and the whole class laughed. This was the most ridiculous thing that had ever been said in the Brooklyn automotive high school.

"What's funny?" I said.

One polite boy who didn't want to see me embarrassed, said, "My father never had $2500. I never knew a man who had $2500. How do you get $2500?"

EDUCATION FOR THE ENTREPRENEUR

While I was getting ready for an answer, the instructor (this was not in the syllabus, but he had read ahead a little) told the boy how to raise $2500. He didn't tell him how to make it over night by counterfeiting. He told him how to raise it legitimately and have the lender on his side, in just two or three minutes. That instructor is now director of vocational-education curriculum design in the city of New York. His extraordinary efforts to go a little beyond the course outlines were recognized.

I hope that nothing I have said will be construed by you as critical, but that you take everything I have said as encouraging and helpful. I know how you feel at times in your day-to-day work. I know that a lot of you wonder whether you are appreciated in your communities and whether you are respected. Let me tell you, you are. Should you go on, should you urge others to go on in this work of education for business? I say, yes. One great educator says this to his graduating students: "If you have within you a hunger for knowing, a discipline for doing, a sense of responsibility, a feeling of respect for all kinds of people, a pulse that beats in tune with these times, a scorn for the groove, and a sense of adventure, this is certainly your calling."

Copy for Mr. L. T. White's Address edited by Robert A. Litsberg, Chief
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COMMITTEE REPORTS

Regarding Discussions on the Question of
What are the Community Junior Colleges' Responsibilities for
Distributive Education for Adults?

1. What policy is recommended for the provisions of adult distributive education classes and services when the County Board of Public Instruction has adopted Plan I, Plan II, Plan III, or Plan IV? Give Examples.

   As a partial answer, the Committee recommended that a study and revision be made of the value of vocational, technical, adult, and junior college units.

2. Under what conditions should the coordinator be assigned dual responsibility for the Mid-Management Cooperative and the Adult Distributive Education program? Suggested load equalization.

   The Committee believes that in the early phases of the program, the coordinator could do both, but as the program expands, the responsibility should be divided. The coordinator of the Mid-Management program in the junior college would be the logical one to organize the Adult Distributive Education program for the entire community, as he would have already made the necessary contacts. Other faculty members, competent to teach marketing subjects, could substitute for him in teaching salesmanship, distribution , etc.. The Committee believes the coordinator should conduct the seminar regardless of what his other responsibilities are for the adult program. The coordinator should be credited with six semester hours for his coordination of on-the-job experience.

3. List sources of adult distributive education teaching outlines, course organization guides, curriculum guides, and equipment. Give examples. What sources of financing are available to procure these items?

   The materials are available from a number of sources. Most notable is the Distributive Education Materials Laboratory at the University of Texas, Austin, Texas. A 185 page Bibliography of these materials may be secured for $2.50. Guides and outlines may be secured from National Trade Associations, such as the American Hotel Association and the National Association of Wholesalers. A number of states, including the Distributive and Business Education section of Florida State Department of Education, have on file numerous course outlines. These may be secured on loan by writing to the State Supervisor. Other curriculum materials may be secured from local business organizations and associations. Purchase may be financed through college funds or application may be made for assistance to the Division of Vocational, Technical, and Adult Education.

4. What kinds of adult distributive education courses, institutes, and seminars should Florida Junior Colleges offer?

   Florida's community junior colleges should offer any course that can render a service (help a business person upgrade himself and/or help as individual prepares to become employed). For a listing of the most frequently offered course titles, refer to pages 19-26 Adult Offerings Minimum Foundation Program Support, Bulletin 70 H-5, State Department of Education.

5. On what basis should specific course titles and course content be determined? Give examples.

On the basis of need and the proven success of course content already in use by other programs.

Advisory committees composed of successful businessmen should be consulted to determine courses that are needed. These committeemen should also be consulted on the course content. For instance, the education committee of the local Board of Realtors might offer very wise counsel on the types of courses needed to upgrade local real estate salesmen and brokers.

6. Should outside agencies, business groups, and trade associations be invited to co-sponsor adult distributive education offerings? Why or why not? If so, list examples of groups that might be possible co-sponsors and the titles of related offerings.

The committee felt that the addition of co-sponsors would be worthwhile. Co-sponsors frequently assist with financing, student recruitment, selections of instructors, provision of materials and laboratory experiences.

The following organizations have co-sponsored adult distributive education classes: Sales and Marketing Executives Clubs, Chambers of Commerce, U.S. Department of Commerce, Advertising Clubs, U. S. Small Business Administration, Hospitality Education Program of Florida State University, Florida Hotel Association, Boards of Realtors.

7. Where and how can competent part-time adult distributive education instructors be found and recruited?

The Committee suggested that we look to the following sources:
1. Staffs of the junior colleges and the county schools
2. Community leaders, businessmen, and advisory committees
3. Retired or former teachers
4. Consultants and department heads of local, state and federal agencies
5. Training departments of established companies

8. What sources of funds are available for the payment of part-time instructors' salaries?

The Committee suggested the following sources:
1. Tuition fees through internal accounts
2. ADA units based upon student contact hours
3. Special grants-in-aid from the Division of Vocational, Technical, and Adult Education, State Department of Education
4. Sponsoring companies and agencies who are willing to underwrite or subsidize the program

9. Who should develop and supervise adult distributive education classes in Community Junior Colleges? What should be his qualifications and salary or position level? What sources of funds are available for the payment of his salary?

9. Cont.

The Committee recommended a dean or director of special studies with specific training in technical, vocational, distributive education, and adult community services with status equal to academic deans. Where the program potential is great, a supervisor of adult distributive education should be employed. In small communities, the coordinator of the Mid-Management program frequently assists the dean with development and supervision of these classes.

The qualifications of the supervisor should include teaching and business experience with a bachelor's degree. A master's degree or higher would be preferable.

Funds may be initially available for payment of his salary from the Division of Vocational, Technical and Adult Education, State Department of Education. The fiscal responsibility, subsequently, should be assumed by the college.

STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL AND ADULT EDUCATION
DISTRIBUTIVE, COOPERATIVE, AND BUSINESS EDUCATION SECTION
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A PROPOSED PROFESSIONAL FRAMEWORK FOR THE INTERPRETING OF THE DISTRIBUTIVE EDUCATION PROGRAM OF MID-MANAGEMENT IN FLORIDA PUBLIC JUNIOR COLLEGES

Recently there has been an increasing interest among junior colleges in the development of cooperative programs in the various business fields; i.e., terminal programs including supervised work experience in real occupational situations as well as regular classroom experiences. These guidelines have been developed to aid in the planning of these programs and to provide a set of qualitative standards for such programs. While the following material is designed specifically for a cooperative program in the distributive field, it is felt that with minor modification application could be made to other business fields.

From an administrative point of view, a frame of reference is necessary to plan, organize, and actuate a program. In an attempt to clarify and communicate a basic structure for the mid-management program, the following is offered.

Definition

MID-MANAGEMENT - An area of vocational study concerned with comprehensive training in the field of distribution. The classroom instruction is supplemented with on-the-job training in an approved distributive occupation. The program is offered on the post-secondary school level and could include several fields of concentration.

Objectives

1. To interpret the basic concepts and functions of distribution.
2. To study the economic problems of modern business.
3. To provide the student with a progressive laboratory experience in cooperation with the employer.
4. To encourage continuous education for all levels of distribution to meet present-day needs.

Characteristics of the Mid-Management Program

The true strength of the program rests on its application of cooperative training for distributive occupations.

The cooperative plan features a practical arrangement by which each student is placed in a real occupational situation and trained in the responsibilities and attitudes required on actual jobs that exist in the field of his career interests. Through carefully planned interrelation of learning experiences in the classroom and on the job, the student's career training proceeds in harmony with prevailing practices in the particular field.

The responsibility is given to the program coordinator to synthesize the course work of the program. The definition and area of responsibilities of the program coordinator will describe the place and expectations of the position.

Definition

PROGRAM COORDINATOR - An individual with a multiple area of responsibilities in developing, maintaining, and advancing a program of distributive education on the post-secondary school level. These responsibilities are over-all in nature, but can be summarized as follows:

Responsibilities to the student:

1. To offer vocational and educational guidance.
2. To interpret the basic concepts and functions of distribution.
3. To develop through the curriculum offerings supervisory and managerial skills in business and human relations.
4. To meet the occupational needs of the students through technical knowledge proficiency and progressive training experience.
5. To meet the leadership needs of the students by encouraging extra-curricular school and club participation.
6. To encourage the concept that education is not terminal in nature, but a continuous process of formal and informal instruction.
7. To aid the students during and after their formal training in the general area of employment.

Responsibilities to the school:

1. To conduct necessary surveys to determine that the curriculum reflects the current community needs.
2. To inform the administration and faculty of current distributive education thought.
3. To aid departmental faculty members by apprising them of the current business climate as an assistance to their curriculum enrichment.
4. To conscientiously comply with all reports and details necessary for smooth program functioning.
5. To inform and work with the guidance department on mutual problems of vocational education.

Responsibilities to the advisory committee:

1. To consider their counsel in the establishment of community objectives for training.
2. To seek their guidance periodically in an evaluation of the total program's progress.
3. To report to them the progress of current programs.

Responsibilities to the business community:

1. To fully acquaint student sponsors with their obligation for progressive training experience.

2. To suggest to the businessmen the best candidates possible to meet their business needs.
3. To keep the businessmen fully informed of latest business research and school offerings that will be of benefit to them.
4. To facilitate all student evaluations.
5. To encourage programs of further training to those presently employed.

Responsibilities to himself:

1. To keep abreast of the changing concepts and functions of distribution and education.
2. To contribute effort and time toward the professional organizations of education and business.

Types of Programs

Schools should conform to one of the following plans:

Plan A - Two-year special degree program with students remaining in school and performing job training on a part-time basis.

Plan B - A two-year special degree program with students alternating semesters in school with semesters of full-time employment.

Suggested Minimum Standards

(Following statements apply only to Plan A; Plan B yet to be detailed)

1. The program should have the endorsement of a representative advisory committee.

2. Coordinators and teachers should be properly qualified. Proper qualification would include a master's degree, work experience in the field of distribution, and some type of formal experience in the coordination of such a program.

3. The cooperative method would be initiated at the end of the first semester's work upon recommendation of coordinator.

4. Exception to the above may be made in case of students who have satisfactorily completed DE programs in high school. These students might continue their training without interruption.

5. Students should work a maximum average of 15 hours per week at a training agency approved by the school.

6. Curriculum should include a minimum of one course per semester taught by the coordinator in areas of marketing, merchandising, retailing, sales promotion, or advertising, as a requirement for each student.

7. Curriculum should also include one required course each semester in related areas (e.g., Introduction to Business, Business Mathematics, Economics, Human Relations, etc.) for each student, taught by other staff members.

8. Each student would be enrolled in a work experience laboratory or seminar conducted by the coordinator, which would meet an average of one hour per week as scheduled by coordinator.

9. Credit would be granted by the junior college based on a 3 to 1 ratio of work experience laboratory time for attendance credit, the total not to exceed six hours for the combined seminar and work experience per semester.

10. The instructor would carry a maximum classroom teaching load of nine hours (minimum of six hours in distribution) plus the seminar and coordinating activities for the program.

11. Suggested minimum enrollment: 20-25 students.

STATE DEPARTMENT OF EDUCATION

Tallahassee, Florida

ALTERNATIVE PLANS OF ORGANIZATION AND OPERATION OF GENERAL ADULT AND VOCATIONAL EDUCATIONAL SERVICES IN AREAS SERVED BY COMMUNITY JUNIOR COLLEGES

A statement for the guidance of local boards of public instruction prepared jointly by the Division of Vocational and Adult Education and the Division of Community Junior Colleges.

A junior college is defined (Section 228.14, Florida Statutes) as an institution which offers general education, terminal courses of a vocational and technical nature and courses for adults.

Since most counties offer at least some adult and vocational education as a part of their regular school programs, the addition of a junior college which is also concerned with these services makes it necessary that the county board adopt policies assigning specific responsibilities for these services to the various components of the public school systems under its jurisdiction.

As an aid to county boards and superintendents in developing such policies, the Division of Vocational and Adult Education and the Division of Community Junior Colleges have identified four general plans for the organization and operation of vocational and adult education in counties having junior colleges.

The initiation of any plan of operation will require the following:

A. The board and superintendents of cooperating counties must establish a policy of educational services for which the public school system including grades 1-12 and the community junior college is to be responsible.

B. The community junior college administration, faculty, and advisory committee must accept and support the role and responsibilities of the community junior college as envisaged in the plan of operation adopted.

C. When the community junior college assumes responsibility for programs of general adult and/or vocational education, the personnel who are assigned administrative or supervisory responsibilities for

these services must become familiar with the principles and procedures involved in the initiation and operation of such programs. Such individuals should establish working relationships and liaison procedures with appropriate divisions and sections of the State Department of Education, and avail themselves of opportunities made available for in-service orientation and education.

Following are listed the four organizational patterns, the pre-existent conditions at the county level which would make it feasible to adopt a particular pattern, and the conditions which will need to be met if the pattern is to operate efficiently. The most efficient implementation of any of these patterns is dependent upon appropriate policy decisions at the local and/or state levels.

PLAN I

If (A) there is real evidence of a philosophical commitment to the value and purposes of general adult and vocational-technical programs existing within the college administration and faculty, and

(B) there are educational needs not being met because of limited existing programs of general adult and/or vocational education; and/or there is good evidence to indicate that by administering these existing programs through the community junior college they will be expanded and improved to meet more adequately the needs of the community,

then it is recommended that the community junior colleges have primary responsibility for education of persons beyond the high school age.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) A competent person qualified under existing regulations to head each of these programs, i.e., the general adult education (community services) program and the vocational-technical program, is placed on the staff of the college at a level comparable to that occupied by other major program heads, thus affording comparable opportunities and encouragement for the development of these programs within the college framework, and

(B) funds accruing to the county board of public instruction for the support of general adult and vocational-technical programs assigned to the community junior college are transferred to the budget of the college.

PLAN II

If (A) programs of general and/or vocational education as an existing

part of the county school system are serving the basic needs in these areas, and

(B) there exist unmet needs for certain types of offerings which it may be desirable to provide, and

(C) there is evidence of a genuine desire on the part of the college to serve the general adult and vocational needs not otherwise being met in the county, and

(D) the college has certain resources (physical plant, staff, organization, etc.) which may be used in serving general adult and vocational-technical needs, and there is reason to believe that such needs can better be met by the community junior college than by other agencies of the school system,

then it is recommended that the community junior colleges have responsibility for associate degree and certificate programs plus certain other offerings for adults not provided in the general adult or vocational-education program in the county school system.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) A coordinating committee is appointed to identify areas of responsibility of the community junior college and of other agencies for general adult and vocational education so that unwarranted duplication may be avoided. This committee should include representatives of the general adult education program, the vocational education program, the community junior college administration, and the county superintendent or a member of his staff, and

(B) A competent person qualified under existing regulations is appointed on the community junior college staff with responsibility for development and operation of such adult and/or vocational programs as may be the responsibility of the college; provided that, the certificate regulation may be waived upon recommendation of the coordinating committee when the responsibility assigned to the college in these areas is of such limited nature as to require only a minor part of the time of the administrator assigned to direct these programs, and

(C) funds accruing to the county board of public instruction for the support of general adult and vocational technical education programs assigned to the community junior college are transferred to the budget of the college.

PLAN III

If (A) excellent programs of general adult and/or vocational education are existing and serving basic needs in these areas, and

(B) there is widespread feeling in the community and among the college faculty that the college should offer only college level work or work leading to an associate degree, and

(C) there exist unmet needs for certain types of short courses, institutes, etc. similar to college credit courses which the community junior college by virtue of its physical and faculty resources is uniquely able to fill,

then it is recommended that the community junior colleges have responsibility only for associate degree and certificate programs plus certain short courses, institutes, etc. related to existing programs of the college and similar to college credit courses.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) a coordinating committee similar to that described in PLAN II above is appointed to make such decisions regarding program responsibility as are necessary to avoid unwarranted duplication of effort, to carry on a continuing review and study of the educational needs of adults in the area, to examine periodically the offerings of the various institutions and agencies, to encourage these institutions to meet the educational needs for which they are primarily responsible, and, when necessary to recommend changes in the assigned program responsibilities among the institutions and programs.

PLAN IV

If (A) there exist strong general adult and vocational education programs, and the school administration and community are satisfied with these existing programs, and

(B) the prevailing philosophy and the expectation of the community is that the community junior college should offer only college credit programs,

then it is recommended that the community junior college have responsibility only for programs for which college credit is awarded.

DISTRIBUTIVE EDUCATION'S DUAL ROLE IN FLORIDA'S JOMMUNITY JUNIOR COLLEGES

Program
Wednesday, April 15, 1964

10:00 a.m. Presiding: Rex C. Toothman, State Supervisor, Distributive, Cooperative, and Business Education, State Department of Education, Tallahassee
Invocation: Edwin L. Kurth, Associate Director oor Program Planning and Coordination, Division of Vocational, Technical, and Adult Education, State Department of Education, Tallahassee

10:15 a.m. Topic: Florida's Future Occupational Needs
Speaker: Walter R. Williams, Jr., Director, Vocational, Technical, and Adult Education, State Department of Education, Tallahassee

10:30 a.m. Topic: The Community Junior College's Responsibility for Occupational Programs
Speaker: Thomas M. Baker, Specialist, Division of Community Junior Colleges, State Department of Education, Tallahassee

10:45 a.m. Topic: The Community Junior College and Mid-Management Cooperative Programs
Panelists:
Maurice Buckner, Brevard Junior College, Cocoa
Marion West, Junior College of Broward County, Fort Lauderdale
Paul W. Graham, Palm Beach Junior College, Lake Worth

Discussion

2:00 p.m. Discussion Groups
Topic: What Are Desirable Standards for Mid-Management Cooperative Programs?

Group I
Chairman: Fred Lenfestey, President, Polk Junior College
Consultant: Donald P. Jaeschke, University of South Florida, Tampa
Recorder: Wilford Beumel, Manatee Junior College, Bradenton

Group II
Chairman: Paul W. Graham, Dean of Special Studies, Palm Beach Junior College, Lake Worth
Consultant: Rex C. Toothman
Recorder: Harold V. Hoff, St. Petersburg Junior College

Group III
Chairman: R. W. Whetstone, Dean of College Division, Daytona Beach Junior College
Consultant: William P. Danenburg, Area II Supervisor, Distributive and Cooperative Education, State Department of Education, Winter Park
Recorder: Joseph Rhile, Lake-Sumter Junior College

3:30 p.m. Report of Discussion Groups by Recorders

4:00 p.m. Adjourn

Thursday, April 16, 1964

9:00 a.m. Presiding: William P. Danenburg
Topic: The Community Junior College Upgrades Employed Adults Through Distributive Education

9:05 a.m. Introduction of Speaker: Walter R. Williams, Jr.
Topic: Education for the Entrepreneur
Speaker: L. T. White, Management Consultant, Washington, D. C.

9:45 a.m. Topic: Consultative Assistance Available in Florida
Speakers:
R. Harold Milby, Chief, Management Assistance Division, Small Business Administration, Atlanta, Georgia
Richard Almarode, Coordinator, Hospitality Education Program, Florida State University, Tallahassee

10:15 a.m. Break

10:30 a.m. Discussion Groups
Topic: What are the Community Junior Colleges' Responsibilities for Distributive Education for Adults?

Group I
Chairman: Harry N. Murphy, Dean, Gulf Coast Junior College
Recorder: James Harris, Polk Junior College

Group II
Chairman: John Sands, Dean of Instruction, North Florida Junior College
Recorder: Jack P. McClellan, Area I Supervisor, Distributive and Cooperative Education, State Department of Education, Tallahassee

Group III
Chairman: L. W. Henderson, Dean, Special Degree Studies and Adult Education, Miami-Dade Junior College, Miami
Recorder: Herb Goode, Gulf Coast Junior College, Panama City

11:30 a.m. Break

11:45 a.m. Report of Discussion Groups by Recorders

12:15 p.m. Adjourn

PERSONS ATTENDING JUNIOR COLLEGE DISTRIBUTIVE
EDUCATION CONFERENCE
April 15-16, 1964

A. L. Adams
12 Bainard Ct.
Maitland, Florida

Richard L. Almarode
Florida State University
Tallahassee, Florida

Clyde David Ashworth
St. Johns River Jr. College
Palatka, Florida

Tom Baker
State Department of Education
Tallahassee, Florida

Charles M. Behrman
North Florida Junior College
Madison, Florida

Wilford Beumel
Manatee Junior College
Bradenton, Florida

Maurice F. Buckner
Brevard Junior College
Cocoa, Florida

Mrs. Sally Comer
Lively Technical School
Tallahassee, Florida

Charles Corwin
HEP
Florida State University
Tallahassee, Florida

W. P. Danenburg
State Department of Education
Winter Park, Florida

L. N. Donnell
Brevard Junior College
Cocoa, Florida

W. Herb Goode
Gulf Coast Jr. College
Panama City, Florida

Paul W. Graham
Palm Beach Junior College
Lake Worth, Florida

J. E. Harris
Polk Junior College
Lakeland, Florida

Ned L. Haven
Chipola Junior College
Marianna, Florida

Louis W. Henderson
Miami-Dade Junior College
Miami, Florida

Harold V. Hoff
St. Petersburg Jr. College
St. Petersburg, Florida

Donald P. Jaeschke
University of South Florida
Tampa, Florida

Charles M. Key
Pensacola Junior College
Pensacola, Florida

Dolly H. Kistler
Daytona Beach Jr. College
Daytona Beach, Florida

E. L. Kurth
State Department of Education
Tallahassee, Florida

Donald P. LaRowe
Junior College of Broward County
Ft. Lauderdale, Florida

Fred Lenfestey
Polk Junior College
Bartow, Florida

James A. Lewis
Chipola Junior College
Marianna, Florida

Broward Lovell
Central Florida Junior College
Ocala, Florida

J. P. McClellan
State Department of Education
Tallahassee, Florida

Joe L. Mobley
Central Florida Junior College
Ocala, Florida

Harry N. Murphy
Gulf Coast Jr. College
Panama City, Florida

William H. Nixon
Daytona Beach Jr. College
Daytona Beach, Florida

G. C. Norman
State Department of Education
Tallahassee, Florida

Joseph E. Rhile
Lake-Sumter Junior College
Leesburg, Florida

John E. Sands
North Florida Junior College
Madison, Florida

W. A. Stallard
Manatee Junior College
Bradenton, Florida

G. Winston Summerhill
Pensacola Jr. College
Pensacola, Florida

Rex C. Toothman
State Department of Education
Tallahassee, Florida

James L. Wattenbarger
State Department of Education
Tallahassee, Florida

Marion N. West
Junior College of Broward County
Ft. Lauderdale, Florida

R. W. Whetstone
Daytona Beach Jr. College
Daytona Beach, Florida

Walter R. Williams, Jr.
State Department of Education
Tallahassee, Florida

VT 001 421

Vocational Education Needs of the People of Colorado. A Preliminary Report of the Findings and Recommendations of the Advisory Council to The State Board for Vocational Education.

Colorado State Board for Vocational Education, Denver
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug66 31p.

*VOCATIONAL EDUCATION; *EDUCATIONAL NEEDS; *EDUCATIONAL PLANNING; PROGRAM PLANNING; STATUS; CURRICULUM PLANNING; FINANCIAL SUPPORT; ADMINISTRATIVE ORGANIZATION; AREA VOCATIONAL SCHOOLS; GUIDANCE PROGRAMS; *EDUCATIONAL SUPPLY; EDUCATIONAL PROBLEMS; *SCHOOL RESPONSIBILITY
COLORADO

The content of this report focuses on the broad functions stipulated for the State Advisory Council for Vocational Education, which was created by the Colorado General Assembly. Those functions are to act in a general advisory capacity to the State Board for Vocational Education, to review and report findings with respect to the needs of vocational education within public and private institutions, and to report recommended framework for state and community action aimed toward job potential and vocational training. The information presented in this report was gathered through consultation with state and regional agencies concerned with employment and/or training. The seven major areas covered by this report are (1) Improving the Image of Vocational Education, (2) Guidance and Counseling, (3) Labor Market and Occupational Information, (4) Curriculum, (5) Area Schools, (6) Financial Support of Vocational Education, and (7) Framework and Administrative Structure. Among the recommendations is that every student in Colorado should have the opportunity to enroll in vocational courses in high school and on the post-high school level. (CH)

VT 001 421

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VOCATIONAL

VOCATIONAL EDUCATION NEEDS OF THE PEOPLE OF COLORADO

STATE BOARD FOR VOCATIONAL EDUCATION

EDUCATION FOR—

- VOCATIONAL AGRICULTURE
- DISTRIBUTIVE EDUCATION
- HEALTH OCCUPATIONS
- HOME ECONOMICS
- TECHNOLOGY
- TRADE AND INDUSTRY
- OFFICE OCCUPATIONS

VT001421

VOCATIONAL EDUCATION NEEDS

OF THE PEOPLE OF COLORADO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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- A preliminary report of the findings and recommendations of the Advisory Council to The State Board for Vocational Education.

AUGUST - 1966

"What is done in our classrooms today will reflect in the successes or failures of civilization tomorrow."

Lindsey C. Baxter

"No healthy civilization can ever be reared on a foundation of devitalized work."

William Ralph Inge

"The trouble about learning through the school of experience is that when you graduate you are too old to work."

Henry Ford

"Never fear the want of business. A man who qualifies himself for his calling, never fails at employment."

Thomas Jefferson

"By the work one knows the Workman."

Jean De La Fontaine

VOCATIONAL EDUCATION DOES NOT COST -

I T P A Y S

ADVISORY COUNCIL TO THE COLORADO STATE

BOARD FOR VOCATIONAL EDUCATION

Mr. R. C. Anderson,
Executive Vice President
Colorado Labor Council AFL-CIO

Mr. A. W. Bevan, State Director
Employment Service
State Department of Employment

Mrs. Richard Boyle
League of Women Voters

Dr. E. G. Burnkrant, Superintendent
Boulder Valley School District Re-2

Dr. A. R. Chamberlain
Vice President for Administration
Colorado State University

Mrs. LeRoy Colvin, President
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Mr. John E. Lewis, Director
State Apprenticeship Council

Mr. Irwin A. MacKay
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B. K. Sweeney Company

Dr. William A. Medesy
President, Mesa College

Mr. W. W. Mercer
Denver Group Manager
Sears-Roebuck and Company

Mr. Dwight E. Neill, Director
Division of Commerce and
Development

Mr. David G. Rice
Executive Vice President
Colorado Cattlemen's Association

Dr. M. G. Linson, Executive Director
State Board for Vocational Education

Dr. Harold Anderson, Consultant

Dr. Robert Cochrane, Consultant

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INTRODUCTION

In light of the rapidly changing needs of the economy and social order in Colorado, there is growing concern as to the adequacy of the vocational-technical education now being provided by the State. An indication of this concern was the provision in Senate Bill 241, enacted into law in 1965 by the Colorado General Assembly, which created a State Advisory Council for Vocational Education. The following broad functions of this Council as stipulated in the Bill are:

1. To act in a general advisory capacity to The State Board for Vocational Education in all matters.

2. To review and report to the Board its findings with respect to the needs of vocational education in the State of Colorado within all kinds of public and non-public institutions and agencies.

3. To report to the Board a recommended framework for state and community action aimed at matching job potential and vocational training. Such a report shall be made after thorough consultation and review with all state and regional agencies concerned with employment and/or training.

The Bill further stipulates that the Council shall report their findings to the Board, who in turn shall report to the Governor and the General Assembly on an annual basis.

After considering the stipulations outlined in the Bill and the magnitude of the task involved, The State Board for Vocational Education asked twelve persons to serve on the Advisory Council. It was the intent of the Board to select persons who were in a position to be familiar with the needs of, and be able to speak for, the various segments they represented. Each of the original choices of the Board accepted the responsibility and has had a part in formulating this report. The list of the members of the Council is found on the preceding page.

The initial meeting of the Council was held in the Spring of 1966. At this time, two staff members from The State Board for Vocational Education were assigned to serve as consultants to the Council. These members were to gather and collect the data that was requested by the Council.

The initial meetings of the Council were devoted to a general determination of the need for vocational education in Colorado. A plan of action outlining the committee's primary areas of study was also formulated at this time. It was the intent of the Council to complete their initial report before the next General Assembly convened.

Upon receipt of a request for a report by August 1 from the Chairman of the Legislative Committee studying vocational education, the Council agreed to make a preliminary report.

The following report is submitted in response to this request and is not as detailed as would be possible if time for further study were available.

Colorado's Responsibility for Providing Vocational Education

In the progress of the human race, the vocational education of man has been a consistent and identifiable element. Vocational education has been the foundation of man's creative and progressive development. Society developed the need for vocational education, and its modern concepts have grown out of these needs that were recognized many years ago. For example, during the Golden Age of Pericles, Athenian financial resources produced not only a marvelous public works program, but also a significant economic advancement due in part to the fact that craftsmen were paid for their services. Early Jewish law made the father responsible for providing trade instruction to his son. Throughout the Middle Ages, skills of craftsmanship continued to be passed from father to son with little collective effort to provide instruction in them. However, it wasn't until such persons as Rousseau, Pestalozzi, and Fellenberg began advocating educational reform by including vocational instruction as a part of the formal education of a person, did the true place of vocational education in the educational system become known.

As our country has grown, the need for vocational education has paralleled its economic growth. The absorbtion of vocational education into the public education curriculum was a natural product of the American goal of education for all the children of all the people.

In 1914 the Commission on National Aid to Vocational Education reported:

> Equality of opportunity in our present system of education is not afforded to the mass of our children. While our schools are opened freely to every child, their aims and purposes are such that a majority of the children are unable to take advantage of them beyond a certain grade, and hence do not secure at public expense a preparation for their work in life. Although here and there we see beginnings of change, it is still true that the schools are largely planning for the few who prepare for college rather than for the large number who go into industry.(1)

Out of this Commission's study and recommendations, the Smith-Hughes Act was formulated and passed. As the need for further incentive for the public schools to provide this type of education became apparent, subsequent federal laws were passed. The most recent act was the Vocational Education Act of 1963, which enabled many of the recommendations of a panel of consultants appointed by the late President Kennedy to study vocational education, to become a reality. One only needs to look at the recent extraordinary advancements in agriculture, business, industry and technology, which attest to the value of vocational education and justification for including it as a significant portion of the school curriculum.

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(1) Report of The Commission on National Aid to Vocational Education, Part I, Washington: Government Printing Office, 1914, p.p. 23-24

Freedom of occupational choice is an American Ideal, and consequently, the concern of each state in our nation. The federal government has recognized the need for occupational education and has passed specific laws -- beginning back in 1917 with the passage of the Smith-Hughes Act -- aimed at promoting this area of education. It is within the "general welfare" of the nation that states are urged to provide occupational instruction for youth in school and for out-of-school youth and adults. The commonly accepted justifications for providing adequate vocational education are based on: (1) The right of each individual to a total education; (2) The responsibility of society (through the public education system) to provide such instruction; and (3) The effect of vocational education on the economic strength of the state and nation.

Although there has been general agreement in theory about the emphasis that vocational education should receive, the actual practice has been slow to emerge. The place of vocational education in the public school program has been accepted in principle, but the availability of vocational offerings to all the people of Colorado shows that this principle is far from being implemented.

The Constitution placed the responsibility for education with the state. If the State of Colorado accepts this responsibility, it must take a critical look at how it is meeting the <u>total</u> educational needs of its people.

What Is Vocational Education?

Before surveying the vocational needs of Colorado, a definition of vocational education as referred to in this report, must be made. A simple definition -- education for the working world -- does not convey the many contributions that vocational and technical training make and will continue to make in the future.

Defining vocational education presents some problems to the layman. Many courses considered vocational in nature by some persons are more prevocational, or guidance oriented, rather than fulfilling the purpose of preparing for gainful employment. Vocational education, as referred to in this report, includes those courses that provide for gainful employment, either initial employment or upgrading of those presently employed, for all occupations requiring less than a baccalaureate degree. The total program provides for in-school youth, largely on the high school level, and for out-of-school youth and adults. As can be seen, vocational education covers a broad spectrum, but for a course to be truly vocational in nature, it must provide training and develop skills toward a specific occupational goal. This includes training for occupations on the semi-skilled, skilled, and technician level.

Conant's pronouncement about the place of vocational education in the high school indicates the generally accepted role of vocational education at this level. He states:

"The controlling purpose of vocational education programs at the high school level is to develop skills for useful employment. These programs relate schoolwork to a specific occupational goal, but involve more than training for specific job skills." (2)

Vocational Needs of The People of Colorado

Colorado is a sovereign political entity whose continued prosperity and perpetuity depend in large part upon the efficiency of its people as producers and consumers of economic goods and services. Consumer demands create the markets for goods and services, and no one, not even in this day, can persist in consuming more goods and services than he can purchase out of the productivity of his own earnings.

It is apparent that the economic and social well-being of the state, of the nation, and of each individual depends upon an increasing national product. In our technological society, each individual's contribution to the overall economic condition of the country could very well be determined by the characteristics of his preparatin for wage-earning in his occupational specialty. In this sense, the vocational needs of the State of Colorado are the needs of each of the people for vocational training.

Preparation in an occupational specialty involves more than the development of marketable skills. Vocational education must assist every wage-earner and potential wage-earner to develop the knowledge, understandings, attitudes, skills and habits of life necessary to sustain him and his dependents in a manner of living that is personally rewarding and socially beneficial.

Accepting the thesis that the vocational needs of the state are the needs of its people for vocational training, it is reasonable to anticipate that the needs will be oriented toward the distribution of the labor force among the several occupational areas. Table I gives an indication of the growth in Colorado's labor force. It will be noted that growth is occurring in most areas, and it is safe to assume that this growth will continue in the future. As this growth continues, the need for vocational education to help develop the needed knowledges and skills will greatly increase.

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(2) James B. Conant, The American High School Today, New York: McGraw-Hill Book Co., 1959, P. 123.

TABLE I

COLORADO EMPLOYMENT BY OCCUPATIONAL AREAS

Occupational Area	No. Persons Employed May, 1965	May, 1966
Agriculture	43,000	47,300
Mining	11,900	12,700
Construction	36,500	36,200
Manufacturing	85,500	93,400
Transportation, Utilities, and Communications	44,100	45,300
Wholesale and Retail Trade	137,800	141,200
Finance, Insurance, and Real Estate	31,100	31,400
Services and Others	198,200	197,100
Government	136,700	148,400
Unemployed	24,700	24,700
TOTAL	749,500	778,800

(Source: Colorado Labor Area Highlights, Vol. III, No. 5, May, 1966, p. 3)

What Vocational Education Is Now Being Provided?

Programs of vocational education should be designed for individuals in groups whose needs are similar, for example:

1. Youth who will complete high school and not enter higher education, together with those who enter higher education but drop out prior to completing their terminal programs.

2. Employed persons whose job security and advancement require added training.

3. Unemployed youth and adults who need to be more attractive to employers.

Each year approximately 30,000 young people are graduated from high school in Colorado. However, it must also be realized that approximately 10,000 students annually reach high school graduation age but do not graduate. The size of past and projected graduation classes is indicated in Table II.

TABLE II

NUMBER OF COLORADO STUDENTS GRADUATING ANNUALLY

Year	Total	Public HS	Parochial HS
1963	19,297	17,895	1,402
1964	23,576	21,914	1,662
1965	28,596	26,749	1,847
1966	29,079	27,177	1,902
1967	30,133	28,162	1,971
1968	30,600	28,598	2,002
1969	32,529	30,401	2,128
1970	33,918	31,699	2,219

(Source: Pupil Attendance, Colorado Public Schools, 1964-65 and 1965-66 prepared by Colorado State Department of Education, January, 1966, p. 32.)

Upon graduation, the class divides itself into the group whose members will continue into higher education and the group whose members will enter wage-earning employment. Those entering higher education are distributed as indicated in Table III.

TABLE III

NUMBER OF COLORADO STUDENTS ENTERING HIGHER EDUCATION

Year	Total	Public 4 Yr.	JC	Private 4 Yr.
1963	8,199	5,946	1,656	597
1964	10,362	7,561	2,044	757
1965	12,276	8,996	2,427	853
1966	12,762	9,361	2,524	877
1967	13,329	9,787	2,637	905
1968	13,771	10,119	2,725	927
1969	14,873	10,946	2,945	982
1970	15,869	11,693	3,144	1,032

(Source: Enrollment Projection Manual (Revised), Committee on Education Beyond The High School, December, 1964, p. 6.)

The youth leaving college prior to graduation represent an addition to the annual crop of high school graduates proposing to enter wage-earning employment. Experience indicates that a predictable portion of the entering Freshman class will fail to complete a degree program. For the eight state institutions for which data were reported, this attrition is approximately 40% --

Freshman to Sophomore	30%
Sophomore to Junior	6%
Junior to Senior	4%
Total	40%

Based upon the preceding discussion, we can say that for persons in the 17-21 age bracket, there is a tremendous need for vocational training for youth in Colorado. This becomes apparent in the following summarization:

1. Approximately 40,000 youth attain age for high school graduation annually.

2. Approximately 30,000 of these youth will graduate from high school annually and 10,000 will not attain a high school diploma.

3. Approximately 12,500 youth graduating from Colorado high schools will enter junior college or public and private four-year colleges.

4. Approximately 17,500 high school graduates will not enter higher education.

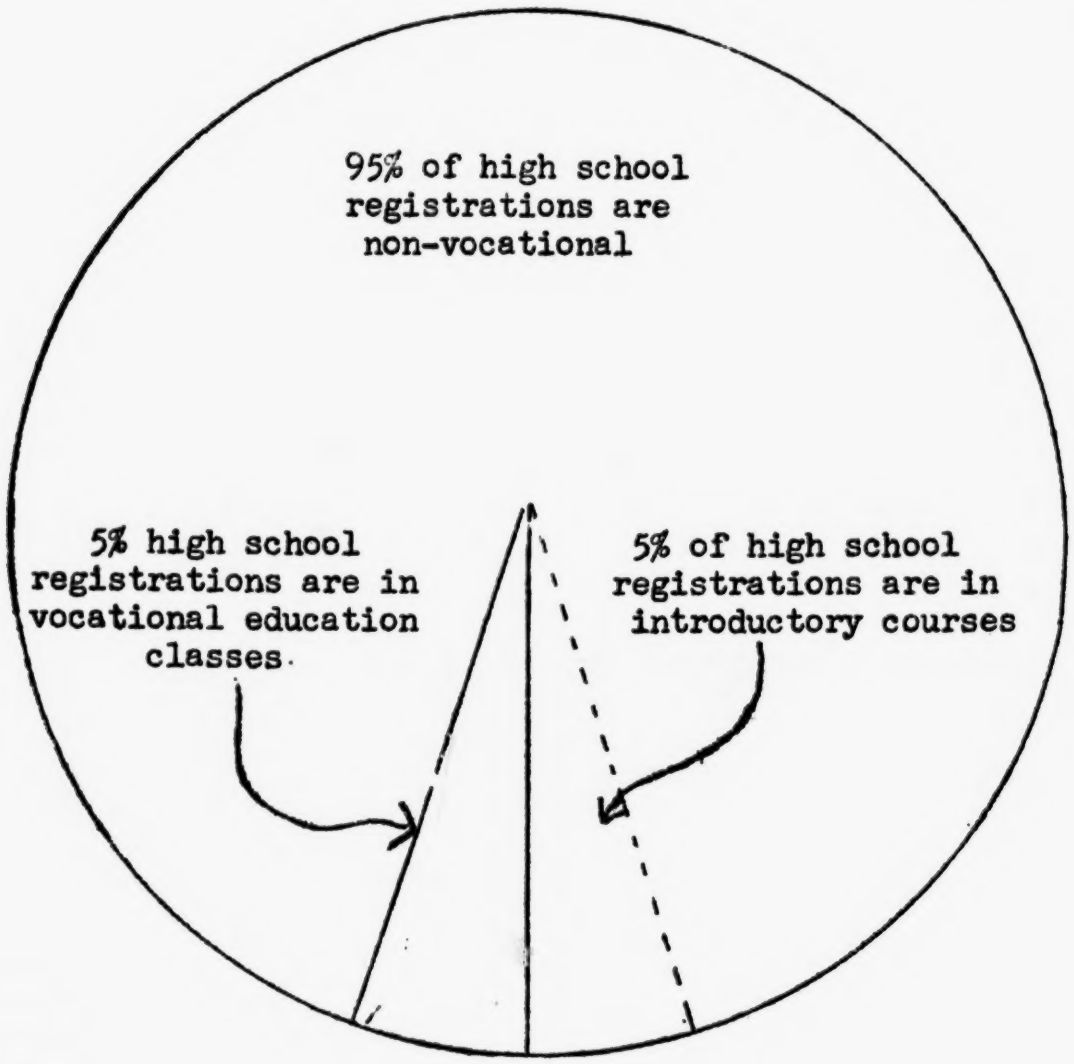
5. Of the 10,000 entering higher education at 4-year institutions, approximately 30%, or 3,000, will drop out by the end of the first year; an additional 6%, or 600, will drop out by the end of the second year; and 4%, or 400, will drop out by the end of their third year.

6. Each year, then, it is expected that there will be the following group of youth 17-21 entering the labor market in need of vocational counseling and training:

10,000	who do not graduate from high school
17,500	who do not go to college
3,000	who complete only one year or less of college
600	who complete two years or less of college
400	who complete three years or less of college
31,500	who need vocational education

Although one cannot expect all of the 31,000 youth who could profit from vocational training to enroll in these courses, efforts should be made to provide vocational training for the majority of these people.

The need for expansion of vocational offerings at this level becomes quite apparent when one looks at the extent vocational training is now being provided. Data prepared by the Colorado State Department of Education for 1965-1966 shows that of the 1,307,839 class/subject registrations in Colorado high schools, 131,907, or roughly 10%, were in subjects having some relevancy to employment in a wage-earning occupation. The greatest portion of these vocationally oriented registrations were, however, at the introductory level. The following chart illustrates this:



It must be assumed that youth preparing to enter employment will require vocational training. A labor official has stated that it is much easier to teach the qualifications for vocational skills in school under the guidance of qualified teachers than it is after the individual is out of school.

Projections prepared by The State Board for Vocational Education indicate that approximately 9% of the Colorado high school students enroll in federally reimbursed programs of vocational education.

It is apparent that the 9% of high school youth enrolled in vocational education is only a small proportion of the total group that will require vocational capabilities soon after graduating from high school, and it must be remembered that this group recurs annually. Based upon the facts of the post high school experiences of graduates, it is reasonable to believe that our public interests and the individual needs of youth will be better served if at least 75% of youth in high school were enrolled in vocational curricula.

Whether we like it or not, wage-earning employment at less than the professional level will be the way of life for approximately 75% of our people, either directly as wage-earners or indirectly as dependents of

wage-earners. If the State of Colorado is going to assume its responsibility to provide adequate education for its people, steps must be taken to adjust the type of education now being offered so that the needs of the people and the insured development of the State can be met.

In addition to providing vocational instruction for full time students, there is a great need for increasing vocational training for unemployed and employed youth and adults. Many of the businesses and industries in Colorado have to provide all the initial training and retraining required for advancement of their employees due to the lack of availability of this service in the public educational institutions. Many of the persons with limited skills could find employment if facilities were available to provide upgrading training for those now employed on this level. By providing training for those employed at the lower levels, these people could advance to a higher skilled, more productive job and the present unemployed person could be employed on the vacated job.

Much could be said about the value of vocational education in reducing the unemployment rate. It has been said that there are more jobs that can not be filled because of a lack of persons with the necessary skills and training than there are unemployed persons. Vocational education cannot directly create job opportunities. However, it can provide the appropriate training for jobs that do exist. There are numerous indications in Colorado that many persons could find employment if they only had the necessary training and skills required of the job.

Purpose of Initial Report

In view of the previous discussion, it becomes apparent that the State of Colorado is not meeting the needs of its populace in terms of providing vocational technical education. It is realized that the expansion of vocational and technical education will not take place over night. Only when the people are fully aware of the need and the necessary resources are available, can the problem be solved. However, immediate steps need to be taken to formulate a systematic plan of action aimed at solving the problem.

The primary task of this council in submitting this report, therefore, becomes the formulation of recommendations upon which a plan of action, including both long range and short range goals, can evolve.

This report is confined to seven main areas of concern. Although there are other areas that deserve attention, due to the lack of time for thorough study and the apparent urgency for action in these areas, this initial report is confined to these areas.

IMPROVING THE IMAGE OF VOCATIONAL EDUCATION

It appears that before any great expansion in the vocational education field can occur, the present image, or status, of vocational education must be changed. A concerted effort must be initiated to disprove the many myths concerning vocational education which are present today, and inform the public of the need and value for increased vocational education.

Perhaps one of the greatest hindrances to the expansion of vocational education is the obsession of the American public with the college degree as a status symbol. Every effort must be expended to minimize and eventually to eliminate the current belief among many people that to be enrolled in a vocational education curriculum brands one as a second class citizen. This is not to say that anyone should be denied access to a college degree or a college education. However, we can no longer condone or support a system of education which places prime emphasis upon preparing students for college and fails to recognize, and many times completely ignores, the importance that the great majority of our population who do not have a college degree, have to the economic development of our nation. In many cases professional and skilled workers require equal intelligence. The public must be informed that it is not the intelligence of a person, but his own personal aspiration and motivation that should determine his occupation.

Recent studies have shown that to be enrolled in a vocational curriculum does not greatly reduce a student's wage earning potential, his general education attributes, or his opportunity for further education upon completion of the training program.

A survey of businesses and industries in Colorado revealed that many persons who needed vocational education for employment are earning in excess of $12,000 per year. A survey of the graduates of a technician level program in one of the Colorado junior colleges showed that most of these graduates received a beginning wage far above that received by many beginning professional workers who needed at least a baccalaureate degree to obtain initial employment.

Those who profess the philosophy that vocational education robs the student of general education attributes fail to realize that this is not an either-or situation. Just because a student enrolls in a vocational course does not mean he will sacrifice all his opportunity to gain general education. In many cases, it enhances and contributes to general education learning, since the student has an opportunity to experience and put into practice many of the principles of general education through supervised work experience and related classroom instruction. The value of vocational education in contributing to general education was proven in a recent nationwide study conducted by the American Institute for Research, which found that there was no significant difference between academic oriented students and vocational students in selected general education attributes.

Although the primary aim of vocational courses is to enable the student to obtain gainful employment upon completion of the program, it does not prevent them from pursuing further education. In numerous cases vocational education courses have prevented students from dropping out of school, and many times provided the incentive to continue into further

education upon graduation from high school. Secondary students who enroll in the vocational curriculum can and frequently do go on to college without serious handicaps. Numerous studies have shown that students enrolled in vocational education in high school achieved just as well in college as those students who enrolled in the college preparatory curriculum while in high school.

To overcome the many myths concerning vocational education, to help restore the dignity of work, and overcome the belief that the only work worthy of human endeavor is that which requires a college degree, will require a concerted effort on the part of many people. Particular attention must be focused on those groups of people who will have the most influence upon raising vocational education to the place it rightly deserves in the total field of education. This would include prospective students, parents, teachers, guidance counselors, school administrators, and labor and management personnel in business and industry. It is recognized that within this group parents exert the most influence as to whether students enroll in vocational courses. A recent article pointed out that many parents consider a student enrolled in a vocational curriculum to be of the same classification as a demented relative.

In order to inform the general public, with particular attention focused on the above-mentioned groups, of the advantages and values of vocational education, it is therefore recommended that:

> The State Legislature make the necessary appropriation to the State Board for Vocational Education to develop and disseminate information concerning the need and value of vocational education, and that such information also enable the public to know what vocational education is and how true vocational education differs from courses now classified as being within this category.

School administrators, through their direct involvement in curriculum planning and determination of a school's policy and philosophy, have a great effect on the extent to which vocational education is stressed on the local level. A survey of those schools in Colorado which have done the most to provide vocational offerings for their students shows that in most cases the administrator of the school was familiar with the need and value of vocational education, and was supporting this phase of school program. On the other hand, it appears that in those schools in Colorado which offered little or no vocational education, the philosophy of the school administrator toward vocational education was somewhat different.

In view of the fact that school administrators have a great effect upon the extent to which vocational education is provided in a school, and due to the apparent lack of familiarity on the part of some administrators with the need and value of vocational education, it is, therefore, recommended that:

> All school administrators in Colorado be required to complete course work equivalent to 6 quarter

hours of instruction, on the philosophy and principles of vocational education before being issued an adminstrator's certificate. In lieu of all or part of the specific course-work credit be given for adequate and appropriate work in business and industry, and personnel from business and industry make a concerted effort to provide summer employment opportunities.

It is realized that many parents, students, teachers, counselors and administrators are not familiar with opportunities and advantages that are prevalent in the businesses and industries of Colorado for personnel without college degrees. Since personnel directly engaged in the businesses and industries in Colorado are most familiar with the opportunities available, it is, therefore, recommended that:

Personnel from labor and management in business and industry in Colorado make a concerted effort to inform the public of the opportunities for employment for persons without a baccalaureate degree by preparing information that can be disseminated to all news media; and by making special effort to cooperate with guidance counselors and teachers in providing information and displays, and by making appearances before school students to explain the requirements and advantages of employment in their respective business or industry. It is also recommended that personnel within the total educational system itself give much more attention to informing students of the value of vocational education.

In recent years more and more schools are employing full time guidance counselors. It is recognized that guidance counselors have a tremendous effect on the public image of vocational education and the extent to which students enroll in vocational offerings. It appears that the influence of guidance counselors will become greater in the future. In view of this, a discussion and specific recommendations concerning guidance and counseling is presented in a separate section.

GUIDANCE AND COUNSELING

The common school curriculum provides a host of opportunities for children and youth to develop factual knowledge and basic skills such as those in the areas of communication and computation. But these are not enough. The knowledge and skills must become understanding, attitudes, and eventually habits of life before the learning experiences are truly meaningful.

In the latter area the children and youth need a high level of support as they match their own interests and capabilities with the opportunities in the world of work. A rather ancient principle of learning says that every learner needs the close and affectionate support of the significant adults in his environment. This is the area in which the services of guidance and counseling are an absolute necessity.

In the elementary school, where many of our individuals' attitudes and values are formed, the need is for teachers with a broad understanding of the vagaries of childhood's aspirations -- of the need for drawing definitely and sincerely upon each child's experiences as the basis of his developmental learning experiences, for teachers with an understanding of the need in our society for persons occupied at many levels of skill throughout the range of socially and economically useful occupational specialties.

In the junior high school the student has "shed the skin of childhood" and approaches life's problems (including school) with a new awareness of his greater physical and psychological capacities. While every teacher continues to guide and counsel his students, the more specialized needs of the students require more specialized assistance in relating their experiences and capabilities to the problem of choosing from a myriad of alternatives in social, academic and vocational matters.

In the senior high school the much more sophisticated student requires guidance and counseling based upon an intimate knowledge of, and experience in, the occupational specialties for those who will enter work after high school, and an intimate knowledge of professional careers for those who will choose to attend college.

Realizing the importance of guidance in the high school curriculum, more and more schools have employed full-time guidance counselors in recent years. The impact that guidance counselors can have on promoting and increasing vocational education is tremendous. However, it appears that in far too many cases, guidance counselors have failed to consider the need for sound vocational guidance and have placed their emphasis on getting the highest percentage of students possible to pursue a college preparatory curriculum. Many have continued to emphasize college preparation when only 20 to 25 per cent of their students will actually receive a college degree.

The emphasis most counselors place upon preparation for professional occupations, and the lack of interest or enthusiasm in helping students prepare for occupations not requiring a baccalaureate degree in most cases can be traced to their background of education and experience. Many counselors have experienced nothing other than their own professional preparation curriculum and many never have been employed in any nonprofessional occupation.

Guidance counselors should be teacher-trained, work-experienced, and occupation-minded if they are to make their maximum contribution to the total educational experience of the students. Guidance counselors contribute to curriculum development, to teaching methodology, and in a significant way to the public image of wage earning as a way of life.

Although guidance counselors should be teacher-trained, it is imperative that they have a multidiscipline academic background as well as recent work experience in business and/or industry. Without the practical experience, guidance personnel lean to college level training as the only suitable preparation for earning a living. Because the requirements for effective guidance and counseling lie beyond the pragmatic routines of professional preparation for guidance and counseling, preparation of counselors should reflect other factors. In this respect it is recommended that:

(a) Guidance counselors gain at least the equivalent of two years of appropriate work experience during the first ten years of professional employment.

(b) Personnel from business and industry recognize the value of providing counselors with appropriate work experience and make a concerted effort to provide adequate work opportunities.

(c) Local school administrators and school boards assume a greater responsibility in making provisions for guidance counselors to obtain adequate and appropriate work experience.

(d) All guidance counselors have at least three years of teaching experience before assuming their roles as counselors.

A critical look must also be taken at the programs in the institutions of higher learning preparing guidance counselors. In many instances they are too much a part of the formal teacher training sequence. It is, therefore, recommended that:

The pre-employment education of guidance counselors be adjusted to provide more experiences related to the businesses and industries of Colorado. It is also strongly urged that all institutions preparing guidance counselors adjust their curriculums to provide more courses on the philosophy and principles of vocational education.

Another area of concern is the inservice education of guidance counselors. In most cases guidance counselors recognize their need for assistance in providing vocational guidance. It appears that one of the most economical and feasible methods of increasing the emphasis given to vocational guidance is by providing competent personnel to work directly with guidance counselors in the field. It is, therefore, recommended that:

> The State Legislature provide sufficient monies to enable The State Board for Vocational Education to reimburse the salaries of from ten to fifteen competent vocational counselors to work in specified geographic areas of the state with the guidance counselors in the schools of the area.

It would be the responsibility of these vocational guidance specialists to work closely with the guidance counselors in the local schools of their respective areas in providing up-to-date occupational information, and providing assistance and encouragement to help assure an adequate job of vocational guidance is being performed.

LABOR MARKET AND OCCUPATIONAL INFORMATION

One of the primary functions of vocational education in Colorado is that of matching employment potential with vocational training. In order to plan and implement sound vocational programs to meet the demands of the labor market, information concerning the status of present employment, plus projections of future employment, is needed. At the present time, neither information concerning employment in specific jobs nor projections of future employment in specific jobs is available. If information of this type were available, it would be valuable, not only to vocational educators, but to businessmen, industrialists, labor personnel, and many other local, state and federal groups, or agencies.

In the past, some effort in the above area has been expended by private industries or associations. However, it appears that because of the framework for obtaining necessary data presently available in the Colorado Department of Employment and the availability of qualified personnel in this department, the responsibility for this function should rest within this department. This department could also coordinate their efforts with those of other state departments that collect labor market and occupational information.

It seems practical that one agency should be responsible for gathering and compiling data of this type, including that obtained from other public agencies who must obtain this information to maintain their normal function. If all information were channeled to, and made available through, one state department, those who desire labor market and occupational information could then focus their requests to a single state agency. It is therefore recommended that:

> The Colorado Department of Employment assume the responsibility for gathering and making available to interested persons information concerning the present employment in specific job titles plus projections of future employment in these specific jobs, and that the State Legislature appropriate to the Colorado Department of Employment the necessary funds to accomplish this effort.

In addition to obtaining labor market information, data concerning the various apsects of the jobs found in Colorado is also needed. Information on such items as opportunity for employment, job duties, training requirements, special characteristics of the job, pay and hours, and how to locate employment is required. This information would be of particular value to guidance counselors, vocational educators, employers and others who need to keep in touch with the present day requirements and characteristics of jobs. In this respect it is recommended that:

> The Colorado Department of Employment assume the responsibility for providing specific information on the various jobs found in Colorado. This information should contain data on such items as opportunity for employment, job duties, training requirements, wage and hours worked, and how to find employment. It is also recommended that the State Legislature appropriate sufficient monies to the State Department of Employment to provide the personnel and other resources to enable them to implement this plan.

CURRICULUM

Vocational education should assist every wage-earner and potential wage-earner to develop the knowledge, understanding, attitudes, skills, and habits of life necessary to support himself in a manner of living that is personally rewarding and socially beneficial. For most of our population this will mean self support from wage-earning occupations. It is necessary, therefore, to plan for children and youth those kinds of learning experiences which will place emphasis on the dignity of work, enable them to determine their own vocational interests and aspirations, and provide education which will enable them to become gainfully employed.

Many of the attitudes toward the world of work and opinions regarding occupational aspirations are formed long before the final years of high school. In order to gain for vocational education the emphasis it should be receiving, it will be necessary to expand the vocational education beyond what is now provided in the total public school curriculum. Increased concentration of emphasis on vocational education in the curriculum in the final year or years of high school or in post high school institutions is not enough.

There appears to be two opposing viewpoints concerning the emphasis vocational education should receive in the high school curriculum. Some believe that specific vocational training should be offered only at the post high school level. These persons fail to recognize that the people who may benefit most from vocational education will not enroll in post high school courses.

A recent article in the Los Angeles Times states that people are in a dream world if they don't recognize that a majority of high school pupils -- including those who need vocational education most -- aren't going to college. This statement applies to California where post high school courses can be taken with the same convenience as high school courses.

Vocational education, when offered in high school, has many other advantages. It prevents many students from dropping out of school due to a lack of interest. Students of high school age can benefit from specific occupational training, and if more of the students who graduate from high school were trained in a skill, many of our problems with the youth in the 18-21 year age bracket would be reduced.

Much of the pressure on our children and youth to attend college is brought about by educators who find no place in the secondary school curriculum for anything but academic learning experiences. This point of view is, however, giving way to the need of children and youth for vocational education. For example, the resolution adopted by the American Association of School Administrators in March, 1966, states in part --

We believe that the secondary schools should recognize and develop the capacities of every child. Attempts to qualify the entire school population for college admission betray that belief in the worth of the individual upon which our society is founded.

The Association believes that occupational preparation should be an integral part of our free public educational system and should be available to all who enter the world of work from the public schools.

We believe that the direct transition from school to work is a worthy objective and that the preparation for the world of work is a necessary and appropriate function of the secondary schools. Lastly, we believe that the expansion of the vocational-technical occupational offerings, through area occupational programs consistent with the comprehensive secondary schools concepts or through collaborative efforts among school systems, will result in educational offerings that are greatly expanded and diversified.

Most high schools in Colorado can adapt their curriculum offerings to provide more vocational education and it is, therefore, recommended that:

> More emphasis be placed upon providing specific vocational education courses in the high schools, and that all high school students in Colorado have the opportunity to enroll in vocational education courses through a comprehensive high school or area vocational school. In order to promote more vocational education within the high schools, it is recommended that the State Legislature greatly increase its appropriations to the State Board for the reimbursement of high school vocational offerings.

Many vocational courses, particularly those in specialized areas and those on a technical level, are not adapted to the high school curriculum. These courses should not be overlooked, but should be stressed on the post high school level by increasing the number of such courses offered in the junior colleges and area vocational schools.

Inasmuch as a great amount of effort has been expended in developing the existing academically oriented curriculum, considerable effort must now be exerted to reorient curricular patterns to reflect the need, value and opportunity existing for persons without a baccalaureate degree.

The need for redesign begins in the elementary grades and it is, therefore, recommended that:

> Curricular patterns and instructional materials in the elementary grades reflect the dignity of work and place more emphasis on the need, value, and opportunities existing for the majority of the students who will not obtain a baccalaureate degree. It is also recommended that the Legislature appropriate funds to the State Board for Vocational Education for the employment of a vocational curriculum specialist who will assist teachers, school administrators, and boards of education in giving the appropriate emphasis to vocational education in the curriculum.

Provision for making sound occupational choices should be an integral part of any vocational education program. In most cases this can be accomplished by providing occupational guidance and prevocational courses before enrolling in specific occupational training. Prevocational courses should enable students to experience in a limited way the various aspects of the job that would be required when employed in the occupation. In this respect it is recommended that:

> All schools in Colorado provide prevocational courses and occupational guidance on the junior high level, and the State Legislature should appropriate sufficient funds to the State Board for Vocational Education to enable reimbursement of the approved courses in this area. Occupational guidance should be provided to the entire student population and reflect the opportunities and requirements of the various occupations - both professional and non-professional.

AREA SCHOOLS

Due to the limitations of some of the schools in Colorado in terms of student numbers and facilities available, a comprehensive vocational curriculum is not economically feasible in the smaller schools. Also some specialized vocational-technical subjects are not adapted to the high school or should only be offered on a limited basis at this level.

However, if Colorado wishes to develop a comprehensive vocational education program which will help match vocational training with employment potential, and also provide every student in the State the opportunity to enroll in vocational or technical education courses, a plan must be developed to broaden vocational education beyond what is now available. It appears that a comprehensive vocational education program could evolve if area vocational schools were established. The area school concept would complement the vocational education now being provided in high schools, junior colleges, and 4-year institutions, and in no way should it be assumed that area schools should take the place of, or decrease the emphasis that is to be given to vocational education in the other institutions.

The establishment of area vocational schools which provide vocational-technical education on a secondary and post secondary level would enable many students to enroll in vocational education courses in areas which have been unavailable to them in the past. It appears that this system could help provide more vocational education on the secondary level where there is a great need for expansion in Colorado.

Many area schools could be established in existing institutions. This would include junior colleges, 4-year colleges and universities. For instance, it is conceivable that an area vocational school could be established as a separate and distinct division of Metro State College. Others could be established in the facilities available in public secondary schools. In some areas, it is possible that entire facilities will have to be constructed and the school administered by a board of cooperative services.

One of the primary areas of concern is that of providing vocational-technical education in the Metropolitan area. The concept of establishing State-operated vocationa-technical schools has merit in that it may be one of the fastest ways to help solve the problem in the highly populated areas of the State. However, this will not solve the entire State's problem in that many areas will not be served by a limited number of State-operated area vocational schools. There are also many factors that should be considered before the State adopts a policy of establishing State schools at this level.

A limited amount of federal money is now available for use in constructing area vocational schools. However, this amount is not sufficient to provide the incentive to establish the needed schools. If adequate area schools are to become a reality, the State must assume more responsibility in promoting this concept. It is therefore recommended that:

> The State Board for Vocational Education make a thorough study of the number of area schools, needed and also determine the most desirable

location of these schools. This study should also determine the priority in which these schools should be built since it is realized that the state cannot assume the responsibility to help finance all of these schools in a one year period. This study should consider the utilization of present facilities in secondary schools, junior colleges and 4-year institutions in determining the most economical and feasible locations.

Regardless of the position the State of Colorado takes on the area school concept, it appears it should exercise more control of the curriculum offerings of the junior colleges. With the present level of support to junior colleges the State has adequate justification to require junior college course offerings to meet the needs of Colorado's population.

A survey of course enrollments in Colorado's junior colleges shows that less than 20 percent of the students are enrolled in the vocational-technical curriculum, whereas one of the primary functions of the junior college is to provide training for employment upon completion of the program.

It appears that numerous junior colleges will be established in the future if the State financial support remains at the present level. Since a larger portion of State funds will be allocated to junior colleges in the future, the State should take steps to insure that the junior colleges are most adequately meeting the needs of the people of Colorado. In this respect it is recommended that:

The State of Colorado readjust the present system of allocation of funds to the junior colleges in such a manner as to place more emphasis upon vocational-technical offerings.

FINANCIAL SUPPORT OF VOCATIONAL EDUCATION

It is generally agreed that vocational education needs to receive more emphasis in Colorado. Since vocational education has a direct influence upon the economic well being and development of the State, it should be the responsibility of the State to support its growth and expansion.

Due to many factors, it has been proved that vocational education will not develop on the local level to any great extent when there is no incentive other than regular state school foundation money. For vocational education to develop on the local level, it will take reimbursement of funds specifically earmarked for vocation education courses. In the past, the money available for reimbursement to schools has been somewhat limited, and the result has been a limitation of vocational offerings to one or two areas within the school, or in many cases no vocational education at all.

A look at the money spent on vocational education in Colorado shows that most of the funds come from local and federal sources. In other words, the State has not assumed its responsibility for promoting vocational education by providing adequate financial support. For instance, the amount of money appropriated by the Legislature to The State Board for Vocational Education this year for reimbursement for vocational education courses was less than one-half of one percent of that appropriated under the regular School Foundation Act. The amount of money made available to The State Board for Vocational Education by the Federal Government for the reimbursement of vocational education courses is over six times as great as that provided by the State, whereas in many states the state monies available for promotion of vocational education far exceed available federal funds.

It becomes apparent that if vocational education is going to make any great expansion in Colorado, it will take an increase in State financial support. It is, therefore, recommended that:

> The State Legislature greatly increase the amount of money made available to The State Board for Vocational Education for the reimbursement of vocational education offerings.

In order to reach the greatest number of people who need and can benefit from vocational offerings, financial emphasis should be stressed on both the secondary and post secondary level. It appears that any plan for the use of State monies which tends to de-emphasize the offering of vocational education on the secondary level is a serious mistake. One of the areas which needs particular strengthening in Colorado is secondary vocational offerings, and financial support should reflect the need for emphasis in this area.

FRAMEWORK AND ADMINISTRATIVE STRUCTURE

Education is one of the biggest businesses in Colorado in terms of capital invested and personnel involved. With the increased realization of the importance and need for vocational education on all levels, it appears that vocational-technical education will become one of the most important phases of the total education process.

Since the responsibility for providing education in a state rests with the state, the state should provide the necessary framework for most adequately and efficiently providing the necessary educational experiences to meet the needs of its people.

Only the State of Colorado has the legal and moral authority, together with the command of resources, necessary to assure that the benefits of a comprehensive vocational education program will be continuously available to all the people within the state. The opportunity to serve the needs of the people of the state and at the same time advance the economic development can be accomplished only when aggressive state leadership can be exerted.

It is imperative, therefore, that the state's leadership and concern for vocational education be expressed in terms of an administrative structure which will permit the full implementation of Colorado's desire to expand and improve vocational education. Therefore, an administrative structure must be initiated which will strengthen and not weaken the emphasis and concern given to vocational education. In this respect it is recommended that:

> The State Board for Vocational Education, with representation from the various occupational areas as outlined in Senate Bill 241, serve as the administrative agency for vocational education in Colorado. It is also recommended that the Legislature appropriate funds to The State Board for Vocational Education to employ staff personnel to serve as consultants to the Advisory Council authorized in Senate Bill 241, so the council may continue to function in the role of making recommendations for matching vocational training with employment potential.

Further justifications for maintaining the responsibilities for the administration of vocational education within The State Board for Vocational Education are:

1. Personnel in The State Board for Vocational Education must meet standards for employment as vocational educators. These personnel, being familiar with the principles and philosophies of vocational education, are in the best position to give the necessary leadership and emphasis to vocational education.

2. Personnel from business and industry have maintained that if vocational education is to be of most value to them, training programs must maintain specific standards in terms of the amount and quality of instruction being given. This philosophy is in agreement with that of The State Board for Vocational Education, who have demonstrated in the past that specific standards must be met in vocational courses, if students are to gain education that will enable them to enter into gainful employment.

3. The State Board for Vocational Education has maintained that reimbursement for vocational education must be in such a form so as to provide funds to a school only when the school offers a vocational course which meets their standards. Experience has shown that when this is not done, there is a tendency to use unrestricted funds for college preparatory or general education courses, which for the most part are less expensive in terms of per pupil cost.

4. The State Board for Vocational Education, by the manner in which it is composed, is more suitable to administer vocational education. Personnel who are representative of, and knowledgeable in, the occupational areas present in Colorado are in a much better position to make decisions concerning planning and maintain programs designed to match employment with vocational education.

Although the above considerations do not indicate all of the advantages of maintaining a separate agency for administering vocational education in Colorado, they definitely indicate that to place vocational education under the authority of another administrative agency would, in effect, be de-emphasizing the concern that the State of Colorado has for vocational education.

If vocational education is to receive the increased emphasis that it needs, it will require the cooperation of numerous state agencies. This is particularly true in regard to the State Department of Education. Improved communication between staff members from both staffs, joint staff meetings, exchange of personnel in consultative roles and the joint financing of related projects are a few of the items that should be considered in the future. In order to increase the coordination of these agencies having a direct effect upon the emphasis vocational education receives, it is recommended that:

> The State Board of Education, The Colorado Commission on Higher Education, and The State Board for Vocational Education meet on a periodic basis to formulate and implement plans for the coordination of their efforts and discussion of mutual problems.

The recent emphasis on vocational education on a national basis has greatly increased the number of departments, agencies, and nonprofit corporations directly involved in providing some type of vocational training.

At least 15 different types of programs, outside the present administrative authority of The State Board for Vocational Education, have funds to provide vocational education of some type in Colorado. In attempting to find the nature and scope of the training being provided by these various

groups in Colorado, it was impossible to locate any state agency which was aware of the extent and nature of the activities of each of these agencies.

This points out the need for a coordination of all vocational efforts within the state. Under the present situation it is quite possible for duplication of effort to occur. It becomes apparent that a structure is needed so that the resources for providing vocational education presently available are utilized most efficiently in meeting the needs of the people of Colorado. It is therefore recommended that:

> The State exert a stronger influence in coordinating the various programs providing vocational training.

SUMMARY

As previously stated, due to the limited time for study, a thorough report covering all aspects of the vocational education needs of Colorado can not be presented at this time. However, the council has identified certain areas which deserve immediate attention. For the most part, the recommendations presented in this report are rather general in nature and further study will be required before specifics, such as actual costs, can be stipulated.

The material presented in this report is based on the following points which the council agreed upon and were used as the basis for making recommendations:

1. Vocational Education has much to offer and the people should be made aware of its need and value.

2. There is a tremendous need for increased vocational education offerings in Colorado.

3. The state of Colorado has not assumed its responsibility in promoting vocational education.

4. The image of vocational education should reflect its many values and the need for increasing this phase of the total education picture.

5. There is a definite lack of sound vocational guidance being provided by guidance counselors, teachers, school administrators and especially parents.

6. There is a lack of adequate labor market and occupational information necessary for vocational guidance and vocational program planning.

7. Every student in Colorado should have the opportunity to enroll in vocational courses in high school and on the post high school level.

8. Vocational offerings on all levels should be strengthened with special emphasis directed toward increasing vocational education at the secondary level.

9. Vocational education and the dignity of work should be stressed during the entire education of the students.

10. There should be a framework and administrative structure in Colorado which will provide vocational education with the needed emphasis and enable the most number of people to be served with the most adequate and most economical programs.

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This guide for student teaching contains: (1) Orientation to Student Teaching, (2) Setting Objectives for Student Teaching, (3) Scheduling Your Activities, (4) Departmental Weekly Calendar, (5) Departmental Monthly Calendar, (6) A Guide for a Student Teachers Plan of Experience, (7) Evaluating Process, (8) Evaluation of Classroom Teaching, (9) Evaluation, (10) A Guide for Evaluating the Teaching of a Problem-Solving Unit, (11) A Guide for Evaluating the Short-Time Teaching Plan for Problem-Solving in Vocational Agriculture, (12) A Guide for Teacher Demonstrations, (13) A Guide for Evaluating Field Trips, (14) A Guide for Evaluating On-Farm Instruction, (15) Student Teaching Evaluation Supplement, and (16) Suggested Topics for Student Teacher Seminars. This mimeographed document was prepared by the Agricultural Education staff. (DM)

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Manual for Student Teachers
in Vocational Agriculture

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MANUAL FOR STUDENT TEACHERS

IN

VOCATIONAL AGRICULTURE

STAFF IN AGRICULTURAL EDUCATION

DEPARTMENT OF TEACHER EDUCATION

COLLEGE OF EDUCATION

MICHIGAN STATE UNIVERSITY

EAST LANSING

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ORIENTATION TO STUDENT TEACHING

So You Want to be a Teacher!

Welcome to the teaching profession! You are joining the staff of a community school for the first time. As a student teacher in vocational agriculture, you are beginning the greatest educational experience of your college career -- you have this on the word of the young men who have preceeded you. Let's take a look into the future for a preview of the next ten or twelve weeks. We realize that your first performance will be more difficult for you than those that will follow. After you have learned to relax and enjoy your teaching, you will achieve the proficiency in teaching that is your goal.

One thing is certain in student teaching, you will have the greatest opportunity, and responsibility of your student career to develop those attitudes, abilities and understandings necessary in your profession. There will be opportunities to teach young-farmer and adult-farmer classes as well as high school classes. Visits to farms, agri-businesses and other industries in the community will enable you to discover problems and help boys, parents and employers solve these problems. You will be welcome anywhere your students will be working under the school's supervision in the community. Some of the problems that you will help solve will be of the non-agricultural type, like improving grades in other subjects, or getting along better with the family and/or other adults. You will get to know the parents or employers of your students and help plan more satisfactory agricultural experiences for them. Adult farmers and youth out of school who are enrolled in

classes which you will help teach are anxious to know you. Be ready to work with them. You will meet the problems of preparing reports, newspaper articles, tests, report cards and the dozens of responsibilities of the teacher of vocational agriculture.

To be a good teacher of vocational agriculture, you must be an integral part of the larger teaching staff. You will experience problems in clearing the way for field trips, evening Future Farmer Chapter meetings, contests and activities held away from the local school. You will learn the viewpoints of other teachers during faculty meetings.

The organization of your time will be a major responsibility for you. You will have considerable freedom to work out a schedule based on the objectives you formulate at the beginning of the term. If your past experiences have been primarily in a traditional program of vocational agriculture for high school students, you should seek to get experience with new programs of vocational agriculture including areas for agricultural technicians or agricultural occupations other than farming and with young- and adult-farmer work. As the term moves along, periodical evaluation of your experiences will be made through self-evaluation and through conferences with your supervising teacher.

Student teaching is a full-time job and leaves little time for other activities. Not all activities are directly connected with the preparation of lessons and the teaching of classes. Athletic events, school plays, Parent-Teacher Association meetings, assemblies, meetings with other agriculture teachers and other agricultural workers in the county will provide a variety of experiences. You will be invited to participate

in community affairs outside of school. Local people will welcome you. Time will always be at a premium.

Your supervising teacher will guide your activities in cooperation with a member of the University staff. Some of your time will be reserved for seminars with other student teachers. This will give you an opportunity to compare notes with others. Another portion of time will be devoted to a study of educational methods and to confer with your supervising teacher regarding the application of these methods to your teaching.

Although it is impossible to picture all of the opportunities available to you, you may be sure that student teaching will be a practical and inspirational experience. It will challenge the best in you: the best of your experience, your energy, your ambition, your perseverance and your ingenuity. But it will be worth every effort you make, for teaching is one of the most rewarding professions in terms of human satisfaction.

Purpose of the Manual

This manual has been prepared as a guide for your professional development during the period of student teaching in vocational agriculture. Suggestions are included for the evaluation of growth or progress toward some of the goals which the student teacher formulates for himself. Various materials in addition to those included here, will be made available as the term progresses. You may find it advantageous to supplement the manual with a notebook, source unit file and other student aids.

SETTING OBJECTIVES FOR STUDENT TEACHING

What Do You Want to Accomplish?

Early in the term, you should formulate objectives to be accomplished during student teaching. In many cases these will consist of a restatement of the objectives set up in earlier courses. These objectives should be stated in terms of your own growth toward abilities necessary for success in teaching vocational agriculture. The problem areas listed under "The Activity Profile" on pages may suggest objectives to include. The form on page 5 may be used for classifying and listing your objectives.

When you list an objective, you must consider what evidence you will need for evaluating your accomplishments. For example, you may have an objective to "learn to use the farm problems of students in the classroom teaching situation." At mid-term and again at the end of the term, you will want to check your progress. You will need evidence to indicate whether or not you are really better at this than you were at the beginning of the term. You will also need to devise the methods you will use for collecting the evidence you will need. The form on page 5 shows an example of the plan of one student for one objective. You should attempt to make similar plans for each of the objectives you have for yourself.

Many of you will make rapid progress during your student teaching term. You may out-grow the objectives you listed at the beginning of the term. If you do, there is always room for new ones. There are always "new worlds to conquer" in teaching and you should be constantly alert to opportunities for setting up and trying to reach new objectives as you move along in your teaching.

MY OBJECTIVES FOR STUDENT TEACHING

Objective in terms of abilities to be developed	Evidence needed to evaluate accomplishments	Methods of Collecting the evidence	Status at beginning of term	Status at mid-term	Status at end of term
Example:					
1. To develop my ability to prepare and use short-time teaching plans	1. Response of the group taught	1. Use present evaluation instruments. Examples are on pages 19-32. 2. Ask others for observations. 3. Observe on-farm application or other application of learning.	Have not made a teaching plan	Achieving moderate success.	Feel reasonably confident in developing and using short-time teaching plans

MY OBJECTIVES FOR STUDENT TEACHING

Objective in terms of abilities to be developed	Evidence needed to evaluate accomplishments	Methods of Collecting the evidence	Status at beginning of term	Status at mid-term	Status at end of term

SCHEDULING YOUR ACTIVITIES

The wide variety of activities engaged in by the teacher of vocational agriculture and the fact that much of his time is spent on activities outside regular school schedule makes it imperative that he be able to organize and plan for the efficent use of time. Otherwise, he will find that important phases of the program will be slighted in favor of spur-of-the-moment acitivities and that many of the things he needs to do would not get done on time, if at all.

The regular teacher of vocational agriculture will develop the habit of using a pocket diary as a convenient means of planning activities and keeping on schedule. As a means of organizing activities, he will find it necessary to lay out weekly and monthly (sometimes annual) schedules.

Student teachers are urged to use forms like the following as a guide to long-time and short-time planning. On the weekly calendar will be entered a detailed hour-by-hour plan of activities for the department, with the ones in which the student teacher will engage circled or carefully underlined. Sometimes, the student teacher will not participate in a given activity but will work indepdently on study, individual projects, on-farm instructional visits or other activities.

The monthly calendar provides a convenient place to organize over-all activities so conflicts in schedule can be anticipated and avoided. In-service meetings, evening classes, seminars and other professional meetings should be recorded as well as the general time schedule of teaching units and plans for teaching by the student teacher.

DEPARTMENTAL WEEKLY CALENDAR
(Include all Activities)

Week _____ _____ to _____
(Month) (Day) (Day)

As you prepare your weekly calendar, check the monthly calendar.

Period	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st.						
2nd.						
3rd.						
4th.						
5th.						
6th.						
7th.						
EVENING						

A GUIDE FOR A STUDENT TEACHERS PLAN OF EXPERIENCE

NOTE: The following plan or guide of experiences is based on the student teacher arriving in the fall. Adjustments will need to be made during the winter and spring quarters. This is only a guide.

Weeks	Agricultural Occupational Experience Programs	Program Planning	Teaching High School Students	Advising the FFA	General School Activities
1-2	1.Get acquainted with students & their agricultural occupational experiences. 2.Make 1st. visit with supervising teacher. 3.Begin work with 8 assigned students.	1.Become familiar with agr. in the community. 2. Review long-time program for the department. 3.Give a demonstration. 4.Discuss program of Ag. 1 with class.	1.Work with individuals & small groups. 2.Teach part of a class session. 3.Give a demonstration. 4.Prepare lesson plans. 5.Follow boy through day.	1.Become familiar with the local & state programs of activities. 2.Work with the reporter. 3.Meet with the executive comm. 4.Attend FFA meet.	1.Get acquainted with admin. & faculty. 2.Attend teachers meetings.
3-4	1.Review desk copy of record books. 2.Check students record books. 3.Make 2nd & 3rd. follow up visits to students.	1.Review program of instruction of Ag. 3 & 4.	1.Teach a unit. 2.Plan & take charge of a field trip. 3.Observe & evaluate the teaching of others.	1.Advise comm. 2.be responsible for one activity.	1.Attend school functions. 2.Become familiar with 8 students cumulative records.
5-6	Secure additions to agr. exp. programs. 2.Summarize & analyze record books.		1.Take complete charge of a class in farm mechanics for two weeks.	1.Work with Treasurer. 2.Assist selected members in 2 or more State Assoc. Sponsored act.	1.Observe five other classes in high school. 2.Visit the elem. school for one day.
7-8		Analyse the instr. program for the year.		1.Work with Secretary.	1.Work with a faculty comm.
9-10		1.Review summer program for the Dept.	1.Take full charge of the dept. for 3. days	1.Plan & advise a chapter meeting.	1.Spend one day with the principal.

A GUIDE FOR A STUDENT TEACHERS PLAN OF EXPERIENCE (Continued)

Weeks	Guidance, Counseling & Evaluation	Teaching Adults	Reports, Records and facilities	Public Relations	Professional Responsibilities
1-2	1.Study personal background and personal records of each boy assigned.	1.Become familiar with adult program. 2.Keep attendance records.	1.Prepare a farm survey for each assigned boy. 2.Revise & inventory the inventory of the physical equipment.	1.Attend comm. meetings. 2.Become acquainted with comm. leaders. 3.Edit reporter's news articles.	1.Become familiar with the teachers professional code of ethics. 2.Begin a cumulative record of all critiques.
3-4	1.Gain a through study of 1 boy enrolled in Vo-ag. 2.Assist in formulating grades for students	1.Visit 3 adults. 2.Prepare meeting announcements. 3.Attend adult advisory comm. meeting	1.Work with Dept. files. 2.Prepare activities and milage report	1.Prepare 1st of several news articles-one to be illustrated 2.Take charge of bulletin board for 2 weeks	1.Attend county agricultural leaders meeting.
5-6	1.Discuss plans for students conferences with cooperating teacher.	1.Prepare to teach a portion of a class session. 2.Develop a list of approved practices for lessons taught.	1.Discuss the preliminary report of Vo-ag with teacher. 2.Discuss and/or assist in preparing the preliminary and Final Agr. Occupations Experience reports with supervising teacher.	1.Confer with other agr. agencies on teaching plans.	1. Visit 2 other Vo-Ag. Depts.
7-8	1.Follow through with a problem in discipline.	1.Teach adult class. 2.Advise a young farmer committee.	1.Assist in preparing local teachers reports	Organize & work with a committee of students to make department display.	1.Attend a district & other professional meet.
9-10	1.Evaluate results of conferences with supervising teachers.	1.Teach young farmer class.	1.Discuss with supervising teacher adult & young farmer reports.	1.Plan & participate in a radio or T.V. program.	1.Evaluate work for the quarter with supervising teacher.

EVALUATING PROGRESS

Basis Principles of Evaluation*

1. The fundamental purpose of evaluation is to promote growth.
2. Evaluation involves appraisal of agreed upon values and goals.
3. Evaluation is an integral and important part of the learning process and should be continuous.
4. Evaluation should be based on both quantitative and qualitative evidence and employ a variety of techniques for recording and interpreting behavior.
5. Evaluation is a cooperative process in which the learner and all those concerned with his growth should participate.
6. Evaluation takes into account both the ability of the learner and the standards and competence generally required in the situations in which the individual will be engaged.

The Log and It's Use

NOTE: A 4 x 6 spiral notebook is suggested for making log entires. Student teachers find that keeping a daily log is helpful to them during the period of student teaching. Some of the values of keeping this log are:

1. It stimulates one to think over the experiences of the day and to record and interpret the experiences or happenings which are of greatest significance to him.
2. It provides a record which will enable the student teacher, and persons with whom he works, to note growth.

Florence B. Stratemeyer and Margaret Lindsey, Working With Student Teachers. New York: Bureau of Publication, Teachers College, Columbia University, 1958, p. 431.

3. It provides a record of special interest to the student teacher after the student teaching is completed.

What to Include in the Log.

The log is a systematic daily record of the experiences and happenings which a student teacher considers significant, together with some interpretation as to why they were significant. Usually, he will not list over two or three such experiences for a given day. He may wish to include some of the questions or problems which have come to mind, or some insights he may have gained as the result of the day's happenings. The entire write-up for the day should be quite brief and concise. The following are some examples of entries:

Examples of Good Log Entires:

Monday, January 15.

I taught my first class today. I felt very nervous at first, but became more relaxed as the class progressed. I nearly ran out of material; my lesson plan moved faster than I expected. I'm sure that I did too much of the talking. I'd like to get more participation from the students.

Tuesday, January 16.

This was my second day in front of the class and I feel much more confident. I moved about the room while teaching. My daily lesson plan worked well, but I found that we ran out of time today. The class was not as attentive; I will need some interest approach every day. There was more noise in the classroom. I've got to find way to hold interest. Visited machinery dealer to plan field trip.

I observed a history class this p.m. The teacher has a lot of experience and appears to be doing a fine job. I will try some of her methods in the ag. classes.

Wednesday, January 17.

I took my class on a field trip today. They were very interested but their interest was not centered on the purpose of the trip. Some of them didn't seem to know why we went. It was evident today that the students must be prepared for a field trip. I should have planned it in more detail with them.

I taught part of a young-farmer class tonight. They are interested but have many varied interests, like the high school students. It takes a lot of effort to lead a good discussion. I find it difficult to work with them until I know their farms and problems better.

Thursday, January 18.

I made my most successful farm visit today. I got into the kitchen where I was able to talk to both the parents and the student. I was amazed at the parents' cooperation. They seemed to really appreciate my interest in their son and were so willing to work with me, I'm going to attempt to involve parents on all of my farm visits.

Friday, January 19.

I worked late on my lesson plan last night, but it paid off today. I organized the class into committees and it worked very well. Today the students were doing the work and I was in the background.

I noticed a definite change in the boy I visited yesterday. He came in to see me first thing this morning and talked about his farming program. He worked well in class.

Examples of Poor Entries:

Monday, May 5.

Only one hour of farm shop today, second hour was taken up by assembly. Went to seminar this afternoon.

Wednesday, May 7.

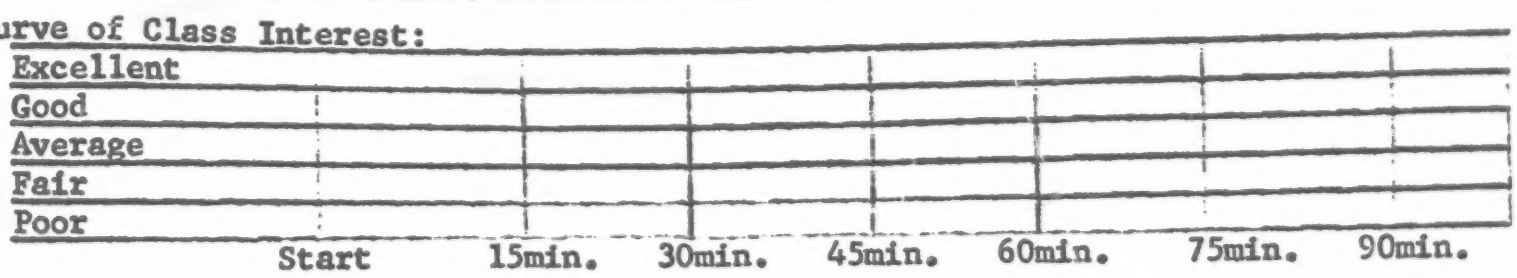
Helped----------test milk. Worked on soil test for garden soil; best tested to date.

EVALUATION OF CLASSROOM TEACHING

Subject_____ Class or Grade_____ Lesson_____
Date_____ Teacher_____
Objectives_____

ACTIVITY OR ITEM	COMMENTS *
The Teacher:	
1. Appearance	
2. Speech, Voice, Language	
3. Enthusiasm	
4. Tact and Poise	
5. Sense of Humor	
6. Initiative	
7. Mannerisms	
Management:	
1. Discipline	
2. Housekeeping	
3. Care of Light, Heat, Ventilation	
4. Selected Teaching Materials	
Techniques of Teaching:	
1. Preparation for the class	
2. Clearness of Objectives	
To Teacher	
To Pupil	
3. Effectiveness in	
Methods and Techniques	
Arousing Interest	
Stimulating Thought	
Questioning	
Directing Study	
Getting Pupils to Work	
Making Assignments	
Clarity of Explanations	
Timing of Lesson	
Blackboard Management	
Provision for Individual Differences	
Provision for Group Differences	
Results:	
1. Pupil Response	
2. Pupil Leadership	
3. Habits of Attention	
4. Quality of Pupils Work	
5. Evidence of Application	
6. Evaluation Devices	

Curve of Class Interest:



*No Comment may indicate (1) operating at expected level
(2) no opportunity to observe

EVALUATION

Teachers are concerned with evaluation. We evaluate in terms of objectives. Sometimes these objectives deal with ourselves as individuals, what we set out to accomplish, (See page). Sometimes we evaluate other pupils in school or classroom teaching by another teacher. Sometimes we evaluate facilities, or tools, or machines in terms of their usefulness to help us do the job we want to do.

Evaluating your Student Teaching:

One of the first things student teachers want to know about the student teaching term is, "How will be be evaluated"? This is a perfectly logical question and one that is sometimes difficult to answer. Let's begin with our objectives. (See pages 5-6). Your supervising teacher and your coordinator will want to see how well you accomplish your objectives. Were they really objectives which would make you a better teacher when you had achieved them?

Next they will be interested in the Activity Profile on Pages 10-11. How much did you grow during the term? What is your capacity to keep growing? Will you keep on improving until you become an outstanting teacher or were you just about as good in your first day of student teaching as you will ever be? Evidence to help answer some of these questions will be found in the Profile Chart as you term it in at the end of the term.

The log and list of problems and activities on which you would like to work represent another evidence of your growth and development during the term. Do the log entries indicate real insight into the

problems you encountered in teaching and some of the ways you will solve them? Are the problems and activities on which you want to work indicative of an understanding on your part of experiences you need to help you become a better teacher?

Coupled with all this evidence will be your performance in the school, on the farms, and in the community. Your attitudes are important. Do you get your work done on time? Are you always prepared? Is your supervising teacher informed about your activities when he should be? Are your lesson plans always well prepared and do they form the basis for successful classroom teaching? Are your farm visits made with real purpose? Do you base your teaching on real problems of the farms of your students? Do you read references suggested in this manual to aid you?

The student teaching evaluation form is not included in this manual, but your coordinator will give you a copy. This is the form which is used in your placement file. You should become familiar with it and ask your supervising teacher about improving any short-comings you discover during your student teaching term.

In this section, we have incorporated a number of pages of evaluation forms. These list some of the items you may wish to evaluate in appropriate situations. When you first visit a class as a student teacher, you may wonder what to look for. You may get so absorbed in the classroom discussion and activity that you forget to observe the techniques of the teacher, the reactions of the students, or the environment the teacher is creating to help him secure the results he wants.

Teacher_____
Evaluator_____
Date_____
Class_____

A GUIDE FOR EVALUATING THE TEACHING OF A PROBLEM-SOLVING UNIT

1. Statement of the specific problem being solved.

2. Which student(s) had the problem?

3. What other students had similar problems, the solution of which would be related to this one either as to method of solution or information needed for solution?

Student	Problem

4. How was the problem identified?

5. How was the class led to recognize the importance of the problem?

6. How was the problem analyzed and clarified?

7. To what extent did the class members accept this problem as their problem?

8. What possible solutions to the problem was the class led to recognize?

   a.

   b.

   c.

   d.

9. What sources of data were used by class members?

		Used Poorly	Used Well
a.	Observation in the field		
b.	Approved practice recommentations		
c.	Arithmetical computations		
d.	Expert's or resource person's opinion or judgment		
e.	Books, bulletins		
f.	Films, filmstrips		
g.	Magazines		
h.	Commercial promotional materials		
i.	Personal opinion		
j.	Opinions of others		
k.	Lecture		

10. What methods were used by students to record evidence supporting or rejecting each possible solution?

a. Charts _____

b. Graphs _____

c. Tables _____

d. Narrative answers to questions _____

e.

f.

11. How were students led to select the most suitable soultion of this problem?

a. Experiments, demonstrations or try-outs _____

13

b. Class discussion:
   Analysis of Findings _____

   Evaluation of sources of data _____

c. Reports of committees, individuals or groups _____

d. Debate _____

e. Summary by teacher _____

f. Other _____

12. To what extent was the solution of the problem spelled out in terms of specific action to be taken by the person(s) having the problem.

    a. What action was recommended?

    b. What plans were made to adopt the recommendations?

13. To what extent were the learnings from the solution of the problem applied to the related problems of other students?

    What commitments to action were made by these persons?

14. What plans were made with the class and with individuals to follow up the commitments to action?

15. What additional problems were identified by the class for future solution, either individually or as a group?

    a.

    b.

    c.

    d.

    e.

A GUIDE FOR EVALUATING THE SHORT-TIME TEACHING PLAN
FOR PROBLEM-SOLVING IN VOCATIONAL AGRICULTURE

1964

School_____ Class_____ Date_____

Class taught by_____ Enterprise_____

Unit_____ Problem_____

CRITERIA OR "APPROVED PRACTICES"	RATING Superior Fair Poor	COMMENTS
A. Statement of the Problem:		
1. Short and clear.	_____	
2. Denotes action to take place.	_____	
B. Problem Situation:		
1. Is clearly stated and outlined.	_____	
2. Solution will contribute to attainment of objectives of the lesson.	_____	
3. Has originated from one or more real student situations with or without help of the instructor.	_____	
4. Related situations of other students are recognized.	_____	
5. It is related to or based on needs of students in developing their farming programs.	_____	
C. Teaching Objectives:		
1. Stated in terms of student growth.	_____	
2. Appear obtainable and challenging.	_____	
3. Contribute to the major objectives of the unit.	_____	

	RATING Superior	Fair	Poor	COMMENTS
4. Involve carrying instruction to doing level.				
5. Related to achievement in farming.				
6. Have been formulated jointly by students and teachers.				
D. Preplanning by the Teacher:				
1. Anticipated parts of the problem are listed to:				
a. Allow for variations to meet real problems of class members.				
b. Provide for "how" and "why" situations.				
2. Anticipated outcomes are listed.				
3. Anticipated teaching aids, including references for teachers and student, are listed.				
E. Planning the Lesson with the Class:				
1. To develop interest and/or motivate the class.				
2. To help individuals determine goals.				
3. To help class members identify problems which are:				
a. Appropriate for the class.				
b. Sufficiently varied to provide for individual differences.				
4. To subdivide and/or further define the sub-problem.				

F. Solving the Problem:

1. Each step or activity clearly stated for:

a. Formulating tentative solution(s) based on known facts. _____

b. Using appropriate method(s) of solving the problem(s) of the group and/or individuals _____
i. Securing and analyzing information. _____
ii reaching conclusions _____

c. Recording appropriate summaries, decisions made, goals and individual or group plans leading to action. _____

G. Provision made for the next steps in the learning situation, such as evaluation, follow-up procedures and identification of new problems.

SUGGESTIONS FOR USING THE GUIDE

The statements listed in the left-hand column of this guide describe briefly some criteria or "approved" practices for evaluating the short-time teaching plan in vocational agriculture. The guide is intended for use in evaluating the written plan. It also has use in evaluating the instructional activity. If, in the plan being evaluated, a given approved practice is utilized in a highly satisfactory manner, a mark should be placed on or near the left end of the corresponding scale, in the middle columns. If the practice is poorly applied, the mark should be placed on or near the right end of the scale. (situations between these extremes should be marked at the appropriate point along the line.) Under the column headed "comments" a note should be made if the practice is completely lacking or a brief description, if it will help clarify the rating which is made. After noting the strengths and weaknesses of the plan, as shown by the ratings recorded for it, possible methods of improvement should be considered. (In some cases, the teacher may decide to have the students' aid in evaluating the instructional activity and in making suggestions for improvement.)

A GUIDE FOR EVALUATING TEACHER DEMONSTRATIONS IN VOCATIONAL AGRICULTURE*

Department of Teacher Education, Michigan State University

1964

School_____ Date_____

Demonstration performed by_____

Evaluated by_____ Unit of instruction and problem or job being taught_____

Name of this demonstration_____

Objective or objectives of this demonstration_____

_____

APPROVED PRACTICES	RATING Superior Fair Poor	COMMENTS
1. Suitable materials and equipment were available at the time and place needed.	_____	
2. Equipment was in good condition	_____	
3. It was evident that students were oriented to the need for this instruction, especially in relation to supervised farming programs.	_____	
4. Suitable physical conditions enabled every student to see, hear, and where necessary, participate in the demonstration.	_____	
5. Appropriate devices for arousing and sustaining interest were evident throughout.	_____	
6. Appropriate objectives were developed with the students.	_____	
7. Necessary precautions were indicated.	_____	
8. Key points were emphasized	_____	
9. Proper use and care of equipment were emphasized.	_____	
10. The demonstration was performed with skill and precision.	_____	

	RATING Superior Fair Poor	COMMENTS
11. Appropriate standards of accuracy were emphasized.	_____	
12. Basic principles were brought out as the demonstration proceeded.	_____	
13. Student participation added to the effectiveness of the demonstration.	_____	
14. Important steps were summarized effectively.	_____	
15. Forward connections were made and next steps indicated.	_____	

* SUGGESTIONS FOR USING THE GUIDE

The 15 statements listed in the left-hand column of this guide describe briefly some approved practices for conducting demonstrations in vocational agriculture. If a given approved practice is utilized in a highly satisfactory manner, a mark should be placed on or near the left end of the corresponding scale in the middle column. If the practice is poorly applied, the mark should be placed on or near the right end of the scale. (A situation between these extremes should be marked at an appropriate point alont the line.) Under the column headed COMMENTS a note should be made if the practice is completely lacking or if a brief description will help clarify the rating which is made. After noting the strengths and weaknesses of the demonstratoon as shown by the ratings recorded for it possible methods of improvement should be considered. (In many cases, the teacher may decide to have the students aid in evaluating the demonstrations and in making suggestions for improvement).

A GUIDE FOR EVALUATING FIELD TRIPS IN VOCATIONAL AGRICULTURE*

Department of Teacher Education, Michigan State University

1964

Place visited_____Date_____

Classes or classes included_____No. who went_____

Purposes or objectives of this trip_____

CRITERIA OR "APPROVED PRACTICES"	RATING Superior Fair Poor	COMMENTS
Purposes or Objectives:		
1. The purposes are clear and definite.	_____	
2. Students shared in formulating the purposes of the trip.	_____	
3. The purposes are such that this field trip is especially desirable as a teaching device.	_____	
Preliminary Preparation:		
4. It is evident that students were oriented to the need for this trip, especially in relation to supervised farm practice.	_____	
5. Appropriate questions to be asked and observations to be made were developed with the class.	_____	
6. Responsibilities to be assumed by participants were discussed and delegated.	_____	
7. Specific directions were developed for all phases of the trip.	_____	
8. Preliminary arrangements were made at the farm or other places to be visited.	_____	
9. Arrangements for transportation were carefully made.	_____	

CRITERIA OR "APPROVED PRACTICES"	RATING Superior	Fair	Poor	COMMENTS
10. Proper arrangements were made made with the school administration and school staff.				
Conduct of the Trip:				
11. Students responsibility was assumed as planned.				
12. A high degree of interest was shown throughout the trip.				
13. Student participation was in keeping with the nature of the trip.				
14. Students made appropriate notations and observations.				
15. Proper courtesies were extended to the persons at the place visited.				
16. The time schedule was kept as planned.				
Outcomes and Results:				
17. Students particpated in evaluating the trip.				
18. The students participated in summarizing the trip and drawing appropriate conclusions.				
19. This field trip contributed significantly to programs of supervised farm practice, through the development of necessary skills, knowledge, approved practices, awareness of new problems, or broadened program.				
20. New interests resulting from the trip were in evidence through informal comments, extended reading and contributions in agriculture and other classes.				
21. The students showed growth in ability to plan <u>for</u> and participate <u>in</u> later field trips.				

SUGGESTIONS FOR USING THE GUIDE:

The 21 statements listed in the left-hand column of this guide describe briefly some criteria or "approved practices" for conducting field trips in vocational agriculture. If, in the field trip being evaluated, a given approved practices is used in a highly satisfactory manner, a mark should be placed on or near the left end of the corresponding scale in the middle column. If the practice is poorly applied, the mark should be placed on or near the right end of the scale. (Situations between these extremes should be marked at an appropriate point along the line.) Under the column headed "comments" a note should be made if the practice is completely lacking or if a brief description will help clarify the rating which is made. After noting the strengths and weaknesses of the field trip, shown by the rating recorded for it, possible methods of improvement should be considered. (In many cases, the teacher may decide to have the students aid in evaluating the field trips and in making suggestions for improvement.)

A GUIDE FOR EVALUATING ON-FARM INSTRUCTION IN VOCATIONAL AGRICULTURE

Department of Teacher Education, Michigan State University

1964

Suggestions for use -- the primary purpose of this guide is to help student teachers analyze their procedures in making home farm visits. However, parts of this guide may be found useful by regular teachers. Parts not applicable, should be so indicated.

Place visited_____Date_____

Purpose or Objective of visit_____

I. PRELIMINARY PREPARATION	RATING Superior Fair Poor	COMMENTS
1. Parents and/or student shared in initiating the visit.	_____	
2. The purpose of the visit was clear to the student and teacher.	_____	
3. The student's folder was reviewed by the instructor to better understand the student and to make sure of continuity with previous visits.	_____	
4. Plans were adjusted to use recommendations made from previous visits.	_____	
5. All materials needed on the visit were collected beforehand.	_____	
6. The time, date and place to meet were clearly determined by the student and teacher.	_____	
7. Several visits were planned in the same locality.	_____	
8. Word was left with the administration so that the student's and teacher's whereabouts during school hours were known.	_____	
ON THE FARM:		
1. Dress was appropriate for the occasion.	_____	

	RATING Superior Fair Poor	COMMENTS
2. A definite time and date of visit were adhered to.	_____	
3. The student identified his problems, and they were discussed with the teacher and/or the parents.	_____	
4. As many phases of the supervised farming program were observed and discussed with the students as time permitted.	_____	
5. The instructor checked records, made helpful suggestions and taught skills where needed.	_____	
6. The student decided on a definite and desirable course of action.	_____	
7. Parent-teacher-student relationships were improved by the visit.	_____	
8. Proper courtesies were extended at the time of leaving.	_____	
9. Immediately following the visit, observations were recorded by the instructor as to improvements to be made in the farming program.		
10. Unsolved problems were also recorded.	_____	

III. FOLLOW-UP OF PREVIOUS VISITS:

1. Plans and improvements which had been agreed on were carried out.	_____	
2. Evidence of growth was noted.	_____	
3. Supervised farming program has expanded in quality and quantity since the last visit.	_____	
4. Records of this visit have been filed.	_____	
5. Plans were made for future visits.	_____	

STUDENT TEACHING EVALUATION SUPPLEMENT

WORKING WITH POST-HIGH SCHOOL ENROLLMENTS

--Please circle one number in each item. (General Over-all rating)
--Criteria used is the same as that for the student teacher with only day-students. Exteption -- VI. Personal Qualities.

I.	Working with post-high school students	1 2 3 4 5 6 7 8 9 10
II.	Establishing classroom climate.	1 2 3 4 5 6 7 8 9 10
III.	Planning for instruction.	1 2 3 4 5 6 7 8 9 10
IV.	Managing instruction.	1 2 3 4 5 6 7 8 9 10
V.	Command of subject and teaching material.	1 2 3 4 5 5 7 8 9 10
VI.	Developing work experience programs	1 2 3 4 5 6 7 8 9 10

Key to marking: Circle one number for each item according to the numerical scale below. 1 is the low end, and 10 is the high end.

1 - 2 An unsatisfactory student teaching performance.

3 - 4 Will need considerable help and supervision during first year of teaching.

5 - 6 Well prepared to begin teaching. Should do a good job during first year.

7 - 8 Considerable better than expected of a student teacher. Should do a superior job during first year of teaching.

9 - 10 A performance rarely seen in student teachers. Should do an outstanding job during first year of teaching.

Comments:

STUDENT TEACHING EVALUATION SUPPLEMENT FOR WORK EXPERIENCE PROGRAMS

WORK EXPERIENCE PROGRAMS

A. Arrange for Work Experience Programs

1. With employer	1 2 3 4 5 6 7 8 9 10 Ins. Ev. *
2. With student trainee	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
3. With school scheduling	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
4. With parents	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

B. Arrange for Desired Experiences

1. Orientation of employer	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
2. Orientation of student trainee	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

C. Discusse Periodic Performance Reports of the Trainee

1. With employer	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
2. With student trainee	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

D. Conduct Group Conferences for Evaluation of Experiences

1. With employer-student trainee-teacher	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

E. Secure Final Evaluation of Work Experiences

1. From employer, trainee, and teacher	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
2. Reviews final evaluation	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
3. Makes recommendations for school files	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

F. Placement and Follow-up

1. Locates employment opportunities	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
2. Provides statement of trainee's abilities and experiences	1 2 3 4 5 6 7 8 9 10 Ins. Ev.
3. Obtains periodic evaluation of trainee's performance on the job.	1 2 3 4 5 6 7 8 9 10 Ins. Ev.

<u>Effectiveness in Working With Work Experience Programs</u>
(General Over-all Rating)

One number of this item must be circled for student teachers working with WORK EXPERIENCE PROGRAMS 1 2 3 4 5 6 7 8 9 10

COMMENTS:

* See page 3 for the code

SUGGESTED TOPICS FOR STUDENT TEACHER SEMINARS*

WORKING WITH PEOPLE

Coordinator's Responsibility

Interpreting the teaching profession and the Vo-Ag program to people in the community

Carrying out a summer instructional program

Supervising Teacher's Responsibility

Establisbing and maintaining favorable school and community relationships

Consulting farm people and locating their problems

Working effectively with the Extension Service, Farm Organizations and other agencies.

Preparing state reports and using state consultants effectively.

ESTABLISHING CLASSROOM CLIMATE

Providing a satisfactory learning environment

PLANNING FOR INSTRUCTION

Outlining course content and allocating units

Securing information on individual students

Improving a department of vocational agriculture

Working with people in planning and organizing the instructional program

Adjusting FFA programs and activities for specialized students

Objectives and programs of vocational agric.

Providing for individual differences

Developing units and short-time teaching plans

Using appropriate teaching techniques

Developing course objectives based on vocational goals of students

MANAGING INSTRUCTION

Testing student learning and improving instruction

Organizing and managing shop and laboratories

Teaching in shops and laboratories

Teaching on the farm or in work experience programs

Leading class members in decision making

Directing supervised study

*Secure the bibliographies prepared for these topics for the current year by the Coordinator.

COMMAND OF SUBJECT AND TEACHING MATERIALS *

Coordinator's Responsibilities	Supervising Teacher's Responsibilities
Using resource people	Developing teaching aids
Understanding other programs of vocational education	
PERSONAL QUALITIES	
Developing personal objectives and planning for self-evaluation	
PROFESSIONAL QUALITIES	
Planning and evaluating student teaching activities	Participating in the professional work of the school
Evaluating the local program of vocational agriculture	Developing records for evaluating programs of vocational agriculture
Studying programs of vocational agriculture in other schools	Developing an understanding of the total vocational educational program in a school and community
Effectively planning and using teacher time	Working with teacher organizations
Planning for professional improvement	
Securing a teaching certificate and a teaching position	
WORKING WITH POST-HIGH ENROLLMENTS	
	Organizing and developing post-high and adult programs
DIRECTING WORK EXPERIENCE PROGRAMS	
Counseling students and prospective students of vocational agriculture	Studying and interpreting information secured during supervision of work experience programs
Utilizing the school guidance program	Developing records and evaluating work experience programs
Utilizing tests and test results in guidance	Assisting class members to implement decisions

*Secure the bibilography prepared for these topics for the current year by the coordinator

VT 001 444
Summer Experience for Prospective Leaders in Agricultural Education.

North Carolina Univ., Raleigh. N.C. State Univ. School of Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 12p.

*STUDENT TEACHERS; STUDENT TEACHING; *MANUALS; *VOCATIONAL AGRICULTURE; *TEACHER EDUCATION; COOPERATING TEACHERS; PRESERVICE EDUCATION; VOCATIONAL AGRICULTURE TEACHERS; RECORDS (FORMS); *SUMMER PROGRAMS; WORK EXPERIENCE PROGRAMS

This mimeographed guide for student teaching contains sections for use in orienting student teachers and a framework for use in reporting their summer teaching experience. The orientation section contains: (1) Summer Experience With a Vo Ag Teacher, (2) Summer Experience--Alternate Program, (3) Values of Summer Experience in Vo Ag, (4) How You Should See Summer Experiences, (5) The Purpose of This Guide, and (6) Follow-Up of the Summer Experience Report. The section relating to the report framework contains forms and suggestions, including: (1) background information, (2) objectives, (3) experience log, (4) special reports, and (5) student evaluation of the program. (DM)

VT 001 444

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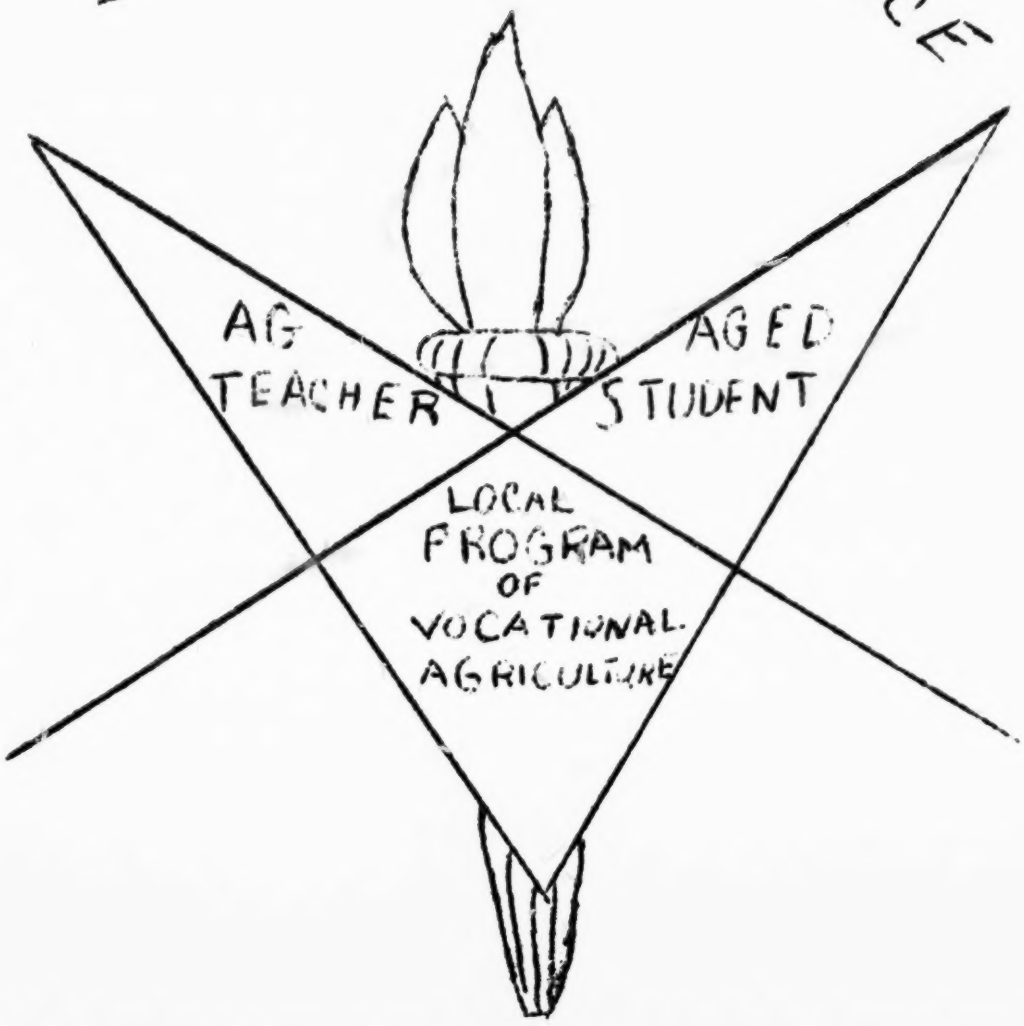
SUMMER EXPERIENCE



FOR PROSPECTIVE LEADERS IN AGRICULTURAL EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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School of Education
Department of Agricultural Education
North Carolina State
of the University of North Carolina
Raleigh

Revised Spring, 1965

VT001444

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SECTION I. ORIENTATION TO SUMMER EXPERIENCE

Summer Experience - With a Teacher of Agriculture

Summer Experience in Agricultural Education is basically a pre-student teaching, exploratory experience of the occupation of teaching agriculture in the public schools. As currently conceived, it consists of a minimum period of five days of professional experiences with a teacher of agriculture while he is conducting the summer activities of the local program of agricultural education.

Summer Experience - Alternate Program

All students of agricultural education are expected to participate in some type of professional "summer experience." The vocational objectives of the student are important factors in determining the most desirable type of summer practice. For those students who seek to enter an occupation other than teaching, an alternate program to the one discussed in this guide may be considered more appropriate. For example, it may be possible to conduct a summer experience program with such agencies as the F.H.A., S.C.S., the Cooperative Extension Service, or in areas of agri-business or farming. To consider such possibilities a student would need to devise an individual plan in cooperation with his advisor.

Values of Summer Experience in Vo Ag

The summer experience with a teacher of agriculture should prove to be a challenging opportunity in which you enlarge your understanding of the people, the program, and the processes in agricultural education. Many of you have known only one high school Vo Ag situation; some of you have had no Vo Ag experience. Your grasp of concepts, principles, and practices to be studied in student teaching should be more meaningful and more complete because of your enriched background of realistic situations and problems derived from summer practice.

The summer activities of a Vo Ag teacher differ in several ways from those conducted during the formal school year. Summer is a time for renewal of facilities, supplies, teaching materials, and curriculum. Supervised practice for adults, as well as boys, usually receives more teacher attention. The flexibility of the summer schedule is a factor in program planning not encountered in the formal school year. Without summer practice, the prospective teacher is likely to miss an important and unique aspect of the local Vo Ag program.

In this time of crowded curriculum and "high pressure" schedules, summer practice provides a welcome "low pressure" opportunity to explore your prospective occupational choice. There is no official grade nor college credit directly attached to the program, although it could be conceded that this experience probably does affect these indirectly through an improved performance in student teaching.

How Should You "See" Summer Experiences"?

Much of the effectiveness of summer practice depends upon the approach that you as a student take toward this experience. Most students look forward to a challenging experience. It takes this kind of an outlook because much of the inititive for conducting it must come from you. It is your responsibility to locate a cooperating teacher and to plan your program. The teacher should be one who willingly accepts you and will help you plan a variety of desirable experiences. You should consider your past experiences and select new experiences to supplement them. It may be wise to have a preliminary discussion with the teacher to determine whether opportunities available to you will be most appropriate for you, considering your particular desires and needs. The school nearest your home may not be the best situation for you.

The Purpose of This Guide

There is a two-fold purpose for this brief pamphlet:

1. To provide an orientation to the values and the process of the program of summer experiences

2. To serve as a final report of your summer experience program to be turned in to your advisor at the beginning of your student teaching semester.

The "orientation" section is aimed at helping you to plan and initiate your summer experience program. The "Report" section (see next page) is designed to aid you in analyzing some selected experiences. In making your report, we suggest that you list only the most significant activities for each day of experience. Then we ask that you analyze two or three, or more, of these experiences in the following terms:

1. How important was this as an activity of the summer Vo Ag program?

2. What reasons were given by the local teacher for conducting this activity?

3. In what ways do you agree with the teacher about this activity, and why?

4. In what ways do you disagree, and why?

5. How would you improve the effectiveness of this activity?

It is assumed that one or two paragraphs about each "analyzed" activity should provide ample opportunity for you to express your viewpoint and rationale. To illustrate the point, it is not necessary that you try to answer the suggested questions in any one, two, three fashion.

We look forward to at least one session, in small groups, during the on-campus phase of student teaching for a discussion of several activities drawn from your reports.

It is also expected that the staff member who supervises your student teaching will assist you further in modifying your individual student teaching experiences in the light of your summer practice program.

SECTION II. REPORTING MY SUMMER EXPERIENCE PROGRAM IN AGRICULTURAL EDUCATION

Preliminary Information

Your Name _____

Home Address _____ County _____

School selected for Summer Practice _____

Address _____ County _____

Teacher(s) of vocational agriculture _____

_____

Summary of arrangements or agreement with teacher. (Include date or dates.)

_____

_____

_____

_____

_____

_____

OBJECTIVES OF THE SUMMER PRACTICE EXPERIENCE

Agricultural Education Department Objectives

1. To provide the prospective vocational agriculture teacher an opportunity to study the relationship of the program of vocational agriculture to the school and the school-community.

2. To provide an opportunity for the prospective teacher of vocational agriculture to develop an understanding of the work of the teacher of vocational agriculture during the summer months and its relationship to the success of the total program.

3. To provide an opportunity for the prospective vocational agriculture teacher to find out HOW and WHY a teacher of vocational agriculture plans for and conducts certain activities.

4.

5.

Question: What do you hope to gain from your summer practice?

(Prospective Vocational Agriculture Teacher's Objectives:)

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

LOG OF EXPERIENCES

Date_____

Directions: In the left hand column, list the experiences which you were engaged. In the right hand column, analyze each experience in term of (1) How important was this activity in a summer program? (2) What reason did the teacher give for conducting this activity? (3) In what ways do you agree or disagree with the teacher about this activity, and why? (5) How would you improve the effectiveness of this activity? (Refer to page 3.)

The Experience Gained	How I See This As An Educational Experience in the Local Vo Ag Program

Special Report I: Teacher Employment Process

Direction: Confer with teacher of agriculture to determine the procedure used to employ teachers in this county and school.

Special Report II: Maintaining Vo Ag Facilities

Direction: Confer with teacher to determine procedures used in purchasing shop equipment and instructional supplies and in maintaining equipment.

Special Report III: Resources for Vo Ag Teacher

Obviously, the agriculture teacher needs help in planning and conducting a program of vocational agriculture. Confer with the agriculture teacher to find out who is available and who can be called upon to help in:

a. Getting technical information

_____

_____

b. Conducting specialized or technical classes

_____

_____

c. Getting information to keep up-to-date on district and county agricultural conditions

_____

_____

d. Getting new improved practices started

_____

_____

e. Getting real support in the Vo Ag program

_____

_____

f. Evaluating the work of the department

_____

_____

g. Scheduling all-day classes

_____

_____

EVALUATION OF THE SUMMER EXPERIENCE PROGRAM

Introduction: And now we are asking the $64.00 question: What does it all mean to you? What did you gain from this summer experience? As a start, we suggest that you refer to the objectives which you established at the beginning of this experience program. To what extent have you reached these objectives? In addition, we welcome your suggestions for changes in the program of summer experiences.

VT 001 449
Problems of Vocational Education in Utah. Research Report, Report No. 254.

Utah Foundation, Salt Lake City
MF AVAILABLE IN VT-ERIC SET.
Utah Foundation, 818 Kearns Building, Salt Lake City, Utah 84101 ($.25 prepaid).
Pub Date - Dec67 6p.

*VOCATIONAL EDUCATION; *EDUCATIONAL PROBLEMS; *POST SECONDARY EDUCATION; EMPLOYMENT PATTERNS; PROGRAM COSTS; FEDERAL AID; *EDUCATIONAL OBJECTIVES; *EDUCATIONAL NEEDS
UTAH

Utah traditionally has ranked at or near the top of the list of states on the basis of financial effort in support of public education. However, the adequacy of at least one facet of the school system, vocational education, is now being questioned in many quarters. The topical approach to this basic problem in this report includes: Causes of Imbalance, Progress in a Decade, Levels of Instruction, Different Approaches, High Cost Factors, Post-Secondary Education, Boards of Control, Quality of Programs, Vocational Rehabilitation, and Federal Aid. The relative neglect of vocational education in Utah appears to be due to prejudice on the part of parents, students and many educators. Students who follow vocational programs or terminal programs, short of the baccalaureate level, are frequently branded as "academic failures" even though society urgently needs technicians, skilled craftsmen, and other subprofessional workers. A 1966 study of Utah's vocational education program reported that Utah may be training college graduates for other states, at a high cost to Utah, or else college graduates may be forced to accept subprofessional employment. (CH)

VT 001 449

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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RESEARCH REPORT

PROBLEMS OF VOCATIONAL EDUCATION IN UTAH

December, 1967
Report No. 254

HIGHLIGHTS

- Although only about 20% of primary school students can be expected to obtain baccalaureate or higher college degrees, the educational programs of Utah and of the nation are heavily college-oriented. Many authorities question the ability of the existing system fully to meet the needs of the majority of young people or of society.
- Projected non-farm employment needs in Utah indicate about 15% of 1967-1970 requirements will be at professional levels. Of those destined to fill the 85% of available jobs at lower than professional level, comparatively few may be receiving adequate vocational-technical training.
- A 1966 study of Utah's vocational education program reported that the Beehive State may be over-producing college graduates in terms of available employment opportunities and seriously under-producing at sub-professional levels in terms of the existing and projected employment patterns. Utah may be training college graduates for other states, at high cost to Utah, or else college graduates may be forced to accept sub-professional employment.
- The relative neglect of vocational education, in Utah and across the nation, appears to be due to prejudice on the part of parents, students, and many educators. Students who follow vocational programs, or terminal programs short of the baccalaureate level, are frequently branded as "academic failures," even though society urgently needs technicians, skilled craftsmen, and other sub-professional workers.
- Many Utah legislators agree that vocational education is getting less than its share of the educational dollar and blame popular prejudice and pressure for this situation. One legislator said "no one speaks (lobbies) for the vocational schools."
- Business leaders concerned with vocational education say Utah has made rapid progress in this field in the past decade and that the existing program of providing training to meet the specific needs of the industry is excellent. Cooperation between educational institutions and industry is praised by both business and educational leaders.
- Strong programs in vocational education are urged at both high school and post-high-school levels. Some authorities believe that high school vocational training should prepare students for post-high-school vocational training in the same way the high school academic program prepares students for college.

UTAH FOUNDATION

Utah Foundation is a private, nonprofit public service agency established to study and to encourage the study of state and local government in Utah, and the relation of taxes and public expenditures to the Utah economy.

VT001449

PROBLEMS OF VOCATIONAL EDUCATION IN UTAH

Utah traditionally has ranked at or near the top of the list of states on the basis of financial effort in support of public education. However, the adequacy of at least one facet of our school system, vocational education, is now being questioned in many quarters. This problem is not confined to Utah, but is also faced by other states and by the nation at large.

Numerous studies indicate that only about 20% of students in the primary grades are likely eventually to complete four years of college, and it is expected that only about 15% of Utah employment in the years immediately ahead will be at the professional level, requiring a baccalaureate or higher degree. (See Table I). Yet the educational system is heavily college-oriented, causing many people to ask whether it is realistically designed to meet the needs of our young people and of our society.

A report on Utah's program of vocational education made by the Division of Surveys and Field Services of the George Peabody College of Teachers in 1966, at the request of the Utah State Department of Public Instruction, underlines these dual questions of whether Utah is overproducing for available employment in professional areas and seriously under-producing at sub-professional levels in terms of existing and projected employment patterns.

Many Utah educators, business and community leaders, and legislators say that Utah's system of public education is out of balance to at least some degree and that vocational education is the area of chief neglect. Opinions vary on what should be done to correct the imbalance.

CAUSES OF IMBALANCE

Causes of the existing situation are easy to find. Parents who are college graduates naturally want their children to follow the same path, and perhaps go beyond to new and higher levels of advanced academic degrees. Parents who did not go to college, or who did not complete requirements for a college degree, want their children to enjoy the advantages that the parents did not have. Students are repeatedly told that "there is always room at the top" and urged to seek the highest possible academic attainment and professional career. Educators unceasingly strive for higher academic rating and prestige for themselves and their institutions. Inevitably, terminal education short of the baccalaureate degree, and especially vocational training involving manipulative rather than intellectual skills, lose stature. Many people feel that, in this particular, the educational system has lost touch with reality.

From the point of view of the student, the "always room at the top" philosophy may be unreliable. It is frequently valid on an individual basis—provided the individual has the necessary personal qualifications—but there simply do not exist enough openings at the professional level to accommodate a major fraction of those who would like to fill them. As a consequence, college graduates may end up in sub-professional careers, or at very least may have to move to distant places to find suitable career employment. Other young people who enter four-year colleges drop out before graduation, acquiring a stigma of failure—and probably no meaningful assistance toward career employment.[1]

The term "vocational education" is generally applied to training or schooling whose aim is specific earning skills rather than academic achievement. The range of vocational subject areas extends from those of the technician,[2] only slightly below the professional level and involving extensive study of many academic subjects, through those of the skilled and semi-skilled craftsman, down to those of the simple service occupations. Vocational education courses may be offered at various educational levels from that of the four-year college down to high school and even junior high school. The program is primarily concentrated in high schools, two-year junior colleges, and special technical colleges.

PROGRESS IN DECADE

Whatever the present quality of Utah's program of publicly-supported vocational education, most educators, industrial leaders, labor representatives, and legislators who are most closely concerned with it believe that it has made significant gains in the past decade. In 1957, to meet the needs of industry—particularly the highly technical and specialized needs of the missile and electronics industries then getting established in Utah—a committee was set up by industry to provide information on the type of job training needed to fill its immediate and long-range requirements. A committee representing education was named by the Governor to develop vocational training courses to corre-

Table I

Projected Total Non-Farm Job Requirements in Utah 1967-1970

Classification	*Number*	*Percent of Total*
Professional	12,100	15%
Semi-professional	3,400	4
Managerial	4,900	6
Clerical	14,300	18
Sales	5,900	7
Service	11,800	15
Skilled	12,800	16
Semi-skilled	7,700	10
Unskilled	6,300	8
Unclassifiable	300	1
Total	79,500	100%
Total below professional level	67,400	85%

SOURCE: Prepared by UTAH FOUNDATION from projections made by Utah Department of Employment Security.

[1]Grant Venn in *Man Education and Work*, page 23, published by the American Council on Education, 1964, says that at the present time "only one student in ten leaving the educational system without a bachelor's degree has some specific occupational preparation."

[2]Technicians are defined as "Persons engaged in work requiring a knowledge of physical, life, engineering, and mathematical sciences comparable to knowledge acquired through technical institute, junior college, or other formal post-high-school training, or through equivalent on-the-job training or experience," in *The Long-Range Demand for Scientific and Technical Personnel* prepared for the National Science Foundation by the U.S. Bureau of Labor Statistics.

spond with industry's requirements. A joint industry-education-labor coordinating committee was established to bring all elements, including labor's apprenticeship program, into an integrated program.

In 1957, the published rating of Utah's educational system by the Industrial Expansion Committee of the Utah Manufacturer's Association was "critical" (on a rating scale: "critical," "poor," "fair," "good," "excellent.") The most recent (1966) published rating was "good." A UMA spokesman attributes the improved rating to the fact that "ten years ago, our public schools were educating only for college; now we also have a much improved program of vocational education." He added that "Utah has made as much progress in vocational education in the past decade as any state in the Union—if Utah is still behind in many areas, it is only because we were so late in getting started."

Another business and financial leader, who was closely connected with the coordinating program at its inception, recently said that Utah schools' cooperation with industry over the past ten years has been "more than we had any right to hope for." A labor leader voiced satisfaction with the public schools' vocational program "in response to requests for specific training." Legislators from both major political parties who have devoted special attention to vocational education agree that the program of specific training to meet specific needs is the most impressive facet of Utah's overall vocational effort.

There is more difference of opinion concerning other aspects of the program, and as to what should be done to effect further improvement.

LEVELS OF INSTRUCTION

Opinions differ on the scholastic level on which major vocational emphasis should be directed. Some contend that principal emphasis should be in high school on the theory that substantial numbers of those who do not pursue professional careers do not have any schooling beyond high school. Another point of view is that the demands of the modern highly-technical economy require some post-secondary training for all except those who fill the very lowest unskilled job categories—categories that are steadily growing smaller in relation to the rest of the economy. It is now generally agreed that vocational programs are needed at both secondary and post-secondary levels, with opinions varying on where the greatest emphasis should be applied. A spokesman for Utah industry has urged that at least some high school vocational courses should be aimed at preparing students for post-high-school vocational training in the same way that high school academic courses prepare students for college.

The Peabody report recommends that at least two courses in vocational education—one dealing generally with "the world of work" and the other with a specific manual or "blue collar" skill of the student's choice—be made pre-requisites to high school graduation. Reactions to this proposal vary, but there is general agreement that most high school students should have some "exposure to vocational training" to help them decide where their talents and inclinations lie.

Many vocational educators complain that the popular notion of this branch of schooling is that it is only "a haven for drop outs." It is widely recognized that vocational education is one of the most effective weapons in combatting the dropout problem—by providing interest and incentive to students whose talents and/or interests do not lie in academic fields—but it is also pointed out that society should be actively concerned with educating as many as possible of its young people to fill the various positions which our modern economy provides without giving the majority who do not attain professional status the image of "rejects."

DIFFERENT APPROACHES

A Utah legislator closely connected with vocational education proposes that provision be made for students who adopt a course of vocational-technical training to "transfer up" to programs leading to academic degrees, without loss of school credits, if they later find it desirable.

"We need to build from the bottom up, not merely sift from the top down," he said. "Our present system brands those who end up in vocations below the professional level as failures, and severely penalizes the skilled craftsman or technician who may wish to become a professional engineer."

Accepted accreditation policies stand in the way of the proposed change in approach, but efforts are being made to effect the changes that would be required.

The closely-related subject of teacher accreditation is also a much-debated question in vocational education. Division on the basic issue of subject matter versus pedagogy is found in the ranks of vocational as well as academic educators. A Utah business leader recently said that effective vocational-technical teaching requires practical experience, and that programs cannot be successful "if we have teachers who know how to teach but don't know how to weld." It is generally agreed that effective vocational teachers must know thoroughly the techniques of modern industry. A report published by the American Council of Education,[3] however, warns against selecting vocational teachers solely on the basis of their own experience in industry, noting that such an instructor's knowledge "tends to be circumscribed by his job experience" and that after he has left the job for the classroom "he tends to be isolated from newer developments in industry."

Vocational guidance counsellors in the schools are important elements in the technical education program, assisting students to match choices of career with their talents and inclinations, and assisting them to find jobs for which their training has fitted them. Many business leaders believe that today's counsellors are too academically- and social-science-oriented to be fully effective. The state director of vocational education concedes there is at least some basis to this charge, but says that early-day, vocationally-oriented counsellors were ineffective because pupils and especially parents were prejudiced against counsellors with vocational backgrounds—the basic problem

[3] *Man Education and Work*, op. cit., page 35.

which affects every phase of the vocational education program.

HIGH COST FACTORS

A problem inherent in vocational education is its comparatively high cost. Turret lathes, data processing equipment, modern typewriters—in short, all the essential tools for teaching and learning skills required today in business and industry—are tremendously more expensive than equipment needed for most academic classes. This fact is reflected in the need to limit the vocational offerings of high schools and even post-high-school institutions. The Peabody report recommends that high schools with enrollments in excess of 300 offer moderate choices of vocational programs, but that area schools be designated in rural regions to develop more extensive and more costly programs. These could serve not only high school and post-high-school students, but also adults who need vocational training, or retraining, to meet the requirements of shifting employment patterns.

Even in metropolitan areas, where high school enrollments are large, the high cost factor makes it inadvisable to provide a full range of vocational offerings in a number of institutions in close proximity. Opinions differ on what should be done.

One alternative is to select one institution to specialize in vocational programs and have it serve a large area. Objection to this approach is based in the old problem of parental and student prejudice. The institution may acquire a reputation as a "trade school" and students transferring to such an institution from other schools may be branded as academic failures.

A third approach has been suggested. All high schools in a metropolitan area would offer some vocational courses, but each school would specialize in a particular area of technical instruction. Students from any of the schools would be permitted to transfer to any other in order to enroll in vocational courses offered by that institution. Proponents of the plan say that none of the schools would be branded as "trade schools" and that opposition to students transferring from one school to another would be greatly lessened. Opponents say that none of the vocational programs would be properly developed because experience has shown that school administrators inevitably tend to favor academic over vocational programs where the two are offered in the same institution.

POST-SECONDARY EDUCATION

This same problem carries over into the post-secondary level. Many authorities believe that post-high-school vocational education can best be developed in junior colleges which offer a variety of terminal education programs, as well as academic courses from which credits may be transferred to four-year, degree-granting institutions. The "community college," a comprehensive junior college which meets these needs and also offers extension and evening classes for adults and a variety of cultural programs for the entire community, has found wide acceptance in recent years.[4] The arguments for and against making such institutions the chief vehicle of post-secondary vocational education development closely parallel those advanced at the high school level. Supporters of the community college concept say it avoids the "trade school" stigma which attaches to purely vocational institutions; opponents contend that vocational programs become submerged in the institutions' aspirations for academic prestige.

The Peabody report recommends the development of vocational programs in Utah's two-year junior colleges, but cites Weber State College as an example of what happens when a junior college acquires four-year, degree-granting status. Weber's once-widely-acclaimed technical-vocational program has been notably down-graded, it is asserted. Many Utahns concerned with vocational education share the Peabody conviction, but the administration at Weber State vigorously denies the charge. President William P. Miller issued a statement in October, 1967 asserting that the change to four-year status "has in no way shifted the college's position in preserving, maintaining, and expanding its existing vocational-technical education programs." The institution's records show steady growth of its School of Technology and Trade-Technical Education over the past six years in number of faculty, number of courses offered, number of daytime students, and number of total students (although the number of evening students has declined substantially).

At the present time, publicly supported post-secondary vocational education in Utah is offered in some degree at each of the four-year institutions, at the three two-year junior colleges, and at two institutions which specialize in vocational-technical training, the Utah Technical Colleges at Salt Lake and Provo. The names of these last two institutions were changed by the 1967 Legislature from "Trade Technical Institutes" (and had previously been changed from earlier designations as "Vocational Schools") in the specific aim of combatting the prejudice-prestige problem which continually plagues vocational education.

The 1965 Utah Legislature gave serious consideration to combining the Salt Lake Technical College, then in the early stages of building a new campus, with a community college to serve the metropolitan area and relieve the enrollment pressure on the University of Utah. A factor in the eventual defeat of the proposal was the argument that the vocational program would eventually be made secondary to the academic under such an arrangement. One leading legislator proposed that a community college, academically oriented, be built adjacent to the technical college, allowing the two institutions to share such facilities as library, food services, general campus and recreational areas, and building maintenance operations. Separate administrations would be maintained to avoid the danger of academic development dominating vocational.

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[4]For a discussion of the Community College question see Utah Foundation Report No. 230 for October, 1965. Other Utah Foundation Reports bearing on the vocational education question include *Vocational Education in Utah*, Report No. 42 of 1946, *Vocational and Technical Education in Utah*, Report No. 153 for June, 1958; and *Utah's 1967 Public School Finance Program*, Report No. 247 for May, 1957.

BOARDS OF CONTROL

The Utah State Board of Education acts by law as the State Board of Vocational Education. In this capacity it has jurisdiction over the vocational program at the secondary level and also at the two technical colleges. The State Board also has jurisdiction over one of Utah's junior colleges, Dixie, but the other two junior colleges are branches of four-year institutions (College of Eastern Utah of the University of Utah and Snow College of Utah State University) and so come under the governing boards of the parent institutions. There is widespread dissatisfaction with this divided authority over institutions with comparable status and programs, but a division of opinion on what the solution should be. Some urge that all junior colleges and technical colleges be placed under the State Board of Education. Others advocate the creation of a separate junior college board, and at least one legislator proposes separate boards for junior colleges and for technical colleges, both to come under the supervision of the Utah Coordinating Council of Higher Education.

QUALITY OF PROGRAMS

As already noted, specific vocational-technical programs designed to meet specific and closely-defined requirements of Utah industry are generally highly rated. Some questions are raised, however, concerning the merits of some of the standard vocational offerings in at least some of Utah's schools.

One concerns the problem of keeping up with the fast-moving technology and training people for tomorrow's jobs rather than for yesterday's. A national magazine article[5] charged that vocational education across the United States is turning out "unneeded farmers, cabinet-makers, and weavers while the demand is rising for business machine repairmen, chefs, auto mechanics, and electrical servicemen, to mention only a few of the skills in short supply." A researcher[6] estimated that only one in ten American youths living on farms in 1963 would have employment on a commercially-profitable farm by 1970. Utah's economy has long since changed from an agricultural to an industrial base, yet many courses in vocational agriculture continue to follow traditional lines. At the same time, such up-coming off-farm but farm-related vocations as greenhouse management, park and golf course management, food processing, marketing, farm equipment repair, and others are often neglected although they could turn agricultural backgrounds into marketable skills for today's and tomorrow's worlds. The Peabody study did find, however, that at least some Utah high schools are offering up-to-date courses in agriculture-related vocational areas.

Business education is by far the most popular vocational course in Utah high schools, accounting for about 80% of total high school vocational enrollment in Utah, but most of the emphasis is on typing and shorthand, appealing primarily to girls. The Peabody report found a need for more courses in junior management.

At the post-high-school level, the quality of courses is generally highly rated, especially at the two technical colleges and in the specialized vocational areas included in the curriculum at Utah State University. However, the choice of curricula comes in for some criticism. A Utah legislator with extensive experience in vocational education believes that the curricula of the two technical colleges are too nearly identical and that the combined offerings of the three junior colleges add very little to the range of choice. He also says that the overall vocational program is weak at the two extreme ends of the scale, at the top where technicians must have training only a little below the professional level, and at the bottom where offerings of training for service occupations are minimal. The first of these problem areas is widely recognized. The second is less known, and the value of providing formal training at this level of skill is openly questioned by some. Those who favor limited vocational training in the lowest range of skills point out, however, that those helped are the people who have the greatest difficulty in finding and holding employment and are therefore most likely to become public welfare charges if not given some assistance.

VOCATIONAL REHABILITATION

Experience in the closely-related field of vocational rehabilitation offers some comparisons. Actually, this is a program of vocational education and training, dealing with people so handicapped physically, mentally, emotionally, or socially that many of them cannot fit into ordinary educational channels. Special training programs must be set up, and often must be tailored to individual needs. The program is expensive, but results are often impressive. According to figures published by Utah's Office of Rehabilitation Services, 3915 cases were served in fiscal 1967, and 968 persons were rated "totally rehabilitated" (an 18% increase from 1966). Average cost per complete rehabilitation was $1,284. Records indicate that 236 of the rehabilitated persons had been receiving public welfare assistance prior to rehabilitation and that only thirty-three required supplementary assistance after receiving treatment. Net annual saving in welfare costs for these 236 people is reported as $349,000, or an average of $1,479 each. While much of the emphasis of the rehabilitation program is based on humanitarian rather than strictly economic considerations, the results do indicate that economic benefits may accrue to the state when people are made self-supporting. Published figures indicate that total earnings of the 968 rehabilitants rose from $685,776 before rehabilitation to $3,981,796 after training.

FEDERAL AID

Costs of publicly-financed vocational education are shared by Federal, state, and local governments. Under terms of the Smith-Hughes Act of 1917, the George-Barden Act of 1946, the Vocational Act of 1963, and the Manpower Development and Training Act of 1963, Federal matching funds may be available for a variety of programs. Most matching is on a 1:1 ratio, but for some pro-

[5] *Learning to be Unemployable*, by Edward T. Chase, *Harper's Magazine* for April, 1963.

[6] *Man Education and Work*, op. cit., page 75.

grams under the Manpower Development and Training Act, designed to meet special requirements of defense industry, the ratio can go as high as nine Federal dollars to each dollar put up by state or local sources.

Table II shows comparisons of certain Federal, state, and local vocational expenditures for the years 1960-61 through 1966-67 in Utah. Federal expenditures include all those under the Smith-Hughes, George-Barden, and 1963 Vocational Acts, but not amounts provided for research or under the Manpower Development and Training Act. State funds include those for instruction, supervision, and State School Office administration and state money which is distributed through the state school equalization program. In computing distribution units under the equalization program, vocational classes are counted in the same manner as other classes and the State School Office may allot up to eighty-five additional distribution units (this number was increased from forty by action of the 1967 Utah Legislature) per year, to help defray the above-average costs of many vocational programs.

A report published by the American Council on Education in 1964,[7] noted that "over the past decade the national expenditure for education has increased about 170%" (an average of 10.4% a year) while "the increase in Federal, state, and local expenditures for vocational education was 87%" (an average of 6.5% a year). Table II indicates a much more rapid increase in vocational expenditures in Utah, at least since 1960. The average *yearly* increase has been 28.8% for the six years. Over the same period of time, the total of all expenditures for public education in Utah has increased 92% (from $131 million in 1960 to $251 million in 1966), an average of 11.5% a year.

The Utah Legislature makes direct appropriations to the State Board of Vocational Education for administration and for the two technical colleges. The increase over the past decade has been more than 1200% (from $1,248,000 in 1957 to $16,678,000 in 1967), an average of 29.6% a year, which is very close to the rate of increase for other vocational expenditures as shown on Table II. At least part of the high rate of increase, compared to the national figure and compared to the rate of increase of all educational expenditures in Utah, is due to Utah's vocational expansion having started from a very low base.

Table II

Federally-Shared Vocational Education Expenditures in Utah by Source of Funds—1960-61 through 1966-67*

	Federal		State and Local		
Year	*Amount*	*Percent*	*Amount*	*Percent*	*Total*
1960-61	$ 239,191	16.9%	$1,177,579	83.1%	$1,416,770
1961-62	250,888	15.6	1,361,879	84.4	1,613,137
1962-63	283,153	16.3	1,452,912	83.7	1,736,065
1963-64	282,136	14.1	1,718,938	85.9	2,001,074
1964-65	962,372	19.5	3,971,245	80.5	4,933,617
1965-66	1,425,757	23.8	4,563,859	76.2	5,989,616
1966-67	1,519,457	23.5	4,932,664	76.5	6,452,121
Percent Increase, 1960-61 to 1966-67					
Six year total		535%		319%	355%
Average per year		36.0%		27.0%	28.8%

SOURCE: Prepared by UTAH FOUNDATION from information on annual reports of Utah State Board for Vocational Education.

*Amounts shown are not total funds expended for Vocational Education in Utah.

Figures are not presently available to show the exact amount of money being spent for vocational education in Utah. State vocational educational officials say that better cost reporting and analysis procedures are being developed, but warn that the cost of developing precise information in some areas may outweigh the value of doing so. (E.g., what percentage of the salary of a high school principal or junior college president should be charged to vocational education?)

LESS THAN FAIR SHARE?

A number of Utah legislators from both political parties recently indicated that they thought vocational education is getting "less than its share of the state's educational dollar." All of those interviewed said they believed that the majority of Utah legislators shared this belief, and at least two said they could not call to mind even one Utah legislator who does not think so.

To the question of why the Legislature, which controls the purse strings, continues to appropriate a smaller share for vocational education than it believes should go to that purpose, those interviewed candidly admitted that the effect of popular prejudice and the desire for academic prestige is reflected in the legislative decisions. One legislator bluntly stated that "no one speaks (lobbies) for the vocational schools."

Many observers are convinced that the problems of vocational education deserve closer attention than they have been receiving from business leaders, from professional educators, from the Legislature, and from the public. While the needs of the academic branches of public education are admittedly great, and steadily growing, those of the less-publicized vocational-technical branch are also assuming critical importance.

While few would question the "pursuit of excellence" goal which aims at high quality academic education and production of qualified leaders for the future, vocational educators point out that approximately four-fifths of our school population will not obtain college degrees. They also note that the best prepared leaders in the sciences, arts, and professions cannot effectively function without requisite numbers of technicians, skilled and semi-skilled craftsmen, and service employees to back them up.

[7] *Ibid.*, page 30.

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Manual for Supervisors of Student Teaching in Agricultural Education.

Colorado State Univ., Fort Collins
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 7p.

*MANUALS; *COOPERATING TEACHERS; *STUDENT TEACHING; *VOCATIONAL AGRICULTURE; *TEACHER EDUCATION; STUDENT TEACHERS; PRESERVICE EDUCATION; VOCATIONAL AGRICULTURE TEACHERS

This mimeographed guide for supervision of student teaching by the cooperating teacher contains: (1) aims and objectives, (2) the role of the supervising teacher, (3) assignment of student teachers to training centers, and (4) suggestions for good relationships. (DM)

VT 001 457

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MANUAL FOR SUPERVISORS OF STUDENT TEACHING IN AGRICULTURAL EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT001457

Colorado State University
Fort Collins, Colorado

1967

AIMS AND OBJECTIVES OF STUDENT TEACHING UNDER SUPERVISION

I. Aim of Teacher Training in Vocational Agriculture

To develop teachers of vocational agriculture who can and will assist in improving the agriculture (and those engaged in agriculture) in their local communities through organized instruction provided in the public schools for all-day, young farmer, and adult groups.

II. Aim of Directed or Supervised Teaching in Vocational Agriculture

To aid through directed participating (on-the-job) experience in developing the essential abilities and attitudes needed by a beginning teacher.

THE SUPERVISING TEACHER'S JOB

Stated in general terms, the job of the supervising teacher is as follows:

The supervising teacher is responsible for the development and maintenance of good relationships between himself, the boys in classes, within the school, and among the farm people of the community.

He will be responsible in acting as the intermediary between the school administrators, other faculty members, the boys in classes, and the farm families.

He will advise the student teachers concerning living arrangements and social and professional life in the community.

He guides the student teacher in planning for and directing work in all phases of the all day and out of school classes.

He evaluates the progress of the student teacher and forwards an evaluation to the resident teacher trainer at the end of the period of the period of student teaching.

He encourages growth, watches for and interprets trends in the development of the student teacher.

PRINCIPLES DETERMINING THE ASSIGNMENT OF STUDENT TEACHERS TO THE TRAINING CENTERS

In the main, the assignment of student teachers will be made on as equitable a basis as possible after careful consideration of the student teacher, supervising teacher, the school and community, and the atmosphere within the department of vocational agriculture.

The essential factors having a bearing upon making assignments are:

1. Where two trainees are assigned during the teaching period, the men will be paired to give the boys in the department the best possible training. Each trainee will be appraised in terms of farming background, farm mechanics courses, and essential technical courses in agriculture completed, school and work experiences, scholastic record, personal traits, and qualifications.

2. A sincere attempt will be made to assign each student teacher to a center in which he will have the best possible chance to succeed. However, at the close of the third week of teaching, if favorable progress is not being made, a transfer to another training center may be made.

3. Where possible, two students will be assigned to a center, whereby the ability of one somewhat balances the lesser ability or experience of the other.

4. If one or both student teachers assigned during one quarter proves to be very superior, an effort will be made to follow up with a student teacher or teachers who will also be strong, in order that the second person or persons will not suffer too much by contrast.

5. An effort will be made to carefully consider previous farming and ranching backgrounds of each student teacher, in order that he may secure the broadest possible experience.

6. The personalities of student and supervising teachers will be considered so that the best of professional relationships may be developed.

7. Special abilities, such as livestock judging, meats, livestock or field skills, special farm mechanics training or skills, will also be a major consideration in the assignment of student teachers to a center.

SUGGESTIONS FOR GOOD RELATIONSHIPS

The establishment and maintenance of satisfactory professional relationships between all persons concerned is of basic importance in a student teaching situation. It is under these conditions that all can work together most effectively. Some of the more important suggestions are given, but it is not intended that they be considered exhaustive.

Relationships Between Supervisor and Student Teacher

A frank, congenial, happy and informal relationship is essential between supervisor and student teacher. This can be secured in several ways:

I. Cooperation may be secured by:

1. Making student teacher feel welcome and wanted.
2. Understanding each other's viewpoint.
3. Developing confidence on the part of each one.
4. Encouraging and appreciating each other's efforts.
5. Making the student teacher feel he is a definite part of the department by assignment of responsibility.
6. Give credit immediately when credit is due.

II. Good social relationships may be developed by:

1. Getting trainees acquainted in the church of his choice.
2. Inviting student teacher to faculty club or parties and getting him acquainted.
3. Inviting him to a civic club as a guest.
4. An evening of chatting or recreation in the home of the supervising teacher.
5. A Saturday afternoon hunting party.
6. Attending a movie together (Dutch treats).
7. Using a "spur of the moment" activity for relaxation:
    a. Having "coffee"
    b. Bowling
    c. Hand ball
    d. Visiting
    e. Riding

III. Good community relationships may be secured by:

1. Introducing student teacher to county agricultural agent, and other agricultural agency works, board members, merchants, and others.
2. Acquainting him with local adult programs, veterans programs, and visiting classes.
3. Acquainting him with joint cooperative efforts in agricultural planning for the community, agencies and persons cooperating.

IV. Relationships may be improved during conferences by:

1. Finding out more about home, family and college life.
2. Giving trainee a picture of your daily routine.
3. Getting home address of student teacher (in case of illness).
4. Discussing school policies, rules and regulations.
5. Discussing grading of students, standards of the department, and background of students.
6. Having a definite time for conferences, not too long, and uninterrupted by students.

Principles of Good Working Relationships Between the Supervising Teacher, Principal, Superintendent and the College Resident Teacher Trainer

1. The college supervisor does not expect the public school to change its program because of student teachers.
2. The principal and superintendent should have a part in the student teaching program. Each should be kept informed of developments. It is not expected that their time will allow for close supervision, however.
3. The resident teacher trainer and supervising teacher should agree in basic philosophy in order to effect a coordinated program of teacher training. Differences of opinion can always be reduced to a common denominator by frank, sincere discussion of the problem.

Principles of Good Working Relationships Between the Student Teacher and Other Teachers, Principal, and Superintendent

1. The principal and superintendent
   a. Should have a part in the student teaching program.
   b. Should be recognized as the key persons in the administrative part of the school.
   c. Should help to make student teachers feel at home by getting them acquainted with the school system.
   d. Should be interested in helping to make the student teaching experience as successful as possible.
   e. Student teacher should be glad to assist with regular assignments of the agricultural teacher.
2. Other teachers in the school
   a. Should help student teacher to feel at home and accept him as co-worker while in the school.
   b. Assist student teacher with special problems where requested.
   c. Student teacher to be alert to render mutual aid to other teachers.

3. The student teacher
   a. Should assume a professional attitude.
   b. Should recognize the school as a working organization into which he must adjust.
   c. Should make a special effort to get acquainted with other teachers and meet them half way.
   d. Should be glad to assist with regular assignments of the agricultural teacher.

Principles for Good Relationships Between the Pupils and the Student Teacher

1. The supervising teacher should condition the boys in the classes for the arrival of the student teachers by discussions:
   a. What the student teacher can bring to them.
   b. How they can help the student teacher.
   c. The sincere desire of the student teacher to do a good job while there.
   d. That the student teacher is in full command of the class while before the group.
2. The student teacher should set a pattern of good professional relationships between himself and the students by being friendly, discreet in remarks, friendly and sympathetic to problems and opinions of the boys.
3. If a case should develop in which the student teacher becomes unpopular with the boys, the college teacher should be told immediately. Through joint conference of the resident teacher trainer and supervising teacher, the cause should be ascertained and remedial measures taken.
4. When students tend to go to the supervising teacher with questions, they should be referred to the student teacher who is in charge of the activity. (Later the supervising teacher may need to enter into the problem if the trainee is unable to cope with the situation).

Introduction of the Student Teacher

A. Before the student teacher arrives:
   1. An effort will be made to have the trainee observe one or more times in the department before starting the student teaching.
   2. The supervising teacher can develop interest and secure cooperation of the boys in the department, concerning student teaching, before the trainee arrives.
   3. Inform the school and community through school paper and local paper, as to the time of arrival of the student teacher.

4. Rather complete information will be supplied the supervising teacher regarding the training, work experience, agricultural background and other factors concerning the student teacher.
5. The student teacher will write the supervising teacher of the manner of travel and time of arrival.

B. Day of arrival. The supervising teacher may:

1. Write the trainee telling him whether he will meet the trainee at the bus or train upon arrival, have him come to the school or to his home, if driving by car.
2. Show him to his place of lodging or places where trainee may make selection of lodging quarters.
3. Arrange for the time of meeting the trainee later in the day or on Monday morning at the school

C. First day of school. The supervising teacher should:

1. Introduce the student teacher to the school administrators.
2. Introduce the student teacher to the classes, giving the trainee a good build-up, and have him make a few interesting remarks to the classes.
3. Have an ag student take the trainee on a tour of the building.
4. Teach a good typical seasonal job to be observed by the trainee.
5. Discuss school policies, department standards, attendance records, grading systems of the department.

D. Second day. The supervising teacher should:

1. Give the student the responsibility of maintaining proper heating, ventilating and lighting of the room.
2. Give the student teacher the responsibility of taking class roll, reporting absences to principal's office and other clerical routine.
3. Explain system of filing bulletins and illustrative material, use of study materials, checking supplies, equipment and reference materials.
4. Discuss the jobs to be taught later in the week and make recommendations for improvement, illustrative materials to use, changes in plan to better meet the needs of the class.

E. Third day

Refer to the Manual for Student Teachers and proceed as suggested therein for the next seven days.

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Keist, Richard T.; Young, Raymond J., Ed.

A Descriptive Study of Private Trade and Vocational Schools in Michigan.

Michigan Univ., Ann Arbor. Bureau of School Services

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MICHIGAN

This study was made to ascertain the educational opportunities offered by the Michigan private vocational schools. Questionnaires were mailed in April, 1964 to 161 non-public institutions operating trade or vocational schools of 2 years or less duration. Information was sought on the number of graduates during a 5-year period, 3-year enrollment predictions, expected expansions of physical facilities, curriculum expansion within the next 15 years, and current tuition charges. The various fields are discussed separately: (1) beauty culture and related fields, (2) business and related fields, (3) skilled trades and related fields, (4) the arts and related fields, and (5) miscellaneous fields. Thirty-one tables provide information by category for each of the fields: (1) location, programs and tuition, (2) year the institution was founded, (3) enrollment from 1959 to 1963, (4) enrollment projections for 1965, 1970, 1975, (5) planned expansion of physical facilities for years 1965, 1970, and 1975, and (6) anticipated curriculum expansion for years 1965, 1970, and 1975. Findings included the following: (1) More than 10,000 people graduate annually from the reporting schools, (2) Enrollment projection for 1975 was approximately 28,000 people, and (3) Projected plant investment from 1965-1975 totalled approximately $20,000,000. Matters such as admission and graduation requirements, relationship of courses to community college courses, and relationship of job obtained after graduation were recommended for further study. (SL)

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A DESCRIPTIVE STUDY OF PRIVATE TRADE and VOCATIONAL SCHOOLS IN MICHIGAN

by
RICHARD T. KEIST, STUDY DIRECTOR
RAYMOND J. YOUNG, Editor

July, 1964

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A DESCRIPTIVE STUDY OF PRIVATE TRADE
and
VOCATIONAL SCHOOLS IN MICHIGAN

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Richard T. Keist, Study Director
Raymond J. Young, Editor

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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July, 1964

ACKNOWLEDGMENT

This study to learn a few general things about non-public trade and vocational schools in Michigan was conducted by Richard T. Keist, Director of Payroll and Personnel, Eastern Michigan University, Ypsilanti, Michigan. Undertaken as a seminar project it also was designed to produce information which would possibly be of value and interest to one of the Governor's Blue Ribbon Committee study subcommittees, therefore the study was a timely one.

This report was edited and organized in its present form by Professor Raymond J. Young, Center for the Study of Higher Education and Community College Consultant, Bureau of School Services, The University of Michigan, Ann Arbor, Michigan. Gratitude and appreciation are expressed to all schools that cooperated in supplying information for the study. Physical preparation of the report was by the Bureau of School Services.

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CHAPTER I

INTRODUCTION

One type of educational opportunity available to Michigan residents is the non-public trade or vocational school. Little information is to be found concerning this type of school in Michigan. These institutions constitute an important part of the total range of educational opportunities available for post high school age youth and adults. As one considers the need for and availability of various types of educational opportunities within Michigan and the proper role and function of different types of public supported institutions, it would seem important to know about the trade and vocational schools extant. This is a report of an attempt to learn about these institutions.

The Study. A listing of all Michigan private trade and vocational schools was obtained from the Vocational School Guide[1] and the Michigan Education Directory[2]. The study excluded religious schools and concerned itself with non-public institutions believed to be operating trade or vocational schools of two years or less duration.[3] Questionnaires[4] were mailed in early April, 1964 to all such schools, and by June, 1964, 56.5 percent had responded after a second mailing had been made. Information was sought on number of graduates over a five year period, three year enrollment predictions, expected expansions of physical facilities and curriculum within the next fifteen years, and current tuition charges.

Schools from which responses were received have been grouped into five categories according to type of program offered, namely, (1) beauty culture and related fields, (2) business and related fields, (3) the arts and related fields, (4) skilled trades and related fields, and (5) miscellaneous fields. Only general questions were asked and no attempt was made to delve deeply into any particular area.

Organization of the Report. Data are presented in Chapters II-VI on each of the five categories of schools. Results are shown in six tables for each category for schools within the category from which response was received. Table I in each chapter contains an alphabetic listing of schools by towns of location, name of school, type of study offered or emphasized, amount of tuition charged for full-or part-time students, and the basis for tuition charge such as so much a year, course, term, semester etc.

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[1]Lovejoy, Clarence Earle, Vocational School Guide, Simon and Schuster, New York, 1963

[2]Michigan Education Directory and Buyer's Guide, 1963-1964, Michigan Education Directory, Lansing, Michigan, 1963

[3]See Appendix B

[4]See Appendix A

The Schools Studied. A total of 185 non-public trade or vocational schools were identified. Of these, 61 percent were located in Detroit and its immediate area. Twenty-four schools had gone out of business or had moved and left no forwarding address.[5] Of the schools presumed to be operating 59 percent were in the Detroit area as were 57 percent of those responding to this study. Over 78 percent of all non-public trade or vocational schools fall south and east of an east-west line across the state through Flint and a north-south line through Lansing. Only five are to be found in the entire Upper Peninsula. Schools are listed in Table II by chronolgical age with the date of beginning given. Table III contains data for each school showing the numbers of graduates for the year 1959-1963, and in Table IV are shown the anticipated number of enrollments by school for 1965-1970, 1975. Shown in Table V are the projected plans for physical facility expansion and estimated expenditures therefore by 1965, 1970, and 1975. Curriculum expansion plans are shown in Table VI. Tables containing pertinent data in each instance follow a narrative presentation of information.

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[5] See Appendix C

CHAPTER II

BEAUTY CULTURE AND RELATED FIELDS

Location, Programs, Tuition and Age. Observation of Table I reveals that all the responding schools offering work in beauty culture and related fields were located in the Lower Peninsula, and 29.1 percent were in Detroit. Seventeen, or 71 percent, of all these schools offer cosmetology as their major course of study, three others offer barbering, three offer modeling, and one offers Swedish massage. Except for one school, all base tuition charges upon the nature of the course. Tuition for a course in Cosmetology may range from $200 to $600, depending upon the school, but the average charge is about $350. Tuition for a barbering school may range from $590 to $854 according to respondents.

Twenty-two of the twenty-four schools gave the year of founding as shown in Table II. Of these, three schools for modeling and five for cosmetology were started after 1950. Eight are at least thirty years old; these include two barbering and six cosmetology schools.

Number of graduates and Projected Enrollments. Between 1959 and 1963, there was an increase of 27.4 percent in the number of graduates among the twenty-four responding schools. Only five schools have graduated more than 100 students during any one of the five years. During this period of time, between eight and eleven schools in any one year graduated fewer than fifty students.

Twenty schools gave estimates of future enrollments. As a group, they anticipate that enrollments will increase nearly 24 percent between 1965 and 1975. Apparently five schools plan to limit enrollments to a specified size, however the majority expect substantial increments.

Physical Facility, and Curriculum Expansions Anticipated. Ten, or about 42 percent, of the schools responding expect to increase physical facilities by 1975. A third of all schools plan to invest $801,440 in new equipment and plant in 1965 with four schools accounting for $750,000 of this amount. Seven schools plan to invest $860,500 in 1970 with four schools accounting for $820,000, while one school plans to make a major investment in 1975.

Almost a third of the schools offering beauty culture or related programs plan curriculum additions in 1965. Of these, all but two are in the cosmetology field. At least one school hopes to add courses which can be applied toward a high school diploma.

Summary of Information on Beauty Culture and Related Programs. The schools responding tended to be located in the southern part of the state, and less than 30 percent are located in Detroit. The majority offer courses in cosmetology. In general, tuition charges are based upon the nature of a particular course and average about $350.

About a third of the schools are at least thirty years old and appear to be well established. The over-all trend is for the number of graduates to increase and predicted enrollments indicate an expected increase of nearly a fourth in the next ten years. To cope with the expected increase, a number expect to expand plant and equipment; however, the number planning to make very significant investments is not large. Over two thirds plan no curriculum expansions at this time.

TABLE I

LOCATION, PROGRAM, AND TUITION FOR SCHOOLS OF BEAUTY CULTURE AND RELATED FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Cost Charged by
1. Battle Creek	Wright Beauty College	Cosmetology	$315	same	Course
2. Bay City	Bay City School of Cosmetology	Cosmetology	$200	same	Course
3. Dearborn	P J Model School	Modeling		$75	Semester
4. Detroit	Dermaway University of Beauty Culture	Cosmetology	$450	same	Course
5. Detroit	Detroit School of Swedish Massage	Swedish massage, steam bathing		$320	Course
6. Detroit	Green's Barber College	Barbering	$725		Course
7. Detroit	Mary Hall Academic de Coiffure	Cosmetology	$400	same	Course
8. Detroit	Michigan Barber School	Barbering	$590		Course
9. Detroit	Ruby's School of Cosmetology	Cosmetology	$430	same	Course
10. Detroit	Vista Marie Beauty School	Cosmetology (Courses for girls with personal problems)	No set fees, all are full time		
11. Flint	Flint Institute of Barbering	Barbering	$854		Course
12. Grand Rapids	Grand Rapids Beauty School and College	Cosmetology	$595		Course
13. Grand Rapids	Michigan School of Modeling and Self-Improvement	Modeling, dictaphone secretaries	$550 $ 55	none none	Model course Secret. course
14. Grand Rapids	Villa Maus Beauty School	Cosmetology			
15. Hillsdale	Riggs School of Beauty Culture	Cosmetology	$250	same	Course
16. Jackson	Synder Beauty School	Instructors and operators for beauty work	$250	same	Course
17. Lansing	Joan Jewett Career School	Finishing, self-improvement, modeling, air line work (ground)	$695	$185	Course
18. Monroe	Michigan College of Beauty Culture	Cosmetology	$325	same	Course
19. Mt. Pleasant	Mt. Pleasant Beauty College	Cosmetology	$325	same	Course
20. Port Huron	Port Huron School of Beauty Culture	Cosmetology			
21. Royal Oak	David Pressley School of Cosmetology	Cosmetology	$600		Course
22. Saginaw	All-American Beauty School	Cosmetology	$250	same	Course
23. Saginaw	Saginaw Beauty College	Cosmetology	$275	$295	Course
24. Traverse	Northwestern Beauty Academy	Cosmetology	$375	same	Course

TABLE II

YEAR IN WHICH SCHOOLS OF
BEAUTY CULTURE AND RELATED FIELDS WERE FOUNDED

Name	Year Began
1. Green's Barber College, Inc.	1907
2. Dermaway University of Beauty Culture	1913
3. Ruby's School of Cosmetology	1924
4. Flint Institute of Barbering	1925
5. Port Huron School of Beauty Culture	1926
6. Synder Beauty School	1931
7. Bay City School of Cosmetology	1932
8. Grand Rapids Beauty School and College	1934
9. Vista Marie Beauty School (Cosmetology)	1942
10. Wright Beauty College	1944
11. Michigan College of Beauty Culture	1946
12. Mt. Pleasant Beauty College	1946
13. Michigan Barber School	1947
14. Detroit School of Swedish Massage	1949
15. P J Model School	1952
16. Riggs School of Beauty Culture	1953
17. Mary Hall Academic de Coiffure	1954
18. All-American Beauty School	1957
19. Joan Jewett Career School	1958
20. Michigan School of Modeling and Self-Improvement	1958
21. Northwestern Beauty Academy	1959
22. David Pressley Professional School of Cosmetology	1960

TABLE III

NUMBER OF GRADUATES

Name of School	Year 1959	1960	1961	1962	1963
1. All-American Beauty School	30	20	12	12	14
2. Bay City School of Cosmetology		45	40	50	35
3. David Pressley Professional School of Cosmetology		5	87	89	90
4. Dermaway University of Beauty Culture	120	110	100	75	78
5. Detroit School of Swedish Massage					4
6. Flint Institute of Barbering	67	64	62	70	78
7. Grand Rapids Beauty School and College	90	92	89	80	70
8. Green's Barber College, Inc.	112	98	110	106	112
9. Joan Jewett Career School					150
10. Mary Hall Academic de Coiffure	70	60	70	75	75
11. Michigan Barbering School	78	75	76	70	65
12. Michigan College of Beauty Culture	34	18	23	29	32
13. Michigan School of Modeling and Self-Improvement	40	75	100	150	200
14. Mt. Pleasant Beauty College	30	35	40	42	45
15. Northwestern Beauty Academy	(About 280 over the past five years)				
16. P J Model School	32	32	32	32	30
17. Port Huron School of Beauty Culture	51	79	96	75	81
18. Riggs School of Beauty Culture	28	32	54	29	34
19. Ruby's School of Cosmetology	125	100	50	25	10
20. Saginaw Beauty College	32	38	45	52	60
21. Synder Beauty School	55	45	31	35	27
22. Villa Maus Beauty School	10	8	9	2	4
23. Vista Marie Beauty School	8	9	11	11	12
24. Wright Beauty College	80	82	83	85	85
Totals	1092	1122	1220	1194	1391

TABLE IV

ENROLLMENT PROJECTIONS FOR SCHOOLS OFFERING PROGRAMS IN BEAUTY CULTURE AND RELATED FIELDS

Name	Year 1965	1970	1975
1. David Pressley Professional School of Cosmetology	200		
2. Dermaway University of Beauty Culture	100	125	150
3. Detroit School of Swedish Massage	10	10	10
4. Flint Institute of Barbering	80	80	90
5. Grand Rapids Beauty School and College	125	175	200
6. Green's Barber College	80	80	80
7. Joan Jewett Career School	300	600	1000
8. Mary Hall Academic de Coifure	80		
9. Michigan Barber School	75	80	90
10. Michigan School of Modeling and Self-Improvement	200	200	200
11. Mt. Pleasant Beauty College	45	45	45
12. Northwestern Beauty Academy	50		
13. P J Model School	80		
14. Port Huron School of Beauty Culture	75		
15. Riggs School of Beauty Culture	35	40	45
16. Ruby's School of Cosmetology	50	85	150
17. Saginaw Beauty College	80		
18. Synder Beauty School	35	45	50
19. Vista Marie Beauty School	16.	16	16
20. Wright Beauty School	85		
Totals	1716	1666	2126

TABLE V

PLANNED EXPANSION OF PHYSICAL FACILITIES

Name	Expansion by Year 1965	1970	1975
1. All-American Beauty School	$250,000	$250,000	
2. David Pressley Professional School of Cosmetology	$75-100,000 new building		
3. Flint Institute of Barbering		$30,000 equipment	
4. Green's Barber College	$48,840 equipment		
5. Joan Jewett Career School	$1,000 general	$150,000 building	
6. Mary Hall Academic de Coiffure	$600 equipment		
7. Michigan Barber School		$2,500 equipment	$2,500 equipment
8. Ruby's School of Cosmetology	$250,000 remodeling and equipment	$250,000 equipment	
9. Synder Beauty School	$150,000	$170,000	$190,000
10. Wright Beauty College	$1,000 equipment	$8,000 equipment	$10,000 equipment

TABLE VI

ANTICIPATED CURRICULUM EXPANSION FOR SCHOOLS OFFERING PROGRAMS IN BEAUTY CULTURE AND RELATED FIELDS

Name	Curriculum to be added by Year 1965	1970	1975
1. All-American Beauty School	Wig styling		
2. David Pressley Professional School of Cosmetology	Advanced training, instructor training, management, charm		
3. Joan Jewett Career School	Airline career course	Communication Arts	Fashion merchandising and retailing
4. Mary Hall Academic de Coiffure	Correspondence courses		
5. P J Model School	Sounds & Semantics (radio & TV)		
6. Villa Maus Beauty School	One year course for students at junior level in high school and creditable toward a high school diploma		
7. Wright Beauty College	Human relations	Creative thinking	

CHAPTER III

Business and Related Fields

Location, Programs, Tuition, and Age. Over 81 percent of the schools offering work in business and related fields from which responses were received lie east of an imaginary line extending south of Bay City such that the area would include Flint and Ypsilanti. Over 53 percent of these schools were located in Detroit. If Lansing is used as a geographical midpoint east and west, only three schools were located in the western half of the state. Only one school responding was located in the Upper Peninsula, and it was at Hancock.

Secretarial science or similar type courses offered in 62.5 percent of the schools was the type of program offered with greatest frequency as a major subject area. Accounting offered in fourteen, or 43 percent of the schools, was the second most popular offering. Eight schools reported courses in data processing and related courses, and six schools offer courses in general business as major subject areas. Three schools each report work in business machine operations, business management, and sales as one of their major course areas.

As shown in Table Ia twelve of the 32 schools responding are on the quarter system. Tuition charges range from $158 to $250 per quarter with median tuition charges for full-time students being $200. Tuition charges to part-time students are generally based upon the number of credits carried. Eleven schools based tuition upon the nature of the course taken. In such cases, costs are the same for all students, regardless of whether attendance is on a part or full-time basis.

More than a third of the schools included in the study have been in operation over fifty years, but a fourth of them began operating after 1960. Schools founded subsequent to 1960 tend more than others to offer courses related to the computer age. Only one of these recent schools is outside Detroit. Only two of the twelve schools founded prior to the 1920's were located in Detroit and the rest were spread out more geographically through the state.

Number of Graduates and Projected Enrollments. Between 1959 and 1963, the number of students graduated from non-public schools offering courses in business and related fields increased by 2,917 or about 97 percent. Most of this increase was in 1961 when 1,014 more were graduated than in the previous year and in 1963 when the increase over 1962 was 1,138 graduates. Of the seventeen Detroit schools, only five had significant increases in graduates over the past five years; however, these schools accounted for about 42 percent of the total increase among these schools.

Despite a large increase in graduates during the past five years, the projection of enrollments by 1970 and 1975 for schools making estimates for those years over anticipated 1965 enrollments would not indicate a continuance of such a rate of increment. It is expected that by 1970 the increase will be slightly over 26 percent and that by 1975 the increase will be nearly 50 percent over the 1965 enrollments expected. Four of the schools failing to give estimates for 1970 and five for 1975 are located in Detroit. Two of these are relatively large, and their estimates may possibly have altered the picture.

Physical Facility and Curriculum Expansions Anticipated. As shown in Table Va, half the schools in this classification indicate plans to expand physical facilities and equipment and to invest a total of $3,400,000 during 1965. If Northwood Institute is omitted, the eleven schools planning physical expansion in 1970 hope to invest over $1,200,000. These same schools reported an expected enrollment increase of 1,215 students by 1970.

Fourteen, or 44 percent of the schools, plan to add to their curriculums in 1965. In general, the new courses appear to deal with specific areas and are oriented toward automation. When one considers the desire of some employers to seek four year college graduates with liberal backgrounds, these data take on a rather significant aspect. It would appear these schools hope to provide to their graduates specific skills which will supplement the liberal backgrounds of four year college graduates employed by business.

Summary of Information on Business and Related Programs. Only four schools reporting were located in the western and upper peninsula areas of the state. Over half were in Detroit. Most institutions center their attention on courses in secretarial sciences and accounting.

The median tuition charge a student can expect to pay at an institution on the quarter basis is $200. For students who desire training in one specific area, over a third of the schools reporting charge tuition on a course basis. In such cases rates are the same for full-time and part-time students.

The older institutions tend to be located in population centers other than Detroit; whereas, those institutions founded since 1960 tend to locate in Detroit.

These institutions provided to the business world of Michigan nearly 6,000 graduates as potential employees in 1963. This represents about 96.8 percent increase in graduates in the past five years. However, there is some indication that some of these schools may limit enrollments in the years to come.

Half of the reporting schools plan physical expansion in the near future. Nearly half of the schools plan to add courses to their existing curriculum in 1965. In general, those courses being added are oriented toward automation.

TABLE Ia

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Cost Charged by
1. Bay City	Northeastern leadership Institute	Sales and leadership			
2. Bay City	Northeastern School of Commerce	Accounting, secretarial science	$200	$ 50	Quarter
3. Detroit	Cambridge Business School	Typing, shorthand, IBM key punch, machine bookkeeping, PBX operator	$200		Hours Atdg
4. Detroit	Comptometer School	Comptometer,	$165		Comp. Cour.
		and IBM key punch training	$125		IBM Course
5. Detroit	Data Processing Training Corporation	IBM machine operations			Per Lesson
6. Detroit	Detroit Business Institute and Detroit Business University	General Business, Secretarial science	$250		Quarter
7. Detroit	Detroit Institute of Commerce	Secretarial, accounting, IBM operations	$180	$ 80	Quarter
8. Detroit	Dorsey School	Accounting, Secretarial science	$ 70	$ 35	Month
9. Detroit	Elsa Cooper School	Court reporting, legal and medical secretary, general stenographic	$ 25	$ 14.50	Week
10. Detroit	Hallmark Business Machine Institute	Key punch, IBM programming, machine operators	$229	same	IBM course
			$498	same	Prog. cour.
11. Detroit	International Data Processing Institute	All phases of data processing	$229	same	Key pun. cou.
			$389	same	Mach. op. cou.
			$598	same	1401 prog.
12. Detroit	Leadership Training Institute	Management, supervision, sales	$175		course
13. Detroit	Lewis Business College	General business, secretarial science	$175	varies	Quarter
14. Detroit	Marketing Institute	PBX operators, receptionists, cashiers	$89-138		Course
15. Detroit	Parker Institute for Medical Secretaries	Medical secretarial	$168		Quarter
16. Detroit	Sales Training, Inc.	Sales	$695		Course
17. Detroit	Thomas Secretarial School	Secretarial, typist, junior accountant	$200	$ 80	Quarter
18. Detroit	Walsh Institute of Accounting	C.P.A. Accounting	$430	$178	Year
19. Detroit	Wayne Business Institute	General business, secretarial science	$750	$410	Year
20. Flint	Comptometer School	Comptometer operations	$125-265		Course
21. Flint	Baker Business University	Accounting, secretarial science, management	$200	$170	Quarter
22. Flint	The Career School	IBM key punch		none	Course

TABLE Ia (Cont.)

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Costs Charged by
23. Hancock	Suomi College	Accounting, Secretarial science, music	$600	$300	Year
24. Jackson	Jackson Business University	General business, secretarial science	$200	$125	Quarter
25. Lansing	Lansing Business University	General business, secretarial science	$200		Quarter
26. Midland	Northwood Institute	General business--junior college	$900	$20 hr	Year
27. Muskegon	Muskegon School of Business	Legal and medical secretarial, IBM key punch, secretarial science, accounting	$622		Year
28. Pontiac	Pontiac Business Institute	General business, secretarial science	$162	$130	Quarter
29. Port Huron	East Michigan College of Commerce	Secretarial science, accounting	$158	$10 hr	Quarter
30. Saginaw	Comptometer School	Comptometer operations	$125-165	same	Course
31. Saginaw	Saginaw Business Institute	Accounting, secretarial science, data processing	$200	$100	Quarter
32. Ypsilanti	Cleary College	Accounting, secretarial science, management	$600	$300	Year

TABLE IIa

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Name	Year Began
1. Detroit Business Institute and Detroit Business University	1850
2. Jackson Business University	1867
3. Lansing Business University	1867
4. East Michigan College of Commerce	1878
5. Northeastern School of Commerce	1880
6. Cleary College	1883
7. Muskegon School of Business	1885
8. Pontiac Business Institute	1896
9. Suomi College	1896
10. Comptometer School (Saginaw)	1902
11. Comptometer School (Detroit)	1905
12. Baker Business University	1911
13. Walsh Institute of Accounting	1922
14. Dorsey School	1934
15. Lewis Business College	1939
16. Detroit Institute of Commerce	1941
17. Leadership Training Institute	1944
18. Northeastern Leadership Institute	1944
19. Comptometer School	1948
20. Elsa Cooper School	1952
21. Saginaw Business Institute	1957
22. International Data Processing Institute	1959
23. Northwood Institute	1959
24. Thomas Secretarial School	1959
25. Marketing Institute	1961
26. Sales Training, Inc.	1961
27. The Career School	1961
28. Wayne Business Institute	1961
29. Data Processing Training Corp.	1962
30. Cambridge Business School	1963
31. Hallmark Business Machines Institute	1963
32. Parker Institute for Medical Secretaries	1963

TABLE IIIa

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Name	Number of Students Graduated				
	1959	1960	1961	1962	1963
1. Baker Business University	300	300	300	300	300
2. Cambridge Business Institute					300
3. Cleary College	142	131	145	161	186
4. Comptometer School (Detroit)	110	100	123	182	180
5. Comptometer School (Flint)	200	198	179	187	200
6. Comptometer School (Saginaw)	78	120	106	106	140
7. Data Processing Training Corp.				23	79
8. Detroit Business Institute and Detroit Business University	(No data given)				
9. Detroit Institute of Commerce	141	174	201	134	133
10. Dorsey School	95	92	98	58	40
11. East Michigan College of Commerce			64	52	48
12. Elsa Cooper School	(Graduates 55-65 a year)				
13. Hallmark Business Machines Institute	(No data given)				
14. International Data Processing Institute	247	612	781	443	512
15. Jackson Business University	42	47	54	52	58
16. Lansing Business University	63	85	154	190	225
17. Leadership Training Institute	900	950	1025	1200	1440
18. Lewis Business College	25	27	22	33	32
19. Marketing Institute			200	275	337
20. Muskegon School of Business	85	98	125	126	125
21. Northeastern Leadership Institute	(Has graduated about 9,000 since 1944)				
22. Northeastern School of Business	67	70	75	80	83
23. Northwood Institute	103	156	212	325	450
24. Parker Institute for Medical Secretaries					16
25. Pontiac Business Institute	244	248	377	378	429
26. Saginaw Business Institute	50	60	65	70	80
27. Sales Training, Inc.				60	120
28. Suomi College	49	39	41	38	40
29. The Career School			47	64	79
30. Thomas Secretarial School			7	10	19
31. Walsh Institute of Accounting	42	45	37	41	47
32. Wayne Business Institute			117	144	167
Totals for those reporting	3013	3592	4606	4792	5930

TABLE IVa

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Name	Projected Enrollment 1965	1970	1975
1. Baker Business University	300	300	300
2. Cambridge Business Institute	300	500	1000
3. Cleary College	1200	1500	2000
4. Comptometer School (Detroit)	250	325	425
5. Comptometer School (Flint)	200		
6. Comptometer School (Saginaw)	140	170	200
7. Data Processing Training Corp.	350	375	400
8. Detroit Business Institute and Detroit Business University	1000		
9. Detroit Institute of Commerce	300	350	400
10. Dorsey School	100	100	100
11. East Michigan College of Commerce	135	175	
12. Elsa Cooper School	(Expect 55-65 a year)		
13. Hallmark Business Machines Institute	1000		
14. International Data Processing Institute	650	650	650
15. Jackson Business University	400	400	425
16. Lansing Business University	400	600	600
17. Leadership Training Institute	2000	2500	3000
18. Lewis Business College	300		
19. Marketing Institute	350	350	350
20. Muskegon School of Business	300	325	325
21. Northeastern Leadership Institute	450	450	450
22. Northeastern School of Business	210	300	350
23. Northwood Institute	600	1000	
24. Parker Institute for Medical Secretaries	200		
25. Pontiac Business Institute	600	800	950
26. Saginaw Business Institute	300	400	600
27. Sales Training, Inc.	320	400	550
28. Suomi College	300	450	
29. The Career School	118	158	258
30. Thomas Secretarial School	150	200	300
31. Walsh Institute of Accounting	750	1000	1200
32. Wayne Business Institute	200	300	
Totals for those reporting	14,103	14,408	15,223

TABLE Va

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Name	Planned Physical Expansion 1965	1970	1975
1. Cambridge Business School		$500 floor space	$1,000 floor space
2. Comptometer School (Detroit)	Classroom	Classroom	Classroom
3. Comptometer School (Saginaw)	Classroom	Classroom	Classroom
4. Cleary College	$500,000 All-purpose bldg.	$400,000 classroom	Classroom
5. Detroit Institute of Commerce	$7,500 space and equipment	$7,500 equipment	$7,500 equipment
6. East Michigan College of Commerce		$150,000 classroom bldg	
7. Jackson Business University	$3,000 classroom	$5,000 classroom	$2,000 classroom
8. Northeastern School of Commerce	$10,000 renovation	$20,000 classroom	$7,500 classroom
9. Northwood Institute	$1,800,000 student housing	$7,000,000 student housing and other campus buildings	
10. Pontiac Business Institute	$4,000 lounge and cafeteria	$6,000 Library	$250,000 new building
11. Saginaw Business Institute	$500,000 bldg		
12. Sales Training, Inc.		Classroom	
13. Suomi College	$550,000 student housing	$400,000 library-classroom; $250,000 student housing	$400,000 Gym-theater
14. Thomas Secretarial School	$10,000 branch and equipment plus $4,800 over next five years in expansion		
15. Walsh Institute of Accounting	$30,000 to $50,000 in new equipment over next five years		
16. Wayne Business Institute	$5,000 library and equipment		

TABLE VIa

PRIVATE TRADE AND VOCATIONAL SCHOOLS
BUSINESS AND RELATED FIELDS

Name	Curriculum to be Added 1965	1970	1975
1. Comptometer School (Saginaw)	Business machine equipment course		
2. Data Processing Training Corp.	Computer and system management		
3. Elsa Cooper School	Gregg shorthand		
4. Hallmark Business Machine Institute	More courses in data processing aside from IBM		
5. International Data Processing Institute	Management of data processing system and machine repair		
6. Jackson Business University	Machine accounting Adv. secretarial courses	Data processing system mgt.	
7. Leadership Training Institute	Retail selling	Sales management	
8. Muskegon School of Business	Data processing		
9. Northeastern School of Commerce	More on office machines	Court reporting	Computing and data processing
10. Parker Institute for Medical Secretaries	Dental Ass't course		
11. Pontiac Business Institute, Inc.	Remedial reading real estate course		
12. Saginaw Business Institute	Automation-ADP	Computer accounting	
13. Walsh Institute of Accounting	More academic courses		
14. Wayne Business Institute	Business admin. executive sect. training		

CHAPTER IV

SKILLED TRADES AND RELATED FIELDS

Location, Programs, Tuition, and Age. Of the 20 schools responding 75 percent were located in Detroit. Two each were in the Grand Rapids and Lansing areas, and one was in Flint. No particular course offerings dominated the curriculums as in the case of business. Only four schools appeared to offer similar programs, and these programs were in electronics.

As shown in Table Ib, six schools charge tuition on a weekly basis; and, with but one exception, this charge varies between $15 and $20. Part-time students pay a reduced rate. Seven schools base their tuition charges upon the nature of the course in which the student is enrolled. In general, tuition charges in these cases are the same as for full-time and part-time students.

Almost half the schools reporting were established after World War II, and nearly a third of them have been founded during the last decade. While the oldest school of this type is 54 years old, fourteen years elapsed before the next one included in this study was founded.

Number of Graduates and Projected Enrollments. The trend in number of graduates during the past five years was erratic with a drop in 1960, an up-swing in 1961, almost a 20 percent decrease in 1962 and an increase in 1963. The electronic schools appear to be the ones primarily responsible for the decrease in graduates during 1960 and 1962 with losses of 115 and 591 students respectively.

Only fourteen schools, shown in Table IVb, gave enrollment projections for 1965 while 12 and 11 schools respectively ventured projections for 1970 and 1975. Among the schools responding, an enrollment increase of 54.6 percent is expected in 1970 over 1965 expectations. If the 1970 enrollment projection by Leslie Automation Technical School is maintained in 1975, an increase of 82 percent over the 1965 expectation may be expected.

Physical Facility and Curriculum Expansions Anticipated. Eight schools indicated plans for expanding physical facilities and equipment. Of the $312,000 which these schools plan to invest in 1965, about $300,000 is designated for new buildings and classrooms. In 1970 these schools plan an investment of $350,425 for that purpose. Of the $541,850 anticipated expenditure in 1975, $466,500 seems designated for new classroom space. These data are shown in Table Vb.

About 45 percent of all schools offering programs in the skilled trades and related fields and included in this study plan curriculum additions during the next decade. In general, prospective additions appear to be nontheoretical specific skill courses.

Summary of Information on Skilled Trades and Related Fields. Three fourths of the schools within this category responding to the inquiry were in Detroit. Three cities in the southern half of the lower peninsula contain the rest. Tuition charges are generally on a weekly or course basis and vary according to the nature of the course.

Most of these schools were founded within the past 25 years. Change in number of graduates has been erratic over the past five years. Enrollment projections forecast significant increases. To meet expected enrollment increases about 40 percent of the respondents expect to expand their plant and equipment, and 45 percent plan to add curricular offerings.

TABLE Ib

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Cost Charged by
1. Detroit	Academy Nvart	Dressmaking and design		$300	Course
2. Detroit	Builders and Trades School of Estimating	Construction estimating and construction supervision	$ 30		Course
3. Detroit	Detroit Engineering Institute	Drafting and tool design	$500	$390	Course
4. Detroit	Detroit Institute of Meat cutting	Meat cutting			
5. Detroit	Detroit Time Study School	Time study, drafting, tool & die design, inspection, estimating	$ 15	same	Week (20 hrs.)
6. Detroit	East Side Design and Engineering	Tool & Die design, engineer illustrator, detailer, body product design	$ 60	$ 28	Month
7. Detroit	Electronic Institute of Technology	Electronic equipment operation and repair	$ 16	$ 9	Week
8. Detroit	Fairbanks School of Dressmaking	Dressmaking, sewing and tailoring	$(50¢)	same	Hour
9. Detroit	H. L. Bosca School of Automotive Body Design	Automotive body sheetmetal layout	none	$125-150	Course
10. Detroit	Hinchman Company School	Corrosion Engineer Technician (on demand basis)	$200		Week
11. Detroit	Kimbles School of Sewing	Dressmaking, sewing and tailoring			Hour
12. Detroit	Painter's Apprentice Training School	Journeymen painting and decorating	$161		Year
13. Detroit	RETS Electronic Schools	Electronic equipment operation and repair	$ 18	$ 8	Week
14. Detroit	Technical School of Metallurgy	Laboratory technician for metallurgy (as industry demands--captive student body)		$2.75	Hour
15. Detroit	Wolverine School of Trades	Auto repair and welding	$125-300	same	Course
16. Flint	RETS Electronic Schools	Electronic equipment operation and repair	$ 18	$ 8	Week
17. Grand Rapids	John H. Klok Institute	Woodworking	$500		Course
18. Grand Rapids	RETS Electronic Schools	Electronic equipment operation and repair	$ 18	$ 8	Week
19. Lansing	Gleason School of Welding	Welding	$300		Course
20. Leslie	Leslie Automotive Technical School	Automotive mechanic	none	$300	Year

TABLE IIb

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Name	Year Began
1. Detroit Engineering Institute	1910
2. Academy Nvart	1924
3. Wolverine School of Trades	1925
4. John H. Klok Institute	1929
5. Gleason School of Welding	1933
6. RETS Electronic Schools (Detroit)	1935
7. Builders and Trades School of Estimating	1936
8. Detroit Time Study School	1938
9. Painter's Apprentice Training School	1941
10. Electronics Institute of Technology	1943
11. Fairbanks School of Dressmaking	1947
12. Kimble's School of Sewing	1951
13. East Side Design and Engineering	1952
14. Hinchman Company School	1955
15. RETS Electronic Schools (Flint)	1955
16. RETS Electronic Schools (Grand Rapids)	1956
17. Technical School of Metallurgy	1957
18. H. L. Bosca School of Automotive Body Design	1959
19. Leslie Automotive Technical School	1962
20. Detroit Meat Cutting Institute	(Not given)

TABLE IIIb

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Name	Number of Students Graduated				
	1959	1960	1961	1962	1963
1. Academy Nvart	appr 40	appr 20	15	15	10
2. Builder's and Trades School of Estimating	150	165	155	175	[illegible]
3. Detroit Engineering Institute	79	48	45	39	39
4. Detroit Time Study School	127	144	147	173	186
5. East Side Design and Engineering	250	250	250	300	350
6. Electronic Institute of Technology	132	172	216	187	170
7. Fairbanks School of Dressmaking	32	10	21	23	33
8. Gleason School of Welding	4	4	2	8	4
9. H. L. Bosca School of Automotive Body Design	10	29	31	17	28
10. Hinchman Company School	10	0	0	0	0
11. John H. Klok Institute					25
12. Kimble's School of Sewing	15	22	18	16	30
13. Leslie Automotive Technical School				80	151
14. Painters Apprentice Training School	17	18	12	15	7
15. RETS Electronic Schools (Detroit)	798	702	972	452	535
16. RETS Electronic Schools (Flint)	158	127	111	67	132
17. RETS Electronic Schools (Grand Rapids)	76	48	45	39	39
18. Technical School of Metallurgy	10	5	5	0	0
19. Wolverine School of Trades	379	411	367	407	385
Totals for those reporting	2287	2199	2477	2084	2407

TABLE IVb

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Name	Projected Enrollment		
	1965	1970	1975
1. Academy Nvart	10-25		
2. Builders and Trades School of Estimating	220	250	275
3. Detroit Engineering Institute	150	300	500
4. Detroit Time Study School	250	350	500
5. East Side Design and Engineering	600	700	800
6. Electronic Institute of Technology	600	900	1200
7. Fairbanks School of Dressmaking	85	100	125
8. H. L. Bosca School of Automotive body Design	40	40	40
9. Kimble's School of Sewing	60	72	76
10. Leslie Automotive Technical School	350	1500	
11. Painters Apprentice Training School	30	25	30
12. RETS Electronic Schools (Detroit)	1135	1325	1500
13. RETS Electronic Schools (Flint)	400	500	600
14. RETS Electronic Schools (Grand Rapids)	50		
Totals for those reporting	3970	6062	5646

TABLE Vb

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Name	Planned Physical Expansion 1965	1970	1975
1. Detroit Engineering Institute	$150,000 new quarters	$175,000 expansion	$175,000 expansion
2. Detroit Time Study School	$10,000 machine shop machines	$5,000 machines	$75,000 tool & die facilities
3. Electronic Institute of Technology		$60,000 classrooms	$80,000 classrooms
4. Fairbanks School of Dressmaking	$500 equipment	$150 equipment	$1,500 building
5. Gleason School of Welding	$1,000 equipment		
6. Kimble's School of Sewing	$800 equipment	$275 equipment	$350 equipment
7. Leslie Automotive Technical	$140,000 building and equipment	$100,000 building	$200,000 building
8. RETS Electronic Schools (Flint)	$10,000 Classroom	$10,000 Classroom	$10,000 Classroom

TABLE VIb

PRIVATE TRADE AND VOCATIONAL SCHOOLS
SKILLED TRADES AND RELATED FIELDS

Name	Curriculum to be Added 1965	1970	1975
1. Detroit Engineering Institute	Machine control & instrumentation		
2. Detroit Time Study School	Operation of Mills lathes, grinders	Master operations of jig bore, screw machine, precision grinders	Tool & Die making
3. East Side Design and Engineering	Machine design	Architectural drawing	Estimating
4. Electronic Institute of Technology	Math courses		
5. Fairbanks School of Dressmaking	Interior decorating		
6. Gleason School of Welding	Hiliarc welding		
7. Kimble's School of Sewing	Mechanical embroidering	Summer camping course for girls	Extended national & international training
8. Leslie Automovtive Technical School	Auto parts counterman, welding	Automotive Diesel engineering	
9. RETS Electronic Schools (Flint)		Advanced electronics technician course	

CHAPTER V

THE ARTS AND RELATED FIELDS

Location, Programs, Tuition, and Age. Of the eight schools in this category, all but one are located in Southeast Michigan, primarily the Detroit area. Tuition charges tend to be higher than for other types of schools studied, and generally they are computed on a course basis. Data for these schools are presented in Tables Ic - VIc.

Between 1874, when the Detroit Conservatory of Music was established, and the end of 1942 six of the eight schools reporting were founded. The oldest schools emphasized music, while those more closely related to advertising are the newer ones. Two each offer programs in music, arts and crafts, and art. Graphic arts and lettering were each emphasized by one school.

Number of Graduates and Projected Enrollments. Numbers of graduates during the past five years show a continuous increase. The largest increases occurred in 1960 when there was a 39 percent increment and in 1962 when the increase was about 24 percent. For the five year period, the increase was 88 percent. Only three schools offered enrollment projections for 1970 and 1975. Those schools anticipate a 56 percent increase in enrollment.

Physical Facility and Curriculum Expansions Anticipated. Two schools anticipate a total of $1,000,000 expenditure in 1965 for physical facilities, and one school expects an investment over the next ten years in student and faculty housing. Two schools expect curriculum expansions.

Summary of Information on the Arts and Related Fields. The majority of the schools associated with the arts and related areas tend to locate in Detroit. Tuition tends to be higher than other trade or vocational schools, and is generally on a course basis. In general, the schools appear to be well established, and their production of graduates shows continued increases over the past five years. Only three schools report any projected enrollment figures; those that were reported are impressive. Investment in plant by two institutions will be major in the near future; however, curriculums are evidently not apt to change much.

TABLE Ic

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Cost Charged by
1. Bloomfield Hills	Cranbrook Academy of Art	Art, art teaching	$400	none	Semester
2. Detroit	Art School of the Society of Arts and Crafts	Art, advertising, industrial design	$640	$450	Year
3. Detroit	Detroit Conservatory of Music	Professional careers in music, liberal arts	$650	$200-300	Year (private lessons)
4. Detroit	Detroit School of Lettering	Sign advertising, lettering	$276		Course
5. Detroit	Detroit School of Musical Arts	Music	$600	$300	Course
6. Detroit	Sargent School of Graphic Arts	Commercial art		$ 10	Course
7. Flint	Flint Institute of Art	Art			Course
8. Holland	Art School of the Crafts Guild	Fine arts and crafts	$ 50	$ 6	Monthly

TABLE IIc

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Name	Year Began
1. Detroit Conservatory of Music	1874
2. Detroit Institute of Musical Arts	1914
3. Art School of the Society of the Arts and Crafts	1926
4. Art School of the Crafts Guild	1927
5. Flint Institute of Art	1929
6. Cranbrook Academy of Art	1942
7. Sargent School of Graphic Arts	1960
8. Detroit School of Lettering	1963

TABLE IIIc

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Name	Number Students Graduated				
	1959	1960	1961	1962	1963
1. Art School of the Crafts Guild	(Courses suspended for research and orientation)				
2. Art School of the Society of the Arts and Crafts	10	11	11	8	11
3. Cranbrook Academy of Art	(Average about 35 a year)				
4. Detroit Institute of Musical Arts				1	3
5. Detroit School of Lettering					40
6. Flint Institute of Arts	300	400	400	500	500
7. Sargent School of Graphic Arts		20	23	26	30
Totals for those reporting	310	431	434	535	584

TABLE IVc

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Name	Projected Enrollment 1965	1970	1975
1. Art School of the Crafts Guild	50	100	200
2. Art School of the Society of the Arts and Crafts	900	1200	1500
3. Detroit Conservatory of Music	650	750	800
4. Detroit School of Lettering	100		
5. Flint Institute of Art	500		
Totals for those reporting	2200	2050	2500

TABLE Vc

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Name	PLANNED PHYSICAL EXPANSION 1965	1970	1975
1. Art School of the Crafts Guild	none	$30,000 studios-student housing	$30,000 faculty housing
2. Art School of the Society of Arts and Crafts	$800,000-24 Classrooms		
3. Detroit Conservatory of Music	$250,000 building auditorium		
4. Flint Institute of Arts	(Controlled by the Flint Board of Education)		

TABLE VIc

PRIVATE TRADE AND VOCATIONAL SCHOOLS
THE ARTS AND RELATED FIELDS

Name	Curriculum to be Added 1965	1970	1975
1. Art School of the Crafts Guild	Family workshop, occupational therapy	Creative writing, meter mental rythmics	Creative music, dramatic arts
2. Detroit Conservatory of Music	Additional language, master courses in piano & voice	Preparation of complete opera with emphasis on staging	

CHAPTER VI

MISCELLANEOUS

Location, Programs, Tuition and Age. Institutions included here do not seem to readily fit into one of the other categories. Skills taught range from watch repair and cake decorating to medical technology. Tuition charges range from very low to very high. Except for one, all are in the Detroit area. Two-thirds were established after World War II.

Number of Graduates, Projected Enrollments, and Planned Expansions. The number of graduates crested in 1961 and since has declined each year. The five schools giving enrollment projections expect an increase of about 40 percent between 1965 and 1975. Two institutions expect plant expansions in the form of student housing, student center and instructional space. The Michigan Rehabilitation Institute expects to add several new offerings in 1965 and 1970 to include cooking, baking, data processing, general mechanical repair, dental mechanic, and millman.

TABLE Id

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Location	Name	Major Courses of Study	Tuition Costs Full Time	Tuition Costs Part Time	Tuition Cost Charged by
1. Ann Arbor	Ann Arbor Practical Nurse Education Center	Practical nurse	$235		Year
2. Detroit	Carnegie Institute	Medical ass't., medical secretary, medical lab ass't.	$1195		Med. Ass't Cou.
			$1395		Med. Sec. Cou.
				$850	Lab Ass't Cou.
3. Detroit	Herman Kiefer Hospital	Medical technology	$ 25		Year
4. Detroit	Richard V. Synder School of Cake Decoration	Cake decoration	$330	same	Course
5. Highland Park	Chrysler Institute of Engineering	Automotive engineering	none (employees only)		
6. Pine Lake	Michigan Rehabilitation Institute	Business education, Horology, Cabinet making, upholstering, electronics, drafting, shop, printing	$ 60	varies	Month

TABLE IId

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Name	Year Began
1. Chrysler Institute of Engineering	1934
2. Michigan Rehabilitation Institute	1944
3. Richard V. Synder School of Cake Decoration	1946
4. Carnegie Institute	1947
5. Ann Arbor Practical Nurse Education Center	1949
6. Herman Kiefer Hospital	1953

TABLE IIId

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Name	Number of Students Graduated				
	1959	1960	1961	1962	1963
1. Ann Arbor Practical Nurse Education Center	68	71	70	74	74
2. Carnegie Institute	100	95	128	160	61
3. Chrysler Institute of Engineering	53	65	64	13	7
4. Herman Kiefer Hospital	4	4	3	7	1
5. Michigan Rehabilitation Institute	137	126	134	130	129
6. Richard V. Synder School of Cake Decoration	(About 200 a year)				
Totals for those reporting	562	561	599	584	473

TABLE IVd

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Name	PROJECTED ENROLLMENT		
	1965	1970	1975
1. Ann Arbor Practical Nurse Education Center	120		
2. Carnegie Institute	150	200	300
3. Chrysler Institute of Engineering	22	30	30
4. Michigan Rehabilitation Institute	275	450	500
5. Richard V. Synder School of Cake Decoration	225	250	275
Totals for those reporting	792	930	1105

TABLE Vd

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Name	Planned Physical Expansion		
	1965	1970	1975
1. Carnegie Institute			$5,000 lecture rm.
2. Michigan Rehabilitation Institute	$1,500,000 student housing	$1,000,000 shop $600,000 student center	

TABLE VId

PRIVATE TRADE AND VOCATIONAL SCHOOLS
MISCELLANEOUS FIELDS

Name	Curriculum to be Added		
	1965	1970	1975
1. Michigan Rehabilitation Institute	Data processing, cooking, baking	Millman, general mechanical repair, dental mechanic	

CHAPTER VII

SUMMARY AND CONCLUSIONS

A summary of information for all responding schools appears in Table VII.

Forty-seven of the ninety-one reporting schools were located in Detroit; thirty-five were located in the southern part of the state outside of Detroit. Eight schools were located in the northern half of the lower peninsula, while only one was in the upper peninsula. Within the different categories of program offerings into which schools were classified the majority in each case, except the area of beauty culture, were located in Detroit. They tended to be located in areas of southern Michigan, but outside of the city of Detroit. The median age of schools varies from 18 years to 37 years. The spectrum of age actually reaches back 114 years. The older more established schools appear to be those related to the fine arts.

In general, these schools charge tuition by the course, and the amount varies depending upon the course a student takes. The exception is in the case of those schools found in the business category which tend to make tuition charges on a quarter basis.

The number of graduates these schools have produced over the past five years has increased by 47.4 percent. This increase results despite a slight decrease in 1962. The 1963 enrollment represented about 5-1/2 percent of the total enrollment in all Michigan public and private post-high school institutions. Assuming that enrollments in 1970 and 1975 are at least as large as in 1965 for sixteen schools that failed to give projections beyond that year, enrollment increases during the next ten years are expected to amount to at least 43 percent. This figure is very probably too low in view of the fact that undoubtedly there will be some increases over the anticipated 1965 enrollments in the several schools not providing projections. Approximately 34,000 individuals will be attending nonpublic private and trade schools in 1975 which responded to this study.

To meet the increasing enrollments some schools are planning to make major investments in their plant and equipment. Those schools responding to this study indicate they hope to make near an $18,559,740 investment by 1970. Apparently the most significant amounts will be invested by schools found to offer programs in the business category.

From these data one may conclude that nonpublic trade and vocational schools play a significant role in post-high school age training in Michigan. The more than 10,000 students graduated annually from schools responding to this study and the 23,000 - 24,000 students they expect to enroll annually between 1965 and 1975 indicates that a substantial role is being assumed by these schools in the system of post-high school age education. Add to these figures similar data from the 70 schools choosing not to respond and the role being assumed by nonpublic trade and vocational schools would seem even larger.

In view of the important role these schools assume, one can conclude that it would be desirable for further studies to be conducted so an accurate picture could be gained in more detail about this type of institution. Such matters as admission and graduation requirements, relationship of content in courses offered to content of courses offered in public community colleges, relationship of the number of graduates produced to the number of them who obtain work in line with their training, and reasons why these schools locate almost entirely in Southern Michigan, and in the Detroit area primarily, might all be investigated. Also significant would be to ascertain what types of trade or vocational training these schools do not provide that may be needed by industry and business which a public community college should offer. One might also investigate whether, if students were encouraged and allowed to attend these types of schools in conjunction with high school, it might be a partial solution to the drop-out problem. There are perhaps other types of matters which would also be worth studying, but these will illustrate a few.

TABLE VII

SUMMARY OF INFORMATION ON
PRIVATE TRADE AND VOCATIONAL SCHOOLS

	Beauty and Related Fields	Business and Related Fields	Skilled Trades and Related Fields	The Arts and Related Fields	Miscel-laneous Fields	Totals
LOCATION						
Detroit	7	17	15	5	3	47
Flint and south	14	9	5	3	4	35
North of Flint	3	5	0	0	0	8
Upper peninsula	0	1	0	0	0	1
TUITION CHARGED By (Average)	Course	Quarter	Course	Course	Course	
MEDIAN AGE OF SCHOOLS	18 years	22 years	21 years	37 years	18 years	
NUMBER OF STUDENTS GRADUATED						
1959	1,092	3,013	2,287	310	704	7,406
1960	1,122	3,592	2,199	431	708	8,052
1961	1,220	4,606	2,477	434	757	9,494
1962	1,194	4,792	2,084	535	712	9,317
1963	1,391	5,930	2,407	584	659	10,917
PROJECTED ENROLLMENT*						
1965	1,716	14,103	3,970	2,200	1,592	23,581
1970	1,666	14,408	6,062	2,050	1,930	26,116
1975	2,126	15,223	5,646	2,500	2,605	28,100**
PROJECTED PLANT INVEST-MENT						
1965	$801,440	$3,439,500	$314,300	$1,000,000	$1,500,000	$ 7,055,240
1970	$860,500	$8,239,000	$775,000	$ 30,000	$1,600,000	$11,504,500
1975	$202,500	$ 668,000	$531,850	$ 30,000	$ 5,000	$ 1,437,350

*Some schools failed to respond, so given figures are spuriously low.

**This figure approximates 34,000 when 1965 enrollments are assumed to continue to 1975 for schools not giving projections. Forty-seven of the ninety-one reporting schools were located in Detroit; thirty-five were located in the southern part of the state outside of Detroit. Eight schools were located in the northern half of the Lower Peninsula, while only one was in the Upper Peninsula.

APPENDICES

A. Private and Technical School Enrollment Survey Study Questionnaire.

B. Name and Location of Private Trade and Vocational Schools in Michigan.

C. Schools Closed or Moved.

APPENDIX A

PRIVATE VOCATIONAL AND TECHNICAL SCHOOL
ENROLLMENT SURVEY STUDY

QUESTIONNAIRE

Name of organization _____

The purpose of this institution is to prepare individuals for the following vocational field(s) _____

==========

1. In what year did you enroll your first student? _____

2. How many students completed course at your school during the following calendar years? 1959____, 1960_____, 1961_____, 1962_____, 1963_____.

3. How many students do you expect to enroll in the calendar year of: 1965_____, 1970_____, 1975_____.

4. What new physical facilities (if any) will be needed to accommodate these projected enrollments?

Year	Facilities Needed	Estimated Cost
1965		
1970		
1975		

5. What new curricula (if any) do you plan to add?

Year	New Curricula
1965	
1970	
1975	

6. Upon what basis are the expenses to students for tuition and fees charged?

_____

7. What would a student attending on a full-time basis be expected to pay in tuition and fees? _____. How much does the average part-time student pay? _____.

Thank you very much for your kind consideration.

APPENDIX B

NAME AND LOCATION OF PRIVATE TRADE AND VOCATIONAL SCHOOLS IN MICHIGAN

(Note: * denotes that the school responded to this study.)

Name	Location
1. *Academy Nuart	Detroit
2. Acme School of Die Design Engineering	Grand Rapids
3. Alexander's School of Cosmetology	Ann Arbor
4. *All-American Beauty School	Saginaw
5. American College of Beauty and Culture	Kalamazoo
6. *Ann Arbor Practical Nurse Education Center	Ann Arbor
7. Armand School of Theatrical Arts	Detroit
8. *Art School of the Crafts Guild	Holland
9. *Art School of the Society of Arts and Crafts	Detroit
10. *Baker Business University	Flint
11. *Bay City School of Cosmetology	Bay City
12. Bee Dee Beauty College	Dearborn
13. Belen's School of Floral Design	Lansing
14. Bennett Hoyt Institute, Inc.	Dearborn
15. *Builders and Trades School of Estimating	Detroit
16. *Cambridge Business School	Detroit
17. *Career School, The	Flint
18. *Carnegie Institute	Detroit
19. *Chrysler Institute of Engineering	Highland Park
20. *Cleary College	Ypsilanti
21. Community Music School	Detroit
22. *Comptometer School	Detroit
23. *Comptometer School	Flint
24. *Comptometer School	Saginaw
25. *Cranbrook Academy of Art	Bloomfield Hills
26. *Data Processing Training Corp.	Detroit
27. *David Pressley Professional School of Cosmetology	Royal Oak
28. David Walcott Kendall Memorial School	Grand Rapids
29. Davision Technical School, Inc.	Detroit
30. Dearborn Beauty College	Dearborn
31. Del Mar Beauty College	Detroit
32. Delyda's Tutoring School	Detroit
33. De Patis Florist School	Detroit
34. *Dermaway University of Beauty Culture	Detroit
35. *Detroit Business Institute and Detroit Business University	Detroit
36. Detroit College of Applied Science	Ferndale
37. *Detroit Conservatory of Music	Detroit
38. *Detroit Engineering Institute	Detroit
39. Detroit Finishing School	Detroit
40. * Detroit Institute of Commerce	Detroit
41. *Detroit Institute of Meat Cutting	Detroit
42. *Detroit Institute of Musical Arts	Detroit
43. Detroit Practical School	Detroit
44. *Detroit School of Lettering	Detroit
45. Detroit School of Real Estate	Detroit
46. *Detroit School of Swedish Massage	Detroit
47. *Detroit Time Study School	Detroit
48. *Dorsey School	Detroit
49. *East Michigan College of Commerce	Port Huron
50. *East Side Design and Engineering	Detroit
51. *Electronics Institute of Technology	Detroit
52. *Elsa Cooper School	Detroit
53. Elsa Copper School	Port Huron
54. Embassey Beauty College	Muskegon
55. *Fairbanks School of Dressmaking	Detroit
56. Fleming's Beauty College	Detroit

APPENDIX B - continued

Name	Location
57. *Flint Institute of Arts	Flint
58. *Flint Institute of Barbering	Flint
59. Florist School	Detroit
60. *Gleason's School of Welding	Lansing
61. *Green's Barber College	Detroit
62. *Grand Rapids Beauty College and School	Grand Rapids
63. *Hallmark Business Machine Institute	Detroit
64. Hamilton Business College	Ann Arbor
65. Hazel M. Trafton Millinery School	Detroit
66. *Herman Keifer Hospital	Detroit
67. *Hinchman Company School	Detroit
68. *H. L. Bosca School of Automotive Body Design	East Detroit
69. Hollywood Charm School	Detroit
70. Industrial Training School, Inc.	Detroit
71. *International Data Processing Institute, Inc.	Detroit
72. Irene's Bridal Cake Salon	Lincoln Park
73. *Jackson Business University	Jackson
74. Jackson Beauty College	Jackson
75. Joan Claire Beauty School	Flint
76. *Joan Jewett Career School	Lansing
77. *John H. Klok Institute	Grand Rapids
78. Key Punch Training Center, Inc.	Detroit
79. *Kimbles School of Sewing	Detroit
80. Landscape Gardening School of Michigan	Detroit
81. *Lansing Business University	Lansing
82. Lansing School of Electronics	Lansing
83. LaParent Beauty College	Grand Rapids
84. *Leadership Training Institute	Detroit
85. *Leslie Automotive Technical School	Leslie
86. *Lewis Business College	Detroit
87. Lida Y. Post Montgomery Hospital	Battle Creek
88. LuJaim Modeling & Charm School	Kalamazoo
89. Machine Precision Institute	Detroit
90. *Market Training Institute	Detroit
91. Mary Ann Baldwin	Detroit
92. *Mary Hall Academie De Coiffure	Detroit
93. McFarland School of Stationery Engineering	Taylor
94. Melba Beauty Academy	Lansing
95. *Michigan Barber School	Detroit
96. Michigan Beauty College	Flint
97. Michigan College of Beauty Culture	Monroe
98. *Michigan College of Beauty Culture	Mt. Clemens
99. *Michigan Rehabilitation Institute	Doster
100. *Michigan School of Modeling and Self Improvement	Grand Rapids
101. Millinery School	Detroit
102. *Mt. Pleasant Beauty College	Mt. Pleasant
103. *Muskegon School of Business	Muskegon
104. *Northeastern Leadership Institute	Bay City
105. *Northeastern School of Commerce	Bay City
106. *Northwestern Beauty College	Traverse City
107. *Northwood Institute	Alma & Midland
108. *Painter's Apprentice Training School	Detroit
109. Parisian Sewing School	Detroit
110. *Parker Institute for Medical Secretaries	Detroit
111. Parson's Business College	Kalamazoo
112. Pauline-Newhouse School of Announcing	Detroit
113. Perspective School of Dynamic Design	Detroit
114. Pipe-Weld School of Welding	Marquette
115. *P. J. Models School	Dearborn
116. Polish-American Technical Society	Detroit
117. Pontiac Beauty College	Pontiac
118. *Pontiac Business College	Pontiac
119. Poro of Detroit	Detroit
120. *Port Huron School of Beauty Culture	Port Huron

APPENDIX B - continued

Name	Location
121. Rachelle Beauty College	Lansing
122. *RETS Electronic Schools	Detroit
123. *RETS Electronic Schools	Flint
124. *RETS Electronic Schools	Grand Rapids
125. *Richard V. Synder School of Cake Decorating	Detroit
126. Rice Beauty School	Detroit
127. *Riggs School of Beauty Culture	Hillsdale
128. Robe Fiance Hair Design Institute	Detroit
129. Rose School of Body Layout	Highland Park
130. *Ruby's School of Cosmetology	Detroit
131. *Saginaw Beauty College	Saginaw
132. *Saginaw Business Institute	Saginaw
133. *Sales Training, Inc.	Detroit
134. *Sales Training Institute	Detroit
135. Sam Feld	Detroit
136. *Sargent School of Graphic Art	Detroit
137. Sinai Hospital, Medical Technical School	Detroit
138. Star Beauty College	Flint
139. State College of Beauty Culture	Highland Park
140. Stenotype Commercial College	Detroit
141. *Suomi College	Hancock
142. *Synder Beauty School	Jackson
143. Systems Institute, Inc.	Hazel Park
144. *Technical School of Metallurgy	Detroit
145. *Thomas Secretarial School	Detroit
146. Tonne Technical School	Hancock
147. Traverse City Academy of Beauty	Traverse City
148. Twin City Business College	Benton Harbor
149. Upper Peninsula Beauty Academy	Marquette
150. Upper Peninsula Beauty Academy	Iron Mountain
151. Vander Horst Key Punch School	Flint
152. *Villa Maria Beauty School	Detroit
153. Virginia Farrell Academy of Advanced Hair Styling	Detroit
154. *Vista Maria Beauty School	Detroit
155. *Walsh Institute of Accounting	Detroit
156. *Wayne Business Institute	Detroit
157. Whitcomb School, Inc.	Detroit
158. Will-O-Way Apprentice Theatre, Inc.	Bloomfield Hills
159. *Wolverine School of Trades	Detroit
160. World-Wide School of Piano Tuning	Lansing
161. *Wright Beauty Academy	Battle Creek

APPENDIX C

SCHOOLS CLOSED OR MOVED

Name*	Location	Name	Location
1. Adult Tutoring School	Detroit	13. Kelly Training School	Highland Park
2. Allen Art and Airbrush Institute	Detroit	14. Kendall School of Design	Detroit
3. Brookes School of Photographic Art	Detroit	15. LeMar Barber College	Highland Park
4. Burroughs Office Machine Training	Highland Park	16. Lilli Ann's School of Charm	Manchester
5. Central Technical School	Detroit	17. MacClean College of Secretarial Science	Detroit
6. Charm, Inc.	Detroit	18. Meinzinger Art School	Detroit
7. Cloverland Commercial College	Escanaba	19. Michigan Design Institute	Lansing
8. Detroit School of Announcing and Speech	Detroit	20. National Beauty College	Benton Harbor
9. Dundons Actual Business College	Iron Mountain	21. Paramont Beauty College	Muskegon
10. Flora M. Diagnean	Detroit	22. Progressive School of Knitting Design	Detroit
11. Florence Utt Switchboard School	Detroit	23. Trans-Tech Institute	Detroit
12. James Cotton School of Art	Roseville	24. Vogue School of Modeling	Detroit

*Questionnaires to the following schools were returned unopened either because the school had gone out of business, or had moved and left no forwarding address.

VT 001 489

Vocational-Technical Education Needs in the Greater Elmira Area with Recommendations for Action. Summary Report.

New York State Education Dept., Albany. Bureau of Trade and Technical Education
Elmira Enlarged City School District, N.Y.
Sole Supervisory District of Chemung and Tioga Counties, Board of Cooperative Educ. Services, Horseheads, N.Y.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 63 76p.

*VOCATIONAL EDUCATION; *CURRICULUM; STUDENT INTERESTS; STUDENT ENROLLMENT; POPULATION DISTRIBUTION; *SCHOOL SURVEYS; TECHNICAL EDUCATION; OCCUPATIONAL SURVEYS; MANPOWER NEEDS; EDUCATIONAL RESOURCES; *EDUCATIONAL NEEDS; PROGRAM EVALUATION; *PROGRAM IMPROVEMENT; EMPLOYER ATTITUDES; COMMUNITY SUPPORT
GREATER ELMIRA AREA; NEW YORK

This educational survey was designed to ascertain in as quantitative terms as possible the information and opinions of various segments of the population concerned with vocational-technical education in the Greater Elmira Area. The survey, conducted during the 6-months from September 1962 to March 1963, presented the following information: (1) facts and figures concerning the Greater Elmira Area (includes population distribution, projected population to 1980, and enrollment distribution by districts and grades), (2) definitions of vocational-technical education, (3) local resources for vocational-technical education (resources are public high schools, public adult education, private schools, and programs established by industry, labor organizations and business firms), (4) reports of questionnaires completed by 4,182 high school students, 3,194 parents of high school students, 2,116 former students, 610 selected voters, 75 school administrators, and 65 selected teachers, and (5) a report from industry, business and agriculture concerning present and projected employment needs to 1970. In the summary sections, these recommendations were made: (1) The program should be planned to accommodate all youth, (2) The curriculum should be based on an area study of long-range employment needs of local industry, business, and agriculture as well as the state and national needs, (3) A curriculum plan for the enlargement and extension of the present high school and adult vocational-technical program should be established. (SL)

VT 001 489

1489
C1

THE NEED NOW AND AHEAD FOR

Vocational-Technical EDUCATION

IN THE GREATER ELMIRA AREA

ED0 36657

IC 01489

THE ELMIRA ENLARGED CITY SCHOOL DISTRICT
and
THE BOARD OF COOPERATIVE EDUCATIONAL SERVICES
SOLE SUPERVISORY DISTRICT OF CHEMUNG AND TIOGA COUNTIES, NEW YORK

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

A Summary Report

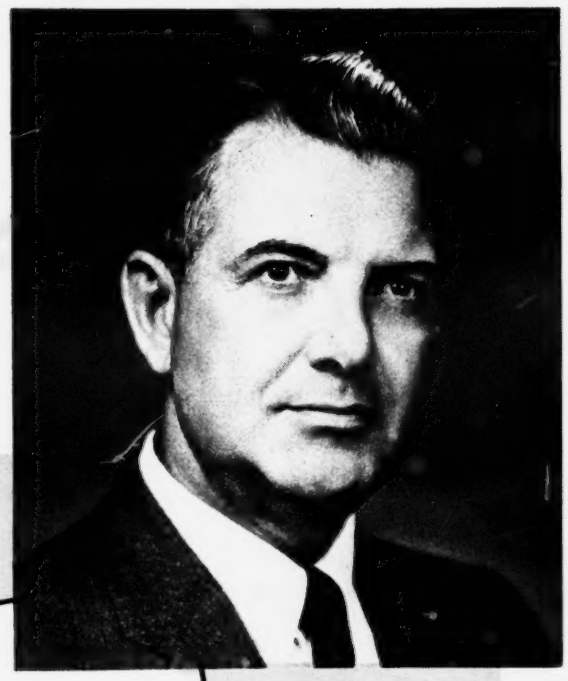
on

Vocational - Technical Education Needs in the Greater Elmira Area

with

Recommendations for Action

Results of the 1962-1963 Survey
Conducted by
The Elmira Enlarged City School District
and
The Board of Cooperative Educational Services
Sole Supervisory District of Chemung & Tioga Counties, New York
in co-operation with
The New York State Education Department
Division of Industrial Education
Bureau of Trade and Technical Education



DR. JOSEPH R. STROBEL, Assistant Commissioner
for Vocational Instructional Services,
State Education Department, Albany, N. Y.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
ALBANY 1

August 15, 1963

To the Citizens of Chemung and Tioga Counties:

This study is the outcome of the cooperative effort of many persons and participating organizations. Members of Boards of Education, the Board of Cooperative Educational Service, school superintendents, the survey team, groups of interested citizens and the State Education Department united to survey the needs for vocational-industrial-technical education in Chemung and Tioga Counties. An analysis of the data contained herein will form a base for the establishment of centers of technology to serve the youth of your community.

The dynamics of industrial progress constantly accelerate the change in job patterns and the mobility of service and manufacturing centers. Old industries and services have given way to new products and manufacturing methods. Increased educational preparation is required for a more complex, automated economy. Displaced workers and early school leavers must be prepared to find a productive and satisfying niche in our industrial complex. From the educated youth of today will come the products and service of tomorrow.

Preparation and retraining of workers provides the necessary manpower for current industrial activity and an essential element in the attraction of new business and industry. Through the data provided in this study, you will be able to establish realistic area vocational facilities for the training of skilled manpower. Inter-district and inter-county cooperation will go far in providing efficient vocational-industrial-technical programs to serve the needs in a broad economic area.

To all of you who assisted in the organization and operation of the survey, we are sincerely appreciative, and will look forward to greater occupational training opportunities for the youth and adults of Chemung and Tioga Counties.

Sincerely yours,

Joseph R. Strobel

AED:SG

1962-1963 SURVEY

The Need for a Vocational-Technical Program for The Greater Elmira Area

EXECUTIVE COMMITTEE

Mrs. Pauline Graebner Bush, Co-Chairman
District Superintendent of Schools and Executive Officer, BOCES, Sole Supervisory District, Counties of Chemung and Tioga, Horseheads, New York

Dr. Donald S. Keeler, Co-Chairman
Superintendent of Schools, Elmira, New York

Harold D. Merry
Superintendent of Schools, Horseheads, New York

Madison Hess
Superintendent of Schools, Elmira Heights, New York

Nicholas Marchase
Supervising Principal, Van Etten Central School, Van Etten, New York

Clyde G. Spear
Supervising Principal, Spencer Central School, Spencer, New York

Dallas K. Martin
Supervising Principal, Candor Central School, Candor, New York

Ex Officio

Frank A. Cicci
President, Board of Cooperative Educational Services, Horseheads, New York

Fowler W. Carpenter
Elmira Board of Education, Elmira, New York

New York State Education Department Consultants

Dr. C. Thomas Olivo
Director, Division of Industrial Education

Dr. Nelson J. Murback
Chief, Bureau of Trade and Technical Education

Dr. Carl Anderwald
Associate, Bureau of Trade and Technical Education

Alfred E. Davies
Liaison, Bureau of Trade and Technical Education

SURVEY DIRECTOR

Mrs. Ida Feaster
Horseheads, New York

ACKNOWLEDGMENT

This survey on the need for a vocational-industrial-technical education program had its origin in the concern of school board members and school administrators with the vocational-industrial-technical educational needs of the Greater Elmira area. It has been sponsored jointly by the Elmira Enlarged City School District and the Board of Cooperative Educational Services comprised of the Horseheads, the Elmira Heights and the Van Etten Central School Districts of Chemung County and the Candor and Spencer Central School Districts of Tioga County.

The cooperation of the State Education Department has made this survey possible. We are indebted to Dr. C. Thomas Olivo, Director, Division of Industrial Education; Dr. Nelson J. Murbach, Chief, Bureau of Trade and Technical Education; and Dr. Carl J. Anderwald, Associate, Bureau of Trade and Technical Education, and Mr. Alfred E. Davies of the Bureau as liaison, who have given invaluable assistance in the development of the work.

We want to acknowledge the outstanding contribution of Mrs. Ida Feaster, Director of the Survey, who organized and coordinated the efforts of many individuals and groups so efficiently in order to collect valid data. We appreciate her skill in compiling this mass of data into a meaningful report.

We want to thank the following individuals and groups for their time, effort and their valuable assistance to our director, Mrs. Ida Feaster, and to the Executive Committee:

1. The lay Advisory Committee.
2. The Elmira Association of Commerce which assisted in organizing a committee to obtain information from area business, industry and service organizations.
3. The Chemung County P.T.A. Council which sampled voter opinion on the question of support for such a program.
4. The administrators of public and parochial schools for making available pertinent information.
5. The guidance personnel of our public and parochial schools for planning, conducting and tabulating important information on the school population.
6. All the people who filled out questionnaires including high school students and their parents.

To everyone who helped with the organization and conduct of the survey, we give sincere thanks, and we hope that the results of this survey will bring greater opportunities for vocational-industrial-technical education to the youth of the Greater Elmira area.

THE EXECUTIVE COMMITTEE

Pauline Graebner Bush, Donald S. Keeler — Co-Chairmen
Dallas K. Martin — Nicholas Marchase
Madison Hess — Harold D. Merry — Clyde G. Spear
Frank Cicci, Fowler Carpenter — Ex Officio

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FOREWORD

There is nothing permanent except change . . . Heraclitus

To pursue an orderly course in conducting the affairs of one of the largest businesses in this community—education—it is necessary to plan ahead. This report presents the reasons for and the results of a study designed to ascertain the local needs for an expanded vocational-technical educational program.

Some of the most significant changes in American life in the past half-century are recorded in the statistics of the labor force. The percentage of the population of "working age" has remained about the same, but the composition in age, sex, and occupations presents a very different picture from that of 1900. More than one-third of the women of working age are employed or are actively seeking employment. The increased enrollment in high school and college postpones youth's entrance into the work force and consequently the age of workers entering the labor force is more advanced than in former years.

At the turn of the century nearly **three-fourths** of the labor force was engaged in the production of physical goods and **less** than **one-fourth** in service occupations. In 1960 most of the labor force was engaged in the service occupations—42.2 percent in white-collar occupations and 12 percent in household and other service occupations. This transformation continues today in response to technological advances, particularly in agriculture.

Since 1900 agricultural employment has fallen from 37.5 percent to only 6.3 percent of the labor force. Because of the larger size of farms and the application of science and mechanization to agricultural production, the number of farmers and farm workers has dropped steadily for 50 years. Moreover, many farmers no longer devote full time to their farms. Many of them are taking on non-farm work on a part-time basis. Their children are seeking work in industry and service occupations.

The percentage of non-farm laborers has fallen from 12.5 to 5.5. The percentage of the labor force employed in clerical functions has increased fivefold; that in sales, almost twofold; that in professional, technical and kindred occupations threefold. There has been a doubling of other service workers such as barbers, beauticians, cooks, policemen, firemen, janitors, waitresses and so on. In sum, the economic life of our country is now much less dependent on muscle power and much more dependent on professional, technical and clerical skills.*

This pattern of national change has been mirrored in the socio-economic structure of our own community. The Greater Elmira Area has changed gradually from a dominantly agricultural to a diversified semi-industrial area. A number of large manufacturing and business firms have selected Elmira, Elmira Heights, Horseheads, and neighboring communities as sites for plant locations. Established industry and business has grown and diversified at the same time. There is every indication that this commercial growth will continue during the coming years.

The population of Chemung County has increased from 86,827 (1950 Census) to 98,706 (1960 Census)—a gain of 11,870 or 13.7 percent. Included in the Greater Elmira Area for purposes of this survey are the two communities of Spencer and Candor in Tioga County. The estimated population of these communities as school districts was 6,250 in 1962. If recent growth trends continue, the population of the

*The above statistics were abstracted from P. M. Hauser, "More from the Census of 1960," **Scientific American**, 207,36, (Oct. 1962).

survey area will be **well over** 100,000 by 1970. With this general population increase has come an inevitable growth in school population. In the 1962-1963 school year **26,870** pupils were enrolled in the survey area public and parochial schools. With the largest proportion of pupils in the lower grades, there will be a much larger high school enrollment in the next decade. It follows that there will be many more youths who will be ready to enter the job market even if a larger percentage of students continue into higher education.

Most of our youths (boys and girls) who enter employment after completing high school have had little or no specialized occupational preparation. If these young people desire to find employment which will require special vocational-technical training, in or out of their home community, they must leave the area to receive such training. **The increasing mechanization and automation of business, industry and agriculture presage the need for more vocational-technical education.** Even though local business and industry may improve and upgrade apprentice programs, there will be those who will not be prepared for the job market unless area schools offer such training.

No one vocational specialization meets the employment needs for this area; rather, education for a number of different trades and industrial occupational areas is required to develop the basic manipulative skills for the purpose of preparing youths for initial employment. Industry, business, and service organizations are the main employers of skilled and semi-skilled workers, however, agricultural pursuits and related agricultural business and industry have a vital need for vocational training.

School administrators and members of the school boards in the Greater Elmira Area are cognizant of their responsibility in meeting the total educational needs of local youth. There are adults in the area, as well, who need and want special training for employment. Automation, technological change, product development, and other general industrial progress make adult education a necessity for retraining and upgrading the skilled and semi-skilled workers. Out-of-school youth who have failed to complete a high school education also have a need for supplementary training to fit them for useful employment. Each school system, on its own, cannot afford to support the competent faculty and specialized facilities demanded for today's technological and industrial training. However, in the area as a whole there is a sufficient number of students to support such a program.

In the vocational curriculum, be it technical, trade, industrial, agricultural, or homemaking, emphasis is placed **not only** upon the development of skills, work habits, and knowledge needed by the worker to enter and make progress in employment on a useful and productive basis, **but also** upon English, Citizenship Education, related mathematics and science, and other mandated subjects. Vocational programs to be effective must be flexible so that they may meet a wide range of the community needs. The ability level of individual students determines the type of training. Short orientation courses, general industrial operatives, skilled, semi-skilled, or technical courses should be available to all high school youth who can profit by the kind of instruction being offered.

Faced with the dual problems of expanding for the present and the predicted increase in school enrollment, and providing an adequate educational program for the area needs, the Elmira Enlarged City School District Board and the Board of Cooperative Educational Services-Sole Supervisory District, Chemung-Tioga (which is made up of the other school districts in the area) with the cooperation of the New York State Educational Department have undertaken a survey to determine the need for a vocational-technical program.

Local citizens, representing a broad range of professional and industrial groups, and personnel from each school district (public and parochial) worked as committees with the director of the survey to obtain the needed data.

One of the tasks was the determination of what vocational-technical training is presently available in the area. It was also necessary to find the training requirements of business, industry, agriculture, and labor for both new and experienced employees. The interest of students and parents in such a program had to be established. Voter reaction had to be ascertained. From this and other information an answer to the question of need for, and the character of a vocational-technical program could be better determined. Such considerations defined the operational mechanics of the survey.

Facts and opinions were solicited from 4182 high school students in the 10th, 11th, and 12th grades, 5325 parents and other adults, 623 industrial and business firms, school administrators and teachers. Many area lay leaders who served on the Advisory Committee were given an opportunity to express opinions and to give ideas on the objectives of the survey.

This report summarizes the data obtained in the survey. A second report comprising a detailed tabulation of the results is filed in the Survey Office.

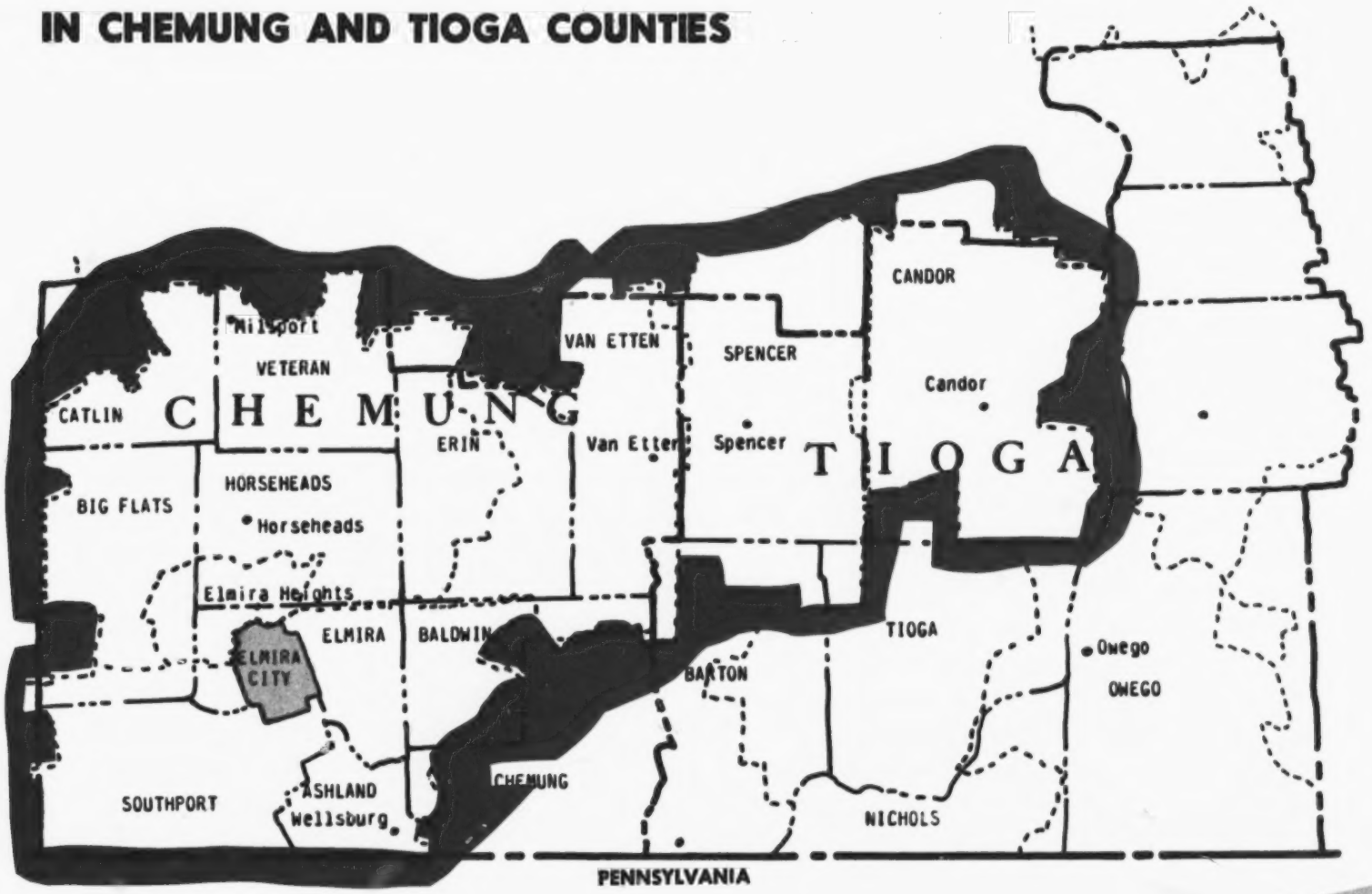
POPULATION

FACTS & FIGURES

- *MAP OF SURVEY AREA*
- *HOW MANY PEOPLE LIVE HERE?*
- *SCHOOL ENROLLMENT AND PROJECTION*

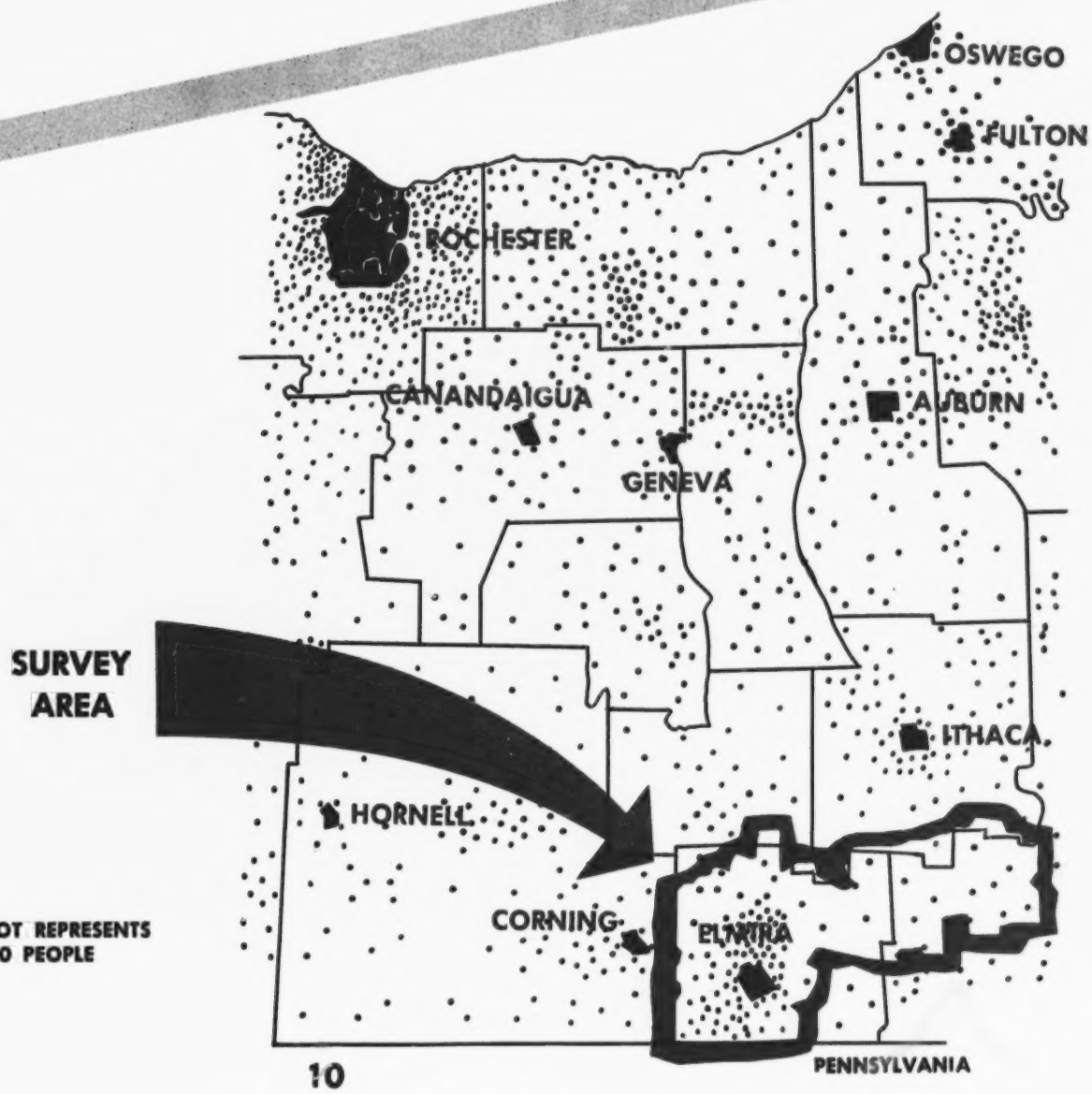
SURVEY AREA

IN CHEMUNG AND TIOGA COUNTIES



POPULATION DISTRIBUTION

Central New York
1960

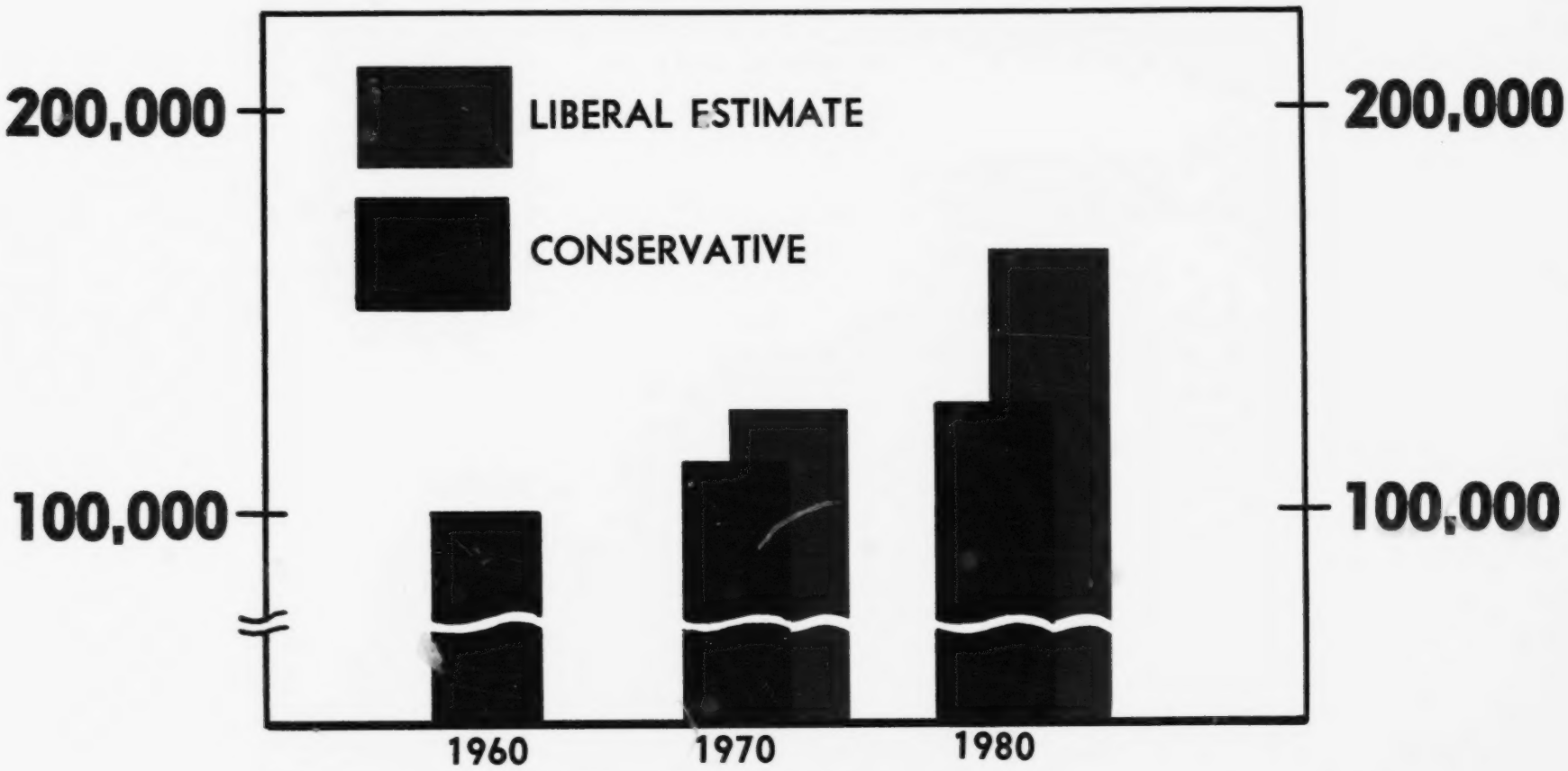


EACH DOT REPRESENTS
500 PEOPLE

FACTS AND FIGURES CONCERNING THE GREATER ELMIRA AREA

1962-1963

Present and Projected Population



1960 Census Figures and Elmira-Chemung County Metropolitan Area Masterplan Studies, January, 1962

1962 POPULATION

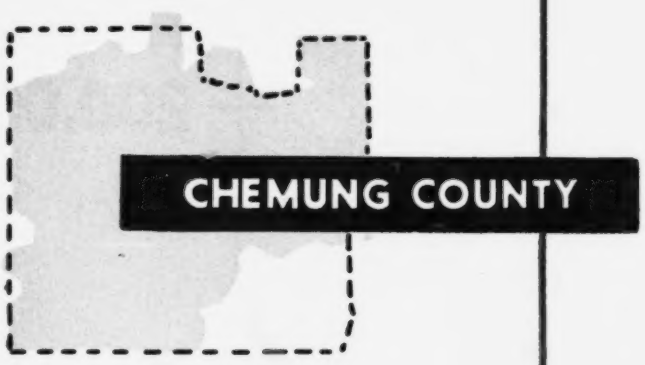
Chemung County	100,000*
Tioga County-Candor Central School District	4,500**
Tioga County-Spencer Central School District	1,750
Total	106,250
Chemung County Population (1960 Census)	
Under 18 years —	35,367
18 - 64 years —	52,872
65 and over —	10,467

*1960 Census 98,706
Estimate by Elmira Association of Commerce (1962) 101,000

**Candor and Spencer estimate for School Bond issue, 1962

PUBLIC SCHOOL DISTRICTS

IN SURVEY AREA

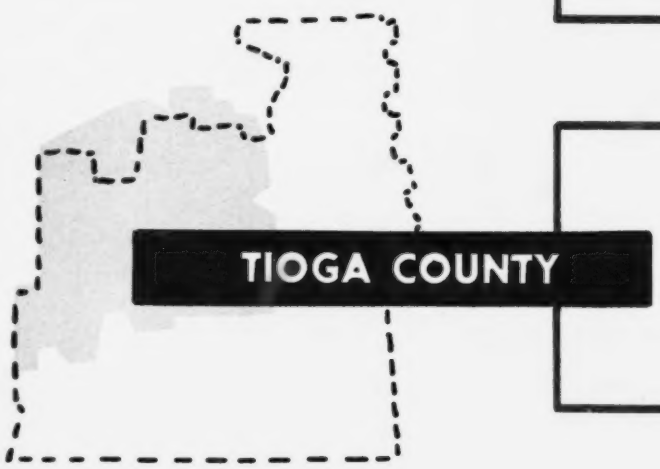


Elmira Enlarged City School District

Horseheads Central School District

Elmira Heights Central School District

Van Etten Central School District



Candor Central School District

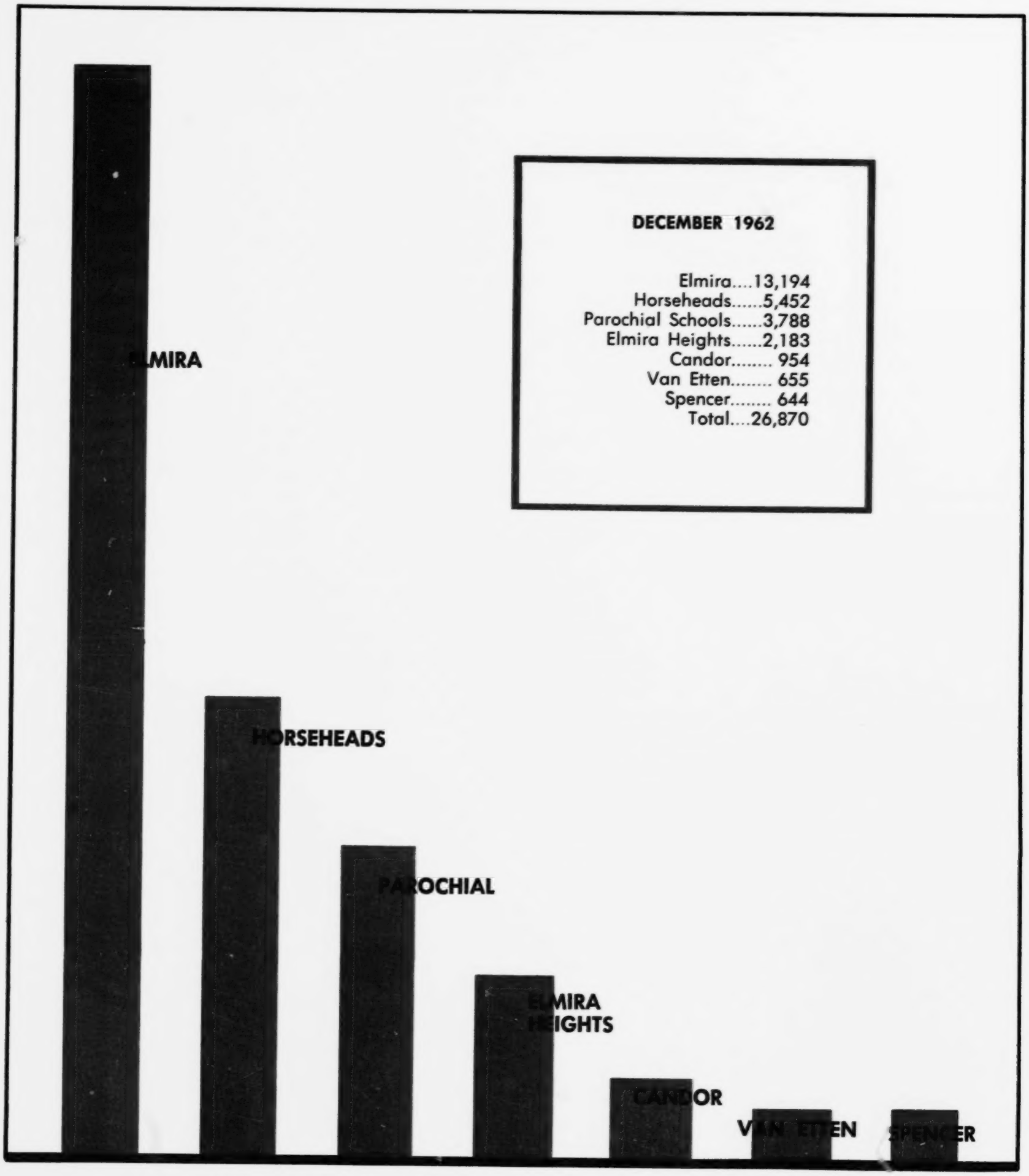
Spencer Central School District

PUPIL ENROLLMENT IN SURVEY AREA, 1962-1963

Total pupil enrollment (K-12) in Public Schools	23,082
Total pupil enrollment (K-12) in Parochial Schools	3,788
Total	26,870

Approximately 25 percent of population in survey area attending school	
Number of students in Grades 10-11-12 (Public Schools)	4,115
Number of students in Grades 10-11-12 (Parochial)	542
Total	4,657

Total Enrollment in Survey Area School Districts

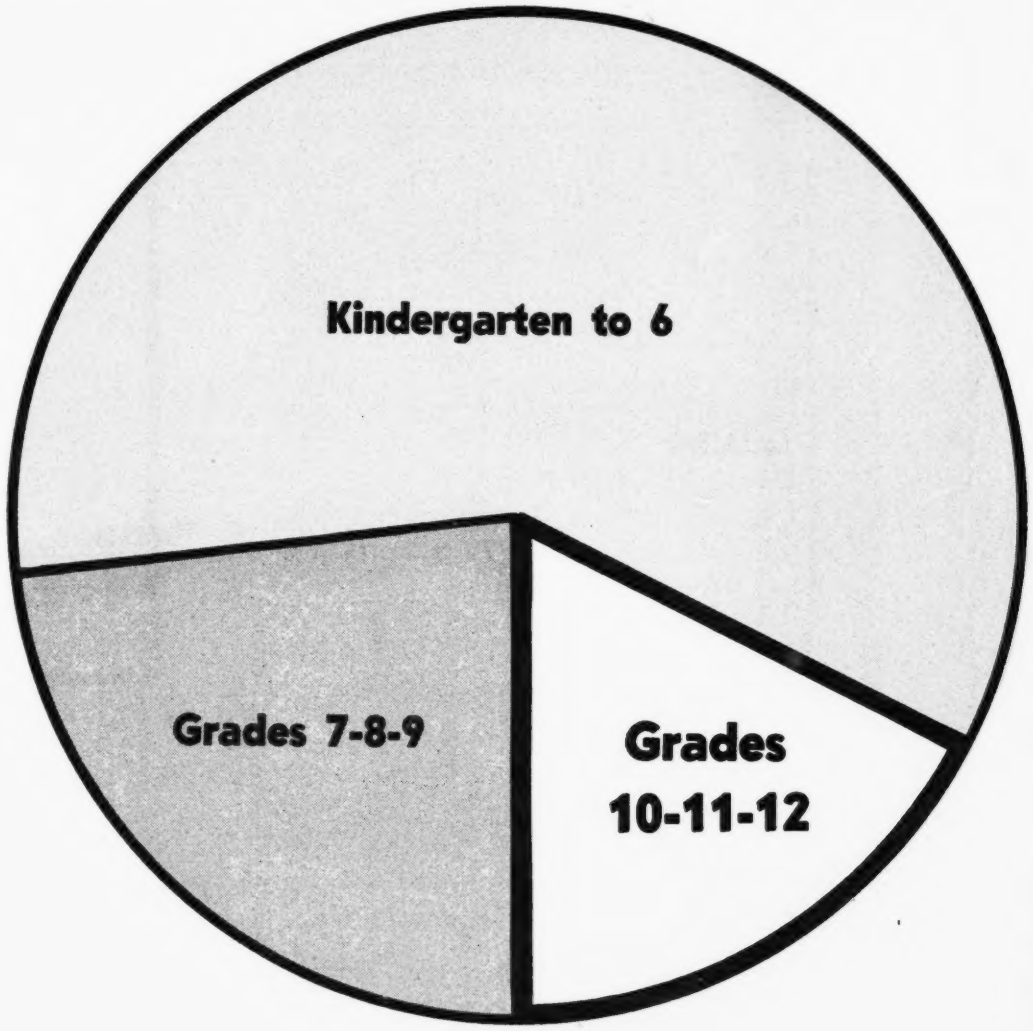


Data Furnished By District Administrators

ENROLLMENT DISTRIBUTION OF GRADES IN SURVEY AREA SCHOOLS (PUBLIC AND PAROCHIAL)

DEC. 1, 1962

Total enrollment	26,870
K-6 enrollment	16,173
7-8-9 enrollment	6,040
10-11-12 enrollment	4,657



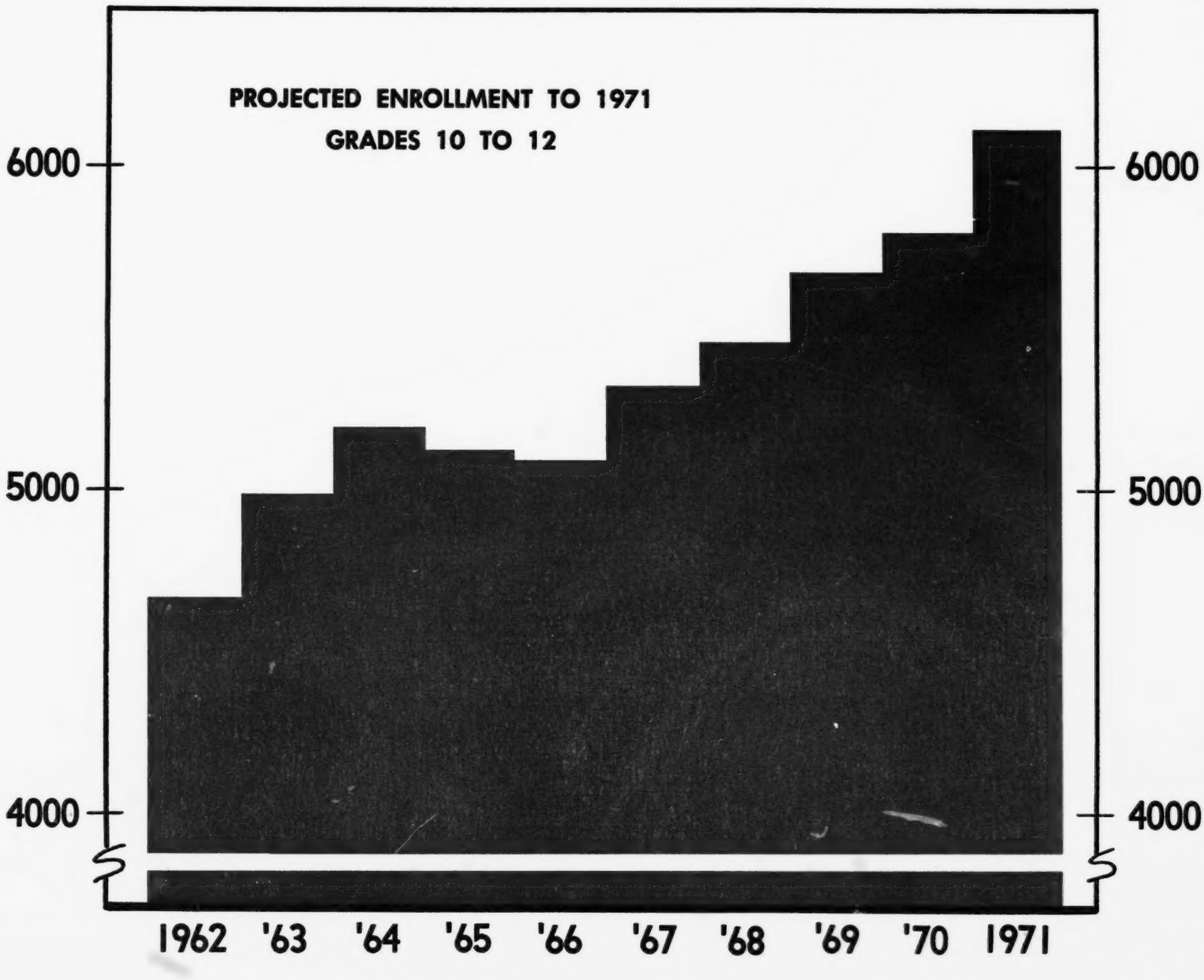
TOTAL NUMBER OF TEACHERS

Dec. 1, 1962

Elmira	543
Horseheads	240
Elmira Heights	108
Candor	51
Van Etten	32
Spencer	35
Co-Op Board	11
Parochial Schools	107
(9 Catholic and 1 Seventh Day Adventist)	
Total	1127

Data furnished by district administrators

PUBLIC AND PAROCHIAL SCHOOLS IN THE GREATER ELMIRA AREA



Data furnished by district administrators

What is meant by

Vocational-Technical EDUCATION

as used for this survey

VOCATIONAL PROGRAM CURRICULUM PATTERNS

"Vocational Education is basically the education which prepares the individual for effective gainful employment and assists him to attain a socially useful life."*

Vocational Education is basic education. Although such education is specific in purpose, its instructional content is broadly conceived as preparation for a trade, a craft, or technical occupation involving many basic skills.

The description of Vocational Education which follows is a summary of the information given in the **Administrator's Handbook of the Secondary School Curriculum of New York State,** Bureau of Secondary Curriculum Development, New York State Education Department, Albany, 1960.

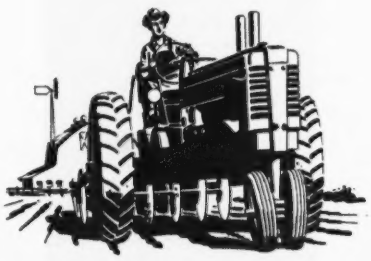
VOCATIONAL TRADE EDUCATION is a program intended to prepare students for entrance into the crafts as advanced apprentices or learners. A trade program is usually two or three years in length, beginning in the 10th or 11th year of school.

VOCATIONAL TECHNICAL EDUCATION is a program of courses to prepare selected youth for entry directly into technical or semi-professional occupations or for enrollment in college for advanced and specialized training. A technical program is usually three to four years in length.

VOCATIONAL BUSINESS EDUCATION provides instruction in office positions including the operation of business machines and associated equipment, business correspondence, and general clerical work. This type of training requires from two to three years.

A COOPERATIVE PROGRAM, which includes Vocational Commercial, Vocational Distributive, and Vocational Industrial Programs, is basically vocational education in preparation for earning a living. At age 16 or over, high school boys and girls are placed in jobs which involve a year or more of part-time employment training. On the job they work for pay and learn the necessary skills. In school, also on a part-time basis, students receive instruction related to the employment, in addition to the subjects required for graduation.

VOCATIONAL AGRICULTURE EDUCATION is a program of agricultural courses together with related home farm activities and supervised farm experiences. Various areas of study are offered such as, food processing, horticulture, dairying, etc. General education subjects are required similar to other secondary school curricula. A program in agriculture study is generally two to three years in length.



*United States Congress, Public Law No. 347, 64th Congress (S 703)

DEFINITIONS OF VOCATIONAL-TECHNICAL EDUCATION

(As Used For This Survey)

Because this study was concerned with the need for both vocational and technical education in the area schools, it was necessary that some general definitions be accepted for usage which would denote the minimum requirements for the specific type of education under consideration.

The Executive Committee was concerned with definitions which would be specific in purpose but allow for broad instructional content in preparing students for entering a craft, a trade, or a technical occupation involving many basic skills. With these considerations in mind, the Executive Committee adopted the definitions which are provided by the Division of Industrial Education, Bureau of Trade and Technical Education, State Education Department.

These are the definitions which were adopted for this study:

Vocational Education: The development of skills, abilities, understandings, attitudes, work habits and appreciations including knowledges and information needed by workers to enter and make progress in employment on a useful and productive basis.

Technical Education: Preparation for employment in an occupation which requires mastery of a large amount of technical information including the sciences, technology, mathematics, and drafting as applied to modern design, production and service.

Over-all Philosophy for the Study:

Vocational-technical education is intended primarily for high school youth who can profit by the kind of instruction being offered. It is intended for girls and women, as well as boys and men.

The ability level of the individual student would determine the type of program in which he would take part. The program could be a short orientation course, instruction in general industrial operation, skilled or semi-skilled training or technical training.

Local Resources

FOR

VOCATIONAL-TECHNICAL EDUCATION

LOCAL RESOURCES

FOR VOCATIONAL-TECHNICAL EDUCATION IN THE GREATER ELMIRA AREA

This area has four sources for training the present and future employees for existing trade and industry:

- **Public school vocational-technical courses** offered to enrolled students to obtain beginning training in occupations of their interest and choice
- **Public school adult education classes** offered to those who wish to extend learning and skills for initial training or retraining
- **Private school educational courses** including trade education offered as day and evening classes
- **Private programs established by local industry, labor organizations, and business firms** for upgrading, trade apprentice, and pre-employment training to fit workers for the necessary work skills needed for specific jobs.*

The following tables present information on the number of courses and the number enrolled in each type of training source.

*A description of the program and the number of individuals taking part in industrial and business training programs was not obtainable. See school report on the number of former students enrolled in such programs.

HIGH SCHOOL VOCATIONAL-TECHNICAL COURSE OFFERINGS DURING THE SCHOOL YEAR 1962-1963

A high school vocational-technical program is designed to develop skills, habits, attitudes and knowledge needed by workers to enter and make progress in employment. The New York State Department of Education sets curriculum requirements for State Regent High School Diplomas which can be offered by local schools. The student is required to take not only vocational-technical courses with their stipulated hours of shop and/or laboratory, but also subjects such as English, science, mathematics, social studies, and health. In addition to the preparation of students for useful employment, vocational-technical programs offer preparation for students to enter engineering colleges, schools of architecture and science for advanced study and specialization.

The following table presents the courses which meet the requirements of New York State for Vocational-Technical Education, Vocational-Business and Distributive Education, and Vocational Agriculture. Seven of the eight area high schools offer some of these courses.

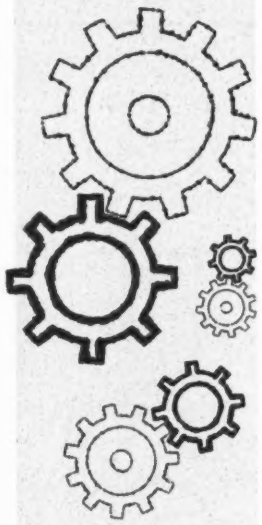
HIGH SCHOOL VOCATIONAL-TECHNICAL COURSE OFFERINGS DURING THE SCHOOL YEAR 1962-1963

NAME OF COURSE	Students Enrolled			Number of schools offering course
	Boys	Girls	Total	
VOCATIONAL-TECHNICAL				
Vocational Sheet Metal and Welding	18	0	18	1
Vocational Auto Mechanics	12	0	12	1
Vocational Carpentry	20	0	20	1
Vocational Machine	26	0	26	1
VOCATIONAL BUSINESS				
Vocational Stenography	2	134	136	6
Vocational Office Practice	20	78	98	4
Vocational Bookkeeping	60	91	151	5
Vocational Business Curriculum — Small H. S.	0	12	12	1
DISTRIBUTIVE				
Cooperative Retailing	25	13	38	1
VOCATIONAL AGRICULTURE				
Vocational Agriculture	31	0	31	2
Total	**214**	**328**	**542**	

The total number of students in these courses is approximately 11% of the total senior high school enrollment of 4657 students. It should be noted that over one-half of those enrolled in these courses are girls.

Data obtained from guidance personnel in each area secondary school

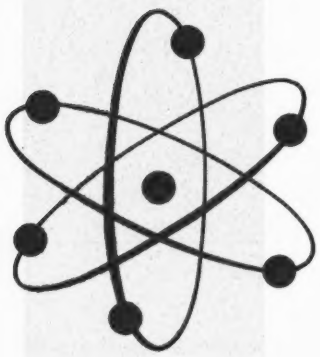
ADULT VOCATIONAL EDUCATION



The impact of the use of machinery and technology on the national economy is self-evident. Statistics on the number of unemployed from national and state labor department point up the number of adults who now require training, retraining, or upgrading for the skilled and semi-skilled jobs demanded by modern business, industry, and agriculture. Those with limited talents or with skills which can no longer be used can be retrained through adult vocational education. The poorly educated are the first workers to be displaced. Young adults who have not completed a high school education constitute a large fraction of the unemployed.

An adult vocational educational program, well planned for the community needs, can provide the preparation necessary for employing some of the untrained or uneducated idle.

Employed workers in skilled and semi-skilled jobs as well as technical positions have a need for updating and retraining because of automation and technological changes which are taking place in today's industry and business. Agricultural pursuits and related businesses demand constant instruction and information which can be given through adult vocational courses.



The trade skills and related courses which are desired by employers in the Survey Area are listed on pages 67 and 68.

The following table lists the public school courses offered in the Survey Area for the first term of the 1962-1963 school year.

PUBLIC SCHOOL ADULT CLASSES FOR TRAINING OR RETRAINING 1962-1963

Name of Course	Students Enrolled			No. of Schools Offering the Course
	men	women	total	
VOCATIONAL-TECHNICAL				
Auto Mechanics	14	0		
Apprentice	5	1	20	1
Other				
Machine Shop				
Advanced	19	0		
Beginning	9	1	29	1
Welding	26	0	26	1
Woodworking and Cabinet Making	17	0	17	1
Refinishing	10	9	19	1
Leather Carving	6	10	16	1
Refrigeration	22	0	22	1
Electronics I	44	2	46	2
Electronics II	10	0	10	1
Radio and T-V				
Beginning	42	0		
Intermediate	18	0		
Advanced	10	0	70	1
Sheet Metal				
Apprentice	13	0	13	1
Blue Print Reading	10	0	10	1
Mechanical Physics and Mathematics	7	0	7	1
Human Relations in Supervision	2	10	12	1
VOCATIONAL BUSINESS				
Typing	11	98	109	2
Office Machines	0	41	41	1
Stenoscript	1	18	19	1
Shorthand	3	76	79	1
Bookkeeping	3	45	48	2
VOCATIONAL AGRICULTURE				
Vocational Agriculture	27	0	27	1
Total	**329**	**311**	**640**	

The following table gives the age distribution of the adults who were enrolled in the courses listed in the previous table:

Age Group	No. Enrolled	Age Group	No. Enrolled
16-20	87	31-40	199
21-25	92	40 plus	153
26-30	100	age not given	12

Data obtained from Directors of Adult Education

PRIVATE SCHOOL VOCATIONAL CLASSES*

Type of School	Number Enrolled (1962)
Trade Education (Beauty Culture)	128
Business Education	93
Elmira College (Advanced Technical Education)	172

*Data supplied by director of each private school. These enrollment figures are for the Fall Term, 1962-1963 school year.

Information

From

- SECONDARY STUDENTS
- PARENTS
- FORMER STUDENTS

REPORT FROM HIGH SCHOOL STUDENTS
(1962-1963)

The survey received completed questionnaires from:

1042	seniors
1336	juniors
1804	sophomores
4182	Total*

DO THEY PLAN TO GRADUATE FROM HIGH SCHOOL?

Yes . . . said 99.9% of the seniors.
Yes . . . said 99.8% of the juniors.
Yes . . . said 99.4% of the sophomores.

A total of less than 1 per cent (13) plan to drop out of school. For this survey, the drop-out was defined as those who do not finish a high school education.

The high percentage of students in the survey who said they intend to graduate from high school may be called the "aspiration level" of these students.

DROP-OUTS IN AREA SCHOOLS -- 1961-1962**

The information which follows gives data on the previous school year (1961-1962) and offers a comparison with the aspirations of students questioned for this survey.

In the class of 1962 in the six area public high schools, the drop-out percentages ranged from 11% to 21% for students who entered these schools as freshmen in 1958.

In the 1961 Fall School Census for Public Schools, the six area public high schools listed an enrollment total of 2138 students over 16 years of age or older. These students could leave school without graduating. The total number of drop-outs from the six area public schools for the school year was 248 students which included those who did not enter the area schools as ninth graders.

*In grades 10, 11, and 12, area total enrollment—4657 students as of October 1962.

**All data on graduates and drop-outs (1962) furnished by the District Administrators.

Note: A panel of Consultants made a report on vocational education to the President of the United States in November 1962 in which this information was given on drop-outs:

Of every **TEN** youngsters now in grade school in the United States

THREE will not finish high school

SEVEN will earn a high school diploma.

Of these seven,
THREE will go to work, some as wives and mothers

FOUR will continue their education.

Of these four,
Only **TWO** will finish four years of college.

WHAT ARE STUDENT PLANS AFTER GRADUATION?

(In the Survey Area)

THOSE WHO WILL CONTINUE EDUCATION BEYOND HIGH SCHOOL

Sixty-eight percent (2873) of the students questioned plan to continue education beyond high school.

Of these

55% plan to go to a four year college
23% plan to go to a two year college or institute
12% plan to go to business school
10% plan to go into nurse's training*

THOSE WHO CONTINUED EDUCATION BEYOND HIGH SCHOOL IN CLASS OF 1962**

In the graduating class of 1962 in all area high schools there were 1061 students.

Forty-nine Percent or 521 of these high school graduates actually continued into higher education. This percentage includes those who entered a four-year degree granting institution, a two-year college or institute, business school, or a hospital training school for nurses.

THOSE WHO WILL NOT CONTINUE EDUCATION BEYOND HIGH SCHOOL (In the Survey Area)

These are the plans of the 31 percent (1296) of the students who do not plan to continue their education beyond high school. Of these

33% plan to enter the armed services
31% plan employment in business
14% plan to enter vocational or technical jobs
15% plan to work at any job available
7% have other plans or are undecided.

Note: The students who plan to drop out of school are not included in these percentages.

*In a high school vocational program these students could receive training for practical nursing and prerequisite training for registered nursing.
**All data on graduates of 1962 furnished by the District Administrators.

INFORMATION AND DATA FROM A STATE STUDY ON HIGH SCHOOL STUDENT PLANS

This section of a **state study** gives information and data for a comparison of the plans of the high school students included in this survey to those in a larger area of the southern tier counties in New York state. (See state definition of Elmira area, Item 1.)

COLLEGE PLANS OF HIGH SCHOOL SENIORS IN NEW YORK STATE* 1961

A New York State study of the college plans of high school seniors in 1961 shows the change in the proportion of high school graduates who continue education into college or some other kind of post high school institution.

THE ELMIRA AREA

1 In the **Elmira Area** as defined by the New York State Commerce Department there was a 43% increase in the number of high school graduates from 1956 to 1961. (The Elmira Area is composed of Allegany, Chemung, Schuyler, Steuben, Tioga, and Tompkins counties.)

2 **State wide** the percentage of graduates planning to attend four-year colleges and universities remained about the same, 40 percent, from 1956 to 1961.

3 **State wide** the gain in 1961, over 1956, was in plans of graduates to attend **two year** and **nondegree** types of schools. In 1956 the percentage of graduates entering two-year colleges ranged around 8 percent; in 1961 it had reached 14 percent.

4 **State wide** graduates who planned to attend nondegree types of schools increased from 10 percent in 1956 to 16 percent in 1961.

PLANS OF HIGH SCHOOL SENIORS 1956 and 1961 In New York State

	1956	1961
To 4-year colleges	39%	40%
To 2-year colleges	8%	14%
To non-degree schools	10%	16%
Not continuing education	43%	30%

*The data abstracted from **COLLEGE PLANS OF HIGH SCHOOL SENIORS**, 1961, was prepared by Philip A. Cowen, Director, Division of Research in Higher Education and Joseph Lev, Associate Statistician, Bureau of Statistical Services, The University of the State of New York, The State Education Department, Albany, New York, March 1962.

PLANS OF HIGH SCHOOL GRADUATES, 1961, IN NEW YORK STATE

PLANS OF GRADUATES	Number	Percent
TO CONTINUE EDUCATION	115,032	70%
In a four-year college or university	65,733	40%
In a two-year community or junior college	23,006	14%
In a non-degree granting post secondary school	26,293	16%
NOT CONTINUING EDUCATION	50,376	30%
To seek employment		26%*
To marry		4%*
To enter armed services		7%*
To travel		4%*
Other		2%*

*Because of responses to two or more items by the same individual, these percentages do not total 30%.

PLANS OF HIGH SCHOOL GRADUATES, 1961

(For the Elmira Area from State Study)

The following data is for the Elmira Area as defined by the New York State Commerce Department. This area is composed of six counties: Allegany, Chemung, Schuyler, Steuben, Tioga, and Tompkins.

	1956	1961	Increase
Percentage of high school graduates planning to continue their education in a post secondary institution	46%	63%	17%
Percentage of high school graduates planning to attend a 4-year college or university	27%	41%	14%
Percentage of high school graduates planning to attend a 2-year community or junior college	7%	7%	0
Percentage of high school graduates planning to attend nondegree kinds of post secondary institutions	11%	14%	3%
Percentage of high school graduates planning to attend higher institutions outside of New York State	8%	18%	10%

IS THERE A NEED FOR VOCATIONAL-TECHNICAL TRAINING IN THE GREATER ELMIRA AREA?

From the plans of high school students from the survey area, we see that:

APPROXIMATELY THREE OUT OF TEN STUDENTS WILL NOT CONTINUE INTO HIGHER EDUCATION.

Fourteen percent of this group plan to enter vocational-technical jobs and are of direct concern to this survey.

The **46 percent** who plan to enter business or work at any job available are potential enrollees in a vocational-technical training program.

In total, a potential **60%**

OF THE NON COLLEGE-BOUND STUDENTS

COULD BENEFIT FROM A VOCATIONAL-TECHNICAL

TRAINING PROGRAM.

This figure is in agreement with enrollment experience in school systems where an established vocational-technical program is in operation.

Note: See the plans of local 10th, 11th, and 12th grade students on page 29.

WHAT SPECIFIC COURSES ARE DESIRED BY HIGH SCHOOL STUDENTS?

All students questioned were asked to indicate any changes they would make in their present courses if those areas of study they desired were offered in their school.

AGRICULTURAL study would gain 81 students or 2% over the present enrollment.

MUSIC courses would gain 43 students or 1% over present enrollment.

ART courses would gain 34 students or 1% over the present enrollment.

TECHNICAL courses, if offered, would gain 292 students or 7% over present enrollment.

HOMEMAKING courses would gain 10 students.

185 students or 4% less than those now planning to enter college would change their courses.

17 students would change from vocational courses to other courses if offered.

251 students or 6% less than those now in business courses would change to other courses if offered.

62 students or 1% less than those now in Industrial Arts would change to other courses if offered.

Of the 292 students who indicated technical courses as a choice for study, if offered, the replies were as follows:

COURSE	Number Interested
Electricity	84
Mechanical Design and Construction	57
Architectural Drawing and Building Construction	53
Aeronautics	39
Industrial Chemistry	24
Structural Drafting and Design	21
Advertising Arts	7
Not Specified	7

OCCUPATIONAL CHOICES MADE BY STUDENTS

Students were asked to choose occupations in which they thought they would be interested in training. One hundred sixty-eight different jobs were selected by the 3819 students who responded.

The twenty-one most favored occupations are listed below by frequency of choice.

Occupation	Number of times chosen	Occupation	Number of times chosen
Teacher	476	Nurses' Aid	79
Secretary-Stenographer	410	Chemist	71
Registered Nurse	244	Dairy Farmer	63
Beautician	227	Salesman	56
Bookkeeper	140	Policeman	56
Draftsman	118	Commercial Artist	55
Engineer	117	Physician-Surgeon	47
Armed Services (As a life career)	113	Electrician	44
Auto Mechanic	108	Lawyer	41
Clerical Worker	95	Radio T-V Repairman	40
Laboratory Technician	84		

WILLINGNESS TO COMMUTE TO RECEIVE VOCATIONAL-TECHNICAL EDUCATION*

Seventy-nine percent of the students questioned responded to the question on commuting to obtain vocational-technical education were it offered in the area. Following are the student replies:

946 were willing to commute 5 miles

927 were willing to commute 10 miles

589 were willing to commute 15 miles

835 were willing to commute 20 miles

*The answers of the students should be compared to that of their parents which is given on page 37.

REPORT FROM PARENTS OF HIGH SCHOOL YOUTH

When the high school students had completed answering their questionnaires, each was given a separate form for his parents to fill out and return to the school.

Seventy-six percent of the forms were returned by the parents for a total of 3194 responses.

THOSE WHO WILL CONTINUE EDUCATION

Seventy percent (2262) of the parents who responded plan that their child or children will continue education beyond high school. Of these

56% plan for a four year college education

24% plan for a two year college or institute education

11% plan for a business education

9% plan for a nurse's training.

THOSE WHO WILL NOT CONTINUE EDUCATION

These are the plans of 29 percent (927) of the parents for their child or children who do not plan to continue their education beyond high school. Of these

25% will enter the armed forces

35% will enter employment in business

14% will enter vocational or technical jobs

16% will work at any job available

9% have other plans or were undecided

A total of less than 1% (5) planned that their child or children would drop out of school.

SPECIFIC VOCATIONAL-TECHNICAL COURSES DESIRED BY PARENTS FOR THEIR CHILDREN'S EDUCATION

Parents were asked what kind of training they would select for their children if such courses were offered locally.

These are the courses listed as desired:

COURSE	NUMBER
Business Technology (operation of business machines)	568
Beauty Culture	240
Mechanical Design and Construction	221
Practical Nursing	181
Electricity	170
Business Machine Technology (concerned with electro-mechanics of business machines)	159
Architectural Drafting and Building Design	138
Fashion Design	105
Aeronautics	77
Advertising	77
Industrial Design	77
Industrial Chemistry	67
Structural Drafting and Design	60
Other types of education which require training beyond high school	160
Would not choose vocational-technical training*	920

*Most of these parents intend an academic education for their children. Unsolicited comment from these parents indicated that they believed that a vocational-technical program was important for the community and for a complete school curriculum.

SPECIFIC VOCATIONAL-TECHNICAL COURSES DESIRED BY PARENTS FOR THEIR OWN EDUCATION

Parents were asked to list the types of courses they would select for their own education were such courses offered locally.

These are the courses listed

COURSE	NUMBER
Had no selection for themselves	1655
Business Technology (operation of business machines)	219
Practical Nursing	204
Beauty Culture	158
Business Machine Technology (concerned with electro-mechanics of business machines)	145
Electricity	104
Mechanical Design and Construction	102
Architectural Drafting	47
Building Design	47
Fashion Design	47
Advertising and Industrial Design	38
Industrial Chemistry	28
Aeronautics	27
Structural Drafting and Design	21
Other types of education which require training beyond high school	9

WILLINGNESS TO HAVE STUDENTS COMMUTE TO RECEIVE VOCATIONAL-TECHNICAL EDUCATION

Seventy-four percent of the parents questioned responded to a question on their willingness to have students commute to obtain vocational-technical education if it were offered in the area. Following are the parent replies:

889 were willing to commute 5 miles

683 were willing to commute 10 miles

368 were willing to commute 15 miles

430 were willing to commute 20 miles

REPORT FROM FORMER STUDENTS
1958-1962

To obtain information and opinions from former students who graduated from area high schools and from those who did not graduate in the past five years, the survey sent a questionnaire letter to those for whom addresses were obtainable. Returns were received from 964 young men and 1,152 young women. This is a total response of 2116 former students.

PRESENT ACADEMIC STATUS OF GRADUATES WHO CONTINUED EDUCATION*

Attending four year college or university		522
College graduate		68
College non-graduate		63
Attending two year college or institute		185
Two year college or institute graduate		71
Two year college non-graduate		50
Attending Business school		30
Business School graduate		52
Business School non-graduate		5
Attending nursing school		49
Nursing school graduate		31
Nursing school non-graduate		15
Attending Evening School		90
Business	54	
Vocational	16	
Technical	5	
Academic	15	
Apprenticeship Training		49
Correspondence Courses		14
Academic	3	
Vocational	3	
Technical	3	
Armed Forces	5	
Serving in Armed Forces		20

Of these former students with education beyond high school and not presently attending school, 212 are employed and 42 are unemployed. Of these latter 34 are women.

*Some of these former students were in more than one category of this listing.

PRESENT STATUS OF GRADUATES WITH NO FORMAL EDUCATION BEYOND HIGH SCHOOL

Employed full time	508	
Employed part time	24	
Unemployed (looking for work)	81	
Unemployed (not looking for work)	74	(67 women)
In Armed Services	158	
Housewife and others	77	
	922	Total

Opinions OF FORMER STUDENTS ON STARTING A HIGH SCHOOL CAREER AGAIN

The former students were asked to express opinions on starting a high school career again. They were asked what courses they would choose now, providing that such course had been offered when they attended school.

71% or 1505 of those who responded said they would follow the same course as they did when in school.

.9% or 18 students said they would take agriculture.

7.8% or 165 students said they would take business.

8.3% or 176 students said they would take a college preparatory course.

.4% or 9 students said they would take art.

.8% or 16 students said they would take music.

1.5% or 31 students said they would take homemaking.

1.9% or 40 students said they would take industrial arts.

1.2% or 25 students said they would take vocational courses.

6.1% or 130 students said they would take technical courses.

.1% chose other miscellaneous courses.

REPORT FROM DROP-OUT STUDENTS
1958-1962

Former students who did not finish their education in area high schools were sent a letter questionnaire. A response was received from 173 of these students.

PRESENT STATUS OF DROP-OUT STUDENTS

Employed full time	79
Employed part time	13
Unemployed (looking for work)	27
Unemployed (not looking for work)	11 (all women)
In Armed Services	27
Housewife and others	16
	173 Total

EDUCATION RECEIVED SINCE ATTENDING AREA HIGH SCHOOL

Attended 2 year college or post high school		2
Presently attending 2 year college		1
Business School graduate		2
Attending college		3
College non-graduate		2
Nurses school non-graduate		2
Attending Evening School		9
Business	2	
Vocational	5	
Academic	2	
Apprenticeship training		5
Correspondence courses		7

OPINIONS OF DROP-OUT STUDENTS ON STARTING A HIGH SCHOOL CAREER AGAIN

These former students were asked to express an opinion on starting a high school career again. They were asked what courses they would choose now, providing such courses were offered when they attended school.

47.9% or 90 students said they would take the same courses.

3.2% or 6 students said they would take agriculture.

14.4% or 27 students said they would take business.

7.4% or 14 students said they would take a college preparatory course.

3.7% or 7 students said they would take art courses.

1.5% or 3 students said they would take music courses.

6.9% or 13 students said they would take homemaking.

6.9% or 13 students said they would take industrial arts courses.

2.2% or 4 students said they would take vocational education.

5.3% or 10 students said they would take technical education.

.5% of the respondees chose miscellaneous courses.

Voter Opinion on Vocational-Technical Education Needs

- VOTERS' RESPONSE TO QUESTIONS
- ADULT TRAINING
- OPINIONS VOLUNTEERED BY VOTERS

VOTER OPINION ON A VOCATIONAL-TECHNICAL PROGRAM

The mailing list for the survey questionnaire was selected at random from the voter registration rolls of the Greater Elmira Area as defined for this survey. (See Map)
Questionnaires were mailed to 2675 voters (every twentieth name on the official registration list); **615 answers were returned** for a 23% response. 610 of the responses contained the information which was sought.

VOTERS RESPONSE TO QUESTIONS

- A total of 438 voters answered the question as to whether they would encourage enrollment of their non-college-bound children in a vocational-technical program if it were offered. A remarkable 90% gave an affirmative response.
- A tax-supported vocational-technical program for the area was favored by 343 respondees or **79% of the parents who had children in school.**
- Of the 267 non-parents, **or voters without children in school,** 63% were in favor of a tax-supported program.

The accompanying table shows the distribution of children with respect to grade level for those who returned completed questionnaires:

Kindergarten	48
Grade 1	45
Grade 2	47
Grade 3	44
Grade 4	51
Grade 5	55
Grade 6	64
Grade 7	60
Grade 8	64
Grade 9	55
Grade 10	54
Grade 11	50
Grade 12	32
College	70
Total	739

It can be seen from this table that the children of those parents who responded are fairly evenly distrubuted with respect to grade level.

ADULT TRAINING

A question designed to elicit information on the number of voters who would desire training or retraining in a specific field showed that 45 percent (248) of the respondees were interested. These adults indicated by write-in their preferred field of training. In the fifty-one different fields indicated, the most frequently mentioned was Business, with Electronics being almost equally popular.*

OPINIONS VOLUNTEERED BY VOTERS

Many voters signed their names to their responses and volunteered ideas and suggestions.

The majority of the freely expressed opinions pointed out the great need in this area for training youth as well as adults to help to promote growth of industry and to prepare workers to meet the demands for present-day employment.

Several remarks indicated that there were not enough jobs for those presently seeking work and that such a program would not help the present unemployment situation.

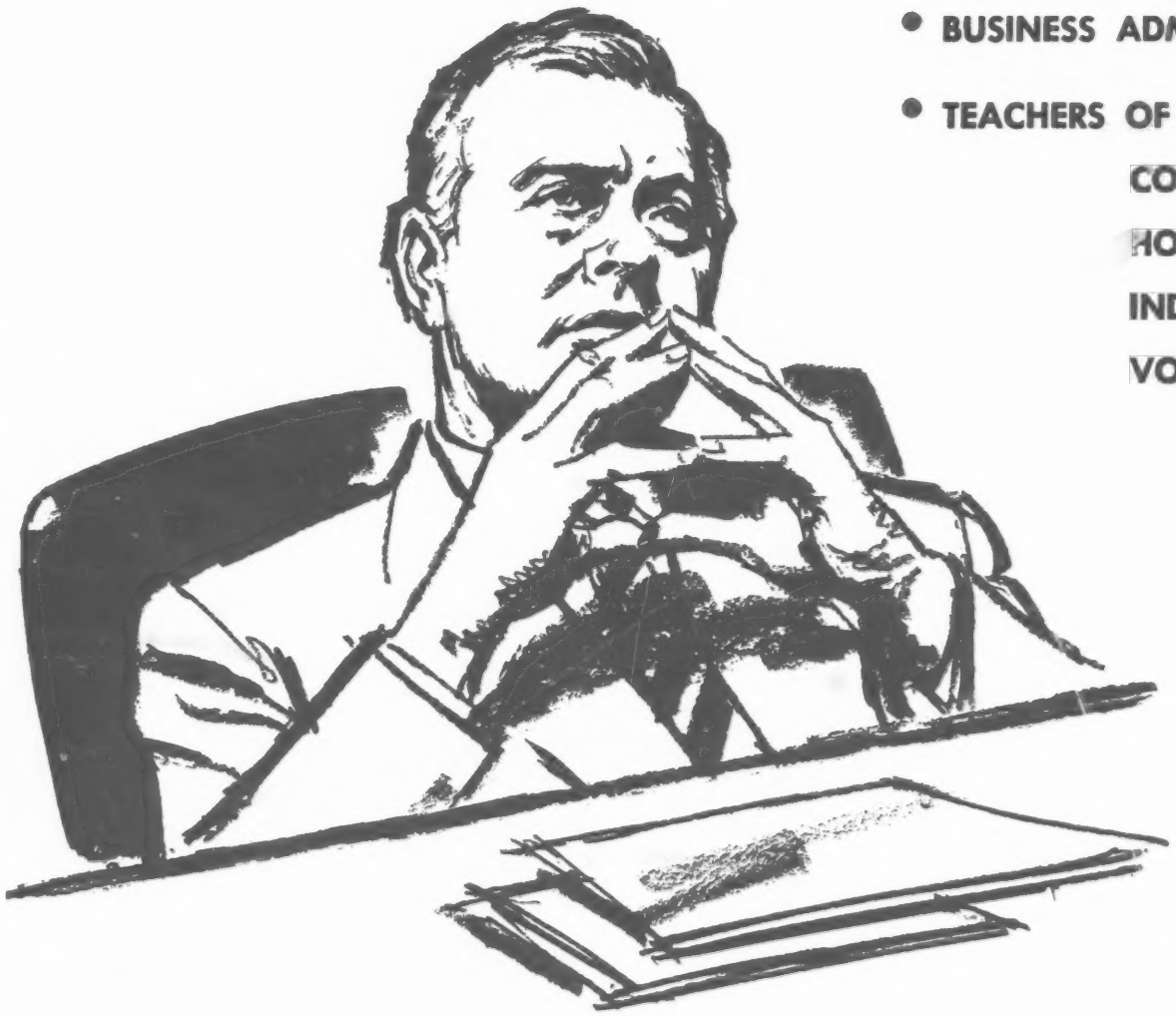
Some who were retired and had a limited income as well as others (55 remarks) said they would not favor a program even though it were needed, if the necessary support money were to be obtained by increasing property taxes. Alternatives to property tax funding of a vocational-technical program were suggested; these included sales tax, state or federal support, industry support, special county-wide tax, and student support (by tuition).

In summary, this voter poll shows that the community realizes the desirability of an area vocational-technical program and is willing to support it—with reservations on the method of financing.

*See school section on parents response to preferred fields of training or retraining.

THE OPINIONS OF SCHOOL ADMINISTRATORS and CLASSROOM TEACHERS

- SCHOOL SUPERINTENDENTS
- SUPERVISING PRINCIPALS
- SENIOR HIGH SCHOOL PRINCIPALS
- JUNIOR HIGH SCHOOL PRINCIPALS
- ELEMENTARY SCHOOL PRINCIPALS
- DEPARTMENT SUPERVISORS AND DIRECTORS
- BUSINESS ADMINISTRATORS
- TEACHERS OF GUIDANCE
  - COMMERCIAL SUBJECTS
  - HOME ECONOMICS
  - INDUSTRIAL ARTS
  - VOCATIONAL EDUCATION



VOCATIONAL-TECHNICAL EDUCATIONAL PROGRAM NEEDS

Response from Administrators

Without exception the school administrators of the Greater Elmira Area (public and parochial) agree on the need for a vocational-technical program for the area.

Seventy-five administrators, which included all of those in the elementary schools, junior high schools, senior high schools, directors of departments and supervisors, and the business administrators of each school were asked by a mailed questionnaire to answer and comment on these questions:

1. From the viewpoint of your educational philosophy and the practical standpoint of job opportunities for area youths and adults during their working life, is there a need for a vocational-technical program for the Greater Elmira Area?

2. What type of vocational-technical program would best serve the Greater Elmira Area?

Eighty-five percent of the administrators responded to the above questions, saying there was a definite need and commented on the dearth of opportunities offered in this type of education. "Such a program for this area is long overdue," was the general consensus of the replies.

TYPE OF PROGRAM

The most common suggestion was that the program should be comprehensive and that it should be tailored to fit the employment needs of the area with a wide range of course offerings in technical and industrial training.

No preference was indicated by this group for any of the current administrative organizational plans used in New York State for vocational-technical training.

The essence of fifty-six replies was that the first effort should be to institute an adequate program for secondary youths (including girls) and adults, and as the demand for training expands the program should be enlarged for post high school training.

Five administrators suggested a cooperative work-study program.

Many of the replies pointed out that a substantial percentage of area students with ability cannot or do not enter college. The majority of administrators who commented wanted courses which would challenge such students whether they be better-than-average, average, or less able. Some of these students would, they believe, respond to the stimulus of an adequate vocational-technical program which would offer meaningful education and develop individual talents. For the terminal students such a program would increase their potential for achievement in their working life.

Reflecting their concern with the ever-present slow-learners, drop-outs, and disciplinary problems, **nine** administrators expressed the view that the program should be most concerned with the students in these categories.

VOCATIONAL-TECHNICAL EDUCATIONAL PROGRAM NEEDS (Response From Teachers)

One hundred sixteen teachers in the survey area in the teaching fields of guidance, commercial subjects, home economics, industrial arts, and in vocational education were asked to express their views on the need and the type of program for vocational-technical education.

Fifty-six percent of those contacted responded and expressed ideas on the same questions as those submitted to administrators.

Each of the sixty-five respondent classroom teachers said there was a definite need for such a program.

Many of the comments from these teachers pointed out the inadequacy of present area school offerings in this type of education. Present curriculum for the college-bound or academic student was considered adequate. An enlarged program of vocational-technical training to fit the varying abilities and interests of the students was suggested. The majority of teachers desired a program geared for the bright as well as the slow students. A frequent comment was that those students who do not continue in higher education would have a better and more productive life if an adequate vocational-technical program were offered.

A majority also commented on the training of adults and out-of-school youth who need vocational-technical education for employment. This was considered to be another important need for the program.

Four teachers believed the need was greatest for the student with limited talent and for the student with little interest in book learning. These teachers thought that such a program would reduce the number of drop-outs in the area schools.

TYPE OF PROGRAM

The majority of teachers responding were in favor of a diversified program of training which would offer equal opportunities to all of the area youth and adults.

The summarized comments of the teachers were that a prudent start should be made on a general area vocational-technical program providing for all secondary youth who desired training. No one organizational plan was suggested. Provision should be made, they said, for training and retraining adults as the demand existed. Some comments were favorable to a post high school program following the establishment of a basic program for secondary youth and adults.

There were several suggestions for a plan of a fifty-fifty school-work program.

Report from Labor

REPORT FROM LABOR

The following statement on the Need for a Vocational-Technical Program in the Greater Elmira Area was issued by the Chemung County AFL-CIO Assembly.

The Chemung County AFL-CIO Assembly is very much interested in the Vocational-Technical Survey now in progress. All segments of organized labor are familiar with the problems of the drop-out, the technologically unemployed, and the untrained worker. It is most important that we institute a general review of present public training facilities in order to bring vocational education in tune with the new developments of the nation's changing technology and occupations.

As we see it, the following are some of the problems vocational education will have to solve in this decade:

How to train youth for entering employment in a rapidly changing economy.

How to teach new skills to workers whose jobs are lost because of technological changes.

How to prepare inexperienced and untrained young workers who have not completed school.

How to improve teacher training.

How to keep abreast of ever-changing technical progress.

We are concerned with the question of whether the vocational schools provide for an education that enables workers to adjust quickly and safely to the fast movements of technology. The AFL-CIO believes that the present vocational programs have to be considerably updated before they can meet the needs of a modern economy.

We are most interested in Trade and Industrial Education since this part of the program provides training for skilled, semi-skilled, and technical operations in manufacturing, construction, mechanical services, etc.

There are many reasons for the inadequacy of vocational training in the trade and industrial fields. Funds are insufficient. Facilities and equipment are often obsolete and in many smaller urban areas are lacking altogether. Curricula and training methods are often out-of-date and do not adequately teach the skills required in today's industry. There is a shortage of teachers sufficiently acquainted with new materials, production techniques, and skill requirements.

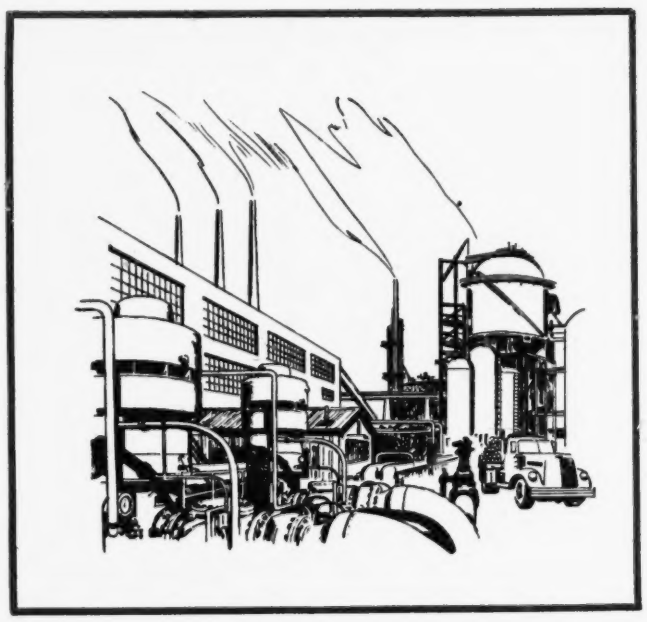
Larger expenditures for modern equipment, increased vocational area facilities, up-to-date teaching programs in tune with the realistic world of today's requirements and sufficient salaries for teachers to attract people with work experience and trade and industrial background are some of the solutions which can be achieved only by larger funds and careful planning.

In closing we would voice a word of caution concerning the retraining program. A retraining program can only benefit the worker if we know what industry and its advanced technology plan to do. If we proceed blindly we risk winding up with a mass of unemployed workers with skills nobody wants.

February 18, 1963

Mr. Clarence Doty, President
Chemung County AFL-CIO Assembly

Report from Industry Business Agriculture



INTRODUCTION and BACKGROUND

This part of the survey was concerned with the facts and figures from business, industry, and the community in which it operates. Because employment for the survey area is practically all in Chemung County, the following background information is about Chemung County. The two districts in Tioga County are essentially agricultural and rural, not industrial.

Total Population	**1960**	**98,706[a]**
Total Population	**1962**	**101,000[b]**
Total Work Force	**1960**	**40,000[c]**
Total Work Force	**1961**	**39,700**
Total Work Force	**1962**	**38,700**

EMPLOYMENT FIGURES--ELMIRA INDUSTRIAL AREA[d]

December 1962

Work Force (civilian)—Total	38,700
Unemployed	2,000
Percent of civilian work force	5.2
Employed	36,700
Non-agricultural wage & salary workers	31,500
Nonmanufacturing industries	17,500
Wholesale and retail trade	6,300
Service and other	11,200
Manufacturing industries	14,000
Durable goods	11,800
Metals and machinery	8,000
Other durable goods	3,800
Nondurable goods	2,200
All other non-agricultural employment	4,000
Agricultural employment (Those employed on farms)	1,200

a 1960 Census
b Estimated—Elmira Assoc. of Commerce, 1962
c Division of Employment, New York State Department of Labor, 219 East Church Street, Elmira, New York
d Ibid.

Chemung County has been classified since April 1958, as an area of "substantial unemployment" by the United States Department of Labor. This persistent unemployment has no single assignable cause and certainly can be changed. Such a situation does, however, aggravate the employment problems of those youths who, each year, reach the labor market without skills or training to match the area job requirements. This survey is one of several activities that have been and are being carried out with a view to improving local economic conditions. Civic groups, employers, and individual citizens have cooperated to bring about a good climate for work and business in the county.

Within the past year a nationally known company has announced that it will build and operate a 15 million dollar food processing plant in the county. While it has not been possible to include this employer in the survey, projections of its impact on the local economy are available.* Based on its announced initial requirements of 1500 workers (minimum) and using the multipliers established by the United States Economic Research Department of the United States Chamber of Commerce, it is possible to estimate that:

Personal income will increase by approximately $10,650,000 per year.
Bank deposits will increase by $3,435,000.
Annual retail sales can increase by about $4,950,000.
Non-manufacturing employees should increase by 975.

It could also result in:

45 more retail establishments,
5,385 more people including 1,365 more school children,
1,455 more passenger cars registered.

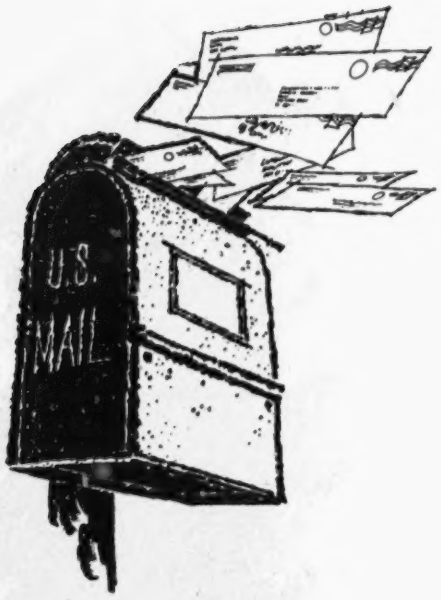
Even though the projection of the economic and business conditions in the county cannot be forecast with great accuracy, the need for training required for all employment, present and future, should receive serious consideration.

It is known that as a result of population growth the labor force will become more heavily weighted with young people; as an example, youth of age 20 to 24 will constitute an eighth of the work force in 1970 (as compared with one-eleventh in 1957).** As a result of changing technology, retraining of adult workers will also assume prime importance.

The expansion and improvement of business and the growth of industry in Chemung County will continue to improve if trained workers are available.

*Elmira Region Industrial Review—1963, **Elmira Sunday Telegram,** Section B, p. 1, Jan. 27, 1963.
Jobs, 1960-1970, The Changing Pattern, **A Report of the New York State Department of Labor, p. 7, 1960.

THE SURVEY OF AREA BUSINESS AND INDUSTRY



This survey was conducted to ascertain the attitude of area business, industry, and service establishments toward public school vocational-technical training and to determine the job skill requirements, present and projected.

The Industrial and Business Survey Questionnaire was designed to elicit this information:

Areas of employment

Specific job skill requirements

Present and projected employment patterns

Opinion on the value of vocational-technical public school training

Attitude toward cooperation with such a program.

Six hundred twenty-three firms, large and small, in all types of business activity were contacted by letter, phone, and in person.

One hundred eighteen firms completed and returned questionnaires.

Diligence insured that the replies did include practically all of the major industrial and commercial employers. The other returns gave a representative cross section of the employment opportunities available in the area.

All but two of the firms replying, were in Chemung County. Of the 28 small firms in Tioga County which were contacted only one replied. One firm in Steuben County was canvassed because of the number of Chemung County Employees they hire. Most people who work in Chemung County live in Chemung County.*

Some pertinent data was available from governmental services and is included as indicated.

*Two thousand two hundred twenty people of a total work force of 34,665 work outside the county. One thousand three hundred thirty-six people did not report where they worked. (1960 Census figures.)

In February, 1963, the Elmira Division of Employment, New York State Department of Labor conducted a private study of the number of Tioga County residents who work in Chemung County. It was found to be 24 people.

THE SIZE AND DISTRIBUTION OF BUSINESS AND INDUSTRY IN AREA SURVEY

The 118 business and industrial firms which supplied answers in this survey in January, 1963, **employ 15,795 persons.**

This sample is 41% of the total work force of 38,700 persons as reported by the New York Department of Labor for December 1962.

Analysis of this sample by Area of Business and Number of Employees follows:

Area of Business	Employees Number of	Firms Replying Number of
Manufacturing	10,988	23
Services	1,813	35
Merchandising	1,022	26
Medical	1,276	11
Restaurants and Hotels	325	5
Agricultural (Sales and Services)	132	4
Construction	127	6
Arts (Drafting, Printing, etc.)	51	5
Others	61	3
Total	**15,795**	**118**

In the Greater Elmira Area the industrial employers are the large users of skilled and semi-skilled employees.

It may be seen that there is a wide difference in the size of industrial and business establishments in the survey area.

The following tabulation gives the range of employment of the firms which were used in the survey.

Number Employed	Number of Employers Responding for Survey
Fewer than 10	31
11-25	39
26-50	11
51-75	5
76-100	0
101-150	7
151-300	12
301-500	1
501-750	7
751-1000	1
1001-1500	3
1501-2000	0
2001-2500	1
Total	**118**

PRESENT AND PROJECTED NEEDS FOR EMPLOYMENT AS SHOWN BY SURVEY

The following table is a tabulation of the number of employees by categories of employment. Included is the estimated hires in the next 5 years due to turnover and increased need.

General Area of Employment*	Number now Employed	Estimated Need in next 5 Years (Turnover and Increased Needs)
Sales	180	149
Sales Clerks	287	618
Technicians	300	255
Office Machines	176	155
Clerical	460	485
Skilled Non-construction	2052	1536
Skilled Construction	110	84
Semi-skilled Non-construction	1534	618
Bookkeeping	497	241
Artistic (Drafting, Printing, etc.)	227	120
Service	121	85
Auto Repair	66	28
Medical	183	254
Total	**6193****	**4628**

*These general areas of employment include those who work in service, retail or processing firms which are related to agriculture. See Page 68.

**This figure does not equal the 15,795 total previously reported as employed by the surveyed employers since it includes only those employed in skilled and semi-skilled jobs (i.e., does not include laborers and college trained personnel such as engineers, et al.).

PROJECTING EMPLOYMENT NEED FOR SKILLED AND SEMI-SKILLED WORKERS

Since the survey sampled employers accounting for 41% of the total work force in the area it would be approximately correct to multiply the "estimated need" figures by a factor of 2.44 to arrive at the actual area employment needs. However, since the survey did not succeed in sampling **just** 41% of the employees in the various categories (e.g., because returns were received from both of the principal employers of medical personnel—the two hospitals plus several doctors — the sample percentage in this area of employment approaches 100%), the multiplicative factor of 2.44 cannot be used indiscriminately.

Any actual application of the results of this industrial survey in the future will be based on the reduced data which will be made available. From the summary form here presented only rough guide lines can be established.

SHIFTING JOB REQUIREMENTS FOR EMPLOYMENT

As the figures given in the preceeding table do not differentiate between replacement hires and new hires, it cannot be said that the hiring requirements of a given category represent increased employment in that category. A large hiring requirement may mean that a given category involves a large turnover of employees.

To provide information on shifting job requirements the following figures provided by the New York State Department of Labor may be cited.

Estimated Number of Jobs in New York State*
(in thousands)

Starting with 7,331,000 jobs in 1957, the New York estimates work out to a total of 8,160,000 jobs in 1965, an increase of about 11 percent, and a total of 8,703,000 jobs in 1970, an increase of about 19 percent.

	1957	1965	1970	Percent increase from 1957 to 1965	Percent increase from 1957 to 1970
Sales Workers	563	634	683	+12.6	+21.3
Clerical and Kindred Workers	1310	1493	1609	+14.0	+22.8
Technicians	97.8	135.7	159.3	+38.8	+62.9
Service Workers	987	1123	1206	+13.8	+22.2
Manufacturing	2029	2196	2302	+ 8.2	+13.5
Non-manufacturing	5302	5964	6401	+12.5	+20.7
Nurses (including student nurses)	78.1	95.3	106.1	+22.0	+35.9
Industrial Laborers	321	302	289	— 5.9	—10.0
Farmers, Farm Managers and Farm Laborers	195	175	160	—10.3	—17.9

It can be observed from the table above that state wide there will be an increased demand for skilled workers and technicians in all fields of endeavor. Technological changes now taking place in agriculture in New York State as well as the changes in the type of ownership and land usage makes for less agricultural employment on the farms. See page 68 for information on agriculture in Chemung County.

*Jobs 1960-1970, The Changing Pattern, **A Report of the New York State Department of Labor,** pp. 12-16, 1960.

JOB-AREAS IN WHICH 3806 LOCAL HIGH SCHOOL YOUTH EXPRESSED AN INTEREST

In the school survey students in the eight area high schools were asked to indicate what job areas they would choose for training.

The following table lists the choices which have a relationship to the local job opportunities and the areas of predicted increases as listed in New York State.

Job Area	Number
Professional jobs	1222
Business	758
Personal Services	407
Technical-Scientific	276
Transportation	210
Protective Services	178
Agricultural	123
Printing and Graphic Arts	118
Amusement Professions	105
Building Construction	104
Metal Workers	90
Semi-Professional	79
Home Service Occupations	59
Managerial jobs	33
Foods	31
Needle Trades	13

PRESENT HIRING REQUIREMENTS

Each employer was asked to give the hiring requirements for all jobs which were listed in the return. This included laborers and all other jobs which did not require a college education. Some employers did not list any requirements, but by an examination of the type of work it was obvious that at least a high school education was required. These jobs were listed as requiring high school graduation.

Following are listed the number of employees and the present basic hiring requirements as given in the returns.

	Number	% of Total
High School Diploma Only	2905	44%
High School Diploma with Vocational-Technical Training	2403	36%
High School Diploma with One Year of Post-Graduate Training	537	8%
High School Diploma with One-Two Years of Post-Graduate Training	751	12%
Total*	**6596**	**100%**

*This figure does not equal the total of 6193 jobs as listed for the skilled and semi-skilled in "Present and Projected Jobs" as shown on page 58 since the figure shown for high school graduates (only) includes those in unskilled jobs.

EMPLOYMENT IN MAJOR MANUFACTURING AND NON-MANUFACTURING FIRMS IN CHEMUNG COUNTY

(as of Feb. 1963)

The employment figures of ninety-three firms in Chemung County are surveyed each month by the Division of Employment, New York State Department of Labor. These firms are selected to account for 75% of the employment in each of the manufacturing and non-manufacturing categories listed below. This tabulation gives the number employed in each category and expresses this figure as a percentage of the 16,395 employees in this sample.

MANUFACTURING

	Number Employed	Percentage Employed
Food and Kindred Products	328	2%
Textile Mill	205	2%
Lumber and Wood Products	161	1%
Paper and Allied Products	295	2%
Printing and Publishing	624	4%
Stone, Clay and Glass	1244	8%
Primary Metal	568	3%
Fabricated Metal	1496	9%
Machinery	2907	18%
Electrical Machinery	2862	17%
Transportation Equipment	1183	7%
Instruments	45	—
Total	**11936**	**73%**

NON-MANUFACTURING

Construction	287	2%
Public Utilities	512	3%
Wholesale and Retail Trades	1839	11%
Finance, Insurance and Real Estate	372	2%
Service (except private household)	1449	9%
Total	**4459**	**27%**
Total	**16395**	

THE NEED FOR SPECIAL COURSES FOR IMPROVING JOB PERFORMANCE FOR ADULTS

Training courses for adult workers who require updating and upgrading or retraining because of technological change or for other reasons, must be considered in a community vocational-technical program.

Employers were asked to list the **Trade Skills** or **Related Courses** needed to improve present job performance, prepare for upgrading, or to retrain those whose skills have become obsolete.

Following is a listing of the courses or requests as given: (Several firms did not list their needs as they commented that they conducted their own programs.)

TRADE SKILLS

Trade Skill	Times Listed
Machine shop	14
Electronics	9
Automotive Repair and Maintenance	9
Business and Office Machines	6
Electricity and Electrical Shop	6
Refrigeration	4
Plumbing and Heating	4
Welding	3
Office Equipment Repair	2
Sheet Metal	2
Woodcraft and Shop	2
Heating and Ventilation	2
Painting	2
Key Punch	2
Tool Maker	2
Metal Finishing	1
Upholstering	1
Millwright	1
Steno-type	1
Carpentry	1
Spray Painting	1
Gas and Arc Welding	1
Inventory Control	1
Millwork	1
Sewing Hand Skills	1
Dietetics	1
Machine Shop Repair	1
Air Conditioning	1
Fundamentals of Printing	1
Building Maintenance	1

RELATED COURSES

Course	Times Listed
Mathematics	19
Public Relations	12
Drafting	11
Bookkeeping and Accounting	11
English	10
Typing and Shorthand	9
Blue Print Reading	4
Merchandising	4
Reading, Writing, Spelling and Penmanship	3
Marketing	2
Public Speaking	2
Physics	2
Economics	2
Filing	2
Management Courses	2
Medical Terminology with Stenographic Skills	1
Medical Record Technology	1
Medical Technology	1
Machine Shop Practice	1
Chemistry	1
Cost Accounting	1
Report Writing	1
Layout Mathematics	1
Engineering Drawing	1
Office Practice	1
Training in Hotel and Restaurant Work	1
Investments, Credits and Collecting	1
Business Law	1
Printing	1
Art	1
Fundamentals of Photography	1
Stock Control	1
Milk Processing	1

ATTITUDE OF LOCAL EMPLOYERS TOWARD AN AREA VOCATIONAL-TECHNICAL TRAINING PROGRAM

To determine the employer's views on the value of an area vocational-technical training program each firm checked the following question: "Could a good local vocational-technical training program help meet your labor supply needs?" Remarks or comments were solicited.

89 business and industrial firms replied **YES.**

This is 75% of the 118 answers which were received.

15 business and industrial firms or 13% replied **NO.**

Comments were added to these replies. Seven of the firms said their type of business did not need employees with such training. These included insurance firms, financial institutions, realty firms, and small employers.

14 firms or 12% did not answer the question and gave no explanation.

WILLINGNESS TO COOPERATE IN A VOCATIONAL-TECHNICAL TRAINING PROGRAM

To determine the willingness of employers to cooperate in establishing a vocational-technical program, each was asked to reply if there were jobs in his establishment which would lend themselves to a Cooperative Educational program.*

Forty-two firms answered **YES.**
This is 36% of the 117 answers which were received.

Seventy-five firms or 64% answered **NO.**

Some of these firms indicated that their type of work would not lend itself to student training. Several employers pointed out that in their type of operation laws prohibit employment of those below 18 years of age.

It can be seen from the above responses that local employers recognize a need for and will cooperate in the development of a local area school program for vocational-technical education.

*See page 18 for description and definition of Cooperative Education.

AGRICULTURE

IN THE SURVEY AREA

Agriculture has always been an important industry in New York State. At the turn of the century the state had 220,000 farms which included 22 million of its 30 million acres of land. Over the last 50 years with the application of technology and science and the help of better farm management practices, New York State now has one-fourth as many farmers turning out one-third more products on one-half as much land as in 1900. In the decade of the fifties New York State has followed the national trend in agriculture—more production with fewer workers on less acreage.

The Survey Area under consideration for this study is located in an agricultural region of the state called the "Plateau Country". The rate of retiring farmland is high for this region and will continue to be high according to land economists.*

The National Bureau of Census makes reports on state and county data but not for minor civil divisions such as the two school districts of Spencer and Candor, hence accurate statistics are not available for these two districts. According to the 1960 Census the number of persons in Tioga County employed in the category of farming, forestry, fishing, and mining industries was 1,284. Candor and Spencer Districts have approximately one-sixth of the total population of 37,802 in the county. The population per square mile in Tioga County was 72 persons.

The following agricultural information for this survey will be concerned only with the largest area in the survey—Chemung County.

The following agricultural information is obtained from **Census of Agriculture 1959 for Chemung County** prepared by C. A. Bratton, Department of Agricultural Economics, New York State College of Agriculture, Cornell University, Ithaca, New York, September 1962.

*Conklin, Howard E., "Changes in Land Use in New York State", **Rural Resources Development in New York State,** Cornell's Agricultural Leaders' Forum, March 21, 1963, Cornell University, Ithaca, New York.

NUMBER OF FARMS AND LAND USE
CHEMUNG COUNTY

Item	1950	1954	1959	% change 1959 from '50 to '54	
Number of Farms*					
Total number of farms:					
New definition			747	—42	—31
Old definition	1,280	1,090	816	—36	—25
Number of farms by categories					
Commercial	707	552	364	—49	—34
Part-time	284	120	270	— 5	+125
Abnormal (institutional)	5	5	5	0	
Land Use					
Land area in acres	263,680	263,680	263,680	0	
Acres in farms	155,628	141,976	113,979	—27	—20
Percent of land in farms	59%	54%	43%	—27	—20
Average size of farm—acres	122	130	153	+25	+18
Type of ownership					
Percent of farms operated by:					
Full owners	81%	81%	74%	— 9	— 9
Part owners	12%	16%	22%	+83	+38
Managers	—	—	—	—	—
Tenants	6%	3%	3%	—50	0
Type of farm					
Percent classified as:					
Dairy	32%	28%	31%	— 3	+11
Poultry	14%	14%	12%	—14	—14
Other livestock	3%	4%	4%	+33	0
Vegetable	—	2%	—		
General	2%	1%	—		
Field Crop	2%	2%	—	—	—
Miscellaneous	46%	49%	51%	+11	+ 4

*For the 1959 Census, a farm was any place of 10 acres or more under the control of one operator or partnership if sales amounted to $50 or more per year. Also, places of less than 10 acres with sales of $250 or more.

For 1950 and 1954 Censuses, a farm was any place of 3 or more acres if annual value of agricultural products for sale or home use were $150.

	1950	1954	1959	% change 1959 from '50 to '54	
Off-farm work					
Total farms reporting	677	605	392	—42	—35
Farms reporting 100 days or more	545	545	343	—37	—37
Equipment and Facilities					
Number of:					
Tractors	1,145	1,108	1,047	— 8	— 6
Trucks	633	452	420	—34	— 7
Automobiles	1,414	1,111	718	—49	—35
Grain Combines	147	191	186	+26	— 3
Corn Pickers	16	60	61	+281	+ 2
Pick-up Balers	112	222	277	+147	+25
Field Forage Harvesters	—	96	106	—	+10
Farms reporting milking machines	422	306	286	—32	— 6
Percent of farms reporting:					
Telephones	74%	79%	88%	+19	+11
Home Freezers	22%	46%	72%	+227	+56

	1950	1959	% Change 1959 from 1950
Farms Reporting Milk Cows			
County Total	862	444	—48
Farms Reporting Cattle and Calves			
County Total		554	
Farms Reporting Hogs and Pigs		157	
Acreage in Crops			
Hay Acreage		20,934 Acres	
Corn Silage		3,037 Acres	
Grass Silage		1,121 Acres	
All Corn		5,085 Acres	
Wheat		1,493 Acres	
Oats		6,349 Acres	
Selected Vegetables			
Sweet Corn		146.5 Acres	
Tomatoes		44.7 Acres	
Strawberries		18.6 Acres	

RANK OF CHEMUNG COUNTY IN NEW YORK STATE FOR SELECTED ITEMS, 1959

Item	State Rank of Chemung County
Number of farms	46
Number of commercial farms	48
Part-time farms—% of total	6
Land in farms, acres	48
Cropland harvested, acres	48
Irrigated land, acres	37
Av. value of land and buildings per farm	31
Av. value of land and buildings per acre	25
Milk cows	44
Hogs and pigs	33
Sheep and lambs	31
Farms reporting over 400 chickens	20
Turkeys	42
Hay, acres	45
Vegetables harvested for sale, acres	40
Land in orchard and vineyards	42
Value of all farm products sold	48
Value of nursery and greenhouse products	14

The range from high to low is from 1 to 55

INFORMATION RELATING TO AGRICULTURE IN CHEMUNG COUNTY

From Chemung County Extension Service Association

New York State is an important Agricultural State. It ranks 13th in the United States in value of agricultural products.

In Chemung County

1. Dairy, poultry, nursery, and greenhouse products constitute the major source of farm income in the county.

   In survey data of comparable dairy farms in New York State the average investment was:

Equipment	$11,062
Cattle	14,263
Supplies	3,961
Real Estate	25,827
	$55,113

   There were no dairy farms in Chemung County included in this data.

2. One small Federal Government Agronomic Experimental Station is located in the county.

3. One manufacturing plant produces and packages chemicals and fertilizer.

4. There are four veterinarians located in the county.

5. There are approximately 12 retail firms of various sizes which deal in feed, seed and fertilizer products.

6. There are 5 major and several minor farm equipment dealers in the county.

7. The value of all farm products in Chemung County from the 1959 Census was $4,710,000 of which $1,008,000 was from farm crops and $3,701,000 from all livestock.

8. One point of real concern for farm families is the education of their children. There are more children born on the farm than can remain on the farm to earn a living. Thus, these boys and girls need training for employment in some type of work which is to their interest by which they can find employment.

FACTS AND INFORMATION FROM AREA SURVEY DATA FROM BUSINESS AND INDUSTRY RELATING TO AGRICULTURE IN THE AREA

In the local survey of business and industry 118 firms replied to questions seeking information on employees in the current work force. Details are given on page 56.

Seven firms were concerned with business which had some agricultural interests.

Of the seven, **one** firm was concerned with floriculture and **six** were connected with dairy products.

196 workers were employed by these seven firms out of a sample of 15,795 employees.

132 employees in the total sample were listed in sales and service that had to do with agriculture.

Findings
OF THE SURVEY
in Brief

FINDINGS IN BRIEF

1. Do the present high school programs offered in the survey area guide, encourage, and fit employable youth into the work force of this community or any community where they may seek employment?

The answer is a qualified "yes."

The facts obtained from the survey of the area show:
No one of the eight area high schools, at present, offers an extensive or intensive program for vocational-technical education.

Of the students presently enrolled in grades 10-12 who were questioned for this survey (4,182), approximately **three** out of **ten** do not plan to continue education beyond high school. In contrast the facts gathered on the high school graduates of 1962 show that 51% did not continue education beyond high school.

Of the students (31%) who do not plan to continue education beyond high school in grades 10 to 12

33% plan to enter the armed services,
15% plan to work at any job available,
14% said they plan to enter vocational or technical jobs,
31% desire to find employment in business,
7% had other plans or were undecided.

Consequently, at least 60% of the present enrollees in grades 10-12 in area high schools who do not plan to continue education beyond high school could benefit from some type of vocational-technical training which would fit them for the occupational jobs they desire.

2. Are the high schools of the area providing the type of education necessary to prepare students to live in a technological age?

The answer is "yes", but only to a limited extent.

The facts obtained from the survey show:
Approximately 99% of the students questioned (4,182) intend to graduate from high school.

Of these students 68% plan to continue education beyond high school. This is the aspiration level of these students. However, the facts gathered on the high school graduates of 1962 show that approximately one-half (49%) actually enrolled in higher education.

409 former students of the 2,116 replying indicated they would have enrolled in technical courses if they had been offered when they attended school.

Well over 1,000 presently enrolled students marked changes they would make in their present courses if they were starting over. The majority of these changes were to technical, vocational, or trade education.

Local industry, labor organizations, and business firms provide vocational-technical and trade education by means of pre-employment, apprentice, and upgrading programs for (only) those who qualify.

3. Are there adequate vocational offerings for the slow-learner and others who will have trouble developing marketable skills?

The answer is "no."

The facts obtained from the survey show:
All area high schools which offer mainly academic (college preparatory) and commercial training programs do not provide for the special training needs of the slow learners or others who are not academically inclined. Industrial Arts programs which are offered in all area high schools may provide some useful training for these students, but such programs do not provide for the special needs of many students.

In the educators' survey many administrators and classroom instructors pointed out the need for a special program of vocational and trade education to help stimulate interest and to help prepare those with limited talents and potential dropouts for useful employment.

4. Do the area high schools offer programs in adult education for those in the middle and older age groups who have skill potential but who lack training or retraining necessary for present day employment?

The answer is "no" with a few exceptions.

The facts obtained from the survey show:
One district offers some special training courses for employees in cooperation with individual industrial establishments.

The area adult public school education evening classes are primarily avocational. Being non-credit courses with no entrance or achievement requirements they do not qualify as strictly vocational-technical training. In such adult courses the largest enrollment is in the business field.

In the present adult evening classes the largest number enrolled is in the age-group from 30 years to over 40 years.

Adults, who were contacted in the voter and parent survey, in response to a question on desire for education, training, or retraining, expressed interest in many fields. Training courses concerned with business machines, electricity, mechanical design and construction were listed most often. Next in number of times listed were trade courses in beauty culture, practical nursing, business and a variety of work suitable for women.

5. Is the area adult and student population, both present and projected, large enough to warrant a vocational-technical education program?

The answer is "yes."

The facts obtained from the survey show:
The population of Chemung County has increased 13.7% in the last ten years. With the two districts in Tioga County included in this survey, the area population at present is over 100,000. There is every indication that the population growth will continue.

The conservative estimate of the 1970 population is 111,580 and 127,530 in 1980.

The greatest increase in population will be in the under 18 year age group and in the young adult category.

The projected enrollment for grades 10, 11, and 12 for the survey area is over 6,000 students by 1971.

The largest enrollment in the present year (1962-1963) is in the lower grades.

Approximately 25% of the present population is of school age.

The State Education Department estimates that at least 3,000 or more students should be in the 10, 11, and 12th grades to plan for a vocational-technical educational program. In established programs about 20% of the total are enrolled in courses for boys and girls.

6. Does local business and industry want a vocational-technical training program for the area?

The answer is "yes."

The facts obtained from the survey show:
75% of the firms responding to this question said a good local vocational-technical training program could help to supply their needs.

A majority of the 13% who replied that a vocational-technical program would not supply their needs were in a type of business which did not require such training.

The 12% of the firms which failed to answer the question gave no comment or reasons for not answering.

Forty-two separate firms said they would be willing to cooperate in a work-study program.

The training needs in various areas of employment in the area were ascertained in detail and are summarized in the body of the report. Hiring requirements indicate vocational-technical training in high school is needed for many jobs. A great number of jobs were listed as requiring from one to two years post high school training.

7. Is the community ready to support a high school vocational-technical program which will meet the employment needs of the area?

The answer is "yes" with some qualifications on the use of the property tax as a means of support.

The facts obtained from the survey show:
A substantial majority of the voters with and without children in school expressed favor for a tax-supported program.

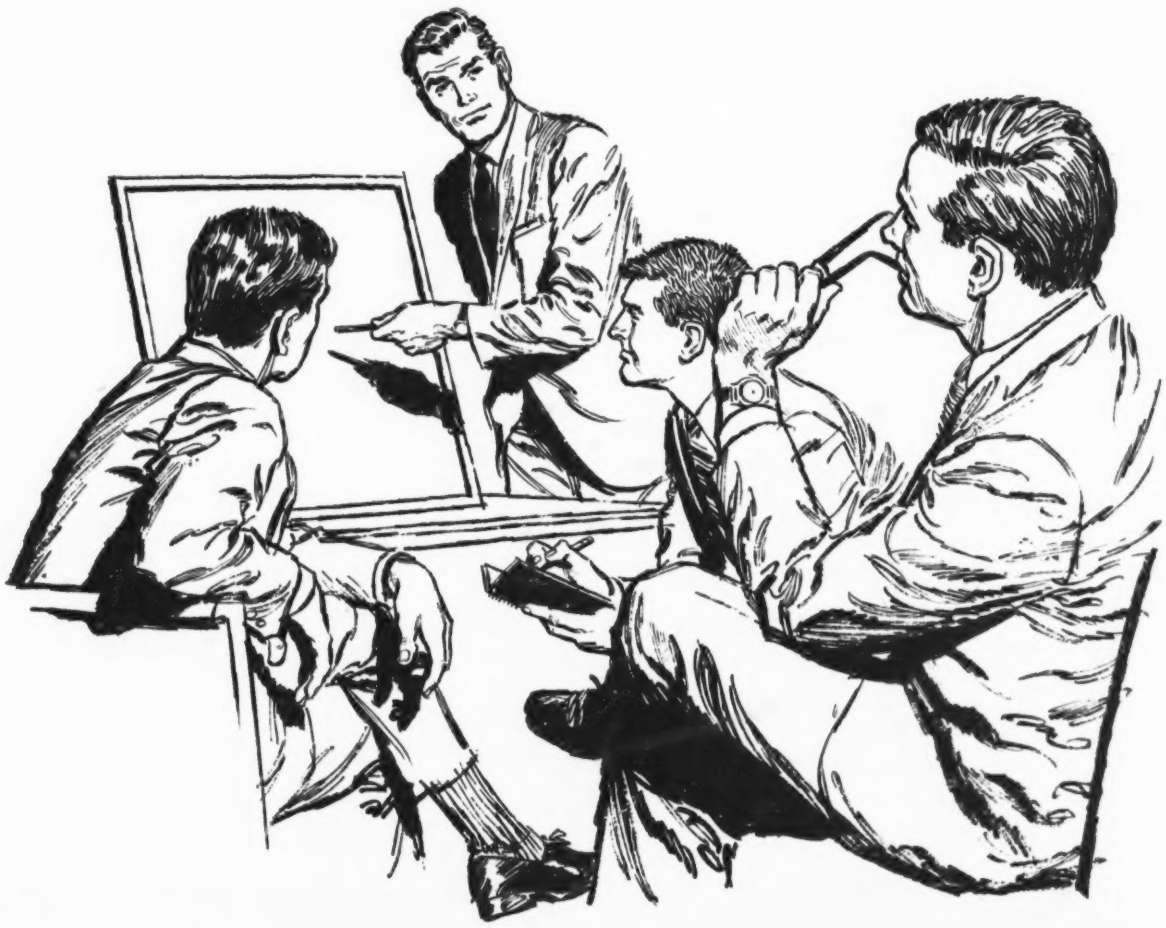
Approximately 10% of the voters said they would not be in favor of the program, even though it were needed, if the support meant increased property tax.

Parents as a whole expressed willingness for their children to travel from five to twenty miles in order that they might participate in a vocational-technical training program.

Labor organizations in the area expressed interest and favor in exploring the possibilities of a well-planned vocational-technical program. The labor organizations desired that the employment needs of business and industry, which will employ the graduates from the program, should be sought out and carefully studied as a basis for the program.

The cooperation of individual citizens, industry, business, labor and civic organizations in helping to supply and obtain survey information indicates a positive attitude and favor toward an area vocational-technical program.

Conclusions and Recommendations



CONCLUSIONS

After careful consideration of the general and specific findings from the area survey, the Executive Committee and the Director of the survey have drawn these conclusions.

- There is a need in the Greater Elmira Area for an expanded and well-organized vocational-technical training program. There are sufficient students to support such a program. A diversified vocational-technical program of high quality can be offered through the cooperation of the seven public high schools.
- At present the vocational-technical educational opportunities for high school youth in the area are limited. The dominant curriculum offerings in all high schools are academic (college preparatory) and commercial training programs.
- The continued increase in population and the present concentration of pupils in the lower grades will cause an increase in the annual number of high school graduates seeking employment in the community. These youth must have training in skills to match the labor market's needs. The training programs offered by business, industry, and labor can relieve this situation but will not solve it. Those young workers who do not obtain on-the-job training will be handicapped in securing jobs, here or elsewhere unless the schools offer them a broad type of training which will develop the basic manipulative skills needed for initial employment.
- The Greater Elmira Area industrial and business community is made up of small, medium and large establishments. The trend toward increased automation and mechanization in local industry and business as well as in the nation will require specialized training for youths and adults to qualify them for employment in the more complex industrial and business processes.
- A majority of the area industrial and business firms have expressed favor toward a good local vocational-technical program.
- Business and industry in the area need qualified workers in professional, semi-professional, clerical, sales, skilled and semi-skilled jobs to fill replacement needs and to meet projected increased employment. For example, in the clerical fields more jobs will be available for office machine operators because of the increased use of electronic data processing equipment. The rapid growth and change in industry and business concerned with mechanical, electronic, and chemical technology calls for the training of more technicians of all kinds to meet area as well as state and national employment needs. The increased growth of service trades and the practicability of self-employment calls for qualified and trained individuals.
- The desire for vocational-technical training by present high school students is evident from the willingness of students to commute to obtain effective training for the occupations of their choice. Parents concurred with the students' choices of training and showed willingness for their children to commute to receive the education.
- The desirability for vocational-technical training for youth is emphasized by the response of former students who said they would have taken such training had it been available when they attended school.
- A substantial majority of the voters who were sampled for opinions favor a tax-supported program. A small minority (10%) expressed disfavor toward a vocational-technical program, even if needed, if a property-tax were to be the sole support.
- Adult education in the area requires expansion and extension to better serve adults in all age brackets who need or want retraining or initial training. In some cases special training needs for employed workers may be met with short or special courses. Adult education can be served by the same facilities as those used for the high school program.
- The cooperation of industry, business, labor, and educators can serve a useful purpose to determine the needs of training for youth as well as for adult workers.

AN EXPANDED AND WELL-ORGANIZED VOCATIONAL-TECHNICAL PROGRAM FOR THE GREATER ELMIRA AREA IS DESIRABLE AND PRACTICAL.

RECOMMENDATIONS TO ESTABLISH A VOCATIONAL- TECHNICAL EDUCATIONAL PROGRAM FOR THE GREATER ELMIRA AREA

The Executive Committee makes the following recommendations based upon the results of the findings of the area survey to determine the need for a vocational-technical program for the Greater Elmira Area.

These recommendations relate to Vocational Trade Education, Vocational Technical Education, Vocational Business Education, Vocational Agricultural Education, and all types of Cooperative Education.

1. All school districts in the Greater Elmira Area should cooperate on a practical plan that will meet the common goals for vocational-technical training for in-school youth, out-of-school youth and adults. Present facilities in all districts should be utilized to the fullest extent for high school and adult courses. All students in the area should be allowed to attend classes in any area school with cooperative arrangements between districts to the extent possible under the provisions of present laws.

2. The program should be planned to accommodate all youth — the very apt student, the average, and those with limited talents. The technical training program for the apt should be preparatory for highly skilled jobs, technical schools, or other advanced study and work.

   A work-study program should be provided where practical.

3. The curriculum should be based on an area study of the long range employment needs of local industry, business, and agriculture as well as the state and national needs. Training for the service occupations and practical self-employment should be emphasized as well as training for industrial, manufacturing, business, and agricultural employment. The program should be changed in content when the needs change. Short-term courses based on specific industrial, business or agricultural requirements should be provided.

4. Although the normal program should be planned for the 10th, 11th, and 12th year, specialized education and training in vocational-technical programs should be available in the 11th, and 12th year.

   A post-high school technical program can be considered for further training of industrial technicians.

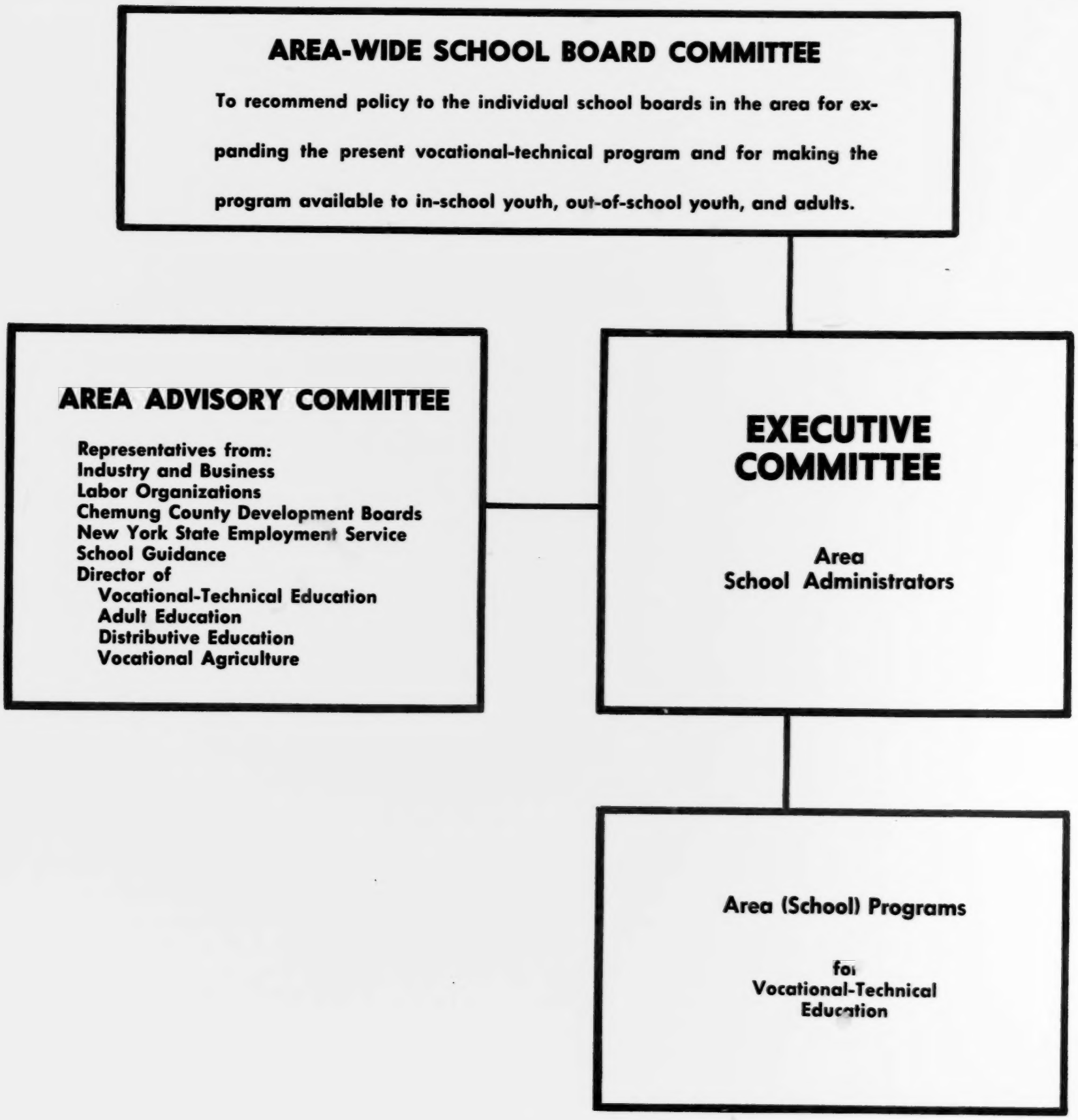
5. The physical facilities and personnel to operate an effective vocational-technical program should be studied in light of the present and future plans of each area high school.

   A curriculum planned for the enlargement and extension of the present high school and adult vocational-technical program should be proposed. Following a survey of all present facilities and equipment, a cost estimate should be made for initiating an area cooperative program based upon the proposed curriculum.

   If additional space and personnel is needed to carry out an adequate proposed cooperative program, then ways and means should be found for financing the beginning program which will be practicable and economically feasible for all area schools.

A PLAN FOR THE IMPLEMENTATION OF THE RECOMMENDATIONS

The Executive Committee for the survey proposes that the following organizational structure be instituted to implement the recommendations which have been made as a result of the survey.



THE Scope and Methods OF THE SURVEY

THE SCOPE AND METHODS OF THE SURVEY

This survey was designed to ascertain in as quantitative terms as possible the information and opinions available from various segments of the population and organizations which are vitally concerned with vocational-technical education in the Greater Elmira Area. It was conducted during the six months period extending from September 1962 to March 1963.

In the process of the survey many people were involved in planning the procedure, advising on the problems of getting data, and in collecting and tabulating data. It would be impossible to list each of them, but some who prepared and administered questionnaires and tabulated the results and served on the working committees are listed elsewhere in this report.

The collection of data and facts from industry and business was made possible through the help of the Elmira Association of Commerce and the cooperation of employers in the area. First a questionnaire was worked out, tested by usage on selected firms, revised, and then put into final form for distribution to 623 different industrial, business, and service organizations. A cover letter from the Association of Commerce explained the purposes of the survey. Individual employers were then contacted by phone to facilitate the early return of the questionnaire. When necessary more than one call was made to answer questions or to give help if such was requested. A special effort was made to obtain information from the twenty-five major industrial and commercial employers in the vicinity.

Sophomore, junior, and senior high school students in the public and parochial schools completed survey forms under the supervision of teachers and counselors. Eighty-nine percent of all enrolled high school students in the 10, 11, and 12th grades completed the questionnaire. Seventy-six percent of the parents of these students completed information on a parent questionnaire and returned it to the school.

Voter reaction was solicited by means of a letter of explanation about the survey and an enclosed card for a response.

Educators in administrative positions were contacted by a letter which included a questionnaire, while classroom teachers in vocational-technical fields were sent questionnaires by school mail. Each was asked to give free and full comment on the need for vocational-technical education in the area. The teaching staff was informed on the purpose of the survey by meetings with administrators and by serving on working committees.

Officials of the labor organizations in th e area were contacted in person and by phone to discuss the need for a vocational-technical program. The labor representative then presented an official statement on the need for vocational-technical education to the survey.

Information on the purposes of the survey was given to the public by means of news releases through the local press.

It has been attempted to set forth the facts and opinions collected for this survey in an unbiased fashion, thereby enabling the reader to appreciate the need for a vocational-technical program in the Greater Elmira Area.

SURVEY OF VOCATIONAL-TECHNICAL EDUCATION NEEDS IN THE GREATER ELMIRA AREA

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SURVEY ADVISORY COMMITTEE

Mario Alves
American-LaFrance
Rollo F. Asmussen
Remington-Rand Corporation
Charles H. Atkin
Westinghouse Corporation
Thomas Banfield, Jr.
Banfield Co., Van Etten, New York
Richard Brown, Executive Director
Chemung County Planning Board
E. W. Brown
Thatcher Glass Manufacturing Co.
Homer Chapman
New York State Electric & Gas Corp.
Fritz Clark, President
Local 1119
William E. Clark
Chemung Canal Trust Co.
Clarence Doty, President
Chemung County AFL-CIO Assembly
Raul Efthimiou
Farm Bureau, Spencer, New York
Robert P. Eckert
Elmira Star-Gazette
John D. Frawley
Council of Community Services
John C. Gridley
Chemung County Board of Supervisors
Donald E. Gray
New York State School Boards Association
James Hall
Corning-Elmira Area Council of
Scientific Societies
Ward Hamm
New York Telephone Co.
Fred Harless
National Homes Corp.
Dr. Ray D. Cleveland—1963
Dr. Irving Horn—1962
Chemung County Dental Society
Robert F. Iszard
Retail Division, Elmira
Association of Commerce
Richard B. Jeffery
Hankins Container Corp.
J. Arthur Kieffer
Trustee of Local 23
John H. Knapp—1963
Addison Brown—1962
Chemung County School Boards Association
John J. Leary
Division of Vocational Rehabilitation,
Department of Education
Dr. James A. Mark—1963
Dr. Frank Hertzog—1962
Chemung County Medical Society
Mrs. Erma B. Marx
New York State Teachers Association
William L. Miron
Bendix Corporation
Daniel J. Murphy—1963
Richard H. Evans—1962
Elmira Area Builders Exchange
William A. Muir
Candor Courier, Candor, New York
Dr. J. Ralph Murray, President
Elmira College
Harold McAnally
American Bridge Co.
John J. O'Brien
New York State Employment Office
Rev. Warren Odom
Elmira Area Council of Churches
Albert Olson
Elmira Board of Realtors
Tom Patterson
Corning Glass Works (Big Flats)
Mrs. Dorothy S. Pearson
New York State Teachers Association
Dr. Robert Risley, Dean
New York State School of Industrial
and Labor Relations, Cornell University
Candor, New York
B. William Sauter
Westinghouse Electric Corp.
William Schweizer
Schweizer Aircraft Corp.
Garth A. Shoemaker
Citizens Public Expenditure Survey, Inc.
The Right Rev. Monsignor Leo G. Schwab
Dean of Chemung-Schuyler Counties
Joseph B. Stazinski
General Electric Company
Finley Steele
Hilliard Corp.
Josef Stein
Elmira Association of Commerce
Rev. Latta R. Thomas
N.A.A.C.P. President
Harold E. Townsend
Trayer Products, Inc.
Michael P. Vadala
New York State Department of Commerce
Richard Vollgraf
Elmira Heights Junior Chamber of Commerce
Kenneth West
Chemung County Welfare Department
Robert C. Wild
Chamber of Commerce, Spencer, New York
Mrs. Pauline Wheet, President
Chemung County School PTA Council
Eugene S. Worden
Horseheads Junior Chamber of Commerce

TASK FORCES FOR THE SURVEY OF VOCATIONAL-TECHNICAL EDUCATION NEEDS IN THE GREATER ELMIRA AREA

INDUSTRIAL AND CIVIC SURVEY TASK FORCE

Civic, Industrial, and Business Personnel

Robert Jarrett, Chairman
Westinghouse Corp.
Tom Hali
Association of Commerce
Gene Bardwell
Schweizer Aircraft
Gene Knapp
Remington-Rand Corp.
Maurice Griswold
Eclipse, Division of Bendix
Martin Geishen
Elmira Market Place

Robert Boehlecke
County Agricultural Agent
John O'Brien
Employment Service Manager
George Ohlsen
International Business Machines
Carl R. Edgell
Retail, Iszard Company
Robert Jerome
Retail, Jerome Clothier
John Hinton
International Business Machines

Francis Spallone
Westinghouse Business Systems

● ● ●

Vocational and Technical Teachers

Charles Easterbrook, Elmira Heights
Dorotha Lamb, Elmira Heights
William Mack, Van Etten
Earl MacArthur, Candor
Madeline Dunsmore, Spencer
Allen Russell, Horseheads
George E. Dennis, Elmira

Roscoe Tarbell, Elmira
Donald Hardy, Elmira
Kathryn M. Pollock, Elmira
Joseph A. Molnar, Elmira
Drhu H. Meeker, Elmira
Ward M. Hamm, Elmira

SCHOOL SURVEY TASK FORCE

Dr. William Dobberstein, Chairman
Director of Guidance, Elmira
George Green, Guidance, Spencer
Dallas Martin, Supervising Principal, Candor
Joseph Matejka, Guidance, VanEtten
Sister Mary Alberta, Principal
Notre Dame High School, Elmira

Leonard Fudge, Guidance, Horseheads
Elaine Sheppard, Guidance, Horseheads
Carol Kendall, Guidance, Elmira Heights
William Dougherty, Guidance, Elmira Heights

VOTER SURVEY TASK FORCE

Chemung County School PTA Council

Mrs. Pauline Wheet, Chairman
Mrs. Irma Byrd, Elmira
Mrs. Doryl Solomon, Elmira Heights
Mrs. Ida Henry, Elmira
Mr. C. Arden Peterson, Elmira

Mr. William LeShure, Elmira
Mr. Theodore O'Konsky, Candor
Candor Parents and Teachers Assoc.
Mrs. Josephine Stokes, Spencer
Spencer Central School Parents

EDUCATORS SURVEY TASK FORCE

Carlton Jackson, Chairman, Secondary Supervisor, Horseheads, N. Y.
Kenneth S. Weaver, Principal, Elmira Free Academy, Elmira, N. Y.
Wendell V. Cleveland, Asst. Supervising Principal, Jr.-Sr. High School, Elmira Heights, N. Y.
Harold R. Reed, Principal, J. Sloat Fassett Elementary School, Elmira, N. Y.

VT 001 524
Guide to Vocational Training Opportunities Beyond the High School, Supplement.

Colorado State Dept. of Education, Denver. Div. of Guidance Services
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 10ct65 11p.

*TECHNICAL EDUCATION; *POST HIGH SCHOOL GUIDANCE; *COLLEGE PROGRAMS; *EDUCATIONAL OPPORTUNITIES
COLORADO

Vocational terminal programs of study offered by colleges and universities in Colorado are presented in tabular form. Information was collected in September 1965 and includes those programs being considered (or planned) for the school year 1966-1967. Programs are included for business, agriculture, trade and industrial education, health occupations, engineering technology, and homemaking. Tables give length of programs, number of graduates from programs in 1965, optimum number of students in the programs, necessity of high school graduation, special tuition or fees, availability of picture slides or films depicting the program, and special features: credit on apprenticeship, paid cooperative work experience, etc. (PS)

VT 001 524

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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COLORADO STATE DEPARTMENT OF EDUCATION

DIVISION OF GUIDANCE SERVICES

DENVER, COLORADO
80203

October 1, 1965

Supplement To:

Guide to Vocational Training Opportunities Beyond the High School

The information reported was collected by the Division in September, 1965. This supplements or revises data last collected in 1963. Programs reported include those being considered or planned for the school year 1966-67.

ED036657

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COLORADO STATE DEPARTMENT OF EDUCATION, DIVISION OF GUIDANCE SERVICES, DENVER, COLORADO 80203

Terminal Programs of Study

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary	Special Tuition or fees	Are pictures slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			ADAMS STATE COLLEGE				
Secretarial studies	1 or 2 yrs.	10	50	yes	no	no	no
			COLORADO STATE COLLEGE				
Secretarial	2 yrs		no limit	yes	no	no	no
			COLORADO STATE UNIVERSITY				
Business Data Processing	2 yrs.	10	60	yes	no	no*	Work-study program available Up to $45 a month can be earned.
Secretarial Sciences	2 yrs.	25	175	yes	no	no*	
						* Brochure being developed	
			FORT LEWIS COLLEGE				
Secretarial Science	2 yrs	2					

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary	Special Tuition or fees	Are pictures slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			LAMAR JUNIOR COLLEGE				
Agriculture Business	18	1					
Auto Body Maintenance	9	3	10	yes	no	no	2 yrs. apprenticeship
Auto Mechanics	18	0	30	yes (G.E.D.)	$5.00	yes	2 yrs. apprenticeship
Cosmetology	12	21	30	yes (G.E.D.)	$125.00	yes	Prepared for State Board Examination
Court Reporting	18	0	45	yes (G.E.D.)		yes	
Data Processing	18		20	yes (G.E.D.)	no	yes	
Electronic Technology	18	0	25 - 50	yes (G.E.D.)	no	yes	
Secretarial Science	18	5	45	yes	no	yes	
			MESA COLLEGE				
Data Processing Technology	2 yrs.	4	35	yes (G.E.D.)	no		
Homemaking	2 yrs.	10	unlimited	yes (G.E.D.)	no		

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary	Special Tuition or fees	Are pictures slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			MESA COLLEGE continued				
Medical Office Assistant	2 yrs	new program fall 1964	unlimited	yes (G.E.D.)	no		
Practical Nursing	1 yr	6	30	yes (G.E.D.)	yes		
Registered Nursing	2 yrs	17	35	yes (G.E.D.)	yes		
Secretarial Science	2 yrs	10	unlimited	yes (G.E.D.)	no		

Vocation Technical

Terminal Program under consideration;

Tourism - Management and Sales Office Supervisor
Business Officer for small school districts.
Oil Shale Technology.
Public Health and Sanitation
Civil Technology
Audio-Visual Technician

Job Entry (Starting Fall 1965)

			METROPOLITAN STATE COLLEGE				
Business Administration	2 yrs.						
Data Processing	2 yrs.						

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary?	Special Tuition or fees	Are pictures, slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			METROPOLITAN STATE COLLEGE continued				
Engineering Technology*	2 yrs.						
*includes options in - Electronics, Electrical, Mechanical design Drafting Architectural Drafting							
Executive Secretary	2 yrs.						
Office Administration	2 yrs.						
Secretarial Science	1 yr.						
			NORTHEASTERN JUNIOR COLLEGE				
Auto Mechanics	12	31	35	No	No	Yes	Currently MDTA
Agri-Business Technology	36	0	70	Yes	No	Yes	2 quarters on campus, one quarter on-the-job for 3

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary?	Special Tuition or fees	Are pictures, slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			NORTHEASTERN JUNIOR COLLEGE continued				
							years.
Civil Engineering Technology	18	0	20	No (GED)	No	No	We are working for Civil Service rating for the graduate
Electronics Technology	18	4	24	Yes	No	Yes	(Can pass FCC licenses if student wishes to)
Practical Nursing	12	15	15	No (GED)	Yes Uniform Shoes, Pins	Yes	Stipend paid final months of program while on the job.
Secretarial Science	18	40	60	Yes	No	Yes	No.
			OTERO JUNIOR COLLEGE				
Business Data Processing	2 yrs.	7	50	Yes	No	No	
Civil Engineering Technology	2 yrs.	1	25	"	"	"	
Drafting and Design Technology	2 yrs.	3	40	"	"	"	
General Business	2 yrs.	3	40	"	"	"	

Program 1965-66	Length of program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary?	Special Tuition or fees	Are pictures, slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			OTERO JUNIOR COLLEGE continued				
Mechanical Engineering Technology	2 yrs.		40	Yes	No	No	
Secretarial Science	2 yrs. or 1 yr.	3	30	"	"	"	
			RANGELY COLLEGE				
Dental Hygiene	18 mon.	10	20	Yes	$10 per qtr.	Slides	
Electronic Technology	18 mon.	3	24	Yes	$10 per qtr.	Slides	
Secretarial Science	18 mon.	1	24	Yes	None	Slides	
We will be adding the following programs in 1966-67:							
Clerk-Bookkeeper	9 mon.		No limit	Yes	None		
General Clerical	9 mon.		No limit	Yes	None		

Program 1965-66	Length of program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary?	Special Tuition or fees	Are pictures, slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			SOUTHERN COLORADO STATE COLLEGE				
Agriculture	18 mon.	0	14 students per laboratory class. We attempt to set up enough sections to meet all needs.	Yes for entry into the regular associate degree program. For the evening programs for adults it is not mandatory.	$10.00 lab. fee per quarter for courses in the trade-tech. division.	No, they are not. We do have a set of slides showing trade-technical laboratories and student activities.	
Air conditioning and refrigeration servicing	18 mon.	3					
Air conditioning and refrigeration technology	18 mon.	3					
Appliance repair (major)	18 mon.	1					
Auto mechanics and technology	18 mon.	14					
Civil technology	18 mon.	7					
Diesel mechanics and technology (including fuel pumps and injectors)	18 mon.	6					
Drafting - see Civil & Mechanical Tech.							
Electronic Data Processing	18 mon.	New program this year					
Electronics technology	18 mon.	15					

Program 1965-66	Length of program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary?	Special Tuition or fees	Are pictures, slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
		SOUTHERN COLORADO STATE COLLEGE continued					
Homemaking	13 mon.	6					
*Machine shop	18 mon.	4					
Mechanical technology	18 mon.	7					
Metals technology	18 mon.	1					
Office administration and secretarial	12 mon.	43					
Radio & television							
Refrigeration (commercial & domestic)	18 mon.	3					
Television engineering and communications	- see electronics technology						
*Welding	18 mon.	0					

*These areas provide related instruction for other terminal programs.

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary	Special Tuition or fees.	Are pictures slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.
			TRINIDAD STATE JUNIOR COLLEGE				
Auto Body Maintenance	24mos	0	40	Recommended	$15/qtr.		Co-op
Auto Mechanics	24 mos	8	60	Recommended	$15/qtr.		Co-op
Building Trades (Carpentry)	24 mos	7	20	Recommended	$10/qtr.		Apprenticeship
Chemical Technology	24 mos	1		yes			
Civil Technology	24 mos	5		yes			
Computer Maintenance Technology	24 mos	0	15	yes			
Cosmetology	24 mos	0	25	Recommended			
Data Processing Technology	24 mos	0		yes			
Drafting and Design Technology	24 mos	5		yes			
Electronics Technology	24 mos	17	40	yes	$15/qtr		
Gunsmithing	24 mos	33	100	yes	$25/qtr		

Program 1965-66	Length of Program	No. of graduates from program 1965	Optimum No. of students in this program	Is High School graduation necessary	Special Tuition or fees	Are pictures slides or films available for loan depicting this program?	Special features (Credit on apprenticeship, paid cooperative work experience, etc.)
			TRINIDAD STATE JUNIOR COLLEGE continued				
Law Enforcement Technology	24 mos	7		yes			Co-op
Practical Nursing	12 mos	11	15	Recommended			Co-op
Secretarial Science	24 mos	12		yes			
			UNIVERSITY OF DENVER				
Office Administration	2 yrs.	5		must meet regular admission requirements	$400 per qtr.		

VT 001 555

The Delaware Multi-Occupational Project. Final Report.

Performance Research, Inc., Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 21Sep64 118p.

*LITERACY EDUCATION; ILLITERATE ADULTS; *REMEDIAL PROGRAMS; *STUDENT CHARACTERISTICS; UNEMPLOYED; *ADULT BASIC EDUCATION; DISADVANTAGED YOUTH; *PROGRAM EVALUATION; STUDENT IMPROVEMENT; ACHIEVEMENT GAINS; PROGRAM DESCRIPTIONS
MDTA; PROJECT DELAWARE MULTI-OCCUPATIONAL

Approximately 150 unemployed adults and disadvantaged youth were provided with basic instruction in reading, writing, arithmetic, and spelling to increase the literacy level to the minimum required for further training in selected occupations. A special 1-week course was given for the teaching staff before the arrival of the first students. Each student was interviewed on arrival and given literacy aptitude tests shortly thereafter. Because of limited facilities, the teaching staff was often called upon to improvise methods and means of instruction. Surprisingly, classroom discipline was seldom a problem. There were 83 students the first week and by the seventh week 183 had enrolled; of these, a total of 28 had dropped out. Intercorrelations of 34 tests and performance measures for the first 83 students are given. The student I.Q. range was 40 to 119. Item analysis for five achievement tests in arithmetic, spelling, writing, and reading are given with the sample tests. General observations, summary of instructor's comments, and recommendations for future programs are included. (EM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE DELAWARE MULTI-OCCUPATIONAL PROJECT

Final Report

PERFORMANCE RESEARCH, INC.

September 21, 1964

VT 01555

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FOREWORD

The Delaware Multi-Occupational Project was a pioneer effort in attacking the Nation's foremost social problem: the full utilization of its most precious resource - Manpower. The anomalous situation of too many men and women out of work amid shortages of qualified workers reflects the disproportionate growth of our economic development and our failure to keep pace with the educational and social demands an expanding economy requires.

The Delaware Project is a recognition of our obligation to those citizens who are unemployable because they lack the skills needed in our technological society, or who are youthful dropouts from public schools, often as a result of economic pressures, or because their skills are obsolete and no longer useful in the business and industrial world of today. How well and by what methods the State of Delaware initially met this challenge is the basis of this Report.

Few of the projects in which Performance Research, Inc., has engaged has offered the challenge it found in the Delaware Project. The satisfactions of research are, by-and-large, intellectual; the satisfactions and sense of accomplishment the Staff of PRI experienced on the Project, while much more difficult to quantify, are none the less real, for they involve the human quality of success or failure, of acceptance rather than rejection, of seeing the individual emerge as a person of substance and promise from a fog of apathy, hopelessness, and despair.

Mr. Paul M. Hodgson, Assistant State Superintendent for Vocational-Technical Education in Delaware, was the driving force behind the Project. His insistence on a high quality of education and dedication to the job, coupled with the insight and years of experience gained as teacher - administrator, insured the success of the Project. Mr. Robert D. Newell, State Supervisor for Industrial Education, gave unremitting support to the Project and PRI, through difficult weeks of planning and during its operation, by his intimate knowledge of MDTA legislation and the complex financial accounting involved in purchasing many and varied teaching aids and supplies. Mr. Jerald A. Griess, State Supervisor for Trade and Industrial Education, did an outstanding job in test administration and statistical analysis. Dr. Ruth M. Laws, State Supervisor for Home Economics,

and Mrs. Mabel M. Ouderkirk, State Supervisor for Adult Education, gave their unqualified support in many ways; Dr. Laws was able to attend a number of teacher conferences and her down-to-earth observations coupled with her background and experience in training were much appreciated by PRI's Project Director.

The instructors who carried the principal burden of the Project have earned our appreciation beyond words. Their dedication and determination to make the Project a success is measured best by the affection, loyalty, and achievements of their trainees. This Report would be incomplete without a roster of their names:

Mr. Leroy Christophe, Howard High School
Mr. Robert Giampalmi, Mt. Pleasant Junior High School
Mrs. Ruth Goodman, P.S. DuPont High School
Mr. Millard Howell, Claymont High School
Mrs. Camille Jacobs, William Henry High School
Miss Janet Johnson, MDT Teacher
Mr. Joseph Mahoney, Lora Little Elementary School
Mr. George Meldrum, Springer Junior High School
Mr. Melville Nafziger, Howard High School
Mr. George Taylor, Quinton Twp. High School, N.J.
Mr. Al Temple, MDT Instructor, DeLaWarr High School
Mr. Russell Toro, Carrie Downie Elementary School
Mrs. Margaret Whiteside, Substitute Teacher, Wilmington Schools

The MDT Coordinators, Mr. Robert Cameron and Mr. Leon Holden, were the indispensable men whose administrative skills, wise judgement, and professional competence kept the Project constantly moving forward.

To these dedicated co-workers, Performance Research extends its sincere appreciation for their unstinting support in enabling PRI to fulfill its responsibilities to the State of Delaware.

PERFORMANCE RESEARCH, INC.

Harold A. Edgerton

Harold A. Edgerton, Ph.D.
President

September 21, 1964

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I. THE PROGRAM

The purpose of the Project was to provide approximately 150 unemployed referred for training by the Delaware State Employment Security Office, with basic instruction in reading, writing, arithmetic and spelling. The goal was to bring the level of literacy up to the minimum required for further training in selected occupations.

II. PLANNING AND ADMINISTRATION OF THE PROJECT

The "Guide For The Education and Training of Adults and Disadvantaged Youth" prepared initially for the Project*, sets forth in detail the organization of the administrative, professional and instructional staffs and the methodology proposed to make the Project function as effectively as possible. Aside from the day-to-day instructions essential to any operation of the size and complexity of this one, the "Guide" was generally adhered to. Some modifications were necessary in order to meet situational demands but these were effective measures, as a rule, and made the overall operation more efficient. The fact that trainees arrived in varying numbers in each of the first four weeks of operation introduced special problems which had not been anticipated; but, at the same time, it permitted the staff to make modifications and to improve operations as experience was gained.

These variations in the procedure and their impacts on the operation of the Project will be considered in some detail. The continued operation of the Project can profit from the experience gained during these challenging and highly rewarding six weeks.

The Staff of Performance Research, Inc., would not have been able to fulfill its obligations and responsibilities to the State of Delaware under the terms of its contract without the close coordination and strong support of Mr. Hodgson, his staff, and, especially,the splendid working relationships between the coordinators of the Program, Mr. Robert Cameron and Mr. Leon Holden and Performance Research, Inc.'s Project Director.

Several weeks before the Project was finally approved and a contract negotiated for the professional services of Performance Research, it became apparent that much research and consultation was necessary to enable the staff of PRI to prepare materials, organize the curriculum, and make other plans to conduct such a Project.

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* Performance Research, Inc., "Guide For The Education and Training of Adults and Disadvantaged Youth."

A series of conferences was held with personnel in the Office of Education and Department of Labor to gain background on the enabling legislation supporting the Manpower Development and Training Act and on the experiences of states, cities and professional educators in administering similar training programs. Members of the staff made visits to various cities and held many discussions about training materials, the administration of a program of this kind, the selection and training of a faculty, testing procedures, and the manifold problems inherent in a training effort of this nature.

From an evaluation of existing programs, both by participating professional personnel and observers, as well as from published reports, Performance Research found several reasons for the widely varying degrees of success of these programs, several of which were discontinued before any significant training had been accomplished. These included:

A. The materials used need to be appropriate for the training of adults.

B. Great care was needed to select and to orient the instructors who were to teach these basic subjects. While this aspect of the broad problem is discussed in greater detail in the "Guide", the following points are considered significant:

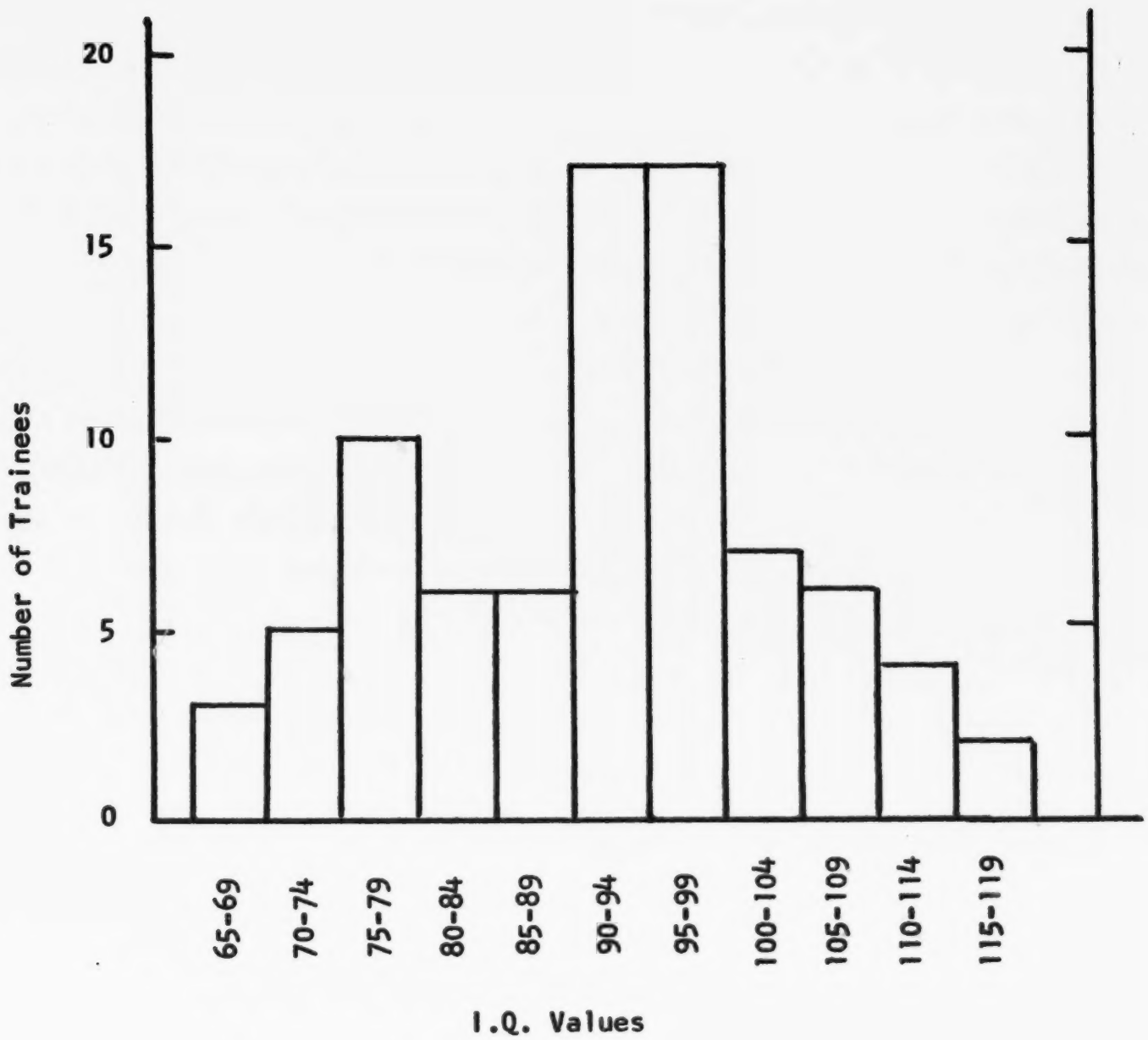
1. Experience in teaching adult illiterates and "functional" illiterates (4th to 5th grade level) is valuable. In fact, any teaching experience at the adult level is most useful.

2. An intensive period (one week) of training in the psychology of learning, formation of attitudes, classroom techniques, tests and measurements, and some insight into the emotional problems of the individuals likely to enter such a training program was considered vital.

3. The overall operation required the services of broadly trained and experienced educational psychologists, with a background in counseling, guidance, teaching and administration.

FIGURE 1.

Distribution of IQ Values,
Revised Beta Examination
For 83 Initial Trainees



C. The curriculum had to be highly flexible to meet the needs of the trainees and to maintain interest and effort. Field trips were highly essential. Trainees had to be intellectually, socially, and personally involved with the program, and highly motivated by a warm, persuasive, non-threatening (yet firmly disciplined) atmosphere. In short, "reading, writing and arithmetic" were not enough. Where the emphasis was placed solely on these essential and utilitarian subjects, interest waned, motivation dropped and the program suffered, or even failed.

Although the funding for the Project was not officially approved until one week before the actual training began, Performance Research placed the Delaware Project high on its agenda of active projects; Dr. Sylvester was appointed Director and Miss Garland Wooding Project Coordinator. Planning and writing conferences were begun several weeks earlier on a daily basis, and Dr. Sylvester gave full time to the planning, preparation of materials, the writing of the "Guide", and staff conferences. Other staff members began the preparation of instructional subjects, tests, and a comprehensive search of the literature.

On the basis of information Mr. Hodgson had received from Employment Security, it appeared that the majority of the trainees would be illiterate, adult, with a long history of adjustment difficulties, prison records, poor social and economic backgrounds, and a generally unfavorable work and school history. The actual situation with respect to the some 160 trainees who entered the Program during the six-weeks for which PRI was engaged, reflected a quite different type of trainee. While this made the training effort much easier in the sense that we were not faced with the extremely difficult task of teaching the illiterate in such a short period, the supply of suitable training materials was to become a never-ending problem. The resourcefulness of the faculty and the constant efforts of the staff to maintain a continuous flow of training exercises, quizzes, books, pamphlets, films, slides, magazines and newspapers kept the trainees interested and maintained an extremely high degree of motivation. Indeed, the contributions of the

trainees themselves in the shape of plays of their own composition, debates, and countless items they brought to class undoubtedly did much to heighten their interest in the Program. Their determination to succeed in learning to read and write better and to become more effective members of society, was matched by their intense interest in making the Program a success. In effect, the entire effort became a "community" effort, and the ultimate success of the Delaware Project is a tribute to its dedicated faculty and staff, as well as to the trainees themselves.

III. THE INSTRUCTOR TRAINING PROGRAM

Appendix B of the "Guide" (referred to above), describes in detail the scope of training given the instructors during the week prior to the beginning of the six weeks of basic literacy training. The staff of PRI participated in this instruction, drawing upon the considerable background of training and experience of Dr. Edgerton, Dr. Sylvester, Dr. Horlick, Mr. Rudge and Miss Wooding.

It is the consensus of all those concerned that this week of training was one of the most significant factors in the ultimate success of the Project. Perhaps the evaluations made by the instructors themselves should be mentioned here. Each instructor was interviewed and asked to complete a questionnaire prepared by PRI, dealing with various aspects of the Project. To the question, "What did teacher training do for you?", they responded as follows:

> "It was the equivalent of a college course."
>
> "It was so effective I would gladly have paid to have taken it."
>
> "It developed teacher team spirit."
>
> "It got us started with the right attitude; it made us more permissive, more patient, more sympathetic than we would have been."

Some added that it was repetitious in some degree; others thought the time would have been better utilized, in part, by preparing class materials. All of them, however, reacted favorably. Their comments are summarized in greater detail in Section XI of this Report.

IV. CLASSIFICATION OF TRAINEES

Information which could be useful in classifying trainees for most effective training include:

1. Aptitude tests
2. Age
3. Highest school grade completed

Aptitude Tests Used

An aptitude test is a test used to predict the subsequent performance of the trainees. Two tests were selected for this purpose:

1. The Revised Beta Examination, 1957 revision: This is a measure of general ability or intelligence. The test does not depend on formal school training as do many of the aptitude tests. The Beta Examination was originally developed for use in World War I to measure the intelligence of those soldiers who were relatively illiterate or who were non-English speaking. The score is expressed as an I.Q. The distribution of I.Q.'s for the initial group of 83 trainees is shown as Figure 1.

2. The second test used as an aptitude test was the Purdue Non-Language Test, Form A, developed by Dr. Joseph Tiffin. This test is designed to measure general intelligence among persons having low literacy skills.

Mr. Hodgson and Mrs. Ouderkirk, State Supervisor for Adult Education, expressed grave concern over the advisability of administering a battery of tests to the trainees on the day of their arrival in the Program. They anticipated that the school experiences of the trainees had been mostly disappointing and unsuccessful. Many of them were dropouts, others had been dismissed for disciplinary reasons or because of police records. From the beginning, the need to create an atmosphere much like that of the job situation and to build up in the trainee the kind of attitude which would be essential if he were to realize any degree of success on the job had been emphasized.

In general agreement with these essential points, the staff of PRI further urged that procedures set forth in the "Guide" for the testing of trainees immediately after their initial interview be followed. The reasoning in support of this plan was the necessity of obtaining as many facts about the trainees as possible, especially in view of the reluctance of Employment Security to supply any information. Further, the certain knowledge that the abilities, work experience, education, and intelligence of the trainees would be widely disparate made the testing program essential in order to realize some degree of homogeneity in ability grouping within each class.

Mr. Hodgson's final decision was that testing would be deferred until the second or third day following the trainees' arrival. This would afford the trainees an opportunity to adjust to the classroom situation and to the instructor while permitting the latter to establish warm, friendly working relations with his class. Such rapport had been strongly emphasized during the week of teacher training and orientation. The effectiveness of this approach and how well both the staff and the faculty did establish such a relationship was soon in evidence.

The distribution of IQ scores (based on the Revised Beta Examination, 1946 Restandardization), of the initial group of 83 trainees is shown in Figure 1. These IQ's range from 65 to 119, with 34 of the 83 in the 90's. These scores suggest that very few were "untrainable" as far as ability to learn was concerned.

One instructional problem, however, is reflected by Table 1. Only two of the classes could really lay claim to homogeneity, one by design and the other by chance. Mr. Nafziger's class included those who appeared to be farthest down on the literacy scale and most in need of individual instruction.

While the data shown in Figure 1 and Table 1 reflect an overall picture of the abilities of the trainees, further analysis is needed.

TABLE 1

DISTRIBUTION OF IQ VALUES BY CLASSES

Revised Beta Examination IQ Values

INSTRUCTOR	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104	105-109	110-114	115-119	TOTAL
Mrs. Goodman			1	1		2	3		2		2	11
Mr. Howell	2		4				2		2	3		13
Mrs. Jacobs				2	2	3	2					9
Miss Johnson		1	1	1	1	4	1	1				10
Mr. Mahoney					1	4	4	2		1		12
Mr. Meldrum				1	1	3	2	1	1			9
Mr. Nafziger		4	3	1								8
Mr. Toro	1		1		1	1	3	3	1			11
TOTALS:	3	5	10	6	6	17	17	7	6	4	2	83

An analysis of the test scores clearly reflected the trainees' weakness in language skills. Scores on the California Mental Maturity Test were lower on the Language Sub-Test than for the Non-Language. Average scores on the Non-Language Sub-Test were closer to those made on the Beta. It appeared that the trainees could manipulate things, ideas and objects with which they were familiar, but their communicative skills were poor. For this reason, it was decided to use the Beta IQ's as a basis for ability grouping since the Beta scores had less of a literacy loading than the California Mental Maturity Test. On the basis of these data, new class rosters were prepared and a reasonably small spread of intelligence was allocated to each class. Generally, the trainees fell into three groups:

a "high ability" group, with IQ scores ranging from 95 to 118
a "middle group", with scores ranging from 80 to 94
a "low group", with scores ranging from 68 to 79

The maximum class size was to be held at 15, a position which Performance Research had strongly recommended and which Mr. Hodgson supported just as strongly.

The trainees would have none of it. Those scoring below 80, particularly those with IQ's of less than 75, threatened to quit if they were changed to another class and another instructor. Some of the instructors

were equally concerned about the loss of a trainee, who, while clearly below the ability of the class as a whole, had so quickly and completely identified himself (women trainees were in the majority in this situation), with both the instructor and the class.

In subsequent weeks this became a serious problem as these trainees with less talent began to fall behind the class. Despite frequent counseling sessions they steadfastly refused to move, resorting to tears, defiance, and supplication! And they were not transferred. It was believed that more would be lost than gained by the change; thus, instructors found themselves in a classroom not unlike the "one-room school" of an earlier day. Cheerfully, and with a unique dedication, they spent hours in individual instruction, while attempting to keep the abler trainees gainfully occupied. In a number of cases it paid off. Perhaps this is not so surprising in itself, for it demonstrates that learning can take place when the conditions are "right."

In those classrooms where the spread of scores was most disparate, instructors were able to introduce a wide variety of activities which were helpful to the slow learners. Especially helpful were the abler trainees who progressed quickly to the point where they, in turn, could help the lesser endowed. The most rewarding aspect of this situation was the warm acceptance of help, the eagerness to help as well as to learn, and the high morale of the entire group of trainees. For virtually all of them it was an entirely new experience in what was once a threatening, discouraging and ego-damaging setting. Where they had met only rejection, criticism, ridicule and failure, they now found acceptance, encouragement and, above all, an opportunity to succeed. Instruction was geared to insure success, no matter how small. Quizzes and "pay" examinations were designed to permit even the slowest learner a measure of success. Individual interest in their performances on tests grew day-by-day. Following each examination, a parade of trainees would wait upon the staff to find the answer to the question, "How'd I do?"

Incidentally, in accepting four additional groups of trainees in the next four weeks, testing was not deferred. And, for the record, no trainees were "lost" as a result of being required to take the initial battery within three hours after they arrived for training. It might be well to emphasize here a truism that every skilled test administrator knows: regardless of whether the test is given to one or one hundred, if the purpose of the test is legitimate and is explicitly and simply stated; if the group to be tested understands its value to each of them and they are encouraged in a warm, persuasive and individual way to do their best; and if the physical conditions where the tests are given are reasonably good, there will be few, if any, problems. A final point: The test, of course, must be appropriate to the individual's level of ability. As a basis for assigning the appropriate level of the California Mental Maturity Test, each trainee was briefly interviewed soon after appearing for training. During this interview a judgment was made of the probable level at which each trainee would do best; hence, either the Pre-Primary, Primary or Elementary form of the California Mental Maturity was used, in addition to the Beta and the Purdue Non-Language Test. The latter test, incidentally, produced little information not already shown through the other tests, hence, its use is not recommended for additional trainee groups.

The initial group of 83 trainees presented an interesting cross-section of intelligence, experience, education and social background. Perhaps the most common aspect they all shared was their poverty which, for too many, approached a desperate level of bare existence. We shall report our observations and comments concerning these points, particularly the physical condition of the trainees which presumably influenced their attendance and ability to progress.

The trainees ranged in age from 16 to 52, with males showing a range from 16 to 52 and females from 16 to 48. The category "disadvantaged youth" ranged up to 21. Table 2 shows the ages of the trainees in this age group and older.

TABLE 2

DISTRIBUTION OF TRAINEES

BY AGE GROUPING

Age Group	Males	Females
16-21	30	23
22-30	11	5
31-40	7	4
41-50	1	1
51-60	1	-
TOTAL:	50	33

The level of education ranged from "no schooling" to completion of the 12th grade. During the initial interview, each trainee was asked to identify the highest grade in school which he had completed. An analysis of replies indicates some confusion between the actual number of grades completed and the grade they were attending when they left school. (Several weeks after the beginning of their training, the fine rapport which had been established between the staff, faculty and the trainees, resulted in several of the trainees revealing to members of the PRI staff that they had exaggerated about their education, experience or background.) This, of course, is not unusual. It must be remembered that the trainees had, for most of their lives, "lived by their wits". An interviewing situation was potentially a "threatening" one. Many of them had police records; they had learned to trust few people. The appropriate answer to any question was in the safety of ambiguity or one calculated to impress, to enhance their self-image or to cover up. This, too, had had its effect in making the instructors believe at first that their trainees had more ability than the test scores suggested. Their subsequent revelations of truth, and their obvious efforts at honesty and integrity were part of the heart-warming, human interest developments which made the Project a success in an important way, quite apart from any gains in literacy skills which were realized.

Table 3 shows the educational level of the trainees:

TABLE 3

HIGHEST GRADE COMPLETED

(AS REPORTED BY THE TRAINEES)

Highest Grade Completed	Males	Females
12	2	3
11	3	2
10	15	12
9	16	9
8	8	5
7	2	2
6	1	-
5	-	-
4	-	-
3	1	-
2	1	-
1	-	-
0	1	-
TOTALS:	50	33

V CLASSROOM TECHNIQUES

The "Guide " presents in considerable detail the educational philosophy that guided the staff of Performance Research in planning for the basic literacy phase of its seven weeks' of responsibility for the Project. We are confident that this philosophy was embraced by the instructors and did much to create an attitude on their part which, in turn, contributed to a classroom atmosphere in which the trainee could feel comfortable, yet motivated to a high degree. The singular aspect of this matter of attitude, motivation and a high degree of identification between trainee and instructor, is that these essential elements in the learning process were in abundance in every classroom despite the wide differences in age, experience, individual methods of teaching and the quite different personalities each of the instructors manifested to their classes. Perhaps the expression of one of the more senior and experienced teachers sums up this interesting point:

"The cohesive spirit which animates this group (of teachers), in my opinion, is one of the most remarkable things I've seen; by the end of the week of teacher training, it seemed as if all of the instructors were acting and reacting as one."

Essentially this was true; but in nowise did it result in stereotyped instruction; nor did it inhibit instructors from teaching with a rich and varied approach.

Classrooms were soon changed from the drab and even ugly; despite the intolerable heat, the unpleasant odors, the roar of trucks up the narrow street by the side of the school, the constant parade of the neighborhood curious of all ages through the school grounds, bulletin boards soon blossomed with papers (mostly letters and essays) written by the trainees; imaginative cut-outs were designed depicting the various occupations around which the vocational training content of the Project was built; materials of all kinds were brought in by the trainees, illustrating phases of city, state and national life, many with specific reference to the occupation of interest to the particular trainee.

We had been concerned about the quantity, variety, even the possibly questionable nature, of supporting instructional materials. The resourcefulness of the trainees in bringing to class large quantities of these items from their own meager resources was astounding. Again it was an expression of their interest, gratitude and determination to make good. As good teachers have done since schools began, the faculty, when they couldn't find them in their own school systems, often spent their own money for special items they thought would be particularly effective.

In addition to popular magazines, which provided a surprising number of useful items, catalogs from various mail-order houses were put to good use. Trainees used them to learn to spell, to read, and to compute prices. The excellent illustrative advertisements were cut out and used to make workbooks and to illustrate tools and occupations.

Perhaps we should have mentioned from the first the physical arrangement of the classroom. Desks, tables and chairs were placed in a semi-circle, or U-shape. The teacher rarely took refuge behind a desk, but was constantly moving about. This physical involvement was an important part of the psychological development of feelings of individual interest, instruction, and concern. There is a lesson to be learned here for contemporary education. We start beginners in this type of setting, then by the 1st or 2nd grade we arrange them in orderly rows through to their last years of college. Identification with class and teacher may soon be lost and the student sees his desk as a haven, a refuge against the onslaughts of an authoritarian figure who too rarely moves closer to the class than the first row of desks or chairs.

Business and industry in the city were glad to supply materials which could be used in teaching. Menus from restaurants, application blanks which could be used to teach trainees how to apply for a job, order slips, different kinds of forms, directives, guides and other highly useful teaching aids were provided. Various firms sent members of their

training staffs to talk about different types of occupations; these were most successful and constituted a vital part of the training in the pre-vocational phase. One large concern made available a number of film strips, complete with script and recordings, covering many different kinds of jobs.

In fact, the efforts of business firms, industrial organizations and other important segments of the community could have been greatly expanded had the Project received wider publicity. Without exception, these organizations were intensely interested in the Project. The Vice President of the DuPont Company (Dr. George E. Holbrook) told Dr. Sylvester that he considered the Project one of the most important activities going on in the state. Mr. Burdette Lewis, Personnel Director of the DuPont Company, and Mr. Dunlap, Direction of Employee Relations for the Company, visited the program at Howard High School. Both men were deeply impressed and concerned that more important people were not aware of the Project and its importance.

Dr. Benda twice brought his graduate students from Pennsylvania State Teacher's College in Chester to the school. Their interest was deep and they asked many questions which clearly indicated that their thinking and imagination had been stirred with the educational challenges in a training program of this kind. A group of teachers from England, who were also at Chester, exhibited the most intense interest, particularly in methods of evaluating, classification and the special techniques which had been built into the Project's curriculum and practicum.

While many of the instructors constantly urged greater use of more conventional textbooks and workbooks, several of them had developed great flexibility and ingenuity in their use of the blackboard. The daily teacher conferences and discussions provided the staff and faculty with and opportunity to exchange ideas. It also provided the professional staff of Performance Research with the opportunity to illustrate how the blackboard can be exploited and in what ways it can serve as an excellent training

device involving the trainees. As might be expected, the experienced faculty members had little difficulty keeping their classes well occupied, and materials were of less concern to them once the initial 2-3 week period had been bridged.

These observations emphasize the point that in education of this nature, the background and breadth of experience of the instructor is a major factor in its ultimate success.

VI DISCIPLINE IN THE CLASSROOM

The fears, even expectations, of the staff and faculty concerning the question of discipline were based on the general impression that the caliber of trainees would be low; and that we could all expect difficulties with obstreperous delinquents and emotionally unbalanced neurotics; from the arrogant, hostile, and rebellious; even drunks might be expected to appear. None of this proved true. Aside from two or three who could be considered discipline problems (and these were resolved so speedily they never really became a full-grown problem), we never heard a discourteous or profane word; certainly none were addressed to us. No instructor reported any rudeness or uncooperative attitude, with the two exceptions who "straightened out" under the firm hand of an experienced male instructor.

Occasionally, some of the trainees were reported as sleeping in class, or so lethargic they had difficulty keeping awake or following the instruction. When we interviewed these students, we learned that in several instances they were holding part-time jobs at night to supplement their income; or there had been illness in the family (this was a frequent and disturbing factor and illustrates how close to disaster these people live from day to day). We learned, often, that they suffered from inadequate food. For a great many of them, breakfast was a "coke" and some stale bread or cake. Some ate only once a day. Three young girls (18 to 21) told us they really ate "once a week - on Sundays". They saved their MDTA subsistence for one good meal in a week, eating scraps and drinking "cokes" the rest of the time.

Unquestionably, some were fatigued from lack of sleep due to carousing, drinking bouts, and worse.

The lack of typical student discipline problems in the classroom was a function of several factors. The following are significant; and if such Projects are to be successful, it is important that they be understood:

1. The sincere interest, concern and <u>dedication</u> of the staff and faculty to do the job well.

2. The special emphasis, from the outset, on understanding the special needs, drives, emotions and limitations of the trainees. Many of them, for example, had good basic intelligence. Too many of these read and wrote with difficulty, a fact they concealed with great skill for a week or so. Yet, they were never demeaned or made to feel stupid.

3. The quick and lasting identification of the trainee with the teacher, the class, and with the Program. He felt for the first time that he belonged, and he wanted to perserve this relationship.

4. Whole classes appointed themselves as censors of those who might have been discipline problems. They castigated their fellow-students for poor appearance, improper dress, their attitudes and other aspects of their "normal" lives which, significantly we believe, they would have ignored under any other conditions.

5. So involved were the trainees with the Program that several groups, and in two instances, whole classes, apologized for their apparent "failure" to do well on their tests.

Finally, and this is included under "Discipline" because it represented a re-ordering of the thinking of the trainees, they began to ask that instruction include subjects which had been foreign to them in recent years, and it is doubtful that many had ever had firsthand knowledge or interest in them up until now. They wanted to hear more about subjects of national and international import. They wanted to hear our views (and air their own) on sex, teen-age marriages, crime,social progress and citizenship . We recall the day the team captains came and inquired about references on the subject of: "The Feasibility of Teen-Age Marriages". They wanted lectures and discussions on personal hygiene, grooming and body care. A number of debates were held in the classroom and between classes. This was a remarkable development in itself. They wanted to visit the library, museums, parks and cultural things. One trainee wrote a quite insightful paper on the "Apartheid Policy in South Africa".

We knew, then, that no matter what the tests might show, the Project was a success. It could not be otherwise, for the Educational Process was, indeed, taking hold. They were learning a discipline of the mind, having learned in various cruel and harsh ways, the imposed discipline of society. Yet, we rarely heard a bitter complaint toward society. Our files

are filled with their letters, written as class exercises, recounting their regret at leaving school; for getting into difficulty with the police; for a host of minor (and some major) offenses against society. Often as not, however, they left school because they had no other choice. Sometimes we felt that the dropout problem, as we understood the term and dealt with it in our conventional schools, was really not a part of the dropout problem of our trainees. While a number did leave school for many of the same reasons a typical dropout does, many more left school because of broken homes, degenerate living conditions and the sheer necessity of finding the wherewithal to stay alive.

So now, and for some after 20 years of no schooling, they were being "educated"! Educated in the total sense; and not a teacher or staff member could but feel a deep sense of satisfaction. We forgot to worry over the precious 2 or 4 hours of "lost"time from the basics of reading, writing and arithmetic. We had the feeling that we were catalysts in this amazing transition from one of despair and hopelessness to one of opportunity and a chance to live.

VII ACHIEVEMENT TESTING

In the final analysis, no matter how rewarded we may feel about the subjective evaluations made in the last Section, the "success" of the Project must be measured in the performance the trainees made on objective achievement tests.

Two measures of literacy levels provide us with this information:

1. "Before and After" Tests which show how much the trainees progressed. Such tests are given both before the learning begins and again at the end of training; the difference in scores may be assumed to be the result of the training.

2. Achievement Tests to measure specific learning of the trainees. As a "Before and After" test the California Mental Maturity Test (CMMT) was chosen. A well-standardized test is required for this purpose. The CMMT is available in three levels and all three levels were used in the pretest. These were:

   Elementary ..... Grades 4-8

   Primary ..... Grades 1-3

   Pre-Primary ..... -0-

Scores on the CMMT were recorded for both Mental Age (MA) and I.Q. The form of the CMMT to be taken by any specific trainee was selected on the basis of a brief interview by an instructor or staff member.

As an "after" or post-test, trainees were given the Elementary form of the CMMT. It is assumed that MA and IQ scores for this form are comparable to those obtained earlier on any of the three forms used as pre-tests or "before" tests. Of course, the average MA or IQ of those tested with the Primary form, and that, in turn, was lower than those tested with the Elementary form. These differences were the product of assigning those with the least education (in terms of level and recency) to the less difficulty level of the test.

The CMMT is used in this study more as a general measure of level of literacy than a measure of intelligence. The tests were scored to obtain three scores: language, non-language and a total score.

The language score was selected as the basic general literacy measure. It reflects level of literacy rather than measuring the extent to which specific training content of the program was learned.

The improvement in the CMMT Language IQ is used as one of two measures of success of the teachers and of the program.

A series of achievement tests were developed by members of the staff to measure achievement in Spelling, Arithmetic and Reading. These tests are not standardized, and were constructed to provide a measure of progress of the trainees as well as to indicate weak areas in which the instructor needed to offer additional training.

The second measure of success of the teachers in the program was a weighted* sum of the scores on these five achievement tests.

The achievement tests were designed to give the trainees some measure or feeling of success. They were relatively easy and this was reflected in the markedly skewed distributions of the test scores. The distribution of scores for Spelling, Arithmetic and Reading for each of the 5 tests are shown in the Appendix. In addition, an item analysis of each test is shown. Each item analysis shows the percent of trainees who answered each question correctly and the percent of the "highs" (upper half of the scores in the test) and percent of the "lows" (lower half of the scores in the test) who answered each question correctly.

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* These were weighted according to the following formula:

$$S_1 + 2A_1 + S_2 + 2A_2 + 2R_2 + S_3 + 2A_3 + 4R_3 + S_4 + 2A_4 + S_5 + 2A_5 + 4R_5$$

where S, A and R refer to tests in Spelling, Arithmetic and Reading, respectively. Only the number of right answers in each test was included in the score. The cumulative number of points in the score for the five tests amounted to 647.

To round out the composite picture of the trainee, the instructor's evaluation must be given weight. As we have reiterated several times, the previous school experience of these trainees was, by and large, a sorry history of failure. Tests are abhorrent to most every student and for our trainees they posed a real threat. Although there was no "pass-fail" standard established for the Project, unlike regular school, failing to the trainee meant failure to learn a trade, to get a job. Thus, the prospect of taking a test was an emotional experience for almost all of them; they could be expected to perform erratically, and many did. Yet, in the classroom they could be surprisingly effective.

VIII. PROGRESS OF TRAINEES

If one wants to know how effective such a program as this one has been, it is necessary to measure progress and achievement. Measurement involves taking samples of performance from time to time and comparing such samples:

- to known standards of achievement
- to the expected or estimated ability to learn

Whenever we talk about measurement of performance in a training situation, we must be concerned both with objective measurement and performance and with performance as observed through the eyes of those who are in a position to see.

Records of test scores and other pertinent items of information were kept on a current basis. They were available for the staff and instructors. From time to time summaries of pertinent information were drawn to help find answers to such question as:

- What is the ability range?
- To what extent do classes differ in their abilities, ages or academic background?
- How well can performance in tests be predicted?
- Which tests are the best predictors?
- Do the tests report a consistent story?

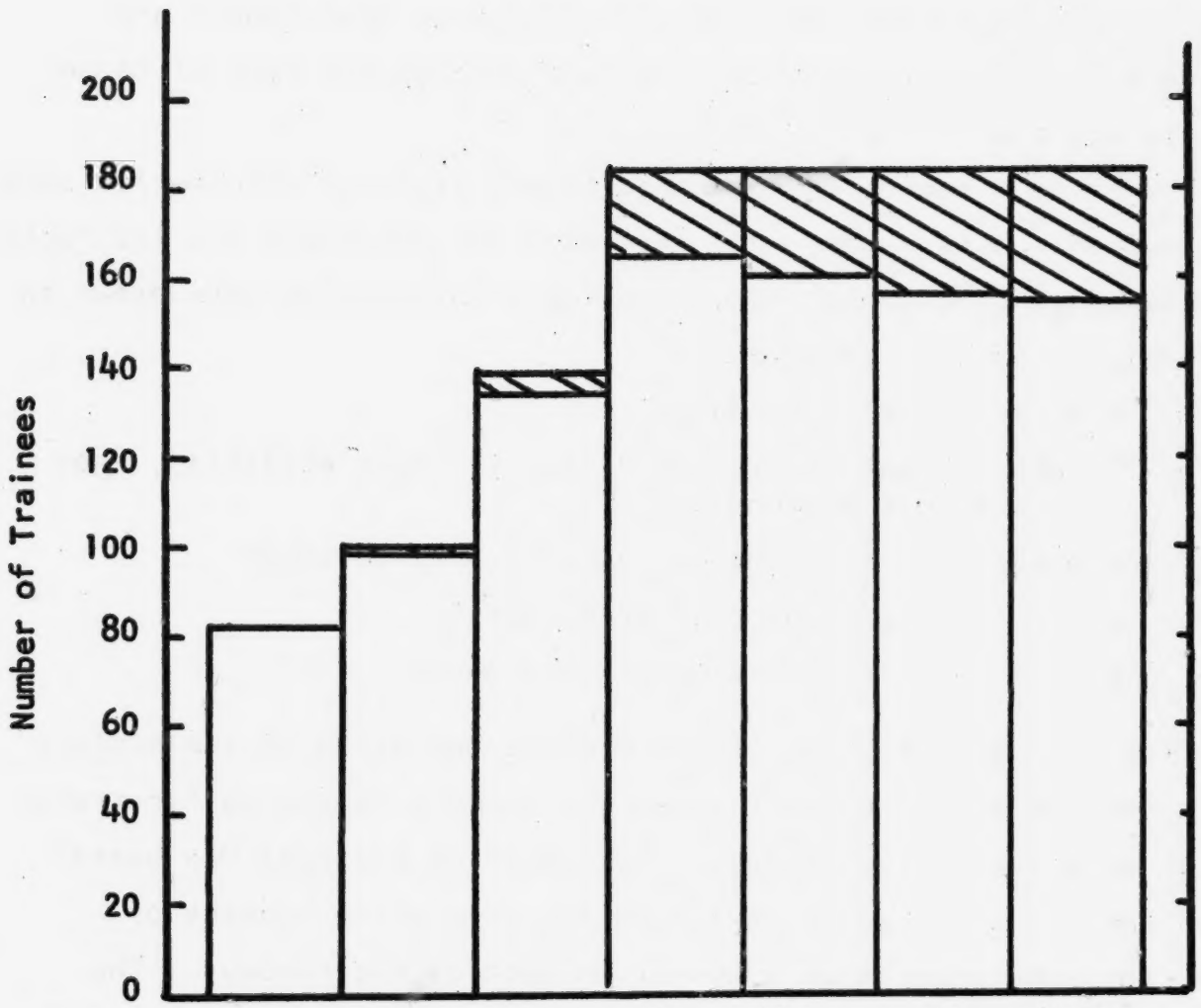
The "Input-output" picture of the 6 weeks operation of the project is shown as Figure 2. This chart shows the numbers reporting for training on each of 4 successive Mondays, the number of trainees "on board" on each of these successive Mondays, and the cumulative numbers of drop-outs (for the program as a whole) on each of the Mondays. The numbers are shown as of time of official actions.

The maximum number of dropouts was 15.3% at the end of the six weeks period, and is based on the total input for the period.

The dropouts among the original 83 trainees during the 6 weeks period included 14 cases. Of these 3 were "valid" dropouts, one for military service, one found a job, and one because his family of 6 children had to be on the larger stipend for relief. Four males were "no show" dropouts who failed to attend after the first or second day.

FIGURE 2.

Input - Output Flow Chart



Date:	7/13	7/20	7/27	8/3	8/10	8/17	8/23
Input :	83	100	139	183	183	183	183
"On-Board"	83	99	133	165	160	156	155
Dropped		1	6	18	23	27	28
% Drop		1.0	4.3	9.8	12.6	14.8	15.3

Most of these were officially dropped as of July 27. The remaining cases (6 males and 1 female) were dropped because of poor attendance.

The dropout group were practically a random sample of the trainees as far as such factors as age, previous education, and aptitude test scores were concerned. All but one were males. The dropout rate would have been higher if strong steps to prevent dropouts had not been taken.

These steps included:

- personal visits by Mr. Taylor to the homes of poor attenders
- counseling
- a policy of excusing absences of trainees for legitimate reasons
- creating an atmosphere of "acceptance"
- building on the theme of "this is my opportunity"
- developing a high morale among the trainees. The identification by the trainees with the Program and the instructor seemed to be one of the most important motivators each of them experienced.
- developing training materials which were practical, adult-oriented, and sufficiently easy for the trainees to achieve success in learning.
- encouraging the trainees by a warm, friendly approach in which the individual needs of each trainee were constantly emphasized.
- providing an effective teacher-training program and maintaining daily conferences with each instructor.

The trainees who came into the Program after the initial group were of about the same ability as those already in the program. Table 4 shows the comparable distribution of I.Q.'s from the Revised Beta Examination for all four intake groups.

The differences among the mean I.Q. scores of these groups are not statistically significant, hence it may be assumed the groups are comparable as far as I.Q. is concerned.

Essays

Another evidence needs to be explored, and as results indicate, could be developed as a useful indicator as well as an excellent teaching device.

TABLE 4

COMPARISON OF I.Q.'S (REVISED BETA EXAMINATION)

OF FOUR INTAKE GROUPS

I.Q. Level	Date of Intake				
	July 13 (Initial)	July 20	July 27	August 3	TOTAL
115-119	2	--	--	1	3
110-114	4	--	1	1	6
105-109	6	2	2	2	12
100-104	7	3	3	3	16
95-99	17	--	9	5	31
90-94	17	5	5	6	33
85-89	6	3	4	9	22
80-84	6	--	4	5	15
75-79	10	1	5	6	22
70-74	5	--	1	1	7
65-69	3	1	4	1	9
60-64	--	--	--	2	2
55-59	--	--	1	--	1
50-54	--	--	--	2	2
45-49	--	1	--	--	1
40-44	--	1	--	--	1
TOTAL	83	17	39	44	183

During the first day, as a way of getting a better appreciation of the skills and abilities of the trainees, each was asked to write a brief essay telling what kind of a job he was interested in being trained for and why.

A review of these essays suggested that they would be valuable, both as predictors of performance and as indicators of the level of instruction the trainees should be given.

They were used for the latter purpose and many of the original essays were either corrected by the instructor or replaced by improved essays. If such original essays could be rated on a comparable basis, their usefulness as predictors could be explored and statistically tested. Sixty-five (65) of the essays were obtained, most of which were the original essays (a few had been re-written). Only 3 of the 65 were not usable simply because the authors were too illiterate to write understandably.

Four of the teachers independently rated all 62 of the usable essays on a five-point relative scale. The intra-class correlation among the ratings was 0.688. This gives a reliability of 0.90 for the average of their 4 ratings. The instructors thus clearly demonstrated that they could rate such essays satisfactorily.

A scale* using 9 essays of varying quality could be prepared to be used as a standard for rating such essays, somewhat in the same way that handwriting scales have been used. Selected essays should not only have the required average rating by the 4 raters, but show as little variability as possible among the raters.

Such a scale has been made on the basis of the available essays prepared by the trainees. Their score values range from 9 (highest) to 1 (very inadequate). To score an essay, the procedure is to find the one on the scale most similar to it in quality. The number of the essay on the scale is the score for the essay being graded.

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* The essays comprising the scale were selected at scores of -2.5σ, -2.0σ, -1.5σ ..., 2.0σ and 2.5σ and were assigned values of 1 to 9, respectively. The "Essay Scale" is shown as Appendix B.

That the essay scores could be useful predictors is shown by the correlation of .64 between the essay scores on the sample of essays and the weighted sum of examination scores. It should be noted that the scores on the trainee's essays do not offer complete data nor is the "essay scale" a finished product.

The instructors did use the essays as a teaching device and reported that the trainees really worked hard on correcting their errors and improving their essays.

Prediction

The major statistical analysis of tests and trainees performance can be derived from Table 5.

Table 5 presents the intercorrelations among all of the quantitative measures obtained in the training period. In order to make them more meaningful, data only from the initial 83 trainees were used. The number of cases was further reduced by having to omit those cases for which major items of data were not available, and three trainees too illiterate to take the achievement tests, plus the 11 dropouts. The inter-correlations, then, are based on 61 to 66 cases. *

Two evidences may be used as criteria, the results of which we may wish to predict. These are the sum of the scores on the five achievement tests, shown in Table 5 as variable number 29, and the gain in I.Q. as measured by Scale 2 (Language)of the CMMT (California Mental Maturity Test).

The achievement score criterion is a measure of the specific learning and achievement of the trainees and is the best measure of the "learning success" for the program. The second criterion is a measure of the general improvement or gain in language performance.

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* A new computer program written by Dr. Nancy Anderson, University of Maryland, was used to compute the matrix, so that there could be maximum utilization of available data. For those who want to read the table for themselves, the 1% and 5% levels of significance for the correlation coefficients are approximately .32 and .25 respectively.

TABLE 5

Intercorrelations of Quantitative Measures of Trainees and Trainee Performance

		2	4	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	* 29	30	31	32	33	* 34	M	
2. Age	2		-.30	.07	-.09	-.03	-.08	-.09	-.01	.09	-.36	.11	-.11	.00	.30	-.22	.00	.22	.10	.00	.25	.12	-.06	.15	.28	.32	.27	-.28	-.01	.16	.00	22.7	7.1
4. Highest Grade	4	-.30		.21	.20	.22	-.01	.04	.31	.24	.25	.13	.38	.27	.08	.47	.24	.11	.22	.26	.11	.22	.32	-.18	-.03	-.05	.10	.08	.08	.20	-.01	9.4	13.7
6. CMMT - L (MA)	6	.07	.21		.41	.83	.35	.42	.55	.51	.43	.58	.34	.62	.47	.52	.46	.42	.56	.51	.60	.61	.66	.47	.56	.59	.67	.39	.63	.65	-.18	147.4	28.9
7. CMMT - NL (MA)	7	-.09	.20	.41		.83	.51	.54	.25	.45	.29	.55	.11	.37	.43	.33	.27	.42	.35	.29	.44	.37	.43	.39	.52	.51	.46	.72	.69	.41	-.16	140.8	28.4
8. CMMT - Total (MA)	8	-.03	.22	.83	.83		.49	.59	.46	.56	.41	.64	.25	.58	.53	.48	.43	.51	.53	.48	.60	.59	.62	.50	.63	.64	.66	.65	.78	.63	-.17	144.6	24.3
10. Beta I.Q.	10	-.08	-.01	.35	.51	.49		.63	.23	.30	.27	.53	.22	.31	.35	.34	.19	.42	.43	.21	.39	.44	.37	.37	.51	.51	.52	.46	.58	.43	.12	92.2	12.2
11. Purdue	11	-.09	.04	.42	.54	.59	.63		.36	.47	.35	.52	.07	.42	.38	.36	.26	.28	.34	.35	.42	.42	.50	.31	.44	.41	.48	.44	.55	.44	.17	49.8	24.5
12. Test 1 - Spell.	12	-.01	.31	.55	.25	.46	.23	.36		.51	.55	.50	.49	.83	.46	.62	.66	.41	.57	.81	.51	.61	.90	.71	.68	.63	.44	.24	.40	.65	-.03	26.4	5.7
13. Test 1 - Arith.	13	.09	.24	.51	.45	.56	.30	.47	.51		.30	.52	.30	.52	.58	.54	.44	.53	.60	.52	.66	.62	.64	.40	.56	.58	.53	.35	.53	.66	-.08	7.5	2.2
14. Test 2 - Spell.	14	-.36	.25	.43	.29	.41	.27	.35	.55	.30		.31	.35	.57	.28	.53	.35	.07	.32	.51	.21	.34	.70	.45	.34	.25	.43	.50	.53	.34	.18	11.5	3.2
15. Test 2 - Arith.	15	.11	.13	.58	.55	.64	.53	.52	.50	.52	.31		.25	.54	.52	.48	.55	.57	.68	.48	.64	.66	.70	.54	.73	.75	.67	.47	.66	.68	.03	5.8	2.4
16. Test 2 - Read.	16	-.11	.38	.34	.11	.25	.22	.07	.49	.30	.35	.25		.50	.33	.67	.44	.30	.44	.49	.37	.44	.48	.28	.29	.29	.19	-.03	.07	.44	.10	9.4	1.8
17. Test 3 - Spell.	17	.00	.27	.62	.37	.58	.31	.42	.83	.52	.57	.54	.50		.61	.66	.73	.49	.65	.93	.62	.68	.83	.75	.79	.75	.56	.37	.54	.74	.01	25.8	6.1
18. Test 3 - Arith.	18	.30	.08	.47	.43	.53	.35	.38	.46	.58	.28	.52	.33	.61		.44	.42	.69	.57	.60	.74	.66	.57	.54	.76	.74	.59	.22	.47	.73	.05	11.8	4.0
19. Test 3 - Read.	19	-.21	.47	.52	.33	.48	.34	.36	.62	.54	.53	.48	.67	.66	.44		.55	.39	.60	.64	.53	.68	.71	.58	.61	.64	.57	.40	.57	.66	.06	13.8	2.0
20. Test 4 - Spell.	20	.00	.24	.46	.27	.43	.19	.26	.66	.44	.35	.55	.44	.73	.41	.55		.41	.75	.70	.59	.66	.66	.44	.52	.58	.42	.31	.45	.69	.05	25.3	6.8
21. Test 4 - Arith.	21	.22	.11	.42	.42	.51	.42	.28	.41	.53	.07	.57	.30	.49	.69	.39	.41		.73	.52	.80	.72	.48	.44	.71	.76	.56	.24	.46	.77	.08	12.6	6.2
22. Test 4 - Read.	22	.10	.22	.56	.35	.53	.43	.34	.57	.60	.32	.68	.44	.65	.57	.60	.75	.73		.60	.83	.86	.70	.54	.76	.83	.65	.30	.58	.88	.11	24.1	7.3
23. Test 5 - Spell.	23	.00	.26	.51	.29	.48	.21	.35	.81	.52	.51	.48	.49	.93	.60	.64	.70	.52	.60		.62	.64	.78	.65	.72	.68	.46	.25	.41	.72	.01	26.2	6.4
24. Test 5 - Arith.	24	.25	.11	.60	.44	.60	.39	.42	.51	.66	.21	.64	.37	.62	.74	.53	.59	.80	.83	.62		.85	.62	.57	.79	.88	.64	.28	.55	.93	-.03	21.1	8.7
25. Test 5 - Read.	25	.12	.22	.61	.37	.59	.44	.42	.61	.62	.34	.66	.44	.68	.66	.68	.66	.72	.86	.64	.85		.72	.56	.80	.90	.69	.24	.57	.97	.09	27.9	7.5
26. T1 + T2	26	-.05	.32	.66	.43	.62	.37	.50	.90	.64	.70	.70	.48	.83	.57	.71	.66	.48	.70	.78	.62	.72		.75	.82	.77	.67	.45	.63	.75	.01	50.5	10.9
27. T1 + T2 + T3	27	.15	-.18	.47	.39	.50	.37	.31	.71	.40	.45	.54	.28	.75	.54	.58	.44	.44	.54	.65	.57	.56	.75		.77	.73	.50	.41	.52	.62	-.06	193.1	27.3
28. T1 + T2 + T3 + T4	28	.28	-.03	.56	.52	.63	.51	.44	.68	.56	.34	.73	.29	.79	.76	.61	.52	.71	.76	.72	.79	.80	.82	.77		.97	.76	.41	.67	.85	.03	345.8	55.9
*29. T1+T2+T3+T4+T5	29	.32	-.06	.59	.51	.64	.51	.41	.63	.58	.25	.75	.29	.75	.74	.64	.58	.76	.83	.68	.88	.90	.77	.73	.97		.78	.39	.68	.94	.03	531.1	96.2
30. Retest-CMMT-L	30	.27	.10	.67	.46	.66	.52	.48	.44	.53	.43	.67	.19	.56	.59	.57	.42	.56	.65	.46	.64	.69	.67	.50	.76	.78		.45	.82	.70	.31	162.8	27.9
31. Retest-CMMT-NL	31	.28	.08	.39	.72	.65	.46	.44	.24	.35	.50	.47	-.03	.37	.22	.40	.31	.24	.30	.25	.28	.25	.45	.41	.41	.39	.45		.86	.29	-.09	150.1	30.5
32. Retest-CMMT-Total	32	-.01	.08	.63	.69	.78	.58	.55	.40	.53	.53	.66	.07	.54	.47	.57	.45	.46	.58	.41	.55	.57	.63	.52	.67	.68	.82	.86		.60	.10	157.5	24.6
33. T5 - wtd 1, 2, 4	33	.16	.20	.65	.41	.63	.43	.44	.65	.66	.34	.68	.44	.74	.73	.66	.69	.77	.88	.72	.93	.97	.75	.62	.85	.94	.70	.29	.60		.03	181.4	50.3
*34. CMMT - L2 - L1 (IQ)	34	.06	-.05	-.14	-.19	-.18	.10	.17	-.06	-.09	.11	-.01	.06	-.01	.00	.04	.01	.04	.09	-.03	-.03	.08	-.03	-.02	-.04	-.02	.25	-.13	.04	.02		8.0	8.2

* Criterion Variables

Five achievement tests had been constructed and used to measure learning in the program. Each of these tests,* had three parts:

Spelling

Arithmetic

Reading

The Reading score for Test 1 was not used since scoring by the instructors could not be done with sufficient uniformity.

The inter-correlations among the achievement tests scores permit the following statements:

1. Beginning with Test 2 through Test 5, the average correlations among the parts of the test increased from .30 to .70. This reflects an increase in common factor content of the tests, and may also suggest that the trainees were making progress on "all fronts".

2. There is no evidence to support the existence of independent skills in spelling, arithmetic and reading. Those who are high or low in one are correspondingly high or low in the others. While the average inter-correlation among the Spelling tests is .66, higher than for either of the other two (.62 and .62), factor analysis shows only one large and substantial factor in these inter-correlations.

3. Performance on the Arithmetic tests is more predictable on the basis of the Aptitude Tests used than were either of the other tests. It is not known whether this is a reflection of the kind of test materials (arithmetic reasoning), greater reliability of the arithmetic tests, or that such performance in this setting is more predictable. For each aptitude test, the correlation of the aptitude test scores with the arithmetic test was higher than for either spelling or reading.

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* Copies of these tests are shown in Appendix A.

4. The sum of scores on the achievement tests could have been obtained by a number of weighting systems (positive numbers as weights for the parts of the tests) with about the same overall effort. The system used, a weighted total of right answers, was very acceptable to the staff and instructors as "fair" and "sensible".

5. It may be better practice in this kind of a training situation to construct the scores of performance tests so that each successive last test reflects the achievement of the trainees at that date.

Predictability of the achievement of trainees will be limited to reviewing the correlations between the aptitude tests and scores on the achievement tests. The evidences of improvement of work habits, job attitudes, self appraisals, etc., has not been quantified and recorded and, hence, important as these factors are, cannot be part of this section of the report.

First of all, the four test scores,

CMMT - Language
CMMT - Non-Language
Beta Examination
Purdue Test

showed an average inter-correlation of .48, suggesting that each could have its own function or role in prediction. The highest correlation (.63) was between the Beta and Purdue. The lowest correlation (.35) was between the Beta and CMMT-Language.

Correlations of each of the tests with achievement tests are shown for each part of each test and for total scores for tests 1 and 2 (variable 26), Tests 1, 2 and 3, (variable 27), Tests 1, 2, 3 and 4 (variable 28), and for all five Tests (variable 29).

Table 6 shows the relationship between the Beta I.Q. and the Achievement Test scores. It may be noted that none of the trainees

TABLE 6.

Relationship of Beta IQ's
And Achievement Test Scores

Achievement Test Scores	50-4	55-9	60-4	65-9	70-4	75-9	80-4	85-9	90-4	95-9	100-4	105-9	110-4	115-9
620-39							1	1		2				1
600-19									4	4		3		1
580-99							1	1	4	1	2		2	
560-79							1	1						
540-59						1	2		1	4			2	
520-39					1	1					1			
500-19								2				1		
480-99				1						1	1			
460-79										1				
440-59								1						
420-39	1					1			1					
400-19						1				1				
380-99				1					1			1		
360-79										1				
340-59				1	1									
320-39														
300-19										1				
280-99														
260-79							1							
240-59														
220-39														
200-19					1									

Beta I.Q.

having I.Q.'s lower than 80 scored above 559 in the Achievement Tests. Such a cutting score would have affected only 11 of the 64 initial trainees who completed the six weeks of training. If the I.Q. selection level were dropped to 70 none of those eliminated would score as high as 500 on the Achievement Tests.

Age

Age of the trainees shows a correlation of -.30 with highest grade attained. Those who are older claimed less formal education than those who are younger. On the other hand, there may be greater motivation on the part of the older trainees, as suggested by positive correlations of age with achievement test scores and with the post-test scores on the California Mental Maturity Test.

Education

Highest grade completed as stated in interviews on the first day of training showed significant correlation with several of the achievement measures, but not the same ones which showed significant correlations with age. Highest grade completed showed more correlation with Spelling and Reading tests while age showed more correlation with Arithmetic and overall achievement.

The best measure of achievement is the weighted sum of the achievement test scores appearing as variable 29 in Table 5. The aptitude tests show substantial correlation with this, and thus would support their use as a basis for classification.

The one test having the highest correlation with the total achievement score is the total score for CMMT, $r = .64$. With respect to the sub-scores, CMMT-Language correlated .59, and Non-Language showed a correlation of .51 . The two scores combined with best weights yielded .65, which is only .01 greater than the overall score for the test.

It is believe that the Revised Beta Test is the best of those tried for showing the learning potential of the trainees, and the Language score of CMMT is the best general estimate of literacy level.

The Purdue adds little new information to these scores and may be omitted.

To determine when a trainee is ready to go ahead with his job training is an ever present problem in a training program. Aptitude tests furnish the first estimate of this readiness. Following this there are the successive achievement test scores. "Passing scores" or readiness level scores need to be developed so that readiness is not determined solely by how long a trainee spent in a classroom, but by a competent sample of his literacy.

In addition to a measurement of literacy, there is need to have comparable measures or judgements of the attitudes, work habits and personal adjustment requisite to acceptable job performance. Such measurements have not as yet been developed. This is a real and immediate need.

One of the results of the 6 weeks program was a gain in general literacy level as reflected by the CMMT. Table 7 summarizes these data.

TABLE 7

GAINS IN LITERACY LEVEL AS REFLECTED
BY
PRE AND POST TESTS (CALIFORNIA MENTAL MATURITY TEST)

Score	Mean Values		
	Before	After	Gain
Language MA	147.4	162.8	15.4
Non-Language MA	140.8	150.1	9.3
TOTAL MA	144.6	157.5	12.9

The greatest gain in Mental Age was shown for the Language score of the test. This was a gain of about a year and a quarter, and was made on that part of the test which best reflects literacy skills.

Gains in literacy level showed little correlation to other measures. From this, one may assume that the gains reflect differences in areas not measured by any of the tests, such as motivation, work attitudes and work habits. For the most part, the correlations of the Achievement Test scores with gains were positive.

It is interesting that the CMMT - Language score (Pre-test) correlated -.18 with gains in I.Q. This is a negative relationship. The CMMT-Language score (Post-test) showed a correlation of +.31 with I.Q. gains. Both the Revised Beta I.Q. and the Purdue test scores showed positive correlations with gains.

IX. READING SKILLS

A great deal of emphasis is placed on reading skills (which involve both the speed of reading and comprehension of the material read) in our conventional schools. This is rightly so. The average person reads scarcely better than 250-300 words per minute with any reasonable degree of understanding of the content. For our trainees, poor reading, poor pronunciation and poorer understanding was a major problem.

Performance Research had urged from the beginning of its planning that a reading laboratory be established and staffed with a full-time reading specialist. Budgetary limitations prevented the State from including this important item in its contract with Performance Research; and in lieu of this support, recommendations were made to secure the services of a competent reading specialist from the state school system, the University of Delaware or from the City of Wilmington. The fact that the Project was conducted during the summer months, and had to get underway with a too short preparatory period, made this problem a difficult one. Hence, during the entire course of the six weeks phase no reading specialist was available. Two or three teachers were familiar with the SRA Reading Skills Laboratory. PRI made available a considerable quantity of material, including a complete library of graded reading materials. Recommendations were made to procure an additional two sets but only one was obtained, and that during the last two weeks of the first phase.

As has been emphasized throughout this Report, the trainees brought with them an awareness of the adult world about them. They used words, expressions, and concepts with some degree of understanding. The remarkable impact of television was always apparent in odd and unpredictable ways, although any depth of comprehension was doubtful. Certainly their understanding and ability to use language and vocabulary skills was uneven.

But without question, the introduction of every new concept, whether in arithmetic, or the world of work, a newspaper item, or a magazine article, which involved the printed or written word presented an obstacle to the trainee. For most of them the learning process was slowed, or halted, while they grappled with the sheer problem of attempting to read.

The wide disparity in reading skills in each class greatly added to the problems of the instructor. Just as the lack of ability grouping added to his problems in terms of levels of materials being taught, ability to grasp the subject, insight into the principle involved, and skill in <u>using</u> the principle, so did lack of reading skills further complicate the teaching of the trainees. In subsequent classes, when ability grouping was achieved, lack of reading skills could be better treated. As was mentioned above, the familiarity with the world in which they lived gave the trainee a unique advantage over the child with comparable level of skills in reading, writing and arithmetic. The latter simply had not, within its experience, been exposed to the same breadth of background, whereas through association the adult trainee identified the spoken word with a multitude of objects and experiences. Seeing these familiar words in print or writing was often an amusing experience in itself. Materials which present a picture of the object, coupled with the printed and written word, enable the adult trainee to remember and associate very quickly. Hence, the intelligent functional illiterate could quickly progress in reading skills when the instructor could find the time to teach him basic reading material.

In summary, the trainees would have made much greater progress in literacy training, in a shorter time, had they been given two to four hours of instruction daily in reading skills by a competent reading specialist. The gains in literacy levels, as measured by the California Mental Maturity Test, were significant; and for a few, the gains were remarkable. With six weeks of intensive instruction in reading skills we believe that the gains for all trainees (save those who lacked basic intelligence) would have been encouraging.

X. GENERAL OBSERVATIONS

This section of the Report has been reserved for comments and observations that, although not directly contributing to the literacy training of the trainees, had a bearing on the success or lack of success of the Project.

For most of the 83 trainees who entered the Project on the 13th of July, the six-week period of literacy training was successful. For some, it was remarkably so; while for others, little apparent gain was realized. In the latter cases, this could be attributed to:

Lack of sufficient intelligence of the trainee

Lack of sufficient time in a six-week period for very slow learners

Physical surroundings which aggravated the problem

In Section IV, A, Paragraph 4 of the "Guide," Performance Research stated:

> "In an adult education training program where vocational training is an objective, a cut-off score of 75 is considered desirable; however, the training of personnel who score below I.Q. 75 will be attempted in the present program for Delaware in an effort to bring such individuals up to a level where they might possibly progress to a level which will enable them to find employment."

Eight of the first group of trainees scored below IQ 75 on the California Mental Maturity Test; 10 scored below 80. Considering the classification of intelligence, as discussed in the "Guide" in Section IV, A, Paragraph 2, we find that 18 of the trainees were in the "moron" or "borderline defective" classification. When we add 17 trainees who came in the second group on July 20, 39 trainees who came in the third group on July 27th, and 44 trainees who came on August 3rd, making a total of 182 trainees in the Project, (all of whom were integrated into existing classes, with the exception of 60 for whom 4 new classes were organized), we can appreciate the impact on the literacy training of the original group. Perhaps the greatest impact on the learning situation were the added demands on the instructor.

Increasingly, the classrooms became prototypes of the old "one-room school-houses" and the staff became increasingly concerned with problems of materials, discipline, teacher-fatigue, and the physical accommodations of Howard High School where the Project was in operation.

The placement of new trainees into the existing classes was unfair to the first group as well as to the trainees of the incoming groups. Identification with the Project and the instructor became more and more difficult and demanded close attention and strong support of the faculty on the part of the Performance Research staff, of Mr. Cameron and Mr. Holden, the Project Coordinators.

In the initial phases of the Project, it had been hoped that certain members of the faculty would be kept free of instructional duties in order to provide specialized attention to the needs of the trainees and the Project in general. Only for a week were the services of Mr. Taylor, as a counselor, available for this function. His home visitations with Miss Wooding, of Performance Research, were quite successful. Had this been continued, the low dropout rate of the Project would have been even lower. Mrs. Whiteside, filling in for Mrs. Jacob's during the latter's absence the first week, took over a class from the third group of trainees and never was able to function as a "resource" person for extra curricular materials, organizing the library, cataloging the training films, etc. Mr. Christophe, similarly, was unable to provide assistance in developing suitable arithmetic materials. It had been hoped that Mr. Nafziger's experience in using reading materials and in working with low-level students would permit him to establish a special class of 6, or less, spending the rest of his time organizing a reading laboratory for the Project. Unfortunately, it was necessary to assign him the difficult task of teaching a large class of extremely low-level trainees, functional illiterates, and several poor readers, all at the same time. Mr. Giampalmi was, fortunately, kept free of full-time teaching and did an outstanding job of developing materials, administering tests, and filling in for absent instructors (which was not frequent).

For Dr. Sylvester, the entire experience represented a unique, personally rewarding period that transcended the professional aspects involved in such a Project. During the four weeks Miss Wooding spent full-time in Wilmington, a similar reaction was experienced. Trainees tended to identify themselves with the faculty, the staff and with members of Performance Research in special ways. To find authority figures so vitally interested and concerned about them was an emotional experience few had ever had.

The confidence that virtually all of the trainees gave Dr. Sylvester was a highly personal and rewarding experience in its own special way. For many it reached a deeply personal, often touching, level. For example the appearance at the window of the faculty room of a representative of some 8 or 10 teenagers and adults waiting at the entrance to the Annex to talk to him about entering the Project. Perhaps sentiment and emotion should have little place in an important educational program of this nature; yet these were the ingredients which contributed so much to the determination and motivation of the trainees to do their utmost to succeed, as well as to the satisfaction of those who were responsible for the Project.

They came ill-clothed (even outlandishly garbed), ill-fed, ill-housed and often ill-used. They came with hostility, suspicion, ignorance and bitterness. For many, Performance Research's six weeks closed with sincere expressions of friendship and not a few tears.

Within the boundaries of MDTA, would the program have been more successful, more effective, or more permanent in its effects, if there had been available some semblance of medical care, dental care, or for those who needed them, eyeglasses or hearing aids? Should they have had even token physical examinations sometime during the training? Could we have made available excess food staples to supplement the Coke and cigarette most of them had for breakfast or lunch? Was it lack of proper food or wherewithal to get it that was the basic problem here?

Or was it poor food habits long established and lack of knowledge on how to get the most and best food value from every dollar? If the latter is true, some nutritional and marketing facts could be integrated into reading and arithmetic classes.

Should their subsistence checks have been delivered in person at the school on Friday afternoon, and not mailed so as to arrive Thursday (or not to be received at all, or stolen, or lost, as some apparently were)? The absentee rate on Fridays may supply the answer to this last question. That check meant food, rent, a bare existence for some; for others it meant escape from harsh reality into drink or carousing around. We were asking a lot of them, and in a very short time. Most of them gave much in return, and responded so well in so many ways that we all felt as though we were, in part, "missionaries".

Here are random observations:

How quickly they learned to use visual aids (projectors, etc.)

How dependable they were with their books and notebooks, which they proudly carried home and always brought back to school.

How responsive to courtesy, to suggestions about their dress, and the pride they learned to take in their appearance.

How different they looked the second day of class; haircuts, appropriate dresses, sensible clothes..clean shirts and clothing.

How quickly they wanted to learn more about more things than just reading, writing and arithmetic.

How interested they were in the field trips; how proud they were of their library cards.

How they pitched in voluntarily to do things, to suggest and then to support activities, and how proud they were to have their suggestions approved, their efforts praised.

How determined they were to succeed, to have others succeed, to have the Project succeed.

Finally, and this observation tells the whole story:

How much they wanted to help others; receiving help had been so much a part of their lives. For the first time, they saw themselves as able to help both themselves and others.

XI. SUMMARY OF INSTRUCTORS' COMMENTS

During the fourth week of basic literacy training, Performance Research interviewed the instructors, asking them to evaluate the Project and to make suggestions as to ways in which the training program might be improved. In evaluating their comments it must be remembered that the faculty was oriented from the beginning to the task of instructing a quite different type of trainee than actually appeared in the classroom. Further, only two of the instructors had had any teaching experience with illiterates or adults. Mr. Meldrum, a retired Navy officer, had recently begun teaching in the public school system, but had taught in Navy schools of various kinds. Miss Johnson, a college graduate in June of this year, had no teaching experience. Mrs. Whiteside had not taught for a number of years except as a substitute teacher, and had some apprehension about teaching the type of trainee anticipated. Mr. Nafziger, an experienced teacher in the elementary grades, preferred that level to that of teaching adults. For the rest, including Mr. Mahoney and Mrs. Goodman, a considerable range of training and experience greatly strengthened the faculty.

While the comments of several members of the faculty reflect some concern about the daily faculty meeting, the availability and kinds of teaching materials, and such administrative details as reporting absences, completing required reports and forms, attendance records, etc., it is interesting to note that the "veterans" of long experience were able to adapt themselves much more easily, use expedients more skillfully, and required less use of specific teaching aids, relying on their own ingenuity, extensive blackboard work, and current periodicals scaled down to meet the needs of their students. Elsewhere in this Report mention has been made of the fact that in most situations, older, more experienced teachers are better adapted to the erratic and unexpected demands of the kind of instructional program effective in this type of training. For some, a rigid, spelled-out instructional program would be the ideal guide. Some instructors initially graded

their papers on a percentage basis, with 70 as a passing grade, despite specific instructions to record only "rights" on examination papers. Their comments are useful and reflect the real concern of each instructor that what he did in the classroom each day helped each trainee to realize the common goal. In the last analysis, their accomplishment is all the more important in view of the fact that so much was accomplished in so short a time.

The questions asked in the interview, with a summary of the instructors' replies, follow:

1. What has the program, so far, done for the trainee? Be specific.

<u>Academically</u>: Refreshed and filled in the gaps of basic knowledge, with some additional development in reading, language and arithmetic skills.

<u>Socially</u>: Promoted individual and group pride; trainees gained in self-confidence and found new hopes for the future. They developed a spirit of mutual helpfulness; they accepted discipline in the classroom; they practiced courtesy and expected it in return; they increased their awareness and self-knowledge of their abilities, aptitudes, and learned that they <u>could</u> do things, they could learn to read better, write better, and master the simpler arithmetic operations. They developed a new sense of responsibility, and they more fully realized that others can have the same kinds of problems. They developed an improved attitude toward work, toward the prospective employer, and toward themselves. They gained new insights and new and better perspectives with the realization that basic literacy skills (toward which they had become indifferent) are necessary in the different kinds of jobs for which they wanted to train. They learned, too, that these skills are essential in our world today and if they wanted to enjoy life, it was necessary that they learn to use such skills.

<u>Practically</u>: The MDTA Program gave them an opportunity, with the necessary financial assistance, to learn a job, with the kinds of instruction

they could follow and tailor-made to their special needs; it gave them a better understanding of job opportunities, of information about jobs and the kinds of skills one had to have in order to get and hold a job. For many of them, it gave them new concepts of the world of business, an "outer" world with which they were unfamiliar. It helped them overcome their fears about corporations (like DuPont) and about applying for jobs.

2. What have been your problems as an instructor? (E.g., discipline, ability grouping, teaching materials, supervision, etc.) Please be specific.

Teaching Materials: There was a general lack of materials at appropriate levels in all subjects. Classes lacked dictionaries, workbooks in English, and arithmetic. There was a lack of recreational reading material on a simple level, but of interest to adults.

Ability Grouping: Generally it was satisfactory; some classes had an extremely wide range of ability. For the poorer student, six weeks was too short a time to do much. Some felt more was learned about what the trainee lacked in the way of basic ability than what was taught him. Better grouping would have been of help in teaching the average or better student; it would have helped the slow learners by keeping them out of a competitive situation in which they could not keep up, and which they found discouraging.

Social and Emotional Immaturity: Trainees in the 16 to 21 age group, the "disadvantaged youth" category, evidenced considerable immaturity and social ineptness. Their conduct was characterized by giggling, gum-chewing, loud talk, braggadocio, and absurd claims. There were occasional problems of too much attention and pre-occupation with both sexes; but no discipline problems, as such were reported by any instructor. Some thought that difficult trainees (primarily difficult because of inattention or too much social activity), should be dropped rather than transferred. There was recognition, however, that in a few cases, a transfer to a male instructor did bring about a prompt and more acceptable kind of behavior.

Administration: Some instructors felt that deductions from trainee pay for unexcused absences should be made. The supervision by the staff was generally good and helped create a "good attitude in the teaching staff". They welcomed classroom visits by the supervisory staff, and especially welcomed suggestions for the conduct of their classes. Some thought there were inconsistencies in the policy concerning unexcused absences. Some wanted guidelines as to when to proceed to the next level worksheet exercise and suggested such a progress chart should be posted so that all teachers and trainees would know when to expect what kind of instruction and in what subject.

3. Do you have sufficient information about your trainees to do a good job?

Lack of Information: Concerning any psychological or emotional problems; possible physical defects such as in vision and hearing; They thought that school records should be made available. They thought that Employment Security should have made much more information available on these and other points, such as home background, difficulties with the law, and similar pertinent facts.

Have Enough Information: Some, on the other hand, believed that they had enough information about their trainees; that additional facts might bias the teacher's approach.

4. What can you report on a weekly basis about the progress of trainees?

The weekly achievement tests provided information as to their progress.

Some thought the trainees advanced "two steps forward and one backward" but it was difficult to judge, especially when attempting to evaluate attitudes, a sense of responsibility, and individual motivation.

The instructors believed they could report on the specific academic skills acquired, how attitudes have changed and how each trainee's approach, appearance, punctuality, motivation and general health had improved.

Each instructor expressed his own individual ideas which, in a number of instances, were not advanced by his colleagues. Following are some of the suggestions different instructors gave as providing valid measures of student progress:

Some instructors thought the instructor's report on trainee progress was a good idea; others thought it would be burdensome and, at best, only guess-work.

A list of desired skills (i.e., level of achievement) in each subject be designated and arranged in "descending" order so that each trainee's weekly score could be assessed against such a criterion as a "measure of progress".

Regular 5-minute daily interviews with individual pupils to ascertain individual problems, academic problem areas, etc.

Greater use of essays, debates, skits, spelling bees, etc., as a means of helping trainees (and of determining their academic weaknesses).

A number of these points were adopted prior to the interviews in different forms and in realistic and workable fashion. These and other suggestions made during the daily conferences reflect the experiences of the instructors which have been successful in the conventional classroom. All of these ideas and many more reflect, too, the intense desire of the faculty to bring every technique to bear on improving their own classroom technique and to motivate each of the trainees. Perhaps the most successful technique was the frequent, private interview that each of the instructors regularly had with their trainees. Out of these sessions came frequent referrals to Dr. Sylvester for individual testing, counseling, and in five cases, brief therapy sessions which appeared to be helpful, in terms of improved attitude, a return to school, and an improvement in grades. In this connection, special mention should be made of the Wilmington staff (Mr. Temple, in particular) who went to any reasonable length to aid trainees with such pressing problems as overdue or missing paychecks, etc. The faculty were most appreciative of the help provided by the administrative staff, indeed, the Project would surely have failed without the strong, steady support of Messrs. Cameron, Holden, Temple and the office staff.

5. What did teacher training do for you? (Be sure to be specific and both positive and negative.)

Some of the instructors were inclined to feel that the material covered was repetitious. Other felt that the week of orientation should have been spent in preparing for their classes. Here again the level of training and experience is reflected in their responses. The less experienced would have preferred the time be spent in "getting ready to teach," developing lesson plans, visual aids, issue materials, etc. The more experienced, on the other hand, appreciated the review of basic educational psychology, pedagogical principles (especially the kinds of techniques considered effective with adults), and believed it helped to inculcate the right attitude towards the kinds of students they would teach. They thought the sessions made them more permissive, more patient, understanding and sympathetic than they would have been. Most instructors thought they had a better perspective of the learning methodology involved, particularly as it related to the adult and functional illiterate as contrasted with the conventional child or teenager they had been teaching. All of them stated it had revitalized their thinking about basic educational concepts.

Some thought it to be the "equivalent to a college course;" that it was "so good that i would gladly have paid to have taken it." Many were especially grateful that they could not only participate in such a teacher-training course, but be "paid while doing so."

Finally, all of them agreed that the sessions were vital in developing a teacher "team spirit." For most of them, this meant a dedication of purpose, a determination to achieve a level of teaching which would bring results. There certainly is no question but what they all felt a "dedication of purpose" and gave of themselves without stint.

The frequent and individual sessions every teacher had with Dr. Sylvester during the entire 6 weeks was ample evidence of their desire to learn, to achieve success as a teacher in this unique situation and their determination to explore every avenue to solve a problem.

6. How can teacher training and teacher conferences be more effective?

All of the instructors expressed a desire to visit other classes and observe the teaching techniques of their colleagues. Many were able to do this; but many, too, were not able because of the pressure of individual instruction with students which, incidentally, increased both as the level of instruction rose, and as the incoming classes integrated with the first group and introduced new problems.

Several said that they were too fatigued at the end of the day to get much from the daily conferences; they complained too, that the conferences did not start on time, or were too long. They felt the time could have been better spent in preparing for next day's classes, or permit them to have scheduled conferences with individual trainees. Dr. Sylvester was essentially responsible for the conduct of the conferences. He found it increasingly difficult to get all the teachers together at once as the Project moved ahead; teachers were holding individual conferences at the close of the hour. It was decided to end the trainees' day at three o'clock on the basis that the heat, tension, physical condition of many trainees and other factors simply precluded much effective learning beyond that hour. Mr. Hodgson emphasized that instructors should utilize the shorter day in conferences to exchange viewpoints and otherwise improve the academic operations of the Project. Dr. Sylvester did not wish to convene the conferences without Mr. Cameron or Mr. Holden being present, as, increasingly, the major portion of the conferences (after the 3rd week) centered more and more about the rather involved administrative details of the trainees' participation under MDTA legislation. In retrospect, the conferences could have been eliminated after the 3rd week and two or three a week scheduled for the purpose of clarifying operational directives. As a matter of fact, little time was taken with academic matters after the fourth week. It should be noted, however, that the principal comments with respect to class preparation and homework came from the less experienced teachers; the "veterans" took such meetings in stride.

7. How do you know when a trainee is ready to move into vocational training?

From a variety of responses to this question, the following ideas emerged:

When specific academic skills are mastered.
When the appearance of the trainee is satisfactory.
When his health appears generally satisfactory.
When the trainee has learned the value of punctuality.
When the trainee has developed the proper attitude toward work and an employer.
When he can speak with a reasonable degree of correctness.
When the requirements for getting and holding a job can be met.

For virtually all the instructors, the most important criterion was <u>attitude</u>. That is, a proper attitude toward:

His work and employer; does he show or can he demonstrate a willing, courteous attitude, with good work habits? Is he more concerned with what he can do for his employer than with what he will get out of the job for himself? Is he likely to be regular in attendance on the job?

Is his attitude toward himself healthy? Does he have self-confidence and a feeling that he will be successful and that he is ready to take the next step?

Is his social and personal adjustment sound and are the emotional factors now under control which once may have been a deterrent to a satisfactory adjustment to work?

Some of the instructors spelled out their thoughts in excellent detail. They stressed the trainee's need to see himself as a productive citizen; that he should attempt to find his work pleasant and challenging, and in the type of work in which he could feel a real sense of achievement. Many instructors were able to relate what the trainee was now doing in class (as contrasted to what he had been doing when he first came to the Project), with how he would behave in the work situation. The principal concern of all the instructors was the ultimate decision of deciding just <u>when</u> a particular trainee was ready for the world of work.

In summary, their replies reflected a deep concern, an understanding, and a high hope that their contribution to the Project had been worthwhile. The ultimate proof of this would be, of course, the day that each trainee stepped forth a better citizen, better trained, better equipped and ready to assume his place as a responsible member of society. We, in Performance Research, have every confidence that insofar as human endeavor can bring this about, the instructors of the Project have spared neither themselves nor their students to reach this end.

XII. RECOMMENDATIONS

As a result of this study, the following recommendations are offered:

1. A program of tests, observations and examinations must be done carefully and thoroughly if a training program is to be evaluated and progress of training measured. Records must be kept meticulously and not allowed to be spotty, postponed or otherwise made inadequate. Records of this kind cannot be constructed retroactively. We strongly recommend that careful, complete and accurate records on the performance of trainees be maintained.

2. Emphasis on objective measurement of achievement and progress in the program must be continual so that the subjective and naturally biased opinions of instructors all serve to disadvantage neither the trainees nor the program.

3. Records of interview data and interview ratings should be obtained and made. More time for interviews will be required, at least 20 minutes each. Instructors and professional staff can be trained to do an adequate job of interviewing.

4. The use of the California Mental Maturity Test should be continued, both as a pre-test and as a post-test.

5. The use of the Purdue test may be discontinued. The special traits it measures are also tapped by elements of the CMMT and the Beta. The latter is useful in ability grouping; however, it is recommended that some research be done into the possible substitution of the Revised Beta with the SRA Non-Verbal Test which is simpler to administer and score but would serve the same purpose as the Beta.

6. The use of regular achievement tests should be continued. These can be improved in their effectiveness. Consideration must be given to their real purposes, in addition to measurement, per se. Along with this there needs to be more discussion in staff meetings of the information conveyed by such tests.

7. A planned use of achievement test scores should be developed telling when a trainee has functionally completed his prevocational training and is ready to go ahead in his vocational courses.

8. There is a need to develop methods and devices for measuring the work habits and personal adjustment performance of trainees as part of estimating readiness for occupational training.

9. The "essay" as a measurement device needs to be explored further. It has possibilities as is evidenced from a statistical analysis of the data.

10. A reading laboratory should be established and staffed with a full-time reading specialist in a ratio of about 1 to 10 if significant progress is to be realized by the poor readers.

11. Establish a cut-off score of 70 (IQ) for admission to this kind of Project. If this is not feasible, additional recycling of trainees must be provided for if a meaningful degree of literacy training is to be achieved. Trainees who are wholly illiterate are not trainable under the time schedule of an MDTA Project such as Delaware's. Such individuals, and those with IQ's below 70, require special training, under special conditions, and with specialists in this type of education.

12. Trainees should be grouped into homogeneous classes, using scores on the Revised Beta Test as the primary index. Performance Research's experience in the Delaware Project

confirms the conviction of its staff that a narrower range of ability should be established for each class. A range of IQ's from 68 to 105 is much too great. It is strongly urged that not more than 20 IQ points separate the high and low trainee in each class.

13. It is strongly believed that a medical examination should be given each trainee and that some provision be made for minor treatment and the obtaining of dental care, eyeglasses and hearing aids, where such are needed.

14. Greater care should be taken to insure a balance between sexes and between Negroes and whites in each class within the acceptable range of abilities. The Delaware Project was remarkable in another aspect in that no incidents occurred resulting from the integration of races in the classes. Some individual reassignments were made because of an imbalance of ages and races. Frequently, classes were arbitrarily organized in the later groups on the basis of the trainees available.

15. All instructors, whether in basic literacy training or in vocational training, should participate in some type of "teacher training" as was done for the Project by Performance Research. Sufficient evidence of the need of this type of training by the incoming instructors in the various occupations was apparent in the last week of Performance Research's association with the Project.

16. Careful selection of instructors is essential. Trainees with the multiple problems evidenced in this program call for instructors of maturity, wide experience, and sound professional background. Teachers without previous experience, or with only occasional teaching experience, or with only elementary level experience are less effective. Our recommendations in the "Guide" will stand in this regard.

17. Improvement in the working relations with the Office of Employment Security would be valuable. Several factors are important here: More preliminary information is essential for each trainee if proper planning is to be done in terms of curriculum planning, teaching materials obtained (at appropriate levels of difficulty), and if the educational and adjustment problems of the trainees are to be dealt with properly. The Project has neither the staff nor the time to investigate the background of the trainees to the degree that the Employment Security Office can and presumably does. Development of a closer working relationship between Employment Security Office, the prospective employer, and the Delaware Technical-Vocational Staff would lessen confusion.

18. Insufficient information was known about the occupations for which the MDTA Project was organized. Reference was made frequently by representatives of the Employment Security Office of the job requirements of the seven selected occupational areas in which training was to be given. The cut-off scores for these areas, as set by Employment Security, were higher than might be necessary for employment. Employers frequently set higher standards for entry into jobs than are essential.

19. An abundance of worksheets (rather than workbooks) in all types of subject matter should be developed constantly by the staff and faculty. Many of the instructors were quite adept at adapting materials, or creating their own, integrating the content with the scope and level of instruction they were currently giving. Worksheets have a decided advantage over the use of bound workbooks in which the trainee can look ahead and decide the future level of work is too difficult and drop out before he learns how to do the work.

20. We recommend that the school day terminate at three o'clock. A longer period would be overtaxing to the trainee; he gets more than he can absorb. It also gives the instructor time for trainee conferences and for preparation of the next day's instruction.

21. We strongly recommend that a long-range, well-organized plan be established for field trips so that <u>all</u> trainees visit the same activity. A trip a week is a minimum schedule in our judgment. The field trips were successful, but were erratic and more of them should have been scheduled.

22. A better organized program of guest speakers should have been arranged. There are many reasons why this was slow getting off the ground, but the presentations they gave were informative, the trainees profited from them, and they brought the attention of the Project to the organizations and employers who should have known about it. Occasionally, in this connection, an assemply speaker should be sought.

23. The program needed the services of more resources and support personnel than were available. We recommend the following points be incorporated in future training programs. The Project suffered to some degree due to a lack of a person to organize the use of visual aids, a library, bulletin boards and specialized materials to support various phases of instructions. A counselor should be available (in a ratio of 1 to 50 trainees) to relieve the burden on the Project coordinators. (Dr. Sylvester spent increasingly more time in counseling and individual testing, when he might have spent more time in the classrooms.) The trainees need this expert service, particularly as it would pertain to occupational choice. Much more should have been done in the areas of adjustment, emotional difficulties and academic problems. This is an important service in preventing drop-outs and Delaware's fine record in this regard could have been even better had more counseling, home visiting, and trainee follow-up been done.

24. Occasional assemblies are recommended as a means of exchanging information, familiarizing the trainees with all the faculty, other trainees and the administrative staff. This is also a splendid way to build rapport. We must not overlook a strong tendency for the trainee to want to identify with a "school" or an "organization;" he wants to be a part of it. Indeed, several trainees wanted to adopt "MDTA colors" and some of them suggested that special neckties and pennants be made on which would be printed the letters "MDTA". This is another example of their efforts to identify with a school or "college". It is clear evidence of their deep need for prestige, a degree of status and membership (in which they not only belong but are wanted) in a group effort which is important. This is why they wanted to carry home their books and materials; and why we never lost any texts.

25. Classes could profitably spend more time visiting other classes. Many of the instructors wanted to do this, but the pressure of time and the individual problems of many of their trainees took precedence. The idea of debates between classes was an excellent one. Some of the classes (Mrs. Jacobs and Mrs. Goodman particularly), made most effective use of skits, written by the students. Some of these should have been seen by all the trainees. With some assistance in writing the script, more rehearsal and some small outlay for "props", the plays would have carried a real impact for all of the trainees.

26. In Performance Research's opinion, not enough of the Dover Staff observed the Project during the basic literacy phase. This was unavoidable; but greater exposure of the staff would have been invaluable to the trainees. We recommend that more of the Dover staff, in all areas, observe and actively participate in future programs. Close contact should also be maintained with the staff of the Wilmington schools. The Dover staff impressed Performance Research representatives with

their professional competence and as educators who could speak well; the trainees should have had the opportunity to hear from each of them, particularly in their areas of responsibility.

27. It is strongly recommended that serious thought be given to some tangible recognition to those trainees who satisfactorily complete their training. Virtually all of the first group asked about a "diploma"and, especially, if there would be a "graduation exercise." Here again, the strong desire to manifest their membership in the Project, to be seen by husband, wife, children and friends receiving a diploma, would be tangible evidence of achievement. While either Dr. Edgerton or Dr. Sylvester would be proud to speak at such a commencement, it seems to us that a prominent city official should be asked. It is recommended that in future programs the Mayor and other city and state officials and other educational groups be encouraged to visit the school to observe so vital a project. Certainly, this would be the kind of recognition the Project richly deserves. What such a public program would mean to each graduating trainee may be difficult to fully comprehend. We trust that such a commencement becomes a reality. We urge that the original faculty and staff be asked to attend. It would be a fitting culmination to an effort that has left an indelible mark on each of us.

APPENDIXES

APPENDIX A

Achievement Tests
1 through 5

Statistical Analyses
of
Achievement Test Results

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

EXERCISE 1 ARITHMETIC

1. One dozen is the same as _____
   a. 6
   b. 8
   c. 10
   d. 12
   e. 18

2. A quart has how many pints _____
   a. 2
   b. 4
   c. 6
   d. 8
   e. 10

3. A gallon has how many quarts _____
   a. 2
   b. 4
   c. 6
   d. 8
   e. 10

4. A yard has how many feet _____
   a. 2
   b. 3
   c. 12
   d. 24
   e. 36

5. A gallon of gas costs $0.30 per gallon. You buy 10 gallons. How much will the gas cost? _____

6. You buy 10 gallons of gas at $0.35 a gallon. You give the filling station man a $5.00 bill. How much change will you get back? _____

7. You order a dinner in a restaurant. The cost of the food is on the menu like this:

Soup	$ .10
Steak	2.50
Salad	.35
Coffee	.20
Ice Cream	.25

   How much will your dinner cost? _____

8. If gasoline costs $4.80 to fill the tank of your car, and the tank holds 16 gallons, how much does the gasoline cost a gallon? _____

9. Bill is making a fence. His yard is 10 feet long and 20 feet wide. How many feet will be in his fence? _____

10. How many pieces of pie can you buy if you give the waitress $2.00 and each piece of pie costs $0.25? _____

EXERCISE 1 SPELLING

INSTRUCTOR

Please give the following words orally as a test of spelling.

inch	ounce
pound	ten
yard	twenty
dress	four
dollar	down
foot	six
house	many
fence	much
family	hat
gallon	coat
number	again
nickel	different
dime	ton
eggs	side
bottle	same

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

EXERCISE 1

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

SPELLING

16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____

EXERCISE 1 INSTRUCTOR

Please read the following passage, and have each trainee write it on the worksheet provided.

I want to learn as much as I can at this school. My interest is in a job in which I can make enough money to buy food and clothes for myself and my family, if I have a family.

The job I would like to have is to work as a _____.
I hope to make $_____ each week.

There are about one hundred people studying with me. I think this is a good opportunity to learn a job, to make something of myself, and to buy and have the things I have always wanted.

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

EXERCISE 1

READING

WRITING

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

EXERCISE 2 ARITHMETIC

Here are some questions about automobiles and driving them. Read each question carefully, think about the problem, and then put your answer in the space provided.

1. Bill Jones wants to buy a car. His wife Alice wants to buy a sedan; Bill prefers a sports car. The sedan costs $3,000.00; the sports car $3850.00. Bill pays the salesman $1275.00 on the sports car which he and his wife finally buy. How much money does Bill owe for the car? _____

2. Bill gives the salesman $175.00 a week later and decides to pay the balance in a year. How much money must he give the salesman each month to pay for his car? _____

3. Bill wants to buy four snow tires for his car. He has one snow tire he can use. If snow tires cost $36 a pair, how much will he have to pay for the snow tires he will have to buy? _____

4. Bill can drive his car for 14 miles on 1 gallon of gasoline. He drives from Wilmington to Boston and back, which is about 350 miles. How much gasoline will he use on the trip? _____

5. Bill spends $8 for gasoline on his trip to Boston and back which was 350 miles. How much did the gasoline cost him for each gallon? _____

6. Bill finds that the speed limit in Wilmington is 25 m.p.h. On the highway to Dover the speed limit is 60 m.p.h. How much faster can Bill travel on the highway than in Wilmington? _____

7. If Bill travels for $3\frac{1}{2}$ hours on the highway, how far can he go? _____

8. Bill had the following expenses on his trip to Boston:

Oil (2 qts.)	$ .90
Gas	8.00
Toll	6.50
Tire failure	1.30

How much did the trip cost Bill each way? _____

9. Bill likes to drive with 26 lbs. of air pressure in his tires. If he lets 3 lbs. of air out of each tire because of the hot weather, how much air does he let out altogether? _____

10. Bill's car weighs 2736 lbs. If he has to pay a toll of $.01 per lb., how much will his toll be? _____

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

Exercise 2

In the following exercise, if a word is misspelled, write the correct spelling in the blank at the right. If the word is correct, leave it as it is.

1. Neuspaper _____
2. straight _____
3. gramer _____
4. schol _____
5. pencil _____
6. doller _____
7. piece _____
8. resturant _____
9. sandwitch _____
10. beginning _____
11. separate _____
12. freind _____
13. troubel _____
14. poeple _____
15. envelope _____

Exercise 2

In the following paragraph, fill in the blanks from the words listed below.

Mary has a job in a diner serving customers. She is called a _____ _____. When a _____ comes into the diner, Mary goes up to them and asks, "May I help you?" This friendly _____ by Mary makes the customer feel _____. Mary gives the customer a _____ so he can decide what he wants to eat. She will take his _____ when he decides what he would like. When he has finished eating his main course, Mary will ask if he would like any _____. After the customer is finished eating, Mary will _____ up his bill and give him the _____. The customer pays the _____ his money.

greeting
cashier
add
check
order
person
welcome
waitress
menu
dessert

NAME _____

Exercise 3 INSTRUCTOR'S NAME _____

ARITHMETIC DATE _____

1. Tom had 12 sheets of paper. Mr. Mahoney gave him 8 more sheets. How many does he have now? _____

2. We have 137 pupils in our school. Yesterday 123 were here. How many were absent yesterday? _____

3. Mrs. Smith bought a dozen eggs for $.55, a pound of hamburger for $.79 and a loaf of bread for $.27. How much did the three articles cost her? _____

4. Mary bought a coat. She paid $8.00 a month for six months. How much did she pay? _____

5. Mrs. Goodman bought a sewing machine for $140.00. She paid $20.00 down and will pay the rest in 6 monthly payments. How much will each payment be? _____

6. Jack worked 4 days last week and he earned $24.00. How much money did he average each day? _____

7. Mr. Potts makes $54.00 a week. Each week he spends $18.00 for rent; $15.00 for food and $16.00 for other bills.
   a. How much money is left from his salary each week? _____
   b. If he saved $60.00 in twenty weeks, how much does he save each week? _____

8. Mary bought 20 stamps at the post office. She bought 4 air mail stamps at $.08 each. The rest were $.05 stamps. How much did Mary pay for all her stamps? _____

9. Mr. David Brown decided to put a fence around his home. The lot of his home is 40 yds. by 20 yds. The wire fence will cost him $1.35 a yard.
   a. How many yards of wire fence will he need? _____
   b. How much will it cost him? _____

10. Richie drove 120 miles to the shore. He made the trip in three hours. He used 8 gallons of gas. Gas cost him $.27 a gallon.
    a. How many miles per hour did he average? _____
    b. What was the cost of the gas used on the trip? _____

11. Last week Raymond worked different hours at the bakery. Monday he worked from 6 a.m. to 2 p.m.; Tuesday he worked from 8:30 a.m. to 1:30 p.m.; Wednesday he worked from 10 a.m. to 4 p.m.; Thursday he worked from 6 a.m. to 3 p.m.; Friday from 9:30 a.m. to 4:40 p.m. He gets an hour for lunch. His hourly wage is $1.55.
    a. How may hours did he work? _____
    b. What is is his salary? _____

12. Mrs. Whiteside drove from Wilmington to Baltimore, a distance of 90 miles in 2 hours. Mr. Toro made the same trip in 3 hours. Dr. Sylvester drove it in $1\frac{1}{2}$ hours.
    a. How many more miles per hour did Mrs. Whiteside drive than Mr. Toro? _____
    b. How many more miles per hour did Dr. Sylvester drive than Mrs. Whiteside? _____

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

Exercise 3

SPELLING

1. any
2. just
3. none
4. seems
5. tired
6. very
7. blue
8. many
9. they
10. again
11. beginning
12. chose
13. color
14. forty
15. hear
16. since
17. country
18. every
19. tonight
20. ache
21. believe
22. cough
23. enough
24. hour
25. knew
26 lose
27. piece
28. through
29. where
30. won't

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

Exercise 3 READING

One day last week Jane Smith had an interview for a job. She decided to wear her new, plain dress and her brown, low heeled shoes because they matched her dress.

Because she didn't want to be late, she ironed her dress and made sure that her clothes, shoes and other articles were ready the night before. Jane wanted to look her best and create a good impression. She knew this was very important.

At the Personnel Office of the Acme Pencil Company, the secretary asked her to fill out an application blank and to tell why she wanted to work there. Jane made certain that she used correct grammar when she described herself and filled out the application.

Jane was careful to express herself clearly and to write neatly. She knew the Personnel Manager, Mr. Hill, would read her application and would catch any errors.

"Miss Smith," he asked, "how many words a minute do you type?"

"Sixty-five," she replied.

"Do you also take dictation?" he asked.

"Yes I do," she answered pleasantly.

"Can you report for work in two days?" Mr. Hill asked.

"Yes I can," she replied, happily.

Jane made such a fine impression during her interview with the personnel manager that he decided to hire her for the job.

Jane was very happy that she had gotten the job and two days later she reported for work.

Exercise 3 Reading (continued) Questions

I. In the following questions, circle the T if it is a true statement. Circle the F if the statement is false.

T F 1. Jane Smith did not get the job.

T F 2. She applied for a job as a waitress.

T F 3. Jane told Mr. Hill she could type seventy five words a minute.

T F 4. The secretary asked her to fill out an application.

T F 5. Jane filled out the application hurriedly.

II. Put a check ( ) beside the statement that best answers the question.

1. Jane went to see about a job:
   a. Yesterday a._____
   b. Last week b._____
   c. Two days ago c._____

2. She wore her brown, low heeled shoes because:
   a. They were the same color as her dress a._____
   b. They were pretty b._____
   c. They felt loose on her feet c._____

3. She got everything ready the night before because:
   a. She wasn't sleepy a._____
   b. She was a very neat person b._____
   c. She didn't want to be late for the interview c._____

4. Jane went to bed early because:
   a. She always did a._____
   b. She felt it was important to be well-rested for the interview. b._____
   c. She was very tired and required a great deal of sleep c._____

5. Jane got the job because:
   a. She was pretty a._____
   b. The manager liked her b._____
   c. She was courteous, pleasant and well trained c._____

III. Write the answers to the following questions:

1. Where was the secretary employed?_____

2. Who interviewed Jane for the job?_____

3. How many words a minute can Jane type?_____

4. What other skill did Jane possess in addition to typing?_____

_____.

5. What do you call a girl who performs the tasks that Jane will be required to do?

_____

NAME _____

INSTRUCTOR'S NAME _____

Exercise 4 ARITHMETIC DATE _____

1. Rudolph saved 123 pennies one week and 117 the next week. How many pennies does he have now? _____

2. Margaret has 1257 pictures of the Beatles. She gave her friend, Helen, 839 pictures. How many pictures does she have now? _____

3. Mrs. Jacobs bought 5 dozen eggs for $2.75. How much did she pay for each dozen? _____

4. Jackie bought a used car for nothing down and $29.50 a month for 24 months. How much will the car cost her? _____

5. Mr. Toro's class has been practicing speed reading. Monday they read 7563 words, Tuesday 8162 words, Wednesday 8854 words and Thursday 9254 words. How many words did they read for the four days? _____

6. Dallas earns $53.50 each week. He spends $27.00 for room and board; $15.00 for weekly expenses. The rest he is saving for a motor bike that costs $218.50.
   a. How much does he save each week? _____
   b. How many weeks must he save for the bike? _____

7. Don worked 42 hours last week and earned $56.70. How much did he average per hour? _____

8. Simon works as a barber. Last month he gave 264 haircuts. Haircuts are $1.75. How much did he earn last month? _____

9. Connie works as a clerk in a library. Last week she checked out 350 books. Forty per cent of the books were fiction stories. Twenty per cent were biographies. Ten per cent were books about travel and the remainder were historical books.
   a. How many books were fiction? _____
   b. How many books were biographies? _____
   c. How many books were travel? _____
   d. How many books were historical? _____

10. Aaron works in a bakery. Last week he worked the following hours: 11:30 p.m. to 8:30 a.m.; 10:45 p.m. to 7:15 a.m.; 9:15 p.m. to 7:15 a.m.; 9 p.m. to 7:30 a.m.; 10:15 p.m. to 7:45 a.m. He earns $1.45 an hour for all hours up to forty and double time for all hours over 40. He has $\frac{1}{2}$ hour for lunch.
    a. How many hours did he work? _____
    b. How much did he earn? _____
    c. He pays 14% income tax on his salary. How much tax did he pay? _____

EXERCISE 4

Arithmetic (cont.)

11. Robert works as a clerk in a stationery store. Last week he received the following order: 35 packs of bond paper at $1.15 a pack; 12 dozen paper clips at $.45 a dozen; 18 dozen ball point pens at $1.20 a dozen; 5 dozen rubber bands at $.15 a dozen. The customer sent him a check for 35% of the total.
    a. What was the total bill? _____
    b. What was the amount of the check? _____
    c. How much does the customer still owe the stationery store? _____

12. Last week Henry drove from Wilmington to Wildwood, a distance of 126 miles in 3 hours. This week he plans to travel to Quebec, Canada, a distance of 630 miles. If he averages the same speed per hour as he did to Wildwood, how long will it take him to get to Quebec? _____

Exercise 4
SPELLING

1.	been	I have been out to dinner.	been
2.	used	He bought a used car.	used
3.	some	Some of us will be nurses' aides.	some
4.	much	We learn much at school.	much
5.	read	Read the signs carefully.	read
6.	busy	Keep yourself busy and you'll succeed.	busy
7.	buy	How many pounds of meat did you buy?	buy
8.	shoes	Polish your shoes before your interview.	shoes
9.	always	Always do your best and you'll learn.	always
10.	built	The carpenter built the book shelf.	built
11.	coming	Are you coming home?	coming
12.	having	I'm having fun while I learn.	having
13.	heard	Have you heard the good news?	heard
14.	dear	He is a dear friend of mine.	dear
15.	instead	Make sure you work instead of loafing	instead
16.	can't	I can't believe he is gone.	can't
17.	could	I wish I could succeed.	could
18.	friend	A friend in need is a friend indeed.	friend
19.	grammar	Mr. Howell is teaching grammar.	grammar
20.	guess	Don't try to guess the answer.	guess
21.	Wednesday	I have an interview next Wednesday.	Wednesday
22.	says	He says he is going to work today.	says
23.	trouble	Trouble is his middle name.	trouble
24.	their	Where are their coats?	their
25.	separate	Now we will separate the good from the bad.	separate
26.	whole	You must learn the whole job.	whole
27.	women	We have women in class.	women
28.	know	I know the answer.	know
29.	whether	I can't decide whether to go or stay.	whether
30.	straight	A straight line is the shortest distance between two points.	straight

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

Exercise 4

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

SPELLING

16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____

NAME _____

INSTRUCTOR'S NAME _____

Exercise 4 READING DATE _____

"The Eagle, Ruler of the Sky"

The eagle is a large bird. He is known for his size, strength, good vision and speed in flying. Some eagles grow to be four feet in size from their beak to the end of their tail.

The eagle lives to a ripe, old age. One is said to have been one hundred and four years old when he died! Of course, no one got close enough to him to ask his real age!

The eagle prides himself in his strength. He has also been known to carry away children in his talons! It is also true that he has attacked large animals in order to feed his appetite. Some students of nature say they have seen him feasting on the carcass of a horse.

There are several kinds of eagles. One of the largest is the golden eagle which is found in Europe and America. His home, usually found on a high perch, is made of sticks and brushes. The American Indian placed a high value on the tail feathers of this magnificent bird.

The Bald Eagle is the most interesting of all the species. He lives chiefly upon fish; therefore, his place of residence is usually situated near lakes, rivers, or oceans.

Cunning and shrewd, this intelligent fellow lives off the labors of others. He watches the fishhawk as it dives into the sea for his prey. Then without warning, he swoops down upon the surprised hunter, and forces him to release his victim. Then he retrieves the fish before it falls into the water.

Because of his skill, strength and proud bearing, our country adopted this bird for our national emblem.

One of the eagles that is difficult to like is the Harpy Eagle. This demon of the sky is bold, strong and known to attack beasts and even man himself! He is fierce, quarrelsome, sullen, and lives alone in the deepest forests. Because of his objectionable behavior, he has few comrades.

Exercise 4 READING (cont.)

Have you noticed that individuals who have similar type attributes have a difficult time getting along in the world?

EXERCISES

I. True or False. In the following statements, place a circle around the T if it is true, or a circle around the F if it is false.

T F 1. The eagle is a large bird.

T F 2. The eagle is a very gentle bird.

T F 3. The life span of an eagle is short.

T F 4. One of the largest eagles is the golden eagle.

T F 5. The Harpy Eagle lives off the labors of others.

T F 6. The Bald Eagle makes his home in the forest.

T F 7. The Golden Eagle usually lives on a low perch.

T F 8. One eagle has been known to live 104 years.

T F 9. The Harpy Eagle has few friends.

T F 10. The American Indian placed great value on the tail feathers of the Golden Eag

II. Put a check ( ) beside the statement that best answers the question.

1. The eagle is noted for his:
   a. brilliant coloring _____
   b. strength _____
   c. tameness _____

2. The bald eagle lives chiefly upon:
   a. dead animals _____
   b. fishhawks _____
   c. fish _____

3. The eagle carried away children in his:
   a. talons _____
   b. beak _____
   c. mouth _____

4. Adopted as the national emblem of our country was the:
   a. harpy eagle _____
   b. golden eagle _____
   c. bald eagle _____

5. The least liked of all eagles is the:
   a. bald eagle _____
   b. harpy eagle _____
   c. golden eagle _____

Exercise 4 READING (cont.)

III. MATCHING

Find the word in Column II that best matches the word in Column I and place the number in the space at the left.

_____	A. appetite	1.	wild and menacing
_____	B. retrieves	2.	victim
_____	C. value	3.	brings back
_____	D. prey	4.	hunger
_____	E. fierce	5.	worth

IV. Fill in the blank

1. In paragraph one which word best describes the ability to see? _____
2. In paragraph three which word describes the eagle's feet? _____
3. In paragraph four which word best describes a roost for a bird? _____
4. In paragraph five which word means the same as "kinds of"? _____
5. In paragraph five which word means the same as home? _____
6. In paragraph six which word means the same as work? _____
7. In paragraph seven which word describes picked or selected? _____
8. In paragraph seven which word best describes a picture with a motto? _____
9. In paragraph eight which word means the same as friends? _____
10. In paragraph nine which word describes characteristics? _____

NAME _____

INSTRUCTOR'S NAME _____

Exercise 5 ARITHMETIC

DATE _____

1. ADD:

$$\begin{array}{r} \frac{1}{2} \\ +\ \frac{1}{2} \\ \hline \frac{1}{2} \end{array} \qquad \begin{array}{r} \frac{5}{9} \\ +\ \frac{7}{12} \\ \hline \frac{11}{18} \end{array} \qquad \begin{array}{r} +.1 \\ .7 \\ \hline \end{array} \qquad \begin{array}{r} .055 \\ +\ .016 \\ .132 \\ \hline \end{array} \qquad \begin{array}{r} .723 \\ +\ .077 \\ .9 \\ \hline \end{array}$$

2. SUBTRACT

$$\begin{array}{r} \frac{1}{2} \\ -\ \frac{1}{4} \\ \hline \end{array} \qquad \begin{array}{r} \frac{10}{13} \\ -\ \frac{1}{3} \\ \hline \end{array} \qquad \begin{array}{r} -.60 \\ .48 \\ \hline \end{array} \qquad \begin{array}{r} -\ 9.002 \\ 6.935 \\ \hline \end{array} \qquad \begin{array}{r} -10.301 \\ 8.647 \\ \hline \end{array}$$

3. Doris works as a salesgirl in the Wilmington Dry Goods Company. Yesterday a customer bought one pair of socks that were selling for 3 pairs for $1.00. How much should Doris charge the customer? (Remember, any fraction of a penny is carried to the next highest penny.)

_____

4. Grant's time card for last week's work shows the following entries: Monday, 8.5 hrs.; Tuesday, 8.3 hrs.; Wednesday, 8.2 hrs.; Thursday, 8.9 hrs.; Friday, 9.1 hrs. How many hours did Grant work during the week? _____

How many hours did Grant work on:

Monday_____hrs. _____min. Tuesday_____hrs._____min. Wed._____hrs._____min.

Thurs._____hrs._____min. Friday_____hrs._____min.

5. Howard High School recently received coal for the coming winter. The truck that delivered the coal weighed 10,000 pounds and carried 19 tons when filled to capacity. (There are 2,000 lbs. per ton)
   a. How many pounds of coal in one truck load? _____
   b. What was the weight of the coal and truck together? _____
   c. If six loads were carried by one truck, how many tons of coal did that truck deliver? _____

6. Ernest works as an orderly in a hospital. He was told to wax and buff the cafeteria. He noticed on the can of "E-2" wax that one can covered 2530 square feet of flooring. By pacing off the cafeteria floor, Ernest discovered the cafeteria measured 100 feet by 51 feet.
   a. How many square feet were in the cafeteria? _____
   b. How many cans of wax would Ernest draw from the hospital supply room? _____

7. The ward nurse asked Kathy to fold deep wound dressings for the cancer ward. One dressing used a piece of gauze 36 inches by 36 inches. One roll of gauze measures 36 inches by 75 feet.
   a. How many dressings can Kathy make from one roll? _____
   b. How many rolls would Kathy need for 250 dressings? _____

Exercise 5 ARITHMETIC (cont.)

8. Shirley's department head asked her to mark down some articles. What price tag would Shirley make for the following items?

OLD PRICE	MARKDOWN	NEW PRICE
$18.00	25 %	_____
15.00	20 %	_____
12.00	15 %	_____
8.00	5 %	_____
5.00	$2\frac{1}{2}$ %	_____

9. James works in the floor covering department of Sears and Roebuck Co. He received a shipment of rubber floor matting which measured 6 feet by 90 feet. His boss told him to put the matting on sale in 6 ft. by 6 ft. sizes. How many mats can be made from one roll? _____

NAME _____

INSTRUCTOR'S NAME _____

Exercise 5 READING

DATE _____

The early morning was gray and cold. I stood at the rail of the ship and watched the shore line fade into the distance. This was my first deep-sea fishing trip, and we were heading out into the ocean. The water was choppy, and the waves grew higher as each hour passed. The other passengers were having a fine time as they walked up and down the deck enjoying the crisp salt air.

Suddenly I noticed the rolling motion of the boat, and I began to feel strange. Maybe I'd feel better if I had something to eat. I had left home so early and in such a hurry that I had neglected to eat any breakfast. I searched through my tackle box and hastily swallowed one of the sandwiches my wife had packed. My stomach still felt very queer, so I sat down on a pile of burlap bags nearby. These bags were used by the fishermen to carry home their days catch. I had already tied one of my own to the ship's rail.

It was late in the morning when the engines were stopped and the boat was anchored over the spot where we were to fish. I watched from the pile of burlap bags as the other fishermen baited their hooks and dropped their lines overboard. The boat rolled from side to side, and I closed my eyes. A feeling of nausea came over me; it was the same sensation I had experienced in an airplane one time. Once I tried to stand up, but it was much more comfortable lying down.

The hours passed slowly, but at last I heard the welcome words, "All lines up!" That meant we were going home. The waves were now heaving and forming huge troughs. The captain of the fishing boat came on deck and saw me lying on the burlap bags. He walked over and asked me if this was my first trip. I said that it was, and for all I cared, it could be my last one, too. I must have sounded worse than I felt, for he asked me if I wouldn't like to come inside for awhile. I didn't feel much like moving, but I followed him into the pilot house. He took the wheel from the crewman and began to talk about the way you handle a boat. After a while, he showed me how to stand at the wheel and keep on the homeward course. I became so interested that I soon forgot

the movement of the boat. I forgot, too, about feeling seasick and my intense desire to be on solid ground.

As we neared land once more, the captain took over the wheel and I stood by and watched as he skillfully guided the boat into harbor. I had brought home no fish; but I didn't care. I had changed my mind. This wasn't to be my last fishing trip. The captain's skill and soothing talk had had its effect, and I found the pilot house an exciting place to be. I was determined that I'd go out again and take my place at the rail with the best of them.

TRUE OR FALSE

T F 1. The man in the story had been deep-sea fishing many times before.

T F 2. The sea was very calm the day the fishing boat went out.

T F 3. Most of the passengers enjoyed the trip very much.

T F 4. The man in the story didn't feel good because he had eaten too much for breakfast.

T F 5. He sat down on the burlap bags because he felt sick.

T F 6. The burlap bags were used by the fishermen to carry their lunches.

T F 7. The captain of the boat asked the man to come inside the pilot house.

T F 8. One captain let the man guide the boat into the harbor.

T F 9. The man in the story caught more fish than anyone else.

T F 10. He would like to go deep-sea fishing again sometime.

MATCHING

Find the word in column B that means the same as the word in column A. Put the correct letter in the blank.

Column A	Column B
_____ 1. crisp	a. disregard
_____ 2. neglect	b. feeling
_____ 3. sensation	c. look for
_____ 4. hastily	d. bracing
_____ 5. search	e. hurriedly
_____ 6. intense	f. deep
_____ 7. nausea	g. upset stomach
_____ 8. queer	h. swelling
_____ 9. heaving	i. hollow
_____ 10. trough	j. unusual

Find the word in column B that means the opposite of the word in column A. Put the correct letter in the blank.

	Column A	Column B
____	1. deep	a. bored
____	2. distant	b. raised
____	3. dropped	c. shallow
____	4. worse	d. hear
____	5. interested	e. better
____	6. fade	f. dull
____	7. choppy	g. upsetting
____	8. exciting	h. awkwardly
____	9. skillfully	i. to appear
____	10. soothing	j. calm

Circle the letter of the correct answer:

1. The man in the story felt sick because
   a. He was tired
   b. He ate too much for breakfast
   c. The sea was choppy

2. He ate a sandwich because
   a. It was time for lunch
   b. He thought a sandwich would make him feel better
   c. He didn't like to eat fish

3. He was happy when he heard the words, "All lines up" because
   a. He was tired of fishing
   b. He wanted to go home
   c. He thought it would make him feel better

4. The captain took the man
   a. to the pilot house
   b. to the engine room
   c. to the forward deck

5. He wanted to show the man how to
   a. catch fish
   b. haul up the anchor
   c. handle the boat

Exercise 5 SPELLING

1. easy Learning is easy if you try. easy
2. ready Are you ready to begin training. ready
3. among Divide the cake among the four boys. among
4. doctor A doctor treats people who are ill. doctor
5. done I have done that type of work before. done
6. half Don't do the job half heartedly. half
7. here Here at school we learn things needed for the job. here
8. making He is making every effort to succeed. making
9. meant Can you tell me what he meant by that statement. meant
10. once Once you begin, don't stop. once
11. raise You must work hard to expect a raise in pay. raise
12. said He said he started the job yesterday. said
13. week Next week begins our sixth week of training. week
14. laid He laid the package on the table. laid
15. often Working hard often pays dividends. often
16. too If you come, too, I'll pay the bill. too
17. answer The answer is yes. answer
18. business What is your line of business? business
19. does I hope he does well on the job. does
20. don't Winners don't quit! don't
21. would I would like to be a cook. would
22. write Write your name on the paper. write
23. sugar How much sugar is used in the recipe. sugar
24. which Which one is the best? which
25. wear Wear your best clothes to the interview. wear
26. two He has two job opportunities. two
27. truly End the letter with "Yours truly". truly
28. there I went there for an interview. there
29. wrote He wrote the letter today. wrote
30. Tuesday I begin work next Tuesday. Tuesday

NAME _____

INSTRUCTOR'S NAME _____

DATE _____

Exercise 5 SPELLING

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____

TEST 2

Frequency Distribution of Scores

No. Right	Spelling	Arithmetic	Reading
15	9		
14	18		
13	16		
12	10		
11	9		
10	9		70
9	3	10	6
8	2	9	1
7	4	12	2
6	2	15	1
5		9	
4	1	12	2
3		9	1
2	1	4	
1		3	2
0	3	6	3
TOTAL	87	89	88

Item Analysis

Test 2

Arithmetic

Question No.	% Answering Each Question Correctly		
	Total	Upper Group	Lower Group
1	74	93	54
2	50	83	14
3	Omitted from examination		
4	74	91	56
5	24	44	5
6	83	100	65
7	36	59	12
8	71	85	56
9	63	91	32
10	62	91	30

Item Analysis

Test 2

Spelling

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	85	93	66
2	90	98	82
3	56	86	27
4	91	100	82
5	93	100	86
6	78	98	59
7	86	95	77
8	31	54	9
9	55	84	5
10	92	100	84
11	85	93	77
12	79	95	64
13	72	95	61
14	70	93	59
15	91	100	82

Item Analysis

Test 2

Reading

Question No.	% Answering Each Question Correctly Total	Low Group
1	94	72
2	93	67
3	89	44
4	93	67
5	92	61
6	93	67
7	93	67
8	94	72
9	91	55
10	92	61

* Note: No errors in high group.

TEST 3

Frequency Distribution of Scores

No. Right	Spelling	Arithmetic	Reading
30	24		
29	13		
28	11		
27	8		
26	4		
25	3		
24	2		
23	3		
22	3		
21	1		
20			
19	3		
18	2		
17	3	12	
16	2	8	
15	2	6	35
14		10	21
13		13	15
12	1	11	11
11	1	7	1
10		2	2
9		6	1
8		1	
7		2	1
6		2	
5	1	5	
4		1	
3	2	1	1
2	1	1	
1		2	
0	2	2	4
TOTAL	92	92	92

Item Analysis

Test 3

Arithmetic

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	93	100	86
2	90	94	86
3	88	92	81
4	87	98	74
5	75	96	51
6	85	98	70
7a	78	94	60
b	73	92	51
8	59	82	32
9a	76	86	63
b	49	67	28
10a	73	94	49
b	71	92	46
11a	52	82	19
b	52	78	16
12a	51	84	14
b	31	53	7

17

Item Analysis

Test 3

Spelling

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	90	100	79
2	95	100	89
3	87	100	73
4	75	100	48
5	80	100	59
6	91	100	70
7	90	100	79
8	88	98	77
9	93	100	86
10	86	100	70
11	73	96	48
12	74	92	54
13	85	100	68
14	73	96	59
15	81	96	66
16	74	98	48
17	86	100	70
18	87	98	75
19	95	100	89
20	73	98	45
21	74	98	48
22	83	98	66
23	79	100	57
24	90	100	79
25	80	100	59
26	67	85	48
27	64	90	36
28	73	96	48
29	74	96	50
30	72	94	48

Item Analysis

Test 3

Reading

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	89	98	75
2	93	100	83
3	86	96	69
4	93	100	83
5	89	98	75
1	69	89	33
2	89	98	75
3	87	96	72
4	93	100	83
5	88	93	78
1	84	98	65
2	89	100	72
3	91	100	78
4	84	98	61
5	73	89	44

TEST 4

Frequency Distribution of Scores

No. Right	Spelling	Arithmetic	Reading
30	18		10
29	9		17
28	11		7
27	5		5
26	3		6
25	3		
24	1		3
23	6		1 *
22	4		3
21	1		1
20	1	8	4
19	1	3	
18	1	3	3
17	2	11	1
16		5	1
15	2	6	2
14		3	
13		2	1
12		7	1
11	2	2	1
10		4	2
9	2		
8			1
7		2	1
6		5	1
5		4	
4	1	4	
3		4	
2			
1		1	
0	4	3	4
TOTAL	77	77	76

*Case omitted because of cheating

Item Analysis

Test 4

Arithmetic

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	91	100	80
2	93	100	86
3	88	95	80
4	79	85	57
5	73	93	50
6a	79	100	55
b	64	86	36
7	70	100	36
8	57	80	31
9a	69	97	36
b	69	97	36
c	65	97	28
d	51	85	
10a	37	68	3
b	35	59	8
c	35	61	6
11a	45	76	9
b	42	71	8
c	39	68	6
12	47	71	20

Item Analysis

Test 4

Spelling

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	90	100	76
2	88	100	73
3	92	100	82
4	92	100	82
5	91	100	79
6	70	91	44
7	90	100	76
8	88	100	73
9	87	100	70
10	73	95	44
11	75	95	50
12	72	100	59
13		98	59
14	92	100	82
15		98	50
16		100	59
17	90	100	76
18		100	62
19		95	29
20		100	47
21		91	47
22	75	95	50
23		93	73
24		88	47
25		95	26
26		93	26
27		98	62
28	87	100	70
29		77	17
30		91	41

Item Analysis

Test 4

Reading

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	94	100	88
2	92	100	82
3	92	100	82
4	92	97	85
5	75	95	51
6	78	97	54
7	78	95	57
8	82	97	64
9	85	100	67
10	89	100	76
1	83	100	64
2	78	97	54
3	90	100	79
4	75	95	51
5	75	100	45
A	78	97	54
B	78	100	51
C	82	100	61
D	74	97	39
E	78	100	51
1	76	100	42
2	67	100	27
3	44	82	00
4	40	74	00
5	58	95	15
6	62	97	21
7	61	95	21
8	60	95	18
9	64	97	24
10	47	77	12

TEST 5

Frequency Distribution of Scores

No. Right	Spelling	Arithmetic	Reading
35			10
34			2
33			6
32			3
31			4
30	14	11	2
29	7	3	2
28	5	4	
27	4	5	1
26	2	2	
25	1	3	1
24	2		
23			
22	2		
21		2	1
20	1	1	
19	1		1
18			2
17			3
16		1	
15			1
14			
13		2	
12			
11		2	
10		1	
9			
8			
7			
6		1	
5			
4			
3		1	
2			
1			
TOTAL	39	39	39

Item Analysis

Test 5

Arithmetic

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1a	87	94	81
b	69	94	48
c	97	100	95
d	87	100	100
e	87	100	100
2a	90	100	81
b	87	94	57
c	95	100	90
d	90	100	81
e	92	100	81
3	90	100	81
4a	82	100	67
b	84	100	71
c	82	100	67
d	82	100	67
e	84	100	71
f	84	100	71
5a	77	100	57
b	77	100	57
c	69	89	52
6a	79	100	62
b	77	100	57
7a	59	94	29
b	59	100	24
8a	79	100	62
b	82	100	67
c	72	100	48
d	69	89	52
e	67	78	10
9	77	100	57

Item Analysis

Test 5

Spelling

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	95	100	89
2	95	100	89
3	90	100	78
4	100	100	100
5	95	100	89
6	97	100	94
7	95	100	89
8	95	100	89
9	77	90	61
10	92	100	83
11	92	95	89
12	95	100	89
13	100	100	100
14	77	95	55
15	85	100	67
16	95	95	94
17	95	100	89
18	85	100	67
19	87	100	72
20	92	100	83
21	97	100	94
22	97	100	94
23	97	100	94
24	92	100	83
25	95	95	67
26	97	100	94
27	79	100	55
28	100	100	100
29	100	100	100
30	90	95	83

Item Analysis

Test 5

Reading

Question No.	% Answering Each Question Correctly Total	Upper Group	Lower Group
1	95	100	89
2	92	95	89
3	97	100	94
4	95	95	94
5	95	100	89
6	95	100	89
7	97	100	94
8	87	100	72
9	100	100	100
10	92	100	83
1	62	86	33
2	85	95	72
3	72	95	44
4	77	95	55
5	85	100	70
6	62	90	28
7	77	100	50
8	74	100	44
9	69	90	44
10	67	95	33
1	92	100	83
2	79	100	55
3	87	95	78
4	79	100	55
5	69	86	50
6	72	100	39
7	74	100	44
8	56	81	28
9	85	100	70
10	69	95	39
1a			
b	100	100	100
c			
2a		100	89
b	95		
c			
3a			
b	92	95	89
c			
4a			
b	97	100	94
c			
5a			
b	100	100	100
c			

APPENDIX B

Essay Scale

PERFORMANCE RESEARCH, INC.

Essay Scale

(Experimental)

SCORE-9

With 10 years of formal education behind me, as a better than average student in an academic course, I suddenly found myself completely unprepared to make a living in any occupation other than one completely unstable; in other words, I had a job which rested completely on production and demand. I have been a commercial sewing machine operator for 8 years. My work suddenly dips because the company that trained me to operate the different machines went out of business. Delaware is not a garment center and not having a high school diploma I am not eligible for most trainee programs.

I am seeking training now in an area that does not depend entirely on production and demand, therefore giving myself the opportunity of a steady job in order to better myself educational-wise in the business feild either as a clerical worker, business machine operator or better still as a typist-stenographer who will never be replaced by machines.

SCORE-8

I would like to brush up on basic math, english, and reading, also writing. I would like to learn how to dress, how to speak, and how to fill out and application when I go to see about a job. I expect to be better prepared to face life in general, and to talk to employers with the confidence that I am ready and prepared to do a good job. I take this course - very seriously, and honestly belive it will make me better prepared to take a place in society.

SCORE-7

I think the most important think I can get from this classes, is to prove to my family that I can do a job that calls for some skill.

All my married life, I didn't do any thing that I learned in Valcational school or in the army.

Now I am getting older and the things in life I have been doing, I have made no progress.

I know the only thing for me to do is to go back to my first field, mechanics.

SCORE-6

I am here to improve my ability in the field in which I think I will enjoy working. I am eager and willing to learn all that is required so that I will be qualified.

SCORE-5

I feel that the MDTA will give me experience and help me get a job that I have wanted. And I will do my best to help myself.

SCORE-4

I started to work for Seafrosts in 1958 when I first began I was working on the trucks-unloading. thats went on for about two years. then I got move in the office. then I got an job as an Dispacher. and Weight. after we were layed off I then worked on an Contract Job. Maybe to or three Months. the last Job I had Was an helper ~~Pa~~ Putting down tile floors.

Now since I am takeing up. M.D.T.A. I think it would be best I train for something that I know. such as Cooking.

SCORE-3

I think I will like this becaus I will learn.

I think I would like to be a nurses ade becaus I always like to help polepl out and like to be around there poleple.

I think I can get along with every one hear.

I hope I can rally help some other plopl.

I rally hope I can stay hear.

SCORE-2

I thing that this school is good for the ones that DO out of school I that is will be good for me to give a good joy. I did do a letter bet in school I make B, C, D some time A in school.

SCORE-1

1. because I want to no little moar about cooking
2. When you get a job, you will no what to do.

Appendix C

"The MDTA and I"

by

Katherine Jackson

***

When I first entered MDTA, I was really confused.
I knew the trade that I wanted, but I still had the blues.
I knew no one, and I was a little bit shy; but something inside
of me said, "Don't give up, give it a try !"
So, therefore, I've learned, because you're a stranger
You don't have to wear a mask, or be a lone ranger.
Just be who you are, and don't try to change;
Because nine times out of ten, you play a losing game.
I think this is a wonderful opportunity--and so do others.
Make good of it now for there may not be another.
Perhaps there are grown-ups that feel like a fool,
As with books in their arms, they trudge back to school.
The strong will continue and come out winners;
But the doubtful or losers still end up beginners.
To me there's no shame in going to school.
It's much better than pulling a wagon when you can't buy a mule !
I thank God for the Manpower Development and Training Act;
For a chance to help me get on the right track.
So come to school if you can, and study real hard.
It's not easy for an uneducated person to find a good job.

Mrs. Camille Jacobs' class
The Delaware Manpower Development
and Training Program
Howard High School
Wilmington, Delaware

August 12, 1964

Appendix D

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Vocational-Technical Advisory Committees.

Michigan State Dept. of Public Instruction, Lansing. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub-546
Pub Date - 65 12p.

*ADVISORY COMMITTEES; *VOCATIONAL EDUCATION; *SCHOOL COMMUNITY RELATIONSHIP; *ADMINISTRATOR GUIDES; *TECHNICAL EDUCATION

The purpose of this bulletin is to offer assistance to local schools in the formation and use of advisory committees. To accomplish the goals of preparing adults and youth for employment, the cooperative efforts of education, business, industry, labor, and the public are required. Local administrators are given help in the systematic organization and effective use of advisory committees related to the development, expansion, or improvement of vocational-technical education. Some specific topics covered briefly are: (1) legal basis for advisory committees, (2) their definitions and purposes, (3) their organization and relationships, (4) their memberships, and (5) additional sources of advisory assistance. Two types of vocational-technical advisory committees are the general and the occupational. The techniques in working with advisory committees, however, are the same with either. (MS)

VT 001 606

ED036657

VOCATIONAL-TECHNICAL ADVISORY COMMITTEES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Publication No. 546

Published by

DIVISION OF VOCATIONAL EDUCATION
MICHIGAN DEPARTMENT OF EDUCATION
1965

VT 001 505

VOCATIONAL-TECHNICAL CURRICULUM COMMITTEE
1964-65

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Richard Crable, Chief, Recruitment and Placement, Michigan Civil Service Commission
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Clarence E. Prentice, Secretary-Manager, Michigan Farm Bureau
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Benjamin Standen, Apprentice Coordinator, St. Joseph Public Schools
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John Thompson, Director, Vocational Education, Garden City Public Schools
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Dorothy Wilkinson, Coordinator, Practical Nurse Program, Flint Community College

F O R E W O R D

Educational leaders throughout the State have expressed deep concern about the need for developing adequate programs designed to prepare youth and adults for today's complex world of work. This concern has resulted in more attention being given to the planning and development of greatly expanded programs of vocational-technical education in the State.

The development of high quality vocational-technical education programs which adequately prepare persons for employment is dependent upon a close working relationship between the educational agency and industry, business, and labor. This relationship can best be developed through effective use of advisory committees.

The purpose of this publication which has been prepared by the State Vocational-Technical Curriculum Committee is to offer assistance to local schools in the formation and use of Advisory Committees. I appreciate the time and effort each member of the Committee has put into this timely task and I am certain that the recommendations and suggestions offered in this publication will prove useful to many schools seeking to establish or strengthen Advisory Committees in this area.

Alexander J. Kloster
State Superintendent
of Public Instruction

VOCATIONAL-TECHNICAL ADVISORY COMMITTEES

INTRODUCTION

A comprehensive program of education which meets the needs of all youth and adults has become a recognized necessity. It must include practical and up-to-date vocational-technical education designed to train and retrain individuals for a rapidly changing world of work.

Michigan must assure persons of all ages, in all communities ready access to vocational-technical training and retraining of high quality which is realistic in light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and abilities.

The attainment of this goal will be a challenging task. It will require the best cooperative efforts of education, business, industry, labor and the public.

In the past, advisory committees have been accepted and encouraged as a desirable device for establishing and conducting a vocational education program. The State Plan for Vocational Education in Michigan, revised to implement the Vocational Education Act of 1963, specifies that advisory assistance will be used in the development and operation of programs of vocational instruction.

The newly organized State Curriculum Committee for Vocational-Technical Education agrees that the use of advisory committees should be given immediate attention.

This publication was prepared to assist local administrators in the systematic organization and effective use of advisory committees in connection with the development, expansion, or improvement of vocational-technical education. It contains the highlights and effective practices from many sources especially adapted to the philosophy and operation of public education in Michigan.

It is hoped that careful study and wise use of these guidelines, basic principles, and practices will help in the formation and operation of local advisory committees which will best meet the vocational-technical needs of the area served.

Advisory committees are an essential part of a sound vocational-technical education program and if properly organized and given good leadership, they will exert a positive force for education in the community.

LEGAL BASIS FOR ADVISORY COMMITTEES

School authorities may need to justify establishing a Vocational-Technical Advisory Committee. The Michigan State Plan for Vocational Education[1] includes the following provisions to insure use of advisory committees at state and local levels:

"The Superintendent of Public Instruction, with the approval of the State Board of Education, shall appoint a State Advisory Council on Vocational Education. This council shall consult with the State Board in carrying out the State Plan and shall include in its membership (A) persons familiar with the vocational education needs of management and labor in the state, and (B) a person or persons representative of community colleges or other institutions of higher education, which provide programs of technical or vocational training . . . . . ." (Section 1.0, Part 1.21-2)

"The program of instruction will be developed and conducted in consultation with potential employers and other individuals or groups of individuals having skills and substantive knowledge of the occupation or occupational field representing the occupational objectives." (Section 2.3, Part 2.38-2)

"Representative advisory committees for trade and industrial education, joint apprenticeship committees, and technical committees shall assist in the developing and maintaining of sound programs of industrial and technical education at both the local and state levels." (Section 2.3, Part 8.46)

DEFINITION: VOCATIONAL-TECHNICAL EDUCATION

Vocational education is education designed to develop skills, abilities, understandings, attitudes, work habits and appreciations, encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. It is an integral part of the total education program and contributes toward the development of good citizens by developing their physical, social, civic, cultural and economic competencies.

Technical education is designed to prepare a person for an occupation in which success is dependent largely upon technical information and understanding of the laws of science and technology as applied to modern design, production, distribution and service. Technical education is a phase of vocational education requiring a considerable amount of skill and technical competency.

DEFINITION: VOCATIONAL-TECHNICAL ADVISORY COMMITTEE

A Vocational-Technical Advisory Committee is a group of representative persons organized under proper authority to advise educators regarding the need, development, and operation of a vocational-technical training program.

[1] The Michigan State Plan for Vocational Education is the legal contract between the State Board of Education and the United States Office of Education. It specifies the standards which will be adhered to in carrying out federally reimbursed vocational education programs in the state.

PURPOSE AND FUNCTIONS OF VOCATIONAL-TECHNICAL ADVISORY COMMITTEES

Advisory committees are organized to advise and counsel with school administrators regarding the instructional program and its development. The committee's functions are many and varied and may include the following:

To advise school administrators regarding training needs based upon information obtained from qualified persons

To make recommendations as to how identified vocational-technical education needs can best be met

To assist in continuously evaluating the total vocational-technical program consistant with the changing needs of the community and the nation

To help determine present and future manpower needs

To recommend criteria for determining the vocational competency of prospective instructors

To advise on curriculum content and acquisition of needed facilities and equipment

To recommend standards of competency and achievement which are necessary for employment advancement and

To suggest and support needed local, state, and national action to assure adequate vocational-technical education.

ORGANIZING A VOCATIONAL-TECHNICAL ADVISORY COMMITTEE

The organization of advisory assistance in a particular community depends somewhat upon the size of the service area and the occupational make-up of it's economy. Local school administrators must determine the organization best suited to local needs. Thus, a committee in a one industry community may be organized quite differently from one in a community where the economy is highly diversified. There is no single pattern but following are some techniques that have proven successful and will serve as guides.

TYPES OF COMMITTEES

There are two types of vocational-technical advisory committees: The General Advisory Committee and the Occupational Advisory Committee. Within each of these broad categories there are other committee subtypes which have their own special purposes and functions. The techniques of working with advisory committees, however, are essentially the same regardless of the type.

General Advisory Committees

A general advisory committee is formed for the purpose of advising local boards of education regarding the development of the broad range of vocational-technical activities carried on in a school district, a community college district, or an area vocational school district. The membership usually includes spokesmen of organized groups, influential citizens, and persons who employ and supervise workers.

The "general advisory committee" has assumed increased importance as a result of the Vocational Education Act of 1963. Under previous Federal Vocational Education Acts, appropriations have been earmarked for certain

General Advisory Committees (cont'd)

occupational fields to the exclusion of others. The 1963 act does not earmark funds for specific occupational fields. The intent of the act is for communities to use the money where it is most needed and the effect of the act should lead to the development of the total vocational program in the community depending, of course, on the special training needs of that community. Thus, the general advisory committee with its previously mentioned functions is the type of committee that should be organized first.

Occupational Advisory Committees

The "occupational" committee limits itself to a specific occupation or family of occupations which require specialized manipulative skills or knowledge. Its purpose is to advise in the development and operation of the total instructional program within that specific occupation.

RELATIONSHIPS BETWEEN COMMITTEES

With the current trend toward the development of vocational programs to meet the total needs of the community, it is strongly recommended that a structural relationship be established to coordinate the efforts of the various committees. It is logical that coordination be one of the important functions of the General Advisory Committee which tends to appraise all aspects of the vocational program. This does not imply that the work of the occupational committees is of lesser importance. However, an administrator will be able to see that cooperation and coordination between the committees will best contribute to the overall development of the vocational program.

To promote good relationships between the occupational committees and the General Advisory Committee; it is usually desirable to make the chairman of each occupational committee a member of the General Advisory Committee.

The accompanying organization charts indicate a recommended plan for a local committee structure. Chart A shows the relationship of the occupational advisory committees to the General Advisory Committee for a large school system. For a medium size school system not having a Director of Vocational Education, the high school principal may serve in this capacity. Chart B shows the organization in a very small school system where the General Advisory Committee concerns itself with all vocational programs in the school system.

CHART A

Example of Local Vocational-Technical Advisory Committee Organization

(Large or Medium Size School System)

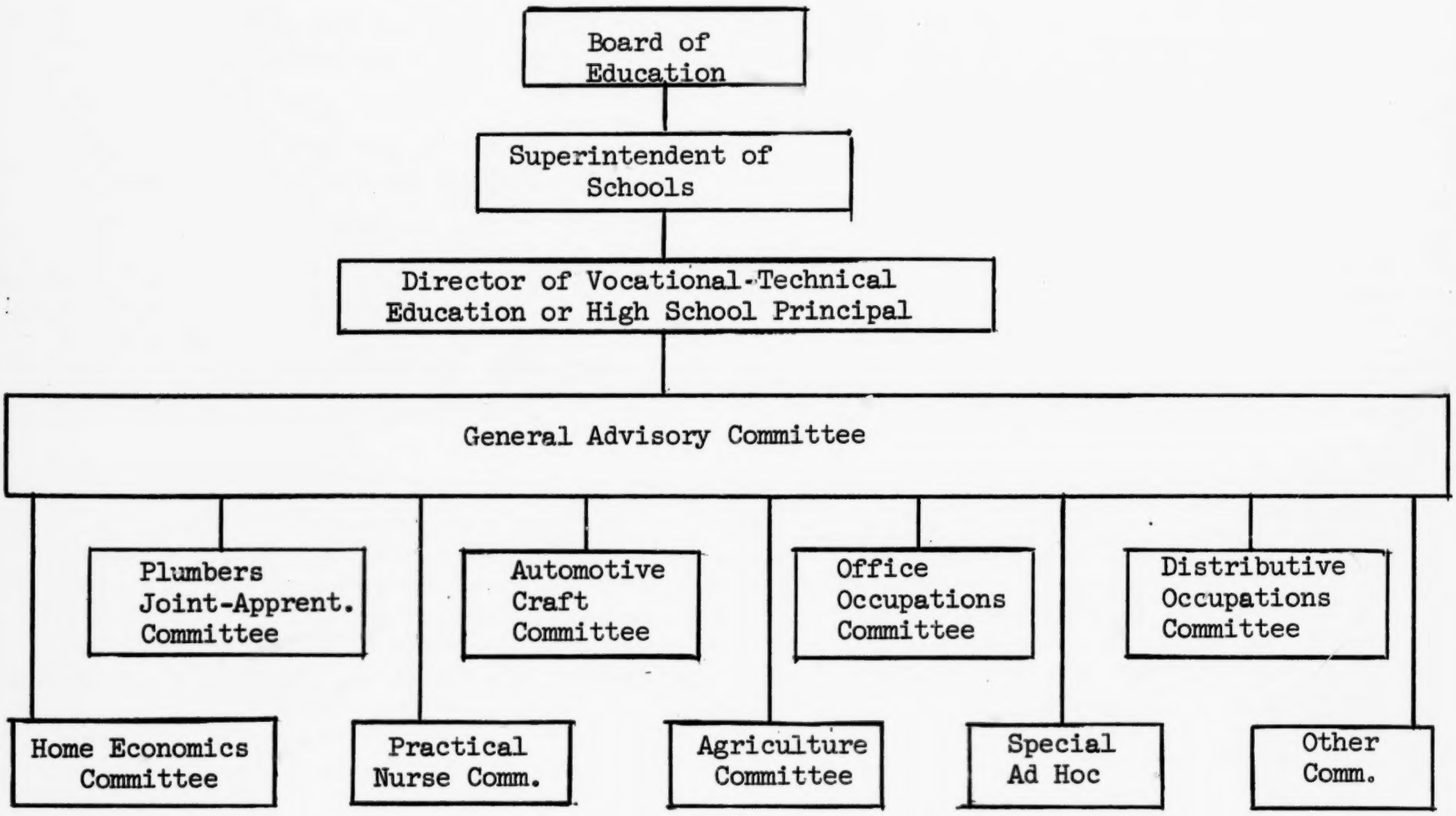
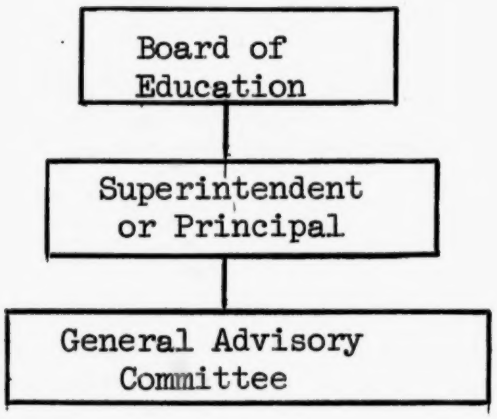


CHART B

(Small School System)



COMMITTEE MEMBERSHIP CRITERIA

In selecting members for the General Advisory Committee the following qualifications should be considered:

1. Persons familiar with the Vocational-Technical needs of the community.

2. Persons who have a sincere interest, time and willingness to work in the promotion of the Vocational-Technical Program.

Members selected for occupational committees should have had experience in and knowledge of the occupation in addition to the above general qualifications.

COMMITTEE SIZE

The committee should be large enough to provide for a diversity of experience in the discussion of problems and the formulation of recommendations. The General Advisory Committee may have as many as 20 to 30 members in a large community. Occupational committees are usually more effective if they limit membership to 5 or 6 members, and make use of consultants as the need arises.

MEMBERSHIP ROTATION

Some method of revising membership should be devised at the time the committee is organized. Fresh viewpoints and ideas are essential in a changing occupational climate. On the other hand, there are advantages in continuity and members who have made exceptional contributions to the committee should be eligible for reappointment. It is the chief school administrator's responsibility to decide upon an effective plan of rotation balancing the advantages of new ideas and committee continuity.

APPOINTMENT OF MEMBERS

Appointment of members should be an official act of the board of education or the superintendent of schools as its designated representative. It is suggested that an official letter of invitation be mailed to each appointee signed by a Board of Education representative or the chief school administrator.

CONDUCTING COMMITTEE BUSINESS

The chairman is a key member of the committee and its success will depend upon good leadership and a feeling of worth and accomplishment on the part of a majority of the members. Sound principles of group leadership and committee practice should be evident at all times.

To serve as a connecting link with the school, each committee must have a school representative. This person may be the superintendent of schools or a vocational education staff member appointed to represent him. The school official who serves should be ex-officio since he attends meetings to receive, not to give, advice.

There is no set rule for the number of meetings to be held each year or whether meetings should be scheduled at regular intervals or called as necessary. However, school administrators should realize that although education is their entire job, such is not the case for members of the committee.

ACTION ON COMMITTEE RECOMMENDATIONS

Committee members will form an opinion of their value to the schools on the basis of what action is taken on their recommendations. A committee will continue to actively participate only if its suggestions receive sincere consideration and action from the school administration. If the committee's advice and suggestions are sound and reasonable, appropriate action should be taken as soon as possible with credit given to the committee. If the proposals or suggestions are not adopted the committee should be told why.

SHOWING APPRECIATION

Schools should always give recognition to members of an advisory committee for the valuable assistance rendered. Their names should appear in school or college publications, catalogs, brochures and releases to newspapers. Some schools honor advisory committees with breakfasts, luncheons, or banquets. One of the most effective ways a school can indicate its appreciation is by having the chief administrator of the school or college attend some committee meetings. In appropriate ways he should show his familiarity with the activities and accomplishments of the committee.

The Vocational-Technical Committee will be effective if:

1. The reason for organizing the committee is well understood by both members and school officials

2. The committee has been given a clearly defined function

3. There is no question on the part of the members that the function is a needed one

4. The committee is competent to perform the function and

5. The committee feels "wanted" by the school, its contributions are valued and the chief administrator and his staff are willing to give the necessary time, energy, and support to make it successful.

ADDITIONAL SOURCES OF ADVISORY ASSISTANCE

There are many sources of information and assistance available to the school administrator and advisory committee.

1. The Department of Education has a limited staff of experienced professional personnel who are available on a consultant basis.

2. Colleges and universities have faculty members who are specialists in various fields.

3. The Michigan Employment Security Commission, through its local offices, can furnish or assist in collecting much valuable information on employment trends, opportunities, and job requirements.

4. Voluntary business and professional organizations will provide information and assistance.

5. There are many excellent resource persons on the staffs of local school districts who may be called upon.

ADV. ASST. CONT'

6. There are highly capable citizens in the state who can make effective contributions if called upon.

BIBLIOGRAPHY

Two publications currently available to educators have been of great value in the preparation of this publication and might be helpful to local administrators.

"Organization and Effective Use of Advisory Committees", OE 84009, Superintendent of Docmuents, U.S. Government Printing Office, Washington 25, D.C. Price 30¢ 75 pages.

"Vocational Advisory Committees" prepared by the Committee on Research and Publications, American Vocational Association, Inc., 1010 Vermont Avenue, Washington 5, D.C. Price 25¢ 24 pages.

VT 001 619

Part-Time Cooperative Industrial Occupational Training. A Plan for New Jersey. Trade and Industrial Bull-2.

New Jersey State Dept. of Education, Trenton. Vocational Div.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 17p.

*COOPERATIVE EDUCATION; *TRADE AND INDUSTRIAL EDUCATION; *PROGRAM GUIDES

The purpose of this bulletin is to help the layman and the educator understand the nature of cooperative programs. The contents include: (1) Characteristics of the Program, (2) Typical Agreement Form, (3) Typical Duties of a Teacher-Coordinator, and (4) Suggested Steps in Organizing Local or Area Co-Op Programs. (EM)

VT 001 619

ED036657

COOPERATIVE EDUCATION

THE TRADE AND INDUSTRIAL SERIES

BULLETIN NO. 2

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PART-TIME COOPERATIVE INDUSTRIAL OCCUPATIONAL TRAINING

A PLAN FOR NEW JERSEY

APPROVED BY

THE STATE BOARD OF EDUCATION

UNDER THE SUPERVISION

OF

THE VOCATIONAL DIVISION

State of New Jersey
Department of Education
Vocational Division
Trenton

FOREWORD

This bulletin has been prepared by the State Department of Education, Vocational Division, in order to enable laymen and educators to understand the general nature of Part-Time Cooperative Industrial Education programs and to emphasize the point that such school-work programs must be carefully organized, properly supervised and planned so that the trainee's educational objective and his personal safety are constantly safeguarded.

We as educators must recognize that the cooperative educational program depends upon the willingness of industry to accept such a program. While it is an ideal way for a student to learn fundamentals of a trade, it has some serious drawbacks from an educational standpoint. An industrial enterprise is not a school. It is a business having to make a profit in a highly competitive climate. It is very sensitive to socio-economic and technological pressures. It may have to close its cooperative educational program because of socio-economic circumstances when, from an educational standpoint, such a program is most needed.

In New Jersey, under the State Department of Education, Vocational Division, there are conducted other part-time cooperative programs in trade and industrial, agricultural, business and distributive education.

The principal value of the part-time program of education described is that it affords an opportunity to supplement existing educational programs by providing supervised on-the-job vocational preparatory training in approved industrial occupations.

The bulletin is specifically applicable to one of a series of cooperative programs in Trade and Industrial education. The other types mentioned require different plans and descriptions, an additional bulletin is now being prepared covering all such programs.

Appreciation and thanks are due Dr. Warren Davis and staff members of the Union County Regional School District for the pilot and developmental effort expended there which has contributed toward the pattern of standards described in this publication.

Robert M. Worthington
Assistant Commissioner of Education
Vocational Division
State Department of Education
1965

THE PART-TIME COOPERATIVE

INDUSTRIAL OCCUPATIONAL TRAINING

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THE PART-TIME COOPERATIVE INDUSTRIAL OCCUPATIONAL TRAINING PROGRAM

The part-time cooperative industrial occupational training program, conducted as part of the public vocational education program for secondary and post-high school students, offers opportunities for preparatory training, particularly in areas of the state where no vocational school facilities for such training have been provided or are available.

1. Education for work is the primary goal

Preparation for entrance into employment which offers opportunities for individual achievement growth and advancement is a basic objective of the program. Part-time jobs that require little training but which provide for realistic employment goals, growth and future opportunities may be considered in the co-op plan. The needs of the specific student must be considered in relation to the individual occupational goal, future occupational trends and employment opportunities. The basic aim of this program of industrial occupational education is to educate the student-learner to the world-of-work via sequential experiences in-school and on-the-job.

School subjects scheduled for student-learners in the high school, include regular school offerings in addition to specific course-work which relates directly to their part-time employment. Students enrolled in this program receive credits necessary to qualify them for a high school diploma.

2. School and industry share training responsibilities

An average of fifteen hours per week should be spent in the school by student-learners and a similar average amount of time must be spent in work in an approved place of employment under the close supervision and instruction of plant personnel qualified to give instruction pertinent to the occupational objective of the student-learner. Such programs are usually scheduled so that the student-learner spends part-time in school and part-time on the job.

3. Cooperative employers are carefully selected

Following are some of the employer qualifications that are evaluated in approving him and his establishment for employment of student-learners in a part-time cooperative program:

a. He must accept a training responsibility.

b. He must show evidence of safety consciousness and provide properly guarded equipment for his workers.

c. He must be willing to assign a qualified person who will be responsible for the training function and whose qualifications are certified by the teacher-coordinator.

d. He must give reasonable assurance of regular employment during the entire training program.

e. He must pay wages comparable to those paid to other beginning workers in the same type of work and provide for all of the worker benefits to which similar workers are entitled.

f. He must have adequate machines, equipment, and other facilities necessary to achieve the training objective.

g. He must outline the job experiences in which he will offer training.

h. He must identify the hazardous work processes in which student-learners will engage and indicate that work in these processes will be intermittent and closely supervised.

i. He must be a party to a written agreement with the school indicating the specific nature of the training to be offered and his acceptance of the conditions of the training plan.

j. He must agree to regular supervision of the program by a teacher-coordinator employed by the school, and other details which will safeguard the co-op student and insure the orderly progress of the training program.

The State Department of Education in cooperation with the State Department of Labor has agreed that the following conditions should also be applied to any establishment where the student-learner will work:

a. Any training program under which the student-learner will be employed must be a bona fide occupational training program.

b. The occupational education for which the student-learners are receiving training must require a sufficient degree of skill to necessitate a substantial learning period.

c. The occupational training may be for the purpose of acquiring manual dexterity and high production speed in repetitive operations of this type of occupational education is realistic for the particular student-learner.

d. The employment of a student-learner must not have the effect of displacing a worker employed in the establishment.

e. The occupational needs of the student, community or industry warrant the training of student-learners.

f. The facilities of the employer of part-time cooperative students shall be inspected and approved for each occupational training objective for adequacy and safety by the teacher-coordinator and a representative of the State Department of Education, Vocational Division. Furthermore, the establishment shall not be approved by the school for on-the-job training until notice of the acceptability of the facilities is received from the State Department of Education, Vocational Division.

g. The teacher-coordinator will establish standards which will be used to evaluate the adequacy of the experience of the worker who will be responsible for on-the-job training of student-learners in approved establishments.

h. The student-learner, during periods of his work experience, shall be under the constant supervision of the designated on-the-job trainer, particularly when the work is in occupations classified as hazardous or on machines or processes that are classified as hazardous. Any check of an establishment by the teacher-coordinator or by a representative of the State Department of Labor, or the State Department of Education, Vocational Division, showing that this provision is not carried out, will disqualify the establishment for such training and will call for withdrawal of approval of the establishment.

4. <u>Students are carefully selected</u>

Students must be sixteen years of age or over. They must be interested in preparing for the world of work, and intend to stay in school until they graduate. They must possess the qualifications for employment set by the employer as well as the school standards for admission to the co-op program. The guidance and testing services in the schools play an important role in the selection process. Students with inadequate qualifications must not be selected because they may not benefit from this program. In addition employer support of the program could be withdrawn and the entire plan might be endangered.

5. <u>Advisory committees are permitted</u>

A representative advisory committee composed of outstanding persons from labor and management and representing the major occupations to be included in the co-op program may be appointed by the school authorities prior to the opening of classes and may meet periodically as long as the program is in operation. This committee may advise regarding student qualification, school-employer agreements, related instruction content, safety instruction in school and on the job, possible job placement opportunities and the development of sound public relations. However, the responsibility for this program rests with the school and the cooperating employer, not the Advisory Committee.

6. Classes may be for one occupation or for several occupations

If sufficient part-time job placements can be made in one occupation only, it is desirable to form a separate related subjects class for each occupational objective. The value of this separation of students by occupations will be evidenced in the related instruction phases of the program. If insufficient job placements are available to justify separate occupations classes, a diversified occupations class including students with more than one occupational goal can be represented in the related subject class. However, in such mixed classes the related instruction must be directly related to each occupation represented in the class in addition to covering of topics of general concern to each student.

7. Co-op courses can be formed in various types of schools

This co-op course may be organized in high schools, vocational and technical schools. In any county having a county board of vocational education, the local school district wishing to establish a co-op occupational program shall work for mutual cooperation with the Board in order to avoid wasteful duplication of educational effort and to secure maximum occupational opportunities for the students.

8. Many valid part-time job placements can be approved

Since State Department of Labor, Child Labor Regulations governing hazardous occupations for co-op students between the ages of 16 and 18 have been interpreted as not being applicable to students in part-time cooperative occupational education programs organized and supervised by appropriate school authorities, (See N.J. S34: 2-21.17), the possibilities of job placements for co-op students are numerous. Federal child labor hazardous occupations orders 5, 8, 12 and 14 covering occupations involved in the operation of power driven woodworking machines, occupations involving the operation of power driven metal forming, punching and shearing machines, occupations involving the operation of paper products machines and occupations involving the operation of power driven circular saws, band saws and guillotine shears exempt student learners in State Department of Education, Vocational Division approved program of cooperative vocational training from these orders, under the same conditions that apprentices are exempted. Following are samples of trades or occupations in which job placements can be made for co-op, occupational education students between the ages of 16 and 18.

Assembler	Maintenance mechanic
Bagger	Material handler
Builder's helper	Office messenger
Carpenter	Packer

Counterman	Custodian
Gas station attendant	General repairman
Signmaker	Household appliance installation
Landscape worker	Stock clerk
Machine operator	Mail room worker
Many others	

9. The teacher-coordinator is the key to a successful program

The co-op program requires the employment of a teacher-coordinator. This person must possess a New Jersey vocational-technical teacher-coordinator trade and industrial certificate. He is responsible for the related subject instruction and the scheduling of students in the school program. He is also responsible for a wide range of employer and community cooperation and coordinator. Some of the specific teacher-coordinator responsibilities are listed as a supplement to this section. Of necessity, much of his time must be spent outside of the school in frequent supervisory visits to students in the establishments when they are working.

10. The length of the course is determined locally

Courses must be at least one year in length. Usually, if the training objective warrants it, the courses are two years in length involving students in their junior and senior years in high school.

11. Several school-work scheduling patterns are possible

Approximately half of the student-learner's time is spent on the job and half in school. Following are examples of some of the possible combinations:

1. Half day in school, half day at work
2. Full day in school, full day at work
3. One week in school, one week at work

The half day in school, half day at work pattern is generally most acceptable for the occupational education co-op program. This permits great continuity of both academic and occupational education.

12. The school has definite responsibilities

Planning the course, setting it up, and making sure that it functions satisfactorily, is the responsibility of the school. The program

should be an integral part of the total educational program and the minutes of the school board should show its authorization. Certain obligations must be recognized and assumed.

The school must provide a qualified vocational-technical teacher-coordinator to assume charge of the course and act as the representative of the school in working with employers, students and parents.

The teacher-coordinator secures suitable job opportunities for students. Students are given occupational information and guidance before they are referred to a job. Selection of the right student for each job opportunity is the school's responsibility.

The school provides the instruction in the subjects related to the students' work experience and in general academic subjects.

The in-school course content and the on-the-job work schedule are set up, and the two must be correlated as closely as possible.

The teacher-coordinator works with the employer and/or the person within industry who is responsible for the students on-the-job training, to be sure that the student:

a. Is adjusting to the job

b. Is following the approved job experience program

c. Is properly supervised

d. Is working under safe conditions

e. Is progressing satisfactorily

The school instruction emphasizes safe working practices in school and on-the-job.

13. <u>Local, state and federal labor laws must be observed</u>

School representatives and employers must be cognizant of the laws, orders, and regulations affecting the employment of minors 16 years of age and over. The legal restrictions that are highest at any of these governmental levels are the ones that must be met.

(Cooperative training agreement and student agreement forms are herewith reproduced.)

_____ HIGH SCHOOL DISTRICT

TRAINING AGREEMENT

The Employer _____
Company Name Address

Agrees to Employ _____
Student-Learner Address

on a part-time basis for the purpose of training the student in the _____ trade.

WAGES.

Starting wage will be $_____ per hour.

Students in this program will receive wages comparable to wages paid to other trainees performing the same type or class of work and wages that are in conformity with State and Federal minimum wage acts.

Students will work a minimum of 15 hours and a maximum of 20 hours.

WORKING CONDITIONS:

All student-learners must be covered by Workman's Compensation Insurance.

The employer will observe all laws and regulations, both State and Federal, pertaining to the employment of minors.

SUPERVISION:

The employer agrees to assign one member of his organization (journeymen, foreman, or other qualified employee) to be responsible for the training of the student.

As this program is supervised by the _____ High School, it will be necessary for the school's teacher coordinator to be admitted to the employer's premises whenever he needs to observe and evaluate the student. The teacher-coordinator will conduct his observations so that there will be a minimum of interference with the employer's business.

REPORTS:

At six week intervals the employer's representative will prepare a report on the student's progress, using the form supplied by the school.

STUDENT RESPONSIBILITY

The student-learner shall be subject to all plant regulations applying to other employees.

The student-learner shall obey his superior at all times.

TRAINING AGREEMENT CONTINUED

All complaints shall be made to and adjusted by the teacher-coordinator.

The student may not change his place of employment without the approval of the teacher-coordinator.

The student, while in the process of training, will have the status of student-learner, neither displacing a regular worker nor substituting for a worker that ordinarily would be needed by the agency.

WORK EXPERIENCE:

The following will be included in the student-learner's work experience.

1. _____ 5. _____

2. _____ 6. _____

3. _____ 7. _____

4. _____ 8. _____

This agreement may be terminated by the employer at any time after consultation with the teacher-coordinator. The teacher-coordinator may terminate this agreement after consultation with the employer.

_____ _____
Student-Learner Date

_____
Company Representative

_____
Title

_____
Teacher-Coordinator

_____
Parent or Guardian

COOPERATIVE INDUSTRIAL OCCUPATIONAL TRAINING

STUDENT AGREEMENT FORM

I _____ hereby agree to obey all rules, regulations and assignments of the District and specifically of the Cooperative Industrial Occupational Training Coordinator. I fully realize that my cooperation is necessary for successful work training. I shall do my best to help the Teacher-Coordinator not only in my training but also in the training of my classmates. I shall do my part in any activities which are requested by the Teacher-Coordinator.

_____ Date

_____ (Signed)

TEACHER-COORDINATOR RESPONSIBILITIES

1. Surveying local employment opportunities.

2. Arranging interviews for trainee applicants.

3. Assisting in organizing the advisory board (if this is to be organized).

4. Publicizing the cooperative aspects of the program.

5. Interviewing and selecting prospective pupils.

6. Approving establishments for co-op training in cooperation with the State Department of Education, Vocational Division.

7. Working out training schedules with employers.

8. Certifying the qualifications of workers or others assigned by employers to train student-learners.

9. Developing adequate records and reporting systems.

10. Assisting in the scheduling of classroom programs for pupils.

11. Preparing courses of study in related subjects.

12. Teaching the classes in occupational theory and practice, and in work-theory coordination.

13. Arranging adequate classroom facilities and requisitioning necessary teaching materials.

14. Counseling pupils regarding placement with respect to appropriate employment objectives.

15. Maintaining contacts with local employers.

16. Carrying out follow-up studies of graduates and making reports of those studies available to the State Department of Education, Vocational Division.

17. Assisting pupils to obtain work permits, social security cards, and health certificates.

18. Visiting pupils working at training establishments to:

    a. Observe the type of work being done.

b. Arrange with employers for rotation of pupils through a wide range of activities to achieve the training objectives.

c. Analyze the jobs of the pupils to secure information for work-theory coordination.

d. Determine how related school subjects can effectively supplement the employment training.

e. Adjust any problem arising between pupil and employer.

SUGGESTED STEPS IN ORGANIZING A PART-TIME

COOPERATIVE INDUSTRIAL OCCUPATIONAL TRAINING PROGRAM

1. Notify State Department of Education, Vocational Division of your intent to explore the possibility of setting up a part-time cooperative program in the Occupational Education area and request their assistance.

2. Survey the student body to determine if sufficient student interest is present.

3. Survey the community to determine occupation and training opportunities.

    a. Give special attention to safety factors, working conditions, wages, etc.

    b. Determine employers willingness to employ co-op students and participate in the program.

4. Determine qualification, standards and type of students to be served.

5. Acquaint the school faculty with the program.

6. Meet with representatives of business, labor, and management.

    a. Establish general need.

    b. Explain nature of program - purposes and objectives.

    c. Define the type of student to be selected and expected outcome.

7. Form a representative advisory committee (if this is deemed advisable).

8. Select students for the program.

9. Evaluate the training qualifications of employer.

10. Have appropriate Department of Education, Vocational Division representatives check the facilities of each employer to determine suitability for training students.

11. Obtain local and state board of education approval of program through the office of secondary education.

12. Select a qualified teacher-coordinator.

    a. Determine and outline his duties and functions.

    b. Determine his ability to meet state certification requirements.

13. Arrange for student interviews and placement in approved establishments.

    a. Complete a co-op training agreement.

    b. Obtain part-time working certificates for students in the co-op program.

    c. Obtain age and schooling certificates.

    d. Help students obtain Social Security cards and numbers.

14. Provide adequate school classroom facilities for related technical instruction to be conducted by the teacher-coordinator.

15. Arrange "in-school" schedules for students.

    If the alternate week pattern is followed, at least two consecutive periods in each school day should be devoted to related instruction. Appropriate general education subjects may be scheduled for the balance of the school day.

VT 001 643
Field Test Report. Programmed Lessons.

Rehabilitation Research Foundation, Elmore, Alabama
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 15Apr66 12p.

*PROGRAMED UNITS; *PROGRAM EVALUATION; DEVELOPMENT PROGRAMS; *PROGRAMED MATERIALS; *INDIVIDUALIZED PROGRAMS; *TRADE AND INDUSTRIAL EDUCATION; STUDENT OPINION

Programed lessons were prepared for 11 topics such as Soldering Leads, Mixing Mortar, and Good Job Habits. The lessons were field tested with vocational students. Average correct scores on the pretest ranged from 12 percent to 64 percent correct on 11 lessons. For the post-test the range was 80 percent to 98 percent. The range for net gain was 32 percent to 78 percent. A score of 90 percent was attained by 85 percent of the students on the post-test and 100 percent was attained by 43 percent. Student comments were for the most part favorable. (EM)

VT 001 643

ED036657

FIELD TEST REPORT

Programmed Lessons

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

developed by

Rehabilitation Research Foundation
Elmore, Alabama
Experimental And Demonstration Manpower Project

under

Manpower Development And Training Act
(Public Law 89 - 15)
April 15, 1966

VT001643

Introduction

Programmed instruction is a relatively new approach to education. Designed to present subject matter in a systematic fashion, programmed instruction has been demonstrated to be an effective teaching technique which permits each student to progress at his own best rate of learning. Because responses are frequently called for, the student is actively involved in the learning process.

The teacher who uses programmed materials is freed to give individual instruction when and where it is most needed. He is spared some of the drudgery of detailed lesson planning to allow for individual differences of his students. There are far fewer papers to grade. The role of the teacher becomes that of a "behavior manager" who diagnoses the deficiencies of students, prescribes programs to meet these deficiencies, and motivates the students in various ways to achieve maximum learning.

The programmed lessons discussed herein were prepared by the Materials Development Unit, Rehabilitation Research Foundation, for several basic trades. They were designed initially for disadvantaged youth who had seldom if ever been successful in traditional learning situations. Most had dropped out of school before they finished the eighth grade. The lessons were successfully field tested with such groups. They were also field tested with classes in the State Vocational and Technical Schools.

The lessons field tested to date are as follows:

"Recognizing Electrical Circuit Symbols"

"Recognizing Electronic Circuit Symbols"

"Introduction to the VOM"

"Introduction to Electricity"

"Soldering Leads"

"Mixing Mortar"

"Applying for a Job"

"Servicing Carburetor Air Cleaners"

"Introduction to Letter Writing"

"Tools and Areas of the Haircut"

Several additional programs not reported here have undergone partial field tests.

The majority of the lessons were designed to be administered early in the student's training. In the field tests, however, it was not always possible to administer them at the appropriate time.

The Field Test Students

Tests were administered to over 500 students, all of whom were enrolled in one of several vocational courses. They represented a wide range of backgrounds, levels of training, and experience in their fields. These individual differences are readily seen in the great variation in pretest scores; however, the validity of these lessons is demonstrated by the consistently high performance and net gain of most students on the post-tests.

Conditions of Field Tests

The field tests were administered at nine State vocational technical schools, one high school, and three M.D.T.A. projects. There was a wide variation in the environmental conditions. The number of students taking the lessons at any one time ranged from ten to 200. Adequate space was generally available at most schools. Some field tests were administered in one day, some in two. In some instances, students took only one lesson; in others, as many as five.

One of the objectives of the field tests was to demonstrate the flexibility of training possible with programmed lessons. Students in

the same class, in some cases, were learning from as many as five different lessons in as many different subject matter areas. There were students who, depending on their background and learning rate, could take as many as five lessons in the time that some fellow students could take only one.

Field Test Procedure

Each lesson was packaged separately and contained numbered documents as follows:

Item 1. Personal data questionnaire

*Item 2. Vocabulary test

Item 3. A pretest

Item 4. The programmed lesson

Item 5. A post-test

All classes were assembled at each school and given the same oral directions: They were asked to work the package in the order listed above. Students were requested to keep a record of time spent for Item 4, the actual lesson; however, they were told to take as much time as they needed. They were told that no questions concerning subject matter would be answered.

The students were always advised that the lessons were being tested--that their role was that of tryout subjects.

Students were supervised throughout the field tests.

Field Test Results

Approximately 75 per cent of the more than 900 field test packages were scored by an independent consultant.

*This test contained non-technical words selected from those actually used in the lessons. It was administered in early field tests to determine if the words were known by the design population. The vocabulary test was eliminated in subsequent tryouts.

Several of the lessons were marked "invalid" for one or more of the following reasons and were not counted in the tabulation:

1. Did not take the pre- or post-test
2. Took the pretest after taking the lesson
3. Did not make written responses in the lesson
4. Took post-test before completing the lesson

Exhibits A and B summarize the average pre- and post-test scores lesson by lesson, and school by school. Each number represents the percentage of correct answers. Exhibit C shows overall averages.

Retention Study

There is no claim that programmed instruction provides increased retention in all instances. It is held that no matter what the training method, subject matter will rarely be retained for any length of time unless it is put to realistic use by the student.

The first field test, at the Birmingham MDTA project, was followed three weeks later by the re-administration of the post-test in an attempt to provide some data on retention of subject matter learned by programmed lessons.

In presenting the data below, it must be noted that the lessons were field tested during the first two weeks of the courses (consistent with the design of the lessons) and that much of the subject matter was utilized immediately after the original field tests and before the retention test.

Lesson	Pre	Post	Retention Test
Symbols	8%	93%	82%
VOM	8%	98%	89%
Intro. to Elec.	43%	93%	92%
Soldering	27%	91%	85%

Curriculum Installation

The Rehabilitation Research Foundation operates an MDTA project at Draper Correctional Center. Several trades are taught, including Radio-TV Repair, Barbering, and Bricklaying. Although it was impractical to fit the programmed lessons to the curricular schedule of the various field-test schools, it was possible to install the lessons in the precise place in the curricula of the courses at Draper.

These data, therefore, are reported separately in that they give an exact picture of some of the lessons when used in the appropriate place in the training schedule.

Lesson	Pre	Post	Net Gain
Circuit Symbols	16%	94%	78
Mixing Mortar	28%	97%	69
Tools and Areas	35%	98%	63

Student Reaction

Questionnaires were administered to the students at the end of a majority of the field tests. Students were asked to write the name of the school on the questionnaire, not their own names. Number of students responding to each item is recorded in the appropriate place.

School _____

Please check the best statement according to your own opinion.

I. What did you think?

A. 382 I would like to take more lessons like these

B. 19 It doesn't matter one way or the other

C. 10 I never want to see lessons like these again

II. How should they be used?

A. 306 Mixed with my regular classroom and lab most of the time

B. 64 Used occasionally

C. 20 Never used

III. How difficult were the lessons to learn from?

A. 10 Harder than lecture and textbooks

B. 62 About the same as lecture and textbook

C. 298 Easier than lecture and textbook

IV. My comments about the lesson and the field tests.

A wide variety of comments were received on this section. It is interesting to note that almost all students made some comment.

Some of their unedited comments follow.

"I believe I learned more from these lessons than the two weeks I've been in school. I really like the trial."

"These books explain themselves so well, that you can easily grasp what you did not know about the subject. Also the material in the books tell only the important facts that are needed."

"I enjoyed the lessons. Some instruction could have been more specific. I believe they would be helpful used with other classroom studies."

"This material is wonderful. Since it's only following directions, I think it will be a great asset to the educational world."

"You might need a proofreader (Ha!) As a whole they were constructive and of great help."

"I think that students could learn more of what they really need to know by this type of training."

"I think we should have more of the same instruction and questionnaire to do. It will help us to complete and do it correctly in least time."

"I would like to learn about electronics from these books, because I like the method of teaching."

"Keep up good work."

"I believe this method of instruction to be superior to any that I have taken. Before taking these lessons, I couldn't answer any of the questions of the pre-test; after completing the instruction lessons, I was able to answer almost every question. In my opinion, this is a wonderful and helpful way of instruction. I hope to have more of it in the future."

"The most amazing method of learning (or teaching) I have ever encountered. It's simple and easy."

"This is a most impressive method of instruction. I was somewhat puzzled as to my retention of the symbols. I found that after I had completed the Symbols lesson, some five hours later, I could identify most all I had learned. Furthermore, I could write apprx 86 of the symbols as well as identify them."

"I think the lessons should be spread out more instead of a lot of different things in one or two days."

"These test were very explicit. I should like to see how you carry them over to a field of reasoning with Math."

"I thought the lessons were excellent and would like to take a follow-up test in a week or so to see how much I comprehended."

"I liked this types of teaching along with a supervisor."

"I think that any subject we have trouble learning we should go to this method."

"I enjoyed take part in thise lesson. I tried to answer all the Question, but I have never work in any firm except a Cleaner."

"I think this method of teaching is very self explanatory and it does not need any help or instruction from a teacher. All that is necessary is to follow directions."

"I like this method of teaching. I think it is very good especially for the beginner. I am quite sure that I could learn much faster this way. Thank you."

"When perfected they should be very beneficial to everyone concerned."

"I think this is a very good system. I think a student could learn more if he went over his lesson in this manner first then in class let the instructor help you if need. I like this method better than lectures."

"Good visual teaching."

"Simply terrific way to learn. Would like to see it in Math."

Summary and Conclusions

1. Eighty-five percent of the students made 90% or better on all post-tests.

2. Forty-three percent of the students made 100 percent on the post-tests.

3. These programmed lessons appear to "close the gap" between students with more initial knowledge (as indicated on pretests) and those with little or no knowledge; post-test scores showed no significant differences.

4. Students can study at their own self-determined rate without sacrifice of post-test performance and without regard to the work rates of other students.

5. Students in the same classroom can study different subject matters without affecting each other.

6. A majority of the students participating in the field tests appeared to like this method of learning.

Exhibit A

FIELD TEST SCORES

Experimental And Demonstration Project
MDTA of 1962 (Public Law 89 - 15)
Draper Correctional Center
Elmore, Alabama

Grantors: U.S. Department Of Health, Education, And Welfare
U.S. Department Of Labor
Grantee: Rehabilitation Research Foundation

COMPARISON OF AVERAGE SCORES,* ALL LESSONS, BY TRADE SCHOOLS.
(Minor High School is not a State trade school.)

School ▶	John Patterson				Shelton				Wenonah				Gadsden				Jefferson County				Minor				Alabama				N.F. Nunnelley				W.R. King			
LESSON	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net	Pre	Post	Gain	Net
Electrical Circuit Symbols	13	96	83		9 29	95 99	86 70		17	91	74										4	90	86		15	88	73									
Electronic Circuit Symbols					32	98	66										11	96	85										36	97	61					
Intro. To VOM	20	99	79						44	96	52														16	98	82		3	100	97		0	96	96	
Intro. To Electricity	66	96	30																																	
Soldering Leads	25	93	68																														21	63	42	
Intro. To Letter Writing	24	92	68																																	
Mixing Mortar									33	97	64																									
Servicing Carburetor Air Cleaners	26	95	69		58	96	38						43	94	51														7	71	64					
Applying For A Job	13	90	77																										35	84	49		37	85	48	
Tools And Areas					35	89	54																						0	98	98					
Good Job Habits																													54	96	42		63	99	36	

*The wide variation in pretest scores on some lessons is attributed to differences in amount of training. At some schools, students were in their first week of training, at others, in advanced sections of their curricula.

Exhibit B

FIELD TEST SCORES

Experimental And Demonstration Project
MDTA of 1962 (Public Law 89 - 15)
Draper Correctional Center
Elmore, Alabama

Grantors: U.S. Department Of Health, Education, And Welfare
U.S. Department Of Labor
Grantee: Rehabilitation Research Foundation

COMPARISON OF AVERAGE SCORES,* ALL LESSONS, BY MDTA PROGRAMS.

	Birmingham			Montgomery			Gadsden		
LESSONS	Pre	Post	Net Gain	Pre	Post	Net Gain	Pre	Post	Net Gain
Electrical Circuit Symbols	8	93	85						
Introduction To VOM	8	98	90						
Introduction To Electricity	43	93	50						
Soldering Leads	27	91	64						
Introduction To Letter Writing	63	91	28	60	92	32			
Mixing Mortar									
Servicing Carburetor Air Cleaners							36	91	55
Applying For A Job	26	94	68	24	87	63			
Tools And Areas				8	90	82			

*The wide variation in pretest scores on some lessons is attributed to differences in amount of training. At some schools, students were in their first week of training, at others, in advanced sections of their curricula.

Exhibit C

AVERAGE SCORES, ALL LESSONS, ALL STUDENTS

Name of Lesson	No. of Students	SCORES Pretest (% Correct)	Post-test (% Correct)	Net Gain
Recognizing Electrical Circuit Symbols	163	12	90	78
Recognizing Electronic Circuit Symbols	35	26	97	71
Introduction To VOM	129	21	98	77
Introduction To Electricity	65	54	94	40
Soldering Leads	77	25	92	67
Introduction To Letter Writing	124	59	91	32
Mixing Mortar	17	64	97	33
Servicing Carburetor Air Cleaners	75	37	93	56
Applying For A Job	129	29	88	59
Tools And Areas Of The Haircut	65	16	90	74
Good Job Habits	45	60	95	35

VT 001 673
Guide for Public Junior Colleges in Planning Programs of Vocational Education.

Texas Education Agency, Austin
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Feb66 75p.

*JUNIOR COLLEGES; *VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; *ADMINISTRATOR GUIDES; *PROGRAM PLANNING; ADMINISTRATIVE POLICY; AREA VOCATIONAL SCHOOLS; PROGRAM DEVELOPMENT; PROGRAM ADMINISTRATION; PROGRAM EVALUATION

This document is a preliminary draft of a publication to assist local public junior college administrators in planning, establishing, conducting, and evaluating programs of vocational education, The contents include: (1) general policies (justification of need, advisory committees, and approval criteria of programs), (2) cooperative programs, (3) vocational education programs, (4) the vocational work-study programs, (5) other programs related to vocational education (adult basic education and adult migrant education), and (6) area vocational schools. The appendixes contain various application-for-approval forms. (SL)

VT 001 673

ED036657

For Discussion
Purposes Only

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GUIDE FOR PUBLIC JUNIOR COLLEGES IN PLANNING PROGRAMS OF VOCATIONAL EDUCATION

Texas Education Agency — Austin, Texas

Feb., 1966

VT 003

Legal Definition of the Term *Vocational*

"The term 'vocational education' means vocational or technical training or retraining . . . conducted as a part of a program designed to fit individuals for gainful employment . . . in recognized occupations . . . but excluding any programs [designed] to fit individuals for employment in occupations . . . generally considered professional or as requiring a baccalaureate or higher degree . . ."

"Amendments to the Vocational Education Program, National Defense Education Act of 1958, and Public Laws 815 and 874, 81st Congress", Public Law 88-210, Sect. 8 (1), 88th Congress, *1st Session,* House of Representatives, Report No. 1025, page 7.

TEXAS EDUCATION AGENCY **AUSTIN, TEXAS**

• STATE BOARD OF EDUCATION 78711

• STATE COMMISSIONER OF EDUCATION

• STATE DEPARTMENT OF EDUCATION

FOREWORD

The Vocational Education Act of 1963 provides opportunity for organizing programs of many new and different varieties preparing persons for gainful employment. Administration of the program is the responsibility of the Texas Education Agency under approval of a State Plan for Vocational Education by the State Board of Education.

This document, as the cover sheet indicates, is a preliminary draft of an eventual publication to assist local public junior college administrators in organizing and conducting a broad program of vocational education of significant scope. As plans for the publication mature, revisions and additions may be necessary.

Your suggestions and recommendations will be of great value in the final preparation of a "Guide for Public Junior Colleges in Planning Programs of Vocational Education."

M. A. Browning
Assistant Commissioner
for Vocational Education

TEXAS EDUCATION AGENCY
Austin, Texas

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PALESTINE: Route 5, Box 190
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Mrs. Mabel B. Tucker, Homemaking Education

PLAINVIEW: Box 758 (510 A South Broadway)
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Mrs. Ima Dora Haile, Homemaking Education
Ray R. Rushing, Industrial Education

STEPHENVILLE: Tarleton State College Box 9 (Room 109 Agriculture Building)
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Mrs. Sammie Pittman, Homemaking Education

SULPHUR SPRINGS: (Gilmer St. & Interstate 30) P.O. Box 7
Ira Black, Agricultural Education
Joe Marie Phillips, Homemaking Education
D. A. McRae, Industrial Education

TYLER: Texas College
S. E. Palmer, Agricultural Education
Mrs. W. L. D. Glass, Homemaking Education

WACO: Liberty Building, 104 North Sixth Street
A. B. Childers, Agricultural Education (Room 202)
Mrs. Hannah Hoff Brown, Homemaking Education (Room 200)

LA VILLA: c/o City Hall, Jill Ave.
Ernest F. Delwon, Adult Migrant Education

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GUIDE FOR PUBLIC JUNIOR COLLEGES IN PLANNING PROGRAMS OF VOCATIONAL EDUCATION

Introduction

This Guide is designed to assist public junior colleges in planning, establishing, conducting and evaluating programs of vocational education. High quality programs that are realistic in the light of actual or anticipated opportunities for gainful employment should be suited to the needs, interests and ability of students to benefit from them by acquiring the knowledge and skills necessary for entry upon and success in employment. In addition to providing information relating to programs designed to train students for gainful employment, the Guide supplies information in the vocational homemaking education section regarding programs for preparation of adults to become more efficient homemakers, also an occupation of significant importance.

If program planning is to be realistic, it must be based upon known facts,--facts regarding:

- The many types of vocational education programs and the legal purposes of each.
- The actual employment opportunities existing and reliably anticipated to exist in the area served by the school.
- The knowledge and skills students need to acquire in order to possess the competency necessary to enter upon and succeed in employment.
- Types and number of students needing the programs being planned who have the interest, aptitudes and ability necessary to benefit from such programs in terms of becoming prepared for employment in the occupation for which the program is designed to train students for the objective.
- Policies and procedures relating to making application to the Texas Education Agency for approval of programs.
- Necessary qualifications of teachers.
- Financing of programs.
- Other information important to program planning.

Important Considerations in Program Planning

Planning for vocational education involves four important considerations identified with the purposes of programs designed to prepare students for gainful employment--wage earning or income-producing employment. These considerations are:

I. Determination of the Employment Opportunities in the Area Served by the School in Various Types of Gainful Employment

Necessity of Determining Employment Opportunities

Job opportunities must exist in sufficient numbers in the occupation or occupations for which training programs are being contemplated to give reasonable assurance that students trained in the program will, upon completion, have ample opportunity to enter full-time employment in the job classification for which they will have been prepared.

Conducting Occupational Surveys

Occupational surveys should be made to determine employment opportunities and to provide realistic basis for deciding upon the type of programs needed to prepare students for occupations actually existing or reliably anticipated to exist in the area served by the school. These surveys should be designed to provide employment data and forecasts as to need for employees in an occupation, or related occupational groups, at the time the applying school requests approval of a program or programs, and such annual needs in the future projected for three years. Availability of this reliable information will provide statistical basis regarding the immediate and continuing need for programs and the extent of job opportunities for students in the occupations surveyed.

Utilizing Data Revealed in Surveys

Data recorded in the survey should be analyzed as to the occupations revealing the greatest number of employment opportunities. Priority in requesting approval of new programs should be based upon those most urgently needed in terms of the greatest number of employment opportunities as revealed in the survey. Staff members of the Texas Education Agency are available to school officials in interpreting survey reports.

Requesting Assistance in Making Surveys

Upon the request of school officials contemplating adding or expanding programs to prepare students for gainful employment, members of the Vocational Education staff of the Texas Education Agency are available without charge to assist in organizing an occupational survey to determine need for new programs. Occupational data and employment forecasts available from the Texas Employment Commission will be utilized in preparation of survey reports. Requests for assistance in organizing surveys should be made to:

Mr. John R. Guemple, Director
Junior College Vocational Program Development
Division of Vocational Education
Texas Education Agency
Austin, Texas 78711

II. Students Contemplated to be Enrolled Must Have the Interest, Aptitudes and Ability Necessary to Benefit from the Program in Terms of:

1. Having as their objective entrance into full-time employment in the occupation for which they are to be trained upon completion of the program.

2. Having the aptitudes, ability and characteristics necessary for employment in the occupation for which they are to be trained.

Importance of Providing Programs of Guidance and Counseling
Planning of programs suited to the needs, interests and ability of students to benefit requires provision of realistic guidance, counseling and testing programs by the schools. Programs of guidance need to include information to students regarding opportunities for employment in the occupations for which training programs are available in the school.

Importance of Considerations One and Two in Program Planning
Decision making in the final determination of type or types of vocational education programs to be initiated, therefore, must be based on both of the above considerations. The number of students to be enrolled in the program must depend upon the number of existing or anticipated opportunities for employment in the occupation or occupations included in a particular program of vocational education.

III. The Exclusion of any Program Designed to Prepare Individuals for Occupations Generally Considered to be Professional or Requiring the Baccalaureate or Higher Degree

Any program designed to be pre-professional work for a program in a college or university to prepare individuals for an occupation requiring a baccalaureate or higher degree cannot be construed as being eligible as a program of vocational education in the public junior colleges.

IV. Adequate Classroom, Shop, Laboratory, On-The-Job Supervised Work Experience and Training in Cooperative Programs, Equipment, Supplies, Adequate Time for Instruction and Program Coordination with Employment, Employment of Educationally and Occupationally Competent Instructors and Other Facilities Necessary for Organizing and Conducting Vocational Education Programs of High Quality

Information regarding policies relating to these requirements is contained in the program sections of the Guide.

Assistance in Planning, Conducting and Evaluating Programs

Advisory Committees
Local Educational institutions should establish advisory committees to provide advice relating to planning, conducting and evaluating the quality and effectiveness of programs. These committees should be appointed by the president of the college. When an institution is conducting several types of programs, an over-all advisory committee should be established to advise school officials, instructors and guidance counselors regarding the total program. A committee for each program being conducted--or a subcommittee of the over-all committee--should be appointed to advise the school in regard to each specific program.

Additional information relating to the establishment and use of advisory committees is included in a separate section of this Guide.

Evaluation of Programs

Local administrators are required to evaluate the quality and effectiveness of each program being conducted and to make revisions and improvement as needed to result in programs being realistic in the light of actual or anticipated opportunities for gainful employment in the area served by the school and suited to the needs, interests and ability of students to benefit from the program in which they are enrolled in terms of acquiring the knowledge and skills necessary for entry upon and success in employment in the occupations for which they are trained. Advisory committees with membership consisting of employers and employees can be of valuable assistance in evaluating the quality and effectiveness of programs.

As a phase of evaluation of the quality and effectiveness of programs, schools are required to maintain follow-up records regarding the placement and employment of students after completion of programs in the occupations for which they are trained, in other occupations, numbers entering college instead of employment, numbers entering the armed forces, and other follow-up information.

Consultative Services and Evaluation of Programs by Staff Members of the Texas Education Agency

In cooperation with school officials, staff members of the Texas Education Agency have responsibility to provide consultation regarding interpretation of policies for initial and continuing approval of programs, methods of organization and operation of programs, evaluation of the quality and effectiveness of programs, adequacy of facilities and making recommendations for revision and improvement as needed.

General Policies on Vocational Education

Eligibility of Local Public Institutions for Funds for Programs of Vocational Education in Relation to the Civil Rights Act of 1964

Approval of the compliance plan under the Civil Rights Act of 1964 by the United States Commissioner of Education is necessary before a local institution is eligible for funds for the vocational education program. Schools receiving this approval may be approved for continuation of programs conducted during the 1964-65 year for the 1965-66 year only on the same basis as in effect in previous years.

Compliance with Title VI, Civil Rights Act of 1964

Reviews of the local educational agency pertaining to compliance with Title VI, Civil Rights Act of 1964 may be conducted by staff representatives of the Texas Education Agency. These reviews will cover at least the following policies and practices:

1. Enrollment and assignment of students without discrimination on the ground of race, color, or national origin.
2. Assignment of instructors and other staff without discrimination on the ground of race, color, or national origin.
3. Non-discriminatory use of facilities.
4. Public notice given by the local educational agency to participants and other citizens of the non-discriminatory policies and practices in effect by the local agency.

In addition to conducting reviews, Texas Education Agency staff representatives may be called upon to check complaints of non-compliance made by citizens and will report their findings to the United States Commissioner of Education.

Auditing Records of Public Educational Agencies

Licensed public accountants employed by the junior colleges will, as a part of the audit of school accounts, audit the fiscal records and documents of local public educational agencies pertaining to expenditures claimed for reimbursement on vocational education from the Texas Education Agency. Records and financial documents relating to this program will be subject to audit by staff members employed in the Division of School Audits and in the office of the Business Manager of the Texas Education Agency.

Evaluation of the Quality and Effectiveness of Programs

Junior college officials are required to make evaluations of the quality and effectiveness of programs of vocational education, determining to what extent the program approved to prepare students for gainful employment continues to be

- Realistic in the light of actual or reliably anticipated opportunities for gainful employment in the area served by the school.
- Suited to the needs, interests and ability of students to benefit from the program in which they are enrolled in terms of acquiring the knowledge and skills necessary for entry upon and success in employment in the occupations for which they are trained.
- Effective regarding the placement and successful employment of students--after completion of the program in which they were enrolled--in the occupation for which they were trained or in closely related occupations. Schools are required to maintain follow-up records on all students enrolled in each program regarding their placement and employment, numbers entering the armed services instead of employment, the number continuing their education in institutions of higher learning, and other information.

Evaluation of the quality and effectiveness of each program conducted by an institution is required to be made at least annually, utilizing evaluation criteria developed and adopted by regional accreditation agencies or in their absence, evaluation criteria approved by the Texas Education Agency.

Members of the staff for Vocational Program Development, Coordination, and Evaluation and of the several vocational program divisions, Texas Education Agency cooperating with junior colleges will make periodic evaluations to determine the quality and effectiveness of programs.

General Policies on Justification of Need for Programs Preparing Junior College Students for Gainful Employment

Occupational Surveys Justify Need for New and Expanded Programs. When a school makes application for approval of new or expanded programs, need for such program or programs shall be based upon occupational data and employment opportunity forecasts determined in occupational surveys in the area of the applying school and upon data available from the Texas Employment Commission relating to employment opportunities and trends in the labor market area embracing the district of the applying school. Assistance in organizing surveys, compiling data, and evaluation by Texas Education Agency staff will be provided without charge.

Determining Continuing Need for Programs. Continuing need for programs conducted by a school shall be determined upon the basis of evaluations of the quality and effectiveness of programs described heretofore in this Guide, as well as the ability to justify continuation of vocational programs in accordance with the policies of the Texas Education Agency.

Consideration of Programs Other Than Those Described in this Guide. Only programs to prepare students for occupations as described in this Guide are eligible for approval, when justified. When approval of programs to prepare students for other occupations is contemplated, prior approval must be made by the Texas Education Agency. Each proposal must be submitted by the administration of the institution for review by the Assistant Commissioner for Vocational Education working with the staff for Vocational Program Development, Coordination and Evaluation and the Vocational Divisional Directors. After completion of the review, the applying school will be notified as to acceptability of the proposal.

Provision of Training Needed by Students Through Combined Efforts of Two or More Programs of Vocational Education. In order to perform adequately and efficiently in some occupations, persons need instruction in two or more of the traditional areas of vocational education. This need has implications for the interrelationship that should be developed between the various vocational education programs, including the "team approach" or cooperative efforts of instructors in two or more vocational program fields.

The important consideration is to provide students the specific instruction they need in order for them to learn the knowledge and skills required in an occupation. Examples of this need for interrelationship of programs are:

> Some students preparing for employment in service stations may require competencies in marketing and selling, in office operations and in automobile mechanics. Hence, three programs should contribute to providing these knowledge and skills--distributive education in providing the marketing instruction, vocational office education in providing the knowledge needed with regard to office operations, and vocational industrial education in relationship to the competencies needed to be learned regarding automobile mechanics.

Some students preparing to be employed in farm machinery establishments may need competency in marketing, agriculture, machine shop repair, maintenance and operation. Hence, distributive education should provide the training students need in marketing, the agriculture program should provide the training needed by these students with relationship to the functions of the farm equipment in agriculture and some of the instruction with regard to machine repair, maintenance and operation should be provided as farm mechanics in the vocational agriculture program. However, in the manufacture of farm machinery where some phases of machine shop training and other instruction of an industrial nature are involved, the vocational industrial education program should supply these types of training.

The policy of the Texas Education Agency is that programs shall work together in providing the instruction necessary to prepare adequately students for occupations involving knowledge and skills normally supplied by more than one program rather than for one program to attempt to provide training for which the teacher of that program does not have occupational experience background enabling him to provide <u>specific</u> instruction.

General Policies on the Use of Advisory Committees

Public junior colleges shall establish advisory committees to provide expert consultation in planning, conducting, and evaluating the quality and effectiveness of programs. These committees should be appointed by the president of the college. When the college is conducting several types of programs, an over-all advisory council should be established to advise school officials, teachers, and guidance counselors regarding the total program. A program advisory committee for each kind of training being conducted--or a subcommittee of the advisory council--should be appointed to advise the college in regard to a particular program. It should never assume administrative authority nor attempt to operate the program directly. The advisory council should consist of a minimum of six persons: two employers, two employees, a representative of the public, and a representative of the college--usually the Dean of Occupationally Related Curricula or the Director of Vocational-Technical Education--who is without vote.

Advisory Council. Members of the advisory council are selected with the assistance of the local administrator directly responsible for the program from a list of key persons in the community who are qualified to render this service to the college in an advisory capacity. Some suggestions on the selection of such persons follow:

Employer Groups--Every community has several persons classified as foremen, superintendents, or managers of businesses or industries who are prominent in civic affairs. The selection of council members from such a group to represent employers is usually an easy task. There are, however, a few factors which should be remembered when the advisory committee is being appointed. Members should be chosen on the basis of:

- Their close relationship to the fields of employment for which training is being conducted or contemplated.
- Their reputation in the community
- Their participation in civic and school affairs.
- Their knowledge and interest in education matters.

Employee Groups--Council members from the ranks of employees are frequently difficult to select. Members selected from employee groups should be competent in their occupational field and possess leadership ability. They represent all the employed persons in their particular field of employment. Various labor groups or organizations in the community should be invited to recommend such leaders or possible members. Factors to be considered in selecting representatives of the employee group are:

- Their close relationship to the trades or occupations for which training is being conducted or contemplated.

- Their reputation as craftsmen or technicians.

- Their interest in youth and school affairs in general.

Representative of the Public--Insofar as possible, a person who is actually a public agent, or one who, through the nature of his work, is in close contact with the public, should be selected as the so-called "neutral" person on the advisory council. Such persons might be connected with the Texas Employment Commission, the chamber of commerce, the press, or any recognized youth organization.

Sub-Committee or Program Advisory Committees. A program advisory committee serves in a more specific capacity than the advisory council and usually is needed only when training is being conducted or planned in one particular occupation. This group represents its own specific trade, craft, or occupation and in some instances, especially in smaller communities, may consist of no more than two or three members.

In addition to the duties outlined for the advisory council, the program advisory committee is expected to assist the local administrator regarding preparation of instructional material and to assist him in setting standards and policies for training students in the occupation. All of the committee activities, as suggested by its name, are to apply to the trade, craft, or occupation for which the committee has been selected. Both employers and employees should be represented on program advisory committees.

Advisory Functions. The advisory council and program advisory committees render many services to local administrators. A few of the possible areas of expert guidance which they make available to the schools are:

- Assistance in promoting and publicizing the college vocational programs.

- Assistance in determining the need for vocational programs.

- Aid in developing content of courses.

- Recommend floor space requirements and equipment necessary for new programs.

- Aid in obtaining qualified and competent instructors.

- Assistance in developing standards for the selection of students.

- Aid in keeping present content of courses up-to-date with the technological advance of industry.

- Assistance in securing the effective cooperation of labor and management from industry.

- Assistance in the placement of graduates.

- Assistance in evaluation of effectiveness of programs.

Policy on Continuation of Approval of Old or Approval of New or Expanded Programs of Vocational Education

General Provisions

To establish and retain its eligibility for an approved program of vocational education, the applying school agrees to meet and maintain the standards of the current State Plan for Vocational Education as well as policies of the State Board of Education, and to conduct vocational subjects in accordance with the provisions published in this Guide unless prior approval of exception has been received from the Texas Education Agency.

When an institution does not maintain the standards of the current State Plan for Vocational Education and policies of the State Board of Education, or uses personnel, equipment, or facilities for purposes other than for conducting vocational subjects only, except as otherwise provided in applicable program sections of these policies, approval may be withdrawn by the Texas Education Agency.

Schools agree to provide scheduled time for planning, organizing, conducting, and coordinating the program. The institution shall schedule sufficient time for supervision by vocational teachers of vocational students in their required supervised programs or part-time employment and on-the-job training in cooperative full-time programs.

Before a Junior College shall be eligible for consideration for an additional vocational program, it must justify continued approval of existing programs in the same vocational field under provisions of this policy. The school desiring to expand its vocational program must submit an application for new or additional programs, equipment, or personnel to the Vocational Education Division of the State Department of Education by May 1 each year on application forms supplied by the Vocational Division of the Texas Education Agency.

The policy of the State Board of Education shall be to assist schools in providing instruction in each of the several vocational programs for which there is a need. In order to provide on a minimum program basis as many vocational opportunities as is possible in meeting the varying needs and interests of Junior College students in preparing for existing occupational opportunities in their communities and surrounding areas, consideration shall be given to applying schools having no vocational programs in one or more of the program areas provided there is a need for such program or programs, before consideration is given to schools applying for additional programs in the same vocational fields. Programs will not be necessarily duplicated in Junior Colleges in any geographical area of the state.

A comprehensive survey of the school and community shall be submitted to the State Department of Education as a part of the application for each vocational program. This survey shall include (1) number of eligible high school students to be enrolled in the program, (2) the need of these students and the community for the program, and (3) the facilities the school will provide for the program. Applications for programs to prepare students for gainful employment must be supported by occupational surveys justifying need for the programs.

Definitions of Eligible Students

In establishing its minimum membership of eligible students required to qualify for continued approval, a school cannot count the same students in applying for a program in another vocational field. Students eligible to be counted in allocation or continuation of programs are defined in the following General Definitions and in Definitions of Eligible Students for each of the several programs of vocational education.

General Definitions

Students eligible to be counted in the minimum eligible membership required for allocation or continuation of vocational programs are defined as follows:

> Students must be regular Junior College students of the district, legally enrolled and in regular attendance. Students may be enrolled who reside outside the Junior College district on such terms as are deemed just and proper by the Junior College administration and board.
>
> Students who are not high school graduates and who were above the legal age of mandatory public school attendance as of September 1 who are eligible to be enrolled in the pre-vocational or in a regular vocational program if they were not in attendance in a public school during the previous year and if their aptitude, abilities, and achievement level indicate they should succeed in the program.
>
> Students contemplated to be enrolled in a program designed to prepare persons for gainful employment must have the interest, aptitudes and ability to benefit from the program in terms of having as their objective entrance into full-time employment in the occupation for which they are to be trained upon completion of the program, and must have the aptitudes, ability, and characteristics necessary for employment in their chosen occupation.

Allocation of New Programs of Vocational Education

Introduction. When an institution has identified a vocational education program for which there is a reasonable expectation of employment opportunities and for which there is an adequate number of eligible potential students, the school may apply for prior approval of the program. The application forms, available upon request from the Vocational Division of the Texas Education Agency is to be submitted on or before May 1 in order to provide ample time for review and approval before classes are scheduled for the fall semester.

Procedures in Development of the Application. The steps normally used in preparing an application are as follows:

- A program advisory committee is appointed to assist the college administrators in determining the knowledge and skills necessary for entry into and success in the occupation for which an educational program is being proposed.

The advisory committee will also suggest the length of time that might be necessary to develop these competencies and the kinds and amounts of equipment that would be necessary. The committee may also suggest criteria the school officials and guidance counselors could use in selecting candidates for the instructional program.

- The local administrators responsible for the program will use the data developed by the advisory committee to determine the size and number of shops, laboratories, and classrooms necessary to conduct the program, the qualifications of the teacher and other necessary detail. The advisory committees information will be organized into course content for the purpose of developing the application for approval. A tentative list of equipment, tools, and supplies can then be made and an instructional program cost estimate established.

- Formal application will then be forwarded to the Texas Education Agency for review by the Assistant Commissioner for Vocational Education working with the staff for Program Development and the director of the division which will be responsible for the program during its operation.

Criteria for Approval. Programs will not be unnecessarily duplicated within a given geographical area of the state. Each program will be considered separately as it contributes to the total available vocational offerings in the state, in the area of the state served by the college, and in the diversity of offerings available in the applying institution. Other criteria are contained in the section of the Guide dealing with specific program offerings.

In general, it should be stated here that for approval purposes, programs should be scheduled for a minimum of twenty class hours (55 minute periods) per week, laboratory included, and an average of one-half of this time should be in vocational or related classes.

Standards. In the absence of minimum standards from a regional accrediting agency, the Texas Education Agency and the local educational institution have a joint responsibility to maintain programs of high quality. Each instructional program of vocational education approved by or subject to the approval of the Texas State Board of Education that is conducted by a public junior college, college, university, or technical institute shall be subject to evaluation criteria of the Division of Vocational Education of the State agency as well as such other criteria as may be applied by a program advisory committee working with the local administration directly responsible for conducting the programs. Every program shall be evaluated by the advisory committee on an annual basis and a copy of the evaluation shall be kept on file by the institution together with a reaction to the evaluation by appropriate faculty and administrative personnel. The Texas Education Agency shall conduct such periodic evaluations of total program offerings or selected program offerings as the need for such evaluations may be deemed necessary or desirable.

Junior College

Programs of Vocational Education

The objective of each program of vocational education for junior college students to prepare then to enter gainful wage-earning or income-producing employment upon completion of the program in which they are enrolled. Each program is designed to be an integral part of the total program of education, supplemented but not supplanted by general or academic education which may be a part of the vocational curricula.

The Cooperative Part-Time Training Program. This type of vocational education, consisting of a combination of occupationally related classroom instruction and on-the-job training and work experience is one of the most effective types of programs preparing students for gainful employment.

This program is a cooperative relationship between employers of the community and the Junior College. Business or industrial establishments employ students during school afternoons for a minimum of 15 hours per week at wage rates equitable for beginning young employees and provide them on-the-job training. Employers also advise with the teacher of the program employed by the school regarding the instruction students need in the classroom. The institution provides students with training directly related to the jobs in which they are employed for a minimum of three fifty-five minute periods of classroom instruction or its equivalent each week for the duration of the program.

Objectives, organization and operation of Cooperative Part-Time Training Programs are essentially identical in each of the occupational fields of agriculture, home economics, distribution, industry and health or office occupations. Differences involved include: education and occupational qualifications required of teachers in different programs, occupations for which students are prepared to be employed, instructional materials needed in each program, and membership of local advisory committees.

The following requirements apply to all Cooperative Part-Time Training Programs:

- Minimum of 15 hours per school week (Monday through Friday) of supervised employment throughout the school year of each eligible student in an occupation or job approved in this Guide for the respective cooperative part-time program in (a) agricultural occupations, (b) home economics occupations, (c) distributive occupations, (d) industrial occupations, (e) health occupations, or (f) office occupations. Or, the occupation must be approved by the Texas Education Agency as specified in General Policies on Vocational Education in this Guide.

  Students enrolled in the program must be employed as of the date of entrance into the program, or not later than two weeks after that date. They must be employed in conformity with Federal, State and local laws and regulations in a manner not resulting in exploitation of such student-learners for private gain.

Students not employed in accordance with these provisions are ineligible to be counted in the minimum eligible student membership required for continued approval of the class for reimbursement purposes.

It is not advisable for students to be employed for longer than 20 hours as a maximum during afternoons each week, or four hours each school afternoon. Three hours of employment is preferable since with their school program responsibilities during morning hours and necessary preparation of assignments, any additional job employment would constitute excessive daily time.

Employment on Saturdays is optional with students and employers, but only employment on school days will be eligible as supervised work experience and on-the-job training in the required minimum of 15 hours per school week, Monday through Friday. In no case is it advisable for the 20 hour maximum per week to be exceeded without specific approval of the Texas Education Agency.

- A written Training Plan or Agreement between the employer and the school on forms supplied by the Texas Education Agency is required for each student enrolled in the program. A sample of the plan is contained in the Appendix of this Guide. A student is not considered as an eligible student until his approved training plan is received by the Texas Education Agency not later than two weeks after placement in employment.

- A minimum of three fifty-five minute periods (net time) of instruction or its equivalent per school week, directly related to the occupation or job in which each student is employed. This instruction for the duration of the program shall consist of group instruction and individual student assignments and projects directly related to his current job duties and responsibilities.

- Instructional materials directly and specifically related to the knowledge and skills required in employment for each occupation and job classification in which students are employed must be available and used in training students in all Cooperative Part-Time Programs. Additionally, instructional materials for use in group instruction needed in orienting and adjusting students to employment conditions, developing proper attitudes toward employment, the school, civic responsibilities, employer-employee relationships and employee responsibilities, and other necessary group instruction must be available to the program.

- Adequate guidance and counseling of students, prior to entering the program and throughout its duration, must be provided enrollees by the teacher, and with assistance of school counselors, regarding adjustments students may need in regard to the total school program, in relation to employment problems and in achieving job placement in occupations best suited to the interests, aptitudes and ability of students.

- Close coordination and correlation of the cooperative part-time instructional program in the school with the part-time employment and on-the-job training of students must be established and maintained. As a minimum, the training station and immediate supervisor of each student must

be visited once per week to assure this close coordination and correlation to result in students receiving instruction in the school in terms of it being directly and specifically related to the knowledge and skills they need in current job responsibilities and in relation to other instruction and counseling needed by students to achieve optimum progress in preparation for full-time employment upon graduation.

The Cooperative Full-Time Training Program. This is a new type of Vocational Education program consisting of on-the-job work experience and related laboratory type instruction. This program has been labeled one of the most effective programs preparing students in occupational competencies that has been devised.

The program is a cooperative relationship between employers and the Junior College. The employers may be in the community or the cooperative relationship may be with employers that are distant. Employers use students during the school year for a minimum of 15 weeks at wage rates equitable for beginning employees and provide them with an opportunity to gain useful work experience. Employers also advise the school concerning the preparation the institution provides students have received in the classroom and laboratory leading directly to knowledge and skills in the occupation for which they are being trained. The students will be full-time at the college at least one semester during the school year in which he is enrolled as a cooperative full-time student.

Objectives, organization and operation of these programs are essentially identical in each of the occupational fields which may include: agriculture, home economics, distribution, industry and health, as well as office occupations. Differences involved include: educational and occupational qualifications required of teachers in different programs, occupations for which students are being prepared, instructional materials needed in each program, and membership of local advisory committees.

The following requirements apply to all Cooperative Full-Time Training Programs:

- Minimum of 15 weeks of employment during the school year for each eligible student in an occupation or job approved in the section of the Guide for the respective program or, the approval of the Texas Education Agency if the job is a specialized one involving knowledge and skills associated with more than one of the programs.

  It is not advisable for students to be employed for more than 18 weeks as a maximum during the school year. Summer employment is not considered in the preceding figure unless the program is designed to last 12 months each school year, in which case the maximum shall be 24 weeks.

  Employment on Saturday is optional with students and employers. Provision should be made for overtime compensation at the rate of time and a half, if the students are expected to work more than 8 hours in one day or more than 5 days in one week.

- A written training plan or agreement between the employer and the school is required for each student enrolled in the program. The plan should parallel the form used in the Cooperative Part-Time Program, a sample of which is contained in the appendix of this Guide. This plan should set forth the duties of the student in his employment and occupation competencies expected of him in the performance in these duties.

- Instructional materials directly and specifically related to the knowledge and skills required in employment for the occupation and/or job classification in which the students are employed must be available to the student during the progress of the work experience. Pre-employment orientation shall be required to adjust the student to employment conditions and to develop proper attitudes toward employment, civic responsibilities, employer-employee relationships, employee responsibility and other necessary group instruction.

- Adequate guidance and counseling of students prior to entering the program and throughout its duration must be provided by the instructor, school counselors, and administrators.

- Close coordination of the cooperative full-time instructional program in the school and the full-time work experience on-the-job must be maintained. The training station and the immediate supervisor of each student participating in the program should be visited frequently. Where distances are involved, the visits may be more infrequent, but this does not relieve the school of responsibilities for coordination with the employer. Close training stations may be visited weekly, more distant ones monthly. Special exceptions may be made for great distances with the permission of the Texas Education Agency.

Program Planning. This Guide attempts to leave a great deal of flexibility and freedom in planning programs of vocational education to meet the needs of the business and industrial organizations being served by the local institution conducting the program. Unreasonable requirements and minimums have hopefully been avoided. The following list is intended to be a helpful guide in formulating program proposals. These "hallmarks" have been tried and time tested in many programs in Texas and across the United States.

- The growth rate of the vocational education program offerings available in a geographical area of the state must keep up with manpower needs and skill requirements of business and industry.

- The training time of students varies in distribution from one program to another, however, there is an established minimum and an established optimum:

  Minimum. Fifty per cent in vocational and related subjects and 50 per cent in general education.

Optimum. Fifty per cent in the vocational subject matter, 30 per cent in the basic science and mathematics which are related to and support the vocational subject, and 20 per cent in general education.

Most programs will normally fall between these two points. Exceptions are those programs designed to be 100 per cent skill development with only such other related information and general education as are necessary to perform adequately in a given work situation.

- Training done for a specific occupation or group of closely related occupations requiring similar knowledge and skills would be most difficult if not impossible to design to satisfy the requirements for entry positions in prospective work classifications if the transfer requirements of a major college or university are injected into the objectives of the program.

- Guidance, job placement of graduates, and a close working relationship with prospective employers in business and industry are absolutely essential if programs are to be successful.

Agricultural Education

Objectives of Programs. Vocational Agricultural Education is designed to provide the knowledge and skills needed by students who have entered upon or are preparing to become established in farming, or to prepare them for employment in occupations requiring knowledge and skills in one or more of the areas of agricultural subject matter which are animal science, plant science, soil science, agricultural mechanization, farm management, and agricultural leadership.

Types of Programs. In addition to the cooperative program discussed elsewhere in this Guide, vocational agricultural education may be conducted for students in two types of programs.

- Pre-Employment Laboratory Training for persons preparing to become established in farming or to enter employment in agricultural occupations requiring knowledge and skills in one or more of the primary agriculture subject matter disciplines.

- Extension Training for high school graduates and adults who are employed in agricultural occupations requiring knowledge and skills in one or more of the agriculture subject matter disciplines.

Objectives. Programs in Pre-Employment Laboratory Training shall be designed to provide technical instruction and practical experience for high school graduates and adults preparing to establish themselves in farming or to enter employment in occupations requiring knowledge and skills in one or more of the agricultural subjects.

Technical training and practical application shall be provided in the selected occupations or cluster of related agricultural occupations in the classroom, shop, laboratory and field activities.

Approvable Occupations. Occupations approvable under this plan include occupations where there is a need for training to prepare students for successful income producing employment. Programs conducted shall provide instruction on a sequential basis necessary for students to acquire the knowledge and skills essential to perform the work requirements according to accepted standards in the occupation for which students are being prepared.

Class Schedule. Training shall be scheduled for classroom and laboratory instruction for a minimum of twenty class hours (55 minute periods) per week for a minimum of one school year and a maximum of two calendar years.

Student Selection. High school graduates sixteen years of age or older and adults are eligible for entrance into the program provided they have an interest in and a need for such training. Acceptance for membership shall be on the basis of training objective, aptitude, interest, need, physical and mental competency, and other qualifications essential to successful training and employment.

Facilities. The school shall provide a standard classroom which contains sufficient floor space to accomodate the twenty-four students. The classroom shall contain library space, bookcases, magazine racks, bulletin cases, filing cabinets, and desk for the instructor. In addition, the school shall provide farm mechanics shop, a greenhouse, land for nursery, or other facilities needed for the specific type of Pre-Employment Laboratory program to be conducted.

Equipment, Supplies, and Instructional Materials. The school shall provide the type, quality, and quantity of equipment essential in teaching the basic knowledge and skills necessary for efficient instruction and practical experience for students in the type of Pre-Employment Laboratory Program to be conducted. Equipment shall be maintained and updated on an annual basis.

The school shall provide reference material, instructional materials, and audio-visual media appropriate for the training which is being provided.

Instruction. Instruction shall be based upon a job analysis of the occupations taught and the knowledge and skills required for performance of productive jobs or operations in accordance with accepted procedures and standards of the occupation. Instruction will include the knowledge and skills required in selected occupations and will be conducted through classroom and laboratory experience. Included will be the latest information necessary for competencies required in the occupation for which training is being conducted.

Qualification and Certification of Teachers. The instructor for the program should be occupationally competent. As a minimum, he shall have the baccalaureate degree from an institution approved for the preparation of vocational agriculture teachers with a minimum of 54 semester hours of technical agriculture, including such courses as agronomy, animal husbandry, agricultural economics, poultry production, and agricultural engineering. He shall have completed 12 semester hours of agricultural education, including six semester hours of special methods and supervised practice teaching. In addition, he should have specialized training and occupational experience related to his teaching assignment.

Extension Training. Extension classes are subject to individual course approval. The institution may offer training to "extend a person's knowledge and skills" in an area of subject matter closely related to the employment of the people enrolled for the class. These classes normally are classroom experiences of related technical information but may be laboratory experiences if the college is already equipped to provide the necessary equipment, tools, and supplies.

Distributive Education

Objectives of the Program. Junior college distributive education curricula should be designed to provide young men and women with training which will qualify them for advancement into supervisory and mid-management positions in the various fields of distribution and marketing, that is, the retailing, wholesaling, and the kindred service occupations.

Plan of Operation. Two types of junior college distributive education programs are approvable. One type involves an approved sequence of professional courses leading to employability in the supervisory or mid-management levels of a specialized distributive occupation. The other type, known as the cooperative program, discussed elsewhere in this Guide, provides training for supervisory and mid-management levels in a single distributive occupation, or a cluster of such occupations through a combination of classroom instruction and related and approved employment experience.

Each student, prior to the second semester of enrollment, will have the assistance of the institution's vocational guidance counselor in selecting the particular distributive occupation in which training will be provided.

Approvable Occupations. Occupations to be approved for training under a junior college distributive education program must be in the categories of retailing, wholesaling, and/or the allied service occupations. Within these occupational groups, the minimum levels of competency for which students will be prepared at the end of two years, will be supervisory, mid-management or junior executive.

To list the separate distributive career objectives which would be approvable under the various programs would be unnecessarily long for the purposes for which this Guide is intended. For discussion purposes let us consider only the field of retail management. This type of program contains five special fields which include skills requiring specific training. These are Merchandising, Sales Promotion, Financial Control, Operations, and Personnel.

- Merchandising is concerned with markets, customer contacts and quality selection. Some supervisory job classifications in this area are: head of stock, assistant buyer, buyer, divisional and general merchandising manager.

- Sales Promotion informs the consuming public of the goods and services available using as media advertising, display, fashion shows, and other devices. Specific supervisory job titles include: display manager, advertising manager, and fashion coordinator.

- Financial Control is concerned with the sources and uses of funds, with record keeping and fiscal controls. Job titles include: controller and credit manager.

- Operations is a broad area concerned with the care and maintenance of buildings and equipment, the flow of goods, and marketing of merchandise. Specific supervisory job titles in the area include: operating manager, receiving and marking supervisory and warehouse supervisor.

- Personnel deals with the problems of recruiting, testing, training, placing and developing all personnel who procure the merchandise, deal with the public and keep the records. Typical job titles are: personnel interviewer, training director, and personnel manager.

In addition, each separate merchandise line, within retailing, requires areas of special skills and knowledge. For example, a house furnishings buyer could not transfer to mens' wear buying without additional training and experience. In the junior college program, these areas of special skills and knowledge are provided through the combination of classroom instruction, individual research studies, and/or employment experience in the selected business.

As in retailing, the wholesale occupations and the service occupations also, include supervisory and mid-management job titles of comparable variety. The most common service occupations are insurance and banking.

Class Schedules. The scheduling of classes depend largely upon the type of training program contemplated.

Student Selection. This program is open to high school graduates and employed adults who have the educational background necessary to benefit from the instructional program.

Facilities. A standard classroom with adjacent instructor's office should be provided. This classroom should contain reference area, bookcases, magazine racks, bulletin boards, filing cabinets, etc. In addition, a store unit training fixture installed at the front of the classroom will add effectiveness to many phases of the instruction and, also, a commercial-type display window, built through the wall, will make actual practice possible in this important phase of sales promotion.

Instruction. Classroom instruction may include a combination of group experiences, teaching of professional subjects, individualized research, or project work in the separate distributive occupation being pursued by the particular class. Professional courses might include marketing, merchandising, sales promotion, mathematics of distribution, accounting, insurance, real estate, purchasing, inventory control, and supervision and management.

Training Stations. In order for a distributive business to be approved for use as a cooperative training station it must meet minimum requirements involving the following factors: (1) Reputation of the business and management, (2) Estimation of the business' competence in teaching management and supervisory skills, (3) Volume of business and capacity to provide training employment, (4) Estimate of career opportunities in the business, (5) Business' equipment and physical plant.

Distributive Education already has a close working relationship with the major Texas trade associations. These include:

Texas Retail Merchants Association
Texas Credit Executives
Texas Personnel Association
Texas Retail Grocers Association
Retail Furniture Association of Texas
Texas Oil Jobbers Association
Texas Restaurant Association
Texas Pharmaceutical Association
Texas Electronics Association
Automotive Wholesalers of Texas
Texas Butane Dealers Association
and the
Texas Society of Association Executives

Local chapters of these associations are available to junior colleges for advisory purposes, sponsorship of scholarships, employment counseling with graduates, etc.

Teacher Qualifications. Minimum qualifications are the bachelor's degree and at least three years of successful employment in the distributive occupations or occupations for which the local program is providing training.

The Distributive Education Clubs of America. Known as DECA, affords an entirely separate program of activities for junior college programs. National level competitive activities include "Management Decision Making" and "Marketing Improvement." All junior college programs are eligible for affiliation as a chapter in the Texas Association of DECA.

Home Economics Education

Objectives of Programs. The home economics programs in the junior colleges may be designed to include preparation for:

- Useful employment as a homemaker.
- Gainful employment in occupation involving knowledge and skills in one or more home economics subjects.

The programs may include some of the preparation normally considered professional, that is transferable to a senior college and applicable toward a degree in home economics. The portion of the program that is specialized and occupational in nature and therefore not necessarily transferable is the consideration of this program section of the program planning guide.

Types of Programs. Vocational home economics education may be conducted for junior college students in three types of programs or combination of programs:

- Non-credit courses for young and adult homemakers
- Cooperative Part-Time Training for students preparing to enter employment in occupations involving home economics subjects, including child care and development, clothing and textiles, foods and nutrition, home and institutional management, and home furnishings and equipment.
- Pre-Employment Laboratory Training for students who have entered upon or who are preparing to enter upon gainful employment in occupations involving home economics knowledge and skills. For example: interior decorators, dietary aides, supervised food service workers in public institutions, child care workers, management or housekeeping aides in apartment houses and housing projects, dressmakers, fitters, and alterations workers.

Instruction. Instruction shall be based upon a job analysis of the occupations taught and the knowledge and skills required for performance of jobs or operations in accordance with accepted procedures and standards of the occupation. Instruction will include the knowledge and skills required in selected occupations and will be conducted through classroom and laboratory experience. Included will be the latest information necessary for competencies required in the occupation for which training is being conducted.

Use may be made of field trips to establishments having occupations requiring knowledge and skills in home economics subjects for demonstrations of accepted procedures and operations by employees of those establishments skilled in the types of employment for which students are being trained. The instructor will conduct extensive demonstrations of these procedures and operations in school classrooms and laboratories and specific project assignments will be given students paralleling accepted procedures and operations in the occupation being taught.

Facilities. In determining facilities needed, the types of program or programs, the occupations for which training is being done, and the number of students to be enrolled should be the basis for planning. It is recommended that large free areas with adequate movable storage, portable equipment and furnishings, and many electric outlets be planned. This will permit the college to adapt the space and facilities to meet the needs of an expanding program and to train for new occupations as they emerge.

Equipment, Supplies, and Instructional Materials. The school shall provide the type, quality, and quantity of equipment essential in teaching the basic knowledge and skills necessary for efficient instruction and practical experience for students in the type of Pre-Employment Laboratory Program to be conducted. Equipment shall provide reference and instructional materials and the audio-visual materials appropriate for instruction that will provide the knowledge and skills required for successful employment in the occupation or cluster of related occupations for which training is being provided.

Qualifications of Teachers. Home economics education teachers shall have:

At least a baccalaureate degree in home economics.

Teachers of occupational training programs relating to gainful employment and involving knowledge and skills in home economics subjects should have specialized training and/or occupational experience related to the occupation for which training is being done or in an occupation that is closely related. The teacher's professional preparation and experience must be examined and approved by the Vocational Division in order for this program to qualify for reimbursement from funds administered by the Texas Education Agency.

Industrial Education

Full-Time Pre-Employment Shop Programs.

Pre-employment shop programs are designed to provide persons enrolled in public colleges with both practical and related technical instruction in the basic skills and knowledge of specific skilled trades or occupations in which there are known employment opportunities in the service area of the college or, in some instances, within the State.

Approvable Programs. Pre-employment programs of this type which are approvable include:

- Air Conditioning and Refrigeration
- Automobile Mechanics
- Diesel Engine Mechanics
- Drafting
- Electrical Appliance Repairing
- Electrical Trades
- Machine Shop
- Mortuary Science
- Photography
- Printing (letterpress and offset)
- Radio and TV Repairing
- Watchmaking
- Welding

Other programs may be considered in addition to the above list as the need for them is established and when approved by the Assistant Commissioner for Vocational Education.

Daily Schedule. Full-time pre-employment programs are operated for a minimum of nine months per school year and classes are scheduled as follows:

- Shop or laboratory classes - not less than 15 hours per week, scheduled in consecutive hours daily.
- Related classes - 5 hours per week, scheduled to meet the convenience of the students enrolled.

Each student is enrolled in both shop or laboratory classes and related classes for a total of at least 20 hours per week.

Full-time pre-employment programs are designed to serve regularly enrolled full-time college students operated as a day-time program.

Where there is a justifiable reason to do so, full-time pre-employment programs operated for regularly enrolled college students may be organized to operate in the evenings. The daily time schedule for such evening programs are the same as that for the full-time day programs, as shown above.

Selection of Students. Students are selected for enrollment in accordance with policies established by the operating school.

Facilities and Equipment. Colleges conducting pre-employment programs have the responsibility of providing adequate shop or laboratory space, auxiliary rooms, equipment, and supplies for each program operated. The shop area should be sufficiently large to permit comfortable and safe working area around each item of instructional equipment. Items of equipment, tools, and materials should be comparable to those used in commercial establishments. Local program advisory committees, composed of persons intimately and actively associated with the trade or occupation taught in the shop or laboratory, shall be organized and consulted regarding the type, size, quantity, quality, and appropriateness of all equipment to be used for instruction.

Lighting must be adequate throughout the shops; areas where precision work is done must be provided with auxiliary lighting. Heating and ventilation must be adequate. (Shops in which there is normally considerable physical activity should be six to eight degrees cooler than conventional classrooms.) Hazardous machines must be equipped with guards. Safety aisles or areas must be clearly indicated and fire extinguishers, first-aid kits, and other protective devices must be readily available.

An organized system is required for housing and issuing necessary tools, instruments, small parts and supplies to students.

It is recommended that shop or laboratory buildings be located on the college campus and be compatible with other buildings in design and construction.

Shop or Laboratory Instruction. Instruction is based upon an analysis of the trades or occupations taught and is centered around the performance of useful or productive jobs or laboratory work done by students in accordance with accepted procedures and standards which prevail in the occupation. After the student has gained sufficient skill and knowledge of various operations through laboratory experiences, he should be assigned real or "live" jobs provided by patrons of the school. No charges other than for parts, supplies, and materials used can be made for such work. Shop or laboratory periods are scheduled for consecutive hours during the day in order to minimize time lost in getting work started, cleaning up after work, and washing and dressing by students.

Related Instruction. Each student enrolled in pre-employment training is required to receive a minimum of 5 hours per week of instruction directly related to the trade or occupation he is learning. Such instruction normally consists of trade science, mathematics, blueprint reading, shop sketching, and other subject matter necessary for successful performance in employment in the occupation.

This instruction may be provided in classroom areas outside the shop or laboratory and may be taught either by the shop or laboratory teacher or by some other faculty member whose qualifications to teach related subjects have been approved by the Texas Education Agency.

Qualifications of Shop or Laboratory Teachers. To qualify as teacher of pre-employment shop or laboratory classes, an individual must possess the following qualifications:

- A baccalaureate or higher degree from an accredited college or university -- preferably with a major in industrial education -- and have a minimum of three years of recent full-

time work experience in the trade or occupation in which he is assigned as an instructor, or

- Be a high school graduate with two years of education and/or training beyond high school and have a minimum of five years recent full-time work experience in the trade or occupation that is his teaching assignment.

Qualifications of Related Subjects Teacher. A teacher of related subjects for pre-employment classes -- if other than the shop or laboratory teacher -- must hold a baccalaureate degree from an accredited college or university with a combined total of at least 36 semester hours credit in the fields of physical sciences, mathematics, drawing, and other technical fields. In addition, he must have two years of successful wage-earning experience in a trade or industrial occupation.

Certification of Teachers. Certification of junior college teachers, while not mandatory under Texas law, is desirable for the purpose of establishing a recognized credential of competence as an instructor of industrial subjects. To be issued a permanent Vocational Teacher's Certificate in Trade and Industrial Education, a teacher must have taught full-time in his field for at least two years and have completed 12 semester hours of the following approved teacher-training courses:

Trade Analysis and Course Making
Methods of Teaching Vocational Subjects
Shop Organization and Management
Development and Use of Instructional Materials
Development and Use of Audio-Visual Aids
Aims and Objectives of Vocational Education

A maximum of three of the above or equivalent courses completed at institutions other than those designated as industrial teacher-training institutions may be evaluated toward meeting certification requirements.

Short Intensive Pre-Employment Shop Programs.

Objectives. Pre-employment shop programs designed to prepare persons to accept existing job openings in a new or different occupation, either at the single-skill or semi-skilled level, or at the entry level of a skilled occupation, may be organized for adults. Such courses are terminal insofar as individual enrollees are concerned and students should be employable and available at the completion of the program. Persons enrolling should expect employment in a better-paying situation upon completion of the program rather than to re-enroll in a second course which is more advanced or in which the content is more complex.

It is recognized that to one employed, advanced training may be needed; thus such persons can be enrolled in supplemental or extension-type training which is less intensive and in which training can be extended over a longer period of time.

Selecting Students. Only persons who are preparing for employment in a single-skill or semi-skilled occupation may enroll. They must be persons who have not yet entered employment or who are underemployed and who (1) have left the full-time day school and are over 14 years of age, or (2) are over 18 years of age.

Approvable Short Intensive Pre-Employment Programs. The following programs are examples of short intensive pre-employment programs:

- Automotive Electricity
- Automotive Brake Servicing
- Radiator Repairing
- Engine Lathe Operation
- Pre-Apprentice Bricklaying
- Aircraft Sheet Metal Work
- Turrett Lathe Operation
- Floor Laying
- Roofing
- Glazing
- Power Machine Operation
- Aircraft Electrical Installations
- Various Assembling and Installing Occupations

Classes for training in many other single-skill occupations may be approved on an individual basis.

The Class Schedule. Since the objective of this program is to place adults in existing job openings, the class schedule is intensive and of the minimum duration necessary to impart the knowledge and skills that will make the person employable. The schedule will vary with the course to be taught; thus, only a minimum can be established in this guide. In general, classes should be operated as many hours daily and as many days weekly as is practical to make the trainees employable in the shortest time practical. For example, a pre-apprentice class for bricklayers would probably operate six to eight hours per day, five days per week, and would result in employment in seven or eight weeks, while in a training program of aircraft sheet metal workers where the trainees hold various jobs in a community and continue employment while preparing for a new occupation as a sheet metal worker, the schedule probably would operate three hours per evening at least three evenings per week making the trainees employable in approximately six weeks. Classes which operate as many as nine hours per week are approvable.

Facilities and Equipment. For information regarding facilities and equipment refer to the section on facilities and equipment under full-time pre-employment shop programs.

Shop or Laboratory Space. Shop or laboratory space should be located on the college campus and be of sufficient size to accomodate the maximum number of persons enrolled. In most instances, facilities of the day-school program are utilized.

The Shop or Laboratory Instruction. Since the objectives of these short intensive programs are for the purpose of making a person employable at the entry level, the instruction necessarily must be limited in scope and content to the less complex operative skills and basic information. Related instruction will be taught by the shop instructor along with the manipulative skills.

Qualifications of Short Intensive Pre-Employment Teachers. Same as the qualifications for full time pre-employment shop programs.

Certification of Teachers. Teachers who do not hold a valid vocational teaching certificate may, upon approval of their qualifications, be issued a temporary certificate for Trade and Industrial Education. To be issued a permanent certificate in Trade and Industrial Education, a teacher shall complete the following 10 hour non-college credit courses as they are made available to him:

1. Introduction to Teaching
2. Practice Teaching
3. Course Organization and Planning
4. Use of Instructional Aids
5. Organization and Management
6. Methods of Safety Instructions

Upon request of an authorized school official to the Assistant Commissioner for Vocational Education, these courses are made available locally when there is a need and teacher-training services from Texas A&M University and The University of Texas can be provided.

Evening Extension Programs

Objectives. Extension training is designed to up-grade journeyman-level tradesmen and industrial workers in the occupation in which they are employed to the extent that they may become more productive workers or qualify for more responsible jobs within their occupation.

Approvable Classes. Classes may be organized for any type of industrial occupation in which there are twelve or more employees having common need for instruction in their occupation or portion of their occupation.

Instruction. Instruction may be either manipulative or technical, but most often is centered around the technical aspects of an occupation such as related science, mathematics, blueprint reading and sketching, new industrial materials and processes and the like.

Class Schedules. Classes are usually scheduled outside the working day of the students, usually in the evening, for one to three evenings per week. More than three hours of instruction during one class session is not recommended. Classes are organized for short duration, usually 40 to 100 hours, but may be of longer duration if the content of the course requires it.

Facilities. In many instances, ordinary classroom facilities are sufficient for conducting extension classes. Most schools, however, find that special adult education classrooms, equipped with study tables, projection equipment, demonstration facilities, and storage space are much preferred.

If possible, heating of such classroom facilities for evening instruction should be independent of the school central heating system in order to conserve fuel.

Minimum Qualifications of Instructors. Teachers of extension classes must be high school graduates with a minimum of five years recent full-time work experience in the trade or occupation for which the instruction is designed.

In addition, they must be recognized by persons in their field as highly skilled employees.

Certification of Teachers. Teachers who do not hold a valid vocational teaching certificate may, upon approval of their qualifications, be issued a temporary certificate for Trade and Industrial Education. To be issued a permanent certificate in Trade and Industrial Education, a teacher shall complete the following ten hour non-college credit courses as they are made available to him:

Introduction to Teaching
Practice Teaching
Course Organization and Planning
Use of Instructional Aids
Organization and Management
Methods of Safety Instructions

Upon request of an authorized school official to the Assistant Commissioner for Vocational Education, these courses are made available locally when there is a need and teacher-training services from Texas A&M University and The University of Texas can be provided.

Apprenticeship Training Programs

Objectives of Program. Apprenticeship training is a special type of extension program intended to provide apprentices and other on-the-job learners with related instruction in the technical skills and knowledge required of journeymen or other skilled mechanics.

Local Joint Apprenticeship Committees. This committee, composed of equal representation from management and employee groups, assists the school in conducting apprenticeship programs by

- interviewing and selecting qualified students
- recommending standards of training
- recommending teachers and curricula, and
- examining apprentices for achievement and advancement.

Upon request of an authorized school official to the Assistant Commissioner for Vocational Education, these courses are made available locally when there is a need and teacher-training services from Texas A&M University and The University of Texas can be provided.

Students. Enrollment is limited to apprentices and on-the-job learners 16 years of age or older, who are learning a specific apprenticeable occupation in accordance with a written or oral agreement with his employer or his local Joint Apprenticeship Committee.

All persons meeting the above requirements are eligible to enroll. Enrollment policies cannot require an individual to be either a member or non-member of an organized labor group.

Qualifications of Teachers. Teachers of related classes for apprentices must possess the same qualifications as specified for teachers of evening extension classes. They should be selected by the school from a list of prospective teachers recommended by the local Joint Apprenticeship Committee.

Facilities. Normally, facilities are the same as those listed for evening extension classes. In some instances, schools are able to accelerate and improve training by providing shop facilities for developing certain manipulative skills needed by the apprentice.

Office Occupations Education

Objectives of the Program. Junior college office occupations education programs should prepare young men and women for successful employment in one of the many jobs most often associated with the efficient operation of public or private business and industry in those activities centered about day to day routine in the office environment. These activities may include business communications, records, reports, filing, and many other duties. The skills developed in students to meet entry requirements in any of several types of employment should be augmented with personal development of the individual student in ability to meet the public and fit easily into the office routine. Personal grooming, selection of proper clothing and make-up as well as office etiquette is a necessary part of the training.

Types of Programs. There are two different levels of office occupations programs. The cooperative type discussed elsewhere in the Guide is not dissimilar in operation from other cooperative programs. The pre-employment laboratory programs may be operated in either of two distinctly different methods.

- Non-Credit. The non-credit method has been called the clock-hour approach, the certificate program, and the unit of instruction method. This variety of program method is used extensively in private business and commercial schools and has proven effective when properly planned and conducted. The training program is designed to develop the knowledge and skills needed to succeed in a particular occupation or cluster of closely related occupations involving similar knowledge and skills. Instruction is done in units of thirty to two hundred forty hours. Students are scheduled in the classroom and/or laboratory in blocks of time totaling twenty to thirty hours per week. The duration of this program is usually one calendar year or less.

- Credit or Associate Programs. This method is also called the "approved curriculum" program. It is designed to develop the knowledge and skills needed to succeed in an office occupation while also satisfying the requirements of general or liberal arts education that make possible the associate degree. This program method provides more flexibility in scheduling students but usually generates less efficiency in utilization of facilities.

Basic Requirements in Development of Instructional Program. Every program should exhibit the following characteristics:

- Each student must have a carefully chosen occupational objective and classes should be limited to students with these objectives.

- There should be a career oriented sequence of courses leading to occupational competency.

- The educational program should be developed and coordinated with the assistance of the employers through advisory

committees. Reference is made to a different section of this Guide which describes the work and responsibilities of advisory committees.

- The curriculum should provide an opportunity to develop office occupational competencies in either directed laboratory work experience projects or through cooperative work experience.

- Each class session and course must be of sufficient duration for effective teaching and learning.

- A training facility should be provided that is up to date and sufficiently complete to develop the skills needed for employment.

- A job placement and follow-up procedure should be developed that will effectively support the training program.

- Classes will be taught by active instructors who meet the requirements of the Texas Education Agency and who maintain an awareness of the requirements of prospective employers and the business community.

- The organization and methodology of the classes and curricula shall be appropriate to the level of instruction and the nature of the enrollees, taking into consideration the need and opportunity in the employment market served.

Each junior college is encouraged to develop their own programs based on the above characteristics, the employment needs of their community, the interests of their students, and the facilities available.

In planning the total program, a four to six hour daily block of time is usually established. In degree programs, at least half of these six periods are devoted to reimbursed occupational classes. In diploma programs, all periods are normally devoted to reimbursable classes.

Every attempt should be made to provide the necessary skill development in the shortest calendar time possible. If training for a specific occupation can be provided one year, it should not be continued in order to keep a student in school two years. If it can be completed in three semesters, it should not be planned for four.

Minimum Qualifications of Professional Personnel.

- The instructor must have at least a baccalaureate degree from an accredited college or university with a minimum of 45 semester hours of credit in business and office education.

  He shall have a minimum of one year of appropriate wage-earning experience in office occupations and two years teaching experience in the area of his teaching assignment.

- Teachers of out-of-school youth and adults shall possess the same qualifications required for post high school vocational teachers, or

  Shall possess an appropriate combination of educational and occupational experience acceptable to the Texas Education Agency for teaching the occupation, or related information which is to be his teaching assignment.

Approvable Occupations. To be approved an occupation must be classified as an office occupation, and require a sufficient number of classroom hours of instruction to justify the training experience. Approved office occupations include:

File Clerks
Typists
Mail Clerks
Stenographers
Computing and Accounting Clerks
Material and Production Recording Clerks
Information and Message Distribution Clerks
Clerical Supervisor
Office Manager

Occupations Not Approvable. Occupations which are not approvable for vocational office education training include those which come within the definition of programs for agriculture, home economics, distributive, industrial, and technical education.

Hours of Credit. The granting of credit hours toward the associate degree for completion of any portion of the Vocational Office Education program is entirely up to the discretion of the school conducting the program.

Student Selection. Post-high school students, out-of-school youth, and adults sixteen years of age or older are eligible to enter the program provided they have an interest in and a vocational need for such training and have stated an occupational interest in this area to the school. Acceptance for membership shall be based on the training objectives, aptitude, interest, need, physical and mental competency of the student, and other qualifications essential to successful employment.

Facilities. The school shall provide laboratory and classroom facilities that are adequate to accommodate the student enrollment and the instructional equipment needed in this program.

Equipment, Supplies, and Instructional Equipment. The school shall furnish equipment, supplies, and instructional aids needed by the teachers and by students enrolled in the program. In addition, the school shall provide reference books, manuals, bulletins, charts, and visual aids that are appropropriate for each occupation in which training is offered. Standard equipment includes sufficient study tables and student work projects for the attainment of occupational efficiency.

Equipment for the program should include machines required for developing further the knowledge and skills required of students in their employment in offices. Machines should be comparable to equipment in the business offices of the community.

Technical Education

Objectives of Programs. Programs of technical education shall be designed at the junior college level to provide instruction involving the application of science, mathematics, and technology in preparing individuals for the occupation of engineering technician. Technicians work as members of a team composed of engineers, scientists, supervisors, and skilled craftsmen, converting theories and ideas into products and processes. The technician must have the ability to use hand tools and test instruments in the installation, operation, and adjustment of technical equipment. He must be trained to do research and development, to assist the engineer and scientist in designing and perfecting machines, processes, materials, and services. He must know theoretically why things work as well as practically how they work.

Characteristics of Technical Education Programs. Some of the general characteristics common to technical education programs are:

- The general goal set for any program is occupational competency on a semi-professional level upon the termination of training.
- Programs are designed for full-time day students.
- Greater use is made of laboratory-type learning experiences than live production problems in the heavy industrial shop environment.
- Theoretical and technical information is more heavily stressed than is manipulative skill development.
- Problem solving is emphasized.
- General liberal arts education, technical education, and related scientific and mathematics education are integrated into a balanced curriculum.
- The curriculum is determined by the occupational knowledge and skills that will be required by the average employer of the graduate of the training program. Analysis of an occupation should be conducted prior to the development of the curriculum and course syllabi.
- The training is conducted at less than the baccalaureate level.
- Teachers have both professional preparation and practical or applied experience in the field of their teaching assignment.

Approvable Occupations and Types of Programs. Many different types of technician training programs are being offered by Texas junior colleges. Most technical education programs require a minimum of two years' training which makes

the junior college the logical place for such training. The following programs are typical of our current technical education offerings and the need for this training has been validated by a state-wide study conducted by the Texas Public Junior College Association and the Texas Education Agency:

- Electronic Data Processing
- Mechanical Engineering Technology
- Electronics Technology
- Electrical Technology
- Instrumentation Technology
- Civil Engineering and Construction Technology
- Air Conditioning, Refrigeration, and Heating Technology
- Oil and Gas Technology
- Radio and Television Station Technology
- Petroleum Technology

New programs which have not been previously approved must be considered for approval by the Texas Education Agency.

Admission of Students. High school graduation, equivalency established by G. E. D. examination, or individual approved by the administrator responsible for the program upon recommendation from the instructor.

Student Selection. Student selection procedures must be carefully developed. Admission into technically oriented programs will be based upon high but realistic standards. These standards may differ among technical programs by degree. Evaluation of high school work and post-high school education and/or work experience will determine, in most cases, if the prospective student has the requisite mathematics, science, and language skills necessary to benefit from the instructional program for which he wishes to be enrolled.

Since prospective technicians must complete college-level technical and scientific courses, it is essential that candidates have the necessary background to justify admission. Some devices and methods for screening applicants are as follows:

Tests:
- Mechanical Aptitude Test (college type), California Test Bureau
- Differential Aptitude Test, Psychological Corporation
- G.A.T.B. (especially post-high school), General Aptitude Battery--U.S.E.S.
- A.C.E.--Educational Testing Service--Princeton University
- Achievement and Aptitude Tests for Technical Subjects--Columbia University
- Scientific Aptitude Test--California Test Bureau
- E.P.S.A.T. (Engineering, Physical Science Aptitude Test)

Records:
- Previous school records
- Work experience record
- Recommendations from teachers and principals
- Recommendations from personnel office and foremen--for upgrading students

Other:
- Interview: Counselor, Department Head, and Instructor
- Orientation: Class or Group Experiences
- Probationary or Exploratory Period
- Performance: Pre-Technical Remedial Instruction

Facilities. Schools must provide classrooms for related subjects as well as laboratories of sufficient size to accommodate the technical equipment necessary for the program offered. In addition, adequate classroom space will be provided for presentation of related technical information. High level technical education requires that school facilities duplicate as nearly as possible the processes, techniques, and methods of the actual working laboratories that graduates will find in business and industry. In planning facilities, schools should develop a close relationship with industry as well as with all educational agencies concerned.

Equipment, Supplies, and Instructional Materials. Equipment used must be modern and comparable in kind and quality to that used in the technical occupations for which training is being conducted. Equipment shall be maintained and updated annually as new technological advances tend to cause obsolesence in technical equipment more rapidly than in many other types of equipment. The school shall provide reference books, technical trade journals, and other technical material and audio-visual media necessary for efficient instruction.

Instruction. Instruction is based upon an analysis of the technology being taught and the knowledge and skills required for performance of procedures and operations in accordance with accepted standards. The latest available information and techniques necessary for students to learn the necessary knowledge and skills for employment in the occupation should be included. Field trips to business and industrial establishments having technical operations and procedures to supplement instruction in the classroom and laboratory might prove a valuable adjunct to the program wherever such arrangements can be made provided they fit into the overall teaching objectives for which the curriculum has been designed.

Teacher Qualifications and Certification. The teachers of technical education subjects shall have the baccalaureate or higher degree from an accredited college or university or its equivalent in the scientific, mathematical, or engineering field to which he is assigned as an instructor. In addition, as a minimum, he shall have three years of occupational experience, including one year of recent continuous and successful experience in the technical occupation he is assigned to teach.

Special Pre-Vocational Programs

Some Points to be Considered in Developing Programs for Persons with Special Needs

1. The range of ability, intelligence, creativity, and potential among the youth and adults who are academically, socio-economically, or otherwise handicapped can be compared favorably with those who are considered able to take advantage and benefit from the regular vocational programs.
2. Vocational education, in cooperation with all educational disciplines, must make available the supplemental education required to bring these students to the level of achievement required where they can benefit from the occupational course offerings. Concern for and attention to the needs and desires of each student will produce results affecting motivation and achievement.
3. Course offerings must meet the demands of employment opportunities. The variety of occupational curriculum should be wide enough so as to encourage the broadest range of interests and abilities. They should be designed and scheduled for persons of varying educational backgrounds, interests and aptitudes at locations and within time sequences which are mutually convenient.
4. An atmosphere should be created wherein parents recognize that participation in the career planning of their children is essential to the success of whatever efforts are expended. Creating the climate of acceptance and partnership between the family and the school is extremely difficult, yet most rewarding. The value of Vocational Education, both for their children and for themselves, can be best expressed when the parents are encouraged to avail themselves of courses which the vocational educators set up to meet their needs.
5. The total community must be involved in the education and occupational training programs along with the vocational educators. Job opportunities, personnel, equipment, training experiences, advisory committees, support for school funds, social services, medical and welfare personnel, and the student body to be reached make up the total program for making vocational education a service to all people of all ages in all communities.

A special pre-vocational program is designed for college-age youth and adults who have academic, socio-economic, or other handicaps preventing them from succeeding in the regular technical-vocational education program. The program consists of a combination of a modified academic curriculum and occupational guidance and counseling providing these students with a dual educational opportunity for achievement in acquiring basic education skills and preparation for selecting pre-employment training that will provide maximum potential of their ability.

These Students Usually Have One or More of the Following Characteristics:

1. Low or under-achievers, usually intellectually average. They are often handicapped academically because of low motivation and/or lack of educational and cultural advantages. They reach the college with learning skills insufficiently developed to benefit from the technical or vocational education program.

2. Low ability in communication skills. They are at a disadvantage with other students because of low reading ability, lack of verbal fluency, creativity, short attention span, and slowness of learning.
3. Have little or no specific personal goal, lack a sense of purpose, lack self-confidence, and often develop negative self-images. Because there is lack of opportunity for them at home or in the immediate neighborhood to become acquainted with a way of life different from their own or with persons in occupations of a higher status than those with whom they associate, they may not have been motivated to attend high school or to want something better. Standards of the family and neighborhood may have discouraged them from aspiring to a higher level of achievement or way of life.
4. Normal or above normal in potential ability to achieve satisfactorily in school but have failed or done poorly in courses for various reasons such as dislike of teachers and school, improper attitudes, poor study habits, laziness, poor reading ability, or have been enrolled in courses without adequate guidance and counseling.
5. Are members of families of low income or long-time recipients of welfare payments, or other subsistence. Often children from these families lack money for adequate clothing, food, or for participating in school activities requiring incidental expenses. These conditions contribute to feelings of insecurity and hopelessness, resulting in under-achievement in school.

Objectives of the Program. These programs have the following objectives to meet the needs of students having academic, socio-economic, or other handicaps preventing them from succeeding in regular, or higher level, programs of technical-vocational education:

1. To provide a type of program, both academic and occupational, appealing to students having academic, socio-economic, or other handicaps and encouraging them to remain in school, and encouraging such students who have dropped out to return to school to achieve work skills that will provide a better chance for employment and/or a better standard of living for his family.
2. To develop student attitudes, appreciations, and understandings in relation to the institution and the value of an education, respect for himself, his peers, and his country and providing a sense of succeeding through motivation and an opportunity to achieve at his level.
3. To enter students in the program at their present academic level and assist them to progress to their maximum level of achievement.
4. To provide specialized vocational guidance and counseling for these students, including psychological and occupational aptitude testing.
5. To provide students with occupational training preparing them for gainful employment in jobs requiring low levels of knowledge and skills, or through participation in this program, prepare them to enter regular technical-vocational education programs preparing them specifically for gainful employment in occupations requiring higher levels of training.

Students Eligible for the Program. Students must be 16 years of age or older: (1) high school dropouts who have been away from high school a minimum of one year who because of family responsibilities or full-time employment are unable to complete a high school education; (2) high school graduates who have academic handicaps and two or more years under normal achievement on college entrance examinations.

Characteristics of Approvable Programs

Academic Phase of the Program. The academic portion of the program must be a special academic curriculum departing from traditional standards, and be conducted on an ungraded basis. Language, mathematics, science, and other subjects must be adapted to the level and learning ability of the students. Students handicapped in reading ability must be provided remedial reading instruction instead of traditional English. Students of low achievement in mathematics, science, or social studies must be given remedial instruction. Other academic provisions are:

a. Curricula must be flexible in all subject matter to teach on the achievement level of the student.
b. Remedial work shall be given students in areas of low level achievement parallel with identified ability.
c. Primary emphasis will be on the basic tools of language arts and mathematics, including skills in reading, speaking, writing and listening, and in acquiring basic arithmetic skills.
d. Content of academic instruction will be functional with practical application to occupational training.

Occupational Orientation Phase of the Program. The occupational orientation portion of the program may include a combination of classroom instruction, field trips, occupational information, guided study of selected fields of work with emphasis on selecting educational goal, shop training, or actual on-the-job training with students placed in part-time employment in the community. Training should be on a level adapted to the interest, aptitudes, and ability of students.

The beginning phases of the occupational information program for men may be in relation to a cluster of occupations such as general building trades, general mechanical trades or general metal-working trades. The program for women in the initial stages may be in occupational clusters relating to employment available to women, such as domestic jobs, employment in child care centers, or in clerical and office work. However, these suggestions are not intended to imply that separate programs should be organized for women and men.

As students progress in the program with adequate counseling and guidance, the occupational objective for which they have appropriate interest, aptitudes and ability should become evident. Specific training programs must be available in the institutions applying for approval of this program.

Qualifications of Teachers

1. All counselors and teachers will be chosen because they have a deep desire to help students having academic, socio-economic, or other handicaps.
2. Academic teachers shall have professional preparation and faculty status in the areas they will teach.
3. Counselors or teachers of occupational orientation phases of the program shall have a minimum of two years of successful employment experience in one or more occupational fields. In addition, they should have a master's degree in psychology, counseling and guidance, or sociology from an accredited college or university, or meet requirements for vocational counselors.

Program Organization. Organization of the programs by the schools will be to meet the needs of individual students. This type of a special education program may involve many different learning patterns in order to meet the needs of students in differing communities. Therefore, it is the policy of the Texas Education Agency that each administrator desiring to conduct this special program should organize the type of proposed program believed to be needed by students in the applying district and submit a project proposal.

A minimum of ten students is required for one class and for larger programs an average of fifteen per class organized shall apply.

Preparation of Project Proposal

The following guide is suggested in preparation of project proposals:

1. State the purposes and objectives of the program. Include immediate and long-range goals and supply information to justify a program in your institution.
2. Give separately, the estimated number of men and women to be enrolled in the program, their ages and the highest grade they have completed.
3. List criteria used and methods of selecting students for the program.
4. Develop and submit a brief course outline for the academic program. (Specify skills to be developed in an ungraded or modified curriculum.)
5. Develop and submit a brief course outline of the technical-vocational education offered at your institution. Specify the shop or laboratory skills that may be developed.
6. Prepare and submit an outline of a special guidance and counseling for students in this program.
7. Prepare proposed budget for the program, including
   a. Academic teachers to be used in program and portion of their time and salary to be devoted to this program.
   b. Occupational training teachers, if any, to be used in program and portion of their time and salary to be devoted to this program.
   c. Guidance counselor(s) to be used in program and amount of their time and salary to be devoted to this program.
   d. Other professional personnel.
   e. Amount of travel proposed for above personnel for this program during the school year (if any).
   f. List instructional equipment and supplies needed for program by different courses (if more than one campus is involved, list each campus separately) and costs of this equipment.
   g. List instructional materials such as special remedial reading materials needed and costs of these items.

The Vocational Work-Study Program

Objectives. The program is designed to provide part-time employment for youth in public educational agencies or some other public agency or institution who need the earnings from employment to commence or continue their vocational training. The opportunity for part-time employment should help many students who need financial assistance to stay in or return to college.

State Administration and Leadership. The State Board shall approve, supervise, and evaluate work-study programs administered by public junior colleges.

Responsibilities of Public Junior Colleges. Public educational agencies are responsible for:

- Making application for prior approval of work-study programs for one or more students when it is determined they are enrolled in approved vocational education programs leading to gainful employment and have a need for the earnings from employment to remain in or return to college.

- Determining work stations and assigning approved students to jobs under adult supervision.

- Paying approved students for actual work performed at the end of the month or each two weeks, if desired, withholding Social Security and income taxes in accordance with law and district procedures.

- Maintaining work records of actual time students perform work, nature of the work assignment, hourly rate of pay, total amount paid by check with number, and the adult supervisor in charge of the students while at work.

- Preventing approved work-study students from supplanting any present employees who ordinarily perform such work.

- Denying employment to an approved work-study student when employed under any other work-study program or Neighborhood Youth Corps program of the Economic Opportunity Act of 1964.

- Supervising students approved under the work-study program and determining their effectiveness in terms of services to the district, retention of potential dropouts, and returning unemployed out-of-college youth to college.

- Determining students to be in good standing in their full-time college program, a part of which is their approved vocational education program preparing them for gainful employment.

- Determining the local prevailing hourly rate of pay for approved students.

- Applying for reimbursement of funds expended for approved work-study students.

Priority. Priority in approval of colleges and students for the amount of funds available for work-study programs will be given to colleges having substantial numbers of dropouts and unemployed youth fifteen years of age and less than twenty-one years of age who need financial assistance to enter or continue in a full college program, a part of which is an approved program of vocational education preparing for gainful employment. Public educational agencies must have job opportunities available for the employment of approved students in a public agency or institution.

Eligibility and Selection of Students. A work-study program may be approved for an eligible student provided (a) the student shall not be employed in excess of fifteen hours in any week during the college year, and (b) compensation shall not exceed $45 in any month or $350 in the regular academic year. Employment under the work-study program will be furnished only to a student who (a) has been accepted for enrollment in a full college program, a part of which is an approved vocational education program preparing for gainful employment or for a student already enrolled in such a program if in good standing and in full-time attendance, (b) is in need of the earnings from such employment in the work-study program to commence or continue his vocational education program, and (c) is at least fifteen years of age and less than twenty-one years of age at the commencement of his employment in the work-study program, and is capable in the opinion of college authorities of maintaining good standing in his program while employed.

Determination of Financial Need. Determination of financial need of students for earnings in order to commence or continue participation in vocational programs should take into consideration student and family income, including wages, Social Security, Aid to Dependent Children, retirement benefits, and welfare support; occupation of person supporting family; and number of family members living at home. Financial assistance from employment for a student should be based on the amount of money needed for clothes, lunches, participation in college activities and personal necessities. All students will not have the same financial needs and will not be capable of working the maximum number of hours per week while maintaining good standing in their full-time college program.

Type of Work Students May Perform. Students may participate in job assignments in or around the public educational agency. Work must be performed by the student. Some of the types of work activities a student may perform are as follows: teacher aides, college shop or laboratory assistant, work in college office such as typist or receptionist, cafeteria worker, library assistant, repairman, assistant in grounds and building maintenance, and college bus maintenance helper. Whenever possible, it is desirable to relate the work activity to the educational program of the student in vocational

education. Students should be placed in jobs where their vocational competencies and interests can best be utilized. Through careful consideration of the possibilities for work opportunities, there should merge a series of work-study job placements related to the students' educational program.

Places of Employment in Other Than Public Educational Agencies. Public agencies--local, State, and Federal--are eligible as places of employment for students participating in the work-study program. Public agencies, departments and commissions, such as courts, fire and police departments, hospitals, housing authorities, public works, health, welfare, conservation, recreation, libraries, parks and playgrounds are eligible public agencies for the employment of work-study students.

Eligible Vocational Education Programs. Students enrolled in vocational education programs approved by the Division of Vocational Education, Texas Education Agency, such as the following meet the requirement for training in a gainful wage-earning or income-producing occupation: auto body repair, auto mechanics, refrigeration and air conditioning technology, computer programming, commercial cooking, cosmetology, data processing, drafting technology, electrical and electronics technology, metal trades, diesel mechanics, printing, radio and television servicing, and welding. These represent only a partial listing, as students may be eligible when enrolled in other approved programs training for gainful occupational employment.

Students enrolled in approved programs of Home Economics related and in the Health occupation programs designed for gainful employment are eligible to participate in the Work-Study Program. Students enrolled in Apprenticeship, Extension, Manpower, and Cooperative Training Programs, Industrial Arts, and Business Education are not eligible to participate.

Reimbursement. The rate of reimbursement is 100 per cent on the amount approved in each of the fiscal years ending June 30, 1965, and June 30, 1966, and 75 per cent for each of the fiscal years ending June 30, 1967, and June 30, 1968. Requests for reimbursement should be submitted on forms provided by the Division of Vocational Education by July 15 for the period of January 1--June 30, and by January 15 for the period of July 1--December 31.

Procedure for Making Application. A college official should communicate with Scott Russell, Director, Work-Study Program, Division of Vocational Education, Texas Education Agency, Austin, Texas, requesting application forms for prior approval of a work-study program. The college's application is submitted in triplicate and must have the supporting student applications attached. Care should be exercised in making an application, especially in providing all the information and signatures requested.

Other Programs Related to Vocational Education

In addition to the regular programs of vocational education, the Texas Education Agency is periodically called upon to conduct special adult education programs under grants from various sources. The two programs currently being operated under grants from the U. S. Office of Economic Opportunity are the Adult Basic Education program and the Adult Migrant Education program. These programs are administered by the Vocational Division because of the close relationship of their goals and method of operation to those of vocational education. Junior colleges as local public educational agencies are eligible for designation to operate one or both of these programs.

Adult Basic Education

General Objectives. This program will provide an opportunity for further education and earning experiences which will inevitably alter the attitudes and expectations of some one million adults eighteen or older with less than an eighth grade educational achievement level and who are maintaining themselves with an income of less than three thousand dollars a year.

Objectives of the Program. The major objectives of the program are:

- Teaching adults to read, write, and speak the English language and acquire arithmetic skills.
- To use subject matter content in teaching these basic education skills that provide valuable knowledge to adults regarding good health practices, citizenship responsibilities, good homemaking principles, family and community relationships. Information relating to employment, such as good work habits, occupational opportunities, training requirements for entry upon and success in employment as well as information relating to the availability of training programs designed to prepare persons for job opportunities is contained in the subject matter of the instructional program.
- Assist students to understand their adult responsibilities.

Class Schedule. The local educational agency, with the help of an advisory committee (described below), conducts a survey to determine the location and number of adults who are eligible for classes in adult basic education. Classes are then scheduled for a minimum of 120 hours of instruction, set up at three levels of instruction--basic, intermediate, and upper--, and located in centers convenient to prospective enrollees. (Flexibility is essential when considering the length of each class and the times classes are to be held.)

Student Selection. In deciding eligibility, the following should be used:

- Adults eighteen years or older.
- Adults who have completed less than eight years of basic education.
- Adults who need to learn to read, write, and speak the English language.
- Adults who need to learn basic computation skills.

In considering adults for this program, it should be understood that:

- Adults who are in the lower socio-economic classification are to be given priority.
- No person shall be, on the basis of race, color, creed, or national origin, denied the benefits of or subjected to discrimination under any program of adult basic education.
- This program is not limited to persons who are unemployed, welfare recipients or undereducated, but may include all these groups and other adults in need of basic education.

Facilities. Classes may be located and conducted in facilities of local public educational agencies. These facilities are most frequently utilized in the adult basic education program. Non-public school, other non-public, and public facilities can be used. The important essential is that the facility be in a location convenient to prospective enrollees, be adequate in the day or evening as needed, be confortable, and adequate for good instruction.

Equipment, Supplies, and Instructional Materials. These three categories may be purchased by the local agency subject to prior approval of the Texas Education Agency. The following suggestions are made concerning the categories.

- Instructional Equipment is defined as that audio-visual equipment, such as overhead projectors and screens, justifiably explained as to its usefulness in conducting an effective program in adult basic education.
- Supplies is defined as those expendable materials such as writing paper, mimeograph stencils, and semi-durable materials such as transparency stock, records, and tapes justified as being necessary for the instructional program in adult basic education.

- Instructional Materials is defined as those published materials required for teaching arithmetic, reading, writing and the speaking of the English language, and those which will develop an awareness and understanding of the citizenship and health responsibilities of the adult. (The use of free materials produced by the local educational agency, the community agencies, and the state educational agency is considered invaluable.)

Instruction. Teachers in adult basic education should be chosen for their knowledge of the basic skills in reading, writing, and arithmetic for their experience the teaching of adults, and for their ability to relate themselves to s level of teaching. The teacher must be able to adapt the instruction, examples, illustrations, reading materials, arithmetic problems, and discussions to the needs and interests of undereducated adults.

Teacher Qualifications and Certification. The use of teachers holding a valid Texas teacher's certificate, especially an elementary teaching certificate, is desirable but not required. It is always desirable to select teachers who are qualified to teach in all areas of the program: reading, writing, and speaking the English language, and arithmetic.

Advisory Committee. The organization of an advisory committee on adult basic education is essential if the idea that this is a program for and by the whole community is to be perpetuated. This committee, appointed by the administrative head of the local public educational agency, should be comprised of representatives of community agencies, organizations, volunteer groups, school personnel, and other individuals interested in increasing the educational level of citizens in the community and in substantially decreasing the level of illiteracy. Members of the committee should be selected from each section of the community. The committee should work closely with the Community Action Organization of the community, if such an organization under the Economic Opportunity Act of 1964 exists, and with other community agencies and volunteer organizations interested in the program.

Adult Migrant Education

Introduction. Research reveals that Texas has more than 127,000 persons classified as migrant farm laborers. Of this total, 83,926 are home-based in 78 Texas counties with the heaviest concentration of migrants (24,753) in Hidalgo County. The increase in farm mechanization has forced the migrant to travel greater distances and to work shorter periods. The use of mechanized farm machinery has been so extended over the last few years that it affects the livelihood of thousands of migrants who depend on farm labor for family income. The educational problems of adult migrant workers are:

- They have a low basic level of education with many thousands of them having no education at all.
- The majority have language problems with approximately 95 per cent of the migrant workers in Texas being of Mexican descent.
- They are in the low economic level with wages earned by migrants averaging less than $1,000 annually.
- They have very limited knowledge and skills, possess no knowledge and skills required in service and industrial jobs.
- They have limited homemaking knowledge and skills relating to good health practices, which in turn, contribute to poor health, unsanitary home conditions, lack of knowledge of nutrition, lack of knowledge of child rearing, and home care of the sick.

Objectives of the Program. The major objectives of the program are to provide:

1. Basic and fundamental education program may be offered for a maximum of 360 hours.
2. Homemaking education for increasing knowledge of nutrition, child guidance, home care of the sick, home and family hygiene, provision of adequate and appropriate clothing for the family, and home management.
3. Occupational training to prepare adult farm laborer migrants for jobs in service trades, business and industry, and to provide those who will continue in agriculture with new knowledge and skills as agriculture becomes more mechanized.

Trainee Selection. Trainees eligible for enrollment in the program:

1. Must be unemployed farm workers or members of their families age 21 and over or heads of households. No more than two members of the same household may enroll in the training

program at the same time and only if these two members have at least five members in the family or household. Both men and women are eligible to enroll in the program.

2. Must be in families with the total income of less than $3,000 a year.

3. Must have a need to learn to read, write, and speak the English language, learn communication skills, and/or need to learn homemaking knowledge and skills and/or be trained in the knowledge and skills that will be helpful in securing and succeeding in employment.

4. Trainees meeting the above requirements will be paid a weekly stipend of $30 per week.

Qualifications of Teachers and Other Personnel

1. Teacher Director. A Bachelor's Degree with teaching and administrative experience is desirable but not required. The teacher-director should be mature and experienced and selected on the basis of general qualifications, interest in adult education, and in working effectively with educationally deficient adults. The teacher-director will be sufficiently fluent in Spanish to understand the Mexican-American adult. The person designated as teacher director will have some teaching responsibility. He will be responsible for assisting in trainee recruitment, scheduling of classes, preparation of reports, evaluation of the program, securing necessary instructional equipment, materials and supplies, and in performing other duties directly connected with this program.

2. Basic and Fundamental Education. A valid teacher's certificate and five years teaching experience, especially an elementary teaching certificate, is desirable but not required. Teachers should be mature and experienced and selected on the basis of general qualifications, interest in adult education, and in working effectively with educationally deficient adults. Persons in the community having experience in adult education and in working with agricultural migrants and their families is one source of teachers to teach basic and fundamental education.

3. Homemaking Education. A valid teacher's certificate and five years teaching experience is desirable but not required. Teachers should be selected on the basis of general qualifications and experience and education in home economics. They should be mature and have demonstrated the ability to teach home economics and have a sincere interest in adult education.

4. Occupational Training. Teachers of occupational training phases of the program shall have a minimum of two years of successful employment experience in one or more occupational fields for which training is being included in the program. In addition, they should have a baccalaureate or higher degree. Or, they

shall have a high school diploma and a minimum of three years experience in the occupational fields for which training is conducted.

5. Teacher-Community Aides. Teacher-community aides will be selected by the local education agency and will be qualified to assist in teaching, to handle clerical duties, including necessary record keeping, attendance clerical duties, issuing of weekly stipend checks, assist in the recruitment of trainees, and drive buses if necessary.

Special Requirements. Teachers of special programs of education and training for adult migrants shall be selected by local public educational agencies electing to conduct these programs. Teachers and teacher-community aides shall be sufficiently fluent in the Spanish language to understand the Mexican-American adult.

A special temporary teaching permit shall be required of teachers and teacher-community aides prior to their assignment to classes. In order to qualify for this permit, teachers must complete satisfactorily a pre-service teacher training institute conducted or approved by the Texas Education Agency. Participation in in-service training institutes approved by the Texas Education Agency will be required to extend approval of the permit.

Advisory Committee. The first important step in the implementation of the program is the appointment of an advisory committee on education and training of adult migrants. This committee, appointed by the administrative head of the local public educational institution will include representatives from the following groups or organizations: migrant farm groups, representatives from the field of agriculture, business, industry, education, labor, community leaders and may include other individuals interested in increasing the educational level and living standards of people in the community. At least one-third of the representatives will have to be from farm workers themselves. At least one-third will be minority group members. The committee should work closely with the Community Action Organization of the community, if such an organization under the Economic Opportunity Act of 1964 exists, and with other community agencies and volunteer organizations interested in the program.

The function of the advisory committee will be to advise the local public educational institution on the adult migrant education program, including courses of occupational training to be offered, locating qualified teacher personnel, location of instructional centers, and to assist in the recruitment of eligible adult migrants.

Financing the Program. The education and training for adult migrants cannot include charging trainees tuition, fees, or other assessments as a condition for participation in the program, or charging for the purchase of books or other materials.

Within funds available to the Texas Education Agency from the Office of Economic Opportunity financing of the program given prior approval by the Texas Education Agency can be provided to local public educational agencies at a one hundred per cent rate. The Texas Education Agency may advance funds to local public educational agencies participating in this program.

Reporting on Adult Migrant Education Programs. The local public educational agencies conducting programs of adult migrant education are required to make reports on classes organized and conducted, reports on supervision of the program, and other reports as may be requested by the Texas Education Agency.

Evaluation. The local public educational institutions are required to make evaluations of the quality and effectiveness of programs of adult migrant education, determining to what extent the program accomplishes the goals of teaching migrant adults basic and fundamental education knowledge and skills, homemaking knowledge and skills, and assisting trainees to acquire the knowledge and skills necessary to enter employment.

Evaluations shall include use of educational measurement devices, standardized tests or other methods for determining student achievement levels and progress. Results of evaluations shall be used for revision and improvement of programs as are necessary to achieve the basic goals of the program.

Area Vocational Schools

Area Vocational Schools have as their purpose the provision of a comprehensive program of vocational education designed to meet the needs of:

- Persons preparing to enter gainful employment,
- Persons who have already entered employment but need training and retraining to achieve greater efficiency and advancement, and to acquire new knowledge and skills as technological changes modify job requirements, and
- Persons who have academic, socio-economic or other handicaps preventing them from succeeding in regular programs of vocational education.

As a minimum, area schools must provide a program of vocational education preparing persons for gainful employment in five distinctly different occupational fields, with students enrolled being available full time for the school program, a part of which is the vocational education program in which they are being prepared for gainful employment. The area school facilities must be available for out-of-school youth and adults desiring programs of vocational education to prepare for employment, or to receive training or retraining to increase their occupational knowledge and skills in present employment. Facilities of the area school should also be available for persons having academic, socio-economic or other handicaps preventing them from succeeding in regular programs of vocational education.

The Texas Education Agency may designate a Junior College district of sufficient size, having adequate numbers of students desiring and needing programs of vocational education to justify operation of a minimum of five programs, each preparing students for gainful employment in different occupational fields, and with the area school also making available its facilities for training programs for adults when such programs are desired and needed.

Designation of an Area Vocational School makes the institution eligible for reimbursement on construction of the area school facility. This may be a separate building or a wing attached to a present building, or when construction of a building is not involved, approval may be made of renovation of an existing facility for the purpose of housing programs of vocational education. Reimbursement is eligible up to fifty per cent of the cost of the following:

Site acquisition of non-public owned land
Site grading and land preparation
General construction costs
Conventional furnishings of the classrooms, shops, laboratories and offices
Architectural and engineering costs
Legal costs

Specific Vocational Guidance and Counseling Program

Area Vocational Schools conducting a comprehensive program of vocational education justifying a full-time vocational guidance and counseling position will be considered for allocation of this position or fractional part of a position if less than one counselor is needed, with reimbursement on the salary of the guidance counselor to be at a fifty per cent rate. Such counselors must have a minimum of two years of recent and successful wage-earning experience in one or more of the occupations being taught in the Area Vocational School and three years teaching experience. In addition, they must have a minimum of a baccalaureate degree from an accredited college or university and have had at least thirty semester hours of graduate courses including an equivalent of twelve semester hours of guidance courses completed in a recognized college or university.

Planning an Area School

Determining Need for Area Schools

Need for area schools must be determined upon the basis of occupational surveys in the area to be served by the school to ascertain the employment opportunities available, or anticipated to be available, for students upon completion of training programs preparing them for employment. Valid published data by the Texas Employment Commission or other studies may be accepted by the Texas Education Agency in lieu of the occupational survey. Determination must also be made of the number of available students and employment opportunities for them in future years as the basis for approval of an area school facility involving considerable expense to the district and from reimbursement funds available from the Texas Education Agency.

Determination will also need to be made of the number of adults needing preparation for employment or training or retraining to increase their knowledge, skills, and efficiency. This data may be furnished by local business and industrial concerns.

Staff members of the Texas Education Agency, Vocational Education Division, are available to schools without charge to assist in planning and conducting surveys.

Assisting in Planning Facilities

After surveys have been made and the types of programs needed have been determined--and need for an area school is justifiable--staff members of the Texas Education Agency, Vocational Education Division, are available to consult with school officials in preparing applications for approval of their schools to be designated as Area Vocational Schools, and to review architectural drawings and sketches of proposed facilities.

Assisting in Planning Programs

Consultative services are also available from vocational education staff members of the Texas Education Agency in planning programs of instruction, advising on the qualifications required of instructors to teach the different vocational programs to be conducted, and in planning needed instructional equipment and supplies.

Information on Applications for Approval of Area Schools

Included in the Appendix of this Guide are two forms:

a. Application for Approval as an Area Vocational School.

b. Application for Approval of Reimbursable Construction of Area Vocational-Technical School Facilities.

Vocational Education staff members of the Texas Education Agency are available to provide information to schools with regard to these applications and to supply additional information as desired relating to Area Schools.

APPENDICIES

Appendix A

To be submitted in triplicate

TEXAS EDUCATION AGENCY
VOCATIONAL EDUCATION DIVISION
Austin, Texas

APPLICATION FOR APPROVAL AS AN AREA VOCATIONAL-TECHNICAL SCHOOL
(for use by public junior colleges, colleges, and universities)

In order to assure that instructional programs are eligible for reimbursement, the following information shall be submitted by the applying institution.

Name of School _____

Address _____

Official Administering the Area School:

_____ Name _____ Title

A. INFORMATION

1. The geographic area proposed to be served: _____

_____

_____

2. In the geographical area to be served, give the approximate number of persons in the following categories:

Current high school enrollment _____

Average number high school graduates (past five years) _____

Estimated number of adults needing training or retraining _____

Estimated number of persons having academic, socio-economic, or other handicaps who cannot succeed in regular vocational programs _____

3. The proposed area school will operate as: (check one)

____ A technical or vocational public institute used exclusively for the provision of vocational education.

____ The department or division of a public junior college which provides or will provide vocational-technical education.

____ The department or division of a public junior college, state college, or university which provides or will provide vocational-technical education.

VTS-001

4. Vocational-Technical Education courses to be offered:

Course Title	Existing Programs	New Programs	Anticipated Enrollment 1966-67

5. For the purpose of establishing reasonable need and ability to assure continuing success of these programs, the school will furnish the following information:

   a. Give the source or sources of information used in estimating the anticipated enrollment in each program listed in item 4 above.

   b. Based upon the best available data, project the total enrollment of students in your school's vocational-technical program for the next five year period:

   1967-68 Year _____ 1970-71 Year _____

   1968-69 Year _____ 1971-72 Year _____

   1969-70 Year _____

   c. The number and types of employment opportunities in the above occupational fields available in the area served by the school. Give the method of determining; for example, Texas Employment Commission data, Texas Education Agency Occupational Surveys, etc.

Appendix A (Continued)

B. AGREEMENT

1. Employers or managers in the occupations for which vocational or technical training will be given have been consulted regarding the need for such programs.

2. The Texas Employment Commission or other qualified agencies or groups have indicated there is available within the area an adequate source of individuals needing and desiring such training.

3. The Area program will be operated with the advice and counsel of an advisory committee appointed by the president of the college or superintendent of schools, and will be composed of representatives of employers and employees from the occupations or industries for which training is to be given.

4. The content of the courses of study and/or curriculum have been or will be determined by an analysis of the job, or cluster of jobs, and have been or will be formulated with the advice of qualified consultants on vocational education. The Texas Education Agency will be furnished with information required for approval of a specific program prior to its initiation.

5. The programs are of sufficient duration to provide persons enrolled with training needed in preparation for employment, or to improve their efficiency in employment.

6. A system of student counseling, guidance, and selection based upon interests, aptitudes, previous education and work experience will be maintained.

7. Fees charged students, if any, and student admission standards will be the same for all students so long as they reside within the area served by the school.

8. Students to be enrolled in the program will have the necessary general educational background to benefit from the instruction to be given, or such general education will be made available as a part of their total curriculum.

9. Adequate physical plant, facilities and operating funds will be made available for conducting the Area program.

10. The school accepts the responsibility for operating the program in accordance with policies of the State Board for Vocational Education.

The _____ certifies that the above requirements have been or will be met, and requests the Assistant Commissioner for Vocational Education to designate it as an approved Area Vocational-Technical School.

Date of Application _____ 19___

_____
Signature of Administrative Head of the College or University

_____
Title

Recommended for Approval _____
Date

_____
Program Development Staff Member
Texas Education Agency

Approved for State Board _____
Date

_____
Assistant Commissioner for Vocational Education

Appendix B

To be submitted in triplicate

TEXAS EDUCATION AGENCY
VOCATIONAL EDUCATION DIVISION
Austin, Texas

APPLICATION FOR APPROVAL OF REIMBURSABLE CONSTRUCTION OF AREA VOCATIONAL-TECHNICAL SCHOOL FACILITIES
(for use by public schools and colleges)

Name of School _____

1. The governing board of the above school certifies that the facility covered by this application is to be built for the purpose of conducting vocational-technical education programs in accordance with policies of the State Board for Vocational Education.

2. The school agrees that whenever these facilities, in which the Texas Education Agency has an interest, are sold or no longer used for approved purposes, the Texas Education Agency will be credited with its proportionate share of the value of such facilities, the value being determined on the basis of the sale price in the case of a bona fide sale, or the fair market value in the case of discontinuance of use for a vocational-technical education purpose or other diversion.

3. The school agrees that regular locally accepted school practices for contracting for new construction, expansion, or renovation will be used in awarding contracts for this project, and that all construction shall be done in accordance with local building codes and practices and is consistent with applicable State and Federal laws.

4. The school certifies the plans and specifications for construction are functional, economical, compatible with the design and appearance of the total school plant, and appropriate for the type of programs of instruction to be offered.

5. The Assistant Commissioner for Vocational Education will be consulted by the school for approval of any major revision of the plans and specifications that may be contemplated subsequent to this approval.

6. The school agrees that the contracts for construction for approved facilities shall require that all laborers and mechanics employed by contractors and subcontractors on all construction projects assisted under the 1963 Act will be paid wages at rates not less than those prevailing as determined by the Secretary of Labor in accordance with the Davis-Bacon Act (Act of March 3, 1931, P. L. 798, 71st Congress, 46 Stat. 1494 as amended, 40 U. S. C. 276a-5) and 29 CFR Part I (see 29 F. R. 95); and shall receive overtime compensation in accordance with and subject to the provisions of the Contract Work Hours Standards Act (P. L. 87-581, 76 Stat., 357, 40 U. S. C. 327-332), that such contractors and subcontractors shall comply with the provisions of 29 CFR Part 3 (see 29 F. R. 97), and that all construction contracts and subcontracts shall incorporate the contract clauses required by 29 CFR 5.5(a) and (c) (see 29 F. R. 100, 101).

7. Representatives of the Texas Education Agency will be permitted access at all reasonable times to the project wherever it is in preparation or progress.

8. The school understands and agrees that a contract encumbering funds for this project will be made on the basis that the school will provide matching funds.

9. A copy of the contractual agreement between the general contractor and the participating school official shall be filed with the Texas Education Agency as soon as such contract is awarded.

10. The school certifies that local funds, in addition to vocational education funds available through the Texas Education Agency, are adequate for the construction and efficient operation of the proposed facility on a continuing basis.

11. The school will provide the following information or data (to be attached to the application):

    a. Copy of the deed to the property on which the facility is to be constructed, or a copy of the purchase agreement for the property setting forth the terms of transfer over the signature of the present owner, or a copy of a long-term lease agreement.

    b. Detailed architectural drawings and specifications of the facilities to be constructed, including fixtures.

    c. Description and details of conventional furnishings of the classrooms, shops, laboratories and offices.

12. The school agrees that it will incorporate or cause to be incorporated into any contract for renovation, modification or construction of facilities reimbursed under this agreement, an equal opportunity clause.

13. The detailed breakdown of cost of construction is as follows:

Site acquisition	$ _____
Site grading and land preparation	_____
General construction costs	_____
Architectural and engineering costs	_____
Legal costs	_____
Conventional furnishings	_____
TOTAL	$ _____
Amount of Reimbursement	$ _____ (leave blank)

The _____ School (or College) agrees to the above conditions, and requests the Assistant Commissioner for Vocational Education to approve the construction of the above described facilities. Approval of this agreement and attachments constitutes a contract for reimbursement between the applying school and the Texas Education Agency.

Date of Application _____ 19__ _____
Signature of Superintendent of Schools or President of College

Date of Application _____ 19__ _____
President of Local Board

Approved for State Board _____ 19__ _____
Date Assistant Commissioner for Vocational Education

Appendix B (Continued)

CONSTRUCTION PROJECT SUMMARY

Name of School _____

Architect _____ _____ _____
Firm Address Phone

Type of School (check one)

_____ Specialized High School

_____ Department of a High School

_____ Technical/Vocational School (Post-High School)

_____ Department of Higher Education Institution

Type of Construction (check one)

_____ New Building(s)

_____ New wing of existing building

_____ Remodeling or Alteration

Survey of Facilities

PROGRAM	Square Feet		Number of		Estimated Enrollment Capacity	
	Existing	New	Classrooms	Shops/Labs	Existing	New
Agriculture						
Distributive						
Health						
Home Economics						
Office						
Technical						
Trade & Industrial						
TOTALS						

Total floor space in the project (including hallways, restrooms, offices, and any other necessary area) _____.

Estimated cost per square foot (over all) exclusive of conventional furnishings _____.

Estimated cost per square foot of space allocated to classrooms, shops and laboratories exclusive of conventional furnishings _____.

Appendix C

Submit in triplicate to:
John R. Guemple, Director
Junior College Program
Development

Texas Education Agency
Vocational Education Division
Austin, Texas

APPLICATION FOR APPROVAL OF A NEW TECHNICAL-VOCATIONAL PROGRAM

From the _____ Junior College District, _____

County, for _____ program in _____, to
(Vocational or Technical) (Subject)

begin operation _____, 19____.

1. Has your institution been approved as an Area Vocational-Technical School?
   Yes _____ No _____

2. Estimate the number of youth and adults who would be enrolled in the program.
   _____ Full-time or day enrollment. _____ Part-time or night enrollment.

3. What method was used in determining the estimated number that would be enrolled?

4. Give the aims and objectives of the proposed training program.

5. List Advisory Committee consulted in drafting this program.

Name	Title	Company or Employer

6. Has there been a recent Texas Education Agency-assisted occupational survey for your school? Yes _____ No _____

7. Has the Texas Employment Commission conducted a manpower forecast in the area served by the school? Yes _____ No _____

VJE-001

8. Has training offered in this proposal been identified in either the survey or forecast listed above? Yes _____ No _____. (In the absence of this identification in a valid survey or forecast, has need been established in some other way [for example, training requested by specific businesses or industry]? If so, please show in an attachment how this need was established.)

9. Describe briefly the facilities and equipment that are or will be made available for this training.

10. Estimate of cost:

Instructional cost first year	$ _____
Cost of equipment, tools, and supplies (attach list with realistic per item estimate)	_____
Supervision (if part-time supervisor is to be used)	_____
TOTAL	_____

11. Attachments

a. The proposed vocational course of study, or

b. The proposed technical curriculum with a description of each course for which reimbursement will be requested. (The school will be required to develop a course syllabus to be kept on file at the school. This document should be available for review upon request.)

The approval of this application indicates the Texas Education Agency will share, within available funds, in the cost of instruction and equipment, tools, and supplies.

Date of Application _____, 19____ _____
President

Recommended for Approval _____, 19____ _____
Director, Program Development

Approved for State Board _____, 19____ _____
Assistant Commissioner for Vocational Education

Appendix D

To be submitted in triplicate

TEXAS EDUCATION AGENCY
VOCATIONAL EDUCATION DIVISION
Austin, Texas

A separate application is needed for each type of program

AGREEMENT FOR APPROVAL OF REIMBURSABLE EXPENDITURES FOR PUBLIC JUNIOR COLLEGES
for fiscal year ending June 30, _____

This agreement is conditioned upon the acceptance of the applying school of the following terms and upon its willingness to supply the supporting information requested.

School District or College: _____

Name of Program: _____

1. All purchase orders which are a part of this agreement must be approved by the Assistant Commissioner for Vocational Education before they are transmitted to the vendors.

2. The school understands and agrees that the Texas Education Agency has a continuing interest in all equipment acquired under approval of this agreement.

3. The school agrees to maintain a true inventory of all equipment and supplies for which funds approved under this agreement have been expended and to make copies of such inventories available to the Assistant Commissioner for Vocational Education upon request.

4. The school will employ regular accepted school purchasing policies and practices in acquiring approved equipment and supplies listed on the purchase orders.

5. The type and function of the equipment and supplies requested are comparable to those used in the occupations for which training will be given.

6. The school certifies that as of the date this application was made none of the items listed were already owned by the school or were otherwise available to the use of the school on a continuing basis.

7. The school agrees that equipment purchased will be used in the operation of approved vocational-technical education programs, and will be available for transfer or sale at the request of the Assistant Commissioner for Vocational Education if it is no longer needed or used for instruction in such programs. If the equipment is transferred, the school will be reimbursed for its share in the ownership of the equipment, less a reasonable amount of depreciation. Or, in case of sale or other diversion, the school agrees to refund to the Texas Education Agency its proportionate share of the bona fide sale price or fair market value of the equipment.

Totals: Equipment: $_____ Supplies: $_____ *Maintenance: $_____ Rental: $_____ Grand Total: $_____

The _____ College agrees to the above terms, and requests that the Assistant Commissioner for Vocational Education approve the purchase of the equipment and supplies listed on the attached purchase orders, all of which are to be used in the operation of an approved vocational education program. Approval of this agreement and attachments constitutes a contract for reimbursement between the school and the Texas Education Agency.

Date of Application _____, 19___. _____
President of College

Reviewed by _____, 19___. _____
Program Director

Approved for State Board _____, 19___. _____
Assistant Commissioner for Vocational Education

* Maintenance on Data Processing Equipment Only

564-400 (Revised)
TEA-B-886-ITEK

TEXAS EDUCATION AGENCY
VOCATIONAL EDUCATION DIVISION
Austin, Texas

INFORMATION AND INSTRUCTIONS ON PREPARING APPLICATION FOR APPROVAL OF REIMBURSABLE EXPENDITURES

(Public Junior Colleges)

1. Agreements are to be submitted in triplicate on the form titled Agreement for Approval of Reimbursable Expenditures. This form is designed for use in applying for prior approval for the purchase of equipment and supplies.

2. Each agreement must be accompanied by undated purchase orders, executed in quadruplicate, supporting the totals shown under Item 7 of the agreement.

NOTE: Schools are to use their own purchase order forms. Or, they may secure upon request special purchase order forms available from the Vocational Education Division.

3. To facilitate approval of individual purchase orders, schools should list as separate groups on each purchase order those items classified as equipment and those items classified as supplies as defined below:

   Equipment is defined as those fixed or movable articles peculiarly designed for use in an occupation or training for an occupation which, with reasonable care, are normally expected to last for more than five years or which cost $10.00 or more per unit. Rental or lease equipment is equipment that is more practical or economical to rent or lease than to purchase, or which will be used for a short duration.

   Supplies are defined as those consumable articles essential to the performance of work in an occupation, or training for an occupation, which normally wear out or deteriorate with usage; or which cost less than $10.00 per unit. Reimbursable supplies do not include (1) articles, components or materials to be made into equipment or in the repair of equipment for which the school or class is compensated and (2) materials or supplies used by students in acquiring personal service skills for which the school or class is compensated.

4. List multiple tools such as taps and dies, drills, wrenches, gauges, chisels, punches, and the like, as sets, with the number of pieces and minimum and maximum sizes in the set.

5. One approved copy of the agreement and three approved copies of each purchase order will be returned to the school. Upon receipt of this agreement and purchase orders, the school has authorization to purchase equipment and supplies approved on the purchase orders. The school will forward the original copy of the approved purchase order to each vendor.

   The second copy of each purchase order is to be retained in the school files.

   The third copy of each purchase order and the original invoice from each vendor will accompany the school's application for reimbursement on expenditures paid by the school for the purchase of equipment and supplies.

6. Applications are subject to review by the Division of Vocational Education in determining quantities and appropriateness of items and amounts of approval.

TEA-B-887-ITEK

Appendix E

Submit typewritten in triplicate

Texas Education Agency
Vocational Education Division
Austin, Texas

APPLICATION FOR APPROVAL OF A TECHNICAL-VOCATIONAL GUIDANCE COUNSELOR

From the _____ Independent School District, Junior College District _____ County, for _____ program in
(vocational or technical)
_____, to begin operation _____,19___.
(location)

1. Has your institution been approved as an Area Vocational-Technical School?
   Yes ____ No ____

2. Programs operated last year -- list only the programs approved by the Vocational Division of the Texas Education Agency. (Attach additional sheets if necessary.)

Program	Enrollment: Full Time (day)	Enrollment: Part Time (adult or night)
TOTALS		

3. Program projection for this year. (Attach additional sheets if necessary.)

Program	Enrollment: Full Time (day)	Enrollment: Part Time (adult or night)
Old Programs (listed in 2 above)		
New Programs, if any: (list)		
TOTALS		

VJE-002

4. Program projections for next year. (Attach additional sheets if necessary.)

Program	Enrollment: Full Time (day)	Enrollment: Part Time (adult or night)
Old Programs (listed in 2 and 3 above):	_____	_____
New Programs (list):		
_____	_____	_____
_____	_____	_____
_____	_____	_____
TOTALS		

5. Attachments:

   A. A description of the total guidance program of the school giving the functions of guidance personnel.

   B. A description of the vocational guidance program and the functions to be performed by the counselor requested and their relationship to the total guidance program.

6. The school understands that a Statement of Qualifications shall be submitted for approval before the vocational counselor position is filled. The person employed shall meet minimum qualifications as outlined below:

   Education

   a. Baccalaureate degree from recognized four-year college or university.

   b. Thirty semester hours of graduate courses including an equivalent of twelve semester hours of guidance courses completed in a recognized college or university.

   Experience

   a. Education. Three years of teaching experience, preferably in a program of vocational education preparing students for gainful employment in industry or business.

   b. Occupational. Two years of recent and successful experience in industry or business.

Date of Application _____ _____
Administrative Head of Applying School

Recommended for Approval _____ _____
Date Director, Program Development (TEA)

Approved for State Board _____ _____
Date Assistant Commissioner for Vocational Education

Appendix F

Public Law 634, the War Orphan's Assistance Act, provides financial assistance for the education and training of sons and daughters of deceased veterans provided the death of the veteran was service connected. Public Law 361 provides similar financial assistance for the education of sons and daughters of living veterans who have service connected disabilities considered to be total and permanent in nature.

Institutions desiring approval of courses or continuing the approval of presently approved courses for the above purposes or for future Acts as may become available should forward two copies of each new catalogue or bulletin published to

Scott Russell, Assistant Director
State Approval for Veterans Education
Texas Education Agency
Austin, Texas

VT 001 833
Thomas, Virginia F.
Enrollment in Home Economics Education and Employment Status of Graduates The First Year Following Graduation, 1962-63.

Office of Education (DHEW), Washington, D.C. Div. of Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
OE-83013
Pub Date - Sep64 15p.

*GRADUATE SURVEYS; *HOME ECONOMICS EDUCATION; VOCATIONAL EDUCATION; *TEACHER EDUCATION; *ENROLLMENT TRENDS; TEACHER EMPLOYMENT; EMPLOYMENT STATISTICS; *EMPLOYMENT PATTERNS

Because of teacher shortages in Home Economics and concern over potential supply and postgraduate employment practices, data about 1962-1963 graduates were compared with those of previous years. Information was collected from administrators of 234 institutions approved for preparation of vocational home economics teachers. Enrollment data showed that for 1962-63, colleges and universities registered 17,171 for home economics education as compared with 14,807 in 1958-59, an increase of 16 percent. In 1962, 54.9 percent of all undergraduate home economics majors were enrolled in home economics education curriculums preparing to become teachers. Graduate level home economics education majors rose 1.9 percent in 1961-1962. Enrollment in all home economics curriculums was 50,669 in 1962. Survey of employment status one year after graduation revealed: (1) In 1962-63 the 234 institutions certified 4,014 graduates, an additional 402 completed state requirements, (2) Comparison with 1961-62 statistics shows a 7.6 percent increase of persons prepared to teach in secondary vocational home economics programs, and (3) Two-thirds of the 1963 graduates were employed in teaching positions the first year after certification; 5.8 percent taught subjects other than home economics. The document contains tables of facts used in compilation of this report. (FP)

VT 001 833

ED036657

OE-83013

Enrollment in Home Economics Education and Employment Status of Graduates The First Year Following Graduation 1962-63

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education

VT01833

By Virginia F. Thomas, Research Assistant
Under the general direction of Berenice Mallory, Assistant Director
Home Economics Education Branch

This publication is a sequel to Misc. 3577,
Home Economics Enrollment in Colleges and Universities and
Placement of Graduates Prepared to Teach, 1958-59

Division of Vocational and Technical Education
September 1964

ENROLLMENT IN HOME ECONOMICS EDUCATION AND EMPLOYMENT STATUS OF GRADUATES THE FIRST YEAR FOLLOWING GRADUATION, 1962-63

> For the present, in most parts of the country, the demand for teachers exceeds the supply. . . . Particularly needed are teachers of mathematics, science, English, home economics . . . .[1]

The foregoing statement, and other information from the U.S. Department of Labor,[2] warrant some concern about enrollment in home economics education--the curriculum which prepares students to become home economics teachers. The essential questions are: How many potential teachers are being prepared? How many actually become teachers? Is the number increasing? Colleges and universities, approved by State boards for vocational education for the preparation of vocational home economics teachers, make annual reports to the U.S. Office of Education. Enrollment and employment information from these institutions is one source from which answers to the essential questions may be derived.

During the 1962-63 school year, 131 of these approved institutions were partly reimbursed from Federal funds, and 103 were approved but not reimbursed. Slight changes occur from year to year in the number of institutions in each of these categories. Throughout the United States, however, approximately 200 other institutions offer home economics teacher education programs which are neither approved nor reimbursed. Enrollment data and the employment status of graduates from these 200 colleges are not reported to the Office of Education. Annual reports from the approved institutions are used mainly for administrative purposes in the Office. Occasionally, summaries of data concerning the number of potential home economics teachers being prepared for vocational programs have been widely distributed. The last such publication dealt with enrollment for the 1958-59 school year.[3] Some information reported by administrators of home economics programs in 234 approved institutions for the 1962-63 school year has been compared with data reported in previous years. Here are a few of the findings which partly answer the question: How many students are preparing to become home economics teachers?

- For the school year 1962-63, these 234 colleges and universities enrolled 17,171 students in the home economics education curriculum and for the school year 1958-59 a total of 229 institutions enrolled 14,807 students in this curriculum.
- These students included junior- and senior-year undergraduate majors, graduate majors, and other special students preparing to become home economics teachers for vocational programs. The difference in enrollment was an increase of 16.0 percent for the 4-year period. (See table 5, columns 2, 3, and 4.)
- For the school year 1962-63 more than one-half, or 54.9 percent, of the undergraduate majors in all home economics curriculums were enrolled in the home economics education curriculum, which prepares students to become teachers. (See table 4, column 9.)
- Improved instructions on the 1962-63 survey form probably occasioned the decrease in graduate-level majors and the large increase in number of "other" students reported in home economics education. (See table 5, column 13.) In the category for reporting home economics education graduate-level majors, some respondents to the 1958-59 survey seemed to report graduate majors in all areas of home economics. Instructions were sharpened and placed more conspicuously on the form to indicate that only graduate students who were majors in home economics education were to be reported in certain columns.
- Data gathered for both school years 1961-62 and 1962-63 were reported on the basis of the revised instructions, and for this 1-year period the reported number of graduate-level home economics education majors increased slightly--from 3,363 to 3,426, or 1.9 percent.
- The total number of students preparing to become vocational home economics teachers was nearly the same for both school years 1961-62 and 1962-63. Enrollment in home economics education in 1961-62--undergraduate and graduate majors, and other students--was 17,082; in 1962-63 the enrollment totaled 17,171.
- The 234 institutions in this survey offer curriculums which prepare students to enter home economics professions other than teaching, and the number of undergraduate and graduate students majoring in all home economics curriculums for the school year 1962-63 totaled 50,669. During the previous year, 1961-62, these 234 institutions enrolled a total of 47,111 majors in all curriculums, including those preparing to become teachers.
- In some colleges students must complete the sophomore year before they declare a major field of study, and for this reason freshmen and sophomore majors enrolled in the home economics education curriculum were omitted in the compilation of figures which indicate the number of prospective vocational home economics teachers.

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[1] Lee M. Frederick, *Teaching Opportunities--A Directory of Placement Information*, OE-26000-64, Circular No. 737, 1964, Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, p. 1.

[2] "Employment Outlook for Home Economists & Dietitians," reprint from *Occupational Outlook Handbook*, Bulletin No. 1375-18, 1963-64, Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, p. 1.

[3] *Home Economics Enrollment in Colleges and Universities and Placement of Graduates Prepared To Teach, 1958-59*, OE-83003, Misc. 3577, Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1960.

How Many Graduates Enter the Teaching Profession?

Employment status of graduates the first year following graduation is reported by administrators of home economics education programs. No attempt has been made to seek information beyond this period.

Reports received in 1962-63 show that during the previous school year the 234 institutions granted 4,014 bachelor's degrees to home economics education majors. An additional 402 persons completed State certification requirements, making a total of 4,416 persons prepared to teach in secondary vocational home economics programs. (See table 12.) In comparison to the data reported in 1961-62, when 4,272 persons completed teaching requirements, these 4,416 persons represent an increase of 7.6 percent in number of newly qualified vocational home economics teachers.

- Of the 4,416 persons prepared to teach in vocational home economics programs, two of every three were employed in teaching positions the first year following graduation; 5.8 percent, however, were teaching subjects exclusive of home economics.
- In the approved institutions the number of persons who completed their preparation for teaching in vocational programs was smaller than the number who completed such preparation in the approved and reimbursed institutions. However, in both groups of institutions two-thirds of those prepared to teach were employed to teach during the school year 1962-63--the first year following graduation. (See table 7, columns 5 plus 6.)
- For more than 10 years the majority, about two-thirds, of the graduates from institutions approved and reimbursed from Federal funds have entered the teaching profession immediately following graduation. Some of the records from earlier surveys are shown in table 1.

TABLE 1.--Home economics education graduates of approved and reimbursed institutions and percent employed to teach: Biennial periods 1952-53 to 1962-63[1]

Academic year	Home economics education graduates	Employed to teach	
		Number	Percent
1952-53	2,638	1,729	65.8
1954-55	2,296	1,491	64.9
1956-57	2,788	1,827	65.5
1958-59	2,772	1,793	64.7
1961-62	2,990	2,002	67.0
1962-63	3,083	2,000	64.9

[1] Data were not collected in 1960-61.

Similar information is not available for all of the approved but not reimbursed institutions for each of these periods. However, for the 5-year period from 1958-59 to 1962-63, the approved but not reimbursed institutions reported that the majority of their graduates also pursued a teaching career the first year following graduation. Data reported for these institutions showed, for the academic year 1958-59 and for 1962-63, that 58.5 percent and 67.5 percent, respectively, were employed to teach immediately following graduation.

Regardless of whether persons were graduated from approved and reimbursed, or approved but not reimbursed, institutions, a comparison of the total reported for 1962-63 and for 1958-59 indicates an increase, both in number of persons prepared to teach and in number actually entering the teaching profession. For the school year 1962-63, a total of 4,416 persons were reported to have completed requirements to teach vocational home economics. This represents an increase of 6.7 percent over the total number, or 3,887, reported for 1958-59. The increase in percentage entering the teaching profession was more striking--18.6 percent. These data are compiled in table 2.

TABLE 2.--Number of persons prepared to teach vocational home economics and number employed to teach, 1962-63, and percentage increase since 1958-59

Academic year	Graduates prepared to teach vocational home economics		Graduates employed to teach	
	Total[1] number	Percent increase 1958-59 to 1962-63	Total number	Percent increase 1958-59 to 1962-63
1	2	3	4	5
	Total institutions surveyed			
1958-59	3,887	In	2,445	In
1962-63	4,416	+6.7	2,900	+18.6
	Approved and reimbursed institutions			
1958-59	2,772	In	1,793	In
1962-63	3,083	+11.2	2,000	+11.5
	Approved institutions			
1958-59	1,115	In	652	In
1962-63	1,333	+19.6	900	+38.0

[1] Figures for academic year 1962-63 include 4,014 graduates plus 402 other persons completing requirements to teach.

NOTE: "In" means inapplicable; "Approved" means approved by State boards for vocational education; "reimbursed" means reimbursed from Federal funds.

Graduates Employed but Not Teaching

The small number of graduates (492) who were employed in positions other than teaching further indicates that a teaching career in home economics continues to attract the majority of the home economics education

graduates who choose to work on a salaried basis. Graduates who are prepared to teach in vocational home economics programs are sought for positions in the Cooperative Extension Service, in public welfare programs, in business and industry, and in private nursery school programs. The category "other" was provided for respondents' use in reporting the number of persons employed in occupations other than teaching, or in the Cooperative Extension Service. Graduates employed in "other" occupations totaled 274, or 6.2 percent, of the 4,416 persons prepared to teach home economics. (See tables 6 and 10, column 9, and table 7, column 10.)

The Cooperative Extension Service employed 218, or 4.9 percent, of the 4,416 persons prepared to teach in vocational home economics programs. Of these, nearly one-half, or 101, were graduates from institutions in the Southern Region whose programs were approved and reimbursed by State boards for vocational education. Apparently the goal of persons who major in home economics education is to become teachers, and only a few are lured into other professional-level work.

Married and Not Otherwise Employed

Does marriage affect the home economics teacher supply? To this common question the answer is "Yes." The 234 institutions which reported data for both school years 1961-62 and 1962-63 indicated that 12.6 percent and 12.7 percent, respectively, or one of every eight graduates, were married and not employed on a salaried basis the first year following graduation. In the approved and reimbursed institutions, which comprise more than one-half of the total colleges and universities in each survey, the percentage of graduates who married immediately and did not teach declined slightly during the period 1952-53 to 1962-63, as shown in table 3.

It is known that many of the home economics education graduates who marry and do not teach the first year following graduation will become teachers at a later time. According to the Research Division, National Education Association, one of the main sources for meeting the demand for teachers is the recruitment of persons from the general population who qualify for standard certificates--former teachers, graduate students, and homemakers.[4] Recent home economics education graduates who married and did not teach the first year following graduation are a source of supply for filling teaching positions in the future.

Employment Outlook for Persons Prepared to Teach Home Economics

The fact that during the first year following graduation three-fourths of the home economics education graduates were teaching, or employed in other professional-level positions, is indicative of the employment possibilities for persons who choose home economics education as a major field of study. For several years the demand for persons qualified to teach in vocational home economics programs has exceeded the supply. The continuing growth in secondary school population implies that the need will probably continue for some time.

TABLE 3.--Home economics education graduates of approved and reimbursed institutions, and percent married and not teaching the first year following graduation: Biennial periods 1952-53 to 1962-63[1]

Academic year	Home economics education graduates	Married and not teaching	
		Number	Percent
1952-53	2,628	374	14.2
1954-55	2,296	322	14.0
1956-57	2,788	376	13.5
1958-59	2,772	384	13.9
1961-62	2,990	378	12.6
1962-63	3,083	398	12.9

[1] Data were not collected for 1960-61.

The employment outlook has been reported as good for persons prepared to teach in colleges and universities:

> Opportunities for college and university teaching should be extremely good for the indefinite future . . . . It is estimated that college enrollments will double during the next 10 years. New faculty will be required . . . . It is expected that all possible sources of staff will be tapped, including . . . the great reservoir of talented and educated married women . . . .[5]

Nationwide, less than 2 of every 100 home economics graduates, or 1.6 percent, who completed requirements to teach in vocational programs were known to be seeking employment in 1962-63--the first year following graduation. The number was slightly higher in the Southern Region, and the majority of these unemployed persons seeking professional-level employment were graduates of institutions attended predominately by Negro students. The employment status of 216, or 4.9 percent, of the 4,416 persons who graduated or completed requirements to teach in vocational home economics programs was unknown. (See table 6, column 11, and table 7, column 12.)

Both youth and adult women who may be undecided about a field of study to pursue will find in reviewing career information that:

- A bachelor's or higher degree in home economics education can lead to employment in a variety of professional-level positions.
- There are opportunities for part-time teaching in adult education programs and in some junior-community college home economics curriculums.
- The demand for full-time home economics teachers at all levels--secondary, adult, and college--continues to be greater than the supply of qualified persons to fill vacancies or to relieve overloaded and overcrowded teaching situations, particularly in junior and senior high schools.

[4] *Colleges Producing 139,000 Teachers in 1961*, NEA Research Bulletin, Washington, D.C.: National Education Association, Vol. 39, No. 2, May 1961, p. 37.

[5] Frederick, *op. cit.*, p. 1.

TABLE 4.--Number and percent of total junior-, senior-, and graduate-level majors enrolled in home economics education[1] by region: Aggregate United States, 1962-63

Region	Number of institutions	Majors enrolled in all home economics curriculums			Majors in home economics education curriculum[1]					
		Total	Junior and senior	Graduate students	Total		Junior and senior		Graduate	
					Number	Percent (of col. 3)	Number	Percent (of col. 4)	Number	Percent (of col. 5)
1	2	3	4	5	6	7	8	9	10	11
Aggregate United States total.....	234	24,782	19,226	5,556	13,975	56.4	10,549	54.9	3,426	61.7
	Approved and reimbursed institutions									
Total.....	131	17,748	13,543	4,205	10,059	56.7	7,431	54.9	2,628	62.5
North Atlantic.....	25	3,220	2,353	867	1,752	54.4	1,193	50.7	559	64.5
Southern.....	49	6,168	4,731	1,437	3,762	61.0	2,910	61.5	852	59.3
Central.....	39	6,378	4,827	1,551	3,506	55.0	2,497	51.7	1,009	65.1
Pacific[2].....	18	1,982	1,632	350	1,039	52.4	831	50.9	208	59.4
	Approved institutions									
Total.....	103	7,034	5,683	1,351	3,916	55.7	3,118	54.9	798	59.1
North Atlantic.....	28	1,771	1,253	518	1,015	57.3	667	53.2	348	67.2
Southern.....	27	1,542	1,299	243	986	63.9	824	63.4	162	66.7
Central.....	25	1,572	1,262	310	967	61.5	778	61.6	189	61.0
Pacific[2].....	23	2,149	1,869	280	948	44.1	849	45.4	99	35.4

[1] Home economics education is the curriculum designed for students preparing to become home economics teachers.
[2] Figures for Colorado and California include some estimates.

TABLE 5.--Percent change in enrollment of undergraduate and graduate majors and other students in the home economics education[1] curriculum, by region: Aggregate United States, school years 1962-63 and 1958-59

Region	Total home economics education[1] students			Majors enrolled in home economics education[1]						Others[4]		
				Undergraduate majors[2]			Graduate majors[3]					
	Year 1962-63	Year 1958-59	Percent change	Year 1962-63	Year 1958-59	Percent change	Year 1962-63	Year 1958-59	Percent change	Year 1962-63	Year 1958-59	Percent change
1	2	3	4	5	6	7	8	9	10	11	12	13
Total aggregate United States.....	17,171	14,807	+16.0	10,549	9,059	+16.4	3,426	3,755	-08.8	3,196	1,993	+60.4
	Approved and reimbursed institutions											
Total.....	12,312	10,894	+13.0	7,431	6,673	+11.4	2,628	2,704	-02.8	2,253	1,517	+48.5
North Atlantic.....	2,162	2,014	+07.3	1,193	1,164	+02.5	559	532	+05.1	410	318	+28.9
Southern.....	4,776	4,144	+15.3	2,910	2,558	+13.8	852	877	-02.9	1,014	709	+43.0
Central.....	4,030	3,525	+14.3	2,497	2,273	+09.9	1,009	1,064	-05.2	524	188	+178.7
Pacific[5].....	1,344	1,211	+11.0	831	678	+22.6	208	231	-10.0	305	302	+00.1
	Approved institutions											
Total.....	4,859	3,913	+24.2	3,118	2,386	+30.7	798	1,051	-24.1	943	476	+98.1
North Atlantic.....	1,257	1,104	+04.8	667	482	+38.4	348	508	-31.5	142	114	+24.6
Southern.....	1,106	757	+46.1	824	541	+52.3	162	197	-17.8	120	19	+531.6
Central.....	1,105	989	+11.7	778	745	+04.4	189	167	+13.2	138	77	+79.2
Pacific[5].....	1,491	1,063	+40.3	849	618	+37.4	99	179	-44.7	543	266	+104.1

[1] Home economics education is the curriculum designed for students preparing to become home economics teachers.
[2] Includes only junior- and senior-level undergraduate home economics education majors.
[3] Includes graduate majors enrolled in academic year plus those enrolled only during summer session.
[4] Includes special and unclassified students; some are graduate-level students who are not working toward a degree.
[5] Figures for Colorado and California include some estimates.

TABLE 6.--Number of persons prepared to teach in vocational home economics programs, by employment status in the first year following graduation, and by region: Aggregate United States, 1962-63

Region	Number of institutions	Total persons prepared to teach in vocational home economics programs	Employment status of persons prepared to teach in vocational programs							
			Teaching		Studying full-time	Married and not employed	Cooperative Extension Service	Other occupations	Seeking employment	Status unknown
			Home economics	Other subjects only						
1	2	3	4	5	6	7	8	9	10	11
Total aggregate United States....	234	4,416	2,645	255	178	559	218	274	71	216
	Approved and reimbursed institutions									
Total....	131	3,083	1,827	173	123	398	172	183	54	153
North Atlantic....	25	503	329	21	17	57	21	39	8	11
Southern.....	49	1,071	540	87	44	123	101	73	27	76
Central.....	39	1,126	722	44	39	156	43	54	17	51
Pacific[1].....	18	383	236	21	23	62	7	17	2	15
	Approved institutions									
Total....	103	1,333	818	82	55	161	46	91	17	63
North Atlantic....	28	273	191	16	15	19	7	21	2	2
Southern.....	27	359	148	50	16	58	18	31	11	27
Central.....	25	367	262	13	10	37	21	20	0	4
Pacific[1].....	23	334	217	3	14	47	0	19	4	30

[1] Figures for Colorado and California include some estimates.

TABLE 7.--Percent distribution of persons prepared to teach in vocational home economics programs, by employment status in the first year following graduation, and by region: Aggregate United States, 1962-63

Region	Number of institutions	Total persons prepared to teach in vocational home economics programs		Percent distribution by employment status							
				Teaching		Studying full-time	Married and not employed	Cooperative Extension Service	Other occupations	Seeking employment	Status unknown
		Number	Percent	Home economics	Other subjects only						
1	2	3	4	5	6	7	8	9	10	11	12
Total aggregate United States....	234	4,416	100.0	59.9	5.8	4.0	12.7	4.9	6.2	1.6	4.9
	Approved and reimbursed institutions										
Total....	131	3,083	100.0	59.3	5.6	4.0	12.9	5.6	5.9	1.8	5.0
North Atlantic....	25	503	100.0	65.4	4.2	3.4	11.3	4.2	7.8	1.5	2.2
Southern.....	49	1,071	100.0	50.4	8.1	4.1	11.5	9.4	6.8	2.5	7.1
Central.....	39	1,126	100.0	64.1	3.9	3.5	13.9	3.8	4.8	1.5	4.5
Pacific[1].....	18	383	100.0	61.6	5.5	6.0	16.2	1.8	4.4	.5	3.9
	Approved institutions										
Total....	103	1,333	100.0	61.4	6.2	4.1	12.1	3.4	6.8	1.3	4.7
North Atlantic....	28	273	100.0	70.0	5.9	5.5	7.0	2.6	7.7	.7	.7
Southern.....	27	359	100.0	41.2	13.9	4.5	16.2	5.0	8.6	3.1	7.5
Central.....	25	367	100.0	71.4	3.5	2.7	10.1	5.7	5.4	0.0	1.1
Pacific[1].....	23	334	100.0	65.0	.9	4.2	14.1	0.0	5.7	1.2	9.0

[1] Figures for Colorado and California include some estimates.
NOTE: Percentages may not total, because of rounding.

TABLE 8.--Home economics majors in all home economics curriculums in institutions approved to prepare teachers for vocational home economics programs, by academic level, region, and State: Aggregate United States, 1962-63

Region and State[1]	Number of institutions	Total[2] majors (col. 4 +9)	Undergraduate majors					Graduate majors
			Total undergraduate majors	Freshmen	Sophomores	Juniors	Seniors	
1	2	3	4	5	6	7	8	9
Total aggregate United States....	234	50,669	45,113	13,957	11,930	10,275	8,951	5,556
Approved and reimbursed.....	131	36,619	32,414	10,146	8,725	7,204	6,339	4,205
Approved.....	103	14,050	12,699	3,811	3,205	3,071	2,612	1,351
NORTH ATLANTIC.....	53	9,386	8,001	2,305	2,090	1,936	1,670	1,385
	Approved and reimbursed institutions							
Total.....	25	6,204	5,337	1,561	1,423	1,292	1,061	867
Connecticut.....	1	375	321	70	74	106	71	54
Delaware.....	1	246	232	85	57	52	38	14
Maine.....	2	216	209	59	69	40	41	7
Maryland.....	1	446	399	142	140	69	48	47
Massachusetts.....	([3])	([3])	([3])	([3])	([3])	([3])	([3])	([3])
New Hampshire.....	2	140	139	39	39	33	28	1
New Jersey.....	2	289	244	57	66	60	61	45
New York.....	5	1,999	1,549	465	366	394	324	450
Pennsylvania.....	3	1,289	1,195	349	332	275	239	94
Rhode Island.....	1	314	283	82	80	73	48	31
Vermont.....	1	157	151	42	49	34	26	6
West Virginia.....	6	733	615	171	151	156	137	118
	Approved institutions							
Total.....	28	3,182	2,664	744	667	644	609	518
Connecticut.....	1	12	12	0	0	8	4	0
Maryland.....	5	237	237	87	44	50	56	0
Massachusetts.....	4	612	534	149	144	119	122	78
New Jersey.....	2	79	79	19	24	18	18	0
New York.....	5	885	650	123	164	187	176	235
Pennsylvania.....	11	1,357	1,152	366	291	262	233	205
SOUTHERN.....	76	15,848	14,168	4,377	3,761	3,105	2,925	1,680
	Approved and reimbursed institutions							
Total.....	49	12,337	10,900	3,293	2,876	2,394	2,337	1,437
Alabama.....	1	155	155	49	52	28	26	0
Arkansas.....	4	610	511	139	143	106	123	99
Florida.....	2	628	531	148	160	115	108	97
Georgia.....	3	746	659	179	178	164	138	87
Louisiana.....	5	1,005	932	268	273	201	190	73
Mississippi.....	5	844	701	198	172	162	169	143
North Carolina.....	3	725	633	204	169	137	123	92
Oklahoma.....	4	1,661	1,441	451	376	308	306	220
Puerto Rico.....	1	388	388	0	159	115	114	0
South Carolina.....	2	359	293	86	83	64	60	66
Tennessee.....	2	972	765	204	169	196	196	207
Texas.....	11	3,630	3,336	1,196	817	668	655	294
Virginia.....	6	614	555	171	125	130	129	59
	Approved institutions							
Total.....	27	3,511	3,268	1,084	885	711	588	243
Alabama.....	6	1,477	1,249	405	375	284	185	228
Arkansas.....	2	166	166	59	45	31	31	0
Georgia.....	5	273	273	87	71	61	54	0
Louisiana.....	2	276	276	104	55	70	47	0
Tennessee.....	2	354	354	131	99	67	57	0
Texas.....	7	847	832	257	212	171	192	15
Virginia.....	3	118	118	41	28	27	22	0

TABLE 8.--Home economics majors in all home economics curriculums in institutions approved to prepare teachers for vocational home economics programs, by academic level, region, and State: Aggregate United States, 1962-63--continued

Region and State[1]	Number of institutions	Total[2] majors (col. 4 +9)	Undergraduate majors					Graduate majors
			Total undergraduate majors	Freshmen	Sophomores	Juniors	Seniors	
1	2	3	4	5	6	7	8	9
CENTRAL.....	64	16,922	15,061	4,846	4,126	3,306	2,783	1,861
	Approved and reimbursed institutions							
Total....	39	13,550	11,999	3,876	3,296	2,622	2,205	1,551
Illinois.....	6	1,678	1,414	524	360	287	243	264
Indiana.....	4	1,698	1,457	469	401	313	274	241
Iowa.....	2	1,892	1,646	451	419	395	381	246
Kansas.....	4	1,214	1,122	386	295	252	189	92
Kentucky.....	2	290	236	71	61	48	56	54
Michigan.....	3	1,419	1,165	331	300	336	198	254
Minnesota.....	3	1,090	1,019	300	362	187	170	71
Missouri.....	6	1,157	1,092	355	300	234	203	65
Nebraska.....	2	591	563	178	135	113	137	28
North Dakota.....	2	518	509	166	141	101	101	9
Ohio.....	4	1,707	1,495	523	455	302	215	212
South Dakota.....	1	296	281	122	67	54	38	15
	Approved institutions							
Total....	25	3,372	3,062	970	830	684	578	310
Illinois.....	1	21	21	10	4	1	6	0
Kentucky.....	6	714	711	208	196	164	143	3
Michigan.....	5	630	452	136	117	117	82	178
Minnesota.....	5	297	297	99	72	64	62	0
Missouri.....	2	83	83	37	17	14	15	0
Ohio.....	3	230	211	52	59	60	40	19
Wisconsin.....	3	1,397	1,287	428	365	264	230	110
PACIFIC.....	41	8,513	7,883	2,429	1,953	1,928	1,573	630
	Approved and reimbursed institutions							
Total....	18	4,528	4,178	1,416	1,130	896	736	350
Alaska.....	1	24	24	4	8	6	6	0
Arizona.....	2	885	797	258	217	173	149	88
Colorado[4].....	1	476	459	175	108	88	88	17
Hawaii.....	1	215	191	57	56	46	32	24
Idaho.....	2	233	232	79	51	62	40	1
Montana.....	2	319	281	92	80	57	52	38
Nevada.....	1	88	85	38	23	14	10	3
New Mexico.....	1	126	125	44	42	23	16	1
Oregon.....	1	643	600	211	184	104	101	43
Utah.....	2	561	542	176	132	133	101	19
Washington.....	3	866	753	253	213	165	122	113
Wyoming.....	1	92	89	29	16	25	19	3
	Approved institutions							
Total....	23	3,985	3,705	1,013	823	1,032	837	280
Arizona.....	1	101	83	24	23	18	18	18
California.....	15	2,500	2,306	577	461	692	576	194
Colorado[4].....	1	166	130	31	32	32	35	36
Idaho.....	1	50	50	15	11	17	7	0
New Mexico.....	4	195	194	76	49	37	32	1
Utah.....	1	973	942	290	247	236	169	31

[1] States omitted are those having no institutions approved and reimbursed or having no institutions approved but not reimbursed. Institutions in the District of Columbia are neither approved nor reimbursed.
[2] Includes men and women majors enrolled in home economics.
[3] Figures for the reimbursed program at State Teachers College, Framingham, included with data for approved but not reimbursed program.
[4] Figures for Colorado and California include some estimates.

Table 9.--Majors and other students enrolled in home economics education[1] in institutions approved to prepare teachers for vocational home economics programs, by academic level, region, and State: Aggregate United States, 1962-63

Region and State[2]	Number of institutions	Total (sum of columns 4 and 11)	Total home economics education majors	Undergraduate majors			Graduate majors			Other
				Total	Junior	Senior	Total	Regular sessions	Summer only	
1	2	3	4	5	6	7	8	9	10	11
Total aggr. United States.....	234	17,171	13,975	10,549	5,420	5,129	3,426	1,498	1,928	3,196
Approved and reimbursed.....	131	12,312	10,059	7,431	3,797	3,634	2,628	1,157	1,471	2,253
Approved.....	103	4,859	3,916	3,118	1,623	1,495	798	341	457	943
NORTH ATLANTIC.....	53	3,319	2,767	1,860	967	893	907	521	386	552
	Approved and reimbursed institutions									
Total.....	25	2,162	1,752	1,193	649	544	559	331	228	410
Connecticut.....	1	87	66	23	15	8	43	35	8	21
Delaware.....	1	58	46	33	17	16	13	1	12	12
Maine.....	2	83	79	66	32	34	13	3	10	4
Maryland.....	1	104	83	46	24	22	37	18	19	21
Massachusetts.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
New Hampshire.....	2	72	52	51	29	22	1	1	0	20
New Jersey.....	2	164	132	97	50	47	35	35	0	32
New York.....	5	655	625	347	183	164	278	166	112	30
Pennsylvania.....	3	375	325	273	149	124	52	20	32	50
Rhode Island.....	1	56	51	34	20	14	17	17	0	5
Vermont.....	1	27	22	22	11	11	0	0	0	5
West Virginia.....	6	481	271	201	119	82	70	35	35	210
	Approved institutions									
Total.....	28	1,157	1,015	667	318	349	348	190	158	142
Connecticut.....	1	6	6	6	4	2	0	0	0	0
Maryland.....	5	86	83	83	38	45	0	0	0	3
Massachusetts.....	4	248	218	172	83	89	46	18	28	30
New Jersey.....	2	12	12	12	5	7	0	0	0	0
New York.....	5	329	312	126	56	70	186	134	52	17
Pennsylvania.....	11	476	384	268	132	136	116	38	78	92
SOUTHERN.....	76	5,882	4,748	3,734	1,942	1,792	1,014	318	696	1,134
	Approved and reimbursed institutions									
Total.....	49	4,776	3,762	2,910	1,474	1,436	852	285	567	1,014
Alabama.....	1	51	50	50	26	24	0	0	0	1
Arkansas.....	4	259	253	202	96	106	51	2	49	6
Florida.....	2	202	155	107	50	57	48	28	20	47
Georgia.....	3	239	233	175	90	85	58	19	39	6
Louisiana.....	5	282	274	222	100	122	52	31	21	8
Mississippi.....	5	492	420	277	136	141	143	30	113	72
North Carolina.....	3	410	239	186	101	85	53	12	41	171
Oklahoma.....	4	431	378	240	121	119	138	30	108	53
Puerto Rico.....	1	139	127	127	80	47	0	0	0	12
South Carolina.....	2	279	159	96	43	53	63	28	35	120
Tennessee.....	2	312	270	253	140	113	17	3	14	42
Texas.....	11	1,421	1,024	808	407	401	216	90	126	397
Virginia.....	6	259	180	167	84	83	13	12	1	79
	Approved institutions									
Total.....	27	1,106	986	824	468	356	162	33	129	120
Alabama.....	6	419	403	244	142	102	159	30	129	16
Arkansas.....	2	116	56	56	30	26	0	0	0	60
Georgia.....	5	107	106	106	55	51	0	0	0	1
Louisiana.....	2	85	82	82	54	28	0	0	0	3
Tennessee.....	2	103	95	95	52	43	0	0	0	8
Texas.....	7	223	197	194	109	85	3	3	0	26
Virginia.....	3	53	47	47	26	21	0	0	0	6

Table 9.--Majors and other students enrolled in home economics education[1] in institutions approved to prepare teachers for vocational home economics programs, by academic level, region, and State: Aggregate United States, 1962-63--continued

Region and State[2]	Number of institutions	Total (sum of columns 4 and 11)	Total home economics education majors	Undergraduate majors			Graduate majors			Other
				Total	Junior	Senior	Total	Regular sessions	Summer only	
1	2	3	4	5	6	7	8	9	10	11
CENTRAL.....	64	5,135	4,473	3,275	1,633	1,642	1,198	566	632	662
	Approved and reimbursed institutions									
Total.....	39	4,030	3,506	2,497	1,246	1,251	1,009	474	535	524
Illinois.....	6	540	483	313	168	145	170	70	100	57
Indiana.....	4	651	634	380	190	190	254	151	103	17
Iowa.....	2	417	359	279	143	136	80	24	56	58
Kansas.....	4	308	259	237	123	114	22	4	18	49
Kentucky.....	2	121	116	53	19	34	63	18	45	5
Michigan.....	3	440	418	220	103	117	198	106	92	22
Minnesota.....	3	423	253	195	88	107	58	10	48	170
Missouri.....	6	307	276	233	123	110	43	8	35	31
Nebraska.....	2	163	137	134	64	70	3	3	0	26
North Dakota.....	2	158	131	128	64	64	3	1	2	27
Ohio.....	4	437	377	262	122	140	115	79	36	60
South Dakota.....	1	65	63	63	39	24	0	0	0	2
	Approved institutions									
Total.....	25	1,105	967	778	387	391	189	92	97	138
Illinois.....	1	28	6	6	1	5	0	0	0	22
Kentucky.....	6	247	241	238	110	128	3	3	0	6
Michigan.....	5	242	217	115	58	57	102	69	33	25
Minnesota.....	5	157	101	101	54	47	0	0	0	56
Missouri.....	2	22	22	22	9	13	0	0	0	0
Ohio.....	3	84	65	46	25	21	19	4	15	19
Wisconsin.....	3	325	315	250	130	120	65	16	49	10
PACIFIC.....	41	2,835	1,987	1,680	878	802	307	93	214	848
	Approved and reimbursed institutions									
Total.....	18	1,344	1,039	831	428	403	208	67	141	305
Alaska.....	1	8	8	8	2	6	0	0	0	0
Arizona.....	2	190	188	142	66	76	46	42	4	2
Colorado[4].....	1	117	77	63	33	30	14	0	14	40
Hawaii.....	1	49	33	33	19	14	0	0	0	16
Idaho.....	2	105	72	62	35	27	10	4	6	33
Montana.....	2	124	87	79	40	39	8	2	6	37
Nevada.....	1	41	19	16	9	7	3	3	0	22
New Mexico.....	1	30	29	28	19	9	1	0	1	1
Oregon.....	1	220	204	98	36	62	106	8	98	16
Utah.....	2	141	130	130	74	56	0	0	0	11
Washington.....	3	303	186	166	91	75	20	8	12	117
Wyoming.....	1	16	6	6	4	2	0	0	0	10
	Approved institutions									
Total.....	23	1,491	948	849	450	399	99	26	73	543
Arizona.....	1	42	38	26	14	12	12	0	12	4
California.....	15	1,091	636	585	325	260	51	19	32	455
Colorado[4].....	1	109	99	63	29	34	36	7	29	10
Idaho.....	1	14	14	14	7	7	0	0	0	0
New Mexico.....	4	114	50	50	20	30	0	0	0	64
Utah.....	1	121	111	111	55	56	0	0	0	10

[1] Home economics education is the curriculum designed for students preparing to become home economics teachers.
[2] States omitted are those having no institutions approved and reimbursed or having no institutions approved but not reimbursed. Institutions in the District of Columbia are neither approved nor reimbursed.
[3] Figures for the reimbursed program at State Teachers College, Framingham, included with data for approved but not reimbursed program.
[4] Figures for Colorado and California include some estimates.

TABLE 10.--Number of persons prepared to teach in vocational home economics programs, by employment status in the first year following graduation, and by region and State: Aggregate United States, 1962-63

Region and State[1]	Number of institutions	Total persons prepared to teach vocational home economics	Employment Status: Teaching: Home economics	Teaching: Other subjects only	Continuing full-time study	Married and not employed	Cooperative Extension	Other occupations	Seeking employment	Status unknown
1	2	3	4	5	6	7	8	9	10	11
Total aggregate United States.....	234	4,416	2,645	255	178	559	218	274	71	216
Approved and reimbursed.....	131	3,083	1,827	173	123	398	172	183	54	153
Approved.....	103	1,333	818	82	55	161	46	91	17	63
NORTH ATLANTIC.....	53	776	520	37	32	76	28	60	10	13
	Approved and reimbursed institutions									
Total.....	25	503	329	21	17	57	21	39	8	11
Connecticut.....	1	17	14	0	0	1	1	1	0	0
Delaware.....	1	16	11	2	0	0	1	1	0	1
Maine.....	2	25	20	0	0	2	0	3	0	0
Maryland.....	1	26	19	2	0	4	1	0	0	0
Massachusetts.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
New Hampshire.....	2	14	11	0	0	1	1	1	0	0
New Jersey.....	2	35	30	0	2	3	0	0	0	0
New York.....	5	154	101	3	10	21	5	6	5	3
Pennsylvania.....	3	117	76	4	3	6	8	15	0	5
Rhode Island.....	1	10	7	1	0	2	0	0	0	0
Vermont.....	1	10	7	0	0	1	1	1	0	0
West Virginia.....	6	79	33	9	2	16	3	11	3	2
	Approved institutions									
Total.....	28	273	191	16	15	19	7	21	2	2
Connecticut.....	1	2	2	0	0	0	0	0	0	0
Maryland.....	5	25	20	1	0	3	0	1	0	0
Massachusetts.....	4	69	38	1	12	5	2	8	2	1
New Jersey.....	2	7	5	1	1	0	0	0	0	0
New York.....	5	40	28	7	0	2	2	1	0	0
Pennsylvania.....	11	130	98	6	2	9	3	11	0	1
SOUTHERN.....	76	1,430	688	137	60	181	119	104	38	103
	Approved and reimbursed institutions									
Total.....	49	1,071	540	87	44	123	101	73	27	76
Alabama.....	1	17	11	3	0	0	2	1	0	0
Arkansas.....	4	66	32	9	1	12	6	0	0	6
Florida.....	2	27	19	0	0	5	1	1	1	0
Georgia.....	3	78	38	14	3	8	11	2	0	2
Louisiana.....	5	75	23	9	4	18	11	7	1	2
Mississippi.....	5	116	61	8	5	14	21	6	0	1
North Carolina.....	3	70	40	5	3	7	7	7	0	1
Oklahoma.....	4	86	45	4	3	13	7	8	6	0
Puerto Rico.....	1	71	48	2	0	2	1	0	6	12
South Carolina.....	2	44	24	2	2	3	9	2	2	0
Tennessee.....	2	107	32	10	11	2	7	14	0	31
Texas.....	11	238	122	15	7	33	11	20	11	19
Virginia.....	6	76	45	6	5	6	7	5	0	2
	Approved institutions									
Total.....	27	359	148	50	16	58	18	31	11	27
Alabama.....	6	117	41	25	3	18	7	6	3	14
Arkansas.....	2	22	11	2	2	5	1	1	0	0
Georgia.....	5	45	24	4	2	5	1	5	2	2
Louisiana.....	2	26	9	2	2	2	0	2	4	5
Tennessee.....	2	58	20	11	0	11	7	9	0	0
Texas.....	7	72	34	4	5	15	2	4	2	6
Virginia.....	3	19	9	2	2	2	0	4	0	0

TABLE 10.--Number of persons prepared to teach in vocational home economics programs, by employment status in the first year following graduation, and by region and State: Aggregate United States, 1962-63--continued

Region and State[1]	Number of institutions	Total persons prepared to teach vocational home economics	Employment status: Teaching: Home economics	Teaching: Other subjects only	Continuing full-time study	Married and not employed	Cooperative Extension	Other occupations	Seeking employment	Status unknown
1	2	3	4	5	6	7	8	9	10	11
CENTRAL.....	64	1,493	984	57	49	193	64	74	17	55
	Approved and reimbursed institutions									
Total.....	39	1,126	722	44	39	156	43	54	17	51
Illinois.....	6	140	96	10	6	15	6	4	0	3
Indiana.....	4	177	96	9	8	33	5	10	2	14
Iowa.....	2	101	64	0	4	16	6	8	1	2
Kansas.....	4	91	51	5	3	15	8	7	0	2
Kentucky.....	2	32	19	3	3	1	1	3	1	1
Michigan.....	3	105	71	3	1	6	2	7	1	14
Minnesota.....	3	112	81	0	4	15	2	3	2	5
Missouri.....	6	108	81	5	1	11	5	2	0	3
Nebraska.....	2	66	44	0	2	18	0	2	0	0
North Dakota.....	2	45	37	0	1	5	1	1	0	0
Ohio.....	4	120	66	8	5	16	3	6	9	7
South Dakota.....	1	29	16	1	1	5	4	1	1	0
	Approved institutions									
Total.....	25	367	262	13	10	37	21	20	0	4
Illinois.....	1	5	5	0	0	0	0	0	0	0
Kentucky.....	6	104	49	11	5	14	15	10	0	0
Michigan.....	5	43	36	0	2	4	1	0	0	0
Minnesota.....	5	58	54	1	0	1	2	0	0	0
Missouri.....	2	7	4	1	0	2	0	0	0	0
Ohio.....	3	27	16	0	2	5	0	3	0	1
Wisconsin.....	3	123	98	0	1	11	3	7	0	3
PACIFIC.....	41	717	453	24	37	109	7	36	6	45
	Approved and reimbursed institutions									
Total.....	18	383	236	21	23	62	7	17	2	15
Alaska.....	1	5	2	1	0	2	0	0	0	0
Arizona.....	2	63	37	0	3	12	0	5	1	5
Colorado[3].....	1	17	7	1	0	6	1	2	0	0
Hawaii.....	1	14	3	0	7	2	2	0	0	0
Idaho.....	2	22	14	1	1	2	2	1	0	1
Montana.....	2	42	22	2	0	12	1	2	0	3
Nevada.....	1	2	1	0	0	0	0	1	0	0
New Mexico.....	1	5	1	0	1	1	0	1	0	1
Oregon.....	1	50	39	0	4	3	0	2	0	2
Utah.....	2	56	36	5	2	11	0	0	0	2
Washington.....	3	91	65	10	3	9	0	2	1	1
Wyoming.....	1	16	9	1	2	2	1	1	0	0
	Approved institutions									
Total.....	23	334	217	3	14	47	0	19	4	30
Arizona.....	1	7	4	1	1	1	0	0	0	0
California.....	15	225	146	0	9	27	0	14	4	25
Colorado[3].....	1	25	17	1	3	2	0	0	0	2
Idaho.....	1	7	7	0	0	0	0	0	0	0
New Mexico.....	4	26	13	0	0	8	0	3	0	2
Utah.....	1	44	30	1	1	9	0	2	0	1

[1] States omitted are those having no institutions approved and reimbursed or having no institutions approved but not reimbursed. Institutions in the District of Columbia are neither approved nor reimbursed.

[2] Figures for the reimbursed program at State Teachers College, Framingham, included with data for approved but not reimbursed program.

[3] Figures for Colorado and California include some estimates.

Table 11.--Home economics majors in all home economics curriculums in institutions approved to prepare teachers for vocational home economics programs, by academic level and by region: Aggregate United States, 1962-63

Region	Number of institutions	Undergraduate majors[1]						Graduate majors[1]
		Total majors	Total undergraduate	Freshmen	Sophomores	Juniors	Seniors	
1	2	3	4	5	6	7	8	9
Aggregate United States Total....	234	50,669	45,113	13,957	11,930	10,275	8,951	5,556
	Approved and reimbursed institutions							
Total.....	131	36,619	32,414	10,146	8,725	7,204	6,339	4,205
North Atlantic.....	25	6,204	5,337	1,561	1,423	1,292	1,061	867
Southern.....	49	12,337	10,900	3,293	2,876	2,394	2,337	1,437
Central.....	39	13,550	11,999	3,876	3,296	2,622	2,205	1,551
Pacific[2].....	18	4,528	4,178	1,416	1,130	896	736	350
	Approved institutions							
Total.....	103	14,050	12,699	3,811	3,205	3,071	2,612	1,351
North Atlantic.....	28	3,182	2,664	744	667	644	609	518
Southern.....	27	3,511	3,268	1,084	885	711	588	243
Central.....	25	3,372	3,062	970	830	684	578	310
Pacific[2].....	23	3,985	3,705	1,013	823	1,032	837	280

[1] Includes men and women majors enrolled in home economics.
[2] Figures for Colorado and California include some estimates.

Table 12.--Bachelor's degree-level graduates of institutions approved to prepare teachers for vocational home economics programs and other persons completing teacher certification requirements, by type of home economics curriculum, and by region: Aggregate United States, 1961-62 including 1962 summer session

Region	Number of institutions	Total persons prepared to teach vocational home economics (col. 5 + 9)	Bachelor's degrees granted in home economics					Other persons completing home economics teacher certification requirements
			All bachelor's level home economics curriculums	Home[1] economics education		Other home economics curriculums		
			Number	Number	Percent[2]	Number	Percent[2]	
1	2	3	4	5	6	7	8	9
Aggregate United States Total....	234	4,416	7,097	4,014	56.6	3,083	43.4	402
	Approved and reimbursed institutions							
Total.....	131	3,083	4,915	2,847	57.9	2,068	42.1	236
North Atlantic.....	25	503	950	463	48.7	487	51.3	40
Southern.....	49	1,071	1,570	986	62.8	584	37.2	85
Central.....	39	1,126	1,805	1,061	58.8	744	41.2	65
Pacific[3].....	18	383	590	337	57.1	253	42.9	46
	Approved institutions							
Total.....	103	1,333	2,182	1,167	53.5	1,015	46.5	166
North Atlantic.....	28	273	503	256	50.9	247	49.1	17
Southern.....	27	359	451	320	71.0	131	29.0	39
Central.....	25	367	529	360	68.0	169	31.9	7
Pacific[3].....	23	334	699	231	33.0	468	67.0	103

[1] Home economics education is the curriculum designed for students preparing to become home economics teachers.
[2] Percent of column 4.
[3] Figures for California and Colorado include some estimates.

OE-4159 (2-63)
(FORMERLY OE-DVE-502)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D.C.

BUDGET BUREAU NO. 81R-106.10
APPROVAL EXPIRES: 11-30-63

ENROLLMENT IN HOME ECONOMICS & HOME ECONOMICS EDUCATION AND EMPLOYMENT STATUS OF STUDENTS PREPARED TO TEACH HOME ECONOMICS

(FOR INSTITUTIONS APPROVED BY STATE BOARDS FOR VOCATIONAL EDUCATION TO PREPARE TEACHERS FOR VOCATIONAL HOME ECONOMICS PROGRAMS)

INSTITUTION

STATE | DATE

A. ENROLLMENT FOR CURRENT SCHOOL YEAR

(BEGINNING SUMMER 1962 TO END OF ACADEMIC YEAR 1962-63)

1. MAJORS ENROLLED IN HOME ECONOMICS AND HOME ECONOMICS EDUCATION *(Include those enrolled in departments or schools other than home economics, e.g., education, liberal arts, etc.)*										2. STUDENTS ENROLLED IN HOME ECONOMICS EDUCATION *(Include both resident & off-campus home economics education courses, workshops, etc.)*				
UNDERGRADUATE MAJORS							GRADUATE MAJORS			UNDERGRADUATE MAJORS		GRADUATE MAJORS *(Candidates for advanced degrees in home economics education)*		SPECIAL & UNCLASSIFIED STUDENTS *(Include those who are not candidates for degree)*
TOTAL NO.	BREAKDOWN OF INDIVIDUALS *(Col.2+3 equal Col. 1)*		*(Sum of Cols. 4,5,6, & 7 equal Col. 1)*				TOTAL NO.	BREAKDOWN OF INDIVIDUALS						
	WOMEN	MEN	FRESH.*	SOPH.*	JUNIORS	SENIORS		WOMEN	MEN	JUNIORS	SENIORS	REGULAR SESSIONS	SUMMER SESSIONS ONLY	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

For Institutions whose policy does not permit freshman and sophomore students to declare their major field include a statement to this effect

B. GRADUATES & OTHERS WHO COMPLETED CERTIFICATION REQUIREMENTS FOR TEACHING HOME ECONOMICS

(DURING SUMMER SESSION 1961 & ACADEMIC YEAR 1961-62)

1. GRADUATES WITH EARNED BACHELOR'S DEGREES IN			2. NO. OF OTHERS COMPLETING STATE CERTIFICATION REQUIREMENTS FOR TEACHING HOME ECONOMICS *(Vocational or non-vocational)*	TOTAL OF COL. 3 & COL. 4	3. EMPLOYMENT STATUS *(Sum of Cols. 6 thru 15 should equal Col. 5)*									
HOME ECONOMICS AND HOME ECONOMICS EDUCATION		HOME ECONOMICS EDUCATION ONLY			TEACHING HOME ECONOMICS		TEACHING OTHER SUBJECTS ONLY *(e.g., science, English, etc.)*	CONTINUING FULL-TIME STUDY	MARRIED AND NOT EMPLOYED	REGULARLY EMPLOYED IN OTHER OCCUPATIONS		SEEKING EMPLOYMENT *(do not include those reported in Cols. 6 thru 12)*	DECEASED	STATUS UNKNOWN
WOMEN	MEN				IN VOCATIONAL PROGRAMS	IN OTHER PROGRAMS				AGRICULTURE EXTENSION SERVICE	OTHER			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

INFORMATION FURNISHED BY: _____

VT 001 900

Accreditation of Collegiate Educational Programs Allied to Medicine and Dentistry. A Staff Report to the Special Committee on Accrediting in Allied-Dental and Allied-Medical Fields of Study of the National Commission on Accrediting. Agenda Item No. 4.

American Dental Association, Chicago, Ill.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan64 6p.

*HEALTH OCCUPATIONS EDUCATION; POLICY; *HEALTH PERSONNEL; *ACCREDITATION (INSTITUTIONS); PROFESSIONAL ASSOCIATIONS
AMERICAN MEDICAL ASSOCIATION; AMERICAN DENTAL ASSOCIATION; NATIONAL COMMISSION ON ACCREDITING

Basic policies and procedures of (1) the program of the American Dental Association in accrediting dental hygiene, dental laboratory technician, and dental assistant programs, and (2) the program of the American Medical Association in accrediting programs in occupational therapy, medical technology and cytotechnology, physical therapy, medical record library science and medical record technician, x-ray technology, and inhalation therapy are explained. (JK)

VT 001 900

ED0 36657

Agenda Item No. 4

ACCREDITATION OF COLLEGIATE EDUCATIONAL PROGRAMS ALLIED TO MEDICINE AND DENTISTRY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

A Staff Report to the Special Committee on Accrediting in Allied-Dental and Allied-Medical Fields of Study of the National Commission on Accrediting.

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January 1964

The era of the solitary professional worker has ended. The tradition of the saddle-bag physician, the independent engineer, the lone preacher, even the single classroom teacher, is passing. Division of labor is reaching the professions; professional responsibilities are widening; and professional workers must increasingly administer and delegate the routines of their professions to others.

As a result, new groups of semi-professional and professional occupations are developing whose members are performing tasks once done by the professional worker himself. The engineering technician and draftsman aid the graduate engineer; the religious educator works with the preacher; the teaching assistant and educational aide take over classroom routines; the nurse's aide and the practical nurse perform routine patient care. The basic responsibility of all of these new occupations is to assist the professional practitioner by transforming his ideas into reality: through teamwork, to make professional service to the public both more efficient and more effective.

This development of the professional team, led and directed by the professionally trained worker but utilizing the diverse skills of his associates, is proceeding throughout the professions. It began more than a century ago when nursing made its appearance as part of health care; it reached dentistry within the past two decades; and within two more decades it may eventually reach the last of the professions--law. As a consequence, the number of occupations allied with the established professions grows larger and larger.

For example, in the dental profession, the American Dental Association has recognized three types of auxiliary personnel--dental assistants, dental hygienists, and dental laboratory technicians--and already the 120,000 workers in these three fields outnumber by over 20,000 the total of activly practicing dentists. In medicine, a committee of the American Medical Association in 1960 counted over fifty allied occupations, ranging from anatomists to X-ray technicians. This committee reported, "it is estimated that there are already some eight individuals in allied health activities for each physician engaged in patient care," and concluded that an even larger number and a greater diversity of groups will become involved in the future.[1]

Already, members of the six allied medical professions that have been included in the accreditation program of the American Medical Association number some 186,000, compared with some 274,000 medical doctors and doctors of osteopathy.

This development of allied health occupations provides a major means of assisting the medical and dental professions in fulfilling their responsibilities to the public. In dentistry, this opportunity was officially recognized seven years ago when the Council on Dental Education of the American Dental Association announced that dental schools must henceforth acquaint their students with ways of utilizing auxiliary personnel.

1. Final Report of the Committee to Study the Relationships of Medicine with Allied Health Professions and Services, Chicago: American Medical Association, 1960, p. 3.

AL001900

But the proper role of the professions in encouraging these new occupations and determining their standards presents not only opportunities but obligations. In every field where new occupations are being born, the same question must be answered: what should be the role of the parent profession?

Should the parent profession regulate its allied fields and control their education and certification?

Should it cooperatively share this responsibility with its allied fields?

Dare it grant them independent status and self-determination?

And should it play one of these roles with its fledging fields and play another role as the fields mature?

The practices of the American Dental Association and the American Medical Association illustrate two somewhat different answers to these questions. Both the ADA and AMA have taken responsibility of establishing educational standards for their allied fields, and both have shared this responsibility to an extent with professional organizations in their respective fields. Two methods are being used to meet the need of the public and the professions for educational standards in the allied health services: (1) registration, certification, and licensure of the individual practitioners, and (2) accreditation of the educational programs.

On the one hand, voluntary registration or certification of practitioners has been developed in most of the allied health services with the exception of dental hygiene. This voluntary registration is conducted under ADA or AMA authorization by professional associations or boards of these allied fields--including the American Dental Assistants' Association, the National Board for Certification of the National Association of Dental Laboratories, the American Association of Medical Record Librarians, the American Occupational Therapy Association, and the American Registry of Physical Therapists. For dental hygienists, all fifty states have established licensure requirements, and 39 states require either licensure or certification of physical therapists.

At the same time, accreditation is being used to improve the standards of educational institutions training these practitioners.

The House of Delegates of the American Dental Association approved educational requirements in the three dental auxiliaries and assigned formal authority for accreditation of qualified schools to the ADA Council on Dental Education in thses years:

Dental Hygiene	1947
Dental Laboratory Technician	1957
Dental Assisting	1960

(The American Dental Assistants Association conducted accreditation in this field until 1960.)

Similarly, the House of Delegates of the American Medical Association has now approved educational standards in eight of the allied medical services whose members work, either by legal statute or professional ethics, under the direction of a physician. It assigned final authority for approving educational programs to the AMA Council on Medical Education and Hospitals in these years:

Occupational Therapy	1936

(The American Occupational Therapy Association conducted accreditation from 1923 to 1935.)

Medical Technology	1936
Physical Therapy	1936
Medical Record Library Science	1943

(The American Association of Medical Record Librarians conducted accreditation from 1935 to 1943.)

X-Ray Technology	1944
Medical Record Technician	1953
Cytotechnology	1962
Inhalation Therapy Technician	1962

Accreditation in the allied health fields has proved one effective lever to raise and sustain educational quality. In one of the allied fields, for example, a report to the Council on Medical Education and Hospitals states that "quite frequently" accreditation visits have disclosed that information supplied by the schools about themselves "was not actually based on fact." It also states that visits have helped resolve such problems as the "use of students instead of paid hospital employees, dearth of theoretical instruction and heavy dependence upon learning by doing; lack of qualified faculty, classroom space, library facilities, and equipment; poor teaching plans or none at all; and administrative capriciousness." Under these circumstances, it is small wonder that accreditation has resulted "in better standardization of program content and improvement in educational and administrative practices generally within the approved schools."

In five of the allied medical services--cytotechnology, inhalation therapy, medical record technology, medical technology, and X-ray technology--only hospitals and health agencies presently offer approved educational programs. But over a hundred American colleges and universities are today training practitioners for the three dental auxiliaries and for three of the medical services--medical record library science, occupational therapy, and physical therapy. This report covers accreditation in these six fields as it affects these colleges and universities.

The procedures followed by the Council on Dental Education of the ADA and the Council on Medical Education and Hospitals of the AMA in collaboration with allied professional organizations are summarized here as follows:

1. Accrediting in both the dental auxiliaries and the allied medical services appears to be conducted with the same care as that for the professions of dentistry and medicine, fields which are already recognized by the National Commission. Indeed, the allied programs that are offered by university dental or medical schools are often visited for accreditation or reaccreditation at the same time as the dental or medical programs in order to evaluate the total educational offerings of the school.

2. Both the Council on Dental Education and the Council on Medical Education and Hospitals have developed their essential or required standards for educational programs in the allied fields in collaboration with representatives of the fields themselves.

3. As in dentistry and medicine, and in contrast to most other non-health professions, schools are not charged the expenses of accreditation. Instead, the two Councils and related professional organizations provide funds for visitation expenses.

4. Differences between accreditation in medicine or dentistry and in the allied fields occur (a) in the length of the visit, (b) the revisitation cycle, and (c) the personnel participating in the visit and in final approval:

Length of Visit: Because of the less complex curricula and structures of the allied schools, visits to dental auxiliary programs average one and one-half days in contrast to three to five days for dental schools. Similarly, visits to allied medical programs average two and one-half days in comparison to three or four days for medical schools.

Revisitation Cycle: Dental schools and dental auxiliary schools are both revisited on the same seven-to-ten year cycle. But allied medical programs are surveyed every three to four years, in contrast to the ten-to-twelve year cycle now planned for medical schools.

Personnel: The visiting teams of the Council on Dental Education that survey dental schools are composed of members or consultants of the Council alone, but visiting teams for the auxiliary programs consist of representatives of the Council and of the related professional organization--either the American Dental Assistants Association, the American Dental Hygienists Association, or the National Association of Dental Laboratories.

Similarly, visiting teams for the allied medical programs consist of representatives both of the Council on Medical Education and Hospitals of the AMA and of the related professional organization--either the American Association of Medical Record Librarians, the American Occupational Therapy Association, or the American Physical Therapy Association.

5. One major difference between procedures for the dental auxiliaries and the allied medical services lies in the process of final approval: the Council on Dental Education receives and acts upon the visiting team report directly from the team. But in the medical services, the team report is sent first to the education committee in the related professional organization, and the AMA Council on Medical Education and Hospitals awaits a recommendation from this organization before taking final action on the report.

In short, on the fundamental question of the proper role of the parent profession to its allied fields, both medicine and dentistry stand somewhere in the middle between complete dominance of these fields on the one hand through the control of accreditation and certification, and complete freedom on the other hand through recognizing independent control of accreditation and certification by the professional organizations of these fields. Both the medical and dental professions have extended partial responsibility in accreditation to the professional organizations in the allied fields; and, of the two, medicine has moved farther in this direction than dentistry. Not only does the Council on Medical Education and Hospitals, like the Council on Dental Education, collaborate with representatives of the allied professional organizations in drafting standards and in visiting institutions; but unlike the Council on Dental Education, it refers the reports of these visiting teams to the relevant organizations for recommendations as to action.

Thus although legal and ethical agreements require that the practice of these allied fields be prescribed by the physician or dentist, the medical and dental professions appear willing to cooperate and share responsibility with these allied fields for maintaining educational standards.

VT 001 916

Allen, David, And Others

Developmental Approach to Cosmetology Instruction, Report of a Workshop for the Improvement of Cosmetology Instruction (August 22-27, 1965).

California State Dept. of Education, Sacramento. Bureau of Industrial Education
California Univ., Los Angeles. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 89p.

INSERVICE TEACHER EDUCATION; *CURRICULUM DEVELOPMENT; JUNIOR COLLEGES; *COSMETOLOGISTS; *CONFERENCE REPORTS; CURRICULUM GUIDES; PUBLIC RELATIONS; *TRADE AND INDUSTRIAL EDUCATION
*WORKSHOP FOR THE IMPROVEMENT OF COSMETOLOGY INSTRUCTION, LAKE ARROWHEAD, CALIFORNIA, AUGUST 22-27, 1965

The purposes of the workshop were to develop (1) recommendations for subject matter, sequence, and extent to be included during the freshman period, (2) understanding of techniques, procedures, and processes to implement the teaching of cosmetology, and (3) a common brochure to effectively tell the story of cosmetology. A suggested guide for instruction was developed to be used at the freshman level in the junior colleges and included in areas of haircutting, shampooing, scalp treatments, permanent waving, hair coloring, hairstyling, facials, arching, make-up, and manicuring. A brochure was developed describing (1) the accredited junior colleges and the Associate in Arts degree, (2) personal qualifications, (3) length of training, which is 1,600 hours for state licensing examination, (4) cost, which is tuition free for state residents, (5) eligibility, i.e. high school graduates or 18 years of age, and (6) career opportunities. From the evaluation of participants and discussion between the staff, it was the consensus that the workshop was very successful. (MM)

VT 001 916

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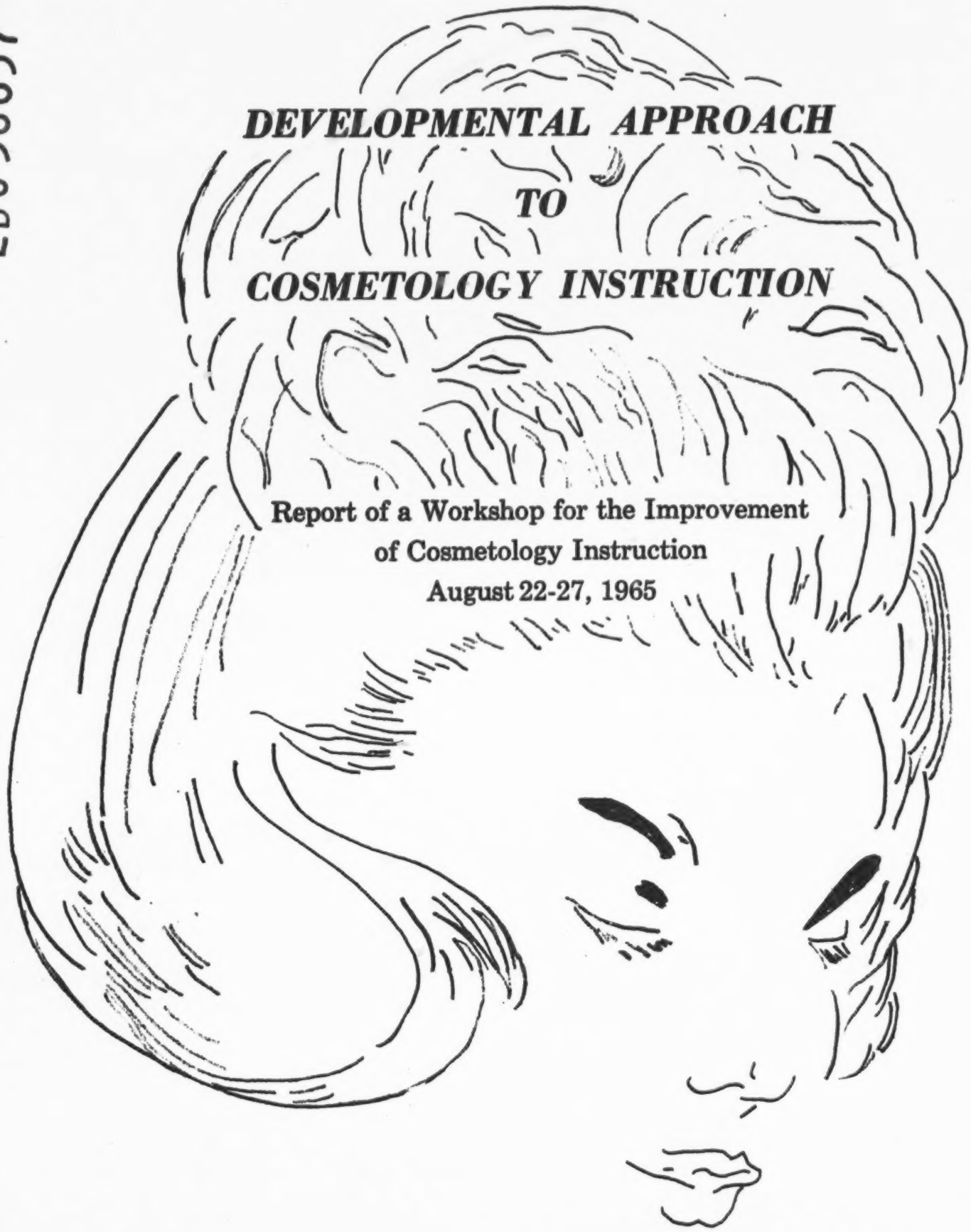
DEVELOPMENTAL APPROACH TO COSMETOLOGY INSTRUCTION



Report of a Workshop for the Improvement
of Cosmetology Instruction
August 22-27, 1965

VT001916

BUREAU OF INDUSTRIAL EDUCATION
CALIFORNIA STATE DEPARTMENT OF EDUCATION
In Cooperation With
DIVISION OF VOCATIONAL EDUCATION
UNIVERSITY OF CALIFORNIA, LOS ANGELES

DEVELOPMENTAL APPROACH

TO

COSMETOLOGY INSTRUCTION

Report of a Workshop for the Improvement
of Cosmetology Instruction
August 22-27, 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

David Allen
Richard Lano
Robert Lorenzen

Sponsored by the **Bureau of Industrial Education**
California State Department of Education

Conducted by the **Division of Vocational Education**
University of California, Los Angeles

PREFACE

The Bureau of Industrial Education, California State Department of Education, has continuously supported in-service programs for Trade and Technical Teachers. This Cosmetology Workshop is one of the many sponsored by the Bureau. The curriculum developed at this workshop utilizes a unique approach in vocational education and should greatly assist cosmetology teachers in improving their teaching. Cosmetology programs throughout the state should receive direction and assistance from the curriculum provided in this report.

Richard S. Nelson

Richard S. Nelson, Chief
Bureau of Industrial Education

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The Workshop

Cosmetologists who have become teachers in the public schools of California have demonstrated a continuous desire for professional growth, both in their teaching skills and their technical abilities. Through the years these teachers have joined in associations whose purposes are to improve the teaching of cosmetology and to upgrade the cosmetology occupation. They made personal sacrifices in fighting many legislative battles, winning some, losing others; and by their efforts have established the cosmetology program at its present high level of instruction in the public schools. Equally significant have been the many activities that their associations undertake to help upgrade the instructional program, thus placing them among the outstanding teachers in the state.

Background

Briefly reviewing the organized effort of these public school cosmetology teachers, we find that about 35 years ago a small group of cosmetology teachers who were teaching in the public schools in the Los Angeles area began to meet as a social group and adopted the name Associated Cosmetology Teachers.[1] In the early days they met to have a good time and to exchange ideas of common interest and to discuss mutual problems. An increase in the number of vocational cosmetology classes offered in the Los Angeles public schools in the years that followed gave rise to many problems, some of them quite complex. The occupation itself was undergoing changes brought about in part by laws enacted by the legislature. To keep abreast of new developments in the field and to work for the promotion or the defeat of various legislative actions, the group soon found it useful to meet more frequently. Shortly after the end of World War II, the organization was divided into two groups, the Associated Cosmetology Teachers (in southern California) and the Associated Cosmetology Teachers of Northern California. Members of the two groups worked together, as before, toward their common goals. About 10 years ago the northern group changed its name to Cosmetology Teachers of Secondary Schools in Northern California.

Program Planning

The Associated Cosmetology Teachers helped plan the 1965 statewide summer workshop for cosmetology teachers, one of many such activities organized by this group through the years. Initial planning began with a subcommittee made up of Grace Erickson, Cleo Sagrillo, and Olive Scott, who met with Lee Ralston of the Los Angeles County Office. The Bureau

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[1]Historical information supplied by Mrs. Olive Scott, Cerritos College.

of Industrial Education, California State Department of Education, was requested to help conduct and finance the workshop. The Bureau consented and the teacher education staff of UCLA was assigned to work with the committee. Three major objectives for the workshop were developed:

1. To develop cooperatively recommendations for subject matter, sequence, and extent to be included during the freshman period.

2. To develop a more complete and uniform understanding of techniques, procedures, and processes to implement the teaching of cosmetology.

3. To develop a common brochure which could be used effectively to tell the story of cosmetology.

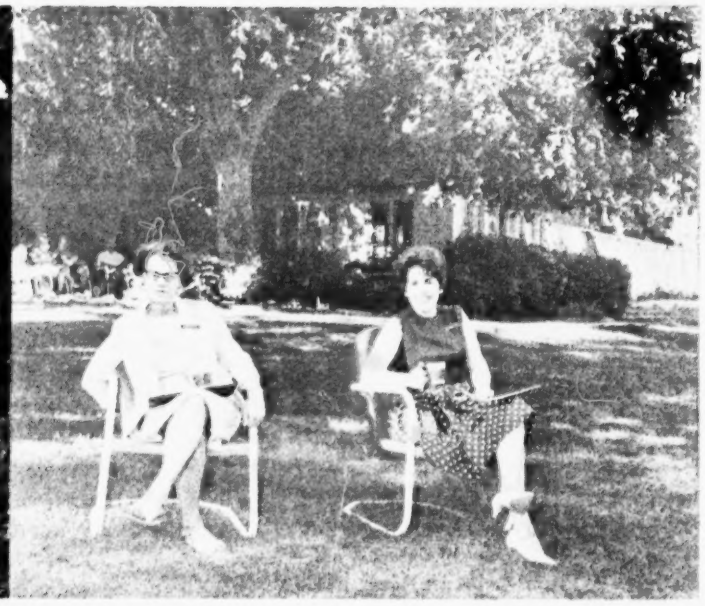
The University of California Conference Center, Lake Arrowhead, California, was selected as the site of the workshop. The dates were August 22-27, 1965. Three major activities directly related to the workshop objectives were planned: (1) development of identifiable learning outcome curriculum through small group action; (2) adaption of feedback systems and programmed instruction to the teaching of

cosmetology; and (3) development of a brochure that could be used throughout the state.

Attendance at the workshop was limited to 26 participants, the workshop committee, and the staff from UCLA. Notices of the workshop were circulated through the Associated Cosmetology Teachers organization. Each school throughout the state had the opportunity to send one teacher to the workshop. All other participants were admitted on a first come, first served basis until the quota was filled. Every attempt was made to keep representation evenly balanced among the various schools. Thus, with a setting conducive to learning, a plan of action, and a statewide selection of participants, the stage was set for a most productive workshop.

Events of the Workshop

A running log of the activities follows. Beginning on Sunday, August 22, at approximately 3:00 p.m., the participants began arriving at the conference center. They had time to check in, register for the workshop, and get acquainted. After dinner they were given an overview of the workshop by Grace Erickson and received greetings from Richard S. Nelson, Chief, Bureau of Industrial Education. Dorothy Pesquiera



reviewed the past-year activities of the A.C.T.

After breakfast on Monday, August 23, small groups were formed to discuss barriers in communication. Three causes of difficulty in communicating were discussed: jumping to conclusions, having a closed mind, and misinterpreting words. Various ways to eliminate loss of information were discussed. The participants assisted in a presentation that emphasized the ideas being put forth. Recognition of these barriers became quite evident during the enthusiastic discussion that followed the presentation.

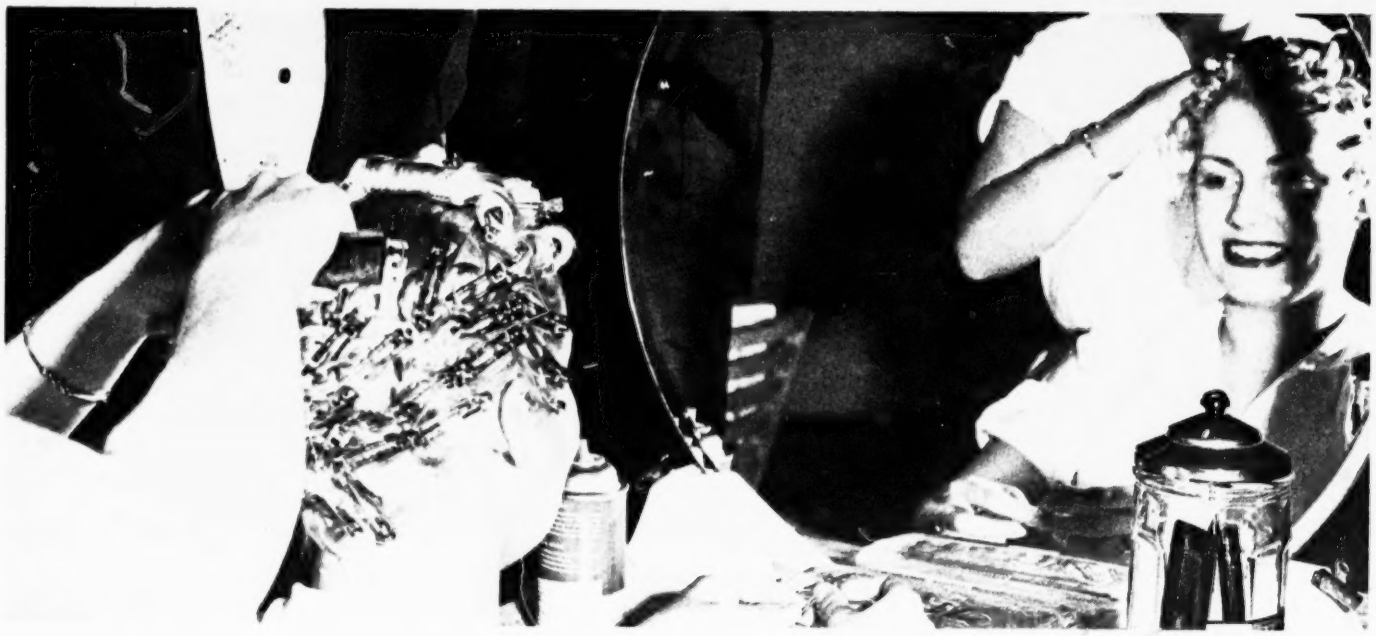
During the next session five educational objectives essential to planning a curriculum were presented. These objectives, the levels of instruction to which a topic would be taught, can provide a basis for determining the methodology a teacher will use in teaching each topic in his course. As a result of this presentation at the workshop, teachers of cosmetology can be expected to find they are able to plan their curricula more definitively when they have first selected the level appropriate to each of the topics in the courses they teach.

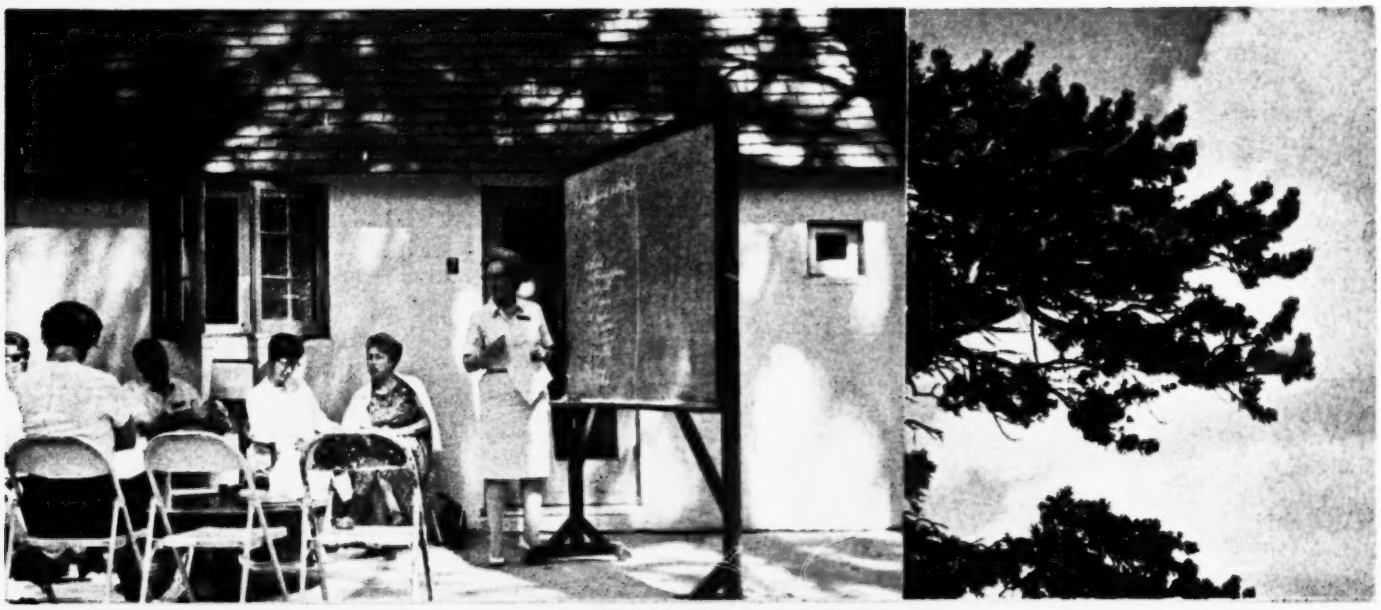
The participants were then divided into three groups, each having

a group leader and recorder, in which the subject content in a curriculum for freshman cosmetology students was identified. The content items were paired with specific educational objectives. Each group was given a different unit of instruction within which to develop topics. The knowledge and experience of the individual teachers were pooled in the group effort, which resulted in a comprehensive development of the subject matter. Ideas were interchanged and comparisons made between various programs. Many of the participants enjoyed discovering other methods of instruction used to teach the same subjects in different schools.

Prior to their group meeting on Tuesday, the participants received instruction in the development of feedback to their instruction through the use of instructional analysis. At the end of each of the first two days the three groups joined in a "Problem Conference." These conferences gave the participants an opportunity to discuss problems of common concern.

On Tuesday, August 24, the participants were again working in three groups. Each group received copies of what had been developed the day before by them and by the other two groups. This procedure





was followed throughout the entire workshop.

Wednesday, August 25, was devoted to the development of a brochure. Jan Mracek of El Camino College presented ideas to be used in designing brochures. The participants were once more separated into three groups so that each might develop a brochure. These were later presented to all the participants for evaluation and possible inclusion in a completed brochure. After lunch a presentation on programmed instruction directly related to cosmetology was presented. The participants had an opportunity to experiment by using linear programs, scramble books, and branching programs. The afternoon meeting was completed with a panel discussion on the topic, "Problems of Mutual Concern." The panel was made up of Mary DeJani, San Jose City College; Nancy Nemick, Santa Monica City College; Barbara Steele, Los Angeles Trade-Technical College; and Grace Erickson, El Camino College, who acted as moderator.

Small groups of participants spent Thursday, August 26, devising ways of teaching the curriculum developed on Monday and Tuesday. Lawrence A. Johannsen began the day by demonstrating an electronic instructional feedback system. He demonstrated how this system could be used to teach cosmetology. After this presentation, the groups met to see what innovations they might adapt to their instruction.

The entire morning of Friday, August 27, was devoted to an "Idea Mart." Each participant had an opportunity to let the others know how he or she approaches various instructional topics. Outstanding visual and instructional aids were displayed and demonstrations given with their use. The entire workshop was then evaluated and summarized.

Evaluation

The evaluation of the workshop required obtaining the reaction of each of the participants to three items. Each was asked to write a paragraph on: (1) strengths of the workshop, (2) suggestions for change or additional topics, and (3) opportunity provided for general comments. Some of the participants made several remarks under each heading, whereas others made one remark or none at all. (See breakdown in Tables I through III).

All comments on the strength of the workshop can be classified under four headings which are listed in Table I.

TABLE I

Strengths of Workshop

Comments	Number of times occurring
New teaching concepts	14
Organization of workshop.	14
Opportunity to exchange ideas and work in groups. . . .	12
Opportunity for individual growth	4

Nine classifications were suggested for change or additional topics. These are listed in Table II. Four participants made no comment in this section.

TABLE II

Suggested Changes or Additional Topics

Comments	Number of times occurring
Audio-visual aids	7
Additional time for exchange of ideas	4
Rearrangement of small groups by subject teaching	3
More curriculum development	3
Test and measurements	2
Change of workshop schedule	2
Use of technical experts	1
Information on advanced degrees	1
Information for counselors	1

General comments consisted mostly of commendations for the workshop. Here again four participants made no comment. Four classifications under this heading are indicated in Table III.

TABLE III

General Comments

Comments	Number of times occurring
Outstanding workshop	11
More workshops of this type.	10
Wonderful accommodations	2
Extension of time for workshop	1

Conclusions

From the evaluation of the participants and discussion between the staff, it is the consensus that the workshop was very successful and was, from all indications, of great value to the participants. Favorable comments are often made immediately after a workshop ends. However, after the participant has returned home and had time to react, he may change his opinion. This has not been the case with this workshop, because many letters from the participants have been received by the Trade-Technical Teacher Education office at UCLA and the California State Department of Education, Sacramento, commenting favorably on the workshop. This evidence shows clearly that the workshop was effective.

The Suggested Guide for Instruction

The ensuing section, covering pages 12 through 75, contains the curriculum developed at the workshop--a curriculum designed for a freshman class in cosmetology. The ten major headings contained in this curriculum are Haircutting, Shampooing, Scalp Treatments, Permanent Waving, Hair Coloring, Hairstyling, Facials, Arching, Make-up, and Manicuring. Under each of these broad headings are topic headings, followed by subtopics. Any subtopic marked with an asterisk represents a subject not taught at the freshman level in some junior colleges.

Beneath each major heading are four columns. Column one indicates two factors: (1) the topical outline and (2) the level at which the instruction should be given. For example, on page 12 the arrangement shown is "Haircutting" (major heading), "A. Terminology" (topic heading), and "(1)" (teaching level). Column two suggests feedback activities to assist in the instruction of the listed topics. Column three suggests ways for teaching the topic, and column four provides sample questions that will help the teacher determine if the level of instruction identified by the parenthesized number in column one has been achieved.

It was felt that, of the four levels of instruction to which teachers can generally direct their instruction, Levels 1 and 2 are adequate for a freshman course. Level 1 represents the point at which the student has learned a subject and is able to recall the information. Level 2 represents the point at which the student is able not only to recall the information but also to comprehend it. At this second level the students must be able to understand and relate to the task they are performing such material as information in manuals, interpret drawings of hairstyles, etc.

It is expected that the instructional material contained in this curriculum will assist teachers in identifying the level to which the instruction should be presented, thus increasing the effectiveness of their instruction.

HAIRCUTTING

Topical Outline and Teaching Level	Feedback
I. Introduction to Haircutting	
A. Terminology (1)	
1. Identification of haircutting a. Basic b. Contour c. Neckline d. Brush-up e. Long hair f. Pixie	1. Identify pictures. 2. Estimate hair lengths for each hair cut. 3. Identify haircuts in the classroom.
2. Explanation of technical terms a. Slithering (effilating) b. Blunt cutting (club) c. Tapering d. Thinning e. Shingling f. Graduation of hair length (differential, layering, feathering)	1. Look up the following words in the trade journal (terms "a" thru "f"). 2. Look up and define words "a" thru "f" in textbook glossary. 3. Complete assignment in haircutting workbook. 4. Quiz - define "a" thru "f" (matching).
B. Implements, Equipment and Station Set-up (1)	
1. Materials a. Cape b. Sanek c. Towel (for wet cut) d. Talc e. Cotton f. Water atomizer g. Shears h. Thinning shears i. Razor j. Clippers k. Combs (1) Barber (2) Styling l. Yoyettes *m. Lamp *n. Air comb	1. Identify "a" thru "n". 2. Identify parts of following: a. Shears b. Razor c. Clippers
2. Station set-up a. Assemble and arrange material	a. Student set-up a station.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Show students index and glossary of haircutting terms. 2. Assemble pictures of each name or term.	
1. Show implements and place in proper station set-up.	The razor includes one of the following: a. moving blade b. still blade c. guard d. ferrule

HAIRCUTTING (Con't)

Topical Outline and Teaching Level	Feedback
C. Safety and Sanitation (1)	
1. Patron protection	1. Practice approved methods of sanitation.
a. Sanitation of operation	
b. Draping	2. Drape model.
2. Safety rules to be applied to implements	1. Performance test
D. Analysis of Hair and Patron (1)	
1. Hair textures, conditions, length, and growth tendencies or characteristics	1. Identify various hair textures and growth tendencies among students in classroom.
	2. Develop chart showing textures.
2. Patron's desires	1. Group discussion of patron's desires.
3. Physical characteristics	1. Participation in group discussion of physical characteristics.
II. Haircutting Procedure	
A. Sectioning (2)	1. State the importance of sectioning for haircutting.
	2. Show the different methods of sectioning.
	3. Describe what part of the hair constitutes the guide line.
	4. How is the comb held while cutting the hair?
	5. Name the instruments used in haircutting.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Demonstrate approved sanitation of tools.	The approved method of sanitation for the shears is: a. immerse in alcohol for 10 minutes b. immerse in quaternary for 2 minutes c. wipe with alcohol d. wash with soap and water
1. Demonstrate proper handling of tools and equipment.	
1. Lecture. 2. Flip charts showing neck growth of hair. 3. Divide students into groups for analysis.	One of the following helps to determine the type of haircut: a. color of hair b. growth tendencies c. length d. shape of hair
1. Assign students to bring pictures to class. 2. Draw various necklines. 3. Weft practice. 4. Practice shingling with a coke bottle. 5. Sectioning practice. 6. Blending of sections.	Manipulative test. Guidelines in haircutting are necessary to: a. balance haircut b. change texture c. remove bulk d. aid hairstyling

HAIRCUTTING (Con't)

Topical Outline and Teaching Level	Feedback
B. Tools (2)	
1. Shears	1. What are the advantages of a shear cut? 2. What is the purpose of the thinning shears? 3. Which blade of the shear is the moving blade? 4. Why is a good haircut or shaping important? 5. Class practice.
2. Razor	1. When would you advise a wet haircut? 2. What are the advantages of a razor cut? 3. What position is the guard on the razor? 4. Class practice. 5. How do you sanitize a razor?
3. Thinning	1. When would you advise thinning hair with thinning shears? 2. When would you advise thinning with a razor? 3. Class practice.
4. Clippers	1. When would you use the clippers? 2. When would you use the clippers on the neck as opposed to a razor or shears? 3. How do you sanitize clippers? 4. Class practice.

Suggested Ways for Teaching

Sample Questions for
Evaluating Levels of Instruction

Criteria for grading:

1. Proper sanitation of tools and hands
2. Correct patron drape
3. Correct sectioning
4. Dexterity in handling tools
5. Finished appearance of haircut

SHAMPOOING

Topical Outline and Teaching Level	Feedback
I. Introduction to Shampooing	
A. Tools and Materials (2)	
1. Shampoo cape	1. Why is the shampoo cape made of plastic?
2. Sanek strips	1. Is a sanek always used? a. where b. why
3. Towels	1. Explain the reason for the use of a towel during a shampoo.
4. Shampoo	1. Name and explain the uses of four different types of shampoo.
5. Rinse	1. Why is the proper rinsing necessary?
6. Brush	1. Explain why hair should be brushed before shampooing.
7. Comb	1. Explain the function of the comb.
8. Clamp	1. Explain the function of the clamp.
B. Safety and Sanitation (2)	
1. Adjustment of chair and control of spray head	1. Practice the proper chair adjustment with student models. 2. Practice and demonstrate the proper way to hold the shampoo spray head.
2. Adjustment of water temperature and pressure	1. Demonstrate adjustment of temperature and pressure of water. 2. Explain how to test for proper water temperature.
3. Identity of labels on bottles	1. Refer to State Board rules and regulations regarding labels and report law number and section.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Display of all items necessary and samples of shampoo materials. 2. Guest speaker or salesman from manufacturer or supply house.	Which of the following items are <u>not</u> used in the shampoo procedure? a. shampoo cape and towel b. comb and brush c. sanek and clamp d. shears and razor
1. Films and slides. 2. Comic strip pictures that show the "do's" and "don't's" in safety precautions and sanitation.	According to the State Board rules and regulations, we must: a. use three towels b. heat shampoo before using c. label all bottles and containers d. use vinegar rinse

SHAMPOOING (Con't)

Topical Outline and Teaching Level	Feedback
4. Clean-up of all materials and equipment	1. Make a chart listing clean-up duties of shampoo area.
II. Shampooing Procedures	
A. Draping (2)	1. Choose and demonstrate materials used for draping.
B. Preliminary Examination (2)	1. Explain why preliminary examination of hair and scalp is necessary.
C. Method of Shampoo (2)	
1. Brushing	1. Demonstrate how the brush is used to aerate hair.
2. Selection of shampoo	1. Explain why hair condition is important in selection of shampoo.
3. Manipulation	1. Demonstrate manipulation movements in proper sequence.
4. Rinsing	1. Demonstrate and explain the importance of rinsing.
D. Clean-up of all Materials and Equipment (2)	1. Select student to monitor clean-up operation.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Manufacturer's record and film. 2. Use mannequin head to demonstrate proper and improper drape. 3. Student model and class demonstration.	Criteria for grading: 1. Proper sanitation of hands and drape 2. Proper placement of drape on patron and over chair 3. Patron comfort 4. Proper sequence of operation
1. Flip charts showing abrasions and diseases of the scalp and hair. 2. Microscopic slides on bacteria, head lice, etc.	Examination of the scalp is necessary because: a. it feels good to the patron b. is required by state law c. helps to determine what shampoo to use d. it will make the job easier
1. Films 2. Mannequin head marked off with colored sections to show correct manipulation positions and areas for hand placement.	On a bleached head of hair, we would use: a. strong alkaline shampoo b. creme shampoo c. stripping shampoo d. medicated shampoo
1. Dramatic skits presented by students to point out what to do and what not to do. 2. Comic strip pictures emphasizing the good and the bad clean-up practices.	Clean-up following the shampoo must be done because: a. it is a state law b. it makes a good impression on the patron c. it makes it easier to work in a clean area d. the instructor insists that this be done

SCALP TREATMENTS

Topical Outline and Teaching Level	Feedback
I. Introduction to Scalp Treatments	
A. Safety and Sanitation (1) 1. Patron protection a. Draping b. Sanitation of operation c. Examination of hair and scalp d. Safety rules	1. Explain reason for two types of drapes. 2. Review State Board rules and regulations concerning massage. 3. Discuss terminologies as related to conditions of hair and scalp. 4. Discuss the safety rules and explain their purpose.
B. Materials Needed (1) 1. Drape a. Sanek strips b. Clamp c. Towels d. Hair cloth 2. Comb 3. Brush 4. Heat cap 5. Lotion or creme 6. Cotton 7. Containers *8. High-frequency	1. Have student assemble and identify as to their usage a complete kit of materials needed for a scalp treatment.
II. Scalp Treatment Procedures	
A. Draping (2)	1. Demonstrate and explain use of both types of drapes.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Develop 35 mm slides showing a series of unsafe actions and conditions.	Using high frequency with lotions containing alcohol may cause: a. fire b. trichoptilosis c. growth of hair d. dryness to scalp
1. A kit made up similar to State Board kit which will include all materials necessary. 2. The kit may be kept stored ready for next use. 3. Packaged in towel, placed in plastic containers and labeled.	Some of the materials needed for a scalp treatment include: a. drape, scissors, comb and brush b. drape, comb, lotion and scissors c. razor, comb, lotion and drape d. drape, clamp, lotion and cream
1. Manufacturer's record and film. 2. Use mannequin head to demonstrate proper and improper drape. 3. Student model and class demonstration.	Checking drape with the use of two fingers indicates: a. proper drape b. drape is in proper position c. drape is correct length d. proper chair adjustment for student's comfort

SCALP TREATMENTS (Con't)

Topical Outline and Teaching Level	Feedback
B. Methods (2)	
1. Comb and brush	1. Compile a notebook containing a selection of manufacturer's brochures and a comparison chart. specifying the different kinds of scalp treatments. Include drawings and notes showing proper sequence of massage manipulations and usage of comb and brush.
2. Massage manipulations	1. Demonstrate and practice on models the proper sequence of massage manipulations.
3. Heating cap	1. Demonstrate and explain the uses of the heat cap.
4. High frequency	1. Demonstrate an application of the high frequency current.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
	Criteria for grading: 1. Proper sanitation of hands and drape 2. Proper placement of drape on patron and over chair 3. Patron comfort 4. Proper sequence of operation
1. Charts and overhead projectors to show hand placement. 2. Develop an electric teaching device consisting of mannequin wired to indicate correct hand placement. 3. Felt board designed to teach nerve points.	Proper scalp manipulations will contribute to: a. relaxation, stimulation and baldness of patron b. the promotion of hair growth c. the overall stimulation, well being, and excitation of patron d. overcome split ends and baldness Criteria for grading: 1. Proper hand and finger placement 2. Correct pressure

PERMANENT WAVING

Topical Outline and Teaching Level	Feedback
I. Introduction to Permanent Waving	
A. Safety (1)	
1. Dangerous effects of solution a. Patron b. Beautician	1. List examples of allergies to solution you could easily recognize. 2. Explain effect of cold waving lotion on skin. 3. Define"toxic." 4. Tell what you would do if solution should get into the eyes. 5. Explain how to help control toxic effect to patron and beautician. 6. Explain why processing lotion is more toxic than neutralizer. 7. Explain necessity of proper ventilation.
2. Condition of scalp and hair	1. Explain how condition of hair could be improved in order to give a cold wave. 2. Explain when you would not give a cold wave. 3. Explain the importance of recognizing abnormal conditions of hair and scalp. 4. Explain how you would handle a situation where abrasions are present on the scalp. 5. Have students check each other for condition of scalp, hair, etc. 6. Explain why a scalp examination is necessary before a cold wave. 7. Have students make off-head test curls to demonstrate variables.
3. Correct use of tools	1. Demonstrate necessary precautions for using tail comb or styling comb.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Use descriptive words and pictures to present hazards. 2. Develop slides to show possible errors. 3. Have dermatologist give lecture and show slides, if possible, of scalp burns, etc.	The first safety precaution in permanent waving is to: a. drape patron b. choose the right solution c. check scalp for abrasions d. discuss price with patron

PERMANENT WAVING (Con't)

Topical Outline and Teaching Level	Feedback
	2. Explain why metal equipment is not normally used in contact with solution. 3. Explain why it is important to use tools correctly. 4. Demonstrate proper use of clamps.
B. Sterilization and Sanitation (2)	
1. Rules and regulations	1. Name rules relating to permanent waving. 2. Explain sterilization of cold waving equipment. 3. Give quizzes. 4. Name two items which would not be sterilized.
2. Clean-up of station	1. Explain procedure of orderly maintenance of station.
C. Materials and Equipment Needed (1)	
1. Draping a. Shampoo cape b. Sanek c. Towels d. Clamp	1. List all materials used for proper draping.
2. Implements and supplies a. Cold waving rods (1) size and color code b. End papers c. Yoyetts and clamps d. Combs e. Cotton and/or webril strips f. Application (1) brush (2) bottle (3) dish g. Protective creme h. Timer i. Neutralizer cape j. Record card k. Neutralizer container	1. Divide students into small groups and have each group assemble a complete cold waving kit. 2. Explain reason for various diameters, lengths and colors of rods. 3. Explain purpose and use of "b" thru "l".

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Develop a picture story showing examples of proper and improper sanitation and sterilization situations. 2. Develop a skit showing improper sanitation measures.	The cold wave rods should be sanitized for a least two minutes in: a. 20% alcohol b. 1/1000 quaternary ammonium solution c. 70% alcohol d. 3% formalin
1. Place mock-ups of each article on a felt board as each is discussed. 2. Use pictorial flip chart to show the use of all materials and equipment used for permanent waving.	Cold wave rods are color coded for: a. matching hair color b. bleached hair c. convenience of selection d. tighter curls

PERMANENT WAVING (Con't)

Topical Outline and Teaching Level		Feedback
1. Cold waving lotions (1) solution (2) neutralizer (3) conditioner		
II. Permanent Waving Procedure		
A. Draping 1. Double	(2)	1. Demonstrate proper drape. 2. Explain why it is essential to cover chair.
B. Analysis of Hair for Cold Wave 1. Elasticity	(2)	1. Do a test for elasticity on several textures of hair.
2. Porosity		1. Explain the meaning of porosity. 2. Have student demonstrate how to determine porosity.
3. Dryness or oiliness		1. Explain how to determine whether hair was oily or dry. 2. Determine solution for oily hair and dry hair.
4. Damage		1. What is your conception of damaged hair? 2. Explain how damaged hair would be treated for cold waving.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Manufacturer's record and film. 2. Use mannequin head to demonstrate proper and improper draping. 3. Student model.	The purpose of a double drape is for: a. better patron protection b. warmth of patron c. impressing the patron d. protecting the student Criteria for grading: 1. Proper sanitation of hands and drape 2. Proper placement of drape on patron and over chair 3. Patron comfort 4. Proper sequence of operation
1. Make a chart consisting of swatches of hair showing all types and conditions. 2. Make microscopic slides of each student's hair for analysis. 3. Study case histories from old file cards. 4. Make chart of off-head test curls.	Proper analysis before a cold wave is important for: a. patron's comfort b. operator's schedule c. type of sectioning d. selection of rods and solution Criteria for grading: 1. Test hair between two fingers to determine elasticity. 2. Give students four swatches of various hair conditions to make a comparison analysis. 3. Have students make an analysis of each other's hair.

PERMANENT WAVING (Con't)

Topical Outline and Teaching Level	Feedback
5. Texture	1. What part does texture play in cold waving? 2. How many textures can you name?
6. Form a. Round b. Oval c. Flat	1. Tell what determines shape of hair. 2. Explain difference in round, flat and oval forms of hair.
7. Length	1. Explain how length of hair affects amount of curl.
8. Thickness	1. Have student examine hair and give opinion on thickness.
9. Selection of lotion	1. How does selection of lotion relate to porosity of hair?
C. Sectioning, Blocking and Wrapping (2) 1. Method of sectioning a. Basic b. Variations	1. Make a chart of: a. Basic b. Drop crown 2. What determines width of each section? 3. What variations would be used to curl only ends of long hair.
2. Method of wrapping a. End paper 1. Book 2. Double 3. Single or flat b. Rod selection c. Curl spacing d. Rod placement e. Precautions 1. Tension 2. Clean partings 3. Saturation 4. Hair distribution 5. Fish hooks 6. End circling rod 7. Manufacturer's instructions	1. Explain and demonstrate each type of end paper wrapping: a. Advantages b. Disadvantages 2. How does rod selection relate to finished curl? (Emphasize nape area.) 3. Relate curl spacing to rod selection, length, and thickness of hair. 4. What would be the results of improper curl spacing? 5. Demonstrate proper rod placement and explain reasons.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Have Gloria heads blocked and wrapped showing various methods. 2. Make charts showing different blocking patterns and methods.	Size of the finished curl is determined by: a. method of wrapping b. rod selection c. end circling rod d. manufacturer's directions Criteria for grading: 1. Section a Gloria head 2. Wrap nape area using correct rod size 3. Wrap three curls to demonstrate a drop crown 4. Check ends for fish hooks and encirclements

PERMANENT WAVING (Con't)

Topical Outline and Teaching Level	Feedback
	6. List reasons why tension is avoided while wrapping hair. 7. Demonstrate the technique of making clean partings. Explain reasons. 8. Demonstrate proper method of pre-saturation while wrapping. 9. Explain hazards of re-saturation. 10. What would be the result of uneven distribution of hair? 11. Explain what is meant by a "fish hook" end. 12. Wrap three curls and check for fish hooks. 13. Explain how you can insure proper circling around rod. 14. Collect and compare manufacturer's directions and make a report on findings.
D. Processing (2) 1. Patron protection a. Face and neck b. Clothing	1. List possible problems if patron protection has been inadequate. 2. Define malpractice. 3. List steps to take if lotion drips on face after removal of band. 4. What treatment if any should be given to a cold waving burn?
2. Re-saturation a. Method (bottle and brush) b. Blotting and removal of protective band	1. Explain and demonstrate blotting. 2. Why is it important to remove the protective band at this time? 3. Have student explain use of bottle and brush application. 4. Have student demonstrate these methods of pre-wrapped curls.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Make a chart showing desired curl patterns and how to test. 2. Make a comparison chart of curled hair showing results of various rod sizes.	Processing time determines: a. diameter of rods b. success of hair style c. correct curl pattern d. lotion strength Criteria for grading: 1. Maintenance of safety 2. Check the continuity of timing 3. Check for correct saturation

PERMANENT WAVING (Con't)

Topical Outline and Teaching Level	Feedback
3. Timing a. Test curl	1. When should first test curl be taken? 2. Demonstrate how to take a test curl. Explain.
4. Completion a. Neutralizing (manufacturer's directions) b. Record keeping c. Clean-up	1. Make a comparison chart of manufacturer's directions on neutralizer methods. 2. Why is it important to observe? 3. Complete detailed record card. 4. Explain reasons for keeping records. 5. Clean and sanitize: a. all re-usable equipment on a cold waving tray b. sink c. station 6. Explain return of materials.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction

HAIR COLORING

Topical Outline and Teaching Level	Feedback
I. Hair Analysis	
A. Color Selection (1)	
1. Basic color information a. Primary b. Secondary	1. Use water colors for mixing primary colors. 2. Identify basic hair color in room.
2. Use of color chart	1. What identifies a warm color? 2. What identifies an ash shade? 3. Make individual color chart from magazines.
B. Texture and Structure (1)	
1. Explain texture of hair by example and lecture.	1. How many textures are there? 2. Students find examples of each in room. 3. Why is texture important in color?
2. Explain structure of hair by the use of visual aids a. Films b. Charts c. Microscope d. Chalk board	1. What layers of hair are affected by: a. penetrating colors? b. coating colors? 2. What layer of hair contains the natural pigment? 3. Students draw a cross section of the hair shaft and label.
C. Conditions (1)	
1. Explain how you determine condition of hair.	1. Name three ways of determining porosity of hair. 2. What is meant by condition of hair? 3. What is the difference between condition and texture? 4. What is the importance of elasticity of hair?
2. Use of strand tests to determine the action of color on different conditions of hair.	1. What are the results of color application on porous hair?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Teacher uses color chart to identify color of students' hair. 2. Mix water colors.	All but one of the following are considered warm shades: a. red b. gold c. ash d. titian
1. Demonstrate and explain textures by the following methods: a. hair samples b. texture test by feeling hair 2. Show film to explain the layers of hair.	Hair pigment is deposited in the medulla layer.
1. Lecture and demonstration on methods of determining porosity and elasticity of the hair.	How students determine the condition of hair under microscope.

HAIR COLORING (Con't)

Topical Outline and Teaching Level	Feedback
II. Vegetable	
A. Rinses (2) 1. Demonstrate on model: a. Types b. Shades c. Precautionary measures in using rinses	1. List types of vegetable rinses. 2. Students perform tests on models or hair strands. 3. Students make color charts with swatches of various shades. 4. List four "don'ts" in the use of henna rinses.
B. Packs (2) 1. Demonstrate on models: a. Types b. Shades	1. Have students practice by mixing and applying on live models. 2. What effect does heat have on henna? 3. List the different types of vegetable rinses. 4. What effect would the following have when added to henna? a. bluing or indigo b. hydrogen peroxide c. coffee d. cloves 5. What effect does the basic color of the hair have on a henna pack?
III. Metallic	
A. Identification and Safety (2) 1. Demonstrate on a strand test the effects of metallic substances	1. What effect do cold wave lotions have on hair coated with metallic salts? 2. Students prove by practical application the results of peroxide tints on hair coated with metallic salts.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Teacher demonstrates products and explains effect of color rinses on hair. 2. Gives demonstration on model and hair strands. 3. Class practice.	Have students make a color chart using hairstrands and identifying products and shades used. Record results. Criteria for grading: 1. Choice of shade selection 2. Application 3. Removal of products from skin 4. Results
1. Demonstrate mixing and applying of henna on model. Explain results on different basic shades of hair and effects of adding other agents to mixture. Have students practice on each other.	Henna is used on all but one of the following shades of hair: a. ash b. white c. red d. brown Criteria for grading: 1. Application 2. Results 3. Removal of stain from skin 4. Uniformity of color
1. Demonstrate on strands of hair the effect of metallic salts on hair when foreign matter has been applied.	Heat and smoke may be observed if the following is applied to hair with metallic coloring: a. aniline b. weekly rinse c. H_2O d. vegetable henna Criteria for grading: 1. Observe students' performance 2. Verbal reply 3. Oral questions

HAIR COLORING (Con't)

Topical Outline and Teaching Level	Feedback
B. Rinses (2) 1. Introduction to metallic rinses by: a. Lecture b. Information sheets c. Samples of products	1. What is the technical name used for metallic poisoning? 2. Name four products containing metallic substances.
C. Dyes (1) 1. Introduction to metallic dyes by: a. Lecture b. Information sheets c. Samples of products	1. Name the various types of mineral salts used in metallic dyes. 2. What is meant by "progressive dyes"? 3. Why are mineral dyes sometimes referred to as hair restorers?
IV. *Compound	
A. *Identification and Safety (2) 1. Demonstrate on a strand test the effects of compound substances	1. What effect do cold wave lotions have on hair coated with compound dye stuffs? 2. Students prove the effects of compound henna on hair strands.
B. Dyes (1) 1. Introduction to compound dyes by: a. Lecture b. Information sheets c. Samples of products	1. What is meant by compound dyes? 2. What is a mordant? 3. Are compound dyes instantaneous or progressive?
V. Aniline	
A. Safety Precautions (2) 1. Lecture and demonstration of predisposition test	1. Students practice giving test. 2. What are the results of a positive reaction? 3. How soon after the test should results be checked?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Give lecture on identification of metallic rinses with charts. 2. List trade names of various manufacturer's products.	Name various products that contain metallic salt.
1. Put outline of information on board. Give improved lecture by providing for students' questions.	Which of the following is a progressive dye? a. eyelash and eyebrow tint b. a certified color rinse c. a dye stuff which penetrates the hairshaft d. a bleach
1. Lecture and explain effects of compound dye and how to recognize it. 2. Show the H_2O_2 test for compound dye coatings on the hair.	Do an H_2O_2 test on samples of hair and write a report on the effects. Criteria for grading: 1. Check for aniline or compound dyes
1. Lecture.	Compound dyes are also known as: a. mineral tints b. mordant dyes c. hair restorers d. henna packs
1. Demonstrate a predisposition test and its effects. Have students give test on each other.	Have students check predisposition test and name the reaction. Criteria for grading: 1. Observe students' performance

HAIR COLORING (Con't)

Topical Outline and Teaching Level	Feedback
	4. A predisposition test is known by what other name? 5. What is the law governing predisposition tests?
B. Semi-permanent Rinses (2) 1. Lecture and demonstrate semi-permanent rinses a. Models b. Hair strands	1. Class practice on models. 2. Students prepare charts. 3. Is it necessary to give a predisposition test before a semi-permanent rinse? 4. What is meant by semi-permanent color?
C. Permanent Tints (1) 1. Introduce permanent tints by: a. Lecture b. Charts c. Demonstration (1) Virgin (2) Retouch d. Films and slides	1. What is meant by an aniline tint? 2. Students practice sectioning for a virgin tint. 3. Name three applications used when applying tint.
VI. *Bleaching	
A. Safety Precautions (2) 1. Explain safety precautions by: a. Lecture b. Information sheets	1. Name the precautionary measures used in hair bleaching.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Instructor gives lecture and demonstrates semi-permanent rinses of various companies. Students prepare swatches with different color rinses.	Which one of the following is necessary in giving a semi-permanent rinse? a. allergy test b. no test required c. test given at patron's request d. no test required if color previously applied Criteria for grading: 1. Students identify different color tones
1. Lecture with color slides and give demonstration on model.	Permanent penetrating tints contain one of the following: a. vegetable b. metallic c. aniline d. compound
1. Lecture using a chalkboard outline.	Give a programmed instruction examination at end of lecture. Sample question: Overlapping the line of demarcation when applying a bleach may result in: a. a blistered scalp b. a dark line c. broken strands of hair d. a quicker development of color at the roots

HAIR COLORING (Con't)

Topical Outline and Teaching Level	Feedback
B. Types (1) 1. Lecture and demonstrate the following bleaches: a. Liquid b. Powder c. Oil (certified)	1. What is the oxidizing agent used to activate bleaches? 2. What products are used to accelerate a bleach formula?
C. Application (2) 1. Lecture and demonstrate	1. Students practice applications. 2. What applicators are used for bleach application?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Show film strip on types of bleaches. Show samples of bleach types on hair samples. 2. Demonstrate mixing of various bleaches.	The strongest bleach is one of the following: a. oil b. cream liquid c. powder d. peroxide
1. Lecture accompanied by demonstration. 2. Students practice application on mannequin head with a non-active (soap suds) solution.	When applying a retouch bleach, first apply: a. on the roots and out to ends b. on ends only c. on greyest section first d. on roots at darkest section Criteria for grading: 1. Correct sectioning of entire head of hair 2. Correct choice of applicator 3. Correct choice of section to be applied first 4. Correct application

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HAIRSTYLING

Topical Outline and Teaching Level	Feedback
I. Introduction to Hairstyling	
A. Terminology (2)	
1. Styles	1. Identify styles of classmates.
a. Forward fluff	2. Make scrap book containing each of these styles.
b. Flip	3. Recall examination.
c. Bubble	
d. Brush-up	
e. Page fluff	
f. Page boy	
g. French twist	
h. Contour style	
i. Fingerwave	
j. Current trend	
k. Salon styling	
l. Fantasy	
B. Implements and Equipment (1)	
1. Materials	1. Identify implements and equipment.
a. Draping	
b. Styling comb	
c. Setting lotion	
d. Bobbie and hair pin	
e. Hair net	
f. Yoyettes	
g. Brush	
h. Hair spray	
i. Ear pad	
j. Gloria head	
C. Station Set-up (1)	
1. Assemble and organize materials	1. Student set-up station.
D. Safety and Sanitation (1)	
1. Patron protection	1. Practice draping.
a. Draping	2. Why is patron protection necessary?
b. Sanitation of operation	3. Why do you sanitize your hands?
c. Examination of hair and scalp	4. Group discussion on importance of examining scalp and hair.
d. Safety rules	

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Acquaint the student with various styles through pictures, slides, films and mannequins.	Which of the following is the oldest style of hairdressing? a. bubble b. brush-up c. flip d. fingerwave
1. Acquaint the student with each item by showing.	The term patron protection refers to: a. net b. brush c. drape d. comb
1. Prepare a table set-up for class.	Table set-up: a. creates efficiency b. wastes time c. is unnecessary d. is unsanitary
1. Mimeographed pass-outs on safety and sanitation.	The drape should cover the patron as well as: a. the entire chair b. inside of chair c. back of chair

HAIRSTYLING (Con't)

Topical Outline and Teaching Level	Feedback
E. Analysis of Hair and Patron (1)	
1. Discuss texture, condition, elasticity, and hair growth tendencies	1. Identify various textures and growth tendencies.
2. Discuss the physical characteristics of patron	1. Identify pictures of physical characteristics. 2. Prepare a scrap book showing various physical characteristics.
II. Hairstyling Procedure	
A. Curl Construction (2)	
1. Component parts a. Base b. Stem c. Curl d. Ends	1. Name and locate four parts of a curl. 2. Demonstrate various partings for curl construction. 3. Make a row of sculpture curls.
2. Types of curls a. Sculpture b. Pin c. Lariat d. Stand-up e. Flare f. Side-directed g. Ridge h. "C" i. Place j. Lift k. Barrel	1. What effect do the curls "a" through "k" give? 2. Describe the difference between a pin curl and a sculpture curl. 3. How is the size of a curl determined in skip waving? 4. If the finished curl is to be the size of a quarter, how large must the base be? 5. What determines the width of a wave in curl waving? 6. Make a wave with sculpture curls. 7. Design a style with sculpture curls. 8. What do the terms forward and reverse mean? 9. How do you identify a forward and reverse curl? 10. Why is the pinning of a curl important?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Present film strip; show chart of human hair. 2. Use microscope for various textures. 3. Hold buzz session to analyze classmate's hair and facial characteristics.	The porosity of hair is determined by: a. ability to absorb moisture b. ability to shed c. ability to stretch d. depth of color
1. Demonstration of flannel board and pipe cleaner curls. 2. Overhead projector, human hair attached to silhouettes on transparencies. Use wet hair to form curls. 3. Felt covered model head is used with felt strips cut in curls and half moons for curl construction.	All the following curls have the ends on the inside except one. Find the one that does not. a. sculpture b. lariat c. pin d. stand-up Criteria for grading: 1. Proper sanitation of tools and hands 2. Correct shaping of curl stems or base 3. Clean parting 4. Secure pinning 5. Correct ribboning

HAIRSTYLING (Con't)

Topical Outline and Teaching Level	Feedback
B. Rollers (2)	
1. Size of rollers and sectioning	1. Explain how to determine the size of a section. 2. Bring a picture of a style that has 4 - 6 rollers. 3. Demonstrate vertical sectioning for rollers. 4. How many turns should the hair make around the roller to achieve a firm curl?
2. Stem (base) direction	1. Demonstrate on a mannequin head various stem (base) direction and pinning of rollers. 2. Why do rollers have a stem (base) direction? 3. When do you use an extended, full or half stem? 4. When would you use stand-up curls as opposed to rollers? 5. Explain the reaction of ends which have been improperly placed on rollers.
C. Setting Techniques (2) (pattern coordination)	
1. Shaping	1. Draw a style using shaping and curl waving. 2. Name three uses of shapings. 3. Demonstrate on a model at least two shapings in combination with curls.
2. Curl-waving	1. Create a style using shaping and curl waves. 2. How does curl-waving differ from skip-waving?
3. Skip-waving	1. Draw a style using a skip-wave. 2. How is the size of a curl determined in skip-waving? 3. In which area of the head is skip-waving commonly used? 4. Divide class into three groups to practice skip-waving. 5. Demonstrate skip-waving in a hairstyle (using reverse curls).

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Show different stem direction and bases on a mannequin by demonstration, film, blackboard and charts. 2. Divide class into rotating student teams to practice.	One of the advantages of a roller curl is: a. strong tight curl b. positive direction c. easily applied to short hair
1. Overhead projector with transparencies and overlays. 2. Identification of curls and rollers by drawing in various colors. 3. Imitation teaching step by step. 4. Student perform on mannequin.	What is the outcome if hair is set while too dry? Criteria for grading: 1. Correct selection of combination 2. Proper joining of sections 3. Proper choice of size of curls

HAIRSTYLING (Con't)

Topical Outline and Teaching Level	Feedback
4. Roller setting	1. Draw a style using rollers. 2. On a model, demonstrate three stem (base) directions of rollers. 3. What determines the roller base direction? 4. What is the major difference between the action of a roller and a curl? 5. Describe the advantages and disadvantages of a roller set. 6. How can splits be avoided in a roller set?
5. Combination of techniques	1. Combine rollers and curls in a style. 2. Class practice by dividing into three groups, using as many combinations as possible in a style.
D. Comb-out Techniques (2)	
1. Determine if the hair is dry	1. How do you determine if the hair is completely dry?
2. Patron protection	1. What is the importance of patron protection during a comb-out?
3. Brush and relax	1. What is the purpose of brushing the hair? 2. How do you determine the amount of brushing for various textures of hair? 3. Explain why it is necessary for the brush to reach the scalp. 4. Explain the purpose of directional brushing.
4. Back combing	1. Explain the purpose of directional back combing. 2. On a model, demonstrate French lacing, teasing, and back brushing. 3. Explain the relation of back combing and hair length.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Guest artist, film strips, films, demonstration, and imitation teaching. 2. Field trip to trade show.	In brushing to relax the set, brushing should begin at: a. nape b. bang c. crown d. side

HAIRSTYLING (Con't)

Topical Outline and Teaching Level	Feedback
	4. What precautions are used in removing back combing? 5. To what do you attribute the inability to back comb the hair? 6. What determines whether combing or French lacing is used?
5. Use of hair dressing, lacquer, and spray	1. When would you use hair dressing? 2. Is it necessary to use hair spray on all patrons? 3. What are the varied purposes of hair spray? 4. Should you comb out a head after using lacquer? 5. Demonstrate the proper application of spray, lacquer, and brilliantine. 6. What causes bead-like appearance after spraying?
6. Line and balance	1. Do hair style on model and check for line, design, form, and balance in the comb out.
7. Completion of coiffure	1. Demonstrate the use of hand moulding to finish the coiffure. 2. Demonstrate lifting techniques. 3. Demonstrate finished look of neckline after comb out.
E. Fingerwaving (2)	1. Class practice fingerwaving on a model.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Lecture 2. Demonstration 3. Class practices on mannequin	Explain the results of over-directing the hair. Criteria for grading: 1. Correct shape 2. Minimum of splitting 3. Smooth surface 4. Hair combed through to scalp 5. Slight ridge or crest

FACIALS

Topical Outline and Teaching Level	Feedback
I. Introduction to Facials	
A. Sanitation and Safety (2) 1. Rules and regulations a. Hygiene (1) Personal (2) Public	1. Use State Board information sheet for discussion and student questions. 2. Oral quiz 3. Written quiz
2. Formulas a. Germicide b. Antiseptic	1. What germicidal or antiseptic solution is used for: a. hands b. table c. patron
3. Safety precautions a. Read labels and instructions	1. Students develop questions pertaining to safety percautions for: a. patron b. operator (student) c. materials, tools and equipment
B. Table Set-up (2) 1. Description of materials, implements and equipment	1. What implements are sterilized before a facial? 2. What implements are kept in the wet sterilizer? 3. Which of the following is used first during a facial: a. massage or emollient cream b. cleansing cream c. astringent d. pack
2. Introduction to chemical content of cosmetics	1. What is the difference between the chemical content of a cleansing cream and massage cream? 2. What is an astringent? a. Chemically b. Purpose

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Prepare scrambled program instruction booklet on State Board Rules and Regulations.	State Board Rules and Regulations are important for which of the following reasons: a. better business b. public protection c. appearance d. knowledge of laws Criteria for grading: 1. Understanding of key points in the rules and regulations Realize the importance to public health and welfare.
1. Teacher gives a demonstration and hands out information sheet and check list. After teacher demonstration students are paired off. Student operator does a table set-up and is checked and graded by the student patron.	The main purpose of an organized table set-up is: a. for neatness b. expedites time c. for safety d. saves space Criteria for grading: 1. Tools and materials in organized order on table 2. Table covered with aseptic covering 3. Tweezers and spatula immersed in wet sterilizer 4. All bottles and jars covered

FACIALS (Con't)

Topical Outline and Teaching Level	Feedback
C. Patron Protection (2) 1. How to drape	1. How do you protect the patron's skin from coming into contact with the chair? 2. Have student demonstrate the procedure used in protecting the patron's clothing. 3. Students demonstrate complete drape on model.
D. Skin Analysis (2) 1. Explain characteristics of skin types a. Oily b. Dry c. Combination d. Normal e. Abnormal	1. Large pores and blackheads usually indicate what type of skin? 2. What is meant by a combination type skin? 3. What types of creams or lotions would you recommend for the following conditions: a. oily b. dry c. combination d. normal
E. Cleansing (2) 1. Proper application and removal	1. Why must the cleansing cream or agent be completely removed from the skin? 2. Have student demonstrate cosmetic removal from the eyes and lips. 3. What are the dangers of improper cleansing?
2. Types of cleansing materials	1. When is a liquid cleanser preferred?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Demonstrate drape correctly and follow with film: "How To Drape A Facial."	The patron is draped for which one of the following reasons: a. save on material b. protect equipment c. protect patron d. appearance
1. Show film of types of skin and emphasize characteristics of each. 2. Demonstrate use of "dermascope" (magnifying instrument). 3. Students give individual analysis of each other's skin.	What is the technical term for blackheads from the following: a. milia b. comedone c. lentigo d. sepum
1. Use flip charts to explain application and follow with demonstration on model.	Match the following types of cleansers in Group A with Group B. A / B 1. powder — a. acne 2. liquid — b. combination 3. medicated — c. dry 4. soap — d. oily 5. oily Criteria for grading: 1. Application in smooth rhythmic movements 2. Make-up on eyes and mouth thoroughly removed in first application 3. Movements toward origin of muscles

FACIALS (Con't)

Topical Outline and Teaching Level	Feedback
F. Manipulations (2)	
1. Demonstrate types of movements	1. To increase muscle tone which of the following is used: a. effleurage b. petrissage c. tapotement d. friction
2. Benefits of massage	1. List six benefits of massage. 2. Explain the benefit of blood circulation due to massage. 3. What are the advantages of a professional facial over home applications?
3. Demonstrate facial manipulation outline a. Explain each movement b. Explain safety precautions	1. Distribute charts of facial movements. 2. Explain the importance of contact, continuity, and rhythm. 3. Students practice manipulation according to chart. 4. List safety precautions.
G. Make-up Preparation (2)	
1. Explain the importance of cream removal	1. What is the disadvantage of having cream on the face?
2. Methods of contracting pores	1. List methods of contracting pores.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Explain flip chart of each manipulation. Teacher demonstrates manipulations and distributes manipulation hand-out sheets. Students exchange.	Hacking, tapping, and slapping are characteristics of which one of the following movements employed in massage: a. tapotement b. effleurage c. petrissage d. vibration Criteria for grading: 1. Movement toward origin of muscle 2. Contact, continuity, and rhythm in movements
1. Demonstrate and explain the importance of a thorough cream removal followed by an agent to contract pores.	Criteria for grading: 1. Complete removal of cream with special attention to nose, ears, and hairline.

ARCHING

Topical Outline and Teaching Level	Feedback
I. Introduction to Arching	
A. Determine Shape of Brows (2)	
1. Use flip charts to show perfect placement for brows	1. Students make verbal corrections modeling for each other. 2. Students identify on charts shape of brows for various shapes of faces.
2. Using the blackboard, show how close set and wide set eyes can be corrected by arching	1. Students make verbal corrections modeling for each other. 2. Students identify on charts shape of brows for various shapes of faces.
B. Sanitation and Safety (2)	
1. Explain safety measures observed during arching	1. Name the agent used to wipe the brows while arching. Explain why. 2. Name the germicidal solution used to sterilize tweezers. 3. Where are the tweezers placed during arching? Explain answer. 4. Where is the hair deposited during arching? 5. Why is it necessary to have eye pads saturated properly?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Show slides on shapes of brows. 2. Divide students in small groups. Using eyebrow cut-out forms, determine how eyebrows may change facial expressions.	Which one of the following statements is not true? a. Eyebrows should be arched according to facial bone structure. b. Eyebrows should never point downward at the outer end. c. The outer end of the brow should be 45° from corner of nose. d. The highest point of the arch is located over the corrigator muscle. Criteria for grading: 1. Determine if the student has chosen the best shaped brow
1. Teacher reviews State Board Rules and Regulations. 2. Class discussion using student panel.	Sterilization is important to prevent the spreading of disease and it is imperative that we learn and observe these rules. Indicate whether the following statements are true or false by circling the correct letter. T F 70% alcohol is used in the table sterilizer T F 100% alcohol is used in the table sterilizer T F Quats may be used to sterilize instruments T F 10 Vol. H_2O_2 is a good germicide Criteria for grading: 1. Students sanitize hands 2. Tweezers immersed in wet sterilizer 3. Correct draping of chair and patron

ARCHING (Con't)

Topical Outline and Teaching Level	Feedback
C. Table Set-up (2) 1. Explain placement of equipment and content of cosmetic material	1. Name two antiseptic solutions used to saturate eye pads and give formula for one. 2. What are the purposes of these solutions? 3. Why is it necessary to have an organized set-up? 4. What is the difference between a pledget and an eye pad?
D. Patron Protection (2) 1. Demonstrate patron protection	1. What damage could be done if tweezers pinched the skin? 2. What is the sanitation rule in regard to the head rest? 3. Must the patron's clothes be protected during an arch? Explain.
E. Use of Tools and Materials (2) 1. Demonstrate methods of epilation a. Use of tweezers b. Waxing	1. Students practice on live models. 2. How do you hold the brow to insure patron's comfort? 3. In what direction is the hair pulled?
2. Explain and demonstrate proper use of materials	1. Students practice making eye pads.

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Demonstration of items arranged in the order they are used. Explain.	Teacher sets up a table omitting 2 or 3 items. Test students' observations. Criteria for grading: 1. Arrangement (order) 2. Neatness 3. Contents of material
1. Teacher demonstrates on model. Students practice.	T F The patron drape when giving an arch is identical to a facial drape. Criteria for grading: 1. Sanitation rules and regulations observed 2. Head protection 3. Clothing protection
1. Teacher identifies tools and materials and gives demonstration of arching. Students practice.	Tricholabis is the technical term for: a. ingrown hair b. harelip c. ringworm d. tweezers Criteria for grading: 1. Proper holding of tweezers 2. How hair is held 3. Direction hair is epilated

MAKE-UP

Topical Outline and Teaching Level	Feedback
I. Introduction to Make-up	
A. Sanitation and Safety (1) 1. Explain safety measures observed during make-up application	1. Quote State Board Rules and Regulations controlling application and use of make-up.
B. Table Set-up (2) 1. Explain placement of equipment and content of cosmetics	1. What is the advantage of having an organized set-up? 2. What are the purposes of the following: a. base b. powder c. lipstick d. mascara e. eyebrow pencil and liner f. eye shadow g. rouge (cream, powder, liquid)
C. Patron Protection (1) 1. Demonstrate patron drape	1. Students practice drape 2. What are the precautionary measures to observe in make-up drape? 3. How does a make-up drape differ from a facial drape? 4. How does a make-up drape differ from an arching drape?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Teacher gives students assignment to submit a safety chart.	Teacher drapes model incorrectly and students make corrections. Criteria for grading: Check: 1. Draping 2. Sanitized hands 3. Use of spatula
1. Give students materials and have them set up table. Teacher checks and corrects results.	Match the following: __1. base — a. matte finish __2. powder — b. to shadow __3. rouge — c. beautify eyes __4. lipstick — d. improve skin tone __5. mascara — e. cleansing f. eliminate chapped conditions Criteria for grading: 1. Items in proper sequence 2. Cosmetic jars labeled and kept covered 3. Instruments in wet sterilizer

MAKE-UP (Con't)

Topical Outline and Teaching Level	Feedback
D. Color Selection (1)	
1. Determine skin tones by using "skin-tone color wheel" or chart	1. Assign students to bring in pictures from magazines showing skin color tones. 2. Students determine differences in each other's skin tone by use of color wheel or chart.
2. Determine proper shade of base to use on different skin tones	1. Practical application on each other.
E. Application (2)	
1. Use of charts to determine the seven basic shapes of faces	1. Each student determines own facial contour. 2. Name the seven basic shapes of faces. 3. Find examples of each of the basic shapes.
2. Demonstrate and explain application of make-up	1. Class practices on models. 2. List procedure. 3. How is mascara applied safely?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Demonstrate how to use color wheel. 2. Students apply several shades of base to inside of arm to determine becoming shades.	Orange tones are most becoming to: a. redheads b. silver hair c. brunettes d. albinos
1. Invite guest artist to give a demonstration.	Manipulative test on daytime make-up. Criteria for grading: 1. Grade notes students took during demonstration. 2. Application of evening make-up 3. Daytime make-up: emphasis on rouge, lipstick and eye make-up

MANICURING

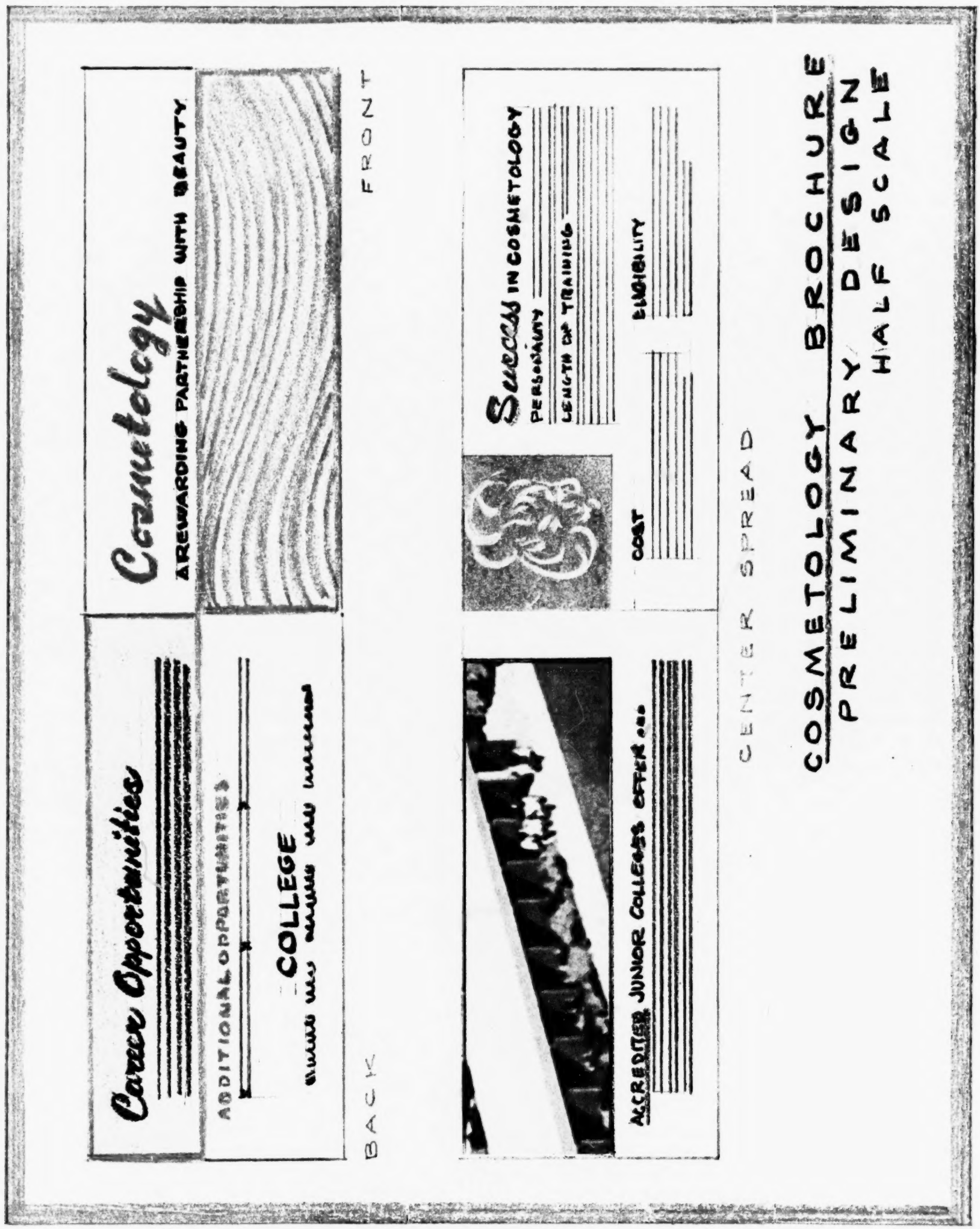
Topical Outline and Teaching Level	Feedback
I. Introduction to Manicuring	
A. Terminology (1) 1. Plain (water) 2. Lactol (oil) 3. Polish change 4. Cocktail manicure 5. Nail mending 6. Half-moon 7. Free edge 8. Hairline tip 9. Full coverage 10. Adherion 11. Beveling 12. Plate (body) 13. Cuticle 14. Hangnail	1. Prepare charts illustrating the half-moon, free edge, hairline tip, and full coverage types of polish application. 2. Identify component parts of nails on classmates.
B. Implements, Materials and Equipment (1) 1. Describe materials, implements and equipment	1. Name and describe manicure instruments.
C. Table Set-up (1) 1. Demonstrate a table set-up	1. Set up a table for a manicure.
D. Safety and Sanitation (1) 1. Explain the germicidal solution used in manicuring	1. What germicides may be used on the manicure table? 2. What is the length of time implements must be kept in the germicide? 3. What instruments must be kept in a wet sterilizer during a manicure?
2. Safety precautions pertaining to manicure implements	1. What precautionary measures are observed when using the pusher?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Lecture 2. Handouts 3. Charts	An oil manicure should be given on one of the following conditions: a. moist b. oily c. thin d. dry
1. Show tools, cosmetics, and uses of each. 2. Show correct table set-up.	Have student demonstrate a table set-up.
1. Lecture and demonstration showing correct way of handling tools. 2. Information sheets.	One of the following is not in the sanitation of manicure equipment: a. wet sterilizer b. sanitizing hands c. covering the buffer d. covering the entire manicure table
1. Present nail anatomy chart. 2. Films and slides. 3. Group discussion and analysis of hands and nails.	The shape of the nails is not influenced by: a. the shape of the hand b. the patron's occupation c. the patron's desire d. the shape of the lunula

MANICURING (Con't)

Topical Outline and Teaching Level	Feedback
	2. What safety measures are observed when using the nippers? 3. What could result from the improper use of the file? 4. What may you use to arrest bleeding in case of a cut or tear?
3. Sanitary measures pertaining to cosmetics and fluids	1. What is the sanitary law pertaining to the use of a styptic pencil?
4. Proper sanitation of a buffer	1. Explain how to sanitize a buffer.
E. Analysis of Hands and Nails (1)	
1. Describe the shapes of hands and nails	1. Draw the four basic shapes of nails.
2. Show charts on nail styling	1. What determines the shape of the nail? 2. How does one's occupation effect the hands and nails?
II. Manicure Procedure	
A. Manipulative Skills (2)	
1. Types of manicures	1. Practice a plain, lactol, and electrical manicure.
2. Polish application a. care of nail enamel	1. Practice various types of application of nail polish. 2. List two ways to properly care for nail polish.
3. Nail mending	1. Practice nail mending.
4. Pedicuring	1. Practice pedicuring. 2. What is the difference in procedure of a pedicure and a manicure?

Suggested Ways for Teaching	Sample Questions for Evaluating Levels of Instruction
1. Demonstration 2. Films 3. Lecture	The correct way to file a nail is: a. back and forth b. center to corner c. corner to center d. away from you Criteria for grading: 1. Proper sanitation of hands and tools 2. Correct handling of instruments 3. Appearance of finished manicure


Cosmetology
A REWARDING PARTNERSHIP WITH BEAUTY
FRONT
Career Opportunities
ADDITIONAL OPPORTUNITIES
COLLEGE
BACK
Success in Cosmetology
PERSONALITY
LENGTH OF TRAINING
COST
ELIGIBILITY
ACCREDITED JUNIOR COLLEGES OFFER ...
CENTER SPREAD
COSMETOLOGY BROCHURE
PRELIMINARY DESIGN
HALF SCALE

The Brochure

On the opposite page is a suggested layout for a brochure suitable for use by any junior college offering a cosmetology program. The design of the brochure and suggested written content were developed by the workshop participants and the design was created by Jan Mracek of El Camino College. The written content that would be included is as follows:

[FRONT COVER COPY]

YOUR KEY
TO
SUCCESS
(picture of a key)

JUNIOR COLLEGE

COSMETOLOGY TRAINING PROGRAMS

[INSIDE PAGE #1 COPY] (PICTURE OF A JUNIOR COLLEGE CAMPUS)

Accredited junior colleges offer success and achievement with a career in Cosmetology. You may receive an Associate in Arts degree with a California Cosmetology license, or you may enroll as a separate Cosmetology major.

[INSIDE PAGE #2 COPY]

PERSONAL QUALIFICATIONS: Success as a Cosmetologist is dependent upon one's intellectual and technical abilities, artistry, personality and health.

LENGTH OF TRAINING: The complete course leading to the certificate in Cosmetology and preparing graduates for the state licensing examination is 1600 hours. It can be completed in a year (two semesters plus summer session). Most students, however, realizing the importance of acquiring a general education in addition to their specialized training, enroll for the four-semester program which also qualifies them for the Associate in Arts degree.

COST: Tuition is free for California residents. Each student pays only for books, uniforms and kit.

ELIGIBILITY: Men and women who are high school graduates or eighteen years of age or over may enroll in the junior college program.

[BACK COVER #1 COPY] CAREER OPPORTUNITIES: Beautician, beauty salon manager, beauty laboratory technician, make-up artist, sales demonstrator, manufacturer's representative, cosmetic consultant, beautician on ocean liner, skin scalp and hair specialist, beauty editor, California State Board member, hairstylist, coloring specialist, permanent wave specialist, TV studio cosmetologist, cosmetic stylist, special manicurist.

[BACK COVER #2 COPY] ADDITIONAL OPPORTUNITIES: Cosmetology instructor, electrologist, and beauty school owner.

The Workshop Coordinators

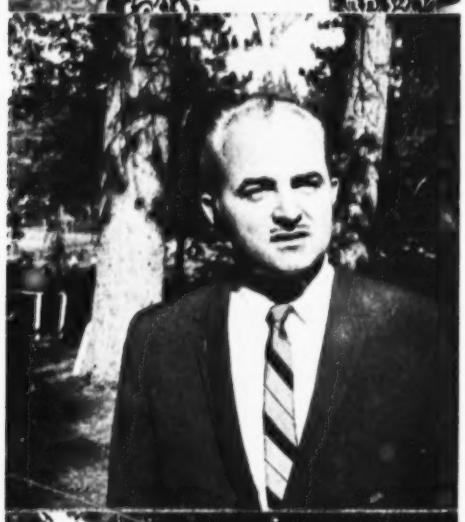
B. Grace Erickson, presently Coordinator of Vocational Education, El Camino College, has been serving that school for fifteen years as instructor department head and coordinator. She holds her Life Diploma in Vocational Education and has a B.S. degree from Oregon State University, where she sometimes returns during summer sessions to assist in their teacher education program.

Cleo Sagrillo, though teaching for only one year, has brought a twenty-four year background of experience to her teaching career. Eighteen years were spent as salon owner, which enables the teacher to know both sides of the picture the students face when seeking employment. Cleo has begun working toward the A.A. degree and will complete work for the Standard Designated Subjects credential.

Olive Scott, who entered teaching only seven years ago has let no grass grow in her path to credential completion and teacher competency. She obtained a Vocational Class A credential, which is now a Life Diploma, and embarked on the program for the B.V.E. degree at California State College, Long Beach; this program is short only nine units of being completed. For the last six years Olive has been teaching at Cerritos College.

The Participants

Presently teaching at Cerritos College, Lois Barclay brings an extensive occupational background to her competency as a teacher. Seven years as salon owner and seven years as manager have contributed greatly to her eight years of teaching experience. She is completing the A.A. degree work at Santa Ana College in addition to taking UCLA Extension courses toward her credential.



George S. Bernyk, after attending university classes in Europe, pursued his studies at Georgetown University, Washington, D.C., and then came to UCLA for completion of credential work. He had previously worked as a beautician for a total of fifteen years, two years as salon owner and four as manager. He has had four years of teaching experience.

Rose Marie Blackwell is completing seven years of teaching, six of which have been at Laney College, Oakland. She holds a Life Diploma and is working toward the B.V.E. degree. She brought a total of 13 years of occupational experience to the teaching profession, one as beautician, eight as salon owner and four as manager.

Lorraine M. Bush is in her thirteenth year of teaching at College of San Mateo, making a total of seventeen years of teaching experience. She is presently working toward the B.V.E. degree and holds her Life Diploma in Vocational Education. Prior to teaching, Lorraine spent nine years as beautician and two as salon manager.

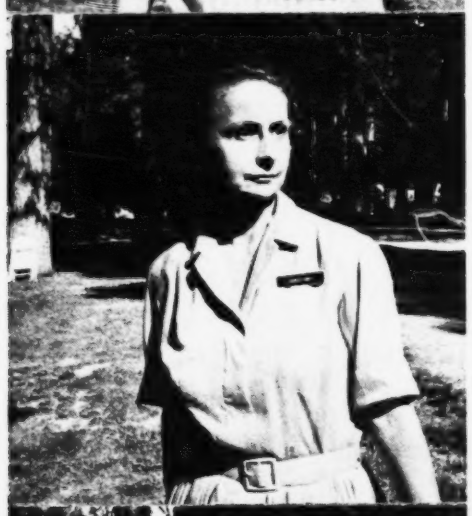
Mary G. Callahan is presently completing the A.A. degree requirements at Santa Ana College and teaching at Orange Coast College, Costa Mesa. This makes a total of six years of teaching after nineteen years spent in beautician work, fifteen years of which was as salon owner. As indicated by the foregoing teachers, Mary has brought a deep dedication to her task as a teacher.

Mildred E. DeFelice has probably the most challenging teaching position in our group since five of her eight years of teaching experience have been spent in a correctional school for girls. Mildred spent three years as State Inspector in Cosmetology and has had 23 years of occupational experience to aid in her arduous task. She holds the Vocational Class A credential and is preparing to begin work toward the B.V.E. degree.

Mary E. Dejani holds the Life Diploma in Vocational Education and is completing the B.V.E. degree. She applies a total of twenty years of occupational experience to her excellent teaching. She has taught a total of ten years, five of which have been at San Jose City College where she is now teaching.

Hattie Ann Endicott has been teaching at Citrus College for one year. Prior to this, after eight years as a beautician, she completed three years at the University of Utah and taught for six years. Her deep interest in becoming the best possible teacher is most commendable.

Norma Erickson, presently completing five years of teaching at Fullerton Junior College, has a total of ten years in teaching based on many years as a beautician. Sixteen years were spent as salon owner, a good background experience for those whose interest is in helping students in the area of cosmetology. Norma holds a Life Diploma and has almost completed her B.V.E. degree work.



Agnes L. Gant holds a proud record in teaching experience (23 years) and certainly as to the number of years at one school, having taught at San Diego College for twenty-one and one-half years. She has an A.A. degree, obtained her B.A. degree from San Diego State, and has also completed work at Redlands University, UCLA, and UC Berkeley. Of course, her Vocational Class A credential is a Life Diploma. This is a record to be somewhat proud of. . . Yes?

After eighteen years in beautician work, three and one-half years each as salon owner and manager, William T. Issitt began his teaching career at Riverside City College approximately three years ago. He has completed the major portion of his credential work, has plans for summer session 1966, and also is presently working toward the B.V.E. degree. It appears that he has let no grass grow under his feet since entering the teaching profession.

Margaret Lee Jenkins, a comparative newcomer in the teaching field, has taught one year at Vallejo Junior College. Prior to teaching, she spent two years as Cosmetic Representative and three years as buyer of cosmetics, in addition to her years as beautician. She holds the Vocational Class A credential and has one year of college work. We look forward to good reports on her teaching experience.

Irma S. Judd has taught for eighteen years with fifteen years at Riverside City College. Irma holds the Life Diploma and is preparing for entrance into the B.V.E. degree program. Her six years as beautician, three as salon owner and two as salon manager, have contributed to her effectiveness as an instructor. Her interest in her students and dedication to her teaching have been a big factor in the fifteen year "assignment" in one college department.

Lucille LeMelle has spent all four of her years as instructor in helping to rehabilitate girls in a correctional institute, teaching them to work as beauticians when released. She brought to her teaching profession twenty-five years of occupational experience, six of which were as salon manager. Lucille holds the Vocational Class A credential and is making excellent use of it in her teaching.

Jessie N. Lewis has set another record in our group of cosmetology teachers. She has taught for ten years, all of them at El Camino College. She gave full attention to completing her Vocational Class A credential and has taken her teaching assignment most seriously. Jessie completed one and one-half years at Brigham Young University, Utah, prior to attending classes at UCLA.

Betty Mestas, another newcomer to the teaching profession, has been teaching at Los Angeles Trade Technical College for one and one-half years. She had spent seven years as salon owner and seven as a manager prior to obtaining her teaching credential. We expect to receive good reports from Betty.

Nancy Nemick has spent the last two years of her six years of teaching at Santa Monica City College. Her quiet, unassuming manner makes her well-liked by students and co-workers alike. Nancy holds the Vocational Class A credential and is diligently completing the course requirements for it. We believe her students are fortunate.

Dorothy Pesqueira, another "one-school" teacher, has spent her seven years of teaching at Santa Monica City College. Much of her success can be attributed to the fine background she brought into her teaching career. Dorothy was a salon owner for nineteen years and also served as a State Inspector in Cosmetology. She has completed her credential work and devotes most of her time to improvement in her teaching ability.

Shirley Robinson, after teaching as a substitute for two years, has begun her full-time teaching assignment at Schneider Vocational High School. She has completed all credential requirements and is looking forward to devoting all her energy to being a good teacher. When satisfied with her teaching performance, Shirley will no doubt enter upon a degree program.

Pauline Sagrillo is a real newcomer, inasmuch as she began teaching in September. She holds the A.A. degree plus fifty units, and will complete work on the Standard Designated Subjects credential. We wish her the best of everything on her new assignment.

Barbara Steele has taught at Los Angeles Trade Technical College for twenty-eight years, following two years of teaching at El Retiro School for Girls. For many years she has been head of the Cosmetology Department at L.A.T.T.C. and has been instrumental in getting many teachers launched in a happy and worthwhile profession. She holds a Life Diploma and has continued her academic work, having at present a total of 86 units of college work.

Ruby B. Strahan who is beginning her third year at Riverside City College has had a total of six years of teaching and sixteen years in cosmetology. She worked ten years as beautician, two and one-half years as salon owner and two and one-half years as manager, a combination of considerable benefit to teachers. Ruby holds the Vocational Class A credential and has completed UCLA Extension courses and advanced work in cosmetology.

Eugenia Taylor has spent eleven of her twelve years of teaching at Shasta Junior College. She holds a Life Diploma, work being completed at University of California, Berkeley. Her twenty-five years of occupational experience was divided between work as a beautician, salon owner and manager. Eugenia has kept quite busy during the period she has taught and owned a salon concurrently. We believe that Shasta Junior College is fortunate.

Alice Valentine, after serving Los Angeles Trade Technical College as evening division teacher and day substitute, will begin a full-time assignment at Santa Monica City College. Alice had begun her credential program earlier and is eager to give her attention to full-time teaching. She has had fifteen years of occupational experience. We know she will be a dedicated and effective teacher.

Hamilton F. Wilson, teaching at Citrus College, has completed one year of full-time teaching after ten years as part-time teacher. He came into teaching with sixteen years of occupational experience as a beautician, salon owner and manager. He has completed the major portion of his credential work.

Dorothy Woo, a newcomer to public school teaching, had taught eight years in private schools prior to beginning her full-time assignment at Fullerton Junior College some five months ago. She expects to be quite busy with her credential work and teaching full-time on her first assignment. It is our belief that another good teacher has been started on her way.

The Staff

Front Row: Sharon Gurwell, Elinor Shenkin
Back Row: Richard Lano, Robert Lorenzen, David Allen

The Staff wishes to congratulate the members of the workshop on their initiative, cooperation and ability. The curriculum developed at the workshop and recorded in this report should assist greatly in the improvement of Cosmetology instruction in our schools.

VT 001 953
Woodin, Ralph
The Need for Vocational Agriculture in Ohio High Schools.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 10ct66 7p.

*AGRICULTURAL EDUCATION; *EMPLOYMENT OPPORTUNITIES; *OFF FARM AGRICULTURAL OCCUPATIONS; AGRICULTURAL SKILLS; FARMERS; *EDUCATIONAL NEEDS; VOCATIONAL AGRICULTURE; *MANPOWER NEEDS
OHIO

Influences on the need for agricultural education have included increased farm size, increased farm investment, decreased farm population, and increased off-farm agricultural business. H.D. Brum's 1964 study showed that 165,262 Ohio workers needed agricultural competency obtainable at high school, post high school, and college levels. Of 15,890 new agricultural employees needed for 1965, 1,230 needed training beyond high school. The number needed in off-farm agriculture, together with a calculated need for 1,264 full-time and 1,200 part-time replacements on farms, compared to only 1,800 vocational agricultural graduates, indicates the potential for expansion of agricultural education. Selected manpower trends which influence the program include an anticipated slow decrease in Ohio farm numbers, increased demand for agriculturally-trained off-farm agricultural workers, and increased demand for agricultural college graduates. Curriculum trends include school district consolidation, vocational agriculture in most rural high schools, and more specialization in vocational agriculture course offerings. More urban districts are expected to offer specialty courses. (JM)

VT 001 953

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THE NEED FOR VOCATIONAL AGRICULTURE IN OHIO HIGH SCHOOLS

ED0 36657

Ralph J. Woodin
Department of Agricultural Education
The Ohio State University
October 1, 1966

Far reaching changes in agriculture have greatly influenced the need for vocational education in agriculture in Ohio. Average farm size in Ohio[1] has increased from 113 acres in 1954 to 146 acres in 1964. In 1964, the average value of land and buildings per farm was $44,638 which is double that of 1954. Ohio has 32,682 farms of over 180 acres and 12,153 farms which have annual sales of farm products of over $20,000. Today's farmer must be a businessman, scientist, and agricultural engineer in order to operate the large scale business with which he works.

A Growing Agricultural Industry

The need for agricultural education is influenced by changing occupational patterns in agriculture. In 1947, there were approximately 10 million agricultural workers on farms in the United States. This number has been reduced to 4.5 million. At the same time, the number of employed people in agriculturally related occupations particularly in the processing and distribution of food has risen from 14½ million in 1947 to 18½ million at the present time. About two of every five job opportunities in the nation are in agriculture or closely related fields. Another way of saying this is that of 65 million persons in the total labor force, about 26 million work in some way in agriculture.

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[1] U.S. Census of Agriculture

VT 01953

As a producer of farm products, Ohio ranks 12th among 50 states of the nation. The total capital invested in Ohio's farms today is estimated at approximately $6,000,000,000. There are approximately 675,000 people living on farms in Ohio. There are 3,176 plants manufacturing farm products[2] in which 144,000 persons are employed. Ohio's businesses engaged in wholesaling agricultural products employ 40,000 persons. There are 190,000 employees in the agricultural product retailing areas, such as lumber, building materials, farm and garden supplies, etc. In addition, there are hundreds of feed dealers, fertilizer dealers, farm building manufacturers, and dealers who help supply farmers with materials. These facts indicate the importance of Ohio's agricultural industry as a source of employment for his workers.

Preparation for Off-Farm Agricultural Jobs

The most recent and accurate information regarding Ohio's agricultural workers who need specific training in agriculture has been secured through a study by H. D. Brum in 1964. This study shows that 165,262 workers in Ohio need agricultural knowledge and skill which may be obtained at high school, post-high school, or college levels. The number of new employees including replacements anticipated for 1965 was found to be 15,890. Of these, 1,230 would require training beyond high school while 14,660 would require agricultural training in high school.

These people are working in manufacturing, business and service firms ranging from horticultural services, meat packing plants, wholesale and retail food stores, to recreational services such as golf courses and public parks.

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[2] Ibid.

Farm Operators Needed

According to the 1964 Census of Agriculture, Ohio has 120,381 farms. Of these, 50,565 are commercial farms with annual gross incomes of over $5,000.

Assuming that the average working life of a farmer is 40 years, then 2½ per cent of Ohio's farmers retire each year. Applying this factor to the number of commercial farms with incomes of $5,000 or more would indicate an annual need of about 1,264 replacements. It is estimated that an additional 1,200 replacements per year for part-time farmers would also be needed. The total number of replacements needed for year including both part-time and full-time farmers totals 2,464. In comparison to this figure, only about 1,800 students graduate from vocational agriculture each year.

Not all of these vocational agriculture graduates can be expected to become farm operators. Studies show that five years after graduation, approximately 38 per cent are in farming, about 15 per cent are in occupations related to farming, about 11 per cent are in college, and the remaining 36 per cent enter other fields of work. These figures do not include those in military service. These facts suggest that even with a small number of farm operators, vocational agriculture is not providing enough replacements for farm operators at this time, not to mention the farm related occupations.

Because of this, we can conclude confidently that career opportunities for young people in agriculture are unlimited. For most agricultural occupations, a farm or rural background is helpful and for some it is essential. A background of vocational agriculture in high school is valuable for all of these occupations.

Vocational Agriculture Enrollment Increasing

Table I shows the number of Ohio high schools with departments of vocational agriculture, the number of teachers, and the enrollment. It will be noted that the total enrollment for the past twelve years has increased from 11,560 to 13,291. This table also shows that while the number of departments has decreased from a high of 350 in 1958 to 304 in 1966, the number of teachers has increased slightly during this period. Consolidation has resulted in 41 multiple teacher departments in Ohio.

TABLE I

Programs of Vocational Agriculture Offered by Ohio High Schools 1955 - 1966[3]

Year	Departments	Teachers	Average H.S. Enrollment Per Teacher	Total H.S. Enrollment
1955	346	322	36	11,560
1956	345	323	35	11,432
1957	349	344	34	11,523
1958	350	356	33	11,732
1959	348	363	32	11,743
1960	342	358	33	11,690
1961	331	350	32	11,438
1962	321	349	31	11,805
1963	313	345	35	12,046
1964	309	351	38	13,381
1965	306	358	38	13,800
1966	304	372	36	13,291

[3]Reports of Ohio Vocational Agriculture Service, Ohio Department of Education, Columbus, Ohio, 1964-1966.

Vocational Agriculture in Ohio Compared with Selected States

Table II shows a comparison of vocational agriculture programs in Ohio with selected states. These data are based on annual reports of state boards for vocational education,[4] and reported for the fiscal year 1962 by the U.S. Office of Education. Table II is presented in order to give some comparison of the number of vocational agriculture programs and the number of commercial farms in the state included. It should be noted that Ohio is one of the few states which has a lower number of graduates of vocational agriculture than the number of replacements needed for commercial farms within the state.

TABLE II

A Comparison of Vo-Ag Programs in Ohio and Selected States in 1962

State	Number Schools Offering Vo-Ag	Number Teachers	Teachers Per School	Vo-Ag High School Enrollment	Number Commercial Farms	Replacements Needed for Commercial Farms	Estimated Graduates of Vo-Ag*
Illinois	459	475	1.04	15,394	123,328	3,083	2,617
Kentucky	193	270	1.50	13,129	86,651	2,166	2,232
OHIO	318	350	1.10	11,553	85,008	2,125	1,964
Indiana	314	318	1.00	11,205	83,931	2,098	1,905
California	229	350	1.53	13,880	66,929	1,673	2,360
Michigan	230	256	1.11	12,455	65,042	1,626	2,117
Pennsylvania	325	325	1.00	9,918	58,843	1,471	1,686
New York	278	268	.96	9,316	56,760	1,419	1,584
W. Va.	104	114	1.12	5,242	12,605	315	891
New Jersey	31	42	1.35	1,157	11,726	293	197
Mass.	20	94	4.7	1,219	7,153	178	207

[4]Digest of Annual Report of State Boards for Vocational Education, U.S. Department of Health, Education, and Welfare, Washington, 1963.

*Based on 17% of total enrollment.

Selected Trends Which Will Influence the Kind and Amount of Vocational Agriculture Provided in Ohio High Schools

1. Manpower Demands

   1.1 The number of commercial farms in Ohio will decrease more slowly during the next decade, but a corresponding increase in part-time farms will take place.

   1.2 An increasing demand for vocational agriculture graduates and particularly those with additional post-high school technical training will come from agriculturally related businesses in the state.

   1.3 The demand for college graduates with agricultural training will double with the demands coming from agricultural agencies and farm organizations, from businesses related to agriculture, and from agricultural education and research organizations. High school vocational agriculture provides both a satisfactory preparation for the agricultural college and an understanding of agricultural opportunities.

2. The Changing High School Curriculum

   2.1 The number of school districts will be further reduced. In the resulting larger districts, a higher number of rural high school students will have the opportunity to study vocational agriculture.

   2.2 Nearly all large rural schools in the state will offer high school programs of vocational agriculture.

   2.3 The present number of 2 and 3 teacher departments will probably be doubled which will permit more specialized curricular offerings.

2.4 More specialized vocational agriculture courses will be offered in some of the joint vocational schools in the state.

2.5 The improved approach to curriculum planning which has taken place in vocational agriculture will increase the number of students electing this course beyond those planning to become farm operators.

3. Urban Schools Offering Vocational Agriculture

During the next decade, more city districts will add specialized vocational agriculture programs to their curricula to meet the needs for trained personnel in landscaping, horticultural enterprises, and similar occupations.

R.J.W.
10/1/66

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Counselor's Guide to Vocational Education Programs.

Texas Education Agency, Austin
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*VOCATIONAL EDUCATION; *PROGRAM GUIDES; *PROGRAM CONTENT; *EDUCATIONAL OPPORTUNITIES; RESOURCE MATERIALS; OCCUPATIONAL GUIDANCE
TEXAS

Since industrial development in Texas has produced a need for skilled workers and the predicted continuation of industrial growth, guidance counselors and vocational education teachers must work together as a cooperating team to best serve Texas youth. This manual describes the vocational education programs which are available. The specific kinds of training are designed to meet the needs of the local community. Intended for use by counselors for vocationally oriented students, the contents include a discussion of nine vocational areas: vocational agricultural education, home making education, distributive education, vocational industrial education, health occupations, vocational office education, occupational training, area vocational schools, and vocational rehabilitation. Each section presents certain aspects of the program or school such as the objective, student eligibility, occupations available, class schedule, and student organizations. (SL)

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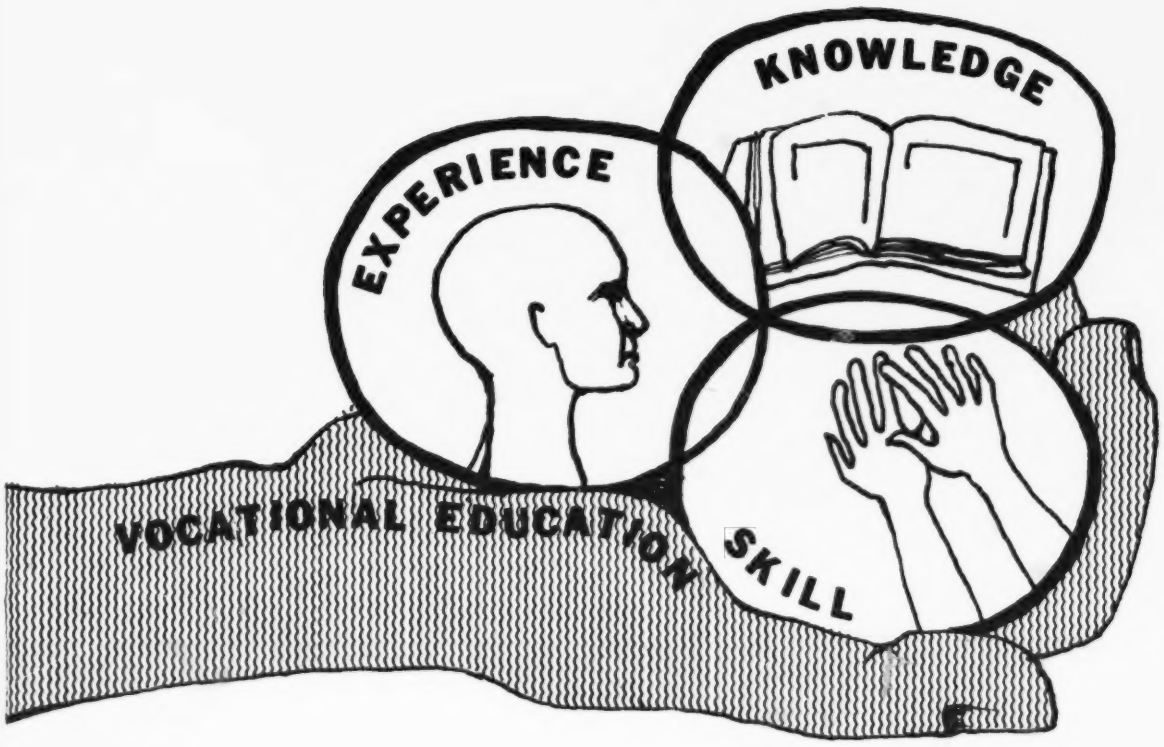

COUNSELOR'S GUIDE TO VOCATIONAL EDUCATION PROGRAMS

TEXAS EDUCATION AGENCY
AUSTIN, TEXAS

01955

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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COUNSELOR'S GUIDE TO VOCATIONAL EDUCATION PROGRAMS

TEXAS EDUCATION AGENCY
AUSTIN, TEXAS

TEA-3-67-4M-1848-B-1081

COMPLIANCE WITH TITLE VI CIVIL RIGHTS ACT OF 1964

Reviews of the local educational agency pertaining to compliance with Title VI, Civil Rights Act of 1964, will be conducted periodically by staff representatives of the Texas Education Agency. These reviews will cover at least the following policies and practices:

1. Enrollment and assignment of students without discrimination on the ground of race, color, or national origin.

2. Assignment of teachers and other staff without discrimination on the ground of race, color, or national origin.

3. Non-discriminatory use of facilities.

4. Public notice given by the local educational agency to participants and other citizens of the non-discriminatory policies and practices in effect by the local agency.

In addition to conducting reviews, Texas Education Agency staff representatives will check complaints of non-compliance made by citizens and will report their findings to the United States Commissioner of Education.

PREFACE

As a result of State legislation and the 1963 Vocational Education Act, assistance is given to Texas schools in maintaining, extending, and improving existing programs; developing new programs; and providing in-school youths part-time employment. In addition, funds are provided so that individuals of all ages and communities will have ready access to vocational training or retraining. These students are trained for actual or anticipated opportunities for gainful employment based upon the predicted growth of Texas.

This predicted growth is occurring because of the population increase in and migration to Texas. In addition, industrial development in Texas has produced a need for skilled workers. As a result, the State will have a significant industrial growth in the next decade.

Because of this industrial growth, guidance counselors and vocational education teachers must work together as a cooperating team if the best interests of Texas youth are to be served. Each group must understand the flexibility that the comprehensive education program has for the particular needs of each student.

As a result, the guidance counselor should become aware of the vocational training Texas school students may receive. Although all programs described herein are not in every school, vocational training is provided for the skills needed in each community. The worker needs vary from community to community because of population, interests, financial ability, and trained teachers.

Because the number of students with a high degree of manipulative ability in a community is also limited, the types of vocational education programs often vary. Thus, the information contained in this publication may be used by counselors for vocationally orientated students.

John R. Guemple
Acting Assistant Commissioner
for Vocational Education

TEXAS EDUCATION AGENCY
Austin, Texas

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SECTION 1

INTRODUCTION

PURPOSE. The purpose of this Agency bulletin is to increase the knowledge and understanding of each counselor about vocational education programs. Thus, counselors will be assisted by this publication in performing the following duties:

a. Planning and implementation of a program of continuous, pervasive, definitive, and individualized vocational guidance services for all students with all school personnel.
b. Assistance of students with educational and vocational placement decisions.
c. Work with teachers concerning the educational and vocational placement of students.
d. Consultation with vocational educators regarding the objectives, student eligibility, program basis, student organizations, class schedules, occupations available, and course sequence of the vocational programs.
e. Work with vocational teachers in planning special vocational programs such as career fairs and career days.
f. Consultation with vocational teachers regarding special vocational programs for the dropout and potential dropout students.
g. Planning of orientation programs for incoming students.
h. Provision of educational and vocational information to students upon initial entry in the school district.
i. Conference with parents regarding the educational and vocational plans of a student.
j. Redefinition, re-evaluation, design, and implementation of vocational guidance services.

BASIS. During the 1965-66 school year, 503,531 students in the public schools of Texas were enrolled in the vocational education programs outlined in this publication. The Vocational Education Department, Texas Education Agency statistics indicate that this enrollment figure needs to reach 1,168,643 students by 1970 in order to provide the necessary manpower for the Texas labor force.

In order to provide a meaningful program of vocational guidance and education services to meet the needs of these students, school counselors, vocational educators, classroom teachers, and administrators must meet numerous challenges. A redefinition and re-evaluation of vocational guidance services is needed now.

Donald E. Super, in his book entitled The Psychology of Careers, proposes a redefinition of vocational guidance and development. This redefinition is as follows: "Vocational guidance is the process of helping a person to develop and accept an integrated and adequate picture of himself and his role

in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society."

This definition obviously demands much more than the traditional approach. As a result, a planned program of appraisal, occupational orientation, self-understanding counseling, occupational term translation from self-concepts, and self-concept testing opportunity against the occupational realities is required. The challenge in providing vocational guidance for education and work is to avoid preparing the students of today for an occupation which no longer exists tomorrow.

OBJECTIVES. As vocational guidance is provided in the school setting, the counselor must take two factors into consideration. First, the meaning of the term "vocational" has been expanded to include the numerous kinds of behavior which develop a satisfactory and satisfied worker in our society. Secondly, the continual need to provide systematically for those aspects of the total guidance program which directly and explicitly affect the student's vocational development.

Guidance services should be based on student needs and assistance provided to each student in accordance with individual needs. If the counselor accepts the vocational development point-of-view and the proposition that vocational behavior is an expression of the student's self-concept, vocational guidance services appropriate to the developmental needs and maturity level of the individual can be provided.

SECTION 2

VOCATIONAL AGRICULTURAL EDUCATION

OBJECTIVE. The objective of the Vocational Agricultural Education Program is to provide instruction in the basic science of agriculture to meet the needs of in-school youth, out-of-school youth, and adult people who are gainfully employed or who are preparing to become gainfully employed in production agriculture. This program also develops and conducts education programs to prepare in-school youth, out-of-school youth, and adult people for gainful employment in off-farm agricultural occupations.

STUDENT ELIGIBILITY. Students regularly enrolled in grades nine through twelve are eligible for enrollment in a Production Agriculture Program. Students at least sixteen years of age regularly enrolled in the eleventh or twelfth grade are eligible for enrollment in a Cooperative Part-time Training Program and Pre-employment Laboratory Program.

PROGRAM BASIS. In-school youth, out-of-school youth, and adult people who are gainfully employed or preparing for gainful employment in production agriculture receive classroom and laboratory instruction in animal science, plant science, soil science, agricultural mechanization, farm management, leadership, and citizenship. Students preparing for gainful employment in off-farm agricultural occupations receive classroom instruction, laboratory instruction, and on-the-job training to develop knowledge and skills in agricultural subjects related to the occupation for which they are being trained.

ORGANIZATIONS. The Future Farmers of America (FFA) is an integral part of the high school program of vocational agriculture. This organization provides training that develops leadership abilities, encourages scholastic achievement, responsible citizenship, patriotism, thrift, and ethical behavior for students enrolled in production agriculture and off-farm agricultural occupational training.

In addition to FFA, the State Association of Young Farmers of Texas provides instruction for out-of-school young men who require additional training to become established in farming. As a part of his responsibility, the vocational agricultural teacher organizes and conducts classroom and laboratory instruction for young farmers, adult farmers, and farm workers with the assistance of subject matter specialists and resource personnel.

CLASS SCHEDULE. Sufficient time is provided through three schedule plans for the teacher and students to complete the goals of the classroom, laboratory, farm shop, field instruction, and on-the-job training. In addition to the instruction given in each of the three plans, the student will receive during each twelve month period a minimum of six hours supervision of his farming program from the vocational agriculture teacher. The student in off-farm agricultural occupational training will also receive on-the-

job training supervision from the vocational agriculture teacher.

OCCUPATIONS AVAILABLE. Occupations for which cooperative part-time training and pre-employment training is provided in agricultural education programs requiring agricultural knowledge and skills. Approved occupations are listed under Cooperative Part-time Training Programs and Pre-employment Laboratory Training Programs.

Cooperative Part-time Training Programs. The following is a representative list of Cooperative Part-time Training Programs available for students:

a. Agricultural Machinery Repairman
b. Agricultural Machinery Set-up and Deliveryman
c. Agricultural Machinery Mechanic's Helper
d. Agricultural Machinery Partsman
e. Agricultural Machinery Service Supervisor
f. Feed Warehouse Employee
g. Feed Sales and Serviceman
h. Seed Sales and Serviceman
i. Fertilizer Sales and Serviceman
j. Agricultural Chemicals Sales and Serviceman
k. Greenhouse Worker
l. Nursery Worker
m. Garden Center Employee
n. Assistant Groundskeeper
o. Parks Employee
p. Grain Elevator Employee
q. Poultry Farm Employee
r. Poultry Products Employee
s. Poultry Hatchery Employee
t. Dairy Farm Worker
u. Dairy Products Employee
v. Meat Processing Plant Employee
w. Irrigation Equipment Sales and Serviceman
x. Veterinarian Assistant
y. Forestry Worker
z. Wildlife Conservation Employee
aa. Park and Landscape Employee
bb. Fruit and Vegetable Packing Plant Processor

Pre-employment Laboratory Training Programs. The following is a representative list of Pre-employment Laboratory Training Programs available to students:

a. Agricultural Machinery Service and Repair
b. Horticulture

COURSE SEQUENCE. Table 1 shows the sequence in which courses are offered for students. Other pertinent data is also shown.

Table 1. Vocational Agricultural Education Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Agriculture I	9-12	1 or 2 credits*	
Agriculture II	10-12	1 or 2 credits*	Agriculture I
Agriculture III	10-12	1 or 2 credits*	Agriculture I or II
Agriculture IV	11-12	1 or 2 credits*	Agriculture I and II
Cooperative Part-time Training	11 or 12	2 credits for 175 fifty-five minutes of class instruction and 525 hours of supervised work experience per school year	Students may earn four credits if the occupation requires two years of training
Pre-employment Laboratory Training	11 or 12 Age 16	2 credits for 525 clock hours of classroom and laboratory training	Students may earn four credits for two years (1050 clock hours) if subject requires two years of training

*One hour a day for one credit and two hours a day for two credits.

SECTION 3

HOMEMAKING EDUCATION

OBJECTIVE. Vocational Homemaking Education is designed to prepare individuals for the vocation of homemaking and for employment in occupations requiring home economics knowledge and skills. For students going to college, homemaking education provides a foundation for a major in home economics and preparation for careers in fields requiring home economics graduates.

STUDENT ELIGIBILITY. Girls enrolled in grades nine through twelve with an interest in training to become homemakers are eligible to enroll in homemaking classes. Cooperative part-time training and pre-employment laboratory training programs are available to students 16 years of age and older in grades eleven through twelve who are interested in preparing for employment in occupations requiring home economics knowledge and skills.

PROGRAM BASIS. A minimum three-year program is available in a sequence of Homemaking I, II, and III. Homemaking IV, Home and Family Living, and other semester courses may be offered for eleventh and twelfth grade students. In schools employing homemaking teachers for 10 and 12 months, the Summer Phase of the homemaking program provides opportunities for further learning experiences through group instruction, individual home experiences, and Future Homemakers of America (FHA) activities.

Learning experiences are provided in all areas of homemaking. Experiences are adapted to the varying home and family life needs and conditions of the community. Instruction takes place in the homemaking department and in the home. During each semester of enrollment in homemaking education, each student is required to plan, develop, and complete a six-weeks experience program in the student's own home supervised by the homemaking teacher.

Cooperative part-time training provides instruction, on-the-job training, and work experience for in-school youth preparing to enter employment in occupations requiring home economics knowledge and skills. Pre-employment laboratory training provides technical instruction and practical experiences required in selected occupations or clusters of occupations requiring home economics knowledge and skills.

ORGANIZATIONS. The Future Homemakers of America (FHA) is an integral part of the high school homemaking program. A national organization for students enrolled in homemaking classes, the program of work offers further opportunity for planning and developing activities related to the home. Through local, area, state, and national projects, students develop leadership abilities and those qualities necessary for responsible citizenship.

Young Homemakers of Texas (YHT) activities are a component part of homemaking education for adults with high school homemaking teachers serving as advisers. Membership is voluntary and is composed of young women not enrolled in school and who are not over thirty-five years of age. The organization provides opportunity for members to continue education in all areas of home and family living, and for developing as leaders and effective community members.

CLASS SCHEDULE. The high school homemaking teacher has responsibility for class instruction; visiting homes; supervising home experiences; conferring with students, their families, and employers; directing FHA activities; and working with young and adult homemakers, individually or in organized classes, including YHT. Class periods are fifty-five minutes consecutive net time for instruction. A minimum of two class periods per day is required for each teacher for supervising home experiences, conferences, FHA activities, and work with adults.

In cooperative part-time training programs, students receive individual and group instruction in the classroom fifty-five minutes per day, five days per week. In addition, each student is employed for a minimum of fifteen hours per school week, receiving supervised job experience in her chosen home economics occupation. Employment on Saturdays and holidays is optional with the student and employer but cannot be counted in the fifteen hours per school week required.

The Pre-employment Laboratory Training Program is scheduled for classroom and laboratory instruction for two consecutive hours each school day. A minimum of one school year and a maximum of two school years of this program is available.

OCCUPATIONS AVAILABLE. Occupations for which cooperative part-time training and pre-employment training is provided in homemaking education programs are those requiring home economics knowledge and skills. Approved occupations are listed under Cooperative Part-time Training Programs and Pre-employment Laboratory Training Programs.

Cooperative Part-time Training Programs.* The following is a representative list of Cooperative Part-time Training Programs available to students:

a. Child Care Aide
b. Clothing Specialist
c. Home Furnishings Aide
d. Hotel and Motel Aide
e. Dietitian Aide
f. Food Service
g. Millinery Aide
h. Household Employee
i. Tester of Foods, Equipment, or Textiles

Pre-employment Laboratory Training Programs.* The following is a representative list of Pre-employment Laboratory Programs available to students:

a. Child Care Aide
b. Clothing Specialist
c. Home Furnishings Aide
d. Dietitian Aide
e. Food Service Employee
f. Household Employee

*Note: Schools desiring to train for any occupation not listed above must receive prior approval from the Homemaking Education Division.

COURSE SEQUENCE. Table 2 shows the course sequence of Vocational Homemaking Education. Other pertinent data is also included.

Table 2. Homemaking Education Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Homemaking I	9	1/2 to 1 credit 87 - 175 class hours	
Homemaking II	10	1/2 to 1 credit 87 - 175 class hours	One full credit in Homemaking I
Homemaking III	11 or 12	1/2 to 1 credit 87 - 175 class hours	One full credit in Homemaking I and one full credit in Homemaking II
Homemaking IV	12	1/2 to 1 credit 87 - 175 class hours	One full credit in each of Homemaking I, II, and III
Home and Family Living	11 or 12	1/2 to 1 credit 87 - 175 class hrs.	
Home Management	11 or 12	1/2 credit 87 class hours	
Home Nursing	11 or 12	1/2 credit 87 class hours	
Home Furnishings	11 or 12	1/2 credit 87 class hours	
Cooperative Part-time Training	11 or 12	2 credits for 175 class hours of classroom instruction and 525 hours of supervised work experience per school year	Students may earn four credits if the occupation requires two years of training
Pre-employment Laboratory Training	11 or 12 Age 16	1 1/2 credits for 350 class hours of classroom and laboratory training	Students may earn three credits for two years (700 class hours) if subject requires two years of training
Summer Phase	9 - 11	1/2 credit per summer for not more than two summers	Homemaking I for the first summer. Homemaking II for the second summer

SECTION 4

DISTRIBUTIVE EDUCATION

OBJECTIVE. The Vocational Distributive Education Program has the objective of providing students with a background in a selected occupation from the retail, wholesale and service occupational areas. The student becomes prepared for gainful employment through practical instruction.

STUDENT ELIGIBILITY. A student must be at least a high school junior and 16 years old to be eligible for enrollment in the Cooperative Part-time Program. In the Pre-employment Laboratory Program, the student must be at least in the tenth grade and 14 years old.

PROGRAM BASIS. Cooperative part-time program students may enroll for two, three, or four semester credits. The curriculum for the one hour of classroom instruction per day includes employee and employer relationships, written and oral business communications, distributive mathematics, sales promotion, merchandising, and marketing economics. Approximately half of the classroom time is spent on individualized instruction during which the student works on lessons which apply to his own specific career objective or place of employment. A training plan is prepared on each student. This plan describes the work experiences and related instruction which have been agreed upon by the teacher-coordinator and the employer. This joint effort to train the student for full-time employment insures the desired result.

The Pre-employment Laboratory Program prepares students for careers in distribution but does not include the concurrent part-time employment. This program is available as an expedient or supplement to the established cooperative program in cases where the operation of a cooperative program is not feasible. The distinguishing characteristic of the preparatory program is the absence of the employment experience and the direct correlation of this experience to the classroom instruction.

The existence of either of two conditions justifies the organization of preparatory classes or combination cooperative-preparatory classes. One condition is that a sufficient number of interested and qualified students are present in a school so located that a sufficient number of approvable training stations are not accessible. The other condition requires the presence of a satisfactory number of interested students who need training for available distributive employment. These students also lack the level of aptitude and ability necessary for enrollment in the cooperative program with the required immediate part-time employment.

STUDENT ORGANIZATION. The Texas Association of the Distributive Education Clubs of America (DECA) provides programs of leadership education and competitive activities. These activities provide enrichment and correlation to the instructional program.

OCCUPATIONS AVAILABLE. Occupations available for the cooperative part-time student consist of the retail, wholesale and service occupational areas of the Distributive Education Program. A representative list of each area follows.

Retail. The following is a representative list of retail occupations:

a. Advertising Copywriter
b. Advertising Layout Man
c. Advertising Manager
d. Customer Service Manager
e. Customer Service Employee
f. Credit Interviewer
g. Credit Manager
h. Deliveryman
i. Department and Division Buyer
j. Department Supervisor
k. Display Department Employee
l. Display Manager
m. Merchandise Manager
n. Personnel Interviewer
o. Personnel Manager
p. Receiving and Shipping Department Employee
q. Merchandising Salesperson
r. Stockman
s. Training Department Employee
t. Training Director
u. Warehouseman

Wholesale. The following is a representative list of wholesale occupations:

a. Salespeople
b. Sales Promotion Employees
c. Other Distributive-Wholesale, Product and Service Occupations

Service. The following is a representative list of service occupations:

a. Salespeople
b. Sales Promotion Employees who sell the following services:

1. Insurance
2. Banking Services
3. Transportation
4. Cleaning
5. Renovation

COURSE SEQUENCE. Table 3 shows the course sequence of Vocational Distributive Education. Other pertinent data is also included.

Table 3. Distributive Education Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Distributive Education I (Cooperative Part-time Training)	11 or 12	2 units for 175 class periods plus 525 hours of supervised work experience	16 years of age
Distributive Education II (Cooperative Part-time Training)	12	2 units for 175 class periods plus 525 hours of supervised work experience	Completion of Distributive Education I

Table 3 (Continued)

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Cooperative Part-time Training	11 or 12	2 credits for 175 class periods plus 525 hours of supervised work experience per school year	Students may earn four credits if the occupation requires two years of training
Pre-employment Laboratory Training	10, 11 or 12 Age 14	1 1/2 credits for 350 clock hours of classroom and laboratory training	Students may earn three credits for two years (700 clock hours) if subject requires two years of training

Combination Program

A tenth or eleventh grade student may enroll in a Combination Program composed of a Cooperative Part-time Training Phase and Pre-employment Laboratory Phase. A one rather than a two hour class will be required in the Pre-employment Laboratory Phase of this program. This Combination Program is for two years with the student enrolling in the Pre-employment Laboratory Program the first year and planning to enroll in the Cooperative Part-time Training Program the second year. During the Pre-employment Laboratory Phase of this program, the student attends class for one rather than two hours and receives one credit. The second-year student of a Combination Program who is enrolled in the Cooperative Part-time Training Phase receives two credits. A senior, however, may enroll in the Cooperative Part-time Training Phase for one year only and receive two credits.

SECTION 5

VOCATIONAL INDUSTRIAL EDUCATION

OBJECTIVE. The Vocational Industrial Education Program has the objective of preparing high school students for employment in one of the industrial skilled trades. The student becomes prepared for gainful employment through practical instruction.

STUDENT ELIGIBILITY. A student must be at least a high school junior and 16 years old to be eligible for enrollment in the Cooperative Part-time Training Program. In the Pre-employment Shop Program, the student must be at least in the tenth grade.

PROGRAM BASIS. The Industrial Cooperative Part-time Training Program is a cooperative arrangement between the school and various industrial and business establishments. Through this arrangement, a student is in school one-half of each day attending regular high school classes and one class in which instruction is related to a specific occupation. The remaining one-half day the student is on the job as a trainee in a planned program to acquire the job skills in and information on a specific occupation.

The Vocational Industrial Shop Program is conducted wholly within a high school. Students enrolled in such programs attend classes for three consecutive hours in a specific trade shop to develop the job skills and acquire the related information needed to enter employment in a skilled trade upon graduation. During the remaining one-half day, these students are enrolled in regular high school courses.

STUDENT ORGANIZATION. Students enrolled in a vocational industrial course are eligible to become members of the Vocational Industrial Clubs of America (VICA). This student organization is designed to provide leadership training and experience.

OCCUPATIONS AVAILABLE. A representative list of occupations available to the student follows. These occupations are listed under the cooperative part-time and preparatory shop types of programs.

Cooperative Part-time Training Program. A representative list of occupations available in the cooperative part-time program is as follows:

a. Automobile Body Repairman
b. Automobile Mechanic
c. Automobile Partsman
d. Automobile Electrician
e. Baker
f. Cabinetmaker
g. Carpenter
h. Chef
i. Commercial Artist
j. Dental Technician*
k. Diesel Mechanic
l. Draftsman
m. Dry Cleaner
n. Electrical Appliance Serviceman
o. Electrician

p. Furniture Repairman
q. Machinist
r. Machinist (Automobile)
s. Medical Technician*
t. Meat Cutter
u. Nurse Aide (Hospital)*
v. Office Machine Serviceman
w. Offset Pressman
x. Painter
y. Photographer
z. Plumber
aa. Printer
bb. Radio Repairman
cc. Refrigeration and Air Conditioning Mechanic
dd. Sheet Metal Worker
ee. Television Repairman
ff. Watchmaker
gg. Welder

*Not to be offered under Industrial Cooperative Program (ICT) in a school having a Health Occupations Cooperative Program.

Pre-employment Shop Programs. A representative list of occupations available in pre-employment shop programs is as follows:

a. Airplane and Engine Mechanic
b. Appliance Repairman
c. Automobile Mechanic
d. Building Trades
e. Cabinetmaking
f. Commercial Art
g. Cosmetology
h. Drafting
i. Electrical Trades
j. Machine Shop
k. Metal Trades
l. Photography
m. Piping Trades
n. Printing
o. Refrigeration and Air Conditioning
p. Radio and Television Servicing
q. Sheet Metal Fabrication
r. Welding

COURSE SEQUENCE. Table 4 shows the course sequence of the Vocational Industrial Education Program. Other pertinent data is also included.

Table 4. Vocational Industrial Education Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Cooperative Part-time Training (Two-year program)	11 or 12	Number of credits to be established by local school.	16 years of age
Pre-employment Shop for Single Skilled Occupations (One or two-year program)	10-12	1 1/2 units for 350 class hours per year; 3 units total for two years with 700 class hours	Taken in sequence
Pre-employment Shop for Skilled Occupations (Three-year program)	10-12	2 units for 525 class hours per year; 6 units total for three years with 1050 class hours	Taken in sequence

SECTION 6

HEALTH OCCUPATIONS

OBJECTIVE. The Vocational Health Occupations Education Program has the objective to prepare high school students for employment in one of the health occupations. The students become prepared for gainful employment through practical instruction and actual hospital experience.

STUDENT ELIGIBILITY. A student must be at least a high school junior and 16 years old to be eligible for enrollment in the Cooperative Part-time Training Program and Pre-employment Laboratory Program. At present, the Cooperative Part-time Training Program and Pre-employment Laboratory Program are the two types of health occupations programs available.

PROGRAM BASIS. The Health Occupations Cooperative Part-time Training Program is a cooperative arrangement between the school, doctors, dentists, and hospitals. Through this arrangement, a student is in school one-half of each day attending regular high school classes and one class in which instruction is related to a specific occupation. The remaining one-half day the student is on the job as a trainee in a planned program to acquire practical experience in and information on a specific occupation.

The Pre-employment Laboratory Program introduces the student to health occupations. In addition, this program prepares students for entry into an individually selected health occupation.

STUDENT ORGANIZATION. Students in health occupations cooperative training programs are eligible to participate in the Vocational Industrial Clubs of America. This participation is through the organization of local chapters.

OCCUPATIONS AVAILABLE. A representative list of occupations available to the student follows. These occupations are only available under the Cooperative Part-time Training Program.

a. Dental Assistant
b. Dental Laboratory Assistant
c. Doctor's Office Assistant
d. Inhalation Therapy Assistant
e. Medical Laboratory Assistant
f. Nurses's Aide
g. Occupational Therapy Assistant
h. Orthopedic Appliance Mechanic
i. Ward Clerk or Ward Management Assistant
j. X-ray Technician Assistant

COURSE SEQUENCE. Table 5 shows the course sequence of the Vocational Health Occupations Program. Other pertinent data is also included.

Table 5. Health Occupations Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Cooperative Part-time Training (Two-year program)	11 or 12	Number of credits to be established by local school.	16 years of age

SECTION 7

VOCATIONAL OFFICE EDUCATION

OBJECTIVE. The Vocational Office Education Program has been specifically designed to meet the needs of students who have specific career objectives in office occupations. The program provides a means of developing and using the maximum potential of the students in developing occupational efficiency.

STUDENT ELIGIBILITY. The Vocational Office Education Program is a one year cooperative program for senior students. Students receive technical and related instruction in a one period class session each day and also receive supervised on-the-job work experience in an approved training station.

PROGRAM BASIS. The job skills and procedures necessary for occupational competency in an office occupation will, for the most part, be taught by the employer of these students in the training station. However, these skills must be developed to an initial skill level in preparatory courses, prior to entering the vocational program. The specific technical and related information required will largely be taught in the related studies classroom session.

Some of these units of instruction can best be taught on an individual instruction basis and some can be best taught through group instruction methods. Time is also available for increasing specific skills in the classroom. The student must have the ability to develop office skills and an interest in office work.

STUDENT ORGANIZATION. The Office Education Association of Texas provides a program of leadership training, competitive activities, and curriculum enrichment. These youth group activities are considered as an extension of the curriculum and as part of the learning activities conducted in the program. All students are expected to participate in local chapter activities.

CLASS SCHEDULE. Students will receive a combination of individual and group instruction during a class period of at least 55 minutes daily, 5 days per week. Considerable time is devoted to individualized supervised study of subject matter that is directly related to the occupational objective of each student. The course of study is geared to job requirements as determined by a job analysis made by the teacher-coordinator in cooperation with the employer.

Class work is coordinated with the practical work experience the student receives in the office in which he is employed part-time. Students must work a minimum of 15 hours per week in an approved office occupation. The student is paid at the same rate the employer normally pays other beginning office workers.

COURSE PREREQUISITES. Office occupations require a reasonable degree of ability. As office employers usually administer a placement test to all job applicants, a student must have minimum job skills to pass these tests at the time of entry into the Vocational Office Education Program. The following basic business education subjects should have been completed with a grade of C or better prior to the student's enrollment in the Vocational Office Education Program:

Area of Occupational Intent	Business Education Subjects
Stenographic-Secretarial	One Year Typewriting One Year Shorthand
Bookkeeping Occupations or Office Machine Operators	One Year Typewriting One Year Bookkeeping
General Office Clerical	One Year Typewriting

The General Office Clerical category listed above does permit the enrollment of students in the program of less than average ability. Because students with only one year of typewriting are very difficult to place, only five or six of these students should be enrolled in any one program. No student should be encouraged to enroll in any training program who is not capable of obtaining a full time position, holding this position, and advancing in the position.

OCCUPATIONS AVAILABLE. An approvable office occupation must be so classified in the Dictionary of Occupational Titles. Some of the more common office occupations include the following:

a. Bookkeepers and Cashiers
b. Bookkeeping Machine Operators
c. Correspondence Clerks
d. File Clerks
e. General Office Clerks
f. Insurance Clerks
g. Library Assistants and Attendants
h. Office Machine Operators
i. Payroll Clerks
j. Receptionists
k. Secretaries
l. Statistical Clerks and Compilers
m. Stenographers
n. Timekeepers

COURSE SEQUENCE. Table 6 shows the course sequence of the Vocational Office Education Program. Other pertinent data is also included.

Table 6. Vocational Office Education Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Cooperative Part-time Training (One-year program)	12	2 units for 175 class hours plus 525 hours of supervised work experiences per year	16 years of age. Comply with prerequisites listed under COURSE PREREQUISITES in this section of the guide

SECTION 8

OCCUPATIONAL TRAINING

OBJECTIVE. The Occupational Training Program objective is to meet the needs of socio-economic, handicapped students by preparing them for gainful employment. Also, as a result of this program participation, students may become capable of entering and succeeding in regular programs of vocational education. In addition, those students who have dropped out may be encouraged to return to school. Thus, the maximum potential of the student is fully developed.

STUDENT ELIGIBILITY. Enrollees in an Occupational Training Program usually are characterized by one or more of the following characteristics:

a. Students who are 14 years of age.
b. Students who are behind in grade placement or achievement because of socio-economic, academic, or other handicaps which prevent them from succeeding in the regular vocational programs.
c. Students who will benefit from instruction.

The Occupational Training Program is designed for in-school and out-of-school students fourteen years of age or older who have academic, socio-economic, or other handicaps preventing them from succeeding in regular programs of vocational education.

PROGRAM BASIS. The program consists of the academic and occupational phases. These phases are a combination of a modified or ungraded academic curriculum and vocational training. As a result, the student is provided with a dual educational opportunity for achievement in acquiring basic educational skills and preparation for employment.

Academic Phase. The academic portion of the program must be a special academic curriculum departing from traditional standards and be conducted on an ungraded basis. Language, mathematics, science, and other courses must be adapted to the level and learning ability of the students. Students handicapped in reading ability must be provided remedial reading instruction instead of traditional English. Students of low achievement in mathematics, science, or social studies must be given remedial instruction. Other academic provisions are:

a. Curricula must be flexible and be taught at the achievement level of the student.
b. Remedial work shall be given students in areas of low level achievement parallel with identified ability.
c. Primary emphasis will be on the basic tools of language arts and mathematics. The basic skills taught will be in reading, writing, speaking, listening, and arithmetic areas.
d. Academic instruction content will be functional with practical application to occupational training whenever possible.

Vocational Phase. The vocational training phase of the program may be either of the following two types:

a. Shop instruction two periods per day.
b. Cooperative programs of part-time on-the-job training.

OCCUPATIONS AVAILABLE. Occupations available are listed by type of program. These occupations are listed under Pre-employment Shop Program and Cooperative Part-time Training Program.

Pre-employment Shop Program. The shop program consists of instruction in clusters of occupations in which multiple skills are taught. Examples of occupations in which training may be offered are:

a. General Building Trades
b. General Mechanical Trades
c. General Metal Working Trades
d. Child Care Center Worker
e. General Office Work

Cooperative Part-time Training Program. The Cooperative Part-time Training Program is patterned after the conventional cooperative program except that job placement is in single-skilled or semi-skilled occupations such as:

a. Receptionist
b. Office Machine Operator
c. Fry Cook
d. General Shop Helper
e. Service Station Attendant
f. Food Service

COURSE SEQUENCE. Table 7 shows the course sequence of the Vocational Occupational Training Program. Other pertinent data is also included.

Table 7. Occupational Training Course Sequence

COURSE	GRADE PLACEMENT	TIME REQUIRED AND CREDIT	PREREQUISITES AND OTHER INFORMATION
Cooperative Part-time Training (Two-year program)	9-12	2 units for 175 hours of classroom instruction plus 525 hours of work experience per year; 4 units total	16 years of age
Pre-employment Shop (Four-year program)	7-12	350 hours each year (grades 7-8). 2 units for 350 hours classroom and shop instruction per year, grades 9-12; 4 units total	14 years of age

SECTION 9

AREA VOCATIONAL SCHOOLS

OBJECTIVE. The Vocational Act of 1963 provided that funds allocated to states could be utilized for constructing and equipping area vocational-technical facilities. Local and state public educational agencies of Texas have as of August 31, 1966, approved construction for area vocational-technical facilities in:

a. Fifty-six high schools.
b. Twenty-six junior colleges.
c. Two senior colleges.

Each of these facilities offer instruction in five or more vocational and technical subjects.

STUDENT SELECTION. High school students selected for enrollment are to be carefully screened to match the student to a particular type of training. Training programs vary in difficulty and require different levels of ability. Students must be carefully tested and interviewed prior to acceptance for enrollment. The General Aptitude Test Battery (GATB) which is administered by the Texas Employment Commission is probably the most utilized test to appraise vocational aptitudes. No student should be placed in a vocational-technical program unless he has a reasonable probability of success in the program.

a. The age requirements of the programs vary. Check each program for age requirements.
b. Credits earned in vocational programs apply toward high school graduation and may apply toward college entrance requirements.
c. Students living in districts adjoining an area school program may enter the area school if eligible.

STUDENT TRANSFER. House Bill 130, Fifty-ninth Legislature, presents details of transferring students to area vocational schools. If further information on transferring students is needed, reference should be made to a copy of this law.

OUT OF SCHOOL YOUTH. Area school facilities should make available programs for post-high school youth in addition to regular programs. Students may enroll who desire training. Employed adults who need retraining or upgrading may also enroll. In addition, adults may enroll who desire to become more proficient and knowledgeable in the occupation in which they are employed.

SECTION 10

VOCATIONAL REHABILITATION

OBJECTIVE. Although the Vocational Rehabilitation Division is not an organizational part of the Vocational Education Department, this section is included in this guide to assist High School Counselors in counseling handicapped students enrolled in a Vocational Education Program. When a handicapped student is counseled, the High School Counselor can acquaint the student with the services available through vocational rehabilitation upon graduation.

The High School Guidance Counselor needs to know about the services which are available to the handicapped by working with the Vocational Rehabilitation Counselor in his district office. Furthermore, the High School Guidance Counselor is in a position to supply the names of and pertinent data about handicapped students to the Vocational Rehabilitation Counselor. Thus, when graduating, the handicapped student is cognizant of and may benefit from the further educational opportuntities available through the Vocational Rehabilitation Program.

STUDENT ELIGIBILITY. Students are eligible for rehabilitation services provided by the Vocational Rehabilitation Division if all three of the following conditions are satisfied:

a. A student must have a mental or physical disability.
b. The disability must be severe enough to prevent the student from working.
c. A reasonable expectation that the services provided by the Vocational Rehabilitation Division may render the student able to become gainfully employed.

Certain vocational rehabilitation services are available to the student no matter what the economic level might be. These services are: counseling and guidance, placement in the proper work setting, tuition for training (which includes both vocational and academic schooling), the purchase of training supplies, and diagnostic evaluations to better understand the individual's need.

The economic need of the handicapped student is considered only when the Vocational Rehabilitation Division furnishes physical restoration services (hospitalization, surgery, and other related services), prosthetic and orthopedical devices of all types, payment for room and board while undergoing vocational and academic training, transportation (except for diagnostic evaluations), occupational tools, initial stocks and supplies, and other similar goods and services.

A rehabilitation plan is first outlined by both the client and the Vocational Rehabilitation Counselor. The individual must be of working age when the plan of rehabilitation is completed. Eligibility for vocational rehabilitation services is determined without regard to sex, race, creed, color, or national origin of the individual.

The following disabilities make a person eligible for rehabilitation services: amputations, orthopedical abnormality, cerebral palsy, deafness or a hearing impairment, impaired speech, mental illness, mental retardation, cardiac vascular diseases, epilepsy, and arrested tuberculosis. This list of disabilities is steadily increasing and should be checked periodically to see what new disabilities are acceptable under the vocational rehabilitation programs.

PROGRAM BASIS. The Vocational Rehabilitation Division provides services to assist physically or mentally handicapped individuals to prepare for employment or to enter employment. These services are designed either to remove or reduce the disability and to equip the handicapped individual with the necessary skills needed to assume independence and gainful employment.

STUDENT APPLICATION. A student application for vocational rehabilitation services should be filed with the nearest District Office of the Vocational Rehabilitation Division. District offices are in Abilene, Alpine, Amarillo, Austin, Beaumont, Bryan, Corpus Christi, Corsicana, Dallas, El Paso, Fort Worth, Galveston, Harlingen, Houston, Kerrville, Laredo, Longview, Lubbock, Lufkin, Midland, Paris, San Angelo, San Antonio, Seguin, Sherman, Victoria, Waco, and Wichita Falls. An application may also be filed with the Director, Vocational Rehabilitation Division, Vocational Rehabilitation and Special Education Department, Texas Education Agency, Austin, Texas, 78711. Brochures will be sent upon request.

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Hawaii State Commission on Manpower and Full Employment, Honolulu
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*GOVERNOR'S CONFERENCE ON HUMAN RESOURCES, HONOLULU, HAWAII, FEBRUARY 1-2, 1967

The purpose of this conference was to explore three major concerns relevant to Hawaii's manpower needs: (1) future manpower requirements, (2) educational and training requirements in the manpower field, and (3) conservation of human resources. The 300 participants were government, education, labor, business, and community leaders responsible for manpower. The conference was held in Honolulu, Hawaii with the keynote address by Governor John A. Burns. Program speeches were: (1) On the Role of a University in the Development of Human Resources, (2) Toward a National Policy of Human Resources, and (3) Guaranteeing Full Employment in the United States. The panel topics were: (1) Future Manpower Needs, (2) Education for a Growing Hawaii, and (3) Conservation of Human Resources. (HC)

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180p.+

PROCEEDINGS

The Governor's Conference on Human Resources

February 1 and 2, 1967

Ilikai Hotel - Pacific Ballroom
Honolulu, Hawaii

VT001970

Sponsored by

- Governor John A. Burns
- State Commission on Manpower and Full Employment

In Cooperation With

- State Department of Planning and Economic Development
- The Conference Center, College of General Studies University of Hawaii

PROCEEDINGS

THE GOVERNOR'S CONFERENCE ON HUMAN RESOURCES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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February 1 and 2, 1967
Ilikai Hotel - Pacific Ballroom
Honolulu, Hawaii

Sponsored by

- GOVERNOR JOHN A. BURNS
- STATE COMMISSION ON MANPOWER AND FULL EMPLOYMENT

In Cooperation With

- State Department of Planning and Economic Development
- The Conference Center, College of General Studies, University of Hawaii

PREFACE

Not too many people realize how largely advances in our society are structured around the ideas which come out of meetings and conferences. Many conferences are primarily given to report-receiving bodies. Others foster exchange of ideas involving expertise from within and without. These usually take the form of discussions and active citizen participation. One such meeting was the recent Governor's Conference on Human Resources.

In this volume of Proceedings the State Commission on Manpower and Full Employment seeks to summarize the deliberations and views of some three-hundred participants from all segments of our State.

From the outset it was determined that the form of the conference would be to explore three major concerns relevant to Hawaii's manpower needs:

-- future manpower requirements
-- educational and training requirements in the manpower field
-- conservation of human resources.

Involved in the sessions were people from government, education, labor, business and community leaders. Rightly so, for manpower is at once a divided and joint responsibility. All must accept that this is a collective endeavor, and that the solemn duty cannot be discharged unless there is harmony in the common purpose.

As will be noted panel discussions gave serious consideration to the review of familiar programs and policies against the projection of plans for the future.

Speakers presented national and local issues and facts to provide a broad base for the thought-process of conferees.

The impact of this conference has been greater than we have had a right to expect. Various agencies and elements in our community, who are responsible for manpower, have taken from their conference attendance a sense of new understanding and mission about the State's manpower development that will stand us all in good stead. With the current effort of the federal government to initiate coordinated manpower planning, the efforts of the State has been helpful in laying the ground for an overall coordinated program.

The publishing of these proceedings should be viewed as more than a momento of past achievement. The views expressed and the clash of contrary opinions of the various aspects of manpower development is still for the most part unresolved. We believe this points the way toward what can be an active and dynamic manpower program for the many years ahead. From a perspective of the present the ideas and presentations made at yesterday's conference should be even more insightful now and in the near tomorrows.

The Commission would be the first to admit that there was not time enough to become thoroughly acquainted with all of the problems and opportunities in this area. It is our hope, however, that the interest generated will not be lost. For planning for human resources, in the manpower area at least, must not only be comprehensive, but must necessarily be a continuing process, especially in this period of fast developing new attitudes, new ideas, new knowledge and new technologies.

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THE PROGRAM

PURPOSE:

- *Examine Statewide manpower conservation, training and education practices and policies necessary to support the rapidly evolving economy of Hawaii.*
- *Determine ways and means to continuously provide the human resources of the State with opportunities for motivation, training and education for full employment.*

Wednesday, February 1, 1967 — Pacific Ballroom, Ilikai Hotel
Chairman: Rev. James J. M. Misajon

8:00 a.m. Registration . . . . . Lanai

9:00 a.m. Welcome . . . . . Rev. James J. M. Misajon, Commission Chairman

Invocation: The Reverend Seido Ogawa, Executive Director, Hawaii Council of Churches

9:15 a.m. KEYNOTE ADDRESS . . . . . Governor John A. Burns

9:45 a.m. Panel: *Future Manpower Needs*
Chairman: John J. Jaquette

10:30 a.m. Coffee Break

10:45 a.m. Resumption of Panel

12:00 noon Luncheon and Address
Chairman: Shelley M. Mark

Invocation: The Very Reverend John J. Morrett, Dean of St. Andrews Cathedral, The Episcopal Church in Hawaii

Address: *On the Role of a University in the Development of Human Resources* . . . Thomas H. Hamilton, President, University of Hawaii

2:00 p.m. Panel: *Education for a Growing Hawaii*
Chairman: Teruo K. Ihara

3:15 p.m. Coffee Break

3:30 p.m. Resumption of Panel

5:00 p.m. Adjourn

6:30 p.m. BANQUET and ADDRESS

THE PROGRAM (Continued)

Chairman: Alfred Laureta

Invocation: The Very Reverend Monsignor Daniel J. Dever
Superintendent of Catholic Schools
Roman Catholic Diocese of Honolulu

Soloist: Mrs. George K.O. Lee
Accompanist: Donald Matsumori

Address: *Toward a National Policy on Human Resources* . . . . . Harold L. Sheppard

Thursday, February 2, 1967 Pacific Ballroom, Ilikai Hotel
Chairman: Eugene W. I. Lau

9:00 a.m. Panel: *Conservation of Human Resources*
Chairman: Jack T. Nagoshi

10:15 a.m. Coffee Break

10:30 a.m. Resumption of Panel

11:30 a.m. Conference Summary . . . . . Theodore F. Ruhig

12:00 noon Luncheon and Address
Chairman: Richard H. Kosaki

Invocation: The Reverend Lawrence A. Hinshaw
Pastor,
First Methodist in Honolulu

Address: *Guaranteeing Full Employment in the United States* . . . . . John H. G. Pierson

2:00 p.m. Adjourn

* * * * *

6:30 p.m. Private Dinner for County Manpower Committee Members with the State Commission
Ilikai Hotel

* * * * *

THE PROGRAM (continued)

CONFERENCE STAFF

- THE HONORABLE JOHN A. BURNS, Governor, State of Hawaii
- DR. THOMAS H. HAMILTON, President, University of Hawaii
- JOHN H. G. PIERSON, Economist, formerly with the U. S. Department of Labor (1941-1948) and the United Nations Secretariat (1955-1966)
- HAROLD L. SHEPPARD, W. E. Upjohn Institute for Employment Research, Washington, D. C.

PANEL MEMBERS

Future Manpower Needs

CHAIRMAN: MR. JOHN J. JAQUETTE, Financial Vice-President, Hawaiian Telephone Company

- DR. SHELLEY M. MARK, Director, State Department of Planning and Economic Development
- MR. ALFRED LAURETA, Director, State Department of Labor and Industrial Relations
- MR. W. H. FERRY, Vice-President, Center for the Study of Democratic Institutions, Santa Barbara, California
- DR. THOMAS K. HITCH, Vice-President and Chief Economist, First National Bank of Hawaii

Education for a Growing Hawaii

CHAIRMAN: DR. TERUO K. IHARA, Director of Foreign Contracts, College of Education, University of Hawaii

- DR. RICHARD E. ANDO, Chairman, Board of Education, State of Hawaii
- DR. MARVIN F. POYZER, College of Education, University of Hawaii
- MR. CARL J. SCHIFFERS, Administrative Vice-President, Hawaiian Electric Company
- MR. JACK C. REYNOLDS, Secretary-Treasurer, AFL-CIO, Building and Construction Trades Council of Hawaii

Conservation of Human Resources

CHAIRMAN: MR. JACK T. NAGOSHI, Deputy Director, Juvenile Delinquency and Youth Development Center, University of Hawaii

- MISS EDITH WAT, Employment Service Program Specialist, State Department of Labor and Industrial Relations
- MR. DONALD M. WOLFHOPE, Director, Training and Personnel Research, C. Brewer and Company, Ltd.

THE PROGRAM (Continued)

Panel Members *Conservation of Human Resources*

- JACK W. HALL, State Regional Director, I.L.W.U.
- WALTER P. S. CHUN, Director, State Office of Economic Opportunity

PLANNING COMMITTEE

- REVEREND JAMES J. M. MISAJON, Chairman, Commission on Manpower and Full Employment; The Methodist Church in Hawaii
- MR. EUGENE W. I. LAU, Chairman, Commission Program Committee; Attorney-at-Law
- MR. THEODORE F. RUHIG, Executive Secretary, State Commission on Manpower and Full Employment
- DR. TERUO K. IHARA, Director of Foreign Contracts, College of Education, University of Hawaii
- MR. JOHN J. JAQUETTE, Financial Vice-President, Hawaiian Telephone Company
- MR. HAROLD P. BROWN, The Conference Center, College of General Studies, University of Hawaii

COMMISSION STAFF

MR. THEODORE F. RUHIG, Executive Secretary

DR. ESME Y. CHU, Economist

MRS. ELAINE I. NIKAIDO, Secretary

THE PROGRAM (Continued)

STATE COMMISSION ON MANPOWER
AND FULL EMPLOYMENT

CHAIRMAN: REVEREND JAMES J. M. MISAJON, The Methodist Church in Hawaii

MEMBERS:

MR. STANLEY N. BURDEN, Project Director, Operation Green Thumb, State Office of Economic Opportunity

DR. TERUO K. IHARA, Director of Foreign Contracts, College of Education, University of Hawaii

MR. JOHN J. JAQUETTE, Financial Vice-President, Hawaiian Telephone Company

MR. EUGENE W. I. LAU, Attorney-at-Law

MR. CURTIN A. LESER, Manager, Personnel Department, Hawaiian Electric Company

MR. HARRY N. OKABE, Farmer

MR. JACK C. REYNOLDS, Secretary-Treasurer, AFL-CIO, Building and Construction Trades Council of Hawaii

MISS DOROTHY M. RISH, Assistant to Industrial Relations Manager, California Packing Corporation, Hawaii

MR. BERNARD W. STERN, Resident Manager, Benefit Plan Consultants, Hawaii

MR. DAVID E. THOMPSON, Education Director, I.L.W.U., Local 142, Hawaii

* * * * *

FEBRUARY 1

INVOCATION

Reverend Seido Onawa

O God, who has set our lives in the midst of exceeding abundance in a land of maximum opportunity, and has given us dominion over the earth's resources, to take them and use them for our fulfillment and for the well-being of our fellowmen, grant that we may be faithful to thy trust, vested in us by the very design of creation, that we may be alert to seek and to understand what our acceptable stewardship is in relation to today's needs and the resources at hand. Help us, in the midst of our own sufficiency, to see human want and the absence of opportunity that prevents the full flowering of other lives, to understand what traditional assumptions may need to be set aside, and what new insights need to be grasped. Give to us the gratitude to regard with deep respect all that we have been provided, with which to accept each new challenge, and the wisdom to re-tool our skills, redistribute our resources, redefine our purposes, in order to move with growing confidence and purpose amid the complexities of life which are the very conditions of renewal. Finally help us in all and through all that we do to affirm the spirit of man and the stuff of human life as Thy greatest gift and our most basic resource. We pray in Jesus' Name.

WELCOME

Reverend James J. M. Misajon

Governor Burns, Distinguished Guests and Ladies and Gentlemen:

First of all, my very warm aloha and mahalo to all of you for being here.

It is an honor and a great pleasure for me and my colleagues on the State Commission on Manpower and Full Employment to welcome all of you to this Conference on Human Resources.

This Governor's Conference, as the program discloses, brings together a most distinguished and knowledgeable group of individuals - local and national experts - in the fields of economics, education, government, public, labor, industry and manpower utilization.

One measure of the calibre of the participation in this gathering is the eminence of the persons who will be addressing the conference and taking part in the panel discussions.

The members of the Commission are very grateful that these persons are participating.

During the next two days we will be engaged in examining and reexamining our manpower resources as they are being shaped and reshaped under the twin impact of technological change and social advancement.

The literature on automation and technological change is now quite extensive. While the findings and recommendations of study groups and writers differ, there seems to have emerged a concensus - that technology will continue to induce profound changes in the lives of all people, and that its fullest ramifications are yet to be realized.

It was in recognition of these changes that the State Legislature of 1965, established a State Commission on Manpower and Full Employment. The task of this citizens group is to help plan a program within the state so that the beneficient material harvest from the new technology will be enjoyed by all strata of our society, and by all our people.

America is the land of dreams, and the best dreams in these United States are the dreams we dream in Hawaii. They reflect the vastness and strength of our nation. They reflect our rich heritage and hope and promise of what we can and ought to be. Indeed, they reflect our commitment to the obligation to dream big and dynamic dreams, for to do less is to betray our heritage and responsibilities as a people.

A poverty free-land, within our time, is the current American dream. This is the vision of those who see the *Great Society* to be an *open society*. It is a new dream, for no earlier society whose ideals have been recorded in our histories has dreamed that all its people could emerge from the shadow of poverty. This is not to say that concern with poverty is a new thing. Certainly in our country it is not. But, if we would not dream, what then?

In this era when events occur swiftly and new challenges come almost daily - government, business and labor, in partnership with all facets of community life - must develop new and dramatic solutions to the problems of today, and of the 70's and the 80's that will not yield to the rhetoric of the past.

It is clear that the issues have changed and we are entering upon domestic, economic and social adjustments different in kind and in scope from those faced by earlier generations.

If our working people are to be spared job dislocation, unemployment and consequently family disruption, this can only be averted and ameliorated through appropriate education and training; through job creating and job relocating activities by both private and public sources. And these various activities will be discussed in our conference panels and by our invited speakers.

As I see it our problem is compounded by the need to try to stay ahead of the game, so to speak. Just as a balance must be established in many facets of life, economists look to a balance in the kinds and numbers of jobs available, and the number of people trained for the jobs.

We have to create better social institutions for keeping the needs of our manpower in balance. Stop-gap measures are not enough. A long look ahead is required. Indeed, many jobs are now closed to the poor because of their unpreparedness. The expansion and improvement of our educational and manpower development and training programs are vital in human terms to helping those most needing help in boarding the *escalator of a rising economy*.

The only way we as a state can deliver required services is to insure that we have trained professionals who are capable of performing according to requirements. Here we have to have analysis and long-term forecasting because trained people, in most cases, require long preparation.

If any one approach is to be singled out as the basic answer to coping with the problems of automation and technological change, it is, I submit, *education*. The efforts in our education system, which is the key to all our purposes, should be toward what has been called a *life-cycle education*. We must strive for a system of education that permit people to return again and again for retraining and further education with a minimal loss of income whenever the need is urgent. Indeed, as one economist notes "education will have to meet an enormous challenge if it is to provide the basis for production and meaningful lives in a cybernating world with its problems and high rates of change."

From the vantage point of our aloha land and spirit it more readily can be seen that the newly created educated technological man we visualize lives in a somewhat disjointed milieu where opposite types - such as beatniks and the jet-set are juxtaposed; where divergent social phenomena like the disadvantaged and the affluent society exists side by side; where dehumanizing new social trends like alienation and anomie exist simultaneously with old-fashioned faith and love.

It can be said that truly the times are fragmented and are out of joint.

Yet, our discussion of these problems today is appropriate because Hawaii with its record of high achievements in the field of human relations has an opportunity to lead in progressive programs in the area of planning for human resources in a technological age. We, in this conference, will have an opportunity to assess the task of partly setting aright these dislocations, and in the manpower area at least, to repair some of the fragmentations.

All the things the state is doing now are important at this conference to the extent that they stimulate our thinking in developing human resources for the future. We must, however, recognize that new developments bringing new challenges lend a fresh urgency to these sessions.

We are here to review what we have been doing, and to seek fresh ideas for new horizons. We are to examine and re-examine present policy and programs, and to weigh what needs to be reoriented and what should be further expanded or otherwise made useful to the good people of this great state.

We hope, therefore, this conference will place major emphasis on creative ideas and fresh thought. In some cases it will call for changes in attitude, and the challenging of long-held views. Yet, we must plan with boldness, creativity and innovation. It can be done. It will take time and sacrifice; but the horizons of meaningful service, where human lives are concerned, is a dimension hungering for new heights - challenged only by the depth of our commitment. Our discussions may be vigorous; yet we must not let the sound and fury become confused with understanding and commitment. For at the end of the day, what we really are about is in the interest of our fellowmen.

In this we are partners for there cannot be divisions in the interest of human welfare, even as there cannot be a world of the sacred and a world of the secular. We must be partners and all Samaritans.

And so I look forward with immense interest to the deliberations of this conference. We welcome each of you. Your presence is the best evidence that you are concerned. Thank you again for your coming and participation.

KEYNOTE ADDRESS

Governor John A. Burns

When we were all in school as youngsters we were introduced to the term *natural resources*. It meant mineral wealth, forests, navigable rivers and the like. Today it has come to embrace ourselves as well--and what could be more *natural?*

The primary importance of people--their motivation and skills--upon the course of economic development has led to another term used for our meeting here today, *human resources*. The first responsibility of the governor of a state is to preserve and encourage the development of these resources.

The people of our State are industrious and intelligent--a great people. In the harmonious blending of peoples through understanding and trust, we have no peers. Proud of our participation in the American experience and of our cosmopolitan heritage, we are preparing ourselves for a vital role, in behalf of our country, in the new Pacific era.

No more serious national threat or challenge faces us now and in the future than the need to insure that the potential already realized in our people is directed into socially useful avenues, and that their vast unused potential is mined and brought forth as new and greater benefits both for the individual and for his fellow man. New philosophies, new solutions, new values, new organizations must be evolved in industry, labor, education, and developed with a minimum of human suffering and anxiety.

Specifically, we in Hawaii are faced with the challenge of planning for a state with more than 750,000 people. Five years from now, in 1970, it is estimated there will be some 850,000 in our state, and ten years later, by 1980, if present trends continue, we will have over 1,000,000 people. Because of the nature of planning, we must now, in the present, set our plans into motion if we are to discharge our responsibilities to the future.

First, let us take stock of the current well-being of our people. In recent years, the per capita personal income of our citizenry has been significantly above the United States average; our unemployment rates have been significantly lower than the U. S. average. Our challenge is to reduce it even more.

In December, 1966, we had 271,300 people employed in various kinds of work; by 1970 we expect to have almost a 20 per cent increase in this work force. Most of the increase in the past was in the service sector of our economy. This is in line with national trends; an estimated two-thirds of all employment in the U. S. today is with service industries.

We expect the service sector of our economy to increase enormously, especially with the growth of tourism. We expect contract construction to peak in 1970 and agricultural employment to decline slowly but steadily.

With this in mind, then, let us consider for a moment some of our shortcomings in the manpower field. This Administration is pledged to assure gainful employment for every citizen who is willing and able to work. While,

for all practical purposes, we have had a full employment economy for the past several years, there nevertheless has been a persistent core of less than four per cent unemployed.

What is the nature of this unemployment? Who are the unemployed? These questions must be answered before the needs can be adequately met. To provide the answers, the State Manpower Commission has been working with the State Department of Labor on an analysis of those who applied for employment between April 1, 1965, and March 31, 1966. Preliminary results of their work have brought out the following interesting facts:

--Job-seeking activity centered around the younger segments of the population. Approximately 60 per cent of the job-seekers were under 30 years of age. It also appears that the job-seekers on Oahu were younger than job-seekers on the neighbor islands.

--Approximately 45 per cent of the job-seekers were women. Considering the fact that approximately 35 per cent of the labor force is comprised of women, the figures suggest a somewhat greater unemployment among women. There were proportionately more women seeking work on Oahu.

--Approximately one-third of the job-seekers had not completed high school. It appears that more than one-fifth of the job-seekers were high school dropouts.

--Two-thirds were Hawaii-born residents. Approximately 13 per cent of the job-seekers had been residents of the State for less than a year.

This then is a picture of some of our unemployed. These unemployed, although a small minority of our work force, nevertheless represent an extremely important problem area for us. They need our help.

Another area of concern is that of jobs for which there are no trained workers. In this regard, the Manpower Commission and Department of Personnel Services report shortages in technical and professional classes in almost all of the 17 departments of State government. These shortages account for only 5.6 per cent of the total State work force but are a critical and significant component if we are to achieve greater efficiency in public service. The State Commission on Manpower and Full Employment is readying a report on these shortages for the consideration of the Legislature. The Commission's recommendations should be accorded careful consideration--and I am sure they will be.

The point, of course, is that education and training are the keys to resolving a situation where unemployment and manpower shortages both exist at the same time.

In our scientific and technological age--growing in complexity each year--government must provide quality education at all levels: general education, vocational education, higher education and continuing adult education.

In the area of manpower development we must avoid training our young people for limited skills vulnerable to technological change. We must provide full opportunity for individual achievement by all our students whether they are bound for college or not.

Shifts in work opportunities of both recent and continuing origin in our State have imposed increasing demands upon education to prepare our people, inexperienced and experienced as well, for changing careers. In this connection, the need for service workers in our rapidly expanding tourist industry has increased the necessity for having communicative and social skills taught in our school systems. In fact, if any of our promising new areas of economic opportunity are to be explored fully, trained manpower must be available.

This means careful consideration must be given to the planning and administration of manpower training programs. The recommendations and findings of the State Commission on Manpower and Full Employment regarding vocational education should prove helpful in evaluating the proposal for an independent Board of Vocational Education.

In those areas where some of our people have not had employment skills for our job market, the Department of Labor and Industrial Relations, the Department of Education, the Department of Land and Natural Resources and the Department of Social Services have participated in Federally-funded training programs. These programs have trained hundreds of our people for positions which will enable them to live more satisfying lives as self-sufficient individuals. The positions included waitresses and bank tellers, fry cooks and accounting clerks, practical nurses and carpenters.

This year, we are celebrating the anniversary of the 60th year of our University. In many ways the future of our State's economic development, and therefore the nature and quantity of future job opportunities, is intimately associated with the University. We can note with extreme satisfaction, though not with any sense of finality, the increasing strides toward greatness made by our university in recent years. In the area of professional and technical personnel preparation, the University has been attempting to help the State meet its needs. This role will be examined at the conference.

It may be of value to discuss a question raised by some in regard to this role of the university in our economic future. The point made is that there is no immediate link between the emphasis on the growth of tourism and its allied service industries and the emphasis on graduate studies at the university. One might well ask, "How many Ph.D's. can tourism absorb?" The answer lies in our total objectives over the long haul. Tourism is helping to provide the revenues--the local accumulation of capital--necessary for growth in other areas of our economy. It is far more likely that we will continue to have a *brain in-migration*," than a future *brain drain*. Our people, our climate, our beautiful natural setting coupled with expanding economic opportunities have triggered this in-migration and their effects isn't apt to abate.

Education, innovation and enterprise are the key pre-conditions for the expansion of employment and the creation of new jobs. We must continually increase the incentive for more research and development through such programs as our new State Technical Service Program, through University re-

search, private industrial research and by other means. From 1960 to 1965, funds for research and development in our State expanded by almost 6 per cent; it is projected that this will expand by almost 15 per cent for the next five years and another 15 per cent for the five years after that. Certainly, this area of economic expansion requires the best possible system of higher education we can afford.

The technological revolution which is upon us today is making unprecedented demands upon many areas of our activities. There cannot help but be a certain unevenness, and even gaps, in the response of various agencies and institutions to the problems brought about by increasing rates of technological change.

If institutional hardening of the arteries is to be forestalled, if the promise of a more abundant life through full employment is to be maintained, then the State must have a coordinated manpower policy. And the State Manpower Commission is a vehicle for such coordination. The commission has my support, and this conference my best wishes.

Mahalo.

P A N E L

Future Manpower Needs

Chairman: Mr. John J. Jaquette
Financial Vice-President
Hawaiian Telephone Company

Members: Dr. Shelley M. Mark
Director, State Department
of Planning and Economic Development

Mr. Alfred Laureta
Director, State Department of Labor
and Industrial Relations

Mr. W. H. Ferry
Vice-President, Center for the Study
of Democratic Institutions, Santa
Barbara, California

Dr. Thomas K. Hitch
Vice-President and Chief Economist
First National Bank of Hawaii

TRENDS IN MANPOWER REQUIREMENTS, 1950-1975

Shelley M. Mark

During the post-war period the rate of growth of employment and income in Hawaii has been sustained at remarkably high levels. From 1950 to 1965 employment grew from a level of 170,000 to 257,000, representing an average annual rate of growth of 2.8 per cent. Within the state the primary growth center was Honolulu where employment during this 15-year period grew at an average annual rate of 3.7 per cent at the same time unemployment declined in the state, falling below the national rate, and per capita income increased, exceeding the average for the nation.

It has only been during the 60's that the neighbor islands' economy began to participate in the overall growth of economic activity. In fact, after undergoing a period of decline, employment in the neighbor islands only achieved the level existing in 1950 during the past few years.

Underlying the change in total employment is a significant shift in the manpower requirements of individual industries reflecting the changing industrial structure of the Hawaiian economy--which is responsive to the changing composition of demand--and the growth of productivity--while it may be observed that increased productivity generally contributes to employment growth in the long-run we find that it contributes to substantial disallocations and shifting labor requirements among industries.

Among the most notable changes occurring during the post-war period has been the decline of employment in the agricultural sector of the economy. If we consider both processing and growing, the proportion of total employment opportunities in this sector fell from one-fourth in 1951 to one-tenth in 1965. This represented not a relative, but an absolute decline in employment of close of 20,000 employees.

On the other hand, over two-thirds of the increase in employment during this period was generated with the trade and service sectors where the combination of a rapid growth in output and relatively slow growth in productivity produced a dramatic rise in the demand for labor. The growing significance of this group of industries has tended to dominate the relatively simplified but changing industrial structure of the Hawaiian economy during the post-war period.

Moderate gains in employment were experienced in construction, trade, communications and utilities and other manufacturing--which together constituted the remaining one-third increase in employment opportunities. Our studies suggest that output per worker is growing at a relatively rapid rate in these sectors--especially in construction--though not so rapidly as experienced in the agricultural industries and, of course, well above the generally low growth of productivity in the trade and service sectors.

Rapid growth of demand for labor in the public sector resulted in its becoming--after trade and services--the second most significant producer of employment opportunities. Employment increased by less than half the rate observed in the trade and service industries--but well in excess of the growth in other sectors.

Thus far I have tried to provide a very brief review of broad trends in the growth of total employment and the relative growth of employment opportunities among industrial sectors. In looking forward to 1975 I will first review broad trends anticipated for the island of Oahu and then, more briefly, the neighbor islands.

For Oahu we assume that population will approach 850,000 by 1975 and that approximately 30 per cent of the population will be employed. If the growth of productivity observed for 1960 and 1965 is maintained through this period and the expected composition of demand is realized then the growth pattern of employment anticipated during the immediate future will to a large degree be an extension of the pattern we have just discussed for the post-war period. However, the combination of continued rapid growth in output and relatively slow increases in productivity will result in the trade and service sectors becoming an even more dominating influence than they were during the 1950's and early 60's. Preliminary projections suggest that they may generate as much as 80 per cent of the employment opportunities becoming available by 1975. Business, professional, and educational services will supply approximately half of these opportunities while employer demands in retail trade and the hotel industry will provide the remaining. Manpower requirements in this group of industries then will grow from their level of about 25,000 in 1965 to 34,000 in 1975.

Within the private sector the next most important source of employment growth is in utilities and communications, and wholesale trade and transportation industries. These sectors will supply approximately 13 per cent of the increase in jobs.

In the construction and manufacturing industries output per worker will continue to rise at a relatively rapid rate with the expectation that they will make only moderate contributions to increases in employment--and in the agricultural sectors, continued declines are anticipated to result from the combination of modest increases in output and relatively rapid gains in output per worker.

Outside of the private sector, public employment will continue its expansion--manpower requirements are anticipated to grow from their present level of about 49,000 to approximately 67,000 in 1975. As in the past 15-year period, the local, state, and federal governments will be a very important souce of new jobs and they will continue to retain their share of close to one-fourth of the total number of jobs.

There is not sufficient time to consider the economy of the neighbor islands except to indicate that the increase in employment opportunities generated during the 1960's is anticipated to continue at moderate rates, through 1975. Manpower requirements will expand quite heavily in those trade and service sectors oriented toward the servicing of tourists. Expansion of jobs is anticipated in the construction industry which will be accompanied by moderate growth of jobs in the transportation and wholesale industries.

In summing up, we find that the significant growth that the economy has and is expected to experience is bringing about substantial changes in the relative importance of industries and the source and nature of jobs. Thus far, it has only been possible to make relatively crude analysis of manpower requirements--we can say little about the ramifications of the changes we

have been discussing, such as the anticipated demand for skills as related to determinants of the supply of skills. Much is heard about the effect of growth on the quality of our urban environment, or *environmental resources* but we must also be very much concerned with human resources. We need to be far better informed to understand and cope with the individual and social problems generated by the growth we have been discussing. We are developing *social accounts* that will, over time, yield substantial knowledge about the internal relationships determining the growth of production and income of the Hawaiian economy--these accounts should and must be extended to include Hawaii's human resources.

FUTURE MANPOWER NEEDS - THE MANPOWER SKILL SURVEY

Alfred Laureta

I am sure you are all aware that the past four years have witnessed spectacular progress in Hawaii's economy in terms of population and employment growth, increased wages and declining unemployment. But with the strides being made in technology, automated processes and business organization, and with the changing emphasis from goods producing to service producing industries, dramatic changes have taken place in employers' manpower needs in that employers are demanding more and more workers who are better qualified through education and training.

We are observing quite clearly in the Employment Service that the process of job placement for those who lack necessary qualifications is becoming increasingly complex and difficult, while at the same time it is becoming increasingly simpler to place those workers with identifiable skills. Our department's monthly tabulation of job openings which remain unfilled for more than 30 days is dominated by highly skilled, professional, sales and service jobs--and the largest proportion of job-seekers in our active files are the unskilled.

To measure this gap between labor demand and supply--and to ascertain with greater accuracy the future needs of employers in Hawaii, the State Labor Department, with the support of the then State Manpower Advisory Committee, conducted a survey of occupational skills and resources in the State of Hawaii. Financed entirely by federal funds and called a Manpower Skill Survey, its basic objective was to provide information on the present manpower supply and manpower needs up to 1970. This study provided much needed information not available from any other source, and reports received from large and small employers indicate that a wide gap exists between employer requirements and the estimated trained manpower supply that is expected to come out of our training institutions.

In other words, the report not only reveals some interesting patterns in the employment structure of the State, but also some obvious shortages of manpower.

Seventy-eight key occupations were selected for the survey on Oahu. These consist of 18 professional, semi-professional and managerial; 17 clericle and sales; 13 service; 28 skilled and semi-skilled; and 2 general classes of agriculture. A few examples of these occupations are accountant and auditor, draftsman, hotel manager, pharmacist, teacher, fry cook, policeman, automobile mechanic, cabinetmaker, meatcutter, carpenter and TV and radio repair man.

Factors used in selection of these key occupations were an analysis of all job orders from the local offices of the Employment Service, a comparison of the 1960 census with the census of 1950, personal visits with trade associations and schools, implications for the apprenticeship program, and a study of courses offered by the technical business schools and courses conducted under the Manpower Development and Training Act.

In order to obtain the necessary demand and supply data for the survey, the research staff of the department personally interviewed 299 large employers throughout the State, including federal and State and county agencies, and mailed questionnaires to an additional 781 smaller firms. In addition, supply data was collected from 22 schools--including colleges--and training institutions above the high school level.

Each of the 78 occupations were detailed according to the number currently employed; expansion needs up to 1970 projected from the results of our study; anticipated replacement needs due to labor force withdrawals; the expected supply of trained personnel from schools, company training programs and the unemployed; and the resulting balance of possible shortages or surpluses up to 1970.

I would like to add that one of the significant conclusions brought out by the survey is that the demand for trained workers will exceed the currently projected supply for most of the occupations surveyed.

Findings of the survey bear out that the fastest growing occupational needs will continue to be in the professional and technical fields. In occupations such as engineer, librarian, teacher, draftsman and accountant, there will be need for more than 11,650 new workers by 1970.

Significant employment needs are expected to occur in 1970 for architectural and civil draftsmen, pharmacists, retail cashiers, office machine servicemen, and TV and radio repairmen. All of these occupations show an expansion need comprising at least one-fourth of their current employment.

The findings also reveal that companies report need for some 14,350 additional skilled and semi-skilled workers by 1970. The supply of trained workers available in these occupations is estimated at only 3,700, thus leaving a shortage of 10,650 workers.

In sheer number, retail sales clerks surpass all other occupations, and the estimated level of 10,300 employed in 1967 is expected to mount to 11,900 in three years.

When the survey was conducted in 1965, it was found that elementary school teachers were in short supply, but due to intensive out-of-state recruiting efforts by the Department of Education, most of these shortages were overcome. By 1970, however, indications are that 900 more teachers will be in demand than can be filled by local sources.

And more registered nurses will also be needed in view of Medicare, increased hospitalization, insurance programs and extended longevity--all bringing their pressure to bear on increased demands for nurses.

Industrially, skilled manpower requirements for 1970 will increase in practically all non-agricultural industries, with the fastest rate of growth, 31 per cent, in hotels.

Other significant findings of the Manpower Skill Survey are: Employment expansion to 1970 will permeate all industry sectors with the exception of the pineapple and sugar industries. The latter will continue to reduce its work force, but at a declining rate as compared to previous years.

Construction employment will expand with 2,750 more workers needed by 1970. This represents an 18 per cent increase over the 1966 level. Retail trade will rank first in the number of new workers needed by 1970. This represents an 18 per cent increase in employment over 1966. The restaurant and amusement industry will be one of the fastest growing--ranking second only to the hotel industry in rate of growth with 4,000 new jobs predicted.

Total government employment will grow by 3,600, which is a 7 per cent increase.

And with this pronounced and continued expansion, there will be even greater demands for trained workers in the professions--the white collar occupations--the trades--hotel and restaurant occupations and the skilled trades. And I believe that the most basic conclusion to be drawn from these projections is that the demand for trained workers will exceed the projected supply for most of the occupations surveyed.

The Manpower Skill Survey should be of value to management as an inventory of their workforce and future needs.

Its findings should also be of help in furnishing a guide for apprenticeship programs and suggesting areas where training programs will prove beneficial.

It should also serve as a guide for developing future school curriculum and in evaluating programs designed to prepare students to meet the needs of industry.

To us in the Department of Labor, it means also that the Employment Service can improve their services to employers with a better understanding of the needs of local industry in employment counseling. Sound vocational choice depends not only on the worker's attitudes but must also be based upon information about job requirements and opportunities. The Manpower Skill Survey provides this information.

We believe that a survey of this type, continuously assessing the manpower requirements of the State, is a very useful tool for the State and, therefore, it has been our desire to maintain and update it. For some time we experienced some difficulty in financing, but I am happy to report that recently we have been able to receive additional federal funds, thus making it possible to continue updating the survey.

FUTURE MANPOWER NEEDS

W. H. Ferry

Since I know little of these islands except what United Airlines and National Geographic tells me, my remarks will be those that I would put forward in Omaha or Tallahassee. My ignorance is not so profound, however, that I am unaware of some of the benefits you conferred on the nation by consenting to join it. Adoption in other states of your renowned tradition of public spirit and natural relations among races and colors would speedily relieve many of the aches and frustrations in the rest of the union.

I am going to take liberties with the topic of this forum and comment on the Needs of Manpower in the Future. It seems the human thing to do. We have the capability of meeting human needs never before open to any nation. It is time to give to the requirements of human beings higher priority than those of an impersonal economic apparatus. It is also not sentimental but practical to do so if industrial society takes its shape, as I believe it will, from present tendencies toward increased leisure, centralization and planning.

Everything that follows is based on the conviction that we are well into a convulsive change in industrial civilization that is far more rapid than we think, that radically affects every institution, and that is irreversible. The agent is technology. The collective result is affluence and power. The personal result is widespread alienation and dissatisfaction and confusion as to the proper ends of the exercise.

The first need is for all Americans to understand better and take more effective part in the developments and decisions ruling their lives. I am speaking of a renovation of politics and of the improvement of self-government. If, as I surmise, the new technology is soon to provide short-cuts to everywhere in the solar system and to most tasks here below, the temptation will not be a new, efficient form of self-government or Utopia, but cacatopia where human beings are truly numbers. I do not disparage technology. It is a welcome servant in mankind's household. But it presents a fearsome and little understood attack on old values. We already expend far more cash and affection on techniques than on people. We can already do many things that we should not do. High technology already is the outstanding characteristic of our lives. Seeing that it does not dominate man but serves him is tomorrow's chief challenge to self-government.

A related need is to bring all Americans into full citizenship. This is or should be the prime object of any assult on poverty. That 35 to 50 million Americans should live for generations in a contained depression reflects moral indifference on a scandalous scale. That these millions are effectively excluded from the public life of a country is even more a basic flaw in democratic practice that should worry everyone. It is again a matter of practical importance, for these millions are today informally organized into subcultures that are displaying less and less liking for the complacent pattern of the majority. In these subcultures arise demonstrations, disrespect for the law and order of the majority, and what we now consider delinquency and crime. A guaranteed income will be a step, though a minor one, toward bringing these fellow-citizens back into full participation in the republic. Participation is the word, not paternalism. For reasons

already given, I shall not speak here specifically of the citizenship now being denied Negroes, Mexican-Americans, Indians and others.

The next need is for men and women to feel useful and well-used. This need might be abbreviated to People First, Machines Second. The new technology is rapidly changing the nature of work and eliminating many of its traditional forms. We are advancing on a semi-workless society. If we are to take the advantage of the new technology that we should, we shall have to change drastically our attitudes toward the function of work. We shall have to make the notion of vocation or worth occupation equivalent to the notion of a job. The time is not yet, but soon. There are other modes of life than work, though we have forgotten them: play, politics, and contemplation. All represent higher uses of the human faculty than work and hence to different groups offer different ways of feeling worthy and well-used as human beings. None yet has achieved the respectability readily accorded even to productive drudgery. The transition to a leisureful society, and as a preparation for it, should be marked by the opening of numerous jobs in human service that are much needed but scantily provided: decent care of the old, the indigent, the needy young. The recommendation of the President's Commission On Automation for a half-million new jobs in these areas will do as a starter.

A central need is for an educational system designed to prepare men and women for the complicated future awaiting them. It is a future in which world government will take form; in which radical political innovation will be the mark of domestic development; in which labor will more and more be giving way to leisure; in which, I confidently believe, the earning community will be supplanted by the learning community.

Present educational arrangements are a mixture of tradition and vocational preparation. Much of the deterioration of political life can be traced to the relative attention paid in our schools to preparation for a lifetime of citizenship and self-improvement and preparation for an immediate job. This latter is an impractical object considering the nature of future occupations, public and private. Their nature is unpredictability and changeability because of the pace of change.

Whether we like it or not, we shall live in a planned society. No industrialized society can escape it. Planning, whether done by private hands or public authority, means centralization and bureaucracy. Every person, whatever his situation, has the right to a sense of his own importance and dignity. In many this sense is already perceptibly eroded by the anonymity of large organization. How to retain individuality and personality in the face of these impersonal forces becomes a heavy charge on education. We know all too well how to make war, but are not versed in the theory and practice of peace--surely another flaw in our curricula.

The attitudes and duties of an affluent minority living in a world full of deprived human beings are customarily reserved for consideration in college and university, and all too inadequately there. These basic issues of race and poverty are proper topics for all grades. The capabilities of the very young and the slow-to-learn are only now beginning to be exploited. They can learn about the new world as well as about the new math.

Better and more practical education is indispensable to the other needs enumerated earlier. Here technology promises to offer a vigorous helping

hand. The mighty computer and its siblings furnish an opportunity for educational apparatus. But here again the question is one of wise use of available technique. It would be folly to use these great instruments to do better what we are already doing wrong. It would be worse than folly to adapt education to computer technology rather than the other way around.

The final need of men and women in the future is to figure out what it is that we are trying to do. The need is to discover personal objectives and a common purpose worthy of the vast power we have developed. An even-larger Gross National Product is not very inspiring purpose. Full employment and a steady job are nice ideas, but cannot be said to be adequate personal or national purposes. Cutting taxes is not a great purpose, though the Governor of my state thinks it is. The degraded dialogue about expenditures on behalf of people now going on in California--more appropriate to Dotheboys Hall or a county poorhouse in Alabama than to one of the richest commonwealth--shows precisely the wrong way to go about discovering a worthy purpose. If, however, we work energetically toward fulfilling the fundamental needs mentioned earlier, we stand a good chance, I think, of discovering the purposes men and women seek as persons, and that they wish to serve as citizens.

FUTURE MANPOWER NEEDS

Thomas K. Hitch

I came of age at the bottom of the great depression of the 1930's. At that time, the future manpower needs of the country appeared to be so limited that it would probably be right to say that they were actually negative. This view continued until World War II, and was exemplified in the title of a book that Henry Wallace wrote in the late 1930's entitled *60 Million Jobs*. He wrote at a time when total civilian employment was less than 50 million, but he saw the day coming when we would have 60 million people in the labor force and he wondered where in the world we would ever stir up an additional 10 million or more jobs.

The big concern in those days was with cyclical unemployment. The ups and down of the business cycle (mainly downs) brought with it long periods of depression with idle capital, idle land, and idle manpower. Let us say that this major concern has now largely disappeared. The establishment of the Council of Economic Advisors in 1946, of the Joint Economic Committee, and the growing awareness of the fiscal and monetary powers of the government to prevent depressions have, in the minds of most economists, removed the threat of a major breakdown of the economy such as we had in the 1930's.

But behind this major fear of cyclical unemployment in those days there lurked also the deeply rooted fear of structural and technological unemployment--the impact of changing technology on industries and within industries on individual jobs. The buggy and wagon business was killed by the automobile and within the automobile business the skilled technician was eliminated by the mass production assembly line.

The third type of unemployment has never bothered anybody too much--frictional unemployment. There always have been and always will be people leaving old jobs and finding new ones, or entering or returning to the labor market, and in the process even in a full-employment economy, many of them suffer temporary periods of unemployment during such periods of transition.

So with cyclical and frictional unemployment of no major concern, let us concentrate on the impact of structural and technological unemployment on future manpower needs.

This subject has taken on new dimensions, and in fact an entirely new vocabulary, in recent years. People who have been graduated from college in the last decade probably are unfamiliar with the terms *structural* and *technological* unemployment: what they know about go under the names of *automation* and *cybernation*. There is a growing school of thought which says that through developments in automation and cybernation, the country will soon be faced with such an immense productive capability through machines alone that manpower needs of the economy will decrease to minuscule levels and this will necessarily result in a dramatic change in the economy in many ways. For example, with a handful of people working and producing everything we need, we must provide ways other than through work for people

to earn a living--and this leads directly to the conclusion that we must start planning for the adoption of a government guaranteed annual wage (through some means such as the negative income tax) and that we must therefore abandon the old puritanical concept that there should be some proximate relationship between work and income.

At this point, I think I should be very frank and disclose my general views on this subject, namely that people who say "get ready, cybernation coming soon" remind me very much of people who erect signs saying "get ready, Jesus coming soon." If I can say so without being irreverent, such signs have been admonishing me all my life to get ready, but I am still waiting. Similarly, the people who used to say that structural and technological unemployment would lay waste to the labor force and make it impossible for us to provide jobs for our people have kept me waiting for the last thirty-five years that I have been a student of economics. I have no intention of spending the rest of my life getting ready for the havoc that the coming cybernetics revolution is going to wreak on all of us.

Let me tell you why--starting with a couple of obvious illustrations from history.

Take agriculture. When my great grandfather was a boy, he lived on a farm. That is where practically everybody lived in those days, because then it took 90 per cent of our labor force to raise the food and the flax that were needed to feed and clothe the people of the country. The productivity of agriculture has increased so dramatically that we now do this with less than 8 per cent of the labor force. How come that this 82 per cent of the labor force that has been displaced by productivity increases in agriculture aren't unemployed? Everybody knows the answer: they are busy making airplanes, cooking food in restaurants, flying to the moon, and producing the things that every man, woman, and child (on the average) in this country spends nearly $3,000 per year to consume.

Take manufacturing. In the last fifteen years, the volume of output of all manufacturers in the United States has more than doubled, yet total manufacturing employment has remained constant at about 16 to 17 million people. If we still had 1952's productivity in manufacturing, we would need twice as many people in manufacturing to produce today's product as we have employed. Where are those 16 or 17 million people who normally should have found jobs in manufacturing as manufacturing production doubled? Are they swelling the ranks of the unemployed?

Take telephones. This is one of the most automated of all industries. I have been told that if we went back to the non-dial system of telephone operations, it would require every female in the labor force to man the switchboards of the nation.

This last example gets to the nub of the issue. If you had to call an operator and asked her to make the connection for you everytime you wanted to place a call, the cost of telephone service would be so astronomical that its usage would be only a fraction of what it is today. The economic moral is very simple. The more inexpensively we can produce things (and this primarily means using less labor), the more we can produce and sell, and the more resources are left over for producing and selling other things. Period.

This process comes to the end that the cybernetics boys worry about only when our wants have been so surfeited that we don't want anything else. My contact with the human race teaches me that this splendid state of everybody having everything he wants (goods and services) is so far off in the future that it is not worth worrying about. Is there anybody in this audience who couldn't spend twice his current annual income, or three times it, or four times it?

No, the scientist is not eliminating jobs for the American labor force. In fact, the reverse is true: new jobs are being created all the time, and they are being supported by the money that is being saved elsewhere by the horrible cybernetics revolution.

QUESTIONS AND ANSWERS

Future Manpower Needs

Chairman Jaquette:

To proceed, I would like to refer to what Dr. Mark said in his talk with regard to the Hawaiian economy, that our output was increasing rapidly, and that in some cases the productivity was not keeping up with this output, which in turn gave a leverage effect on the requirement for jobs. Isn't this a bad thing in spite of the fact that it produces more jobs? Does the reduction in productivity mean a reduced standard of living?

Dr. Mark:

Well, I think this is simply a matter of arithmetic. That is the point I was trying to get over. If your minor output is going to increase at a certain rate, and if your individual productivity in a certain sector, increases at a lesser rate, this simply means there will be more man hours, and therefore more labor required, in order to produce the output which is projected, or which is demanded. I think that is the simple point I was trying to establish.

Chairman Jaquette:

I would like to speak to Mr. Laureta on the question of the shortage of skills and the difficulty of placing unskilled people. How do you relate this to the difficulty we have including certain kinds of relatively menial jobs, such as a caddy, or a yard man, that sort of thing?

Mr. Laureta:

I think there are several considerations in that question posed to me. We do have a lot of unskilled individuals looking for work. And we do have job orders for yard men, and some other unskilled jobs, which on the surface, you and I would believe fit, or should be the job for a particular individual. However, oftimes we are confronted with situations whereby, perhaps the wage offer is not the same as that prevailing within the community, or for example in the case of our waiters and waitresses, we do have people losing their jobs, but still jobs are available but they involve shifts which would be difficult for some of these people to accept. And then, of course, the employer has his own ideas as to what type of individual he would like to have working in his yard, for example. These are some of the factors that discourage or prevent some of the people from finding suitable jobs.

Chairman Jaquette:

I have a question addressed to Dr. Hitch. Dr. Hitch, who will determine what the annual income for an individual will be, if there is to be no relationship between output and income?

I think perhaps we ought to let Dr. Hitch speak on that, and then Mr. Ferry.

Dr. Hitch:

I am probably the worst person in the world to talk on that because I believe that unless there are exceptional circumstances, there should be, as I said, an approximate relationship between one's contribution to the welfare of society, and one's return for making that contribution. I can remember the October revolution and the approach the director took on this subject, "To each according to his needs, and from each according to his ability", which was a lovely concept in a sense, but it simply didn't work, and was very soon at an end.

We are being told more and more today that the old puritan ethics which relates income to contribution is one we have to get away from, that we have to divorce ourselves from. And we are told this is going to be a very difficult thing for society to do, and I think it will be a very difficult thing for society to do. So, as I say, I probably am not the right person to answer that.

Chairman Jaquette:

I would like to have Mr. Ferry react to the question and statement.

Mr. Ferry:

First, I would say he may very well be right. You had a stunning exposition of the conventional wisdom about what is happening today. And Mr. Hitch has the support of at least 95 per cent of the economists, as well as the political scientists in this country in his contentions. I find his history impeccable. *(Laughter)* He is in the history game and so I guess I am in the prophecy game. *(Laughter-applause)* Obviously, there is a great difference between us, and I believe it is a very unfortunate difference. I have very small proof behind me in this argument. I don't claim a great deal of authority for the position I have taken. My position is that we have come through a disjuncture in history, where, when we look over our shoulders nothing that we see does us very much good in considering what to do about the future. Mr. Hitch is peering constantly over his shoulder and reminding us there are Mayor Warrens and Henry Wallaces, and as I say, he may very well be right. This is a crucial argument today. He was a little generous in saying we are hearing a lot of talk going on, on the other side. That is not so. There are some very noisy people - like myself- on the other side, but there aren't very many of us. *(Laughter)*

I am not, however, a prophet of the horror hope of cybernetics revolution, the phrase with which Mr. Hitch concluded. I regard the possibilities opened up by the new technology as absolutely fabulous for human beings I do not love and I am not in love with full employment. I am not in love with the conventional economic theories on which Mr. Hitch has come up with, as well as the rest of us. I think they have served their purpose as aids and as guides to action for a while. But I don't see anything laid up in heaven which says full employment is and must always be the first object of any industrial state. Why shouldn't we, if we can provide for a more decent and civilized life for many of our people? Why shouldn't we do so? Invoking the Protestant ethics, the puritan ethics, it is all very well. It is there and it is going to be

a hard thing to get over. But I must remind Mr. Hitch that other people of less slightly disposition - let us say as myself - have taken on thse questions of the new technology, and what will be done if, it has only one effect, only one effect among many, if the new technology will ruin the traditional connection between jobs and income. These less flighty people are on the President's Commission on automation technology and employment. There are some very eminent gentlemen indeed. These people advocated that Congress look into the possibilities of a guaranteed income. They did it for a different reason and stemming from a different analysis than the one I advocated. They say the way we are going on welfare in this country is ridiculous, inefficient and inhumane and we ought to consider giving people cash instead. Milton Freidman, the most austere - that economist most above suspicion in all the world, because he was Barry Goldwater's economic advisor - *(Laughter)*, he is the author of the idea of the negative income tax adverted to by Mr. Hitch.

These ideas are in the air. Something is stirring. Although Mr. Hitch assures us that really nothing has happened that hasn't happened many times. Something is really happening when even a President's Commission on automation, and Milton Freidman notes it. So I wish to say that I didn't mention very much about the effects in my remarks here about the effects of technology on dislocation, jobs, and so on. If I had put it in, in the first place, I would have struck it out anyway coming to this island, as it seemed somewhat inappropriate.

If I may have just one more minute here. I think I may answer one or two of these other questions. These islands are peculiar. It is not the same I discovered, as talking in Omaha or Tallahassee. *(Laughter)* The situation is very much like living in California - in migration, tremendous emotion, things going on all the time, yet nobody ever quite certain what it is we are really thinking about. Now I won't advocate what I intended to advocate when I came here. You know it seemed to me you people really, seriously, ought to think about establishing a department of anti-tourism. *(Laughter-applause)*

Now I think that actually, at least this sounds like a ridiculous or somewhat whimsical gesture, but I am not making it in that sense at all. Just as I think the State of California ought to think seriously about tearing up a lot of its freeways and barring a lot of entrants at its State border. We have to take control of our destinies in some way, at some time. This is what the new technology permits us to do. You didn't hear much about the capacities of the new computers, but they are there in the background to be used for good or ill by all of us. And that is the kernel of my argument. That machine is the main fact in the future of everyone here.

Chairman Jaquette:

I have a series of questions which I will read first as they are similar. These are addressed to Dr. Hitch. In view of your remarks concerning full employment, what do you see as a solution to the unemployment facing thousands of persons in Appalachia and among the minority groups such as the Negro population of the large urban areas of the mainland?

The next question. Does not the persistence of relatively high unemploy-

ment rates, nationally, during the past ten years, during boom or recession indicate a significant difference between a kind of employment we have today as compared to what we had in the past?

Dr. Hitch:

Well, to return to Appalachia. I think the answer to that can be summed up in one word - mobility. It takes a lot of help to give people mobility. It may be special mobility to go some place else to get the jobs done some place else - coal miners have been notoriously hard to move, unlike sugar workers and the like, when jobs dropped out from under them they went some place else. Occupational mobility which involves expenditure of money and talent and so on, training and retraining to give these people, talents that are needed instead of retraining the old and mediocre talents that are no longer needed. Educational mobility - helping people up the educational ladder to give them better opportunities, to make them better qualified - and of course behind all of this lies the very difficult thing of bringing motivation to people who have lost motivation. And I am not sure I have the answer to that one.

Oh, the difference between unemployment in the late 50's when we were running between 5 and 6 per cent of the labor force and unemployment in earlier years. Well, I can remember not too many years ago when it was thought that - in fact, I can quote a common viewpoint. It was expressed no longer than ten years ago that 5 per cent unemployment in the American labor force was sort of a critical dividing line between economic problems and political problems. You ran into political problems if you had more than 5 per cent unemployment and you ran into economic problems if you had less.

We have now shifted that to 4 per cent and I can see the day when we will shift this below 3 per cent. There may be a time when we can shift this to 2 per cent. I think that is enough said. *(Laughter)*

Chairman Jaquette:

I just gave Mr. Ferry a number of questions. Would you care to summarize them?

Mr. Ferry:

Could you be advocating the elimination of the money system, if necessary. The answer is "yes." *(Laughter)*

QUESTION:

What is wrong with living in a planned technological society? You seemed to indicate a planned society for people is bad.

Mr. Ferry:

It looks like a pretty useless thing to me. However, I think it is inevitable. I don't advocate a guaranteed income for example, just because I like silly ideas. I also regard it as inevitable if we are going to continue to distribute the economic franchise so that everybody can take

part in the economic life of the nation. I think that the technological society is going to be a sort of complex life by and large to live, for people who remember what humanity was like. I am just drawing your attention to all the literature, the respective new literature on the new society by our novelists and our poets who have written about this question. I think it is the duty of education to keep the juices flowing.

There is a question here about the sort of -- here it is in today's paper about my advocating $4,000.00 guaranteed annual income per annum. I just put that figure in because it seems to me to be better than $3,000.

The current conversation in Washington is $3,000.00. That is the figure congress will be prepared to contemplate when it gets around to contemplating this topic at all, and I would like to see the ante raised. And this is one of the ways of raising the ante.

There is a question here I will not try to answer, on medium income. Is $2,100.00 or $2,200 below medium income? It is an immensely complicated task. I don't want to go on with this question of a guaranteed income. I regard it only as a necessary incidental of the present developments that I have been talking about.

QUESTION:

Are workers in low-wage nations in Asia and Africa, or elsewhere, whose jobs are directly influenced by U.S. capital, considered a part of the American labor market, with all its political implications? The answer is "yes".

I have a long question here, in which I am asked whether I don't believe that contemplation, leisure, political activity and service, in the long run, were those in life which most contributed to the downfall of the Roman Empire? *(Laughter)* No, this is a serious question. My answer is "no". That is not the way I read Roman history. I don't see any necessity for going into my reasons for so thinking.

I have answered the last question about what do I expect to accomplish with a guaranteed annual wage. Well, I don't expect that Congress is going to pass it merely because I think it is a good idea. But I do believe it will be the basis of the new welfare economics, the new welfare state, if you will, and since this is such an important topic in the United States, maybe I can be forgiven if I take thirty more seconds. When this notion was first widely circulated in the United States three years ago, by a committee called the ADHOC Committee on the Triple Revolution, more than 600 editorials were written about it, and you can guess what these editorials said. With very few exceptions they were scornful, indignant, many suggested the triple revolutionaries ought to go back to you know where. The tone of the discussion has changed entirely. There are many serious discussions of this topic now being undertaken by these same editorials. We have some new ideas floating around that we all had better pay a lot of attention to.

Chairman Jaquette:

I would like to direct the next question to Mr. Laureta. We have heard

a great need for additional labor in the years to come, particularly in the service and construction industries. How does the state propose to meet this need, and where is this manpower coming from?

Mr. Laureta:

Well, let me answer the second question first - of where is this manpower coming from. I think most of us realize, and if I am correct, I think we have about 10,000 graduates from high schools every year which, fortunately, many of whom are also going on to a higher education. But there are those who are immediately looking for jobs. Now this source of supply may not be sufficient to meet all the requirements, but we also have in-migration. I mean people are coming to the State of Hawaii. We constantly get inquiries from various states asking about job opportunities. We try to give them an honest answer.

Now, what is the state doing about the future employments? Some of you are perhaps familiar with the manpower development and training act. Now, this is not the complete answer. We have training programs already in progress, for example, taking care of the hotel requirements on these various islands. As for the other skills, we do have an apprenticeship program. We try to encourage more employers to set up apprenticeship programs within their particular skills and trades. This is one way of trying to meet the future employments. I would like to emphasize, however, that the employers cannot depend entirely on government to produce all these future manpower requirements. I think they still have a responsibility to set up training programs within their own business organizations. So that with the combination of private enterprise and the government training programs, community colleges, technical schools, I think we will at least close the gap between manpower requirements and manpower supply.

Chairman Jaquette:

The next question is for Dr. Mark. Will the outcome of the war in Vietnam affect the projected manpower needs for 1970?

Dr. Mark:

Well, I didn't myself, project the outcome of the war in Vietnam. Asseting that it comes to a successful conclusion within the next couple of years, I would say that certainly in terms of the manpower requirements of this state, that we would hope that these certainly would be, perhaps changed, and at least enlarged. I'm saying that if the so-called economic reconstruction and rehabilitation of the entire southeast Asian area does take place, and it is a part of either a national or an international effort, that there ought to be requirements for the types of skills, to the types of attitudes and thinking that we know to exist in the islands, and the people in this state do have this so-called international mission to look forward to, and I think that the secondary educational, and at least the universities educational level ought to be orienting some of their training programs and some of their educational outlook in this direction.

Chairman Jacquette:

The related question is, Hawaii is not an industrial oriented economy. Aren't we more vulnerable to fluctuations than other geographical areas of the United States?

Dr. Mark:

I would say "no". I think all we need to do is point to some of the industrial centers such as Detroit, Pennsylvania and West Virginia with their reliance on heavy industry as such, with their reliance on more or less single products. These have been the areas that have been ravished by nation-wide depressions and recessions in the past. As we pointed out, in Hawaii, we are certainly becoming a service oriented economy. Now this means that we perform services not only for outsiders, not only for mainlanders who are visiting our shores, services are certainly meant to maintain the day-to-day living pattern of the residents who are right here. Certainly we would not expect that we would stop eating, we would stop living simply because there is a national recession. There are certain elemental needs that we have to make, and to the extent that the economy can rely on the savings and on the inherent productive power of its own residents. I think it becomes less vulnerable to an outside disruption even with respect to our reliance on tourism.

I think if you just look coldly at some of the statistics of the past you can come to the quick conclusion that the number of visitors who have come to our shores in the last 15 or 16 years, this number has doubled just about every five years or more accurately, every four and a half years - that there has been a doubling of the so-called tourist population. Over this 15-year period, there has been, of course, a number of mainland recessions and other economic dislocations. So even with our reliance on tourism, I think there has been sort of a long term upward trend in the industry and the impact of being in a recession are not likely to be as heavy as they may have been in the days past.

Chairman Jacquette:

The next question is for a request for a comment on the guaranteed annual wage and the problem of the need for meaningful activity or work. I would like to ask Mr. Ferry whose responsibility it would be for retraining displaced persons, especially older workers.

Mr. Ferry:

It would continue, I suppose to be the state's job - to answer that last part of the question first. Incidentally, it isn't a guaranteed annual wage - it is guaranteed annual income. And I believe it ought to be constitutionally guaranteed too, so that it will not be a matter of staffing. It will not be a matter of political caprice as to who qualifies and who does not qualify for such an income. I believe I got the intention of the first part of the question correctly in my mind. I do believe there is a deep question about what the effect of a guaranteed income would be on the land. I used to

disregard arguments of this kind, saying there was nothing to it, but I am now persuaded that there is at least a good possibility that a guaranteed income might demoralize society. We have such a respect for work and income, as part and parcel of one another, that to divide them up, and even though it becomes necessary to do so, will result not in the establishment of a better, more dignified society but one in which a certain class of people, those receiving the guaranteed income and having perhaps no other source of support, will regard themselves as on the dole, or part of a welfare class. This is what we must avoid at all costs. It is ridiculous to think of a nation with half of its citizens on the dole. There is nothing that anyone in the white collar area can be complacent about, and think of as happening, or affecting directly only those other people. I think the great break-through in this area is going to come when there is a sudden uptake cybernation in what we now know as middle management, and where a great many people who are now secure in the middle class are displaced, or put out of jobs and with no place to go. And with a guaranteed income, I might say, quite inadequate to the styles of life they have always been accustomed to.

Chairman Jaquette:

I have two questions for Mr. Laureta. QUESTION - It seems we have the opposite of the coin here. As we evolve in our society with our disruptions, will we have shortages of certain skills and excesses of others, or are they both affected? In view of the growing need for social workers to deal with social breakdown and disorder why did you not make any mention of the shortage that is becoming so serious in the profession of social work - that is the shortage in the skilled field?

QUESTION - Construction is being hurt by the tight money situation presently with quite a number of construction workers being unemployed. How soon do you anticipate relief in this area?

Mr. Laureta:

Well, let me take the first question first. I think if you will recall in my prepared text this morning I mentioned that we did do a survey of about 78 different occupations. Of course, there are more than 78 occupations existing in the State of Hawaii, and we didn't have an opportunity to survey all of them. I will mention, however, that the social worker occupation is one that was included in the survey. I didn't mention it because of the fact that I didn't want to go through all of the different 78 occupations that we have here in the survey, but perhaps I touched on the highlights.

According to our survey, by 1970 there will be a net requirement of about 210 social workers for the State of Hawaii, and this is based on the following information that as of 1965 we have a total employment of about 409 social workers and we expect employment for about 613 in 1970. However, the school output for social workers is only about 190 per year. So net requirements for 1970 will be about 210 more social workers.

Now with reference to the construction industry. I am sorry, I don't have my glass ball with me *(Laughter)* I think maybe Dr. Mark would be in a position to comment. I understand he is closer to the economy of the

construction industry than I am.

Dr. Mark:

I may have had a slightly tarnished glass ball earlier today, so I suppose I should try to answer this, when I said the Dow Jones average isn't likely to hit 950 by May 1967, but don't place your bets on it. I might say at the same time, we might expect an easing of the tight money situation. I think there has been some connection between the stock averages and the easing of the money market. And there have been some reduction in the rates in the money market - and I think, quite recently in Hawaii - which means that more money will become available generally.

There are, however, special circumstances which affect Hawaii. As you know, there has been a postponement of the federal highway construction project that we had anticipated for this year. These have been delayed somewhat by the President's renewed emphasis on the Vietnam effort, and I think, perhaps, the slow-down in highway camp construction can be compensated by some step up in other types of construction. I think that perhaps by the middle of the year, we could expect a speeding up process.

Chairman Jaquette:

No one has suggested a crash course for construction workers and social workers . *(Laughter)*

Mr. Laureta:

May I add one more comment to this subject of construction employment. I did mention that according to the survey there will be an expansion of about 2,750 more workers needed by 1970. Probably, perhaps, some of you may ask the question at this time - well, with the tight money situation and the large numbers of unemployed construction workers, are our figures still accurate? We have the feeling that because of the tight money situation, because of the fact that so many construction workers are unemployed today, and the fact, too, that these construction workers prefer not to remain unemployed - are looking around for jobs, perhaps not here in Hawaii, but elsewhere. So, consequently, if this situation continues for a long period of time we may have a greater shortage of construction workers, if and when, construction bounces back and reaches former levels. So that the problem in the future could be greatly increased because of this situation.

Chairman Jaquette:

Well, this ties right in with the question I have here now. Is there a discernible trend in the outward migration of our work force, and what can be done to diminish this drain of the valuable resources?

Dr. Mark:

There is some out migration to the extent of which I really don't have any figures on. But the solution to that, of course, would be providing

opportunities for people right here. If the jobs are available for our people in Hawaii, the trend toward out migration I think, would be lessened very considerably.

Chairman Jaquette:

I have a question for Mr. Ferry. What is the comparative cost of guaranteed annual income as against the cost of neglect in charities, prison and welfare, et cetera?

Mr. Ferry:

This is the basis of Milton Freidman's suggestion. He doesn't advocate a negative income tax which is just a glossier name for a guaranteed income. As I have indicated for the reasons that we triple revolutionaries advocate. He advocates that on the basis of "I can get it for you wholesale." He pops up with all the figures involved in the administration of welfare now and says, "Why not just give them some money instead and get rid of this proliferate bureaucracy? You won't have to worry about this deficit of 210 welfare workers you have just heard about. You won't have to worry about any of them. They will be out of business. You will get rid of all of the welfare programs and social security, aid to the blind, everything else. Dismiss them all and substitute a cash payment for it. Now Mr. Freidman has made some calculations as to what the savings or the differences would be. I regret to say there are no good figures at all in this field. It has only lately come to the attention of business men, for example, that there might even be something in the guaranteed annual income idea for them. They have begun to notice that putting a 3 or 4 thousand dollar floor under the national economy might have some considerable effect in their profit and loss statements.

But these calculations as to what these gains might be are by no means completed. Nobody really has gotten into the analysis of this situation. One of the reasons, of course, is that there are so many incalculables. You have to assume certain things. For example, I am assuming for purpose of propaganda the desirability of at least a $4,000.00 minimum guaranteed income.

If you take that and apply it only to a certain group in the population, you get one result. If you apply it throughout the population, you get another result. If you apply it only to wage earners and not to single people, and so on, all the combinations and ramifications, it would give a good deal of work to a computer. This has not been the business of economists up to this point. They are beginning to get busy on it now. It takes quite a long time to get a new idea into the head of economists. But it is beginning to happen now.

Chairman Jaquette:

I have a very short question here for Mr. Ferry. Who supports the Center for the Study of Democratic Institutions?

Mr. Ferry:

It was supported, originally, by the Ford Foundation. We are now a totally disowned affiliate of the Ford Foundation. *(Laughter)* We are supported largely and entirely by individual subscriptions. I am happy to say that about half a dozen subscribers, who are supporters of the Center, have identified themselves to me in the interlude out here.

Chairman Jaquette:

I believe this one is directed to Dr. Mark. Do you feel that immigrants to our country create problems in employment? Are they properly educated and trained to adjust to our community way of life socially and vocationally and politically?

Dr. Mark:

Well, I will try to answer that. First, I would like to reply to Mr. Ferry's statement on getting ideas through the heads of economists. It is quite true, but in my case, my teacher was saying that even before I became an economist. *(Laughter)* The question of finesse, however, includes more than an economic question. I think this really deals with the history of our entire country.

I think we all realize there are very few native Americans left. Also, there are very few who are natives to these islands. Both the United States and the State of Hawaii have been able to achieve their greatness because of the environment which has been conducive to new ideas, to new thoughts, to new skills and an intermixing of these new ideas and skills, so that we have been able to achieve, I think, both material benefits, and I hope some of the non-material aspirations, we should all aspire for. I don't think that any new wave of immigration, as such, will have a deleterious effect. I think, on the other hand, the new people coming to this state certainly stimulated our thinking and our activity in a new direction. I think some of the new people coming into our educational system, and certainly our University of Hawaii - I think 90 per cent of the employees of the University of Hawaii are from out of the state. I think as the Governor pointed out, we have made substantial strides towards excellence in recent years.

Mr. Laureta:

I would just like to make a comment on this same question. I think you are aware of the fact that there were several changes made to our immigration law, our immigration naturalization law, and one of the things that were put into the new immigration law was to provide for the migration to the United States of people who have certain high professional or technical skills for which there are shortages in the United States. And likewise there is also a provision which will permit the entry of an alien or an immigrant where there is an employer here in the State of Hawaii, or any state, looking for a particular individual with a particular skill, and for which there is no supply in the United States.

When it comes to these particular individuals I don't think we have any

difficulty. I think they do not really influence the problem of employment. In fact, they do help the problem of employment. However, there are instances where families come in under the immigration law, they can now bring their families who reside in foreign countries. Now as to the adequacy of these individuals, I think that is a matter of background. Some of them come to the United States highly educated, highly trained. Some of them do not. Those that do not, of course, make every effort to try to adjust to the requirements of the new country to which they came.

Chairman Jaquette:

I just spoke to our general chairman. I have enough questions to go on all afternoon - some very good questions and questions I would like the panel to have a chance to answer, but we do have a time factor. A number of these questions relate to education as it affects job opportunities. I think they might, perhaps, be addressed to that panel.

I want to thank Mr. Laureta, Dr. Mark and Mr. Ferry for their wonderful presentations here.

QUESTIONS ASKED OF THE PANELISTS

Dr. Shelley Mark:

Do you think the present land ownership situation is conducive to future opportunities?

Mr. Alfred Laureta:

Construction is being hurt by the tight money situation, presently with quite a number of construction workers being unemployed. How soon do you anticipate relief in this area?

In view of the growing need for social workers to deal with the growing incidence of social breakdown and disorder, why did you make no mention of the shortage that is becoming so serious in the profession of social work?

What are your opinions relative to the issue of vocational education in the secondary schools knowing that the number of skilled and semi-skilled labor expected to be so crucial in the next five years? How do businessmen feel about this issue?

I have seen the survey that Mr. Laureta has mentioned on the 78 occupations. Will there be a slight or drastic change in the needs for skilled technicians and tradesmen if Vietnam ended successfully. I am concerned with recruitment of students into our trade and technical areas in the community colleges. Can we cite these figures as to the needs of Hawaii without giving wrong information if this war ended soon? For instance, auto mechanics, welding, machinists, sheet metal.

What is the comparative cost of guaranteed annual income as against the cost of neglect, charity, prison, welfare, etc.?

How can Hawaii continue to justify the one-to-three-year residency requirements for many professional, sub-professional and general labor jobs? Doesn't this adversely affect recruitment or in migration of people essential to Hawaii's future growth with as high level of excellency!

With the projected job opportunities weighted heavily to service and hotel, etc. does this not put our island economy especially vulnerable in the event of a down turn in the national economy?

Is there a discernable trend in the out migration of our work force? What can be done to diminish this drain of valuable resource?

Do you feel that immigrants to our country create problems in employment? Are they properly educated and trained to adjust to our community way of life--socially, vocationally and politically?

Hawaii is not an industrial oriented economy. Aren't we more vulnerable to fluctuations than other geographical areas of the U. S.?

Will the outcome of the war in Vietnam affect the projected manpower needs for 1970?

Dr. Shelley Mark and Mr. Alfred Laureta:

We have thus far talked about the manpower supply and manpower requirements of the State of Hawaii. What do you think about the development of human resources of Hawaii's people to also serve other areas of the world since an unhealthy world situation adversely affects the economic and political well being of a nation or state. Then, too, this opens up opportunities for Hawaii's youth to pursue careers other than what is offered here.

We have heard of the great need for additional labor in the years to come, particularly in the service and construction industries. How does this State propose to meet this need and where is this manpower coming from?

Mr. W. H. Ferry:

Who supports the Center for the Study of Democratic Institutions?

You were quoted in an article appearing in yesterday's Star-Bulletin: In it you recommended a guaranteed minimum income of $4,000 per annum. What is the relation of this amount to the median income? What effect can we expect your premise to have on individual initiative?

Are workers in low-wage nations in Asia, Africa and Latin America whose jobs are directly influenced by U. S. capital to be considered part of the American labor market with all its political implications?

Please examine further, the effect of disemployment (re guaranteed annual income) on family structure and social responsibility as people are raised in a class-world where some acquire no skills, no self-respect, no force to bind man to society through a useful productive role.

Just what do you expect to accomplish with a guaranteed annual wage you mentioned in your presentation?

You described man's purpose as contemplation, leisure, and political service. As I recall the history of the Roman Empire, this was the stage which the Romans had reached when the Empire decayed and fell under its own rot. How are we different from the Romans: If we are not different, will we not then also decay and rot in our states of contemplation as pursuers of leisure and political service?

What is wrong with living in a planned technological society? You seemed to indicate a planned society is evil or bad.

Alone with your no-work theory--could you be advocating the elimination of a money system? Goods and service in exchange for goods and service?

I like the bold colors of your jacket but not your bold ideas and will leave the work-load to a few in society.

Dr. Thomas Hitch:

Who will determine what the annual income for individuals will be if there is to be no relationship between output and income?

If technological advancement merely creates different jobs, not necessarily fewer jobs, what are the arguments for guaranteed annual wage or de-emphasis of the Puritan work Ethic?

In view of your remarks concerning full employment--what do you see as the solution to the unemployment facing thousands of persons in Appalachia and among the minority groups such as the Negro populations of the large urban areas of the mainland?

It has been pointed out for years that the poor uneducated Negro has been hit hardest by technological change. Is this a significant element in the stoking of the civil rights unrest?

Does not the persistence of relatively high unemployment rates (nationally) during past 10 years -- during boom and recession -- indicate a significant difference between the kind of unemployment we have today as compared with what we had in past?

Mr. W. H. Ferry and Dr. Thomas Hitch:

Seeing how we have more or less successfully stumbled along on a kind of laissez-faire basis throughout our history, do you think we can continue to go along without a substantial measure of planning and direction in the years ahead?

LUNCHEON ADDRESS

On the Role of a University in the Development of Human Resources

Thomas H. Hamilton
President
University of Hawaii

One of the processes in which I engage from time to time, partly to make certain that my enthusiasm does not get ahead of common sense, is to analyze a proposition from a somewhat different point of view than is usually taken. This frequently produces some very startling results. Some years ago I tried to analyze the acceleration in the growth of knowledge as it related to a university. And I soon came to one conclusion which is patently clear but which greatly startled my presidential colleagues when I gave voice to it. This is that inevitably any university at any particular time, and with the best of intentions, is teaching some error. It is, in fact, teaching as true what next year's discovery will prove is false. There is little that can be done about this, but at least the observation took the stuffing out of the shirts of some of my fellow university presidents and enhanced my humility a good deal.

In a similar vein, one could come to the conclusion that a well-intentioned conference such as this could be instrumental in creating more evils than it corrects. The possibility is present because too frequently we think of human resources as mere instruments or means to produce a better something for someone else. The emphasis tends to fall on the word *resources*, and we forget about the all-important modifier.

All of us are both producers and consumers of any good in existence, and I do not use these terms exclusively in the economic sense. The notion that there is consistently an identifiable group that produces and an equally identifiable group which consumes simply will not hold up under analysis. Such being the case, we need to think more than usual about ends--for, in the last analysis, a society has to ask itself how much work, how much savings, how much sacrifice it ought to require of its citizens in the name of production. And the judgment inevitably must be made in terms of the quality and distribution of the consumption value.

It seems to me that in talking about human resources, it is possible that we are beginning to place too much emphasis on economic outcomes. I would not be misinterpreted on this point. I have a healthy respect for what money can accomplish. But we need to put this in somewhat better perspective.

No one, if he really looks at the facts, should be more aware of this than my generation. Some of you, I suspect, were young men during the Depression, as was I. We knew what it was like to go without things. to be hungry on occasion, to lose our slim savings, and to find it well-nigh impossible to get a job. My generation was almost grim in dedicating itself to the proposition that this would not happen again, and we set about to build as many safeguards as possible to prevent future depressions and to insure continued prosperity. On this particular head we were a very successful generation, and in that success we can take some pride.

But we forgot to ask ourselves what happened after we arrived at a position where it was at least theoretically possible, even if it is not yet an actual fact, to provide everyone with a decent living--and even some of the comforts of life. This far we did not take our thinking. In short, we concerned ourselves very much with the problem of earning a living, but not with living the life we earned.

It seems to me that this is really what the young people of our nation are asking us today. I have the good fortune to have the opportunity

to talk with a great many young men and young women, and I have a 23-year-old son who, as a critic, can at times be almost brutal. What these young people are saying, in somewhat simplified form, is, "Okay, Dad, so you had it tough when you were young. So you were bright enough and worked hard enough to develop the affluent society and minimize the possibilities of depressions. But is the world a better place in which to live, and are our citizens any happier?"

One can say, of course, as my generation is inclined to say, that the young can be preoccupied with such questions because they were never hungry and never cold. But beyond this, the question is a valid one. We do need to give more attention to the total state of man's being rather than simply to his economic well-being. And it is my thesis that this is ultimately the task and that if the university, of all our social organisms, does not attend to this aspect it will in fact go unattended.

The University does need, of course, to provide excellent education for the various occupations, professions, and vocations it presumes to prepare its students for. But it does not in this area need to worry very much about motivation. Given a society such as ours, for better or for worse, students will work dilligently in those areas which they feel have relevance for their future life as a producer. And I would point out to you that I doubt very much that this has changed a great deal over the years. I recall Henry Adams many years ago pondering this question and posing it to a student. He received an unabashed answer when the student said, "Sir, the degree of Harvard College means more money to me in Chicago." So I suppose, it does. And if we can not be completely happy with the young man's motive, at least we can praise his candor.

The reason for being somewhat unhappy with the reply is that it indicates that the student was thinking of only one fragment of the sum total of man's humanity. And this leaves out the whole area of human experience and concentrates its attention upon the important but truncated and narrow view of man as a producer. It concerns itself with earning a living, but not with living the life we earn.

I would ask you for a moment to think of how our population divides each day. Clearly one-third of the time, except for night owls, is devoted to sleep. This is the biology of life, and we can not very well avoid giving it eight hours each day--at least not for very long. A second eight hours, give or take a coffee-break, is likewise devoted to work, and I mean work of the kind which compensates extrinsically, which provides food and clothing and the other necessities without which existence is impossible. This leaves a final third which is essentially uncommitted. During this time we are free to exercise our bodies and our minds as we choose, to read and to write, to converse with friends, to exercise our responsibilities as citizens and parents, and to sharpen our aesthetic and moral sensibilities. These are activities which are desirable intrinsically, activities which have a meaning and an end in themselves. They provide us, not with bread or rest, but with pleasure and enjoyment. They are distinctly human activities, and their exercise can and should result in two sorts of human excellence: those private excellences by which a man perfects his own nature, and those public excellences which can be translated into the performance of his political duty, the excellence of man in relation to society.

I think that, when we grasp these distinctions, we can begin at least to give some order to our existence, and especially some order to that experience

about which we are talking--a university education. I think it can be said that the purpose of education is to help students to live their own lives, and this must include, not only earning the life, but living it once it has been earned. Students need not be ashamed of the vocational motive which lurks in the back of their minds. To prepare oneself to play meaningful and productive lives in the economy of our society is a legitimate and essential end, and it is firmly bedded in the university tradition. To document this point, I need only recall for you that our oldest and most respected institutions had, as their initial mandate, the preparation of young men to enter the ministry and the learned professions. As Brubacher and Rudy put it, "The desire for a literate, college-trained clergy was probably the most important single factor explaining the founding of the colonial colleges." I would merely add that, if it were desirable to devote the resources of a college to professional preparation in the seventeenth century, it is even more important today. Since that time, we have experienced an industrial and scientific revolution which, in fact, is still in process; and we have seen the spread of democratic ideals over much of the Western World. In the America of today, there are few of us who can qualify as members of a leisure class, very few indeed who can avoid the compulsion to work. Subsistence, by and large, is earned in this country, and the nature of our economy demands that much of this work be performed on a highly complex level of abstraction. We owe it both to ourselves and to society to develop those skills which will allow us to do something of value, and to do it well. I see no reason why anyone should apologize for what is an inevitable and vital aspiration.

But what I mean to bring your attention to is simply this: to concentrate entirely upon the vocational is to misuse the experience of college and to misuse the gift of life. Universities are sustained by society, not to supply drones for a hive, but in recognition of a cardinal truth about human beings. When all is said and done, man's mind is his greatest gift, and by its nature it hungers to know. When man seeks knowledge, when he strives to make of experience and theory a harmonious whole, he is fulfilling his true nature. Life, then, is not only doing, but knowing as well. A university is nothing more and nothing less than a community of scholars, a community of men and women, young and old, living together and bound by a common commitment to find things out. Each member of this community, in his own way and subject to the limitations of his own discipline, is seeking, learning, inquiring, using intellect, senses, and intuition in the pursuit of knowledge. This is the kind of community a university should be.

But it is quite proper to ask, knowledge of what? And, instead of replying directly, I would call upon two men who thought wisely and well, to supply the answer. Socrates gave us the cryptic and deceptively complex command: Know thyself. Years later, what Socrates implied was made more explicit by the German philosopher Immanuel Kant when he said, "Be sure to study the great diversity of human nature." Wise counsel I can not share. Man should be our study, man in relation to the world and to his Creator. And do not be deceived by the apparent simplicity of this mandate. The eminent Scottish critic and philosopher, W. Macneile Dixon, gives us some idea of what this involves.

> *The most troublesome thing in the world is the individual man. If anything is in evidence, he is in evidence, and the varieties of this creature are without end. Many are the races and*

many the temperaments. Who will enumerate them? There are vehement and hot-headed men, selfless and conciliatory men. There are sybarites and ascetics, dreamers and bustling active men of affairs, clever and stupid, worldly and religious, mockers and mystics, pugnacious, loyal, cunning, treacherous, cheerful and melancholy men. There are eagles among them, tigers, doves, and serpents...The mighty Hegel, who twirled the universe round his finger, found history much more difficult to handle, for it consists of the doings of innumerable, unique, obstinate individuals.

And Mr. Dixon might have added *wonderful* to his string of adjectives. University students should study, then, to build bridges, or to extract tonsils, or to hire salesmen. Society needs bridges and salesmen, and has little use for tonsils. But it should never be forgotten that before, and after, and during the time one is an engineer or a doctor, he is also a human being, and is thus fated to find things out about himself and the world in which he lives. It is this realization which alone can bring him the happiness and fulfillment he deserves.

And it is in the fulfillment of the individual that a democratic society rests its hopes for success. If it is to succeed, if it is to become a good and wise society, it must inevitably depend upon the goodness and wisdom of the individuals who are its members. In this sense, a democratic society is perfectly consonant with the inherent demands of human nature. Each requires the seeking after knowledge; each depends upon wisdom for its continuance and prosperity.

In conclusion, I would remind you that a university can not mysteriously confer wisdom. The best it can do is to lay the foundation for alifetime of learning, to inculcate the habits of mind, the breadth of interest, and the expansion of spirit which, when continued and enriched, can result in a life truly worth living.

P A N E L

Education for a Growing Hawaii

Chairman: Dr. Teruo K. Ihara
Director of Foreign Contracts
College of Education, University
of Hawaii

Members: Dr. Richard E. Ando
Chairman, Board of Education
State of Hawaii

Dr. Marvin F. Poyzer
College of Education, University
of Hawaii

Mr. Carl J. Schiffers
Administrative Vice-President
Hawaiian Electric Company

Mr. Jack C. Reynolds
Secretary-Treasurer, AFL-CIO
Building and Construction Trades
Council of Hawaii

Education for a Growing Hawaii

Richard E. Ando

The language of purpose of Act 270 very clearly subsumes: First, the dramatic changes apparent in economic employment and manpower requirements in Hawaii now; and, second, the even more dramatic and accelerated changes still to come. In my own profession, medical science and technology has made not only the many skills and practices of the 1950's obsolete, but also tends to make what I read today, as medical research data, near obsolete for the time consumed in the publication of that paper. The words in the Act, *cybernated systems* are very new to me, but cybernetics in medicine is already a reality. I should be able, very soon, to go to a computer system - Clinical Decision Support System - which would tell me the complex consequences and effects that a decision to prescribe one specific drug might have upon a patient with given and known conditions of health. The changes to my profession are surely sample of changes in any enterprise in Hawaii. It should be noted that the coming medical cybernated systems will make me dependent upon technicians who never existed before, and who, I would be safe to assume, are not yet available in Hawaii. In this gap or lag between a technological advance, and the lack of trained people to man just even the hardware of change, lies the problem for public education: *Education for a Growing Hawaii*.

I believe that the position of direction for public elementary and secondary school education adopted by the State Board of Education are geared to meet the kinds of challenges in Act 270. Only two pertinent Board positions shall be discussed today.

First, the Board sees the purpose of education to be the intellectual development of children and youth, such that their hearing, speaking, reading, writing and thinking abilities are ever developed to make knowledge. Each time that this purpose is stated, two questions are sure to rise:

(a) What do you mean, make knowledge?
(b) What do you mean, intellectual development; school only for the college-bound?

I shall not attempt to give any erudite theory of learning that a psychologist might to question (a). I simply say that each individual student must accept, reject or ignore what the teacher proffers as knowledge; in other words, the student alone makes his own knowledge just as he alone must assimilate the food he ingests. It would indeed be a sorrowful world if a student can only acquire knowledge in a formal classroom. Is it not our hope that outside the classroom, and when formal schooling is completely over, a student would exercise his abilities to continue to learn; learn about change, learn a new job on his own?

Question (b) also must, for me, be a simple, unsophisticated answer. The word *intellectual* seems always to evoke the image of the academic egg-head for listeners. Yes, we hope that our schools will provide for the present needs of eventual egg-heads. But my concept of intellectual powers or capabilities includes the egg-head notion and ranges even further. It seems to me that the eventual carpenter or the eventual doctor should now be taught the

arts of communication and thinking that one need not be forever dependent upon demonstrations with actual materials to build cabinets, and the other need not guess at sizes of medicinal dosages. It is not the egg-head alone who can manipulate symbols and associated images, to visualize and accomplish a project, before the actual performance of the project. Our buildings get built and our patients get well because of the intellectual powers of job performers; present needs are comprehended, and problems from change are apprehended by the intellect in all spheres of our society.

There is a way of saying that I believe that the first twelve years of schooling should be one of general education. It is our hope that general or liberal education in the early years, frees, liberates, our young people from their natural concerns of self, the limits of home and local community to the concerns of the entire universe. If this sounds high-flown, I would say that while we assemble here to anticipate jobs and manpower, we should not forget that a man in any one of these jobs can become a troublesome liability and a mere robot if he does not see his performance as affecting and affected by economic, political, sociological, historical plans and influences.

Now, what about vocational education? The Board of Education is not in any position to call for the elimination of courses presently labeled *vocational* if for no other reason than to say that even our professional educators are not completely ready to say what might replace such courses. It is, however, necessary for the Board to critically examine the activities that transpire in such courses. Time for schooling is relatively short for the bulk of our population and therefore precious, and still therefore, what now exists must be evaluated before more courses are added or proliferated. I ask, what value in learning, and the adequacy of that learning, for a changing world, is the slopping of pigs, feeding of chickens for one period of school, daily. Are there any changing and exciting learning challenges each day to a student who spends the time after lunch, daily, selling pins in a five and dime store? If it is true that typing for personal use can be taught in eight weeks, why is it necessary to prolong the course to a full year? Chemistry or History is equated with typing as far as graduation credits are concerned, and some of our youngsters take typing for three years.

It is our position that these activities become recast under a test with the purpose of education, of growth in intellect. The routine slopping of pigs should, I think, become demonstrations of good husbandry practices where one pig is fed tested growth materials, the other any available materials; the learning should be a generalized one of the necessity of test and improved technology to production. The typing and practice of clerking might be given less time consumption in a perspective of priority against other courses.

There is always pressure on the school system, both externally and internally, to mount specific job training. Resistance to requests such as hotel maid training, or bus boys, because of the tourist impact, come from several sample concerns. There are thousands of kinds of jobs listed by our own State Employment Services. Which ones should be mounted and what would those that are instituted displace in a school's offering? What of such impersonal facts that say that our average age of first employment is now 21 years, that employers are reluctant to hire anyone under 25 to take a simple job as driver-deliveryman because liability insurance rates are higher for such employees, or that unions and employers say that schools should teach a boy to read and write and speak, for training to a specific job is more easily done by them? And, for this conference,

is not one of the major problems the inability of present employees who have learned one skill to adjust to new job demands, and to even greater job changes which are still to come?

The Board recognizes that within any general population of students there are those for whom the abstract and academic classroom undertakings are difficult. I would propose that the courses now labeled *vocational* be programmed to foster understanding of the world or work, and at the same time be the agencies for supplement and reinforcement of learning of the more abstruse Social Sciences, Sciences, Maths and Humanities that all students are required to take. Note that Agriculture, Business, Homemaking, Industrial Shop, are studies of technologies; technologies by definition are the application of objective (or scientific) discoveries to practical problems and uses. Note, too, that the development of technologies in turn create problems for the scientist, mathematician, the sociologist, to study and research. In this milieu, I believe resides the task of our schools.

As example, and very quickly, in Woodwork class, it is hoped that our youths' time is not spent entirely in use of tools making first a footstool, next a sit-on stool, then a step-on stool in rigid progression. This shop requires measurement and calculation, planning and discussion; there is the historic evolution of construction; there is the economic impact of related industries; there are songs and poetry about labor and the craftsman. Each so-called *vocational course* can become an informative, disciplining, perspective-giving, enriching experience.

Such is a very quick and rough expression of direction. The educated rather than the specifically trained for one job, I feel, will be more able to withstand the challenges of change already evident in Hawaii.

In concluding, I ask "What is man?" Farmer, mason, carpenter, electrician, teacher, lawyer, a manpower resource, or is he a person? The person in man is what the doctrine of equality refers to, is the medium of knowledge and understanding, is the source of language, is the explanation of love and happiness, and is our concern.

Therefore, to permit education to be aimed at casting and shaping man for ends other than his own fulfillment or a being with consciousness and intelligence is a denial of the commitment to person.

In education for a growing Hawaii, our schools will be committed to the development of man's most precious attribute - his ability to make knowledge.

Education for a Growing Hawaii

Marvin F. Poyzer

I believe the time has come when someone must speak up sharply and clearly for a reappraisement and mobilization of the State's resources, both human and otherwise, for the advancement of education for a changing world of work.

I, therefore, bring to you the views of a professional vocational educator. My glasses have a correction in them. I hope this enables me to see both in the distance and close up -- the future and the present; it also may give me quite a bias.

The professional vocational educator knows from studies and research that the economic level and the general welfare of the people of the State are directly tied to the levels of competence of its productive workers and to the educational opportunities available to them. He knows that in reverse when its citizens, young and old, do not have the occupational skills to compete in the market place that the economic level is lowered, that delinquency, crime, and other sordid conditions are fostered. It is no mistake that the one city that has the most comprehensive technical-vocational-occupational education program has the lowest *drop out* rate of the nation: Milwaukee - 94 per cent retention.

He knows that the one most important stabilizing factor in a man's life is his job, a job or position that is productive and not dead-end through lack of training.

He knows that progressive communities and states are now spending a much larger share of their money on occupational education of all kinds and on all levels.

He knows that to develop competent *manpower* takes the combined efforts of many people; that it takes time, money, organization, and support to develop the teachers, programs, materials of instruction and facilities necessary -- and the longest and most important of these is the development of competent planning, teaching, and administrative staff.

He therefore views with pleasure:

-- the concern of the Governor in this broad field and the establishment of this Commission.

-- the concern of industry, business, and organized labor -- shown by the establishment of pertinent committees and programs.

-- the growing concern of the people that their children receive adequate occupational education of high quality.

-- the development of the Community College System with its three-level program of vocational, technical, and other college transfer courses.

-- the recognition by the Federal Government of the *critical* need for

vocational-occupational education as shown by the massive financial assistance made available to states under recent legislation -- one facet of which is a grant for a Research Coordinating Unit now located in the Community College Systems.

The professional vocational educator views with concern:

-- the almost total lack of support or involvement by the University in the preparation of occupational education teachers' programs and administrators. A small industrial arts program is in shambles, as is the business education teacher preparation program. There are no trades and industries, technical or agricultural arts teachers programs. One one half-time position is supported by State funds and one position supported by federal funds. A 1965 Agreement with the University College of Education and the State Board of Vocational Education designates the College as the agency for developing teacher education programs -- pre-service, in-service and graduate programs -- in the broad fields of occupational-vocational education. It has not been implemented.

He views with concern the trend of not supporting -- or even removing -- vocational education from the high schools, with the result that expensive rehabilitation programs such as Job Corps, Hoomana, VISTA, etc. have had to be instituted -- and industry, business and labor cry for more competent workers.

He views with concern the insufficient vocational or occupational guidance for students at all levels by all agencies -- the schools, industry, business and labor.

I therefore respectfully suggest, as a professional vocational educator, that all agencies involved take a good, long, hard look at the educational opportunities for the approximately 80 per cent who never finish college and must and want to take a respectable place in this changing technological society -- that education be made truly comprehensive.

I suggest that competent vocational occupational education can be the central energizer for large groups of students -- as Binyon puts it:

Give me to fashion a thing
Give me to shape and to mold
I have found out the song I can sing
I am happy, delivered and bold.

I suggest that a little bit of the world of work is due the student for his own education, so that he won't be as a poet said:

Alone and afraid
In a world he never made.

I suggest a massive re-assessment of *total* manpower needs now and for the predictable future and then support, with our pocketbooks and our talent and our hearts, development of competent educational opportunities so that Hawaii can become truly the Skilled Manpower Pool of the Pacific.

Education for a Growing Hawaii

Carl J. Schiffers

This morning's panel discussed *Future Manpower Needs*. They told us what is going to face the community in the way of skilled job requirements and also the variety of skills we will need.

I would like to talk to you about what has to be done about training the people we will need for these job openings.

WHO IS RESPONSIBLE?

THE SCHOOLS?

BUSINESS AND INDUSTRY?

WHO????

In considering the question of requirements of business and industry from the education system in supplying people for industry, the first thing that occurs to me is to try to determine where the real need lies.

First, it is interesting to note that more than four million youths reach age nineteen each year, the age where they must make a decision on whether to go to work or whether to seek further preparation for a career. Of these people, less than one-half will enter college and of those who do, only two out of ten will complete a four-year college program. Another way of looking at this is to say that eighty per cent of our youths who enter the labor market need a saleable skill.

A great deal has been accomplished in recent years regarding the development of labor-saving devices. At the same time, however, these devices have created new fields and opportunities for well-trained, skilled workers.

Fear has grown in some ranks because of the advent of automation. Again, a close look at the situation reveals the fact that, instead of being a threat to employment opportunities, the increased productivity that automation has made possible has brought an increase in personal income which, in turn, has created new markets for new products and services.

These new products and services require improved techniques in production and new methods of providing services. Admittedly, machines do the work, but you need skilled men to operate the machines.

Let us also not lose sight of the fact that many of the skills required in today's market are not confined to the operation of machines alone. For example, in Hawaii the manpower skill survey for Oahu reveals that between now and 1970 the largest demands will be for elementary school teachers, general office clerks, clerk-typists, retail cashiers, retail sales clerks, secretaries, stock clerks, informal waiters and waitresses, carpenters, sewing machine operators and truck drivers.

The most critical areas for training of additional labor seem to be focused on occupations in the medical, education, hotel and restaurant fields, as well as other skilled labor.

The point I am trying to emphasize is that economic growth and stability are dependent upon skilled manpower and this has become a fact of life.

I would now like to come back to my point that industry needs youths with a saleable skill.

Vocational education is designed to provide these skills which might very well mean the difference between having a productive member of society or having an unemployable worker. Unskilled jobs are declining at an alarming rate, so the need is certainly not there. This, therefore becomes a two-way street. Vocational training helps the individual -- it also meets a need of industry.

Vocational education in Hawaii has many facets ranging from the development of new skills and improvement of present skills for job upgrading -- to rehabilitation of skilled or semi-skilled workers who, because of accident or illness, cannot return to their former occupations. In all facets, it is basically manpower development.

Hawaii has been endowed with a wealth of natural beauty and an excellent climate, but its greatest asset lies in its people. A well-trained work force that can produce and market useable goods and services is the key to future progress.

It is important that vocational training courses be made available to citizens of the state at locations reasonably accessible to them. In this connection, community colleges can play an outstanding role. Beyond this, however, we feel that secondary schools should be involved in these programs to a greater extent than they are at present. Solid courses in secondary schools would enable many students, many of whom have no desire to continue education beyond that level, to move into lucrative employment upon completion of their high school studies.

Due to the fact that in Hawaii, for years to come, the demand for trained workers will exceed the currently projected supply, it is necessary to utilize existing institutions to the fullest and then fill in the gaps. We feel that education should move towards the following immediate treatments to the problem:

1. Extend utilization of the community colleges and make them available on a year-round basis.

2. Expand the cooperative distributive education course.

3. Give emphasis to vocational education at all age levels.

I would like to say in conclusion that this represents not only my own opinion but also that of the vocational education and manpower committee of the Chamber of Commerce of Hawaii, of which I am Chairman.

Additionally, these thoughts were embodied in a policy statement issued by the Legislative Conference of the Chamber of Commerce on August 4, 1966,

which was attended by over 700 chamber members. These thoughts have also been embodied in letters to the Board of Education and to the Board of Regents of the University of Hawaii.

This, therefore, is our reply to the question posed. It will put us in a positive position on what is admittedly a controversial issue, and might confront many with policy and legislative problems; however, the end result is too important not to push these programs forward with vigor.

Education for a Growing Hawaii

Jack C. Reynolds

Mr. Chairman, committee members, delegates, and guests. I am too scared to stand up so I am going to talk right from here.

I was asked to make a short statement concerning apprenticeship training. It seemed like a simple assignment, because I thought that every one here knew that apprenticeship training was not an American product. It is a product of the old world and it dates back to biblical times. Long before Columbus sailed for America, apprenticeship training was an effective institution and seemed, like I said *Simple Simon*.

A little bit more investigation into the matter has changed the entire aspect of it and I find myself up to here, today, in the position of the devil's advocate in that I have about completely changed my mind. As an example, in the 1930's we trained no apprentices. We didn't even have work for joiners. In the late 40's we found ourselves in war and we were unable at that time to establish a full training program. We started into a crash program, and we produced what in those days was called a *60 and 90-day wonders*. We didn't produce mechanics, but with Yankee ingenuity and muscle we were able to build the bridge of ships from the mainland to the old world.

After the war was over, we settled down and tooled up our apprenticeship training programs. During the next 20 years we developed apprenticeship training primarily as it is today. We were able, during that 20-year period of time, to fulfill our commitments and pretty well fulfill our quotas. We find ourselves, today, in those apprenticable industries becoming more and more selective and, I believe, within a short period of time in danger of becoming restrictive. There is the possibility that before too long we may be back in the old world position of training only sons of joiners or mechanics. This simply means that the apprenticeship training program - as I say I am the devil's advocate - is going to have to move into new programs and toward new horizons because of the changing job situation today. For as far as we can see in the future, both from the vantage point of labor unions and of the state, it is clear that the need for the blue-collar worker is slowly declining. The white-collar worker will be coming up. There will be a sharp increase there. That projection, as I say, will take us, as far as we can see into the future - which is probably at least 20 years. This means that the methods that we have used in the past in apprenticeship training, although they will be continued, will not be able to do the total job insofar as giving vocational education and training to the people that used to be considered under this type of training program.

As a consequence of the miracles of medical science and because of the new technologies in the blue-collar trades, we find that the resulting worker's lengthened life span is now dividing into three phases. Phase one is childhood to adult and there is in that, roughly, 20 years of learning. In phase two in today's market the worker has 25 years as an active producer. And in phase three he has 20 years of involuntary retirement. It is a current fact that the worker cannot earn enough in the phase of 25 productive years to support him for the next phase of 20 years of retirement. These are years that are commonly known as *Too old to work, too young to*

die, and 15 years away from pension and social security, and six months unemployment coming to you.

Let's take a look at that unemployment parable because this is something that is going to become increasingly discouraging to every one in the country as time goes on. We find that now, the big proportion of workers are the young and middle-aged. Let's take a look at the middle-aged group and here I would like to cite some examples. Because I represent the roofers' union I did not go beyond that union in the short time that I had in preparation and the statistics there were readily available.

The roofers' union in 1963 had 200 people. In 1966 we had 225. The significant factor in this is that in 1963 the average age of a roofer was 35.8 years. In 1966, the average age of the roofer was 33.9 years. So the union was three years older but the members were three years younger. If this development continues, the medical science continues to achieve the gains in longevity it has in the last few years, the employment barrel is going to become increasingly full of young and middle-aged people and the park benches will be increasingly full of retirees. Now we have considered two of those three problems. We are beginning to take care of the younger generation. We have taken care of the 25 years of productivity. The third phase still remains to be solved.

This morning, Dr. Hitch, if I understood him correctly, talked about the more people we had the more our needs are - therefore more and more jobs are created. This becomes something like old fashioned perpetual motion. And perpetual motion is probably workable to a degree, but when one experiences the population density that the world is rapidly reaching - take China as an example - perpetual motion falls down. And then we will have a similar poverty problem the Chinese have, but the American people, because of the history of this country are not now trained or built to accept the hardships sampled over there and we indeed would have a revolution unless this poverty problem were solved.

And distasteful as it may be to some this is something that I think that we are all going to continue to have to take a hard look at - the Federal government, the state, and the American public. We may even have to look at the guaranteed wage, the shorter work week, or at any third alternative.

With the programs we have here today, and with the best brains in the country working on them, trying to solve them, it still remains a fact that in spite of the better education programs that we have and the more needs that we have generated - because of the shrinking blue-collar field and of the resulting tighter job restrictions, particularly in some of the skilled trades, and because of the increasing necessity of upgrading, educating and training people for the white-collar field, the barrel of hard core unemployment is going to fill and the levels are remaining dangerously high now.

I don't know what would happen to jobs in this country if a miracle occurred and 30 days from now peace was declared in Vietnam. If we brought 500,000 young people back and dumped them on the market assuming that we have, at least 3,000,000 in this country servicing those half a million, that is a lot of jobs as far as the economy is concerned. For everyone knows it takes 5 or 6 behind the lines, or whatever the number might be, to keep one soldier supplied in the field. I know that we all hope that peace will come. But if peace should break out what answers do we have, how well would our economy be prepared if that miracle happened?

These are some of the problems that have to be solved and are going to have to be solved quickly. Everyone here at these sessions and the educators of the whole country have tried to do something to solve them. Still, a greater effort must be made if we are to devise some means to give a person some work and a livable income if he is forced onto the relief rolls. Maybe the state should make up the difference in lost wages. Or, if it is going to be a shorter work week to provide more employment then I think that this problem of vocational education is still going to be with us. And the apprenticeship training program, if it is going to continue, is going to have to go on to new horizons where it can still use the blue-collar workers as a foundation but provide different training along the new lines indicated here, utilizing many additional people and thus providing many additional job opportunities.

Thank you.

QUESTIONS AND ANSWERS

Education for a Growing Hawaii

Chairman Ihara:

To get the ball rolling, one of the things we ought to do is to get some terms defined. It seems that there is a question as to what is training and what is education.

Mr. Schiffers:

I would like to comment on that. Skill is knowledge. I see skill as knowledge in action. I can't quite separate a human being into a physical and mental apparatus. And in so saying that skill is knowledge in action, I would not detract in any form the knowledge that is necessary to do the so-called skilled act. But even in the simple use of a hammer one needs to do it efficiently and competently and have a great deal of knowledge of the possibility of using it. By the way there is one good way to avoid hitting your finger, that is to keep both hands on the handle. *(Applause-laughter)*

The man who uses the hammer competently knows that there are many different kinds of hammers; there are many different ways of holding it; there are many different kinds of nails. There are many other circumstances that have to go with the intelligent use of a simple tool. So, again, I repeat, personally I see skill as knowledge in action.

Chairman Ihara:

Is there any one else on the panel who would like to give their views on this same question?

Mr. Reynolds:

Mr. Chairman, lacking formal education in the blue-collar language we have to supply simple answers. To us, a vocation is a trade or profession that earns you a livelihood and education is something that enables you to earn a better living at your vocation. *(Laughter)*

Chairman Ihara:

Now I wonder if any of you would like to address a question to your colleagues at the table here?

Mr. Schiffers:

I would like to just say to Jack that if we had the problem of peace decending upon us all of a sudden and we had this extra supply of people this brings out the very thing that we, in business and industry, feel that if there is an over supply of people, those with some skill will get jobs and those without any skills will be unemployed. That is why we feel that any student who at somewhere along the line has to stop his formal education is in a position that he has been oriented to a

certain extent into some type of skill that he can use to earn his living. So in reply to what you said, I still feel that the young fellow who has had the opportunity to get a skill is going to get a job whereas the fellow without the skill will not.

Mr. Reynolds:

Well, I thoroughly agree with you there. I think that the sooner the individual student is acquainted with the fact that he is going out in the world of work - in a few years - and when he goes out there he is going to be subject to labor organization, to management's policies, and properties and the sooner he is told you are going to have to make a living, you are going to be exposed to labor unions, you are going to be exposed to national policies, you better start thinking about it. And if you have a day off playing hooky, you'd better go down and see the union office and find out how they operate; and if you have two days you'd better go down and see management and how they operate. *(Laughter)*

Chairman Ihara:

Mr. Reynolds, you are saying then that the secondary school curriculum should include programs which would help these young boys and girls to understand labor unions, and understand industry, and so forth, learn to work even if they have to play hooky. *(Laughter)*

Mr. Reynolds:

I would go farther than that. If there is any way it might be workable and suggest that when the teachers receive their leave that they also go out and seek some type of employment, so that when they come back they know what it means to get up at 5 o'clock in the morning. They know what policies of the company are; they know what it means to make a living other than the profession they have, and they, in turn, can communicate that information education to their pupils. *(Applause)*

Dr. Poyzer:

That is the nicest thing I have heard for a long time. We find that many of our teachers are not allowed to go into industry because of management rules. *(Laughter)*

Mr. Reynolds:

I am a little inclined to disagree with that. I can't say it applies to all segments of labor because I only represent the one I am familiar with. Every vacation period in the industry I represent, we have hundreds of students who are out working in the world of work and getting some training in that field. I am sure that if an educator would make an application he would receive the same treatment as a student. In the construction industry we don't require that these students join the union. They are given a permit and they are there for three months and they then return back to the school. Whether this applies throughout the nation, I don't know.

Chairman Ihara:

It seems to me that as far as this panel is concerned I don't think that there is too much disagreement about the vocational educational program. It is like we are all for motherhood and against sin. *(Laughter)* I think we are all for education it seems to me. The question in my mind where does it come into the picture? Does it come into the picture at the post-high school level or whether it should come in at the secondary level, or at some other. I believe this is the key issue here. I know that Mr. Schiffers made some comments about more educational education on the secondary level. The State Board of Education's position is and, I think, the position of the manpower commission is that vocational education is more properly a post-high school activity, although the commission had stated in its own way that it believes that more emphasis should be put on the worker for the occupation throughout the school period of our children beginning at the kindergarten level and all the way up thru the 12th grade.

The commission also states that as far as training is concerned they are not opposed to the program now available in the Department of Education, namely, the program in vocational agriculture and in accomplished training and certified education. However, with your permission, I feel strongly they need to be reviewed. And that what Mr. Reynolds said about the apprenticeship program - in that there needs to be a good thorough look and, possibly, some changes. With that now, I will stop and ask some of the other members of the panel to give their views on the matter.

Mr. Schiffers:

I would like to speak on that. It seems to me in all of these discussions it has been assumed that every young person who has completed high school goes on either to the community college for another two years or he is going to go to college. Now we know that we have a high percentage of young people who are not going to college. We know, that those graduating are going to have more and more difficulty getting into the colleges of their choice or into the particular field they wanted. We also have those who, because of family problems, are not going to be able to afford it to go beyond high school. We must recognize this. What are we going to do in a community such as ours if upon completion of high school we turn the young people loose to go out and get a job and all they have received in the secondary school is what we might call our basic, reading, writing and arithmetic. I am not speaking now of mathematics or any such thing as that. I am speaking of every day ordinary arithmetic. If that is all they have, and if they haven't been indoctrinated into some knowledge of what will face them when they have to go out and find a job, then I say that we have not given them a proper education.

If they were all going to go on to college, or at least as far as the community college that would be fine. Then you could concentrate on secondary school level of basic fundamentals and put them into a community college and they could elect to become a mechanic or an electrician, if they so desired, or something like that, they could get the fundamental training. But let's not kid ourselves. All these kids who are, right now, roaming around the streets in this community and causing

trouble - the so-called delinquents - and those who have not completed even some of the high school courses, and they have no skills whatsoever, and they can't get jobs when there is a preference placed on some skill or knowledge by business and industry. Why should business or industry hire some one who doesn't know anything, if they can get a large group of others who, at least, have had a little bit of training? Now these people without this indoctrination will fall every time. This becomes more than just an educational problem, it becomes a social problem. And if we cut this out of the schools then we are going to create a social problem besides.

Now the question is also what happens if they do go on to college? We have facts to say that 80 per cent of these young people do not complete college. So if they don't complete college what has happened? Most of it is because they have flunked out. It isn't because of financial reasons. But those who have flunked out, have indicated that they cannot keep up with the pace of trying to get a higher education. So what have they got after they have stopped? It amounts to they haven't even been given an indoctrination of some skill or craft per se. And they come out feeling they are failures in the academic field and as they haven't anything else to sell to industry or business to get a job - this is where your real social problem comes in. You have to get this indoctrination as to how to go out and find a job and what to do when they have to face the world.

There is something I would like to ask some of the committee members here - the panel members. I have been informed, that there is any - hardly any vocational guidance in the senior years of the secondary schools in this state today. Now if this is the situation then what can we expect from these young people who are not going to college and coming out from high school - if they haven't been counseled or apprised of how to go out and get a job and what they should expect in trying to get a job.

Dr. Poyzer:

I would like to answer that. As to the original question, it disturbs me sometimes that we have separated vocational education and general education. In all of my experience I found out good general education, good basic education is good vocational education. And, in turn, good vocational education is good general education. We are continually separating these two and, certainly, somewhere in there lies a competent program. We can combine the two to get a better product. I am reminded just a little bit of one of my students who - some years ago - came to college and had to make his own way. By the way, I think about 40 per cent of the students at the university here are helping themselves through school in some way or another. But this young fellow came in as a trained bricklayer. He was making more money on the outside than I was as a teacher, really. But I always come back to this, that good general education is good vocational education. A good occupational education is a good general education. That is the end of it.

Going back to vocational guidance, maybe this is one of the areas in our schools that is becoming in drastic need of more help. I know we have counselors but many of these men are not vocational counselors, occupational counselors. Many of them have not had the experience in this world

of work. Many of them are not acclimated by interest or by impulse to do that type of counseling. We need more and more vocational guidance, occupational guidance. We need more participation by the President and of labor and industry in giving the story of their lives to these young folk so that they can make intelligent choices.

Chairman Ihara:

Dr. Ando, I wonder if you would like to comment?

Dr. Ando:

I think I could go along with Mr. Schiffers in saying there is a real gap in our counseling program with regard to vocational guidance, but I think we are quite aware that certain improvements need to be made. However, as Dr. Poyzer just put it in the cooperation of industry and unions in this area would be most welcome in helping to give these students, in our secondary schools, some help and understanding in the area of their future responsibilities as citizens in the world of work.

I think some of the concern expressed here that our schools must acquaint our students in the world of work is a valid one, but I wonder if they realize that in the social studies program, for instance, there are some units involved in the understanding of the world of work, the union movement, the technological and industrial revolution that is going on. That these children in our secondary schools are not completely devoid of the issues in our society today, and some of their responsibilities, that they must take hold of as they become citizens of the future.

Vocational training for marketable skills certainly is something that has not existed in our secondary schools with any strong emphasis since back in the 30's when the educators of Hawaii stood firm and indicated their main purpose in educating our children was to make them intelligent responsible citizens of our state and of our country. By their decision and the political society of the subsequent years the educational program has emphasized, generally, what I think many of us are blessed with an opportunity to have received the general education program here.

I would like to say that nowhere in our study of the issue have we really received firm convincing testimony stating that the problems, the social problems of drop outs, the social problems of the disadvantaged student economically, socially, or culturally would be solved were we to provide vocational training. That this would, then, inculcate within him the ability to learn and be a more productive contributor to our society.

Vocational training indeed is a very valuable thing in our society, in our economy, and I can assure you that your Board of Education when it made its report in July indicated that the issue - and I shall read from here - *The issue is not the survival of vocational education. Rather, of this, to serve its higher purpose in our state and nation's goals, is the real challenge before us. We want to know, for our citizens in our schools, what responsibility public education has in making certain they will be valuable citizens of our state and nation.* Therefore we asked our professional staff to make this study as expressed earlier. And we are awaiting the results of their professional study. I can also state,

categorically, that there isn't the word *abolish* or *eliminate* in this statement regarding vocational education.

So the issue is not the survival of vocational education in our study. The issue as Dr. Ihara has so ably put it "Where is it that we can best do it?" And we can assure you that your Board of Education will make certain that it will carry out its responsibility to make sure that our children's educational needs will be met so that they can advance to the next level of their development, intellectually, as well as in the area of the world of work.

Chairman Ihara:

I think there is some question about definitions. Maybe we ought to spend a few minutes to go back for clarification in this area. There is one question here addressed to Dr. Poyzer.

QUESTION - In your presentation you expressed concern about what is proposed in the field on vocational education by the State Board of Education. At the same time you said, general education is good vocational education which seems to me what the State Board of Education is proposing. Would you clarify your position on the State Board of Education's proposal by clearing up what you mean by general education and vocational education?

Dr. Poyzer:

Well, first of all I, surprisingly, agree with the State Board of Education's policy statement. I have been waiting patiently for the second half. On the other hand, my statement that general education to me is good general education, is part of good vocational education, is simply the fact that skilled labor at any level has to have basic skills that are necessary, the basic communication skills, the basic scientific skills, knowledge, the basic computational skills, the social skills, that sort of thing. They are usually lumped together into what we call general education. I would rather call it basic education.

I also made the statement that I didn't quite like the separation of the two. That, to me, they are a continual part of each other and I have difficulty in separating them.

Clearing up what I mean by general education and vocational education. I think the question is a little bit loaded in that we sometimes get somewhat emotional about these two terms. I don't think there is any need to. Simply, general basic education are those skills, knowledges, those attributes that everybody has to have to compete on whatever level he is on, and go to the new level. Vocational education, to me, is a much much broader term than our Dr. Swanson provided. Vocational education, to me, continues all through life. It starts when we enter school and it ends much later on. It is all of those skills and all of those knowledges necessary to get and hold, to go further and produce, to elevate ourselves in the jobs and positions that we have. I see no great conflict in these two terms. I, simply, can't split the two. The emphasis, of course, is what we are talking about.

I believe the State Board's position paper calls for reassessment and I would echo that and say *amen*. That we need a massive reassessment of total manpower needs. And that is the reason we should support with our pocketbooks and our talents, and our hearts the development of competent educational opportunities so that Hawaii can become truly the skilled manpower school of the Pacific.

Chairman Ihara:

Now here are a few questions:

Dr. Ando:

Dr. Poyzer, if that is your definition of vocational education, we have it in our school system. We can have it in kindergarten. We have concern with what is being trained or educated to our children in our schools. But the thing we are concerned with, the Board of Education has that responsibility to see our secondary schools have, what other agencies have. Mr. Reynolds said we should provide occupational training. This is the area in which we have a great deal of concern as to whether our secondary schools are doing its job. Occupational training or vocational training as properly defined by vocational education act of 1963, which states that the program of instruction was prepared as a curriculum for entering a specific job role, or a related group of jobs. This is where we must know what our probabilities are.

Chairman Ihara:

Dr. Ando, there are three questions which relate to the secondary school program and the way they should meet the needs of the students. Would you like to go over these and make whatever comments are necessary?

Dr. Ando:

There is a question that states:

> My concern is with the individual who does not fit into the present school system. Our present law requires children to stay in school until 18 years old. What about high school drop outs and kick outs? Aren't the drop outs publicly supported? Should there be a place for them in the school system?

Our concern, of course, is every child educable or trainable and we do have programs, the regular programs for the children from the very gifted to the only trainable or educable child. Each child in our school system deserves the fullest opportunity for his development. We do have special motivativation classes in some of our high schools for students who are potential drop outs. I think it is gaining more emphasis, more visibility, possibly, so that it be recognized that it exists. But my point, again, is that there has been no indication that vocational training programs in secondary schools prevent this sociological problem regarding drop outs or kick outs. That there must be curriculum revision from - I say down to the early elementary school level that would prevent the occurrence of low motivation of non-learners in our school system. And this is under

way in this department of education that the use of the vocational program to keep the poorly motivated or children that educators have given up as not educable, must stop, because this is insulting to the children in our schools no matter what range of capability they have. This would be my answer to this one.

Chairman Ihara:

Does somebody else wish to comment? (No response)

Mr. Schiffers, there are some questions here which ask you what the industry's role is in vocational education. What they are doing to help in this area?

Mr. Schiffers:

I have one here that asks what is being done to coordinate the needs of business and industry with the needs of our educational system? For a number of years the Chamber of Commerce has annually had an "Education Day." A "Business and Education Day," in which various businesses in town will invite teachers and principals of the secondary schools to come to see these places of business to hear the story of this business and then go around and see the actual application of work in that business or industry. In my own company, we have done this more often than the other companies have. That one particular day we have all of the officers of our company come in and meet these teachers. We try to give them an overall picture of how our company operates. Then we take them and put them in buses and take them down to our different properties where they can see our work in progress. We bring them back for a luncheon and then give them a little further story of our financial picture - our operating efficiency - things of that nature. And also, then we try and show that in addition to just being a business firm trying to make a profit that we also have a community obligation to support various community activities.

Now this is done with the idea of attempting to get our story out to the educators. We, in turn, would like very much if the educators would reciprocate and ask us to come up to their shops - if you want to call them that - to their place of business and tell us something about their problems, so that we can coordinate our efforts and try and do a mutual job. Now we have communicated a number of times with the school departments and we have not had too great a success in getting the answers to some of our problems. I am very happy that at this meeting I may have the chance to talk to Dr. Ando, personally, on this and I am going to invite him down with his whole Board of Education to our place. And then I want him to invite us to some of his board meetings.

Dr. Ando:

The board meetings are open to the public, every time. We don't hold any secret ones.

Mr. Schiffers:

I have a question here about what are we doing about business - industry and business, what are they doing in the field of job training?

About a year and a half ago, the military came to the Chamber of Commerce and they said, "We have a problem." We need a number of workers, and we cannot get them. The local labor market is short. We have had teams on the mainland attempting to interest workers and we cannot get them. Is there anything that the trainer can do to help us try and get some skilled workers to work out, specifically, at the Pearl Harbor Navy Yard. Then the Air Force came along and said they needed people and the Army said they needed people. In fact, some of the men who came to us are sitting right here today. We were working then with Dr. Laureta on this community skilled service, and I got the preliminary figures together to see what could be done. What we found was that there were no skilled workers available at that time. They were all busy in the construction industry, building new high rise buildings, now subdividions and everything else in town. There were no people available with skills. The Navy said we are trying desperately to get young people to come out here and go into our apprenticeship program, but we find that those who are coming out here do not have the basic training they could use as an entry level into our apprenticeship program. We have a very strong apprenticeship program, one of the few here in the state. It has been in effect for 15 years. We are getting all of our skilled workers from the trades and crafts from that apprenticeship program.

One of the things we found with the group that the Navy couldn't employ and also in our own experience that the young people coming down couldn't pass the entrance examination. It is not a mathematics test - they couldn't pass the basic test. We looked into it and we found that young people were graduating from high school in this community with only one year of math required to graduate. Now they are not equipped to even come in and apply for a job. So we got busy and sent out to all the members of the Chamber of Commerce, overseas and statewide, a program of how they could upgrade on a crash program. Jack referred to it a while ago. How you can take and develop a program where you could upgrade each worker you had, even if you could only succeed in upgrading in one level. If you did that with every skill in the craft industry you would upgrade the whole organization and you wouldn't have to draw on the manpower pool for this skill and that would make them more available. We sent this data up. We asked all the construction groups, we asked all of the other businesses that used crafts to immediately see if they could staff indentured training programs, or if they could use the present MDP program. We have had some success, and we have helped alleviate the strain on the skilled work school. In the meantime, we had the tight money market come along and the construction group took a nose dive and now we have quite a few people at the moment in the skilled category in the building trades. However, I think that is going to be closed pretty soon. But to answer that question, we have attempted to upgrade and train people who are already employed, and we have attempted to accelerate the apprenticeship programs.

Chairman Ihara:

It seems to me the dilemma the young worker faces when he seeks employment, oftentimes, is his inability to comprehend the written word, this is something of the order you are talking about. You are referring to mathematics but this is also one form of communication.

There is a question here which bears on this thing. This person would like

to have your comment, especially inasmuch as industry uses written examinations to test prospective employees. Would you like to make a comment on that? (No response)

While Mr. Schiffers is going over some of his questions, I would like to ask Dr. Poyzer here a question which just came up, following the definition of the terms. This party is not satisfied. He refers to his reply and to the kind of education the Belgians used in the Congo and whether or not -

Dr. Poyzer:

May I read the question. Dr. Poyzer, you were speaking on the limitations of vocational education. Vocational education is what the Belgians and French Congolese call labor and minor clerical. Please comment.

I can only comment that I don't believe that the American view of vocational education is that narrow. We were putting in two large technical and training vocational schools in Pakistan to be maintained, defended and fought for a considerable amount of the curriculum to be in language developed like drafting, mathematics, science, social studies, economics. I think this is part of the picture, any place you have it. I think sometimes we need to get specific about some of these general terms that we are talking about and give examples if we might. The supposition buried someplace in the conversation, is that if a student does not attain a satisfactory level of basic skills by the time they are in the tenth grade - this brings to me two things. One, that the system needs some change below this level and that those people engaged in basic education subjects, have either failed us or have had too much to do, or for some other reason so that the bulk of the students do not reach this limit. Vocational education cannot be successful or competent until the student has reached a level where they can benefit by competence of vocational education.

So I don't think I am pussyfooting on this at all in that I state I am not in favor of a person having a fine background in all of the various areas which we consider general education. But I am in quite agreement that there is a sizeable group of students at the eleventh and twelfth grade level who, if we required them to pass competency tests in English, and math, and science, and this sort of thing can benefit at that time form a carefully designed and careful controlled continuous program of - if you wish - of vocational education.

Mr. Schiffers:

I have some good ones here. *(Laughter)*

QUESTION - Mr. Schiffers, too often getting the skills is training for slavery - why is it that the trade school graduates who are experts in their field are paid a minimum wage and also what was the reaction of the group you mentioned - the 700 strong, general education skill students in community colleges?

Well, first, any business man who has a union isn't going to get away with anything like this. Furthermore, I think he would be stupid if he tried. Those who get a skill from the trade school will come into an organization and make an application for a job opening. And if they can meet the stand-

ards of that job and perform on that job, and we have a book that we have signed with the union that states that if we hire for that job, this is what they are going to be paid . So whether it is slavery or not, we in the union have agreed to it. *(Laughter)*

They are not getting by with anything like that. And I can tell you this. In this community there are very few community trade and craft skills that are not unionized and if they are getting away with it, some of you had better look into it.

Now, the reaction of the 700 strong in general education, the technical school graduates...I will say this...are generally excellent. Putting the 700 technical school students into the community colleges would be good. The farther along in the community colleges these people can go, the more skilled they will be when they come out, and we want that. What I have been talking about is, what are you going to do with the big group that isn't going to go to the community colleges? Are you going to dump them out on the community without anything?

We are all for the education of every person, for every person to get the best education they can get commensurate with their ability to absorb it. But we can't take the position that everyone is going to go on to college, they are not going to. So we have to look at it in this light - that those who aren't going to go, the school system has to give them something they can face this world of work with.

Chairman Ihara:

Thank you, Mr. Schiffers. I have a question about the apprenticeship program that I think I would like Mr. Reynolds to comment on.

Mr. Reynolds:

Mr. Chairman, before I answer the question, I would like to comment on Mr. Schiffers statement on shipyard construction. I am not trying to negotiate. *(Laughter)* I simply want to make a comment about this problem in the construction industry. At the present time, we have a large number of qualified people, experienced in training, that would be eligible for employment in the shipyards where they are badly needed. It is my opinion that a good many more of these people would be working there today were it not for possibly two reasons. Number one - even though they are qualified, they are starting at a grade or two below the career men that have been there for ten or fifteen years. They are receiving none of the fringe benefits which are substantial, which career men receive. I believe that if the government took the same position in relationship to the shipyards that they take in construction, where they require that the employer either pay the fringe benefits, or pay cash, in lieu of the fringe benefits, that this would open up a considerable larger amount of employment, for these people know they are only going to be down there and working alongside a man receiving more pay and better fringe benefits than they receive three to one.

Chairman Ihara:

The question is, "Is the construction industry doing a good job for the apprenticeship?"

Mr. Reynolds:

I think, with one exception, the construction industry here is doing a remarkably good job with apprenticeship. And the exception is in the carpenter's union, where apprenticeship was badly needed in the beginning and which, in my opinion, has almost completely broken down as far as providing the necessary training with these respective people.

Last year, I attended the graduation exercises of the plumbers union, and this union has only 800 members. At that graduation there were 46 plumbers, who, I believe, graduated. The same night the carpenters union had a graduation. They have 3000 members. And I think there were 24 carpenters who graduated. They lost more than 24 carpenters during that period of time.

That union has gone back instead of forward, as far as the industry is concerned. This is a matter that goes back three years to the last contract negotiations. I think the employer realizes he made a mistake in those negotiations. I believe if there are some new negotiations that matter will be corrected. I think we can say here, in this state, we have as good and I believe the best apprenticeship program in the technical and construction industry than we have in any state.

Chairman Ihara:

I have some questions for the popular member of this panel, Dr. Ando, about distributive education. I am going to ask Dr. Ando to make some random comments on them.

Dr. Ando:

The question is, "Are vocational educators being used as whipping boys to rationalize deficiencies in the present general education program?"

I think that if you basically know the position of the board, that we do not consider vocational education or occupational training as the issue here in our school system, you would realize that vocational education is not the whipping boy. To the contrary, the burden is on the back of the curriculum developers of the general education so that they will do a better job in educating our children before they go up to the level where they become able to profit by a vocational education program.

I have here another one that says, "If one half of the island's high school graduates do not go to higher education, where and when will this group gain a trade or skill?"

I think this can be answered by saying that in many personnel offices throughout the our country, the attainment of the individual of his fullest development of intellectual capacity, to hear, read, write and to think, really is the most valuable salable skill that a child graduates with from our secondary schools. With this kind of capacity he can offer his employer a tremendous background of productivity for the future. This is what we are talking about, and what our schools are trying to do.

I will read this question as written, "You and the Board of Education are pursuing the concept of general education. Mr. Schiffers, from the chamber

and his committee advocates expansion of such areas as distributive education, which is not in the category of general education. The schools belong to the community. How do you see the Board's reaction to this, if confronted with some schools having a distributive education, other schools want to innovate this area into their curriculum, because there is a need for this program, and in certain communities are prohibited? Please comment.

My question is, "Who is prohibiting it?"

The next question is, "If cooperative distributive education, and cooperative office education comes high in the priority need of the school educational programs, is it a professional and administrative decision?"

With that, the department ought to take a look into this program to see that it does have value, that it does meet the primary test of our educational purpose, the development of the intellect first, and then meet the other priority needs of education. This is not mandated by the Board. It is mandated by its own professional staff, and this is the way we see it today.

Now there is another question here, "If there is no intention of dropping vocational education, why is McKinley dropping their vocational classes?"

We have had this question asked of us since January 20. That is when we posted the board's position on vocational education. And we say that we find almost in every instance, that the decision to drop the vocational class was a professional decision within the school. And many times it was because there were no students interested in the class, or course that was offered, and it was felt that it wasn't profitable to continue offering it.

Chairman Ihara:

There are a few questions on research, on Dr. Poyzer's statement as to the plans of the future. Dr. Poyzer, would you like to comment?

Dr. Poyzer:

QUESTION: "Do you know of any research studies being conducted at the University of Hawaii? Specifically on the vocational education program development?"

I know of one small study being done in this area, a very small study. It is a profile study of the occupational teachers of the state. It is the only one I know of.

The other one here says, "You have expressed a need for reassessment in the broad areas of research and development in the problem area of skilled manpower. What specifically do you suggest, to set this in action?"

I have a minor suggestion. That one tenth of one per cent be set aside for research and development - one per cent of the community college budget be set aside for this purpose. That one half of the union educational funds be set aside and that business and industry match the union funds available.

Chairman Ihara:

The question was raised earlier about vocational guidance and an answer was given by Dr. Poyzer. We happen to have here now the Chairman of the Department of Education and Psychology, College of Education, in which department the course of vocational guidance is offered. I wonder if I could ask Dr. DWane Collins to shed some light on this.

Dr. Collins:

Thank you, Terry, for this opportunity. I am very appreciative. Being the major person responsible for occupational education at the University, I would say immediately that there is not enough vocational counseling. The counselors in the schools are overwhelmed by youngsters with emotional problems, of which the school is not wholly responsible. They are also overwhelmed with college counseling considerations and they are not looked upon generally as vocation counselors. Mr. Norton of the local community college said they had a survey of one to fifteen categories of people, and that counselors stood about twelve in the ranking as those people who would help most with vocational consideration. Your friend, by the way, happened to be at the top of the list. We are indeed grateful to the Board of Education, and the legislators for making the progress we have made. We need much, much more manpower so that we can get through the emotional considerations and the college considerations. And to me college consideration is an aspect of vocational counseling certainly, but we can do more vocational counseling.

Now, having said this, I would like to produce the following evidence that considerable consideration has been given to vocational counseling. Number one, certification in the DOE, the sequence in our department, and a masters degree in counsel guidance in the University of Hawaii. None of these can be obtained without the following things: One, a three semester hour offering occupational information. These people are thoroughly acquainted with the dictionary occupational title, the occupational outlook, and now we are getting some local information from our labor department which will be very helpful.

Secondly, they must have three semester hours of aptitude testing. They must have three hours of practicing. They must have a series of courses in which decision makong is the major consideration and certainly the occupational choice is number one in the life choice series.

Third, the state certification of counselors in the State of Hawaii requires two years of cumulative work experience in business and/or industry. This has not been policed as it may have been policed, principally because they haven't had enough people to fill the demand.

Fourth, career made programs have been widespread throughout the state. I have many printed copies of these programs in my desk. I have one on my desk in Kauai which is given in cooperation of the business men of that island. Every high school counseling officer in my opinion has occupational information, not only in his files, but I see it on the walls and tables.

Fifth, we do not do placement work. We believe this is very ably handled by the personnel department's employment service of the labor department, by private placement agencies, and by personnel departments of business and

industry.

Finally, I will wager a steak dinner on the statement that 90 per cent of the high school counselors of this state have had a variety of job experience other than teaching and counseling. Thank you.

Chairman Ihara:

Would anyone care to comment?

Mr. Schiffers:

When I asked the question, "Was this referring to what is being done at the University, or was this being done in the secondary schools?", when I made the statement about the lack of competence, I was referring to the secondary schools.

While I am on that subject, I have a question here. "At what year in high school do you think a student might begin to train for a specific occupation?"

If he is going on to junior college or any community college, or if he is going on to college, I would say that he doesn't have to worry too much at this stage about training for a specific occupation. But with the aid of counseling in that secondary school, if they find that this young person is not going to go to community college, and will finish when he graduates from high school, then this should be determined at least a year, or a year and a half before he completes his high school program. Then, in the following year and a half, he should be advised and counselled by the school department and the educators, saying "You ought to try and get some knowledge of the skill, trade, or craft, so that when you leave this school, you will at least be able to go and talk to employers about a particular type of job that you would like to have." So I would say this should come about in the middle of his junior year, if he is not going to go on to college.

Chairman Ihara:

Are you advocating then that these youngsters be given vocational training?

Mr. Schiffers:

I do not. Vocational orientation and counseling as to what they are going to face when they go out in the business world. Now, they have no idea of what they are supposed to do in looking for a job.

Chairman Ihara:

There is a question here on industrial arts education. "What does it really mean?"

Dr. Ando:

May I answer? I think Professor Collins was talking about vocational guid-

ance and the counselor people that he trains at the University for our secondary schools - and he was telling you that 90 per cent of them, who are now counselors in our schools have had working experience other than as teachers.

Mr. Schiffers:

Ninety per cent of how many?

Dr. Ando:

Of all the secondary school counselors, is that correct?

Professor Collins:

That is correct.

Mr. Schiffers:

How many would that be, roughly?

Professor Collins:

At the last official count I heard we had 128 in the state. I am sure there are more that do federal counseling that I do not know about.

Mr. Schiffers:

And they are counseling the students in the secondary schools?

Professor Collins:

That is exactly right.

Mr. Schiffers:

Well, then if my information is wrong, I will have to look into it and apologize if I am wrong.

Chairman Ihara:

There seems to be some confusion still about what industrial arts education is. I wonder if Dr. Poyzer can explain that in a few sentences.

Dr. Poyzer:

I wonder if we are talking about industrial arts 1920, 1940, 1960 or 1967? Industrial arts 1967 is an important part of general education. The industrial arts people are trying to give to those students in their classes an orientation to the technologies to the world of industry through selective experience in the laboratory. They are trying to energize students to find themselves through activities that are exploratory, develop mental problem solving. They are trying to bring bits of industry, those bits that are safe, to the laboratory, so that students can explore and find whether they have the talents and interest in these areas. The industrial arts is spread

across a large gamut of industries. I say that industrial arts 1967 and industrial arts 1970 will not be manual training, not that of making footstools, but it will be exposing students to the best industry has to offer.

Chairman Ihara:

There is a question here that I feel had reference to the Corps program that was once very popular here at McKinley High School, and it was summarily eliminated several years ago by the school board. I wonder if Dr. Ando would try to comment with respect to integration of the various subjects in the teaching operation. He brought it up earlier. In other words, tying in mathematics et cetera and using history with some aspect of industrial arts so that other subjects would be utilized as a basis for indoctrination in industry?

Dr. Ando:

May I read the question, so that I can really do justice to the person who took the trouble to write it? "Are you talking about a high school program where students might be taught mathematics using electrical calculators or adding machines with the math and machine teachers working together? Or students that might be taught grammar, spelling and composition using a typewriter with the English, typing and spelling teacher working as a team. Would not the combination of these subjects be better than eliminating or devising plans? This could be done without a study or reassessment of the curriculum to see how this program could be divided for what might replace what is now known as a liberal vocational education?"

This type of change can be accomplished correctly by creative teachers who are now in the schools and hungry for just such activity. We need only your Board's blessing. I think a teacher wrote this and I hope I am right. A teacher has a better insight as to what we are asking than many other people we have heard in recent months. Indeed this is the kind of teacher we know who is working with the principal in trying to develop the kind of curriculum to aid in the development of the child in our school system. I can't say that this is exactly the time to integrate possible machine work because I am not the professional to make that kind of judgment. But to integrate business machines with mathematics seems to be really logical. I find myself telling my child, in checking her homework, when I am too busy, to use the adding machine, to see if she is correct - after she has done it, of course. *(Laughter)* The point of the English teacher and the typing teacher working together, certainly has the kind of merit in the area of putting these two subject matters together, so that it will help the individual to develop in several channels, as he gets these educational opportunities in our school. So, as I say, I hope the person asking the question is a teacher.

Chairman Ihara:

There is one question addressed to me now. "What does the manpower commission propose as a Board of Vocational Education? Why was this proposal made?"

Some of you may know that the Manpower Commission in its policy statement is recommending the establishment of a state Board of Vocational Education. As far as the constitution of that board is concerned it is a recommendation that the Board be composed of three members of the State Board of Education, three members of the Board of Regents, and three members of the State Commission on Manpower and Full Employment. The last - members of the Manpower Commission - to be distributed among industry, labor and the public.

There are further recommendations - that this commission appoint an executive secretary who will be a member of the University of Hawaii panel, most likely, because of the program itself, as the program will be under the direction of the President of the University. The rationale here is that inasmuch as the major part of the vocational education in the State of Hawaii will be located in the University of Hawaii Community Colleges, that it would be proper for the President of the University to take that leadership. Now he, might assign that responsibility to the Vice-President of the community colleges, or someone else that he might select.

Now as far as why this proposal was made, the commission felt that as much as it has great respect for the state Board of Education, this Board, in itself, was not able to do justice to the problems inherent in the area of vocational education. And the Board also felt that one of the reasons would be that the problem of vocational education has not been given the support, perhaps, and the push that some people wanted it to have - because it did not have the Board of Vocational Education, which would have, as its main concern, vocational education.

Furthermore, I felt that, despite the fact that under the present arrangement, there is a Director of Vocational Education for the state, the Commission felt that this person, because he is in the line of relationship with the Department of Education administrative set-up, that this person was not able to take as strong a position on vocational education as he would, if he were not in that line. In other words, oftimes, his job may depend on what he does as a Director of Vocational Education. Under this new kind of arrangement, we feel this kind of relationship is missing - which would give the State Director of Vocational Education much more power and leeway in proposing and pushing for the programs in vocational education.

Now, if there are others of the commission who have views on this matter, the floor is still open. (No response)

Then let's take one or two more questions.

Mr. Schiffers:

May I speak on the point you just raised?

Chairman Ihara:

Yes.

Mr. Schiffers:

The Chamber's Education Committee went on record that they were in favor of a separate Board of Vocational Education. Since we have seen the proposals of the Manpower Commission here, I am going to recommend to our committee that we give full support to the Commission's proposal, and withdraw the proposal that we have made.

Chairman Ihara:

Thank you. Here is a question relating to defense expenditures addressed to Mr. Reynolds.

Mr. Reynolds:

Mr. Chairman, I want to answer this before we adjourn because it bugs me a little bit. "The responsible U. S. leaders have said the end of the defense industry would help, rather than hurt the economy. Communities which have lost defense plants have compensated well. Why do you say the war's end would hurt the economy?"

I said it bugged me a little, because part of that statement has the wrong implication. No part of the statement I made was intended to indicate that I am a hawk - I am not. There is no relationship between the closing of some of the defense plants by McNamara, for economy reasons, and the phasing out and relocation of those people who wish to be relocated in defense plants. That has no appreciable effect on the national economy. It may have had some impact on the local economy. But there is a great deal of difference between closing defense plants and a sudden cessation of conflict. And I maintain here that this would have a very critical effect on the economy of the country. I don't know for how long.

I maintain, and it is my personal belief, that the federal government is no more prepared to meet this type of emergency today, than they were at the end of World War II. Soldiers marched on Washington, and the veterans sold apples in the streets. It is my own personal opinion that if this conflict would end tomorrow, that the federal government would be no more prepared to meet that crisis tomorrow than they were in 1918.

Chairman Ihara:

Yes, Mr. Stern. Mr. Bernard Stern is a member of the Commission.

Mr. Stern:

I just wanted to comment, briefly, on the proposal of the commission for a State Board of Vocational Education. If I didn't respond immediately, I had to refresh my mind by rereading the statement. I think the one important point that was overlooked - and that is the first and basic recommendation of the Commission - that vocational education in the state be expanded and improved. That in connection with this basic recommendation, the commission also proposes setting up this Board of Vocational Education primarily, as I understand it, in order that the whole subject of vocational education get the attention and consideration it deserves.

Now it is proposed that this Board of Vocational Education be constituted so as to give representation to the different aspects of the program. This Board, in turn, would make decisions based on more information we hope, than make decisions based on more information we hope, than is now available to the Commission as to which part of the program of vocational education be left to the high schools, which part would be left to the community colleges, and so on. So that, in general, the point I wanted to get across is that this is a part of - what we think is a positive approach to the whole program. And it is not intended to deprive any one group of anything, or make sure that some particular individual has more freedom than the others. I just wanted to clarify that.

Dr. Ando:

May I speak as an individual, and not as the Chairman of this Board of Education? That I do not, and I know the whole appointed Board of Education, does not consider this proposal as hostile or an inappropriate act that is done with any intent, other than the best for vocational education. If you will check the records of the Commission on Manpower and Full Employment, I as chairman of the last Board of Education, appeared before this commission and made this proposal, that, perhaps the State Board of Vocational Education would be best created by having a joint representation of the Regents of the University as the State Board of Education. And that we would examine the question, and that we would take a position in the very near future.

I am unable to take a stated position of this new Board of Education of which I am still chairman. But I think that we are not too far away from agreeing that this kind of a State Board of Vocational Education, really created, actually, purposefully to receive federal funds, can consider a greater purpose than what it is created for now. The only concern that is residual in my mind is that - how much authority will this Board of Vocational Education be given, for the twelve years our children spend in our schools is so precious, and in terms of the secondary education program. And whether the superintendent and his staff will have the final say in terms of the implementation of the educational program under the direction of the Board of Education. So, the Board, as I see it, sees that this can add to furthering the educational opportunities of our children, and I think it is fine that it is with us in many respects.

I have a few questions on this situation. Here is a very brief one. "Why hasn't the Board made use of the Advisory Committee on Vocational Education?"

Up to the recent past, the State Director of Vocational Education had considered the advisory committee, and that he transmits to the Board of Education what he feels are pertinent information for the Board to be informed about. I think we will look into the matter of the role of the advisory committee in terms of this possibility to the Board of Education.

One of my friends states here, Dr. Ando raised the question, "Why does the school board fail to enrich the program for non-college oriented students in high school?" And I would answer it this way. Because we feel that a child and you have only twelve years in our school system to benefit from the liberal, or general educational program. We feel that is is imperative that we utilize every available resource today in bringing about curriculum

revisions so that all children, not only in the twelve years in our schools, will be enriched to the fullest degree, and not be left out and be thrown into a program that will fail to recognize the need for further development of the child.

The question further states, "The Board insists on placing occupational subjects in community colleges, why?" The development of the community college under Act 39 is specific in stating the program for the community colleges, and also mandated the Department of Education further develop the technical occupational training programs in this state. We followed through by saying, "Let's articulate our program in our Department of Education with the community colleges, so that those who are going to the higher skill occupations will not be left out when they get into that program. Let's take care of them adequately. Let's find out where our responsibilities are." The Board is not insisting that occupational subjects be in the community colleges. It is a mandate of law, today. Thank you.

Chairman Ihara:

It is now five o'clock. I still have many more questions here that need to be answered, but we have a program yet to follow this evening. In closing I would like to thank the members of the panel very much for their contribution this afternoon, and you the audience for your participation.

QUESTIONS ASKED OF THE PANELISTS

Education for a Growing Hawaii

DR. RICHARD E. ANDO:

Does the Board of Education realize the fact that the greater majority of our youth and adult delinquents in Hawaii are school drop-outs or pushouts, that these same delinquents rarely advance beyond the sixth grade and that 90 per cent do not have a salable skill?

If the Board is aware of this condition then why does it advocate increased emphasis on the very same general education plan that has not met the vocational needs of these delinquents?

Why is it necessary to wait until many of the non-general educationally oriented youth becomes delinquent before we provide vocational rehabilitation or training in our states' correctional institutions?

Is the secondary schools evaluating the vocational education program? What is the best way to evaluate in light of rapid changes?

Did I interprete you correctly -- the stand of the Board of Education is that of keeping the vocational education courses in the high school but taught in a higher level approach rather than strictly *manual?*

Now that we have a law requiring school attendance to age 18, when may we look forward to a law or regulation that no child can be dismissed or suspended from school for any reason; but rather educational programs will be provided to meet the individual needs of all children?

Dr. Ando evades the question. Why does the School Board fail to enrich the program for non-college oriented students in high school? The Board insists on placing occupational subjects in Community College! Why?

Are you talking about a high school program where students might be taught mathematics using electric calculating or adding machines, with the math and machines teachers working together? Or, students might be taught grammar, spelling, and composition using a typewriter, with the English one typing teachers working as a team. Would not integration of these subjects be better than elimination or divisive plans? This could be done without a study or a reassessment of the curriculum to see how the programs could be divided, or what might replace what is now labeled *vocational education.*

Those kinds of changes can be accomplished by creative teachers who are now in the schools and hungering for just such activity. We need only your Board's blessings.

With the development of Community Colleges, do you think that the current Adult Education Program of DOE should be reassigned to that activity or should it remain with DOE?

Some schools have Distributive Education. Other schools want to innovate this area into their curriculum because there is a need for this program in

certain communities, but are prohibited. Please comment.

You and the Board of Education are pursuing the concept of General Education. Mr. Schiffers of the Chamber and his committee advocate expansion of such area as Distributive Education, which is not in the category of General Education. The schools belong to the community. How do you see the Board reacting to this if confronted with it?

If one-half of the island high school graduates do not go on to higher education - where and when will this group gain salable skills?

Have you ever asked a girl with eight weeks training to type a business letter for you?

Your remarks left me with the impression you were straddling the issue on Vocational Education. What songs do you recommend the students sing in woodworking class?

DR. MARVIN F. POYZER:

In your presentation, you seemed to express a concern about what is being proposed in the field of vocational education by the State Board of Education. At the same time, you said *General Education is good Vocational Education*, which seems to be what the State Board of Education is proposing. Will you clarify your position on the State Board of Education's proposal by clearing up what you mean by *General Education* and *Vocational Education?*

Do you know of any research being conducted at the University of Hawaii related specifically to occupational education and vocational program development?

You have expressed a need for *reassessment* and research and development in the broad area of *skilled* manpower -- what, specifically, do you suggest as a practical way to set this in action?

You have used the term *skilled* manpower. What do you mean by skilled?

Do you consider the present industrial arts program in our high schools to be vocational or general education?

Do you think the present I. A. program is worth what it costs in terms of money and student time?

At Berea College in Kentucky each student is, or was, required to work two hours every day at a practical worldly job -- dairy, bakery, office, hotel work, etc. At the same time sight is never lost of the real goal: development of the whole man, the thoughtful man. Isn't the apparent eagerness of vocational educationalists to replace development of the mind with marketable skills training a step backward? The appeal of money is immediate and self-evident, but isn't it regressive to ignore the subtler need to teach everyone to think and judge and acquire culture?

If it is true there are many jobs open to high school graduates which do not

require a college degree, when should vocational education be placed in the curriculum? In high school?

Do you think the establishment of a separate Board of Vocational Education with a strong executive director would strengthen Hawaii's Vocational Education Program? If not what do you suggest?

Mr. Carl J. Schiffers:

Vocational Guidance and Counseling is a required unit at the 9th grade (1st year high school) now but will be shifted to higher level next year. Ninth grade has this responsibility for many years.

What, if any, is the place of the private schools in vocational education?

My concern is that individual who does not fit into the present school system. The present law requires children to stay in school until 18 years old. What about the high-school *drop-out* and *kick-outs*? Are there *drop-out schools* publicly supported? Should there be places for them on the school system?

What does the Manpower Commission propose as a Board of Vocational Education. Why was this proposal made?

Please comment on the feasibility and value of condensing *basic* education to an eight-or-nine-year program of schooling, then placing students in either a pre-college or vocational program. This, I believe, is similar to the English system. It could be supplemented by adult courses later in a person's life. Might this better solve the problems of student motivation and realistic vocational choice.

Since the compulsory age of high school is 18 and many of these are not mentally capable nor desirous of attending academic classes, but still could study vocational studies in preparation for some jobs you today named -- service jobs, maintenance of machines. Our School Board puts Vocational Education in Community Colleges. Why?

Why does our curriculum not be modern? Why does it not teach vocational education in High School? Many business machines can be operated by simple skills.

It seems like we are putting the total burden about the knowledge of work on the school system. Are not there other avenues for this effort, too, which involve industry and community groups? Such as scouting, boy's clubs, Junior Achievement, recreation programs, etc.

In the issue between 12 years of general education vs. vocational training in the high school, the common ground seems to concern those who are not adjusting well to school and perhaps to life, and hence a possible future of marginal job holding -- is not the problem then what to do with those who are not adjusting to the reality of the world. Is there not a third solution, an adjustment type school to work on the boy or girl so as to correct his image of self and world, and when this is done, then to decide on continuation on general school or vocational. Would not the Junior High School be a place where this work might be done in evaluating and guiding the youth.

Do you feel that the residency requirement of one to three years for both licensure and public employment (civil service) calling professional, sub-professional and general employees is in the best interest of Hawaii Education system -- and meeting manpower needs?

Why hasn't the Board made use of the Advisory Committee on Vocational Education?

If there is no intention of dropping vocational education why is McKinley dropping their vocational classes?

Is Vocational Education being used as the *whipping boy* to rationalize the deficiencies in the present general education program?

To what extent is there adequate Coordination between industry and education in training for manpower needs of the present and the future?

Dr. Marvin F. Poyzer and Mr. Carl J. Schiffers:

Which is better--an economic success who knows nothing of national and world problems, or an economic failure who does?

Would you care to comment on a proposal made in recent years that a portion of the work week of 40 hours be devoted by a return of employees to regular employer subsidized classroom study in order to upgrade their skills, technical knowledge and to afford an opportunity for continuing General Education? Example: 4 days of 8 hours at work 1 day of 8 hours in school. Pay to be 40 hours.

BANQUET ADDRESS

Toward a National Policy

on Human Resources

Harold L. Sheppard

Thank you Mr. Laureta, and Governor and Mrs. Burns.

It is pretty hard to follow an act like Mrs. George K. O. Lee and Mr. Donald Matsumori who made some valuable contributions to other aspects of our human resources development, but I am going to do my best. I don't think it is right for someone who comes 6,000 miles to talk only for an hour and 25 minutes, so I have written a three hour speech: so, whatever Dr. Pierson doesn't cover I will cover tonight in anticipation of what he is not going to cover!

Let me mention what it is I bring to this type of assignment, in terms of my outlook and orientation. And that is one of the ptiches I want to make tonight: we need a major emphasis first in orientation on this issue of human resources development. I feel it is important to give you a little of this so that you can evaluate and judge what I want to try to put across tonight. In the light of that background I speak as a sociologist who is conconcerned with industrial problems combined with training and experience in anthoropology and economics. And when we talk about a human resources development program or policy, we have to be shifting - not only policies and practices of educators in the public schools, the grade schools, vocational educators, not only policies and practices of employers and unions, but also among the so-called egg heads and academics. My experience also includes being put on the firing line to put ideas to the test as an administrator, an action person, as an assistant administrator in the Area Redevelopment Administration of our Department of Commerce. I met some of the people at this conference when I was serving in that capacity, Dr. Shelley M. Mark, for example. That type of experience brought home to me, most of all, the points I want to present tonight.

The other point I want to make before I get into the details, is that from my outsider's point of view, I think Hawaii is in a very unique spot. It has a great unique opportunity to succeed in the issues we are discussing today- and that we will be discussing tomorrow, in solving many of the problems that we on the mainland are trying to solve too. These are obvious to you, but sometimes they have to be laid out on the table. They are unique because first of all, you are a relatively self-contained geographical entity, and you are able to face a lot of the problems more easily than when you are in a state contiguous with three or four others. And from what I am told, you have a relatively unemcumbered administrative structure with which to attack these problems. Finally there is what the social scientists have come to call the Hawthorne effect. In a way the spotlight is on you, and people you know are being watched - I don't mean in the big brother sense. When other people are paying attention to you, you behave differently from those who aren't under this Hawthorne effect.

When I was asked to talk on this question of the national policy or human resources development, the first thing I thought of was, what is the major message I want to leave? Well, in very broad terms, to start out with, I tried to outline my remarks. We first have to have an intelligent orientation to the problem - a conceptualization, if you will. And secondly once having done that, we must organize a structure, an action program to carry out that orientation. And thirdly, the personnel. This is a fascinating paradox - that in all of our efforts to carry out a human resource program, we are running into the problem of not having enough human resources to carry out the program. The training of teachers who will be training teachers of stu-

dents and so on. That is not just a facetious remark. And finally, and this sometimes is left out, a true, effective, realistic evaluation of our efforts to implement programs to reach certain goals. And then to be able to change, as those evaluation results are fed back to us. In other words, no rigidity.

Thinking about this term *human resources development*, a number of other facts and issues rush into my mind. For example, Secretary Wirtz tells us that between 1965 and 1970, there will be seven and a half million more jobs to be filled. And then I begin to wonder what is taking place in the lives of those seven and a half million people now, before 1970, that will qualify them, or not qualify them, to fill those jobs. What are our schools and colleges doing to prepare them adequately for the fast changing job opportunities in state and local governments, in business, in professional, educational and medical services? I mention these particular industries because three-fourths of these expected seven and one half million new jobs will be found in those industries. In government, local and state government, in business, and professional, educational and medical services. And what are these industries themselves doing to train, on-the-job, such additional men? I was a little bit curious this afternoon and in a-l the discussions, if my memory serves me correctly, since I haven't heard anything about employer on-the-job training.

Another thing comes into my mind when one talks about human resources development. In the 1960's - at this particular time in our national history - we might narrow that term down to only problems of the disadvantaged groups in our society. But we mustn't forget little facts like this - that just a few years ago, for every hundred boys and girls with an IQ of 125 or more, not much more than 50 per cent of them entered college. And probably fewer than 50 per cent actually graduated. This, to me, is a tragic loss of some human potential. Not all of them were from disadvantaged families. What a loss to the individuals themselves, and obviously, to the community and our society also, that their full potentials are not realized.

The other thing that comes to my mind is that we are going to continue to witness one of the most fascinating paradoxes that I find (maybe we have become so used to it that we don't think of it as a paradox) and that is the paradox of employers in government agencies, in businesses and professions that require technical skills, complaining about vast shortages of workers in the midst of 3, 4, perhaps even 5 million people, who at the same time are complaining about being unable to find employment. This is a fascinating paradox. It might be a modern phenomenon. And on this paradox we could spend an entire evening discussing the reasons for it, and how, if at all, we can close the gap between job vacancies and job seekers - or is that the solution?

Let me give another example of the kind of questions that are evoked by reference to this term *human resources development*. Is our limited war against poverty truly confined to the development of our human resources? This is apart from the question of how effecgive such a war might be. How many of us think of the OEO program as only one aspect of a larger effort to develop the talents, the outlook, the opportunities and the actual accomplishments of all Americans, not merely the poor and disadvantaged?

In this connection I think it is significant that Mitchell Sviridoff who was called to New York City from New Haven, Connecticut, by Mayor Lindsay, to redesign and implement the strategy against poverty in that metropolis, also created a comprehensive department of human resources which will encompass not

only obvious programs identified in the minds of all such as Head Start, or the community action projects, but also the city's total education and manpower training responsibility. I mentioned the New York case partly because I want to hit hard the point that a successful program of human resources development requires not only money, not only staff, but something else that too frequently is harder to come by, and that is the right conceptualization of a problem. The way we conceptualize this problem is going to determine our organizational structure and the success of such a program.

The New York City case is a local example, and I have been asked to concentrate on the subject of a national policy of human resources development. It is very easy, after living in a big city like Washington, D. C., that is the national capital, to forget that elsewhere in America there are still many individuals, many areas, many organizations, that do not think in national terms, and that are not exactly enthusiastic about national policies. The most recent striking example that I can suggest here tonight is the negative reaction of many local school administrators to a new national study by the Carnegie Corporation of our nation's schools and their children. One of the fears of this group of local school officials is that the study might result in a comparison of the school systems, and then in turn, the development of national standards of evaluation. Isn't that just awful for a conglomeration of 50 states and other jurisdictions, while at the same time this conglomeration pretends to be a nation in the United Nations, in Berlin, in southeast Asia and elsewhere.

Why must we constantly remind people of the need to form a more perfect union? You yourselves, at this Conference, have been dwelling on education - and a national policy for human resources development cannot run away from the question of how well our schools are performing and enhancing the intellect, the citizenship problem, the lives and the vocational preparation of your youth. I should also add the continuing improvement of our adults including our so-called senior citizens. This is another source of waste in our society. We are still carrying on as if we were in the depression, by trying to shake the old folks out of the factories in order to create jobs for young people, when we don't have to be doing that.

If we must resort to an extreme demonstration of the urgency of a national policy for the development of our nation's human resources, let me simply remind you of the distrubing statistics on the rejectees from our selective service system, as a social indicator of our national failure. If our country requires a given number of military strength, it must depend on the manpower supply, the human resources forged largely or partly out of our educational and health institutions. And as you know, the rate of rejection, because of educational and physical deficiencies has been very high, too high for a supposedly advanced nation. Also, it is fantastically high in certain regions of our country and among selected segments of our population, especially Negroes. These statistics constitute a basis for scandal, and the scandal has pointed up the need for a national education and health policy designed to make more perfect our human resources.

In more recent years two major events have influenced our national policy makers to move into some previously neglected areas in the development of the human resources. The first was the recession of the latter part of the '50s and early '60s, along with the chronic unemployment in many parts of our country. The second event was, of course, the civil rights movement. In

order to create opportunity for major segments of our population there must naturally be a stimulation of a greater demand for goods and services, which, in turn, generates a greater demand by employers for more workers. The tax cut of a few years ago, and similar fiscal and monetary measures, helped to bring about this greater demand for goods and services by putting more spending money into the pockets of employees or consumers, and thus bringing about a greater demand for more workers in industry - although more recently we are facing too soon perhaps the bug-a-boo of inflation.

But the greatest demand in the world for more workers does not automatically result in full employment of our human resources. Prejudice among employers, lack of skill and inappropriate work attitudes among potential employees - even ignorance among both workers and employers as to how to recruit new workers, or how to find a job, can create serious barriers to a full and rational utilization of our manpower. Antiquated vocational education programs, traditional employment service policies, along with backward employer hiring, training and upgrading policies have also operated to frustrate the actual realization of the goal of a meaningful human resources development program.

In the United States, in case we have forgotten our history, there has been a number of national efforts to develop human resources, although we didn't use that term in the past. I am thinking of as far back as the 1780s, when we had the Northwest Ordinance, which required that new territories, created by the Ordinance, had to set aside land for a certain number of tracts for schools. The Morrill Act created our great system of land grant colleges of the 19th century. And in the lives of all of us here, or most of us, the GI Bill, after World War II, made it possible for hundreds of thousands of Americans to advance themselves, and for the country to improve its human resources. The National Defense Education Act in the late '50s accomplished the same thing.

But notice in one case it took a war to justify the creation of a national education program (for veterans only), and it took a communist sputnik to justify the other. It is a sort of a sick joke that I cooked up in my mind about the possibility that if our relation with the Soviet Union continues to improve, what is going to happen to so many of our national programs that Congress legislates in the name of keeping up with, or outstripping a Russian menace? Maybe we ought to pray for a quick end to the internecine warfare going on in China, so that we can use that nation as a successor to the Soviet Union as a goad for improving our domestic programs.

Unfortunately, and I hope this isn't wishful thinking, we have recently begun to find some moral equivalents to international conflict and rivalry as a basis for continuing current, and for justifying new, national programs for human resources development. The President's budget message of last week begins its section on education with this single, simple sentence, "Our nation's greatness depends upon the full development of the talents and abilities of its citizens." We should recall President Madison's essay on the importance of education for a true democracy. President Johnson reminds us that the 89th Congress wrote a very memorable record in education legislation, including the 1965 Acts for elementary and secondary education and for higher education. In 1966, the Federal Government spent 2.8 billion dollars on major education programs. This doesn't include things like MDTA. The new budget proposes an increase of four billion dollars, rising to 4.6 billion in 1968. Coming back to programs like MDTA (The Manpower Development Training Act of '62) and related legislation and programs like MDTA, the Federal Government now

spends about 2.1 billion dollars, and that doesn't mean anything unless you are reminded that the current figure is 800 per cent higher than the figure the Federal Government spent in 1961.

Of course it remains to be seen how the vastly different new 90th Congress treats the Administration's present program and its new proposals including those for assistance to 8½ million children from low-income families, and grants for projects to encourage desperately need innovations in teaching techniques.

But in addition to justifying the national program in human resources development in terms of moral and humanitarian arguments, we Americans seem to have a need to show that moral arguments are also practical, that they have a dollar and cents pay off. Apparently, we don't really believe that virtue is its own reward: we have to keep proving to ourselves that it pays.

So in the past several years we have been doing some fascinating research, which apparently proves - thank God - that our economy's total output depends not only on capital investments, on machinery and technological change, but also on changes in the quality of characteristics of the human beings involved in the productive process. We now need, incidentally, to show the same sort of thing on a state-by-state basis in order to convince the local leaders and the general public. These qualitative changes have to do with know-how in organizational and managerial techniques. They have to do with how individuals respond to economic opportunity no matter if you are talking about blue-collar workers, or small or big business men. And the changes also relate to the variations in individual and group acceptance or rejection of innovations.

These studies have been able to show quantitatively how some of these non-quantitative factors have affected and can affect and do affect our economic growth process. They have been able to show that on the other hand, the old-fashioned notion about the exclusive role of capital accumulation and economic growth has failed to explain satisfactorily all of the economic growth in America. I am referring to a summary, for example, of several of these studies by a well known economist named Burton Weisbrod in an article called "Investing in Human Capital" and published very appropriately in a new journal called *The Journal of Human Resources* - published at my own alma mater, the University of Wisconsin. This is the first issue of the first volume in the summer of 1966. Weisbrod says in his article that the increases in the stock of reproducible physical capital account for only half or less of the growth of our per capital output during this century. The very large per capita growth in our society has to be explained in terms of the increasing investment of what we now call human capital. And this means money spent on education and training, on health services and on just plain old information on education rights. "Education is the area of human resources development in which we face today the most pressing issues of public policy, the greatest and most rapidly growing demand upon the public purse, and the most challenging opportunities for farsighted social leadership."

If we are truly serious about a national policy on development of human resources, because of the type of studies I have been describing, we had better begin today to classify our so-called expenditures on education and training as an investment in our national income account, instead of

calling these expenditures or welfare costs, or fringe activities that are more expendable than say a seven per cent tax benefit for new machine investments.

We all readily agree on the need for better health conditions for a healthy economic growth resulting in physically able employees and management. But education and training have contributed more than health research and health services. Perhaps, some day, not too far away, we will have a program of education in which we pay students to attend school or the university, as we come more fully to appreciate the value of education to society and the economy, not just to the individual himself. It is ironic that Hawaii's closest neighbor state seems to be moving to the other extreme and for the first time wants to charge students tuition to go to a public university.

I don't know how you look at it, but to me we achieved a rather major ideological revolution in 1961 and 1962 when Congress passed the training provisions in the Area Redevelopment Act and the Manpower Development and Training Act. Until those bills were passed, unemployed workers - if they wanted to improve their vocational skills in order to increase their job finding success - had to pay for the training, or at best take free, or low cost vocational training, without any subsistence allowance. But the ARA and the MDTA turned things upside down and paid workers to do what others would have said they should be paying themselves to get. They were paid to acquire a new skill so that they would end up on payrolls and off unemployment compensation, and relief rolls.

I remember many years ago in moderating a debate between Leonard Woodcock, Vice-President of the UAW, and a representative of the research department of the NAM, at a time in the Detroit area when many people were worried about the technological change with mergers, and other factors resulting in layoffs of many workers. This was back in the mid '50s when the NAM representative said that this is - you know - a sort of price to pay for technological progress and that any worker who is laid off has the responsibility to go out and pay for his own reeducation. A lot has happened since the mid '50s and recently I have seen reports by committees of the NAM in which they say employers have a responsibility to help pay for the retraining of workers laid off as a result of mergers, technological change, and so on. Now we are paying workers - perhaps not as much as they might need - but the principle has been established and it is a rather important milestone in our social history.

I am not going into elaborate detail on the many benefits and improvements resulting from the length and quality of education. They are indicated, for example, in the exceptionally high unemployment rates among the lesser educated members of our labor force, even when our fiscal and monetary policies create a high actual demand among employers for workers. The greater employability of persons with improved education naturally cuts down on welfare costs, and helps to accelerate the output and sales of our vast product and the service industries. In other words, it adds to our gross national product and thus justifies the case for a national policy of human resources development. There are many non-economic social benefits as well. Benefits which justify the payment of taxes for education, even by those people without children - even by those who themselves are no longer in school.

Another point must be made here. Much of the social unrest in our

great urban centers on the mainland is related to the mass migration of men, women and their families from the south, where decent education is often denied disadvantaged individuals. In these days of high geographic mobility, "the residents of areas of in-migration have a stake in the education of children in the areas of out-migration."

Apart from the legal and moral aspects of the right to equal educational opportunities, there is also the question of how the denial of this right in one part of the United States, results in catastrophic social problems for another part of that same nation. There is the question of how much one state, through its Congressmen and Senators in Washington, can shape and influence the quality and the level of education in the schools of other states. This is an important issue that needs to be worked on.

The benefits of a truly national policy in the field of education would perhaps be seen only in the long run - but in order for these long run benefits to be made a reality - now is the time to implement such a policy. The main point I am trying to stress here is that we are still paying too little attention to human capital in comparison to our preoccupation with incentives for traditional investments. The government still has a long way to go in establishing an effective human resources development program and will continue to need intelligent leadership from among our citizens and their representatives. We also need a more unified program in the manpower field. Congress, I think, will soon be taking a look at that.

Let me try to develop a somewhat different approach to this topic of human resources development. Since 1961 we have seen many new legislative programs which went beyond the fiscal and monetary policies designed to meet many of our manpower problems, and our problems of slack in economic activity. These new programs were based on the conviction that the general increase in demand for labor by private industry cannot be completely satisfied if for example, thousands of job seekers simply are not qualified to meet the skill requirements of the jobs being opened as a result of the increase in so many installations. The lack of adequate skills and work attitudes, or living in the wrong place, or prejudice, just to name a few non-economic variables, can exert pressure on rates of unemployment even in the midst of a general demand for more labor in our factories and our offices. These barriers are the targets of today's necessary programs for human resources development.

Just a few weeks ago - to give you a simple example - I heard that the Virginia State Police system had nearly sixty unfilled vacancies for state policement. However, the police force will not try to fill these vacancies with Negroes, even if they are qualified. Prejudice can still serve as an obstacle.

Now that we have a vast array of legislative weapons to facilitate economic growth and reduce unemployment,and thousands of dedicated administrators of the new programs are trying to implement them, we face a new level of challenges - challenges that will bring us face to face with the unsolved problems of our society and economy. The fiscal and monetary policies of the early 1960s were necessary, and so were such programs as MDTA.

They were necessary and they are necessary, but are they sufficient? Can we reach the objectives of full economic and social growth merely by passing such legislation and the appropriations of the vast sums associated with

that legislation? I don't think so. I want to cite a few quick examples - the Area Redevelopment program for example. This was designed in large part to provide rather liberal, long term, low interest loans to private industry in those parts of the country having substantial unemployment or under-employment. But in administering such a worthy program many of us, myself included, discovered that if the business man and other community leaders were not oriented in a certain way in their personal and social outlook, all the easy money in the world could not produce applications for loans to finance expansions for new industry. If a local community was so afflicted by a lack of purpose and unity in their every day activity, the necessary organizational arrangements as a prerequisite for a loan would be missing. The same goes for any regional development involving a multi-county, interstate relationship. In many of the depressed areas the work force had been depleted of its skilled manpower through migration to areas that presumably had economic opportunities or just as likely the community was no longer capable or interested in supporting an adequate vocational education system because of its weak tax rates and because of the spirit of demoralization and resignation. Large parts of the Appalachian region fit this picture. And if the benefits of the vast highway system now being programmed for that area are to be witnessed in our time, the development of the human resources in Appalachia also warrants equally urgent attention.

Inadequate managerial talent, lack of community organization for purposes of economic growth, deficiencies in the school system, and in the health services, all of these are examples that are naturally included in the list of insufficient conditions for the restoration of large parts of populations in various sections of our country.

But the concept of the depressed area can be applied to more than the agricultural deep south, the upper peninsula of Michigan, Appalachia, or some of the islands of Hawaii. Until recently many program policies have been covered, not by reality, but by what I call the statistical average approach to large urban metropolitan areas. Until recently when the Department of Labor used the term *Detroit* or *Los Angeles* just to give two examples, these words really referred to a statistical artifact. For the total metropolitan area covering two, three, four or more counties, with possibly thousands of square miles, for such an area the average unemployment rate could be so low and the average family income so high that it conveyed the impression - the very comforting impression - that in every part of such an area these figures were virtually identical.

You remember Walter Heller telling the story about one hand having a temperature of 48.6, and the other hand with a temperature of 148.6. These figures result in an average of 98.6 so neither hand is suffering. This approach minimizes and hides the issue.

The statistical pattern approach to a megalopolis can fool us into believing that Los Angeles - and I use that term only as an illustration - that Los Angeles has a very low rate of unemployment, or a very high average family income and that therefore, it seems that things are humming beautifully. Well, it took Watts One and it took Watts Two to show the fallacy of the unqualified usefulness of a homogeneous labor market area concept. More recent outbreaks in other parts of the country confirm the fallacy. Depressed areas in other words, can and do exist in our urban areas. They are symptoms of our problems of human resources development and they can be helped only partly

through urban renewal, as we now use that term. Human renewal must also become the object of our imagination, our brains, our money, and our organizational challenge.

Now let me jump to another challenge. No matter what some unthinking critics have said the so-called Moynihan report, it was an honest, candid effort to point out the need for the redevelopment of the human resources in one part of our American society - a significant minority and only a minority, of Negro urban Americans. In the opinion of many people Moynihan was pleading for a program to supplement - not to replace - the Civil Rights Act, the Manpower Development and Training Act, the Elementary and Secondary Education Act, the Economic Opportunity Act, and so on. I think we know enough now in the social sciences to conclude that economic development requires, among other things, a strong psychological penchant for achievement and persistence toward overcoming obstacles among an active entrepreneurial-managerial group, even in a non-capitalistic society.

It is also true that occupational and social mobility among the rest of the population structure is likewise partly dependent - notice I said partly dependent - upon the same social psychological factors. Workers in the lower social strata exhibiting these characteristics typically seek out and take advantage of those opportunities that lead to, or constitute, upward economic and social mobility. One crucial point is that some research has shown achievement motivation is strongest among those low income families with both a father and mother present, whether we are talking about Negroes in urban ghettos, or whites in West Virginia and Kentucky, or English kids in the urban slums of Great Britain.

If I were to point out to you, that carbon monoxide can adversely affect your intellectual -- your IQ -- ability, you wouldn't argue with me too much. So don't go to the big cities with all those exhaust pipes if you want to keep your IQ for very long! But when we talk about family structure and family size, people get emotional about it. I can't help that I am just pointing out the facts. These are facts we will have to face and we will have to work them into our programs if we are truly concerned about a total comprehensive approach to human resource development.

My point is that a human resource development program based only on dollars, on juggling around administrative jurisdictions, a program which fails to cope with the social-psychological dimensions of the problem, is doomed to failure. Regardless of what we think of the success, so far, of Operation Head Start, we should view its intellectual justification in the terms I am discussing here, as an effort to intervene, as early as possible, in the emotional and cognitive experiences of persons now living in poverty, so that they might be able to participate effectively in the future in the structural opportunities we hope to create through our educational, economic, development programs. Of course, it goes without saying that the entire educational system needs to be adapted and changed in order to cope with the successful human products of the Head Start program.

I could continue here at length with several studies that show the need for a truly comprehensive approach in human resources development that would encompass the social psychological side. My main point is that here is an area for some frontier breaking, and a need for changing many attitudes and values. The challenge in the years to come will not be primarily to con-

duct more and more research and to test the propositions I am referring to, but rather to seek those techniques, those methods and new programs to be used to improve such things as family structure, human motivation and self-image. Economists starting in as early as Adam Smith, John Stuart Mill, and more recently, Theodore Schultz have tried to tell us that economics must include the variable of human capital and this applies not only of the analysis of undeveloped countries, but to our own developed ones as well. Economic phenomena cannot be adequately comprehended through only the use of economic variables - non-economic variables are also involved.

To repeat, today the challenge is to develop those techniques, those *intervention* strategies, if you will, that will strengthen our ability to change those non-economic factors that stand in the way of the fruitful development of our human resources.

Thank you very much.

FEBRUARY 2

P A N E L

Conservation of Human Resources

Chairman: Mr. Jack T. Nagoshi
Deputy Director, Juvenile
Delinquency and Youth Development
Center, University of Hawaii

Members: Miss Edith Wat
Employment Service Program Specialist
State Department of Labor and Industrial
Relations

Mr. Donald M. Wolfhope
Director, Training and Personnel Research
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Mr. Jack W. Hall
State Regional Director, I.L.W.U.

Mr. Walter P. S. Chun
Director, State Office of Economic
Opportunity

The Role of MDTA Training
in Conservation of Human Resources

Edith Wat

The Manpower Development and Training Act of 1962, including the amendments of 1963, 1965 and 1966, requires the federal government to appraise the nation's manpower requirements and resources; to develop and apply the information and methods needed to deal with the problems of unemployment resulting from automation and technological changes and other causes of persistent unemployment. It provides a vehicle for federal, state and local community partnership in meeting the problems of poverty and unemployment, and the challenge of developing and strengthening our human resources to meet the needs of the individual and of our society.

While the main body of this presentation will be on the provisions of Title II of the Act, I would like to mention one feature of Title I which has direct relationship to training as a means towards conservation and development of human resources. This is the provision for the establishment of a program of experimental, developmental, demonstration and pilot projects for the purpose of improving techniques and demonstrating the effectiveness of specialized methods in meeting the employment and training problems of certain worker groups such as the long-term unemployed, disadvantaged youth, displaced older workers, handicapped, and other similar groups. This type of pilot project is now being conducted in the State by the Rehabilitation Center in the training of the severely handicapped, long-term, or chronically unemployed person.

Title II of the Act addresses itself to avenues of training for the unemployed and the underemployed. It provides for skill training programs related to the skill requirements of the economy, and to the occupational development and maximum utilization of the skills of the workers. Training projects, categorically- are:

(1) Institutional -- skill training conducted in a classroom environment;

(2) On-the-job training -- a program of skill training conducted on the job site by employers; or

(3) Coupled projects -- a combination of institutional and OJT training.

The design of training programs is to qualify for employment the many unemployed or underemployed persons who cannot reasonably be expected to secure full-time employment without such training. The Act provides, to persons meeting eligibility requirements, some financial assistance during the institutional training period; and also provides some reimbursable costs to employers who participate in On-the-job Training projects.

Historically, the implementation of MDT training programs has been characterized by crash planning, and operating from crisis to crisis. This was the result of the innovative character of the program itself, the contining changes in regulations, definitions and procedures resulting from nation-

wide experience, and from the uncertainties of the funding process. In response to this situation, the National Government recently initiated a federal-state planning system for development of a comprehensive manpower training plan for a fiscal year period and requiring coordination with other federally-funded training programs and projects.

Sound planning for development of a comprehensive manpower training plan or a specific manpower training project requires the following actions:

1. Determination of training needs based on:

   a. identification and verification of skill requirements.
   b. identification of a supply of potential trainees.

2. Development of a training plan which includes:

   a. determination of most suitable method of training.
   b. devising curriculum content to meet job requirements as well as the needs of the trainee.
   c. determination of availability of instructional staff.
   d. arrangement for physical facilities for training.
   e. determination of the economy of the plan.

3. Enlistment of community support for:

   a. assurance of employment opportunities.
   b. full use of community resources.
   c. coordination for maximum utilization of resources and avoidance of duplication of efforts.

In addition to the difficulties involved in the planning process itself, there is the continuing problem of keeping job market information complete and current. Within the context of the Act, what are the jobs for which training should be developed? What is the impact of technological and economic change on production and employment in Hawaii? Who are the individuals qualified to receive training? Such data as was available for planning purposes has been fragmentary.

It was not until early 1965, that funds were provided for a State Manpower Skill Survey.

In this survey, 78 key occupations were selected for study. Basically, for each of these occupations, estimates were obtained for the number currently employed and unemployed, projected requirements for expansion and replacement, and the number expected to be trained within two and five years. The result was an estimate of surplus and shortage occupations projected to 1967 and 1970. The survey was necessarily confined to selected key occupations -- those occupations where expansion was anticipated, and occupations currently in demand and where the demand is expected to continue.

The study, as such, provides merely a beginning. Continuing assessment of future manpower supply and demand is needed, and this can be accomplished to the extent funds are made available.

A second problem in program implementation has been the acquiring of physical plants in which to conduct trades training. Because our local schools are already bulging at the seams it has been, and still is, necessary to scrounge surplus space. The school systems have been cooperative. Even so, there is no assurance of continued availability of such space as the changing needs of host schools have priority. The lack of adequate space has limited maximum utilization of teaching staff, and has an adverse effect on scheduling of training hours, which affects the retention rate of trainees.

The character of the program currently facing us differs somewhat from that of training programs conducted during the first three years of the Act. During those initial years, programs were geared primarily to employer requirements and demand occupations rather than to the characteristics of the available labor supply. In effect, training opportunities were provided to the *cream* of the unemployed and eliminated those most in need of training -- those who needed reading and computational skills to participate in training. Characteristically, the latter group forms the core of long-term unemployed -- undereducated, unskilled, and faced with multi-faceted problems caused by socio-economic factors. These are the persons generally considered by employers as unemployable. Unless provided the means to overcome barriers to training and employment opportunities, this group will remain disadvantaged in the competitive labor market of today and tomorrow.

To resolve this problem a change of direction in MDT training was indicated. Beginning July 1966, new program goals are shaped to meet two problems:

1. Programs for people (trainee oriented)

   Approximately 65 per cent of the training directed to the hard-core disadvantaged unemployed. A trainee-oriented approach to training project development is a necessity if the hard-core unemployed are to be reached. Training projects may be either in occupations for which there are *numerous employment opportunities*, or in occupations in which shortages exist or are emerging. Basic literacy and computational skill learning is incorporated. The primary emphasis is to provide training for disadvantaged persons which will prepare them for entry into work at the highest level of their potential.

2. Programs for Industry (industry oriented)

   Approximately 35 per cent of the training effort directed to meeting skill shortages. The purpose is to provide workers with new skills or to upgrade skills in those occupations in which MDT could assist in alleviating shortages.

MDT training projects with the goal of providing the unemployed with skills to obtain employment must, of necessity, have the cooperation and participation of employers, both public and private. We need tangible commitments such as assurance of job opportunities. Consideration must be given to the removal of employment barriers such as age, police records, uniform application of physical and educational standards, and relaxation of hiring requirements in the light of current labor supply.

The assistance of labor groups is needed also in the evaluation of minimum requirements for entry into the trades and crafts occupations. Commitment by government and private agencies to provided services--such as medical, health, rehabilitative, and general welfare--is necessary to meet the personal needs of the worker, those needs which are not job related by affect his capability to survive in training or on the job.

Maximum utilization of MDT as a tool in the conservation and development of our human resources requires then the cooperation of all segments of our economy -- labor, industry, government and private organizations. In an effort to provide a central focal point in the community for the coordination of information and services in human resource development, the Employment Service Division is now in process of reorganizing its branch offices in Honolulu to improve its services to both the worker and industry. Plans are for the establishment of a branch office for the concentration of employability services--all those services needed to increase the employability or *job readiness* of the worker of any legal working age. When the worker is *job ready*, he will be provided continuing service by Job Placement branch offices, the services to include aggressive job development. The Employment Service system serves to facilitate the processes towards full employment but needs the cooperative assistance and commitment of the community for the achievement of this goal.

Conservation of Human Resources

Donald M. Wolfhope

This conference on Human Resources is really an examination of jobs on the one hand and people on the other. We are all quite well aware that the world of work has changed and is changing at an astonishing pace. Man, however, is not so pliable and flexible as to be able to adjust to these almost daily upheavals in the work place.

Our task for this morning's panel is to examine how the economic community has faced up to the task of conserving and properly utilizing human resources. Specifically, what about technological change and the unemployment that it generates. What about the culturally deprived who are not equipped educationally, or skill-wise to meet the standards imposed by employers. Then, there are the youngsters that we call *school drop-outs* who are also ill equipped to enter the world of work. Then, too, are the physically, mentally and emotionally handicapped citizens amongst our human resources who are unemployed but who are ready, willing, and able to do a job. And lastly, there are a large number of unskilled people who are non-learners or marginal learners and are not now employable in our economy.

How have these individual problems been attacked and how have we failed? What should we be doing in business and industry to move toward our goal of full employment? And, what are some possible steps we can take in the economic community to more fully utilize our human resources?

Let's examine for a moment, some of the changes that have occurred in Hawaii business and industry since World War II. We have seen a disintergration of racial discrimination as a major impediment to proper and efficient utilization of people. We have not eliminated discrimination, but we have moved on it so forcefully in the market place that we are the national leader in approaching equality of opportunity. More needs to be done and constant vigilance on the part of the employer and his representatives is necessary to insure that a man's relationship to his job is not jeopardized because of the color of his skin, his beliefs, or the country in which his ancestors were born.

In the matter of employees displaced by technological change we have seen in Hawaii dramatic evidence that solutions can be worked out. In the '40s and '50s, the initial direction was to lay off employees so displaced when they would no longer fit into the operations of the organization. This solution today is elected only after many other possible courses of action are first considered. Larger companies have adopted sizable training and retraining functions to prepare displaced employees for other jobs within the organization. Companies have also instituted policies of tuition assistance and programs of related training so the employees could learn new skills. In some cases -- not too prevalent -- employees have been given time off and encouraged to pursue outside training to prepare them with greater skills. As a correlary to this, business and industry have evolved a closer working relationship with high schools and technical schools and with the emerging Community Colleges as well as with the University. These relationships have resulted in better understanding of the education and training process for preparing unskilled people with skills that are usable by business and industry.

In addition to the various programs in use by business and industry for relieving technological displacement is what appears to be a significant shift in the thinking of employers and management employees. The bulk of the people employed in the State of Hawaii are employed by small businessmen. In the periods since the 1940s, the greatest single change in attitudes towards employees appears to be amongst these employers. The feeling is now general that to separate an employee from his job is a terribly traumatic and undesirable situation. In the years prior to World War II these small employers, by and large, had little hesitancy over this course of action. Now they feel an obligation to their employees to maintain a steady and secure place to work.

Along with this, there has developed a greater understanding, hence a greater acceptance, of the handicapped as productive members of the work force. Joint campaigns to encourage the hiring of handicapped and greater acceptance of emotional problems as being common place have resulted in much greater job opportunities for the handicapped. Some companies, large and small, actually set aside certain positions to be filled by the mentally retarded, the physically and mentally handicapped, or by other disadvantaged people such as school dropouts or ex-convicts. The John Howard Society has been eminently successful in helping the latter to adjust again to the world of work.

These then are some of the directions taken by business and industry to effectively utilize those human resources not now presently employed. Other suggestions have been made from time to time and might be in order at this point in our discussion.

A closer relationship between high schools and industry is encouraged to deal directly with the school dropout problem. Suggested is an automatic mechanism whereby the school directly (or through another agency) contacts cooperating employers when a specific student announces his decision to withdraw from school. A program can be worked out whereby that student is invited to visit the company and every effort is made to place him in some kind of training or work program. Other variations of this approach include such things as a *half and half* program where students attend school one-half day and work one-half day for cooperating employers. One problem associated with this latter program, however, is the fact that a student in this given situation by law must be paid a minimum wage which is out of line with his possible contribution to that employer. The employer for the same amount of pay can most likely get an experienced adult in the market place rather than have to deal with the young, inexperienced teenager. I understand that some other states have developed a special wage rate for this type of situation which acts as an incentive for the employer to take on the part-time trainee. This might bear investigating.

Another suggestion to increase the possible utilization of the physically and mentally handicapped has been mentioned from time to time but never to my knowledge been seriously considered. Much of an employer's reluctance to hire these handicapped people stems from his fear that should anything happen to them on the job, that he would be held accountable under the Workmen's Compensation Laws. Since his over-all cost under the law is based on the number of work-related incidents of injury on the job, the employer is inclined to steer clear of people he feels are a greater liability. Certainly an employer would hesitate to hire a person with a background of emotional problems in light of recent workmen's compensation decisions in which an employee's suicide was adjudged to be at least partly as a result of pressures

generated in his work. The suggestion that has been made is that possibly some kind of relief or partial relief from workmen's compensation responsibility could be provided the employer as an inducement to hire the handicapped. Legally and administratively, this might prove to be impossible but it bears investigation.

Another technique which has been in use in other states with varied success has to do with the training of *hard core* unemployed persons in how to actively seek employment on their own in the market place. An example of this was conducted in New Jersey where employers were called upon to provide their personnel and employment officers to comprise a panel of teachers to teach groups of unemployed on how to approach an employer for a job. The over-all net effect of this program in New Jersey was adjudged successful although I have no figures. This is another possible suggestion for exploration.

These are some of the ways in which the employer seeks to help maximize our human resources. At this point it should be restated, however, that no program, no matter how sophisticated, can possibly provide employment for all of the unemployed. There are people who truly are unemployable because of physical, mental, or perhaps emotional reasons. The goal of *full employment* is never fully achievable if we define it as jobs for everyone. For those people who are unemployable in even the best of situations there must be help not connected to a job. Indeed, this latter topic is a fresh and lively one on the national scene and is no where near solution. Of the employables, however, much has been, can be, and will be accomplished by joint efforts such as this conference and the over-all concern of community leaders.

* *Conservation of Human Resources*

Jack W. Hall

Speaking here as a representative of organized labor, let me start off by stating what I think the primary responsiblities of trade unions are as they function today in the United States. It is perhaps *old hat* to some of you, and taken for granted by many of us, but it bears repeating here. Organized Labor's first responsibility is to the members it represents. It must be able to safeguard the jobs and conditions of the members in its ranks, not those it has represented in the past, or those it may organize in the future.

In this context, we feel that we in the ILWU have been in the forefront in seeking new answers to the technologically-created problems of our members. In a moment I will describe to you some of our approaches in the sugar industry and longshoring. Interestingly enough, these approaches were first developed in Hawaii.

I have stated a narrow view of labor's responsibilities. It is inadequate to the larger social problems. It has been forced upon us, however, by the system within which we operate. It reflects the correspondingly narrow viewpoint which most employers take of their responsibility under a free enterprise system. As a matter of fact, a great deal of the freedom of free enterprise has been precisely the freedom from responsibility for the social and human consequences of the enterprise.

Our traditional ideology . . . and let me say right here that I don't believe this ideology corresponds to the facts of modern life, in which the giant corporation and imperfect competition are central, or that the traditional view can guide us to solve our human problems . . . but the tradition, nevertheless, does hold that the employer's first responsibility is to profitability of the firm, and that if each employer pursues this interest energetically and efficiently, some will fail, but the best will succeed and--as Adam Smith expressed it--an *unseen hand* will lead all this striving to result in general economic and social progress which will benefit us all. (Here in Hawaii we can't permit some of our basic industrial firms to fail even if not the *best*.)

The progress is evident enough.

Less well understood by those who should know is the terrible human cost of much of this progress . . . the millions of lowly, inarticulate people whose lives have been destroyed or blighted by the shifting demands and upsetting effects of the industrial revolution which has been transforming life on our planet at an ever faster pace for almost three centuries.

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* In a recent speech, Jack W. Hall, regional director, set forth the philosophic approach which he said has motivated his union, the I.L.W.U., in its approach to social problems and technological change.

Because the I.L.W.U. has been a major force in re-shaping post-World War II Hawaii, the text is reprinted in full. *Honolulu Star-Bulletin, March 14, 1967.*

AT THE REQUEST of Senator Dan Inouye, this speech was reprinted in the Congressional Record.

The progress has always left a frightful human wreckage in its wake -- from the mill-towns in the 19th century England and the modern slums and mines of South Africa and South America to the black ghettoes of our own country or the dwellings of elderly Filipinos in our Hawaiian urban and rural slums.

It hasn't been progress at all -- it has been a disaster for millions of individuals . . . for underpaid workers in unregulated industries, for middle-aged workers whose skills have become obsolete, for uneducated Negroes replaced by cotton-picking machines, for slum-reared youngsters who drop out of school and can't find a job in a society which demands more and more education.

Trade unions were born as a means of defending the worker against the socially irresponsible use of economic power. In many countries this effort produced socialist parties, striving to establish a political-economy in which the general welfare, rather than private profit, becomes the direct criterion for economic decision-making.

In the United States, for the past 80 years, the labor movement has generally concentrated on winning recognition and defending the interests of its members within a given industry. Only once in my lifetime has the American labor movement undertaken anything like structural reforms in our society. That was when the CIO, led by John L. Lewis backed Roosevelt's New Deal and initiated our present system of social security and public welfare measures.

These measures, along with the Keynesean concept that government fiscal policy could be used to stabilize the economy, were recognition that economic change and progress creates human problems which cannot be prevented or resolved by private decision-making, and that society as a whole has a responsibility to its members who are the victims of change. A high-water mark of this thinking was the Full Employment Act of 1946. That Act in its Declaration of Policy says:

> *The Congress hereby declares that it is the continuing policy and responsibility of the Federal Government to use all practicable consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and local governments, to coordinate and utilize all its plans, functions, and resources for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.*

The Cold War prevented us from building further on these foundations, until in very recent years. Shocked by revelations of poverty, persistent unemployment, human deterioration and waste, in the midst of general affluence, we started to take a few relatively small-scale public steps under the slogans *A War on Poverty* and a *Great Society*. Unfortunately, these be-

ginnings seem likely to die aborning as victims of our disastrous involvement in Vietnam, with its overwhelming cost of more than $2 billion a month.

I say all this to indicate how narrow our own achievement has been, and to indicate that we are aware of this. We have simply concentrated on those solutions which were possible for us within the context in which we worked.

I believe that there are some unique features of Hawaii's industry which favored our efforts to make employers accept responsibility for helping to resolve the human problems created by industrial change.

These include:

1. Insularity: Makes problems like unemployment more critical; they have to be solved by us here. There isn't a frontier, another State, to take the pressure off.

   Also, insularity makes it easier to trace effects of economic decisions back to their causes, without the blurring and complexity in states which are surrounded and affected by other economies and communities.

2. Concentration of Ownership: The Big Five made it clear who the decision-makers were.

3. Importation of the Labor Force by the Big Five: They were brought in by one group, for one purpose. They may have worked for several companies, or for several industries, but still they worked for the same general group of employers, the Big Five, and think of themselves as having had their fate determined by the Big Five.

4. The Union to be successful was compelled to form an inter-racial solidarity, which is unique in America. On the mainland, the late-comer racial groups and finally the Negro, has been the shock absorber of industrial change. This is one reason for a general lack of social solidarity and responsibility in American life. Here we had to form an inter-racial, statewide union to cope with the Big Five, and to hold the union together we had to represent the interest of every racial group.

5. Changes came faster in Hawaii: With this background, how did the Union seek to discharge its responsibilities to its members and the community?

   In the sugar industry, for example, more than 15 years ago, instead of permitting layoffs of younger, low seniority workers who would have to join the ranks of the unemployed and who then and for several years after would become public welfare burdens, we initiated two programs -- designed to shrink the work force from the top -- both at the expense of larger wage increases:

   1. Incentives were adopted in the form of separation pay and

repatriation allowances to encourage the older worker to voluntarily leave the work force. In the former case, older workers were permitted to substitute for younger workers who would have otherwise been laid off. On repatriation the incentives encouraged older workers, particularly Philippine nationals, to return permanently to their homeland with sizable sums of American dollars with vastly expanded purchasing power before normal retirement age. These repatriates on reaching normal retirement age were all eligible for social security and collective bargaining pensions.

2. We took money that would otherwise have gone to active employees to buy pensions for older workers so they could afford to leave the work force and we negotiated for them and their spouses the best medical plan in the nation for retired workers.

A similar program was followed in pineapple.

Together with the above efforts to get older workers out of the work force, the union encouraged the employers, with some degree of success, to retrain workers displaced by technological change for more skilled jobs. Rate protection was assured for extended periods depending on length of service.

It is in the longshore industry, however, that the displacement problem has been relatively much greater and has come in a much shorter period of time.

Containerization and bulk shipment of practically all Matson cargo to Hawaii has had a tremendous impact on jobs and work opportunity here in Hawaii. Hawaii is the destination point of all Matson cargo flowing out of the Pacific Northwest, the San Francisco Bay Area and Southern California.

In less than 10 years, Hawaii's longshore work force has been cut in half with individual work opportunity down by a third. Outer-island impact has been greater than the statewide average.

How did we go about easing the impact of these automation and mechanization changes on the longshore work force?

1. Providing jobs for men who wanted to transfer to the Pacific Coast ports where work was plentiful and giving them travel allowances of $850 for family men ($325 for single employees).

2. Permitting employees repatriating to home lands with lump sum settlements of pension equities -- some left with up to $20,000.

3. Offering generous severance allowances to older workers. Employees leaving or retiring at age 60 under the old agreement, in addition to all other pension and severance arrangements received a supplemental severance bonus of $6,000.

Today the statewide longshore work force is down to what seems to be minimum needs for the next several years. The problem is now the distribution of work opportunity between ports -- outports, especially Kauai and Hilo, have the maximum number of men required to handle a conventional ship but

barging of containers has cut work opportunity to less than subsistence level.

We are meeting this problem in current negotiations by establishing a statewide labor pool with hours equalized on a statewide basis. Workers will be moved from port to port by air to accomplish this equalization and if work opportunity falls below an average of 38 hours weekly over a four-week period, wage supplementation will be paid from Mechanization Funds to bring earnings to that average.

We are now engaged in energetic efforts to organize Hawaii's newest industry -- tourism -- with the hope that this expanding industry will be the source of decent jobs at union wages and conditions for those displaced by future economic change and for our growing work force entering the labor market for the first time.

We are supporting and encouraging training programs, government and private, so these displaced and new workers will have the skills to fill these new jobs.

I am confident that through the process of collective bargaining we will be able to handle the problems of our present members as economic change continues. But this is only a small part of the overall State and national problems. The big job will have to be done by government, labor and business working together for the larger social problems to be mitigated let alone solved.

Thank you.

Conservation of Human Resources

Walter P. S. Chun

For the past two years, the poverty program has been in the news constantly. It has been under critical attacks, it has been praised, it has been cursed by the administrators of the establishments, and for the poor it has, in some respects, been the voice in the sea of bureaucracy. For whatever achievement or lack of achievement, the poverty program has created a real dilemma for me and I suppose for some of you. The dilemma is illustrated by the cartoonist Jules Feiffer whose work is usually found in the Saturday Star-Bulletin and occasionally in PLAYBOY. The cartoon shows an old beaten down man sitting in a straight chair and he is talking to himself. This is the dialogue. "I used to think I was poor.... Then they told me, I wasn't poor, I was needy.... Then they told me it is self-defeating to think of myself as needy, I was deprived.... Then they told me deprived as a bad image, I was underprivileged.... Then they told me underprivileged was overused.... I was disadvantaged.... I still don't have a dime.... But I have a great vocabulary!"

It seems the cartoon is saying that there is too much time spent on defining the problem and not enough time doing something about the problem. For this reason, I will address the topic from a point of view of what needs to be done. The point of view will obviously have to be from my experiences as a social worker and poverty worker.

The material I have gathered is not really new material. You've heard it before and read about it before. Most of the material is from the Office of Economic Opportunity in Washington.

Let me begin with some basic material.

The ultimate objective of the war on poverty is to eradicate poverty by eliminating the factors which cause it. In every community, one of the factors is the inability of the poor to earn an adequate income. Surveys made throughout the country indicate seven out of ten poor persons list jobs as a major expectation of the poverty program. In Oakland's depressed areas, the poor said they wanted jobs, a source of income, above such needs as housing, better streets, schools, library, welfare, health services, etc. The Economic Opportunity Act of 1964 specifies that Community Action Programs be conducted in fields of job training, job counseling, employment, and vocational rehabilitation among many others.

The course charted by Congress is clear. OEO must address a major portion of its attack on poverty to programs which improve the opportunity of poor persons to obtain adequate education and skills necessary for better paying jobs. Just a word of explanation--this mandate does not mean to say that OEO will create competing programs with existing programs.

To help make the unemployed poor employable and to equip the underemployed poor with skills that will enable them to earn income above the poverty level, the Community Action Program encourages the development of comprehensive manpower programs in cooperation with the existing established agencies in the community which will help solve job-related problems of the poor.

THE PROBLEM

The poor and their families, in too many instances, do not have the knowledge and the skills needed to find and hold decent jobs. These are the early dropouts from school due to economic reasons, lack of home interest in education, lack of interest on the part of educators for the more difficult students, a curriculum which actually encourages some to drop out and a counseling system which is inadequate.

Others who have the required skills and knowledge are barred from making full use of them by employment practices which discriminate against them. Some of these are residence requirements, racial requirements (not so much in Hawaii), criminal records (the military and Federal Government are most sensitive about this), physical handicaps, and personal and family problems.

If the unemployed and underemployed poor of a community are to obtain and hold jobs at income levels above the poverty line, several things must happen:

1. they must acquire the skills they need to qualify for the jobs which are available,

2. attitudes of employing agencies toward the disadvantaged must change,

3. existing jobs must be re-defined in terms of the required skills, and

4. the number of jobs offering upward mobility must be increased.

Job Skills. Most of the poor do not have a basic education. Without a basic education in reading, writing and arithmetic, there is very little a person can do. He may have the natural abilities and capacities but they need to be developed. He is not able to acquire any kind of job skills without basic education. The need is a closely knit program to tie the person with basic education, job counseling, and job training to job placement.

Attitudes. The employer will need to take a real hard look at the employment market. He will need to ask himself whether he has a moral and social obligation to provide jobs for the disadvantaged worker. If he is willing to accept this responsibility, he will be expected to provide in-service training programs, he will have to re-focus his production expectations during the training period, and he will need to be patient. In essence, attitudes must change.

Definition of Jobs. All jobs need to be re-defined. Are skilled people doing chores which can be delegated to helpers? Are social workers doing too much clerical work? Can teachers use teacher's aides to improve on the education system? The OEO Head Start program has spearheaded the use of teacher's aide in the classroom which has freed the teacher from housekeeping and clerical duties. The aides have been used as a connecting link between the school (establishments or authority figure) and the community (parents). Too often in our disadvantaged areas, there is no communication between school and parents because they operate in separate worlds. The Head Start teacher's aide program has been the link much needed in the school system. The aides, with

the help of social workers, have organized parent study groups, interest groups and a corps of volunteers to assist the Head Start classes. The Department of Education, because of its bureaucratic structure in reality, has created barriers for a Head Start teacher's aide to move up to a teacher assistant position in the Department. Teacher assistants, performing essentially the same function as the Head Start aides, must have a high school diploma whereas our Head Start aides are not required to have a high school diploma. The point I'm making is that all too often job requirements are barriers for the poor. The Department of Education is not the only agency guilty of such practices. We can say the same for social workers, hospitals, recreation programs, clerical positions, etc. Jobs and positions need to be re-examined and re-defined to determine whether some positions require more than the minimum.

It seems that employers may want to start thinking through the concept of requiring maximum educational requirements for certain jobs, like no college graduate will ever be permitted to accept a job as a clerk, no registered nurse be permitted to accept a job as nurse's aide and no high school graduate be permitted to accept a job as a teacher assistant.

Upward Mobility. The final major problem is the development, wherever possible, of the incentive of upward mobility. No matter who the person may be without some job incentive he will, in due time, develop a sense of frustration which ultimately results in poor performance and termination of work. The lowest of jobs, like the man pumping gasoline, must be given some assurance of upward mobility. The hospital aide must feel he will someday be promoted. The teacher's aide to teacher assistant, the clerk to clerk-steno to secretary.

This concept is nothing new to most of you. You accept this concept in your work but when it comes to the disadvantaged worker he is doomed to the sculleries of every kitchen, the trucker and trimmer doomed to the holes of every shop without the hope of seeing daylight during the rest of his working life.

THE PROGRAM

Let me in rapid order tell you what OEO believes a comprehensive community manpower program for the poor should include:

1. Outreach and recruitment efforts which inform the unemployed and underemployed poor that employment assistance is available in a form that is beneficial to them.

2. Intake procedures which induct the applicant into the program with a minimum of delay and complexity.

3. An evaluation system which identifies each enrollee's skills, capacities, aptitudes and interests, and the differences between the enrollee's resources and those needed to secure and hold an adequate job.

4. A program providing basic education to those who are barred from successful employment by inadequate reading, writing, speech, and arithmetic skills.

5. Pre-vocational training which prepares an enrollee for skill training.

6. Skill training programs, in both *institutional* (classroom and workshop) and on-the-job settings, in which trainees acquire specific skills in demand in the job market.

7. Placement assistance which identifies promising job opportunities and places the prepared enrollees in them.

8. A follow-up system through which newly placed workers receive continuing support and dropouts are offered further assistance.

9. A program of job development which opens up new jobs to be filled through the manpower program.

10. Counseling services and other supportive services (medical, day care, legal, financial and transportation) for enrollees at every step in the program to ensure that no enrollee drops out because of some special need which could have been met.

11. A continual self-evaluation and feedback system through which the total program is continuously reviewed and improvements and adjustments made to better serve the poor.

In closing, let me say that this program can never be achieved without intensive cooperation of agencies like the Employment Service, Department of Education, Division of Vocational Rehabilitation, private industry, government employment bodies and most of all the State of Hawaii in its own programs, must develop a planned program to assist the disadvantaged worker.

QUESTIONS AND ANSWERS

Conservation of Human Resources

Chairman Nagoshi:

We have a large number of questions. I would like to ask the first question of Mr. Wolfhope. The question is: "Don't keep us in suspense - from whence did you come?" *(Laughter)*

Mr. Wolfhope:

I came from California.

Chairman Nagoshi:

The next question is directed to Mr. Thompson. The question is: "You state the big job will have to be done by government, labor and business working together for the solution of the problem. What is the union's program for meeting this problem?"

*Mr. Thompson:

Well, I am thinking that this can be summarized by saying we ought to try to get recognition as part of the official government policy. And then implement that recognition by a union slogan, possibly an international slogan - and I think eventually it is going to have to be made a world slogan. We say in our union, *An injury to one is an injury to all.* And that can be our battle cry in going to the aid of those who need help. Also, there is another underlying philosophy, which is that our fates are interdependent. We can't allow a worker to be victimized by an unfair practice, and let our government know it, because - sooner or later - we are going to become victims of the same practice.

This is also true on a national scale, and certainly we all know we can't continue to live in a world in which many of us live the life of luxury while millions of people starve in other countries - and in many cases starve because of the policies which produce the wealth that we enjoy. We are going to have to learn we live in an intelligent community where everyone contributes to it. We have a responsibility to see to it that people are taken care of.

Now, in this country, and I can see we are going to have to adopt the policy - or to implement the policy that was spelled out in the Full Employment Act of 1946, which says that we consider it the policy and responsibility of the federal government to use all practical means in coordinations with other agencies under its jurisdiction to foster and promote free community enterprise and the general welfare, and I believe this is the key phrase, *the general welfare.* To promote conditions for employment whereby it will afford useful opportunities, including self-employment for those able, willing and seeking work, and to promote

*Mr. David Thompson, assistant educational director, ILWU substituting for Mr. Jack Hall.

national employment production and purchasing power.

Implementation is going to include massive programs to salvage human wreckage in the ghettos, and the Appalachian type communities, and bring them back into the main stream of productive social life. I don't see another way out. We spend billions on the military program. It is time we started channeling some of this money into the social problems which have been neglected by misguided policies of the cold war era.

Chairman Nagoshi:

Probably Mr. Wolfhope can answer the next question. "What can we do about the policy of the bonding companies - in the bonding or rebonding of many persons who have been convicted of certain felonies or misdemeanors which have no relation to honesty or reliability as far as money or other valuables are concerned. This attitude now prevents the employment of many whose talents and abilities and education could well be utilized."

Mr. Wolfhope:

This had to be written by a John Howard Association member *(Laughter)* Yes, this is a problem. The bonding company of the state who bonds employees, and blanket bonds for employers are reluctant to see employers hire anyone who has any kind of criminal record at all. But really, this problem is no different than many of the others we are talking about. This has to be reexamined, and if employers in general, particularly some of the employers here in the room, simply ask their bonding company to have another look at this thing, I am sure something could be worked out. It may result in higher rates. I don't know. However I am sure something could be done.

Chairman Nagoshi:

With the many questions that have been sent up here, I thought I might change the point of view. I will pass these questions on to each panelist and let them examine the questions as they get them, and put them in order as they see and answer them.

First let me ask one question. This is directed to the panel as a whole - anyone on the panel. It states, "If the computer will conserve human resources, what can be done for the disadvantaged in the meantime?"

Mr. Chun:

Well I think I pointed out earlier that basic education is essential for any type of job opportunities and upward mobility, you need basic education. It is very necessary.

Chairman Nagoshi:

Are there any other comments from any other member of the panel?

Miss Wat:

I wonder too whether if a disadvantaged person is given the opportunity

to get a job through the counseling process - he doesn't really get more than a job. This job may really restore some of his dignity and provide the motivation to continue education on his own.

Chairman Nagoshi:

Any comment on that?

Mr. Wolfhope:

In our particular company we have a testing program. We can pretty well determine a person's level of use of his scholar's skill by talking to him and having them take some tests as to the other basic skills. Most of the jobs we have in our particular company require the use of these skills - so their lack does preclude a person from employment in many of these jobs. You can't hire a person for an accounting office where arithmetic is constantly used if he doesn't know how to do arithmetic. We do, in remote locations, attempt to cooperate with the community agency in their training program in the basic skills, even for those 45 years of age. On all of the other islands where we have attempted this, we have had the co-operation of the high schools in the local area, who are now co-sponsoring basic training courses in reading and arithmetic. These initially, are not very well attended because all these elderly people in the community are afraid to admit to anyone else they can't read. So we have difficulty getting them in the door. But once they are under way, we have had a great deal of success. We have had as high as 63 people, on one plantation, taking a reading course at one time. So there is a chance of breaking through and preparing them.

Chairman Nagoshi:

Here is a question. "Why is there but one woman on a panel of twelve members?"

Miss Wat:

Don't you know - we are the minority group in the labor force *(Laughter)*

Chairman Nagoshi:

Here is a question for Mr. Thompson. "You say you are going to lay plans to organize the tourist industry. Isn't it under your jurisdiction now and isn't this being done by Art Rutledge and the others? Won't this result in costly jurisdictional dispute and chaos within the industry? *(Laughter)*

Mr. Thompson:

I am not certain that this is what I came here to discuss. *(Laughter)* We will argue that one out with one of the representatives. *(Laughter)*

Mr. Chun:

I have a question here. "You have outlined the OEO and its goals, but to date what has the OEO done to implement their plans? Can you give us

a concrete example of actual accomplishments or some overall figures?"

I think if you will recall, that OEO aside from the community action programs - the other programs were delegated to various agencies like the Neighborhood Youth Program which was delegated to the Department of Labor. They in turn, contract with an agency to operate the program. For instance, the city and county of Honolulu operates the NYE program. These are for youngsters between 16 and 22. The Department of Education operates an in-school program for youngsters in high school. Also the Department of Natural Resources operates a program for youngsters, 16 to 22 in out of school prpgrams. Let me tell you briefly, what happens to these programs. The first year these programs were able to operate at the sort of pre-vocational level, where the youngsters were given jobs - specific assignments to do certain things. The second year the legislature changed it a little bit. They encouraged these NYE programs to include classroom training for the youngsters, including basic education and this legislature will most probably require basic educational training with some kind of educational training program tied in with the NYE program, so that the youngster will get the kind of training to move into a more specific area. Now there hasn't been much coordination in this area, probably due to the confusion due to the way the law was drafted. This is one of the areas.

The other area of implementation, as I said before was the assignment of the adult basic education program to the Department of Education. The first year's program was assigned to the adult education program, and some of it was tied in with the Adult Education Program, which means that these classes were conducted at high schools. Gradually, we found from inquiries, that this was not meeting the needs of the people. We then moved in the direction of trying to decentralize some of these programs, since it was in the problem areas so that the people could become susceptible to them.

We are moving into the area now of drafting some kind of coordinating statement. Presently it is in pretty much of a thinking stage. Our office is concerned with how we can tie in the various educational programs with the prevocational training programs and, hopefully, with the skilled training programs. These develop pretty much on an experience basis - a hit and miss basis, with some guidance from the OEO.

Chairman Nagoshi:

Don, do you have a question?

Mr. Wolfhope:

There is a direct question here that asks for both David and I to comment on, "Vocational education in high school vs. the community colleges." I'm not so sure I know that. One part of the question might be worth looking at. "What do the companies in Hawaii feel the caliber of people coming out of vocational education is? Do they feel these people are acceptable as skilled people, as trained people, as they are supposed to be now?"

In general, I would say, in the past, no. Our company, by and large has

not accepted these people as being trained to the degree that we would like to accept them. And there are a lot of reasons for it. The principal one is money. The schools, whether it be vocational, high schools or community colleges, there haven't been enough funds available to train these people properly. We, for example, in the sugar industry, are taking people from the technical schools, and have been unable to use them immediately in skilled jobs. We have to put them through a rather intensive training program of our own. I guess that means we have the money and the schools don't.

But as to the other question of where vocational education should be given - I don't particularly want to tackle that one. Do you want that one, Dave?

Mr. Thompson:

Well, not in any depth. I would like to say that our union is convinced that the most valuable education that the young person can be given in school, is education in the disciplines of knowledge, communications, mathematics, logical thought processes, methods of mankind. We think the school should make this its aim. A lot of the argument where vocational education should go, as far as we have been concerned has been directed at the fact that vocational education in the past has seen to provide option for teachers to say, "Well, Gene, you are not going to make it intellectually. I am not going to try it any more with you, but there is always vocational education."

We are not saying this in any sense to downgrade the importance of vocational education and the quality of the programs that have been given by many dedicated vocational education teachers. Our beef is not with them. It is what happens in the low grades in the school system with the general orientation. We think the most valuable and the most long lasting benefit that you can give a child is the discipline of knowledge, and this should have first priority. Now where job training should take place is something that I hope will be determined by the Board of Vocational Education. They can study this and I am sure the answers will be different for different types of skill.

Chairman Nagoshi:

Here is a comment that I thought might be very interesting. It is in reference to what Walter Chun said a couple of minutes ago. It states here, "I disagree that a disadvantaged person must be able to read and write in order to work effectively. In this day of excellent audio and visual education, such a person can be taught to push a lawn mower, sweep out a room, wash windows, etc., so that they can effectively work as janitors, et cetera. I have first hand experience which substantiates the above." Would you like to comment?

Mr. Chun:

Well, the assumption is that this guy is going to spend all of his working and leisure hours pushing a mop and that is all. I doubt it. He has to handle his money. He has to pay his bills. He has to buy his food, and well, it is the type of economy where we have credit and that type of

thing. He needs the basic learning, reading, writing, speech and that type of thing. He has to be able to negotiate effectively, you know. The job itself may not require any need to read and write, but you know intelligence in daily living is not tied up to pushing the broom.

Miss Wat:

I have a comment on this. First, he may be able to do the job, but without the reading and writing skills it would limit his development. Take the job of a janitor, it is even changing today. He has to read and write because the instructions will be left for him. He has to know what the cleansing agents are. It is no longer just a push mop job. Many of you, I think, live in new apartment buildings, and probably work in new offices, and there is skill involved in the use of the proper cleansing agents. So, for the worker himself, if he is to do a capable job, he should learn to read and write - at least, to the extent that he can follow directions.

Chairman Nagoshi:

Any other comment to that?

Mr. Wolfhope:

Yes, I think I would want to. I think the question has a larger intent, maybe that is what we have to settle. The idea is, I think, that there are a lot of people who do not have basic educational skills and there is certainly a heck of a lot of jobs such people can move into, and these jobs will continue to exist. However, in any organization of any size, the management of that organization is constantly faced with the problem of staffing the more skilled jobs in the company, just as they are faced with staffing the lower skilled jobs. Most organizations prefer to move people up through their ranks. As a matter of fact, I believe this is a kind of American heritage in our states. We like to see a guy start at the bottom, or a gal - excuse me - and move up through the merit system. We also found organizations are quite closely knit. We would like to hire from within, develop our own people. If we are going to have a hire-from-within policy, if we are going to develop our own people, how can we hire a person who can't read, for example, for developmental purposes?

I think the employer has to look at several different things. I am sure employers throughout the state can employ only people who have the basic reading and arithmetic skills. He may employ only people who are above average on an IQ measure, because he needs these people for potential development. But then, what happens to the other half of the population? They have to be employed some place, or some kind of provision has to be made for them. I think then, that the implication in the question is that, can't that employer, for example, shift some of these standards downward? I have the contention that an employer should. The employer who has an absolute requirement that everyone in the organization must have a high school education, be able to read and write, and to be able to have basic arithmetic skills is hurting the community at large.

Chairman Nagoshi:

Does anyone wish to comment?

Mr. Thompson:

I would like to agree with Don. You see it has been our experience too. We have found that a lot of times these requirements are unrealistic. It is a needling sort of problem that you run up against. You have an agreement which says the employer has the right to choose the best qualified person for a job. Then within the framework of these rules there are so many things to consider. You have an older worker. He has a tremendous investment. He has worked with this company most of his life, the best years of his life, and he has all sorts of benefits accruing to him, and if he just stays there, he has a nice even-keeled existence assured until he retires. Then all of a sudden his job is eliminated and a complex technological job comes along, and it is not for this guy. He has to have some higher mathematical skill. And they choose someone who has them. And there is not much you can do about it.

There is an ironical number of cases where it was proved later, that the chap or the higher skilled, which seemed to be so necessary, couldn't do the job, and I am thinking right now of a steam generator plant, with a lot of push button control, large panels and so on. The brightest kid in the plantation passed the test with flying colors. He got him a job that bored him to death, because there was nothing to do except sit there and watch those panels all day. He couldn't keep his mind on it. Eventually they placed somebody there who couldn't pass the examination and he is doing fine. *(Laughter)*

It is a funny story, but it is a real tragedy for the guy who is eliminated. They are doing the same thing in the longshore industry. A company would lose a contract for Army and Navy work, for example. The contract would go to another company. And so the work force would be reduced to one company and enlarged in the other, and in the process leaving the old employer with the limited responsibilities an employer can take. He says, "I am only responsible to my own company for the workers with whom I have an agreement. I can't take the middle-aged guys from the other firm. So here is a longshoreman. He has been working all his life. An x-ray shows he has a funny looking spine, and the doctor says he is a poor risk. The other employer won't hire him. It is a great job. He is making $3.88 an hour, and he can't read or write. He will never get another job like this in his life. These are the human problems that the union feels we have to be concerned with too.

Chairman Nagoshi:

Mr. Chun, do you have a comment?

Mr. Chun:

Well, I will read this one. I think that it is something that relates to what I was saying earlier in my speech, and if this is so, fine. "You state that state agencies and others are more sensitive about employing those with criminal records. What do you mean by sensitive? If this means that a state agency bypasses persons on the basis of their past criminal record alone, where was such data obtained? This is contrary to what is an established practice of state agencies - to hire such persons on the basis that if he is suitable and otherwise qualified he

cannot be discriminated against." I stand corrected. The state agencies hire criminals even with criminal records.

I won't argue with that, except that the kind of people we deal with in the disadvantaged areas you know - the story keeps coming back - maybe this is another excuse for not wanting to work. From what they all say you get the feeling this criminal record does have some bearing on whether they hire them, because for the simple reason that my contention is when you ask for a past criminal record it, in itself, has a bearing. Now, you may disagree with me on this, and I think that the personnel people have said it to me - that this is all part of the evaluation system of the guy's work experience.

Now you know I wouldn't argue with this. I think it is just an honest difference of opinion.

Chairman Nagoshi:

Related to this somewhat is a comment and probably it is a question. I found it quite interesting. It states here, "I signed this merely to point out the statistical fallacy. It has been said in this conference, that the majority of dropouts, delinquents, come from broken homes. Since this is the case why expend vast sums for all these fatherless brats?" Any comments? (No response)

Miss Wat:

Well I have a whole page of questions and they are interrelated, so maybe I will take this first one. "How many people in Hawaii have participated in the training program started by MDTA and/or OEO and who refers the unemployed to projects? If they are recruited who does this? What size staff does the program have, and how are the programs tied into other efforts in other towns? Also, there is much criticism and undue emphasis on women who are usually not the primary wage earner. Not enough time on-the-job training. To what extent do these criticisms apply to Hawaii?"

First of all, I would like you to take a look at the program. We operate on the basis of funds allocated for training purposes under MDTA. Now, of course for fiscal 1967 in the institutional training project we had estimated that we had enough money to provide training for approximately 286 persons, and in the OJT program for 360 persons. This you see is merely a drop in the bucket, and MDTA itself, has the solution as to what kind of training it can provide. For instance we do not train people with bachelor degrees. This is not in our province.

In terms of the characteristics of the people that go into training - the women. As I stated earlier, our experience has been geared to occupational requirements and the demands for the jobs we do have in the conomy. And if we look at the situation locally, most of our training classes were in the clerical area which, again, is dominated by women, and also in the service area. These are the growing needs in Hawaii, so we had to fit it into this situation. However, with the new emphasis in 1966, this past July, where we said, "Let's take a look at this and see what we have been doing? Are you reaching the people you are supposed to reach? The primary wage earner who, generally, is the head of the household." I would

like to bring out this factor, also, that many of the women are not necessarily heads of households, but they come from the low income group. They are primary wage earners. If I were out of a job, and if training was the answer, why I would feel that I had just as much right to the training as the head of the household.

In Hawaii, I do not have the statistics, but I would say that there are, probably, because of the nature of our projects - we have had approximately, at least, 50 per cent of the trainees were women. And again, coming back to our comprehensive manpower training program for the fiscal year 1967, we really looked, within the three weeks in which we had a chance to develop information and call up all the other agencies, in the community as to what we should do about changing projects in Hawaii. So we were really looking into what males were available that were possibly potentially trainable and what jobs could we train them in, in the community. And the jobs we looked at had to be those which were numerous, and which would also lend themselves to training the disadvantaged. So we have this particular problem.

On the on-the-job training the emphasis was placed on this particular program in 1966. It was felt that this particular mode of training again lends itself better for training the disadvantaged, in that they can work with their hands. This will, then, create additional motivation for literacy and the types of learning they should have, and that this type of literacy training would be oriented to the job they had. As you know this is, so to speak, dangling the carrot before the rabbit.

Now this I think means to me that he recognizes not much has been done in the way of promotion of jobs, of this particular facet of the program, and this is due partly to his lack of manpower. He was given the additional responsibility for his staff, or it was not increased. So we are taking this opportunity to make you aware - the employers aware that there is this possibility, and if you are interested, you may contact the office to initiate action.

In terms of the number of enrollees, I do happen to have some statistics. At the beginning of the program, December of this past year, we had a total of 1,269 persons enrolled in MDTA projects. 967 in institutional type, and 136 in OJT and 266 in the ARA program. Of this total, 80 per cent completed training, and of the graduates we were able to place 75 per cent.

In programs sponsored by OEO, the employment services did some recruiting, but we don't do this job all by ourselves. We have strong support from the Department of Social Services in their referrals. We have strong support from our community action support group. However, all of these are channeled through the Employment Service to keep some order in the recruitment.

To answer the question on why all these programs, I again come back to the comprehensive manpower training program. Last year it was really a crash program. This year we hope to start earlier and to involve all the appropriate agencies who have to do with human resources development. It is not strictly MDT as such. Now when you consider last year, we had about the minimal in the sense that we needed to get something out. We

called primarily those agencies with federal programs. We had about 15 persons in the room. If you ever tried to call 15 or 16 persons for regular meetings to do some really comprehensive planning of state resources, federally funded resources, you can imagine the problems involved.

This is my point. Last year we were concentrating on Oahu. We don't know whether we may be able now to also decentralize some of this, so that our neighbor islands can get into the picture also. I represent the state office of the Employment Division, and in this, we do have information from our local offices, but we did not have a degree of local participation. We hope to overcome this.

I have another question here which expresses some concern that all of these training classes, the graduates of all of these training projects are taking up all the jobs in the community. Believe me, that isn't so. There again, we were only able to place 75 per cent. The people who take training on their own are really motivated and can find employment. We have a placement office. I am generalizing, but I believe soon people will take training on their own. Generally those who really want to get ahead, who are well trained can find employment.

One other fact, I think should perhaps be clarified. This again relates back to the training slots provided by MDTA. When I said that 65 per cent of the training effort was for the disadvantaged, this meant, let's say of the 600 or so of the training slots that we have available in the state, 65 per cent should be made available to the disadvantaged. These are the people who really need the help. They don't have anybody else to help them. The remaining 35 per cent of the training slots were to be for industry, because industry has the big part in our economy - without them we can't move. So of the 35 per cent of the slots ear marked for industry, we hope to find those jobs in which a disadvantaged person could be enrolled. We are looking at this for you can't have a training mix. For example, we have a shortage of fry cooks. In this particular project which has been running for several years, we take all sorts of people in it. We find that the disadvantaged can do as well as the advantaged in learning the manual skills involved. We have also found that some of them, after they have gone out to work find that, maybe they should have had a little more of the reading and writing skills, because they find they are not advancing because of this lack. Then again this year in our project, there will be a greater emphasis on providing more of the literacy and the skills a cook may need on his job.

Chairman Nagoshi:

I know you have more, but why don't we move on and give these others a chance? *(Laughter)* Let me read one I think is not for the panel, but I felt it was humorous. "How if we happened to clear up our slums by displacing many of our labor force and having them move to the rural areas and how can we service them by having them participate in job training and employment, without an adequate transportation system?" *(Laughter)*

Would anyone want to comment on what Miss Wat was speaking about?

Mr. Thompson:

Well, there is a question that came to me which sort of ties right in with

the things she was talking about. We mentioned training programs for old people set up by labor. To be more specific, how and where is it going to apply? What are the requirements for us to work? Must the worker first join the union?

I would like to say first that I think the AFL-CIO has the outstanding program of this sort here, the apprenticeship programs, and in the construction industry, such as the electrical trades. There are other people in the audience who are better qualified to discuss this than I am. There is the hotel training program, the MDTA, OJT which is for *on-the-job training*. In this state the entire program on this island is contracted by the Pure Practice and Training Council, which has a contract with the federal government but works together with the Hotel Workers Union on this island, and with our union on neighbor islands. These are programs that are training young people, and there is no discrimination as to age, really, or sex, for hotel jobs - the unemployed people. And the program lets people in for a three week classroom training and then they are placed on the job and they get 16 weeks of on the job training.

It has been very successful. Our experience on the outside islands has been that we have placed almost all of the people who have gone through the first three weeks on jobs, and they are continuing in these jobs. It was not necessary to join the union, not in this program, but there are a number of in-service training programs, for example in the sugar and pineapple industry - and there are, of course, people who are already in the industry, who want to go up the skill ladder, and they are very much like the apprenticeship programs.

Chairman Nagoshi:

Let me ask a question of Don here. It is a question for you, Don, and you can lead to other questions you have before you. The question is based on the entire list you have before you. "The panel spoke of hiring the handicapped and underprivileged today, but what reason can you give, when some companies ask experienced men, who have to move from one company to another, to take a medical examination, and then for some reason refuse to hire these men?"

Mr. Wolfhope:

Well, yes, as a matter of fact, I do want to comment on that. We haven't touched on that. The problem of the physically handicapped is the larger problem here. Why is it that employers many times will not hire physically handicapped persons? We require physical examinations for employees coming on board, and we will decline to hire people who have so-called bad backs, and who are bad risks. Well, I would like to comment on that very briefly, because I want to lead up to a possible suggestion for examination.

In this state, as within most states in the union, an employer pays larger taxes, or he pays an annual assessment. We will put it this way - depending on the experience, the experience in industrial accidents that he has had, the number of industrial accidents and those things that are charged to his cause, or his fault. The tendency in the last ten years -

the so-called workmen's compensation cases where an employee is injured on the job and receives compensation either from the employer or from his insurance company, especially in the last ten years, bears this out. And I think it has met some kind of a climax where during the last part of this past year an employee on the big island took his own life. This was adjudged to be work connected - due to pressures he suffered on the job which contributed to his taking his own life. The employer was held accountable, from a cash standpoint and he had to pay out of his insurance program workmen's compensation to compensate - whether he could or not - but it is what the law requires. This had led employers to play it safe. Why should he hire someone who had a bad back, or a potentially bad back, and incur upon himself greater liability under the Workmen's Compensation Law. Why should he hire someone who has a history of emotional disorder when there is a possibility that he could have a breakdown of some sort that can be attributed to the employer work situation. The employer would then have to pay the maximu, perhaps under the Workmen's Compensation Law. I am stating extremes here, because it is a real problem in this state.

Now what is the solution to this thing? We have on the one hand a necessity, and we have indeed a large number of people who are highly trained, highly skilled, who can do a good job for a business man. But the business man feels he can't hire them because they have some kind of handicap that increases his liability under the Workmen's Compensation Law.

Now it has been suggested to me, and I have heard conversation on this, that perhaps, there is some way to give the employer the kind of inducement or incentive to hire handicapped people. Perhaps an employer could receive some kind of relief under workmen's compensation for hiring handicapped persons. So that a person who has a bad back, when he applies for work with an employer, the employer would receive some kind of relief, and would not be held accountable for all the accidents that might occur to the person. I don't know whether this is legally possible or defensible, or anything else, but I believe it is something that should be examined. As long as the employer has increased liability for hiring a physically handicapped person he is simply not going to hire them.

Now I might add one other thing to this. We have in the State of Hawaii fair employment practice laws wherein it is illegal to discriminate against people because of their race, religion, color, etc. And in the State of Hawaii we also have an admonition covering age. It is illegal to discriminate against anyone because of their age in Hawaii.

Mr. Thompson:

Is that being vigorously enforced in these topless restaurants? *(Laughter)*

Mr. Wolfhope:

Knowing Dave Thompson, I would accuse him of thinking of his stomach. I neglected to mention sex.

It hasn't been suggested yet, but perhaps we could pass a state law that would make it illegal to discriminate against the physically handicapped.

This has been suggested on the national scene. Perhaps we might get this kind of legislation unless steps are taken to help eliminate this problem of the unemployed among the physically handicapped.

Chairman Nagoshi:

Are there any comments?

Mr. Thompson:

Well, I think it is a good example of the fact that some of our social responsibilities go beyond what you can expect the private decision makers to meet. You have to figure out some way of spreading these risks on a social basis.

Mr. Chun:

I would be very much interested to know whether a guy who has a physical handicap, and is hired on a job, whether he reinjures himself again on the job. I have a suspicion that this may not be so, because once a guy has a physical handicap, this guy may be even a better, a more safe worker for he knows his limitations, and he is not going to be jumping up and down on the job. I don't know. This is where we have to look into this kind of thing to help solve it. I think the tendency would be to find out if people on the job now who are handicapped, whether they injure themselves again or not.

Mr. Wolfhope:

Walter, you raised the question and it is a good question. The fact as to whether handicapped people are actually better workers and cheaper than the rest. But we are talking about something that goes far deeper. We are talking about something that is emotional and unreasonable on the part of the employer.

And yet, Walter, that is the most important thing we are talking about here. The facts are ample. There is no question as to these facts. I talked about employees over 45 years of age. There is ample evidence to show the hiring of employees over 45 years of age is good business. But as a matter of actual fact, the employers don't hire them. Perhaps there are other reasons, actually that are not on the surface, but I think it is something you just can't reach with logic.

Chairman Nagoshi:

The conference president has given me the eye. I think it is pretty close to the lunch hour. We do have a great number of questions to ask that we have not had time to answer. Probably we have time for a few more. One is, someone wanted me to do a summary on what has been discussed. If you want to stay for another three hours, we can accomplish it. *(Laughter)* But I do not believe we have a counter session, do we not? And these will be included in the counter session.

I have a question here I thought might be very interesting to some of the panel members. "If the general areas develop higher skills than are

needed, the unemployment will be concentrated among the unskilled. Shouldn't we concentrate an equal amount of time on increasing the ability of the great mass, the average population? Why are we concentrating on the minor work force of the disadvantaged, and unemployables, when there is a very real and serious problem with the employables?" Would someone like to comment?

Mr. Chun:

You know when we talk about the unemployed, the underemployed and the unemployables, you see these are the ones we are concerned with. They don't have a job. I think the whole issue is to move the under achieving and underemployed up the ladder. This is the whole crux of the point we are trying to make. Once a guy achieves a certain level on his job, with in-service training, he moves up the ladder. It is a continuous upward mobility type of action. The ones we are concerned about are the ones who are not working at all. And this is why we are spending so much time on it.

Chairman Nagoshi:

Are there any other quick comments?

Mr. Thompson:

Maybe we are moving into an age when we should begin to think in terms of continuing education for everyone in our society that can. And maybe this idea ought to be brought into industry, with the prospect that perhaps you can negotiate agreements where people are given time off at company expense to attend institutional courses, or where the company has a carefully designed training program on the job, and you instill in everyone the idea that they are going to train and retrain throughout their lifetime. Of course, everyone would benefit from a program like this, and it would tend to prevent or alleviate one of the problems that we wrestle with in industrial training.

I think Sweden has given us a good example. They knew they had to get in the world market, and they tried to meet the human problems by telling the worker, "You have nothing to fear from our nation's technological progress, for we will take care of you. If your job is eliminated we are going to educate you, if necessary, we are going to pay you living allowances. We are going to take care of your subsistence, and we are going to find another job for you." Apparently their work force bought it for Swedish efficiency is well known.

Chairman Nagoshi:

Let me read this one. "Why do we need to have the federal government take our money, cream off a big protion of it through administration and then give us a little to tackle our problems? Let's design our own program to meet our needs and finances." Does anyone want to comment on that?

Mr. Thompson:

It would be very hard for the city of Honolulu, or the State of Hawaii

to embark into the far fetched ventures that the federal government takes the funds that we give them. I think the idea has merit. Let's spend it on the real problems we see in front of us.

Chairman Nagoshi:

Here's another. "Would improvement of the basic fund and welfare program, both in maintenance and services, particularly designed, be a first step in preserving human resources?" A quick reaction to that one.

Mr. Chun:

Well, I think the Secretary of Health, Education and Welfare's advisory committee, when it published this report in July, hit the nail pretty much on the head in terms of what our welfare system is - that we should base it on only one criteria - where help is needed most. We should reform this idea of cash payments. If a man needs job training he should get it. If he needs family counseling, then this is what he gets. There should be some diagnosis of every guy's problems. And then we should treat them, and give the service he needs, instead of setting up residence requirements, for we are then setting up limitations on how much he can earn and cannot earn - that type of thing.

I think this report of the advisory committee has many new concepts and new ideas in terms of fellowship. I tend to go along with it in terms of really looking at the question and trying to work with him and give him what he really needs - and not try to sell him on a set of government regulations.

Chairman Nagoshi:

There is another question here, "Do the panelists think a new department of human resources is needed...?" And I am nominated. *(Laughter)* Any comment? (No response)

I do hope everyone that turned out these two days will try to help the manpower commission to cope with some of these problems - so that the commission can be an agency through which we can coordinate some of our efforts. I wish to thank you all for participating.

QUESTIONS ASKED OF THE PANELISTS

Conservation of Human Resources

Miss Edith Wat:

Do employers have a responsibility to prepare employees for retirement -- for the different activities of the retired years?

Two main criticisms have been made of MDTA nationally -- 1) An undue emphasis on women, who are usually not the primary wage earners. 2) Not enough done on "on-job" training. To what extent do these criticisms apply to Hawaii? Comment?

How many people in Hawaii have participated in training programs started by MDTA nad/or OEO?

Who refers the unemployed to projects? If they are recruited, who does this?

What size staff does the program itself involve?

How are programs tied in to other efforts in our town?

It took the Labor Department 4 years to realize that the disadvantaged needs your services -- 65 per cent is fine but how about the remaining 35 per cent. They are just as much in need of your services.

The Federal Government spends a considerable amount of money and effort in collecting and disseminating unemployment statistics. Why don't they make a similar effort in collecting, coordinating and issuing information on job opportunities and job availability on a nation-wide and regional basis?

Reference was made that our schools are *bulging*. Has consideration ever been given to keeping our schools open on a year-round basis with staggered terms?

You mentioned that the disadvantaged have a hard time getting or keeping jobs. Why don't you inform the DOE to teach basic skills both manual and intellectual in 9th, 10th grades? The Board wants to wait till post-high.

Why has another agency such as MDTA had to do this *rehabilitation* work? Isn't this the basic responsibilities of the State Board of Education of the State Board of Vocational Education?

When will decentralization in Employment Service begin as to better service disadvantaged adults in rural areas?

Mr. Donald Wolfhope:

Don't keep us in suspense, from whence did you come?

To your knowledge, do large employers within business and industry allo-

cate a definite portion of their budget toward training new employees or retraining existing employees for changing job requirements?

Do Hawaii businessmen now generally feel that to pay for a man's education -- employee or not -- is a profitable investment? (WWII and Korean GI bills have returned triple their cost in federal income taxes alone.)

What is your organization or industry doing to see that its personnel or management officials of subsidiaries pay and promote employees according to responsibility, ability and merit without regard to race, color, creed and sex to reduce mobility in the work force?

You mentioned that only 8 per cent of those employed within a certain year were 45 years and older. What percentage of the unemployed are between 45 and 55 or 60 years of age?

Mr. David Thompson:

For those older workers who are prematurely retired, were any efforts made to provide meaningful activity as they lived out their years? Other employment? Preparedness for retirement?

You briefly mentioned that labor has or is setting up training programs for young workers. Could you be specific? How and where does one apply? What are the requirements? Must the worker first join the union?

The push-button jobs of tomorrow are open to the low-level groups or the underachievers--ages 17 or 18, loafing in high school. Why then do you oppose vocational education in high school? It will motivate these disadvantaged to not drop out and get these push-button jobs.

You say -- "The big job will have to be done by government, labor and business working together for the larger social problems..." What is the union's program for meeting the *larger social problems?*

My 18 year old son was forced to pay $140 to the employment agency which got him a $1.50 an hour job. Is this right?

Mr. Donald Wolfhope and Mr. David Thompson:

Advocates of *Vocational Education* in high school maintain that we must provide students who do not intend to go beyond high school with tools to enable them to compete in the labor market. Would *Vocational Education* help a child who is poor in the three R's and who, in applying for a job, has to take a written examiniation which is a practice being resorted to by more and more employers? Would *Vocational Education* for this child help him if he manages to find a job which is subsequently automated?

Mr. Walter Chun:

Is the OEO using programmed learning* to teach language and math? If not, what method are they using?

*Programmed instruction, teaching machines, tutor texts, etc.

You have outlined what OEO has for its goals but to date what has OEO in Hawaii done to implement -- could you give us some concrete examples of actual accomplishments and some over-all figures?

You stated that State agencies (and others) are most sensitive about employing those with criminal records. What do you mean by *sensitive?* If this means that State agencies by-pass such persons on the basis of their past criminal record alone, where was such data obtained? This is contrary to what is an established fact that State agencies do hire such persons and on the basis that if suitable and otherwise qualified, they shall not be discriminated against.

During 1965-66 there were 10,000 enrollments in the Adult Basic Education program grades 1 to 8, and another 11,000 in the adult high school program of the DOE. Why do you say that the program isn't reaching the uneducated? Can't we assume that the people attending these classes really need this education?

Please comment upon what can be done about the present day attitude of the status symbol *a job title*. Nobody likes to be referred as a laborer. This appears to apply specifically to those...

Should all entry type or single task or routine type jobs have all their job title changed and be given some high sounding or less descriptive titles and should the term laborer be eliminated from usage?

With all we have to offer the unemployed, handicapped and *ex-convicts* what do we do with the definite percentage that would rather not work and draw the benefits (welfare) that we supply.

Do you find an individual who is eligible for training or help under the various programs going from one agency to another?

Isn't there a contradiction between: 1) your proposal to limit and simplify job requirements, and 2) your proposal to provide upward mobility on every job.

Why do so many people who go through school not have basic skills?

Is the educational system not doing as good a job as it used to do? It seems to me that everyone used to be able to read, write and do simple arithmetic after the 6th grade! Now, they can't after the 12th grade!?!

I cite this merely to point out a statistical fallacy. It has been said in this conference -- that the majority of dropouts, juvenile delinquents or culturally deprived youth come from broken homes. Since this is the case, would it not be less expensive to take some of the vast funds appropriated for study and research groups, bureaucratic agencies and programs and use these funds to buy fathers for all these fatherless brats? (I volunteer)

I disagree that a disadvantaged person must be able to read and write in order to work effectively. In this day of excellent audio-visual education, such a person can be taught to push a lawn mower, sweep or mop a room, wash windows, etc., so that they can effectively work as janitors

or groundskeepers. I have first hand experience which substantiates the above.

What is the criteria used in defining a *disadvantaged individual or worker* to qualify for your various programs and in terms of numbers here in Hawaii, how large a group are we talking about?

TO THE PANEL:

If the job opportunities are in the areas where relatively high skills are needed and unemployment is concentrated among the unskilled should we not concentrate on equal amount of time on increasing the ability of that great mass of our population which is not disadvantaged but average or *partially advantaged?*

How long must we wait for adequate training facilities?

There are many training programs to retrain workers and place them in employment at the end of the training program. I believe 90 per cent are placed. This placement program is taking most of the jobs available and others who have taken their training *on their own* cannot get jobs. What is going to be done about this?

Now that we have begun to clear up our slums in Honolulu and have displaced many of our laborers by causing them to move to rural areas, how can we encourage them to participate in job training and employment without an adequate transportation system? (Please direct question to Dr. Matsuda of Department of Transportation.)

What industries does the panel project will be hit by automation in the next 10 years?

Why are we concentrating on the marginal work force of disadvantaged, untrained, and unemployables, when there are very real and serious problems for the employables?

Why do we have to let the Federal government take our money, cream off a big portion of it for administration, then give us a little of it to handle our problems? Let's design our own programs to meet our needs and finance them.

Many employers here testify that high school students graduated from cooperative training courses are making good money and are efficient and are working side by side in programming with college graduates. Job training plus academic skills is vocational education. Mr. Thompson thinks job training is vocational or occupational training. Remedial reading is a small part of job training but not complete vocational education. Many 18 year olds in high school cannot absorb higher skills.

The panel spoke of hiring handicap and under priviliged, but what reason can you give, when some company ask experience men moving from one to another to take a medical examination and for some reason -- refuse to hire these men.

What can we do about the negative policy of the Bonding Company in the

bonding or rebonding of the many persons who have been convicted of certain felonies or misdemeanors which have no relation to honesty or reliability where money or other valuables are concerned? This attitude now prevents the employment of many whose talents and abilities and education could well be utilized.

To conserve human resources, can you do anything until you have taught the disadvantaged to read?

Re the economically disadvantaged - Would improvement of the basic public welfare program, both income maintenance and services particularly to families, be a fundamental first step in preserving human resources?

Do the panelists think that a new Department of Human Services or Resources is needed to coordinate, develop and further our efforts in this area?

Most of us who live in Hawaii have found that the summer is when we earn our *nest egg* for college, etc. Do the local small and/or large (excluding the cannery) businesses recruit summer employment? This is a great problem with many young people who need the money but have no job skills and can only be hired for a very short span of time. Perhaps one of our greatest unused resources are our young people during the summer. Is there a summer employment agency?

You state the ILWU plans to organize the tourist industry. Isn't this under the jurisdiction and being done by Art Rutledge and Unity House? Won't ILWU's entrance into this field lead to costly jurisdictional disputes, and chaos within the industry?

How's about a summary of what was discussed and presented by your panel. Where and what do we do now? (To Jack Nagoshi)

What do you expect to happen as a result of this panel's presentation?

CONFERENCE SUMMARY

Theodore F. Ruhig

I won't take ten minutes or seven minutes to summarize the conference because it wouldn't be appropriate. I think the conference has been summarizing itself. We started a task, and now we've rolled up our sleeves and we hope to go on.

We have discussed various approaches to the problems. We started with a practical approach and we have gone through the U.N. to almost a cosmic approach to the problems of human resources. We have gone from the means of physical and job level approach to a psychological preparation approach to the ends of problems of spirituality and the very purposes of man.

I think the best way to summarize this is to suggest that the title *Human Resources* is perhaps a bridge title. Resources indicates goods, services, the economic system as we know it. The human aspect of the title is man in his largeness, in his mind and in his spirituality. When one combine the two into the concept human resources, from that we can structure two kinds of worlds. Up until now, we as man have been struggling with limited resources to maintain ourselves. We have now reached a certain kind of promised land - wherein we will have the possibility of an infinite amount of material wealth to satisfy our needs as human beings, and we will move forward toward realizing that potential. We are just about at that promised land. It is given to the generations in this last third of this century to bridge the gap between the past grinding necessity we have had in making a livelihood, and the world of leisure and plenty we are moving into. How we handle this - how we meet the challenge of moulding our human resources in this expanding future of ours, is a job that we in the state Manpower Commission will contribute to in our little way.

But for a full presentation and a full explanation of what took place here, the commission will take upon itself the reproduction of all the material that was generated by the conference. The conference proceedings will be available for all conferees and we hope to go full steam ahead to prepare it as quickly as possible.

I would like to close by quoting a little bit of what I think is appropriate poetry. Perhaps it summarizes what we ought to be doing. This bit is from Walt Whitman:

What do you think endures?
Do you think a great city endures?
Or a teaming manufacturing state?
or a prepared constitution? or the best built steamship?
Or hotels of granite and iron? or any chef-d'oeuvres of
engineering, forts, armaments?

Away! these are not to be cherished for themselves,
They fill their hour, the dancers dance, the musicians play for them,
The show passes, all does well enough, of course
All does very well till one flash of defiance.

A great city is that which has the greatest men and women
If it be a few ragged huts it is still the greatest city in the world.

With that I think we should close this conference, because we really have been talking about the greatest men and women, the average people of the world, today.

LUNCHEON ADDRESS

Guaranteeing Full Employment

in the United States

John H. G. Pierson

Mr. Chairman, members of the Manpower and Full Employment Commission, distinguished guests: It is a real privilege for me to take part in this very important conference.

I have two quite simple propositions that I want to make to you, and convince you of it if I can. The first is that we ought to guarantee full employment in the United States. And the second is that it can be done.

Before I really get started, however, there is one detour that I have to make. What do we mean by full employment? Most people seem to be quite clear about it, but one of our most interesting panelists, my friend Mr. Ferry, the other day said he was not in love with full employment - that full employment and steady jobs are nice to have but are not adequate for personal or national purposes. Well, I agree with much that Mr. Ferry said and a hundred per cent with the second part of that particular statement. Full employment is not an adequate personal or national purpose. As he pointed out, besides work there is also play, and politics, service, and contemplation. President Hamilton put it very well when he said that beyond earning a living there is the question of living the life we earn. I couldn't agree more with those thoughts. But when Mr. Ferry said in the first part of his statement that full employment is merely *nice* to have - instead of essential to have - I suspect he was using a sort of private definition according to which full employment means jobs for everybody whether they need or want jobs or not. Back of this would be the moral judgment that everybody ought to work.

But that, of course, is quite a different matter. It is certainly not what full employment has meant to all the people who have been concerned with it for 25 years or more. The Employment Act puts it very well. The Act doesn't use the term *full employment*, but advocates employment opportunity - useful employment opportunities, including self-employment, for those able, willing and seeking to work. That is what full employment means. There is nothing wrong with voluntary non-participation, but involuntary non-participation would be eliminated by full employment - except, of course, for a minimum amount of frictional unemployment.

Governor Burns in his very fine keynote address said the same thing. He said we are committed to providing jobs for those able and willing to work, and we also want to provide help to those who would like to become able. This is surely the concept, and it is important. We should keep our eyes on the stars - on things that are beyond employment - but meanwhile let's keep our feet on the ground and get this very practical question of employment settled in the right way.

The reasons why we need full employment are so often spoken about that perhaps it is gratuitous for me to mention them again. Still, let me remind you of some of them. First and foremost, when you are unwillingly deprived of the opportunity to participate, it amounts to nearly total frustration. It completely ruins your legitimate pride. You can't really have a life.

Then there is the fabulous amount of waste that goes with unemployment and non-utilization of our resources. The Council of Economic Advisors now uses a figure just over a quarter of a trillion dollars to measure our national loss in the years 1958 to 1965. Just think what we could do with a fraction of that money in combatting poverty!

A third major reason comes out when we consider the problem of rights. Whatever other elements are in that picture, it is clear that unless there are enough job opportunities, the Negro is going to have an extra hard time to get one. And this is not just a matter of justice - it is a matter of justice - it is a matter of the cohesiveness of our whole society. There are, of course, other groups besides the Negro who should also have justice. There are the older workers, now often pushed out of the labor force to make place for others. There are the younger people, who aren't helped very much as they come along to get their first jobs. There are also the women, who are discriminated against in the labor market, especially when jobs are scarce. And, of course, there are minorities such as the American Indian and so on.

Now, what I have been saying so far is completely familiar. However, I want to go further. I believe that it is not enough just to have full employment, or approximately full employment, in some particular period of time. In addition to that, we need to be sure that we are going to have it indefinitely. The assurance of the future maintenance of full employment is as important as the having of it right now.

(I noticed in a column by Joseph Kraft, in the *Advertiser* a week or so ago, a very nice phrase. He said, if you mention a guaranteed income, you are apt to get a fight, and if you mention Social Security, you are apt to get a yawn. I wonder what you're apt to get, according to him, if you mention guaranteed full employment!)

Now let me tell you why I am convinced that we have to be sure we are going to maintain full employment. There are two major reasons, one domestic and the other international. Both of them seem to be absolutely fundamental for everything else that we want to do. The domestic reason is that, in the absence of any assurance of continued prosperity and full employment, all the interest groups in our society are bound by their obligations to their constituents to push a little too vigorously from the standpoint of the good of society as a whole. In Mr. Jack Hall's paper he mentions that organized labor's first responsibility is to the members it represents. The same thing applies, of course, to employer organizations, farmer organizations, and others.

Take for instance the 35-hour week issue which came to a head a few years ago. Labor was pushing for it very hard, although the Administration said no, that is not the best thing. But as George Meany remarked, pointing to years of excessive unemployment, "It's only a goal because nothing else has been done." I have talked to a number of labor people in the past who have said things like, "Well, if you let the textile industry in New England down, where are those people going to get a job? If we could be sure they would be able to get a job somewhere else, and that society was also taking care of the problem of transition, it would be possible for us perhaps to be a little more statesmanlike."

You just can't ask labor, or business, or the farmers to be more statesmanlike if the Federal Government isn't being statesmanlike by doing its job of keeping the total framework of society up. Now take business, for instance - the big-business area where prices are administered. If I were administering a price in a business organization, I would want to be sure that

the price was set high enough so that I would make enough profit in good times to take care of me in the next recession. And that is exactly what big business does. But if you aren't going to have recession - or at least no recession in the economy as a whole - then you can afford to set lower prices, which will be beneficial all around.

Or take the farmers. Farmer organizations for decades have been driving the State Department's trade liberalization advocates to despair by their policy of fighting for markets by dumping agricultural products abroad and shutting out agricultural imports.

As I said, all these powerful interest groups are doing what they have to do. Only if the Federal Government comes in and provides the assurance that there will continue to be an ample total market and jobs for all, so that there is no longer any necessity to ask for too much now as a hedge against the next dip - only in those conditions can we really expect to see a package bargain struck that will be adequate and satisfactory to society as a whole.

What about the international side? Mr. Thompson said, I think, this morning that an injury to one is an injury to all. The poet Blake said that no man is an island unto himself. Through my own experience I have had an opportunity to see how the interests of other countries are affected by the presence or absence of domestic prosperity and full employment in the United States. Years ago when the ITO - International Trade Organization - charter was being negotiated, I happened to be a member of the U. S. negotiating team. When we got to London for the first meeting my colleagues in the State Department, who could think of nothing except lowering trade barriers, were in for a surprise. All the other major countries - in this case the western industralized countries - said: We don't care so much about that; what we want to know is, are you going to have full employment in the United States, so that you will keep up the demand for our goods?

More recently, and in a more sophisticated form, you get the same thing over and over in the economic committee of the United Nations General Assembly, and in the summer debates of the Economic and Social Council in Geneva. The reasoning is absolutely correct, in my opinion. The less developed countries by and large are never going to be able to develop unless they are allowed to export manufacturers - after, of course, first learning to produce manufactures efficiently. The cards are stacked against the possibility of their ever developing strictly as agricultural nations or exporters of raw materials.

Now we in the United States have in recent years spoken very sympathetically of that desire on their part. We have tried to urge our friends in Europe to relax their trade barriers, and successive administrations have tried to get us to lower our own barriers sufficiently. But there have been limits set by the fear of a shortage of markets. Some of you may remember that a few years ago half of our cabinet in Washington and the chairman of the Council of Economic Advisors went over to Tokyo to hold talks on various matters of mutual interest, largely in the economic field. You may also have seen some dispatches written by Mr. Rosenthal of *The New York Times* which made the U. S. position in those talks very clear. We sympathize (our team said) with your desire to open up larger markets. We know that you have to have them - Japan has to have larger export markets in order to live. But you

on your part should realize that we can't do much about this because we have an unemployment problem.

The point I am making is that, in tomorrow's world, we need to be able to maintain full employment and ample markets for our producers regardless of whether we have an export surplus or not. As a matter of fact, as we grow more mature we ought to act like a mature creditor country and accept an import surplus eventually. Today we have the problems of trade and aid. In the immediate present we need especially to extend aid, more aid than we have been extending to these less developed countries. If we had achieved continuously assured prosperity we wouldn't need to feel that we couldn't afford to do it. We wouldn't need to feel that we were helping somebody in Asia at the expense of some poor people in Appalachia, because it would be obvious that we could do both.

But in the longer run these countries want to get off the hook of aid. They don't like to be in a position of dependence, any more than we would. They want to pay their way by trade. And as soon as they can really get going, they will be in a position to export if the advanced countries of the world including America will accept their goods. But, with the best will in the world, we won't be able to pledge ourselves to a policy of accepting substantial amounts of additional imports from the rest of the world, unless we are sure that, as compensation for that, we can develop additional markets through additional purchasing power at home. So, our international position as well as our domestic situation is going to require the insuring, Mr. Chairman, or the guaranteeing - I don't care which - of full employment and of a level of demand consistent with full employment.

Now, my second proposition - that it can be done. How do we do it? I think we all are, or want to be, practical people. I would say that part of the answer to the question as to how we do it has been given by this Conference. It would be quite needless for me, and presumptuous besides, to talk here in Hawaii about all the things your Administration is doing and is planning to do. I completely agree with the sense that is coming out of the discussions. All of this detailed planning work has to be done here. Most of it is on what would be called the structural side of the full employment question.

I am going to talk about the other side, the Washington end - and not all of that, since on the structural side Washington must also be active, helping you, for instance, to set standards and providing you with some of the necessary finance. My subject here, however, is mainly the aggregate demand. I am hopeful that you will not misunderstand my meaning. I think we have come beyond the point where we need to argue as to whether unemployment is a structural question or a question of aggregate demand; it is obviously both. Other speakers have dealt, much better than I possibly could, with the structural aspect. I want to talk about the Federal Government's responsibility for maintaining enough draft to keep the fire burning brightly - enough aggregate demand. This fits with the other. It should fit the other as a glove fits a hand, but it is not supposed to be the same thing.

If we have in fact come beyond the point of major controversy over whether our unemployment is due to structural causes or to insufficient aggregate demand, I still think there is a certain knack even about the aggregate

demand side that hasn't yet percolated through to Washington. I am not quite as sanguine as Dr. Hitch seemed to be about that, if I understood him correctly, even though we must certainly all agree that the shortages of demand don't pinch us as badly now as they did thirty years ago.

Let me then begin by saying that I think we could come a very long way with the kind of approach that puts together a package of demand made up of the different things that we badly need in our society. The best recent example of that that I have seen is contained in a document entitled *A Freedom Budget for All Americans*, put out by the A. Philip Randolph Institute on the basis of statistics and economic analysis by Leon Keyserling. Some two hundred civil rights, labor, liberal, and religious leaders sponsored this program. It is essentially an anti-poverty program with full employment treated as the principal one of many means to be used.

The authors of this document believe that in ten years we could add an economic growth divident - or cumulative increase in our gross national product over present levels - amounting to considerably over two trillion dollars. The Federal Government's share of that, just keeping the same taxes we have now, would be of the order of half a trillion dollars. The program they advocate, to spearhead the anti-poverty movement, would cost the Federal Government, for its part of the job, 185 billion dollars in those ten years. But this would not mean that the Federal Government would become bigger in relation to either State and local government or to private enterprise; in fact it would become a little smaller in the process in relation to State and local governments, as well as no bigger in relation to private business. These projections are all predicated by the authors on a national rate of growth, over most of the decade, of four and a half to five per cent a year, involving some growth of labor force and an increase in productivity or per man-hour output in the private sector of about three and a half per cent a year. The authors further indicate that, since the Federal Government's added take during this period would be roughly five hundred billion and the anti-poverty expenditure only 185 billion, the program would be perfectly compatible with a substantial simultaneous expansion of defense expenditures should that prove necessary.

Their program consists first of all, as I said, of full employment. Secondly, it has in it various ways of raising private incomes by way of Social Security, higher wages, broader coverage of minimum wages, a shift in emphasis away from support of farm prices to support of farm incomes, and, as they say, progress toward a nationwide guaranteed income as a matter of right. This last they advocate not in substitution for, but as a supplement to, guaranteed full employment. Thirdly, this program calls for elimination of what they call *poverty in the private sector*. Here, too, I think they have made a very good case for what I personally believe strongly in, that is to say a great expansion in some activities very necessary for society's welfare - slum clearance and low income housing, education, health, transportation, conservation and development of resources, antipollution, help for depressed regions like Appalachia, help for rural communities in general, and so on.

This would obviously require federal leadership, but, as I said, not a bigger federal piece of the pie, since the pie would be made to grow larger. Moreover the growth rate figures underlying this program are not above what we have sometimes managed to achieve, and not above some other reputable estimates even though a cautious estimator might judge them to be a little high.

Now I think this program is good. But I also think that a question could be raised, and probably some of you are raising it, as to whether it would ever be possible to push a complicated package like that at all quickly through Congress. Suppose the Administration accepted the whole thing, lock, stock and barrel; could they get it through Congress? I think this is a fair question. There would be in Congress any number of people who would disagree on some particular details for one reason or another. Some might disagree in principle, others for possibly extraneous reasons like, say, the Church-State issue which acts as a drag on federal aid to education. Well, the President might be able to get eighty per cent of it through. Yet if he didn't get a hundred per cent through, then, assuming the program was calculated to produce full employment, the full-employment target would be missed unless Congress were willing to allow all gaps in employment to be filled by additional expansion of prgrams that it had approved. (To be accurate about it, over-saving could make such additional expansion necessary even when income payments had been pushed up to the full-employment level to begin with.)

However, some members of Congress would probably object to that on the ground that they didn't want the Federal Government to grow bigger in that way. Having held the public sector to a total of so much, they wouldn't want those gaps filled since that would still make for a bigger government sector in relation to the private sector. I am not saying the majority would argue that way but some members probably would. There would no doubt even be those unreconstructed souls who would question the good faith of those who were putting the proposition forward - people who would say that the government wanted to stack the deck and get business into an agreement, and then perhaps create unfavorable conditions through tax policy, or antitrust policy, or price policy, or something like that, that would make business not come through with its share, and then the government would have to fill the gap and government would take over more territory.

Actually, it is not just business interests that might be worried about it. You might also get labor worrying, in the sense that obviously if you have to rely on the possibility of a really large expansion of the flexible public works program to take up the slack, the question arises of the administrative or organizational feasibility of it. Certainly there are people who wouldn't want to find out that they were being eased out of the labor market, and put on a dole, so that they wouldn't any longer figure among the unemployed. Hence they wouldn't want to get into the kind of a situation where, in order to meet the full-employment guarantee, that kind of adjustment might come up for urgent consideration.

I have some doubt along these lines myself - doubt about the feasibility of really guaranteeing full employment by this method alone, considering how the executive and legislative branches work on a normal piece of legislation. So why not look for something a little simpler, surer, and better? What I suggest is that the *Freedom Budget* should be retained but that, in order to get a real commitment to full employment much more quickly, the guarantee on the part of the government to fill all gaps in employment should be accompanied and made more acceptable by adding a further guarantee of aggregate consumer spending. This would give business a satisfactory target to shoot at. Any business firm could still lose customers to its rivals, but, with the total market at the consumer end pegged at a certain size which was determined to be adequate, there could hardly be a general or a cumulative downturn in business.

For example, if we were going to have a gross national product of 800 billion by maintaining full employment, then more than 500 billion would be in consumer spending, if we kept to the proportions that are customary. But the amount to be guaranteed would actually be derived as follows. You could get an estimate of what the total volume of private investment would be, on the assumption of continuing full employment; and an agreement from Congress for certain public expenditure programs; and also an estimate of that small but internationally strategic item, the export surplus. Adding these three you could then get by subtraction what was needed for consumer spending to yield a total demand, made up of the four components, that should be adequate.

Using this approach, the President in his Economic Report might ask for the total *Freedom Budget*. But now in effect he would in addition be saying to Congress: "If you will accept this whole program, then say 520 billion of consumer spending is enough. But, if you find yourselves unable to agree with all of these proposed public expenditures, then you will need to raise individual consumer spending correspondingly. These are the proportions between the private and public sectors that I think society in our day and age demands. But if you don't go along with me on that - and there can of course be reasonable differences of opinion about it - at least we won't let the total economy down. For in that case it will be necessary to up the figures that I have given you for the private consumer spending total."

What would be needed to implement this suggestion I am making is an amendment of the Employment Act - from the drafting point of view of a very simple amendment. The fundamental nature of it would be to put responsibility on Congress. At present there is no responsibility on Congress under the Employment Act to do anything in particular. There is a general national policy, and the President has the responsibility of putting forward his specific proposals. Congress, then, through its Economic Committee in the first instance, goes over those proposals. What seems to be missing is the obligation of Congress to state its own position on the levels of activity necessary for the economy, either agreeing on this with, or specifically amending, the proposals of the President. That is, Congress should itself come out with what it regards as a legitimate target for total employment - 75 million jobs or whatever it might be for the year ahead - a target which we should not fail to achieve, and with, secondly, a target for total consumer spending. The latter would testify to the intent not merely to maintain full employment (as Congress would finally define it) in disregard of all other considerations, but to maintain it in accordance with the consensus that had been reached by Congress itself as to how much of the economy should be public and how much should be private. In other words, this technique would separate the issue of public vs. private activity from the issue of maintaining the right overall rate of operation.

Congress, therefore, under this amendment, need not agree on more program details than it wished, but it would be obliged to come up with figures at which total employment and total consumer spending would each be pegged, and to instruct the President and his Administration to see that those levels were maintained. If at any time there were not enough jobs, new items would be taken off the public works shelf. If at any time consumer spending was not being maintained, method "x" or method "y" or "z" would be called into use for boosting it.

It is very important, I think, that Congress should now assume this kind of responsibility. This is the missing piece in our economic management. Responsibility, of course, is something that cuts in more than one direction. Anyone like myself who advocates guaranteed full employment has the responsibility not to ignore either the danger many people see of overheating the economy by inflation or the balance-of-payments danger. Well, as regards inflation, I would say that this approach would be quite helpful, for two reasons. In the first place, it would set a target ceiling as well as a floor - for example, not less than 75 million jobs but also not more than 76-1/2 million jobs during the year ahead, and similarly with consumer spending. Those upper limits would help at least in a mechanical way to keep any kind of spiraling inflation from happening.

But more fundamentally, it should be possible with this approach to get a real sense of agreement to avoid inflation from labor, business, and all other parties concerned. In view of this assumption of responsiblity by the Federal Government, I believe there could be an acceptance, for instance, of some kind of wage-price guidelines. Labor would be getting the thing it most needs, the assurance of jobs. Business would be getting the prospect of a stable, adequate market for its products. Avoidance of excessive claims should thus become possible on what is really a political level, quite apart from the helpful mechanical checks I mentioned a moment ago.

The balance of payments problem is, of course, a related issue. I cannot go deeply here into that very technical subject, but there are several things to be said. One is that a continuously strong economy attracts funds. Another point is that most of the industrial countries are committed in one way or another - some of them more deeply than we have been so far - to a policy of continuous expansion; and when everyone is going forward in step, one country is not so apt to lose funds to the others. Probably, too, we could make more sophisticated use of our interest rate policy than we have in the past. Furthermore it seems reasonable to suppose that out of those long-drawn-out discussions now going on among the monetary experts will emerge a better and less worrisome international moneyary system - one that will give us both more protection against speculative raids and also larger total reserves.

Privately I myself would think it was not beyond the bounds of human ingenuity to devise an international mechanism that would take foreign aid out of consideration as a balance of payments problem. When we supply large amounts of foreign aid, we today accentuate our balance of payment problem, unless the funds are spent to buy our own goods and services. Thus there can arise a conflict of interest: we want to help people in other countries, but we don't want to worsen our balance of payment problem. I think, as I say, that it should be possible to devise a safeguard against that - a way of measuring the part of the balance of payments difficulty that arises from foreign aid and then neutralizing this through the international payments apparatus.

But finally, assuming that all these things should prove inadequate for solving the American balance of payments problem, then I think we would have to face the fact that we were up against the question of our scale of values. There has to be some point where you finally come to that. In this case the question would be whether it was more important to maintain our full employment policy or to allow American citizens and American dollars to go freely wherever they wished without any check on them at all. It seems to me that the

tone of this conference has shown a vivid appreciation of the importance of doing things for full employment, for people, and for welfare. Therefore - according to this view, which I share - if it eventually proves necessary to temper slightly some of the other rich f-eedoms that we have enjoyed so carelessly, well then, it will have to be done.

Now - to go back to my main proposal - you might well ask me how we could maintain consumer spending if we had the guarantee and if the current rate of spending was running too low. As to this, we fortunately have learned a good deal in the last several decades about the uses of tax policy, and it has by now become quite accepted by the public that you can sometimes lower the income tax. Much more thought is also being given these days to transfer payments, which are virtually negative taxes. So, this question is now a little less formidable than it used to appear. Nevertheless, just lowering the income tax, when you find that you need to give a boost to purchasing power, doesn't help the poorer members of society who don't pay income taxes. Hence some other way must be found in order to complete and equalize the operation.

One pretty good way, I believe, of solving this problem would be to establish as a new device a federal sales tax or sales bonus - alternatively one or the other, depending on conditions. Most of the time it would presumably be a bonus, but if the spending level was getting out of hand it could be a tax. In other words when, according the the Congressionally established target, we were not getting enough consumer spending, a pay-out period would be declared and everybody who bought anything would get coupons convertible into cash at the bank or post office. Since a sales bonus would be progressive rather than regressive, the usual objections to the sales tax would not apply.

However, perhaps a better way still is suggested by the current discussions of a guaranteed income implemented through a negative income tax. The real trouble with using income tax variations as a regulator of the level of demand today is that we don't yet have the negative part of that instrument, and so - if I may just repeat this point - you can't benefit the lower income groups by reducing income tax rates. I myself happen to believe that we should in any case adopt the principle and practice of a guaranteed household and personal family income on at least a moderate scale as a matter of right. The Social Security mechanism isn't going to do the whole job of raising up incomes that are below the poverty line; it can't because it doesn't reach all groups, and does on the other hand reach a great many people who are not poor. Minimum wages can be extended - I hope they will be - but they too have their limits and are obviously not the whole answer. As for public assistance, there are so many things wrong with the welfare programs as presently administered that everybody knows they should be curtailed rather than expanded. On these somewhat negative grounds alone, therefore, a good case can be made for a negative income tax. But I would say there are two more fundamental reasons why such a plan should be adopted.

The first is the progress of cybernation. I don't myself believe that the cybernation revolution is right upon us in the sense of causing us to lose employment opportunities in a catastrophic way in the next decade. But I do think, from the studies I have read, that there is a lot more going on under the surface than many people realize. Moreover this will be a snowballing process, and eventually we will come, I believe, to the kind of situation where we will pretty well have to divorce income from work.

Let me say that I would be completely opposed to substituting the idea of the guaranteed income for the idea of guaranteed full employment. In the first place we haven't reached that stage. We are not too rich yet. There are lots of things that we can do to wage war on poverty at home even if the United States in an average sense is adequately affluent, as some writers have suggested. Then there is the rest of the world; we certainly want to help the majority of mankind, living in the less developed countries, to get out of their poverty. So, on the objective side, I am sure we haven't reached the point yet where people cannot be used productively. Surely it is highly premature to think that we have. Again, turning now to the subjective side, it is equally obvious that people today don't want to be given a handout instead of work. They want a job. And as long as any substantial numbers want a job and can't get one, their involuntary unemployment is in conflict with the concept of full employment.

Indeed, if we were to establish a guaranteed income before establishing guaranteed full employment, I don't see how we could fail to be setting up a new and pernicious kind of class system in this country in which the people who already had jobs could hang on to them, and the people who hadn't been so fortunate could never get in but would have to live instead on some kind of dole. On the other hand to take this step together with, or immediately after, establishing guaranteed full employment would be, I think, very useful, providing us with a mechanism that we are eventually going to have to use quite heavily.

In the meantime, also, the guaranteed income would provide the other half of the income tax mechanism which could be used to serve the quite different purpose of maintaining the level of aggregate consumer spending about which I have just been speaking. That is, in periods when we were faced with insufficient purchasing power and consumer spending, we would be able not only to lower the taxes of the positive income tax payers but also to enlarge the periodic payments to the non-taxpaying households. This would seem perfectly fair for everyone - a balanced way of maintaining our common prosperity.

This brings to a close the proposals that I wanted to lay before you. I would just like to say again in conclusion that guaranteed full employment is bound to be partly a matter of structural measures, using that term very broadly, and partly a matter of aggregate demand. On the structural side, while the Federal Government has a substantial part to play in providing funds, other assistance, and standards, most of the detailed spadework has to come at the State and local levels from people who really know the situation. When we turn to the maintaining of aggregate demand, this is a matter of federal fiscal policy, a part of the picture that necessarily fits with and supports the other. My concentration upon this results from a division of labor. The other parts have been spoken about here by participants in this Conference who are much better qualified to do so than I.

Actually, I would hope that your Administration here, and your Commission on Manpower and Full Employment, would not only be able to show how this local part of the job should be done in Hawaii, but would even be able to go beyond that and find formal or informal ways of helping the Administration and the Congress in Washington to recognize and do their part.

Thank you very much.

APPENDIX

PARTICIPANT LIST

Name	Organization
Aadland, Richard	Hawaii Vocational Association
Agena, Robert	State Department of Labor and Industrial Relations
Agena, William	Hawaii Farm Bureau Federation
Ahola, Teuvo	State Department of Planning and Economic Development
Akana, Allan	Hawaiian Government Employees Association
Akiona, Lloyd	ILWU
Alfultis, Richard J.	Federal Aviation Agency
Allen, Joffre P.	Pearl Harbor Naval Shipyard
Amioka, Shiro	University of Hawaii
Amor, Charles	State Commission on Aging
Ando, Richard E.	State Department of Education
Arashiro, Yukio	AFL-CIO
Babbitt, Howard C.	C. Brewer & Company
Belnap, Ray	State Department of Social Services
Bender, Robert D.	Honolulu Gas Company, Ltd.
Berry, R. B.	State Department of Health
Black, E. E.	E. E. Black, Ltd.
Bloxom, Elliott	Naval Supply Center
Bowers, David A.	Hawaii Tuberculosis and Health Association
Bradley, E. N.	Federal Personnel Council of the Pacific
Brantz, Edward	Hawaii State Office of Economic Opportunity
Brissette, Ronald	State Department of Land and Natural Resources
Brumley, Robert D.	Tripler Army Medical Center
Bruyere, Paul T.	State Department of Health
Burke, Elsie	Hawaiian Tuna Packers
Burkett, Ollie	Hospital Association of Hawaii
Burns, John A.	Governor, State of Hawaii
Burns, John A. Mrs.	
Burum, Bernice H.	Kaneohe USMC Air Station
Butchart, John N.	State Civil Defense Agency
Canbara, Bertram	State Department of the Attorney General
Chan, Melvin	AFL-CIO
Chandler, James R.	The Medical Group
Chapman, T. J.	Aloha Motors, Ltd.
Chong, Frank	
Chu, Esme Y.	State Commission on Manpower and Full Employment
Chuck, Robert T.	State Department of Land and Natural Resources
Chun, Walter	Hawaii State Office of Economic Opportunity
Clark, Charles R.	U. S. Army
Coffman, Tom	Community Actions Program
Coito, Adelino	State Department of Land and Natural Resources
Collins, DWane R.	University of Hawaii
Copess, Jack	AFL-CIO

Corbett, Gerald R.	Family Court
Cordeiro, R. K.	Sperry Rand Corporation
Crabbe, Mogul	AFL-CIO
Cuaresma, Consuelo O. Mrs.	Hawaii Education Association
Cundiff, Kenneth	Honolulu Police Department
Dabagh, Theodore D.	State Department of Health
Damaso, Carl	ILWU
Darvill, Jack	Kamehameha Schools
Deacon, E. Powell	Armed Services YMCA
DeCrow, T. W.	Lewers and Cooke, Inc.
DeMello, Eddie	ILWU
Dever, Daniel Rev.	Roman Catholic Diocese of Honolulu
D'Enbeau, Madelyn	Hawaii Vocational Association
Detor, James J.	State Department of Land and Natural Resources
Dinelly, D.	Hawaii Employers Council
Eguchi, Wilbert K.	O.P. and C.M.I.A.
Epstein, Henry B.	United Public Workers
Escher, George F.	Pearl Harbor Naval Shipyard
Eubanks, Harold E.	U. S. Army
Everly, Hubert V.	University of Hawaii
Farnell, John M.	U. S. Army
Feirer, David L.	Honolulu Community College
Ferry, Jim	State Department of Land and Natural Resources
Ferry, W. H.	Center for the Study of Democratic Institutions, Santa Barbara, Calif.
Fong, Annabelle	Educational Guidance and Opportunities
Forman, Harry F.	Child and Family Service
Forbes, Eureka	State House of Representatives
Fox, Morris	State Department of Social Services
Freeth, Evelyn	State Department of Social Services
Fujikawa, Akito	IBEW
Fukuda, Loretta	State Department of Personnel Services
Fukuda, Mitsuyoshi	Castle and Cooke, Inc.
Fukumoto, Kenjiro	State Department of Agriculture
Fultz, Jane N.	University of Hawaii
Gaffney, R. T.	Nalii Fashions, Ltd.
Gall, Ed E.	Hawaii Newspaper Agency, Inc.
Gasper, Alfred L.	Pearl Harbor Naval Shipyard
Geib, J. R.	Chamber of Commerce of Honolulu
Gill, Lorin T.	Palama Settlement
Godfrey, Patrick	Hawaii Medical Association
Goto, Milton K.	Hawaii Education Association
Gourlay, John M.	Retail Store Employees Union
Gundersen, Howard B.	U. S. Department of Health, Education and Welfare
Guntert, Carl J.	Machinists Union

Hackett, Harold	State Library
Hagiwara, Toshio	State Department of Labor and Industrial Relations
Hamano, Elmer	State Department of Labor and Industrial Relations
Hamilton, Thomas H.	University of Hawaii
Haraguchi, Stanley	State Commission on Manpower and Full Employment
Hasegawa, Ed	Hawaii Education Association
Hashimoto, Dick	Sheraton Hotels
Hassler, Russell H.	Hawaiian Electric Company, Inc.
Hastrup, Herman	Pearl Harbor Naval Shipyard
Hee, Harold	C. Brewer and Company
Heinrich, Michael	Queen's Hospital
Hepton, Mrs.	Spencecliff Corporation, Ltd.
Higa, Royce	State Department of Social Services
Hinshaw, Lawrence A. Rev.	First Methodist Church in Honolulu
Hiroshige, Raymond	City & County Department of Health
Hitch, Thomas	First National Bank of Hawaii
Hodge, Clarence L.	State Department of Planning and Economic Development
Hodges, William P.	Dole Company
Hoke, Arthur	State Department of Social Services
Horiuchi, Herbert S.	Hilo Teachers Association
Horiuchi, Kiyoto	State Department of Education
Horne, George R.	Castle and Cooke, Inc.
Hostetler, Harold	The Honolulu Advertiser
Howell, Maurice	State Department of Health
Hoxie, John W.	California Packing Corporation
Ige, Thomas	University of Hawaii
Ihara, Teruo	University of Hawaii
Ikenaga, Doris	Educational Guidance and Opportunities
Imahiro, Richard	State Department of Social Services
Imamura, Roy	City & County Planning Department
Inouye, Toshiaki	U.S. Public Health Service
Ishii, Edna	Hawaii Dietetic Association
Ishikawa, Janet	Kapiolani Community College
Iwashita, Sadamoto	State Department of Health
Jacobs, George Mrs.	YWCA of Oahu
Jaquette, John	Hawaiian Telephone Company
Jambor, Harold A.	Hawaii Chapter, National Association of Social Workers
Johnson, Jacqueline B.	University of Hawaii
Johnston, Fred	City & County Department of Parks and Recreation
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Kalani, Henry	Kapiolani Community College
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Katz, Paul	Hawaii State Office of Economic Opportunity
Kau, Manuel C. W.	State Department of Health
Kim, Douglas	Hawaiian Government Employees' Association

Kim, Ke Nam	State Department of Budget and Finance
Kitamura, Roy S.	Honolulu Construction and Draying Co.
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Kovak, Edward	AFL-CIO
Kramer, K. Mrs.	Bishop Trust Company, Ltd.
Kuniyuki, Henry S.	U. S. Department of Labor
Kwock, Rose	Hawaii Education Association
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Lau, Eugene W. I.	Attorney-at-Law
Laureta, Alfred	State Department of Labor and Industrial Relations
Lee, Edwin K. W.	Burea of Commercial Fisheries
Lee, George Mrs.	
Lee, Linda	Hawaii Transportation Company, Ltd.
Leser, Curtin A.	Hawaiian Electric Company, Inc.
Lesley, James R.	U. S. Department of Agriculture
LeVine, James	State Department of Education
Libarios, Ernest D.	Educational Guidance and Opportunities
Lim, Herbert	State Department of Taxation
Loo, Herbert	AFL-CIO
Loomis, Willard	State Department of Labor and Industrial Relations
Luke, Samuel C.	Pacific Insurance Company, Ltd.
Lum, Eileen	Clergy Counseling Services
Lum, George T. Y.	Dillingham Corporation
Lummis, Wilbur S.	State Department of Health
Lunceford, Betty	AFL-CIO
MacKenzie, Malcom R.	Federal Personnel Council of the Pacific
McClelland, John	U. S. Army
McDonnell, Donna	Hawaii Education Association
McTierney, Robert C.	U. S. Naval Base
Madden, Gerri	American Association of University Women
Mark, Shelley M.	State Department of Planning and Economic Development
Martin, Doris	State Department of Planning and Economic Development
Mather, Jennings S.	U. S. Civil Service Commission
Matsuda, Fujio	State Department of Transportation
Matsumori, Donald	
Matsuoka, Yoshio	Hawaii Sugar Planters Association
Mergens, Jim	Aloha United Fund
Miller, Mearle M.	
Minami, Hiroshi	Honolulu Council of Social Agencies
Minn, Ping Kyau Mrs.	State Department of Social Services

Misajon, James J. M.	The Methodist Church in Hawaii
Mitsuo, Stanley	Hawaii Education Association
Mitsuyama, Charles	State Department of Labor and Industrial Relations
Miyagi, Newton	ILWU
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Moorhead, George V.	Hawaii Heart Association, Inc.
Morgan, Francis S.	Theo. H. Davies and Company, Ltd.
Morita, Edward S.	State Department of Education, Kauai
Morrett, John	The Episcopal Church in Hawaii
Mudgett, Charles F., Jr.	Holmes and Narver, Inc.
Murakami, Melvin C.	U. S. Post Office
Muramatsu, Kazuto "Cowboy"	AFL-CIO
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Nagoshi, Jack	University of Hawaii
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Nakamura, Kent	State Library
Nakamura, Paul	Hawaii State Office of Economic Opportunity
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Nikaido, Elaine	State Commission on Manpower and Full Employment
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O'Connell, Thomas F.	U. S. Public Health Service
Ogami, Betty	Educational Guidance and Opportunities
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Okamoto, Lily M.	State Department of Accounting and General Services
Okimoto, Humio	County of Maui
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Paty, William W., Jr.	Waialua Agricultural Company, Ltd.
Perry, Kathleen M.	The Willows
Pierson, John	Retired, United Nations Secretariat
Piianaia, Abraham	Hawaii Homes Commission
Potter, Robert	University of Hawaii
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Quisenberry, Walter B.	State Department of Health
Reiter, Maxine	Hawaii Council of Camp Fire Girls, Inc.
Reynolds, Jack C.	AFL-CIO
Rezents, Ernest	Maui Community College
Riley, Herbert	Dillingham Corporation
Rish, Dorothy M.	California Packing Corporation
Robertson, Stanley H.	Holmes and Narver, Inc.
Roos, William F.	U. S. Army

Ruhig, Theodore	State Commission on Manpower and Full Employment
Sagara, Kuniji	State Department of Social Services
Samson, Constantine	ILWU
Santos, William	B & C Trucking Company, Ltd.
Schiffers, Carl J.	Hawaiian Electric Company, Inc.
Scola, Anthony W.	State Department of Accounting and General Services
Seixas, Kim	Rehabilitation Center
Sheppard, Harold	W. E. Upjohn Institute, Washington, D. C.
Shimizu, Mitsuo "Slim"	AFL-CIO
Shiroma, Seiko	Kahuku Plantation Company
Skidmore, Allen	State Department of Budget and Finance
Smead, Mandy Jo	Associated Students, University of Hawaii
Siefermann, Valentine A.	State Civil Defense Agency
Snodgrass, Dwaine H.	Hawaii Employers Council
Snyder, James K.	PACAF Base Command
Stepp, George A., Jr.	State Department of Budget and Finance
Stern, Bernard	Benefit Plan Consultants
Stevens, Jean B.	Dole Company
Stewart, Gordon V.	The Diversey Corp. (Hawaii), Ltd.
Stone, F. Warren Mrs.	Junior League of Honolulu
Stubenberg, Ann	YWCA of Oahu
Tam, Dick	Fair Practice and Training Council
Taylor, Ellsworth	U. S. Navy
Thompson, David	ILWU
Tokunaga, Mike	State Department of Regulatory Agencies
Tong, Thomas	State Department of Taxation
Trabbie, Mary K.	State Department of Education
Tsushima, Mark S.	U. S. Army
Tunks, Omar	Health Facilities Planning Council of Hawaii
Ushiro, Shigeo	State Department of Education
Vicar, Anthony A.	Lien Chemical Company of Hawaii
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Wat, Edith	State Department of Labor and Industrial Relations
Watanabe, Asako	
Weiser, Darlene R. G.	University of Hawaii
Whitcomb, W. E.	AFL-CIO
White, Allan G.	State Department of Taxation
Wight, Francis W.	McCabe, Hamilton and Renny Company, Ltd.
Winegar, Walter L.	U. S. Army
Won, Raymond	Kapiolani Community College
Wong, Florence	State Commission on Manpower and Full Employment
Wood, Hart D.	Hart Wood and Company, Ltd.
Woods, Don	Mental Health Association
Wright, E. Alvey	State Department of Transportation

Yamada, Kiyoshi	State Department of Education
Yamagata, Mineo	Young Buddhist Association
Yamamoto, Fred	State Department of Labor and Industrial Relations
Yamashita, Victor	State Department of Education
Yanagawa, Yoshi	Hawaii Housing Authority
Yasui, Ricki	County of Maui
Yoshida, James S.	IBEW
Yoshida, Teruo	State Department of Labor and Industrial Relations
Young, Patricia	City and County Civil Service

BIOGRAPHICAL DATA
(Arranged Alphabetically)

RICHARD E. ANDO

POSITION: Physician; Chairman, Board of Education, State of Hawaii

EDUCATION: 1943 (B.S.) University of Hawaii; 1944 (M.S.) University of Michigan; 1948 (M.D.) University of Michigan Medical School; 1948-1949 Internship, Harper Hospital, Detroit, Michigan; 1949-1951 Residence Training in Pediatrics; 1953-1954 Fellowship Training in Pediatrics, The New York and Cornell Medical Center

EXPERIENCE: 1954-1967 Private practice in pediatrics; 1954-1967 Member of numerous medical and hospital professional organizations

PUBLIC SERVICE ACTIVITIES:

Oahu Health Council; Child and Family Service; Hawaii Parliamentary Law Association; Politics - Democratic Party; Oahu School Advisory Council (1962-1964); Chairman, State Board of Education among others....

WALTER P. S. CHUN

POSITION: Director, State Office of Economic Opportunity

EDUCATION: B.A. Michigan State University - Social Work; M.A. University of Michigan - Social Work

EXPERIENCE: 1945-1946 U. S. Navy; 1950-1956 Social Welfare Department, State of Michigan; 1956-1958 Superintendent, The Children's Home of Peoria, Illinois; 1958-1961 Psychiatric Social Worker, Maui Mental Health Service; 1961-1963 Insurance Sales; 1963-1965 Field Representative, Hawaii Education Association; 1965-Present Hawaii Office of Economic Opportunity

W. H. FERRY

POSITION: Vice-President of the Fund for the Republic; Staff Administrator of the Study of the Economic Order, Center for the Study of Democratic Institutions, Santa Barbara, California

EDUCATION: 1932 Graduated from Dartmouth College

EXPERIENCE: Editor and reporter for various newspapersin the U. S. and South America; 1932-1933 Teacher at Choate School, Wallingford, Connecticut; Associated with the International Labor Office in Montreal; Chief Investigator for OPA in New Hampshire; Director of Public Relations, Political Action Committee, CIO (1944); For nine years a partner of Earl Newsom and Company, a New York public relations firm

W. E. FERRY (continued)

PUBLICATIONS: Mr. Ferry contributed a section to a book recently published entitled *The Corporation Takeover*, and was responsible for the development of a book entitled *The Corporation in Modern Society* published by the Harvard University Press. Several booklets published by the Center contain papers written by him. Among them are *Caught on the Horn of Plenty*, *The Economy Under Law* and *The Corporation and the Economy*

JACK W. HALL

POSITION: Hawaii Regional Director, International Longshoremen's & Warehousemen's Union since June 1944

EDUCATION: Graduate of Huntington Park Union High School, California, 1931

THOMAS H. HAMILTON

POSITION: President, University of Hawaii, January 1, 1963

EDUCATION: 1936 (A.B.) DePauw University; 1940 (A.M.) University of Chicago; 1947 (Ph.D.) University of Chicago

HONORARY DEGREES: 1960 (L.H.D.) Alfred University; 1961 (LL.D.) Rollins College; 1961 (LL.D.) Colgate University; 1961 (LL.D.) DePauw University

EXPERIENCE: 1941-1943 Assistant Professor and Assistant Dean, Lawrence College; 1943-1946 Officer, United States Navy; 1946-1948 Assistant Dean, University College, University of Chicago; 1948-1953 Vice-President and Professor of Political Science, Chatham College; 1953-1949 Professor; Dean, Basic College and Director of Summer School; Vice-President for Academic Affairs, Michigan State University; 1959-1963 President, State University of New York

MEMBERSHIP: Currently member of eight Professional and Honor Societies. Has served on nearly 40 Boards, Commissions and Committees dealing with education, international affairs, fair employment and research

PUBLICATIONS: Has had published nearly 50 books and monographs in the fields of education, university administration, adult education and scholarships among others

THOMAS K. HITCH

POSITION: Vice-President and Director of Economic Research, First National Bank of Hawaii

THOMAS K. HITCH (continued)

EDUCATION: 1934 (A.B.) Stanford University, Magna Cum Laude; 1937 (Ph.D.) University of London; 1944 (M.A.) Columbia University

EXPERIENCE: 1947-1950 Economist, President's Council of Economic Advisers, Washington, D. C.; 1950-1959 Director of Research, Hawaii Employers Council

PUBLIC SERVICE ACTIVITIES: Chamber of Commerce of Hawaii, Board of Directors; Tax Foundation of Hawaii, Second Vice-President; The Kamehameha Schools Advisory Council; Leahi Hospital, Board of Trustees; Mayor's Financial Advisory Committee, Chairman; Oahu Development Conference, Comprehensive Planning Committee, Chairman; Hawaii Visitors Bureau, Research Committee, Chairman; Hawaii Joint Council on Economic Education, Chairman; among others....

TERUO IHARA

POSITION: Since 1962, Campus Coordinator, University of Hawaii - Thailand and University of Hawaii - Pakistan Contracts; Director of Foreign Contracts, College of Education, University of Hawaii

EDUCATION: 1936 Hilo High School; 1940 (B.S.) University of Hawaii; 1941 Teaching Diploma, University of Hawaii; 1949 (M.A.) (Guidance) Ohio State University; 1959 (Ph.D.) (Secondary Education) Ohio State University

EXPERIENCE: 1941-1956 Teacher and Principal (Hawaii); 1956-1959 Graduate Assistant and Instructor, Ohio State University; 1959-1962 Assistant and Associate Professor in Education, University of Hawaii; 1943-1946 Military Service (Awarded Silver Star, Bronze Star and Purple Heart); 1947-1948 Major in the Hawaii National Guard

MEMBERSHIP: Currently member of 10 professional and other organizations; Currently serving on 24 professional and civic committees

PUBLICATIONS: Authored or co-authored numerous reports

JOHN J. JAQUETTE

POSITION: Financial Vice-President, Hawaiian Telephone Company

EDUCATION: 1939 Graduated from Haverford College in Economics, Phi Beta Kappa; 1941 (B.B.A.) Harvard University

EXPERIENCE: Served in the Supply Corps, U. S. Naval Reserve during World War II; Former lecturer in Utility Economics, University of Hawaii

PUBLIC SERVICE ACTIVITIES: Past President of Tax Foundation of Hawaii; Past President, Hawaii Chapter of the National Association of Accountants; Director of the Chamber of Commerce of Hawaii; Director, First National Bank of Hawaii; Director, Hawaiian Telephone Company; Director, Refrigeration Service and Supply Company

JOHN J. JAQUETTE (Continued)

PUBLICATIONS: Author of numerous articles appearing in various financial and trade journals

RICHARD KOSAKI

POSITION: Vice-President for Community Colleges, University of Hawaii

EDUCATION: 1949 (B.A.) University of Hawaii; 1952 (M.A.) University of Minnesota; 1956 (Ph.D.) University of Minnesota

EXPERIENCE: 1950-1952 Teaching Assistant, University of Minnesota; 1952-1956 Instructor, University of Hawaii; 1957-1961 Assistant Professor, University of Hawaii; 1959 House of Representatives (Hawaii), Assistant to the Speaker; 1961-1963 Chairman, Department of Political Science, University of Hawaii; 1963-1965 Assistant to the President, University of Hawaii

MEMBERSHIP: American Political Science Association, (Congressional Fellow, 1959-1960)

PUBLICATIONS: 1954 *Home Rule in Hawaii*; 1963 *Feasibility of Community Colleges in Hawaii*; 1965 *Hawaii Plans for Community Colleges*, Junior College Journal

ALFRED LAURETA

POSITION: Director, State Department of Labor and Industrial Relations

EDUCATION: University of Hawaii, Bachelor of Education and Teaching Certificate; LL.B. University of Fordham Law School

EXPERIENCE: Law practice; Administrative Assistant to Senator Daniel K. Inouye

MEMBERSHIP AND ACTIVITIES: Former Executive Secretary and Board Member of Filipino Chamber of Commerce; Former Member of Civic Associates YMCA; Former Board Member, Hawaii Cancer Society; Former Board Member, American Red Cross; Present Member, Windward YMCA Board; Present Member, Hawaii Bar Association; Present Member Democratic Party of Hawaii; Present Member Commission on Children and Youth (ex officio); Present Member Commission on Aging (ex officio); Present Member St. Francis Hospital Lay Advisory Board; Present Member International Association of Government Labor Officials; Present Member Industrial Relations Research Association Board; Present Member Aloha United Fund Board

SHELLEY M. MARK

POSITION: Director of the State Department of Planning and Economic Development

SHELLEY M. MARK (Continued)

EDUCATION: 1943 (B.A.) University of Washington, Phi Beta Kappa; 1944 (M.S.) Columbia University, Journalism; 1956 (Ph.D.) University of Washington, Economics; 1959-1960 Post Doctoral at Harvard University Ford Foundation Fellowship

EXPERIENCE: 1946 Teaching Fellowship, University of Washington, Economics; 1948 Assistant Professor and Chairman of the Economic Department, Arizona State University; 1950 Central Banking Fellowship, San Francisco Federal Reserve Bank; 1951 Chief Economist, Office of Price Stabilization, Hawaii; 1953 Joined the faculty at the University of Hawaii, Economics; 1958 Ford Foundation Fellowship at Stanford University; 1959 Director of the University of Hawaii Economic Research Center; 1962 Director, Department of Planning and Economic Development; 1963-1965 Represented the State and the Chamber of Commerce at international conferences on developing trade.

MEMBERSHIP: Royal Economic Society and numerous other professional groups

PUBLICATION: Author of *Economics in Action*

JAMES MISAJON

POSITION: Chairman State Commission on Manpower and Full Employment; Administrative Assistant, Treasurer and Business Manager, Headquarters of the Methodist Church in Hawaii

EDUCATION: 1949-1952 University of Hawaii; 1954-1957 (A.B.) University of Southern California Cum Laude

EXPERIENCE: Financial and personnel executive Territorial Tax Department, 1937-1954; 1959-Present Administrative Assistant, Treasurer and Business Manager, Headquarters of the Methodist Church in Hawaii; 1952 Delegate to Western Jurisdictional Conference The Methodist Church, Santa Barbara, California

MEMBERSHIP AND CIVIC ACTIVITIES: Trustee, Filipino Education Foundation of Hawaii; Director, Honolulu Council of Churches; Oahu TB & Health Association (President 1966); Chamber of Commerce of Honolulu (Education Committee); YMCA and "Y" Men's Club; Chairman, State Manpower Advisory Committee 1962-1965; Vice-Chairman City and County Commission on Aging; 1952 Delegate to International "Y's" Men's Convention, Canada; 1958-1963 Honolulu Community Chest; 1949-1952 Child and Family Service, Treasurer; 1961-1962 Honolulu Ministerial Association, President

CIVIC RECOGNITION:

Named Father of the Year in Religion by Chamber of Commerce of Honolulu, 1964

JACK T. NAGOSHI

POSITION: Associate Professor of Social Work, University of Hawaii; Director, Juvenile Delinquency and Youth Development Center, University of Hawaii

EDUCATION: 1951 (B.A.) University of Hawaii; 1953 (M.S.W.) University of Hawaii

EXPERIENCE: Director of Palama Settlement; Executive Secretary, Hawaii State Commission on Children and Youth

JOHN H. G. PIERSON

POSITION: Since 1963, Special Advisor to the Under-Secretary for Economic and Social Affairs and Secretary of the Economic and Social Council's Advisory Committee on the Application of Science and Technology to Development

EDUCATION: 1927 (B.A.) Yale University; 1938 (Ph.D.) Yale University, Economics

EXPERIENCE: Sterling Research Fellow, Yale University - Research on full employment; Co-founder and Associate Director, Institute for Applied Social Analysis; 1941-1943 U. S. Department of Labor Chief, Post-War Labor Problems Division, Consultant on post-war employment policy, Economic Adviser to Assistant Secretary of Labor, Special Assistant to the Under-Secretary of Labor, Served with the Economic Cooperation Association and the MSA (now the ICA) as economic adviser; Chairman of an international committee on full employment and economic foreign policy; Member of numerous other interdepartmental committees; A U. S. delegate to the conferences to frame the Charter of the International Trade Organization; U. S. delegate and adviser at various United Nations bodies - International Labor Organization, Economic and Employment Commission, Economic and Social Council; 1953-1954 Founder and President of Voices to America, Inc., a program which attempted to launch a program using mass media to promote better understanding in the United States of the problems and attitudes of other countries

PUBLICATIONS: Author or joint author of many official reports and other writings, in addition to publishing *Full Employment* (1941), *Full Employment and Free Enterprise* (1947) and *Insuring Full Employment* (1964)

MARVIN F. POYZER

POSITION: Associate Professor of Education, College of Education, University of Hawaii - Head, Technical-Vocational Education Program

EDUCATION: 1938 (B.S.) in Education, University of North Dakota; 1948 (M.A.) Colorado State College of Education (Industrial Education) 1954 (Ed.D) Bradley University

MARVIN F. POYZER (Continued)

EXPERIENCE: 1946-1960 Teacher-Industrial Arts-Secondary Schools, Minnesota, Associate Professor and Head, Department of Industrial Arts, University of North Dakota; 1958 Summer, Visiting Professor, Washington State University; 1959 Consultant, American Samoa, Industrial Education; 1960 Summer, Visiting Professor, University of Nevada; 1960-1964 Head, Industrial Arts Education Program, University of Hawaii; 1964-1966 Chief of Party, University of Hawaii /USAID/ Pakistan Technical Assistant Contract

MEMBERSHIP: Life member AIAA; AVA; ACIATE; NEA; HEA; HIAA

PUBLICATIONS: Author of several articles on industrial arts education

ROBERT W. RIDER

POSITION: Economist, State Department of Planning and Economic Development

EDUCATION: 1957 (B.A.) LaSalle College, Philadelphia, Pennsylvania; 1959 (M.A.) University of Connecticut; 1965 (Ph.D.) University of Pittsburgh

EXPERIENCE: 1960 Research assistant, Pittsburgh Regional Economic Study, Pittsburgh Regional Planning Association; 1962-1965 Economist, Area Redevelopment Administration, U. S. Department of Commerce; 1965 Economist, Department of Planning and Economic Development, State of Hawaii

THEODORE F. RUHIG

POSITION: Executive Secretary, Commission on Manpower and Full Employment, Department of Planning and Economic Development

EDUCATION: 1938 (B.A.) Sociology, (B.S.) Chemistry, Illinois Institute of Technology; 1958 (M.A.) Education, University of Chicago Completed course work toward Ph. D. degree

EXPERIENCE: 1964-1966 Director of Training and Labor Liaison, Chicago Area Plan for Workers' Mental Health, Roosevelt University; 1959-1966 Assistant Professor of Labor Education and Assistant Director, Labor Education Division, Roosevelt University; 1958-1959 Teacher of Mathematics and History, Lane Technical High School; 1940-1958 Metallurgical Laboratory for industrial firms; 1941-1944 Chief Instructor, Army Ordnance School; 1938-1940 and 1947-1950 Family Social Workers, Chicago Welfare Department; 1957-1966 Numerous appointments as a consultant, lecturer and teacher in adult education and related subjects

PROFESSIONAL AFFILIATIONS: American Association of University Professors; Industrial Relations Research Association; National Society for the Study of Communication; The Gerontological Society, Inc.;

THEODORE F. RUHIG (continued)

PROFESSIONAL AFFILIATIONS (cont.) Phi Delta Kappa (Professional Fraternity for Men in Education); Adult Education Association of the United States; The American Academy of Political and Social Science; University Labor Education Association

COMMUNITY AFFILIATIONS: Chicago Metropolitan Mental Health Planning Council Member of Executive Committee; Mental Health Society of Greater Chicago, Board Member; Mayor's Commission for Senior Citizens, Chicago; Community Industrial Contract Association, Board Member; Illinois State Advisory Council on Mental Retardation; Illinois Governor's Commission on the Status of Women; Chicago Federation of Labor and Industrial Union Council, Delegate and member of Community Service Committee; National Council of Senior Citizens, Member, National Organizing Committee; Welfare Coundil of Metropolitan Chicago, Committee on Public Policy

PUBLICATIONS: Author, co-author, consultant, and contributor to nine various books, articles and reports

CARL J. SCHIFFERS

POSITION: Administrative Vice-President, Hawaiian Electric Company

EDUCATION: George Peabody School, San Francisco, California; Polytechnic High School, San Francisco, California; University of California, Extension Division, Civil Engineering; Sales Analysis Institutte, Sales, Economics, Business Administration, Personnel Relations

EXPERIENCE: 1919 W. S. Ray Manufacturing Company, San Francisco, California; 1920 Foundation Company, New York, New York; 1921 Pacific Gas and Electric Company, San Francisco; 1929 Pacific Gas and Electric Company, San Francisco; 1939 Hawaiian Electric Company; 1959-1962 Honolulu Electrical Products Company, Ltd.

PUBLIC SERVICE ACTIVITIES; 1952-1957 American Red Cross, Hawaii Chapter; 1958 Boy Scouts of America, Aloha Council; 1950 and 1967 Chamber of Commerce of Hawaii; 1951, 1952 and 1956 Community Chest of Honolulu; 1950-Present Department of Education Lay Advisory Committee; 1960-Present Downtown Improvement Association; 1940-Present Engineering Association of Hawaii; 1945-Present Hawaii Employers Council; 1956-Present National Association of Manufacturers; 1955-Present Navy League of the U. S. - Hawaii Council; 1955-Present Oahu Health Council; 1953-Present Rotary Club of Honolulu; and numerous others

HAROLD L. SHEPPARD

CURRENT AFFILIATIONS: Staff Social Scientist at the W. E. Upjohn Institute of Employment Research in Washington, D. C.; Member of the Administration on Aging's Advisory Committee on Older Americans, and the Technical Review Panel; Chairman of the Office of Economic Opportunity's Task Force on Poverty and the Older American; Member

HAROLD L. SHEPPARD (Continued)

CURRENT AFFILIATIONS (cont.) of the National Council on Aging's Board of Directors, and Vice-Chairman of the Committee on Employment and Retirement

EDUCATION: 1945 (M.A.) University of Chicago, Sociology; 1948 (Ph.D.) University of Wisconsin, Sociology and Anthropology

EXPERIENCE: (Partial Listing) 1947-1959 Associate Professor, Wayne University; 1957-1958 Senior Fullbright Research Scholar in France; 1966 Member of the President's Task Force on Economic Security and Welfare for White House Conference on Civil Rights

PROFESSIONAL ORGANIZATIONS: Industrial Relations Research Association; American Sociological Association

PUBLICATIONS: (Partial Listing) *Industrial Society* (editing and translation of Georges Friedmann's *Problemes Humains du Machinisme Industriel*); *When Labor Votes* (with Arthur Kornhauser) *Too Old to Work; Too Young to Retire: A Case Study of a Permanent Plant Shutdown* (with Lois Ferman), published by the Senate Special Committee on Unemployment; *The Job Hunt: Job-Seeking Behavior of Unemployed Workers in a Local Economy*, with A. Harvey Belitsky, to be published by John Hopkins Press, 1966; *Civil Rights, Employment, and the Social Status of American Negroes* with Herbert E. Striner, published by the W. E. Upjohn Institute for Employment Research, 1966; "An Integrated Approach to Manpower and Economic Development," a chapter in *Dimensions of Manpower Policy: Programs and Research*, published by John Hopkins Press, 1966

EDITH WAT

POSITION: Program Specialist, Hawaii State Employment Service Department of Labor and Industrial Relations

EDUCATION: University of Hawaii

EXPERIENCE: Employment Service Division, Department of Labor and Industrial Relations; SPECIAL ASSIGNMENTS - Member of Lt. Governor's Task Force to determine applicability and direction of EOA Program in the state; Technical Assistant to Hawa i Office of Economic Opportunity in initial establishment of Neighborhood Youth Corps Project, and Hawaii Job Corp Conservation Center in the state.

MEMBERSHIP Honolulu Community Action Program Standing Committee; Nurses Aids Implementation Committee of Hawaii, League of Nursing, Inc.

DONALD M. WOLFHOPE

POSITION: Director, Training and Personnel Research, C. Brewer & Co., Ltd.

DONALD M. WOLFHOPE (Continued)

EDUCATION: B.A. University of California at Los Angeles, Industrial Psychology; M.A. University of California at Los Angeles, Industrial Psychology

EXPERIENCE: Industrial Relations Director, Honolulu Iron Works; Industrial Relations Adviser, Hawaii Employers Council; Management Development Specialist, Ford Motor Company; Rehabilitation Psychologist, Los Angeles City Schools; Lecturer (Industrial Relations and Management) University of Hawaii

CONFERENCE KIT MATERIALS

Conference Program

Participant List

Biographical Information

Remarks by Jack W. Hall

A General Profile of the Job Seeker in Hawaii

Manpower Needs in the Hawaiian Economy, January 1967

HONOLULU ADVERTISER
Friday, Jan. 13, 1967

Conference To Discuss Manpower

Some 300 business and community leaders are expected to attend the Governor's Conference on Human Resources at the Ilikai Hotel Feb. 1 and 2.

The conference will explore the future manpower requirements of business and industry in Hawaii.

It will be held under the auspices of the State Commission on Manpower and Full Employment, headed by the Rev. James J. M. Misajon.

One of the speakers will be Wilbur H. Ferry, vice president of the Center for the Study of Democratic Institutions at Santa Barbara.

Gov. John A. Burns and Thomas H. Hamilton, University of Hawaii president, also will address the group.

John J. Jaquette, Hawaiian Telephone Co. vice president, will moderate a panel discussion on future manpower needs at the opening of the conference.

Ferry will be a panel member as will Thomas K. Hitch, First National Bank vice president; Alfred Laureta, State Director of Labor and Industrial Relations; and Robert Rider, economist with the Department of Planning and Economic Development.

That afternoon Teruo Ihara, associate professor of education at University of Hawaii, will be moderator of a panel on educational requirements in the manpower field.

Panelists will be Dr. Richard E. Ando, Board of Education chairman; Carl Schiffer, Hawaiian Electric Co. administrative vice president; and Marvin Poyzer, associate professor of education at the university.

The concluding panel discussion will be held the morning of Feb. 2 with Jack T. Nagoshi, associate professor of social work at the university, as moderator.

The subject will be conservation of human resources.

Panel members are Jack Hall, regional director of the ILWU; Don Wolfhope, C. Brewer & Co. training director; Edith Wat, State Employment Service; and Walter Chun, Hawaii director of the Office of Economic Opportunity.

Monday, Jan. 16, 1967 Honolulu Star-Bulletin

Human Resources meet to hear Californian

Wilbur H. Ferry, vice-president of the Center for the Study of Democratic Institutions, will address a Governor's Conference on Human Resources to be held February 1 and 2, Governor John A. Burns has announced.

The conference is being called by Governor Burns under auspices of the State Commission on Manpower and Full Employment to explore current and future manpower requirements of Hawaiian industry.

Some 300 business and community leaders are expected.

Ferry will participate in a panel discussion on "future manpower needs." Prior to joining the Center at Santa Barbara, he had a varied career in business and labor.

Other speakers include Governor Burns and President Thomas H. Hamilton of the University of Hawaii.

The Reverend James J. M. Misajon, commission chairman, has announced the appointment of John J. Jaquette, vice-president of Hawaiian Telephone Company and a commission member, as chairman of conference planning committee.

Jaquette also will moderate the morning panel discussion February 1 on "future manpower needs." Panelists besides Ferry will be Alfred Laureta, State Director of Labor and Industrial Relations; Dr. Robert Rider, economist-in-charge of the State's economic model, Department of Planning and Economic Development; and Dr. Thomas K. Hitch, vice-president and chief economist of the First National Bank.

Dr. Teruo Ihara, associate professor of education at the University of Hawaii and a commission member, will moderate a panel that afternoon on educational requirements in the manpower field.

Panelists will be: Dr. Richard E. Ando, chairman of the State Board of Education; Carl Schiffer, administrative vice-president, the Hawaiian Electric Company; and Dr. Marvin Poyzer, associate professor of education, University of Hawaii.

Jack T. Nagoshi, associate professor of social work at the University of Hawaii, will moderate a morning panel February 2 on "conservation of human resources."

Panelists will be: Walter Chun, Hawaii director of the Office of Economic Opportunity; Jack W. Hall, regional director, I.L.W.U.; Don Wolfhope, C. Brewer and Company training director; and Edith Wat, State Employment Service.

HONOLULU ADVERTISER

Friday, Jan. 27, 1967

Mr. Full Employment Visits Here

PIERSON

Can the nation provide full employment and still maintain its economy on an even keel?

A man who has devoted some 30 years to the problem — and believes that he has a solution — is now in Hawaii and will be a keynote speaker at the Governor's Conference on Human Resources, to be held Wednesday and Thursday at the Ilikai Pacific Ballroom.

He is Dr. John H. G. Pierson, who recently retired as United Nations economist and special adviser to the undersecretary for economic and social affairs.

Pierson, who is known as "Mr. Full Employment," believes that the key to providing jobs for everyone lies in an amendment to the Employment Act of 1946.

"This is needed so that Congress, after hearing the President's proposal, such as the Great Society program, can make a decision on the total package and come up with legislation," Pierson said.

He said Congress can set a level which would assure full employment yet regulate consumer purchasing power so it would not upset the delicate balance in the economy.

Pierson has written three books on the subject. They are "Full Employment," "Full Employment and Free Enterprise," and "Insuring Full Employment."

His wife, who also writes, is traveling with him on a leisurely trip to Greece. They'll go to Bangkok next month and then to Greece.

Pierson was director of research and planning for the Economic Commission for Asia and the Far East in Bangkok for four years.

His experience abroad has convinced him that underdeveloped countries, as well as those which have made major recoveries after wars, would benefit from full employment in the United States.

He reasons that if there are jobs for everyone in the U.S., there won't be such stringent curbs on imports from such countries.

"As long as we have dog fights over this," he said, "they're never going to get out of debt to us. A lot of them would like to get out from under."

HONOLULU ADVERTISER
Monday, Jan. 30, 1967

Meet Features Sheppard Talk

Dr. Harold L. Sheppard, former deputy director of the Area Redevelopment Administration, will be a featured speaker at the Governor's Conference on Human Resources Wednesday and Thursday.

Sheppard, who is now with the W. E. Upjohn Institute of Employment Research, will give the banquet speech on Wednesday at the Ilikai Pacific Ballroom.

He is the author of "The Job Hunt" and "Too Old to Work, Too Young to Die."

Other main speakers include John H. G. Pierson, retired United Nations manpower economist; W. H. Ferry, vice president of the Center for the Study of Democratic Institutions; Gov. John A. Burns, and President Thomas H. Hamilton of the University of Hawaii.

John J. Jaquette, vice president of Hawaiian Telephone Co., is chairman of the conference planning committee.

Jaquette also will moderate the morning panel discussion on Wednesday on the theme "Future Manpower Needs." Panelists will include Ferry; State Labor Director Alfred Laureta; Dr. Robert Rider, economist with the State Planning and Economic Development Department, and Dr. Thomas K. Hitch, vice president and chief economist of First National Bank.

Dr. Teruo Ihara, associate professor of education at the University of Hawaii, will moderate a panel during the afternoon session on educational requirements in the manpower field.

Panelists will be Dr. Richard Ando, chairman of the State Board of Education; Carl Schiffer, Hawaiian Electric Co's. administrative vice president, and Dr. Marvin Poyzer, UH associate professor of education.

Jack T. Nagoshi, UH associate professor of social work, will moderate a panel on Thursday on "Conservation of Human Resources."

Panelists will be Walter Chun, Hawaii director of the Office of Economic Opportunity; Jack Hall, regional ILWU director; Don Wolfhope, training director for C. Brewer & Co., and Edith Wat of the State Employment Service.

In near future

Tuesday, Jan. 31, 1967 Honolulu Star-Bulletin

Guaranteed income need cited

By BYRON BAKER

A constitutionally guaranteed annual minimum income is an "indispensable" requirement for the future in the United States, Wilbur H. Ferry, vice - president of the Center for the Study of Democratic Institutions, said today.

Ferry is one of the speakers for the Governor's Conference on Human Resources which begins tomorrow at the Ilikai.

The United States is in the midst of revolutionary changes brought on by the effects of cybernation, race relations and new weaponry, Ferry said.

Ferry and other public figures several years ago dubbed the changes the "Triple Revolution."

The revolution is producing an "effective and rapid alteration of the traditional connection between income and work, and very soon . . . we will have to have a new way of distributing the economic franchise," Ferry said.

A constitutionally guaranteed minimum income of perhaps $4,000 is the means for accomplishing this. But the practical means of providing the income and the effects it might produce are things Ferry is less sure of than he used to be, he said.

"It is not an easy idea to work out. There are tremendous practical and ethical questions," he said.

"There is some thought that a nation that has been raised on the Protestant ethic . . . if it should have to depart from that ethic" will face serious psychological problems among its people, he added.

"These psychological preoccupations should be foremost" in consideration of guaranteed income. The income itself is "indispensable," Ferry said.

"My point is that we haven't much choice.

"I think we're in the middle of one hell of a revolution . . . and that this revolution is coming along very fast indeed," Ferry said.

He will participate in a discussion on future manpower needs tomorrow, the first day of the two-day conference.

About 300 business and community leaders are expected to attend the conference. Other speakers will include Governor John A. Burns and President Thomas H. Hamilton of the University of Hawaii.

Honolulu Star-Bulletin
Wednesday, Feb. 1, 1967

Burns paints profile of job seeker in Isles

Education and training continue to be the keys to solving Hawaii's problem of unemployment and lack of persons to fill skilled jobs, Governor John A. Burns said today.

He made the remarks today before 300 persons at the Governor's Conference on Human Resources at the Ilikai Hotel.

The conference is sponsored by the Governor and the State Commission on Manpower and Full Employment in cooperation with the State Department of Planning and Economic Development and Conference Center, College of General Studies at the University of Hawaii.

Thomas H. Hamilton, president of the University of Hawaii, also spoke to the conference at today's luncheon.

In his keynote address, Governor Burns challenged delegates to "preserve and encourage" Hawaii's human resources (manpower) who currently earn a per capita income above the national average and have unemployment lower than the national average.

But Hawaii still has a hard core unemployment rate of 4 percent, Burns said.

Using figures specially prepared for the conference by the Department of Sociology at the University of Hawaii, Burns proceeded to make "A General Profile of the Job Seeker in Hawaii."

Among the characteristics of the unemployed in Hawaii:

—Approximately 60 percent of the job seekers are under 30 years of age.

—Most job seekers on Oahu are younger than the ones on the Neighbor Islands.

—A high proporation of the job seekers are female.

—The majority of the job seekers in the state are single.

Burns also noted from the study that "job seeking appears to be heavily a characteristic if limited education."

Approximately 12 percent of the job seekers had a grammar school education or less, 22 percent were high school dropouts, and 38 percent were high school graduates.

In sum, over 70 percent of the job seekers had a high school education or less.

It also appears that the educational level of the job seekers on the Neighbor Islands is significantly lower than for those on Oahu, Burns said.

Other activity in the morning session centered on a panel that discussed "Future Manpower Needs" in Hawaii.

An afternoon session chaired by Teruo K. Ihara of the University of Hawaii talked about "Education for a Growing Hawaii."

Harold L. Sheppard, of the W.E. Upjohn Institute of Employment Research in Washington, D.C., will address the conference on a National Policy of Human Resources at the 6:30 p.m. banquet.

Thursday, Feb. 2, 1967 HONOLULU ADVERTISER

Manpower Conference Puts Emphasis on Education

By HAROLD HOSTETLER

Education is the key to solving manpower problems, the main speakers at the Governor's Conference on Human Resources agreed yesterday.

More than 300 conferees attended the first session at the Ilikai Hotel. The concluding session will begin at 9 a.m. today in the Pacific Ballroom of the Ilikai.

From Gov. John A. Burns' keynote address at the morning session to Dr. Harold L. Sheppard's main address at the banquet yesterday evening, the emphasis was on education.

Sheppard is a social scientist with the W. E. Upjohn Institute of Employment Research in Washington, D.C.

In an interview that covered the points of his banquet address, Sheppard said that "the total of society can't progress unless we invest in all of the community's educational needs.

"In California, for instance, a lot of the economic progress the state has made can be traced to the money it has put into higher education."

He said that there must be more coordination between government agencies, the universities and business.

"Often, too many established agencies want to get into the act and get brownie points," Sheppard said. "The only one who loses is the worker. We need to get these agencies coordinated."

He said that a lot of emphasis was being placed on training unemployed young people, while the older unemployed workers are being neglected.

He pointed out that statistics have shown that employment offices discriminate against the older workers — 39 and over. He said they were not being trained in proportion to the percentage of the unemployed they made up.

"The rate of employment is higher among the younger workers," Sheppard said, "but once unemployed, the older worker stays unemployed longer.

"The reason we are so concerned about the younger workers is that they are the ones who make the riots," he added. "They make all the noise and get all the attention.

"I'm highly in favor of the older workers demonstrating to bring attention to their problem," he said.

Sheppard also felt that the universities could play a larger role in finding out how to motivate workers into taking training to acquire skills for new jobs.

"We need to find out why more older workers don't go through the training programs, or stick it out once they begin," he said.

In his keynote address, Burns also pointed out that "education and training are the keys to resolving a situation where unemployment and manpower shortages both exist at the same time."

He warned, however, that "we must avoid training our young people for limited skills vulnerable to technological change."

Burns said that in Hawaii "the need for service workers in our rapidly expanding tourist industry has increased the necessity for having communicative and social skills in our school systems."

Burns cited the following figures on Hawaii's unemployment:

About 60 per cent of the job-seekers are under 30 years of age, about 45 per cent are women, a third have not completed high school and two-thirds are Hawaii-born.

Addressing the conference's noon luncheon, Dr. Thomas H. Hamilton, president of the University of Hawaii, said that more attention must be given to a man's total well-being and not just his economic well-being.

"I think it can be said that the purpose of education is to help students to live their own lives, and this must include not only earning a living but living the life that they earn," he said.

"To concentrate entirely upon the vocational is to misuse the experience of college and to misuse the gift of life."

Thursday, Feb. 2, 1967
HONOLULU ADVERTISER

Vocational Education Is Panel Topic

The State Board of Education's controversial issue on vocational education came out again yesterday at the Governor's Conference on Human Resources.

Dr. Richard E. Ando, board president, was a member of a panel discussing "Education for a Growing Hawaii." He stated the board's position that "the first 12 years of school should give a liberal general education."

He also said that the secondary school's job was not to provide training for a specific job but rather to educate the student "to be ready for change" as the job picture changes.

His position was backed up by the moderator of the panel, Dr. Teruo Ihara of the University of Hawaii College of Education.

Ihara said that "the Board of Education and the State Manpower Commission believe that vocational education is primarily a post-high-school responsibility."

Panelist Carl Schiffers, vice president of Hawaiian Electric Co., asked, however, what was to happen to the young high school graduates who did not go on to post-graduate study but had learned only the three R's.

"If they can't get a job, I say we have not done a good job of educating them," he said.

Pointing out that delinquency was greatest among the unskilled, Schiffers said that "this is more than an educational problem; it is a social proboem.

"If we cut the program out of high school, then we will have a social problem on our hands," he added.

Guarantee Of Income Debated

HONOLULU ADVERTISER
Thursday, Feb. 2, 1967

A panel discussion of "Future Manpower Needs" yesterday turned into an argument over the guaranteed annual income during the Governor's Conference on Human Resources.

Advocating the guaranteed annual income was W. H. Ferry, staff administrator of the Study of the Economic Order of the Center for the Study of Democratic Institutions in Santa Barbara, Calif.

Taking the opposite view was Dr. Thomas K. Hitch, vice president and director of economic research of the First National Bank.

Ferry said that the technological revolution would produce "widespread alienation and dissatisfaction and confusion" because fewer people would be needed to hold jobs.

"We are advancing on a semi-workless society," he said, adding that "labor will more and more be giving way to leisure and the earning community will be supplanted by the learning community."

He said that people would have to learn to feel useful in fields other than work, such as "play, politics and contemplation."

Ferry said that a guaranteed annual income would help to bring the non-earners "back into full participation in the republic. Participation is the word, not paternalism."

Hitch said, however, that "people who say, 'get ready, cybernation coming soon,' remind me very much of people who erect signs saying, 'Get ready, Jesus coming soon.'

"If I can say so without being irreverent, such signs have been admonishing me all my life to get ready, but I am still waiting.

"My contact with the human race teaches me that this splendid state of everybody having everything he wants is so far off in the future that it is not worth worrying about."

Hitch said he believed that "the scientist is not eliminating jobs for the American labor force. In fact, the reverse is true; new jobs are being created all the time."

Honolulu Star-Bulletin Thursday, Feb. 2, 1967

7.5 million new jobs seen for U.S. by 1970

A social scientist said last night that by 1970, there will be 7.5 million new jobs in the country, but he said many job seekers will be unable to fill them because they lack the proper skills.

Dr. Harold L. Sheppard of the W. E. Upjohn Institute for Employment Research, added, "We are still paying too little attention in developing our human resources."

He called for a unified program on the national level for manpower training and full employment.

He spoke at the Governor's Conference on Human Resources banquet at the Ilikai Hotel.

"The investment in human resources is more important than investment in machinery," he said. "There must be a willingness to pay for this investment and it should not be considered as an expenditure."

Sheppard said he was also appalled at the high rejection rate for military service because of educational or health deficiencies. "It's a scandal."

He hoped someday "we will pay students to go to college."

The employers, he said, also have the responsibility for retraining workers for new jobs due to technological changes.

In the afternoon session, Dr. Thomas H. Hamilton, president of the University of Hawaii, discussed the role of a university in the development of human resources.

Hamilton thinks that in talking about human resources, people are beginning to place too much emphasis on economic outcomes.

He believes the purpose of education is to help students to "live their own lives, and this must include, not only earning the life, but living it once it has been earned.

"A university is nothing more and nothing less than a community of scholars, a community of men and women, young and old, living together and bound by a common commitment to find things out.

"To concentrate entirely upon the vocational is to misuse the experience of college and to misuse the gift of life," he said.

HONOLULU ADVERTISER Friday, February 3, 1967

Handicapped Hiring Urged

More must be done to open up job opportunities for the disadvantaged, Jack T. Nagoshi said yesterday in opening a panel discussion on "Conservation of Human Resources."

The moderator's remarks were echoed several times by the panel members. The panel was part of the concluding session of the Governor's Conference of Human Resources.

Moderator Nagoshi is associate professor of social work and director of the Juvenile Delinquency and Youth Development Center at the University of Hawaii.

Panel members were Donald M. Wolfhope, director of training and personnel research, C. Brewer & Co.; David Thompson, ILWU education director; Walter P. S. Chun, director of the State Office of Economic Opportunity; and Edith Wat, program specialist of the Hawaii State Employment Service.

"The more difficult to place, especially the poor, have been largely neglected in the past," Nagoshi said.

He said also that "employers too often demand higher qualifications for a job than the job requires."

Wolfhope pointed out that much emphasis has been placed on hiring the handicapped, but although many larger firms do hire the handicapper, smaller employers (20 employes or fewer) neglect to hire them because of feeling that they are not productive enough.

Wolfhope added that "only 8 per cent of the people hired in the U.S. last year were over 45 years of age" and noted that "there is a serious problem with and a serious prejudice against people over 45" in the labor market.

He also mentioned that there is often discrimination against persons with prison records and those who have dropped out of school.

Thompson, reading a prepared speech by ILWU regional director Jack Hall, who was ill, said the union was "supporting and encouraging training programs, government and private, so these displaced and new workers will have the skills to fill these new jobs."

The new jobs, he said, would be in Hawaii's expanding tourist industry.

He also said the ILWU could look after its present members through collective bargaining, but "the big job will have to be done by government, labor and business working together.

"Only in this way can the larger social problems be mitigated, let alone solved," he said.

Economist Likes Guaranteed Job Idea

By HAROLD HOSTETLER

Guaranteed full employment is the first step toward a guaranteed national income, according to an expert who has spent some 30 years working in the promotion of full national employment.

Economist John H. G. Pierson, former adviser to the U.S. State Department and the United Nations, addressed about 300 persons at yesterday's final session of the Governor's Conference on Human Resources at the Ilikai.

"If you established a guaranteed income before guaranteeing people jobs, I don't see how you could avoid establishing a class system," Pierson said.

He agreed that eventually we will have to divorce income from work, but he said that people are not yet ready to accept the idea of being paid for not working, which is considered being "on the dole."

PIERSON

What he advocated was a plan that is being worked out and proposed by a group of economists, social welfare workers and civil rights leaders—a 10-year program to eradicate poverty.

He said the economic dividend at the end of 10 years could be $2 trillion, with the Federal government getting a $500 billion share of it.

At the same time, it would cost the government about $185 billion to establish the program.

Pierson said it was based on an anticipated annual economic growth rate of 4½ to 5 per cent, with annual private productivity increasing at 3½ per cent a year.

The program would include full employment, income supports and various forms of redevelopment — slum clearance, low income housing, education and health improvements and anti-pollution measures.

"This would require Federal leadership, but not a larger Federal piece of the pie," Pierson said.

"It wouldn't mean the Federal government would become bigger," he added. "It would become smaller in relation to the state and local governments."

Pierson said, however, that although the Administration might buy the program, it was highly unlikely that more than 80 per cent of it could get through Congress.

"And you won't get full employment unless you could fill in the gaps," he said.

He said that could be done through a "flexible public works program and an expansion of it" that would give employment to those who had been eased out of the labor market.

Congress would have to set up a target program for such a planned economy, Pierson said, such as "a target of, say, 70 million jobs a year and a target of consumer spending."

The consumer spending level could be raised through a negative income tax, or through a Federal sales tax, he said. When more money was needed in the economy, the sales tax could be refunded in coupons redeemable for cash.

Pierson felt that everyone could benefit from such a program. Unions would be getting jobs, business would be getting income. He said the danger of inflation would be minimized because of a planned floor and ceiling on both jobs and consumer spending.

He said the program would also offset the U.S. balance of payments deficit because "a strong economy attracts funds."

Full national employment would also help the underdeveloped countries, Pierson said.

"The developing countries are not going to be able to develop unless they can export their manufactures and raw materials," he said and added that a "fear of a shortage of markets" was an international problem.

"Many countries want to get off dependence on aid," he said. "Once they get rolling, they will be able to advance if other countries can accept their goods."

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The Sunday Advertiser

FEBRUARY 5, 1967

Conferences & Action

Last week it was the Governor's Conference on Human Resources and others on traffic safety and tropical agriculture.

The week before it was the Citizens' Conference on the Administration of Justice, the major meeting on Honolulu Airport needs, and the Natural Beauty and Recreation Congress of the National Association of Counties. Before that it was the Chamber of Commerce Conference on Planning, among others.

Coming up this week is the Conference on Ethics in Government. Beyond that are other major meetings including the East - West conference on urban problems which will bring delegates here from Asia and the Mainland.

THERE ARE, of course, conferences and conferences; some have little impact.

But some of these meetings have been most impressive in a couple of ways. One is the exchange of outside views from visiting experts, an idea of how others see us and our problems.

The other is the degree of citizen participation, often not passive listening participation but active discussion.

In any given community, change in the immediate sense is usually accomplished by a relatively small group of citizens, be it change for good or ill.

At the same time, it is incumbent on those interested in progressive development, not just of projects but of democratic practice, to broaden the base of interest and support.

THIS CONFERENCES can start to do. The follow - up steps, be they on the airport, selection of judges or ethics, require an expanding effort of a small group seeking to mobilize increased support.

Some of our key areas of interest are in that stage now. It is important that the momentum generated in these conferences not be lost.

The Honolulu Star-Bulletin

WEDNESDAY, FEBRUARY 8, 1967

PAGE A-8

Directions in job training

In a significant speech last week, Governor Burns took a look at our manpower needs—present and future.

Our civilian labor force touched 200,000 in 1956 and seems likely to get to 300,000 before 1970.

At present, we are suffering from a situation in which we have quite a few thousand unemployed people on one hand and quite a few thousand empty jobs on the other.

The barrier that separates the unemployed from the jobs is a high one—skill and training.

There are disproportionate numbers of young women and of school dropouts among the unemployed.

The unfilled jobs require technical and professional training. Our inability to fill them reduces efficiency.

In a passige that has importance to the present controversy over the role of vocational education in the schools, Governor Burns commented:

"The point, of course, is that education and training are the keys to resolving a situation where unemployment and manpower shortages both exist at the same time.

"In our scientific and technological age — growing in complexity each year—government must provide quality education at all levels: general education, vocational education, higher education and continuing adult education.

"In the area of manpower development we must avoid training our young people for limited skills vulnerable to technological change. We must provide full opportunity for individual achievement by all our students, whether they are college bound or not."

After this seeming commitment toward a reduced emphasis on vocational education in high schools, the Governor went on to discuss the role of the University of Hawaii in manpower training.

He commented:

"It may be of value to discuss a question raised by some in regard to this role of the university in our economic future. The point made is that there is no immediate link between the emphasis on the growth of tourism and its allied service industries and the emphasis on graduate studies at the university.

"One might well ask, 'How many Ph.D's. can tourism absorb?'

"The answer lies in our total objectives over the long haul. Tourism is helping to provide the revenues — the local accumulation of capital — necessary for growth in other areas of our economy.

"It is far more likely that we will continue to have a 'brain inmigration,' than a future 'brain drain.' Our people, our climate, our beautiful natural setting coupled with expanding economic opportunities have triggered this inmigration and their effect isn't apt to abate.

"Education, innovation and enterprise are the key pre-conditions for the expansion of employment and the creation of new jobs. We must continually increase the incentive for more research and development through such programs as our new State Technical Service Program, through University research, private industrial research and by other means. Certainly, this area of economic expansion requires the best possible system of higher education we can afford."

The Governor's master plan thus sees us as leaning on tourism to provide the resources to build a much more diverse economy — one in which research and development plays a key role.

It is fair to say that this vision seems to have wide acceptance across a broad spectrum of community leaders.

The current discussions over vocational education provide an appropriate time for it to be discussed and debated.

We need to have something approaching a consensus on the directions we will be pursuing in the years ahead.

It is important also that it be communicated to young people who are faced with the problem of choosing careers they may follow for as much as 40 and 50 years from now.

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Helling, John F.
A Study of the South Milwaukee County Educational Needs.

Wisconsin Univ., Madison. Center for Vocational and Technical Studies
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SOUTH MILWAUKEE COUNTY; WISCONSIN

This educational survey was initiated to provide a close look at all phases of post-high school education and to provide guidelines for programs based on needs of the area. The survey was designed and carried out by staff of the University of Wisconsin for the South Milwaukee County Area, which included eight school districts in both rural and urban areas. Questionnaires were developed to determine: (1) the characteristics and attitudes of former students in the public schools, (2) characteristics, attitudes and aspirations of high school seniors, (3) demographic features of the South Milwaukee County Area, (4) opinions gained through an interview study of 1,000 randomly selected residents, (5) reactions of employers regarding the level of skill possessed by their employers, and (6) existing facilities for vocational education in the area, and in Milwaukee. Employers revealed different problems in finding employees with suitable training, and the most difficult areas to staff were the skilled, clerical, and/or technical fields. It is recommended that a proposal be drafted for improved and increased post high school educational facilities of a vocational-technical nature in the South Milwaukee County Area. (MS)

VT 001 978

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APR 3 1967

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99p*

A Study of the
South Milwaukee County Educational Needs
by the
Center for Vocational and Technical Studies

VT 01978

A Study of the
SOUTH MILWAUKEE COUNTY EDUCATIONAL NEEDS

by the

Center for Vocational and Technical Studies
University of Wisconsin

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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In Cooperation With

The Lakeshore Studies Council

and

The State Board of Adult and Vocational Education

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Project Assistant

Mary Krider

FOREWORD

Education is the keystone to American culture. The improvement of educational opportunity is the responsibility of all our citizens. These two statements embody the underlying reasons for this study of educational needs and opportunities in South Milwaukee County.

This educational survey was initiated to provide a close look at all phases of post high school education and to help provide guidelines for the fashioning of programs to meet discovered wants. The actual survey design and operation was developed and conducted by staff from the University of Wisconsin, Madison. This application was intentionally planned to avoid any taint of "special interest" bias. It is intended that the study conclusions objectively reflect genuine needs as they affect post high school education for all persons in the South Milwaukee County Area.

JFH

November, 1966

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CHAPTER I
INTRODUCTION

This publication is a report of an examination of educational needs as they apply to the eight South Milwaukee County School Districts of Whitnall, Greenfield, Greendale, Franklin, Oak Creek, South Milwaukee, St. Francis, and Cudahy.

The question basic to this study was first posed by the superintendents of the eight school districts. It was felt among these superintendents that, inasmuch as the southern portion of Milwaukee County constituted a rural to urban transitional zone, some considerable thought should be given to the development of educational programs designed to serve the community effectively. Although each of the eight school districts had a well established curriculum and school organization in operation, these existing services were designed specifically for students in elementary and secondary grades. The current courses offered were academically strong but somewhat traditional in scope and limited in number. It was felt that the schools had the obligation of identifying and, if possible, meeting a much greater spectrum of educational needs.

Initially, the idea of systematically assessing the real and perceived needs of the South Milwaukee community was presented to the Lakeshore Curriculum Study Council. This Council was comprised of a group of twenty-five Milwaukee County School Districts which had banded together to seek more effectively answers to common problems. The Study Council reacted positively to the question. The State Board of Vocational and Adult Education was contacted and asked to provide leadership in drafting a proposal for federal funding for such a study. Considerable effort was expended by staff from the Vocational and Adult Board and the rudiments of a study plan were developed. However, as time passed and the

enormity of the problem became manifest, it was decided by the superintendents and the Vocational Board to call in the Center for Studies in Vocational Education located at the University of Wisconsin, Madison.

A complete proposal for funding from the U. S. Office of Education was drawn up and submitted by members of the University staff. The essence of the proposal was that the South Milwaukee County Community was to study, with the help of the University and Vocational Board, its own educational needs and, through this self analysis, develop an educational program, not necessarily limited to students in grades kindergarten through high school, which should effectively serve the entire populace.

The proposal to the U. S. O. E. was turned down for funding on the basis that it was a local effort and would not benefit education on the national level. As a consequence, the idea for the study was presented to the Ford Foundation and some monies were granted for its budgeting. Since the Ford Foundation funds were not sufficient to underwrite the study as originally conceptualized, it had to be scaled down considerably. This was done in a way which would still maintain, hopefully, the substance of the study as a community's examination of its educational needs.

The Design and Conduct of the Study

By March of 1966 the difficulties associated with the funding of the "South Milwaukee Study" had been resolved and a timetable and work schedule were developed. It was decided that staff from the University of Wisconsin Center for Studies in Vocational Education would assume the major responsibility for the study. However, the executive secretary of the Lakeshore Curriculum Study Council and a representative from the Wisconsin Board of Vocational and Adult Education were delegated

to provide counsel and on-the-spot help when necessary. The original eight superintendents who hatched the study were to continue to serve not only as cooperating educators but also, along with several other selected citizens* representing many facets of society, to sit on an advisory council which would provide guidance and direction on the study team.

Tentative deadlines were planned to govern the progress of the study. The time from March 1st to September 1, 1966, was to be devoted to data collection. Any information which was thought to be relevant to the concerns of the study was to be gathered and in hand by the end of this examination period. September 1 to January 1, 1967, was time set aside for analysis of the collected information. The interval of time extending from January 1 until June 1, 1967, would be utilized for production and distribution of the written report of the study findings.

The general format of the study plan was laid out to focus primarily on an appraisal of the perceived and real (if there happened to be a difference) educational needs of all of the citizens of the South Milwaukee County Community. There were several means employed of attacking these questions. They included the use of questionnaires, interviews, and personal visits to the physical vocational educational plants in the area.

Questionnaires: Three questionnaires were developed and administered. They each sampled a different dimension of the problem.

The Follow-Up: A questionnaire was constructed to find out information about the people who had attended one of the eight schools included in the study. The follow-up questionnaire was sent to all persons who had been 11th grade students in

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*See Appendix A for a completed listing of the Advisory Council membership.

any of the existing high schools during the fall of the years of 1955, 1957, 1959, 1961, and 1963. This sampling was designed to get at the opinions and characteristics not only of the high school graduates from the area but also of students who may have dropped out of school during their junior or senior years. It tapped into a group which had been out of high school for, in some cases as long as ten years. It was felt that to ascertain these people's assessments of educational offerings would be of real use to the survey team.

The Senior Questionnaire: All of the seniors attending the eight high schools during the spring of 1966 were given a questionnaire. Essentially they were queried on their vocational and educational plans and the educational and occupational backgrounds of their parents.

It was hoped this appraisal would provide some information which would help in determining immediate needs for post high school education. Also, it was felt that it might help uncover perceived inadequacies in the present secondary programs.

Employer Questionnaire: The third questionnaire which was utilized was directed toward employers of South Milwaukee County residents. A random sample of people living in the eight school districts were questioned as to their places of employment. The employers, as it turned out, were not exclusively located within the immediate geographic area under study; several of the sampled residents worked outside of South Milwaukee County.

The employers selected by this process were requested to fill in questionnaires relative to the kinds of training and experience they required for employees and the various technical aspects of the jobs which were utilized in their operations. They were also questioned about worker shortages: do they have any and, if so, what type, and whether or not they do any training or retraining of employees. This questionnaire sought direct answers to questions about employment and training

possibilities for persons living in the survey area. In addition, it sampled employers' opinions in regard to the most crucial types of current employee shortages. This questionnaire was mailed out in July of 1966 and followed up with an August mailing to the non respondents.

Interviews: A major undertaking of the study was to achieve an interview with individuals living in 1,000 different residences in South Milwaukee County. The 1,000 randomly selected residences were distributed on a proportionate representation by school district. The school district with the smallest population received the fewest numbers of interviews. The residences which were identified for interviewing were selected through the local real estate tax assessors' offices. The tax assessors cooperated with the study team in providing lists of all of the existing residences.* Actual interviews were held with most of the residents so selected. These interviews were conducted either by a local community volunteer or a member of the research team.

Data gathered helped provide a picture of the characteristics of the people living in South Milwaukee County. Major areas of concern dealt with included types of occupations, size of family, extent of education, home ownership, mobility, and expectations of educational imperatives.

The interview portion of the study occupied the greatest commitment of time and energy but proved to be most useful in appraising the areas' educational requirements.

Visitation: The educational facilities for vocational preparation were examined by team members. These visits included vocational plants at Cudahy, South Milwaukee, and Milwaukee and the vocational facilities at each of the high schools in the

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*Note: Since these lists are public records, they were legally available. However, the assessors helped make the task much easier.

eight school district area. These trips were designed to acquaint the study staff with the quality, availability, and accessibility of vocational training equipment in the South Milwaukee area.

This chapter has provided somewhat of a background and introduction to the study. Chapters two and three contain data relevant to the questionnaires. Chapter four deals with the interviews; chapter five contains information relative to existing vocational facilities; and chapter six includes the summary, conclusions, and recommendations emanating from the study.

CHAPTER II

THE HIGH SCHOOL SENIORS QUESTIONNAIRE

Purpose of the Questionnaire: To get a complete view of the needs for post high school training in the South Milwaukee County area, the researchers believed that those who would be most directly involved in such post high school training; namely, the senior class, should be examined. This examination included personal background information and the seniors' plans following graduation. With this in mind, the research team developed a questionnaire designed to secure information on the sex of the respondent, number of brothers and sisters, the level of parents' education, the parents' occupations, and seniors' future plans following graduation.

Description of the Questionnaire: To classify the responses of the seniors regarding future plans, the questionnaire was designed to elicit responses to the following specific post graduation alternatives: enter the military service; get a job and a description of the job; become a housewife; or get additional full time education and, specifically, what kind of full time education. To clarify the specific kind of job for which the respondent planned, he was asked to list the job title and the duties that he envisioned. To clarify such vague terms as college, four year, two year, vocational school, etc., the respondent was asked to name the college or school in which he intended to enroll. Also, the respondent was asked to list the occupation for which his planned college education would prepare him.

The researchers were also interested in knowing whether or not the fact of living at home would have changed the respondent's post high school plans. Therefore, a question to this effect was placed in the questionnaire.

Finally, the researchers believed that information on part time post high school educational plans would be helpful

in completing the total picture regarding the post high school plans of the seniors responding to the questionnaire. Therefore, a section was inserted to elicit this information from the seniors.

Results: After tabulating the responses, the researchers found that the frequency of response to the questions on personal background and plans for full time activity after high school was high enough to tabulate. However, the data revealed that very few seniors responded to the items on how their plans might have been different if they were living at home.

Similarly responses to the questions designed to elicit information on part time education had a low frequency and, hence, meaningful interpretation of these data would be difficult to make.

Given the high response rate on questions concerning sex, father's occupation, mother's occupation, father's schooling completed, mother's schooling completed, the number of brothers and number of sisters, and plans after graduation the researchers were able to prepare several major tables containing a comparison by school of the responses to the various items mentioned above. These tables are presented in the succeeding pages. Moreover, the data were sufficient to permit the preparation of detailed tables of the specific type of job planned for and the specific kind of education planned. These data will be presented after the major tables outlined above have been presented.

Personal Data on Respondents: From Table 1 the reader can see the number of boys and girls responding by school. Furthermore, by consulting Table 1, it can be seen that, except in the case of South Milwaukee, there were more male respondents than female.

TABLE I

Number of Male and Female Respondents by School District

School District	Male	Female	Total
Cudahy	125	108	233
Franklin	60	57	117
Greendale	79	71	150
Greenfield	146	119	265
Hales Corners	78	57	135
Oak Creek	121	108	229
St. Francis	34	26	60
So. Milwaukee	161	165	326

From Table 2 it can be seen that the high school seniors responding to this item reported that their fathers' occupations were mainly in the semi-skilled occupations. The second most frequently reported occupational group was skilled occupations. Nevertheless, there were differences among the schools. For example, the Hales Corners-Whitnall School District seniors reported most frequently their fathers' occupations were in the clerical-sales group and the second choice was in the service occupations group. Similarly, the Greendale District's seniors reported the highest frequency of fathers' occupations in the clerical-sales and service classifications. It is also noteworthy that in virtually all districts some seniors reported that their fathers' occupations were in the agricultural, fishery, or forestry group.

In Table 3 the reader can see how the seniors reported their mothers' occupations. As one might expect, the majority reported their mother's occupation as housewife. Also, as might be expected, the high school seniors reported working mothers as holding positions in clerical or sales fields most often. The next most frequent occupational group reported by the seniors was in the service occupations. Finally, the least frequent, yet significant, occupational classification of mothers reported by the seniors was semi-skilled occupations.

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TABLE II

Father's Occupation Classified by Dictionary of Occupational Titles
First Digit Groupings*

Sch.District	0	1	2	3	4	5	6	7	Total
Cudahy	2	16	29	29	63	66	18	10	233
Franklin	1	15	15	19	19	26	22	0	117
Greendale	6	35	28	27	2	40	9	3	150
Greenfield	3	35	29	13	59	66	41	19	265
Hales Corners	6	38	29	15	3	25	11	8	135
Oak Creek	2	16	5	27	45	79	41	14	227
St.Francis	0	6	3	5	15	16	9	6	60
So.Milwaukee	7	28	30	31	73	92	41	24	326

*0 - Professional-Managerial
1 - Clerical Sales
2 - Service
3 - Agriculture, fishery-forestry
4 - Skilled
5 - Semi-skilled
6 - Unskilled
7 - Deceased or separated

TABLE III

Mother's Occupation Classified by Dictionary of Occupational Titles
First Digit Groupings**

Sch.District	0	1	2	3	4	5	6	7	8	Total
Cudahy	2	0	54	26	1	18	0	132		233
Franklin	0	0	20	12	3	2	1	79		117
Greendale	3	2	27	12	2	6	2	96		150
Greenfield	5	0	61	17	5	12	0	156	3	259
Hales Corners	7	1	19	12	0	2	1	88	5	135
Oak Creek	4	1	37	29	1	11	1	142	1	227
St.Francis	0	0	15	6	1	4	1	32	1	60
So.Milwaukee	7	0	73	27	8	8	0	196	7	326

**0 - Professional-managerial
1 - Clerical-sales
2 - Service
3 - Agriculture, fishery-forestry
4 - Skilled
5 - Semi-skilled
6 - Unskilled
7 - Housewife
8 - Deceased or separated

TABLE IV

Father's Education: Years Completed, by School District

Sch.District	0-8	9	10	11	12	13	14	15	16	17 or more	Total
Cudahy	56	14	20	21	84	10	13	2	10	3	233
Franklin	36	4	12	8	35	4	10	1	6	1	117
Greendale	11	1	3	5	64	17	16	6	14	10	147
Greenfield	51	6	16	19	121	5	14	7	18	2	259
Hales Corners	9	3	5	4	50	7	5	3	23	13	127
Oak Creek	67	17	15	13	87	6	16	3	10	0	229
St.Francis	12	3	6	5	22	6	1	1	2	1	59
So.Milwaukee	59	13	21	25	143	7	15	9	21	7	320

TABLE V

Mother's Education: Years Completed, by School District

Sch.District	0-8	9	10	11	12	13	14	15	16	17 or more	Total
Cudahy	35	10	21	25	115	7	11	1	7	1	233
Franklin	22	7	11	11	47	9	7	1	2	0	117
Greendale	8	1	1	14	103	9	4	2	8	0	150
Greenfield	30	10	27	28	148	3	8	2	8	1	265
Hales Corners	5	3	3	5	70	9	7	2	18	8	130
Oak Creek	47	12	15	19	116	5	7	2	6	0	229
St.Francis	8	1	2	4	37	4	1	0	3	0	60
So.Milwaukee	56	6	7	28	187	9	13	6	10	0	322

By referring to Table 4 it can be seen that in all school districts the most frequent educational level of fathers is high school graduation although those having elementary education or less is highly significant. It is also noteworthy that, for those fathers reported as having post high school education, most have either two years or four years rather than one or three years.

As shown in Table 5 the number of years completed by mothers of high school seniors is different from that of the seniors' fathers. Although high school graduation is still the most frequent level of educational attainment, far fewer mothers have gone beyond high school and even less have attained four year degrees. Moreover, more mothers have high school

degrees than do fathers, while more fathers have completed eight years or less than mothers.

By reviewing Tables 6 and 7 the reader can see that one brother and/or one sister is the most frequent response given by seniors responding to this question. From these data it is possible to infer that a very high percentage of high school seniors come from families with less than five siblings. Furthermore, by far the most frequently reported situation is that of one brother and/or one sister. These data suggest that the majority of seniors responding to this question come from families which have less than three siblings.

TABLE VI

Number of Brothers of High School Seniors

Sch.District	1	2	3	4	5	6	7	8	9	Total	Ave.No. of Brothers
Cudahy	75	53	24	8	6	0	2			329	1.41
Franklin	42	23	9	4	4	0	1			158	1.35
Greendale	60	27	8	2	4	1				172	1.15
Greenfld.	106	52	26	4	3	2				323	1.22
Hales Cor.	48	23	9	4	1	1	1			140	1.04
Oak Cr.	80	62	26	16	10	2	3			589	2.57
St.Fran.	21	15	3	2	0	0	1			75	1.25
S.Mil.	105	77	37	16	3	0	0	0	1	458	1.40

TABLE VII

Number of Sisters of High School Seniors

Sch.District	1	2	3	4	5	6	7	8	9	Total	Ave.No. of Sisters
Cudahy	93	46	18	11	2	1	0			299	1.28
Franklin	40	24	14	3	1	1	1			160	1.37
Greendale	52	32	15	1	0	1				171	1.14
Greenfld.	101	56	20	9	5	4				358	1.35
Hales Cor.	49	31	8	3	2	0				157	1.16
Oak Cr.	84	52	31	8	5	2	1	1	1	374	1.63
St.Fran.	19	13	2	4	0	0	0			67	1.12
S.Mil.	111	68	28	8	2	4	0			397	1.22

Plans after Graduation: In Table 8 it can be seen that the responses of the high school seniors to the question about plans after graduation resulted in the finding that full time post high school education was planned by more high school seniors than any other choice except in St. Francis. Nevertheless, the frequency with which the seniors chose jobs after graduation is significant. Moreover, when jobs and military service are coupled, this category of response nearly equals the number of responses classified under full time education.

TABLE VIII

Plans of High School Seniors After Graduation

Sch.District	Military	Job	House-wife	Other Plans	No Plans	Full time School	Total
Cudahy	19	101	4	0	5	104	233
Franklin	13	33	1	1	0	67	115
Greendale	8	15	1	1	5	120	150
Greenfield	27	93	2	2	3	133	260
Hales Corners	3	12	0	8	2	110	135
Oak Creek	28	79	1	0	12	98	218
St. Francis	5	29	2	0	4	20	60
So.Milwaukee	16	123	3	5	3	172	322

Tables 9 and 10 which follow contain a further breakdown of the type of job for which the seniors were planning and the type of school to which the seniors said they planned to go.

By referring to Table 9 the reader can determine the kind of employment the job-bound graduating seniors reported. The data are classified according to the first digit of the Dictionary of Occupational Titles (D.O.T., Ind. Edition, by school district. Their most frequently selected occupational group was service occupations. Their next most frequent selection was unskilled occupations. Their third most frequent choice was the agricultural, fishery, forestry group. None planned for professional managerial occupations while only a scattered few selected the clerical-sales grouping.

TABLE IX

Type of Job Selected by Job-Bound Seniors
Classified by Dictionary of Occupational Titles
First Digit Groupings *

Sch.District	0	1	2	3	4	5	6	Total
Cudahy	0	0	43	8	20	28	2	101
Franklin	0	1	20	3	3	3	3	33
Greendale	0	0	6	1	0	3	5	15
Greenfield	0	0	56	13	0	22	2	93
Hales Corners	0	0	7	2	0	1	2	12
Oak Creek	0	1	44	11	1	20	2	79
St. Francis	0	0	19	1	0	6	3	29
So.Milwaukee	0	5	72	18	1	22	5	123

*0 - Professional, Managerial
1 - Clerical, sales
2 - Service
3 - Agriculture, Fishery, Forestry
4 - Skilled
5 - Semi-skilled
6 - Unskilled

From Table 10 the reader can see that the large majority of those who said they were going to continue their education beyond high school chose a four year institution. Nevertheless, some seniors indicated that they planned to take advantage of two year college opportunities or post high school vocational-technical training. Also, some seniors said that they would enroll in specialized programs such as business college, beauty culture schools, private technical institutes, nursing schools, etc.

From Table 11 it can be seen that the seniors varied considerably by district in their choices of the college they planned to attend after graduation. For example, the seniors in the Greenfield High School most frequently chose the University of Wisconsin at Madison although the state universities received almost as many responses. Taking all districts as a whole, however, the state universities were chosen most frequently. The reader should also note that the seniors chose private college quite frequently.

TABLE X

Seniors' Choices of Post High School Education Program

Sch.Dist.	4 yr. college	2 yr. college	vocat. tech.	special programs	apprentice	total
Cudahy	80	6	6	9	3	104
Franklin	49	3	4	9	2	67
Greendale	79	10	8	18	5	120
Greenfield	98	8	8	16	3	133
Hales Corners	72	14	6	11	7	110
Oak Creek	71	3	8	16	0	98
St. Francis	12	2	1	1	4	20
So.Milwaukee	121	13	23	8	7	172

TABLE XI

Seniors' Choices of Four Year Colleges

Sch.Dist.	U.W.	U.W.M.	S.U.	Other Colleges	Total
Cudahy	2	26	36	16	80
Franklin	0	11	27	11	49
Greendale	8	12	26	33	79
Greenfield	36	5	32	14	87
Hales Corners	11	14	23	24	72
Oak Creek	2	26	25	18	71
St. Francis	1	5	4	2	12
So.Milwaukee	1	31	51	38	121

From Table 12 one can determine the occupational choices of the high school seniors who said they were going to college. Most frequently they chose occupational objectives in the professional or managerial group. As one might expect, this group reported their second most frequent occupational objective to be sales and lower level administrative work. The next most frequent choice of the seniors was in the agricultural, fishery, and/or forestry group.

TABLE XII

Type of Job Selected by College Bound Seniors
Classified by Dictionary of Occupational Titles
First Digit Groupings *

Sch.District	0	1	2	3	4	5	6	Total
Cudahy	37	21	0	3	0	0	0	61
Franklin	29	10	4	5	1	0	0	49
Greendale	26	28	8	12	1	1	0	76
Greenfield	27	25	0	0	0	0	0	52
Hales Corners	24	29	8	8	1	1	1	72
Oak Creek	33	23	3	5	1	0	1	66
St. Francis	9	1	0	0	2	0	0	12
So.Milwaukee	63	32	2	4	2	1	1	105

*0 - Professional, managerial
1 - Clerical, sales
2 - Service
3 - Agriculture, fishery-forestry
4 - Skilled
5 - Semi-skilled
6 - Unskilled

CONCLUSIONS

The preceding data was elicited from virtually all high school seniors enrolled in the eight school districts included in this study. By knowing their immediate vocational and educational plans after high school, as well as the educational and occupational background of their parents, the persons responsible for planning and operating post high school programs for citizens residing in the South Milwaukee Area will be better able to meet their educational needs. Moreover, while most seniors said they were going on to college, a significant number reported they were job bound. Thus, the existing curricula in the high schools should be re-examined to see if vocational training courses are available in sufficient quantity and kind to equip the job bound graduate with skills and concepts appropriate to his occupational objective.

Generally it can be concluded that the seniors clearly indicated plans for schooling far beyond the level attained

by their parents.

More specific conclusions stemming from the tabular data are:

1. More boys than girls responded to the questionnaire.
2. The majority of seniors' fathers hold skilled and semi skilled jobs.
3. The majority of seniors' mothers are housewives although working mothers hold clerical sales or service related jobs.
4. Most fathers have completed twelve years or less of school and a significant number have completed eight years or less.
5. Even fewer mothers than fathers have schooling beyond high school although fewer mothers than fathers have as little as eight years of schooling.
6. The "average" number of siblings in families of high school seniors is three.
7. A majority of seniors reported plans for further full time post high school education, although a large minority reported plans for jobs after high school graduation. Surprisingly few seniors (girls) reported plans to become housewives immediately after graduation although the U.S. census reports 18 as the average age for marriage for girls.
8. Those seniors planning to get jobs after graduation reported occupational objectives in the following rank order: (a) service, (b) semi-skilled, (c) unskilled, and (d) skilled categories.
9. The majority of seniors planning to go to college indicated that they would go to a four year college.
10. The majority of seniors planning to go to college selected public institutions, although a significant minority chose other colleges.

11. College bound seniors chose occupational objectives in the professional, managerial, clerical, and sales groups with a very high frequency.

The Follow-Up Questionnaire

Purpose of the Questionnaire: The questionnaire was designed to assess the opinion held, by those who had gained some of their educational experience in the eight school districts of the study, as to the educational facilities needed in the South Milwaukee area.

Other information, such as demographic background and educational experience, was included in the instrument for the purpose of assessing and evaluating any relationships that might exist between those variables and the educational needs as perceived by the respondents.

The population chosen to be administered this questionnaire was composed of students who had registered for their junior year in the high schools of the participating school districts. All juniors who had registered for the fall semester of the academic year 1955-57-59-61 and 63 comprised the population. This segment of students were chosen for the reason that past experience had shown that most school drop-outs were likely to occur during the students' senior year. The decision to use the group of juniors was made to insure a sampling of those possible drop-outs.

Description of the Questionnaire: The follow-up questionnaire contained twenty-five items; these items furnished information which could be classified into five discrete categories. Respondents were asked to furnish data on their personal backgrounds, their educational attainment, vocational goals, present employment, and their opinion of educational facilities needed in the South Milwaukee area. Since the questionnaire was mailed to the respondents, it

was designed to be self-administering.

The first part of the instrument dealt with demographic information such as age, sex, marital status, and, if married, the number of children. Additional data relative to the length of time the respondents had resided in the South Milwaukee area and on the type of housing they utilized was also gathered.

Following the questions concerning demographic information, the respondents were asked to give qualitative and quantitative data concerning their educational attainment. They were asked to give the highest level of formal schooling completed and to list any special educational program in which they had participated. These special programs would include courses taken by correspondence, community adult education classes or on-the-job training. The respondents were also asked if they were presently continuing their formal education. If they answered in the affirmative, they were requested to fill in the type of school or facility they were attending.

The next section of the instrument asked two questions about the occupational goals held by the respondents. The first question was an open-ended question in which the respondents were asked to make a succinct statement of their occupational goal. They were specifically asked to state the goal they could reasonably hope to achieve rather than to name an occupation or job they would like to have. In the second question the respondents were asked to name the type of education they thought they would need to achieve their stated goal.

The respondents' present employment was the object of the next five questionnaire items. The respondents were asked their present occupation, what specific tasks for which they were responsible, how many hours per week they worked on the job and how long, in terms of years, they had been

engage in their particular occupation. They were also asked for the name and address of their employer.

The final part of the instrument was devoted to the opinion or perception held by the respondents as to the educational needs of the South Milwaukee area. The various categories of needs were expressed in terms of post high school educational facilities. The respondents were given six categories from which to choose. These categories were: a two year college, a four year college, a four year college plus a graduate school, a Vocational School with technical and commercial courses for occupational training, a vocational school of general education courses designed for community cultural improvement and spare time activities, or they could choose to state that they saw no need for educational services beyond that offered by the present educational system.

Results of the Questionnaire Survey: A total of 3,187 questionnaires were sent out to the selected populations. Of these, 1,003 were completed and returned. The 1,003 returned questionnaires represent just over a 30% response. The population responding was composed of 505 males and 498 females. The smallness of this response severely limits any inferences that can be drawn or conclusions that can be made and applied to the entire population. This section of the report will, therefore, state only the results of the questionnaire. No attempt will be made to relate demographic variables to the responses.

Since demographic information was gathered in the first twelve questions of the instrument, the first item to be reported will be item thirteen. Question thirteen asked the respondents to circle the highest year of schooling they had completed. The returned questionnaires provided the information to be found in Table 13.

TABLE XIII

Results of Item 13

Highest Year Completed in School

Type of School	Number of Respondents Completing	Per cent Completing
Elementary	1003	100
High School	920	91.7
College		
1 year	157	15.6
2 years	148	14.7
3 years	57	5.6
4 years	123	12.2
5 years	12	11.9
6 years	5	.5
Bachelor of Arts Degree	125	12.5
Graduate School		
1 year	27	2.7
2 years	22	2.2
3 years	7	.7
4 years	0	
Masters of Arts Degree	7	.7

The data in Table 13 shows that a high proportion of the total respondents have continued their educations beyond the high-school level. A total of 558, or about 55% of them, have had some college work. Included in this group were 125 respondents who had received bachelors and 7 who have received masters degrees. Together they represented 13% of the total respondents. There is a large discrepency between those who had some college and those who have received degrees. This discrepency appears to be related to the length of time over which the sample population was drawn. Many of those who have not received degrees are, undoubtedly, still in school.

Item 14 of the questionnaire asked the respondents to indicate any courses they might have taken by correspondence, in a community adult education facility, a program of on-the-job training, or through some other educational agency or

facility. The results of this item are presented in Table 14.

TABLE XIV
Results of Item 14
Number of Courses You Have Taken

Type of School	Number of Respondents	Per cent of Total Respondents
Correspondence		
1 course	36	
2 courses	23	
3 courses	6	
4 courses	8	
5 courses	1	
Total	74	7.3%
Community Adult Education Course		
1 course	56	
2 courses	31	
3 courses	5	
4 courses	5	
5 courses	2	
Total	98	9.7%
On-the-Job Training		
1 course	70	
2 courses	27	
3 courses	14	
4 courses	39	
5 courses	2	
6 courses	2	
Total	154	15.3%
Other Courses		
1 course	29	
2 courses	5	
3 courses	2	
Total	36	3.6%

Item 14 indicates the use the group made of educational facilities other than college. A total of 365 or about 36% indicated they had made use of one or more of the listed categories. The type of course most frequently listed was on-the-job training; about 15% of the respondents had

utilized this form of educational facility. Second in importance and in frequency of use were the community adult education courses. About 10% of the respondents had taken one or more of these courses; correspondence courses accounted for 7.5% of all courses taken.

Items 15 and 16 are interrelated. Item 15 asked the respondents if they were in school at the present time. If they answered yes to this question, they were asked to indicate the type of school they were attending. The results of item 15 are shown in Table 15, and Table 16 contains the results of item 16.

TABLE XV
Results of Item 15
Are You in School Now?

Response	No. of Respondents	Per cent of Total Respondents
Yes	442	44%
No	561	56%
Total	1003	100%

TABLE XVI
Results of Item 16
If In School, What Kind of School

Type of School	Number in School	Per cent of Those In School
High School	2	.5
College	326	73.8
Graduate School	13	2.9
Vocational School	69	15.6
Commercial	13	2.9
Correspondence School	4	.9
Adult Education	1	1.3
On-The-Job-Training	9	2.0
Others	5	1.1
Total	442	100%

Table 15 shows us that 442, or 44% of the respondents are still in school. Item 16 tells us that, of the 442 still in school, 339 of them are attending college. Nearly five times as many respondents are attending college than are utilizing vocational schools and over three times as many of them are attending college than are attending all other kinds of schools combined. It is obvious that college is the most important educational facility utilized by this group.

The next item on the questionnaire asked the respondents to list their occupational goals. The results of this question are tabulated in Table 17.

TABLE XVII
Occupational Goal

Job or Profession	Number Responding	Percent of Total Respondents
Professional-Managerial	246	24.5
Clerical and Sales	184	18.3
Service	242	24.1
Agricultural and Forestry	78	7.7
Skilled	63	6.3
Semi-skilled	88	8.8
Unskilled	18	1.8
Housewife	84	8.4
Total	1003	100.00

Table 17 concerning the question relating to occupational goals indicates that this group has a high level of vocational aspirations. If the professional, clerical and sales, and service occupation are combined, we find that about 67% of the group listed these occupations as realistic goals. The question of the relationship between education and occupational goals is answered by item 18 in which the respondents were asked to name the type of education they thought would be needed by them to reach their occupational goals. Table 18 has the tabulation of this response.

TABLE XVIII
Schooling Needed to Reach Goal

Type of Schooling	Number Responding	Per cent of Respondents
High School	62	6.2
College	486	48.3
Vocational-Commercial	250	25.0
On-the-job training	205	20.5
Other	0	00.0
Total	1003	100.0

The above table shows that about 48% of the respondents thought they would need to attend college to reach their vocational goal, 25% thought they would need vocational training, and 20% thought they would need on-the-job training. Matching items 17 and 18 reveals that, while the respondents have a high level of aspiration, they also have a realistic concept of the education required to meet them.

Item 19 of the questionnaire was designed to gather information on the respondents' current occupations. Table 19 contains the information from this question.

TABLE XIX
Results of Item 19
Present Occupation

Type of Occupation	Number Responding	Per cent of Respondents
Student	342	34.0
Professional-Managerial	38	3.8
Clerical-sales	42	4.2
Agricultural and Forestry	70	7.0
Service	177	17.6
Skilled	48	4.8
Semi-skilled	101	10.0
Unskilled	24	2.4
Housewife	161	16.2
Total	1003	100.00

The question related to present occupation, item 19, again shows the large number of respondents who are continuing their schooling. This item also shows the disparity between the stated occupational goals of the respondents and their accomplishments to date. In item 17 we found that 24% of the group listed professional and managerial occupations as goals; in item 19 the data shows that less than 4% of the group were working at such occupations. The same situation exists for the clerical sales category where 18% listed these occupations as goals while only 4% actually had such jobs.

Items 20 through 23 of the questionnaire were related to the respondents' present occupations. They were asked how many hours per week they worked, how long they had been employed on the job, and the address of their employer. This information was not tabulated for this report but was included in the questionnaire for possible use in other research projects.

Items 24 and 25 were the final items of the follow-up questionnaire. In these items the respondents were asked to list the type of educational facility they felt was most needed in the South Milwaukee area. Item 25 asked the respondents to rank in order the preference they had chosen in item 24. Table 20 has the tabulation of the results of these last two items.

The response to items 24 and 25 as shown in table 20 shows that the greatest number of respondents, 44% of all respondents, choose vocational schools as the first choice for the type of facility most needed. Second facility listed as a first choice was the four year college; 23% of the respondents listed it as their first choice. More respondents listed vocational schools as the second most needed facility than any other type while the next most frequently mentioned second choice were general educational vocational schools.

Clearly, as a group the respondents felt that vocational education was the most needed form of educational facility for the South Milwaukee area.

TABLE XX
Results of Items 24 and 25
What Post High School Institution is Needed?

Type of Institution	Rank Order of Choice and No. of Respondents					
	1st	2nd	3rd	4th	5th	Choice
Two Year College	133	153	96	18	5	
Four Year College	231	159	89	23	2	
College Plus Graduate School	45	65	62	23	27	
Vocational School	444	253	77	25	2	
General Education Vocational	79	201	162	48	24	
None Needed	51	6	2	0	2	

Remarks: Without a sophisticated statistical analysis on an adequate number of returned questionnaires, it is impossible to draw conclusions applicable to the entire population surveyed. Any concluding remarks must, therefore, be restricted to the group that did respond to the questionnaire.

We learned from the questionnaire that as a group the respondents have a high proportion of their numbers continuing their educations beyond the high school level. Furthermore, we know college is the principal facility used for their continuing education. It is surprising, therefore, that such a large percentage of the group listed vocational education as needed to achieve a vocational goal and equally surprising was the small number of respondents currently enrolled in vocational schools. Only 69 persons were attending vocational schools while 250 persons listed them as being needed for their personal vocational goals.

From the above data it can be concluded that as a group a large percentage of the respondents have either felt the need

or had the desire to continue their educations. While only a small percentage of them had received college degrees, a considerable number were still in college. It appears college is the single most important facility used by the group for educational advancement.

It can also be concluded that many of this group have a high achievement drive. These persons have set high goals for themselves; they have an adequate concept of the education required to achieve these goals, and they are actively engaged in preparing themselves for high occupational positions. While few of them are currently employed in such positions, undoubtedly many of them will complete their degrees and move into professional and managerial jobs of responsibility.

Given this group's basic characteristics, it is difficult to understand and evaluate their response to questions 25 and 26 regarding the type of facility most needed in the South Milwaukee area. With such a large percentage of this group attending college, it would seem to follow that they would choose a college facility as being most needed. Such was not the case, as the above data showed about 44% of them chose a vocational facility. The questionnaire did not contain enough information to supply an adequate answer to this discrepancy. It can only be hypothesized that, while many of the group thought they needed college to fill their personal goals, they did not think others had the same need, or they may have felt that there were advantages to be gained by going outside the area to attend college. These persons may not have utilized a college facility in the area even if one were available.

CHAPTER III

GENERAL CHARACTERISTICS OF THE SOUTH MILWAUKEE COUNTY COMMUNITY

Introduction: Whereas the previous two chapters dealt with various select populations in the South Milwaukee county area, the present chapter has to do with a more general population of the community. This chapter deals with those who have completed their education and were, in fact, employed or housewives. Thus, it is this chapter which will provide a general overview of the community.

Purpose of the Interview Questionnaire: How does the general populace of the South Milwaukee County area feel about the need for post high school educational opportunities in their area? To answer this question the survey team, with the cooperation of the Survey Research Bureau of the University of Wisconsin, developed a structured interview instrument. This instrument was designed to gather information on the demographic and attitudinal characteristics of the community.
That is, the survey team wanted to know the general age make-up of the community; the number of persons employed per household in the community; the number of children per family in the community; the degree of single family dwelling units, duplexes, apartments, or others; the extent of home ownership versus rent; the mobility of the population; the extent and type of marital relationships; and, for those married, how long they had been married; and, for those employed, how many were full time versus part time, and what kind of jobs were currently being held; the distance travelled from home to work; how long the employed had been working in their current type of work; the educational attainment level of the community; the perceived post high school educational needs; and, finally, some measure of the underlying beliefs and value systems extant in the community. Answers to these questions would supply reliable measures of the community profile.

The Interview Procedure: The survey instrument was constructed in such a way that amateur interviewers would be able to elicit the information with only a small amount of professional preparation. Since the eight cooperating school districts agreed to furnish interviewers drawn from the various P.T.A. organizations, it was hoped that the rather large cost associated with interviewing could be held to a minimum. Each interviewer was assigned approximately ten households to interview and it was assumed that each interview should not take more than a half hour.

When time for the actual interviews came, however, it was found that, while the P.T.A. mothers' interviews were of acceptable quality, they were unable to accomplish the interviews in the time assigned. Therefore, two graduate students from the University of Wisconsin at Milwaukee were assigned to complete the 1,000 interviews.

Random Samples: The residences which were chosen for interviewing were selected randomly from the property tax rolls of the local real estate tax assessors' offices. The excellent cooperation provided by the assessors insured that every known household in each of the eight municipalities would be considered before 1,000 randomly selected residences were drawn. This method of sampling results in including in the sample a larger number of residencies for the districts with the more dense populations and a smaller number of residencies in the districts with less dense populations.

This technique of random selection means that it is possible to make inferences from the sample which apply to the total population with a high degree of confidence. From the 1,000 residences selected, data from 924 proved complete enough to be considered in the findings. Thus, the information which follows, as well as the study conclusions, will be based on data supplied from 924 households randomly selected within the eight school districts which comprised the geographic

area of this survey.

Results of the Interview Procedure: Personal Characteristics of the Respondents: From Table 21 the reader can see that nearly 73% of those persons responding to these interviews were employed while nearly 18% were neither employed nor enrolled in school. Furthermore, a little over 8% were retired. Also, the reader can determine from the totals column that 922 respondents answered the question. Since the total useable sample was 924, two persons did not answer this question. In the tables which follow, the reader will be able to make similar findings through the use of the same procedure.

TABLE XXI

Number and Percent by District of Respondents
In School, Employed, Both, Neither, or Retired

Status	Cud-ahy	Green-Dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-Waukee	Totals
School Only			2	1			1	4	8
Employed	165	31	113	67	49	64	56	127	672
Both			1						1
Neither	17	33	41	24	7	18	4	19	163
Retired	21	2	6	4	7		14	24	78
Totals	203	66	163	96	63	82	75	174	922
				Per Cent					
School Only			1.23	1.04			1.33	2.30	.87%
Employed	81.28	46.97	69.33	69.79	77.78	78.05	74.67	72.99	72.89%
Both			.61						.11%
Neither	8.37	50.00	25.15	25.00	11.11	21.95	5.33	10.92	17.68%
Retired	10.34	3.03	3.68	4.17	11.11		18.67	13.79	8.46%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

Table 22 includes a summary of the age distribution of the respondents to the interview questionnaire. As shown in Table 22 the data reflect the fact that more than 97% of the respondents were 25 years or older. Thus, the data contained in this chapter reflects a population differentiated from the populations tapped by the high school senior questionnaire and

the follow-up questionnaire. Since all of the high school seniors were under 25, almost all of the persons responding to the follow-up questionnaire were under age 25.

TABLE XXII

Number and Per Cent of Respondents Classified By Age Group By District

Age	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
0-24	5	5	4	1	1	5	5	1	27
25-34	49	19	34	27	10	34	9	25	207
35-44	67	19	64	32	21	26	26	47	302
45-54	38	12	43	18	17	8	20	51	207
55-64	27	7	14	13	6	9	5	25	106
65 and over	16	4	4	5	8		10	25	72
Totals	202	66	163	96	63	82	75	174	921
				Per Cent					
0-24	2.48	7.58	2.45	1.04	1.59	6.10	6.67	.57	2.93%
25-34	24.26	28.79	20.86	28.13	15.87	41.46	12.00	14.37	22.48%
35-44	33.17	28.79	39.26	33.33	33.33	31.71	34.67	27.01	32.79%
45-54	18.81	18.18	26.38	18.75	26.98	9.76	26.67	29.31	22.48%
55-64	13.37	10.61	8.59	13.54	9.52	10.98	6.67	14.37	11.51
65 or over	7.92	6.06	2.45	5.21	12.70		13.33	14.37	7.82
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

By referring to Table 23 the reader can quickly see that about 72% of the respondents were male while only 28% of the respondents were female.

TABLE XXIII

Number and Per Cent of Respondents Classified by Sex and by District

Sex	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
Male	173	26	106	61	45	47	65	137	660
Female	29	40	57	35	18	35	12	36	262
Totals	202	66	163	96	63	82	77	173	922
				Per Cent					
Male	85.64	39.39	65.03	63.54	71.43	57.32	84.42	79.19	71.58%
Female	14.36	60.61	34.97	36.46	28.57	42.68	15.58	20.81	28.42%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

Characteristics of the Households: Table 24 contains information on the number of persons employed per houshold. Nearly 69% of the households in South Milwaukee County Area contained one breadwinner. Moreover, the data in Table 24 reflect the fact that 93% of the households had two or less persons employed.

TABLE XXIV

Number and Per Cent of Persons Employed Per Household By District

No. Employed	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
0			7	4	7		4	27	49
1	151	48	119	65	42	54	44	112	635
2	28	14	32	19	13	25	17	29	177
3	3	1	5	4	1	3	1	6	24
4				4					4
Other	21	3					11		35
Totals	203	66	163	96	63	82	77	174	924
				Per Cent					
0			4.29	4.17	11.11		5.19	15.52	5.30%
1	74.38	72.73	73.01	67.71	66.67	65.85	57.14	64.37	68.72%
2	13.79	21.21	19.63	19.79	20.63	30.49	22.08	16.67	19.16%
3	1.48	1.52	3.07	4.17	1.59	3.66	1.30	3.45	2.60%
4				4.17					.43%
Other	10.34	4.55					14.29		3.79%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 25 shows the number of children by household in the South Milwaukee County Area. By referring to the totals column in Table 25, the reader can see that nearly 75% of the households have two children or less.

As shown in Table 26 over 90% of the households were single family dwelling units, 4% were duplexes, nearly 5% were apartments.

Table 27 shows that over 91% of the households are owner occupied while a little more than 8% are renting.

TABLE XXV

Number and Per Cent of Children per Household by District

No. Children	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S. Milwaukee	Totals
0	1	7	31	18	17	10	9	46	139
1	35	9	25	13	10	15	12	27	146
2	44	22	45	23	20	31	15	39	239
3	41	13	26	20	8	12	14	28	162
4	24	4	18	7	4	8	13	14	92
5	13	2	12	9	2	3		8	49
More than 5	45	9	6	6	2	3	14	12	97
Totals	203	66	163	96	63	82	77	174	924
				Per Cent					
0	.49	10.61	19.02	18.75	26.98	12.20	11.69	26.44	15.04%
1	17.24	13.64	15.34	13.54	15.87	18.29	15.58	15.52	15.80%
2	21.67	33.33	27.61	23.96	31.75	37.80	19.48	22.41	25.87%
3	20.20	19.70	15.95	20.83	12.70	14.63	18.18	16.09	17.53%
4	11.82	6.06	11.04	7.29	6.35	9.76	16.88	8.05	9.96%
5	6.40	3.03	7.36	9.38	3.17	3.66		4.60	5.30%
More than 5	22.17	13.64	3.68	6.25	3.17	3.66	18.18	6.90	10.50%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

Table 28 contains information on the length of time that the householders in South Milwaukee County have lived at their present location. Thus, over 83% of the householders in the South Milwaukee County area have lived at their present location for three or more years.

Table 29 contains another measure of the relative stability or mobility of the population in South Milwaukee County; namely, the number of moves in the last seven years. Nearly 87% of the householders of South Milwaukee County have moved one time or less in the last seven years. Furthermore, 61% of the householders have not moved at all in the last seven years.

TABLE XXVI

Number and Per Cent of Single Family, Duplex, and Apartment Households by District

Kind of Dwelling	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
Single family	175	54	158	93	60	68	69	154	831
Duplex	12	1[illegible]	1	3	2	1	3	17	40
Apt.	14	10	4		1	7	5	3	44
Other		1				6			7
Totals	201	66	163	96	63	82	77	174	922
				Per Cent					
Single Family	87.06	81.82	96.93	96.88	95.24	82.93	89.61	88.51	90.13%
Duplex	5.97	1.52	.61	3.13	3.17	1.22	3.90	9.77	4.34%
Apt.	6.97	15.15	2.45		1.59	8.54	6.49	1.72	4.77%
Other		1.52				7.32			.76%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

TABLE XXVII

Number and Per Cent of Owner Occupied, Rented, and Other Households by District

Ownership	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
Own	171	58	156	93	60	72	70	161	841
Rent	29	8	7	2	3	10	5	13	77
Other	2			1			2		5
Totals	202	66	163	96	63	82	77	174	923
				Per Cent					
Own	84.65	87.88	95.71	96.88	95.24	87.80	90.91	92.53	91.12%
Rent	14.36	12.12	4.29	2.08	4.76	12.20	6.49	7.47	8.34%
Other	.99			1.04			2.60		.54%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

TABLE XXVIII

Number and Per Cent of Years at Present Address
by 3-Year Age Groups Classified by District

No. Years	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
0-2	31	16	24	11	7	30	16	19	154
3-5	52	19	31	28	12	11	10	31	194
6-8	27	15	31	9	11	14	11	21	139
9-11	21	3	40	17	21	12	14	28	156
12 and over	71	13	37	31	12	15	26	75	280
Totals	202	66	163	96	63	82	77	174	923
				Per Cent					
0-2	15.35	24.24	14.72	11.46	11.11	36.59	20.78	10.92	16.68%
3-5	25.74	28.79	19.02	29.17	19.05	13.41	12.99	17.82	21.02%
6-8	13.37	22.73	19.02	9.38	17.46	17.07	14.29	12.07	15.06%
9-11	10.40	4.55	24.54	17.71	33.33	14.63	18.18	16.09	16.90%
12 and over	35.15	19.70	22.70	32.29	19.05	18.29	33.77	43.10	30.34%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

TABLE XXIX

Frequency and Per Cent of Number of Moves Per Household
in Last Seven Years Classified by District

No. of Moves	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
0	130	30	93	55	43	35	56	126	568
1	51	21	47	25	14	26	15	36	235
2	11	9	15	11	4	4	5	4	63
3	6	5	7	3		10		1	32
4	2		1	1	1	3		4	12
5	2			1	1	3	1	2	10
Other	1	1				1		1	4
Totals	203	66	163	96	63	82	77	174	924
				Per Cent					
0	64.04	45.46	57.06	57.30	68.26	42.69	72.73	72.41	61.47%
1	25.12	31.82	28.83	26.04	22.22	31.71	19.48	20.69	25.43%
2	5.42	13.64	9.20	11.46	6.35	4.88	6.49	2.30	6.82%
3	2.96	7.58	4.29	3.13		12.20		.57	3.46%
4.	.99		.61	1.04	1.59	3.66		2.30	1.30%
5	.99			1.04	1.59	3.66	1.30	1.15	1.08%
Other	.49	1.52				1.22		.57	.43%
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00%

From Table 30 the reader can determine from where the 267 responding to this question and who had not lived in South Milwaukee County for the last seven years came. As shown in Table 30 nearly 66% came from other parts of Milwaukee County, while an additional 7% came from Southeastern Wisconsin.

TABLE XXX

Number and Per Cent of Respondents Living in Places Other Than South Milwaukee County for the Past Seven Years

Location	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
Other Mil. Co.	33	16	36	28	8	13	24	17	175
S.E.Wis.	2			3	3	7	1	4	20
Other Wis.	8	4	3		2	2	3	1	23
Midwest	3	8	6	1	3	7		3	31
Other U.S.A.	3	3	2		1	2		3	14
Foreign	1	1			1			1	4
Total	50	32	47	32	18	31	28	29	267
					Per Cent				
Other Mil. Co.	66.00	50.00	76.60	87.50	44.44	41.94	85.71	58.62	65.54
S.E.Wis.	4.00			9.38	16.67	22.58	3.57	13.79	7.49
Other Wis.	16.00	12.50	6.38		11.11	6.45	10.71	3.45	8.61
Midwest	6.00	25.00	12.77	3.13	16.67	22.58		10.34	11.61
Other U.S.A.	6.00	9.38	4.26		5.56	6.45		10.34	5.24
Foreign	2.00	3.13			5.56			3.45	1.50
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 31 contains data on the marital status of respondents. As shown in Table 31 more than 93% of those responding to this item were married. Furthermore, nearly 97% of those responding to this item were either married or widowed while almost 99% are either married, widowed, or have never married. Just over 1% of those responding to this item indicated that they were divorced or separated.

Furthermore, by referring to Table 32, the reader can see that for those who reported that they were married or widowed more than 92% had been married for five years or more.

TABLE XXXI

Number and Per Cent of Respondents
Classified by Marital Status

Status	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
Married	163	54	122	85	57	74	57	129	741
Widowed	3	2	1	4		2		12	24
Separated	1	1							2
Divorced	2		1			2	1	2	8
Never Married	3	1	2	3		2	5	1	17
Totals	172	58	126	92	57	80	63	144	792
				Per Cent					
Married	94.77	93.10	96.83	92.39	100.00	92.50	90.48	89.58	93.56
Widowed	1.74	3.45	.79	4.35		2.50		8.33	3.03
Separated	.58	1.72							.25
Divorced	1.16		.79			2.50	1.59	1.39	1.01
Never Married	1.74	1.72	1.59	3.26		2.50	7.94	.69	2.15
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE XXXII

Number and Per Cent of Respondents
Classified by Number of Years Married

No. Yrs. Married	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-4	12	4	10	9	2	11	4	5	57
5-9	28	11	10	12	8	15	7	15	106
10-14	37	12	24	21	13	18	9	20	154
15-19	38	13	30	19	12	16	19	29	176
20-24	22	5	19	10	13	5	9	29	112
25 and over	28	10	29	17	10	11	11	34	150
Totals	165	55	122	88	58	76	59	132	755

(Continued on next page)

TABLE XXXII (cont.)
Per Cent

No.Yrs. Married	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-4	7.27	7.27	8.20	10.23	3.45	14.47	6.78	3.79	7.55
5-9	16.97	20.00	8.20	13.64	13.79	19.74	11.86	11.36	14.04
10-14	22.42	21.82	19.67	23.86	22.41	23.68	15.25	15.15	20.40
15-19	23.03	23.64	24.59	21.59	20.69	21.05	32.20	21.97	23.31
20-24	13.33	9.09	15.57	11.36	22.41	6.58	15.25	21.97	14.83
25 or more	16.97	18.18	23.77	19.32	17.24	24.47	18.64	25.76	19.87
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 33 contains information on full or part time employment of those respondents who were employed. As shown in Table 33 more than 96% of those responding to this item indicated that they were employed full time.

Shown in Table 34 are data showing the occupational skill levels for those respondents who indicated that they were employed. Skill levels were classified by using the National Opinion Research Council Occupational Prestige Score Scale.* As shown in Table 35 about 7% reported occupations having prestige scores which can be classified as unskilled. About 35% reported occupations which were classified as semi-skilled; 22% reported occupations classified as skilled; 24% reported occupations classified as technical or supervisory; 8% reported occupations which were classified as professional; and nearly 2% reported prestigious occupations. Thus, a great majority (65%) of those responding to this item reported occupations associated with prestige scores which can be classified as skilled, semi-skilled, or unskilled.

TABLE XXXIII

Number and Per Cent of Respondents Classified by Full and Part Time Employment

Employment	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
Full	158	24	112	65	44	54	55	123	635
Part	3	3	1	3	4	8	1	3	26
Total	161	27	113	68	48	62	56	126	661
				Per Cent					
Full	98.14	88.89	99.12	95.59	91.67	87.10	98.21	97.62	96.07
Part	1.86	11.11	.88	4.41	8.33	12.90	1.79	2.38	3.93
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*National Opinion Research Council, North Hatt Study of Occupational Prestige, University of Michigan Survey Research Laboratory, 1947.

TABLE XXXIV

Number and Per Cent of Respondents Classified by Skill Levels
Based on N.O.R.C. Scale

Skill	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
Unskilled	13	1	4		4	8	3	15	48
Semi-skilled	73	4	33	28	14	18	27	40	237
Skilled	38	7	29	21	4	18	13	23	153
Tech.Sup.	32	9	39	13	17	13	10	29	162
Professional	7	6	5	6	8	6	3	15	56
Prestigeous	1	1	3		1			7	13
Total	164	28	113	68	48	63	56	129	669
				Per Cent					
Unskilled	7.93	3.57	3.54		8.33	12.70	5.36	11.63	7.17
Semi-skilled	44.51	14.29	29.20	41.18	29.17	28.57	48.21	31.01	35.43
Skilled	23.17	25.00	25.66	30.88	8.33	28.57	23.21	17.83	22.87
Tech.Sup.	19.51	32.14	34.51	19.12	35.42	20.63	17.86	22.48	24.22
Professional	4.27	21.43	4.42	8.82	16.67	9.52	5.36	11.63	8.37
Prestigeous	.61	3.57	2.65		2.08			5.43	1.94
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

By referring to Table 35 the reader can determine that of those responding to the question regarding distance to work 68% reported eight miles or less. 48% reported distance to work of five miles or less.

TABLE XXXV

Number and Per Cent of Respondents
Classified by Distance to Work

Miles	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-2	75	5	4	7	13	13	13	53	183
3-5	35	2	25	3	4	14	14	40	137
6-8	22	11	42	12	10	11	16	7	131
9-11	14	7	16	17	10	11	8	10	93
12-14	5	1	13	11	4	6	2	7	49
15-17	2		2	7	2	3	1	4	21
18-20			2	6				1	9
21 and over	5	1	9	5	4	5	1	6	36
Totals	158	27	113	68	47	63	55	128	659

(continued)

TABLE XXXV
(continued)

Miles	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-2	47.47	18.52	3.54	10.29	27.66	20.63	23.64	41.41	27.77
3-5	22.15	7.41	22.12	4.41	8.51	22.22	25.45	31.25	20.79
6-8	13.92	40.74	37.17	17.65	21.28	17.46	29.09	5.47	19.88
9-11	8.86	25.93	14.16	25.00	21.28	17.46	14.55	7.81	14.11
12-14	3.16	3.70	11.50	16.18	8.51	9.52	3.64	5.47	7.44
15-17	1.27		1.77	10.29	4.26	4.76	1.82	3.13	3.19
18-20			1.77	8.82				.78	1.37
21 or over	3.16	3.70	7.96	7.35	8.51	7.94	1.82	4.69	5.46

Table 36 contains data relating to how long the respondents had been employed in the type of work reported above. Of those responding to the question regarding job length, over 83% reported that they had been employed five years or longer at the same kind of work.

TABLE XXXVI

Number and Per Cent of Respondents Classified by Job Length

Years at Job	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-4	28	8	19	12	11	16	13	10	117
5-9	29	5	16	13	9	18	10	27	127
10-14	31	5	25	21	13	14	13	31	153
15-19	29	6	23	11	5	5	13	21	113
20-24	21	1	17	5	4	5	5	12	70
25 and over	23	2	15	6	5	5	1	27	84
Totals	161	27	115	68	47	63	55	128	664
				Per Cent					
0-4	17.39	29.63	16.52	17.65	23.40	25.40	23.64	7.81	17.62
5-9	18.01	18.52	13.91	19.12	19.15	28.57	18.18	21.09	19.13
10-14	19.25	18.52	21.74	30.88	27.66	22.22	23.64	24.22	23.04
15-19	18.01	22.22	20.00	16.18	10.64	7.94	23.64	16.41	17.02
20-24	13.04	3.70	14.78	7.35	8.51	7.94	9.09	9.38	10.54
25 & over	14.29	7.41	13.04	8.82	10.64	7.94	1.82	21.09	12.65
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 37 contains data on the educational attainment as reported by those who responded to this question. As shown in Table 37, 15% had eight years or less of formal education; while 15½% had between nine and eleven years of formal education. Thus, 30.34% of the respondents had eleven years or less of formal education. 49.23% had achieved twelve years of formal schooling. Hence, nearly 80% of the respondents had twelve years or less of formal education. 10.66% of the respondents reported that they had 13, 14, or 15 years of formal education while 9.77% reported that they had graduated from college or had pursued graduate work. Therefore, more than 90% of the respondents reported that they had not graduated from college.

TABLE XXXVII

Number and Per Cent of Respondents
Classified by Grade Level Completed

Grade Level	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-6	4	3	2	1	1			1	12
7				1	1		2	4	8
8	27	3	15	11	4	12	4	19	95
9	3	1	4	1	1	1	3	3	17
10	23	1	9	15	4	10	3	20	85
11	4	2	6	1		2	2	2	19
12	76	27	68	45	34	44	34	55	383
13	6	4	5		1		3	6	25
14	15	6	6	1	5	3	2	7	45
15	1	3		4		1		4	13
16	5	6	8	9	4	5	3	9	49
17	5	1	2	3	3	1	1	11	27
Totals	169	57	125	92	58	79	57	141	778

(continued next page)

TABLE XXXVII
(Continued)

Grade Level	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S. Mil-waukee	Totals
0-6	2.37	5.26	1.60	1.09	1.72			.71	1.54
7				1.09	1.72		3.51	2.84	1.03
8	15.98	5.26	12.00	11.96	6.90	15.19	7.02	13.48	12.21
9	1.78	1.75	3.20	1.09	1.72	1.27	5.26	2.13	2.19
10	13.61	1.75	7.20	16.30	6.90	12.66	5.26	14.18	10.93
11	2.37	3.51	4.80	1.09		2.53	3.51	1.42	2.44
12	44.97	47.37	54.40	48.91	58.62	55.70	59.65	39.01	49.23
13	3.55	7.02	4.00		1.72		5.26	4.26	3.21
14	8.88	10.53	4.80	1.09	8.62	3.80	3.51	4.96	5.78
15	.59	5.26		4.35		1.27		2.84	1.67
16	2.96	10.53	6.40	9.78	6.90	6.33	5.26	6.38	6.30
17	2.96	1.75	1.60	3.26	5.17	1.27	1.75	7.80	3.47
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 38 summarizes by district the months of vocational training reported by the 208 respondents who said they had had vocational training. It appeared to be significant that 716 respondents indicated that they had no vocational training. Of the 208 who indicated that they had had vocational training, about 20% had less than nine months and about 54% had less than 18 months.

Not shown in the table is the fact that those who had had vocational training reported by far most frequently that they had received their training at the Milwaukee Vocational school.

TABLE XXXVIII
Number and Per Cent of Respondents
Classified by Months of Vocational Training

Mo. of Voc.Trng.	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
0-8	6	5	9	6	2	7	2	5	42
9-17	16	5	10	7	6	9	4	14	71
18-26	9	1	5	9	3	9	9	18	63
27 and over	2	3	9	5		3	1	9	32
Totals	33	14	33	27	11	28	16	46	208
				Per Cent					
0-8	18.18	35.71	27.27	22.22	18.18	25.00	12.50	10.87	20.19
9-17	48.48	35.71	30.30	25.93	54.55	32.14	25.00	30.43	34.13
18-26	27.27	7.14	15.15	33.33	27.27	32.14	56.25	39.13	30.29
27 and over	6.06	21.43	27.27	18.52		10.71	6.25	19.57	15.38
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

All the data included in Tables 24 through 38 indicate that the community characteristics of the eight districts comprising the geographic area of this study are those of a very stable community. Moreover, the job mix is diversified but clusters around the semi-skilled and skilled occupations.

Belief Orientations of the Respondents: Tables 39 through 38 include data which reflect the respondents' choices to the belief scale developed by McCloskey.* The scale contains nine statements which McCloskey has shown to be reliable measures of conservatism. The items were developed from a careful analysis of the conservative creed and philosophy as contained in the writings of Burke and Rossiter. The nine items are as follows:

1. If you start trying to change things very much, you usually make them worse.
2. No matter how we like to talk about it, political authority really comes not from us, but from some higher power.
3. It's better to stick by what you have than to be trying new things you don't really know about.
4. A man doesn't really get to have much wisdom until he's well along in years.
5. I prefer the practical man anytime to the man of ideas.
6. If something grows up over a long time, there will always be much wisdom in it.
7. I'd want to know that something would really work before I'd be willing to take a chance on it.
8. All groups can live in harmony in this country, without changing the system in any way.
9. We must respect the work of our forefathers and not think that we know better than they did.

Respondents were asked to state whether they agree very much, agree on the whole, agree a little, disagree a little, disagree on the whole, disagree very much, or whether they didn't know relevant to the nine conservative statements.

*McCloskey, Herbert. "Conservatism and Personality", in Introductory Readings in Political Behavior. Edited by S. Sidney Ulmer. Chicago: Rand McNally & Co., 1961.

The survey team coded these responses on a scale ranging from 1-7 with "I agree very much" being given a value of 1, "depends" being given a value of 4, and "I disagree very much" given a value of 7. Hence, the data shown in the table can be interpreted as ranging from very conservative to very unconservative.

Table 48 contains a composite score of all the nine items. That is, if a respondent said he "agreed very much" with all nine items, his total score in Table 48 would be nine. If he said he agreed on the whole to all nine items, his total score in Table 48 would be 18, etc. It should be noted that all 924 respondents did not answer each item. The number of respondents who did not answer each item ranges between five to seven. The reader can compute the number who did not respond to that particular item by subtracting the grand total in column 9 from 924.

By referring to Table 48, column 9, the reader can determine that nearly 49% of the respondents indicated a tendency to be more conservative while 45% indicated that they were less conservative. About 6% said that they couldn't make up their minds.

TABLE XXXIX

Number and Per Cent of Respondents Classified as Strong Conservative to Strong Liberal on Interview Item Meaning "Change is Bad"

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
1	20	4	28	15	9	8	12	9	105
2	50	11	22	7	6	8	5	27	136
3	53	8	23	15	12	12	9	32	164
4	17	2	9		1	5	5	13	52
5	33	17	25	13	14	13	6	46	167
6	22	13	21	24	9	25	8	37	159
7	8	10	35	21	12	11	30	9	136
Totals	203	65	163	95	63	82	75	173	919

(cont'd.)

TABLE XXXIX
(Continued)

Per Cent

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
1	9.85	6.15	17.18	15.79	14.29	9.76	16.00	5.20	11.43
2	24.63	16.92	13.50	7.37	9.52	9.76	6.67	15.61	14.80
3	26.11	12.31	14.11	15.79	19.05	14.63	12.00	18.50	17.85
4	8.37	3.08	5.52		1.59	6.10	6.67	7.51	5.66
5	16.26	26.15	15.34	13.68	22.22	15.85	8.00	26.59	18.17
6	10.84	20.00	12.88	25.26	14.29	30.49	10.67	21.39	17.30
7	3.94	15.38	21.47	22.11	19.05	13.41	40.00	5.20	14.80
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*1 - Strong conservative
2 - Moderately conservative
3 - Slightly conservative
4 - Don't know
5 - Slightly liberal
6 - Moderately liberal
7 - Strong liberal

TABLE XL

Number and Per Cent of Respondents Classified as Strong Conservative to Strong Liberal on Interview Item Meaning "Political Authority Comes From a Higher Power"

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
1	48	14	43	20	13	35	39	36	248
2	78	13	37	22	16	12	15	48	241
3	33	11	27	14	9	7	7	28	136
4	6	2	9		2	4	3	8	34
5	13	6	5	12	6	8	4	19	73
6	16	12	15	10	10	10	3	27	103
7	8	7	27	17	7	6	4	7	83
Totals	202	65	163	95	63	82	75	173	918
				Per Cent					
1	23.76	21.54	26.38	21.05	20.63	42.68	52.00	20.81	27.02
2	38.61	20.00	22.70	23.16	25.40	14.63	20.00	27.75	26.25
3	16.34	16.92	16.56	14.74	14.29	8.54	9.33	16.18	14.81
4	2.97	3.08	5.52		3.17	4.88	4.00	4.62	3.70
5	6.44	9.23	3.07	12.63	9.52	9.76	5.33	10.98	7.95
6	7.92	18.46	9.20	10.53	15.87	12.20	4.00	15.61	11.22
7	3.96	10.77	16.56	17.89	11.11	7.32	5.33	4.05	9.04
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39 for code meaning

TABLE XLI

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Don't Try New Things"

Code *	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
1	35	1	25	5	4	7	17	12	106
2	40	7	19	7	13	3	3	27	119
3	15	7	23	14	10	8	5	10	92
4	5	1	3			1	1	16	27
5	35	12	14	13	7	10	5	38	134
6	48	23	29	18	9	16	15	45	203
7	25	14	50	38	20	37	29	25	238
Totals	203	65	163	95	63	82	75	173	919
				Per Cent					
1	17.24	1.54	15.34	5.26	6.35	8.54	22.67	6.94	11.53
2	19.70	10.77	11.66	7.37	20.63	3.66	4.00	15.61	12.95
3	7.39	10.77	14.11	14.74	15.87	9.76	6.67	5.78	10.01
4	2.46	1.54	1.84			1.22	1.33	9.25	2.94
5	17.24	18.46	8.59	13.68	11.11	12.20	6.67	21.97	14.58
6	23.65	35.38	17.79	18.95	14.29	19.51	20.00	26.01	22.09
7	12.32	21.54	30.67	40.00	31.75	45.12	38.67	14.45	25.90
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39 for meaning

TABLE XLII

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Wisdom Comes With Age"

Code *	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Totals
1	38	7	30	10	7	9	16	21	138
2	48	13	25	10	18	6	8	38	166
3	27	11	22	13	6	13	19	23	134
4	16	4	5	1	3	3	3	18	53
5	21	9	16	12	16	14	2	27	117
6	30	8	22	21	3	12	8	30	134
7	23	13	43	28	10	25	19	16	177
Totals	203	65	163	95	63	82	75	173	919
				Per Cent					
1	18.72	10.77	18.40	10.53	11.11	10.98	21.33	12.14	15.02
2	23.65	20.00	15.34	10.53	28.57	7.32	10.67	21.97	18.06
3	13.30	16.92	13.50	13.68	9.52	15.85	25.33	13.29	14.58
4	7.88	6.15	3.07	1.05	4.76	3.66	4.00	10.40	5.77
5	10.34	13.85	9.82	12.63	25.40	17.07	2.67	15.61	12.73
6	14.78	12.31	13.50	22.11	4.76	14.63	10.67	17.34	14.58
7	11.33	20.00	26.38	29.47	15.87	30.49	25.33	9.25	19.26
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39 for code meaning

TABLE XLIII

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Practical Man Better Than Idea Man"

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Total
1	34	6	18	13	11	15	18	26	141
2	71	9	22	14	7	4	5	26	158
3	25	7	39	12	11	14	22	22	152
4	17	7	15	2	6	11	7	34	99
5	16	16	13	20	10	13	7	14	109
6	26	14	16	18	13	11	4	39	141
7	13	6	40	16	5	14	12	12	118
Totals	202	65	163	95	63	82	75	173	918
				Per Cent					
1	16.83	9.23	11.04	13.68	17.46	18.29	24.00	15.03	15.36
2	35.15	13.85	13.50	14.74	11.11	4.88	6.67	15.03	17.21
3	12.38	10.77	23.93	12.63	17.46	17.07	29.33	12.72	16.56
4	8.42	10.77	9.20	2.11	9.52	13.41	9.33	19.65	10.78
5	7.92	24.62	7.98	21.05	15.87	15.85	9.33	8.09	11.87
6	12.87	21.54	9.82	18.95	20.63	13.41	5.33	22.54	15.36
7	6.44	9.23	24.54	16.84	7.94	17.07	16.00	6.94	12.85
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39

TABLE XLIV

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Wisdom is Associated With Tradition"

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Total
1	25	10	51	16	10	12	38	16	178
2	76	9	44	28	18	13	7	44	239
3	42	14	15	14	6	21	11	32	155
4	7	3	13		2	6	5	11	47
5	36	13	11	15	10	12	2	41	140
6	14	9	15	14	9	8	4	22	95
7	2	7	14	8	8	10	7	7	63
Totals	202	65	163	95	63	82	74	173	917
				Per Cent					
1	12.38	15.38	31.29	16.84	15.87	14.63	51.35	9.25	19.41
2	37.62	13.85	26.99	29.47	28.57	15.85	9.46	25.43	26.06
3	20.79	21.54	9.20	14.74	9.52	25.61	14.86	18.50	16.90
4	3.47	4.62	7.98		3.17	7.32	6.76	6.36	5.13
5	17.82	20.00	6.75	15.79	15.87	14.63	2.70	23.70	15.27
6	6.93	13.85	9.20	14.74	14.29	9.76	5.41	12.72	10.36
7	.99	10.77	8.59	8.42	12.70	12.20	9.46	4.05	6.87
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39

TABLE XLV

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Something Must Work Before Taking a Chance on it"

Code *	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Total
1	26	10	33	20	11	15	24	17	156
2	63	8	41	11	5	15	9	48	200
3	29	15	22	14	14	17	10	24	145
4	15	1	6	1	1	2	4	14	44
5	39	17	22	19	16	9	6	34	162
6	28	10	16	23	9	11	5	31	133
7	3	4	23	7	7	13	16	5	78
Totals	203	65	163	95	63	82	74	173	918
				Per Cent					
1	12.81	15.38	20.25	21.05	17.46	18.29	32.43	9.83	16.99
2	31.03	12.31	25.15	11.58	7.94	18.29	12.16	27.75	21.79
3	14.29	23.08	13.50	14.74	22.22	20.73	13.51	13.87	15.80
4	7.39	1.54	3.68	1.05	1.59	2.44	5.41	8 09	4.79
5	19.21	26.15	13.50	20.00	25.40	10.98	8.11	19.65	17.65
6	13.79	15.38	9.82	24.21	14.29	13.41	6.76	17.92	14.49
7	1.48	6.15	14.11	7.37	11.11	15.85	21.62	2.89	8.50
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39

TABLE . XLVI

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Group Harmony is Possible Without Changing the System"

Code *	Cudahy	Greendale	Greenfield	Franklin	Hales Corners	Oak Creek	St. Francis	S.Milwaukee	Total
1	13	4	24	4	11	6	24	11	97
2	23	4	36	8	4	6	7	38	126
3	30	7	11	7	10	6	10	15	96
4	15	5	13		1	3	4	20	61
5	47	10	23	34	16	17	9	37	193
6	49	17	18	20	12	22	3	39	180
7	26	18	38	22	9	22	17	13	165
Totals	203	65	163	95	63	82	74	173	918
				Per-Cent					
1	6.40	6.15	14.72	4.21	17.46	7.32	32.43	6.36	10.57
2	11.33	6.15	22.09	8.42	6.35	7.32	9.46	21.97	13.73
3	14.78	10.77	6.75	7.37	15.87	7.32	13.51	8.67	10.46
4	7.39	7.69	7.98		1.59	3.66	5.41	11.56	6.64
5	23.15	15.38	14.11	35.79	25.40	20:73	12.16	21.39	21.02
6	24.14	26.15	11.04	21.05	19.05	26.83	4.05	22.54	19.61
7	12.81	27.69	23.31	23.16	14.29	26.83	22.97	7.51	17.97
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE XLVII

Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal on Interview Item Meaning "Our Forefathers Must be Respected"

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Total
1	27	4	27	6	12	8	9	17	110
2	45	8	22	12	6	14	7	28	142
3	25	16	35	12	9	16	19	23	155
4	21	5	6		2	5	2	37	78
5	33	12	21	31	14	14	10	35	170
6	42	12	23	16	8	15	9	28	153
7	10	8	29	18	12	10	18	5	110
Totals	203	65	163	95	63	82	74	173	918
				Per Cent					
1	13.30	6.15	16.56	6.32	19.05	9.76	12.16	9.83	11.98
2	22.17	12.31	13.50	12.63	9.52	17.07	9.46	16.18	15.47
3	12.32	24.62	21.47	12.63	14.29	19.51	25.68	13.29	16.88
4	10.34	7.69	3.68		3.17	6.10	2.70	21.39	8.50
5	16.26	18.46	12.88	32.63	22.22	17.07	13.51	20.23	18.52
6	20.69	18.46	14.11	16.84	12.70	18.29	12.16	16.18	16.67
7	4.93	12.31	17.79	18.95	19.05	12.20	24.32	2.89	11.98
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39

TABLE XLVIII

Composite Number and Per Cent of Respondents Classified by Strong Conservative to Strong Liberal Across All Nine Conservative Items

Code *	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	So.Mil-waukee	Total
1	266	60	279	109	88	115	197	165	1279
2	494	82	268	119	93	81	66	324	1527
3	279	96	217	115	87	114	112	209	1229
4	119	30	79	4	18	40	34	171	495
5	273	112	150	169	109	110	51	291	1265
6	275	118	175	164	82	130	59	298	1301
7	118	87	299	175	90	148	152	99	1168
Totals	1825	585	1467	855	567	738	671	1557	8264
				Per Cent					
1	14.57	10.25	19.01	12.74	15.52	15.58	29.35	10.59	15.47
2	27.06	14.01	18.26	13.91	16.40	10.97	9.83	20.80	18.47
3	15.28	16.41	14.79	13.45	15.34	15.44	16.69	13.42	14.87
4	6.52	5.12	5.38	.46	3.17	5.42	5.06	10.98	5.98
5	14.95	19.14	10.22	19.76	19.22	14.90	7.60	18.68	15.30
6	15.06	20.17	11.92	19.18	14.46	17.61	8.79	19.13	15.74
7	6.46	14.87	20.38	20.46	15.87	20.05	22.65	6.35	14.13
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*See Table 39

Respondents' Perception of Post High School Educational Needs in South Milwaukee Area: Table 49 summarizes the first choice of those responding to the interview item regarding post high school educational needs for the South Milwaukee County area. Over 41% of the respondents thought that "there is no need for any educational services beyond what our school system is now providing". More than 31% said that "there should be a program of vocational, technical, and commercial course offerings for persons who wish to gain or update occupational skills". Based on these statistics, it would appear at first glance that the largest percentage of those responding to this item did not see a need for additional post high school educational facilities. On second glance, however, the reader is referred to Row 6 for Cudahy and South Milwaukee. In each of these cases more than 70% believe that present educational facilities are adequate. Perhaps, because both Cudahy and South Milwaukee have existing vocational schools and because the programs offered by these schools have been well publicized within the community, the citizens of these particular communities believe that present educational services are, indeed, adequate. If this interpretation is, in fact, true and, since both Cudahy and South Milwaukee represent a considerable influence on the total percentages, the choice for vocational education is, indeed, much larger than indicated in Table 49.

Of the 924 respondents, 339 indicated a second choice in regard to post high school educational needs for the South Milwaukee County area. Table 50 contains a breakdown of these second choices. As shown in Table 50, more than 30% of those indicating second choices chose vocational education as the top priority. Furthermore, an additional 26.84% of those indicating second choices believed that a series of

TABLE XLIX

Number and Per Cent of Respondents Classified by Their Choice of Top Priority Post High School Educational Needs in South Milwaukee County Classified By District

Choice	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
2 Yr.Col.	6	5	23	18	4	8	4	9	77
4 Yr.Col.	12	20	19	12	13	17	10	10	113
Grad.School		2		1	3	1		1	8
Voc.Tech.	32	19	64	55	21	28	42	24	285
Gen.Cultural	8	3	13	4	5	6	3	5	47
Status Quo o.k.	138	16	44	6	14	13	16	125	372
Totals	196	65	163	96	60	73	75	174	902
				Per Cent					
2 Yr.Col.	3.06	7.69	14.11	18.75	6.67	10.96	5.33	5.17	8.54
4 Yr.Col.	6.12	30.77	11.66	12.50	21.67	23.29	13.33	5.75	12.53
Grad.School		3.08		1.04	5.00	1.37		.57	.89
Voc.Tech.	16.33	29.23	39.26	57.29	35.00	38.36	56.00	13.79	31.60
Gen.Cult.	4.08	4.62	7.98	4.17	8.33	8.22	4.00	2.87	5.21
Status quo o.k.	70.41	24.62	26.99	6.25	23.33	17.81	21.33	71.84	41.24
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE L

Number and Per Cent of Perceived Second Priority Post High School Educational Needs Classified by District

Choice	Cud-ahy	Green-dale	Green-field	Frank-lin	Hales Corners	Oak Creek	St. Francis	S.Mil-waukee	Totals
2 Yr.Col.	8	8	8	18	6	6	3	10	67
4 Yr.Col.	5	8	6	17	9	4	1	2	52
Grad.School	3	4	4	1		3	1	2	18
Voc.Tech.	10	12	19	15	9	15	9	15	104
Gen.Cult.	7	9	14	18	7	19	13	4	91
Status quo o.k.	3					2	2		7
Totals	36	41	51	69	31	49	29	33	339
				Per Cent					
2 Yr.Col.	22.22	19.51	15.69	26.09	19.35	12.24	10.34	30.30	19.76
4 Yr.Col.	13.89	19.51	11.76	24.64	29.03	8.16	3.45	6.06	15.34
Grad.School	8.33	9.76	7.84	1.45		6.12	3.45	6.06	5.31
Voc.Tech.	27.78	29.27	37.25	21.74	29.03	30.61	31.03	45.45	30.68
Gen.Cult.	19.44	21.95	27.45	26.09	22.58	38.78	44.83	12.12	26.84
Status quo o.k.	8.33					4.08	6.90		2.06
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

general education courses aimed principally toward helping improve cultural levels of community members was needed. Assuming that the latter interpretation regarding Table 49 is correct and that the interpretation in Table 50 is equally correct, it appears that the populace of South Milwaukee County perceived the need for additional vocational and general education courses aimed principally toward helping improve the skills of community members.

CONCLUSIONS

1. The respondents to the structured interview were largely employed males between ages 25 and 54.
2. The respondents reflected community characteristics indicating great stability in the area. These characteristics include:
   A. 63% of the households had only one person employed.
   B. 75% of the families had three or fewer children.
   C. 90% of the families lived in single family dwellings.
   D. 91% of the families owned or were buying their homes.
   E. 83% of the families lived in the same dwelling three years or more.
   F. 62% of the families had not moved in the last seven years. An additional 25% had moved only once.
   G. 94% of the respondent householders were married.
   H. 92% of the respondent householders were married for five years or more.
   I. 96% of employed respondents were employed full time.
   J. 82% of employed respondents lived eight or fewer miles from their work.
   K. 83% of employed respondents had done the same type of work for five or more years.
   L. 84% of employed respondents worked at semi-skilled, skilled, technical, or supervisory jobs.

M. 49% of the respondents had attained a high school education while 40% have attained less than a high school education.

3. The belief patterns of the respondents tended to be more conservative (49%) than liberal (45%) but rather well balanced.

4. The respondents perceived the most critical post high school educational needs to be vocational-technical.

CHAPTER IV
THE EMPLOYER QUESTIONNAIRE

Purpose of The Questionnaire: The primary purpose of the questionnaire was to assess the perception of the educational facilities needed in the South Milwaukee area as seen by those employers who employed persons living in the eight school districts included in the South Milwaukee study. The questionnaire's secondary purpose was to furnish information on the employers themselves The information sought pertained to such firm and employer characteristics as the type of business in which they engaged, the number of employees, the problems they encountered in hiring suitably trained personnel, and the types of training and education they conducted for their employees.

The employers' perceptions of the educational facilities needed are incorporated in the study by comparing their perceptions with those of the other reference groups surveyed; these were the group included in the follow-up study, the senior group, and the randomly selected inhabitants of the South Milwaukee area. Data on the characteristics of individual employers can be used to gain an idea of the actual educational needs of employers. Other information, such as the size of the organization and the type of business in which it engages, obviously yields a profile of the employers as a group.

Description of the Questionnaire: The employer questionnaire contained seven questions. The first six questions were designed to gather basic information about the organization while question seven sought to measure the perceptions of the educational needs as seen by the firm.

The first question was composed of two parts. The first part asked the employers to note, within broad limits, the type of business activity in which the firm was engaged. There

were four listed sections of activities: manufacturing, provide service, distributive activities, and agricultural. The second part was open-ended and employers were asked to explain specifically what the organization was equipped to do.

The second question was designed to give a fairly accurate approximation as to the number of employees retained by the employer. Employers were asked to check, from among eight different size categories, the approximate number of the firm's employees.

The third question asked the employers to indicate the percentage of the firm's staff who were working in the various internal organizational activities. These activities included the following categories: administrative and professional, managerial, technical, office staff and clerical, skilled, semi-skilled, and non-skilled.

The next two questions, questions four and five, were related to question three. Four asked employers to list in rank order the above categories they had found most difficult to staff over the preceding three years. Employers could also indicate they were having no difficulty in obtaining desirable personnel in any area. Question five asked employers what types of training and experience they would most desire for personnel in the first and second categories listed as most difficult to staff.

Question six sought to obtain an estimate of the extent of educational activities conducted by employers. Employers were first asked if they conducted any types of job preparation for prospective or new employees, or if they conducted a program for upgrading present employees. If they indicated in the affirmative, they were requested to indicate the type of program and the category for whom they were conducted.

The final question, question seven, requested the employers to list the types of educational facilities they

felt would be of the greatest benefit to their company if they were to be offered in the South Milwaukee area. Employers could choose from among the following different facilities: a high school credit program for those who had never received a diploma; an academic college offering a choice of two, four, or beyond four years of work; a technical and commercial vocational school; a vocational school with general education courses; or any other educational facility they may wish to specify. Employers could also note that they saw no need for educational offerings beyond high school.

Results of the Questionnaire: The employer group comprised those firms or persons who employed members of the population selected for the Demographic Questionnaire of the South Milwaukee Study. Each employee interviewed in the demographic study was asked to name and give the address of his or her employers; these employers then became the population for the employer questionnaire.

There were 290 employers in this group; all of them were mailed a questionnaire. After a series of follow-up questionnaires had been sent to this group, a total of 200 completed questionnaires were returned. This represented about a 69% response. Of these, 196 were completed in a form deemed adequate and they comprised the employer sample for the study.

The first question on the questionnaire asked the employer to indicate the type of business activity in which the firm engaged. The following is a break-down of the responses to this question.

It is evident that there are more than twice as many firms engaged in providing service than in all the rest of the activities combined. Of particular interest is the fact that no firms engaged in agricultural activities; this grouping will be deleted from the rest of the report.

TABLE LI

Types of Business Activity Conducted by Employer Group

Activity	No.of Firms	% of Total
Manufacturing	65	33
Service	107	55
Distributive	24	12
Agricultural	0	0
Total No.of Firms	196	100%

Information on the number of persons employed by firms in each of the categories was provided by question two. The firms were classified according to the number of employees they retained. These classifications were used to facilitate the handling of the data as presented in Table 52.

TABLE LII

Firm Size by Number of Employees

No.of Employees	Manufact.	Service	Distributive	Total	% of Total
From 1-5	1	19	4	24	12
From 6-20	4	8	4	16	8
From 21-50	4	21	4	29	15
From 51-100	10	22	6	38	19
From 101-250	6	13	2	21	11
From 251-500	10	9	0	19	10
From 501-1000	4	7	1	12	6
From 1000 up	26	8	3	37	19
Total	65	107	24	196	100%

From Table 52 it can be seen that the service firms are of moderate size, that is, they employ up to 250 persons. In contrast, the manufacturing division has many more firms in the large classification. The 26 firms with over 1,000 employees constitutes a significant proportion of the employed work force surveyed in the South Milwaukee Area Study. In addition there were more firms employing over 500 persons in manufacturing industries than in all other cativities combined.

Question three asked the responding firms to give the percentage of their work forces that were engaged in the various groups of activities such as administrative, managerial, and clerical activities as well as skilled, semi-skilled, and non-skilled work. For purposes of explanation the first row of Table 53 shows that 52 manufacturing, 48 service, and 14 distributive firms employed between 00% and 10% of their total work force in administrative activities.

TABLE LIII

Percentage of the Work Force Engaged in Administrative Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	52	48	14	114	71
10-20%	5	15	1	21	13
20-30%	2	7	1	10	6
30-40%	1	3		4	3
40-50%		1		1	1
50% and up		10		10	6
Total Firms	60	84	16	160	100%

TABLE LIV

Percentage of the Work Force Engaged in Managerial Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	43	38	9	90	64
10-20%	11	20	9	40	29
20-30%	1	3	1	5	3
30-40%					
40-50%			1	1	1
50% up	1	3		4	3
Total Firms	56	64	20	140	100%

TABLE LV

Percentage of the Work Force Engaged in Technical Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	24	25	5	54	52
10-20%	15	7	2	24	22
20-30%	5	9		14	13
30-40%		2	1	3	3
40-50%	1			1	1
50% up	1	6		7	7
Total Firms	46	49	8	103	100%

TABLE LVI

Percentage of the Work Force Engaged in Clerical Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	24	32	6	62	38
10-20%	24	19	4	47	29
20-30%	8	10	4	22	13
30-40%	3	1	3	7	4
40-50%		7	1	8	5
50-60%	1	1		2	1
60-70%		2		2	2
70 up		10	3	13	8
Total Firms	70	82	21	163	100%

TABLE LVII

Percentage of the Work Force in Skilled Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	7	14	4	25	18
10-20%	20	8		28	20
20-30%	11	5	1	15	12
30-40%	3	6	1	10	7
40-50%	2	5	1	8	6
50-60%	6	9	2	17	12
60-70%	5	6	2	13	9
70 up	4	14	1	19	16
Total	58	67	12	135	100%

TABLE LVIII

Percentage of Work Force in Semi-skilled Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	6	16	1	23	17
10-20%	16	12	1	29	22
20-30%	8	15	3	26	20
30-40%	11	1	1	13	10
40-50%	6	4	2	12	9
50-60%	2	5	0	7	5
60-70%	6	2	3	11	8
70 up	2	5	3	10	9
Total	57	60	14	131	100%

TABLE LIX

Percentage of the Work Force Engaged in Non-skilled Activities

Percentages	Manufact.	Service	Distributive	Total	% of Total
00-10%	15	15	2	32	34
10-20%	18	4	2	24	25
20-30%	2	6	2	10	11
30-40%	2	2	1	5	5
40-50%	2	5	0	7	8
50-60%	3	6	0	9	10
60-70%	1	0	1	2	2
70 up	2	3	0	5	5
Total	45	41	8	94	100%

The data from the tables allows the inferring of a reasonably representative profile of the composition of the work force of a typical manufacturing or service firm. It appears that a manufacturing firm in the study area would employ about 15% of its personnel in administrative and managerial positions; technical work would be assigned to about 15% of the work force and 25% of the force would be engaged in clerical duties. The remaining 45% of the personnel would be composed of skilled, semi-skilled, and non-skilled workers. By comparison the service firms have about the same percentage distribution in the managerial and technical divisions; the main difference between the two types of concerns appears to be the higher percentage of clerical occupations in the service firms and the lower percentage of skilled and non-skilled labor employed by them.

Question four asked employers to indicate in rank order the areas in which they were experiencing staffing problems. Table 60 is a tabulation of the data from that question.

There were a total of 421 votes cast for the first three choices; the last column is the percentage of the total 421 choices made.

TABLE LX

Areas Considered by Employers to be Most Difficult to Staff

Area	Rank of Difficulty	Manuf.	Serv-ice	Distrib-utive	Total	% of Total
Administrative	1	7	6	0	13	
	2	3	0	1	4	
	3	2	13	1	16	
Total		12	19	2	33	98%
Managerial	1	8	7	7	22	
	2	7	16	0	22	
	3	7	4	1	12	
Total		22	37	8	65	15%
Technical	1	16	15	2	33	
	2	14	9	3	26	
	3	4	22	2	8	
Total		34	26	8	67	16%
Clerical	1	6	14	4	24	
	2	11	12	6	29	
	3	9	7	0	16	
Total		26	23	10	69	16%
Skilled	1	21	33	3	57	
	2	13	5	2	20	
	3	7	8	3	18	
Total		41	46	8	95	23%
Semi-skilled	1	6	7	4	17	
	2	4	15	1	20	
	3	8	4	3	15	
Total		18	26	8	52	12%
Non-skilled	1	2	6	0	8	
	2	1	0	1	2	
	3	0	4	0	4	
Total		3	10	1	14	3.0%
No difficulty in staffing		3	19	4	26	6.0%

The above table reveals that employers consider the area of skilled labor the most difficult to staff; this is followed in order by clerical, technical, managerial, semi-skilled,

and administrative areas. A total of 26 employers said they had experienced no staffing difficulties and only 14 employers experienced difficulty in obtaining non-skilled workers.

The fifth question asked the employers to indicate the type of education, training, or experience they would desire for prospective employees in the first and second areas where they were experiencing staffing difficulties.

TABLE LXI

Training Desired in the Most Difficult Area to Staff

Type of Training Desired	Manufact-uring	Serv-ice	Distrib-utive	Total	% of Total
Vocat.Technical	26	43	8	77	55%
Vocat.General	0	1	0	1	1%
College	23	23	5	51	46%
On-the-job training	4	5	2	11	8%
Total	53	72	15	140	100%

TABLE LXII

Training Desired in the Second Most Difficult Area to Staff

Type of Training Desired	Manufact-uring	Serv-ice	Distrib-utive	Total	% of Total
Vocat.Technical	35	45	9	89	75%
Vocat.General	0	0	0	0	0%
College	8	9	4	21	18%
On-the-job training	3	4	1	8	7%
Total	46	58	14	48	100%

Tables 61 and 62 show that the majority of employers believe vocational education will best serve the purpose of equipping prospective employees with the skills deemed necessary or desirable for job success. The second most desirable preparation was college training and this was followed by on-the-job training. Of particular note is the few employers who thought a general vocational background would be needed.

The extent to which firms in the South Milwaukee area conduct training courses for their employees and the type of employees trained in those courses was the subject of question six. The first part of the question asked the employer what type of program was provided and the second part asked what personnel were trained under such a program.

TABLE LXIII

Types of Programs Provided by South Milwaukee Employers

Types of Programs	Manufacturing	Service	Distributive	Total	% of Total
On-the-job training	52	80	18	150	57
Separate School or Course	27	40	6	73	27
Outside Agency Used	15	23	24	42	16
Total	94	143	28	265	100%

TABLE LXIV

Types of Employers Trained Under Employer Programs

Areas Trained	Manufacturing	Service	Distributive	Total	% of Total
Administrative	19	26	8	53	12
Managerial	26	35	11	72	17
Technical	31	25	5	61	14
Clerical	24	42	10	76	17
Skilled	39	32	9	80	18
Semi-skilled	30	24	7	61	14
Non-skilled	11	19	3	33	8
Total	180	183	53	436	100%

The tables show that employers as a group conduct a considerable amount of training and educational activities for their employees; in particular they stress on-the-job training for their skilled, clerical, and managerial workers. They also utilize outside agencies for their programs and they conduct many short courses; also worthy of note is the fact that several firms have a variety of programs for many different categories of job skills.

The last question, question seven, asked employers to indicate the type of educational facility they felt would be of the greatest benefit to their company if the facility were to be located in the South Milwaukee Area. The results of this question are tabulated in the following table.

TABLE LXV

Employers Choice of Educational Facility for the South Milwaukee Area

Type of Facility	Manufacturing	Service	Distributive	Total	% of Total
A program of high school work for those who have never completed high school	20	32	5	57	18%
A college offering:					
two years of work	5	7	3	15	5.0
four years of work	5	11	3	19	6.0
with a graduate school	8	8	5	21	7.0
Vocational school offering technical and commercial courses	47	68	17	132	42.0
Vocational school offering general courses for cultural improvement	8	21	5	34	11.0
Some other form of school	4	4	2	10	3.0
There is no need for a school beyond the high school	6	15	3	24	8.0
Totals	103	166	43	312	100.0%

Conclusions: The results of the Employer Questionnaire clearly indicate that most employers had or were having some difficulty in finding employees with suitable educational or job experience backgrounds. This is attested to by the fact that only 26 employers said they were having no difficulty in staffing their work force.

The questionnaire also showed that the areas of skilled, clerical, and technical activities were the most difficult to staff. These areas are those best suited for preparing their workers and the development of skills through vocational education. Employers as a group were also aware of the role vocational education could play in the preparation of workers with suitable marketable skills, for 132 of them chose vocational education as being the most needed in the South Milwaukee Area. The conclusion can, therefore, be made that the Employer Questionnaire of the South Milwaukee Study indicates that employers see a need for a vocational facility in the South Milwaukee area.

CHAPTER V

PRESENT VOCATIONAL FACILITIES IN THE SOUTH MILWAUKEE AREA

The task of determining what additional facilities are needed in any area to meet the needs of an adequate vocational program necessarily includes the problem of evaluating present educational facilities. This evaluation should include not only the buildings and sites but also the depth and breadth of the programs offered. An acceptable solution to the evaluation problem rests on the assumption that an adequate and reliable criteria exist against which present facilities can be measured and evaluated. The most logical place to look for such criteria would be in the publications of the agency charged with the care and promotion of vocational education in the State of Wisconsin. A report published in July, 1966, by the Area Development Committee sets forth some standards the committee believes to be important consideration in the establishment of a vocational facility. The report was titled, "A Minimum Vocational Technical Education Program For Major Facilities Within Area Districts". The stated objective of the report was to explain and justify a recommended vocational-technical education program and demonstrate how such a program would generate a need for 760 separate full-time students to be contained in a major facility.

One of the first recommendations made by the committee was that most occupational training programs should be carried on in six major areas. These were: trade and industry training programs, business and distributive training programs, health and service training, graphic and applied arts, agriculture and agriculture wage related programs, and home economics and wage related programs. The committee recognized that all schools could not offer all these programs, but they recommended that the school should offer those programs that would be most beneficial to the immediate area in which the

school is located. The additional recommendation was made that the school should offer courses in at least four of the six aforementioned programs. The above recommendation is defined by the committee as the depth dimension of the vocational program. The breadth of the program is delineated by the number of courses offered in any of the six major fields of study. The committee recognized the need students may have for developing various degrees of skill in any one subject field. The breadth of courses allows for this flexibility. The degree of skill acquired by the student is designated by the type of degree granted to him by the facility. The committee recommended that the vocational facility be able to offer courses that will lead to the highest vocational degree, the associate degree as well as terminal courses in technical work and a range of one-year-or-less vocationally orientated courses.

In addition to the breadth and depth requirements, the committee indicated that 20 students would be the minimum average number of students per class and program if the school programs were to be operated with minimum economy and efficiency. Using the above criteria of course offerings and student loads per class, the committee found the minimum size for a vocational-technical facility should not be less than 760 students.

The dimensions of the program judged by the committee to be necessary for an adequate facility can best be seen by examining the courses that should be offered by a facility in each of the six fields of study. These courses are taken directly from the committee's report:

Programs and Courses Offered in a Technical Institute Offering a Speciality in Trade and Industry Education.

Trade and Industry Training Programs

A. Associate Degree Two Year Majors

1. Fluid Power Technology

1st Year Courses - First Semester

Course Title	Semester Credits
Basic Fluid Power	3
Basic Technical Drafting	3
*College Algebra I	3
*English Composition	3
*Psychology of Human Relations	3
*Safety Organizations	1
	16

Second Semester

Fluid Flow Analysis	2
Applied Fluid Mechanics	2
*College Algebra II	3
*Physics I	3
*Speech	3
Materials of Industry	2
*American Institutions	3
	18

2nd Year Courses - 1st Semester

Fluid Power Components	4
*Calculus and Analytic Geometry	3
Electricity and Electronics	2
*Economics	3
Introduction to Computers	2
*Physics II	3
	18

Second Semester

Fluid Power Circuitry	4
Fluid Power Systems Analysis	2
Instrumentation and Testing	3
Fluid Power Seminar	1
Industrial Electricity	2
Elective	3
	15

*General education courses
No. of Courses in Fluid Power Technology = 25
No. of general education courses in program = 11
Percentage total courses in general education = 44$

2. Mechanical Design Technology

1st Year Courses - First Semester

Course Title	Semester Credits
Basic Technical Drafting I	3
College Algebra I	3
*English Composition	3
Basic Fluid Power	3
*Psychology of Human Relations	3
*Safety Organizations	1
	16

Second Semester

Technical Drafting II	3
*Physics I	3
*College Algebra II	3
Materials of Industry	2
*American Institutions	3
*Speech	3
	17

Second year Courses - First Semester

Technical Drafting II	3
Tool Design	4
Statics and Kinematics	3
*Calculus and Analytic Geometry	3
*Electricity and Electronics	2
*Physics II	3
	18

Second Semester

Elements of Machine Design	3
Descriptive Geometry	3
*Economics	3
Drafting Seminar	1
Introduction to Computers	2
Strength of Materials	3
Elective	2
	17

*General education courses
No. of courses in Mechanic Design Technology = 25
No. of general education courses in program = 11
Percentage Total courses in general education= 44%

3. Instrumentation Technology

1st Year Courses - First Semester

Course Title	Semester Credits
*Technical Mathematics I	3
*Communication Skills I	2
*Psychology of Human Relations	2
*Technical Science I	4
Electronics I	7
	18

Second Semester

*Technical Mathematics II	3
*Communication Skills II	2
*American Institutions	2
*Technical Science II	4
Electronics II	7
	18

2nd Year Courses - First Semester

*Technical Mathematics III	2
Industrial Electronics	8
Mechanisms	6
*Industrial Organizations	2
	18

Second Semester

*Technical Mathematics IV	2
Control Systems	8
Seminar - Instrumentation	5
Computer Principles	3
	18

*General education courses
No. of courses in Instrumentation Technology = 18
No. of general education courses in program = 11
Percentage total courses in general education = 61%

4. Electronics Technology

1st Year Courses - First Semester

Course Titles	Semester Credits
*Communications Skills I	2
Electronic Drafting I	1
*Psychology of Human Relations	2
*Technical Science I	3
*Technical Mathematics I	3
Electronics I	7
	18

Second Semester

*American Institutions	2
Electronic Drafting II	1
*Communication Skills II	2
*Technical Science II	3
Electronics II	7
*Technical Mathematics II	3
	18

Second Year - First Semester

Machine Principles	2
Metals Fabrication	1
*Technical Mathematics III	2
Industrial Electronics	7
Industrial Electronics Lab	6
	18

Second Semester

*Industrial Organization	2
*Technical Mathematics IV	2
Communication Electronics	7
Communication Electronics Laboratory	6
	17

*General education courses
No. of courses in Electronics Technology = 21
No. of general education courses in program= 9
Percentage total courses in general education = 43%

5. Air Conditioning & Refrigeration Technology

1st Year - First Semester

Course Titles	Semester Credits
D.C. and A.C. Fundamentals	4
Basic Technical Drafting	2
*Communication Skills I	3
*Technical Mathematics I	4
*Psychology of Human Relations	3
	16

Second Semester

Air Conditioning	4
Basic Architectural Problems	3
Basic Electronic Circuits	4
*Communication Skills I	3
*Technical Mathematics II	4
	18

2nd Year - First Semester

Refrigeration I	4
Heating System	4
Duct Layout and Construction	3
*Technical Science I	4
*American Institutions	3
	18

Second Semester

Refrigeration II	4
Control Applications and Circuits	4
Air Conditioning Systems Design	4
*Business Organization and Administration	3
*Business and Industrial Relations	3
	18

*General Education Courses
No. of courses in air conditioning and refrigeration tech.=20
No. of general education courses in program = 9
Percentage of total courses in general education = 45%

6. Metallurgical Technology

1st Year - First Semester

Course Title	Semester Credits
Principles of Metallurgy	3
Basic Technical Drafting	2
*Communication Skills I	3
*Technical Math I	4
*Chemistry I	5

Second Semester

Fundamentals of Inspection and Testing of Materials	2
Foundry Principles and Practices	3
*Communication Skills II	3
*Technical Mathematics II	4
*Chemistry II	5
	17

2nd Year - First Semester

Principles of Metallography	2
Fundamentals of Heat Treatment of Metals	2
Mechanics of Materials	3
Quantitative Chemical Analysis I	4
*Technical Science I	4
*American Institutions	3
	16

A clear concept of what constitutes a facility that can truly be said to be a vocational-technical school can be formed from the above sections of the committee's report. According to the report an adequate facility must be able to offer enough courses in four out of six major areas to support the varied aspirations of 760 full-time students. In addition, the courses offered must be tied to the area's need for particular job skills. If this is the accepted criteria for a vocational-technical school, then no high school vocational program offered in the eight school districts of the study can be said to be adequate. Only two schools within the eight school districts are titled vocational schools and they were evaluated by the survey team.

South Milwaukee and Cudahy Vocational Schools: The Survey Team visited the South Milwaukee and Cudahy Vocational, Technical and Adult Schools to appraise their usefulness in meeting the needs of the area. It was found that the South Milwaukee School was a converted elementary school building which had been remodeled and that a new addition had been recently added. The site is fully used by the building although several lots had been purchased recently with an eye to expansion.

The equipment in the machine shop and business department was modern and of production line quality. Thus, it was determined that the school could be used to meet some of the vocational technical needs of the South Milwaukee area but cound not be considered as the basis for a modern facility which will be required if the total needs of Southern Milwaukee County are to be met.

The Cudahy Vocational School is located on two sites; one devoted exclusively to automotive training. The main school is composed of one small brick building and an attached wooden structure. Here, again, the facility appears to be well maintained. Also the machine shop and business department equipment is of production line quality. The Home Economics suite is well equipped and appears to have adequate space

relative to the space assigned to other programs in the school. The present Cudahy Vocational School can continue to meet part of the training needs of the Cudahy community but cannot be considered as the basis for meeting the training needs of Southern Milwaukee County.

To sharpen the perspective of the survey team members, three senior staff members of the supervisory staff of the State Vocational Board were asked to rate the two schools. The following chart reflects the composite ratings for each school as determined by the three state board staff members.

The Milwaukee Vocational, Technical and Adult School: The Milwaukee Vocational, Technical and Adult School is the legal name the statutes assign to this school. This name is not truly descriptive of the breadth and depth of the educational program(s) offered by this unique institution. This school is in every way more properly classified as a comprehensive community college. It serves compulsory aged youth, adults who are completing their high school work, physically and mentally handicapped persons, virtually all apprenticeable trades, persons wishing to upgrade their occupational and/or cultural skills, high school graduates wishing to gain educational preparation for entry into a vast array of occupations through one and two year vocational and technical programs, as well as high school graduates aiming at four year college degrees but who wish to complete their first two years at the Milwaukee school (Junior College) and the operation of two TV Stations in the area. About 35,000 different persons are served in organized classes conducted by the school. Additional tens of thousands use the facilities to hold forums, meetings and other publically worthwhile events. Hundreds of thousands more are reached by virtue of the TV Stations.

A description of the curriculum is contained in the several catalogs published by the school. The breadth and depth of the curriculum is as vast as any community college

in the world. Any further description of the program is beyond the scope and purpose of this chapter but the reader is referred to the several catalogs published by the school.

The program is housed at several locations throughout the city having total space of just over one million square feet. About 950,000 square feet is located at the downtown location while about 55,000 square feet is located at six different locations throughout the city. Because of the large size of this facility, the survey team visited the downtown location only.

The downtown location is comprised of three high rise buildings occupying three square city blocks. The buildings vary in age from new to about 50 years old. Parking areas are conspicuously in short supply. However, public transportation facilities run past the school.

While recent reports indicate that the Milwaukee school is not serving all the qualified students who apply, further analysis indicates that most of those turned away desire training in a very few occupational areas. The ability of the Milwaukee school to provide training to more students who have completed their 13th year and who wish to continue their studies, is clearly much better. Thus, the Milwaukee school could absorb many students who received post high school training of one year at other institutions.

Conclusions:

1. Present local vocational facilities are not adequate to meet the training needs of the Southern Milwaukee community.
2. Additional facilities need to be constructed in the Southern Milwaukee area if the vocational-technical training needs of the community are to be met.
3. The proximity of South Milwaukee County to the Milwaukee Vocational School seems to imply some

sort of program cooperation. For example, it was pointed out that vacancies exist in the second and third year of Milwaukee Vocational School Programs; possibly so Milwaukee County facilities might be designed as one-year schools to provide full short-term courses or to act as feeder institutions for longer programs offered in Milwaukee.

A CHECK LIST FOR FACILITY PLANNING FOR SCHOOLS
OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

I. Basic Considerations for Planning Vocational Education Facilities

	Cudahy		So. Milw.	
	Yes	No	Yes	No
A. THE SITE				
1. Size - Sufficient in area to provide space for:				
a. Present and future buildings		X		X
b. Outdoor instruction and recreation		X		X
c. Student, faculty, and visitor parking		X		X
d. Site beautification		X		X
e. Service, drives, walkways	X		X	
2. Location				
a. Readily accessible to drive-in traffic	X		X	
b. Availability of water, sewers, electricity, and gas at reasonable cost	X		X	
c. Coordinated with community planning		X		X
3. Criteria for Selection				
a. Health and safety				
(1) Free of excessive noise, odors, smoke, dust and congested traffic	X		X	
b. Suitability				
(1) Adequate space for the various types of buildings, future expansion, drives, walkways, recreation, parkway		X		X
c. Economy - The reasonable purchase price plus site features which preclude:				
(1) Excessive excavation and hauling		X		X
(2) Special footings or pilings		X		X
(3) Special installations because of distances to public utilities		X		X
(4) Construction and maintenance of long access drives		X		X
4. Site Development				
a. Building located and oriented properly		X		X
b. Provision for placement of the building, drives, recreation areas, and parking space in proper relationship to one another		X		X

	Cudahy Yes	Cudahy No	So. Milw. Yes	So. Milw. No
c. Provision for safe approaches to the site	X		X	
d. Provision for site beautification		X		X
B. THE BUILDING				
1. Curriculum Dictates the Design				
A prime factor in the planning of facilities for vocational and technical education is the realization that each of the areas has specific requirements which must be met. Further, these programs may vary with the specific training needs of each community. Since the building and other facilities are basically educational tools they are essential to the educational process and will help to achieve the purposes of the program. Building design is, then, an expression of how the problems of educational program planning have been solved.				
2. Design Considerations				
a. Flexibility				
(1) Creation of a building which can be readily adapted to future learning requirements, enrollments, and methods of teaching		X		X
(2) Rearrangement of space in the building without major structural changes		X		X
(3) Multiple use of space for both day and night classes	X		X	
b. Expandability				
(1) Increase in the floor area of a structure, either by expansion on the same level or by the addition of another story		X		X
c. General Environment				
(1) Proper control and balance of accoustics, heating, ventilating, lighting, and color		X		X
d. Aesthetics				
(1) Imagination and creativity to meet emotional as well as physical needs		X		X
e. Safety				
(1) Overall structural safety, traffic control proper lighting, space for each item of equipment, removal of exhaust fumes, and suitable firefighting equipment for each area		X		X
f. Economy				
(1) Adaptation of the building to the site; building spaces that are related functionally; building perimeter lines straight, simple, and short		X		X

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	Cudahy Yes	Cudahy No	So. Milw. Yes	So. Milw. No
3. Program Considerations				
a. General classrooms for lecture or discussion-type activities		X		X
b. Laboratories and shops for demonstration and project activity		X		X
c. Preparation rooms and instructional supply storage		X		X
d. Project storage and student lockers	X		X	
e. Library and resource materials		X		X
f. Classroom equipment and furniture	X		X	
4. Program Considerations				
a. Private and general offices		X		X
b. Guidance, counseling, and conference rooms		X		X
c. Health Clinic		X		X
d. Cafeteria and food service		X		X
e. Personnel records vault	X		X	
f. Custodial and maintenance shops		X		X
g. Central supply receiving and storage rooms		X		X
h. Toilets, drinking fountains, and rest rooms	X		X	
5. Environmental Controls				
a. Proper heating and ventilation to control room air temperature, humidity, purity, and distribution		X		X
b. Accoustical treatment to control or minimize sound transmission in and between classrooms, shops, laboratories, and other areas		X		X
c. Balanced electrical lighting, natural light, and interior finishes		X		X
6. Auxiliary Needs				
a. Electricity, gas, and water	X		X	
b. Sewage and waste disposal	X		X	
c. Inter-communication system		X		X
d. Program clock and emergency bell system	X		X	
e. Closed circuit TV		X		X
7. Area and Space Relationships				
a. Proper relationships of each area to others to facilitate traffic flow, reduce noise and confusion, and to complement program planning		X		X
b. Noisy areas separate from other areas		X		X
c. Ease of movement of supplies and equipment		X		X
d. Accessibility of parking areas to the administrative offices and instructional learning areas		X		X
e. Various rooms or areas zones for independent use as needed or desired		X		X

NOTE: All reactions should be made in light of established guidelines and all negative reactions must be justified in detail.

CHAPTER VI

SUMMARY

The South Milwaukee County Survey was conducted to determine the post high school educational needs that seemed to be most pronounced and prevalent in the area. The study encompassed eight school districts. These were the districts of Whitnall, Greenfield, Greendale, Franklin, Oak Creek, South Milwaukee, St. Francis, and Cudahy. The study had been initially set into motion by a committee of eight superintendents from the above mentioned school districts who agreed that some sort of an evaluation was necessary to determine what post high school educational needs were identified in the South Milwaukee County area.

This committee of eight superintendents working with the Lakeshore Curriculum Study Council involved the State Board of Vocational and Adult Education in laying the groundwork for the survay. By the Fall of 1965 the survey responsibility had been principally shifted to the Center for Vocational Studies located at the University of Wisconsin campus in Madison. By the Spring of 1966 the survey team was deeply involved in obtaining raw data from the study area. By the Fall of 1966 the data had been gathered and consisted of the information relevant to five major areas of concern. These were: (1) the characteristics and attitudes of former students in the public schools of South Milwaukee County; (2) the characteristics, attitudes, and aspirations of high school seniors in the eight school district high schools at tne end of the 1965-66 school year; (3) the demographic features of the South Milwaukee County area population through an interview study made of 1,000 randomly selected residencies in the study area; (4) reactions of the employers of residents of South Milwaukee County (these employers were contacted by questionnaire and queried regarding their feelings

about the level of skill training reflected by their employees living in South Milwaukee County); (5) the existing facilities for vocational education both in the South Milwaukee County area and in the city of Milwaukee.

The previous chapters of this report have each dealt with one or more of the aforementioned areas of concern and have reported appropriate specific statistical data. The following section of this chapter, conclusions, will contain the most salient findings which emerged from the examination of the data.

CONCLUSIONS

The first area of study concern dealt with a follow-up questionnaire sent to all students who had been juniors in any one of the eight school district high schools during the years 1955, 1957, 1959, 1961, and 1963. The major findings which can be drawn from the results of the returned questionnaires, numbering approximately one-third of the sample, are as follows:

1. Nearly fifty-five per cent of the respondents had had some college work. Approximately thirteen per cent of the total number of respondents had completed Bachelor's Degrees. A small number had gone on for work toward a Master's Degree.
2. A total of 365 or about thirty-six per cent of all respondents indicated that they had made some use of other types of training beyond high school. The most frequently mentioned listing was "on-the-job training". About thirteen per cent had utilized this form of educational training. Community adult education courses and correspondence school courses were listed next in order.
3. Nearly five times as many respondents are attending college than are utilizing vocational school and over three times as many of them are attending college

than are attending all other schools combined.

4. About two-thirds of the respondent group listed professional, managerial, clerical, sales, or service occupations as their vocational goals.
5. A great number of student follow-up respondents felt that they would need some form of schooling to reach their occupational goal. About forty-eight per cent felt that they would want to attend college. Twenty-five per cent throught they would need vocational or commercial training and about twenty per cent thought they would have to have on the job training.
6. An interesting paradox occurred in the data when we found that some two hundred fifty persons listed vocational schools as important and critical to their personal vocational goals and, yet, only sixty-nine persons answering the questionnaire were actually attending such schools.
7. It was discovered in looking at the respondents' returned questionnaires that there was a measurable disparity between the stated occupational goals of the persons and their accomplishments to date. Many people, it was determined, are yet short of their ultimate occupational goal.
8. The greatest number of respondents, about forty-four per cent, indicated that they felt that a vocational school should be the first choice for a facility of a post high school educational type in South Milwaukee County. Their second most popular choice was the four year college.

The second major area of interest in the survey dealt with the present high school seniors. The following list of conclusions reflect the major findings from the questionnaires

filled in by the seniors in the eight district high schools in the Spring of 1966:

1. The majority of seniors' fathers hold skilled and semi-skilled jobs.
2. The majority of seniors' mothers are housewives although there is a fairly large per cent of working mothers employed in clerical, sales, or service related jobs.
3. The greatest single group of parents had completed twelve years or less of schooling. A significant number had completed eight years or less.
4. The average number of children in the senior students' families totaled three.
5. A majority of seniors reported plans for further full time post high school education, though a significantly large number also reported plans for jobs after high school.
6. Those seniors planning to obtain work upon high school graduation reported their occupational choices in the following categories:
   a. service
   b. semi-skilled
   c. unskilled
   d. skilled.
7. The majority of seniors planning to go to college indicated they would enter a four year school. Most preferred publicly financed institutions.
8. College bound seniors generally chose occupational objectives in the professional-managerial, clerical and sales groups.

Conclusions stemming from the third major area of study which was concerned with the resident population of South

Milwaukee County are as follows:

1. The interview respondents were, by and large, males between the ages of 25 and 54.
2. Approximately sixty-three per cent of all the households had only one person employed.
3. Seventy-five per cent of the families had three or fewer children.
4. Ninety per cent of the families lived in single family dwellings. Ninety-one per cent of the families owned or were buying their homes.
5. Eighty-three per cent of the families had lived in the same dwelling three or more years.
6. Sixty-two per cent of the families had not moved in the past seven years. An additional twenty-five per cent had moved only once.
7. Ninety-four per cent of the respondents were married and ninety-two per cent of the respondents had been married for five years or more.
8. Of all the people employed, ninety-six per cent were employed full time and about eighty-two per cent of all employed persons lived eight miles or closer to their jobs.
9. Approximately eighty-three per cent of employed persons had done the same type of work for five or more years.
10. Eighty-four per cent of the employed respondents worked at semi-skilled, skilled, technical, or supervisory jobs in that order of frequency.
11. Forty-nine per cent of the respondents had attained a high school education while about forty per cent had less than a high school education.
12. Generally the community reflected somewhat of a conservative pattern on the belief scale. However, since the balance between conservatism and liberalism was rather close, it could be said that the community

reflected a neutral rather than a lopsided value system.

13. With the exception of the Cudahy and South Milwaukee county school districts, the respondents overwhelmingly perceived the most critical post high school educational need to be be vocational-technical training.

The fourth major area of concern included in the study involved the employers of the South Milwaukee County residents. The following conclusions reflect the general findings of the employer questionnaire:

1. It was obvious that most employers had or were having some difficulty in finding employees with suitable training.
2. The areas that employers agreed were most difficult to staff were in skilled, clerical, and/or technical activities.
3. These jobs most difficult to staff are in areas most commonly associated with vocational-technical preparation.
4. The majority of employers chose vocational-technical education as being the most needed post high school educational facility for the South Milwaukee County area, although many employers did provide some form of job preparation either on-the-job or in a separate school.
5. The need for vocational technical preparation was most critical according to potential employers, college preparation fell second in their list of needs.

A fifth area of study concern dealt with the existing facilities for post high school education in South Milwaukee County area and Milwaukee County. Three major observations

can be made in reference to these facilities.

1. Although the high schools in the area, to some degree, offer industrial arts and vocational training, these faculties have never intended that their programs fulfill the vocational-technical standards laid down by the Board of Vocational and Adult Education in the State of Wisconsin. The high school role is primarily that of providing introductory courses in the industrial arts to provide students with the opportunity to experiment and test their skills in an attempt to determine the areas best suited for them in pursuing further training beyond high school.
2. The eight high schools in the area should not be responsible for vocational training; however, they do appear to offer a fairly adequate pre-vocational program. There are two vocational schools in the South Milwaukee County area; one in South Milwaukee district the other in the Cudahy district. These two schools both offer adequate but limited vocational preparation programs at the present time. Consequently, they are meeting only a very small part of the vocational training needs in the district.
3. The third major variable in this chapter was the Milwaukee Vocational School. This educational complex is truly one of the outstanding institutions in the United States; it offers a great variety of courses and programs of a vocational technical nature. However, its roles are generally filled with students and may not offer openings to residents of the South Milwaukee County as frequently as they might wish to enroll. One important factor relevant to the vocational school at Milwaukee was that programs beyond a one

year level--those providing for second and third years of training--seem to have vacancies and would be available to people who wish to gain entrance beyond the first year.

The study report seems to point up and substantiate one major finding: that the population of residents in South Milwaukee County, employers of residents from South Milwaukee County, former students and present high school seniors in South Milwaukee County, all agree that a vocational-technical facility at a post high school level would be an important educational improvement for the area.

RECOMMENDATIONS

It was not the intent of this report that a set of recommendations be drafted by the survey team; rather, it was hoped that a survey study of the educational needs at the post high school level in the South Milwaukee County area would reveal the most salient and important educational goals to be achieved by the community. It is, therefore, recommended that the administrative personnel, together with boards of education, state officials, and community leaders work together in drafting a proposal for improved and increased post high school educational facilities of a vocational-technical nature to be made available in the South Milwaukee County area.

There are several ways in which a plan such as this may be developed. Several facilities might be developed independently in the existing school districts. One large facility might be developed and supported by residents in the South Milwaukee County area. The principal responsibility for vocational-technical training for Milwaukee County might be held to remain at the Milwaukee Vocational School with satellite institutions set up to serve the most immediate

needs in the South Milwaukee County area and to provide pathways for transference to the Milwaukee Vocational School for those people requiring more than one year programs. These are just but a few of the possible solutions to the vocational-technical emergency in South Milwaukee County but it remains incumbent upon the community leaders to provide the most suitable answer to the dilemma revealed by this study.

APPENDIX A

MILWAUKEE VOCATIONAL STUDY ADVISORY COMMITTEE

Name	Representing
Supt. C.R. Allender	Greenfield District #6
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Supt.Merton R. Bowyer	Whitnall Public Schools
Jacob Freidrick	Milwaukee County Labor Council
C. L. Greiber, Director	State Board of Vocational, Technical, and Adult Education
Supt. Harry Guzniczak	Franklin Public Schools
Director Gilbert Hirsch	Cudahy Vocational School
Supt. Frank Keller	Oak Creek-Franklin Jt. School District
Supt. William D. Knapp	Greendale School District
Supt. Charles Lacke	St. Francis School
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Supt. Walter Ploetz	Cudahy Public Schools
Guidance Director Mark Sanders	Greenfield High School
Ass't. to Director, Richard Whinfield	State Board of Vocational and Adult Education

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Citizens' Survey of Gratiot County Vocational-Technical Needs.

Michigan Univ., Ann Arbor. Bureau of School Services
Gratiot County Intermediate School District, Mich. Citizens' Study Committee
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GRATIOT COUNTY; MICHIGAN

This study dealt with finding the needs for vocational-technical education in the county through the use of questionnaires for seniors, high school graduates, and businesses. Sections covered are: (1) history, growth and development, (2) high school seniors, (3) high school graduates, (4) educational needs of business and industry, (5) legal and finance, and (6) summary and recommendations. (MM)

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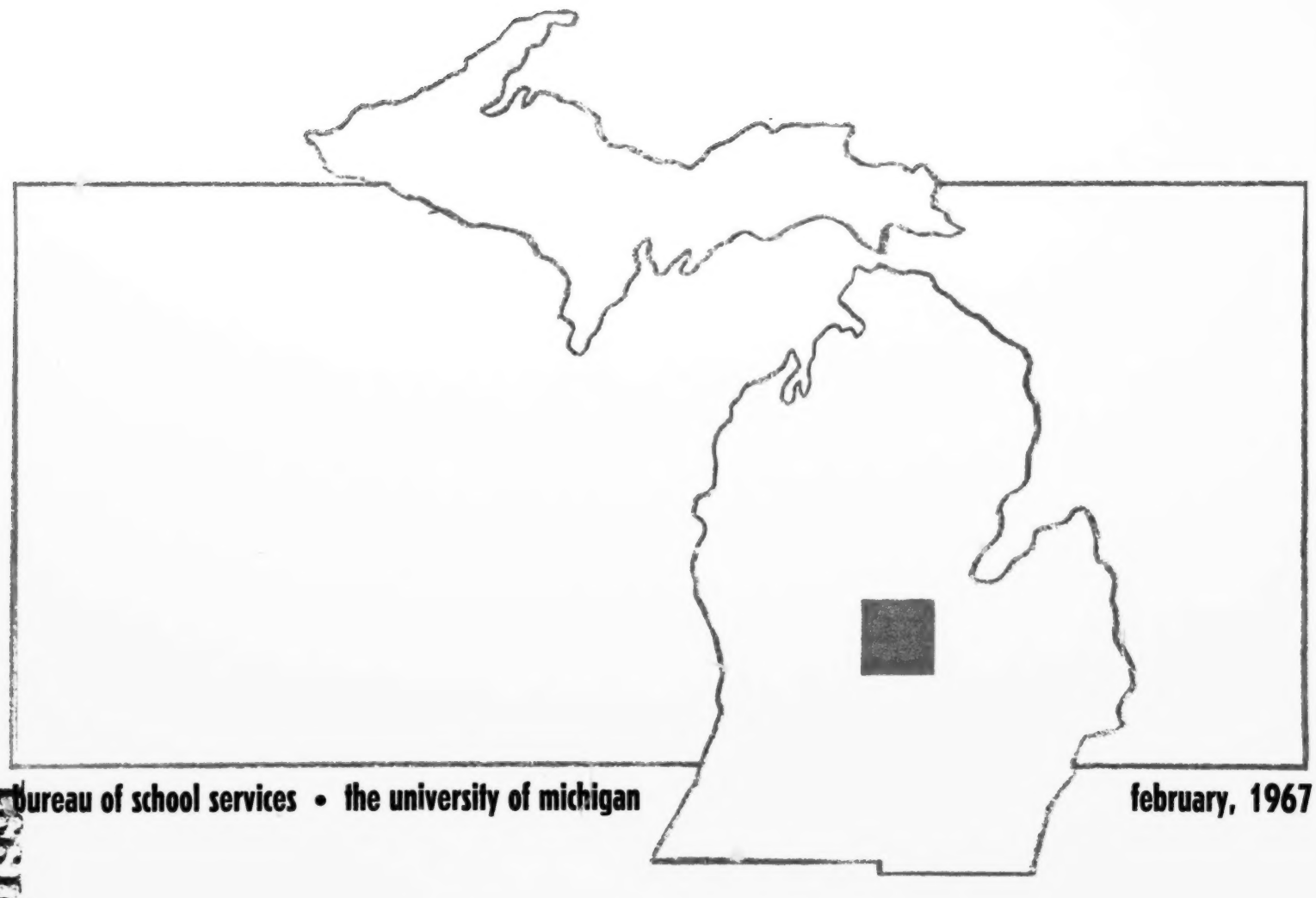
GRATIOT COUNTY

vocational-technical education study



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CITIZENS' SURVEY OF GRATIOT COUNTY VOCATIONAL-TECHNICAL NEEDS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Prepared Jointly
by the
Citizens' Survey Committee
and
The University of Michigan

Bureau of School Services
The University of Michigan
January, 1967

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Keith Wright	Fowler

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FOREWORD

The Gratiot County Intermediate School District Board and Superintendent initiated a proposal for conducting an area Vocational-Technical study in the interests of serving better the vocational education needs of area residents. Funding for such a study as proposed was shared equally by monies administered through the State Department of Vocational Education and contributions made by various individuals and agencies in the area. The University of Michigan, Bureau of School Services, was invited to provide consultant services to the study conducted by citizens of the area.

The purpose of the study was to discover through an impartial, objective and scientific approach what the needs were for vocational-technical education. This report represents the combined efforts of both lay and professional groups, each of which have devoted many hours to its preparation. Members of the Citizens' Survey Committee deserve much credit for their tireless and conscientious efforts and work in pursuing this study to a successful conclusion.

The study provides a sound basis for future action by responsible authorities. The Intermediate School District officials deserve commendation for their leadership and vision in following a procedure in assessing needs which will surely result in better and more adequate educational services to more persons. No effort should be spared to develop facilities and programs which data of this study document are needed. Considerable investment of money and energy have already been made to this end, and whatever additional investment may be necessary will be the soundest one any American community can make.

Raymond J. Young
Survey Director

Garold Dyke
Field Director

ACKNOWLEDGEMENTS

This report represents the cooperative efforts of hundreds of Gratiot County residents. Besides the 40 persons who served on the Citizens Study Committee, gratitude is expressed to the 671 high school seniors, 219 high school graduates, and 93 executives of businesses and industries who responded to the study by providing information. Many individuals have worked diligently in the planning, compilation of data, and reviewing initial drafts of material presented.

Tribute is justly due to the Citizens Committee Chairman, Mr. Charles Touzeau for his outstanding leadership in bringing the survey activities to a successful conclusion. Appreciation is also expressed to Sub-Committee Chairmen Mr. Maynard Peacock, Dr. John Kimball, Mr. Frank Strpko, Mr. Milford Cordray, and Mr. George McCall for their assistance and leadership. Appreciation is expressed also to Mr. Dan Mahoney, Superintendent, Gratiot Intermediate School District and his staff for their patience and help throughout the study. Thanks are expressed to the Ithaca Board of Education for use of school building space in which general Citizens Committee meetings were held.

A debt of gratitude is expressed to the Michigan Chemical Company, St. Louis for the contributions they made in key punching data for data processing equipment. Likewise many thanks are due the Leonard Refinery, Alma for processing data on their equipment. Both contributions materially aided and facilitated the study.

Tentative copies of the report were prepared by Dr. Leland Brode, Mr. Garold Dyke, and Dr. Raymond Young. In addition to editing the final report, Dr. Young developed the questionnaire for seniors, graduates, and businesses and industries, and planned the general design of the study. Acknowledgement is given to The University of Michigan Bureau of School Services for preparation of the study report in its final form under supervision of Mr. Dyke.

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CHAPTER I

GRATIOT COUNTY HISTORY, GROWTH & DEVELOPMENT

Gratiot County is located at the geographical center of the lower peninsula. It is less than thirty miles north from Lansing, the state capitol, and about the same distance west from Saginaw.

History. Gratiot County was officially created by an act of the territorial legislature of 1855 and named after General Charles Gratiot, an officer in the War of 1812. The period from 1831 to 1870 is an interesting story of pioneers, trying to establish homes under the most trying circumstances and battling to transform the wilderness into an expanse of fertile fields. During this struggle the County became known as "Starving Gratiot," a name which is still occasionally heard, though now the County is considered one of the most productive in the state.

In the beginning, settlement was slow because the area was far removed from navigable waters and was covered with dense woods. Swampy marshlands were created by sluggish Maple River meandering through the southern part and added to the hardships of the early settlers. Pine River in the northern part of the County probably was more of a help than a hindrance. As settlement of the County advanced and railroads were built, settlements began to grow along the railroads. These finally grew into the cities of Alma, St. Louis, and Ithaca, the county seat, and into the incorporated villages of Ashley, Breckenridge and Perrinton.

As the County developed more roads were opened and schools were built. Large lumber mills were constructed because lumbering was the first big industry in the County. After the land was cleared and drained, the soil was found to be very productive and Gratiot became a great agricultural county. For many years after the turn of the century, the sugar beet industry was important. Slovaks, Belgians, Russians, Poles, and Mexicans came as beet laborers and remained to become substantial citizens of the County.

Gratiot County, besides its diversified agriculture, has produced some oil and natural gas, as well as salt and bromides. The manufacture of automobiles first brought industry to the County. Now diversified into many kinds, the manufacturing industry seems to be on the gain in numbers of persons employed.

Farms, of economic necessity, are constantly becoming larger and more mechanized and consequently require less labor force. As a result, many have had to seek other employment in urban areas both in and outside of the County. Gratiot County is made up of a wide range of peoples, the majority of whom are rural. Its peoples, on the whole, enjoy a full community life. Economically the middle class family is much in the majority although the high income and the extremely low are represented also. The education of its citizens is very near the state average.

With the growing population, the needs of the County in many areas are growing as well. One of the most urgent is in the field of education. The needs of an expanding school population must be met. Facilities in several schools are being expanded and this "Study of Vocational-Technical Education Needs" in the County has been carried out by a group of representative citizens of the County under guidance from the Bureau of School Services of the University of Michigan.

Population and Economic Base. The population increase in Gratiot County from 1950 to 1960 was 10.7 percent as compared to 3.8 percent for the decade before. The 1960 census indicated that of the 37,012 residents, only 41.6 percent lived in urban areas, leaving 58.4 percent in rural areas. The average size of a farm is about 135 acres, and there are about 2,400 in the County. There are more young people and more retired people in the population than ever before but about the same number of working people as there were in 1940 and 1950.

The educational composition of the population is shown in Table 1 for residents over 25 years of age. It can be seen that while a higher percent of women than men had a high school education and had attended

TABLE 1

HIGHEST LEVEL OF EDUCATION ATTAINED BY PERSONS OVER AGE 25

Level of Schooling Attained	Percent	
	Men	Women
8th grade	43.8	35.0
4 years high school	36.8	43.2
1-3 years college	9.3	14.9
4 or more years college	10.1	6.8

college, a higher percent of men had received four or more years of college. The median number of years completed by men in the County was 9.7 in 1960 compared to 11.1 for women.

In 1960 there were 10,532 households with an average of 3.42 members per household. Of the 25,312 persons 14 years of age and over, only 1.6 percent were divorced. Median income per wage earner was $5,218 in 1961 with an income per capita of $1,463 and per family of $4,960. About 23 percent of all incomes were under $3,000, and 10.4 percent were over $10,000.

According to the "Industry Supplement, Gratiot County Data Sheet," distributed by the Michigan Department of Economic Expansion Research Division, January, 1964, there were in 1962, 620 industries in Gratiot County. The 34 manufacturing firms represented a loss of 11 since 1959; however, they employ 47.6 percent of all employees. A fifth are engaged

in retail trade while 11.5 percent are in services of various types with health and educational services being predominent. Eight percent are employed in transportation and other public utilities, and 7 percent were in wholesale trade. The rest are engaged in mining, contract construction and finance, insurance, and real estate. Of all industries, 574, or about 93 percent employ under twenty employees. One, a motor vehicle and equipment manufacturing firm, employs over 500 employees. Two other transportation equipment firms, a leather and leather products firm, a petroleum refining firm, and a basic chemistry plant employ 250-499 employees. Twelve other firms employ 50-250 employees, and 28 employ 20-50 workers.

This committee felt that it is impossible to obtain an accurate count of the number of people who commute each day to work outside the County. It is known, however, that many hundreds go out in all directions, especially to Lansing, Midland and Saginaw. One must assume then that wages must be maintained at a competitive scale that will keep persons with the skills needed within the County from finding jobs elsewhere. As more job opportunities become available in the community, at competitive wage scales, both commuting and natural emigration from the County will tend to be reduced. With unrealistic wages, the County will be but a training ground for industries elsewhere.

Gratiot County has developed its agricultural potential to an amazing degree; and with its strategic location in the heart of a rich state, much more industrial growth will likely be seen in our community. But, the human resources must not be fogotten as they are most important of all. Good education is our most important tool; not only through the high school level, but post high school vocational, technical and academic, as well as adult re-education and retraining for different jobs. Changes and progress come so quickly that we must continually appraise our educational techniques in order that we not fail in meeting the educational challenges in our community, now or in the future.

Basic Social Services.

1. Health. There is one hospital located in the County--the Gratiot Community Hospital in Alma. The County is also served by the Carson City Hospital located in that town. The former is predominately staffed by M.D.'s and the latter is wholely staffed by D.O.'s (Carson City is located in Montcalm County, on M57, with the village limits extending to the Montcalm-Gratiot boundary). The Alma hospital staff has members from the County of Isabella which adjoins Gratiot on the north.

There are 12 dentists and 33 doctors (22 M.D.'s and 11 D.O.'s) having offices in the County.

There are four large nursing homes in the County and numerous homes caring for three or less patients. The Michigan Masonic Home and Hospital is located in Alma. A recently completed addition enables the Home to care for 425 residents.

2. Welfare. Public welfare in Gratiot County is administered by two agencies, the Gratiot County Bureau of Social Aid and the Gratiot County Department of Social Welfare. These agencies are merged into one

department with seven caseworkers in the County.

The Bureau of Social Aid is state administered, but the source of its funds is approximately 50 percent federal and 50 percent state on the regular payroll. For hospital cases, the federal and state government pay 90 percent and the County, 10 percent, except for the Aid to the Disabled and the County Adult Hospitalization where the County carries the largest percent of the cost. The Bureau administers the following programs:

1. Old Age Assistance
2. Aid to Dependent Children
3. Aid to the Blind
4. Aid to the Disabled
5. Direct Relief
6. Medical Assistance for the Aged
7. County Adult Hospitalization

During each month Gratiot County has 762 individuals and 153 families receiving aid for a total expenditure monthly of $89,806.21. These figures are very stable and vary very little during the year.

Although this section deals with public welfare, the work of some of the private and semi-private welfare agencies also will be discussed.

The Central Michigan Child Guidance Clinic is located in Mt. Pleasant, Michigan, but serves Gratiot as well as other counties. Its purpose is to provide diagnosis and treatment for children referred by local agencies. The Gratiot County Association for Retarded Children, Inc., maintains classes for trainable retarded children, provides bus service for this school, has a home visitor service for parents and in general tries to help retarded children to live normal lives. The Gratiot County Chapter of the Michigan Society for Crippled Children and Adults attempts to provide for the needs of the crippled.

The Gratiot County Health and Welfare Center, which is supported by area churches and community groups, helps meet the temporary needs for clothing and other help for both children and adults. The Salvation Army works for the relief of needy persons, and the Migrant Workers Association helps the laborers and their families who come into the County during the summer. Needy, dependent and neglected children are cared for at the Michigan Regular Baptist Children's Home. This agency provides institutional care, home placements, case work service and counseling for unwed parents. Part of the funds supporting this home are paid by Probate Courts referring children to the home.

3. Cultural Benefits. Two colleges are located in Alma. Alma College is a co-educational liberal arts college affiliated with the Presbyterian Church. Alma College makes available to the community a number of cultural events including symphony concerts and other music programs, lectures, plays and art exhibits. The Alma College Library provides a vast amount of research material which may be made available

to those who require its use. Northwood Institute of Midland has a branch in Alma. Central Michigan University and Michigan State University also offer extensive courses in Gratiot County.

Alma, Breckenridge, Ithaca and St. Louis each have community libraries which are used extensively by adults, students and children.

The Alma Arts and Craft Center offers classes in painting and a variety of crafts to all age groups in the community.

Adult Education programs offer a variety of classes in bridge, golf, dancing, knitting and many other cultural and self-improvement classes.

4. Civic, Fraternal and Service Organizations. Within each community represented in the proposed area under study, there are a number of service clubs, civic associations and fraternal organizations, whose primary purposes are to render services to their community, but which also have many social functions for the enjoyment of their members.

Among the major service clubs active in Gratiot County are the Business and Professional Women's Club, Lions Club, Kiwanis Club, Civitan Club, Rotary Club, Chamber of Commerce and Junior Chamber of Commerce. These groups take on such special projects as dental care, boy's work, help for the blind, eye care, clothing for needy children and many others.

The County's fraternal organizations, including the Masonic Lodge, Knights of Columbus, Elks, Moose and Knights of Pythias, also help throughout the area by aiding those in need. All of these groups provide a meeting place for fellowship and a means by which we can help one another.

Young people may participate in one of thirty Boy Scout Troops, thirty-eight Girl Scout Troops and sixty-six 4H Clubs throughout the County. Other youth organizations include various fraternal and political groups as well as many school related organizations.

5. Religious Representation. Gratiot County boasts many churches, with Catholic and most Protestant denominations represented. There are at the present time fifty-six churches in the County. The Gratiot County Ministerial Association works to unite the efforts of the various churches in the County. In the last decade church membership has increased about nine percent.

Besides serving the thousands of our residents, who are members of their respective congregations, many of the local churches cooperate in Good Friday observances and baccalaureate services in connection with high school graduation. Besides activities of a purely religious nature, many of the local churches sponsor scout organizations and cooperate in other civic movements.

6. Social Activities. The citizens in Gratiot County can be occupied with as many activities as they wish.

Women's groups include several women's clubs, art clubs, garden clubs, child study groups and educational groups.

For those interested in sports there are two country clubs, boating, riflery, softball and riding clubs. Dancing is popular, with both square and round dancing clubs attracting many participants.

There are local chapters of singing groups for both men and women. Groups which support school bands are active.

There are social fraternal organizations in the County as well as a club for senior citizens.

Several clubs and community centers provide educational and recreational activities for our youth. Other entertainment facilities include community swimming pools, billiard clubs, bowling alleys and both drive-in and in-door movie houses.

Communication and Transportation Facilities. There are 115 miles of state highway (all hard surface) in the County. Highway US27 divides the County nearly in half north and south. M57 crosses the County in the lower quarter, M46 crosses in the north quarter. This gives the County three main roads across the County approximately equidistant from each other. Two-hundred and seventy-three miles of the 1200 miles of rural roads are hard surfaced. Road construction work in the County in 1965 amounted to $360,319. Construction work for 1965 is estimated to amount to approximately $310,000.

Bus service is provided by the Mercury Line primarily for the convenience of those who work in the area east of this County. There is no Saturday, Sunday or holiday service. The North Star Line service extends northward to the Soo and, in Lansing, makes connections with numerous other lines.

No known railroad passenger service is available in the County. Serving the area for freight are the Ann Arbor (north and south); the Chesapeake and Ohio (east and west in the north part of the County) and the Grand Trunk (east and west in southern part). No known scheduled passenger airline service exists at present. A new airport scheduled to be built in the Alma area makes regular scheduled passenger service a possibility. (Tri-City is served by United Airlines--34 miles from Alma. Lansing airport--49 miles from Alma.) One radio station is located in the County (WFYC). Gratiot County became completely direct dial telephone on July 26, 1965. Alma is one of the largest toll centers in Michigan. A microwave system to be used will extend the service of the toll circuits. These will be top-grade circuits and should be ready for service by January, 1966. It is expected that they will be handling government calls on these circuits within two years. There is also the

possibility of having closed circuit television available through the facilities of the telephone compnay. Telephone service is given to approximately 12,893 homes as follows:

Alma	5594	Middleton	551
St. Louis	2435	Pompeii	322
Ithaca	2201	Riverdale	300
Breckenridge	1235	Ashley	255

There are no further changes in the services of the company at this time except to replace the central office at Ashley, which will be completed in the very near future.

The County is served by three (3) weekly newspapers published within the County. Daily types are not published in the County.

Alma is served by six (6) motor freight companies, three (3) of which maintain terminals in Alma.

Past and Projected Public School Enrollments. During the decade 1955-65, enrollments in grades 1-12 of the public schools increased gradually. Actual enrollments in grades 1-12 for each year during 1955-56 through 1964-65 were obtained from the records. Annual average rates of change were computed for the movement of pupils from one grade to the next from one year to the next. Such an index of change, the grade survival ratio, reflect in and out migration of the populace with school age children, death rates, promotion policies, proportion of non-attending handicapped children, and non-public school enrollments. The average annual index of change for the past decade is a sound basis for projecting public secondary school enrollments during the next ten years on the assumption that conditions, especially economic ones, will remain fairly stable. Shown in Table 2 are past and projected public school enrollments for grades 9-12. It can be

TABLE 2

PAST AND PROJECTED ENROLLMENTS GRADES 9-12

Years	Number Enrolled	Years	Number Projected
1955-56	2136	1965-66	2898
1956-67	2269	1966-67	2914
1957-58	2387	1967-68	2911
1958-59	2527	1968-69	2940
1959-60	2568	1969-70	2920
1960-61	2623	1970-71	2916
1961-62	2743	1971-72	2909
1962-63	2968	1972-73	2958
1963-64	2912	1973-74	3013
1964-65	2976	1974-75	3061
		1975-76	3129

determined that between the school years 1955-56 and 1964-65, enrollments in these grades increased 39.3 percent; however, during the next decade the increase is expected to be only about 5 percent. If there was to be major industrial expansion with its influx of new people, existing educational plants would be hard pressed to take care of immediate needs. On the assumption that about a fifth of the high school youth would be interested in a vocational-technical type of program there would be about 588 in 1968-69. If after facilities were provided and programs developed there was an increment of one percent per year up to 27 percent, in 1975-76, it might be expected that around 840 youth would be served from Gratiot County.

Summary. Data presented by the Study Committee indicate that:

1. The County of Gratiot is predominently rural, sparsely populated, diversified in terms of population origin, and consists primarily of a middle class socio-economic populace in which educational attainment is slightly lower than for the state as a whole.

2. The area is accessible in all directions by well improved roads and is served well by public ground transportation and communication facilities.

3. The area is relatively stable with many persons moving from farm to village and from the area either to live or for employment purposes in order to earn a living.

4. An expected high school enrollment of 3,129 in grades 9-12 in 1975-76 would contain possibly 840 youth who would take advantage of vocational-technical educational programs if they were available. Nearly 600 youth might be served in this fashion in 1968-69 if programs and facilities were available.

CHAPTER II

A STUDY OF GRATIOT CCUNTY HIGH SCHOOL SENIORS

Introduction. One important part of assessing the post-high school educational needs of a community is a study of the plans, aspirations, interests, and abilities of youth. Previous studies have indicated that plans of high school seniors are predictors of post-graduation actions with a validity sufficient to warrant careful attention. Many of the same influences and forces which affect the formulation of plans tend to be those which operate to influence their implementation and determine the extent to which a senior is likely to follow them. It is important to ascertain the extent to which an area contemplating a post-high school educational program contains youth who can probably profit from various types of advanced educational and training programs designed particularly for their wants and needs.

It is significant to identify obstacles which may be associated with post-high school non-attendance and lack of motivation of talented youth to pursue higher levels of education. Assuming the characteristics of seniors in 1964-65 are similar to those who will be succeeding them during the several consecutive years ahead, certain conclusions based upon a study of them can serve as a basis upon which to offer predictions for the future. To this matter, this portion of the report is directed.

During the spring semester, 1965, questionnaires developed for the purpose were modified in final form by the Citizens' Educational Needs Sub-Committee and local high school principals and counselors. The questionnaire was administered with standardized procedures to all seniors of the six public high schools in Gratiot County. To eliminate bias in responses, the seniors were told only that the study was being conducted to obtain information for improving educational opportunities, and no reference was made to its being part of a vocational-technical education or community college survey. Questionnaire responses from 343 boys and 328 girls were coded for IBM processing by members of the committee. The data were then key-punched by the Michigan Chemical Company of St. Louis and processed by the Leonard Refinery at Alma. Following are the results of the study relative to assessing post-high school educational needs.

Of the 671 seniors who participated, one-third were from Alma High School, 20 and 18 percent respectively from the Ithaca and St. Louis high schools, 12 percent each from Breckenridge and Fulton, and 5 percent from Ashley High School.

Mobility and Nature of Student Population. For future educational planning it is important to determine whether the prospective student body is composed of persons who have been in the area for some length

of time, or whether it changes rapidly due to constant migration. Rate of population immigration into the area can be determined by examining the length of time the present seniors have resided in the county. These data are presented in Table 3 . These findings reveal that 82 percent of the seniors have lived in the Gratiot County area for at least three years and that 79 percent have been there at least six years, or since junior high school. Seven of every 10 have lived in the area over 10 years. While these data do not reflect out-migration of youth from the area, they indicate that of those currently in school, a considerable proportion have been there a long time. Only 5 percent have resided there for less than 3 years. These findings indicate a high degree of population stability.

TABLE 3

LENGTH OF TIME HOME HAS BEEN IN GRATIOT COUNTY

Time of Residence	Percent By Sex		
	Boys	Girls	Both
Less than a year	2	2	2
1-2 years	2	3	3
3-5 years	3	4	3
6-10 years	9	9	9
Over 10 years	72	69	70
Not in area	8	10	9

Fifteen percent of all seniors were found to be living with someone other than both parents while attending school. Eight percent were living with only one of their parents. This represents those from homes broken by death, separation or divorce. One percent lived with neither father nor mother, and 5 percent indicated "other."

Of all the seniors, 67 and 50 percent respectively of the boys and girls worked part-time during the school year.

Educational Intentions of Seniors Enrolled in Spring of 1965. All seniors were asked if their future plans included going to college somewhere. Data summarizing the response are presented in Table 4 . From this table one can observe the number and percent of boys and girls with the several educational intentions. For example, it can be seen that 73, or 20 percent, of the boys and 91, or 27 percent, of the girls do not include college attendance in their future plans. This represents 24 percent of all seniors. Forty-six and

44 percent respectively of the boys and girls expressed definite plans for college attendance. Also, 9 percent of both boys and girls indicated their plans "probably" would include going to college somewhere. Eleven percent of the seniors "didn't know" whether future plans would include college attendance.

TABLE 4

SENIORS' PLANS FOR COLLEGE ATTENDANCE

Plan About College Attendance	Boys		Girls		Both	
	Number	%	Number	%	Number	%
No	73	20	91	27	164	24
Probably Not	30	8	29	8	59	8
Sub Total	103	28	120	35	223	32
Probably So	33	9	31	9	64	9
Yes	160	46	147	44	307	45
Sub Total	193	55	178	53	371	54
Don't Know	47	13	30	9	77	11

Where Seniors Plan to Attend College. Seniors who had definite plans for college attendance or who thought they "probably" would attend were asked to indicate where they planned to attend. These responses are presented in Table 5. In Table 5 it can be seen that 19 percent of the boys and 12 percent of the girls whose plans definitely or probably include college attendance expect to attend Michigan State University. Seventeen percent of the seniors with plans for college expect to attend Central Michigan University and 13 percent indicated Ferris State College. Twenty-seven percent expect to attend a college in Michigan other than those listed and 15 percent expect to attend a college outside the state.

Besides data showing what percent of college bound seniors plan to attend each of several institutions are data indicating percents of all seniors who plan to attend each various institutions. It can be observed that 10 percent of all senior boys and 6 percent of all senior girls, or 8 percent of all seniors plan to attend Michigan State University. Nine percent of all seniors plan to attend Central Michigan University, and 7 percent expect to enroll at Ferris State College. Forty-five percent of all seniors did not respond; this compares with 43 percent who either did not know whether future plans included college or had no plans.

TABLE 5

WHERE SENIORS EXPECT TO ATTEND COLLEGE

College or University	Percent of All Seniors			Percent of Seniors with Plans For College		
	Boys	Girls	Both	Boys	Girls	Both
Mich. State Univ.	10	6	8	19	12	16
Central Mich. Univ.	7	11	9	13	22	17
Univ. of Mich.	1	-	.4	2	-	1
Ferris State Col.	9	4	7	17	9	13
Alma College	2	-	1	3	2	2
Delta College	.3	3	1	.5	6	3
Mich. Technological University	3	-	1	6	-	3
Northwood Institute	1	2	1	2	4	2
Other Col. in Mich.	11	17	14	21	35	27
Other Col. outside Michigan	10	5	8	18	11	15
No Response	42	48	45	-	-	-

Youth Plans for Period Immediately After Graduation. To ascertain the plans of youth for the immediate future and as a validity check on responses concerning whether future plans include college attendance, all seniors were asked to indicate what they would probably do the next year after high school graduation. Results are presented in Table 6 by plan for college attendance. Such analyses indicate the extent to which seniors who plan to attend college intend to do so the next year or whether they intend to delay college entrance to a time later than the next year after graduation. In Table 6 opposite each type of post-graduate plan and under the response as to whether future plans include college attendance is given the percent who intend to do a given thing the next year following high school graduation. For example, it may be observed that of boys whose future plans definitely do not include college attendance, 76 percent expect to work on a job, 9 percent expect to enter military service and 5 percent expect to work at home. The remainder of the table is to be interpreted in a similar fashion. Since boys were asked to check only one choice, percents equal 100, less non-responses, but girls who may plan to become a housewife and also work or attend school were permitted two choices. Therefore, percents for girls total to more than 100.

TABLE 6

PLANS FOR COLLEGE DISTRIBUTED ACCORDING TO PLANS FOR NEXT YEAR AFTER GRADUATION

Plans for Next Year	Boys (Percent) No	Prob. Not	Prob. So	Yes	Don't Know	Girls (Percent) No	Prob. Not	Prob. So	Yes	Don't Know
Work on a Job	76	73	48	5	72	73	86	67	16	83
Housewife	-	-	-	-	-	44	23	6	-	33
Military Service	9	13	9	1	8	4	3	3	-	6
Work at Home	5	9	-	1	4	8	-	-	-	6
Attend Col.	-	-	15	83	-	-	-	31	73	-
Attend Bus. College	-	-	6	3	2	1	10	12	12	13
Attend Trade or Technical School	1	3	18	3	6	3	-	6	4	6
Attend Nursing School	-	-	-	-	-	7	-	6	4	6
Don't Know	1	-	-	-	2	2	-	3	-	6
No Response	8	3	3	3	5	1	6	3	4	-

It can be observed that 83 and 73 percent respectively of boys and girls indicating definite future plans for college attendance plan to enroll the year after high school graduation. Six and 16 percent respectively plan to enter either a business college or a trade or technical school, and 4 percent of the girls plan to enter nurses training. Only 5 percent of the boys expressing definite plans for college expect to work on a job and thus delay their formal education. A total of 144 boys and 141 girls whose future plans definitely include college attendance somewhere might be expected to enter a post-high school educational institution during the year following high school graduation.

Only 15 percent of the boys and 31 percent of the girls who thought future plans "probably" would include college expect to attend the year following graduation. However, 18 percent of the boys in this group expect to attend a trade or technical school and 12 percent of the girls expect to attend a business school.

If all seniors would enroll in a college, a business college, a nurses training school or a trade school who expect to do so during the next year after graduation, these would be approximately 346, or

52 percent, of all seniors continuing their schooling. Six percent would be in a business college, 4 percent in a trade or technical school, 3 percent in a nurses' training school, and about 38 percent would be in a regular college, community college or university.

In general, data regarding immediate post-graduation plans of youth tend to verify the expressed intentions for including college somewhere in future plans. Eighty-nine percent of the boys and 93 percent of the girls whose plans definitely include college attendance expect to attend some type of educational institution the next year following high school graduation.

Curriculum Distribution by Plan for College. An analysis of the educational aspirations was made according to type of curriculum in which the seniors were enrolled. This was to ascertain (1) the extent to which youth who aspire to college are enrolled in curricula appropriate to that goal, and (2) the extent to which youth not planning on college are enrolled in a college preparatory curriculum. Both reveal in part the effectiveness of educational guidance and the extent to which youth have made realistic choices. These data are presented in Table 7 .

TABLE 7

PERCENT OF SENIORS BY PLANS FOR COLLEGE
ACCORDING TO HIGH SCHOOL CURRICULUM

High School	No		Prob.Not		Prob. So		Yes		Don't Know	
Curriculum	B	G	B	G	B	G	B	G	B	G
Commercial	4	53	6	58	6	38	5	23	4	46
Col. Prep	2	7	10	10	15	12	78	63	10	6
Shop	21	-	6	-	15	-	3	-	12	-
Agriculture	19	-	20	-	6	-	4	-	14	-
General	50	31	50	27	57	41	6	5	51	40
Homemaking	-	2	-	3	-	3	-	2	-	6
Other	1	2	6	-	-	-	1	-	2	-
No Response	-	2	-	-	-	3	1	4	4	-

B = Boy and G = Girl

It can be seen that of the boys whose plans definitely do not include college, only 2 percent were enrolled in a college preparatory curriculum while one-half were enrolled in a general curriculum, approximately one-fifth each in an industrial arts and an agriculture curriculum, and 4 percent in a commercial curriculum. Of the girls who definitely have no plans for college attendance, 53 percent were enrolled in a commercial, 31 percent in a general, 7 percent in a college preparatory, and 2 percent in a homemaking curriculum.

Of youth with definite plans for college attendance, 78 and 63 percent respectively of the boys and girls were enrolled in a college preparatory curriculum. Six percent of the boys were in a general and 5 percent in a commercial curriculum. Twenty-three percent of the girls were in a commercial curriculum and 5 percent in a general curriculum. In fact, of all seniors except those whose plans definitely include college attendance, the largest proportion of the boys were in a general curriculum and the largest proportion of the girls were in either a general or a commercial curriculum. These data indicate that high school curriculum planning had been well accommodated to educational intentions.

Relationship of Academic Rank to Plans for College. All the seniors were asked to indicate, to the best of their knowledge, whether they were in the top, middle, or lower third of their graduating class. These results are shown in Table 8 . Apparently there was a tendency of many who must have been in the lower third to consider themselves in the next higher level. This particular pattern was fairly consistent among all six senior classes.

TABLE 8

SENIORS' SELF-EVALUATION OF THEIR ACADEMIC RANK

	Percent		
Rank in Class	Boys	Girls	Both
Top Third	31	41	36
Middle Third	54	52	53
Lower Third	14	4	9
No Response	1	2	1

To determine the extent to which youth aspiring to college attendance have earned grades sufficiently high to predict success, an analysis was made of their indicated plans for college in relation to their perceptions of their academic rank in their class. The analysis also reveals the extent to which good students may not aspire to college. The data in Table 9 present the percents of seniors by three levels of academic rank who indicated each of the various plans for college attendance. It can be seen that of the boys ranking in the top third of their class, 85 percent have definite plans for college and an additional 4 percent "probably" will attend. Only 3 percent of these boys indicated they definitely had no plans to attend college, 2 percent indicated "probably not" and 2 percent didn't know. Seventy-three percent of the girls ranking in the top third of their class had plans which definitely or probably included college and 21 percent had plans which definitely or probably did not

include college. Eighty percent of all seniors in the top third of their class, 42 percent of those in the middle third, and 22 percent of those in the lower third have plans which definitely or probably include college attendance.

TABLE 9

PERCENT OF SENIORS WITH EACH ACADEMIC RANK ACCORDING TO PLANS FOR COLLEGE

Plans for College	Top Third			Middle Third			Lower Third		
	B	G	Both	B	G	Both	B	G	Both
No	3	16	11	21	34	28	59	40	54
Probably Not	2	5	4	12	11	12	8	6	8
Probably So	4	4	4	13	11	12	6	13	8
Yes	85	69	76	32	28	30	10	26	14
Don't Know	2	3	3	19	13	16	14	13	14

Another type of analysis is to determine what proportions of youth with a given plan for college attendance rank in each of the three levels--top third, middle third, and lower third of their class. These data for all seniors appear in Table 10 . It can be observed that of those seniors whose plans definitely do not include college, 16, 60, and 20 percent respectively consider themselves in the top, middle and lower thirds of their class. The corresponding percents of those whose plans definitely do include college are 60, 35 and 2. (These figures should be compared with those in Table 8 , i.e., 36, 53, and 9 percents in the top, middle and lower thirds.)

TABLE 10

PERCENT OF SENIORS WITH EACH PLAN FOR COLLEGE ACCORDING TO ACADEMIC RANK

Academic Rank	Plan for College				
	No	Prob. Not	Prob. So	Yes	Don't Know
Top Third	16	18	17	60	10
Middle Third	60	72	70	35	76
Lower Third	20	8	7	2	11
No Response	1	-	4	1	1

In general, the seniors' plans for college attendance seem to be in keeping with their academic ability.

Reasons for Plans Not Including College Attendance. All youth whose future plans definitely or probably did not include attending college somewhere were queried as to their reasons. In Table 11 opposite a given reason is shown the percent of boys, girls, and of both who indicated it as the most important reason that their future plans did not include college attendance. For example, it may be observed that about one-fourth of all seniors whose plans do not include college indicated it was because they wanted to work and 13 percent indicated it was because college was too expensive. Nineteen percent of the girls indicated the most important reason was that they wanted to get married. Fifteen percent of the boys and 7 percent of the girls gave inability to make good grades as the most important reason. Only 4 percent indicated that they didn't plan to attend because they were tired of school and only 1 percent because they felt college was not necessary or that it was a waste of time.

TABLE 11

PERCENT OF SENIORS WHOSE PLANS "DO NOT" OR "PROBABLY DO NOT" INCLUDE COLLEGE ATTENDANCE, ACCORDING TO REASON GIVEN

Reason	Boys	Girls	Both
Tired of School; Had enough school	6	2	4
Want to Work and Make Money	29	23	26
Too Expensive ; Can't afford it	10	16	13
Want to Get Married	5	19	12
Parents Object	-	1	.5
College Not Necessary; Waste of Time	2	1	1
Can't Make Good Enough Grades	15	7	11
Other Reason	12	13	13
No Response	18	15	16

Effect More Money Would Have on Plans. Each respondent not planning on attending college was asked if he would change his plans if he had more money. These responses are shown in Table 12 according to the percent of seniors indicating "Yes," "No," or "Maybe" as to whether plans would change. From the table it can be determined that 12 percent of the seniors who don't have plans for college attendance indicated that their plans would change if they had more money, while another 30 percent thought they might change.

Forty-eight percent indicated that with more money they still wouldn't plan to attend college. Those whose plans would change constitute 4 percent of all the seniors in Gratiot County, and those who thought "maybe" their plans would change constitute an additional 14 percent. Thus, there are 128, or almost one-fifth of all the seniors in the area whose plans might be altered by more money.

TABLE 12

NUMBER AND PERCENT OF SENIORS NOT PLANNING ON COLLEGE WHO WOULD CHANGE PLANS IF THEY HAD MORE MONEY

Would change plans	Boys		Girls		Both	
	No.	%	No.	%	No.	%
Yes	12	8	25	16	37	12
No	70	46	76	50	146	48
Maybe	57	38	34	22	91	30
No Response	11	7	15	10	26	8

Seniors who indicated their plans would or might change to include college attendance if more money were available were asked how much would be needed. Nine percent indicated it would take less than half the expenses, or an amount ranging up to $600.00. Forty-nine percent indicated it would take an amount large enough to pay half the expenses and 43 percent said they would need enough to pay all their expenses.

Educational Interests of Youth Whose Future Plans Do Not Include College Attendance. All seniors without plans for college attendance were asked to indicate the types of advanced education in which they would have an interest provided opportunity were available in Gratiot County. A total of 158 youth, or 52 percent, indicated an interest in advanced trade, business or professional technical training. Only 4 percent would have an interest in the first two years of regular college work which could be transferred to the junior year of a four-year college or university. Thirty-two percent would be interested in neither and 10 percent did not respond.

Further inquiry was made as to types of training in which seniors without plans for attending college might have an interest. These data appear in Table 13 . From this table one can observe that 41 percent of the boys and girls would be interested in on-the-job training with a company or industrial firm. Sixteen percent of the boys and 6 percent of the girls expressed interest in working as a

paid apprentice or helper to learn a trade, and 14 percent of the boys and 5 percent of the girls, were interested in entering military service for training. Thirteen percent of the boys and 27 percent of the girls were interested in no further training. There were an additional 11 percent who did not respond to this question. In all, there were 94 seniors, 14 percent of all the seniors in the county, who are apparently not interested in further training of any kind.

TABLE 13

TYPES OF TRAINING OR EDUCATION OF GREATEST INTEREST TO YOUTH NOT PLANNING ON COLLEGE

	Percent		
Type of Education	Boys	Girls	Both
Work for Several Years as a Paid Apprentice to Learn a Trade	16	6	11
Post-Graduate High School Work in High School at Night	-	2	1
Enter Military Service for Training	14	5	10
On-the-job Training With a Company or Industrial Firm	41	40	41
Correspondence Study	2	1	1
Adult Education Classes	-	5	3
None of the Above	13	27	20
No Response	10	11	11

Educational Plans and Perceived Family Income Status. The seniors were asked to indicate one of several responses to describe their family's income. Data in Table 14 show the analysis of their plans for college attendance according to their perceptions of family income level. It can be observed that of the youth who definitely are not planning to attend college, 33 percent indicated they have frequent or occasional difficulty or have only necessities, while 64 percent feel they are comfortable or well-to-do. This is in contrast to those whose plans definitely include college. Of these seniors only 12 percent described their family income as low and 84 percent described it as comfortable, well-to-do, or wealthy. It is apparent that perceived family income level is directly associated with plans for college attendance.

TABLE 14

PERCENT OF SENIORS BY PLANS FOR COLLEGE
ACCORDING TO FAMILY INCOME STATUS

Perceived Family Income Status	Plans for College: No	Prob. Not	Prob. So	Yes	Don't Know	All Seniors
Frequent Difficulty Making Ends Meet	6	3	3	1	2	3
Sometimes Have Difficulty Getting Necessities	7	-	3	1	3	2
Have Necessities, but Not Many	20	15	14	10	16	14
(Sub-Total)	(33)	(18)	(20)	(12)	(21)	(19)
Comfortable, but Not Well-to-do	54	74	67	69	59	64
Well-to-do	10	5	10	14	14	12
Wealthy	-	-	1	1	-	.3
(Sub-Total)	(64)	(79)	(78)	(84)	(73)	(76)

Perceived Parental Attitude and Seniors' Educational Interests. Previous studies have shown a relationship to exist between attitudes which youth perceive their parents have about post-high school education and their own plans or intentions. Perceived parental attitudes, insofar as they are valid reflections of parents' true attitudes, also reveal indirectly the strength of moral support which is likely to exist in a community concerning programs of education beyond high school.

Data from this analysis are shown in Table 15 . It is evident that the attitude of parents toward continued education for their children is associated with education plans which youth express. None of the seniors definitely not planning and only 1 percent probably not planning to attend college indicated that their parents insisted or expected that they go, in contrast to 43 percent of those seniors who definitely plan to attend college. On the other hand, approximately one-fourth of those whose plans definitely and probably did not include college attendance reported that their parents didn't care, while only one percent of those with definite plans for college reported this kind of parental attitude. Eighty-five percent of the seniors who don't know whether they will attend college indicated that their parents wanted them to go if they so desired.

TABLE 15

PERCENT OF SENIORS BY PLAN FOR COLLEGE AND PERCEIVED PARENTAL ATTITUDE TOWARD COLLEGE ATTENDANCE

Perceived Parental Attitude	Plan for College					All Seniors
	No	Prob. Not	Prob. So	Yes	Don't Know	
Insist or expect that I go	-	1	12	43	2	21
Want me to go if I want to	67	71	73	53	85	64
Don't care	26	25	10	1	9	11
Don't want me to go	3	1	1	-	1	1

Of all the seniors, 21 percent indicated that their parents expected them to attend college and 64 percent that their parents wanted them to if they so desired. Thus, a high proportion --85 percent--of the seniors in Gratiot County perceive their parents as having a favorable attitude toward continued education.

Relationship of Educational Plans and Educational Level of Parents, School Attendance by Relatives, and Work Status. To determine the extent to which the educational plans of youth are related to the educational levels attained by parents, an analysis was made of their educational intentions and highest level of education attained by their parents. These data appear in Table 16 . In columns under seniors' plans for college are shown the percents whose mothers and fathers had various levels of educational attainment. It is apparent that there is a direct relationship between these two factors. Youths whose parents had higher levels of attainment constitute larger proportions of the seniors who plan to attend college than they do of those who do not plan to attend. For example, 50 percent of those who definitely do not plan to attend college compared to only 16 percent of those who definitely do plan to attend indicated that their mothers had not completed high school. While 6 percent of those who do not plan on college and 38 percent who do plan to attend indicated that their mothers had some education beyond high school.

TABLE 16

PERCENT OF SENIORS BY PLANS FOR COLLEGE ACCORDING TO LEVEL OF PARENTS' EDUCATION

Highest Level of Education	Plans for College					All Seniors
	No	Prob. Not	Prob. So	Yes	Don't Know	
MOTHER:						
8th grade or less	20	27	17	4	18	13
Some high school	30	23	28	12	29	21
High school graduate	38	37	29	42	38	39
Business or trade school	3	-	7	10	3	6
Some college	1	5	4	10	3	6
College graduate	2	3	6	18	1	10
Don't know	4	3	3	1	2	2
FATHER:						
8th grade or less	34	28	25	11	29	22
Some high school	23	32	21	14	32	21
High school graduate	23	27	32	32	20	28
Business or trade school	4	1	7	6	3	5
Some college	1	1	6	11	2	6
College graduate	1	5	3	19	5	10
Don't know	9	3	1	2	5	4

It is now more likely that youth from families where relatives have completed higher levels of education will themselves aspire to education beyond high school than will those from families without this socio-cultural background. The seniors were asked to indicate whether or not they had relatives other than parents--brothers, sisters, aunts, uncles, cousins--who had attended college. Twenty-one percent of those seniors not planning to attend college reported having older brothers and/or sisters who had attended compared to 44 percent of those seniors who were planning to attend. Sixty-five percent of the former group reported they had aunts, uncles, or cousins who had attended college compared to 73 percent of the latter group.

Fifty-nine percent of all the seniors--67 percent of the boys and 50 percent of the girls--reported that they had worked part-time while attending high school. When analyzed according to plans for college the proportion of students who worked during

high school was found to be smaller in the case of those who definitely planned to attend college than it was for the others. The percentages of the various groups were: not planning to attend, 62 percent; probably not, 69 percent; probably so, 64 percent; and yes, 52 percent.

Long-Range Occupational Plans of Youth. Occupational aspirations of youth give clues to types of training beyond high school which would be required if they are to achieve their occupational goals. All seniors were asked to name their first preference for the kind of job which they looked forward to having ten years from now. These data appear in Table 17 .

TABLE 17

OCCUPATIONAL ASPIRATIONS OF SENIORS

Occupational Aspiration	Boys %	Girls %	Both %	Number
Professional (other than nursing)	37	27	32	214
Nursing	-	8	4	25
Military Service	4	.3	2	13
Office-Clerical-Secretarial	2	24	13	84
Housewife	-	19	9	61
Electricity or Electronics	1	-	.4	3
Selling-Salesman-Waitress	2	2	2	15
Drafting or Building Trades	6	-	3	22
Mechanics or Machine Shop	11	-	6	37
Agriculture and Related	6	-	3	22
Factory Foreman or Worker	9	.3	5	31
Airline Pilot or Hostess	1	1	1	4
Art (including commercial)	1	1	1	9
Run own business	2	.3	1	8
Laboratory technician (medical, dental, chemical)	.3	1	1	4
Beautician or Barber	.3	10	5	34
Religious Worker	1	.3	1	6
Entertainer	.3	1	.4	3
Miscellaneous	4	2	3	23
Don't Know	4	2	3	18
No Response	7	3	5	35

One can observe, for example, that approximately one-third of the total (37 percent of the boys and 27 percent of the girls) indicated one of the professions other than nursing as a long-range occupational goal. An additional 8 percent of the girls gave nursing as their choice. About a fourth of the girls expressed interest in clerical or secretarial type work, while 19 percent

indicated housewife as the occupation of first preference. Ten percent were looking forward to being beauticians. Only 5 percent either didn't know or didn't respond. Eleven percent of the boys expressed interest in mechanics or shop work and 9 percent expected to be factory workers or foremen. Six percent were interested in drafting or the building trades and another 6 percent in agricultural work. Eleven percent either didn't know or didn't respond.

An analysis of occupational aspirations and educational intentions was completed to discover the extent to which youth aspiring to occupations for which post-high school training would be either desirable or essential plan to enter post-high school education or training programs. These data are presented in Table 18 Viewing Table 18 , it can be seen that of the 214 seniors aspiring to one of the professions other than nursing, 5 percent definitely or probably do not include college in their future plans and 5 percent "didn't know." However, 81 percent have definite plans for college attendance and 9 percent indicate their future plans probably will include college. Thus it appears that 90 percent have educational plans compatible with their occupational goal. Only one of the seniors who expects to be a factory worker or foremen indicated he had plans for attending college.

TABLE 18

PERCENT OF SENIORS BY OCCUPATIONAL GOAL
ACCORDING TO PLAN FOR COLLEGE

Occupational Aspiration	Plan for College				
	No or Prob.Not	Prob. So	Yes	Don't Know	Total No.
Professional (other than nursing)	5	9	81	5	214
Nursing	32	4	56	8	25
Military Service	16	23	31	31	13
Office-Clerical-Secretarial	50	10	26	14	84
Housewife	60	11	16	11	61
Electricity or Electronics	33	-	33	33	3
Selling-Salesman-Waitress	20	-	67	13	15
Drafting or Building Trades	50	-	36	14	22
Mechanics or Machine Shop	49	16	11	24	37
Agricultural and Related	64	-	18	18	22
Factory Foreman or Worker	78	-	3	19	31
Airline Pilot or Hostess	25	-	75	-	4
Art (including commercial)	44	-	33	22	9
Run Own Business	37	38	25	-	8
Lab.Tech.(med.,dental, chemical)	25	-	75	-	4
Beautician or Barber	30	12	53	6	34
Religious Worker	17	17	67	-	6
Entertainer	-	67	33	-	3
Miscellaneous	35	13	35	17	23
Don't Know	39	11	33	17	18
No Response	49	14	20	17	35

Two-thirds of those interested in selling indicated they have definite plans for college and 65 percent of those interested in being beauticians have definite or probable plans for college. Of those who don't know what occupation they want to enter, one-third have definite plans to attend college and another 11 percent indicated that they probably will attend.

In general, it would seem that the seniors' occupational aspirations and educational plans are compatible.

Field of Interest for Further Study. In addition to being asked to indicate a long-range occupational goal, the seniors were asked to name the field of greatest interest in which they would like to study if they were planning to take advanced technical training or college work. This information can give an indication of the extent to which immediate interests for study coincide with long-range occupational aspirations. Data for the total number of seniors appears in Table 19 . From this table it can be seen that 15 percent of all the seniors expressed an interest in liberal arts. Seven percent are interested in secretarial-clerical training, 6 percent in engineering and 6 percent in cosmetology. All the other fields listed in the table were the indicated first choice of at least 2 percent of the seniors.

TABLE 19

FIELD OF INTEREST FOR ADVANCED STUDY

Field of Interest for Study	#	%*	Plans for College (%) Yes		Prob. So	
			Boys	Girls	Boys	Girls
Liberal Arts	102	15	30	30	6	16
Engineering	40	6	21	-	15	-
Business Administration	21	3	9	1	3	3
Teaching	31	5	2	18	-	-
Medicine	12	2	6	1	-	-
Nursing	21	3	-	8	-	3
Agriculture and Related	20	3	5	-	-	-
Accounting	11	2	1	1	3	10
General Business	25	4	2	1	12	10
Secretarial-Clerical	45	7	1	12	-	19
Mechanical Technology	28	4	2	-	21	-
Drafting, Design Technology	20	3	6	-	-	-
Other Skilled Trades	30	4	2	1	18	-
Beautician or Barber	39	6	-	11	-	23
Miscellaneous	21	3	5	7	-	3
Don't Know	19	3	2	2	3	-
No Response	186	28	7	10	20	10

*Percents in this column based on all seniors, not just those planning on advanced education.

Shown also in Table 19 are the percents of seniors with definite or probable plans for college who would be interested in the several types of advanced education or training. Thirty percent of the boys and girls with definite plans for college are interested in liberal arts type of education. Twenty-one percent of the boys in this group are interested in engineering and 9 percent in business administration. Of the girls who definitely plan to attend college, 18 percent are interested in teacher training, 12 percent in secretarial-clerical training and 8 percent in nurses training. Fields most frequently mentioned by the boys who "probably" will attend college were: engineering, general business, mechanical technology and other skilled trades. The girls' greatest preferences were for liberal arts, accounting, general business, secretarial-clerical and cosmetology.

Seniors' Perceptions of How Well High School Was Preparing Them for Their Future. An analysis was made of how well the seniors felt the high school was preparing them for what they planned to do after high school graduation. These data appear in Table 20 . Fifty-five percent of the seniors felt that their high school preparation had been very good in some ways but could have been better in others. Twenty-four percent of the boys and 16 percent of the girls felt their high school had either not prepared them very well or that their preparation had been fair but could have been better, while 26 percent of the girls and 18 percent of the boys indicated that their high school had given them just what they needed. Thus, the girls perceived their high school preparation as being somewhat more adequate than did the boys.

TABLE 20

SENIORS' EVALUATION OF HOW WELL HIGH SCHOOL IS PREPARING THEM FOR THE FUTURE

	Percent		
Adequacy of Preparation	Boys	Girls	Both
Not very well	6	4	5
Fair, but all training could be better	18	12	15
Very good in some ways, but it could be better in others	55	56	55
It is giving me just what I need	18	26	22

TABLE 21

SENIORS' EVALUATION OF HIGH SCHOOL PREPARATION
BY PLANS FOR COLLEGE

Adequacy of Preparation	Plans for College (percent)									
	No		Prob.Not		Prob.So		Yes		Don't Know	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Not very well	12	2	10	6	6	12	2	2	8	6
Fair, but all training could be better	17	10	23	24	21	3	17	12	21	16
Very good in some ways, but could be better in others	49	52	50	41	66	58	57	59	53	63
It is giving me just what I need	19	34	16	27	6	25	22	24	17	13

When these responses were analyzed according to the seniors' plans for attending college (see Table 21), it was found that this difference between boys' and girls' evaluations of the adequacy of preparation is not as apparent in the case of those who definitely plan to attend college as it is for the other seniors. In general, those who are planning to go to college perceived their high school preparation as being somewhat better than did those who are not planning to attend college.

When asked how their high school could have better prepared them, 25 percent indicated that more vocational courses should be added, 20 percent thought more advanced or enrichment courses should be added, and 12 percent indicated more refresher or remedial courses should be added.*

Students' Perceptions of Occupational and Educational Guidance Help Received from High School. Attitudes of high school youth toward continuing their training, confidence in the future, and support for a good educational system in the community may possibly be determined in part by the extent to which, as students, they perceive that they have received the necessary help they desired from their high school. A successful post-high school educational program is largely dependent upon effective occupational and educational counseling at the junior and senior high school levels. In an attempt to reveal how seniors evaluate the amount of help received in deciding what occupations to enter, or in formulating educational plans beyond high school, an analysis was made according to sex and according to plans for college. These data are presented in Tables 22 and 23 .

* Current vocational offerings in Gratiot County High Schools, shown in Appendix A, reveal lack of available vocational education opportunity to all youth and the absence in any school of some types of programs.

TABLE 22

SENIORS' EVALUATION OF AMOUNT OF HELP HIGH SCHOOL GAVE IN OCCUPATIONAL AND/ OR EDUCATIONAL PLANNING

Amount of Help Received	Percent		
	Boys	Girls	Both
Little or no help	16	16	16
Some, but not very much	26	27	26
Considerable, but could have used more	31	32	31
A lot of help; all I need	24	23	24

From Table 22 it can be seen that 16 percent of the seniors felt that they had received little or no help in planning their post-high school careers and 26 percent indicated that they had received some help, but not much. Thirty-one percent indicated they had received all the help they needed. There were no differences between boys and girls in their responses.

TABLE 23

SENIORS' EVALUATION OF HELP RECEIVED IN PLANNING BY PLANS FOR COLLEGE

Amount of Help Received	Plan for College (percent)									
	No		Prob Not		Prob So		Yes		Don't Know	
	B	G	B	G	B	G	B	G	B	G
Little or no help	27	18	20	10	18	16	11	15	14	23
Some, but not much	21	28	30	27	33	38	26	25	25	16
Considerable, but could have used more	31	31	33	37	30	32	26	30	44	40
A lot of help; all I need	17	20	16	24	12	12	35	27	14	20

When these data were analyzed according to the seniors' plans for college attendance, as shown in Table 23 , it can be seen that those who have definite plans for college indicated slightly higher evaluations of the amount of help their high school had given them than did the other seniors.

In response to the question, "How can the high school help you better in making post-high school educational and occupational plans?" 39 percent of the seniors felt that the school should provide information on these matters as part of regular classes, 28 percent thought it should be provided in a special orientation class, and 14 percent favored career carnivals and college night programs outside regular school hours.

Seniors' Evaluations of the Way Selected Services and Facilities Have Helped Them. Seniors were asked to indicate how well certain selected school services or facilities have helped them. These findings appear in Table 24 by sex and for the total group. One may observe, for example, that of the boys, 26, 47, and 23 percent respectively felt that the provision of someone in whom they could confide about school problems was "good," "fair," and "poor". The corresponding percents for the girls were 27, 41, and 28. Under each of the sets of three columns and opposite each type of service or facility is underscored the largest percent appearing in each set of evaluations. This has been done to facilitate the ease of interpretation for the reader. For example, it may be easily observed that the largest percent of the youth rated all but two of the types of services or facilities as "fair". The two exceptions were information on going to college, which was rated as "good" by 49 percent of the seniors, and the provision of someone in whom they could confide about personal problems, which was rated as "poor" by 46 percent of the seniors. There were no appreciable differences between boys and girls in their ratings of any of these services.

When these responses were analyzed according to the seniors' plans for college attendance, there were no differences between the various groups, with the exception that those who had definite plans for college rated the course offerings, the provision of information on college, and the social activities slightly higher than did the other seniors.

TABLE 24

SENIORS' EVALUATION OF HOW SCHOOL SERVICES OR FACILITIES HELPED THEM

Service or Facility	Percent-Boys			Percent-Girls			Percent-Both		
	G	F	P	G	F	P	G	F	P
Someone I can confide in about school problems	26	47	23	27	41	28	27	44	25
Library materials and information on vocations	35	46	15	28	55	13	32	50	14
Offering many courses from which to choose	32	45	19	25	55	17	28	50	18
Information on going to college	51	37	7	47	42	6	49	40	7
Social activities	35	44	13	42	42	9	39	43	11
Someone I can confide in about personal problems	14	36	44	14	33	48	14	35	46

G = Good, F = Fair, P = Poor

A further analysis was made to reveal the relationship between how much help the seniors thought the high school had given them in deciding what occupation to enter, or with respect to educational planning, and their evaluation of certain selected school services and facilities. This was an attempt to pin-point whether perceived inadequacy of certain types of services or facilities in helping them were related to their perceptions of the amount of help the school had given them in occupational and educational guidance. These data are presented in Table 25 which is to be interpreted in similar fashion to the preceding one. For example, it may be noted that of the seniors who indicated the school had given them a lot or all the help they needed in occupational or educational planning, 41 percent indicated the way they had been helped through the provision of someone in whom they could confide about school problems was "good," 39 percent thought it "fair," and 15 percent believed it to have been "poor." This is in contrast to 16, 29, and 51 percent of those who indicated they had received little or no help in planning for the future.

TABLE 25

PERCENT OF SENIORS BY AMOUNT OF GUIDANCE RECEIVED AND THEIR EVALUATIONS OF HIGH SCHOOL FACILITIES AND SERVICES

Service or Facility	Lot of help			Considerable			Some Help			Little or No Help		
	G	F	P	G	F	P	G	F	P	G	F	P
Someone I can confide in about school problems	41	39	15	25	55	16	21	46	31	16	29	51
Information on vocations	42	45	10	34	52	11	24	54	18	26	48	21
Wide choice of courses	44	44	8	26	57	13	22	47	26	19	47	30
Information on college	72	23	2	51	38	6	39	49	8	31	52	13
Social activities	50	38	6	40	42	11	35	43	13	27	50	16
Someone I can confide in about personal problems	24	35	33	13	42	41	7	35	54	15	18	62

G = Good, F = Fair, P = Poor

It would seem from these data that perceptions about effectiveness of the school in providing adequate occupational and educational guidance is strongly associated with the extent to which students have available, or feel they can confide in, someone who can assist them with school or personal problems. These services and the provision of information on colleges seem to be more closely related to student evaluations of guidance help than the other services and facilities studied.

MAJOR FINDINGS

1. Residential tenure of seniors reflects considerable stability of population. Seven of every ten have lived in Gratiot County over 10 years and 79 percent have lived there over 6 years, or since junior high school.

2. The incidence of broken homes is below average for the nation. Only 8 percent were living with only one parent.

3. One-half of the girls and 67 percent of the boys worked part-time while attending school.

4. Of all seniors, 45 percent expressed definite plans for attending college and another 9 percent thought future plans "probably" would include college. Eleven percent were undecided. Twenty-eight percent of the boys and 35 percent of the girls definitely or probably did not include college in future plans.

5. Of seniors planning on college, 17 percent expected to attend Central Michigan University, 16 percent, Michigan State University and 13 percent Ferris State College. Fifteen percent indicated they would attend a college outside the state.

6. Of the 371 seniors whose plans definitely or probably include college attendance, 85 percent plan to enroll in some type of educational institution the next year following high school graduation.

7. Seventy-eight and 63 percents respectively of the boys and girls with definite plans for college were enrolled in a college preparatory curriculum. Five percent of the boys and 23 percent of the girls were enrolled in a commercial curriculum and 6 and 5 percents respectively were enrolled in a general curriculum.

8. Of the youth who are definitely not planning on college attendance, one-half were enrolled in a general curriculum and approximately one-fifth were enrolled in an industrial arts curriculum and another fifth in an agricultural curriculum. Of the girls with such plans, 53 percent were enrolled in a commercial curriculum and 31 percent in a general curriculum.

9. Of youth whose plans definitely do not include college attendance, 16 percent rank in the top third of their class. Sixty percent of those definitely planning on college rank in the top third of their class.

10. Eighteen percent of the youth in the top third of their class have no plans for college attendance. Forty-two percent of those in the middle third of their class and 22 percent of those in the lower third have definite or probable plans for attending college.

11. One-fourth of the seniors not planning on college indicated wanting to work as their reason and 13 percent felt that it was too expensive. Only 11 percent cited inability to make good grades as their reason.

12. Of youth without plans for college, 12 percent indicated that if more money were available they would change their plans and 30 percent indicated this might change their plans. These youth constitute about one-fifth of all the seniors in the county.

13. About half of the youth whose plans would or might change would need an amount to cover half the expenses of attending college a year and another 43 percent indicated they would need enough to cover all expenses.

14. Of youth with no plans for college attendance, only one percent would be interested in post-graduate work at the local high school, but 10 percent would be interested in entering military service for training, 11 percent would be interested in apprenticeship-type training, and 41 percent expressed an interest in on-the-job training. However, 52 percent would be interested in some type of advanced business, technical, or trade training if it were available in the area.

15. Of the boys whose plans definitely do not include college, 90 percent plan to work or enter military service following graduation. Of the girls with no plans for college eight of ten plan to work and 44 percent expect to be homemakers. Three percent expect to attend a trade or technical school and 7 percent a nursing school.

16. In general, fields of interest for immediate advanced study tend to agree with long-range occupational goals of seniors.

17. The greatest demand is for liberal arts type of training. The number of youths who expressed such an interest represents 15 percent of all the seniors, or 30 percent of those who are definitely planning to attend college. Other fields of interest for advanced study are: teaching, nursing, engineering, business administration, secretarial-clerical, general business, agriculture, mechanical technology, drafting and design technology, other skilled trades, and cosmetology. The percents of all seniors choosing each of these fields ranged from 3 percent to 7 percent.

18. A fourth (25%) of all seniors indicated that the way their high school could have better prepared them was to have offered more vocational courses.

19. Non-college bound youth evaluate lower high school guidance services than do those whose plans include continuing their education.

CHAPTER III

A STUDY OF RECENT GRATIOT COUNTY HIGH SCHOOL GRADUATES

Introduction. In assessing the educational needs of an area for various types of school programs, studies of school attendance patterns and data which graduates can provide are significant. Assuming the graduates of previous years in an area are similar to those who will follow for a few years, considerable confidence can be placed upon this source of information. Patterns of occupational and educational pursuits, residential distribution, characteristics, and interest are not likely to vary markedly with future groups of graduates, barring a major policitcal or economic change, except in a relatively slow fashion.

Recent Pattern of School Attendance Beyond High School. Each year, high school principals prepare a report which when signed by the superintendent of schools is forwarded for accreditation purposes. Data taken from these reports constitute the most valid available information on the extent to which graduates pursue further education in a college or university or a trade or technical school. They are usually based upon the extent to which graduates have requested a transcript forwarded to a post-high school institution. Data shown in Table 26 reveal the percent of graduates reported entering a college or university or "other" types of school during the recent five year period for all schools in Gratiot County.

From Table 26 , one may observe, for example that 30 percent of graduates in 1960 were reported attending college or university the next fall. Five percent were reported attending an "other" type of school, making a total percent of 35 attending some type of post-high school institution.

For the five year period, approximately 37 percent of all high school graduates over the five years from Gratiot County were reported continuing their education.

Method of Studying Graduates. Lists of high school graduates were obtained from all high schools in Gratiot County for the years 1960 and 1962. Names were alphabetized by sex and year for each district, and a random sample stratified by year, sex, and district was selected for contact by questionnaire mailing. Questionnaires were prepared in final form by members of the Citizens Subcommittee on Program Needs after they had contacted their respective high school counselors and principals for suggestions.

TABLE 26
PERCENT OF HIGH SCHOOL GRADUATES
REPORTED CONTINUING THEIR EDUCATION

Type of Institution Attended	1960	1961	1962	1963	1964
College or University	30	28	33	35	34
"Other" schools	5	5	4	6	6
Both	35	33	37	41	40

During the spring of 1965, 345 questionnaires were mailed to graduates with a cover letter and an enclosed stamped and addressed return envelope. In about three weeks following the initial mailing, a second questionnaire and letter were forwarded to those who had not responded to the first invitation for assistance and cooperation. Fifteen envelopes were returned for lack of sufficient address. Responses were received from 63 percent of the graduates contacted for whom addresses were apparently satisfactory. The return represented a 21 percent random sampling of all seniors graduating during those years.

An analysis of non-responses revealed that they were evenly distributed by sex, year, and district. There is no reason to suspect any bias in responses related to these factors. However, data on post-high school attendance of all schools in the study during the five years 1960-1964 indicate that about 37 percent of all graduates continued their education the next fall. Of the graduates responding, 51 percent had attended a college or university, a business college, or a trade or technical school. Either the response to this study is biased in favor of graduates who continued their education, or a sizeable group of graduates delay entering upon further education beyond the next year following high school graduation. The 51 percent, however, is very close to the 54 percent of 1962 seniors whose future plans were found to definitely or probably include further education. The number of graduates (as reported later in this chapter) who were found to be continuing their schooling on a part- or full-time basis would seem to lend support to the assumption that whatever bias in responses may have been in favor of those who had continued their education was small. On the basis of a representative 21 percent random sample of returns representing 63 percent of the total sample selected, there is good reason to believe that if responses had been obtained from all seniors since 1960, the responses would have followed a similar pattern.

Marital and Residential Status of Graduates. Of all graduates responding to the study, 45 percent lived in Gratiot County, 17 percent lived outside but in a county immediately adjacent, 20 percent lived elsewhere in Michigan, and 16 percent lived outside Michigan. With about four and one-half of every ten graduates

becoming residents of the County, one might expect attitudes developed about the high schools they attended to be heavily reflected in the adult population. Nearly a third, or 32 percent, of the respondents left their home County within a year following graduation from high school. Of the respondents who moved out of the County 50 percent did so in less than three years, and 10 percent left after three years. About 33 percent of the boys left within less than a year, and 30 percent of the girls did so, too. On the other hand 20 percent of the girls left after a year and in less than three years, while only 16 percent of the boys left during a similar period. Little difference existed between boys and girls in place-of-residence.

About 55 percent of the responding graduates were married; 46 percent of the men and 64 percent of the women were married. Fifty-three percent of the men and 34 percent of the women respondents had not been married. Fifteen percent were married within a year following graduation, and 26 percent were married in less than two years. Three percent were married before graduation. One can conclude from this that higher percentages of women than men graduates marry sooner, but the rate of migration out of the county is about the same for girls as boys.

Economic and Occupational Status of Graduates. Of all respondents, 58 percent were employed full-time, 11 percent part-time, and 27 percent were unemployed. Larger percents of men (73 percent) than women (42 percent) were employed full time on a paying job. Of women respondents living in Gratiot County, 60 percent were unemployed compared to 38 percent of those in an adjacent county, 29 percent of those elsewhere in Michigan, and 44 percent of those outside Michigan. Of men respondents, eight percent living in Gratiot County were unemployed, as were eight percent residing in an adjacent county, nine percent living elesewhere in Michigan, and ten percent living outside the state.

Ten percent of all graduates reported earnings of less than $200 per month, 33 percent reported between $200 and $400, and 20 percent reported income over $400 monthly.

Respondents were asked to indicate their occupation and these are shown in Column (1) of Table 27, with the number of respondents in an occupation shown in Column (2). In an attempt to determine what types of training or education might be necessary to assist graduates toward future career goals, each was asked to indicate the type of work they would like to be doing ten years from now if they had decided already what it would be. The difference in what respondents are doing presently and types of occupation to which they aspire were thought to possibly reveal needs for educational programs.

Most of the unemployed persons and office workers were women, while most of the factory workers were men. It can be observed that a wide variety of occupations is represented among respondents.

Column (3) shows the type of work which respondents indicated they would like to be doing ten years from now. It can be seen that while presently, 11 persons are teachers, in ten years 24 of the respondents hope to be teachers. Likewise, although 34 respondents were factory workers, only 4 indicated they would like to be doing that type of work ten years from now. Eighty-seven persons had not decided what type of work they wanted to be doing ten years from now, and 10 respondents did not answer. One person each indicated they would like to be a pilot, importer-exporter, tool and die maker, air conditioning and refrigerator technician, home economist, urban planning consultant, lawyer, landscape artist, architect, and minister.

TABLE 27

OCCUPATIONS OF RESPONDENTS

(1) Occupation	(2) Present Number	(3) Future Aspiration	(1) Occupation	(2) Present Number	(3) Future Aspiration
Teacher	11	24	Farming	2	4
Factory Worker	34	4	Tree cutter	1	-
Welder	4	1	Self-employed	4	6
Packaging Engineer	1	1	Insurance agent	2	1
Electrician	1	2	Cab dispatcher	1	-
Cook	1	-	Restaurant or Store Mgr.	2	-
Services	21	1	Lifeguard	2	-
Not employed	57	-	Nurse or Med. Tech.	7	7
Office Worker	35	19	Beautician	3	3
Research assistant	2	2	Mechanic	1	2
Police	1	1	Drafting	1	2
Maintenance	5	3	Truck Driver	1	1
Camp Director	3	1	Production Engineer	1	2
Mill operator	2	1	Barber	1	1
Store clerk	2	-	Printer	1	-
Personnel, Mgt.	1	-	Tailor	1	1
Statistical analyst	1	-	Housewife	-	18
Doctor (Medical)	-	2	Veternarian	-	2
			TOTAL	219	112

School Attendance and Interests in Further Education. Of all responding graduates, 15 percent of the boys and 23 percent of the girls, or 19 percent of all graduates had received no additional training or education. Thirty-one and 32 percents respectively of the men and women graduates, or a total of 31 percent had received on-the-job training at the place where they were employed. Five percent of the boys and 11 percent of the girls had attended business college, while seven percent of both had attended a trade or technical school. Of the respondents 36 percent had attended a college or university. This included 38 percent of the men respondents and 34 percent of the women. One percent had taken advantage of an adult education course at a local high school, and six percent of the men and three percent of the women had taken a correspondence course. Twenty-two percent of the men and two percent of the responding women graduates had attended a military service school. Of the men respondents nineteen percent were attending school full-time at the time of the study, as were ten percent of the women. Ten percent of the men and five percent of the women were attending on a part-time basis, while 73 and 86 percents respectively of men and women were not in attendance at the time of the study. Of the men and women respondents living in Gratiot County, 21 and eight percents, respectively, were attending school full time. This compares with 29 and 19 percents of men and women graduates living elsewhere in Michigan other than Gratiot County or in a county adjacent. Of those in adjacent counties, only 17 percent of the men and four percent of the women were in school full-time. Of graduates living out of the state 10 percent of boys and six percent of girls were in full-time school attendance. While six percent of the men in Gratiot County were attending a school part time, twenty-five percent living in an adjacent county were doing so. Higher percents of men than women respondents are continuing their schooling on a part-time basis.

Of all graduates responding to the study, one-half of one percent were attending the University of Michigan; 6 percent were at Michigan State University; four percent were at Central Michigan University. About one percent were enrolled at Ferris State College and one percent were in Alma College. One-half of one percent were at Michigan Technological University and 4 percent were enrolled in another Michigan college or university. An analysis was made between place of residence and type of education or training received by respondents after graduation. Results are presented in Table 28 . It can be seen, for example, that of men and women living in Gratiot County 23 and 24 percents, respectively, had received no further education. Twenty-seven and 30 percents, respectively, of men and women respondents in Gratiot County had received on-the-job training, compared to larger percents living elsewhere.

TABLE 28

PERCENT OF GRADUATES BY PLACE OF RESIDENCE AND TYPE OF EDUCATION RECEIVED*

Type of Education	In Gratiot County		Adjacent County		Elsewhere In Mich.		Outside Mich.	
	B	G	B	G	B	G	B	G
None	23	34	8	23	9	14	5	-
On-the-job training	27	30	42	31	36	29	30	44
Business college	10	6	-	12	5	19	-	13
Trade or tech. school	6	11	-	8	9	5	10	6
College or university	37	26	42	23	45	52	30	50
Adult education	2	2	-	-	5	-	-	-
Correspondence	8	-	-	12	5	-	10	-
Military service school	13	-	17	4	9	-	60	6

* Since respondents may have had more than one type of future education, totals may exceed 100 percent.

Of all respondents, two-thirds indicated they were interested in opportunities for further education or training. Present interest was expressed by 75 and 57 percents respectively of the men and women responding. Of respondents with no type of further education, 63 percent of the men and 44 percent of the women expressed present interests for further education or training. Various reasons were given by respondents for not attending school at the time of the inquiry. These are shown in Table 29 by percent of response to each reason.

Of the graduates not attending school, 15 percent indicated financial reasons, with more men than women giving this reason. A fifth of the women and nine percent of the men indicated they had already completed the school they had attended following graduation. Nearly a third of the women and 17 percent of the men indicated family responsibilities as reasons for non-attendance. Eighteen percent of the men indicated military service as a reason. Nine percent of all respondents indicted they were just not interested. Six and seven percents of men and women, respectively, indicated lack of time as the reason of greatest importance. Five percent of the men and none of the women indicated that opportunity was not available in the community, while four and one percents respectively, of men and women gave difficulty in making grades as a reason.

TABLE 29

REASONS WHY GRADUATES WERE NOT IN SCHOOL

(1) Reason	(2) Percent of Graduates Not Now Attending			(3) % Receiving No Further Education		
	Men	Women	Total	Men	Women	Total
Do not have time	6	7	6	5	6	5
Opportunity not available in Community	5	-	2	4	-	2
Financial reasons	16	14	15	11	12	11
Family responsibilities	17	32	25	12	27	20
Not interested	8	14	9	6	12	9
Already completed school attended	9	21	15	7	20	14
Too difficult to make grades	4	1	2	4	1	2
Did not take college preparatory course	5	2	3	4	2	3
In military service	18	-	9	18	-	9

Reasons, in column (3) above, were analyzed for those persons who had received no further education beyond high school. Thirty-nine percent of the women indicated family responsibilities or lack of interest, as did 18 percent of the men. Three percent indicated as the reason of most importance that they had not taken a college preparatory high school curriculum. Nine percent of the men and six percent of the women indicated they either did not have time or that opportunity was not available where they lived. It appears that lack of finances was the obstacle for almost one in ten persons who had no education after high school. Of men and women with no further type of education after high school graduation 44 and 32 percent, respectively, indicated they would have continued their schooling had more financial assistance been available at the time of graduation. The presence of appropriate opportunities in the county would represent more money to the individuals.

Significant is the finding that, of the graduates who did not attend school following graduation or who were not in school at the time of the study, 57 percent of both men and women indicated they would have continued in school provided more financial assistance had been available at the time of high school graduation. This number constitutes 26 percent of all graduates responding to the study who were denied further education because of unavailable financial resources.

Of the graduates presently living in Gratiot County 69 percent and 53 percents of the men and women expressed present interest in opportunity for further training or education. Of those who were living outside Michigan, 80 percent of the men and 75 percent of the women were interested in additional opportunity for education. Higher percents of men than women, regardless of residence, expressed interest in further educational opportunity. It is interesting

to note the higher percent of those having left the state who are now interested compared to those who have remained in the county. Assuming the same proportion of all graduates for the past five years to be interested in further educational opportunity as those in the random sample who responded, there would be approximately 285 graduates living in Gratiot County with interest in further educational opportunity. Research evidence on the education of adults indicates that validity of high school grades as predictors of success in post-high school programs decreases as length of time out of school increases. Although not all these graduates would be motivated to attend or would be successful if they did, there is no good way of determining the proportions that would be in either category. Studies in performance of adults and veterans indicate that reference to previous high school grades of those expressing interest would be of little help in ascertaining probability of success for this group in appropriate educational programs compatible with their interests and felt needs.

Factors Related to Current Interest in Education. Analyses on seniors' educational plans revealed a relationship between them and perceived parental attitude toward their continuing in school after high school graduation. Higher proportions of youth who believed their parents insisted or wanted them to continue their education had plans for further education than those who believed their parents were either indifferent or negative concerning the matter. A similar analysis has been made for graduates, and the data appear in Table 30 .

TABLE 30

PERCEIVED PARENTAL EDUCATION AND EDUCATION BEYOND HIGH SCHOOL BY PERCENT

(1) Parental Attitude About College Attendance	(2) All Graduates		(3) No Additional Training or Schooling			(4) Attended College or University		
	M	W	M	W	B	M	W	B
Insisted I go	6	4	-	-	-	12	8	10
Wanted me to go if I wanted to	70	77	69	64	65	88	89	88
Indifferent	9	11	19	16	17	-	-	-
Did not want me to go	1	1	6	-	2	-	-	-
No response	1	-	-	-	-	-	-	-

M = Men, W = Women, B = Both

In column (2) of Table 30 are shown the percents of all respondents by attitude which they believed their parents to have about their continuing in college. There appears to be little difference between the sexes, and what little positive difference there is favors the boys. In general the fact that 76 percent of youth believed their parents insisted or wanted them to attend college reveals a wholesome community attitude about youth's college

attendance. The influence of perceived parental attitude may be revealed more clearly in columns (3) and (4) which contain data for graduates with no further education of any types compared to those who have actually attended a college university. It can be observed that, whereas a tenth of the men and women who have attended felt their parents insisted on it, none of those without any further education felt that way about their parents. Just as revealing is the fact that while none of those having attended college perceived their parents as indifferent, 17 percent of those without further education indicated their parents were indifferent. An analysis of perceived parental attitude by present place of residence did not reveal any difference among persons residing in Gratiot County and others.

From these data one can conclude that (1) there seems to be no marked parental bias favoring the education of one sex more than the other, as is the case in various other areas, and (2) that higher percentages of parents of graduates who entered college or university insisted or wanted them to continue school than is true of graduates who have had no further education. Further, it appears that a relationship may exist between indifferent and negative parental attitudes and graduates having received no further education.

Possible Influence of Available Opportunity on Plans. An attempt was made to determine how the accessibility of local educational opportunity might have influenced graduates' plans. Each respondent was asked how availability of two years of college work or some type of technical or semi-professional vocational training in the region at the time of graduation might have affected his plans. About 22 percent of the men and 37 percent of the women indicated they definitely would not have been interested, while 23 percent of the men and 14 percent of the women would definitely have taken advantage of the opportunity. Of the men 43 percent might have planned to stay home and take advantage of such opportunity, as would 46 percent of the women.

Of the graduates having received no type of further education or training after high school graduation, 25 percent of the boys and 8 percent of the girls would definitely have taken advantage of the opportunity if two years of college work or some type of technical or semi-professional educational training had been available in the region when they graduated. In addition, 50 and 44 percents, respectively, of the men and women without further education indicated they might have planned to stay at home and take advantage of such opportunities had they been available. A fourth of the men and 48 percent of the women feel they would definitely not have been interested. Of just graduates living in Gratiot County, 27 and 15 percent of men and women respectively indicated they would definitely have taken advantage of such opportunity, and 44 and 32 percents might have done so.

The same type of analysis was made to determine whether those who did attend a college or university would have been influenced by the availability of two-years of college or some type of technical,

semi-professional or vocational training. Twelve percent of the men and 13 percent of the women indicated they would definitely have taken advantage of such an opportunity. Thirty-nine and 34 percents, respectively, of men and women thought they might have planned to stay home and take advantage of such an opportunity. About 34 percent of the men and 45 percent of the women continuing their education in a college or university would definitely not have been interested.

If the same proportion of all graduates for the past five years would definitely have taken advantage of local post-high school opportunity, as indicated by respondents, 535 persons would have been in attendance. An additional 1290 persons might have taken advantage of such an opportunity. This would have represented 63 percent of all graduates for that period, including some who have had no further education, as well as some of those who have gone to a college or university. To the extent that the responses of graduates are valid indications of what one might expect to happen, it can be concluded that about six out of every ten graduates would be interested.

The graduates who did not attend any kind of school after graduation, but who might have had some type of education on-the-job etc., were asked to indicate in which type of school they would have had an interest if the opportunity was available. Twelve percent specified a community college, 21 percent a four-year college or university, and 17 percent indicated a trade or technical school. Nine percent indicated no interest in any of these types of institutions. Of men and women graduates living in Gratiot County, 25 and 15 percents respectively, or 20 percent of both indicated they would have attended a trade or technical school after graduation had it been available.

Graduates were asked to tell what they thought about the availability of opportunities which youth have in their high school districts for receiving training or education after high school graduation. While 32 percent felt it was adequate for all who desire more school, 33 percent of both sexes indicated that even though there was a fair amount of opportunity, not all youth who desire more training find what they want available. A third felt the availability of opportunity was poor. Of just graduates living in Gratiot County 33 and 40 percents respectively of men and women felt opportunities were "poor," as did 55 and 13 percents who lived outside Michigan. Of graduates in Gratiot County 37 and 21 percent respectively of men and women felt opportunities were adequate compared to 25 and 44 percent respectively who had left Michigan. An analysis was made between whether respondents had received any further education or had attended a college or university and opinions on availability of opportunity. These data are presented in Table 31 .

TABLE 31

OPINION ON AVAILABILITY OF OPPORTUNITY BY TYPE OF FURTHER EDUCATION IN PERCENT OF RESPONSE

Extent of Availability of Educational Opportunity	No Type of Further Education		Attended College or University	
	Men	Women	Men	Women
Adequate for all who desire more	31	32	32	26
Fair; but opportunities not available in all areas	19	44	39	34
Poor; local youth should have more available opportunities	50	24	29	39

Observing Table 31, it can be seen that half the men who had no further education indicated opportunities were poor. Forty-four percent of the women with no further education indicated availability of opportunities was fair. Higher percents of women who had no further education thought availability of opportunity was adequate or fair than did women who attended a college or university, but this was not the case for men. These findings suggest that men with no further education in greater proportions than those who attended a college or university feel availability of opportunity is less adequate. Higher percents of women who have attended a college or university feel availability of opportunity is poor than do those with no further education.

Types of Further Education of Interest. Graduates were asked to indicate by writing in their answer what type of further education or training they would want if they were presently interested in such opportunity. Of the respondents, 74 men and 56 women indicated an interest in some type of education. Types of education and numbers of respondents indicating each are shown in Table 32 . Not shown in tabular form are data analyzed by opinion in adequacy of available opportunities and school attendance status. Smaller percents of respondents attending on a part-time basis felt the opportunities were adequate for all who desire more education and training compared with respondents either enrolled full time or not attending school.

If the same proportion of all graduates during the past five years have the same interests as those in the sample, there would be approximately 495 persons interested in some type of further business education, 260 in skilled trades, 60 in health sciences, 175 in teaching, 290 in lower-division liberal arts types of offerings, 60 in architecture, 15 in chemistry and 90 in engineering.

If the same percentage of all graduates over the past five years remained in Gratiot County as did respondents in the sample studied, there would be about 220 persons interested in some type of further business education, 115 in the skilled trades, 25 in health sciences, 80 in teaching, 130 in lower-division liberal arts types of offerings, 25 in architecture, over five in chemistry and about 40 in engineering.

TABLE 32

TYPES OF FURTHER EDUCATION OF INTEREST TO GRADUATES

Type of Further Education	Number		Totals
	Men	Women	
Business education	19	19	38
Skilled trades	16	4	20
Nursing & physical therapy	2	3	5
Teaching	4	10	14
Liberal arts	15	6	21
Architect	4	-	4
Chemistry	1	-	1
Engineering	6	-	6

Relationship of High School Curriculum and Type of Further Education. Of men graduates attending school full time at the time of the study, 76 and 10 percents respectively had completed a college preparatory or a general curriculum in high school. Of men respondents enrolled part-time, 45 and 36 percents had completed a college preparatory or general curriculum. Full time enrolled women respondents divided themselves 82 and 9 percents between college preparatory and general curriculums completed in high school, of these enrolled part-time 100 percent had followed a college preparatory course.

An analysis was made to determine what types of high school curriculums had been taken by graduates who had no type of further education or training. Six and 69 percents of men respectively had been in a college preparatory or general curriculum; 13 percent were in the business curriculum, six percent in shop and six percent in some other. Of women with no further education, eight, 40, and 52 percents respectively had been in the college preparatory, general, and business curriculum. Significant is the fact that 69 percent of the men and 40 percent of the women with no type of further education or training were not prepared in high school for the world of work. Of men and women having attended a college or university, 73 and 79 percents respectively had completed a college preparatory curriculum, 20 and 3 percents respectively were in a general curriculum, and 13 percent of the girls had been in a business curriculum. Five percent of the boys were in agriculture. (This type of analysis is not presented for each other type of further education or training, although reference is made below to it.)

From these data it would appear that a high proportion of graduates who have later attended a college or university completed a high school curriculum designed for the purpose. Data indicate that the majority of graduates who attend either a business college or a trade or technical school had not completed a high school curriculum especially designed to equip them with educational background for the purpose. The latter inconsistency may in part account for the large proportion of graduates who evaluated counseling services as only "fair" or "poor." Of all high school graduates responding to the study, 37 percent had completed a college preparatory high school curriculum. Twenty-one percent had finished a business education curriculum, 3 percent each an industrial arts or agriculture curriculum and one percent each homemaking and other. Thirty-eight percent of the men and 20 percent of the women were in a general curriculum.

Perceptions on How Well High School Prepared for College or Employment. Graduates who had attended a college following graduation were asked to indicate how well they felt their high school had prepared them for college work. Others were asked how well they felt their high school had prepared them for employment, if they had entered employment on either a full- or part-time basis. The results are presented in Table 33 .

TABLE 33

GRADUATES' OPINIONS ON HOW WELL HIGH SCHOOL HAD PREPARED THEM

Quality of Preparation	For College By Percent			For Employment By Percent		
	M	W	B	M	W	B
Inadequate	3	4	3	5	4	4
Fair, but could have been better	14	9	11	16	7	11
Very good in some ways; could be better in others	29	27	28	45	33	39
Excellent	3	7	5	10	15	13
Have not entered	30	25	27	7	14	11

M = Men, W = Women, B = Both

It can be seen that 3 percent of the men and 4 percent of the women, or 3 percent of both, felt their high school education to be inadequate as preparation for college. Likewise, five and four percents respectively of the men and women felt it was inadequate as preparation for employment. Of just graduates who had received no forms of further education after graduation 31 and 63 percents, respectively, of boys indicated that in their opinion their preparation had been fair or very good in some ways but could have been better in other ways. This compares with girls whose evaluations were: inadequate, eight percent; fair, eight percent;

excellent, 12 percent; and 28 percent who felt it was very good in some ways but could have been better in other ways in preparing for employment. Nearly a seventh of all respondents felt their high school preparation for college was inadequate or fair with all of it needing improvement, while about the same percent indicated the same about its adequacy as preparation for employment. Only five and 13 percents, respectively, of the respondents felt their high school preparation for college or employment had been adequate. Slightly higher percents of women than men rated higher their high school preparation for either college or employment. Men, particularly, did not feel the high school prepared them very well for employment. About a fith of the men thought that for employment, their high school education was inadequate or that all of it could have been better.

Respondents who had attended a college or university were asked to give their evaluation of how well the high school had prepared them for college work. Five percent of both men and women indicated the preparation was excellent; 61 percent of the boys and 68 percent of the girls thought it to be very good in some ways but could have been better in other ways. Two percent of the boys believed the preparation to have been inadequate, while 34 and 18 percents of the men and women, respectively, felt preparation for college work had been fair, with all of it needing improvement.

All graduates were asked if they had decided upon the type of work they wanted to be doing ten years hence. Fifty-six percent of both men and women had done so. Of men respondents living in Gratiot County, 36 percent had not decided on what type of work they would like to be doing ten years from now, as was the case for 42 percent living in an adjacent county, 41 percent living elsewhere in Michigan and 35 percent living outside Michigan. Percents of women graduates by place of residence were 38, 54, 38, and 44 percents, respectively. Higher percents of men and women with no type of further education indicated the high school had been of little or no help in deciding on an occupational choice than was the case with respondents having attended a college. Availability of vocational counseling and guidance services, especially for about half the adults without further education, would seem to be a desirable service within the county. Those that had decided on what occupation they wanted to "settle down in" were asked how much help in making this decision they had received from their high school. Of all the respondents, 44 and 25 percents respectively of men and women, or a total of 34 percent indicated they had received "little or no help" from their high schools in making the decision. Three percent of the men and seven percent of the women felt they had lots or considerable help from their high schools, while 31 percent of both believed they had received "some" help. Of just men and women graduates living in the county, 52 and 32 percents respectively felt the school had been of little or no help. A higher percent of graduates presently residing in the area than elsewhere felt the school had been of less help in this regard.

An attempt was made to determine the opinion of graduates as to how effective certain school facilities and services had been in helping them. Each was asked to indicate whether the help of a given service or facility was "good," "fair," or "poor." These data are presented in Table 34, analyzed for men, women, and both sexes. For ease of interpretation, the largest percent of responses for each item is underscored. For example, it can be seen that of the men respondents, 31, 29, and 35 percents respectively felt that high school counseling services had been "good," "fair," and "poor" in the way they had helped them. The largest incidence of response was "poor." The remainder of Table 34 is to be interpreted likewise.

In general, it can be seen that the largest percent of graduates judged no services or facilities as "good." Help in finding part-time employment and the availability of someone they could confide in about personal problems was judged as "poor" by the largest percent of graduates, or about five out of every ten. Judged as "fair" by about five of every ten, were library materials on jobs, while counseling services were judged as fair by a third. It seems significant that two-thirds of all graduates indicated that the counseling services of high schools had been either "fair" or "poor." This would indicate the desirability of Gratiot County high schools examining the quality, effectiveness, and realistic nature of counseling services. An analysis of evaluations according to whether respondents were attending school revealed no difference in evaluations by those persons in school full or part-time and those who were not.

TABLE 34

PERCENT OF GRADUATES BY HOW WELL THEY THOUGHT FACILITIES AND SERVICES HELPED THEM

School Services and Facilities	Men			Women			Both		
	G	F	P	G	F	P	G	F	P
Counseling services	31	29	35	29	38	29	30	33	32
Library materials on jobs	29	49	15	32	49	12	31	49	13
Offering many courses to choose from	31	38	22	33	54	10	32	46	16
Assistance in finding part-time employment	12	19	54	8	29	54	10	24	54
Social activities	34	43	15	41	52	4	38	47	9
Someone I could confide in about personal problems	22	22	45	11	37	48	16	30	47

G = Good, F = Fair, P = Poor

SUMMARY

1. During the past five years approximately 39 percent of all high school graduates in Gratiot County have enrolled for further study in some kind of post-high school institution--about 34 percent in colleges and universities, and about five percent in "other types" of post-high school institutions. These data were obtained from high school principals' reports.

2. A 21 percent sampling of the high school graduates of the classes of 1960 and 1962 was obtained. Fifty-one reported that they had attended (or were attending) a post-high school educational institution of some kind (college, university, business college, trade school, or vocational school). Since only 37 percent of all graduates were reported as having "gone on" to post-high school study by the high school princiapls' reports, it is probable that the "sample" is biased in the sense that those who had "gone on" tended to return the questionnaire and those who did not "go on" tended not to reply.

3. There is evidence that Gratiot County's high school graduates tend to remain in or near the county. Of those who replied, 45 percent still live in the county; 17 percent lived outside the county but immmediately adjacent.

4. Of the respondents, 36 percent had attended a college or a university for at least one semester. Five percent of the men and 11 percent of the women had attended a business college; and seven percent of both had attended a trade or vocational school. Nineteen percent of the men respondents and ten percent of the women respondents were attending a post-high school institution at the time of the study. Ten percent of the men and five percent of the women were attending some post-high school institution part-time.

5. Fifty-seven percent of graduates who had no education beyond high school said they probably would have continued their education if more financial assistance had been available. Of all graduates, 26 percent found lack of money to have been an obstacle.

6. Of the respondents presently living in Gratiot County 69 percent of the men and 53 percent of the women expressed a present interest in opportunity for further education and training.

7. About two out of every ten high school graduates of the graduating classes studied said they would have been interested in some kind of two-year semi-professional, technical, or vocational education and training had it been available in the county at the time of their graduation.

8. Of graduates who had received no type of additional education or training beyond high school, 12 percent would have been interested in a community college, 21 percent in a four-year college, and about 17 percent in a technical or trade school, if these opportunities had been available at low cost in the county.

9. Graduates were asked if they were currently interested in further education and training. Of the respondents, 67 men and 42 women indicated a desire for post-high school educational opportunities. The kinds of programs mentioned most frequently with numbers of respondents desiring each were:

Business education	38	Skilled trades	20
Health sciences	5	Architecture	4
Teaching	14	Chemistry	1
Liberal arts	21	Engineering	6

It is pointed out that these numbers represent a 21 percent stratified random sampling of the graduates of the classes of 1960 and 1962.

10. As regards male graduates responding to the study, 17 percent felt that their high school preparation for college had been either inadequate or "fair"; whereas 21 percent felt that high school preparation for employment had been either inadequate or "fair."

11. Averaging responses from men and women, 42 percent of the respondents indicated that they felt they had received "little or no help" from their high school guidance services in making a decision on the occupation they wanted "to settle down in." Sixty-four percent of all respondents said they felt that high school guidance services were either "fair" or "poor."

12. Based on the responses from this 21 percent sampling of recent high school graduates, it would seem that the greatest need for post-high school or community college educational opportunities lies in the area of education and training for employment, particularly in semi-professional, technical, and high-skilled trades fields.

13. A positive relationship was found to exist between whether graduates had actually continued their education and the attitudes which they perceived their parents had held about the matter.

14. Of just the graduates having received no type of further education or training, 64 percent indicated they might or would definitely have taken advantage of a local two-year college in the region if it had been available at the time of high school graduation.

15. Fifty-one and 47 percents of men and women graduates, respectively, who had attended a college or university indicated that if two years of technical, semi-professional or vocational training had been available at the time of graduation, they might or would definitely have taken advantage of it.

16. Of graduates living in Gratiot County who had no formal education beyond high school, 20 percent indicated they would have attended a trade or technical school had it been available.

17 The majority of graduates who attended either a business college or a trade or technical school had not completed a high school curriculum designed to equip them with educational background for the purpose.

18. Availability of vocational counseling and guidance services, especially for about half the adults with no education beyond high school, would seem to be a desirable service.

CHAPTER IV

EDUCATIONAL NEEDS OF INDUSTRY AND BUSINESS

Introduction. One important aspect of determining the need for post-high school education and training is to ascertain the needs of industry and business for qualified employees. The nature of the occupational structure in America has been changing steadily for the past thirty years. Jobs at all levels are more complex than they used to be. Just as the surgeon today must have at his command far more knowledge and skill than his predecessor of the 1930's had, so must the auto mechanic or the office secretary be much more highly trained than were their counterparts of thrity years ago. In many occupational fields where high school education and training was once the accepted standard, the increased complexity and sophistication of this decade demands technical and general education at the college level.

Although certainly not the only factor to be considered in discussions of a proposed community college, the provision of specialized education and training to enable youth and adults to attain job competencies commensurate with today's demands is one of the most important factors. This chapter is devoted to the presentation of the results of a survey conducted among Gratiot County industrial and business firms and governmental units, to determine the nature of jobs in our economy and to explore the extent of any interest which employers might have in community college occupational education programs.

The questionnaire used was prepared by the Program Needs Sub-Committee of the Gratiot County Citizens' Committee and by cousultants from The University of Michigan. The instrument was field-tested on five typical firms ranging in size from very large to very small, and was then revised and put in final form. Since the actual size of the labor force of Gratiot County and the occupational distribution of workers are factors already known and available from such sources as U.S. Census Data and the Bureau of Industrial Relations of the University of Michigan, a complete occupational survey of the county was not attempted. The purpose of this study was rather to acquire information about the kinds of jobs for which two years of post-high school education (or evening adult education) is the optimum preparation.

The questionnaires were distributed in person and by mail. The survey was conducted during August and September. The sub-committee on Needs of Business and Industry, Adult Education and Existing Vocational-Technical Programs assisted with the study in each of these cities.

It was decided that, in view of the expressed purposes of the study, retail establishments with fewer than ten employees (estimated) would not be surveyed. Professional offices and service establishments were surveyed, however, regardless of the estimated number of employees. No attempt was made to gather information on farm employment, nor on service and industrial jobs at the unskilled level.

A total of 300 industrial and business firms were selected, and questionnaires were delivered, either in person or by mail. Of the 300 questionnaires delivered, 93 (or 31 percent) were returned. All those returned were usable, at least to some extent. The firms that cooperated in the study are listed in Appendix A. Ample data were obtained to indicate the general nature of education and training demands for Gratiot County's labor force, and a sufficient number of employer opinions were obtained to give reliable information on how employers feel about post-high school occupational education and the effect it might have on the quality of the work force in this County.

Occupational Distribution of Employees in the Companies Surveyed. Even though a complete occupational survey of the County was not attempted, it is instructive to know the occupational distribution of the work force for the business and industrial firms in the sample. The survey returns were separated into two groups - those from firms employing fewer than 75 employees in one group; those employing 75 or more workers in a second group. The respondents were asked to list the total number of employees, and to group them into eight categories, as reported in Table 35 .

Only brief comment is warranted on the content of Table 35 . First, it is again emphasized that the results do not portray the full picture of Gratiot County's labor force, and consequently the percentages of workers in the several occupational groups may be somewhat at variance with those which would have been obtained had a 100 percent sampling been possible. Some possible interpretations follow:

1. Due to the fact that many jobs in the categories "Administrative/Management," "Semi-Professional," and "Highly Skilled Technician" are beyond the range of this study, the numbers that appear and their proportion of all employed personnel are not representative.

2. The secretarial-clerical and sales and advertising categories, about 12 percent, are under the national and state averages which are about 20 percent.

3. The percentage for the "Skilled Trades" group compares with the national figure. Ordinarily about 10 to 12 percent of the work force is in the "Craftsman" group.

4. The response from large employers provides perhaps an overweighted proportion in the "Semi-Skilled and Unskilled" category. The proportions of this group in small industries runs about one-to-one compared to the other employment classifications, while in large industry it runs over three-to-one.

TABLE 35

OCCUPATIONAL DISTRIBUTION OF THE WORK FORCE IN A SAMPLING OF GRATIOT COUNTY BUSINESS AND INDUSTRIAL FIRMS
(Number of Persons Reported in Various Occupational Categories)

	OCCUPATIONAL CATEGORY						
Size of Firm	Admin. or Manag.	Semi-Prof.	Highly Skill. Techs.	Sec. Cler.	Sales and Advt.	Skill. Trades (Crafts)	Semi-Sk. and Unskilled
0-74 (84 firms)	56	65	34	286	69	289	1025
75 or more (12 firms)	61	110	46	253	14	228	2580
Totals (93 firms)	117	175	80	539	83	517	3605
% of Total in each group	2.3	3.4	1.6	10.5	1.6	10.1	70.3

Grand Total Employees 5116

SECTION I INFORMATION ON NUMBERS OF PERSONS EMPLOYED

Since the occupational education function is concerned with "middle manpower" problems, the Professional-Managerial group of jobs, and the Semi-skilled and Unskilled group of jobs were not subjected to any questionnaire analysis in depth. The remainder of the questionnaire was devoted almost entirely to gathering information and opinions from employers with regard to middle-level occupations (semi-professional, technical, secretarial and clerical, sales and advertising, and skilled craftsmen). The pages to follow present the data obtained, together with some interpretive comment.

TABLE 36

KINDS OF SEMI-PROFESSIONAL JOBS (OTHER THAN TECHNICIANS), NUMBERS OF PERSONS CURRENTLY EMPLOYED, AND NUMBER OF FIRMS EXPECTING AN INCREASE IN NEXT FIVE YEARS
(Ranked in accordance with reported numbers currently employed.)

	Number Currently Employed			Number of Firms Expecting Increase in Five Years		
Job Title	Small	Large	Total	Small	Large	Total
Nurse (Registered)	5	43	48	1	1	2
Nurse (Practical)	9	35	44		1	1
Retail management and buyer	27	2	29		1	1
Asst. supervisor	8	8	16	1		1
Business data processing	0	11	11		1	1
Real estate, insurance and finance	6	2	8	1		1
Merchandising	0	5	5			0
Broadcaster	4	0	4	1		1
Copywriter	3	0	3	1		1
Miscellaneous semi-professional	3	4	7		1	1
Total	65	110	175	5	5	10

Information About Semi-Professional Personnel (Other than Technicians) Practices and Needs. Respondents were asked to give the job title, the number of persons currently employed, and the change in the rate of demand if any for each of the kinds of semi-professional jobs in their firms. There is no unanimity of agreement on exactly what constitutes semi-professional status and consequently some rearrangement of raw data was necessary to make the survey data conform to standard occupational classifications. Table 36 presents the data on semi-professional jobs.

Examination of Table 36 shows the concentration of semi-professional jobs for Gratiot County to be in health and management fields. Data on the numbers of service personnel were not reported by the several governmental units in the county; if they had been, the government service field would be evident.

The need for an increased output of persons trained in nursing and managerial skills is readily apparent, if the "estimated need" reports have any degree of credibility. Many registered nurses are, of course, baccalaureate degree personnel, but there is a rapidly growing trend to educate and train the bedside (R.N.) nurse at the associate degree (community junior college) level, and practical nurse (one-year, non-degree programs) education has been an established curriculum in community college for more than a decade.

The electronic data processing occupations are just beginning to assume an important position in the semi-professional category of jobs. Eleven persons were reported as currently employed in such jobs, and an increased need for these persons was forecast by 1970.

The remainder of the job title listings are perhaps not worthy of special comment, except to call attention to the kinds of semi-professional workers which modern industry, business, and government need. Four-year colleges and universities typically do not offer education and training for entry employment in jobs of this kind. In the past, upward occupational mobility into semi-professional jobs has come about as the result of on-the-job training combined with home study and/or correspondence study. These processes will, in all probability, not be able to meet the increased need for these workers in the future.

Attention is invited to the total figures from Table 36 . Current employment of 175 semi-professional people was reported, with increases expected in all classifications, except electronic technician, by as many small firms as large firms, five of each,

Semi-Professional Technicians in Gratiot County. Information about jobs at the technician level was requested from all the firms surveyed. Numbers presently employed, increases expected to be needed in five years, and the job titles used for technical level employees were requested.

The term "technician" is not clearly defined throughout business and industry today. No definition was given in the questionnaire, but the job titles listed by the respondents were studied carefully and some rearrangement of the data was made so that only those jobs which fit the definition given below would be included in this listing. Others were shifted to the professional, sales, and skilled trades classifications.

For the purposes of this study the technician is defined as one who works at a semi-professional job which requires a considerable background of theoretical knowledge in science and mathematics fields; and which also requires a well-developed ability to work with instruments, tools, and certain kinds of machinery. The technician may work in industry, business, health, agriculture or government service fields. His work lies between that of the professional on the one hand and that of the skilled craftsman on the other. Ordinarily his work requires a level of education commensurate with the associate degree or two years of post-high school work. Some technicians have attained their status through work experience and home study, or through military service school training, but the normal path to technician status is through college-level education of two years' duration.

While the numbers of these people employed, and their proportion in the total employment picture in Gratiot County is small, it is well to note that jobs in all fields and at all levels have increased in complexity and sophistication at an alarming rate during the nearly two decades since World War II. Many industrial, business, and health problems in research, production, and treatment require a "team approach" for their most effective solution. Technicians are the support personnel for today's scientists, engineers, physicians, and business leaders. It is reliably estimated that by 1970 nearly one-sixth of the labor force (nationally) will be engaged in technician-type occupations at the semi-professional level. Table 37 presents the data on Gratiot County from this section of the study.

TABLE 37

KINDS OF TECHNICIAN JOBS, NUMBERS OF PERSONS CURRENTLY EMPLOYED, AND NUMBER OF FIRMS EXPECTING AN INCREASE IN THE NEXT FIVE YEARS
(Ranked in accordance with reported numbers currently employed.)

Job Title	Number Currently Employed			Number of Firms Expecting an Increase in the Next 5 Years		
	Small	Large	Total	Small	Large	Total
Medical technician	11	7	18	1	1	2
Draftsman and design tech.	1	12	13		2	2
Industrial technician	4	7	11	1	1	2
Instrumentation tech.	5	6	11	1		1
X-ray technician	5	4	9		1	1
Electronic technician		8	8			0
Laboratory technician	7		7	2		2
Miscellaneous tech. occupations	1	2	3	1	1	2
Total	34	46	80	6	6	12

The rather notable factor about Table 37 is the position of importance locally which is held by technicians in the health groups. Certainly the present and expected future need for technicians in these fields has implications for the program which would be offered if community college services were available to the area.

The draftsman category is near the top in terms of numbers employed, in most any section of the nation, and it occupies a position of importance here also. The draftsman is a key man in industry, for it is he who renders the ideas of the scientist, the engineer, the designer, the artist, or the architect in the form required by those who will actually fabricate the parts, assemble the machine, or construct the building.

Experience of the past ten years has definitely shown that all estimates of need for persons well trained in science and technology have erred on the side of "too little" rather than "too much".

If, to the total number employed, we add just one technician for each industry indicating an expected increase, the result is a 15 percent increase. To this an allowance of five percent should be made for death and retirement, which makes a total increase in numbers of these employees of 20 percent. Granted that some can be "pirated" away from other jobs in other sections of Michigan, or from out-of-state areas, and that some may attain technician status, it seems naive to assume that Gratiot County's need for semi-professional technicians can continue to be met year after year unless education and training facilities for the purpose are available in the area.

Employment in Business Jobs. Jobs in business offices range all the way from professional and managerial occupations (the boss) through accounting, secretarial, and simple clerical jobs to the relatively unskilled jobs of messenger and "office boy". In this study we are concerned primarily with those jobs which require either two years of post-high school education or high school graduation plus a year or more of on-the-job experience and training.

Nationally, about one-fifth of the labor force is engaged in jobs which are classified as "clerical and kindred". However, this classification includes a much wider spectrum of jobs than we are concerned with here. Ten percent of the labor force reported in the kinds of office jobs defined above, is typical of the proportion for which a post-high school educational institution might properly offer education and training.

The business office, like industry, is being automated. Jobs in business offices are far more complex today than they were a decade or two ago. There the secretary in the 1930's was expected to take dictation well and to give speedy and accurate performance on the typewriter; today's secretary must be equally skilled in those departments and in addition operate a wide variety of modern office

machines and equipment. Dictaphones, transcribers, teletype machines, mimeograph and other duplicators, sorting machines, collators, and data processing equipment - these are just a few of the devices with which the modern secretary must "feel at home" if she is to meet the demands of her job.

TABLE 38

KINDS OF SECRETARIAL, CLERICAL, AND ACCOUNTING JOBS, NUMBERS OF PERSONS CURRENTLY EMPLOYED, AND NUMBER OF FIRMS ESTIMATING AN INCREASE IN THE NEXT FIVE YEARS

(Ranked in accordance with reported numbers currently employed.)

Job Title	Number Currently Employed			Number of Firms Expecting an Increase in the Next Five Years		
	Small	Large	Total	Small	Large	Total
General office worker	84	58	142	1	1	2
Clerk-typist	46	44	90	4	1	5
Telephone operator		90	90			0
Bookkeeper	84	3	87	4	1	5
Bank clerk or teller	35		35	3		3
Secretary	11	13	24	6		6
Accountant	14	10	24		1	1
Stenographer	4	18	22			0
Dispatcher	3	8	11	1		1
Office machine operator		9	9			0
Medical office asst.	5		5	1		1
Total	286	253	539	19	4	23

The present survey, though the returns do not give a picture of the total number of office employees, gives a general picture of the status of current employment and employer opinion on expected increases in the next five years. The data are presented in Table 38.

The rank order in which the job titles of Table 38 fall is fairly typical of the results obtained in such studies. It would be of interest, however, to know more about the various specialties of the large number of "general office workers" listed. It is quite probable that a significant number of these are actually specific job classifications but were not reported as such. If vocational-technical training is increased, further study of the specific needs for business education would be indicated.

Of the 93 firms reporting, 23, or one-fourth of them, expect an increase in the employment of new workers in business office jobs. In addition a five percent per year factor should be applied for deaths and retirements. While many of the replacements and new workers will come from such sources as new high school graduates, in-migrating experienced workers, and graduates of existing business colleges and four-year colleges, but since there is a shortage of qualified business office workers now (See Table 38), it is inconceivable that the situation will improve unless additional education and training facilities are made available locally. The rapidly increasing complexity of business office jobs indicates that such educational opportunities be at the college level.

Information on Jobs in Sales, Marketing, and Advertising. Although Gratiot County is not an area in which marketing is an important sector of the economy, it was nevertheless felt that some information on jobs in these fields would be of value for the survey.

Respondents were asked to list the job titles of sales personnel employed by their firms The results (with some re-grouping of job titles) are listed in Table 39 .

On the basis of this admittedly incomplete sample, it would seem that the education and training of persons for sales occupations is not a critical factor in Gratiot County's economy. Judging from the respondents' indications of increased need in five years, no great expansion in numbers of persons needed is envisioned. The results of this study taken alone would not suggest that any complete sales training curriculums be planned. It would certainly be advisable, however, to explore the extent of need for single courses and short-term training programs in the sales field, both for regular full-time students (day program) and for employed adults (evening program.)

Although not a first-priority problem, it is recommended that, if the proposed college is established, an in-depth study of education and training needs for sales occupations be made at an early date, the results of which could then be used to plan intelligently the scope of such educational offerings.

TABLE 39

KINDS OF SALES JOBS, NUMBERS OF PERSONS CURRENTLY EMPLOYED, AND ESTIMATED NUMBERS NEEDED IN FIVE YEARS
(Ranked in accordance with reported numbers currently employed.)

Job Title	Number Currently Employed			No. of Firms Estimated Need Expecting an Increase in next Five Years	
	Small	Large	Total	Small	Large Total
Sales representative	33		33		0
Salesman, field	5	8	13		0
Sales, retail	10		10	3	3
Sales, real estate, insurance, finance	6	2	8	1	1
Sales, route	6		6		0
Sales, advertising	4	1	5	1	1
Sales, auto and truck	3		3		0
Sales manager		3	3		0
Misc-sales occupations	2		2		0
Total	69	14	83	5	5

Job Information in the Skilled Trade, Craftsman, and Serviceman Categories. In any industrialized society an important segment of the work force is made up of artisans and mechanics--the skilled tradesmen who build, operate, and repair the structures and machines for modern living. Workers in the skilled trades classifications ordinarily need to possess a considerable amount of theoretical information about processes and materials, but major emphasis in their work is placed on manipulative skills--the unusual combination of a high order coordination between eye and hand which enables the worker to shape, fit, assemble, operate, and repair buildings and machines. In an earlier era almost all the training needed by the skilled worker was acquired by serving an apprenticeship to the master mechanic or journeyman. Indentured apprentices served for periods of three to as many as ten years, before becoming journeymen themselves. Except for reading an occasional set of instructions, or studying up on certain codes or manuals of standard practice, there was very little in the way of related technical instruction, and no requirement in general education beyond the ability to read simple instructions and perform very elementary arithmetical calculations.

The complexity of modern industry has changed all this, however. Necessary as it still is to develop a high degree of manipulative skill - and this can be attained only by actual on-the job work experience - the extensive amount of related technical content now demanded by almost all the trade and craft occupations requires education and training at least through high school. Indeed, much of the related technical knowledge needed by workers in the automotive, mechanical, electrical, service, and metal trades is at a level

beyond that taught in most high schools. Furthermore, many high schools, due to their small size or because of financial inadequacies, do not offer education and training which prepares students for entry into apprenticeship or for entry jobs in non-apprenticeable fields. It should be pointed out also, that tradesmen are citizens, and that as our entire society increases in complexity year by year, the assumption that people who work with their hands do not need advanced education in the common learnings is completely untenable.

TABLE 40

KINDS OF SKILLED TRADE, CRAFT, AND SERVICE JOBS, NUMBERS OF PERSONS CURRENTLY EMPLOYED
(Ranked in accordance with reported numbers currently employed.)

Job Title	Number Currently Employed			Number of Firms Expecting Increase in Next Five Years		
	Small	Large	Total	Small	Large	Total
Carpenter	76	5	81	1	0	1
General mechanic	14	29	43	1	1	2
Heavy equip. operator	34	6	40	1	0	1
Painter	12	27	39	1	1	2
Auto mechanic	25	6	31	2	0	2
Cabinet maker	17	10	27	1	0	1
Electrician (wireman)	5	22	27	0	1	1
Mill wright	15	12	27	3	0	3
Sheet metal worker	7	20	27	0	0	0
Printer	19	1	20	0	0	0
Steel worker	18	0	18	0	0	0
Cook or chef	16	0	16	2	0	2
Electrician (lineman)	0	16	16	0	0	0
Appliance repairman	0	9	9	0	1	1
Machinist	0	9	9	0	0	0
Plumber	3	6	9	0	0	0
Florist	8	0	8	1	0	1
Air condition, refrigeration or heating mechanic	0	5	5	0	0	0
Miscellaneous skilled occupations	20	45	65	2	2	4
Total	289	228	517	15	6	21

Among communities where junior or community colleges of a comprehensive nature have been established there is a recognizable trend toward developing strong trade preparatory and vocational-industrial education programs in these colleges. Joint apprenticeship committees, composed of representatives from labor, management, and education, are often set up to advise and counsel in the development and operation of such programs in community colleges. One

purpose of the present study was to gather information (on a sampling basis) about the skilled trade and craft occupations in Gratiot County, and to elicit opinion from the respondents about the advisability of making available in this area education and training opportunities both for persons already employed (trade extension) and for youth wanting to prepare for careers in the skilled trades. Information on job titles and on numbers of persons employed is compiled in Table 40.

It is apparent, from the information furnished by the respondents, that skilled workers are presently employed in the manufacturing, construction, and service industries across a broad spectrum of craftsman occupations. With the exception of a few of the job titles, the opinion of the respondents is that skilled trade job opportunities will increase in Gratiot County in the five-year period just ahead (See Table 40). The curriculum of a community college which might ultimately serve the area would depend on a number of factors:

1. The extent to which high schools of the county are providing or will provide, realistic vocational education for entry into apprenticeship and the skilled trades.

2. The extent to which management and labor will cooperate in efforts to plan for trade preparatory and trade extension education at the post-high school level.

3. The need for training and re-training to meet the problem of technological unemployment brought on by automation and increased sophistication in industry.

4. The extent to which the service industries will expand to absorb workers who would have gone into the manufacturing and production jobs a decade ago.

Of the 93 firms responding, 21, or almost one-fourth of them expect an increase in the number of new workers in the skilled trade jobs. Also, allowance must be made for the approximate five percent who will die or retire. While many of these replacements and additions will come from the schools and present work force and perhaps from experienced workers moving in, there is a reported shortage of these workers now (See Table 40). The increasing need for these skilled workers and the changing technical demands upon the present work force indicate that educational opportunity should be provided.

Information on Semi-Skilled Occupations. Some semi-skilled occupations are little more than common (unskilled) labor. Others require only a modest ability in skills of hand and eye, but require certain attributes of intelligence, integrity, personality and related technical knowledge, and thus border on the semi-professional job category. Examples of this latter kind of job are: ambulance attendant, mail carrier, bus driver, and nurse's aide.

As far as the specialized manipulative skills are concerned, there is not much direct relationship between semi-skilled jobs and post-high school education. Some college experience is of definite value, however, in developing the correlative aspects of job performance (mentioned above) for semi-skilled workers.

Respondents were again asked to list job titles, numbers currently employed, expected increases by 1970 for semi-skilled jobs in their firms and agencies. The tabulation is shown in Table 41.

Perhaps the most salient feature of the presentation in Table 41 is the fact that semi-skilled jobs in Gratiot County (within the limitations of the sample), are found in greatest numbers in the manufacturing and production industries; however, about 30 percent are employed in service industries.

The large numbers of nurse's aides, reflect the presence in the community of the hospital. There is not much clear-cut evidence in the compilation to suggest a need for college-level training programs. Specific needs in these areas can be invetigated later.

It is interesting to note the number of firms expecting an increase of these employees in the next five-year period. This result, no doubt, reflects the thinking on the part of the respondents that in the future the semi-skilled category will be the area of their greatest need.

TABLE 41

KINDS OF SEMI-SKILLED JOBS, NUMBERS OF PERSONS CURRENTLY EMPLOYED, AND NUMBER OF FIRMS EXPECTING AN INCREASE IN NEXT FIVE YEARS
(Ranked in accordance with reported numbers currently employed).

Job Title	Number Currently Employed			Number of Firms Expecting Increase in Next Five Years		
	Small	Large	Total	Small	Large	Total
Assembler	6	1398	1404	1	2	3
Production worker	302	431	733	4	1	5
Machine operator	80	396	476	2	1	3
Nurse's aide	290	98	388	3	1	4
Welder and flame cutter	23	123	146	1	1	2
Truck driver	78	50	128	5	0	5
Waitress	85	0	85	0	0	0
Janitor	19	33	52	6	0	6
Stock boy	24	18	42	2	1	3
Housekeeper	35	0	35	1	1	2
Packer or shipper	29	0	29	3	0	3
Laborer	25	3	28	1	0	1
Orderlies	15	5	20	0	0	0
Agriculture worker	8	0	8	2	1	3
Laundry, dry cleaner	3	4	7	2	0	2
Plant security guard	0	6	6	1	0	1
Postal worker	0	6	6	0	0	0
Miscellaneous semi-skilled occupations	4	9	13	0	0	0
Total	1025	2580	3605	34	9	43

Availability of Qualified Employees and Foreseeable Future Needs. Employers were asked to indicate how available was the local supply of qualified employees for each of the types of positions requiring training or experience. In addition they were asked to indicate if they anticipated the future annual rate of employment to change between 1965 and 1970 for each of the occupations. These data for responding firms are shown in Table 42. It can be observed, for example, that two firms employing 75 or more employees indicated the local supply of qualified industrial workers in applicance repair was scarce, with one firm expecting demand to increase and one expecting demand to remain the same. The remaining portion of the table is to be read in the same manner.

From data presented in Table 42 it can be determined that in the primarily industrial fields where availability of qualified employees was indicated to be scarce, 49 percent of the smaller firms said such applicants were scarce as did 41 percent of the larger firms. On the other hand 51 percent of the smaller firms said there was an adeuqte supply of this type in general as did 59 percent of the larger firms.

TABLE 42

AVAILABILITY OF QUALIFIED LOCAL EMPLOYEES AND ESTIMATED FUTURE NEED BY NUMBER OF FIRMS

Type of Tech. or Semi-Prof. Position	Availability						Change in Demand					
	Scarce		Ade-quate		Sur-plus		Increase		Same		Decrease	
	S	L	S	L	S	L	S	L	S	L	S	L
Primarily Indus.												
Appl. repair		2						1		1		
Auto mechanic	4			1			2		3	1		
Carpenter	4	1		2			1		4	3		
Electrician (wireman)	1	2		3				1				
Electronics rep.		1		3				2		3		
Machine operator	2		4	1			2	1	5			
Mechanic-general	4	1	3	3			1	1	6	3		
Millwright	4			2			3					
Painter	2	2		4			1	1				
Truck driver	4		12	4			5		11	4		
Welder and Stone cutter	2		3	5			1		3	5		
Heavy equip. operator	3		4	2			1		5	2		
Other	4	1	4	1			2	1	5	1		
Drafting and design tech.		4	1					2	1	2		
Electrical tech.		1	1					1	1			
Foreman	3	3	7	3			2	1	7	5		
Indus. tech.	1	1	3	2			1	1	3	2		
Instrumentation technician	2	2					1		1	2		
Mechanical tech.		1						1				
Quality control tech.		3		2				1		4		
Lab. technician	2	1	1				2		1	1		
Total	42	26	43	38			25	15	56	39		

TABLE 42 (continued)

AVAILABILITY OF QUALIFIED LOCAL EMPLOYEES AND ESTIMATED FUTURE NEED BY NUMBER OF FIRMS

Type of Tech. or Semi-Prof. Position	Availability						Change in Demand					
	Scarce		Ade-quate		Sur-plus		Increase		Same		Decrease	
	S	L	S	L	S	L	S	L	S	L	S	L
Primarily Business												
Bank clerk or teller	2		2				3		1			
Bookkeeper	6	2	13	1	1		4	1	15	2	1	
Clerk-typist	8	1	7	4			4		9	6		
Dispatcher	1	1	2	2			1		1	3		
General Office worker	1		14	6	1		1		15	7		
Accountant	3	3	2	2				1	5	3		
Business data processing		1		2				1		2		
Business management	9		4	2			1		10	2		
Real estate. ins., fire	1	1					1			1		
Retail mgmt. buying	1		2	1				1	2	1		
Secretary	6	2	4	1	-		6	-	5	2	-	
Total	38	11	50	46	2		21	4	63	29	1	
Primarily health, medical												
Medical lab. tech.	2		2				1	1	2			
Nurse (Prac.)	1							1				
Nurse (Reg.)	5						1	1				
X-ray tech.	2							1	1			
Other	2		-				-	1	1			
Total	12		2				2	5	4			

In the primarily business occupations noting a scarcity of employees, Table 42, 45 percent of the smaller firms and 19 percent of the larger firms indicated a scarcity while 53 percent of the smaller firms and 81 percent of the larger firms said the supply was adequate. About two percent of the smaller firms said there was a surplus of supply in some areas. About 25 percent of the smaller firms indicated demand would increase in this area, 74 percent said it would reamin the same and one percent said demand would decrease. About two percent of the smaller firms said there was a surplus of supply in some areas. About 25 percent of

the smaller firms indicated demand would increase in this area, 74 percent said it would remain the same and one percent said demand would decrease. About 12 percent of the large firms said demand would increase in this area while 88 percent said demand would remain the same.

In the primarily health and medical occupations there was generally noted to be a scarcity of such qualified employees among small firms, and a general indication that there would be an increase in the demand.

TABLE 43

RELATIVE FREQUENCY WITH WHICH ALL HIGH SCHOOL GRADUATES ARE EMPLOYED BY RESPONDENT FIRMS FOR VARIOUS ENTRY JOBS (93 firms reporting. Ranked in decreasing order on "common practice" column.)

	Number of Firms Indicating Frequency of Employing New High School Graduates		
Entry Job Category	Common Practice	Infrequent	Almost Never
Unskilled labor	22	13	5
Semi-skilled workers	17	10	5
Service jobs	15	14	5
General office jobs	10	17	6
Apprenticeship for the skilled trades	8	8	7
Salesperson	3	9	14
Technician	2	8	15
Semi-professional jobs	1	5	18

A brief study of these data reveals that the new high school graduate in Gratiot County cannot expect much consideration, even in entry job categories, from the respondent firms, except for jobs at the unskilled and semi-skilled levels. It should be pointed out that it is not only the educational level which is involved, but also the maturity level--many respondents wrote in such comments as,

"Too young", "Lack of maturity", etc. However, maturation and education take place simultaneously while the student is enrolled in a college occupational education curriculum, and the completion of such a course of study would, in most cases, solve the problem of job readiness. The high school, in its present form at least, does not seem to be preparing youngsters for entry jobs immediately upon graduation, according to the responses from the 93 firms covered in this survey.

Further information on this question was sought in the next section of the survey.

Employer Evaluation of Young Persons Just Out of High School. The respondents were asked to recall the employment practices of their firms over the past five years, and then check one of four statements which best describes the official policy of the firm in evaluating young persons just graduated from high school who applied for entry jobs with the firm. The responses are tabulated in Table 44 .

TABLE 44

EMPLOYER EVALUATION OF NEW HIGH SCHOOL GRADUATES
APPLYING FOR ENTRY JOBS
(93 firms surveyed)

Evaluative Statement	No. of firms checking each	Percent of total firms
1. Most young people seem reasonably well prepared, and we have employed them when openings occurred.	30	32
2. We have employed some young high school graduates but find that they need a considerable amount of additional education and training before they can perform satisfactorily.	25	27
3. We have found it inadvisable to employ young high school graduates, except for unskilled jobs.	11	12
4. The nature of most entry jobs in our firm is such that young high school graduates are virtually unemployable, because of lack of occupational education and training.	15	16
Firms not responding to this item	12	13
Total	93	100

Thirty-two percent of the firms surveyed had made a practice of employing young high school graduates and felt that they were reasonably well prepared for employment. On the other hand, 28 percent (sum of items 3 and 4) of the firms either consider new high school graduates "virtually unemployable", or at the most, employ them only for unskilled jobs.

In the middle is a group of 25 firms (27 percent of the total) who do employ young high school graduates, but find that they need "a considerable amount of additional education and training before they can perform satisfactorily".

On the basis of the results of this query as well as the results of the section immediately preceding this one, and within the limitation of the sample, it would seem that Gratiot County employers do not subscribe to the philosophy that the high school is meeting the need for occupational education today. There is a definite expression of opinion from many employers that youngsters "need additional (i.e. post-high school) education and training" and that they are "virtually unemployable" without it.

Industry Training Programs. Some citizens feel that the purpose of the public schools (including those of collegiate grade) is to provide general and liberal arts education, and that specialized education and training for specific jobs or even for "families" of jobs should be the responsibility of the employing firm. The present study made no attempt either to validate or invalidate this thesis, but the sub-committee felt that it would be of value to know the extent to which business and industry are actually educating and training their employees for specialized jobs. A distinction is made here between education and training in formal classroom and laboratory settings, and the day-to-day job experiences of the worker, which also have training value.

The respondents were asked if their firm has "an organized, operating, training department, which conducts formal classroom training for employees". The results of the inquiry are presented in Table 45 .

TABLE 45

EXTENT OF FORMAL CLASSROOM TRAINING OFFERED
EMPLOYEES BY ORGANIZED, OPERATING TRAINING DEPARTMENTS
(93 firms participating)

Number of Firms Indicating		Percent of Total Firms
Yes	22	24
No	51	55
No answer	20	21
Total	93	100.0

The answer to whether business and industry should provide post-high school education and training depends on one's philosophical approach to many issues in a free society. No attempt is made here to throw light on that question. The evidence is clear, however, that only a very small number of the Gratiot County firms sampled regard post-high school education and training, conducted by in-plant educational organizations, as their business. By implication, it would seem that they regard education for job competence (as well as education for civic competence) as the business of the schools. Since business and industrial firms are ordinarily major supporters of the public education enterprise (through taxes, gifts, etc.) it is understandable that they are reluctant to set up and support in-plant educational institutions. In any case, only the very large firms can carry on education and training activities of an organized nature.

How the Existing Educational Facilities Meet Employers Occupational and Training Needs. Of the 67 firms who responded to the question on the extent to which present educational facilities in Gratiot County meet their occupational and training needs, ten percent said very well, 54 percent said fairly well and 36 percent said poorly.

Forty-four firms, or 47 percent of the respondents, said they would be interested in participating in discussions or further study of plans for improving occupational education and training by the schools in Gratiot County.

Twenty-two firms, 24 percent of the respondents, indicated they conducted formally organized training programs, eleven of them in supervision, ten of them in apprenticeship, four of them in technician, three of them in executive development, and one each in plant management and other, respectively.

Support for the Development of Occupational Education and Training. Employers were asked what developments in occupational education and training they would support if they thought improvement was needed. Three choices were presented, all of which could have been checked. Of the 93 respondents, 24 percent said they would support substantial expansion of vocational education programs in the existing high schools. Twenty-eight percent said they would support creation of an area vocational school for secondary (high school) occupational training. Thirty percent said they would support the establishment of a two-year community college with a strong program of occupational education.

SECTION II SPECIFIC SUGGESTIONS FROM EMPLOYERS WITH REGARD TO CURRICULUM NEEDS

In addition to the more-or-less structured responses asked for in the body of the questionnaire, the sub-committee solicited free responses from large industry. The respondents were asked to indicate "any other ways" (in addition to all the previous questions) in which education and training opportunities in the county could provide you with more adequately trained personnel.

"The young high school graduates who have applied here are completely cold, nervous, uninformed as to what to expect in employment interview, and are really not qualified to sell themselves. A couple of short sessions with Industry and School working together is always helpful in this matter."

"We need a vocationaltraining program in areas not presently covered by our hospital programs for the health occupations. Also, we feel our present programs could be part of the educational system as the present L.P.N. program."

"Gratiot County needs vocational training programs following high school to maintain our youth and keep youth in Gratiot County."

"1. Combine Alma and St. Louis high schools. 2. If junior college cannot be acquired then add two more years to the present high school system."

" (Because of the nature of our institution) we need a more mature individual than a recent high school graduate.... Additional training would be helpful in clerical - good typing skill, mail handling, filing, etc.; in secretarial - the ability to take dictation; duplicating machine operator - ditto type process, mimeograph, offset press; groundskeeper; mechanical - developing plumber skills, custodian, etc."

"I think we may be getting 'education happy' and question whether a real need exists for additional facilities. Rather a better utilization of existing facilities would serve the apparent needs to a far greater extent than developing a hodge podge of 'educational opportunities'."

"Factors other than inadequate education make recent grads or non-grads less desirable: 1) lack of experience; 2) lack of maturity; 3) liability of military service; 4) lack of responsibility in the sense that this type can quit on a whim, job jump, etc. Furthermore, while there appears to be a lack of adequate "technically trained" people in the area, there also may be a lack on the part of industry to make immediate use of such training; therefore, we would be training for jobs in Saginaw, Lansing, etc."

SUMMARY AND CONCLUSIONS

1. About one-fourth of Gratiot County's reported labor force is in categories related to professional, semi-professional (including technical), and managerial occupations.

2. Reported semi-professional jobs in Gratiot County tend to be concentrated in the health and managerial areas. Increases in the number employed are expected in all job classifications in the next five years.

3. As concerns technicians in particular (see the definition of technician on p 73), the greatest current employment and increases expected in the future are in the field of health. Other fields with growth potential include drafting, industrial technology, and laboratory technician.

4. Most job categories in the business office jobs are expected to increase. This is the largest group of skilled employees in the County, and is expected to increase in numbers employed by the largest percentage of respondents. The most important specialties would seem to be clerk/typist, bookkeeper and secretary. As office machines are employed more, there will be a corresponding need for operators.

5. The education and training of persons for sales and advertising occupations is probably not a critical need in Gratiot County at the present time.

6. About one-fourth of the respondents expect an increase in the number of jobs in the highly skilled (craftsman) category in the five year period ending in 1970. Among those workers most needed in the County's economy are drafting and design technician, building trades workers, auto mechanics, millwrights, general mechanic, and laboratory technician.

7. The largest percentage of respondents expecting increases in employment in the next five years, expect them in the semi-skilled and unskilled occupations. The largest expectations were for industrial workers; the next largest was in services.

8. Gratiot County employers, in general, feel that new high school graduates are not ready for employment with their firms, except in jobs at the skilled and semi-skilled levels.

9. There seems to be a measure of agreement among Gratiot County employers that there is a significant shortage of semi-professional and technical level personnel in the County. About as many indicated a scarcity of these persons as indicated that the supply was adequate. About three in ten expected the change in demand to increase for these persons; while seven in ten expected demand to remain the same.

10. A significant percentage of responding firms, 29 percent, operate some type of classroom training program thru an organized training department.

11. Forty-four percent of responding firms said they would be interested in participating in further discussions or further study of plans for improving occupational education and training by the schools in Gratiot County.

12. About one-fourth of responding firms, said they would support substantial expansion of vocational education programs in existing high schools; 28 percent would support creation of an area vocational school for high school occupational training; and 30 percent would support the establishment of a two-year community college with a strong program of occupational education.

13. Open-end comments of employers that were generally addressed to the need for improvements:

a) We need vocational training in areas not presently covered;
b) We need vocational training to keep youth in Gratiot County;
c) We should utilize existing facilities rather than develop a hodge podge of "educational opportunities;"

14. On the other side, open-end comments of employers that were addressed to factors that make recent graduates or non-graduates less desirable were that they:

a) cannot sell themselves in an employment interview;
b) lack experience;
c) lack maturity;
d) have the liability of military service;
e) have a lack of responsibility that leads to "job hopping."

Another relevant comment was made on the lack of local industry to make immediate use of such training, which resulted in these persons employing their skills outside the area.

CHAPTER V

LEGAL, FINANCE, AND ORGANIZATIONAL ALTERNATIVES

Introduction. This chapter provides information on the estimated costs, and organizational alternatives in providing an area vocational-technical center.

The law defines an area vocational-technical education program as a program of organized systematic instruction designed to prepare the following individuals for useful employment in recognized occupations:

(a) Persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

(b) Persons who have already entered the labor market and who need training or re-training to achieve stability or advanced employment.

(c) Persons enrolled in high school.

Provisions exist for two or more school districts maintaining high schools to enter into long-term contractual agreement as to the conditions under which one may provide an area technical-vocational center. The full text of the law is readily available and will not be repeated here.

Part I

Various alternative plans have been considered for meeting the high school level vocational-technical needs of Gratiot County youth. They are as follows:

Plan A - One of the existing secondary schools may be designated as an area vocational-technical center. Students from all other high schools in Gratiot County would be transported for part of their work leading to satisfaction of graduation requirements to the designated center for vocational-technical work.

Plan B - Gratiot and Isabella Intermediate School Districts might join together in forming an area vocational-technical center with two attendance centers each specializing in certain different ways. These centers would be at Alma and Mount Pleasant public high schools.

Plan C - Each of several high schools would become the center for certain specific types of vocational-technical work for high school students.

Plan D - There would be a new central facility constructed, which would accommodate 500 high school youth, which would be separate from any existing high school. It would be operated by the district in which

it was located on a contractual basis with the intermediate school district.

After consideration of the merits and disadvantages of each alternative plan of organization for providing vocational-technical programs in Gratiot County, it is the considered decision of study committee members, personnel in the intermediate school district superintendent's office, and school superintendents in the County that Plan A should be recommended. Members of the Survey Committee and school officials of both Isabella and Gratiot Intermediate School Districts met to discuss Plan B. The decision was that Plan B would be a desirable long-range goal, but that at the outset each would form its own vocational-technical education area center and district.

Part II

Estimated Costs for Operation and Capital Outlay. In accordance with the regulating requirements of the State Department of Education, this study has drawn together pertinent data on financial resources and anticipated financial requirements of the plan proposed. Financial requirements are of two types. Operational expenditures (e.g. instructional salaries, administrative costs, maintenance, etc.); and capital outlay (e.g. site, building and equipment).

Sources of Operating Funds. Several sources of funds are available to finance the plan suggested above. Initial consideration will be given to those sources which are outside the community and secondly, consideration will be given to sources of a local nature.

Primarily, external funds come from the State and/or Federal governments. Under the present plan in Michigan, however, Federal monies are administered through the State Department of Education and are indistinguishable from State monies. Presently, it appears that the secondary vocational-technical program will be reimbursed at 25 percent of operational costs under the Vocational-Education Act of 1963. There is presently no provision for any additional state aid reimbursement as there is in Ohio. Table I presents the costs as projected for the first years of operation. The current cost of secondary education per student in Michigan public schools seems to average near $400. Since the type of training proposed is more expensive, this study has allowed a gross operational cost of $500 per student. Column D. in Table I reflects the amount of money that must be raised locally to operate under the alternative recommended. No tuition may be charged the student at the secondary level. A levy of one and three-tenths (1.3) mills on the equalized assessed valuation of $123,132,312 would be necessary to provide the local share of operating costs in 1975-76, for the vocational-technical program. If assessed valuations raise as in the past, such a program could be operated within a mill levy. Otherwise, the cost of operation would be pro-rated among the several school districts according to some satisfactory plan agreed upon.

The law permits the Intermediate School District to submit such a proposition for this purpose to the qualified voters (all registered voters). If the vote is favorable, the authorized millage can be levied and the money collected by the Intermediate District which then would be transferred to the area vocational-technical center to defray expenses in operating the

programs. If such a procedure is not followed, the various school districts may enter into some type of financial agreement satisfactory to all whereby the district providing the facilities could be reimbursed by each of the other districts a given amount for each student attending the area vocational-technical center.

TABLE I

SECONDARY VOCATIONAL-TECHNICAL PROGRAM

	A Full Time Equivalent	B Operating* Cost (A X $500)	C Federal-State Contribution 25% (.25 X B)	D Total to be raised locally
1967-68	291	$145,000	$36,375	$109,125
1968-69	294	147,000	36,750	110,250
1969-70	300	153,000	38,250	114,750
1970-71	320	160,000	40,000	120,000
1971-72	334	167,000	41,000	125,250
1972-73	354	177,000	44,250	132,750

* $500 per full time

Capital Outlay. Requirements for building space and equipment are estimated as follows. To serve 422 full-time equated students with 85 percent utilization of facilities will require an area center constructed to serve approximately 500 high school youth. Assuming 150 sq. feet per student, 75,000 sq. feet are needed. If construction costs plus equipment averaged out at $23 per sq. ft., the total amount necessary would be $1,725,000. If the state and federal share was $862,500, that much would have to be raised locally. A 20-year bonding program to defray such costs would require approximately seven tenths of a mill (.7) on the equalized assessed valuation of the Gratiot Intermediate District assessed valuation at its present level. The committee recommended that existing space be used if it can be found and that new construction occur only when existing space is inadequate or unavailable. Initial floor space of 37,000 sq. ft. should be provided.

Recommendation. The Citizens Study Committee on Feasibility of Vocational-Technical Education in Gratiot County recommends that Plan A be adopted as a means of providing vocational-technical education to residents.

CHAPTER VI

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Growth and Development

1. The County of Gratiot is predominently rural, sparsely populated, diversified in terms of population origin, and consists primarily of a middle class socio-ecomomic populace in which educational attainment is slightly lower than for the state as a whole.

2. The area is accessible in all directions by well improved roads and is served well by public ground transportation and communication facilities.

3. The area is relatively stable with many persons moving from farm to village and from the area either to live or for employment purposes in order to earn a living.

4. An expected high school enrollment of 3,129 in grades 9-12 in 1975-76 would contain possibly 840 youth who would take advantage of vocational-technical educational programs if they were available. Nearly 600 youth might be served in this fashion in 1968-69 if programs and facilities were available.

Educational Needs (Seniors, Graduates)

5. Residential tenure of seniors reflects considerable stability of population. Seven of every ten have lived in Gratiot County over 10 years and 79 percent have lived there over 6 years, or since junior high school.

6. The incidence of broken homes is below average for the nation. Only 8 percent were living with only one parent.

7. One-half of the girls and 67 percent of the boys worked part-time while attending school.

8. Of all seniors, 45 percent expressed definite plans for attending college and another 9 percent thought future plans "probably" would include college. Eleven percent were undecided. Twenty-eight percent of the boys and 35 percent of the girls definitely or probably did not include college in future plans.

9. Of seniors planning on college, 17 percent expected to attend Central Michigan University, 16 percent, Michigan State University and 13 percent Ferris State College. Fifteen percent indicated they would attend a college outside the state.

10. Of the 371 seniors whose plans definitely or probably include college attendance, 85 percent plan to enroll in some type of educational institution the next year following high school graduation.

11. Seventy-eight and 63 percents respectively of the boys and girls with definite plans for college were enrolled in a college preparatory curriculum. Five percent of the boys and 23 percent of the girls were enrolled in a commercial curriculum and 6 and 5 percents respectively were enrolled in a general curriculum.

12. Of the youth who are definitely not planning on college attendance, one-half were enrolled in a general curriculum and approximately one-fifth were enrolled in an industrial arts curriculum and another fifth in an agricultural curriculum. Of the girls with such plans, 53 percent were enrolled in a commercial curriculum and 31 percent in a general curriculum.

13. Of youth whose plans definitely do not include college attendance, 16 percent rank in the top third of their class. Sixty percent of those definitely planning on college rank in the top third of their class.

14. Eighteen percent of the youth in the top third of their class have no plans for college attendance. Forty-two percent of those in the middle third of their class and 22 percent of those in the lower third have definite or probable plans for attending college.

15. One-fourth of the seniors not planning on college indicated wanting to work as their reason and 13 percent felt that it was too expensive. Only 11 percent cited inability to make good grades as their reason.

16. Of youth without plans for college, 12 percent indicated that if more money were available they would change their plans and 30 percent indicated this might change their plans. These youth constitute about one-fifth of all the seniors in the county.

17. About half of the youth whose plans would or might change would need an amount to cover half the expenses of attending college a year and another 43 percent indicated they would need enough to cover all expenses.

18. Of youth with no plans for college attendance, only one percent would be interested in post-graduate work at the local high school, but 10 percent would be interested in entering military service for training, 11 percent would be interested in apprenticeship-type training, and 41 percent expressed an interest in on-the-job training. However, 52 percent would be interested in some type of advanced business, technical, or trade training if it were available in the area.

19. Of the boys whose plans definitely do not include college,

90 percent plan to work or enter military service following graduation. Of the girls with no plans for college eight of ten plan to work and 44 percent expect to be homemakers. Three percent expect to attend a trade or technical school and 7 percent a nursing school.

20. In general, fields of interest for immediate advanced study tend to agree with long-range occupational goals of seniors.

21. The greatest demand is for liberal arts type of training. The number of youths who expressed such an interest represents 15 percent of all the seniors, or 30 percent of those who are definitely planning to attend college. Other fields of interest for advanced study are: teaching, nursing, engineering, business administration, secretarial-clerical, general business, agriculture, mechanical technology, drafting and design technology, other skilled trades, and cosmetology. The percents of all seniors choosing each of these fields ranged from 3 percent to 7 percent.

22. During the past five years approximately 39 percent of all high school graduates in Gratiot County have enrolled for further study in some kind of post-high school institution--about 34 percent in colleges and universities, and about five percent in "other types" of post-high school institutions. These data were obtained from high school principals' reports.

23. A 21 percent sampling of the high school graduates of the classes of 1960 and 1962 was obtained. Fifty-one reported that they had attended (or were attending) a post-high school educational institution of some kind (college, university, business college, trade school, or vocational school). Since only 39 percent of all graduates were reported as having "gone on" to post-high school study by the high school principals' reports, it is probable that the "sample" is biased in the sense that those who had "gone on" tended to return the questionnaire and those who did not "go on" tended not to reply.

24. There is evidence that Gratiot County's high school graduates tend to remain in or near the county. Of those who replied, 45 percent still live in the county; 17 percent lived outside the county but immediately adjacent.

25. Of the respondents, 36 percent had attended a college or a university for at least one semester. Five percent of the men and 11 percent of the women had attended a business college; and seven percent of both had attended a trade or vocational school. Nineteen percent of the men respondents and ten percent of the women respondents were attending a post-high school institution at the time of the study. Ten percent of the men and five percent of the women were attending some post-high school institution on part-time.

26. Fifty-seven of all graduates responding said that in their opinion they probably would have continued their education beyond high school if financing had not been a problem.

27. Of the respondents presently living in Gratiot County 69 percent of the men and 53 percent of the women expressed a present interest in opportunity for further education and training.

28. About two out of every ten high school graduates of the graduating classes studied said they would have been interested in some kind of two-year semi-professional, technical, or vocational education and training had it been available in the county at the time of their graduation.

29. Of graduates who had received no type of additional education or training beyond high school, 12 percent would have been interested in a community college, 21 percent in a four-year college, and about 17 percent in a technical or trade school, if these opportunities had been available at low cost in the county.

30. Graduates were asked if they were currently interested in further education and training. Of the respondents, 67 men and 42 women indicated a desire for post-high school educational opportunities. The kinds of programs mentioned most frequently with numbers of respondents desiring each were:

Business education	38	Skilled trades	20
Health sciences	5	Architecture	4
Teaching	14	Chemistry	1
Liberal arts	21	Engineering	6

It is pointed out that these numbers represent a 21 percent stratified random sampling of the graduates of the classes of 1960 and 1962.

31. As regards male graduates responding to the study, 17 percent felt that their high school preparation for college had been either inadequate or "fair;" whereas 21 percent felt that high school preparation for employment had been either inadequate or "fair."

32. Averaging responses from men and women, 42 percent of the respondents indicated that they felt they had received "little or no help" from their high school guidance services in making a decision on the occupation they wanted "to settle down in." Sixty-four percent of all respondents said they felt that high school guidance services were either "fair" or "poor."

33. Based on the responses from this 21 percent sampling of recent high school graduates, it would seem that the greatest need for post-high school or community college educational opportunity lies in the area of education and training for employment,

particularly in semi-professional, technical, and high-skilled trades fields.

34. A positive relationship was found to exist between whether graduates had actually continued their education and the attitudes which they perceived their parents had held about the matter.

35. Of just the graduates having received no type of further education or training, 64 percent indicated they might or would definitely have taken advantage of a local two-year college in the region if it had been available at the time of high school graduation.

36. Fifty-one and 47 percents of men and women graduates, respectively, who had attended a college or university indicated that if two years of technical, semi-professional or vocational training had been available at the time of graduation, they might or would definitely have taken advantage of it.

Educational Needs of Business and Industry

37. About one-fourth of Gratiot County's reported labor force is in categories related to professional, semi-professional (including technical), and managerial occupations.

38. Reported semi-professional jobs in Gratiot County tend to be concentrated in the health and managerial areas. Increases in the number employed are expected in all job classifications in the next five years.

39. As concerns technicians in particular (see the definition of technician on p 73), the greatest current employment and increases expected in the future are in the field of health. Other fields with growth potential include drafting, industrial technology, and laboratory technician.

40. Most job categories in the business office jobs are expected to increase. This is the largest group of skilled employees in the County, and is expected to increase in numbers employed by the largest percentage of respondents. The most important specialties would seem to be clerk/typist, bookkeeper and secretary. As office machines are employed more, there will be a corresponding need for operators.

41. The education and training of persons for sales and advertising occupations is probably not a critical need in Gratiot County at the present time.

42. About one-fourth of the respondents expect an increase in the number of jobs in the highly skilled (craftsman) category in the five year period ending in 1970. Among those workers most needed in the County's economy are drafting and design technician, building trades workers, auto mechanics, millwrights, general mechanic, and laboratory technician.

43. The largest percentage of respondents expecting increases in

employment in the next five years, expect them in the semi-skilled and unskilled occupations. The largest expectations were for industrial workers; the next largest was in services.

44. Gratiot County employers, in general, feel that new high school graduates are not ready for employment with their firms, except in jobs at the skilled and semi-skilled levels.

45. There seems to be a measure of agreement among Gratiot County employers that there is a significant shortage of semi-professional and technical level personnel in the County. About as many indicated a scarcity of these persons as indicated that the supply was adequate. About three in ten expected the change in demand to increase for these persons; while seven in ten expected demand to remain the same.

46. A significant percentage of responding firms, 29 percent, operate some type of classroom training program through an organized training department.

47. Forty-four percent of responding firms said they would be interested in participating in further discussions or further study of plans for improving occupational education and training by the schools in Gratiot County.

48. About one-fourth of responding firms, said they would support substantial expansion of vocational education programs in existing high schools; 28 percent would support creation of an area vocational school for high school occupational training; and 30 percent would support the establishment of a two-year community college with a strong program of occupational education.

49. Open-end comments of employers that were generally addressed to the need for improvements:

a) We need vocational training in areas not presently covered;
b) We need vocational training to keep youth in Gratiot County;
c) We should utilize existing facilities rather than develop a hodge-podge of "educational opportunities;"

50. On the other side, open-end comments of employers that were addressed to factors that make recent graduates or non-graduates less desirable were that they:

a) cannot sell themselves in an employment interview;
b) lack experience;
c) lack maturity;
d) have the liability of military service;
e) have a lack of responsibility that leads to "job hopping."

Another relevant comment was made on the lack of local industry to make immediate use of such training, which resulted in these persons employing their skills outside the area.

Legal, Finance and Organizational Alternatives

51. The alternative plans for meeting the high school level vocational-technical needs of Gratiot County youth are to:

A. Designate an existing high school as an area vocational-technical center;

B. Join with Isabella Intermediate School District to form two attendance centers, one at Alma public high school, the other at Mount Pleasant public high school;

C. Develop a center for certain specific types of vocational-technical work in each of several high schools;

D. Construct a new central facility.

52. A levy of one and three-tenths (1.3) mills on the equalized assessed valuation of $123,132,312 would be necessary to provide the local share of operating costs in 1975-76 for the vocational-technical program.

53. To arrange for the area vocational-technical center the law permits the Intermediate School District to place the proposition on the ballot, and if the vote is favorable, to levy, collect and transfer the millage for operation. Or the various school districts may enter into some mutual arrangement to provide facilities and reimbursement on a per-pupil basis.

54. The estimated cost for an area vocational-technical center to house 500 students is $1,725,000 for 75,000 sq. ft. If the state and federal share were $862,500, that much would have to be raised locally. A 20-year bonding program to defray such costs would require approximately seven-tenths of a mill (.7) on the equalized valuation of the Gratiot Intermediate District assessed valuation at its present level.

Committee recommendations: use existing space wherever it can be found; erect new facilities only when existing space is inadequate or unavailable. Initial floor space of 37,500 sq. ft. should be provided.

Recommendations

1. That Plan A be the alternative selected with one of the existing high schools designated as the vocational-technical center.

2. That a 1.0 mill levy be made for buildings and equipment. (A total of 1.7 mills is suggested with the likelihood that 2.0 mills would be necessary to account for increases in costs in the immediate future.

APPENDICES

Included in the appendices are the listings of current vocational offerings in Gratiot County High Schools, and a list of the business and industries questionnaire respondents.

APPENDIX A

VOCATIONAL OFFERINGS IN GRATIOT COUNTY HIGH SCHOOLS

Offering as Listed By the School	Ashley	Fulton	Breckenridge	St. Louis	Ithaca	Alma
Agriculture						
Agriculture I	x	x	x	x	x	
Agriculture II	x	x	x	x	x	x
Agriculture III	x	x		x	x	x
Agriculture IV and Farm Shop					x	
Agriculture IV	x	x		x		x
Farm Shop	x		x	x		
Number of Courses	5	4	3	5	4	3
Business						
Typing I	x	x	x	x	x	x
Typing II	x		x	x	x	x
Shorthand I	x	x	x	x	x	x
Shorthand II	x	x	x	x	x	x
Bookkeeping	x	x	x	x	x	x
Record Keeping						x
Business Math						x
Occupational Orientation						x
Retailing						x
General Business	x		x	x		
Business Law	x					
Office Practice		x	x			
Business Machines and Office Practice				x		
Business Management				x		
Business Machines					x	
Number of Courses	7	5	7	8	6	9
Home Economics						
Home Economics I	x	x	x	x	x	x
Home Economics II	x	x	x	x	x	x
Home Economics III	x	x		x	x	x
Home Economics IV	x			x		
Home Management						x
Home and Family Living						x
Advanced Home Economics			x			
Number of Courses	4	3	3	4	3	5

Offering as Listed By School	Ashley	Fulton	Breckenridge	St. Louis	Ithaca	Alma
Industrial Arts						
Power Mechanics						x
Auto Shop						x
Metal Shop						x
Electricity						x
Woodworking I						x
Woodworking II						x
Cabinet Making and Carpentry						x
Mechanical Drawing I			x	x	x	x
Mechanical Drawing II			x	x	x	x
Mechanical Drawing III			x	x	x	
Drafting I		x				
Drafting II		x				
Shop I		x			x	
Shop II		x			x	
Shop III		x			x	
I.A. I			x			
I.A. II			x			
Advanced I.A.			x			
General Shop				x		
Wood Shop I				x		
Wood Shop II				x		
Metal Shop I				x		
Metal Shop II				x		
Number of Courses	0	5	6	8	6	9

APPENDIX B

BUSINESS AND INDUSTRY QUESTIONNAIRE RESPONDENTS

A & W Drive In Restaurant

Alma Clinic

Alma College

Alma Concrete Products

Alma Container Corporation

Alma Iron & Metal Company

Alma Jalousie Company

Alma Larchdale, Incorporated

Alma Plastics Company

Alma Products Company

Alma Varsity Shop

Alma Warehouse Company, Inc.

A. L. Aldrich, M.D.

Armco Steel Corporation, Metal Products Division

Jack T. Arnold, Attorney

B & L Industries, Incorporated

B & W Co-op, Incorporated

Bank of Alma

Billig's Flowers

Brink's Machine Company

M. J. Budge, M.D.

Loren G. Burt, M.D.

Central National Bank

Chesapeake & Ohio Railroad Co.

Commercial National Bank

Commercial Savings Bank

Consumers Power Company

Controls Company of America, Motor Division

Crippen Manufacturing Company, Incorporated

Detroiter Mobile Homes, Incorporated

Economy Mills, Incorporated

Farmers State Bank

Fine, Incorporated

Fulton Ford, Incorporated

Gay's 5 & 10¢ Stores, Incorporated

General Telephone Company of Michigan

Golden Acres, Incorporated

Don Goostrey, Incorporated

Gratiot Community Hospital
- General
- Laboratory
- X-ray Department

Gratiot County Court House

Gratiot County Herald, Incorporated

Gratiot County Intermediate Board of Education

Gratiot Metals Company

Great Lakes Express

Guthrie's Dry Goods Company

Hall Lumber Company

The Hicks Company

Ithaca Clinic

Ithaca Elevator Company

R. B. Johnson, M.D.

Wm. J. Knowles, D.O.

Leonard Refineries, Incorporated

Leonard Super Service

M. R. Linn, M.D.

Little Rock Lumber Company

Lobdell Emery Manufacturing Co.

Maple Valley Nursing Home, Incorporated

McClure Oil Company

Edwin G. Meyer, M.D.

Michigan Chemical Corporation

Michigan Livestock Exchange

Michigan Masonic Home and Hospital

Michigan Masonic Hospital

Middleton Diner

Middleton Farmers Elevator Co.

R. N. Monroe Trucking

New Moon Homes

Northern Truss & Components Corporation

J. C. Penney Company

Perrinton Medical Center

Production Credit Association of Alma

Quality Printing Company

Rainbow Trail Hatchery

Redman Industries, Incorporated

Riverdale Frame Sales Corporation

R. J. Remsberg, D.O.

Roslund Gravel Company

John Rottschafer, M.D.

Saginaw Valley Shopper

St. Louis Precision Products, Incorporated

Shady Nook Farms

Don Sharkey

V. Lowell Shelim, M.D.

Standard School Company

Super & Star Restaurants

United States Postal Department

R. A. Wilcox, M.D.

Wilcox Nursing Home

WFYC - AM/FM

Wolverine Shoe and Tanning Corporation

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*OCCUPATIONAL INFORMATION; *EMPLOYMENT QUALIFICATIONS; *EMPLOYMENT OPPORTUNITIES; *OCCUPATIONAL GUIDANCE; *WAGES; CAREER OPPORTUNITIES; HIGH SCHOOL STUDENTS; EMPLOYMENT PROJECTIONS

The Occupational Outlook Handbook 1964-1965, and business, labor union, educational, and governmental source data were used to compile this report to provide secondary school administrators, counselors, teachers, and students with a quick occupational information reference. The occupational areas are organized into four specific parts: (1) occupations which usually require a high school diploma plus post high school training for entry, (2) occupations which usually require a high school diploma plus an apprenticeship program for entry, (3) occupations which usually require a college degree for entry, and (4) occupations in which high school dropouts may find employment. Job titles are listed in outline form giving: (1) minimum education needs for job entry, (2) employment outlook, (3) estimated number of persons employed in the occupation in 1964, (4) approximate yearly salary in 1964, and (5) general remarks about specific duties. A bibliography is given to guide the user to publications that will provide a detailed explanation of each job or occupation. (HC)

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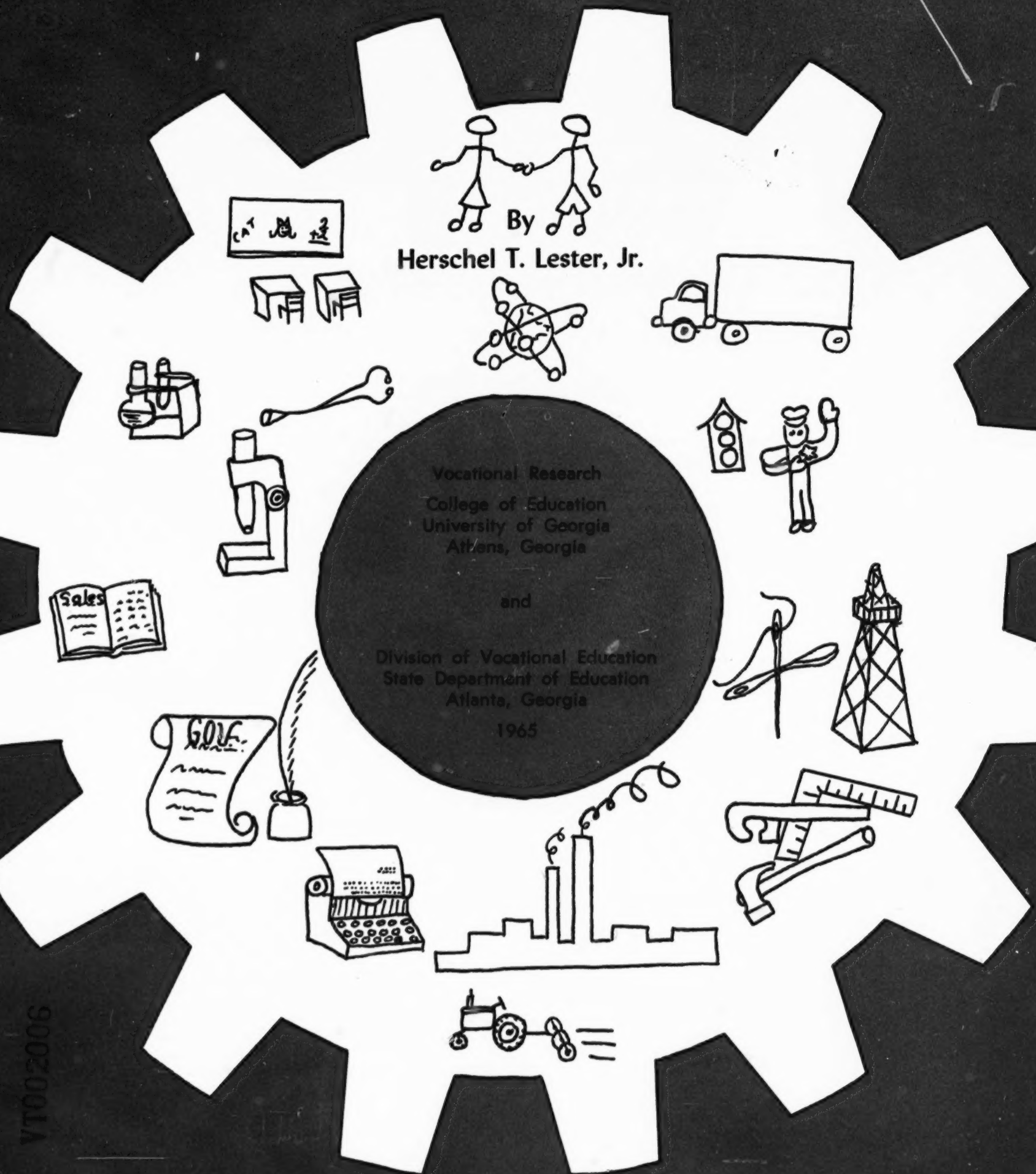
A GUIDE TO OCCUPATIONAL AREAS

a handbook for secondary school administrators, counselors, instructors and students



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1965

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A GUIDE TO OCCUPATIONAL AREAS

A Handbook for Secondary School

Administrators, Counselors, Instructors

and Students

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

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State Department of Education

September, 1965

FOREWARD

This publication is designed for secondary school administors, counselors, and teachers who are interested in or concerned with present and/or future problems as related to informing students about occupations. While it may serve its primary purpose as a reference to the above mentioned persons, it should also be an aid for youth to use in becoming aware of the world of work. This publication is intended to supply individuals with quick reference about occupations as related to (1) projected employment, (2) number of persons employed, and (3) expected yearly salary. The most important theme of this publication, it appears to the author, is the type and amount of education needed for persons to enter certain occupational areas. Therefore, this publication is arranged in terms of the amount of education needed by individuals to enter specific occupational areas. Words have been kept to a minimum, and every attempt has been made to report concisely, factually, and objectively on those occupations included in the report.

The limitations of this publication should not be overlooked. No detailed information about any job or occupational area is included. The reader is referred to the U. S. Labor Department's publication entitled Occupational Outlook Handbook for this purpose. It is hoped that this information will be of specific value to those seeking statistical data and that it will stimulate and assist the thinking of those in the process of choosing a career.

Herschel T. Lester, Jr.

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TO SECONDARY SCHOOL
COUNSELORS, TEACHERS AND ADMINISTRATORS

CHAPTER I

In a static society the lag between the needs of society and education offered is usually very small. However, in today's complex technological society the lag between society and the available education appears to increase each year. Many contributory factors could be isolated which may have a cause-effect relationship to the above statement. It may be assumed that general and vocational education appears to lag in making available the competencies and skills needed for individuals to adjust to a changing society as well as those needed to make a living. In fact, young individuals perhaps know less about occupations and the world of work than any other phase of society. In too many cases the person who completes high school or college has trouble securing employment due to the fact he does not process the necessary competencies and skills needed by industry and business. Many times individuals do not know what skills or competencies are needed for them to become employed. In addition, young persons attempting to make an occupational choice knows little about the world or work.

To provide youth with necessary skills and competencies for employment the lag between vocational education offerings and the needs of industry and business must be closed. This lag is also complicated by the fact that coordination of the education program at each step of the educational ladder, has traditionally been under different levels. Coordination between vocational education, industry and business and other phases of education must

be attempted. This coordination must provide much occupational information in such a way that the young persons may become aware of and use in choosing an occupation. The future grows out of the present and past. General education and vocational education must go hand in hand if individuals are to become competent workers. Education with increased emphasis for the development of vocational skills and competencies will be everybody's best unemployment insurance.

Nationwide, employment by 1970 is expected to increase 20 percent above the 1960 total. The following areas will grow faster than the average employment growth rate: construction, finance, insurance, real estate, trades, government service and other service occupations. Manufacturing jobs are calculated to increase at just about average rate while occupational areas such as transportation, public utilities and mining at below the average growth rate. Farming opportunities will decline; however, occupations related to farming will increase, especially in service areas.

The advancing economy will require a constantly changing labor force which should project many adjustments in general and vocational education curricula. The employment trend points an increased demand for persons with developed skills and years of experience while the demand for unskilled, untrained and inexperienced individuals steadily diminishes. In making these types of changes in an education lies a major problem. Individuals within education must be aware of many changing conditions. Teachers, administrators, and counselors must assist youth in making decisions regarding vocational-technical education careers.

Youth must become aware of many occupational areas. It is a well

established fact that occupations have wide differences in salaries, services rendered to mankind, amount of preparation required for entry and occupational prestige. Most research establishes the fact that occupations which have to do with the welfare of the general public as well as those which required much specialized training are usually rated by individuals as very high prestige occupations. Counselors, teachers and others with strong academic backgrounds emphasize these types of occupations while other occupations which require less academic training are never fully explored.

In fact, too often the assumption is made by many counselors and teachers that only "academic courses" will help a student in college. This is an unfounded assumption as the following few pages will account.

In reviewing the studies of high school graduates and their success in college, most researchers who have undertaken to conduct studies within this area are substantially in agreement regarding some findings. It is the purpose of this short summary to list the major conclusions seemingly in agreement by a majority of the researchers. In addition, conclusions reached by some but not specifically supported by others are also shown.

Findings with which a majority of the researchers are in agreement:

1. A large number of studies have been conducted to ascertain the relationship of high school course patterns to achievement in college. The research reviewed indicated that success in college cannot be determined by the pattern of courses taken in high school. Over the years, it has been assumed by many educators and others that the "traditional college preparatory courses" make the best students for academic success in college. Research findings do not support this assumption.

(a) When mental abilities are held constant between students who took vocational courses and those who did not take vocational courses in high school, there is little, if any, difference between the groups as far as college accumulative grade-point averages are concerned.

(b) Success in any high school curriculum favors success in college.

(c) The type of high school curriculum followed by students exserts an insignificant influence on their success in college as measured by grade averages.

(d) Students who successfully take vocational subjects in high school are a good college risk.

2. The research reviewed indicates that vocational agriculture taken in high school is equal to that of other individual high school courses as preparation for the College of Agriculture. Vocational agriculture makes a contribution at least equal to that of other high school courses.

(a) There is no significant difference between students with 0, 1, 2, 3, or 4 years of high school vocational agriculture and their over-all grades made in college as measured by grade-point averages.

(b) There is little, if any, grade difference between students who took vocational agriculture in high school and those who did not in such college courses as mathematics, physics, chemistry, botany, zoology, and history.

(c) Students who took vocational agriculture in high school

tend to have higher scholastic records in technical agriculture than those who did not.

3. High school rank in class has become a useful tool in predicting academic success in college for groups of students; however, as indicated by several studies, individual achievement cannot be predicted. Rank in class also might be used to identify students who may encounter difficulties in college subjects. In general, studies completed in this area tended to agree on these findings. Approximately the upper one-fourth of the high school class should prove to be good academic students in college; approximately the middle one-half of the class should pass college work with some difficulty; approximately the lower one-fourth will experience much difficulty with college work. Most of the studies conducted were with high school graduating classes of 100 or more.

(a) Grades made in high school have been used by many researchers in attempting to predict subsequent academic achievement of college students. However, rank in class was superior to high school grades in predictive value for college academic success in a majority of the studies. Academic success in college can be predicted by high school grades with some degree of accuracy for groups. However, the findings of several studies indicated that individual student accomplishment cannot be predicted.

(b) Grades made in high school reflect a positive effect on success of students in college as measured by grade-point averages.

4. A large number of studies have been undertaken to find relationships between college completion and years of vocational education taken in high school. A large majority of the studies concluded that the differences

found in the studies were not signficant for or against students who had taken vocational courses in high school in relation to college graduation or drop-outs. However, a majority of the studies show that college students with experience in high school vocational education tend to graduate in proportionately larger numbers than those without such training.

In the light of the foregoing information, rather than counsel students out of vocational education into science and mathematics in preparation for a college education, it would be best to develop a combination of these experiences so that the courses become complementary rather than competitive.

Findings not agreed upon by researchers:

1. Some disagreement exists in research findings regarding college achievement of students who have graduated from different sizes of high schools.

2. Some disagreement exists in research findings on scholastic aptitude of students from different sizes of high schools.

3. Some disagreement exists in research findings on general aptitudes and achievement test scores in relation to success to college. A majority of the researchers found a positive correlation between the two, but much disagreement was found as to the predictive value of these test scores for individual students and their academic achievement in college.

Development of Human Resources

Automation, an aggrandized labor force, and the need for ameliorated trained persons are eminent factors to consider in any attempt to develop

and utilize human resources. In fact, more effective and efficient development may have a positive correlation with levels of employment, underemployment, and the demand and supply of labor, including as complete as possible detailed and accurate accounting of present available manpower. Educational programs designed to develop human resources to meet the changing needs of industry must be projected on a basic understanding of competencies necessary to perform specific jobs as well as how to adjust to an ever-changing complex society. New scientific approaches are needed to evaluate the present and projected rate of technological change, to indicate whether it is accelerating, and if so, where, how rapidly, and with what consequences. In short, an emendated early warning system to emphasize technological transmogrifications to delineate and contemplate manpower needs.

Public education and other training systems must be responsive to the future needs of the economy if programs are to be developed that utilize human resources. An expanded program of technological outlook research should be based on intensive interviewing of protagonists in industry as well as circumstantial reviews of statistics, government, reports, and technical literature. It would appear that the conspectus circumscribed might help to provide methods of identifying the flexibility needed to adjust to and cope with problems of industrial manpower changes. Exiguous efforts have been made in analyzing the occupations which will be declining in the near future. However, to adopt exercitation training concepts, much additional data is needed on the types of essential competencies required to perform in the present day technological society. Special emphasis should be focused by employing meticulous investigations that will establish changes as related

to the effects of automation upon current manpower training programs.

It was reported in the 1965 Manpower Report of the President that migration often results in better employment opportunities for trained workers. Unfortunately this does not fully utilize all human resources for many workers also migrate to areas where there is little chance of employment. The Geographic Mobility Studies reports that in general the migration of workers is a most useful form of adjustment in a labor surplus situation. This study confirms the belief that well educated young people are the most mobile. The U. S. Labor Department has predicted that while the labor force in the United States will expand by 26 percent, the demand for professional and technical workers will rise by twice as much, or 40 percent. On the other hand, demand for unskilled laborers will remain unchanged against a larger labor force.

The basic cause retarding full utilization of human resources is of course, the lack of alacrity on part of educators, business leaders, and others to accept the importance of training vocationally skilled persons and/or technicians for occupations oriented toward a changing society. Most present secondary education programs accentuate only the phase known as "college preparatory" leaving approximately 60-70 percent of the students in academically originated courses. Subsequently, only 30-40 percent of the high school graduates enter college. Of the entering number only 15 to 25 percent ever graduate from a 4 year institution. Human resources are wasted, for in many cases, these youngsters have aptitudes and abilities outside of traditional college originated curricula. It might be incontrovertibly assumed that this large college loss rate may be retarded if many of these high school graduates had been encouraged to enroll in post secondary voca-

tional-technical courses. Despite these hard facts, the parents of nearly 70 percent of all children under 18 expect their youngsters to go on to higher education.

Educators have been offered the greatest challenge and opportunity the people of the United States may grant. For this group has the responsibility to provide services for all people of all ages throughout the country who want, need, and may profit from general and vocational education which match their interests and abilities. The waste of human resources within our present day industrial economy can no longer be tolerated. To overcome this waste, educational programs must be (1) made more flexible necessitating relinquishing routine education practices, (2) curriculums must be personalized, (3) continuous and constant individual counseling must be made available, and (4) personal help offered for problems which are only indirectly related to the school work. Intensification of the development of human resources must be forecoming by providing unlimited opportunities for youth and adults to gain the education, skills, and experience necessary to become full participants in our society and stable citizens in the years to come.

CHAPTER II

HOW TO USE THE BOOK

The purpose of this publication is to provide quick practical authoritative and current occupational information to young persons, counselors, and teachers. It is hoped the publication will be used by youth to become a little more familiar with the world of work. This publication stresses: (1) the minimum education needed by individuals to enter and advance in the occupation, (2) projected employment outlook, (3) estimated number of persons employed in the occupation in 1964, (4) approximate yearly salary and (5) general remarks about specific duties, or education requirements are included.

The salary scales shown in this publication are based upon averages and are often misleading. These scales vary widely from one section of the country to another with salaries being higher usually by 10 to 15 percent in the eastern and west coast states than the central and southwestern states. Therefore, the salaries included in this publication are only gross estimates and should be used only to ascertain a range scale for occupations and not a specific starting salary. Specific salaries may be obtained by corresponding with companies, business, and/or agencies within the immediate vicinity.

For additional occupational information expressed in more detail, it is suggested that the reader refer to the Occupational Outlook Handbook 1964-65 Edition prepared by the United States Department of Labor. Much information included in this report is based upon data that may be found in this publication; however, other numerous businesses, labor unions, educational and governmental sources have been used in compiling this informal

report. (See Bibliographical Listings)

The organizational approach of this publication is based upon suggested kinds and amounts of education that is needed by individuals to enter and advance in given occupational areas.

The following four general headings are used to divide the publication into specific parts:

Part I...Occupations Which Usually Require a High School Diploma Plus Vocational-Technical School, Junior College or Other Post High School Training for Entry.

Part II...Occupations Which Usually Require a High School Diploma or Equivalent plus Apprenticeship Program for Entry.

Part III...Occupations Which Usually Require a College Degree for Entry.

Part IV...Occupations in Which High School Dropouts May Find Employment.

This type of outline, it is hoped, will add emphasis that young persons need more and better education and training in today's vast and complex world of work. It should be easily seen by a young person that occupations which require more education and training usually have higher wage scales. In addition, most of these higher paying occupations offer better working conditions, a long-time employment job outlook and better chances for advancement.

COLLECTING AND DISSEMINATING OCCUPATIONAL INFORMATION

Much information should be made available before individuals attempt to make decisions about a choice of an occupation. Information about occupations may be obtained from actual work experiences, reading about jobs, films, exploratory courses, vocational courses, job try-outs, counseling, on-the-job training, and a number of other methods. Of course, the best method individuals may use is actual occupational experience. This is impossible due to the large number of jobs available. Therefore, as much information as feasible must be obtained by individuals who are engaging in providing planned educational experiences on a formal school basis.

Even in the complex society in which we live individuals must continue to have the fundamental right to select or choose an occupation. It is hoped young persons will base this freedom of choice upon current and accurate occupational information. However, it would appear that too many of today's young persons had no vocational information at all. Occupational choice should be based upon the individual's estimated assets and liabilities ascertained by the individual and based upon qualified professional evaluation and counsel. It is the business of the public high school and particularly of the vocational programs to provide current occupational information and assistance. Individuals must face this job selection problem from a realistic point of view by estimating (1) personal facts and, (2) facts about the job.

The following few facts are listed for your information as you evaluate yourself as compared to specific types of occupational information. Certain personal characteristics appear helpful in all occupations and a few of these characteristics are:

1. Good health (physical and mental)
2. Enduring interests
3. Necessary ability
4. Consideration of fellow workers
5. General education achievement
6. Vocational training
7. Maturity
8. Willingness to make necessary sacrifices
9. Pleasing personality
10. Cooperative attitude
11. Ambition
12. Punctuality
13. Interested in doing a good job.

Characteristics about jobs should also be evaluated by the young person. Opportunities and job requirements should be evaluated in terms of:

1. Job opportunities available
2. Opportunities for advancement
3. Working conditions
4. Educational entrance requirements
5. Expected salary
6. Working hours
7. Job turnover
8. Number in employ
9. Location of work
10. Union regulations

11. Initial skills required

12. Nature of work.

The U. S. Department of Labor, Bureau of Labor Statistics, outlines the following major occupational categories:

1. Professional, which includes teaching, health services, engineering sciences, and business administration.
2. Clerical and Sales Occupations which includes stenographers, secretaries, office machine operators, salesmen and saleswomen.
3. Service occupations which includes protective occupations, barbers, and beauty operators.
4. Agricultural, fishery and kindred occupations which include farmers, farmer managers, buyers, credit, and other proprietors.
5. Skilled occupations includes the building trades, printing, mechanics and repairmen, machining occupations, and other manual occupations.
6. Semi-skilled occupations includes apprentices, deliverymen, drivers, motormen, hospital attendants, cooks, elevator operators and manufacturing industries employees such as automobile and electronics.
7. Unskilled includes jobs such as loading and unloading, or others which require much physical exercise.

This publication does not follow in all cases, the above outlined classifications. This has come about due to the fact that occupational area classifications were used; therefore, some areas have several levels

of workers. By using this method it was hoped that interested young persons could determine the levels of employment which were open. In short, it was believed that young persons could better understand occupational areas than the Dictionary of Occupational Titles (DOT). The DOT is much more detailed and lists each job by a number and classification level. For example, all skilled jobs will occur at one level and unskilled at another while in the occupational area type classification jobs at both levels would appear under one general heading.

PREPARATION FOR AN OCCUPATIONAL AREA

There are several methods that one may use in preparing for an occupation:

(1) In schools or colleges

(2) Work-study programs

(3) Apprenticeships

The type of training and time period of course, will vary depending upon the occupation.

Many types of vocational training are offered in varying types of schools such as: courses in high schools, technical institutes, area vocational-technical schools, junior colleges, and special classes, under the Manpower Development Training Program. Under the 1963 Vocational Act training programs available to youth and adults have increased many times. The Act basically provides funds to develop the programs for the following types of persons:

(1) Attending high school

(2) Who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

(3) Who need training or retraining to advance in employment.

(4) Who have academic, socio-economic, or other handicaps.

Many students obtain basic training by going to school and working on a job. Usually these programs are called work-study programs. These programs are most effective in providing academic study while at the same time giving the student an opportunity to earn wages.

Over 100 occupations have apprenticeship programs that have been recognized by the Bureau of Apprenticeship of the U. S. Department of Labor. It is generally agreed by most vocational educators that apprenticeship is the most effective way to train for the skilled occupations as well as many trades. Nearly all apprenticeship programs prefer high school graduates.

CHAPTER III

OCCUPATIONS WHICH USUALLY REQUIRE A HIGH SCHOOL DIPLOMA PLUS AREA VOCATIONAL-TECHNICAL SCHOOL, JUNIOR COLLEGE OR OTHER POST HIGH SCHOOL TRAINING BEFORE ENTRY

OCCUPATIONS IN AIRCRAFT, MISSILE AND SPACECRAFT MANUFACTURING

HIGH SCHOOL DIPLOMA PLUS AREA VOCATIONAL-TECHNICAL SCHOOL OR OTHER POST HIGH SCHOOL TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. PRODUCING MISSILES and SPACECRAFT	Good	500,000	5,616	With the growing of aerospace this field is growing rapidly. California offers about 30% of jobs.
a. Assemblers	Good		5,252	
b. Electronics Technicians	Good	200,000	5,876	Area Vocational-Technical Schools offer courses that produce skilled workers in these areas. Others may learn by on the job training.
c. Heat Treaters	Good		5,408	Most of these jobs require formal training programs before entry. Some few may be learned on the job.
d. Inspectors & Testers	Fair-Good		5,616	
e. Jig & Fixture Builders	Fair-Good		5,720	
f. Machine Tool Operators	Good		5,616	Apprentice Program
g. Machinists	Good		5,616	Apprentice Program
h. Maintenance Craftsmen	Good		5,304	
i. Riveters	Good		4,992	
j. Tool & Die Makers	Good		5,616	Apprentice Program
k. Welders	Good		5,304	

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OCCUPATIONS IN AIRCRAFT, MISSILE AND SPACECRAFT MANUFACTURING
(CONTINUED)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
2. AIRCRAFT, AIRCRAFT ENGINE MAKERS	Good	500,000		
a. Production Worker	Good			Many of these jobs are with sub-contractors who assemble or make parts.
3. ELECTRONICS PRODUCING EQUIPMENT	Fair	200,000		Most opportunities are with small sub-contractors.
4. ADMINISTRATIVE, CLERICAL AND RELATED OCCUPATIONS	Good			Personnel in these jobs include executives---officials in sales, purchasing, accounting, public relations and advertising.
5. PLANT OCCUPATIONS	Good			55% of all workers in aircraft, missile, and spacecraft were employed in this field.
		1,200,000		This area depends largely upon government contracts. In general, opportunities should be good; however, individual companies in geographic locations may experience temporary difficulties.

AIR TRANSPORTATION OCCUPATIONS-PILOTS

HIGH SCHOOL DIPLOMA PLUS SOME COLLEGE AND GRADUATION FROM AN APPROVED FLYING SCHOOL REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. CAPTAINS				
a. Domestic	Fair	37,000	20,000	Graduation from a flying school approved by FAA plus 1000 hours flying time. Two years college is a minimum requirement. Must be 5'7" tall to 6'4" and weigh 140-200---20/20 vision without the aid of glasses, outstanding physical stamina and no handicaps. Most begin as co-pilots. Only a few hundred openings throughout the U. S. each year.
b. International	Fair		23,000	
c. Senior (Large Aircraft)	Fair		20,000	
d. Senior (Jet Aircraft)	Fair		30,000	
e. CoPilots Domestic	Fair		17,500	
f. CoPilots International	Fair		21,500	
2. OTHER PILOTS (BUSINESS, CROPS DUSTING)				
3. FLIGHT ENGINEER New Employee	Fair	20,000	6,600	Employment of pilots outside scheduled airlines is expected to increase at a rapid rate.
4. FLIGHT ENGINEER Skilled	Fair	23,000	19,200	

AIR TRANSPORTATION OCCUPATIONS - OTHER THAN PILOTS

HIGH SCHOOL DIPLOMA PLUS SOME POST-HIGH SCHOOL TRAINING AND/OR SPECIAL TRAINING REQUIRED FOR ENTRY

5. STEWARDESSES Beginning	Good	11,300	4,680	
6. AIRLINE MECHANICS	Fair	69,200	6,960	Need courses in math, physics, chemistry, and machine shop.

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AIR TRANSPORTATION OCCUPATIONS - OTHER THAN PILOTS (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
7. AIRLINE DISPATCHER	Fair	700	7,800	Must be 21 years of age and be able to speak clearly and precisely.
8. ASST. DISPATCHER	Fair	200	5,400	These men are usually promoted to airline dispatcher.
9. AIRROUTE TRAFFIC CONTROLLERS	Fair	18,000	8,400	2-3 years experience as an assistant is necessary
10. AIRPORT TRAFFIC CONTROLLERS	Fair	6,000	9,096	
11. AIRLINE RADIO OPERATORS	Fair	8,000	4,656	Ability to type at least 40 wpm. Increasing number of women are being employed.
12. FEDERAL OCCUPATIONS	Fair	46,000		Most of the occupations relate to directions of air traffic.
		159,400		Rapid increase in occupational opportunities with the Federal and State Governments. However, airline growth will be only moderate.

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OCCUPATIONS IN THE BAKING INDUSTRY

HIGH SCHOOL DIPLOMA PLUS APPRENTICESHIP OR AREA VOCATIONAL-TECHNICAL TRAINING IS REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Mixers	Good	385,000	5,564	Applicants must be (1)
2. Dividermen	Good		5,720	between the ages of 18
3. Benchmen	Good		5,668	and 25, and (2) have
4. Ovenmen	Good		5,772	health certificate prov-
5. Icers & Decoraters	Good		4,680	ing good health. Most
6. Wrapping Machine Operators	Good		4,472	bakeries now require that all their administrative
7. Baking Foremen All-Round Baker	Good		6,136	workers have a college degree in one of the administrative fields. Many thousands of job openings are projected for the next 10 years.
		385,000		

BANKING OCCUPATIONS

HIGH SCHOOL DIPLOMA REQUIRED FOR ENTRY, POST HIGH SCHOOL, BUSINESS AND/OR CLERICAL TRAINING HELPFUL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Routine File Clerks	Good		2,795	Speed and accuracy are very important in all banking occupations.
2. Tellers	Good		4,719	Almost 70% of all employees are women.
3. Clerk and/or Messenger	Good		3,016	General routine banking duties.
4. Proof Machine Operators				
5. Commercial & Savings Tellers	Good		3,159	Most are promoted from within the bank
		735,000		Commercial Banks employ 90% of all banking workers. About 75% of the employees preform clerical duties. Area Vocational Technical or other post high school training is beneficial for advancement.

CLERICAL OCCUPATIONS

HIGH SCHOOL DIPLOMA WITH BUSINESS EDUCATION (ONE OR MORE YEARS OF TRAINING HELPFUL)
AREA VOCATIONAL-TECHNICAL SCHOOL REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
SECRETARIES		2 Million		
a. General Steno	Excellent		3,926	Type 40 wpm and take dictation at 80 wpm for entry.
b. Experienced or personal secretary	Excellent		4,888	Opportunities are best for those with post high school training.
c. Starting Secretary	Excellent		3,500	General office duties with typing and shorthand required.
d. Junior Typist	Good	300,000	3,302	Should type at least 40 wpm to enter the occupation.
e. Senior Typist	Good	200,000	3,926	Over 95% of all typists are women.
MACHINE OPERATORS				
a. Bookkeeping Mach. Operator	Excellent	300,000	3,770	
b. Acct. Clerks	Excellent		4,134	Men in the same position average $17.50 more each week than women.
c. Billing Machine Operators	Excellent		4,160	Usually employed by large companies.
d. Tab. Machine Operators	Excellent		5,226	Over 65% of all workers are employed by manufacturing companies.
e. Clerks and Mach. Operators	Excellent		3,770	
f. Keypunch Operator	Excellent		4,186	Over 75% are women.

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CLERICAL OCCUPATIONS (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
g. Console Operator	Excellent		4,420	Post high school education is helpful in advanced clerical positions as well as advancement in salary Junior Colleges, state vocational schools or business schools offer these courses.
h. Sr. Console Operators	Excellent		6,500	
i. Peripheral Equip. Operators	Good		4,940	
Tape Librarians	Excellent		4,680	
		6,000,000		In general, all occupations within this occupational area should expand faster than the normal labor force growth. Business and distributive education offered in high school is most helpful in entering clerical occupations.

ELECTRONICS MANUFACTURING OCCUPATIONS

HIGH SCHOOL DIPLOMA REQUIRED FOR ENTRY--AREA VOCATIONAL-TECHNICAL SCHOOL TRAINING HELPFUL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Production Workers	Good	300,000	4,784	Area Vocational-Technical Schools offer excellent training in the electronics areas. Women are entering this area in larger numbers each year.
2. Electronic Tube Workers	Good		4,827	
3. Troubleshooters	Good		4,940	
4. Assembling Occupations	Good	550,000	4,035	The largest number of electronic plant workers Turn off end products such as, TV sets, radios, computers, radar, etc.
5. Inspecting Occupations	Good		5,021	Some inspectors make repairs on defective components.
6. Testing Occupations	Good		4,469	Use various type instruments to test products.
		850,000		In general, electronic production may be grouped as (1) military and space, (2) industrial and commercial, (3) consumer and, (4) parts. All types of these occupations are expected to increase.

OTHER JOB TITLES

1. Machinists
2. Processing Workers
3. Sheet Metal Workers
4. Welders
5. Carpenters
6. Electrician
7. Plumber & Pipefitters
8. Custodial and Janitorial Workers

OCCUPATIONS IN THE ELECTRIC LIGHT AND POWER INDUSTRY

HIGH SCHOOL DIPLOMA PLUS AREA-VOCATIONAL-TECHNICAL SCHOOL TRAINING OR ON-THE-JOB TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Auxiliary Equipment Operator	Good		5,772	Several thousand job openings are expected each year during the 60's in the electric and power industry.
2. Boiler Operator	Good		6,448	
3. Switchboard Operators	Good		6,760	Requires a 4-8 year on-the-job training.
4. Turbine Operator	Good		6,552	Usually are selected from among auxiliary equipment operators within the individual company.
5. Watch Engineer	Good		8,216	Must have 5-10 years experience as a first class operator.
6. Groundman	Good		4,732	Dig poleholes and assist linemen and are usually promoted to linemen.
7. Linemen	Good		6,916	Attach variety of equipment to poles and towers and are usually from groundmen.
8. Load Dispatcher	Good		8,320	Controls the flow of electricity.
9. Substation Oper.	Good		6,708	In charge of a substation and responsible for its operation.
10. Troublemen	Good		6,916	Handle emergency calls for service and is usually an experienced lineman or other electrical worker.

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OCCUPATIONS IN THE ELECTRIC LIGHT AND POWER INDUSTRY (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
11. District Representative	Fair		6,448	Serve as company agents where utility company does not have offices. Reads meters, collects overdue bills, connecting and disconnecting meters, and making minor repairs.
12. Meterman Readers	Good		6,760	Most skilled workers in customer relations.
13. Appliance Repairmen	Good		6,136	Learns the trade from on-the-job training or from area-vocational technical shcool.
		440,000		In general, workers provide electrical service to industry, businesses and homes by building and maintaining power lines and equipment.

OTHER JOB TITLES

1. Cable Splicers
2. Meter Installers
3. Meter Testers
4. Meter Readers
5. Helpers (linemen)
6. District Representatives

ENGINEERING TECHNICIANS

ONE-TWO YEARS OF FORMAL POST HIGH SCHOOL TRAINING IS REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	Average 1963-64 Yearly Salary	Remarks
1. ENGINEERING				Primarily Men
a. Technicians	Good	535,000	$ 4,700	Earnings depend on geographic location, education, type of firm and responsibilities.
b. Post Sec. School	Excellent		$ 6,500	Earnings increase as you gain experience.
c. Engineers & Science Technicians	Excellent		$ 4,192	Almost 90% of these employees are men.
2. DRAFTSMEN	Excellent	260,000	$ 5,160	Over 95% of these employees are men.
3. SURVEYORS	Good	40,000	$ 5,580	Prospects appear to be best for college graduates.
		835,000		Training usually consists of a formal introduction period.

types of technician courses available:

Chemical Technology
Data Processing Technology
Dairy Technology
Electrical Technology
Drafting and Design Technology
Electronics Technology
Industrial Technology
Instrumentation Technology
Landscaping Technology
Mechanical Technology
Metallurgical Technology

OCCUPATIONS IN THE INSURANCE BUSINESS

HIGH SCHOOL DIPLOMA PLUS POST HIGH SCHOOL,TRAINING ON-THE-JOB, COLLEGE OR AREA-VOCATIONAL LEVEL REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. CLERICAL				
a. Office Girl & Jr. File Clerk	Good	500,000	2,600	More than half of all insurance workers are employed by life insurance companies. Over 80% of all clerical jobs are filled by women.
b. Switchboard Operator	Fair-Good		3,640	
c. Secretaries	Good		4,264	
d. Senior Acct. Clerk	Good		4,056	
e. Senior Tab. Mach. Oper.	Good		5,200	
2. SALES (AGENTS, BROKERS, DIRECT SALES, ETC.)	Good	380,000	5,000 up	Must have a pleasant disposition and outgoing personality and be able to inspire confidence in his ability to protect the customer's interests.
a. Life	Good			
b. Theft	Good			
c. Health	Good			
d. Fidelity Bonds	Good			
3. MANAGERIAL	Good	140,000		
a. Local Offices	Good			
b. Home Offices	Good			
		992,000		In general, these occupations should grow faster than the labor force, especially clerical positions

MECHANICS AND REPAIRMEN

HIGH SCHOOL DIPLOMA PLUS APPRENTICESHIP OR AREA VOCATIONAL-TECHNICAL SCHOOL OR ON-THE JOB TRAINING IS REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Auto Mechanic	Good	700,000	5,616	Approximately 20,000 openings yearly are expected due to population growth.
2. Maintenance Elec.	Good	220,000	5,668	Majority work in large factories as repairmen.
3. Appliance Service-men	Good	165,000	5,387	Most own their own businesses however, large department stores employ workers.
4. Telephone & PBX Installers	Good	155,000	5,200	
5. Airplane Mechanics	Good	135,000	6,960	See Air Transport Occupations
6. Television & Radio Servicemen	Good	110,000	6,500	Many own their own shops. Most are in large cities.
7. Industrial Mach. Repairmen	Good	100,000	6,656	Most opportunities are available to older company men.
8. Railroad Mechanic	Good	100,000	5,675	Decreasing employment opportunities in this area.
9. Millwrights	Good	70,000	5,980	Must be between the ages of 18 and 26---Over 26,000 jobs are vacant annually. Entry requires a formal apprenticeship.
10. Business Machine Servicemen	Good	60,000	5,590	Many learn this job by on-the-job training.
11. Diesel Mechanics	Good		5,720	Large numbers employed in California, New York, Illinois and Texas. Entry requires a formal apprenticeship.

(Continued on next page)

MECHANICS AND REPAIRMEN (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
12. Instrument Repairmen	Good	60,000	5,512	Most opportunities are in gas & electrical utilities companies.
13. Air-Conditioning, heating, refrigeration Mechanics	Good	95,000	5,400	Most opportunities are in large cities.
14. Jewelry Repairmen	Good	25,000	4,160	
15. Watchmakers	Good	25,000	3,900	Very precise and delicate work.
		2,020,000		These occupations are fast growing. Young men with good ability who do not want to go to college will find many good paying jobs in this area.

MEDICAL TECHNICIANS

HIGH SCHOOL DIPLOMA PLUS TWO OR MORE YEARS OF FORMAL POST HIGH SCHOOL TRAINING IS REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. X-Ray Technician	Excellent	75,000	4,500	Over 75% are women
2. Laboratory Technologists	Excellent	40,000	4,565	Perform laboratory on body fluids and tissues in order to reveal causes of diseases.
3. Dental Laboratory Technicians	Excellent	30,000	4,550	Over 75% are women
4. Record Librarian	Excellent	10,000	4,500	Almost all are women
5. Occupational Therapist	Excellent	7,500	5,200	Most opportunities are in large hospitals.
6. Dental Hygienist	Excellent	12,000	4,300	This area is expanding rapidly.
		244,50C		Most persons employed in these occupational areas are women, however, the number of men is increasing. This area will grow faster than labor force.

NURSES

HIGH SCHOOL DIPLOMA PLUS POST HIGH SCHOOL TRAINING* REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Registered Professional	Excellent	550,000	4,565	Over 95% of all nurses are female
2. Private Nurses	Excellent	70,000	4,550	Over 20% perform these duties part-time.
3. Public	Excellent	35,000	4,902	Almost 65% of all nurses are employed in hospitals; however, opportunities for employment are large with Health Agencies and Associations.
4. Staff Nurses	Excellent		5,267	
5. Office Nurses	Excellent	40,000	4,320	
6. Occupational Health Nurses	Excellent	20,000	5,200	Responsibility for promoting employee health.
		1,765,000		The need for nurses is expected to be great; therefore, employment opportunities throughout the remainder of the 1960's and early 70's should be large.

*1. Hospital-conducted nursing school for a 3 year program leading to diploma.
2. College or university offering a 4 year college program or a B. S.
3. Junior College or area vocational school a 2 year program.

PETROLEUM PRODUCTION & REFINING OCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS ADVANCED TRAINING PROGRAM BY APPRENTICESHIP OR AREA VOCATIONAL-TECHNICAL SCHOOL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Derrickmen	Fair		4,940	Several thousand job open-
2. Drillers, Rotary	Fair		5,408	ings in the petroleum indus-
3. Floormen, Rotary	Fair		4,888	try are expected throughout
4. Pumpers	Fair		4,992	the 1960's. Most openings
5. Roustabouts	Fair		4,940	will be for scientists,
6. Welders, Oilfield*	Fair		5,200	engineers, technicians, and
7. Pumper	Fair		6,500	highly skilled craftsmen.
8. Instrument Repairmen**	Fair		6,760	Total employment in this
9. Machinist*	Fair		6,760	field is expected to grad-
10. Mechanic*	Fair		6,500	ually decrease during the
11. Pipefitter*	Fair		6,656	next ten to fifteen years.
12. Welder, Hand*	Fair		6,760	This will be due to fewer
13. Helpers	Fair		5,460	unskilled openings.
14. Routine Tester Laboratory**	Fair		5,980	Most jobs require on the
15. Laborer	Fair		4,940	job training---usually
				from several months to
				several years. Many jobs
				in this field require much
				physical stamina.
		483,000		

*Apprenticeship programs and/or area vocational-technical training.
**Technician type training offered at area vocational-technical school level.

PRINTING (GRAPHIC ARTS) OCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS APPRENTICESHIP AND/OR AREA VOCATIONAL-TECHNICAL SCHOOL TRAINING

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Hand Compositor	Good	90,000	7,498	Most printing crafts
2. Photoengravers	Good	17,000	7,924	require a 4 to 6 year
3. Pressmen		7,100		apprenticeship training
a. Pressmen-in-charge	Good		8,049	before the individual is
b. Newspaper Pressmen (Journeymen)	Good		7,363	considered a skilled worker. Condition of
c. Book & Job Cylinder Pressmen	Good		7,342	the applicant's eyes is
d. Book & Job Press Asst. & Feeders	Good		6,073	particularly important. All must be at least 18
4. Photo Lithographer	Good	55,000	7,259	years of age or older.
5. Skilled Bookbinder	Good	22,000	7,009	
		191,100		Area Vocational-Technical Schools usually offer two years of the apprenticeship program.

OCCUPATIONS IN THE PULP, PAPER, AND PAPER PRODUCTS INDUSTRY

HIGH SCHOOL DIPLOMA - MECHANICS HIGH SCHOOL COURSES HELPFUL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Drum Bark Oper.	Good		4,784	In this field more than one of every 5 are women.
2. Chipper Operator	Good		4,576	
3. Cook	Good		5,824	
4. Beater Engineer	Good		6,552	
5. Pulp Tester	Good		4,534	
6. Paper Machine Operators	Good		7,488	There are about 17,000 scientists and technicians employed in the paper industry.
7. Back Tender	Good		6,552	
8. Paper Tester	Good		4,534	
9. Corrugating Mach. Operator	Good		4,888	
10. Printer Slotter Operator	Good		4,888	
11. Printing Pressman & Compositor	Good		6,822	
		600,000		Other job openings in this industry are as apprenticeship type such as; mechanic, painter, carpenter, electricians, etc. A number of jobs requiring a college degree are available.

RADIO AND TELEVISION BROADCASTING OCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS TECHNICAL TRAINING PROGRAMS REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Sales Manager	Fair		11,700	Takes care of all "spots" on air.
2. Salesman	Fair		7,800	Sells time on the air to sponsors.
3. Staff Announcer	Fair		6,448	Must have a combination of personality and showmanship that makes them attractive to an audience.
4. Technicians	Fair		5,720	There's usually from 4 to 75 technicians at radio and television stations.
5. Film Department Head	Fair		5,824	All employees with radio and television stations must have their radiotelephone first class operator license.
6. Staff Photographer	Fair		5,564	Practically all employment opportunities are located in metropolitan areas.
7. Cameraman	Fair		5,044	
8. Traffic Manager	Fair		4,108	
9. Contunuity Writer	Fair		4,030	
10. Floorman	Fair		3,952	
		90,000		Several thousand additional persons are also employed as actors, writers, and freelance workers. Others also work for independent and educational agencies.

SALES OCCUPATIONS

HIGH SCHOOL DIPLOMA WITH BUSINESS AND/OR DISTRIBUTIVE EDUCATION (ONE OR MORE YEARS OF TRAINING HELPFUL)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Salesmen & Saleswomen in Retail Stores	Excellent	2.5 M	5,250	Distributive education courses in high school are most beneficial to persons entering this occupational area. Most opportunities are in large cities and urban shopping centers. However, selling opportunities are available in all communities.
2. Wholesale Trade Salesmen	Good	500,000	6,000	These persons sell to retail outlets for one or more manufacturers. Most wholesalemen begin as sales training clerks or etc.
3. Manufacturer's Salesmen	Good	500,000	6,800	Most of these salesmen have some college with many having college degrees.
4. Life Insurance Agents	Good	200,000	7,500	Most have some college training. Many part-time agents are employed.
5. Real Estate Salesmen	Good	200,000	7,500	Most opportunities are in large cities. Earnings are based upon sales commission usually 5% of the selling price.
		3,600,000		

SERVICE OCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS SPECIAL TRAINING PROGRAMS ARE REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Firemen	Good	150,000	4,500	Thousands of men are voluntary without pay.
2. Firechiefs	Fair		10,550	
3. Patrolmen	Good		4,500	New York City employs more than 1/7 of all patrolmen.
4. Police Chiefs	Good		12,500	Retire at a younger age than most occupations.
5. Barbers	Good	200,000	5,200	More than half of barbers own and operate their own shops.
6. Beauticians	Good	300,000	9,230	More than 90% are women.
7. Practical Nurses	Excellent	225,000	3,055	Nearly all are employed in hospitals.
		1.1 Million		In general, all these service occupations are expected to increase at a moderate rate; faster than the total labor force. Many of these occupations hire only high school graduates.

TELEPHONE OCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS ON-THE-JOB TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Chief Operators	Good	220,000	6,240	Chief operators are promoted from experienced telephone operators.
2. Experienced Telephone Operators	Very Good		3,952	Even with direct dialing we will still need assistance when using coin telephones, person-to-person calls, credit card, and reverse-charge calls. Will be tens of thousands openings during the 1960's.
3. Operator Trainees	Excellent		3,244	Training periods last from 2-3 weeks.
4. Cable Splicers	Good	18,000	6,344	Knowledge of the basic principles of electricity are helpful. Physical dexterity is important. Manual dexterity and the ability to distinguish color is also important.
5. Cable Splicer's Helpers	Good	3,000	4,680	
6. Linemen	Good	16,000	5,595	
7. PBX Repairmen	Good	15,000	6,510	
8. Telephone & PBX Installers	Good	68,000	6,344	Classroom training includes courses such as: principles of electricity and electronics.
9. Central Office Repairmen & Instal.	Good	71,000	6,156	Install or maintains all control equipment.
10. Testboardmen	Good	18,000	6,344	
11. Equipment Installers (Inexp.)	Good		3,473	May advance to engineering assistant jobs.
		690,000		

Other Job Titles

1. Clerical Workers
2. Maintenance and Building
3. Sales Personnel
4. Maintenance Workers

ADDITIONAL MANUAL OCCUPATIONS

REQUIRES HIGH SCHOOL DIPLOMA PLUS APPRENTICESHIP, OR ON-THE-JOB TRAINING, AND/OR AREA VOCATIONAL-TECHNICAL SCHOOL TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Boilermakers	Fair	25,000	5,928	Best way to learn trade is to have 4 year apprenticeship training program.
2. Junkers	Poor	25,000	4,550	Few openings expected during the 60's.
3. Optical Laboratory Mechanics	Fair-Good	21,000	5,720	About 1/7 are women requiring a 4-5 year formal program.
4. Electroplaters	Fair-Good		4,784	Every 2 out of 3 work in independent shops.
5. Stationary Engineers	Good	250,000	5,512	Must be between the ages of 18 and 25 and usually learn as informal on-the job training.
6. Welders	Fair-Good	370,000	5,616	
7. Gasoline Station Attendants	Good	320,000	3,900	Require long hours, sales ability helpful.
8. Gasoline Station Owners or Managers	Good	200,000	5,300	
		1,211,000		In general, these occupations require a 2-3 year training program. Many learn these occupations as on-the-job training after beginning as a helper.

OTHER JOB TITLES

1. Blacksmiths
2. Layout (Boilermakers)
3. Fitupmen (Boilermakers)
4. Dispensing Optician
5. Gas Welders
6. Ore Welders
7. Resistance Welders

CHAPTER IV

OCCUPATIONS WHICH USUALLY REQUIRE A HIGH SCHOOL DIPLOMA OR EQUIVALENT PLUS APPRENTICESHIP TRAINING PROGRAM FOR ENTRY

BUILDING TRADES

HIGH SCHOOL DIPLOMA HELPFUL---PLUS APPRENTICESHIP OR AREA VOCATIONAL-TECHNICAL SCHOOL TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Journeymen	Good		8,632	All job salaries listed
2. Helpers & Laborers	Good		6,552	under BUILDING TRADES are
3. Carpenters	Good	800,000	8,465	for experienced skilled
4. Painters & Paper Hangers	Good	350,000	7,883	workers. Entry opportuni-
5. Plumbers & Pipe Fitters	Good	300,000	8,860	ties for the next 10 years should be very good due to
6. Bricklayers	Good	220,000	9,276	the increase of construc-
7. Shovel & Bulldozer Operators	Good	200,000	8,600	tion in the U. S. Some
8. Electricians	Good	180,000	9,089	construction work is very
9. Construction Iron & Rodmen Workers	Good	85,000	8,923	dangerous, but the risk is lessened considerably when
10. Plasterers	Good	60,000	8,902	proper work practices are
11. Composition Roofer	Good	60,000	8,008	followed. Good physical
12. Cement Masons	Good	50,000	8,340	health is extremely impor-
13. Sheet-Metal Worker	Good	45,000	8,673	tant. Apprenticeship type
14. Asbesto Workers	Good	20,000	8,694	training programs are re-
15. Lathers	Good	25,000	8,840	quired for nearly all
16. Terrazzo Workers	Good		8,694	skilled trade occupations.
17. Marble Setters	Good		8,673	Most beginning or basic
18. Tile Setters	Good		8,569	courses are offered at

(Continued on next page)

BUILDING TRADES (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
19. Elevator Constructors	Good	12,000	8,860	State Area Vocational-Technical Schools. However, additional on the job training is required to complete the apprenticeship program. Most apprenticeship programs last 3 to 6 years including attendance at the vocational school.
20. Stonemasons	Good		8,902	
21. Construction Laborers	Good	700,000	6,572	
		3.1 Million		High School graduates usually progress at a faster rate. Advancements to foreman or high positions usually goes to those individuals with the most training.

FORGE SHOP OCCCUPATIONS

HIGH SCHOOL DIPLOMA PLUS APPRENTICESHIP REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Die Sinkers	Fair		7,280	Have to spend 4 to 5 years on the job training or formal apprenticeship.
2. Production Workers	Fair		5,980	A slight rise in employment in the next 10 to 15 years is the trend.
3. Hammersmiths & Pressmiths	Fair		7,800	First start as a helper, and much on-the-job training.
		70,000		These workers shape metals such as; aluminum, brass, bronze, etc. Such items as wrenches, crankshafts for internal combustible engines, pliers, etc.

OTHER JOB TITLES

1. Drop hammer operator
2. Upsettermen
3. Heaters
4. Trimmers
5. Chippers
6. Grinders
7. Sandblasters
8. Handerers or heat treaters

FOUNDRY OCCUPATIONS

HIGH SCHOOL DIPLOMA HELPFUL--APPRENTICESHIP REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Molders	Good	50,000	6,032	Shapes and prepares molds to cast metals. Performs many operations at a faster speed than is possible by hand.
2. Chippers and Grinders	Good	35,000	5,500	
3. Coremakers	Good	25,000	5,200	Shapes sand prepared by sand mixers.
4. Patternmakers	Good	20,000	7,696	Makes wood or metal patterns.
5. Melters and Pourers	Good	18,000	6,321	
6. Laborers or Helpers	Good	85,000		
		375,000		In general, these workers mold or cast parts out of metal for automobile blocks cooking utensils, plumbing fitting, bathtubs, aircraft and missile parts.

OTHER JOB TITLES

1. Maintenance personnel
2. Core-Oven Tender
3. Melter
4. Chipper
5. Sandblaster
6. Heat Treaters

OCCUPATIONS IN THE IRON AND STEEL INDUSTRY

HIGH SCHOOL HELPFUL--MOST ARE HIRED AS UNSKILLED AND ADVANCE IN STEEL MAKING OCCUPATIONS BY LENGTH OF SERVICE WITH THE COMPANY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Processing Workers	Good		6,591	Automation is rapidly changing the steel industry. Nearly all workers start as inexperienced laborers and are promoted to more advanced positions. Apprenticeship programs are offered in 20 different crafts.
2. Blast Furnaces	Good			
3. Steel Furnaces	Good			
4. Charging-Machine Operator	Good		6,396	Runs an electric machine that picks up boxes of materials.
5. Ingot Stripper Open Hearth	Good		5,824	After the steel has cooled he removes it from the mold.
6. Roler, Blooming Mill	Good			Man in charge of the mill
7. Skilled Processing Jobs	Good		7,217	
8. Semi-Skilled Processing Jobs	Good		5,179	
		600,000		In general, iron and steel entry opportunities should decline the next 10 years. Most occupations are in the northeastern states; however, Birmingham, Ala. is also a steel center. Turnover in the steel industry is very low.

OTHER JOB TITLES:

1. Maintenance Personnel
2. Bricklayers
3. Equipment Operators
4. Cranemen
5. Cinderman
6. Helpers

MACHINING OCCUPATIONS

HIGH SCHOOL DIPLOMA HELPFUL PLUS APPRENTICESHIP AND/OR VOCATIONAL-TECHNICAL SCHOOL TRAINING REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Machine Tool Operator	Good	570,000	5,928	Opportunity good for experienced operators who have completed the 4 year apprenticeship.
2. Machinists, Layout and Instrument Makers	Good	360,000	6,100	Apprenticeship program of 4 to 5 years.
3. Tool & Die Makers	Good	150,000	6,500	No educational requirements, but knowledge of math and physics is important, and good finger dexterity.
4. Set-up Men (Machine Tools)	Fair	40,000	7,124	Only open to experienced workers with 6 to 10 years experience.
		1,112,000		This is one of the most important occupational areas in today's economy. This type work requires precision measuring following blueprints, models or other directions. Workers are usually skilled, those who are able to operate a variety of machines or semi-skilled, with only few types of machines.

RAILROAD OCCUPATIONS

HIGH SCHOOL DIPLOMA--ON-THE-JOB TRAINING OR APPRENTICESHIP REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Locomotive Engineer	Poor	34,000	9,900	Must have good eyesight and hearing.
2. Yard Conductors	Poor-Fair	37,000	9,036	Jobs filled on a seniority basis.
3. Assist. Passenger Conductor & Ticket Collector	Fair		10,004	
4. Brakemen	Fair		7,344	Approximately 190,000 employees
5. Local Freight Brakeman	Fair		10,924	All job openings within the railroad occupations are expected to be few.
6. Porters	Fair		5,280	Railroad employees may be regrouped as: (1) train operators, (2) personal services (luggage, and food), (3) clerical and communications, (4) maintenance of tracks and rolling stock.
7. Station Agents	Fair-Good	14,500	6,968	
8. Redcaps	Fair-Poor		4,492	
		284,400		In general, all railroad occupational opportunities should decline for the foreseeable future.

Other Job Titles

1. Clerks
2. Carmen
3. Machinists
4. Electrical Workers
5. Sheet Metal Workers
6. Blacksmiths
7. Trackmen
8. Signal Workers

CHAPTER V

OCCUPATIONS WHICH USUALLY REQUIRE A COLLEGE DEGREE FOR ENTRY

OCCUPATIONS RELATED TO AGRICULTURE

COLLEGE DEGREE REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Soil Scientist	Good		4,565	Most are employed by Federal Gov't or by colleges or universities.
2. Soil Conservationists	Good		4,565	The Federal Gov't employs many of these persons.
3. Vocational Agriculture Instruct.	Good		6,500	Most openings are for teaching youth on the secondary level.
4. Agriculture Agents	Good			These persons work primarily with adult farmers.
5. Assistant Ag. Agent	Good			
6. Agriculture Business	Excellent		5,500	Many opportunities in the areas of feed, fertilizer, farm implements, seeds and other services to farmers. Most openings are in management and sales.
7. Agricultural Chemists	Excellent		6,300	Most employed by large companies.
8. Agricultural Economists	Good		6,000	Most opportunities are in business and government; however, universities and colleges employ many for research and teaching.
9. Agricultural Engineers	Excellent		6,500	Demand greatest in the areas of irrigation and farm power and machinery.
10. Agricultural Journalists	Fair		5,000	Employment opportunities will not be as large as in the past.

(Continued on next page)

OCCUPATIONS RELATED TO AGRICULTURE (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
11. Animal Husbandry	Good		5,500	Feed industry, meat packing and allied trades offer many opportunities.
12. Dairy Science	Fair		5,500	Service areas offer the best opportunities.
13. Entomology	Good			Good opportunities with insecticide copanies in area of sales.
14. Fisheries & Wildlife Conservation	Fair		5,000	Most opportunities are with State and Federal governments.
15. Food Processing & Technology	Excellent		5,500	Fast expanding industry for agriculture graduates.
16. Poultry Science	Good		5,500	Many opportunities in the service areas.
		300,000		In general, the number of farmers is decreasing; however, employment opportunities in service occupations to farmers is increasing. There is a large demand for college graduates with an agriculture major in all areas.

BIOLOGICAL SCIENCES

COLLEGE DEGREE

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Biological Scientist	Excellent		5,052	Most individuals must have 1 or more years of advanced college training for advancement. Many persons use this background in teaching. About 90% of these persons are men.
2. Biological Scientist 1 Yr. Grad. Study	Excellent		6,675	
3. Biological Scientist 2 Yrs. Grad. Study	Excellent		6,792	
4. Biological Scientist	Excellent		8,760	
		100,000		In general, one-half of the persons employed in this occupational area are employed by colleges and universities. These persons study living organisms as related to their surroundings.

Types of Biological Scientists

1. Agronomists
2. Anatomists
3. Botanists
4. Bio-Chemists or Physicists
5. Entomologists
6. Horticulturists
7. Husbandry Specialists
8. Pharamacologists

BUSINESS ADMINISTRATION AND RELATED PROFESSIONS

COLLEGE DEGREE REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Advertising Workers	Good	125,000	6,550	Few chances for advancement unless you are a college graduate.
2. Accountants	Good	450,000	6,000	Almost one-half are employed by businesses and industries.
3. Marketing Researchers	Fair	15,000	4,950	Determines facts for business. A relatively small field with competition being very keen.
4. Personnel Managers	Fair	100,000	5,500	These persons assist in hiring workers for industry and business. Only a moderate number of employment opportunities are expected within the immediate future.
5. Public Relations	Good	50,000	6,000	Only a moderate number of openings in coming years are expected. Employment opportunities are best with large companies and in large cities.
6. Purchasing Agents	Good	100,000	11,850	These individuals purchase the necessary items to perform the business operation. Most are employed by manufacturing companies.
		840,000		In general, the field of business is an expanding area. In the mid 60's there were about 4 million persons employed in salary managerial positions. Nearly all of these required persons with at least a college degree.

EARTH SCIENCES

COLLEGE DEGREE REQUIRED FOR ENTRY---GRADUATE STUDY BENEFICIAL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. GEOLOGISTS		15,000		
a. Beginning	Excellent		5,750	
b. With 2 Years Grad. Study	Excellent		6,750	Opportunities are good; however, the competition is keen.
c. With Experience Plus Degree	Excellent		9,500	About 75% work for private industry.
2. GEOPHYSICISTS		6,000		
a. Beginning	Fair		6,780	Research is the major activity of these individuals.
b. With 2 Years Grad. Study	Fair		6,877	
c. With Experience Plus Advanced Degree	Fair-Good		9,025	Chances are greater with Ph.D.
3. METEOROLOGISTS		3,000		
a. Beginning	Excellent		6,087	Largest number is employed by the Federal Government.
b. With 2 Years Grad. Study	Excellent		6,887	Have to be energetic and in excellent health.
c. With Experience Plus Advanced Degree	Excellent		9,025	Only 13 Graduates in 1964 with Doctor's Degree.
4. OCEANGRAPHERS		2,500		
a. Beginning	Good		6,087	Only 2,500 employed.
b. With Experience Plus Advanced Deg.	Excellent		9,025	Most are teachers, administrators, and researchers.
		26,500		In general, most persons employed in this area are engaged in research or teaching at college or university level.

ENGINEERING

COLLEGE DEGREE REQUIRED FOR ENTRY---ADDITIONAL YEARS OF STUDY ARE BENEFICIAL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Engineers Beginning	Excellent		6,925	Largest professional occupation for men.
2. Engineers with 1 Year Grad. Study	Excellent		6,887	More than 1/2 of all engineers are employed in manufacturing.
3. Engineers with 2 Years Grad. Study	Excellent		7,700	Most of these individuals will conduct research in private industry or colleges.
4. Engineers	Excellent		11,100	Opportunity greater with the Doctorate Degree
		925,000		In general, the number of engineers needed will increase greatly within the coming 10 year period. Interested persons should obtain good background in mathematics and sciences while enrolled in secondary schools.

Some Types of Engineers:

1. Aeronautical
2. Agricultural
3. Ceramic
4. Chemical
5. Civil
6. Electrical
7. Industrial
8. Mechanical
9. Metallurgical
10. Mining

HEALTH SERVICES

COLLEGE DEGREE

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Medical Record Librarian	Excellent	3,000	6,250	About 3/4 are employed in hospitals.
2. Hospital Administrator	Excellent	7,000	15,000	Almost 2/3 are in non-profit and private hospitals.
3. Dietitians-Nutritionist	Excellent	26,000	6,600	Many are employed by hospitals; however, others find employment in schools
4. Medical Social Worker	Excellent		5,600	
5. Medical Technologists	Excellent	8,000	5,750	
6. Occupational Therapists	Excellent	8,000	5,160	
7. Lab Technician (Inexperienced)	Excellent	25,000	2,990	Nearly all are employed in commercial laboratories.
8. Lab Technician (Experienced)	Excellent		5,980	
9. Hygenists	Excellent	10,000	5,000	Practically all are women.
10. Hygenists Federal Government	Excellent		4,337	Nearly 1/6 are in Armed Services.
		87,000		In general, most persons are employed in large hospitals. Usually 2 to 4 years of experience is required before the salary is reached. Employment outlook for all these occupations should be about the normal expected increase.

OCCUPATIONS RELATED TO HOME ECONOMICS

COLLEGE DEGREE REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Vocational Home Economics Teachers	Excellent		5,500	These individuals teach youth on a secondary level.
2. Child Development & Family Life	Good		4,500	Most opportunities are in areas of teaching, directors of nursery schools and/or youth programs.
3. Clothing & Textile	Good		4,500	Largest area of employment is in the field of retailing.
4. Asst. Home Agent	Good		4,700	Primarily work with adult homemakers.
5. Home Agent	Good		9,000	
6. Food & Nutrition	Good		4,500	Major opportunities in food service as supervisors or dietitians of hospitals, educational or other institutions.
7. Home Management & Family Economics	Good		4,500	Large demand for service workers to help the homemaker.
				In general, opportunities for employment in the field of Home Economics is excellent. This is due partly to the large turnover of workers in this area.

MATHEMATICS AND RELATED

COLLEGE DEGREE FOR ENTRY--GRADUATE STUDY BENEFICIAL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Mathematicians	Excellent	61,000	6,000	Women have great opportunity in this field.
2. Mathematicians	Excellent		12,500	Almost 50% are in research and development.
3. Statisticians	Excellent	38,000	5,250	These persons collect and interpret data.
4. Statisticians	Excellent		6,050	Most are employed to design experiments, plan surveys or other research undertakings.
5. Statisticians	Excellent		9,025	Nearly 1/3 are women.
6. Actuaries	Excellent	21,000	5,500	Over 80% work in life insurance companies.
7. Actuaries Executives	Excellent	2,000	21,500	On-the-job performance is most important.
		122,000		In general, employment opportunities have increased rapidly these last few years. Opportunities are readily available in the computer field.

MEDICAL AND OTHER SIMILAR AREAS

COLLEGE DEGREE PLUS ONE TO FIVE ADDITIONAL YEARS OF TRAINING

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Interns	Excellent	34,000	2,640	Approximately 34,000 are presently training.
2. Family Physician	Excellent	175,000	22,607	Approximately 1/3 are family physicians.
3. Chiropractor	Excellent	25,000	12,000	Approximately 40% are located in California.
4. Dentists	Excellent	90,000	13,000	Only about one-half of the applicants are accepted.
5. Optometrists	Excellent	17,000	13,500	Opportunities are best in the South.
6. Veterinarians	Excellent	15,000	13,255	Almost 40% are general practitioners.
7. Veterinarians U. S. Agriculture	Excellent	2,200	5,540	Over 1/4 are with the U. S. Department of Agriculture.
8. Veterinarians Armed Forces	Excellent	800	6,300	
9. Osteopathic	Excellent	13,500	15,400	Less than 5% held salaried positions.
10. Osteopathic Specialist	Excellent		23,100	
11. Podiatrists--Chiropodists	Excellent	8,000	10,364	Nearly all of the 8,000 are engaged in private practice.
12. Pharmacists	Excellent	103,000	7,800	Practically all work in retail pharmacies.
		400,000		

NURSING -PROFESSIONAL

REQUIRING BACHELOR'S DEGREE

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Administrative and Educative	Excellent	22,000	5,150	Teach students skills and principles. Also engage in research.
2. Public Health Agencies	Excellent	35,000	4,902	
3. Teachers in Hospital schools	Excellent	25,000	5,035	Competence in Science and Math.
4. Teachers in Collegiate Schools	Excellent	5,000	5,820	
5. Nurse Officers	Excellent	8,500	4,625	In Armed Services.
		85,500		In general, only about 15 percent of the nurses have a 4 year college degree. The Bachelor's degree is required for most supervisory and administrative positions.

PHYSICAL SCIENCES

COLLEGE DEGREE REQUIRED FOR ENTRY---GRADUATE STUDY BENEFICIAL

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. CHEMISTS		120,000		
a. Beginning	Excellent		6,300	Industry employs many beginning chemists to analyze and test products.
b. With 2 Years Grad. Study	Excellent		7,400	About 5% of chemists are women.
c. With Experience Plus Advanced Degree	Excellent		10,200	About 1/2 are employed in research and development.
2. PHYSICISTS		35,000		
a. Beginning	Excellent		6,250	Almost one-third are employed in private industry. The others are employed by colleges or universities. Most of these individuals conduct research.
b. With 2 Years Graduate Study	Excellent		7,000	
c. With Experience Plus Advanced Degree	Excellent		11,250	With PhD. have much greater chance of advancement.
3. ASTRONOMERS		1,000		
a. Beginning	Excellent		6,870	Fewer persons are employed in this area than any other science field.
b. With 2 Years Grad. Study	Excellent		6,887	Only research and technical assistants under graduate study.

(Continued on next page)

PHYSICAL SCIENCES (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
c. With Experience Plus Advanced Degree	Excellent		9,025	An individual needs a PhD. for rapid advancement. Only a few openings each year, however, only a few persons train in this field.
		156,000		In general, universities employ these individuals to teach or conduct research. Some jobs in research are also available in industry.

The following are a few types of chemists:

1. Organic Chemists
2. Inorganic
3. Physical
4. Analytical
5. Agricultural
6. Food

SOCIAL SCIENCES

COLLEGE DEGREE - GRADUATE STUDY REQUIRED FOR ADVANCEMENT

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Social Scientist	Excellent	50,000	5,750	People with Doctorate have a much greater opportunity.
2. Economists	Excellent	20,000	10,300	Considerable competition with only Bachelor's Degree.
		70,000		In general, these type scientists study human society---past, present and future. Many are employed by colleges and universities in teaching and research. The employment outlook for the next ten year period is excellent.

Types of Scientists

1. Anthropologists
2. Economists
3. Historians
4. Political
5. Sociologists

TEACHING

COLLEGE DEGREE

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Elementary	Excellent	1.2 Million	5,560	Over 50% of all teachers are elementary. They are in great demand.
2. Secondary	Excellent	700,000	5,995	More than 80,000 new teachers are needed yearly.
3. College and University	Excellent	350,000	7,680	About 80% of college teachers are male.
a. Instructors	Excellent		5,580	
b. Asst. Professor	Excellent		6,750	
c. Assoc. Professor	Excellent		7,980	
d. Full Professor	Excellent		10,320	
4. School Counselors	Excellent	36,000	6,500	Chance of advancement much greater with Master's.
5. Rehabilitation Counselors	Excellent	3,000	5,400	Intensive training in Psychology, Social Sciences, etc.
6. Vocational Counselors	Excellent	3,000	4,760	Opportunity great in local and state employment offices.
		2.3 Million		This area offers the greatest number of employment opportunities for women than any other professional field. In general, all teaching levels will have excellent opportunities for both men and women during the remainder of the 60's and early 70's.

OTHER PROFESSIONAL AND RELATED OCCUPATIONS

COLLEGE DEGREE REQUIRED FOR ENTRY

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. FBI Agents	Fair	6,000	7,290	Must be 23 years of age and not more than 40. Capable of physical exertion and willing to travel in the U. S. and Puerto Rico is a primary requirement. Persons with a college degree are preferred.
2. Foresters	Good	20,000	5,052	
3. Geographers	Good		8,775	Almost 10% are women--about 65% are employed by colleges and universities in teaching.
4. Industrial Designer	Good		9,000	Employment in this field is growing rapidly.
5. Architects	Good	27,000	25,000	About 1/3 are employed by government agencies.
6. Lawyers	Good	250,000	6,550	Limited profession for women. It requires 5-10 years to establish a practice.
7. Librarians	Excellent		5,365	Nearly 85% are women.
8. Newspaper Reporters	Good	60,000	7,228	Most are employed by large daily newspapers.
9. Programmers	Excellent	300,000	8,000	This area offers many opportunities for women.
10. Psychologists	Excellent		10,000	More than 1/3 employed by colleges and universities for teaching or research.

(continued on next page)

OTHER PROFESSIONAL AND RELATED OCCUPATIONS (Continued)

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
11. SOCIAL WORKERS		125,000		
a. Psychiatric	Excellent		5,500	
b. Medical	Excellent		5,150	Nearly 60% are employed by
c. Family	Excellent		5,330	city, county, and state
d. Child Welfare	Excellent		4,980	government. Nearly all
e. Community	Excellent		4,520	are hired on the basis
f. Group Work	Excellent		4,320	of being a college gradu-
g. Public Assistant	Excellent		4,620	ate.
12. Art Directors, Designers, Executives Well known freelancers	Excellent		15,000	
		853,500		

CHAPTER VI

OCCUPATIONS IN WHICH HIGH SCHOOL DROPOUTS MAY FIND EMPLOYMENT

OCCUPATIONS IN THE APPAREL INDUSTRY

FEMALE HIGH SCHOOL DROP-OUTS MAY FIND EMPLOYMENT

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
EXPERIENCED				
1. Cutters & Markers	Fair-Good		6,448	Salary depends on how much "production" a worker is able to produce.
2. Pressers, Machine Finish	Fair-Good		5,772	
3. Sewing Machine Operators	Fair-Good		5,356	
4. Tailors, All-Round	Fair-Good		4,526	
5. Sewers, Hand	Fair-Good		4,472	
6. Pressers, Machine	Fair-Good		7,176	
ENTRY				
1. Sewing Machine Operator	Good		3,500	
2. Other Employed Inexperienced Operators	Good		3,300	
		1.2 Million		In general, these individuals become skilled by on-the-job training. Lay-offs are common within these occupational areas.

DRIVING OCCUPATIONS

REQUIRE LESS THAN A HIGH SCHOOL DIPLOMA

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Over-the-Road Truck-Drivers	Good	600,000	8,300	Must be 21 years of age--have at least 20/40 vision, read and speak English and 1 year of driving experience.
2. Local Truck Drivers	Good	1.2 M	5,980	Must be tactful and courteous since they must deal with the public--Must be in good physical condition.
3. Routemen	Fair-Good	200,000	4,420	Must have ability to sell and deal with public--Must be 21 years of age.
4. Routemen	Fair-Good	27,000	6,733	Have good eye, hand and foot coordination. Must have good vision, good driving record and be 23 years of age.
5. Local Transit Bus-driver	Fair	70,000	5,460	Between the ages of 21 and 40; average height and weight; experienced drivers may advance to more responsible positions.
6. Taxi Drivers	Fair	150,000	4,524	Will not accept anyone with a criminal record. Personal record will be checked out be police department.
7. Drivers Helpers	Fair		5,304	
		3,762,000		In general, the occupations require less than high school graduation. However, many large cities and companies will not accept drivers who had not finished high school Some over-the-road truck-drivers are college grads.

FACTORY OCCUPATIONS NOT REQUIRING SPECIAL SKILL

HIGH SCHOOL DROP-OUTS MAY FIND EMPLOYMENT IN THESE JOBS

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Inspectors	Fair-Good	500,000	5,304	More than 2 out of 5 are women.
2. Power Truck Oper.	Fair-Good	6,000	4,420	May advance to Movement Foreman or Supervisor.
3. Production Painters	Fair	110,000	5,096	More than 15% are women.
4. Stationary Firemen (Boiler)	Poor	50,000	4,576	Is in a decline and will continue the remainder of 1960's.
		666,000		In general, all unskilled jobs will employ nearly the same number of workers; however, the total labor will increase greatly.

RESTAURANT OCCUPATIONS

HIGH SCHOOL DROP-OUTS MAY FIND EMPLOYMENT---ON-THE-JOB TRAINING USUALLY REQUIRED

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Waiters & Waitresses	Very Good	60,000	2,600	Turnover very high, salary depends very much on the amount of tips.
2. Experienced Cooks	Good	300,000	3,536	May take as long as 15 to 20 years to become a cook.
3. Chefs	Fair		15,000	Chefs usually come from experienced cooks after 15-20 years of experience.
4. Restaurant Managers	Good	270,000	7,500	Poise, self-confidence, and the ability to get along with people are important.
		630,000		In general, these unskilled jobs require on-the-job training.

HIGH SCHOOL DROP-OUTS MAY BE EMPLOYED

Occupational Area	Employment Outlook	Number Employed 1964	1963-64 Yearly Salary	Remarks
1. Bellmen	Fair-Good		1,794	Salary depends greatly on the tips that they receive and requires little education
2. Maids	Fair-Good		2,080	Some short term training programs are available for maids and other hotel workers.
3. Elevator Operators	Fair-Good		2,766	No training necessary.
				A moderate increase in employment is likely in this industry during the next few years.

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VT 002 010

Haines, Peter G.

How High School Cooperative Trainees Fare in the Labor Market - Phase B, A Follow-Up Study of 1963 Graduates Ten Months After Graduation, and a Limited Sample of 1962 Graduates Two Years After Graduation.

Michigan State Univ., East Lansing. Coll. of Education
Michigan State Board for Vocational Education, Lansing
MF AVAILABLE IN VT-ERIC SET.
ER-23
Pub Date - May65 72p.

*VOCATIONAL FOLLOWUP; *COOPERATIVE PROGRAMS; LONGITUDINAL STUDIES; *GRADUATE SURVEYS; *PROGRAM EVALUATION; EMPLOYMENT PATTERNS; WAGES; OCCUPATIONAL MOBILITY; COOPERATIVE EDUCATION; *VOCATIONAL EDUCATION
MICHIGAN

The major areas of interest were (1) employment status of trainees, (2) degree to which trainees remained in fields of training, (3) degree to which trainees remained in same locality, (4) type of industry in which trainees were employed, (5) average income of trainees, (6) academic quality of trainees. Of the 4,036 June 1963 graduates, 1,472 or 36 percent returned usable questionnaires, and 1,855 of the June 1962 graduates who responded in 1963 returned 516 or 28 percent return. Conclusions were: (1) Vocational education through the cooperative plan results in trainees locating and retaining employment after graduation, (2) Cooperative firms have profited because numbers of trainees have remained with them as regular employees, (3) Cooperative education programs do not curtail further education in post-high school educational institutions. (MM)

VT 002 010

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Educational Research Series, Number 23
May 1965
Sponsored by: State Board of Control for Vocational Education

How High School Cooperative Trainees Fare in the Labor Market: Phase B

A Follow-Up of 1962 and 1963 Graduates Who Received Training for Distributive, Office, or Trade and Industrial Occupations

ER 23

Bureau of Educational Research Services
College of Education
Michigan State University
East Lansing, Michigan

VT 02010

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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HOW HIGH SCHOOL COOPERATIVE TRAINEES FARE IN THE LABOR MARKET: PHASE B

A Follow-Up Study of 1963 Graduates
Ten Months After Graduation, and a Limited Sample of
1962 Graduates Two Years After Graduation,

Project Director: Dr. Peter G. Haines

Project Assistant: Lawrence M. Ozzello
Graduate Assistant: Horace Griffitts

A Study by the

Business and Distributive Teacher Education Service
College of Education, Michigan State University

Educational Research Series, Number 23
Published May 1965 by

Bureau of Educational Research Services
College of Education
Michigan State University
East Lansing, Michigan

September 18, 1964

Michigan Youth Opportunities Survey
316 Erickson Hall
Michigan State University
E st Lansing, Michigan

Dear Dr. Haines:

My deepest apologies are extended for not getting the enclosed IBM Survey Card in to you prior to this time. The reason for this is that I have been doing an extensive amount of travelling; therefore, my mail sometimes takes months to get to me.

I am a graduate of Commerce High School in Detroit where I took part in the cooperative training plan. I cannot possibly express the extent of my approval towards this system. I sincerely hope that there will be a time when girls throughout the United States will have an opportunity to participate in this program while in high school.

If I can be of any assistance to you or your staff in this respect, please feel free to contact me.

Very truly yours,

Cathy Simonow

CATHY SIMONOW

1245 East Ocean Boulevard
Long Beach 2, California

FOREWORD

This project is part of the continuing evaluation of vocational education in Michigan. This bulletin reports: (1) a study of the 1963 graduates ten months after graduation and (2) a longitudinal study of the 1962 graduates two years after graduation. This research project is currently in its third year (1964 graduates). It measures the effectiveness of secondary school cooperative occupational education programs by assessing the employment status of the trainees ten months after graduation.

This long-range project was initiated in February, 1963 at the request of the State Board for Vocational Education which provided funds to support the study partially. To provide unity and to facilitate comparison, the format and research design of this report parallels the one compiled in 1963 about the 1962 graduates.

The 1963 phase of the study reported in this bulletin generally indicates that cooperative trainees fare well in the labor market. Employment is obtained quickly and residual unemployment is

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[1]Peter G. Haines and Brendan Coleman. How High School Cooperative Trainees Fare in the Labor Market. ER 16, Office of Research and Publications, College of Education, Michigan State University, 1963.

low. Trainees are shown to be representative of all levels of academic achievement, and, as a total group, are actually superior to their graduating classes as a whole.

Many trainees are still working for the employer who trained them. About thirty-eight (38) percent of the trainees had entered post-high school educational institutions.

The vocational coordinators can take a measure of comfort in the results of this study, because it does indicate that the cooperative education program does indeed produce trained employees. However, a detailed study of the data reveals areas for improvement.

This report has been written with teachers, counselors, and administrators foremost in mind. Rather than adhering to a formal research format, the staff felt it wise to present first the major findings and conclusions, followed by a detailed analysis of the findings.

This project is a service of the Business and Distributive Teacher Education Staff at Michigan State University. The researchers wish to express their thanks to the staff of the Division of Vocational Education, Michigan Department of Public Instruction for their assistance and to the many vocational coordinators throughout Michigan for their assistance in compiling cooperative trainee lists, and also to acknowledge the dedicated and valuable clerical assistance of Miss Dorothy Beck and Mrs. Patricia Ozzello.

A subsequent study of the 1964 cooperative education trainees is in progress, as is a three-year longitudinal study of the 1962 graduates, and will be reported in a subsequent bulletin in this research series.

Peter G. Haines
Lawrence M. Ozzello
Horace Griffitts
East Lansing, Michigan
June 15, 1965

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SUMMARY: MAJOR FINDINGS AND CONCLUSIONS

Part A: The 1963 Cooperative Education Trainees

This study surveyed the 4036 Michigan high school students who were reported by their schools as being cooperative education trainees at the time of their graduation in June 1963. Of the 4036 trainees, 36% or 1472 returned usable questionnaires. All data refer to their status as of April 1964, approximately 10 months after graduation. The major findings reveal that:

1. The unemployment rate was low.

   Only 1% were unemployed 10 months after graduation. Almost 5 out of 10 of those available for work had obtained their current full-time employment within one month after graduation. By ten months after graduation,

   . . . 61% were employed full time;

   . . . 18% were employed part time--most were married or attending a school or college; and,

   . . . 4% were in the military service.

2. A significantly large number of trainees--almost 4 out of 10--were attending college or enrolled in a school beyond the high school.

   Office and distributive trainees are attending a school or college to about the same degree. Somewhat more trade and industrial trainees were attending a post-high school institution.

3. Of the 1963 trainees, 43% were not in the labor market.

   . . . 5% were housewives (and not otherwise employed).

   . . . 38% were attending a college or a school.

4. The trainees were putting their training to work by being employed in the field for which trained.

   . . . 75% of the office trainees were working in an office occupation.

   . . . 35% of the distributive trainees were working in a distributive occupation.

   . . . 71% of the industrial trainees were working in an industrial occupation.

5. The employers who trained the cooperative trainees were benefiting by securing full-time workers.

   . . . 30% of the office trainees, 26% of the distributive trainees, and 25% of the industrial trainees were with their cooperative firm ten months after graduation.

   . . . An additional 31% of the office trainees, 42% of the distributive trainees, and 43% of the industrial trainees have worked after graduation for their cooperative employers, but have resigned since.

6. Cooperative trainees were better than average students academically.

   . . . In each occupational group the trainees ranked higher in their graduating class, on an average, than other graduates.

   . . . In the upper half (50%) of their class were 74% of the office trainees, 43% of the distributive trainees, and 48% of the industrial trainees.

. . . 43% of the office trainees ranked in the upper 25% of their graduating class.

On the basis of these findings one can conclude that cooperative vocational education contributes to helping young people secure employment and does not prevent them from furthering their education. Employers benefit because many trainees remain with their cooperating employer full-time after graduation. Cooperative education is provided for achievers at all academic levels, but cooperative trainees as a group are superior to the average of their graduating class. A detailed discussion of the findings of this study is included in subsequent parts.

Part B: The 1962 Cooperative Education Trainees

Two years after graduation, the 1855 respondents of the 1962 cooperative education graduating class were resurveyed regarding their current employment status. From this group, 516 usable replies were received, a response of 28 percent. The major findings reveal that:

1. The unemployment rate is extraordinarily low.

   Of the 518 respondents, only one respondent is currently unemployed.

2. Slightly more than two-thirds of the respondents are employed in full-time positions.

   Of this group, 72% are employed in office occupations; 6% are in distributive occupations; and 22% are in industrial occupations.

3. More than one-fourth of the employed respondents have worked for their cooperative employer continuously since graduation.

Almost one-half (9 of 21) of those trainees currently employed in distributive occupations continue to work for their high school cooperative employer. More than 30% (75 of 253) of trainees employed in office occupations remain with their cooperative employer as opposed to less than 15% (11 of 77) of those in the trade and industrial occupations.

4. <u>More than two-thirds of the respondents employed received their cooperative training in the same general occupation</u>.

Almost 80% of those currently engaged in office occupations did their cooperative training in this area; slightly less than 50% of those respondents currently in distributive or trade and industrial occupations completed their cooperative training in the same general occupational area.

5. <u>More than 20% of the respondents are full-time students at a post-secondary educational institution</u>.

. . . 57% did their cooperative training in the office occupations;

. . . 16% were in the distributive occupations; and,

. . . 28% were in the trade and industrial occupations.

6. <u>Of the 1962 trainees, 28% were not in the labor market</u>.

. . . 6% were housewives (and not otherwise employed).

. . . 22% were attending a college or a school.

THE STUDY OF 1963 GRADUATES

The Methods of the Study

The Problem

The primary outcome of vocational education is presumed to be the development of occupational competence; vocational curricula are by nature designed for those who wish to undertake a career in a particular occupational area. It follows, therefore, that one measure of the effectiveness of any vocational curriculum is how well the graduates fare in the labor market upon completion of their training.

In Michigan the cooperative plan of vocational education is widely used in Class A and B high schools (over 900 enrollment). Under the cooperative plan, a student may enroll either for two years (grades 11 and 12) or for one year (grade 12 only). The student is placed with a cooperating employer who will provide training in the occupation the student has chosen. The work station becomes, in effect, an occupational laboratory with designated employees of the firm becoming the "downtown faculty." The student is paid a regular wage and generally spends 15-25 hours per week with the cooperating firm. In addition, the student-learner (trainee) is enrolled in school in at least one class where the instruction is directly related to his occupational goal and to his needs in his training firm.

In this study the measurement of the contributions of cooperative education was structured by the following questions:

1. What proportion of the graduates (cooperative trainees) were employed approximately ten months after graduation? Do employment rates vary among the three fields of training: office, distributive, and industrial occupations?
2. To what degree did graduates find employment in an occupation the same as, or similar to, the one in which they were trained? Are there differences among those trained in office, distributive, and trades?
3. To what extent do employers of cooperative trainees retain them as full-time employees?
4. In what ways does the trainee's scholastic ability, as measured by rank in class, affect his labor market behavior?
5. What is the span of unemployment following graduation?
6. What additional education do cooperative trainees undertake after graduation?
7. To what extent do cooperative trainees attending a post-high school educational institution concentrate in a field comparable to their cooperative training?
8. To what degree do cooperative trainees attending a post-high school educational institution work, while in college, in the area of their cooperative training to defray educational expenses?

Population and Sample Size

The population for the study consisted of all students in public high schools in Michigan who met the following criteria:

1. Graduated at the end of the Spring semester, 1963, and
2. At the time of graduation were bonafide trainees in a reimbursable cooperative occupational program in office, distributive, or industrial occupations.

The total number of cooperative trainees in 1963, according to official data from the Department of Public Instruction, was approximately 8000. However, this figure includes some trainees who were 11th graders, some who did not graduate, some who had been dropped from the cooperative program, and some in junior colleges.

As shown in Table 1, the number of schools submitting lists of trainees was 96; the number of graduating senior cooperative trainees reported by the school coordinators was 4036. Of the schools listed by the DPI as having cooperative programs, 36 did not return lists. These 36 schools are estimated to have had about 692 trainees. Therefore, the estimated population was 4728. (See Appendix A for a complete list.)

Usable replies were received from 1472 trainees, representing 36% of the estimated population. The returns were classified as early or late and a check run was made between the two groups on key questions. This early-late sample treatment is a recognized way of measuring the degree to which non-respondents are similar to respondents. On an inspection basis an early-late check revealed no discernible difference. Therefore, one can assume that the non-respondents

would have responded in the same way as those who did. Thus, the data shown are applicable to the total population.*

TABLE 1

POPULATION AND SAMPLE SIZES

Number of Trainees	Total
Reported by schools returning lists (96).	4036
Number of schools not returning lists - 36 (Estimated from DPI lists).	692
Total Population (Senior Graduates).	4728
Trainees Responding (Usable Replies).	1472
Trainees Not Responding	3256

Procedures

The coordinators of each school were contacted and requested to return a list of trainees with their current addresses and their rank in the 1963 graduating class. A questionnaire card was mailed to each trainee along with a letter explaining the purpose and importance of the study. If he failed to respond to the original mailing, each trainee received a follow-up letter within two weeks.

*Although office trainees responded in larger numbers than distributive or trade and industrial trainees, no marked effect was anticipated because most of the data were reported by field.

Questionnaires were screened for completeness; some were followed up to secure missing information. All information was coded and transferred to punch cards. Each card carried a code identifying the trainee's high school so that data could be summarized, if desired, for each school. The cards are stored and can be used in longitudinal studies in succeeding years if desired. Tabulation and data analysis was done by punch card equipment.

Findings of the Study

The findings of the study are reported in this section according to six major areas of interest:

1. What is the employment status of cooperative trainees when measured ten months after graduation?
2. To what degree do cooperative trainees continue in the occupational fields for which they have been trained?
3. To what degree do trainees remain in the same locality ten months after graduation?
4. What type industry are trainees employed in ten months after graduation?
5. What is the average income earned by trainees ten months after graduation?
6. Of what academic quality are the cooperative trainees?

The Employment Status of Graduates

One measure of the effectiveness of vocational education is the degree to which graduates find employment. As Table 2 shows, six out of ten graduates were employed full time when measured ten months

after graduation. An additional two out of ten were employed part-time; most of these were either housewives or students in some post-high school educational institution. Another 9% were not in the labor market, being full-time housewives or in the military service. The unemployment rate was very low; about 1% (1 out of 100) were unemployed ten months after graduation.

Analysis of Table 2 shows some differences in status when the total number of cooperative trainees is classified according to the occupational area in which they were trained. More distributive and trade and industrial trainees are in military service than are office trainees. At least a partial explanation for this is that fewer office trainees are male than are either the distributive or the trade and industrial trainees. The unemployment rate for all three groups is about the same although slightly more trade and industrial trainees are unemployed ten months after graduation than are office or distributive trainees.

The rate of part-time employment among distributive trainees is more than that of office or trade and industrial trainees. This is accounted for partly by the fact that more distributive trainees are working part-time while enrolled in a school or college.

The percentage of office trainees employed full-time is considerably higher than that of either distributive or trade and industrial trainees. This is explained by the fact that most office trainees are females who do attend college or school in fewer numbers than male trainees, do not enter military service, and do not work part-time as often as do male students. (See Table 3)

TABLE 2

EMPLOYMENT STATUS OF TRAINEES BY PROGRAM
(TEN MONTHS AFTER GRADUATION)

Employment Status	Field of Cooperative Training			Total
	Office	Distributive	Trade and Industrial	
Employed Full Time				
N	513	214	165	892
%	66.11	55.01	53.75	60.60
Employed Part Time				
N	116	94	61	271
%	14.95	24.16	19.87	18.41
Attending School or College				
N	244	151	160	555
%	31.44	38.82	52.12	37.70
Military Service				
N	7	27	18	52
%	.90	6.94	5.86	3.53
Housewife				
N	49	20	7	76
%	6.31	5.14	2.28	5.16
Unemployed				
N	6	3	8	17
%	.77	.77	2.61	1.15
TOTAL Respondents*	776	389	307	1,472

*In some cases respondents were classfied into more than one category such as attending school and also working. Therefore, the individual percentages and numbers add up to more than 100%--or the actual total as given.

TABLE 3

EMPLOYMENT STATUS OF TRAINEES BY PROGRAM AND SEX
(TEN MONTHS AFTER GRADUATION)

Employment Status	Field of Cooperative Training							
	Office		Distributive		Trade and Industrial		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Employed Full Time								
N	31	482	117	97	126	39	274	618
%	50.82	67.71	55.71	54.19	61.76	37.86	57.68	61.99
Employed Part Time								
N	16	100	47	47	35	26	98	173
%	26.23	14.00	22.38	26.26	17.16	25.24	20.63	17.35
Attending School or College								
N	32	212	91	60	100	60	223	332
%	52.46	29.65	43.33	33.52	49.02	58.25	46.95	33.30
Military Service								
N	6	1	26	1	18	-	50	2
%	9.84	.14	12.38	.56	8.82	-	10.53	.20
Housewife								
N	-	49	-	20	-	7	-	76
%	-	6.85	-	11.17	-	6.80	-	7.62
Unemployed								
N	-	6	2	1	4	4	6	11
%	-	.84	.95	.56	1.96	3.88	1.26	1.10
Total*	61	715	210	179	204	103	475	997

*In some cases respondents were classified into more than one category such as attending school and also working. Therefore, the individual percentages and numbers add up to more than either 100% or the actual total as given.

Table 3 also shows a considerably higher proportion of male than female cooperative trainees are attending school or college. Of the female cooperative education participants attending a post-high school educational institution, the trade and industrial trainees have a higher percentage than do either the office or distributive fields.

Of the male students, the trade and industrial trainees are working full time to a greater extent than either of the others. On the other hand, a lesser proportion of the distributive trainees attend a post-high school educational institution, but they do enter the military service in greater numbers.

How Long Are Trainees Unemployed After Graduation?--Among the characteristics of today's labor market for most young people are not only substantial unemployment, but also a considerable span of time before the first job is found. Table 4 reveals a considerably different picture for the cooperative graduates of 1963. Over 55% of all cooperative trainees were employed in their current position by the end of the summer.

As Table 4 shows, the office trainees obtained permanent full-time employment more readily than did either distributive or trade and industrial trainees by the end of the first month after graduation. However, all occupational groups were approximately equal on full-time, permanent employment by the end of six months. It is possible (although the study did not check for this) that these figures are conservative because some graduates could have been employed full

TABLE 4

ELAPSED TIME BETWEEN GRADUATION OF TRAINEES AND CURRENT FULL-TIME EMPLOYMENT BY MONTH AND PROGRAM*

Number of Months Before Current Full-Time Position	Percent of Trainees in Current Full-Time Employment							
	Office		Distributive		Trade and Industrial		Total	
	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative
1 or Less	58.3	58.3	53.6	53.6	46.7	46.7	55.0	55.0
1 - 2	11.3	69.6	4.4	58.0	15.7	62.4	10.2	65.2
2 - 3	9.2	78.8	9.6	67.6	6.1	68.5	8.7	73.9
3 - 4	4.2	83.0	6.0	73.6	9.1	77.6	5.6	79.5
4 - 5	3.9	86.9	4.8	78.4	3.6	81.2	4.1	83.6
5 - 6	2.2	89.1	3.2	81.6	4.9	86.1	2.9	86.5
6 - 7	2.5	91.6	2.8	84.4	3.0	89.1	2.7	89.2
7 - 8	1.8	93.4	2.4	86.8	1.8	90.9	1.9	91.1
8 - 9	2.9	96.3	6.0	92.8	4.9	95.8	4.1	95.2
9 - 10	3.7	100.0	7.2	100.0	4.2	100.0	4.8	100.0

*This table portrays percentages on current full-time employment and does not necessarily present an accurate picture of first full-time employment. The latter would be a greater percentage for the earlier months due to the possibility of changing full-time jobs.

time after two or three months but then decided to enroll in school or college to fulfill their military service obligation, or possibly to change full-time positions.

As a rule, there was little percentage difference between male or female trainees in length of time to obtain current full-time employment (Table 5). More significance was indicated by program than by sex. The average time expired for office trainees to obtain their current, full-time employment was two and one-half (2.5) months. The trade and industrial and the distributive trainees followed with an average of about one-half month longer with three (3.0) and three and one-fifth (3.2) months, respectively. (See Appendices B and C for a complete month-by-month and cumulative analysis by program and sex.)

Degree to Which Trainees Use Occupational Training

One measure of effectiveness of vocational education is the degree to which the trainee enters and remains in the occupation for which he has been trained. There are two aspects: (1) the degree to which trainees switch occupational fields, and (2) the degree to which trainees remain with the employer who provided their cooperative training.

Switching Occupational Fields.--Educational personnel who have looked seriously at vocational education know that an occupational education program has general occupational outcomes as well as specific occupational outcomes. In addition, there are in our modern economic society many occupations in which a knowledge of

TABLE 5

ELAPSED TIME BETWEEN GRADUATION OF TRAINEES
AND CURRENT FULL-TIME EMPLOYMENT
BY MONTH, PROGRAM, AND SEX*

Number of Months Before Current Full-Time Position	Percent of Trainees in Current Full-Time Employment															
	Office				Distributive				Trade and Industrial				Total			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative
1 or Less	61.3	61.3	58.1	58.1	53.6	53.6	53.6	53.6	53.2	53.2	55.8	55.8	53.2	53.2	55.8	55.8
1 - 2	6.4	67.7	11.6	69.7	5.2	58.8	3.1	56.7	9.7	62.9	10.5	66.3	9.7	62.9	10.5	66.3
2 - 3	12.9	80.6	8.9	78.6	11.8	70.6	6.2	62.9	9.0	71.9	8.6	74.9	9.0	71.9	8.6	74.9
3 - 4	3.2	83.9	4.4	83.0	6.5	77.1	5.1	68.0	7.4	79.3	4.7	79.6	7.4	79.3	4.7	79.6
4 - 5	9.7	93.5	3.5	86.5	5.2	82.3	4.2	72.2	4.6	83.9	3.9	83.5	4.6	83.9	3.9	83.5
5 - 6	.0	93.5	2.3	88.8	.7	83.0	7.2	79.4	2.6	86.5	3.1	86.6	2.6	86.5	3.1	86.6
6 - 7	3.3	96.8	2.5	91.3	3.3	86.3	2.1	81.5	3.2	89.7	2.4	89.0	3.2	89.7	2.4	89.0
7 - 8	3.2	100.0	1.6	92.9	3.3	89.6	1.0	82.5	2.9	92.6	1.5	90.5	2.9	92.6	1.5	90.5
8 - 9	.0	100.0	3.1	96.0	3.9	93.5	9.3	91.8	3.5	96.1	4.3	94.8	3.5	96.1	4.3	94.8
9 - 10	.0	100.0	4.0	100.0	6.5	100.0	8.2	100.0	3.9	100.0	5.2	100.0	3.9	100.0	5.2	100.0

*This table portrays percentages on current full-time employment and does not necessarily present an accurate picture of first full-time employment. The latter would be a greater percentage for the earlier months due to the possibility of changing full-time jobs.

several fields is required. Therefore, it is not easy to determine if a trainee has indeed switched to an occupation other than that for which he was trained. In this study, "switching" was defined as a situation in which the job title of the individual ten months after graduation was outside of the broad family of occupations in which the individual was trained. For example, if a young woman were a distributive trainee and is working now as an office worker in a retail store, she is defined in this study as having switched occupations even though her distributive knowledges are probably of some value to her on her present job. The definition in this study, then, is a tight one.

Table 6 reveals that office and trade and industrial trainees show far less occupational switching than do distributive trainees; in each field the proportions remaining in the occupation are: office--85%, distributive--35%, and industrial--71%.* The probable reason for this variation is revealed by analyzing the switches made by male and female trainees in Table 7. The most significant cases of occupational switching are shown by female distributive trainees who became office workers (52%) and male distributive trainees who became trade and industrial workers (44%). A similar switch is shown by the number of female industrial trainees who became office workers (44%). (For further job-shift detail on the various classifications within the occupational areas, see Appendices D and E.)

---

*All percentages in Tables 6 and 7 have been recomputed for presentation here to give a factual picture of actual responses. All "no response" answers were omitted.

TABLE 6

DEGREE TO WHICH TRAINEES REMAIN IN OCCUPATIONAL FIELDS, BY PROGRAM

Occupational Area Ten Months After Graduation	Field of Cooperative Training			Total
	Office	Distributive	Trade and Industrial	
Office				
N	498	87	27	612
%	64.18	22.37	8.79	41.58
Distributive				
N	29	103	24	156
%	3.74	26.48	7.82	10.60
Trade and Industrial				
N	55	91	138	284
%	7.09	23.39	44.95	19.29
Other (or unclassified)				
N	3	13	4	20
%	.38	3.34	1.30	1.36
No Reference*				
N	191	95	114	400
%	24.61	24.42	37.14	27.17
TOTAL	776	389	307	1,472

*Composed primarily of housewives and full-time students.

TABLE 7

DEGREE TO WHICH TRAINEES REMAIN IN OCCUPATIONAL FIELDS, BY PROGRAM AND SEX

Occupational Area Ten Months After Graduation	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	Male	Female	Male	Female	Male	Female	Male	Female
Office								
N	15	483	18	69	5	22	38	574
%	24.59	67.55	8.57	38.55	2.45	21.36	8.00	57.58
Distributive								
N	7	22	60	43	15	9	82	74
%	11.47	3.08	28.57	24.02	7.35	8.74	17.26	7.42
Trade and Industrial								
N	18	37	71	20	119	19	208	76
%	29.51	5.17	33.81	11.17	58.34	18.44	43.79	7.62
Other (or unclassified)								
N	2	1	13	-	4	-	19	1
%	3.28	.14	6.19	-	1.96	-	4.00	.10
No Reference*								
N	19	172	48	47	61	53	128	272
%	31.15	24.06	22.86	26.26	29.90	51.46	26.95	27.28
Total	61	715	210	179	204	103	475	997

*Composed primarily of housewives and full-time students.

On the basis of the evidence shown in Tables 6 and 7, it can be argued successfully that cooperative occupational training generally results in substantial numbers of trainees staying in the occupational area for which they were trained.

Do Trainees Remain with Their Cooperative Employer?--One of the reasons why employers participate in a cooperative program is to gain the advantage of securing full time employees who have been screened by the firm over a period of time, who know the firm and its purposes, and who have been trained in the firm's methods. Table 8 reveals that there is, on the part of the cooperative employers, apparently great satisfaction with the cooperative trainees. Even in a labor market where supply is greater than demand, 60-70% of all trainees have, since graduation, worked for or are working for, their cooperating employer.

Interestingly enough, the percentages shown in Table 8 are remarkably similar in each of the three occupational fields.

Degree to Which Trainees Remain in Locality After Graduation

When one considers the increased mobility of the American public, and in particular the youth of our nation, one could surmise that occupationally-trained graduates would tend to leave local municipalities for the so-called "greener pastures." However, Table 9 shows that ten months after graduation more than eight out of ten (81.5%) are still residing in the same county where they received cooperative training. This figure, though impressive, does not portray the entire holding power of communities training youth for

TABLE 8

DEGREE TO WHICH TRAINEES REMAIN WITH THEIR
HIGH SCHOOL COOPERATIVE PROGRAM EMPLOYER
BY PROGRAM AND SEX
(TEN MONTHS AFTER GRADUATION)

	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	Male	Female	Male	Female	Male	Female	Male	Female
Presently Employed by Cooperative Firm								
N	26	209	48	51	49	27	123	287
%	42.6	29.2	22.9	28.5	24.0	26.2	25.9	28.8
Have Worked for Cooperative Employer Since Graduation But Are Not Now								
N	18	223	91	71	91	41	200	335
%	29.5	31.2	43.3	39.7	44.6	39.8	42.1	33.6
Not Employed by Cooperative Employer Since Graduation								
N	13	238	54	48	50	28	117	314
%	21.3	33.3	25.7	26.8	24.5	27.2	24.6	31.5
No Reference								
N	4	45	17	9	14	7	35	61
%	6.6	6.3	8.1	5.0	6.9	6.8	7.4	6.1
Total	61	715	210	179	204	103	475	997

TABLE 9

DEGREE TO WHICH TRAINEES REMAIN IN LOCALITY OF TRAINING
(TEN MONTHS AFTER GRADUATION)

Program and Sex	Michigan			Out of State	No Reference	Total
	Same County	Adjacent County	Non-Adjacent County			
Office						
Male						
N	44	1	0	5	3	53
%*	83.0	1.9	0.0	9.4	5.7	100
Female						
N	501	34	14	17	17	583
%	85.9	5.9	2.4	2.9	2.9	100
Total						
N	545	35	14	22	20	636
%	85.7	5.5	2.2	3.5	3.1	100
Distributive						
Male						
N	135	14	5	26	10	190
%	71.1	7.3	2.6	13.7	5.3	100
Female						
N	159	13	2	6	5	183
%	86.0	7.0	1.1	3.2	2.7	100
Total						
N	294	27	7	32	15	375
%	78.4	7.2	1.9	8.5	4.0	100
Trade and Industrial						
Male						
N	132	19	6	19	3	179
%	73.7	10.6	3.4	10.6	1.7	100
Female						
N	52	4	6	1	2	65
%	80.0	6.2	9.2	1.5	3.1	100
Total						
N	184	23	12	20	5	244
%	75.4	9.4	4.9	8.2	2.1	100
Total						
N	1023	85	33	74	40	1255
%	81.5	6.8	2.6	5.9	3.2	100

*Percentages are to be read horizontally.

an occupational field. Some cooperative education programs cover Standard Metropolitan Areas (SMA) and thus at times overlap county lines. In other cases, a transfer to a new position a short distance away could mean employment in an adjacent county. Almost seven percent (6.8) of the trainees who now work in adjacent counties would, if redistributed to the SMA scales, be considered as in the same general locality where the original cooperative training took place. This would mean about 88% of these occupationally-trained individuals remain in the same general vicinity where they received their training.

Of those now working out of state, most are either in the military service or are wives of servicemen.

Type Industry of Employer

An indication of the need for cooperative training for specific job classifications can be determined by surveys of jobs held by these high school graduates. Table 10 shows the type of industries employing cooperatively-trained high school graduates ten months after their graduation.

The service industry employed the greatest proportion of the female trainees (51.4%), whereas, industrial industries employed a higher proportion of male trainees (35.5%).

When the three fields of cooperative training are considered individually, the service industry employs the greatest portion of both male (43.4%) and female (53.0%) office trainees followed by industrial firms with about 20% for both.

Of the distributive trainees most are employed (39.5% of the male and 53.1% of the female trainees) by retail firms. Industrial

TABLE 10

TYPE OF INDUSTRY OF EMPLOYER OF TRAINEE
BY PROGRAM AND SEX
(TEN MONTHS AFTER GRADUATION)

Industry	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	Male	Female	Male	Female	Male	Female	Male	Female
Industrial								
N	11	116	56	6	83	3	150	125
%[1]	20.8	21.2	29.5	4.1	46.4	4.6	35.5	16.5
Retail								
N	7	75	75	77	27	7	109	159
%	13.2	13.7	39.5	53.1	15.1	10.8	25.8	21.0
Personal and Business Service								
N	23	290	22	52	37	47	82	389
%	43.4	53.0	11.6	35.9	20.7	72.3	19.4	51.4
Government (non-military)								
N	4	66	2	3	6	3	12	72
%	7.5	12.1	1.0	2.1	3.3	4.6	2.8	9.5
Military								
N	6	0	27	0	18	0	51	0
%	11.3	0.0	14.2	0.0	10.0	0.0	12.1	0.0
Other[2]								
N	2	0	8	7	8	5	18	12
%	3.8	0.0	4.2	4.8	4.5	7.7	4.4	1.6
Total								
N	53	547	190	145	179	65	422	757
%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Read percentages vertically.

[2] Includes those not classified above, those undeterminable, and those that did not respond to the question.

firms are second in the employment of male distributive trainees (29.5%), while the service industry is second in the employment of female (35.9%) trainees.

In the trade and industrial field, industrial firms lead in the employment of male trainees (46.4%) followed by the service industry (20.7%). Of the female trainees in this field, seven out of ten are employed in the service industry with the remainder fairly evenly distributed among the other industries.

Average Income Per Week

The cooperatively-trained, full-time male employee receives more money per week than does the female trained employee ten months after graduation--as shown in Table 11. The male trade and industrial trainees receive more per week ($94) than do either the distributive ($86) or the office ($82) trainees. This fact could account for some of the office and distributive trainees accepting positions in this field. (See Table 7.)

The cooperatively-office-trained, full-time female employees received an average of $66 per week while the trade and industrial received $58, followed closely by the distributive trainees at $55.

The Academic Quality of Cooperative Trainees

Some teachers, counselors, and administrators have voiced the opinion that cooperative students are low-level academically. The data in Table 12 dispel that notion quite convincingly. It may be true that, in a given school, cooperative trainees are of poor quality academically, but as a group they achieve as well or better than other

TABLE 11

AVERAGE TRAINEE INCOME PER WEEK
BY PROGRAM, SEX, AND WORK STATUS
(TEN MONTHS AFTER GRADUATION)
(To Nearest Dollar)

Program and Sex	Employment Status			
	Full Time		Part Time	
	Number Responding	Dollars	Number Responding	Dollars
Office				
Male	30	$82	16	$46
Female	459	66	84	38
Distributive				
Male	118	86	41	52
Female	93	55	36	36
Trade and Industrial				
Male	130	94	33	61
Female	37	58	23	30

TABLE 12

TRAINEE'S RANK IN GRADUATING CLASS
BY PROGRAM AND SEX

	Field of Cooperative Training							
	Office		Distributive		Trade and Industrial		Total	
Quartile	N	%	N	%	N	%	N	%
1st Quartile (Top 25%)								
Male	18	2.32	15	3.86	31	10.10	64	4.35
Female	317	40.85	30	7.71	48	15.63	395	26.83
Total	335	43.17	45	11.57	79	25.73	459	31.18
2nd Quartile								
Male	19	2.45	53	13.62	41	13.36	113	7.68
Female	220	28.35	68	17.48	27	8.79	315	21.40
Total	239	30.80	121	31.10	68	22.15	428	29.08
3rd Quartile								
Male	12	1.55	74	19.02	55	17.92	141	9.58
Female	109	14.04	50	12.86	16	5.21	175	11.89
Total	121	15.59	124	31.88	71	23.13	316	21.47
4th Quartile (Bottom 25%)								
Male	12	1.55	54	13.88	36	11.73	102	6.93
Female	34	4.38	27	6.94	4	1.30	65	4.41
Total	46	5.93	81	20.82	40	13.03	167	11.34
No Reference								
Male	-	-	14	3.60	41	13.36	55	3.74
Female	35	4.51	4	1.03	8	2.60	47	3.19
Total	35	4.51	18	4.63	49	15.96	102	6.93
TOTAL	776	100.00	389	100.00	307	100.00	1472	100.00

graduates in the schools from which they come. A note should be made here that vocational programs should serve the needs of those students who will enter the world of work upon graduation; a world where occupations have varying requirements of academic ability. It should also be remembered that, in some occupations, sheer academic quality is not the prime requisite. The point is that, while intellectual achievement is not a sole criterion for success in an occupation, the rank in class may be an indicator of motivation, a factor of significance in most forms of employment.

Trainee's Rank in Graduating Class.--As Table 12 shows, of those schools reporting class standing, roughly six out of ten cooperative trainees are in the upper half of their graduating classes, and about one of ten is in the bottom quarter. The trade and industrial trainees most closely approximate an equal distribution among the quartiles. Six of ten distributive are from the middle two quartiles. The office trainees exhibit remarkable academic achievement; almost half of them were in the upper quarter of their high school class and about seven out of ten were in the upper half of their class.

How Many Graduates Further Their Education?--There is a common misconception among some school personnel that vocational education students are not among the college-bound. The results of this study indicate that a significant number of cooperative trainees do further their education. As Table 13 shows, approximately 38% of the trainees responding were attending a school or college ten months after their

TABLE 13

TRAINEES ATTENDING A SCHOOL OR COLLEGE
BY PROGRAM
(TEN MONTHS AFTER GRADUATION)

Post High School Institution	Field of Cooperative Training			Total
	Office	Distributive	Trade and Industrial	
Four-Year College or University				
N	120	47	59	226
%	49.2	31.1	36.9	40.7
Two-Year Public College				
N	67	61	50	178
%	27.4	40.4	31.2	32.1
Private Business, Trade or Technical Institute				
N	55	33	44	132
%	22.6	21.9	27.5	23.7
Other[1]				
N	2	10	7	19
%	.8	6.6	4.4	3.5
TOTAL Attending School or College	244	151	160	555
Percent of Total Respondents	31.4	38.8	52.1	37.7

[1]Includes those not classified above, those undeterminable, and those that did not respond to the question.

graduation, a percentage which approximates the state average for all high school graduates.

Analysis of individual responses reveals that, of this number, 41% had matriculated to a four-year college, 32% were at two-year public colleges, and 24% were in some sort of private post-high school educational institution, ranging from full-time attendance to part-time attendance in schools such as trade or technical institutes and business schools. The proportion of trade and industrial trainees attending a school or college is considerably greater than either one office or the distributive trainees. However, more office trainees attend four-year colleges than do the others. The distributive trainees appear to attend the community-junior colleges more often.

A greater proportion of the male cooperative trainees attend a post-high school educational institution than do female trainees (Table 14). Almost one-half of the male trainees furthered their education while only about one-third of the female trainees did.

However, about 58% of the female trade and industrial trainees attended a post-high school program. This could be accounted for by the number of girls entering fields not offered at the high school level, such as practical or registered nursing.

Relationship of College Program to High School Cooperative Program.--Another measuring device that indicates effectiveness of a high school cooperative program is the degree to which trainees continue their education in the occupational field. Table 15 indicates that, of all respondents attending school or college, about 55% are concentrating in fields directly or indirectly associated with their

TABLE 14

TRAINEES ATTENDING A SCHOOL OR COLLEGE
BY PROGRAM AND SEX
(TEN MONTHS AFTER GRADUATION)

Post High School Institution	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	Male	Female	Male	Female	Male	Female	Male	Female
Four-Year College of University								
N	15	105	27	20	34	25	76	150
%[1]	46.9	49.5	29.7	33.3	34.0	41.7	34.1	45.2
Two-Year Public College								
N	5	62	41	20	40	10	86	92
%	15.6	29.2	45.0	33.3	40.0	16.6	38.6	27.7
Private Business, Trade or Technical Institute								
N	10	45	14	19	20	24	44	88
%	31.3	21.3	14.4	31.7	20.0	40.0	19.7	26.5
Other[2]								
N	2	-	9	1	6	1	17	2
%	6.2	-	9.9	1.7	6.0	1.7	7.6	.6
TOTAL Attending School or College	32	212	91	60	100	60	223	332

[1]Read percentages vertically.

[2]Includes those not classified above, those undeterminable, and those that did not respond to the question.

TABLE 15

RELATIONSHIP OF TRAINEE'S COLLEGE PROGRAM
TO HIGH SCHOOL COOPERATIVE PROGRAM

High School Trainee Program	Relationship of College To High School Program				Total
	Direct	Indirect	None	Cannot Determine	
Office					
N	107	39	58	40	244
%*	43.9	16.0	23.7	16.4	100
Distributive					
N	32	32	52	35	151
%	21.2	21.2	34.4	23.2	100
Trade and Industrial					
N	70	26	28	36	160
%	43.7	16.3	17.5	22.5	100
TOTAL					
N	209	97	138	111	555
%	37.7	17.5	24.8	20.0	100

*Read percentages horizontally.

high school cooperative training program. Both office (60%) and trade and industrial trainees (60%) continue similar programs in college to a greater extent than do distributive trainees (42%).

Table 16 shows that female trainees (58%) continue in similar fields slightly more so than do the male trainees (51%). The male distributive trainees (18.7%) tend not to concentrate directly in that occupation as compared to office (43.8%) or trade and industrial trainees (38.0%).

Degree to Which Trainees Work While Furthering Their Education--The data in Table 17 shows that of the cooperative trainees attending a school or college six out of ten are working full or part time (63.3%). Of this group, three-fourths (76%) of the office trainees are employed, while sixty percent (60%) of the trade and industrial and thirty-eight percent (38%) of distributive trainees earn money while attending a school or college.

Except for the female trade and industrial trainees (Table 18), of all the trainees attending a school or college part time at least seven out of ten are working full time. This could indicate a trend of a recognized need for continued improvement by attending a post-high school educational institution even for those working at full-time positions.

Of those attending a school or college full time, more than one-half are working at least part time. It may also be, although the study did not attempt to determine it, that cooperative education and the ability to gain employment motivates trainees to further their education.

TABLE 16

RELATIONSHIP OF TRAINEE'S COLLEGE PROGRAM
TO HIGH SCHOOL COOPERATIVE PROGRAM
BY SEX

High School Trainee Program By Sex	Relationship of College To High School Program				Total
	Direct	Indirect	None	Cannot Determine	
Office					
Male					
N	14	6	9	3	32
%	43.8	18.8	28.1	9.3	
Female					
N	93	33	49	37	212
%	43.9	15.6	23.1	17.4	
Distributive					
Male					
N	17	19	34	21	91
%	18.7	20.9	37.4	23.0	
Female					
N	15	13	18	14	60
%	25.0	21.7	30.0	23.3	
Trade and Industrial					
Male					
N	38	18	18	26	100
%	38.0	18.0	18.0	26.0	
Female					
N	32	8	10	10	60
%	53.3	13.3	16.7	16.7	
TOTAL					
Male					
N	69	43	61	50	223
%	30.9	19.3	27.4	22.4	
Female					
N	140	54	77	61	332
%	42.2	16.3	23.2	18.3	

TABLE 17

DEGREE TO WHICH TRAINEES
WHO ATTEND SCHOOL OR COLLEGE ALSO WORK
BY PROGRAM AND FIELD OF WORK

Work Status	Field of Cooperative Training			Total
	Office	Distributive	Trade and Industrial	
Working Full Time				
N	63	41	48	152
%	25.8	27.2	30.0	27.4
Field of Work:				
Office	49	12	1	62
Distributive	3	9	5	17
Trade and Industrial	9	20	38	67
No Reference	2	..	4	6
Working Part Time				
N	96	79	65	240
%	39.4	52.3	40.6	43.2
Field of Work:				
Office	41	11	8	60
Distributive	3	26	6	35
Trade and Industrial	13	14	18	45
No Reference	39	28	33	100
Not Working				
N	85	31	47	163
%	34.8	20.5	29.4	29.4
TOTAL	244	151	160	555
Percent of Those Attending School and Working in Their Cooperative Training Field	76.3	38.0	60.5	63.3

TABLE 18

DEGREE TO WHICH TRAINEES WHO ATTEND SCHOOL OR COLLEGE ALSO WORK BY PROGRAM, SEX, AND FIELD OF WORK

Work Status	Office Trainees Attending College				Distributive Trainees Attending College				Trade and Industrial Trainees Attending College			
	Full Time		Part Time		Full Time		Part Time		Full Time		Part Time	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Working Full Time												
N	1	1	8	53	3	-	28	10	3	-	43	2
%	4.6	.6	80.0	84.1	5.3	-	82.4	71.4	5.6	-	91.5	15.4
Field of Work:												
Office	1	1	3	44	-	-	4	8	-	-	1	-
Distributive	-	-	-	3	1	-	7	1	1	-	3	1
Trade and Industrial	-	-	4	5	2	-	17	1	2	-	36	-
No Reference	-	-	1	1	-	-	-	-	-	-	3	1
Working Part Time												
N	14	74	1	7	37	33	5	4	30	21	3	11
%	63.6	49.7	10.0	11.1	64.9	71.7	14.7	28.6	56.7	44.7	6.4	84.6
Field of Work:												
Office	4	33	-	4	4	5	-	2	1	2	1	4
Distributive	1	2	-	-	12	13	1	-	1	2	-	3
Trade and Industrial	4	9	-	-	7	5	1	1	10	5	-	3
No Reference	5	30	1	3	14	10	3	1	18	12	2	1
Not Working												
N	7	74	1	3	17	13	1	-	20	26	1	-
%	31.8	49.7	10.0	4.8	29.8	28.3	2.9	-	37.7	55.3	2.1	-
TOTAL	22	149	10	63	57	46	34	14	53	47	47	13

Summary and Conclusions

Cooperative occupational training in Michigan secondary schools is by definition and practice an instructional program designed to develop occupational competence. Therefore, one measure of the success of such programs is the initial labor market record of graduates. Determining this behavior was the central problem of this study.

This study was undertaken by Michigan State University with partial funding from the State Board of Control for Vocational Education. The population of the study consisted of all students in Michigan public high schools who:

1. graduated at the end of Spring semester, 1963, and
2. were at graduation, bona fide trainees in a reimbursable cooperative program in office, distributive, or trade and industrial occupations. The estimated population was 4,728. However, only 4,036 trainees were in the sample, since some schools did not make available trainee names and addresses.

A questionnaire was used to obtain information; two follow-ups were made. Data were transferred to punch cards and tabulated by punch card equipment.

Of the 4,036 trainees in the sample, 1,472 (36%) returned usable questionnaires. An early-late respondent technique was used to check the likeness of respondents to non-respondents. No important differences were found; therefore, the respondents can be said to be representative of the total population.

Analysis of the data revealed that:

1. Regarding status of the graduates ten months after graduation:
   a. Six out of ten graduates were employed full-time.
   b. Two out of ten trainees were employed part-time, most of which were also enrolled in a school or college.
   c. Nine out of a hundred had entered military service or were housewives who were not in the labor market.
   d. About one out of a hundred was unemployed.
   e. Ten months after graduation, over 60% of the trainees were still employed by their cooperative firm or had worked for that firm subsequent to graduation but had since resigned.
   f. The number of trainees switching to an occupation other than the one trained for varies among the three occupational fields. The proportions remaining in the occupational field for which trained are: office--about 85%, distributive--about 35%, and industrial--about 70%.
2. Regarding the length of unemployment following graduation:
   a. Five out of ten had secured their current full-time positions within one month after graduation, and all but 25% had secured their current employment by the end of the summer, three months after graduation.
3. Regarding academic quality of the trainees:
   a. More than six out of ten trainees graduated in the upper half of their classes; as a group, the cooperative trainees are slightly superior to the average of their graduating class--when measured by rank in class.

b. Office trainees are a superior group, with almost half of them ranking in the upper quarter of their graduating class.

4. Regarding further education:

a. Almost four (38%) out of ten trainees were attending a school or college. Of this number, 40% were attending a four-year college, 32% were attending a two-year public community junior college; and 24% were enrolled in some kind of private non-degree post-high school educational institution.

b. Of those who were attending a school or college, seven out of ten were also working part or full-time; 63% of them in the field for which they had been trained.

On the basis of the data in this study the following conclusions can be drawn regarding cooperative occupational education in the Michigan public secondary schools:

1. Vocational education through the cooperative plan results in trainees finding employment soon after graduation, and this employment is often with the cooperative employer and generally in the field for which training was given.

2. Employers are generally well enough satisfied with cooperative trainees to offer the vast majority of them full-time employment upon graduation even in a labor market in which supply exceeds demand.

3. Employers profit from participation in cooperative training because many trainees remain with them after graduation as regular employees.

4. While occupational competence is the major purpose of cooperative programs, it does not prevent trainees from gaining further education in colleges or other post-high school educational institutions. The data show that many of these students are employed while attending school. It may also be, although the data do not show it, that cooperative education and the ability to gain employment motivates trainees to further their education.
5. Cooperative trainees are above-average students when measured by rank in their graduating classes. Office trainees in particular are superior students. One may conclude that cooperative education programs are serving students across the entire range of academic achievement.
6. The data in the study concerning occupational switching raise some questions as to whether cooperative students in some schools are classified correctly according to their job placement in relation to the occupational area of the related class. There are also questions as to whether enough low-level students are being served in the office area.

On the basis of the formal data acquired in this study and the experiences of the research staff in working with the project, a number of recommendations can be made:

1. Similar studies should be continued each year so that a continuing inventory of the contributions of cooperative education can be obtained. (Note: At the time of

writing, the State Board had decided to continue the study at least through the 1965 cooperative graduates.

2. The study should continue to provide a longitudinal follow-up of the class of 1962 as they proceed through the labor market.
3. Each local school should analyze carefully the data provided by this study and should publicize results locally within the school, to the board of education, to parents, and to businessmen in the community service area.
4. The Division of Vocational Education of the Department of Public Instruction should consider revising its present method of reporting from local schools so that it is clearly evident which students have completed the full year of cooperative education and which students have not completed their training (and reason why). There is also need to more closely scrutinize local programs to determine whether student placements accurately reflect the student's occupational goal and the occupational instruction he is receiving.
5. There is a need for many schools to keep a better system of student records if evaluation by follow-up is to become an integral phase of the evaluation of vocational education and its contributions.
6. There is a need for many schools to provide the coordinator with secretarial help to maintain and provide adequate records.

THE STUDY OF 1962 GRADUATES

The Methods of the Study

The Problem

Inasmuch as the basic purpose of this longitudinal study of the 1962 cooperative education trainees was the same as presented in the original report in 1963[1] and basically the same as presented earlier in this report for the 1963 cooperative education trainees, the general problem will not be restated.

In this limited longitudinal study, the measurement of the contributions of cooperative education was structured to facilitate comparison from year-to-year by the following basic questions:

1. What proportion of the 1962 cooperative education graduates were employed approximately two years after graduation?
2. To what extent did employers of 1962 cooperative trainees retain them as full-time employees?
3. What proportion of the 1962 trainees received training in the occupational field of their current full-time employment?

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[1] Ibid., page 6.

In addition to the basic questions, answers were sought from the 1962 cooperative trainees for the following subquestions:

1. What is the average salary of cooperative trainees two years after graduation?
2. What proportion of those currently employed full-time have had additional educational training at a post-high school educational institution?
3. What are the career plans of those 1962 cooperative trainees who are attending a post-high school educational institution?

Population and Sample Size

The population for this longitudinal study consisted of the 1,855 respondents to the initial 1962 cooperative trainee follow-up conducted in 1963.[1] These 1,855 respondents represented the 106 Michigan high schools who had submitted the original lists of June, 1962 cooperative trainee graduates.

Usable replies were received from 516 of the 1,855 who had responded to the 1963 study, representing 28% of the estimated population.

Procedure

A questionnaire was mailed to each of the 1,855 respondents of the initial 1962 cooperative trainee follow-up study. This questionnaire resurveyed the respondent's employment status two years after graduation.

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[1] *Ibid.*

The questionnaires were screened for completeness and all information was tabulated.

Findings of the Study

The findings of the 1962 longitudinal study are reported in this section according to the following areas of interest:

1. What is the employment status of the cooperative trainees when measured approximately two years after graduation?
2. To what degree do the cooperative employers retain the trainees as full-time employees?
3. To what extent are those employed working in the occupational areas of their cooperative training?
4. What proportion of those currently employed full-time have had additional educational training at a post-high school level?
5. To what extent are the cooperative education graduates attending a school or college?
6. What are the career plans of those 1962 cooperative trainees now attending a school or college?

The Employment Status of Graduates

The major indicator of effective vocational education programs is the degree to which graduates can find and retain employment. Table 19 shows that, of the respondents two years after graduation, seven out of ten were employed full-time. Two out of ten were attending a post-high school educational institution. Another one out of ten was either in the military service or a housewife. Of those seeking employment, only one of the respondents was unemployed!

TABLE 19

EMPLOYMENT STATUS OF 1962 COOPERATIVE TRAINEES
BY SEX
(TWO YEARS AFTER GRADUATION)

Employment Status	Male		Female		Total	
	N	%	N	%	N	%
Employed Full Time In:						
Office Occupations	6	4.7	247	63.5	253	49.0
Distributive Occupations	13	10.2	8	2.1	21	4.1
Trade and Industrial Occupations	52	40.9	25	6.4	77	14.9
Total Employed Full Time	71	55.8	280	72.0	351	68.0
Full-Time Students	36	28.4	79	20.3	115	22.3
Housewives	0	.0	29	7.4	29	5.6
Military Service	19	15.0	1	.3	20	3.9
Unemployed	1	.8	0	.0	1	.2
TOTAL	127	100.0	389	100.0	516	100.0

Further analysis of the table shows that when classified according to area of current activity, six out of ten (63.5%) of the females were working in the office occupations while only 8% were employed in the distributive or trade and industrial occupations combined, while 20% are in college and 7% are housewives.

Male trainees show a marked difference in current activity when compared to the female trainees. Four out of ten (40.9%) were employed in the trade and industrial field, while one of ten (10.2%) was in the distributive area, and only 4.7% were in office occupations. Another 28% were in college, and 15% were in the military service.

Job Mobility of Trainees

The general pattern of high school graduates in the world of work is one of constant "job hopping." The seeking of satisfaction in employment is difficult for the non-trained and non-guided youth. Many of the 1962 trainees of cooperative education programs continue to remain with their cooperative employers.

Table 20 shows that, of those working in the distributive occupations, 43% had their cooperative experience with that firm. In the office occupations almost 30% of the employed received their training in the firm where they are currently employed. This was followed by about 14% in the trade and industrial occupations.

In total, almost three out of ten currently employed trainees are with the firm with which they were employed as cooperative trainees, and 83% have had no more than two employers.

TABLE 20

PERCENT OF RESPONDENTS WHO HAVE REMAINED WITH COOPERATIVE EMPLOYER (TWO YEARS AFTER GRADUATION)

Classification of Employment	Respondents Employed	Employed with Cooperative Education Firm	
		N	%
Office Occupations	253	75	29.6
Distributive Occupations	21	9	42.9
Trade and Industrial Occupations	77	11	14.3
Total	351	95	27.1

Degree to Which Trainees Continue to Use Occupational Training

One measurement of guidance effectiveness in a high school cooperative education program is the degree to which trainees remain in the same occupational area after graduation. Though this study was conducted on a limited basis two years after graduation, Table 21 shows that cooperative education counseling was effective.

Almost eight out of ten of those currently employed in office occupations received cooperative training in that area. Approximately one-half of those employed in either the distributive or the trade and industrial area had their cooperative experience in the respective areas.

Overall, more than two-thirds of those employed full-time received cooperative education training in the occupational area of their current employment.

TABLE 21

DEGREE TO WHICH THOSE EMPLOYED REMAIN IN THE FIELD OF THEIR COOPERATIVE TRAINING (TWO YEARS AFTER GRADUATION)

Classification of Present Employment[1]	Number of Respondents Employed	Received Cooperative Training In Respective Field	
		N	%[2]
Office	253	195	77.1
Distributive	21	10	47.6
Trade and Industrial	77	34	44.2
Total	351	239	68.8

[1]This includes those employed in the occupation and disregards the field of cooperative training.

[2]Read percentages horizontally.

Post-High School Educational Status of Trainees

The academic status of cooperative education graduates continued to be comparable to graduates of other high school programs. Of the respondents, 22% (Table 19) were full-time students in some post-high school educational institution two years after graduation.

Table 22 shows that of those currently in school, 61.1% are in four-year colleges or universities; 22.1% are in two-year public community colleges; and 16.8% are in private educational institutions or trade schools.

The career plans of the full-time students were varied. More than one-third plan on careers in teaching. Almost 20% plan careers in the broad field of business. The remaining students had widely divergent career plans.

TABLE 22

TRAINEES ATTENDING A SCHOOL OR COLLEGE
BY COOPERATIVE PROGRAM
(TWO YEARS AFTER GRADUATION)

Type of Post-High School Educational Institution	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	N	%	N	%	N	%	N	%
Four-Year College or University	48	75.0	8	47.1	13	40.6	69	61.1
Two-Year Public Community College	15	23.4	6	35.3	4	12.5	25	22.1
Other Institutions	1	1.6	3	17.6	15	46.9	19	16.8
TOTAL	64	100.0	17	100.0	32	100.0	113	100.0

Summary and Conclusions

The purpose of this longitudinal study of the 1962 cooperative education graduates was to ascertain the work and educational status of trainees two years after graduation. This study was structured to facilitate comparison with the findings about the group of trainees in 1963, ten months after their graduation.[1]

The population of the study consisted of 1,855 respondents to the initial 1962 cooperative trainee follow-up survey conducted in 1963.[2]

A questionnaire was mailed to each of these 1962 respondents, and 516 (28%) usable returns were received. Analysis of the data revealed that:

1. Regarding status of the graduates two years after graduation:
   a. Seven out of ten (68%) were employed full-time.
   b. Two out of ten were full-time students.
   c. Six out of one hundred were housewives.
   d. Four out of one hundred were in the military service.
   e. One out of 516 was actually unemployed.
   f. Of those employed full-time in office occupations, 77% were cooperatively trained in that area; of those working in distributive occupations, 47.6% were trained there; and of those working in a trade and industrial occupation, 44.2% were trained in that field.
   g. Over one-fourth (27.1%) of the 1962 trainees remain in the employment of their cooperative firm.

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[1] Ibid.

[2] Ibid.

h. Of those attending a school or college, one-fourth remain in the employment of their cooperative firm on a part-time basis.

i. About one-fourth of the respondents employed have had some additional training in a post-high school educational institution.

2. Regarding further education:

a. Two out of ten (22%) of the 1962 trainees were still attending a school or college. Of this number, 61% were attending a four-year college, 22% were attending a two-year public community college, and 17% were enrolled in some type of private, non-degree, post-high school educational institution.

b. A slightly higher per cent of males (28%) were attending a school or college than females (20%).

c. One-third of the trainees now attending a school or college plan on careers in teaching. Almost 20% plan careers in the broad field of business.

On the basis of the data in this limited longitudinal study, the following conclusions can be drawn regarding cooperative education programs in the Michigan public secondary schools:

1. Vocational education through the cooperative plan results in trainees locating and retaining employment after graduation.

2. Employers have profited from participation in cooperative training because of the numbers of trainees who have remained with them as regular employees two years after graduation.

3. While occupational competance is the major purpose of cooperative education programs, it does not curtail trainees from obtaining further education in post-high school educational institutions. The data further show that many of these students were employed part time while attending a school or college.

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APPENDIX A

MICHIGAN SECONDARY SCHOOLS OFFERING

COOPERATIVE OCCUPATIONAL EDUCATION PROGRAMS, 1962-63

School Code No. In Study	Name Of High School*	Location	Number of Cooperative Trainees		
			Reported To DPI	Reported As Graduating, June 1962	Responding To Survey
1	Adrian	Adrian	30	25	16
2	Alma	Alma	62	NR	NR
4	Ann Arbor	Ann Arbor	128	92	46
5	Central	Battle Creek	116	NR	NR
6	Harper Creek	Battle Creek	15	NR	NR
7	Lakeview	Battle Creek	7	NR	NR
8	Central	Bay City	107	17	10
9	T. L. Handy	Bay City	77	45	21
10	Benton Harbor	Benton Harbor	74	67	36
11	Berkley	Berkley	56	29	17
12	Big Rapids	Big Rapids	40	29	8
13	Groves	Birmingham	26	NR	NR
14	Seaholm	Birmingham	49	NR	NR
15	Buchanan	Buchanan	11	8	5
16	Cadillac	Cadillac	25	25	4
17	Center Line	Center Line	45	16	8
135	Coldwater	Coldwater	32	26	7
18	Comstock	Comstock	14	NR	NR
19	Dearborn	Dearborn	123	NR	NR
20	Edsel Ford	Dearborn	75	30	15
21	Fordson	Dearborn	143	64	28
22	Lowrey	Dearborn	53	32	20
26	Central	Detroit	27	4	1
24	Chadsey	Detroit	24	NR	NR
27	Cody	Detroit	79	48	23
30	Commerce	Detroit	461	122	44
25	Cooley	Detroit	11	NR	NR
28	Denby	Detroit	75	38	10
29	Eastern	Detroit	21	17	3
144	Ford	Detroit	25	NR	NR
31	Mackenzie	Detroit	68	34	10
32	Mumford	Detroit	59	37	21
140	Northwestern	Detroit	18	7	2
141	Osborn	Detroit	52	42	15
33	Pershing	Detroit	137	54	16
34	Redford	Detroit	59	80	41
35	Southwestern	Detroit	25	14	3

NR = No Return

* = High school part of name omitted to save space.

(Continued)

(APPENDIX A, CONTINUED)

School Code No. In Study	Name Of High School*	Location	Number of Cooperative Trainees		
			Reported To DPI	Reported As Graduating, June 1962	Responding To Survey
133	Washington Trade	Detroit	27	5	1
38	Western	Detroit	11	7	2
36	Wilbur Wright	Detroit	71	151	60
37	Lee M. Thurston	Detroit	66	50	24
40	Redford Union	Detroit	55	33	0
39	East Detroit	Detroit	17	14	11
41	Escanaba	Escanaba	39	NR	NR
42	Ferndale	Ferndale	66	NR	NR
43	Central	Flint	160	139	59
44	Northern	Flint	122	102	27
45	Southwestern	Flint	79	92	18
47	Atherton	Flint	9	NR	NR
48	Fraser	Fraser	37	NR	NR
49	Fremont	Fremont	16	13	6
50	Galesburg-Augusta	Galesburg	8	7	4
51	Garden City	Garden City	59	39	7
52	Grand Haven	Grand Haven	63	44	14
53	Central	Grand Rapids	41	24	2
54	Creston	Grand Rapids	56	38	16
55	Ottawa	Grand Rapids	46	24	11
56	South	Grand Rapids	34	23	6
57	Union High	Grand Rapids	139	89	37
61	Grosse Pointe	Grosse Pointe	36	33	15
62	Hancock	Hancock	26	21	8
63	Harper Woods	Harper Woods	35	NR	NR
65	Highland Park	Highland Park	60	15	2
66	Hillsdale	Hillsdale	38	22	5
67	Holland	Holland	70	61	24
153	West Ottawa	Holland	47	39	20
68	Houghton	Houghton	16	9	2
69	Inkster High	Inkster	20	NR	NR
70	Cherry Hill	Inkster	28	NR	NR
71	Ionia	Ionia	12	18	7
72	Iron Mountain	Iron Mountain	28	NR	NR
73	Jackson	Jackson	178	104	19
75	East Jackson	Jackson	25	21	7
76	Central	Kalamazoo	28	24	9
77	Loy Norrix	Kalamazoo	4	NR	NR
79	Eastern	Lansing	102	71	28

NR = No Return
* = High school part of name omitted to save space.

(APPENDIX A, CONTINUED)

School Code No. In Study	Name Of High School*	Location	Number of Cooperative Trainees		
			Reported To DPI	Reported As Graduating, June 1962	Responding To Survey
80	Everett	Lansing	65	54	19
81	Sexton	Lansing	84	63	12
83	Lapeer	Lapeer	85	30	8
84	Lincoln Park	Lincoln Park	118	NR	NR
85	Bentley	Livonia	78	52	32
154	Franklin	Livonia	25	NR	NR
86	Lowell	Lowell	18	NR	NR
156	Lamphere	Madison Heights	16	NR	NR
157	Madison	Madison Heights	30	NR	NR
87	Manistee	Manistee	22	NR	NR
88	Graveraet	Marquette	25	NR	NR
90	Marshall	Marshall	31	17	7
91	Marysville	Marysville	25	19	10
92	Menominee	Menominee	28	22	5
93	Midland	Midland	187	225	100
94	Milford	Milford	-	28	11
95	Monroe	Monroe	109	84	19
96	Mt. Clemens	Mt. Clemens	163	87	32
97	L'Anse Creuse	Mt. Clemens	37	NR	NR
98	Mt. Pleasant	Mt. Pleasant	48	36	17
99	Muskegon	Muskegon	180	71	20
100	Muskegon Heights	Muskegon	37	NR	NR
101	Niles	Niles	58	49	18
132	Brandywine	Niles	17	14	0
102	North Branch	North Branch	13	13	3
103	Owosso	Owosso	68	51	17
104	Parchment	Parchment	11	9	6
105	Petoskey	Petoskey	20	10	7
142	Elkton-Pigeon Bay Port	Pigeon	17	17	8
106	Plainwell	Plainwell	37	21	8
107	Plymouth	Plymouth	100	NR	NR
108	Central	Pontiac	66	53	10
109	Northern	Pontiac	26	22	7
110	Waterford Township	Pontiac	48	41	16
111	Waterford Kettering	Drayton Plains	43	16	9
112	Portage	Portage	45	16	4
113	Port Huron	Port Huron	143	NR	NR

NR = No Return

* = High school part of name omitted to save space.

(Continued)

(APPENDIX A, CONTINUED)

School Code No. In Study	Name Of High School*	Location	Number of Cooperative Trainees		
			Reported To DPI	Reported As Graduating, June 1962	Responding To Survey
114	Rochester	Rochester	13	8	2
115	Dondero	Royal Oak	110	54	16
116	Kimball	Royal Oak	106	45	15
117	Saginaw	Saginaw	139	53	22
118	Arthur Hill	Saginaw	125	21	7
119	Lakeview	St. Clair Shores	38	32	9
120	South Lake	St. Clair Shores	47	42	15
121	St. Joseph	St. Joseph	21	18	5
123	Sault Ste. Marie	Sault Ste. Marie	52	33	14
124	Sturgis	Sturgis	33	NR	NR
125	Taylor Center	Taylor	66	21	6
126	Traverse City	Traverse City	34	30	12
127	Warren	Warren	48	36	9
128	Fitzgerald	Warren	68	54	19
130	Wayne Memorial	Wayne	95	49	15
131	Theodore Roosevelt	Wyandotte	70	23	5
137	Rogers	Wyoming	27	NR	NR
138	Wyoming Park	Wyoming	12	NR	NR
59	Lee	Wyoming	35	NR	NR
60	Godwin Heights	Wyoming	18	NR	NR
TOTAL			8094	4036	1472

NR = No Return
* = High school part of name omitted to save space.

Source: Division of Vocational Education, Michigan Department of Public Instruction

APPENDIX B

ELAPSED TIME BETWEEN GRADUATION OF TRAINEES AND CURRENT FULL-TIME EMPLOYMENT BY MONTH AND PROGRAM*

Number of Months Before Current Full-Time Position	Number of Trainees in Current Full-Time Employment							
	Office		Distributive		Trade and Industrial		Total	
	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
1 or Less	299	299	134	134	77	77	510	510
1 - 2	58	357	11	145	26	103	95	605
2 - 3	47	404	24	169	10	113	81	686
3 - 4	22	426	15	184	15	128	52	738
4 - 5	20	446	12	196	6	134	38	776
5 - 6	11	457	8	204	8	142	27	803
6 - 7	13	470	7	211	5	147	25	828
7 - 8	9	479	6	217	3	150	18	846
8 - 9	15	494	15	232	8	158	38	884
9 - 10	19	513	18	250	7	165	44	928

*This table portrays cooperative trainees on current full-time employment and does not necessarily present an accurate picture of first full-time employment. The latter would have been greater for the earlier months due to the possibility of changing full-time jobs.

APPENDIX C

ELAPSED TIME BETWEEN GRADUATION OF TRAINEES AND CURRENT FULL-TIME EMPLOYMENT BY MONTH, PROGRAM, AND SEX*

Number of Months Before Current Full-Time Position	Number of Trainees in Current Full-Time Employment															
	Office				Distributive				Trade and Industrial				Total			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative	Per Month	Cumulative
1 or Less	19	19	280	280	82	82	52	52	64	64	13	13	165	165	345	345
1 - 2	2	21	56	336	8	90	3	55	20	84	6	19	30	195	65	410
2 - 3	4	25	43	379	18	108	6	61	6	90	4	23	28	223	53	463
3 - 4	1	26	21	400	10	118	5	66	12	102	3	26	23	246	29	492
4 - 5	3	29	17	417	8	126	4	70	3	105	3	29	14	260	24	516
5 - 6	0	29	11	428	1	127	7	77	7	112	1	30	8	268	19	535
6 - 7	1	30	12	440	5	132	2	79	4	116	1	31	10	278	15	550
7 - 8	1	31	8	448	5	137	1	80	3	119	0	31	9	287	9	559
8 - 9	0	31	15	463	6	143	9	89	5	124	3	34	11	298	27	586
9 - 10	0	31	19	482	10	153	8	97	2	126	5	39	12	310	32	618

*This table portrays trainees on current full-time employment and does not necessarily present an accurate picture of first full-time employment. The latter would have been greater for the earlier months due to the possibility of changing full-time jobs.

APPENDIX D

JOB SHIFTS AS SHOWN BY OCCUPATION OF TRAINEES (TEN MONTHS AFTER GRADUATION)

(FULL AND PART-TIME)

Occupational Area	Field of Cooperative Training						Total	
	Office		Distributive		Trade and Industrial			
	N	%	N	%	N	%	N	%
Clerical	330	42.5	83	21.3	21	6.8	434	29.5
Secretarial	168	21.7	4	1.0	6	1.9	178	12.1
Retail Sales	19	2.4	99	25.5	13	4.2	131	8.9
Service Industry	10	1.3	4	1.0	11	3.6	25	1.7
Skilled	24	3.1	9	2.3	14	4.6	47	3.2
Semi-skilled	6	.8	31	8.0	51	16.6	88	6.0
Unskilled	25	3.2	51	13.11	73	23.8	149	10.1
Miscellaneous[1]	11	1.4	25	6.4	19	6.2	55	3.7
Unemployed	6	.8	3	.8	8	2.6	17	1.1
Students[2]	128	16.5	60	15.4	84	27.4	272	18.5
Housewives[3]	49	6.3	20	5.2	7	2.3	76	5.2
TOTAL	776	100.0	389	100.0	307	100.0	1472	100.0

[1]Trainees not indicating current positions or not classified above.

[2]Attending school and not working full- or part-time.

[3]Married and not working full- or part-time.

APPENDIX E

JOB SHIFTS AS SHOWN BY SEX AND OCCUPATION OF TRAINEES TEN MONTHS AFTER GRADUATION

(FULL AND PART TIME)

Occupational Area	Field of Cooperative Training											
	Office				Distributive				Trade and Industrial			
	Male		Female		Male		Female		Male		Female	
	N	%	N	%	N	%	N	%	N	%	N	%
Clerical	15	24.6	315	44.1	18	8.6	65	36.3	5	2.5	16	15.5
Secretarial	0	0.0	168	23.5	0	0.0	4	2.2	0	0.0	6	5.8
Retail Sales	5	8.2	14	2.0	59	28.1	40	22.3	8	3.9	5	4.9
Service Industry	2	3.3	8	1.1	1	.5	3	1.7	7	3.4	4	3.9
Skilled	4	6.6	20	2.8	2	1.0	7	3.9	11	5.4	3	2.9
Semi-skilled	5	8.1	1	.1	30	14.3	1	.6	48	23.5	3	2.9
Unskilled	9	14.7	16	2.2	39	18.5	12	6.7	60	29.4	13	12.6
Miscellaneous[1]	6	9.9	5	.7	23	10.9	2	1.1	18	8.8	1	1.0
Unemployed	0	0.0	6	.8	2	1.0	1	.6	4	2.0	4	3.9
Students[2]	15	24.6	113	15.8	36	17.1	24	13.5	43	21.1	41	39.8
Housewives[3]	0	0.0	49	6.9	0	0.0	20	11.1	0	0.0	7	6.8
TOTAL	61	100.0	715	100.0	210	100.0	179	100.0	204	100.0	103	100.0

[1]Trainees not indicating current positions or not classified in the above.

[2]Attending school and not working full- or part-time.

[3]Married and not working full- or part-time.

VT 002 021
Rackley, J.R.
Goals and Policies to Improve and Expand Vocational and Technical Education.

Pennsylvania State Dept. of Public Instruction, Harrisburg
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 29Apr66 14p.

*PROGRAM PLANNING; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *EDUCATIONAL OBJECTIVES; *EDUCATIONAL POLICY; *FINANCIAL POLICY
PENNSYLVANIA

As part of the planning for the development of vocational-technical education in the Commonwealth, and to provide appropriate educational opportunities and services to all Pennsylvanians, the State Board for Vocational Education adopted 13 goals. For each goal, programs of implementation are proposed with fiscal policies for funding. (PS)

VT 002 021

ED036657

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg 17126

SUBJECT: Goals and Policies to Improve and Expand Vocational and Technical Education

TO : Chief School Administrators of Public Schools, Presidents of Community Colleges, and Directors of Technical Education Programs in Colleges and Universities

FROM : J. R. Rackley
Superintendent of Public Instruction

DATE : April 29, 1966

The State Board for Vocational Education recently established a series of goals for vocational education. For each goal, programs of implementation have been proposed. Some of these proposed programs are fundable, in whole or in part, with Federal money. The material supplied with this letter explains the conditions under which such Federal money may be obtained.

You are urged to make use of this opportunity for the improvement and expansion of programs of vocational and technical education. If you have a program that qualifies or plan to start new activities in vocational education, submit your application now; ample Federal money is still available for this fiscal year.

Detailed information about how to apply may be found in our manual entitled "Application for Vocational Education Funds," which was furnished to school administrators throughout the State last August. If you do not have a copy, you may obtain one by writing to Dr. J. W. Struck, State Director of Vocational Education, Department of Public Instruction, Harrisburg, Pennsylvania. Other communications concerning this material and requests for forms, including Form VE-7, Pre-approval and Reimbursement Request, which is new and does not yet appear in the manual, should likewise be addressed to him. Form VE-7 will be needed only for reimbursement for adult students.

Enclosures:

Goals for Vocational-Technical Education
Goals and Fiscal Policies to Expand Vocational and Technical Education
Form VE-7, Pre-approval and Reimbursement Request - Vocational Education Act of 1963
Vocational-Technical Education Activities and Accompanying Funding Possibilities

VT 02021

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GOALS FOR VOCATIONAL-TECHNICAL EDUCATION

As part of the planning for the development of vocational-technical education in the Commonwealth, and to provide appropriate educational opportunities and services to all Pennsylvanians, the State Board for Vocational Education adopted the following Goals:

1. Occupational education programs should be broadened and extended with special consideration to employment needs and skills and to present and future labor market needs.

2. Programs and services should be provided to correct educational deficiencies or handicaps which prevent persons from benefiting from instruction essential to employment. Vocational guidance and counseling should be provided at all levels of programs, and recourse should be available to other social services and agencies where needed.

3. Special arrangements should be made to assist metropolitan and other areas having unique occupational education needs and where unique occupational problems exist.

4. Expansion of programs should be accompanied by a comprehensive large-scale program of research and demonstration in occupational education and related programs.

5. Programs should be planned to include persons of many age groups, of varying educational status, of divergent abilities and needs, and at all locations in the State. Existing educational agencies, new area facilities and community college facilities should be constructed and utilized as needed.

6. Vocational guidance, consisting of personal and educational guidance relating to occupational programs and employment opportunities, should be developed consistent with Goal #1. This service should be available to students, parents, and employers.

7. Work-study programs should be available to qualified youth to enable them to commence or continue occupational preparation in high schools and two-year colleges.

8. As a means of preparing adults to enter the labor market or to upgrade skills or acquire new ones, pre-employment training and retraining should be available to adults in schools and classes conducted by local public schools, area schools, two-year colleges and other public and private institutions. Practical related instruction, supplemental to on-the-job training, should be accessible to apprentices and other trainees throughout their work experience.

9. Occupational education and retraining should be provided by a variety of institutions and agencies, including high schools, community colleges, and other institutions and agencies. Where necessary, occupational education should be arranged with private educational institutions or agencies.

10. Programs should be coordinated under a State Plan, with emphasis on articulation of both general and occupational education at secondary and higher educational levels.

11. Leaders in education should improve their understanding with respect to the articulation of both general and occupational education at the secondary and two-year college levels.

12. Quality should be assured by improving administration, instruction, supervision, instructional materials, and leadership education. Programs and activities should be developed for this purpose.

13. State Board policies should be adopted to provide needed incentives to extend occupational education programs in all areas of the State, especially in areas where they are not now accessible, and to extend two-year college programs to more persons.

Adopted March 10, 1966

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg 17126

GOALS AND FISCAL POLICIES TO EXPAND VOCATIONAL AND TECHNICAL EDUCATION

Goal #1: Occupational education programs should be broadened and extended with special consideration to employment needs and skills to present and future labor market needs.

PROGRAM PROPOSALS	FISCAL POLICY
a. Studies may be conducted where needed so expansion of programs may have all pertinent facts upon which to be based.	
Studies and surveys required for adequate justification, planning and development of new schools, programs, or courses.	Funding shall be 50% Federal funds and 50% local funds. Studies initiated by the State Board or the DPI, or other special studies approved by a review committee established for this purpose, may be funded up to 100% from Federal funds. Proposals shall be submitted to the DPI for review and approval on Form VE-1, Application for Research Experimental, Developmental, Pilot Programs.
b. Secondary vocational programs may be established in districts where needed.	
Officially approved vocational-technical courses are eligible and shall be pre-approved before being placed in operation.	The amount expended for teacher salary and travel, of approved courses, may be reimbursed 100% the first year of operation, 75% the second year, and 50% the third year.
New shop/laboratory course offerings added to an existing vocational program are eligible.	Standard reimbursements will apply after the third year of operation.
Courses incorporated in the establishment of a new school or program are eligible; except those courses transferred from an existing vocational program.	The reimbursement supplements all existing reimbursements.
Pupil expansion of an existing course requiring an additional teacher is eligible.	School districts make application for reimbursement at the end of the fiscal year on Form VE-5.

Goal #1 (continued)

PROGRAM PROPOSALS	FISCAL POLICY
c. Full and part-time adult vocational and technical programs may be established where needed.	
Post-high school vocational-technical courses offered in secondary schools, area technical schools, or community colleges are eligible.	Courses must be approved by the vocational division of the DPI. A full-time student or equivalent shall be determined on the basis of being enrolled in an approved vocational curriculum. Post-high school vocational-technical courses may be reimbursed up to $110 per year for each full-time student or equivalent, enrolled. Schools apply for reimbursement on Form VE-7.
d. Pilot, experimental, new and different courses not commonly provided in the Commonwealth but needing development are eligible for funding.	
Courses may be for all levels and types of secondary school pupils, out-of-school youth, and adults, and in all occupational fields.	Programs require an annual pre-approval. Approved courses may be reimbursed 100% for teacher salary, supplies, equipment and other approved costs required to operate the course. Courses will not receive special funding for more than three years. Programs must be submitted to the DPI for review and approval on Form VE-2, Application for Educational Training Program.

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Goal #2: Programs and services should be provided to correct educational deficiencies or handicaps which prevent persons from benefiting from instruction essential to employment. Vocational guidance and counseling should be provided at all levels of programs, and recourse should be available to other social services and agencies where needed.

PROGRAM PROPOSALS	FISCAL POLICY
. Research may be approved to study the educational needs of this segment of the population which would include the socio-economic and physically deficient or handicapped.	Vocational Education funds may be used to conduct or to contract with educational, testing, and research agencies for necessary studies relating to persons with special needs. Funding may be up to 100%, depending upon needs and merits of the proposal. Submit proposal to DPI on Form VE-1.
. Studies may be conducted to identify the occupations available to these people within the local community and/or State.	Same as for Proposal a.
. Programs may be developed to meet the individual educational and occupational needs of those with educational deficiencies or handicaps which prevent the individual from securing employment.	Same as for Goal #1

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Goal #3: Special arrangements should be made to assist metropolitan and other areas having unique occupational education needs and where unique occupational problems exist.

PROGRAM PROPOSALS	FISCAL POLICY
a. Experimental and pilot programs may be undertaken to solve local problems.	Same as for Goal #1

Goal #4: Expansion of programs should be accompanied by a comprehensive large-scale program of research and demonstration in occupational education and related programs.

FISCAL POLICY
Funding available under policy established for Goal #1

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Goal #5: Programs should be planned to include persons of many age groups, of varying educational status, of divergent abilities and needs, and at all locations in the State. Existing educational agencies, new area facilities and community college facilities should be constructed and utilized as needed.

PROGRAM PROPOSALS	FISCAL POLICY
a. A coordinated program should be available so that students of many age groups, and of divergent abilities may have educational opportunities available. Vocational programs should be developed for out-of-school youth, adults, dropouts, etc.	Same as for Goal #1

Goal #6: Vocational guidance, consisting of personal and educational guidance relating to occupational programs and employment opportunities, should be developed consistent with Goal #1. This service should be available to students, parents, and employers.

PROGRAM PROPOSALS	FISCAL POLICY
a. Guidance and counseling services should be provided for adult and post high school programs.	Federal vocational funds may be used for reimbursement at the rate of $3.20 per teacher hour.

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg 17126

Goal #7: Work-study programs should be available to qualified youth to enable them to commence or continue occupational preparation in high schools and two-year colleges.

FISCAL POLICY
Funding determined by Federal policy.

Goal #8: As a means of preparing adults to enter the labor market or to upgrade skills or acquire new ones, pre-employment training and retraining should be available to adults in schools and classes conducted by local public and private institutions.

Practical related instruction supplemental to on-the-job training should be accessible to apprentices and other trainees throughout their work experience.

PROGRAM PROPOSALS	FISCAL POLICY
a. Programs offering training and retraining for adults may be initiated.	Programs not fundable under the Federal Retraining Act may be funded 100% of the instructional costs, supplies, equipment purchase or rental, and such other costs as to insure adequacy of instruction.

Commonwealth of Pennsylvania
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Harrisburg 17116

Goal #9: Occupational education and retraining should be provided by a variety of institutions and agencies, including high schools, community colleges, and other institutions and agencies. Where necessary, occupational education should be arranged with private educational institutions or agencies.

FISCAL POLICY

Funding available under policy established for Goal #1.

Goal #10: Programs should be coordinated under a State Plan, with emphasis on articulation of both general and occupational education at secondary and higher educational levels.

FISCAL POLICY

Not appropriate for special funding.

Goal #11: Leaders in education should improve their understanding with respect to the articulation of both general and occupational education at the secondary and two-year college levels.

FISCAL POLICY

Not appropriate for special funding.

Commonwealth of Pennsylvania
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Goal #12: Quality should be assured by improving administration, instruction, supervision, instructional materials, and leadership education. Programs and activities should be developed for this purpose.

FISCAL POLICY

Not appropriate for special funding.

Goal #13: State Board policies should be adopted to provide needed incentives to extend occupational education programs in all areas of the State, especially in areas where they are not now accessible, and to extend two-year college programs to more persons.

FISCAL POLICY

Not appropriate for special funding.

FORM VE-7 Post-high school

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg 17126

From Approved Application
School Unit
Project No.
Detail Code

Pre-approval
and
Reimbursement Request

Vocational Education Act of 1963, P.L. 88-210

POST HIGH SCHOOL COMMUNITY COLLEGE ADULT PROGRAMS

Name and Address of Institution or Agency Responsible for the Project County

Treasurer Telephone No.

Name and address of institution or agency to whom check should be made payable

For school year ending June 30, 19__

I. FINANCIAL SUMMARY

Type of Vocational-Technical Program	Total Student Membership		Rate per Full-time Student		Reimbursement Request
Full Time		X	$110	=	
Equivalent Full-time		X	$110	=	

FORMULA FOR CONVERSION OF PART-TIME STUDENTS INTO EQUIVALENT FULL-TIME

Total Part-time Students X Hours or Credits = Total Hours or Credits

Total Hours or Credits ÷ Hours or Credits in F-T Program = EFT Students

EFT Students X Rate per Full-time Student = Reimbursement Request

REIMBURSEMENT GRAND TOTAL $_____

Having conformed to the State Plan for Vocational Education, the School District and/or Community College is entitled by law to the following reimbursement.

$_____

_____ _____
(Comptroller, DPI) Date

II. This application is for pre-approval and is based on estimates. (check box) ☐
A listing of the program and courses with number of full-time and equivalent vocational-technical students enrolled is outlined on the back of this form.

III.

I certify that statements contained in this report are true and correct.

_____ _____
Secretary or Business Manager Date

_____ _____
Chief School Administrator or President Date

29

IV. Statistical Report of Enrollment

			SESSIONS	Semester 1 Trimester 1 Quarter 1	Semester 2 Trimester 2 Quarter 2	Quarter 3	Trimester 3 - Quarter 4 Summer Sessions Evening Sessions*
1. Full-time Students	M	F	Courses offered				
2. Equivalent Full-time Students	M	F					
			Total EFT Students				

Vocational Field(s)

__Agriculture
__Business
__Distributive
__Home Economics
__Trade & Industrial
__Health Occupations
__Technical

Type School

__Compr Secondary
__Voc/Tech Sec
__Community College
__Voc/Tech Post/Sec
Other (please indicate below)

_____

_____

For DPI Use Only
Date of Approval

*Post high school only

The courses described hereon are conducted under the supervision and control of the Board of School Directors or Community College Trustees submitting this report and have been conducted in accordance with the policy established by the State Board for Vocational Education.

Secretary or Business Manager _____ Date _____

Chief School Administrator or President _____ Date _____

DPI APPROVALS

State Supervisor _____ Date _____

Director, Bureau of Community Colleges _____ Date _____

State Director of Vocational Education _____ Date _____

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Bureau of Vocational, Technical, and Continuing Education
Harrisburg 17126

April 29, 1966

VOCATIONAL-TECHNICAL EDUCATION ACTIVITIES and ACCOMPANYING FUNDING POSSIBILITIES*

Examples of Activities (in brief)	Possible Funding by the State Board through the Department of Public Instruction
1. Studies necessary for vocational-technical education.	May be funded up to 50%.
2. New Programs of vocational-technical education, or expansions of existing programs. Applies to all levels of instruction.	Teachers' salaries and travel may be reimbursed up to 100% the first year, 75% the second year, and 50% the third year.
3. Post high school and adult vocational-technical programs.	May be reimbursed up to $110 per full-time student or equivalent.
4. For all approved purchases of equipment for vocational-technical education.	May be reimbursed up to 50% of cost.
5. Totally new experimental, developmental, or pilot programs or projects in vocational-technical education.	May be reimbursed up to 100% of total cost, for a maximum of not more than three years.
6. Programs developed to provide for persons with special needs who do not "fit" into other or regular offerings.	Reimbursement variable depending upon program. May possibly be up to 100% of cost for the shop/laboratory instruction.

*The activities herein listed are examples of programs and activities for which the State Board for Vocational Education now provides special funds or reimbursements. This listing is not comprehensive in nature, but is meant to provide examples or ideas for the development of vocational-technical education. Further details may be obtained from the State Director of Vocational Education or his staff, Department of Public Instruction, Harrisburg, Pa.

Examples of Activities (in brief)	Possible Funding by the State Board through the Department of Public Instruction
7. Special programs to assist metropolitan and other areas having unique occupational education needs.	Funding available as described under Items 1-6 above.
8. Research, curriculum development, demonstration projects.	Funding up to 75% of costs.
9. Special programs for youth just out of school. Graduates, drop-outs, push-outs.	Funding similar to Items 2, 3, 4 above.
10. Vocational-technical programs for youth and adults with special needs and abilities.	Funding similar to Items 2, 3, 4 above.
11. Conferences, workshops, institutes for guidance and vocational education personnel to gain mutual understandings of necessary programs and services.	Funding dependent upon merits of proposal.
12. Work-study programs for vocational-technical students.	90% Federal, 10% local (in kind).
13. Adult training and retraining programs (not fundable under MDTA or Pennsylvania Retraining Act).	Reimbursement may be up to 100% depending upon program.
14. Leadership Development Conferences conducted in conjunction with the Department of Public Instruction or a vocational teacher-education institution.	Same as Item 13.

NOTE: Funding of reimbursements for vocational-technical education activities as listed above, and similar types of activities, are always dependent upon the availability of funds.

VT 002 022
Zimmerman, Earl E.
Industrial Arts Teacher Education Conference.

Pennsylvania State Dept. of Public Instruction, Harrisburg
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 20p.

*INDUSTRIAL ARTS; *TEACHER EDUCATION; *CONFERENCE REPORTS; *TEACHING METHODS

Teacher educators from Cheyney, California, and Millersville State Colleges and Pennsylvania State University met to discuss mutual problems and to seek agreement on solutions. The papers presented were: (1) "History of Technology," by Henry J. Kauffman, (2) "Programmed Instruction: Implications for Industrial Arts," by Jay D. Helsel, (3) "The Place of Industrial Arts in the Elementary School," by Arthur M. Bagley and Robert Hostetter, (4) "Directions for Senior High School Industrial Arts," a panel summation by Nevin E. Andre, and (5) "Unit Studies--Research and Experimentation," by Urban L. Monical. A slide and tape presentation of the American Industrial Arts Association approach to the problem solving method of teaching was made by Norman C. Pendered. (EM)

VT 002 022

INDUSTRIAL ARTS TEACHER EDUCATION CONFERENCE

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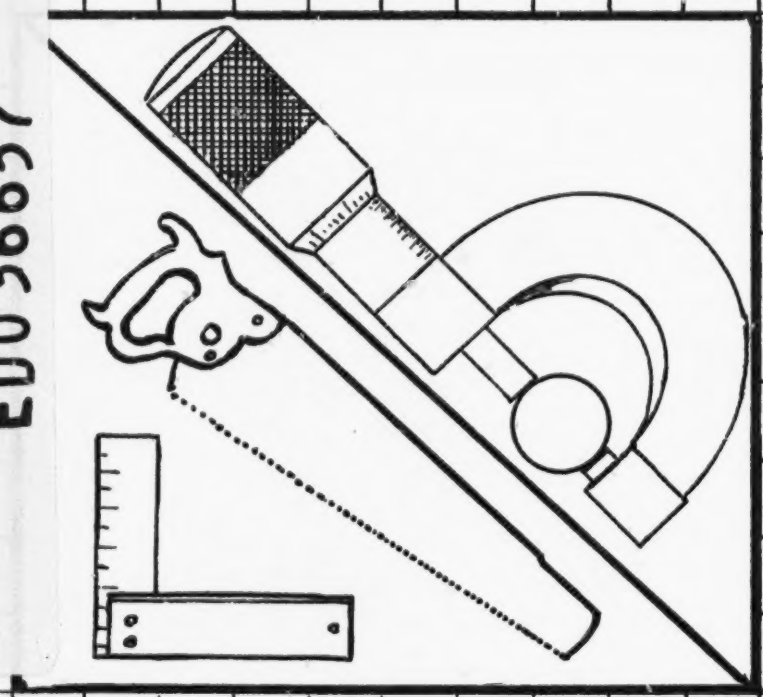

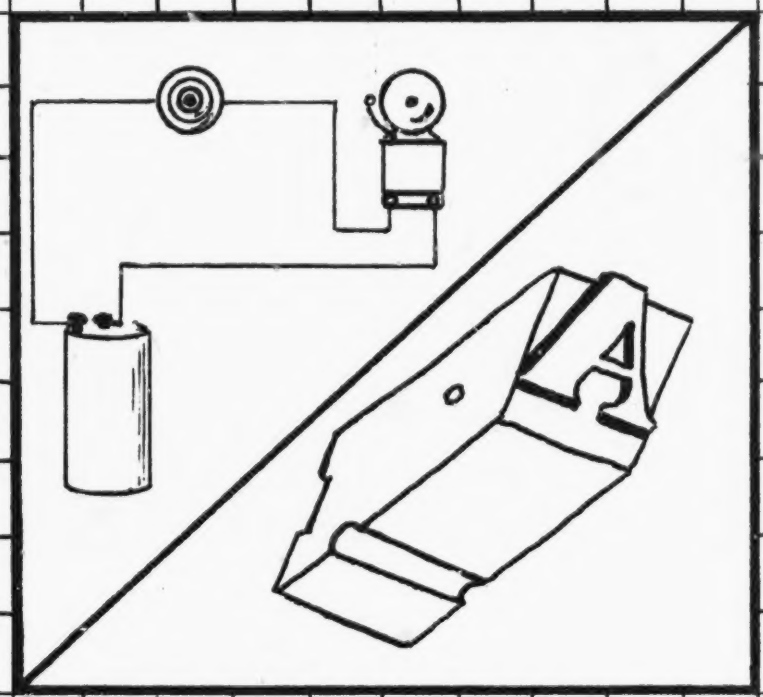

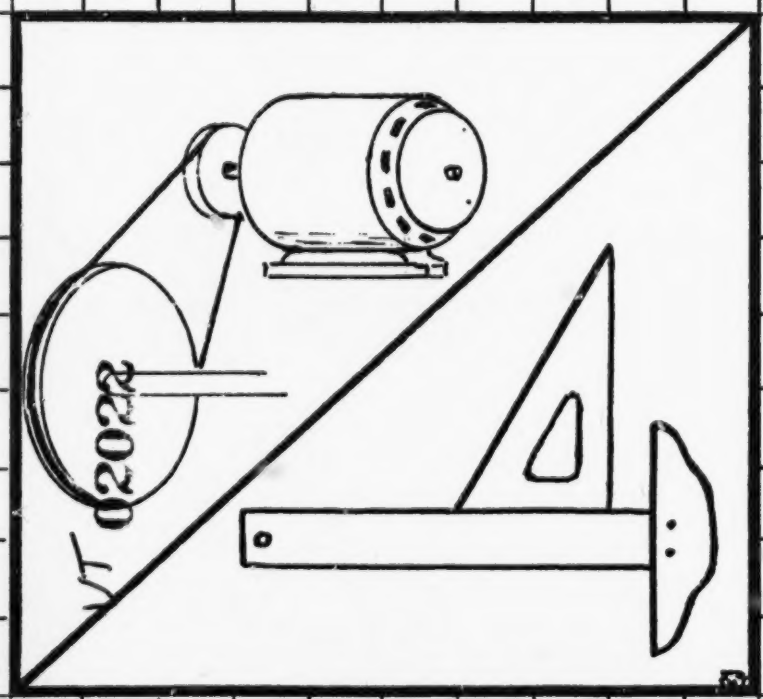

VT 02022

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A C K N O W L E D G M E N T S

This conference was the result of the cooperative efforts of the Directors of Industrial Arts and their staff members in the respective teacher educator colleges and universities throughout Pennsylvania.

Name	School
Shriver L. Coover	California State College
Norman C. Pendered	Pennsylvania State University
Earl M. Weber	Millersville State College
Wade Wilson	Cheyney State College

Department of Public Instruction:

John Ralph Rackley, Superintendent

Neal V. Musmanno, Deputy Superintendent

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Kenneth M. Pfeiffer, Chief Instruction Consultation Division, Bureau of Vocational, Technical and Continuing Education

Department personnel responsible for this publication:

Earl R. Zimmerman, State Supervisor, Industrial Arts Education

P R E F A C E

Teacher Educators of Industrial Arts in Pennsylvania representing Cheyney, California, and Millersville State Colleges, and the Pennsylvania State University met to become better acquainted with each other, to discuss mutual problems, and to attempt some agreement on methods of solving problems. This publication is a resume of the material covered during this conference.

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Part II Programed Instruction: Implications for Industrial Arts.....6

Part III The Place of Industrial Arts in the Elementary School.....9

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Part I

HISTORY OF TECHNOLOGY

by Henry J. Kauffman
Millersville State College

Before starting a discussion about the history of technology, the reader might logically be briefed about its importance in the contemporary curriculum. It might by noted that there always has been a certain interest in science and technology among historians. They have given some attention to subjects such as ancient Chinese ceramics, the inventions of Leonardo, and the silversmithing of Paul Revere. Such data unfortunately has had what might be called "fringe status" and was not considered an important part of the main body of historical knowledge.

Some recent changes have caused new light to be focused on technology. Increased money has become available for archaeological research and it is evident that archaeological research is very dependent on the artifacts that are found at a site. Unless precise records were made of subjects such as moral codes or social customs, and they rarely were, it is evident that an appraisal of a culture can only be made by piecing together the physical remnants which are found. Even if written documents have been preserved many niches of knowledge are made more complete by a combined study of the documents and artifacts. Thus, the scholar and the technologist have joined forces in many studies of ancient culture.

It is also evident that the important part which technology plays in the daily life of every one who lives in the western world today has created a demand for a knowledge which seemed unimportant in the seventeenth and eighteenth centuries. Since the start of the industrial revolution in the nineteenth century people have been forced into using mechanical devices. Wheels with tires have replaced clumsy wheels made of slabs of wood, and there are a legion of buttons, levers, and other mechanical devices which men must understand if they are to live successfully. For a long time the learning about these devices was left to chance, but the world has now become so complex that efforts must be made to explain it to its inhabitants.

The combined influence of archaeological research and the demands for knowledge about the push-button world in which we live have created a need for knowledge about international technology. For at least two centuries America was an isolated country, proud of its self-sufficiency, with little intent to barter or deal with people in distant lands. Recent developments in transportation and communication have changed these concepts and Americans are getting tin from Jalaya, wood carvings from Kenya, silk from India, cameras from Germany and Japan, furniture from Spain, automobiles from Italy, brassware from Morocco, glass from Sweden, watches from Switzerland, nickel from Canada, shoes from England, and magazines from Poland.

Educators have finally acknowledged that the increased importance of technological matters in our daily lives demands that increased attention be given to such matters in the school curriculum. People must be taught about

words such as printed circuits, automation, drop forging, aluminum alloys, carbon steels, titanium, metal spinning, plastics, synthetics, metal stampings, lacquered finishes, and a legion of others. They may be debating who is to do this job, but it is evident that the teachers of industrial arts are best fitted to perform it.

For about three decades the industrial arts teachers have been functioning in a room which has been equipped with a variety of machinery. They have been teaching children to make objects which had some utility to them, and also taught them some of the common practices of a trade. Little effort was made to integrate this knowledge into the vast industrial world in which they lived, or in the simple world in which their forefathers lived. Some passing interest might have been indicated in a subject such as the design of early American furniture, but certainly the work never included the production of furniture such as the Chinese use.

It has also been discovered that tools and machinery must be supplemented in the school shop to fully inform the students about the many facets of the industrial world. Many schools have adopted text books which are used in conjunction with the tools and the machinery and there is a growing interest in reference books which are used for research. Boys no longer make a taboret which has neither style or national character; the table they make today is colonial, contemporary, English, or Danish, and they might make a study in the evolution of the style which they are producing. In other words, the boy now uses a variety of books in the school shop and he formerly used only tools and machinery.

This new concept of learning and teaching in industrial arts has created a new image for the industrial arts teacher. He must continue to be skilled in the use of tools, but in addition, he must feel "at home" in the world of books. He must be familiar with words such as bibliography, cross index, encyclopedias, historical research, tentative attribution, and many others.

This introduction is not to imply that he has not brushed against such words and ideas in the past, but it does suggest that he not only must do more of it than he has, but also that he must develop a taste for such scholarly browsing. He must have an intellectual curiosity about the evolution of the mechanical world and be able to integrate such learning successfully with the making of objects in the school shop. A taste for books and research can only be stimulated by becoming acquainted with them in a personal way. To understand and like Shakespeare, one must read what he wrote, and he also should read what other people think of his work while he is making an appraisal from his experiences with Shakespearean literature. It logically follows that to understand the vast fund of mechanical knowledge one must read about it. This truth is evident when considering contemporary information about technology, not to mention the ideas of the past, most of which supply an underlying fabric to an understanding of the present.

So much data is involved in a study of the history of technology that some system must be evolved to make a practical approach to the study. The facts

are so closely interwoven with information about wars, politics, religion and other that an effort must be made to outline only the major events and ideas forming a framework which will have to be filled-in at some more convenient place and time.

This course will start at the beginning of the Christian era; however, to provide some perspective backward from that point, a brief review will bring the students view into sharp focus on what was generally known about mechanics at that time. It cannot be positively said when man first improved his lot with the use of tools, but as long as he wandered from site to site he was obviously influenced by nature more than he tried to influence nature. He did not build houses, cultivate gardens, or make extensive use of tools and weapons. Neolithic people were the first to change their mode of living. They lived in permanent settlements, they built houses, they spun thread for cloth, made pottery (without a wheel) and they erected large stones, called megaliths. In the late Neolithic period people are thought to have some religious convictions and a large circle of stones as found at Stonehenge, England, is thought to have been an early temple. The best preserved Neolithic sites are in Europe, many were located in Switzerland where people are known to have erected homes over the lakes to protect themselves from wild animals and marauding barbaric hordes. Their houses were built upon piles and the refuse which dropped into the water has been preserved for centuries so that some study can be made of their history and their culture. No firm statement can be made about the chronology of various cultures, but scholars do agree that the Neolithic Revolution occurred from 5500 B.C. and 4500 B.C.

The Copper Age followed the Neolithic Revolution and its dates are usually regarded as approximately 4500 B.C. to 3500 B.C. The Copper Age suggests the first use of metal in an organized society which probably lived in towns and engaged in industries as well as agriculture. The Copper Age came first becauses pieces of relatively pure copper were found on top of the ground which could be fashioned into tools by using large hard stones. Tools made of pure copper have been excavated in ancient sites and it should be noted that copper cannot be hardened by heat treatment. The Copper Age did not occur simultaneously in all parts of the world for the American Indian was really living in a copper age when Columbus made his first visit to the New World. It is said that the Indian had no concept of a sharp tool and that Europeans offered their swords and then cut the Indians hand by drawing it through their closed hands.

The Copper Age was followed by the Bronze Age (3500 B.C. to 1800 B.C.) The riddle of the bronze may never be solved, for this tin-brass alloy is not a natural one and no one seems to know the technology of its first forming. As a matter of fact, there were no deposits of tin in the Near East where the alloy was first used. It was a great improvement over copper for it could be cast into any desired shape, and a harder edge could be produced by hammering. Some bronze objects were cast in metal molds and some castings were cored for handles.

There was no logical reason for a craftsman in bronze to discover iron, for there were limitations to the temperatures obtained at that time. Bronze melts easily at 1800 degrees F. but that heat would never melt iron out of its

matrix. The first iron used was of meteoric origin which could be identified because of its high nickel content. It was of such rarity that jewelry was made of it and the men who worked it were regarded as mystics because their medium came from the sky. Terrestial iron was first produced by digging a hole in the ground and charging it with fuel which partially purified the mass. After several "firings" the mass could be hammered and shaped into an object of utility. The Greeks attributed the invention of iron to a people called the Chalybes who were later incorporated into the Empire of the Hittites. The Hittites achieved a military superiority over all of their enemies because of their ability to refine iron and fashion weapons from it.

Although the basic warp of this course will be concerned with the evolution of mechanical principles, inventions, and practices, it is evident that cross-sections like a weft will be made by many countries or regions. The most important one of these in ancient times was Egypt. Civilization started in Mesopotamia, but nowhere in that region did it gain the unified heighth that it gained in Egypt. About 2500 years separated the reign of the First Dynasty from their complete annilation by the Persians in 525 B.C. This period is noted for many historical events, and among the greatest are their mechanical achievements.

The Pyramids were built about 3000 B.C. with a jewler's precision, the four corners directed exactly toward the four points of the compass. The large stones were floated to the sites during the flood time of the Nile by as many as 4000 men. The stones were cut with bronze saws charged with corundum and diamonds and holes were drilled to form sarcophagi with diamond pointed drills. Various other architectural masterpieces were carved from solid stone <u>in-stu</u>, many of which will be inundated by the new Aswan dam unless they are removed or raised. The principal treasure is the temple of Abu Simbel of Nubia which was carved 3000 years ago by Ramese II. The Great Temple is probably the largest man-made rock hewn structure in the world. It weighs 300,000 tons and it is proposed to raise it 200 feet from its present site.

Another important civilization which precedes the Christian Era was that of Greece and the island of Crete. About 3000 B.C. an early culture was established on the island which was really the cross-roads of the eastern Mediterranean. Cretans brought many elements of civilization to Greece, but by 1400 B.C. the barbaric Acheans who previously invaded Greece from the North, also conquered Crete.

Much of Greek life was concerned with war, and politics. In addition to certain inter-city wars there were major-contests such as the Persian Wars, and the Peloponnesian War. Plato and Aristotle advanced their various theories and supplied a philosophical pattern to be followed later by Western man.

It is Greek art and architecture, however, that is of most importance in this survey. It is interesting to note that their products were not described as artistic. Their only word for art was <u>techne</u> which means craft. The creators of works of art in Classical Greece seemed to give life to a lifeless piece of marble in the most perfect and natural way ever devised by man. Their standard

was perfection and lesser products were not carved for obscure corners in a building, nor for places not easily seen by human eyes. The Greek temple was a simple building with a row of columns surrounding it. The Parthenon in Athens was filled with sculptures and because it was the home of the Gods, no work or care was spared in its construction. Like the Gothic cathedrals of a later period, they were regarded as evidence of civic pride and an expression of their devotion to their God. These were the ideals which created the highest art and architecture products of history and posterity will always be indebted to the Greeks for their idealism.

Although the Romans were greatly influenced by the Greeks it might be safely said that they were more practical and realistic in their way of life. The Greeks built beautiful temples and carved beautiful statues, but the Romans built roads (the Appian Way), aqueducts for carrying fresh water from distant mountains, and open-air theatres, which they called colosseums. They devised a round arch in architecture, they worked the tin mines in Spain, and the produced objects from pewter in Britain, some of which have survived until today. It is about the time of Julius Caesar (48 to 44 B.C.) that the chronology of mechanical inventions and practices will start in this course and proceed to modern times.

Part II

PROGRAMMED INSTRUCTION: IMPLICATIONS FOR INDUSTRIAL ARTS

by Jay D. Helsel
California State College

Teachers today have a tremendous responsibility to teach the many, many related facts and bits of information which are often not found in conventional textbooks and all too often not found in the background of the teacher. Programmed instruction, a relatively new teaching technique, seems to have a great deal of potential in helping the industrial arts teacher to meet the challenge of teaching in a complex industrial technological society.

Two basic types of programs exist today: the constructed response or the linear type and the multiple choice or branching type. The linear type is so designed that as a student proceeds through the program he is able to provide the correct response to the stimulus at least 95 percent of the time. Each student takes the same path through the material in this type of program. However, in the multiple choice type, all students do not take the same path. Students who quickly grasp what is being taught (answer the questions correctly) go through the program in larger steps and at a faster pace. The students who do not understand a given unit of presentation are directed through another series (or branch) of information and questions which further explain the original presentation.

I. About Programmed Instruction

A. Precise Organization: Learning is most effective when the information to be learned is organized into logical, topical, and progressive elements. Programmed instructional materials present the subject matter in small, easily comprehended frames--frames arranged in precise pedagogical order.

B. Immediate Reinforcement: Learning is most efficient when the information learned is immediately reinforced. Porgrammed material is carefully tested so that the vast majority of responses will be correct and therefore reinforced. The student knows immediately if his response to the stimulus has been correct or incorrect. If it is correct, his learning has been reinforced. He can then proceed with confidence. The occasional incorrect response is extinguished quickly because the student immediately understands the cause of his error. He then corrects his response at once and receives reinforcement by redoing the fram. This system eliminates incorrect assumptions that could result in misunderstandings throughout the entire course.

C. Learning Goals: Because the information contained in programmed instructional materials has been refined into relatively small segments, the achievement of short-term learning goals is more immediate.

D. Systematic Progression: Constant and successful progression is extremely important in any learning situation. Programmed learning enables the student to progress through the sequence of frames at his own rate. The student may repeat a section or the whole program if he finds it necessary.

E. Individual Needs: Programmed instruction frees the teacher to work closely with individuals or small class groups. This enables the individual learner to get the kind of one-to-one, teacher-student relationship which alone may enable him to grasp this particular subject matter.

II. Where Typrogrammed Blueprint Reading Units Are Used

A. Drafting Courses: The separate units of Programmed Blueprint Reading may be used in conjunction with your present basic drafting text. The use of these programmed units as supplements helps reinforce learning especially in troublesome areas of engineering drawing such as dimensioning, sectioning, and orthographic interpretation.

B. Blueprint Reading Courses: Programmed Blueprint Reading is ideal as a basic text or as a supplement in blueprint reading courses since all five units of the program can then be used in their recommended sequence.

C. Testing: Programmed Blueprint Reading serves as a testing and evaluating device for subject matter learned by conventional texts and methods.

D. Self-Instruction: Programmed materials do not replace the teacher. However, Programmed Blueprint Reading is appropiate for self instruction since it enables students to work independently.

E. Shop Courses: Programmed Blueprint Reading is well suited for use in shop courses because it helps students acquire a basic knowledge of blueprint reading prior to performance in the shop.

F. Homework: When this program supplements a basic text, it may be assigned as homework before its formal classroom presentation. This enables the teacher to eliminate trouble-spots early in the course.

III. How Programmed Blueprint Reading is Used

A. Programmed Blueprint Reading, a linear type program, is easy to use. Each unit is presented in a series of frames: each frame is divided into three parts: the exposure or display frame, the stimulus or question frame, and the answer or reinforcement frame.

1. The Exposure: Each frame first exposes a fact, principle, or concept to the student.

2. The Stimulus: The next part of the frame provides the stimulation. The stimulus challenges the student to interpret immediately what has just been learned. Sometimes he must fill in a missing word or choose between several answers. In other situations he sketches the answer which relates to the information he has learned.

3. The Response: Participation is the core of programmed learning. In these programs, the student writes or sketches his responses on a separate sheet of paper. To get full benefit from Programmed Blueprint Reading, the student should record his answer before checking the answer.

4. Reinforcement: After the student answers the question on a separate sheet of paper, he turns to the solution on the next page to see if he is right. If his answer is correct he has been immediately reinforced and may continue. If his answer is incorrect he immediately determines the cause of his error and corrects it before proceeding. This method provides a built-in test with each frame and insures complete comprehension with every step.

   Once the student has been reinforced by checking his solution with the answer column, he then proceeds to the next exposure fram. He repeats the sequence of exposure, stimulus, and response consecutively throughout the program.

In Conclusion

Teachers are often reluctant to try new teaching techniques. They prefer to simply the use of methods and techniques learned years ago in a college classroom. But as industry and technology become more complex, teachers must try new teaching techniques to keep pace. While programmed instruction does not solve all the problems, it would seem to be a step in the right direction.

Part III

THE PLACE OF INDUSTRIAL ARTS IN THE ELEMENTARY SCHOOL

by Arthur M. Bagley
Cheyney State College

On the elementary school level, industrial arts is not to be approached as another subject to be placed in an already crowded curriculum. On this level industrial arts should serve as an aid in helping to make the prescribed curriculum more meaningful. Industrial arts should help the school to achieve its goals. Perhaps one of the most important contributions which industrial arts can make is the reduction in the level of abstraction which can facilitate learning.

Perhaps we, in industrial arts, have over looked this level far too long. Industrial arts departments in universities and colleges would do well to offer courses to elementary education majors and train industrial arts majors for the elementary school. Inservice and summer school courses which would acquaint elementary school teachers with the services which industrial arts can perform in helping to develop units to aid them in their work would reach a large number of teachers. Industrial arts departments can also work toward getting an elementary industrial arts course included in the elementary education curriculum. This may not be easy in many universities and colleges as this curriculum is already crowded but it can be accomplished.

Industrial arts departments should also train some elementary industrial arts majors who would get the proper training in industrial arts and elementary education and would be qualified to serve as consultants or co-ordinators. These individuals could be used by school systems to offer help to all elementary teachers in the area of industrial arts activities.

Since the classroom teacher is the person responsible for the work in the classroom the best approach is to acquaint elementary school teachers with the help which industrial arts can give them in achieving their goals.

THE PLACE OF INDUSTRIAL ARTS IN THE ELEMENTARY SCHOOL

by Robert Hostetter
Millersville State College

Industrial arts in elementary education today cannot afford to exclude three "D" materials in presenting our program in education at the elementary level. We can no longer teach the concept of space by reading from the flat page. If INDUSTRIAL ARTS is important in the junior and senior high school to produce a well-rounded individual, why is it not just as necessary for those who will create in three dimensions to begin using tools and materials in the kindergarten?

Our philosophy and goals for the use of tools and materials in elementary school are not the same as the objectives we have had for the work in the junior and senior high school. To develop maximum human potential the work must contribute to the individuals development when needed.

Charles A. Bucher in the May issue of the N.E.A. magazine says "a child's earliest learnings are motor (involving neuromuscular systems and resulting in movement--in nature and form) the foundation for subsequent learnings. Motor activity underlies all behavior and this includes the higher thought processes and the child can function in this capacity not better than the basic motor abilities upon which it is based."

The work at the elementary level must be more than repetitive hand work, busy work or artistic expression. Emphasis must be on investigation, experimentation and the development of basic understandings of our society. The materials used should enrich the climate for learning. It is not what the child does to the material but what the material does to the child.

Our problem is two fold:

1. If our industrial arts majors are to be of any help to elementary people they will need more training in child growth and development and must be given some help in understanding the elementary school program.

2. All elementary teachers should have some training in the use of tools and materials. The elementary teacher is in the best position to guide this work.

Millersville has conducted a one day workshop for teachers to engage in an experience which would show how the elementary program could be aided by utilizing industrial arts activities. The people in this workshop were very enthusiastic about the experience they had in this one day experience.

Slides were shown illustrating the following:

1. Use of tools and materials in the kindergarten.
2. A unit on the simple machine at the fourth grade level.
3. Musical instruments made by first graders.
4. Working with wood in constructing a post office.
5. Work of college students in classes for the elementary teacher in industrial arts.

Part IV

Panel Summation
Reporter Nevin E. Andre
California State College

DIRECTIONS FOR SENIOR HIGH SCHOOL INDUSTRIAL ARTS

As it relates to:

I. Area Technical Schools:

A. Will this provide or enable new directions for industrial arts?

It was the feeling of the panel that the so-called industrial arts curriculum for the senior high school be eliminated. This course has been occupational orientated, but the job will now be performed by the area school. Industrial arts courses should do more for the student who is not going to the area technical school.

B. Subject content of industrial arts - will it stay as is or should it be revised?

The keynote of the panel was flexibility of industrial arts courses to meet the needs of the individual student. The courses should provide pre-professional experiences, experimentation facilities, problem solving techniques and craftsmanship in a variety of mediums. The groups to be served should include both boys and girls, pre-engineering students, slow learners, general education students, even elective courses for the college preparatory students. The elective courses should be of the nature of engineering drawing and electronics.

II. Certification:

A. Should there be a different certification for junior and senior high school teachers?

At present no difference in certification requirements should be made for the two groups of teachers. If a difference in certification requirements are to be made, the authorities in the field of industrial arts will then need to decide as to the differences between junior high school and senior high school industrial arts.

B. Should industrial arts departments train teachers for Area Technical Schools?

Presently, no visions have been made to train technical school teachers. It was the opinion of the panel that some means must be provided to train said teachers. However, as to who should provide the training, the state colleges or universities is the discreation of a higher authority in our state?

III. Student Teaching:

The people in education should be concerned about the over-tones of people that student teaching is not necessary. Due to the difference of individual personalities many new teachers are easy prey to adopt poor teaching techniques, the institutions should have some controls about the permanent certification of its own students by inservice follow-ups, inservice training and good individual supervision. It appears that many graduates are not taking courses within their special areas for fulfillment of the 24 credit course necessary for certification. As a result, the good teachers enter master programs, while the poorer students or teachers fail to improve their ability to teach within their chosen subject areas. The institutions present, indicated that the lack of personnel and authority prevented them from having post graduation follow-up programs for their graduates.

Part V

UNIT STUDIES - RESEARCH AND EXPERIMENTATION

by Urban L. Monical
Millersville State College

Introduction

Starting back as long as eight years ago Doctor Osburn envisioned a comprehensive general shop of the type in which I am teaching, as the ideal place for a course in research and experimentation. He could see this type of study as putting together all the facilities to their fullest potential.

When our new building was designed it was with this thought that Doctor Osburn could justify the amount of expenditure for equipment necessary for a shop of this kind.

I have heard Doctor Osburn many times express his desire to experiment and research fuels used for Colonial Lighting and I know his knowledge in this field was already significant. Just before his death all the groundwork for the course was laid and I was asked to teach the course. This, in fact, offered me a challenge for which I have gladly given it a try for three years. During this time Doctor Weber has been very helpful and enthusiastic.

This, perhaps, is a controversial course, but with the three years of experience working with it, I am beginning to see the many learning possibilities therein.

I. Nature Of The Course

A. Designed for seniors after completing their required courses in wood, metal, electronics and other areas.
B. Places the responsibility on the learner.
C. A course for execution in a general laboratory.
D. A course where a number of methods of teaching other than the project method are experienced.
   1. Improved methods of instruction always looked for.
   2. Reluctance to change always present.
   3. Change always makes for more work.
E. Students can experience methods and form their own opinions about them.
   1. Unit method.
   2. Group method.
   3. Line production method.
   4. Research and experimentation.

II. Sequence Of Teaching Events Which Will Accomplish The Purposes Of The Course

A. Learner or student must set up a goal which is not assigned but student originated.
B. Secondly, this goal must be clarified by pupil-teacher planning.

C. The third step, which is the bulk of the course, is where the student carries out the plans to reach the goal.
   1. By researching all available literature.
   2. Talking to resource persons.
   3. Visiting industrial situations.
   4. Asking questions.
   5. Experimenting.

D. Finally, we will appraise the solution.

III. Examples Of The methods Experienced

A. Unit method - Mainly an organization of content.
   1. Wood Bending
      a. One approach from the strength of bent members.
      b. One bending for skis and toboggan application.
   2. Illustration Techniques for Publication
      a. Tone-line Photography - Making a photograph look like an artist's sketch.
      b. Exploded views for illustration and publication.
   3. Ignition System for the Automobile
      a. The generator and altenator.
      b. Coil.
      c. Spark plug.
      d. Distributor and transistorized ignition.
      e. Battery.

B. Group method
   1. Anodizing of Aluminum - Three students worked together on this experiment.
   2. Blow Forming of Plastics
      a. Developed apparatus.
      b. Explored possibilities of process.
   3. Resin Bonding of Sawdust and Wood Particles
      a. Resorsenal glue.
      b. Three plastic resins.

C. Research and experimentation
   1. Production Engineering - what must be done to put a product on the market.
      a. Bid on parts.
      b. Kinds of material.
      c. Patent application.
      d. Packaging.
   2. Centrifugal Casting of Pipe
      a. Made device to spin 4300 R.P.M. as metal was poured.
      b. Cast a lead pipe.
   3. Photographic Stone Lithography
      a. A true experimental problem.
      b. Experimental emulsions studied.

D. Production Line - The class produced 40 salad bowls and tools for serving salads in one four hour period.

1. Production line study needs to be rather short termed.
2. Helps develop ability along lines of problem solving.
3. Helps develop manipulative skills.
4. Some help in understanding the nature of industry.

IV. The Way Class Proceeds To Accomplish Study

A. There is no predetermined number of problems to be done.
B. No assignment of problem until a student no longer can come up with one of interest to him.
   1. Some suggested studies have been made.
      a. A study of shellac.
      b. A study of turpentine.
      c. Electronic module.
C. Choose study with availability of material in mind.
D. Plan to use as many facilities of the general shop as possible.
E. Choose five possible topics and submit with a short descriptive statement.
F. Air to the class the one or ones of most interest to review possibilities and to clarify.
G. Spend some time outlining.
H. Conduct laboratory work with help and suggestions.
I. Written summary and supplementary material placed on file.
J. Seminar and final oral report, plus a display to the total class.

V. Values Of The Course

A. Sharing of knowledge in the seminars.
B. Broadening of knowledge of teaching methods.
C. Learning how to conduct experiments.
D. Implications for use in the school shop.
E. Help in the pursuit of graduate studies later on.

Part VI

by Norman C. Pendered*
Pennsylvania State University

Problem solving, that is, the ability to think, is an important objective of industrial arts. One of our goals as teacher educators is to help our graduates help their students attain this objective.

The ability to think is an overlapping factor which contributes to the attainment of all the objectives of industrial arts as well as all of the objectives of general education. Learning to think is a power that is developed gradually and continuously; its development is directly proportional to its successful employment by a student.

An industrial arts laboratory which seeks to develop the ability to think in its students has an atmosphere conductive to thinking and is itself a place where thought is respected.

The industrial arts teacher plays a crucial role in the development of critical thinking in his students. He must take whatever steps may be necessary in motivating students to want to learn how to think, in guiding them in problem selecting, and in doing what else he can to ensure that they enjoy success in problem solving.

Although the ability to think cannot be developed without subject matter, there is no particular body of knowledge that will in itself develop the ability to think clearly. Industrial arts is as well suited as any other subject area as a vehicle in helping students develop intellectual power.

The secret of teaching students how to think lies not in the subject matter itself, but in the method by which the teacher provides his students with successful experiences in the process called critical thinking. A successful method for developing the power to think is the scientific method applied to industrial arts subject matter. By this means the teacher can help his students develop technical problem-solving skills related to materials and processes.

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*Dr. Norman C. Pendered, Pennsylvania State University, presented the AIAA approach to the problem solving method of teaching. (Slide and tape visual presentation) These statements are a summary of Dr. Pendereds presentation.

VT 002 028
Struck, John W.
General Policy Statement of Communication Procedures for Practical Nursing Programs in the Public Schools of Pennsylvania.

Pennsylvania State Dept. of Public Instruction, Harrisburg
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 30Sep63 3p.

HEALTH OCCUPATIONS EDUCATION; *INTERAGENCY COORDINATION; *PRACTICAL NURSING; *ADMINISTRATIVE POLICY
PENNSYLVANIA

The only direct communication between the State Board of Nurse Examiners and the local school district relates to licensing examination application forms. All other matters, including planning for State Board survey visits, recommendations of the State Board, State Board policies, results of licensing examinations, program faculty appointments and charges, and contracts of the school districts with affiliating agencies will be handled through the Advisor of Practical Nursing in the Department of Public Instruction. (JK)

VT 002 028

ED036657

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg
17126

September 30, 1963

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GENERAL POLICY STATEMENT

of

COMMUNICATION PROCEDURES

for

PRACTICAL NURSING PROGRAMS

in the

PUBLIC SCHOOLS OF PENNSYLVANIA

Approved by: John W. Struck
State Director of Vocational
Education

VT 02028

The State Board for Vocational Education is responsible for the education of practical nurses in the public schools of Pennsylvania by providing funds to establish and operate programs under the State-Federal Plan for Practical Nursing. The Technical and Industrial Division of the Department of Public Instruction is charged with the responsibility of implementing the program and administering the policies established by recognized approving agencies. Supervision for adherence to policies and standards is the major responsibility of the Advisor of Practical Nursing in the Technical and Industrial Education Division of the Department of Public Instruction.

All public school programs of practical nursing recognized by the State Board for Vocational Education must be approved by the State Board of Nurse Examiners as meeting their requirements for an approved practical nursing program in order that graduates of the program may be eligible for writing the licensing examination.

In order to eliminate misunderstanding and effect more efficient supervision by the Technical and Industrial Division of the Department of Public Instruction, a policy was developed to provide for one line of communication between the State Board of Nurse Examiners and the public school practical nursing programs through the Advisor, Practical Nursing. This policy has been approved by the State Board of Nurse Examiners.

The line of communication is developed as follows and becomes effective immediately:

A. The State Board of Nurse Examiners:

1. Has no line of communication to local school districts operating practical nursing programs, except that correspondence pertaining to applications for licensing examinations will be directed to the Coordinator of Practical Nursing in the local school district.

2. Shall notify the Advisor of Practical Nursing of survey visits to be made to the local program of practical nursing by a Representative of the State Board of Nurse Examiners. Any forms to be completed by the school district for this survey will be forwarded to the Advisor with the notification date of the visit. At least two weeks advance notice shall be given to the Advisor.

3. Shall forward to the Advisor, Practical Nursing:

   a. Written reports, including recommendations and requirements of the State Board of Nurse Examiners, made on the basis of the findings of the Board Representative on her survey visit.

   b. Results of the licensing examinations written by graduates of all public school programs of practical nursing.

c. Routine informative data pertaining to licensing examinations, State Board policies, notices of action of the State Board of Nurse Examiners, measurable abilities, etc. which are distributed to all schools of practical nursing. The Advisor of Practical Nursing shall distribute this material to all public school programs of practical nursing.

B. The Advisor of Practical Nursing, Trade and Technical Education shall:

1. Submit to the State Board of Nurse Examiners all requests for approval of this Board. These requests for approval include new programs, program revision, relocation of facilities, added and/or changes in clinical affiliations, program adjustments.

2. Disseminate all information provided by the State Board of Nurse Examiners to individuals and/or all public school programs of practical nursing as it applies.

3. Keep the State Board of Nurse Examiners informed of faculty changes and/or appointments, areas of interest for new programs and other pertinent data pertaining to the total program of practical nursing.

4. Forward to the State Board of Nurse Examiners:

a. Copies of contracts between local school districts and affiliating agencies, and other materials required by the State Board of Nurse Examiners for its use.

b. A directory of program addresses and names of personnel and the official name of each program as it should appear on the list of approved schools of practical nursing published by the State Board of Nurse Examiners. These directories are prepared annually.

C. The Local School District Operating a Practical Nursing Program Under the Department of Public Instruction:

1. Has no line of communication to the State Board of Nurse Examiners except the Coordinator of Practical Nursing will correspond directly with the Board of Nurse Examiners to request licensing examination application forms and to submit licensing examination applications.

2. Has organized channels of communication for all phases of Technical and Industrial Education through the Area Coordinator of Industrial Education to the Advisor of Practical Nursing in the Department of Public Instruction. All communications to the State Board of Nurse Examiners should proceed through these channels unless otherwise directed.

VT 002 109
Ohio Division of Vocational Education Annual Report, 1965-1966.

Ohio State Board of Education, Columbus
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 151p.

*VOCATIONAL EDUCATION; *PROGRAM DESCRIPTIONS; *ANNUAL REPORTS; *STATE PROGRAMS; *EDUCATIONAL PROGRAMS
OHIO

Information on program problems and progress are included in this description of vocational education in Ohio in 1965 and 1966. It is the annual report of the state vocational education division to the U.S. Office of Education and program participants. A summary of state program objectives and developments is provided. Sections are devoted to a description of activities for Agricultural Education, Business and Office Education, Distributive Education, Vocational Guidance, Home Economics Education, Manpower Development and Training, Trade and Industrial Education, Health Occupations, Technical Education, and Research and Survey Services. Descriptions of current supervisory services, program status, teacher education, and joint activities, are among topics treated in the descriptive report of each service area. (JM)

VT 002 109

ED0 36657

ANNUAL REPORT

OHIO DIVISION

OF

VOCATIONAL EDUCATION

1965 - 1966

MARTIN ESSEX

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

COLUMBUS, OHIO

VT 021 03

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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DESCRIPTIVE REPORTS

FOR THE

SERVICES

OF THE

DIVISION OF VOCATIONAL EDUCATION

FOR THE

1965-66 YEAR

REPORTS PREPARED BY:

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C. O. Tower . . . . . Research and Survey Services
Dr. Herbert D. Brum . . Disadvantaged Youth and Work-Study

PREFACE

Annually, the Vocational Services within the Division of Vocational Education prepare both descriptive and statistical reports covering program operation for the year. The reports have been made annually to the U. S. Office of Education and to the local personnel participating in the program.

Since these reports contain up-to-date information concerning program problems and program progress, it has been decided to prepare the descriptive reports in such a manner that they can be distributed to interested persons concerned with the development of the Vocational Education programs and the stewardship of the members of the Division of Vocational Education in the State Department of Education. It is hoped that these reports will give a better insight into the organization and operation of Vocational Education programs within Ohio, the progress which has been made, and the needs for further development in these areas of service.

Respectfully submitted,

Byrl R. Shoemaker
Director, Vocational Education

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ANNUAL DESCRIPTIVE REPORT OF THE
STATE BOARD FOR VOCATIONAL EDUCATION
TO THE U. S. OFFICE OF EDUCATION

Section I --- Summary

A. Program Objectives and Developments

1. Impact of vocational and technical education programs on the manpower and employment needs and opportunities in the State, with emphasis on employment and opportunities.

   a. Educational levels and groups of persons to be served.

   Listed on the following page is a summary of vocational, technical and adult enrollments by services. A review of this summary table indicates that over 17,000 more persons were served this year by vocational education programs in Ohio than were served in the preceding year. All vocational education programs with the exception of Distributive Education programs and Home Economics increased in enrollments. The greatest increase in the number of persons served was in the Business and Office Education area. It will be noted here that the numbers more than doubled in one year's time.

   In reviewing vocational education enrollments, it is apparent that increased services were provided to high school youth, unemployed out of school youth and adults, apprentices, and employed workers who need instruction to help them up-grade themselves in terms of their job competency. The programs to serve the less able student, those youth with special needs increased. These are new programs and are being offered by thirty-seven different boards of education in the State. There were about 1700 youth enrolled in these programs last year. The Penta County Joint Vocational School which completed one full year of operation enrolled 238 of these disadvantaged youth in occupational work-experience programs.

   Vocational Education Work-Study Programs were in operation in fifty-one different school districts in the State. There were 2500 vocational education students with definite economic needs involved in this program. Desirable outcomes have been evidenced as a part of this program in terms of helping students continue their enrollment in vocational education thereby aiding them in becoming more productive citizens.

SUMMARY OF ENROLLMENTS BY SERVICES WITH A COMPARISON BETWEEN THE 1963-64, 1964-65 SCHOOL YEARS AND THE 1965-66 SCHOOL YEAR

				1965-66					
				PREPARATORY INSTRUCTION				ADULT UP-GRADING INSTRUCTION	
VOCATIONAL SERVICES WITHIN THE" DIVISION OF VOCATIONAL EDUCATION	TOTAL ENROLL. 1963-64	TOTAL ENROLL. 1964-65	TOTAL ENROLL. 1965-66	HIGH SCHOOL	POST HIGH TECH.	MDTA* ADULT	OTHER ADULT PREP.	APPRENTICE	EXTENSION
Agriculture Ed.	22,287	22,747	24,562	13,311	90	389			10,772
Distributive Ed.	8,762	11,561	9,556	3,509	201	1,016			4,830
Home Economics Ed.	75,843	86,217	86,045	38,517		39			47,489
Trade and Industrial Ed.	64,603	71,923	77,822	11,106	1,027	4,849	2,807	7,634	50,399
Business and Office Ed.	1,441	6,442	17,957	5,003	459	1,179	726		10,590
Sub-totals				71,446	1,777	7,472	3,533	7,634	124,080
TOTALS	172,937	198,890	215,942						

*Enrollments in Manpower Development and Training Act and Area Redevelopment Act.

Technical Education programs, at the high school level, also increased in numbers and in enrollment. The number enrolled, however, has not increased as rapidly as the demand for competent and well-trained technicians. Funds made available under the Vocational Education Act of 1963, during the 1965-66 fiscal year, provided assistance with the development of new post high technical education programs to start in the fall of 1967.

The State plan now provides for the development of Vocational programs designed to enable a school district to organize short term courses for school dropouts or potential dropouts, for disadvantaged youth, or for any other good purpose. These programs can be developed in order to meet specific occupational education needs within a school community. Little advantage has been taken of these programs to date. It is anticipated, however, that additional use will be made of these as a means of preparing potential dropouts for gainful employment.

b. Occupations or occupational fields

As indicated earlier in this report, the occupational level vocational program designed for youth with special needs has proved to be of service to schools and enrolled youth. Through this program many new types of occupations at the service or operational levels have become a part of the vocational education program. These programs are offered in two forms. They are the occupational work-experience type and the in-school preparatory type. Work experience on the part of the student at a wage earning occupation is a part of the occupational work-experience program. Students are placed at any honest job for wages thereby matching their interests and abilities. These programs are designed to enable students to become wage earning, productive citizens in our society. Ohio, therefore is offering vocational education and training in occupations not previously served through vocational education. At the skilled level in vocational education, growth has been noted in some areas of the service.

There have been new developments in the field of Vocational Agriculture in the areas of horticulture and off-the-farm agricultural occupations. Vocational Agriculture expanded into the city school systems in the areas of horticulture. Eight of the eleven new departments added were in cities and nine of the eleven new departments offered programs in horticulture. New courses were also established in agricultural business and service and agricultural equipment and mechanics.

As noted from the table showing enrollments, the area of Business and Office Education has seen the greatest growth during the

past year. Secondary level programs were added in forty-six different schools and Technical Education programs were conducted in five centers. The post high school programs included business data processing and computer technology, secretarial, and junior accounting technology.

In the area of distribution, programs have been implemented for in-school instruction of Distributive Education students without the cooperative experience. This program precedes the time when they would enter the cooperative program. A technical education program in retail mid-management has also been instituted.

In the area of Home Economics there were six job training type programs in operation. These programs are offered in the areas of child care aid, clothing alteration, food service and home-maker's assistant.

In the area of Trade and Industrial Education no really new trade and industrial areas have been established during the past year but there are a number of changes within existing areas and many programs have been expanding. There was an increase of 2759 students enrolled in preparatory and work-experience programs in secondary Trade and Industrial Education. A number of surveys have been conducted throughout the State in which contact has been made with hundreds of people from business and industry. Many parts of the State are now being served by vocational Trade and Industrial Education programs particularly in the urban and metropolitan areas. The greater problem in Trade and Industrial Education has been to encourage a breadth of offerings in sparsely populated areas which heretofore have had no trade and industrial programs. Efforts are also under way to assist smaller cities in expanding offerings beyond the areas of auto mechanics and machine trades. Adult enrollment increased by 2646 students

c. Different areas and communities of the State

In Ohio, we accept the philosophy of the Vocational Education Act of 1963 in that vocational education offerings should be expanded to serve all youth and adults throughout the entire State. With a State such as Ohio, so diverse in terms of numbers of school districts and variation in density of population, it is not possible to achieve this goal in any one or several years. We face a problem in providing increased vocational education services since we have large cities with a great need for expanded offerings on the one hand and more sparsely populated areas and small cities which have had very little vocational education offered and available to students.

Under Ohio law, joint vocational school districts may be established as a means to assist small cities and rural areas in developing comprehensive vocational education programs.

During this past year the Division of Vocational Education has conducted seven county wide surveys to determine the need for establishment of joint vocational schools and to recommend a curriculum for such schools. A total of twenty-four joint vocational schools have been organized to date. Twelve of these were organized during fiscal year 1966. Eight joint vocational schools have voted the money to provide for facilities, equipment, and operation. Two joint vocational schools have completed one full year of operation. Two additional joint vocational school districts have voted construction funds and are planning to vote on operation funds in November. During the past year the two joint vocational schools in operation enrolled a total of 1276 high school students and 1875 adults.

2. The extent to which program objectives were achieved for the past year as related to:

a. High school students

A review of the enrollment summary indicates that the number of high school students served by approved vocational programs has increased significantly during the past year. A comparison of this enrollment with the total enrollments nine through twelth grade reveals that Ohio is still only serving approximately twelve per cent of the students eligible to be enrolled.

A study of student vocational responses from high school students in the tenth and eleventh as reported on the vocational planning questionnaire administered to over 125,000 students in the public school indicated that approximately seventy-four per cent of the students have an interest in enrollment in vocational education programs. A study by the Ohio ledgislative service commission indicated that eventually vocational education programs in Ohio should serve approximately forty per cent of the eligible students.

There were significant increases in high school enrollment in Business Education and Trade and Industrial Education. Approximately 10,000 more high school students were enrolled in 1965-66 than the previous year.

b. Post high school students

Although Technical Education programs have increased in number and enrollment, it has been difficult to enroll the numbers of students which can be absorbed into employment upon graduation. One of the problems in this area is in regard to developing concepts concerning an entirely new area of education in Ohio. It is felt that the success of this program is beginning to have an effect on business and industry and upon students who are

eligible to enroll in the programs. The opportunities for growth of Technical Education provided for in the Vocational Education Act of 1963, has permitted us to enter into Technical Education programs related to all professions and will result in greatly expanded offerings. The number of students in Technical Education increased by 653 over the past year.

Post high school programs for dropouts have largely been financed through the Manpower and Development Training Act, Section 241 of that act, and the Ohio Worker Training Act. Training and retraining programs for the unemployed and under-employed were approved for fifty-six Ohio communities. These programs enrolled 10,334 youth and adults.

Two significant developments in the field of retraining of the unemployed are worthy of considerable attention by the U. S. Office of Education. One of these developments is the multi-occupational programs conducted by the large metropolitan school districts. Five of these programs were designed to train male unemployed or under-employed persons in occupations of engine lathe operator, milling machine operator, and automatic screw machine operator. Other multi-occupational programs represented extensive efforts for training in the health occupations. Over 13,000 persons in fourteen different health occupations were included in the training program. This effort will continue over a period of at least two years and was brought about by the anticipated increase in demands for health occupations employment. The program combines learning activities of basic education, vocational education, and work-experience in cooperating hospitals and nursing homes.

Another development worthy of note has been the success of the operation of the residential Mahoning Valley Vocational School. Five hundred sixty-five unemployed or under-employed males completed training programs at the school last year. Of these seventy per cent are employed. This speaks highly of the successful operation of this center. A large measure of its success is due to the close co-operation between the Division of Vocational Education, the Bureau of Unemployment Compensation, and the Bureau of Vocational Rehabilitation. This indicates that adequate job training and remedial education can be provided through State and local cooperative leadership efforts.

Another development worthy of note is the Jackson Residential Training School Operation. This center prepared 553 out-of-school youth and adults in vocational areas last year. Of these eighty-five per cent are presently employed.

c. Persons who have already entered the labor market

The retraining and up-grading of persons who have already entered the labor market has been one of the strengths of the

vocational education in Ohio. It will be noted in the table summarizing enrollments that there has been considerable growth in terms of number of persons enrolled in this area. Consultants are maintained at university centers by the Division of Vocational Education in each of the vocational services to encourage development of specialized types of programs for employed workers even if they do not have established programs to serve high school youth.

d. Persons with special needs.

Since a comprehensive program of vocational education includes programs designed to meet the special needs of youth with academic and socio-economic handicaps, vocational programs designed specifically to prepare these students for employment may be initiated and operated through each of the vocational education services. These programs are offered in two forms. The first is the occupational work-experience program. In this program the student receives work experience in an employing establishment and occupational adjustment and job related instruction in the school. There were 1700 students enrolled in occupational experience programs conducted in forty-seven different schools last year. The use of the occupational work-experinece program as a means of meeting the needs of these persons is growing rapidly. There will be approximately ninety units of this program in operation in the fall of 1966.

The other type of vocational program designed for youth with special needs is the in-school preparatory type. These programs are designed to provide in-school pre-employment training for youth with special needs in each of the vocational education services. Programs are developed to provide students with the needed knowledge, skill and ability for jobs related to specific vocational education areas. There were 1234 students enrolled in these programs.

A coordinating committee with representation from each of the vocational education areas, is providing leadership in the development of programs to serve youth with special needs. The position of supervisor of disadvantaged youth and work-study programs has been established as a means of expanding our efforts in this area.

3. The extent to which vocational and technical facilities are adequate as related to:

a. Type of school

Due to the nature of school districting in Ohio, the industrial development pattern, and the population centers, we find a

variety of educational facilities provided for youth and adults. It is not possible to characterize the entire State by saying that either adequate or inadequate facilities are available in regard to vocational education. Some facilities are in the form of joint vocational schools, others in area vocational schools or vocational high schools, and still others are attached to comprehensive high schools. A State commission of school district organization was established by the Ohio legislature as a means of studying and recommending changes. This commission has worked closely with the Division of Vocational Education and is interested in helping to provide ways through organization whereby vocational education may be expanded on a broad program basis for the entire State.

b. Occupational fields

In the larger cities there are no offerings of vocational agriculture except in Cleveland where horticulture is being offered extensively. Even though the number of Business and Office Education programs have grown tremendously there is still a need for continued expansion in this area as well as the Trade and Industrial Education, and Distributive Education areas.

Outside of the larger cities in the rural and small city areas there are adequate programs in production agriculture and home-making but few opportunities for vocational education in the areas of trade and industrial, business and office, job type home economics and off-farm agricultural occupations.

These deficiencies and inadequacies in the large city centers and in the rural and small city areas cannot be remedied immediately. Continuous development in terms of application and wise use of dollars for vocational education as well as improved legislation for the extension of vocational education is necessary to bring about a truly comprehensive vocational education program and its availability to all youth and adults in the State.

c. Areas of the State served

The more industrialized areas of the State in northeastern Ohio the northwestern section around Toledo, and southeastern Ohio are better served by vocational education than those areas in the southeastern, western, and northwestern areas of the State. Problems in this area are recognized and efforts are being made to expand vocational offerings through the development of joint vocational districts, area vocational centers, and improved vocational areas in the comprehensive high schools.

4. The impact of construction of vocational education schools under the Vocational Education Act of 1963 in terms of:

a. Educational level of programs offered

Construction and initial equipment funds under the Vocational Education Act of 1963, were alloted to fourteen school districts as follows:

City Schools

Akron	$ 466,835.58
Cleveland	974,361.00
Dayton	144,072.51
Elyria	88,106.99
Lorain	445,196.87
Mentor	335,000.00
Middletown	302,977.51
Parma	722,436.61
Toledo	159,091.32
Warren-Harding	14,217.17
Youngstown	545,400.00
Sub Total	$4,197,695.56

Joint Vocational Schools

Athens-Hocking-Perry	$ 455,225.60
Pioneer	909,631.88
Sub Total	$1,364,857.48

Local and County

Plain Twp. Stark County	$ 561,288.00
Sub Total	$ 561,288.00

Total $6,123,841.04

The programs which will be initiated by these allocations will be planned to serve high school youth, out-of-school youth and adults who are unemployed, and employed workers. The Athens-Hocking-Perry Joint Vocational School will offer post high school Technical Education programs in addition to the vocational education offerings.

b. Occupational fields provided for

The programs planned for Athens-Hocking-Perry, Pioneer, and Plain twp. Stark County, Cleveland, Dayton will include broad vocational education offerings in all the major vocational education services. The programs in the remainder of the school districts to be served will be heavy in the areas of Trade and Industrial, Business and Office and Distributive Education programs.

c. Location in area of the State to be served by school districts, counties, state wide

A review of the school districts receiving money for construction and initial equipment as identified in section 4a above, indicates that two of those school districts are serving either in an entire county or multiple county areas. In the case of Athens-Hocking-Perry, this school is serving a three county area for the vocational programs and an eight county area for the Technical Education programs. The remainder of the school districts listed are serving major population centers involving large numbers of students.

5. The additional vocational and technical school facilities that have been constructed other than those described in Section 4 relating the actual need to the accomplishments.

Special facilities have been established with the assistance of funds from the Manpower Development and Training Act for the training of unemployed youth. Equipment money and remodeling money from the Manpower Development and Training Act made possible the establishment of the Mahoning Valley Vocational Residential School designed to provide training for disadvantaged youth. Special centers in Akron, Columbus, Cleveland, Cincinnati, and Dayton for the training of unemployed youth and adults have also been established. Assistance was given in terms of minor remodeling of the centers used for these manpower training centers.

Assistance in constructing the Lorain Community College and the Clark County Technical Institute has been provided under the State Board of Regents. Both of these institutions will provide for a broad Technical Education program meeting the standards and operating under the supervision of the Division of Vocational Education of the State Department of Education. The Division of Vocational Education is helping with the equipment for these two centers.

6. The extent to which the State's effort to provide for part time employment of youth was adequate by relating accomplishments to the actual needs.

Last year fifty-one school districts in Ohio accepted the services available through the Vocational Education Work-Study Program provided under the Vocational Education Act of 1963. However, some schools in large metropolitan areas were unwilling to accept the services in this area due to the availability of funds under the Economic Opportunity Act for the Neighborhood Youth Corp Programs. As schools have experienced the Vocational Education Work-Study Program and its effectiveness in comparison to some of the NYC programs they have been more anxious to participate. The Work-Study Program under vocational education apparently has been considered more effective in terms of its follow up and supervision. Interest in participating in the program is growing rapidly. Last year

$1,016,483 was alloted for payment of part-time employment of youth during the fiscal year. A major portion of these funds were used in the eight major metropolitan areas.

One of the major problems in effective use of the work-study funds has been the lack of financial assistance to local schools in terms of employing supervisory time for the identification of youth eligible to enroll in the program. They also need financial assistance in coordinating the program as it is in operation. Funds available for administration at the State level may not, at present, be used for supervising local Vocational Education Work-Study Programs.

7. The State's activities in providing for the organization and staffing of the State agency for administering and supervising the State planned programs.

The growth of the Vocational Work-Study Program coupled with the need for leadership and direction in the area of developing vocational programs for youth with special needs pointed to the need for the establishment of a supervisor of disadvantaged youth and work-study programs. Dr. Herbert Brum, a former assistant supervisor in the field of agriculture was appointed as supervisor of disadvantaged youth and work-study programs during the last half of the fiscal year 1966. This appointment enabled us to develope sound allocation and contracting procedures which permitted the allocation of $1,016,483.00 for vocational work-study programs during the 1966 fiscal year. This position has also brought about the development of a coordinated effort and standardized guide lines in regard to vocational education programs for youth with special needs.

A research coordination unit was added to the Division of Vocational Education. Mr. C. O. Tower, a former assistant supervisor in Trade and Industrial Education was appointed supervisor of research and surveys services.

New professional personnel were added during the 1966 school year to aid in administering and supervising State programs. Other assistant supervisors were added. One in the research and surveys services and one in Business and Office Education. Seven teacher educators were added to the staff at the universities, four in Trade and Industrial Education, three in Business and Office Education and one in Distributive Education. An instructional materials consultant was added in vocational home economics.

8. Progress in adequately providing for teaching and supervising personnel in the State to carry out the State's technical and vocational education programs.

The State plan for vocational education includes provisions for the establishment of positions for local directors of vocational education. Last year nineteen local directors were approved. Ohio has had a long

history of adequate programs of supervision in the vocational service areas. Supervisory positions are being established in local communities in Business and Office Education, Trade and Industrial Education, Distributive Education, and in a few places, Agricultural and Home Economics Education. In addition to local supervisory positions, two coordinators at the local level were added in the 1966 fiscal year.

The increased teacher education services described in section 7 will assist in providing teachers for the expansion of vocational education programs throughout the State. A comprehensive program of in-service education for teachers was implemented during the year. A summary of the in-service education program for teachers follows:

SUMMARY OF TEACHER IN-SERVICE EDUCATION PROGRAMS BY SERVICES

Vocational Service	Number of Workshop or Seminars
Agriculture Education	18
Business and Office Education	12
Distributive Education	4
Home Economics Education	3
Trade and Industrial Education	14
Vocational Guidance	5
Total	56

Provisions of our State plan permit local centers offering five or more areas of vocational education to employ vocational guidance counselors when such a person is to be added to the existing guidance staff. There were fourteen guidance counselors added to several centers during this school year. The centers in which they were added have benefited in terms of selection of students better able to benefit from the specific vocational program offered.

State supervisory staffs and all vocational services participated in in-service education activities such as conferences, workshops, and seminars. Their participation in these activities has resulted in improved supervisory services to schools of the State.

9. The State's current activities to strengthen programs of:

a. Teacher education

During the fiscal year 1966, four teacher-educators were added to the staff in Trade and Industrial Education, three in Business and Office Education, and one in Distributive Education.

b. Vocational Guidance programs and services

The Ohio State plan provides for the employment of vocational

guidance personnel in local communities. Last year fourteen approved vocational guidance councilors were employed by local schools.

c. Curriculum development

Although curriculum development is a local responsibility, it is believed that the State has a responsibility of leadership in this field and has contributed to the curriculum development efforts in the State through the instructional materials laboratories provided in Trade and Industrail Education, Distributive Education, and Agricultural Education. Home Economics Education has added a instructional materials consultant during this past year. The Business and Office Education service uses the instructional materials laboratories identified above for their materials development.

A summary of the curriculum materials prepared and produced by the various vocational services.

SUMMARY OF INSTRUCTIONAL MATERIALS
PREPARED BY VOCATIONAL SERVICES

Vocational Service	Number of Different Publications
Agriculture Education	22
Business and Office Education	2
Distributive Education	2
Home Economics Education	9
Trade and Industrial Education	29
Total	64

The vocational guidance service section produced several new publications of value to vocational education. A publication summarizing Ohio's public Technical Education programs was prepared in order to assist school counselors in providing accurate information concerning the availabitity of technical programs in Ohio which are sponsored by public schools. Also a series of articles were written directed toward counselors and vocational personnel as a means of helping to aquaint parents, staff, and students with vocational education. Three sound film strips were produced. These were cooperatively produced by the Division of Vocational Education and the Division of Guidance and Testing and were entitled "Your Future through Vocational Education", "Your Future through Technical Education", and the third one "Vocational and Technical Education for a Changing World of Work".

d. Research

Significant items of research are reported in the Agriculture, Business and Office Education, Trade and Industrial Education, and Distributive Education services. Copies of these research reports are attached. All of these have a very important bearing upon the futute of these

areas of vocational education not only for Ohio, but throughout the entire nation. The Trade and Industrial Education service emphasized the development of achievement tests for the trade areas. Ninety-seven per cent of those enrolled in the Trade and Industrial Education, in the testing program, were administered the tests. Research studies in agriculture pointed up the opportunities for development of vocational programs to serve off the farm agricultural jobs. Distributive Education research was directed toward the areas of instructional materials and Distributive Education student recruitment at the collegiate level. Business and Office Education efforts emphasized the development of guide lines for directing teacher education.

Workshops for leadership training of local personnel were conducted by Agriculture, Business and Office Education, Distributive Education and Trade and Industrial Education services. An annual two day conference involving the entire division and staff of the Division of Vocational Education was held in November.

Experimental, developmental and pilot programs were developed in programs in clerical services under Business and Office Education; for disadvantaged youth in the field of horticulture and off farm agricultural occupations; and in the area of work-experience programs for disadvantaged youth as well as single skill development programs for disadvantaged youth within various services. Pilot programs were completed and evaluated in the area of Home Economics job training programs. The evaluation of these programs has provided Home Economics with information enabling them to expand the offerings in wage earning Home Economics programs.

e. The evaluation of programs and activities.

The Business and Office Education service developed a comprehensive guide which included a criteria for approved Business and Office Education programs. The achievement testing program in the field of Trade and Industrial Education continues to be a leader in this area throughout the nation. New emphasis is being given to the evaluation of the occupational work-experience programs for disadvantaged youth in terms of their effectiveness in assisting these persons to become useful, productive, and employed citizens. Trade and Industrial Education is also in the process of developing an achievement testing program in the areas of welding and cosmotology. The agriculture service has continued to emphasize the evaluation and the up-grading of present technical programs. This has been coupled with intensified efforts in determining the additional agricultural technical programs needed to meet the employment need in this area. The home economics service has initiated a comprehensive program of complete evaluation. This evaluation will cover all facets of the program. A continuous program of evaluation is maintained by all vocational education services through the supervisory assistance they provide to local communities.

10. Legislation enacted that effects Vocational and Technical Education in the State.

Since the State legislature has not been in session during the fiscal year 1966 no legislative action can be reported.

11. Activities or accomplishments regarding cooperation with other agencies, such as Welfare, Employment Services, and so forth.

A very close working relationship has been established with the State Employment Service through the common efforts of the Manpower Development and Training Act. The cooperative relationships developed in regard to the Manpower Development and Training Program have proved to be of use in the development of the total program of vocational education. A close working relationship has also been established with the Ohio Office of Economic Opportunity and Appalachia. This has resulted in support for vocational technical education in the Applachian area of Ohio in addition to other valuable assistance.

Close cooperation with the Ohio Board of Regents in conducting a Governor's conference on Technical Education has resulted in mutual understanding concerning the objectives and opportunities for Technical Education in Ohio. The close working relationship developed with the Vocational Rehabilitation Service has resulted in planning for the establishment of vocational rehabilitation evaluation units as a part of some of the joint vocational schools. This service has also enabled the service for disadvantaged youth to be more effective through their assistance in providing health services to the enrollees. Close cooperation with the Ohio Youth Commission has resulted in the development of expanded vocational education offerings for delinquent youth which will be a positive factor in rehabilitation.

12. Major strengths and weaknesses

a. Major weaknesses

In our large metropolitan areas, one of the major weaknesses may be identified as a shortage of facilities, equipment, and instructional staff to expand the program sufficiently to meet the obvious needs. Insufficient recognition is given to the fact that a large majority of the students in public schools do not go on to collegiate educational programs thereby there is a need for high quality pre-employment vocational education programs. Another weakness might be identified as the lack of sufficient vocational education programs designed to serve the disadvantaged youth or the potential school dropout. The magnitude of the dropout problem in Ohio points up the need to develope additional vocational programs which will not only help students to become employable but perhaps may encourage them to remain in school.

Outside of our large metropolitan areas, our major weakness also seems to be in the lack of the opportunity for students to enroll in

comprehensive vocational education programs. The present school district organizational pattern in Ohio contributes to the difficulty in providing for adequate vocational education. The joint vocational school district law permits school districts to join together so that adequate programs may be provided at low cost. However, this process takes time. The fact that twenty-four jointures have been formed indicates the growing interest on the part of school districts in providing a more adequate vocational and technical education program. It is anticipated that a total of fifty to fifty-seven joint vocational school districts will be needed to serve the small cities, suburban and rural areas of the State of Ohio.

b. Major strengths of the State program

(1) There is excellant support for the growth and expansion of vocational and technical education on the part of the Governor and the Legislature. Leaders in State government have emphasized that sound vocational and technical education contribute to the growth of business and industry and result in greater employment and a more healthy economy for the State.

(2) Support for the growth and improvement of vocational education by the State Superintendent of Public Instruction and the State Board of Education (State Board of Vocational Education) has been a positive influence. The State Board of Education has devoted considerable time in terms of reviewing the need for an improved and expanded vocational education program. They have favorably considered recommendations developed by the State Vocational Education Advisory Council and the State Superintendent of Public Instruction. They have fully supported the efforts of the Director of Vocational Education in terms of the improvement and extension of vocational education.

(3) High quality programs of vocational and technical education are being offered. Programs for vocational education in Ohio have been established under standards which require 'in depth' instruction, with adequate time being alloted for the instructional and supervisory programs. Students who graduated from the vocational programs in Ohio do obtain employment in the areas for which they have been trained. The dropout rate for vocational education enrollees is much less than for other students. The Technical Education programs have been recognized for their quality of instruction as evidenced by the interest of employers in graduates. New industry has recognized the quality of vocational technical programs in Ohio by indicating that the existence of these programs was one of the prime factors motivating the establishment of new plants in the State.

13. Outstanding features of the State program:

a. Adequate supervisory staff at the State level.

b. Investment in an adequate teacher education staff in a number of university centers throughout the State.

c. Employment of full-time consultants at the university centers to aid in the expansion of adult up-grading instruction.

d. The major effort being made by school administrators in the State to provide for an expanded vocational education program.

e. The funding procedures for the vocational education programs at the high school level through the State School Foundation Program.

f. The efforts of the Division of Vocational Education and the public schools of Ohio to serve youth with special needs through the occupational work-experience program, the average and above average student through the high school programs, and the continuing education students through post high school technical programs.

g. The research and survey services offered by the Division of Vocational Education as a means of assisting local schools to identify vocational education needs.

h. The local leadership available for vocational and technical education.

i. The legal framework which enables vocational and technical education to expand and improve.

j. The vigor of the economy of the State of Ohio. Ohio is expanding in all facets of its industrial, business, and agricultural economy. Ohio has experienced increased employment coupled by expansion in industries presently in the State as well as the establishment of new industries. The Governor and State Administration has worked tirelessly in its efforts to accelerate Ohio's economic development.

k. The fiscal procedures of our State Department of Education are enabling State and Federal funds to be effectively used in providing for quality vocational and technical education.

l. The willingness of local communities to vote matching funds for Federal funds made available as a means of improving and expanding vocational education.

II. Agricultural Education

STATUS AND DEVELOPMENT OF VOCATIONAL AND TECHNICAL PROGRAMS IN AGRICULTURAL EDUCATION

Status of Agriculture in the State

Agriculture continues to be the leading and basic industry in the state. The number of farms is declining about 3% per year. However, the farms that are going out of existence are those that are sub-standard or farms selling less than $5,000 in products each year. The size of farms are increasing and have been for some time. Crop land in Ohio is remaining about constant with production units increasing in both livestock and crop enterprises. It is imperative that considerable more know-how and know-why will be needed to operate the farms in the future. It is evident that farm managers and operators need to become more competent in management, accounting and decision making. The number of agricultural business and service organizations serving production agriculture is on the increase. Recent studies indicate approximately 9% of the working force in Ohio is engaged in an occupation where knowledge, skills and abilities in agriculture are essential. The industrial climate continues to be quite favorable and is expanding rapidly causing considerable increase in the total population. This increased industrial activity is causing a considerable demand for agricultural products and also a demand for employable people that possess technical and related knowledge and skills in agriculture.

A. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

Major Activities of the State Supervisory Staff

Considerable staff time has been used to study the agricultural education needs in the state and to develop programs at the occupational, vocational and technical levels to meet these needs. The purposes and objectives, guidelines, curricula and programs of instruction for the various areas in vocational education in agriculture are constantly being reviewed, evaluated and revised. Several pilot and experimental programs were conducted during the year. The following areas of the supervisory program received major attention:

1. Determine the competencies needed by teachers to plan and conduct a broadened program of agricultural education and to plan and conduct 2 1/2 week workshops to prepare teachers to conduct specialized programs in agricultural education.

2. Several county and area surveys were conducted to determine the employment opportunities in production and off-farm agricultural occupations and the competencies needed for entry into these occupations.

3. Through continuous studies and research, use of advisory committees and the combined efforts of the state supervisory and teacher education staff, the occupations and cluster of occupations where knowledge and skills in agriculture were essential have been more clearly identified.

4. At the present time the occupations in agriculture have been clustered by the state staff into the following areas:

Area 1.	Agricultural Production (Preparation for Farming)	- a. Plant and Animal Science b. Farm Equipment c. Farm Management and Accounting
Area 2.	Vocational Horticulture	- a. Greenhouse Production, Management and Floriculture b. Landscaping and Ornamentals c. Nursery Production and Turf Management d. Fruit and Vegetable Production
Area 3.	Non-Farm Agricultural Occupations	- a. Agricultural Business and Service b. Agricultural Equipment and Mechanics
Area 4.	Natural Resources	- a. Forestry b. Soil and Water Management c. Game Management and Recreation
Area 5.	Food Processing	- a. Basic Production and Harvesting b. Preservation, Packaging and Distribution

5. Through the use of committees consisting of vocational agriculture teachers, agricultural business and industry representatives and professional specialists, specific guidelines, curriculum, space requirements, equipment and supply lists and instructional materials have been developed for specialized programs in the area or joint vocational school.

6. Agricultural education programs in the area or joint vocational schools have been appraised and specific recommendations have been made by the state staff for the improvement of these programs.

7. Individual members of the state supervisory staff have been given specific leadership responsibilities for the various areas of the agricultural education program. Committees composed of supervisory and teacher training staff members have been formed to work with the individual supervisory staff member.

8. The Manual of Operation for Agricultural Education Programs in Ohio and the Criteria for Approval of Units Under the Ohio School Foundation Law have been revised as a joint effort of both the supervisory and teacher training staffs.

9. The program of instruction for Agriculture I and II using the biological principles approach was evaluated and upgraded by a committee consisting of staff members and teachers of vocational agriculture.

10. The farm business planning and analysis program for young and adult farmers was extended to involve three major areas of instruction and additional teachers received training to conduct this program.

11. The young farmer program continued to expand its state and district activities with an increase in the number of local organizations affiliated with the state organization.

12. Approximately one-fourth of the local programs were evaluated using a recently developed instrument, "appraising the teaching performance in vocational agriculture." Practically all departments were visited and assistance rendered.

13. Planning and conducting educational programs to train agricultural technicians received considerable attention by the state staff.

14. A staff member was assigned the specific responsibility for evaluating and upgrading present technology programs; also, determining the need for additional agricultural technician programs, developing curriculum and determining facilities needed to conduct these programs.

15. The Instructional Materials Laboratory, with a staff member devoting full time, continued to develop instructional materials with the major emphasis on specialized programs in agricultural education.

16. The State FFA Program of Work was reviewed and expanded to include activities for students enrolled in programs to train for employment in agricultural business and service occupations and vocational horticulture.

Workshops and In-Service Programs

Many workshops and in-service training programs were planned and conducted for teachers of local programs of vocational education in agriculture. In addition, the state staff planned and conducted seminars to provide for the professional growth of the state supervisory staff. Various staff members have been delegated the responsibility for leadership in the development and conducting of an in-service training program to assist teachers in conducting an adequate program of agricultural education on the local level. Advisory committees, consisting of teachers, school administrators, and agricultural business and industry personnel, were used to determine the kind and extent of the in-service training program that was needed for teachers. Members of the state supervisory staff were responsible for the administration of the in-service program and contributed to the development and presentation of materials.

This comprehensive in-service training program is accepted by the school administrators as a part of the in-service education program for vocational agriculture teachers. Every teacher who participates in this program receives a State Department of Education certificate indicating that he has successfully completed the particular course in which he was enrolled. This certificate is sent to his local school administrator who makes the presentation.

Several in-service training meetings were conducted throughout the year on a state or area basis involving individuals from the College of Agriculture, Agricultural Experiment Station and individuals representing agricultural businesses and industries. The state advisory committee for vocational education in agriculture suggested a maximum of ten days to be spent by each teacher each year for

non-credit in-service training workshops. The purpose of the in-service training program is to upgrade teachers in the areas of technical agriculture and agricultural leadership. As a follow-up for each of the workshops offered, emphasis is given to the development of teaching materials and procedures.

The following table indicates the in-service training workshop programs that were planned and conducted the past year. In addition, a series of district and county or area conferences were conducted by the state supervisory staff. These related primarily to areas of professional improvement. However, the majority of workshops offered as a part of the non-credit in-service education program relate to improving teacher competency with regard to technical agriculture.

WORKSHOP AND IN-SERVICE TRAINING PROGRAM
CONDUCTED FOR TEACHERS OF VOCATIONAL AGRICULTURE (NON-CREDIT)

Workshop or In-Service Program	Purpose	Date Scheduled	Duration	Kind of Participants	Number of Participants	Consultants Used
Farm Chemicals	To upgrade teacher's competency in area of farm chemicals	July, August 1965	51 hours	Teachers	90	Industry
Swine Evaluation	To upgrade teacher's competency in selecting market, breeding animals	August 1965	8 hours	Teachers	58	University Specialists
District Conferences	Local and state program appraisal evaluation	August November February April	24 hours	Teachers	340 @ 4 = 1360	Supervisory Staff Members
Spray Painting	To upgrade teacher's skills and abilities in teaching	August 16, 17, 18, 1965	18 hours	Teachers	18	Industry
Arc Welding	To upgrade teacher's skills in arc welding	August 9, 10, 11	18 hours	Teachers	22	Industry
Oxyacetylene Welding	To upgrade teacher's skills in oxyacetylene welding	August 1-6	6 hours	Teachers	35	Agricultural Mechanics Specialists
Farm Business Planning & Analysis	To upgrade teachers in the area of farm business planning and analysis	August 1-6	6 hours	Teachers	36	University Specialists
Animal Nutrition Principles	To upgrade teachers in the area of animal nutrition	August 1-6	6 hours	Teachers	45	University Specialists
Plant Identification	To upgrade teacher's skills and abilities in plant identification	August 1-6	6 hours	Teachers	28	University Specialists
Animal Breeding	To upgrade teacher's competency in teaching animal breeding	August 1-6	6 hours	Teachers	27	University Specialists

Workshop or In-Service Program	Purpose	Date Scheduled	Duration	Kind of Participants	Number of Participants	Consultants Used
Drainage and Water Management	To upgrade technical competency in area of drainage and water management	August 1-6	6 hours	Teachers	41	University Specialists
Trends in Grain Drying	To upgrade technical competency in area of grain drying	August 1-6	6 hours	Teachers	36	University Specialists
Corn and Soybean Harvest Loss	To upgrade teacher's competency in teaching prevention of harvest loss	August 1-6	6 hours	Teachers	12	University Specialists
Ornamentals and Landscaping	To upgrade teacher's competency in ornamentals and landscaping	August 1-6	6 hours	Teachers	50	University Specialists
Dairy Breeding	To upgrade teacher's competency in area of dairy management	June 28	12 hours	Teachers	28	C.O.B.A. and University Specialists
Demonstrations in Teaching Soils and Fertilizers	To upgrade technical competency in teaching soils and fertilizers	August 1-6	6 hours	Teachers	47	University Specialists

STATE-WIDE SPECIALIZED WORKSHOPS CONDUCTED AT OHIO STATE UNIVERSITY

Workshop	Purpose	Date Scheduled	Duration (Hours)	Kind of Participants	Number of Participants	Consultants Used
Agricultural Business and Service	To provide teachers with the competency to plan and conduct agricultural business and service programs	June 15-30	7½ daily 97½ total	Teachers	28	Supervisory Staff and Various Resource Persons from Business and Industry
Farm Business Planning and Analysis	To upgrade teachers in the area of farm business planning and analysis	June 15-30	7½ daily 97½ total	Teachers	31	Teacher Education and Supervisory Staff
Agricultural Mechanics	To upgrade teachers in the area of agricultural equipment and mechanics	June 15-30	7½ daily 97½ total	Teachers	32	Supervisory Staff and University Specialists
Vocational Horticulture	To provide teachers with the competency to conduct vocational horticulture programs	June 15-30	7½ daily 97½ total	Teachers	29	Staff, University Specialists and Specialists from Industry
Teaching Biological Concepts in Vocational Agriculture	To upgrade teachers in teaching plant and animal science	June 15-30	7½ daily 97½ total	Teachers	22	Staff and University Specialists
Teaching Disadvantaged Youth	To provide teachers with the competency to conduct programs to meet the needs of disadvantaged youth	June 15-30	7½ daily 97½ total	Teachers	15	Staff, University Specialists and State Department Specialists

Total Number of Teachers Participating in the Above Six Specialized Workshops - 157

Conferences In Which Ohio Participated

1. Central Regional Agricultural Education Conference, Chicago - Twelve states participated in this conference with 240 in attendance. The State Supervisor was program chairman for the conference.

2. The Ohio Vocational Association Conference - Attendance was approximately 525 members and guests. A member of the agricultural education state supervisory staff was program chairman and the program for the agricultural education section dealt with the task of informing school administrators, boards of education and local people on the broadened program of vocational agriculture in Ohio.

3. The Ohio Education Area Conferences - State supervisory staff members participated in four of the six area conferences. Their presentation included extending and expanding agricultural education in the local school and area or joint vocational school.

4. Migrant Labor Conference - A member of the state staff is on the Governor's Committee on Migrant Labor. Two state-wide conferences were held in which the staff participated.

5. National Seminar on Off-Farm Agricultural Occupations - This seminar was sponsored by the National Center for Vocational and Technical Education. Several members of the teacher training and supervisory staff were in attendance.

6. Junior Poultry and Food Fact Finding Conference, Kansas City - A member of the state supervisory staff is on the steering committee to plan and conduct this conference which is attended by 150 youths throughout the nation.

7. Conference of Secondary School Supervisors - The State Supervisor participated on a panel for this conference in which approximately 600 attended.

8. Ohio School Boards Association - This conference was attended by several thousand high school board members and school administrators. The State Supervisor participated in a panel on vocational education.

9. National Workshop, American Institute of Cooperatives - The State Supervisor attended this workshop and directed a panel discussion on the career opportunities in agriculture.

10. National Conference of State Supervisors and Teacher Educators During Annual Meeting, American Vocational Association - The State Supervisor along with other members of the supervisory staff and teacher education staff attended and appeared on the program.

11. The state supervisory staff attended and participated in the program of the Ohio Nurserymen's Association Annual Meeting, the Ohio Horticulture Society Conference, Ohio Agricultural Equipment Conference, Livestock Marketing Annual Meeting, Ohio Soil Conservation District Annual Meeting, Farm Bureau and Grange Annual Meeting, the Ohio Feed Dealers Association Conference, and the Ohio Forestry Association Annual Conference.

Cooperated With State Department of Education Personnel

The state supervisory and teacher education staff attended and participated in the program of the two-day conference held for all personnel in the State Department of Education.

The state staff cooperated with the Library Service of the State Department of Education in securing from publishers recent books and materials. Many textbooks and other materials were received from publishers pertaining to training individuals for employment in agricultural business and service occupations.

The supervisory staff member in charge of the Instructional Materials Laboratory cooperates with the Audio Visual Service of the State Department of Education in developing and producing instructional materials. The State Department of Education is furnished with a list of all materials developed by the Instructional Materials Laboratory and in many cases, copies of the material are furnished for review and evaluation.

The Director of Elementary and Secondary Education in the State Department of Education and his staff were consulted regarding curriculum guides for the teaching of specialized areas of agriculture which is a part of the broadened program of vocational agriculture.

The state supervisory staff has assisted the Division of Guidance and Testing with the development of materials pertaining to the career opportunities in agriculture. These materials have been sent to all guidance counselors in the state.

Vocational and Technical Education Facilities for Teacher Trainees

The Ohio State University and the College of Agriculture have been very cooperative in providing adequate facilities for the teacher preparation program.

Consideration should be given to the idea of extending the teacher education program to other state universities and the possibility of establishing a branch at the Ohio Agricultural Research and Development Center at Wooster, Ohio. It is thought that perhaps more high school graduates with a background in agriculture would enroll in these extension programs which would help to relieve some of the demands for vocational agriculture teachers.

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

Instructional Materials

The Ohio Vocational Agriculture Instructional Materials Service is a cooperative venture with the Department of Agricultural Education, The Ohio State University, and the Vocational Agriculture Service, Ohio Department of Education. The Service is under the direction of a coordinator of curriculum materials. The purpose of the Service is to assist teachers of vocational agriculture in obtaining and effectively using appropriate materials that will support their curriculum.

The director of the Service works closely with curriculum development and in-service training programs to assist in keeping abreast of the curriculum materials needs of the various vocational agriculture programs.

The Instructional Materials Service has an advisory group composed of teachers of vocational agriculture and staff members. The function of this group is to provide assistance in formulating operating policy for the Service.

The Service first attempts to determine the curriculum materials needs of the various vocational agriculture programs. The next step is to locate all available materials that will meet these needs. A catalog listing these materials is prepared and distributed to teachers. Local schools are then able to place a single order for materials from many different sources. When materials are not available the service then takes steps to develop and produce materials that will support the program. The materials are organized in such a way as to give guidance in methods of teaching and to add depth to the teaching.

The major instructional materials produced by the Instructional Materials Service in 1965-66 are as follows:

1. Some Identifying Characteristics of 52 Ohio Seeds (book)
2. Some Common Crop and Weed Seeds (slide series and script)
3. Business Procedures Used in the Agricultural Services (book)
4. Test and Answer Supplement for Business Procedures Used in the Agricultural Services
5. Seed Production of Some Common Field Crops (book)
6. Seed Production Examination
7. Livestock Enterprise Accounts (book)
8. Farm Business Planning and Analysis Filing System
9. Livestock Breeding (book)
10. Animal Nutrition (book)
11. Plant Growth and Nutrition (book)
12. Livestock Marketing (book)
13. Maize Dwarf Mosaic (slide series and script)
14. Efficient Machine Harvesting (slide series and script)
15. The Ohio Pork Improvement Program - Revised (slide series and script)
16. Dairy Cattle Sterility (slide series and script)
17. Gestation-Lactation Period for Swine (slide series and script)
18. Flowers for Garden Color (slide series and script)
19. Pruning for Garden Beauty (slide series and script)
20. What Is Horticulture (slide series and script)
21. Floriculture (slide series and script)
22. Land Judging (slide series and script)

In addition to the above materials produced by the Service, a catalog was prepared which listed 678 separate items of instructional materials from thirty-four different sources.

One copy of each of the publications produced by the Ohio Cooperative Extension Service were distributed to the Ohio teachers.

One copy of each of the publications produced by the Ohio Agricultural Research and Development Center were distributed to Ohio teachers.

A monthly newsletter was prepared by the Service for distribution to teachers.

The director of the Service worked with curriculum planning committees.

The director of the Service assisted with in-service training programs.

Instructional Program and Related Activities

Agricultural education programs were conducted in 304 vocational agriculture departments with 372 teachers providing the instruction. There were six departments in which the instruction consisted totally of vocational horticulture. There were ten departments that had a separate class or classes in vocational horticulture, along with the regular program. There were ten pilot programs conducted where the instruction was directed to train individuals for employment in agricultural business and service occupations. Related and technical instruction was given in the areas of agri-business and service, agricultural equipment and mechanics, horticulture, and food processing and distribution. This instruction was given in a separate class and, in addition, all students were placed in agricultural establishments where they receive on-the-job training.

Two programs, consisting of vocational horticulture and agricultural equipment and mechanics, were offered in an area vocational school this past year. This program has been defined as a two-year program for juniors and seniors and consists of two periods of technical and related instruction and four periods of laboratory work each day. The facilities have been provided so that the major part of the on-the-job experience will be received at the school. However, the students will be placed on a cooperative education program for a part of one year.

Several local departments are conducting specialized programs on a one or two semester basis for junior and senior students. This permits the students to select the area of specialized instruction that meets their needs and interests. Some of the specialized programs that were conducted are advanced agricultural mechanics, operation, maintenance and repair of farm equipment, farm buildings and construction, soils and agronomy, resource conservation, advanced livestock production, specialized areas of horticulture and farm business planning and analysis.

All students enrolled in agricultural education programs planned and conducted a supervised occupational work experience program. This consisted of production enterprises, farm placement or cooperative placement experience in non-farm agricultural occupations. Considerable time has been spent by the state staff and teacher committees in the development of courses of study and units of instruction for the secondary program. The reorganization of the guide for program planning was completed to meet the needs of a broadened program in agricultural education.

Specialized Programs in Agriculture

An agricultural occupation is defined as: (1) any occupation on a farm or (2) in an agricultural industry, agency or organization which performs one or more of the functions of production, processing, distribution and servicing where knowledge, skills and abilities in agriculture are essential. Many workers in these occupations need competencies in one or more of the primary areas of plant, soil or animal science, farm management, agricultural mechanization and agricultural leadership which can be gained through agricultural education.

For a majority of these occupations, a two-year program in basic agriculture is essential. This would include:

1. A study of plant science which would include units in soils, plant growth and nutrition, weed control in crops, seed production, plant identification and crop diseases and insects.

2. A study of animal science which would include units in animal selection and breeding, animal nutrition, animal health, and housing and equipment.

3. A study of basic mechanics which would include units in drawing, woodworking, tool fitting, sheet metal and soldering, arc and oxyacetylene welding, plumbing and electricity and the basic principles of the repair and maintenance of agricultural machines and equipment.

The emphasis in this basic program would be on principles which would better prepare students for specialized programs to be offered in the third and fourth years. If students have an understanding of basic principles as they apply to agriculture, they can apply these to other problems in world of work which is undergoing rapid and accelerating changes due to technological and scientific developments.

In the third and fourth years a student may specialize in one of the following areas:

Area 1. Agricultural Production
Area 2. Horticulture
Area 3. (A) Agricultural Business and Service
(B) Agricultural Equipment and Mechanics
Area 4. Natural Resources Conservation
Area 5. Food Processing and Distribution

Agricultural Education is a broad program, much of which must be gained through experience with crop, livestock and horticultural enterprises on the home farm, on another farm in the community, or on a school land laboratory. Production agricultural experience usually takes more than one year to complete and, hence, it does not lend itself to a concentrated effort of short duration.

Programs for disadvantaged youth may be established in vocational agriculture. Those to be served are youth with limited ability (I.Q. 75 to 90). Successful programs of this type have been in operation in Warren and Cleveland for several years. Graduates would seek employment as groundskeepers, park employees, nursery and greenhouse workers and other semi-skilled vocations.

Technical Education in Agriculture

The continuing agricultural revolution and the impact of new and powerful economic forces on agricultural production, processing, and marketing is the basic cause of today's need for technically-trained individuals in agriculture.

Technician training in agriculture is a two-year, post-high school program of preparatory instruction in technical agriculture and related sciences, business and management principles, communication and leadership abilities, and manipulative skills which qualifies the individual to pursue careers in technical or semi-professional fields in agriculture.

The agricultural technician is a para-professional person who understands the technological principles used by the profession. His detailed knowledge enables him to effectively organize and direct the activities of the operation in which he is involved. He possesses the knowledge as to why and the skills and abilities as to how.

During the year technician training was offered in the following agricultural technologies:

Technology Area	1st Year Enrollment	2nd Year Enrollment
Agri-Business	24	22
Agricultural Equipment	14	13
Food Processing	17	--

The following agricultural technology programs will be offered starting September 1, 1966:

Horticultural Technology
Food Processing Management Technology

The following programs in technical education in agriculture will be offered next year:

Agri-Business Technology
Agricultural Equipment Technology
Food Processing Technology
Horticultural Technology
Food Processing Middle Management Technology

Adult Education

The adult education program was continued on approximately the same basis as in previous years. There were 200 programs consisting of 3420 sessions with a total of 7380 enrollment in adult farmer classes. There were 65 young farmer programs consisting of 1133 sessions in which 3392 young farmers were enrolled. Increased emphasis is being placed on on-the-farm instruction. The reimbursement plan to local boards of education for adult and young farmer education has been revised to include payment for on-the-farm instruction as well as classroom instruction.

Farm Business Planning and Analysis

This phase of our program has continued to expand. In-service training programs for teachers have been conducted in six different locations with fifty teachers participating. A series of six meetings were conducted during the fall and winter months providing timely assistance for immediate use by the teachers.

A 2 1/2 week workshop was conducted in June at The Ohio State University with thirty-one teachers enrolled. A three-year course of study was planned for young and adult farmers. A course outline was developed for teaching junior and senior high school students. Sample unit budgets were developed for the major crop and livestock enterprises.

The value of this type of instruction is shown by a comparison of selected measures of performance between 1964 actual values and 1965 adjusted values for farm operators enrolled in Farm Business Planning and Analysis programs.

Measures	Actual 1964	Adjusted 1965	Net Difference
Income:			
Gross Income	$17,717.35	$22,045.39	+ $4,328.04
Net Farm Income	5,790.22	8,398.93	+ 2,608.21
Family Labor and Management Income	3,820.19	6,222.84	+ 2,402.65

Before programs in Farm Business Planning and Analysis can be widely initiated and conducted in Ohio, total staff effort will be required. This will include a thorough understanding of (1) how the program operates; (2) the size and scope of existing programs; (3) the potential in each supervisory district; (4) the value of these programs to agriculture; and (5) the need for constant emphasis of the merits of programs of this nature during district meetings and department visitations. However, the growth of these continuing education programs lies with the local teacher. Unless teachers of vocational agriculture recognize the need for the place of continuing education programs in Farm Business Planning and Analysis, little growth in the size and scope of these instructional programs can be expected in the immediate future.

Ohio Young Farmer Association

The Ohio Young Farmer Association has continued to expand and extend their educational activities. This has been due mainly to the outstanding leadership given this group by members of the state staff, local teachers of vocational agriculture, and the officers of the Ohio Young Farmer Association.

The purpose of the Ohio Young Farmer Association is to improve the economic and social position of Ohio's young farm families through education in agriculture.

At the present time, there are about 800 Young Farmers between the ages of 18 and 35 affiliated with 55 chapters in the state association. The awards program has continued to create more interest because of the expansion of the program and the financial assistance that has been received from the agricultural businesses and industries. It is expected that Ohio's Young Farmer Association will continue to expand due to the fact there are approximately 3,000 Young Farmers enrolled in organized instruction conducted by local vocational teachers. Members of the association appeared on a panel at the State Vocational Agriculture Teachers' Conference to help promote more teachers in Ohio to start new Young Farmer programs.

New Programs

In Ohio's schools, consolidation continues to be a very important factor in the total educational program.

As area or joint vocational schools are formed and as local schools become larger, there is a need to serve the agricultural interest in these groups.

This past year there were 11 new departments of vocational agriculture established, 8 of which were located in city school districts. Nine of the 11 departments are offering programs in horticulture.

It is predicated that the number of departments will remain rather consistent. However, the number of specialized programs, multiple-teacher departments, and programs in area vocational schools will continue to increase within the state.

Students' Occupational Experience Record Books

A committee, consisting of teachers of vocational agriculture and members of the state staff, reviewed and revised the Livestock and Crop Enterprise Record Books. These record books will be used by students that have supervised occupational experience in production agriculture. A manual was developed on the use of these books and county and district meetings were conducted for the purpose of training vocational agriculture teachers for the proper use of the record book.

Joint or Area Vocational Schools

Considerable time was spent by various members of the state staff in conducting county or area surveys to determine the employment opportunities in agriculture and developing programs to meet these needs.

To date there have been twenty-two area vocational school districts formed, many of which have voted funds for construction and operation. It is planned that programs in agricultural education will be a part of twenty-one of these area schools. Generally speaking, the agricultural education programs that are being recommended for the area vocational school consists mainly of specialized instruction in agriculture such as agricultural equipment mechanics, vocational horticulture, training for off-farm agricultural occupations, and programs to train disadvantaged youth for skilled or semi-skilled occupations in agriculture.

The area vocational school provides for a comprehensive agricultural education program for high school youth and out-of-school adults. Generally speaking, these schools will provide laboratories for instruction. However, a part of the students' training and experience program will consist of on-the-job training through a cooperative education program.

The Need For Instructors To Teach Specialized Skills In Agriculture

With the development of specialized programs in vocational horticulture, agricultural equipment and mechanics and the training for non-farm occupations in agri-businesses, there will be a great demand for competent teachers to plan and conduct these programs. It is highly desirable that a professionally trained individual, with at least a baccalaureate degree and experience in agricultural business and industry, plan, coordinate, and teach the basic principles and understandings necessary for the students to become employed in occupations in the above areas of agriculture.

There are two pilot programs, namely vocational horticulture and agricultural equipment and mechanics, where individuals who have a college degree but have not met the provisional requirements in agricultural education are working under the professionally trained vocational agriculture teacher. These individuals are granted a temporary certificate and are provided the opportunity to take provisional courses in agricultural education for the renewal of the temporary certificate or can acquire the additional thirty semester hours in which they will meet the requirements for a four-year provisional certificate. Due to the fact that these individuals have had experience in various agricultural businesses and industries related to their specific teaching area, it provides them with the competencies to teach the skills and understandings related to the agricultural area and also direct the laboratory instruction. However, it should be pointed out that these individuals are not capable to plan and organize the course of study developed and use instructional material or effective techniques or procedures. It has been noted that these individuals acquire these abilities rather quickly during their on-the-job experience.

Pilot and Experimental Programs

During the year pilot programs were conducted in vocational horticulture, agricultural equipment and mechanics, training for occupations in agricultural business and service establishments, and programs in agriculture for disadvantaged youth. All of these programs were conducted with the students enrolled in a separate class for the technical and related instruction and the laboratory experience was provided by the school or on-the-job training through a cooperative education program. Throughout the year members of the supervisory staff met with the teachers conducting these programs to note progress being made and make recommendations for the continuation of the pilot program. State and local advisory committees have been used to give direction to these programs.

Ohio Future Farmers of America

The FFA program in Ohio continued to develop in quality both on the state and local levels. Girls were enrolled for the first time in Ohio and participated in local chapter and state activities.

Two new activities were added this year to the Ohio FFA Awards Program to stimulate quality occupational experience programs of the members. This included district and state awards to the FFA members who had demonstrated outstanding performance and achievement in areas of ornamental horticulture and home improvement.

The Ohio FFA Foundation has had a significant increase in the number of contributions this past year. A total of $7,000 was secured from local donors. This is an increase of approximately $2,000 over any previous year. Approximately 200 donors contributed to the Ohio FFA Foundation. The Ohio FFA Foundation's budget is approximately $10,000 which is used entirely for local, district and state awards as an incentive for quality programs and individual progress.

There were a total of approximately 2000 delegates, vocational agriculture teachers, parents, school administrators, and other friends of the FFA that attended the State FFA Convention. William Paul Gray, National Executive Secretary, was in attendance. Numerous comments indicated the 1966 convention was one of the best ever held.

Approximately 650 Future Farmers and vocational agriculture teachers from Ohio attended the National FFA Convention in Kansas City. Jim Stitzlein was elected National Vice President, representing the Central Region.

Local FFA Chapters contributed $2,000 to the CROP program. This was the eleventh consecutive year of CROP participation by the Ohio Association.

A total of 1115 Future Farmers in Ohio and 88 teachers of vocational agriculture attended Ohio FFA Camp this past year. Of this number, 155 Future Farmers attended Officer Leadership Camp which was conducted for an officer representative from each of the chapters in the state. The primary objectives for conducting a camp program for Future Farmers in Ohio is to provide participating experiences in the areas of leadership, conservation and recreational activities where a camp environment can be used most advantageously. Girls were included in the camp program for the first time this year. Their presence added to the general quality of camp.

The Ohio FFA Camp program is so designed that vocational agriculture teachers who attend and serve as camp chapter advisors will develop additional abilities which will enable them to become better instructors of vocational agriculture and more effective FFA advisors.

Special in-service training sessions are conducted during camp for the teachers of vocational agriculture to help them more fully understand the varying personalities and characteristics of Future Farmers and to develop their ability to work with Future Farmers.

PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION AND SUPERVISION

Recruitment and Placement of Teachers

The preparation and placement of an adequate number of personnel for teaching vocational agriculture continues to be an important problem. During this past year thirty-six of the fifty-four who had been certified to teach were placed in teaching positions. In spite of this good placement record, there were as of July 1, 1966, ten vacancies unfilled. The enrollment in the Department of Agricultural Education has been increasing more than the increase in the enrollment of the College of Agriculture. The difficulty, however, remains that none of the departments in the College of Agriculture seem to have enough personnel prepared in terms of the demand. Teaching, however, seems to be holding its own as a means of satisfactory employment in Ohio.

The staff in Agricultural Education, including both supervision and teacher education, has cooperated with the staff in the College of Agriculture, the Vocational Agriculture Teachers Association, and the State FFA Association in conducting an active recruitment program. Approximately 600 students have been brought to the campus for two different career days. A recruitment luncheon held at the time of the State FFA Convention had prospective teachers as guests in which the possibility of such careers was discussed. The Department has continued the practice of providing materials concerning agricultural occupations and an outline giving suggestions for using such materials in teaching for all the teachers in the state. Several hundred letters have been written to prospective students and parents and many conferences have been held in schools concerning teaching. The establishment of a Recruitment Commission in Ohio will provide added activity particularly on the part of teachers of vocational agriculture.

Strengthening Teacher Education Curriculums Undergraduate

The Department of Agricultural Education has continued its recent emphasis of developing prospective teachers with more specialized training in technical agriculture. Prospective teachers have the option of completing the requirements for certification in any one of five basic curriculums of the College. They include General Agriculture, Agricultural Science, Agricultural Social Science, Agricultural Industries, and Vocational Horticulture. Within each of these programs is the privilege of identifying approximately 60 quarter hours of agricultural courses.

During the past year all of the courses in the Department have been revised in terms of number, title, and description. This is a part of a University-wide evaluation.

Graduate

Graduate courses have likewise been revised, and three new courses have been approved to be added to the program. They include Principles of Vocational-Technical Education, an Interdepartmental Seminar, and Group Studies. In the Group Studies course, it will be possible to teach concerning any new area needed. One of the courses has been revised into an "internship" course which will be both for undergraduate and graduate training. This will permit a supervised occupational experience program in technical as well as professional areas.

Training Teachers for Adult Programs

All prospective teachers of vocational agriculture receive some training in preparation for teaching adults. This is incorporated as part of the methods courses preceding student teaching as well as in student teaching. All student teachers get some experience in adult education with teachers of vocational agriculture as well as in the Cooperative Extension program. On-farm, as well as classroom teaching, is included in this experience. Additional emphasis is given to adult teaching in the New and Returning Teacher Program which is conducted by two staff members of the Department of Agricultural Education. Practically every beginning teacher in Ohio plans and conducts a program for out-of-school young and adult farmers.

Research and Studies in Agricultural Education

Most of the research in the Department of Agricultural Education has been completed by graduate students. There were eight who completed Ph. D. dissertations and fifteen completed Master's studies.

A continuing emphasis has been given to the development of research to meet the needs of our expanding and revised program of vocational agriculture. This includes such basic studies as, "Guidelines for Developing and Conducting Cooperative Work Experience in Vocational Agriculture," "The Extent and Nature of Opportunities for Non-Farm Agricultural Occupations in Ohio," "An Identification of the Role of the FFA in Vocational Agriculture," and "Guidelines for Organizing and Operating a State Curriculum Materials Service." During the year two small grant reserach proposals were submitted to the U. S. Office of Education. The disposition of these proposals has not yet been determined. One staff member has been serving on a Regional Research Committee in planning research on Decision Making of Rural Youth which is being sponsored through experiment station grants. The Research Coordinating Unit has been helpful in planning some research; however, the Department has been handicapped by a lack of staff with sufficient time to devote to research.

Studies completed are as follows:

Ph.D. Dissertations

Anderson, Benard Harold, "Guidelines for Developing and Conducting Cooperative Work Experience in Vocational Agriculture."

Baker, Kenneth, "Determining Employment Opportunities and Educational Needs for Animal Science Technicians in Ohio."

Brum, Herbert D., "The Extent and Nature of Opportunities for Non-Farm Agricultural Occupations in Ohio."

Christiansen, James, "The Adoption of Education Innovations by Teachers of Vocational Agriculture."

Kantner, Earl F., "An Identification of the Role of the FFA in Vocational Agriculture."

Lodhi, Tanweer, "Developing a Pre-Service Educational Program for Agricultural Teachers at West Pakistan Agricultural University."

Ridenour, Harlan, "Guidelines for Organizing and Operating a State Curriculum Materials Service."

Todd, Hollis E., "A Role Analysis of the Perceptions of Beginning Vocational Agriculture Teachers and Their Professional Difficulties in Role Performance."

Master's Theses and Problems

Aylsworth, John,"Urban Parents' Perception of 4-H Club Work."

Baxter, Alfred J., "Adoption of Corn Growing Practices in Clinton Couty, Ohio."

Farison, Richard, "An Analysis of Wheat and Oats Yields in Relation to Manganese Applications on Selected Wood County, Ohio, Farms With Implications for the Extension Program."

Freeman, Harry, "Understandings of Agricultural Policy Held by Hancock County Farmers."

Hill, Jack, "Social and Economic Implications of Strip Mining in Harrison County, Ohio, as Measured by Selected Socio-Economic Factors Affecting the Agricultural Industry."

James, Floren, "The Role of the County Extension Agent, Chairman in Ohio."

McGowan, Max, "Providing Occupational Experience in the Feed Grain Business for Students of Vocational Agriculture."

Muntzing, Maynard, "An Analysis of the Educational Needs of Feeder Calf Producers in Ross County."

Perry, Charles M., "An Analysis of the Beef Cattle Enterprise in Perry County with Implications for an Educational Program."

Rhonemus, Larry, "Factors Associated with 4-H Advisor Tenure in Champaign County, Ohio."

Rodgers, Norman, "The Role of Teachers of Vocational Agriculture as Perceived by Their Wives."

Ruth, William, "Some Influences Affecting Teachers of Vocational Agriculture to Leave the Profession."

Seaman, Don F., "Summertime Educational, Occupational and Recreational Opportunities for Highland County High School Youth."

Smailes, Willard, "Influence of Farming Programs and Other Factors Associated with Pursuance of Farming by Graduates of Vocational Agriculture in Wayne County, 1953-58."

Young, Donald, "The Educational Interests of Part-Time Farmers in Hocking County, Ohio."

Non-Thesis Studies

Bender, Ralph E., "Occupations of Recent Graduates of Vocational Agriculture."

Heminger, Stewart, "Occupational Survey of Logan County Graduates in Vocational Agriculture from 1955-1964."

Rogers, Robert L., "Use of Credit in Developing Farming Programs of Ohio High School Vocational Agriculture Students."

Woodin, Ralph J., "Readers' Reactions to the Agricultural Education Magazine," September 1965.

Woodin, Ralph J., "A Proposal for a Branch of the College of Agriculture and Home Economics of The Ohio State University to Be Located at Wooster, Ohio," April 1966.

Program Interpretation and Promotion

A committee of staff members, working with a committee of teachers, is in charge of preparing materials and news releases to inform the public regarding Vocational Agriculture. In each county a public relations committeeman is appointed. This total group meets two times each year to plan activities. Within the county the teachers work together, and with other agricultural groups, in giving the public a proper concept of agriculture and agricultural education.

On a state basis the Vocational Agriculture staff is a part of the Ohio Agricultural Council, an organization of all agricultural agencies and organizations, which was conceived to acquaint the public as well as the members of the various groups with a correct picture of agriculture. Agricultural Education will then be given proper emphasis and support sought.

The teachers of Vocational Agriculture also have a speakers' bureau which schedules teachers to give talks when organizations desire additional information regarding Vo-Ag.

C. ADDITIONAL SIGNIFICANT INFORMATION AND MATERIALS

The Vocational Agriculture staff members have worked together and with other Services in the development of a more adequate total program of vocational education in Ohio. The Services have worked together in making surveys to determine the need for vocational education and the types that should be provided. At the present time many Joint Vocational Schools are being organized and if the curricula are developed properly, should provide an excellent place to provide a comprehensive program of Vocational Agriculture. The Vocational Agriculture program is being adjusted to allow for the grouping of students according to their vocational objectives. Also, teachers will have more opportunity to teach in their field of special interest and preparation.

Additional information is needed in regard to the number of employees needed in the various agricultural occupation areas. Also the type of preparation needed for entry and to make progress in the vocation should also be studied. A recent survey shows 1.5 employees in non-farm occupations, for each farmer, who need education in agriculture. Therefore, the need for training exists but the nature of the educational program and the number needed in each category is not definitely known.

The Farm Business Analysis program, as a part of the Young Farmer program, shows much promise. The results obtained have been encouraging although the number participating thus far is not sufficiently large to make final conclusions. The services of an additional staff member, on a half-time basis, has been secured and this program will be expanded, as well as the Young Farmer program. The number of young farmers may not be large, comparatively, but each is becoming more important as the size of his business increases and agricultural technology changes.

Programs in agriculture at the technical level are needed, as shown by surveys and recommendations by advisory committees of people from the various agricultural industries. Staff members participated in national seminars to study types of programs which should be offered and additional programs will be offered this year and in succeeding years. All graduates of the two technical programs now in operation have been employed at satisfactory salaries. Securing adequate enrollment will be a problem, and this is now being studied.

The entire staff is organized to take a look at our five-year program to determine changes which should be made. Committees are in the process of studying the program and making necessary changes to meet the demands of a changing agricultural situation which directly affect agricultural education. This will be done in cooperation with numerous committees from the agricultural industry and from agricultural organizations. In doing this we plan to keep the needs of the students as the most important principle.

III

BUSINESS & OFFICE EDUCATION

Business & Office Education in Ohio is conducted in secondary schools, post-secondary technical schools and community colleges, and also through private schools and colleges. Specific information in this report is provided only on the reimbursed programs operated and supervised by this service of the Vocational Division, State Department of Education under Ohio approvals.

Business Education is a major field in the secondary schools which graduates youth ready for job entry. It is important that increased emphasis be placed on quality as the chief concern of programs.

The following occupational fields were covered in Ohio during this fiscal year:

1-01	Bookkeepers	1-25.60	Data Processing-Gen.
1-02	Bookkeeping Machine Operators	1-33	Secretaries
1-04	General Clerical	1-37.12	Stenographers
1-05	General Office Clerks	1-37.32	Typists
1-25	Office Machines Operators	1-37.34	Clerk-Typist
1-25.20	Duplicating Machine Operators	1-42	Telephone/PBX Oper.

During the 1966 fiscal year, 132 schools conducted some form of program in the above categories. MDTA programs, formerly reported by service area, are now reported in their own report.

A. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

1. Workshops and In-Service Programs

Four activities of this nature were developed this year under State sponsorship of Business & Office Education.

a. An in-service workshop was conducted for 11 teachers of high school programs where data processing laboratories have been funded and/or approved. The grant covered instructional costs and maintenance for six weeks at the Chandler Technical School, Willoughby, Ohio. The facility was available for the purpose since it was originally funded through NDEA Title VIII (GB-III) and during the academic

year is used in preparation of Computer Programmers and Junior Analysts. Since additional labs were approved this year, the program will be repeated in fiscal 1967.

b. Five workshops of two weeks' duration were held in June, 1966, on a grant basis for teacher up-grading. Two were repeat workshops used for training new teachers, while three were used to develop new guidelines.

Kent State University, 2 weeks, 21 teachers, a guide for ACCOUNT CLERK program.

The Ohio State University, 2 weeks, 20 teachers, COOPERATIVE OFFICE EDUCATION COORDINATION TECHNIQUES.

University of Toledo, 2 weeks, 20 teachers, a guide for EVALUATIVE CRITERIA FOR APPROVED BUSINESS & OFFICE PROGRAMS.

Bowling Green State University, 2 weeks, 24 teachers, a guide for BUSINESS & OFFICE EDUCATION POST SECONDARY PROGRAMS AND CURRICULUM.

University of Cincinnati, 2 weeks, 16 teachers, training of BOE teachers for teaching DISADVANTAGED YOUTH, CLERICAL SERVICES program.

A sixth workshop was conducted for 3 weeks, 20 teachers, at The University of Dayton, for the purpose of obtaining an overview of Business Data Processing in the high school program content, and also for qualification of Cooperative Office Education coordinators. The State Department of Education cooperated with this 6th annual workshop.

c. The seventh annual Cooperative Office Education Conference was held in Delaware in August to compare reports, plan for the next year, and work on a guidance problem. In addition, the coordinators were hosted by a typewriter company in a 2-day trip to visit their plant and observe manufacturing processes, employment problems from the employer's viewpoint, and obtain office product information for use in their classes. This conference was attended by 71 coordinators and others.

d. Four drive-in conferences were sponsored by the State and BOE publishing companies in June, 1966, involving Dr. John Rowe, University of North Dakota in "New Developments in Teaching of Typewriting." This depth conference was conducted to give specialized upgrading information to all business teachers in the areas visited. There were 345 teachers registered in the four centers, including

the Jackson MDTA Center, Ohio State University, Bowling Green State University, and Akron University. The centers cooperated by providing personnel and space for the conference of business teachers. A second conference is planned in August, 1966, to cover "Up-Dating Skills in Office Practice," to be conducted in the same centers. Plans are also being made for summer of 1967. Certificates of attendance were issued.

2. Consultants and Advisory Committee

Consultants were used throughout each of the workshops. Individual reports are on file to show utilization.

Local COE programs listed 39 active advisory committees.

The State Advisory Committee for Business & Office Education was inactive this year due to inability of State Supervisor to organize activities.

3. State, Local, and Other Conferences

A summary of the monthly activities as reported to the State Superintendent of Public Instruction, lists the following activities for three supervisors.

Office Conferences with Educators 129; Boards 9; Others 11

Educational Conferences: Meetings to plan conferences; 17

	a. Participated	b. Number Served	c. Other
Local	46	1,508	13
State	15	1,518	11
National	8	429	4

Number of Addresses Given 18

Field Services: Days in field 371

Administrators	245	Staff	114	Lay	21
Boards	4	Colleges	24		

Program or Area Evaluations 52

Total visits to separate schools 289

4. Publications Developed

A report was prepared by Cincinnati Supervisor John Roman on "Clerical Services, a program for Disadvantaged Youth."

A re-edited Bulletin #1 was produced for distribution to Ohio programs of Cooperative Office Education entitled COOPERATIVE OFFICE EDUCATION - Suggested Procedures for Organizing, Conducting, Coordinating, and Instructing. It is available to out-of-state persons at a cost of $1.55.

Other publications indicated in 1965 report were not completed during fiscal 1966 but will be released in 1967.

5. Department Personnel Involvement

Again, area surveys were conducted with the assistance of State Guidance personnel. BOE staff participated with other departmental personnel in the development of three sound-film strip stories on Vocational Education.

Cooperative work is carried on all year in the identification of data processing equipment from surplus properties.

Classification system of adult teachers was finalized for temporary certification.

6. Teacher Education Training Facilities

No assistance was provided this year for support of teacher education facilities. Bowling Green State University has been involved in designing and remodeling a Business & Office Education facility geared to their current needs.

No action was instituted in developing teacher education centers in Southeastern and Southwestern Ohio. In fact, Southeastern Ohio new has no teacher output in Business Education.

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

1. Instructional Programs and Related Activities

a. Secondary Programs

Preparatory programs were inaugurated during this fiscal year in 58 different high schools on the basis of meeting the approved criteria.

At the end of the year, enrollments were reported as follows; (including adjustments for incomplete reporting in October)

Grade 11	2,070		
Grade 12	1,631	TOTAL	3,701

These 58 high schools were able to reorganize their schedules in the spring of 1965 to meet the approved

program approach cleared through the U. S. Office of Education in January, 1965. It is amazing to the State Staff and complimentary to the local superintendents and principals that they were able to make this fast conversion. These 3,701 students represented 123.67 Foundation Program Vocational Education Units of reimbursement.

Cooperative Office Education was conducted in 68 Ohio high schools and supported with 71.25 Vocational Education Foundation Program units. Of the 1,347 students enrolled in the COE program at the October, 1965, enrollment date; 1302 graduated from the program in June, 1966. There were 992 employers involved who cooperated with the schools in the training of these students in their educational program.

These 1,347 students earned $1,129,612.90 (average $838.61) while attending school in their last year of high school on the cooperative basis and returned these funds to the economy while learning.

The COE program in Ohio is one of the few educational programs working directly with private enterprise, and obviously is one of the best teaching tools in this type of economy.

Reports from the coordinators continue to give insight in the success of the COE program. For instance, awards were received by students from Kiwanis, AMS, Chrysler, NSA and police departments. Coordinators took classes on out-of-town field trips for experience and observation of offices. Support was given to many COE classes by the National Secretaries Association. Employer appreciation banquets were sponsored by these youths this year, financed from proceeds of fund raising projects or class dues. North-eastern Ohio programs conducted a skill competition contest day at John Marshall, Cleveland; tests were given in typing, shorthand, business machines, and bookkeeping, and personal interview. The students sponsored various Christmas funds, "dollars for scholars," crippled children at camp, "choir to Columbus," and others.

As usual, many coordinators instituted a savings program with their students at a local bank. This, along with continued employment, makes the impact on the student tremendous. For instance, one boy said, "Now, with what I was able to save from my salary and with the help of my parents, I can continue my job and enroll at the branch college."

Many schools used the OSES testing program and placement service; others found no assistance available in this area. Some classes developed office handbooks for their jobs. National Honor Society was attained by many; and one girl

in and out of a Children's Home regularly in her life, progressed to full-time employment and a "smile and holding her head up attitude". One coordinator indicated that students who had experiences in running their home with parents transferred these skills to on-the-job work quite readily--there is something here to explore. It would seem that the COE program is involved with "attitude development."

One coordinator reported a deaf girl was enrolled in the COE program with extraordinary success in a library situation. The girl's outlook and confidence expanded to such a position with the assistance of the school that she was employed full-time upon graduation. She was also voted outstanding COE girl of the year in her high school by her fellow students.

From 1959 when there were eight Cooperative Office Education programs in existence this approach has grown and developed until there are more than 100 Cooperative Office Education programs approved to be in operation in September, 1966. This is an increase of 39 programs over 1965.

Enrollment Summary of Preparatory and Cooperative Programs
In
Secondary Schools

1-01	Bookkeepers	717
1-02	Bookkeeping Machine Operator	47
1-04	General Clerical	339
1-05	General Office Clerks	951
1-25	Office Machines Operator	387
1-25.20	Duplicating Machine Operator	11
1-25.60	Data Processing - Entry	182
1-33	Secretaries	69
1-37.12	Stenographers	1,918
1-37.32	Typist	63
1-37.34	Clerk-Typist	306
1-42	Telephone Operators	13
	TOTALS	5,003
	Males	503
	Females	4,500
	Teachers	315

b. Post-Secondary Programs

Preparatory Programs in technical education were operated in five centers during the fiscal year. The five centers conducting Business Data Processing and Computer Technology programs (Willoughby, Lorain Community College, Penta County JVS, Columbus,

Springfield) were supervised by the State Department of Education. In addition, Lorain Community College conducted preparatory programs in other fields.

Enrollments were as follows:

	October	June
Secretarial	46	37
Jr. Accounting	43	30
Data Processing	370	332
TOTALS	459	399

Programs in Secretarial and Junior Accounting Technologies will be opening during the 1967 fiscal year at Willoughby, Springfield, and Penta County. Equipment has been approved for full service in these schools. No projected enrollments are available at this time. Supervisors are on hand this fiscal year at Springfield and Penta County JVS for this development.

Investigation during the year was conducted with one other community college and one state university (branch) on possibilities of meeting the State Board of Education criteria. No further action was taken.

Cooperative Programs did not exist in the post-secondary schools during the fiscal year. Opening under sponsorship of the Cincinnati Board of Education in September, 1966, will be Business Data Processing and computer Technology programs on the cooperative plan to educate programmers and junior analysts. This center will also have a reimbursed computer complex, bringing so six the available computers in Ohio programs.

c. Program for Adults

The preparatory skill level program for adults is very limited, represented primarily by ARA, MDTA, and Ohio Worker Training funding reported elsewhere in the annual report. However, 726 adults outside of those programs mentioned spent a total of 1,752 hours preparing for specific occupations through adult courses in: Stenography, 181; Typing, 416; Duplicating, 24; Bookkeeping, 75; General Office, 18; Office Machines, 12.

Supplementary Adult vocational Business & Office Education courses for up-grading were conducted in 63 schools by 256 teachers and served 10,590 adults for 25,351 clock hours. Such courses as Bookkeeping, Keypunch, Office Machines, Computer Programming, Shorthand, Typing, Unit Record Equipment, Accounting, Business Law, Economics of Business, Business Speech, and other were given.

Specific supplementary enrollments by occupational categories were:

1-01	Bookkeepers	1,334
1-04	General Clerical	15
1-05	General Office Clerks	548
1-25	Office Machines Operator	1,243
1-25.6	Data Processing - General	632
1-33	Secretaries	14
1-37.12	Stenographers	2,468
1-37.32	Typists	3,202
1-37.34	Clerk-Typists	1,134
	TOTAL adults served	10,590

d. Curriculum Revision and Development

Curriculum revision moved from implementation of controlled time to content development. Workshops in 1965 produced guides (to be released in fiscal 1967) for curricula in secondary schools of General Clerical, Intensive Core, Stenographic, Data Processing, and Clerical Services in addition to the Cooperative Office Education curriculum already in existence.

Workshops in 1966 have produced guides for a curriculum in Account Clerk, and various curricula for post-secondary schools.

It is planned to develop guides in workshops during 1967 for the Adult Program.

e. New Programs

Secondary Allensville, Ashtabula Harbor, Blanchester, Bucyrus, Canton South, Cincinnati (5), Clermont Northeastern, Cleveland (11), Clinton-Massie, Cloverleaf, Coldwater, Eastern, Fairless, Fayetteville-Perry, Greenville, Hamersville, Lake JVS, Liberty-Union Lakota, Lima, Lorain (2), Madison (Richland), Marietta, Marlington, Mentor, Mifflin, Newark, Northmont, Northwestern (Meigs), Painesville Twp., Parma (2), Penta County JVS, Perry, Reynoldsburg, Ridgedale, River View, Scioto Valley Southeastern, Scioto Village, Sidney, Southern, Switzerland, Tallmadge, Toledo (2), Van Wert, Warren Local, Wilmington.

Post-Secondary Penta County Technical College

Adult Bellefontaine, Bellevue, Canton South, Cincinnati (2), Cleveland (4), Eastern (Meigs), Elyria, Fairless, Findlay, Kettering (1), Lebanon, Lorain Com. Col., Loveland, Madeira, Mansfield, Middletown, Newark, New Philadelphia, North Ridgeville, Northestern (Meigs), Parma (2), Penta County JVS, Perry, Port

Clinton, River View, Scioto Valley Southeastern, Southern (Meigs), South-Western City (1), Springfield, Springfield Local, Sycamore, Whitehall, Wilmington, Youngstown, Jackson-Milton, Maple Heights.

f. Youth Organizations

Structure is being developed to establish youth group organization during fiscal 1967.

2. Pre-Service and In-Service Teacher Education and Supervision

Three centers for preparation of approved Business & Office Education teachers are operating. They are located at Bowling Green State University, Kent State University, and The Ohio State University.

a. Recruitment, Retention, and Placement

No specific recruitment information is available except to say that 297 students are enrolled at various levels in the teacher education program at the three centers, and that 50 students in the three centers graduated as approved Business & Office Education teachers. All other teacher training institutions in Ohio graduated 237 business education teachers to August 31, 1965. Figures are not available at this time for the 1966 year in total business education.

b. Strengthening Teacher Education Curriculum

The Ohio Coordinator of Teacher Education (BOE) has completed the basic study of needs in the field, and is establishing further documentation on changes needed.

Two new teacher education centers were established in 1966 at Bowling Green State University and Kent State University.

The three centers have established courses in "overview" of Business & Office Education programming, and also have added courses in Coordination of Cooperative Office Education. No further courses are contemplated since the Ohio schools currently offer a wide range of methods courses, skill courses, and related areas of programs.

c. Training Teachers for Adult Programs

No report. Philosophy still holds that regularly trained teachers are satisfactory in adult work. Bowling Green State University in cooperation with Penta County JVS is to take another look at this area of teacher education.

d. Supervision at the Local Level

Eight supervisors at the local level were included in the secondary and adult phases, and one in the post-secondary technical level.

The first annual conference for these people is being prepared for fiscal 1967. Additional personnel are pending approval for 1967.

3. Research and Studies

a. No staff studies were conducted. As a service of the Division of Vocational Education, 5 comprehensive local vocational community surveys were made in Hancock, Van Wert, Shelby, Mahoning, and four northwestern Ohio counties (Defiance, Henry, Fulton, Williams).

These surveys represented 97 firms with 3,263 office employees involved. Need for 511 replacements was shown and 291 new jobs were created in the past 3 years. Whereas the turnover in jobs last year was 21.2%, this year it was 15.7%. This year the increase in new positions was 3.0% (compared to 3.9% last year).

b. A pilot program for disadvantaged youth (DAVY) in Clerical Services was conducted at Bucyrus this year. It is being abandoned for several reasons, but primarily due to lack of firm placement in this rural county seat. It would seem to indicate that we need to further train teachers in this program, and be more sure of placement potential before approving further programs. Those planned in 1967 are keyed to metropolitan areas and the suburbs around metropolitan areas. The Cincinnati DAVY program is still showing the best characteristics.

c. Studies Underway

A study on teacher education by the State Coordinator for Business & Office Education is being made to develop new guidelines for direction in teacher education.

A laboratory typing project is being developed in cooperation with the Cleveland Public Schools. The structuring of content, establishing of methods, and accumulation of materials is going on during the summer of 1966; operation of the pilot project will be made in two high schools during fiscal 1967.

d. Summary of Enrollments - June 30, 1966

Cooperative Office Education	1,302	
Intensive, Business & Office Education	3,701	
TOTAL Secondary		5,003
Post-Secondary	399	
Adult	11,316	
TOTAL Post-Secondary		11,715
GRAND TOTAL		16,718

e. Research Needed

Comparative study on COE and Intensive program using a control basis.

Determination of what type of organization of youth clubs in Business & Office Education should be made.

Minimum, optimum, and greatest equipment needs for departments.

Ratio of supervision personnel to teacher-pupil-school sizes.

Standards of vocational programs compared to job demands.

Employment opportunities compared to needed competencies.

4. Joint Activities

a. Cooperation with Other Vocational Services

Seven communities continued with CODE (Cooperative Office and Distributive Education) programs this year.

Other groups cooperating with the State Department this year included the five universities on workshops, one private university with a qualifying workshop, one technical school in data processing teacher training workshop.

b. Cooperation with other Groups and Agencies

The IBM Corporation (Office Products Division) provided a 2-day field trip for 54 COE coordinators to observe and learn about the typewriter manufacturing process in Lexington, Kentucky.

Local advisory committees were utilized in all areas, especially at the post-secondary level in curriculum development. Outstanding cooperation was shown in the planning of the Cincinnati BDP program to open in fiscal 1967.

The Lake County JVS had very close liasion with the local banking industry and others during the year in the acquisition of equipment and curriculum development for the Business Data Processing program in the secondary schools.

The Penta County JVS, under the local supervisor, held many curriculum meetings for the five programs operating under the 1963 Act provisions of the area school.

c. Functions and Use of Advisory Committees

Members of the Ohio Vocational Education Advisory Committee committed to Business & Office Education continued to function

this year. Representing business was Mr. Carroll Parry, II; Manager of Data Processing, North American Aviation Corporation. Dr. Randall Kline, teacher educator at Whttenburg University represented education. The members of the State BOE advisory committee were not called upon for service this year.

5. Program Interpretation and Promotion

a. High Points of Public Information Program

The five vocational surveys again provided the vehicle to examine, compile, and study the local communities of business, education, and people to get evidences of school-community cooperation and education advancement. It is evident that the local schools can and will carry the story to the grass roots. The COE programs lead to a very close relationship in this approach.

This was a year of implementing the changes at the state level. The public information image shifted to "where the action is"--the school and the student. This is specifically where it belongs.

b. Techniques and Procedures Used

The addition of personnel to staff provided expanded services. Delegation became the order of operation. The MDTA group was reorganized, and established under a head supervisor with a person from Office Education on the staff. The BOE staff was enlarged with two full-time assistant supervisors, and procedural changes followed. Delegation of visitation, consultation, inspection, and approval was made in terms of loads and functions.

C. ADDITIONAL SIGNIFICANT INFORMATION AND MATERIALS

1. Stories and Photographs Illustrating Program Effectiveness

This particular function was combined in the Vocational Division so that all state publicity centered as a group. Three film-strips were developed with each service participating. BOE was represented in all three: Secondary Vocational Education, Post-Secondary Technical Education, and one for adults to be shown to PTA groups, Boards of Education, and other groups.

2. Bulletins and Brochures

A revision of BOE Bulletin #1 was made and released in June, 1966.

A revision of the COE promotional brochure was also made and released for local use. Additional bulletins are in process for release during fiscal 1967.

3. Adequacy of Staff

The increase of two assistants provided a far better coverage for schools and services. Adult programs were assisted, expansion was carried on for 1967 to extremes, and movement is now towards post-secondary expansion. A third assistant is being added for fiscal 1967 to provide school services in Northeastern Ohio (the other two cover Southwestern and Northwestern Ohio) as well as to clarify administrative problems in the programs. Also, the evalutive process will be started in cooperation with the Ohio State Employment Service.

The post-secondary field needs further assistance at the State level, as do material, research, and data processing areas.

4. Program Adjustment to Social, Economic, and Other Conditions

The one observation on the Clerical Services (DAVY) program was made concerning rural employment. This type of programming in the urban and suburban communities will continue, but the problems indicated in the rural areas (B-3-b: Research and Studies) will have to be solved. In effect, city problems are minor as compared to rural problems in school programming. The Ohio Joint Vocational School District law provides a solution.

Under the 1963 Act, 15 priority construction projects were approved and funded with 11 including Business & Office Education departments. Up-grading equipment was approved for programs without priority in 53 schools. The approvals for BOE departments totaled $370,228.46, 50% of which was reimbursable from 1963 Act funds. Programs opening in September, 1966, if approved before February 1, 1966, and existing programs were eligible for equipment funds.

5. New Legislation Affecting the Field

The passage of the 1963 Act created great impact on Vocational Education in Ohio, and also focused attention and gave recognition to Business & Office Education. School administrators are making a valiant effort to remodel their business departments to include the vocational approach to Office Education. When coupled together Federal legislation and amendments to the Ohio Foundation Program have opened new avenues to a modern approach in Ohio's Business & Office Education departments.

6. Other Miscellaneous Reporting

a. Major Weaknesses of the State Program

Reporting in data processing is still not available for immediate feedback. Only annual reports are being automated.

The tremendous expansion has exceeded funding capabilities.

Lack of local supervisors has placed undue load on state staff for decisions and assistance that should be made by local schools.

Lack of instructional materials center in Business & Office Education has slowed down output of guides and other information.

Equipment funds for existing schools to up-grade departments is rather limited.

Staff at State level is inadequate to handle youth club activities and state organization.

It is extremely hard to get teachers and administrators to shift emphasis from teacher-centered curriculum to student-centered curriculum. It is amazing that so many accomplished this, this year.

b. Major Strengths of the State Program

Still, the major strength of Business & Office Education is the desirable acceptance in almost all Ohio High Schools.

Departments now exist in nearly every high school, some equipped meagerly, others with modern equipment similar to that being used in offices.

Local supervisors have increased from two to nine during this year.

Appointment of teacher educators at Kent, Bowling Green, and Ohio State Universities has increased services to teachers.

The in-service workshops that have been operating have speeded the movement in curriculum change to a point where we now have about 47% of the teachers in the program re-trained.

Course guides are available and will be distributed to approved programs this year.

Enrollments increased from 4,616 to 16,718 in one year.

All of the technical programs in Office Education will be under BOE supervision in 1967 including post-secondary Business Data Processing.

c. Outstanding Features of the State Program

Inter-relationship with other vocational areas at the State level has permitted learning and interaction by each service, and a more flexible operation to serve students' needs.

The work output at state and local level has greatly exceeded expectations by any statistical measurement checked.

The workshops and conferences, or taking the word to the teachers, has been a high point both to the state and to the teachers. The chance to work together on a specified goal and produce materials has greatly lifted the morale of BOE teachers.

The approval of modern equipment for the schools has lifted the spirits of the teachers and stimulated the interest of the students.

Probably the greatest feature of the Ohio program is the present ability to put into practice what research and colleges have been advocating for 30 years--The ability to move into a program approach which is based on student needs created by the industrial development currently projected for Ohio

Section IV. . . .Vocational Distributive Education

STATUS AND DEVELOPMENT OF VOCATIONAL AND TECHNICAL PROGRAMS

A. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

1. Workshops and Inservice Programs

(a) Four in-service programs for new teacher coordinators of distributive education were arranged and conducted in August, 1965.

The regional supervisors met with the new coordinators in their areas for a period of 2 or more days. The purpose of these meetings was to acquaint the coordinators with procedures, policies, forms, etc., and techniques of recruiting and selecting training stations for conducting their distributive education programs. Emphasis was placed upon the techniques of coordination.

A total of 38 coordinators participated.

(b) In August of 1965, a 4 1/2 day workshop was held for all coordinators with the emphasis placed upon upgrading instruction in the classroom. A total of 130 coordinators actively participated in the program.

(c) In June, 1966, a 4 day workshop was held for all coordinators having a year or less of teaching in distributive education. A total of 31 coordinators participated in the workshop which consisted of training in the selection of training stations, selection of student enrollees, use of advisory committees, classroom instruction and student leadership development through DECA.

2. Inservice, Consultants and Advisory Committees

(a) Personnel from two state universities and state staff personnel were involved in the instructional phase of the August, 1965 workshop on upgrading instruction.

(b) The June, 1966 workshop involved the services of seven experienced distributive education staff members as resource personnel in the instructional phase of the entire program.

3. Other participation

(a) The state staff participated in the planning and development of the four DECA Regional and the State conferences sponsored by the Distributive Education Department.

Approximately 3,400 students participated in the four regional conferences and the state conference. The state staff actively participated in all of the 12 district DECA contest programs where approximately 720 students were in attendance.

(b) In November 1965 the state staff assisted in the planning of the Vocational Division Conference and actively participated as a member of the planned program. Approximately 130 were in attendance.

(c) During the summer of 1965 and June, 1966 state staff members participated in an Agricultural Workshop and a Guidance Workshop explaining the distributive education program.

4. Publications Prepared

(a) Three assistant state supervisors and the materials laboratory consultant prepared a film strip and tape recording for use in explaining distributive education to prospective distributive education students on both the high school and post-secondary levels.

5. Cooperative Assistance

Personnel from distributive education participated in two regional guidance meetings and one Home Economics Workshop as well as an Ohio Business Teachers Association meeting. One assistant state supervisor served as a resource person for Kent State University's college of education curriculum council.

6. Vocational and Technical Education Facilities

(a) Ohio is providing more adequate teacher training facilities to meet the needs and demands of the tremendous growth in the number of in-school and post-secondary programs in distributive education which present an ever-increasing need for more teachers.

(b) A desired objective in Ohio is to achieve a single classroom for the teacher-educator, adequately equipped with the proper instructional equipment necessary for the preparation of distributive education coordinators in vocational and technical training.

(c) A distributive education teacher training program was established in October of 1965 at Kent State University. Mr. John D. Mattingly was selected as the teacher-educator for the program.

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

Distributive education in Ohio has continued to make major strides in demonstrating its ability and capacity to carry out its responsibilities of educating youth while developing skills necessary to become self-reliant and productive citizens of a community.

Supplementary training for adults engaged in the distributive occupations was provided for 4,830 adults throughout Ohio.

Both the number of in-school programs and the number of post-secondary programs have increased considerably during the year.

Funds available under the Vocational Education Act of 1963 have assisted in the development of several additional post-secondary technical programs in distributive education.

The entire state staff has continually studied various ways in which vocational distributive education may be developed and broadened in Ohio. Goals established, and programs developed, have been in relation to occupational employment patterns in Ohio as well as in the entire nation.

Requests for teachers in the post-secondary programs and in-school programs have exceeded the number of available trained and qualified teacher-coordinators. This delay in developing additional programs emphasizes our need for several teacher-training institutions.

The adult training programs have decreased slightly in number as the result of the lack of a full complement of adult consultants to assist in the promotion, organization and development of adult programs.

1. INSTRUCTIONAL PROGRAMS AND RELATED ACTIVITIES

(a) Secondary Programs

During the 1965-1966 school year, a total of 28 additional programs were approved and established throughout Ohio, bringing the total to 131.

Again an additional 7 programs were unable to begin operation due to a lack of qualified instructors while 2 programs were discontinued due to lack of students enrolling.

A total of 3,509 students were enrolled in distributive education programs for the school year 1965-1966 -- 1,824 males and 1,685 females. A total of 43 new teacher-coordinators were employed.

(b) Post-Secondary Programs

In July, 1965 the following post-secondary programs opened:

Retail Mid-Management -- Columbus Area Technician School, Dayton Technical School, Mansfield School of Technology, and the Lorain County Community College. A non-coop pilot program was established in Canton-Timken High School.

In January, 1966 a Food Distribution Program in Mid-Management was established in the Penta-County Technical College.

Enrollments were:

First Year		Second Year		Total
Male	Female	Male	Female	
146	18	37		201

Future development of such programs in the area of distribution are contingent upon the acquisition of additional funds for the initiation of the programs -- local, state and federal.

The position of Post-Secondary Supervisor in Distributive Education became effective July 1, 1965, and Mr. Leon Linton was appointed to the position.

(c) Program for Adults

The Adult Instructors Training Program (AIT) placed into operation during the school year 1963-1964 combined with a concentrated program of contact with local directors

of adult education programs enabled the adult staff member to provide a greater variety of adult distributive education programs throughout Ohio.

A total of 4,830 were provided with instruction in the area of distribution although a lack of a full complement of adult staff members, undoubtedly, contributed to the decrease in the numbers (3,743) of adults provided instruction over the 1965-1966 school year.

A total of 42 schools - comprehensive, vocational, technical, etc. conducted adult programs as well as providing facilities and qualified personnel for the training programs.

Two institutes held at The Ohio State University - Architectural Hardware and Cosmetology - involved approximately 165 adults receiving supplementary training in the area of distribution. These figures were included in the total figure for adult training.

One institute was held in cooperation with the Ohio Credit Union League and involved approximately 50 adults.

(d) Curriculum Revision and Development

(1) Secondary Programs

(i) The trial curriculum developed for the two year coop program, Plan A, implemented in the Whitehall Yearling High School was converted to a two year program -- preparatory in junior year and coop in senior year, to begin operation September, 1966.

(ii) Administrators from 28 schools have expressed interest in initiating Plan C. In many instances Plan C would replace the present Plan B program in the school.

(2) Adult Programs

(i) Short Term Programs

Revision and up-dating of adult course outlines were continued throughout the year with the development of several new in-depth course

outlines -- advertising, store management, credits and collections, store buying, etc.

(ii) Institutes

Course outlines for the Architectural Hardware and Cosmetology Institutes were reviewed and revised for more up-to-date material. Mr. Thomas White acted as coordinator of these programs under the guidance of Dr. William B. Logan.

(e) New Programs

One of the distributive education programs initiated in the comprehensive high schools throughout Ohio during the school year 1965-1966, was a program specializing in service station attendants.

A total of 5 post-secondary programs were established during the 1965-1966 school year.

(f) Youth Organizations

The DECA Regional and State Conferences continued to be conducted in a business like manner under the leadership of Mr. Leon Linton, DECA Advisor, and Mr. J. W. Weatherford, Co-Advisor.

Due to the expansion of the number of DECA programs and students participating in the contests, 12 districts were established for contest run offs with first, second, and third place winners competing on the State DECA Conference program.

One hundred sixteen clubs participated in the State Conference in March, 1966 while 53 students and 32 adults attended the National DECA Conference in April, 1966.

2. PRESERVICE AND INSERVICE TEACHER EDUCATION AND SUPERVISION

(a) Preservice Programs

(1) Bowling Green State University, provided formalized distributive education teacher-education classes for a total of 78 students. A total of 38 of these students were enrolled for

the certification purposes only while 12 of the students were receiving graduate credit. Twenty of the enrollees were distributive education coordinators during the school year 1965-1966.

Twenty-eight students were enrolled in the undergraduate program at Bowling Green State University.

(2) At Kent State University, there were a total of 13 students enrolled in the distributive education teacher-education classes for the purposes of receiving certification in distributive education and two students enrolled in the undergraduate program.

Five of the students were presently teaching in the field of distributive education.

(3) A total of 41 students enrolled in classes, seminars, and/or individual project programs at The Ohio State University during the 1965-1966 school year.

Eighteen of these students were actively engaged in distributive education teaching during the school year 1965-1966 with 13 of these enrollees receiving graduate credit toward a masters degree and fourteen of them working on a doctoral program -- nine of which were majoring in areas other than Distributive Education.

Fourteen of the 41 students were doing undergraduate work specifically designed for a degree with a major or minor in distributive education.

With continued emphasis upon the selection and training of coordinators in Ohio, due to the tremendous growth in the number of distributive education programs, attention is being given to the strengthening of the teacher-education curriculum.

Implications of the Vocational Act of 1963 have indicated the necessity of enrolling more students in a major program of study in distributive education on the undergraduate level in Ohio's teacher-education institutions. Activities, work schedules, and instructional programs of teacher-educators should be geared to the locating and preparation of prospective distributive education coordinators. Research should be done by a staff member specifically assigned to this area of need -- creating a necessity for the funding of such a program.

Continued emphasis should be placed upon the training of teachers for adult programs by the teacher-education institutes. Bowling Green State University has incorporated a course in its distributive education program entitled "Adult Education in Distributive Education," enrolling approximately 20 students during the school year.

(b) Inservice Programs

The inservice teacher education workshop held in August, 1965 was held in cooperation with the teacher-education program at the Ohio State University, and was designed to meet the needs of coordinators in updating their information on improvement of instruction in the classroom.

The inservice teacher-education workshop held in June, 1966 was held in cooperation with the teacher education program at Kent State University and was designed to provide up-to-date information to new and inexperienced coordinators relative to selection of distributive education students, use of advisory committees, leadership development through DECA.

(c) Adult Teacher Training

The Adult Instructor Training program initiated by state staff adult consultants during the school year 1963-1964 is still the primary means of obtaining trained and qualified adult instructors throughout Ohio. Lack of staff consultants resulted in a decrease of instructors prepared through the A.I.T. program.

Additional work and instruction can be provided by the teacher-training institutions.

3. RESEARCH AND STUDIES

(a) Studies Completed

(1) "Survey of Selected Coordinators of Needed Instructional Materials" -- Virgil Sheppard

(2) "Testing and Validation of an Instrument for Identification of Prospective Distributive Education Students" -- Howard Merriman (Thesis)

(3) "Selection and Use of Advisory and Occupational Committees" -- edited by Howard Merriman

Curriculums need to be developed for specialized areas within the field of distribution with less emphasis upon generalization. Research, in-depth, should be conducted by qualified distributive education personnel.

4. JOINT ACTIVITIES

(a) The vocational distributive education service has continued to cooperate with other vocational services in conducting Joint Vocational School surveys to determine the need for vocational education in counties within Ohio requesting this service. A total of 7 county surveys were conducted.

For the second consecutive year, the assistant state supervisor of the Northwest Region participated in the Northwestern Ohio Guidance Association program.

The teacher-trainers at Bowling Green State University, The Ohio State University, and Kent State University have participated in Business Teachers Association meetings.

The assistant state supervisor of the Northeast Region cooperated with the other vocational services at Kent State University in identifying and establishing a curriculum for a teacher-trainer position in both Business Education and Distributive Education and continue to serve in an advisory capacity for both teacher training areas.

(b) The Distributive Education Service has cooperated with the following associations in various educational activities throughout the year:

The Ohio State Council of Retail Merchants
The Ohio Credit Union League
The Ohio Wholesale Association
The Ohio Cosmetology Association
The Ohio and National Architectural Hardware Associations
The Internal Revenue Service Office
Dayton Retail Merchants Association
The Ohio Petroleum Service Association
The Ohio Banker's Association

(c) Many adult training programs were conducted as in the past, through the combined efforts of distributive education and local chambers of commerce and merchants associations.

(4) "The Development of a Post-Secondary Manual for Ohio" -- revised by Robert Koon and Leon Linton

Several of the studies completed have involved findings which have been used in the in-school programs for promotion and development, as well as, the promotion and development of post-secondary programs.

(b) Pilot Programs

The Cleveland City School System has expressed an interest in developing a program for service station attendants which would be experimental in nature, with the students receiving their related subjects in the junior year of schooling and would receive their cooperative experience in their senior year.

The Newark City School System has expressed an interest in developing a program for service station attendants and plan to begin operation in September.

(c) Studies in Progress

Following is a list of the studies that were in progress during the year 1965-1966:

(1) "Participation of Coordinators in Civic Organizations" -- Miss Bonnie Glazer

(2) "Community Survey Techniques for Distributive Education Adult Promotion " -- Lester Lalta and M. Shafer

(3) "Development and Demonstration of a Program for Locating Distributive Education Personnel" -- Thomas White

(d) Enrollment

A total of 3,509 students were enrolled in the high school cooperative and preparatory program for the school year 1965-1966. A total of 287 students were considered as drop-outs, 126 boys - 161 girls, comprising 8.18 % of the students enrolling in the program.

(e) Research Needed

Distributive Education still needs to conduct research that would identify career levels within distribution.

Small Business Management Clinics and Institutes were conducted in cooperation with the Small Business Administration Office.

(d) Local in-school programs are still making wide use of advisory committees.

Experience gained in working with the State Vocational Advisory Committee has been used effectively in structuring the guidelines for the establishment of the State Distributive Education Advisory Committee.

5. PROGRAM INTERPRETATION AND PROMOTION

(a) Considerable information was provided local school superintendents and the general public through the distribution of materials requested by mail, telephone and personal contact.

The publicizing and promotion of the Joint Vocational Surveys continues to be an excellent program of public relations, not only for distributive education, but for all vocational services.

State staff members continued to make personal contact with local school systems, technical schools, colleges, business and trade associations, and individuals, in the promotion and development of distributive education programs.

Nearly 70% of the local coordinators, during the 1965-1966 school year conducted fine publicity programs designed to appeal to local interests and needs. This was evidenced by copies of the publicity releases mailed to the state office.

The Distributive Education Clubs of America (youth activity program) was used extensively on the local, regional, state and national level to publicize and promote distributive education.

(b) Promotional materials developed by local coordinators and state staff personnel were edited, duplicated, and assembled at the Distributive Education Materials Laboratory. Upon completion, the materials were distributed to the coordinators, guidance counselors, city and local supervisors, and business and trade associations.

Materials developed by the Materials Laboratory Consultant were quite numerous, and are attached to this report.

(c) Additional Significant Information and Materials

(1) Copies of stories on or about distributive education or personnel in distributive education in Ohio, appearing in the State Newsletter and the OVA Reporter are attached to this report. Copies of bulletins, brochures, manuals, etc. are also attached.

(2) Distributive Education is still in need of one staff member to assist in the preparation of adult teachers with the upgrading of one consultant to a supervisory position. Four regions should be developed with one adult consultant assigned to each region, for the specific purpose of promoting and developing adult programs within the local community.

(3) The DECA program has grown to such an extent that consideration should be given to employing, on the state level, a person full-time to handle the activities involved. DECA is an important phase of the total distributive education program.

(4) The potential growth of the total program necessitates consideration being given to the development of additional teacher-education institutions, to provide pre-service and in-service training for instructors in the in-school, post-secondary, and adult programs.

State of Ohio
Year Ending June 30, 1966

Section V. . . .Vocational Guidance

Objectives

The following objectives were established for the Division of Guidance and Testing during the 1965-1966 school year.

1. The expansion of guidance services to provide extensive and intensive individual and group services to the students in Ohio Public Schools.

2. The conducting of field studies to validate a new Student Vocational Planning Questionnaire to be used as a part of a Student Vocational Interest Survey. This is used in connection with a Community Survey to determine a need for vocational education in Ohio Schools.

3. The organization of training programs to assist counselors in the use of the General Aptitude Test Battery and the organization of a State-wide Invitational Conference for school counselors already trained in the use of the G.A.T.B. and educators interested in the research possibilities of the G.A.T.B.

4. The continued coordination of professional meetings and conferences at local, state and regional levels.

5. The active development of three filmstrips and numerous publications and articles which will encourage guidance program development, evaluation, and improvement.

6. The provision of consultative services and assistance in the establishment of selective procedures, curricular offerings, and staff and facility utilization in developing joint vocational schools.

7. The participation in workshops interpreting and exploring uses of the test results from the new Ohio Survey Tests.

8. The coordinating of fourteen two-week vocational guidance seminars to upgrade Ohio certificated school counselors in their knowledge and skills of interpreting vocational opportunities and trends to students.

9. The development of a Questionnaire for use in conducting Technical Education Surveys whenever this service is requested.

10. The publicizing of the need for improved and expanded programs of guidance and counseling and the need for greatly expanded opportunities for far greater numbers of students to participate in vocational education.

A. SUPERVISORY SERVICES AT THE STATE LEVEL

1. Statewide Conferences, Workshops, or Inservice Programs.

Program	Purpose or Theme	Duration	Month	Participants
Thirteenth All Ohio Guidance Conference	"Change: By Choice or Chance"	2 days	September	1000
College-High School Articulation Conferences -Ohio Univ. -Oberlin College -Akron University -Bowling Green State Univ. -Univ. of Cincinnati -Univ. of Dayton	To promote pertinent conversation between college and high school counselors to enable high school youth to more easily articulate between high school and college.	Six 1-day meetings	September - October	750
Ohio Association of Counselor Educators	Committee Reports, and discussion of National and State interest items	Two 1-day meetings	September - April	100
Fifth Annual Elementary Guidance Conference	"Elementary Guidance: The Team Approach"	1 day	November	500
Fourth Junior High School Guidance Conference	"The Changing Years: Dreams, Drives, Destinations"	1 day	May	475

17 General Aptitude Test Battery Sessions	To qualify school counselors to use the General Aptitude Test Battery	5 days for each workshop	September - May	250
Vocational Guidance Seminars -Kent State Univ. (3) -Ohio Univ. (1) -Ohio State Univ. (1) -Univ. of Cincinnati (1) -Bowling Green State Univ. (1)	To familiarize counselors with important vocational concepts and information	Seven - 2 Week Seminars	July 1965 - June 1966	140
General Aptitude Test Battery Statewide Conference	To familiarize counselors with new ideas and new research concerning the G.A.T.B.	1 day	October	325
Ohio State Univ. Nurses Meeting	To explain O.S.U. Four Year Nursing Program	1 day	October	60
Elementary Guidance Workshop	Conference of Research Directors	1 day	March	26
72 Testing Workshops	Inservice Testing Meetings	72 separate meetings	September - May	7173

2. Participation in State or Local Conferences, Workshops, or Inservice Programs Other Than A. 1.

Type of Activity	Dates	Educ. Level	Participants No.	Participants Type of Personnel
Ohio Vocational Association Conference	October	All Levels	325	Vocational Teachers, Counselors and Administrators
Ohio School Boards Association Conference	November	All Levels	2000	Administrators and School Board Members
American Personnel and Guidance Association Conference	April	All Levels	8000	Counselors, Counselor Educators, Administrators, Personnel Workers, Teachers
Annual Vocational Education Staff Conference	November	State Staff	175	Vocational Personnel and Counselors
Ohio Industrial Arts Conference	March	Secondary	300	Industrial Arts Teachers
American Vocational Association	December	All Levels	4000	Vocational Personnel
Association for Counselor Education and Supervision	November	All Levels	250	Teachers - Counselors
Vocational Planning Meetings (10)	September - May	Secondary	100	Counselors, Teachers and Administrators
Vocational Orientation Meetings (10)	September - May	Secondary	14687	Students in 66 High Schools

Vocational Survey Banquet Meetings (5)	September - May	All Levels	1150	School Patrons
Technical Education Surveys	May	Secondary	2171	Seniors in 28 High Schools
Audio-Visual Meetings -East Liverpool -Williams County -Erie County -Preble County	September - April	All Levels	750	School Staffs
Area Guidance Meetings (65)	September - June	All Levels	3672	Counselors, Administrators and other interested personnel workers
County Teachers Meetings -Athens County -Lorain County -Ottawa County -Perry County -Pymatuning County -Richland County -Washington County	August 1965- February 1966	All Levels	 75 500 300 225 75 570 23	Teachers, Counselors, and Administrators
South-Western Ohio Superintendents Association Meeting	October	All Levels	110	Superintendents
Student Career Days -Ada Exempted Village -Adams County -Bishop Watterson -Dayton City -Dublin City -Fostoria City (4) -Logan County	October 1965 - April 1966	Secondary	 500 200 1200 1500 500 1462 250	High School Students and Parents

-London City -Morgan County -Putnam County -Vocational Career Day -West Muskingum County -Williams County -Williams County (2)			670 250 300 400 375 1000 1000	
Middletown City Guidance Workshop	October	All Levels	30	Teachers, Counselors, and Administrators
Ohio Newspaper Association	October	Secondary	50	Teachers
Vocational Research Center Conference	January	All Levels	250	Teachers, Counselors, and Administrators
North Central Evaluations -Maumee -Columbus -Athens	January - March	All Levels	45	Students, Teachers, Counselors, and Administrators
Franklin County Vocational School Orientation Addresses (10)	February	Secondary	5055	High School Students
Univ. of Akron Guidance Conference	March	All Levels	100	Teachers, Counselors, and Administrators
Ohio Council of Churches	March	All Levels	20	Counselors and Lay Leaders
Cleveland Guidance Church Conference	March	All Levels	35	Counselors and Lay Leaders

National Seminar in Home Economics	March	All Levels	300	Teachers and Counselors
Appalachia Regional Education Laboratory Meeting	March	All Levels	40	Teacher and Counselors
Thirteenth Annual Conference on Parent Education	March	All Levels	200	Counselors--Social Workers, Administrators
Powell Elementary PTA	March	Elementary	42	Parents
Ashtabula PTA	March	All Levels	50	Parents
Technical Conference (5 County Area)	April	Secondary	50	Administrators
Ohio State Univ. Agricultural Education Society	April	All Levels	180	Teachers and College Students
Southeastern Ohio Supervisors Association	April	All Levels	500	Secondary and Elementary Supervisors
Ohio University Phi Delta Kappa Meeting	April	All Levels	50	Teachers and College Students
Atwood Conference	May	State Staff	16	Supervisors

Campbell Education Association	May	All Levels	130	Teachers, Counselors, and Administrators
Marysville Lions Club	May	All Levels	45	Local Personnel
State Education Staff Meeting	June	State Staff	175	Supervisors
Lake Hope Health Conference	June	All Levels	60	Teachers, Counselors, and Administrators

3. Major Publications

1. Report of the Thirteenth Annual All Ohio Guidance Conference. "Change: by Choice or Chance" (73 pp)

2. Report of the Fifth Annual All Ohio Elementary Guidance Conference. "Elementary School Guidance - The Team Approach" (65 pp)

3. Report of the Fourth Annual All Ohio Junior High School Guidance Conference. "The Changing Years: Dreams, Drives and Destinations"

4. The Fourth Ohio College Notebook for School Counselors (85 pp)

   Information is provided to school counselors concerning admissions data. All Ohio degree granting universities and colleges, the thirty-five Ohio branches and academic centers, the Ohio community and junior colleges, and the U. S. service academies were included in this publication.

5. Sources of Occupational Information (56 pp)

   Information is provided to school counselors identifying materials presenting occupational information. It also, describes techniques for gathering, organizing, and using occupational information.

6. Ohio Directory of Reported Public School Counselors (146 pp)

   The organization of the Directory is an alphabetical arrangement

of counselors according to their employment in city, exempted village, and county schools. In addition, there is a separate listing of those with assignments for guidance and counseling at the elementary school level.

7. Ohio Public Technical Education Programs (24 pp)

   The information is provided to assist school counselors to obtain meaningful information about the technical programs in Ohio which are sponsored by public schools.

8. Perspectives on Vocational Guidance (100 pp)

   A series of articles written for the purpose of assisting school counselors and vocational personnel to better acquaint parents, staff, students and other school patrons with vocational education.

9. Five issues of Ohio Guidance News and Views

4. Additional Publications

   1. "Guidance Services in Career Planning" (1 p.)

   2. "Some Factors Impeding the Professional Growth of Counselors" (4 p.)

   3. Thirteenth All Ohio Guidance Conference Reservation Form; Newspaper Release for Conference; Preliminary Program for the Thirteenth All Ohio Guidance Conference" (1 p. each)

   4. "Don't Give Us Your Tired Your Poor" (5 p.)

   5. "Know Your Ohio School Counselor Association" (1 p.)

   6. "Public Relations for Guidance Programs" (8 p.)

   7. "Fourth Annual All Ohio Junior High School Guidance Conference" (2 p.)

   8. "Notes on the Guidance Journal" (1 p.)

   9. "Military Service Obligation" (1 p.)

   10. "Guidance and the Classroom Teacher" (6 p.)

   11. "Vocational Home Economics Initiates Food Service - Dietetics Technology and Child Development Technology" (2 p.)

   12. "Suggested Counselor Midyear Activities" (1 p.)

13. "Career Development and Vocational Guidance Bibliography for School Counselors" (8 p.)

14. "The National Defense Education Act of 1958" (1 p.) (Reprint)

15. "Guidance is Emphasized in the Vocational Education Act of 1963" (4 p.) (Reprint)

16. "Five Articles written by the Federal Civil Service" (37 pp)

17. "Secondary School Guidance Program Inventory" (5 p.) (Reprint)

18. "Wide-Eyed In Surprise" (5 p.)

19. "Some Highlights of the Elementary and Secondary Education Act of 1956" (3 p.)

20. Penta County Concept Ushers in New Era" (4 p.)

21. "Selected Bibliography Elementary School Guidance 1960-65" (12 p.)

22. "Preliminary Statement - Joint ACES - ASCA - Committee on the Elementary School Counselor" (3 p.)

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

1. Participation in NDEA Title V-A

A review of NDEA participation is presented in order to show the expansion of guidance and counseling in Ohio since passage of the Act in 1958.

Title V-A participation in guidance and counseling has increased from 94 school systems in 1958-59 with an enrollment of 178,807 (26.6%) students to 245 school systems during the 1965-66 school year with a total student enrollment of 580,350 (60.2%). This represents an increase of 225% in student participation during the eight year period. Counselor equivalents during the same period increased from 323 to 1385 or 329%. The counselor-pupil ratio improved in participating schools from 1:553 to 1:419. After the first year of the program a 1:500 counselor-pupil ratio was necessary to be eligible for participation. Actual persons comprising the counselor equivalents in school systems participating in NDEA increased from 678 to 1640. The number of certificated counselors increased from 319 in 1959-60 to 1334 during the 1965-66 school year. In order for any school to be eligible for participation in Title V-A, NDEA, the school needed to meet STANDARD VI--GUIDANCE of the 1957 Ohio High School Standards. This standard states each school shall have a comprehensive and workable program of guidance services. A summary follows:

SUMMARY OF SCHOOL PARTICIPATION IN NDEA TITLE V-A

Total Number of School Systems and Secondary School Enrollment in Ohio

	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
Number of school systems in Ohio	304	305	306	309	310	311	309	310
Ohio secondary school enrollment								
City	374.556	396,478	425,093	464,946	490.854	524,675	546,436	571.584
County	253,300	274.524	268,106	292.627	306,216	323,198	333,888	341,248
Exem. Vil.	45.112	47,377	47,769.	46,924	49,830	49.636	50.454	51,72[illegible]
Total	672,968	718.379	740,968	804.497	846.900	897,509	930,778	964,55[illegible]

NDEA Participation in Guidance and Counseling

NDEA school systems in Guidance and Counseling								
City	56	60	68	94	102	114	130	132
County Systems	19	38	57	68	71	68	72	72
(Local Schools)	(46)	(115)	(174)	(231)	(255)	(236)	(261)	(264)
Exem. Vil.	19	29	31	34	40	36	37	41
Total	94	127	156	196	213	218	239	245
NDEA enrollments in Guidance and Counseling								
City	143,693	141,819	144,629	202,028	240,857	297,039	353.874	375.955
County	24,885	58,166	83,515	115,368	132,650	128,383	151,017	173,823
Exem. Vil.	10,229	17,223	16,993	20,936	24,325	22,673	25,563	30,572
Total	178,807	217,208	245,137	338,332	397,832	448,095	530,454	580,350
Percentage of enrollment in NDEA Guidance and Counseling								
City	38.4%	35.8%	34.0%	43.5%	49.1%	56.6%	64.8%	65.7%
County	9.8%	21.2%	31.2%	39.4%	43.3%	39.7%	45.2%	50.9%
Exem. Vil.	22.7%	36.4%	35.6%	44.6%	48.8%	45.7%	50.7%	59.1%
Total	26.6%	30.2%	33.1%	42.1%	47.0%	49.9%	57.0%	60.2%
Counselor equivalents in NDEA	323	511	570	791	1012	1047	1257	1385
Counselor-Pupil ratios in NDEA								
City	1:548	1:400	1:433	1:431	1:386	1:429	1:423	1:420
County	1:506	1:477	1:423	1:416	1:399	1:429	1:421	1:423
Exem. Vil.	1:638	1:482	1:433	1:456	1:428	1:409	1:411	1:387
Average	1:553	1:426	1:429	1:428	1:393	1:428	1:422	1:419

Total number of persons comprising the counselor equivalents in school systems participating in NDEA

	Persons							Certificated						
	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
City	454	461	636	756	902	985	1028	210	294	445	560	676	779	867
County	179	347	426	446	461	535	518	81	177	250	277	288	343	395
Exem.Vil.	45	59	76	84	84	90	94	28	34	48	64	55	60	72
Total	678	867	1138	1286	1447	1610	1640	319	505	743	901	1019	1182	1334

SUMMARY OF SCHOOL PARTICIPATION IN NDEA TITLE V-A

NDEA Participation in Testing

	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
NDEA school systems in Testing								
City	48	79	80	101	102	111	126	141
County	32	75	64	70	67	72	78	82
Exem. Vil.	18	41	37	35	36	35	44	48
Total	98	195	181	206	205	218	249	271
NDEA enrollments in Testing								
City	172,379	220,521	277,322	317,151	350,216	367,830	359,070	526,431
County	94,012	161,416	179,009	212,847	216,950	217,641	244,971	300,003
Exem. Vil.	12,147	25,898	24,203	23,665	26,918	27,276	34,872	43,494
Total	278,538	407,835	480,534	553,663	594,084	612,747	638,913	869,927
Percentage of enrollment in NDEA Testing								
City	46.0%	55.6%	65.2%	68.2%	71.3%	70.1%	65.7%	92.1%
County	37.1%	58.8%	66.7%	72.7%	70.8%	67.3%	73.4%	88.0%
Exem. Vil.	26.9%	54.7%	50.6%	50.4%	54.0%	55.0%	69.1%	84.0%
Total	41.4%	56.7%	64.8%	68.8%	70.1%	68.3%	68.6%	90.1%
Students tested under NDEA								
City	33,745	81,033	87,491	100,139	118,274	121,885	126,408	154,275
County	17,073	45,699	57,482	66,331	69,668	67,691	84,048	100,001
Exem. Vil.	2,212	7,705	8,644	7,920	7,973	8,801	11,800	14,169
Total	53,030	134,437	153,617	175,390	195,915	198,377	222,256	268,445
Tests administered under NDEA								
City	39,221	89,281	92,287	108,765	125,669	127,946	133,840	164,615
County	26,798	65,326	63,675	75,367	78,565	77,156	92,773	105,377
Exem. Vil.	2,675	9,287	9,005	8,003	8,780	9,170	12,715	14,912
Total	68,694	163,894	164,967	192,135	213,014	214.272	239,328	284,904

1965-1966 NDEA, Title V-A, Progress Report

The National Defense Education Act, Title V-A, has given major impetus to the continued expansion and improvement of secondary school guidance and testing programs in Ohio. This growth of programs from 1959-60 to 1965-66 in NDEA participating schools is indicated by an increase in the number of employed counselors from 678 to 1601 persons and in the amount of time assigned to these counselors from 323 to 1223 full-time counselor equivalents. A comparison of the number of counselors and the amount of time assigned to them shows that in 1959-60 the average assignment of the counselors was 48 percent of full time and in 1965-66 the average assignment is 76 percent. The percent of guidance personnel possessing a school counselor certificate has changed from 47 percent to 77 percent. The number of tests administered in grades 7 through 12 under NDEA has grown from 68,694 to 284,904. An additional 330,056 tests were administered in grades 1 through 6 during 1965-66. Schools participating in NDEA testing enroll approximately 90 percent of the students in Ohio.

2. Joint Activities

The following are activities of the Division which were conducted in cooperation with other agencies. Descriptions of the activities are found in other sections of the report.

1. Five countywide, partial county, or joint county surveys, with the Division of Vocational Education, were completed involving 13,687 students. Of these students, 9,157 (66.9%) indicated that they desired vocational training as a part of their high school program of studies.

2. Seventeen GATB Training Programs with the Ohio State Employment Service involving 250 certificated school counselors and psychologists.

3. Four Audio Visual Conferences with the Division of Audio-Visual Education and other State Department of Education personnel serving 1,000 teachers, counselors, supervisors, and administrators.

4. Six High School - College Articulation Conferences with the Ohio Association of Secondary School Principals and the Ohio Association of College Admission Counselors serving 750 school counselors and college admissions personnel.

5. Twenty-eight Technical education interest pilot surveys with the Division of Vocational Education involving 2,171 senior students. Of these students, 1,152 (53.1%) expressed an interest in pursuing two-year post-secondary technical education programs.

6. Two three-week and five two-week summer Vocational Guidance Seminars with the Division of Vocational Education enrolling approximately 140 school counselors.

7. Ohio Public Technical Education Programs (1965-66) was published with the Division of Vocational Education. This publication contains data on the twelve post-secondary technical schools accredited by State Board of Education.

8. Three sound filmstrips were produced. Two of these were cooperatively produced with the Division of Vocational Education: "Your Future Through Vocational Education," and "Your Future Through Technical Education". The third filmstrip is entitled, "As They Grow, Elementary Guidance: New Dimensions in Meeting Pupil Needs".

3. Use of Consultants and Advisory Committees

1. Ad Hoc Committee - Ohio Testing Services

The Advisory Committee of Ohio Testing Services authorized the establishment of an ad hoc committee to study the total testing program offered by the State of Ohio, and to make recommendations for improvement and continued development of the program. This special study committee is comprised of testing specialists from several Ohio schools, representing various types of systems.

The committee met four times during the 1965-1966 school year and has prepared recommendations for program improvement. After intensive study, the committee recommended that diagnostic tests in Reading and Arithmetic be offered for the 1966-1967 school year.

Other suggestions were for Ohio Testing Services to develop in-service materials, provide consultative services for test coordinators and directors, revise current programs, and strengthen consultative services to schools. A recommendation was made that more research be carried on to upgrade the quality of the testing programs, and to provide valid comparisons with other testing instruments.

This committee will serve in a continuing capacity at the discretion of the Ohio Testing Services Advisory Committee.

2. Guidance And School District Reorganization For Ohio

Supervisors from the Division of Guidance and Testing, and Dr. George Hill, Ohio University, formed a committee to study Guidance Services as they relate to proposed school district reorganization for Ohio.

3. Preliminary And Final District State Test Development

Test construction committees are composed of teachers in the local schools who work in cooperation with members of the professional staff of OTS in the development of the Preliminary and Final District - State Tests.

Their responsibilities are:

1. To define the major curriculum objective and course content for each stuject to be tested
2. To construct items which are compatible with these objectives
3. To pre test in the local school
4. To revise accordingly to data obtained from pre test

The final refinement and validation are made by the staff members of OTS.

4. Development Work On Vocational Education Interest Inventory

The Division of Guidance and Testing in cooperation with Dr. Paul Koons and Ayres D'Costa, Ohio University, researched and developed a revised edition of the Student Vocational Interest Survey. The major concern was to broaden the usage of the student survey so that it would serve both, as a survey and as a counseling tool.

4. Research and Development

1. Evaluation of Guidance Services For Brecksville City School System

The evaluation involved nearly 1,000 students, and over 65 teachers. The inventories completed by the students and teachers were scored and the resultant 34-page report included tables, charts, and a narrative report of the findings. The school system is conducting a year long in-service program as a result of the study.

2. The Ohio College Notebook

The Fourth notebook was updated to include the branches and academic centers of the state universities, and community - junior colleges of Ohio. 6700 copies of the publication were distributed.

3. The Vocational Interest Surveys

During the 1965-66 school year the revised Student Vocational Interest Survey was administered to 13,687 tenth and eleventh grade students. These students represented sixteen countywide, partial county, or joint county surveys. Sixty-seven percent of the group surveyed indicated an interest in vocational education. Forty-three percent reported plans to attend college and thirty-six percent indicated plans for further education after high school other than college.

4. Filmstrip Development

The Division of Guidance and Testing in conjunction with the professional assistance of Guidance Associates, Pleasantville, New York, The Division of Vocational Education, and other consultative staff developed three filmstrips during the past year. Primarily, they were developed for staff use, and for school purchase. The filmstrips were entitled, "As They Grow-Elementary Guidance - New Dimensions In Meeting Pupil Needs"; "Your Future Through Vocational Education", and "Your Future Through Technical Education."

5. The Ohio Vocational Notebook

The Notebook was initiated by The Division of Guidance and Testing and is being developed jointly between that unit and the Division of Vocational Education. The notebook is a counselor resource book similar to the Ohio College Notebook. Approximately fifty vocational programs covering the five vocational service areas are described in the publication.

6. The Technical Education Surveys

During the 1965-66 school year, the Technical Education Interest Survey was administered to 2,171 twelfth grade students. These students represented twenty-six comprehensive schools and two vocational schools. Fifty-three percent of the participating students expressed an interest in pursuing post-secondary technical education programs.

7. Elementary School Guidance Pilot Projects

The Guidance Services Section of the Division of Guidance and Testing approved sixteen Pilot, Demonstration, or Experimental Elementary School Guidance Projects. Fourteen projects operated during the past year. Funds approved on a 50% matching basis approximated $120,000.00.

8. School Counselor's Guide To The Use Of The General Aptitude Test Battery

This handbook contains information, forms, tables, and normative data needed by school counselors to administer and interpret the GATB to secondary school students. The handbook is used in special training programs by The Division of Guidance and Testing to qualify school counselor's and psychologists to use the GATB.

9. Student Guide To The General Aptitude Test Battery: Educational Norms And Occupational Aptitude Patterns

This booklet is part of a set of materials developed for group test interpretation and guidance activities.

10. Ohio Survey Test: In-Service Consultations

The introduction of The Ohio Survey Tests into the State Testing Program stimulated the demand for in-service consultation by the state staff to a significant degree. The tests were used in over 800 schools, and

some 40 in-service workshops were conducted, designed to assist teachers and administrators in the use of the test results. In addition, staff members carried on extensive consultation services through individual contact with school staff personnel.

Future plans call for expansion of the in-service consultation services, with more emphasis on work conferences and in-service sessions for school testing coordinators, directors, and administrators.

11. Vocational Guidance Seminars

Two three-week vocational guidance seminars were held during the summer of 1965, and five two-week vocational guidance seminars were held during the summer of 1966 at five Ohio universities involving approximately 140 certificated school counselors. The purpose of these seminars was to upgrade school counselors in their knowledges and skills of vocational education opportunities and trends in order to help them be more proficient in their guidance and counseling activities with school youth.

5. Summary of Persons Served

Table I depicts the number of persons served by the Guidance Services Section during the 1965-66 school year.

TABLE I

Type of Persons Served	Type of Activity			
	Address	Presentation	Consultation or Discussion Leader	Total
Administrators	563	359	649	1,571
Counselors And Counselor Educators	2,834	5,103	2,049	9,986
Teachers	3,087	3,315	1,025	7,427
High School Students	11,917	4,390	45	16,352
Graduate Students	172	1,034	16	1,222
Other Persons	2,787	694	362	3,843
TOTAL	21,360	14,895	4,146	40,401

6. Plans for 1966-67

During the following school year the Division of Guidance and Testing has as its goal the completion of the following activities.

1. The addition of a third professional staff member to the Guidance Services Section to be reimbursed by vocational education funds. This position will involve responsibilities with a state-wide program requiring important supervisory, evaluation, and program development functions related to the Technical and Vocational guidance programs under the State Plan for Vocational Guidance.

2. Upon request conducting the orientation phase of the vocational education community survey.

3. Finalizing the production of the third vocational education filmstrip with the professional assistance of Guidance Associates, Pleasantville, New York. This will be directed specifically for adult orientation and understanding of vocational and technical education.

4. Participating in workshops interpreting and exploring uses of the tests results from the new Ohio Survey Tests.

5. Coordinating and participating in seventeen GATB Workshops with provisions for 20 school counselors per session.

6. Providing consultative services and assisting in the establishment of selection procedures, curricular offerings and staff and facility utilization in developing joint vocational schools.

7. Continue to serve on committees, participate in programs, or assist in any way requested in the planning of from three to six meetings for each of the following fourteen area guidance organizations: Akron Area Vocational Guidance Association; Ashland Area Guidance Association; Central Ohio Guidance Association; Cincinnati Guidance and Personnel Association; Eastern Ohio Guidance Association; Hilltop Guidance Council; Industrial Information Institute, Inc.; Kent Area Pupil Personnel Council; Miami Area Guidance Association; Miami Valley Personnel and Guidance Association; Ohio Valley Guidance Council; Northeastern Ohio Personnel and Guidance Association; Northwestern Ohio Guidance Association; and the Western Ohio Guidance Council.

8. The staff will participate in several audio-visual conferences during the year. These conferences are designed to acquaint

the school personnel with the latest in audio-visual equipment and materials. In addition, the opportunity to present information concerning guidance and testing promote increased understanding of the process of guidance at the state and local level.

9. The Division will participate in the following State-wide Conferences: Fourteenth All Ohio Guidance Conference; Sixth Elementary Guidance Conference; Fifth Junior High Guidance Conference; and six High School-College Conferences.

10. The staff will continue to provide consultative, supervisory, and leadership services to schools which request the services.

11. The following publications are planned: Fifth Ohio College Notebook; Directory of Counselor Education in Ohio; A Report of the 1966 Vocational Guidance Seminars; a revision of The Student Orientation and Questionnaire Phase of the Vocational Education Community Survey; a revision of Course Selection and Career Planning; Ohio Vocational Education Notebook; Guidelines for Developing an Elementary Guidance Program; Abstract of Ohio's Elementary School Guidance Projects; Dictionary of Guidance Terms; five issues of Ohio Guidance News and Views; in addition to Reports of the Fourteenth All Ohio Guidance Conference; the Sixth Elementary Guidance Conference; the Fifth Junior High School Guidance Conference; and other materials as deemed necessary.

12. Research efforts will be continued in the area of elementary guidance through seventeen approved experimental, demonstration, or pilot projects under Title V-A, NDEA.

13. Guidance will be emphasized under the Vocational Education Act of 1963 by permitting schools with five or more vocational programs to employ a full or part-time vocational guidance coordinator. In addition a survey will be conducted early to determine the counselor interest in two-week vocational guidance seminars which will be planned in cooperation with approved Ohio Universities. A day's retreat is planned with the Summer 1966 Vocational Guidance Seminar directors to share their learning experiences, evaluations, and recommendations which will serve as guides in planning the 1967 Seminars.

14. Following Field Studies conducted during the past year a new validated Student Vocational Planning Questionnaire will be finalized. As a follow-up, a vocational guidance manual for counselors, cooperatively developed with the vocational education services, describing the vocational and technical education programs available in Ohio schools will be published.

15. A newly developed questionnaire will be developed for use in conducting Technical Education Interest Surveys, whenever this service is requested.

16. An effort will be made to encourage all Vocational Guidance Coordinators to join state and national vocational organizations and to actively participate in their meetings.

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7. Close Cooperation Important

The opportunity for close cooperation with many other Divisions of the State Department of Education has provided for increased service to schools and understanding by all Department staff members. This inter-action will continue to be a very positive force in accomplishing the specific goals of the Division of Guidance and Testing, and the general goals of the Department of Education outlined in the address of Dr. Martin W. Essex following his "swearing in" ceremony on July 1, 1966. One of the goals emphasized is to explore how education can assist the 20% of our school population referred to as "dull-normal" so that they, too, can share in the great American dream of "opportunity for all."

August 1966
CEW/mlk

VI. VOCATIONAL HOME ECONOMICS

STATUS AND DEVELOPMENT OF VOCATIONAL AND TECHNICAL PROGRAMS

Home economics continues to be the field of knowledge and service primarily concerned with strengthening family life. A primary goal of vocational home economics has been and continues to be that of preparing for the vocation of homemaking. Current and predicted changes in our society make it wise to add a wage earning focus as a part of this goal. In addition, adjustments are needed and being included in all home economics courses to focus on areas of management which help women adjust to their dual role of homemaker/employed person with success and satisfaction.

REVIEW OF VOCATIONAL HOME ECONOMICS

Secondary - Homemaking and Job Training

There has been growth in the number of high school vocational homemaking programs during the past three years. The largest increase in departments and teachers is taking place now for the 1966-67 school year. There were twenty-two departments added in 1963-64 over the previous year; fifteen in 1964-65; and forty-five new departments have been approved for the coming year 1966-67. There were 171 more vocational teachers added to the program the past three years and 110 more will be added this coming fiscal year 1966-67. Student enrollment has increased 11,644 students in the past three years.

There has been an increase in special class offerings each year. Those classes include programs for slow learner, family living for boys and girls, and semester courses for developing high skills in each subject matter area.

Job training programs have been developed on a selected basis in order to experiment and develop varied types of such programs. Ten programs are now provided in six schools for 1965-66 for 153 students. The same programs will continue in 1966-67 school year. Two additional programs will be added at Penta and Newark. There will also be an addition of seven more programs in different schools.

Many schools are considering job training programs in home economics for the 1967-68 school year but will take a year to survey the community, meet with advisory committees, do job analysis, and plan programs.

Future Homemakers of Ohio

There was a steady increase of chapters and members for the past five years until this year, 1965-66, when there was a drop in total membership of approximately 650 members. This may be due to the large teacher turnover of advisors the past year.

There has been a steady improvement in the quality of the organization's publications, visual and resource materials, record keeping, sub-regional and state meetings, public relations, and the creative use of the program of work.

Adult, Family Life, and Technical Education

Adult education classes and enrollments in homemaking in the past three years have shown some increases and decreases. In 1965-66, it was necessary to change the reimbursement policy. This decrease in the amount of reimbursement had the greatest effects upon the number of evening classes taught by the vocational day school teachers. Data also shows a decrease in offerings in classes, enrollment, and number of cities having programs.

Family life education programs now exist in six cities: Toledo, Youngstown, Lorain, Zanesville, Cleveland, and Cincinnati. In these six cities this past year, 1965-66, a total of 37,330 youth and adults received instruction in family life education.

In each city, the family life program differs, as it should, in order to provide a channel through which that specific community may coordinate its needs in family life education. The approaches are numerous; but the overall function of all the family life education programs is to interpret, coordinate, and educate people in the interest of enriching family living.

Technical education programs in vocational home economics started during the past three years. An advisory committee met in the fall of 1964 to consider the possibility of such a program in Columbus. A state staff member was assigned to technical education to work with advisory committees, administrators, and teachers in developing curricula, policies, recommend necessary equipment arrangement, and develop brochures.

Two-year post high school technical courses are being offered at three cities with one more to be opened in 1967. Those programs are listed below:

Food Service (Dietetics) Technology	- Columbus Area Technician School
Food Service Management	- Penta County Technical School
Child Development Technology	- University College, University of Cincinnati

Vocational Home Economics Extended Learning Program - Home Projects

Home experiences or projects are a characteristic and essential part of the vocational homemaking program. The students need practical opportunities to apply in real life situations in their homes and community what is learned in homemaking classes by carrying out some home experiences and/or projects. In order to carry out this phase of the program, teachers hold conferences with students to help plan the home projects. Teachers held 74,140 student conferences this school year to help plan their projects. A total of 110,264 home projects were carried out by students.

The teachers also visit the homes of students during the school year as well as during the extended summer employment period. Teachers made 37,939 home visits during the past year to supervise the project program and to extend and apply class instruction into home situations.

A. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

1) Workshops and In-Service Programs

Types of In-Service Instruction	Number Attending	Length of Meeting	Purpose
3 Job Training Workshops at Ohio State University, Ohio University, and Kent State University	68 high school teachers	2 weeks, June 13 to June 24	To give instruction to those teachers anticipating job training programs in the future
State Convention of Future Homemakers of America	4000 high school students, parents, and advisors	2 days	To hold business meeting, present program awards, and plan for the coming year's program of work
Regional Teachers' Meetings, 24 regions, one to three meetings per region	600	1/2 to 1 day each meeting	To explain job training materials and improve homemaking program methods
Regional Chairmen's Meeting	35	1 day	To make plans for Annual Conference for all teachers
Meetings for teachers beginning, returning to teaching, new to Ohio, and new to vocational program	150	1 day	To orient beginning and returning teachers to duties and responsibilities
Ohio State Fair	52 schools 218 girls 90 presentations	12 days	To sponsor leadership development for girls, to educate the fairgoers regarding home economics

2) Consultants Used for In-Service Programs

a. The following were used as consultants at the three job training workshops:

Dr. Charles Nichols, Director of Vocational Education, Kent State University
Dr. Byrl Shoemaker, Director of Vocational Education in Ohio
Dr. William Ramsey, Superintendent, Penta County Vocational School
Dr. Margaret Alexander, Program Specialist, Home Economics, Occupation Section, U. S. Office of Education
Walter Adams, Division of Guidance and Testing, State Department of Education, Ohio
Dr. Herbert Brum, Supervisor of Disadvantaged Youth and Work-Study Programs, Ohio State Department of Education

Miss Jasmine Cayton, Home Economics Job Training Teacher, Alliance High School, Alliance, Ohio
Mrs. Mary Lou Ertel, Home Economics Job Training Teacher, Blanchester High School, Blanchester, Ohio
Mrs. Irene Rose, Home Economics Job Training Teacher, Newark High School, Newark, Ohio
Mrs. Marjorie Jones, Home Economics Job Training Teacher, Berne Union High School, Sugar Grove, Ohio
Mrs. Marlene Jones, Home Economics Supervisor, Penta County Vocational School, Perrysburg, Ohio
Mrs. Deanna Radeloff, Home Economics Job Training Teacher, Penta County Vocational School, Perrysburg, Ohio
Miss Janet Fentress, Home Economics Job Training Teacher, Penta County Vocational School, Perrysburg, Ohio
Dr. Harold E. Wilson, Superintendent of Schools, Cuyahoga Falls, Ohio
C. Paul Sherck, Trade and Industrial Teacher Educator, Kent State University, Kent, Ohio
Mrs. Alice Bowen, Executive Housekeeper, Kent State University, Kent, Ohio
John Sibbel, Food Service Coordinator, Kent State University, Kent, Ohio
John D. Mattingly, Distributive Education Teacher Educator, Kent State University, Kent, Ohio
William Shipe, Diversified Cooperative Training Coordinator, Whitehall City Schools, Columbus, Ohio

b. Consultants served at regional meetings:

Mrs. Alice Kuester, Vocational Home Economics Teacher, Ansonia High School, Ansonia, Ohio
Dr. Beulah Sellers, Ohio University, Athens, Ohio

c. Consultants used in the Future Homemakers of America organization:

Dr. John Furbay, Education Director of Trans-World Airlines
Calvin Young, State Director of Mental Health Federation, Columbus, Ohio
James E. Rhodes, Governor of the State of Ohio, Columbus, Ohio

d. Consultants in surveys or on survey committees:

Dry cleaning establishments
Nursing homes
Nursery schools
Cafeterias: school and public
Motels
Hospitals
Health and welfare departments

e. Consultants which were used in the technical and adult programs:

Miss Margaret Ferguson, Nutrition Specialist, Columbus State Department of Health
Wade Bash, Chief of School Lunch Program, State Department of Education, Columbus, Ohio
Mrs. Mary Hahn, Administrative Assistant for Medicare, Columbus, Ohio
Mrs. Eleanor Dawson, Instructor for Home Health Aide Program, Columbus Board of Health, Columbus, Ohio
Advisory Board for Technical Education members

f. Advisory committees used:

Advisory committees were formed and used in conjuction with the following:

Mahoning County Survey	8 persons
Technical Education at - Columbus	8 persons
- Penta County	10 persons
- Cincinnati	7 persons
Adult Education at Waverly	6 persons
Pioneer Joint Vocational School	8 persons
Future Homemakers of America Advisory Committee	24 persons
State Advisory Board for Vocational Education	15 persons
Child Development Technology Program	12 persons
Food Service Technology Program	10 persons
Teachers' Regional Chairmen	25 persons
Annual In-Service Conference Officers	6 persons

3) Participation of State Home Economics Staff in Conferences, Workshops, or Programs Related to the Field of Education

Type of Program	Sponsor	Estimate No. Attending	No. Supervisors Attending	Role of Supervisor(s)
National Seminar for Home Economics Leaders	Center for Technical and Vocational Education, Columbus	150	9	Participants Hostess Presiding officer
In-Service Seminar	Department of Education, Ohio	300	9	Participants
In-Service Seminar	Division of Vocational Education	100	8	Participants
Job Training Clinic	U. S. Office of Education	130	5	Consultant Participants
National Future Homemakers of America Meeting	U. S. Office of Education	1300	1	Advisor to Ohio delegation
American Vocational Association Annual Meeting	American Vocational Association	3000	1	Program participant
Ohio Vocational Association Annual Meeting	Ohio Vocational Association	450	5	Committee members, Participants

Ohio Home Economics Association Annual Meeting	Ohio Home Economics Association	350	4	Participants
Governor's Conference on Technical Education	Department of Education, Ohio	360	2	Committee member for registration and luncheon planning
American Dietetics Association National Meeting	American Dietetics Association	2000	1	Consultant
American Dietetics Association State Meeting	American Dietetics Association	250	1	Participant
Adult Education Conference	Adult Education Association	100	1	Program participant
Guidance Workshop	Kent State University	40	1	Program participant
Ohio Education Association Meeting - Central	Central Ohio Education Association	200	1	Program participant
Dedication of building	Penta County Vocational School	1000	1	Staff representative
Clinton County Teachers' Association Meeting	Clinton County Teachers' Association	200	1	Program participant
State Conference on World Hunger	Ohio CROP	350	1	Participant
Career Days	Schools (4)	450	3	Program participants
Home Safety Committee State Meeting	Ohio Farm and Home Safety Committee, Inc.		1	Secretary
Dedication of Nixon Hall - new home economics building	Kent State University - Home Economics Department	300	3	Staff representatives
Occupational Work Experience Meetings (3)	Division of Vocational Education, Ohio	20 at each	2	Discussion participant Program participant

Scholarship Cook-off	Dayton Power and Light Company	20	1	Judge
State Guidance Conference	Guidance Services	500		Participation on panel discussion
Vocational Rehabilitation Meeting, Columbus	Division of Vocational Education, Ohio	12	2	Participants
Vocational Rehabilitation Meeting, Penta County	Division of Vocational Education, Ohio	25	1	Participant
Home Economics Graduate Club	Ohio State University	35	1	Program participant
Planning Meeting	Center for Technical and Vocational Education, Columbus	8	1	Planning committee member
Home Economics Faculty Meeting	Ohio State University - School of Home Economics	30	1	Program participant
Executive Council Meeting	Ohio Farm and Home Electrification Council		1	Participant
Workshop for Alumni	Ohio State University - School of Home Economics	300	1	Program participant
Jefferson County Meeting	County Superintendent	15	1	Program participant
Stark County Meeting	County Superintendent	45	1	Program participant
College Home Economics Club	Kent State University	50	1	Program participant
Ohio Retail Merchants' Council Meeting	Ohio Retail Merchants' Council	8	1	Consultant on planning teachers' meeting

Principals' Meeting	Canton City Schools	8	1	Consultant to interpret vocational home economics
Extension Education in the Future	Cooperative Extension Service	700	1	Participant

4) Publications

Vocational Home Economics Curriculum Guide for Ohio

Under the directorship of two supervisors, Barbara Reed and Olwen Williams, the publication of this curriculum guide climaxes three years of development involving a large number of teachers and consultants. The Guide presents each unit with a basic generalization, the expected behavioral outcomes, content, and main ideas. An extensive bibliography concludes each unit. Distribution to teachers is planned for the August Annual Conference.

State FHA Program of Work Calendar and FHA Newsletter

The 404 FHA Chapters received this publication which is prepared each year to assist, encourage, and inspire local FHA officers in planning the year's program for their chapter. Twice a year a newsletter is published for FHA members and advisors. This newsletter gives help on program planning for local chapters and also gives ideas for developing program goals and activities. It includes the listing of the year's events of the State Association. Newsletters are prepared by Dorothy Foster.

Program Descriptions for Vocational Home Economics, Homemaking, and Job Training

This bulletin has been prepared for the use of administrators, teachers, and guidance counselors as a reference in the development of new programs and the scheduling of students in the most appropriate classes. It contains two parts. Part I pertains to programs in job training, and Part II pertains to the homemaking courses.

Cooperative Training Programs in Food Service for High Schools - Subject Matter Outlines and Selected References for Teachers and Students

This publication includes suggestions for course objectives, subject matter outline, and reference listings for use by teachers conducting home economics job training programs in food service at the high school level. The outline has been written for use in a two year program with emphasis placed on nutrition, quantity planning, and purchasing in the second year. This is a composite of materials developed and edited by Margaret McEniry, Grace Beckwith, Sonia Cole, in addition to the writer, Betty Mackey.

Plan for Space, Cost of Job Training

Done cooperatively by staff members, this master plan is composed of tables designed to recommend the vocational home economics programs feasible for schools of varying enrollments and sizes.

Keys to Opportunities in Home Economics Adult Education

This is a promotional brochure illustrating adult education in both wage earning and homemaking programs. It was developed by Sonia Cole to serve as a hand-out with speeches and as an insert in adult program mailings.

5) Joint Activities, Cooperation with Other Vocational Services

Name of Service	Purpose	Role of Supervisor
F.F.A., D.E.C.A., V.I.C.A.	To plan a cooperative youth meeting for state officers of youth organizations	Served at state advisors' meeting
Guidance	To develop a technical education filmstrip	Picture taking and script development
Guidance	To develop a technical questionnaire	Made suggestions for home economics area
Distributive Education	To education Ohio State University, Education 717 students regarding vocational home economics	Class consultant for two days
Teacher Certification	To evaluate home economics teachers' transcripts of credit	Evaluator
Teacher Certification	To establish certification requirements for job training teachers	Conference member
Vocational Education	To establish space and cost recommendations for job training	Conference member

6) Joint Activities, Cooperation with Groups and Organizations

Group and/or Organization	Purpose	Role of Supervisor
4-H, F.F.A., Girl Scouts, Y-Teens	To coordiante plans for delegates to National Youth Conference on Beauty and Conservation	Made arrangements for delegates to attend Conference in Washington D. C.
Ohio School Board Association	To inform administration about vocational home economics	Presentation of program
State Department of Education	State Department Annual Camp Outing	Consultant for Food Service

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

INSTRUCTIONAL PROGRAMS AND RELATED ACTIVITIES

SECONDARY PROGRAMS

The 1965-66 school year brought continued growth in the total vocational home economics program. Compared to the year before, the growth comprised an increase of sixty teachers, fifteen additional departments, and 3,444 students. The increase in number of teachers was due to the addition of new departments, establishment of job training programs, and the increased enrollments in homemaking classes of established departments.

Table 1 shows the number of high school vocational home economics departments, teachers, and students for the past three school years, 1963 through 1966.

TABLE 1

COMPARISON OF TOTAL NUMBER OF DEPARTMENTS, TEACHERS, AND STUDENTS IN HIGH SCHOOL VOCATIONAL HOME ECONOMICS IN OHIO, 1963-1966

School Year	Number of		
	Departments	Teachers	Students
1963-1964	355	497	31,091
1964-1965	377	550	35,073
1965-1966	392*	610**	38,517

* 6 Job Training Programs Included
** 9 Job Training Teachers Included

Job training programs in home economics were completed this year in five pilot programs in high school having previous homemaking programs and in one joint vocational school. A total of 153 students enrolled in the programs. Twelve dropped out during the year leaving 141 to complete the training.

The child care aide training programs at three schools - Blanchester High School, Newark High School, and Penta County Vocational School - enrolled a total of fifty-five students. The clothing alteration program at Newark High School enrolled seventeen students. Training for food service at Berne Union High School had thirteen enrollees. The homemaker's assistant program at Penta County Vocational School enrolled thirty students. Two diversified programs, one cooperative and the other occupational work experience, had a total of thirty-eight students.

Table 2 gives the number of students enrolling in and completing home economics job training programs in Ohio during the school year 1965-66.

TABLE 2

NUMBER OF STUDENTS ENROLLING IN AND COMPLETING HOME ECONOMICS

JOB TRAINING PROGRAMS IN OHIO 1965 - 1966

Name of Programs	Number Enrolling			Number Completing			
	Juniors	Seniors	Total	Juniors	Seniors	Dropouts	Total
Child Care	13	42	55	13	39	3	55
Clothing Alteration	6	11	17	6	9	2	17
Food Service	5	8	13	5	6	2	13
Homemaker's Assistant	13	17	30	13	15	2	30
Diversified Cooperative	0	18	18	0	17	1	18
Diversified OWE	11	9	20	11	7	2	20
TOTALS	48	105	153	48	93	12	153

NEW JOB TRAINING PROGRAMS ORGANIZED IN FALL, 1966

School	Location	Program
Canton South High School	Canton, Ohio	Food Service
Chippewa High School	Doylestown, Ohio	Occupational Work Experience
Marlington High School	Alliance, Ohio	Occupational Work Experience
Sidney High School	Sidney, Ohio	Diversified
Penta County JVS	Perrysburg, Ohio	Food Service - Dietary Aides
Defiance High School	Defiance, Ohio (rural)	Food Service, Child Care Aide, Rest and Nursing Home Aide

CURRICULUM REVISION AND DEVELOPMENT

A considerable amount of time in the past three years has been spent by teachers, consultants, and staff in revising the Scope and Sequence and in developing the Vocational Home Economics Curriculum Guide for Ohio. The August distribution of the Guide to teachers climaxes this curriculum project.

Each of the teachers in the pilot job training programs and the joint vocational school developed their own curriculum plans and evaluation tools for use this past year. In many cases, they had little to guide them except their own individual needs. The most extensive work was completed in the child care worker training programs where three such pilots were in effect. The job training teachers now realize the inadequacies of their pioneer efforts, but they plan to revise and revamp curriculum and evaluation during their second year in job training programs.

NEW PROGRAMS IN JOB TRAINING

In the 1965-66 school year, the job training aspect of vocational home economics was initiated and incorporated in five high schools having a homemaking program. Home economics job training was a part of the Penta County Vocational School at Perrysburg, Ohio as well.

A total of 153 students enrolled in the various programs where they received related instruction and a minimum of fifteen hours per week on-the-job work experience.

Descriptions of the individual pilot programs are given below.

Alliance High School - Alliance, Ohio

The teacher worked with twenty girls, eleven juniors and nine seniors, in a diversified occupational work experience program. Focusing on a number of objectives, the teacher put special stress on encouraging the girls to finish high school and on developing trained personnel for the employment needs of the community. The job training centers which were used included an exclusive dress shop, women's club, college lunch rooms and cafeterias, school lunch program and school cafeteria, and rest and nursing homes.

Bellefontaine High School - Bellefontaine, Ohio

This diversified cooperative job training program which began with eighteen seniors finished with seventeen. The areas included in the course content were child care, housekeeping, care of the sick, food handling, sewing, and altering. Job stations included a hospital, department store, bakery, rest and nursing homes, cafeterias, and a sewing center.

Blanchester High School - Blanchester, Ohio

This program was established as a child care aide training program for eight senior girls. The girls worked within the Blanchester school system with children attending the kindergartens, first grades, and special classes. In addition to the related instruction in child development, the class work provided special learnings timed with the work experience demands of the girls' jobs.

Newark High School - Newark, Ohio

Two job training programs were started this past year - child care aide, a one year program; and clothing alterations, a two year program.

The clothing alteration class had seventeen members (six juniors and eleven seniors) who did all their laboratory experience in the school. Clothing belonging to teachers and class members' families supplied the alteration and construction experiences.

The child care aide trainees received their on-the-job experience in kindergartens, both public and private, within the city of Newark.

Berne Union High School - Sugar Grove, Ohio

Food service workers were trained in classroom experiences and in job stations provided by the school cafeteria, restaurants, lunch counters, and a rest home kitchen. The girls enrolled in the two year program were thirteen in number, five juniors and eight seniors.

Penta County Vocational School - Perrysburg, Ohio

Two job training programs, child care aide and homemaker's assistant, were conducted by four teachers in the first year's operation of this five county vocational school. Included were related instruction and laboratory supervision to the trainees in the school's own nursery school facilities. Thirty students enrolled in this program, eighteen of the girls were seniors and twelve were juniors.

The homemaker's assistant training program enrolled thirty students (thirteen juniors and seventeen seniors.) The work experience for these students was also provided within the school property.

YOUTH ORGANIZATIONS

Future Homemakers of America - Program Objectives and Developments

The 1965-66 state theme was "World Friendships - Foundation for Peace." The year's reports have indicated that chapters created and completed numerous worthwhile activities and projects since the theme was first introduced at the 1965 state meeting.

The climax of the year's program came with the 21st Annual State Meeting, April 22 and 23, 1966, at Veterans' Memorial Auditorium in Columbus, Ohio. Governor James E. Rhodes gave greetings and Dr. John Furbay, Air Education Director of Trans-World Airlines, gave the keynote address. State homemaker degrees were awarded to 310 girls and 249 chapters received the Award of Merit. A report on "Know, Serve, and Appreciate Ohio", the project of the past three years, was given. Two FHA scholarships were presented and four honorary memberships were given.

Local chapters continued to be generous in their support of the various projects under state association sponsorship. A total of $3,239.00 was contributed to the five funds this year. Over the past three years, a grand total of $5,000.00 has been contributed to the Mental Health Research Fund.

The Ohio Association of Future Homemakers experienced progress during the year. One additional chapter since last year made a total of 404 Ohio chapters having a total membership of 17,655.

Table 3 gives the number of chapters and members in the Ohio Association in the years 1964, 1965, and 1966.

TABLE 3

THE NUMBER OF CHAPTERS AND MEMBERS IN THE OHIO ASSOCIATION OF FUTURE HOMEMAKERS OF AMERICA - 1964-66

Year	Number of Chapters	Number of Members
1964	390	18,224
1965	403	18,336
1966	404	17,655

The vocational home economics teachers who served as FHA advisors devoted much time and attention to the program. A total of 835 FHA activities on the state or sub-regional level were attended by high school vocational home economics teachers during the fiscal year.

IN-SERVICE TEACHER EDUCATION

Vocational home economics teachers add to their schedules by attending workshops and clinics for the purpose of increasing their knowledge. A total of 337 teachers were in attendance at a variety of home economics workshops during the past year. Sixty of the teachers were participants in the invitational job training workshops sponsored by the staff at three universities - Ohio University, Ohio State University, and Kent State University. Other workshops which contributed to the further education of the teachers were utility company workshops, nutrition conferences, Ohio Home Economics Association's Low Income Conference, and a number of miscellaneous workshops.

The staff holds meetings throughout the year with the teachers in their respective regions. Some regions held only one meeting this year, but most held two or three. Teachers attend the meetings wherever schedules and administrative policy make such attendance possible.

ADVANCED EDUCATION

Seventy of the high school vocational home economics teachers presently hold Master's degrees. Forty-six teachers indicated that they are working on an advanced degree.

Development of Two Year Post High School Courses in Technical Training

A. Columbus Area Technician School

1) Class will open 1966-67 in Food Service (Dietetics) Technology.

B. Penta County Technical College

1) Plans started in fall of 1965.

2) A course in Food Service Management is being offered for the 1966-67 school year.

C. University College (University of Cincinnati)

1) Plans have developed since spring of 1965.

2) A course in Child Development Technology will be offered in the 1966-67 school year.

D. Lorain Community College

1) Home economics program has developed since the fall of 1964.

2) A food service administration program will open in 1967.

ADULT EDUCATION

A. Family Life Education Programs in Six Cities

1) Toledo, Youngstown, Lorain, Zanesville, Cleveland, and Cincinnati.

2) In 1965-66, 37,330 youth and adults benefited from a variety of education offerings related to family living. This represents an increase in enrollment of about 8,000 students during the past three years.

B. Adult Education for Day School Program

1) New manual of operation was developed for adult job training.

2) Policies and reimbursement procedure was changed.

3) Total number of adult classes has decreased slightly since the changes in reimbursement have gone into effect.

PRE-SERVICE TEACHER EDUCATION

Vocational home economics teachers are trained at eight universities in Ohio, namely:

Ohio University	- Athens
Bowling Green University	- Bowling Green
University of Cincinnati	- Cincinnati
Ohio State University	- Columbus
University of Dayton	- Dayton
Ohio Wesleyan University	- Delaware
Kent State University	- Kent
Miami University	- Oxford

The teacher education staff at these eight universities have done an outstanding job of both pre-service and in-service training of vocational home economics teachers. The staff at each university cooperates with the state supervisory staff in many ways to strengthen the in-service training program. Conferences, workshop meetings, and studies have been cooperatively developed with the teacher educators and state supervisory staff the past year. Included are a few reports from universities showing the progress they have made the past year.

APPROVAL FOR VOCATIONAL TRAINING PROGRAM

Ashland College, Ashland, Ohio, requested an evaluation of program offerings, staff qualifications, and physical plant to determine whether they could meet qualifications for training vocational home economics teachers. The staff at Ashland College launched an evaluation and self-study of their program during 1964-65 and in the fall of 1965, submitted a report of this study. A reviewing committee consisting of Dr. Marie Dirks, Ohio State University; Dr. Emma Whiteford, University of Cincinnati; Mrs. Alberta Thompson, Kent State University; and Miss Margaret McEniry, State Department of Education; reviewed the study, met with department staff, and evaluated program offerings.

Approval to train vocational home economics teachers was granted on a three year basis starting in September, 1966, with some recommendations for improvements to be made in this three year period.

RECRUITMENT

Ohio University

The School of Home Economics had two visitation days for prospective graduate students. Undergraduate recruitment activities were carried out through the home economics orientation class, the campus career day, and by the home economics faculty member on the University Public Relations Committee.

Ohio State University

Recruitment in the School of Home Economics at OSU is carried on through the Guidance Office and the Public Relations Office. Efforts on the part of the home economics education staff are largely on an individual basis and in their contacts with high school homemaking students in the student teaching centers with whom they are sometimes asked to talk.

RETENTION

Ohio University

The senior enrollment in home economics education will increase almost 50% next year from the senior enrollment this year. The admission and retention policy for the teacher education program requires that the students meet higher academic and personal qualifications before they can be admitted to student teaching.

Bowling Green State University

We enrolled about the same amount of freshmen majors in the fall. Our retention from the sophomore year to junior year is greatly increased, and will, if numbers hold, double graduating teacher education majors by June, 1968, or between fifty to sixty graduating compared to an average of about thirty. The interest and hold-over seems to be increasing throughout the university also.

PLACEMENT

Bowling Green State University

Of the graduating majors in education this year, they seem to be more effected by selecting jobs by location than in previous years. Several of our girls are not placed at this writing, not because of lack of positions, but because of interests in location or nature of position. Several want in larger cities where it is more difficult to start as a beginner as more experienced teachers seem to want to move up and are waiting in nearby communities for such opportunities.

Ohio University

The College of Education has developed its own Placement Bureau this year. All education majors are required to register with the Bureau before graduation. Job opportunities are sent to the chairman of the department of home economics education weekly. Placement of graduates has not been a problem this year.

STRENGTHENING TEACHER EDUCATION CURRICULUM

Miami University

At Miami University, there is a new requirement of eighty hours of observation-participation before a student can be placed for their semester of student teaching. We are working on plans for a semester seminar for our students after they return from student teaching.

University of Cincinnati

Plans are underway to use on an exploratory basis this year a tentative draft of a "Guide for Student Teaching Experiences," developed in our college. It is anticipated that this procedure may contribute substantially in maintaining needed continuity in the experiences of our students.

TRAINING TEACHERS FOR ADULT PROGRAMS

To supplement students' experiences, both from the standpoint of adult education and low economic groups, arrangements were made for a field trip to several programs, some of which are cooperatively sponsored by the Metropolitan Housing Agency, the Welfare Department, and the Cincinnati Public Schools. Senior students developed plans and gave a demonstration relating to play materials appropriate for pre-school children. The group of mothers were participants in a neighborhood project in the Economic Opportunity Program.

RESEARCH AND STUDIES

Ohio University

This year the Department of Home Economics Education at Ohio University and the Occupational Therapy Division at the Athens State Mental Hospital worked together to develop a home economics program for the women who were almost ready to be released. Courses were taught in consumer education, personal grooming, clothing construction, and wage earning. All of the student teachers observed and had limited participation in this program. Five of the student teachers had teaching experience in these classes for one semester.

Ohio State University

THE SPECIAL CONTRIBUTION OF THE COLLEGE SUPERVISOR TO THE STUDENT TEACHING SITUATION

This is the cooperative research study in progress for the past several years involving Ohio State, Purdue, and Cornell Universities. Each institution will receive copies to distribute as it wishes. Purdue University will probably make copies available to others for a minimum charge. The publication should be helpful to college home economics teacher education departments.

THE EFFICACY OF HOME ECONOMICS COURSES DESIGNED TO PREPARE DISADVANTAGED PUPILS FOR THE DUAL ROLES OF HOMEMAKER AND WAGE EARNER

This is the second cooperative research project involving Cornell, Purdue, and Ohio State Universities. The purpose is to demonstrate the effectiveness of a homemaker-wage earner course with a curriculum and materials for teaching especially planned special training for work with the disadvantaged.

Bowling Green State University

Teacher educators and child development personnel cooperated with psychology, sociology, and education for slow learner areas to draw up project for federal approval. Took major initiative in securing interest for cooperative project and in suggesting cooperation of the various departments. The teacher education personnel is coordinating the program consisting of two head start training centers serving as training laboratories as well as teaching the home economics portion of the program. She has supervised and organized the curriculum laboratory developed especially for this eight week training project. The program is currently underway and we are hopeful that it will have good reports and be proving ground for continued programs of this nature in the future. The latter has been projected and is a real possibility with government approval.

STUDIES OR RESEARCH NEEDED AT:

Pre-Service Level

Ways of modifying the college program to more adequately train teachers for the changing program at the other levels - wage earning, need for more specialized training, etc.

Identify competencies needed for teachers in various home economics wage earning programs.

In-Service Level

Ways to measure student achievement and the success of programs at the secondary, post high school, and adult levels.

C. ADDITIONAL SIGNIFICANT INFORMATION

EXAMPLES OF WAYS PROGRAM IS BEING ADJUSTED TO SOCIAL, ECONOMIC, AND OTHER CONDITIONS AND HOW STUDENTS WERE INFLUENCED THROUGH CLASS INSTRUCTION

(1) "Students used family food plans suggested by the USDA for different income levels. They found that by carefully comparing prices and using ads from the local paper they were able to feed a family of two adults adequately for a week for as much as $2.00 less than the $9.21 suggested by the experts for meals at the economy level. Each student also selected and tested a recipe suitable for low cost meals. These were assembled and made available to all students in the department as well as anyone else who desired a copy.

As a result of this unit, many of the girls became interested in trying to save on the weekly food bill. Several are working on home experiences in marketing this summer. Others just assumed the responsibility for shorter periods of time with the objective of lowering the costs but not quality of the family's meals. One girl reported a savings of $10.00 a week for her family of four when she shopped with a list, compared prices, and checked food ads in the local paper when planning her market order."

(2) "One of my students this past year lived in poor circumstances. Both of her parents were ill and there was a large family. Her mother was able to make clothing of simple design for the smaller children, but she had no knowledge of fitting or using a pattern for clothing construction. The girl's wardrobe was very small as her mother was not able to sew clothing for her that would be suitable for school.

In homemaking class, Phyllis learned to sew. The family had a quantity of yard goods provided by a relative which had gone unused. From this, she made a very adequate and attractive wardrobe; taught her mother what she had learned; and as home projects, made garments for her younger sisters. In this way, she helped increase the family's clothing income."

(3) "Nearly every girl in my Homemaking III class seemed highly enthusiastic about the emphasis that all units carried on money management. These girls realized early in the family finance unit approximately what their future income would be, considering education, marriage, etc. With this bit of practical knowledge, the areas such as menus for a specific income level, furnishing a home, marriage, family relations, etc., took on added interest.

One outstanding example was the work done by Gail. She planned the furnishings of her home within her income level. The furnishings which she was able to buy outright were colored into her floor plans. The furnishings which had to come later were dotted in. Her home had the future in mind. (A sewing machine was one of the first things colored in by Gail. She is quite expert at sewing and has proved to herself that she saves money by so doing.)"

(4) "Obviously when students do a management project, sew, or improve their home as part of their home experience, saving results. Although I do not consider this outstanding in itself, I do teach a thorough money management unit in the senior year. Credit, bookkeeping, savings, insurance, and the major project, a budget, are included.

Evaluation of this unit contained such comments as this - 'I did not know it cost so much to live.'"

(5) "The two Home Economics III classes decided to do over the teachers' lounge as part of their home furnishings unit. They started with approximately $60.00 to budget; but as the work progressed, contributions came in from the freshman class and the Pep Club.

We discussed color schemes, paints, refinishing furniture, slipcover making, upholstering, window treatments, and money. The girls decided to retain two slipcovers and the draperies for the present. They chose to use the large design repeat in a drapery fabric sample as basis for their color scheme.

A committee from each class shopped and purchased three fabrics, paint, and other necessary supplies. The work was done in small groups. The floor was cleaned, the walls were painted, and the retained fabrics washed and mended where needed. Slipcovers were made for a two piece sectional sofa and a lounge chair. Pillows were covered and burlap paneling used on a room divider. Some wooden pieces were either refinished or reconditioned. The lounge had a totally different appearance with a small expenditure of money."

EVIDENCE THAT VOCATIONAL HOMEMAKING CLASS INSTRUCTION HELPED CHANGE OR IMPROVE STUDENTS' ACTIONS OR PRESENT SITUATION (REPORTED BY TEACHERS)

(1) "During the freshmen's unit on dating and parent/child relationships, one of the girls said that she had trouble getting along with her mother. She could not talk to her without arguments resulting. She said after learning that other girls have the same problems and why and also from the class discussion on how to understand the parents better, she can talk more freely with her mother now."

(2) "One rather large girl was quite backward and retiring. I am not certain whether it was the class in nutrition and weight control or the sewing class when her dress was so much larger than the others; but she decided, with a little urging, to take weight control as a home experience. As she lost weight, her whole attitude changed. She became more conscious of her appearance and grooming. Her grades in home economics improved. When she realized that these grades could be raised, she started working harder in other classes and really brought all her grades up. At the end of the year when she graduated, she had improved her appearance, self-confidence, and entire personality."

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Section VII -- MANPOWER DEVELOPMENT AND TRAINING

STATUS AND DEVELOPMENT OF VOCATIONAL PROGRAMS

On July 1, 1965 a separate service was established within the Division of Vocational Education to give leadership and direction to the rapidly increasing training and retraining programs for unemployed and underemployed youth and adults. This new service area is not a fragmentation of effort, but rather an extension of the existing vocational service areas.

With funds from the Ohio Worker Training Act of 1961, The Manpower Development and Training Act of 1962, and Section 241 of the Amended Manpower Development and Training Act of 1965 training and retraining programs for the unemployed and underemployed were approved for 56 Ohio communities. Programs were approved which planned training for 10,334 unemployed and underemployed youth and adults at an educational cost of $7,212,241.

A. CURRENT SUPERVISORY SERVICES AT STATE LEVEL

1. WORKSHOP AND IN-SERVICE PROGRAMS - Two activities were conducted this year under the State Sponsorship of the Manpower Development and Training Service:

   a. On December 28 and 29 an in-service workshop was held for supervisors and teachers of MDTA Farm Business Management and Analysis programs, using the facilities of the Union Local School District. Teachers and supervisors from nine school districts attended this workshop which was conducted by Dr. Floyd G. McCormick, Teacher Education, Agricultural Education, Ohio State University and Ivan C. Winland, Assistant State Supervisor, Manpower Development and Training Service.

   An invitation to attend this workshop was extended to the State Supervisor of Vocational Agriculture for West Virginia. He and two West Virginia teachers of Farm Business Management and Analysis attended, as well as, Mr. Homer E. Edwards, Regional Field Representative, Vocational Agriculture, U. S. Office of Education.

The purpose of this workshop was to provide controlled experiences in a review and application of farm accounting principles. Practice was received in the summary and analysis of farm records. Results of simulated farm records were interpreted as to the implication of the summaries for changes in farming practices and improvement of management techniques.

The workshop resulted in a significant improvement of the instructional techniques of those attending the workshop, as measured by follow-up supervisory visits by Mr. Ivan Winland. This was particularly true in the inventory, expenses, and cash receipts phase of the curriculum. The teachers' abilities to evaluate MDTA trainees actual farm operations was also enhanced through the experiences gained at the workshop.

b. Vocational directors and MDTA supervisors from Ohio cities having Manpower Centers, as well as supervisors representing communities with a lesser level of Manpower training activity, attended an in-service program in Columbus on May 19-20. A total of 25 vocational educators and one superintendent of schools attended this in-service program conducted by the Manpower Development and Training Service staff.

The purpose of the in-service experience was to disseminate recent information pertaining to the then pending redirection, from the National level, of the Manpower Development and Training program. Representatives of the Ohio State Employment Service and the Bureau of Apprenticeship and Training made presentations to the group. Existing State policies and procedures were reviewed and evaluated by the attendants. An overview of the Mahoning Valley Vocational School's basic education and pupil personnel programs was presented and discussed.

This in-service experience engendered a better understanding of the total Ohio Manpower Development and Training program, as well as, providing the attendants with the opportunity to share experiences, techniques, and problems.

2. CONSULTANTS AND ADVISORY COMMITTEES

a. Advisory Committees

The State Manpower Advisory Committees is composed of eleven members:

Public

Mr. William N. Thomas, Sr., Attorney
209 Gardner Building, Toledo, Ohio

Labor

Mr. Warren J. Smith, Attorney for AFL-CIO
271 East State Street, Columbus, Ohio

Management

Mr. Robert M. Ginn, Vice President, General Services
Cleveland Illuminating Co., P. O. Box 5000, Cleveland, Ohio.

Chairman, Mr. Kenneth M. Lloyd, Secretary, Mahoning Valley
Industrial Council
800 Union National Bank Building, Youngstown, Ohio

Agriculture

Mr. Douglas R. Stanfield, Executive Vice President
Ohio Farm Bureau Federation, 245 N. Higut Street, Columbus, Ohio

Education

Dr. Harold H. Eibling, Superintendent, Columbus Public Schools
270 East State Street, Columbus, Ohio

Dr. Martin Essex, Superintendent, Akron Public Schools
70 North Broadway, Akron, Ohio

Mr. Ralph H. Tullis, Superintendent, Washington County Public Schools
Hildreth Building, Marietta, Ohio

Msgr. Bennett Applegate, Superintendent, Schools
Diocese of Columbus
246 East Town Street, Columbus, Ohio

The State Manpower Advisory Committee meets approximately every three months for the purposes of reviewing program activities and advising on contemplated developments. Its members serve at the request of the Governor. One of the meetings during fiscal year 1966 was held at the Mahoning Valley Vocational School, Vienna, Ohio. This provided the committee members with a first hand opportunity to observe the activities of the school which had received their past and present endorsement. The efforts of the committee greatly assisted in the concept of a residential school becoming a reality.

The Ohio Worker Training Committee is composed of the following members:

Chairman, Willard P. Dudley, Administrator, Ohio Bureau of Unemployment Compensation

Thomas P. Gilmartin, State Senator, Youngstown, Ohio

Theodore Haos, T.R.W., Cleveland, Ohio

Dr. E. E. Holt, Superintendent of Public Assistance, Columbus, Ohio

Charles H. Jones, State Senator, Hamilton, Ohio

William T. Koester, Union Representative, Cincinnati, Ohio

Walter J. Mackey, Attorney, Columbus, Ohio

Jacob A. Shawan, State Representative, Columbus, Ohio

G. D. Tavlack, State Representative, Struthers, Ohio

William O. Walker, Director, Ohio Department of Industrial Relations
Columbus, Ohio

The Ohio Worker Training Committee was established as a result of the legislature pertaining to the Ohio Worker Training Act. The committee serves both in an advisory capacity and administrative capacity. It has the authority to approve or disapprove activities under the Ohio Worker Training Act.

B. CONSULTANTS

In the development of the training programs for farm mechanics technical advise and counsel was received from Mr. Charles W. Whitney, Executive Director, Farm and Power Equipment Retailers of Ohio.

Mr. Nick Edgars, Basic Education Supervisor, Mahoning Valley Vocational School, greatly assisted the State Manpower staff in the planning and development of programs for basic or remedial education.

Representatives from industry, who were too numerous to mention, provided continuous technical assistance in the area of equipment and facilities.

3. STATE, LOCAL, AND OTHER CONFERENCES

The total staff of the Manpower Development and Training Service continued to offer service to other groups by participation workshops, conferences, or meetings. A partial listing of these groups is as follows:

Forestry and Reclamation Service
Extension Service
Soil Conservation Service
Agrigulture Stabilization and Conservation Service
Farmers Home Administration
Ohio Farm Bureau
Ohio Farmers' Union
Federal Crop Insurance Corporation
Small Business Administration
Social Security Administration
Ohio Council of Churches
Ohio Office of Opportunity
Ohio Department of Health
Ohio State Employment Service
Ohio Youth Commission
Ohio Welfare Department
Ohio Educational T. V. Network
Development Department
Division of Correction
Ohio Department of Appalachia
Bureau of Apprenticeship and Training
Ohio Vocational Association
Ohio School Board Association
Ohio Nursing Association

A summary of the monthly activities as reported to the State Superintendent of Public Instruction, lists the following activities for the Manpower Development and Training Service staff:

Office Conference with Educators 212; Others 114
Education Conferences: Meetings to plan conferences: 16

	a. Participated	b. Number Served	c. Others Attended
Local	16	394	3
State	29	498	29
National	1	30	0

Number of Address Given 44; Days in the Field 392

Field Services:

Administrators 184 Staff 124 Lay 84
Boards of Education 8 College/University 16

Programs or Area Evaluations 91
Total Visits to separate schools 294

4. PUBLICATIONS DEVELOPED

None were completed this year. Several brochures are in the development stage.

5. DEPARTMENT PERSONNEL INVOLVEMENT

The staff assisted the Ohio Youth Commission in the development of an experimental and demonstration proposal for the Fairfield School for Boys and the Scioto Village School for Girls.

Staff personnel served in resource capacities to the Division of Guidance and Testing at several workshops. The Division of Guidance and Testing greatly assisted the Manpower Development and Training Service in the planning of adequate pupil personnel services for Manpower Training Centers.

6. TEACHER EDUCATION TRAINING FACILITIES

No teacher education facilities have been established specifically for the Manpower Development and Training Program.

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

1. INSTRUCTIONAL PROGRAMS AND RELATED ACTIVITIES

a. Secondary Programs

Not applicable to training or retraining programs for out-of-school youth and adults.

b. Post-Secondary Programs

Programs at the technician level have not been established by the Manpower Development and Training Service. With the great need of serving the unemployed or underemployed out-of-school youth and adults, available resources can serve many more people by the establishment of training at the semi-skill and skill level, rather than longer programs at the technical level. This emphasis at semi-skill and skill level does not refute the need for educational opportunities at the technical level. However, present resources would be dissipated if emphasis were given to the technical level of training.

Training programs at the professional level have been established for registered nurses who were out of the working force for a considerable period of time. Such training has been of a refresher nature for a period of five weeks. These refresher programs, because of their short duration, do not dissipate the funds available for training.

c. Programs for adults and out-of-school youths

Intensive preparatory programs are continuing to serve adults and out-of-school youths. These programs are supported by funds from the Ohio Worker Training Act of 1961, the Manpower Development and Training Act of 1962, and Section 241 of the Manpower Development and Training Act (formally the Area Redevelopment Act of 1961).

(1) The Ohio Worker Training Act

Under the Ohio Worker Training Act, three projects were during fiscal year 1966 to train 572 persons at a cost of $9,200. The following is a comparison of Ohio Worker Training activity from the inception of the Act.

Approvals

Fiscal Year	Projects	Trainees	Educational Costs
1962	4	227	15,672.95
1963	13	218	8,010.06
1964	8	138	4,156.10
1965	4	135	15,966.00
1966	3	572	9,200.00

For fiscal year 1966, the majority of the Ohio Worker Training activity centered around an Akron project designed to train 500 unemployed persons as sales persons. The need for this training developed as a result of a newly constructed shopping center in the Akron Metropolitan Area.

The unusually low cost per trainee of $16 is attributable to the short duration of the training programs and their being in occupational areas which typically do not require extensive shop or laboratory facilities or expensive instructional supplies.

The placement results for fiscal year 1966 were extremely dissappointing. 519 persons entered training of which 462 fully completed the programs. The drop-outs, 57, were for numerous reasons. Some left to obtain employment, some left for health and personal reasons, and some were terminated by the schools for lack of achievement or poor attendance. Only 109 or 21% of the 462 who completed training actually obtained employment.

A number of factors influenced this extremely low placement rate. The majority of the trainees were women. Many left the labor market after training and were unavailable for unemployment. In a substantial number of cases, the Akron office of the Ohio State Employment Service was unable to contact or locate trainees who had completed the training. However, the most significant factor was was the fact that the employers, having stores located in the newly constructed shopping centers, did not hire or employ as many persons as they had projected to the Ohio State Employment Service prior to the start of the training project. Few of the persons remaining unemployed are heads of families or primary wage earners. In an evaluation of the instructional program offered to trainees in the Akron project, there were no evidences of inadequate teaching or an inappropriate curriculum.

(2) Section 241 of the Manpower Development and Training Act

The amended Manpower Training Act of 1965 included provisions within Section 241 for training unemployed or underemployed persons living in areas previously served by the Area Redevelopment Act of 1961. Thus, a separate source of funds was established for training persons living in "designated areas." These "designated areas" have an unemployment rate of over 6% of the working population. In Ohio, 23 counties and the cities of Cleveland and Toledo were so designated. Training under Section 241 is to enhance the total economic development of the "designated area" by providing trained people for new jobs. Projects conducted under Section 241 are referred to as R. A. R. Projects.

During fiscal year 1966, seven projects were approved with plans for training 1,839 unemployed or underemployed persons at an educational cost of $1,037,731.00. A comparison of fiscal year 1966 and the previous fiscal year is as follows.

	Approved		
Fiscal Year	Projects	Trainees	Educational Costs
1965	16	517	138,477.00
1966	7	1,839	1,037,731.00

The fiscal 1966 programs are planned to offer 1,131,760 trainee hours of instruction at an educational cost of $564.29 per trainee or $.92 per trainee hour of instruction.

Of the seven approved projects, five are being conducted by the Cleveland City Schools. Two are large multi-occupational projects which account for the significant increase in training activity from that of fiscal year 1965. One of the multi-occupational projects was designed to train 260 male unemployed or underemployed trainees in occupations of engine lathe operator, milling machine operator, and automatic screw machine operator. Facilities of four different high schools, as well as, the Cleveland Manpower Training Center were used for this multi-occupational project. The other multi-occupational project represented one of the most extensive efforts under Section 241 for training in the health occupations ever attempted in the United States. Approval was given to the training of 1,312 in fourteen different health occupations.

The need for this training project, which will continue over a period of at least two years, resulted from the anticipated increased demands on health facilities resulting from the Medicare Program. Basic education or remedial educational experiences were planned for 1,022 of the 1,312 trainees. The program combines learning activities of basic education, vocational education, and work experience in cooperating hospitals and nursing homes.

A unique R. A. R. project was approved to train 150 unemployed or underemployed persons from the Logan, Ohio area in aircraft assembly. The need for this training arose from the establishment of a new aircraft, sub-assembly plant in Logan, Ohio. The training is being conducted by the York Local School District, Buchtel, Ohio. Following the institutional experiences, trainees will enter an on-the-job-training program which will be conducted by Lockheed-Georgia, Corporation.

(3) Manpower Development and Training Act

Training and retraining programs under the Manpower Development and Training Act are organized along three distinct patterns. Institutional programs provide vocational education experiences entirely with a school setting. Employers provide the training experiences for on-the-job-training programs. "Coupled" programs combine institutional training and on-the-job experiences. On-the-job-training programs will not be reported since the Division of Vocational Education has no administrative or supervisory responsibilities for these programs. These programs are controlled entirely by the Bureau of Apprenticeship and Training.

The following is a statistical comparison of the institutional MDTA programs for fiscal year 1966 and the previous fiscal year:

Approvals

	Number of Projects	Trainees	Educational Cost
1965	127	7,530	$ 4,850,078
1966	146	7,214	5,952,473

The 146 approved projects are planned to provide 6,489,378 trainee hours of instruction at an educational cost of $823.31 per trainee or $.91 per trainee hour of instruction. Two factors account for the increased cost per trainee over that of fiscal year 1965.

The average length of training programs is longer since more programs include basic or remedial education to serve the total needs of trainees. The average trainee being referred to programs is more culturally and educationally disadvantaged than those referred in previous years. A second factor is that additional Manpower centers have been established which require a heavy initial expenditure of funds for remodeling and equipment.

On June 30, 1966 a comparison of the fifty states shows Ohio second in the number of institutional training projects, third in the approved number of trainees to be trained, and fifth in dollars expended. Ohio is second only to the State of California in the number of agriculturally related projects conducted under MDTA.

Ohio is continuing to develop centers for the training of unemployed and underemployed youth and adults under the Manpower Development and Training Act. These centers have been necessary because the amount of training required under the regular vocational acts, and the Manpower Development and Training Act has strained existing facilities beyond the point of good services to the total community. Prior to fiscal year 1966, Manpower Training Centers had been established in Cincinnati and Cleveland. In addition to these two metropolitan areas, the only residential center in the nation to be established under the Manpower Development and Training Act is Mahoning Valley Vocational School at Vienna, Ohio. The Southern Ohio Manpower Center at Jackson, Ohio was the first Manpower Center established in the nation to serve trainees from a broad geographic area.

This fiscal year the Akron City Schools purchased a building which is being converted into a Manpower Training Center. Initially, training in seven different occupational areas has been planned for the center. By June 30, 1966, training had started in four of the seven occupational areas.

The Columbus City Schools obtained the excess Starling Street Veterans Administration facility from G. S. A. at no cost to the Columbus Board of Education. This facility has much more square feet of space than any high school building in Columbus and it is being converted into a Manpower and Adult Education Center. The training impact of this new center will not be experienced until fiscal year 1967.

Training programs which completed during fiscal year 1966 enrolled 7,472 unemployed and underemployed youth and adults. Of those initially enrolled in training, 5,008 or 66% fully completed the training while 2,464 or 33% dropped out of the training programs. Approximately 20% of those who dropped out did so to obtain employment. It is questionable that the dropout should include trainees who leave the programs for the purpose of employment. For these trainees, the training programs have met their objectives.

Numerous dropouts were for health and personal reasons. Approximately 40% of the dropouts were involuntary. Absenteeism, excessive tardiness, unsatisfactory performance, and drinking problems constitute the major reasons for involuntary terminations.

Programs conducted in metropolitan communities experienced a higher dropout rate than those conducted in cities of lesser size. Programs which enrolled "disadvantaged youth" experienced greater dropouts than those which enrolled adults. The greatest dropouts occurred in programs in the automotive field, and programs are semi-skilled or single-skill in nature. The higher dropouts in the automotive area may be the result of trainees who enter automotive training without a genuine or realistic interest in the occupational field. Programs for the machine trades also have experienced a higher dropout rate, however, many of those dropping out have done so to gain employment.

Approximately 82% of the people who completed the training programs are currently employed. Statistics of the Ohio State Employment Service reveal that follow-up surveys which are made twelve months after a program has completed indicate even a higher percentage of employment than the 82%.

d. Curriculum revision and development

Local vocational educators and school personnel continue to gain experience with instructional programs which are designed specifically to serve the needs of the unemployed and underemployed. Such experience has led to refinement and/or revision of curriculums.

Major accomplishments have been made in the course content of basic or remedial education programs. Programmed learning materials which are appropriate for adults' interests and which are related to their area of occupational preparation are being utilized in the majority of the programs. Extensive use is being made of teaching machines which supplement the "tools" available to the teacher. Programmed

learning laboratories are operational at the Mahoning Valley Vocational School and the Cincinnati Stowe Adult Center. Others are in the planning stage for the centers at Akron, Columbus, and Dayton. Such programmed learning laboratories permit learning experiences at diverse achievement and interest levels. Their greatest impact is use for remedial or enrichment purposes.

Team teaching is being used successfully in a number of the programs. This teaching technique maximizes the specialized talents found within the teaching team. Teacher aides are being employed for many of the multi-occupational projects. The aides enable the teacher or teachers to devote their energies to activities which have a significant impact on the teacher-learning act rather than on some of the less professional activities.

The Farm Business Management and Analysis programs have been completed revised. The formal program has been reduced from 1,920 hours to 960 hours of instruction. However, these hours were structured on an alternating week basis. This arrangement reduced the allowances paid to trainees by at least one-half, but did not jeopardize the effectiveness of the training program. The teachers are employed a full 2,400 hours so that they may assist individual trainees with their own specific farm problems. Each Farm Business Management and Analysis project is planned to start during the first part of December so that the instructional program will correlate with the calendar year of farm recordkeeping.

e. New Programs

The establishment of additional Manpower Centers and the increased number of multi-occupational projects has been enumerated in a prior section of this report. Excluding the Centers and the multi-occupational projects, the following are new programs where facilities were completely equipped by Manpower Development and Training Act funds during fiscal year 1966:

Conneaut	Machine Tool Operator
Orrville	Welder, Combination
Washington Court House	Automobile Mechanic
Wooster	Farm Mechanic
Youngstown	Draftsman

Since training programs were approved for 56 Ohio communities, only new programs where facilities have been equipped by M.D.T.A. funds are mentioned.

Two new programs conducted by private schools are:

Richfield School, Cleveland - Lawnmower Repair
Technichron School of Welding - Welder, Combination

In light of the total growth and activity of the training programs, it is not feasible to mention all the new programs.

2. PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION

Adequate Teacher Education, both pre-service and in-service, is a definite deficiency in training and retraining programs under the supervision of the Manpower Development and Training Service. Some in-service teacher education is provided by the Trade and Industrial teacher education staffs of the University of Cincinnati and The Ohio State University. While this service has been most helpful to the teachers being served, it is limited to teachers of Trade and Industrial Education Programs. Plans are to be made for the employment of two teacher educators who will work exclusively with teachers in training and retraining programs regardless of their service affiliation.

3. RESEARCH AND STUDIES

a. A research study was undertaken by the Mahoning Valley Vocational School to evaluate the results of it's first year of operation. A research coordinator, assistant, and clerical statistician were employed for this purpose.

The interview technique was extensively used in the follow-up and evaluation phase of the study.

Structured interviews included:

(1) Interview with family members of trainee who had attended the Mahoning Valley Vocational School.

(2) Interviews with teachers, counselors, and principals of school which the trainees had attended prior to Mahoning Valley Vocational School.

(3) Interviews with the local Ohio State Employment counselors who had referred the trainees to Mahoning Valley Vocational School.

(4) Interviews with employers who had hired trainees that had completed the program at Mahoning Valley Vocational School.

The interim reports have revealed much valuable data and information which has led to some significant changes in the Mahoning Valley Vocational School. However, the final report which has not yet been finalized will provide validated findings which are anticipated to have a significant impact on the nature of the "disadvantaged youth" and correspondingly programs to serve these youth.

b. A summary and analysis of three Farm Business Management and Analysis Programs is being undertaken by Mr. Lloyd Sharp. These programs were conducted at Jefferson, Jackson, and Lewisville, Ohio. This evaluation of Farm Business Management and Analysis programs was undertaken at the request of the Manpower Development and Training Service. The purpose of this evaluation is to determine the effectiveness of this type of MDTA program in serving the needs of the low income farmer. The anticipated findings should be valuable to both the Ohio State Employment Service and the Manpower Development and Training Service in the planning of future programs for the low income farmer.

4. <u>JOINT ACTIVITIES</u>

a. Cooperation with other vocational services.

Cooperation with all the vocational service areas was a prerequisite for all the activities of the Manpower Development and Training Service. The MDTA Service is only an area of emphasis; all technical knowledge and educational techniques, knowledge, and know-how must emanate from the other vocational services. The entire operation of the retraining and training programs at both the State and local level was steeped in the interaction of the various vocational service areas.

b. Cooperation with other groups and agencies.

Section 3 (State, Local, and Other Conferences) of this report reflects the involvement and cooperation with other groups and agencies. Day-by-day cooperation with the Ohio State Employment Service and the Bureau of Apprenticeship and Training was mandatory for a successful effort in serving the needs of the unemployed.

The continued cooperation of the Bureau of Vocational Rehabilitation has provided numerous students with the opportunity to be successful in a training program without having their chances of success being impaired by a physical or emotional deficiency.

C. ADDITIONAL SIGNIFICANT INFORMATION

1. PROGRAM ADJUSTMENT TO SOCIAL, ECONOMIC, AND OTHER

During fiscal year 1966, our country experienced a high level of economic prosperity. The Viet Nam situation contributed the increased production and industrial expansion. The national unemployment average was the lowest since World War II. The unemployment rate of Ohio was even lower than the national average due to the highly industrial nature of Ohio's economy.

Even in a period of high employment a significant number of Ohio's working population were still unemployed. The rate was approximately 3½% of the labor force. The challenge was to meet the needs of those who remained unemployed in a period of prosperity. The retraining and training programs were restructured to meet the needs of unemployed who had significant educational deficiencies. Provisions were made to include basic or remedial education in many of the programs, as well as, increased pupil personnel services. The training and retraining programs are truly serving "disadvantaged youth" and adults.

2. U. S. DEPARTMENT OF LABOR ADMINISTRATIVE ACTIONS

Administrative decisions and actions by the U. S. Department of Labor have seriously undermined the affectiveness of the Manpower Development and Training Program.

For fiscal year 1966, approximately 24% of Ohio's allocation was assigned the "unallotted reserve" category. These funds were unavailable for use by any State of Ohio agency. The "unallotted reserve" was used primarily by the U. S. Department of Labor to directly fund Experimental and Demonstration Projects. This direct Federal funding bypassed State of Ohio agencies and several E & D projects were funded over the objections of the Division of Vocational Education. During fiscal year 1966 none of the E & D projects funded with funds from Ohio's "unallotted reserve" involved public schools. The Division of Vocational Education had no supervisory or administrative responsibilities for these E & D projects.

The establishment of national on-the-job-training contracts, at the Washington level, between the Bureau of Apprenticeship and Training and various employee or employer groups seriously usurps the authority of the Ohio State Department of Education. Such contracts usually designate the number of hours to be spent in the institutional phase of the program and in many instances the curriculum is also established at the Federal level. This then becomes a "national curriculum" in the strictest sense of the word.

3. MAJOR STRENGTHS OF OHIO'S TRAINING AND RETRAINING PROGRAMS

a. Significant number of communities which have been served.
b. Establishment of Centers which offer training in a variety of occupational areas.
c. The only residential school in the nation supported by MDTA funds.
d. The center at Jackson, Ohio which serves people from a wide geographic area.
e. Programs which serve the basic education needs of the unemployed in addition to their vocational needs.
f. The utilization of new teaching techniques and teaching materials.
g. The providing of increased pupil personnel services.
h. The cooperation between agencies at the state and local levels.

MAJOR WEAKNESSES OF OHIO'S TRAINING AND RETRAINING PROGRAMS

a. Need for additional teacher education and in-service education services.
b. The public information services regarding the educational facets of the training and retraining programs need improvement.
c. Follow-up procedures on trainees completing or dropping out of programs.
d. The financial support to the programs on a year by year basis presents problems of continuing established programs when there is a lapse in receiving funds.
e. Duplication of effort by many of the other Federal programs, particularly programs under the Economic Opportunity Act.
f. Increased control of programs from the Federal level.

State of Ohio
Year Ending June 30, 1966

ANNUAL DESCRIPTIVE REPORT

Section VIII . . . Trade and Industrial Education

A. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

1. Workshops

The State Staff Workshop, conducted in June, placed emphasis on solving the problem of communication within the staff. Through the use of the leadership consultants a concerted effort was made to identify weaknesses in our communication with others. Emphasis was placed on suggestions to solve these problems with action this coming year. As a result of suggestions, a new inter-staff communication system has been adopted by the T&I Staff.

All members of the staff also considered new ways and means to offer expanded programs to high school students and adults this coming year. Special attention was given to the new Manual of Operations for Trade and Industrial Education.

The Twentieth Annual Local Supervisors Workshop, one week in length, was held in June. The workshop again challenged the development of programs on the local level in terms of quality of instruction. Greater emphasis was placed on development of programs to meet special needs of people.

Of particular interest, considered by more than 75 full-time participants, was the new Manual of Operations for Trade and Industrial Education. Interest was apparent in the section devoted to establishing programs to meet the needs of dis-advantaged youth at the high school level.

Of particular interest also was the time devoted to physical facilities for expanding programs and new innovations in construction.

The Annual Workshop for Experienced Diversified Cooperative Coordinators was held during the last week in June. The general assignment, considered by 47 full-time participants was a review of and suggestions for continued quality programs on the local level. A program of orientation to a total program in Trade and Industrial Education was presented to the group as a basis to again develop a common philosophy of program.

A two-week pre-service workshop was held in July for new coordinators of Diversified Cooperative Training. This workshop is conducted each year by the teacher education staff at The Ohio State University. Twenty-three (23) new programs of this type have been approved for operation within the public schools.

A one-week pre-service workshop was organized in July for new teachers of Occupational Work Experience Programs. This workshop, conducted at Kent State University by the teacher education staff, provides an orientation for new teachers in an expanding program.

A one-week pre-service workshop for new trade teachers was held at each of the four teacher education centers prior to the beginning of the school year.

A one-week workshop for experienced teachers of Occupational Work Experience was organized for July. This workshop was given under the leadership of personnel from the teacher education center at Kent State University.

Institutes were organized and conducted by State Staff Personnel for Law Enforcement Training, Practical Nursing, Fire Service Training and Rural Electric Cooperatives.

Of particular interest and success this past year was the special day trade instructors workshops held in cooperation with four teacher education institutes. Two-week workshops were organized to acquaint trade and industrial education teachers with the latest teaching techniques, resources and aids available as well as current developments in each trade.

The following represents the cooperative institution as well as the trades in which instruction was presented:

University of Cincinnati	-	Instructors in Electricity and Electronics
Kent State University	-	Instructors in Auto Body, Welding and Sheet Metal
Ohio State University	-	Instructors in Cosmetology
University of Toledo	-	Instructors in Auto Mechanics

A number of two and three-day meetings were scheduled during the year to provide the supervisory staff with information about the new State Plan for Vocational Education and its application to Trade and Industrial Education.

The Manual for Program Operation for Trade and Industrial Education has been revised to meet the expanded offerings provided by the new State Plan under the Vocational Act of 1963.

2. Pre-Service and In-Service Teacher Education Service

In an effort to strengthen teacher education, a full five-day pre-service workshop was initiated in each teacher education center. More emphasis was placed this past year on individual instruction for the first-year teachers, while group instruction was offered where possible, to instructors with one or more years' service.

A review of the 1965-66 school year statistics show the following significant information:

Total number of first-year instructors who received pre-service instruction (1965-66 pre-service) -	254
Total number of instructors who received pre-service, in-service, and formal course instruction -	1123
Total number of T&I Centers where in-service instruction was given - - - - - - - - - - - - - - - -	130

Renewed effort has been made by the teacher education staff through group seminars and committee action to study the problems facing Teacher Education Service in Ohio. If Ohio is to continue to offer a quality program of teacher education to its trade and industrial teachers, new ways and methods must be explored to offer service for an expanding program. The teacher education staff has been challenged to continue a quality program of teacher improvement to Ohio's instructors of Trade and Industrial Education.

To meet the increasing demand for teacher education two additional teacher educators were added at the University of Toledo. One additional teacher educator was added at Ohio State University, University of Cincinnati, and Kent State University.

3. Instructional Materials Development

The Instructional Materials Development Service has continued to expand its service to the trade and industrial education programs. This service, which includes the Achievement Testing Service, with wide support throughout the state, has experienced a sales increase of twelve percent (12%) over the previous year.

The major purpose of the laboratory is to provide training materials which are not available from commercial sources. The fact that many industries purchase publications pertinent to human relations and supervisory training attests to the value of these materials.

Over 68,000 publications were distributed during this fiscal year. Manuals with sales of over 1,000 copies each are as follows:

a.	Bricklaying	1,403
b.	Custodial Training	2,640
c.	Basic Electricity	2,186
d.	Electric Lineman	2,804
e.	Emergency Victim Care	5,653
f.	Fire Service Training Manuals	13,222
g.	Hydraulics	1,367
h.	Law Enforcement	2,492
i.	Machine Trades I and II	3,488
j.	Nursing Procedures	10,784
k.	Study Guides	6,988
l.	Training Plans	3,913

New materials made available were as follows:

a. Emergency Victim Care and Rescue
b. Law Enforcement, Learners I (Revised)
c. Law Enforcement, Learners II (Revised)
d. Law Enforcement, Instructors I (Revised)
e. Law Enforcement, Instructors II (Revised)
f. Machine Trades I (Revised)
g. Machine Trades I, Answer Book (Revised)
h. Custodial Training Manual (Revised)
i. Facilities and Equipment Manual
j. Trade and Industrial Education Manual of Operation
k. Printing Performance Test
l. Test Statistics
m. State Staff Directory
n. Leaflets - Your Future Through Vocational Education and Your Future Through Technical Education
o. Electric Lineman Manual 100, for Ohio Power
p. Electric Lineman Manual 200, for Ohio Power
q. Instructional Materials Catalog (Revised)
r. Governor's Conference on Technical Education Program

A new manual of industrial electronics is presently under development through advisory group action, while additional training materials for the following areas are being evaluated:

Automotive Mechanics Learner's Manual
Dental Assistant Learner's Manual
Drafting Learner's Manual
Cosmetology Learner's Manual
Auto Body and Fender Learner's Manual

The Instructional Materials Laboratory is continuing with the project set up with the U.S. Office of Education related to the printing trades.

4. Testing and Research

Achievement tests for the machine, auto mechanics, electricity, electronics, drafting, printing, and sheet metal trades were administered to 10,956 students during this year. Tests were given to students in Kentucky, West Virginia, Illinois, Indiana, Delaware, Washington D.C. and Utah, as well as to 97% of those enrolled in T&I courses in Ohio.

A concerted effort was made by the testing consultant to visit schools as a follow-up to their testing program. This action followed a survey conducted of local supervisors to determine local utilization of test results.

Serious consideration is presently being given to the development of achievement tests for welding and cosmetology.

5. Use of Consultants and Advisory Committees

Use of advisory committees and consultants has been a leading reason for successful program development in Trade and Industrial Education. Consultative services were provided for advisory groups on a regular schedule during the past year.

The use of lay people representing labor, management, and public school administration continues to be a sound policy for gaining assistance for program operation and policies. Advice and council from these representatives continues to be an asset toward operation of sound programs.

Listed below are the advisory committees which served Trade and Industrial Education:

Custodial Training Advisory Committee
Instructional Materials Advisory Committee
Electric Lineman Advisory Committee
Fire Service Advisory Committee
Law Enforcement Training Advisory Committee
Practical Nurse Training Advisory Committee
Transportation Training Advisory Committee
Vocational Industrial Club Advisory Committee
Local Supervisors' Workshop Planning Committee
Local Diversified Cooperative Training Workshop Planning Committee

6. Services in Cooperation with other State Department Personnel

The Trade and Industrial Education Service reviews the certificates submitted from local communities for teachers of trade and industrial programs and recommends persons with proper qualifications to the Division of Certification for their consideration.

Considerable effort by staff personnel was provided to the Ohio Youth Commission for the establishment of sound vocational programs in Ohio's institutions at Lancaster-Fairfield School for Boys, Mansfield Reformatory, Scioto School for Girls. Additional assistance was given to the establishment of programs at the Soldiers and Sailors Orphan Home, Training Institute of Central Ohio, as well as the Federal Reformatory at Chillicothe.

Supervisory and industrial leadership courses were conducted for the Ohio Department of Highways.

Through membership on an inter-agency committee assistance was given to the Department of Mental Hygiene to coordinate program activity in public schools.

A close-working relationship has been established with the Division of Finance, School Transportation Section for the establishment of training for all school bus drivers in Ohio.

7. Program Interpretation and Promotion

The total staff of Trade and Industrial Education provided an expanded public relations service throughout Ohio this past year. Each staff member gave an additional amount of his time toward giving information about Vocational Education in general to local school administrators. Through this effort an expanding growth of program at all levels of instruction has resulted.

8. Vocational Industrial Clubs of Ohio

The State Club registered 95 local clubs, with a total of 2464 members. This is a loss of 300 members from last year's enrollment and the loss is primarily due to the increase of dues to join the National Club. The State Club, under the direction of the State Sponsor, conducted a new safety contest in which nine schools participated. Six schools received awards for their efforts. A limited number of copies of a plan for the organization of VICA in DCT programs, comprehensive high schools, area vocational schools and joint vocational schools has been sent to several area and joint schools for their consideration and review.

Delegates at the Fall Convention voted to join the National VICA and elected six state officers. Delegates at the Spring Conference voted to send the six state officers and two delegates from local clubs to the National Leadership Development Conference in Little Rock, Arkansas. Two candidates were presented from Ohio for the offices of Secretary and Regional Vice President. Neither candidate was elected.

The State Sponsor participated in two meetings of the VICA Administrative Board, five meetings of state officers and regional advisors, and ten local club meetings and dinners for employers. The Sponsor also planned and conducted the State Fall Convention, Visit to the Capitol, the Spring Conference, Leadership Development Conference for State Officers, and planned officer and delegate participation in the 2nd National VICA Conference.

9. State Fair

Planning for the 1965 State Fair began in February and a meeting with the instructors was held in April. Eight schools participated with a total of 25 students and 8 teachers. The fair exhibits were presented for a period of 11 days in the new Lausche Youth Building. Exhibits included carpentry, drafting, auto body, diversified cooperative training, technical training, dental assisting, apprenticeship and the Vocational Industrial Club.

Plans for the 1966 fair are in progress with five schools signed up to present live displays, three T&I service displays and the Vocational Industrial Club display. The fair will exhibit the T&I displays for only 8 days in 1966.

B. PROGRAM STATUS AT THE STATE AND LOCAL LEVELS

1. Secondary Programs

During the 1965-66 school year there was an increase of 2759 students enrolled in preparatory and work experience programs in the secondary public schools. This increase is due to several factors: new programs being inaugurated in schools which did not previously offer vocational education, the addition of new programs of vocational education in schools having existing programs, the expansion of diversified cooperative training and occupational work experience programs, along with the increasing interest of local school systems to offer a broad educational program to its youth.

A review of the 1965-66 school year statistics show the following significant information:

Number of students enrolled in trade preparatory programs -	10068
Number of students enrolled in occupational work experience programs -	1189
Number of cities offering T&I programs for the first time -	31
Number of cities that added new programs - - - - - - - - -	22

Number of occupational work experience programs - - - - - 42

Number of diversified cooperative training programs - - - 66

Number of different trades in which preparatory training was offered - 104

Total number of high school students served - - - - - - 11106

2. Post Secondary and Adult Supplemental Programs

a. Preparatory programs for adults during the 1965-66 school year under Trade and Industrial Education served 3834 adults. Programs were established in 28 cities, giving training in 31 different occupations. These preparatory programs are in addition to training being offered through Manpower Development and Training and the Area Redevelopment Act programs. Post high school technical education programs are included in this figure, however a more detailed description is included in the technical education section. This reported ifgure includes training given for practical nursing with the assistance of George Barden II funds. A more detailed description of this program will be included in another section of this report.

b. Preparatory programs for adults under Trade and Industrial Education have had little growth during the last two-year period, with the exception of practical nursing. Many programs normally developed for adults have been under the provisions of the Manpower Development and Training Program and have not been counted or financed through George Barden I or II funds.

Trade and Industrial Education through Ohio's public schools continues to offer a broad program of supplemental instruction for adults. Statistics show that 58,033 people were provided supplemental instruction in 102 different occupations. A resume of each supplemental program is offered as part of this report.

Apprenticeship Training

Apprenticeship Training classes were organized in 34 schools with a total of 7634 apprentices receiving instruction. Close contact with all representatives of the Federal Bureau of Apprenticeship and Training and the Ohio Apprenticeship Council was maintained. Communication with these two organizations has been very good.

The most progressive effort in apprenticeship was made by the formation of a state committee of industrial and labor leaders in the area of industrial maintenance. Plans are being projected for the development of instructional materials that can be made available for local industries to use in their related classes. Three members of the Trade and Industrial Education Staff are working with this committee.

Attendance at conferences, conventions and committee meetings was a major activity in 1965-66. Formal and informal talks were given to more than 16 groups. These meetings each had from 10 to 500 in attendance.

Custodial Training

The Custodial Training Program showed a slight increase in the number of programs and the personnel receiving training. A total of seventy-five (75) instructors received training or retraining during this year. While only two hundred fifteen (215) school employees received basic course instruction during this period, five hundred twenty-eight (528) received special institute instruction in four areas of the state. A total of 1768 persons received instruction in custodial training during this fiscal year period.

A major revision was made in the Custodial Manual this past year. This manual continues to be popular throughout the United States as a well organized plan for custodial services and training.

An increased effort is being made to stimulate business and industry as to the offering of a well organized program of custodial services. Industry, however, has been slow to respond to this effort. Renewed effort has been made to the use of a state advisory committee for direction.

Electrical Lineman Training

A total of 1504 linemen received training during this past fiscal year. In addition to this training the Ohio Job Training and Safety Advisory Committee sponsored four special statewide schools for the personnel enrolled in regular programs.

Individual instructors scheduled various meetings for other groups and organizations interested in this type of training. Attendance at these meetings totaled over 2000 persons.

Emergency Rescue Squad Training

The Emergency and Rescue Squad Training continues to show growth with well over 2400 persons receiving instruction this past year.

A total of twenty (20) new instructors were trained, while twenty-eight (28) instructors received retraining.

There is still an increasing demand for this type of training in Ohio. The problem of providing qualified instructors is still of paramount concern.

A most significant contribution to this service during the year has been the formation and publication of an instructors manual. Work is continuing toward a review and re-structure of training materials.

Fire Service Training

Ohio continues to lead the nation through instruction in Fire Service Training.

Fire Department Training continued to serve Ohio through program offerings to fire departments throughout the state. During this past year 11,219 persons received instruction in Basic and Advanced Fire Service Training. The four specialists conducted basic fire service training courses, instructors' training courses and other special classes.

Of special interest this past year was a two-day instructor workshop to upgrade present instructors in the latest techniques of teaching as well as the latest technical information pertaining to fire fighting. A total of 136 trained instructors attended this workshop.

Special emphasis was continued on the revision of training material as well as presenting a major revision for the Advanced Fire Training Course.

The fire training staff continued their activities in national, state, and local fire service agencies by providing consultative services and participating in many conferences, workshops and seminars. A concerted effort was noted in providing references and informational materials to instructors and schools.

Industrial Leadership Training

Industrial Leadership Training continues to provide a service to Ohio industries through supervisory training.

The four consultants provided conference leadership, effective speaking, human relations, job method and instructor training to 10,886 persons, representing many industries throughout the state.

Industry is increasingly becoming aware of the advantages of supervisory training and seeking this service. Of interest is the increasing demand for human relations instruction for supervisory personnel.

Of the greatest need at present is to increase the number of qualified instructors throughout the state to provide the demand for training.

Law Enforcement Training

Statistically speaking law enforcement training has made significant strides in the fiscal year 1965-66. The number of officers trained in Basic Units I and II has doubled, from 616 in 1963-64 to 1357 in 1965-66. The number of new instructors trained and certificated totaled 53, thereby swelling the ranks of instructors to 125.

Ammended House Bill 363 has been a catalyst to law enforcement training. This bill makes 120 hours of training mandatory to all police and sheriff departments. An officer appointed after January 1, 1966 must receive the minimum 120 hours prior to the expiration of his probation period. The establishment of a minimum of 120 hours curriculum by The Ohio Peace Officers Training Council meant that the Trade and Industrial Education Program had to be revised. We were offering 64 hours of training. Certain lesson units were expanded and two new units added to the manuals to make an additional 56 hours, or a total of 120 hours. The manuals are approved as meeting the curriculum of the "Council."

Another ramification of House Bill 363 is the number of Instructor Training Institutes to be conducted by Trade and Industrial Education Law Enforcement Training. There are at least eight (8) Institutes in the planning stages and will hopefully be completed this fiscal year.

Vocational Trade and Industrial Education, Law Enforcement Training, shall continue to experience growth and expansion of services. Professionalism is the byword of law enforcement officers. It will be achieved through training and education.

School Bus Driver Training

The School Bus Driver Training Program continues to grow in terms of service to public schools and the training of those responsible for transporting students. Forty (40) courses were completed with the certification of 541 school bus drivers in 1966. A total of 21 new instructors were trained. Training qualified instructors to meet the demands from local school systems is still paramount, while many parts of the state still are seeking this service.

Since April 1966 all school administrators in Ohio have been contacted in reference to bus driver training. This has been accomplished through the assistance of the State Department of Education coordinators for school transportation.

A major revision in the School Bus Manual is underway. A planned program of instruction in advanced training has been formulated. To be included in basic and advanced training is information and instruction in first aid.

A concentrated program of in-service instruction has been planned for this coming year, with institutes being organized in four areas of the state.

Water and Sewage Treatment Training

Water and Waste Water Classes were conducted for 45 hours in 31 classes throughout the state for a total of 425 employees of water plants. These classes were conducted during March, April and May under the combined supervision of the Water Training Committee and Trade and Industrial Education. A change in personnel of the Water Training Committee has provided a new chairman. He is located in the Water Treatment Center at Ohio State University.

Plans are being developed to unify and consolidate the places where training will be given in the future. A smaller number of schools with larger classes will result from this consolidation. The geographic location of the schools will be established on a permanent basis for the yearly operation of the classes. Due to travel hazards, classes may be conducted only during the fall and spring months.

The financing of the classes is a joint effort of the Training Committee and T&I Services. This is not an apprenticeship program, it is classed under adult extension service.

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Section IX . . . Health Occupations

A. PROGRAM STATUS AT THE STATE AND LOCAL LEVEL

1. Instructional Programs and Related Activities

Secondary preparatory programs in Health Occupations were taught in eight (8) centers in Ohio this year. The two sections of a new program in Dental Assisting in the Lenta County Joint Vocational School District are reported as having been well received in the community.

Twenty (20) post secondary centers continued to offer Practical Nursing this year. Over 1000 students graduated from Ohio's programs for the first time. Cleveland extended its program with the addition of Cleveland Clinic Hospital and the Dayton program became affilliated with Kettering Memorial Hospital. An associate degree nursing program opened in Lorain Community College this year with 40 students enrolled. A post secondary course was offered for the first time for operating room technicians.

Adult preparatory courses were organized in three different health fields in Cleveland. Supplementary courses were organized in six health fields. Great interest was expressed in the professional nurse refresher course. Four separate centers started this training and many more cities anticipate holding courses next year.

New programs are anticipated on the post secondary level in Dental Assisting in the Southwestern and Cleveland school districts. At least two programs in Practical Nursing will open since both Wooster and Cuyahoga Falls have received MDTA approval. A training program for Occupational Therapy Assistants is anticipated for Ohio to start sometime in the late fall in Cincinnati and/or Cleveland.

2. Teacher Education and Supervision

Retention and recruitment of qualified personnel continues to be a problem. Teacher educators provided in-service training for all instructors holding temporary certificates. The few practical nursing coordinators employed without a degree are working toward this goal.

3. Joint Activities

State Advisory Committees were established for the training of Physical Therapy Aides and Occupational Therapy Assistants. The professional state associations sent representatives who were joined by educators, hospital officials and interested lay members.

B. CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

1. Workshops and Institutes

Only one coordinator's meeting was held this year. The 1966 Annual Institute will be held in the fall of the year for the first time. No institute was held this fiscal year and other supervisory services were curtailed because of the prolonged illness of the Supervisor, Miss Gullette.

2. Use of Consultants and Advisory Committees

Development of the nurse refresher course involved extended consultation with the Division of Nursing of The Ohio Department of Health and with The Ohio State Nurses Association.

C. ADDITIONAL SIGNIFICANT INFORMATION

Growth in Health Occupations in Ohio has not kept pace with needs of our state. The new Ohio law requiring trained personnel in nursing homes makes the need for additional programs critical. The needs for trained health workers as a result of the Medicare Bill will not be met at the present rate of training. If Health Occupations under Vocational Education are going to grow in Ohio, a Health Occupations Consultant on the State Staff is required. The needs are so great that one staff member cannot adequately handle all of the Practical Nursing, Dental Assisting, Medical Assisting, Professional Nurse Refresher and Operating Room Technicians courses and growth of new programs in Dental Assisting, X-Ray Technology, Certified Laboratory Assistants, Occupational Therapy Assistants, Physical Therapy Aides and Associate Degree Nursing.

All of the federal allotment for Health Occupations and some additional state funds which have been allocated to Vocational Education will be needed. Expansion of classes and facilities is expected in the coming year.

We in Ohio, as does the nation, face the additional demands of Medicare. We continue to believe in the value of training for all people in Health Occupations. Continued rapid growth is expected in training programs and enrollment. It is our sincere hope that no community or people will have to be denied training because of inadequate personnel.

Section X

TECHNICAL EDUCATION

Technical Education is a level of education in keeping with our technological revolution and the changing needs of people, industries and business in our economy. This level of education is planned to prepare paraprofessional people in two-year post-high school programs to support the professional people in engineering, business, agriculture, distribution, health, and public service occupations.

A. Program Status at the State and Local Level

1. Program Developments

The Division of Vocational Education has continued to develop and strengthen the technical education offerings conducted as part of the technical schools of the state. There were six new technician level programs established in FY 1966. These programs included Retail Mid-Management, Architectural Drafting, Food Processing and Nursing, in addition to the Engineering Technologies and Data Processing Computer Technology.

a. Governor's Conference on Technical Education

A very successful "first" was conducted under the auspices of Governor Rhodes. A "Governor's Conference on Technical Education" attracted several hundred Business Industrial and Agricultural leaders in Ohio. Governor Rhodes stated in his invitation the purpose of the Conference. "This Conference has been called to alert the leaders of Business, Education, Industry and Government to the vital need for action in the field of Technical Education. The Conference will stress the importance of the Technical phase of education to the future Social-economic growth of Ohio."

We feel we accomplished this purpose.

b. Schools and Technologies Operated

Data on schools and technologies in operation during the past year are as follows:

SCHOOLS

Total Number of Technical Schools - - - - - - - - - - - - - - 13

1. Ashtabula Technical School
2. Barberton School of Technology
3. Canton Area Technical School
4. Chandler Technical School
5. Courter Technical School
6. Cleveland Technician School

7. Columbus Area Technician School
8. Dayton Board of Education
9. Hamilton Technical School
10. Mansfield School of Technology
11. Penta-County Technical College
12. Salem School of Technology
13. Springfield & Clark County Technical Education Program

TECHNOLOGIES

Total Different Technologies - - - - - - - - - - - - - - - - - - - 17

Agriculture Equipment Technology
Agriculture Business Technology
Wholesale Management Technology
Retail Management Technology
Architectural Engineering Drafting
Chemical Technology
Mechanical Technology
Civil Technology
Food Processing
Electrical Technology
Electronics Technology
Industrial Technology
Metallurgical Technology
Nursing Technology
Data Processing Technology
Junior Accounting Technology
Secretarial Technology

NEW PROGRAMS OPERATED DURING FY 1966

Canton Area Technical School	Retail Mid-Management
Columbus Area Technician School	Architectural Drafting Food Processing Retail Mid-Management
Lorain County Community College	Mid-Management-Retailing Nursing
Mansfield School of Technology	Retail Mid-Management
Penta Technical College	Chemical Technology Mechanical Technology Electrical Technology Data Processing & Computer Technology
Technical Division - Dayton Bd. of Education	Industrial Technology Mid-Management Retailing

PROGRAMS APPROVED FOR FY 1967

Canton School of Technology	Industrial Technology--------	1
	Chemical-Metallurgical Tech--	1
Columbus Area Technician School	Civil Technology----------	1
	Banking Technology----------	1
	Food Service Technicians-----	1
Mansfield School of Technology	Industrial Technology--------	1
Salem School of Technology	Industrial Technology--------	1
Penta Technical College	Civil Technology----------	1
	Tool & Mfg. Engineering Tech-	1
	Welding Engineering Tech-----	1
	Food Service Management------	1

PROGRAMS IN PROGRESS AND PROBABLE ADDITIONAL OFFERINGS FOR FY 1967

Columbus Area Technician School	Aerospace Ground Eng.--------	1
Lorain County Community College	Medical Assistant----------	1
	Dental Assistant----------	1
Cincinnati Co-op School of Technology	Graphic Communications Tech--	1
	Mechanical Design----------	1
	Sales Marketing Technology---	1
	Business Data Processing-----	1
University College-Cincinnati	Child Development Technicians	1

ENROLLMENT

Enrollment Figures By Services For 1965-66

Following Figures Full-Time Technicians

Trade & Industrial----------	1027
Distributive----------	201
Agriculture----------	90
Business & Office Education----------	459
Total----------	1777

ENNROLLMENT OF FULL TIME STUDENTS FROM THE START OF TECHNICAL EDUCATION UNTIL PRESENT

1959-60----------	24
1960-61----------	294
1961-62----------	413
1962-63----------	689
1963-64----------	847
1964-65----------	1124
1965-66----------	1777

2. Pre-service and In-service Teacher Education

Pre-service programs for the preparation of technical instructors are being offered as a part of the teacher education efforts through each of the vocational education service areas. Intensive in-service education and supervisory services are provided technical instructors during the year. This is made available through group instruction in most centers to both full and part-time instructors.

3. Research and Studies

Each of the vocational education services areas have conducted continuous research efforts directed toward the identification of new technical programs needed to meet emerging employment needs. These efforts involved numerous industry advisory committees, and resulted in the new programs reviewed earlier in this report.

4. Enrollment and Placement

As will be noted from the enrollment information included earlier, continuous growth has been made. Placement of graduates on jobs for which they are trained has continued to be excellent. The demand far exceeds the supply.

5. Additional Significant Information

As a result of cooperation with other agencies, a new technical program has been made possible in the Appalachia Area of Ohio. This program will serve an eight-county area, and its construction will be made possible through the assistance of the Ohio Office of Appalachia.

The Ohio Board of Regents controls the granting of associate degrees.

XI

RESEARCH AND SURVEY SERVICES

A. INTRODUCTION

Educational agencies in Ohio are newly faced with additional responsibilities for the provision of programs in vocational and technical education. The expanding efforts will call for increased research and educational programing coupled with a need for enhanced communication of ideas and concepts.

In response to this need, the United States Commissioner of Education, under provisions of Section IV(c) of The Vocational Education Act of 1963, authorized the funding of a Research Coordination Unit for Occupational Education within The Division of Vocational Education, State of Ohio, Department of Education.

The contractual period for the Unit (Contract No. OE-5-85-131 in the amount of $93,142.) is from June 1, 1965 to November 30, 1966 with the stipulation that work begin September 1, 1965 and is to be completed by December 15, 1966. Work and services are conducted under the direction of Dr. Byrl R. Shoemaker. The USOE project officer is Dr. John E. Bean. On June 13, 1966 a proposal for the continuation of the Unit in the amount of $111,412. was transmitted to the United States Commissioner of Education for Support through authorization of the Bureau of Research.

B. UNIT ORGANIZATION

1. The Job

The purpose of the Unit is to extend and develop opportunities in occupational education for the citizens of Ohio. Specifically, the Unit's objectives are to: (1) Survey available data concerning employment, emerging occupational trends, and future job projections as a basis for planning vocational programs, curricula, and facilities; and teacher education, recruitment, and placement within the State, (2) Identify issues and problems relating to the nature and place of vocational education in the educational program of the State school system and determine the contribution which occupational research and development could make toward the resolution of them, and (3) Stimulate and encourage, coordinate, facilitate, and disseminate information concerning occupational education research and development activities in the State

Department, local school districts, colleges and universities and nonprofit organizations within the State Department of Education and coordinate such research activities with those conducted outside the State.

2. The Organization

Although the Unit is organized as a section of the Vocational Division of the State Department of Education, only Mr. C. O. Tower, Supervisor, (employed October 25, 1965) and a secretary have been quartered therein. All other professional and supportive personnel of the Unit have been quartered and serviced within The Ohio State University through subcontract agreements. They include the following: Mr. John A. Rolloff, Assistant Supervisor and Research Associate for Agriculture and Home Economics (employed January 1, 1966) and a secretary; Consultants Dr. Ralph E. Bender, Chairman, and Dr. Richard H. Wilson, Professor, both of the Department of Agricultural Education and a part-time secretary. Two Research Associate positions remain unfilled, namely; (1) Trade and Industrial Education and (2) Business Education and Distributive Education. Likewise, two Research Technician positions remain unfilled.

C. PROGRAM ACTIVITIES AND/OR ACCOMPLISHMENTS

In retrospect the Ohio Research Coordination Unit for Occupational Education staff:

Became familiar with the framework in which RCU operates with USOE, State Department of Education, Division of Vocational Education, The Ohio State University, and state and local governmental units concerning policies, regulations, procedures, reports, etc.

Prepared Ohio RCU purpose, functions, areas of concern, activities, and duties and responsibilities of the staff.

Established communications with local, state, national, and nonprofit organizations such as: Ohio State Unemployment Service; Ohio Department of Development; the various divisions of the Ohio State Department of Education; supporting services of universities including teacher training, educational research, numerical computation centers and instructional material laboratories; The Center for Vocational and Technical Education; Battelle Memorial Institute; and complementing area and professional conferences, seminars, and meetings.

Established resource information files in the demography, finance, employment opportunities and trends and similar categories.

Stimulated research proposals to be funded by USOE and Ohio Division of Vocational Education by:

-- Presenting Ohio RCU role and function from individual conferences

to large group meetings and from students and university faculty to the lay public.

-- Developing "Unified Criteria" for the evaluation of all Federal IV(c) Research Proposals.

-- Developing federal-state evaluation form for research proposals.

-- Initiating an in-service training program for the evaluation of proposals to upgrade technical performance of review and assistance to initiators of proposals.

-- Determining cooperatively with the Ohio State University Research Foundation guidelines and procedures for research proposals to be initiated at The Ohio State University under the new ruling on participation in cost sharing of research supported by federal grants.

-- Publishing the quarterly brochure "Ohio Research Coordinating Unit Notes".

Participated in various activities from individual professional conferences to public meetings of interested lay people to stimulate, coordinate, facilitate, and disseminate information on occupational education. Disseminated information by answering questionnaires and preparing state and federal reports.

Cooperated with USOE in field trips with representatives, Ad Hoc Committees on Trade and Industry Taxonomy and VEIS.

Presented vocational education to school executives, boards of education, and lay groups explaining vocational education and joint vocational schools.

Participated in professional conferences and meetings such as Ohio Superintendents, Ohio teachers, State Vocational Advisory Committee, Ohio Apprentice, Appalachian Regional Educational Laboratory, and Governor's Conference on Technical Education.

Attended professional meetings including American Vocational Association, National Interdisciplinary Seminar, Vocational Education Conference, National Seminar on Development and Coordination of Research, Department of Education In-Service Staff Workshop, and Evaluation and Planning in Vocational Agriculture.

Participated in survey planning meetings with local communities, prepared and presented community vocational reports for establishing joint vocational schools, and assisted superintendents in preparing request to the Ohio State Board of Education for approval such as Trumbull, Marion, Butler, Medina, Mahoning, and Lawrence Counties.

Advised public school administrators on establishing vocational

education programs and joint vocational schools.

Cooperated with supervisors of services on such items as building plans for schools, Leadership Development Program, presentations at workshops, etc.

Prepared Projected Program Activities for Vocational Education-Fiscal Year 1967 for Division of Vocational Education Report to USOE and other statistical materials for Division of Vocational Education annual report.

Served as vocational education staff member to review 48 project proposals under Title III Elementary and Secondary Act.

Prepared estimated building and equipment costs for joint vocational schools for 1966-67.

Prepared material for Dr. D. R. Purdy, Project Director of the Master Plan for School District Organization for the State of Ohio, such as Programs Illustrative of Vocational Offerings in Joint Vocational Schools by Size, The Purpose and Scope of Vocational Subject Matter areas in the State of Ohio, The Vocational School and the Intermediate District, Maximum and Optimum Enrollments for Vocational Schools, and Seven Guidelines for Establishing of Joint Vocational Schools.

Designed a Community Vocational Study Report for coordinating Community Vocational Planning. Surveyed available data concerning employment, emerging of occupational trends, and future job projections as a basis for programing and State Board approving and establishing Joint Vocational School Districts.

Prepared a basic report on Joint Vocational Schools for the State of Ohio which will provide vocational education for over 65,000 pupils.

Converted trade and industrial education program approval and reporting procedures to data processing techniques for state and federal reports.

Analyzed the implication of a new state law requiring a pupil to have acquired adequate vocational preparation for entering into gainful employment prior to leaving school. The law also required all public school districts to offer an adequate vocational education program. An analysis of this phase was made by studying several proposals of "Adequate Vocational Program" for a sample of fifty school systems.

D. SUMMARY

Explorations have been initiated in most areas of concern and projects and/or activities have been instituted in many.

It is envisioned that current Unit activities will increase in scope and depth as organizational procedure becomes established and the dissemination of research and development materials increases within the State. The Unit's additional scope of activities is dependent upon the employment of additional staff. Nevertheless, the Unit's contributory thrust will continue to provide leadership for the improvement, development, and extension of occupational education for all levels in the State of Ohio thereby increasing individual and collective capacity, effeciency, and effectiveness for the world of work.

VT 002 143
Dental Students' Register.

American Dental Association, Chicago, Ill.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 31p.

DENTISTS; *DENTAL HYGIENISTS; *DENTAL ASSISTANTS; *DENTAL TECHNICIANS; *DIRECTORIES; DENTAL SCHOOLS; JUNIOR COLLEGES; COMMUNITY COLLEGES; UNIVERSITIES; COLLEGES; *EDUCATIONAL PROGRAMS; ENROLLMENT; GRADUATES; TUITION; ADMISSION CRITERIA; SCHOLARSHIPS; PROGRAM LENGTH

In addition to the detailed information about dental schools and dental students, the document includes: (1) listings of the administrative officers of dental hygiene, dental assistant, and dental laboratory technician programs, (2) preadmission training programs for students of the three types of programs, (3) 1966 enrollment in each program of the three types, (4) enrollment figures for each dental hygiene program each year from 1960 through 1966, (5) the numbers of graduates from dental hygiene and dental laboratory technician programs each year from 1962 through 1966 and from each dental assistant program for 1965 and 1966, (6) admission requirements, program length, certificate or degree, tuition, scholarships, and loans for each program of the types, and (7) 1966 geographical distribution data for dental hygiene undergraduates. (JK)

VT 002 143

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Dental Students' Register

AMERICAN DENTAL ASSOCIATION

1966

1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT002143

TABLE 1

Undergraduate Enrollment in the Dental Schools of the United States and Canada as of October 15, 1960 - 1966, Inclusive

STATE OR PROVINCE	SCHOOL OR COLLEGE	1960	1961	1962	1963	1964	1965	1966
ALABAMA	University of Alabama	197	181	191	186	189	194	197
CALIFORNIA	College of Physicians and Surgeons	225	224	221	227	222	216	239
	University of California	279	283	300	300	295	297	294
	University of California at Los Angeles	—	—	—	—	28	58	140
	University of Southern California	405	405	401	399	391	394	402
	Loma Linda University	227	221	216	209	205	219	234
DISTRICT OF COLUMBIA	Georgetown University	338	329	353	373	378	390	389
	Howard University	271	268	270	253	262	268	283
GEORGIA	Emory University	301	299	301	298	291	301	306
ILLINOIS	Loyola University of Chicago	380	387	379	364	357	343	350
	Northwestern University	287	273	254	265	280	287	296
	University of Illinois	323	327	336	338	332	335	340
INDIANA	Indiana University	311	329	340	352	358	345	367
IOWA	University of Iowa	217	211	213	211	210	207	209
KENTUCKY	University of Kentucky	—	—	26	62	110	151	172
	University of Louisville	224	223	212	215	217	208	202
LOUISIANA	Loyola University, New Orleans	221	221	221	222	217	219	217
MARYLAND	University of Maryland	374	375	380	388	390	386	377
MASSACHUSETTS	Harvard University	50	42	40	41	49	58	54
	Tufts University	394	400	392	398	392	387	397
MICHIGAN	University of Detroit	310	299	286	290	285	291	282
	University of Michigan	348	343	340	336	334	341	350
MINNESOTA	University of Minnesota	369	377	384	383	399	398	400
MISSOURI	Saint Louis University	182	176	196	210	208	210	214
	University of Missouri at Kansas City	443	453	459	456	455	451	455
	Washington University	191	185	186	182	185	189	185
NEBRASKA	The Creighton University	171	173	177	180	179	179	184
	University of Nebraska	135	134	134	132	135	140	142
NEW JERSEY	Fairleigh Dickinson University	179	177	180	188	184	182	192
	New Jersey College of Dentistry	147	144	146	159	172	171	181
NEW YORK	Columbia University	152	144	135	132	128	125	123
	New York University	662	664	660	656	650	653	657
	State University of New York at Buffalo	236	230	236	231	236	250	267
NORTH CAROLINA	University of North Carolina	189	191	187	189	186	191	193
OHIO	The Ohio State University	562	577	587	578	578	575	571
	Western Reserve University	244	244	240	239	241	236	243
OREGON	University of Oregon	297	283	288	296	302	303	309
PENNSYLVANIA	Temple University	506	513	504	497	493	488	494
	University of Pennsylvania	492	493	491	494	472	480	509
	University of Pittsburgh	379	378	370	367	371	381	393
TENNESSEE	Meharry Medical College	98	95	93	84	94	97	109
	The University of Tennessee	370	352	362	369	387	366	388
TEXAS	Baylor University	329	332	336	346	358	365	374
	The University of Texas	378	369	377	393	397	393	391
VIRGINIA	Medical College of Virginia	302	297	291	285	287	287	298
WASHINGTON	University of Washington	240	239	245	247	255	267	278
WEST VIRGINIA	West Virginia University	94	104	114	127	162	178	192
WISCONSIN	Marquette University	451	450	437	444	460	461	466
PUERTO RICO	University of Puerto Rico	100	99	89	100	110	109	116
TOTAL UNITED STATES		13,580	13,513	13,576	13,691	13,876	14,020	14,421
AVERAGE UNITED STATES SCHOOL		289	288	283	285	283	286	294
ALBERTA	University of Alberta	134	157	174	191	189	192	194
BRITISH COLUMBIA	University of British Columbia	—	—	—	—	8	14	22
MANITOBA	University of Manitoba	64	95	104	103	114	116	116
NOVA SCOTIA	Dalhousie University	53	60	68	75	89	98	97
ONTARIO	University of Toronto	371	429	471	481	479	485	499
	University of Western Ontario	—	—	—	—	—	—	8
QUEBEC	McGill University	140	139	139	143	142	143	140
	Universite de Montreal	151	172	178	184	218	241	270
TOTAL CANADA		913	1,052	1,134	1,177	1,239	1,289	1,346
AVERAGE CANADIAN SCHOOL		152	175	189	196	177	184	168

TABLE 2

Enrollment in the Dental Schools of the United States and Canada as of October 15, 1966

SCHOOL OR COLLEGE	UNDERGRADUATES							OTHER STUDENTS								ALL STUDENTS		
	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS	MEN	WOMEN	TOTAL	SPECIALS	GRADUATE*	POST GRAD.*	DENTAL HYGIENISTS	MEN	WOMEN	TOTAL	REFRESHER**	MEN	WOMEN	TOTAL
University of Alabama	52	50	45	50	191	6	197	–	16	33	–	48	1	49	–	239	7	246
College of Physicians and Surgeons	70	59	62	48	237	2	239	–	7	–	–	7	–	7	158	244	2	246
University of California	75	73	71	75	290	4	294	–	16	4	47	18	49	67	4,155	308	53	361
University of California at Los Angeles	81	30	29	–	135	5	140	508	–	–	–	100	408	508	575	235	413	648
University of Southern California	110	97	107	88	397	5	402	–	24	15	76	39	76	115	1,358	436	81	517
Loma Linda University	63	56	58	57	234	–	234	5	21	1	54	25	56	81	277	259	56	315
Georgetown University	109	94	96	90	385	4	389	–	92	42	–	115	19	134	149	500	23	523
Howard University	87	74	76	46	271	12	283	–	–	13	41	11	43	54	262	282	55	337
Emory University	84	78	71	73	303	3	306	–	25	4	–	29	–	29	172	332	3	335
Loyola University of Chicago	86	90	83	91	349	1	350	6	39	13	–	51	7	58	156	400	8	408
Northwestern University	77	71	78	70	294	2	296	–	27	9	51	36	51	87	107	330	53	383
University of Illinois	92	82	90	76	330	10	340	25	–	32	–	29	28	57	257	359	38	397
Indiana University	100	96	86	85	359	8	367	–	115	2	57	109	65	174	218	468	73	541
University of Iowa	58	56	47	48	208	1	209	3	33	–	69	36	69	105	298	244	70	314
University of Kentucky	47	41	45	39	167	5	172	16	6	–	–	18	4	22	554	185	9	194
University of Louisville	53	48	54	47	202	–	202	–	–	4	39	4	39	43	146	206	39	245
Loyola University, New Orleans	56	57	55	49	215	2	217	–	–	–	76	–	76	76	–	215	78	293
University of Maryland	100	94	90	93	374	3	377	–	35	–	–	22	13	35	353	396	16	412
Harvard University	10	16	11	17	54	–	54	–	–	25	–	25	–	25	16	79	–	79
Tufts University	108	100	92	97	394	3	397	–	–	61	–	60	1	61	385	454	4	458
University of Detroit	82	66	71	63	279	3	282	14	4	20	76	23	91	114	167	302	94	396
University of Michigan	96	96	80	78	345	5	350	–	74	6	77	70	87	157	531	415	92	507
University of Minnesota	110	99	94	97	397	3	400	43	47	2	80	48	124	172	495	445	127	572
Saint Louis University	60	53	56	45	212	2	214	–	24	1	–	25	–	25	292	237	2	239
University of Missouri at Kansas City	118	113	115	109	454	1	455	–	54	–	50	53	51	104	900	507	52	559
Washington University	52	45	43	45	184	1	185	–	13	2	–	15	–	15	50	199	1	200
The Creighton University	46	47	46	45	184	–	184	–	–	–	–	–	–	–	–	184	–	184
University of Nebraska	36	35	37	34	142	–	142	–	17	–	19	17	19	36	456	159	19	178
Fairleigh Dickinson University	50	51	45	46	191	1	192	–	12	–	75	12	75	87	200	203	76	279
New Jersey College of Dentistry	55	37	43	46	178	3	181	–	–	–	–	–	–	–	–	178	3	181
Columbia University	36	27	29	31	121	2	123	–	–	80	60	78	62	140	106	199	64	263
New York University	173	168	152	164	653	4	657	39	32	139	–	168	42	210	53	821	46	867
State University of New York at Buffalo	70	73	62	62	261	6	267	–	10	2	–	12	–	12	245	273	6	279
University of North Carolina	50	50	47	46	193	–	193	20	18	1	33	19	53	72	161	212	53	265
The Ohio State University	155	145	136	135	567	4	571	–	49	9	158	58	158	216	263	625	162	787
Western Reserve University	67	63	54	59	240	3	243	–	8	–	–	8	–	8	259	248	3	251
University of Oregon	81	77	77	74	309	–	309	4	17	1	59	19	62	81	–	328	62	390
Temple University	133	122	114	125	494	–	494	–	10	3	116	12	117	129	645	506	117	623
University of Pennsylvania	146	129	123	111	504	5	509	27	51	6	88	57	115	172	553	561	120	681
University of Pittsburgh	104	97	99	93	387	6	393	43	39	18	37	47	90	137	330	434	96	530
Meharry Medical College	36	26	28	19	108	1	109	–	–	–	10	–	10	10	–	108	11	119
The University of Tennessee	108	93	87	100	387	1	388	–	16	–	76	16	76	92	321	403	77	480
Baylor University	100	93	93	88	368	6	374	–	71	–	76	59	88	147	300	427	94	521
The University of Texas	100	98	95	98	385	6	391	–	38	14	64	52	64	116	261	437	70	507
Medical College of Virginia	80	73	70	75	297	1	298	–	4	14	–	18	–	18	97	315	1	316
University of Washington	78	66	71	63	278	–	278	–	61	10	38	69	40	109	703	347	40	387
West Virginia University	54	49	49	40	189	3	192	–	–	4	71	4	71	75	37	193	74	267
Marquette University	117	120	117	112	461	5	466	35	28	5	130	33	165	198	220	494	170	664
University of Puerto Rico	31	25	26	34	98	18	116	23	5	1	–	5	24	29	112	103	42	145
TOTAL UNITED STATES	3,942	3,598	3,505	3,376	14,255	166	14,421	811	1,158	596	1,903	1,779	2,689	4,468	17,353	16,034	2,855	18,889
University of Alberta	50	56	36	52	188	6	194	–	3	–	41	X	X	44	–	X	X	238
University of British Columbia	9	7	6	–	21	1	22	–	–	–	–	–	–	–	–	21	1	22
University of Manitoba	31	31	28	26	114	2	116	–	15	–	30	X	X	45	3	X	X	161
Dalhousie University	24	25	22	26	94	3	97	–	–	–	21	–	21	21	–	94	24	118
University of Toronto	125	120	129	125	463	36	499	–	14	44	96	X	X	154	4	X	X	653
University of Western Ontario	8	–	–	–	7	1	8	–	–	–	–	–	–	–	–	7	1	8
McGill University	40	32	36	32	130	10	140	–	–	–	–	–	–	–	–	130	10	140
Universite de Montreal	86	75	60	49	254	16	270	–	12	–	–	X	X	12	–	X	X	282
TOTAL CANADA	373	346	317	310	1,271	75	1,346	–	44	44	188	X	X	276	7	X	X	1,622

* Based on estimated enrollment for all or part of the 1966-1967 school year.

** These figures are for the 1965-1966 school year and are not included in "Total" columns.

X- Breakdown of total not available.

TABLE 3

Amount of Predental College Training of Freshmen Enrolled in the Dental Schools of the United States and Canada as of October 15, 1966

STATE OR PROVINCE	SCHOOL OR COLLEGE	FRESHMEN DENTAL STUDENTS					
		2 Years	3 Years	4 Years Without Degree	Bachelor's or Other Degree: Bachelor	Bachelor's or Other Degree: Master or Other	Total
ALABAMA	University of Alabama	–	11	2	39	–	52
CALIFORNIA	College of Physicians and Surgeons	6	21	13	29	1	70
	University of California	18	22	2	19	14	75
	University of California at Los Angeles	5	23	29	24	–	81
	University of Southern California	45	29	8	28	–	110
	Loma Linda University	4	24	10	24	1	63
DISTRICT OF COLUMBIA	Georgetown University	–	9	–	98	2	109
	Howard University	–	–	2	81	4	87
GEORGIA	Emory University	11	29	–	43	1	84
ILLINOIS	Loyola University of Chicago	3	20	14	49	–	86
	Northwestern University	16	25	13	23	–	77
	University of Illinois	39	23	3	27	–	92
INDIANA	Indiana University	16	37	9	37	1	100
IOWA	University of Iowa	7	25	8	17	1	58
KENTUCKY	University of Kentucky	1	17	7	22	–	47
	University of Louisville	9	8	7	26	3	53
LOUISIANA	Loyola University, New Orleans	26	16	1	13	–	56
MARYLAND	University of Maryland	–	27	–	73	–	100
MASSACHUSETTS	Harvard University	–	–	–	10	–	10
	Tufts University	–	13	1	87	7	108
MICHIGAN	University of Detroit	14	24	5	39	–	82
	University of Michigan	9	32	8	46	1	96
MINNESOTA	University of Minnesota	44	34	9	23	–	110
MISSOURI	Saint Louis University	14	17	1	28	–	60
	University of Missouri at Kansas City	4	40	26	48	–	118
	Washington University	4	13	1	33	1	52
NEBRASKA	The Creighton University	13	11	2	20	–	46
	University of Nebraska	18	11	3	4	–	36
NEW JERSEY	Fairleigh Dickinson University	1	12	2	35	–	50
	New Jersey College of Dentistry	–	3	1	51	–	55
NEW YORK	Columbia University	–	8	–	28	–	36
	New York University	–	43	4	126	–	173
	State University of New York at Buffalo	–	14	3	53	–	70
NORTH CAROLINA	University of North Carolina	–	16	–	33	1	50
OHIO	The Ohio State University	5	53	12	83	2	155
	Western Reserve University	15	18	8	22	4	67
OREGON	University of Oregon	–	38	19	23	1	81
PENNSYLVANIA	Temple University	5	29	7	88	4	133
	University of Pennsylvania	–	21	6	115	4	146
	University of Pittsburgh	4	22	6	70	2	104
TENNESSEE	Meharry Medical College	–	3	9	24	–	36
	The University of Tennessee	20	31	15	41	1	108
TEXAS	Baylor University	–	25	14	61	–	100
	The University of Texas	18	39	16	26	1	100
VIRGINIA	Medical College of Virginia	–	18	1	61	–	80
WASHINGTON	University of Washington	32	19	6	21	–	78
WEST VIRGINIA	West Virginia University	5	15	8	25	1	54
WISCONSIN	Marquette University	46	26	14	30	1	117
PUERTO RICO	University of Puerto Rico	–	9	7	12	3	31
TOTALS–UNITED STATES		477	1,023	342	2,038	62	3,942
PER CENT		12%	26%	9%	52%	1%	100%
ALBERTA	University of Alberta	–	22	8	20	–	50
BRITISH COLUMBIA	University of British Columbia	–	5	1	3	–	9
MANITOBA	University of Manitoba	22	6	–	2	1	31
NOVA SCOTIA	Dalhousie University	1	7	6	10	–	24
ONTARIO	University of Toronto	68	11	–	46	–	125
	University of Western Ontario	–	4	–	4	–	8
QUEBEC	McGill University	5	10	2	23	–	40
	Universite de Montreal	–	–	–	86	–	86
TOTALS–CANADA		96	65	17	194	1	373
PER CENT		26%	17%	5%	52%	–	100%

TABLE 4

Amount of Predental College Training of Undergraduates Enrolled in the Dental Schools of the United States and Canada as of October 15, 1966

STATE OR PROVINCE	SCHOOL OR COLLEGE	ALL UNDERGRADUATES					
					Bachelor's or Other Degree		
		2 Years	3 Years	4 Years Without Degree	Bachelor	Master or Other	Total
ALABAMA	University of Alabama	–	31	2	158	6	197
CALIFORNIA	College of Physicians and Surgeons	21	77	32	107	2	239
	University of California	115	69	10	53	47	294
	University of California at Los Angeles	28	31	30	47	4	140
	University of Southern California	198	114	15	70	5	402
	Loma Linda University	39	89	30	75	1	234
DISTRICT OF COLUMBIA	Georgetown University	16	48	4	316	5	389
	Howard University	1	8	13	251	10	283
GEORGIA	Emory University	74	116	2	111	3	306
ILLINOIS	Loyola University of Chicago	32	97	61	159	1	350
	Northwestern University	73	88	28	102	5	296
	University of Illinois	129	83	15	109	4	340
INDIANA	Indiana University	57	137	24	145	4	367
IOWA	University of Iowa	52	72	8	75	2	209
KENTUCKY	University of Kentucky	9	52	18	93	–	172
	University of Louisville	40	30	25	103	4	202
LOUISIANA	Loyola University, New Orleans	98	56	3	59	1	217
MARYLAND	University of Maryland	18	98	6	255	–	377
MASSACHUSETTS	Harvard University	–	15	–	39	–	54
	Tufts University	10	79	1	298	9	397
MICHIGAN	University of Detroit	96	73	11	101	1	282
	University of Michigan	51	131	27	137	4	350
MINNESOTA	University of Minnesota	188	121	18	73	–	400
MISSOURI	Saint Louis University	64	48	6	94	2	214
	University of Missouri at Kansas City	23	175	38	209	10	455
	Washington University	35	40	11	98	1	185
NEBRASKA	The Creighton University	66	49	7	61	1	184
	University of Nebraska	66	46	5	25	–	142
NEW JERSEY	Fairleigh Dickinson University	6	47	14	125	–	192
	New Jersey College of Dentistry	–	37	1	141	2	181
NEW YORK	Columbia University	–	29	2	90	2	123
	New York University	–	48	4	600	5	657
	State University of New York at Buffalo	8	62	11	179	7	267
NORTH CAROLINA	University of North Carolina	–	56	8	128	1	193
OHIO	The Ohio State University	41	212	37	277	4	571
	Western Reserve University	85	49	13	91	5	243
OREGON	University of Oregon	6	123	98	82	–	309
PENNSYLVANIA	Temple University	30	147	33	273	11	494
	University of Pennsylvania	15	94	20	369	11	509
	University of Pittsburgh	38	92	16	235	12	393
TENNESSEE	Meharry Medical College	–	5	32	72	–	109
	The University of Tennessee	69	120	32	162	5	388
TEXAS	Baylor University	2	116	29	220	7	374
	The University of Texas	90	116	41	140	4	391
VIRGINIA	Medical College of Virginia	–	84	2	211	1	298
WASHINGTON	University of Washington	95	89	20	74	–	278
WEST VIRGINIA	West Virginia University	35	53	22	78	4	192
WISCONSIN	Marquette University	148	122	55	132	9	466
PUERTO RICO	University of Puerto Rico	–	30	19	63	4	116
TOTALS–UNITED STATES		2,267	3,804	959	7,165	226	14,421
PER CENT		16%	26%	7%	50%	1%	100%
ALBERTA	University of Alberta	80	54	30	25	5	194
BRITISH COLUMBIA	University of British Columbia	–	11	4	7	–	22
MANITOBA	University of Manitoba	47	37	7	23	2	116
NOVA SCOTIA	Dalhousie University	10	30	20	36	1	97
ONTARIO	University of Toronto	329	32	7	108	23	499
	University of Western Ontario	–	4	–	4	–	8
QUEBEC	McGill University	22	39	5	72	2	140
	Universite de Montreal	–	–	–	249	21	270
TOTALS–CANADA		488	207	73	524	54	1,346
PER CENT		36%	15%	6%	39%	4%	100%

TABLE 5

Admission Data for Dental Students

SCHOOL OR COLLEGE	Semester Hours	BASIC PREDENTAL REQUIREMENTS: ENGLISH		INORGANIC CHEMISTRY		ORGANIC CHEMISTRY		ZOOLOGY OR BIOLOGY		PHYSICS		Special High School Course	FOUR YEAR TUITION **		Scholarships
		Sem. Hrs.	Qtr. Hrs.	Sem. Hrs.	Qtr. Hrs.	Sem. Hrs.	Qtr. Hrs.	Sem. Hrs.	Qtr. Hrs.	Sem. Hrs.	Qtr. Hrs.		Out of State	State	
University of Alabama	90	6	—	8	—	8	—	8	—	8	—	No	4000	2400	Yes
College of Physicians and Surgeons	60	6	9	9	14	4	6	8	12	8	12	No	6800	6800	Yes
University of California	60	6	10	10	12	3	8	8	15	8	12	Yes	3924	804	Yes
University of California at Los Angeles	60	—	8	—	12	—	12	—	12	—	12	No	3924	804	Yes
University of Southern California	60	6	9	6	9	6	9	6	9	6	9	No	7100	7100	Yes
Loma Linda University	60	6	—	8	—	6	—	10	—	8	—	No	6000	6000	No
Georgetown University	60	12	18	8	12	8	12	8	12	8	12	No	5800	5800	Yes
Howard University	60	6	—	8	—	8	—	8	—	8	—	No	2200	2200	Yes
Emory University	60	6	9	8	12	6	9	8	12	6	9	No	5580	5580	No
Loyola University of Chicago	60	6	9	8	12	4	6	8	12	8	12	Yes	5600	5600	No
Northwestern University	60	6	9	8	12	4	6	8	12	8	12	No	7200	7200	Yes
University of Illinois	60	6	9	8	12	4	6	6	9	6	9	Yes	4440	2100	Yes
Indiana University	60	6	9	8	12	4	6	6	9	6	9	No	4000	2000	Yes
University of Iowa	60	8	—	8	—	8	—	8	—	8	—	No	4920	2080	Yes
University of Kentucky	60	6	—	6	—	5	—	6	—	6	—	No	5120	2400	Yes
University of Louisville	60	6	9	6	9	3	5	6	9	6	9	No	6000	4000	Yes
Loyola University, New Orleans	60	6	—	8	—	8	—	8	—	8	—	No	5880	4880	No
University of Maryland	90	6	—	8	—	8	—	8	—	8	—	No	3400	1800	Yes
Harvard University	60	6	—	8	—	8	—	8	—	8	—	No	8000	8000	Yes
Tufts University	60	6	—	8	—	4	—	6	—	6	—	No	7600	7600	Yes
University of Detroit	60	6	9	8	12	4-6	6-9	8	12	8	12	No	6000	6000	No
University of Michigan	60	6	—	8	—	8	—	8	—	8	—	No	6400	3200	Yes
University of Minnesota	60	—	12	—	12	—	8	—	10	—	12	No	4560	2016	Yes
Saint Louis University	60	6	9	6	9	4	6	6	9	6	9	No	5600	5600	No
University of Missouri at Kansas City	60	8	—	8	—	5	—	8	—	8	—	No	3920	1920	Yes
Washington University	60	6	—	6	—	4	—	6	—	6	—	No	6800	6800	Yes
The Creighton University	60	6	9	8	12	6-8	9-12	6	9	6	9	No	5400	5400	No
University of Nebraska	60	6	9	8	12	8	6-12	6	9	4-8	12	Yes	6240†	4040†	Yes
Fairleigh Dickinson University	60	6	—	8	—	8	—	8	—	8	—	Yes	6000	6000	Yes
New Jersey College of Dentistry	90	6	—	8	—	4	—	8	—	8	—	No	4000	3000	Yes
Columbia University	90	8	—	8	—	8	—	8	—	8	—	No	7600	7600	Yes
New York University	90	6-8	—	8-12	—	6-8	—	6-8	—	6-8	—	No	7200	7200	Yes
State University of New York at Buffalo	90	6	—	6	—	6	—	6	—	6	—	No	4000	3200	Yes
University of North Carolina	96	12	18	12	18	8	12	8	12	8	12	No	5325	2625	Yes
The Ohio State University	60	—	9	—	15	—	10	—	10	—	10	No	5472	3240	Yes
Western Reserve University	60	6	9	8	12	4	6	6	9	6	9	No	6720	6720	Yes
University of Oregon	90	—	9	—	14	—	8	—	12	—	15	No	4452	2820	Yes
Temple University	60	12	18	8	12	6	9	8	12	8	12	No	5400	1800	Yes
University of Pennsylvania	60	6	—	8	—	6	—	12	—	6	—	No	6920	6920	Yes
University of Pittsburgh	60	6	—	8	—	4	—	6	—	6	—	Yes	6000	2208	Yes
Meharry Medical College	60	6	9	8	12	4-8	6-12	8	12	8	12	No	3800	3800	Yes
The University of Tennessee*	60	6	9	8	12	8	12	8	12	8	12	No	4266	2760	No
Baylor University	90	6	—	8	—	8	—	8	—	8	—	No	5200	5200	No
The University of Texas	60	6	10	8	15	6	12	12	20	8	15	No	3200	1200	Yes
Medical College of Virginia	90	6	9	8	12	8	12	8	12	8	12	No	4400	2800	Yes
University of Washington	60	—	9	—	14	—	10	—	10	—	15	Yes	4380	2280	Yes
West Virginia University	60	6	—	6	—	6	—	6	—	6	—	No	4144	1600	Yes
Marquette University	60	6	9	8	12	8	12	8	12	8	12	No	5800	5800	No
University of Puerto Rico	90	12	—	8	—	8	—	8	—	8	—	No	2000	2000	Yes

*Offers an accelerated program. **Tuition figures do not always include all fixed fees. † Represents total cost of four year dental training program.

(DO NOT OPERATE ON SEMESTER OR QUARTER SYSTEM)

University of Alberta	2 years	(INFORMATION NOT AVAILABLE)	No	2000	Yes
University of British Columbia	3 years		No	2692	Yes
University of Manitoba	2 years		No	2152	Yes
Dalhousie University	2 years		No	2800	Yes
University of Toronto	2 years		No	2824	Yes
University of Western Ontario	3 years		No	2900	Yes
McGill University	2 years		No	2760	Yes
Universite de Montreal	4 years		No	2200	Yes

TABLE 6

Admission Dates for Freshman Classes and Graduation Dates

STATE OR PROVINCE	SCHOOL OR COLLEGE	1966 – 1967		1967 – 1968	
		Admission Dates for Freshmen	Graduation Dates	Admission Dates for Freshmen	Graduation Dates
ALABAMA	University of Alabama	Sept. 6	May 28	Sept. 5	–
CALIFORNIA	College of Physicians and Surgeons	Sept. 14	June 14	Sept. 13	June 12
	University of California	Sept. 29	June 13	Sept.	June 11
	University of California at Los Angeles	Sept.	June	Sept.	June
	University of Southern California	Sept. 19	June 8	Sept. 18	June 6
	Loma Linda University	Sept. 12	June 4	Sept. 11	June 2
DISTRICT OF COLUMBIA	Georgetown University	Sept. 14	June 5	Sept. 13	June 3
	Howard University	Sept. 14	June 9	Sept. 13	June 7
GEORGIA	Emory University	Sept. 13	June 12	–	–
ILLINOIS	Loyola University of Chicago	Aug. 25	June 11	Aug. 24	June 9
	Northwestern University	Sept. 23	June 17	Sept. 22	June 15
	University of Illinois	Sept. 26	June 9	Sept. 25	June 7
INDIANA	Indiana University	Sept. 12	June 12	Sept. 11	June 10
IOWA	University of Iowa	Sept. 19	June 9	Sept. 20	June 7
KENTUCKY	University of Kentucky	Aug. 31	May	Aug. 30	May
	University of Louisville	Sept. 16	June 9	Sept. 15	June 8
LOUISIANA	Loyola University, New Orleans	Sept. 14	May 30	–	–
MARYLAND	University of Maryland	Sept. 12	June 3	Sept. 11	June 8
MASSACHUSETTS	Harvard University	Sept. 6	June 15	Sept. 5	June 13
	Tufts University	Sept. 7	June 4	Sept. 6	June 9
MICHIGAN	University of Detroit	Aug. 29	April 29	Aug. 27	May 4
	University of Michigan	Aug. 29	May 20	Aug. 28	May 18
MINNESOTA	University of Minnesota	Sept. 26	June 10	Sept. 25	–
MISSOURI	Saint Louis University	Sept. 19	June 3	Sept.	June
	University of Missouri at Kansas City	Sept. 18	June 3	Sept. 11	June 8
	Washington University	Sept. 12	June 5	Sept. 11	June 3
NEBRASKA	The Creighton University	Sept. 21	June 5	Sept. 20	June 3
	University of Nebraska	Sept. 12	June 3	Sept. 11	June 1
NEW JERSEY	Fairleigh Dickinson University	Sept. 6	June 10	Sept. 5	June 8
	New Jersey College of Dentistry	Sept. 7	June 3	Sept. 6	June 8
NEW YORK	Columbia University	Sept. 12	June 6	Sept. 11	June 4
	New York University	Sept. 12	June 13	Sept. 11	June 12
	State University of New York at Buffalo	Sept. 7	May 28	Sept. 6	June 2
NORTH CAROLINA	University of North Carolina	Sept. 15	June 5	Sept. 14	June 3
OHIO	The Ohio State University	Oct. 3	June 13	Sept. 27	June 7
	Western Reserve University	Sept. 15	June 14	Sept. 14	June 14
OREGON	University of Oregon	Sept. 12	June 8	Sept. 11	June 9
PENNSYLVANIA	Temple University	Sept. 12	June 15	Sept. 11	June 14
	University of Pennsylvania	Sept. 7	May 22	Sept. 6	May 21
	University of Pittsburgh	Sept. 8	June 5	Sept. 9	June 4
TENNESSEE	Meharry Medical College	Sept. 6	June 12	Sept. 11	June 17
	The University of Tennessee	Jan. 3	Mar. 20	Jan. 3	Mar. 19
		Mar. 25	June 12	Mar. 24	June 11
		July 11	Sept. 25	July 10	Sept. 24
		Sept. 30	Dec. 18	Oct. 2	Dec. 17
TEXAS	Baylor University	Sept. 13	May 29	Sept. 12	May 20
	The University of Texas	Sept. 19	June 5	Sept. 18	June
VIRGINIA	Medical College of Virginia	Sept. 12	June 4	Sept. 11	June 1
WASHINGTON	University of Washington	Sept. 26	June 10	Sept. 25	June 8
WEST VIRGINIA	West Virginia University	Sept. 2	May 14	Aug. 29	May 12
WISCONSIN	Marquette University	Sept. 9	June 4	Sept. 8	June 2
PUERTO RICO	University of Puerto Rico	Aug.	June	Aug.	June
ALBERTA	University of Alberta	Sept. 6	May 31	Sept. 5	June 5
BRITISH COLUMBIA	University of British Columbia	Sept. 7	–	Sept. 6	June
MANITOBA	University of Manitoba	Sept. 7	May 26	Sept. 5	May 23
NOVA SCOTIA	Dalhousie University	Sept. 6	May 18	Sept. 5	May 16
ONTARIO	University of Toronto	Sept. 19	May 31	–	–
	University of Western Ontario	Sept. 13	–	Sept. 12	–
QUEBEC	McGill University	Sept. 6	June 2	Sept. 5	May 31
	Universite de Montreal	Sept. 6	May 26	Sept. 5	May 31

TABLE 7

Dental School Graduates 1962 – 1966

STATE OR PROVINCE	SCHOOL OR COLLEGE	GRADUATES 1962	1963	1964	1965	1966
ALABAMA	University of Alabama	41	50	44	43	47
CALIFORNIA	College of Physicians and Surgeons	56	59	52	58	40
	University of California	43	73	69	73	70
	University of California at Los Angeles	–	–	–	–	–
	University of Southern California	94	98	97	89	95
	Loma Linda University	55	53	52	43	41
DISTRICT OF COLUMBIA	Georgetown University	74	72	87	77	100
	Howard University	58	70	45	48	50
GEORGIA	Emory University	68	73	74	63	72
ILLINOIS	Loyola University of Chicago	94	94	87	95	72
	Northwestern University	79	64	64	56	55
	University of Illinois	76	77	83	77	75
INDIANA	Indiana University	70	77	77	87	83
IOWA	University of Iowa	50	53	51	50	54
KENTUCKY	University of Kentucky	–	–	–	–	20
	University of Louisville	59	47	49	56	49
LOUISIANA	Loyola University, New Orleans	52	53	57	52	55
MARYLAND	University of Maryland	87	94	97	87	101
MASSACHUSETTS	Harvard University	15	11	5	8	13
	Tufts University	100	89	98	96	89
MICHIGAN	University of Detroit	73	68	70	55	62
	University of Michigan	80	80	83	76	81
MINNESOTA	University of Minnesota	81	86	82	92	95
MISSOURI	Saint Louis University	33	29	53	46	48
	University of Missouri at Kansas City	108	109	110	108	112
	Washington University	41	49	41	38	49
NEBRASKA	The Creighton University	40	41	44	44	44
	University of Nebraska	31	30	30	29	31
NEW JERSEY	Fairleigh Dickinson University	40	36	46	45	37
	New Jersey College of Dentistry	35	30	33	35	38
NEW YORK	Columbia University	38	33	32	26	27
	New York University	152	164	160	154	153
	State University of New York at Buffalo	46	59	54	45	59
NORTH CAROLINA	University of North Carolina	47	45	47	43	44
OHIO	The Ohio State University	127	140	137	132	132
	Western Reserve University	62	54	66	59	55
OREGON	University of Oregon	74	65	67	73	69
PENNSYLVANIA	Temple University	136	126	128	112	114
	University of Pennsylvania	121	106	112	105	121
	University of Pittsburgh	96	90	95	92	80
TENNESSEE	Meharry Medical College	21	29	11	20	17
	The University of Tennessee	100	118	101	117	102
TEXAS	Baylor University	84	72	80	86	86
	The University of Texas	87	81	90	97	94
VIRGINIA	Medical College of Virginia	69	75	68	69	61
WASHINGTON	University of Washington	51	57	52	57	55
WEST VIRGINIA	West Virginia University	23	25	15	30	31
WISCONSIN	Marquette University	111	107	102	111	103
PUERTO RICO	University of Puerto Rico	29	22	16	27	17
TOTAL UNITED STATES		3,207	3,233	3,213	3,181	3,198
ALBERTA	University of Alberta	32	32	40	37	46
BRITISH COLUMBIA	University of British Columbia	–	–	–	–	–
MANITOBA	University of Manitoba	14	22	15	30	25
NOVA SCOTIA	Dalhousie University	15	14	10	17	24
ONTARIO	University of Toronto	85	124	119	123	118
	University of Western Ontario	–	–	–	–	–
QUEBEC	McGill University	36	31	38	34	35
	Universite de Montreal	43	37	31	49	48
TOTAL CANADA		225	260	253	290	296

TABLE 8

Baccalaureate Training of the 1966 Dental School Graduates

STATE OR PROVINCE	SCHOOL OR COLLEGE	Total Number of Graduates	Baccalaureate Degrees Prior to Dental School Enrollment	Total with Baccalaureate Degrees Upon Graduation
ALABAMA	University of Alabama	47	30	36
CALIFORNIA	College of Physicians and Surgeons	40	16	16
	University of California	70	21	23
	University of California at Los Angeles	–	–	–
	University of Southern California	95	22	29
	Loma Linda University	41	14	14
DISTRICT OF COLUMBIA	Georgetown University	100	68	68
	Howard University	50	42	42
GEORGIA	Emory University	72	20	20
ILLINOIS	Loyola University of Chicago	72	25	25
	Northwestern University	55	18	19
	University of Illinois	75	26	55
INDIANA	Indiana University	83	20	42
IOWA	University of Iowa	54	17	18
KENTUCKY	University of Kentucky	20	16	17
	University of Louisville	49	11	11
LOUISIANA	Loyola University, New Orleans	55	16	16
MARYLAND	University of Maryland	101	70	97
MASSACHUSETTS	Harvard University	13	12	12
	Tufts University	89	54	54
MICHIGAN	University of Detroit	62	16	19
	University of Michigan	81	31	36
MINNESOTA	University of Minnesota	95	18	94
MISSOURI	Saint Louis University	48	10	10
	University of Missouri at Kansas City	112	41	44
	Washington University	49	14	24
NEBRASKA	The Creighton University	44	5	5
	University of Nebraska	31	11	12
NEW JERSEY	Fairleigh Dickinson University	37	23	25
	New Jersey College of Dentistry	38	26	26
NEW YORK	Columbia University	27	20	20
	New York University	153	139	142
	State University of New York at Buffalo	59	26	26
NORTH CAROLINA	University of North Carolina	44	19	32
OHIO	The Ohio State University	132	53	55
	Western Reserve University	55	20	41
OREGON	University of Oregon	69	11	41
PENNSYLVANIA	Temple University	114	63	63
	University of Pennsylvania	121	74	75
	University of Pittsburgh	80	38	55
TENNESSEE	Meharry Medical College	17	12	12
	The University of Tennessee	102	29	31
TEXAS	Baylor University	86	44	44
	The University of Texas	94	33	33
VIRGINIA	Medical College of Virginia	61	41	41
WASHINGTON	University of Washington	55	10	10
WEST VIRGINIA	West Virginia University	31	15	16
WISCONSIN	Marquette University	103	28	28
PUERTO RICO	University of Puerto Rico	17	9	11
TOTALS–UNITED STATES		3,198	1,397	1,685
PER CENT WITH DEGREE			44%	53%
ALBERTA	University of Alberta	46	10	10
BRITISH COLUMBIA	University of British Columbia	–	–	–
MANITOBA	University of Manitoba	25	2	2
NOVA SCOTIA	Dalhousie University	24	11	11
ONTARIO	University of Toronto	118	7	7
	University of Western Ontario	–	–	–
QUEBEC	McGill University	35	12	13
	Universite de Montreal	48	48	48
TOTALS–CANADA		296	90	91
PER CENT WITH DEGREE			30%	31%

TABLE 9

Distribution of Freshmen Students in the Dental Schools of the United States and Canada by States, Territories and Other Countries as of October 15, 1966

		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi
ALABAMA	University of Alabama	47									2	1								1						
CALIFORNIA	College of Physicians and Surgeons			1		63								1	1											
	University of California					73								1												
	University of California at Los Angeles			1		73	1						1	1											1	
	University of Southern California			3		96		1					2				1									
	Loma Linda University	1	1			37				1			2	1								1		2		
DISTRICT OF COLUMBIA	Georgetown University			2		3		11	1	3	1			1		1					1	5	21			
	Howard University	3			2	4		2		1	6	5				1				2		4		3		4
GEORGIA	Emory University					1					40	33			1					3						
ILLINOIS	Loyola University of Chicago			1		19					1				42	2							1	2	1	
	Northwestern University			3		19	6				3		1	2	18									2	1	
	University of Illinois					3	1								87											
INDIANA	Indiana University					1					1		2		2	91										
IOWA	University of Iowa														3		53									
KENTUCKY	University of Kentucky										3	1			1				34							
	University of Louisville	2			1		3				7	1							20			2				
LOUISIANA	Loyola University, New Orleans				1						3									41						9
MARYLAND	University of Maryland					1		6			12	1										61	2			
MASSACHUSETTS	Harvard University							2				1											1			
	Tufts University					5		10							1						1		41	1		
MICHIGAN	University of Detroit					5									2								1	59		
	University of Michigan			1		3		1															1	85		
MINNESOTA	University of Minnesota						1								1										97	
MISSOURI	Saint Louis University			3		18	2			1			1		9					1			1			
	University of Missouri at Kansas City				1	3	7						2					31	1							
	Washington University	1		1	2	6	4				1			3	5			3						1		
NEBRASKA	The Creighton University					14	4						1	2	2		2									
	University of Nebraska			1																					1	
NEW JERSEY	Fairleigh Dickinson University					1		2															4			
	New Jersey College of Dentistry									1													2			
NEW YORK	Columbia University					1		1													1		2			
	New York University					4		3			1				1								7			
	State University of New York at Buffalo					1		1															1			
NORTH CAROLINA	University of North Carolina										1	1										1				
OHIO	The Ohio State University										1													1		
	Western Reserve University					9		1		1	1				1				1				5		1	
OREGON	University of Oregon		1	1		2							2	5												
PENNSYLVANIA	Temple University					1		7	5		1											1	4			
	University of Pennsylvania					5		8	3		1										1		19			
	University of Pittsburgh					3						1		1									2			
TENNESSEE	Meharry Medical College	2		1			1	1			3	1			2	1				1		1		1		2
	The University of Tennessee			1	17						5	1			1			1		6						7
TEXAS	Baylor University			1		1														3						
	The University of Texas																									
VIRGINIA	Medical College of Virginia										22	1										1				
WASHINGTON	University of Washington			3		3																				
WEST VIRGINIA	West Virginia University									1	1					1			1			1	2			
WISCONSIN	Marquette University					5	2								13	1		1						3	1	
PUERTO RICO	University of Puerto Rico					1																				
TOTAL–UNITED STATES		56	2	24	24	484	32	57	9	9	117	48	14	18	193	98	56	39	57	58	4	78	117	160	103	22
ALBERTA	University of Alberta																									
BRITISH COLUMBIA	University of British Columbia																									
MANITOBA	University of Manitoba																									
NOVA SCOTIA	Dalhousie University																									
ONTARIO	University of Toronto																									
	University of Western Ontario																									
QUEBEC	McGill University																									
	Universite de Montreal																									
TOTAL – CANADA																										

| | | |

TABLE 10

Distribution of Undergraduate Students in the Dental Schools of the United States and Canada by States, Territories and Other Countries as of October 15, 1966

		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi
ALABAMA	University of Alabama	171									8	5								2						2
CALIFORNIA	College of Physicians and Surgeons			1		213							2	1	1											
	University of California			1		289	2							1												
	University of California at Los Angeles			2		131	1						1	1											1	
	University of Southern California			10		360	1	1					9	1			1									
	Loma Linda University	1	2	6		126	4			1	4	2	4	4		1					2	2	3	7	2	
DISTRICT OF COLUMBIA	Georgetown University			3		7	1	33	3	17	5			2	2	2					3	40	70			
	Howard University	13		1	5	9		5	1	16	17	14		1	6	1	1		1	8		9	1	6		8
GEORGIA	Emory University	4			1	1	1	1		1	127	135			2					4						2
ILLINOIS	Loyola University of Chicago			2		56	2	3			4		2	4	214	7	1						4	8	1	
	Northwestern University			7		59	22	1			6		5	7	104	1		2				1	2	2	1	
	University of Illinois					3	3				1		1		330											
INDIANA	Indiana University	1				2	1				2		4		7	335			1				1			
IOWA	University of Iowa					1	1				1				8		186	1				1				
KENTUCKY	University of Kentucky					1					7	3			3	1		2	129							
	University of Louisville	3		2	2	3	5				28	6		1	7	6			62		1	2				1
LOUISIANA	Loyola University, New Orleans	2			2	1		1			18				1	1				159						21
MARYLAND	University of Maryland					5		20	4	1	46	2									2	180	20			
MASSACHUSETTS	Harvard University					2	1	3			1	1									1		16			
	Tufts University			1		8		37			2		1		1						10	1	178	1		
MICHIGAN	University of Detroit					13	1				2				3								1	233	2	
	University of Michigan			1		5	3	2			2				1								5	311		
MINNESOTA	University of Minnesota						3								3										350	
MISSOURI	Saint Louis University			8	1	51	7	1		1	2	2	5	3	32	1	4	1	1	1			1			
	University of Missouri at Kansas City			3	8	12	19				2		7	2	1			147	1	1						
	Washington University	1		2	6	23	9				3	2	2	11	29			6						1	1	
NEBRASKA	The Creighton University		2	2		46	20				2		5	7	2		8	7					1	3	2	
	University of Nebraska			1		1	15										2	4							1	
NEW JERSEY	Fairleigh Dickinson University		2			3		8			2											1	9			
	New Jersey College of Dentistry							2		1	1												7			
NEW YORK	Columbia University					4		7													1		5			
	New York University					5	1	10			1				1								14			
	State University of New York at Buffalo					1		3													1		4			
NORTH CAROLINA	University of North Carolina									1	3	2				1						1				
OHIO	The Ohio State University										2													1		
	Western Reserve University					27	3	4		1	6			3	1	1			1				9	3	1	
OREGON	University of Oregon		2	7		4	2						6	17												
PENNSYLVANIA	Temple University					1	1	23	17	1	3		1		1						1	2	16			
	University of Pennsylvania					15		25	10	4	10		1		1				1		5	3	42	1		
	University of Pittsburgh					6						1		1								2	3			
TENNESSEE	Meharry Medical College	4		1	3	3	1	3		1	6	4			8	1			1	2		2	3	5	1	3
	The University of Tennessee	1		4	57		1		1		22	12			3	1		3	1	13			1	1		32
TEXAS	Baylor University			8	4	4	4											5		6						2
	The University of Texas																									
VIRGINIA	Medical College of Virginia	1									78	3										1				
WASHINGTON	University of Washington		2	6		10	4						2	5												
WEST VIRGINIA	West Virginia University							2		3	4					1			1			5	4			
WISCONSIN	Marquette University					27	4				3		1	1	39	4	3	1					2	9	6	
PUERTO RICO	University of Puerto Rico					2																				
TOTAL UNITED STATES		202	10	79	89	1540	143	195	36	49	431	194	59	73	811	365	206	179	200	196	27	253	422	592	369	71
ALBERTA	University of Alberta																									
BRITISH COLUMBIA	University of British Columbia																									
MANITOBA	University of Manitoba																									
NOVA SCOTIA	Dalhousie University																				1		2			
ONTARIO	University of Toronto					1									2											
	University of Western Ontario																									
QUEBEC	McGill University					1		1													2					
	Universite de Montreal																									
TOTAL – CANADA						2		1							2						3		2			

Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Canal Zone	Puerto Rico	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland	Nova Scotia	Ontario	Prince Edward Island	Quebec	Saskatchewan	Other Countries	TOTAL
											1				2																							6	197
			5									3							11					1														1	239
	1																																						294
			1			1	1																																140
			1			2	1			1								1	9																			4	402
	2	3	2		2			1		4	1	9	1				3	4				8		2				2	8	2			1				1	7	234
			1	7	28		98			1			19	11	1				4		25	2			1			1											2	389
2					9		45	16		6	1		7		6		5	7			14		1							1						1		39	283
								4	2	2					13		2	4																					306
1	3				1		1		1	5		1	1	1		2		1	6	1		10		5	1													1	350
	1		3	1		1	3	1	4	6	1		3	1		5		1	28			4		4	4													5	296
																								1														1	340
					1		1			2	2		1		1									1										1				3	367
							1		2		1		1			3								1	1														209
1					1		3	1		12					1			2			1	2	2																172
1					4		4	7		6	2		2		32		4	2	3		3	1	1				1												202
1					2	1											1	4																				2	217
				2	28		23	1		1			19	10	1				2	2	3	2	1											1				1	377
				2			23		1				2																									1	54
		1	1	14	28		95						3	9	1					3																		2	397
					1		6			15			2									1												1				1	282
			1				4			4	2		1			2			2				1	2														1	350
	5								15				1			6								15	2														400
29	2	2	3		2	2	6			4	7		1	1		1		12	7		1	3		2	3	1			1									2	214
113	1	1				31			1	1	82				1	3		4	10			1	1															2	455
31	1					3	4			2	11	1	1		1		1	4	20			5		2	1													1	185
	4	26	1			6	1		4			1	1			2		2	6		1	12		1	5			1	1									2	184
	1	108	1								2					1			2	1					2														142
				2	112		42			2			7	1																								1	192
					107		59							2				1		1																			181
					11	1	90						1							2																		1	123
					34		581						3	2																								5	657
					3		242			2			3									1												1				6	267
				1	1		1	174		1			4		2						1																		193
					1		2	1		557			2		1	1					1		1															1	571
	1		4		2		18			117			10	1				2	22			1			2	1								1				1	243
	13		9			2						216							16			13			2														309
					91		94						237						1	1	1															1		1	494
	1			2	85		175			1		1	111	3				1	1	2		3		1												1		3	509
				1	4		45			11			319																										393
3					3		14	4		6	1				1		10	3			2																	10	109
4					2	2		1	1	5	33		1		8	2	162	11								1		1										1	388
2						30					65							240	1		1				1													1	374
																		391																					391
							6	8		2			2		51			1			144		1																298
	6		2									1							28			207			3			1	1										278
				1	10		7			6			33	1	1		1			1	1		107		1													2	192
1	8	2	5		3		10		5	8		1	2			3		1	5			5		301	1			1						1				3	466
					1		5						1											1			98											5	116
189	50	143	40	33	577	82	1714	219	36	790	212	234	802	43	124	31	189	699	184	14	199	281	116	340	30	3	99	7	11	3			1	6		3	1	125	14,421
																												140	17					3			33	1	194
																													21									1	22
																												2		74				2			32	6	116
																													1		21	15	34	8	4	6	1	4	97
							1						1																3			1		471		1	2	16	499
																																	1	7					8
				1			3													3		1							6		2	3	1	9		93	2	12	140
							1																								7		1			246	2	13	270
				1			5						1							3		1						142	48	74	30	19	37	500	4	346	72	53	1,346

TABLE 11

Administrative Officers of the Dental Schools of the United States and Canada

SCHOOL OR COLLEGE	LOCATION	DEAN
University of Alabama, School of Dentistry	Birmingham, Alabama	Dr. Charles A. McCallum, Jr.
College of Physicians and Surgeons, School of Dentistry	San Francisco, California	Dr. John Tocchini
University of California, School of Dentistry	San Francisco, California	Dr. Ben W. Pavone
University of California at Los Angeles	Los Angeles, California	Dr. Reidar F. Sognnaes
University of Southern California, School of Dentistry	Los Angeles, California	Dr. John I. Ingle
Loma Linda University, School of Dentistry	Loma Linda, California	Dr. Charles T. Smith
*The University of Connecticut, School of Dental Medicine	Farmington, Connecticut	Dr. Lewis Fox
Georgetown University, School of Dentistry	Washington, D.C.	Dr. Charles B. Murto
Howard University, College of Dentistry	Washington, D.C.	Dr. Joseph L. Henry
*University of Florida, College of Dentistry	Gainesville, Florida	Dr. Edmund F. Ackell
Emory University, School of Dentistry	Atlanta, Georgia	Dr. George H. Moulton
*Medical College of Georgia, School of Dentistry	Augusta, Georgia	Dr. Judson C. Hickey
Loyola University of Chicago, School of Dentistry	Chicago, Illinois	Dr. William P. Schoen, Jr.
Northwestern University Dental School	Chicago, Illinois	Dr. George W. Teuscher
University of Illinois, College of Dentistry	Chicago, Illinois	Dr. Seymour H. Yale
Indiana University, School of Dentistry	Indianapolis, Indiana	Dr. Maynard K. Hine
University of Iowa, College of Dentistry	Iowa City, Iowa	Dr. Donald J. Galagan
University of Kentucky, College of Dentistry	Lexington, Kentucky	Dr. Alvin L. Morris
University of Louisville, School of Dentistry	Louisville, Kentucky	Dr. Raymond E. Myers
Loyola University, School of Dentistry, New Orleans	New Orleans, Louisiana	Dr. Edmund E. Jeansonne
University of Maryland, School of Dentistry	Baltimore, Maryland	Dr. John J. Salley
Harvard School of Dental Medicine	Boston, Massachusetts	Dr. Roy O. Greep
Tufts University School of Dental Medicine	Boston, Massachusetts	Dr. Louis J.P. Calisti
University of Detroit, School of Dentistry	Detroit, Michigan	Dr. A. Raymond Baralt, Jr.
University of Michigan, School of Dentistry	Ann Arbor, Michigan	Dr. William R. Mann
University of Minnesota, School of Dentistry	Minneapolis, Minnesota	Dr. Erwin M. Schaffer
Saint Louis University, School of Dentistry	Saint Louis, Missouri	Dr. Stephen P. Forrest
University of Missouri at Kansas City, School of Dentistry	Kansas City, Missouri	Dr. Hamilton B.G. Robinson
Washington University, School of Dentistry	Saint Louis, Missouri	Dr. Leroy R. Boling
The Creighton University, School of Dentistry	Omaha, Nebraska	Dr. Raymond W. Shaddy
University of Nebraska, College of Dentistry	Lincoln, Nebraska	Dr. Ralph L. Ireland
Fairleigh Dickinson University, School of Dentistry	Teaneck, New Jersey	Dr. Walter A. Wilson
New Jersey College of Dentistry	Jersey City, New Jersey	Dr. Daniel F. Tobin
Columbia University, School of Dental and Oral Surgery	New York, New York	Dr. Gilbert P. Smith
New York University, College of Dentistry	New York, New York	Dr. Raymond J. Nagle
State University of New York at Buffalo, School of Dentistry	Buffalo, New York	Dr. James A. English
University of North Carolina, School of Dentistry	Chapel Hill, North Carolina	Dr. James W. Bawden
The Ohio State University, College of Dentistry	Columbus, Ohio	Dr. John R. Wilson
Western Reserve University, School of Dentistry	Cleveland, Ohio	Dr. Paul E. Boyle
University of Oregon, Dental School	Portland, Oregon	Dr. Harold J. Noyes
Temple University, School of Dentistry	Philadelphia, Pennsylvania	Dr. Charles L. Howell
University of Pennsylvania, School of Dental Medicine	Philadelphia, Pennsylvania	Dr. Lester W. Burket
University of Pittsburgh, School of Dentistry	Pittsburgh, Pennsylvania	Dr. Edward J. Forrest
*Medical College of South Carolina, School of Dentistry	Charleston, South Carolina	Dr. John E. Buhler
Meharry Medical College, School of Dentistry	Nashville, Tennessee	Dr. William H. Allen
University of Tennessee, College of Dentistry	Memphis, Tennessee	Dr. Shailer Peterson
Baylor University, College of Dentistry	Dallas, Texas	Dr. Harry B. McCarthy
The University of Texas, Dental Branch	Houston, Texas	Dr. John V. Olson
Medical College of Virginia, School of Dentistry	Richmond, Virginia	Dr. Harry Lyons
University of Washington, School of Dentistry	Seattle, Washington	Dr. Maurice J. Hickey
West Virginia University, School of Dentistry	Morgantown, West Virginia	Dr. Kenneth V. Randolph
Marquette University, School of Dentistry	Milwaukee, Wisconsin	Dr. L.C. Alexander
University of Puerto Rico, School of Dentistry	San Juan, Puerto Rico	Dr. Lowell McKelvey
University of Alberta, Faculty of Dentistry	Edmonton, Alberta	Dr. Hector R. MacLean
University of British Columbia, Faculty of Dentistry	Vancouver, British Columbia	Dr. S. Wah Leung
University of Manitoba, Faculty of Dentistry	Winnipeg, Manitoba	Dr. J.W. Neilson
Dalhousie University, Faculty of Dentistry	Halifax, Nova Scotia	Dr. J.D. McLean
University of Toronto, Faculty of Dentistry	Toronto, Ontario	Dr. Roy G. Ellis
University of Western Ontario, Faculty of Dentistry	London, Ontario	Dr. Wesley J. Dunn
McGill University, Faculty of Dentistry	Montreal, Quebec	Dr. James McCutcheon
Universite de Montreal, Faculte de Chirurgie Dentaire	Montreal, Quebec	Dr. Jean Paul Lussier
*University of Saskatchewan, Faculty of Dentistry	Saskatoon, Saskatchewan	Dr. K.J. Paynter

*New programs not in operation.

TABLE 12

Administrative Officers of Dental Hygiene Programs

SCHOOL OR COLLEGE	DATE ESTABLISHED	LOCATION	DIRECTOR
University of California, School of Dentistry	1918	San Francisco, California	Dr. Ben W. Pavone
University of Southern California, School of Dentistry	1928	Los Angeles, California	Mrs. Ruth H. Ragland
Loma Linda University, Department of Dental Hygiene	1959	Loma Linda, California	Mrs. Violet Bates
Diablo Valley College	1962	Concord, California	Dr. R.L. Matkin
Foothill College, Department of Dental Hygiene Education	1964	Los Altos Hills, California	Dr. Robert W. Walker
Rangely College, Department of Dental Hygiene	1962	Rangely, Colorado	Dr. John E. Roberts
University of Bridgeport, Fones School of Dental Hygiene	1949*	Bridgeport, Connecticut	Dr. Robert H.W. Strang
Howard University, College of Dentistry, Department of Oral Hygiene	1934	Washington, D.C.	Mrs. Alicia M. Howard
Palm Beach Junior College, Dental Hygiene Program	1962	Lake Worth, Florida	Dr. Theodore B. Engel
Pensacola Junior College, Division of Dental Hygiene	1962	Pensacola, Florida	Dr. Jack Young
St. Petersburg Junior College, Division of Dental Hygiene	1963	St. Petersburg, Florida	Miss Barbara J. Cramer
University of Hawaii, Department of Dental Hygiene	1961	Honolulu, Hawaii	Mrs. Yoshi Koga
Idaho State University, Department of Dental Hygiene	1961	Pocatello, Idaho	Miss Fumiko Saito
Northwestern University Dental School	1922	Chicago, Illinois	Dr. George W. Teuscher
Vocational Technical Institute, Southern Illinois University	1961	Carbondale, Illinois	Dr. Eleanor J. Bushee
Indiana University, School of Dentistry	1950	Indianapolis, Indiana	Miss A. Rebekah Fisk
Indiana University – Fort Wayne Regional Campus	1964	Fort Wayne, Indiana	Dr. Ralph G. Schimmele
University of Iowa, College of Dentistry	1953	Iowa City, Iowa	Miss Helen M. Newell
University of Louisville, School of Dentistry	1952	Louisville, Kentucky	Dr. Edrie M. Lohri
Loyola University, School of Dentistry, Curriculum of Dental Hygiene	1960	New Orleans, Louisiana	Dr. Edmund E. Jeansonne
Westbrook Junior College, Department of Dental Hygiene	1961	Portland, Maine	Miss Margaret E. Mullen
Forsyth School for Dental Hygienists	1916	Boston, Massachusetts	Miss Louise W. Hord
University of Detroit, School of Dentistry	1950	Detroit, Michigan	Mrs. Annamae S. Manning
University of Michigan, School of Dentistry, Curriculum in Dental Hygiene	1921	Ann Arbor, Michigan	Dr. Dorothy Hard
Ferris State College	1965	Big Rapids, Michigan	Dr. W.L. Boozer
University of Minnesota, School of Dentistry	1920	Minneapolis, Minnesota	Miss Ione M. Jackson
University of Missouri at Kansas City, School of Dentistry	1952	Kansas City, Missouri	Miss Marilyn Patton
University of Nebraska	1964	Lincoln, Nebraska	Miss Elizabeth M. Warner
Fairleigh Dickinson University, School of Dental Hygiene	1947	Teaneck, New Jersey	Mrs. Lucille Casanova Hawley
The University of New Mexico, Dental Hygiene Program	1961	Albuquerque, New Mexico	Dr. Monica Novitski
Broome Technical Community College, Department of Dental Hygiene	1956	Binghamton, New York	Miss Roxie M. Stitzer
Columbia University, Courses for Dental Hygienists	1916	New York, New York	Mrs. Patricia McLean
+Monroe Community College	1917	Rochester, New York	Dr. Kjellaug L. Gilda
Erie County Technical Institute, Dental Hygiene Curriculum	1947	Buffalo, New York	Dr. Albert E. Roberts
State University of New York at Farmingdale	1946	Farmingdale, L.I., New York	Dr. Kendall P. Thomas
New York City Community College	1947	Brooklyn, New York	Dr. Milton Bassin
Hudson Valley Community College, Department of Dental Hygiene	1960	Troy, New York	Dr. John W. Ehrcke
Onondaga Community College	1962	Syracuse, New York	Dr. Francis D. Ryan
University of North Carolina, Curriculum for Dental Hygiene	1953	Chapel Hill, North Carolina	Dr. Grover C. Hunter, Jr.
Central Piedmont Community College	1965	Charlotte, North Carolina	Dr. Richard H. Hagemeyer
North Dakota State School of Science	1965	Wahpeton, North Dakota	Dr. R.J. Casad
The Ohio State University, College of Dentistry	1944	Columbus, Ohio	Dr. Consuelo Wise
Cuyahoga Community College	1964	Cleveland, Ohio	Miss Barbara J. Schnurr
University of Oregon, Dental School	1949	Portland, Oregon	Mrs. Rachel K. Espey
Temple University, School of Dental Hygiene	1921	Philadelphia, Pennsylvania	Dr. Charles L. Howell
University of Pennsylvania, Courses in Oral Hygiene	1921	Philadelphia, Pennsylvania	Dr. Harrison M. Berry, Jr.
University of Pittsburgh, School of Dentistry	1963	Pittsburgh, Pennsylvania	Dr. Edward J. Forrest
University of Rhode Island, Department of Dental Hygiene	1960	Kingston, Rhode Island	Miss Barbara L. Wilson
Richland Technical Education Center, School of Dental Hygiene	1966	Columbia, South Carolina	Mr. R.L. Grigsby
Meharry Medical College, Division of Dental Hygiene	1944	Nashville, Tennessee	Mrs. Elzer S. Chandler
University of Tennessee, College of Dentistry	1950 †	Memphis, Tennessee	Dr. Wade B. Winnett
Baylor University, College of Dentistry, Caruth School of Dental Hygiene	1955	Dallas, Texas	Dr. Ruth R. Swords
The University of Texas Dental Branch, School of Dental Hygiene	1955	Houston, Texas	Dr. John V. Olson
The University of Vermont, School of Dental Hygiene	1949	Burlington, Vermont	Dr. Wadi I. Sawabini
University of Washington, School of Dentistry	1950	Seattle, Washington	Mrs. Martha H. Fales
West Liberty State College, Department of Dental Hygiene	1938	West Liberty, West Virginia	Miss Ann C. Faivre
West Virginia University, School of Dentistry	1961	Morgantown, West Virginia	Mrs. Patricia Jones
Marquette University, Curricula in Dental Hygiene	1923	Milwaukee, Wisconsin	Miss Elizabeth M. Linn
University of Alberta, Faculty of Dentistry	1961	Edmonton, Alberta	Miss Margaret Berry
University of Manitoba, Faculty of Dentistry	1963	Winnipeg, Manitoba	Mrs. Margery Forgay
Dalhousie University, Faculty of Dentistry	1961	Halifax, Nova Scotia	Mrs. Mary Slonaker
University of Toronto, Faculty of Dentistry	1951	Toronto, Ontario	Dr. Marjorie Jackson

*Original program in operation during 1913 and 1914.
†Also in operation from 1927-1943.
+Formally known as Eastman Dental Dispensary.

TABLE 13

Pre-admission Training of Dental Hygiene Freshmen, October 15, 1966

STATE OR PROVINCE	DENTAL HYGIENE SCHOOLS	High School Only	1 yr.	2 yr.	3 yr.	4 yr.	Degree	Total
CALIFORNIA	University of California	–	–	20	3	–	1	24
	University of Southern California	–	–	40	–	–	–	40
	Loma Linda University	–	–	29	–	–	–	29
	Diablo Valley College	–	5	8	3	–	–	16
	Foothill College	–	7	7	2	–	1	17
COLORADO	Rangely College	8	11	2	–	–	–	21
CONNECTICUT	Fones School of Dental Hygiene	52	3	4	–	–	–	59
DISTRICT OF COLUMBIA	Howard University	19	1	1	1	–	–	22
FLORIDA	Palm Beach Junior College	25	10	2	–	–	–	37
	Pensacola Junior College	20	14	2	–	1	–	37
	St. Petersburg Junior College	17	11	2	1	–	–	31
HAWAII	University of Hawaii	4	12	4	–	–	1	21
IDAHO	Idaho State University	–	4	7	–	–	–	11
ILLINOIS	Northwestern University	19	2	4	–	–	–	25
	Vocational Technical Institute Southern Illinois University	23	9	3	1	–	–	36
INDIANA	Indiana University	–	29	3	–	–	–	32
	Indiana University – Fort Wayne Regional Campus	–	16	3	1	–	–	20
IOWA	University of Iowa	–	–	34	1	–	–	35
KENTUCKY	University of Louisville	2	6	10	–	–	1	19
LOUISIANA	Loyola University – New Orleans	35	10	4	–	–	–	49
MAINE	Westbrook Junior College	24	1	–	–	–	–	25
MASSACHUSETTS	Forsyth School for Dental Hygienists	85	12	5	–	–	–	102
MICHIGAN	University of Detroit	27	8	5	–	–	–	40
	University of Michigan	10	3	28	1	–	–	42
	Ferris State College	34	4	1	1	–	–	40
MINNESOTA	University of Minnesota	28	15	6	–	–	–	49
MISSOURI	University of Missouri at Kansas City	–	10	9	1	1	2	23
NEBRASKA	University of Nebraska	–	2	8	–	–	–	10
NEW JERSEY	Fairleigh Dickinson University	41	1	1	–	–	–	43
NEW MEXICO	The University of New Mexico	5	9	3	3	–	1	21
NEW YORK	Broome Technical Community College	45	1	–	1	–	–	47
	Columbia University	–	–	28	–	–	1	29
	Monroe Community College	47	–	2	–	–	–	49
	Erie County Technical Institute	74	8	2	–	–	–	84
	State University of New York at Farmingdale	100	6	2	–	–	–	108
	New York City Community College	75	1	–	1	–	–	77
	Hudson Valley Community College	47	5	1	–	–	1	54
	Onondaga Community College	20	5	2	1	–	–	28
NORTH CAROLINA	University of North Carolina	11	3	1	–	–	–	15
	Central Piedmont Community College	34	7	–	–	–	–	41
NORTH DAKOTA	North Dakota State School of Science	10	–	1	–	–	–	11
OHIO	The Ohio State University	–	48	29	3	–	–	80
	Cuyahoga Community College	9	8	8	–	–	–	25
OREGON	University of Oregon	–	18	12	–	–	–	30
PENNSYLVANIA	Temple University	55	4	2	–	–	–	61
	University of Pennsylvania	43	3	2	–	–	–	48
	University of Pittsburgh	38	3	–	–	–	–	41
RHODE ISLAND	University of Rhode Island	23	2	1	–	–	–	26
SOUTH CAROLINA	Richland Technical Education Center	18	10	2	–	–	–	30
TENNESSEE	Meharry Medical College	5	–	–	–	–	–	5
	University of Tennessee	18	9	11	8	4	–	50
TEXAS	Baylor University	–	16	17	4	–	1	38
	The University of Texas	14	16	4	1	–	–	35
VERMONT	The University of Vermont	21	1	1	–	–	–	23
WASHINGTON	University of Washington	–	–	21	1	–	–	22
WEST VIRGINIA	West Liberty State College	23	17	5	–	–	–	45
	West Virginia University	24	1	–	–	–	–	25
WISCONSIN	Marquette University	23	24	10	3	–	–	60
TOTALS–UNITED STATES		1,255	431	419	42	6	10	2,163
PER CENT		58%	20%	19%	2%	–	1%	100%
ALBERTA	University of Alberta	–	15	6	1	–	–	22
MANITOBA	University of Manitoba	–	15	1	–	–	–	16
NOVA SCOTIA	Dalhousie University	–	9	3	–	–	1	13
ONTARIO	University of Toronto	–	44	5	–	–	–	49
TOTALS–CANADA		–	83	15	1	–	1	100
PER CENT		–	83%	15%	1%	–	1%	100%

TABLE 14

Undergraduates in the Dental Hygiene Schools
as of October 15, 1966

STATE OR PROVINCE	DENTAL HYGIENE SCHOOLS	UNDERGRADUATES 1966 1st yr.	2nd yr.	3rd yr.	4th yr.	Total
CALIFORNIA	University of California	–	–	24	23	47
	University of Southern California	–	–	40	36	76
	Loma Linda University	–	–	29	25	54
	Diablo Valley College	16	15	–	–	31
	Foothill College	17	16	–	–	33
COLORADO	Rangely College	21	12	–	–	33
CONNECTICUT	Fones School of Dental Hygiene	59	62	5	1	127
DISTRICT OF COLUMBIA	Howard University	22	19	–	–	41
FLORIDA	Palm Beach Junior College	37	37	–	–	74
	Pensacola Junior College	37	28	–	–	65
	St. Petersburg Junior College	31	23	–	–	54
HAWAII	University of Hawaii	21	13	–	–	34
IDAHO	Idaho State University	11	8	5	–	24
ILLINOIS	Northwestern University	25	26	–	–	51
	Vocational Technical Institute Southern Illinois University	36	24	–	–	60
INDIANA	Indiana University	–	32	27	9	68
	Indiana University—Fort Wayne Regional Campus	–	20	13	–	33
IOWA	University of Iowa	–	–	35	34	69
KENTUCKY	University of Louisville	19	19	–	–	38
LOUISIANA	Loyola University – New Orleans	49	27	5	–	81
MAINE	Westbrook Junior College	25	20	–	–	45
MASSACHUSETTS	Forsyth School for Dental Hygienists	102	102	–	–	204
MICHIGAN	University of Detroit	40	38	–	–	78
	University of Michigan	13	10	29	25	77
	Ferris State College	40	22	–	–	62
MINNESOTA	University of Minnesota	49	31	–	–	80
MISSOURI	University of Missouri at Kansas City	23	25	–	–	48
NEBRASKA	University of Nebraska	10	9	–	–	19
NEW JERSEY	Fairleigh Dickinson University	43	31	7	6	87
NEW MEXICO	The University of New Mexico	21	21	–	–	42
NEW YORK	Broome Technical Community College	47	29	–	–	76
	Columbia University	–	–	29	25	54
	Monroe Community College	49	48	–	–	97
	Erie County Technical Institute	84	67	–	–	151
	State University of New York at Farmingdale	108	68	–	–	176
	New York City Community College	77	83	–	–	160
	Hudson Valley Community College	54	40	–	–	94
	Onondaga Community College	28	34	–	–	62
NORTH CAROLINA	University of North Carolina	15	14	4	–	33
	Central Piedmont Community College	41	33	–	–	74
NORTH DAKOTA	North Dakota State School of Science	11	11	–	–	22
OHIO	The Ohio State University	80	77	–	–	157
	Cuyahoga Community College	25	19	–	–	44
OREGON	University of Oregon	30	29	–	–	59
PENNSYLVANIA	Temple University	61	55	–	–	116
	University of Pennsylvania	48	40	–	–	88
	University of Pittsburgh	41	33	–	–	74
RHODE ISLAND	University of Rhode Island	26	15	–	–	41
SOUTH CAROLINA	Richland Technical Education Center	30	–	–	–	30
TENNESSEE	Meharry Medical College	5	5	–	–	10
	University of Tennessee	50	47	–	–	97
TEXAS	Baylor University	38	38	–	–	76
	The University of Texas	35	29	–	–	64
VERMONT	The University of Vermont	23	21	–	–	44
WASHINGTON	University of Washington	–	–	22	16	38
WEST VIRGINIA	West Liberty State College	45	31	7	4	87
	West Virginia University	25	18	16	12	71
WISCONSIN	Marquette University	60	51	–	–	111
TOTAL UNITED STATES		1,903	1,625	297	216	4,041
ALBERTA	University of Alberta	22	19	–	–	41
MANITOBA	University of Manitoba	16	14	–	–	30
NOVA SCOTIA	Dalhousie University	13	8	–	–	21
ONTARIO	University of Toronto	49	47	–	–	96
TOTAL CANADA		100	88	–	–	188

TABLE 15

Undergraduate Enrollment in the Dental Hygiene Schools of the United States and Canada as of October 15, 1960–1966, Inclusive

STATE OR PROVINCE	DENTAL HYGIENE SCHOOLS	1960	1961	1962	1963	1964	1965	1966
CALIFORNIA	University of California	45	39	44	49	49	48	47
	University of Southern California	81	80	82	80	79	77	76
	Loma Linda University	23	31	38	41	46	50	54
	Diablo Valley College	–	–	–	29	33	32	31
	Foothill College	–	–	–	–	18	33	33
COLORADO	Rangely College	–	–	17	28	28	34	33
CONNECTICUT	Fones School of Dental Hygiene	84	94	105	124	135	134	127
DISTRICT OF COLUMBIA	Howard University	23	36	33	35	43	43	41
FLORIDA	Palm Beach Junior College	–	–	40	73	68	74	74
	Pensacola Junior College	–	–	22	48	55	60	65
	St. Petersburg Junior College	–	–	–	30	55	46	54
HAWAII	University of Hawaii	–	12	18	24	37	37	34
IDAHO	Idaho State University	–	12	24	22	23	24	24
ILLINOIS	Northwestern University	69	78	61	60	59	51	51
	Vocational Technical Institute Southern Illinois University	–	12	32	39	40	53	60
INDIANA	Indiana University	40	56	64	63	65	69	68
	Indiana University – Fort Wayne Regional Campus	–	–	–	–	–	21	33
IOWA	University of Iowa	66	64	66	67	67	61	69
KENTUCKY	University of Louisville	36	32	37	39	35	40	38
LOUISIANA	Loyola University – New Orleans	25	48	43	46	49	61	81
MAINE	Westbrook Junior College	–	19	38	47	45	46	45
MASSACHUSETTS	Forsyth School for Dental Hygienists	141	144	143	143	158	193	204
MICHIGAN	University of Detroit	74	75	71	71	68	67	78
	University of Michigan	77	71	80	79	76	75	77
	Ferris State College	–	–	–	–	–	38	62
MINNESOTA	University of Minnesota	90	83	85	87	89	89	80
MISSOURI	University of Missouri at Kansas City	49	49	46	50	47	47	48
NEBRASKA	University of Nebraska	–	–	–	–	10	20	19
NEW JERSEY	Fairleigh Dickinson University	58	66	74	67	61	79	87
NEW MEXICO	The University of New Mexico	–	20	34	34	35	43	42
NEW YORK	Broome Technical Community College	68	75	73	63	68	81	76
	Columbia University	29	30	32	35	40	54	54
	Monroe Community College	79	77	78	78	83	91	97
	Erie County Technical Institute	151	186	199	197	174	187	151
	State University of New York at Farmingdale	125	116	104	115	143	146	176
	New York City Community College	153	168	166	163	170	165	160
	Hudson Valley Community College	45	88	91	91	103	92	94
	Onondaga Community College	–	–	57	88	80	83	62
NORTH CAROLINA	University of North Carolina	28	28	29	29	29	29	33
	Central Piedmont Community College	–	–	–	–	–	38	74
NORTH DAKOTA	North Dakota State School of Science	–	–	–	–	–	–	22
OHIO	The Ohio State University	147	156	155	155	158	158	157
	Cuyahoga Community College	–	–	–	–	22	45	44
OREGON	University of Oregon	41	45	47	52	59	56	59
PENNSYLVANIA	Temple University	106	106	100	107	97	110	116
	University of Pennsylvania	100	101	95	92	92	89	88
	University of Pittsburgh	–	–	–	–	41	65	74
RHODE ISLAND	University of Rhode Island	18	34	32	35	38	35	41
SOUTH CAROLINA	Richland Technical Education Center	–	–	–	–	–	–	30
TENNESSEE	Meharry Medical College	13	8	8	13	14	10	10
	University of Tennessee	57	58	64	62	62	93	97
TEXAS	Baylor University	58	53	58	77	73	78	76
	The University of Texas	49	48	48	57	56	60	64
VERMONT	The University of Vermont	41	44	41	36	33	44	44
WASHINGTON	University of Washington	21	24	34	41	39	34	38
WEST VIRGINIA	West Liberty State College	79	80	78	76	85	96	87
	West Virginia University	–	2	10	29	55	64	71
WISCONSIN	Marquette University	108	104	109	112	115	115	111
TOTAL UNITED STATES		2,497	2,752	3,005	3,278	3,502	3,863	4,041
AVERAGE UNITED STATES SCHOOL		67	64	64	67	66	69	70
ALBERTA	University of Alberta	–	20	41	37	33	38	41
MANITOBA	University of Manitoba	–	–	–	12	24	28	30
NOVA SCOTIA	Dalhousie University	–	8	17	25	17	19	21
ONTARIO	University of Toronto	29	57	88	93	93	94	96
TOTAL CANADA		29	85	146	167	167	179	188
AVERAGE CANADIAN SCHOOL		29	28	49	42	42	45	47

TABLE 16

Dental Hygiene Graduates 1962 – 1966

STATE OR PROVINCE	DENTAL HYGIENE SCHOOLS	GRADUATES 1962	1963	1964	1965	1966
CALIFORNIA	University of California	19	19	23	24	23
	University of Southern California	40	38	40	39	37
	Loma Linda University	13	18	17	21	24
	Diablo Valley College	–	–	12	15	16
	Foothill College	–	–	–	–	16
COLORADO	Rangely College	–	–	11	10	12
CONNECTICUT	Fones School of Dental Hygiene	40	42	44	53	60
DISTRICT OF COLUMBIA	Howard University	11	18	13	16	23
FLORIDA	Palm Beach Junior College	–	–	33	28	36
	Pensacola Junior College	–	–	14	22	23
	St. Petersburg Junior College	–	–	–	24	16
HAWAII	University of Hawaii	5	5	5	15	11
IDAHO	Idaho State University	–	8	11	9	10
ILLINOIS	Northwestern University	39	32	25	32	23
	Vocational Technical Institute Southern Illinois University	–	8	18	16	23
INDIANA	Indiana University	22	32	29	33	30
	Indiana University – Fort Wayne Regional Campus	–	–	–	–	8
IOWA	University of Iowa	29	33	32	36	26
KENTUCKY	University of Louisville	16	16	20	16	20
LOUISIANA	Loyola University – New Orleans	23	19	20	18	25
MAINE	Westbrook Junior College	–	17	19	21	22
MASSACHUSETTS	Forsyth School for Dental Hygienists	69	69	69	65	83
MICHIGAN	University of Detroit	35	33	35	32	27
	University of Michigan	33	37	40	38	36
	Ferris State College	–	–	–	–	–
MINNESOTA	University of Minnesota	35	32	35	37	38
MISSOURI	University of Missouri at Kansas City	25	21	26	24	22
NEBRASKA	University of Nebraska	–	–	–	–	10
NEW JERSEY	Fairleigh Dickinson University	24	30	25	26	33
NEW MEXICO	The University of New Mexico	–	17	13	9	18
NEW YORK	Broome Technical Community College	34	35	27	25	32
	Columbia University	16	10	17	16	24
	Monroe Community College	37	38	37	35	38
	Erie County Technical Institute	84	84	94	71	73
	State University of New York at Farmingdale	43	39	36	60	60
	New York City Community College	75	61	66	69	73
	Hudson Valley Community College	31	35	36	42	35
	Onondaga Community College	–	–	37	27	31
NORTH CAROLINA	University of North Carolina	15	14	14	14	18
	Central Piedmont Community College	–	–	–	–	–
NORTH DAKOTA	North Dakota State School of Science	–	–	–	–	–
OHIO	The Ohio State University	76	72	73	74	77
	Cuyahoga Community College	–	–	–	–	20
OREGON	University of Oregon	20	19	22	30	26
PENNSYLVANIA	Temple University	52	43	54	39	50
	University of Pennsylvania	58	44	48	43	45
	University of Pittsburgh	–	–	14	14	18
RHODE ISLAND	University of Rhode Island	11	15	14	15	12
SOUTH CAROLINA	Richland Technical Education Center	–	–	–	–	–
TENNESSEE	Meharry Medical College	3	4	3	5	4
	University of Tennessee	25	26	24	45	46
TEXAS	Baylor University	21	22	38	35	39
	The University of Texas	23	21	27	25	29
VERMONT	The University of Vermont	17	18	15	16	16
WASHINGTON	University of Washington	12	12	19	18	18
WEST VIRGINIA	West Liberty State College	41	47	29	37	46
	West Virginia University	–	–	–	2	10
WISCONSIN	Marquette University	47	54	56	56	59
TOTAL UNITED STATES		1,219	1,257	1,429	1,492	1,650
ALBERTA	University of Alberta			19	11	16
MANITOBA	University of Manitoba	(NOT AVAILABLE FOR 1962–1963)		–	9	13
NOVA SCOTIA	Dalhousie University			10	10	10
ONTARIO	University of Toronto			46	45	43
TOTAL CANADA				75	75	82

TABLE 17

Schools for Training Dental Hygienists

SCHOOL OR COLLEGE	ADMISSION REQUIREMENTS	LENGTH OF COURSE	DEGREE OR CERTIFICATE	TWO YEAR TUITION: OUT OF STATE	TWO YEAR TUITION: STATE	SCHOLARSHIPS	LOANS
University of California	2 years of College	2 years	B.S. in Dental Hygiene	1602	280	Yes	Yes
University of Southern California	2 years of College	2 years	B.S. in Dental Hygiene	3000	3000	Yes	Yes
Loma Linda University	2 years of College	2 years	B.S. in Dental Hygiene	2108	2108	No	Yes
Diablo Valley College	High School Course	2 years	Associate in Arts & Certificate in Dental Hygiene	800	None	Yes	Yes
Foothill College	High School Course	2 years	Associate of Arts, Dental Hygiene	702	None	Yes	Yes
Rangely College	High School Course	2 years	Associate in Science in Dental Hygiene	810	210	Yes	Yes
Fones School of Dental Hygiene	High School Course	2 years	Associate in Science in Dental Hygiene				
Howard University	High School Course	4 years 2 years	B.S. in Dental Hygiene Education Certificate in Oral Hygiene	2400 800	2400 800	Yes Yes	Yes Yes
Palm Beach Junior College	High School Course	2 years	Associate of Science Certificate in Dental Hygiene		325	Yes	Yes
Pensacola Junior College	High School Course	2 years	Associate of Science in Dental Hygiene	732	500	Yes	Yes
St. Petersburg Junior College	High School Course	2 years	Associate in Science in Dental Hygiene	760	360	Yes	Yes
University of Hawaii	High School Course	2 years	Certificate in Dental Hygiene	505	505	Yes	Yes
Idaho State University	1 year of College	2 years	Associate in Science in Dental Hygiene				
Northwestern University	High School Course	4 years 2 years	B.S. Degree Diploma in Dental Hygiene	1560 3600	560 3600	Yes Yes	Yes Yes
Southern Illinois University	High School Course	2 years	Associate in Arts	1124	564	Yes	Yes
Indiana University	1 year of College	2 years	Certificate in Dental Hygiene				
Indiana University – Fort Wayne Regional Campus	1 year of College	4 years 2 years	B.S. in Public Health Dental Hygiene Certificate in Dental Hygiene	2144 1541	737 1005	Yes Yes	Yes Yes
University of Iowa	2 years of College	2 years	B.S. or B.A. General Science/Dental Hygiene Certificate in Dental Hygiene	1860	680	Yes	Yes
University of Louisville	High School Course	2 years	Certificate in Dental Hygiene				
Loyola University – New Orleans	High School Course	4 years 2 years	B.S. Dental Hygiene Certificate in Dental Hygiene	3000	2000	No	Yes
Westbrook Junior College	High School Course	4 years 2 years	B.S. in Dental Hygiene Associate in Applied Science	1500 2000	1500 2000	Yes Yes	Yes Yes
Forsyth School for Dental Hygienists	High School Course	2 years	A.S. & Certificate in Dental Hygiene	2400	2400	Yes	Yes
University of Detroit	High School Course	2 years	Certificate in Dental Hygiene	2400	2400	Yes	Yes
University of Michigan	High School Course 2 years of College	2 years	Certificate in Dental Hygiene B.S. in Dental Hygiene	2000	696	No	Yes
Ferris State College	High School Course	2 years	Associate in Applied Science	1150	550	Yes	Yes
University of Minnesota	High School Course	2 years	Graduate Dental Hygienist	1440	630	Yes	Yes
University of Missouri at Kansas City	1 year of College	2 years	Certificate in Dental Hygiene				
University of Nebraska	High School Course	4 years 2 years	B.S. in Dental Hygiene Certificate in Dental Hygiene	2100	800	Yes	Yes
Fairleigh Dickinson University	High School Course	4 years 2 years	B.S. in Dental Hygiene Associate of Arts in Dental Hygiene	1720	668	Yes	Yes
The University of New Mexico	High School Course	4 years 2 years	B.S. in Dental Hygiene Certificate in Dental Hygiene	1120 1584	1120 672	Yes Yes	Yes Yes
Broome Technical Community College	High School Course	2 years	Associate in Applied Science	1200	600	Yes	Yes
Columbia University	2 years of College	2 years	B.S. in Dental Hygiene	2600	2600	Yes	Yes
Monroe Community College	High School Course	2 years	Associate in Applied Science	1200	600	Yes	Yes
Erie County Technical Institute	High School Course	2 years	Associate in Applied Science	1200	600	Yes	Yes
State University of New York at Farmingdale	High School Course	2 years	Associate in Applied Science Major in Dental Hygiene	1200	800	Yes	Yes

TABLE 17 – Continued

Schools for Training Dental Hygienists

SCHOOL OR COLLEGE	ADMISSION REQUIREMENTS	LENGTH OF COURSE	DEGREE OR CERTIFICATE	TWO YEAR TUITION: OUT OF STATE	TWO YEAR TUITION: STATE	SCHOLARSHIPS	LOANS
New York City Community College	High School Course	2 years	Associate in Applied Arts and Sciences	1200	600	Yes	Yes
Hudson Valley Community College	High School Course	2 years	Associate in Applied Science in Dental Hygiene	1200	600	Yes	Yes
Onondaga Community College	High School Course	2 years	Associate in Applied Science	1200	600	Yes	Yes
University of North Carolina	High School Course	2 years	Certificate in Dental Hygiene				
		4 years	B.S. in Dental Hygiene	1200	350	Yes	Yes
Central Piedmont Community College	High School Course	2 years	Associate in Applied Science	560	224	Yes	Yes
North Dakota State School of Science	High School Course	2 years	Certificate in Dental Hygiene	200	92	Yes	Yes
The Ohio State University	1 year of College	2 years	Certificate of Graduate Dental Hygienist				
		4 years	B.A. or B.S. & Certificate of Graduate Dental Hygienist	2304	1188	Yes	Yes
Cuyahoga Community College	High School Course	2 years	Associate in Science in Dental Hygiene	1723	746	Yes	Yes
University of Oregon	High School Course	2 years	Certificate in Dental Hygiene	2226	1410	Yes	Yes
Temple University	High School Course	2 years	Certificate in Dental Hygiene				
		4 years	B.S. in Education	2700	900	No	No
University of Pennsylvania	High School Course	2 years	Certificate of Proficiency in Oral Hygiene	2800	2800	No	Yes
University of Pittsburgh	High School Course	2 years	Certificate in Oral Hygiene	1650	1350	Yes	Yes
University of Rhode Island	High School Course	2 years	Associate in Science in Dental Hygiene	1000	None	Yes	Yes
Richland Technical Education Center	High School Course	2 years	Associate Degree	300	300	No	Yes
Meharry Medical College	High School Course	2 years	Certificate in Dental Hygiene	600	600	Yes	Yes
University of Tennessee	High School Course	2 years	Certificate in Dental Hygiene	873	690	No	No
Baylor University	1 year of College	2 years	Certificate in Dental Hygiene				
		4 years	B.S. Degree	1800	1800	Yes	Yes
The University of Texas	High School Course	2 years	Diploma	800	200	Yes	Yes
The University of Vermont	High School Course	2 years	Certificate in Dental Hygiene	3000	1000	Yes	Yes
University of Washington	2 years of College	2 years	B.S. in Dental Hygiene	2190	1140	Yes	Yes
West Liberty State College	High School Course	2 years	Certificate in Dental Hygiene				
		4 years	B.S. in Dental Hygiene	1200	300	Yes	Yes
West Virginia University	High School Course	4 years	B.S. in Dental Hygiene	3736#	1136#	Yes	Yes
Marquette University	High School Course	2 years	Diploma in Dental Hygiene				
		4 years	B.S. in Dental Hygiene	2500	2500	Yes	Yes
University of Alberta	Senior Matriculation	2 years	Dental Hygiene Diploma	769		Yes	Yes
University of Manitoba	Senior Matriculation	2 years	Diploma in Dental Hygiene	400		Yes	Yes
Dalhousie University	Senior Matriculation	2 years	Diploma in Dental Hygiene	1200		No	Yes
University of Toronto	Ontario Grade XIII	2 years	Diploma in Dental Hygiene	922		Yes	Yes

Cost of Four-Year Program.

TABLE 18

Distribution of Undergraduate Students in the Dental Hygiene Schools of the United States and Canada by States, Territories and Other Countries as of October 15, 1966

		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi
CALIFORNIA	University of California					46																				
	University of Southern California			1		73																				
	Loma Linda University					40	1				1				1		1							2	1	
	Diablo Valley College					31																				
	Foothill College					32																				
COLORADO	Rangely College			1			25				1							1								
CONNECTICUT	Fones School of Dental Hygiene					2		57		1	2										2	2	27			
DISTRICT OF COLUMBIA	Howard University	1								20						1	1					8				
FLORIDA	Palm Beach Junior College										74															
	Pensacola Junior College	3				2					52	1			1											2
	St. Petersburg Junior College										54															
HAWAII	University of Hawaii			1		12							15		2											
IDAHO	Idaho State University					5								12												
ILLINOIS	Northwestern University					6	1				3				29	1		1						1		
	Southern Illinois University					2					1				49				2							
INDIANA	Indiana University														1	63								1		
	Indiana University — Fort Wayne															27								1		
IOWA	University of Iowa					3	1				1				15	1	45							1	1	
KENTUCKY	University of Louisville										5	1				2			25							
LOUISIANA	Loyola University, New Orleans	1			1					1	18	5			2					46		2				1
MAINE	Westbrook Junior College							4													15		21			
MASSACHUSETTS	Forsyth School for Dental Hygienists					2		9	1									1			9		150			
MICHIGAN	University of Detroit					1									1									69		
	University of Michigan																							75		
	Ferris State College																							62		
MINNESOTA	University of Minnesota														1										70	
MISSOURI	University of Missouri at Kansas City			1	1	4												16								
NEBRASKA	University of Nebraska																	1								
NEW JERSEY	Fairleigh Dickinson University							4	3	1	1	1										8	4			
NEW MEXICO	The University of New Mexico			2		4	3								1											
NEW YORK	Broome Technical Community College																				1		2			
	Columbia University					10		4	2												1	3	5	1		
	Monroe Community College										1											3	2			
	Erie County Technical Institute							1			1															
	State University of New York-Farmingdale					1		2	3													1	6			
	New York City Community College					1																				
	Hudson Valley Community College							4															4			
	Onondaga Community College																									
NORTH CAROLINA	University of North Carolina																						1			
	Central Piedmont Community College																									
NORTH DAKOTA	North Dakota State School of Science																								4	
OHIO	The Ohio State University															1						2				
	Cuyahoga Community College																									
OREGON	University of Oregon		1	1		3								1												
PENNSYLVANIA	Temple University					1		2	6	1	2					1					1	5	1			
	University of Pennsylvania							1	2	1					1							10	1			
	University of Pittsburgh								1		1															
RHODE ISLAND	University of Rhode Island						1	2													2	1	10			
SOUTH CAROLINA	Richland Technical Education Center																									
TENNESSEE	Meharry Medical College	2				1					1				1									1		
	University of Tennessee	2			7						2	3														4
TEXAS	Baylor University			5	6	1					3				1			1							1	
	The University of Texas																									
VERMONT	The University of Vermont							2													2	1	6			
WASHINGTON	University of Washington			1		2	1																			
WEST VIRGINIA	West Liberty State College							1			4					2			1			4				
	West Virginia University						1	1		2	4				1							5	1			
WISCONSIN	Marquette University			1		5	3								11	2								6	1	
TOTAL–UNITED STATES		9	1	14	15	290	37	94	18	27	232	11	15	13	118	101	47	21	28	46	33	55	241	220	78	7
ALBERTA	University of Alberta																									
MANITOBA	University of Manitoba																									
NOVA SCOTIA	Dalhousie University																									
ONTARIO	University of Toronto																									
TOTAL–CANADA																										

	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Canal Zone	Puerto Rico	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland	Nova Scotia	Ontario	Prince Edward Island	Quebec	Saskatchewan	Other Countries	TOTAL
				1																																				47
				1																1																				76
				1							2		1						1											1									1	54
																																								31
																							1																	33
				1			1										1			1						1													33
					1	10		11				1		3							2	3																	3	127
		1				1			1					3								1																1	2	41
																																								74
											1					2																							1	65
																																								54
				1																			2							1										34
		2		1			1													1			2																	24
	1							2			1			1			1								2														1	51
	5																								1															60
																		1																					2	68
								1			4																													33
			1																																					69
											2					2						1																		38
																1			3																					81
					4	1																																		45
					9	2		2						2	6	1						1		1											1				7	204
											4																											3	78
								1																			1													77
																																								62
		1	1							4							1								2															80
	15		1									7	2										1																	48
			18																																					19
					1	49		5						5	1					1		3																		87
				2			27					1							2																					42
					1	6		53						12							1																			76
						2	1	15						3	1				1		2	2						1												54
								85						5			1																							97
								139			1			7									1																1	151
						6		153						2							1														1					176
								159																																160
								85						1																										94
								61																											1					62
									32																															33
									66							6						2																		74
										16							2																							22
								1			152			1																										157
											44																													44
													48										3							2											59
						13		2	1					73		1						6																		116
						16		5						44		1						6																		88
								1			2			68										1																74
					4									1	20																									41
									1							29																								30
											2							1	1																					10
												2						77																						97
	1						1			1		18							37																					76
																			64																					64
						3		1													29																			44
		1																					32							1										38
						1					22			11								6		35																87
						2		2	1		2			8		2		1				10	1	27																71
			1	1							2	1		1											76															111
	22	5	22	9	20	112	31	784	102	21	241	30	51	251	28	45	6	80	109	4	35	41	43	64	81	1	1	1		5					3			1	21	4,041
																													23	6					1			11		41
																														2	20							8		30
																																2		15	1	3				21
																																			93		1	1	1	96
																													23	8	20	2		15	95	3	1	20	1	188

TABLE 19

Schools for Training Dental Assistants

SCHOOL OR COLLEGE	ADMISSION REQUIREMENTS	LENGTH OF COURSE (IN WEEKS)	DEGREE OR CERTIFICATE	TUITION			
				Non-Regional	Regional	Scholarships	Loans
Phoenix Dental Assisting School	High School Science Typing & English	36	Certificate of Completion	670	18	Yes	No
Cabrillo College	High School or Equivalent	72	A.S. & Certificate of Proficiency	653	None	Yes	Yes
Cerritos College	High School	36	Certificate of Achievement				
		72	Associate in Arts			No	No
Chabot College	High School or Equivalent	72	A.A. in Dental Assisting	624	None	Yes	Yes
Chaffey College	High School or Equivalent	36	Certificate of Completion	362	None	No	Yes
Citrus College	High School Graduate	72	A.S. & Certificate of Completion	624	None	Yes	Yes
City College of San Francisco	High School Diploma	72	Certificate of Proficiency				
			Associate in Arts	600	None	Yes	Yes
Contra Costa College	High School or Equivalent	44	Certificate of Completion	360	None		
		80	Associate of Arts	630	None	Yes	Yes
Diablo Valley College	High School or Equivalent	92	Associate of Arts & Certificate of Achievement		None	Yes	Yes
Foothill College	High School Biology, Typing	72	Associate in Arts	624	None	Yes	Yes
Fullerton Junior College	High School Diploma	72	Certificate of Completion				
			Associate in Arts	640	None	Yes	Yes
Grossmont College	High School Diploma	72	Associate in Arts	624	None	Yes	Yes
Laney College	High School Typing	54	Certificate of Completion	381	None	Yes	Yes
Long Beach City College	High School Diploma	36	Dental Assistant Certificate	300	None		
		72	A.A. or A.S. Degree	600	None	Yes	Yes
Los Angeles City College	High School or Equivalent	40	Certificate of Occupational Competency	312	None		
		80	A.A. Degree & Certificate of Occupational Competency	624	None	Yes	Yes
College of Marin	High School or Equivalent	72	A.S. & Certificate of Completion	624	None	Yes	Yes
Monterey Peninsula College	High School or Equivalent	72	A.S. & Dental Assistant Certificate	624	None	Yes	Yes
Orange Coast College	High School or Equivalent	64	Certificate of Achievement				
			Associate in Arts			Yes	Yes
Pasadena City College	High School Diploma	54	A.A. Degree & Certificate of Completion	None	None	Yes	Yes
Reedley College	High School Diploma or Equivalent	72	Associate of Science				
			Certificate of Completion	612	None	Yes	No
Sacramento City College	High School or Equivalent	72	Associate in Arts	624	None	Yes	Yes
San Diego Mesa College	High School or Equivalent	36	Certificate of Proficiency		None		
		72	A.A. Degree & Certificate		None	Yes	Yes
San Jose City College	High School Graduate	74	Associate in Arts	620	None	Yes	Yes
College of San Mateo	High School or Equivalent	72	A.A. & Certificate of Completion	660	None	Yes	Yes
Santa Rosa Junior College	High School or Equivalent	72	A.A. & Certificate of Completion	600	None	Yes	Yes
College of the Siskiyous	High School or Equivalent	74	A.A. & Certificate of Completion			No	Yes
Lindsey Hopkins Education Center	High School Diploma	39	Certificate of Completion			No	No
Tomlinson Adult Education Center	High School Diploma	42	Certificate in Dental Assisting	90	40	Yes	Yes
Hoke Smith Technical School	High School or Equivalent	45	Certificate of Completion	63	63	No	No
Kapiolani Community College	High School Graduate	36	Dental Assistant Certificate	50	50	No	No
Boise College	High School or Equivalent	32	Dental Assistant Certificate	315	50	Yes	Yes
Bloom Community College	High School Diploma	38	Certificate in Dental Assisting	950	190	Yes	No
Loyola University	High School Diploma	38	Certificate in Dental Assisting	300	300	No	No
University of Illinois	High School Graduate	34	Certificate of Completion	300	300	Yes	Yes
Morton Junior College	High School Diploma	82	Graduate Dental Assistant				
			Associate in Arts	800	None	No	Yes
Indiana University – Fort Wayne	High School Diploma	34	Certificate in Dental Assisting	450	450	Yes	Yes
Haskell Institute –PHS Health Center	High School Diploma	36	Certificate in Dental Assisting	None	None	No	Yes
Jefferson Area Vocational School	High School Graduate	36	Certificate of Training	None	None	No	No
Montgomery Junior College	High School Diploma	64	Associate in Arts	1350	450	Yes	Yes
Beth Israel Hospital	High School Diploma	53	Certificate in Dental Assisting	500	500	Yes	Yes

TABLE 19 – Continued

Schools for Training Dental Assistants

SCHOOL OR COLLEGE	ADMISSION REQUIREMENTS	LENGTH OF COURSE (IN WEEKS)	DEGREE OR CERTIFICATE	TUITION			
				Non-Regional	Regional	Scholarships	Loans
Fanning Trade High School	High School Graduate	40	Certificate in Dental Assisting		None	No	No
Northeastern University	High School Diploma	39	Certificate in Dental Assisting	725	725	Yes	Yes
Springfield Technical Institute	High School Diploma	37	Certificate in Dental Assisting	700	None	Yes	No
University Hospital	High School Diploma	52	Certificate in Dental Assisting			Yes	No
University of Detroit	High School Graduate	33	Certificate in Dental Assisting	800	800	Yes	Yes
Ferris State College	High School Graduate	72	Associate of Applied Science	1150	550	Yes	Yes
Grand Rapids Junior College	High School Graduate	76	Associate of Applied Arts & Sciences	792	462	Yes	Yes
Northwestern Michigan College	High School or Equivalent	64	Associate of Commerce	702	558	Yes	Yes
Brainerd Area Vocational Technical School	High School Graduate	36	Diploma			No	No
Hibbing Area Technical Institute	High School Diploma	36	Certificate of Graduation	None	None	No	No
University of Minnesota	High School or Equivalent	36	Dental Assistant Certificate	840	294	No	Yes
Meramec Community College	High School Graduate	32	Certificate in Dental Assisting	700	200	Yes	Yes
Lincoln Community College	High School or Equivalent	48	Certificate in Dental Assisting	None	None	Yes	No
Omaha Public School	High School – Typing	48	Graduate Dental Assistant	150	150	Yes	Yes
Essex County Adult Technical School	High School Graduate	36	Adult School Diploma		None	No	No
Union County Technical Institute	High School Diploma–Typing	36	Diploma in Dental Assisting	700	250	No	Yes
The University of New Mexico	High School Graduate	32	Certificate of Proficiency	660	280	Yes	No
Dutchess Community College	High School Graduate	68	Associate in Applied Science	1200	600	Yes	Yes
New York University	High School Diploma	36	Certificate of Proficiency	1000	1000	Yes	Yes
Central Piedmont Community College	High School Diploma	44	Diploma	320	128	Yes	Yes
Technical Institute of Alamance	High School or Equivalent	44	Diploma	320	128	Yes	Yes
Wayne Technical Institute	High School Graduate	44	Diploma – Dental Assisting	300	120	Yes	Yes
Jane Addams Vocational High School	High School Diploma – Typing	38	Dental Assistant Certificate	200	None	No	No
Blue Mountain Community College	High School Diploma	34	Certificate of Completion	315	240	Yes	Yes
Lane Community College	High School or Equivalent	34	Certificate in Dental Assisting	600	165	Yes	Yes
Oregon Technical Institute	High School or Equivalent	72	Associate of Applied Science	1380	660	Yes	Yes
Portland Community College	High School or Equivalent	33	Dental Assistant Certificate	300	180	Yes	Yes
Salem Technical Vocational Community College	High School or Equivalent	36	Dental Assistant Certificate	650	270	Yes	No
Murrell Dobbins Technical School	High School Graduate	40	Certificate of Completion	550	None	Yes	Yes
University of Pittsburgh	High School Diploma	45	Certificate in Dental Assisting	750	675	Yes	Yes
Clara Carpenter Center	High School Diploma	36	Certificate of Completion	65	65	No	No
El Centro College	High School or Equivalent	68	Associate in Arts	600	200	No	Yes
San Antonio College	High School or Equivalent	72	Associate Degree	800	240	Yes	Yes
Intermountain Indian School Health Center	High School Diploma	36	Dental Assistant Certificate	None	None	No	Yes
Utah Trade Technical Institute	High School – Typing	52	Certificate of Graduation	398	198	Yes	Yes
Seattle Community College	High School Diploma	44	Certificate of Proficiency	90	90	Yes	Yes
Spokane Community College	High School or Equivalent	36	Diploma of Graduation		144	Yes	Yes
Tacoma Vocational – Technical Institute	High School or Equivalent	44	Certificate of Completion			No	No
Madison Vocational, Technical & Adult Schools	High School – Science, Typing	38	Diploma in Dental Assisting	486	None	Yes	Yes
Milwaukee Institute of Technology	High School Diploma	36	Diploma in Dental Assisting	288		Yes	Yes
University of Puerto Rico	High School Diploma	40	Certificate in Dental Assisting	149	149	Yes	Yes

TABLE 20

Pre-Admission Training of Dental Assistants and Graduates from 1965–1966

STATE	SCHOOL	Length of Course (In Weeks)	1-4 Years High School, No Diploma	High School Diploma	1-2 Years College No Degree or Certificate	2 Years College Degree or Certificate	Additional College Level	First Year Students	Second Year Students	Total Enrollment (as of Oct. 15, 1966)	GRADUATES 1965	GRADUATES 1966
ARIZONA	Phoenix Dental Assisting School	36	–	20	8	–	–	28	–	28	16	26
CALIFORNIA	Cabrillo College	72	–	22	1	–	–	23	13	36	5	8
	Cerritos College	36	–	–	–	–	–	–	–	–	3	
	Chabot College	72	–	60	–	–	–	60	62	122	22	43
	Chaffey College	72	–	22	–	–	–	22	21	43	–	23
	Citrus College	36	–	25	8	1	–	34	–	34	30	30
	City College of San Francisco	72	–	55	–	–	–	55	20	75	–	11
	Contra Costa College	72	–	58	7	1	–	66	33	99	15	29
	Diablo Valley College	44	–	9	2	–	–	11	–	16	13	14
	Foothill College	80	–	–	–	–	–	–	5		3	5
	Fullerton Junior College	92	–	24	2	–	–	26	16	42	11	14
	Grossmont College	72	–	20	3	–	–	23	13	36	19	15
	Laney College	72	–	100	–	–	–	100	61	161	34	40
	Long Beach City College	72	–	49	–	–	–	49	22	71	16	28
	Los Angeles City College	54	–	53	–	–	–	53	–	53	28	20
	College of Marin	36	–	20	–	–	–	20	–			
	Monterey Peninsula College	72	–	–	–	–	–	–	23	43	25	28
	Orange Coast College	40	–	8	4	1	–	13	–	13	16	10
	Pasadena City College	80	–	58	–	–	–	58	26	84	38	44
	Reedley College	72	–	27	4	–	–	31	27	58	11	12
	Sacramento City College	72	–	24	–	–	–	24	6	30	3	6
	San Diego Mesa College	64	–	33	8	–	–	41	30	71	28	30
	San Jose City College	54	–	68	4	–	–	72	15	87	23	19
	College of San Mateo	72	–	46	3	–	–	49	27	76	12	25
	Santa Rosa Junior College	72	–	40	–	–	–	40	31	71	23	27
	College of the Siskiyous	36	–	4	–	–	–	4	–	4	7	3
FLORIDA	Lindsey Hopkins Education Center	72	–	70	–	–	–	70	32	102	16	36
	Tomlinson Adult Education Center	74	–	32	–	–	–	32	14	46	16	18
GEORGIA	Hoke Smith Technical School	72	–	54	11	–	–	65	31	96	33	29
HAWAII	Kapiolani Technical School	72	–	19	3	–	–	22	17	39	14	13
IDAHO	Boise College	74	–	3	–	–	–	3	6	9	–	2
ILLINOIS	Bloom Community College	39	–	28	1	1	–	30	–	30	26	25
	Loyola University	42	–	17	10	–	–	27	–	27	24	22
	University of Illinois	45	–	11	1	–	–	12	–	12	–	3
	Morton Junior College	36	–	21	–	–	–	21	–	21	36	25
INDIANA	Indiana University – Fort Wayne	32	–	24	2	–	–	26	–	26	13	15
KANSAS	Haskell Institute – PHS Health Center	38	–	22	–	–	–	22	–	22	12	17
KENTUCKY	Jefferson Area Vocational School	38	–	6	–	–	–	6	–	6	–	6
MARYLAND	Montgomery Junior College	34	–	22	2	–	–	24	–	24	23	22
		82	–	6	2	–	–	8	–	8	4	10
		34	–	18	2	–	–	20	–	20	–	12
		36	–	4	6	–	–	10	–	10	–	7
		36	–	9	–	–	–	9	–	9	41	24
		64	–	25	3	–	–	28	19	47	10	10

TABLE 20 – Continued

Pre-Admission Training of Dental Assistants and Graduates from 1965–1966

STATE	SCHOOL	Length of Course (In Weeks)	1-4 Years High School, No Diploma	High School Diploma	1-2 Years College No Degree or Certificate	2 Years College Degree or Certificate	Additional College Level	First Year Students	Second Year Students	Total Enrollment (as of Oct. 15, 1966)	GRADUATES 1965	GRADUATES 1966
MASSACHUSETTS	Beth Israel Hospital	53	–	13	1	2	–	16	–	16	8	6
	Fanning Trade High School	40	–	23	1	–	–	24	–	24	16	16
	Northeastern University	39	–	102	10	6	–	118	–	118	–	101
	Springfield Technical Institute	37	–	29	2	–	–	31	–	31	29	28
	University Hospital	52						*	*	*	17	*
MICHIGAN	University of Detroit	33	–	11	3	–	–	14	–	14	16	21
	Ferris State College	72	–	74	8	–	–	82	35	117	15	15
	Grand Rapids Junior College	76	–	15	–	–	–	15	7	22	–	3
	Northwestern Michigan College	64	–	16	–	–	–	16	4	20	–	4
MINNESOTA	Brainerd Area Vocational Technical School	36	–	17	1	–	–	18	–	18	13	13
	Hibbing Area Technical Institute	36	–	8	–	–	–	8	–	8	–	8
	University of Minnesota	36	–	18	24	1	–	43	–	43	29	24
MISSOURI	Meramec Community College	32	–	24	8	–	–	32	–	32	16	28
NEBRASKA	Lincoln Community College	48	–	10	5	–	–	15	–	15	12	25
	Omaha Public School	48	–	12	5	–	1	18	–	18	13	13
NEW JERSEY	Essex County Adult Technical School	36	–	44	–	–	–	44	–	44	20	17
	Union County Technical Institute	36	–	16	2	–	–	18	–	18	18	16
NEW MEXICO	University of New Mexico	32	–	10	6	2	–	18	–	18	8	6
NEW YORK	Dutchess Community College	68	–	17	–	–	–	17	10	27	–	5
	New York University	36	–	34	4	3	–	41	–	41	35	39
NORTH CAROLINA	Central Piedmont Community College	44	–	23	4	–	–	27	–	27	–	5
	Technical Institute of Alamance	44	–	12	1	–	–	13	–	13	12	11
	Wayne Technical Institute	44	–	10	1	–	–	11	–	11	22	16
OHIO	Jane Addams Vocational High School	38	–	21	1	–	–	22	–	22	21	21
OREGON	Blue Mountain Community College	34	–	10	–	–	–	10	–	10	18	13
	Lane Community College	34	–	27	2	–	–	29	–	29	16	19
	Oregon Technical Institute	72	3	17	–	–	–	20	15	35	7	8
	Portland Community College	33	–	37	8	–	–	45	–	45	36	33
	Salem Technical Vocational Community College	36	–	15	2	–	–	17	–	17	–	17
PENNSYLVANIA	Murrell Dobbins Technical School	40	–	58	2	–	–	60	–	60	29	35
	University of Pittsburgh	45	–	38	3	–	–	41	–	41	25	43
TENNESSEE	Clara Carpenter Center	36	–	15	3	–	–	18	–	18	15	15
TEXAS	El Centro College	68	–	21	3	–	–	24	–	24	–	–
	San Antonio College	72	2	50	2	–	–	54	–	54	–	–
UTAH	Intermountain Indian School Health Center	36	–	10	–	–	–	10	–	10	8	8
	Utah Trade Technical Institute	52	–	34	–	–	–	34	–	34	–	30
WASHINGTON	Seattle Community College	44	–	13	5	–	–	18	–	18	27	16
	Spokane Community College	36	–	16	1	–	–	17	–	17	–	18
	Tacoma Vocational-Technical Institute	44	–	28	2	–	–	30	–	30	36	30
WISCONSIN	Madison Vocational, Technical & Adult Schools	38	–	33	1	–	–	34	–	34	21	30
	Milwaukee Institute of Technology	36	–	30	6	–	–	36	–	36	–	16
PUERTO RICO	University of Puerto Rico	40	–	23	–	–	–	23	–	23	15	15
	TOTAL		5	2,270	224	18	1	2,518	641	3,159	1,242	1,593

*Information not Available.

TABLE 21

Administrative Officers of Dental Assistant Programs

TWO YEAR PROGRAMS

SCHOOL OR COLLEGE	LOCATION	DATE ESTABLISHED	DIRECTOR
Cabrillo College	Aptos, California	1962	Miss Barbara Hanlan
Cerritos College	Norwalk, California	1960	Mrs. Sonora Spencer
Chabot College	Hayward, California	1961	Dr. R.L. Buffington
Citrus College	Azusa, California	1965	Mrs. Betty Jo Lorenzen
City College of San Francisco	San Francisco, California	1953	Mrs. Bettie Underwood
Contra Costa College	San Pablo, California	1950	Miss Cosetta French
Diablo Valley College	Concord, California	1954	Miss Wanda Mooney
Foothill College	Los Altos Hills, California	1961	Dr. Nathan Boortz
Fullerton Junior College	Fullerton, California	1954	Miss Shirley J. Schwarz
Grossmont College	El Cajon, California	1963	Mr. Harold G. Hughes
Long Beach City College	Long Beach, California	1949	Miss Martha O. Drage
Los Angeles City College	Los Angeles, California	1930	Miss Helen M. Constable
College of Marin	Kentfield, California	1962	Mrs. Hazel O. Torres
Monterey Peninsula College	Monterey, California	1960	Dr. Charles R. Mulkey
Orange Coast College	Costa Mesa, California	1961	Dr. Norman Watson
Pasadena City College	Pasadena, California	1954	Dr. Bruce Conklin
Reedley College	Reedley, California	1958	Mrs. Elma Troutman
Sacramento City College	Sacramento, California	1963	Dr. Harrold H. Stephenson
San Diego Mesa College	San Diego, California	1948	Mr. Robert F. Heilbron
San Jose City College	San Jose, California	1958	Miss Roberta Firetag
College of San Mateo	San Mateo, California	1953	Mrs. Anne Grubbs
Santa Rosa Junior College	Santa Rosa, California	1959	Dr. Randolph Newman
College of the Siskiyous	Weed, California	1963	Miss Selma A. Nylander
Morton Junior College	Cicero, Illinois	1947	Dr. Merrill J. Shepro
Montgomery Junior College	Takoma Park, Maryland	1960	Mrs. Jane C. Frost
Ferris State College	Big Rapids, Michigan	1958	Dr. W.L. Boozer
Grand Rapids Junior College	Grand Rapids, Michigan	1964	Miss Maureen Munger
Northwestern Michigan College	Traverse City, Michigan	1964	Mr. Preston Tanis
Dutchess Community College	Poughkeepsie, New York	1963	Dr. James Hall
Oregon Technical Institute	Klamath Falls, Oregon	1948	Dr. Winston D. Purvine
El Centro College of Dallas County	Dallas, Texas	1966	Dr. Don Rippey
San Antonio College	San Antonio, Texas	1954	Mr. Clarkson Groos

ONE YEAR PROGRAMS

SCHOOL OR COLLEGE	LOCATION	DATE ESTABLISHED	DIRECTOR
Phoenix Dental Assisting School	Phoenix, Arizona	1958	Mr. J. Peterson & Mr. R. Talbott
Cerritos College	Norwalk, California	1960	Mrs. Sonora Spencer
Chaffey College	Alta Loma, California	1954	Mr. Rex W. Wignall
Contra Costa College	San Pablo, California	1950	Miss Cosetta French

TABLE 21 – Continued

Administrative Officers of Dental Assistant Programs

ONE YEAR PROGRAMS – Continued

SCHOOL OR COLLEGE	LOCATION	DATE ESTABLISHED	DIRECTOR
Laney College	Oakland, California	1948	Dr. Wallace T. Homitz
Long Beach City College	Long Beach, California	1949	Miss Martha O. Drage
Los Angeles City College	Los Angeles, California	1930	Miss Helen M. Constable
San Diego Mesa College	San Diego, California	1948	Mr. Robert F. Heilbron
Lindsey Hopkins Education Center	Miami, Florida	1947	Mr. P.W. Seagren
Tomlinson Adult Education Center	St. Petersburg, Florida	1960	Mr. John R. Hill
Hoke Smith Technical School	Atlanta, Georgia	1965	Mr. Robert A. Ferguson
Kapiolani Community College	Honolulu, Hawaii	1959	Mr. Raymond Won
Boise College	Boise, Idaho	1958	Mr. George Bridges, Jr.
Bloom Community College, Myron W. Bardige School	Chicago Heights, Illinois	1960	Dr. Dan E. Herrold
Loyola University School of Dentistry	Chicago, Illinois	1965	Dr. Mario V. Santangelo
University of Illinois	Chicago, Illinois	1958	Dr. John M. Spence
Indiana University - Fort Wayne Regional Campus	Fort Wayne, Indiana	1965	Dr. Ralph G. Schimmele
Haskell Institute - PHS Health Center	Lawrence, Kansas	1959	Dr. William F. Bird
Jefferson Area Vocational School	Jeffersontown, Kentucky	1963	Mr Fred C. Barrell
Beth Israel Hospital	Boston, Massachusetts	1951	Dr. Glen Sutton
Fanning Trade High School	Worcester, Massachusetts	1963	Miss Blanche M. Penn
Northeastern University	Boston, Massachusetts	1963	Dr. Albert E. Everett
Springfield Technical Institute	Springfield, Massachusetts	1947	Mr. Edmond P. Garvey
University Hospital	Boston, Massachusetts	1963	Dr. William Hoffman
University of Detroit	Detroit, Michigan	1963	Mrs. Annamae S. Manning
Brainerd Area Vocational Technical School	Brainerd, Minnesota	1964	Mr. Harry Nysather
Hibbing Area Technical Institute	Hibbing, Minnesota	1965	Mr. William E. Magajna
University of Minnesota	Minneapolis, Minnesota	1953	Miss Helen Tuchner
Meramec Community College	Kirkwood, Missouri	1964	Miss Marian R. Algarda
Lincoln Community College	Lincoln, Nebraska	1964	Mr. James E. Lightbody
Omaha Public School of Dental Assisting	Omaha, Nebraska	1962	Dr. Edwin Parrish
Essex County Adult Technical School	Newark, New Jersey	1928	Mrs. Rosalie C. Risinger
Union County Technical Institute	Scotch Plains, New Jersey	1962	Dr. George H. Baxel
The University of New Mexico	Albuquerque, New Mexico	1960	Dr. Monica Novitski
New York University	New York, New York	1961	Dr. Raymond J. Nagle
Central Piedmont Community College	Charlotte, North Carolina	1964	Dr. Harry G. Snyder
Technical Institute of Alamance	Burlington, North Carolina	1961	Dr. Thomas R. Hinson
University of North Carolina	Chapel Hill, North Carolina	1965	Dr. Roger E. Barton
Wayne Technical Institute	Goldsboro, North Carolina	1963	Mr. Clyde Erwin
Jane Addams Vocational High School	Cleveland, Ohio	1946	Mrs. Doris Rutt
Blue Mountain Community College	Pendleton, Oregon	1964	Dr. Robert Hawk
Lane Community College	Eugene, Oregon	1964	Mrs. Ellene Goldsmith
Portland Community College	Portland, Oregon	1964	Dr. Amo DeBernardis
Salem Technical Vocational Community College	Salem, Oregon	1963	Mr. Paul Wilmeth
Murrell Dobbins Technical School	Philadelphia, Pennsylvania	1955	Mr. G. William Donovan
University of Pittsburgh	Pittsburgh, Pennsylvania	1962	Dr. Edward J. Forrest
Clara Carpenter Center for Continuing Education	Chattanooga, Tennessee	1960	Mr. Dan M. Jones
Intermountain Indian School Health Center	Brigham City, Utah	1957	Dr. Richard Dunn
Utah Trade Technical Institute	Provo, Utah	1962	Mrs. Ruby R. Clark
Seattle Community College, Edison Branch	Seattle, Washington	1957	Mrs. Grace Cameron
Spokane Community College	Spokane, Washington	1958	Dr. Walter S. Johnson
Tacoma Vocational – Technical Institute	Tacoma, Washington	1956	Mr. Frank L. Reinhart
Madison Vocational, Technical & Adult Schools	Madison, Wisconsin	1963	Mrs. Maud Gilbert
Milwaukee Institute of Technology	Milwaukee, Wisconsin	1965	Miss Mary D. Vick
University of Puerto Rico	San Juan Puerto,Rico	1959	Dr. Alberto Tossas Vega

TABLE 22

Pre-admission Training of Dental Lab Technicians, October 15, 1966

STATE	DENTAL LAB TECH SCHOOLS	High School Only	1 yr.	2 yr.	3 yr.	4 yr.	Degree	TOTAL
CALIFORNIA	University of California Extension Dental Program	18	14	8	6	3	1	50
	City College of San Francisco	16	4	1	1	–	–	22
	Los Angeles City College	38	18	6	3	3	–	68
FLORIDA	Lindsey Hopkins Education Center	18	–	–	–	–	–	18
GEORGIA	Hoke Smith Technical School	8	5	1	–	–	–	14
ILLINOIS	Southern Illinois University	25	5	2	–	–	–	32
KENTUCKY	University of Kentucky	5	3	1	–	–	–	9
NEW YORK	New York City Community College	59	4	1	–	–	–	64
NORTH CAROLINA	Durham Technical Institute	17	4	2	–	–	–	23
OREGON	Portland Community College	13	8	–	–	–	–	21
	TOTALS	217	65	22	10	6	1	321

Undergraduates in Regular Course in the Dental Lab Tech Schools as of October 15, 1966 and Graduates from 1962-1966

	1966 UNDERGRADUATES			GRADUATES				
	1st	2nd	TOTAL	1962	1963	1964	1965	1966
University of California	50	40	90	29	36	36	37	40
City College of San Francisco	22	12	34	10	14	15	14	15
Los Angeles City College	68	20	88	–	–	–	–	–
Lindsey Hopkins Education Center	18	10	28	–	–	–	–	9
Hoke Smith Technical School	14	12	26	–	–	–	–	–
Southern Illinois University	32	27	59	16	16	15	21	27
University of Kentucky	9	6	15	–	–	–	–	–
New York City Community College	64	40	104	40	42	30	36	38
Durham Technical Institute	23	15	38	–	–	8	11	13
Portland Community College	21	7	28	–	–	–	–	–
TOTALS	321	189	510	95	108	104	119	142

SCHOOLS FOR TRAINING DENTAL LABORATORY TECHNICIANS

SCHOOL OR COLLEGE	ADMISSION REQUIREMENTS	LENGTH OF COURSE	DEGREE OR CERTIFICATE	TWO YEAR TUITION Out of State	TWO YEAR TUITION State
University of California	High School	24 Months	Certificate of Completion	1560	1560
City College of San Francisco	High School	18 Months	A.A. and Certificate of Proficiency	624	None
Los Angeles City College	High School	18 Months	A.A. and Certificate of Proficiency	624	–
Lindsey Hopkins Education Center	High School	19 Months	Certificate of Satisfactory Completion	None	None
Hoke Smith Technical School	High School	22 Months	Certificate of Satisfactory Completion	63	63
Southern Illinois University	High School	18 Months	Associate Laboratory Technology	963	483
University of Kentucky	High School	24 Months	Associate Degree in Applied Science	1640	560
New York City Community College	High School	24 Months	Associate Degree in Applied Science	1680	600
Durham Technical Institute	High School	21 Months	Associate in Applied Science Degree	560	224
Portland Community College	High School	18 Months	Associate in Applied Science Degree	600	480

SCHOOLS FOR TRAINING DENTAL LABORATORY TECHNICIANS	LOCATION	DIRECTOR
University of California Extension Dental Program	Los Angeles, California	Dr. J. Eugene Ziegler
City College of San Francisco	San Francisco, California	Dr. Louis F. Batmale
Los Angeles City College	Los Angeles, California	Miss Helen M. Constable
Lindsey Hopkins Education Center	Miami, Florida	Mr. P.W. Seagren
Hoke Smith Technical School	Atlanta, Georgia	Mr. Robert A. Ferguson
Southern Illinois University, Vocational Technical Institute	Carbondale, Illinois	Mr. E.J. Simon
University of Kentucky Program in Dental Technology	Lexington, Kentucky	Dr. Donald W. Rice
New York City Community College	Brooklyn, New York	Prof. Nicholas Martinelli
Durham Technical Institute	Durham, North Carolina	Mr. H.K. Collins
Portland Community College	Portland, Oregon	Dr. Amo DeBernardis

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UNITED ARAB REPUBLIC

In November 1959, the International Labour Organisation (ILO) began a vocational instructor training institute in the United Arab Republic which was intended to provide instructors for government vocational training centers and industrial establishments. The institute resulted from negotiation and planning over several years and was financially supported by the United Nations Special Fund. It had instructor training in the areas of metal, automotive, electrical, textile, printing, building, glass, and leather trades. Numerous funding, construction, and hiring delays were encountered in the project and the first courses were taught in late 1962; however, 79 participants were graduated by mid 1965 and by June 1966, all the ILO experts had been replaced by nationals. Three types of training was provided: 46-week basic instructor training, short courses for directors (288 hours) and technical supervisors (144 hours), and 12-week refresher courses for instructors. A fellowship system which provided for study abroad was also used. The appendixes include: (1) the Plan of Operation, (2) enrollment and funding graphs and charts, (3) floor plans and equipment lists, and (4) fellowship participant list. (EM)

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OFFICE OF EDUCATION

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UNITED NATIONS DEVELOPMENT PROGRAMME

INTERNATIONAL LABOUR ORGANISATION

VOCATIONAL INSTRUCTOR TRAINING INSTITUTE UNITED ARAB REPUBLIC

VT002 173

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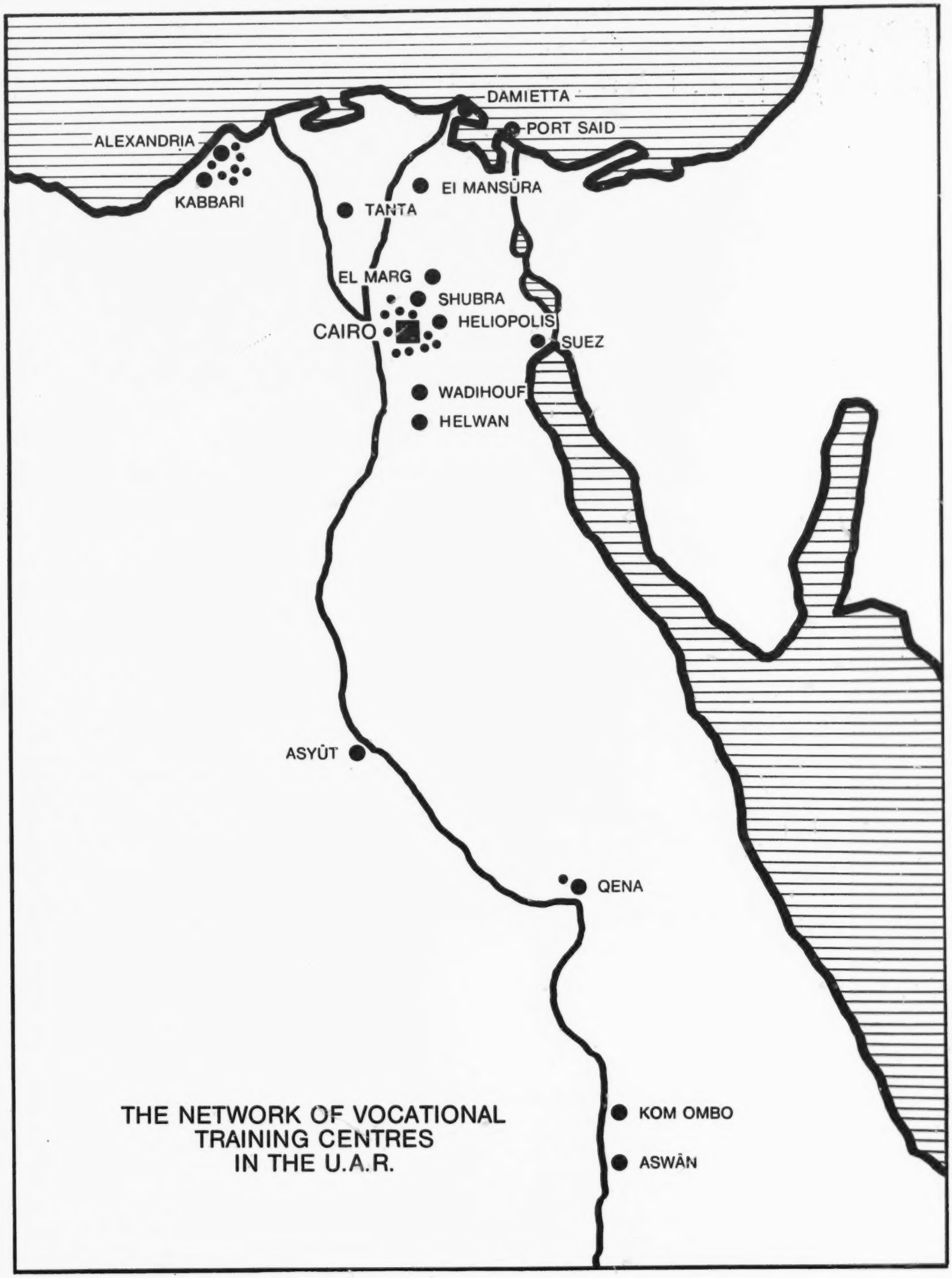


THE NETWORK OF VOCATIONAL TRAINING CENTRES IN THE U.A.R.

Introduction

Far-reaching changes took place throughout the industrial economy of the United Arab Republic during the years 1953 to 1966. This report is the story of one aspect of these changes: the development of a formal industrial skills training programme.

The story traces this development, beginning with the Government's recognition of the growing demand for industrial skills, brought about by the country's advancing economic development, through the creation of institutions to train people in these skills.

The close co-operation of the Government of the United Arab Republic with the United Nations Expanded Programme of Technical Assistance[1] (E.P.T.A.) and the International Labour Organisation made possible the development of a national vocational training scheme. The programme, one of the largest E.P.T.A. operations ever undertaken, began with the creation of the Training Centres. Leading to the first phase of the programme was a request by the Egyptian Government in 1952 for an I.L.O. expert to investigate and assess the assistance that would be required to establish a national vocational training scheme. The proposals that resulted from this study served as guidelines for subsequent E.P.T.A. and Special Fund assistance.

The network of Vocational Training Centres for a wide variety of trades thus established in turn created a steady demand for instructors qualified to staff the Centres. As a result, the U.A.R.'s first Vocational Instructor Training Institute was founded in 1959 with the aid of the United Nations Special Fund.[1] The International Labour Organisation acted as the executing agency. This was one of the first Special Fund projects. After a short period the steadily increasing flow of qualified instructors from the Institute into the Training Centres found its ultimate expression in the accelerated growth of the skilled industrial labour force.

The three parties involved in the creation of the Training Centres and the Institute have benefitted from the international co-operation: the I.L.O. and the U.N.D.P. gained much from the valuable experience of providing technical assistance that extended over 13 years, while the U.A.R industrial economy continues to realise more and higher quality production from a steadily expanding labour force of skilled workers.

[1] The United Nations Special Fund assisted the project until 1 January 1966. On that date the Special Fund and the Expanded Programme of Technical Assistance were merged into the United Nations Development Programme, which continued to assist the project.

The Establishment of Vocational Training in the U.A.R.

In the early 1950s, when the Government of the U.A.R. began undertaking schemes for economic development, immense problems confronted all sectors of the economy. With a limited natural resource base, Egypt's industrialisation programme began at a time when less than 5 per cent. of the population was engaged in any form of industrial activity.

Despite the relatively large area of the country (1 million sq.km.) the limited amount of arable land and its uneven distribution have together produced extreme concentrations of population, which are exceeded only in parts of Asia and the West Indies. During the first half of the twentieth century, Egypt's population doubled to 23 million, most of it being found on the banks and in the delta of the Nile.

In spite of this growth, the amount of cultivable land increased by less than a fifth during the same period. Although Egyptian agriculture produces some of the highest crop yields in the world, the shortage of farmland made it imperative for the Government to rely on sectors other than agriculture for economic growth. Few opportunities were available for increasing agricultural production from existing resources.

When completed, the Aswan High Dam will make possible irrigation systems that can expand the area of arable land by nearly a third, during a relatively short period. The additional agricultural production will help ease some of the pressure exerted by a growing population on existing food supplies. During this period of respite, the Government can devote more of its attention to the industrialisation programme, since the urgency of the agricultural problem will be reduced.

The magnitude of the problems inherent in the industrial structure of the country was reflected in the 1952 census, which reveals the imbalance between entrepreneurs and workers engaged in industrial production. Although the total industrial labour force exceeded 650,000, fewer than 500,000 were classed as workers. The remainder fell into either proprietor or partner categories.

In relation to the size of industrial enterprises, more than one-half of the total industrial workforce was employed in establishments of less than 10 employees. If one disregards these small units, since they were unlikely to serve as part of the base on which industrial growth would take place, the real labour force was very small indeed. Nevertheless, the few relatively large factories that did exist in the early 1950s demonstrated an impressive productive capability. Equally important, these large plants were almost exclusively in Egyptian hands, sufficient proof that the managerial and technical resources necessary for large-scale industry were indigenous to the country.

The absence of large-scale industry, however, had adversely affected the nation's educational and training establishment. The first departure from the traditional educational system — based on religious institutions — came during the rule of Mohammed Ali and occurred in the 1830s. Reforms were made that would ensure a flow of educated people into Government service.

The pattern established by the reform was to survive for more than a century. Education

came to be considered as solely a route to civil service rather than as preparation for industry or commerce. The system did not provide for organised industrial training, and was limited in its extent. The 1947 census disclosed that only 23.5 per cent. of the population was literate. Even by the mid-1950s, a little more than a third of school-age children had actually found their way into classrooms.

Consequently, Egyptian industry had a gigantic reserve of uneducated, unskilled labour at its disposal, more than ample for any foreseeable demands. Unfortunately, however, this potential industrial labour force was not providing the raw material for training the skilled craftsmen that modernising and expanding industry require. Too many difficulties hindered the formation of skilled workers. Besides the limited and thus ineffective educational system, official policies towards technical training were characterised by a lack of decision, while the absence of training schemes in Egyptian-owned industry was sorely felt. Taken together, these obstacles constituted a legacy that would only retard industrial growth.

In the years immediately following World War II, however, industrial training had not been completely ignored. A few training programmes had been adopted by private companies. A small but steady flow of boys capable of entering into apprenticeship contracts were already coming from the Dom Bosco schools of the Salesian Order. In addition, some of the State schools provided technical training.

But no attempt had been made to co-ordinate these sources of skills training with national requirements which called for a formal industrial training programme if Egyptian workers were to acquire up-to-date industrial skills.

FIRST EFFORTS

The I.L.O.'s interest in the problems of Egyptian vocational training started in 1952 when an Agreement was signed with the Egyptian Government under which an I.L.O. expert for vocational training would visit Egypt and examine the existing situation. He would then propose ways in which assistance might be given by the I.L.O.

The expert suggested that a successful project would entail a large and growing financial commitment by the U.A.R. Government. Following another study by the I.L.O., from which a proposed line of action evolved that would best suit the Government's and the I.L.O.'s requirements, a long period of co-operation was ushered in by an Agreement signed between the two parties on 17 June 1954. The Agreement laid down the guidelines for I.L.O. assistance for improving productivity, training managers and supervisors and providing on-the-job training for workers. Except for in-plant training, all activities would take place within a Productivity and Vocational Training Centre.

Although it was obvious from the outset that to establish and develop a nation-wide, formal vocational training programme would take a long time, few connected with the project realised just how long the co-operation would last. In these early days, it was generally agreed that to be of lasting value the project would have to continue for at least two years. In fact, co-operation among the three parties to the Agreement still continues today.

The ultimate objective of the initial project was to establish a training scheme and suitably prepare an all-Egyptian staff to operate the system, eventually dispensing with I.L.O. assistance. In virtually all I.L.O. technical assistance projects, the I.L.O.'s primary objective is to organise matters in such a way that it works itself out of a job.

Although the I.L.O. would nominate the first Director of the Centre, it was assumed that at an early stage a nominee of the Government would take over the post. In addition, one Egyptian official would be assigned as a counterpart for each I.L.O. expert. According to the Agreement, the Egyptian Government would supply the necessary administrative and financial staff.

By mid-July of 1954, space was made available for the Centre at the Special Technical School in Heliopolis near Cairo. Although the first Director, Mr. Kare Hansen, then Chief Engineer of the Norwegian Employers' Federation, was a specialist for productivity

improvement,[1] the importance of the vocational training component of the project soon became apparent. The first vocational training expert, Dr. Horst W. Quednau, of the Federal Republic of Germany, arrived in September 1955.

THE EXISTING SITUATION

At the time of the original survey mission in 1952, two types of State schools provided various kinds of industrial training. The Industrial School accepted boys after completion of primary school, usually at the age of 12, and provided them with basic industrial training. Depending upon the nature of the school, this training could be either primarily practical or predominantly theoretical.

The other type, the Secondary Industrial School, offered more advanced training for those who had attended both primary and preparatory school. Preparatory schools accept children at age 10 and give them a higher level of education than that obtainable in the primary system.

From the viewpoint of industry, however, the training given by the two types of schools left much to be desired since it did not produce craftsmen with the skills needed by modern industry. The training relied too heavily on theoretical rather than on practical knowledge. The unfortunate consequence was that graduates expected jobs such as foremen, supervisors and administrators — in other words, jobs of a higher level than those offered to a skilled worker.

Another shortcoming of the training was its inflexibility. A boy who had completed an Industrial School could not thereafter continue his training at a Secondary Industrial School since entry to the latter was confined solely to students with a preparatory school education. Thus, Industrial School graduates, whatever their talents may have been, were offered no means of furthering their education after completing their training at age 15.

As a result, the more intelligent students in the lower schools rejected industry as a possible career and instead chose something more in keeping with the academic preparation they expected to complete. They reasoned — perhaps justifiably — that in the long run academic training would prove to be more beneficial than preparing themselves for industry.

The apprenticeship system was also beset with shortcomings. Only two companies in the entire country operated apprenticeship schemes. Responsible for this situation were the same factors often found in developing countries: the low prestige attached to manual work, an abundant supply of young people willing to work under any conditions, the low educational qualifications of youngsters eligible for apprenticeship, and little demand for high quality products by the domestic market. Contributing to the indifference towards apprenticeship schemes were ill-informed company managements which did not see the benefits to be derived from systematic training of upcoming workers.

The traditional approach of letting an apprentice work with a craftsman for five or seven years in order for the boy to acquire similar skills obviously did not satisfy industry's requirements. For one thing, existing workers who possessed skills were too few in number to serve as the basis of an apprentice scheme employing the traditional approach. Even more serious was their own lack of those modern skills which the labour force of the immediate future must have if industry is to progress.

Although officials of the Ministry of Labour (shortly thereafter to be called the Ministry of Industry) did not have to be convinced of the merits of apprenticeship training, a deeply-ingrained resistance throughout industry to the concept still had to be overcome. Few employers had any confidence in organised apprentice training. To instill confidence in the value of a formal system, and to neutralise the wide opposition, careful planning had to precede the introduction of the system.

The strategy that was to be employed to promote the introduction of the scheme consisted of three phases: a demonstration phase, which would prove that the idea was workable; the implementation phase, including the working out of measures required to promote the introduction of apprentice training; and orga-

[1] The productivity improvement aspect of the E.P.T.A. project is not examined in the present report.

nisation, or the setting up of machinery to promote the concept.

The demonstration phase that preceded the first pilot apprenticeship schemes consisted of one year of intensive campaigns that helped to establish good relations with employers and trade unions. Two pilot schemes were deemed necessary: one that would be suitable for large companies in a position to establish their own apprenticeship programmes; another that would meet the requirements of small and medium-size enterprises and government-owned plants whose smaller size would not justify the creation of their own separate training divisions.

The locomotive repair shops of the U.A.R. Railways at Abu Zaabel, near Cairo, were chosen as the site of the first apprenticeship pilot scheme for large companies. The repair shops employed some 3,000 workers and training was already being given to 60 metal trades apprentices annually. A rush of applicants followed the announcement of the course. Trainees were carefully selected in order to keep the drop-out rate to a minimum. Following a variety of delays, partly due to a lack of technical personnel to supervise the training programme, apprentice courses in metal trades began in 1957 and were successfully completed.

A second pilot scheme, consisting of a formal three-year course, was organised at the Heliopolis Centre. Four small private companies and two Government departments sent 48 apprentices to the course, which opened in January 1957. The first year was spent at the Centre under the supervision of Egyptian instructors and I.L.O. experts, while in the second and third years the trainees were given systematic on-the-job training at their usual workplaces under the direction of instructors especially trained for the trades they taught. During the second and third years, the apprentices attended the Centre one day each week for related instruction. At the end of each year they returned to the Centre for a further period of full-time practical training and for final testing.

The primary objective of both schemes was to provide young men, many of whom had been raised in an agricultural or a non-industrial urban environment, with training in the practice and theory of industrial skills such as fitting, turning and machining.

Besides this trade training, an attempt was made to improve the trainees' general level of education. In fact, among the earliest of the Centre's tasks was a study of local education methods and standards to gather data that could be used to devise aptitude tests for future applicants.

An important area of work in the second scheme was vocational guidance for apprentices, who were made aware of industrial employment opportunities. At the same time, training officers and instructors in private companies were given advice and assistance to aid them in their work with the second- and third-year students. To support these two efforts, a reporting system and intermediate examinations were created to measure the progress of trainees.

The success of this scheme was reflected in the high percentage of graduations — only one trainee dropped out during the entire programme. Also encouraging was the changed attitude of employers towards vocational training. Long before the course had reached its conclusion, most employers connected with it had been won over. In 1957, at the end of his two-year mission, Dr. Quednau and his colleagues were gratified to find an increasing number of companies seeking advice on how to introduce or improve their own training schemes.

Of equal importance for the future acceptance of a national vocational training system were the obvious benefits demonstrated by an organised scheme: the effectiveness of proper selection of trainees, the advantages accruing from adoption of reasonable working conditions, and the value of practical training approaches. Taken together, the recognition of these benefits on the part of employers helped to overcome many of their earlier indifference — mainly psychological in nature — towards organised vocational training.

A similar change in attitude was noticed in the trainees. Most had overcome their earlier prejudice against manual work. The concept of craftsmanship took its place. Trainees were proud to have a craft.

PLANS FOR EXPANSION

Concurrent with the successful conclusion of the pilot schemes, events on a higher administrative level were happening which would eventually expand the scale of vocational training. A five-year plan for productivity and vocational training was launched in the spring of 1956, after the I.L.O. had advised on its content.

A few months later the Ministry of Industry was established and Dr. Aziz Sidky was appointed Minister of Industry. During his earlier appointment, as the Director of the Productivity and Vocational Training Centre, which he began in December 1955, he had injected a sense of dynamism into the Centre. The Centre now became a Government department — the Productivity and Vocational Training Department — and was attached to the newly created Ministry.

The Five-Year Plan called for building a network of 18 Vocational Training Centres and expanding the Department's other activities at an estimated cost of £E 2.5 million.[1] The new Centres would teach skills for the metal, textile, electrical and automotive trades. The distribution and location of the Centres would be determined by local conditions.

The Plan also specified fellowships for Centre instructors and the gradual replacement of I.L.O. experts by Egyptians. To facilitate the changeover, each I.L.O. expert would have an Egyptian counterpart whom he would train. The counterparts would also gain additional training abroad during their fellowship study. Although the fellowship concept has many valuable features, the absence of instructors for extended periods abroad did create serious staffing problems in the Centres.

The ultimate aim of the Plan was to develop a skilled labour force that had uniform standards, which would in turn encourage labour mobility. To help set such standards, the Department was asked to draw up recommendations for training regulations, the first major step in drafting a national apprenticeship act.

In early 1958, the Department was ready to launch its national vocational training system now that the pilot schemes were running well and most of the Plan's early objectives had been achieved. By this time, two years of co-operation with the I.L.O. and some 80 man-months of concentrated effort by I.L.O. experts and their counterparts had prepared the ground for the industrial apprentice programme.

All the major facilities and services required for the administration and guidance of the scheme were available, despite the late delivery of supplies and the instructor shortage. The first four permanent Centres had been constructed: two Centres for the metal trades at Dokki (near Cairo) and Alexandria, and two Centres at Embaba, also near Cairo. Of these latter two, one was designed for the building trades, the other for both the metal and automotive trades. All Centres had an initial supply of teaching aids and training materials.

Later in 1958, the draft apprenticeship law went into effect, which fixed the status of the trainee. He was now considered to be an apprentice, bound by a three-year contract with his employer, and entitled to a fixed apprentice allowance.

A National Apprenticeship Council was also formed and given its own budget. The Council was empowered to order an enterprise to adopt an apprenticeship scheme if the Council considered a formal programme to be desirable and feasible.

In October 1958 the first courses started in the four new Centres. All four were designed and built to serve as models for future Centres. Each had an annual capacity of 90 trainees, although this figure was later raised to 130 when two courses were created by staggering the entry of new classes.

As experience accumulated, the content of the apprentice course syllabus was modified, thanks to the flexibility of the courses. At the outset, instruction had been provided both in the chosen trade and in related trades. But as trades became more specifically defined, it was possible to distribute the time available for courses more advantageously to better suit the needs of the trade. A shortcoming common to training during the early period, when a large group of trainees would simply watch one of their number perform an operation, was later avoided when instruction

[1] Equivalent to approximately U.S. $6,880,000 at the 1956 exchange rate.

sheets, materials and tools were prepared before a lesson began.

As the project grew in size and the I.L.O. mission increased in the number of experts, a greater emphasis was put on functional activities as opposed to trade divisions. In 1959, experts were divided into four sections: supervisory, trade and instructor training and field supervision work. These divisions made it possible for more detailed advice to be given on the planning of additional courses which were soon to broaden the scope of the vocational training scheme.

Expansion engendered staffing problems, however, and for their permanent solution the U.A.R. Government turned to the Special Fund. Although the Egyptian instructors working together with the I.L.O. experts proved to be of a high calibre, they were sometimes overburdened with work. Besides the shortage of suitably qualified instructors, men with the necessary skills and who were capable of becoming instructors quite naturally preferred the higher salaries paid by industry.

As the training programme expanded, the shortage of instructors worsened. Each Centre was staffed by a training officer, an assistant training officer and at least ten instructors. A training officer had to be a qualified mechanical engineer with at least three years' experience in a private company. Instructor qualifications included graduation from a Secondary Industrial School and at least three years of practical experience.

Once qualified instructors had been found, they had to be taught how to teach and the other aspects of their new jobs. Accelerated courses were hurriedly organised to teach pedagogy, psychology of adolescents, shop organisation and the role of the Training Centres. Despite these difficulties, new Vocational Training Centres opened at an increasing frequency during the late 1950s.

The instructor shortage was not limited to the pilot Centres and the pilot schemes. There was a growing need for part-time instructors to guide apprentices in their usual jobs. After an apprentice had completed his first year in a training establishment, it was important that during his second and third years in the workshop he should be guided by a man familiar with both the aims and the techniques of apprentice training. Hence suitable courses for part-time instructors were organised.

About this time the national plan for industrial development began receiving greater attention from the Government. As a result the Ministry of Industry expressed its eagerness to accelerate the building of more Vocational Training Centres. The planned number of such Centres was raised from 18 to 21 and then later to 40. It soon became evident that the growing shortage of instructors was holding back the project at a time when steady growth of vocational training was anticipated.

As early as 1957, the Government's enthusiasm for a national vocational training scheme had been underlined when its industrialisation plan became a part of the first national five-year plan for economic and social development. It was then estimated that an average of 135,000 new permanent jobs would be created annually from 1960 to 1965. The output of skilled workers expected from the training scheme would have to grow correspondingly.

STOP-GAP MEASURES ADOPTED

Since it was obvious that the apprenticeship scheme alone could not meet the anticipated demand in the next few years for skilled workers, two temporary expedients were adopted. The I.L.O. experts helped to prepare courses for accelerated and upgrading training, which were then launched in the summer of 1960 in existing Centres. Space was made available for these stop-gap courses alongside the standard apprentice programme by introducing a two-shift system.

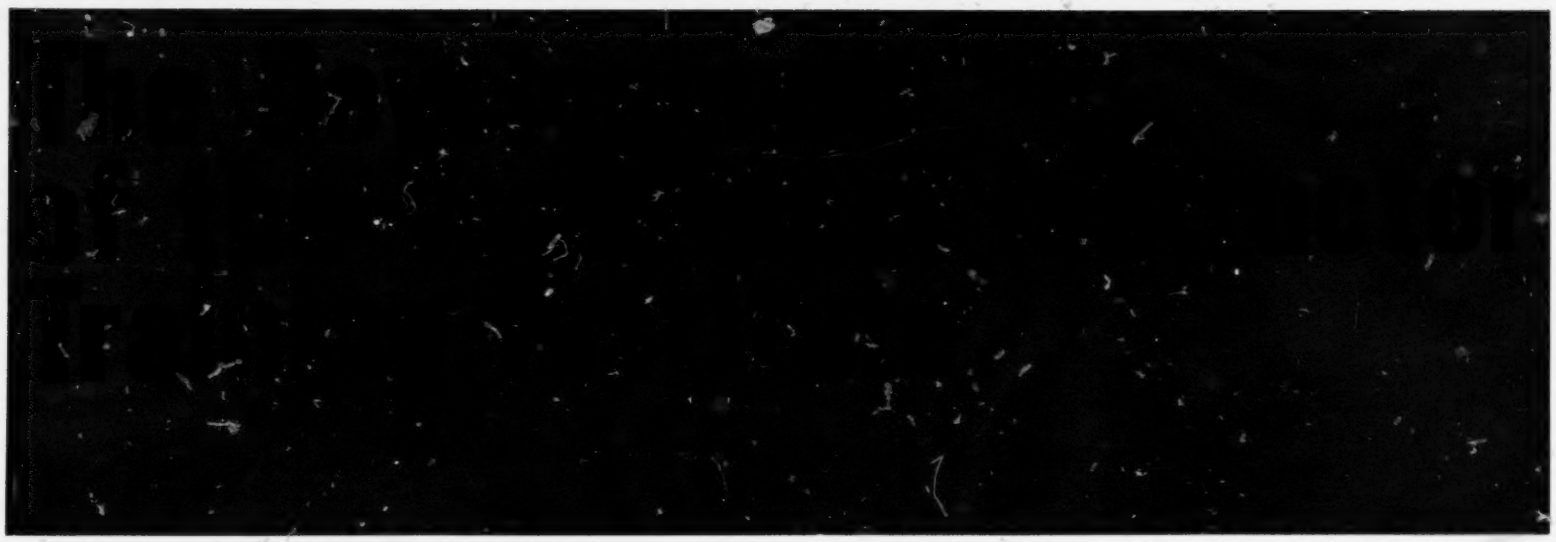
Within a year after starting, both courses were producing the trained people so urgently needed by industry. Two years after their start, in May of 1962, no fewer than 1,017 trainees had graduated from the accelerated training courses and another 732 were in training. Upgrading courses had multiplied in a variety of industries and were characterised by good attendance and an enthusiastic response. These stop-gap measures had clearly solved the short-term problem.

By October 1960, comprehensive vocational training was firmly established in the U.A.R. The accelerated and upgrading programmes were operating smoothly. The apprenticeship scheme was fulfilling its earlier promise, having grown from one pilot course in 1957 to eight permanent Centres in 1961 with 12 shifts of classes. Enrolment at the Centres amounted to 1,498 first-year, 1,325 second-year and 370 third-year trainees. Private industry was establishing apprentice training centres besides providing in-plant training.

The rapid growth of the Productivity and Vocational Training Department during this period reflects the rapid enlargement of its responsibilities. In 1957 it employed 100 national staff; in 1961 its personnel had increased to 1,100, including the staff of the Centres. The Department's expenditures rose from £E210,000 in 1957 to approximately £E5 million in 1961.

Still there remained one crucial weakness in the system — the shortage of instructors. As early as 1957 an I.L.O. vocational training expert had pointed out that "instructors for Centres are just as vital as training shops". Only a concerted effort by all concerned managed to add 60 qualified instructors to the four available in the spring of 1958, which then enabled the pilot schemes to begin the following autumn.

Obviously, stop-gap training measures could by no means provide the instructors needed for the rapid advancement of the vocational training scheme. A major training operation was unquestionably required. What this entailed, how it was established and the achievements it realised are discussed in the following chapters.



THE SHORTAGE OF INSTRUCTORS

The United Nations Special Fund[1] was established about the same time as the shortage of qualified vocational training instructors in the U.A.R. threatened to become a major stumbling block. The coincidence was fortunate for the future of the recently-founded national vocational training scheme. The type of aid which the Special Fund was designed to provide permitted the creation of an instructor training facility of the size required by industrial expansion.

Experience gained by the I.L.O. in the early years of the E.P.T.A.[1] project revealed the need for a vocational instructor training institute that would not merely be capable of training the required number of instructors but would also elevate the prestige and status of the vocational teacher. The temporary instructor training programme included in the E.P.T.A. project in 1958 soon encountered difficulties, despite its initial success in supplying the instructors needed for the first vocational training courses. Within a year after the accelerated course began, 32 more instructors were added to the 64 available in November 1958 and by November 1959 the figure had more than doubled to 195.

As might be expected, the pool of skilled men in industry from which future instructors were being drawn for training was rapidly drying up. The best of those attracted to teaching were by this time already employed in the Centres. Many potential instructors understandably preferred the higher pay offered by industry to skilled craftsmen to the lower prevailing rate in Government service.

The drying-up of the source of potential instructors had implications for the entire training scheme. If skilled workers of a lower standard were accepted than those hitherto available, there would be effects detrimental to the quality of instruction given to trainees. On the other hand, if existing Centre teaching resources were diverted to upgrade the less-qualified men coming from industry, the entire scheme would suffer. The already overburdened teaching staff could scarcely carry out their new assignment with any measure of efficiency. Thus, accepting either alternative would delay the planned expansion of the scheme and would weaken it so as to dissipate its impact on industry.

The situation was summed up in an I.L.O. report to the Government: "The approximate number of instructors needed when all 40 Training Centres are operating will be about 1,000. This rate of growth cannot be met by the temporary arrangements for instructor training and the present source of recruitment without seriously impairing the quality of training. In addition there is a need for instructors in industry, partly for the training centres of the large companies and partly for taking care of the second- and third-year apprentices".

Faced with this impasse at a time when long-term planning for economic and social

[1] Now part of the U.N.D.P. as noted on page 5.

development was being implemented on a broad front — and the industrialisation plan was well advanced — the Government decided to turn for assistance to the Special Fund.

APPROACH TO THE SPECIAL FUND

The initial approach to the Special Fund was very broad and perhaps over-ambitious, but this was hardly surprising. The Special Fund was a youthful United Nations institution with which no one had any experience. The first drafts of the Government request were drawn up in the autumn of 1958 and spring of 1959. At this stage it was thought that the Special Fund would take over support of the whole vocational training project from E.P.T.A. It was recognised that although Special Fund participation would be necessarily for a relatively short time, the size of the financial support that would be forthcoming would outweigh this disadvantage. This was particularly important in view of the urgent need for creating a supply of skilled manpower, indispensable for the U.A.R.'s industrialisation programme.

Within six months of the preparation of the first drafts, the request was submitted. Briefly, it proposed a Special Fund investment of $2 million — at a time when the norm for such projects was less than $1 million — backed by a Government contribution of $8.4 million spread over a four-year period. The U.A.R. would have been left with an annual commitment of $1 million in the years after the Special Fund commitment had ceased. This original request envisaged, however, a massive expansion of the work currently being done in the field of vocational training. It tended to ignore the prime factor in the expansion of such training — the creation of a steady supply of qualified instructors.

In this form, the request did not appeal to the Special Fund. The speed with which the request had been prepared was matched by the alacrity of the Special Fund officials in studying and replying to the proposals with recommendations for modifications. "It would be pointless for the Special Fund merely to replace the financing presently being provided under E.P.T.A.", was the reaction. "The Managing Director could not see his way to supplementing the present contribution from the I.L.O. by doubling the funds for the programme."

The setback proved temporary. By March 1960, work was in progress on the preparation of a second request for submission to the Special Fund. Dr. Mohammed Amin, Under-Secretary of State and Director-General of the Productivity and Vocational Training Department, worked closely with members of the I.L.O./E.P.T.A. mission in assessing the requirements. Ideas soon crystallised and produced a scheme for a Vocational Instructor Training Institute to serve as a single source of instructors to man the Vocational Training Centres. They would also be trained to perform other advanced instructional functions. Once this line of approach had been established the outlook became more optimistic — although it was still felt that the second request would not be ready in time for the autumn meeting of the Special Fund. But the Government decided to upgrade the priority of the application and by mid-May 1960 it had been despatched to United Nations Headquarters in New York.

In the autumn of 1960, the Managing Director of the Special Fund decided to recommend the acceptance of the U.A.R. request, although the amount the Government had requested for equipment had been pruned to $250,000. In December 1960, the Governing Council of the Special Fund gave its confirmatory approval and the process of establishing a Vocational Instructor Training Institute could begin in earnest.

Although Special Fund support was now assured, there followed nine months of protracted negotiation before the Plan of Operation was signed. The signing eventually took place on 20 August 1961, the signatories being Dr. Aziz Sidky for the U.A.R. Government, Mr. B.F. Osorio Tafall for the Special Fund and Mr. Mohammed Aziz el Maraghi for the I.L.O.

PLANS FOR AN INSTITUTE

The purpose of the project as described in the Plan of Operation[1] was "to assist and

[1] The Plan of Operation is reproduced in Annex A.

advise the Government of the United Arab Republic in establishing a Vocational Instructor Training Institute in Cairo, U.A.R. The Institute is expected to meet the expanding needs for instructors and training officers for the present Vocational Training Centres of the Government, for a considerable number of Vocational Training Centres to be opened in the future and for industrial establishments".

As executing agency for the Special Fund, the I.L.O. was to co-operate with the Productivity and Vocational Training Department of the Ministry of Industry.

The Plan envisaged:

(1) theoretical and practical instruction for existing instructors who were in need of further training and for candidates for instructor posts;
(2) regular refresher courses for instructors in order to keep them up to date with the latest methods of industrial production, training and teaching;
(3) courses for training officers and their assistants with theoretical and practical instruction in the respective trades and fields of training.

These courses would include organisation and management of training centres and instructional techniques.

Being limited to the metal, automotive and electrical trades, the Institute would have no workshops for the textile, printing, building, glass and leather industries. For these latter trades, theoretical instruction would be given in the Institute and the Government would arrange for practical teaching facilities in the appropriate training centres.

Sources of recruitment for the Institute were also laid down in the Plan. These would be instructors already in Government centres and industry, well-qualified workers in industry, technical school graduates with industrial experience, and graduates from the current apprentice training scheme with some experience as journeymen.

The Special Fund's financial commitment was $830,700 with the Government contribution set at $585,586. The Special Fund allocation would be used to provide expert personnel, equipment and fellowships, while the Government was required to supply the building, staff, tools and equipment available locally and all the necessary teaching materials as well as facilities such as electric power and water.

It was envisaged that the co-operative project would last for four years, following which the Institute would become the sole responsibility of the U.A.R. Government.

An extension of the project period by ten months — i.e. up to June 1966 — was later found to be necessary, and a number of changes of detail were made to the original Plan as the need arose. Minor changes were necessary in the prescribed duties of experts. The organisation of the Institute was revised, some changes in the equipment lists were made and the number of fellowships was increased.

It would have been surprising if the execution of the Plan had proved all smooth sailing. To gloss over the problems that cropped up would be a disservice to the men of the Government, the U.N.D.P. and the I.L.O., who met and overcame the obstacles and went on to create the splendid Institute that is today the lynch pin of vocational training in the U.A.R.

The delay in the signing of the Plan of Operation turned out to be only the prelude to a period of misfortune. Although the site for the Institute had been chosen well in advance it was subsequently reassigned for more pressing needs. The resultant search for new land produced an alarming situation in that plans for the recruitment of personnel and purchase of equipment were well advanced while there was still no definite decision as to when construction should start or even on the choice of contractor.

Another source of delay arose. Scarcely had the first head of the I.L.O. mission moved to Cairo and prepared his programme when he became ill and had to withdraw from the project. Thus, the early weeks of 1962 saw the sole I.L.O. representative in the Institute project, teaching expert Mr. Herman Steffen, without building, staff, or firm guidance as to what was to be done. At this stage, the future of the project appeared to be in some danger. Problems were of such a basic nature that little room for manoeuvre existed. In the delays they caused lie the root reasons for the extension of the project. It took eight of the ten additional months to recruit a new Chief of Project. The situation was being

regarded with impatience in Cairo and with concern bordering on alarm at I.L.O. Headquarters in Geneva.

Fortunately for the project, it was resolved to press ahead along the lines laid down. Further delay in the arrival of I.L.O. experts who had already been recruited could only result in the loss of those men and the need to start afresh with new appointments. Two more experts were therefore rapidly put on assignment: Mr. Semon Pivovarov, a Russian expert in apprenticeship training, and a Canadian auto trades expert, Mr. William Young. The new Chief of Project, Dr. Victor Mayer, an Austrian with a capacity for organisation which was to prove invaluable, arrived in mid-September 1962, and by early 1963 most of the oustanding I.L.O. posts were filled.

Although the progress of the Institute's development takes on a more coherent pattern from this point, the activities carried out during the difficult early stages should not be overlooked. During the early months of 1962, four training courses were started in Cairo and Alexandria. Three of them provided technical upgrading for instructors, and the fourth was an instructor upgrading course consisting of educational psychology, teaching techniques, human relations and safety. In a comparatively short period, 233 instructor-trainees went through these courses.

Around the same time, the U.A.R. authorities agreed to place part of the Abbassia Vocational Training Centre at the disposal of the project and now the tempo of work began to accelerate. Plans were being laid for the first long-term courses and the final form of the Institute's building was discussed at great length.

By now the final choice of the Institute site had been made. It was to be placed in the then relatively undeveloped area at El-Ameria in the northern part of Cairo, between Heliopolis and Shoubra. Thanks to a change of plan the Institute now had almost twice as much land as had been allotted in the original programme. When officials first inspected it after acquisition, the site was a splendid cornfield. Another crop was to be sown and harvested before construction work began.

Arrangements were now being made for the first of the long-term courses, work that brought the first Egyptian counterparts into a close working relationship with the I.L.O. experts. In mid-1962, Mr. Hassan El Guibali, who had already gained considerable experience in the field of vocational training and, furthermore, possessed previous counterpart experience, was appointed first Director of the Institute. Mr. Shawki Fahim Ebeid took up the post of counterpart to the expert for principles of teaching. Inevitably there were difficulties over the recruitment of further counterparts, despite energetic efforts by officials of the Productivity and Vocational Training Department. The supply of qualified engineers and technicians with the required knowledge of technical English was small.[1]

Towards the end of 1962, the Institute team moved from initial temporary accommodation in the Ministry of Industry premises to a comfortable seven-room area reserved on the ground floor of the Abbassia Vocational Training Centre. Advertisements inviting tenders for the £E130,000 Institute building appeared in newspapers in the first week of November and within weeks one was accepted. The Minister of Industry soon issued the order for construction to start; on 9 March 1963 building started.

THE BUILDING

The building that was completed a little over a year later was excellent for its purpose. "It is a real training palace", more than one foreign visitor told the Chief of Project.

The building was designed by Government architects; advice on technical questions was provided by the I.L.O. team. A three-storey building, it has extensive workshops on the ground floor, classrooms on the top floor, and between them office accommodation, laboratories, a library and a conference room. The main structure of the building forms three sides of a square enclosing an attractive central courtyard. The fourth side, completing the square, is only one storey high and houses the areas where most of the practical work is done.

Many lessons had been learned in building

[1] A list of counterpart personnel appears in Annex E.

design and workshop layout during the construction of the network of Vocational Training Centres. This experience was put to good use in the Institute's structure although there was a certain reluctance to make some necessary changes of detail to suit the needs of instructor training. As a result, these changes had to be made by Institute personnel after the builders had left. Nevertheless, the building is more than adequate for its purposes in terms of size and the layout of the workshops could well be taken as an example for other centres of this type.[1]

EQUIPMENT

If the building is important, the equipment for the use of trainees is even more so. The $250,000 of the U.N.D.P. allocation earmarked by the Plan of Operation for equipment was carefully spent. Most of the equipment arrived on schedule, but because of construction delays this was to prove embarrassing; storage facilities for such large amounts of machinery were not readily available.

When the first U.N.D.P. items began to arrive, there were in fact no storage facilities whatsoever. Disturbing the transit packaging as little as possible, project personnel moved everything into a temporary wood and canvas shelter in the grounds of the Shoubra Vocational Training Centre in Cairo. Today the people involved will admit some nervousness about this operation. In spite of the fact that some equipment stood in this shelter for many months, none of it was affected by the treatment — a tribute both to the packaging by the exporting companies and to the local handling.

"Although it arrived at the right time according to the Plan of Operation", Dr. Mayer said, "some of the equipment came 18 months too soon because of other delays. We could only do physical checks and nothing could be tested. When we got the new building, we plugged it all in and thought... 'Maybe, after all this time, it will run'... It did. Everything worked. Everything was O.K."

While the early arrival was in some way inconvenient, the inflow of machinery and tools of such obviously high standard injected a sense of enthusiasm into the Institute team at a time when morale might otherwise have been low.

Just as the Government-provided building was to prove well-suited to its purpose, so the U.N.D.P. equipment was generally well chosen. A small amount of advanced equipment had been supplied which would have been better suited to production than for training purposes. However, in an age when industry is universally turning to increased sophistication, the search for relatively simple items for training purposes is not always an easy one.

The I.L.O. did its shopping over a wide area of world markets. There were lathes from Sweden, universal grinders and slotting machines from the United Kingdom, drilling, planing and shaping equipment from Japan, a drying oven from the Netherlands, automotive electric equipment from Germany and laboratory equipment from Norway.

In addition to purchases with U.N.D.P. monies, the Institute also bought equipment that could be satisfactorily acquired on the local market.

The problems that occurred were generally in the field of day-to-day needs rather than in initial equipment installations. In the metal trades, for example, there was difficulty in obtaining funds for and finding supplies of suitable off-cuts of metal for training purposes. The automotive trades department, too, was hampered because it often had no old cars on which trainees could practice. One expert suggested that a remedy for this situation in any similar future project might lie in including one or two cars in their unfinished state along with other Special Fund initial equipment.

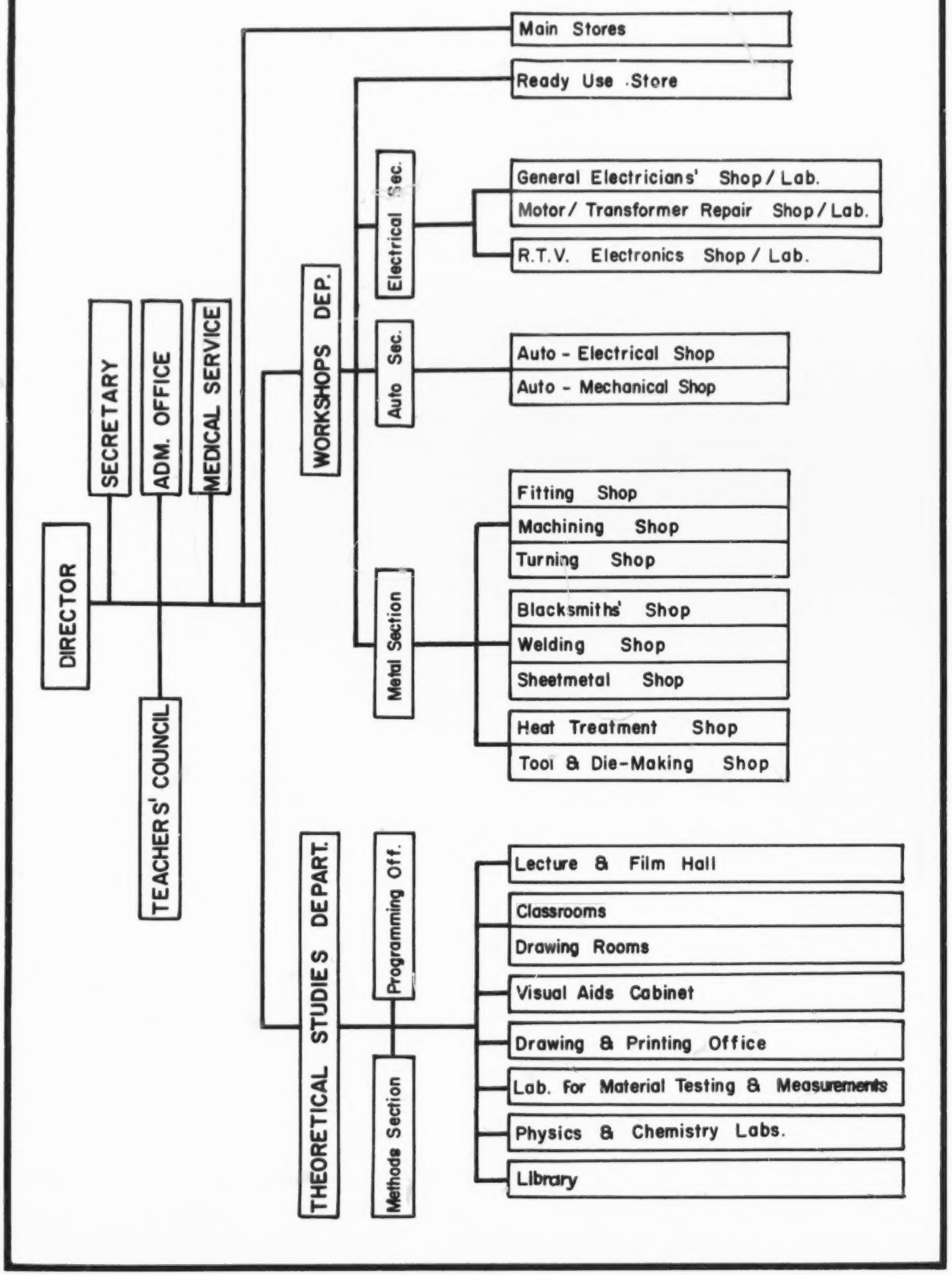
ORGANISATION OF THE INSTITUTE

Before turning to the preparation and operation of the instructor training programme it would be useful to outline in brief the organisational and administrative pattern of the Institute.

This pattern — and indeed that of the project from its inception — has followed a clear

[1] Plans of workshop layout and details of their equipment are given in Annex C.

ORGANISATION PLAN



design based on previous international experience. Broadly speaking, it consisted of a staff of international experts recruited by the I.L.O., each with a national counterpart whose task was to acquire and practise, during the project period, the knowledge and skills that would enable him to shoulder independent responsibility after the project has come to an end. This system has scored conspicuous success wherever it has been applied. In the case of the U.A.R., as in other countries, the experience has been that counterparts often in due course become experts on I.L.O. projects in other countries.

The Vocational Instructor Training Institute at El-Ameria is controlled by the Productivity and Vocational Training Department of the Ministry of Industry. The local head of the Institute is its Director, who throughout almost the entire period of the project was Mr. Hassan El Guibali. The Director was the counterpart of the Chief of Project with whom he worked very closely. The latter's task was to prepare all programmes and plans for the training of instructors and vocational training officers, to co-ordinate the work of the team of international experts and to assist in the training of senior staff for the Institute. He served as the chief adviser to the Under-Secretary for Productivity and Vocational Training of the Ministry of Industry on questions relating to the Institute.

Using this key personnel as a base, a staff organisation was established on a standard pattern. It is illustrated ~~in the chart opposite~~, p. 28

PREPARING FOR OPERATIONS

The first practical demonstration of the work that was going to be done by the Institute came with a series of seven six-month exploratory courses, the first of which began at the end of 1962. After a faltering start, when experts gave theoretical lessons that were translated by available local staff, the courses rapidly improved. These short courses in metal, automotive and electrical trades were of considerable value in many ways, even though they did not in fact turn out competent instructors. Not only did they give the team the chance to select and train instructor staff for the future Institute, but they also presented a good opportunity for the counterparts to have a first taste of their future duties in the fields of supervision and technical instruction. The courses also enabled everyone concerned to have a preview of the sort of material they would be handling — "a picture of the prospective trainee" as Dr. Mayer put it.

In this respect, too, the establishment of temporary working quarters in the Abbassia Training Centre was also proving useful. Here the project staff was able to study at first hand the conditions and methods applied to apprentice, accelerated and upgrading training in most of the trades for which the Institute would be training instructors.

As to the subjects chosen for the courses to be held in the new Institute, clear guidelines had emerged from the experience of the Productivity and Vocational Training Department. Officials of the Department, with their over-all view of apprentice training, were able to forecast with some accuracy the long-term demand for instructors in each particular trade field. Thus, with the co-operation of the I.L.O. team, a trade could be chosen with confidence. This confidence has proved justified, for the selection of courses made for the Plan of Operation has not been varied, apart from minor additions made possible by the space which was later found to be available.

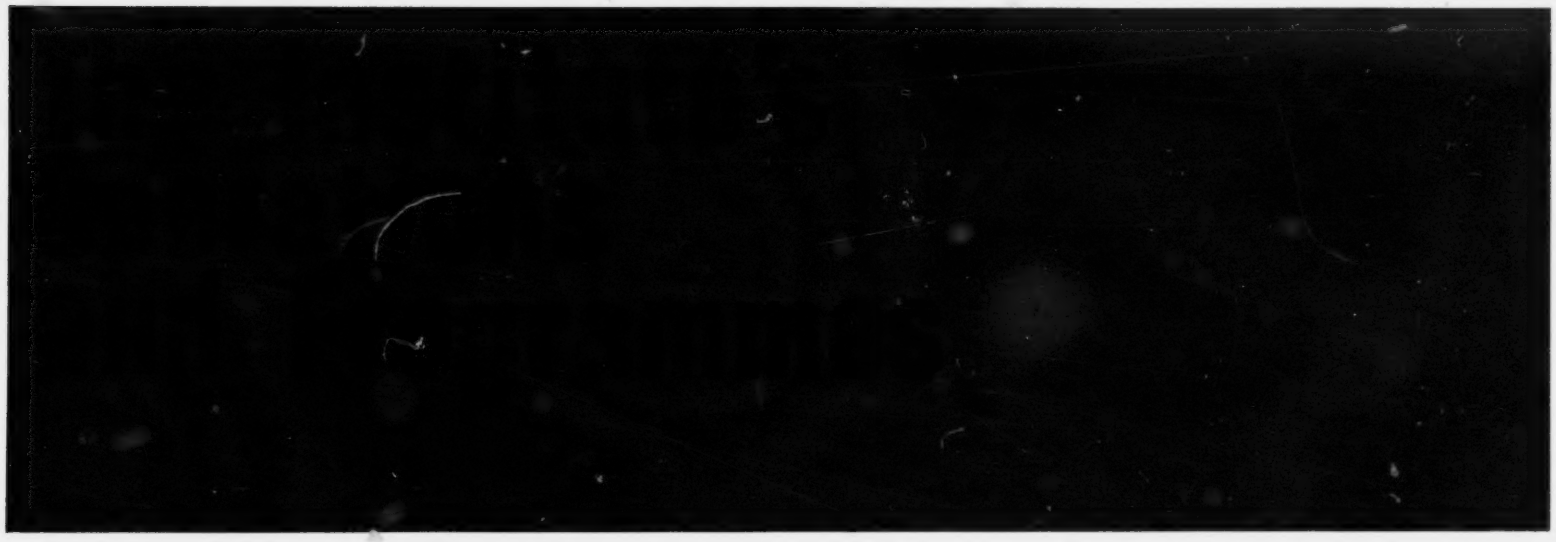
The success of the subsequent full one-year courses was due to a large extent to the way in which the lessons of the exploratory courses were learned and applied. For example, it was found that while practical training gave a satisfactory improvement in the standard of workmanship, attempts to give effective instruction in the related subjects of human relations and methods of instruction did not produce corresponding results. Adjustments were made to improve this position in the longer courses.

Most important of all, from the detailed examination given to the performance of the exploratory courses, there emerged the basic principles for the full instructor-training courses soon to be launched. Each of these courses was to last 46 weeks during a period of one year. The six-day working week would be equally divided between workshop practice

and theoretical and related instruction — thus making it possible to operate two courses concurrently and so make fullest use of staff and equipment. Training would be scheduled so that practical work would be taught concurrently with the relevant theory, each reinforcing the other. Finally, an additional three-month course would be provided to refresh pedagogical techniques and practical skills of instructors after they had served for two or three years.

These far-reaching decisions were being reached as the I.L.O. team and their counterparts — most of whom were appointed during 1963 — moved into the new Institute building in June 1964, shortly before its completion. An immediate start was made in installing equipment and furniture and final preparations were made for the inauguration of the first one-year instructor training course.

On 7 November 1964 the course opened. The years of preparation were over. The Institute, newly housed, newly equipped and almost fully staffed, became a reality.



THE TRAINING PROGRAMME

Not for the first time in the short history of industrial vocational training in the U.A.R., careful and enlightened preparation paid dividends. Although the course started late and was terminated by the advent of the holiday season in July 1965, no fewer than 79 of the 94 participants graduated. Programme content was found to be substantially sound.

For the I.L.O. team, the first course provided the final opportunity to give coaching to their counterpart colleagues, and the I.L.O. experts made the most of it. As might be expected, counterparts had some initial difficulty in adapting to what was for most of them a radically new method of conducting a course. They were quick to appreciate the new discipline imposed by the detailed scheduling of instruction and learned rapidly from demonstration lessons given by the experts and from regular round-table discussions.

Discussions among the three parties to the Plan of Operation led to the substitution of an expert in tool and die-making for one in automotive trades. The new expert arrived in January 1965 and preparations went ahead at such speed that this trade could be included in the second one-year course that started in September of that year. Agreement had already been reached to establish a radio/television section in the Institute and to appoint an I.L.O. expert in this field. The two remaining months of the ten-month extension to the project enabled these two experts to complete their assignments.

In addition to the basic instructor training course, the first course for directors of Vocational Training Centres was prepared and run during 1965 by the Deputy Director of the Institute with only minimal assistance from the international experts. All six participants graduated. During the same period, the refresher course for in-service instructors was also planned.

As this work progressed, it became apparent that more use could be made of the Institute's capacity than had been foreseen. Discussions with officials of the Ministry of Industry and the Five-Year Plan Organisation resulted in a decision to expand substantially the training programme, beginning with the 1965-66 training year. Four courses were started, more than doubling the previous intake of the Institute.

By the spring of 1966 all the I.L.O. experts — with the exception of those for tool and die-making and radio/television, who continued until June — had completely relinquished their functions to their national colleagues and had left the U.A.R. The national staff, in the words of Dr. Mayer, had all "proved, by their ability to work independently and to produce detailed syllabi and teaching aids, that they had derived real benefit from their association with their international colleagues".

The structure and content of the three types of courses — basic instructor training, courses for directors and technical supervisors, and refresher courses for instructors — are worthy of closer inspection. Their design is

in itself a testimony to the expertise of the men who created them.

INSTRUCTOR TRAINING

Candidates for the basic one-year (46-week) course of instructor training must have completed a secondary industrial school education or three years of apprenticeship training (or some equivalent) and have five years' experience as craftsmen. They must pass an entrance examination and survive the first two probationary months at the Institute.

The course is divided into three phases. First comes an eight-week introductory period during which the trainee is given a grounding in the skills common to a wide range of trades. He spends alternate days in the workshops learning manual and machine skills, as well as forging and heat treatment. At the same time, classroom instruction in general technology, technical drawing and mathematics helps to refresh the trainee's basic trade knowledge and prepares him for the work that lies ahead. A series of instructional films and general lectures is given, with the aim of stimulating interest in the coming main part of the course. The first phase ends with a test which determines the knowledge acquired and also acquaints the trainee with the Institute's examination procedures.

Next comes the trade and instructor training phase. This lasts 33 weeks — the longest and most important part of the course. Emphasis is placed on shop practice. The trainee starts with simple trade operations under close supervision. This helps to remove bad work habits which the trainee may have acquired through unsatisfactory trade training or may have picked up subsequently. Practical work on the shop floor is supported by related theoretical lessons in special grade technology (two hours per shop-floor day), general trade instructing techniques, and special trade instructing techniques (four hours a week). This method ensures a correlation of the future instructor's practical and theoretical teaching techniques. Laboratory exercises, shop demonstrations, instructional films and visits to factories provide further theoretical guidance. The practical aspects of theoretical learning are constantly underlined. Thus, trainees are encouraged to translate their machine instruction manuals into Arabic, as soon as possible after English-language instruction.

Particular stress is placed on developing the classroom techniques of the instructor-trainees. During the special trade instruction lessons a system of mutual aid is used to teach the art of instruction. Trainees are divided into groups of three or four, each in rotation playing the role of instructor — and having his efforts criticised by his colleagues. This not only encourages trainees to prepare their material well in advance, but it also serves to overcome the natural self-consciousness of men who are relative newcomers to the trials of the classroom. The trainee prepares his lessons unaided, deciding himself on their aims, content, duration and the aids to be used.

To support these basic themes of instruction there is a wide range of ancillary activity aimed at widening the outlook of the trainees. Experiments, playlets, lectures, planned visits and demonstrations are all used to this end. Instruction in industrial psychology and shop safety, training in first aid and two intermediate tests complete the content of phase two.

The remaining five weeks of the 46-week course are devoted to practical instruction by the trainee and to final examinations. The teaching practice, which covers three weeks, is carried out in the Vocational Training Centres where the great majority of the instructor-trainees will find their future careers. It is performed according to a strict time-table and is supervised by Institute staff.

The trainee then moves on to two weeks of review and his final examinations at the Institute. These terminal examinations are very wide-ranging and include shop tests. The final evaluation of the trainee takes into account the results of all tests and his performance in practice instruction at the training centre.

Over-all preparation of the course was planned in close co-operation with officials of the Vocational Training Centres whose instructional needs the Institute is primarily designed to meet. Full attendance by trainees of 36 hours per week is expected throughout.

REFRESHER COURSES

To back up the one-year course, the Institute has introduced 12-week upgrading and refresher courses for those who have not had the opportunity of attending the full-year course. As the network of Vocational Training Centres completes its planned expansion, these shorter courses will increase in importance. The intention, of course, is to broaden and increase the trade knowledge of existing instructors and to raise their proficiency. In addition, the course pays particular attention to improving the more esoteric arts of instruction — classroom techniques and trainee evaluation.

About two-thirds of instruction time is allotted to shop practice and to improving shop instruction methods. In the shops, job sheets (taken from Training Centre courses and special Institute exercises), operation sheets, step-by-step procedure sheets and information sheets are used to assist the development of practical abilities.

To test the instructor's ability to pass on his knowledge to his trainees, apprentices from Vocational Training Centres are brought to the Institute for practice sessions. Instructors operate in pairs. Each man prepares and carries out four courses and has these subjected to critical analysis by his partner. This procedure serves to emphasise the fact that in the refresher courses the accent is on instruction by participation rather than by lecture. Visits to factories and the more successful Vocational Training Centres also help in providing this emphasis.

The fact that instructors face the same test on entry to and exit from the course serves a double purpose. Not only does the man have the psychological advantage of recording the progress he has made, but the Institute also has a constant check on the effectiveness of its own instruction.

ILO Chief of Project (right) congratulating the Director of the Institute on the taking over of responsibilities by local staff.

COURSES FOR DIRECTORS AND TECHNICAL SUPERVISORS

Obviously the formation of able instructors is of little use unless the administrative side of the training centres is capable of good management. For this purpose the Institute has established courses designed to give Training Centre directors and technical supervisors the necessary knowledge for their tasks. Each course calls for part-time attendance over a period of three months: 24 hours a week for supervisors and 12 hours for directors.

Naturally enough, the technical supervisors' course lays stress on workshop techniques and aims to help supervisors to cultivate the combined abilities of leader and adviser which they must develop. For directors, the emphasis is much more on management techniques.

In both cases, the trend already evident in the one-year and refresher courses for self-help instruction has progressed much further. Classroom lectures are prefaced or followed by discussions, reports on selected problems, and a general exchange of opinions and experience of actual Training Centre operation. Participants are encouraged to give lectures to their fellow "students" and are given a wider insight into vocational training through visits to Centres. There is no final examination but participants are required to keep up regular attendance and co-operate actively during their course.

COURSES FOR DRAUGHTSMEN AND STOREMEN

One additional field of training remains now to be examined. Although the Plan of Operation did not envisage training for draughtsmen and storemen, the capacity of the building has permitted the addition of courses for these trades.

The draughtsmen's course lasts for 40 weeks, attendance being on a part-time basis for four hours a day, three days a week. Instruction covers theory in: basic geometry and drawing standards; fits and tolerances, and the fundamentals of production engineering; and practice in drawing, sketching and the reading of drawings, the preparation of shop drawings and simple assembly drawings.

Storemen, on the other hand, attend the Institute for only three weeks — also four hours a day. To qualify for the course, they must have a certificate of a Secondary Industrial School. They must also have two years' practical experience. They have lectures on and exercises with basic engineering materials, practice in simple methods of material determination and handling, exercises in the Institute's materials testing laboratories and practice in distinctive painting for the coding of materials to U.A.R. standards.

PERSONNEL

In this project, as in all others, it was people who made the difference between success or failure. Working in co-operation with a team of enthusiastic U.A.R. nationals were 15 experts recruited by the I.L.O. from ten countries: Austria, Brazil, Canada, the Federal Republic of Germany, Norway, Poland, Sweden, the U.K., U.S.A. and the U.S.S.R. They served on the project for a total of nearly 400 man-months. Considering that few of them had previous experience of working on a project of this kind, the morale of the team was high and its practical effectiveness considerable.

The national staff who worked alongside these experts can be divided into two categories: counterparts to the I.L.O. staff, who were generally appointed as trade supervisors responsible for overseeing the practical training and for giving the related theoretical instruction; and workshop instructors, solely responsible for this aspect of the training activity. The latter were largely recruited from the staffs of the Vocational Training Centres, although some were selected from among the participants in the earlier short courses held by the Institute. They were given further practical training by I.L.O. staff and theoretical training by counterparts and rapidly settled down to their duties.

Initially, someof the trade supervisors show-

ed less interest in the practical work of the Institute than was desirable, probably as a result of the theoretical orientation of their previous studies and experience. Most of them overcame this handicap to their credit, however, and took a growing interest in the practical side of their responsibilities.

FELLOWSHIPS

Although the use of experts recruited internationally serves to inject new thinking into the workforce benefitting from a project such as this one, there remains a need for the nationals involved to gain some of this experience by means of study overseas. For this purpose a fellowship scheme is employed.

In the case of the U.A.R. Institute, it was initially envisaged that there would be 11 such fellowships, but this was later expanded to 14, at a total cost of $33,000, each one of six months' duration. It was agreed between the Government authorities and the I.L.O. that only permanent Institute staff who had worked on the project for at least a year would qualify. The actual place and form of the fellowships was prepared by I.L.O. Headquarters and designed to suit the needs of each fellow personally.

For example, Mr. Hassan El Guibali, Director of the Institute and counterpart to Dr. Mayer, the Chief of Project, was awarded a fellowship to the British instructor training institutes at Letchworth and Loughborough, and various other institutions and industrial enterprises. Mr. Mustafa K. S. Nabhan (automotive trades, mechanics section) went to the United States for six months; two of these were spent in a college of technology, two in a motor production plant and the remaining two in visual aid centres and training establishments. The programme for Mr. Abdel Samieh T. Badie (vocational training) was an international one; it included study visits to steelworks at Rheinhausen, Federal Republic of Germany, an instructor training college in the United Kindgom, L'Institut des Arts et Métiers in Switzerland, and the Machine Industry Training Institute in Budapest, Hungary. Other fellowships were on similar lines.[1]

One drawback of the fellowship system was that it withdrew essential personnel at the very time when they were of the greatest importance to the Institute's development. In some cases, too, further coaching was required on the counterparts' return to integrate their new learning into the practical realities of the Institute.

All national staff who pursued fellowship studies benefitted from them. Quite apart from their practical advantages, the fellowships proved of psychological value in that they boosted the morale of the counterparts, particularly as a fellowship was granted only where the recipient's work performance had indicated that it would be of some use. In their role as incentives the fellowships stimulated individual efforts to improve performance.

[1] For full details see Annex F.

ACHIEVEMENTS OF THE INSTITUTE

In June 1966, the joint I.L.O./U.N.D.P. project came to an end. The Vocational Instructor Training Institute and its equipment were handed over to the Government of the United Arab Republic. The Productivity and Vocational Training Department, now under the Director Generalship of Mr. Mokhtar El Zeini, took complete responsibility for its future.

It is not feasible to attempt an evaluation of the project in terms of its impact on the country's economy so soon after its termination. But it is possible to record the principal achievements of its training courses to date and to calculate the effect they are having on vocational training in the U.A.R.

Up to the end of June 1966 a total of 991 persons had successfully completed the various types of training courses staged by the Institute. Of these, 744 were instructors and assistant instructors. The remainder comprised directors and supervisors (14), foremen (46), inspectors (37) and automotive workers and technicians in industry (150). Bearing in mind that the first one-year course began as late as the end of 1964, the Institute has certainly surpassed the objective of making available 488 training places annually, as originally laid down in the Plan of Operation.

As each instructor in the Vocational Training Centres can train 15 trained apprentices annually, or 24 accelerated or upgrading course graduates, the cumulative effect of the Institute's output is considerable. With an assured source of instructors now available, the growing network of Vocational Training Centres can begin to apply its facilities single-mindedly to the task of turning out the skilled craftsmen industry needs to maintain its planned growth rate. By mid-1965, the scheme had already supplied nearly 13,000 trained men for the industrial labour force: 4,360 from the apprenticeship courses, 7,049 from accelerated training, and 1,397 from upgrading training.

In May 1966, an additional 10,180 trainees were attending courses in the Government Centres — now totalling 35 — and 1,756 were undergoing instruction in 12 Centres in industry. All Centres together employed approximately 750 instructors.

These figures reflect the impressive achievements of the project. Vocational training has come a long way indeed in the 12 years that have elapsed since the signing of the first Agreement between the Government and the I.L.O.

EXPERIENCE ACQUIRED

The experience gathered in a project of this magnitude is very wide indeed. But perhaps the most important lesson to be learned from this particular operation concerns its planning. The impact of the project would have been greater had it been designed to fall in two phases: the first for planning and preparation, the second for full implementation. Such an approach would have permitted better use of

expert services and perhaps enabled courses to start earlier. Of course, certain difficulties inherent in both planning and implementation of this project did result from delays which could not be foreseen. Nevertheless, the experience can be profitably borne in mind when future projects of this type are under consideration.

The Institute building, as has been noted, can be regarded as a model of its kind. One can argue, however, that a less ambitious structure — with allowances for future extension — could have been erected more rapidly and would have come into use for basic instructor training at an earlier date.

On the I.L.O. side, the experience acquired in this project, one of the first undertaken by the Organisation in co-operation with the United Nations Development Programme, is readily being put to good use in other projects through the world. One of the lessons learned is the need to build up a *corpus* of experts who, in moving from project to project, have acquired the special skills and insights required for work in an international team. This lesson has obvious advantages both for recruitment and for easing the adjustment problems of experts once they are on assignment.

CONSOLIDATION AND EXPANSION

The administration of the Institute is placed in the hands of the Productivity and Vocational Training Department of the Ministry of Industry, which is responsible for the national vocational training scheme as a whole. The arrangement works well. The Institute has the benefit of the administrative machinery and experience established over the years by the Department, and enjoys a special status in the scheme by virtue of its high standards of teaching, organisation, maintenance and administration.

In order to maintain its prestigious position, the Institute, apart from preserving its present standards, will doubtless be required to develop new initiatives. One avenue by which these may be approached would be through special committees set up for various trades and industries for the promotion of constant interchange of ideas and experience. Such committees should include directors of Training Centres, trade supervisors, training officers from industry and other groups with common interests.

While attention to such details as maintenance, housekeeping and the provision of training materials is important if the Institute's present high level of efficiency is to be maintained, on the broader plane a number of measures for the greater and more effective use of the Institute merit consideration.

One major need is to expand the training programme in order to make fuller use than at present of the building and equipment facilities available. Such expansion will require additional instructors and trade supervisors. The former can be recruited from the Training Centre staffs and from industry and given further training in preparation for the job. As to the recruitment of trade supervisors, it would be advisable to look to young engineering graduates from the universities. Men recruited from this source could first serve as understudies to the present supervisors and receive in-service training.

Furthermore, as the outstanding needs of Training Centres for instructor staff are met, the Institute could profitably explore new areas of training. With this end in view, the facilities of the Institute should be well publicised throughout industry. Various possibilities for such a widening of horizons present themselves. They include the extension of instructor training to technical fields not at present covered; specialised technical and vocational training for foremen, and training of foremen and supervisors who would be responsible for in-plant training of workers. The Institute could also usefully aim for a standardisation of terminology and training syllabi for the U.A.R. and give leadership and guidance in the general improvement of standards of workmanship.

In the long term, it is vital that the Institute's role in industrial development be kept under regular review and its programme modified where necessary to correspond to changing conditions. As industry in the U.A.R. grows in size and complexity the services of a highly trained force of technicians will become increasingly in demand. It is normally the

technician's job to ensure, through careful planning, the optimum employment of skilled labour, the efficient use of machinery and the improvement of product design. Serious consideration could therefore be given to the introduction in due season of technician training in the programme of the Institute. Its facilities are basically suitable for this purpose.

Similarly, the Institute would seem the likely place to organise specialised courses for instructors and workers in certain techniques that are destined to be in increased demand as industry advances. These might include materials testing, certain advanced welding techniques, precision grinding and specialised heat treatment. Such activities would be entirely in keeping with the Institute's role.

* * *

This account of the project for the establishment of the Vocational Instructor Training Institute at El-Ameria now concludes. But I.L.O. co-operation still continues with the Government of the U.A.R. in the completion of the national vocational training scheme which the Institute was created to serve. The targets of that scheme have in the meantime been raised yet again: by the end of the second Five-Year Plan in 1970, it is anticipated that the U.A.R. will have at least 61 Training Centres in operation, capable of accepting nearly 14,000 apprentices a year. The total number in training at any one time will exceed 40,000.

A hard road has been travelled and the end has not yet been reached. But in calling upon international facilities made available through the United Nations Development Programme and the I.L.O., which by its own contributions it helps to maintain, the U.A.R. has equipped itself to complete the distance. Goals which it dared to set a decade ago are now within the bounds of attainment.

Annexes

A.	Plan of Operation (with Revised Plan of Expenditure).	Page 44
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Annex A

PLAN OF OPERATION

FOR THE ESTABLISHMENT AND INITIAL OPERATION OF A VOCATIONAL INSTRUCTOR TRAINING INSTITUTE IN THE UNITED ARAB REPUBLIC, EGYPTIAN REGION, AGREED BETWEEN THE UNITED ARAB REPUBLIC, THE INTERNATIONAL LABOUR ORGANISATION AND THE SPECIAL FUND OF THE UNITED NATIONS

Special Fund Allocation:	$830,700[1]
Government Contribution: (equivalent of)	$585,586
Duration:	4 Years
Executing Agency:	International Labour Organisation
Co-operating Government Agency:	Productivity and Vocational Training Department, Ministry of Industry

[1] This figure includes Government's payment towards local operating costs.

For the purpose of establishing a Vocational Instructor Training Institute to be undertaken by the International Labour Organisation acting as the executing agency for the United Nations Special Fund, this Plan of Operation shall be the Plan of Operation provided for in Article I, paragraph 2, of the Agreement signed on 25 November 1959 by the Government of the United Arab Republic and the United Nations Special Fund.

I. PURPOSE AND DESCRIPTION

Purpose

1. The purpose of this project is to assist and advise the Government of the United Arab Republic in establishing a Vocational Instructor Training Institute in Cairo, United Arab Republic. The Institute is expected to meet the expanding needs for instructors and training officers for the present Vocational Training Centres of the Government, for a considerable number of Vocational Training Centres to be opened in the future and for industrial establishments.

Description

2. This project provides for the following:

(a) Theoretical and practical instruction in the respective trades and within the specific field of training (apprenticeship, accelerated training, upgrading training) for:
  (i) existing instructors who are in need of further training;
  (ii) candidates for instructor posts.

(b) Regular refresher courses for instructors in order to keep them up-to-date with the latest methods of industrial production, training and teaching.

(c) Courses for training officers and their assistants with theoretical and practical instruction in the respective trades and fields of training. This will include organisation and management of Training Centres and instructing and teaching techniques.

3. Sources for recruitment will be:

(a) Instructors already in service in the Training Centres of the Government and in industry.

(b) Workers in industry with a good general education and sufficient practical experience.

(c) Graduates from the technical schools with some experience in industry.

(d) Graduates from the present apprenticeship training scheme with some experience as journeymen in industry.

4. Length of courses will be from 3 – 12 months depending on the type of trainees concerned.

5. The capacity of the Institute will be 212 trainee instructors and training officers, distributed as follows:

	Number per year	Length of courses in months	Places occupied per course
Instructors for Government Training Centres	90	12	90
Instructors for Training Centres in industry	25	12	25
Training officers for Government Training Centres	15	3	5
Training officers for Training Centres in industry	8	3	2
Refresher and upgrading courses for instructors in Government Training Centres	150	3	40
Refresher and upgrading courses for instructors for Training Centres in industry	200	3	50
	488	36	212

6. The Institute will have no workshops for the textile, printing, building, glass and leather trades. Therefore, for these trades theoretical training will be provided by the Institute, while for practical training facilities in the respective Government Training Centres will be made available.

II. WORK PLAN

A. Participation and Contribution of the Special Fund

The Special Fund will provide the following through the executing agency:

7. Experts

The following international teams of experts will be recruited in accordance with detailed job descriptions and established procedures and their services be made available for a total of 360 man months:

	Man months per expert	Total man months
One Chief of Mission	48	48
Four experts for:		
(a) Principles of teaching for trade instructors	42	42
(b) Apprenticeship training	30	30
(c) Accelerated training	30	30
(d) Upgrading training	30	30

The experts listed in (b), (c) and (d) above should, between them, have specialised knowledge of the metal, automotive and electrical trades.

Six expert instructors for:		
(e) Metal trades (3)	30	90
(f) Automotive trades (2)	30	60
(g) Electrical trades	30	30
Total man months		360

Details of the proposed duration of assignment in each phase are given in Table I.

8. Fellowships

The executing agency will arrange for the U.A.R. staff to study abroad the work in institutions dealing with training of instructors and training officers in the various fields of training for a total of 66 man-months.

Fellowships awarded under this Plan of Operation shall be administered in accordance with the fellowship regulations of the executing agency.

9. Equipment

The executing agency will purchase for the Instructor Training Institute equipment, tools and technical books required from abroad to a cost c.i.f. of not exceeding $ 250,000 on the basis of lists to be agreed between the Government and the executing agency.

B. **Participation and Contribution of Government**

10. **Equipment, Materials and Supplies**

The Government will provide:

(a) such equipment, including office equipment as may be required in addition to the equipment to be supplied by the Special Fund;

(b) materials, supplies, postage, stationery, periodicals, water, power and other miscellaneous items.

11. **Local Staff**

The Government will provide the necessary technical counterpart personnel for each of the international experts as of the date of their arrival at the duty station. The Director of the Institute will be the counterpart of the Chief of Mission.

The Government will also provide an adequate number of technical, administrative, clerical and other staff.

12. **Staff and Facilities for the International Experts**

The Government shall supply for the duration of the stay of the international experts:

(a) for the Chief of Mission a fully qualified secretary with ability to take dictation and type in the expert's working language;

(b) for the experts, two fully qualified secretaries;

(c) interpreters where necessary;

(d) translators, qualified to translate technical texts from the experts' language into Arabic as required;

(e) for the Chief of Mission, a fully equipped office, including facilities for holding small meetings;

(f) for the experts, adequate office space, including facilities for preparing drawings and plans.

13. **Local Operating Costs**

With reference to the payments to be made by the Government under Article V, paragraphs 1(a) and 2(d) of the Agreement referred to in the preamble to this Plan of Operation, excepting the cost within the country for transportation of project supplies and equipment, which is a counterpart contribution, the Government shall pay to the Special Fund the equivalent of U.S. $69,000 at the United Nations operating rate of exchange in effect at the time of payment towards local operating costs. This amount represents 15 per cent. of the total estimated cost to the Special Fund of foreign project personnel. The above amount shall be deposited by the Government to the credit of the Special Fund account at the Banque Misr, 151 Rue Mohammed Bey Farid in Cairo, Egyptian Region, in accordance with the following schedule:

Equivalent of U.S. $3,690 on signature of Plan of Operation
Equivalent of U.S. $22,845 on 1 January 1962
Equivalent of U.S. $25,020 on 1 January 1963
Equivalent of U.S. $15,480 on 1 January 1964
Equivalent of U.S. $1,965 on 1 January 1965

Payment of the above amounts on or before the dates specified above, is a prerequisite to operation.

14. **Supply of Records, Data, etc.**

The Government will make available to the international staff full information in regard to the organisational structure and practices in operation, or proposed within the Productivity and Training Department responsible for this project. The Government will arrange for the experts' visits to Government Training Centres and Training Centres of industry and industrial establishments, in which they may study:

— the conditions under which training is carried out;

— the conditions of work, operations and methods of the workers to be trained as instructors.

15. **Cost of Freight of Equipment within the Country**

The Government shall meet the cost of clearance of project equipment, its transportation, insurance, handling and storage within the country and related expenses.

C. **Sequence of Operations**

16. The executing agency undertakes the following schedule subject to delays beyond its control in providing the expert service called for in this Plan of Operation:

Experts

To arrive by 1 July 1961:
One Chief of Mission (48 months).

To arrive by 1 October 1961:
One expert for principles of teaching for trade instructors (42 months).
One expert for apprenticeship training (30 months).
One expert for accelerated training (30 months).
One expert for upgrading training (30 months).

To arrive by 1 January 1962:
Two expert-instructors for metal trades (30 months).
One expert-instructor for automotive trades (30 months).
One expert-instructor for electrical trades (30 months).

To arrive by 1 July 1962:
One expert-instructor for metal trades (30 months).
One expert-instructor for automotive trades (30 months).

D. **Organisation**

17. The administration of the Institute on behalf of the Government of the U.A.R. will rest with the Under-Secretary for Productivity and Vocational Training, Ministry of Industry.

18. The local head of the Institute will be the Director, to whom certain administrative powers will be delegated by the Under-Secretary in accordance with normal Government practices. The Director of the Institute will also be the designated counterpart of the Chief of Mission and will keep him fully informed of the arrival of all equipment, tools and materials provided under this Plan of Operation. Major decisions will be taken by the Director after consultation with the Chief of Mission.

19. The Chief of Mission will act also as chief adviser to the Under-Secretary for Productivity and Vocational Training in matters concerned with the planning and operation of the Institute.

20. The Chief of Mission is the responsible chief of the international team, and all questions relating to the work of the team as a whole, to that of groups, or that of individual team members, will be dealt with through him. He will co-ordinate the work of the team and report on the progress of work done by him, and by members of the team to the executing agency, head office, from where he will receive, as necessary, instructions relating to his work and that of the team.

III. BUDGET

21. In addition to the services and facilities described in Section II-B above (paragraphs 10 to 12 inclusive), which shall be provided in kind to the project by the Government, and estimated to cost a total of £E 260,000 (the equivalent of U.S. $585,586) as detailed in Table II, the estimated total cash project budget amounting to the equivalent of U.S. $830,700 will consist of the following:

(a) the gross cost of experts, fellowships, equipment and miscellaneous expenses, described in Section IIA above (paragraphs 7 to 9 inclusive) to be met by the Special Fund and amounting to an estimated total of U.S. $763,000 which includes an amount estimated at the equivalent of U.S. $69,000, representing cash payments in local currency to be made by the Government to the Special Fund towards local operating costs described in paragraph 13 above (see Table III);

(b) the overhead costs of the executing agency in the amount of $67,700 to be met by the Special Fund (see Table I).

IV. REPORTS TO SPECIAL FUND

22. The Government and the executing agency jointly shall submit to the Special Fund at the end of each calendar year a certified inventory of equipment purchased with the funds allocated by the Special Fund.

Within three months following the conclusion of project operations the executing agency will submit a final comprehensive report on the project to the Managing Director for presentation to the Government.

V. CONCLUSION

23. Representatives of the executing agency and the Special Fund including the Resident Representative of the United Nations Technical Assistance Board, may visit the project at any time in order to assess its progress and to discuss its development with the experts or Government authorities.

24. If, in the course of implementation of the project, one or more of the parties concerned consider revision of this Plan Operation necessary, such revision will be discussed by the three parties concerned and no change shall be made unless all three agree upon it and necessity of it.

25. At the successful conclusion of the project, the Government, the executing agency and the Special Fund will consult with a view to transferring the title to the equipment from the Special Fund, in whose name it has been held by the executing agency, to the Government or agency nominated by the Government.

Agreed on behalf of the parties, by the undersigned:

AZIZ SIDKY	B. F. OSORIO TAFALL	MOHAMMED AZIZ EL MARAGHI
Government of the United Arab Republic	United Nations Special Fund	International Labour Organisation

Table I

UNITED ARAB REPUBLIC — VOCATIONAL INSTRUCTOR TRAINING INSTITUTE
U.N.D.P. ALLOCATION
(U.S. Dollars)

Post No.	Description	Total Man-Months	Total project costs	Estimated cash disbursement											
				1961		1962		1963		1964		1965		1966	
				Man-Months	Cost	Man-Months	Cost	Man-Months	Cost	Man-Months	Cost	Man-Months	Cost	Man-Months	Cost
	1. Experts														
1.	Chief of Project	45	60,413	3	4,600	4	5,400	12	14,200	12	14,900	12	16,900	2	4,413
2.	Expert—Principles of Teaching	55	70,731	3	3,610	12	13,300	12	15,800	12	14,200	12	16,000	4	7,821
3.	Expert—Apprenticeship Training	42	47,000	—	—	9	10,500	12	11,700	12	11,700	9	13,100	—	—
4.	Expert—Accelerated Training	25	28,671	—	—	—	—	—	—	10	10,303	9	10,100	6	8,268
5.	Expert—Upgraded Training	14	16,500	—	—	3	4,900	11	11,600	—	—	—	—	—	—
6.	Expert-Instructor—Metal Trades	37	37,500	—	—	2	2,100	12	11,500	12	11,300	11	12,600	—	—
7.	Expert-Instructor—Metal Trades	30	32,500	—	—	—	800	12	12,900	12	11,400	6	7,400	—	—
8.	Expert-Instructor—Metal Trades	13	14,301	—	—	—	—	1	1,600	3	3,200	9	9,500	—	—
9.	Expert-Instructor—Automotive Trades	35	41,308	—	—	—	1,200	12	12,100	12	13,800	11	11,900	—	2,308
10.	Expert-Instructor—Automotive Trades	12	15,454	—	—	5	8,954	7	6,500	—	—	—	—	—	—
11.	Expert-Instructor—Electrical Trades	35	38,277	—	—	—	600	12	11,047	12	12,200	11	13,000	—	1,430
12.	Expert-Instructor—Tool and Die-Making	18	22,343	—	—	—	—	—	—	—	—	12	13,341	6	9,002
	Consultants	3	2,551	—	—	—	—	—	—	1	479	1	1,734	1	338
	Total: Experts	364	427,549	6	8,210	35	47,754	103	108,947	98	103,482	103	125,575	19	33,581
	2. Fellowships														
	14 of 6 months each and 1 of 3 months	87	36,659	—	—	—	—	—	—	43	19,941	13	3,499	31	13,219
	3. Equipment														
	Equipment		238,518		—		68,219		106,921		28,046		15,573		19,759
	Cost of Final Report		5,000		—		—		—		—		—		5,000
	Total: Equipment		243,518		—		68,219		106,921		28,046		15,573		24,759
	4. Miscellaneous														
	Secretarial and Translation Services		8,626		—		—		1,340		1,864		3,894		1,528
	Postal and Telecommunications		278		2		21		4		75		176		—
	Contingencies		2,801		—		—		—		—		787		2,014
	Total: Miscellaneous		11,705		2		21		1,344		1,939		4,857		3,542
	Total gross project costs		719,431		8,212		115,994		217,212		153,408		149,504		75,101
	5. Executing agency overhead costs		77,900		4,000		22,000		25,000		15,000		11,600		300
	6. U.N.D.P. direct costs		—		—		—		—		—		—		—
	U.N.D.P. allocation		797,331		12,212		137,994		242,212		168,408		161,104		75,401

Table II

U.A.R. — VOCATIONAL INSTRUCTOR TRAINING INSTITUTE
Plan of Expenditure
GOVERNMENT'S COUNTERPART CONTRIBUTION IN KIND AND ESTIMATED COST
(Government's financial year starts on 1 July and ends on 30 June)

Item	Period Man-Months	Total Cost Egyptian £	Estimated cash disbursements				
			Year 1 (1961)	Year 2 (1962)	Year 3 (1963)	Year 4 (1964)	Year 5 (1965)
1. Professional Staff							
Director	48	3,600	450	900	900	900	450
Assistant Director	42	2,100	262	525	525	525	263
Technical and Design Office Staff							
Course Planning, Selection, Instruments, Material, Library, Design, Drawing Office	270	14,000	1,750	3,500	3,500	3,500	1,750
Metal Trades Section (15 staff)	608	20,300	—	5,800	5,800	5,800	2,900
Electrical Trades Sect. (10 staff)	390	13,000	—	3,710	3,710	3,710	1.870
Automotive Trades Sect. (7 staff)	280	10,000	—	2,860	2,860	2,860	1,420
Miscellaneous Trades (10 staff)	390	13,000	—	3,710	3,710	3,710	1,870
General Teaching (7 Staff)	252	6,000	—	1,715	1,715	1,715	855
Sub-Total	2,200	82,000	2,426	22,720	22,720	22,720	11,378
2. Clerical Staff (20 Staff)	720	18,000	1,200	4,800	4,800	4,800	2,400
Total Staff Cost	3 000	100,000	3,662	27,520	27,520	27,520	13,778
3. Equipment and Supplies							
Tools and Equipment purchased locally		10,000	5,000	2,000	2,000	1,000	—
Teaching Materials, Water, Electricity, Materials and Service		100,000	—	28,570	28,570	28,570	14,290
4. Miscellaneous							
Value of Land		20,000	20,000				
Value of Building		30,000	20,000	10,000			
Total estimated cost of counterpart contribution in kinds		260,000	48,662	68,090	58,090	57,090	28,068
Total estimated cost of counterpart contribution in kind expressed in U.S. Dollar equivalent		$585,586	109,600	153,356	130,833	128,581	63,216

The above figures being estimated costs are liable to change in accordance with conditions and needs during the course of the project. The Government agrees, however, that the sum of not less than £E260,000 will be expended as its counterpart contribution during the period of Special Fund assistansle.

Table III

UNITED ARAB REPUBLIC — VOCATIONAL INSTRUCTOR TRAINING INSTITUTE
(Equivalent in U.S. Dollars)

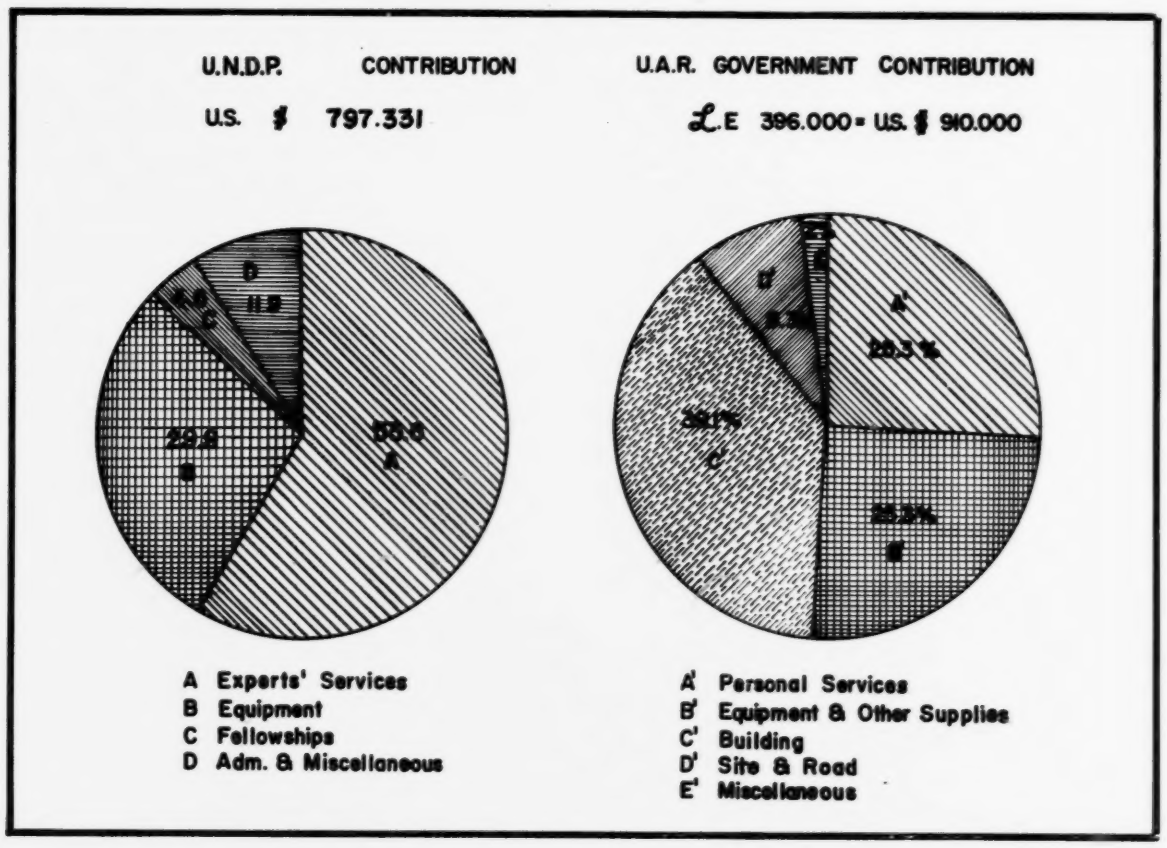
	Total	1961	1962	1963	1964	1965
Counterpart Contribution in Kind (Table II)[1]	585,586	109,600	153,356	130,833	128,581	63,216
Payment in Cash for Local Operating Costs[2]	69,000	3,690	22,845	25,020	15,480	1,965
Total Government Contribution	654,586	113,290	176,201	155,853	144,061	65,181

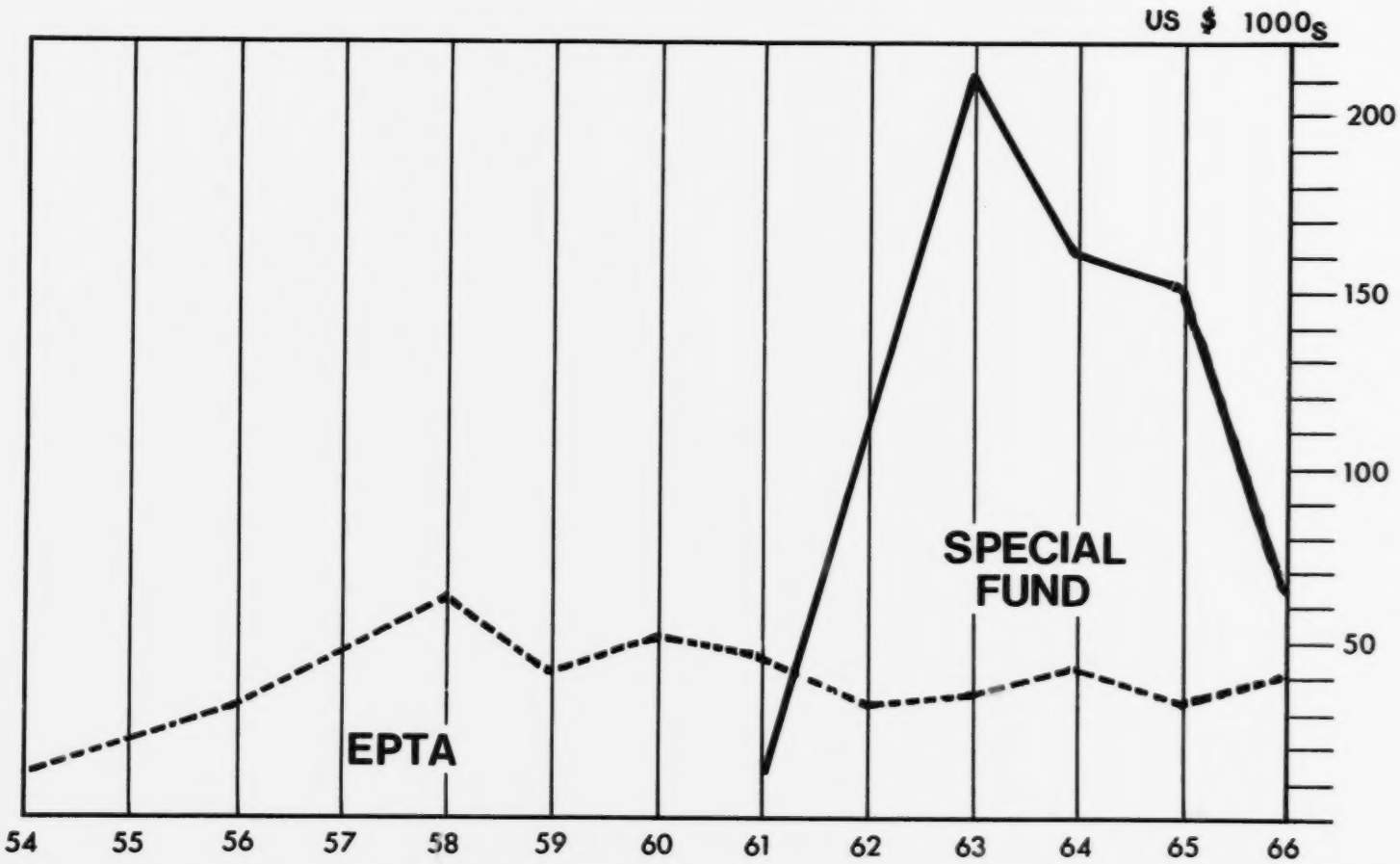
[1] These amounts have been calculated at the prevailing United Nations operating rate of exchange of one U.S. dollar = .444 Egyptian £.
[2] These amounts are payable in local currency at the U.N. operating rate of exchange on the date of payment.

Annex B

BREAKDOWN OF GOVERNMENT AND U.N.D.P. FINANCIAL CONTRIBUTIONS

PROJECT EXPENDITURES





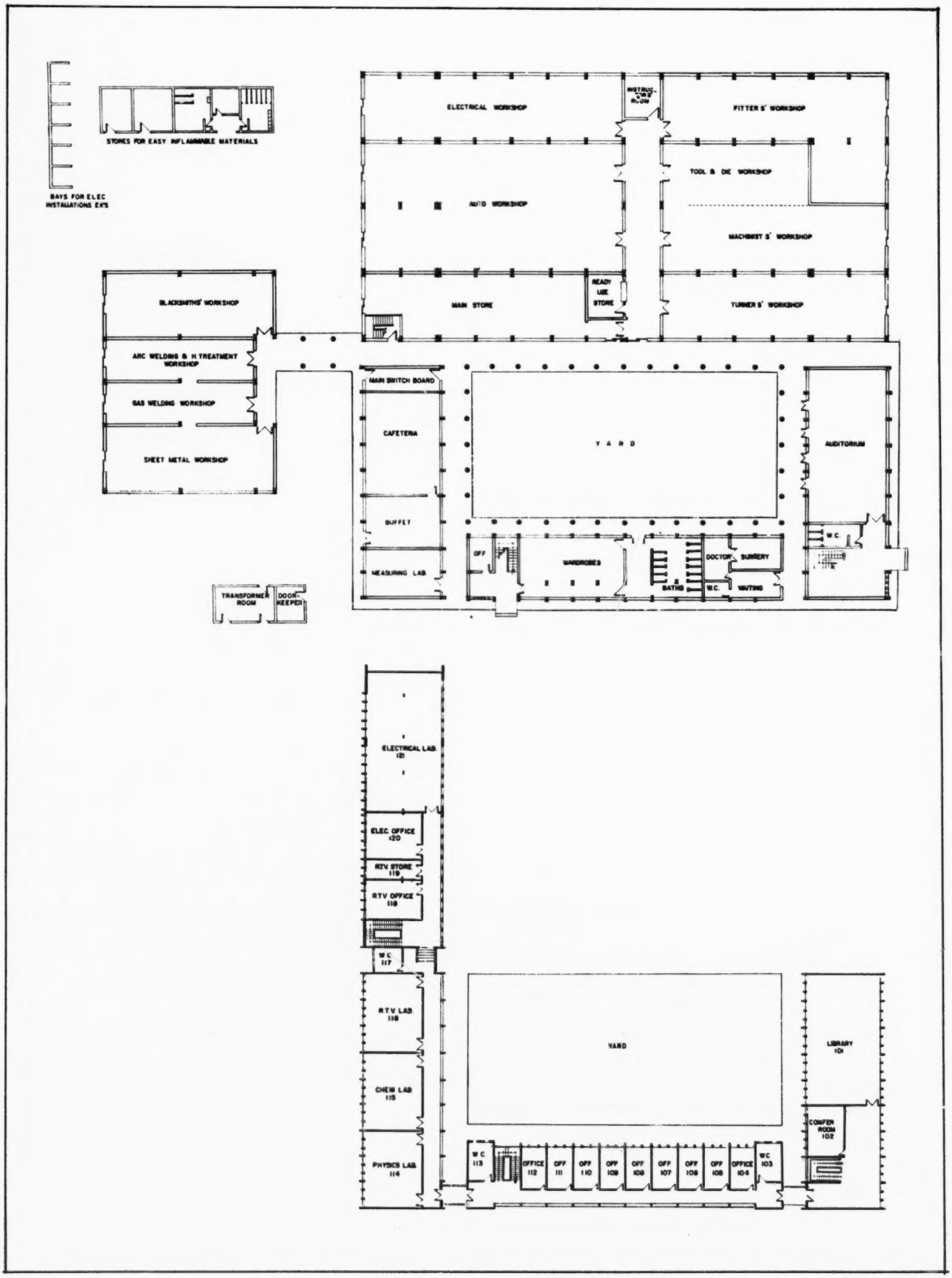
Graph of expenditures by the Technical Assistance sector and the Special Fund sector of the U.N.D.P.

Annex C

THE WORKSHOPS AND LABORATORIES OF THE INSTITUTE

(showing layout and principal items of equipment and furniture)

	Page
Over-all plan	53
Sheet metal workshop	55
Gas welding workshop	55
Arc welding/heat treatment workshop	55
Blacksmiths' workshop	55
Electrical workshop	57
Automotive workshop	57
Fitters' workshop	59
Tool and die workshop	59
Machinists' workshop	59
Turners' workshop	59
Measuring laboratory	61
Electrical laboratory	61
Radio/television laboratory	61


STORES FOR EASY INFLAMMABLE MATERIALS
BAYS FOR ELEC INSTALLATIONS EXTS
ELECTRICAL WORKSHOP
INSTRUCTORS ROOM
FITTER S' WORKSHOP
TOOL & DIE WORKSHOP
AUTO WORKSHOP
MACHINIST S' WORKSHOP
READY USE STORE
MAIN STORE
TURNER S' WORKSHOP
BLACKSMITHS' WORKSHOP
ARC WELDING & H TREATMENT WORKSHOP
GAS WELDING WORKSHOP
SHEET METAL WORKSHOP
MAIN SWITCH BOARD
CAFETERIA
YARD
AUDITORIUM
BUFFET
MEASURING LAB
OFF
WARDROBES
DOCTOR
SURGERY
BATHS
W.C.
WAITING
W.C.
TRANSFORMER ROOM
DOOR-KEEPER
ELECTRICAL LAB 121
ELEC. OFFICE 120
RTV STORE 119
RTV OFFICE 118
W.C. 117
RTV LAB 116
CHEM LAB 115
PHYSICS LAB 114
YARD
LIBRARY 101
CONFER ROOM 102
W.C. 113
OFFICE 112
OFF 111
OFF 110
OFF 109
OFF 108
OFF 107
OFF 106
OFF 105
OFFICE 104
W.C. 103

SHEET-METAL WORKSHOP

1. Circular cutter
2. Shear
3. Break
4. Forming rolls
5. Pedestal grinder
6. Drill press (bench)
7. Spot welder
8. Seamer (bench)
9. Furnace (soldering)
10. Work bench
11. Dolly block
12. Work bench
13. Instructor's desk
14. Tool cupboards
15. Material racks
16. Chalkboard

GAS WELDING WORKSHOP

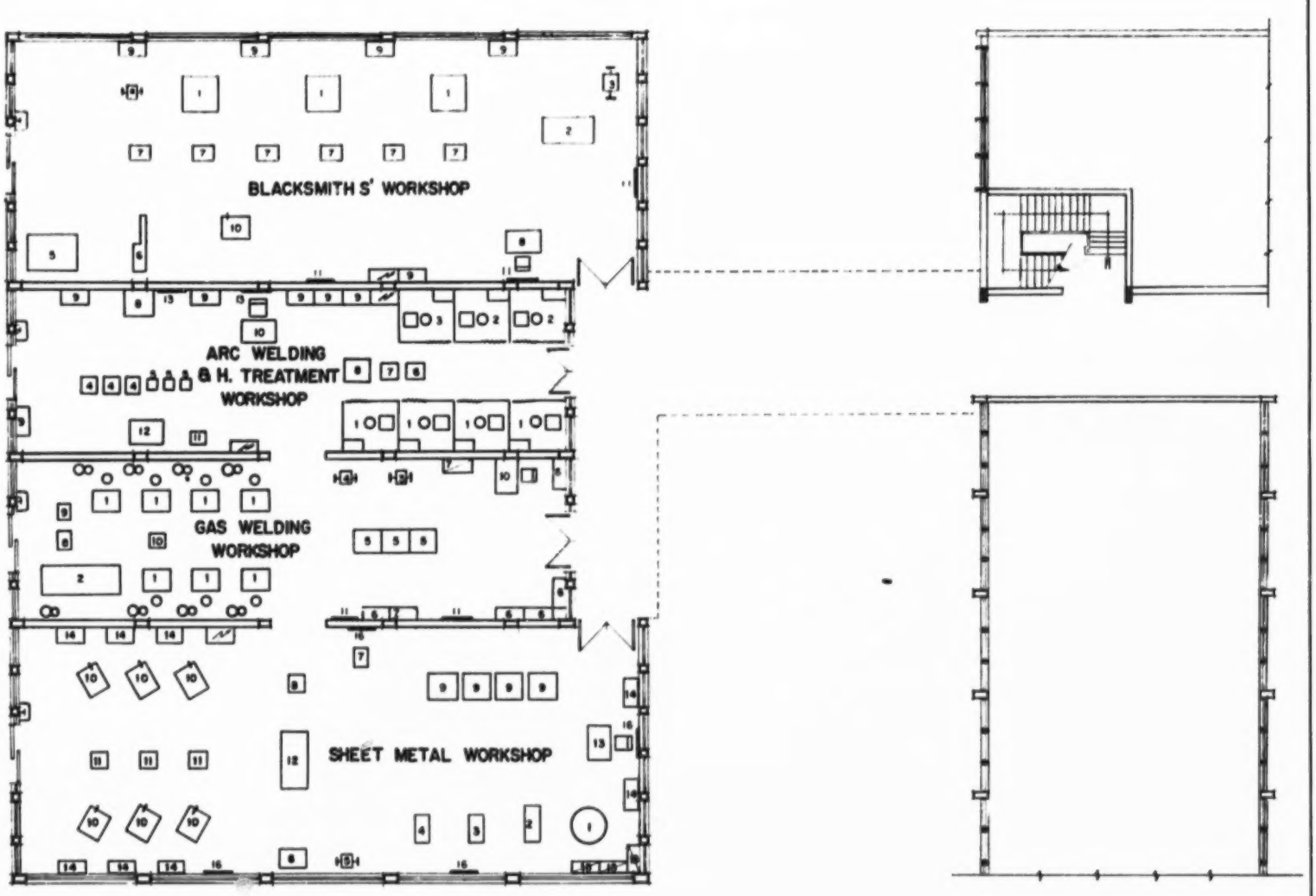
1. Welding bench
2. Flame cutting table
3. Pedestal grinder
4. Pedestal grinder
5. Work bench
6. Tool cupboard
7. Material rack
8. Anvil
9. Quenching bath
10. Hammering plate

ARC WELDING/HEAT TREATMENT WORKSHOP

1. Transformer
2. Motor generator
3. Motor generator
4. Large quenching bath
5. Small quenching bath
6. Quenching bath
7. Anvil
8. Work table (sheet steel)
9. Tool cupboards
10. Instructor's desk
11. Furnace—single muffle
12. Furnace—double muffle
13. Chalkboard

BLACKSMITHS' WORKSHOP

1. Forge
2. Forging hammer
3. Pedestal grinder
4. Pedestal grinder
5. Smelting furnace
6. Shear
7. Anvil
8. Instructor's desk
9. Tool cupboard
10. Bench

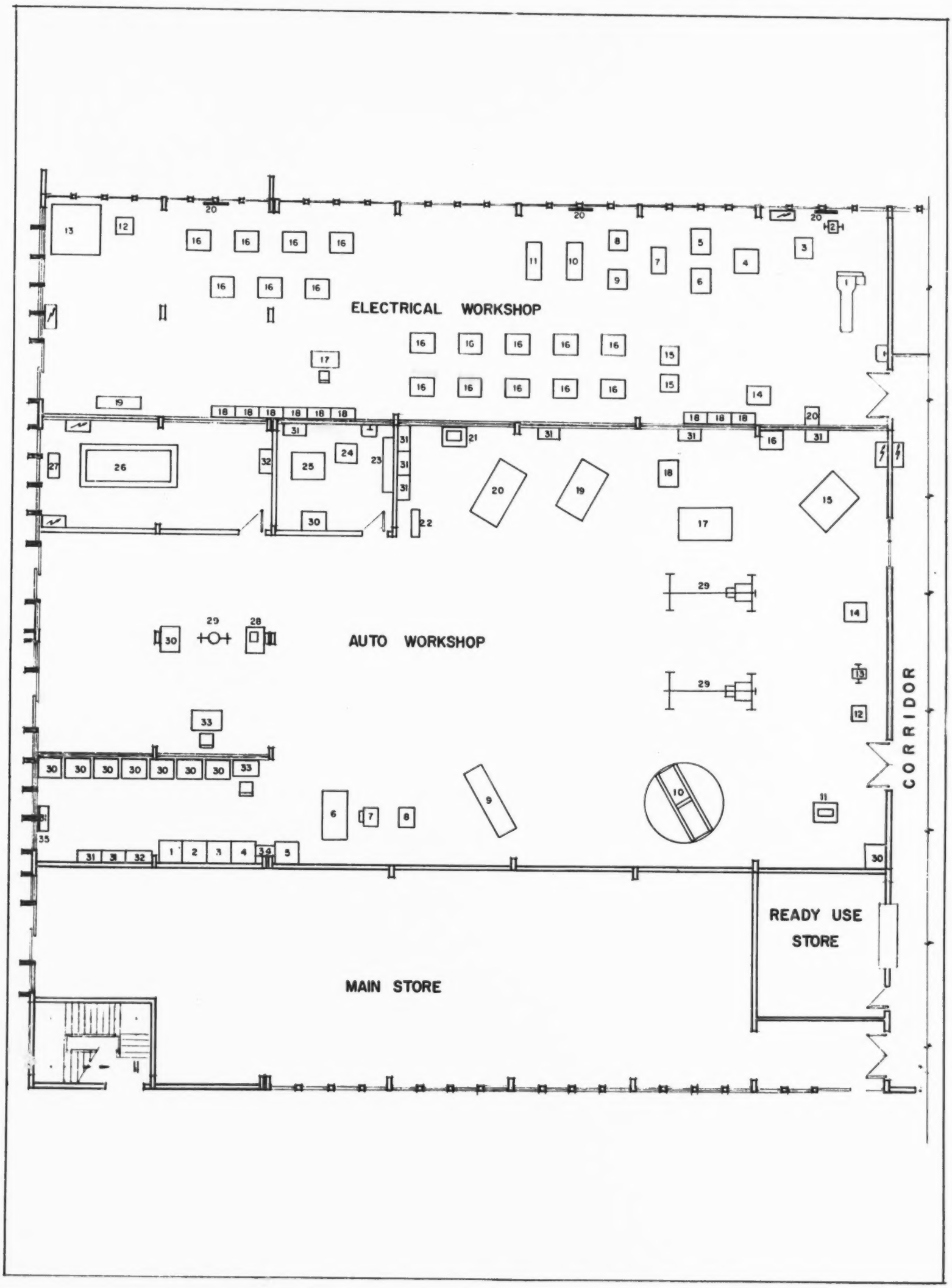

BLACKSMITH S' WORKSHOP
ARC WELDING
& H. TREATMENT
WORKSHOP
GAS WELDING
WORKSHOP
SHEET METAL WORKSHOP

ELECTRICAL WORKSHOP

1. Toolmaker's lathe
2. Grinding machine
3. Grinding machine
4. Synchronous motor and variable speed motor
5. Slip-ring motor and squirrel cage motor
6. Four single phase motors
7. Converter
8. DC series motors (2)
9. DC compound motor
10. AC-DC motor-generator set
11. AC-DC motor-generator set
12. Small drying oven
13. Large drying oven
14. Conduit bending machine
15. Coil winding machines
16. Work benches
17. Instructor's desk
18. Cupboards
19. Training panel board
20. Press

AUTOMOTIVE WORKSHOP

1. Distributor test equipment
2. Generator and regulator test bench
3. Starter torque test equipment
4. Auto tuner
5. Electric test bench
6. "Mock" chassis with electrical component layout
7. Wheel balancing machine
8. Tire remover and fitter
9. Inspection pit
10. Vehicle hoist
11. Diesel engine on stand
12. Brake lining machine
13. Pedestal grinder
14. Kerosene wash cabinet
15. Surface grinding machine for engine blocks
16. Bench drilling machine
17. Crankshaft grinding machine
18. Connecting rod bearing cutting machine
19. Main bearing line boring machine
20. Cylinder boring and honing machine
21. Valve grinding and facing machine
22. Hydraulic press
23. Diesel injector nozzle test equipment and bench
24. Valve seat and guide reconditioning cabinet
25. Diesel fuel pump calibration and phasing unit
26. Water brake dynamometer
27. Air compressor — supplying pipeline
28. Valve spring test bench
29. Heavy duty tire remover
30. Work benches with electrical test panels
31. Tool cupboards
32. Battery charging bench
33. Instructor's desk
34. Spark plug cleaner and tester


ELECTRICAL WORKSHOP
AUTO WORKSHOP
CORRIDOR
READY USE STORE
MAIN STORE

FITTERS' WORKSHOP

1. Drilling machine
2. Pedestal grinder
3. Bending press
4. Shaping machine
5. Drilling machine
6. Surface plate
7. Fitter's bench
8. Tool locker
9. Tool locker
10. Material shelf
11. Tool cupboard
12. Instructor's desk
13. Chalkboard

TOOL AND DIE WORKSHOP

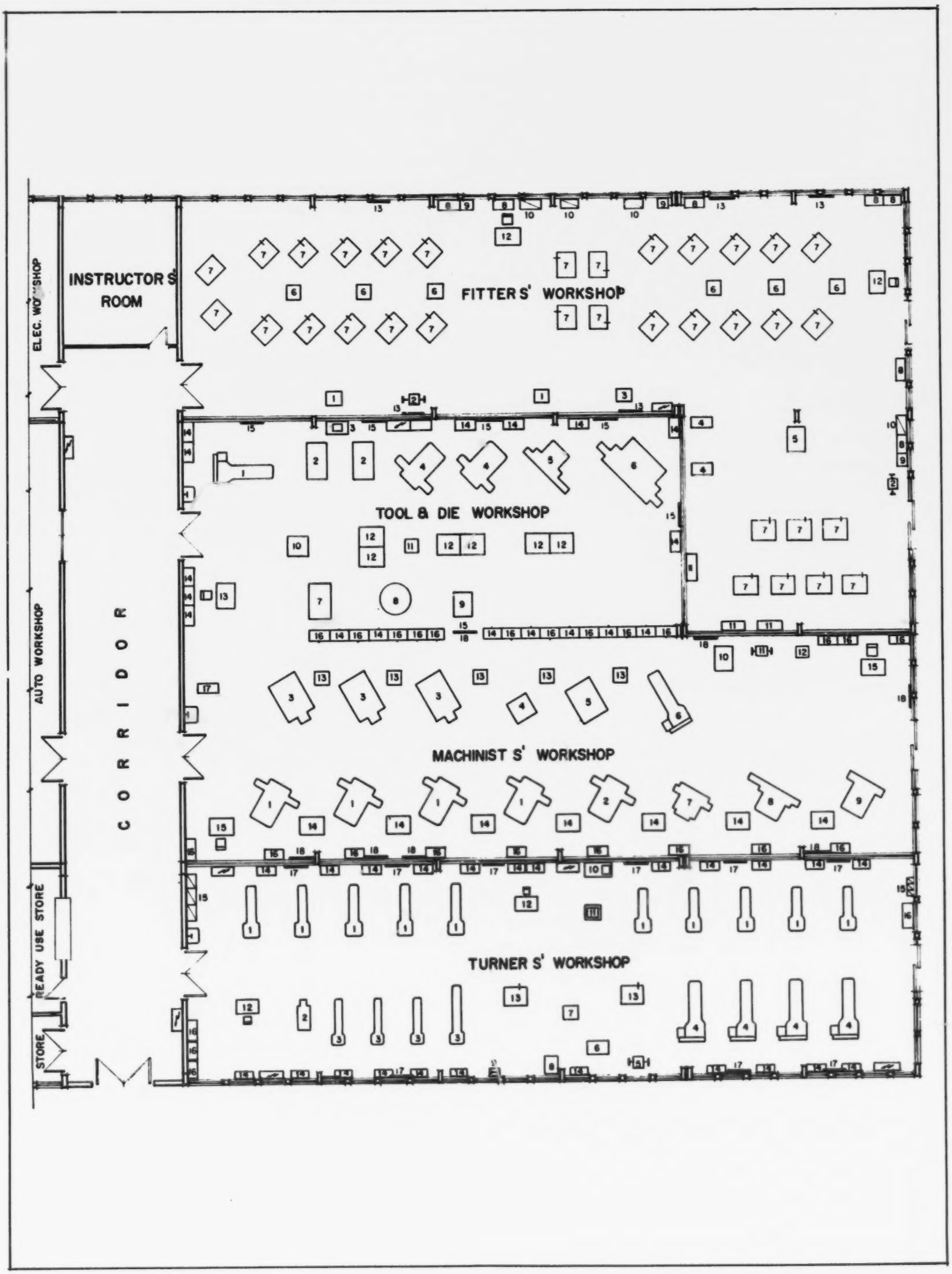
1. Toolmaker's lathe
2. Shaping machine
3. Pedestal grinder
4. Universal milling machine
5. Surface grinder
6. Cylindrical grinder
7. Eccentric press
8. Flywheel press
9. Drilling machine
10. Surface plate
11. Surface plate
12. Fitter's bench
13. Instructor's desk
14. Tool locker
15. Chalkboard

MACHINISTS' WORKSHOP

1. Horizontal milling machine
2. Vertical milling machine
3. Shaping machine
4. Shaping machine
5. Slotting machine
6. Toolmaker's lathe
7. Universal tool grinder
8. Cylindrical grinder
9. Surface grinder
10. Drilling machine
11. Pedestal grinder
12. Bench drill press
13. Surface plate
14. Fitter's bench
15. Instructor's desk
16. Tool locker
17. Hacksaw
18. Chalkboard

TURNERS' WORKSHOP

1. Universal lathe
2. Turret lathe
3. Universal lathe
4. Toolmaker's lathe
5. Pedestal grinder
6. Carbide tool grinder
7. Mandrel press
8. Drilling machine
9. Bench grinder
10. Inspection bench
11. Surface plate
12. Instructor's desk
13. Fitter's bench
14. Tool locker
15. Shelf for oils
16. Tool cupboard
17. Chalkboard


INSTRUCTOR'S ROOM
ELEC. WORKSHOP
FITTER'S' WORKSHOP
TOOL & DIE WORKSHOP
AUTO WORKSHOP
CORRIDOR
MACHINIST S' WORKSHOP
READY USE STORE
STORE
TURNER S' WORKSHOP

MEASURING LABORATORY

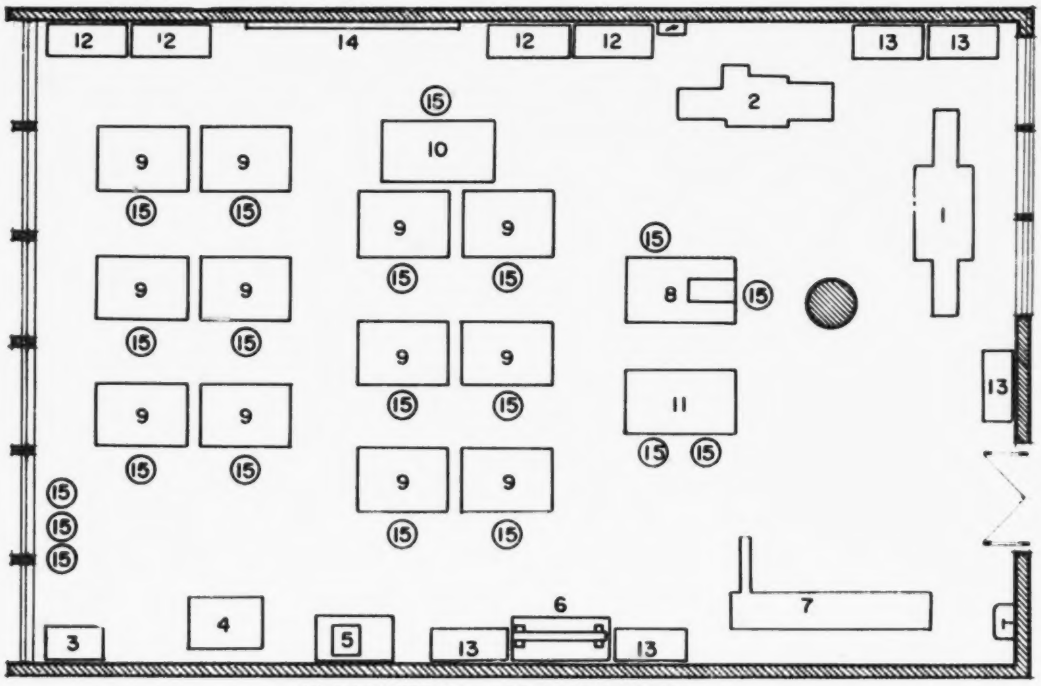
1. Pendulum impact machine
2. Tensile testing machine
3. Polishing machine
4. Big projector
5. Shop microscope
6. Inspection centres
7. Bending test machine
8. Testing machine
9. Exercise bench
10. Instructor's desk
11. Surface inspection bench
12. Instrument shelf
13. Test pieces shelf
14. Chalkboard
15. Stool

ELECTRICAL LABORATORY

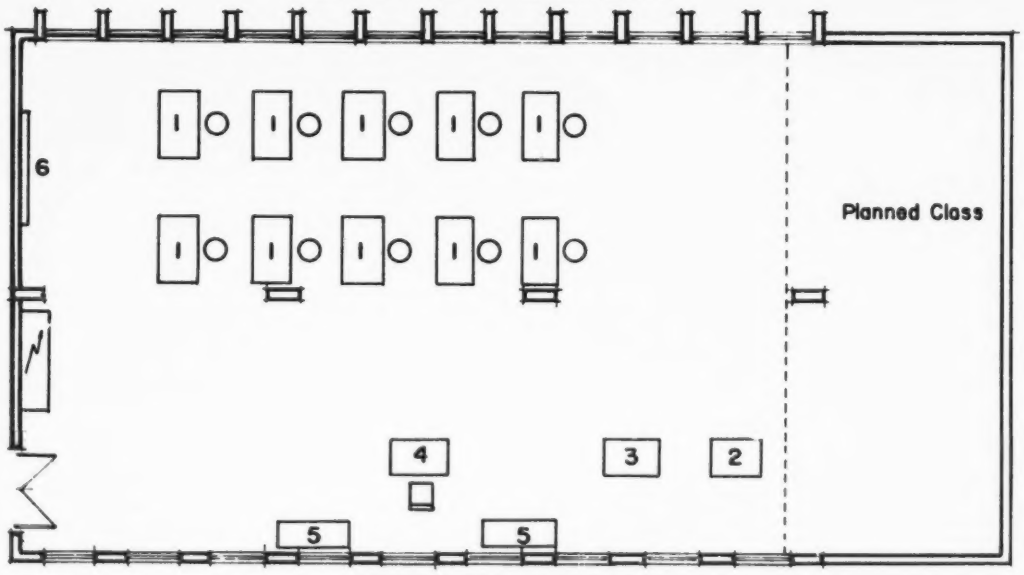
1. Bench for laboratory work
2. Winding machine
3. Winding machine
4. Instructor's table
5. Material cupboard
6. Chalkboard

RADIO/TELEVISION LABORATORY

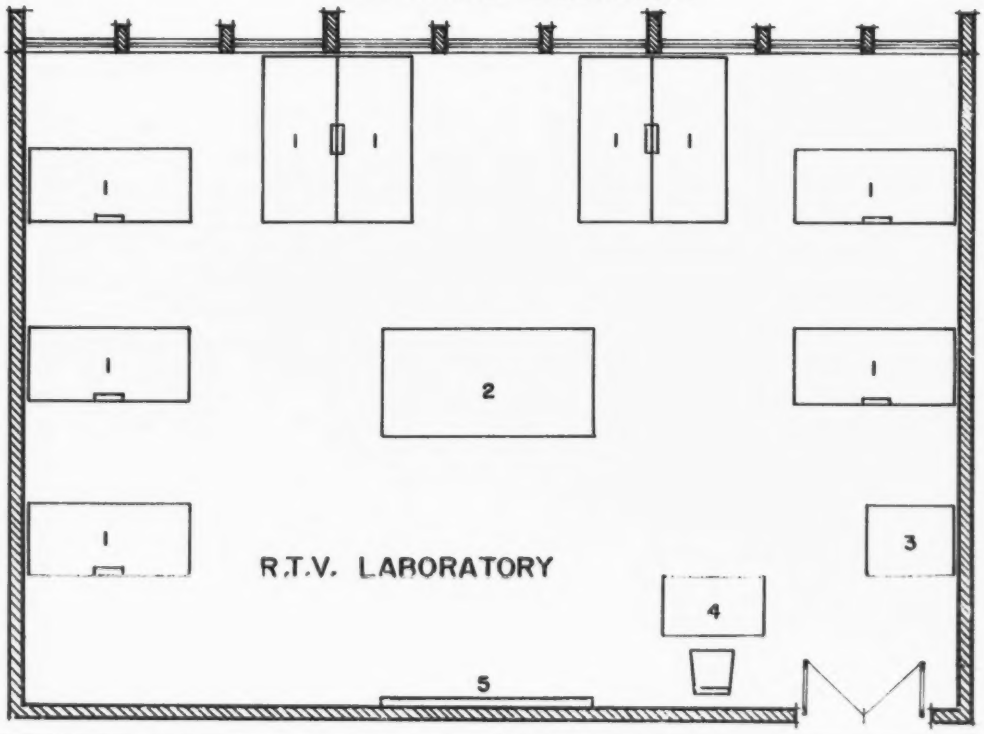
1. Combined workshop and laboratory bench
2. Instrument table
3. Mechanical work bench
4. Instructor's table
5. Chalkboard



MEASURING LABORATORY



ELECTRICAL LABORATORY



R.T.V. LABORATORY

Annex D

THE EXPERTS

Post	Name	Period of Assignment
Chief of Project	Alfons S. Danchev (British)	16. 9. 61— 31. 12. 61
	Victor C. Mayer (Austrian)	9. 9. 62— 4. 3. 66
Principles of teaching	Herman Steffen (Brazilian)	1. 10. 61— 27. 11. 63
	Henry A. Hyniewski (Polish)	1. 12. 63— 30. 4. 66
Apprenticeship training	Semen N. Pivovarov (U.S.S.R.)	1. 4. 62— 30. 9. 65
Accelerated training (this post was specifically in connection with radio and television)	Philip B. Stearn (British)	17. 2. 64— 16. 2. 65
	Oscar E. Wiklund (Swedish)	1. 6. 65— 30. 6. 66
Upgrading training	Henry A. Hyniewski (Polissh)	25. 9. 62— 30. 11. 63
Metal trades	James Mitchell (British)	12. 11. 62— 6. 12. 65
Metal trades	James F. V. Magner (British)	6. 1. 63— 30. 6. 65
Metal trades	Joseph C. Lewis (British)	3. 3. 63— 22. 3. 63
Metal trades	Gunter Dekarski (German)	11. 10. 64— 12. 10. 65
Auto trades	Alan T. Slater (British)	6. 1. 63— 5. 12. 65
Auto trades	William K. Young (Canadian)	4. 8. 62— 3. 8. 63
Electrical trades instructor	Eric O. Nielsen (Norwegian)	13. 1. 63— 12. 12. 65
Tool and die-making	Wilfred B. Dowell (U.S.A.)	3. 1. 65— 30. 6. 66

(On 12 August 1963 it was decided to amalgamate the duties of the two auto trades posts, and this joint position was filled by Mr. Slater. The funds thus freed were used to provide the expert in tool and die-making.)

Annex E

COUNTERPART STAFF OF THE INSTITUTE (as at 30. 11. 1965)

Post	Counterpart to:	Name
1. Director	Chief of Project	Hassan El Guibali
2. Assistant Director	Turning expert	Reda Mahmoud Soliman
3. Assistant Director	Fitting expert/instr.	Sami Gobran
4. Programme Officer	Principles of teaching expert	Shawki Fahim Ebeid
5. Supervisor	Blacksmith expert	Said Allam(*)
6. Supervisor	Expert/instr., radio/TV/electronics	Mustafa Amin Ezzat
7. Supervisor	Expert/instr., machinist	Ibrahim Saleh Bideir
8. Supervisor	Expert/instr., auto/elec.	Mustafa K. S. Nabhan(*)
9. Supervisor	Expert/instr. electrical	Adel M. S. Toubar
10. Supervisor	Expert/instr. welding	Farouk Hussein
11. Instructor, turning (1)		Magdi Marzouk Sallam
12. Instructor turning (2)		Abdel Samieh T. Badie
13. Instructor, tool and die-making		Mohammed Kamal Raslan
14. Instructor, fitting (1)		Mariko Ishak Ibrahim
15. Instructor, fitting (2)		Abdel Moniem Saadani
16. Instructor, heat treatment		Aly Ahmed El Chimy
17. Instructor, welding		Salah El Din Rashwan
18. Instructor, sheet metal		Fawzi A. Mohayren
19. Instructor, radio/TV/ electronics		Mohammed M. Hanafi
20. Instructor, machinist (1)		Mohammed Ibrahim Osman
21. Instructor, machinist (2)		Salah Eddin El Dayen
22. Instructor, automotive (1)		Ibrahim Khalil Mustafa
23. Instructor, automotive (2)		Abdel Aziz Mustafa
24. Instructor, automotive (3)		Ramzi S. Guiguis
25. Instructor, electrical (1)		Samir Abdel Fatah

26. Instructor, electrical (2)		Ahmed A. A. Shash
27. Instructor, electrical (3)		Michel Zaki Assaad
28. Instructor, blacksmith		Sayed A. R. Mahmoud
29. Supervisor	Sheet metal expert	Kamal El Tayeb(*)
30. Supervisor, automotive trades		Fayez Nasr
31. Supervisor, metal laboratory		Mustafa Fadel
32. Supervisor, radio/TV		Adel Abdel Ghani Mohran
33. Supervisor, metal laboratory		Magdi Rizkalah
34. Instructor, radio/TV		Ramadan Aly Mustafa

(*) Also worked part time with the E.P.T.A. team.

Annex F

FELLOWSHIPS

Note: All fellowships were of six-months' duration with the following exceptions — fellowships preceded by * were of 5 months' duration and that preceded by ** was of 4 months' duration.

Name	Subjects, Countries, Institutions of Study
*H. El Guibali	Administration: U.K. — Instructor Training College, Letchworth, Loughborough Engineering College, Loughborough, and various industrial enterprises; Sweden — National Board of Vocational Education and industrial enterprises.
R. M. Soliman	Pedagogic Training: Hungary — 2 months (several institutes); Finland — 1 month; Sweden — 1 month (several institutes); U.K. — 2 months, David Brown and Huddersfield College.
*S. F. Ebeid	Principles of Teaching: U.K. — Instructor Training College, Letchworth, Loughborough Engineering College, Loughborough; Finland; and Sweden.
M. A. Ezzat	Radio/TV Engineering: Italy — I.L.O. Turin Centre; Netherlands — Philips Company, Eindhoven, and similar enterprises.
M. K. S. Nabhan	Automotive Trades (Mechanics Section): U.S.A. — college of technology — 2 months, automotive manufacturing company — 2 months, training establishments — 1 month, visual aids centres — 1 month, visits to plants.
*A. M. S. Toubar	Electrical Trades: Italy — I.L.O. Turin Centre.
A. S. T. Badie	Metal Trades: Germany — Iron and Steel Works, Rheinhausen; U.K. — Instructor Training College, Letchworth; Switzerland — Institut des Arts et Métiers; Hungary — Machine Industry Training Institute.
M. K. Raslan	Metal Trades (fitting): Hungary — 1 month (several institutes); Finland and U.K. — $2^1/_2$ months each in different institutes.
M. I. Ibrahim	Mechanical Maintenance: Italy — I.L.O. Turin Centre.
A. A. El Chimy	Metal Trades (metrology and heat treatment): Hungary, Finland, U.K. — 1 month each in several related institutions.
M. M. Hanafi	Vocational Training, electronic trades: U.K. — 3 months; Netherlands — 3 months; Italy — I.L.O. Turin Centre — 2 weeks.
M. I. Osman	Metal Trades Instructor (milling, grinding, shaping): Germany — 2 months; U.K. — 6 weeks; Switzerland — 2 weeks; Hungary — 2 months (different institutions).
**I. K. Mustafa	Automotive Trades: U.K. — 3 months, Lucas Ltd. and Ford Motor Co., Instructor Training College, Letchworth; Germany — 3 months, Volkswagen A.G. and Ford Motor Co.
*A. A. A. Shash	Electrical Maintenance: Italy — I.L.O. Turin Centre.

The text was edited by Arthur Sandles,
the photographs taken by V. Mayer and E. Beyrodt
and the design is by Humbert Sinisterra.
I.L.O./U.N.D.P./FR/U.A.R. 28/R1

VT 002 307
Industry Employment Growth Since World War II.

Office of Manpower, Automation and Training (DOL), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Manpower Administration, Office of Manpower Policy, Evaluation, and Research, U.S. Department of Labor, 14th Street and Constitution Avenue, N.W., Washington, D.C. 20210.
Pub Date - Jan63 6p.

*EMPLOYMENT PATTERNS; *EMPLOYMENT TRENDS; LABOR MARKET; INDUSTRIAL STRUCTURE; EMPLOYMENT STATISTICS; ECONOMIC FACTORS; MANPOWER UTILIZATION; *INDUSTRY

The growth of American industry has led to changes in the structure of employment which pose a challenge to workers seeking to adapt to industry's job needs. Between 1947 and 1962, the number of nonfarm workers increased by more than one-fourth with the addition of 11.4 million jobs to the economy. However, during the period from 1957 to 1962, the rate of job growth slowed appreciably in the private sector of the economy. As the rate of job growth slowed there was a shift in the pattern of job growth away from the output of goods and toward more services. These different rates of growth have resulted in significant changes in the distribution of employment. Only the service industry has continued to expand employment at close to its former rate and has shown a total rise of more than 50 per cent between 1947 and 1962. The public sector of the economy has had an overwhelming employment growth at the state and local levels. In the manufacturing sector, the non-production worker employment has increased while total manufacturing employment has declined. Charts and tables are presented to illustrate the changes in nonfarm industry and agriculture employment between 1947 and 1962. (HC)

VT 002 307

MANPOWER REPORT

NUMBER 5

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

Reissued March 1963

INDUSTRY EMPLOYMENT GROWTH SINCE WORLD WAR II

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A high rate of employment growth is a fundamental requirement if the American economy is to provide jobs for its increasing population and also continue to raise the standard of living of its workers. The growth of American industry in the past has been one of the sources of American strength, but the growth in the past 5 years has raised questions regarding its adequacy. Moreover, the growth which has taken place has led to changes in the structure of employment which pose a challenge to workers seeking to adapt to industry's job needs.

Between 1947 and 1962, the number of nonfarm workers in the United States increased by more than one-fourth with the addition of 11.4 million jobs to the economy. The gross national product rose by two-thirds in real dollars. Earnings of factory workers rose from about $50 per week in 1947 to close to $100 in 1962. Even with price increases discounted, the gains in factory workers' earnings were substantial, amounting to 45 percent between 1947 and 1962.

These advances, however, were concentrated in the first decade of this 15-year period. Industry employment growth during the past 5 years, in fact, has not kept up with the performance of the previous 10 years, either in magnitude or composition.

During the past 5 years, from 1957 to 1962:

The rate of job growth slowed down appreciably in the private sector of the economy.

Between 1947 and 1957, private nonfarm industries increased their employment by an average of 700,000 jobs, or 1.7 percent, each year; from 1957 to 1962 the annual rate of gain fell to 175,000 jobs, or 0.4 percent.

Structural changes were also taking place which added to the problem of reemployment of displaced workers.

As the rate of job growth slowed down, there was a speedup in the long-term shift in the pattern of job growth, away from the output of goods and toward more services. The proportion of all workers in the goods-producing industries—agriculture, manufacturing, construction, and mining—fell from 51.3 percent in 1947 to 45.9 percent in 1957, and to 41.8 percent in 1962 (table 3). The rate of decline in the latter period was two-thirds greater than in the earlier period.

And the overall rate of economic growth and employment also moved down.

From 1947 to 1957, the gross national product rose by 45 percent in constant dollars, or at an annual rate of 3¾ percent. During the past 5 years, however, the increase in GNP has amounted to about 15 percent, or an annual rate of 2.9 percent. The slowdown has occurred primarily in the output of goods and in construction. (See table 1.)

An even greater slowdown in growth is reflected in employment. Between 1947 and 1962, the number of wage and salary workers on nonfarm payrolls rose to 55.3 million, a gain of 11.4 million, or 26 percent. Of this rise, 21 percentage points were gained in the 10-year period following 1947, and 5 percentage points in the past 5 years. The annual rate of increase in the last 5 years (0.9 percent) was only about half the rate during the previous 10 years (1.9 percent). During the early pe-

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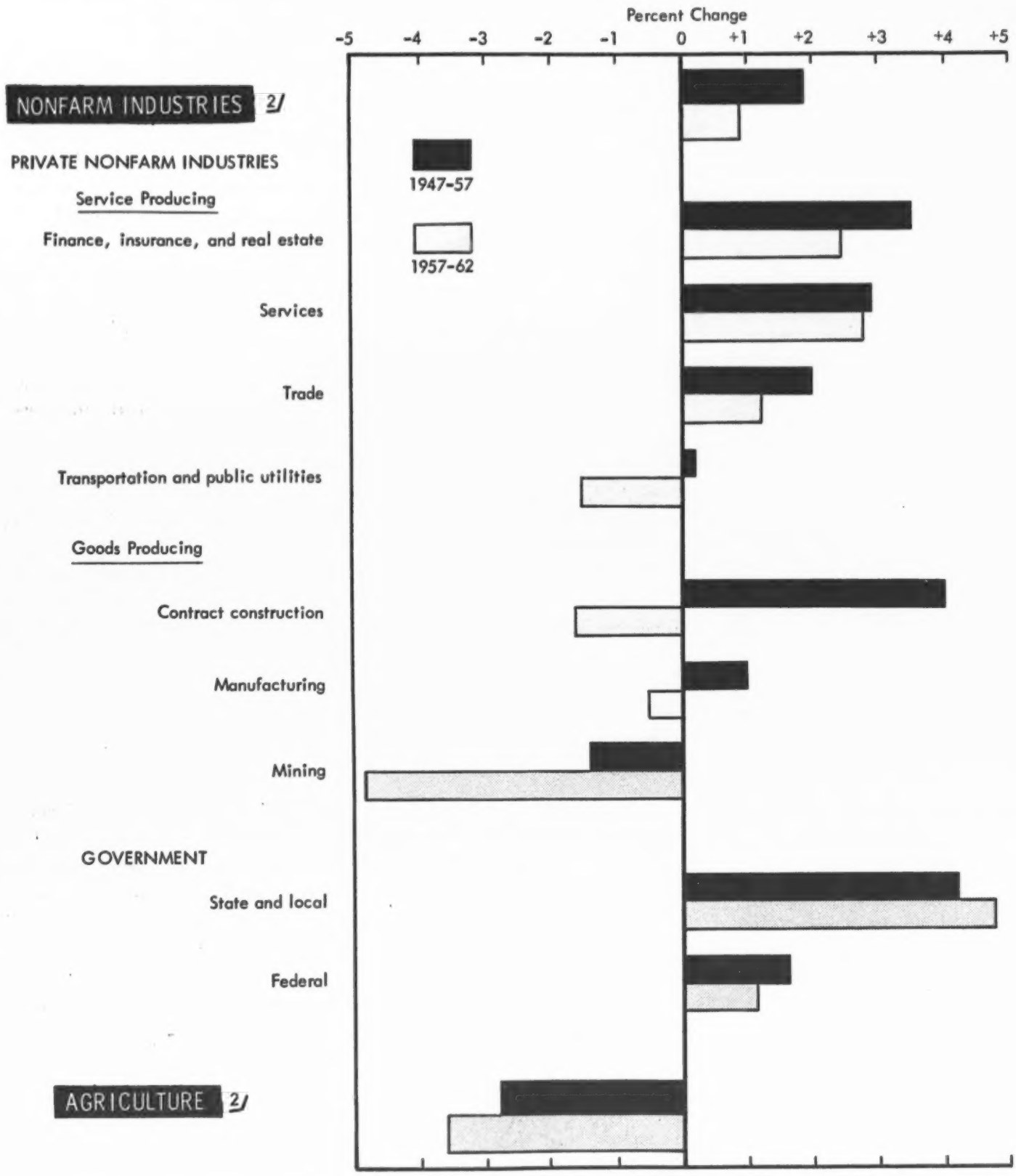
U.S. DEPARTMENT OF LABOR: W. WILLARD WIRTZ, SECRETARY
OFFICE OF MANPOWER, AUTOMATION AND TRAINING: SEYMOUR L. WOLFBEIN, DIRECTOR

Annual Rates of Industry Employment Growth, 1947-57 and 1957-62 1/



1/ Data used for 1947 and 1957 are annual averages of monthly totals; those for 1962 are preliminary averages.
2/ Employment represents payroll employees in nonfarm industries and total employment in agriculture.

riod, an average of 900,000 new jobs (including government) was being added to nonfarm employment each year; during the recent period, the yearly increase was about 485,000. Moreover, the composition of this growth has changed radically. Between 1947 and 1957, 76 percent of the job growth was in the private sector of the nonfarm economy, the remainder in government; between 1957 and 1962, only 36 percent of the job growth has been in the private sector. (See tables 2 and 4.)

Table 1

GROSS NATIONAL PRODUCT, BY MAJOR TYPE OF PRODUCT 1947–57 AND 1957–62

Gross national product	Output (billions of dollars, 1954 prices)			Annual rate of increase (percent)	
	1947	1957	1962[1]	1947–57	1957–62
Total GNP	282.3	408.6	471.5	3.8	2.9
Goods	163.3	223.4	247.1	3.2	2.0
Services	94.7	141.2	173.2	4.1	4.2
Construction	24.3	44.0	51.2	6.1	3.1

[1] Preliminary

Employment Distribution

These different rates of growth have resulted in significant changes in the distribution of employment. As noted before, in 1947 the goods-producing industries (agriculture, manufacturing, mining, and construction) accounted for 51.3 percent of all industry employment; in 1957 they accounted for 45.9 percent; and by 1962 the proportion had been reduced to 41.8 percent. These proportions represent a significantly faster rate of decline from 1957 to 1962 than in the previous period. By contrast, very rapid job growth—accounting for an increasing share of total employment—has been taking place in State and local governments, in the service industry and in finance, insurance, and real estate. The big increase in government employment is mainly in the school systems, reflecting not only population growth, but the rising demand for a better educated labor force.

The effect of recessions is one important explanation for the decline in growth and the shift in industry pattern: We had two recessions during the first 10-year period and two during the most recent 5-year period. Each recession affected mainly the goods-producing industries. Large numbers of production workers were laid off during each business downturn, and employment levels were never fully restored during the subsequent recoveries as a result both of rapid changes in technology and the lack of new gains in product demand.

However, in considering the periods as a whole, including both the recessions and the recoveries, it seems apparent that the private sector of the economy during the past 5 years has not continued to

Table 2

CHANGES IN EMPLOYMENT BY INDUSTRY SECTOR 1947–57 AND 1957–62

Industry sector[1]	Employment (in thousands)			Annual employment change			
				1947–57		1957–62	
	1947	1957	1962[2]	Amount (thousands)	Rate (percent)	Amount (thousands)	Rate (percent)
Total nonfarm employment	43,881	52,904	55,325	902	1.9	464	0.9
Industries of recent job growth[3]	21,233	27,738	31,306	651	2.7	714	2.5
Private	15,759	20,112	22,121	435	2.5	402	1.9
Government	5,474	7,626	9,185	215	3.4	312	3.8
Federal	1,892	2,217	2,341	33	1.6	25	1.1
State and local	3,582	5,409	6,844	183	4.2	287	4.8
Industries of recent job decline[4]	22,648	25,166	24,018	252	1.1	−230	−0.9
Agriculture	8,256	6,222	5,190	−203	−2.8	−206	−3.6

[1] Nonfarm employment totals are based on establishment payroll data; agricultural employment on household survey data.
[2] Preliminary
[3] Industries of recent job growth in the private sector comprise: service and miscellaneous, trade and finance, insurance and real estate.
[4] Industries of recent job decline comprise: manufacturing, mining, contract construction, transportation and public utilities.

provide new jobs at the same rate as during the decade following World War II. Most of the industries which provided the lift to the job market in the first postwar decade have either slowed down or declined during the past 5 years. For the entire period since the end of World War II, the industries of major job growth in the private economy were construction, trade, services, and finance. But in both trade and construction the principal advances took place before 1957; since then, employment growth in trade has slackened substantially, and there has been an actual decline in construction.

Table 3

DISTRIBUTION OF INDUSTRY EMPLOYMENT (INCLUDING AGRICULTURE) 1947, 1957, AND 1962

Industry	1947	1957	1962[1]
Total (including agriculture):			
Number (thousands)[2]	52,137	59,126	60,515
Percent	100.0	100.0	100.0
Goods-producing industries	51.3	45.9	41.8
Manufacturing	29.8	29.0	27.7
Durable goods	16.1	16.7	15.6
Nondurable goods	13.7	12.4	12.1
Mining	1.8	1.4	1.1
Construction	3.8	4.9	4.5
Agriculture	15.8	10.5	8.6
Service-producing industries	48.7	54.1	58.2
Transportation and other utilities	8.0	7.2	6.5
Trade	17.2	18.4	19.1
Finance, insurance, and real estate	3.4	4.2	4.6
Services and miscellaneous	9.7	11.4	12.8
Government	10.5	12.9	15.2
Federal	3.6	3.7	3.9
State and local	6.9	9.1	11.3

[1] Preliminary.

[2] Represents payroll employment in nonfarm industries and total employment in agriculture.

NOTE: Sum of individual items may not add to totals because of rounding.

Service

Only the service industry has continued to expand employment at close to its former rate; this industry which includes personal, business, and professional services, has shown a total rise of more than 50 percent between 1947 and 1962. In the finance, insurance, and real estate industries, where total growth has amounted to about 60 percent since 1947, recent gains (since 1957) have been at a slower rate.

One of the accompanying features of the growth in service-type employment is reflected in a slowdown in the expansion of full-time scheduled jobs. While total nonagricultural employment (wage and salary and all other) increased by 6.6 percent, or 3.9 million, between 1957 and 1962, the number of workers on full-time schedules[1] increased by 2 million, or by 4.1 percent. In other words, only one-third of the employment increase since 1957 represents work on jobs having full-time schedules. Much of this undoubtedly represents the needs of the workers; many of the large numbers of women entering the labor market in recent years have been attracted by the availability of part-time jobs. However, it is not known to what extent full-time jobs would have been filled had more of them been available. Moreover, the nature of the increases in employment in recent years has a bearing on the extent of economic growth we have experienced.

Government

Only in the public sector of our economy has there been any increase in the rate of job growth since 1957 as compared with the earlier period. The growth in government employment has been overwhelmingly at the State and local level and primarily in the school systems. Other public services have also required more workers as the population has expanded and our cities and urban areas have grown.

Each year between 1947 and 1957 State and local government employment grew by an average of 4.2 percent, accounting for 187,000 additional jobs yearly; each year from 1957 the growth rate has averaged 4.8 percent or 287,000 additional jobs yearly.

Manufacturing

Rates of employment growth in the largest sector of our economy, manufacturing, are difficult to appraise since recessions and prosperity alike have affected employment in this sector more drastically than elsewhere. However, between 1947 and 1957, both relatively good years, the manufacturing industries added 1.6 million new jobs, an increase of 10 percent; since 1957, the number of workers in manufacturing has declined by 425,000 or 2.5 percent.

The net result is, that over the entire 15-year period, the proportion of manufacturing employment to total nonfarm payroll employment declined from 35.4 percent in 1947 to 30.3 percent in 1962. Moreover, the brunt of these lost jobs was borne entirely by production workers; in the past 5 years alone, their number decreased by a total of 775,000.

[1] That is, those actually working 35 hours or more per week, and those who could if they chose to work full time. The latter are usually full-time workers who are on part-time for noneconomic reasons.

White-Collar Versus Blue-Collar Workers

During the postwar period, employment of blue-collar production workers in manufacturing has fluctuated sharply, tending in general to decline, while the number of white-collar jobs within this sector has continued to increase. Manufacturing industries, which employed 13.0 million production workers in 1947, employed only 12.4 million in 1962. During the same period factory output rose by 80 percent. One reason for this dramatic increase in output with fewer workers lies in the equally dramatic rise in the importance of workers supporting the production workers. These nonproduction workers—executives, office personnel, engineers, and scientists—who help develop the improved techniques making greater production possible, have risen from 2.6 million in 1947, 16 percent of total factory employment, to 4.3 million, or 26 percent of the total, in 1962.

Nonproduction workers in manufacturing have increased even during the past 5 years while total manufacturing employment has declined. However, the greatest rate of gain in nonproduction workers occurred during the 1947–57 period, at an annual rate of 4.5 percent, while during the past 5 years, annual nonproduction worker growth has slackened to about 1.7 percent.

Other Industry Sectors

The remaining major sectors of the private economy are primarily those which are contracting—agriculture, which now has 37 percent fewer workers than in 1947, transportation and other utilities, which is 6 percent lower (mainly because of declines in the past 5 years), and mining, which is down by 32 percent.

By Herman Travis
and
Richard Seefer
Division of Manpower Analysis and Reports

Table 4

EMPLOYMENT CHANGES IN NONFARM INDUSTRIES AND IN AGRICULTURE, 1947–57 AND 1957–62

Industry sector[1]	Employment (in thousands)			Annual employment change			
				1947–57		1957–62	
	1947	1957	1962[2]	Amount (thousands)	Rate (percent)	Amount (thousands)	Rate (percent)
Total Nonfarm Employment	43,881	52,904	55,325	902	1.9	484	0.9
Manufacturing	15,545	17,174	16,750	163	1.0	−85	−0.5
Durable goods	8,385	9,856	9,443	147	1.6	−83	−0.8
Ordnance and accessories	27	140	215	11	17.9	15	9.0
Lumber and wood products	845	655	607	−19	−2.4	−10	−1.5
Furniture and fixtures	336	374	381	4	1.1	1	0.4
Stone, clay, and glass products	537	595	572	6	1.0	−5	−0.8
Primary metal industries	1,279	1,355	1,166	8	0.6	−38	−3.0
Fabricated metal products	989	1,167	1,118	18	1.7	−10	−0.9
Machinery	1,375	1,586	1,459	21	1.4	−25	−1.7
Electrical equipment	1,035	1,344	1,528	31	2.7	37	2.6
Transportation equipment	1,275	1,909	1,645	63	4.1	−53	−2.9
Instruments and related products	267	342	358	8	2.5	3	0.9
Miscellaneous manufacturing	421	387	393	−3	0.8	1	0.3
Nondurable goods	7,159	7,319	7,308	16	0.2	−2	(3)
Food and kindred products	1,799	1,805	1,772	1	(3)	−7	−0.4
Tobacco manufactures	118	97	89	−2	−1.9	−2	−1.5
Textile-mill products	1,299	981	881	−32	−2.8	−20	−2.1
Apparel and related products	1,154	1,210	1,235	6	0.5	5	0.4
Paper and allied products	465	571	602	11	2.1	6	1.1
Printing and publishing	721	870	933	15	1.9	13	1.4
Chemicals and allied products	649	810	850	16	2.2	8	1.0
Petroleum and related products	221	232	196	1	0.5	−7	−3.3
Rubber and plastic products	323	372	389	5	1.4	3	0.9
Leather and leather products	412	373	361	−4	−1.0	−2	−0.6
Mining	955	828	647	−13	−1.4	−36	−4.8
Contract construction	1,982	2,923	2,696	94	4.0	−45	−1.6
Transportation and public utilities	4,166	4,241	3,925	8	0.2	−63	−1.5
Trade	8,955	10,886	11,571	193	2.0	137	1.2
Finance, insurance, and real estate	1,754	2,477	2,793	72	3.5	63	2.4
Services and miscellaneous	5,050	6,749	7,757	170	2.9	202	2.8
Government	5,474	7,626	9,185	215	3.4	312	3.8
Federal	1,892	2,217	2,341	33	1.6	25	1.1
State and local	3,582	5,409	6,844	183	4.2	287	4.8
Total Agricultural Employment	8,256	6,222	5,190	−203	−2.8	−206	−3.6

[1] Nonfarm employment based on establishment payroll data, agricultural employment on household survey data.

[2] Preliminary

[3] Less than 0.05 percent.

LIST OF PUBLICATIONS

The following reports, prepared by the Office of Manpower, Automation and Training, are available upon request. An order form is provided below. *Please print your name and address.*

☐ ***An Explanation of the Manpower Development and Training Act***
outlines the provisions of the act: the programs relating to Manpower Research, Development, and Utilization (Title I); Training and Skill Development (Title II); and Miscellaneous (Title III). 15 pages.

☐ ***Farm Families, Youths, Operators, Workers, and the Manpower Development and Training Act***
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☐ ***Training + Opportunity = Jobs***
gives highlights of the training provisions of MDTA. 6 pages.

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discusses the factors related to the increasing employment of engineers, the major functions engineers perform, and shifts in their geographical and industrial distribution. 4 pages.

☐ ***Trends in Farm Employment and Training Needs***
discusses the effect of increasing technology on farm population and employment opportunities. 4 pages.

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VT 002 359

Chase, William W., And Others
Basic Planning Guide for Vocational and Technical Education Facilities. Special Publication No. 11.

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Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (FS 5.280:80040, $.20).
Pub Date - 65 39p.

*AREA VOCATIONAL SCHOOLS; *GUIDELINES; *SCHOOL PLANNING; *EDUCATIONAL FACILITIES; *EDUCATIONAL SPECIFICATIONS; VOCATIONAL EDUCATION; CONSULTANTS

This booklet provides information about: (1) surveys of area needs, (2) the steps in planning area or regional facilities, (3) consultant services, (4) basic planning considerations for vocational education facilities, (5) educational specifications, (6) general planning suggestions, (7) school construction costs and capital outlay, (8) ways of economizing, and (9) facility planning terminology. (EM)

VT 002 359

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

OE-80040
Special Publication No. 11

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BASIC PLANNING GUIDE FOR VOCATIONAL AND TECHNICAL EDUCATION FACILITIES

By

William W. Chase, *Specialist*
School Plant Administration
School Housing Section

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Trade and Industrial Education Branch

Michael Russo, *Program Specialist*
Trade and Industrial Education Branch

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE . . . . . John W. Gardner, *Secretary*

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Printed 1965
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FOREWORD

THE VOCATIONAL EDUCATION ACT OF 1963 provides Federal funds for the construction and remodeling of vocational facilities. The Congress, in passing this Act, was well aware of the need for new skills, training, and/or retraining to meet modern demands upon labor and industry and to enhance economic growth and productivity. President Johnson said of the Act, "It will expand educational opportunities at the grade school level, at the college level, and at the vocational school level. This bill . . . is dramatic evidence of our commitment to education as the key to our social and economic and technological and moral progress."

The hope, therefore, of a majority of the American people for the training necessary to earn a livelihood, to be self-supporting, and to contribute to the welfare of this country lies in the quality of the vocational and technical education programs provided for them. The kinds of facilities planned and constructed to accommodate those programs will play an extremely important part in creating the proper environment conducive to the types of education and training needed.

The emphasis which the Congress, through this Act, has placed on vocational education and, particularly, the planning and construction of facilities will, in many instances, involve people who have not yet had this type of experience. To be of assistance to them and as a means of implementing the Vocational Education Act of 1963, this *Guide* outlines major considerations and basic principles in planning facilities for vocational and technical education.

It is intended primarily for State and local directors of vocational education; members of local, area, or regional boards of education legally responsible for schools authorized under this Act; architects; engineers; and others who are specifically involved in planning these facilities.

This *Guide* was prepared cooperatively by the School Housing Section and the Trade and Industrial Education Branch. Special acknowledgment is made to Dr. Edwin L. Rumpf, Assistant Director, Division of Vocational and Technical Education; Dr. Byrl Shoemaker, State Director of Vocational Education, Ohio; George M. Schaffer, Principal, Bucks County Technical School, Fairless Hills, Pa.; and Architects Harry V. Bonner, Jr., William H. Ostermayer, and David J. Pfeiffer for their assistance.

JOHN L. CAMERON
Chief
School Housing Section

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INTRODUCTION

The impact on vocational education programs and building planning and construction will be greatly increased as a result of the passage of the Vocational Education Act of 1963. The Act authorizes the use of funds for the construction of area vocational education school facilities. The Act also states that at least 33⅓ percent of each State's allotment for any fiscal year ending prior to July 1, 1968, and at least 25 percent of each State's allotment for any subsequent fiscal year shall be used for either the construction of area vocational education school facilities or vocational education for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market, or both. Significantly, these funds will be allocated to the States on a per-capita equalization ratio and are to be matched on a 50-50 basis.

The emphasis upon the area vocational school and the types of programs specified in the Act will necessitate programs of planning quite different from those normally associated with the usual elementary, secondary, or community college units. Further, many people who have had relatively little prior experience in this type of activity will assume responsibility for various aspects of planning those programs and facilities.

The intent of this booklet is, therefore, to acquaint local planners—board members, school administrators, citizen committees, architects, and other interested persons—with the aspects of the Act which pertain to construction of area vocational schools and with basic principles involved in planning such facilities. The material has been obtained from a wide variety of sources and condensed in outline form deliberately to serve as a ready reference, particularly for those individuals or groups who might be involved in the early stages of planning.

The booklet will provide answers or references to such questions as the following:

1. What are the basic implications in the Act for facilities construction? (See page 3.)
2. How does a planning group determine the vocational program and facilities needed in its district or area? (See page 5.)
3. What training areas should be considered or included in a vocational program? (See page 6.)
4. What are the major steps to be followed in planning and constructing an area vocational school? (See page 9.)
5. What kinds of consultant services are available, and where can they be obtained? (See page 10.)
6. What are the qualifications and functions of the architect, and how is he selected? (See page 10.)
7. What factors are involved in site selection and building planning? (See page 14.)
8. What general building design considerations should the board or planning group be aware of? (See page 15.)
9. What kinds of information does the architect need to design a building effectively and efficiently? Who prepares the information? (See page 20.)
10. What are the detailed facilities planning suggestions to be considered? (See page 22.)
11. How are construction costs measured? What variables should be considered in estimating costs? (See page 25.)
12. In preparing a capital outlay budget for construction, what items should be included? (See page 26.)
13. How and in what ways can construction costs be reduced? (See page 27.)
14. Where can additional information about facilities planning be obtained? (See page 31.)

THE VOCATIONAL EDUCATION ACT OF 1963 (P.L. 88-210)

Purpose

The purpose of this Act is to authorize Federal grants to States to:

Improve, maintain, and extend existing programs of vocational education, realistic in the light of anticipated opportunities.

Develop new programs of vocational education.

Provide part-time employment to youths to enable them to continue their vocational education training on a full-time basis.

Provide vocational education for those in high school, and those who have completed or discontinued their formal education and are preparing to enter the labor market but need to upgrade or learn new skills.

Provide programs suited to meet the needs, interests, and abilities of the students to enable them to benefit from such training.

Definition of Terms as Specified in the Act

Vocational education—Vocational or technical training or retraining given in schools or classes under public supervision and control, or under contract with a State board or local educational agency.

Objective of vocational education—To fit individuals for gainful employment as semiskilled or skilled workers or technicians in recognized occupations.

Area vocational school

(a) A specialized high school used exclusively or principally for the provision of vocational education to persons who are available for full-time study in preparation for entering the labor market, or

(b) The department of a high school exclusively or principally used for providing vocational education in no less than five different occupational fields to persons who are available for full-time study in preparation for entering the labor market, or

(c) A technical or vocational school used exclusively or principally for the provision of vocational education to persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market, or

(d) The department or division of a junior college or community college or university which provides vocational education in no less than five different occupational fields, under the supervision of the State board, leading to immediate employment but not leading to a baccalaureate degree, if it is available to all residents of the State or an area of the State designated and approved by the State board, and if, in the case of a school, department, or division described in (c) or (d), it admits as regular students both persons who have completed high school and persons who have left high school.

School facilities—Classrooms and related facilities (including initial equipment) and interest in land on which such facilities are constructed. Such term shall not include any facilities intended primarily for events for which admission is to be charged to the general public.

Construction—Construction of new buildings and expansion, remodeling, and alteration of existing buildings; includes site grading and improvement, and architect fees.

Occupational field—A group of recognized occupations having substantial similarities common to all occupations in the group: for example, similarity in the work performed; similarity in the abilities and knowledge required of the worker for successful job performance; similarity in the tools, machines, instruments and other equipment used; and similarity in the basic materials worked on or with. The term is applied, in the case of Federal participation in the construction of an area vocational school, to determine whether a department of a certain type of high school, or a department or division of a junior college, community college, or university provides "vocational education in no less than five different occupational fields." The purpose is to assure that such schools will have offerings that will afford prospective students of varying interests a reasonably broad choice of the type of occupation for which they are to be trained. Determinations of what is an "occupational field" will be made in the light of this purpose.

SURVEY OF AREA NEEDS

The Survey

To provide and analyze essential information on which to base decisions for the vocational program.

To propose a program to meet these requirements.

To determine the facilities (site, building, furniture, and equipment) needed to accommodate the proposed program.

Questions To Be Answered

What are the business and industrial needs, interests, and potential?

What are the students' needs, interests, and potential?

What are the opportunities for the vocational education program?

Would a residential school be more advantageous than a day school?

What physical facilities are presently available?

Can the present facilities be suitably and efficiently adopted?

How can the program operation and building construction or remodeling be financed?

What businesses and industries are presently in operation?

What are the types of jobs available and the number of employees needed to fill them?

What is the potential for expansion or diversification?

What are the implications for training or retraining?

What are the implications for general education?

What are the immediate and long-range program and facilities needs? How can the planning for both best be coordinated?

What facilities are presently available for teaching vocational-technical education?

What are the student (or employee) interests, aims, and objectives?

What types of programs should be offered?

What are the qualifications of available instructional staff?

How many students are to be accommodated?

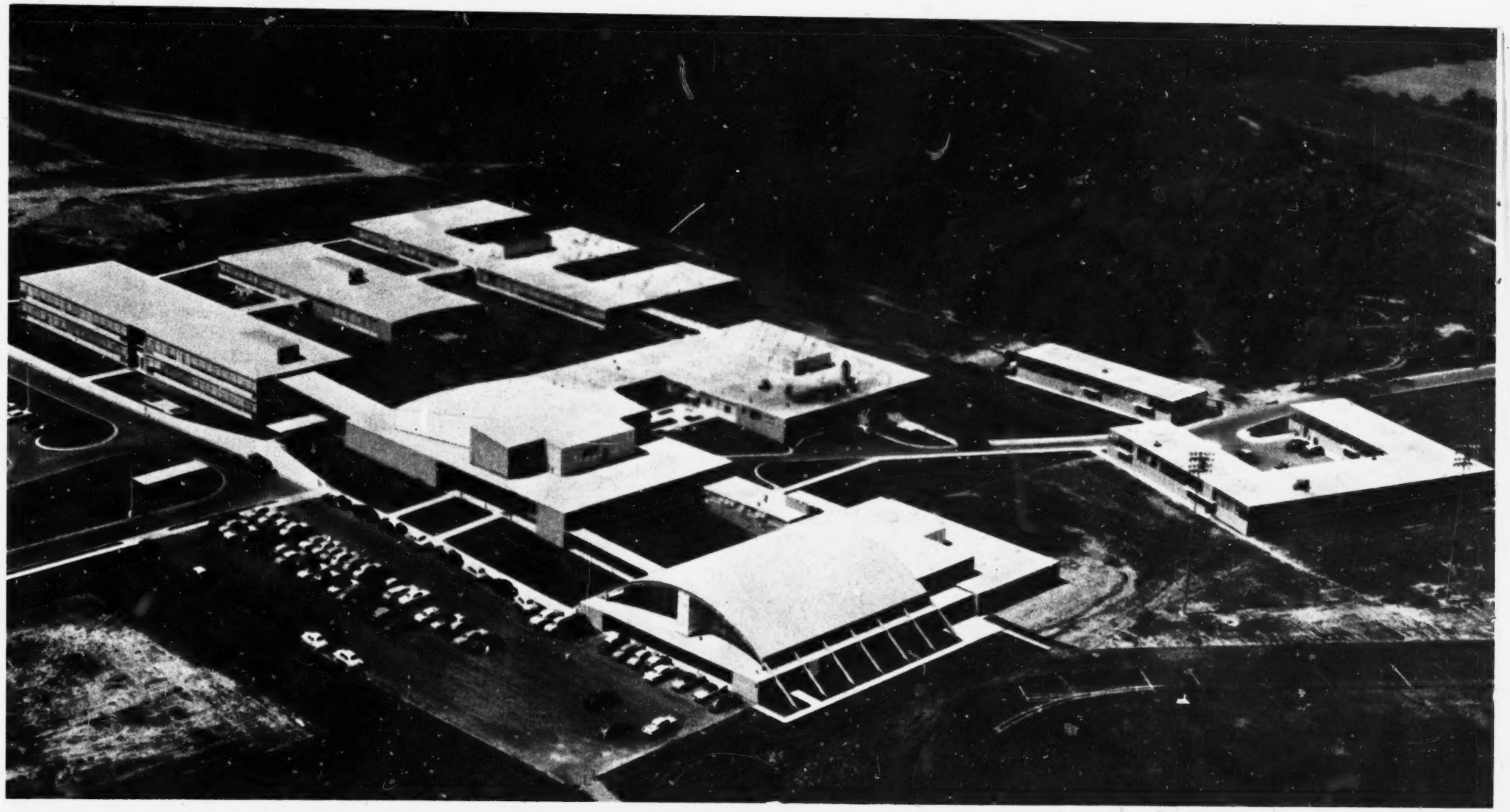
What local, State, and Federal funds are available for financing the program?

How is the program to be financed?

Training Areas in Vocational Education

After surveying area needs, consideration should be given to the following major curriculum areas when planning a vocational facility to insure the development of a well-rounded program:

- Air conditioning and heating
- Agriculture
- Automotive trades
- Aviation
- Building construction
- Chemical trades
- Commercial art
- Cosmetology
- Data processing and programing
- Distributive education
- Drafting
- Electrical trades
- Electronics
- Food service
- Health occupations
- Highway construction
- Home economics
- Mechanical trades
- Office education
- Printing
- Refrigeration
- Watchmaking and instruction



An air view of a campus-type arrangement, parking, and entrances. The Vocational-Technical Center in the upper right can be used as part of the comprehensive high school program.

South Hagerstown High School, Hagerstown, Md.

CHECKLIST OF STEPS FOR PLANNING AREA OR REGIONAL FACILITIES

- ☐ 1. Survey and analyze vocational opportunities, training skills needed, and student interests.
- ☐ 2. Consult with State directors of vocational education and educational plant services.
- ☐ 3. Establish a local educational agency having administrative control and direction of a vocational education program.
- ☐ 4. Submit plans to State agencies in accordance with established rules and regulations.
- ☐ 5. Select an educational consultant, legal counsel, architect, and other professional advisers.
- ☐ 6. Develop educational specifications.
- ☐ 7. Plan a finance program, including capital outlay and current operating expenses.
- ☐ 8. Select and acquire a site.
- ☐ 9. Develop and approve preliminary and final architectural drawings, specifications, and other contract documents.
- ☐10. Plan site development and landscaping.
- ☐11. Prepare specifications on furniture and equipment needs.
- ☐12. Secure construction bids, award contracts, and erect the building in conformance with the official plans.
- ☐13. Purchase and install furniture and equipment.
- ☐14. Accept and occupy the completed building.

CONSULTANT SERVICES

Educational Consultant

Qualifications

Training and administrative experience in education and research, with planning and construction experience. May be a private consultant working independently or with a firm, on a fee basis; or a staff member from a university, a State department of education, or the U.S. Office of Education on a service or reimbursable basis.

Method of selection

By open selection if the consultant is to be paid for his services. By request if consultant service is obtained from a State department of education or the U.S. Office of Education.

Functions

Advise the board of education and the superintendent or director on educational aspects of the building program. Develop educational specifications for approval by the board of education. Interpret educational specifications to the architect, and check architectural plans in terms of the specifications adopted. Conduct the educational survey of the area, advise on the selection of a site, and aid in the selection of furniture and equipment.

Architect

Qualifications

Technical training and certification in the fields of architecture and/or engineering; practical experience; creative ability; business acumen.

Method of selection

Open selection—based on general qualifications.

Competitive design—based on presentation of the best solution in a design competition.

(A standard form of questionnaire for the selection of architects, devised and approved by the National Council of Schoolhouse Construction and by the American Institute of Architects, is included on the following pages.)

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA DOCUMENT SEPT. 1963 ED. B431

STANDARD FORM OF QUESTIONNAIRE FOR THE SELECTION OF ARCHITECTS FOR SCHOOL BUILDING PROJECTS

TEXT JOINTLY OWNED BY NATIONAL COUNCIL ON SCHOOLHOUSE CONSTRUCTION AND THE AMERICAN INSTITUTE OF ARCHITECTS. THIS FORM MAY BE DUPLICATED PROVIDED IT IS REPRODUCED VERBATIM AND ADVANCE PERMISSION IS GRANTED BY BOTH OWNERS

AIA DOC. B431 SEPT. 1963 ED.

DATE:

ARCHITECT:

PROJECT NAME:

A INFORMATION BY THE SCHOOL SYSTEM TO THE ARCHITECT:

1 Name of school system:

2 Name of superintendent or other person to whom questionnaire should be returned:

3 Size of system (pupil enrollment):

4 General description of proposed projects:

5 Approximate timetable for planning and construction period:

B ARCHITECT'S QUESTIONNAIRE:

1 Name:

2 Business address:

3 Telephone number:

4 Type of organization (check one):

- ☐ Individual
- ☐ Partnership
- ☐ Corporation

© 1963 The American Institute of Architects
1735 New York Ave NW., Washington, D. C.

5 Names of principals, professional history, professional affiliation, key personnel, staff organization; (attach information if you prefer):

6 Attach list of completed buildings your firm has designed during recent years. If you have recently established your own practice, indicate prior responsible affiliation with other projects, underline those which you feel are examples of your work appropriate to our problem and which you would like to have visited. Include cost of building, type of building, location and dates of construction.

7 Give names of persons to whom the board of education may write. These persons should have knowledge of your firm and your work:

8 Attach any other material which might help the board of education in giving you proper consideration. In questions 7 and 8, the board is interested in finding out about your:

- integrity
- thoroughness
- creativeness
- adequacy of supervision
- business procedures and record keeping on the project
- financial responsibility

9 If you are called in for an interview, you will be asked to furnish information indicating:

- that your organization is adequate to do the project
- that previous commitments will not prevent expeditious planning of this project
- that you are willing to devote time to carry out cooperative educational planning with designated school staff members or committees
- completeness of contract documents (drawings and specifications)

Functions

Review educational program requirements.

Advise on site selection.

Prepare preliminary drawings of buildings and site plans.

Provide competent estimates of construction cost.

Select structural methods and materials.

Prepare working drawings and specifications—the contract documents.

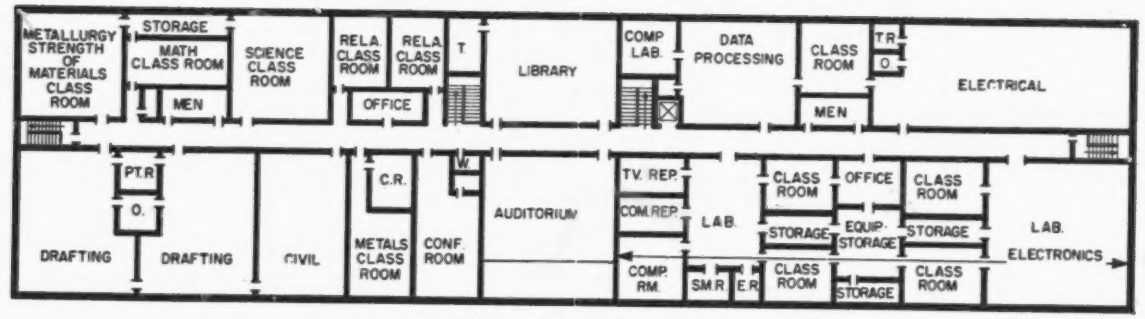
Prepare bid forms and advertisements, secure and tabulate bids, and recommend contractors.

Supervise construction, issue change orders, issue payment certificates for contractors, and recommend final acceptance of complete structure.

BUILDING FLOOR PLAN

Rowan Industrial Education Center, Salisbury, N. C.

This floor plan follows a more compact design, with the various program areas arranged in independent suites yet readily accessible to other areas.



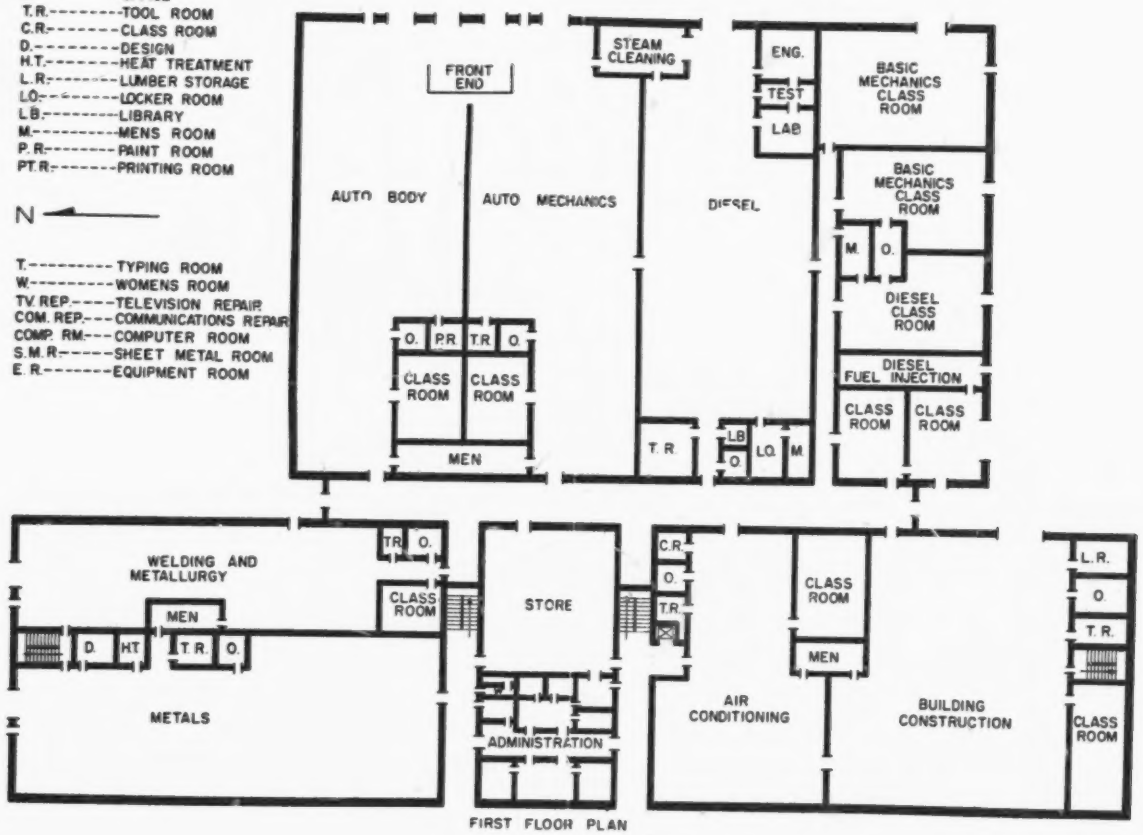
SECOND FLOOR PLAN

ROOM ABREVIATIONS

O.--------OFFICE
T.R.--------TOOL ROOM
C.R.-------CLASS ROOM
D.--------DESIGN
H.T.-------HEAT TREATMENT
L.R.--------LUMBER STORAGE
LO.--------LOCKER ROOM
L.B.--------LIBRARY
M.---------MENS ROOM
P.R.--------PAINT ROOM
PT.R.-------PRINTING ROOM

N

T.---------TYPING ROOM
W.---------WOMENS ROOM
TV.REP.----TELEVISION REPAIR
COM. REP.---COMMUNICATIONS REPAIR
COMP. RM.---COMPUTER ROOM
S.M.R.-----SHEET METAL ROOM
E.R.-------EQUIPMENT ROOM



FIRST FLOOR PLAN

Nebraska Vocational-Technical School, Milford, Nebr.

This floor plan depicts a two-story arrangement of program and space relationships. The "light" shops and laboratories are located on the second floor, and the "heavy" shops and laboratories on the first floor.

BASIC CONSIDERATIONS FOR PLANNING VOCATIONAL EDUCATION FACILITIES

The Site

Size—Sufficient in area to provide space for:

- Present and future buildings.
- Outdoor instruction and recreation.
- Student, faculty, and visitor parking.
- Site beautification.
- Service drives, walkways.

Location

- Readily accessible to drive-in traffic.
- Availability of water, sewers, electricity, and gas at reasonable cost.
- Coordinated with community planning.

Criteria for Selection

Health and Safety

- Free of excessive noise, odors, smoke, dust, and congested traffic.

Suitability

- Adequate space for the various types of buildings, future expansion, drives, walkways, recreation, parkway.

Economy—The reasonable purchase price plus site features which preclude:

- Excessive excavation and hauling.
- Special footings or pilings.
- Special installations because of distances to public utilities.
- Construction and maintenance of long access drives.

Site Development

- Building located and oriented properly.
- Provision for placement of the building, drives, recreation areas, and parking space in proper relationship to one another.
- Provision for safe approaches to the site.
- Provision for site beautification.

The Building

Curriculum Dictates the Design

A prime factor in the planning of facilities for vocational and technical education is the realization that each of the areas has specific requirements which must be met. Further, these programs may vary with the specific training needs of each community. Since the building and other facilities are basically educational tools, they are essential to the educational process and will help to achieve the purposes of the program. Building design is, then, an expression of how the problems of educational program planning have been solved.

Design Considerations

Flexibility

Creation of a building which can be readily adapted to future learning requirements, enrollments, and methods of teaching.

Rearrangement of space in the building without major structural changes.

Multiple use of space for both day and night classes.

Expansibility

Increase in the floor area of a structure, either by expansion on the same level or by the addition of another story.

General environment

Proper control and balance of acoustics, heating, ventilating, lighting, and color.

Aesthetics

Imagination and creativity to meet emotional as well as physical needs.

Safety

Overall structural safety, traffic control, proper lighting, space for each item of equipment, removal of exhaust fumes, and suitable fire-fighting equipment for each area.

Economy

Adaptation of the building to the site; building spaces that are related functionally; building perimeter lines straight, simple, and short.

Program Considerations

General classrooms for lecture or discussion-type activities.
Laboratories and shops for demonstration and project activity.
Preparation rooms and instructional supply storage.
Project storage and student lockers.
Library and resource materials.
Classroom equipment and furniture.

Administration Considerations

Private and general offices.
Guidance, counseling, and conference rooms.
Health clinic.
Cafeteria and food service.
Personnel records vault.
Custodial and maintenance shops.
Central supply receiving and storage rooms.
Toilets, drinking fountains, and rest rooms.

Environmental Controls

Proper heating and ventilation to control room air temperature, humidity, purity, and distribution.
Acoustical treatment to control or minimize sound transmission in and between classrooms, shops, laboratories, and other areas.
Balanced electrical lighting, natural light, and interior finishes.

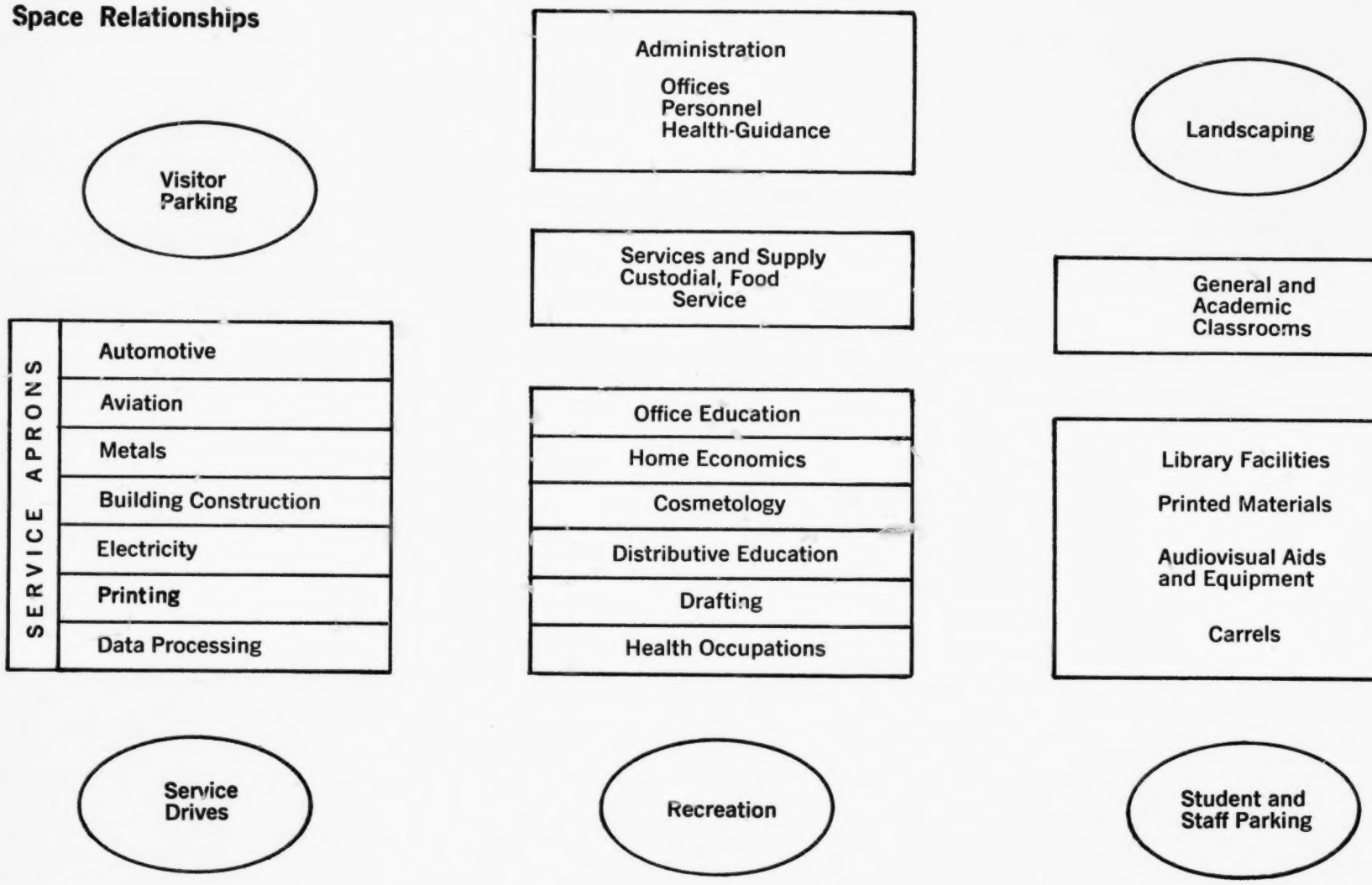
Auxiliary Needs

Electricity, gas, and water.
Sewage and waste disposal.
Inter-communication system.
Program clock and emergency bell system.
Closed circuit TV.

Area and Space Relationships

Proper relationships of each area to others to facilitate traffic flow, reduce noise and confusion, and to complement program planning.
Noisy areas separate from other areas.
Ease of movement of supplies and equipment.
Accessibility of parking areas to the administrative offices and instructional learning areas.
Various rooms or areas zoned for independent use as needed or desired.

Space Relationships



EDUCATIONAL SPECIFICATIONS

What Are They?

The written outline of the vocational and technical education program and the facilities needed to accommodate that program.

What Are Their Values?

Thorough examination of the needs will:

Stimulate more effective planning.
Promote economy in planning the facilities.
Aid in determining the number and types of rooms and space to be provided.
Serve the architect as a guide for building design.
Serve the students, faculty, and staff as a guide to utilize the building more effectively.
Provide for more cooperative planning and understanding of program objectives.
Emphasize the community's objectives and aims for the vocational and technical education program.

What Do They Include?

General requirements

Statement of the philosophy and objectives of the community for its vocational and technical education program.

A plan of the proposed vocational and technical education organization, program, and the groups to be accommodated.

A description of the educational facilities needed.

Detailed requirements

Statements of the philosophy and objectives of each of the subject offerings.

Space requirements, numbers, and kinds of rooms needed for each subject field.

Special utilities and service needs in shops and laboratories.

Relationships of spaces required or preferred.

Environmental factors needed or desired.

Miscellaneous information

- Traffic patterns—interior and exterior.
- Storage.
- Floor materials in shops and laboratories.
- Cleaning systems.
- Intercom, program bell, and clock systems.
- Furniture and equipment to be housed.
- Custodial services.
- Mechanical equipment.

Who Develops Them?

A combined effort of the following, operating under the legal authority of the local board of education:

- Administrative staff.
- Instructional staff.
- Educational consultants.
- Architects.
- Lay groups.
- Students.
- Occupational advisory groups.
- Representatives from management and labor and other responsible educational agencies.

GENERAL PLANNING SUGGESTIONS

Program Planning

Vocational education is designed primarily for those who have selected a vocational objective and wish to prepare for full-time employment in their chosen field.

Vocational education operations taught should closely parallel accepted industrial practices.

Programs and facilities should be planned and arranged so that day and night extension classes can be scheduled in the same rooms.

Careful attention should be given to include those programs which would be of greatest benefit to the largest number of students. Some programs may demand certain kinds or sizes of expensive equipment which might preclude other offerings of greater instructional benefit.

Shops should be designed to minimize the possibility of personal injury to occupants, damage to equipment, and discipline problems of inexperienced youth.

Location of Rooms

Vocational buildings should be designed to harmonize with surrounding buildings.

Shops should be separated from the general classrooms because of (1) the noise in the shops during instructional periods and (2) the necessity to move vehicles and equipment in and out with little confusion.

"Heavy" shops—automotive, aircraft, building trades, machine—should be located on the ground floors and, preferably, in one-story buildings.

"Light" shops and laboratories—electronics, barbering, cosmetology—may be located on an upper floor and near regular classrooms.

Concrete aprons should be provided adjacent to the shops for outdoor instruction, storage of vehicles and equipment, and more convenient access to the shops.

Exterior storage areas should be protected with chain-link fences and locked gates.

Shop and Laboratory Planning

The sizes of the shops and laboratories will depend upon their purposes. Those which are equipped with various sizes and kinds of motor-driven machines will also require open areas for assembly of projects and demonstrations.

The ideal shape of a shop or laboratory is rectangular. There should be no columns or structural protuberances of any sort.

The ceiling heights should vary with the nature of the program being planned, the types of machinery used, and the necessity for overhead cranes and hoists.

Two entrances should be provided for each shop or laboratory—one of which is a service entrance and the other, a student entrance. Outside doors should open outward or slide upward.

Wash fountains with both hot and cold running water and drinking fountains should be installed in each shop or laboratory area in addition to those provided in the general classroom wings. Toilet rooms should be easily accessible in each wing or section.

Ample storage rooms for student projects, instructional supplies, materials, tools, and other types of equipment should be provided in each shop and laboratory. Special storage arrangements for precision instruments should also be provided.

Storage rooms should not project into the shop or laboratory area.

An area adjacent to the shop is desirable for group instruction, planning, counseling, and office space.

Dust-proof finishing rooms with exhaust fans and special electrical switches and lights should be provided where painting and finishing is done.

Adequate floor drains should be installed for ease of cleaning and for the removal of rain or melting snow from vehicles brought in during inclement weather.

Display cases for exhibiting students' projects should be installed in corridors near the shops.

Each machine should be located so that adequate space is provided for the operator and the instructor, and for the safe handling of materials.

Each student should be provided with a locker for storage of personal belongings and incompleted shop projects.

Safety Precautions and Equipment

Proper kinds of fire extinguishers should be provided in the shops and laboratories.

Hazardous machines must be equipped with adequate guards and surrounded by guard rails appropriately painted.

Switches on power-driven machines should be of the safety type and placed to avoid accidental contact.

All machines should be controlled by a master switch under lock and key.

Safety switches for emergency should be installed throughout shop and laboratory.

All machines and motors should be grounded.

Adequate provision should be made for safely handling waste materials, oil, and paint rags.

Dust-collecting systems should be provided each woodworking machine.

Exhaust from all gasoline or diesel engines should be muffled and connected with an underground exhaust system.

SCHOOL CONSTRUCTION COSTS AND CAPITAL OUTLAY

Units of Measure for Estimating Construction Costs

Costs for school building construction are usually measured in cost per square foot, cost per cubic foot, cost per pupil, and cost per classroom. While there are rather wide ranges of cost within each of these units of measurement, approximations of the dollar equivalents among them for conventional construction are:

$15 per square foot	$1,850 per pupil
$1.05 per cubic foot	$35,000 per classroom

Methods of Determining Areas in School Buildings*

"Gross area of a building is the sum of the areas at each floor level included within the principal outside faces of exterior walls, neglecting architectural setbacks or projections.

"Include all stories or areas which have floor surfaces with clear standing head room (6 feet 6 inches minimum) regardless of their use. (Include mezzanines, balconies, and library stack floors only to the extent of their actual floor area; do not include unenclosed areas under the first floor.)

"Where a ground level or intermediate story, or part thereof, is left unenclosed, consider the gross area of the unenclosed story as the projected area of the story above.

"Exclude all unroofed areas and unenclosed roofed-over spaces. (Unenclosed roofed areas which have been included in original cost contracts can be excluded on a computed or estimated basis for the development of comparative data of gross building areas and costs.)"

Variables in Cost Comparisons

1. Nature of the educational program to be housed.
2. Proportion of actual instructional space to total area of the building.
3. Number and kinds of educational equipment included in construction cost.
4. Labor wage rates and costs of construction materials.
5. Site preparation and development.

* Defined by the American Standards Association

6. Availability of utilities.
7. Geographical location.
8. Design and type of building planned.
9. Construction methods utilized.
10. Building materials.
11. Cost trends.
12. Availability of labor for skills required.
13. Amount of off-site and on-site construction necessary.

Cost Estimates of School Construction

1. Indicate financial and educational program limitations within which the board and the architect can plan facilities.
2. Provide opportunities to add or delete alternates on the bidding for contracts.
3. Make it possible to plan for quality and quantity of space more scientifically.
4. Enable educators to establish and adjust priorities for program planning.

Proposed Construction Budget Items

1. Land acquisitions _____
2. Building contracts
   a. General _____
   b. Heating and ventilation _____
   c. Plumbing _____
   d. Electrical _____
   e. Other _____
3. Architect fees _____
4. Engineering services _____
5. Consultant services _____
6. Administrative expense _____
7. Legal services _____
8. Interest during construction _____
9. Insurance during construction _____
10. Site development _____
11. Contingencies _____
12. Clerk-of-the-works _____
13. Furniture and equipment _____

TOTAL _____

ECONOMIES IN PLANNING AND CONSTRUCTING VOCATIONAL EDUCATION SCHOOLS

School costs are measured in several ways: namely, in actual construction dollars, in initial cost, in long-range costs, and in educational returns for dollars spent. Many economies may be effected by reducing the cost of construction, but attention must also be given to other factors, such as:

Educational program planning—immediate and long-range

- Determine the needs in the area and courses necessary to meet these needs.

Site selection and acquisition

- Select site well ahead of actual need.
- Obtain sufficient acreage at the original purchase.

Design and planning procedures

- Plan well in advance of need to avoid hasty decisions.
- Obtain competent professional assistance.
- Prepare educational specifications.
- Adapt buildings to the site.
- Simplify the building design.
- Plan spaces which can be modified for other areas.

Basic construction patterns

- Use skeleton-type construction—non-load-bearing partitions.
- Adopt standardization of component parts.

Exterior design

- Keep lines straight and simple.
- Use desirable, easily maintained building material.
- Limit or avoid excessive ornamental trim.

Interior design

- Plan for multiple use of spaces.
- Orient program areas and classrooms properly.
- Provide overhead services for machines.

Building materials and finishes

- Use tested materials.
- Standardize hardware, doors, and windows.
- Use proper types of materials in special areas.
- Use indigenous materials where possible.

Design for multiple use of materials; for example, combination roof and ceiling.

Furniture and equipment

Select proper types and kinds needed for the particular vocational programs.

Locate heavy machinery near the service doors whenever feasible.

Building maintenance

Plan a program of preventative maintenance.

Plan for stability and low maintenance costs.

Administration

Select architect, legal counsel, educational and other consultants in the early stages of planning.

Arrange detailed and specific contracts with each consultant engaged.

Provide ample time for each of the planning steps.

Employ a clerk-of-the-works during the construction phase.

Financing

Maintain construction cost comparisons.

Prepare a capital outlay budget.

Study methods of financing.

Study bond interest rates.

GLOSSARY OF FACILITIES PLANNING TERMS

Assembly area: An area within the school shop, free of machinery and equipment, where the component parts of large instructional projects can be assembled.

Auxiliary facilities: Rooms or other facilities in or adjacent to the shop area which are used for special purposes; for example, toilets, dressing rooms, offices, visual aids room, storage rooms, and rooms or booths for painting, sanding, drying, welding, and the like.

Finishing room: An enclosed area, within or adjacent to a shop, which is used for spraying or painting projects or materials.

Instructional area: As applied to a shop, an area within the shop usually equipped with tables, chairs, instructor's demonstration desk, book cases, and other equipment which the instructor and groups of students may use for study and instruction or technical topics which are incidental to the shop instruction. The instructional area can be incorporated in the planning area.

Instructional material: A general term usually applied to all forms of printed materials used in instruction—including textbooks, reference books, trade journals, shop manuals, catalogs, student study guides, blueprints—as well as audiovisual and other materials used in the teaching-learning process.

Live engine: A mounted internal combustion engine in running condition, stripped of all nonessential parts and used for instructional purposes.

Model: A three-dimensional representation of a real object or device which has been altered in such a manner as to clarify the construction or operation of the real object.

Mock-up: An unnatural layout or arrangement of the working parts of an electrical, hydraulic, or mechanical assembly (usually mounted on a panel board) which clarifies the interrelationship of the several parts and which can be made to operate upon application of power.

Panel silhouette: A panel board, used for mounting hand tools and small shop equipment, on which the outlines of the mounted objects are painted in a contrasting color so that the absence of an object is easily noticed.

Planning area: An area within the shop, equipped with tables, drawing equipment, reference materials, and the like, which is used by students and instructor for planning and laying out instructional jobs or projects. The planning area can be incorporated in the instructional area.

Project: A complete object built or constructed by a student or group of students for instruction purposes.

Safety zone: A zone around a machine or work area, usually outlined with a painted stripe on the floor, outside of which a person is safe from possible injury.

School plant: The total physical facilities of a school, usually confined to one campus or general area.

Service entrance: A door or entrance large enough to admit a delivery truck.

Shop, "heavy": A term sometimes used to indicate a shop requiring large and heavy items of equipment.

Shop, "light": A term used to indicate a shop, such as commercial arts and radio shop, in which little, if any, heavy equipment is required.

Shop area: The total area of a shop used for instructional purposes, exclusive of classroom, wash room, toilets, and the like.

Supplies: Those expendable items which are necessary for shop instruction but which do not necessarily become a part of a job or project; for example, fuels, lubricants, abrasives, cutting tools, files, small drills, fastening devices, pencils, erasers, and similar supplies.

Tool panel: An upright wooden surface for mounting hand tools and small equipment used in shop instruction.

Trade preparatory shops: Shops operated by the school to prepare persons for an occupation.

Utility machine: A machine for general use in any type of shop work, including shop maintenance; for example, drill press, grinder.

Work station: A location within the shop which has the necessary facilities for one student to work as a part of his daily instruction; for example, individual machines (exclusive of utility machines), work benches, and tool rooms. A shop must have at least as many work stations as there are students enrolled in a given class.

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OHIO

Manpower changes in Ohio are projected to 1970 through utilization of census information and a component method. It was assumed high levels of production and employment and scientific and technological advances would continue. Population growth during the 1960's was projected at 2 million which included both in-migration and new births. Tables present a picture of the civilian labor force, employment in industries, and employment by occupations. Some major conclusions were: (1) The civilian labor force will increase faster than the population, (2) Women will compose one-third of Ohio's labor force, (3) The service industries will lead in the employment growth, (4) Farm employment will continue to decline, (5) Greatest growth will occur in professional and technical jobs, (6) The number of unskilled jobs will not show significant change, and (7) The fastest growth in employment will occur among occupations requiring higher levels of skill, education, and training. The appendix contains a summary of methodology, a directory of local offices, maps depicting employment offices and areas of population concentration, and a list of selected references. (DM)

VT 002 392

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MANPOWER IN OHIO

1960 to 1970

DIVISION OF RESEARCH AND STATISTICS
BUREAU OF UNEMPLOYMENT COMPENSATION
COLUMBUS 16, OHIO

VT002292

MANPOWER IN OHIO

1960 to 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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DIVISION OF RESEARCH AND STATISTICS
BUREAU OF UNEMPLOYMENT COMPENSATION
COLUMBUS 16, OHIO

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ACKNOWLEDGEMENTS

Low birth rates during the Great Depression of the 1930's, high birth rates following the close of World War II, major population movements between the states, and new patterns of living, production and labor-force participation have all contributed--and will doubtless continue to contribute--to significant changes in the volume and composition of Ohio's population and labor force. Recently published Census data for Ohio for 1960 offer a basis for retrospective review over two decades, and assessment of prospects to 1970. This is the purpose of "Manpower in Ohio, 1960 to 1970."

The study was conducted under the general supervision of William Papier, Director of Research and Statistics. The analysis was prepared by John Shea, Research Assistant, under C. Thomas Haworth, Assistant Director for Research. Other than Mr. Shea, those who contributed most, in terms of ideas, review, editing, and revising the various drafts for publication, were Messrs. Papier and Haworth and Mrs. Gerry Ziegler.

It should be emphasized that this study presents projections rather than forecasts, which are dependent largely upon the validity of the stated assumptions. Although no fine degree of precision should be expected, the general patterns projected seem fairly clear and clearly significant to everyone concerned with "Manpower in Ohio," currently and in the years immediately ahead.

Willard P. Dudley, Administrator
Ohio Bureau of Unemployment Compensation

Revised, March 1963

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CHAPTER I. INTRODUCTION

This is a story of Ohio's manpower. It summarizes the important changes which are likely to occur in the population and labor force of Ohio during the 1960's.[1] It also examines some of the industrial and occupational trends in employment.

Estimates and projections are presented on a statewide basis.[2] If the manpower resources of the State are wisely utilized, Ohio can substantially improve the standard of living of all of its citizens. Leaders in industry, labor, government, and education can help assure each Ohioan of an opportunity to develop his full potential and utilize his highest level of skill.

Looking into the future is always hazardous. A high degree of precision, therefore, should not be expected. Projections presented represent judgments based largely on past trends. Nevertheless, patterns which have shown remarkable uniformity in the past are subject to change. Many unforeseen events, no doubt, will exert great influence on the future.

Plans must be made. Consequently, projections are necessary even though they may not prove to be precise. As the 1960's unfold, however, many will probably approximate the record, as projected.

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[1]For similar national estimates and projections, see U.S., Department of Labor, Manpower Challenge of the 1960's, Washington, D.C.: [1960].

[2]The methodology of this study is outlined in the Appendix. Generally, the procedure followed is that suggested in the U.S. Department of Labor's Handbook on Sources of Data for Manpower Projections. Exceptions are noted. See U.S., Bureau of Employment Security, Handbook on Sources of Data for Manpower Projections, Washington, D.C.: March, 1961.

The general assumptions underlying these projections are based on manpower developments in Ohio and the Nation during the 1950's, and on projected national manpower trends to 1970, as developed by the U.S. Bureau of Labor Statistics.[1]

First, it is assumed that the relatively high levels of production and employment generally prevailing since World War II will continue. Attainment of maximum employment, production, and purchasing power, as expressed in the Employment Act of 1946, has become an important part of national policy. The emphasis upon economic growth; the expansion of world trade; military, ideological, scientific, and economic rivalry; greater expenditures on research, technology, and education; all point to continued high levels of economic activity.

Second, it is assumed that scientific and technological advances will continue to affect patterns of production and consumption. Over the past several decades, increased output per man-hour has offset the downward trend in the number of hours worked by the average worker. These trends are expected to continue. Productivity of the average worker in agriculture is expected to rise 4.3 percent per year, and that of the average nonagricultural worker, 2.5 percent per year. These increases anticipate greater skill, better utilization and organization of resources, and more effective tools of production.

Finally, it is assumed that there will be no "shooting" war or other catastrophe of a magnitude sufficient to alter substantially the rate of economic growth in Ohio. These assumptions, of course, envisage continuity of recent patterns.

---

[1]Some of the more specific assumptions are presented in the Appendix.

CHAPTER II. POPULATION OF OHIO

There will be nearly two million more people in Ohio in 1970 than there were in 1960. As shown in Table 1, Ohio's population is expected to increase to 11.7 million by the end of the decade.[1]

Table 1
Population of Ohio, 1930, 1940, 1950, 1960, 1965, and 1970

Year	Population (thousands)	Increase from Previous Census Year[a]	
		Number (thousands)	Percent
1930	6,647	.....	.....
1940	6,908	261	3.9
1950	7,947	1,039	15.0
1960	9,706	1,760	22.1
1965	10,702	.....	.....
1970	11,693	1,987	20.5

[a]Both number and percentage increases are based on unrounded totals.
Source: U.S., Bureau of the Census, Census of Population: 1960, General Population Characteristics, Ohio, Final Report PC(1)-37B, Washington, D.C.: U.S. Government Printing Office, 1961, Table 17, p. 60, for 1930, 1940, 1950, and 1960 data.

In absolute numbers, this increase will be the largest during any decade in the history of Ohio. On the other hand, because there are more people now than 10 years ago, the relative gain will be somewhat smaller than the gain of the "fifties." Whereas population

[1]Unless otherwise indicated, all estimates through 1960 and all projections through 1970 are those of the Division of Research and Statistics, Ohio Bureau of Unemployment Compensation, Columbus, Ohio. Reference dates for any year are for April--the month of the decennial Census of Population. Thus the decade of the "sixties" represents the period from April 1960 through March 1970.

in this State increased 22.1 percent between 1950 and 1960, an increase of 20.5 percent is projected between 1960 and 1970.

Components of Change

Population growth in Ohio, like population growth everywhere, has two possible origins: (1) the natural increase, which occurs when the number of births exceeds the number of deaths; and/or (2) the increase which occurs when the number of in-migrants exceeds the number of out-migrants. Both sources of increase are expected to contribute to Ohio's expanding population in the "sixties."

Over the past two decades, an extraordinary change in family patterns has occurred. Recent trends to earlier marriage and larger families have been well-documented. This post-World War II experience, however, has not been consistent with the over-all decline in birth rates since the end of the 19th century.[1] Many experts have speculated on whether or not recent high birth rates will continue. One impending change, the tremendous increase in the number of young people under 30 years of age, could result in a decline in birth rates during the coming decade. Many of those born in the 1940's and 1950's will be reaching maturity in the 1960's.

As a partial consequence of their relative scarcity, young men and young women in the past two decades have enjoyed exceptional opportunities for employment. Because the number of young people will increase tremendously over the next decade, employment opportunities

---

[1]"Birth rate" refers to the number of births over a period of time, usually one year, relative to the number of people in a particular age or sex group. For example, the term "crude birth rate" refers to the number of births per 1,000 population.

for this age group may not prove to be as favorable as in the past. Birth rates, therefore, are expected to decline slightly from the very high rates experienced in the 1950's.[1] Nevertheless, the projected number of births in Ohio--2.4 million--will far exceed the number in any past ten-year period.

Along with a slight decline in birth rates, Ohio also may anticipate, as a result of new medical advances, a gradual decline in the death rate. Death is expected to claim the lives of slightly less than one million Ohioans during the decade.

Furthermore, as a consequence of high living standards and generally growing employment opportunities, Ohio will gain approximately 550,000 people through net in-migration during the "sixties." Many are expected to move to Ohio from neighboring states. During the 1950's, the bordering states of Pennsylvania, West Virginia, and Kentucky lost over 1.3 million people through net out-migration.

Table 2
Components of Population Growth in Ohio, 1940 to 1960

Decade	Population Growth (thousands)	Components of Change (thousands)		Net Migration as Percent of Growth
		Natural Increase	Net Migration	
1940 to 1950	1,039	794	245	23.6
1950 to 1960	1,760	1,351	409	23.2

Source: U.S., Bureau of the Census, "Population Estimates," Current Population Reports, Series P-25, No. 247, Washington, D.C.: April 2, 1962, Tables 1 and 4, pp. 4 and 7.

---

[1]This view is taken by University of Pennsylvania Professor Richard A. Easterlin, in "The American Baby Boom in Historical Perspective," American Economic Review, Vol. II, No. 5, December, 1961.

Only California, Florida, and New Jersey exceeded Ohio in population growth through net migration.[1] In fact, migration alone accounted for nearly one-fourth of Ohio's total population growth since 1940.

The number of nonwhite migrants into Ohio actually declined slightly in the 1950's from the higher number in the 1940's, as

Table 3
Net Migration Gain in Ohio by Color, 1940 to 1960

Decade	Migration Gain (thousands)			Percent		
	Total	White	Nonwhite	Total	White	Nonwhite
1940 to 1950..	245	110	135	100.0	44.9	55.1
1950 to 1960..	409	276	133	100.0	67.5	32.5

Source: Current Population Reports, Series P-25, No. 247, op. cit., Table 4, p. 7.

indicated in Table 3. White migrants accounted for 45 percent of net in-migration in the 1940's and 68 percent in the 1950's. While the gain in white migrants is expected to increase substantially in the "sixties," little increase is expected in nonwhite migrants.

Age

Coinciding with rapid population growth, the next few years will see the age composition of Ohio's population shift significantly. The impact of low birth rates during the 1930's; war losses in the early 1940's; and the postwar "baby boom" are reflected in current population

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[1] U.S., Bureau of the Census, "Population Estimates," Current Population Reports, Series P-25, No. 247, Washington, D.C.: April 2, 1962, Table 1, p. 4.

statistics. These historical events will also greatly affect the population figures for some years ahead. Those born in the 1930's are in 1962, from 22 through 32 years of age. In 1970, eight years hence, those born in the 1930's will be the 30 through 40 year age group. Similarly, those born in the 1950's--the 2 through 12 year age group in 1962--will become the 10 through 20 year age group in 1970.

This "age flow" through time will result in important changes by 1970 in the percentage distribution of Ohio's population by age group. Those 14 through 24, and 65 and over will increase their proportions of the total population. High birth rates in the late "forties" and early "fifties," along with a lengthening life span, will account for these higher percentages. Because of the fall in birth rates which occurred in the 1930's, the 25 through 44 year age group will represent only 23.6 percent of the population in 1970. In 1960, this age group represented nearly 27 percent of the total.

Still, as Table 5 indicates, there will be more Ohioans in each age group by 1970 than there were in 1960. While the total population is expected to increase 20.5 percent, the increase in the 14 through 24, and 45 and over age groups will be even greater. The most startling change will occur in the 18 through 24 year age group, in which an increase of 512,000 is expected by 1970. This 63 percent increase will be the direct result of the spectacular "baby boom" following World War II.

The smallest relative gain will be among those from 25 through 44 years of age. This group will increase less than 7 percent over

Table 4
Population of Ohio by Age Group, 1950, 1960, 1965, and 1970[a]

Age Group	Population (thousands)				Percent			
	1950	1960	1965	1970	1950	1960	1965	1970
Total	7,947	9,706	10,702	11,693	100.0	100.0	100.0	100.0
Under 5 years	847	1,139	1,190	1,225	10.7	11.7	11.1	10.[illegible]
5 - 13 years	1,103	1,801	1,933	2,065	13.9	18.5	18.1	17.7
14 and over	5,997	6,766	7,579	8,403	75.5	69.7	70.8	71.9
14 - 17 years	402	568	705	852	5.1	5.9	6.6	7.3
18 - 24 years	803	818	1,058	1,329	10.1	8.4	9.9	11.4
25 - 44 years	2,403	2,588	2,688	2,756	30.2	26.7	25.1	23.6
45 - 64 years	1,680	1,896	2,106	2,313	21.1	19.5	19.7	19.8
65 and over	709	897	1,022	1,153	8.9	9.2	9.6	9.9

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.
Source: U.S. Census of Population: 1960, Final Report PC(1)-37B, op. cit., Table 16, p. 55, for 1950 and 1960 data.

Table 5
Population Growth in Ohio by Age Group, 1960 to 1970

Age Group	Population (thousands)			Population Increase (number in thousands)					
				1960 - 1965		1965 - 1970		1960 - 1970	
	1960	1965	1970	Number	Percent	Number	Percent	Number	Percent
Total	9,706	10,702	11,693	996	10.3	991	9.3	1,986	20.5
Under 5 years	1,139	1,190	1,225	51	4.5	34	2.9	86	7.5
5 - 13 years	1,801	1,933	2,065	132	7.3	132	6.8	264	14.7
14 and over	6,766	7,579	8,403	813	12.0	824	10.9	1,636	24.2
14 - 17 years	568	705	852	137	24.1	147	20.9	284	50.0
18 - 24 years	818	1,058	1,329	240	29.3	272	25.7	512	62.6
25 - 44 years	2,588	2,688	2,756	101	3.9	67	2.5	168	6.5
45 - 64 years	1,896	2,106	2,313	210	11.1	207	9.8	417	22.0
65 and over	897	1,022	1,153	125	14.0	131	12.8	256	28.5

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.
Source: U.S. Census of Population: 1960, Final Report PC(1)-37B, op. cit., Table 16, p. 55, for 1960 data.

the decade. At the same time, the number of men and women over 45 years of age will rise substantially--more rapidly than the average for all ages. This gain will reflect, primarily, lengthened life expectancy. An increase in the number of youngsters under 14 years of age is also anticipated. Because of the projected decline in the birth rate, however, the relative increase should be slight.

The ratio between young and old and those in the "middle" age groups is of considerable importance. Those 18 through 64 years of age, in most cases, provide the sources of income for those under 18 and over 64, either through direct support or indirectly through public and private programs. This "dependency ratio," or proportion of the population in the dependent age groups, increased significantly from

Table 6
Population of Ohio by Productive and Dependent Age Groups, 1950, 1960, 1965, and 1970[a]

Age Group	1950	1960	1965	1970
	Population (thousands)			
Total	7,947	9,706	10,702	11,693
Productive age group: 18 - 64 years	4,886	5,301	5,852	6,398
Dependent age group: Under 18; 65 and over ..	3,061	4,405	4,851	5,295
	Percent			
Total	100.0	100.0	100.0	100.0
Productive age group: 18 - 64 years	61.5	54.6	54.7	54.7
Dependent age group: Under 18; 65 and over ..	38.5	45.4	45.3	45.3

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.

Source: U.S. Census of Population: 1960, Final Report PC(1)-37B, op. cit., Table 16, p. 55, for 1950 and 1960 data.

1950 to 1960. Those in the "productive" age groups have been called upon to support more younger and more older people. The fact, nevertheless, that per capita income in Ohio rose substantially from 1950 to 1960 is a tribute to the underlying strength of the economy.[1]

The "dependency ratio" is expected to change very little during the 1960's, as can be seen in Table 6. A greater proportion of those 18 through 64 years of age, however, will be under 25 or over 45.

Young People

All of the young people who will reach age 18 in the "sixties" will not enter the labor force. Many will go to college. Providing qualified faculties, educational facilities, and subsequent employment opportunities for these young men and women will be major concerns. Furthermore, these problems will not be temporary. The number of young people will continue to increase, although at a somewhat slower rate.

Young people reaching age 18 each year in the 1960's will rise sharply, especially during the second half of the decade. Nearly 1.7 million young men and women in Ohio will reach 18 in the "sixties"—600,000 more than in the previous decade. This projected increase is a direct result of the great rise in the number of births during and immediately following World War II. Ohio youth 18 years

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[1]Between 1950 and 1960, per capita income in Ohio rose from $1,612 to $2,339. This is a $727, or 45 percent increase in ten years. Adjusting for consumer price changes, the increase is still substantial--$345, or 17.9 percent. See U.S., Office of Business Economics, Department of Commerce, Survey of Current Business, Washington, D.C.: U.S. Government Printing Office, August, 1961, Table 2, p. 13, and U.S., Bureau of Labor Statistics, Department of Labor, Historical Series, Consumer Price Index (1957-1959 = 100), Washington, D.C.: [1962].

Table 7
Number of Ohio Young People Reaching
18 Years of Age, 1950 through 1970[a]

Year	Number Reaching 18 (thousands)	Percent of 1960
1950	102	77.5
1951	102	77.5
1952	100	75.7
1953	108	82.5
1954	106	80.5
1955	111	84.2
1956	117	88.9
1957	115	87.8
1958	113	86.0
1959	115	87.6
1960	132	100.0
1961	151	114.7
1962	143	108.8
1963	139	106.0
1964	141	107.3
1965	194	147.3
1966	200	152.4
1967	196	149.2
1968	199	151.2
1969	200	151.7
1970	212	160.9

[a]Percentages are based on unrounded numbers.
Source: U.S., Bureau of the Census, Census of Population: 1950, Vol. II, Detailed Characteristics, Part 35, Ohio, Chapter C, Washington D.C.: U.S. Government Printing Office, 1952, Table 51, p. 199, for 1950 number. U.S. Census of Population: 1960, Final Report PC(1)-37B, op. cit., Table 16, p. 55, for 1960 number.

of age in 1960 numbered 132,000. The total in 1965 will be about 194,000. The number in 1970--some 212,000--will be 61 percent greater than in 1960.

This huge expansion in the number of young people will be accompanied by greatly increased school enrollment. Not only will there be more young people of school age, but a greater proportion than in the

Table 8
School Enrollment in Ohio by Age Group, 1950, 1960, and 1970[a]

Age Group	Population of School Age (thousands)			Number Enrolled in School (thousands)			Increase in School Enrollment[b]			
							Number (thousands)		Percent	
	1950	1960	1970	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	2,308	3,186	4,246	1,459	2,301	3,022	842	721	57.7	31.4
5 - 13 years	1,103	1,801	2,065	960	1,620	1,922	661	302	68.6	18.6
14 - 17 years	402	568	852	357	509	769	151	260	42.4	51.2
18 - 24 years	803	818	1,329	142	172	331	30	159	20.9	92.8

[a]Individual items may not add to total due to rounding.
[b]Both number and percentage increases are based on unrounded numbers.

past will be in school. Table 8 compares the 1950 to 1960 and 1960 to 1970 estimated and projected gains in school enrollment for those 5 through 24 years of age. The three age groups--5 through 13, 14 through 17, and 18 through 24--conform closely to the ages of elementary, high school, and college students, respectively. The largest absolute (but smallest relative) increase will be in the elementary grades. On the other hand, the largest relative (but smallest absolute) increase will be at the college level. Over-all, there will be nearly 721,000 more students in Ohio schools and colleges in 1970 than in 1960. The differential impact of the population surges in the "fifties" and "sixties" is clearly apparent. Providing elementary schools was a major problem in the past decade. Providing qualified faculties and adequate facilities for high school and college students will surely be a major challenge of the "sixties."

CHAPTER III. CIVILIAN LABOR FORCE OF OHIO

Ohio's civilian labor force, like its population, will grow rapidly during the 1960's, increasing from 3.8 million in 1960 to 4.7 million by the end of the decade.[1] This 900,000 increase will be the largest for any ten-year period in the history of the State.

Table 9
Civilian Labor Force of Ohio, 1950, 1960, and 1970

Year	Labor Force (thousands)	Increase from Previous Census Year	
		Number (thousands)	Percent[a]
1950	3,336	.....	.....
1960	3,830	495	14.8
1970	4,732	902	23.5

[a]Percentages are based on unrounded numbers.

Age and Sex

Children born in the period immediately following World War II will be entering the labor force during the "sixties." They will account for nearly one-half the gain of 23.5 percent expected in Ohio's total work force.

Rapid growth in service industries should offer employment opportunities for many older women. More than at any time in the past,

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[1]The civilian labor force includes those 14 years of age and over who are either employed or unemployed and looking for work. Included in the total labor force, but excluded from the civilian labor force, are members of the Armed Forces of the United States. Unless otherwise indicated, "labor force" in this study refers to the civilian labor force.

women have been freed from routine household tasks. For this reason many women, particularly those over 35 years of age, are expected to re-enter the labor force during the "sixties."

As Table 10 indicates, new young workers under 25, and workers 45 and over will account for 750,000, or over four-fifths, of the prospective gain in Ohio's labor force. Whereas the number of workers 18 through 24 years of age dropped 8,000 between 1950 and 1960, this group is expected to jump by 312,000, or 63 percent, by 1970.[1] This prospective flow of young workers into the labor force again illustrates the significance of the low birth rates during the 1930's and high birth rates in the post-World War II period. Workers 45 years of age and over will account for nearly one-half of the labor force growth in Ohio during the "sixties." Older women re-entering the labor market will bring about much of this gain.

Despite the substantial projected over-all increase in the Ohio labor force, the number of workers in the 25 through 44 year age group, a key working group in the population, will increase by only 153,000, or 8.8 percent, during the "sixties." In fact, because of low birth rates during the 1930's, there will be slightly fewer male workers in the 35 through 44 year age group in 1970 than there were in 1960.[2] This decrease will occur in the age group which normally supplies a large proportion of executives, managers, foremen, and highly skilled workers.

Because of this decline, locating or developing qualified, skilled workers will be an even greater problem than in the past. Many jobs

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[1]The reference is to April 1970, the month of the Census of Population.
[2]U.S., Department of Labor, Guide to Manpower Challenge of the 1960's, Washington, D.C.: [1961], p. 9.

Table 10
Civilian Labor Force of Ohio by Age Group, 1950, 1960, and 1970[a]

Age Group	Labor Force (thousands)			Change[b]			
				Labor Force (thousands)		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	3,336	3,830	4,732	495	902	14.8	23.5
14 - 17 years	90	138	202	49	63	54.6	45.7
18 - 24 years	505	496	809	- 8	312	- 1.7	62.9
25 - 44 years	1,533	1,738	1,891	204	153	13.3	8.8
45 - 64 years	1,023	1,258	1,591	235	333	22.9	26.4
65 and over	185	200	240	15	40	8.3	20.1

[a]Individual items may not add to totals due to rounding.
[b]Both number and percentage changes are based on unrounded numbers.

typically held by men from 35 to 45 will have to be filled by women re-entering the labor market. Alert younger men and women with proper education and training may also expect to be placed in more responsible jobs. Yet, young people in general, especially those who fail to complete their high school education, will face greater competition for employment.

Although the general trend has been toward earlier retirement, many experienced workers over 45, and even over 65, will doubtless be retained in positions entailing great skill and responsibility. This will be particularly true in occupations and industries growing more rapidly than the supply of qualified personnel. With rapid technological advances, adaptability of older workers will be of increasing importance. Re-training should play an important part in helping older workers adjust to the changing industrial structure of the economy.

The proportions of men and women in the various age groups who were in Ohio's labor force in 1950 and in 1960 are shown in Table 11. Projected participation rates for 1970 also are indicated.[1] Over-all, 4.7 million men and women--56.4 percent of the State's civilian population 14 years of age and over--are expected to be in the labor force in 1970. This represents a slight decline from the 1960 labor force participation rate of 56.8 percent. There will be a smaller proportion of men, but a larger proportion of women in the 1970 labor force--77.7 percent and 36.7 percent, respectively. More extensive education and training programs will decrease the proportion of young people in the labor force. Higher incomes, more adequate pension systems, and a continued pattern of earlier retirement are expected to reduce the participation rates of older men.

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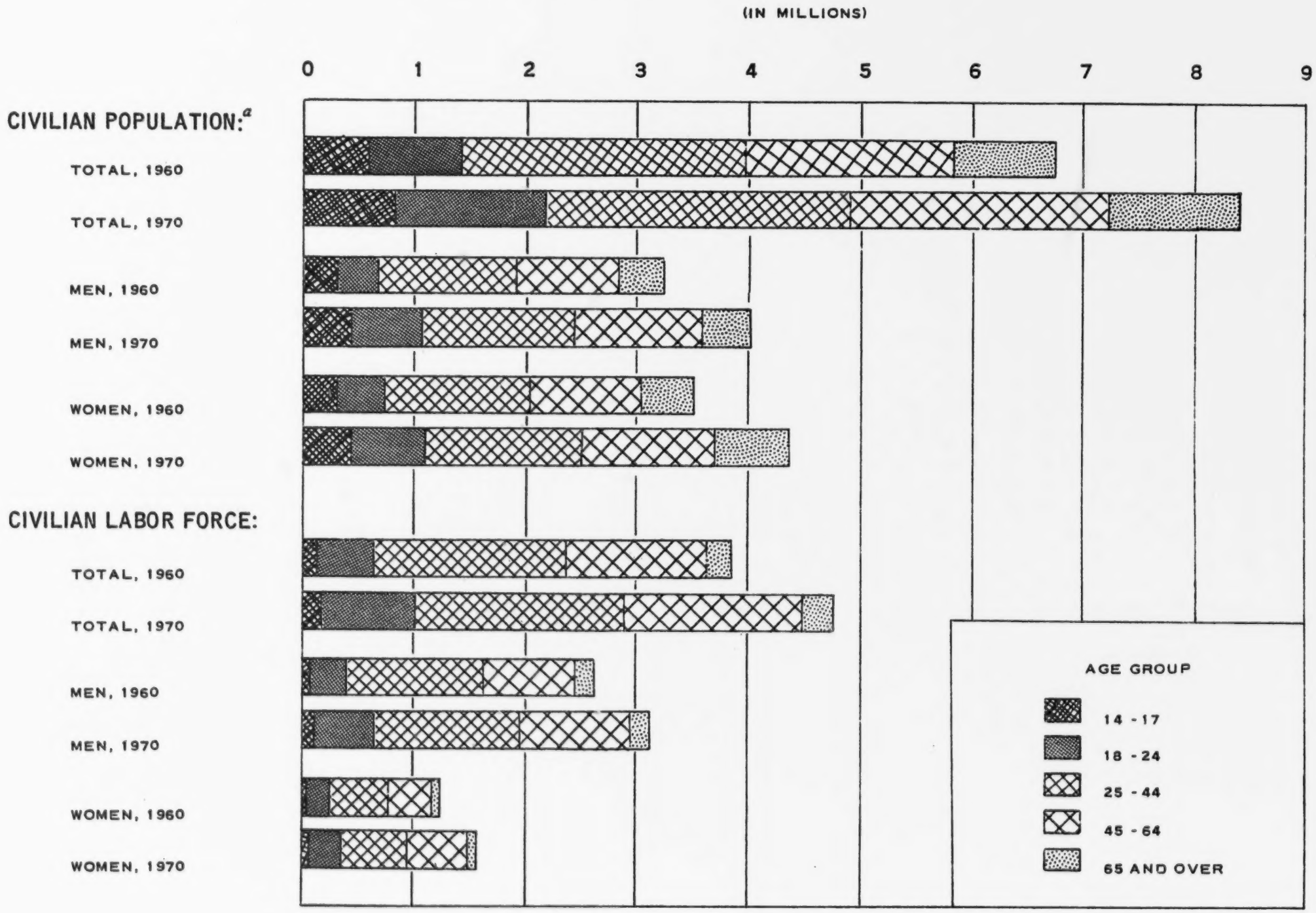
[1]The "participation rate" represents that proportion of the population, or population in a sex-age group, which is in the labor force.

CIVILIAN POPULATION AGED 14 AND OVER AND LABOR FORCE IN OHIO, BY SEX AND AGE GROUP



[a]AGE 14 AND OVER. SOURCE: TABLE II.

Table 11
Civilian Labor Force Participation Rates in Ohio by Sex and Age Group, 1950, 1960, and 1970[a]

Age Group	Civilian Population 14 and Over (thousands)			Civilian Labor Force[b] 14 and Over (thousands)			Civilian Labor Force Participation Rates		
	1950	1960	1970	1950	1960	1970	1950	1960	1970
Total men and women ...	5,988	6,750	8,386	3,336	3,830	4,732	55.7	56.8	56.4
Men	2,928	3,250	4,037	2,410	2,610	3,137	82.3	80.3	77.7
14 - 17 years	203	285	428	60	89	128	29.8	31.0	30.0
18 - 24 years	379	370	634	309	299	505	81.6	80.8	79.6
25 - 44 years	1,170	1,260	1,359	1,121	1,222	1,317	95.8	97.0	97.0
45 - 64 years	842	931	1,119	771	856	1,027	91.6	92.0	91.8
65 and over	334	405	497	148	145	159	44.3	35.8	32.0
Women	3,060	3,499	4,349	926	1,220	1,595	30.3	34.9	36.7
14 - 17 years	199	283	424	29	50	73	14.6	17.6	17.3
18 - 24 years	421	438	686	196	198	304	46.4	45.1	44.3
25 - 44 years	1,227	1,321	1,390	412	516	573	33.6	39.0	41.2
45 - 64 years	838	964	1,193	252	402	563	30.1	41.6	47.2
65 and over	375	492	656	37	55	81	9.8	11.2	12.4

[a]Individual items may not add to total due to rounding.
[b]Estimated and projected civilian labor force participation rates were applied to civilian population figures to obtain civilian labor force figures.

Critical Segments

Women Workers

One-third of the Ohio labor force, by 1970, will be women. Many will be women over 35 with children in school. A large number of these women will have re-entered the labor market to improve the living standards of their families and to utilize their available time more effectively.

Labor-saving home equipment, packaged foods, and commercial services have lessened the time required for household tasks. A rising level of education has prepared more women for employment outside the home. At the same time, the number of jobs open to women--many of them part-time--has steadily increased with the growth in trade and service industries. Many older women, of course, will leave the labor force for one reason or another, but in 1970 there will be about 188,000 more Ohio women 45 and over employed or seeking work than there were in 1960, as indicated in Table 12.

Also entering the labor market will be an increasing number of young women. Even though participation rates in the younger age groups are expected to decline, by 1970 there will be many more young women in the labor force than in 1960. The reason, of course, is the tremendous increase anticipated in the number of young people reaching working age.

Mature Workers

As previously noted, men and women 45 and over will account for a large part of the labor force growth in the "sixties." As Table 13 indicates, nearly two-fifths of Ohio's labor force in 1970 will be

Table 12
Women in the Civilian Labor Force of Ohio by Age Group, 1950, 1960, and 1970[a]

Age Group	Women (thousands)			Increase[b]			
				Women (thousands)		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	926	1,220	1,595	294	375	31.8	30.7
14 - 17 years	29	50	73	21	23	71.7	46.9
18 - 24 years	196	198	304	2	106	1.1	53.8
25 - 44 years	412	516	573	104	58	25.2	11.1
45 - 64 years	252	402	563	149	162	59.3	40.2
65 and over	37	55	81	18	26	49.4	47.6

[a]Individual items may not add to total due to rounding.
[b]Both number and percentage increases are based on unrounded numbers.

Table 13
Civilian Labor Force of Ohio, Men and Women by Age Group, 1950, 1960, and 1970[a]

Age Group	Labor Force 14 and Over (thousands)			Percent		
	1950	1960	1970	1950	1960	1970
Total men and women .	3,336	3,830	4,732	100.0	100.0	100.0
14 - 17 years	90	138	202	2.7	3.6	4.3
18 - 24 years	505	496	809	15.1	13.0	17.1
25 - 44 years	1,533	1,738	1,891	46.0	45.4	40.0
45 - 64 years	1,023	1,258	1,591	30.7	32.8	33.6
65 and over	185	200	240	5.5	5.2	5.1
Men	2,410	2,610	3,137	100.0	100.0	100.0
14 - 17 years	60	89	128	2.5	3.4	4.1
18 - 24 years	309	299	505	12.8	11.4	16.1
25 - 44 years	1,121	1,222	1,317	46.5	46.8	42.0
45 - 64 years	771	856	1,027	32.0	32.8	32.7
65 and over	148	145	159	6.1	5.6	5.1
Women	926	1,220	1,595	100.0	100.0	100.0
14 - 17 years	29	50	73	3.1	4.1	4.6
18 - 24 years	196	198	304	21.1	16.2	19.1
25 - 44 years	412	516	573	44.5	42.3	36.0
45 - 64 years	252	402	563	27.2	32.9	35.3
65 and over	37	55	81	4.0	4.5	5.1

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.

composed of such workers. A smaller proportion of men 65 and over will be employed or seeking work, but this relative decrease in the number of older men should be more than offset by an increase in the number of older women in the labor force.

Workers 45 and over are a key group in the labor force. As a group, they rank high in skill, productivity, stability, and judgment --qualities in great demand. Yet, once unemployed, they have more difficulty finding new jobs. Compared with other age groups, a smaller percentage of workers across the nation 45 years of age and over were unemployed in 1959. A greater percentage of these mature workers,

however, were without work for 15 weeks or more.[1] Providing job opportunities for such workers will be a continuing problem in the "sixties."

Young Workers

Training, guidance, and placement of young workers will require a major effort. Approximately 1,308,000 young men and women will enter the Ohio labor force during the 1960's. This is a far greater number than the economy has ever had to absorb in a single decade. Throughout the "fifties," fewer than 100,000 young people entered the labor force annually. By 1970, around 150,000 will be entering annually. The number of new young workers seeking or expected to seek employment in Ohio from 1951 through 1970 follows:

Year	Number (thousands)
Total	871
1951	83
1952	83
1953	83
1954	83
1955	83
1956	88
1957	88
1958	92
1959	92
1960	96
Total	1,308
1961	105
1962	115
1963	115
1964	125
1965	125
1966	140
1967	140
1968	146
1969	146
1970	151

[1] For example, according to the Bureau of Labor Statistics, U.S. Department of Labor (cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 25) an average of 40 percent of the Nation's unemployed workers 65 years of age and over in 1959 were out of work 15 weeks or more as compared with 29 percent of those 25 through 44 years of age and 34 percent of those 45 through 64 years of age.

Throughout the United States, the educational attainment of new young workers is expected to rise during the "sixties." Although this is encouraging, jobs in the modern economy continue to call for still greater education and training.

Table 14
Estimated and Projected Educational Attainment of New Young Workers, United States, 1950's and 1960's
(Percent)

Educational Attainment	1950's	1960's
Total	100.0	100.0
Some college	21.5	25.6
Completed high school	39.8	45.3
Some high school	21.0	20.2
Eight or fewer grades	17.7	8.9

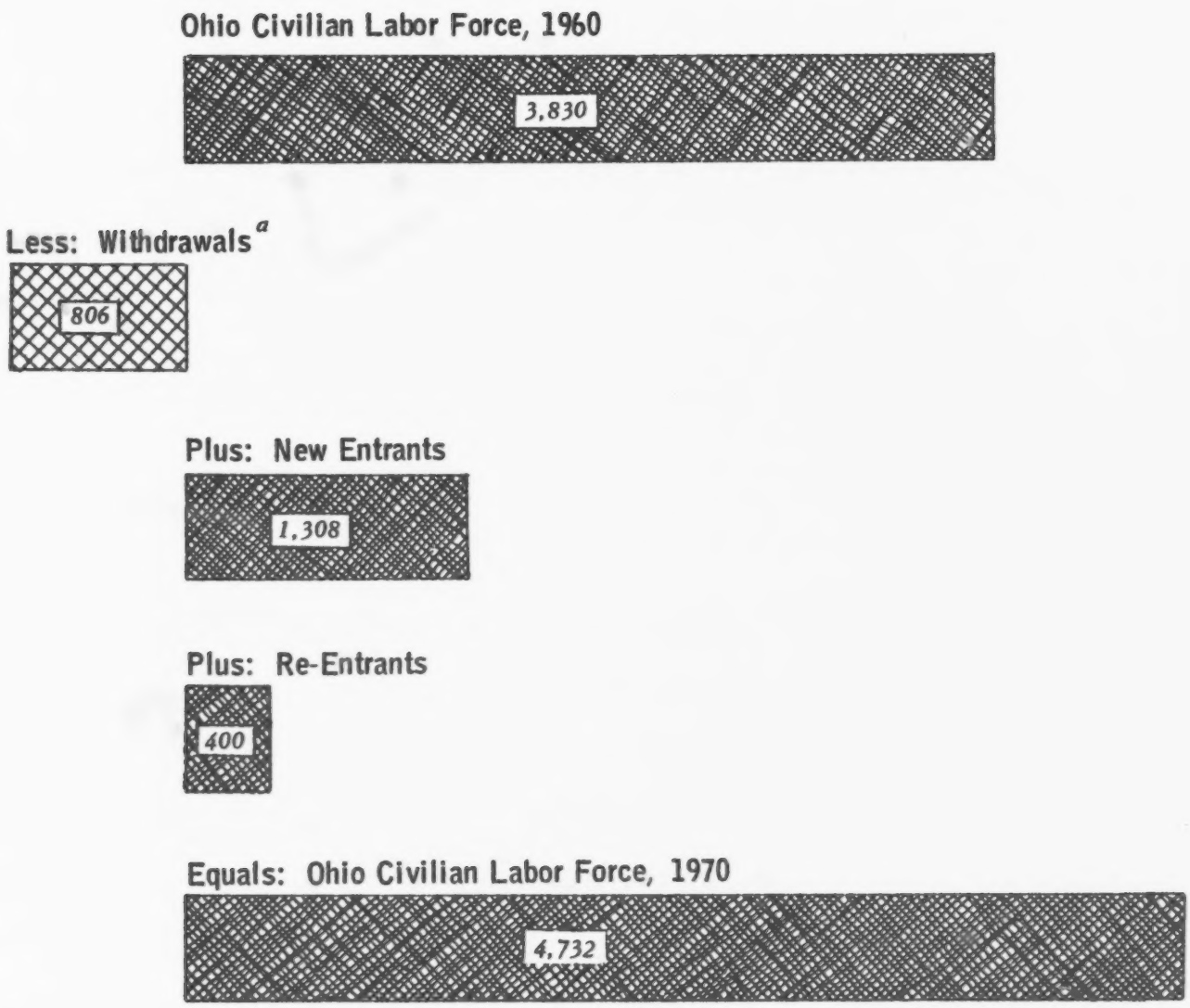
Source: Bureau of Labor Statistics, U.S. Department of Labor. Cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 20.

An estimated 29 percent of new young workers in the United States will not have a high school diploma, and 9 percent will have completed eight grades or less by 1970. Dropouts present special problems to communities, schools, and employers. A considerable number of dropouts have completed eight grades or less of formal education, imposing a heavy burden on communities. In 1959, for example, almost one-third of the dropouts in the United States were in this category. The following percentages indicate the highest grade of school completed for these

Highest Grade Completed	Percent
Total dropouts	100
Eighth grade or less	31
Ninth grade	30
Tenth or 11th grade	39

OHIO CIVILIAN LABOR FORCE PROJECTIONS TO 1970

(IN THOUSANDS)



[a]DEATH, RETIREMENT, MARRIAGE, ETC.

dropouts in 1959.[1] Youngsters who quit school usually get lower-paying jobs which require little skill--jobs which will be increasingly scarce during the "sixties." Apprenticeship and other on-the-job training opportunities go chiefly to those who complete high school. Early counseling and vocational training will be imperative if potential dropouts are to share fully in the fruits of an expanding economy.

Labor Force Projections

The civilian labor force of Ohio totaled 3,830,000 in 1960. More than one out of every five in the 1960 labor force will not be in the 1970 labor force. Death, retirement, marriage, and maternity will cause many workers to withdraw from the labor force. At the same time, however, 400,000 are expected to re-enter the labor force. The biggest addition, of course, will be new young workers--1,308,000 during the decade. These new entrants to the labor market alone will number nearly one and one-half times the net change in the entire Ohio labor force over the decade. Provision of training and job opportunities for this heavy flow of young workers presents a problem of immediate concern.

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[1] U.S., Department of Labor, Bureau of Labor Statistics. Cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 21.

CHAPTER IV. OHIO EMPLOYMENT: INDUSTRIES

With a growing population and a rising standard of living, the demand for all types of goods and services will expand. Some Ohio industries, however, will show more rapid growth in employment than others during the "sixties." Ohio possesses many advantages to meet this growing demand and its changing composition. The St. Lawrence Seaway is expected to have an increasingly salutary effect. Access to the Great Lakes, the Ohio River, and abundant supplies of fresh water, an increasingly skilled labor force, an excellent transportation network, and especially the proximity of a heavily concentrated market should augment the over-all long-range prospects of the State. Recent efforts to achieve marked expansion of Ohio's research resources--intellectual and physical--should, if successful, further enhance the prospects for economic growth.

Production and Service Industries

As the economy of Ohio expands, significant changes will occur in its industrial composition. The annual average of workers in service industries has consistently surpassed the number in production industries in Ohio since 1953.[1] By 1970, nearly 52 percent of Ohio's workers will be employed in service industries.[2] This compares with 47.5 percent in 1950 and 51.5 percent in 1960.

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[1]Production industries include agriculture, manufacturing, construction, and mining. Service industries include transportation, communication and public utilities, wholesale and retail trade, finance, insurance and real estate, government, and all other services.

[2]All projections of employment for 1970 in this Chapter, as well as in Chapter V, are based on an assumed unemployment rate of 4 percent of the civilian labor force. The actual unemployment rate in 1970, of course, may be either higher or lower. By using this assumed unemployment rate, however, projections can be made of the number of jobs which will be needed to provide "near-full" employment for the 1970 labor force.

Table 15
Nonagricultural Wage and Salary and Agricultural Employment in Production and Service Industries in Ohio, 1950, 1960, and 1970[a]

Year	Number Employed (thousands)			Percent		
	Total	Industries		Total	Industries	
		Production	Service		Production	Service
1950	2,900	1,523	1,377	100.0	52.5	47.5
1960	3,359	1,630	1,729	100.0	48.5	51.5
1970	4,215	2,031	2,184	100.0	48.2	51.8

[a]The estimates and projections of nonagricultural employment are based on the Current Employment Statistics series. This series, based on reporting establishments includes dual jobholders. The 1950 and 1960 figures are April estimates.
Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.

Source: Ohio, Division of Research and Statistics, Bureau of Unemployment Compensation, "Employment, Hours, and Earnings in Ohio," Replacement Series, 1949-1957, Ohio Labor Market Information (Columbus, Ohio, n.d.), pp. 3-4 and Table RS 790-1-0 (1960), pp. 1-3, for 1950 and 1960 nonagricultural employment estimates.

Table 16
Growth in Nonagricultural Wage and Salary and Agricultural Employment in Production and Service Industries in Ohio, 1950 to 1970[a]

Industry Group	Number Employed (thousands)			Increase[b]			
				Number (thousands)		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	2,900	3,359	4,215	459	856	15.8	25.5
Production industries	1,523	1,630	2,031	107	401	7.1	24.6
Service industries	1,377	1,729	2,184	352	455	27.6	26.3

[a]The estimates and projections of nonagricultural employment are based on the Current Employment Statistics series. The 1950 and 1960 figures are April estimates.
Individual items may not add to total due to rounding.
[b]Both number and percentage increases are based on unrounded numbers.
Source: Ohio Labor Market Information, op. cit., for 1950 and 1960 nonagricultural employment estimates.

Production industries are expected to employ about 401,000 more workers in 1970 than in 1960. Partially as a result of the large number of marriages and new families expected in the latter half of the "sixties," construction and manufacturing employment should show important gains. Spending on houses, furniture, and appliances will rise. Increased world trade will also provide a stimulus to employment.

Even though rapid growth is expected, improved technology and management techniques will result in a decline in the share of total employment provided by goods-producing industries. Service industries will lead in employment growth. They are expected to provide around 455,000 additional jobs by 1970--an increase of more than one-fourth in ten years. Employment in finance, insurance, and real estate, in wholesale and retail trade, and in governmental service will increase substantially.

Nonagricultural Employment

Some of the changes that can be expected in the industrial structure of the Ohio economy are summarized in Table 17.[1] Employment will rise in all major nonagricultural industries except mining, but rates of growth will vary widely.

From a somewhat low base in 1960, construction employment will show rapid growth. Housing will be in demand by those born after World War II. Increased expenditures on schools and highways may be expected. New plants and equipment will be required to supply a rising demand for all kinds of goods and services.

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[1]These estimates and projections of nonagricultural wage and salary employment exclude self-employed, unpaid family workers, and private wage and salary workers employed in private households. Over 85 percent of all those who work in nonagricultural industries are private or public wage and salary employees. Most of the non-wage and salary workers are employed in wholesale and retail trade and in services.

Table 17
Nonagricultural Wage and Salary Employment in Ohio by Industry, 1950, 1960, and 1970[a]

Industry	Number Employed (thousands)			Change[b]			
				Number		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	2,680	3,175	4,052	496	876	18.5	27.6
Mining	29	20	16	- 9	- 4	- 31.0	- 20.0
Contract construction	111	137	223	26	86	23.2	62.9
Manufacturing	1,162	1,289	1,629	127	339	10.9	26.3
Transportation, communication, and public utilities	219	211	239	- 7	28	- 3.3	13.3
Wholesale and retail trade	496	620	802	124	182	25.1	29.4
Finance, insurance, and real estate	80	119	170	39	51	48.5	43.2
Service and miscellaneous	281	375	474	94	99	33.3	26.5
Government	302	404	499	102	95	34.0	23.5
Schools	84	153	207	69	54	81.6	35.0
Government, excluding schools	217	251	292	34	41	15.5	16.3

[a]The estimates and projections of nonagricultural wage and salary employment are based on the Current Employment Statistics series. The 1950 and 1960 figures are April estimates.
Individual items may not add to total due to rounding.
[b]Both number and percentage changes are based on unrounded numbers.
Source: Ohio Labor Market Information, op. cit., for 1950 and 1960 nonagricultural wage and salary employment estimates.

The growth in volume and complexity of financial activities, rising levels of income, and a larger, more mobile population will increase employment in finance, insurance, and real estate. At the same time, higher standards of living and the growing population will expand employment in wholesale and retail trade.

Government services, especially in the field of education, will increase government employment. The rate of increase, however, will probably not be as great as that for total employment.

Manufacturing employment also is expected to grow, but at a slower rate than employment in all Ohio industries as a group. Yet, because of its large base, manufacturing should contribute over one-third of all new jobs expected in Ohio by 1970. Expanding demand for new products and new processes will increase employment substantially.

Although railroad employment will continue to decline, greater opportunities in trucking, warehousing, and air transportation are anticipated. Reflecting a need for more power in homes and in industry, a moderate rise in the number employed in gas and electric utilities is foreseen. On the other hand, a decline is anticipated in mining. Although sand, gravel, and gas production should increase somewhat, bituminous coal mining will continue its long-range pattern of shrinking employment.

Agricultural Employment

Employment in Ohio is expected to increase in all industries except mining and agriculture during the "sixties." By 1970, there are expected to be 20,000 fewer farm operators and farm workers in Ohio than there were in 1960. Agricultural output per worker continues to expand

Table 18
Agricultural and Nonagricultural Employment in Ohio, 1950, 1960, and 1970[a]

Employment Component	Number Employed (thousands)			Change[b]			
				Number (thousands)		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	3,162	3,646	4,543	484	897	15.3	24.6
Agricultural	220	184	164	- 36	- 20	- 16.5	- 11.0
Nonagricultural	2,942	3,463	4,379	521	917	17.7	26.5
Wage and salary	2,555	3,037	3,875	482	838	18.9	27.6
All other	387	426	504	39	79	10.0	18.4

[a]These are Census-type estimates and projections of the number of workers employed. Individual items may not add to total due to rounding.

[b]Both number and percentage changes are based on unrounded numbers.

rapidly--faster than the population to be fed and clothed. This tremendous increase in productivity has made it possible for a declining number of workers to supply the demand for food and natural fibers. Over the years a declining proportion of workers have been needed in agriculture. In 1960, agriculture provided jobs for one out of every

Table 19
Agricultural and Nonagricultural Employment Proportions in Ohio 1950, 1960, and 1970[a]

Year	Number Employed (thousands)			Percent		
	Total	Agri-cultural	Nonagri-cultural	Total	Agri-cultural	Nonagri-cultural
1950	3,162	220	2,942	100.0	7.0	93.0
1960	3,646	184	3,463	100.0	5.0	95.0
1970	4,543	164	4,379	100.0	3.6	96.4

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.

twenty workers in Ohio. By 1970, the proportion will fall to one in twenty-five.

CHAPTER V. OHIO EMPLOYMENT: OCCUPATIONS

The changing industrial structure of the economy will bring about significant changes in employment among various occupations. Advancing technology will expand the number of professional and technical jobs. Greater business planning and mass marketing will substantially increase the number of clerical, sales, and managerial jobs. Continued industrial growth will increase the need for skilled workers. On the other hand, the number of unskilled jobs is not expected to change significantly. Professional and technical workers, already at a premium, can expect to face ever increasing demands for their skills during the "sixties." Employment in the service industries will rise significantly as business assumes more of the services which in the past have been provided in the home. Increasing productivity, however, will continue to lessen opportunities in mining and agricultural occupations.

Occupational Employment

By far the greatest growth, relative and absolute, will be in professional and technical jobs, which will jump about 212,000 or 55 percent, over the decade. Demands for engineers, scientists, and technicians will rise rapidly as technology grows and becomes ever more complex. Business expansion and a greater population will enlarge needs for educators, doctors, economists, statisticians, accountants, social workers, and many other professional people.

Along with a moderate increase in the number of proprietors of smaller enterprises, a substantial gain is expected in the number of executives and managers. Corporate growth and a complex technology

Table 20
Employment in Ohio by Occupational Group, 1950, 1960, and 1970[a]

Occupational Group	Employment						Change[b]			
	Number (thousands)			Percent			Number (thousands)		Percent	
	1950	1960	1970	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	3,162	3,646	4,543	100.0	100.0	100.0	484	897	15.3	24.6
Professional, office, sales ..	1,187	1,531	2,071	37.5	42.0	45.6	345	540	29.0	35.3
Manual[c]	1,457	1,519	1,791	46.1	41.7	39.4	62	272	4.3	17.9
Service	302	419	528	9.5	11.5	11.6	117	109	38.9	30.0
Farm	217	177	153	6.9	4.9	3.4	- 40	- 24	- 18.4	- 13.5

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.
[b]Both number and percentage increases are based on unrounded numbers.
[c]Manual occupations include craftsmen, operatives, and laborers.

Table 21
Changes in Employment in Ohio by Occupation, 1950, 1960, and 1970[a]

Occupation	Number Employed (thousands)			Change[b]			
				Number (thousands)		Percent	
	1950	1960	1970	1950 to 1960	1960 to 1970	1950 to 1960	1960 to 1970
Total	3,162	3,646	4,543	484	897	15.3	24.6
Professional	276	381	593	105	212	38.2	55.5
Managerial	265	361	451	96	90	36.2	24.9
Clerical	411	536	700	124	164	30.2	30.7
Sales workers	234	253	327	19	74	8.1	29.2
Craftsmen	530	558	691	29	133	5.4	23.8
Operatives	740	766	906	27	139	3.6	18.2
Service workers	302	419	528	117	109	38.9	26.0
Laborers	188	194	194	7	0	3.6	0.0
Farmers, farm workers ..	217	177	153	- 40	- 24	- 18.4	- 13.5

[a]Individual items may not add to total due to rounding.
[b]Both number and percentage increases are based on unrounded numbers.

will expand the need for such officials. Over-all, there will be 90,000 more managerial jobs in Ohio in 1970 than in 1960.

Despite advances in the automation of record-keeping, the demand for clerical workers will continue to expand as the volume of paper work grows. The number of clerical jobs in Ohio is expected to increase 164,000 or 31 percent between 1960 and 1970.

Among blue-collar jobs, the skilled occupations are expected to show the most rapid growth. Substantial increases are expected in the number of building craftsmen, mechanics, repairmen, and machinery workers. By 1970, there are expected to be 272,000 more Ohio craftsmen and operatives. At the same time, largely because of the need for greater technical ability, the number of unskilled laboring jobs is not expected to show notable change.

Mature Workers

In 1959, more than one-half of all the proprietors and managers in the nation were 45 years of age or older. Men and women in this age group also accounted for nearly one-half of all farmers, and a high proportion of the skilled and service workers. The percentage of U.S. workers 45 years of age and over in each major occupational group in 1959 is shown below.[1]

Occupational Group	Percent 45 or Older
Total	39
Proprietors and managers	54
Farmers and farm workers	48
Service workers	45
Skilled workers	41
Professional and technical workers	36
Clerical and sales workers	33
Semiskilled workers	33
Unskilled workers	33

[1]U.S., Department of Labor, Bureau of Labor Statistics. Cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 24.

Across the nation, workers 45 years of age and over represent a sizeable share of the labor force. As the 1960's unfold, they will have an even bigger share than in the past of the more responsible jobs, because workers in the 25 to 44 year age group will be in short supply. Because of the large number of workers over 44 expected by 1970, however, many will have difficulty in obtaining employment. Pressures will increase for the effective utilization of the talents of these middle-age and older workers.

If age restrictions were relaxed for clerical and sales workers, employers could provide many additional jobs. Arbitrary age limits in clerical jobs, especially for women, limit their full utilization. Greater efforts must be made to resolve the employment problems encountered by men and women past 44.

Nonwhite Workers

Some progress has been made in the last few decades in moving nonwhite workers up the occupational scale. Nonwhite workers, however, often fail to obtain jobs commensurate with their education and training. Discrimination and prejudice on the part of employers, unions, and many others must be minimized in order to utilize this important and growing manpower resource.

The proportions of white and nonwhite workers in each major occupation in Ohio are shown in Table 22. From 1950 to 1960, nonwhite workers increased their share of employment in professional, clerical, sales, skilled, and semiskilled occupations. In 1960, however, a smaller proportion of nonwhites were in managerial, service, and unskilled jobs than in 1950. Although progress is apparent, greater effort must be made in the "sixties" to train and utilize nonwhite workers more effectively, if the social and economic costs of their unemployment are to be reduced.

Table 22
Occupational Employment of White and Nonwhite Workers in Ohio, 1950 and 1960[a]

Occupation	Number (thousands)						Percent			
	Total		White		Nonwhite		White		Nonwhite	
	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960
Total	3,162	3,646	2,966	3,384	196	263	93.8	92.8	6.2	7.2
Professional	276	381	270	369	6	13	98.0	96.7	2.0	3.3
Managerial	265	361	261	356	5	6	98.3	98.4	1.7	1.6
Clerical	411	536	401	512	11	23	97.4	95.7	2.6	4.3
Sales workers	234	253	231	248	4	5	98.5	98.2	1.5	1.8
Craftsmen	530	558	514	537	16	21	97.0	96.2	3.0	3.8
Operatives	740	766	695	707	45	59	93.9	92.3	6.1	7.7
Service workers	302	419	232	323	69	96	77.1	77.2	22.9	22.8
Laborers	188	194	149	156	39	39	79.4	80.0	20.6	20.0
Farmers, farm workers ..	217	177	215	176	2	1	99.3	99.3	0.7	0.7

[a]Individual items may not add to total due to rounding. Percentages are based on unrounded numbers.

Occupations and Education

The fastest growth in employment will occur in those occupations requiring the greatest amount of education and training. In 1959, professional and technical workers in the United States averaged 16.2 years of schooling. Managerial, clerical, and sales workers averaged about 12.5 years. The average number of years of school for the U.S. labor force in 1959 is shown below by occupational group.[1] Educational requirements in the fastest growing occupations continue to rise.

Occupational Group	Average Years of School
Professional and technical workers ..	16.2
Proprietors and managers	12.4
Clerical and sales	12.5
Skilled workers	11.0
Semiskilled workers	9.9
Service workers	9.7
Unskilled workers	8.6
Farmers and farm workers	8.6

For workers handicapped by a lack of formal education, Table 23 indicates that relatively few obtain the higher paying jobs. Across the United States, 6 percent of professional and technical workers did not have high school diplomas as the 1960's began. Many of these, no doubt, were self-trained, older workers who rose to higher level jobs despite little formal education. Increasingly, however, employers expect young workers to have at least a high school diploma. For many jobs, college training is now required.

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[1]U.S., Department of Labor, Bureau of Labor Statistics. Cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 15.

Table 23
Occupational Employment in the United States
by Amount of Education, [1959]
(Percent)

Occupation	Total	Less Than High School	High School Graduation	Some College Education
Professional and technical workers	100	6	19	75
Proprietors and managers ..	100	38	33	29
Clerical and sales	100	25	53	22
Skilled workers	100	59	33	8
Semiskilled workers	100	70	26	4
Service workers	100	69	25	6
Unskilled workers	100	80	17	3
Farmers, farm workers	100	76	19	5

Source: U.S., Department of Labor, Bureau of Labor Statistics. Cited in Guide to Manpower Challenge of the 1960's, op. cit., p. 22.

Educational institutions and manpower agencies will have increasingly important responsibilities during the 1960's. Providing employment for an expanding labor force and producing goods and services needed by a growing population will require the greatest efforts of everyone. Effective utilization of Ohio's most important resource, manpower, will be a major challenge of the 1960's.

CHAPTER VI. SUMMARY

Many important changes will occur during the years ahead in the level and composition of the population and labor force of Ohio. At the same time, changing patterns of production and consumption will substantially alter the structure of the State's economy. Significant shifts are expected in employment in various industries and occupations.

Population of Ohio

The number of men, women, and children in Ohio will expand rapidly. The population will increase by two million during the 1960's, reaching 11.7 million by 1970.

Contributing to the population growth of Ohio will be approximately 550,000 new people, who will come predominantly from other states. In addition, Ohio can expect 2.4 million babies to be born during the decade. Death will claim the lives of nearly one million Ohio residents, offsetting part of the natural increase.

Low birth rates during the 1930's and high birth rates since World War II will cause significant shifts in the age composition of Ohio's population. There will be many more people 45 and over, and many more people under 25 years of age. Those in the 25 through 44 year age group, however, will show relatively little gain—less than seven percent during the "sixties."

The number in the 18 through 24 year age group, on the other hand, will jump about 512,000, or 63 percent, during the "sixties." The number of young people 18 through 24 years of age enrolled in school will nearly double. High school enrollment alone will rise by 50 percent.

Youngsters five through 13 years of age attending school will also grow in number, but not as rapidly as in the 1950's. The challenge to educators will be very great, especially at the high school and college levels.

There will be no significant change in the "dependency ratio"--the number of dependents for each person in the usually productive age groups. During the 1950's, each such person had to support an increasing number of dependents either directly, or through private and public welfare programs.

Civilian Labor Force of Ohio

Ohio's civilian labor force will increase faster than the population. It is expected to grow from 3.8 million in 1960 to 4.7 million by 1970.

Workers under 25 and those over 44 will account for 750,000, or over four-fifths of the 900,000 increase in the work force over the decade. More than 1.3 million young people will enter the labor force during the "sixties." In addition, 400,000 adults, predominantly women, are expected to re-enter the labor market. On the other hand, 806,000 workers will leave the labor force because of death, retirement, marriage, pregnancy, childbirth, or for other reasons.

The number of workers in the 25 through 44 year age group, a key working group in the population, will increase by only 153,000. This represents a notably small gain of about nine percent.

Over three-fourths of all men in Ohio 14 years of age and over are expected to participate in the labor force by 1970. Three out of every eight women 14 and over will be in the work force at the end of this decade.

Women, by 1970, will comprise one-third of Ohio's civilian labor force. Many will be older women returning to the labor market to supplement their family income. Others will be attracted primarily by challenging and productive job opportunities. By 1970, there will be 187,000 more women 45 years of age or older employed or seeking work than there were in 1960.

Men and women past 44 will represent nearly two out of every five persons in Ohio's civilian labor force by 1970. Because of the expected continuation of rapid technological changes during the 1960's, adaptability of middle-aged and older workers to new occupations, industries, and perhaps new areas will be increasingly important.

Ohio Employment: Industries

In the year 1953 the number of Ohio workers in service industries surpassed the number in goods-producing industries for the first time. This trend is expected to continue. The service industries will lead in Ohio's employment growth, accounting for 52 percent of total employment by 1970.

Construction and manufacturing employment should, nevertheless, show significant gains. Manufacturing alone should contribute over one-third of all the new jobs in the Ohio economy by 1970.

Employment in finance, insurance, and real estate, in wholesale and retail trade, and in services, will grow substantially. Within the services, including governmental service, education should show marked gains.

As farm output per worker expands, the number of agricultural jobs will continue to decline. By 1970, only one out of every 25 workers in Ohio will be employed in agriculture. This compares with one out of 20 in 1960.

Ohio Employment: Occupations

Greatest growth, relative and absolute, will occur in the professional and technical jobs. There will be increasing demands for engineers, scientists, technicians, educators, doctors, economists, statisticians, and many other professional people.

There will be a greater need for white-collar workers, especially for well-trained managers and executives in corporations. The demand for clerical and sales workers will also continue to expand rapidly, providing 238,000 additional jobs in Ohio by 1970.

The number of unskilled jobs is not expected to show significant change. There will be strong demand, however, for more skilled workers, such as building craftsmen, mechanics, repairmen, and machinery workers. Employment in Ohio in the skilled occupations should increase substantially--133,000, or nearly one-fourth by 1970.

Because of the relative shortage of workers in the 25 through 44 year age group, those past 44 will have an even larger proportion of the more important jobs in the economy of Ohio than in the past. But, as a consequence of the large increase anticipated in the number of workers 45 years of age and over, greater efforts will be required to utilize their talents effectively.

Ohio's nonwhite workers have made some progress over the last few decades in moving up the occupational scale to jobs entailing higher levels of skill and training. They have been increasing their share of professional, clerical, sales, skilled, and semiskilled jobs. Even so, more opportunities for training must be afforded these workers and more assistance must be given them in obtaining jobs commensurate with their qualifications.

The fastest growth in employment in Ohio will undoubtedly occur among those occupations requiring higher levels of skill, education, and training. Those concerned with education, testing, counseling, and employment services will have increasingly greater challenges and responsibilities as the decade of the "sixties" draws to a close and the problems of the "seventies" appear on the horizon.

APPENDIX

Methodology

This section of the Appendix outlines, in general terms, the procedures underlying the estimates and projections presented. In most cases, the methods used were those suggested in the Handbook on Sources of Data for Manpower Projections.[1]

Population of Ohio

A component method was used to obtain projections of the population for 1965 and 1970. It was assumed that there would be no disastrous war, epidemic, or other catastrophe, such as a major economic depression. It was also assumed that past Ohio trends in net migration would continue. A net migration gain of 550,000 over the decade was assumed, along with the following birth and death rates:

1. 1960 to 1965:
   a. Birth rate of 23.475 per 1,000 population per year.
   b. Death rate of 9.2 per 1,000 population per year.

2. 1965 to 1970:
   a. Birth rate of 21.8 per 1,000 population per year.
   b. Death rate of 8.9 per 1,000 population per year.

Projections of the sex and age distributions of the population for 1965 and 1970 were made by comparing the 1960 sex and age distributions of the population for Ohio with those for the United States. This relationship was then used to project Ohio proportions by sex and age, based upon national projections for 1965 and 1970. It was assumed that State and national age proportions are converging.

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[1] Handbook on Sources of Data for Manpower Projections, op. cit.

Estimates and projections of the number of young people reaching age 18 each year were computed on the following basis. Intercensal estimates for 1951 through 1959 were based upon the population born in a specific year, as reflected in Census counts for 1950 and 1960. The change (during the 1950's) in the number of Ohio residents who were born between 1933 and 1941 was then distributed equally over the ten-year period, 1950 to 1960. These estimated changes were added to the 1950 population count to obtain the number of persons reaching age 18 each year throughout the decade. This general procedure was followed in projecting the number reaching age 18 from 1961 through 1970. The 1960 to 1970 increase, based upon the previously projected age group distribution of the population, was distributed among those born in the years 1943 through 1952 according to their relative proportions in 1960. This increase over the decade, resulting from a net gain in migration, was assumed to be equally distributed over the ten-year period from 1960 to 1970. The projected changes were then added to the 1960 population count to obtain the number reaching age 18 each year from 1961 through 1970.

Projections of school enrollment of those 5 through 24 years of age were made on the basis of proportions of each age group--5 through 13, 14 through 17, and 18 through 24--enrolled in school in 1950 and 1960. These proportions were obtained from the 1960 Census of Population. The percentage changes in the proportions were computed, then applied to the 1960 proportions to obtain projected proportions for 1970. These proportions were applied to the 1970 age group projections of population to obtain projected school enrollment figures.

Labor Force of Ohio

Ohio civilian labor force projections, by sex and age group, were developed by applying labor force participation rates to the projected civilian population data.[1] Unadjusted civilian labor force participation rates were obtained from the 1950 Census. Because there was an undercount in the 1950 Census enumeration, adjustments, based on a Monthly Report on the Labor Force estimate, were made in these rates. To obtain participation rates for 1960, the percentage changes in national rates between 1950 and 1960 were applied to the 1950 participation rates for Ohio. These computed estimates were averaged with the estimated 1960 national rates to lessen any divergence caused by those 1950 Ohio rates which differed substantially from the national figures. This procedure, based upon national projections to 1970, was also used to project participation rates for Ohio to 1970.

Reference could not be made to the Handbook on Sources to project either the number of young workers or the number of adults entering the labor force during the "sixties."[2] Therefore, the national ratio of the number of withdrawals from the labor force to the number of workers in 1960 was used to project the number of withdrawals from the Ohio labor force during the 1960's.[3] Similarly, the national ratio of the number of young entrants to the number of workers in 1960 was applied to the 1960 number of workers in Ohio to project the

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[1]Estimates and projections of Armed Forces stationed in the State, based on the 1950 and 1960 Census counts, were subtracted from the total population figures. The 1960 Armed Forces estimates were assumed to hold for 1970.

[2]Handbook on Sources of Data for Manpower Projections, op. cit.

[3]Guide to Manpower Challenge of the 1960's, op. cit., p. 17.

number of young entrants into the labor force of Ohio during the "sixties." The number of adults returning to the labor force was adjusted to a level consistent with the Ohio civilian labor force figures for 1960 and 1970 and the number of withdrawals and young entrants expected during the decade.

To project the number of young people entering the labor force annually, the national yearly percentages of the total number of young entrants were applied to the projected total of new young entrants into the labor force of Ohio.

Ohio Employment: Industries

Counts of unemployment and of agricultural, nonagricultural wage and salary, and nonagricultural "all other" employment were obtained from the 1950 Census of Population. These figures were adjusted for the undercount in the 1950 Census. Relative proportions of the total were computed and applied to the 1950 civilian labor force figure to obtain final estimates.

The 1960 nonagricultural wage and salary estimate was obtained by multiplying the April 1960 Ohio Current Employment Statistics estimate by the ratio of the 1950 adjusted Census estimate to the 1950 Ohio Current Employment Statistics estimate. The procedure outlined in the Handbook on Development of Basic Labor Market Information for Small Areas was used to obtain the agricultural employment estimate for 1960.[1]

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[1] U.S., Department of Labor, Handbook on Development of Basic Labor Market Information for Small Areas, Washington, D.C.: May, 1960. The procedure is described fully in the Handbook on Sources of Data for Manpower Projections, op. cit.

The procedure suggested in the Handbook on Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers --Nonagricultural Total was followed in preparing the 1960 Ohio nonagricultural "all other" employment estimate.[1]

The relative proportions of total employment were computed and applied to the 1960 civilian labor force estimate less the number unemployed in April, 1960. The unemployment figure was obtained by using the Handbook on Estimating Unemployment.[2]

To project the broad industry components--agricultural, nonagricultural wage and salary, and nonagricultural "all other"--of employment for 1970, it was assumed that the 1950 to 1960 trend in the proportions in each component would continue to 1970. A 4.0 percent unemployment rate was assumed for 1970, and the proportions of employment were applied to the 1970 civilian labor force figure, less the projected number unemployed.

Wage and salary estimates of employment in nonagricultural industries for April 1950 and April 1960 were obtained from Current Employment Statistics estimates appearing in Ohio Labor Market Information.[3] It was assumed that the relative change from 1960 to 1970 in the percentage distribution of wage and salary employment in nonagricultural industries in Ohio would be the same as the relative change projected for the Nation. The projected percentage distribution was

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[1]U.S., Department of Labor, Handbook on Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers--Nonagricultural Total, Washington, D.C.: March, 1960. The procedure also is described in the Handbook on Sources, op. cit.

[2]U.S., Department of Labor, Handbook on Estimating Unemployment, Washington, D.C.: March, 1960.

[3]Ohio Labor Market Information, op. cit.

then applied to the 1970 nonagricultural wage and salary projection, after adjusting the projection to place it on a Current Employment Statistics-type basis. Some adjustment then was made in the 1970 distribution of employment by industry in order to reflect more clearly anticipated economic conditions within Ohio.

Ohio Employment: Occupations

The 1950 occupational distribution of employment was obtained from the 1950 Census of Population. The Census presented counts of occupational employment by industry. Estimates and projections for 1960 and 1970 were based on the assumption that occupational patterns within each industry in Ohio did, or would, follow national trends. The national trends were based on the Monthly Report on the Labor Force estimates for 1957 and projections to 1970 derived from an occupational-industry matrix for the United States which was developed by the U.S. Bureau of Labor Statistics. The matrix provided occupational employment patterns for each of about 150 industry sectors representing the economy.

Percent distributions of Ohio employment in the occupations in the various industry divisions in 1950 were obtained from the 1950 Census of Population. Such distributions for 1960 and 1970 of occupational employment in industry divisions were obtained by multiplying the 1950 Ohio percent distributions by the projected percentage changes based on the occupational-industry matrix for the United States. The Current Employment Statistics estimates and projections of nonagricultural employment for 1960 and 1970, previously developed, had to be converted to Census-type estimates and projections in order to gain

comparability with the 1950 Census data. This was done, and the projected percent distributions of occupational employment in industry divisions were used to obtain final occupational employment estimates for 1960 and projections for 1970.[1]

White and nonwhite proportions of employment by occupation were computed from the 1950 and 1960 Census counts. These were then applied to the final estimates of employment by occupation for 1950 and 1960.

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[1]Only occupational employment estimates and projections were believed to be sufficiently reliable for publication. Data on occupational employment by industry, therefore, have not been presented.

DIRECTORY OF LOCAL OFFICES, OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, JUNE 1964
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WILLARD P. DUDLEY, ADMINISTRATOR

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OHIO BUREAU OF UNEMPLOYMENT COMPENSATION

OHIO STATE EMPLOYMENT SERVICE

- LOCAL OFFICES
- BRANCH OFFICES
- ITINERANT POINTS
- SERVED BY

OHIO COUNTIES, PROPORTIONATE TO POPULATION

APRIL 1960

BASED UPON CENSUS OF POPULATION, 1960.

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*MINORITY GROUPS; SECONDARY SCHOOL COUNSELORS; COUNSELOR TRAINING; *BUSINESS RESPONSIBILITY; VOCATIONAL EDUCATION; *SUMMER WORKSHOPS; OCCUPATIONAL INFORMATION; PROGRAM DESCRIPTIONS; SCHOOL INDUSTRY RELATIONSHIP; *EMPLOYMENT OPPORTUNITIES; YOUTH EMPLOYMENT; RECORDS (FORMS); *SCHOOL RESPONSIBILITY
*TEXAS SOUTHERN UNIVERSITY SUMMER WORKSHOP ON JOB OPPORTUNITIES FOR MINORITY GROUPS, HOUSTON, TEXAS, JULY 20-AUGUST 9, 1966

Participants of the workshop included representatives of 35 businesses and industries of Harris County, Texas and 50 senior high school administrators and counselors involved in the employment of minority youth. The objective was to bring high school educators and industrial representatives together in order to obtain a more complete recognition of what each must do to provide better education and better jobs for minority youth. Activities included: (1) lectures, (2) panel discussions, (3) films, (4) visitations, (5) group meetings, discussions, and reports, (6) mock interviews, (7) parent-psychologist verbal intercourse, and (8) student-psychologist verbal intercourse. The workshop was rated above average or excellent by 98 percent of the participants. The strong aspects of the workshop, weak aspects, and suggestions for future summer workshops as reported by the participants are listed. The appendix includes proposed high school programs for minority groups and non-college bound students and job descriptions of positions in several businesses in the Houston area. (PS)

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Texas Southern University Summer Workshop

Houston, Texas
July 20-August 9, 1966

VT 02529

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THIS REPORT PREPARED BY:

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PROJECT DIRECTOR

And Dean of Students

Texas Southern University

Houston, Texas

(Published by Humble Oil & Refining Company)

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P R E F A C E

America has moved so rapidly in the economic realms that it has often measured itself by the position of its forward ranks without full consciousness of the rear elements. The nation has tended to glory in its bounty and become less sensitive to the needs of all people.

Population growth, technological advancement, urbanization and internationalism have been the major concerns of governing bodies of our nation, but the last decade has brought egalitarianism into sharp focus. Under this new emphasis, attention has been given to those segments of our society which have not benefited adequately from the nation's economic progress.

America's vision is now tempered with practicality. It is no longer concerned with the problem of whom to indict for the existing conditions. An indictment is not a solution to a social ill. America's improved vision has enabled it to see the contrast which exists throughout the country relative to the economic condition of its citizens. America is able to see that improving the status of individuals is embodied in the democratic concept and is essential to the maintenance of our cherished way of life.

Houston, Texas, does not intend to become an island of indifference. It has committed itself to educational and economic progress. Businesses and industry are willing to assume their rightful share of the responsibilities.

The Workshop was an expression of the sponsors' willingness to engage in developmental talks and remedial treatment needed by the minorities of the city.

The task was clearly visible to those involved. The needed responses to the task probably emerged vaguely in the three weeks, but there was complete understanding that eternal vigilance is essential to useful employment of people. This is particularly true of minority groups.

Herein are projected views of undertakings in behalf of minority youth.

PARTICIPANTS -- 1,Mrs. Letitia W. Plummer, Associate Director of Workshop, Texas Southern University; 2, Samuel D. Harris, Teacher, E.E. Worthing H.S., Houston ISD; 3, Miss Mercedes Lewis, Teacher, Phillis Wheatley H.S., Houston ISD; 4, Mrs. Ann Nimitz, Counselor, Humble High School, Humble ISD; 5, Dr. Johnie B. Punchard, Teacher, R.E.Lee High School, Goose Creek ISD; 6, Mrs. Gloria M. James, Teacher, George W. Carver H.S., Aldine ISD; 7, Mrs. Alvera E. Baldwin, Teacher, Ross Sterling H.S., Goose Creek ISD; 8, Andrew Burns, Counselor, Phillis Wheatley H.S., Houston ISD; 9, Mrs. Goldie Hartshorn, Counselor, Jack Yates H.S., Houston ISD; 10, Mrs. Janet Jackson, Counselor, Booker T. Washington H.S., Houston ISD; 11, H.H.Nitschmann, Counselor, Ross Sterling H.S., Goose Creek ISD; 12, Mrs. Lillian Bastine, Teacher, Phillis Wheatley H.S., Houston ISD; 13, M.P. White, Counselor, C.E. King H.S., Sheldon ISD; 14, G.C.Knight, Counselor, South Houston H.S., Pasadena ISD; 15, Mrs. Aster Lee Mock, Asst. Director of Workshop, Texas Southern University; 16, C.V. Duggan, Counselor, Jefferson Davis H.S., Houston ISD; 17, Mrs. Zerline B. Prater, Counselor, M.B.North H.S., Orange ISD; 18, Mrs. Sadie D. Melton, Teacher, E.E. Worthing H.S., Houston ISD; 19, Mrs. Freddie Gaines, Teacher, E.E. Worthing H.S., Houston ISD; 20, Mrs. Willie Lee Thomas, Teacher, Jack Yates H.S., Houston ISD; 21, Mrs. Anita Punch, Counselor, Kashmere Gardens H.S., Houston ISD; 22, Mrs. Gloria Thomas, Teacher, Phillis Wheatley H.S., Houston ISD; 23, Maurice Boudoin, Teacher, Charlton-Pollard H.S., Beaumont, ISD; 24, Miss Ietha Davis, Teacher, E.E. Worthing H.S., Houston ISD; 25, W.W. Emmons, Principal, Springwood H.S., Spring Branch ISD; 26, Garland E. McMeans, Counselor, Katy H.S., Katy ISD; 27, Jack E. Rhodes, Principal, Katy H.S. Katy ISD; 28, Mrs. Anna K. Middleton, Teacher, Phillis Wheatley H.S.,Houston ISD; 29, Dr. J.B. Jones, Director of Workshop, Texas Southern University; 30, Elliott Curtis, Principal, Humble H.S., Humble ISD; 31, Clarence Simmons, Counselor, Phillis Wheatley H.S., Houston ISD; 32, Mrs. Vivian Goodson, Teacher, E.E. Worthing H.S., Houston ISD; 33, Mrs. Cecil Washington, Teacher, Phillis Wheatley H.S., Houston ISD; 34, Felix Cook, Asst. Principal, Phillis Wheatley H.S., Houston ISD; 35, Mrs. Wilhelmina Angle, Registrar, Jack Yates H.S., Houston ISD; 36, Fred D. Shannon, Counselor, Crosby H.S., Crosby ISD; 37, Gideon Sanders, Teacher, Phillis Wheatley High School, Houston ISD; 38, Kenneth Felder, Principal, Spring Branch HS, Spring Branch ISD; 39, Mrs. Doris J. Anderson, Counselor, Highland Heights HS, Houston ISD; 40, Joseph West, Teacher, E.E.Worthing HS, Houston ISD; 41, Mrs. Mary J. York, Counselor, Phillis Wheatley HS, Houston ISD; 42, Mrs. Bettye P. Harris, Teacher, Phillis Wheatley HS, Houston ISD; 43, Rufus Conley, Principal, G.W. Carver HS, Aldine ISD; 44, Alphonse Jackson, Principal, Central Elementary School, Shreveport, La.; 45, Mrs. Emma Jean Harrell, Teacher, Phillis Wheatley HS, Houston ISD; 46, Bruce C. Webb, Teacher, E.E. Worthing HS, Houston ISD; 47, Frank E. James, Counselor, Robert E. Lee HS, Goose Creek ISD; 48, Mrs. Johnnie D. Evans, Teacher, E.E. Worthing HS, Houston ISD; 49, Mrs. Allison M. McCowan, Teacher, E.E.Worthing HS, Houston ISD; 50, Mrs. Johnnie M. Robinson, Counselor, M.C.Williams HS, Houston ISD; 51, Leonard Baxter, Counselor, McReynolds Jr. HS, Houston ISD; 52, Mrs. Jessyetene S. Reaux, Counselor, B.C.Elmore HS, North Houston ISD; 53, Mrs. Henrietta Thomas, Teacher, Phillis Wheatley HS, Houston ISD; 54, Mrs. Nell Jean Cole, Teacher, Crispus Attucks Jr. HS, Houston ISD; 55, Carlos Watkins, Asst. Principal, Cy-Fairbanks HS, Cy-Fairbanks ISD; 56, Thomas Milton Green, Asst. Principal, E.L. Furr Jr.-Sr. HS, Houston ISD; and 57, Jerry Prochazko, Principal, Crosby High School, Crosby ISD.

BACKGROUND

The first three-week workshop was conducted at Texas Southern University during the summer of 1965. Twenty-one Houston businesses and industries, the Houston Independent School District, the University of Houston, and the Houston Council on Human Relations cooperated on the project.

Dr. J. B. Jones, Dean of Students at Texas Southern University, was director of the workshop, assisted by 15 specialists in placement, social work, psychology, industry, business, education, and other community organizations. Three semester hours of college credit could be earned from the workshop.

The second workshop was conducted in cooperation with 35 Houston businesses and industries, community organizations, and the following independent school districts: Houston, Humble, Goose Creek, Sheldon, Pasadena, Orange, Beaumont, Spring Branch, Katy, Crosby, North Houston, and Cy-Fairbanks.

Dr. J. B. Jones, Dean of Students at Texas Southern University, again directed the work, assisted by numerous specialists.

A steering committee from businesses and industries helped formulate plans for the second workshop. Members of the committee included: Tom Brown, Manager of Personnel and Industrial Relations, Houston Area, Shell Oil Company; Lester Dewald, Personnel Manager, Foley's Department Store; Edward Gadberry, Personnel Assistant, Texas Instruments, Inc.; Frank Gaines, Jr. Assistant Manager Employee Relations Department, Humble Oil & Refining Company; Simeon Hyde, Employee Relations Supervisor, E. I. DuPont de Nemours & Co., Inc.; Walter L. Knoll, Personnel Director and Associate General Manager, Prudential Insurance Company; E. W. Steele, Director of Personnel, Henke & Pillot.

(Later, when Mr. Gaines was transferred to New York, Harry G. Taylor assumed the duties of chairman.)

Mr. Gaines served as chairman at a meeting of the steering committee on December 3, 1965, in the Humble Building, At this meeting plans were made to invite superintendents of all Independent School Districts in Harris County to a subsequent meeting, and extend to them the opportunity to become involved in the workshop.

Nineteen school districts were represented at the January 19 meeting with the superintendents, along with personnel from businesses and industries and Texas Southern University.

The Steering Committee from businesses and industries took on the responsibility of soliciting financial support and school district participation, while T. S. U. and staff were left with the selection of participants and formulation of Workshop Content.

As Plans for Progress Companies, the sponsoring groups, became a part of the Nation's all-out effort to upgrade minorities' employment. The cost of conducting the workshop was funded jointly by local companies and a Plans for Progress grant.

The businesses and industries which were not Plans for Progress Companies made their financial contribution directly to the University.

It was originally intended to involve only senior high school counselors and administrators with a quota of 80. This proved too ambitious. The number was reduced to 50 and some junior and senior high teacher-counselor applicants were included.

The workshop became a reality through the combined efforts of those herein identified and the goodwill of many who go unheralded.

WORKSHOP WARM-UP -- Participants in Texas Southern University-sponsored "job opportunity workshop" confer before opening session in campus lecture room. Making a point, at far right, is Dr. J. B. Jones, dean of students at T.S.U. Listening are, left to right, E. G. Mattison, administrative director for the Plans for Progress program, Washington, D.C.; Dr. J. A. Pierce, president of Texas Southern University; Harry G. Taylor, Employee Relations Department, Humble Oil & Refining Company; and David McLure, director of personnel, Houston Independent School District.

I. OBJECTIVES

The objective of the Workshop for High School Administrators and Counselors involved in the employment of minority youth was to provide experience geared toward:

A. Promoting familiarity with the psychological climate which characterizes the vocational outlook and employment potentials of minority youth.

B. Determining current demands of businesses and industries in Harris County and the school's present and possible future responses to same.

C. Inauguration of a two-way system of communication between employers and educators, thereby enhancing appreciation for and cooperation with the role each must play in the full utilization of human potentials.

D. Involving participants in the job of selection-job placement processes of local businesses and industries, thereby enabling them to work more effectively with their student clientele.

E. Relating employment to family economy, community morale and morals and full implementation of the democratic concept.

F. Developing a format which may be used to enhance the progress of the minority groups in employment thus providing other comunnities with a guide to action.

G. Seeking means by which certain minority elements can be made productive and thereby enjoy the possibility of becoming prosperous.

II. ORGANIZATION AND PROGRAM CONTENT

A. Education Credit

The Workshop was administratively placed under the Department of Guidance of the Division of Education in the Graduate School of Texas Southern University and assigned the title Education 876b, 876c: Special High School Guidance Problems in the Employment of Minority Youth.

The course carried three (3) semester hours graduate level optional credit.

B. Organization

The 15 work days were spent as follows:

1. Organization and Background.....3 days
2. Field Visits and Group Meetings.5 days
3. Feedback, Interviews, Panels....5 days
4. Preparation of reports, presentations and evaluation.....2 days

The workday began at 8:00 a.m. and ended at 4:00 p.m.

C. Content

To attain the objectives of the Workshop the program on the following pages was pursued.

III. SELECTION OF PARTICIPANTS, FACULTY AND SPONSORING PERSONNEL

The design of the workshop provided for five field groups (Appendix 13). About 11 members per group provided ample diversity for stimulation of ideas and yet allowed individualized treatment of interests. This restricted the total enrollment to approximately 55 members. It was decided that the administrator, counselor and teacher represented the three operational levels in the public school and could each profit from experiences provided. These were to communicate ideas acquired to their respective counterparts and become the operation nucleus in each school.

The Administrative Personnel of the Houston Independent School District, and the 11 independent school districts listed in the appendix sought to implement the selection procedures by explaining the idea to school administrators, making available announcements (See Appendices 1 thru 5), following through to determine interested and available persons, preparing the final lists of persons to participate and selecting replacements where necessary.

The Director of the Workshop extended an invitation to a Counselor in the Shreveport, Louisiana Public School System to be a part of the group largely to determine the applicability of this approach to other geographical areas. This would contrast the lesser urbanized and lesser industrialized areas to the Houston-Harris County environments.

The 35 businesses and industries (Appendix 11) who stimulated the program and offered their facilities as laboratories for the Workshop authorized and helped underwrite the budget.

ACTIVITY SCHEDULE
1966 WORKSHOP - JOB OPPORTUNITIES FOR MINORITY GROUPS

DATE	HOUR	TOPIC ACTIVITY	PROGRAMMED PERSONNEL
Wednesday July 20	9:00 a.m.	Greetings	Mr. Harry Taylor Employee Relations Department Humble Oil and Refining Company Houston, Texas Dr. S.M. Nabrit, President Texas Southern University Houston, Texas Mr. David McLure Director of Personnel Houston Independent School District
	9:30 a.m.	Orientation Panel	Mrs. A.L.Mock Assistant Director of Workshop Mr. Charles Pate Assistant Principal Edison Junior High School Houston, Texas Mr. Franklin D. Wesley, Principal Booker T. Washington High School Houston, Texas Mr. Les DeWald, Personnel Director Foley's of Houston
	11:00 a.m.	Opening Address	Mr. E.G.Mattison Administrative Director PLANS FOR PROGRESS Washington, D.C.
	12:15	Lunch	
	1:30 p.m.	Film-O-Rama	
	2:30 p.m.	Overview	Dr. J.B.Jones Director of Workshop
	2:45 p.m.	Registration	

ACTIVITY SCHEDULE
Page 2

DATE	HOUR	TOPIC ACTIVITY	PROGRAMMED PERSONNEL
Thursday July 21	9:00 a.m.	Sociology of the Disadvantaged	Dr. Rupert Koeninger Professor of Sociology Texas Southern University
	10:30 a.m.	Psychological Foundations of Work	Mr. Moses Sanchez Director of Project Wide Horizons
	12:00	Lunch	
	1:00 p.m.	Characteristics of Harris County	Mr. Gail Whitcomb Houston Chamber of Commerce Mr. Russell Lokkeberg, Research Director Community Council, Houston, Texas Mr. Terance Travland Texas Employment Commission Houston, Texas
Friday July 22	9:00 a.m.	The Economic Outlook	Mr. Homer Jackson Texas Employment Commission
	10:30 a.m.	Problems in Employment of Minority Groups	Miss Joan Tarpley U.S. Civil Service Commission Dallas, Texas Miss Judy Myers Vocational Guidance Service Houston, Texas Mr. Bob Barron Personnel Director Texas Instruments, Inc. Houston, Texas
	2:00 p.m.	Field Visit Preview	Dr. J.B. Jones Director of Workshop Texas Southern University Mr. Tom D. Brown, Manager Shell Oil Area Personnel and Industrial Relations, Houston, Texas Mr. Simeon Hyde Employee Relations Superintendent E.I. DuPont de Nemours and Co.

ACTIVITY SCHEDULE
Page 3

DATE	HOUR	TOPIC ACTIVITY	PROGRAMMED PERSONNEL
Monday July 25		Field Trips	Groups A through E
Tuesday July 26	9:00 a.m.	Upgrading the Economic Life of Minority Groups - Dialogue	Mr. M.T. Puryear National Urban League New York, New York
	11:00 a.m.	Group Caucus	Representatives of Groups A - E
	12:00	Lunch	
	1:30 p.m.	Reactions, Clarification and Reorientation	Representatives from each of the companies visited, Neutral Observer, and Staff
Wednesday July 27 through August 2		Fields Trips	See Schedule
Wednesday August 3	9:00 a.m.	The Parental Scene	(Interviews) Dr. Robert T. Harris Research Psychologist Houston State Psychiatric Institution
	10:15 a.m.	The Student	Interviews
	11:15 a.m.	The Dropout	Mr. Melvin Kutch Community Relations Coordinator Texas Employment Commission
	1:00 p.m.	The Handicapped	Field Visit to Texas Institute for Rehabilitation and Research Host, Mr. Dick Tettamanti, Director of Vocational Retraining, Texas Education Agency, Division of Vocational Rehabilitation

ACTIVITY SCHEDULE
Page 4

DATE	HOUR	TOPIC ACTIVITY	PROGRAMMED PERSONNEL
Thursday August 4	9:00 a.m.	Analysis of Programs Available to Youth	Operation Champ Houston Action for Youth Youth Opportunity Center Job Corps Neighborhood Youth Corps VISTA Economic Opportunity Center Project Happy American Friends Service Committee Project Wide Horizon
Friday August 5	9:00 a.m.	Family Consultation - Minority Group Problems	Dr. Daniel Fullmer Oregon State System of Higher Education
	11:00 a.m.	The Church as an Instrument	The Reverend A.E.Davis Chicago, Illinois
	12:00	Lunch	
	1:00 p.m.	Group Meetings	Preparation of Reports
	2:00 p.m.	Readiness for Business, Industry and Education Day	
Monday August 8	9:00 a.m.	Business, Industry and Education Day - Rice Hotel	
Tuesday August 9	9:00 a.m.	Group Reports	
	10:45a.m.	Tips on Getting the Job Done	
	12:00	Lunch	
	1:30 p.m.	Group Reports (Continued)	
	2:30 p.m.	Projections	

Note: Credit was awarded each participant who designed an original project applicable to his or her school which had as its purpose orientation, motivation, preparation or placement of minority youth.

THE WORKSHOP IN RETROSPECT

The workshop encompassed the following approaches to meet the goals set out by the staff; (1) lectures, (2) panel discussions, (3) films, (4) visitations, (5) group meetings, discussions, and reports, (6) mock interviews, (7) parent-psychologist verbal intercourse, and (8) student-psychologist verbal intercourse.

Lecturers from the local and national scene were included in the program of the 1966 workshop. Included were E. G. Mattison, Administrative Director of Plans for Progress; Dr. Rupert Koeninger, professor of sociology, Texas Southern University; directors of agencies that are financed by the Federal Government's War on Poverty Program; representatives of state employment agencies; M. T. Puryear of the National Urban League; and Dr. Daniel Fullmer, Oregon State System of Higher Education.

Mr. Mattison defined the program of Plans for Progress and set the objectives of the group. Plans for Progress is comprised of companies of varying sizes throughout the United States who are seeking ways to bring about social change that is inevitable. It is significant to note that many of the companies in the program are not government contract holders. These member companies have shown a sincere concern with circumstances within their individual companies which cause inequalities. It has become their purpose to make their goals, as set out in the written document, realistic and believable within the company from the president's desk to the maintenance broom closet.

The social structure of the disadvantaged society and means by which the impairment of long existent social patterns may be overcome were given by Dr. Koeninger. In his lecture he pointed out that, until the present era, cultural change has been slow. There have been, according to Dr. Koeninger, more significant social changes within the past ten years than have ever been evident in the history of mankind. The poverty existent in American culture he traced to the foundations of the country. As early as the days of the forging of the frontier, some members of society exploited those less affluent than themselves to gain control of their property, Dr. Koeninger charged. Natural resources were squandered and wasted. The very nature of slavery -- lack of education crushed initiative, inequitable division of economic resources -- produced an economically instable segment of society. The exploitation of immigrant groups created a similar state for those who were not sufficiently strong to raise themselves from these conditions. While many millions of persons have climbed into America's middle class and become affluent, the gulf between the "haves and have nots" has grown continuously larger as time elapsed, Dr. Koeninger said.

Dr. Koeninger gave several classifications of families living in deprivation: (1) the family that has economic insecurity and familial instability, (2) the family that has economic insecurity and familial stability, and (3) the family that has economic security and familial instability. Dr. Koeninger suggested four means by which these families might be brought into the mainstream of American society. First, substitute a whole hearted approach for the pallative approach normally taken that has killed the moral fiber of the victims of poverty. Second, plan so as to make full use of human resources. Third, use a peaceful, sane, and rational approach to the problem. Fourth, develop an attitude that there can operate within a capitalistic frame of reference, a coalition which includes Negroes, Latins, and liberals who can develop an establishment that will operate just right of center.

Homer Jackson of the Texas Employment Agency, as he spoke on "Economic Outlook," pointed out that the unemployment ratio for the Houston area, which includes Harris, Fort Bend, Brazoria, Liberty and Montgomery counties, had decreased this June to 3.3%. The demand for qualified workers has exceeded the supply. Qualified workers are defined as those who have some marketable skill with academic or technical training beyond high schools. Mr. Jackson indicated that there are vocational openings for high school graduates who are willing to train for machine operator positions, auto mechanics, restaurant cooks for larger establishments, duplicator machine operators, shoe repairmen, machine operators, meat cutters, dry cleaners and pressers, office machine mechanics, building custodians, home-makers, furniture repairmen and air conditioning repairmen and installers.

M. T. Puryear of the National Urban League showed how the educational gap between the Negro and the Caucasian has been bridged over the period of the last 25 years. At the same time, he contrasted the educational improvement to the lack of improvement in the income level of the Negro. Mr. Puryear noted that it will be necessary for the members of minority groups to become financially stable if they are to be productive members of society.

A wide range of activities was covered through panel discussion. The orientation panel consisted of Mrs. A. L. Mock, assistant director of the Workshop; Mr. Charles Pate, assistant principal Edison Junior High School; Mr. Franklin Wesley, Principal of Booker T. Washington High School; and Mr. Martin, personnel director, Foley's of Houston. These panelists gave a detailed overview of the impressions received during the 1965 Summer Workshop. In summation, it was concluded that business, industry and education have a definite need for each other. Education produces the end product and business and industry use it.

Since the product that education produces will more than likely be utilized in the Houston area, the second panel vividly pointed out the characteristics of Harris County. This group consisted of

Mr. Gail Whitcomb, Houston Chamber of Commerce; Mr. Russell Lokkeberg, research director of the Community Council; and Mr. Terance Travland, Texas Employment Commission. A common factor which permeated all discussions was that Houston has become a giant metropolitan area which requires people who are highly skilled.

Problems in Employment of Minority Groups was the subject considered by the third panel. These problems were reviewed by Miss Joan Tarpley, U. S. Civil Service Commission; Mr. Bob Barron, personnel director, Texas Instruments, Inc.; and Judy Myers, director of JOY. (Job Opportunities for Youth)

Some of the problems which were identified by each participant on the panel were that high standards are nation-wide and persons employed must meet these standards, that minority group members have difficulties passing tests because of a lack of experience and test sophistication, that entry examinations for employment are designed almost exclusively for middle class people and that a tremendous language problem exists with minority groups.

The culminating panel gave a vivid analysis of programs available for youth. This group was appropriately scheduled in that it came near the end of the workshop activities. After completing field trips, the question of who has done something about the minority group's involvement in the world of work was answered through the efforts of government, state and community financed organizations whose purpose is to locate employment, to counsel with and to interpret for minority members their places and responsibilities in the world of work. Some of the programs analyzed were Operation Champ, Youth Opportunity Center, Vista, Economic Opportunity Center, Project Happy and Project Wide Horizon.

Early in the workshop the films "Portrait of the Inner City" and "Portrait of a Disadvantaged Child: Tommy Knight" brought the participants to grips with the basic problem of culturally and economically differentiated individuals. American society is asking the normalcy or sameness that is common to the mainstream of society of those who have been, in many instances by no personal fault, socially and psychologically differentiated.

The films sought to have their viewers internalize four basic concepts. First, a number of factors exert strong counter-pressures to the development of a positive self concept. A negativistic self concept creates an emotional block to learning or "hearing and believing" in job opportunities. Secondly, there is a wide diversity of individuals who make up the culture in which these young people live. Third, there is a need for working with the whole community as the result of reaching all the individuals in the community. Fourthly, the need for a creative approach to the art of communicating with these people, both young and old.

A cross section of businesses and industries was selected for visitations. This gave a realistic view of the kinds of jobs available in the Houston and Harris County area. The workshop groups were divided so that each group visited varying types of businesses and industries. Preceding the field trips, a detailed discussion of what to look for in the field was given by a panel consisting of Dr. J. B. Jones, Director of the Workshop; Mr. Tom D. Brown, Manager of Personnel and Industrial Relations, Shell Oil Company; and Mr. Simeon Hyde, Du Pont. Five major points brought out in the discussion were as follows:

(1) To look at people at work
(2) To see the number of members of the minority group on the job and to review their job titles
(3) To get a description of the testing program
(4) To understand the functions of the specific business and industry visited in relationship to the total world of work
(5) To inquire about the problems experienced by members of the minority group in securing and maintaining jobs

Reports, meetings and discussions aided in integrating all activities of the workshop. Group meetings and discussions proved particularly advantageous in that as a result of group dynamics in an integrated setting, candid views from both Negroes and Caucasians gave a more realistic view of feelings concerning the minority group's role in the world of work. Also as a result of these meetings, group members weregiven an opportunity to reflect on all of the activities and make practical recommendations and suggestions.

Mr. Richard Holm, employment interviewer, and Mr. Wesley Pyle, a community relations adviser of Armco Steel Company, presented a mock interview in which they demonstrated for the workshop participants actions which give them an insight into the personality and character of the prospective employee. The mock interview is an excellent means of getting across an idea in a vivid and realistic manner.

Dr. Robert T. Harris, research psychologist Houston State Psychiatric Institution, engaged in verbal intercourse with parents and students of one of the poverty areas of Houston. He had worked with the son of the parents during the past school year. In the conference with the parents, Dr. Harris was able to draw out responses that indicated that the parents were not making a realistic appraisal of the potential of their son. In his conversations with two male students, one of whom he had counseled with during the year and another that he had not seen before, he was able to deduct certain basic insecurities. As Dr. Harris reviewed his conversations with the participants, he pointed out those specific parts of the conversations that indicated points of personality conflict. He further reviewed the types of family situations that he has found to produce problems in youngsters.

SUMMARY RATING EVALUATING SHEETS
RESULTS OF A POLL OF ALL WORKSHOP PARTICIPANTS

EVALUATION

The participants responded to questions regarding the Workshop in the following manner:

1. Rating the Workshop-Average 2% Above Average 45% Excellent 53%

2. Rating the Visitation Programs-Average___Above Average 45% Excellent 55%

3. The degree of attainment of the objectives:
   Little___ Much 40% Fully 60%

4. There were ___major speeches, 8 minor speeches as parts of panels, and___minor discourses as parts of panels. Rating the speeches in dealing with the involved issues:
   To some degree___To a great degree 57% Excellent 43%

5. Rating the visitation schedules for future workshops:
   Present satisfactory___Every two days 94% Others 6%

6. Attitudinal impact of Business toward this issue:
   Evasion___Hostile___Compromising 12% Sympathetic but objective 26% Serious for improvement 62%

7. Attitudinal impact of Educators toward this issue:
   Resigned___ Hostile___ Indifferent 9% Fearful of repercussions 6% Anxious for immediate action 85%

8. To the participants of the Workshop evidences of self-improvement in knowledge, rudiments and organizations:

   a. The structures of industries and businesses
      To some degree 49% Fully 51%

   b. The vocabulary of businesses and industries (scientific and technological vocabulary or terminology)
      To some degree 40% Fully 60%

   c. Gained new insights and outlooks for present position
      To some degree 4% Fully 96%

9. Curriculum revision at both secondary and elementary levels:
   Not needed___Needed only in certain areas 21% Greatly needed 79%

10. One of the weaknesses of the counseling program is due to the small number of counselors employed.
    Yes 95% No 5%

11. As one factor as a solution to the overall problem, is there a need for upgrading the counseling programs in our High Schools?
    Yes 100% No___

12. Is there a need for more unity of purpose and harmony between the counselors of our School System?
    Present satisfactory 29% Yes 71%

13. Do we need enrichment programs in High School English and for practical application Mathematics?
    Present satisfactory___ Yes 100%

THE STRONG ASPECTS OF THE WORKSHOP
(As Reported by Participants)

1. Provided an opportunity for educators to become familiar with the operations of business and industry.

2. Made provisions for educators to become familiar with, and more keenly aware of the sociological and psychological background of students from minority groups.

3. Made provisions for free exchange of ideas and free communication between representatives of business, industry, and educators.

4. Brought into focus the need to recognize unity in purpose of education and job opportunities for all students.

5. Made available graphic knowledge of job opportunities and job requirements.

6. Made educators aware of weaknesses in the high school curriculum.

7. Provided scholarly lectures and informative business and plant visitations for educators.

8. Set the stage for future co-operation between business, industry, and education.

9. Provided an opportunity for educators to make valuable contacts with representatives from business and industry.

10. Presented a well-structured and practical program of activities under the direction of a warm, understanding, and capable staff.

11. Exposed the educators to the atmosphere of warmth, friendliness, and efficiency of the representatives of business and industry.

12. Accomplished overall objectives.

WEAK ASPECTS OF THE WORKSHOP
(As Reported by Participants)

1. Failed to provide workshop participants with a guide to the specific types of questions and observations to be made during the plant tours.

2. Featured the same workshop participants throughout.

3. Failed to provide enough time for the preparation of reports.

4. Failed to provide enough time for individual group meetings.

5. Workshop was too short.

6. Failed to provide enough time for open discussion.

7. Failed to provide enough contact with minority employees during plant tours.

8. Some representatives from certain business and industrial firms failed to provide sufficient information relative to entry jobs, educational requirements for these jobs and beginning pay.

9. Failed to provide representatives from the labor unions, food service, transportation, and banking.

10. Failed to initiate any effort for workshop participants to get to know each other.

11. Failed to provide enough teacher participation as opposed to participation of counselors and administrators.

12. Failed to provide a staff guide with each group.

13. Failed to provide a cross section of school representatives throughout the country.

14. Provided too much repetition, theory and not enough group activity.

15. No superintendent, board member or other administrative officer was present at the evaluation.

16. Failed to have a wide selection of local schools represented.

SUGGESTIONS FOR FUTURE SUMMER WORKSHOPS
(Listed in the Order Suggestion Was Made)

1. Each group into which the workshop is divided should have one member who participated in a prior workshop.

2. The groups should have check lists for the convenient evaluation of the various plants which are visited.

3. In addition to regular and vocational teachers, workshop participants should include school administrators and curricula developers.

4. County and city government should participate in workshops.

5. Each group should contain no more than ten people and should visit only one plant in one day.

6. The 1966 workshop participants might be asked to nominate other people to attend future workshops. Perhaps the workshop report could be sent to the principals with a letter indicating those from his school who attended, letting him know that these participants will be nominating other people from his school to attend future workshops, and asking his help and support (which is quite influential) for the workshop program.

7. More effort should be made to get more school districts and more businesses (especially banks) to participate.

8. If school administrators and curricula developers attend future workshops, a half-day session should be devoted to a discussion of curricula changes indicated by the workshop experience.

9. Participants should be selected early so that planned advance information (possibly including the report of the preceding workshop) could be given them and perhaps some advance"homework" assigned. Participants would then come to the workshop with knowledge about the workshop aims and purposes, about their school district operations, and about the vocational education and guidance activities of their districts.

10. Labor and unions should participate in workshops.

RECOMMENDATIONS

Group A

Based on our observations, findings, and evaluations of job opportunities and job requirements, we recommend the following:

Industry and Business

1. That both industry and mass media cooperate with leaders in education to change public attitude toward technical and vocational training for high school students.

2. That business, industry, mass media, and labor join with educators at the secondary level to counsel students with regard to job opportunities in industry.

3. That business and industry assume the responsibility of consistently advising public schools as to the changing general educational requirements for various technical and vocational employment opportunities.

4. That business, industry, labor, and mass media provide representatives, well-trained in the needs of industry, as advisory personnel to high school guidance counselors in every high school.

School Authorities

1. That facilities established in the area training schools be as flexible as possible in order that the equipment may be kept currently modern and representative of the best industrial practices.

2. That the entire concept of secondary school diplomas be re-examined and provisions made for educational programs to meet the needs of those students who will not or cannot go to college.

3. That an exchange program between industry, technical and vocational schools be established.

4. That a closer coordination be established between employment agencies and the schools that are charged with providing technical and vocational education.

5. That each classroom teacher be given the same consideration in obtaining teaching equipment as the coach is given in obtaining athletic equipment.

6. That a detailed study of the problems between industry and education be made, investigated, and acted upon.

7. That school board members allow representatives from the various industries to sit in on proposed curriculum changes and offer suggestions.

8. That social workers be employed among the working groups to act on family decisions that seem to baffle the workers.

Administrative Staff

1. That basic English and basic mathematics be required of all students in the senior high school so that students will be prepared to enter the labor forces.

2. That a representative from the Curriculum Department make tours to industry.

Principals

1. That all teachers be made aware of the job opportunities available to minority groups in this area.

2. That each teacher be allowed to make suggestions for taking advantage of job opportunities.

Counselors

1. That seminars and other means be devised whereby all students and teachers are made aware of job opportunities and requirements.

2. That additional funds should be made available to counselors for the purpose of purchasing tests on vocational education.

Teachers

1. That teachers put forth a concerted effort to motivate students to take advantage of these job opportunities.

2. That teachers keep abreast of the ever changing needs in training and gear teaching to meet the needs of students in preparation for specific jobs.

Workshop Staff

1. That distributive education and business education teachers be allowed to attend the workshop on job opportunities.

2. That annual visitations be arranged so that teachers and counselors may keep abreast of current events in industry.

3. That more time be given immediately following a visit so that the workshoppers may discuss and evaluate that particular visit.

Group B

To the School Board

1. We recommend that the secondary level in the traditional literary curriculum must be modified to include more emphasis on vocational and technical courses as related to business and industry.

2. The school board must set up more diversified courses in junior high school with curriculum correlated with industry.

3. To search for and develop a more functional course of study for the student who is not capable nor is planning to enter college upon graduation from high school.

4. Allow more time for teachers and counselors who deal with minority groups and non-college bound students to visit local businesses and industries in an effort to better communicate basic skills, needs, etc. which may lead to better development on the part of these individuals entering the world of work.

To Business and Industry

1. Equalization of the pay scale for the non-white educated male in the upper job categories to that of his employed counterpart.

2. Industry must encourage and give incentive for on-the-job training of already committed workers.

3. The schools are not the only agency which must produce occupational skills. There must be more on-the-job training in industrial concerns, apprenticeship programs and other arrangements which provide out-of-school training.

4. Business and industry should project into the future the types of jobs that will be available in their particular establishment, five to ten years from now.

To Counselors and Teachers

1. Counselors should keep a ready reference file with names of individuals and establishments with whom they may contact as source of employment for minority youth.

2. A constant appraisal of the personality traits of potential job applicants should cross-sectional and longitudinal.

3. Students in high school should be required to take a course in speech.

4. The counseling staff should become better oriented as to local job opportunities in order to pass this information on to the students and teachers through assemblies, career days, and similar means.

To Staff Members

1. The titles "vocational education and vocational guidance" should be clarified for administrators, teachers, and counselors.

2. A printed list of the outline of the specific observations and findings be presented the company prior to the visit so that the time taken with orientation may be more precise as to statistics of those presently employed and more time would be available for first-hand observation of the business or industry.

Group C

Businesses and schools have made progress in recent years in establishing a better understanding by participating in Business Education Week, Career Conferences at schools, and many other types of workshops. It is the opinion of Group C that these efforts could be improved by having more specific details of job descriptions from businesses to place in the hands of those students who might be interested. Schools could make a special study of these job specifications and, perhaps, alter existing courses or establish new courses to meet these expectations. It is further recommended that there be an optional plan of a twelve year or fourteen year terminal plan for public education with twelve year programs for college bound students and fourteen year plans for non college bound students.

The guidance staffs need to know more about business requirements for specific types of jobs. It is suggested that counselors should have more and better contacts with business in order to know specific qualifications for certain types of jobs. Schools should designate certain counselors to study industry so they could make recommendations to students.

The teachers in the individual classrooms should know more about what business expects. Spelling, grooming, applying for a job, filling out application blanks are examples of things that might be emphasized more by teachers.

The above mentioned items are thoughts and inspirations that are made as a result of the workshop.

It is suggested that the workshop staff could better acquaint the members of the workshop with a more definite list of items or questions that might be used while making visits to the various industries. It should certainly be understood that the questions asked of the people in industry, should not be restricted to the suggested list. The businessmen could help the visiting groups by having written job descriptions available. It is suggested that more time should be set aside to assemble in groups for the composition of the reports.

Group D

It is the consensus of Group D that the workshop "Employment Opportunities for Minority Youth" has provided gainful experience toward achieving the objectives of the workshop. The communication established between industry and educators portends mutual benefit, not only for the present but for the future as well. First hand observations of the industrial environment indicated to us the sincerity with which industry and business are seeking to solve the employment problem of youth, but they, as well as we, realize that there is still much to be accomplished.

The approaches used in the workshop, in our opinion, were appropriately selected. From each method, meaningful information was acquired. The initial film depicting the socio-economic background of a culturally deprived child provided a fuller understanding of the problem to be encountered.

The visitations acquainted us with the numerous job opportunities in industry as well as employment procedures, practices, and requirements. Personal contacts made from this visit should be of inestimable value to the participants of the workshop in the future.

In group meetings we had an opportunity to share impressions and experiences.

The broad scope of the lectures gave us a comprehensive view of the problem. From panelist we learned the many organizations whose purpose is to improve the sociological, educational and psychological aspects of the environment of minority youth.

We have observed the job opportunities offered by industry. To take advantage of these opportunities, education must provide the individual with a saleable skill. It must help the student build confidence in himself and his skills. Education must develop an awareness of the interdependence between specific subjects in order that a student will see that he must be dependent on his fellow man. It must teach the student that small rewards lead to greater aims and ambitions. Education must attempt to train the individual that his personal efficiency is necessary; that all dependent on him will be able to work together as a team for greater rewards. Education must impress on its students that one never learns all he needs to know; that he must continue to take advantage of training and education if he is to be productive.

Based on observations and information received, Group D makes the following recommendations:

For School Boards and Administrative Bodies

1. That the high school curricula be revised to meet the realistic needs of industry.

2. That schools now having vocational training courses expand them and those not having them institute courses where warranted.

For Counselors

1. That counselors sponsor occupational information clinics throughout the school year.

2. That counselors keep abreast of job opportunities created by industrial organizations in this changing world of work.

3. That counselors solicit help of administrators and teachers to inculcate in students a healthy respect for all kinds of useful work.

4. That counselors encourage the academically talented who do not plan to pursue a college course to enter vocational areas.

5. That counselors provide more opportunities for test experiences.

For Teachers

1. That teachers relate subject matter to job opportunities.

2. That teachers encourage students to become more interested in the vocational approach to education .

3. That all teachers encourage and assist students to become proficient in verbal and basic mathematical skills .

4. That teachers emphasize to students that personal grooming, employable attitudes, work experiences, and appropriate dress are important factors that employers consider in choosing employees .

5. That drill in filling out employment application forms should stress accuracy, neatness, and completeness .

6. That teachers stress the interrelations and interdependence of subject matter areas which in turn may help students to appreciate the interdependence of occupations.

For Staff Members

1. That a staff member be provided for each group.

2. That more school districts be included in this workshop.

3. That follow-up studies be made from each participating school district.

For Sponsoring Agencies

1. That administrative personnel in industry and education work together in regard to curricula revision to prepare students for the world of work.

2. That, in spite of the fact that some advancement has been made in the employment of minority youth, industry should do more to close the gap between policy and practice.

3. That industry utilize more sources in recruiting members of minority youth.

4. That industry select high school youth to participate in programs of apprenticeship.

5. That scholarships and fellowship programs be instituted in the predominately minority colleges that qualify.

6. That industry initiate a program whereby public school mathematics, science, business and industrial arts teachers may be employed for a year or during summer months in order to better understand the needs of industry as they are related to the school.

Group E

Favorable reaction to all objectives as stated.

Approaches used were generally favorable except more panels and more visual aids recommended.

Observations and findings that representatives of business communicate with Boards of Education to present suggestions for upgrading education in light of their needs for future. Also, that education should use community agencies and leadership more, through churches, clubs, and other organizations to carry the message of industries' needs and opportunities to motivate children, and increase parents' appreciation for and respect for skilled labor.

Recommendations to school board and administrative staff include:

1. Active participation in these workshops.

2. Adjust curriculum toward strengthening basic and technical skills necessary for employment in business and industry.

3. Maintain continuing contact with industry so that changing demands may be met.

Inter-school Administration

1. Provide for and support utilization of workshop experiences in terms of total staff as a means of keeping the faculty aware of current community needs and changes.

Counselors

1. To continue to be aware of current employment needs and involve the student in these opportunities for employment, and for avenues of training available in community.

2. To take programs and audio-visual material designed to increase the appreciation and respect of parents in the community for so-called "blue collar" jobs through churches, clubs, etc.

3. Attempts should be made to motivate the adolescent living in poor neighborhoods through school-family approach.

Teachers

1. To increase teachers' awareness of needs of industry and business and the inadequacy of the students in meeting these requirements.

2. Suggestions for meeting these requirements include: More emphasis on basic skills; Filling of application blanks; and, Oral presentation (interviews) of prospective employee.

Workshop Staff

1. Invite participation of school board and central administration staff in workshops such as these.

2. Allow more time for workshop reports.

3. Involve school teams of at least four persons per school in the workshop; then each school team should develop a definite, specific plan of action for that school for the ensuing years.

4. More visual aids in workshop.

Sponsoring Agencies

1. To increase their involvement with the power structure (school board) toward facilitating the entrance of the larger percentage of their graduates who are not going to college.

2. To suggest the trend of their needs for future for whatever implications they may have on curriculum.

GROUP ASSIGNMENTS
OF PARTICIPANTS

(All Houston ISD Unless Otherwise Indicated)

GROUP A

Staff Member:	Aster Lee Mock		
Chairman:	Rufus Conley	Principal	G.W.Carver High School,Aldine
Co-Chairman:	Andrew J. Burns	Counselor	Phillis Wheatley HS
Recorder:	Freddie Gaines	Teacher	E.E.Worthing HS
Alvera E. Baldwin		Teacher	Ross Sterling High School,Goose Creek
Emma Jean Harrell		Teacher	Phillis Wheatley HS
Anita Punch		Counselor	Kashmere Gardens HS
Thomas Milton Green		Asst.Prin.	E.L.Furr Jr. Sr. HS
Gloria Thomas		Teacher	Phillis Wheatley HS
Carlos Watkins		Asst.Prin.	Cy-Fairbanks HS
Wille Lee Thomas		Teacher	Yates HS
Elliott Curtis		Principal	Humble HS
Gloria James		Teacher	G.W.Carver High School,Aldine

GROUP B

Staff Member:	J.B.Jones		
Chairman:	Felix Cook	Principal	Phillis Wheatley HS
Co-Chairman:	Leonard Baxter	Counselor	McReynolds Jr. HS
Recorder:	Johnnie M.Robinson	Counselor	Williams HS
Gideon Sanders		Teacher	Phillis Wheatley HS
Robert D. Tyler		Counselor	Pasadena HS
Joseph West		Teacher	E.E.Worthing HS
Jessyetene S. Reaux		Counselor	B.C.Elmore HS,North Houston
Sadie Melton		Teacher	E.E.Worthing HS
Jack E. Rhodes		Principal	Katy HS
Fred D. Shannon		Counselor	Crosby HS

GROUP C

Staff Member:	Letitia W. Plummer		
Chairman:	Kenneth Felder	Principal	Spring Branch HS
Co-Chairman:	Bettye P. Harris	Teacher	Phillis Wheatley HS
Recorder:	Mary E. York	Counselor	Phillis Wheatley HS
Ietha Davis		Teacher	E.E.Worthing HS
Janet Jackson		Counselor	B.T.Washington HS
Doris J. Anderson		Counselor	Highland Heights
Johnie B. Punchard		Teacher	R.E.Lee HS, Baytown
Garland E. McMeans		Counselor	Katy HS
W.W.Emmons		Principal	Springwood HS,Spring Branch
Anna Middleton		Teacher	Phillis Wheatley HS

GROUP ASSIGNMENTS
OF PARTICIPANTS

(All Houston ISD Unless Otherwise Indicated)

GROUP D

Chairman:	Zerline B.Prater	Counselor	M. B. North HS, Orange
Co-Chairman:	J. Prochazka	Principal	Crosby HS
Recorder:	Allison M.McCowan	Teacher	E.E. Worthing HS
Samuel D. Harris		Teacher	E.E.Worthing HS
G.C.Knight		Counselor	South Houston HS,Pasadena
Mercedes Lewis		Teacher	Phillis Wheatley HS
Maurice Boudoin		Teacher	Charleton-Pollard HS
Ann Nimitz		Counselor	Humble High School
Clarence Simmons		Counselor	Phillis Wheatley HS
Vivian Goodson		Teacher	E.E.Worthing HS
Nell Jean Cole		Teacher	Attucks Jr.High
Henrietta Thomas		Teacher	Phillis Wheatley HS

GROUP E

Chairman:	H.H.Nitschmann	Counselor	Ross Sterling HS,Goose Creek
Co-Chairman:	Goldie Hartshorn	Counselor	Jack Yates HS
Recorder:	Johnnie D. Evans	Teacher	E.E.Worthing HS
M.P. White		Counselor	C.E.King HS,Sheldon
Cecil Washington		Teacher	Wheatley HS
Bruce C. Webb		Teacher	E.E.Worthing HS
Lillian Bastine		Teacher	Wheatley HS
Frank E. James		Counselor	Robert E. Lee HS, Goose Creek
Clarence Duggan		Counselor	Jeff Davis HS
Wilhemia Angle		Registrar	Yates HS
Alphonse Jackson			Shreveport, Louisiana

WORKSHOP SUMMARY

The Workshop has brought to focus:

1. That there is an intolerance for the theoretical approach to employment on the part of classroom teachers.

2. A sharp concern for the extent to which the commitment of management is being internalized by line and staff personnel.

3. Functional teaching requires teacher familiarity with many of the experiences which were acquired through the Workshop experiences.

4. Many of the findings of the Workshop will require action by school boards and administrative personnel. Efforts must be made to involve these segments in this experimental process.

5. Minority groups would profit greatly from information relative to salary and working conditions in many of the occupations for which there is relative disdain.

6. Industrial orientation is lacking on the part of many teachers but there is a great receptivity when experiences are provided.

7. Miseducation is as formidable a sin in our culture as is lack of education but our schools are simply not qualified to do the job for which they have been charged in our society.

8. Some groups or individuals must be charged with further implementation of the ideas projected in the Workshop.

9. The involvement of Latin Americans in the Workshop is very much in the nebulous stage and full attainment of the real goals is not possible unless this segment of the population can be reached.

10. The Workshop represents a worthwhile expenditure of public dollars but the measure of effectiveness will be the extent to which commitment is executed in the individual teacher-counselor situations.

APPENDIX

Appendix

1. Announcement of Workshop to School Administrators
2. Agenda
3. Attendance at organizational meeting
4. Letter to Industry participants
5. Announcement of Workshop
6. Letter requesting participant nomination
7. Letters to participating Teachers, Counselors, and Administrators
8. Application forms
9. Letter of welcome to participants
10. List of participating Teachers, Counselors, and Administrators
11. List of participating companies
12. Address by Harry G. Taylor at opening session
13. Field visit program summary
14. Occupational information worksheet
15. Job survey sheet
16. Outline of a field trip
17. Program, Business-Industry Education Day
18. Excerpts from participants' post communications
19. Sample projects to be executed in schools - Spring Branch, Spring Wood, G.W.Carver High School, and Katy
20. Celanese Plastics Company job list
21. Kroger applications forms, job classifications, and wage scales
22. Shell Oil job classifications
23. Humble Oil & Refining Company application for employment
24. J. Weingarten, Inc. Job Classifications
25. Olin Mathieson Chemical Corp. Wage Rates
26. Southern Pacific Company Job Classifications
27. E.I. Du Pont de Nemours & Co. Inc. Summary of hiring practices and starting jobs

APPENDIX 1

HUMBLE OIL & REFINING COMPANY
P. O. Box 2180
HOUSTON, TEXAS 77001

February 15, 1966

EMPLOYEE RELATIONS DEPARTMENT
D. F. EDWARDS
MANAGER
FRANK GAINES, JR.
ASST. MANAGER

To Harris County School District Administrators

Last summer a tnree-week vocational workshop for 40 high school guidance counselors, administrators and teachers of the Houston Independent School District was held in Houston under the sponsorship of the School District, Texas Soutnern University, and 21 national companies having plants and offices located here. This pilot program was designed to acquaint tnese educators with job requirements and opportunities in business and industry for minority high school graduates in Houston.

In this program the educators spent two weeks in lectures, conferences and evaluation on the campus of TSU and one full week of tours to the offices and plants of participating companies. The tours were employment oriented and ranged in length from one half day to two days. A copy of the prospectus for the 1965 program and a list of the companies participating are attached.

All participants, educator and business, rated the Summer Workshop most highly in terms of their special interests. Dr. John W. McFarland, Superintendent of the Houston Independent School District, commented:

> We are delighted that leading business corporations in Houston have the foresignt to support this program for the improvement of education. Houston teachers who participated in last year's workshop have manifested an increased sense of responsibility and appreciation for the significance of their teaching. We look forward to cooperating with you in the future. Please let me know about any way in which the Houston Independent School District can cooperate with you and support this program.

APPENDIX 1 Continued

A steering committee of Houston educators and businessmen met recently to consider another high school workshop for the coming summer. This committee recommended that the number of participants, both educator and companies, be increased - possibly doubled - and that all school districts in Harris County be invited to take part. The latter recommendation was designed to meet the concern of companies which are desirous of improving communications on job opportunities with the school districts nearest their operations.

To acquaint you with more details of this business-education program so that you can evaluate it further and determine the interest of your School District in joining this summer, I wish to invite you, on behalf of the Steering Committee, to attend a meeting in the Humble Building, Room 4220, on March 8-Tuesday at 10:30 a.m. Following the meeting, to which all Harris County school district administrators have been invited, as have representatives of business, the Houston Independent School District, and TSU, you will be guests of Humble Oil & Refining Company for lunch. I should appreciate knowing whether or not I can plan on you or your representative being present.

Very truly yours,

Frank Gaines, Jr., Chairman
Steering Committee on Summer Workshop

FG:ls
Attachments

APPENDIX 2

AGENDA

Organization Meeting
Harris County Business-Education Vocational Workshop
Tuesday, March 8, 1966

Introduction	Frank Gaines, Jr., Chmn.,Steering Com. Assistant Employee Relations Manager Humble Oil & Refining Company
Need for Cooperative Program Between Business and Education on Employment Problems of Minority Youth	Frank Gaines, Jr.
1965 Summer Workshop and Plans for 1966	Dr. J. B. Jones, Project Director Dean of Students Texas Southern University
Evaluation of 1965 Summer Workshop	
Participant's View	Charles E. Pate Assistant Principal Edison Junior High School
School Administrator's View	Dr. John W. McFarland Superintendent Houston Independent School District
Businessman's View	Walter L. Noll Personnel Director and Associate General Manager The Prudential Insurance Company of America
Discussion	Frank Gaines, Jr., Moderator
Luncheon	Brass Rail Cafeteria

APPENDIX 3

Attendance at Organization Meeting
Harris County Business-Education Vocational Workshop
Tuesday, March 8, 1966

School District Representatives

Harris County Department of Education
Mr. V. W. Miller, Harris County Superintendent of Schools

Alief Independent School District
Mr. Don Killough, High School Principal

Channelview Independent School District
Mr. H. C. Schochler, Superintendent
Mr. J. H. Tennison, High School Principal

Clear Creek Independent School District
Mr. Tom McGee, Guidance Counselor

Crosby Independent School District
Mr. Allison L. Koonce, Superintendent

Cypress-Fairbanks Independent School District
Mr. T. S. Hancock, Superintendent

Deer Park Independent School District
Mr. Sebron B. Williams, Deputy Superintendent
Mr. Lee B. Gaither, Director of Instruction

Galena Park Independent School District
Mr. W. C. Cunningham, Superintendent
Dr. Elvan Kelley, Director of Guidance

Goose Creek Consolidated Independent School District
Mr. George H. Gentry, Superintendent

Houston Independent School District
Dr. John W. McFarland, Superintendent
Mr. David McLure, Director of Personnel

Humble Independent School District
Mr. Elliott Curtis, High School Principal

APPENDIX 3 Continued

School District Representatives (continued)

Katy Independent School District
Mr. James E. Taylor, Superintendent

Klein Independent School District
Mr. R. E. Lyon, Superintendent

LaPorte Independent School District
Mr. Marvin Madison, Assistant Superintendent
Mr. Aston Pegues, High School Counselor

Northeast Houston Independent School District
Mr. Louis Holder, Curriculum Director

Pasadena Independent School District
Mr. George A. Thompson, Superintendent
Mr. L. P. Card, Director of Vocational Education

Sheldon Independent School District
Mr. J. H. Crenshaw, Superintendent

Spring Independent School District
Mr. W. L. Tarten, Counselor

Spring Branch Independent School District
Mr. A. J. Labay, Deputy Superintendent
Mr. John Pullen, Director of Vocational and Industrial Education

Texas Southern University Representatives

Dr. Samuel M. Nabrit, President
Dr. J. B. Jones, Dean of Students
Mr. John Westberry, Registrar and Director of Admissions
Mr. Emanuel Campbell, Director of Workshops
Mrs. Aster Lee Mock, Staff
Mrs. Letitia Plummer, Staff

APPENDIX 3 Continued

Business Representatives

E. I. DuPont de Nemours & Co., Inc.
Mr. Simeon Hyde, Employee Relations Supervisor

Foley's
Mr. Lester Dewald, Personnel Manager

Humble Oil & Refining Company
Mr. Frank Gaines, Jr., Assistant Employee Relations Manager
Mr. George Lloyd, Coordinator, Public Affairs
Mr. H. G. Taylor, Coordinator, Recruitment, Employment, & Placement

Prudential Insurance Company of America
Mr. Walter Noll, Personnel Director and Associate General Manager

Shell Oil Company
Mr. Tom Brown, Manager, Personnel and Industrial Relations

Texas Instruments Incorporated
Mr. Bob C. Barron, Personnel Manager

APPENDIX 4

HUMBLE OIL & REFINING COMPANY
P. O. Box 2180
HOUSTON, TEXAS 77001

March 11, 1966

EMPLOYEE RELATIONS DEPARTMENT
D. F. EDWARDS
MANAGER
FRANK GAINES, JR.
ASST. MANAGER

Industry Participants in
Texas Southern University Workshop

Reference is made to my letter of December 13, 1965, in which a Steering Committee was organized to plan the program for 1966. A meeting of the Steering Committee was held on January 18, 1966, and was also attended by representatives of the Houston Independent School District and Texas Southern University. At this meeting it was decided, with the concurrence of both the Houston Independent School District and Texas Southern University, that an effort would be made to expand the program for 1966 to include all school districts in Harris County. In order to make this possible and to give the maximum coverage, the following objectives were established:

Number of participants	80
Number of companies	40
Date	July 20 - August 9

Participation is to be limited to one administrator and one guidance counselor from each senior high school.

It was also decided to hold an orientation meeting for the school superintendents of Harris County in order to interest them in participation. This meeting was held on Tuesday, March 8. A copy of the agenda and a list of participants are attached. Interest seemed to be exhibited by all participants and plans are being made to invite each of the school districts to submit candidates for the course.

At this writing, it still appears that the major portion of financing of the program this year will be handled from the central Plans for Progress office in Washington, D. C., from funds donated

by all Plans for Progress companies. This would mean that no local soliciation of funds from Plans for Progress companies will be necessary. It may be necessary to solicit funds from participating companies that are not members of Plans for Progress in order to supplement the major portion of the money available from Washington.

At a later date a meeting will be held of the participating companies in order to plan the visitation program.

We would appreciate learning from you at an early date whether you plan to participate in this year's program. The Steering Committee plans to begin soliciting additional companies and we would appreciate your suggestions on any other companies that might be interested in order to expand the number to our goal of 40.

You will be kept informed of further developments.

Sincerely,

Frank Gaines, Jr., Chairman
Steering Committee

FG:ls
Attachments

APPENDIX 5

Texas Southern University

Summer Workshop

FOR SENIOR HIGH SCHOOL ADMINISTRATORS AND COUNSELORS INVOLVED IN THE EMPLOYMENT OF MINORITY YOUTH

IN COOPERATION WITH BUSINESSES AND INDUSTRIES OF HARRIS COUNTY, SCHOOL DISTRICTS OF HARRIS COUNTY AND SELECTED CIVIC ORGANIZATIONS

Three Weeks, July 20 - August 9, 1966

OBJECTIVES:

The objective of the Workshop for Senior High School Administrators and Counselors involved in the employment of minority youth is to provide experience geared toward:

A. Promoting familiarity with the psychological climate which characterizes the vocational outlook and employment potentials of minority youth.

B. Determining current demands of businesses and industries in Harris County and the school's present and possible future responses to same.

C. Inauguration of a two-way system of communication between employers and educators, thereby enhancing appreciation for and cooperation with the role each must play in the full utilization of human potentials.

D. Involving participants in the job of selection-job placement processes of local businesses and industries, thereby enabling them to work more effectively with their student clientele.

E. Relating employment to family economy, community morale and morals and full implementation of the democratic concept.

F. Developing a format which may be used to enhance the progress of the minority groups in employment thus providing other communities with a guide to action.

G. Seeking means by which certain minority elements can be made productive and thereby enjoy the possibility of becoming prosperous.

ELIGIBILITY:

Participants in the Workshop will be administrators and counselors employed in the School Districts of Harris County.

In selecting individuals or otherwise conducting the Workshop, this institution does not discriminate on account of the sex, race, creed, color, or national origin of an applicant.

ENROLLMENT:

Invitations for enrollment will be made through the Offices of the Superintendents of the respective School Districts.

PROGRAM:

Subject Matter Content: Systematic guidance of individuals into proper employment involves a look at and consideration of the social, psychological and economical conditions characteristic of the times as well as identification of the characteristics of youth with whom educators are concerned. The topics of motivations, environmental manipulation, individual analysis, job selection and placement, follow-up procedures and programs of training available to youth will be included in the employment panorama.

Methodology: Lectures by local and national per-

35

sonalities which reflect views on various topics will be an approach. Individuals from the cooperating sponsors will be featured as panelists. The basic approach of field observation and critique will be utilized. Enrollees will make on-the-job analyses of duties of workers after having become acquainted with selection and training procedures utilized by local businesses. Group Dynamics will be employed for evaluation and projection following the practical experiences.

Credit: Three semester hours credit may be earned for Workshop participants in the course: Education 876b, 876c, 876d, and 876e. Those who are not interested in credit may request a certificate upon successful completion of the Workshop.

Transportation, Housing, and Meals: Campus residence is not required; however, accommodations are available for those interested. Provisions will be made for the noon meal for each participant at a nominal fee. Transportation to and from the field sites will be arranged for participants without cost to them.

Stipends: The businesses and industries participating have made provisions whereby each Workshop participant may receive a stipend of $200 upon successful completion of the Workshop. In addition to the foregoing, tuition and fees will be paid by the sponsoring agents.

Staff: J. B. Jones, Ed.D., Director; Mrs. Letitia Plummer, A.B., M.Ed., Associate Director; Mrs. Aster Lee Mock, A.B., M.A., Assistant Director. Fifteen specialists in placement, social work, psychology, industry, business and education will participate as panelists, lecturers, speakers, and/or demonstrators.

OUTLINE OF OPERATION SCHEDULE

FIRST WEEK	Wednesday-Friday	Organization and background speeches, panels, films, lectures, and discussions
	Monday	Field Trips
	Thursday	Critique and Projections
SECOND WEEK		Field Trips and Observations
THIRD WEEK	Wednesday	Interviews with parents and students including dropouts
	Thursday	Analyses of programs available to youth
	Friday	B - I Exchange Day
	Monday	Preparation of reports
	Tuesday	Presentation of reports and projection

APPENDIX 6

HUMBLE OIL & REFINING COMPANY

HOUSTON, TEXAS 77001

PUBLIC RELATIONS DEPARTMENT

April 7, 1966

Mr. W. W. Thorne
Aldine Independent School District
14910 Aldine-Westfield Road
Houston, Texas 77039

Dear Mr. Thorne:

You are cordially invited to nominate candidates from your school district to attend the 1966 Harris County Business-Education Vocational Workshop. This workshop will be held at Texas Southern University from July 20 to August 9,1966.

We ask that one administrator and one guidance counselor be nominated from each senior high school in the Aldine Independent School District. A stipend of $200 will be paid to each participant by industry. Three semester hours of credit may also be earned from the workshop.

In order to obtain maximum coverage in Harris County, participation must be limited to one administrator and one guidance counselor from each senior high school in Harris County. As enrollment cannot exceed 80 participants, there may be some need to make a selection from the nominees, but all districts who wish to participate will have representation.

Enclosed are copies of the workshop outline and a supply of application blanks for the workshop. Completed applications should be returned by April 30, 1966, in the envelopes which are enclosed for your convenience. You will note that they should be returned to Mr. Walter Noll of Prudential Insurance Company of America who is Chairman of our Admissions Committee.

We look forward to receiving the applications from your nominees and ask that you call either Mr. Noll (RI 8-1400, Extension 524) or me (CA 1-4184) if we may be of service in any way.

Sincerely,

Frank Gaines, Jr.
Chairman, Workshop Steering Committee

Enclosures

APPENDIX 7

TEXAS SOUTHERN UNIVERSITY
HOUSTON, TEXAS

We are happy to welcome you as a participant in the Workshop: Special High School Guidance Problems in the Employment of Minority Youth, which is being sponsored in cooperation with the Independent School Districts and selected businesses and industries of Harris County. The Workshop will be held July 20 through August 9 as previously scheduled. We are readying our final list of participants so as to furnish each with brochures and other information.

Please advise me immediately with regards to the following matters:

1. Will you participate as previously indicated by you?

2. Do you desire credit (three semester hours) in Education 876 "Occupational Information?"

3. Will you remain on your same job assignment for 1966-67?

It is necessary for you to complete the attached application for admission to Texas Southern University if you have never attended the university or if you have not attended during the last calendar year. Those who have never attended must furnish transcripts as indicated on the application form.

Please respond to the above matters immediately. We look forward to a pleasant experience in the workshop sharing ideas and projected solutions to common problems.

Yours truly,

J. B. Jones
Workshop Director

JBJ/et

Attachment

APPENDIX 8
TEXAS SOUTHERN UNIVERSITY SUMMER WORKSHOP

APPLICATION

NAME _____

HOME ADDRESS _____

HOME TELEPHONE _____

PRESENT ASSIGNMENT (Check One)

- ☐ Principal
- ☐ Dean
- ☐ Assistant Principal
- ☐ Counselor

School to which assigned _____

Number of years experience in Harris County _____

Have you ever attended T.S.U.? _____ Yes _____ No

If yes, last period of enrollment _____
Semester and Year

I understand that the Workshop will be from July 20 - August 9, 1966. I will attend all sessions unless detained by an emergency situation. I also understand that all tuition and fees will be paid by the sponsoring agents and that upon successful completion of the Workshop I will receive a stipend of $200.

_____
Signature

Approved:

_____ Signed

_____ Position

_____ School District

This application is due in the office of Mr. Walter L. Noll, Personnel Director, Prudential Insurance Company of America, Box 2075, Houston, Texas on or before April 30, 1966.

APPENDIX 9

TEXAS SOUTHERN UNIVERSITY
HOUSTON, TEXAS

July 13, 1966

Dear Participant:

We welcome you to the Workshop "Job Opportunities for Minority Groups" beginning Wednesday, July 20 at 9 a.m. in Room 332 Hannah Hall. The first day's activities are as indicated on the attached sheet. A complete schedule of activities will be given you at the initial session.

Please feel free to contact us at Jackson 8-0611, Extension 230 for any information which you deem necessary. We look forward to greeting you on Wednesday, July 20.

Yours truly,

J. B. Jones
Project Director

JBJ/et

Attachment

APPENDIX 10

JOB OPPORTUNITIES WORKSHOP PARTICIPANTS - 1966

NAME	ADDRESS	POSITION	SCHOOL
Anderson, Doris J. Singleton	803½ W. 20th	Counselor	Highland Heights
Angle, Wilhelmina		Registrar	Jack Yates
Baxter, Leonard H.	734 Mercury Dr.	Counselor	McReynolds Jr.
Baldwin, Alvera Ernestine	1807 West Humble, Baytown	Teacher	Ross Sterling
Bastine, Lillian	3736 Parkwood	Teacher	Phillis Wheatley
Boudoin, Maurice	2995 Goliad St., Beaumont	Teacher	Charlton-Pollard, Beaumont
Burns, Andrew J.	3546 Wentworth	Counselor	Phillis Wheatley
Cole, Nell Jean		Teacher	Crispus Attucks Jr. High
Conley, Rufus C.	3710 Eagle	Principal	G.W. Carver, Aldine
Cook, Felix	7301 Lockwood	Asst. Prin.	Phillis Wheatley
Curtis, Elliott	522 Sharon, Humble	Principal	Humble High
Davis, Ietha (Miss)		Teacher	E.E. Worthing
Duggan, Clarence V.	3514 Mona Lee La.	Counselor	Jefferson Davis High
Emmons, W.W.	2118 Counter Pt.	Principal	Spring Wood, Spring Branch
Evans, Johnnie D.		Teacher	E.E. Worthing
Felder, Kenneth	10202 Shadow Wood	Principal	Spring Branch
Gaines, Freddie R.	2005 Wentworth	Teacher	E.E. Worthing
Goodson, Vivian		Teacher	E.E. Worthing
Green, Thomas Milton	8306 Misty Vale	Asst. Prin.	E.L. Furr Jr.-Sr.
Harrell, Emma Jean	3715 Wentworth	Teacher	Phillis Wheatley

APPENDIX 10 Continued

NAME	ADDRESS	POSITION	SCHOOL
Harris, Betty Parish	7905 Lloydmore St.	Teacher	Phillis Wheatley
Harris, Samuel D.		Teacher	E.E.Worthing
Hartshorn,Goldie R.	2811 Barbee	Counselor	Jack Yates
Jackson, Alphonse	Shreveport	Principal	Central Elem.School
Jackson, Janet F.	3515 Arbor	Counselor	B.T.Washington
James, Frank E.	921 N.Ashbel, Baytown	Counselor	Robert E. Lee, Goose Creek
James, Gloria		Teacher	G.W.Carver, Aldine
Knight, G.C.	4105 Tuam	Counselor	South Houston,Pasadena
Lewis, Mercedes	8825 Leander	Teacher	Phillis Wheatley
McCowan,Allison N.	3905 Lockwood Dr.	Teacher	E.E.Worthing
McMeans,Garland E.	1210 Ave. C, Katy	Counselor	Katy High
Melton,Sadie D.	2536 Oakdale	Teacher	E.E.Worthing
Middleton,Anna Ruth	8519 Fillmore	Teacher	Phillis Wheatley
Nimitz,Ann	700 Sfaitti,Humble	Counselor	Humble High
Nitschmann, H.H.	702 Rosewood, Baytown	Counselor	Ross Sterling, Goose Creek
Prochazka,Jerry	Box 634,Crosby		Crosby High
Prater, Zerline	1209 Second St., Orange	Counselor	M.B.North,Orange
Punch, Anita	3335 Sayers	Counselor	Kashmere Gardens
Punchard,Johnie B.	701 Pamela Dr., Baytown	Teacher	R.E.Lee High
Reaux, Jessyetene		Counselor	B.C.Elmore,North Houston
Rhodes, Jack E.	422 Richmond Rd., Katy	Principal	Katy High
Robinson, Johnnie M.	1225 Neyland	Counselor	M.C.Williams High

APPENDIX 10 Continued

NAME	ADDRESS	POSITION	SCHOOL
Sanders, Gideon L.	2715 Southmore	Teacher	Phillis Wheatley
Shannon, Fred D.		Counselor	Crosby H.S.
Simmons, Clarence	9705 Fairland Dr.	Counselor	Phillis Wheatley
Thomas, Gloria V.	2611 Palm Ave.	Teacher	Phillis Wheatley
Thomas,Henrietta		Teacher	Phillis Wheatley
Thomas,Willie Lee		Teacher	Jack Yates
Tyler, Robert D.	Box 5185 (2412 Lily) Pasadena	Teacher	Pasadena High
Washington,Cecil R.	3415 N.MacGregor	Teacher	Phillis Wheatley
Watkins, Carlos	16126 Jersey Dr.	Asst.Prin.	Cy-Fairbanks
West,Joseph N.	2122 Wentworth	Teacher	E.E.Worthing
White,M.P.	10514 Royal Oaks	Counselor	C.E.King,Sheldon
Webb,Bruce C.	3514 Arbor	Teacher	E.E.Worthing
York,Mary E.	8402 Spaulding	Counselor	Phillis Wheatley

APPENDIX 11

1966 TSU WORKSHOP
PARTICIPATING COMPANIES

1. American Can Company
   P.O.Box 1227, Houston, Texas
   John Smith, General Supervisor of Industrial Relations
   Charles F. Ganby, Coordinator of Industrial Relations

2. Anderson, Clayton & Company
   P.O.Box 2538, Houston, Texas
   E.A. Tribe, Director of Employee Relations

3. Armco Steel Corporation
   P.O.Box 1367, Houston, Texas
   Wallace M. Rankin, Works Manager
   P.O.McCrory, Assistant Supervisor Employment & Group Insurance

4. Brown & Root, Inc.
   P.O.Box 3, Houston, Texas
   Marvin L. Woodfin, Sr. Vice President
   C.D.Jessup, Jr., Attorney

5. Brazos Oil & Gas Company
   3636 Richmond Avenue, Houston, Texas
   Marvin Metcalf, Personnel Manager

6. Cameron Iron Works, Inc. *
   Silber Road, P.O.Box 1212, Houston, Texas 77001
   Ed Wiggins, Personnel Manager

7. Celanese Corporation of America
   P.O.Box 1000, Deer Park, Texas
   Paul V. Rooney, Industrial Relations Manager

8. Crown Zellerbach Corporation
   Gaylord Container Division
   620 Navigation, Houston, Texas

9. Continental Oil Company
   1300 Main Street, Houston, Texas
   A.B.Slaybaugh, Employee Relations Manager

10. Dow Chemical Company
    Engineering & Construction Services Division
    3636 Richmond Avenue, Houston, Texas
    J. W. Thurmond, Personnel Manager

APPENDIX 11 Continued

1966 TSU WORKSHOP
PARTICIPATING COMPANIES

11. Dresser Industries Industries
10201 Westheimer, Houston, Texas
Ken Henson, Personnel Director

12. E. I. duPont de Nemours & Company
P.O.Box 347, La Porte, Texas 77571
Simeon Hyde, Employee Relations Superintendent

13. Foley's
1110 Main Street, Houston, Texas
Les DeWald, Personnel Director

14. Geo. Space Corporation*
503 Glenmont, Houston, Texas
George Welch, Manager of Industrial Relations

15. The Goodyear Tire & Rubber Company
P.O.Box 5397, Houston, Texas
Fred L. Van Osdall, Personnel Manager

16. Humble Oil & Refining Company
P.O.Box 2180, Houston, Texas
Harry G. Taylor, Head-Recruitment, Employment and Placement
George A. Lloyd, Head-Public Affairs and Community Relations
Wilburn V. Lunn, Employment Supervisor

17. Esso Production Research Company
W. H. Pool, Emp. Rel. Mgr., P.O.Box 175, Houston, Texas

18. Henke & Pillot
3021 Washington, Houston, Texas
E. W. Steele, Director of Personnel
Curtis Dobbs, Personnel Assistant

19. International Business Machines Corporation
6900 Fannin, Houston, Texas 77025
Roy Shaw, Systems Engineering Manager

20. Lockhead Electronics
16811 El Camino Real, Houston, Texas
Les Estes, Personnel Director

21. Monsanto Company
1300 Main Street, Houston, Texas
J. L. Dougherty, Director of Personnel

John S. Haygood, Personnel Supt.
P. O. Box 711, Alvin, Texas

E. H. Jones, Personnel Supt.
P. O. Box 1311, Texas City, Texas

1966 TSU WORKSHOP
PARTICIPATING COMPANIES

22. National Biscuit Company
P.O.Box 1269, Houston, Texas
R.E.Roberson, Plant Manager
Kenneth L. McGarrah, Personnel Manager

23. National Lead Company, Baroid Division
2404 Southwest Freeway, Houston, Texas
T.E.Luke, Personnel Manager
J. L. McKinney, Employment Supervisor

24. Olin Mathieson Chemical Corporation
P.O. Box 552, Pasadena, Texas
G. B. Dunlavy, Industrial Relations Manager
J.A. Germany, Administrative Assistant
Clyde Daniel, Assistant Industrial Relations Manager

25. Philco Corporation
1002 Gemini Avenue, Houston 58, Texas
Herb McDonald, Personnel Director

26. The Prudential Insurance Company of America
P.O.Box 2075, Houston, Texas
Walter L. Noll, Personnel Director and Associate General Manager
C. William Taylor, Manager, Personnel Division

27. Schlumberger Well Surveying Corporation *
P.O. Box 2175, Houston, Texas
Jack Givens, Manager of Personnel Development

28. Sears, Roebuck and Company*
4201 Main Street, Houston, Texas
James A. Milne, General Manager
R. A. Ergenbright, Store Manager-Main Street

29. Shell Oil Company
& P.O. Box 2099, Houston, Texas
30. Shell Development Company
T. D. Brown, Manager, Houston Exploration and Production Area
Personnel and Industrial Relations
G. R. Duncan, Personnel and Industrial Relations Manager
Exploration and Production Research, Shell
Development Company

31. A. O. Smith Corporation
P.O. Box 9726, Houston, Texas
Ray Gillespie, Industrial Relations Manager

1966 TSU WORKSHOP
PARTICIPATING COMPANIES

32. Southern Pacific Company
913 Franklin Ave., Houston, Texas 77002
L. R. Smith, Assistant General Manager

33. Texas Instruments, Incorporated
P.O. Box 66027, Houston, Texas
Bob C. Barron, Personnel Manager
Bob Thompson, Personnel Assistant

34. U. S. Industrial Chemicals Company
P. O. Drawer D, Deer Park, Texas
Paul Cravey, Employee Relations Manager

35. J. Weingarten, Inc. *
600 Lockwood, Houston, Texas
M. M. Rochester, Director Industrial Relations

*Not a Plans for Progress Company

APPENDIX 12

H. G. TAYLOR PRESENTATION AT

OPENING SESSION OF SUMMER WORKSHOP

TEXAS SOUTHERN UNIVERSITY - JULY 20, 1966

I've had the privilege of helping to plan for this 1966 summer workshop, and in doing so, one of my duties has been to invite companies in the Houston area to join in sponsoring the program.

Now 21 of the companies I talked with were participants last summer in a similar program and here is a sampling of how they answered our questions about participating again this summer:

One company said: "We found last year's experience very rewarding--count us in."

Another company said: "We look forward to participating again this year. Please call on us in any way you feel we can be helpful."

Another company: "We are definitely interested in again participating in this year's program."

Another: "Our company will participate again this year. Thanks for including us."

These responses are typical reactions to last year's workshop. Educators, the School District and the companies all were extremely enthusiastic about it. Of the 21 companies which cooperated on this last year, all but one wanted to cooperate again this year.

In addition, 15 other companies have joined us this year for the first time, making a total of 35 companies. The program has also been expanded in other ways - there are 50 educators this year, compared with 40 last year, and there are 13 school districts represented this year whereas last year there was one - the Houston Independent School District.

So this year's program, we expect, will do more to further the education and employment of minority youth in this area because it's bringing more high school educators and more industry representatives together to work toward the common objectives. This should lead to a more complete recognition of what each must do to make better use of our human resources.

Those of us in industry have a keen interest in helping to reduce unemployment and underemployment among graduates of the schools represented here. Every unemployed or underemployed American, whether or not he is from a minority group, is a liability to our society, and not an asset. Worse yet, it is understandable that he should question our economic system and our way of life and is, therefore, a candidate for those who wish to undermine and change our system.

There is general agreement that voluntary efforts by Plans for Progress companies and others, plus federal government legislation and enforcement activities have resulted in significant advances in the area of Equal Employment Opportunity.

But there is also general agreement that much remains to be done. Unemployment rates for nonwhites are about double the unemployment rates for whites, and relatively few nonwhites are in high level positions in business and industry. The median income for nonwhites is about half the median income for whites. Without going into a detailed explanation or criticism of this situation, let's think positively about a few things that can be done to help equip and qualify young people in minority groups for job opportunities now and in the future:

First - Minority youngsters need to be made aware of the expanded scope of employment opportunities that are available to them today in business and industry. Qualified people in virtually every field are welcomed regardless of their race, color or creed. The door of opportunity for better jobs is open wide to those who can qualify.

Second - Young job seekers also need to understand that with opportunity goes challenge and responsibility. In order to be selected for employment, one must be qualified for the job he seeks and each individual must meet the challenge to qualify himself for employment. And, once employed, it is the individual's responsibility to perform in a manner that will insure him retention and make him a candidate for promotion.

Third - Better communication between educators and businessmen can help young people do a better job of preparing themselves for available job opportunities and become useful and productive members of society.

Only by knowing industry's employment selection criteria can teachers teach and counselors counsel so that students will secure the required training to meet the criteria. In our free and competitive labor market the individual with the highest degree of skill is the one who will get the job.

This Workshop is one way in which industry representatives can cooperate with educators in a positive approach to improving employment for minority youth. How, specifically, can the Workshop help?

One - By promoting educator familiarity with the present employment outlook in Houston and with what the employment potentials are for minority youth.

Two - By promoting a better educator understanding of the current requirements of business and industry in this area, and their selection and employment procedures.

Three - By establishing a two-way system of communication between employers and educators. We would hope that the employers will provide an atmosphere of receptivity, understanding, and helpfulness to the minority youth employment candidate and that the educators will be better equipped to guide students toward available jobs and will tailor their courses so as to better meet the needs of business and industry and the student.

These are the objectives of this workshop. Put very simply, they are all aimed at bringing your classrooms and industry's personnel offices closer together in order to provide better education and better jobs for minority youth.

Lack of education and joblessness contribute to social problems we all deplore. They can result in loss of individual dignity and loss of meaningful aspirations for young people. They can also lead to discouragement and frustration of the best intentioned teachers, parents, and guidance counselors.

The challenge to us is quite clear. We cannot afford to let the talents of minority group youngsters go undeveloped. We must lay out the paths to more marketable skills so they can take their proper places as productive citizens. I am convinced that what we begin here today is a step in the right direction toward a better tomorrow for minority group young people -- and that means a better tomorrow for all of us.

APPENDIX 13

SUMMARY

1966

FIELD VISIT PROGRAM - TEXAS SOUTHERN UNIVERSITY SUMMER WORKSHOP

		GROUP A	GROUP B
Monday	July 25	Prudential Insurance of America	Foley's
Wednesday	July 27	J. Weingarten, Inc.	U.S. Industrial Chemicals Co.
Thursday	July 28	Armco Steel Corp.	Brown & Root, Inc.
Friday	July 29	Philco Corp.	Dresser Industries
Monday	August 1	American Can Co.	Crown Zellerbach Corp. Gaylor Contrainer Div. - A.M.
			E. I. Du Pont de Nemours & Co., Inc. - P.M.
Tuesday	August 2	Brazos Oil & Gas Co.	Cameron Iron Works, Inc.

		GROUP C	GROUP D
Monday	July 25	Humble Oil & Ref. Co.	Shell Oil Company
Wednesday	July 27	Celanese Corp. of America	Goodyear Tire & Rubber
Thursday	July 28	Geo. Space Corp.	International Business Machine Corp.
Friday	July 29	Henke & Pillot	Lockheed Electronics
Monday	August 1	Schlumberger -A.M.	Esso Production Research - A.M.
		Olin Mathieson Chem. Corp. - P.M.	Baroid Division National Lead Co. - P.M.
Tuesday	August 2	Dow Chemical Co.	Sears, Roebuck & Co.

APPENDIX 13 Continued

SUMMARY

1966
FIELD VISIT PROGRAM - TEXAS SOUTHERN UNIVERSITY SUMMER WORKSHOP

		GROUP E
Monday	July 25	Texas Instruments, Inc.
Wednesday	July 27	Shell Development
Thursday	July 28	A. O. Smith Corp.
Friday	July 29	Monsanto Co. Alvin,Texas
Monday	August 1	Continental Oil - A. M.
		Southern Pacific Co. - P.M.
Tuesday	August 2	National Biscuit Co.

APPENDIX 14

OCCUPATIONAL INFORMATION WORKSHEET

Professional Occupations
Semi-Professional Occupations
Skilled Occupations
Semi-Skilled Occupations

Title of Occupation_____
Place of Employment_____
Age - Upper or Lower Limits ____Retirement Age ____Nature of Work
_____
_____
Workers in Field_____Percent of Women _____Percent of Men _____
Are there reasonable opportunities for both?_____
Education Required_____Special Qualifications_____
_____
Beginning Salary_____Maximum Salary_____ Hours per Week___
Average Overtime_____

Health Hazards_____

Trend in Employment_____
Competition for Job_____
Ways to enter Field_____
_____
Advancement_____
Seasonal Variation_____
Where jobs are located_____

Description of Testing Program_____
_____
_____
What has been the turnover rate during the last five years_____
_____
Number of minority group employed: Negroes_____Latin Americans_____
_____Jews_____Others_____
If Minority groups are not employed, why?_____
_____
Length of time firm has been an equal opportunity employer_____

Discrimination

Do employers, unions or training institutions discriminate against Negroes, Latin Americans, Jews, and other?_____
_____

APPENDIX 15

JOB SURVEY SHEET

Name of Firm_____Address_____
Phone_____Date_____Name of Person Reporting_____
_____Title_____Name of
Workshop Interviewer_____

			DISTRIBUTION					SPECIAL QUALIFICATIONS			
Title of Occupation with Ind. Code (if used)	Outlook Summary	Nature of Work(Duties)	Number of Workers	Male Workers	Female Workers	Negro Workers	Other Minority Workers	Age	Sex	Special Qualifications	Test Necessary

PREPARATION						ADVANCEMENT			EARNINGS			
Education Requirements												
H.S. Dropout	H.S. Grad	College Degree	Special Training	Experience	Methods of Entry	Opportunities for Advancement	Highest Rating Possible	Highest Rating Held by Minority	Beginning Range	Average Range	Highest Range of Minority Workers	Average Range of Minority Workers

APPENDIX 16

OUTLINE OF A T.S.U. WORKSHOP FIELD VISIT

DOW'S CORPORATE ENGINEERING AND CONSTRUCTION SERVICES DIVISION

AUGUST 2, 1966

9:30 a.m.	Introductory remarks by C. C. Armstrong, CE&CS Manager, Building 3 Conference Room
9:45 a.m.	General Company Information - History, Philosophy and Objectives by J. W. Thurmond
10:00 a.m.	CE&CS Employment Practices and Policies, Opportunities, Placement and Training by J. W. Thurmond and Troy Davidson
11:00 a.m.	Explanation of the Use of Psychological Testing by Jerry Scott
11:45 a.m.	Buffet Luncheon - Building 4 Conference Room (upstairs)
12:30 p.m.	Tour of Building - Ten Minute Stops at Information Center, Data Processing, and Planning and Scheduling
1:15 p.m.	Discussion of the Way a Typical Design is Accomplished by C. J. Barras - Building 3 Conference Room
1:45 p.m.	Group Discussion with CE&CS Minority Group Employees
2:30 p.m.	General Question and Answer Period - D. E. Null, J. W. Thurmond and Troy Davidson
3:00 p.m.	Adjournment

Troy Davidson:jc
8-2-66

APPENDIX 17

TEXAS SOUTHERN UNIVERSITY WORKSHOP

(Business, Industry and Education Day)

RICE HOTEL

Monday, August 8, 1966

9:00 a.m.	Opening Remarks	Dr. J. B. Jones Workshop Director
	Questions and Comments by Educator Participants	H. G. Taylor Humble Oil & Refining Co. Moderator
10:30-10:45 a.m.	Coffee Break	
	Questions and Comments by Business & Industry Participants	
12:00 Noon	Luncheon	
1:30-2:00 p.m.	Separate Discussions - Educators and Businessmen	
2:00-3:00 p.m.	Further Questions and Comments ("Last Shots") by Educator Participants	
3:00-3:15 p.m.	Coffee Break	
3:15-4:15 p.m.	Further Questions and Comments ("Last Shots") by Business Participants	
4:15-4:45 p.m.	General Discussion	
4:45-5:45 p.m.	Reception	
5:45 p.m.	Buffet Dinner	

APPENDIX 18

EXCERPTS FROM PARTICIPANTS' POST COMMUNICATIONS

Discuss in your own words your own views with respect to:

1. What, if any, additional knowledge and skills did you gain at the Plans for Progress Institute?

   Knowledge of persons to contact in various programs available to help minority youth, business and industry personnel, types of jobs available now and likely to be available in the future, and educational implications to overcome the problem.

2. What do you think should be done about poverty and minority group employment problems in your home area?

   Business and industry must evaluate their position of responsibility in overcoming the problem, and insure that their standards for employment are not disguised barriers.
   Education must do a better job of preparing students to get jobs - instruction concerning the interview situation, completion of application forms, etc.

3. Has the Institute been helpful to you? In what way?

   Yes. It has given me a greater insight into the nature of the problem, and what industry and education can do to contribute to the solution of the problem.

4. What, if any, additional knowledge and skills did you gain at the Plans for Progress Institute?

   I gained a broader knowledge of the semi-skilled, and skilled jobs now open to minority groups. I was aware that tests were administered to prospective employees, but I was not aware of the scope of the tests or just what was measured by the tests.

5. What do you think should be done about poverty and minority group employment problems in your home area?

   Poverty and minority group employment problems in my home area could be greatly reduced by greater dissemination of information about programs designed to train employable people that have little or no work skills. For example, far too many people are unaware of such programs as Job Corps, J O Y, and the many other programs that can help them. If information were more widespread, more people would take advantage of the programs. Another step toward solving the problem would be to make Home and Family Living courses in high school mandatory rather than optional so that our future wives and

mothers could become more skilled in preparing nutritous meals, and in balancing a budget. Moreover, home economists could be ucilized to teach heads of households how to prepare tasteful, balanced meals from inexpensive staples thereby enabling them to extend their income.

6. Did the Institute meet your expectations? In what way? How did it differ?

The Institute exceeded my expectations by providing dynamic persons like Puryear to expound so forcefully to an integrated audience, and by allowing me to see minority people at work in jobs previously unavilable to them. Now that I have seen it, I believe it, therefore I can be more sincere in advising students to set their sights on those types of jobs.

7. Has the Institute been helpful to you? In what way?

Yes it has been very helpful. It has helped me to see the need for upgrading the learning and skills of all peoples. This is necessary even if we look at it only from a mercenary viewpoint alone.

APPENDIX 19

A PROPOSED PROGRAM FOR MINORITY GROUPS

Prepared By

Kenneth Felder
Spring Branch Senior High School

and

W. W. Emmons
Spring Woods Senior High School

For

Dr. J. B. Jones, Dean of Students
Texas Southern University
Instructor for Ed. 876
(Job Opportunities for Minority Groups)

August, 1966

APPENDIX 19 Continued

SPECIAL HELP PROJECT FOR MINORITY YOUTH

The philosophy of the Spring Branch School District states that each individual scholastic living within the boundaries of the school district should be accepted into the educational program, unless otherwise excluded by official action, and that he shall be provided with a stimulating environment and opportunities for learning experiences designed to promote skills and behavior on his part that will make him an acceptable, happy, creditable, and well-adjusted citizen of this democracy.

Keeping this in mind, there are many students that require extra help in reaching their potential goals. These are primarily the minority groups--meaning those students not in the main stream of school or community life.

The following ideas are planned with the intention of giving extra help to our minority students:

I. First, it will be necessary to make everyone aware that there is a problem. Many teachers have lost touch with many areas outside of the school and can not really understand the needs of minority groups. Many counselors have lost touch with the needs of everyone except the college bound student.

II. Faculty meetings will be necessary to discuss minority group needs. Outside agencies will be asked to participate in these meetings. Counselors will help identify and provide information regarding students that can be considered the minority here.

III. Next, our student council will be asked to initiate types of programs that will involve more of the minority classified students. This will probably be best worked out through each homeroom. The student council will be used in collecting and disseminating all types of occupational literature.

IV. Counselors will be used in arranging and setting up student interest group sessions to discuss vocations--jobs available, requirements, salary ranges,

how to get jobs, etc. Students will attend these group meetings on a volunteer basis during the school day.

V. Community resources will be used in career day type programs. These programs will be scheduled through the school year rather than handled all in one day. In these programs, local businessmen will be invited to talk with students from a practical and personal viewpoint in regard to the training and education required for specific occupations. These programs will include semi-skilled, skilled, technical, and professional people.

VI. Another phase of our program will require the services of a specialist. Recently the Vocational Guidance Center of Houston initiated a new program whereby they furnish a representative from their staff to meet with interested students. The staff member makes periodic visits to a high school at a particular day and time each week. Senior students are selected by their counselors on the basis of their interest. Regular classes are set up with approximately twenty students per class. Students are divided into two groups, those planning college and those planning to enter the world of work. The purpose of the program is to help the student become more aware of his interests and abilities and to subquently furnish him with occupational information. There are approximately eight to ten sessions designed to accomplish this purpose. Students are allowed to discuss freely their goals, interests, and experiences. With the expert leadership and advice of the staff member, one by one, each student begins to develop a better understanding of himself. This type of program usually represents about ten per cent of the senior class, which is definitely a minority group. A program of this nature will be initiated in our high schools this coming year. Every effort will be made to insure

those students participating in this program that we are interested in them. If such a program proves successful we might consider this service to include all senior students, but at the present we will concentrate on a small minority group.

APPENDIX 19 Continued

A PROPOSED PROJECT

IN

COOPERATIVE MOTIVATION

OF

UNDERACHIEVERS IN SENIOR

HIGH SCHOOL

prepared by

Rufus C. Conley, Principal, G. W. Carver High School
and
Mrs. Gloria M. James, Business Teacher,
G. W. Carver High School

presented to

Dr. J. B. Jones, Director
Job Opportunities Workshop
Texas Southern University
Houston, Texas

August 24, 1966

INTRODUCTION

The changing cultural pattern in this country which focuses attention on the rapidly unfolding educational opportunities for all of America's youth indicates that nothing must be left undone which will contribute to the preparation of youth to meet these rapidly unfolding job opportunities, and we are beginning a project for such preparation.

The project will be conducted mainly by the vocational counselor with the aid of classroom teachers and other school personnel. This project will involve students in the 10th, 11th and 12th grades, who are achieving approximately two years below their normal reading level. It will give them experiences and activities that will provide educational, social and cultural enrichment for the underachievers in the high school. Such students do not obviously receive such exposure from the homes and the immediate community.

Project in Operation

The basic function of this project is the preparation of the student to find his place in the world of work.

The activities of this project will be conducted before school -(during homeroom period) and after school -(during activity period). The teachers from the various departments will be in charge of the activities.

For the participating students sessions are planned to provide programmed learning experiences in : Reading, Commercial Mathematics, English, Homemaking (social graces), and Vocational Skills.

During these sessions the students will take an active part in the programmed experiences through:

1. composing and expressing himself in written and oral language skills.

2. filling in correctly and completely job application forms and other forms used by the employers.

3. regular testing (to make him test conscious).

4. participating in mock interviews(to improve his oral skills).

5. developing reading readiness for comprehension and pleasure (all students will be enrolled in the Reading Course).

6. developing social graces (by personal improvement).

7. basically planning and choosing a career and locating jobs.

A schedule of the programmed learning experiences for motivation of the underachievers is included.

Periodically group sessions will be conducted by the counselors. Special emphasis will be placed on:

A. Jobs - where they are and what are their requirements.

B. The world of work and what its needs are in every kind of job.

C. What employers say they want.

D. Why people fail on the job.

E. Why workers lose their jobs.

F. Others.

Occasionally the students' activities will include field trips to various business offices, telephone company, banks, dramas, and musical. These activities are geared toward instilling in the students an idea of the many cultural facilities available to him. During office tours he can see firsthand the many activities a job involve. Finally he will witness the dress of the workers, their work habits and attitudes and how they conduct themselves while on-the-job.

Conclusion of Project

The project activities are scheduled for one school year. At its conclusion, the student should have an attitude of personal worth and an appreciation of attainable employment opportunities. He should also have information on where to go to get jobs and the right way to apply for them.

APPENDIX 19 Continued

Schedule of Programmed Learning
Experiences for the Motivation of Underachievers
(G. W. Carver High School)

The following outline may be used as a guide in scheduling the sessions:

Monday - Experiences in Homemaking (Social Graces) for Personal Improvement

Tuesday - Intensified Programmed Experiences in Commercial Mathematics

Wednesday - Experiences in English

Thursday - Experiences in Vocational Skills

Friday - Experiences in Reading for Pleasure

The Developmental Reading Program is a regular course for all the students participating in this project.

APPENDIX 19 Continued

SCHEDULE OF ENRICHMENT ACTIVITIES
(G. W. Carver High School)

1966 - 67

September - May

Dollar Sumphony

Bell Telephone Company

Reagan State Bank

Planetarium

Carnation Milk Company

Planetarium

Rainbo Bakery Company

Drama - Rice University

APPENDIX 19 Continued

A PLAN FOR THE NON-COLLEGE BOUND STUDENT IN KATY HIGH SCHOOL

by

Jack F. Rhodes, Principal
Garland E. McMeans, Counselor

PHILOSOPHY OF THE KATY PUBLIC SCHOOLS

We believe it is the function of the school in conjunction with parents and agencies of the community to provide educational and cultural leadership through

1. A curriculum to meet the needs, interests, and aptitudes of its youth, kindergarten through grade twelve.

2. Meaningful experiences for each individual which will develop skills, knowledge, and attitudes that contribute to successful adjustment in a democratic society and a changing world.

3. An instructional program based on effective methods and techniques and the present knowledge of the nature of learning.

4. The development of each individual, as far as is practical, to the maximum of his ability in all phases of growth.

5. A school plant which provides the physical facilities to conduct a program designed to meet the needs of youth and which provides an atmosphere conducive to learning.

6. A cooperative school staff and administration of individually capable persons devoted to common educational purposes and motivated by a desire to develop and carry out the philosophy and objectives of the school.

APPENDIX 19 Continued

OBJECTIVES OF THE KATY PUBLIC SCHOOLS

1. To give intensive training in the development of fundamental skills and the acquisition of basic data and information.

2. To lead pupils to explore and evaluate their needs, interests, and aptitudes.

3. To teach each pupil to think rationally, to express thoughts clearly, and to read and listen with understanding.

4. To provide information and training that will enable pupils to gain a knowledge of how to purchase goods and to use goods and services intelligently.

5. To develop an understanding of the methods of science and the influence of science in the modern world.

6. To help pupils prepare for a vocation, for future education, or both.

7. To teach pupils to understand and practice the rights and duties of a citizen.

8. To lead pupils to have ethical values and respect for others.

9. To lead each pupil to gain an understanding of the significance of the family and the conditions conducive to successful family life.

10. To provide for individual personal and social development in living and working creatively and harmoniously with others.

11. To help pupils develop an understanding and appreciation of human progress through the ages and of our American heritage.

12. To teach pupils to practice good health and safety habits, and to understand the importance of physical fitness and good grooming.

13. To lead each pupil to gain knowledge of and appreciation for the beauty in literature, music, art, and nature.

14. To help pupils develop the ability to use leisure time wisely.

APPENDIX 19 Continued

A PLAN FOR THE NON-COLLEGE BOUND STUDENT IN KATY HIGH SCHOOL

Because of the number and percentage of graduates of Katy High School that continue their education in an institution of higher learning, the guidance program and services have been oriented in the direction of the college-bound student. Probably the greatest weakness in the guidance program concerns the activities of the non-college bound student. As a result of the workshop in Job Opportunities For Minority Youth, this paper will attempt to propose some changes in the guidance services at Katy High School to better meet the needs of the non-college bound student.

Katy is a community of approximately 2500 persons located on Interstate Highway 10 at the western edge of Harris County. The economic structure of the community is based on cattle and rice growing activities. There is an Humble Oil Company plant in the district but very little other industry.

There are approximately 305 students in the integrated four-year high school including 40 from Negro and Latin-American homes. The stability of the student population has been outstanding and in past years there have been very few students from transient families in the district.

A complete cumulative record on each of the students is maintained including scholastic grades, achievement and attendance records, mental ability scores, and familial information of interest to the school. Because of the size and nature of the community, much additional information is available to school officials at any time it is needed.

The testing program for the 1966-1967 school year will include Otis Mental Abilities in 10th and 11th grades, Differential Aptitude in the 9th grade,

Form C of the Kuder Preference Record in the 10th grade, Achievement Tests in major subject areas at all levels, NMSQT and PSAT at 11th grade, and SAT and ACT at 12th grade.

At the beginning of the school year, each student in every grade will be asked to complete a survey form in which he will indicate his plans for the future, including his vocational preferences. This information will be used as a point of departure in helping to insure that each student selects goals which are realistic and in keeping with his interests and abilities. Because of the very low student to counselor ratio in Katy High School, adequate conferences may be had with each of the students and with their parents when the need arises and the school should be able to effect vast improvement in the area of matching students' goals to their abilities and interests.

With the wealth of information available to the school staff of Katy High School on each of the individual students, the following changes in the guidance services for the 1966-1967 school year are proposed in order to better meet the needs of the non-college bound s

First, emphasis will be placed on an early identification of those students whose abilities and or interests suggest that they will not profit from study in college. With five or more mental abilities scores, interest inventories, aptitude scores, achievement levels and a favorable counseling situation, frequent conferences with the students and with their parents should lead to a reduced number of dropouts at the college level.

With a somewhat open-ended budget arrangement for the guidance department, it is planned that a substantial increase in the size of the library of vocational materials be started. Such materials, following counseling with the results of the Kuder Preference Record and the Differential Aptitude scores will

permit the students to intelligently study several indicated vocations.

Several changes are planned for group guidance activities for the coming school year. It is planned to invite representatives of several business and industry personnel offices to present information of a general nature concerning the characteristics for which they look when interviewing an applicant. It is felt that representatives of employing companies can present this information with much greater effect than can anyone associated with the school. It is also planned to make available to all interested students formal instruction in the completion of application forms using forms to be obtained from business and industrial firms in the area. Instruction in proper dress and manner for the application-interview situation will be included.

It is planned that the school maintain a much improved contact with employers in the area to know of opportunities available to our students for employment. It is necessary that our school establish and maintain contact with many Houston firms since the bulk of economic sustenance of this community would only provide jobs for unskilled labor with little or no chance for advancement to positions of a desirable nature.

Finally, we at Katy High School plan to initiate a follow-up study of our non-college students to locate areas of needed change and to identify further implications in every facet of school life.

If we can adequately incorporate these changes in our guidance services the non-college bound student will be in a much better position to enter and succeed in the competitive world of adult employment.

APPENDIX 20

The job lists, wage scales, and forms on this and following pages are included for the convenience of counselors and teachers who attended the workshop. They provide examples of questions asked job applicants, educational requirements, job titles, pay scales, and similar pertinent information.

CELANESE PLASTICS COMPANY
A Division of Celanese Corporation
Post Office Box 1000
Deer Park, Texas 77536

JOBS THAT CAN BE FILLED BY HIGH SCHOOL GRADUATES

Duplicating Operator
Toolroom Clerk
Maintenance Clerk
Statiscal Clerk
Shipping Clerk
Stenographer
Analyst
Electrician
Switchboard Operator
Bookkeeping Machine Operator
General Accounting Clerk
Cost Accounting Clerk
Traffic Clerk
Secretary
Chemical Operator
Instrument Repairman

APPENDIX 21 - KROGER APPLICATION

P I A

PRELIMINARY APPLICATION FOR EMPLOYMENT

Date _____ 19 ___

☐ Male Height ___
☐ Female Weight ___

Name _____

Address _____ Phone _____

Kind of Work Wanted? _____

Have you ever worked for Kroger before? ☐ Yes ☐ No

Age _____ ☐ Married ☐ Single

Last Grade of School Completed _____

Present Employer _____

How long have you worked for this employer? ___Yrs ___Mos

Address _____

Last Previous Employer _____

How long have you worked for this employer? ___Yrs ___Mos.

Address _____

Form 3072

APPENDIX 21 Continued

HOUSTON

KROGER JOB CLASSIFICATIONS - OFFICE PAY PLAN

EFFECTIVE:

Group	Job Classifications
I	File Clerk Office Service Clerk
II	Accounting Clerk "B" Adv. Service Clerk Comptometer Clerk "B" Key Punch Operator Office Service Clerk "A" Typist Clerk
III	Accounting Clerk "A" Bookkeeping Machine Operator Comptometer Clerk "A" Display Machine Operator General Clerk PBX Operator - Receptionist Price Checker Stenographer Clerk Warehouse Clerk "A"
IV	IBM Operator "B" Personnel Clerk Secretary - Stenographer Senior Accounting Clerk
V	Buyers Assistant Inventory & Receiving Clerk Key Accounting Clerk Secretary Sr. Employee Benefits Clerk Sr. Show Card Writer Store Auditor
Va	Secretary to the President
VI	Display Section Chief IBM Operator "A" Lead Store Auditor Office Section Chief

APPENDIX 21 Continued

THE Kroger CO.

EMPLOYMENT APPLICATION

Form 3003 (12-65)

4-5

CARD	COL.	
10	22-41	NAME (PRINT) FIRST MIDDLE LAST ____ DATE ____
10	42-50	SOCIAL SECURITY NUMBER ____ NO. OF PERSONS DEPENDENT ON YOU (EXCLUDE YOURSELF) TOTALLY ____ PARTIALLY ____
10	51	☐ MALE ☐ FEMALE; AGE; WEIGHT; HEIGHT; OWN YOUR HOME? ☐ YES ☐ NO; DO YOU OWN AN AUTOMOBILE? ☐ YES ☐ NO
10	52	MARITAL STATUS: ☐ SINGLE ☐ MARRIED ☐ WIDOWED ☐ LEGAL SEPARATION ☐ DIVORCED ☐ REMARRIED; MARRIED WOMEN: MAIDEN NAME ____ DATE OF MARRIAGE ____; WITH WHOM DO YOU LIVE? ☐ PARENTS ☐ RELATIVES ☐ HUSBAND OR WIFE ☐ ALONE ☐ OTHER
10	53-58	DATE OF BIRTH: MONTH DAY YEAR
11	22-57	ADDRESS: NUMBER AND STREET; CITY; STATE
11	58-75	ZIP CODE; HOW LONG HAVE YOU LIVED IN THIS CITY?
11	76-80	
12	22-31	PHONE NO.: AREA CODE ____ EXCHANGE ____ NUMBER ____; ☐ YOURS ☐ NEIGHBOR; HAVE YOU EVER WORKED FOR KROGER BEFORE? ☐ NO ☐ YES WHERE? ____

KIND OF WORK DESIRED TO START ____ TIME SPENT ON LONGEST PREVIOUS JOB: YRS. MOS. NUMBER OF FULL-TIME JOBS DURING PAST 10 YEARS ____

HAVE YOU EVER HAD CASH SHORTAGES OR MISUNDERSTANDINGS ABOUT FUNDS? ☐ YES ☐ NO

HAVE YOU EVER BEEN CONVICTED? ☐ YES ☐ NO

LIST ALL CONVICTIONS, SHOWING OFFENSE AND DATE:

CARD	COL.	
12	32-36	ARE YOU CURRENTLY COVERED BY A GROUP HOSPITALIZATION PLAN? ____ ☐ NO ☐ YES (IF YES, STATE NAME OF SPONSORING EMPLOYER) ____
12	37-39	ARE YOU CURRENTLY COVERED BY A GROUP SURGICAL INSURANCE PLAN? ____ ☐ NO ☐ YES (IF YES, STATE NAME OF SPONSORING EMPLOYER) ____
13	22-23	EDUCATION (CIRCLE LAST GRADE COMPLETED) 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 (HIGH SCHOOL GRAD) 13, 14, 15, A5—ASSOCIATE DEGREE 16—BACHELOR DEGREE 17—MASTER DEGREE 18—Ph.D.
13	24	ARE YOU CURRENTLY ATTENDING SCHOOL? C—CURRENTLY ATTENDING N—NOT ATTENDING (CIRCLE ONE); IF CURRENTLY ATTENDING, CHECK ONE ☐ DAY SCHOOL ☐ EVENING SCHOOL

		ADDITIONAL COLLEGE INFORMATION	ADDITIONAL HIGH SCHOOL INFORMATION
13	25-26	UNDERGRADUATE MAJOR FIELD	NAME OF SCHOOL
13	27-29	UNDERGRADUATE COLLEGE-UNIVERSITY ATTENDED	LOCATION
13	30-33	MONTH & YEAR GRADUATED	YEAR GRADUATED
13	34-35	GRADUATE MAJOR FIELD	MAJOR COURSES TAKEN:
13	36-38	GRADUATE COLLEGE-UNIVERSITY ATTENDED	
13	39-42	MONTH & YEAR GRADUATED	

CARD	COL.	Additional specialized study courses (List correspondence, secretarial, technical, trade, military, or separate college courses not taken toward a degree.)
13	43-44	1.
13	45-46	2.
13	47-48	3.
13	49-50	4.

		Special skills useful in placement or promotion (For example, list machines, work appliances, and operations on which you have had experience.)
13	51-52	1.
13	53-54	2.
13	55-56	3.
13	57-58	4.
13	59-60	5.

Are you ☐ Right-handed?; ☐ Left-handed? (Check one)

EMPLOYMENT HISTORY

Begin with Present or Last Employer

			DATE STARTED	DATE ENDED	KIND OF WORK PERFORMED AND SUPERVISORS	SALARY	REASON FOR LEAVING
13	61-64	Company Street City			Job Supr.		
13	65-67	Company Street City			Job Supr.		
13	68-70	Company Street City			Job Supr.		
13	71-73	Company Street City			Job Supr.		
13	74-76	Company Street City			Job Supr.		

Have you any food store or food plant experience not listed above? Yes ☐ No ☐ If Yes, explain _____

RELATIVES EMPLOYED BY KROGER OR IN OTHER FOOD BUSINESS

Relationship	Name	Name & Address of Employer

MILITARY SERVICE:

Date Entered _____
Date Released _____

Branch of Service _____
Highest Rank Attained _____
Type of Discharge _____

Are you now a member of
National Guard ☐ Reserve ☐
Other (Explain) ☐
Present Draft Status _____

YOUR FORMER ADDRESSES (WITHIN LAST FIVE YEARS)
(This information is needed by the bonding company)

Number and Street	City	State	From		To	
			MONTH	YEAR	MONTH	YEAR

PERSONAL HEALTH STATEMENT

Are you willing to take a physical examination at Company expense? Yes_____ No_____

Place a check mark in the "YES" column for each condition which you now have or have had.

If none, place a check mark in the "NO" column. (All conditions must be checked.)

	Yes	No		Yes	No		Yes	No		Yes	No		Yes	No
Frequent headaches			Asthma			Nausea or Vomiting			Convulsions			Pain in joints		
Frequent colds			Tuberculosis			Hemorrhoids			Paralysis			Foot trouble		
Persistent cough			Heart trouble			Liver disease			Persistent fatigue			Rupture or Hernia		
Back Injury			High blood pressure			Urinary difficulty			Anemia			Tumor		
Difficulty breathing			Swelling of ankles			Diabetes			Nervous condition			Gland trouble		
Chest pains			Abdominal pain			Dizzy spells			Backache			Skin rash		
												Partially Deaf		
												Deafness		

For "YES" answers give information on present condition: _____

_____

_____

_____

Have you been absent from work for three days or more because of sickness or injury during the past three months? YES_____ NO_____

If a woman, are you pregnant? YES_____ NO_____

Are menstrual periods disabling? YES_____ NO_____

Have you consulted or been treated by a physician or practitioner during the past 3 years? YES_____ NO_____ (If YES give details.)_____

Have you ever received treatment for alcohol or drug habit?

YES_____ NO_____

Have you ever filed a claim for compensation for industrial (work, on the job) injuries? Yes ☐ No ☐ (If yes give details.)

I understand that any untrue statements in this application will be just cause for dismissal.
I understand that I will not be able to qualify for benefits under the Retirement Income Plan portion of the Kroger Employees' Profit Sharing and Retirement Income Program, unless I have completed at least 15 years of continuous full time employment with the Company. I also understand that no service will be counted prior to my 25th birthday nor after my 65th birthday.
I authorize the references listed to give you any and all information concerning my previous employment and any pertinent information they may have, personal or otherwise, and release all parties from all liability for any damage that may result from furnishing the same to you.

SIGNATURE OF APPLICANT _____

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS AND COMPLETED THE WITHHOLDING CERTIFICATE BELOW

INTERVIEWER'S COMMENTS AND RECOMMENDATIONS FOR HIRING OR PLACEMENT:

_____

_____

_____

_____

_____

_____

_____

_____

_____ (Interviewer) _____ date

HOURLY WAGE RATE SCHEDULE

American Bakery & Confectionery Workers' International Union - AFL-CIO
1963 Contract . . . . . Local Union 163

To be effective from November 1, 1963 through October 31, 1966

Classification	RATES TO BE EFFECTIVE ON		
	11/1/63	11/1/64	11/1/65
Bread Production Department			
FOREMEN (Working - Leadmen)	2.62	2.69	2.77
MIXERS & SPONGERS	2.41	2.48	2.56
OVEN OPERATORS	2.35	2.42	2.50
BENCHMEN, MACHINEMEN, BREAD TWISTERS & BREAD PANNERS	2.28	2.35	2.43
OVEN DUMPERS, OVEN LOADERS & OVEN HELPERS	2.28	2.35	2.43
PAN RACKERS, BREAD RACKERS & PAN GREASERS	2.08	2.15	2.23
Shipping & Wrapping Department			
FOREMEN (Working - Leadmen)	2.62	2.69	2.77
CHECKERS & WRAPPING MACHINE OPERATORS	2.28	2.35	2.43
PACKERS, FEEDERS, SLICERS & LOADERS	2.10	2.17	2.25
Cake & Pastry Department			
FOREMEN (Working - Leadmen)	2.62	2.69	2.77
FORELADIES (Working - Leadwomen)	1.98	2.05	2.13
BENCHMEN, MACHINEMEN, DEPOSITOR OPERATORS, PANNERS, OVEN LOADERS, FEEDERS & DUMPERS	2.28	2.35	2.43
PAN GREASING & WRAPPING MACHINE OPERATORS	1.90	1.97	2.05
ICERS-WRAPPERS	1.87	1.94	2.02
FANCY CAKE DECORATORS	2.23	2.30	2.38
FANCY CAKE ASSISTANTS	1.93	2.00	2.08
APPRENTICE BASE RATE	1.87	1.94	2.02
Base Rate for hand work in shops.	After six (6) months of Apprentice Training he shall receive five (5¢) cents per hour above the scheduled Apprentice Base Rate in effect at that time, and after twelve (12) months he shall receive an additional five (5¢) per hour above the scheduled Apprentice Base Rate in effect at that time, and after eighteen (18) months service he shall be placed on a classified job.		
ICER-WRAPPER TRAINEE BASE RATE	1.73	1.80	1.88
	After thirty (30) days Icer-Wrapper Trainee shall receive five (5¢) cents per hour above Icer-Wrapper Trainee Rate in effect at that time and after ninety (90) days she shall be placed on a classified job.		

APPENDIX 21 Continued

	November 1, 1964			November 1, 1966			November 1, 1967		
	For 40 hrs. worked	Hourly Rate	O.T. Rate	For 40 hrs. worked	Hourly Rate	O.T. Rate	For 40 hrs. worked	Hourly Rate	O.T. Rate
Head Meat Cutters	$125.00	$3.125	$4.68	$130.00	$3.25	$4.875	$135.00	$3.375	$5.0625
Journeymen Meat Cutters	114.00	2.85	4.275	119.00	2.975	4.4625	124.00	3.10	4.65
Extra Journeymen Meat Cutters		2.95			3.075			3.20	
Apprentice Meat Cutters									
First 6 Months	73.50	1.835	2.747	78.50	1.96	2.94	83.50	2.085	3.1275
After 6 Months	78.50	1.96	2.94	83.50	2.085	3.1275	88.50	2.21	3.315
After 1 Year	83.50	2.087	3.13	88.50	2.212	3.318	93.50	2.337	3.5055
After 1-1/2 Years	88.50	2.21	3.31	93.50	2.335	3.5025	98.50	2.46	3.69
After 2 Years	94.50	2.36	3.54	99.50	2.485	3.7275	104.50	2.61	3.915
After 2-1/2 Years	101.00	2.525	3.78	106.00	2.65	3.975	111.00	2.775	4.1625
After 3 Years	114.00	2.85		119.00	2.975		124.00	3.10	4.65
Weighers and Wrappers									
First 6 Months	62.00	1.55	2.325	66.00	1.65	2.475	70.00	1.75	2.625
After 6 Months	65.00	1.625	2.487	69.00	1.725	2.5875	73.00	1.825	2.7375
After 1 Year	68.00	1.70	2.55	72.00	1.80	2.70	76.00	1.90	2.85
After 1-1/2 Years	72.00	1.80	2.70	76.00	1.90	2.85	80.00	2.00	3.00
After 2 Years	79.50	1.987	2.98	83.50	2.087	3.1305	87.50	2.187	3.2805

SCHEDULE "A" WAGES

CLASSIFICATIONS CASHIERS, CHECKER, GROCERY CLERKS, PRODUCE CLERKS	Effective 2/6/66		Effective 2/5/67		Effective 2/4/68		Effective 8/4/68	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
Male								
1st 6 months	$1.58	$1.56	$1.62	$1.60	$1.65	$1.63	$1.68	$1.66
2nd 6 months	1.63	1.60	1.67	1.64	1.70	1.67	1.73	1.70
3rd 6 months	1.70	1.67	1.74	1.71	1.77	1.74	1.80	1.77
4th 6 months	1.93	1.90	1.99	1.96	2.03	2.00	2.07	2.04
After 2 years	2.18	2.10	2.26	2.18	2.31	2.23	2.36	2.28
Female								
1st 6 months	1.54	1.52	1.58	1.56	1.61	1.59	1.64	1.62
2nd 6 months	1.58	1.55	1.62	1.59	1.65	1.62	1.68	1.65
3rd 6 months	1.64	1.61	1.68	1.65	1.71	1.68	1.74	1.71
4th 6 months	1.84	1.82	1.90	1.88	1.94	1.92	1.98	1.96
After 2 years	2.07	2.00	2.15	2.08	2.20	2.13	2.25	2.18
FAMILY CENTER (CLERKS) (NON FOODS)*								
1st 6 months	1.50		1.55		1.58		1.61	
2nd 6 months	1.55		1.60		1.63		1.66	
3rd 6 months	1.60		1.65		1.68		1.71	
4th 6 months	1.70		1.75		1.78		1.81	
After 2 years	1.75		1.80		1.83		1.86	
UTILITY HELP								
1st 6 months	1.42	1.40	1.47	1.45	1.50	1.48	1.53	1.51
2nd 6 months	1.44	1.42	1.49	1.47	1.52	1.50	1.55	1.53
After 12 months	1.69	1.64	1.74	1.69	1.78	1.73	1.82	1.77
***SACKER & CARRY OUT**								
Start		1.30		1.35		1.38		1.41
After 12 months		1.30		1.40		1.43		1.46

*Family Center Store Clerks (Non Foods) employed prior to the effective date of this Contract will continue to receive their present rate plus negotiated and length of service increases.

APPENDIX 21 Continued

SUPPLEMENT "B"

CLASSIFICATIONS AND WAGE SCHEDULES

CLASSIFICATION	EFFECTIVE 3/8/64	EFFECTIVE 3/7/65	EFFECTIVE 9/5/65	EFFECTIVE 3/6/66	EFFECTIVE 9/11/66
Drivers					
Semi	2.54	2.61	2.69	2.77	2.86
Bobtail	2.44	2.51	2.59	2.67	2.76
Hostler Day	2.44	2.53	2.63	2.74	2.86
Hostler Night	2.56	2.64	2.69	2.77	2.86
Garage					
Mechanic	3.10	3.16	3.22	3.28	3.34
Mechanic Helper	2.44	2.50	2.56	2.62	2.68
Serviceman	2.31	2.38	2.46	2.54	2.63
Warehouse - Grocery Dept., Produce Dept., Meat Dept., Frozen Food Dept. and Wholesale Dept.					
Shipping Clerk	2.64	2.70	2.76	2.82	2.88
Receiving Clerk	2.64	2.70	2.76	2.82	2.88
Car Checker	2.50	2.56	2.63	2.70	2.78
Fork Lift Operator	2.40	2.46	2.53	2.59	2.66
Selector	2.40	2.46	2.53	2.59	2.66
Salvage Man	2.40	2.46	2.53	2.59	2.66
Stock Return Man	2.40	2.46	2.53	2.59	2.66
Warehousemen	2.25	2.31	2.38	2.45	2.53
Porter	2.25	2.31	2.38	2.45	2.53
Loader	2.25	2.31	2.38	2.45	2.53
Unloader	2.25	2.31	2.38	2.45	2.53
Drug and Dry Goods					
Stock Clerk	2.01	2.06	2.11	2.16	2.21
Order Filler	1.83	1.89	1.95	2.01	2.07
Price Marker	1.77	1.83	1.89	1.95	2.01
Packer	1.77	1.83	1.89	1.95	2.01

APPENDIX 22

SHELL OIL COMPANY

Houston E & P Area

Typical job classifications which require high school education. Those marked with an asterisk are normally filled by internal promotion. The other positions listed are entry jobs.

DRAFTING

Draftsman
Junior Draftsman

OTHER

Porter
Seismic Processor
Truck Driver, Mail
Junior Laboratory Technician, (Paleo)
Operator - Telephone
Junior Surveyor

REPRODUCTION

*Head Operator Duplicating
*Senior Operator Reproduction
Operator Reproduction
Junior Operator Reproduction

CLERICAL / STENOGRAPHIC

*Senior Clerk
Clerk
Junior Clerk
*Secretary
*Head Stenographer
*Steno-Secretary
Stenographer
Statistical Typist
Typist
Operator Transcription
Junior File Clerk
File Clerk
Receptionist
Mail Clerk
Junior Mail Clerk

Typical administrative positions. Those marked with a number symbol (#) may be filled by an individual with a minimum of two years college and special training. All others require a college degree. The asterisk designates entry positions for college graduates.

PERSONNEL

Employment Representative
Area Safety Representative
Safety Representative
Area Training Representative
Editor
Senior Editor

EXPLORATION

#Senior Scout
#Scout
#Surveyor
#Permit Man

FINANCIAL

Joint Venture Auditor
Senior Accountant
*Accountant

PRODUCTION

#Field Operations Assistant
#Engineer Assistant

GENERAL

#Operations Assistant
Office Assistant
Senior Analyst
*Analyst
Claims Representative
Transportation Representative
Writer
Photographer
Area Storekeeper
Storekeeper
Buyer

LAND

Area Land Agent
District Land Agent
Senior Landman
Senior Title Analyst
Title Analyst

GAS

Gas Agent
Senior Gas Agent
#Gas Tester

APPENDIX 22 Continued

Typical managerial/supervisory positions. Those marked with an asterisk require a minimum of two years of college and special company training. All others require a B. S. degree or higher plus special company training. The positions shown are filled by internal promotion.

PRODUCTION

Chief Mechanical Engineer
Chief Exploitation Engineer
Chief Drilling Operations
Chief Production Operations
Division Production Manager
Division Production Superintendent
*Drilling Foreman
*Production Foreman
*Maintenance Foreman
*Field Mechanical Supervisor

SENIOR MANAGEMENT

Exploration Manager
Production Manager
Gas Manager
Legal Manager
Land Manager
Personnel Manager
Services Manager
Public Relations Manager
Financial Manager
Transportation Manager
Purchasing Manager
Crude Oil Representative

LAND

Division Land Manager
Supervisor Title Rental
Section Supervisor

GAS

Chief Gas Engineer
Chief Gas Utilization
Supervisor Operations
Plant Superintendent
*Foreman Control Systems
*Operations Foreman
*Plant Foreman
*Shift Foreman

EXPLORATION

Chief Geologist
Chief Geophysicist
Chief Exploration Operations
Division Exploration Manager
Geophysical Party Chief
*Party Supervisors

PERSONNEL

Supervisor Employment
Supervisor Benefits
Supervisor Wage & Salary

SERVICES

Supervisor Office Services
Treasury Supervisor
*Supervisor Stenographic
*Supervisor Mail Building
*Supervisor Library Files
Plant Office Supervisor
Division Services Manager
Area Crude Oil Supervisor
*Storage Garage Supervisor
*Area Drafting and Reproduction Supervisor
Supervisor Crude Oil Title
Division Services Supervisor
Division Treasury Supervisor
*Supervisor Drafting
*Division Drafting and Reproduction Supervisor

APPENDIX 22 Continued

Job positions considered as requiring professional status. Those marked with a number symbol (#) maybe filled by individuals with a minimum of two years of college and special training. All others require a minimum of a college degree. Those marked with an asterisk are entry positions for college graduates.

EXPLORATION

Staff Geologist
Staff Paleontologist
Staff Geophysicist
Division Geologist
Division Paleontologist
Division Geophysicist
Senior Paleontologist
Senior Geologist
Senior Geophysicist
*Geologist
*Paleontologist
Area Seismologist
*Geophysicist
#Area Seismic Operator
Geologist Assistant
Geophysicist Assistant
#Seismic Operator

GAS

Senior Staff Gas Engineer
Staff Gas Engineer
Senior Gas Engineer
*Gas Engineer

GENERAL

#Pilot
#Co Pilot
#Senior Draftsman
*Attorney
Nurse (Registered)

PRODUCTION

Senior Staff Production Geologist
Staff Exploitation Engineer
Staff Production Geologist
Staff Reservoir Engineer
Staff Mechanical Engineer
Division Exploitation Engineer
Division Mechanical Engineer
Senior Production Engineer
Senior Field Facilities Engineer
Senior Petrophysical Engineer
Senior Drilling Engineer
Senior Reservoir Engineer
Senior Mechanical Engineer
Senior Chemical Engineer
*Exploitation Engineer
*Mechanical Engineer
#Subsurface Pressure Analyst

APPENDIX 23

691-0002-2

APPLICATION FOR EMPLOYMENT

EQUAL OPPORTUNITY EMPLOYERS

HUMBLE OIL & REFINING COMPAN

ESSO PRODUCTION RESEARCH COMPAN

NAME (LAST, FIRST MIDDLE)

EMPLOYMENT DESIRED ☐ PERMANENT ☐ SUMMER

DATE AVAILABLE FOR WORK

PRESENT ADDRESS

PHONE NO. (GIVE AREA CODE)

TIME TO CALL: A.M. P.M.

PERMANENT ADDRESS (IF DIFFERENT FROM ABOVE)

PHONE NO. (GIVE AREA CODE)

HAVE YOU BEEN A RESIDENT OF THE U.S. FOR THE PAST 10 YEARS? ☐ YES ☐ NO IF NOT, PLEASE SPECIFY →

RESIDENCE OUTSIDE THE U.S.

DATE OF BIRTH | SOCIAL SECURITY NO. | HEIGHT | WEIGHT | MARITAL STATUS ☐ SINGLE ☐ MARRIED ☐ SEPARATED ☐ DIVORCED ☐ WIDOWED

AGE OF EACH CHILD (YEARS)

LOCATION PREFERENCE (IF ANY)

DO YOU HAVE RELATIVES WITH US? (NAME, WHERE) ☐ NO ☐ YES

HAVE YOU APPLIED TO US BEFORE? (WHICH COMPANY - WHEN) ☐ NO ☐ YES

EDUCATION

SCHOOL NAME AND LOCATION	DATE (MO./YR.) FROM	TO	FIELDS OF STUDY MAJOR	MINOR	GRADUATION DEGREE	DATE (MO./YR.)	YOUR CLASS STANDING IN YOUR MAJOR	OVERALL	YOUR OVERALL GRADEPOINT AVERAGE
							EXAMPLE:	EXAMPLE:	EXAMPLE:
HIGH SCHOOL							MY STDG. 7 OUT OF 10	MY STDG. 70 OUT OF 100	MY AVG. 3. ALL A'S 4.
COLLEGE							MY STDG. OUT OF	MY STDG. OUT OF	MY AVG. ALL A'S
							MY STDG. OUT OF	MY STDG. OUT OF	MY AVG. ALL A'S
							MY STDG. OUT OF	MY STDG. OUT OF	MY AVG. ALL A'S
							MY STDG. OUT OF	MY STDG. OUT OF	MY AVG. ALL A'S

COLLEGE FINANCING % G.I. BILL % OWN WORK % SCHOLARSHIP EXPLAIN % OTHER EXPLAIN

EXPERIENCE (INCLUDING GRADUATE ASSISTANTSHIPS AND SUMMER JOBS)

EMPLOYER NAME AND ADDRESS	DATE (MO./YR.) FROM	TO	SUPERVISOR'S NAME AND JOB TITLE	YOUR JOB TITLE	YOUR DUTIES

ARE YOU UNDER TECHNICAL CONTRACT OR RESTRICTION WITH A FORMER EMPLOYER? ☐ NO ☐ YES - WITH WHOM?

MAY WE CALL YOUR PRESENT EMPLOYER? NOW ☐ YES ☐ NO AFTER VISIT - ☐ YES ☐ NO

U.S. MILITARY

BRANCH OF SERVICE	FROM (MO./YR.)	TO (MO./YR.)	RANK	TYPE OF DUTY (ESPECIALLY IF PROFESSIONAL)

ACTIVITIES

SUBJECTS OF SPECIAL STUDY OR RESEARCH, COLLEGE OR OTHER

HONORARY FRATERNITIES, SOCIETIES, EXTRA CURRICULAR ACTIVITIES - OFFICES HELD OR RESPONSIBILITIES (EXCLUDE THOSE WHICH INDICATE RACE, COLOR, RELIGION, SE OR NATIONAL ORIGIN)

HONORS, HONOR SOCIETIES, SCHOLARSHIPS, ETC. (INCLUDE OFFICES HELD)

CAREER INTERESTS

TYPE OF WORK DESIRED EVENTUALLY

TYPE OF WORK DESIRED INITIALLY

IS THERE SOME DIVISION OR FUNCTION IN WHICH YOU ARE ESPECIALLY INTERESTED?

IS THERE A SPECIFIC PROJECT OR STUDY THAT YOU WOULD LIKE TO DO?

CITIZENSHIP

U.S. CITIZEN ☐ YES ☐ NO

ALIEN REGISTRATION NO.

HAVE YOU EVER BEEN DEPORTED FROM THE U.S.? ☐ NO ☐ YES

STATUS OF U.S. RESIDENCY ☐ PERMANENT VISA ☐ STUDENT VISA

EXCHANGE ☐ STUDENT VISA

VISITORS ☐ VISA

OTHER ☐ EXPLAIN

I hereby certify that I am not now, or ever have been, a member of the Communist Party or any organization which advocates overthrow of the United States Gove ment by force or any illegal or unconstitutional method. I authorize investigation of all statements contained in this record of my qualifications if I am considered employment. I understand that misrepresentations or omissions of facts called for hereon will be sufficient cause for cancellation of consideration for employment dismissal from the Company's service if I have been employed. I understand that employment is subject to my satisfying the medical requirements of the Company.

DATE

SIGNATURE

X

(Please give us any additional information on scholastic achievements or experience on a separate sheet of paper)

APPENDIX 23 Continued

HUMBLE OIL & REFINING COMPANY

JOB DESCRIPTIONS FOR POSITIONS NORMALLY

OPEN IN THE HOUSTON AREA

NON-PROFESSIONAL

STENOGRAPHER

Beginning stenographers are normally assigned to perform all stenographic work for a group of three to five men and as their careers progress are promoted to secretaries based on a merit system. College graduates with at least one year of office experience are preferred, but high school girls with three to five years of stenographic experience are also considered. Skills must meet minimum testing requirements of 50 words per minute in typing and 85 words per minute in shorthand. Learning ability should be above average. Personal characteristics must include a good aptitude, emotional stability and a willingness to contribute to group efforts. Appearance should be neat and reflect good taste in keeping with a business atmosphere.

ACCOUNTING CLERK

Accounting clerk assignments are generally orientated to bookkeeping, credit and collection and/or any computation type work in the accounting operations. High school graduates with at least one year of office experience, preferably in banking, utilities and insurance organizations are considered. These applicants must have average intelligence and be well groomed. A generalized age span would be from sixteen to thirty-five years, although the latter is not a fixed requirement.

KEY PUNCH OPERATOR

High school graduates with at least one year of key punch experience in alpha numeric key punch operations are considered, although occasionally there are openings for beginning trainees. Applicants must meet key punch requirements of 11,000 key strokes per hour with a minimum of 4% error. Good taste in grooming is important and a general age range is 16 to 35, although the latter is not a fixed requirement.

BEGINNING CLERK

High school graduates without office experience who meet the minimum average intelligence requirements are considered. Typing skill of 40 to 50 words per minute is advantageous as it permits the applicant to be considered for promotion-

al opportunities that may occur. The beginning assignments are normally that of a file clerk or mail clerk. The general age requirements are 16 to 35, although the latter is not a fixed requirement.

PROFESSIONAL

MARKETING REPRESENTATIVE

Function

Following an intensive, tailormade training program, the new employee will be assigned the job of developing maximum profitable sales of Humble and Atlas products through service station and distributor outlets. In this capacity, he functions as a professional business counselor and financial advisor. He carries out company merchandising and promotional programs and is accountable for improving the company's return in investment in property, physical maintenance of company investment, execution of company's public relations policies, preparation of budget and business forecasts, development of new business, cost reduction, and maintaining good dealer - company relationships.

Desired

Age: prefer 28 or less. Experience: 0 - 5 years of marketing or sales experience as a trainee or assigned salesman preferred. However, applicants who have dealt with the public may also be considered. Education: minimum - bachelor's degree in liberal arts, business administration, economics, or marketing.

FINANCIAL ACCOUNTANT

Function

Initially the new financial accountant will be working very closely with experienced accountants who have a responsible task to accomplish. These assignments demand a professional accounting education and give further technical knowledge and experience. To this beginning experience is added further knowledge of operations and policies, responsibility for directing the work of others, and participation in joint projects.

Desired

Age: 21 - 24. Experience: 1 - 3 years. Education: BS or MS in accounting.

AUDITOR

Function

Review selected transactions including the related source documents to determine that company policies and procedures are followed; that proper internal control is maintained; that proper delation of authority has been established and is followed; that material and services have been received and billings therefore rendered in accordance with related contractual agreements; that sound business practices are followed in all expenditures for company and/or contract services; and that the accounting treatment was properly reflected in the permanent records in accordance with sound accounting principles and regulatory requirements.

Perform reviews of policies in existence for control of inventories and fixed assets. Determine that company assets are utilized for authorized company operations and accountability maintained in accordance with company policy and instructions.

Review procedures in effect for assuring timely collection of data on accounts receivable and that credit limits are established and consistently followed.

Assist the Senior Auditor or Lead Auditor in evaluation of procedures and their application and in observation of work practices and the utilization of manpower and assets. Observe and report areas for cost reduction and income improvement.

Make personal contacts with administrative, technical, and operating personnel directly responsible for work in functions under review and discuss questions and observations concerning internal control and business practices.

Assist in special projects and studies involving cost analysis or reduction, acquisitions, or internal control problems.

Assist Senior Auditor or Lead Auditor in preparation of workpapers in support of analyses, observations, and in drafting comments for discussions with and reporting to supervisors and management.

Desired

Age: 23 to 32. Experience: desirable but not essential. Education: BBA or BS or MBA with some accounting background.

INDUSTRIAL BUSINESS REPRESENTATIVE

Function

Following a training program, flexible to fit the employee's needs and future, designed to introduce company marketing policies, organization, and broad knowledge of the large number of Humble products, the new employee will be assigned the responsibility of handling our industrial business in the capacity of a technical service and business consultant. He will deal with company and customer personnel in research, maintenance, production, business forecasting, and engineering functions at all management levels. He will be responsible for follow-up technical product sales and service, product quality, the acquisition of new business, generating the need for new products, and handling all customer requests on product quality and performance.

Desired

Age: 21 to 30. Experience: 1 to 10 years in marketing, sales, or product technical service as an assigned salesman preferred. However, applicants who have potential for successful marketers from other technical activities e.g. production, manufacturing, or transportation will also be considered. Education: BS/ChE, Ch, IE, ME, CE.

Other candidate traits desired: Pleasing appearance, outgoing and mature personality, self-confidence, flexibility, ability to communicate well both written and oral.

ENGINEERS - OIL AND GAS PRODUCTION AND RESERVOIR ENGINEERING

Function

Production Engineers: Well drilling and completion; well completion and stimulation; well analysis and artificial lift; measurement and quality control of oil and gas production; automation; remedial work; secondary recovery; corrosion control; economic analysis of drilling and production operations; equipment engineering; marine operations. Computer experience desirable.

Reservoir Engineers: Reservoir analysis and operation; well planning; additional recover; economic evaluation of producting properties; computer applications and long-range planning.

Desired

Age: 26 to 27. Experience: 0 to 5 years. Education: BS/MS all disciplines.

CHEMICAL ENGINEERS - PETROLEUM AND OIL/GAS MANUFACTURING

Function

Chemical Engineers play a major roll in Humble's refineries and Enjay Chemical plants. From the outset, they are given responsibility involving multi-million dollar manufacturing units. Many young chemical engineers start as unit operations advisors; later work in process designs, and economic studies. Many also advance into administrative assignments involving operating and/or technical personnel. Most find themselves deeply engrossed in manufacturing economics and product/raw-material-flow logistics early in their careers.

Computer solutions, simulation, and control applications have burgeoned in recent years; experience in these areas is of special interest. Manufacturing engineers seek endlessly new ways to make products in existing equipment with minimum modifications and delay, ways to increase throughputs and yields, and new uses for existing products. By-product utilization is always of interest to refinery and chemical plant management.

Proven skills in classical chemical engineering is required for almost all ChE assignments -- reaction kinetics, fluid flow (including fluidized solids), heat transfer, distillation, thermodynamics, and similar areas. Systems engineering involves hardware and processes.

Desired

Age: 21 to 26. Experience: 0 to 5 years. Education: BS/ChE.

CHEMICAL ENGINEERS - NATURAL GAS PROCESSING

Function

Assist in the preparation of budget estimates for gas processing plants and facilities. Develop project economics for approval by management. Assist in the preparation of plans and specifications to use in soliciting bids from contractors for gas plants. Analyze bids and approve process design, equipment ratings and selection of equipment. Calculate flow rates, heat balances and material balances. Rate heat exchangers, coolingtowers, absorbers, fractionators and other process equipment. Analyze plan operating problems and make technical recommendations for solution.

Desired

Age: 26 to 27. Experience: 0 to 5 years. Education: BS/ChE.

GEOLOGIST and/or GEOPHYSICAL INTERPRETER

Function

Geologist: Make use of all known surface and subsurface geologic methods to outline areas and prospects favorable for accumulation of oil and gas, assist in development of productive prospects, maintain statistics to evaluate the economics of producing areas.

Geophysicist: Direct use of methods, special techniques and equipment required to gather, process and interpret the geophysical data.

Desired

Age: 35 or less. Experience: 0 to 10 years. Education: Master's degree in geology and/or geophysics is normal minimum. Outstanding bachelor's degree people will be considered. Degree from a petroleum oriented school preferred. Candidates should have graduated in the top 1/2 of their class or shown marked ability to improve grades through school.

CIVIL ENGINEER - MARKETING

Function

After completing a twelve months training program a Civil Engineer would be performing the following work:

(1) Prepare plot plans, grade sheets and standard drawing modifications as required for specific locations and local regulations.
(2) Make special designs and prepare drawing for supporting structures, retaining walls, drainage facilities, etc.
(3) Write specification modifications as required by specific conditions of site.
(4) Assist in the development of new methods, policies and materials.
(5) Contact and appraise contractors, and arrange for bidding.
(6) Assist contractor in the technical phase of his work.
(7) Inspect work, approve and arrange for payment.
(8) Maintain complete records of work and materials.
(9) Inspect proposed sites, recommend and prepare layouts and provide estimates for proposed work.
(10) Assist sales group in all technical phases of miscellaneous maintenance and arrange for and provide scheduled maintenance and painting.
(11) Periodically inspect existing facilities recommending maintenance and modifications.

Desired

Age: 21 to 26. Experience: Recent graduate or up to five years general construction experience. Education: BS/MS Civil Engineering.

APPENDIX 24

J. WEINGARTEN, INC.
P. O. Box 1698
Houston, Texas

THE MAJORITY OF THE JOBS LISTED, WITH EXCEPTION OF THE CLERICAL POSITIONS, REQUIRE ONLY A HIGH SCHOOL EDUCATION. MOST OF THE PROFICIENCY IS GAINED THROUGH TRAINING ON-THE-JOB.

CLERICAL JOBS:

File Clerk
Mail Room Clerk
Typist Clerk
Comptometer Clerk
IBM Comptometer Clerk
Receptionist
Personnel Clerk
Accounting Clerk
Key Punch Operator
Printing Machine Operator
Stenographer Clerk
Switchboard Operator
Secretary
Inventory Clerk
Executive Secretary

STORE PERSONNEL:

Grocery Stocker
Checker
Produce Weigher Clerk
Courtesy Booth Operator
Delicatessen Clerk
Drug Sales Clerk
Home Center Sales Clerk
Tobacco Sales Clerk
Bottle Booth Clerk
Bakery Sales Clerk
Lobby Sales Clerk
Lunch Clerk
Male Utility Clerk
Female Utility Clerk
Sacker
Carry Out
Journeyman Butcher
Apprentice Butcher
Meat Wrapper & Weigher

DELICATESSEN & MEAT WAREHOUSE DEPARTMENTS:

Shipping & Receiving Clerk
Fork Lift Operator
Selector
Slicing Machine Operator
Scale Operator
Bacon Scooper
Wrapper
Packer
Warehouseman
Bacon Press Operator

DRUG & DRY GOODS DEPARTMENT:

Shipping & Receiving Clerk
Fork Lift Operator
Selector
Cigarette Stamper
Stock Return Man
Ticket Machine Operator
Warehouseman
Clerk
Re-packer

PRODUCE DEPARTMENT:

Shipping & Receiving Clerk
Fork Lift Operator
Stock Clerk
Selector
Warehouseman

MAINTENANCE DEPARTMENT

Engineer
Apprentice Engineer
Cash Register & Scale Man
General Iron Worker
Utility Man
Steam Clean & Repair Man
Stock Room Man
Helper

APPENDIX 24 Continued

TRANSPORTATION DEPARTMENT:

Two-Man Operation Truck Drivers
Semi-Truck Driver
Hostler
Bob-Tail Truck Driver
Loader - Driver Trainee
Mechanics
Paint & Body Man
Mechanic Helper
Service Man
Parts Man

GROCERY WAREHOUSE DEPARTMENT:

Shipping & Receiving Clerk
Fork Lift Operator
Selector
Stock Return Man
Car Checker
Piece Count Checker
Coffee Roaster
Coffee Machine Bagger
Coffee Packer
Warehouseman
Janitor

BAKERY DEPARTMENT

Shipping & Wrapping Department:

Foremen
Checkers & Wrapping
Machine Operators
Packers, Feeders,
Slicers & Loaders

Cake & Pastry Department:

Foreman
Foreladies
Benchmen, Machinemen,
Depositor Operators,
Panners, Oven Loaders,
Feeders & Dumpers
Pan Greasing & Wrap-
ping Machine Operators
Icers - Wrappers
Fancy Cake Decorators
Assistant Fancy Cake
Decorators

ICE CREAM DEPARTMENT:

Pasteurizer Operator
Freezer Operator
Warehouseman

LAUNDRY DEPARTMENT:

Washman
Helper
General Utility

KITCHEN DEPARTMENT:

Cook, Salad Worker
Order Filler
General

CAFETERIA DEPARTMENT:

Cook, Salad Maker, Cashier
General

BAKERY DEPARTMENT:

Bread Production Department:

Foremen
Mixers & Spongers
Oven Operators
Benchmen, Machine-
men, Bread Twisters
& Bread Panners
Oven Dumpers, Oven
Loaders & Oven Helpers
Pan Rackers, Bread
Rackers & Pan Greasers

Garage & Plant Maintenance:

Foremen
Mechanics
Utility
Stockmen
General

APPENDIX 25

Dr. J. B. Jones
Texas Southern University
Houston, Texas

Dear Dr. Jones:

Per discussion in the Texas Southern University Workshop, please note below Olin Mathieson Chemical Corporation's beginning positions at its Pasadena Works.

Yard or Dock Labor (start) $2.42 per hour
Yard or Dock Labor (after six months seniority) $2.54 per hour

Employees may move under the terms of the labor contract to higher level positions provided job openings occur and that the individuals have the experience and ability plus service to successfully bid into the job opening. Current highest rates are between $3.60 and $3.70 per hour.

Beginning positions in the clerical and professional fields (Engineers) will vary in accordance with the education and experience the applicant brings to the job.

Very truly yours,

OLIN

H. D. Cady

H. D. Cady
Manager of Industrial Relations

HDC/lf

APPENDIX 26

SOUTHERN PACIFIC COMPANY - TEXAS AND LOUISIANA LINES

ENTRY JOBS - NON-PROFESSIONAL AND PROFESSIONAL

(Employment not necessarily available in all classifications presently)

NON-PROFESSIONAL

Brakeman.

Yardman.

Telegrapher-Clerk.

Clerk.

Apprentice (Carman, Machinist, Electrician)

Special Agent.

SPECIFICALLY TRAINED

Typist-Clerk.

Stenographer.

Key Punch Operator.

Teletype Operator.

Applicants for the two above categories must be high school graduates. In addition, we require high school education for laborers and janitors under the Clerks' Agreement because those classifications are now eligible for promotion to clerkcal positions at a later date.

PROFESSIONAL

Programmer.

Junior Civil Engineer.

Rodman.

Junior Draftsman.

APPENDIX 27

E. I. DU PONT DE NEMOURS & COMPANY, INC.
Houston Plant - P. O. Box 347, La Porte, Texas

SUMMARY OF HIRING PRACTICES & STARTING JOBS

I. Employment Procedure

A. Pretest Interview with Completed Application

B. Administration of Testing Screen

C. Post Test Interview

D. Reference Check

E. Selection of Best Applicants

F. Complete Physical Examination

II. Objectives of the Employment Procedure

The prime objective of the above procedure is to locate and employ trainable people who are emotionally stable and who will fit into the established plant environmental conditions. These are not perfect mechanisms, but they have been validated by time and experience.

The basic background skills which would allow the applicant to be classified as "trainable" are:

A. A good working knowledge of math with particular emphasis on decimal points and fractions together with a speaking acquaintance in the field of algebra and geometry.

B. A demonstrated ability in "Reading Comprehsion". This is essential when we ask an employee to read a set of operating instructions, understand them, and operate, after proper training, a multimillion dollar investment.

C. A competency in the basic field of "communications", both verbal and written. To train an individual we must have a person with whom we can communicate and who can communicate with us.

D. A basic knowledge in high school physics, or as we call it, mechanical comprehension. This is essential both in the training for operating and mechanical jobs.

SUMMARY OF HIRING PRACTICES & STARTING JOBS

III. Starting Job - Hourly Paid Employee

A. General Helper

Under normal circumstances an hourly paid employee starts in this classification. A general Helper is trained and, in summary, performs the following work.

1. Must fill, weight, pack, seal, and mark various packages properly.

2. Must operate a lift truck and know the general layout of the plant to move material efficiently.

3. Must observe and follow all housekeeping and safety rules.

4. Must be willing and able to work a three (3) shift rotating schedule.

B. Rates of Pay

The current hiring rate for a General Helper as of 8/16/66 is $2.75 per hour. After 6 months of service this rate is advanced to $2.98 per hour.

C. Advancement

On the basis of ability, plant service, and openings a General Helper is advanced to various higher jobs in the plant. The rate of pay of these jobs range from $3.18 to $3.80 per hour as of 8-16-66.

IV. Starting Jobs Nonexempt Salary

A. Clerical - Stenographic

This is a general stenographic Mail Clerk type of job and pays approximately $300 per month.

B. Laboratory Technician

This is analytical control laboratory work and the screens enumerated above for a General Helper are applicable. The salary is comparable to that paid the General Helper converted to a monthly basis. The employee may advance on the basis of ability and plant service to rate equivalent to those set out above.

VT 002 541
The Use of Tests in Schools of Nursing: The NLN Pre-Nursing and Guidance Examination. Fourth Edition, Pamphlet No. 1.

National League for Nursing, New York, N.Y.
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*NATIONAL LEAGUE FOR NURSING PRE-NURSING AND GUIDANCE EXAMINATION

The Pre-Nursing and Guidance Examination Service was established to assist basic professional schools of nursing in the selection and counseling of applicants to their programs and this pamphlet was prepared in keeping with that broad function. In addition to information concerning the examination that is offered through the service, the text includes a discussion of the principles that apply to the use of selection tests in general with emphasis upon their potential values, their limitations, and the interpretation of their results. The section on the National League for Nursing services describes procedures for administering the test, reporting results, and providing transcripts. It interprets information included in the test report. The section on evaluation of the tests treats standardization, reliability, validity, evaluation by school faculty of the usefulness of the tests, and limitations of tests. The section on using the tests discusses establishing standards for admission, evaluating applicants, retesting applicants, and using test results for pre- and postadmission guidance purposes. Two final sections discuss the potential of the selection process for an inter-institutional preadmission guidance program. (JK)

VT 002 541

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PAMPHLET NUMBER 1

THE USE OF TESTS IN SCHOOLS OF NURSING

ED036657

The NLN Pre-Nursing and Guidance Examination

FOURTH EDITION

NATIONAL LEAGUE FOR NURSING

1965

THE USE OF TESTS IN SCHOOLS OF NURSING

Pamphlet No. 1

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The NLN Achievement Tests *(Third Edition)* $1.25

Pamphlet No. 3

The NLN Graduate Nurse Examination *(Second Edition)* . . $1.00

Pamphlet No. 5

The Construction and Use of Teacher-Made Tests $2.50

THE USE OF TESTS IN SCHOOLS OF NURSING

The NLN Pre-Nursing and Guidance Examination

Pamphlet No. 1

Fourth Edition

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NATIONAL LEAGUE FOR NURSING
10 Columbus Circle, New York, N. Y. 10019

1965

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Foreword

The Pre-Nursing and Guidance Examination Service of the National League for Nursing was established to assist basic professional schools of nursing in the selection and counseling of applicants to their programs. This pamphlet has been prepared in keeping with that broad function. In addition to information concerning the examination that is offered through the service, the text includes a discussion of the principles that apply to the use of selection tests in general, with emphasis on their potential values, their limitations, and the interpretation of their results.

It is therefore hoped that this pamphlet will be of assistance to all nursing educators, regardless of the particular tests they may use in the selection of students, and to nurses who are being prepared for teaching and educational administration. Moreover, faculty members in basic programs who use the results of selection tests as a means of furthering the process of student self-evaluation may find this pamphlet helpful in interpreting test results to students. In view of the pamphlet's possible use in the education of students in both undergraduate and graduate programs, an effort has been made to describe certain concepts of measurement in considerable detail.

Throughout the pamphlet, emphasis has been placed upon the double usefulness of preadmission tests in nursing: as selection tools for the admission of students to an individual school of nursing, and as guidance tools for the counseling of both prospective students and those who have been admitted to an educational program in nursing. Both uses are important aids to the achievement of the ultimate aim of nursing education: to meet the nursing needs of the people through the preparation of more and better-qualified personnel.

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Introduction

Selection Tests—Their General Purposes and Uses

A selection test is a test designed to assist the faculty of a school, in cooperation with each applicant for admission to an educational program in that school, in determining whether or not the program is suited to the capacities of the applicant. In other words, a good selection test, when used in conjunction with other information about the applicant, gives an indication of the prospective student's potential for completing the program and for succeeding in the field for which the program offers preparation.

The results of selection tests are also of considerable assistance in the guidance of the student who has been admitted to an educational program. The strengths and weaknesses revealed by the student's scores may well indicate those parts of the program that should be emphasized for the full development of special abilities and for the overcoming of deficiencies.

The admissions committees (or departments or offices) of most educational institutions beyond the secondary school level utilize tests for the selection of applicants to their programs. Their experience has demonstrated the value of such instruments in helping young people to avoid the frustration and discouragement that follow failure in an educational program and in reducing the social waste that results from a poor investment of time, money, and human resources.

It is essential that schools of nursing and their admissions committees make wise use of tests and other selection tools. The continuous demand by society for more nursing personnel, coupled with the fact that in the wide range of nursing practice there are places for persons of varying capabilities, emphasizes the guidance aspect of the selection process. The potential nurse who is deflected from a career in nursing merely because she fails to qualify for one specific program of preparation, the student who withdraws from one program in nursing but who might successfully have completed another, the graduate nurse who, at a cost of additional time and effort, has to retrace part of her basic education in order to prepare for the type of nursing practice best suited to her abilities—these represent a loss that society can ill afford. In view of the wide variety of educational programs that prepare for nursing, it is important that the prospective nursing student be guided into the program in which she is most likely to succeed and which will prepare her for the career in nursing in which she can make her maximum contribution and gain the greatest personal satisfaction.

The admissions committee in a school of nursing, therefore, has a guidance as well as a selection function. Not only does it evaluate with the applicant her chances of success in the particular educational program that it represents; it also bears the responsibility of helping her to decide whether some other nursing program would be better suited to her ambitions and abilities. Thus, it is extremely important that admissions committees in schools of nursing have a thorough understanding of, and make wise use of, the selection and guidance tools available to them.

The NLN Pre-Nursing and Guidance Examination Service

The Pre-Nursing and Guidance Examination Service of the National League for Nursing has been developed to assist admissions committees in basic professional schools of nursing in the guidance of prospective students in nursing. The tests may be taken by applicants to any state-approved school of professional nursing in the United States and its possessions and in Canada. These applicants, of course, may live in other parts of the world.

The Tests

The NLN Pre-Nursing and Guidance Examination consists of a battery of five tests. The tests chosen for this battery are designed to measure capacities and proficiencies related to the development of registered nurse competencies that might reasonably be expected of high school graduates.[1] The tests are changed from time to time to keep pace with new developments and to prevent widespread familiarity with the test content. An effort is always made to replace tests with equivalent forms (that is, tests on which a particular student might be expected to achieve essentially the same score), so that faculty members can utilize information gleaned from previous experience in interpreting the results of current tests. Users of the NLN Pre-Nursing and Guidance Examination Service are always informed when changes in test forms are made.

The examination always includes measures in the five areas designated by the titles of the tests, which are as follows.

1. *The NLN Test of Academic Aptitude* measures the applicant's verbal and quantitative abilities through subtests in sentence-understanding (30 items), word meanings (30 items), numerical computation (25 items), and numerical problem-solving (25 items). The first two subtests are grouped to yield the verbal score; the latter two yield the quantitative score; the four subtests considered together yield the total score. The three scores are a valuable aid in estimating the capacity of a student to undertake further academic work.

[1] A personality test is not included in the NLN Pre-Nursing and Guidance Examination because research has shown that the paper-and-pencil tests of personality traits that have thus far been developed do not make a large enough contribution to the prediction of success in schools of nursing to justify their inclusion in a national test battery.

2. *The NLN Reading Comprehension Test* yields two scores. The Speed of Comprehension score, based on 60 items, takes into account both the speed and the accuracy with which the person taking the test is able to read materials of varying degrees of complexity. The Level of Comprehension score is based on the first 30 items and measures the degree of understanding with which she can read a specific amount of material; speed of reading plays no important part in determining this score.
3. *The NLN Mathematics Test* is an achievement test consisting of 54 items involving fractions, decimals, percentages, addition, subtraction, multiplication, and division. The score on this test gives an indication of the degree to which the applicant has mastered the arithmetic skills, concepts, and applications that are basic in seventh-, eighth-, and ninth-grade work.
4. *The NLN Natural Science Achievement Test* (60 items) deals with the general aspects of science and scientific ability. Knowledge of terms, concepts, facts, and definitions relating principally to biology, chemistry, and physics is measured by 36 items; the other 24 items deal with ability to comprehend and to interpret typical materials in the fields of the physical and biological sciences.
5. *The NLN Social Studies Achievement Test* (67 items) provides an estimate of the applicant's background of knowledge and understanding in this area. Thirty-five items measure knowledge of facts and concepts pertaining to United States history, world history, government, economics, sociology, and geography. The remaining 32 questions are based on reading passages, graphs, and charts; they test comprehension of statements and data and ability to analyze, apply, interpret, and evaluate information in the social sciences.

Administering the Examination

Full responsibility for administering and scoring the NLN Pre-Nursing and Guidance Examination is assumed by the NLN Evaluation Service.

The schedule of dates on which the examination will be given throughout the country is prepared by the Evaluation Service on the basis of the needs of the schools that use the service regularly. Applicants to any basic program of professional nursing may take the test at any of the centers that appear on the schedule. If a school's or an applicant's needs cannot be met through the scheduled testings, special arrangements may be made with the Evaluation Service for testing applicants anywhere in the world.

To arrange for taking the test, the director of a school of nursing has each applicant complete an application card, which the director signs as author-

ization for the applicant to take the test. The completed card, together with the test fee, must be mailed to the Evaluation Service at least ten days prior to the selected testing date to permit adequate time for mailing the applicant an admission receipt (which is also the official acknowledgment of the payment of the fee) and for completing arrangements for the administration of the test.

Each school will want to encourage its applicants to take the test well in advance of the date of admission, so that the results will be available for review by its admissions committee.

Releasing the Results

Except under very unusual circumstances, reports of the test results are released within two weeks after the answer sheets are received by the NLN Evaluation Service. This means that schools of nursing generally receive the reports within three to four weeks after the examination date.

Two copies of the applicant's record of performance are sent to the director of the state-approved school or schools of professional nursing to which she is applying for admission. A school's scholarship committee or a recognized scholarship-awarding body that is considering sponsoring an applicant may also be sent a report of the applicant's test results.

NLN does not release reports directly to applicants. This policy was instituted in order to guard against misunderstandings that might arise from applicants' faulty interpretation of their scores. For example, an applicant could readily confuse the percentiles of the test report with percentage grades of the type she has been familiar with in high school. If, for instance, one of her scores is at the fiftieth percentile, instead of understanding that half of the applicants in the normative group earned scores lower than hers, she might be crushed by what she interprets to be overwhelming failure. Instead of realizing that her performance is about average among applicants to schools of professional nursing, she might see this score as far below her usual level of achievement.

It is perfectly legitimate, and in fact desirable, for the school of nursing to interpret the test results to each applicant, accepted or rejected, and to send a copy of the test report to the applicant's high school.

The rejected applicant needs to be advised whether her test performance is such that she might be accepted by another school. When all of an applicant's test scores place her in the lowest 10 percent of applicants, it is a disservice to her to allow her to apply to one school after another without knowing her standing. The applicant who is accepted can also be helped by knowing the areas of her strengths and weaknesses.

Sharing the results with the applicant's high school is beneficial to the

Figure 1
Suggested Letter to High School Counselors

Dear Counselor:

With this letter, we are sending you a copy of the report of the scores on the NLN Pre-Nursing and Guidance Examination earned by one of your students who has applied for admission to this school of nursing. We should like to suggest the following cautions in using this information:

1. These test results are not the sole criterion used in selecting students for admission to our school of nursing. Other factors, such as high school performance, personality, and physical characteristics, are also carefully evaluated.
2. The applicant may or may not have received notice of her acceptance or rejection by the time this report reaches you. When such a notice is sent to the applicant, a copy will be mailed to you.

To help you in the interpretation of the test results, we are providing the following information:

The applicant's score and several percentiles for each test are listed opposite the name of the test. The normative groups for the various percentiles are described on the report. A percentile indicates the proportion of applicants in the normative group who earned scores below the score under consideration. If, for instance, 40 percent of the normative group for diploma programs earned scores below 31 on a particular test, a score of 31 on this test is said to be at the 40th percentile for diploma program applicants. On each test, half of the applicants in each normative group earned scores that were between the 50th and 99th percentiles, and half of them earned scores that corresponded to the percentiles between 0 and 49.

The Academic Aptitude Test measures the applicant's verbal and quantitative abilities through subtests in sentence-understanding, word meanings, numerical computation, and numerical problem-solving. The Reading Comprehension Test measures the speed and accuracy with which the applicant reads materials of varying degrees of complexity and the degree of understanding with which she reads a specific amount of material. The Mathematics Test is an achievement test covering arithmetic skills and concepts. The Science Test and the Social Studies Test assess the applicant's background of knowledge and understanding in these areas and her ability to apply this knowledge. The composite score is based on the total performance of the applicant and provides an over-all estimate of her likelihood of success.

Scores on different tests are not directly comparable. For this reason, an applicant is better evaluated in terms of percentiles. Within any one normative group, applicants whose scores place them in percentiles substantially above the 50th percentile are considered better than the average of that group, while those in percentiles markedly below the 50th are considered poorer than average.

It may be helpful to you to know that in recent years, this school of nursing has accepted applicants whose composite scores in terms of norms for _____ _____ [diploma, degree, or all] programs fell in percentiles as low as _____ and as high as _____.

Sincerely,

Director, School of Nursing

applicant, the high school, and the school of nursing. The applicant benefits from this procedure by the opportunity it affords her for receiving counseling in the high school. The high school benefits by gaining a clearer picture of the types of applicants who are likely to be accepted by different schools of nursing. The school of nursing benefits by improved relations with high schools, more appropriate referrals from the high schools, and fewer inquiries about test results from applicants, parents, principals, and counselors. Schools of nursing will want to include some form of interpretative material with reports to high schools in order to give some indication of the way in which the test results are used in the selection process. A suggested letter is presented in Figure 1.

Transcripts

If the director of a school of professional nursing wishes to obtain a copy of the scores earned by an applicant at an earlier date, a transcript may be procured from the Evaluation Service. The director should have the applicant request the transcript by submitting to the Evaluation Service the regular application card for the examination, signed by the director, with the transcript fee. Transcripts are available from the Evaluation Service for three years after the testing date. After more than three years have elapsed, it is usually preferable to have the applicant retested. The test report reflects the abilities and the achievement of the applicant at the time of testing; the longer the interval between the testing and the time the test results are used, the less currently accurate the picture of the applicant's abilities and achievement presented by the results, and the less valid the test report as a predictor of achievement in the immediate future.

The Report

The report shows the performance of the applicant on each test in the battery. A composite score, based on the applicant's total performance, is also reported. In addition to the nine scores, several percentiles for each score are reported, each percentile based on one of the various normative groups described in the margin of the report. (See Figure 2.)

The *score* represents the total number of questions in the test to which the applicant knew the best answer. In and by itself, it has little meaning. For example, a score of 41 would have one meaning on a test of 50 questions and another meaning if the total number of questions was 100. Moreover, a score of 41 on a difficult 50-question test might indicate considerable achievement, while the same score on a "snap" test of the same length might indicate little achievement.

APPLICANT CODE	APPLICANT NAME
999 987	SONIA SAMPLE 101 SCHOOL STREET HYPOTHETIC PENTUKY

NAME OF TEST	SCORE	DIP.	DEG.	A. D.	ALL	COLL. FROSH
ACADEMIC APTITUDE						
TOTAL	306	80	63	NA	79	72
QUANTITATIVE	312	79	69	NA	78	69
VERBAL	302	75	57	NA	74	70
READING COMPREHENSION						
SPEED	063	81	68	NA	80	71
LEVEL	063	80	65	NA	79	70
MATHEMATICS	047	78	68	NA	78	NA
NATURAL SCIENCE	068	83	68	NA	83	78
SOCIAL STUDIES	071	85	69	NA	84	79
COMPOSITE	121	85	69	NA	81	NA

NORMS BASED ON APPLICANTS TO SCHOOLS OF PROFESSIONAL NURSING

APPLICANTS TO DIPLOMA PROGRAMS			
Applicants	Schools	States	Yr.
29619	562	47	62

APPLICANTS TO DEGREE PROGRAMS			
Applicants	Schools	States	Yr.
1445	31	18	62

APPLICANTS TO ASSOCIATE DEGREE PROGRAMS			
Applicants	Schools	States	Yr.

ALL APPLICANTS			
Applicants	Schools	States	Yr.
31237	601	47	62

NORMS BASED ON COLLEGE FRESHMEN IN GENERAL EDUCATION

ACADEMIC APTITUDE TESTS			
Students	Colleges	States	Yr.
1180	99	33	57

READING COMPREHENSION			
Students	Colleges	States	Yr.
751	105	38	58

SCIENCE AND SOCIAL STUDIES			
Students	Colleges	States	Yr.
6027	112	39	55

TEST DATE
9 02 63

INTERPRETATION OF TEST RESULTS

This record shows the NLN Pre-Nursing and Guidance Examination results for the applicant named at the top of the page.

The applicant's score and five percentiles for each test are listed following the names of the tests; the five normative groups are described in the margin. The composite score is based on the total performance of the applicant on this examination. Composite scores range roughly from 50 to 150, with an average of 100.

Each percentile corresponding to a score indicates the proportion of the applicants in that normative group who obtained scores below the score under consideration. If, for instance, 40 percent of the "Diploma" normative group obtained scores below 31 on a particular test, a score of 31 on that test is said to be at the 40th percentile for applicants to diploma programs. On each test and in each normative group, half of the applicants obtained scores that were between the 50th and 99th percentiles, and half of them obtained scores that corresponded to the percentiles between 0 and 49.

The further a score is from the average, in either direction, the greater is the amount of ability represented by each additional percentile. The difference in ability represented by percentiles of 90 and 100 is far greater than the difference represented by percentiles of 50 and 60; similarly the difference between percentiles of 10 and 20 is greater than the difference between 50 and 60.

The selection or rejection of applicants should not be based on the result of any one test, nor on test results alone. Test results should be considered in relation to each other and in relation to all other information available to the school. It is expected that the different schools of nursing will find different levels of performance suitable for admission to their programs, and that different types of programs will find different normative data more useful in the appraisal of their applicants. Further information about the examination, its use, and its interpretation may be obtained from the NLN Evaluation Service at the address below.

25-101 SCHOOL CODE	DIRECTOR SCHL OF NSNG CENTRAL GENERAL HOSP HYPOTHETIC PENTUKY	9-02-63 REPORT DATE

RECORD OF PERFORMANCE ON NLN PRE-NURSING AND GUIDANCE EXAMINATION

NATIONAL LEAGUE FOR NURSING EVALUATION SERVICE 10 Columbus Circle, New York, N. Y. 10019

FIGURE 2. EXAMPLE OF THE REPORT

For this reason, educational achievement is often expressed in relative terms. For instance, we refer to a student as being in the upper half of her class, or the middle third, or the second quarter, or quartile. Fairly large groups may be divided into tenths, or deciles. The large number of individuals whose achievement is measured by the NLN Pre-Nursing and Guidance Examination creates the need for even further division—that is, into hundredths, or percentiles.

A *percentile* (sometimes called a centile) that is assigned to an individual's test performance indicates the percentage of the individuals in the group with which she is being compared who made a lower score than she did. Thus, an individual who stands in the top hundredth of a group would be in the 99th percentile, since 99 percent of the group received lower scores than she did. Percentiles from 70 through 99 represent the top quarter of the scores in a group; from 67 through 99, the top third; and a percentile of 50 indicates the performance of the typical, or average, person in the group.

To facilitate the use of the results of this examination by different types of professional nursing programs, each test score is reported in terms of several different percentiles. The availability of these different norms enables each program to compare its applicants with other applicants to the same type of basic professional nursing programs, as well as with other normative groups.

Table 1 shows results that might be obtained if a test containing 110 questions were given to a group of 800 individuals. In this case, approximately half of the persons taking the test made scores higher than 60 and approximately half made scores lower than 60, and the scores cluster around this point. Thus, a score of 60 indicates the performance of the typical person in the group.

The last two columns of Table 1 show how a percentile was obtained for each score shown in the first column. To take the score of 30 as an illustration, note that 16 persons, or 2 percent of the 800 examinees, earned lower scores; therefore, a score of 30 would place a person in the 2d percentile because 2 percent of the group scored lower than she did. Twenty-six percent of the group (208 persons) knew the answers to fewer than 50 questions; thus, 26 is the corresponding percentile for a score of 50. Similarly, 16 (2 percent) of the examinees earned scores of 90 or better and therefore surpassed 98 percent of the group; accordingly, the score of 90 has a corresponding percentile of 98. In the same way, percentiles can be calculated for all scores.

Notice the relationship between the scores at different points in the series and their corresponding percentiles. For example, select two percentile spans that are equivalent in length, such as the 50-74 span and the 74-98

Table 1

Distribution of Scores That Might Be Made by a Group of 800 Individuals on a Test Containing 110 Questions

Score (Number of Questions to which Correct Answers were Known)	Individuals Who Knew the Answers to the Indicated Number of Questions				Percentile of Score
	Graphic Representation ♦ = 10 Individuals	Number	Cumulative Number	Percent	
110					99
		0	0	0	
105					99
		0	0	0	
100					99
		0	0	0	
95					99
	♦♦	16	800	2	
90					98
	♦♦♦	24	784	3	
85					95
	♦♦♦♦	40	760	5	
80					90
	♦♦♦♦♦♦	56	720	7	
75					83
	♦♦♦♦♦♦♦♦	72	664	9	
70					74
	♦♦♦♦♦♦♦♦♦♦♦	88	592	11	
65					63
	♦♦♦♦♦♦♦♦♦♦♦♦♦	104	504	13	
60					50
	♦♦♦♦♦♦♦♦♦♦♦♦♦	104	400	13	
55					37
	♦♦♦♦♦♦♦♦♦♦♦	88	296	11	
50					26
	♦♦♦♦♦♦♦♦	72	208	9	
45					17
	♦♦♦♦♦♦	56	136	7	
40					10
	♦♦♦♦	40	80	5	
35					5
	♦♦♦	24	40	3	
30					2
	♦♦	16	16	2	
25					0
		0	0	0	
20					0
		0	0	0	
15					0
		0	0	0	
10					0

span. The person in the 74th percentile knew the correct answers to 10 more questions than did the person in the 50th percentile; at the same time, the person in the 98th percentile gave 20 more correct answers than did the person in the 74th percentile. Thus, in tests of this kind, the ability of the person in the 50th percentile, as measured by the test, and that of the person in the 74th percentile are more nearly equal than are the abilities of persons in the 74th and 98th percentiles.

The fact that in tests of this kind, equal differences between percentiles do not indicate equal differences in the scores has implications of considerable practical importance. When equivalent spans of percentiles are compared (for example, 40-59 and 80-99), the applicants in the percentile groups nearer 50 will be more nearly equal in the abilities measured by the test than will those in the percentile groups farther away from 50. This fact should be taken into consideration in any attempts to divide students into fairly homogeneous groups so that the content and level of instruction can be matched to the group. For example, the range of abilities among students in the percentiles between 29 and 69 (a span of 40 percentiles) will usually be less than the range among students in the percentiles between 69 and 99 (a span of 30 percentiles).

The *composite score* reported on the record of test results is a weighted combination of the scores on each of the individual tests. The tests differ in their ability to predict success in the basic program in nursing. In arriving at the composite score, therefore, the scores are weighted according to their relative value in predicting success, with those that are the better predictors playing a proportionately greater role in determining the composite score. The weights applied to the individual scores are not released, since they are subject to such revision as later prediction studies may dictate.

Like the scores on the individual tests, the composite score has greater meaning and usefulness when it is converted into relative terms, into the rank ordering of groups of people by percentiles.

The *percentiles of the composite score* are derived directly from the composite score, in the same manner as the percentiles of the scores on individual tests.

It is evident from what has been said about the nature of percentiles that the percentiles of the composite score cannot be derived by averaging the percentiles for each of the individual tests. A step from any one percentile to the next higher percentile does not represent a fixed increase in the number of correct answers; it represents a fixed increase in the number of people whom the applicant has surpassed in the test—that is, an increase in position in the rank order of all persons taking the test. Thus, an average of the percentiles (rank order) cannot represent the average of the scores (ability) from which the percentiles were derived.

There is another characteristic of the percentiles of the composite score that admissions committees will want to understand. The percentiles of the composite score attained by an applicant may occasionally be higher or lower than any of the percentiles within which she ranks on the individual tests.

A very simple example will demonstrate both of these points—that the percentiles of the composite score are not identical with the average of the percentiles on the individual tests and that the percentiles of the composite score may appear to be somewhat unrelated to the percentiles on the individual tests, occasionally to the extent of lying outside their range.

Ten persons, A through J, take two tests. On the first, they achieve the following scores:

A	B	C	D	E	F	G	H	I	J
31	35	36	40	43	44	46	50	54	56

Since there are ten of them, they are accordingly in the following percentiles:[2]

5	15	25	35	45	55	65	75	85	95

Their scores and percentiles on the second test are:

	B	I	F	J	G	C	A	H	D	E
Score	60	70	78	81	83	84	86	90	94	99
Percentile	5	15	25	35	45	55	65	75	85	95

Their composite scores (in this example, a simple, unweighted average of their scores on the two tests) would then be:

A	B	C	D	E	F	G	H	I	J
58	47	60	67	71	61	64	70	62	68

When these composite scores are arranged according to rank order, that is, according to percentiles, they appear as follows:

	B	A	C	F	I	G	D	J	H	E
Score	47	58	60	61	62	64	67	68	70	71
Percentile	5	15	25	35	45	55	65	75	85	95

Several interesting points can be noted. On both tests, H was in the 75th percentile. It might be thought, therefore, that she would also be in the 75th percentile when ranked according to her composite score, but she proves to

[2] Percentiles of 5, 15, and so on are used because each person is considered to "fill" an interval of 10 points, and each interval is designated by its midpoint. For example, B, who fills the interval between 10 and 20, is in the percentile halfway between these two points, the 15th percentile.

be in the 85th. Her composite score is high enough, when compared with those of others who have done better than she on one test but whose ability is more uneven, to put her in a percentile higher than her percentiles on the individual tests. And E, who was in the 45th percentile on the first test and in the 95th on the second, has a composite score that places her in the 95th percentile, not the 70th. The composite score of A is in the 15th percentile, not the 35th.

In general, the smaller the spread of an applicant's percentiles on the individual tests—that is, the more consistent her ability, whether high or low—and the farther these consistent percentiles lie from the 50th percentile, the greater the likelihood that her quite high or quite low composite score will place her in a percentile outside the range of her percentiles on the individual tests.

The percentiles of the composite score will furnish over-all evaluations of the applicant's potentialities and probably constitute the best *single* predictor of her success in basic educational programs in nursing. The limitations of single predictors must, however, be remembered. A low score on one test should be given careful consideration even though it is offset by a high score on another test and thus is not reflected in the composite score. As will be discussed later, the percentiles of the composite score will also help a faculty group in determining the extent to which the NLN Pre-Nursing and Guidance Examination is of use in the selection of students for its school.

The percentiles for the individual tests, on the other hand, are keys to information that may not be apparent from an examination of the percentiles of the composite score alone. For example, an applicant might have a fairly high over-all score and yet have demonstrated low ability on the mathematics test. It is important that this be taken into consideration in making any plans for her future.

Evaluation of the NLN Pre-Nursing And Guidance Examination

Why are tests necessary to evaluate an applicant's general intelligence, her ability to read, and her achievement in mathematics and the physical, biological, and social sciences? Cannot this information be more easily obtained from her high school records? And is not a four years' record of achievement more indicative of her real ability than the scores on a single battery of tests? These are logical questions that might well be asked by the faculty of a school of nursing.

In answer, it should be stressed that high school records are important and their use should be continued. The school is, however, interested in learning the extent of the applicant's knowledge in certain areas, whether or not the knowledge was gained in a school course for which a grade was received. The applicant may have learned a good deal from reading, travel, and other extracurricular activities and experiences. Nevertheless, selection tests such as the NLN Pre-Nursing and Guidance Examination should never be considered as a replacement for other methods of evaluation. Rather, they are an additional tool that should be used in conjunction with other methods. Tests do provide assistance in the preadmission evaluation of applicants that cannot be obtained from other sources. It might be well to explore here the values that can be found in such tests and to appraise the extent to which they are found in this examination.

Standardization

Admissions committees in schools of nursing that rely wholly on high school records for the evaluation of their applicants' scholastic ability must, at times, be confused by the variation in standards among different high schools and even among teachers in the same high school. A student in the top third of a very small high school class or a class of rather dull students might well fall into the middle third in a larger class or when grouped among students of higher ability; on the other hand, she might be an outstanding student against any competition. An "A" student whose teacher is generous with "A's" may have demonstrated no more ability than one who is graded "C" by another teacher, or she might be an "A" student under any circumstances. The difficulty in evaluating grades from different high schools indicates the need of a uniform basis for the evaluation of ap-

plicants from a variety of backgrounds. Standardized tests provide a common yardstick.

Another advantage to be derived from the utilization of widely used standardized tests is the opportunity it gives one school of nursing to compare the performance of its applicants with that of applicants to similar schools throughout the country. Knowledge of the relative ability of its student group is of considerable value to the faculty in the development of the school's curriculum. For example, a school that accepts students whose performance on some or all of the tests in the NLN Pre-Nursing and Guidance Examination is below the average performance of applicants to diploma programs throughout the country will want to plan its curriculum accordingly, putting extra emphasis and time on learning experiences that are considered essential for the registered nurse in first-level positions. On the other hand, a school whose students rank well above the average for that type of program may find it possible, in addition to such preparation, to devote part of its program to the development of abilities that are of value to a nurse but are not essential for the minimum level of safe practice required for licensure as a registered nurse.

Knowledge of an applicant's relative standing among a large number of other applicants is also of value in student guidance. For example, an applicant of average ability and achievement may not qualify for admission to a school that draws its students from among those in the 80th and higher percentiles, but it is highly probable that she will be successful in another program. If this is properly interpreted to her, with emphasis on the fact that her performance on the NLN Pre-Nursing and Guidance Examination was better than that of half the people who took the tests, she may be influenced to pursue her ambition to become a nurse and seek admission to a program geared to her abilities and educational needs.

One of the criteria for evaluating a standardized test is the composition of the standardization or normative groups—that is, the groups with which the individual is compared. The members of these groups are usually not the individuals who took the test with her. It is important, however, that at least one of the normative groups consist of persons with characteristics similar to hers.

Obviously, the best normative groups for a pre-nursing selection test are composed of individuals with whom the applicant is competing—that is, others who are applying for admission to basic professional schools of nursing at approximately the same time. It is also important that the individuals in the normative groups be sufficient in number to provide stable results and to be representative of the total groups of such applicants. In choosing a selection test, a faculty will want to examine the groups against which it has been standardized in terms of these requirements.

The normative groups used in the periodic revision of the percentiles on the NLN Pre-Nursing and Guidance Examination consist of all the applicants who took the examination during a single recent year. The groups comprise applicants to schools of professional nursing in virtually every state and the District of Columbia and include men and women, whites and nonwhites, and applicants to large and small schools, schools in public and private institutions, and schools operated under sectarian and nonsectarian auspices.

Reliability

Another important requirement of a good test is that it be reliable. No one would want to weigh a premature baby on a scale that registers from three to five pounds for standard four-pound weights. Similarly, if an applicant scores 50 points on a test, the test user would want to be sure that this score is representative of the applicant's ability and that she would obtain a score of 50 on comparable occasions. In the language of tests, a measurement procedure is reliable to the extent that repeated measurement gives consistent results for the individual—consistent in that her score remains substantially the same when the measurement is repeated or in that her standing in the group shows little change.

The following item is an illustration of the type of test question that would detract from the reliability of a test:

> The leading problem in the United States today is
>
> 1. heart disease.
> 2. mental illness.
> 3. accidents.
> 4. a problem other than those listed in 1-3.

On one day, a person might check answer 1, reasoning that heart disease is the leading cause of death. On another day, she might check answer 2 because mental illness accounts for the greatest number of hospitalized days. On a third day, she might check answer 3 because accidents take such a great toll of young lives. On still another occasion, she might note that the "leading problem" was not specified as a health problem and might check answer 4, believing that "threat of war" or "diminishing appreciation of spiritual values" or some other problem is the leading one in this country.

There are, of course, many factors other than the wording of questions that affect a test's reliability, such as the number of questions it contains, the motivation of the person taking it, the length of time given for answering the questions, and other conditions under which it is administered. In fact, it is questionable whether any test could be completely reliable. Nonethe-

less, in selecting the test to be used in the preadmission guidance of applicants, it is important that the faculty members of a school assure themselves that it is reliable to a considerable degree by checking on its estimated reliability as indicated in published descriptions of it. Also, the faculty will want to make certain that the reliability was estimated on the basis of test results of a large and representative sample of applicants to schools of nursing.

The measure used to indicate the extent of reliability is called the coefficient of reliability. It can vary from 0.00 (totally unreliable) to 1.00 (completely reliable). The statistics in Table 2 are based on the performance of 29,619 applicants to 562 diploma programs, 1,445 applicants to 31 baccalaureate degree programs, and 31,237 applicants to all types of basic professional nursing programs (including associate degree programs) who took the NLN Pre-Nursing and Guidance Examination in 1962. Current data on the reliability of the tests in the NLN Pre-Nursing and Guidance Examination can be obtained on request from the NLN Evaluation Service.[3]

TABLE 2.

MEAN RAW SCORES, STANDARD DEVIATIONS, AND RELIABILITY COEFFICIENTS PERTAINING TO 1962 EXAMINEES, BY TYPE OF PROGRAM

TEST	STATISTICS								
	Mean			S.D.			KR_{21}		
	Diploma	Degree	All	Diploma	Degree	All	Diploma	Degree	All
Academic Aptitude—Quantitative	31.9	32.4	31.9	8.2	10.0	8.3	.85	.90	.85
Academic Aptitude—Verbal	30.2	33.4	30.4	9.7	12.5	9.9	.86	.92	.86
Reading Speed	22.6	24.8	22.7	9.3	11.5	9.5	.85	.91	.86
Reading Level	15.7	17.0	15.8	5.6	6.8	5.7	.79	.87	.79
Mathematics	39.0	39.6	39.0	8.9	10.7	9.1	.88	.93	.88
Natural Science	34.0	35.8	34.1	7.9	10.3	8.1	.78	.88	.79
Social Studies	40.9	42.9	40.9	9.5	12.4	9.7	.84	.91	.84

Validity

The most important criterion of a test, and hence one that faculties of schools of nursing will wish to check on very carefully before making their choice from among available selection tests, is its validity. The validity of a test or a battery of tests may be defined roughly as the extent to which it measures what it is supposed to measure. In other words, when we calculate

[3] The method used by NLN for calculating the coefficients of reliability for the individual tests is the Kuder-Richardson Formula 21. A description of this method may be found in G. F. Kuder and M. W. Richardson, "The Theory of the Estimation of Test Reliability," *Psychometrika* 2 (1937): 151-160; also in M. W. Richardson and G. F. Kuder, "The Calculation of Test Reliability Coefficients Based upon the Method of Rational Equivalence," *Journal of Educational Psychology* 30 (1939): 681-687.

the validity of a test, we are really asking, "How useful is this test for the purpose to which we are putting it? How well does it work?"

In the case of an examination used in the selection of students for schools of nursing, one measure of its validity is the degree to which it predicts whether or not these applicants will be successful in completing the program of the school and in passing the licensure examination. The crucial question—how successful the applicants will be in their future careers—cannot be answered with the data available at present.

In evaluating a specific selection test, a faculty will eventually want to ask itself, "How does this test function in our own situation?" This question cannot be answered until the faculty has used the test for a period of time. Before using a test for even a trial period, however, the faculty will want to know the answers to these questions: "How does this test function for all groups using it? Have other schools similar to ours found that it is useful in predicting which of their applicants are most likely to graduate and pass the licensure examination?" It is extremely important that this second kind of validity be calculated on a representative sample—in this instance, a sample of students admitted to schools of nursing. A study of the validity, or effectiveness, of the NLN Pre-Nursing and Guidance Examination was initiated in 1961. This study involves 12,552 students who entered 314 schools of professional nursing in 45 jurisdictions in the four NLN regions in 1960. The students were distributed among accredited and nonaccredited diploma, baccalaureate degree, and associate degree programs.

The following is a summary of the 1961-64 findings of the study:[4]

1. Average scores of entrants exceeded average scores of applicants in every part of the examination.
2. Average scores of nonacademic dropouts did not differ from average scores of students who remained in the programs.
3. Average scores of students who remained in the programs consistently exceeded average scores of academic dropouts.
4. The higher the classroom rating in terms of top, middle, or bottom third of the class, the higher the average test score in every part of the examination.
5. The higher the clinical rating, the higher the average test score in every part of the examination.
6. Average scores of entrants to accredited programs generally exceeded average scores of entrants to nonaccredited programs.

[4] Mimeographed annual reports of the study are available free on request from the NLN Evaluation Service.

7. Average scores of entrants to baccalaureate degree programs generally exceeded average scores of entrants to diploma and associate degree programs.
8. Average scores of successful students in associate degree programs exceeded those of successful students in diploma programs in verbal areas; diploma students exceeded associate degree students in numerical areas.

While these findings give evidence of the usefulness of this examination as one tool in the selection of students for admission to schools of professional nursing, final statistics will not be available until the scores on the NLN Pre-Nursing and Guidance Examination have been related to scores on the NLN Achievement Tests and the State Board Test Pool Examination for professional nurse licensure.

In addition to knowledge concerning the validity of an entire test battery, it is useful to have information about the relative effectiveness of each test in the battery. Does every test contribute to the prediction of success in becoming a nurse, or can one or more of them be discarded as being of little use in such prediction? Which tests have the greatest value as predictors and should therefore be given the greatest weight in the evaluation of the nursing school applicant? These are some of the questions that should be answered when a measurement procedure consists of more than one test.

The scores of entering nursing students on each of the tests in the NLN Pre-Nursing and Guidance Examination are therefore related to the success of these students in completing nursing school and becoming licensed. These relationships reveal that each test in the battery makes some contribution to the prediction of the success of these students. The extent of the contributions of the individual tests varies considerably, and this variation is taken into consideration in determining the composite score referred to earlier.

Validation by School Faculties

Before selecting a test, the faculty of a school will want to examine it in terms of its normative group, its estimated reliability, and its validity as a selection tool for applicants to similar educational programs. *After* using the test for a while, the faculty will want to find out how useful the test has been in its own selection process.

In evaluating the usefulness of a test or a battery of tests in their own situations, some faculties will have the resources for quite comprehensive validity studies involving correlations between results of selection tests and achievement in the educational program in nursing. Others will not be able to make such technical studies, but all faculties can prepare tables

Table 3

Hypothetical Data Illustrating the Relationship Between the Composite Scores on the NLN Pre-Nursing and Guidance Examination Made by 100 Students Admitted to School X and the Success of These Students on the Licensing Examination

Percentile of Composite Score	Number of Admissions	Number of Withdrawals for Reasons Other than Academic Failure	Net Admissions	Students Graduated			Students Licensed		
				Number	Percent of Admissions	Percent of Net Admissions	Number	Percent of Admissions	Percent of Net Admissions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
90-100	10	4	6	6	60	100	6	60	100
70-89	20	1	19	18	90	95	17	85	89
30-69	50	7	43	36	72	84	33	66	77
10-29	15	3	12	9	60	75	6	40	50
0-9	5	1	4	1	20	25	1	20	25
Total	100	16	84	70	70	83	63	63	75

similar to Table 3. Here are some suggestions as to how you might make such tables for your school. Although the composite score is used for illustration in Table 3, the same procedure may be followed for each individual test score or for any other scores you might wish to analyze.

Percentile Spans (Column 1).—First, you will want to decide on the grouping of your students in such a way that each group will be fairly homogeneous with respect to the abilities measured by the examination. As has been pointed out in the discussion of percentiles, equal differences between percentile scores do not indicate equal differences in abilities. The percentile spans in Table 4 include approximately equal ranges of abilities. You may wish to use the same grouping or one similar to it.

Admissions (Column 2).—Next, you will want to decide on the total number of students you are to study. In general, it is inadvisable to select too small a group; consequently, if your admissions for a single year are less than 75 or 80, it might be well for you to use the admissions figures for two or more years. Let us suppose that during the years 1964 and 1965 you used a given selection test and, on the basis of it and other selection criteria, admitted 100 students. This might be a good group against which to evaluate the effectiveness of the selection test in your school. The next step for you to take, therefore, is to tabulate opposite each percentile span the number of admitted students whose precentiles for the test score being analyzed came within that span.

Withdrawals and Net Admissions (Columns 3 and 4).—In making your validity study, it is reasonable to eliminate those students who withdrew for such reasons as marriage or poor health (because a paper-and-pencil test could not be expected to identify them) and to compute results on the basis of the other students, or "net admissions," as we are calling them here. Column 4 is therefore calculated by subtracting the number of students who have withdrawn for reasons other than academic failure (column 3) from the number of admissions (column 2).

Graduations (Columns 5, 6, and 7).—To enter your graduations figures, you will of course have to wait until the classes admitted in 1964 and 1965 have been graduated. It is very important that all figures in your table refer to the same group of students. When these figures are available, you will want to find what percentage of the admitted students in each percentile group completed the program (column 6) and also what percentage of the "net admissions" were graduated (column 7). In terms of the figures in columns 2, 4, and 5 in Table 3, these figures would be calculated as follows:

Percentile of Composite Score	Column 6 Percent of Admissions for Each Percentile Group *(Col. 5 ÷ Col. 2)*	Column 7 Percent of Net Admissions for Each Percentile Group *(Col. 5 ÷ Col. 4)*
90-100	6 ÷ 10 = 60%	6 ÷ 6 = 100%
70-89	18 ÷ 20 = 90%	18 ÷ 19 = 95%
30-69	36 ÷ 50 = 72%	36 ÷ 43 = 84%
10-29	9 ÷ 15 = 60%	9 ÷ 12 = 75%
0-9	1 ÷ 5 = 20%	1 ÷ 4 = 25%
Total	70 ÷ 100 = 70%	70 ÷ 84 = 83%

Graduates Who Became Licensed (Columns 8, 9, and 10).—After you have received the results of the licensure examinations for students admitted in 1964 and 1965, you can enter the figures in column 8. These can then be divided by the figures in column 2 to give the percentage of all students in each percentile group who became licensed (column 9). When the figures in column 8 are divided by those in column 4, you will know, for each percentile group, the percentage of "net admissions" who passed the licensure examination (column 10).

Column 10, then, is the "acid test" of the effectiveness of the selection test in your school. If the results are somewhat like those shown in Table 3—that is, if the percentage of those in the upper percentile spans who became licensed is higher than the percentage of those in the lower percentile groups—the selection test is a useful one for your purposes.

Or perhaps your column 10 will look something like column A or column B in the following tabulation.

Percentile of Composite Score	Percent of Net Admissions Who Became Licensed (A)	(B)
90-100	90	—
70-89	85	75
30-69	87	78
10-29	—	68
0-9	—	—

Results similar to those shown in either of these columns would indicate that through good selection techniques, you selected your students from among applicants who were fairly homogeneous as regards ability. Furthermore, you identified those who needed additional help and gave them this help so that they could compete equally with their classmates. In other words, your selection tools were put to such good use that all your students had about an equal chance of the success you envisioned for them when you admitted them into your school.

On the other hand, your column 10 may resemble column C in this table:

Percentile of Composite Score	Percent of Net Admissions Who Became Licensed (C)
90-100	60
70-89	65
30-69	55
10-29	60
0-9	50

If so, the applicants you admitted represent the entire range of performance on the selection test. Yet, those in the lower percentiles were about as successful as those in the higher ones. Such a result would indicate that the selection test was not suited to your needs or that it was not properly used.

Limitations of Tests

Even if your evaluation of your selection test results in a table similar to Table 3,[5] it is obvious that it is not infallible as a predictor. For example, whereas 24 of the 80 students in the 30th percentile or above failed to achieve licensure, 7 students whose composite scores were below the 30th percentile became licensed nurses. Had the test battery predicted perfectly, every student above a certain percentile would have become licensed and everyone below that score would have been unsuccessful.

The answer is, of course, that no selection test is an absolutely accurate predictor. Since much of the success obtained in using tests depends upon a knowledge of their limitations, the following limitations should be borne in mind by admissions committees in schools of nursing.

First, some tests, particularly tests of general ability such as the one in the NLN Pre-Nursing and Guidance Examination, are designed to measure ability or capacity to succeed. They tell nothing about willingness to apply this ability; that is, they indicate in general the extent to which an applicant *can* master work but do not give assurance that she *will* master it. Thus, a lazy and uninterested student who scores high on a test may be less successful in completing the program than an alert and industrious student who receives a lower score.

Other tests, particularly achievement tests such as the mathematics, natural science, and social studies tests in the NLN Pre-Nursing and Guidance Examination, are dependent to a certain extent on the knowledge of the subject that the student has previously acquired. An applicant with a bent for science might, because of deficiencies in her preparation, achieve

[5] Table 3, it will be noted, consists of hypothetical data. The conclusions drawn from these data, including those relating to a cut-off point, are not recommendations to any actual program.

a lower score than a less able student who has had considerable background in this area.

Even as measures of ability or achievement, tests are not completely accurate. Some errors may be introduced by the person taking the test. For example, if she is tired, ill, or extremely nervous, the test results may not be a true indication of her ability. Again, the applicant who has limited experience with objective tests may earn lower scores than one who has no more ability but is "test-wise." Other errors may result from the fact that a test cannot cover every bit of knowledge in a field but can only sample this knowledge, and it is possible that the questions on a test may be more favorable to certain applicants than to others.

Finally, tests such as those in the NLN Pre-Nursing and Guidance Examination limit their measurement to scholastic ability and achievement and can only be expected to predict whether an applicant can acquire the knowledge and develop the powers of reasoning and judgment essential for practice as a registered nurse. Users of these tests must bear in mind that the other prerequisites for preparation as a nurse—good health, interest in nursing, desire to be of service to society, certain personality characteristics —are not measurable by the tests in the NLN Pre-Nursing and Guidance Examination.

Using the NLN Pre-Nursing and Guidance Test Service

The value of any tool, whether it be a pair of scissors or a selection test, depends not only on its potential usefulness but also on the skill with which it is used. The mere collection of the test scores made by the applicants to a school of nursing will in no way improve the educational program of the school. To be effective, scores must be used, and used properly. A full understanding of the values and the limitations of the NLN Pre-Nursing and Guidance Examination in terms of its own educational program will help an admissions committee in a school of nursing to steer a course between overuse of this selection tool (whereby the test results are used as the sole and inflexible criterion for admission to the school) and underuse of it (whereby the reports of results are not applied at all or are ignored so frequently that they actually play little part in the selection process).

Establishing Standards for Admission

The first step in the proper use of the NLN Pre-Nursing and Guidance Examination is the determination, by the faculty of a school, of a range of scores for each test in the examination that will serve as tentative standards for admission to that particular school. There is no single set of limits that is recommended for all schools. The range will be established by each school in terms of the abilities students will need to complete its program as indicated by the relationship between the scores of previous students on the NLN Pre-Nursing and Guidance Examination and their success in the program. Since the programs of different schools vary, the abilities needed by their students, and therefore their admission standards, will be different.

Consider, as an example, School X, whose students are for the most part graduates from several nearby high schools. These high schools offer fairly good preparation in most subjects; students who come from them seem to have little difficulty in reading and mathematical computation, and they have a foundation in social studies that is adequate for their continued work in School X. Their achievement in the physical and biological sciences, however, seems to be low, and investigation of the curriculums of the high schools shows them to be deficient in these courses. Accordingly, School X has emphasized the physical and biological sciences in its curriculum; it has allotted more time to them than might otherwise be the case,

and their application is stressed in clinical teaching. In establishing the lower limit of its admissions range for the natural science test, therefore, School X decides that it can help students at the 20th percentile or above to complete its program and become licensed. It requires higher percentiles for the reading and mathematics tests, since its program is developed on the assumption that its students will have a fairly good foundation in these areas.

School Y, on the other hand, has no such extra provision for instruction in the physical and biological sciences but assumes that its students have an adequate foundation on which it can continue building. It decides that its lower limit on the natural science test should be the 40th percentile. Students who do not meet this requirement but who otherwise seem to be well qualified to undertake a program in professional nursing are referred to a school such as School X whose program is geared to giving them the extra help they need.

In setting the lower limits of standards for admission, faculties in schools of nursing will want to take into consideration the standards established for other students with whom the nursing students may be sharing learning experiences. It would be obviously unfair to a student in nursing whose performance on the natural science test gave a score at the 31st percentile for diploma program applicants if she were expected to "keep up" with a science class of collegiate students whose performance on the same test extended upwards from a score at the 68th percentile for degree program applicants and at the 78th percentile for general college freshmen. Faculties that arrange for their students to share classes with college students in general education will therefore want to be sure that the abilities of the two groups, insofar as they have been measured by the same selection tests, are fairly equal.

Students whose records indicate that they are not qualified for admission to schools of professional nursing should, if possible, be guided into other health careers better suited to their abilities. It has been shown, for example, that even students in the bottom 10 percent of applicants to schools of professional nursing may be successful in practical nursing programs.[6]

The desirability of setting upper limits for admission to a school should also be considered by the faculty. For example, a school that gears its instruction to students whose composite scores rank as low as the 20th percentile probably finds it difficult to offer appropriate instruction to students whose scores are above the 80th percentile. These superior students

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[6] *A Study of the NLN Pre-Nursing and Guidance Examination in Schools of Practical Nursing.* 1964. Mimeographed report available free on request from NLN Evaluation Service.

might not find enough of a challenge and might withdraw for such reasons as "dislike of nursing." The stimulation that they might be expected to provide to their classmates may not materialize because they themselves are not stimulated by the program. Too often, loss of interest rather than lack of ability leads to low grades; and boredom in a slow-paced program, to the development of "personality problems."

One way of handling this problem would be to provide separate instruction in anatomy, physiology, chemistry, and so on for the two groups of students, but this is usually difficult to arrange, particularly in well-integrated curriculums where the instruction in one area is predicated on the level of achievement in another. By and large, it is probably more feasible for schools to set ceilings on their admission standards, so that their students will be more or less homogeneous as regards ability. The range need not be too narrow, particularly in schools that select their students from among the middle ranges of the percentile distribution.

One approach to the establishment of a ceiling score might be through a school's evaluation of its selection techniques. An illustration might be the school whose evaluation of the selection test results in a table that resembles Table 3. Although none of the 90-100 percentile group failed in their schoolwork, their record with regard to completing the program and becoming licensed was not as good as that of students of average ability. Did the four superior students who withdrew for reasons other than academic failure do so because of "dislike of nursing" or with some excuse that seemed to be a camouflage for dissatisfaction and boredom? If so, the faculty of the school will want to examine its resources for educating such nonhomogeneous groups as those in the highest and lowest deciles. This faculty might well decide to limit the school's admissions range to the group to whose ability the program is apparently best geared and for whom the investment of time, money, and effort is most productive—in this instance, the group between the 29th and 90th percentiles. Applicants scoring outside this range in either direction could be guided into other careers or other programs in nursing.

The determination of admission standards is obviously the responsibility of the total instructional personnel of the school, including those in cooperating institutions who are responsible for guiding student learning experiences. For example, suppose that arrangements have been made by a school of nursing for its students to receive instruction in chemistry at a nearby junior college. In order for this part of the program to be as effective as possible, the chemistry instructor at the junior college, although not strictly speaking a member of the faculty of the school of nursing, is an essential participant in establishing the range of scores on the natural science test.

Also, the evaluation of the admission standards is a continuing responsibility of the total instructional personnel, for it would be folly to assume that once decided upon, these standards will be suitable for all time. For example, let us suppose that the faculty of School X, in its periodic evaluation of its selection tools, finds that out of a class of 50 students admitted during one year, 17 had scores below the 30th percentile on the natural science test. Of these 17, 9 either withdrew from school because of failure in classwork or failed the licensing examination. On the basis of these findings, the faculty of School X might decide that the admission standards for the natural science test should be raised to the 30th percentile, thus eliminating from admission students who have less than a 50 percent chance of succeeding. On the other hand, it may decide that the 8 students who succeeded justify the present admissions policy; in this case, it will probably want to strengthen further its offerings in the physical and biological sciences, so that students scoring below the 30th percentile on the selection test will have a better chance of success in the program. Thus, the periodic evaluation of selection tools is a necessary concomitant to the maintenance of workable admission standards and to the development of a curriculum suited to the student's needs.

Evaluation of Applicants

Although the determination of admission standards is the function of the faculty of a school as a whole, their application is usually assigned to a committee of the faculty. The members of this committee, in most schools called the admissions committee, are chosen from among those members of the faculty who have a broad overview of the program as a whole and whose counseling abilities have been well developed. A school of nursing that has made arrangements for its students to receive instruction in a junior or senior college may find that the appointment of a college representative to its admissions committee creates a useful channel for communication.

It is the responsibility of the admissions committee to evaluate, with each applicant for admission to the school, the applicant's potentialities for nursing and to decide whether or not the school's program is suited to the applicant's educational needs and her career ambitions. In addition to the applicant's performance on the selection test, the admissions committee will take into account all available relevant information that has been obtained from a variety of sources, including the applicant's high school record, her references, her physical examination, and her behavior during the personal interview. The importance of these other methods of appraisal should not be overlooked; they are essential guides upon which an admissions committee can depend for assessing such important charac-

teristics as health, emotional stability, maturity, interests, and motivation for nursing.

Even in assessing the scholastic ability of the applicant, it is helpful to utilize the test results in conjunction with other information. A good interpretation of test scores can be made only in relation to the applicant's educational background, cultural environment, and intellectual ability, and admissions requirements should be flexible enough to permit recognition of the deviations in scores caused by these factors. Here again, another illustration might be drawn from the experience of School X, the school that has supplemented the instruction it offers in the physical and biological sciences so that it can accept students with a below-average high school background in these subjects. Among its applicants there may be some who have graduated from high schools that offer adequate courses in biology, chemistry, physics, and general science or some who have had some college education that included such courses. The performance of these applicants on the natural science test should not be evaluated against the same standards as those used for the relatively unprepared applicants. The failure of a member of the former group to obtain a good score might be attributed more to lack of ability than to lack of opportunity.

Thus, although the faculty as a whole will indicate, in terms of percentiles on the selection tests, the general range of abilities of the students for whom the educational program is designed, it will want to give the admissions committee considerable leeway in interpreting these standards. The admissions committee, in turn, will not wish to be too rigid in its interpretation of test scores but will recognize that deviations of a few percentiles from the established limits are at times acceptable, since no test measures ability with complete accuracy.

Using as an illustration the test report that appears on page 8 of this pamphlet, we find that our applicant achieved a total score on the Academic Aptitude Test that placed her in the top one-fifth of applicants to diploma programs (80th percentile). When she is compared with applicants to baccalaureate degree programs, she is in the top two-fifths (63rd percentile), which places her above the average in this applicant group, also, but not as far above the average as in the diploma group. We can look at each of the test scores in this way.

Another way of looking at the report is in terms of the norms for a single type of program. The scores are all in the top quarter of those of applicants to diploma programs, and the diploma program would be likely to consider the report from this aspect. The baccalaureate degree program would note that the scores are in the upper half to the upper third of those of applicants to baccalaureate programs, the lowest being the score on the Verbal Subtest.

Another point to be noted in this report is that there is little difference between the applicant's score on the Quantitative section of the Academic Apitude Test and her score on the Mathematics Test. Such is often but not always the case. Where the Mathematics score is found to be higher than the Quantitative score, it is usually because the applicant is able to perform the arithmetic functions when she is told exactly what functions to perform but has some trouble when arithmetic problems are presented in verbal form and she must deduce the appropriate functions herself. Because the nurse must make use of mathematical skills in her education and in her nursing practice, it is important that she have both the ability to perform the arithmetic functions and the ability to translate verbally presented problems into arithmetic problems.

To consider another situation, suppose that an applicant has demonstrated a high level of general ability and mathematics achievement but has earned low reading scores and science and social studies scores that appear to be inconsistent with her previous grades. Because a portion of both the Natural Science Test and the Social Studies Test is based on interpretation of reading matter in the field, a low level of reading ability could pull down scores on these tests. If such is the case, the school might wish to base its decision on other evidence at hand, or it might wish to recommend remedial reading in order to help the student make better use of her ability.

In some situations, the school of nursing might find that an otherwise acceptable applicant cannot be accepted because of some overriding physical handicap that would impair her ability to work as a nurse. In the interview with such an applicant, it would be appropriate to review her performance on the entrance examination as compared with that of general college freshmen in order to help her to identify another educational outlet that might be suitable for her level of ability while still utilizing her interests. If, for example, she compares favorably with college freshmen in terms of ability, she might find an outlet in social work, which would utilize her interest in helping people.

The test record should be carefully compared with the results of other tests reported by the high school and with high school grades. Has the applicant tended to improve her academic performance throughout her high school years, or have her grades declined year by year? Were her best grades in academic subjects, such as science, mathematics, and English, or were they in speech, cooking, sewing, and physical education? If she achieved a low score on the science test, was it because she had not taken the usual courses in the sciences?

If there appear to be discrepancies between selection test results and other records, the applicant herself should be the first to be questioned,

as she can often shed light on the cause of the discrepancies. Was there something wrong on the day she took the tests? If there was, would it be desirable to have her retake the tests or take some other tests? Did she think she had done better than she did? If so, you might wish to ask that her tests be rescored to see if an error could have been made. Despite all precautions taken by test services, mechanical errors and sometimes human errors do occur. Or perhaps the applicant lost her place during the test and put her answers in the wrong spot. The testing service can often help to identify this type of situation if it is brought to its attention.

It is not possible in a pamphlet of this size to consider the many possible questions that might arise in the use of the NLN Pre-Nursing and Guidance Examination or selection tests in general. When schools of nursing encounter special problems of test interpretation, they may find it helpful to direct their questions to the NLN Evaluation Service, from which advice on interpretation can be obtained.

Retesting

The admissions committee may sometimes be confronted with requests for retesting from applicants who have failed to meet the admission standards. There is no blanket rule that can be recommended for the handling of such requests; each should be considered in the light of such factors as the interval of time that has elapsed since the test was first taken and the reason the applicant feels she could do better on a second testing.

Emotional stress during the initial testing, which is frequently offered as justification for a second testing, does not affect test scores as much as might be expected. Illness at the time of initial testing may or may not influence test performance; if test results appear markedly inconsistent with other indicators and the applicant is known to have been ill, retesting or testing with another battery would be indicated.

If an applicant has adequate general ability and achievement but has deficiencies in either reading or mathematics or both, retesting would be justifiable and highly desirable after a remedial course in the deficient areas. If, on the other hand, an applicant who has earned low test scores enrolled in a course that coaches students for entrance examinations, retesting would *not* be warranted. The difference in the two situations lies in the fact that in the former, effort has been made to strengthen a weak background; the applicant has had an opportunity to learn skills she will need in the life ahead of her. In the latter situation, no effort has been made to improve the deficiencies in background that cause the applicant to do poorly on the test; she has been coached for the test alone.

In considering the advisability of retesting, it is also important to bear in mind that the test standards are based on the results of initial performance and that it is therefore difficult to interpret the results if an applicant can profit directly from an earlier testing. A study was made of the test results of 52 applicants who took the NLN Pre-Nursing and Guidance Examination twice within six months. The results of the second testing were higher than those of the first in 76 percent of the scores. The second scores were the same as or lower than the first in 24 percent. Perhaps the improvement occurred because the first testing actually had not given a true picture of the applicant, or because of learning in the interim, or because the situation was now familiar. One cannot be certain of the reason. One can, however, keep in mind that tests are subject to error of measurement. Even if there were no change in the applicant herself, repeated administrations of a test would give different scores, some higher and others lower than the first. The passage of time, added familiarity with the test, and the intervening experience of the applicant would lead to the expectation that a majority of scores would increase on a retesting, that only a minority would show no change or a decrease.

If, however, as much as a year or more has elapsed since the applicant first took the test, the score on a retest can be interpreted as an initial score. Whether or not there is improvement on a delayed retest of this sort will probably depend upon intervening experience.

Guidance of Applicants

It is desirable that any decision concerning the admission or non-admission of an applicant to a school be a joint one, arrived at by both the applicant and the committee on admissions. Whenever possible, there should be a face-to-face interview between the applicant and a member of the admissions committee, during which the applicant's abilities and achievements are reviewed in terms of the school's program.

The conduct of such an interview requires considerable skill in guidance techniques. If a faculty group does not include a person with sufficient background in counseling to help the admissions committee in this procedure, the assistance of a psychologist or educator skilled in educational counseling might well be sought.

The review of the applicant's abilities may include an interpretation of the results of the NLN Pre-Nursing and Guidance Examination, but if this is done, care must be taken to use concepts and terms that are understandable to the applicant. It would be unfortunate, for example, if an applicant in the 60th percentile were to construe her score as 60 percent. Instead of realizing that she has shown better than average performance on the

test, she might think she has failed or nearly failed it. For this reason, her relative standing among the large group taking the test (the normative group), as well as among the group being admitted to the school to which she is applying, might well be discussed in terms of "top third" or "middle third" rather than in terms of percentiles.

To the applicant who becomes a student in the school, this initial experience in self-evaluation as a nursing student will be extremely valuable. She will begin her program with some knowledge of her strengths and weaknesses and hence will have some indication as to where extra effort is required for her to keep abreast of her classmates and as to what abilities she can develop to an above-average level. She will have a good base from which to gauge her progress in school and even, perhaps, some clue as to the field of nursing in which her future will lie.

To the applicant whose abilities are not in line with the school's program, this evaluation can also be a constructive experience. She should not leave the interview with the feeling that she has "not made the grade"; rather, she can be helped to realize that some other educational program in nursing or some career besides nursing will be a better road for her to travel toward maximum fulfillment. The admissions committee that can instill this belief in an applicant despite the fact that it has not admitted her to its school will have retained for nursing her potential contribution to it. Even though she has learned in this evaluation process that she is not suited for a career in nursing, she will retain a friendly feeling toward nursing—a sound foundation for the understanding of nursing that is so highly desirable for all citizens.

In view, however, of the varying degrees of abilities that can be developed for the wide range of nursing practice, a great many of the young people who are interested in a career in nursing should be able to find their niche in it. The member of the admissions committee who interviews the applicant can help her find the educational program that prepares for this niche. As has been pointed out before, School Y, which makes no special provision for students with below-average backgrounds in the physical and biological sciences, might well suggest to an applicant with such a "deficiency" that she apply for admission to School X, which does make such provision. Such action is far more desirable than for School Y to turn the applicant away with the feeling that she is totally unfit for nursing or to accept the applicant only to have her fail later because of her inadequate background. This suggestion to the applicant in no way implies that School X is better than, or not as good as, School Y. It merely indicates that in the opinion of School Y, School X is better suited to the applicant's educational needs and abilities. It is essential that the applicant understand this clearly. The same point should be emphasized

when applicants to basic professional schools are referred to programs in practical nursing, or when applicants whose superior scores indicate that they are good material for leadership positions are referred to basic schools where they can most rapidly lay the foundations for graduate study. In other words, it is very important for all those participating in the pre-nursing guidance procedure—admissions committees as well as applicants—to understand that two schools may be of equal excellence insofar as over-all educational standards are concerned but that one may be far better than the other for educating a particular student.

Any extra effort a school makes in guiding an applicant of superior ability to the program best suited to her rapid development will benefit the whole profession of nursing and thus the public, to whose service the profession is dedicated. It is not inconceivable that the school itself will be the direct beneficiary of this course of action. This applicant may be the young woman who six years from now will return to the school as a much-needed instructor, or to the hospital connected with the school as a head nurse or supervisor. Any assistance that can be given to her at the initial stage of her career—for example, help in securing a scholarship for the program best suited to her potentialities—should prove to be a good investment.

Postadmission Guidance of Students

The wealth of information about an applicant that is collected by the admissions committee has not outlived its usefulness when the applicant becomes a student. Rather, it can be made to serve as the first step in the program of student guidance by which the student is helped to overcome any shortcomings in her previous preparation and to develop any of her special interests or abilities.

As the most important participant in this guidance program, the student herself should be aware of these strengths and weaknesses in her mental and emotional equipment and their implications in terms of the program she is undertaking. If, as an applicant for admission, she has not already had an interpretation of her record in terms of the school's program, an interview with the school's guidance counselor or some other appropriate member of the faculty should be arranged for her shortly after her admission. As in the case of interviews with applicants, it is especially important to interpret test results carefully, lest percentile scores be confused with percentage scores.

Similarly, all relevant information about the student should be made available to her instructors. There is little point in the discovery by the admissions committee that a student requires extra help in some area of the curriculum if those who are in a position to give her this help are not

made aware of her needs. The same might be said for any clues to special interests or abilities. Knowledge of a student's interest in children, as evidenced by her work in the Sunday school kindergarten or her selection of baby-sitting as a way of earning pin money, will assist the instructor in pediatric nursing to single her out for extra help in developing this interest. If an instructor is not prepared to utilize information about the student to the greatest advantage, she should be given assistance in the meaning and proper use of such data.

To both student and instructor, the results of the preadmission evaluation can be an important point of reference throughout the entire program—a base from which achievement can be measured and progress gauged. When progress seems slow, these results can be a spur to try again. There is no better antidote for the thought of "How far I have to go!" than the realization of "How far I have already come!"

Securing the Cooperation of Others

The admissions policies of a school of nursing, as has been pointed out, have so many ramifications for the entire program of the school that they should be clearly understood by all those connected with it, including the board of control, the faculty, the personnel in other institutions and agencies used for the students' learning experiences, and the students themselves. In addition, there are other groups that are not so directly connected with the school but whose functions are nonetheless associated with the admission of students to the school.

Committees on careers in nursing, in the process of interesting young men and women in entering *some* school of nursing, can be valuable adjuncts to admissions committee in helping to guide prospective students to *the* schools of nursing most suited to their abilities and ambitions. Through them, high school and college counselors can be given information about the differences in the educational programs offered by the schools of nursing in their vicinity and, consequently, the differences in the admissions policies of these schools; these counselors can then help a prospective student in nursing to find the "right" program immediately. For their contributions to bear maximum results, it is important that all those associated with the broad program of guiding young people toward preparation for nursing have an understanding of the various aspects of this program. Schools of nursing and nursing organizations will, in most instances, assume primary responsibility for this orientation.

Interchange of information among schools of nursing is also necessary if applicants are to be referred from one school to another. It is obvious that such interchange should involve all types of preservice educational programs in nursing—practical nursing, diploma, associate degree, and baccalaureate degree programs. High schools might also be involved in any exchange of information designed to see that applicants are guided to the programs most suited to them. As a step toward this, NLN will provide a second copy of the test results to any school of nursing that wishes to share them with the guidance counselors in the high schools from which its applicants come. Annual meetings of the admissions committees of all schools of nursing in a vicinity, at which each school's selection policies are interpreted, might aid in the development of a cooperative preadmission guidance program for nursing of benefit to all.

The Evaluation Service of the National League for Nursing, which is itself a cooperative project of schools of nursing, wishes to help in the development of such a guidance program in any way it can. Suggestions are solicited from schools of nursing and their admissions committees as to how this service can be improved or expanded.

A Word in Closing

That the process of selecting students for schools of nursing can develop into a program of preadmission guidance will undoubtedly be challenged as visionary and utopian. In particular, it may be questioned whether the admissions committee of a faculty concerned with recruiting students for its own educational program will be willing to refer applicants to other institutions.

Such skepticism overlooks the history of nursing education. Over the years, the development of schools of nursing of all kinds has been a cooperative endeavor. The recruitment of students, the improvement of curriculums, and the development of national tests are a few of the many undertakings in which schools of nursing have joined forces.

This community of approach by the schools has been made necessary by the magnitude of their common purpose—the preparation of personnel to give the kind and amount of nursing care needed by the people of this country. The nurse educator realizes that "my school" cannot possibly accomplish this purpose alone; it requires the efforts of "our schools" working together. In fact, "my school" cannot exist by itself, dependent as it is on the graduates of "our schools" to serve on its faculty and to man the nursing services that constitute its laboratory.

From "our schools" and "our students" to "our applicants for admission" is an easy transition. Thus, the guidance of "our applicants" to the schools most suited to their abilities will seem a natural development to nurse educators who have been working together so long for the improvement of education for nursing.

It is to these nurse educators in "our schools" that this manual is directed.

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Developing an Advisory Committee. T.I.E. Series no. 21.

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*ADVISORY COMMITTEES; *TRADE AND INDUSTRIAL EDUCATION; *ADMINISTRATOR GUIDES; *PROGRAM DEVELOPMENT; PROGRAM GUIDES; PROGRAM PLANNING; *SCHOOL INDUSTRY RELATIONSHIP

Only an advisory committee, sensitive to the daily needs of local industry, can provide the effective interchange of information so vital to both school and industry. This committee can (1) assist local schools in organizing their curriculums, (2) advise on procurement of materials, (3) keep school personnel acquainted with the current practices and developments within industry, and (4) coordinate and generally guide training programs so as to keep them appropriate to the current needs of the community's industry. This booklet details suggestions for the organization, function, and operation of an advisory committee on trade and industrial education. The major topics are: (1) Purpose of Advisory Committees, (2) Functions of Advisory Committees, (3) How Advisory Committees are Organized, (4) Organizational Chart, and (5) Establishing the Committee. (HC)

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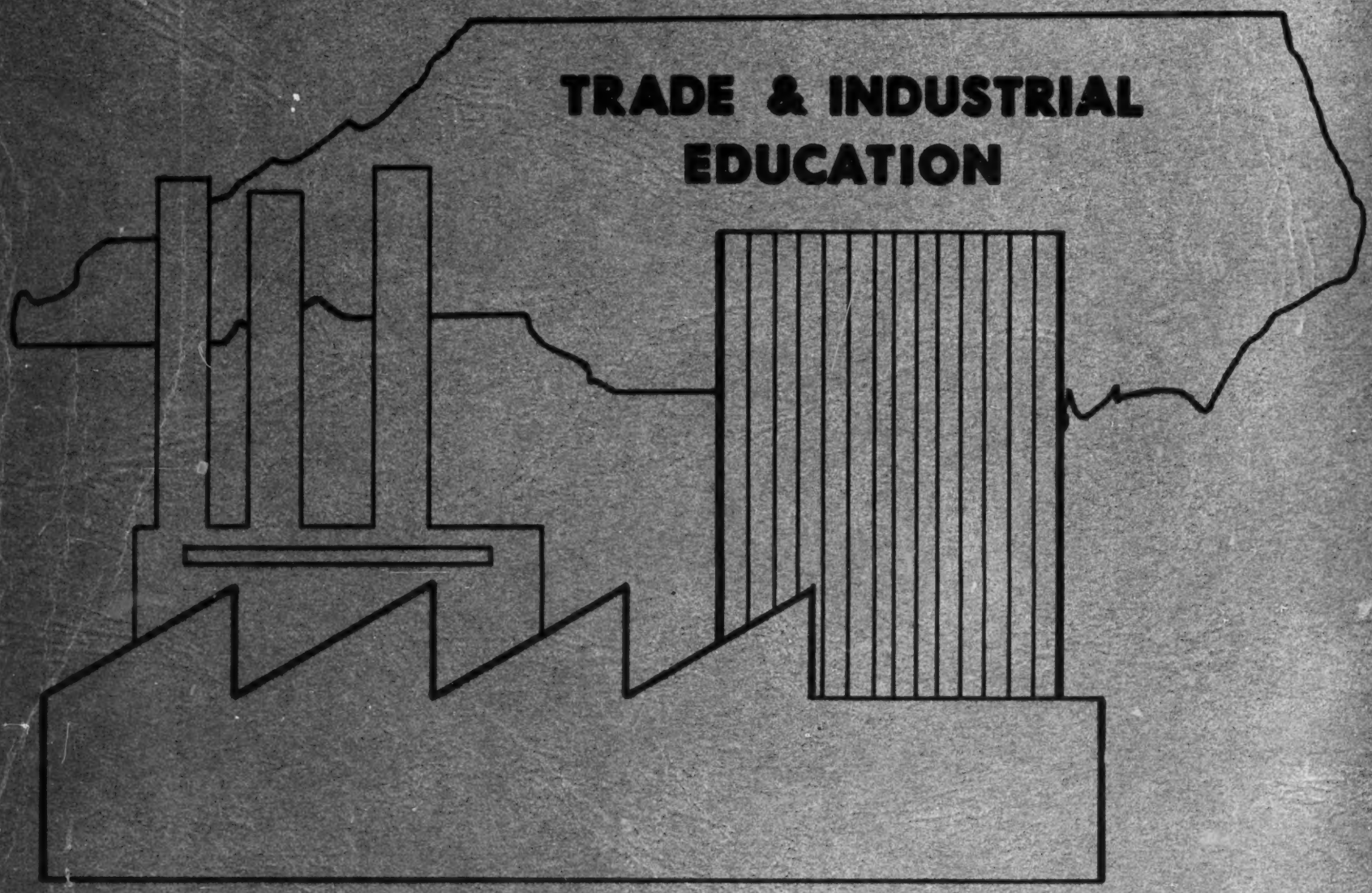
ADVISORY COMMITTEE



STATE DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION
TRADE AND INDUSTRIAL EDUCATION
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TRADE AND INDUSTRIAL EDUCATION

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DEVELOPING AN ADVISORY COMMITTEE

Trade and Industrial Education
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FOREWARD

This publication details suggestions for the organization, function, and operation of an advisory committee on Trade and Industrial Education.

The group should be composed of local educators and industry representatives who are familiar with and interested in the community situation. This committee can ---

1. Assist local schools in organizing their curricula.

2. Advise on procurement of materials.

3. Keep school personnel acquainted with current practices and developments within the industry.

4. Coordinate and generally guide training programs so as to keep them appropriate to the current needs of the community's industry.

Charles D. Bates, State Supervisor
Trade and Industrial Education

INTRODUCTION

The controlling purpose of vocational education is to fit its graduates for useful employment. It is necessary that the Trade and Industrial Education educators work closely with the community groups concerned with your program and those providing employment in local industry. There must be a constant exchange of information to keep the program realistic and to fit the changing needs of students and community.

An advisory committee can help "tailor" courses to community needs, determining the appropriate type of Trade and Industrial Education program for the area. Only an advisory committee, sensitive to the daily needs of local industry, can provide the effective interchange of information so vital to both school and industry.

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PURPOSE OF ADVISORY COMMITTEES

The purpose of an advisory committee is to provide a link between the school and the community through which school activities may be coordinated. Advisory committees should counsel and advise schools regarding the improvement of vocational programs in an effort to meet more adequately the needs of the community.

Through contact with individuals and groups in the community, advisory committee members can bring about larger enrollments and greater participation in classes. A representative advisory committee can do much to help plan activities which will promote the economic, social, and civic growth of the community.

To accomplish this goal, advisory committee duties include--

1. Helping to set up standards for equipment and instruction.

2. Helping to build courses of study.

3. Assisting in the selection of students and instructors.

4. Building interest in Trade and Industrial Education and promoting support for new programs.

The greatest opportunities for improving the Trade and Industrial Education program are afforeded at the local level, where administrators and teachers make direct contact with local people in related skill areas.

The hard work is done at the local level, and it is the local school administrator who makes immediate and constructive use of information secured from advisory committees.

FUNCTIONS OF ADVISORY COMMITTEES

Helping to Evaluate the Program

One of the chief values of an advisory committee is its function of exploring school personnel, to suggestions from members of the community. There is always the danger that the public schools may drift away from the people and the effective use of an advisory committee is a sure method of avoiding this. The committee should continuously evaluate the vocational industrial program to ascertain whether or not it is providing the kind of training which local conditions and students' needs demand. Its suggestions for improvements and additions will represent lay opinion in the community and will enable the school to set up programs designed to serve the people.

Committees for Trade and Industrial Education programs should properly play a predominant role in setting up the details of courses of study for all shop work included in the training program, for they have the specialized knowledge required. When the outline of the course is first prepared, representatives of the industry involved must be consulted in order to make sure that the techniques taught in the school are in keeping with the specific

and current requirements of the industry. Instructional materials, equipment, standards for production work, and course outlines should be reviewed periodically by the advisory committee in order to keep them up-to-date and functional. In this way, the school work can be coordinated with the demands of the occupation.

Helping In Selection and Placement of Students

Advisory committees have proved very useful in the selection and placement of students in Trade and Industrial Education programs. They help to set up standards for entrance into vocational courses, so that a high level of work is maintained. When the vocational program and the community are coordinated through the activities of an advisory committee, employers feel confident that the students who complete vocational courses will be an asset to their establishments and they are more willing to employ them.

Guiding and Supporting the Teacher

There are few methods of aiding teachers in service which are superior to assistance rendered by the advisory committee. These committees are particularly helpful in giving a young teacher a successful start and in reinvigorating teachers who have worked too long in one situation and whose programs may be stereotyped. The teacher working with a good committee will find his work more successful and satisfying. Without a committee, a teacher may feel that he is almost an isolated worker, particularly when he is the sole member of a vocational department. In associating with committee members, he received encouragement and stimulation becomes lighter when it is shared.

The use of an advisory committee tends to increase the teacher's prestige in the community. The chances for success of a new enterprise are greater when it has been appraised by those best able to judge it. Since the committee is a clearing house for community reaction, the teacher hears commendations of some of his efforts and criticisms of others and can adjust his program accordingly. His particular enthusiasm will be balanced by the ideas of experienced persons and the resulting programs will be more suited to the particular needs of the community. Successful working relations with an advisory committee increase the self-confidence of teachers and help them to grow personally and professionally.

Advisory groups may also render important service by helping to secure competent instructors. Members should not make the contacts or have any responsibility for the hiring of teacher, but their recommendations for candidates should be sought. Representatives from industry have often encouraged top craftsmen to become teachers.

Providing and Securing Financial and Moral Support

The program of Trade and Industrial Education receives financial assistance through advisory committees in two different ways. Once committee members consider themselves a part of the school, they are eager to support the program in every possible way. Advisory committees have often taken it upon themselves to provide or secure funds for special activities, services, and celebrations. Some have set up scholarships and awards for honor students; others have sponsored banquets, graduation parties, and field trips.

Indirectly, advisory committees help to assure adequate financial support for the schools by backing up the school administration in its request for local appropriations. Committee members appear at public hearings to support the school's budget estimates and speak before civic gatherings in the interests of improved vocational education. When the citizens know about the achievements and needs of the vocational program, they have an intelligent basis on which to consider the financial needs of the school, and there is less chance that justifiable demands for appropriations will be opposed.

Advisory committees perform this same service in connection with local State, and federal legislation affecting vocational education. When the various organizations in the community, including unions, manufacturers' associations, service clubs, and other civic groups know the orjectives and needs of the school, they are apt to support legislation which strengthens vocational education. Then they look on the school as their school and are alert to legislative problems and local conditions that would affect the operation of the vocational program.

Improving Public Relations

An advisory committee serves as a good public relations asset if it is honestly established for purposes other than publicity. It can be the school's way of saying that the vocational program will be planned for the benefit of the community, and it emphasizes the fact that the function of the public school is to serve the public.

The biggest asset any educational system can have is an enthusiastic and well-informed public. One of the greatest services rendered by an advisory committee is to interpret the school's program of vocational education to the people and to gain their understanding and support. Advisory committee members help bring about an understanding of the purposes and functions of the vocational program and an appreciation of how the school is meeting its responsibilities by reporting back to their own groups the information they gain through contacts with the vocational program. Increased community interest in vocational education is a direct result of effective use of advisory committees.

The advisory committee can direct publicity to the worthwhile achievements of the vocational program and thus help to build up the school's prestige. Through committee action, news stories and pictures of the programs may be carried in the local papers, T.V. stations, and other news media.

HOW ADVISORY COMMITTEES ARE ORGANIZED

The school wants the active participation of those people in the community who can contribute to the success of the vocational program; thus, one of the most important considerations is the selection of the personnel of the committee. The appointment of committee members requires considerable discretion, for the success or failure of the committee depends largely on the ability and willingness of the members to contribute and cooperate.

Personal Qualifications

At least three essential criteria should be kept in mind when selecting individuals for membership:

1. Experience - Members must have had successful first-hand experience in the area which the committee will serve. They should be persons who have the respect and confidence of their associates. It is neither necessary nor desirable, however, that all members be older persons with many years of working experience.

It has been found that young businessmen or executives, who have proved that they know their jobs thoroughly, are often more apt to work hard in support of the school than older men who have lost contact with young people and have already made their influence felt in other projects.

2. Adequate Time - An advisory committee should keep in close contact with the activities of the school. It is necessary, therefore, that the ability to devote adequate time to committee work be considered a criterion for membership. A community leader who holds many offices may not be the best possible candidate because he may not have sufficient time, energy, or enthusiasm for his jobs as advisor to a program of vocational education.

In this connection, it should be pointed out that it is sometimes advisable to provide alternates for each member of the committee. This is particularly true when members represent specific industries or organized groups. In this way, each cooperating group can always have a representative at the meetings to express its particular interests in the problems discussed by the committee.

3. Character - Candidates for membership should be individuals of outstanding character, under which term may be included such desirable personnel qualities as intelligence, integrity, a keen and balanced mind, courage, and an unselfish spirit. Members should exhibit a strong sense of responsibility and civic-mindedness and a willingness to cooperate. The best committee members are not always those who are most agressive in community affairs and most eager to promote themselves to office. Persons who are more interested in furthering the selfish interests of a small group than in promoting the good of the entire community will not do a good job on an advisory committee. It is a good policy to avoid appointing persons who may in ject prejudices into the discussions or usurp too much of the committee's time for their own pet promotional schemes.

Community Representation

In addition to considering the personal attributes of the individual members, the school administration must make every effort to select a truly representative committee. Members should not be selected from just one organization or from a single segment of the industry. Important minority groups should be recognized as well as the geographical divisions of the service area. Advisory committees from business should consist of a well-balanced representation.

Procedures for Selecting Members

There are many different methods of selecting and appointing the members of an advisory committee, but all of them have one thing in common -- the selection is always a cooperative enterprise between the school and the groups to be served. The representatives must be individuals who are held in high esteem by their colleagues and they must also be acceptable to the schools; so their selection is best worked out through the joint efforts of the two parties concerned.

A sound procedure is the selection of members by a representative of the school and an industry or merchants' association after consultation with recognized leaders in the field to be served.

When the advisory committee is composed of the representatives of organized groups within the community, such as retailers associations or service business, it is customary for the groups to select their own delegates. Committee members chosen in this way can speak with the authority of the group they represent, instead of for themselves alone.

It is not always possible or desirable to have committees formed of members who represent organized groups in the community. Some communities may not have such organizations. In such cases, it is possible to hold a mass meeting of the individuals concerned with the training program, at which time nominations for committee members can be made, subject to final selection.

Letter of Invitation

Regardless of the method by which members are selected, the final authority for approval must rest with the board of education, and a formal invitation to membership on an advisory committee should always come from the Board. This is necessary from two points of view. First, it helps to remove any reservations the board might have that the advisory committee would usurp its rights and responsibilities and thus foster disharmony between the board and newly-formed committee. Secondly, the members of the advisory committee will have a healthier concept of their proper place in the school organization when they are appointed by the highest authority. They realize that they are responsible to the board of education and that they have no authority other than advisory.

Selection of Chairman

The chairman of the advisory committee may be a lay person, elected by the members of the committee from their ranks. Many schools, however, in the belief that the educator who is to help is the logical person to be chairman, prefer to have the vocational director as chairman. The plan is used extensively when a general advisory committee is appointed to serve the total vocational program.

In addition to these two widely accepted practices, other systems are also in use. The chairman is sometimes appointed from among the lay members by the Board of Education or the superintendent of schools, by the President of the local merchants' association or by the director of vocational education.

Duties of the Chairman

There is general agreement that the chief duty of the chairman is to preside at all meetings of the committee. He works closely with the school administration at all times and should be consulted when the agenda for the meetings is prepared. It is usually the responsibility of the chairman to appoint subcommittees and to represent the advisory committee at such times as representation is requested or desirable.

Who Represents the Schools

The person, or persons, who represent the school on the advisory committee vary with the size of the program and the purpose of the committee. The most logical individual to assume the task is the local director of vocational education or the director of the vocational school. However, all communities do not provide for these positions, in which case the job may be assigned to the principal of the school in which the vocational program is being conducted. Since men in these positions carry the administrative responsibility for the program, they are in a position to act directly on the advice of the committee.

In some large cities, or in area vocational schools, the school administrative staff includes directors, supervisors, or coordinators for each field of vocational education; and in such situations these individuals may represent the school at advisory committee meetings. When the committee is created for one department, the head of that department should attend meetings, either as the sole representative of the school or as a second delegate in addition to the vocational director. In some schools, it is the instructor who works with the committee. In addition, some schools require that a member of the board of education be present at all meetings.

Duties of the School Representative

The representative of the school usually serves in one of three capacities, or a combination of these. He may act as secretary for the committee, he may serve in a general consultative capacity, or he may be designated as chairman. It is important to note that in any event, he is considered an ex-officio member of the committee.

He is Present to Seek Advise, Not to Give It.

Routine duties assigned to this individual include reading and keeping the minutes, notifying members of time and place of meetings, arranging for meeting rooms in the school, providing statistical or descriptive information concerning the school, and preparing reports of progress. The school should assume the task of providing all clerical assistance needed in the work of the committee, including minutes, reports, recommendations, and special notices.

One of the chief duties of the school representative is the preparation of the agenda for each meeting. As the educator who is seeking the assistance of persons experience in the field, it is his responsibility to state the problems involved in the vocational program and present them to the advisory committee for discussion and recommendations. However, the topics discussed at

meetings should not be confined to those proposed by the vocational educator. It is important that he consult with the chairman, (or other members of the committee) in order to discover what the laymen believe to be the committee weaknesses in the program and to get from them new and original ideas for improvements and additions.

The achievements of the committee will be in direct relation to the demands made on them by the school. Consequently, it becomes the responsibility of the school representative to obtain the maximum benefits from committee members.

Lines of Communication

There are several different ways by which the recommendations of the advisory committee may be communicated to the proper school authorities. The advisory committee can in discussion with school administrators determine in each instance what system is best adapted to existing lines of communication.

It is common practice to send copies of the minutes, including recommendations, to the individuals and agencies involved - administrative officers of the school, school board members, and the organizations which committee members represent. The thinking of the advisory committee is thus made available to all interested persons, and the school authorities may use the suggestions as they choose. The written recommendation is to be preferred to verbal communication. There is then no possibility of misinterpreting or misstating the intent of the advisory committee, and a permanent record may be kept of committee recommendations.

Number of Members

The number of members to be included on an advisory committee varies with the size of the community and the nature of the program served. The committee, to gain the confidence of the citizens, must be large enough to be representative and should have members from all the important organized or recognizable groups in the service area vitally concerned with the vocational training program. A working advisory committee, however, should not be so large that it becomes cumbersome to deal with or is prejudicial to informal, constructive discussion. Experience has shown that advisory committees operate most efficiently and constructively when membership is limited from six to eight individuals. If a large committee is appointed, it is often broken up into smaller subcommittees to work on specific assignments. Advisory committees serving area vocational schools generally run larger because it is necessary to have adequate geographical representation from the various sections of the service area.

Term of Membership

Although many schools follow a practice of appointment for as long a time as members are interested in serving, a regular system of replacement is to be preferred. Such an arrangement allows the group to replace individuals who have shown no desire to cooperate or who cease to make contributions to the thinking of the committee. Rotating terms inject "new blood" with fresh, enthusiastic ideas, and educate an increasing number of people with respect to the vocational program of the school. Members appointed for a definite term of office generally serve for one to three years. Provisions should be made for staggered replacement so that there are always old, experienced members serving. It is important that committees do not become self-perpetuating by naming their own successors. There is no reason, of course, why a member cannot be reappointed for a new term if he has proved to be a valuable contributor.

Number of Meetings

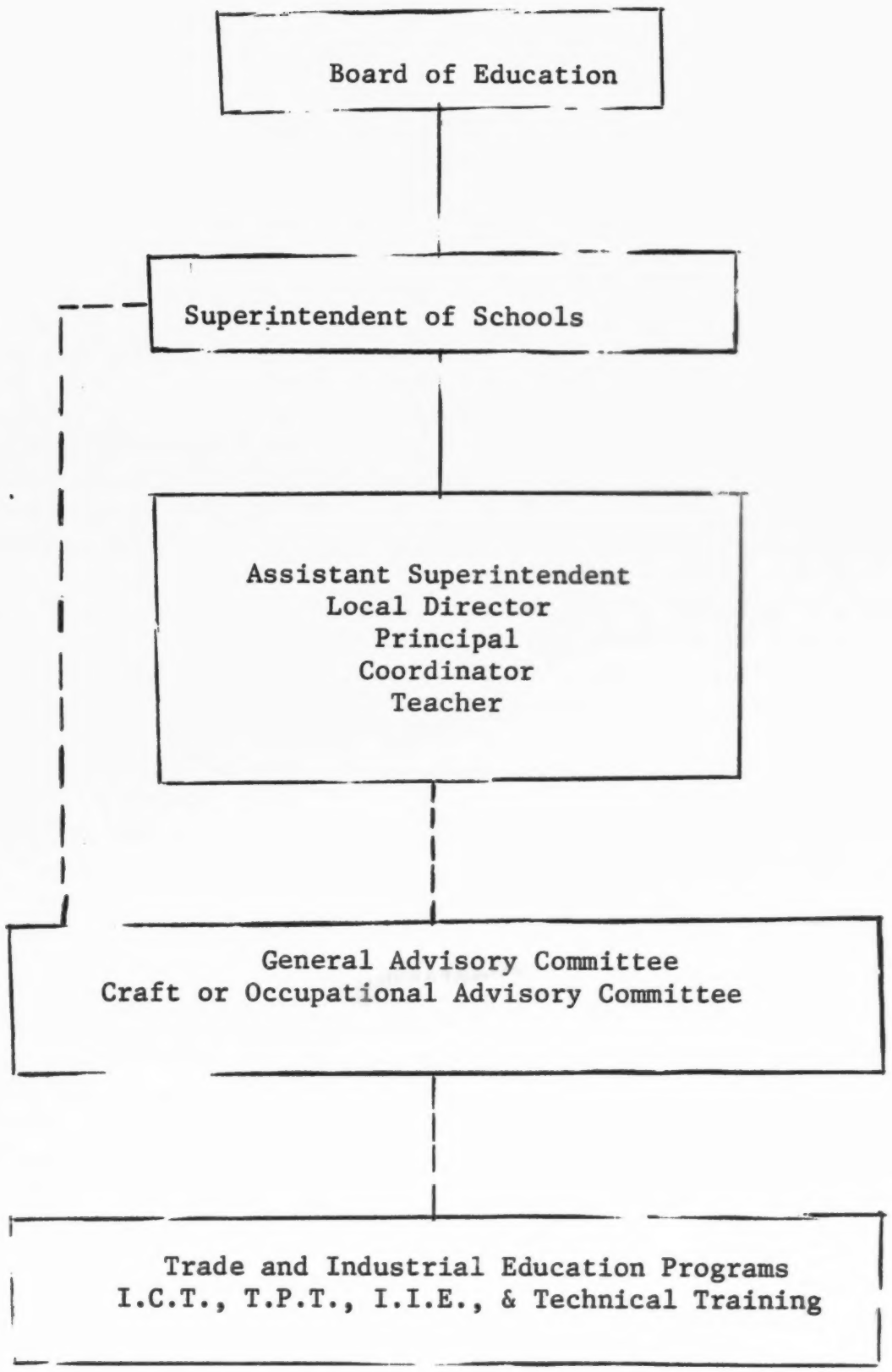
A survey of current practices indicates that there is no generally accepted policy in regard to the optimum number of meetings to be held each year. Practices are not yet standardized and opinions vary as to whether it is best to have meetings set for regularly stated intervals or to have meetings called during the school year. Many committees now operating meet subject to call, whenever there is important business to be conducted. Common practice during the initial stages, however, is to have committees meet monthly, except perhaps in the summer months.

A system of regular meetings has an advantage over irregular meetings in that members can plan ahead and attendance will be improved. Furthermore, a committee which is working to build a worthwhile program will need to meet often in order to carry out this assignment. Getting together two or three times a year is not enough to give real direction and stimulation to a program of vocational education, for a rapidly changing industry.

RECOMMENDED ORGANIZATIONAL CHART

FOR

ADVISORY COMMITTEES



_____ Administrative Function

- - - - - Advisory Function

ESTABLISHING THE COMMITTEE

The approval of the superintendent of schools and the board of education should be secured before any advisory committee is organized. School boards and school administrators sometimes fear that advisory committees will assume administrative or legislative authority which is the responsibility of the board of education. The function of the advisory committee and the values derived from its use should be clearly explained to members of the school board. If the committee is to function properly, it must have the respect and confidence of the school administration.

Official Invitation

Regardless of the method of selecting members, their appointment should be an official act of the board of education or the superintendent of schools as its designated representative. It is a good policy to send a letter of invitation to each member, signed by either the chairman of the board of education or the superintendent of schools. This is important for three reasons:

1. It helps to assure the school administration that the advisory committee will not usurp its authority and the two groups will work together in harmony.

2. The members of the advisory committee will understand their proper place in the school organization; they will understand they are responsible to the board of education and have no authority except to make recommendations through the board or its appointed representative.

3. Being appointed by the highest school authority gives prestige to the members of the committee.

Optimum benefits may be derived from the use of advisory committees only when the committees are organized on a sound basis. There is no special pattern to follow. The techniques, of course, vary from school to school, due to local conditions. However, there are some basic techniques that have proved successful which will serve as guides to administrators of Trade and Industrial Education programs.

Chairman

The chairman is a key member of a committee, and its success will depend largely on the leadership he provides. He must be sensitive to the views of the members; he should be able to listen critically and to criticize intelligently. Other desirable characteristics are good judgment, fairness, and reasonableness.

School administrators often serve as chairmen of general advisory committees, but it is generally recommended that a person serve as chairman of a craft committee. The chairman of the advisory committee may be elected by the members of the committees from their ranks. He may be a representative of the public, or the chairmanship may be rotated among the labor and management representatives. The chairman is sometimes appointed from among the lay members by the board of education or the superintendent of schools. The committee usually determines its own method of selecting its chairman. A vice-chairman should, of course, always be elected to serve in the absence of the chairman.

Secretary

The secretary is also an important member of any advisory committee and should have a close working relationship with members of the committee. His most important attributes are, an ability to organize detailed material into meaningful whole; a facility for writing; and an ability to motivate appropriate school administrators or faculty members to prepare necessary background materials.

The secretary is sometimes elected by the committee from its membership, but it is generally recommended that a representative of the school serve as secretary to the committee, since there is usually a great deal of routine, time-consuming work to be done by the secretary. Most members of the committee probably would not be able to devote the necessary time to the job.

First Meeting

It is recommended that a member of the school administration staff, either the superintendent of schools or director of vocational education, serve as chairman of the first advisory committee meeting. Even if the superintendent designates a member of his staff to serve as chairman at the organizational meeting, he himself should make every effort to attend. The first meeting provides an opportunity for the top school administrator to welcome the committee, to thank the members for their cooperation and to express his views concerning the committee's functions.

On the whole, an advisory committee will make its most effective contributions when the following conditions exist:

1. The reason for organizing the committee is well understood by both committee members and school officials.

2. The committee's functions have been clearly defined.

3. There is no question on the part of the members that these functions are needed.

4. The committee is competent to perform its functions.

5. The committee is wanted by the school; its contributions are valued by the school administration; and the superintendent and his staff are willing to give the necessary time, energy, and support to make it successful.

Agenda

The first meeting will differ from subsequent meetings in that most of the time will be spent in the orientation of the members. The agenda for the first meeting should include the following:

1. Welcome and remarks by the chief school administrator.

2. Introduction of and biographical information about members of the committee.

3. A statement of the role of the committee and how it is expected to be of assistance to the school.

4. The names and brief biographical information of key school officials and teachers.

5. A brief sketch of the history and background of the school.

6. A statement on the nature and objectives of the school.

7. A statement on the nature and objectives of the Trade and Industrial Education program or specific programs.

8. A brief outline of problems of the school or of a specific program.

9. A summary of future plans for expansion of the school or a specific program.

10. A summary of standards specified in Federal acts for vocational education and State plans for vocational education.

11. Organization of the committee:

    A. Slection of chairman and secretary

    B. Selection of dates and time for meetings

    C. Adoption of constitution and bylaws or set of rules to govern the conduct of meetings.

12. Adjournment

VT 002 706

Fisher, Robert F.; Twining, Charles L.

The Denver Public Schools Look at 1965 High School Graduates in Buiissiness and Industry. Highlights from the 1967 Evaluation Study.

Denver Public Schools, Colo. Dept. of General Curriculum Services

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DENVER

The purposes of the follow-up study included securing both quantitative and qualitative information about graduates and the educational program they completed. Specific purposes included: the obtaining of information on the number of 1965 graduates from Denver public high schools who had entered local business and industry; opinions from these graduates about the extent and quality of their preparation; and an employers' analysis of the total educational preparation of the graduates. Data were collected by means of a questionnaire sent to 2,965 graduates of Denver public high schools in 1965 requesting information concerning job status, educational preparation, method of securing employment, extent of satisfaction, and plans for future education or training. The findings of this study indicate that more than half of the graduates in this study were working at clerical jobs and 81 percent of the employers indicated that they had entry level jobs available in the clerical field for high school graduates. Of the courses listed by graduates as having the greatest value, 20 percent fall within the category of business education. Nearly one-fourth of the graduates in this survey felt that the schools should offer more training for the type of work they were doing and nearly half of these indicated preparation in commercial and business areas. (CH)

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THE DENVER PUBLIC SCHOOLS LOOK AT 1965 HIGH SCHOOL GRADUATES IN BUSINESS AND INDUSTRY

DENVER PUBLIC SCHOOLS
DENVER, COLORADO
1967

THE DENVER PUBLIC SCHOOLS LOOK AT 1965 HIGH SCHOOL GRADUATES IN BUSINESS AND INDUSTRY

Highlights from the 1967 Evaluation Study

Prepared for the

DEPARTMENT OF GENERAL CURRICULUM SERVICES

by

ROBERT F. FISHER
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE DENVER PUBLIC SCHOOLS LOOK AT 1965 HIGH SCHOOL GRADUATES IN BUSINESS AND INDUSTRY

INTRODUCTION

This report on those 1965 graduates who entered local business and industry is but part of the comprehensive evaluation program of the Denver Public Schools. It continues a practice, begun in 1950, of reporting systematically the results of achievement tests and of surveys. Soon after the 1965 triennial testing, two reports appeared:

Denver Looks at Its Schools, a report of a public opinion survey, published in 1965,
The Denver Public Schools Look at Themselves, a report of pupil achievement, published in 1965.

A year later, another report followed:

The Denver Public Schools Look at 1965 High School Graduates in College, a report of a survey of graduates who entered college following high school, published in 1966.

The present report completes the pattern of assessment conducted in three-year segments.

Such a pattern of assessment, such evaluation, provides information about the entire educational program of the Denver Public Schools. The public, the Board of Education, the professional staffs of the schools—all learn from these reports how effective that program is. Such reporting has increased the public's understanding and encouraged their support. It communicates the extent of pupil achievement in subject areas, the adequacy of their preparation for higher education, of their qualifications for immediate employment.

The subject of this last report in the current three-year segment is the status of 2,965 graduates not included in the college survey. Of these graduates, 668 found employment from 361 employers in local business and industry. These graduates—contacted personally or by correspondence from November, 1966, through January, 1967—completed questionnaires. A member of the Denver Public Schools' Interview Team personally interviewed each of the employers.[1]

PURPOSES OF STUDY

The plan of the follow-up study included securing both quantitative and qualitative information about graduates and the educational program they had completed. Specific purposes of the study were

- to obtain information on the number of 1965 graduates from Denver public high schools who had entered local business and industry
- to gain opinions from these graduates about the extent and quality of their preparation
- to determine from both graduate and employer evaluation the quality of preparation of graduates in specific subject areas
- to determine the types of jobs held, the kinds of work done, and the means used to obtain employment
- to estimate the influences of certain persons and experiences on job choice
- to obtain from employers an analysis of the total educational preparation of the graduates
- to provide information to future graduates about job opportunities in metropolitan Denver.

[1]A complete roster of the interview team appears in the appendix of this report on page 23.

The information gained from the survey serves also as supplementary material for use in a one-semester course, Vocations, required for all tenth grade pupils in Denver's public high schools, and in a one-semester course, Occupational Information, an elective for twelfth grade pupils. Both courses assist pupils to develop career plans and to gain a better understanding of the world of work.

PLAN OF THE SURVEY

The 1967 Survey reports the job status of 1965 Denver public high school graduates employed in the metropolitan area at the time of the study. The survey includes those graduates who received a diploma in June, 1965, but who were not part of the college survey.[2] In addition to those from eight regular high schools—Abraham Lincoln, East, George Washington, Manual, North, South, Thomas Jefferson, and West—graduates of Boettcher and Emily Griffith Opportunity School were included.

The questionnaire sent to each of the 2,965 graduates served as the principal means to gain information from each graduate concerning his job status, his educational preparation, method of securing employment, extent of job satisfaction, and plans for further education or training. In order to encourage graduates to return questionnaires, interviewers attempted to contact each by telephone. A copy of the questionnaire sent to graduates appears in the appendix of this report.

A full-time educational career counselor, who is a member of the guidance staff in each of the public high schools of Denver, assists students in the development of career plans and aids them in securing part-time employment while they are in school and full-time employment when they graduate. For the employers' part of the survey, an educational career counselor arranged a personal interview with the employer of 1965 graduates to fill in the Employer Survey Questionnaire. Employers were surveyed during February, March, and April, 1967. A copy of the interview questionnaire is in the appendix.

The information gained and tabulated from the questionnaires completed by 1965 graduates and their employers constitutes the basis of this report.

DENVER'S BUSINESS- AND INDUSTRY-BOUND 1965 HIGH SCHOOL GRADUATES

TABLE I

Denver Public High School Graduates — 1965

	BOYS	GIRLS	TOTAL
Number of Denver public high school graduates in June, 1965	2442	2635	5077
Number of Denver public high school graduates entering business and industry included in this study	201	467	668
Percent of total graduating class included in this study	8%	18%	13%

There were 5,077 boys and girls graduated from the Denver public high schools in 1965. Questionnaires were sent to 2,965 of this graduating group[3]; 668, or 23%, indicated on the returned questionnaires that they were employed on a full-time basis in the Denver metropolitan area. The survey report is delimited to the responses from these 668 graduates.

[2] *The Denver Public Schools Look at 1965 High School Graduates in College.*
[3] Those graduates who entered college but did not complete a full year were included in this study.

TABLE II

Comparison of Survey Numbers

1964 with 1967

	1964 SURVEY	1967 SURVEY
Total graduates (boys) included	1712	2442
Total graduates (girls) included	1724	2635
Graduates included in study (boys)	371	201
Graduates included in study (girls)	412	467
Employers interviewed	468	361

Table II shows that the 1967 report involves fewer boys, fewer employers, and more girls than the 1964 study. The drop in the number of boys involved in the survey may be attributed to the increased number entering college and the armed services.

TABLE III

Distribution of Denver 1965 Public High School Graduates within Fifteen Types of Business and Industry

	NUMBER EMPLOYED			PERCENT EMPLOYED		
	1961	1964	1967	1961	1964	1967
1. Retail sales	84	132	121	19	17	18
2. Public utilities	80	78	50	18	10	8
3. Manufacturing and food processing	76	126	110	17	16	17
4. Real estate, insurance, banking	56	104	106	12	13	16
5. Government (Federal, state, local)	26	42	61	6	6	9
6. Automobile sales and service	23	43	21	5	6	3
7. Transportation	23	19	9	5	2	1
8. Building trades and supplies	19	48	15	4	6	2
9. Wholesale distributors	17	46	30	4	6	5
10. Printing and publishing	13	26	15	3	3	2
11. Medical offices and hospitals	8	35	47	2	5	7
12. Oil and mining	8	2	8	2	0	1
13. Business and finance management	6	25	29	1	3	4
14. Hotels, restaurants, personal service	5	49	40	1	6	6
15. Recreation and entertainment	4	8	6	1	1	1
TOTAL GRADUATES EMPLOYED	448	783	668	100%	100%	100%

Of the 668 graduates, 387, or 58%, were employed in the first four types of business and industry listed in Table III. These percentages are relatively consistent with those of the last two surveys, except for public utilities, which show a downward trend.

Table IV compares the percentages of graduates actually employed in each of the classifications listed for the surveys of 1958, 1961, 1964, and 1967.

TABLE IV
Classification of Jobs Held

	PERCENT IN 1958	PERCENT IN 1961	PERCENT IN 1964	PERCENT IN 1967
Clerical	54	57	47	53
Unskilled	10	21	18	13
Mechanical	10	6	11	8
Sales	8	5	9	8
Personal service	10	4	5	8
Apprentices	8	4	4	4
Semiprofessional (technical)	0	3	6	6

In all the studies since 1958 approximately one half of the graduates taking part in the study found employment in the clerical field. The second category, unskilled, while comprising only 13% of the total has consistently been the second largest.

Table V indicates the number of firms interviewed, by categories, and the number of 1965 graduates employed by these firms.

TABLE V
Numerical Distribution of Firms Interviewed by Business Categories

	FIRMS INTERVIEWED 1967	GRADUATES EMPLOYED 1967
1. Retail sales	53	121
2. Public utilities	3	50
3. Manufacturing and food processing	51	110
4. Real estate, banking, insurance	51	106
5. Government (Federal, state, local)	35	61
6. Automobile sales and service	21	21
7. Transportation	8	9
8. Building trades and supplies	13	15
9. Wholesale distributors	26	30
10. Printing and publishing	9	15
11. Medical offices and hospitals	21	47
12. Oil and mining	5	8
13. Business and finance management	23	29
14. Hotels, restaurants, personal service	36	40
15. Recreation and entertainment	6	6
TOTALS	361	668

EMPLOYER REACTIONS TO INTERVIEW QUESTIONS

Trained members of the interviewing team obtained personal interviews with the employer of each graduate included in this survey. At the conclusion of each interview the surveyor completed and filed a form for tabulation (see appendix). Each of the employers furnished much valuable information. A summary reveals the following:

Items 1 through 4 on the Employer Survey Questionnaire on High School Graduates[4] identify and classify businesses and industries included in the survey. This information has been presented in the foregoing material.

ITEM 5. IS A HIGH SCHOOL DIPLOMA REQUIRED FOR ALL JOBS? SOME? NONE?

[4]Employer Survey Questionnaire on High School Graduates appears on page 25.

The report of employer opinion concerning the importance of a diploma can be found in Table VI.

TABLE VI
Importance of Earning a High School Diploma as a Requirement for Employment

	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSES
Diploma required for all jobs	123	34
Diploma required for some jobs	124	34
Diploma not required for jobs	115	32

Many employers in the 1967 survey felt that the graduate's diploma was a symbol of achievement. More than two thirds of the employers interviewed required a high school diploma for some or all jobs.

ITEM 6. IS A HIGH SCHOOL DIPLOMA REQUIRED FOR ADVANCEMENT?

Of 337 responses to this item, fifty-three percent of the employers indicated the necessity of an employee's having a high school diploma before being considered for advancement.

ITEM 7. WHAT BEGINNING JOBS ARE OPEN TO DENVER HIGH SCHOOL GRADUATES?

Table VII presents information for 701 beginning-job classifications as listed by the employers interviewed. These have been further categorized as follows:

TABLE VII
Beginning Jobs Open to High School Graduates

JOB CLASSIFICATION	NUMBER OF RESPONSES	PERCENT OF EMPLOYERS INTERVIEWED
Clerical (office)	293	81
Unskilled	106	41
Personal service	87	24
Stockroom work	62	17
Sales	59	16
Mechanical	37	10
Apprentice	30	8
Semiprofessional	18	5
Technical	9	2
None	9	2

The fact that 81% of all employers interviewed have clerical jobs available for which high school graduates may qualify is significant.

ITEM 8. ABOUT HOW MANY HIGH SCHOOL GRADUATES DO YOU EXPECT TO HIRE NEXT YEAR?

These responses, which came from seventy-four percent of the employers interviewed, are in Table VIII under ten separate categories. These categories vary from "None" to "More Than Forty" for numbers of anticipated employer needs for the next year.

TABLE VIII
Employers' Anticipated Employee Needs
High School Graduates

ANTICIPATED NUMBERS NEEDED	EMPLOYERS NUMBER RESPONSE	EMPLOYERS PERCENT RESPONSE
NONE	66	25
1 - 3	57	22
4 - 5	33	12
6 - 8	18	7
9 - 10	18	7
11 - 15	13	5
16 - 20	12	4
21 - 30	12	4
31 - 40	6	2
MORE THAN 40	32	12
TOTALS	267	100%

Using these responses from 267 Denver businesses and industries and projecting the figures noted above, one can infer the following:

- The minimum anticipated need for employees by these firms totals 2,544.
- The maximum anticipated need for employees totals 3,295.

These totals apply only to high school graduates who have earned diplomas.

ITEM 9. WHAT BEGINNING JOBS ARE OPEN TO HIGH SCHOOL NONGRADUATES?

TABLE IX
Beginning Jobs Open to High School Nongraduates

JOB CLASSIFICATION	NUMBER OF RESPONSES	PERCENT OF EMPLOYERS INTERVIEWED
None	114	31
Unskilled	93	26
Personal service	76	21
Clerical (office)	67	19
Stockroom work	45	12
Sales	37	10
Mechanical	29	8
Semiprofessional	11	3
Apprentice	8	2
Technical	4	1

Of the employers responding to Item 7, 81% have beginning jobs in the clerical field for which graduates may qualify. Only 19% of those responding to Item 9 have clerical jobs open to nongraduates. Clerical jobs comprise the single largest area of employment (53%) for high school graduates.

ITEM 10. ABOUT HOW MANY HIGH SCHOOL NONGRADUATES DO YOU EXPECT TO HIRE NEXT YEAR?

Of those interviewed, 253 (70%) responded to this question. Table X tabulates and presents these responses in ten categories varying from "None" to "More Than Forty."

TABLE X
Employers' Anticipated Employee Needs
High School Nongraduates

ANTICIPATED NUMBERS NEEDED	EMPLOYERS NUMBER RESPONSE	PERCENT OF TOTAL RESPONSE
NONE	140	55
1 - 3	38	15
4 - 5	20	8
6 - 8	7	3
9 - 10	8	3
11 - 15	10	4
16 - 20	5	2
21 - 30	7	3
31 - 40	2	1
MORE THAN 40	16	6
TOTALS	253	100%

Projecting these figures leads to the following inferences:

- The minimum anticipated need for nongraduate employees by these firms totals 1,311.
- The maximum anticipated need totals 1,690.

These totals apply only to those high school pupils who have failed to earn diplomas.

Although 55% of the employers do not anticipate job openings for nongraduates, only 25% of the employers anticipate no jobs for graduates.

ITEM 11. WHAT DENVER HIGH SCHOOL PUPIL INFORMATION IS MOST USEFUL TO YOU?

Table XI lists in order of frequency of response the kinds of pupil information employers believe to be most helpful.

TABLE XI
Other Information Useful to Employers

INFORMATION	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Academic standing	174	50
Recommendations	83	24
School attendance	78	22
Other	13	4
TOTALS	348	100%

Of the preferences stated, nearly one half indicated that academic standing (school marks, school records, and class standing) was most useful. Almost one fourth stated that information about school attendance was most useful.

ITEM 12. DO YOU EMPLOY DENVER HIGH SCHOOL STUDENTS PART-TIME? YES, NO. IF YES, FOR WHAT JOBS? WAGES?

Of those responding to this item, 46% employ high school pupils on a part-time basis; 54% do not.

Table XII presents a tabulation of responses about the types of jobs available to boys and girls while they are attending high school.

TABLE XII

Part-Time Jobs Open to High School Students

JOB CLASSIFICATION	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Personal service	68	28
Clerical (office)	55	23
Unskilled	42	17
Sales	34	14
Stockroom work	28	12
Semiprofessional	5	2
Apprentice	5	2
Mechanical	4	2

About two thirds of those employers responding to this item pay students working part-time $1.40 or less per hour. The others pay either more than $1.40 per hour or a commission.

ITEM 13. DO YOU HAVE ON-THE-JOB TRAINING OR INSTRUCTION FOR NEW EMPLOYEES?

In response to this question, 258, or 76% of the firms interviewed provided some form of job training for new employees, but 83 had no formal program of training for new employees.

ITEM 14. DO YOU PREFER ANY PARTICULAR TYPE OF POST-HIGH-SCHOOL TRAINING FOR NEW EMPLOYEES? NO, BUSINESS SCHOOL, TRADE SCHOOL, COLLEGE, OTHER.

Of those responding 69% indicated a preference. Of these, 44% prefer business school, 31% trade school, 20% college, and 6% other types of post-high-school training, such as attending technical school.

ITEM 15. DO YOU PREFER ANY PARTICULAR TYPE OF POST-HIGH-SCHOOL TRAINING FOR COMPANY ADVANCEMENT? NO, BUSINESS SCHOOL, TRADE SCHOOL, COLLEGE, OTHER.

Of those responding 67% indicated a preference. Of these, 36% prefer business school, 26% trade school, 26% college, and 12% other types of post-high-school training, such as attending technical school.

ITEM 16. DO YOU FEEL THAT DENVER HIGH SCHOOL GRADUATES COMING TO YOU FOR EMPLOYMENT HAVE AN ADEQUATE EDUCATIONAL BACKGROUND? YES, NO? IF NOT, IN WHAT SUBJECTS DO THEY NEED ADDITIONAL PREPARATION?

In this survey, 77% of those responding answered "yes." This compares to 83% in the 1964 survey and 85% in the 1961. In the present survey 23% of the employers expressed the feeling that Denver public high school graduates needed some additional preparation, and made 171 separate suggestions, comments, which express concern about proficiency in the areas of basic skills.

TABLE XIII
Areas of Needed Additional Preparation by High School Graduates

AREA	FREQUENCY OF RESPONSE	PERCENT OF TOTAL RESPONSE
Spelling	39	23
English	35	20
Mathematics	29	17
Business education	26	15
Penmanship	17	10
Trade	7	4
Other	18	11

ITEM 17. WHAT AREAS OF HIGH SCHOOL PREPARATION DO YOU FEEL ARE MOST VALUABLE OR IMPORTANT FOR EMPLOYMENT IN YOUR COMPANY?

Employers interviewed expressed their feelings on this item by making 689 suggestions. For tabulation purposes, these are grouped in six areas and listed in Table XIV.

TABLE XIV
Preparation Considered Valuable by Employers

AREAS OF PREPARATION	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
General education in basic skills	322	47
Commercial and business	196	28
Mechanical and technical	81	12
Getting along with people	57	8
Attitudes toward work	28	4
Distributive education	5	1

Nearly one half of the respondents indicated that preparation in the basic skills is most important for employment in their company.

ITEM 18. HAVE YOU TERMINATED DENVER HIGH SCHOOL GRADUATES FOR REASONS OTHER THAN CUTBACK IN EMPLOYMENT? YES____ NO____

"YES" 140 "NO" 208

IF "YES," FOR WHAT REASONS (BE SPECIFIC).

Table XV groups and lists in ten separate categories the reasons given for termination.

TABLE XV
Reasons for Termination

REASONS GIVEN	FREQUENCY OF RESPONSE	PERCENT OF TOTAL RESPONSE
Incompetency	49	24
Absenteeism and poor work habits	47	23
Attitudes	39	19
Irresponsibility	19	9
Lack of initiative	13	6
Laziness	11	5
Personality	10	5
Dishonesty	9	4
Immaturity	4	2
Miscellaneous	7	3

Incompetency, absenteeism and poor work habits, and inappropriate attitudes account for two thirds of the reasons given for termination.

ITEM 19. HAVE REQUIREMENTS FOR BEGINNING JOBS CHANGED IN THE PAST FEW YEARS? YES____ NO____

An overwhelming 81% of the respondents said "No." Only 19% indicated that there were changes in requirements for beginning jobs.

IF YES, HOW?

The responses given by the 19% affirmative replies are categorized in Table XVI.

TABLE XVI
Changes in Requirements for Beginning Jobs

REQUIREMENT CHANGES	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Higher standards for hiring	38	39
Use of modern office equipment	33	34
Better education	13	13
Technical training	11	11
Lower standards	3	3

LENGTH OF EMPLOYMENT AND WAGES PAID 1965 GRADUATES

Employers were asked to give the length of employment in months for each of the 1965 graduates employed by them. Table XVII presents this information.

TABLE XVII
Length of Employment (Months)

MONTHS OF EMPLOYMENT	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
1	2	1
2	16	2
3	26	4
4	28	4
5	35	5
6	68	10
7	32	5
8	26	4
9	31	5
10	25	4
11	21	3
12	69	10
More than 12	285	43
TOTAL	664	100%

More than 40% of the 1965 graduates in this study have been in their present job more than one year.

Table XVIII gives a breakdown of wages paid, hourly, weekly, or monthly.

TABLE XVIII
Wages Paid 1965 Graduates

HOURLY		WEEKLY		MONTHLY	
$3.00 and above	3	$140.00 - $100.00	4	$550.00	1
$2.99 - $2.50	29	99.99 - 80.00	42	$375.00 - $300.00	23
2.49 - 2.00	48	79.99 - 70.00	72	299.99 - 200.00	23
1.99 - 1.50	178	69.99 - 60.00	53		
1.49 - 1.25	83	59.99 - 50.00	11		
1.24 - .70	9	49.99 - 20.00	9	Commission	9

Of the 597 responses to wages paid 1965 graduates, 59% were at an hourly rate, 32% weekly, 8% monthly, and 1% on commission.

AN APPRAISAL OF 1965 GRADUATES NOW EMPLOYED

Interviewers asked employers to rate employees identified as 1965 Denver public high school graduates. This rating, based on a three-point scale, centered on twelve separate items. Table XIX lists and tabulates responses. Of the 668 graduates surveyed in this study, 622 or 99% were appraised.

TABLE XIX
Employer Appraisal of 1965 Graduates

APPRAISAL ITEM	OUTSTANDING		SATISFACTORY		UNSATISFACTORY	
	NO.	%	NO.	%	NO.	%
Mathematics	69	16	345	82	8	2
Spelling	67	14	378	80	27	6
Handwriting	89	16	450	80	23	4
English	64	11	481	86	16	3
Reading comprehension	82	17	365	78	22	5
Attitude toward work	266	41	350	54	31	5
Attitude toward employer	260	40	371	57	18	3
Ability to get along with others	272	42	358	55	18	3
Personal hygiene and grooming	260	40	372	58	14	2
Manual dexterity	138	25	401	74	7	1
Mechanical comprehension	81	21	305	77	9	2
Punctuality	259	40	350	54	39	6

About 40% of the employers rated 1965 graduates as outstanding in the following five areas: attitude toward work, attitude toward employer, ability to get along with others, personal hygiene and grooming, and punctuality. In no category were graduates rated unsatisfactory by more than 6%.

DENVER'S BUSINESS- AND INDUSTRY-BOUND 1965 HIGH SCHOOL GRADUATES
A FOLLOW-UP STUDY

Questionnaires were sent to all 1965 Denver high school graduates who had not completed one year of college during the year following graduation. This included 2,965 graduates. Of the 707 returned questionnaires, 273 (39%) were from boys and 434 (61%) from girls. Some graduates not included in the employer-survey portion of this study returned questionnaires. Survey form is included in this report (see appendix).

Item 1 identified and classified graduates included in the survey. The following material presents other item-response tabulations.

ITEM 2. CIRCLE THE NUMBER OF YEARS YOU ATTENDED DENVER PUBLIC SCHOOLS:
1 2 3 4 5 6 7 8 9 10 11 12 13

TABLE XX
Number of Years in Denver Public Schools

YEARS IN ATTENDANCE	NUMBER OF RESPONSES	PERCENT OF RESPONSE	CUMULATIVE PERCENTAGE
12 or more	467	72	72
11	14	2	74
10	12	2	76
9	16	2	78
8	13	2	80
7	19	3	83
6	11	2	85
5	13	2	87
4	35	6	93
3	19	3	96
2	16	2	98
1	11	2	100

Responses to this item indicate that 72% of the graduates had been enrolled twelve years or more in the Denver Public Schools.

ITEM 3. WHAT KIND OF SCHOOL WORK DID YOU DO? CHECK ONE A___ B___ C___D___.

Responding to this item were 635 graduates. Those who reported "C" work constituted 51% of the group; "B" work, 43%. "A" work respondents made up 4%; "D" work, 2%.

ITEM 4. BRIEFLY DESCRIBE WHAT YOU DO ON YOUR PRESENT JOB.

Job descriptions were analyzed and grouped into seven categories for ease of tabulation. The information derived from this item appears in Table XXI.

TABLE XXI
Tabulated Responses by Job Categories

JOB CATEGORIES	NUMBER OF RESPONSES	PERCENT OF RESPONSES
Clerical	291	44
Unskilled	74	11
Personal service	46	7
Sales	41	6
Mechanical	16	2
Semiprofessional	11	2
Apprentice	5	1
Other	179	27
TOTALS	663	100%

ITEM 5. SHOULD YOUR HIGH SCHOOL OFFER MORE TRAINING TO PREPARE STUDENTS FOR THE TYPE OF WORK YOU ARE DOING? YES____ NO____ NOT SURE____.

Of the 592 responses to this item, 53% of the graduates said "no," 23% were not sure, and 24% expressed a need for more training in the high schools.

ITEM 6. IF "YES" IN QUESTION 5, WHAT SPECIFIC TRAINING SHOULD THE HIGH SCHOOL OFFER?

Nearly one fourth of the graduates felt that the high schools should offer more training for the type of work they were doing. The responses tabulated in five areas are in Table XXII.

TABLE XXII
Areas of Training Desired by Graduates

AREA OF PREPARATION	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Commercial and business	86	39
General education in basic skills	60	27
Mechanical-technical	25	11
Getting along with people	25	11
Other	26	12

ITEM 7. HOW DID YOU SECURE YOUR PRESENT JOB?

Graduates indicated how they got their present jobs. Percentages of total response and some comparison data appear in Table XXIII.

TABLE XXIII
How Employed Graduates Obtained Jobs

	PERCENT OF TOTAL RESPONSE 1964	PERCENT OF TOTAL RESPONSE 1967
Own efforts	57	62
Parents or relatives	12	8
Friends	11	11
Private employment agency	14	9
State employment services	6	7
School personnel	(Not surveyed)	3

ITEM 8. BESIDES "MORE EXPERIENCE," WHAT ADDITIONAL TRAINING IS NECESSARY FOR YOU TO ADVANCE IN YOUR JOB?

There were 468 individual responses to this item. Table XXIV groups these responses into eight categories.

TABLE XXIV
Areas of Training Necessary for Advancement

AREA OF PREPARATION	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
General education in basic skills	106	23
Commercial and business	88	19
On-job experience	67	14
On-job training	47	10
Mechanical-technical	30	6
Working with people	25	5
None	74	16
Other	31	7

ITEM 9. WHO PROVIDED YOU WITH THE GREATEST HELP IN OBTAINING YOUR PRESENT JOB?

The 330 responses to this item are categorized in Table XXV.

TABLE XXV
Help Received in Obtaining Job

HELP RECEIVED	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
School, teachers, counselors	92	28
Friends, acquaintances	77	23
Parents and relatives	75	23
Employment agencies	44	13
Others	42	13
TOTALS	330	100%

School personnel are providing considerable help to those graduates seeking employment after high school. Better than one fourth of the graduates ranked the school as providing the greatest help.

ITEM 10. WHEN YOU THINK BACK OVER THE TIME YOU WENT TO HIGH SCHOOL, HOW WOULD YOU RATE THE HELP YOU RECEIVED FROM YOUR TEACHERS AND COUNSELORS IN EACH OF THE AREAS LISTED BELOW?

Responses to this part of the survey appear in Table XXVI. The ten categories listed are the same as those used in the survey form. Percentages given are based on approximately 600 responses for each item.

TABLE XXVI
Help Received from Teachers and Counselors

	MUCH OR SOME	LITTLE OR NONE
a. Selecting subjects while in high school	80%	20%
b. Planning for your life work (vocational guidance)	63	37
c. Preparing for college (meeting requirements for admission, etc.)	57	43
d. Learning how to go about getting a job	56	44
e. Discovering your abilities, interests, and weaknesses	68	32
f. Learning how to solve problems of a personal kind	50	50
g. Preparing for successful marriage	52	48
h. Taking care of your health	74	26
i. Using your money wisely	47	53
j. Selecting activities that interested you (athletics, clubs, dramatics)	48	52

Areas which respondents rated highest were educational and vocational guidance and health education.

ITEM 11. HOW WELL DO YOU BELIEVE YOU WERE PREPARED IN THE BASIC SKILLS?

Graduates responding to this question rated their preparation in reading and spoken English the highest; one fourth indicated that they were not satisfied with their preparation in arithmetic or spelling. The percentages listed in Table XXVII are derived from approximately 625 responses for each subject-area item.

TABLE XXVII
Preparation in Basic Skills

BASIC SKILLS	VERY WELL	FAIR	POOR
a. Reading	53%	38%	9%
b. Arithmetic	31	44	25
c. Spelling	38	38	24
d. Written English	46	41	13
e. Spoken English	50	42	8

ITEM 12. WHICH TWO HIGH SCHOOL COURSES HAD THE GREATEST VALUE TO YOU IN REGARD TO YOUR PRESENT JOB?

There are 989 responses to this item. These responses have been grouped into the nine categories found in Table XXVIII.

TABLE XXVIII
Courses of Greatest Value in Present Job

COURSES TAKEN	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Business	292	29
English	240	24
Mathematics	209	21
Social Problems and Sociology	40	4
Science	36	4
Shop	27	3
Psychology	26	3
ROTC and Physical Ed.	21	2
All others (17)	98	10
TOTALS	989	100%

That 74% of the responses to this question are in the three categories of business, English, and mathematics is significant.

ITEM 13. WHICH TWO HIGH SCHOOL COURSES HAD THE LEAST VALUE TO YOU IN REGARD TO YOUR PRESENT JOB?

There were 849 responses to this question. The responses have been grouped into eleven categories and listed in Table XXIX.

TABLE XXIX

Courses of Least Value in Present Job

COURSES TAKEN	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
History	166	19
Physical Education	127	15
Science	101	12
Math	81	9
English	56	6
Home Economics	50	6
Foreign language	36	4
Literature	31	4
Music	30	4
Sociology	22	3
Others (25)	149	18
TOTALS	849	100%

ITEM 14. DO YOU EVER PLAN TO TAKE ADDITIONAL TRAINING? YES____ NO____

Of the 598 responses to this item, 439 of the graduates (73%) answered "yes" and 159 (27%) "no."

IF "YES," WHERE?

Of the 439 responses to this part of Item 14, 49% stated university, college, or junior college. Training at Emily Griffith Opportunity School accounts for 22%. The remaining 29% indicated armed-service schools or schools offering specialized training in areas such as business, airline stewardess, nursing, art, and banking.

ITEM 15. ARE YOU NOW TAKING ADDITIONAL TRAINING?

Of the 607 responses to this item, 230 (38%) answered "yes," 377 (62%) "no."

IF "YES," WHERE?

Of the affirmative replies, 114 indicated matriculation at a college or junior college; 18 attend Emily Griffith Opportunity School. Other replies signified special trade schools, on-the-job training, or armed-service schools.

ITEM 16. IS YOUR PRESENT JOB ONE THAT GIVES YOU: a. MUCH SATISFACTION b. SOME SATISFACTION c. NO SATISFACTION

Of 567 replies, 301 (53%) indicated much satisfaction; 211 (37%) some degree of satisfaction; and 55 (10%) no satisfaction in their present jobs.

ITEM 17. PLEASE WRITE BELOW ANY SUGGESTIONS YOU MAY HAVE WHICH WOULD HAVE IMPROVED YOUR HIGH SCHOOL EXPERIENCES WITH RESPECT TO COURSES OFFERED, EXTRACURRICULAR ACTIVITIES, GUIDANCE SERVICES, ETC.

There were 797 comments written in response to Item 17. Table XXX groups these responses.

TABLE XXX

Areas of Concern for Improving High School Experience

AREAS OF CONCERN	NUMBER OF RESPONSES	PERCENT OF TOTAL RESPONSE
Guidance services	334	42
Courses offered	289	36
Extracurricular activities	66	8
Other (31)	108	14
TOTALS	797	100%

A large proportion of suggestions made expressed a desire for more individual attention. Table XXX, which shows 42% of the responses concerned with some aspect of the guidance services, reflects this. Counseling was named most often as the area in need of improvement. Of the responses, 30% indicated concern with course offerings. Here the most frequent area mentioned as valuable and needing expansion was business education.

SUMMARY

Of the 5,077 graduates from the Denver Public Schools in 1965, 2,112 completed one year of college during the year following graduation. Questionnaires from 668 of the remainder indicated that they were employed in metropolitan Denver. The 361 employers who had hired them provided information about the 1965 graduates they employed.

More than half of the graduates in this study were working at clerical jobs, and 81% of the employers indicated that they had entry-level jobs available in the clerical field for high school graduates. Of the courses listed by graduates as having the greatest value, 20% fall within the category of business education.

Nearly one fourth of the graduates in this survey felt that the schools should offer more training for the type of work they were doing, and nearly half of these indicated preparation in commercial and business areas.

A majority of the employers felt preparation in the basic skills was most important. A third of the graduates indicated a need for more training in the basic skills.

A majority of employers continue to regard the high school diploma as a very important condition of both employment and advancement in their companies.

Better than three fourths of all employers interviewed expressed the opinion that the educational preparation of the high school graduates was adequate.

More than half of the 1965 graduates had been employed on their present job one year or more at the time the survey was made.

In excess of 90% of employers rated graduates as satisfactory or outstanding in educational background, attitudes toward work, and personal traits.

Even though most graduates responded that they had secured their first job as a result of their own efforts, they indicated that school personnel were an important source of help to them in seeking employment after graduation.

In response to a request for suggestions for the improvement of the high school experience, graduates most often mentioned better counseling and guidance services, then changes in the curriculum.

APPENDIX

THE SURVEY PROJECT INTERVIEW TEAM

Rodney Anderson	West High School
LeRoy Bonger	South High School
Robert Brannberg	George Washington High School
Charles Clarkson	East High School
Merle Dorsett	Thomas Jefferson Junior-Senior High School
Lloyd Flanders	Abraham Lincoln High School
Byron Graber	John F. Kennedy Junior-Senior High School
Donald Noyce	Manual High School
James R. Warden	Emily Griffith Opportunity School

Interviewer_____

DENVER PUBLIC SCHOOLS

High School Graduate Survey — Class of 1965

EMPLOYER SURVEY QUESTIONNAIRE ON HIGH SCHOOL GRADUATES

Interview date_____ Time_____

1. Name of company_____
2. Address_____ Telephone number_____
3. Name and title of official interviewed_____
4. Classification of business_____ Number of employees_____
5. Is a high school diploma required for all jobs?_____ Some_____ None_____
6. Is a high school diploma required for advancement?_____
7. What beginning jobs are open to Denver high school graduates?_____

   _____

   _____
8. About how many high school graduates do you expect to hire next year?_____
9. What beginning jobs are open to non-high school graduates?_____

   _____

   _____
10. About how many non-high school graduates do you expect to hire next year?_____
11. What Denver high school pupil information is most useful to you?_____
12. Do you employ Denver high school students part time? yes_____ no_____

    If yes, for what jobs?_____ wages (hourly)?_____
13. Do you have on-the-job training or instruction for new employees? yes_____ no_____
14. Do you prefer any particular type of post-high school training for new employees?

    no_____ business school_____ trade school_____ college_____ other_____
15. Do you prefer any particular type of post-high school training for company advancement?

    no_____ business school_____ trade school_____ college_____ other_____
16. Do you feel that Denver high school graduates coming to you for employment have an adequate educational background? yes_____ no_____ If not, in what subjects do they need additional preparation?_____
17. What areas of high school preparation do you feel are most valuable or important for employment in your company?_____

(OVER)

18. Have you terminated Denver high school graduates for reasons other than cutback in employment? yes_____ no_____ If yes, for what reasons (be specific)_____

_____

19. Have requirements for beginning jobs changed in the past few years? yes_____ no_____
If yes, how?_____

_____

20. Appraisal of 1965 graduates now employed:

RATING SCALE

1. Outstanding
2. Satisfactory
3. Unsatisfactory
4. Unknown

JOB CLASSIFICATION CODING

1. Clerical
2. Unskilled
3. Mechanical
4. Sales
5. Personal service
6. Apprentice
7. Semiprofessional
8. Other

NAME OF GRADUATE	School	Job classification	Length of employment (months)	Wages (hourly or weekly)	Mathematics	Spelling	Handwriting	English	Reading comprehension	Attitude toward work	Attitude toward employer	Ability to get along with others	Personal hygiene and grooming	Manual dexterity	Mechanical comprehension	Punctuality

(OVER)

Comments:

A FOLLOW-UP STUDY OF THE 1965 HIGH SCHOOL GRADUATES

DENVER PUBLIC SCHOOLS — 1967

Your high school is interested in knowing what the 1965 graduates who are working in business and industry in the Denver area are actually doing, and how well your high school training helped prepare you for your job. Since your name will never be associated with your answers, it is *not* necessary for you to sign this questionnaire.

1. _____ _____ _____
   Name of Your High School — Sex (Male or Female) — Present Employer

   _____ _____
   Address of Employer — Telephone Number of Employer

2. Circle the number of years you attended Denver public schools: 1 2 3 4 5 6 7 8 9 10 11 12 13

3. What kind of school work did you do? (Check one) A____ B____ C____ D____

4. Briefly describe what you do on your present job: _____

   _____

   _____

5. Should your high school offer more training to prepare students for the type of work you are doing?

   Yes_____ No_____ Not sure_____

6. If "yes" in question 5, what specific training should the high school offer? _____

   _____

   _____

7. How did you secure your present job? Own efforts_____ Parents or relatives_____ Friends_____

   Private employment agency_____ State employment services_____

8. Besides "more experience," what additional training is necessary for you to advance in your job?

   _____

   _____

9. Who provided you with the greatest help in obtaining your present job? _____

   _____

10. When you think back over the time you went to high school, how would you rate the help you received from your teachers and counselors in each of the areas listed below? (Please check)

	Much	Some	Little or None
a. Selecting subjects while in high school	_____	_____	_____
b. Planning for your life work (vocational guidance)	_____	_____	_____
c. Preparing for college (meeting requirements for admission, etc.)	_____	_____	_____
d. Learning how to go about getting a job	_____	_____	_____
e. Discovering your abilities, interests, and weaknesses	_____	_____	_____
f. Learning how to solve problems of a personal kind (relationships with other people, worries, home problems, etc.)	_____	_____	_____
g. Preparing for successful marriage	_____	_____	_____
h. Taking care of your health	_____	_____	_____
i. Using your money wisely	_____	_____	_____
j. Selecting activities that interested you (athletics, clubs, dramatics, etc.)	_____	_____	_____

[OVER]

11. How well do you believe you were prepared in the basic skills? (Please check)

	Very well	Fair	Poor
a. Reading	_____	_____	_____
b. Arithmetic	_____	_____	_____
c. Spelling	_____	_____	_____
d. Written English	_____	_____	_____
e. Spoken English	_____	_____	_____

12. Which two high school courses had the greatest value to you in regard to your present job?

a._____ b._____

13. Which two high school courses had the least value to you in regard to your present job?

a._____ b._____

14. Do you ever plan to take additional training? Yes_____ No_____

If "yes," where? a._____ b._____
Junior College College

c._____ d._____
Opportunity School Other — Indicate

15. Are you now taking additional training? Yes_____ No_____

If "yes," where? a._____ b._____
Junior College College

c._____ d._____
Opportunity School Other — Indicate

16. Is your present job one that gives you: (Circle one of the following)

a. much satisfaction b. some satisfaction c. no satisfaction

17. Please write below any suggestions you may have which would have improved your high school experiences with respect to: courses offered, extracurricular activities, guidance services, etc.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

THE PARTICIPATING DENVER AREA EMPLOYERS

A B & K TV Sales and Service
1459 S. Pearl

Able TV
700 Peoria

Acme Uniform Rental
103 Elati

Adolph's Auto Service
1201 E. 58th Ave.

Advance Maintenance Co.
309 S. Federal Blvd.

Alliance Mutual Casualty Co.
2701 Alcott

Allied Mutual Insurance Co.
2829 E. 2nd Ave.

Allison Drilling Co., Inc.
1275 Sherman

Allstate Insurance Co.
888 Sherman

Alpha Engineering, Inc.
2525 Geneva

Alumilux-Scott, Inc.
6630 Monaco Pkwy.

American Auto Parts System
1601 W. 23rd St.

American Builders Contract Div., Inc.
240 Wyandot

American Coleman Co.
5801 S. Nevada

American Crystal Sugar Co.
828 17th St.

American Flooring Co.
200 Kalamath

American Form Tie Co.
3800 S. Jason

American National Bank
17th & Stout

American Sanitary Products Co.
2301 Blake

American School Supply Co.
2301 Blake

Amtraco Construction Corp.
4980 Monroe

Arlan's Discount Dept. Stores
5501 S. Broadway

Arlen's, Mr., Hairstyling
4383 S. Federal Blvd.

Arrow Paint and Wallpaper Co.
1520 Lawrence

Asbury Circle Nursing Home
4660 Asbury Circle

Associated Grocers of Colo., Inc.
5151 Bannock

Atlantic Mutual Insurance Co.
820 16th St.

Aurora Industrial Bank
9975 E. Colfax Ave.

Auto-Tronix Universal
444 Sherman

Avon Products, Inc.
550 Fulton

Bank of Denver
1534 California

Bell Optical Laboratory
955 Bannock

Bell Publications
2400 Curtis

Bendix-Westinghouse Automotive
Air Brake Distr.
4800 Race

Beth Israel Hospital
W. 16th Ave. & Lowell Blvd.

Big T Thrift-Way
1700 E. Colfax Ave.

Black & White Service
2424 E. Colfax Ave.

Blue Cross & Blue Shield Plans
244 University Blvd.

Boettcher & Co.
828 17th St.

Bostitch - Denver Co.
1156 S. Kalamath

Boulder Industries, Div. of
Ren Electronics
4384 Grape

Boyd Distributing Co., Inc.
1661 West 3rd Ave.

Brentwood Beauty Salon
3001 W. Evans Ave.

Buerger Bros. Supply Co.
1738 Champa

Burroughs Corporation
1035 Lincoln

C & M Vending Co.
2201 S. Platte River Dr.

Cameo Creations
1500 E. Colfax Ave.

Canjar Rifle Accessories
500 E. 45th Ave.

Capitol Life Insurance Co.
1600 Sherman

Carbone Italian Bakery
3232 Quivas

Carney Lumber Co.
1295 S. Broadway

Catholic Register
938 Bannock

Celebrity Sports Center
888 S. Colorado Blvd.

Central Bank & Trust Co.
15th & Arapahoe

Central Uniform Rental
999 Vallejo

Charm Acres Nursing Home
1650 Allison

Cherrelyn Manor Nursing Home
5555 S. Elati

Cherry Creek Greenhouse, Inc.
5050 Leetsdale Dr.

Cherry Creek National Bank
E. 1st Ave. & St. Paul

Cherry Creek School District
Yosemite & E. Union Ave.

Children's Hospital
E. 19th Ave. & Downing

Clinton Aviation Co.
Stapleton International Airport

Clutch Exchange, Inc.
1325 S. Cherokee

Colfax Radio & Appliance Co.
5128 E. Colfax Ave.

Collins' Bicycles
3217 E. Colfax Ave.

Colorado Anodizers, Inc.
788 Vallejo

Colorado Baptist Convention Center
—American Baptist
1344 Pennsylvania

Colorado Education Assn.
5200 S. Quebec

Colorado Industrial Bank
1755 Stout

Colorado Motor Carriers Assn.
4060 Elati

Colorado National Bank
17th and Champa

THE PARTICIPATING DENVER AREA EMPLOYERS — (Continued)

Colorado, State of:
- Accounts and Control, Div. of
  200 E. Colfax Ave.
- Banking Commission
  1525 Sherman
- Civil Service Commission
  1525 Sherman
- Engineer State, Underground Water Section
  1525 Sherman
- Ft. Logan Mental Health Center
  3520 W. Oxford Ave.
- Highway Department
  4201 E. Arkansas Ave.
- Industrial Commission of Colorado
  130 E. 14th Ave.
- Motor Vehicle Div.
  140 W. 6th Ave.
- Revenue Department
  130 E. 14th Ave.
- State Home & Training School
  Wheatridge, Colorado
- Welfare Dept., Public State
  1600 Sherman

Columbian Bifocal Co.
1412 Glenarm Pl.

Conoco Service Station
2400 S. Downing

Continental Denver-Beauty Salon
Speer Blvd. & Valley Highway

Continental Oil Co.
1755 Glenarm Pl.

Cook, Dave Sporting Goods Co.
Westland Shopping Center

Cooper Heating & Sheet Metal, Inc.
40 S. Galapago

Coors, Adolph Co.
Golden, Colorado

Coors Porcelain Co.
600 9th St., Golden

Cosmopolitan Hotel
E. 18th Ave. & Broadway

Creative Merchandising, Inc.
655 Broadway

Credit Bureau of Greater Denver
600 13th St.

Custom-Aire Sheet Metal
1999 S. Navajo

Dahlstrom Mfg. Corp.
11155 E. 45th Ave.

Dairy Land Insurance Co.
421 Broadway

Danker-Wohlk Associates
832 Metro Bldg.
227 16th St.

Davis Bros., Inc.
501 W. 44th Ave.

Davis Drug, Inc.
6512 S. Broadway

Davis Sales Co.
3825 Newport

Dawson, Nagel, Sherman & Howard
1st National Bank Bldg.
621 17th St., Room 1900

Denpak Warehouse Div. of Denver Wood Products
95 S. Tejon

Densco
3840 Forest

Denver Auto Trimming Supply Co.
1120 Galapago

Denver, City & County of
- Career Service Authority
  810 14th St.
- Data Processing
  810 14th St.
- Health & Hospitals
  - Denver General Hospital
    W. 6th Ave. & Cherokee
  - Visiting Nurse Service
    659 Cherokee
- Juvenile Court
  1437 Bannock
- Libraries — Main
  1357 Broadway

Denver Dry Goods Co.
16th & California

Denver Importing Co.
2254 Stout

Denver Key & Lock Co.
1995 Broadway

Denver Lender's Exchange
1726 Champa

Denver Post, Inc.
650 15th St.

Denver Public Schools
414 14th St.

Denver Technical College
865 Lincoln

Denver U. S. National Bank
1700 Broadway

Denver Wholesale Florists Co.
4800 Dahlia

Dietzgen, Eugene Co.
3875 Elm

Dodge City, Inc.
7700 W. Colfax Ave.

Don's Mobil & Tire Service
1518 S. Pearl

Douglas Optical
501 16th St.

Dow Chemical Co.
Security Life Bldg.
1616 Glenarm Pl.

Dreher Pickle Co.
860 Navajo

Duckwall, A. L. Stores Co.
1601 S. Colorado Blvd.

Dun & Bradstreet, Inc.
330 E. 8th Ave.

Eaker, A. G. Co.
1913 W. Mississippi Ave.

Electron Corp.
5101 S. Rio Grande

Elsie's Beauty Salon
2250 S. Colorado Blvd.

Employers' Group of Insurance Companies
330 E. 8th Ave.

Esquire Theatre
590 Downing

Farmers Tool & Supply Corp.
1300 E. 58th Ave.

Farmers Union Insurance
1575 Sherman

Fashion Bar
695 S. Broadway

Federal Envelope Co.
3801 Race

Federal Reserve Branch Bank of Kansas City
1111 17th St.

Ferroxcube Corporation
5455 S. Valentia Way

Financial Programs, Inc.
950 Broadway

First National Bank of Denver
621 17th St.

Food Giant
1280 S. Sheridan Blvd.

Foster Auto Supply Co.
550 Acoma

Frontier Airlines
5900 E. 39th Ave.

Frontier Refining Co.
4040 E. Louisiana Ave.

Furr's Department Center
3755 Cherry Creek N. Drive

Gano-Downs Co.
16th & Stout

THE PARTICIPATING DENVER AREA EMPLOYERS — (Continued)

Gates Cyclo, Inc.
3816 Dahlia

Gates Rubber Co.
999 S. Broadway

General Accident Fire and
Life Assurance Co.
1060 Ins. Exchange Bldg.
910 15th St.

General Rose Memorial Hospital
1050 Clermont

Gibson Fabric Center
University Hills Shopping Center
2700 S. Colorado Blvd.

Gigantic Cleaners & Laundry
401 E. 17th Ave.

Glenarm Restaurant
1700 Glenarm Pl.

Globe Livestock Supply
1400 E. 47th Ave.

Golden Leash Pet Shop
Villa Italia Shopping Center
S. Wadsworth & Alameda

Goodwill Industries
3003 Arapahoe

Gordon's Greenhouses
3651 S. Sheridan Blvd.

Government Employees Financial Corp.
41 East Colfax Ave.

Grampy's Pancake House
865 S. Colorado Blvd.

Grant, W. T. Co.
800 16th St.

Graves Bookkeeping & Tax Service
2186 S. Holly

Green Gables Country Club
W. Jewell Ave. & Morrison Rd.

Griffin, Dr. Richard E.
1040 S. Gaylord

Griff's Burger Bar
200 S. Sheridan Blvd.

Hamilton Management Corp.
777 Grant

Harmony Market
2875 W. Hampden Ave.

Harrington, Dr. Gerald W.
1835 S. Federal Blvd.

Hartford Life Insurance Co.
655 Broadway

Hatch Grinding Co.
1229 Broadway

Hatch Hallmark Shop
Villa Italia Shopping Center

Hathaway Instruments, Inc.
5250 E. Evans Ave.

Henry's Hamburgers
2390 S. Colorado Blvd.

Hirschfeld, A. B. Press
Speer Blvd. & Acoma

Home Insurance Co.
838 Grant

Honeywell, Inc., Test Instruments Div.
4800 E. Dry Creek Road

Hospitality Center
225 W. Colfax Ave.

Huckeby & Cisneros
332 W. 14th Ave.

Ideal Cement Co.
821 17th St.

Idol Optical Co.
1010 Acoma

Irvin, George Chevrolet Co.
390 S. Colorado Blvd.

Jewish Community Center
4800 E. Alameda Ave.

Joslins
16th & Curtis

KDEN Broadcasting Co.
1601 W. Jewell Ave.

K Mart Discount Store, Div. of
S. S. Kresge Co.
200 W. Belleview Ave.

Karman, Inc.
1513 Wazee

Kearns, Jack Motor Co.
3211 S. Broadway

Keebler Co.
5000 Osage

King Soopers, Inc.
1400 W. 3rd Ave.

Kinney Shoes
2520 S. Colorado Blvd.

Knudson Mfg., Inc.
10060 W. 27th Ave.

Kowalski, Dr. Leonard W.
824 E. 18th Ave.

Kraft Foods
5905 E. 42nd Ave.

Krakover, Allen S.
817 17th St.

Laman For Letters, Inc.
2420 S. Delaware

Lande Mfg. Co.
1628 15th St.

Laradon Hall School for Exceptional
Children
E. 51st Ave. & Lincoln

Liberty Loan Corp. of Denver
4353 W. Florida Ave.

Liberty Mutual Insurance Companies
770 Grant

Littleton City Public Library
6000 S. Datura

Lohman Sales Co.
933 Bannock

Loretto Heights College
3001 S. Federal Blvd.

Luby's Cherry Creek Cafeteria
Cherry Creek Shopping Center

Lundquist Paint Co.
5310 E. Pacific Pl.

M-D Rexall Drug Store
2895 S. Broadway

M W Enterprises
919 Decatur

MacDonald Equipment Co.
5300 Colorado Blvd.

Magdalene Gardens, Inc.
3131 S. Federal Blvd.

Majestic Savings & Loan Assn.
500 17th St.

Mallow Plating Works
118 S. Pecos

Manufacturers & Wholesalers
Indemnity Exchange
2019 Stout

Martin-Marietta Corp., Denver Div.
4301 E. Exposition Ave.

May-D & F
16th & Tremont Pl.

Mayflower Gifts & Sundries
1700 Grant

McDonald, Dr. Roderick J., Jr.
1612 Tremont Pl.

McPherson Corporation
2027 W. Colfax Ave.

Mercy Hospital
1619 Milwaukee

Mesa Fiberglass Products Co.
6471 E. 49th Dr.

Metropolitan Industrial Bank
1301 E. Colfax Ave.

Metropolitan State College
250 W. 14th Ave.

Metropolitan T. B. A.
2555 W. 8th Ave.

THE PARTICIPATING DENVER AREA EMPLOYERS — (Continued)

Mid-States Agency
1108 15th St.

Miller and Co.
1549 Lawrence

Miller Tire Sales Co.
505 W. Cedar Ave.

Miller's Super Markets, Inc.
4120 Brighton Blvd.

Miracle-Fifer Drilling Co., Inc.
509 17th St.

Miss K Coiffures
3770 Lowell Blvd.

Montgomery Ward & Co.
555 S. Broadway
5801 W. 44th Ave.
S. Wadsworth & W. Alameda

Morine's Beauty Salon
5317 S. Broadway

Morrison & Morrison, Inc.
1620 Court Pl.

Mount Vernon Country Club
Lookout Mountain

Mountain Optical Co.
1235 Acoma

Mountain States Compensation
Rating Bureau
158 Fillmore

Mountain States Tel. & Tel. Co.
930 15th St.
639 E. 18th Ave.
3201 Eliot

Mr. C. Fashions
2540 S. Colorado Blvd.

Mr. Manning's Styling Salon
5184 S. Broadway

Mr. Steak
5786 S. Ulster

Mutual Benefit Life Insurance Co.
of Newark, N. J.
825 E. Speer Blvd.

National Adjusters, Inc.
720 E. 18th Ave.

National City Bank of Denver
99 S. Broadway

National Union Insurance Companies
910 15th St.

Natkin & Co.
2820 S. Zuni

Navajo Freight Lines, Inc.
1205 S. Platte River Drive

Neusteters
720 16th St.

Norgren, C. A. Co.
5400 S. Delaware

Norm's Sinclair Service
2290 S. Colorado Blvd.

Northwestern Mutual Life Insurance
Co. of Milwaukee
818 17th St.

Noval's TV Service
2104 S. Federal Blvd.

Nyla's Beauty Shop
4160 Julian

O'Meara Ford Center
1100 W. Colfax Ave.

One Hour Martinizing Cleaners
10222 E. Colfax Ave.

Orbitronics, Inc.
3660 E. 40th Ave.

Owen, Roberts & Moore
1700 Broadway

Pacific Air Freight, Inc.
Stapleton International Airport

Patio Beauty Salon A.
2187 S. Sheridan Blvd.

Patterson MF Dental Supply Co.
999 Acoma

Penney, J. C. Co., Inc.
1600 California

Pennsylvania Life Insurance Co.
158 Fillmore

Pizza Oven Italian Restaurants
6151 E. Colfax Ave.

Pollard Friendly Ford Co.
290 W. Broadway

Porter Pontiac, Inc.
945 Broadway

Postal Finance Co.
5420 W. 44th Ave.

Presbyterian Medical Center
E. 19th Ave. & Gilpin

Public Service Co. of Colorado
550 15th St.

R. C. Hollow Metal Co.
461 Kalamath

R. C. Wholesale Co.
3616 Tejon

Ralston Purina Co.
4599 York

Record Club of Denver
638 16th St.

Red Barn Self-Service Restaurants
6800 W. Alameda Ave.

Redfield Gun Sight Co.
5800 E. Jewell Ave.

Reed Roller Bit Co.
110 16th St.

Regis College Book Store
W. 50th Ave. & Lowell Blvd.

Reliance Insurance Company
910 15th St.

Republic Building Parking
1640 Tremont Pl.

Republic Rexall Drug Store
5058 E. Hampden Ave.

Retail Clerks Local Union No. 7
3444 W. Colfax Ave.

Retail Credit Co.
620 Sherman

Rice Auto Repair Service
4101 W. 1st Ave.

Robert's Mr. Hair-Styling
5301 W. Arkansas Ave.

Robertshaw Controls Co.
6100 W. 55th Ave.

Rockmont Envelope Co.
3500 Rockmont Dr.

Rocky Mtn. Motor Tariff Bureau, Inc.
4045 Pecos

Rocky Mountain News
400 W. Colfax Ave.

Russell Stover Candies, Inc.
2015 Arapahoe

Sachs Lawlor Co.
1543 Larimer

Safeway Stores, Inc.
3888 E. Mexico Ave.

Saga Food Service
1800 Pontiac

St. Anthony's Hospital
W. 16th Ave. & Raleigh

St. Cajetan Parish Credit Union
1156 9th St.

St. Elizabeth Retreat
2825 W. 32nd Ave.

St. Joseph Hospital
1835 Franklin

St. Luke's Hospital
601 E. 19th Ave.

Sales Advertising Service
1009 17th St.

Samsonite Corporation
1050 S. Broadway

THE PARTICIPATING DENVER AREA EMPLOYERS — (Continued)

Schrafft's Cafeteria
1961 Stout

Sears Roebuck and Co.
E. 1st Ave. & University Blvd.
1701 W. 6th Ave.

Security Industrial Bank
2789 W. Alameda Ave.

Security Life & Accident Co.
1616 Glenarm Pl.

Service Auto Glass Co.
965 Broadway

Shell Oil Co.
1700 Broadway

Skaggs Drug Centers, Inc.
Cherry Creek Shopping Area

Ski, Inc.
5081 E. Colfax Ave.

Skyline Telephone Secretarial Service
2117 S. Ash

Snow White Beauty Shop
3614 Navajo

South Denver National Bank of Glendale
690 S. Colorado Blvd.

Speedy Messenger Service
2045 Curtis

Spitzer Electrical Co.
43 W. 9th Ave.

Stanley Electric Co.
1572 Clay

Stapp, J. Donovan
910 16th St.

Stuck, Dr. Alfred M.
158 Fillmore

Sun Life Assurance Co. of Canada
817 17th St.

Supertron Corp
2482 W. 2nd Ave.

Swallows Mfg. Co.
326 S. Broadway

Swedish Hospital
501 E. Hampden Ave.

Sweetbriar Shops, Inc.
1549 Lawrence

Target Stores, Inc.
4301 E. Virginia Ave.
1655 Owens

Technical Equipment Corp.
917 Acoma

Tempco Temporary Help Service
1615 California

Three Sisters
813 16th St.

Timpte, Inc.
5990 Washington

Town & Country Market, Inc.
4300 E. Colfax Ave.

Travelers Insurance Companies
101 University Blvd.

United Air Lines
Stapleton International Airport

United American Life Insurance Co.
1717 California

United Credit Control, Inc.
828 17th St.

U. S. Government
Air Force, Dept. of
Air Force Accounting & Finance Center
3800 York
Lowry Air Force Base
E. 6th Ave. & Quebec
Army, Dept. of
Fitzsimons General Hospital
12290 E. Colfax Ave.
Denver Federal Center
W. 6th Ave. & Kipling
Health, Education & Welfare, Dept. of Food & Drug Adm.
721 19th St.
Labor Department
730 17th St.
Post Office Department
1823 Stout
Treasury Department — Mint
Delaware & W. Colfax Ave.

U. S. Royal Tire Center of Hoffman Heights
606 Peoria

University of Denver
2199 S. University Blvd.

University Hills Service Station
Colorado Blvd. & Warren

Uptime Corp.
15910 W. 5th Ave., Golden

Van Hummell, Henry, Inc.
444 Sherman

Village Market
1465 S. Holly

Waddell & Reed, Inc.
1845 Sherman

Walgreen Co.
801 16th St.
Villa Italia, Wadsworth & Alameda

Walston & Co., Inc.
1700 Broadway

Warneke Paper Box Co.
1617 Wazee

Watch & Clock Hospital
416 E. Colfax

Webster's Beauty Salons
2015 Clinton
Lakeside Shopping Center

Wesco Fabrics, Inc.
4000 Forest

Western Casualty & Surety Co.
910 15th St.

Western Electric Co., Inc.
111 Havana

Western Farm Bureau Life Insurance Co.
1200 Lincoln

Western Industrial Bank
2777 S. Colorado Blvd.

Western Plasti-Type Co.
1116 10th St.

Wilson, Joseph T., Architect
1240 W. Bayaud Ave.

Winbro Residential Apartments
1620 Grant

Winter-Weiss Co.
2201 Blake

Wonder Bread Bakers
80 E. 62nd Ave.

Woolworth, F. W., Co.
820 16th St.

Worthington Corp.
4751 Broadway

Wright & McGill
1400 Yosemite

Wuthrich, Fred J., & Daryl R. Burns, Drs.
158 Fillmore

YMCA
25 E. 16th Ave.

Yarbro's
University Hills Shopping Center

Zimmerman, Wm. G., Architectural Metals, Inc.
201 E. 58th Ave.

VT 003 524

Reports on Apprenticeship by the Advisory Committees to the United States Commission on Civil Rights in California, Connecticut, District of Columbia, Florida, Maryland, New Jersey, New York, Tennessee, and Wisconsin.

Commission on Civil Rights, Washington, D.C. State Advisory Committee Div.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan64 166p.

*APPRENTICESHIPS; *EQUAL OPPORTUNITIES (JOB); LABOR UNIONS; VOCATIONAL EDUCATION; ADVISORY COMMITTEES; FEDERAL PROGRAMS; PROGRAM DESCRIPTIONS; STATE PROGRAMS; NEGRO EMPLOYMENT; *RACIAL DISCRIMINATION; SURVEYS CALIFORNIA; CONNECTICUT; DISTRICT OF COLUMBIA; FLORIDA; MARYLAND; NEW JERSEY; NEW YORK; TENNESSEE; WISCONSIN

The Commission on Civil Rights established 51 advisory committees to provide information and advice from all the states on civil rights issues; this document includes reports on apprenticeship training from eight states and the District of Columbia. Some of the areas dealt with in the reports were: (1) discrimination in vocational education and apprenticeship training, (2) Negro student unrest, (3) established employment and practices, (4) development of equal opportunities, (5) major obstacles to Negroes in apprenticeship, and (6) school, federal and state government, management and labor, and community action efforts to overcome problems. All of the reports also include conclusions, recommendations, and summaries. (MM)

VT 003 524

ED0 36657

REPORTS ON APPRENTICESHIP

BY THE ADVISORY COMMITTEES
TO THE UNITED STATES
COMMISSION ON CIVIL RIGHTS
IN:

California Florida New York

Connecticut Maryland Tennessee

District of Columbia

New Jersey Wisconsin

VT0035524

JANUARY 1964

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TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

REPORTS ON APPRENTICESHIP

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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By the Advisory Committees to the

UNITED STATES COMMISSION ON CIVIL RIGHTS

in

CALIFORNIA, CONNECTICUT, DISTRICT OF COLUMBIA,

FLORIDA, MARYLAND, NEW JERSEY, NEW YORK, TENNESSEE,

and WISCONSIN,

JANUARY 1964

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Introduction

THE STATE ADVISORY COMMITTEES

The spring of 1963 brought the usual seasonal upswing in construction throughout the United States. Sidewalk superintendents were able to observe once again the fascinating process of the birth of new buildings. Everything was familiar: the cranes, the power shovels, the trucks, the cement mixers, and the thousands of highly skilled artisans who seemed to have one thing in common everywhere--with rare exceptions, they were all white.

On May 1, 1963, random observations revealed the following:

---In New York City, a 50-story office building was going up at 277 Park Avenue. The steel structure of 13 floors was complete. Over 100 structural steelworkers, masons, and carpenters were finishing the structural work on the 13th floor; not one was a Negro.

---In New Haven, Connecticut, 44 men engaged in the iron work, masonry, cement finishing, plumbing, roof and sheet metal, ornamental metal, temperature control, painting, and plastering crafts were applying finishing touches to the new Rare Book Library of Yale University, a $7 million white onyx and marble structure of experimental design. Three of the craftsmen were Negroes.

---In Milwaukee , Wisconsin, the $23 million Veterans Administration hospital was one-eighth completed. Work was in progress on the basement and the first two floors. Eighty-three carpenters, 19 electricians, and 14 workers in the plumbing, pipefitting, and operating engineering trades were seen on the job. The only Negroes were four carpenters.

---In Columbus, Ohio, the 350-room Plaza Motor Hotel was half built; 153 skilled craftsmen were seen at work, including carpenters, iron workers, operating engineers, brick masons, electricians, sheet metal workers, pipe fitters, and plumbers. All of them were white.

---In Newark, New Jersey, secondary construction was underway on the Barringer High School; 45 carpenters, 19 iron workers, and 32 others from the sheet metal work, plumbing, operating engineering, steamfitting, electrical, and layout engineering crafts were involved. The only Negroes were four carpenters.

---In Washington, D.C., the outside of the Farragut Building, a 12-story office structure, was finished, and 29 plasterers, carpenters, plumbers, and electricians could be seen working on the interior. There were two Negroes among them, both of them plasterers.

These quick visual surveys of a few representative construction sites in various parts of the country[1] were made to place in perspective the studies of Negro access to apprenticeship that were being conducted in the spring of 1963 by the Civil Rights Commission's State Advisory Committees in California, Connecticut, the District of Columbia, Florida, Maryland, New Jersey, New York, Tennessee, and Wisconsin. The reports of these Committees make up this volume.

The 9 Committees are among 51 Advisory Committees established in every State and the District of Columbia by the Commission pursuant to the Civil Rights Act of 1957. The members of the Committees (listed at the beginning of each section for the reporting States) are appointed by the Commission and serve at its pleasure without compensation or full-time staff assistance; they are voluntary groups serving to provide the Commission with information and advice from all the States on civil rights issues. Advisory Committee reports were published in compilation in 1959 and 1961,[2] and reports from individual Committees in Mississippi, North Carolina, South Dakota, Washington, D.C., Connecticut, California, Florida, New Jersey, and Arkansas were published in 1963 in the order listed, covering such varied civil rights subjects as police brutality, public accommodations, employment, police-community relations, urban renewal relocation, and school desegregation.[3]

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1. The cities in which the surveys were taken all have significant nonwhite populations: New York, 14.0%; New Haven, 8.4%; Milwaukee, 8.4%; Columbus, 16.6%; Newark, 34.4%; Washington, D.C., 53.9%. All percentages from 1960 census.

2. U.S. Commission on Civil Rights, Reports of the State Advisory Committees (1959); 50 States Report (1961).

3. Report on Mississippi (January 1963); Equal Protection of the Laws in North Carolina (2d ed. March 1963); Report on Rapid City (March 1963); Report on Washington, D.C.: Employment (July 1963); Report on Connecticut: Family Relocation Under Urban Renewal (July 1963); Report on California: Police-Minority Group Relations (August 1963); Report on Florida (August 1963); Report on New Jersey (September 1963); Report on Arkansas: Education, Still Separate and Still Unequal (September 1963). List current to November 1, 1963.

When, late in 1961 and early 1962, the Advisory Committees in Connecticut, the District of Columbia, Florida, Maryland, New Jersey, New York, Tennessee, and Wisconsin were planning reporting projects for the current Commission term, considerable interest centered on employment barriers to the skilled trades that might be attributable to exclusion of Negroes from apprenticeship and other training programs. These eight Committees decided to devote investigative efforts either solely to the apprenticeship problem, or to explore apprenticeship as part of a broader survey of employment or of training opportunities generally. With such an abundance of interest in one substantive civil rights problem, it was decided to coordinate the studies and to publish them in this single volume. The report on the development of California's statewide program dealing with apprenticeship discrimination was requested by the Commission to round out the collection.

The U.S. Commission on Civil Rights, a fact-gathering and reporting agency charged by law with assessment of legal developments constituting a denial of equal protection of the laws and of the programs of the Federal Government with respect to equal protection, had itself looked briefly into the problems of apprenticeship discrimination and reported its findings in its 1961 report on employment, volume 3 of a five-volume report to the President and Congress.[4] The Commission made three findings in the area of apprenticeship:[5]

17. Apprenticeship training could be an important means of fulfilling the increasing demand for skilled workmen and of helping minority groups emerge from their traditionally low economic status. However, present apprenticeship training programs are not training even enough craftsmen to replace those who retire, and Negroes constitute a disproportionately small minority of the inadequate number of workers being trained.

18. The nationwide paucity of participation by Negroes in apprenticeship training programs is caused by lack of qualified applicants and also by discriminatory practices of both labor organizations and employers, who control admission to such programs.

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4. 3 1961 Report of the U.S. Commission on Civil Rights, Employment 104-11.

5. Id. at 160-61.

25. As the craft unions generally control admission to apprenticeship training programs, racial discrimination policies also operate to exclude Negroes from these programs.

The Commission made one recommendation applicable to apprenticeship:[6]

> That Congress and the President take appropriate measures to encourage the fullest utilization of the Nation's manpower resources and to eliminate the waste of human resources inherent in the discriminatory denial of training and employment opportunities to minority group members by
>
> (a) Expanding and supplementing existing programs of Federal assistance to vocational education and apprenticeship training;
>
> . . . . .
>
> (c) Providing that, as a condition of Federal assistance, all such programs be administered on a nondiscriminatory, nonsegregated basis;
>
> . . . . .

The Advisory Committees reporting in this volume decided that local investigations of the apprenticeship situation were pertinent in a period of increasing public concern over inequities in these training programs. The Committees relied primarily on two methods of fact-gathering: open meetings (State Advisory Committees do not possess the Commission's power to conduct formal hearings involving subpenas and testimony under oath), and academic inquiries under the auspices of local colleges and universities. In Wisconsin, a one-day public meeting in Milwaukee was devoted to discussion and questioning of union officials, management representatives, State and local administrators of public programs, and spokesmen for the Negro community. In New York, an economics professor at Columbia University conducted interviews of Negro apprenticeship applicants and other research. In California, Advisory Committee member William L. Becker was professionally involved in a notable program in which that State takes great pride; the Committee was able to draw on Mr. Becker's experience

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6. Id. at 162.

as Secretary of the Statewide Committee on Equal Opportunity Apprenticeship and Training for Minority Groups, in preparing its report. In Washington, D.C., the Advisory Committee gathered information on apprenticeship in a 3-day conference on equal employment opportunity, out of which it produced a report published earlier this year;[7] the material submitted here expands and updates the apprenticeship material in the earlier D.C. employment report.

All of the reports included here were prepared during the Commission's reporting period 1961-1963 and were received by the Commission by October 1, 1963.

Before going into the reports from the State Advisory Committees, it is useful to assess the programs of the Federal Government in the apprenticeship field since in this period of important developments in local communities around the Nation there have occurred significant changes in Federal policy not previously noted by the Commission on Civil Rights.

THE FEDERAL PROGRAM IN APPRENTICESHIP

In 1961 when the Commission on Civil Rights took its brief look at apprenticeship in the employment report it found that:[8]

> The current federally approved programs, rather than decreasing the industrial handicaps of Negro workers, are actually perpetuating and enlarging them. Although the Federal Government encourages the increase of apprenticeship training, it has not taken any significant action to insure that this training will be available on a nondiscriminatory basis.

The Federal program referred to is essentially that of the Bureau of Apprenticeship and Training in the Department of Labor (BAT), created by the Fitzgerald Act of 1937 and charged with stimulation of apprenticeship programs and technical assistance to apprentice groups.[9] According to the Bureau's 1962 publication The National Apprenticeship Program:

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7. District of Columbia Advisory Committee to the U.S. Commission on Civil Rights, Report on Washington, D.C.: Employment (July 1963).

8. Op. cit. supra note 4, at 110.

9. 50 Stat. 664 (1937), 29 U.S.C. 50 (1958 ed.)

> The Bureau's principal functions are to encourage the establishment of sound apprenticeship and training programs and to provide technical assistance to industry in setting up such programs. . . . The Bureau works closely with State apprenticeship agencies, trade and industrial education institutions, and management and labor.
>
> Through its field staff, with offices in every State, the Bureau works with local employers and employees in developing apprenticeship and industrial training programs to meet specific needs.[10]

The Bureau seems to have taken the position prior to 1961 that it lacked the power to deal with the problem of the unavailability of the programs to Negroes. The House Committee on Education and Labor's Special Subcommittee on Labor held hearings in August of that year on H.R. 8219, "a bill to withdraw federal support and approval from apprenticeship programs which deny individuals an equal opportunity to participate therein on account of their race, color, or creed."[11] The Director of the Bureau of Apprenticeship and Training, Edward E. Goshen, testified that the Bureau, "has no regulatory authority. It can establish standards designed to protect the interests of apprentices but it cannot require that they be accepted."[12] The position taken by the Bureau at these hearings was in opposition to the bill:[13]

> I do not know whether we would want anything to give us authority to enforce in the type of work we are in. We are in a promotional program. We have to stimulate interest and encourage people to do it. That is basic with the law Congress gave us. I think when they did that, they did it because they did not want regulation; that the people recognized they had to do it. We cannot be one thing and also another. . . .

H.R. 8219 was never reported out of the Education and Labor Committee.

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10. U.S. Department of Labor, Bureau of Apprenticeship and Training, The National Apprenticeship Program 4-5 (1962).

11. H.R. 8219, 87th Congress, 1st sess. (1961).

12. Hearings Before the Special Subcommittee on Labor of the Committee on Education and Labor, House of Representatives, 87th Cong., 1st sess. on H.R. 8219 (1961), 44.

13. Id. at 62.

The hearings of 1961 focused public attention on the Bureau of Apprenticeship and Training for the first time in its quarter century of operation. Negro exclusion from the programs was debated vigorously, and new light was shed on the Bureau's role in this matter. Questioning by the subcommittee chairman established that the Bureau itself did not employ Negroes as field representatives or in positions above GS-5,[14] and that the Director of the District of Columbia Apprenticeship Council, a Bureau staff person, followed the practice of marking the application forms of Negroes for apprenticeship openings with a "2 or N" as an identification of the applicant's race.[15] The racial designations were ordered stopped by the Secretary of Labor before the hearings had adjourned,[16] but it was not until March 4, 1963, that the Department of Labor could announce the hiring of the Bureau's first Negro field representative.[17]

The Bureau of Apprenticeship and Training has, in the short period since the House Education and Labor Committee investigation and the Commission on Civil Rights report in 1961, made beginning efforts to establish an equal opportunity program at the periodic behest of the Secretary of Labor. At the House hearings, the Assistant Secretary of Labor announced that the Bureau had been instructed to include a nondiscrimination clause in the new apprenticeship agreements with all firms engaged in work for the Federal Government; it was

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14. Id. at 54.

15. Id. at 71.

16. Id. at 164.

17. U.S. Department of Labor, Labor Press Service for week of Mar. 4, 1963. As late as July 1 the President's Committee on Equal Employment Opportunity recommended to the Secretary of Labor that the Director of the Bureau of Apprenticeship and Training be requested to take affirmative action within 30 days to recruit members of minority groups into the program of the Bureau. Letter from Hobart Taylor, Jr., Executive Vice Chairman of the President's Committee on Equal Employment Opportunity, to Louis Nemerofsky, Maryland State Supervisor of BAT, dated July 1, 1963. This letter, reported fully in the Sun (Baltimore) on September 12, 1963, is a determination by the President's Committee that Mr. Nemerofsky was subjected to religious prejudice by BAT. The letter states, "The fact that the Director of BAT has not acted affirmatively to effect the equal opportunity program has been recognized by the Department of Labor."

also ordered that "selection . . . without regard to race . . .[18] be included as one of the nine standards for registered apprenticeship programs. The Director of the Bureau said that instructions had been sent to the field personnel to implement the directives.

In May 1962, Arthur Chapin, Special Assistant to the Secretary of Labor and consultant to the Secretary for civil rights matters, explained at a Community Leaders Conference sponsored by the President's Committee on Equal Employment Opportunity the significance of the apprenticeship directives:[19]

> The apprenticeship programs conducted by employers and unions in the building and construction trades are probably most familiar to all of us, although many, many manufacturing plants and unions conduct outstanding training programs. In either case the standards of the apprenticeship program are established to meet local needs, and within the standards and requirements for registration by the Bureau. While such registration is voluntary it is similar to accreditation in the field of general education. With this in mind, the importance of the announcement of the Department of Labor that inclusion of a specific nondiscriminatory statement would be required in all apprenticeship standards of firms handling government contracts, can readily be seen. Important as this announcement may be, it is only the first step and will require time for inclusion in the many local agreements now in effect. . . . In summary, a start has been made.

By June, another step was taken. A press release of the Department of Labor on June 25, 1962, announced that the Bureau of Apprenticeship and Training would have industrial training advisers in its regional offices in New York, Chicago, and San Francisco, ". . . especially concerned with minority group workers. . . . /T/hese advisers . . . will work with unions and employer groups to persuade them of the importance of accepting persons from minority groups into their ranks. They will also work with minority groups with the purpose of causing them to understand the employment and training requirements of apprenticeship and other skilled occupations

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18. Op. cit. supra note 12, at 27.

19. Address by Arthur Chapin before the Community Leaders Conference on Equal Employment Opportunity sponsored by the President's Committee on Equal Employment Opportunity, May 19, 1963, Washington, D.C.

and causing qualified applicants to apply for such positions."[20] According to this release, the Department would also name advisers in the Atlanta, Georgia, and District of Columbia regional offices. Over 8 months later, Thomas Augustine, former Director of the Vocational Services Department of the Pittsburgh Urban League, was appointed industrial training adviser in the Washington office to "systematize and coordinate" the work of the other advisers.[21] When the Commission staff inquired about the activities of the adviser in Chicago, whose territory covers Illinois, Indiana, and Wisconsin, but who told the Wisconsin Advisory Committee at its open meeting in January 1963, that he had been spending all of his time in the Chicago area, Mr. Augustine replied that, "During their first months on the job the Industrial Training Advisers have concentrated their efforts on the metropolitan complexes which are their home bases. We look forward to their covering wider areas as they are called into other regions."[22] Even in the areas they have been able to cover, some doubt as to the effectiveness of these visits to unions and management was raised by the testimony of Mrs. Amy Terry, industrial training adviser in the New York office, before the Commission on Civil Rights at its hearing in Newark, New Jersey, on September 11, 1962. (See the New Jersey Advisory Committee report <u>infra</u>, p. 101). While it is notable that the first Negroes are now employed by the Bureau of Apprenticeship and Training and that they are involved in the equal opportunity program, it certainly is too early to attempt to assess their work.

The services of the industrial training advisers have been put to use during two critical episodes in which civil rights groups have protested the absence of Negro apprentices and skilled craftsmen on public building sites in Chicago and Washington, D.C. In Chicago the adviser,[23] Mr. Cicero Scott--

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20. U.S. Department of Labor Press Release, June 25, 1962.

21. U.S. Department of Labor Press Release, March 8, 1963. The Louisiana Advisory Committee to the U.S. Commission on Civil Rights was informed by BAT's Louisiana State Supervisor in a public meeting in New Orleans on July 9, 1963, that a field representative in the Bureau's Atlanta office had been assigned part-time duties as industrial training adviser the preceding April to cover the Southeastern Region. The Louisiana State Supervisor did not know the adviser's name nor had he received any communications from him.

22. Letter from Thomas Augustine, dated May 20, 1963, retained in the Commission files.

23. <u>Ibid</u>.

/S/erved as a representative of the Department of Labor on the Chicago Federal and Municipal Committee on Discrimination. Mr. Scott has been assembling lists of Negroes skilled in the building trades. The object is to present qualified journeymen to the contractors who are building the Federal Office Building and the Civic Center. This list was forwarded to the President's Committee on Equal Employment Opportunity. Scott prepared this list by going through the applicant file of the Illinois State Employment Service. Presumed Negroes were selected on the basis of residence.

In Washington, D.C., Thomas Augustine became involved in the Howard University gymnasium case, described in the D.C. Advisory Committee report (infra, p. 43).

On February 27, 1963, Under Secretary of Labor John F. Henning appeared at a Conference on Equal Employment Opportunity of the D.C. Advisory Committee and announced two additional programs to promote apprenticeship for minority groups. By order of the Secretary of Labor that day a national Advisory Committee on Equal Opportunity in Apprenticeship and Training was created to--[24]

/A/dvise the Department of Labor with respect to the development, review, and promotion of more effective programs and policies for establishing and maintaining equal opportunities in apprenticeable and other occupations requiring substantial skill and substantial knowledge. It shall recommend actions for implementing the policies of the Department of Labor in the specific area of skilled manpower on a nondiscriminatory basis.

This Advisory Committee, composed of 15 representatives of labor, management, education, minority groups, and the general public, was selected and the membership announced April 4.[25]

At its first meeting on May 14, the Advisory Committee authorized a survey of the racial composition of apprentice programs

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24. Testimony of Under Secretary of Labor John F. Henning at the Conference on Equal Employment Opportunity of the District of Columbia Advisory Committee to the U.S. Commission on Civil Rights, Washington, D.C., February 27, 1963.

25. U.S. Department of Labor Press Release, April 4, 1963.

and a study of the advisability of pre-apprenticeship programs.[26] Under Secretary Henning, who serves as Chairman of the Advisory Committee, also announced at the D.C. Conference, that in connection with the creation of the apprenticeship advisory committee, the Department of Labor was establishing "on a demonstration basis" and as a model for other cities an apprenticeship information center in the District of Columbia to disseminate current information to the city's young people regarding apprenticeship opportunities.[27] The center, Henning said, would be fashioned on similar projects in California operating in several cities under the auspices of a State agency called the Statewide Committee on Equal Opportunity in Apprenticeship and Training for Minority Groups, with which Henning had worked when he was California's Director of Industrial Relations. (The report of the California Advisory Committee, infra, p. 23 , discusses the development of the California program.) On June 17, the D.C. Apprenticeship Information Center opened for business in the Washington Office of the United States Employment Service.[28]

The most recent development in the equal opportunity program of the Bureau of Apprenticeship and Training was the announcement by Secretary of Labor Wirtz of the formulation of "standards" to guide State Apprenticeship Councils and others in carrying out the nondiscrimination policy. On June 6, Secretary Wirtz listed three standards in his testimony before the General Subcommittee on Labor of the House Education and Labor Committee considering national fair employment practices legislation.[29]

1. The selection of apprentices on the basis of merit alone, in accordance with objective standards which permit review, after full and fair opportunity for application; provided that, where there are established special applicant preference practices, arrangements will be made which will permit the selection of a significant number of any qualified applicants who would otherwise be improperly discriminated against;

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26. U.S. Department of Labor Press Release, June 6, 1963, containing testimony of Secretary of Labor W. Willard Wirtz before the General Subcommittee on Labor of the House Committee on Education and Labor that day.

27. See note 24 supra.

28. U.S. Department of Labor Press Release, June 10, 1963.

29. See note 26 supra.

2. The taking of whatever steps are necessary, in acting upon application lists developed prior to this time, to offset the effect of previous practices under which discriminatory patterns of employment have resulted; and

3. Nondiscrimination in all phases of apprenticeship and employment during apprenticeship after selections are made.

The importance of these declarations is amplified by a reading of the State Advisory Committee reports to follow, because the finding of these studies was that the nonobjective selection procedures used in apprenticeship raise the greatest barriers to Negro entry into the programs and to Negro aspirations to the apprenticeable trades. The advent of objective selection standards will bear watching.[30]

At the time of this announcement, Secretary Wirtz announced other moves by the Department of Labor in response to a Presidential directive two days earlier (June 4)"in the conduct of [the Secretary's] duties under the Federal Apprenticeship Act and Executive Order 10925, to require that the admission of young workers to apprenticeship programs be on a completely nondiscriminatory basis."[31] These moves concerned the President's Committee on Equal Employment Opportunity and its activity in the apprenticeship field.

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30. The standards announced by Secretary Wirtz at the June 6, 1963, House hearing were made the subject of an implementation and interpretation circular to the BAT staff, Circular 64-7, dated July 17, 1963. Field staff was ordered to take all necessary steps in cooperation with State agencies and program sponsors to effectuate the standards immediately. All federally registered programs were, according to Circular 64-7, to include a clause embodying the new standards, and those programs "which shall not have so included it within 60 days of this instruction shall be deregistered."

There was a delay in the implementation of the standards, however, because of opposition to them on the part of the construction industry. See note 39 <u>infra</u>. Following resolution of the dispute with the industry, the standards were slightly modified and published as proposed rules in the Federal Register. See 28 Fed. Reg. 11313 (October 23, 1963). This Federal Register item is reproduced as an appendix to this chapter, <u>infra</u>, p. 18.

31. See note 26 <u>supra</u>.

President's Committee on Equal Employment Opportunity

The President's Committee was created by Executive Order No. 10925 of March 6, 1961, to provide means of assuring equality of opportunity in employment by the Federal Government and by Government contractors. When the Commission on Civil Rights reported on employment in 1961, it found that while the President's Committee had "taken steps to overcome obstacles encountered by [its predecessor presidential committees]," much additional activity was required, including, "[R]eaffirming that, when Government contractors completely delegate to labor organizations the power of hiring, or of determining admission to apprenticeship training programs or other terms and conditions of employment, they will be held responsible for discriminatory acts of the unions."[32] In the 2 years since the Commission report the President's Committee has undertaken some programs along these lines.

Under Executive Order No. 10925 it is the contractor--the manufacturer of goods for the Government or the builder on a Federal construction contract--who is bound by the nondiscrimination agreement imposed by the order; it is he who, among his other contractual duties, is obligated to declare himself an equal opportunity employer in advertisements for job openings and to submit compliance reports to the President's Committee on the racial composition of his work force. There is no direct obligation upon the union representing the contractor's employees since it is not a contracting party; the only pressure on the union to increase the number of its Negro workers is the indirect reflection of the employer's needs. Thus the President's Committee has sought in recent months to place more direct responsibilities upon the union in recognition of its role in controlling access to some kinds of employment.

On November 15, 1962, Vice President Johnson, as Chairman of the President's Committee, signed agreements called Programs for Fair Practices with almost all of the international unions affiliated with the AFL-CIO, 118 unions with almost 13 million members.[33] These programs, while relatively meaningless in terms of legal obligation

32. Op. cit. supra note 4, at 157-58.

33. President's Committee on Equal Employment Opportunity Press Release, November 15, 1962. The only major international unions affiliated with the AFL-CIO which had not signed Programs for Fair Practices as of Nov. 1, 1963, were: International Association of Machinists; International Brotherhood of Electrical Workers; International Union of Elevator Constructors; and the Sheet Metal Workers International Association. No efforts have been made to sign internationals outside the AFL-CIO, including the International Brotherhood of Teamsters, Chaffeurs, Warehousemen and Helpers which has indicated a willingness to sign.

since the signatory internationals have no power to compel compliance by their member locals, do commit the AFL-CIO and the internationals to full cooperation with the President's Committee in "attaining its goals of equal opportunity in all aspects of employment." Regarding apprenticeship, the unions promise to "seek agreement from management to write into joint apprenticeship training programs in which we participate a nondiscrimination clause in regard to admissions and conditions of employment of apprentices and shall see that this clause is administered in such a way as to give full and effective application of nondiscrimination throughout all such training." The Committee has assigned part of its staff to assisting unions in implementation of the programs, and it is expected that the signatories will meet in Washington in late 1963 to report their progress to the Committee.[34]

Secretary Wirtz also announced in his June 6 statement to the House Subcommittee that in response to the President's request of June 4 a 50-man task force was beginning inspection of Federal construction projects across the country to determine means of preventing discrimination in the hiring and use of apprentices. The Secretary promised that "the full sanctions of Executive Order 10925" would be used if discriminatory practices were found and not corrected; these sanctions include cancellation of contracts.[35] The President's Committee had earlier acquired some experience on an ad hoc basis in taking corrective action on the construction projects in Chicago and Washington mentioned above (see p. 9); working with the Bureau of Apprenticeship and Training people on the scene, they had called together union and contractor representatives and confronted them with the necessary changes in the work force. The Secretary's statement would seem to indicate that such a procedure might be institutionalized after the 50-man task force presents its findings. When contractors are faced with cancellation unless Negroes are placed in jobs from which they have previously been excluded, the unions providing workers for those jobs are strongly compelled to bring Negroes into their crafts so they can be available on Federal projects.

If it can be assumed that the Committee's activity in the contruction field will take this form, a profound impact on apprenticeship programs may be felt. With the expansion of the Committee's jurisdiction resulting from an amendment of Executive Order No. 10925

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34. Commission staff interview with Emile Berg of the staff of the President's Committee on Equal Employment Opportunity, Mar. 28, 1963, Washington, D.C.

35. See note 26 supra.

to bring construction under Federal loans and grants-in-aid within its ambit on June 22, 1963,[36] even more far-reaching results may be expected.

What Has Changed?

It can safely be said that in the past 2 years there have occurred two significant changes in attitude and policy as far as the Federal role in apprenticeship is concerned. First, there has been a recognition that Negro participation in apprenticeship training is alarmingly meager. Second, there is now a commitment that Government must expend efforts to increase the availability of the programs to Negroes. This has occurred as a result of public pressure for change on the part of civil rights organizations and others, and because the phenomenon of Negro unemployment and misemployment has been recognized as one of the Nation's critical economic weaknesses. If the job market demands highly trained workers and offers rapidly diminishing opportunity to the unskilled and semi-skilled, Negroes, unemployed at twice the overall rates, must enter the labor market equipped with the skills in demand. Apprenticeship, the proven method of acquiring skills in many of the occupations for which a continuing need will exist, must, according to current thinking, be expanded and made available to significant numbers of untrained workers.

As of the moment the Federal apprenticeship program continues to function on the same voluntary "promotional" basis it did in 1961, or for that matter in 1937 when the Bureau of Apprenticeship and Training was created. Offering as its only inducement the registration of programs meeting Federal standards, the Bureau has not achieved its aim of promoting apprenticeship; it has reported a

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36. Executive Order No. 11114, June 22, 1963, 28 Fed. Reg. 6485 (1963).

decline in registration over recent years.[37] Potential sponsors of apprenticeship presumably have found the benefits accruing under registered programs--draft deferments for apprentices and waiver of minimum wage requirements for trainees working under Federal contracts--[38] insufficient to impel subjection of the programs to the quasi-regulation brought on by registration. Potential industrial sponsors are able to "steal" needed trained workers from competitors who do maintain apprenticeship programs, while sponsors in the crafts, primarily the building trades, place severe restrictions on the numbers of apprentices in order to assure full employment to journeymen craftsmen. At no point in the selection process is there assertion of the economy's need for skilled manpower. Bureau of Apprenticeship

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37. U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research, Trends in Apprentice Registration 1941-1963 (Apr. 26, 1963). The decline from almost 200,000 registered apprentices in 1957 to some 155,000 in 1961 is attributed by BAT to "absence of financial support associated with the GI Bill in earlier years combined with somewhat sluggish behavior on the part of the economy since 1957." Most important of the economic factors is the decline in the construction industry since 1957 in view of the fact that the construction trades account for some two-thirds of all registered apprentices. BAT publishes registration figures twice a year, and in June 1963 the most recent count (as of December 1962) was 158,616. The semiannual reports break down registrations by State.

    BAT does not compile racial statistics on registered apprentices, and the only available data of this kind are published by the Census Bureau. Tables 122 and 123, PC(1)-D series of the 1960 census indicated 23,002 nonwhite apprentices and trainees out of a total of 468,966, or 5.2%. However, the discrepancy between Census and BAT totals (see above) raises questions as to the reliability of the figures. The BAT Division of Research is currently undertaking a compilation of racial data on apprentices for the Labor Department and the newly created Advisory Committee for Equal Opportunity in Apprenticeship and Training by means of a postcard survey and other techniques. See Division of Research memorandum of May 6, 1963, copy in Commission files.

38. For the effect of registration on selective service classification of apprentices, see 32 C.F.R. 1622.23a(e). Regarding use of apprentices on Federal Government contract work, see regulations in 29 C.F.R. 5.5 and 5.6, issued pursuant to Davis-Bacon Act of 1931, 46 Stat. 1494, 40 U.S.C. 276a, as amended 49 Stat. 1011, 74 Stat. 418, 40 U.S.C. 276a-a5.

and Training representatives repeatedly told the Advisory Committees that the Bureau was completely without power to affect the actual selection of trainees. It is clear that changes in the administration of the Bureau's programs to promote apprenticeship opportunities for Negroes can have only limited effect. The Bureau depends heavily on the cooperation of the industry in all its activites, and when industry leaders protested certain provisions of the Secretary of Labor's new apprenticeship standards, the rules were modified to avoid a revolt.39 As long as the Federal Government depends on such voluntary relationships with management and the unions, perhaps little real progress can be expected.

Some of the State Advisory Committee reports which follow conclude that further changes in the administration of the current Federal programs in apprenticeship can be made toward equality of opportunity for training. Others suggest basic reforms in the apprenticeship law. In the coming months, with protest and public concern focused on inequities in training for skilled labor, changes as well as reforms will probably become inevitable.

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39. See note 30 supra. When the Secretary of Labor issued his July circular concerning new apprenticeship standards to insure equality of opportunity, it was reported in the press that construction unions and employers objected strongly to what they termed the imposition of "quotas" in apprenticeship. See. N.Y. Times, July 27, 1963, p. 1. The union-employer Construction Industry Joint Conference formed a Joint Committee on Equal Employment Opportunity headed by Harvard Professor John T. Dunlop to work with the Labor Department in developing a different approach to the problem. On August 9 the Joint Committee proposed a voluntary plan for the adoption of nondiscriminatory selection procedures by local unions and contractors; this was followed on September 20 by a more detailed recommendation of apprenticeship standards and procedures. Some of the Joint Committee's suggestions were made part of the revised standards as proposed in the Federal Register. See N.Y. Times, October 20, 1963, p. 1.

APPENDIX

Pages 11299–11344

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DEPARTMENT OF LABOR

Office of the Secretary

[29 CFR Subtitle A]

NONDISCRIMINATION IN APPRENTICESHIP AND TRAINING

Notice of Proposed Rule Making

This document sets forth the substance of rules regarding nondiscrimination in apprenticeship which the Secretary of Labor proposes to issue pursuant to the authority granted him in the 29 U.S.C. 50 and 5 U.S.C. 22.

A. *Background and policy.* President Kennedy, in a statement dated June 4, 1963, directed the Secretary of Labor "in the conduct of his duties under the Federal Apprenticeship Act (29 U.S.C. 50–50b) and Executive Order No. 10925 (26 F.R. 1977) to require that the admission of young workers to apprenticeship programs be on a completely non-discriminatory basis." The President further directed that "all Federal construction programs be reviewed to prevent any racial discrimination in hiring practices, either directly in the rejection of presently available qualified Negro workers or indirectly by the exclusion of Negro applicants for apprenticeship training."

Pursuant to these instructions, the Secretary of Labor directed the Bureau of Apprenticeship and Training to insure that all apprenticeship or apprenticeship and training programs now federally registered operate on the basis of the following standards:

1. The selection of apprentices on the basis of qualifications alone, in accordance with objective standards which permit review after full and fair opportunity for application, unless the selections otherwise made would themselves demonstrate that there is equality of opportunity.

2. The taking of whatever steps are necessary, in acting upon application lists developed prior to this time, to remove the effects of previous practices under which discriminatory patterns of employment may have resulted.

3. Nondiscrimination in all phases of apprenticeship and employment during apprenticeship after selections are made.

Discrimination based on race, creed, color, or national origin has no place in American life today, particularly in the programs by which young people acquire the skills that determine their future employment prospects. Full equality of opportunity for all is a goal toward which both labor and management have pledged their efforts and which warrants the full cooperation of labor, management and the community.

B. *General directions.* This document sets forth procedures to be used in implementing the program set forth by the President and the Secretary. The Bureau's primary job, in this context, is to encourage and assist program sponsors and the community in achieving equally of opportunity, voluntarily and by their own efforts, through the adoption and implementation of the equal opportunity standards for apprenticeship set forth above. This encouragement and assistance is to be undertaken constructively and in a manner reflecting the historic advisory and counseling services of the Bureau. If there should be apprenticeship programs in which equal opportunity cannot be obtained voluntarily through the various processes outlined in this document, procedures are set forth below for the withholding or withdrawal of governmental recognition from such apprenticeship programs.

C. *Promotion of equal opportunity.* Regional Directors shall take immediate steps to inform all sponsors of federally registered apprenticeship programs of the policy, standards and requirements set forth in this document and to promote the voluntary acceptance by sponsors of the standards. Regional Directors shall insure that general publicity is given to the Bureau's non-discrimination policy and program and that Bureau field personnel give continuing leadership toward acceptance of these policies. Recognizing that the policies set forth herein will effect their purpose only if qualified applicants from racial and ethnic minorities are informed with respect to apprenticeship opportunities that will be available under the revised standards, Regional Directors shall make special effort to guarantee that the organizations most useful in assuring such a supply of candidates (schools, public employment service, minority group organizations, etc.) are informed of the revised program. Regional Directors should lay plans with such groups for the stepped-up information and counseling program that will be needed to obtain qualified minority group applicants.

D. *Program reviews.* Regional Directors shall initiate a systematic review of existing federally registered programs, inform program sponsors of the equal opportunity standards, encourage their adoption, and take appropriate action regarding programs which do not adopt and operate in accordance with the standards. Each program review shall involve the following steps:

1. Notification to the program sponsor of the equal opportunity standards and the taking of all appropriate action to urge their voluntary acceptance.

2. Maintenance of a file on the program review which shall accompany the report forwarded regarding the review.

3. Determination of racial and ethnic composition of the program. Where the composition of the program demonstrates that there is equality of opportunity no further review will be made. A file shall be maintained regarding such programs, which will contain the information which indicates that equal employment opportunity is being provided. This file shall be forwarded through supervisory channels to the Administrator of the Bureau of Apprenticeship and Training for review.

4. Use of the following checklist:

a. *The formal program language requirement.* Does the program contain a formal non-discrimination clause consistent with the equal opportunity standards set forth in section A of this document? (Programs already containing the language required by Circular 62–5 are not required to adopt new written provisions. See section H.)

b. *Selection of apprentices*—(1) *Selection on the basis of qualifications alone.* (a) Does the program select apprentices on the basis of qualifications alone in accordance with objective standards which permit review after full and fair opportunity for application (see section G.1 below) and

(b) Is the application list composed entirely of applicants selected and ranked solely on the basis of qualifications alone in accordance with objective standards that permit review after full and fair opportunity for application? (See sections G.1d and G.2 below.)

(2) *Alternative selection plan.* If the program does not qualify under section (1) above, has the program adopted an alternative equal opportunity plan for selecting apprentices which is consistent with the standards for apprenticeship set forth in section A and which is acceptable to the Administrator? Does the program operate in accordance with such plan? Field representatives should submit through channels to the Administrator for approval alternate selection plans which appear to be consistent with the equal opportunity standards set forth in section A. A copy of the approved plan should be included in the case file.

c. *Program operation.* Is there any discrimination in apprenticeship or employment during apprenticeship, including but not limited to job assignment, promotion, demotion, layoff, or termination, rates of pay or other forms of compensation or conditions of work? (See section G.3 below.)

5. Where the program has not adopted or is not operating in accordance with the equal opportunity standards, the field representative shall notify the program sponsor (even in group programs where it is an individual employer who is deficient) and indicate possible methods of providing equal opportunity in accordance with this document. For a reasonable time, not to exceed 30 days from the time the sponsor is notified of the lack of equal opportunity, the field representative shall make every reasonable effort to encourage corrective action, recording the facts and information in the case report. This effort to obtain corrective action shall include an opportunity for any body designated by the program sponsor or industry group for reviewing complaints of discrimination to resolve the issue.

6. At the close of the review for programs found to be in conformity, or at the close of the time allowed for voluntary corrective action for programs found not to be in conformity, the field representative shall forward the case file through supervisory channels to the Regional Director for review.

7. The Regional Director shall review findings of conformity or achievement of corrective action on a spot check basis in sufficient proportion to assure himself that Bureau equal opportunity policy is being properly carried out. Where upon review the Regional Director does not concur in the finding of the field representative, he may order further investigation or such other action as may be necessary and appropriate.

8. Upon receipt of any finding of nonconformity by a field representative, the Regional Director shall notify the program sponsor that such a finding has been made and that the program will be deregistered unless the finding is set aside or appropriate corrective action taken. The sponsor shall have 15 days within which to file a written request for a hearing with the Regional Director.

a. If the program sponsor does not request a hearing within 15 days, the Regional Director shall review the case.

(1) Where upon review the Regional Director concurs in the findings of noncompliance and failure to achieve satisfactory corrective action, he shall so notify the program sponsor and the complainant, if any, and shall forward the case file to the Administrator, stating his concurrence and his recommendations, if any.

(2) Where upon review, the Regional Director does not concur in the finding of the field representative, he may order further investigation or such other action as may be necessary and appropriate.

b. If the program sponsor within 15 days files a written request, the sponsor shall be accorded a hearing before a hearing officer designated by the Regional Director. The hearing shall be informally conducted. Every party shall have the right to counsel and a fair opportunity to present its case or defense, including a right of cross-examination. The hearing officer shall prepare a decision on the basis of the record before him, setting forth findings and conclusions on the question of noncompliance and recommendations, if any. This decision shall be final as to any complainant with respect to whom it is adverse. Copies of the decision shall be furnished to the program sponsor, and the complainant, if any. Exception to the decision may be filed by the program sponsor with the Administrator within 15 days. If exceptions are filed and if there is a complainant, a copy of the exception filed shall be furnished to him and he shall be given 15 days in which to file a reply with the Administrator. A copy of such reply shall be furnished to the program sponsor.

9. Upon receipt of the Regional Director's concurrence in the finding of the field representative or of a decision of a hearing officer that a program is not in conformity, the Administrator will so inform any private organization designated by the industry in question to assist in achieving equal opportunity and shall allow the organization a reasonable time normally not to exceed 20 days to achieve voluntary corrective action.

10. Following the receipt of exceptions and replies to be filed or for the action provided for in subsection 9 above, the Administrator shall render a final decision in writing based on the file or the record as the case may be. If the decision is that the program is in nonconformity and that satisfactory action to achieve conformity has not been taken, the program shall be deregistered. The Administrator shall notify the Regional Director, the Program sponsor, the complainant, if any, and any private organizations of the type described in subsection 9 of his decision. In each case in which deregistration is ordered the Administrator will make public notice of the order and will notify the President's Committee on Equal Employment Opportunity and the Solicitor of Labor who will notify contracting agencies.

11. If in the judgment of the Administrator a particular situation warrants and requires special processing and expedited determination, he shall take the steps necessary to permit such determination: *Provided,* That no person or party affected by such determination shall be prejudiced by such special processing.

12. Priorities: Until such time as all larger programs shall have been reviewed, field representatives shall not review programs with a total of 5 or less apprentices in training except in connection with the processing of complaints. Review should also be deferred of programs which have been examined under the complaint procedure provided for in section E below and which have been found by the Bureau to provide equal opportunity or which have taken necessary action to provide such opportunity.

E. *Complaint processing.* Complaints may be filed with the Bureau or any field representative by any applicant or apprentice who feels that he has been discriminated against on the basis of race, creed, color, or national origin with regard to apprenticeship or that the equal opportunity standards have not been followed in his case. The complaint shall be in writing and shall be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the program sponsor involved and a brief description of the circumstances of the alleged discrimination. Complaints received by the Bureau headquarters office will be transmitted to the field for processing. It is Bureau policy to encourage local program sponsors to establish, either individually or in an industry group, fair, speedy and effective procedures for reviewing complaints of discrimination. The desirability of establishing such review procedures should be brought to the attention of all program sponsors as soon as possible. Regional Directors shall institute procedures to insure that upon receipt of any complaint field representatives shall:

1. Prepare and maintain a complete case file for each complaint received. It shall contain the original complaint, reports of investigations and visits, and correspondence with the employer, the program sponsor, and others regarding all phases of the case in chronological order, including recommendations made and final disposition of the case. This file shall be forwarded to the Regional Director for review upon local disposition of each complaint. A separate local office correspondence and reports file shall be maintained for essential internal records and correspondence regarding each case.

2. When the program sponsor or industry group has designated a body for reviewing complaints of discrimination, the Bureau field representative, upon receiving a complaint shall after establishing a case file direct the complainant to file his complaint with the representative of the review body. He shall give the complainant the name and address of this representative.

3. No later than 60 days following the filing of a complaint with the review body by the complainant the field representative shall obtain reports from the complainant and the review body of the disposition of the complaint. If the complaint has been satisfactorily adjusted and there is no other indication of failure to apply equal opportunity standards, the case shall be closed and the parties appropriately informed.

4. When a complaint has not been resolved through local review procedures within 60 days, where no local review procedure exists or where despite satisfactory resolution of the complaint there is evidence that the equal opportunity practices of the program are not in accordance with these rules, the field representative shall notify the program sponsor of the complaint or such evidence, solicit a response from the sponsor and conduct whatever other investigation is necessary to determine the facts, including where necessary, interrogation of the complainant, the employer and other involved persons. The pertinent facts should be recorded.

5. Where the program is not operating in accordance with the equal opportunity standards, the field representative shall notify the program sponsor (even in group programs where it is an individual employer who is deficient) and indicate possible methods of providing equal opportunity in accordance with this document. For a reasonable time, not to exceed 15 days from the time the sponsor is notified of the lack of equal opportunity, the field representative shall make every reasonable effort to encourage corrective action, recording the facts and information in the case report.

6. From this point on, complaints shall be processed procedurally in the same manner as program reviews (see section D. 6–11).

F. Reinstatement of program registration. Any program deregistered pursuant to this document may be reinstated upon presentation of adequate evidence to the Administrator that the program has established and is operating under a selection system based on qualifications alone and is in compliance with the equal opportunity standard set forth in section A(3).

G. *Interpretations*—1. *Selection on the basis of qualifications.* The Bureau encourages program sponsors to adopt a system of apprentice selection based solely on qualifications "in accordance with objective standards which permit review, after full and fair opportunity for application" on the ground that this kind of system is the one most in accord with a free and democratic society.

a. "Objective standards which permit review" does not mean that all programs must have identical standards for selection. It does mean that qualifications and eligibility must be determined by specific requirements so that questions of discrimination in selection can be promptly adjudicated. These requirements must be established and disseminated publicly prior to selection.

b. Selection "on the basis of qualifications alone" means that apprentices are chosen from those applicants meeting the minimum qualifications for the trade or craft solely on the basis of their qualifications compared to those of other applicants. Examples of standards by which comparative qualifications may be determined are fair aptitude tests, high school diploma, age requirements, occupationally essential physical requirements, fair interviews, high school grades and previous work experience. Under this test, both actual selection for and entry into apprenticeship must be on the basis of comparative qualifications alone.

It is not enough for a program to establish a lengthy list on the basis of minimum qualifications standards and then select apprentices from the list on a basis other than comparative qualifications such as on the basis of time of application. Where the number of applicants meeting the qualification requirement is greater than the number of job openings, "qualifications alone" means (1) that the applicants are ranked on the basis of criteria which measure comparative qualifications (e.g., fair aptitude tests, etc.) and are selected on the basis of the rankings, or (2) that without ranking each individual, criteria which measure comparative qualifications are used to identify the "best qualified" in a total number not in excess of the total number of apprentice openings and selections for employment from within the "best qualified" group are made through any nondiscriminatory system.

c. To "permit review" adequate records must be kept of the selection process. These must include a brief summary of each interview and the conclusions on each of the specific factors, e.g., motivation, ambition, willingness to accept direction, which are part of the total judgment.

d. "After full and fair opportunity for application" means that the program sponsor has, prior to the time of selection and in the future at least once annually, allowed a substantial period of time for new applicants to apply for apprenticeship, has publicly disseminated information about the availability of apprenticeship opportunities and has ranked the new applicants thus received along with previous applicants on the basis of their comparative qualifications. In the future, such information shall be posted at the normal place of application for apprenticeship and disseminated to the local employment service and the local schools. The information so disseminated must describe the qualification standards and selection procedures, and specify the anticipated number of openings, the method and place of making application, the dates within which applications will be accepted. It should indicate the approximate date at which the results of the selection process will be made known to all the applicants.

2. *Necessary action on prior application lists.* Where program sponsors have or adopt a selection system based on qualifications as specified in section G. 1 the standard stated in section A. 1 does not require any action with regard to "application lists developed prior to this time" beyond that required by section G. 1. Where program sponsors do not have a selection system based on qualifications, the Standard stated in section A. 2 requires that "application lists developed prior to this time" be opened to the extent necessary to provide current opportunities for selection of qualified members of racial and ethnic minority groups.

3. *Nondiscriminatory operation.* There must be no discrimination in apprenticeship or employment during apprenticeship after selections have been made, including but not limited to job assignment, promotion, layoff or termination, rates of pay or other forms of compensation or conditions of work. All apprentices employed shall be subject to the same job performance requirements.

4. *Selection from existing employees.* Where apprentices are selected from a restricted pool, e.g., from present employees, admissions to the pool as well as selection for apprenticeship shall after the effective date of this document be on a nondiscriminatory basis. Selections from the pool may be made on the basis of seniority of employment.

H. *Program language requirements.* Each federally registered apprenticeship program which does not now contain a nondiscrimination clause in the form required by Circular 62–5 [1] must contain a formal nondiscrimination clause consistent with the equal opportunity standards set forth in section A of this document. The Bureau suggests the following language as appropriate for adoption by program sponsors desiring to select apprentices on the basis of qualifications alone: "Selection of apprentices under the program shall be made from qualified applicants on the basis of qualifications alone and without regard to race, creed, color, national origin, sex or physical handicaps in accordance with objective standards which permit review, after full and fair opportunity for application; and this program shall be operated on a completely nondiscriminiatory basis." Irrespective of the form of the formal nondiscrimination clause adopted, all federally registered apprenticeship programs are required to operate in accordance with the equal opportunity standards as stated and interpreted above and all Bureau correspondence regarding program language requirements shall so indicate.

I. *New programs.* Any program seeking Federal registration hereafter must select apprentices on the basis of qualifications alone in accordance with objective standards which permit review after full and fair opportunity for application and must adopt a nondiscrimination clause in the form suggested in section H or its equivalent. In addition to the language requirement, the submission to the Bureau must include a concise statement of the selection procedure and of the selection standards which the program sponsor proposes to apply.

J. *Bureau and State agency cooperation.* (a) Regional Directors shall encourage State Apprenticeship Council (SAC) States to accept the equal opportunity standards for appenticeship and to adopt effective procedures to implement the standards including program reviews, the processing of complaints, deregistration of noncomplying programs, and consultation and cooperation with private organizations designated by the industry in question to assist in achieving equal opportunity in apprenticeship. Regional Directors shall submit nondiscrimination programs developed by States to the Administrator for determination as to consistency with the equal opportunity standards. Where State programs are determined to be consistent with the equal opportunity standards, Regional Directors shall work out with SAC States a division of responsibilities between Federal and State personnel for carrying out the procedures adopted to implement the policy. This division should generally be based on present assignments for the servicing of

[1] The language now required by Circular 62–5 is as follows: "Selection of apprentices under this program shall be made from qualified applicants without regard to race, creed, color, national origin or physical handicaps; women shall not be barred from apprenticeships for which they qualify.

apprenticeship program accounts.

(b) In SAC States which adopt a nondiscrimination program consistent with the equal opportunity standards, BAT field representatives shall file their reports with BAT State supervisors. Where the State supervisor concurs in any finding of noncompliance and failure to take corrective action, he shall forward the file to the State agency with a recommendation for deregistration. He shall at the same time notify the Regional Director who will notify the Administrator.

(c) Regional Directors shall request that SAC State agencies notify them of any State deregistration. Regional Directors shall then notify the Administrator who will in turn notify the President's Committee on Equal Employment Opportunity and the Solicitor of Labor. The Solicitor of Labor will notify contracting agencies.

(d) Regional Directors shall consult with State officials regarding methods of cooperation with State fair employment practices commissions and shall report the results of such consultations to the Administrator. Interested persons may submit written statements of data, views, or arguments in regard to any or all of the policies or procedures contained in this proposal within 15 days after this document is published in the FEDERAL REGISTER. Submissions should be directed to the Secretary of Labor, United States Department of Labor, Constitution Avenue and 14th Street NW., Washington 25, D.C.

Signed at Washington, D.C., this 18th day of October 1963.

W. WILLARD WIRTZ,
Secretary of Labor.

[F.R. Doc. 63-11202; Filed, Oct. 22, 1963; 8:47 a.m.]

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The Apprenticeship Program in California

Although many confusions cloud the picture of apprentice training, to everyone concerned with the program one fact stands out with dismaying clarity: it is not reaching enough young persons of minority groups.

California recognizes this shortcoming and has initiated a program to help overcome it. This report describes only that program. It does not attempt to describe the broader aspects of apprenticeship nor to make value judgments on the factors that give rise to its need.

The history of California's program to increase apprenticeship opportunities for young persons of minority groups had its roots in the action of the California Labor Federation, AFL-CIO, which raised the question through its Civil Rights Committee in 1959. It is noteworthy that this action, and all the progress which has followed it, took place in the absence of public charges of discrimination in apprenticeship.

Like all apprentice programs, those in California are fundamentally voluntary programs which employers and unions agree to administer jointly with assistance from government agencies. In this State, government assistance comes primarily from the Division of Apprenticeship Standards (D.A.S.) of California's Department of Industrial Relations, and, to a lesser degree, from the U.S. Bureau of Apprenticeship and Training of the U.S. Department of Labor. Consultants of these agencies service the joint apprenticeship committees (JAC's) which are basically in charge of each such program and which maintain standards consistent with the rules of the California Apprenticeship Council (C.A.C.).

OPPORTUNITY WORKSHOPS ARE INAUGURATED

Deeply concerned with the problem, the State Labor Federation in 1959 urged that the subject of minority opportunities be made the topic of a special workshop at the forthcoming California Conference on Apprenticeship. As a result of this suggestion, the first in a series of such biennial conferences was held in May 1960.

Conference heard talks by Governor Edmund G. Brown and spokesmen for representative civil rights and industrial relations organizations in the area. Out of the workshop came recommendations that were to prove of great practical helpfulness.

These provided for the formation of a study committee on the employment of minorities in apprenticeships, memorable because it marked the first step in the creation of a tool with which to approach this problem. Further, the recommendations called for the establishment of a central information center for the use of applicants, for setting up means of communication that would publicize existing opportunities, for the development of permanent relationships between JAC's and minority group organizations, and for instituting a D.A.S. survey of minority apprentices to pinpoint problems and progress.

It should be noted that these recommendations reached the California government a year after the State had enacted an FEP law and after the Brown administration had placed John F. Henning at the head of the Department of Industrial Relations. In the period of study which followed, the various aspects of the problem became more clearly defined. The Urban League, long familiar with the placement of Negro youth in apprenticeship training, contributed much detailed information and the broadened picture, to which California was urged to address itself, took in more specific contributing problems.

It was, of course, found that the number of young persons from minority groups in apprenticeship training, or graduates of such training, was small. The exact number of participants as well as their distribution in the program or their exclusion from it needed to be ascertained. But at least the causes were known. They were:

1. Failure of minority group youth to apply for apprentice training. This failure was related to lack of information about the program, to the absence of adult job patterns with which to identify, to the weakness of school counseling, and to the anticipation of rejection.

2. Failure of minority group youth to qualify when application was made. This was related to poor counseling in the schools and the home, to a general lack of information about entrance requirements for the programs, and to a general misconception of apprenticeship as something to which only the intellectually inadequate were to be relegated.

3. The practice of racial discrimination on the part of those who determine admissions to an apprentice program.

ACTIVATION OF A REPRESENTATIVE COMMITTEE

The Study Committee on Apprenticeship Opportunities for Minority Groups, which was eventually appointed, was made up of members of the C.A.C. and of the California Conference on Apprenticeship who represented both employers and unions. Other agencies and organizations participating included the NAACP, the Japanese-American Citizens League, the Jewish Labor Committee, the Urban League, the Chinese-American Citizens Alliance and the Mexican-American Community Service Organization, the California Committee for Fair Practices, the D.A.S., the Bureau of Indian Affairs of the Department of Interior, the Division of Fair Employment Practices, the U.S. Bureau of Apprenticeship and Training, the California Department of Employment, the Bureau of Industrial Education of the State Department of Education, and the Department of Corrections. The Committee's first full meeting was held in January 1961, and reviewed the recommendations of the conference workshop in detail.

In two basic, long-term motions, the Study Committee formally urged the D.A.S. to conduct surveys of precise minority identification among those who had completed apprentice training and those currently enrolled and to proceed to establish apprenticeship information centers. It also raised, for the first time in the context of minority opportunities, the crucial matter of the lack of apprentices on State and local public works and at plants where national defense contracts were held. But in order not to jeopardize voluntary relationships and the collective bargaining basis for JAC operations, all proposals were defined, as carefully as possible, in terms of the existing framework.

DEVELOPMENT OF CONCEPT AND PROJECTS

As the essential parts of a program began to take shape, a new general concept also developed. It was seen that the Study Committee and its local counterparts needed to become an intrinsic part of the apprenticeship structure resting on a firm foundation in law instead of on the more tenuous one of conference resolutions. Consequently, at the third meeting of the Study Committee in August 1961, the C.A.C. was requested to amend its rules to recognize, as part of the State's apprenticeship program, both the statewide and the local committees on equal opportunity for minority groups.

This was done at the public hearing of the California Apprenticeship Council on October 27, 1961, in a paragraph adopted by the C.A.C. and added to the California Administrative Code as follows:

Statewide and Local Community Apprenticeship Committees

> The California Apprenticeship Council approves and encourages equal employment opportunity in apprenticeship and training. To foster and promote this policy the California Apprenticeship Council encourages, recognizes, and approves the establishment of a statewide committee and local community committees, composed of wide community representation from all ethnic groups, representation from labor and management, the California Apprenticeship Council, and the California Conference on Apprenticeship. Each committee shall file with the administrator a written statement setting forth its composition, purposes, and functions, including as one of its purposes the full recognition and support of the autonomy of the statewide and local apprenticeship committees.

In addition the C.A.C. took a further important action at this hearing in providing for uniform procedures that would insure fair and impartial treatment of applications for apprenticeships.

Thus the Statewide Committee on Equal Opportunity and Training for Minority Groups came into being. Proposed Articles of Organization drafted by the committee were approved by the C.A.C. and signed by representatives of the participating organizations. Its functions are described as follows:

> It shall be the purpose of the Statewide Committee for Equal Opportunity in Apprenticeship and Training to foster and promote equal opportunities in apprenticeship and training for all, irrespective of race, color, creed, or national origin. . . .

Having made clear its purpose, the Committee undertook concentrated effort on these key projects:

1. Establishment of a central clearing house for information about apprenticeship in some localities.

2. Creation of tripartite local committees to develop the relationship between the JAC's (labor-management) and the minority communities.

3. Participation at all levels in apprenticeship events and structures.

4. Continuation of attention to the problem of underemployment of apprentices in plants of national defense contractors.

The value of the information centers is recognized as being of the first importance. Consequently, a statement to guide their establishment has been adopted by three state agencies. It provides that the centers:

1. Maintain a library of apprenticeship information for youth, counselors, parents, Joint Apprenticeship Committees, employers, unions, and others.

2. Provide group and individual counseling and guidance to junior and senior high school students and applicants about:

The nature of various apprenticeable occupations.

The qualifications for apprenticeship including educational requirements and aptitudes.

How to prepare for apprenticeship.

How and where to apply for apprenticeship.

3. Act as a referral agency to Joint Apprenticeship Committees and to others in the community who have responsibility for final selection of apprentices.

The statement also proposes that the information centers be supervised by the Employment Service, the D.A.S., and the local public school system and that, prior to the opening, preparatory meetings be held in each local area, first of the government agencies, and then of labor and management groups.

Three pilot information projects are functioning in Fresno, Los Angeles, and San Francisco. They have stimulated so much interest that it is realistic to believe similar projects will be developed in other areas as soon as staff size permits.

The development of local committees is also going forward. So far they have been set up in San Francisco, Los Angeles, Sacramento, San Diego, and Oakland. Additional committees are in process of being organized. Their members form the heart of the program since, acting in a liaison capacity, they bring minority leadership into regular contact with labor and industry officials active in apprenticeship and, through visits by committees from minority communities

to JAC's, become an effective educational medium. The creation of a local committee is a painstaking and often slow process but it is a rewarding one from which much enlightened activity is assured.

PROGRESS REPORT IN STATISTICS

Various significant statistics have emerged from surveys conducted by the D.A.S. One, circulated in 1961, among apprentices who had completed their training in 1955, was answered by 24.4 percent of them and showed:

52.4 percent earned more than $8,000 per year and another 19.6 percent earned between $7,000 and $8,000 per year; 64 percent reported no time lost from work in 1960 and another 22 percent reported only 1 to 4 weeks lost; 83 percent advise others to learn a trade through apprenticeship; 84 percent reported buying or already owning their own homes.

The results of the subsequent survey of apprentices in the program in 1962 cannot be considered statistically valid. A decision had been made not to work with the 20,575 names by mail but to pass out the questionnaires to the apprentices attending classes of related instruction. Some school systems, notably the one in San Francisco, would not permit the questionnaires to be distributed in its classes. A few large apprenticeship committees refused to cooperate in any way despite the fact that some of them have large numbers of minority apprentices in their programs. The ratio of returned questionnaires ranged from 13 percent in one D.A.S. district to 62 percent in another. Nevertheless, despite the inconclusive nature of the results, the answers of the 7,166 who did respond gave the following information:

> The average age of the individual was 24.4 years.
>
> More than 75 percent had completed at least 12 years of schooling and more than 500 had completed at least 2 years of college.
>
> More than 17 percent listed themselves as American Indian, Chinese, Japanese, Jewish, Mexican, Negro or other minority groups.

This shows a marked improvement over the 1955 survey despite the absence of returns from some of the most integrated apprenticeship programs. However, the Negro participation was again disproportionately low although, among those who responded, the percentage had risen to 2.2, or double the 1955 ratio.

The Second Biennial California conference on Apprenticeship, held in Los Angeles in April 1962, followed the pattern of the first but was marked by an intensification of purpose and a more specific and cogent program. Equal opportunity concerns were expressed in many of the workshops in addition to the specific workshop on the subject. The Conference served to involve the total apprenticeship movement still further in the program of equal opportunity and this was again strengthened by the support that came from the California Labor Federation.

The workshop itself proposed the following recommendations to the Conference:

> Commendation of the JAC's which adopted fair and impartial procedures; a call for continuing efforts to inform minority youth of the programs; a call for more attention to apprenticeship opportunities by the high schools and especially by school counselors; a request to the State Board of Education that credit toward teaching credentials be given for college courses in apprenticeship training and for work in the special problems of students from different cultural and ethnic backgrounds; a call for adequate budgets for the State agencies that are responsible for the program of equal opportunities; and a call for the development of apprenticeship information centers in other cities.

It is impossible to know precisely what progress has been made in the past year because records are not kept on the basis of race, religion, or national origin. But two reports received at the end of 1962 are significant.

The consultant in the San Francisco office of the D.A.S. reports for November and December of 1962 that of 16 Negro youths referred, 4 had become active apprentices and 11 were in some stage of being processed.

In Los Angeles, the D.A.S. supervisor reported that some of the D.A.S. consultants had made the following visual observations:

1. Out of seven new apprentices indentured in the Long Beach meatcutters program, two were Negroes. One of the two Negroes was made manager of a market upon completion of training.

2. The Oakland roofers indentured three American Indians, three Negroes, and one Mexican-American.

3. In the Los Angeles office machine repair program, 2 of the 20 apprentices were Negroes.

4. In the Alameda-Contra Costa area, the carpenter programs in October and November indentured eight Negroes, one Japanese, one Chinese, and two Mexican-Americans.

5. One of the apprentices honored in the November completion ceremony of the Los Angeles electricians was a Negro which means he had entered the program 4 years ago.

6. The consultant for the millmen, cabinet makers, plasterers, and cement masons programs in San Bernardino reports that these programs have always admitted Negroes and other minority groups freely but in the last 3 months he has noticed an appreciable increase in the number of Negroes entering.

7. In Los Angeles three of the recent machinist and tool and diemaker apprentices to begin training have been Negroes.

8. A Los Angeles firm, not hitherto participating in the apprenticeship program, now has one Negro machinist apprentice and three Negro ironworker apprentices.

9. The officer of one local carpenter program in Los Angeles reports that while he has not counted them and has no way of doing so, he is certain that of the 60 apprentices in the program, at least 20 are Negroes.

RECOMMENDATIONS FOR NEXT STEPS

Thus progress, slow but discernible, is recorded. However, the California experience has revealed certain central weaknesses which must be overcome:

1. An increase in the budget for the D.A.S. must be provided in order to fill major gaps in the staff.

2. Additional provision must be made to disseminate facts, if young people of minority groups are not to be discouraged at the outset by unfounded charges of discrimination.

3. Apprenticeship openings do not exist in sufficient number for anyone at the present time. According to figures published in the Congressional Record, only 161,128 apprentices were registered in the entire country in 1961. Of these, nearly 21,000, or one-eighth of the total, were found in California which has the largest State program. However, the number of graduates each year is only about 40,000, a figure which must be measured against the 230,000 which the Assistant Secretary of Labor has stated we will need each year. California indentures only 8,000 to 10,000 new apprentices annually--of which some will drop out--for a population which in 1963 alone finds about 250,000 individuals reaching the age of 18. In short, apprenticeship opportunities are not numerous enough at present to provide the way to a better standard of living for many persons of any race. This is not because there is no need for such skills. In fact, some employers who provide substantial numbers of apprenticeship openings complain bitterly that once the men are trained other employers pirate them.

4. If the apprenticeship approach is as important to our national economy and defense as many public officials have indicated, it would seem clear that the Federal Government has a distinct responsibility to provide more openings in the sphere of its direct influence, namely, with government contractors.

5. Although the practice of writing antidiscrimination clauses into apprenticeship agreements has value in establishing a basic moral tenet, it may not, in itself, serve to bring increasing numbers of minority young people into apprenticeships. Therefore, the staff of the D.A.S. is making assiduous efforts to implement the Federal directive by which noncompliance would deprive an apprenticeship program of the right to be registered with the U.S. Department of Labor. Its work toward this end is showing quiet but steady progress.

THE CRUCIAL TEST

The California program is not based on sanctions except those of the strong FEP law. It rests, rather, on a combination of affirmative leadership by the government through the D.A.S., the initiative and commitment of the State's top labor officials, the cooperation of some employers, and the devoted efforts of leaders in civil rights and minority group organizations.

In many respects, California is a testing ground. If this program works, it will prove that such a program can be carried on within the present framework of voluntarism. If it does not work, it will prove that government sanctions are necessary.

CONNECTICUT

CONNECTICUT ADVISORY COMMITTEE TO THE
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Old Saybrook

* Subcommittee on Apprenticeship Training
Chairman, Professor E. E. Schattschneider

Discrimination in Vocational Education and Apprenticeship Training in Connecticut

Perhaps the most remarkable characteristic of the apprenticeship system in Connecticut is the extent to which accurate public information about discrimination in the system is unavailable. Equally striking is the lack of precise information about the ways in which interested persons can become apprentices. Investigators for the Connecticut Commission on Civil Rights encountered extreme difficulty in finding out how many Negro apprentices there were in the State. The State Apprenticeship Council, the Vocational Educational Division of the State Department of Education, and representatives of the Bureau of Apprenticeship of the United States Department of Labor have broadly professed more or less complete ignorance of discrimination in the apprenticeship system and have taken the position that they had no information about the number of Negro apprentices in the State or about discriminatory practices.[1] Such information as lists of names and addresses of employers participating in apprenticeship programs, of officers of local apprenticeship committees, or of union representatives on the local apprenticeship committees have not been made available to interested applicants or their parents and friends.

In the Guide to Apprenticeship, published by the State of Connecticut Apprenticeship Council (January 1961) p. 7, under the heading "Where does a person of apprenticeship age get employment as an apprentice?" the Guide simply tells the prospective applicants for apprenticeship training to see employers, labor union offices, Connecticut State employment offices, or local labor-management apprenticeship committees. No names and no addresses are included. On pages 12-14, the Guide lists a substantial number of apprenticeable trades without the names and addresses of employers or union officers or the names and addresses of local joint committee members. Unless the prospective apprentice has relatives or friends in the trade, it seems likely that he may have a hard time finding out whom he ought to see or where he can make application. The established State and Federal agencies are not helpful at this critical point.

Illustrative of the attitudes of public officials having responsibilities in this area is the following report of an interview with the electrical inspector in New Haven, which was conducted by a research assistant for this Committee:

---

1. See appendix for statistics.

I have found the subject very wary on all matters, but was able to gather the following information: wages paid apprentices are extremely low. Research disclosed later that the minimum wage now for apprentices is 85 cents per hour, being raised to 95 cents after Oct. 1, 1963--as compared with ordinary minimum wage rates of $1.15 and $1.25 respectively. (See sections 31-58 to 31-60 of Conn. Gen. Statutes, 1961 Amendment.) Union procedures count heavily, and the unions often have their own apprenticeship programs written into the collective bargaining contract. There are far too few young men entering the trades, relative to needs. Contractors prefer to hire apprentices duly registered, etc., with the Apprenticeship Council for work on state or federal jobs; if employees are not so registered the contractor must pay journeyman's wages to them. The post of licensing board or individual is heavily political and much pressure is informally applied in the community to license this or that person; such pressure is easier to resist when there is an examining board with set regulations as to qualifications, but is present even there. The plumbers in New Haven are licensed through such a Board, but the electricians are licensed by the Electrical Inspector himself. He has not prescribed any set qualifications, but judges each application (apparently) rather subjectively. Thus, an applicant need not have X number of years training or apprenticeship or schooling, and the examination is apparently amorphous and varying also. But the inspector is pushing for a Board set-up in the new forthcoming revision of the electrical code, mainly to take the licensing job off his lone shoulders, and thereby to escape the heavy political pressure.

Finally, some sample questions and answers:

Q. Is there any problem of racial discrimination in getting training and license to be an electrician?

A. No comment.

Q. Have you ever licensed a Negro electrician?

A. Oh yes, there are some.

Q. Is it difficult for the ordinary man to become an electrician without knowing someone in the trade already?

A. No comment. Go talk to the Union local about that--all we handle is the licensing end.

It seems to us that the agents of the Federal Bureau of Apprenticeship and Training in Connecticut should be directed by the Secretary of Labor to report monthly to the Secretary of Labor, to the U.S. Commission on Civil Rights, and to the President's Commission on Equal Employment Opportunity on the number of Negroes participating in all apprenticeship programs assisted by the Bureau. They should likewise be required to compile, publish, and make available to all interested persons directories of the names and addresses of all employers participating in apprenticeship programs and the names and addresses of the officers of all local joint apprenticeship committees. An order of this kind would be appropriate not only because representatives of the Bureau are Federal employees but also because the Fitzgerald Act, which established the Bureau, made the collection and distribution of information about apprenticeships one of the functions of the Bureau.

In the related areas of vocational education it seems to us that the U.S. Department of Health, Education, and Welfare could exert much useful pressure to break down the veil of secrecy that surrounds the whole area by strengthening all existing regulations, and developing and making information about apprenticeship more readily available to the public. The Department might require regular reports concerning the number of Negro students participating in the various programs subsidized by the Federal Government.

A common criticism of the whole program is that it tends to be out of touch with actual conditions in the labor market. An appropriate interest of the Department of Health, Education, and Welfare might well be the development and publication of specific up-to-date information concerning the employment opportunities and practices. The Department might also properly cooperate with the Federal Bureau of Apprenticeship and Training in the publication of directories of employers and local joint committees participating in apprenticeship programs.

In view of Federal grants in aid of vocational education, it seems to us that the Department of Health, Education, and Welfare might use its substantial influence to utilize the system of local vocational guidance officers as a means of improving the employment opportunities of Negro students. In communities having a Negro

population sufficiently large to justify such action, the Department of Health, Education, and Welfare might foster the formation of local advisory committees to consult with guidance officers. These committees should be biracial in composition, and consist of parents, employers, and representatives of organized and unorganized labor. We recommend that the guidance officers be made the executives of these committees. It should be the function of the committees to collect information about the job requirements, employment needs, and practices of employers in the community, to compile lists of employers maintaining apprenticeship programs, make up directories of local apprenticeship committees, and to find the means to inform Negro students and their parents of employment opportunities and opportunities for training.

It is to be hoped that the committees might be incorporated fully into the operations of the vocational education programs, that they might be consulted in planning the work of the schools and be invited to organize meetings of teachers, parents, employers, and union members for the discussion of ways and means of eliminating bad practices in vocational education and apprenticeship training and that they be called on to report regularly to the State Department of Education and the U.S. Department of Health, Education, and Welfare.

We recommend also that all publications and all folders and leaflets and letterheads used by Federal, State, and local authorities having to do with apprenticeship training and vocational education include a statement to the effect that these are equal opportunity programs. Where the literature is already printed, the public agencies issuing it should be required to mark them conspicuously with a rubber stamp declaring that "This is an equal opportunity program."

APPENDIX

STATE OF CONNECTICUT
COMMISSION ON CIVIL RIGHTS
RESEARCH DIVISION

	Total	White	Negro	Other
CONNECTICUT: EMPLOYED MALES-1950				
Total	563,910	550,605	12,840	465
Apprentices	2,526	2,510	14	2
	100%		.6%	
CONNECTICUT: EMPLOYED MALES-1960				
Total	665,183	640,680	23,508	995
Apprentices	1,531	1,515	11	5
	100%		.7%	

Although a larger proportion of males did not report their occupations in 1960 than in 1950, this fact probably has little influence on the relative proportions of whites and Negroes employed as apprentices.

SOURCE: U.S. Census of Population, 1950, 1960.

TECHNICAL SCHOOL ENROLLMENT
AS OF OCTOBER 1961

	Total	Negro
Bridgeport	991	34
Danbury	342	3
Danielson	349	1
Hamden	610	24
Hartford	664	14
Manchester	166	0
Middletown	234	0
Meriden	401	0
New Britain	568	9
Norwich	361	2
Stamford	533	24
Torrington	292	2
Waterbury	545	4
Willimantic	374	0
	6,430	117

Compiled by Connecticut Commission on Civil Rights

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DISTRICT OF COLUMBIA

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District of Columbia

INTRODUCTION

The District of Columbia Advisory Committee completed a survey of employment opportunities in the Nation's capital in July 1963. Its findings, conclusions, and recommendations were published by the U.S. Commission on Civil Rights in Report on Washington, D.C.: Employment. The Committee's report was the result of several months of effort by a special committee on equal employment opportunity, composed of 5 members of the D.C. Advisory Committee and 20 other Washington citizens representing the business community, organized labor, and human relations organizations.

The special committee gathered most of the information on employment discrimination in a 3-day Conference on Equal Employment Opportunity held in the State Department main auditorium from February 27 through March 1, 1963. Testimony was heard from more than 70 participants representing labor unions, employers, the District of Columbia Government, the Federal Government, schools, and civil rights organizations. The employment report was produced from the transcripts of the testimony and other materials 5 months later.

The employment report found "one of the most serious problems encountered" in the entire field to be discrimination in apprenticeship training. A great deal of information on inequities in apprenticeship was placed before the Committee, but because the report needed to cover the whole employment field, treatment of this one aspect was necessarily brief and incomplete. To contribute to this compilation of reports on apprenticeship by various State Advisory Committees, this Committee expanded its earlier work and brought it up to date.

APPRENTICESHIP IN WASHINGTON, D.C.--EARLY 1963

At the Advisory Committee's conference on Equal Employment Opportunity, participants stressed the serious and continuing problem of exclusion of Negroes from the apprenticeship programs that would prepare them for work in the city's construction industry. It was pointed out that construction, especially in connection with Federal operations and urban renewal, is one of Washington's principal industries. According to Victor R. Daly, deputy director of the U.S. Employment Service for the District:

The construction industry in this area is rapidly becoming one of the largest employers of local labor because of the vast redevelopment programs as well as public construction; it is doing virtually nothing in the hiring or training of Negroes for the skilled trades.

Mr. Daly and Aaron M. Goldman, chairman of the D.C. Commissioners' Council on Human Relations, both listed the problem of Negro entrance into the construction trades as one of the great unsolved civil rights problems in the District. According to Daly, "local efforts to place qualified Negro applicants in apprenticeship training with the craft unions have met with massive resistance by the organized building trades."

In the course of the conference, the Committee received some estimates of the extent of Negro participation in apprenticeship training. Mr. Daly had surveyed the District public schools where classroom instruction supplementing the on-the-job training of registered apprentices is provided. He found that there were at that moment a total of 66 registered apprentices in the skilled construction trades who were receiving such instruction. These included 44 in carpentry, 16 in operating engineering, 4 as metal lathe apprentices, and 2 as reinforced-concrete rodmen. According to his survey, only one of the 66, a carpenter, was a Negro. In addition, Mr. Daly had made a survey of 128 registered apprentices in Montgomery County schools: 67 were in the electrical trades, 39 in the metal trades, and the remaining 22 in other building trades such as plumbing and steamfitting. Not a single Negro was found in the Montgomery County group.

Joseph Curtice, executive secretary of the Washington Building and Construction Trades Council, testified after Mr. Daly and provided conflicting information based on a telephone survey he had conducted in preparing his statement. According to this survey, there were "many" Negro apprentices in cement making, 4 in carpentry, 2 in electricity, and 19 among the operating engineers. Nevertheless, Mr. Curtice did concede that the apprenticeship programs for the skilled trades were "overwhelmingly made up of whites."

"Buck-passing" between labor, management, and government gave evidence of being a serious obstacle to opening the apprenticeship programs to Negroes. Companies claim they cannot apprentice a Negro because the union will not accept him; the unions say they do not do the hiring and, therefore, are without the ultimate power to act. Government in the District of Columbia is involved in apprenticeship through the D.C. Apprenticeship Council. But the

inadequacy of its program, as well as the lack of coordination existing between the schools, other governmental agencies, and the joint (labor-management) apprenticeship committees themselves appeared responsible to some degree for the lack of integration in the programs.

The Apprenticeship Council, created by the Bridges-Randolph Act of 1946 and composed of 6 members (3 from management and 3 from labor) appointed by the D.C. Commissioners, depends on the voluntary cooperation of labor, management, and the joint apprenticeship committees to carry out its purposes. These are to establish apprenticeship programs meeting the standards prescribed in the act, to train young people for profitable employment and citizenship, and to assure an adequate supply of skilled workers for the community. The Council issued a directive in 1959 against discriminatory selection of apprentices and since that time has required a nondiscrimination clause in its agreements. Council staff, provided by the Labor Department's Bureau of Apprenticeship and Training, has in the past used racial designations on Negro applications, assertedly as a special effort to secure opportunities for Negroes in programs. This practice was curtailed by order of the Secretary of Labor in 1961 but, in any event, it had proved ineffectual. The Advisory Committee came to the conclusion that only concrete activity that would encourage and promote minority group participation in apprenticeship programs would correct the present situation.

Improvement has been noted to some extent following the creation of the District of Columbia Apprenticeship Information Center and the related programs which have been instituted in the months since the Advisory Committee conference.

THE APPRENTICESHIP INFORMATION CENTER

At the Advisory Committee conference, Under Secretary of Labor John F. Henning announced a long-range program by the Federal Government to stimulate a fair apprenticeship program for the District. He reviewed the steps that had prefaced this program: the Bureau of Apprenticeship and Training in the Department of Labor had, since 1961, been requiring nondiscrimination clauses in the apprenticeship agreements of firms handling Government contracts and in the registration of any apprenticeship programs with the Bureau. Mr. Henning announced that an Industrial Training Adviser, Mr. Thomas Augustine--formerly of the Pittsburgh Urban League--had been appointed National Industrial Training Adviser working in the Washington office of the Bureau to coordinate its equal opportunity programs in the Washington area.

In addition, he announced the intention of the Department of Labor to establish, on a demonstration basis, an apprenticeship information center in the District of Columbia. This center, he explained, would be "a joint enterprise of the Bureau of Apprenticeship and Training, Employment Service, the schools, the D.C. Apprenticeship Council, and employers and unions. Its experience in determining apprenticeship opportunities and in counseling young people regarding them will contribute knowledge that can prove invaluable in determining other actions that may be needed."

On June 17, 1963 the D.C. Apprenticeship Information Center was opened in the office of the U.S. Employment Service in Washington, under the supervision of the several interested agencies. A director from the BAT staff was appointed to supervise the center's operation. He, with his two assistants, make up its staff of three. The center is located at 6th Street and Pennsylvania Avenue, N.W.

After having been in operation 5 months, the information center reported in November that it had placed 40 applicants for apprenticeship, of whom 34 were Negroes. They had entered the trades of machinist, electrician, carpenter, painter, dental technician, millwright, steamfitter, plumber, and plasterer. The center was also processing the applications of 13 other Negroes who had been interviewed by the President's Committee on Equal Employment Opportunity at the time of the Howard University protest during the summer.

THE HOWARD STUDENTS' PROTEST

The seriousness and the persistence of Negro exclusion from the apprenticeable trades were vividly illustrated to the Advisory Committee by the complaint brought to the conference by the Non-Violent Action Group of Howard University. Howard was chartered by the Federal Government in 1867 for the education of freedmen and still has a predominantly Negro student body.

Mr. Stokely Carmichael, spokesman for the Non-Violent Action Group, told the Committee that the Federal Government appropriates funds to Howard University for the construction of new buildings under the direction of the General Services Administration. The GSA had contracted for the construction of a new $2.6 million physical education building for the campus. In February, shortly before the Advisory Committee conference, the student newspaper, The Hilltop, noted that the skilled workers on the gymnasium project were affiliated with labor unions which excluded Negroes or for other reasons had virtually no Negro members. Mr. Carmichael

told the Committee that the students considered it a "blatant insult" for the GSA to enter into such a contract and that this indicated a general policy of irresponsibility on the part of the Government regarding opportunity in the building trades.

After the conference, the students appealed to the President's Committee on Equal Employment Opportunity to take all necessary steps to bring Negroes into the four craft unions which the students accused of total exclusion or tokenism. In response, the Secretary of Labor called the contractors and labor unions involved in the gymnasium contract to a meeting and cautioned them either to halt exclusionary practices or face cancellation of their contracts. This pressure seemed to have had some effect because Negro craftsmen were soon being solicited for the Howard University project by advertisements in local newspapers including the Washington Afro-American.

Further protests were made by the students to the General Services Administration itself which responded by issuing an order requiring information about racial employment practices from contractors and subcontractors on "virtually all significant construction projects" for which it had responsibility. GSA had earlier instituted an order requiring a report on racial composition of the labor force on any of its contracts awarded subsequent to January 1, 1963. But the new order, effective June 24, required contractors holding GSA contracts awarded any time after March 6, 1961 (the date of the Presidential order on equal employment opportunity) of $100,000 or more and subcontractors holding contracts of $50,000 or more, to file regular reports on their employment practices.

SURVEY BY HUMAN RELATIONS COUNCIL

The conflicting nature of the limited information available on the extent of Negro participation in apprenticeship programs hindered the Advisory Committee in its efforts to assess the apprenticeship problem at its conference. Much of this difficulty was resolved on October 11, 1963, when the D.C. Commissioners' Council on Human Relations and the D.C. Apprenticeship Council published the results of a survey of Negro apprentices which had been completed on July 1. The survey was able to cover 1,844 of the 1,893 registered apprentices in the District. Of the 1,844 surveyed, 216 or 11.7 percent were Negroes. (The complete survey appears as an appendix to this chapter, infra pp. 52-54.)

The survey was broken down into categories showing apprenticeships with individual employers and apprenticeships under the supervision of the joint apprenticeship committees (JAC's). In the first group, the Negro representation was 29.2 percent as compared with 3.5 percent of those registered with the JAC's. The exact figures showed 74 Negroes out of 253 apprentices registered with individual employers and 142 Negroes out of 1,591 apprentices registered with the JAC programs.

The figure for the building construction trades was 96 Negroes out of 1,230 total apprentices or 7.8 percent. Taking only the JAC programs in the building trades, the Negro representation of 62 out of 1,128 apprentices, or 5.5 percent, was somewhat lower.

A press release accompanying the recent report pointed out that since July 1 additional Negro apprentices have been admitted to some of the joint apprenticeship committee programs. There are now 9 Negro apprentices with the electrical workers' program rather than 2; the plumbers have 7 instead of 2; the carpenters' JAC has 20 instead of 5 as of July 1, 1963; and the pipefitters, having registered 2 additional Negro apprentices, now have a total of 4.

A definite increase in the number of Negro apprentices is noted since the conference in February. At least four unions which, at that time, had no Negro apprentices (plumbers, sheetmetal workers, ironworkers, and rodmen) have now admitted a few.

CONCLUSIONS

Apprenticeship programs for the skilled building trades remain resistant to accepting the principle of equal employment opportunity. The report from the D.C. Commissioners' Council on Human Relations that 11.7 percent of the apprentices currently registered are Negroes shows an encouraging improvement in recent months. But when the programs of the joint apprenticeship committees in the building trades are considered by themselves, the percentage of 5.5 for Negro participation seems alarmingly meager in a community that is more than 55 percent nonwhite. In some of these trades there continues to be no progress at all or none beyond mere tokenism.

The history of past discriminatory employment practices in the apprenticeable trades, as well as the continuation of such practices in many places, have discouraged Negro youth from applying for and seeking to participate in the programs. The creation of the apprenticeship information center by the Department of Labor marked the first serious attempt to correct this situation. It represents

a conscious effort to reach young people from minority group backgrounds who have previously been excluded from these fields because they lacked close contact with persons already in the crafts.

The D.C. Advisory Committee concluded its report on employment in Washington with a series of 13 recommendations for changes in law and official policy concerning equality of opportunity in all fields of employment. Of these, the recommendations to enact fair employment practices legislation as both District and national law were considered basic. With the same sense of urgency, the Committee reaffirms its support of these reforms and its conviction that apprenticeship training must be opened by law fortified by community good will.

APPENDIX

The following tables contain the most recent available data on the total numbers of apprentices and of Negro apprentices. The source of the data is a report issued October 11, 1963, by the District of Columbia Commissioners' Council on Human Relations entitled Joint Survey of Apprentices in D.C. as of July 1, 1963.

The D.C. Commissioners' Council on Human Relations and the D.C. Apprenticeship Council jointly conducted this survey. The survey covered the two general categories of apprenticeship programs: (a) those conducted by joint (labor and management) apprenticeship committees, or JAC's, and (b) those conducted without labor union participation by individual employers. A summary of the survey is as follows:

	Questionnaires		Apprentices		
	Sent	Replies	Total	Negro	Percent
Joint Apprenticeship Committees	55	55	1,591	142	8.9
Individual Employers	917	516	253	74	29.2
	972	571	1,844	216	11.7

The tables which follow give the detailed breakdown by apprenticeship program, table A containing the joint apprenticeship committee (JAC) programs and table B containing the individual employer programs.

Table A--Joint Apprenticeship Committees

	JAC's	Apprentices Total	Apprentices Negro
1.	Carpentry	312	5
2.	Columbia Typo #101	228	50
3.	Electrical Workers #26	125	2
4.	Pipefitters #602	120	2
5.	Operating Engineers #77	95	18
6.	Stationary Engineers #99	95	5
7.	Plumbers #5	80	2
8.	Sheet Metal Workers #102	77	3
9.	Iron Workers #5	58	2
10.	Bindery Workers #42	40	10
11.	Asbestos Workers #24	31	-
12.	Bricklayers #1	30	7
13.	Painters Council #51	30	-
14.	Stone Masons #2	28	-
15.	Rodmen #201	23	1
16.	Lathers #9	23	-
17.	Cement Masons #896	21	10
18.	Photoengravers #17	21	-
19.	Bakers #117	17	3
20.	Plasterers #96	17	2
21.	Glaziers #963	16	-
22.	Web Pressmen #6	14	-
23.	Bookbinders #4	13	4
24.	Bricklayers #4	11	5
25.	Pressman #72	10	4
26.	Iron Shopmen #486	10	2
27.	Machinists #193	10	1
28.	Mailers #29	10	1
29.	Auto Mechanics #1486	9	2
30.	Tile Setters #3	9	-
31.	Sign Painters #1129	5	1
32.	Stone Cutters of N.A.	2	-
33.	Electrotypers #17	1	-
34.	Barbers #239	-	-
35.	Pressmen #1	-	-
36.	Stereotypers #19	-	-
37.	Meatcutters #393	-	-
38.	Lithographers #13 (Ind)	-	-
39.	Painters #1831	-	-
40.	Linemen #70	-	-
41.	Boilermakers #518	-	-
42.	Tailors #118	-	-
43.	Cooks #219	-	-
44.	American Line Builders	-	-
45.	Boilermakers, S.E.	-	-
46.	Glaziers #963 (Shops)	See item 21	
47.	Electrical Workers #26(R)	See item 3	
48.	Press Assistants #42)		
49.	Pressmen #351	)Merged as Pressmen	
50.	Offset Art. #530	) #72 JAC	
51.	Col. Typo #101	) Job Shops JAC's	
52.	Photoengravers #17	) shown under	
53.	Mailers #29	) newspaper JAC's	
54.	Stereotypers #19	)	
55.	Web Pressmen #6	)	

Total apprentices reported by JAC's was 1,591, of whom 142 or 8.9 percent were Negroes. It was also reported that the JAC's had trained 54 Negro apprentices between 1957 and 1962. None of the JAC's listed above has kept records of apprentices by race, color, or creed.

Table B--Individual Employer Programs

	Trade	Apprentices Total	Apprentices Negro		Trade	Apprentices Total	Apprentices Negro
1.	Electricians	36	12	23.	Bakers	2	2
2.	Plumbers-Pipefitters	36	7	24.	Pastry Cooks	2	2
3.	Auto Mechanics	28	7	25.	Bookbinders	2	2
4.	Stationary Engineers	17	3	26.	Electric Motor Repairmen	2	1
5.	Machinists	17	2	27.	Cabinet Makers	2	-
6.	Bricklayers	11	2	28.	Upholsterers	2	-
7.	Business Machine Mechanics	10	1	29.	Scale Servicemen	2	-
8.	Mill Workers	10	-	30.	Sewing Machine Mechanics	1	1
9.	Optical Technicians	8	5	31.	Motorcycle Mechanics	1	1
10.	Sheet Metal Workers	7	4	32.	Shoemakers	1	1
11.	Carpenters	6	2	33.	Auto Glaziers	1	1
12.	Pressmen (all types)	6	1	34.	Painters (building)	1	1
13.	Lithographers	5	-	35.	Furniture Finishers	1	1
14.	Pipefitters (refrig.)	4	1	36.	Piano Tuners	1	1
15.	Locksmiths	4	-	37.	Seamstresses	1	1
16.	Reinforcing Rodmen	3	3	38.	Tailors	1	1
17.	Draftsmen	3	2	39.	Auto Body Repairmen	1	1
18.	Dental Technicians	3	1	40.	Printer-Compositors	1	-
19.	Photographers	3	-	41.	Sign Painters	1	-
20.	Electricians (signal)	3	-	42.	Safe Technicians	1	-
21.	Electronic Technicians	2	2	43.	Camera Repairmen	1	-
22.	Lathers	2	2	44.	Maintenance Mechanics	1	-
					Total	253	74

Total apprentices reported by individual employers were 253, of whom 74 or 29.2 percent were Negro. These employers also reported that 278 Negroes were registered as apprentices with them during the period 1957 through 1962.

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Apprenticeship Training Programs in Florida

Among the 1,000 persons engaged in apprenticeship training in Dade County, Florida, there is not a single Negro. This revealing fact was brought to light as a result of a series of interviews conducted in Miami by the Subcommittee on Apprenticeship Training Programs of the Florida Advisory Committee, during the spring of 1963. The eight members of the subcommittee, in an effort to discover the extent of discrimination present in these various programs, discussed the problem with representatives of such trades as carpentry, painting and decorating, sheetmetal work, electrical work, and plumbing. A spokesman from the Bureau of Apprenticeship and Training of the United States Department of Labor as well as a representative from the Dade County Board of Public Instruction also were interviewed.

Florida's apprenticeship training program was established under Public Law 308 of the 75th Congress and Chapter 446 of the Florida Code. The program was intended by its formulators to support voluntary efforts by labor and management to teach qualified applicants specific trades. As of June 30, 1963, the Bureau of Apprenticeship and Training reported that there were 4,366 apprentices registered in Florida.[1] To become accredited journeymen these trainees spend 144 hours a year in classwork instruction offered by the County Board of Public Instruction in addition to on-the-job training.

The organization of Florida's apprenticeship training program is relatively simple. A Florida Apprenticeship Council supervises the overall apprenticeship training program for the State. Under the Council are various joint apprenticeship committees, one for each craft, made up of three employers and three union representatives. These local committees make the actual selections of apprentices and work with the Florida Apprenticeship Council in setting the requirements for admission into their specific training program. In most instances, these requirements are an aptitude screening by the Florida State Employment Service, a good character, and a job. In some situations a high school diploma is required. The local committees, in conjunction with the Council, also establish the pay for apprentices, which is usually above the minimum

1. The 1960 census, however, recorded only 2,259 apprentices in such training programs in Florida, 103 of whom were Negro. (See U.S. Census of Population: 1960, Florida, PC(1) - 11D, table 122.) The discrepancy in these two sets of figures is due to the fact that all persons who are apprentices do not necessarily declare themselves as such to the census takers.

wage. The administration of the State's total apprenticeship training program is supervised by the Florida Apprenticeship Council with staff assistance from the Bureau of Apprenticeship and Training of the United States Department of Labor. These Federal employees work with the State county agents in an advisory capacity. W.P. Huffstetler, Miami Area Supervisor, is the Federal apprenticeship representative in the Miami area.

Discrimination against Negroes in Florida's apprenticeship training programs is not overt. The Florida Apprenticeship Agreement does not have a "race clause," which would act to preclude Negroes from applying for membership in any of the joint committees. Huffstetler reported to the subcommittee that, while he personally had heard accusations of discrimination, he later found them to be baseless, or based on matters other than race, creed, or ethnic background. Individual representatives of the different trades asserted, moreover, that the reason there were no Negroes in the area's training programs was that none had ever applied for membership, adding that "if qualified, Negro applicants would be accepted and trained."[2] Inadequate preparation and depression in some of the industries were cited by the witnesses as additional explanations of why there are no Negro apprentices in Dade County.

Further questioning of these same witnesses, however, led the subcommittee to suspect conditions of racial inequity in the State's apprenticeship program. There seemed to be an unspoken understanding among those interviewed by the subcommittee that Negroes were not expected to apply for the respective training programs, and would not be included if they sought membership.

For instance, Robert G. Curry, director of the Miami Electricians Joint Apprenticeship Committee gave two explanations for the absence of Negroes among the 165 young men in his training program. "Negroes are not interested in hazardous work," he said, and they "lack the technical understanding of electricity." James G. Washington, chairman of the Plumbing Joint Apprenticeship Committee, alluded to the fact that Negro apprentices in his trade would not be welcome because of the "close physical association required for instruction," an association he described as being like a "father-son relationship." A plumbing contractor blamed the failure of Negroes to penetrate the plumbing industry on a racial character defect, which made "few [Negroes] willing to pioneer" and "persevere" in gaining admission to the trade, as well as on their inferior academic preparation.

More concrete proof that there is discrimination in the State's apprenticeship training programs is the visible presence

2. Statement by James McKie, chairman of Miami Carpenters' Joint Apprenticeship Committee.

of such bias in the policies of the Board of Public Instruction, and in the membership and job assignments of labor unions in the Miami area. Both these institutions are so integrally related to apprenticeship training that discrimination in the one signifies similar behavior in the other.

The Dade County Board of Public Instruction teaches the apprentices, who are sent to it for instruction related to their trade by the joint apprenticeship committees. Since there are no Negroes presently receiving instruction from the Board, the conclusion must be drawn that this is so because none are being sent by the joint committees. Assistant Superintendent Lowell B. Selby, a member of the Board, said that if a Negro applied to participate in the Board's program, he would not be included in the present Joint Apprenticeship Committee classes, Selby added, however, that he would be perfectly willing to set up a class for such applicants if a sufficent number of students, 15 to be exact, applied--the implication being that these Negro students would be taught in segregated classes.

Belonging to a trade union gives a worker not only a guaranteed wage level but also a sense of identification with a standard of proficiency. Evident discrimination in Florida's trade unions deprives Negroes of these benefits. Further, since apprenticeship training programs are sponsored by unions, it is not unreasonable to assume that the policies that prevail in these programs reflect race consciousness on the part of the unions involved. For example, among 700 union members in the Miami Sheetmetal Workers Local, there is not one Negro; nor is there a single Negro apprentice among the 75 trainees in the union's program.[3] Anton Rhuby, chairman of the Miami Painting and Decorating Joint Apprenticeship Committee, reported to the subcommittee that work patterns in his trade had all been integrated successfully, but that new construction jobs and large projects were still for white carpenters only. Further, among the 28 apprentices in the Painters Union there are no Negroes. The plight of Negro electricians is part of the same story. While at present, there are 2 Negro electricians in Miami, and there have been, all told, 11 Negro journeymen in Local 349, they are dealt with separately by R.T. Callahan, Business Agent of Electrician's Local Union 349.

The Carpenters Union reflects this pattern of discrimination more graphically than any of the other labor organizations. There are 5,500 union carpenters in Dade County. Negro carpenters have a separate union, Local Union 1834. Under a "gentleman's agreement"

3. One nonunion shop employs Negroes; its policy is that it will accept a qualified Negro if he seeks admission to the shop.

white carpenters work in white areas and Negro carpenters in colored sections of the county. Negroes are "furloughed" when there is a white construction project. However, due to a depression in the building industry, Negroes are sometimes furloughed on Negro projects. For instance, there was only one Negro carpenter working on the construction of an all-Negro school at the time of the subcommittee's inquiry. Sixty-two members of Local 1834 joined the District Council, in 1954, with the hope of obtaining employment. They have yet to be called by the Council--exclusion of the Local's members being apparent to all. Furthermore, the Local's business agent, H.E. Lewis, who is paid to represent Local 1834, automatically refers all Negro artisans, whether they are carpenters or not, to the all-Negro Carpenters Union.

An example of the frustration faced by Negro skilled job applicants is presented by the story of Robert Lee Smith, who had been a jet engine specialist with the Army, and has been applying for employment with Eastern Airlines as an aviation mechanic every 6 or 8 months since his discharge from the Army in 1956. He reported to the subcommittee that he had also sought guidance from the Florida State Employment Service with no success.

Shedrick Gilbert, a postal employee in Miami, had a similar story to tell. Mr. Gilbert holds a degree in Industrial Education from Hampton Institute in Virginia. He has been trained to teach plumbing and heating skills. He took the Miami examination for plumbers five or six times and failed it each time. He believes that the examiners were able to single out his paper, even though his work was identified only by a number. Mr. Gilbert eventually took and passed the Miami and Miami Beach Civil Service examinations. He is now first on the Miami Beach list of qualified job applicants. However, to date, he has not gone beyond the required interview for future employment and has yet to receive a job offer.

MARYLAND

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Introduction

Discrimination in apprenticeship and training recently has been the focus of widespread action to remove the barriers of prejudice blocking nonwhite Americans from opportunities to learn skilled trades.

Automation has dried up the source of unskilled and semi-skilled jobs for vast numbers of untrained Negroes, and unemployment among nonwhites in this category is a problem of staggering proportions.

As jobs involving limited skills disappear, there is a corresponding increase in demand for skilled laborers and technicians. All too often, Negroes are denied the opportunity for training that would qualify them to enter the labor market at the skilled level, where openings are plentiful. In effect, therefore, Negroes are squeezed out at both ends of the job spectrum.

In general, civil rights groups have not been willing to accept this situation. In the past few months in Maryland the movement to obtain broader opportunities in apprenticeship and training has generated enough momentum to exceed gains made over the past decade.

The public inquiry conducted by the Maryland Advisory Committee in March 1963 broached the subject of discrimination in apprenticeship at a time when Negro concern with the problem was becoming acute. In the intervening months, we have seen Negro frustrations boil over into a program of action directed against discrimination in employment.

At the present time, there is every indication that inroads are about to be made into what has been an impervious network of discrimination supported by management and labor and condoned by government, whether knowingly or unwittingly.

Based on the information obtained at the March meeting and on events that occurred through September this report will attempt to portray the rapidly changing picture of opportunities for Negroes in training and apprenticeships.

Established Employment Policies and Practices in Maryland

It is apparent from the record of the public meeting of the Maryland Advisory Committee in March that in general the labor movement, the construction industry, industrial employers, and the local, State, and Federal Governments all are committed in one form or another to a policy of nondiscrimination in employment training and apprenticeship.

Speaking on behalf of some of these groups were Woodrow F. Strong, then president of the Maryland State and District of Columbia AFL-CIO; John P. Trimmer, executive vice president of Associated Building Contractors, Inc., the trade association for nonunion contractors; and Mrs. Margaret Clark, manager of the Baltimore Builders Chapter of the Associated General Contractors, the group for the union shop builders. Each declared in separate statements that the employment practices of their groups were nondiscriminatory and that apprenticeship opportunities in their fields were available to everyone.

Except for two spokesmen--one from Aircraft Armaments and the other from the Chesapeake and Potomac Telephone Company--industry representatives declined to attend the public meeting. However, from correspondence and information received at the meeting, the employers were unwavering in their public support of a policy of equal employment opportunities and nondiscriminatory training possibilities.

In letters to the Committee, spokesmen for a cross section of industrial concerns declared their companies did not have any formal or registered apprenticeship programs, but conducted in-plant training programs or made provisions for schooling at various nearby educational institutions. The letters, moreover, contained statements on their policies of nondiscriminatory practices.

Mr. L. C. Fitzgerald, plant manager for Chevrolet-Baltimore, wrote that General Motors has a "long standing policy with respect to nondiscrimination. Practices, procedures and decisions are to be, at all times, in conformity with the corporation policy of nondiscrimination."

This statement was echoed in communications from M. J. Olson, plant manager of Fisher Body Division of General Motors Corporation; J. H. Pond, director of industrial relations for the Martin Company; and D. C. Lee, manager of industrial relations for the Westinghouse Electric Corporation.

During his appearance before the Committee, Robert B. Alexander, of the Chesapeake and Potomac Telephone Company, insisted that employment with that public utility is on a nondiscriminatory basis. The company, which employs some 20,000 people in Maryland, has no apprenticeship program, but all C&P employees obtain intensive internal training for their specific jobs. In answer to a question this witness admitted possible discriminatory practices in the past.

Mr. Wesley E. Baynes, Jr., manager of personnel administration for Aircraft Armaments, told the Committee that as a prime contractor for the Department of Defense "we are . . . obligated under governmental regulations to give equal consideration to all qualified applicants regardless of race, creed, and national origin." Although Aircraft Armaments has no registered training, this plant conducts three programs considered their equivalent.

In addition to the position taken by labor and management, Government at almost every level has also adopted a policy of equal opportunity in employment, training, and apprenticeship. It is the practice of agencies and departments of the Federal, State, and city governments to include provisions against discrimination in contracts with companies and firms performing work of a public nature. Enforcement of such contractual obligations, however, has been largely nonexistent. It is difficult to pinpoint the responsibility for enforcement and the penalities available in the case of violations because of the vagueness in which the provision is couched in city and State contracts.

In part, because of this lack of uniformity in enforcement of nondiscriminatory requirements at the State and local level, the Federal Government has stepped up efforts to provide equal opportunities in employment and apprenticeship training. President Kennedy on June 4 announced that the President's Committee on Equal Employment Opportunity will have authority over construction projects undertaken by State or local governments "wholly or in part as a result of Federal grant-in-aid programs."

None of the agencies of Government operating in the field of apprenticeship and training or charged with insuring equal opportunities could cite any instances of complaints about discrimination in this area. Mr. Louis Nemerofsky, State Supervisor for the Department of Labor's Bureau of Apprenticeship and Training

(BAT) at the time of the Baltimore meeting, advised the Committee that he could not "recall receiving a single complaint, that is, a written complaint, saying that any person has not been given an opportunity or has been discriminated against once he has been on the job." The testimony of David L. Glenn, executive director of the Equal Opportunity Commission (EOC) in Baltimore City revealed similar experience at the municipal level. Mr. Glenn, whose agency has procedural machinery to process grievances, told the Committee the EOC "had no formal complaints" concerning apprenticeships. Mr. Glenn added in explanation that few youths from minority groups apply because they "feel they are not going to be considered anyway." In his opinion most of the major employers in Baltimore City are abiding by "the letter of the law," and are not openly discriminating. He voiced doubt, however, that more than a handful of employers "really live by the spirit of the law" in providing for equality of opportunity in employment.

Unlike the EOC, the Federal agency on apprenticeship and training in Maryland has no enforcement powers, although a new Department of Labor policy allows BAT to determine whether companies with registered training programs are complying with a nondiscriminatory standard.

Apprenticeship Program in Maryland

BAT is an agency functioning to promote apprenticeships. There are some 2,400 apprentices in registered programs in Maryland; 1,800 in the Baltimore area, 500 in southern Maryland and on the Eastern Shore, and 200 in western Maryland, according to Louis Nemerofsky, Maryland supervisor for the Bureau.

Decrying the limited number of apprentices on the registered rolls, Mr. Nemerofsky said: "In order to meet the normal replacement demand for those leaving the trades, there should be at least 7,000 apprentices in training at the present time." This projection was based on a conservative ratio of 1 apprentice for every 20 journeymen although the optimum ratio is 1 apprentice for every 8 or 9 journeymen.

Mr. Strong of the AFL-CIO echoed the contention that more apprentices are needed. Against the background that 80 percent of the apprentices in Maryland are in the construction trades, Mr. Strong attempted to explain the current apprentice shortage. He pointed out that the construction industry is subject to seasonal ups and downs, which frequently throw fully trained journeymen out of work. At such times, the industry cannot take on apprentices, and as much as 30 percent of the membership may be out of work for 2 or 3 months during a seasonal slump, Mr. Strong added.

It was reported by Mr. Nemerofsky, however, that in the first 6 months of 1962, Maryland, with a net gain of 213 apprentices, was first in gains in the country as compared with a net loss nationally of 4,129.

NEGRO PARTICIPATION IN APPRENTICESHIP

One of the questions posed during the meeting was how many Negroes presently participate in apprenticeship programs in Maryland. No precise answers could be found for the entire picture, but a piecemeal estimate has indicated there are 20 at most. Using figures supplied by BAT in a breakdown of apprentices by trade, the number of Negroes in programs are compared with the total in a program. Here is the listing, with the total submitted by BAT on the left and the estimate of Negro participation noted on the right:

TRADE	TOTAL	NEGROES
Electricians	605	3
Plumbers	459	2
Carpenters	215	9 (all Negro local)
Machinists	161	0
Compositors	132	1
Metal Workers	107	0
Bricklayers	90	0
Iron Workers	55	0
Printing Pressmen	52	0
Lithographers	42	0
Tool & Die Makers	41	0
Auto Mechanics	32	0
Lathers	32	0
Meat Cutters	31	0
Cabinet Makers	31	1
Cement Masons	6	3

The BAT official observed that there are about 600 openings for apprentices every year based on a 4-year training cycle for the present total of 2,500. At the meeting, complaints were raised with the Committee about the failure of sponsoring groups to make the availability of openings known to nonwhite applicants.

Mr. Isaiah C. Fletcher, secretary of vocational services for the Baltimore Urban League, decried "the veil of secrecy around the apprenticeable trades" in the area and claimed that after a year of work trying to obtain information on the apprenticeship trades, the Urban League was still essentially in the dark. He concluded that Negro participation in apprenticeship training was "just about nil."

Mr. Troy Brailey, chairman of the Labor Committee of the Baltimore Branch of the NAACP, underscored the Urban League contention that there seems to be no documented information on the number of applicants for training programs. The number of Negroes seeking admission, says Mr. Brailey, "seems to be a big secret."

EXTENT OF NEGRO APPLICATIONS FOR APPRENTICESHIP TRAINING

Research into the labyrinth of applications and placement procedures has produced opposing contentions from the parties and agencies involved. From management, labor, and government the response seems to center on the failure by members of the Negro community to make applications and on the dearth of qualified Negro applicants. From vocational school educators and civil rights groups, the replies hinge on the futility, the frustrations, and the false hopes involved in making applications.

Mr. D. C. Lee, the Westinghouse industrial relations manager, remarked that "despite intensive advertising and recruiting, we have experienced difficulty in attracting technically trained and professional level personnel from minority groups and this is largely due to the shortage of such individuals in these fields." Mr. A. Howard Bode, director of industrial relations for Bendix, echoed this conclusion as did Wesley Baynes, personnel administration manager for Aircraft Armaments. Mr. Melvin Roy, minority consultant for the Maryland State Employment Service, indicated to the Committee, "there is a steady demand for skilled and technical workers. There is not a sufficient number of qualified Negroes in any one of the categories." Many orders flowing through the Employment Service cannot be filled by Negro referrals because of this shortage.

In the apprenticeship field, the Maryland Employment Service has an agreement with the Associated Builders and Contractors to furnish applicants for training. As of last January, 1963, Mr. Roy stated some 10 Negroes were included in 70 referrals to ABC. Of this group, apparently three Negroes were selected for apprenticeship training.

Exclusive of orders received from the ABC, Mr. Roy said, "I doubt if we have had three requests for apprentices in the past 2 years." Asked to explain this, he observed, "they [the employers] evidently are going directly to the union halls, directly to the employees who have apprenticeable occupations in the plants--they are doing the hiring of these people in the apprenticeable trades themselves. We are not getting the orders directly from the employers."

Mr. John Trimmer of the Associated Builders and Contractors confirmed that in his association "the employer is the one who hires after [the applicants] have been tested, screened, and considered to be qualified by the Maryland State Employment Service." Hiring by members of the union shop Associated General Contractors, according to Mrs. Clark, the Baltimore manager, is accomplished through negotiated contracts with locals representing carpenters and cement finishers. Apprenticeship training is also jointly negotiated between the AGC and the carpenters and cement finishers locals with the selection of trainees solely the responsibility of the unions.

Mr. Charles Muntain,* president of the Baltimore Building Trades Council, commented on the placement of Negroes in the construction fields. He said:

> Getting boys to train for this type of work means you first have to make application and you don't get many applications for apprenticeship training from colored boys. . . . He is a little bit restrained from going in and making application. . . . We have made some strides, not any great strides, because this is a problem, but I think we are making gains.

Speaking on behalf of the Baltimore Typographical Union, where there are no Negro apprentices, the president, Charles Miller, contended that "we have been trying to line up that situation for a number of years. In my six years as president I have received one application from a member of the colored race although I have encouraged it. . . ." In the typographical trades foremen for printing shops actually hire apprentices, not the union.

In the electrical industry, where there also are few Negro applications, there was an active program initiated to obtain Negro apprentices. Mr. Philip T. Vail, director of apprenticeship training for the Joint Apprenticeship Training Committee of the Electrical Industry, told the Committee that he was instructed to "get applications from colored boys, if you can get them." The reason for this, Mr. Vail says, ". . . we saw this coming, and we took action." Strict standards govern the admission of trainees into the electrical industry's apprenticeship program, and as an inducement higher wages are paid at the rate of $1.96 per hour the 1st year and reaching as high as $3.05 the 4th year during a 4-year program involving 8,000 hour of training. There are several Negro apprentices in the program at the present time.

* Mr. Muntain was appointed to membership on the Maryland Advisory Committee subsequent to the Baltimore meeting.

Mr. Strong of the AFL-CIO recalled a meeting of labor leaders with Dr. Saul Perdue, principal of the Carver Vocational Technical High School, and with Dr. Furman Templeton of the Urban League about 18 months earlier to discuss the problem. Mr. Strong said that there was no evidence at that time that there was pressure for admission of Negroes or that this was denied them. He went on to say that today there is still no evidence that minority group members are making an effort to gain entrance into apprenticeship programs.

Discrimination in Apprenticeship Training in Maryland

Labor representatives did not minimize the role discrimination plays in the apprenticeship programs supported by their local unions. "The problem," admitted Mr. Strong, "is getting the leadership to convert the membership. Once the rank and file recognize that it does not impose a penalty, a hardship . . . then it is all over with." Mr. Oliver Singleton, director of region 4, AFL-CIO, said that local unions practicing discrimination must be policed by the AFL-CIO, and failing that the only alternative remaining would be "to expel all these local unions."

Mr. Singleton accused management of not living up to the spirit of the law in accepting apprentices on a nondiscriminatory basis and said in the training programs sponsored by the open shop ABC, the union shop AGC and all others, the employers are solely responsible for admission policies. Asked about the role government should assume, Mr. Singleton replied:

> There should be very close supervision of the apprenticeship training program, of the employers and the unions who are engaged in activities under government contract, even to the point of excluding the participation of an employer who does not live up to the spirit of the law itself. The same thing should apply to the unions. . . . I think too that there is a great deal of suspicion across the country that even the BAT is not fulfilling its role in this field and I say that with all due respect to the representative of that Bureau who is present today.

Dr. Perdue gave the Committee this insight into what he described as the subtle operation of discrimination that his students encounter when they seek apprenticeship training:

> Well, the students are well received, graciously received, generally. They are asked to fill out a form and to give certain information. They are asked about their training and so on. But, after that is done, they are usually told, "We don't have a vacancy at the moment. . . we do not expect to enlarge our force at the moment, but maybe next week, or in two weeks from now, and at that time you will hear from us." Occasionally one may go directly to the job construction site and ask for

employment right there. Well, the usual reply to that is, "I don't need anybody today," and they are rather abrupt about that. But, as a general thing, they are rather gracious, quite warm, and they give the impression that the student should be very hopeful. It is made to look as if the chance of getting the job is very promising, encouraging, and it perks him up, but then, after he goes away and waits, and waits, and waits, and nothing happens that's when the student feels that all hope is gone. Then it begins to dawn on him that this is nothing but a run-around, just an alibi. They say, "It's the same old thing that mom and dad told me about, and that some of the other people have been talking about all my life."

PLACEMENT PRACTICES IN APPRENTICESHIP TRAINING

Commenting on the procedural technique of placement by the schools, William Hucksoll, director of Vocational Education for the City Department of Education, said he believed direct placement by the schools is more effective than working through other agencies. "We send qualified students, and this is a must. Acceptance or rejection is a matter for the employer." The Department of Education will initiate an investigation of a company's hiring practices only after a grievance is brought to its attention by a student rejected for employment. The company is dropped by the approved school list of employers if an inquiry supports the student's contention that discrimination was a factor in his rejection.

Nepotism as a factor in job placement was raised by Isaiah Fletcher of the Urban League. "We know [nepotism] is a reality," he said, "of course, being that the membership of unions is predominantly white, when jobs are available and the membership is given the opportunity to recommend friends, or relatives, nonwhite and white youngsters who are not friends or relatives of members, suffer as a result." Mr. Strong of the AFL-CIO disputed the extent of nepotism in the labor movement, saying that it is definitely not a major problem. "This matter of being accepted for apprenticeship training because of father-son relationship, or having friends in the local . . . is in the minority. That has been used as an excuse. . . ." Mr. Muntain of the Building Trades Council viewed nepotism in a more serious vein. "This practice of nepotism in the building trades has been present in the industry, ever since the day it started. There has been a directive from the AFL-CIO on that and

this thing is coming more and more to a halt. . . . The building trades industry is being forced by its own people to do something about it."

Mr. Fletcher recommended that adjustments should be made in salary scales for apprentices to attract qualified Negro applicants who need higher paying jobs in the general labor market. He warned the Committee to be on guard against the use of "seniority" and other restrictive criteria by some companies to bypass otherwise eligible Negroes in training and apprenticeship programs. He favored special consideration for the Negro in this vital area to make up for the deliberate exclusion in the program.

The Committee also heard from Leonard Thompson, an employee of Western Electric and cochairman of the Equal Employment Opportunity Committee for the independent electrical workers union at the plant. He charged that Western Electric, a principal defense contractor, had established qualifications for admission into its apprenticeship training program which effectively eliminate Negroes. Mr. Thompson, who has been with Western Electric for 21 years and is still a semi-skilled worker, said there are no Negroes in the 600 skilled jobs at Western Electric even though there are 400 nonwhite members of the union. The Committee has learned since the Baltimore meeting that Western Electric has a Negro scheduled to begin apprenticeship sometime in 1964. This applicant is several notches down on the eligible list. Mr. Thompson has been encouraging Negroes to apply for better jobs, and he believes the company is making some progress toward integration.

Mr. Fletcher of the Urban League mentioned an ambivalence among the Negroes with regard to the apprenticeship programs. On the one hand, there is lack of interest; on the other hand, those who complete vocational high school courses and who are interested cannot find opportunities.

EXTENT OF OPPORTUNITIES FOR NEGROES IN APPRENTICESHIP TRAINING

Mr. Hucksoll, of the Department of Education in Baltimore City, underscored the lack of opportunity in his report to the Committee. Discussing the question of placement, he said, "/T/hat is a matter of follow-up and we are not too proud of what we have found. . . ." Checking on graduates as they leave school, Mr. Hucksoll reported that, of the available graduates last June who went directly into the working world, 74 percent of the students in the apprenticeable areas at Mergenthaler Vocational Technical High School (predominantly white) did go either into the field for which they were trained or into fields directly related. At Carver Vocational

Technical High School (all Negro), on the other hand, only 15 percent of the available graduates went into such fields.

Dr. Saul H. Perdue, principal at Carver, offered this explanation: "I say the difference is due to direct discrimination. There is no other way to explain it. Let's be fair about it. There are some people who just will not hire colored people." Dr. Perdue blamed the labor movement as the "stumbling block" to fairer treatment for Negro workers. He claimed that despite the reports of improvement, unions are still discriminating.

Comparing courses taught at Carver with the same courses given at Mergenthaler, Dr. Perdue said that the schools are comparable, although he did note that Mergenthaler's curriculum included courses in specialized skills not available at Carver. Mr. Hucksoll commented that there is "an open avenue for any student in Carver who has the interest and achievement to come to Mergenthaler for its program," but added that there are very few transfers.

Asked to comment on the unavailability of qualified Negro candidates for apprenticeship training, Dr. Perdue reminded the Committee that "in order to determine qualifications work must be made available to prove the qualifications."

Vocational Training and Public School Practices in Apprenticeship Programs

Vocational training in the schools was regarded by educators appearing before the Committee as a critical factor in the expansion of apprenticeship training. But it also was noted that the vocational field is held in low esteem by students and the public.

Mr. James L. Reid, director of vocational education for the State Department of Education, stressed the importance of vocational training, and Mr. Hucksoll of the city Department of Education urged assistance by all public agencies, trade unions, and other interested organizations to raise the public image of the trade school to equal that of any college preparatory course.

Criticism of vocational education came from Charles Muntain, whose Baltimore Building Trades Council is an organization representing 26 unions with a total membership of 15,000. Mr. Muntain claimed that the graduates of vocational-technical high schools are inadequately trained and that in most instances they cannot be given credit for the time they spend in school. Mr. Reid, of the State's vocational education department, maintained that schooling "in the trades and industry is doing a good job. I think some 80 percent of all graduates of these programs get jobs in related areas in which they have received training."

It was determined during the meeting that there were 1,300 students at the all-Negro Carver High School and 1,900 at Mergenthaler. A total of 802 are enrolled in the building trades--carpentry, machine operation, electrical work, plumbing, painting--with 527 at Mergenthaler and 275 at Carver.

Mr. Reid expressed concern over the criticism leveled at the vocational schools and called for Federal support of the school training programs. He recalled that the State is currently receiving some $650,000 in Federal funds for this purpose. He criticitzed the low level of payments given to trainees under the manpower redevelopment and training programs, explaining that an applicant with a family cannot afford to spend 4 years in training on the $32 a week he is paid. Asked to comment on the use of public school facilities for apprenticeship programs operated on a segregated basis, Mr. Reid replied:

> It is not up to us to determine what can be done after they leave school. We have enough to do trying to run our school system. We try to break down segregation as far as the use of school facilities is concerned, but when we try to get involved by the use of facilities and funds of the public school system outside the confines of the public school system, then frankly, I think we would be on dangerous ground. I might agree . . . in principle, but I would doubt whether that would be part of our real job.

Asked whether a more affirmative position should be taken by the schools in controlling the racial makeup of apprenticeship classes, Mr. Reid replied that he was dubious that this was "part of the duties of the public school system."

Recent Developments in the Area of Equal Opportunities

A development in civil rights in Baltimore in June 1963 forced the hands of government, labor, and management. This began when the Interdenominational Ministers' Alliance issued a statement on June 8 demanding that discrimination in apprenticeship training and hiring be ended on city-financed construction projects. Picket lines were threatened. This precipitated a meeting with labor and set the wheels in motion for a conference with the Mayor on June 13. The Negro community was seething over the job situation. Mr. Jentry MacDonald, executive director of the local NAACP chapter maintained, "The big question is not one of intention but of action. We're interested in employment for Negroes now. We want a solution now."

What in all probability sparked the threatened picketing of public works in Baltimore was a combination of events in Washington, Philadelphia, and the White House. Demonstrations in Washington against a construction job at Howard University brought a directive from the President's Committee on Equal Employment Opportunity ordering the builders to live up to the nondiscriminatory provisions in Government contracts. In Philadelphia, demonstrations went unheeded until violence erupted and then, and only then, concessions were granted and a number of skilled Negro craftsmen were hired on city-financed jobs.

On June 4 this activity culminated in a statement from the President on the subject of discriminatory hiring practices in Government-sponsored construction programs. President Kennedy in a directive to the Secretary of Labor called for the admission of "young workers to apprenticeship programs . . . on a completely nondiscriminatory basis" and for a review of all Federal construction programs to prevent "any racial discrimination in hiring practices, either directly in the rejection of presently available qualified Negro workers or indirectly by the exclusion of Negro applicants for apprenticeship training."

Although this problem of job discrimination in Baltimore has been the subject of many conferences in the past, the findings have never seemed to be translated into any form of demonstrable progress. In asking for tangible changes in hiring practices, the civil rights groups wanted to see Negroes hired in skilled crafts and in apprenticeship programs by Monday, June 17. The labor movement was charged with blocking Negroes from membership; the contractors, with failing to adhere to the provisions of nondiscriminatory clauses in

contracts with the city; the city was charged with failing to enforce the anti-bias pledges and with failing to take a positive stand on behalf of civil rights in employment.

At the meeting on June 11, a Department of Public Works progress report dated June 1, 1963, was produced on which 35 city construction jobs were listed with a total expenditure in excess of $20 million. Among the skilled craftsmen on these 35 projects there were very few Negroes. When the list was reviewed by Mr. Muntain of the Building Trades Council, it was determined that only one of the 35 contracts was with a union contractor.

At this joint meeting, Mr. Muntain was critical of the city for its failure to upgrade and strictly enforce the prevailing wage scales set by the Board of Estimates under an ordinance enacted about 20 years ago. Mrs. Juanita Jackson Mitchell, president of the Maryland Branch of NAACP claimed: "All we want is a fair proportion of colored people on the jobs. After all, we are one-third of the total population in the city." The ministers charged that white labor is often brought into Baltimore; that school counselors direct Negro students into fields where Negroes traditionally have found employment; that no Negroes are enrolled in an electronics course at Mergenthaler; and that qualified skilled Negro craftsmen are forced to seek jobs out of town.

At the conclusion of this meeting there was a general consensus that all parties would press the city to broaden the scope of the nondiscriminatory pledges in municipal contracts let to private contractors and to give the EOC real responsibility and a reasonable staff to implement and enforce the anti-bias clauses. Mr. Strong, of the Maryland-District of Columbia AFL-CIO, said he would be in favor of barring segregated unions from work on city-sponsored contracts.

The parties also agreed that the city must upgrade the prevailing wage scales and, at the same time, institute an enforcement program with teeth. "All of the work on city schools, for instance," Mr. Muntain said, "has gone to nonunion contractors. Because there is no enforcement of the prevailing wage schedule, union contractors are not competitive with nonunion contractors."

Labor offered to work out a timetable and establish a framework for a program to promote equality. In turn they asked the civil rights groups to provide labor with a roster of qualified Negro craftsmen and applicants for apprenticeships. The request came in the wake of charges that there was a labor pool of Negro workers languishing without the possibility of getting jobs in the Baltimore area.

On June 13, the ministers met with the city officials, members of EOC, labor, and management to discuss the situation. The Reverend Marion Bascom of the Ministers' Alliance told the gathering of some 80 people that his group had observed the work at "many buildings under construction and to our chagrin the Negro is almost excluded."

Armed with figures showing that the municipal government is the largest employer in Baltimore, and that huge construction programs are fostered by the city, Reverend Bascom presented the following list of "specific recommendations," asking for relief from job and apprenticeship discrimination:

1. That five Negroes be employed in the skilled trades in each of two school building projects by Monday, June 17, 1963.

2. That within 60 days from June 17, 50 percent of the jobs under city contracts have Negroes employed on "an across the board practice."

3. That within 90 days from June 17, all jobs under city contracts have completely integrated work forces.

4. That the city insure compliance by putting into operation the nondiscriminatory clauses in all of its construction contracts.

5. That the Department of Education bar segregated training or apprenticeship training classes from utilizing its facilities or its staff.

6. That the city of Baltimore "eliminate completely all racial discriminatory practices in its employment, promotion, and upgrading of its employees."

7. That the budgetary allocation for the city's Equal Opportunity Commission be upped from $54,000 to $125,000 "in order that it might enlarge its staff and be equipped to implement an effective program in this area of responsibility."

By June 17 the Mayor had personally intervened to secure placement of five skilled Negro workers on each of two building projects. It was reported that three of the five on one project and one of the five on the other were apprentices.

As of November, the deadlines imposed by the ministers have been extended because of the steady progress made by the city. The city was conferring with all of the joint apprenticeship committees, with union and nonunion contractors, and with the subcontractors involved in work awarded by the municipality. A roster

of qualified apprenticeship applicants and of skilled craftsmen was being prepared in cooperation with the Urban League.

The Department of Education recently announced that its facilities no longer would be available to work-study programs and apprenticeship training programs operated on a segregated basis. The city solicitor's office promised a revision in the non-discriminatory clauses of municipal contracts providing for sanctions and penalities in cases where breaches were uncovered, and on August 13 a ruling was issued that municipal contractors who discriminate in hiring may legally be barred from bidding on future city contracts for a period of time specified by the Board of Estimates. This recommendation was subsequently adopted by the Board as public policy for the city. The city solicitor also recommended that workers be compensated for lost wages by companies who refuse to hire or promote or who fire because of race. This provision would be written into all city contracts. A move is underway to establish an apprenticeship information center where youths may be counseled and advised on opportunities in the trades. More recently a permanent committee to review apprenticeship and other on-the-job training programs was established by the Maryland-District of Columbia chapter of the AFL-CIO. This new committee will work with existing programs and help set up new ones as they become needed.

Summarizing their position, representatives of organized labor indicated that all 10 locals in the building trades in Baltimore would accept members and/or apprentices based solely on qualifications as prescribed by union constitutions and noted that 6 of the 10 locals have apprenticeship programs supervised by both union and employer representatives on a joint committee. The labor summary added that "evidence of an arbitrary rule of discrimination in the selection of apprentice applicants appears to be lacking."

Negro leaders said lists would be compiled of five candidates for each of about 15 apprenticeship programs in the construction crafts and these would be turned over to city officials who then would meet with union leaders on the matter. Reverend Bascom, the Alliance leader, commented that the organization of Negro ministers is "impressed with what steps will be taken to involve the Negroes in the skilled crafts immediately. We have agreed to encourage Negroes to become members of the union."

In mid-October, Mayor Theodore R. McKeldin submitted to the Baltimore City Council what has been described as the most comprehensive civil rights legislation ever drafted for any municipality in the Nation.

Included in its far-reaching coverage are provisions banning discriminatory practices in education, employment (and specifically in apprentice training), health, hospital and welfare services, public accommodations, and housing. The scope of the city's Equal Opportunity Commission would be enlarged and under a new name--Baltimore Community Relations Commission--would be charged with administering and enforcing the provisions of the legislation.

Passage of this legislation, Mayor McKeldin predicts, will make Baltimore, "an open city."

The ordinance provides that it shall be an unlawful employment practice "for any labor organization or employers' association established for the purpose of training apprentice candidates, acting individually or jointly, to discriminate against any person with respect to admission or membership, or with respect to terms, conditions of employment or training, placement, or any other benefits." As with other unlawful practices under the proposed ordinance, the Community Relations Commission is empowered to take appropriate steps to eliminate discriminatory apprenticeship practices.

At the moment there is activity and there would seem to be progress in this Baltimore City situation. It has been demonstrated that government can respond quickly to a crisis and mobilize itself into a forceful agent of change.

Findings and Conclusions

1. In general, equal opportunity in employment, upgrading, promotion, apprenticeship programs, and training programs is the official policy of industry, labor, and government. However, in practice this policy has been relatively meaningless in the absence of affirmative implementation by the parties enunciating such policies.

2. The apprenticeship programs currently operating in Maryland with the sponsorship of the Bureau of Apprenticeship and Training fail to meet the demand for trained workers, white and Negro, in the State.

3. Negroes present an insignificant percentage of the trainees for skilled work in Maryland. Within the entire framework of the apprenticeship programs, there exist extremely limited opportunities for Negroes to obtain training in the crafts and the industrial trades.

4. For numerous reasons, Negroes are not applying for apprenticeship training in any substantial numbers.

5. Discrimination is oftentimes subtly and deviously applied, but it is nonetheless apparent and discouraging to the potential nonwhite trainee.

6. Negro participation in apprenticeship training programs has been effectively limited by inadequate vocational school followup procedures, by nepotism in the trade union movement, and by restrictive criteria in company admission policies.

7. Whites are favored in preponderant numbers over Negroes with comparable training for openings in apprenticeship and training programs.

Despite policies to the contrary, some unions at the local levels have maintained fairly rigid discriminatory practices in denying to nonwhites the opportunity for membership and training.

Employers also have practiced discrimination in hiring--despite asserted policies and pronouncements to the contrary.

8. High school students in vocational education are being taught some skills that no longer are in great demand. Because of the heavy expenditures involved, there is limited training in the

skills required as a result of advances and strides in technology and science. Even in the traditional industrial skills, students are not receiving the grounding considered necessary to obtain employment in the crafts and to participate in apprenticeship programs. Public schools have fostered segregation practices in apprenticeship and training programs by permitting the use of classrooms and shop facilities by organizations practicing discrimination, although such practices have now been eliminated in Baltimore.

9. Integration of the work forces on construction jobs awarded by Baltimore City has been token at best and as a rule almost nonexistent in the apprenticeship and skilled areas. For a time this summer it seemed that threatened demonstrations were the only way to get action from the city, the unions, and the employers. The city has been derelict in the enforcement of its prevailing wage schedules and has allowed nonunion contractors to pay workers less than the scales established. With the overwhelming preponderance of city-financed work awarded to nonunion contractors, the Associated Builders and Contractors have a special obligation to live up to their declarations of nondiscrimination.

Unions and union contractors, with two-thirds as many apprenticeship programs as the ABC, have a comparable responsibility to open up classes and membership for Negroes.

Unions have not opened their ranks to nonwhites on an across the board basis, but nonunion workers now have the opportunity to enter hitherto restricted and segregated locals by participating in organizing campaigns. On the whole, there are very few journeymen and skilled workers among Negroes in the Baltimore area.

The city's nondiscriminatory edict in its contracts has not been enforced. The contractors' and unions' pledges of equal opportunities also, in the main, have been hollow. The city is not now geared with the adequate programs, agencies, or legislation to bring about compliance with its policy of nondiscrimination, although the sweeping civil rights proposal of the city administration could, if enacted, bring much needed improvement.

Recommendations

1. A nondiscrimination clause should be required in the contracts awarded by every subdivision and incorporated municipality in the State. It would seem practical that a uniform clause be adopted throughout the State (which would also supersede the provisions of the State and Baltimore City) so that the provisions, penalties, sanctions, and enforcement features will be identical.

2. Enforcement of the nondiscriminatory clauses and pledges must be aggressively and affirmatively conducted at every echelon of government where they are applicable and at every level of the business, labor, and industrial community where they are enunciated.

At the national level, the President's Committee on Equal Employment Opportunity should delegate enforcement of clauses prohibiting discrimination in apprenticeship to the State offices of the Bureau of Apprenticeship and Training of the Department of Labor.

At the State level, the Maryland Commission on Interracial Problems and Relations should be assigned the task of enforcement and funds should be made available to staff this operation.

At the city of Baltimore level, the enforcing assignment should go to the Equal Opportunity Commission and funds also should be allocated to provide for a staff to carry out this function.

The scope of responsibility of the enforcing agencies must extend to the general contractors, the subcontractors, and to the unions when they are involved.

Extensive records on hiring, promotions, upgrading, and layoffs must be maintained by the hiring companies, and such records must be available to the governmental enforcing authorities. For unions engaged in work on government-sponsored jobs, records must be maintained on applicants for journeymen and apprentice assignments, on hiring hall practices, and on assignment to jobs and to apprenticeship programs. All such records, insofar as they pertain to union involvement, also must be made available to the governmental enforcing authorities.

3. All apprenticeship training programs undertaken by any contractor, company, association, organization, business, industry, or union or group of unions engaging in interstate commerce or affected by a public interest should be registered with the Bureau of Apprenticeship and Training.

4. The Bureau of Apprenticeship and Training and other appropriate State and Federal agencies should institute aggressive programs encouraging all employers, whether dealing with apprenticeable trades or not, to establish training programs for various job categories and to encourage the use of such programs to train employees for various job classifications on a nondiscriminatory basis. The staff of BAT should be increased to permit adequate conduct of these activities.

In all such apprenticeship and training programs, BAT should establish objective criteria for admission; establish the ratio of apprentices to journeymen; receive the list of applicants and the subsequent list of accepted apprentices; certify the candidates accepted as qualified; review the list of disqualified candidates and determine whether, under the criteria established, such determination was proper; take affirmative steps to interest, counsel, and recruit Negroes into the apprenticeship and training programs under its jurisdiction; and maintain supervisory checks on the progress, status and, when it occurs, the dismissal of all trainees in such programs.

In the event BAT determines discrimination or prejudice to have been a factor in any negative action taken, BAT shall recommend the imposition of penalties and sanctions as prescribed by the President's Committee.

5. An apprenticeship and training information center should be established in the Maryland State Employment Service headquarters in Baltimore and subcenters should be established in the various regional offices of the MSES in other geographic areas of the State.

The center should maintain a complete dossier on all apprenticeship programs in the State including information on where they are located, how they are run and by whom, the number in each class, the scheduled opening of new classes, and the availability of openings and vacancies in the programs.

The center should be operated by staff personnel of the MSES and an advisory board should be created to give policy direction, counsel and advice in the operation of the center. Membership of the advisory board should be made up of one representative each from the Bureau of Apprenticeship and Training, organized labor and management, and one public representative each from Baltimore City,

Baltimore County, Anne Arundel County, Prince Georges County, Montgomery County, the Eastern Shore, southern Maryland, and western Maryland.

The staff of the center should work closely with guidance counselors and vocational education departments throughout the State, and insure that the training provided at the secondary school level is attuned to the contemporary and future demands of the industrial community.

The center should coordinate its activities closely with the plans and programs of organized labor and management in the apprenticeship and training fields and take affirmative steps to encourage Negro youths to prepare for skilled work. It should also assume leadership in recruiting trainees from among nonwhite students into established apprenticeship and training programs.

6. The Maryland State Department of Education, through its Division of Vocational Education, should immediately undertake a study to:

(a) determine whether the training received in the vocational schools and other training classes is of a caliber high enough to meet the standards imposed by craft and trade unions and by employers generally.

(b) determine whether the training given is of the nature and kind sufficient to meet the demands of an industrial community geared to a technology requiring special skills.

(c) determine how the vocational curriculum should be revamped to meet the needs of a modern and fast-moving technical society.

(d) determine whether the counseling and followup procedures given particularly to students from the minority community are sufficiently enlightened and intensive to insure that the potential of the minority youth is realized and opportunities for them are obtained and achieved.

7. The Maryland State Department of Education, and the Departments of Education in every subdivision of the State, should issue a policy directive barring the use of any school facility to any group conducting apprentice training on a segregated basis.

NEW JERSEY

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Apprenticeship Training in New Jersey

BACKGROUND

With unskilled job openings steadily diminishing and with the increasing need for skilled workers accepted everywhere as axiomatic, apprenticeship training has become one of the main avenues to union membership and to employment. It is particularly striking, therefore, to note that in 1961 apprenticeship training enrollment in New Jersey had fallen to 3,600 from a high point of nearly 8,000 in 1948.[1] Perhaps one factor contributing to the low enrollment rate is the fact that Negroes have systematically been discouraged in their attempts to enter apprenticeship training programs in the State. This section of the New Jersey Advisory Committee report examines evidence of discrimination in union membership and apprenticeship training, and attempts to discern ways by which the Negro may soon partake fully in the benefits provided by both programs.

The preliminary study of the apprenticeship training program, which was included in the 1961 report of the New Jersey Advisory Committee to the United States Commission on Civil Rights, forms the background of this survey of the problem. The report reads as follows:[2]

> The apprenticeship training program in New Jersey involves two separate governmental agencies: The Federal Bureau of Apprenticeship and Training, which promotes apprenticeship in New Jersey; and the New Jersey Department of Education, Vocational Division, which approves the establishments in which training is given and provides related instruction through local technical-vocational schools. Neither agency can control admission into the program and neither assists individuals in finding apprenticeship openings. Of the 3,975 apprentices enrolled in the New Jersey program in 1960, only 14, or less than one-half of one percent, were nonwhite. This is particularly striking when one considers that the total vocational school enrollment was 30,000 (including approximately 4,000 apprentices), and that of those outside the apprenticeship program, about 30 percent were nonwhites.

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1. U.S. Bureau of Apprenticeship and Training (BAT), reports that the total number of registered apprentices in New Jersey as of June 1963 is 4,519.

2. 1961 Report of the New Jersey Advisory Committee to the United States Commission on Civil Rights.

The situation had not improved in October 1962, when the New Jersey Advisory Committee conducted an open meeting in Camden. Charles Ashley, field representative, Division on Civil Rights, New Jersey Department of Education, described the importance of the apprentice program and the difficulties Negroes experience in entering it.[3]

> There are usually only two ways to enter the craft unions--through apprentice programs administered by the unions, or by admission as a journeyman as a result of a qualifying test given by a examining board.
>
> The fact that there are only 14 Negro apprentices out of approximately 3,900 in the State of New Jersey attests to the exclusion of Negroes from the program. Invariably this apprentice program in the craft unions is open only to relatives of employers or to relatives of members of the union. Thus, it is easily seen that since Negroes are hardly ever union members their chances of participating in the apprentice programs are almost nonexistent.

In other words, a little over one-third of one percent of the total number of apprentices in New Jersey are Negro. If the percentage of Negroes participating in apprenticeship programs were comparable to the percentage of Negroes in the State--around 12 percent--there would be about 30 times as many Negro apprentices than there are at present.[4]

In his testimony before the United States Commission on Civil Rights, in Newark, Adolph Holmes, industrial relations secretary, Urban League of Essex County, commented on the two most common reasons--discussed in greater detail later in this report--why Negroes have not participated on their own initiative in the State's apprenticeship program:[5]

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3. Unpublished transcript of the State Advisory Committee meeting in Camden, New Jersey, October 15, 1962. (Hereinafter cited as Camden Meeting Transcript.) For more recent statistics on the total number of apprentices in New Jersey, see note 1 supra.

4. Hearings in Newark, New Jersey, before the United States Commission on Civil Rights 93 (1962) (hereinafter cited as Newark Hearings.

5. Id. at 12.

> One of the usual routes to membership in the local union is through apprenticeship training. The question is raised, then, as to why Negroes do not enter such programs. I would like to suggest two reasons why they do not: namely, one, information regarding openings and examinations is not normally disseminated to the Negro community; second, many times an apprentice must be recommended by a union member. As a consequence, it is obvious that few, if any Negroes ever had the opportunity to apply for apprentice training.

Holmes went on to report that the Urban League has contacted the various craft and building trade unions in his county and informed them of an available supply of Negroes who are qualified to go into their apprentice programs. According to Holmes, though, "they give the reason that the time is not right or many of the other reasons that you hear as to why 'We cannot do it at this time.'"[6]

Thus, although apprenticeship training plays a significant role in the overall employment situation, statistics plainly demonstrate that its benefits today are still limited to whites only. The next chapter will examine the detrimental effects of such discrimination on the Negro's job aspirations and opportunities.

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6. Id. at 19.

Significance of Apprenticeship Training

Apprenticeship training occupies a pivotal position both in gaining union membership and in procuring skilled employment. Discrimination in either of these two areas means that the Negro is deprived of the advantages which may be reaped by his white counterpart.

Louis Vehling, business manager, Local 52, International Brotherhood of Electrical Workers, told the Commission about the importance of apprenticeship training for securing admission into his union:[7]

> Methods of becoming a member are as follows: (1) Through the apprenticeship program. This is the usual and almost the exclusive method, although others are theoretically available and occasionally used. It is a practice in the union that qualified sons' of members are given preference; approximately 50 percent of the apprentices who are initiated into membership are sons of members.

William F. Confroy, business representative, Plumbers Union Local 24, testified to this same point:[8]

> The procedure for becoming a [union] member varies. The most usual is through the apprenticeship program. However, when we sign up a new employer, we accept his employees into membership.

It is difficult, however, for Negroes to enter apprenticeship training programs and thus gain admission into a union. Elijah Perry, Negro city councilman in Camden, told the Committee of his efforts to invade the pipefitter's union through its apprenticeship program:[9]

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7. Id. at 59.

8. Id. at 63.

9. Camden Meeting Transcript.

> As far as the Pipefitter's Union is concerned, I know there are no Negroes in the apprentice program. . . . When I called for an appointment, there was no problem in getting one. There hadn't been any [Negroes] before, you see, and I understand that no one has attempted to try and invade that union . . . they [Union] have a committee--apprentice--who selects young men who are to become apprentices and if you can invade that committee, it's pretty sure we can get someone in. So I was trying to get them to accept someone.

Perry concluded his comment by saying that "it's going to be quite a job getting men into the Pipefitter's Union . . . because the skill--there are not too many who have the skill."[10]

Vehling underscored Perry's testimony about the importance of apprenticeship training as a qualification for union membership. He explained to the Committee why his union had turned down two Negro journeymen.[11]

> The policy of my local is to take in apprentices. Only in a few instances are journeymen taken in, and those are cases where they have civil service jobs, or there are certain special qualifications needed that these gentlemen may possess.

As the foregoing statements indicate, the apprenticeship training program is of great importance to anyone who seeks employment in a skilled trade or union membership. The present admissions procedure of these programs, however, mediates against the Negroes gaining entrance.

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10. Ibid.

11. Newark Hearings 72.

Entrance Procedure

The method for securing entrance into an apprenticeship program can be lengthy and complicated. The system as it now functions in the majority of such programs places emphasis on sponsorship, election, and family relationships, and reflects the deliberate desire of unions to limit entrance into certain trades.

Romeo Jensen of Ironworkers Local 11 was asked by the Commission how a person qualifies for admission to the apprentice program of his trade:[12]

> You must have two sponsors, and if he is accepted he'd have to go through the training program. After from 2 to 4 years he qualifies; he goes before the examining Board, and if he's qualified he's accepted.

Mr. Confroy of the Plumbers Union had explained his union's apprenticeship procedure up to 1958:[13]

> We have a clause in our contract which has been in the contract for many years, reading as follows:
>
> "Sec. 6. Registration and issuing of all apprentice cards, rules and regulations governing apprentices desiring to learn the plumbing trade, shall be under the supervision of a joint board for apprentices, consisting of members of the party of the first part and members of the party of the second part in equal number."
>
> For many years this joint board functioned actively, selecting the apprentices, supervising their training and schooling and certifying the completion of their apprenticeship. . . . /A/bout 1958, the joint board ceased to function, although the clause is still in our contract. This largely resulted from a lack of demand for apprentices, combined with a lack of desire on the part of the young men to become apprentices at the low rate of wage during the first 2 or 3 years.

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12. Id. at 75.
13. Id. at 63.

Mr. Vehling of the IBEW also told about the difficulty of gaining admission to his union's apprenticeship program. He related the following story about a group of young Negroes to illustrate his point:[14]

> /W/e were visited one evening by a group of young Negro men all of whom demanded admission as apprentices. It was obvious that they did not know the normal procedure, which is that an applicant must first be referred for employment and perform satisfactory work in that capacity for at least six months, and usually longer, before becoming apprentices. Although there is no official "waiting list" of men waiting for such referral, the list of such men actually at work is usually referred to as a "waiting list"--that is, men waiting to become apprentices. These men were told that this "waiting list," the number of men already working, was already too long, and that there was no opening at that time.
>
> . . . . .
>
> One thing must be clear--we cannot discriminate against other groups in order to provide employment for one group. We cannot make apprentices out of Negro applicants, while there are 70 to 75 men actually working as helpers, waiting to become apprentices.

He commented, in addition, that about 50 percent of the apprentices in his trades' program were sons of journeymen and that of the other 50 percent, "some are relatives, some are recommended by employers, some by vocational schools. Some merely apply for work."[15]

He was asked if this would result in exclusion of Negroes and replied:[16]

> I wouldn't exactly agree with that. In order to become an apprentice in my local union, a young man has to apply for work, and he has to apply in the morning between 8 and 10, Monday to Friday, and when work is available they are sent out in their turn, regardless of their race, creed, or color.

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14. Id. at 60-61.
15. Id. at 76.
16. Ibid.

He admitted, however, that Negroes would have no chance for the 50 percent of jobs that go to sons of members. Asked how this could be corrected, Vehling answered:[17]

> Well, I'm no authority on race relations. I would think that probably if various groups would take a deeper interest in these matters--there have been a number of charges filed. In my opinion, that's the wrong way about this, the wrong way to solve this problem. I think groups such as the Urban League and the vocational schools should take an interest in trying to educate young Negroes so they will be qualified, and recommending them.

Commissioner Robert S. Rankin asked Vehling whether he still would not take the son of a member over somebody recommended by the Urban League. The reply was unequivocal. "The son of a member has preference, regardless, over all other applicants."[18]

John E. Joyce, Jr., vice president and secretary of John E. Joyce, Inc., and a member of the Apprenticeship Committee of Steamfitters Local Union 465, defended the guild system of family relationships in the apprenticeship training program for the benefit of the Advisory Committee:[19]

> The development of the craft, highly skilled craft, trades that we know is more or less an inheritance of the concept of a guild system, although greatly liberalized. The way I look at it, it's pretty much run that way, and there is a natural preference for sons and relatives of journeymen. I don't think this is an unworthy tradition. It may not be to the Negroes' advantage, but it happens in many other walks of life. For instance, in your colleges and universities, favoritism is shown to sons of alumni.
>
> One of the main reasons the craft unions do not expand . . . is that we have to hark back to the days of the 1930's when this was one of the most desirable industries, and today I know even among our plumbers and steamfitters 1,600 hours of employment in the year is an exception rather than the rule.

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17. Ibid.
18. Ibid.
19. Id. at 67-68.

Mr. Joyce went on to discuss the qualifications for membership in his union's apprenticeship program:[20]

> The qualifications for a steamfitter apprentice for the apprenticeship program the applicant receives at the office of the apprenticeship committee. A man must be 18, no more than 21; except for military service the maximum age is 25. They must pass a physical exam.
>
> We have had four classes in the past 7 or 8 years. . . . We have never had to recruit any apprentices. We, in fact, have to turn most of the applicants down.

There is considerable evidence that the number of apprentices is controlled by agreement with the union. This leads to the deliberate effort on the part of unions to limit the number of those who enter the trade to the expected demand for workers. For example, C. W. Myers, industrial relations officer of the New York Shipbuilding Corporation in Camden, stated:[21]

> We're limited by contract with our labor union as to the number of apprentices we can have in the plant. That is, we are permitted to have one apprentice for each ten craftsmen at the first-class skill level and above. So, we reduce, as a result of reduction of force to 90 people, we must eliminate one apprentice.

Thus to gain entrance to the apprenticeship training program and through that program to find a job in the highly paid skilled trades, the Negro must surmount the hurdles of sponsorship, family relationships, and the desire or necessity to limit the supply of workers. It is obvious that clauses against discrimination are not sufficient to open the benefits of apprenticeship training to any significant number of Negroes in New Jersey.

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20. Id. at 68.

21. Camden Meeting Transcript.

Major Obstacles to Negro Participation in Apprenticeship Programs

Commission Chairman John A. Hannah questioned Mrs. Amy Terry, industrial training adviser for minorities, Bureau of Apprenticeship and Training, United States Department of Labor, and Neil Kort, New Jersey State Supervisor, also from the Bureau of Apprenticeship and Training. The Chairman asked both witnesses to pinpoint, if they could, the major obstacles to Negro training and to suggest means of overcoming them. Two dominant reasons emerge: lack of information among Negroes about the program, and lack of enforcement of the existing nondiscrimination clauses.

Speaking to the first point, Mrs. Terry indicated that Negro youths generally do not know when, where, or how to apply for apprenticeship training. Noting that such information is not widespread, she said:[22]

> /T/he only people who know that there are apprentice opportunities available are the sons, nephews, the relatives and the friends of those who are already in the trades. . . . Negroes . . . have no one or have few people within the trades and, therefore, are not aware of the opportunities which exist. . . .

Mrs. Terry felt that steps should be taken to inform Negroes of existing openings and to insure them that once they apply, discrimination will not prevent their entering the trades.

Kort testified that the Bureau of Apprenticeship and Training always has attempted to insure that no apprentice program would be registered which contained a discriminatory clause. The Bureau, however, has no investigatory or enforcement power. Labor Secretary Goldberg directed that a nondiscrimination clause, consistent with Executive Order 10925, be included in every new apprentice program, in order to underscore the importance of equal opportunity for such programs. The Bureau was also ordered to require the inclusion of a specific nondiscrimination statement in the apprenticeship standards of firms handling Government contracts. Kort said that the requirements were all in effect.[23]

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22. Id. at 94.

23. Id. at 81.

Berl I. Bernhard, Commission Staff Director, explored the nature of the control which the Bureau of Apprenticeship and Training (BAT) exercises over union apprentice training programs. After ascertaining that the programs of the union represented by Confroy and Vehling were registered with BAT, Mr. Bernhard asked whether the Bureau had ever raised the question as to why there are no Negroes in their particular unions.[24]

Vehling's answer was that the question had never been raised either by the Bureau or in executive board meetings. He acknowledged the existence of nondiscrimination clauses in the training program of the Department of Labor as well as in union contracts. Nevertheless, he could recall only one Negro member in the 23-year period he has been connected with IBEW Local 52. [25]

Confroy stated that there had been two Negroes in his union, but well before his time.[26]

In response to a subsequent question regarding responsibility for the enforcement of nondiscrimination clauses, State Supervisor Kort emphasized again that his agency merely has the duty to see to it that all contracts include nondiscrimination clauses. Enforcement, he added, is left to the contracting agency.

When asked by Staff Director Bernhard, if a method of supervision to insure enforcement of the nondiscrimination clause would help, he replied, "I don't believe so. I think we have been pretty successful on a voluntary program."[27]

Mrs. Terry, the BAT minority group advisor, speaking of the frustration caused by lack of enforcement of nondiscrimination clauses, expressed a slightly different view.[28]

> Well, that's the point which I find very frustrating at the moment because I faithfully submit reports each week as to the visits I have made and what I have gotten out of them, and there is no way that it is followed up and something is done to see that the employer or the union is going to take some positive steps towards changing this picture of racial discrimination.

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24. Id. at 79.
25. Ibid.
26. Id. at 80.
27. Id. at 97.
28. Id. at 99.

> I think that's one of the weaknesses of the whole program of apprenticeship and training because, as I said before, many of them have clauses, nondiscriminatory clauses, but if they are buried in somebody's desk and nobody does anything to implement them we will find 10 years from now there will still be 14 Negroes in the State of New Jersey who are receiving apprenticeship training.

To Bernhard's question whether she thought that ". . . something more than mere rhetoric and good intentions are required," Mrs. Terry replied, "Yes, I definitely do."[29]

Kort spoke of a program newly created by BAT designed to disseminate information about apprentice programs to minority groups. Although the program had existed for 2 years, he could see no results as far as minority groups were concerned. He indicated that he was not free to modify the information program in the light of this lack of results, since it originates in Washington.[30]

Dr. Neal B. Perkins, Director of Trades and Industrial Education, New Jersey Department of Education, told the Committee that on the State level most of the information about apprenticeship programs is disseminated through the schools. Since there is no classification as to race, creed, color, or national origin in the school records, he could not determine whether the program was a success or a failure as regards minorities.[31]

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29. Ibid.

30. Id. at 98.

31. Ibid.

Some months after the Commission hearings in Newark, the Advisory Committee checked with Dr. Perkins at the New Jersey Department of Education to see what progress had been made in securing equal opportunity for Negroes in the apprenticeship training program. Dr. Perkins emphasized again that the New Jersey Bureau of Apprenticeship and Training has no figures concerning the number of minority group members in the program, although the total enrollment figure (3,876 as of January 1963) was available.[32] He told the interviewers that it was impossible for him to give them current figures on the number of Negro apprentices in the State, in spite of the fact that, in 1961, the figure of 14 Negro apprentices had come from the New Jersey Department of Education. He emphasized also that the New Jersey Bureau of Apprenticeship and Training does nothing more than register the indentured apprentices who already have contracts, and that the Department has no authority as to which workers are given contracts, and, thereby, made eligible to enter the program. Dr. Perkins was asked, as he had been at the Newark hearings, why there were so few Negroes enrolled in apprenticeship programs in the State, and he answered, as he had in Newark, that the reason was that so few Negroes were employed in the trades the programs cover. It was clear to the committee members that the Department of Education had made no effort following the Newark hearings to check on the compliance with the nondiscrimination clauses that are included in all the contracts.

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32. But see note 1 supra for an indication of the increase in total enrollment as of June 1963.

Conclusions

Despite the fact that the unions, the employers, the State of New Jersey, and the Federal Government all have impressive clauses barring discrimination in any section of the apprentice training program with which they are concerned, it is obvious that apprenticeship training is almost entirely closed to Negroes in this State. The last available figures[33] show less than one-half of one percent enrolled. All the evidence, especially the sworn testimony given in Newark, leads to the inescapable conclusion that those who are in charge of registering and approving apprenticeship training programs in New Jersey--that is the State Supervisor of the Bureau of Apprenticeship and Training, U.S. Department of Labor, and the Assistant State Director of Vocational Education, an employee of the New Jersey State Department of Education--are either unwilling or unable to take any responsibility for the enforcement of a policy of equal opportunity. Further, although public funds (both State and Federal) are used in these programs, and although the related instruction is given in the public schools of our State, neither the Federal nor the State authorities concerned with the apprenticeship training program check to see whether or not there is compliance with the law against discrimination.

Admittedly, the apprenticeship program involves only a limited number of youngsters. This number has been decreasing in New Jersey in spite of the urgent need for skilled workers. It is true that the elimination of discrimination in this program would not solve the Negro employment problem. Nevertheless, the flagrant injustice of virtual Negro exclusion cannot be allowed to continue, especially since apprenticeship training offers an important, even if limited, avenue of escape from the ranks of the unskilled to which so many Negroes are currently confined.

Two years ago, this discrimination problem was brought to the attention of the United States Commission on Civil Rights. Last year, as a direct result of the Advisory Committee's 1961 report, legislation was introduced and passed in the New Jersey legislature specifically barring discrimination in the apprenticeship training program, and making the use of public funds and facilities illegal, if discrimination is practiced. This advance will remain of little importance, unless the legislation is enforced. It

33. See note 1 *supra*.

appears from the available evidence that public officials had made no serious efforts to enforce the avowed policies of the State and Federal Government in this area by the time this report was submitted to the United States Commission on Civil Rights, in June 1963. With this is mind, the New Jersey Advisory Committee submits the following recommendations to the Commission in an attempt to bring about some form of corrective action.

Apprenticeship Training Recommendations

1. In concert with the Regional Director of the Bureau of Apprenticeship and Training of the U.S. Department of Labor and the Director of Apprenticeship and Training in the New Jersey Department of Education, the Department of Labor and Industry of New Jersey should set up State Apprentice Training Information Centers is several of the largest cities of New Jersey. These centers would make available information on occupations which use apprentice systems; on industries and unions which have apprenticeship programs; on the procedures necessary to file applications for apprentice training; and on the qualifications for admission to the various programs. Following the experience of New York City, which has set up an information clearing house, the Apprentice Training Information Centers would not concern themselves with job placement.

2. A Joint Committee on Apprenticeship composed of representatives of labor unions, management, the Puerto Rican Department of Labor, the Manufacturers Association, the Urban League, the NAACP, the National Conference of Christians and Jews, and other religious and civic groups should be established by the Governor. In addition to these groups, the Committee should also include representatives of the New Jersey State Department of Labor and Industry, the Chief of the Vocational Division of the Bureau of Apprenticeship Training in the New Jersey State Department of Education, and the State Director of Guidance Counseling. Such a committee, now called "The Statewide Committee on Equal Opportunity in Apprenticeship and Training for Minority Groups" has been set up in California and has proved most useful.

3. In the expenditure of public funds, efforts should be made by Federal, State and other government bodies to encourage apprenticeship programs, making sure that apprenticeship opportunities are open equally to all.

4. A plan for enforcement of existing legislation against discrimination should be developed by the State Committee on Equal Opportunity in Apprenticeship and Training, providing for a reasonable number of nonwhites and Puerto Ricans in each program or trade. The number that should be considered reasonable should be determined by the Director of the Division on Civil Rights, in light of the proportion of these groups in the population, the nature of the

work, and other similar considerations. No apprentice should be registered in any trade or program in which a reasonable number of nonwhites and Puerto Ricans is not enrolled without proof of efforts to obtain such apprentices by the contracting agency for apprentices. Proof of such efforts should be submitted to the Director of the Division on Civil Rights for approval, and certified by him as satisfactory to the State Department of Education. State and Federal Directors of Apprentice Training should be responsible for compliance. In the absence of evidence of compliance, the responsible officers should be subject to dismissal. The decision of the Director as to a reasonable number should be final if supported by substantial evidence.

NEW YORK

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* Subcommittee on the Building Trades
Chairman, Professor William M. Murphy

Introduction

In the fall of 1962, the New York State Advisory Committee to the United States Commission on Civil Rights appointed a subcommittee, under the chairmanship of Professor William M. Murphy, to study whether there was a clear pattern of discrimination against Negroes in the building trades industry in New York City. The subcommittee was able to procure the services of Dr. Donald Shaughnessy of Columbia University to do most of the field work in the project. The material in this summary report is largely derived from Dr. Shaughnessy's report.

The study was necessarily limited by the relatively small amount of time that could be devoted to this complex subject. A further--and unnecessary--limitation was encountered as a result of the general policy of noncooperation followed by leaders of the building trades unions. With few exceptions, union officials failed to assist the study in any way--making it difficult or impossible to obtain information that was readily available.

Despite these limitations, the study serves to demonstrate that Negroes are denied access to employment in most of the building trades in New York City. The study further indicates that retention of present practices in admission to apprenticeship programs will mean that Negroes can expect no more than token participation in most of the building trades in the future. Our report considers some of the economic and other factors that lead to these practices and recommends that these practices be modified.

Building Construction in New York City

At 6:16 on weekday mornings a train leaves Bridgeport, Connecticut, carrying a group of commuters relatively unknown to the general public. They are men with skills in the building trades who arrive in New York City at 7:30, and report to construction jobs. It costs about $15 a week to commute from Bridgeport to New York, but a union electrician earns $200 per week, and the work is steady.

These blue-collar commuters represent one of the many indications of the obvious fact that New York City is in the midst of a continuing boom in large construction. There is presently more office space in New York City than in the next 15 largest cities combined. Despite rows of office towers like those north of Grand Central on Park Avenue and rows of residential towers like those all along Third Avenue, there are estimates that the backlog of needed construction in New York City may take decades to fill.

How do these buildings get built? With wide allowance for oversimplification the process may be summarized as follows:

When the architect has completed his design and specifications, general contractors competent in the size of job being undertaken submit bids to the owners. Subcontractors (electrical firms, plumbing firms and the like) have previously submitted bids to the general contractor upon which his bid, in part, is based. The contract is then awarded to a general contractor--who engages subcontractors--and men begin to appear to perform the work in the specialized trades. First the excavation men, then the other trades in their turn appear on the job.

Most firms in the building industry are not large; they do not steadily employ a large number of skilled workers. These firms build a product that is immobile. This product must be built in the city, essentially by local contractors and subcontractors--and in particular by a locally based labor force.

The men who build New York City's buildings are recruited from labor pools controlled by the unions in the building trades. The union is the employment agency and the men who appear on the construction job--whether they be local or "out-of-town" men--are the men whom the union permits to appear. Since a building cannot be erected in Detroit or Atlanta and shipped to New York and since the unions regulate the local use of "out-of-town" labor, the labor supply is rigidly controlled.

The construction worker tends to identify with his union for a number of reasons. He is rarely on any job for a great length of time. He may well have five or six employers in one year. He is not likely to develop an attachment for a particular firm or to have steady fellow workers from year to year, and of course, he has no fixed place of work. His job security comes from the local union. The local union is not only his hiring hall but the place where his friendships are formed and is the continuing stable element in his employment. Local unions may or may not be ethnocentric but their members are likely to be united against outsiders. In one local "outsiders" may mean people not of Italian ancestry, in another it may mean Jews. For most unions in the building trades, as for many other institutions, color is the most readily identifiable badge of nonmembership.

With these economic and social bonds to his local union, the man in the building trades is little concerned with the "labor" views on the subject of race relations. George Meany, once a plumber, now president of the AFL-CIO, concedes that local unions can effectively disregard the resolutions opposing discrimination that are regularly adopted by federated bodies in the labor movement. On the bread-and-butter issues it is not the international or any council that delivers--but the local union.

This is not to say that the building trade unions lack the ability to unite in support of their common interests. In the building and construction trade department of the AFL-CIO there are 19 international unions. New York City locals of these unions form the New York City Building and Construction Trade Council. This Council serves as a very effective spokesman for the building trades unions in city and State legislative halls and executive departments. While the Council is active and effective in speaking to the outside world on behalf of its constituent locals, it has not traditionally exerted effective internal pressures. (The Council's president, Peter J. Brennan, assured Mayor Wagner on June 6, 1963, of "an all-out effort to end discrimination in building trades unions." This assurance clearly must be qualified in view of the Council's mixed reaction to proposals to secure more Negro and Puerto Rican apprentices.)

In brief, the economic structure of the building industry tends to concentrate in the local unions the decision as to who obtains employment and, even more important, who gets admitted to the craft. The dominating role of the union in construction employment affords to contractors the opportunity to disclaim all responsibility for

discrimination in the building trades. The employers seem to welcome the opportunity, which accords with their consistent tendency to avoid "rocking the boat." Our study found no instance in which an employer sought to promote equal employment opportunity in the building trades.

Apprenticeship

Current apprentice programs provide from one-half to two-thirds of the skilled workers needed simply to replace craftsmen who retire, die, or leave the trade. By fixing the number of apprentices in accordance with a ratio of apprentices to journeymen (the mean ratio is 1:6), and not in accordance with present or future demand, the building trades unions continue to maintain an effective shortage of labor. One way that this shortage is preserved in the face of continuing high demand is by the use of commuters like those from Bridgeport who represent an auxiliary source of manpower that can be cut off at any time.

While 120-mile-per-day commuters have found steady employment for several years, a local source of skilled manpower is ignored. New York City has 22 vocational high schools in 5 of which are taught skills used in the building trades. These schools are financed by Federal, State, and city funds. The best qualified graduates of the vocational schools often take low-paying nonunion jobs, or jobs outside the trade. Federal and State apprenticeship agencies have not been heard to complain that Negro youngsters, taught a trade at public expense, are consistently deprived of the opportunity to practice it.

New York State law on the subject is clear and precise. Section 296 of article 15 of the Executive Law prohibits discrimination by employers in hiring, compensation, employment privileges, working conditions and discharges, prohibits union discrimination in membership, and bars discrimination by employers and unions in admission to apprentice training, on-the-job training, and the like. This policy is also reflected in the existence of agencies such as the State Commission for Human Rights, the New York City Commission on Human Rights, and the Civil Rights Bureau of the State Attorney General's office. The last-named agency is largely responsible for the fact that, in the State of New York, there are now two Negroes in the apprentice training program of the Plumbers Union.

The national agency in the field of apprenticeship is the Bureau of Apprenticeship and Training in the U.S. Department of Labor. The Bureau has an essentially passive role in certifying and registering apprentice training programs. This role is of no great importance since less than half of the apprentice programs in the city are certified by the Bureau. The Bureau appears to have been neutral in the matter of racial discrimination, an inappropriate posture the abandonment of which is recommended at the end of this report.

First, let us review the practice of several of the unions in New York City:

1. Local 28, International Sheetmetal Workers Union

There has been no significant change in the size of this local in the past 10 years, despite the vast increase in construction. There are no Negroes among its 3,300 members nor among its 75 apprentices. Admission to the apprentice program of the Sheetmetal Workers Union is on the basis of a personal interview with a joint committee. The applicant is usually sponsored by a union member, sometimes by an employer. The union states that there are four applicants for every vacancy but gives no indication that any applicant sponsored by the union has ever been rejected. The apprentice committee maintains no liaison with vocational schools. Its apprentices attend a union school which obtains no government support. Various requirements are listed for admission to the apprenticeship program, but they are not applied to sponsored applicants. In March 1963, the Civil Rights Bureau of the attorney general's office charged local 28 with discriminatory practices.

2. Local 2, United Association of Journeymen Plumbers and Steamfitters

The Plumbers Union says it has four applicants for apprenticeship for every apprentice who can be accepted. On the other hand, the union admits that there are 1,000 out-of-town plumbers working in New York City. Of 3,300 members of local 2, none are Negroes. While there are requirements that theoretically apply to admission to the apprenticeship program, the main practical requirement has to do with bloodlines. Eighty to 85 percent of those admitted to membership are sons or nephews of local 2 members. Members of this union consider that the right to nominate apprentices is among the important benefits of union membership.

3. District Council of United Brotherhood of Carpenters and Joiners (42 Locals)

The Council has 34,000 members of whom over 5,000 are Negroes. While there tend to be predominantly white and predominantly Negro locals, the Carpenters Union has provided the only substantial employment opportunity for Negroes in the building trades.

4. Local 60, Operating Plasterers and Cement Masons International Association

In this union there is a larger ratio of Negroes presently employed in the trade than in its apprenticeship program. Three

hundred of 2,000 members of local 60 are Negroes, as compared to 5 of the 80 apprentices. In local 60's apprenticeship program, as in most others, no aptitude tests or objective standards are applied in the admission of apprentices.

5. Local 14 and 14B of the International Union of Operating Engineers

Local 14 and 14B is one local union with two parts, each part dealing with a different kind of machinery. This union trains its members through Apprenticeship Local 15--a 3-year program. Unlike most other union members, the operating engineers must take an objective examination, administered by the New York City Department of Buildings. The examination is open--not limited to union members. After passing the examination, an apprentice must obtain two sponsors (members of local 14 and 14B) in order to be admitted to the union. Thus far only 23 Negroes have been admitted to the 1,600-member union.

6. Local 3, International Brotherhood of Electrical Workers

Local 3 recently won fame in securing a 5-hour day. This union has different levels of membership, the most important of which is "A-Card construction worker." These men (who won the 5-hour day) comprise 9,000 of the 30,000 members of local 3. The number of Negroes who hold the A-Card and earn $5 per hour is small, estimates ranging from 300 to 400. There are about 2,250 men from outside New York City working in electrical construction, filling jobs from which qualified vocational school graduates are excluded. On the lower level of local 3, members work for the lamp and lamp shade manufacturing industry and are paid about $2 per hour.

In the spring of 1962, Mr. Harry Van Arsdale, president of local 3, announced that the union would recruit 1,000 new apprentices, on a nondiscriminatory basis. The Urban League forwarded the names of 51 qualified Negroes and the NAACP forwarded 57 names. Negroes and Puerto Ricans were recruited from other sources and a total of 1,600 apprentices was screened by a nonunion committee of three men, one of whom was a Negro. One thousand and twenty apprentices were admitted to the program including about 140 Negroes and about 60 Puerto Ricans. This dramatic result and local 3's broad recruiting effort is, so far as we know, without parallel in any building trades union in the country.

In the course of its inquiry, the New York State Advisory Committee became aware of undocumented charges to the effect that the approximately 200 Negro and Puerto Rican apprentices have not

entered into regular apprenticeship channels, but are being utilized to perform unskilled labor. This issue was raised by Committee Chairman Sachs in a meeting with Mr. Harry Van Arsdale, business manager of local 3, IBEW, and Mr. Theodore W. Kheel, director of the Office of Impartial Review of the Electrical Industry. Mr. Sachs received unequivocal assurances from both Mr. Van Arsdale and Mr. Kheel that these charges are unfounded, and that the 200 apprentices in question are undergoing regular apprenticeship training leading, in the course of 4 years, to full journeyman status and a Class-A union membership card, on the same basis as all other apprentices.

The six examples listed above illustrate that control of apprenticeship programs gives the building trades unions a potent weapon against the possibility of future unemployment. By restricting the apprenticeship program, the union can continue to maintain a chronic labor shortage and to assure reasonably full employment for their members. Entry into such a well-protected, high-paying career is an outstanding employment opportunity. These employment opportunities have, in effect, become union patronage. A union leader who is not skillful in dispensing this patronage may lose his position. He and the rank-and-file members assume that their power at the bargaining table has won them control of apprenticeship opportunities.

The unions have maintained a tight rein on apprenticeship openings despite the current widespread projections of a continued high level of new construction. Earlier projections by the Department of Commerce indicated that for every 100 men skilled in the building trades in 1955, 122 would be needed in 1965 and 145 by 1975. Current apprenticeship programs not only fail to provide for this growth but, as noted above, fail to produce enough journeymen to replace those who retire, die, or leave the trade.

In keeping with this static philosophy of apprenticeship, Negro participation has remained relatively constant. In 1950, Negroes constituted 1.5 percent of the apprentices and 13 percent of the population of New York City. In 1960, Negroes constituted 2 percent of the apprentices and 22 percent of the population of New York City. It is estimated that by 1970 Negroes will constitute about 33 percent of the population of New York City. If Negro participation in apprenticeship programs continues to bear no relation to the size of the Negro population, then larger and larger numbers of Negroes will be obliged to compete for the dwindling supply of unskilled jobs.

The alternatives are essentially three:

1. Retention by the building trades unions of presently prevailing practices. This is likely to result in no substantial increase in Negro and Puerto Rican apprenticeship.

2. Voluntary adoption by other unions of programs like that of local 3, IBEW, with positive efforts to recruit Negroes and Puerto Ricans and an objective body to screen and approve apprenticeship applicants.

3. Adoption by public authorities of regulations, contract policies, and other practices which provide objective criteria for apprentice selection and enforce compliance by the manner in which public funds are expended and withheld.

While our study was limited, it was sufficient to reject the first alternative as intolerable and to conclude that while the second alternative may be more desirable, the third is required for prompt and effective action.

Conclusions

1. Participation of Negroes in the building trades in New York City ranges from total exclusion in some trades (sheetmetal workers, plumbers) through token participation in others (plasterers, operating engineers) to substantial, if often segregated, local union membership in other (carpenters).

2. Access to employment in the building trades is substantially controlled by local unions. Through apprenticeship programs nominally subject to the joint control of unions and management, the unions determine who shall acquire the skills--and the journeyman rating--necessary to employment on nearly all new construction in the city.

3. The number of persons admitted to apprenticeship in any year is not determined by current demand but by the ratio of apprentices to journeymen deemed appropriate by agreement of the union and the employers is a given trade. Where demand continues to be high over a period of years as it recently has, "out-of-town" men are imported temporarily to meet the demand.

4. By rigid limitations on the number of apprentices, the unions have maintained a chronic labor shortage in the building trades. Admission to and completion of an apprenticeship program is fair assurance of reasonably steady employment for a regular workweek and extremely high pay for overtime work. Union members value highly the right to secure admissions to apprenticeship programs--and tend to exercise it (especially in the plumbers union) in favor of their sons, nephews and others with whom they have personal connections.

5. Since admission to apprenticeship is controlled largely on a personal basis, and by persons already pursuing the various trades, patterns of exclusion of Negroes will tend to be perpetuated. The elaborate Federal, State, and local apprenticeship structure leaves essentially untouched the crucial, subjective decision as to whom is admitted to apprenticeship in the building trades--for example:

> Five New York City high schools train young men in the building trades. Their honor graduates have less chance of admission to an apprenticeship program than any business agent's nephew.

The complex New York State Apprenticeship Council, created by statute to "promote an orderly development of the supply of skilled journeymen or craftsmen," is fearful that if the issue of minority apprenticeships is raised, industry and labor might withdraw from, or not join in, apprenticeship programs registered with the Council.

The Federal Bureau of Apprenticeship and Training, created to promote and improve standards of apprenticeship, clearly has lacked the power (and apparently the inclination) to enforce nondiscrimination as a "standard" of admission to apprenticeship.

6. The men who now control admission to apprenticeship programs remember with fear the chronic job scarcity of the 1930's. This memory and their enormous bargaining power suggest that union leaders will not lightly surrender the prerogative of regulating admission to apprenticeship programs.

7. The admission of Negroes to apprenticeship beyond a token basis requires that there be introduced into the present personal, subjective procedures for entry into apprenticeship programs standards that are objective and public. Recommendations that fail to move in this direction do not come to grips with the economic realities and the highly personal relationships that underlie the present system. If the building trades unions insist on retaining the present "patronage" approach, they will eventually be confronted with a form of "civil service" selection analogous to that which has deprived the political parties of their former control of most areas of public employment.

8. The commendable voluntary approach of Local 3, IBEW, including active recruitment of minority youngsters and the selection of apprentices by an independent group, has not been followed by other unions. As of July 1963, there was little indication that it would be adopted by other building trades locals in New York City.

Recommendations

The New York State Advisory Committee recommends to the United States Commission on Civil Rights that steps be taken to bring about the following changes in present practices:

1. (a) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to require that all apprenticeship programs in the contruction industry be registered by the Bureau; that it establish, in consultation with representatives of unions and management, objective criteria for admission to apprenticeship programs; that it determine the number of available apprenticeship openings in each program, giving consideration to the skilled manpower needs of the Nation as well as to those of the industry and the immediate locality; and that it establish a meaningful and effective evaluation system for each of the trades;

   (b) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to require that all notices of acceptance and rejection to apprenticeship programs be filed with the Bureau, and that acceptances and rejections be accounted for in terms of the established objective criteria of admission;

   (c) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to conduct systematic apprenticeship recruiting programs, in part by means of uniform vocational guidance procedures in public schools, and to investigate, on its own initiative, apprentice training programs which are, or are believed to be, engaged in discriminatory practices.

2. (a) That departments, agencies, offices, and bureaus of the Federal Government be required to withhold all financial support from apprenticeship programs which fail to admit qualified Negro applicants or fail to comply with the requirements of the Bureau of Apprenticeship and Training described above;

(b) That departments, agencies, offices, and bureaus of the Federal Government be required to withhold all financial assistance from any contractor and from any building project employing the labor of any union or local thereof which cannot give satisfactory proof that it does not follow discriminatory practices.

3. In the event that the foregoing procedures are found to be ineffective, we recommend that Congress enact legislation declaring that admission to apprenticeship in the construction trades is a matter affecting interstate commerce and that such admission be vested in a suitable agency empowered to adopt and enforce procedures analogous to those employed by the Civil Service Commission.

The foregoing is a report which primarily summarizes material supplied to the New York State Advisory Committee by Dr. Donald Shaughnessy. It also draws upon "Apprentices, Skilled Craftsman and the Negro," a publication of the New York State Commission for Human Rights, and the experience of Frank Logue, Regional Consultant to the United States Commission on Civil Rights for New York and the New England States.

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Negro Participation in Apprenticeship Training Programs in Tennessee

As part of a larger study of training and educational opportunities for Negroes under specialized types of instruction and programs, the Tennessee Advisory Committee to the United States Commission on Civil Rights undertook a limited inquiry into the status of Negro participation in training programs registered with the Federal Bureau of Apprenticeship and Training. The Committee concerned itself with the extent of Negro participation in apprenticeship training programs, the range of access to such programs, and the extent to which nondiscriminatory policies are incorporated into apprenticeship programs.

APPRENTICESHIP PROGRAMS AND TRAINEES

At the beginning of 1963, apprenticeship training programs in Tennessee embraced about 50 crafts and trades, according to reports of the Federal Bureau of Apprenticeship and Training. Involved in the programs were 2,926 trainees distributed throughout the State as shown in table I. The distribution of trainees among the crafts and trades, ranked according to the number of persons involved in each program, is shown in table II.

Of the 50 crafts and trades listed in table II only 4 were known to have included Negro apprentices until about 2 years ago. These four were: bricklayers, carpenters, roofers, and cement finishers. The situation is about the same today except for four labor-management sponsored programs in the Union Carbide Nuclear Company in Oak Ridge. One Negro apprentice was enrolled in each of the following programs in Oak Ridge about 2 years ago: electrician, machinist, sheetmetal, and millwright. In June 1963 there were openings for two additional apprentices in the Union Carbide program.

Although reliable data on Negro participation in apprenticeship training programs are scarce, enough information has been obtained to suggest extremely limited participation in these programs on the part of Negroes as well as sharp restrictions in scope and range of access to apprenticeship programs.

Negroes make up 16.4 percent of the population of the State of Tennessee. Of the State's 127,816 craftsmen and kindred workers, Negroes comprise about 9,100 or 7 percent of the total number. From all information available to the Advisory Committee--interviews with officials of the schools where related instruction is offered, officials of organized labor, and the State Supervisor of Apprenticeship and Training--it seems fair to estimate that at most 1 percent of the apprentices in Tennessee are Negroes. On the basis of a 1 percent estimate, 1 Negro apprentice is in training for every 426 craftsmen and kindred workers in Tennessee in comparison with 1 white apprentice in training for every 44 craftsmen in the State. Furthermore, only 1 Negro apprentice is being trained for every 303 Negro craftsmen and kindred workers in comparison with 1 white apprentice for every 41 white craftsmen. Thus both in terms of projected demands for skilled craftsmen as well as in terms of normal attrition, Negro craftsmen are not being trained in proportion to the needs of the economy and at a rate significant enough to guarantee the necessary supply of Negro craftsmen. The skilled trades are, and will continue to be, in a significantly better position to replace losses through attrition and meet future demands with white skilled craftsmen than they will be with skilled Negro craftsmen.

Not only are the few Negro apprentices in the State confined to the trowel trades, carpentry, and roofing trades, with the exception of the Oak Ridge program previously mentioned; in addition apprenticeship training for Negroes is largely confined to Memphis.

Field representatives of the Bureau of Apprenticeship and Training were asked by the Advisory Committee to make a determination of the extent of participation by Negroes in registered programs. Responses received from the Bureau representatives tend to suggest that training available to Negroes is rather sharply restricted to "all Negro" craft unions. Such unions exist primarily in carpentry and the trowel trades. Their responses are perhaps indicative of "traditional thinking" among those involved with the development of apprenticeship programs regarding Negro access to these programs. The responses of four field representatives follow:

1. Carpenters Local Union 1937 . . . is an all-Negro union, but has done nothing about apprenticeship. This union is a member of the Mid-Tennessee Carpenters District Council.

2. To the best of my knowledge, there is only one Negro craft union in this area. It is Carpenters Local Union 1986, Memphis, Tennessee. It has a total membership of 54 journeymen and 1 apprenticeship. This apprentice was initiated in the Local Union in 1959, and I understand from the Business Agent, Mr. J. N. Cowan, that the four years have expired.

About two years ago a survey was made in the Carpenters' trade to determine the amount of apprenticeship activities. At that time it was reported that there was only one apprentice in the union. I assume this is the same apprentice that is in the union at the present time.

In recent years apprentice members of Local 1986 have participated in the Memphis Carpenters Apprenticeship programs; however, to the best of my knowledge, the apprentice who is presently in the local union has never appeared before the apprenticeship committee. I assume from the discussion I had with the Business Agent of Local 1986, that this apprentice is not receiving any related instruction whatsoever. In fact, the Business Agent stated to me on Monday, March 25, 1963, that he did not even know where the apprentice was working.

3. Knoxville Carpenters Local 1021 is the only colored local in the area. They do not, and have not, for my tenure in the Knoxville Office, made any efforts to train. The local does not have a Business Representative nor do they have any contractors under contract to use their members.

4. I do not know of any craft unions in this area whose membership is restricted solely to members of the colored race.

To the best of my knowledge all craft unions in this area accept qualified journeymen for membership regardless of race. None of them has ever refused to work on a project employing Negro journeymen. I have an all-Negro INJ program registered in my area--it is the Roland A. Dykes masonry contractor program of Newport. The trade is bricklayer. . . . No apprentices are registered with us at the present time.

Very few all-Negro craft unions exist in Tennessee; many all-white craft unions exist. This is so even though union policy is to admit persons to membership on a nondiscriminatory basis insofar as race is concerned. Table V includes some of the all-Negro and all-white craft unions.

The existence of all-Negro and all-white unions obviously influences access of Negroes to apprenticeship training programs. In the electrical, plumbing, and pipefitting trades, for example, failure of Negroes to be absorbed into apprenticeship programs is attributable to the fact that these unions are for all practical purposes all-white. The accessibility of the carpentry, trowel, and roofing trades to Negro apprentices is due to the existence of racially mixed or all-Negro unions. Furthermore, where racially mixed craft unions are in existence, more often than not Negro members are not journeymen craftsmen but are part of an industrial union. For example, such is the case in the machinist union which represents the workers at the AVCO plant in Nashville. In most instances in Tennessee, Negro journeymen have been responsible for providing the necessary guidance and endorsement for admission of Negro youths to apprenticeship programs. However, the number of Negro journeymen in the crafts, trades, and unions is so small that opportunities for Negro youths to enter apprenticeship programs are extremely limited.

AVAILABILITY OF PUBLIC SCHOOL FACILITIES

Apprenticeship training programs rely substantially upon public school facilities for "related instruction" and course work. Such instruction is designed to provide trainees with specialized knowledge necessary to become a journeyman in an apprenticeable craft. With the exception of Memphis, no evidence was found of apprenticeship courses or related instruction in the public schools either available to or being pursued by Negroes.

In Memphis and Nashville enrollment in apprenticeship courses and related instruction reflects rather sharply prevailing limitations faced by Negroes in obtaining apprenticeship training throughout the State. Table III provides information on four schools in the two cities. These schools have the major responsibility for vocational and technical training programs in the public schools. As indicated in the table, two schools are all-Negro and two are all-white. The table reflects the differences in participation in apprenticeship training courses on the part of Negroes and whites.

In general, Negroes in Tennessee do not have access to nonsegregated vocational and technical training schools. Programs in Negro schools are oriented toward "traditional Negro jobs." Thus with access to the craft unions limited and practically no access to vocational and technical schools on a nonsegregated basis, it is virtually impossible for Negro youth or adults in Tennessee to receive training in the crafts and trades except in those areas previously mentioned.

NONDISCRIMINATION CLAUSES

The Federal Bureau of Apprenticeship and Training represents the Federal Government's efforts to promote apprenticeship training. The Bureau, in addition to establishing programs of apprenticeship and training by working closely with State agencies, trade and industrial education institutions, and management and labor, provides technical assistance for setting up all programs registered with it.

As of July 1961 the Federal Bureau of Apprenticeship and Training announced a policy to the effect that new programs or those being amended would not be accepted for registration unless such programs contained a statement that all persons would be accepted for the program without regard to race, creed, color, or national origin. During the early part of 1963 an attempt was made to determine the extent to which registered programs in Tennessee contained a nondiscriminatory policy. Table IV summarizes the number of such programs and exhibit A sets forth the programs with such clauses.

The effect of the clause on the programs has not been determined. Interviews with representatives of the Bureau of Apprenticeship and Training, however, indicate that special effort is being put forth almost daily to get additional sponsors to include explicit statements of a nondiscriminatory policy in their programs.

SUMMARY

In summary, Negroes in Tennessee are grossly underrepresented in apprenticeship training programs. Several factors account for this:

1. Racial exclusion by craft unions;

2. Racial discrimination in hiring and other employment practices by business and industry;

3. Limitation of access to apprenticeship training generally to all-Negro unions or mixed unions (this confines Negro apprentices primarily to masonry, roofing, and carpentry and keeps them from more skilled occupations--see table II);

4. Lack of information concerning employment opportunities in the skilled trades;

5. Inadequate guidance and counseling at home and in school;

6. Limited opportunities in the public school system--Memphis alone has apprenticeship courses or related instruction available to Negroes;

7. Failure of informal training outside apprenticeship programs to develop skills to meet present day standards.

EXHIBIT A

Registered Apprenticeship Training Programs in Tennessee
with Nondiscrimination Clauses--April 1963

REGION I - NASHVILLE

1. ARO, Inc., Tullahoma
2. Ford Motor Co., (Glass Plant), Nashville
3. Tennessee Valley Authority, Knoxville
4. Malcolm Alley, Contractor, Sparta
5. Chromalox, Inc., Murfreesboro
6. Hacket Precision Co., Nashville
7. J. W. Ferguson Mfg. Co., Hendersonville
8. Ross Gear & Tool Co., Lebanon
9. Sparta Planing Mills, Sparta
10. Walden Ridge Coal Co., Walden Ridge
11. Mid-South Tool & Die Co., Nashville

REGION II - MEMPHIS

1. Memphis Electrical Joint Apprenticeship Committee
2. Memphis Plumbers Joint Apprenticeship Committee
3. Memphis Pipefitters Joint Apprenticeship Committee
4. Memphis Lathers Joint Apprenticeship Committee
5. Memphis Plasterers Joint Apprenticeship Committee
6. Memphis Roofers Joint Apprenticeship Committee
7. Forging Die Engineering Co., Memphis
8. National Die & Machine Works, Memphis
9. Harlan Tool & Die Co., Memphis

REGION III - CHATTANOOGA

1. Chattanooga Painters Joint Apprenticeship Committee
2. Chattanooga Carpenters Joint Apprenticeship Committee
3. Eureka Foundry, Chattanooga
4. U.S. Pipe & Foundry (4 programs), Chattanooga

EXHIBIT A (continued)

REGION IV - KNOXVILLE

1. *Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Knoxville
2. Oak Ridge National Laboratory, Oak Ridge
3. Union Carbide Nuclear Co., Oak Ridge
4. *Carpenters Joint Apprenticeship Committee, Local Union No. 50, Knoxville
5. Carpenters Local No. 1021, Knoxville
6. Carpenters Local No. 2132, LaFollette
7. *Electricians Joint Apprenticeship Committee, Knoxville
8. *Electricians Joint Apprenticeship Committee, Oak Ridge
9. Iron Workers Local No. 384, Knoxville
10. Lathers Joint Apprenticeship Committee, Knoxville
11. *Painters & Decorators Joint Apprenticeship Committee, Knoxville
12. Millwrights Local No. 1002, Knoxville
13. Plasterers Cement Workers Joint Apprenticeship Committee, Knoxville
14. *Plumbers & Steamfitters Joint Apprenticeship Committee, Knoxville
15. *Sheetmetal Workers Joint Apprenticeship Committee, Knoxville
16. *Masonry Joint Apprenticeship Committee, Knoxville

REGION V - KINGSPORT

1. Cherokee Electric Co., Kingsport
2. Center Street Restaurant, Kingsport
3. Bristol Tennessee Electric System, Bristol
4. Elizabethton Electric System, Elizabethton
5. Greeneville Light & Power System, Greeneville
6. Tri-Cities Area Electrical JAC, Kingsport
7. Johnson City Area Pipe Trades JAC, Johnson City
8. Raytheon Company-Area/Weapons Div., Bristol
9. Morristown Tool & Die Div., Henrite Corp., Morristown
10. Universal Insulation Corp., Johnson City
11. Wall Tube & Metal Products Co., Newport
12. Taylor Construction Co., Elizabethton
13. American-St. Gobain Corp., Kingsport
14. Watson Lithographing Co., Kingsport
15. Wininger Motors, Kingsport

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* These programs have verbally accepted the nondiscriminatory clause and are in the process of revising their standards to include a nondiscriminatory statement.

Table I

Number of Persons Enrolled in Registered Apprenticeship Training Programs in Tennessee by Region--January 1963

Region	Office	Number enrolled	Percent of total
State	Nashville	2,926	100.0
I	Nashville	996	34.0
II	Memphis	613	21.0
III	Chattanooga	441	15.1
IV	Knoxville	457	15.6
V	Kingsport	419	14.3

Table II

Distribution of Apprenticeship Trainees in Tennessee by Craft--January 1963

Craft or trade	Number	Percent	Rank
TOTAL FOR ALL CRAFTS	2,926	100.0	
**Carpenter	498	17.0	1
**Electrician--Oak Ridge	406	13.9	2
Plumber-pipe fitter	221	7.6	3
**Bricklayer, stone mason	202	6.9	4
**Roofer	195	6.7	5
**Sheet metal worker--Oak Ridge	187	6.4	6
Painter-decorator	174	5.9	7
**Machinist--Oak Ridge	153	5.2	8
Ironworker erector	111	3.8	9
Maintenance mechanic repairman	100	3.4	10
Tool and die maker	99	3.4	11
Lineman	60	2.1	12
Compositor (printer)	55	1.9	13
Electrical worker (light and power)	36	1.2	14
**Automotive mechanic	31	1.1	15
Printing pressman	30	1.1	16
Glazier	28	1.0	17
Bookbinder, binding worker	27	0.9	18
Tile and terrazzo maker	25	0.9	19

*Plasterer	26	0.9	20-21
Miscellaneous metal trades	26	0.9	20-21
Lather	24	0.8	22-23
Electrical worker (other)	24	0.8	22-23
Butcher meatcutter	22	0.7	24
**Millwright--Oak Ridge	21	0.7	25-26
Boilermaker	21	0.7	25-26
Heavy duty equipment mechanic	13	*	27
Carman	10	*	28
Cement mason	9	*	29-32
Operating engineer	9	*	29-32
Auto body builder-repairman	9	*	29-32
Lead burner	9	*	29-32
Patternmaker and modelmaker	7	*	33-34
Stereotyper	7	*	33-34
Baker	6	*	35
Ironworker-fabricator	5	*	36-38
Mailer	5	*	36-38
Painter (except construction)	5	*	36-38
Optical technician	4	*	39-40
Draftsman designer	4	*	39-40
Lithographer	3	*	41-42
Molder-Coremaker	3	*	41-42
Floorcoverer	2	*	43-47
Sprinkler filter	2	*	43-47
Orthopedic-prosthetic technician	2	*	43-47
Cook, restaurant	2	*	43-47
**Upholsterer	2	*	43-47
Powerhouse electrician	1	*	48-50
Blacksmith	1	*	48-50
Miscellaneous construction trades	1	*	48-50

* Less than one-half of 1 percent.
** Known to have included Negro apprentices within past 2 years.

Table III

Enrollment in Apprenticeship Training Courses and Related Instruction Courses for Apprentices in Vocational and Technical Schools and Programs
Nashville and Memphis
1961-1962

Trade	Memphis		Nashville	
	High school		High school	
	Technical (white)	Booker T. (Negro)	Hume-Fogg (white)	Pearl (Negro)
Electrician	72	0	111	0
Pipefitter	31	0	19	0
Plumber	14	0	19	0
Lathers and Plasterers	*	*	27	0
Carpenters	45	0	95	0
Bricklayers	31	0	*	*
Advanced projection	*	*	18	0
Sheetmetal	33	0	*	*
Math. and physics (mgt)	*	*	43	0
Painter	12	0	*	*
Roofer	34	31	*	*

* No programs reported

Table IV

Distribution by Region and City of Apprenticeship Training Programs With Nondiscriminatory Clauses--April 1963

Region and City	Total	Management Sponsored	Joint Apprenticeship Committee
State	55	32	23
Region I	11	11	0
Nashville	4	4	0
Tallohoma	1	1	0
Sparta	2	2	0
Murfreesboro	1	1	0
Hendersonville	2	1	0
Lebanon	1	1	0
Waldan Ridge	1	1	0
Region II	9	3	6
Memphis	9	3	6
Region III	4	2	2
Chattanooga	4	2	2
Region IV	16	3	13
Knoxville	12	1	11
Oak Ridge	3	2	1
La Follette	1	0	1
Region V	15	13	2
Kingsport	6	5	1
Bristol	2	2	0
Elizabethon	2	2	0
Greeneville	1	1	0
Morristown	1	1	0
Johnson City	2	1	1
Newport	1	1	0

Source: Table V

Table V

Membership by Race of Selected Craft Unions in Tennessee (Percent)

Union	Local Number	Membership Percent	
		Negro	White
Memphis			
Carpenters	345	0	100
Carpenters	1946	100	0
Electrical	414	0	100
Ironworkers	167	0	100
Sheetmetal workers	4	0	100
Bricklayers	1	12	88
Plasterers and cement masons	521	60	40
Plumbers	17	0	100
Hod carriers	126	98	2
Roofers	115	20	80
Steamfitters	614	0	100
Typographical	11	0	100
Nashville			
Carpenters	507	0	100
Carpenters	1937	100	0
Electrical	316	0	100
Electrical	492	0	100
Electrical	1836	0	100
Ironworkers	492	0	100
Plumbers	352	0	100
Sheetmetal	177	0	100
Steamfitters	572	0	100
Bricklayers	4	5	95
Elevator Constructors	64	0	100
Chattanooga			
Electrical	175	0	100
Electrical	721	0	100
Electrical	846	0	100
Plumbers and steamfitters	43	0	100
Typographical	89	0	100
Knoxville			
Electrical	365	0	100
Electrical	760	0	100
Plumbers and steamfitters	102	0	100
Sheetmetal	194	0	100
Jackson			
Electrical	835	0	100
Electrical	900	0	100
Plumber	407	0	100

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Introduction

The Wisconsin Advisory Committee decided to explore the problem of discrimination in the apprenticeship programs by conducting an open meeting in Milwaukee to gather the opinions of informed representatives of labor, management, government, and civil rights organizations. The meeting was held in the Federal building on January 17, 1963. From the transcript of this session and from written materials submitted by the participants, the Advisory Committee did obtain some insight into a very murky subject. The Committee also found, however, that while there is information on apprenticeship training for nonwhites in Wisconsin, if one knows where to look for it, actual knowledge of the program is vague, sketchy, and largely second hand.

Currently apprenticeship programs conducted jointly by industrial management and the labor unions supply the trades with skilled craftsmen who must replace those who die, retire, or leave the trades year after year. Statistics indicate that at present, programs of apprenticeship training are not keeping pace with the rate of growth in the trades. Apprenticeship training or the lack of it, therefore, is a concern for all people in Wisconsin. The public interest of the State requires that workers continue to acquire and improve those skills which will enable them to remain gainfully employed in an era which is witness to the continuing contraction of opportunity for semi-skilled and unskilled labor. If the manpower resources of the State are to be utilized to the fullest, it is essential that no qualified person be denied participation in apprenticeship programs because of race, creed, color, or national origin.

Opportunities in Apprenticeship in Wisconsin

There are approximately 4,000 apprentices in Wisconsin at the present time. This figure must be approximate because there is a conflict in the sources of information. Mathias Schimenz, chairman of the Wisconsin Industrial Commission, the agency responsible for the State's apprenticeship program, told the Committee that there were 4,200 apprentices in 1962 "including barbers and cosmetologists"; the Federal Bureau of Apprenticeship and Training reported 3,956 registered apprentices as of June 30, 1963; the 1960 census, the only source of racial figures, indicated 1,847 apprentices, 12 of whom were Negro, but this total figure is probably far from correct.

Mr. Schimenz asserted that the critical problem for the economy of the State is the small total number of apprentices. With a skilled labor force of 160,000 people, 4,000 apprentices will not even be able to replace those who die, retire, or leave the work each year. If one industry out of five maintained apprenticeship programs, the need for skilled workers could be met. Only about one thirty-third of the industries in Wisconsin, however, are participating in apprenticeship training programs. It was indicated that many employers were reluctant to use apprentices because the trainees are "stolen" by other concerns as soon as they are trained; on the other hand, there was some indication that labor does not encourage expansion of the programs because it feels that it is tough enough to keep all the members employed all year. Yet it is in the public interest and particularly in the interest of the State of Wisconsin to sustain a skilled labor pool capable of maintaining our economic position and attracting new industry to the area. Dr. George Parkinson, director of the Milwaukee Vocational and Adult School, told the Committee that skilled labor is Wisconsin's "greatest natural resource." All indications, however, are that this resource will be seriously depleted if the current situation does not change.

Figures from the Milwaukee Vocational School show that despite the city's growth, the number of students attending the school has decreased from 9,515 in 1930 to 944 at the present time. At the end of World War II, 14,000 were participating in apprenticeship training in Wisconsin. The current figure is around 4,000. The rate of decrease in the number preparing for skilled positions is alarming in view of the accompanying decline in demand for the unskilled and semi-skilled workers.

Participation by Negroes in Apprenticeship Training

There is virtually no participation by Negroes in apprenticeship training in Wisconsin. Exact figures are not available but the number of Negro apprentices (12) found by the 1960 census-takers at least provides a minimum figure. Anthony King, vice president of the Milwaukee Building and Construction Trades Council was unable to account for any nonwhite apprentices in training for the building trades. Al Redman, president of the Milwaukee Typographical Union and a member of the Joint Apprenticeship Committee for his trade, could not recall a Negro apprentice in his seven and a half years of service. The business manager of the Milwaukee local of the International Brotherhood of Electrical Workers, Rex Fransway, recalled that his union had received applications from only five Negroes in his memory, and none of these had been found qualified. Because Negroes are not in the apprenticeship programs, it was not surprising that there is but a handful of Negro journeymen in all the building and printing trades in Wisconsin.

Is this a problem of discrimination by those responsible for the apprenticeship programs? This question cannot be satisfactorily answered by our Committee at this time. It was evident from the testimony of all participants that very few Negroes ever applied for the apprenticeship programs. The representative of the Building Trades Council could recall only one applicant; the Electrical Union, only five; the Typographical Union, one. The lack of formal applications by Negroes for the programs does not fully answer the question. It was difficult even for our Advisory Committee in a day-long session with experts in the apprenticeship field to get a clear picture of how one actually does apply for an apprenticeship. One fact emerged, however: A youngster trying to break into the field without expert assistance would find it discouragingly difficult to get the necessary information.

The Wisconsin Industrial Commission publishes a guide for school counselors on apprenticeship, which lists seven sources of further information on opportunities. Among these are three government agencies, the Industrial Commission itself, the State Employment Service, and the Federal Bureau of Apprenticeship and Training. The Committee was told, however, that none of these agencies engage in placement or hiring of apprentices. The local schools of vocational and adult education are suggested as the possible hiring point, but the director of the Milwaukee Vocational and Adult Schools,

Dr. George Parkinson, told us that the schools have no role in the selection of apprentices. They only provide "related [school] instruction." The local trade union is also suggested, but the union officials told us that the employers do the hiring. Employers are suggested, but if there is a trade association, it is suggested that it be contacted. If there is a joint apprenticeship committee, it is suggested as a source of information. From the testimony we did get the idea that if the applicant succeeds in locating the joint apprenticeship committee (the committees are not listed in the telephone directory) he would at least have found the place where the actual selection is made. The final suggestion in the guide for counselors is "Friends and/or relatives already engaged in the trade." This seemed to the Committee to be the contact most likely to produce results. But since this means is open only to those having friends or relatives in the skilled trades, it is obvious that the practical result is to exclude most nonwhites.

There exist no means by which the Negro youth or the general public may receive notice of specific apprenticeship openings. The Joint Apprenticeship Committees, consisting of labor and management representatives, maintain lists of applicants for the slots and fill them as needs occur. These committees are usually dominated by the craft unions and are guided by their needs. Workers employed in the trades in capacities other than craftsmen, such as helpers, having friends or relatives within the trades willing to recommend them, have the best chances of getting their names on the apprentice lists. Openings are quietly filled and those passed over never hear a word. The entrance requirements, preference of relatives or friends, and absence of information made available to the general public make it difficult for any potential apprentice without connections to gain access to the program.

The Negro youth aspiring to become a craftsman confronts frustration even in the absence of discrimination. If all factors are equal and a union does not discriminate on a racial basis, the preference for friends and relatives of union members operates to exclude him as effectively as does racial discrimination. Since Negroes have been excluded from many unions and trades over a period of time, there is no one on whom the young Negro may rely for information about apprenticeship openings or for a recommendation that he be given consideration.

The Negro community is aware that special privilege is available for sons and nephews of craftsmen, and senses that there is no desire by the responsible parties to have Negroes apply. The Advisory Committee was told by Negro leaders that changes in selection procedures to compensate for the exclusionary family preference

system were much needed. A representative of a number of Negroes employed by a local railroad objected to the waiting list technique; he said that eight Negroes on the list of those waiting to be machinists' apprentices had never heard from the union or the employer. Lloyd Barbee, president of the NAACP State Conference, suggested that the lists be revised every 6 months or so in order to exercise some control. It takes considerable effort for a Negro youth to find out about apprenticeship. If he is to survive the selection process, he must be as determined and as persistent as the children who are breaking the walls of school segregation in the South.

A major problem is that in this area motivation is not high. Unless apprenticeship is viewed by both white and Negro in the proper perspective, as a training period in which the hours are long and the pay is low until the skills are acquired and the better job achieved, it can have very little attraction for those not familiar with its rewards. Negro youngsters have had minimal association with craftsmen because of the persisting employment patterns. If they are apt and are doing well in school they will elect to prepare for the professions or white-collar work. Mr. Schimenz of the Wisconsin Industrial Commission conducted a survey of high school graduates in Milwaukee for presentation to our Committee. The survey revealed that Negro students with better grades overwhelmingly chose academic courses, while Negroes who chose vocational training had grade averages so low as to indicate no potential for the apprenticeable trades. The brighter youths understandably seek training for employment they know to be more nearly open without regard to race. Additional factors inhibiting entrance of Negroes were mentioned by Corneff Taylor, executive secretary of the Milwaukee Commission on Community Relations. These include low wages, lengthy terms of apprenticeship, and lack of financial assistance. These factors force many youths to forego long-range material rewards for immediate satisfaction of economic needs.

Although it is difficult to determine the relative importance of the various reasons for the lack of Negro participation in apprenticeship programs, it is clear that the problem is urgent. There is need for immediate action by schools, unions, employers, government, and the public at large. Failing such action, there will be further stratification of Negro employment patterns, with the great bulk of the Negro labor force condemned to menial positions at best, chronic unemployment at worst.

Efforts by the School System

The schools in Wisconsin recognize the crisis and the need to train skilled workers, but they have had little success in vocational education. The major problems seem to be in curriculum planning and in guidance and counseling.

Most apprenticeship programs in Wisconsin require a high school diploma for entrance. The students who go into vocational education at schools like Boys Technical and Trade High School in Milwaukee have excellent prospects for job success in the trades, and some are even granted a waiver of 12 months of their apprenticeship for having graduated from this school. Yet fewer and fewer students, white and nonwhite, are attracted to this program. The Milwaukee school system has a better record than any other major city in graduating beginning high school students, but few of these graduates are motivated to enter the skilled trades. The most serious problem in this regard is with the Negro students, since almost none of the brighter members of this group select other than academic courses.

T. J. Kuemmerlein, a Milwaukee school official, told us:

> You would be amazed at the aspirations of some of these youngsters of limited ability aspiring to go into college, to go into some of the professions, and you know very well that their abilities are limited and they can't do it. It's heartening to see the desire and motivation, but it is also disheartening to realize that somewhere along the line there will come the awakening that this is not for this youngster.

He said the reason so few Negroes are in the apprenticeship programs is that those who show preference for trade training are largely unqualified. Although these youngsters are provided every opportunity in the schools, the schools "can't make up for all the inadequacies of the community, the family and all the backgrounds these young people have." Through counseling and guidance much could be done to attract students with aptitude for skilled labor into the proper channels.

Dr. Parkinson of the Vocational School thought the problem was aggravated by school officials focusing on the gifted and backward students and neglecting the large middle group, 78 percent of the school population, from whom the community might draw its skilled workers. Impressive special programs exist in the schools for the very bright pupils, and a new pilot program seeks to stimulate communication, motivation, and adjustment for the culturally deprived children who have newly arrived in Milwaukee from backward areas of the country. There seems to be too little attention given to the "average" student. It would be encouraging to see some intense effort to stimulate and properly prepare students who might eventually go into vocational education.

Federal Government Efforts

In addition to providing staff help for Wisconsin's Apprenticeship Division, the Federal Bureau of Apprenticeship and Training has placed an industrial training advisor in its Chicago regional office. According to the Labor Department press release announcing his appointment, he "will work with unions and employers to persuade them of the importance of accepting persons from minority groups into their ranks." This official's responsibility covers the States of Illinois, Indiana, and Wisconsin. He has been on the job since July 1962. The Advisory Committee wanted him to testify at the meeting, but was advised that he had not as yet made any contact with apprenticeship people in Wisconsin. At the time of our meeting he was devoting his time to making calls in the Chicago area trying to negotiate "plans of acceptance" in industrial plants there. He had no immediate plans to work in Wisconsin.

State Government Efforts

The Wisconsin Industrial Commission through its Apprenticeship Division undertakes the promotion of apprenticeship and the maintenance of apprenticeship standards throughout the State. The Division is assisted by the Bureau of Apprenticeship and Training of the United States Department of Labor by having on the Division staff eight or nine Bureau personnel. Apprenticeship standards are spelled out in the Wisconsin Apprenticeship Law (chapter 106), and there is a statutory requirement that no distinction be made on account of race. Industrial Commission Chairman Mathias Schimenz told the Advisory Committee at the Milwaukee meeting that:

> The Commission is not involved in the recruitment, placement or training of apprentices. These functions rest with the individual employers and because participation by employers under the law . . . is purely voluntary, the Commission cannot dictate to employers whether or not they must employ apprentices from minority groups. . . . The Commission will not interfere unless something in the [apprenticeship] agreement is contrary to apprenticeship law. . . . Although the Commission cannot dictate to employers as to whom they employ as apprentices, it can and does promote and advise employment of apprentices from minority groups. All statewide standards of apprenticeship, revised and approved by the Commission during the last 18 months, contain the following provision: "All applicants will be afforded equal employment opportunities regardless of race, creed, color, or national origin". . . . This is in accord with the President's recommendation and will be provided in all standards as they come up for revision. . . .

The Commission says that it has had fair success in recent months through persuasion. It states that recently a Negro completed a foundry apprenticeship, two colored carpentry apprentices have been indentured, and a Negro is on the waiting list for a plumber's apprenticeship.

It appeared to the Advisory Committee that a sincere effort was being made by the Industrial Commission to meet its responsibilities in this area, but that it was largely hamstrung by a weak apprenticeship law which prevents it from undertaking meaningful programs to promote minority group participation.

The other governmental efforts to achieve equal employment opportunities and to stimulate Negro participation in training programs have been almost negligible in Wisconsin. It was pointed out that government agencies do not have the necessary personnel to deal with the problem. The Fair Employment Practices Division of the Industrial Commission has only six staff members for the entire State. The Milwaukee Commission on Community Relations has only one staff member and many of the communities have no paid staff at all.

Management and Labor

The Advisory Committee feels that there is a high degree of awareness in both the management and labor groups of the problems in connection with the lack of opportunity for Negro youth in the skilled trades. The business and union leaders who responded to our invitation to appear at the open meeting all seemed to have given some thought to solutions to the problems. Certainly this general attitude of good will is not unexpected in a forward-looking State like Wisconsin.

The president of the Milwaukee Urban League, Roy Dingman, is also the vice president in charge of personnel relations at the A.O. Smith Corporation, one of the city's major industries. He testified that his company had upgraded Negroes into skilled jobs and said that the experience of the company belied the stereotyped notions many people have about the capacity of nonwhites for bettering their lot in industrial life. He thought the relatively small number of Negroes in his company's apprenticeship program was due to lack of attempts by Negroes to enter this field. He urged Negroes to acquire a good grounding in mathematics and the principles of a trade such as electrician in order to take advantage of the opportunities available.

Eugene Kasal, executive director of the Electrical Contractors Association felt that lack of interest was the reason so few nonwhites had entered electrical occupations. He stated that ". . . there is no direct attempt being made to inhibit the entrance of nonwhite young people into the apprenticeship programs. . . . There would be no objection on the part [of the Joint Apprenticeship Committee] to indenture a nonwhite apprentice, provided that the man had the qualifications and was in a position to come up to the standards that the Committee has." He did warn that "the journeymen themselves might not be inclined to cooperate to the extent of training the boys, so they would be in that position."

Some union officials seemed anxious to develop ways of bringing Negroes into the programs, but said there was little they could do since there were so few applications. The labor people were not so much reluctant to accept Negroes as they were anxious to keep the apprenticeship programs at a low enough level as not to threaten employment security of the journeymen. A union business manager complained that "journeymen are on the back of fellows like me and they want to know how come we load up with all these apprentices

when we might have known we weren't going to need them. 'You have got us unemployed because you put on too many apprentices.' . . . Regardless of what the general public thinks, we have more journeymen than the industry can keep working."

Despite the claims by union officials that their unions did not practice discrimination, the Advisory Committee felt that the almost total exclusion of Negroes from the apprenticeship and journeyman ranks of most of the unions indicated that some union practices, whether intended or not, do have a strong tendency to discourage Negro youth from entry. It is difficult to determine whether there is any prospect of improvement in the foreseeable future if such practices persist.

Community Action

The wiles and ways of the craftsman's world have attracted little attention from the community at large. There is little consciousness of the role of skilled labor in Wisconsin. Few people are aware that one of the best sources of new workers is being wasted through current apprenticeship practices.

The battle of minority groups in Wisconsin for equality of opportunity in education, in housing, and in other fieldsof human aspiration has perhaps overshadowed the increasing concern of Negro leaders here and elsewhere over lack of access to the skilled labor force. The National Association for the Advancement of Colored People has initiated projects in five Wisconsin cities--Milwaukee, Kenosha, Racine, Beloit, and Madison--to stimulate entry into the apprenticeship programs in those communities by informing the youth of the opportunities and by urging community assistance in the guidance of talented candidates.

The Milwaukee Urban League has long assisted young Negroes in bettering their economic lot, although the League's executive director, Wesley Scott, told the Committee that a "total community effort" is needed. The Urban League describes its work as job development, not job placement. "We sell the principle to the employers, /we/ don't get a job for John Smith. . . . /I/t is true now as in the past that Negroes with skills and training are not working at their trades because they have faced discrimination and found it difficult to find employment."

An indication of some of the community effort necessary came from the statement of the Industrial Commission Chairman Schimenz:

> Even though we were to build up the program to the point where each and every qualified employer in the State was training apprentices, this would result in no great benefit to minority groups if very few of them were qualified to fill the job. If we might offer a possible solution to the problem, it would be that efforts be concentrated to build up the

trainability background of prospective apprentices from minority groups. Although we can assume that as time goes by students from minority groups will be properly counseled and selected to prepare for apprenticeship training while in junior high school, present efforts should be directed toward some type of preapprenticeship training. . . . You are not going to be able to do the things we need in the State of Wisconsin without having skilled mechanics, and vocational training is going to be the education of the future in my book.

Conclusions

Wisconsin is a State which seeks to live its progressive tradition. It is proud of its record in human rights, its laws barring racial discrimination in employment, public housing, education, and public accommodations. When the public conscience has been aroused in this State, the people have taken strong action by law and voluntary effort to insure equal opportunity to all citizens regardless of race.

Equality of opportunity in apprenticeship training has not been achieved mainly because there has not been a community awareness of the problems to be overcome. Faced with an almost total exclusion of Negroes from training for the skilled trades, we, as citizens, must do more than speculate about the causes and remedies.

The most constructive approach to achievement of equal opportunity in apprenticeship is to increase the role of the public in the programs, without regard to the racial implications. Although the actual selection of apprentices is performed by a joint apprenticeship committee consisting of labor and management, the hiring is technically in the hands of the employer. But it is the union's assessment of its needs for trainees which appears to guide the joint committee, and it is the will of the union as expressed in the apprenticeship provisions of the contract that determines the hiring of apprentices by the employer. Employers, especially in the construction industry, claim that they have never attempted to influence the decision to bring trainees into a craft. Even though Government agencies are charged with assessment of the needs of the labor market and the appropriate "promotion of apprenticeship," they play a passive role. Even on the public works contracts of State and local governments, and on manufacturing and construction jobs for the Federal Government, there is no governmental mechanism for expanding training opportunities to meet the demands of the labor market for more craftsmen as such needs arise.

The apprenticeship system must be reformed to allow for an increased public role in the selection process. The public should be represented on the joint apprenticeship committees for the trades. The Wisconsin Industrial Commission and the Federal Bureau of Apprenticeship and Training should exert influence on the contracting officers for public works and Federal contracts to stimulate apprenticeship programs. The influence of the public on the

apprenticeship program would not only serve our economic needs for the training of skilled manpower, but would provide a framework for dealing with the problems of racial discrimination.

The vocational education program must be expanded to meet the demand for trained high school graduates prepared for entry into the trades. The school system has failed to provide adequate facilities for trade training. Counseling and guidance programs for high schools and the lower grades must be expanded.

To solve the problem of inclusion of Negroes in the crafts, there must be increased communication between the trades and the minority community. Labor and managment could develop a program to disseminate information about apprenticeship to minority group youth, perhaps by means of apprenticeship information centers such as have been created in other areas. In addition, the State and Federal apprenticeship agencies, operating under current law, should initiate and effectuate meaningful programs to promote apprenticeship among minority youth.

There is a bright future for skilled workers in Wisconsin, and our Negro citizens must make every effort to share in it. Citizen groups concerned with civil rights should devote more forceful efforts to remove barriers which now keep Negro youth out of the skilled labor force. The result of increased efforts would benefit not only the nonwhites but in addition the economic and spiritual well-being of the entire State.

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AMICK, TED E. Animated Slide Instruction and Non-animated Slide Instruction Compared for Effectiveness in Teaching Body Functions and Processes to High School Biology Students. Paper, M. Ed., 1967, The Pennsylvania State University. 57 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To compare the effectiveness of animated slide instruction and non-animated slide instruction in a unit on body functions and processes.

Method. -- Multiple choice question tests were used as the criterion measure. Each test contained factual and conceptual questions. A pretest of knowledge of body functions and processes was used to control individual student differences.

Six schools in predominantly rural areas in north central and south central Pennsylvania were selected for the study. The animated slide and non-animated slide and tape recorded lecture instructional methods were taught in each school. The students were randomly assigned to each teaching method. A total of 711 students participated in the experiment.

The length of the experiment in each school was limited to two days. The pretest was administered the first day and the following day the instruction was given and the test administered. Each student provided the following information: sex, grade level, and enrollment status in a vocational agriculture program.

Findings. -- Students learned from both animated and non-animated slide instruction. No significant difference in learning was found between the two methods of teaching. When the students' intelligent quotient scores were introduced as a covariate no significant difference in learning was found between the two methods of teaching. No significant difference in student learning was found between the two methods of teaching when the students were classified according to each of the following: (1) grade level, (2) enrollment in a class in vocational agriculture (3) sex. By personal observation, it was found that the students given the animated slide methods were more alert and gave more of their attention to the presentation than those given the non-animated instruction.

AYERS, LEWIS C. The Development and Evaluation of a Unit of Instruction on Small Gasoline Engines. Thesis, M. Ed., 1967, The Pennsylvania State University. 93 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To develop a teacher's unit plan on small gasoline engines, (2) To develop a student handbook on small gasoline engines, (3) To measure the subject matter knowledge gained in a course on small gasoline engines taught to selected vocational agriculture students, and (4) To compare selected factors concerning student residence, experience, age, and intelligence with test scores on a multiple choice test on small gasoline engines.

Method. -- A teacher's manual and a student handbook on gasoline engines were developed. In addition, a forty-question multiple choice test and a student information sheet were used to collect the data. One hundred thirty-seven vocational agriculture students in grades 10, 11, and 12 along with twelve teachers of agriculture in Lancaster and York Counties were in the study. Each vocational agriculture teacher involved received instruction as to the procedures to use in teaching the unit. Teachers also received instruction on suggested tools and equipment for teaching the unit.

Findings. -- The unit of instruction on small gasoline engines, which included a teacher's manual and student handbook, was found to be an effective tool in teaching small gasoline engines to vocational agriculture students. Sixty-six per cent of the sample group of students lived on farms, 28 per cent were rural non-farm, and 6 per cent were classified as having an urban residence. The mean I.Q. for the sample was 99.4. A mean total difference of 8.2 points was found between mean pretest and mean test scores. The difference was significant at the .01 level when analyzed by the correlated t test. Student achievement in the unit was not significantly affected by age, place of residence, experience level with small gasoline engines, or I.Q., as measured by pretest and test scores.

BROWN, WILLIAM J., JR. The Effect of In-service Education and Resource Unit Components on Teacher and Student Learning. Thesis, D. Ed., 1967, The Pennsylvania State University. 123 p. Library, The Pennsylvania State University, University Park.

Purpose. -- The purposes were (1) to develop a resource unit in dairy cattle nutrition suitable for teaching high school sophomores, and (2) to determine the effectiveness of an in-service teacher education course and of furnishing teachers with different components of a resource unit as teaching aids.

Method. -- Forty teachers of agriculture and 438 high school sophomores were involved in a teaching experiment. Half of the teachers attended an in-service education course; the other half did not. The in-service education course consisted of six, two and one-half hour weekly classes on dairy cattle nutrition. Teachers in each in-service education group were randomly assigned to a resource unit component treatment. Resource unit components were (1) Course Outline only, (2) Course Outline and Teachers' Unit Plan, (3) Course Outline and Student Handbook, and (4) Course Outline, Teachers' Unit Plan, and Student Handbook.

Separate multiple choice achievement tests were used to measure teacher and student learning. Teachers in the In-service Education Group were pretested before the in-service education course, tested after the course, and retested after teaching the unit to their sophomore students. Teachers in the No In-service Education Group were tested before teaching the unit to their students and retested afterwards. Students were tested before and after the unit of instruction. Differences in test scores between the in-service education treatments and among the resource unit component treatments were tested for significance by analysis of covariance. Increases in teacher and student test scores were tested for significance by correlated *t*-test.

Findings. -- The difference in cognitive knowledge, as measured by test scores, between teachers in the two in-service education treatment groups were significant both after the in-service education course and after the unit was taught to high school sophomores. In-service teacher education did not significantly affect the subsequent learning of the teacher's students. All students made significant increases in test scores.

Teachers who used the Course Outline and Student Handbook to instruct their students had higher test scores after teaching the unit than teachers who used the Course Outline only. When the test scores of teachers in the In-service Education Group were analyzed separately, there were no significant differences among resource unit components. However, there were significant differences among resource unit components for the No In-service Education Group. Teachers who used the Course Outline and Student Handbook scored significantly higher on the test than teachers who were furnished either the Course Outline alone or the Course Outline and Teachers' Unit Plan. There were no differences in the effect of resource unit components on the cognitive learning of students, as measured by test scores.

CAREY, HARRY A., JR. The Effectiveness of Colored Slides and Script for Teaching Rural Fallout Protection to High School Agriculture Classes and 4-H Clubs. Paper, M. Ed., 1967, The Pennsylvania State University. 68 p. Library, The Pennsylvania State University, University Park.

Purpose. -- The primary objective of this study was to develop an effective set of colored slides and script for use in teaching fallout protection to rural youth groups. The slides and script were developed for use by educators who are inadequately informed about fallout protection subject matter.

Method. -- The script was prepared to include the effects of nuclear weapons, the principles of fallout protection, and family and farm preparedness. Sixty-one slides were developed as visual aids in those areas of the subject matter that were difficult to explain verbally. The unit of instruction was divided into four equal segments with 15 slides in each segment. The program was presented by the investigator to 230 rural youth in six agriculture classes and six 4-H Clubs. Three groups, each including two high school agriculture classes and two 4-H Clubs, received the entire verbal presentation, but the number of slides shown was regulated. Group A was shown only the slides for segments one and three; group B was shown only the slides for segments two and four; and group C was shown all the slides.

The criterion measure was a thirty-two item multiple choice test with eight items for each of the four segments of the presentation. Mean test scores from the segments supplemented with slides were compared to mean test scores for segments without slides. Total mean test scores of the groups which were shown one-half the slides were compared with mean test scores of the group which was shown all the slides. Statistical treatment included analysis of variance and Duncan's Multiple Range Test.

Findings. -- The findings of this study indicate that greater learning had taken place when the colored slides accompanied the verbal presentation. Mean test scores on the segments where slides were used were significantly higher, at the .01 level, than where slides were not used. The total mean score for the group which was shown all the slides was significantly higher, at the .05 level, than were the total mean scores for the groups which were shown only one-half of the slides. By observation it was found that student interest was also greater when the slides were being used.

CESSNA, CECIL P. Agricultural Mechanics Skills Needed by Employees in Six Selected Off-Farm Agricultural Occupations. Paper, M. Ed., 1967, The Pennsylvania State University. 79 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To identify areas of agricultural mechanics related to training needed for employment in off-farm agricultural occupations, (2) To determine mechanical skills presently being taught in agricultural production that contribute to the training of prospective employees for off-farm agricultural occupations, and (3) To develop a list of mechanical skills which could be taught in high school vocational agriculture programs for training prospective employees for off-farm agricultural occupations.

Method. -- Three agricultural occupational families were selected in Adams and Franklin Counties. The occupational families were selected on the basis of the greatest need for employees possessing agricultural competencies to be hired during the next five years. The three occupational families included: (1) Agricultural Machinery Sales and Service, (2) Agricultural Supplies and Equipment, and (3) Ornamental Horticulture. Two job titles, and two employees within each job title, were selected in each of the three occupational families. The twelve employees were personally interviewed and asked to rate 102 mechanical skills as to the degree of need for entering and advancing in their respective job titles. Employees were also asked to respond to questions of general information, training preference, in-service training and instruction received since high school graduation. Nineteen teachers of vocational agriculture in Adams and Franklin Counties were asked to rate the 35 skill groups as to the need for entering the selected job titles.

Findings. -- Basic mechanical skill needs common to agricultural production and off-farm agricultural employees were identified. Skill groups rated highest by both the teachers and employees included: hand tools, internal combustion engines, and planting equipment. Individual skills rated highest by the employees included: adjust, sharpen and maintain tools; use hand tools; lubricate, service and maintain engines; safely operate tractors; select, use and maintain hydraulic cylinders and rams; select, operate, adjust and maintain field sprayers.

Certain agricultural occupations required similar basic mechanical skills. Seventy-two of the 102 skills were rated by the machinery salesmen and mechanics as having a need of 1.0 or higher using a 4, 3, 2, 1, or 0 rating scale. The product salesmen and delivery truck drivers rated only 21 of the skills as having a need of 1.0 or above, whereas the nursery workers and groundskeepers rated 52 of the 102 individual skills as having a mean score of 1.0 or above, for entering and advancing in their respective job titles.

CURTIS, SAMUEL M. Effectiveness of Simulation in Teaching Farm Business Analysis to High School and Adult Students. Thesis, D. Ed., 1967, The Pennsylvania State University. 140 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To evaluate a farm business simulation model used for teaching farm business analysis and record keeping to high school and adult students. Comparisons were made among instructional methods to assess student learning of decision skills and subject knowledge.

Method. -- A computer simulation model was developed. The model focused attention on the decision skills pertaining to a knowledge of economic principles. A student resource handbook and a teacher's guide, Farm Business Analysis and Record Keeping, were written. The problem areas in the handbook were: (a) budgetary analysis and linear programming, (b) how to measure farm business efficiency, (c) how to value farm inventory, (d) how to keep financial records and (e) how to keep production records. Five inservice teacher education classes were taught. The simulation model and the resource unit were used to: (a) upgrade the teachers' subject-matter knowledge, (b) acquaint teachers with simulation and (c) control for teacher differences.

Five instructional methods used with high school students were: (a) resource unit alone, (b) simulation model alone, (c) combination of resource unit and simulation model, (d) course outline only and (e) control - same as "d" except teachers did not receive inservice education. Adult classes were taught by the first three methods. Twenty-five teachers taught high school classes and eight teachers taught adult classes. The teachers were randomly assigned to the experimental methods of instruction except for the five teachers in method "e." Student learning was measured with a decision-ability test and a subject-matter test. Class mean test scores were analyzed by covariance.

Findings. -- The decision-ability test scores of the high school classes were not significantly different among the five methods of instruction. The subject-matter test scores of the high school classes were not significantly different among the five methods of instruction. Where used for teaching high school classes, the simulation model was equally as effective as the other methods of instruction. No differences were noted between the classes taught by the control method and the classes taught by the experimental methods.

The decision-ability test scores of adult classes taught by the combination of resource unit and simulation model method were significantly higher than the scores of the adult classes taught with the resource unit only method. There were no differences between the simulation and the combination of simulation and resource unit methods of instruction. The subject-matter test scores of adult classes were not significantly different among the three methods of instruction. The combination of simulation and resource unit method was superior to the resource unit only method when adult learning was measured with the decision-ability test. When adult learning was measured with the subject-matter test, the simulation method and the combination method were equally as effective as the resource unit only method.

Adult students scored higher than high school students on both tests. The increase over pretest was also greater for the adult learner. This may indicate that farm business analysis and record keeping instruction can be taught more efficiently to adult.

DECKMAN, DONALD E. Development of an Ornamental Nursery Plan for Schools. Paper, M. Ed., 1967, The Pennsylvania State University. 77 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose. -- To develop and evaluate: (1) a list of essential plants for a secondary school horticultural nursery, (2) a list of essential tools, equipment and machinery needed in the school horticultural nursery with equipment specifications, (3) a school nursery design including propagating greenhouse space, nurse bed space, cold frame, and field stock space.

Method. -- Selected horticulturists, landscape architects, landscape nurserymen, and nurserymen located in an eighteen-county area of Zone 5 were surveyed for this study. These four selected groups were sent questionnaires with a list of 108 plants. The plants were rated by a scale of: 3-greatly used, 2-moderately used, and 1-rarely used. Under each category of plants, the individuals surveyed had an opportunity to write in other plants of importance. The plant list was based on plant importance as found in a landscape adequate for the teaching of competencies in plant growth characteristics, plant identification and cultural practices.

Landscape nurserymen and nurserymen were sent additional questionnaires with a list of 36 tools and equipment. The tools were rated by a scale of: 3-essential, 2-desirable, and 1-not necessary. Under each category of tools the individuals surveyed had an opportunity to write in other tools of importance. The tool list was based on tools necessary for adequate operation and maintenance of a school nursery.

Personal interviews were the basis for the school nursery layout and design. In order to collect ideas on school nursery arrangement and to evaluate the relationship between greenhouse space, cold frames, baby bed area, and acreage of finished nursery stock, the author selected a list of well-established reputable nurserymen in the eighteen-county area and made visitations to their nurseries.

Findings. -- Of the 108 plants rated, 76 plants received a score of 2.0 or higher. On the basis of the ratings, 32 plants were deleted from the plant list. The four groups of persons completing the ratings added 34 plants to the list.

All of the 36 items of equipment rated received a score of 2.0 or higher. The groups doing the ratings added nineteen items of equipment to the list.

Based on visits to four nurseries, the nursery design and layout recommended included four basic areas. A one-acre school nursery lot, planned from mean spacing requirements, will hold approximately 5,200 plants, at an approximate cost of $7,600 for liner plant material.

EVANS, DONALD E. Characteristics and Performance of Agricultural Drop-Outs at the Bellwood-Antis High School. Paper, M. Ed., 1967, The Pennsylvania State University. 56 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To determine characteristics and performance of agricultural students who drop out of school and thus enable a teacher to identify potential drop-outs. Four major objectives were: (1) to compare agricultural graduates with graduates of four other curriculums, (2) to compare the per cent of drop-outs in the agricultural curriculum with that of four other curriculums, (3) to compare agricultural graduates with non-graduates, and (4) to determine other characteristics and performance common among non-graduates of agriculture.

Method. -- The sample included all students who entered the ninth grade during or after the school year of 1958-59 and who withdrew prior to June 1966 or were graduated at that time. Data were collected on 573 students. The data were obtained from records on file at the high school, from the guidance counselor, and from the drop-outs or their parents.

Findings. -- Graduates enrolled in the five curriculums differed by IQ, extra-curricular activity participation, subjects failed, achievement test scores, reading ability, and grades achieved.

A comparision of the per cent of drop-outs per curriculum indicated that there were meaningful differences. Fewer academic and business education students dropped out. The mean per cent of drop-outs for all curriculums was lower than the Pennsylvania average.

The comparison of agricultural graduates and non-graduates indicated that the graduates had higher IQ levels, better high school grades, slightly better per cent attendance, better extra-curricular activity participation, were from families with fewer children and had parents with more years of schooling. Ten of the twelve rural farm students were graduated.

The analysis of agricultural drop-outs indicated that they usually withdraw from school because they are over seventeen or because they experience academic failure. After withdrawal, they have difficulty finding good jobs and change employment frequently. The drop-outs made little effort toward self-improvement.

GINGERICH, GARLAND E. The Development and Evaluation of a Unit of Instruction on the Safe Handling of Pesticides. Paper, M. Ed., 1967, The Pennsylvania State University. 29 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop and evaluate a teacher's unit plan and a student handbook on the Safe Handling of Pesticides.

Method. -- With the aid of resource materials and specialists in the field a teacher's unit plan and a student handbook were developed. The teacher's plan included resources and suggested teaching methods for each of five problem areas. The student handbook supplemented the teacher's unit plan with subject matter students needed to know.

The unit of instruction was completed by 165 ninth grade students of vocational agriculture in nine high schools in York County and Lancaster County, Pennsylvania. Teachers used various means of presenting the lessons including lecture, discussion, field trips, resource persons and visual aids. Each teacher taught the unit in 10 class periods.

Findings. -- Students knew more about practices in the safe handling of pesticides as a result of studying the student handbook. Their test scores increased from 10.1 to 16.1. A positive correlation of .517 significant at the .01 level was found between pretest and test scores of the total number of students.

Student I.Q. and reading ability correlated with pretest and test scores. Place of residence, number of pesticides used at home and previous experience did not influence the test scores.

There were but 34 per cent of the pesticides stored safely on the home farms of the 165 students before the unit was taught. After instruction the students reported 37 per cent stored safely.

It was concluded that the instruction unit was effective and a recommendation was made that the materials be revised and published. With adults as well as with high school students the teaching time probably should be increased.

GRIFFITH, ELLIS J. Factors Related to Methods of Financing and Cost of Owning a Forage Harvester on Farms in Huntingdon County. Paper, M. Ed., 1967, The Pennsylvania State University. 34 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To determine the method of financing and factors considered before the purchase of a forage harvester by farmers in Huntingdon County. The factors under consideration were (1) to determine what influenced farmers to invest in their present forage harvester, (2) to determine the number of forage harvesters that were driven by power take-off or auxiliary engines, (3) to find the relationship between gross income and methods used to finance the harvester, (4) to identify the relationship between age of the forage harvester and nature of repairs required as well as the annual cost of repairs, (5) to determine the average purchase price, annual depreciation, and present value of the forage harvesters included in the survey.

Method. -- A schedule was devised to reveal factors that received the farmer's attention prior to investing in a forage harvester. The survey was taken in Huntingdon County by two D.H.I.A. supervisors and four teachers of agriculture in cooperation with the writer. Forty dairy farmers, randomly selected, provided the information needed.

Findings. -- (1) Labor shortage, was the greatest single factor that caused farmers to invest in a forage harvester. Additional influences indicated by some farmers were a machinery dealer, adoption of a complete silage program, desire to harvest at a proper time, and the persuasion of a son or wife. (2) The local bank was the most widely used source of funds for financing forage harvesters, however, other methods used in some instances were cash, machinery dealer, or a combination of the previous methods. (3) Forage harvesters purchased new had a higher annual depreciation, but a lower annual repair cost, than used machines. (4) Replacement of bearings was the most frequent repair work done on the forage harvesters.

GUTSHALL, VIRGIL E. Development and Evaluation of a Unit of Instruction in Hydraulics for High School Vocational Agriculture Students. Paper, M. Ed., 1967, The Pennsylvania State University. 103 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop and evaluate a unit of instruction on the principles of operation and maintenance of hydraulic systems for agricultural equipment.

Method. -- The course in the principles of operation and maintenance of hydraulic systems for agricultural equipment was taught in five schools by teachers of agriculture. Ninety-eight students completed the course. There were 33 tenth grade students, 40 eleventh grade students, and 25 twelfth grade students. The method of instruction and instructional materials were the same for each school. Each teacher pretested his students with a 20 question multiple choice test. Students were post tested with the same test. Students completed an information sheet concerning age, grade, residence, and level of experience in operation, maintenance and repair of hydraulic equipment.

Findings. -- The teacher's unit plan and student handbook of subject matter were effective tools in teaching hydraulics to 10th, 11th, and 12th grade students, as measured by the achievement test. Students in all grades, in all schools made significant gains in test scores. The learning capacity of students in the three grades apparently was not different. Students with more maintenance experience in hydraulic equipment scored significantly higher on the test than those without experience.

Twenty students had no operational experience in hydraulics, 47 had some experience, and 31 had much experience. Fifty-eight students had no maintenance experience and 40 had some maintenance experience. Seventy-two students had no experience in the repair of hydraulic equipment and 26 had some repair experience.

HIBBS, LEROY N. Evaluation of Selected Variables in Processing Poultry Manure and of the Fertility Value of the Processed Manure. Thesis, M. S., 1967, The Pennsylvania State University. 34 p. Library, The Pennsylvania State University, University Park.

Purpose. -- The objectives were: (1) to evaluate selected conditioners involved in processing and storing of poultry manure in different containers and under different environmental conditions and (2) to compare the fertilizer value of the best processed poultry manure with that of other poultry manures and certain other types of fertilizers.

Method. -- Manure from a flock of floor-reared pullets was screened, pulverized, and divided into four parts. Hydrated lime was added to one part. Superphosphate was added to a second part. A maskant was added to a third part. The fourth part was untreated. Representative samples of each part were analyzed before and after storage for moisture content, pH, P_2O_5 and K_2O.

Bagged manure was stored for 6 months in three types of storage areas. They were: (1) a heated dry indoor storage facility, (2) an open-type dirt floor shed, and (3) the poultry house from which the samples were taken.

Samples of the best poultry manure from above were applied to turf plots, alongside several unprocessed manures (slurry, sludge, ash, and droppings) and 5-10-5 liquid fertilizer. Grass was harvested from the plots and comparisons of fertility value were made.

Findings. -- There was a decrease in moisture content, available phosphate content, and soluble potash content of processed manure samples during the storage period. At the end of the storage period it was found that samples containing superphosphate and lime had a reduced moisture content. Manure stored in Kraft bags contained less moisture than manure stored in vinyl-lined bags. Phosphate reinforced manure had a higher content of nitrogen than the other conditioners. Manure stored in Kraft paper bags had a higher nitrogen content than that stored in vinyl-lined bags. Manure stored in the heated indoor environment resulted in a higher nitrogen, phosphate and potash content and lower pH than the manure stored in the sheltered outdoor environment. Each of the containers was different from the others in terms of available phosphate content. None of the samples with conditioners added resulted in a higher soluble potash content.

Four treatments produced a higher response in yield of lawn-grass of turf plots over the control. They were in order of largest increase: droppings, litter, fertilizer, and sludge.

LAYMAN, RALPH M. The Identification of Basic Principles of Plant and Animal Science for Inclusion in the High School Agricultural Course of Study. Paper, M. Ed., 1967, The Pennsylvania State University. 78 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To identify basic principles in the fields of plant and animal science, that should be understood by the students of vocational agriculture. A good teacher must have knowledge of basic physical, biological and sociological principles to get depth into his teaching.

Method. -- Published materials were studied and basic principles were selected and formulated for broad areas of plant and animal science. The five areas classified were: Economic Value, Environment, Reproduction, Growth and Production, and Enemies. Supporting factual information was included for each area to aid in the understanding. The principles and factual information were reviewed by a panel of four teachers. Three of these teachers were teachers of agriculture while the fourth was a teacher of biology.

Findings. -- Numerous biological science principles were common to both plant and animal science. An effort was made to confine the list to broad principles rather than to facts or laws. The review committee disagreed on inclusion of facts but not on the importance of principles.

Very little information was found identifying or explaining basic principles in certain areas of interest. The principles developed should be used by the teacher of agriculture as a guide in his teaching, not as teaching material. It appears that the inductive method of teaching is a desirable way to apply the principles.

LITWHILER, EDWARD L. An Evaluation of Cooperative Work Experience for High School Students Utilizing a Turfgrass Resource Unit. Thesis, D. Ed., 1967, The Pennsylvania State University. 94 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To determine the learning effectiveness of cooperative work experience for high school students when associated with classroom instruction in turfgrass management, and (2) to learn if there is a difference in learning effectiveness when cooperative work experience is obtained before, during, or after a unit in turfgrass management is taught in the classroom. Additional purposes were to learn answers to the following questions: Can students with low ability enrolled in vocational agriculture classes learn as well as students with normal or above ability? Are teachers and students of vocational agriculture in Pennsylvania interested in a unit of instruction on turfgrass management?

Method. -- A student's manual and a teacher's unit plan on turfgrass management were prepared to guide the classroom instruction in 27 high school departments of vocational agriculture in Pennsylvania. A list of experiences in turfgrass management to be gained through cooperative work experience and classroom instruction was given each teacher. The criterion measure used to test the hypotheses was a test consisting of 80 multiple choice questions with four choices each. Analysis of covariance was employed to test differences in adjusted mean test scores among the three sequences of offering cooperative work experience. Correlated *t*-tests between pre-test and post test scores were used to determine significance of learning for students with and without cooperative work experience.

Findings. -- The presence or absence of cooperative work experience did not affect the test scores of students with equal ability. For most effective learning, work experience should follow classroom instruction. Students with normal or above ability levels made larger gains in test scores than did students with lower ability. In Pennsylvania there is considerable interest among vocational agriculture high school students and their teachers to include a unit of instruction in turfgrass management in the vocational agriculture program.

LONGWELL, JERRY F. An Analysis of Sheep Production Among Farmers in Armstrong County, Pennsylvania. Paper, M. Ed., The Pennsylvania State University. 39 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop a list of approved practices for the sheep enterprise, and study the relationship between selected approved practices and production factors.

Method. -- A list of practices was developed from publications and interviews with successful sheep farmers. A livestock specialist selected eighteen of the most important practices to be used in the survey instrument. Eighteen farmers, all farmers within the county who owned twenty or more ewes, were interviewed for practices used and production factors achieved.

Findings. -- Selecting young ewes for replacements, keeping bedding dry, providing fresh water, and using a purebred ram were practices used by all farmers interviewed. The lambing rate was positively correlated with income per ewe. Lambing mortality rate correlated negatively with income. Use of other practices resulted in somewhat higher returns.

Only one farmer dipped sheep to control external parasites. Five farmers bred ewes so that lambs were marketed in April and May and also tagged lambs immediately after birth. All other practices were used by eleven or more farmers.

LORD, CARLETON R. The Development and Evaluation of an Instrument for Appraising Written Units of Instruction. Thesis, M. S., 1967, The Pennsylvania State University. 58 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop and test the effectiveness of an evaluation instrument which would assist teachers to select desirable written units of instruction.

Method. -- Criterion measures for evaluating written units of instruction were selected from an extensive review of literature and from seminars of teachers of agriculture. These criterion measures were sent to nine authorities in the field of vocational agriculture publications in nine different states. These persons were asked to weight the criterion measures numerically as to relative importance on a scale from zero to one hundred. Total score for all criterion measures was to equal one hundred points. The ratings were averaged to develop an evaluation instrument.

Six written units of instruction, two of each of three types, were selected: (1) subject matter and teacher information bound separately, (2) subject matter and teacher information bound together, and (3) subject matter only. Each unit was evaluated by sixty teachers of agriculture without and with the evaluation instrument.

Findings. -- An evaluation instrument was developed with three major headings: (1) Subject Matter, 60 points; (2) Teacher Aids and Information, 30 points; and (3) Mechanical Make-up, 10 points. The unit scores were more objective when evaluated with the evaluation instrument as scores did not range as widely with it. Of the three types of units, subject matter and teacher information bound separately scored highest; subject matter only units scored lowest.

Teacher evaluation scores were influenced by the size of the unit and were not influenced by color both with and without an evaluation instrument. Teacher evaluation scores were not influenced by pictures or illustrations with and evaluation instrument, but were influenced in some cases without an evaluation instrument.

The evaluation instrument was helpful in selecting written units of instruction. Use of the instrument resulted in a significant change in the score assigned to three of six written units of instruction evaluated by teachers. Without the instrument, teachers overrated a unit which was composed largely of subject matter. They also overrated a unit which had been commercially prepared and colorfully illustrated.

LOVE, GENE M. and CURTIS, SAMUEL M. Educational Effectiveness of Two Sequences of Scheduling Classes and of Two Techniques of Teaching an Off-Campus In-Service Teacher Education Course. Staff Study, 1967. Agricultural Experiment Station Progress Report, Department of Agricultural Education. The Pennsylvania State University, University Park.

Purpose. -- To compare the educational effectiveness of three-day summer workshops with a series of weekly classes taught during the regular school year and to compare the effectiveness of teacher-centered and student-centered teaching technique for in-service teacher education.

Methods. -- The students were teachers of agriculture enrolled in in-service teacher education classes. The subject matter was dairy nutrition. A 2 x 2 factorial design was employed to facilitate the comparison between class sequences and between teaching methods in this replicated study. A fifty item multiple choice test was the criterion measure. Students in Replication I were retested six months after the conclusion of the course.

In the teacher-centered classes, instruction was planned and presented by the course instructor; in the student-centered classes, instruction was planned by the instructor and the students. Committees of students (teachers) were responsible for teaching each of the four problem areas. The weekly classes consisted of six, two and one-half hour class sessions conducted at regular intervals during the school term. The three day workshops consisted of fifteen hours of instruction on three consecutive days during the summer. Analysis of covariance was used to test for student differences resulting from teaching method and/or scheduling sequence.

Findings. -- Test scores of students in the three-day summer workshop were significantly higher than the scores of students in the weekly class sequence. When retested six months later (Replication I only), there were no significant differences in student test scores among the class scheduling sequences. There were no significant test or retest score differences between teaching methods in either Replication I or II.

It was concluded that for in-service education courses for teachers of agriculture, other factors such as convenience were more important than the alternative scheduling sequences tested. This study did not determine whether teacher-centered or student-centered instructional methods were more effective for teaching off-campus in-service teacher education classes.

McCLAY, DAVID R. Pre-Employment Experiences of Graduates in Agricultural Education Related to Success in College and Tenure in Teaching. Staff Study, Teacher Education Research Series, Volume 8, Number 4, 1967, The Pennsylvania State University. 12 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose. -- To relate pre-college education and experience to college performance and tenure in teaching of graduates from 1954 to 1964 and to make comparisons with generalizations common to earlier studies in 1933, 1943, and 1960.

Method. -- Three hundred twenty eight (86 per cent) of the 382 graduates of the 1954-1964 decade returned completed questionnaires. Some data for the total group were obtained from University transcripts.

Findings. -- (1) A lower percentage of the 1954-1964 graduates entered teaching (65 per cent) than did graduates of earlier periods; (2) The presence or absence of an agricultural background had no effect on whether or not the graduate entered teaching; (3) A majority of the graduates (59 per cent) had decided to prepare for teaching before entering college; (4) Graduates who completed other than agricultural curricula in high school completed nearly twice as many mathematics courses in high school as did graduates who had enrolled in agriculture. No relationship was found between years of high school mathematics completed and grade point average at college graduation; (5) High school fifth correlation with grade point average at college graduation was significant at the .01 level.

The 136 teachers whose total employment was in teaching since college graduation showed certain positive relationships significant at the .01 level. These were: Years of farm experience with enrollment in agriculture in high school and high school fifth at graduation; Years of high school mathematics completed with years of high school science completed; High school fifth at graduation with all-University average at graduation. Negative correlations at the .01 level were found as follows: Years of farm experience with years of high school mathematics completed; Years of high school agriculture completed with years of high school mathematics and science courses completed; Years of high school mathematics completed with an early decision to teach and high school fifth at graduation. It was concluded that success of students in high school is related to success in college.

RAWSON, RICHARD A. Determination of Farming Entry Opportunities Available Annually to Young Men in Centre County, Pennsylvania. Paper, M. Ed., 1967, The Pennsylvania State University. 40 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To determine the number of entry opportunities in farming in Centre County, Pennsylvania, in 1964 and to predict the number for each occupational level by type of farming in the county annually from 1965 to 1970. A second purpose was to compare two sources of information. A further purpose was to determine the number of 1950, 1952, 1954, 1956, 1958, and 1960 high school graduates who were enrolled in agriculture in their senior year and who entered farming, the percentage of the total agricultural graduates they represented, and the type and status level at which the young men entered farming.

Method. -- A survey of 16 selected farmers in the county was made to determine the number of actual entries in farming during 1964. A second sample survey of 60 farmers according to a list maintained by the County Agricultural Stabilization and Conservation Service was completed to gather data needed to predict the total annual average number of entry opportunities in farming. The sample data were then divided according to type of farm and ownership status level of the operator for estimating the number of entry opportunities in farming between 1965 and 1970. The U. S. Census of Agriculture was also used as a source of information for predicting the annual number of entry opportunities available in the county between 1965 and 1970. A formula developed by Iowa State University was used in the calculation of all predictions.

Findings. -- The results showed a total of 30 young men who entered farming in the county during 1964. The average annual number of entry opportunities predicted in farming for each year between 1965 and 1970 was 6.30 men. The number of entry opportunities predicted using the U. S. Census of Agriculture was 10.55 men each year. The average number of Centre County agriculture graduates during the years 1950, 1952, 1954, 1956, 1958, and 1960 who entered farming was 14.1 men. There were entry opportunities in farming for each agriculture graduate who desired this type of employment. The Iowa formula predictions using data from the U. S. Census of Agriculture were higher than the number predicted using the survey data. However, the U. S. Census of Agriculture predictions were conservative in estimating the number of entry opportunities when this number was compared to the number who actually entered farming in selected previous years.

ROBINSON, WILLIAM A. Agriculture Interest Score and Other Characteristics of Eighth Grade Boys Related to High School Graduation Major and Employment. Thesis, D. Ed., 1967. The Pennsylvania State University. 99 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To determine differences and relationships among eighth grade Vocational Agriculture Interest Inventory score, socio-economic factors, class fifth, and high school graduation major and occupational area of employment two years after graduation (2) To ascertain present practices of high school business education and agriculture departments in providing improved and expanded instruction through supporting education, term teaching and other innovations.

Method. -- The total sample group included 1207 male students in twenty rural south-central Pennsylvania high schools who were enrolled in eighth grade in the spring of 1960. Subsequently 134 moved from the school patronage area and 8 died; therefore, complete data were obtained for 1065 students. Data were obtained from student permanent records and from interviews with principals, counselors, teachers, and students. The statistical treatments of single classification analysis of variance and chi square were employed to test the hypotheses.

Findings. -- (1) Students of normal age for their grade level tended to graduate; (2) boys who lived in urban or town locations had a greater tendency to graduate; (3) there was some association between employment area of father and the son's subsequent graduation or withdrawal from school; (4) students whose fathers' employment levels were classified as professional and business manager or owner were more likely to graduate; (5) students who expressed interest in college or advanced training tended to graduate; (6) the students who graduated in agriculture had higher Vocational Agriculture Interest Inventory scores than did students who graduated in other curricula; therefore, the Vocational Agriculture Interest Inventory was a valid instrument used in the guidance and selection process in the twenty schools; (7) graduates and non-graduates employed in farming had higher agriculture interest scores than students who entered any other area of employment; therefore, the Vocational Agriculture Interest Inventory was a valid instrument in predicting a student's employment in farming six years after enrollment in eighth grade.

Supporting education and team teaching concepts were not in evidence in the twenty schools. Innovations in business education included plans for training key punch operators and dictation-transcription training through new equipment. Innovations in agricultural education included the teaching of agri-business units of instruction, placement for occupational work experience in agri-businesses, the teaching for ornamental horticulture units of instruction, and the provision for elective courses in ornamental horticulture and agricultural technology.

SEILER, GERALD H. Identification and Classification of Skills Needed by Employees in Turfgrass Occupations. Paper, M. Ed., 1967, The Pennsylvania State University. 61 p. Library, The Pennsylvania State University, University Park.

Purpose. -- The major purpose was to identify the skills needed by employees in turfgrass occupations and to determine which of these skills employers felt could be taught to agriculture students in high school. In addition, job titles according to the skills needed, skills employers felt should be taught in post-high school programs, and skills employers would be willing to teach to students in a directed occupational experience program were identified.

Method. -- A list of skills and competencies required for employment in the turfgrass industry was developed. The list was presented during personal interviews with eleven golf course, athletic field, and park superintendents. Superintendents were asked to check whether each skill was necessary, desirable, or unnecessary to enter five suggested job titles. They also checked where the skill or competency could be taught. The alternatives for programs in which the skills could be taught were: high school agriculture courses, post-high school courses in vocational-technical schools or non-baccalaureate college programs, and directed occupational experience.

Findings. -- Analysis of the responses made by the superintendents showed that most of the skills and competencies listed were necessary to enter the supervisory positions. For seasonal jobs at the entry level, most skills and competencies were unnecessary.

Directed occupational experience should be an important part of high school courses teaching turfgrass establishment and maintenance skills.

TENNEY, RICHARD W. The Influence of the International Farm Youth Exchange Experience on the Educational Achievement and Occupational Choice of the United States Delegates. Thesis, M. Ed., 1967, The Pennsylvania State University. 97 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To determine the influence that the six months foreign rural family living experience of the International Farm Youth Exchange program had on the educational achievement and occupational plans of the IFYE participants and (2) to determine the IFYE program trends as reflected by the IFYE Alumni.

Method. -- A schedule was developed to secure information relating to demographic factors, educational achievement, and occupations. The schedule was mailed to 570 IFYE Alumni and to 94 national IFYE applicants who had not become program participants with 480 and 68 schedules returned, respectively, from the two groups. The alumni respondents were placed into three groups according to their year of application. The groups were: Alumni I-1948-53; Alumni II-1954-59; and Alumni III-1960-65. The three alumni groups were used to determine the program trends. Alumni Group III and the national applicants who had not become program participants were used as the two groups to determine the IFYE influence on educational achievement and occupational plans.

Findings. -- The IFYE experience was found to be associated with the following: (1) a higher rate and intensity of community participation using the Chapin Community Participation Scale; (2) a greater orientation of occupations towards working with people; (3) a higher proportion of occupations relating to international activities; (4) a higher rate of involvement in activities of the on-going IFYE program; (5) a higher rate of involvement in activities of the county level and state level Cooperative Extension Service; and (6) a higher rating of the influence of the IFYE program on both educational level and occupations.

The Alumni of the IFYE experience were also found to have achieved a high level of education and to be people with a mobility rate well above that of the nation.

The rate of participation by alumni in alumni and extension activities, the rating of influence of IFYE on education and occupations, and the community participation score, all appear to be associated with the number of years since the IFYE experience. (1) The alumni in the 1948-53 group had higher community participation scores and had attended a greater number of national conferences. (2) The alumni in the 1960-65 group rated the influence of IFYE higher on both education and occupations. (3) The alumni in the 1960-65 group had a higher percentage of participation in activities of the on-going IFYE program and of the Cooperative Extension Service.

The Pennsylvania State University
College of Agriculture
Agricultural Experiment Station
Department of Agricultural Education

ACTIVE STAFF RESEARCH PROJECTS -- December, 1967

1140 The On-Farm Service Center in Mechanized Farming. F. Anthony, O. A. Kimmel.

1194 Pre-Employment Experiences of Graduates in Agricultural Education as Related to Tenure in Teaching Vocational Agriculture. D. R. McClay.

1426-C A Comparison of Methods of Teaching Firearm and Hunting Safety in Selected Pennsylvania Schools. F. Anthony.

1426-E Development and Evaluation of Instructional Units in Landscape Horticulture for Teachers in Northeastern United States. R. F. Stinson, G. Z. Stevens, D. R. McClay.

1483 Technical Education Needs of Persons Engaged in Agricultural Occupations. N. K. Hoover, D. R. McClay, G. Z. Stevens.

Agricultural Mechanics and Automation for Vocational and Technical Education. D. R. McClay, F. Anthony.

Development and Evaluation of Occupational Information in Agriculture. N. K. Hoover, G. Z. Stevens

Vocational-Technical Education in Agricultural Resources. G. Z. Stevens, N. K. Hoover, S. M. Curtis.

1733 Facility Design, Equipment and Instructional Materials Requirements For High School and Technical Agriculture Programs. F. Anthony.

1743 Automated Procedures in Teaching Management Principles in Agriculture. G. Z. Stevens, S. M. Curtis

1744 Occupational Education Programs in Agricultural Businesses and Services. G. Z. Stevens, N. K. Hoover, H. F. Doran, S. M. Curtis.

VT 004 035

Sequential Planning of Evening Extension Courses.

Washington State Board for Vocational Education, Olympia
MF AVAILABLE IN VT-ERIC SET.
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*SEQUENTIAL PROGRAMS; *EXTENSION EDUCATION; *TECHNICAL EDUCATION; ADULT VOCATIONAL EDUCATION; DRAFTSMEN; DATA PROCESSING OCCUPATIONS; CONFERENCES; CURRICULUMS; SECRETARIES; ELECTRONIC TECHNICIANS; CLERICAL OCCUPATIONS; *PROGRAM PLANNING

Seventy vocational educators representing six vocational-technical schools, nine community colleges, and six large high school districts attended a conference concerned with planning, organizing, and operating sequential courses in the evening extension programs for employed workers, principally in technical occupations. The main purposes of the conference were to: (1) explain the desirability and methods of offering sequential courses, (2) apprise administrators of evening extension training programs in data processing, clerical and secretarial, design technology, and electronics, and (3) provide an opportunity for sharing experiences. Presentations included: (1) "Data Processing" by Frank Haas, (2) "Design Technology" by Art Binnie, (3) "Secretarial" by Donna Barnes, (4) "Secretarial" by Shirley Stahl, and (5) "Electronics" by Gil Zuerlein. Small group discussions are summarized. (JM)

VT 004 035

STATE OF WASHINGTON

ED036657

TECHNICAL EDUCATION

SEQUENTIAL PLANNING of EVENING EXTENSION COURSES 1963

STATE BOARD FOR VOCATIONAL EDUCATION

OLYMPIA WASHINGTON

State of Washington

STATE BOARD FOR VOCATIONAL EDUCATION

Olympia

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SEQUENTIAL PLANNING

OF

EVENING EXTENSION COURSES

Sweptwing Inn

Seattle, Washington

May 17, 1963

FOREWORD

The purpose of this publication is to summarize a conference conducted by the staff of the State Board for Vocational Education.

The conference dealt with planning, organizing and operating sequential courses in the evening extension programs for employed workers concerned principally with technical occupations.

The main purposes of the conference were:

1. To explain the desirability and methods of planning and organizing long-range evening extension training programs (usually consisting of a series of sequential offered courses extending over a period of one to six years) for employed people who are interested in special part-time education dealing directly with their jobs;
2. To apprise Vocational Education administrators of the existence, nature, and status of known evening extension training programs in the following four major fields: data processing, clerical/secretarial, design technology and electronics. These presentations were made by training supervisors employed in industry who were familiar with industrial needs as well as training methods;
3. To give vocational educators an opportunity to share experiences and ideas concerning vocational-technical evening extension programs.

The conference was attended by seventy vocational educators responsible for offering evening extension courses in the State of Washington. They represented six vocational-technical schools, nine community colleges, and six large high school districts.

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State of Washington

STATE BOARD FOR VOCATIONAL EDUCATION

Olympia

PLANNING AND ORGANIZING LONG-RANGE EVENING EXTENSION TRAINING PROGRAMS

Location: Highway 99, 12 miles south of Seattle
South corner of Sea-Tac Airport
at Sweptwing Inn Motel (Hangar Room)

Date: May 17, 1963

9:00 - 9:15 a.m. I Introductions and Objectives of conference
Brief report on how Washington is doing compared with other states in Evening Extension Programs and indicate areas of concern where improvement is needed.

Herman Miller - Bob McKee

9:15 - 9:30 II Data Processing (Extension Program)
Considerations in planning and organizing Data Processing extension training and discussion of future plans for a curriculum of sequentially organized courses in Data Processing training for employed workers.

Frank Haas, IBM, Olympia

9:30 - 10:15 III Design Technology (Extension Program)
A presentation of Renton's 4-year Design Technology program for employed workers dealing mainly with the history and development as well as with future plans.

Art Binnie, Renton

10:15 - 10:30 Coffee

10:30 - 11:10 IV Secretarial (Extension Program)

a. Report of a planned secretarial program for employed workers which contains 10 sequentially planned courses.
b. A report on secretary workshops for employed secretaries and stenographers.

Donna Barnes, Boeing, Seattle
Shirley Stahl, IBM, Seattle

11:10 - 12:00	V Electronics (Extension Program) A report of Auburn's 5-year Electronics program for employed workers dealing mainly with detailed descriptions of present program with course objectives and a master course of study. Gil Zuerlein, Auburn
12:00 - 1:30 p.m.	Lunch - Question & Answer period on morning reports.
1:30 - 3:10	Small group conferences Discussion of problems in Evening Extension Programs for the purpose of forming a base to write a state report entitled, "Some Criteria of Quality Evening Extension Programs".
3:10 - 3:30	Conference summary

State of Washington

STATE BOARD FOR VOCATIONAL EDUCATION

Olympia

April 19, 1963

PLANNING AND ORGANIZING LONG-RANGE EVENING EXTENSION TRAINING PROGRAMS

OBJECTIVES

Assuming the desirability from both employees' and management's standpoint, of offering comprehensive courses of study, with sequential planning, in evening vocational programs, a May 17 conference is called by the State Board for Vocational Education dealing mainly with Title III technical education extension courses.

1. To determine methods of responding to industry's and employees' needs for this type curriculum.

2. To apprise vocational education administrators of the existence, nature, and status of known programs.

3. To apprise them of industry's assessment of skill or subject areas in which such curricula appear warranted, such as data processing, clerical/secretarial, engineering aide/draftsman, and electronics.

4. To explain, by example, the techniques, tools, and methods used in developing a 4-year sequentially-planned evening program (alternatively a 2-year day program) so that participants might amplify their present program in other areas.

5. To instruct participants on the importance and methods of defining objectives of instruction in behavioral terms on curriculum, subject area, course descriptions and lesson levels.

6. To give participants opportunity to discuss problems, question industry's needs and desires in detail -- through conference sessions.

Conference Objectives

Herman Miller

Mr. Herman Miller, Assistant Superintendent for Vocational Education, opened the meeting with a welcome to participants and set the stage for the conference by indicating the importance of evening extension training programs for the improvement of Washington's manpower resources. Mr. Miller then reviewed the conference objectives:

1. To determine methods of responding to industry's and employees' needs for this type curriculum.
2. To apprise vocational education administrators of the existence, nature, and status of known programs.
3. To apprise them of industry's assessment of skill or subject areas in which such curricula appear warranted, such as data processing, clerical/secretarial, engineering aide/draftsman, and electronics.
4. To explain, by example, the techniques, tools, and methods used in developing a 4-year sequentially planned evening program (alternatively a 2-year day program) so that participants might amplify their present program in other areas.
5. To instruct participants on the importance and methods of defining objectives of instruction in behavioral terms on curriculum, subject area, course descriptions and lesson levels.
6. To give participants opportunity to discuss problems, question industry's needs and desires in detail -- through conference sessions.

Introductions and Comparative Report

R. L. McKee

Mr. Bob McKee, State Supervisor of Technical Education, reviewed the conference time schedule in detail. He explained that the main purpose of the conference was the planning of extension courses as a series leading to a major student personal or occupational goal. This series of courses might extend over a period of two to six years, leading toward a Certificate of Completion or Associate of Applied Arts Degree. In some cases this might be a preparatory program offering a person an opportunity to change occupations.

Usually this series of courses will be different from day preparatory programs, but in some cases, e. g., electronics, the sequentially planned evening extension courses might be for an employed worker who is changing occupations. Therefore, the program in this case would be similar to the two-year day preparatory electronics course, but offered on a part time basis extending over a period of four or five years.

Educators have too frequently offered their evening courses on a "cafeteria-style" basis where a student picks and chooses what interests him most with no substantial relation to courses needed in the future.

Catalogs of evening extension courses should contain some long and short series of courses organized around occupational objectives, and commit the school to offer these courses in succeeding quarters on a progressive basis.

Experiences of five training centers (Longview, Bremerton, Renton, Auburn, and Vancouver) continue to amaze us by the amount of energies in time for which adults will obligate themselves over a period of years when they are motivated for major occupational objectives.

Now that we understand what the conference is about and what we will do for the day, let me confuse you for a minute by talking about the total field of vocational education and some figures that will be of interest to you but not particularly pertinent to the conference. We just compiled some interesting statistics which show how we are doing in the overall day and evening technical and industrial programs throughout the State.

1. Enrollment in trade and technical education in the State of Washington has doubled in the past ten years from 31,000 in 1952, to 71,000 in 1962. This doubling in enrollment took place in both the day preparatory and evening extension courses in about the same proportion.
2. If present plans in the different local centers develop, Washington's trade and technical education will double again in the next five years.
3. In the 1962-63 school year, Washington's vocational educators increased the investment in trade and technical equipment by an additional 40%. The $10 million of special instructional equipment throughout the State was increased to $14 million last year.
4. Even with this rapid expansion we will not be meeting industrial needs because:
   a. The yearly number of workers to be retrained will double in the next few years.
   b. The yearly number of youth entering the work force will double in the next three years.
   c. Last year one of Washington's major employers had to hire over 50% of their technicians from out of state while Washington's youth went untrained and unemployed.
5. Enrollment in trade and technical education in the last two years has had an annual growth of 15% to 20% per year.

Washington has quality programs as follows:

Washington has more than twice the percentage of population enrolled in trade and technical evening extension courses than any other state in the nation and we have four times the percentage of population enrolled than the U. S. average.

Washington presently has 1 in 67 of its total population enrolled in technical and industrial extension courses.

Attendance is an indication of quality. If evening class attendance runs from 60% to 80% the class may be said to have average attendance.

If the attendance is over 90% it would be a very special class.... and if attendance is under 50% then we had better be concerned about it.

Now that we have looked on the positive side, let's see what there is we can improve.

Would you believe that there are schools in the State of Washington that could be doing these types of things:

(COULD THIS BE YOU?????)

1. Somewhere in this state there is a school that spends less than 1/2% of its budget on administration and supervision of adult programs.
2. Another place offers no guidance and counseling for extension courses or has 1/2 time counsellor for 10,000 students.
3. Operates with no planned budget; does not know what their income is.
4. Uses high school rules to operate adult schools.
5. Offers courses with the same title but different content than the school next door.
6. Have one inactive advisory committee to keep the school in tune with the community.
7. Offers nothing but "cafeteria type" classes.
8. Have no course descriptions or catalog of courses.
9. Send out technicians from industry who have never taught, to teach classes with a few minutes of instruction and no teacher training, no course outline, and with nothing but the title of the course and a room to teach it in.

DATA PROCESSING

Training Conference - Sweptwing Inn - May 17th Frank Haas

To those of you who received the tentative program and the objective page, I would say that I am here to learn today. We feel and know some of what has happened, that there is a definite need in the area of data processing in the extension programs, how to accomplish this and how to get into it. I feel extremely humble to be standing before this group who has many years of experience.

I hope I can suggest some points and some areas that are specific to our industry, some illustration that we have across the nation as to what others are doing is an excellent measure of what we should be doing here in Washington.

In the sequentially-planned extension program we do not feel competent to develop a sequential series to come out with a trained technician. We don't feel it can be done with our experience in the day program and the demands. To come out with a trained technician you have to start with a certain level of experience.

(Reads from objectives): "To apprise vocational education administrators of the existence, nature, and status of known programs, and to apprise them of industry's assessment of skill or subject areas in which such curricula appear warranted, such as data processing, clerical/secretarial, engineering aide/draftsman, and electronics." These are things that will be accomplished.

What are we doing? Planning and organizing a long range extension training program. First of all we must establish the fact that there is need for such a program in data processing. If we can't initially name, state, or describe a problem or a situation and verify that there is such a thing in existence, then we have no need for further discussion. There is definitely a need for a data processing program.

We are talking about a very dynamic industry that changes daily. I could spend the morning describing the dynamic nature of it. My product line changes daily. We must completely specialize. I am a specialist in data processing working with education. We know that the production line to keep the broad parameter here is impossible. It is very dynamic.

We are all thrilled by Major Cooper's flight. Four years ago Cooper's flight would have been impossible from the data processing or computer side of the industry. We simply did not have the tools. Two years ago they could not have had the 33-hour orbit. It has been in just about the last ten months that the communications and fine tools required to do the job have been available. This is indicative of the many kinds of breakthroughs necessary to put a man in space.

Another thing that establishes the need is the supply and demand of the people. By the fall of 1964 there will be fifteen day, two-year programs training data processing technicians. In the fall of 1963, in the State of Washington, there will be eleven or twelve. This is a real stride in meeting the demand for technicians. There is a continual demand in training for others than these people and there will be a need to update thesepeople after they have had some experience in the field. There is now a competitive desire to learn the new technologies. Before, they learned on the job as they could. Now, they want the training to keep them abreast.

As we find an industry such as data processing which requires change in an organization, in schools, and industry, we find that it requires education and understanding at all levels, not how to instruct the use of machines but how to use them the best way. This is one of our greatest problems in the industry--when a system or procedure is developed--to train the users, the manager, or clerk, that this is a different method of doing things. We

resist change. Change can be resisted a little less with an education and understanding. These are three of the major points of the establishment of a need for such a program.

Where are we? The majority of the schools represented here have some type of a course in data processing training now in their extension programs. I have not met everyone here, but the schools which have day programs have had heavy demands on the instructor, who has to work only twelve hours per day, to come in in the evenings and present the programs. Others have started, others will start. I see some of you have started the programs last fall and we discussed the interest of the local industry and local community to get the data programs started in the evening. There are many programs here in the State of Washington. Anywhere we have a community college or facilities for data processing, or the desire, there is some type of extension program.

A new technique in industry today in which they use the computers in complex problems and not in the minor problems, is critical path scheduling. It is formal enough to force people to plan what they have to do, to determine what should be done first. You feed the whole thing into a computer and come out with which items are on the Critical Path. These are items that, if delayed a day, delay the whole project. This is one of the things that can be very helpful.

Comprehensive programs I think are best represented in the extension program by Renton's cooperative program with Boeing. I've seen their brochure and it is designed to meet a specific need in the community. I know the plan for next fall at Clark College is a management seminar...purely, what can I expect as a top manager out of data processing? Not how or why, but what does it mean?

What courses should be taught? There definitely should be introductory courses at different levels by need. We have people who are going to be using the output of data processing and they simply need to be familiar with what can be done, how it's done so they can understand where the results come from and if they are dissatisfied with what they are getting, they can intelligently discuss it with some of our data processing people who are occasionally a little hard to communicate with. They talk in "Fortran" and some of these strange terms, and the users need the introductory courses. We need specific introductory courses for all levels of management and operation. These are exemplified by the thing that is going to be for top managers, by invitation, at Clark College; by programs recently carried on at Olympia High School evening programs. In previous years it was general, this year it is more specific, an introduction into stored programing in the new generation of computers. There's various levels here and you must, in your area, determine needs. There isn't a total sequence to it, but you will present what you need each semester as the needs arise. We will call this type of course "What is it?"

There is now a definite need for sophisticated advanced courses. Title this, "What Else?". These are things that take a strong fundamental knowledge of basics in data processing before you get into it. I'm going to use some terms to describe these courses, some of you may not understand and which I will not take the time to explain...."real time systems", "matrix theory systems", "decision tables", "simulation", "models"; these are things that people who want to do a better job want to know about. These things a few years ago were blue-sky concepts by a few fellows in sweatshirts, sneakers, and crew haircuts. Today they are real worlds and in operation many places. I have had enough experience; I think I can describe them now and talk

somewhat intelligently about them. I have some applications underway in most of these areas. It means understanding, it may take the workshop approach.

Updating courses - what's new? Scanning - document origination - teleprocessing - elements of process control....all new.

You will need, as the area demands, the "how" courses to train the technicians. You need the demand for it by teaching the "what" courses. Endeavor to teach not only what is needed, but also what will be needed. Pick out the leaders, find out what they think they need, train for this, and you will then have a pre-trained work force within the organization to do the job. This is ideal.

Engraved on the steps of an educational building in New York City, are words attributed to our first IBM president, Thomas Watson, Sr., "There is no saturation point in education".

DESIGN TECHNOLOGY

Training Conference - Sweptwing Inn - May 17th Art Binnie

Recent figures indicate thirty percent of the high school grads in King County go on to get their college degrees and seventy percent enter the work force. Does industry and business find this seventy percent ready to assume work responsibility and advance? On the most part, No! Employers find these young people intelligent, alert, and eager to please. But our education system has not prepared them for the changing environment into which they have been cast. Non-skilled jobs of the past are dwindling, while requirements for technical competence are increasing. Still these young adults do find employment and the problem becomes - "What can we do to insure their job security and chances for advancement?"

Design Technology offered at Renton Vocational-Technical School is an attempt to help solve this problem. We recognized two years ago that perhaps we, the Vocational-Technical educators, hold the key to success for many of these young people. All we must do is turn it. A good place to start may be in the long-range evening extension programs such as Design Technology.

So,let's take the next few minutes discussing the Design Technology Program. I would like to take you through its development stages from conception until present time operation. The problems we encountered developing this program may be typical to many you might run across developing a similar program.

First, let's set the stage. Design Technology Program is a cooperative effort between The Boeing Company and the Renton Vocational-Technical School. My part in this program has been as a Training Coordinator working for The Boeing Company. This program started about January, 1961. At that time we were entering the first stage of many sequentially planned courses of study. This is a stage you would be faced with if, tomorrow, you started planning a long-range extension curriculum.

Perhaps in the case of Design Technology, determination was somewhat unique. About one-half of a million dollars. During the last five months of 1960, Boeing had spent approximately $480,000 training 240 non-skilled people to become beginner draftsmen. For the most part, their background amounted to a high school education. During the year 1961, Boeing planned to train twice that many people at the cost of about a MILLION dollars. WHY? Why couldn't we recruit technically educated people to all these positions? Were the newly trained draftsmen capable of performing the drafting jobs available? Would these people need additional education to permit them to advance on the job? These are some of the questions that stimulated the Training Unit into action. Our determination resulted from numerous meetings with many people engaged in the employment of draftsmen at Airplane Division. We talked to the Employment Supervisor, Engineering personnel, Engineering supervisors, draftsmen, and Engineering aides. An analysis of the information gathered revealed the following:

1. People trained to perform duties of engineering draftsmen were not available in the Seattle area. There were not any ECPD accredited technical institutes in this area, nor were there related industries from which to draw.
2. We discovered that projecting into the future, additional skilled draftsmen and engineering aides would be required. We based this premise on two things: the national need figures, and changing college curriculums. In relation to the latter, our experience with new graduate engineers predicted that more and more they were becoming engineering-scientists rather than product engineers. Many of the jobs which were completed by product engineers in the past would be handled by draftsmen in the future.

3. Our research also revealed that draftsmen and engineering aides, already employed, require additional education to prepare them for advancement.
4. From our discussion, it was evident that we had determined a two-fold need.
    1. Employment was available for people adequately trained as draftsmen and engineering aides.
    2. People presently in this field needed additional education to advance on the job.

So we have arrived at step two - APPROACH. Decide an approach towards fulfilling the need. We made an analysis of the training presently available in the area to determine whether any program satisfied the need or could be modified to fill job requirements. We did not want to start a program where one was already in existence.

Colleges had many candidates we would like to have hired. Specifically, those who had completed two years of engineering, but experience shows that if we hired those students they would be back in college seeking their degrees within a year. This is as it should be, but the colleges were not providing Boeing with draftsmen.

5. We looked at college extension courses as a source and found that students in attendance were already employed. Still, these extension courses perhaps filled part of our need, that of additional education for existing employees. A closer look, however, revealed that many could not attend because of the inconvenience due to location and the high cost of tuition. Therefore, the colleges did not fill the bill.

Our search for a solution to our problem caused us to look closer at our local extension programs. Seattle area had many, we had one right

in Renton, Mr. Anderson's extension program. Costs were reasonable, approximately $7.00, and a person could take almost any course in the world. But the courses offered, although they were good, were of a 'shotgun' pattern - they were not tied together. The student took whatever he wanted - drafting, calculus or airplane systems. When he completed one class he went down the list and took the next one that looked interesting to him. He had no one helping him plan. We found no extension programs producing a student product that filled our needs.

Finally we reviewed technical institutes and found there were many good ones in the United States. Some of these did have programs that produced a graduate student ready for employment as a professional draftsman. Even though Boeing would have liked to have hired their graduates, we found that they were not available. The graduate technical institute student usually found employment in his own area.

Existing training programs, except for many technical institutes, did not seem to produce the product we were looking for. The door was open for development of a curriculum which would prepare a person for employment as a draftsman or engineering aide. It was decided our approach would be along this road and would parallel the technical institute concept.

The most important phase of the whole program had now arrived. The first decision to tie down was where we were going. Perhaps you have heard the story of the sea horse seeking his fortune. He had the same problem. (Story: Sea Horse)

6. As previously stated, the purpose of Design Technology was two-fold.

   1. To prepare people for employment as draftsmen/engineering aides.
   2. To provide personal development opportunities for those already employed.

To accomplish this purpose, we really had two levels of education:

1. Beginner draftsmen level. A person who on completion has mastered the basic drafting skills and theory and had a high school background.

2. Design draftsmen/engineering aides level. On completion, one who has all the skills and knowledge of the beginner draftsman plus a full background in applied mathematics and science which he could apply to the solution of engineering problems.

The best approach seemed to be to fulfill both purposes with one curriculum, hoping, of course, that students who enrolled in the program would become beginner draftsmen prior to completion of the entire course. Then, they would have on-the-job experience, plus continue their education for advancement. Our final course purpose read this way:

Course Purpose:

Technical in content and designed to prepare people for and upgrade them in technical occupations which do not require graduation from a four-year college. Especially prepared for engineering draftsmen and engineering aides.

Course purpose gave us general direction. Curriculum objectives - would put on a more fixed control. However, additional information would be required before we could write firm objectives.

7. We set about determining what knowledge and skills were required by draftsmen and engineering aides. We gathered this information on knowledge and skills and compiled the information on a Requirements Analysis form. (Show sample) This information was procured from two sources: The Boeing General Salary Classification Book and job supervisors.

The classification book provided detail job requirement breakdown on each job title. It might be interesting to note that there were twenty different engineering aide classifications and five drafting classifications. Each job title was listed on the requirements form and in a column provided for that job, knowledge and skill areas were checked accordingly.

After compiling the requirements form from the job description sheet, it was taken to job supervisors for review. This is necessary because what the man is actually doing does not always agree with the job description. When we had completed our supervisory review of the requirements form, we had a good picture of the curriculum objectives.

Our Design Technology objectives were now stated in this manner: Upon completion of this course of study the student will be able to apply the principles of mathematics and science to the solution of engineering problems. The successful student will also demonstrate his skills in the use of the slide rule and drafting instruments. He will be able to produce working engineering drawings per industrial standards. Successful completion will be determined by satisfactory problem solution and examination. Problems and examinations should relate to typical industrial examples whenever possible.

With these objectives we now had a fixed direction and we entered our next stage - Development. From the requirements analysis form determination of our curriculum and electives were made.

The Design Technology curriculum consists of eighteen required courses and several advisable or optional courses which were selected on the basis of the job one was preparing for. (Pass out)

When the curriculum was complete, we had it reviewed by those who might employ students from such a program. Each time we asked the potential employer, "Would a man completing this program be able to do a better job?" Finally, when we had concurrence, we were ready for detail course development.

At the time it appeared the best approach was development of a complete curriculum package. That is, a package that contained a course essential data sheet, syllabus, lesson plans, etc., for every course in the curriculum. Using this approach, we soon ran into road blocks. The training coordinators did not have the knowledge to prepare lesson plans in the many subjects offered. It was soon apparent that preparation time and cost would be tremendous. An attempt to get extension course instructors to prepare material far in advance proved fruitless. Instructors were reluctant to spend time without compensation preparing data for a course that might not materialize or for one which was two years away from implementation.

At this point a new approach was decided on - piece development. Since we were unsuccessful in our attempts to develop the whole program, why not develop it in pieces, a quarter at a time. If enrollment in the first quarter proved successful, we would continue development until we had the whole program complete. With this in mind, who do you suppose developed the lesson material? The coordinator? No. The instructor? Partly, but not by himself. Actually it was a coordinator-instructor combination effort. The instructors we found were masters of the subject matter and had much industrial experience in their background, however, they lacked experience in technique of teaching, which handicapped them in the preparation of course material. The coordinator could provide assistance in this area, so they worked as a team. The coordinator providing the techniques of instruction and course preparation, the instructor providing subject matter knowledge.

We had four courses, we had four instructors. To get the program going we arrive at our next step - Implementation.

In kicking off the program, we used every means of communication we could get our hands on; brochures, which must include both information on the training offered and potential job opportunity, posters in the various industrial firms that would hire our students, and newspaper articles which gave it a big play.

It is important during the publicity period to have a coordinator-counselor on duty all the time. We found that once the publicity was out the phones started ringing and it seemed as if they never stopped for several weeks.

Finally, after the publicity, we were ready for the final and most important phase - Operation.

A program needs only four things to go into operation: 1. Coordinator-Counselor, 2. Instructors, 3. Facilities, and 4. Students. Each has a part in making the program successful.

The coordinator must indoctrinate the public and industry on the purpose of the program. He should assist in the pre-testing periods. He should provide counseling for the students. The coordinator must guide and administer the over-all program and give assistance to the instructors.

We are all familiar with duties of the instructor. Proper selection of instructors is very important. He should not only be a master of his subject, but should have an interest in, understanding of, and stimulating effect upon his students.

Facilities, which most of us have, we most often neglect. Learning is easier when administered in a proper educational atmosphere. Furniture must accomodate adults and the environment should be conducive to education.

Art Binnie

Finally, students, and numbers seem to be the key. If we can enroll a large enough number with the proper aptitude and background, any program can be a success. Our experience at Renton showed a very heavy dropout rate. (See chart) This could be contributed to many factors. The two most important items that may eliminate high dropout is proper pre-screening and motivation.

There are many more problems, but, in essence, this is the story of Design Technology.

Suggestion: Remember the key

D A D I O

Determine the need

Approach - find the approach to fulfill the need

Development

Implementation

Operation

SECRETARIAL

Training Conference - Sweptwing Inn - May 17th

Donna Barnes

My experience in developing a sequentially-planned program is not very vast. After listening to Art's presentation this morning and comparing my very singular experience with it, I think it might even be considered half vast. However, I am willing to share what I have done thus far with you.

Approach

In determining my approach, two fundamentals were considered essential: industry requirements and professional requirements. So first of all I had to pinpoint just what it is that industry needs in a secretary. I am aware what our own company needs, how we hire, how we test, and what our promotional channels are in the secretarial areas, as well as, more generally, what other businesses here require. Further, I am aware of professional standards through my own study, research, and activity in the secretarial field. So it was a matter of matching these two requirements to come up with a practical program.

There is a need for more and better-trained secretarial workers. A NOMA report of last year very forcefully stated the continuing requirement for stenographic and business workers in our area. We know this need exists all over the country, not just in Seattle or in The Boeing Company.

Program

The career series that I have developed is for the beginning secretarial worker and is, of course, just one segment of a school's business curriculum. The chart you have (see attached) gives a bird's eye view of my program. It is to be given "off hours," that is, not on Company time. Each of these 10 courses is intended to be 72 hours in length, to be given 2 nights a week, 3 hours each night, and the course would be 12 weeks long. The legend in the lower right hand corner names the course title, lists the prerequisites, and

states the content or objectives. I had to ask myself, "What is a sequentially-planned program anyway?" I'm not sure this is one, but we'll say that it is, as I presume that if there is a pattern of progress it becomes a sequentially-planned program. The heavy dark lines show the progression upward in the three major areas of study: typing, shorthand, and English.

The terminal skill is transcription, for the Transcription courses are prerequisites in typing and shorthand at specific speeds as well as completion of English Refresher, or as I refer to it, the 'bonehead' English course. You know, we start a lot of composition courses but find we have to teach punctuation, capitalization, and spelling before we actually get into composition. So I feel 'bonehead' English is a prerequisite to Report Writing, Letter Composition, Written Communication, and Transcription.

I am sure you will be very familiar with the requirements and speeds stated in the typing and shorthand courses. We hope to get the advanced students in typing between 50 and 60 words per minute and shorthand students up to 80 to 120 words per minute by the third course.

Boeing Office Practices is not exactly a terminal skill. It is a course the girls can take any time along the way and may find extremely valuable to their performance in any job. It has no prerequisites. Subjects included are Boeing office techniques and procedures, centralized office services that are available within the plant, appearance, attitude, review of business math, and a lot of applied business principles in Boeing, such as economics, accounting, business law--principles that we can see working in our every day situation.

There is nothing new, novel, glamourous, or secret about any of these courses when you compare them with some of the newer knowledge you are

talking about this morning, such as data processing or electronics. Certainly these secretarial subjects are a lot older. We have had typewriters around for 75 years and there has been a lot of method developed. There is nothing new about the typing and shorthand classes except perhaps including the preparation of masters on vellum, ditto, and offset plates. We do not stress stencil preparation whatsoever. I think your teachers themselves will get the greatest benefit from this nutshell picture.

Factors of Development

First, we want to get a lot of people in these classes, so the program is designed to appeal to three types of students: (1) The completely unskilled person, perhaps the clerk in the office or factory who has never had any shorthand and typing. (2) The one who has had some skill, perhaps some typing in high school, perhaps English too, but aware that she also needs shorthand and transcription. This series will give her a firm and specific goal that she can reach in becoming a good Boeing secretary. (3) It is also designed for those who are skilled; many wish to review or refresh their skills or recognize a weakness in their capabilities. They too can benefit from several of the courses in this program.

The three fundamental areas are, as I stated, typing, shorthand, and English. There are a lot of people who feel that typing and shorthand are all they need to become a good secretary, but I feel that English shares equally this important position. These are basic to the beginning secretary. There is a lot more needed for top level secretarial performance, but we are talking today about the one who is just entering the field.

Also fundamental to development was knowing there needs to be a reward or recognition for entering this program. A 72-hour course is a lot of work. So is ten 72-hour courses. Well, we have a training report designated for the

personnel folder of the individual taking the course. This is important to the employee. Also, a passing grade at each level of skill is prerequisite to fulfilling a specific job. You will observe on the left-hand column of this chart we have listed Job Level. Beginning Typing and Beginning Shorthand are considered basics, a level of skill developed which is not yet employable. However, up to the next level of Intermediate Typing and Intermediate Shorthand, they can become employable in those jobs listed. For instance, if they pass both their typing and shorthand, they are employable as a Steno B. As a Steno A, we feel they need passing in the next three courses, Advanced Typewriting, Advanced Shorthand, and English Refresher. Then passing the top three, Boeing Office Practices, Transcription, and Letter Composition, will get them in the Secretary C rating. The Secretary C rating is the lowest of four secretarial ratings at Boeing, so they know they can progress upward from there. The salaries you might be interested in knowing because this dollar business is very important. Grade 10, a Typist B, is around $328; Steno B, $353; Grade 8, $379; Grade 7, $405. These are beginning salaries in each of these grades at the present and the high secretarial rating goes up to around $575 per month. They say money talks--with me, it only says, "good-bye"--but it is a strong motivational force, the fact there is more money to be gained by gaining a higher classification.

Another factor, too, that was important to development was the fact that our Transfer Desk is willing to take the top students in these courses and see that their folders go out for review. Their folders will have immediate consideration by those people who have an opening. We think this is a great step forward, a valuable promotional channel for the employee and another strong motivational device.

Basic to each of these factors of development is the fact that each of these courses is ratable. Rather than merely a "complete" or "passing" or "incomplete" being the ultimate grade, students will earn "exceptional," "very satisfactory," "satisfactory," "marginal," or "unsatisfactory." Definite criteria for each grade has been determined. The amount of time and effort required by the student warrants more work on the teacher's part than merely a "passing" mark.

A final factor of development we recognized is the fact that most of our students are going to be women, and we women do have our special problems. Most of the students will be working full time and have problems attendent to child care, husband care, suppers to cook, and so forth. Some may or may not be the sole or key breadwinners in their homes. One may have a son home from the Army for four weeks when she will not be willing to go to class. Others may get snowed under by the summer or Christmas holiday and not want to get involved in school. So our sequencing has been designed so she can pick up in any one of the three main circuits at any time. For instance, we may have a student passing Beginning Shorthand who finds she must miss taking Intermediate Shorthand with her classmates. When she is ready to go again, there is not enough other students to make up an Intermediate class. Hopefully, there will be a class in the English or typing sequence she can take, or even The Boeing Office Practices. We would like to have <u>some</u>thing for her once she is in the mood for school. At any rate, the program should provide mobility for the student and, of course, make it a bit easier to administer.

In this program one does not have to take all ten courses in exact sequence or wait for two years before it is offered again to continue. If a young lady is able to go to school four nights a week, she would be able to

finish the entire series in a year and a quarter. However, we feel that most people will take a lot longer; some may take three, four, or five years to complete it. Mobility and tractability are two of the most attractive features in the series.

Development Work

I notice the Design Technology course is well into the operational phase. Our Secretarial Career series has not yet reached the implementation phase. So far, what has been done is to satisfy our internal requirements for course development. Therefore, for each of the ten subjects has been accomplished the following: (1) The course description has been written; this is essentially the catalog description. (2) Secondly, the course objectives are clearly defined. I was happy to have read Mager's book on programmed objectives, for all our objectives are now stated in measurable terms. Students must be able to do specific tasks, to know certain data, and to be generally familiar with certain other information. (3) The teaching plans have been written. This includes the complete subject outline, how much of text is covered, and the timing--how long we should spend on each subject each session. (4) The material lists are complete. This lists the texts, the aids, the passouts, the tests, any course material. All these are listed on one piece of paper for each subject so a teacher can pick it up and know what he is going to be working with throughout the entire course. (5) All the materials are ready to go. I should say that at least one of everything is available. (6) Equipment requirements are stated. (7) The rating and grading standards have been established in all courses. The tests have been designated or written, with the exception of the final in English Refresher, which I hope to do with the teacher. (8) The prerequisites are

established. We know there will be some pre-testing and some counseling required. (9) We have also determined our evaluation methods. I would like to spell "DAMO" with a final "E" because after Operations does come Evaluation. Our particular evaluation will be interviewing the students themselves, interviewing their bosses, and hopefully sitting in the classroom and auditing some of the classroom instruction.

This program has not been tried. Though I have my moments of doubt, I do have a great deal of confidence because of the way we went about developing it. Edison Technical School became my fountainhead of information. I literally lived there for several days and I know Mr. Toomey and Mr. Weber were probably tired of seeing Donna because she was always borrowing something--teachers, or books, or office space, or something. I selected texts from the sources they had. All texts are at the college level. (There is no text for Boeing Office Practices.) I wrote most all the plans down there. More important, I spent a lot of time with the teachers. As Art Binnie pointed out, teachers are a very important factor because most of them know their methods so very well. But we also have to get the applied technology into our courses and this is one of the things I was trying to do. We do expect to have a little different kind of student in our series than might enter Edison day classes, so the content was changed somewhat from Edison's. But they are essentially based on their courses. The ratings will be a little different from theirs. The materials are, I would say, 80 per cent from Edison and we are very grateful for their support.

There is no doubt about it that nine of these ten courses could be taught by a good teacher knowing methods in a vocational school, in a college, in a high school, anyplace. The Boeing Office Practices will be very difficult

for the regular teacher in the school system. In fact, I don't think we can find any one person who can do it without support from outside lecturers and Company specialists.

Future Plans

Our plan for beginning this series is next fall. I learned one thing this morning already; we're going to have to install some additional phones for a while once the publicity is released. It's indefinite just when that will come about. We will be working with Holgate School and its branches and we are anxious to get started.

We do have another plan, too, beyond this--one for more advanced secretaries. Bob Albin, of our Aero-Space off-hours organization and my leader in this project, and I have been talking about a CPS Coaching Course. This is another goal-oriented program that may or may not be sequentially planned; that will depend upon how intensive a course is decided upon. This coaching will be preparing the girls to take the Certified Professional Secretary's examination. The exam covers six study areas: business law, accounting, human relations, office procedure, business administration, and skills. I feel our Transcription course in this series may fulfill the requirement in skills. There is a lot of increased interest in the CPS program, particularly in our Company. At least half the girls who took the exam in Seattle this spring were from Boeing. I know they've offered CPS-oriented courses in our Renton area; they're developing courses in the Wichita area; so I'm sure that we are going to have to get aboard also on a CPS coaching program.

There is at least one thing I know about public speaking, although it may not be obvious here. That is you have to stand up to be seen, speak up to be heard, and shut up to be appreciated. So, Mr. McKee, over and out. Thank you.

SECRETARIAL

Training Conference - Sweptwing Inn - May 17th Shirley Stahl

As Bob explained, my major function is that of traveling the Northwest, working with business people, training directors, and personnel managers and trying to analyze the strengths and weaknesses of their employees and their specific needs for training. From this background we attempt to tailor a program to meet these needs. I might add that I am somewhat a misfit in a sequentially planned curriculum group because our programs are not of that type--we are working with one group today and with another one tomorrow.

The workshop approach which we utilize could be adapted to the vocational schools. I have talked with many girls who are working or looking for jobs in the Seattle area who have taken courses at Edison and who have said that this could be a logical place for shorter, more intensive programs. I am not certain that I agree this is always educationally sound since many of the skill areas require a longer period of time to perfect good habits, and our programs are relatively short.

The one that we feel is most helpful to stenographers, typists, and secretaries is called a Three-Hour Proficiency Program. This is not directly translatable to your classrooms because it has a different and very specific objective, that of preparing a group of girls to do specific jobs in a given company, but it could be adapted so that it would be helpful to a more general group of workers or those looking for work. We like to think that our field is changing and growing just as are some of the more technical areas that you have already heard about today. There are many knowledges that have not, so far, been passed on to students because of limited time. Upgrading programs are needed for those who are returning to the field after an absence of several years.

In a typical situation we might go into a company and find that they are installing offset presses for the first time. For the average typist who is over 30 there is a likelihood that she is unfamiliar with this process, since it was introduced after she completed her education. With a lack of knowledge, poor quality work can result. Her work could be perfect from an accuracy standpoint, but the quality of the completed work returned to her can be disappointing. We would take this application, we would go through all of their forms, all the specific typing jobs in that one company. Then we would arrange for a typewriter to be used by each typist during the training program. Finally, we would train these girls for more efficient manipulation of the machine they use on every application.

It is a rather sad fact that most of us who are working or have worked as secretaries have not developed a skill beyond that which we had when we left school. It may regress rather than progress, and so as an integral part of the program we give them skill-development exercises to work on every day. We give them actual practice and ideas to carry back to their jobs. This is quite a bit to cover in three hours, since it might even include a transfer from a manual typewriter to an electric. Businessmen will acknowledge that training is expensive, but that no training is ultimately more expensive, and we are attempting to make their employees more efficient and to do it as economically as possible. In a vocational program in the adult schools the course in electric typing usually runs for at least a full semester. I think this accounts for some of the drop-out rate. Many potential students would appreciate a shorter, beefier course.

We do a One-Hour Proficiency Program which, frankly, we have been trying to phase out of for three or four years. It is a straight lecture

program which could be integrated into a secretarial practice course. Sometimes it becomes difficult for students to apply the academic to the practical, and this seems to bridge the gap. There is nothing new, magic, or remarkable about the things we talk about in this one-hour program. We go over basic techniques and remind them of their importance. We explain ways of making better erasures. I find that in some areas, although this has been covered at the high school level, some girls still erase in a haphazard fashion and turn out poorer-quality work as a result of forgetting some of the things they have been taught, such as erasing with the paper grain.

We go over the reproduction processes they are using--stencils, spirit fluid, or offset--we review typing shortcuts, we impress on them again the importance of good typing techniques, and we give them an opportunity to ask questions on specific typing problems. This could be fit into one evening session in regular vocational classes.

We do another type of program for transcribing machine operators. This varies in length from two to five hours and includes a review of transcription techniques, methods of processing incoming and outgoing mail, typing shortcuts and special applications, again specifically oriented to the customer's business.

We also offer a course which is not for secretaries but which has a very definite place in the vocational curriculum. This is a new one which you might want to consider, a training program for men who dictate. I have worked as a secretary for many years, and now in working with men who are learning to dictate I find that many of them still are doing a poorer job than they are capable of doing. The difference between performance and potential is largely a matter of education. I have found surprising interest

at the secondary level in offering a course in dictation techniques. A number of schools have asked for information on it. One high school in my territory this semester offered a one-semester course for senior boys in "How to Dictate". This is tied in with a business communications course. In this particular school district last year 83% of the graduates were college bound. They feel that most of these boys eventually will return to the local business community and will require the skill of dictating. They feel this is also an excellent device for stimulating thinking, preparation, and organization abilities for writing term papers and reports in college courses over the next four years.

Before the session started this morning I was telling Carol McKee that I walked into a customer account some time ago where there was something of a problem. They had standardized on a given type style many years ago and wanted type on all the typewriters to match. Now they are doing new applications, for which this is not the best type style. New girls coming in did not realize what the problem was--that you must compensate for the type design characteristics in some way. The quality and quantity of their work was unsatisfactory. After doing the training program and showing them that since this type style had been selected you must do thus and so to compensate, things worked out very well. This is an area that has not been taught, and there is a need for it. Certainly one logical place is at the vocational school level. I have been trying for several weeks to come up with a rough basic outline. When I have time to finish it I would be very happy to discuss it with any of your teachers who might be interested. It would include the importance of type styles for certain applications, the "how" of choosing supplies, ribbons, carbon paper, paper, etc. (because often the secretary is

expected to be able to choose that which will do the job best for her), the compatibility of letterhead and letter style, new techniques of preparing copy for reproduction, etc. These are areas not presently taught. One teacher with whom I spoke about it said, "Well, quite frankly, I didn't learn it when I was in school and I think this is why I don't teach it to my students." This could very easily be set up for a course lasting six weeks in the evening program.

There is such a wide variety that needs to be taught for the girl that we hope ultimately will try the CPS examination. And there are other areas where we are not able to help you, where we lack either time or talent for the training. One office supervisor asked me last week, "When will you come back and teach our girls to be motivated?" See what I mean about being unprepared to teach it?

I think communication skills should be part of every course, a major part of it. Secretaries need to know how to use reference materials, to read, to write, and most of all, to listen. I read the other day that a dieticians' association survey found that their members considered that listening was the most important communication skill, and by a large majority. You may have read the same thing--the average person coming out of high school today, without special training, comprehends only about 25% of what he hears and that it takes a formalized training program to bring him up to a reasonable level of listening comprehension. We need to spend more time on vocabulary. This is the most difficult area for secretaries on many employment tests, and the one that disqualifies more candidates than any other.

There are so many things that have not been put into the secretarial training programs or have not been given the amount of coverage they justify.

Shirley Stahl

I am delighted that we are having expandable vocational programs in the state. They are very much needed. If they are offered, you will find a remarkable turnout of students. You will find the quality of employees going up, you will find the quality of work turned out in offices will go up, and ultimately the cost will go down.

I wish you well in developing your sequentially planned programs. If we can help you at long range, we will certainly try with our workshop approach. Thank you.

ELECTRONICS

Training Conference - Sweptwing Inn - May 17th. Gil Zuerlein

My subject is curriculum development for electronic technology (see fig. 1). In this presentation I will describe the methods, forms, and diagrams used for curriculum development by our Electronics Committee at the Auburn Adult Education Center.

In the manual, Electronic Technology, that I have placed at each of your tables, you will find the Area and subject objectives, course objectives for Electronics I, objectives block diagram, sequence chart, suggested day schedule, course tree, and Occupational Analysis Chart.

Mr. John Blake, then Director of Adult Education, assigned me to work as coordinator of Electronics and Chairman of Electronics Committee. His direction was to develop the best electronics training available anywhere. This assignment is really job security--because of the development of new materials and techniques, and the constantly shifting emphasis on different electronics systems in the local area, the curriculum requires constant revision.

Our present method of curriculum development is the result of several less successful attempts. In the first method we used only OE-80009 - Electronic Technology, as a guide. We found that the scope and level of the local electronic requirements exceeded the courses in this manual. Also, we felt that we could not take the beginning student, with a limited background in physics and mathematics, to the engineering technician level with this limited number of courses.

In the second method we used OE-80004 - Electrical and Electronic Technology, and OE-80009 - Electronic Technology as guides, and the course tree (see fig. 5) to assist in increasing the level and scope, and cataloging the courses. By using the course tree we were able to make a better analysis of our training; we identified a core of electronics courses (see section II of fig. 5) that would remain unchanged for relative long periods of time, and within this core we identified three levels of training - Principles, Theory and Application, and Analysis and design.

However, we still had a major problem. After we had identified about twenty courses, we found that determining the course level and selecting its place on the tree became too arbitrary.

The third and present method was suggested after a review of two recent publications -- OE-80015, Occupational Criteria and Preparatory Curriculum Patterns in Technical Education Programs, prepared by Maurice W. Roney, and Preparing Objectives for Programmed Instruction by Robert F. Mager. Implied in these texts, and adopted as a basic concept, was the idea that the curriculum should be completely defined and limited by objectives. So, in addition to the forms used in the last method, we added the objectives block diagram, area and subject objectives, and changed the format of the course objectives.

The objectives block diagram (see fig. 3) functions as a visual aid, assisting us to divide the curriculum into logical sections for which objectives can be written. By this method we identify three levels of objectives each with a major function, and when considered together completely define the scope and level of training.

The Area objectives (see Example 1) function to define the scope of training - Mathematics, Physics, Communication, etc. These objectives are the five General Abilities taken from OE-80015, and are well-suited for this purpose because they represent the common requirements of any technical training.

The function of the subject objectives is to provide the proper transition from the area course objectives. Thus the wording of the subject objectives must reflect back to the Area objectives and forward to the course objectives. The contents of the subject objectives are determined by comparing the Area objective and the job analysis. By this means the Area objectives, which represent the national needs, and the job analysis, which represents the local needs, are combined to produce the proper balance in the curriculum.

The main function of the course objectives is to define the level of training and the scope of the specific course. In addition to the above functions they also communicate to the student and the instructor the terminal behavior expected and the criterion of acceptable performance. (See fig. 4 and Example 2.)

These methods, diagrams, and charts were developed by our Electronics Committee for the following purposes:

1. To structure the analytical process for developing the curriculum in accordance with national and local requirements.
2. To record the results of the job analysis in a format that would be most useful to those persons who will be responsible for planning, development, evaluation, and revision of training.
3. To provide valid technical information on which to base evaluation of training materials and student and instructor performance.

Next, I would like to identify our Electronics Committee, show the functions they performed and sequence we followed in curriculum development.

Our committee consisted of the Electronics Coordinator, who served as chairman, and three outstanding people from industry, each well-qualified in electronics --from Pacific Northwest Bell Telephone Company, Mr. Howard McNeilly; from The Boeing Company, Transport Division, Mr. Lester Mangiantini, and from The Boeing Company, Aerospace Division, Mr. William Moore.

(NOTE: The functional flow diagram (fig. 7) is substituted here for the transparencies that were used in the presentation. Also, the text follows the alphabetical notation used in the flow diagram.)

Preliminary Planning Phase

A. Industry requests training and supplies job analysis, course objectives, or courses of study. However, if these materials are not available and coordination is required, the occupational analysis chart (see fig. 6) will be very useful. This chart will assist both training and industry in understanding exactly what training is required.

B. The Director, after coordination with industry, determines the need for curriculum development. If the development is extensive the Coordinator should be appointed. The direction given by Mr. Raymond Needham, Director of Adult Education at Auburn, included the following functions: assist in securing qualified instructors, coordinate electronic training needs with industry, interview new students, prepare curriculum materials, and serve as chairman of the Electronics Committee.

C. The Coordinator reviews the material supplied by industry, drafts area and subject objectives, draws up a course tree, and then writes the agenda, and schedules a committee meeting.

D. The Electronics Committee reviews this material, considering the scope and level which they believe will best serve the purpose. These recomendations are recorded and objectives modified.

Development Planning Phase

E. The Coordinator revises the curriculum; and assisted by the Electronics Instructor, begins the task of writing course objectives, selecting texts and workbooks, and selects training aids and equipment.

F. The Coordinator then prepares a draft of the training manuals such as you have at the tables, writes the Agenda and schedules the Electronic Committee meeting. This material must be reviewed in detail and may require more than one meeting.

G. Electronic Committee reviews training material, recommends changes where necessary.

Final Decision Phase

H. The Coordinator revises as necessary. He then prepares flip charts or other material required for a complete review by all groups concerned. He writes an Agenda, schedules a review meeting, and sends letters to

industry, the state supervisor, director of training and the Electronics Committee.

I. This group will review and approve the curriculum. The comments concerning any desired revision should be addressed to the Coordinator.

J. Coordinator will review all written comments, determine if changes are required. At this point very few changes should be required; however, electronics change quite rapidly and industry's requirements may have changed slightly.

Very little instructor time has been used up to this point, but from now on the instructor will take a very active part. So at this time an instructor meeting is scheduled. A complete folder of training material should be prepared for each person who will teach.

Course Initiation Phase

K. Instructors review the training package and make recommendations. The training Director should, at this time, assign instructor to each part of the curriculum.

L. The Coordinator and Instructors write the Courses of Study, and the instructors write their lesson plans. At the Auburn Adult Education Center, the courses of study consist of title page, course data sheet, course objectives, course outline, and teaching materials list.

M. The Coordinator will prepare evaluation forms. These will include student critique of class and instructor, instructor reports on students, and industry reports on students working in the field.

Evaluation Phase

N. The Coordinator will summarize and prepare written reports to be used by the Director and the Electronics Committee.

O. Electronics Committee review coordinators' reports and recommend changes. After the major development phase is completed the committee should meet at least once a quarter.

P. The Coordinator will revise the curriculum as needed to meet changing requirements of industry.

This is curriculum development as we see it at the Auburn Adult Education Center. It has been a pleasure talking to you and I hope that you will find this material helpful. Thank you.

Electronic Technology

This training requires an extensive knowledge of Electronic Technology; the scope and level of which should be sufficient to enable the technician to become proficient on specific systems with a minimum of on-the-job training or company training courses. The degree of competency and depth of understanding should be sufficient to enable him to provide direct support to engineers and scientists engaged in research, design, and development of components, equipment, and systems.

Figure 1

Objectives Numbering System

The curriculum objectives are divided into three groups. The first, or Area objectives, include Mathematics, Physics, etc. The second, or Subject objectives, identify the subjects from each Area - algebra, trigonometry, calculus, etc. The third group identifies the particular course under each subject - general algebra, boolean algebra, etc. The decimal number system is used to identify the objectives; the first digit identifies the Area, the second digit identifies the subject, and the third digit identifies the particular course. See example below.

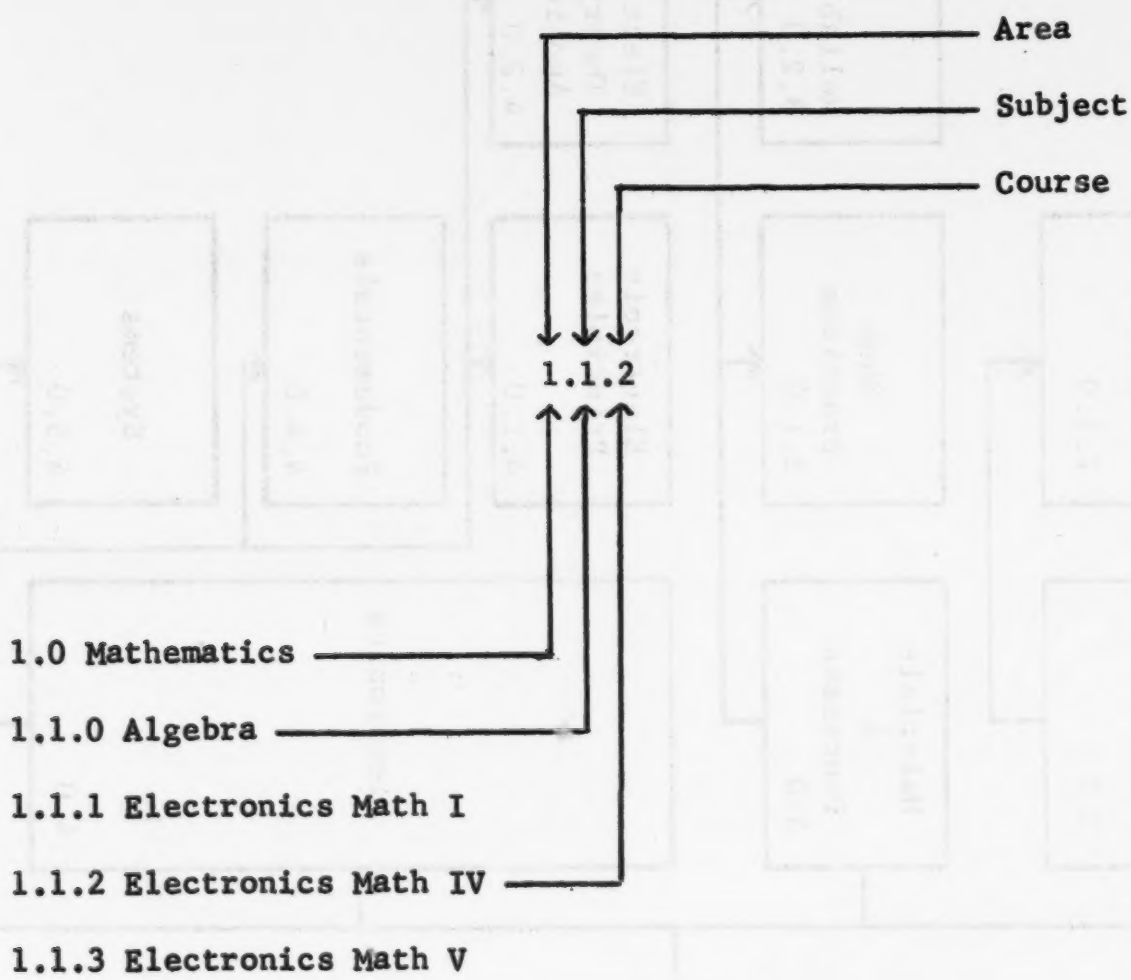


Figure 2

OBJECTIVES BLOCK DIAGRAM

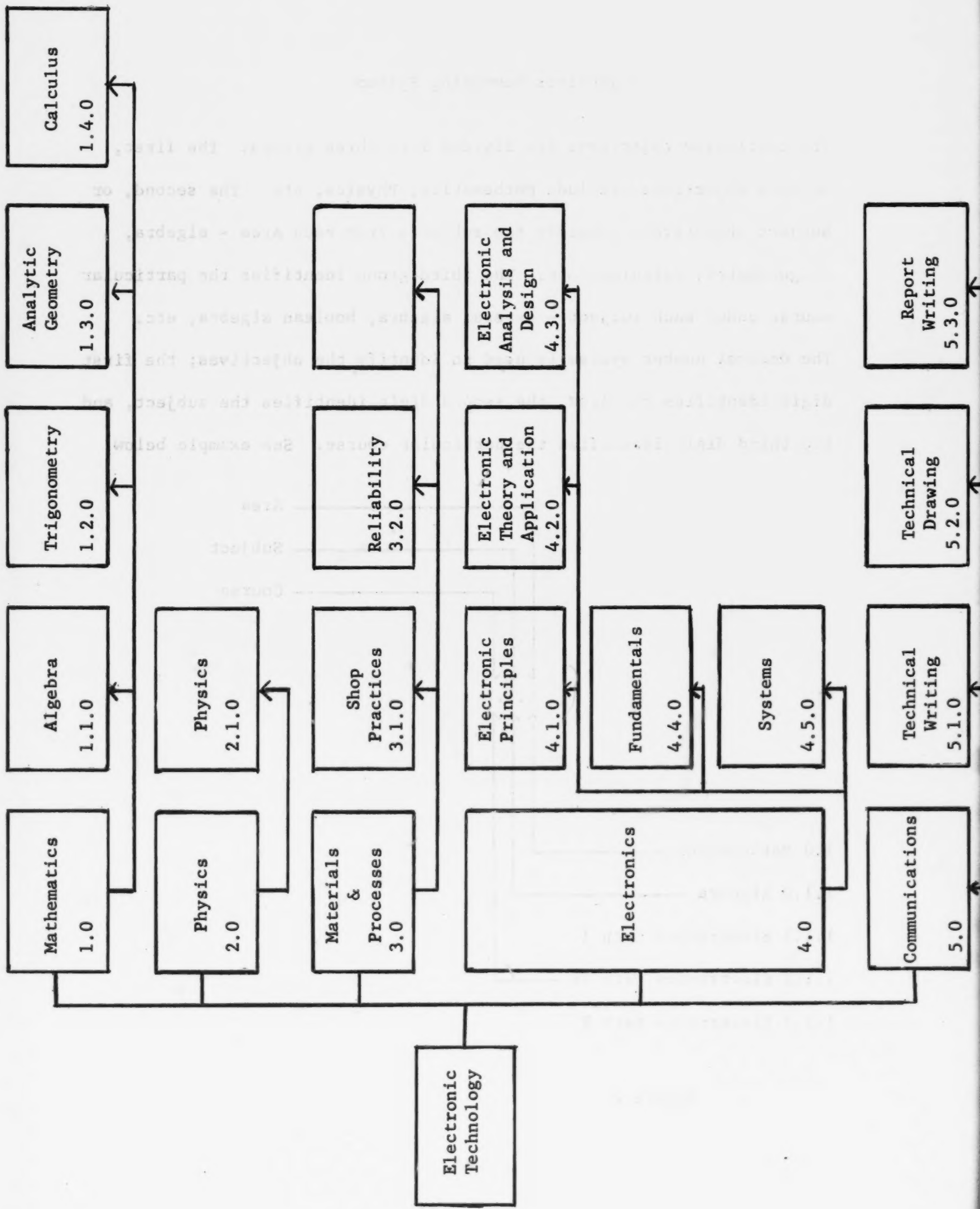


Figure 3

Electronic Technology
Curriculum Objectives

1.0 Mathematics

Facility with mathematics; ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles; an understanding of, though not necessarily facility with, higher mathematics through analytical geometry, calculus and differential equations according to the requirement of the technology.

1.1.0 Algebra

Facility with algebra; ability to use determinant, matrix, vector, and boolean algebras as tools in the development of scientific ideas and the design of electronic circuits.

1.2.0 Trigonometry

Facility with trigonometry; ability to use plane trigonometry and elementary vectors as tools in the development of scientific ideas and the design of electronic circuits.

1.3.0 Analytical Geometry

(To be determined)

1.4.0 Calculus

Understand the concepts of calculus; ability to relate the concepts of differential and integral calculus, and differential equations to the development of scientific ideas, and use limited techniques in the design of electronic circuits.

2.0 Physics and Chemistry

Proficiency in the application of physical science principles, including the basic concepts and laws of physics and chemistry that are pertinent to electronic technology.

2.1.0 Physics

Proficiency in the application of the basic concepts and laws of physics, including mechanics, heat, sound, electricity, magnetism, and optics; limited knowledge of infrared techniques and nuclear radiation measurement.

3.0 Materials and Processes

An understanding of the materials and processes in electronic technology.

Example 1

3.1.0 Shop Processes

An understanding of shop processes; ability to use tools, equipment, and materials in the manufacture, maintenance, and repair of electronic equipment.

3.2.0 Reliability

Be familiar with the techniques and practices required to develop reliability assurance in electronic components, circuits, and systems.

4.0 Electronics

An extensive knowledge of electronics with an understanding of the engineering and scientific activities that distinguish the technology of this field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as detail design using established design procedures.

4.1.0 Electronics - Principles*

A knowledge of the principles of electronics; direct and alternating current circuits, electron and semiconductor devices and circuits. Ability to assemble circuits, and measure and compute circuit values.

4.2.0 Electronics - Theory and Application

A knowledge of the theory and application of electronics; direct and alternating current circuits, and electron and semiconductor devices and circuits. Ability to plan layout and assembly sequence; to trouble-shoot, repair, and maintain electronic circuits and systems; to write circuit explanations and functional test procedures; to perform certification and calibration of circuits using laboratory test equipment.

4.3.0 Electronics - Analysis and Design*

A knowledge of analysis and design of electronics; direct and alternating current circuits; electron and semiconductor devices and circuits; ability to design circuits using established design procedures including nomographs technical papers, and design handbooks; to perform research and development activities in the electronic laboratory including measurement and critical evaluation of circuits; to write procedures and documents for functional test and acceptance of electronic circuits and systems; to write comprehensive reports detailing design and development activities.

4.4.0 Electronics - Fundamentals*

A knowledge of the principles of transistors, digital computer circuits, and industrial electronics; theory and application of transistor circuits, transmission theory, and electronic measurement; analysis and design of telemetry circuits, magnetic amplifiers, servomechanisms, digital computers, transistor circuits and microwave measurement.

*See definitions

4.5.0 Electronics - Systems

A knowledge of radio, television, radar, microwave, and digital computer systems; ability to determine system operation from logical step by step circuit analysis, and to develop a complete system by the proper integration of circuits.

5.0 Communications

Communication skills that include the ability to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing.

5.1.0 Technical Writing

Ability to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing through business letters, presentations, technical descriptions, procedures, and technical manuals.

5.2.0 Technical Drawing

Ability to interpret, analyze and transmit facts and ideas graphically and in writing through pictorial and block diagrams, blueprints, and schematics.

5.3.0 Report Writing

Ability to interpret, analyze, and transmit facts and ideas graphically and in writing through accurate and detailed technical reports.

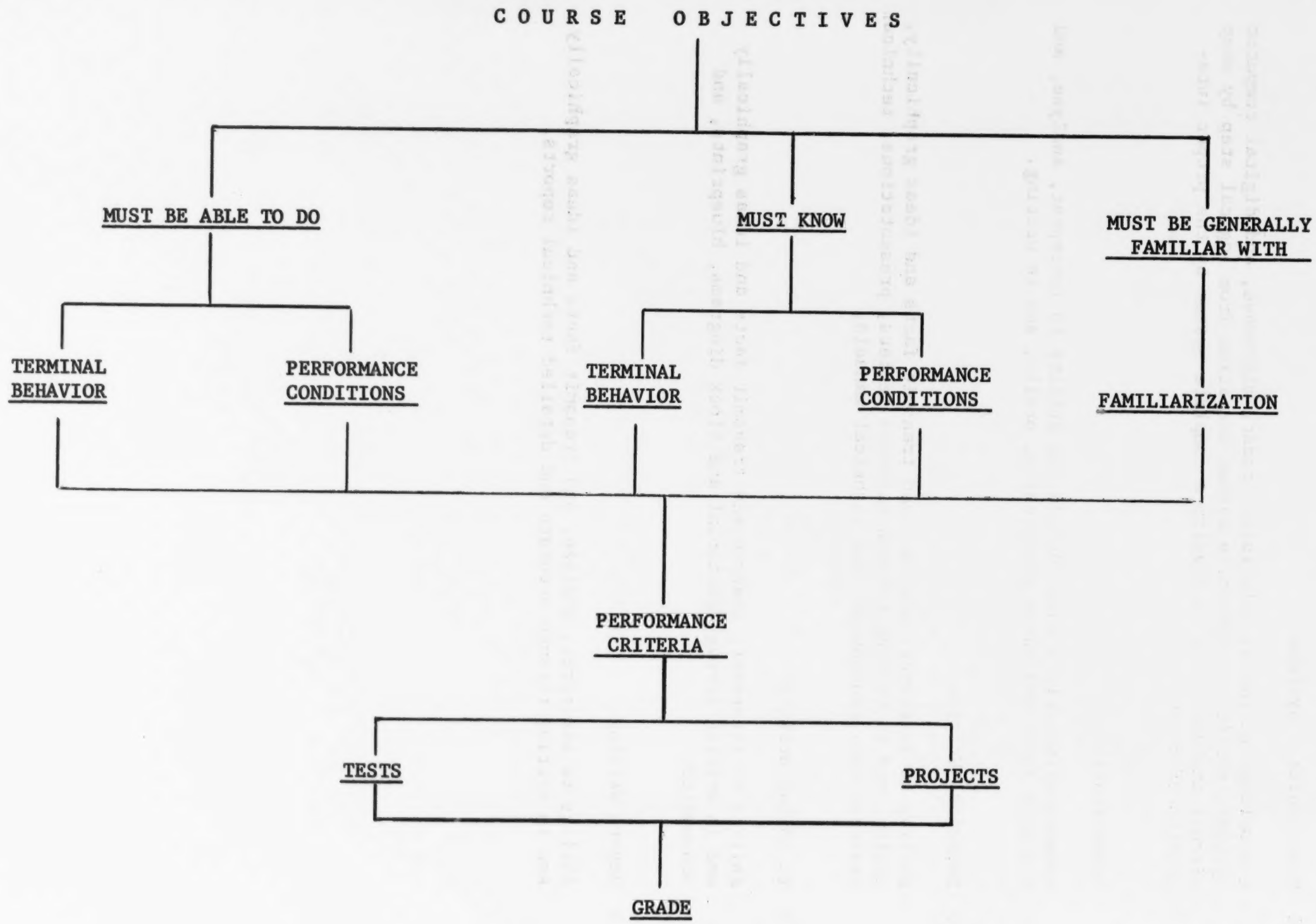

COURSE OBJECTIVES
MUST BE ABLE TO DO
MUST KNOW
MUST BE GENERALLY FAMILIAR WITH
TERMINAL BEHAVIOR
PERFORMANCE CONDITIONS
TERMINAL BEHAVIOR
PERFORMANCE CONDITIONS
FAMILIARIZATION
PERFORMANCE CRITERIA
TESTS
PROJECTS
GRADE

FIGURE 4

Electronic Technology
Definitions

I. Course Objectives

A. Must be able to do:

Those objectives which identify the required manual skills - the perceptual and motor skills on which the student receives sufficient training and practice to enable him to perform the operations that lead to the successful completion of a job.

B. Must know:

Those objectives which identify the required mental skills - the knowledge and intellectual abilities and skills such as correlating, computing, planning, sequencing, analyzing and designing - on which the student receives sufficient training, study, and practice to enable him to give intelligent direction to the application of his manual skills.

C. Should be generally familiar with:

Those objectives which identify the mental and manual skills on which the student has received limited training. Information which provides introduction to future courses, or assists the student to see how his job contributes to the production and reliability of the product, or assists him to better understand the main objectives of the course. The student will be responsible only for items of simple recall.

II. Skill Levels

A. Motor

1. Low demand - Coarse, noncritical motions result in satisfactory performance. Normal human capability is considered adequate for these nonprecise manipulations. Demonstration training is sufficient to develop these skills.

2. Medium demand - Accurate coordinated motions are required for optimum results. Skills require personnel training in coordinated and precise movements.

3. High demand - Precise timing and well-coordinated motions are required for proper performance. Training, study and practice are required to achieve and maintain skills at the required level.

B. Perceptual

1. Low demand - Requires the sensing of nonprecise indications to distinguish taste, odor, coarse from smooth, temperature, movement, noise and primary colors. All perceptions are within the normal human capability, or are readily learned by orientation.

2. Medium demand - Requires accurate and coordinated sensing of one or more fixed or variable indications of kinds of odor, shapes of objects, weight difference, rate of movement, or relative object position. Training may be required to develop these skills.

3. High demand - Requires critical, precise, and coordinated sensing of one or more fixed or variable indications of amount and kinds of odor, taste, shade, and brilliance of color, sound, volume, and direction of movement. Also sense direction and rate of relative motion for simultaneous or time critical events. Training and practice will be required to develop these skills.

C. Judgmental

1. Low demands - Requires no extensive recall of relevant knowledge; decisions to be made are of the fundamental or empirical type; situations to be resolved require nonprecise type determinations. Skills may be developed through familiarization training.

2. Medium demand - Requires extensive recall of relevant knowledge; decisions to be made are at the practical, technical level; problems to be resolved are technical and require a knowledge of procedural performance and accurate techniques of measurement. Skills can be acquired through technical training.

3. High demand - Requires extensive recall and understanding as well as relevant and precise knowledge; decisions to be made are both technical and theoretical; problems to be resolved need precise and detailed analysis. This will require activities of correlating, computing, organizing, sequencing of processes, troubleshooting, planning, scheduling and designing. Skills can be acquired through training, study, and repetitious practice.

II. Subject Levels

A. Familiarization - Requires no special knowldge of physics or mathematics. Students are responsible only for items of simple recall (low demand skill levels).

B. Principles - Requires a knowledge of algebra limited to linear equations and one unknown; trigonometry, limited to right triangles and the Pythagorean Theorem; physics, limited to elementary electron theory, electric and magnetic units, symbols, and Ohm's Law. Required skill levels are: Motor - medium, Perceptual - medium demand, Judgmental - medium demand.

C. Theory and Application - Requires facility with algebra, trigonometry, and elementary vectors; a knowledge of units, systems of units, and associated symbols; application of Ohm's, Kirchoff's, and Coulomb's laws; communication through the use of presentations, procedures, schematics, line drawings, and limited reports. Required skill levels are: Motor - medium demand, Perceptual - medium demand, Judgmental - medium demand.

D. Analysis and Design - Requires facility with algebra including vectors, determinants, and matrices; trigonometry including rectangular and polar coordinates; calculus limited in scope and application. A knowledge of physics including symbols, unit systems of units, and limited dimensional analysis; application of Ohm's, Kirchoff's and Coulomb's laws; application of superposition, Millman's, Norton's, and Teuenin's Theorems. Design, using preferred circuit manuals and established design procedures. Communication through extensive use

of presentations, procedures, technical drawings and illustrations, technical writing, and detailed reports. Required skill levels are: Motor - medium demand, Perceptual - high demand, Judgmental - high demand.

E. Fundamentals - A category of courses which cover components, subsystems and techniques that are required in addition to the electronics and circuit analysis courses which form the core of training.

Course Objectives

4.1.1 Electronics I

I. As a result of satisfactory completion of this course the student:

A. Must be able to do:

1. Identify electronic components:

a. Given ten assorted resistors; without the use of references identify each resistor by value in ohms, percent of tolerance, and power rating.

b. Given three pilot lamps; without the aid of references identify each lamp by voltage and current rating, and lamp number.

c. Given five assorted sizes of enameled copper wire and an American wire gauge, measure and record each wire size.

2. Measure voltage, current, and resistance using a multimeter: Given a circuit consisting of three unmarked resistors connected in series to a black box containing an unknown source, and a multimeter known to be in good working condition; measure and record the total current, value of the resistors, and the voltage across each resistor.

B. Must know:

1. Electrical and magnetic terms: Given twenty terms and twenty-three definitions; without the aid of references, match each term with its correct definition.

2. Electrical and magnetic units: Given ten units which have been used in Electronics I; without the aid of references, write the symbol, quantity, and abbreviation for each unit.

3. Resistor Color Code: Given the color bands for each of ten resistors; without the aid of references, identify each resistor by value in ohms and percent of tolerance.

4. Ohms Law: Without the aid of references, write the equations for voltage, current, resistance, and three equations for power.

5. Characteristics of circuits: Given a series and parallel circuit; without the aid of references, compare the circuits in terms of voltage, current, and resistance.

6. How to compute resistance of wire: Given the length and size of copper wire, the resistivity figure for copper and the formula, compute the total resistance.

7. How to solve resistor networks: Given a network (excluding bridge network) of ten known resistors connected to a one-volt source; solve for the total resistance, total current, current in each leg, and the voltage across each resistor.

Example 2

8. How to translate written circuit descriptions to pictorial and schematic diagrams: Given a circuit description containing ten components; without the aid of references, draw the pictorial and schematic diagrams described.

9. How to compute multipliers and shunts for basic meter movements: Given a 50 microamp. meter movement whose resistance is 1000 ohms; without the aid of references, compute the multiplier resistance required for 100 volts full-scale and the shunt resistance required for 10 amps full-scale.

C. Must be generally familiar* with:

1. Kirchoff's Laws: Without the aid of references, write Kirchoff's laws.

2. Resistivity of conductors: Given a list of five metals; without the aid of references, arrange the metals in increasing resistivity.

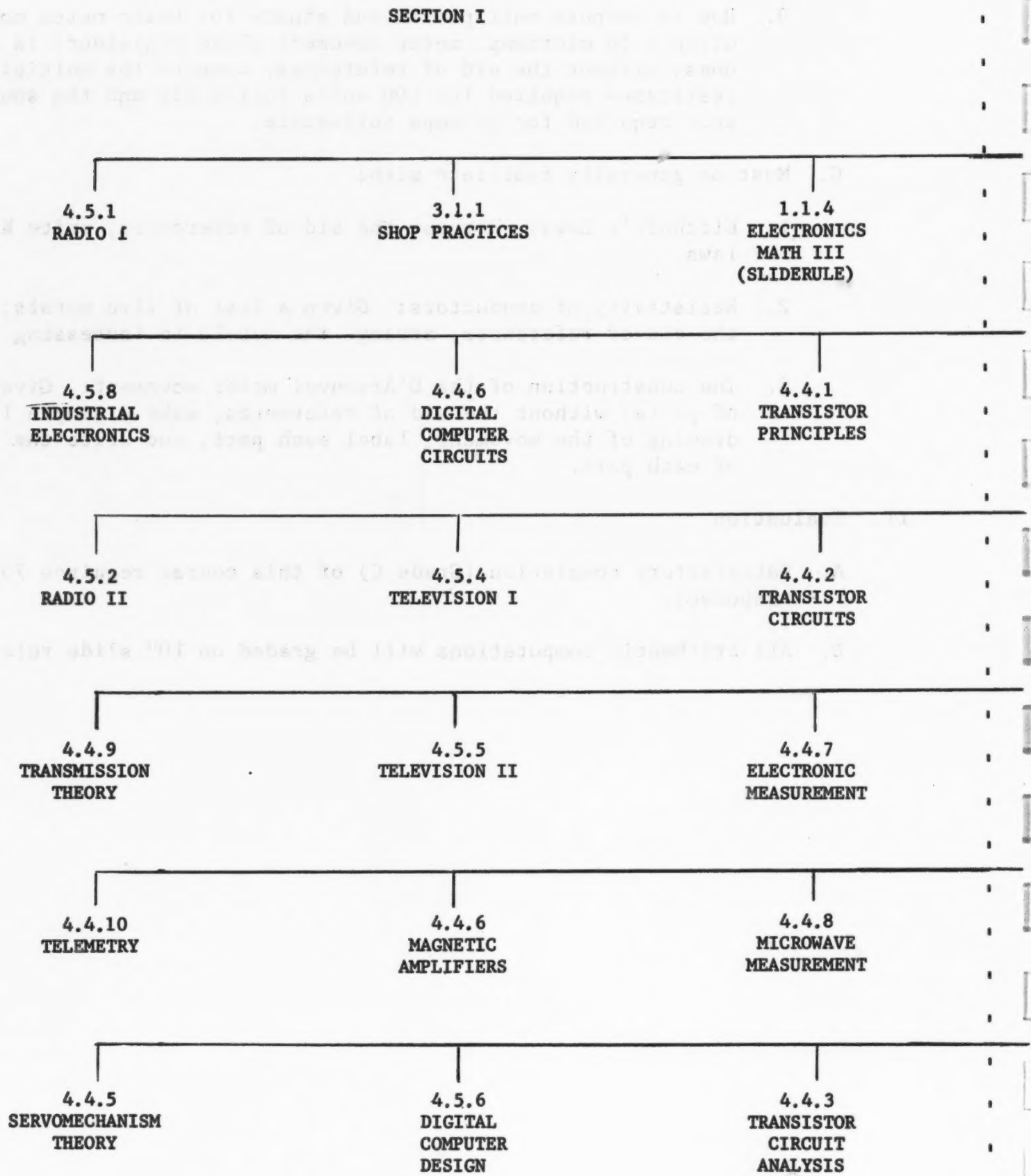
3. The construction of the D'Arsonval meter movement: Given a list of parts; without the aid of references, make a simple line drawing of the movement, label each part, and write the function of each part.

II. Evaluation

A. Satisfactory completion (Grade C) of this course requires 75% correct responses.

B. All arithmetic computations will be graded on 10" slide rule accuracy.

* See definitions

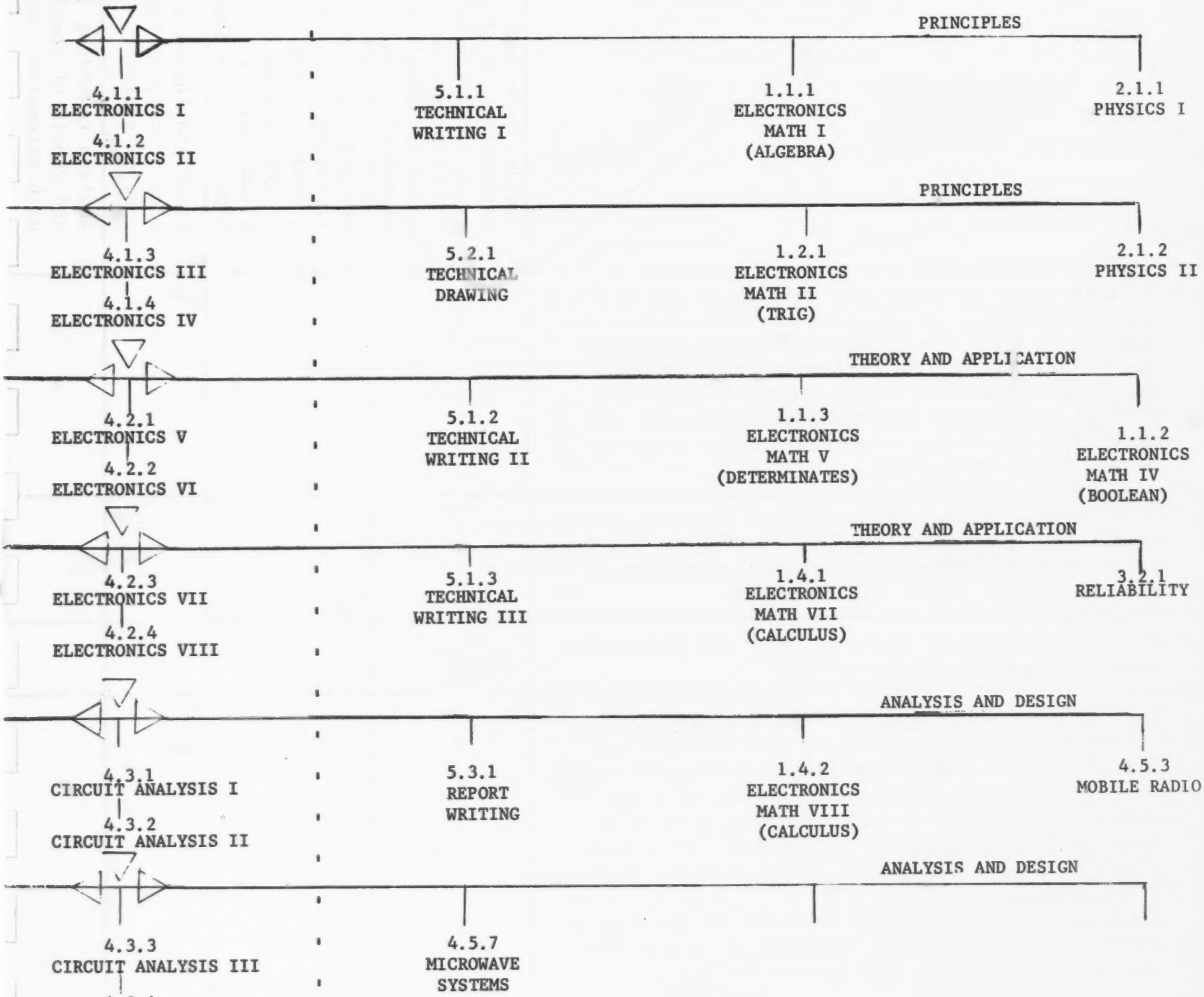

SECTION I
4.5.1 RADIO I
3.1.1 SHOP PRACTICES
1.1.4 ELECTRONICS MATH III (SLIDERULE)
4.5.8 INDUSTRIAL ELECTRONICS
4.4.6 DIGITAL COMPUTER CIRCUITS
4.4.1 TRANSISTOR PRINCIPLES
4.5.2 RADIO II
4.5.4 TELEVISION I
4.4.2 TRANSISTOR CIRCUITS
4.4.9 TRANSMISSION THEORY
4.5.5 TELEVISION II
4.4.7 ELECTRONIC MEASUREMENT
4.4.10 TELEMETRY
4.4.6 MAGNETIC AMPLIFIERS
4.4.8 MICROWAVE MEASUREMENT
4.4.5 SERVOMECHANISM THEORY
4.5.6 DIGITAL COMPUTER DESIGN
4.4.3 TRANSISTOR CIRCUIT ANALYSIS

SECTION II

ELECTRONIC TECHNOLOGY

COURSE TREE

SECTION III



'BURN ADULT EDUCATION CENTER
:HOOL DISTRICT NUMBER 408
AUBURN, WASHINGTON

FIGURE 5

PREPARED BY GIL ZUERLEIN
ELECTRONICS COORDINATOR

APPROVED BY RAY NEEDHAM
DIRECTOR OF ADULT EDUCATION

DATE REVISED 4-30-63

OCCUPATIONAL ANALYSIS CHART
for Technical Curriculum
Requirements

Criteria for Identifying
Occupations that Require
Technical Education

General
Abilities

	1. Applies knowledge of science and mathematics extensively in rendering direct technical assistance to scientists or engineers engaged in scientific research and experimentation.	2. Designs, develops or plans modifications of new products and processes under the supervision of engineering personnel in applied engineering research, design, and development	3. Plans and inspects the installation of complex equipment and control systems.	4. Advises regarding the maintenance and repair of complex equipment with extensive control systems.
1. Facility with mathematics; ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles; an understanding of, though not necessarily facility with, higher mathematics through analytical geometry, calculus, and differential equations, according to the requirements of the technology.				
2. Proficiency in the application of physical science principles, including the basic concepts and laws of physics and chemistry that are pertinent to the individual field of technology.				
3. An understanding of the materials and processes commonly used in the technology.				
4. An extensive knowledge of a field of specialization with an understanding of the engineering and scientific activities that distinguish the technology of the field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as design using established design procedures.				
5. Communication skills that include the ability to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing.				

Programs:
#OE - 80015
by: Maurice W. Roney

Figure 6

				5. Plans production as a member of the management unit responsible for efficient use of manpower, materials and machines in mass production.
				6. Advises, plans, and estimates cost as a field representative of a manufacturing or distributor of technical equipment and/or products.
				7. Is responsible for performance or environmental tests of mechanical, hydraulic, pneumatic, electrical, or electronics components or systems and the preparation of appropriate technical reports covering the test.
				8. Prepares or interprets engineering drawings and sketches.
				9. Selects, compiles, and uses technical information from references such as engineering standards, handbooks, and technical digests of research findings.
				10. Analyzes and interprets information obtained from precision measuring and recording instruments and makes evaluations upon which technical decisions are made.
				11. Analyzes and diagnoses technical problems that involve independent decisions.
				12. Deals with a variety of technical problems involving many factors variables which require an understanding of several technical fields.

Figure 6

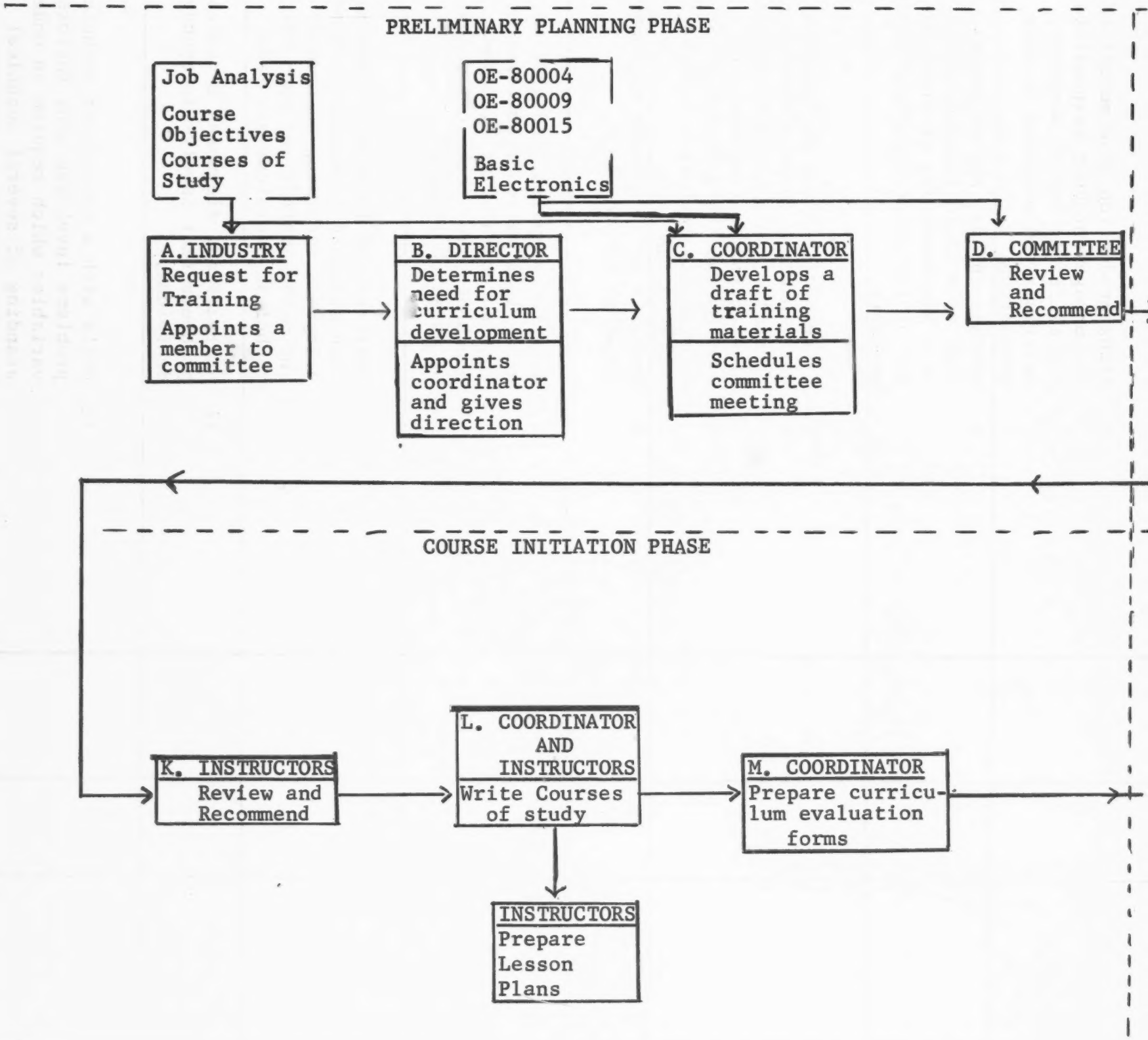


Figure 7 cont'd. ⟶

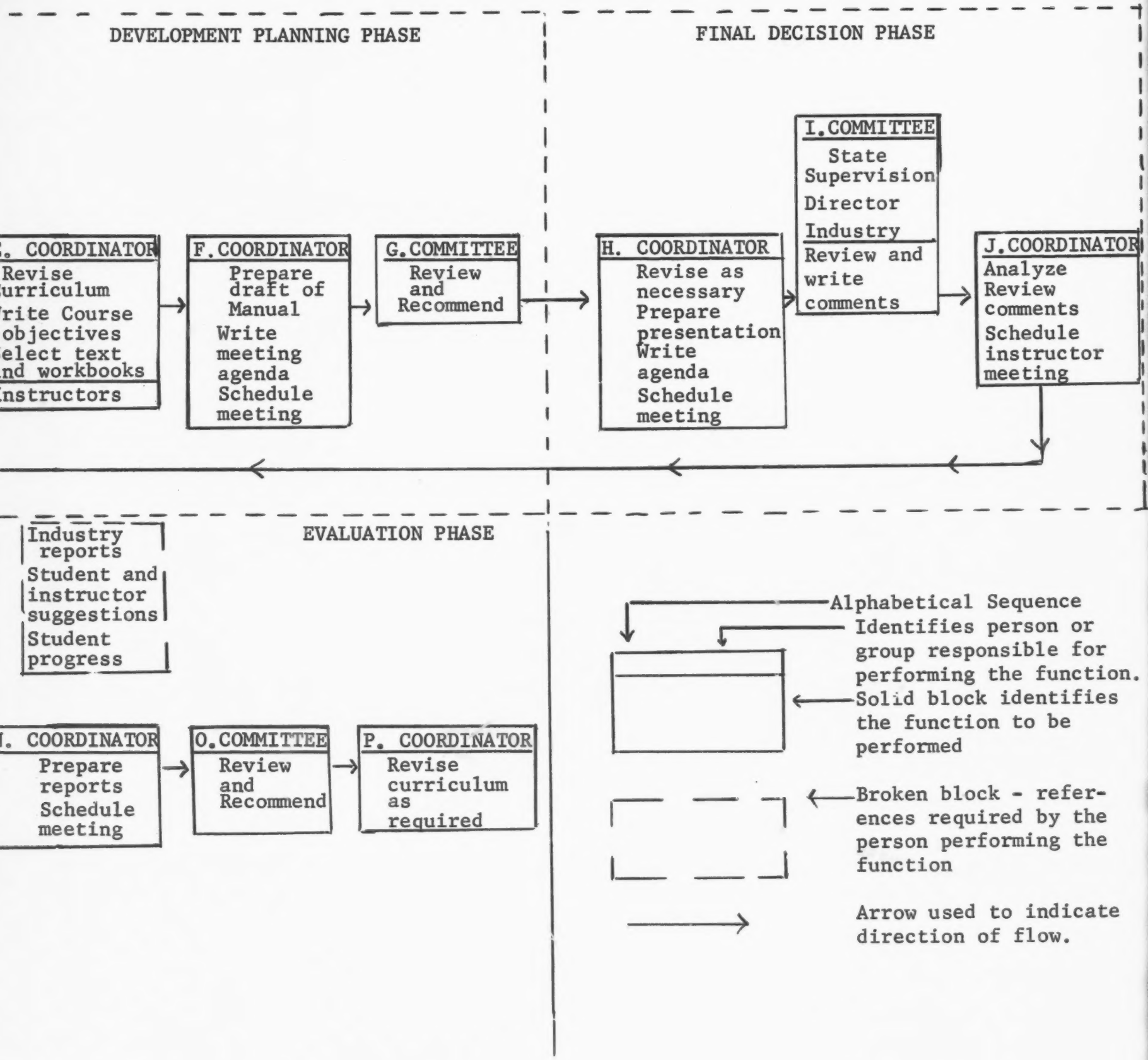

CURRICULUM DEVELOPMENT
FUNCTIONAL FLOW DIAGRAM
DEVELOPMENT PLANNING PHASE
FINAL DECISION PHASE
. COORDINATOR
Revise
urriculum
rite Course
objectives
elect text
nd workbooks
nstructors
F. COORDINATOR
Prepare
draft of
Manual
Write
meeting
agenda
Schedule
meeting
G. COMMITTEE
Review
and
Recommend
H. COORDINATOR
Revise as
necessary
Prepare
presentation
Write
agenda
Schedule
meeting
I. COMMITTEE
State
Supervision
Director
Industry
Review and
write
comments
J. COORDINATOR
Analyze
Review
comments
Schedule
instructor
meeting
EVALUATION PHASE
Industry
reports
Student and
instructor
suggestions
Student
progress
. COORDINATOR
Prepare
reports
Schedule
meeting
O. COMMITTEE
Review
and
Recommend
P. COORDINATOR
Revise
curriculum
as
required
Alphabetical Sequence
Identifies person or
group responsible for
performing the function.
Solid block identifies
the function to be
performed
Broken block - refer-
ences required by the
person performing the
function
Arrow used to indicate
direction of flow.

Figure 7

Summary of Small Group Discussions

The group was divided into four tables to discuss mutual problems and ideas in the operation of evening extension courses. The following is a summary presented by the chairman from each of the tables.

Table 1.

If we have to have a teacher training course as a prerequisite for teachers, then many of us in outlying districts would find ourselves without teachers.

A suggestion as made that perhaps, with training, some hours of teaching experience could be used as a sliding scale by which salary increases could be granted, maybe on an increment basis.

Two problems: how do you go about anticipating the needs of your individual community? and what is the best means of informing the public of adult education offerings?

Table 2.

It was suggested that a detailed description of the course be developed by the instructor, the coordinator and advisory committee;

That recognition be given the instructors by giving a banquet at the beginning and end of the course and the instructor should also have an orientation period;

Need for a long-range program structured so the student can start at any point in the program and complete additional courses as available.

Teacher training -- should be given when the teacher is able to take it -- if not able to get them in the 15-hour class before starting, then the coordinator could sit in the class and observe the teaching methods, then later go over it with the teacher, give him a boost on the good points and give hints on how to improve.

Curriculum development should be tied to the local area.

Programmed learning needs the direction of an instructor and needs application to practical example.

The point came up, could reimbursement from the State Office be made available for local development of curricula and financing counselors. This is not a problem of a single class but on the total program.

Table 3.

Clarification needed on the category of administrators and budgets. This in regard to suggested 2% to 5% for this area, directors, coordinators, supervisors, advisors and counselors. Some of them are responsible to both day and night programs. It is recommended that coordinators and perhaps secretarial service be supplied for each building.

There is often conflict between present instructors in the building days and those coming in to instruct evenings. Suggestion: have a regular in-school instructor work in the evening program four evenings a week. Also work two hours a day Monday through Thursday and all day Friday in the day program.

Principal could appoint a good person. This would provide administrative interim experience. Then both day school and evening school administrators could evaluate his services and recommend for further promotions. Such a coordinator could act as go-between between day teacher whose room is used at night, and night instructor, eliminating some gripes.

Counseling in night school - what ratio to students? How much testing for adults? Perhaps very little group testing but individual tests made available to help individual decide direction. Be sure students know of available tests and counsel services.

Teacher training for part time employees. A course for those who might like to instruct later. A sliding scale - then provide opportunity for teacher training. Also, some supervision could be given by the educators. Provide outlines, tests, manuals, visual aid materials, etc.

Table 4.

Problem of itinerary for teacher training program - it should be offered when it can be taken. Any sequential program must have built in a means so that portions can be skipped when the trainee proves he can qualify.

Goals should be developed not only to show entry goal but also the path leading to higher levels of employment. Prepare a student to recognize need for additional education. He should learn how to learn.

An instructor should be able to tell management that the student can perform up to certain selective standards.

SUMMARIES

McKee: In the way of a summary, I would like to ask Tom (Gilligan), Frank (Wimer) and Elmer (Clausen) to reflect for a minute on the happenings of the day and comment on some of the things they thought were important and things we should have discussed, or perhaps should discuss at another meeting.

Tom: I would like to comment on two or three of the things that struck me as real problems in this day and age. I think we have as a No. 1 problem in the U.S., which is tied in with the programs we are currently operating and can not be ignored, is the use of manpower. I dont want to belabor it but you know, as well as I, that the current administration is extremely worried about this situation and it is growing to be a very acute one. You and I and everyone involved in this business are certainly involved in a part of the solution of this problem. How we can do it is a real problem today and no one has the answer.

Frank Haas and Jack Cooney touched on something I think is an extremely important fact, this is the thing that all people in adult vocational education have to recognize today; we are involved in the changing technological society which demands as far as we are concerned, that we keep up with the current kind of curriculum needed.

I feel that the examples Frank pointed out in the data processing area point this up very well and we need to keep in mind one thing, that is, as far as programs are concerned, many times we get bogged down in the day-to-day basis on what we are currently doing, we keep going around in the same circle and I would like to say that we keep in mind some of the idea the growing edge to the program constitutes, that we can always be stretching out a little bit to take a look at what they may do in relation to what they are now doing. How can we survive these administrative programs, something which will be helpful, practical enough that can be looking at years ahead? If we can develop this kind of technique, I think we can go rapidly forward in many of our programs in the community and in the nation.

What are we doing about dropouts, how can we cooperate with the other aspects of fund growing programs, the community agencies to solve this particular problem, the problem of the lower 50% of high schools, with the people that Jack said today are operating under the philosophy, "educate the best and shoot the rest."?

Frank: There are needs of industry and needs of people as individuals, for education both from a work standpoint and sociological standpoint. Two key words we might come up with on this whole program are education and illumination. I think we, as educators, have lots to learn as far as industry needs; industry has lots of learning as to how it can best be done with educators and teachers, as indicated here, need to learn to teach better, using new techniques and new methods. Administrators need to learn the necessity of industrial needs, how it can be done with better utilization, with better management.

It was pointed out that we have more, different, problems in adult vocational education than in any other programs.

One of the things mentioned this morning was the need for coordination. No program will operate successfully unless it has a good coordinator. He is the key person in the whole thing. He has to know what the needs of industry are and he has to have the trust of industry and the trust of the local school officials and instructors.

There is a motivation area to show the goals to students, their stepping stones to a larger goal, and at the same time they have to learn how to reach the short goal and the long goal and they have to be shown there is something ahead besides just the first, low, rung in this ladder.

Finally, education does not happen. It has to be planned. We have to work together. It takes money, it takes administration, and it takes teachers. But if we have the mutual trust and mutual working arrangements with the advisory committees, with the industries, and with the schools, then this will happen and we will have a good program.

Elmer: I tried to jot down the type of program that you might like to see in a follow-up meeting. Perhaps another day, with the same group, we might spend some time on counseling -- not counsellors -- but about what good counseling and good guidance is. Bring in a group of experts to tell us what it should be. One of the big areas that hasnt been touched, hasnt even been scratched, in school counseling is the adult education.

Another program that is alluded to constantly and would take a good workshop and be worthwhile, is effective promotion. Every one of the speakers went into detail about having a good program and not telling people about it. Have a program some time on broadening the offerings.

What other new or review areas should we consider, that experts talk about, to give us a new insight into what needed areas there are?

Communications. I dont think there was one speaker who did not refer to communications. We talk a lot about it but dont do as much as we should. Perhaps a one day conference on effective communications would be worthwhile and obviously more groups than ours refer to programmed teaching, what we could do in the area of programmed teaching, how and what courses there are, and what materials are available, not for trade and industrial shop work, but for related information.

There are several members who mentioned evaluation. Perhaps a day's conference on different forms of evaluation, by students of the class, by students of the teachers, by teachers of the class. Others in the community can evaluate the offerings we have. How do we, as administrators, evaluate our offerings.

Teacher training -- let no more be said -- a good day would be devoted to that and to supervision. I'll bet every one of us has a program on supervision and how much do we use?

SCHOOLS REPRESENTED

Sequential Planning of Evening Extension Courses

May 17, 1963

Community Colleges

Grays Harbor College
Everett Junior College
Lower Columbia College
Big Bend College
Skagit Valley College
Columbia Basin College
Highline College
Clark College
Wenatchee Valley College

Vocational Schools

Clover Park Vocational-Technical School
Olympia Vocational-Technical Institute
Renton Vocational School
Edison Technical School
Spokane Technical and Vocational School
Tacoma Vocational-Technical Institute

Large High School Districts

Auburn
Bellevue
Kirkland (Lake Washington)
Richland
Shoreline
Walla Walla

VT 004 187

Vocational, Technical and Adult Education Facilities. Wisconsin Development Series.

Wisconsin State Dept. of Resource Development, Madison
Wisconsin State Board of Vocational, Technical and Adult Education, Madison
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 110p.

*EDUCATIONAL FACILITIES; *VOCATIONAL EDUCATION; ENROLLMENT TRENDS; SPACE UTILIZATION; FINANCIAL NEEDS; *FACILITY UTILIZATION RESEARCH; ADULT VOCATIONAL EDUCATION; TECHNICAL EDUCATION; FACILITY REQUIREMENTS; PROGRAM COSTS; FACILITY EXPANSION
WISCONSIN

Many forces are creating challenging new demands on vocational, technical, and adult education facilities. Despite the mounting demands for new programs, few schools have plans for expanding their facilities. Planning for facilities at both the state and local level must be substantially expanded if the schools are to accomodate projected enrollment potentials. The major construction needs in the foreseeable future are for the expansion of existing facilities, the building of new facilities to meet anticipated enrollment increases, the renovation and remodeling of some facilities that may be functionally obsolete, and the replacement of certain facilities that are located on sites unsuitable for expansion. A 5-year program to correct current space deficiencies and provide space for enrollment potentials could cost as much as $43,200,000-$59,800,000, or $8,600,000-$11,900,000 per year, compared to expenditures of less than $2 million annually in past years. Wisconsin now needs intensified efforts to establish area schools with full and part-time courses of statewide and regionwide interest, improved communications and coordination between schools to avoid costly duplication, and additional research to improve the basic data and techniques of determining long-range enrollment potentials and the extent of needed physical improvement. (HC)

VT 004 187

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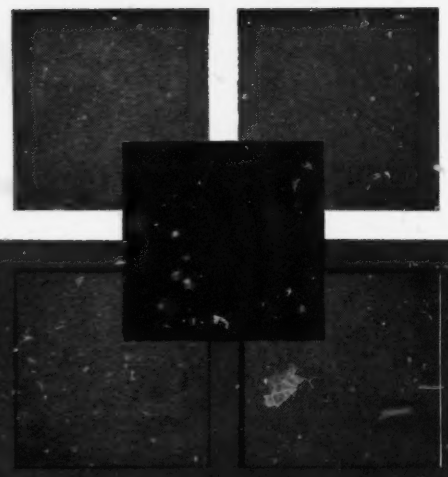
Vocational, Technical and Adult Education Facilities



WISCONSIN DEVELOPMENT SERIES

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STATE OF WISCONSIN, DEPARTMENT OF RESOURCE DEVELOPMENT
STATE BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

WISCONSIN DEVELOPMENT SERIES

VOCATIONAL, TECHNICAL AND ADULT EDUCATION FACILITIES

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WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

1967

790-80

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MAJOR FINDINGS AND CONCLUSIONS

The forces of urbanization, increased mobility, industrialization, scientific and technological advance, population growth, increased consumer demand for services and manufactured products, expansion in the size and skills of the labor force, and job competition in the labor market are creating challenging new demands on vocational, technical and adult education facilities.

In addition to advancing technology which requires more highly trained workers, the high birth rates from the mid-1940's through the 1950's have been a major contributing factor to rapidly rising enrollments in vocational, technical and adult schools. High enrollment levels are foreseen for the remainder of the 1960's and through the 1970's. New facilities built in the years just ahead will, therefore, be utilized for many years to come.

The demand for vocational, technical and adult education has multiplied so rapidly in recent years that many students cannot gain admission to the training programs of their choice. It appears that a substantial number are being denied an education simply because of insufficient space and/or staff in some schools.

Total enrollments and enrollment rates have risen steadily and substantially over the past decade. The total number of students enrolled increased from 124,032 to 188,528 (52 per cent) between 1955-56 and 1965-66. The number of students per 1,000 population (excluding those in compulsory classes) grew from 30 to nearly 45 per 1,000 population in the same period.

These increases have been accompanied by radical shifts in the composition or "mix" of students. The number and proportion of students in classes for those under 18 not in high school (compulsory classes) and avocational, craft and hobby courses has declined, while the number and proportion in full-time day and evening programs which provide training in job skills is increasing.

Although full-time day students accounted for 7.4 per cent of the total enrollment in 1965-66, they accounted for over 40 per cent of the hours of instruction provided. Enrollments in full-time classes are increasing more rapidly than any of the other types. Since full-time students utilize school facilities for longer periods of time each day than do part-time students, future needs for vocational-technical school space and staff will increase more rapidly than indicated by the percentage increase in enrollments.

Enrollments in vocational, technical and adult schools could increase 34 or more per cent by 1970 and 98 or more per cent by 1980. Continuation of the shift in emphasis toward full-time

courses could increase student hours of instruction by 54 per cent and 163 per cent over the same periods. Less conservative estimates indicate that enrollments could increase by 124 per cent and hours of instruction by 198 per cent by 1980.

Despite the mounting demands for vocational, technical and adult education programs, fewwschools have plans for expanding their facilities. Planning for facilities at both the state and local level must be substantially expanded if the schools are to accommodate projected enrollment potentials.

The data presented in this report do not support the widely accepted images of the vocational school as a place primarily for craft and hobby courses or as an institution concentrating on the education of high school students or dropouts without the intelligence or motivation to benefit from more intensive and demanding education courses.

Only a minor amount of all the space in vocational, technical and adult schools is physically obsolete, i.e., so old and worn as to require its replacement in the next 15 years. The major construction needs in the foreseeable future are for the expansion of existing facilities, the building of new facilities to meet anticipated enrollment increases, the renovation and remodeling of some facilities that may be functionally obsolete, and the replacement of certain facilities that are located on sites that are unsuitable for expansion.

Classroom space in some schools is not as intensively utilized as it could be. Some schools could increase their classroom capacities simply by utilizing existing space at generally accepted standards of use. Although on the average vocational, technical and adult schools utilize their floor space as intensively as public universities in the state, some improvement in utilization is necessary for some of the schools in order to meet accepted standards of use.

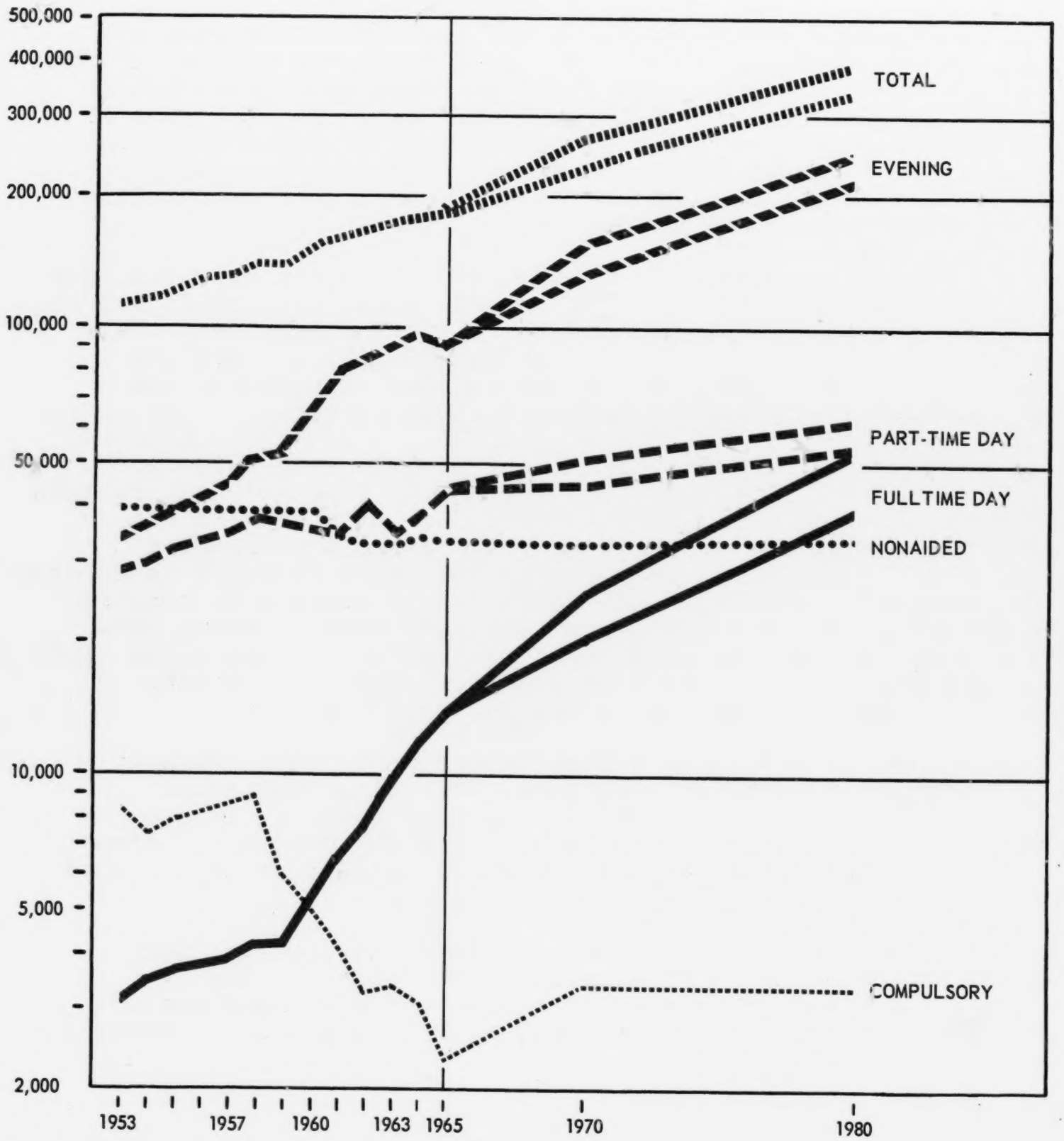
The schools are, on the whole, severely deficient in library space. They are also deficient in ancillary space, such as office, circulatory, and rest room space.

A five-year program to correct current space deficiencies and provide the space to accommodate anticipated enrollment potentials could cost as much as $43,200,000 - $59,800,000, or $8,600,000 - $11,900,000 per year, compared to expenditures of less than $2 million annually in years past.

New federal aid programs will offset some of these construction costs, and organization of the state into vocational education districts may make it more feasible for localities to support larger construction programs. It may be difficult, however,

TOTAL STUDENT ENROLLMENTS
1953-1980

HIGH AND LOW PROJECTIONS



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

to meet construction needs with existing levels and types of revenue. Therefore, the construction picture deserves continued observation, and consideration should be given to expanding state aids for instructional costs if this is necessary to release local funds for construction purposes.

Approximately 40 per cent of the taxable property in the state is in areas without vocational, technical and adult school programs and doesn't, therefore, provide any substantial tax support for the schools. Implementation of the districting law will correct this inequity.

If 1970 enrollments equal or exceed the anticipated maximum potential, increased funds for operating expenses may be needed. The new law to organize the schools into districts and create boards with district-wide administrative and taxing powers will make it much easier for the localities to assume part of these additional costs by broadening the taxable base and by improving opportunities to realize the economics that can come with regional organization of vocational, technical and adult school facilities.

Expenditures for operating and construction purposes must continue at a high level through the 1970's if enrollment potentials are to be accommodated. Annual operating costs may increase from their current level of about $20,000,000 to $36,000,000 in 1970 and $59,000,000 in 1980. Declines in the purchasing power of the dollar may further increase the real dollars needed.

Intensified efforts to establish "area" schools with full- and part-time courses of statewide and regionwide interest are required. Population and enrollment projections indicate that there may be sufficient potential to justify "area" schools in about 15 centers if the minimum standard of 760 full-time students is adhered to. This approach seems justified because it results in placing resources where they are most vitally needed today. Also, this doesn't create situations that might be difficult to overcome later (i.e., many small districts). It would be simpler to divide larger districts into smaller in the future if required.

The feasibility of executing interstate compacts with neighboring states for the provision of vocational, technical and adult education to Wisconsin residents living near Dubuque, Duluth, and St. Paul-Minneapolis should be investigated before any steps are taken to establish or expand duplicate facilities in Wisconsin near these cities.

Intensive efforts to improve communications and coordination between schools in the various areas of the state should be undertaken. Achieving the most effective and efficient use of the existing and proposed vocational, technical and adult education

facilities by avoiding the duplication of costly programs and physical plants rests upon the establishment of effective communication and coordination among the schools. In this regard, consideration should be given to establishing within the State Board of Vocational, Technical and Adult Education a program of technical and financial assistance to the district school boards, as they are established, for the preparation of detailed region-wide curriculum and facilities plans. Such plans are vitally needed in those areas of the state where the possibility of overlapping or duplicate programs and facilities in adjacent or nearby cities make consolidation most desirable and feasible. The Appleton and Milwaukee areas are good examples of areas where unnecessary duplication of programs and physical facilities might be avoided by such coordination and planning.

All requests for approval of district organization should be reviewed against the background of the detailed delineations of vocational, technical and adult education districts. Before approving the formation of a proposed district the Board should require that a detailed comprehensive survey of existing conditions and future potentials be prepared for the proposed district. These potentials and the present and future financial capabilities of the proposed districts should be taken into consideration in approving or disapproving each request.

Substantial additional research needs to be done in order to improve the basic data and techniques for determining long-range enrollment potentials and the extent of needed physical improvements in vocational, technical and adult education schools.

PAST TRENDS AND EXISTING CONDITIONS

1/2

Wisconsin's system of vocational, technical and adult education has been in operation for more than half a century. Vocational schools--first called "industrial" schools and, later, "continuation" schools--were established in 1911 to provide full and part-time job training and general education opportunities for the thousands of employed young people who had dropped out of school before completing their educations, for trade apprentices who were finding it increasingly difficult to receive on-the-job training, for young adults who lacked the necessary skills to find and keep long-term employment, and for employed adults who, even in those days, found it necessary to learn new skills to meet changing job requirements.

While vocational schools today enroll people from essentially these same groups the similarity between the schools of yesterday and today ends here. The forces of urbanization, increased mobility, industrialization, scientific and technological advance, population change, increased consumer demands for services and manufactured products, expansion in the size and skill levels of the labor force, and job competition in the labor market are creating challenging new demands on vocational, technical and adult education facilities.

FACTORS AFFECTING THE NEED FOR VOCATIONAL EDUCATION FACILITIES

URBANIZATION AND INCREASED MOBILITY. Concentration of the state population in urban areas has made many more people aware of the vocational training facilities available. With the increased mobility afforded by the mass use of the automobile, vocational education facilities have become more accessible to a greater number of people.

In 1910, one year before the passage of state legislation enabling the establishment of vocational schools in cities of 5,000 or more population, less than 40 per cent of the people of Wisconsin lived in cities that large. Today, almost 60 per cent of the population lives in cities of 5,000 or more. With continuing urbanization an even greater proportion of the state population will be living in these cities and their suburbs in the future. Moreover, mass use of the automobile, coupled with the greatly improved and extended highway network has made vocational education facilities even more accessible. One illustration of this increased mobility is the tenfold increase in per capita motor vehicle registrations in the state between 1920 and 1960.

Projections prepared for the Department of Resource Development indicate that mobility will continue to increase in the future along with increases in both motor vehicle registrations and vehicle miles traveled.[1]

POPULATION CHANGE. The single most significant population event affecting vocational enrollments in the recent past was the rapid increase in the birth rate in the 1940's and its continued high level through the 1950's and into the early 1960's. As shown in Table 1, both the birth rate and the number of births in the state increased sharply between 1939 and 1947. Many of these people sought continued education in vocational schools in the period from 1957 to 1965. They account for a large part of the rapid increase in enrollments in vocational courses since the 1956-57 school year. Between 1951 and 1959 the birth rate remained relatively stable but the number of births continued to rise. Those born in the period from 1947 to 1959 will reach age 18 between 1965 and 1977. Therefore, substantial enrollment increases resulting simply from increases in the population reaching educable age can be expected through 1977. Enrollments will probably then remain at a relatively high level until the early 1980's when they may begin to drop due to the fall in the number of births after 1959. For this reason investments made today in the vocational, technical and adult education physical plant can be expected to have a relatively long and useful life.

INCREASING DEMANDS FOR SERVICES AND MANUFACTURED PRODUCTS. Increased consumer demands for goods and services produced by an economy requiring an increasing number of skilled workers have also had a substantial impact on vocational school enrollments. Per capita gross national product, disposable personal income, and personal consumption expenditures have all increased significantly during the past decade. Estimates prepared by the U.S. Department of Labor indicate that gross national product will continue to climb in the years ahead; as a result there will be an expansion both in the demand for consumer goods and services and in the demand for skilled workers. (See Table 2.)

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1 Wisconsin Department of Resource Development, "Intercity Transportation in Wisconsin," December 1962.

TABLE 1: BIRTH RATES AND NUMBERS OF BIRTHS, STATE OF WISCONSIN, SELECTED YEARS, 1939-1965

Year	Birth Rate*	Number of Births	Year in which those Surviving Will Reach Age 18
1939	17.4	54,187	1957
1941	18.5	58,043	1959
1943	22.1	65,404	1961
1945	20.9	61,577	1963
1947	26.0	84,562	1965
1949	24.5	83,183	1967
1951	25.6	87,819	1969
1953	25.2	88,408	1971
1955	25.2	92,333	1973
1957	25.4	96,398	1975
1959	25.2	98,518	1977
1961	24.7	98,435	1979
1963	22.6	91,605	1981
1965	20.0	82,919	1983

* Live births per 1,000 population.

Source: Wisconsin State Board of Health, "PUBLIC HEALTH STATISTICS," published annually.

Barring an economic or social disaster of national proportions the gross national product is expected to climb from its 1960 level of $440,200,000,000 to a level of $660,300,000,000 by 1970--a 50 per cent increase. Because of population increases, per capita gross national product will rise only half as rapidly--25 per cent--but this increase will be reflected inevitably in higher personal incomes and expenditures leading to higher demands for consumer goods and services.

An estimated twenty-six million new young workers and another three million women workers must enter or re-enter the labor force in the 1960's in order to meet these goals.[2] The young workers, in particular, will need more education and training, with better guidance and counseling in order to prepare themselves for a rapidly changing and more complex world of work. Substantial increases in professional, office, sales, and manual occupations--occupations which, by and large, require post-high school training--are also foreseen by the U.S. Department of Labor.

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[2] "Manpower, Challenge of the '60's", U.S. Department of Labor.

TABLE 2: TRENDS IN GROSS NATIONAL PRODUCT, DISPOSABLE PERSONAL INCOME AND PERSONAL CONSUMPTION EXPENDITURES, 1950-1970

	1950	1960	1970
Gross National Product (billions)	$318.1	$440.2	$660.3
Per Capita GNP	2,097	2,437	3,050
Per Capita Disposable Personal Income*	1,523	1,756	-----
Per Capita Personal Consumption Expenditures**	1,430	1,651	-----

Notes: All figures in constant 1954 dollars.

* "Disposable personal income" is equal to personal income less taxes on individuals and other general government revenues received from individuals.

** "Personal consumption expenditures" represent the market value of goods and services purchased and the value of food, clothing, housing and financial services received as income in kind.

Source: STATISTICAL ABSTRACT OF THE UNITED STATES, 1963: Projection of GNP based on data published in "Manpower, Challenge of the 1960's," U.S. Department of Labor.

SCIENTIFIC AND TECHNOLOGICAL ADVANCES. The impact of scientific and technological advances upon vocational education is extremely difficult to measure. It is a fact, however, that industries and businesses using more complex and costly machinery require more highly trained personnel. The trend toward automation and mechanization of work is reflected in several indicators including: the sixteen-fold increase in sales of electronic and data processing equipment between 1955 and 1963, the anticipated 68 per cent increase in the number of electronic computers in federal offices between 1963 and 1966, an expected doubling of computer systems in commercial banks between 1962 and 1965, the 9 per cent annual increase in scientific and industrial instrument sales in the past decade, the anticipated increases in sales of numerically controlled machine tools, and the 13 per cent increase in new plant and equipment expenditures in communications industries between 1961 and 1962.[3]

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[3] Manpower Report of the President, 1964

In addition, improvements in machinery, mechanization of materials handling, metal processing developments, and innovations in power generation and transportation will continue to substitute physical energy for human labor; this will cause the outdating of some skills and will require more highly skilled manpower.

While more than 2,000,000 jobs are expected to be vacated in the next ten years as a result of technological advance and increases in worker productivity, an additional 2,500,000 workers will be needed in professional and technical occupations.[4] In Wisconsin an estimated 23,600 new workers will be needed in professional occupations and 10,200 will be required for semi-professional (technical) occupations between 1961 and 1966. An estimated 25,800 new employees in clerical, sales, service and skilled occupations will be required each year by Wisconsin business and industry.[5] Not all of these people will require training in vocational, technical and adult schools; because of the requirements for post-high school education or experience now required by many employers, many of them will. While demands for training are affected most by the factors outlined above, there are other sources of demand that should also be mentioned, such as the high school dropout and the student who may be denied an education because of the lack of staff or facilities.

THE EDUCATION OF HIGH SCHOOL DROPOUTS. Wisconsin has every reason to be proud of its record of achievement in preventing high school dropouts. The National Education Association has found that only nine states in the nation have a smaller percentage of high school students who do not graduate four years after their initial enrollment in high school.[6] (See Table 3.)

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4 Clague and Greenburg, "Technological Change and Employment," MONTHLY LABOR REVIEW, July 1962.

5 Wisconsin State Employment Service, "Wisconsin Manpower Outlook, Managerial, Professional, Semi-Professional Occupations, 1961-1966," "Clerical, Sales, Service, Skilled Occupations, 1962-1967."

6 National Education Association, Research Division, "Rankings of the States," Washington, D.C., January 1964.

TABLE 3: HIGH SCHOOL DROPOUT RATES, SELECTED STATES, SCHOOL YEAR 1962-1963

State	Per Cent of Students Not Graduating From High School	Rank in the Nation
Georgia	43.2	1
Michigan	23.5	31
Iowa	21.5	39
Wisconsin	18.8	40
Illinois	17.6	43
Minnesota	14.5	48
California	12.5	50

Source: National Education Association, Research Division, "Rankings of the States," Washington, D.C., January 1964.

On the other hand, these figures are also a matter of great concern for they indicate that almost one of every five of the young people of Wisconsin do not complete their high school educations. Educators have pointed out that:

> "Lack of high school education is almost a total bar
> to entering a profession,
> to getting a white collar job,
> to becoming an apprentice,
> to entering government service except at the janitorial level.
>
> There are, in fact, few employment opportunities for young people without a high school diploma except in the dead end, low-pay jobs,. . . . .[7]

Many of those dropping out of high school today will come to the realization, through sad experience, that they must turn to vocational, technical and adult education programs to obtain the skills to fit them for employment.

No figures are available for estimating the potential demand that dropouts represent. In 1960, however, there were in Wisconsin nearly 73,000 young people between the ages of 14 and 19 (this includes the group normally in high school) and approximately 67,000 between the ages of 19 and 21 who were not enrolled in any school; over 900,000 people 25 years or older had not completed high school.[8] Furthermore, these figures are for 1960, before the greatest increases in high school age population began to occur.

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[7] Source: Ibid.

[8] Source: United States Census of Population, 1960.

UNMET NEEDS. This report shows the explosive increases in vocational-technical school enrollments, and the programs in which these rapid increases are occurring. These substantial increases, however, do not tell the whole story of vocational-technical school needs.

Only the vocational-technical system, of all of the state's educational segments, has had to turn students away. The desire to enroll in vocational-technical schools has increased so fast that facilities and teaching staffs have not been adequate to meet the demand. In September of 1966, about 1,500 fully qualified students had to be turned away because programs were full. In 1965 and 1964, the number turned away approximated 3,000 each year.[9] The schools have done a good job of counseling the new student with inadequate preparation into remedial programs; and of counseling the student of less ability into simpler skill programs than the post high school technical programs.

However, for the qualified student, the unfortunate truth is that programs starting in the fall may have full enrollments as early as the preceding March or April. There must be substantial increases in both facilities and teaching staffs if this tragic problem is to be remedied.

Because so many students are turned away, and because this study reviews trends based only on those who succeed in getting into the schools, it is apparent that the future estimates presented in this report are conservative, both as to current and long-range needs.

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9 Wisconsin State Board of Vocational and Adult Education, "Post High School Vocational-Technical Education in Wisconsin", August, 1964, and other unpublished studies.

SCHOOLS FOR VOCATIONAL, TECHNICAL AND ADULT EDUCATION

There are 42 vocational, technical and adult schools and 21 evening vocational schools in the state. Those schools are shown on the map. Fifteen of these schools[10] have had one or more of their programs approved as "technical institute programs" by the State Board of Vocational and Adult Education after an evaluation of their philosophy and purposes, institutional standards, curriculum, course content, physical and related facilities, library facilities, guidance and counseling program, and other factors. These schools are authorized to grant Associate Degrees to graduates of approved two-year programs.

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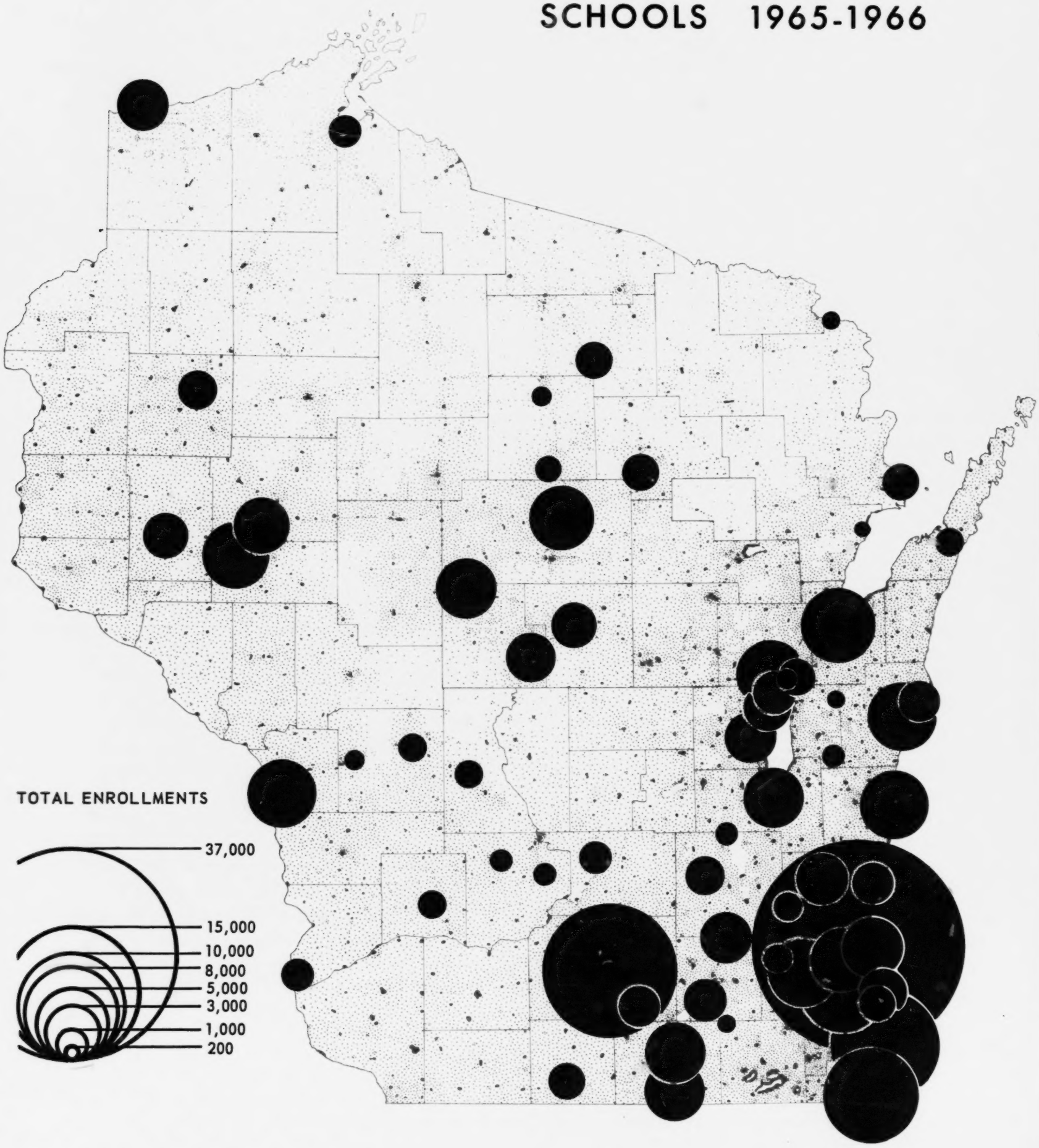
[10] Appleton, Eau Claire, Fond du Lac, Green Bay, Kenosha, La Crosse, Madison, Manitowoc, Milwaukee, Oshkosh, Racine, Sheboygan, Superior, Waukesha, and Wausau.

VOCATIONAL, TECHNICAL, AND ADULT EDUCATION SCHOOLS 1965-1966



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

EACH GRAY DOT REPRESENTS 25 PERSONS.
DENSELY SETTLED AREAS ARE SHOWN IN SOLID GRAY.

The preparation of this map was financed in part through an urban planning grant from the Housing and Home Finance Agency under the provisions of Section 701 of the Housing Act of 1954, as amended.

The emphasis in these technical institute programs is on broad general and technical education requirements although a sound foundation in manipulative skills is given where it is necessary.

One or more one-and two-year vocational courses designed to prepare their students for more specific jobs than do technical institutute programs are offered by 25 schools.[11] These programs give greater emphasis to the teaching of manipulative skills.

Special vocational courses are taught in these and the remaining schools in part-time day, full-time day, and evening classes. These courses are designed to provide more specific training in the operation of one type of machine or in the performance of specific work operations that will open a wider range of job opportunities to the student. Apprentice instruction, business education and marketing, general education, homemaking education, trade and industrial education, supervisory training, and other specialized courses are provided as special vocational programs.

Only partial information is available concerning the source of students for the vocational-technical schools. The 20 schools dominating in full and part-time degree programs and full-time non-degree programs in 1965 drew students from relatively large areas, as indicated on the accompanying map. The pattern of enrollments on this map also indicates that those students migrating from the far northern counties favor the Milwaukee school for vocational-technical education over some other schools located nearer to their place of high school graduation. This is probably due to several factors including the range and scope of program at the Milwaukee school, which is pre-eminent in the state, and the job opportunities available to the student in the Milwaukee metropolitan area both during and after his period of vocational-technical training.

The number of students in degree and other full-time programs per 1,000 population varies widely throughout the state and no consistent geographic pattern of enrollment rates is apparent. (See accompanying map.) Even if these figures were adjusted for the difference in age distribution in each county, it is unlikely that a more regular pattern would emerge because of the impact upon enrollments of: 1) the strength and aggressiveness of the school administrator, 2) the success of the high school counseling program in interesting students in post high school vocational-technical education, 3) the willingness of the community to financially support the program and so forth.

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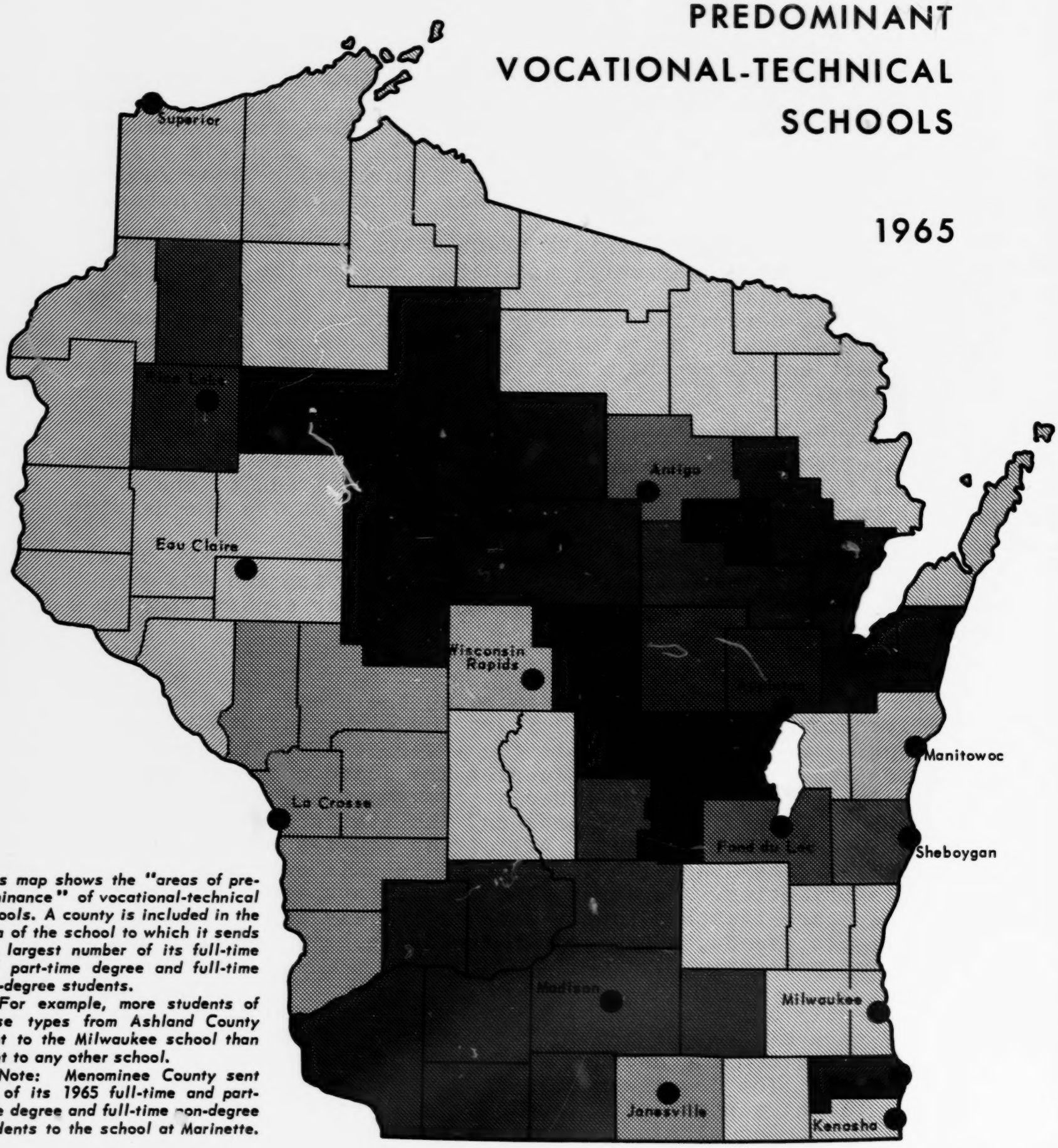
11 Appleton, Ashland, Beloit, Eau Claire, Fort Atkinson, Green Bay, Janesville, Kenosha, Madison, Manitowoc, Marinette, Milwaukee, Neenah, Menasha, Oshkosh, Racine, Rhinelander, Rice Lake, Stevens Point, Superior, Two Rivers, Waukesha, Wausau, West Allis, and Wisconsin Rapids.

PREDOMINANT VOCATIONAL-TECHNICAL SCHOOLS

1965



This map shows the "areas of predominance" of vocational-technical schools. A county is included in the area of the school to which it sends the largest number of its full-time and part-time degree and full-time non-degree students.

For example, more students of these types from Ashland County went to the Milwaukee school than went to any other school.

Note: Menominee County sent all of its 1965 full-time and part-time degree and full-time non-degree students to the school at Marinette.

WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

The preparation of this map was financed in part through an urban planning grant from the Housing and Home Finance Agency under the provisions of Section 701 of the Housing Act of 1954, as amended.

ENROLLMENT TRENDS

TYPES OF ENROLLMENTS. Four types of enrollments--voluntary part-time day, voluntary full-time day, compulsory, and evening--include subjects of a vocational, technical and general education nature which train or expand and upgrade job skills for specific types of occupations. Non-aided courses, a fifth type, include subjects which are principally of an avocational, craft, or hobby nature.[12]

PART-TIME DAYTIME VOLUNTARY ENROLLMENTS include those students enrolled in preparatory, extension, apprentice, trade and industry, fire-fighting, driver training, business, distributive, general adult, homemaking, and special programs (such as those receiving training or retraining under the Manpower Development Training Act and homebound students) on a part-time basis in daytime classes.

FULL-TIME DAYTIME VOLUNTARY ENROLLMENTS include those students enrolled in preparatory programs such as trade and industry, practical nurse, business, distributive, general adult, and special programs, taught in full-time programs during the daytime.

COMPULSORY ENROLLMENTS include students under the age of 18 who have not completed their high school education and who are required, by state law, to be enrolled in either a part-time or a full-time vocational program.[13]

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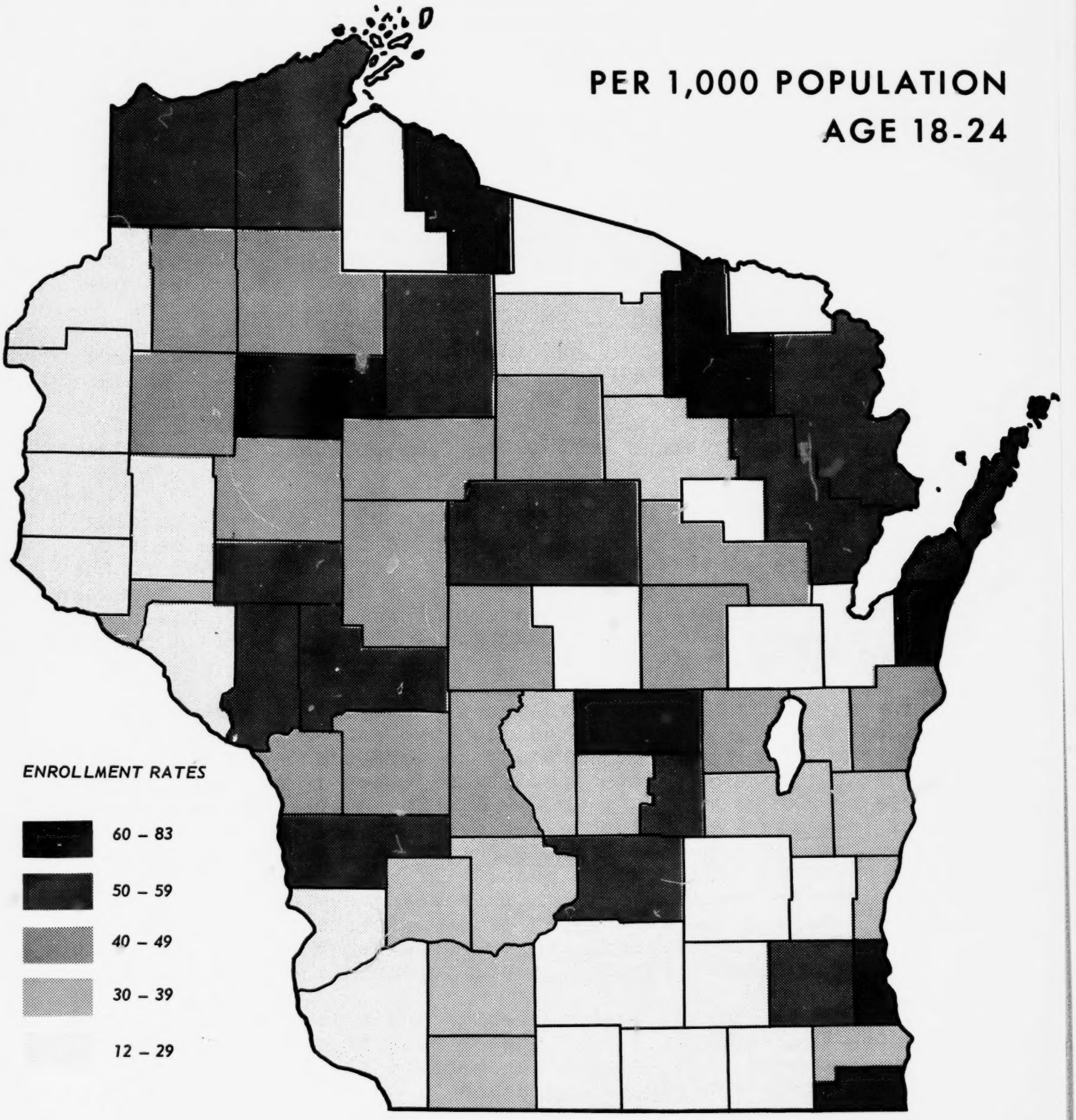
12 The principal reason for presenting the trends by these five categories is that they are the only consistent figures which are available for a series of past years. Each year, some specific courses are added and some are dropped by the various schools throughout the state depending upon local demands and the availability of financing and personnel. All of the courses taught in any year, however, can be fitted into this scheme of classification. Moreover, the enrollments reported under this classification system show relatively consistent and reliable trends, an important factor to be considered in making projections.

13 Currently all those under 16 years of age, and those under 18 years of age who are in a vocational school district, and not attending another school must be enrolled in these classes. The new law requiring district organization of vocational schools will result in all persons in the state being located within a district. Therefore all those under 18, not attending another school, will be required to be enrolled in these classes.

FULL-TIME AND PART-TIME DEGREE AND FULL-TIME NON-DEGREE STUDENTS



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

The preparation of this map was financed in part through an urban planning grant from the Housing and Home Finance Agency under the provisions of Section 701 of the Housing Act of 1954, as amended.

EVENING SCHOOL ENROLLMENTS include students enrolled in preparatory, apprentice, and extension classes in virtually every field of knowledge required in Wisconsin trade, industry, and business.

NON-AIDED ENROLLMENTS include students enrolled in classes which are entirely locally financed, i.e., they are not financed by federal or state aids. These classes are almost all held in the evening and, unlike the programs included in the other four categories of enrollment, are primarily of a recreational, craft, or avocational nature.

ENROLLMENTS AND ENROLLMENT RATES. Both the total number of students enrolled in classes in vocational and adult education schools of the state and the number of students per 1,000 population have increased steadily over the past decade. In the 1955-56 school year there were 124,032 students enrolled. A decade later the enrollment had increased 52 per cent and there were 188,528 students enrolled. Whereas slightly less than 34 of every 1,000 persons in the state attended some vocational, technical and adult education classes in 1955-56, about 45 of every 1,000 were enrolled during the 1965-66 school year. (See Tables 4 and 5.)

VOLUNTARY DAYTIME CLASSES. Students voluntarily attending full- and part-time day classes represented about 30 per cent of all enrollments in vocational and adult education classes in the 1965-66 school year. Enrollments in these classes have increased 62 per cent in the past decade and the enrollment rate has risen from 9.6 students per 1,000 population in 1955-56 to 14.1 students per 1,000 population in 1965-66.

The most significant increases in both enrollments and the enrollment rate in these classes occurred during the 1962-63 school year when nearly 6,000 students were added and the number of students per 1,000 state population jumped 12 per cent above the rate of the preceding year. While the number and enrollment rate of <u>part-time</u> voluntary day students dropped in 1963-64, the number and enrollment rate for <u>full-time</u> students increased more than at any other time in the past. This is probably a result of the combined influence of (1) an increasing number of people desiring training in those types of occupational skills that are taught in full-time classes, and (2) a tendency on the part of the schools, when faced with the choice, to emphasize full-time classes.

It is quite likely that part-time and full-time enrollments would have increased at a much higher rate if adequate classroom capacity had been available to accommodate all those students seeking entry to day classes.

TABLE 4: ENROLLMENT TRENDS, WISCONSIN SCHOOLS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION 1953-54 THROUGH 1965-66

School Year	Daytime Voluntary Full-time	Daytime Voluntary Part-time	Compulsory Aged	Evening	Non-Aided	Total
1953-54	3,104	28,980	8,450	74,475	*	115,009
1954-55	3,540	30,218	7,520	77,798	*	119,076
1955-56	3,708	32,364	7,996	79,964	*	124,032
1956-57	3,720	35,537	8,483	84,077	*	131,817
1957-58	3,971	35,156	8,628	84,991	*	132,746
1958-59	4,232	39,004	8,895	90,855	*	142,986
1959-60	4,289	37,068	6,024	92,965	*	140,346
1960-61	5,430	36,389	5,019	67,337	39,337	153,512
1961-62	6,674	35,787	4,231	80,256	35,266	162,214
1962-63	7,783	40,589	3,305	83,899	33,309	168,885
1963-64	9,934	35,660	3,421	94,031	33,204	177,456
1964-65	12,011	38,909	3,103	93,926	37,659	185,608
1965-66	13,982	44,507	2,351	91,901	35,787	188,528

* Most non-aided enrollments for these years are included in evening class enrollment figures. It is believed that non-aided enrollments totaled about 40,000 for each of these years.

Source: Wisconsin State Board of Vocational, Technical and Adult Education.

TABLE 5: ENROLLMENT RATE TRENDS, WISCONSIN SCHOOLS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION, 1953-54 THROUGH 1965-66

	Enrollment per 1,000 population				Enrollment per 1,000 population age 15-19
	Daytime Voluntary				
School Year	Full-time	Part-time	Evening	Non-Aided	Compulsory Aged
1953-54	0.9	8.1	9.8	11.4	--
1954-55	1.0	8.2	10.5	11.1	--
1955-56	0.9	8.7	10.9	10.9	--
1956-57	1.0	9.4	11.8	10.7	--
1957-58	1.0	9.1	11.9	10.5	30.5
1958-59	1.1	10.0	13.2	10.4	30.4
1959-60	1.1	9.3	13.7	10.3	21.2
1960-61	1.4	9.2	17.0	10.0	17.7
1961-62	1.7	8.9	20.0	8.8	14.6
1962-63	1.9	10.1	20.8	8.3	10.9
1963-64	2.4	8.8	23.1	8.2	11.3
1964-65	2.9	9.5	22.9	9.2	10.1
1965-66	3.4	10.7	22.1	8.6	7.1

Source: Estimates prepared by Wisconsin Department of Resource Development based on enrollment data from the Wisconsin Board of Vocational, Technical and Adult Education and population data from the Wisconsin Board of Health and the U.S. Department of Commerce, Statistical Abstract of the United States, 1963.

GREATER EMPHASIS ON FULL-TIME COURSES. As mentioned earlier, the growing demand for training in full-time course offerings and the lack of facilities to serve the entire demand for full- and part-time day classes has brought about a shift in emphasis in recent years to full-time courses. Enrollments in full-time day classes increased more than twofold over the past decade as compared to a 38 per cent increase in part-time voluntary day classes, and a 60 per cent increase in evening and nonaided classes.

Further indications of this shift in emphasis are:

1. Substantial increases in the number of full-time students per 1,000 population since 1961-62, as compared to more moderate increases in part-time students per 1,000 population since 1961-62.

2. An increasing proportion of total enrollments in full-time classes and a declining proportion in part-time classes. In the past decade full-time enrollments grew from 3.0 per cent to 7.4 per cent of the total. Part-time enrollments, on the other hand, declined from 25.2 per cent to 20.2 per cent of the total between 1953-54 and 1963-64. Although they have increased in recent years, they are still a smaller proportion than they were in 1953-54. (See Table 6.)

TABLE 6: DISTRIBUTION OF ENROLLMENTS, WISCONSIN SCHOOLS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION, SELECTED YEARS 1953-54 THROUGH 1965-66

	Per Cent of Enrollment				
	Daytime Voluntary				
School Year	Full-Time	Part-Time	Evening and Non-Aided	Compulsory Aged	Total
1953-54	2.7%	25.2%	64.8%	7.3%	100.0%
1961-62	2.8	23.4	71.2	2.6	100.0
1963-64	5.6	20.2	72.2	2.0	100.0
1965-66	7.4	23.6	67.7	1.3	100.0

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

This greater emphasis on full-time students has important implications for the need for vocational education facilities in the future. Full-time students utilize facilities for longer periods of time each day than do part-time students. Hence, the increase in full-time enrollments requires more space per student than an equivalent increase in part-time enrollments. If this shift toward full-time classes continues in the future (and the need for the highly trained personnel in business and industry which these courses provide indicates that it will), additional space will have to be added more rapidly than would be indicated by the percentage increase in enrollments alone.

NON-AIDED COURSES. Figures for recent years indicate that the number of non-aided students has slightly declined since the 1960-61 school year. The reduction in craft, recreational, and avocational courses has been the primary cause of the decline. This decline has been most notable in the largest vocational schools. Here there is an increasing conviction that education for employment is more important than education for enjoyment. When the schools feel that the restrictions of budget, staff, and facilities force them to choose between these two alternatives they have chosen, by and large, to educate for employment. The fact that state and federal aids help to pay for job-oriented training and not avocational courses is, of course, a major factor influencing the decision.

EVENING CLASSES. Enrollments in evening classes have increased 130 per cent in the last decade. The greatest increase has occurred in classes aimed at preparing people for work and at supplementing and upgrading the job skills of those already employed. The distribution of evening school enrollments reveals that there is no real foundation for the image of vocational evening schools as places where craft and recreational courses predominate. (See Table 7.) In fact, the opposite is true. In the 1965-66 school year three of every four evening students were enrolled in vocational and technical courses.

TABLE 7: DISTRIBUTION OF EVENING CLASS ENROLLMENTS, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1960-61 THROUGH 1965-66

School Year	Per Cent of Evening Enrollments in: Vocational and Technical Courses*	Craft, Recreational and Avocational Courses**
1960-61	63%	37%
1961-62	69	31
1962-63	72	28
1963-64	74	26
1965-66	74	26

* Evening courses receiving State and Federal Aids.
** Courses not receiving State and Federal Aids.

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

COMPULSORY CLASSES. The image of the vocational school as an institution concentrating on the education of high school age students without the intelligence or the motivation to do well in their high school studies is also a false image. At no time in the past decade have enrollments in compulsory vocational courses exceeded 7.3 per cent of total enrollments. In the 1965-66 school year, 1.3 per cent of total enrollment was in these courses.

An increasing awareness of the need for a high school diploma for employment after high school, coupled with improvements in the educational system making it more responsive to student needs, has led to a 72 per cent decline in the number of compulsory-aged students since 1953-54. Further, the enrollment rate in compulsory age classes has declined from 30.5 per 1,000 population aged 15-19 in 1957-58 to less than 7.1 per 1,000 in 1965-66. Continued improvements in the high school system, better counseling of students at the high school level and an ever-increasing recognition of the need for a high school diploma will probably continue to keep compulsory-aged enrollments at a relatively low level in the years ahead.

PHYSICAL CONDITIONS AND SPACE UTILIZATION

The first comprehensive survey of physical conditions and space utilization in the vocational, technical and adult education

TABLE 8: FLOOR SPACE IN WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS BY AGE OF FACILITY, 1964.

Area and School	Floor Area (net sq. ft.) by Age (yrs.) 0-9	10-19	20-29	30-39	40-49	50-59	60 and over	Total Floor Space
Wisconsin Rapids Area								
Wisconsin Rapids						26,500		26,500
Marshfield				50,500	17,230			67,730
Stevens Point	19,980							19,980
Manitowoc Area				52,290				52,290
Kenosha Area		70,830						70,830
Milwaukee Area								
Milwaukee	163,000			598,000				761,000
West Allis					39,190			39,190
Appleton Area								
Appleton	6,600	8,710	9,790		21,610			46,710
Kaukauna	25,180							25,180
Neenah						32,040		32,040
Menasha			27,370					27,370
Janesville-Beloit Area								
Janesville	18,600		13,210					31,810
Beloit	35,040			12,590				47,630
Racine Area				81,190				81,190
Madison Area								
Madison		12,250			128,960			141,210
Ft. Atkinson			7,400				4,240	11,640
Beaver Dam			860	3,110				39,970
Watertown							10,680	10,680
Sheboygan Area								
Sheboygan				81,760				81,760
Port Washington							16,190	16,190
West Bend		11,130						11,130
Waukesha Area				25,440				25,440
Rhinelander Area		7,180		23,070				30,250
Fond du Lac Area	56,020							56,020
Superior Area								
Superior			50,140	25,820				75,960
Ashland			1,700				15,370	17,070
Green Bay Area								
Green Bay	43,550		19,790	52,510				115,850
Marinette		5,750	26,300					32,050
Sturgeon Bay							12,340	12,340
Oshkosh Area					82,800			82,800
La Crosse Area	23,190		48,960		46,660			118,810
Eau Claire Area	43,030					32,830		75,860
Wausau Area								
Wausau	5,400	4,370			41,930	15,010		66,710
Merrill				11,800				11,800
Southwest Area								0
Rice Lake Area	14,500							14,500
State Total	454,090	120,220	205,520	1,018,080	378,380	106,380	58,820	2,341,490
Percent Distribution	19.3%	5.1%	8.8%	43.6%	16.2%	4.5%	2.5%	100.0%

Note: Includes all vocational school facilities owned and operated principally for vocational training except the facilities in Antigo, Chippewa Falls, Cudahy, South Milwaukee and Two Rivers. Does not include space utilized for vocational school courses in buildings such as high schools and elementary schools. Total floor area in this table differs slightly from that in other tables in this section due to discrepancies in the schools reports of space by age and function.

Source: Wisconsin Department of Resource Development and Wisconsin Board of Vocational, Technical and Adult Education, joint survey, 1964.

schools of the state was undertaken jointly by the Department of Resource Development and the State Board of Vocational and Adult Education in the fall of 1964. This survey has provided a base for estimating the location and magnitude of current and long-range construction needs and costs, and for developing space utilization standards. The survey provides not only valuable data for this report, but also information useful to the State Board of Vocational and Adult Education both in discharging its responsibility to develop priorities for the annual allocation of federal construction aid funds and in providing technical assistance to the schools in the development of their building programs.

An exhaustive analysis of the information contained in the survey has not been made in this report. The analysis of floor space and utilization contained here was developed primarily to establish bases for projecting generalized long-range area needs and construction costs for the major vocational schools, and to assess in general terms the adequacy of existing space. There is, however, enough material available in the survey to support a detailed analysis of vocational-technical school physical space and its utilization. Such an analysis should be undertaken by the State Board of Vocational and Adult Education.

FLOOR SPACE. (See Table 8.) There is a total of about 2,236,030 square feet of floor area in vocational school buildings in the state.[14] Most of this space is in schools in 20 cities of the state which have or will have, sometime in the future, vocational and technical programs of regional or statewide interest.[15] The remainder is in fourteen schools[16] that have day classes, training people in occupational, vocational, and avocational skills primarily of individual or local economic interest.[17]

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14 This total includes only those buildings operated and maintained primarily for vocational training purposes. High school, elementary school, and other space not operated and maintained primarily for vocational, technical and adult school purposes is not included.

15 The cities are Appleton, Green Bay, Fond du Lac, Kenosha, Janesville, LaCrosse, Madison, Manitowoc, Oshkosh, Racine, Rhinelander, Rice Lake, Sheboygan, Wausau, Wisconsin Rapids, Milwaukee, Superior, Waukesha, Eau Claire and Beloit.

16 Ashland, Merrill, Marshfield, Fort Atkinson, Beaver Dam, Menasha, Neenah, Marinette, Watertown, West Allis, Sturgeon Bay, Port Washington, West Bend, and Stevens Point.

17 Five other such schools--Antigo, Chippewa Falls, Cudahy, Two Rivers, and South Milwaukee--did not respond to the survey in time to be included here.

The functional distribution of this space varies considerably from that of the other major public post-high school education facilities--the state university system and the University of Wisconsin. For example, a much smaller share of vocational-technical school facilities are in "active non-instructional" uses primarily because the vocational-technical schools do not have as extensive research, physical education, laboratory, and revenue-producing (inter-collegiate athletics, student unions, etc.) space as the state universities and the University of Wisconsin.

BUILDING DEFICIENCIES REPORTED BY THE SCHOOLS. In the survey school administrators were asked to report specific building deficiencies. Twenty-four of the thirty-two schools responding to this part of the questionnaire reported one or more deficiencies. The most frequently reported deficiency was "lack of space." In some cases this referred to the need for additional space to accommodate increased enrollments but in 7 of the 14 cases in which "lack of space" was indicated it referred specifically to inadequacies in the size and layout of classrooms and rest rooms.

Four schools reported that their buildings were inadequate because they were not originally designed for vocational education purposes, and three of these four indicated that this deficiency could not be overcome by remodeling. Presumably entirely new facilities would need to be constructed to replace the 39,280 square feet of space in the three schools.

Other specific reported deficiencies were: "inadequate utilities" (2), "need remodeling" (2), "structurally inadequate" (1), "need to convert classrooms to labs" (1), and "inefficient use of space" (2).

These responses tend to confirm the conclusion, drawn later in this report on the basis of other data, that there are significant deficiencies in the ancillary (non-teaching) space in some schools.

AGE OF FACILITIES. Most of the vocational-technical school facilities in the state were constructed prior to 1935 and, consequently, are thirty or more years old. More than half of all of the floor area in vocational-technical schools was built between the end of World War I and the beginning of the depression of the 1930's. Very little school construction was undertaken prior to 1916 or in the years between the beginning of the Great Depression and the end of the Korean War. The past decade, however, has seen a resurgence in vocational-technical school building throughout the state. A total of nearly 450,000 square feet of floor area--about 20 per cent of all the existing space in vocational schools--was constructed in the past decade.

If the expected length of life of a vocational-technical school building is about 75 years, as indicated by most schools responding to the survey, only a minor amount (2.5 per cent) of the floor area of existing vocational schools would need to be replaced because of physical obsolescence alone by 1980. Other factors, however, such as the need to replace an entire facility because it is functionally unsuitable or because it lacks adequate expansion space at a given site may require the replacement of some before that time. A detailed study of the long-range enrollment potential and the adequacy of existing sites of each school would be required to establish the magnitude of this need.

SPACE STANDARDS. Although authoritative standards for floor space and space utilization have not been developed for vocational, technical and adult schools such standards have been developed for colleges and universities in Wisconsin and elsewhere in the nation. While the standards for some types of space provided in colleges and universities do not apply to vocational, technical and adult schools (research space, for example, is required in many colleges and universities but is not generally required in vocational schools), the standards for other kinds of space, such as classrooms and labs, are somewhat comparable. It is useful, therefore, to compare space and its utilization in colleges and universities with that in the vocational, technical and adult schools.

FLOOR SPACE PER STUDENT STATION: CLASSROOMS. There is an average of 24.0 square feet of floor area per student station in classrooms in vocational-technical schools. The number of square feet per station varies from a low of 16 in the West Bend school to a high of 47 at Rhinelander. (See Table 9.)

These figures are substantially higher and span a wider range than those for classrooms in the state university system and the University of Wisconsin where there is an average of 14.0 square feet per student station in classrooms. Classroom space per station in the universities ranges from a low of 12 square feet to a high of 20 square feet.

Floor space per student station in classrooms in vocational-technical facilities is also substantially greater than that proposed in universities in Wisconsin and elsewhere in the nation. (See Table 10.) It is also greater than the "standards" or "guidelines" for such space developed by the Wisconsin Coordinating Committee for Higher Education and others in the nation. These standards (summarized in Table 11) indicate that classroom space might be more effectively utilized in some vocational-technical schools. It should be noted, however, that factors and conditions which make for more intensive use of classroom space in colleges and universities (such as large lecture rooms and the use of fixed seating) may not exist at some vocational-technical schools and

may, in fact, be difficult to achieve in those vocational-technical schools that have relatively small, mainly part-time student bodies. Moreover, many vocational-technical schools are operating in "inherited" buildings that were not originally designed for school purposes; thus it is not feasible, in some cases, to utilize this space as intensively. Greater emphasis on full-time courses and the completion of new construction projects, however, should enable many of the schools to come closer to meeting the standard.

TABLE 9: CLASSROOM AND LABORATORY SPACE PER STUDENT STATION, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

School	Square feet per Station	
	Classrooms	Laboratories
Appleton	21.6	66.6
Ashland	28.4	39.8
Beaver Dam	27.2	62.8
Beloit	24.8	64.5
Eau Claire	23.2	69.6
Fond du Lac	37.4	87.5
Fort Atkinson	37.1	64.4
Green Bay	41.5	50.3
Janesville	17.8	64.3
Kenosha	19.8	47.6
La Crosse	22.1	60.3
Madison	16.8	27.7
Manitowoc	24.0	52.3
Marinette	23.2	66.1
Marshfield	16.5	26.9
Menasha	25.8	63.0
Merrill	22.7	59.4
Milwaukee	21.1	72.1
Neenah	33.3	72.7
Oshkosh	29.6	56.5
Racine	27.2	84.9
Rhinelander	47.1	53.4
Rice Lake	26.9	56.4
Sheboygan	32.9	76.8
Stevens Point	28.1	51.7
Sturgeon Bay	18.7	91.4
Superior	30.2	86.1
Waukesha	36.1	70.2
Wausau	24.0	55.8
West Allis	19.1	53.4
West Bend	16.2	34.4
Wisconsin Rapids	27.6	87.6

Source: Wisconsin Department of Resource Development, and Wisconsin State Board of Vocational, Technical and Adult Education, Joint Survey, 1964.

TABLE 10: DISTRIBUTION OF SPACE BY FUNCTION IN THE STATE UNIVERSITY AND COLLEGES AND IN WISCONSIN SCHOOLS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

	State University & Colleges, 1961		Schools of Vocational, Technical & Adult Education, 1964	
Type of Space	Sq. Ft.	%	Sq. Ft.	%
Active Instructional				
Classrooms	510,600	7.4	289,300	12.9
Laboratories	597,900	8.6	807,200	36.1
Offices	467,500	6.7	108,600	4.9
Libraries	466,800	6.7	24,900	1.1
Auditoriums, Theaters, and Assembly Halls	109,600	1.6	78,200	3.5
Other	385,400	5.6	52,600	2.3
Total	2,537,800	36.6	1,360,800	60.8
Active Noninstructional				
Research	692,600	10.0	0	.0
Extension and Public Service	153,900	2.2	39,600	1.7
Physical Education	349,300	5.0	66,400	3.0
Laboratory School	293,900	4.2	0	.0
Auxiliary Enterprise	821,400	11.9	85,000	3.8
Physical Plant	242,200	3.5	91,900	4.1
Other	19,900	.3	44,200	2.0
Total	2,573,200	37.1	327,100	14.6
Inactive Area	108,100	1.5	1,100	.04
Nonassignable				
Circulatory	1,136,800	16.4	412,600	18.5
Rest Rooms	156,400	2.3	57,200	2.6
Custodial	252,700	3.6	38,300	1.7
Nonusable	172,000	2.5	38,900	1.7
Total	1,717,900	24.8	547,000	24.5
Grand Total	6,937,000	100.0	2,236,000	100.0

Source: Coordinating Committee for Higher Education in Wisconsin, "Physical Facilities Survey and Utilization Study," 1961; Wisconsin Board of Vocational, Technical and Adult Education and Wisconsin Department of Resource Development, joint survey of vocational, technical, and adult school facilities, 1964.

TABLE 11: ACTUAL AND SUGGESTED SPACE PER STUDENT STATION, IN CLASSROOMS, SELECTED SOURCES

Source	Space Per Student Station
CCHE - State University System and U.W. Campuses "guideline"	14 square feet
Illinois State Institutions "standard"	15 square feet
Purdue University "standard"	15 square feet
Doi-Scott Survey of Colleges and Universities in the Nation	13.9-15.6 square feet
U.S. Office of Education Survey of 85 per cent of all colleges in the U.S.	17.1 square feet (U.S. Median) 15.9 square feet (North Central U.S. Median)
Wisconsin Vocational-Technical-Adult School Survey	24.0 square feet

Source: Coordinating Committee for Higher Education, Working Paper #68, Part I, July 1964; Department of Resource Development and State Board of Vocational Technical and Adult Education, joint survey, 1964.

FLOOR SPACE PER STUDENT STATION: LABORATORIES. The floor space per student station in laboratories (teaching labs, not research labs) is also much greater in vocational-technical schools than it is in the state university system and the University of Wisconsin. Vocational-technical school laboratories have an average of 60.5 square feet per student station as compared to an average of 45.1 square feet per station in other institutions. (See Tables 9 and 10.) It is doubtful, however, that vocational-technical schools can utilize this space as intensively as the universities. Vocational-technical schools devote a good deal of their laboratory space to courses requiring relatively large amounts of floor area for equipment and work space such as automotive, machine, data processing, welding, fluid power, and other shops, while colleges and universities devote relatively more space to laboratories that are more intensive space users (such as chemistry, physics, music, and art).

Moreover, space per station standards developed by the Coordinating Committee for Higher Education and schools elsewhere in the nation seem to justify the 60.5 square feet per station now made available. These standards are summarized in Table 12.

TABLE 12: ACTUAL AND SUGGESTED SPACE PER STUDENT STATION, TEACHING LABORATORIES, SELECTED SOURCES

Source	Square Feet per Student Station
CCHE "guideline"	40-60 square feet
Illinois (includes auxiliary space) "standard"	68 square feet
Purdue University "standard"	67 square feet
Doi-Scott Survey of Laboratory Floor Space in 200 Colleges	29.8-34.8 square feet
Wisconsin Vocational-Technical School Survey	60.5 square feet

Source: CCHE Working Paper #68, Part I, July 1964; Wisconsin Department of Resource Development and Wisconsin Board of Vocational, Technical and Adult Education, joint survey, 1964.

RATIO OF CLASSROOM TO LABORATORY SPACE. Another significant difference between space in the two types of institutions is the ratio between classroom and laboratory space. In vocational-technical schools this ratio is 5:14, while it is 5:6 in institutions of higher learning. This difference reflects the emphasis on laboratory courses in the vocational-technical schools. Since the construction and equipping of laboratory space is more costly than the construction and equipping of classroom space, this difference has important implications for the comparative costs of providing physical facilities for vocational-technical and for university educations.

UTILIZATION OF SPACE. When compared to public universities in the state, vocational-technical schools seem to make relatively good use of both classroom and laboratory space when these facilities are occupied. However, they do fall short of the standards for utilization published by the Coordinating Committee on Higher Education (as does the state university system and University of Wisconsin). An estimated 61.6 per cent of student classroom stations in vocational-technical schools are utilized when classes are in session, as compared to a utilization of 54.6 per cent for universities and a recommended standard of 67 per cent.[18] Vocational-technical schools utilize 66.0 per cent of laboratory

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[18] Wisconsin Coordinating Committee for Higher Education, Physical Facilities Survey and Utilization Study, Joint Staff Study 5, 1961, pp. 16-17.

stations when classes are in session as compared to a utilization of 66.6 per cent for the universities and a recommended standard of 80 per cent.

Moreover, utilization rates for both classrooms and laboratories vary more widely from school to school in vocational-technical schools than they do in the universities. Station use in vocational schools varies between 38 and 98 per cent in classrooms and 36 and 93 per cent in laboratories compared to utilization rates in universities of 50 to 74 per cent and 50 to 85 per cent. These findings indicate that while there are many overcrowded vocational-technical schools (ten schools responding to the survey indicated classroom utilization rates greater than 67 per cent, and five schools indicated laboratory utilization rates of greater than 80 per cent) there are also many schools which fall far short of the standards and could presumably achieve more intensive use of their space. (See Tables 13 and 14.)

TABLE 13: UTILIZATION OF CLASSROOM AND LABORATORY STATIONS WHEN CLASSES ARE IN SESSION, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

Schools	Per Cent Utilization of Student Stations	
	Classrooms	Laboratories
Appleton	60	72
Ashland	98	83
Beaver Dam	60	74
Beloit	48	89
Eau Claire	77	79
Fond du Lac	59	54
Fort Atkinson	53	40
Green Bay	67	74
Janesville	58	60
Kaukauna	72	74
Kenosha	67	65
La Crosse	59	67
Madison	78	79
Manitowoc	58	66
Marinette	64	69
Marshfield	78	72
Menasha	62	69
Merrill	38	55
Milwaukee	60	81
Neenah	54	87
Oshkosh	53	60
Port Washington	--	79
Racine	72	78
Rhinelander	70	68
Rice Lake	60	59
Sheboygan	59	69
Stevens Point	59	55
Sturgeon Bay	72	80
Superior	73	85
Watertown	--	36
Waukesha	72	65
Wausau	61	71
West Allis	53	59
West Bend	49	67
Wisconsin Rapids	67	58
Average of all schools	62	66

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development, joint survey, 1964.

TABLE 14: UTILIZATION OF SPACE IN THE STATE UNIVERSITY AND COLLEGES AND IN WISCONSIN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION SCHOOLS

	State University and Colleges-1961	Vocational, Technical and Adult Education Schools, 1964*
Space per Student Enrolled		
Total Instructional	57.3 sq. ft.	30.8 sq. ft.
Classrooms	11.4	6.5
Laboratories	13.4	18.3
Space per Student Station		
Classrooms	14.3 sq. ft.	24.0 sq. ft.
Laboratories	42.2	60.5
Average Number of Periods Used per Week		
Classrooms	24.2 periods	12.7 periods
Laboratories	21.8	14.3
Stations Utilized per Week		
Classrooms	54.8%	36.2%
Laboratories	71.8	40.7
Stations Used When Room is Actually in Use		
Classrooms	54.6%	61.6%
Laboratories	66.6	66.0
Ranges in Utilization of Stations When Room is Actually in Use		
Classrooms	50-74%	38-98%
Laboratories	50-85	36-93

* Data are for day enrollments in those 35 schools who responded to the survey of physical facilities.

Source: Coordinating Committee for Higher Education in Wisconsin, "Physical Facilities Survey and Utilization Study," 1961; Wisconsin Board of Vocational, Technical and Adult Education and Wisconsin Department of Resource Development, joint survey of Vocational, Technical and Adult School Facilities, 1964.

FLOOR SPACE PER STUDENT HOUR OF INSTRUCTION. Because of the nature of vocational-technical school enrollments (i.e., the large number of part-time day and evening school students who are each counted as one enrollment as are those enrolled full-time), it is not valid to compare floor areas per student enrolled in these institutions with the same figures for the public universities (where practically all students attend full time). In order to develop a general conclusion as to the adequacy of space in the vocational-technical schools, the two types of facilities have been compared in terms of floor space per weekly hour of instruction.[19] Such figures are also useful for measuring the intensity with which space is used as well as for estimating long-range floor space needs for various categories of space. Table 15 summarizes floor space per weekly hour of instruction by type of institution for various categories of space. A comparatively low amount of space per hour of instruction indicates a relatively intense use of space and may also, in some cases, point to space deficiencies. A comparatively large amount of space per weekly hour of instruction, on the other hand, indicates less intensive space use and may also, in some cases, indicate inefficiencies in the use of space.

Five general conclusions of particular significance in estimating long-range space needs that can readily be reached by examining the space per hour of instruction figures in the light of other findings in this report are:

1. Some vocational-technical schools could better utilize their classrooms and laboratories.

2. Vocational-technical schools are, on the whole, severely deficient in library space.

3. Vocational-technical schools also seem to be deficient in office space.

4. Vocational-technical schools, because of the nature of their program, require less noninstructional space per class hour than do university facilities.

5. Vocational-technical schools seem to be deficient in nonassignable (circulatory and rest room) space.

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19 Floor space divided by the number of hours of instruction provided during the survey week.

TABLE 15: FLOOR SPACE PER WEEKLY HOUR OF INSTRUCTION, STATE UNIVERSITY AND COLLEGES AND WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS

Type of Space	Floor Space Per Weekly Hour of Instruction	
	State University System and U. of W., 1961	Vocational-Technical-Adult Schools, 1964
Assigned Active Instructional Classroom	.54	.61
Labs	.63	1.71
Library	.49	.05
Offices	.49	.23
Other	.52	.28
Total	2.67	2.88
Assigned Active, Non-Instructional and Related Instructional	2.72	.69
Non-Assignable	1.81	1.16
Inactive	.11	.002
Total	7.31 sq. ft.	4.72 sq. ft.

Note: Detail may not add to total due to rounding.

Source: Coordinating Committee for Higher Education in Wisconsin, "Physical Facilities Survey and Utilization Study," 1961; Wisconsin Board of Vocational, Technical and Adult Education and Wisconsin Department of Resource Development joint survey of Vocational, Technical and Adult School Facilities, 1964.

NEED FOR FACILITIES PLANNING AT THE LOCAL LEVEL. Even though 24 of the 32 reporting schools were able to identify specific deficiencies in their school plants, and in spite of the fact that the need for expanded facilities will be increasing in the years ahead, only eight schools (33 per cent of those reporting deficiencies) reported that they had or were in the process of developing definite plans for the construction of new or additional facilities.

Three of the 18 schools without plans also reported that they neither owned nor could purchase adjacent land for the construction of expanded or entirely new facilities. Although every school should be developing advance plans for the improvement or expansion of its facilities, it is particularly important that such plans be developed for those schools which might have to move to entirely new sites. Moreover, the development of long-range plans for these and the other schools might reveal that where the continued location of the school at a central site is desirable, a locally-financed or federally-assisted redevelopment program could be utilized to obtain additional land area for school construction.

In view of this lack of local long-range planning for vocational school facilities it is imperative that the State Board of Vocational and Adult Education intensify its efforts to bring about more widespread planning for vocational school facilities at the local level. One approach to this problem would be the establishment within the Board of a program of technical and financial assistance to the schools for the preparation of long-range development plans.

REVENUE TRENDS

TOTAL REVENUES. Total revenues of vocational schools in the state have increased substantially in recent years. Between 1959-60 and 1965-66 revenues increased from $12,151,000 to $28,391,000, a 134 per cent increase. (See Table 16.) When these values are adjusted to account for the decline in the purchasing power of the dollar, the increase was still a substantial 44 per cent. Revenues per student enrolled have consistently increased. Revenues per weekly hour of instruction have also tended to increase over time. These increases reflect the need for higher revenues due to rising enrollments, the need for more complex and costly equipment, the shift in emphasis toward more costly full-time programs, staff wage and salary increases, and increased needs for capital outlays. Vocational, technical, and adult education programs are, like other education programs, requiring increasingly greater amounts of money.

TABLE 16: TOTAL AND PER STUDENT REVENUES, ALL WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1959-60 THROUGH 1965-66

Year	Total Revenues		Revenues (Constant Dollars)	
	Current Dollars	1963 Dollars	Per Student Enrolled	Per Weekly Hour of Instruction
1959-60	$12,151,000	$12,880,000	$ 92	$34
1961-62	14,735,000	15,029,000	93	34
1962-63	17,752,000	17,930,000	106	37
1963-64	20,861,000	20,861,000	118	40
1964-65	21,671,000	21,628,000	117	37
1965-66	28,391,000	27,568,000	146	44

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

SOURCE OF REVENUE. Local funds provide the principal source of revenue for vocational, technical and adult education operations. In addition, other funds are derived from state and federal aids, from fees and tuition and other miscellaneous sources.

LOCAL REVENUE SOURCES. Municipalities operating vocational schools have traditionally assumed the bulk of the financial burden of operation. In 1965-66, 51 per cent of all revenues for vocational schools were derived from locally levied property taxes. (See Table 17.) Although revenues from this source increased from $8,900,000 in 1959-60 to $14,447,000 in 1965-66, the share of all revenues from this source declined from 74 per cent of total revenues in 1959-60 to 51 per cent of total revenues in 1965-66. While the municipalities have been able to rely to some extent on a growing tax base, they have also had to increase their rate of taxation in order to raise the required revenues.

The average levy on equalized valuation in the state increased from .859 mills in 1961 to .931 mills in 1965. This is an 8 per cent increase during the four-year period.

STATE AIDS. Vocational schools currently derive about 15 per cent of their revenues from state aids. Over 75 per cent of these aids are distributed on the basis of instructors' salaries in courses approved as having vocational objectives. These are courses which prepare one "for employment, ... for home and family living and improving for employment or courses which

TABLE 17: REPORTED REVENUES FOR ALL WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1959-60 THROUGH 1965-66

Year	City Tax	State Aids	Federal Aids	Fees and Tuition	Other Receipts	Total
*1965-66	$14,447,000	$4,134,000	$4,654,000	$2,581,000	$2,575,000	$28,391,000
**1964-65	12,109,000	2,695,000	2,760,000	1,977,000	2,129,000	21,671,000
***1963-64	13,466,000	2,149,000	1,733,000	1,287,000	2,226,000	20,861,000
***1962-63	11,857,000	1,784,000	965,000	1,254,000	1,892,000	17,752,000
1961-62	9,758,000	1,693,000	646,000	1,031,000	1,607,000	14,735,000
1959-60	8,944,000	425,000	536,000	459,000	1,788,000	12,151,000
Percentage Distribution						
1965-66	51%	15%	16%	9%	9%	100%
1964-65	56	12	13	9	10	100
1963-64	65	10	8	6	11	100
1962-63	67	10	5	7	11	100
1961-62	68	10	4	7	11	100
1959-60	74	3	4	4	15	100

*Includes $1,705,000 federal aid and $2,134,000 city tax for construction.

**Includes $876,600 federal aid and $1,570,000 city tax for construction.

***These years include estimated revenues of $1,023,640 for the construction of new floor space.

Note: All figures are in current dollars. Detail may not add to total due to rounding.

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

will contribute to the development of civic and economic efficiency."[20] For those courses certified by the State Board of Vocational and Adult Education as being state oriented in objective, the schools receive 80 per cent of instructional salaries; for those courses with a local orientation the schools receive 15 cents per student period. State-oriented courses are those oriented toward training technicians in business and industry. For those full-time collegiate transfer programs designated and approved by the State Board, the schools receive 100% of instructional salaries.

Aids are also given for administrative, supervisory, and coordination salaries. These aids can equal but not exceed 35 per cent of the amount expended on approved instructor salaries or 80 per cent of the expenditures for all administrative, supervisory, and coordination salaries. Aids for these purposes may not exceed $8,500 per school year. State aids are also given for driver education.

The state contributed $4,134,000 to vocational education in the 1965-66 school year--an increase of 144 per cent over the 1961-62 school year aids of $1,693,000. The relative importance of state aids as a revenue source has increased during the last two years, particularly in state-oriented, full-time, post-high school programs.

FEDERAL AID. In 1965-66, federal aid comprised 16 per cent of all revenues. This aid is appropriated under Titles I, II, and III of the Smith-Hughes Act of 1917, the George-Barden Act of 1947, the Area Redevelopment Act of 1961, the Manpower Act of 1962, the National Defense Education Act, Public Law 88-210, the Adult Basic Education Act and the Civil Defense Act.

Under Titles I and II of the Smith-Hughes and George-Barden Acts, emphasis has been placed on distributive, trade, and industrial education, and on home economics in the vocational and adult schools, and on agriculture and home economics in the high school. Within these programs, most aid has been given to: 1) assist and encourage the development of programs of area-wide or state-wide significance, 2) assist in the establishment of state-wide occupational coordination and the initiation and continuance of coordination programs, and 3) reimburse the local schools for part-time day or evening classes of an extension nature.

Under Title III of the George-Barden Act (also known as Title VIII of the National Defense Education Act), special consideration is being given to programs which are technical in nature. Both the

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[20] State Aid Policies, WISCONSIN ADMINISTRATIVE CODE, Chapter A-V 2.01 (1), September, 1962, p.9.

Area Redevelopment Act of 1961 and the Manpower Act of 1962 were initiated for the purpose of retraining workers in areas of high unemployment.

The Vocational Education Act of 1963 (Public Law 88-210) has also made substantial additional federal aids available for both instructional and construction purposes. Presently, one-third of the State's allotment must be used to aid the operation of full-time programs and/or the construction of school facilities used by schools offering state-oriented programs.

In the past decade, congressional appropriations to vocational education from these sources have increased. The total appropriation for all states rose from a level of $26,000,000 in 1953 to $55,000,000 in 1966.

This national trend shows up, of course, in federal vocational expenditures in Wisconsin schools. From 1959-60 to 1965-66, the amount increased from $500,000 to $4,654,000. This represents a rise in the relative importance of federal funds from 4 per cent of vocational school revenues in 1959-60 to 16 per cent in 1965-66.

TUITION. Wisconsin statutes allow municipalities operating vocational schools to charge tuition to non-residents for part of the cost of providing instruction. Total tuition revenues for each school may not exceed the difference between total instructional costs and the amount received from state and federal aids and other revenues exclusive of local taxes. Revenues from tuition and from other fees charged to students increased from $500,000 in 1959-60 to $2,581,000 in 1965-66. The proportion of all revenues from this source has been increasing in the past two years.

OTHER REVENUE SOURCES. Revenues from other sources (book sales, food sales, etc.) have increased in total dollars but have decreased from 11 per cent of total revenues in 1961-62 to 9 per cent of total revenues in 1965-66.

PROJECTIONS

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ENROLLMENT POTENTIALS

Two projections of potential enrollments have been prepared, a low projection and a high one. The low projection is based upon state-wide enrollment trends since 1953-54 and rests upon the following assumptions:

1. Evening and part-time day class enrollments will continue to increase in the future at about the same rate as they did between 1953-54 and 1963-64. The trend in enrollments in such classes was fairly consistent during that period, and there are no foreseeable events that would tend to alter that trend.

2. Full-time day class enrollments will continue to increase in the future at about the same rate as they did between 1960-61 and 1963-64. This assumption reflects the tendency for these classes to grow more rapidly in recent years, a

result of the increased demands by industry for more highly skilled labor, and the increased aids for the establishment of these programs.

3. Non-aided and compulsory enrollments will remain at about their current levels in the future. This asumption reflects the declining emphasis on these classes during the past decade.

The high projection is based upon enrollment potentials estimated on a regional rather than state-wide basis. It rests upon the following assumptions:

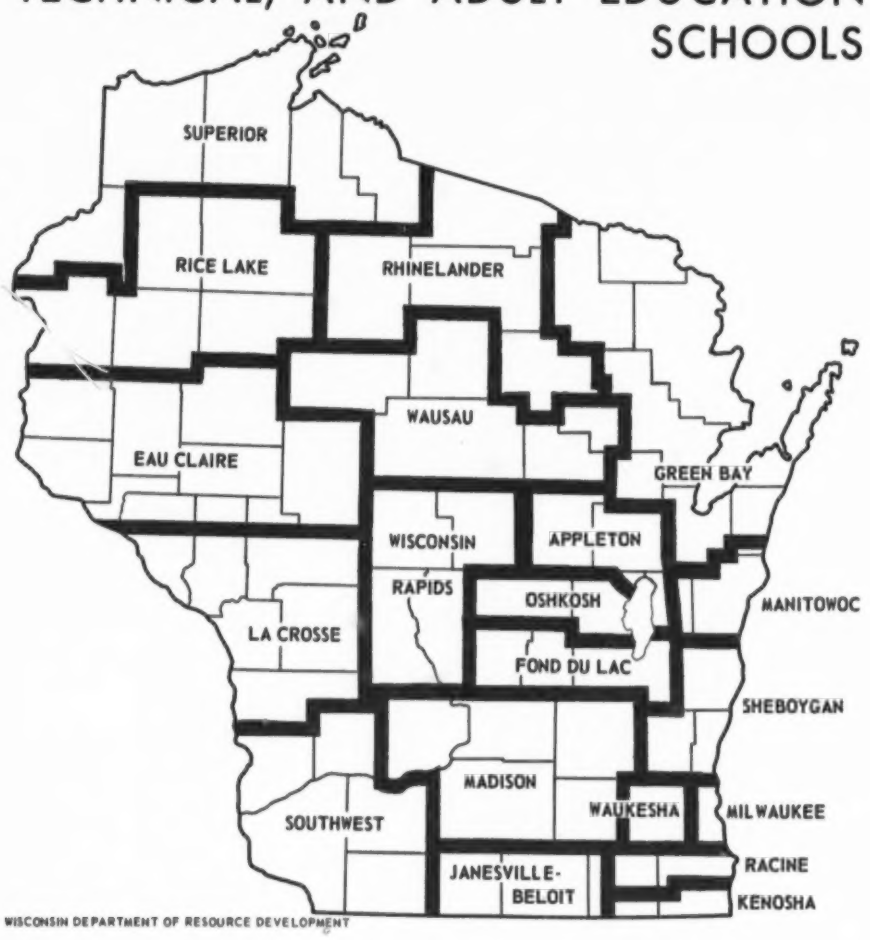
1. Evening, part-time day, and full-time day enrollments in areas of the state that have had relatively high enrollment rates will increase at about the same rate in the future as they have in the past, while enrollments in areas that have had relatively low enrollment rates will rise more rapidly in the future than they have in the past. This assumption reflects an anticipated strengthening and diversification of programs in those areas that now have relatively weak programs. Because the strengthening of these weak programs rests upon a number of factors including staff competence, public interest, and acceptance of vocational technical education, with community willingness to finance a strong program, these potentials may not be realized, in many cases, by 1970. They could, however, be more representative of longer range (1980) enrollments.

2. Non-aided and compulsory enrollments will remain at their current levels.

The map on the following page delineates the regions for which the high projections were prepared. Table 18 and the accompanying map portrays the projected potentials.

Both projections indicate substantial potentials for increased enrollments in the future. Under the low projection total enrollment could grow from its 1965-66 level of 188,528 to 237,000 in 1970 (a 26 per cent increase), and to 348,500 in 1980 (an 85 per cent increase). Under the high projection total enrollment could grow to 266,800 in 1970 (a 42 per cent increase) and to 394,500 in 1980 (a 109 per cent increase).

Since neither of these projections take into account the potential enrollments represented by those turned away from classes in recent years due to the lack of space and qualified instructors, they may be regarded as relatively conservative estimates.



HOURS OF INSTRUCTION

The projections of student enrollments tend to understate the extent of the demand for vocational-technical education facilities because the full-time student who attends classes 20 or more hours a week and the part-time or evening student who attends classes as little as an hour a week are often each counted as one enrollment. Therefore, these projections have been converted to projections of hours of instruction per week using the following factors:[21]

Full-time enrollments: 20.0 hours per week.

Part-time day enrollments (including compulsory): 4.0 hours per week.

Evening enrollments (including non-aided): 1.3 hours per week.

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[21] These factors were derived from information on average hours of attendance furnished by the Wisconsin Board of Vocational and Adult Education and from information on student station use from the 1964 joint survey of vocational schools.

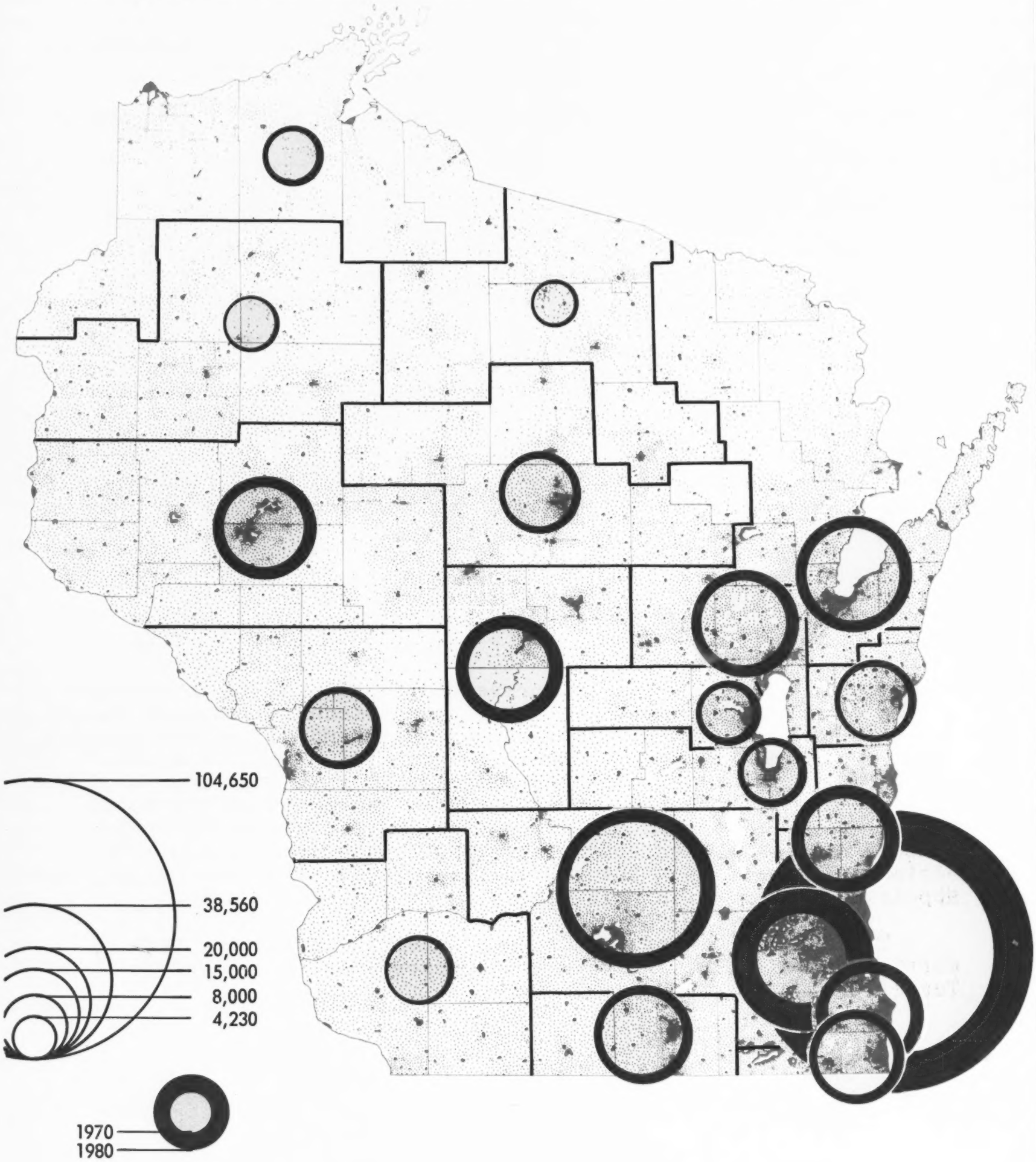
TABLE 18: ESTIMATED ENROLLMENT POTENTIALS, BY AREA, FOR WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1970 AND 1980

Area	1963-64 Actual	1970 Estimated	1980 Estimated
Appleton	10,222	13,080	19,300
Eau Claire	6,822	12,140	17,590
Fond du Lac	3,269	5,450	8,000
Green Bay	7,815	14,350	20,950
Janesville-Beloit	8,681	11,620	15,970
Kenosha	7,298	9,950	15,350
La Crosse	4,608	8,420	11,830
Madison	20,169	26,610	38,560
Manitowoc	6,452	8,180	11,260
Milwaukee	54,864	74,040	104,650
Oshkosh	2,371	4,770	7,530
Racine	8,455	12,350	19,050
Rhinelander	2,503	3,210	4,230
Rice Lake	736	4,360	5,670
Sheboygan	8,235	12,050	18,690
Southwest	1,665	6,580	8,060
Superior	2,770	4,620	6,230
Waukesha	3,745	14,050	31,510
Wausau	5,652	8,220	11,740
Wisconsin Rapids	9,986	12,750	18,330
Total:			
High Projection	176,318	266,800	394,500
Low Projection	176,318	237,000	348,500

Source: Wisconsin Department of Resource Development.

Since full-time enrollments are expected to comprise an increasing proportion of all enrollments the number of class hours of instruction per week will increase more rapidly than the number of students enrolled. Student hours of instruction are expected to increase between 116 and 145 per cent by 1980 compared to an anticipated increase of only 85 to 109 per cent in students enrolled. (See Table 19.)

ENROLLMENT PROJECTIONS 1970 AND 1980



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

EACH GRAY DOT REPRESENTS 25 PERSONS
DENSELY SETTLED AREAS ARE SHOWN IN SOLID GARY.

The preparation of this map was financed in part through an urban planning grant from the Housing and Home Finance Agency under the provisions of Section 701 of the Housing Act of 1954, as amended.

TABLE 19: PROJECTED ENROLLMENTS AND HOURS OF INSTRUCTION, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1963-66, 1970 and 1980

	Students Enrolled		Hours of Instruction Per Week	
Year	Number	% Change	Number	% Change
1963-64	176,318	--	520,500	--
1964-65	185,608	5	579,300	11
1965-66	188,528	2	633,100	9
1970 High Projection	266,800	42	944,100	49
Low Projection	237,000	26	800,200	26
1980 High Projection	394,500	109	1,548,600	145
Low Projection	348,500	85	1,367,000	116

Source: Wisconsin Department of Resource Development; Wisconsin Board of Vocational and Adult Education.

SPACE NEEDS

Two space needs estimates are presented here. One is an estimate of the total space necessary in vocational-technical school facilities to accommodate the current enrollments and to correct glaring space deficiencies, such as those in library, office, and non-assignable space. The other estimate is of the long-range need for additional space to meet anticipated increases in the total number of student hours of instruction that vocational-technical schools will be called upon to provide in the years ahead. This estimate is based upon the student hours of instruction projections appearing elsewhere in this report.

The "standards" or "guidelines" used in estimating both current deficiencies and long-range space needs are given in Table 20.

TABLE 20: STANDARDS USED IN ESTIMATING CURRENT AND LONG-RANGE SPACE NEEDS FOR WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS

Type of Space	Floor Space Per Weekly Hour of Instruction	
Assignable Active Instructional		3.35
Classrooms	.36	
Labs	1.71	
Libraries	.60	
Offices	.40	
Other	.28	
Assignable Active Non-Instructional and Related Instructional		.75
Non-Assignable and Inactive		1.43
Total		5.53

Source: Adapted from standards and guidelines published in COORDINATING COMMITTEE FOR HIGHER EDUCATION IN WISCONSIN Working Paper #68, 1964; COORDINATING COMMITTEE FOR HIGHER EDUCATION IN WISCONSIN 20, Joint Staff Study 5, 1962; and WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION GUIDELINES FOR REALISTIC FACILITY PLANNING, 1965.

The standard for classroom space--.36 square feet per hour of instruction--assumes that floor area per student station can be reduced from its present level of 24 square feet to 14 square feet (the university classroom "guideline" recommendation made by the Coordinating Committee for Higher Education).[22] This standard further assumes that 61.6 per cent of the classroom stations will continue to be occupied when classes are in session.

The standard for laboratory space, 1.71 square feet per hour of instruction, assumes that the current space per student station, 60.5 square feet, and the current utilization rate, 66.0 per cent, are realistic.

The standard for library space is based on the recommended "guideline" of the Coordinating Committee for Higher Education of

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[22] Source: Coordinating Committee for Higher Education.

12 square feet per full time student.[23] Since a full time student attends class about 20 hours per week, the guideline converts to a standard of .60 square feet per weekly hour of instruction (12 sq. ft./full-time student ÷ 20 hours of instruction per week).[24] The standard for office space is also based on the recommended guideline for state universities of 8 square feet per full-time student,[25] or .40 square feet per weekly hour of instruction.

The standards for "assigned active non-instructional" and "non-assignable and inactive" space are based on the existing space of these types with small additions in space for auxiliary enterprises (cafeterias, stores, student lounge and activity rooms, etc.), circulatory space, and rest rooms. These additions reflect the general conclusion of the staff of the State Board of Vocational and Adult Education that most schools are deficient in auxiliary enterprise and rest room space and that additional circulatory space will be required for the movement of students between classes as student enrollments increase.

Table 21 contains the estimated existing space per hour of instruction per week by detailed space category in both universities and vocational-technical schools in the state, and the standards adopted for the purpose of estimating current deficiencies and long-range space needs.

CURRENT DEFICIENCIES. There is an estimated current net deficiency of 370,800 square feet of floor area in vocational-technical schools. (See Table 22.) This figure is a conservative estimate for three reasons: (1) it does not take into account the additional space that would be needed to accommodate those students turned away last year; (2) it is an aggregate estimate, i.e., it is based on total space in all schools; therefore, excess space in one school or in one particular use balances out the space deficiencies in another school or use category (such "balancing out" may not, in fact, occur) and (3) space deficiencies resulting from functional obsolescence of some facilities have not been estimated.

The greatest single deficiency is in library space, where a ten-fold increase in space is required. Substantial additional office space as well as non-assignable (circulatory and rest room) space is also required. No additional space is necessary for laboratories or for "other assigned active instructional" uses

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23 Ibid.

24 Ibid.

25 Ibid.

TABLE 21: ASSIGNABLE AND NON-ASSIGNABLE AREAS PER HOUR OF INSTRUCTION PER WEEK

Type of Space	Square Feet Per Hour of Instruction Per Week		
	State Colleges and University of Wisconsin 1961	Vocational-Technical Schools 1964	Standards Used for Estimating Vocational-Technical-Adult School Space Needs
Assignable Active Instructional:			
Classroom	.54	.61	.36
Teaching Laboratory	.63	1.71	1.71
Related Faculty and Administrative Offices	.49	.23	.40
Library	.49	.05	.60
Auditorium and Assembly	.12	.17	.17
Other Active Instructional	.41	.11	.11
Assignable Related Instructional:			
Extension and Public Service	.16	.08	.08
Physical Education	.37	.14	.14
Research	.73	--	--
Laboratory School	.31	--	--
Assignable Non-Instructional:			
Auxiliary Enterprises	.87	.18	.25
Supporting Physical Plant	.26	.19	.19
Other Non-Instructional	.02	.09	.09
Inactive:	.11	.002	.002
Non-Assignable:			
Circulatory	1.20	.88	1.10
Rest Rooms	.17	.12	.17
Custodial Service	.27	.08	.08
Non-Usable	.18	.08	.08
Total	7.33	4.72	5.53

Source: Coordinating Committee for Higher Education in Wisconsin; Wisconsin Department of Resource Development.

(e.g. auditoriums, assembly rooms, multiple purpose area, etc.). On the other hand, there is an excess of classroom space; on the basis of the standard used here there are 119,600 more square feet of space than necessary to serve current enrollments. Although this figure has been subtracted from the 490,400 square foot total deficiency in other categories, it should not be assumed that this space can or should be converted to other uses. Some are inadequate for other purposes; further, some of this space will be needed in the future as enrollments expand, so holding this classroom space in reserve may be the most satisfactory course of action.

TABLE 22: ESTIMATED FLOOR SPACE DEFICIENCIES, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	Existing Space (Sq. Ft.)	Additional Space Needed (Sq. Ft.)
Assigned Active Instructional		
Classrooms	289,330	0
Laboratories	807,130	0
Libraries	24,850	258,000
Offices	108,590	80,000
Other	130,870	0
Assigned Active Non-Instructional	327,140	26,400
Non-Assignable and Inactive	548,120	126,000
Total	2,236,030	370,800*

* This total includes, in addition to the figures cited for the additional space needed for various uses, a reduction of 119,600 square feet. This reduction is classroom space in excess of the actual amount necessary to serve current enrollments. For statistical purposes, this space has been subtracted from the total space needed. However, the best use for this space often lies in holding it for future use by increased enrollments.

Source: Wisconsin Department of Resource Development.

The total estimated cost of correcting the deficiencies is $10,788,800 or $22 per square foot of building and equipment. This could be reduced by as much as $2,631,200 if classrooms were utilized more intensively and if some classroom space were converted to library use.

LONG RANGE NEEDS. Accommodation of potential enrollments may require the addition of 1,500,000 to 2,200,000 square feet of vocational-technical school floor space between 1965 and 1970. (See Table 23.) This amounts to an 88-122 per cent increase in existing space. An additional 3,000,000 to 3,200,000 square feet of floor space may be required to accommodate enrollments estimated for 1980. Over the next 15 years, therefore, vocational-technical school space may have to be increased between 222 and 264 per cent in order to meet potential demands.

These estimates are for the 35 vocational-technical school facilities now owned and/or operated by vocational school boards that replied to the 1964 space survey. Additional space, not estimated here, may also be required to meet enrollment increases in those few schools that did not reply and in those classes which are conducted in other kinds of buildings such as high schools and elementary schools.

OPERATING COSTS

Expenditures for operating purposes[26] amounted to $19,837,000 in 1963-64. The sources for these funds and the amount of funds per weekly hour of instruction are summarized in Table 24. It is estimated that operating expenditures could increase from $33,500,000 to $36,000,000 in 1970 and $52,100,000 to $59,000,000 in 1980 if expenditures per hour of instruction remained at $38.11 and if all the potential enrollments were to be accommodated. (See Table 25.)

The amount obtained from "fees," "tuition" and "other" sources is expected to increase at about the same rate as the increases in hours of instruction. Therefore, an estimated $5,400,000 to $6,400,000 in 1970 and $9,200,000 to $10,500,000 in 1980 can be expected from these sources.

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[26] Includes all revenues except those expended for the construction of new floor space.

TABLE 23: ESTIMATED FLOOR SPACE NEEDS, WISCONSIN VOCATIONAL-TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964, 1970, 1980

	Additional Space Needed (Sq. Ft.)			
	1964	1965-70	1970-80	Total
To Correct Current Deficiencies:	370,800	---	---	370,800
To Meet Long-Range Needs:				
1965-1970				
High Projection	--	2,229,000	---	2,229,000
Low Projection	--	1,474,000	---	1,474,000
1970-1980				
High Projection	--	---	3,176,000	3,176,000
Low Projection	--	---	2,991,000	2,991,000
1965-1980				
High Projection	--	2,229,000	3,176,000	5,405,000
Low Projection	--	1,474,000	2,991,000	4,465,000

Source: Wisconsin Department of Resource Development.

TABLE 24: ESTIMATED EXPENDITURES FOR OPERATING PURPOSES, BY SOURCE OF FUNDS, WISCONSIN VOCATIONAL-TECHNICAL AND ADULT EDUCATION SCHOOLS, 1963-1964

Source of Funds	Estimated Expenditures	
	Total	Per Weekly Hour of Instruction
City Tax	$12,442,000	$23.90
State Aids	2,149,000	4.13
Federal Aids	1,733,000	3.33
Fees and Tuition	1,287,000	2.47
Other	2,226,000	4.28
Total	$19,837,000	$38.11*

* Also equaled $38 in 1965-66.

Source: Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

TABLE 25: ESTIMATED OPERATING COSTS, WISCONSIN SCHOOLS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION, 1970 AND 1980

	1963-64	1970		1980	
		Low	High	Low	High
Annual Operating Costs (millions)	$19.837	$30.496	$35.980	$52.096	$59.017
Annual Operating Costs Per Weekly Hour of Instruction	$38.11	$38.11		$38.11	

Note: All figures in 1963 dollars.

Source: Wisconsin Department of Resource Development.

The State Board of Vocational and Adult Education estimates that state aids under their new aid program will amount to about $5,392,700 in 1966-67. This is approximately $9.51 per weekly hour of instruction. Continuation of these aids may yield an estimated $7,610,000 in operating aids in 1970, if the low enrollment potential is realized, or $8,980,000, if the high enrollment potential is accommodated in that year.

Assuming that most of the federal vocational-technical and adult education aid programs continue through 1970 an estimated $3,441,200 in federal aids will also be available for operating purposes. (See Table 26.) This estimate rests on the following assumptions:

1. Federal Area Redevelopment Administration aids for vocational-technical education will not be revived. This program has expired as a result of strong Congressional opposition and it does not seem likely that it will be resurrected.

2. The new Work-Study aid program will provide $450,000 (1965-66) in aids.

3. Aids under the Manpower Development and Training Act will amount to $2,079,000 in 1970. This program will become a 90 per cent federal, 10 per cent state aid program after June 30, 1966. It is assumed that the state or the locality will provide its share (over $200,000 annually in cash and services) to continue this program at its present level.

4. Aids from the Smith-Hughes, George-Barden, and Civil Defense programs will remain at current (1966-67) levels.

TABLE 26: ESTIMATED FEDERAL AIDS FOR OPERATING PURPOSES FOR WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1970

Source of Funds	Estimated Amount
Smith-Hughes	$ 74,000
George-Barden Title I	281,600
Title II	137,000
Title III	412,000
Civil Defense	7,600
Work-Study	450,000
MDTA	2,079,000
Subtotal	$3,441,200
P.L. 88-210 (Maximum)	649,500
GRAND TOTAL	$4,090,700

Source: Wisconsin Board of Vocational, Technical and Adult Education.

5. Federal aid funds under P.L. 88-210 will be utilized for construction rather than for operating purposes in 1970. This assumption is consistent with the State Board of Vocational and Adult Education policy of giving first priority for funds from this source to construction needs.

The combination of funds for operating purposes from all of these sources (fees, tuition, "other," state aids, and federal aids), therefore, may amount from $16,400,000 to $18,800,000 in 1970, depending upon the number of students enrolled. (See Table 27.)

CONSTRUCTION COSTS

Assuming an average cost of $22 per square foot of space, an estimated $32,400,000 to $49,000,000 may need to be expended to meet 1970 space needs. (See Table 28.) Between 1970 and 1980 an additional $65,800,000 to $69,900,000 may need to be expended for new vocational-technical school construction in order to meet growing needs. This amounts to an average annual construction expenditure of $7,300,000 to $8,700,000 per year in the period from

TABLE 27: ESTIMATED ANNUAL OPERATING EXPENDITURE, BY SOURCE OF FUNDS, 1970

Source of Funds	Expenditures: High Enrollment Potential	Expenditures: Low Enrollment Potential
"Fees," "Tuition" and "Other"	$ 6,400,000	$ 5,400,000
Federal Aids	3,400,000	3,400,000
State Aids	9,000,000	7,600,000
Subtotal	18,800,000	16,400,000
Estimated Operating Costs	36,000,000	30,500,000
Amount to be Derived from Local Tax Base	17,200,000	14,100,000

Source: Wisconsin Department of Resource Development.

1965 to 1980. If expenditures to correct current deficiencies are also included and spread over the 15 year period, average annual expenditures would have to amount from $8,300,000 to $9,400,000 per year, compared to reported capital expenditures of less than $2,000,000 per year between 1959-60 and 1963-64, and less than $4,000,000 per year in 1964-65 and 1965-66. (See Table 29.)

IMPLICATIONS OF ESTIMATED OPERATING AND CONSTRUCTION COSTS

OPERATING COSTS. An estimated $14,100,000 to $17,200,000 will need to be raised annually by local taxation to accommodate all the potential enrollments in 1970. Current revenues (1963-64) for operating purposes from this source were $12,400,000.

A new state law requires that all vocational schools be organized into school districts by June 1, 1970. The law provides for district boards to administer vocational and adult, technical and community education schools and confers upon these boards the power to tax the entire district for school operation. Inclusion of the entire state into such districts will bring an additional $11,807,000,000 of property valuation (45 per cent of the total state valuation) to the support of vocational, technical and adult education programs. (See Table 30.) If this additional valuation is used to support additional and expanded programs, rather than to lower property tax levies, the schools should be able to meet the projected operating costs without substantial additional federal or state operating aid programs.

TABLE 28: ESTIMATED NEEDED CONSTRUCTION EXPENDITURES, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1970 AND 1980

Year	CONSTRUCTION EXPENDITURES Total	Average Annual
To correct current deficiencies:	$10,788,800	
To meet long-range needs:		
1965-70		
High Projection	$49,042,400	$9,808,500
Low Projection	$32,434,600	$6,486,900
1970-80		
High Projection	$69,869,800	$6,987,000
Low Projection	$65,795,400	$6,579,500
1965-80		
High Projection	$129,701,000	$8,646,700
Low Projection	$109,018,800	$7,267,900

Note: Estimated expenditures are for the 35 schools responding to the 1964 survey which are operated primarily for vocational, technical and adult education purposes. Four small schools did not respond to the survey.

Source: Wisconsin Department of Resource Development.

TABLE 29: REPORTED CAPITAL EXPENDITURES, WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1959-60 THROUGH 1965-66

Year	Reported Capital Expenditures
1959-60	$ 884,428
1961-62	1,201,574
1962-63	1,690,422
1963-64	1,718,712
1964-65	2,447,000
1965-66	3,839,000

Source: Wisconsin Board of Vocational, Technical and Adult Education.

It should be emphasized, however, that, if the districts are to meet the demands for education that will be made of them in the future, some part of the additional tax base (in some cases this may be a substantial part) will need to be used to support expanded and/or new programs and to construct additional facilities. These needs should be met before the additional tax base is used to reduce tax rates for vocational, technical and adult education.

TABLE 30: EQUALIZED PROPERTY VALUATION, STATE OF WISCONSIN AND ALL VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOL COMMUNITIES, 1953-1963

Year	State of Wisconsin (000,000)	Cities with Vocational School Programs	
		Amount (000,000)	Per Cent of State Total
1953	$12,813	$ --	--
1954	13,245	--	--
1955	13,964	--	--
1956	15,061	--	--
1957	16,252	--	--
1958	17,145	--	--
1959	17,940	--	--
1960	18,844	10,326	54.7
1961	19,682	10,779	54.7
1962	20,508	11,208	54.6
1963	21,314	11,641	54.6

Note: All figures in constant 1963 dollar terms. Adjustments made using Construction Cost Index, Statistical Abstract of the United States.

Source: Wisconsin Department of Taxation; Wisconsin Board of Vocational, Technical and Adult Education; Wisconsin Department of Resource Development.

CONSTRUCTION COSTS. Local sources must also be relied upon more heavily to meet construction costs in the future. (See Table 31.) A program that will correct current space deficiencies over the next five years, and, at the same time, provide the necessary space for potential enrollments might require total construction expenditures from $43,200,000 to $59,800,000 by 1970. An estimated $15,300,000 in federal construction aids will become available during this period. The remaining needed amount ($27,900,000 to $44,500,000, or $5,600,000 to $8,900,000 per year) must be raised by the districts themselves. Local expenditures for construction amounted to only $1,700,000 in the 1963-64 school year. Even if it were assumed that this amount could be doubled because of the broadened tax base that will come under the new district organization, it would amount to only $17,000,000 over the next five years.[27] This amount is still $14,900,000 to $31,500,000 short of the estimated five-year needs.

TABLE 31: ESTIMATED CONSTRUCTION EXPENDITURES, BY SOURCE OF FUNDS, 1965-1970

Source	Estimated Expenditures Total	Estimated Expenditures Annual Average
Public Law 88-210	$11,800,000	$ 2,360,000
Public Law 88-204	3,500,000	700,000
Subtotal Federal Aids	15,300,000	3,060,000
Localities and Districts		
Low	27,900,000	5,580,000
High	44,500,000	8,900,000
Total All Sources		
Low	43,200,000	8,650,000
High	59,800,000	11,960,000

Note: Amounts indicated for "localities and districts" are the amounts that will have to come from these sources if the high or low enrollment potentials are to be accommodated without expanding the federal aid program or initiating a program of state aid for construction.
Detail may not add to total due to rounding.

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27 Since all the districts will not be organized until 1970, and because the enrollment potentials are believed to be relatively conservative estimates, this would seem to be a relatively generous estimate of the amount that may come from local sources.

The implications of operating and construction cost estimates for the years after 1970 have not been analyzed in detail because there is no reliable information on the amounts of federal and/or state aids to be made available after 1970. Organization of vocational-technical schools into districts may affect local financing significantly after 1970. The projections of enrollment potentials indicate, however, that even higher expenditures for both operating and construction purposes will be required throughout the 1970's and into the 1980's. It appears, therefore, that there will need to be a substantial increase in the level of local support and/or existing state and federal aid programs must be maintained and in some areas, such as construction, be expanded in the years ahead.

DEVELOPMENT PLAN

62-3

DEVELOPMENT PLAN

Wisconsin's physical system of vocational, technical and adult education consists of three general types of schools: area, day, and evening schools. A primary function of area schools (sometimes called technical institutes) is to provide job training for post-high school students in those full-time and part-time courses which train people for occupations of statewide or regionwide importance. These courses can be provided most effectively and economically on a regionwide or statewide basis. In addition, the area schools provide other vocational, technical, avocational, and general education programs of interest to business, industry, and residents of the immediate area. They can also offer specialized services, such as centralized purchasing and specialized traveling teachers, to other schools in their district. In the words of

the State Board of Vocational, Technical and Adult Education, area schools "conduct all types of programs, including two-year, full-time programs, earning the associate degree and leading to mid-management positions; one- or two-year vocational programs; part-time, occupationally-oriented programs, and related instruction for apprentices."

A day school offers part-time instruction in both day-time and evening classes. Some such schools may also offer the traditional one- or two-year vocational programs for youth preparing for skilled occupations. Although day schools may occasionally offer training programs of statewide or regionwide importance, their primary mission is to provide training opportunities that are related to the local economy and needs. The schools also offer special programs, such as full-time Manpower Development and Training Act instruction, or others.

Evening schools usually provide classes in the evening only. In many cases, they now do and will continue to utilize public school system facilities. Courses offered are keyed to local needs and include those subjects designed to upgrade skills, or increase the social or civic competence of the student. Students are generally employed workers and housewives.

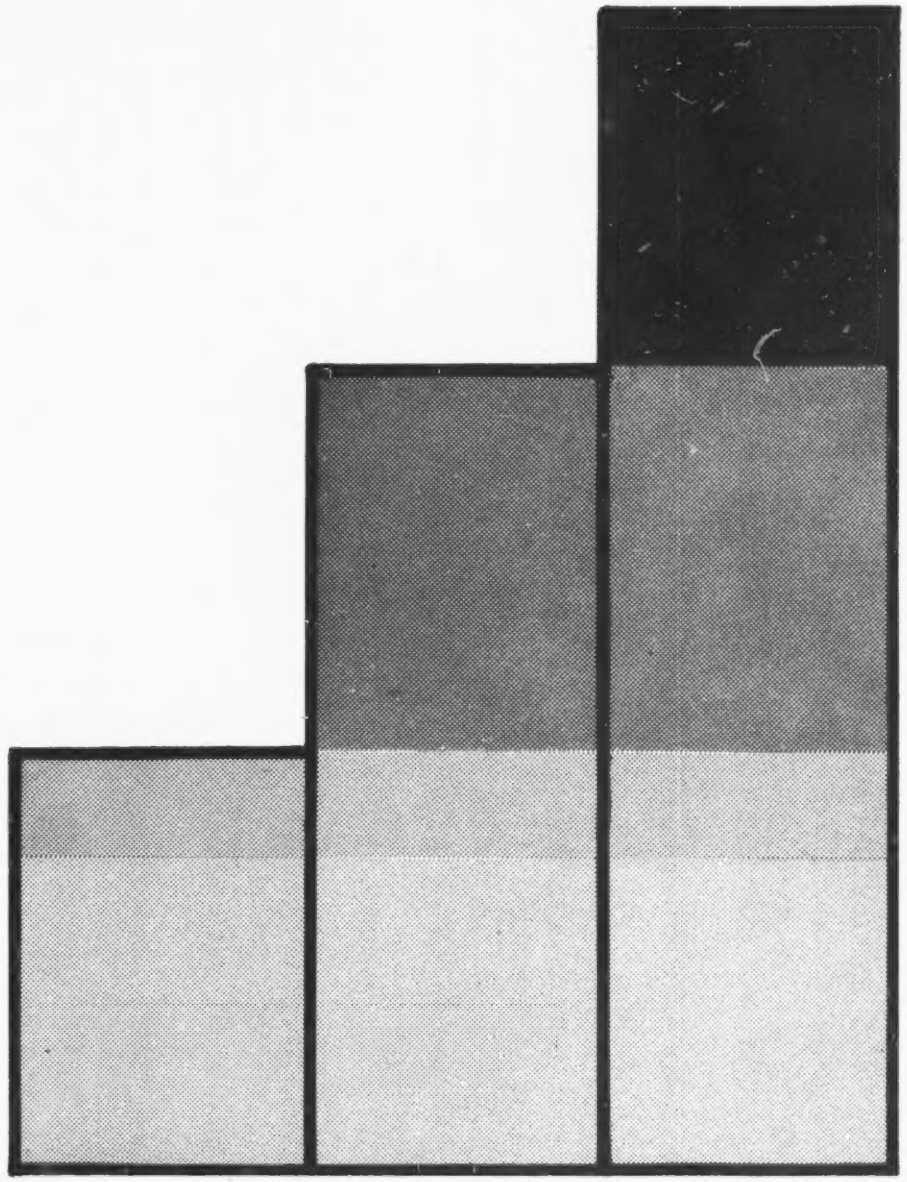
The accompanying chart shows graphically the diverse vocational, technical and adult education programs and courses that might be offered in each type of school. This chart is only illustrative. The specific programs and courses offered at any school, be it an area, day or evening school, may vary substantially, depending upon a number of factors, including local and regional demands, numbers of potential students, financial capabilities, etc. Some day schools, for example, may offer the first year or even both years of a two-year associate degree program; an evening school might, in some cases, offer training in a one-year, non-degree program. Each type of school, however, will specialize in the broad program areas indicated on the accompanying chart.

VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOL DISTRICTS

Chapter 292, Laws of 1965, charged the Coordinating Committee for Higher Education and the State Board of Vocational, Technical and Adult Education to establish "a statewide system of vocational, technical and adult education districts."

ILLUSTRATIVE PROGRAMS FOR AREA, DAY AND EVENING SCHOOLS

PROGRAM AREA	ILLUSTRATIVE COURSES OR PROGRAMS
TWO YEAR ASSOCIATE DEGREE PROGRAMS	Fluid Power Technology Instrumentation Technology Electronics Technology Accounting Secretarial Science Computer Technology Marketing and other programs
ONE AND TWO YEAR NON-DEGREE COURSES	Accounting Auto Mechanics Welding Industrial Drafting General Clerical Machine Shop Office Machines Stenography Sheetmetal Practical Nursing and other courses
APPRENTICESHIP	
SPECIAL VOCATIONAL PROGRAMS	Typing Reading Food and Nutrition Clothing and Textiles Sheetmetal Welding Supervisory Training Clinics and Seminars Adult Avocational Courses and other courses



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

The basic features of this law were:

1. It reorganized the State Board and specified that it "shall determine the organization, plan, scope and development of vocational, technical and adult education." The Board is composed of 11 members: nine appointed by the Governor (three employers, three employees and three farmers), the State Superintendent of Public Instruction and a representative of the Industrial Commission.

2. It provided increased state aid for vocational education and directed that the entire state be organized into vocational school districts by 1970. This date may be changed to 1968 by the State Legislature this year.

3. It provided for the formation of district boards to govern the affairs of vocational education in each district and empowered these boards to levy up to two mills of tax on the equalized property valuation in the district for the support of vocational, technical and adult education.

An area development committee consisting of representatives of the State Board, the Coordinating Committee, the Department of Resource Development and the Department of Administration was formed in 1966 to assist the State Board and the Coordinating Committee in preparing the statewide districting plan.

As this committee developed alternative plans for districting it was guided by several policies or guidelines which reflect and are basically consistent with the policies of the State Board and Coordinating Committee. These are:

1. The citizens of the State of Wisconsin are entitled to high-quality vocational, technical and adult education opportunities.

2. The major factors of educational quality are: administration, instructional staff, instructional equipment, physical plant and programs.

3. The district plan should enhance the development of high-quality vocational, technical and adult education programs.

4. Program quality depends upon:

   a. Program depth which can be achieved by offering in each district specialized training opportunities in several occupational areas. There are six major occupational training areas: trade and industry, business and distributive, health and service, graphic and applied arts,

agriculture and agriculture-related, and home economics and home economics related. Despite the great diversity of the state's economy and labor force, all parts of the state have occupational training requirements in at least four of these six occupational areas. Therefore, a program of adequate depth can and should include training opportunities in four of the six areas.

b. Program breadth which is provided by offering an adequate number of programs in each occupational area so that students will have some reasonable amount of choice in their training programs. A program providing training opportunities in only one field in each of the four occupational training areas noted above would have program depth but not breadth. In general, it is believed that minimum program breadth can be achieved if at least two associate degree majors and two one-year programs are offered in each of the four occupational areas, and if each district were to specialize by providing additional programs in at least one of the four occupational areas.

An example of program depth and breadth is shown in the accompanying Table 32. In this example the specialty of the area school is in trade and industrial occupations, where six, two-year associate degree programs, six, one-year or less programs and two or more apprentice programs are offered. Two, two-year associate degree and two, one-year or less programs are offered in each of the other three occupational areas. This is only an illustration of a minimum program and is not intended to be a prescribed curriculum. The actual curriculum at any school will be determined by student demands, financial capabilities, local and regional needs, etc.

CRITERIA FOR DELINEATING DISTRICTS

The following criteria were used in delineating alternative districting proposals:

1. Each district should have a potential for generating a minimum of 760-780 full-time equivalent vocational-technical students.[28] This is the minimum number needed to establish

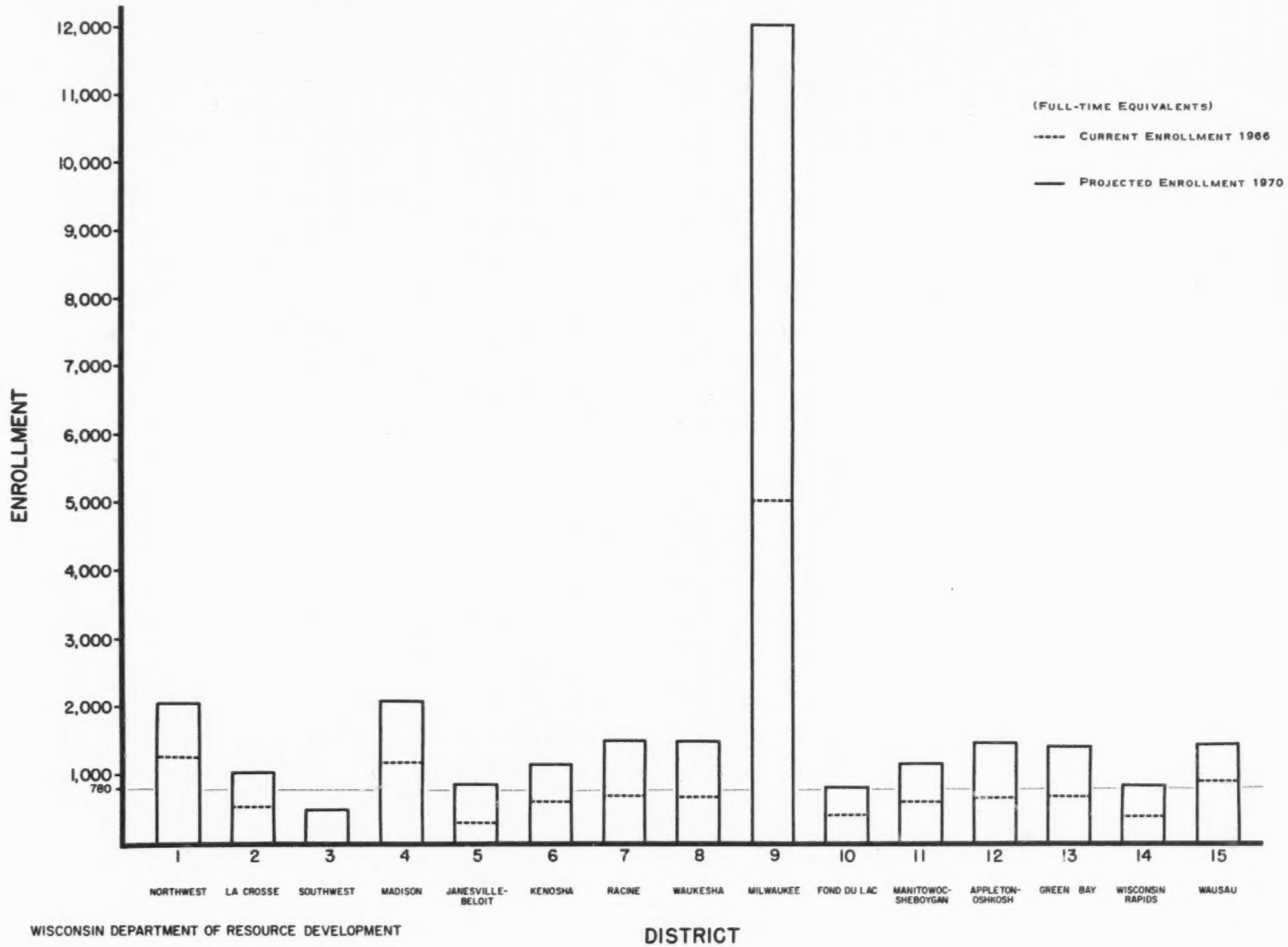
[28] This number of students will provide for an average of 20 students per course per program, assuming attrition (dropout) rates of 33 per cent in associate degree programs and 20 per cent in one-year-or-less programs. Attrition in apprenticeship programs is insignificant. See appendix for a detailed estimate.

TABLE 32: ILLUSTRATIVE MINIMUM PROGRAM FOR AN AREA SCHOOL

Occupational Area	Associate Degree Programs	One-Year-Or-Less Programs	Apprenticeship Programs
1. Trade and Industry Education	1. Fluid Power Technician	1. Fluid Power Maintenance	1. Bricklaying
	2. Mechanic Design Technician	2. Drafting	2. Carpentry
	3. Instrumentation Technician	3. Sheet Metal	+ Others
	4. Electronics Technician	4. Auto Repair	
	5. Air Conditioning and Refrigeration Technician	5. Machine Operator	
	6. Metallurgical Technician	6. Small Engine Repair	
2. Business and Distributive Education	1. Accounting	1. Stenography	
	2. Marketing	2. Legal Secretary	
3. Health and Services Education	1. Fire Technology	1. Dental Assistant	
	2. Restaurant and Hotel Cookery	2. Practical Nursing	
4. Home Economics Education	1. Dietician	1. Alteration Assistant	
	2. Interior Decorating	2. Textile Design Assistant	

Source: Area Development Committee.

PART AND FULL-TIME ENROLLMENTS IN POST HIGH SCHOOL VOCATIONAL AND TECHNICAL PROGRAMS 1966 AND 1970



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

a program that provides the depth and breadth outlined above without establishing programs that will have in them less than 20 students. This criterion is supported by 1) an estimate of the number of students needed to economically operate the general education programs that are necessary for the support of two-year associate degree programs;[29] and 2) a recently developed program for technical education in Illinois where a basic criteria of 800 full-time equivalent students per region was proposed.[30]

Further, adherence to this criterion will provide enough students to justify the employment of several teaching specialists in both technical and general subjects; support a basic administrative unit including guidance, supervision and curriculum development; and provide classes large enough to make the most effective use of shops, laboratories and classrooms.

Each district should be capable of producing each year enough high school graduates to generate 760-780 full-time vocational-technical students. Assuming that about 18 per cent of all high school graduates go into vocational-technical programs and that only 20-33 per cent of them drop out, this would require about 3,000 high school graduates annually. Of course, those districts sending more than 18 per cent of their graduates to vocational-technical programs would require fewer high school graduates to generate the 760-780 full-time students.

2. Each district should have a minimum of $450 million in taxable property valuation. This amount is adequate to support the cost of operation of area, day and evening schools in each district, and to permit repayment of bonds for the construction of new facilities, where needed, without exceeding the authorized two mill property tax levy.

3. Every attempt should be made to provide area schools within convenient commuting time (60 minutes) of most of the people in the state, consistent with the criterion outlined above. The practical result of this criterion is that the districts were generally delineated so that major population concentrations were located somewhat near the center of each district. In most cases these cities are the location of the

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29 See Appendix D for detailed estimate.

30 University of Illinois, Bureau of Educational Research, Vocational and Technical Education in Illinois, Urbana, 1960, pp. 88-89.

leading vocational-technical schools in the state and, consequently, are the most likely locations for area schools.

The criteria outlined here are, for the most part, based upon consideration of the student and financial foundation needed to support the development of area schools. This does not mean that there will be a narrowing of vocational and technical education opportunities at those places that are not the location of an area school. On the contrary, the delineation of districts strong enough to support the development of area schools will insure that the district has the potential for enhancing existing and developing new day and evening schools that are consistent with its needs.

The projected high school graduates, potential full- and part-time enrollments in post-high school programs, and the equalized property valuation of each county in the state are shown in Appendix E.

4. A final criterion was that it would be desirable to create fewer and larger districts because such districts can provide high-quality vocational, technical and adult education at the most reasonable cost to the student, the district and other levels of government that financially aid these programs. It is axiomatic that "high quality at reasonable cost" depends upon a substantial full-time student enrollment at an area school. Such an enrollment is necessary to spread the cost of providing a sufficient range of associate degree programs and general education subjects, and recruiting and retaining a high-caliber faculty. For a district to generate this enrollment, however, a sizeable high school graduate pool and population base are essential. This means larger and fewer districts, especially in the less densely settled areas of the state.

Specific advantages are:

a. a greater variety of vocational-technical programs and general education courses, thus broadening opportunities for the student,

b. a stronger and more viable tax base,

c. a greater flexibility should adjustments in districting be warranted, and

d. larger geographic units for vocational-technical education are not only conducive to quality, program variety, and broader opportunity for the student, but

are capable of yielding greater revenues with which to fund instructional costs and to build and expand physical facilities. In essence, larger districts afford a stronger tax base upon which to develop an area system of vocational-technical education. Greater resources can be mobilized wherever required in the district.

Moreover, a plan characterized by fewer and larger districts allows greater flexibility or ease of adjustment. If the enrollment potentials exceed those projected in any area, it will be relatively simple to expand the number of districts. If, however, too many districts are initially established, the result may be a needless dissipation of resources and difficulties in readjusting the number of districts in the future.

Finally, the problem of staffing area schools in each district becomes more acute with a greater number of districts. Competition for scarce, well trained personnel is intensified--a situation in which less populous districts are likely to find themselves at a disadvantage. Larger and fewer districts, on the other hand, mean that the services and staff of a quality technical institute can be made available to residents of less populous areas on a part-time or project basis.

A smaller number of area schools would have the advantage of concentrating rather than dispersing state and local efforts to establish these schools and should result in the more rapid development of stronger area schools.

THE DISTRICT DEVELOPMENT PLAN

The district development plan presented here substantially meets the criteria outlined above. This plan was formally adopted by the State Board of Vocational, Technical and Adult Education and the Coordinating Committee for Higher Education after holding public hearings in more than 14 cities throughout the state at which alternative district plans were thoroughly studied and discussed. Special reports on district plan alternatives, the public hearings, and the adopted plan were made to the State Legislature Interim Education Committee.

Two districts in the northern part of the state, as indicated on the plan, are undergoing further analysis; a final determination of these district lines will be made in the near future. The

precise delineation of district lines along either county or high school district boundaries will also be made in the near future.

Table 33 summarizes the characteristics of each of the districts. It was assumed in making the enrollment projections that every district would increase the proportion of high school graduates attending vocational-technical programs by about 3 per cent per year.

ADDITIONAL DAY SCHOOLS. Each district board, as it is created, will have the responsibility for developing needed new programs and facilities in its own area. It does not appear likely that any existing programs will be abandoned under the new districting plan; on the contrary, it appears that statewide districting will stimulate and make financially feasible the establishment of even more programs than exist today.

Since day schools will also be called upon to provide substantial part-time day and evening programs in addition to full-time day programs, and since it is inconvenient for most people to travel long distances to participate in part-time and evening programs, it would be desirable, as an ideal, to provide such programs within 30 minutes driving time of most of the state's population. About 80 per cent of the state's population is now within this time range of an existing or programmed facility.[31] Some areas of the state, however, do not have such opportunities within this time range. To accomplish a more widespread distribution of opportunity, it would be desirable to establish additional day schools at some time in the future in these general areas: Elkhorn-Lake Geneva area, Monroe area, Shawano-Clintonville area, Pierce-St. Croix counties area, Mauston-New Lisbon area, Reedsburg-Baraboo area, and Wauwatosa area. The decision to actually establish such programs must, of course, be based upon thorough study of the student potential and costs of operation of these programs at the time they are established. Due consideration must be given to the need to strengthen existing programs as well as establishing new programs. It should be noted that establishment of day programs in the areas listed above would place day schools within easy access of an additional 7 per cent of the state's population. The resources needed to do this (especially state and federal aids) might better be utilized in strengthening existing day programs in other areas of the state. Close state-local coordination of activities is, therefore, required in the development of any new day programs.

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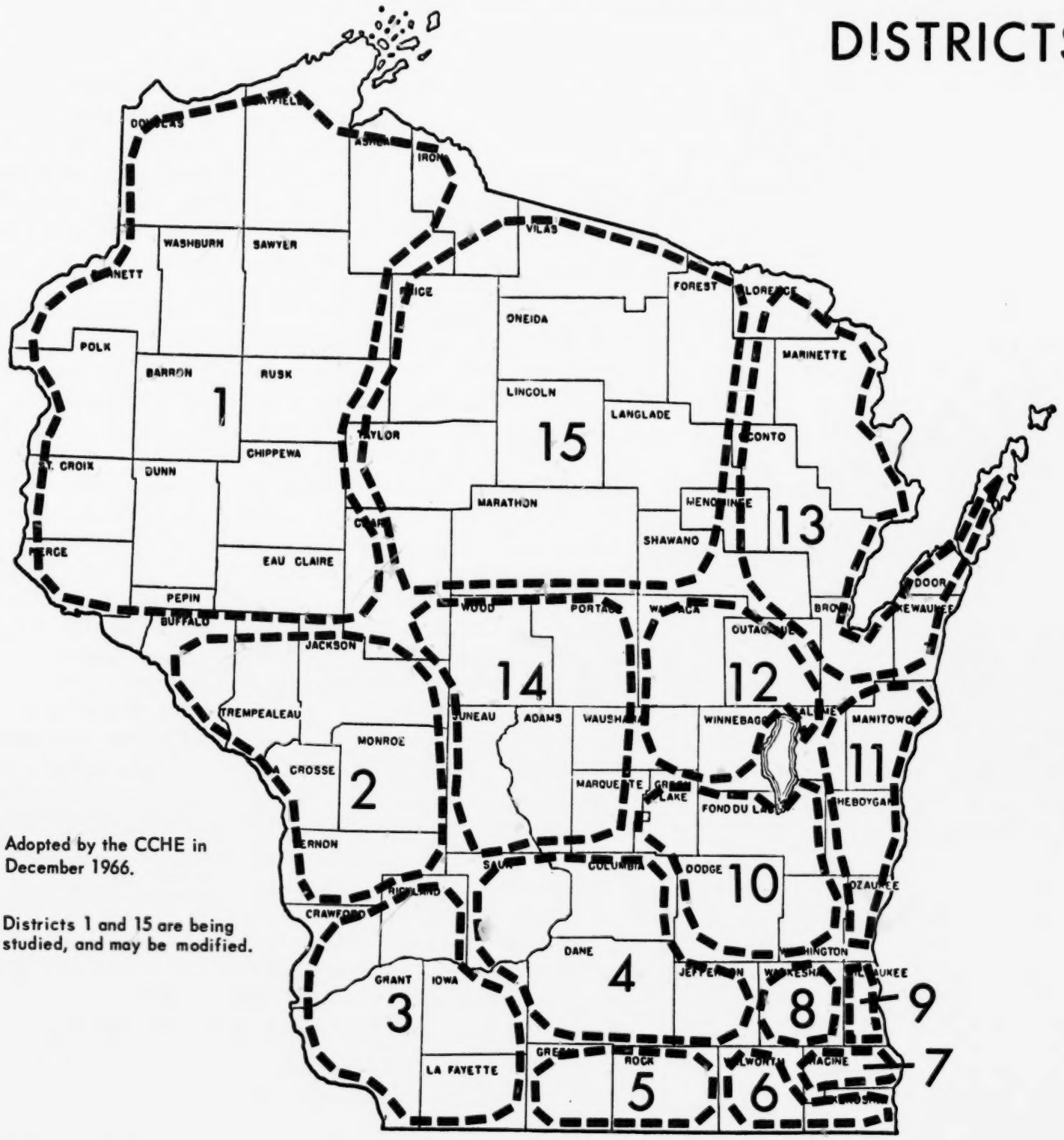
[31] This assumes the establishment of a day program in southwest Wisconsin.

GENERALIZED VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICTS

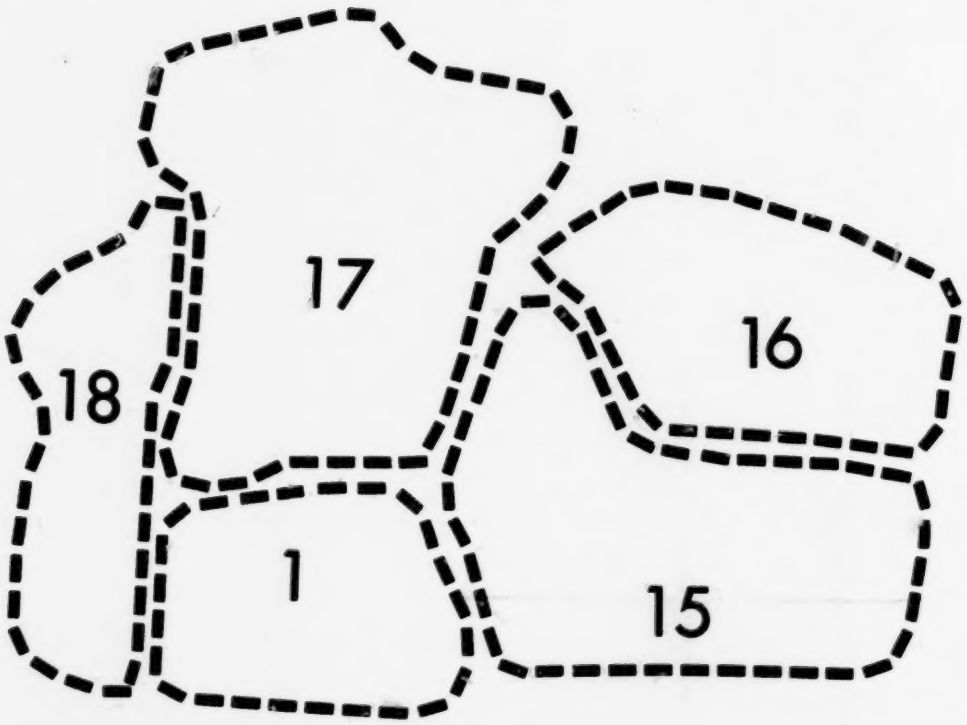


Adopted by the CCHE in December 1966.

Districts 1 and 15 are being studied, and may be modified.

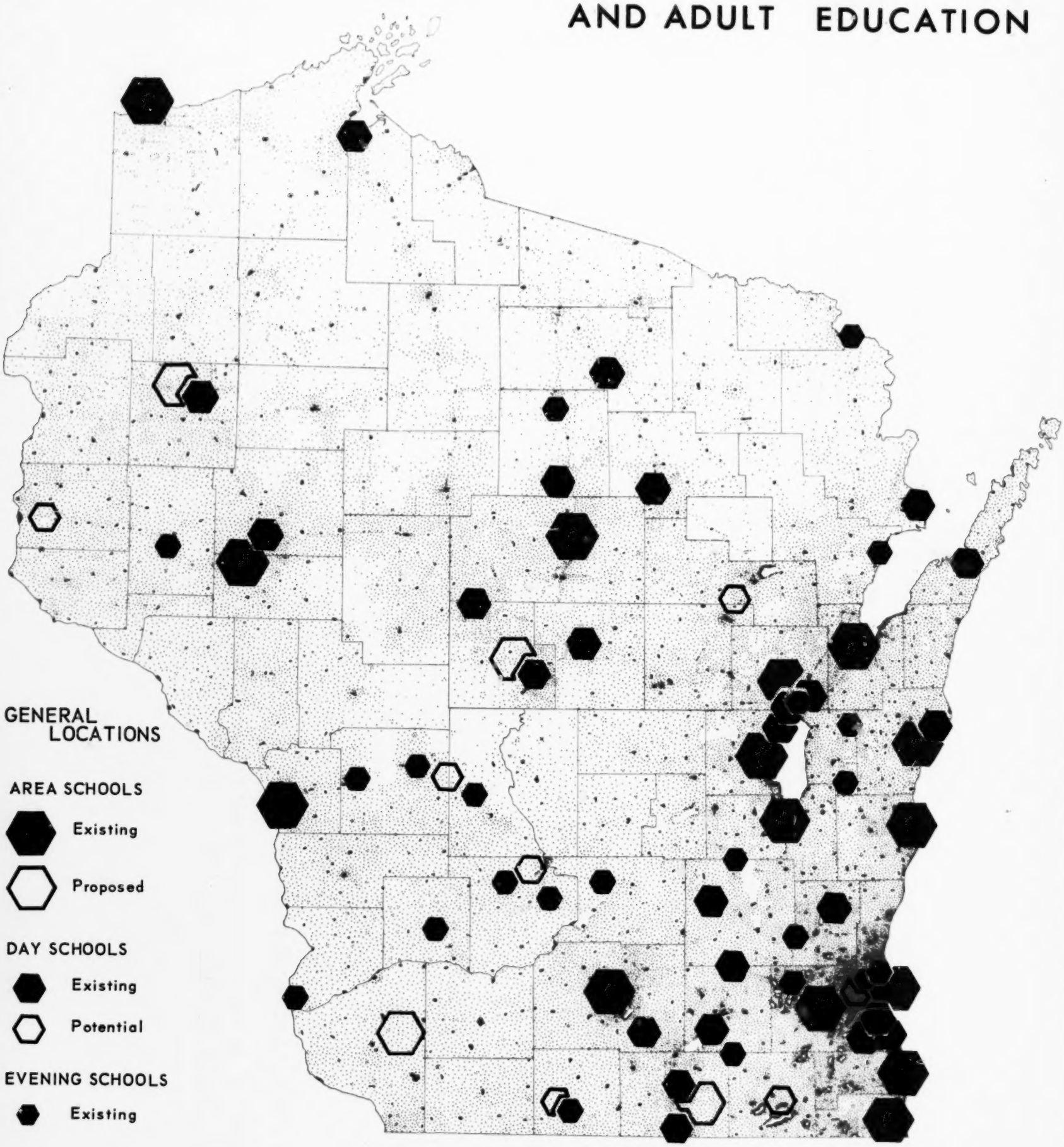
WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

For use with preceding district map.



Modifications adopted by
ne CCHE in May 1967

DEVELOPMENT PLAN FOR VOCATIONAL, TECHNICAL AND ADULT EDUCATION



WISCONSIN DEPARTMENT OF RESOURCE DEVELOPMENT

EACH GRAY DOT REPRESENTS 25 PERSONS.
DENSELY SETTLED AREAS ARE SHOWN IN SOLID GRAY.

The preparation of this map was financed in part through an urban planning grant from the Housing and Home Finance Agency under the provisions of Section 701 of the Housing Act of 1954, as amended.

TABLE 33: CHARACTERISTICS OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICTS

Area	Potential Enrollment in Post-High School Programs*		Equalized Property Valuation 1965	Per Cent of Population Within Driving Time of Major City or Cities		
	1970	1980	(in millions)	0-30 Min.	30-60 Min.	0-60 Min.
Northwest	2,040	3,720	$ 1,732	43%	28%	71%
La Crosse	1,050	2,250	771	33	32	65
Southwest	480	860	533	15	85	100
Madison	2,070	4,890	2,297	53	41	94
Janesville-Beloit	830	2,200	876	70	29	99
Kenosha	1,110	2,870	1,123	98	2	100
Racine	1,510	3,740	924	95	5	100
Waukesha	1,490	5,660	1,224	97	3	100
Milwaukee	11,050	23,800	6,468	93	6	99
Fond du Lac	1,180	2,580	1,243	53	37	90
Manitowoc-Sheboygan	1,140	2,480	1,316	96	4	100
Appleton-Oshkosh	1,070	2,580	1,634	74	15	89
Green Bay	1,400	2,170	1,315	56	24	80
Wisconsin Rapids	800	1,670	750	25	50	75
Wausau	1,430	2,650	1,251	40	26	66
Total	28,640	64,110	$23,455	86%	12%	98%

* In full-time equivalents.

Source: Area Development Committee, Alternative Plans for the Development of Vocational, Technical and Adult Education Districts, November 1966, p.25.

INTERSTATE AGREEMENTS AND CONSOLIDATIONS

Some vocational-technical programs may most economically be provided to residents of Wisconsin by nearby facilities in neighboring states that have or are planning to establish vocational and technical programs in cities close to the state's borders. The feasibility of executing interstate agreements to open other states' facilities to Wisconsin residents or vice versa in the Marinette, Wisconsin-Menominee, Michigan; Niagara, Wisconsin-Iron Mountain, Michigan; Duluth-Superior, Dubuque, and Rockford areas should be investigated. This kind of coordination of facilities and programs can, where programs equal in quality to those of Wisconsin schools exist, result in substantial savings to both the districts and the state as a whole.[32]

The same principle of coordination and/or consolidation of school facilities and programs may be feasible in some areas within the state where municipalities with separate facilities lie side by side. Consolidation may be possible in the Appleton-Neenah-Kaukauna, the Manitowoc-Two Rivers, and the Cudahy-South Milwaukee areas. The Appleton-Neenah-Kaukauna urban area, for example, is only about 20 miles long. A single school located at Appleton, at the center of urban development would, therefore, be within ten miles of most of the people in the area. Consolidation of the Cudahy-South Milwaukee schools and extension of service to areas with substantial growth potential, such as Franklin and Oak Creek, may also be feasible. Achievement of such consolidations rests upon a number of factors including successful cooperation between the communities concerned, the condition, age and reuse potential of existing facilities, enrollment potentials, and so forth. Detailed studies considering these and other pertinent factors should be undertaken by the districts involved and by the State Board of Vocational, Technical and Adult Education.

RESIDENTIAL FACILITIES. In some areas of the state people are so widely dispersed that it is virtually impossible to provide high-quality programs within convenient commuting distance. In these cases the district boards may wish to give consideration to the feasibility of constructing residential facilities for the students. Such facilities may also be required at other schools, particularly in those areas where the private housing market is not able to supply an adequate number of student rental units at convenient locations and at suitable rent levels.

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[32] Such investigation is now being done by the CCHE. The CCHE support an interstate agreement with Michigan whereby students in northern Wisconsin could avail themselves of public higher educational opportunities in upper Michigan.

APPENDIX TABLE A: SUMMARY OF ASSIGNABLE AND NON-ASSIGNABLE FLOOR SPACE IN REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Appleton	Ashland	Beloit	Beaver Dam	Eau Claire	Fond du Lac	Fort Atkinson	Green Bay
Assignable Floor Space								
Active Instructional								
Classroom	6,839	1,475	7,252	2,252	6,071	12,046	2,448	25,879
Teaching Laboratory	24,648	7,906	23,023	7.890	41,875	20,733	6,178	35,586
Related Faculty Offices	294	92	0	0	2,557	707	0	0
Library	656	0	1,310	234	0	865	0	0
Auditorium & Assembly	0	0	2,440	0	0	2,395	0	5,360
Other Active Instructional	2,647	969	0	0	2,516	3,996	0	0
Related Instructional								
Extension & Public Service	0	0	1,571	0	0	0	0	0
Physical Education	0	0	0	0	0	0	0	7,198
Non-Instructional								
Administrative Offices	1,859	718	2,947	276	2,651	1,561	267	3,549
Auxiliary Enterprises	491	0	1,206	0	4,619	2,210	0	5,748
Supporting Physical Plant	1,680	1,092	0	162	0	1,760	0	3,144
Other Active Non-Instructional	75	598	0	0	0	983	0	0
Inactive Floor Space								
Under Construction or Remodeling	0	0	0	0	0	0	0	0
Non-Assignable Floor Space								
Circulatory	10,298	3,171	9,361	226	7,922	7,299	1,874	19,755
Rest Rooms	1,740	410	1,298	80	2,633	1,433	496	2,990
Custodial Service	66	0	3,236	56	1,116	30	340	2,597
Non-Usable	0	637	4,265	357	1,950	0	0	9,509
Total Square Feet	51,293	17,068	57,909	11,533	73,910	56,018	11,603	121,315

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development, 1964.

APPENDIX TABLE A: SUMMARY OF ASSIGNABLE AND NON-ASSIGNABLE FLOOR SPACE IN REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Janesville	Kenosha	La Crosse	Madison	Manitowoc	Marinette	Marshfield	Menasha
Assignable Floor Space								
Active Instructional								
Classroom	1,864	10,596	19,354	5,729	1,611	4,599	10,684	3,555
Teaching Laboratory	13,310	21,459	39,116	46,868	23,388	7,540	9,156	16,053
Related Faculty Offices	0	10,197	1,147	452	904	0	187	174
Library	0	858	240	454	840	0	1,287	0
Auditorium & Assembly	0	1,044	18,821	3,680	0	1,288	7,052	0
Other Active Instructional	0	0	3,290	5,255	0	0	0	774
Related Instructional								
Extension & Public Service	0	0	0	13,265	0	0	5,470	0
Physical Education	0	0	130	8,492	9,254	2,706	9,178	0
Non-Instructional								
Administrative Offices	817	2,264	2,051	5,203	2,475	1,188	1,184	530
Auxiliary Enterprises	166	1,885	1,106	0	0	0	72	0
Supporting Physical Plant	0	3,996	7,137	3,122	0	1,868	2,637	879
Other Active Non-Instructional	0	0	2,630	7,156	840	0	5,299	0
Inactive Floor Space								
Under Construction or Remodeling	0	0	1,096	0	0	0	0	0
Non-Assignable Floor Space								
Circulatory	1,314	21,013	17,715	24,284	6,604	5,000	13,649	0
Rest Rooms	496	1,430	8,338	3,191	1,071	330	1,291	330
Custodial Service	196	569	1,205	1,119	2,696	240	579	220
Non-Usable	0	0	2,453	13,274	1,380	0	0	0
Total Square Feet	18,163	79,421	125,829	141,344	52,292	24,759	67,723	22,515

Source: Data reported in the survey of Vocational, Technical and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE A: SUMMARY OF ASSIGNABLE AND NON-ASSIGNABLE FLOOR SPACE IN REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Merrill	Milwaukee	Neenah	Oshkosh	Port Washington	Racine	Rhinelander	Rice Lake
Assignable Floor Space								
Active Instructional								
Classroom	1,819	82,676	800	10,984	0	9,808	6,549	808
Teaching Laboratory	6,833	191,309	8,163	14,574	8,801	48,808	6,947	9,810
Related Faculty Offices	264	34,573	190	192	48	2,782	56	0
Library	0	9,546	0	1,008	0	1,561	0	808
Auditorium & Assembly	0	20,815	4,000	0	0	0	0	0
Other Active Instructional	0	22,776	0	712	0	863	334	0
Related Instructional								
Extension & Public Service	0	7,699	7,870	0	2,184	0	0	0
Physical Education	0	21,113	13,850	0	0	0	4,056	0
Non-Instructional								
Administrative Offices	440	0	790	2,786	792	2,649	700	525
Auxiliary Enterprises	0	52,543	0	818	0	3,020	0	0
Supporting Physical Plant	0	50,045	0	0	1,055	2,884	1,256	0
Other Active Non-Instructional	0	0	10,800	1,472	952	0	1,933	0
Inactive Floor Space								
Under Construction or Remodeling	0	0	0	0	0	0	0	0
Non-Assignable Floor Space								
Circulatory	2,016	165,159	7,600	8,864	0	18,431	7,053	1,973
Rest Rooms	376	12,087	750	1,484	509	2,377	1,277	360
Custodial Service	123	13,112	1,160	604	781	76	96	214
Non-Usable	0	0	0	576	960	0	0	0
Total Square Feet	11,871	683,453	55,973	44,074	16,082	93,259	30,257	14,498

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE A: SUMMARY OF ASSIGNABLE AND NON-ASSIGNABLE FLOOR SPACE IN REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Sheboygan	Stevens Point	Sturgeon Bay	Superior	Watertown	Waukesha	Wausau	West Allis
Assignable Floor Space								
Active Instructional								
Classroom	12,081	3,969	748	6,685	2,533	3,072	8,265	10,450
Teaching Laboratory	38,961	9,418	9,868	21,517	2,607	20,018	23,819	22,820
Related Faculty Offices	0	374	0	1,106	0	0	1,764	0
Library	1,127	0	0	1,012	0	768	1,902	0
Auditorium & Assembly	2,996	0	0	3,797	0	0	0	0
Other Active Instructional	0	501	370	5,069	0	0	1,418	0
Related Instructional								
Extension & Public Service	0	0	0	0	0	0	1,591	0
Physical Education	4,868	0	0	0	0	0	0	0
Non-Instructional								
Administrative Offices	4,256	612	345	0	594	1,732	1,183	2,075
Auxiliary Enterprises	2,189	712	0	4,944	0	0	3,265	0
Supporting Physical Plant	0	1,124	0	5,925	588	0	0	1,520
Other Active Non-Instructional	0	0	1,200	7,254	1,181	468	909	444
Inactive Floor Space								
Under Construction or Remodeling	0	0	0	0	0	0	0	0
Non-Assignable Floor Space								
Circulatory	18,858	2,773	0	7,386	2,874	5,400	7,266	0
Rest Rooms	1,098	468	100	2,823	303	2,000	1,490	940
Custodial Service	441	32	80	3,867	0	0	2,438	936
Non-Usable	1,093	0	0	0	0	0	2,020	0
Total Square Feet	78,676	19,983	12,711	71,385	10,680	33,458	55,750	39,185

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE A: SUMMARY OF ASSIGNABLE AND NON-ASSIGNABLE FLOOR SPACE IN REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS		GRAND TOTAL
	West Bend	Wisconsin Rapids	
Assignable Floor Space			
Active Instructional			
Classroom	3,036	2,791	289,328
Teaching Laboratory	2,887	15,240	807,132
Related Faculty Offices	0	517	58,577
Library	0	374	24,850
Auditorium & Assembly	0	4,550	78,238
Other Active Instructional	0	1,140	52,630
Related Instructional			
Extension & Public Service	0	0	39,650
Physical Education	0	0	66,432
Non-Instructional			
Administrative Offices	75	920	50,014
Auxiliary Enterprises	0	0	84,994
Supporting Physical Plant	0	0	91,874
Other Active Non-Instructional	0	0	44,194
Inactive Floor Space			
Under Construction or Remodeling	0	0	1,096
Non-Assignable Floor Space			
Circulatory	0	7,500	412,629
Rest Rooms	0	1,250	57,249
Custodial Service	0	35	38,260
Non-Usable	0	400	38,883
Total Square Feet	5,998	35,297	2,236,030

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE B: SUMMARY OF CLASSROOM SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Appleton	Ashland	Beloit	Beaver Dam	Eau Claire	Fond du Lac	Fort Atkinson	Green Bay
Number of Classrooms	10	4	12	2	10	14	4	22
Number of Student Stations	317	52	292	20	262	322	66	623
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	193	37	214	38	251	224	66	343
Per Cent of Possible Room Periods Used During Day	55.1	26.4	50.6	54.3	71.7	45.7	47.1	44.5
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	3,668	386	2,289	212	5,226	2,950	498	6,248
Student Hours Per Station for Week (during day)	11.6	7.4	7.8	10.6	19.9	9.2	7.5	10.0
Per Cent of Possible Station Use (during day)	33.1	21.2	22.3	30.3	56.9	26.2	21.6	28.7
Per Cent of Station Use When Room is in Use (during day)	59.2	86.7	43.6	55.8	78.8	58.4	58.5	66.3

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE B: SUMMARY OF CLASSROOM SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Janesville	Kaukauna	Kenosha	La Crosse	Madison	Manitowoc	Marinette	Marshfield
Number of Classrooms	5	9	16	24	12	3	7	18
Number of Student Stations	105	221	535	876	342	67	198	647
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	81	133	243	294	292	52	68	526
Per Cent of Possible Room Periods Used During Day	46.0	42.2	43.3	35.0	69.5	49.5	24.5	83.5
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	1,633	2,662	5,298	6,163	6,960	653	748	15,861
Student Hours Per Station for Week (during day)	15.6	12.0	9.9	7.0	20.4	9.7	3.7	24.5
Per Cent of Possible Station Use (during day)	44.4	34.4	28.2	20.1	58.1	27.8	10.8	70.0
Per Cent of Station Use When Room is in Use (during day)	58.0	77.2	67.5	60.2	83.6	56.3	70.5	79.0

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE B: SUMMARY OF CLASSROOM SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Menasha	Merrill	Milwaukee	Neenah	Oshkosh	Racine	Rhinelander	Rice Lake
Number of Classrooms	5	3	91	1	14	14	7	1
Number of Student Stations	138	80	3,916	24	371	360	139	30
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	90	20	2,359	18	263	253	66	23
Per Cent of Possible Room Periods Used During Day	51.4	19.0	74.1	51.4	53.7	51.6	26.9	65.7
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	1,681	185	58,289	178	3,756	4,351	845	465
Student Hours Per Station for Week (during day)	12.2	2.3	14.9	7.4	10.1	12.1	6.1	15.5
Per Cent of Possible Station Use (during day)	35.8	6.6	42.5	21.2	28.9	34.5	17.4	44.3
Per Cent of Station Use When Room is in Use (during day)	67.0	37.7	59.4	41.2	53.5	65.2	64.7	67.4

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE B: SUMMARY OF CLASSROOM SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Sheboygan	Stevens Point	Sturgeon Bay	Superior	Waukesha	Wausau	West Allis	West Bend
Number of Classrooms	15	7	2	10	4	12	13	6
Number of Student Stations	367	141	40	221	85	344	547	187
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	187	133	27	170	95	350	243	0
Per Cent of Possible Room Periods Used During Day	35.6	54.3	38.6	48.6	67.9	83.3	53.4	0
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	2,483	1,401	302	2,123	1,464	6,065	3,029	0
Student Hours Per Station for Week (during day)	7.4	9.9	7.6	11.7	17.2	17.6	5.5	0
Per Cent of Possible Station Use (during day)	21.2	28.4	21.6	33.5	49.2	50.4	15.8	0
Per Cent of Station Use When Room is in Use (during day)	53.2	53.6	55.9	66.2	72.8	63.0	43.9	0

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE B: SUMMARY OF CLASSROOM SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOL	GRAND TOTAL
	Wisconsin Rapids	
Number of Classrooms	7	384
Number of Student Stations	101	12,036
Room Use, Weekly Basis		
Total Room Periods Used During Week (during day)	171	7,523
Per Cent of Possible Room Periods Used During Day	69.8	56.0 (mean)
Student Station Use, Weekly Basis		
Total Student Station Periods Occupied (during day)	1,803	149,875
Student Hours Per Station for Week (during day)	16.2	12.5
Per Cent of Possible Station Use (during day)	46.4	36.2 (mean)
Per Cent of Station Use When Room is in Use (during day)	65.0	61.6 (median)

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE C: SUMMARY OF LABORATORY SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Appleton	Ashland	Beloit	Beaver Dam	Eau Claire	Fond du Lac	Fort Atkinson	Green Bay
Number of Laboratories	19	10	18	2	25	12	7	32
Number of Student Stations	370	153	357	17	602	237	85	708
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	380	202	397	10	607	200	138	503
Per Cent of Possible Room Periods Used During Day	57.0	57.7	63.0	14.3	69.2	47.6	56.3	44.9
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	4,576	2,720	4,018	37	11,989	2,531	675	7,207
Student Hours Per Station for Week (during day)	12.4	17.7	11.3	2.2	19.9	10.7	7.9	10.2
Per Cent of Possible Station Use (during day)	35.3	50.8	32.0	6.2	56.9	30.5	22.6	29.1
Per Cent of Station Use When Room is in Use (during day)	65.7	79.5	51.7	46.3	80.5	65.2	38.9	72.7

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE C: SUMMARY OF LABORATORY SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Janesville	Kaukauna	Kenosha	La Crosse	Madison	Manitowoc	Marinette	Marshfield
Number of Laboratories	16	7	18	24	63	21	5	13
Number of Student Stations	300	186	451	649	1,694	447	114	340
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	293	129	287	462	1,402	300	106	334
Per Cent of Possible Room Periods Used During Day	52.9	52.7	45.5	54.9	63.6	40.8	60.5	73.4
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	4,649	2,685	5,062	7,752	23,688	4,093	1,224	6,964
Student Hours Per Station for Week (during day)	15.5	14.4	11.2	11.9	14.0	9.2	10.7	20.9
Per Cent of Possible Station Use (during day)	44.3	41.2	32.0	34.1	40.0	25.6	30.6	58.5
Per Cent of Station Use When Room is in Use (during day)	92.6	77.4	64.9	60.1	78.1	63.2	72.5	71.1

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE C: SUMMARY OF LABORATORY SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Menasha	Merrill	Milwaukee	Neenah	Oshkosh	Port Washington	Racine	Rhinelander
Number of Laboratories	14	7	118	5	14	13	28	7
Number of Student Stations	255	115	2,653	74	258	237	575	130
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	167	68	2,878	109	160	150	542	118
Per Cent of Possible Room Periods Used During Day	34.0	27.7	69.7	62.3	32.7	33.0	55.3	48.2
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	2,904	527	48,465	1,478	1,894	2,297	8,906	1,453
Student Hours Per Station for Week (during day)	11.4	4.6	18.3	20.0	7.2	9.7	15.5	11.2
Per Cent of Possible Station Use (during day)	32.5	13.1	52.2	57.1	21.0	27.7	44.3	31.9
Per Cent of Station Use When Room is in Use (during day)	72.4	40.1	80.5	88.0	59.3	87.2	74.4	67.0

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE C: SUMMARY OF LABORATORY SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS							
	Rice Lake	Sheboygan	Stevens Point	Sturgeon Bay	Superior	Watertown	Waukesha	Wausau
Number of Laboratories	9	23	9	7	14	8	15	19
Number of Student Stations	174	338	150	108	250	135	285	427
Room Use, Weekly Basis								
Total Room Periods Used During Week (during day)	246	254	223	177	263	97	273	525
Per Cent of Possible Room Periods Used During Day	78.1	31.6	70.8	72.2	53.7	34.6	52.0	78.9
Student Station Use, Weekly Basis								
Total Student Station Periods Occupied (during day)	2,816	2,301	1,933	2,108	4,374	661	3,204	8,656
Student Hours Per Station for Week (during day)	16.2	6.8	12.9	19.5	17.5	10.3	11.2	11.9
Per Cent of Possible Station Use (during day)	46.2	19.5	36.8	55.8	50.0	14.0	32.1	57.9
Per Cent of Station Use When Room is in Use (during day)	58.8	59.2	51.6	76.6	86.6	36.5	53.7	78.6

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX TABLE C: SUMMARY OF LABORATORY SPACE UTILIZATION DATA FOR REPORTING VOCATIONAL, TECHNICAL AND ADULT EDUCATION SCHOOLS, 1964

	SCHOOLS			GRAND TOTAL
	West Allis	West Bend	Wisconsin Rapids	
Number of Laboratories	20	5	9	623
Number of Student Stations	427	84	174	13,331
Room Use, Weekly Basis				
Total Room Periods Used During Week (during day)	355	107	224	12,497
Per Cent of Possible Room Periods Used During Day	47.9	61.1	77.5	57.3 (mean)
Student Station Use, Weekly Basis				
Total Student Station Periods Occupied (during day)	4,129	1,415	2,860	190,047
Student Hours Per Station for Week (during day)	9.7	16.8	16.4	14.3
Per Cent of Possible Station Use (during day)	27.6	48.1	47.0	40.7 (mean)
Per Cent of Station Use When Room is in Use (during day)	54.9	66.0	60.9	66.0 (median)

Source: Data reported in the survey of Vocational, Technical, and Adult Education facilities undertaken jointly by the Wisconsin Board of Vocational and Adult Education and the Wisconsin Department of Resource Development.

APPENDIX D: ESTIMATE OF NUMBER OF STUDENTS NEEDED TO ECONOMICALLY OPERATE GENERAL EDUCATION PROGRAMS NEEDED TO SUPPORT VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS.

1. There are five areas of general education that might be offered in support of vocational and technical education programs: English, Social Science, Psychology, Mathematics, Science.

2. In order to give adequate support to the vocational-technical program it is necessary to provide about 23 different general education courses. An illustrative minimum offering is as follows:

Field	Illustrative Course Title	
	For Technical Students (Two Year Programs)	For Vocational Students (One Year Programs)
English	Speech Composition	Communication Skills
Mathematics	College Algebra Calculus Statistics Statistics & Kinematics	Shop Arithmetic Business Arithmetic
Psychology	Human Relations Industrial Relations	Social Psychology Personal and Vocational Relationships
Science	Physics Chemistry Botany Materials of Industry	Electric Currents Metal Science
Social Science	Economics American Institutions Ethics	Orientation to Business and Industry

3. In order to provide students with an adequate choice it is necessary to offer each general education course at least twice a week. This would result in 46 general education classes being offered (23 classes x 2 meetings per week = 46 meetings per week).

4. In order to maintain classes of the most efficient and economic size, there should be an average of 20 students per class. This would result in a minimum of 920 students needed to efficiently and economically provide supporting general education courses (46 meetings per week x 20 students per class = 920 students).

5. It may be possible to offer some of these general education courses only once weekly because they would not be of general interest to students. According to the staff of the State Board it would be necessary to provide seven of the above courses (Calculus, Botany, Materials of Industry, Economics, Social Psychology, Electric Currents, Metal Science) only once weekly because of a generally lower demand for these courses. Thus, a minimum of 780 full-time students would be needed to economically provide supporting general education courses (20 students x 16 classes x 2 meetings per week plus 20 students x 7 classes x 1 meeting per week = 780 students).

APPENDIX E: POTENTIAL FULL-TIME AND PART-TIME STUDENTS ENROLLED IN POST HIGH SCHOOL VOCATIONAL-TECHNICAL COURSES.

County	1970 Full-Time	1970 Part-Time (FTE)	1970 Total	1980 Full-Time	1980 Part-Time (FTE)	1980 Total
Adams	25	0	25	45	0	45
Ashland	65	0	65	135	0	135
Barron	215	0	215	360	0	360
Bayfield	35	0	35	60	5	65
Brown	795	5	800	1,140	20	1,160
Buffalo	55	0	55	110	0	110
Burnett	35	0	35	60	0	60
Calumet	175	0	175	365	5	370
Chippewa	235	0	235	405	0	405
Clark	140	0	140	260	5	265
Columbia	240	5	245	430	10	440
Crawford	65	0	65	165	5	170
Dane	1,400	25	1,425	3,500	60	3,560
Dodge	250	0	250	455	0	455
Door	90	0	90	115	0	115
Douglas	220	10	230	395	15	410
Dunn	100	0	100	115	0	115
Eau Claire	385	0	385	640	5	645
Florence	25	0	25	40	0	40
Fond du Lac	475	10	485	980	20	1,000
Forest	50	0	50	65	0	65
Grant	175	0	175	400	0	400
Green	170	0	170	280	0	280
Green Lake	85	0	85	210	5	215
Iowa	100	0	100	170	0	170
Iron	30	0	30	60	0	60
Jackson	75	0	75	110	0	110
Jefferson	200	5	200	510	10	520
Juneau	70	0	70	145	0	145
Kenosha	960	90	1,050	2,485	235	2,720
Kewaunee	115	0	115	175	0	175
La Crosse	615	5	620	1,395	10	1,405
Lafayette	95	0	95	150	0	150
Langlade	110	5	115	220	5	225
Lincoln	120	0	120	265	0	265
Manitowoc	470	5	475	975	15	990
Marathon	650	65	715	1,145	115	1,260
Marinette	140	0	140	295	0	295
Marquette	30	0	30	50	0	50
Milwaukee	7,460	3,335	10,795	15,935	7,130	23,065
Monroe	135	0	135	305	0	305
Oconto	140	0	140	230	0	230
Oneida	110	10	120	265	25	290
Outagamie	560	5	565	1,470	10	1,480
Ozaukee	230	30	260	660	90	750
Pepin	45	0	45	75	0	75
Pierce	75	0	75	175	0	175

County	1970 Full-Time	1970 Part-Time (FTE)	1970 Total	1980 Full-Time	1980 Part-Time (FTE)	1980 Total
Polk	120	0	120	240	0	240
Portage	160	0	160	310	5	315
Price	65	0	65	90	0	90
Racine	1,245	205	1,450	3,080	510	3,590
Richland	55	0	55	60	0	60
Rock	535	15	550	1,600	45	1,645
Rusk	85	0	85	175	0	175
St. Croix	100	0	100	295	0	295
Sauk	170	0	170	270	0	270
Sawyer	40	0	40	70	0	70
Shawano*	150	0	150	260	0	260
Sheboygan	495	10	505	985	20	1,005
Taylor	85	0	85	165	0	165
Trempealeau	110	0	110	210	0	210
Vernon	120	0	120	210	0	210
Vilas	35	0	35	65	0	65
Walworth	225	5	230	580	15	595
Washburn	55	0	55	90	0	90
Washington	280	30	310	830	95	925
Waukesha	1,185	175	1,360	4,615	685	5,300
Waupaca	140	0	140	285	0	285
Waushara	50	0	50	95	0	95
Winnebago	635	10	645	1,430	30	1,460
Wood	395	5	400	885	10	895
Totals	24,550	4,090	28,640	54,875	9,235	64,110

*Includes Menominee County

Note: Detail may not equal total due to rounding.

Source: Area Development Committee, Alternative Plans for the Development of Vocational, Technical and Adult Education Districts, November, 1966. pp. 6-7.

APPENDIX E: ESTIMATED NUMBER OF HIGH SCHOOL GRADUATES BY COUNTY OF HIGH SCHOOL LOCATION, 1970 AND 1980.

County	1970	1980	County	1970	1980
Adams	80	75	Marathon	1,560	1,490
Ashland	280	215	Marinette	730	595
Barron	690	550	Marquette	110	95
Bayfield	190	140	Milwaukee	16,880	18,085
Brown	2,960	3,350	Monroe	580	465
Buffalo	210	205	Oconto	450	395
Burnett	130	95	Oneida	410	390
Calumet	500	580	Outagamie	2,340	2,605
Chippewa	790	710	Ozaukee	820	1,100
Clark	380	320	Pepin	190	160
Columbia	850	775	Pierce	440	450
Crawford	370	340	Polk	480	430
Dane	4,230	5,330	Portage	620	460
Dodge	860	845	Price	220	165
Door	360	255	Racine	2,850	3,105
Douglas	660	565	Richland	280	130
Dunn	290	285	Rock	2,060	2,375
Eau Claire	1,080	925	Rusk	300	255
Florence	80	80	St. Croix	510	590
Fond du Lac	1,670	1,560	Sauk	650	535
Forest	110	85	Sawyer	160	125
Grant	810	895	Shawano*	500	455
Green	620	450	Sheboygan	1,670	1,550
Green Lake	310	315	Taylor	280	235
Iowa	400	340	Trempealeau	430	410
Iron	80	65	Vernon	430	315
Jackson	300	205	Vilas	90	75
Jefferson	970	1,110	Walworth	1,050	1,160
Juneau	380	320	Washburn	150	135
Kenosha	1,960	2,590	Washington	1,140	1,400
Kewaunee	390	330	Waukesha	3,890	6,970
La Crosse	1,400	1,295	Waupaca	720	635
Lafayette	370	320	Waushara	170	160
Langlade	400	375	Winnebago	1,910	2,075
Lincoln	410	410	Wood	1,310	1,420
Manitowoc	1,600	1,510			
			Totals	73,690	78,980

*Includes Menominee County

Note: Detail may not equal total due to rounding.

Source: Wisconsin Department of Resource Development.

APPENDIX E: GENERAL PROPERTY TAX EQUALIZED VALUATION, BY COUNTY, 1965.

County	Equalized Valuation (Millions)	County	Equalized Valuation (Millions)
Adams	$ 36.9	Marathon	$ 317.5
Ashland	25.8	Marinette	99.3
Barron	108.0	Marquette	31.1
Bayfield	28.7	Menominee	17.5
Brown	601.4	Milwaukee	3,303.9
Buffalo	46.4	Monroe	85.3
Burnett	24.7	Oconto	82.7
Calumet	95.5	Oneida	115.4
Chippewa	122.3	Outagamie	314.0
Clark	95.4	Ozaukee	158.9
Columbia	120.5	Pepin	19.9
Crawford	37.3	Pierce	61.7
Dane	989.4	Polk	92.2
Dodge	211.8	Portage	96.0
Door	92.7	Price	24.6
Douglas	133.9	Racine	609.0
Dunn	54.7	Richland	55.7
Eau Claire	180.3	Rock	295.7
Florence	13.9	Rusk	30.5
Fond du Lac	318.4	St. Croix	91.8
Forest	13.0	Sauk	123.3
Grant	177.6	Sawyer	26.1
Green	100.4	Shawano	84.1
Green Lake	73.3	Sheboygan	360.5
Iowa	69.0	Taylor	39.7
Iron	17.9	Trempealeau	67.7
Jackson	39.7	Vernon	74.6
Jefferson	169.9	Vilas	69.0
Juneau	37.8	Walworth	232.9
Kenosha	396.1	Washburn	29.5
Kewaunee	72.3	Washington	239.3
La Crosse	181.8	Waukesha	759.9
Lafayette	84.9	Waupaca	110.4
Langlade	40.7	Waushara	44.2
Lincoln	47.3	Winnebago	441.3
Manitowoc	289.3	Wood	288.4
		Total	$14,042.8

Note: Detail may not equal total due to rounding.

Source: Wisconsin Department of Taxation "Property Tax 1965," Bulletin No. 465, July, 1966.

STATE OF WISCONSIN

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Resource Development Board

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VT 004 277

Waterford Township Schools Employment-Bound Youth Committee. Final Report.

Waterford Township Board of Education, Pontiac, Mich.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jun65 22p.

*VOCATIONAL EDUCATION; *PROGRAM PLANNING; PROGRAM IMPROVEMENT; STUDENT CHARACTERISTICS; *NONCOLLEGE PREPARATORY STUDENTS; SECONDARY SCHOOL STUDENTS; COOPERATIVE PROGRAMS; *ADVISORY COMMITTEES; COMMUNITY ACTION; PROGRAM DESCRIPTIONS

A citizen's advisory committee was appointed to assist the professional staff in studying the school program offered to students who work following high school. The committee reviewed the characteristics of youth in the township, the development of local cooperative education programs, the development of other vocational programs, facilities for vocational education, and school-community relations. As a result of this study five occupations committees and a personal development committee were organized. Eighteen recommendations ranged from very specific, such as "Establish a placement service for vocational graduates and others beginning with the 1965-66 school year," to general recommendations, such as "All high school youth need to be provided with an opportunity to pursue an occupational interest through an educational program which is suited to their interests and aptitudes." (Not available in hard copy due to marginal legibility of original document). (EM)

VT 004 277

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Health Occupations

SEP 8 1965

FINAL REPORT

Office and Retailing

WATERFORD TOWNSHIP SCHOOLS

EMPLOYMENT-BOUND YOUTH COMMITTEE

Sub-Committee

of the

Citizens' Advisory Committee

June, 1965

Trade and Industry

Commercial Foods

DIVISION OF VOCATIONAL EDUCATION
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17 June 1965

Board of Education
Waterford Township Schools
Pontiac, Michigan

Dear Sirs:

We respectfully submit this report as a summation of the two year's work by the Employment-Bound Youth Committee.

We believe that with the submission of this report, the Committee has served the purposes you envisioned for us. We therefore request to be dismissed. We believe that the plan we have developed for continued citizen involvement in planning and implementing programs for employment-bound youth will be effective, and we recommend it to you. This plan is described in Section VIII of this report.

We are grateful to have had this opportunity to be of service to you these past two years. We would hope that this report will be of value to the school system now and in the future.

Sincerely yours,

Dean A. Salley

Dean A. Salley, Chairman

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The cover design was done by Miss Jewell Reynolds, a student in Cooperative Education at Waterford Township High School.

C H A R G E

To The

Employment-Bound Youth Committee

of the

Citizens' Advisory Committee

The Waterford Township Schools accepts its responsibility for providing meaningful educational opportunities for all of the children of all of the people. This means that its school program must be appropriate to the interests, talents, and abilities of each child.

Without doubt the greatest challenge facing education today is making curriculum meaningful to our students. This challenge is not so critical in the college preparatory programs where admission policies somewhat dictate high school programs. However, it is extremely pressing in those program opportunities presented to the two-thirds of our students who are not on regular college-directed programs. For those students who terminate their formal education with the 12th grade, there should be no abbreviation of educational needs - education for citizenship, personal development and intellectual development. However, also of deep concern must be education of saleable skills and attitudes.

The Board of Education invites the Citizens' Advisory Committee to join with the professional staff to reconsider the school program offered to those students going directly into the world of work from school. This study should entail a consideration of the needs and interest of young people, a consideration of the world of work both today and in the future, and its demands for educational preparation.

3 October 1963

Preview of Recommendations

1. All high school youth need to be provided with an opportunity to pursue an occupational interest through an educational program which is suited to their interests and aptitudes.

2. Continue to develop and expand the cooperative education program so that it will be able to provide every employment-bound young person who needs and can benefit from such an experience with a bridge between school and satisfying employment.

3. Continue to develop the avocational chef's course now offered at Waterford-Kettering and which is serving very well as an interest-capturing, exploratory experience. It is hoped that other courses which serve similar purposes will be encouraged.

4. Continue to study educational need in the graphics area and provide physical facilities and equipment for a vocational program in graphics.

5. Consider expansion of the teacher aide-child care program with a full-time coordinator in 1966-67.

6. Develop pre-cooperative and related instruction courses for all cooperative programs during 1965-66 and offer these courses in 1966-67.

7. Help all senior high school teachers to understand cooperative education and other vocational educational programs, to identify the students who are involved in these programs and the nature of each student's involvement, and encourage them to find ways to enrich their courses and their personal relationships with these students so as to contribute maximally to each student's total development.

8. Increase the opportunities available in the commercial foods program by providing dining room facilities as soon as possible.

9. Provide increased facilities for vocational auto mechanics so that this program will not need to compete for space with industrial arts.

10. Plan all vocational facilities with maximum flexibility to accommodate changing programs and programs presently unforeseen.

11. Continue the Personal Development Program and encourage more young people to participate in it. Seek ways by which enrollees may be encouraged to participate in regular high school classes and extra-class activities, the adult education program, the summer school program, and in community service activities.

12. Establish a placement service for vocational graduates and others beginning with the 1965-66 school year.

13. Institute follow-up studies of vocational graduates on a continuing basis. This service should be designed for evaluation not only of vocational education programs but of the entire school program as it serves vocational

students, and to offer continuing educational service to former vocational students.

14. Study the needs for vocational programs not now being initiated including these occupational areas: graphics, service station attendants and managers, maintenance trades, electrical appliance repair, painting and decorating, landscaping and grounds care, home economics-related occupations, heavy equipment operators, food distribution, drafting, aircraft maintenance and repair, and marine maintenance and repair.

15. As additional senior high school facilities are planned, we urge the High School Planning Committee and other policy-makers to deal with these questions:

    a. Should the vocational high school concept be encouraged through concentrating needed new vocational facilities on a single site, or should vocational facilities be located at each high school thus causing each high school to contribute to a systemwide comprehensive program and permitting each high school to remain at least partially comprehensive?

    b. Which vocational facilities should not be duplicated and where should these be located?

    c. Which vocational programs and facilities should be located at each high school?

    d. Should students who are interested in a vocational program which is offered in only one high school be expected to make that their home high school, or should they attend and graduate from the high school which is in their natural attendance area and move to any program in which they are interested?

    e. If students are to be able to move to single-location programs, what type of transportation system will be needed?

    f. Should the school district seek to qualify for financial assistance for construction of area vocational facilities?

16. Complete the formation of the present Occupations Committees and encourage the staff representatives to give leadership to these consulting groups so that they may give optimum assistance in the development and implementation of vocational programs.

17. Encourage the formation of additional Occupations Committees as needed to assist in the development of other programs.

18. Develop relationship with organized labor so that developments in vocational education will be mutually beneficial.

I. Background of This Report

The committee was appointed by the Board of Education in October, 1963 and invited to respond to the charge which is included as page 1.

During the first year, Mr. Duane Lemaux and Mrs. Dorothy Kressbach served as chairman and secretary. The committee grew from a membership of eight people to twenty-six. The first year's work was so stimulating and raised so many concerns that the committee requested a second year in which to prepare action proposals.

Mr. Dean Salley served as chairman during the second year and Mrs. Kressbach continued as secretary. The committee continued to increase in size to a total of 37 people.

In this report, we have borrowed freely from the interim report which was presented at the end of the first year. Particularly valuable is the section on Characteristics of Youth in This Area, and it has been included in entirety. The section titled Educational Programs in Our Schools for Employment-Bound Youth described existing programs and set forth the hopes and aspirations of the committee for programs believed to be needed. In this final report we have outlined progress in program development made in 1964-65 as well as recommendations for the future. This report is our response to the charge which we were given by the Board of Education at the time of our appointment.

II. Characteristics of Youth in the Waterford Area

1. A characteristic of Waterford Township is its great diversification - people with many interests live here. Gradually, the schools are being expected to assume more and more responsibilities which formerly were those of the home. The community continues to change rapidly, and schools are hard-pressed to keep up with the changing attitudes and expectations. More of our young people today seem to be interested in training beyond high school.

2. Detrimental student attitudes result from lack of parental control, low interest level in education at home, and general unconcern by parents about students and their hopes. When parents do not assume responsibility to help their students, students may reflect the same kind of unconcern- or even develop antagonism toward everything in the future. The schools also cause problem attitudes to develop in young people by providing inadequate vocational guidance, too limited vocational training, and too much emphasis on a college experience.

3. Students today do not consider the future as seriously as did those in the past. Perhaps this has resulted from too much emphasis on college. In the past, more students had work experience during which they developed attitudes toward the world of work. Less opportunity for work experience today demands that we approach the development of attitudes differently - that we, in some way, develop in students an awareness of their own responsibility toward work. It seems to be too easy for students to shrug shoulders and depend on someone else for support. Attitudes of adults are reflected by young people. Youth need to develop a feeling of worth. If parents do not think youth worthwhile, it is difficult for them to develop the positive self-image. Young people need more and more guidance help - as well as work-related programming. They need to become aware of implications of this exciting new age - and become comfortable in it. Change

today is explosive. Our students need to be more aware of how to understand and handle change.

In recent years, there does not seem to be the closeness between parents and children in the determination and pursuance of educational and life goals. The identification of goals seems to be incidental in growing up. Children in too many cases are left to "grow like Topsy." This places unusual stress on schools and other social agencies - and perhaps misplaced responsibility.

III. The Need to Recognize Our Employment-Bound Youth

The majority of our young people in Waterford Township seek no formal education beyond the point at which they leave high school. Most of our youth graduate, but a fairly large number drop out before graduation. In spite of these facts, our high schools are typical of most in that the major effort is directed toward the one-third who enter college.

We know that this is unrealistic and damaging to many young people. When a college preparatory program is the only choice available to a boy or girl who is not motivated for college, interest in high school is not likely to be very high. Lack of interest is responsible for most of our dropouts. But many disinterested young people put up with school long enough to graduate. They do this for many reasons including social pressure by their classmates, parental expectations, and knowledge that a high school diploma is needed to get a job. Although these youth get a diploma, we believe their attitudes toward school and learning are damaged and that these negative attitudes may well be lifelong.

Many successful people did not do very well in school. A study of 1,072 leaders in business, industry and government listed in Who's Who in America reveals that a majority of them had averaged C-plus to B grades in college. Four per cent were D-minus students. These people "caught fire" as they found themselves in the wider spectrum of life experience. We wonder what their schools might have done for them if more opportunities had been provided for individual interest-finding and for involvement in some depth in these interests.

We are all aware of the power of involvement in such familiar areas as athletics, music and dramatics in causing many youngsters to want to stay in school. In fact, every subject is probably attractive to some students. But we are concerned here with the large number of our young people who either have little academic talent or whose talent lies dormant waiting for something to bring it to life. As we have pointed out, athletics, music and dramatics are well-known examples of subjects which have caused many young people to "catch fire" while they are still in school, but many of our students have not responded to anything which has been available.

We believe vocational education can bring stimulation and satisfaction to many of our youth who are now apathetic or discouraged with school, and that it can make school life even richer for many who are already having satisfying learning experiences. This belief is reinforced by the testimony of students who are already in vocational education. The following quotations from two letters written by vocational students will serve as illustrations.

A former student in the Distributive Education Co-op Program at Kettering puts it this way:

> "...I had been a poor student until my senior year.... Working on co-op gave me a chance to save money, and realizing the importance of an education I brought my grades up.... (This)...enabled me to go to college.... I plan ...to teach Distributive Education...."

His example illustrates not only that vocational education helps young people to find useful and continuing work but that in many cases school comes to be seen as important and worth continuing even at the college level. In fact, a recent study reveals that twenty per cent of a large representative sample of office, distributive, and trade and industrial co-op students in Michigan attend a 2-year or 4-year college. Another ten per cent enroll in some other kind of non-degree post high school institution. Thus programs which are intended primarily for employment-bound youth do stimulate many to continue their education beyond high school.

Another Waterford Township student had difficulty in junior high and in the first two years of senior high getting along with teachers and students. As a senior, he has been a co-op student in food service. He wrote as follows:

> "I have learned how to get along with others.... I have really enjoyed working in the cafeteria.... The employes are all wonderful and very easy to work with and I hope they have enjoyed working with me.... I would like to get some information about working for one of the big bakeries.... I feel that...it has made me more aware of the need for a high school education...."

In summary, we are saying three things:

1. Our youth who do not plan at present to go to college have educational needs that are not being met by our schools.

2. The vocational programs we are offering have demonstrated that young people can be stimulated and inspired to finish high school with saleable skills and, in many cases, to pursue post-high school education.

3. All high school youth with an occupational interest need to be provided with an opportunity to pursue that interest through an educational program.

IV. The Development of Cooperative Educational Programs for Employment-Bound Youth

In the past, vocational education in Waterford Township Schools has been limited primarily to business education. Business and retailing classes have provided students with saleable skills and have offered related instruction to a highly successful cooperative education program in office and distributive occupations. The cooperative education program has included also a few students employed in health and in trade and industrial occupations.

Cooperative education is intended as a means of bridging the gap between high school and full-time employment. It is intended to serve as a culminating experience in which a young person may, in a real work situation, try out the skills and attitudes he has learned in school and in his other experiences. Cooperative

students are, therefore, primarily seniors. This should be understood in reading this section as well as this entire report.

The cooperative program has been so well accepted by students, parents, teachers, employers and the community as a whole that we were encouraged early in our second year of work to recommend the expansion of cooperative education using existing facilities and curriculum for related instruction. We reasoned that maximum use could be made of the resources of the community through the establishments where students would be employed. With need for additional senior high school facilities known but not to be available for a year or two at least, we believed it wise that the major movement in vocational education for the present should be in cooperative education. This plan permitted greater time latitude in planning high school facilities. It also seemed to us that it would give the high school planners the benefit of knowing the needs of students in a variety of cooperative education programs in time to plan facilities to serve the related instruction needs. Even more important, an immediate expansion of cooperative education would immediately begin to serve the vocational needs of students who enrolled.

Based on this reasoning, the professional staff proceeded to develop an expanded program in cooperative education for 1965-66. In this section, we report the results. Table 1 shows the anticipated increase in co-op enrollments in 1965-66 as compared to 1964-65.

Office and Retailing Occupations - This program will expand in 1965-66 in that Mr. Ronald Koski and Mr. Homa Tindall, our two full-time teacher coordinators, will be relieved of the responsibility for coordinating students employed in other occupations. They will be able to serve increased enrollments in the office and retailing cooperative program.

Data Processing Occupations - It appears at present that nearly all of our students who will gain saleable skills in data processing classes and who will be employed as co-op students will work in offices where data processing equipment is used as part of the operation. They will perform other types of office work also. For the present, at least, these students will be supervised by the office and retailing coordinators.

Health Occupations - This community is unusual in the number and variety of health resources and work opportunities available. Mrs. Mary McGinley has been hired as coordinator of cooperative education in health occupations. She will begin work this summer.

With the needs of the students who have pre-enrolled in mind, she will be seeking the very best co-op employment opportunities available in local hospitals, nursing homes, clinics, doctor's and dentist's offices, veterinary hospitals, health organizations, public and private agencies concerned with health.

Trade and Industrial Occupations - Mr. Maynard Mathers will begin work this summer as coordinator in this occupational area. He will be looking for outstanding opportunities for young people to work part time in auto and aviation mechanics, carpentry, cabinet making, plumbing, electricity, electronics, drafting, brick laying, masonry, and other areas.

Commercial Foods Occupations - New developments in this area consist of a pre-

Table 1. Expanding Enrollment in Cooperative Education

CO-OP PROGRAM	ENROLLMENTS*	
	1964-65	1965-66
Office	62	61
Retailing	57	74
Data Processing	0	10
Health	12	36
Trade and Industrial	0	30
Custodial	0	10 (estimated)
Commercial Foods	2	15
Teacher Aide - Child Care	2	27
	133	263

*These figures consist of combined enrollments at Township and Kettering High Schools. The 1964-65 figures are actual enrollments at the beginning of the school year. The 1965-66 figures represent pre-enrollments which may be somewhat higher or lower than actual enrollments next fall. It is interesting to know that the anticipated co-op enrollments in 1965-66 constitute about 30 per cent of the senior class.

cooperative course which is reported in the next section. Students who enroll in this course in 1965-66 will be ready for cooperative work experience in 1966-67. In this section, however, we are reporting only on 1965-66 plans for cooperative education in commercial foods which have grown out of the chef's class at Kettering High School and which has little relationship to the new pre-cooperative course mentioned earlier in this paragraph.

The chef's class at Kettering has been primarily avocational. It has been limited to a single semester and a single period. Commercial cooking facilities have not been available. It has been a high-interest course, however, for many students. We believe the teachers who have worked with it, Miss Nancy Raker and Miss Rebecca Johnson, should be commended and encouraged to continue.

It is planned that about fifteen students from this course with high vocational interest in foods will be encouraged to enroll in a co-op program. Arrangements exist for two of these students to be employed at each of the five secondary schools. Mrs. Phyllis Wigg will be the coordinator.

Graphics Occupations - Students who are interested in graphics occupations will enroll in the trade and industrial cooperative program in 1965-66. This will be limited to those who have gained saleable skills through courses in drafting or art or who may have a highly developed personal hobby in the graphics area.

Although cooperative education in the graphics occupations will be part of the trade and industrial co-op program next year, we list it separately in this section to make the point that we believe this area should be developed rather intensively with physical facilities and pre-cooperative as well as related instruction courses provided in the near future. Our recommendation pertaining to this is part of a later section of this report.

Custodial Occupations - Beginning in 1965-66, it is planned that four co-op positions in custodial work will be provided in each of our five secondary schools. It is planned that these student positions will be filled as openings occur and without jeopardy to present custodial personnel. These students will be under the direct supervision of custodians; the training will be coordinated by the trade and industrial and health occupations coordinators.

Teacher Aide and Child Care - This program permits interested students to be placed with a teacher in a nursery school, pre-school program, elementary classroom, or perhaps in a junior high school. It is not a cooperative program in the strict sense since it is more exploratory than vocational, and the students will not be paid. The program will begin in 1965-66 under the leadership of Mrs. Gladys Rohrer who will carry the coordination responsibility as a part of her position as an elementary principal. It is hoped that the program will prove so interesting and beneficial that a full-time coordinator will be needed in the second year.

Pre-cooperative and Related Instruction - Pre-cooperative instruction consists of a course or courses planned to provide students with skills and attitudes which make them employable as they enter the co-op program. Related instruction usually is considered to consist of a single course offered concurrently with cooperative employment. It is designed to assist students in further development of the skills and attitudes they will need in securing employment, in having a successful work experience, and in becoming employable at a high level. This committee believes that attitudinal development cannot be stressed too highly. Vocational success

depends upon ability to get along with people. In one study involving ten thousand cases of employee terminations, over eighty per cent of the dismissals were due to inability to work harmoniously with others. We believe also that opportunities to actually practice good human relations, communications, leadership and group living will be more effective than just talking about them.

Our established office and retailing cooperative program provides both pre-cooperative and related instruction. The new co-op programs will, in 1965-66, be limited to existing courses for both of these functions. We want to encourage the new coordinators to assist other teachers in relating their courses to the needs of students at both the pre-cooperative and related instruction levels. We believe that an important function of the coordinator is to inform teachers who the co-op students are, where they are employed, what their problems and needs are, and offer his services to assist teachers in any way in providing the best possible learning situation for the students' personal as well as occupational development.

Another responsibility of each coordinator will be to take leadership in the development of a related instruction course which he will teach beinning in 1966-67. This will permit him to meet his students in a class situation as well as on the job.

V. The Development of Other Vocational Education Programs for Employment-Bound Youth

As stated in Section IV of this report, this committee encouraged the expansion of cooperative education as the major movement in developing vocational education programs in 1965-66. Efforts were not limited to cooperative education, however. In this section, other developments are reported.

Pre-cooperative and Related Instruction in Distributive Education - Merchandising equipment has been purchased including display cases, wrapping counters, mannequins, sign makers, cash register, and adding machines. The availability of this equipment should add a great deal of practical realism to these classes in both Waterford-Kettering and Waterford Township High Schools.

Stenographic Instruction - A stenographic laboratory has been purchased for each high school. This permits four groups of students to receive taped dictation at different rates of speed. This equipment is already in use with Gregg shorthand tapes which were purchased also. It is expected that teachers will further personalize shorthand instruction by recording their own teaching material on tape.

Commercial Foods - Junior boys and girls from both high schools have enrolled in a new commercial foods course to be taught at Township High School in 1965-66. An a la carte lunch line will be established as part of Township High School's food service for both students and teachers. The purpose of the course is to prepare students to enter commercial foods occupations as co-op students in their senior year and as full-time workers upon graduation from high school. This course will meet for three hours in the morning with the time divided between classroom and kitchen as needed. Mrs. Phyllis Wigg will teach this program. The major drawback at the outset is the lack of a dining room where

students would receive training as waiters, waitresses, and in dining room management.

Auto Mechanics - Equipment has been purchased for Township High School's auto mechanics laboratory which will improve this facility both for industrial arts and vocational auto mechanics. A small beginning in vocational auto mechanics is hoped for this fall. Plans are laid for an after-school section for juniors on a two hour per day - five day per week basis. This will be a two year program with students moving out into the community in cooperative education as seniors.

Data Processing - The extensive work which has been done by many members of the faculty and particularly by Mr. Nick Menghini in developing the data processing education program will really begin to bear fruit this fall. Vocational Education will benefit largely from the skills which will be learned by students in business education and in employment-oriented data processing classes. Many students will move from these classes into cooperative education as high school seniors.

Personal Development Program - The Waterford Township District is one of three districts in Michigan selected last fall to receive a grant of ten thousand dollars from the State to assist in the development of a program for unemployed school dropouts. This committee serves as the incorporated body required by the Act under which the program was established. This program is directed by Mr. William Green with Mr. Frank Manning as teacher-coordinator.

This program is serving about fifteen young people with a program that provides opportunity to complete high school and to work at the same time. The committee will remain available to assist this program in any possible way even though we expect to be dismissed for other purposes.

Placement Service for Vocational Graduates - We recommend that a placement service be established for vocational graduates beginning with the 1965-66 school year. It is suggested that a qualified person be appointed to direct the placement service, and that the service might also serve other employment needs of students both before and after graduation. This should not affect the responsibility of coordinators of cooperative education programs in placing their students in work experience situations.

Follow-up Studies - We recommend that follow-up studies of vocational graduates be instituted on a continuing basis. This we believe should be part of an over-all follow-up program for all who drop out of or graduate from our schools.

We believe that follow-up studies of vocational graduates should serve at least these purposes:

1. Evaluate the effectiveness of instruction in vocational programs.

2. Evaluate the effectiveness of job placement services.

3. Obtain information from former students and their employers which would be helpful in improving instructional programs, vocational guidance and counseling, and job placement procedures.

4. Discover needs of former students for retraining, continued education, guidance services.

VI. Programs for Study and Future Implementation

The committee recommends that the following occupational areas be studied and that vocational education programs be developed if the findings are favorable:

Graphics occupations

Service station attendants and managers

Maintenance trades

Electrical appliance repair

Painting and decorating

Landscaping and grounds care

Home economics-related occupations

Heavy equipment operation

Food distribution

Drafting

Aircraft maintenance and repair

Marine maintenance and repair

VII. Facilities for Vocational Education

We see the need for additional senior high school construction (a third high school or its equivalent) as an opportunity to provide needed vocational education facilities.

Certain programs will, if they are developed, require facilities which will be too expensive to duplicate in more than one location. The Data Processing Center is an existing example with which we are familiar. Assuming a third high school will be built, it would be easy to say that all such facilities should be located on that site. An alternative would be to divide such facilities among the three high schools. By this means, each high school would include certain programs and accompanying facilities which would serve the entire school district. This would lessen the possibility of one high school becoming regarded as a vocational high school with the others considered college preparatory schools. While this plan would not make each high school completely comprehensive, it would make a comprehensive high school program available to all youth. It would necessitate a transportation system of some sort.

We believe facilities for such programs as business education, home economics, and industrial arts will be needed in each high school. Much careful study is needed not only to determine what vocational programs should be offered but where

they should be offered and whether they should be offered at more than one location.

While the committee members do not all agree, most feel quite strongly that our young people should be able to identify with one high school and this should be their center for required and most elective courses, athletics, extra-class activities, social life, and they should graduate from this high school. Some members believe that decisions regarding special programs should be made at the end of junior high and an individual's senior high school would be the one where that program exists. Others feel that this would tend to freeze many young people into premature choices as well as separate them from their friends. This problem needs careful study.

Previous sections of this report describe vocational education programs which are already underway for 1965-66 and also programs which should be studied for possible implementation. Of the programs underway, we believe the auto mechanics program will need a shop separate from industrial arts facilities. The commercial foods program will need a dining area. Of the programs recommended for study, these would need facilities beyond those which now exist: graphics, electrical appliance repair, painting and decorating, landscaping and grounds care, heavy equipment operation, aircraft maintenance and repair, and marine maintenance and repair.

We submit all of our concerns to the High School Planning Committee, and we urge that group to give special attention to the need for vocational facilities which are properly designed and located to serve all of our youth who can benefit from education for the world of work.

We are also keenly aware of the Oakland County Area Vocational Study which is now in progress and which will not be completed until January 1, 1966. The State Board of Education is required by law to designate eligible school districts and certain geographic areas to operate area vocational-technical education school facilities. We understand that the State Board's decisions will take into account the recommendations of area studies. This means that many decisions relative to the nature of Waterford's new high school facilities cannot be made until the Oakland County Study is completed and state-level decisions are made regarding location of and responsibility for area vocational facilities.

It is possible that Waterford Township School District could be designated to operate an area vocational school. In that event, financial assistance would be available from vocational funds for construction of vocational facilities. No doubt these facilities would be required to serve a larger area than the school district. If another school district or the intermediate school district should be approved to operate an area vocational program at the high school level, the decision might have even more effect on our district's high school plans.

VIII. School-Community Relationships

While we are concerned with all aspects of school-community relationships, we feel a special responsibility for better communications between our schools and the business and industrial community and with organized labor. Even more specifically, we believe that every vocational program needs to be planned with

the assistance of knowledgeable people in the occupational area the program is intended to serve. Teachers need to be the primary planners for they will do the teaching. They can be expected to understand the needs and characteristics of youth and the teaching-learning process. But they must also be competent in the occupational area in which they teach. Even occupationally competent teachers need to be in close communication with persons who are in a day-to-day relationship with their occupational field.

Throughout its two-year life and particularly during the past six months the committee has felt this need very deeply. As a result, we have taken the leadership in forming five committees. Each committee is made up of persons having special interest and competence in a family of occupations. Each committee will operate under the leadership of a school staff representative who will be responsible for planning the committee's work, calling meetings, preparing agenda, making use of the committee's recommendations, and serving as secretary. The staff representative will usually be the person who has unique responsibility for program development in the occupational area.

The five occupations committees which have been organized and their tentative membership (the organization task is in process) are presented here. We also present the committee which has been organized to assist with the Personal Development Program.

Office and Retailing Occupations - Staff Representatives: Ronald Koski, Homa Tindall
Members: Madge Irish, Paul Petroff, Mark Stewart, Earl Kreps, Fred Poole, Richard McCarius, Ray Smith, Sam Ledger, Harold Richardson, Walter Norberg

Trade and Industrial Occupations - Staff Representative: Maynard Mathers
Members: Stanley Barker, Pat Flood, Robert Greve, Gerald Lewis, A. C. Salley, Homer Tinney, Elmer Fangboner, James Powers

Health Occupations - Staff Representative: Mary McGinley
Members: Betty Steehler, Rev. Wayne Peterson, Jerome Weiser, Mrs. Paul O'Neill, Bernice Allen, Dr. Everett Gustafson, Esther Sherrod

Commercial Foods Occupations - Staff Representatives: Shirley McCoy, Phyllis Wigg
Members: Helen Bulla, Mariann Hampton, Delwin Richardson, James Hoisington

Graphics Occupations - Staff Representatives: George Kressbach, M. J. Root
Members: Dr. John Naz, Roy Alexander, Robert Bauer, Arthur Salley, Eugene Downie, Shirley Castelli, Jerry Blanchard, James Fry, Jerry McLeod, Donald Beedle

Personal Development Program - Staff Representatives: William Green, Frank Manning
Members: Leroy W. Liimakka, David Putnam, Gerald Wallace, Merrill Walls, Allen Miserez, Calvin Patterson, Clayton Campbell, William Bawden

The Occupations Committees are being appointed for the 1965-66 school year. They may have served their purpose by the end of this period. If so, they will be dismissed. There will, however, be continuing need for counsel and advice. Any

committee may be reappointed for a further period of service if needed.

Additional Occupations Committees may be appointed as needed. The Trade and Industrial Occupations Committee, for example, serves a very broad area. It has been organized primarily to serve the new trade and industrial cooperative program. A program for automotive mechanics is already planned. This report suggests other trade and industrial programs including drafting, painting and decorating, and electrical appliance repair. As a new program emerges, a committee may be appointed to assist with its development. In fact, a secondary function of the present committees can well be to assist in the formation of new Occupations Committees as they are needed.

The Director of Vocational Education will need continuing counsel in order to maintain coordination between programs. The Occupations Committees will need inter-communication as a means of stimulation, encouragement and coordination. We suggest that the staff representative meet frequently for these purposes. We also suggest that all of the Occupations Committees meet jointly on a twice-a-year basis.

The committee recommends that relationships be developed with organized labor so that programs may have the benefit of labor's experience and counsel and so that understanding and cooperation may prevail.

WATERFORD TOWNSHIP SCHOOL DISTRICT

Citizens' Advisory Committee - Employment-Bound Youth

1964-1965

Membership List:

Dean Salley (Chairman) 6229 Jameson Drayton Plains, Michigan	OR 4-1944	Businessman
Roy Alexander (Vice-Chairman) 3277 Schoolhouse Drive Drayton Plains, Michigan	OR 3-1234	Waterford Twp. Schools Secondary Coordinator
Dorothy Kressbach (Secretary) 4654 Ross Drive Pontiac, Michigan	OR 4-0271	Housewife
Burton K. Thorn (Staff Representative) 3617 Lotus Drive Waterford, Michigan	OR 3-1234	Waterford Twp. Schools Director of Vocational Ed.
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William Bawden 130 Dover St. Pontiac, Michigan	FE 4-6370	Waterford Twp. Schools Principal, Schoolcraft Elementary School
Helen Bulla 63 North Johnson Pontiac, Michigan	FE 4-2628	Waterford Twp. Schools Asst. Principal Waterford Twp. High School
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Shirley McCoy 320 S. Roslyn Pontiac, Michigan	682-5589	Waterford Twp. Schools Food Service Director

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Calvin Patterson 2861 Old Orchard Drive Pontiac, Michigan	FE 4-7792	Attorney
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Rev. Wayne Peterson 3465 Morris Drayton Plains, Michigan	673-1811	Minister - Christ Lutheran Church
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Mark Stewart 2876 Orangegrove Waterford, Michigan	OR 3-4290	Manager - Pontiac State Bank - Drayton Plains
Homa Tindall 3411 Wormer Drive Pontiac, Michigan	673-2952	Office and Retailing Waterford Twp. Schools Waterford Twp. High School
Homer C. Tinney 6230 Elizabeth Lake Road Pontiac, Michigan	682-6181	Cabinet Shop Owner

Gerald Wallace 4107 Silver Birch Drayton Plains, Michigan	673-5643	Waterford Twp. Schools Asst. Principal - Waterford-Kettering High School
Merrill Walls Michigan Employment Security Commission 242 Oakland Avenue Pontiac, Michigan	FE 2-0191	Michigan Employment Security Commission Pontiac Branch
Jerry Weiser 4196 Ashford Highland, Michigan	887-4504	Waterford Township Schools Principal - Crary Jr. High School
Phyllis Wigg 7798 Gale Road Pontiac, Michigan	OR 3-8848	Waterford Twp. Schools Commercial Foods Teacher

VT 004 302

Allen, David; Anderson, Pauline C.
Improving Instruction in Dental Assisting. A Report of a Dental Assisting Workshop. (Lake Arrowhead, August 26-28, 1964).

California Univ., Los Angeles. Div. of Vocational Education
California State Dept. of Education, Sacramento. Bureau of Industrial Education
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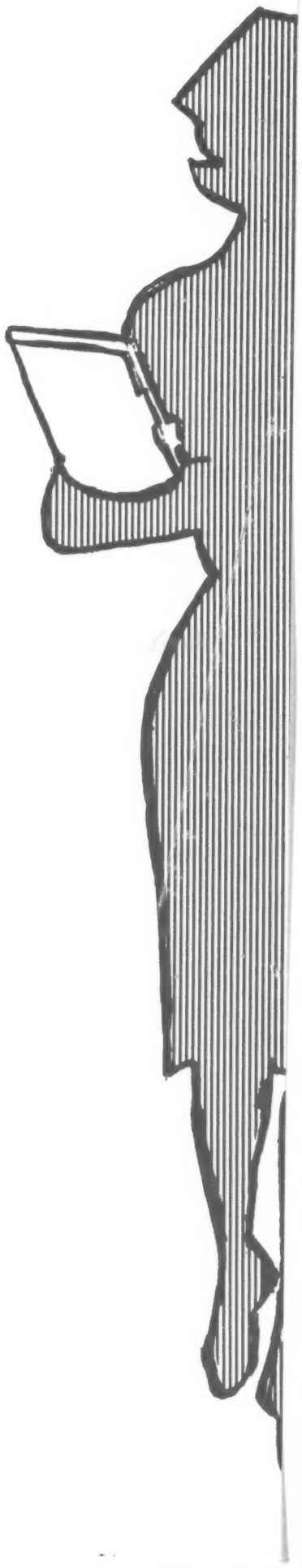
*TEACHER WORKSHOPS; *DENTAL ASSISTANTS; TEACHING METHODS; *INSTRUCTIONAL IMPROVEMENT; *HEALTH OCCUPATIONS EDUCATION; MATERIAL DEVELOPMENT; AUDIOVISUAL AIDS

In order to improve their teaching, 31 dental assisting teachers attended a three-day workshop related to new techniques, materials and equipment, and teaching methods and tools. Slides, overlays, and programed texts were developed during the session. (JK)

VT 004 302

Improving Instruction in Dental Assisting

A Report of a Dental Assisting Workshop
LAKE ARROWHEAD
August 26-28, 1964



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by

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UNIVERSITY OF CALIFORNIA, LOS ANGELES
In Cooperation With
BUREAU OF INDUSTRIAL EDUCATION
CALIFORNIA STATE DEPARTMENT OF EDUCATION

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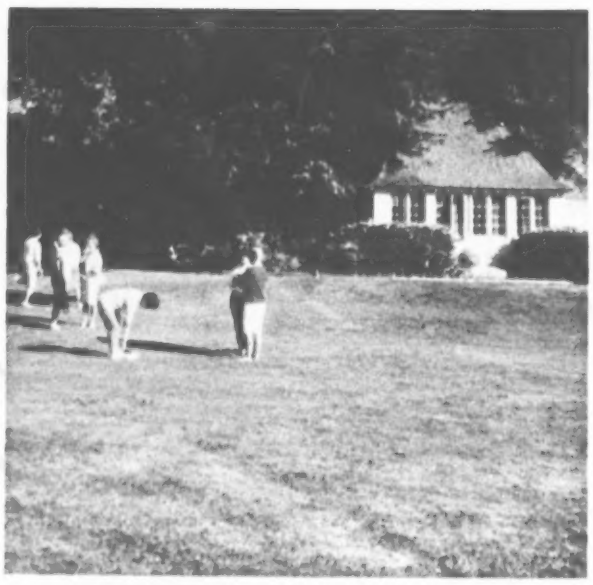
Improving Instruction in Dental Assisting

RATIONALE

Those of us who have suffered the pangs of a toothache appreciate the effective ministrations offered by the dental assistant. From the drilling to the billing, her courteous service and her efficient help at the dentist's chair during the ordeal makes us realize her value. From the dentist's point of view her ability to schedule appointments, keep accurate office records, and bill properly, in addition to her performance of the many technical duties around the dentist's chair, make her indispensable.

A dental assistant may be the only employee in a private dental office; accordingly, she must capably assume the duties of receptionist, chair-side assistant, and business secretary. She may also perform an appreciable number of laboratory procedures, in accordance with her training and ability. In offices where the tasks are divided among two or more dental assistants, each one still needs to be able to perform all the duties if she is to be of maximum use to the dentist.

In her role of receptionist, the assistant has the responsibility of meeting all patients in the waiting room, making them comfortable and, at the appropriate time, presenting them to the dentist or the business secretary. She may handle telephone calls, and general



correspondence as well.

At the chair-side the assistant aids the dentist in all operative and treatment procedures. She may clean and sterilize instruments, prepare the operatory for the patient, and receive and dismiss patients, according to the plan of procedure for the dental practice.

The business secretary makes financial arrangements with the patients, sends statements, pays outstanding bills, orders supplies, and performs other assigned tasks.

Demand for Dental Service

The Survey of Dentistry states: "Nearly everyone suffers from some form of dental disease."[1] Often the amount of dental care people seek depends upon their educational background, income, race, sex, and degree of dental knowledge. If everyone who needs dental care were to request it, our present number of dentists would be unable to meet the demand. The 190 million people in the United States are estimated to have among them 700 million unfilled carious lesions.

Byron S. Hollingshead, Director, American Council on Education, states that "...by age 50 half the population have diseases of the

---

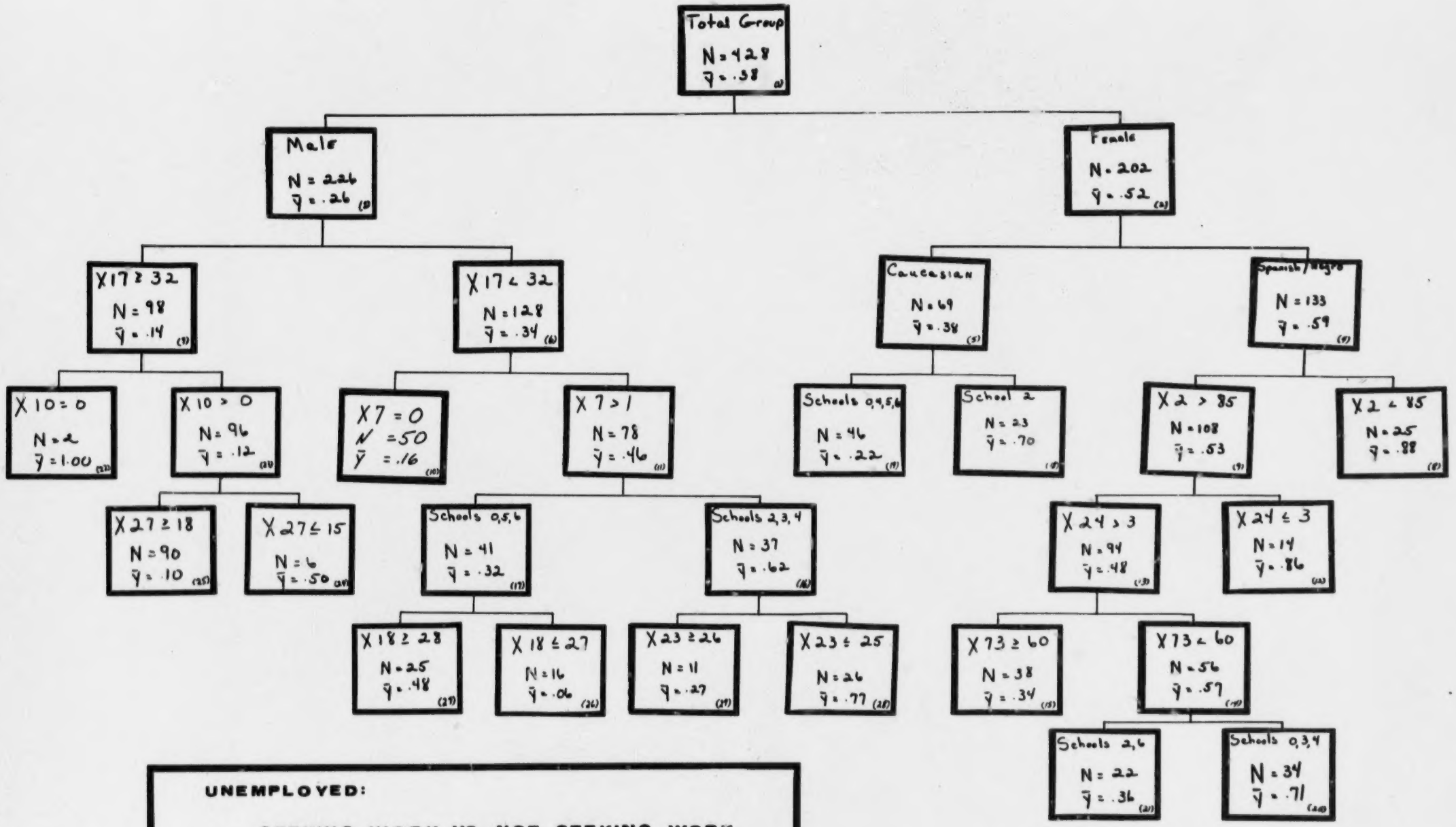
[1]Byron S. Hollingshead, Director, The Final Report, Commission on the Survey of Dentistry in the United States (American Council on Dental Education, Washington, D.C., 1961).

supportive bone and gingival tissues; almost everyone manifests these oral cavity diseases by age 65.[2]

The dental profession tries continually to educate people to seek needed dental care. As it continues the difficult task of public education, it has learned that while a toothache drives people to the dentist, the prospect of a future toothache does not arouse many to seek dental examinations for prevention or checking oral diseases. Demand for dental services--the actual percentage of every 100,000 people who seek dental services from a given number of dentists--is the basis for all projections of the number of dentists who will be needed in the future. While only about 40 percent of those in the United States who need care actually seek it, those who do spend about $2.5 billion annually for dental care.

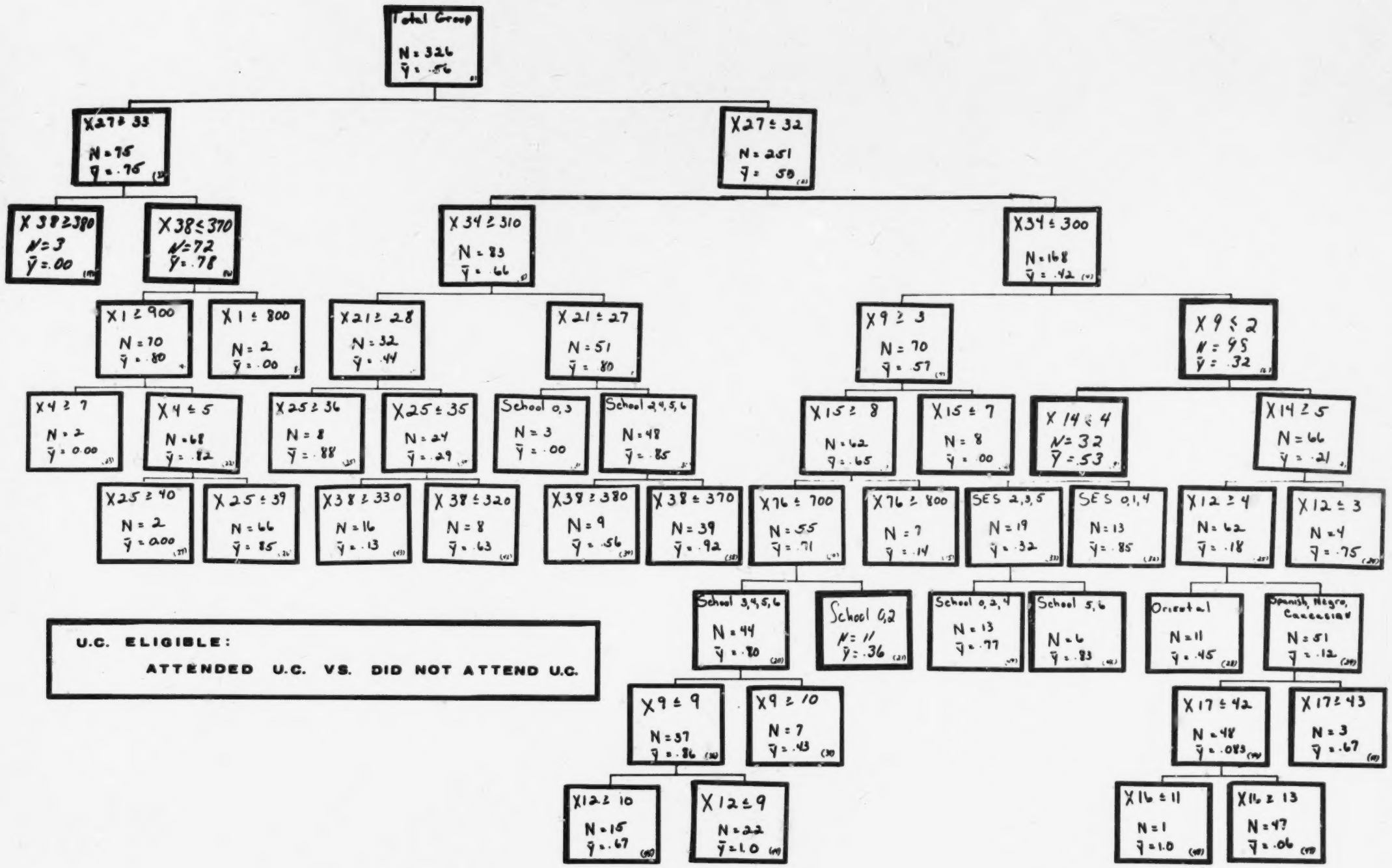
Those charged with planning for the necessary expansion of California state services have long lived with the fact that the most extravagantly educated guesses about population growth have consistently fallen short of actuality. In 1950, California's population was over 10.5 million; in 1965 with a population in excess of 17 million, it is the most heavily populated state in the union. By 1980, population experts expect California to have close to 30 million

[2] Ibid.



UNEMPLOYED:

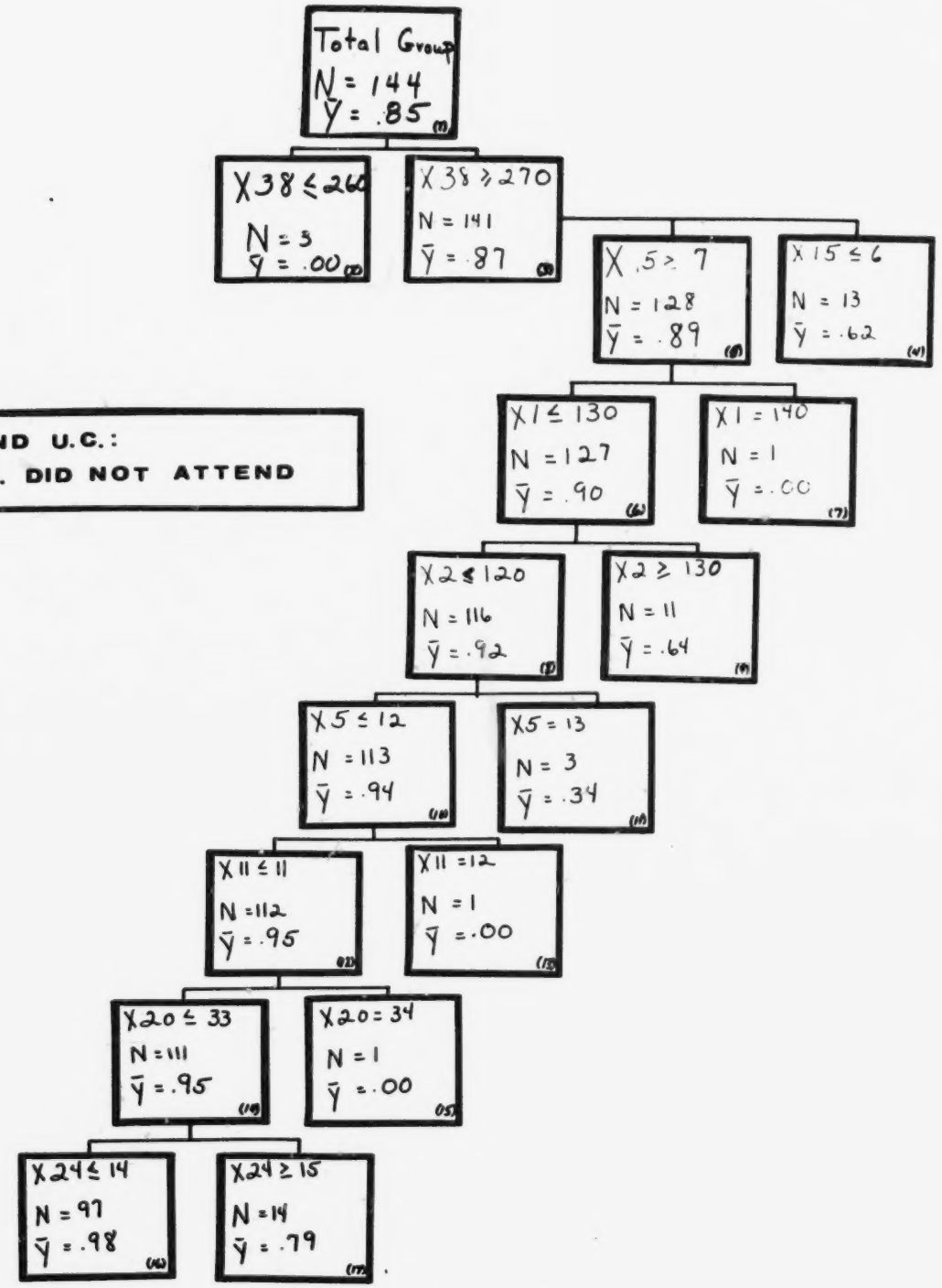
SEEKING WORK VS. NOT SEEKING WORK



U.C. ELIGIBLE:

ATTENDED U.C. VS. DID NOT ATTEND U.C.

U.C. ELIGIBLE, DID NOT ATTEND U.C.:
ATTENDED SCHOOL VS. DID NOT ATTEND



SUMMARY

Subsequent analysis of the follow-up data being compiled in this project will be directed to the specific identification of predictive criteria by which probabilities of post high school success in a variety of activities can be ascertained. It is these reports which will have major impact upon curriculum and counseling in the school district.

Much work is yet to be done in this study. The drawing of final conclusions from interim data is to be guarded against. Changing patterns of post high school activities need to be analyzed more thoroughly before major conclusions can be drawn. It seems evident, however, from the data obtained to this date that most students are experiencing success in their post high school activities. Some students are not. It is to this latter group that more specific attention will be focused in this study in the attempt to identify those characteristics with negative prognostic values and to build into the curriculum and counseling programs experiences which will help to modify such characteristics.

The task which the school district has set for itself is involved and complex. It is fraught with difficulty. But it must be done.

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Johnson, Mildred B.
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*OCCUPATIONAL HOME ECONOMICS; *FOOD SERVICE WORKERS; *EXPERIMENTAL PROGRAMS; *PROGRAM DESCRIPTIONS; *PROGRAM EVALUATION; QUESTIONNAIRES; PROGRAM CONTENT; CURRICULUM

An experimental wage-earning oriented program was conducted with 15 high school students for one semester to determine the extent to which it developed attitudes, traits, skills and knowledge which facilitate employment in food service. Student progress was measured by tests, teacher recommendations and school records. Some major findings were: (1) evidence of favorable attitudes toward criticism and work, (2) satisfactory work habits and performance, (3) growth in problem-solving abilities, (4) knowledge of employment practices and specifics for food service employment, (5) gains in self-confidence, enthusiasm and interest, and (6) need for more time to conduct the program. Implications of the study suggest the value of (1) using an advisory committee, (2) team teaching, (3) understanding a student's personal background, (4) having a teacher-coordinator for work experience programs, and (5) giving credit for the course. Class participants should be available for employment after the course. Pre- and in-service teacher training programs, research to develop programs, evaluation techniques, and follow-up experimental programs are recommended. The document contains references, interview and evaluation forms, pre and post tests and the food services experimental program. Individual units outline content, learning experiences and references in chart form. (FP)

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A WAGE-EARNING ORIENTED EXPERIMENTAL PROGRAM IN HIGH SCHOOL HOME ECONOMICS

By
MILDRED B. JOHNSON
1965

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SCHOOL OF EDUCATION
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
RALEIGH, NORTH CAROLINA

VT004419

A WAGE-EARNING ORIENTED EXPERIMENTAL PROGRAM IN HIGH SCHOOL HOME ECONOMICS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Mildred B. Johnson

1965

Research Series in Occupational Education - No. 6
A report of research conducted by Dr. Mildred B. Johnson, Department of Home Economics Education, University of North Carolina-Greensboro. Publication and dissemination of research findings is in cooperation with the North Carolina Research Coordinating Unit in Occupational Education.

FOREWORD

The North Carolina Research Coordinating Unit in Occupational Education is pleased to have the opportunity of disseminating this report of a recent study by Dr. Mildred B. Johnson who is currently Chairman of the Department of Home Economics Education, University of North Carolina - Greensboro.

The area of wage-earning occupations in the Home Economics curriculum in the public schools is growing rapidly in North Carolina and throughout the nation. This is a very timely and significant study and we believe will make a great contribution to curriculum development in this area.

Although the research was conducted in Illinois, the procedures, findings, and materials appear applicable to North Carolina and, indeed, to all areas of the Nation.

We are indeed grateful to Dr. Johnson and to the School of Home Economics at the University of North Carolina - Greensboro for allowing us the privilege of disseminating this summary of the study.

This publication and others to follow are a result of the partial fulfillment of the commitment of the North Carolina Research Coordinating Unit to:

(a) Stimulate research in occupational education

(b) Identify problems for research

(c) Develop a system by which national, state, and local data may be organized and made available.

(d) Maintain communication between people who are working in occupational education and research workers.

(e) Assist in conducting training programs on activities involved in the research-action continuum

(f) Provide consultant services in state, local, and area research developmental activities.

Joe R. Clary
Director

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INTRODUCTION

Providing the kind of education that will adequately bridge the gap between man and work, in order to meet the current demands of daily living, has been identified as one of the pertinent problems encountered by school administrators. If students are to meet their obligations to society, make maximum contributions to society, and develop their potential as individuals to the fullest extent, it is imperative that they be adequately prepared.

In order to cope with the rapid change that is taking place in today's employment conditions in the world of work, the need for an appropriate education for employment must be sharpened. It appears that high school students could benefit or profit from learning experiences that are specifically structured to promote marketable skills needed in the world of work. The learning experiences that are provided high school students must be sufficiently challenging and stimulating so that they will serve as the stepping stone to the future.

The Problem

The present study was concerned with two questions being asked in Rockford, Illinois. Are the students who are not continuing their education or training beyond high school adequately prepared for wage-earning opportunities at the completion of high school? How can programs be provided to fulfill this need? The purpose in this study was to determine the extent to which an experimental program oriented toward

wage-earning outcomes could provide for the development of minimum attitudes, traits, skills, and knowledge which facilitate employment in food service.

This was accomplished by means of an experimental wage-earning oriented program to meet the demands for food service personnel conducted at Auburn High School, Rockford, Illinois during the second semester of the 1964-65 school year.

Study Design

In order to design an experimental wage-earning oriented program to meet the demands for food service personnel, the following procedure was used:

As a basis for the development of such a program it was necessary to determine the specific food services or jobs that existed in Rockford, Illinois. The two agencies, Illinois Employment Service and Availability Employment Service were contacted concerning the job opportunities available in the food services for girls who have completed high school.

A personal interview was scheduled with employers desiring and using food service personnel which provided opinions about the personal qualities and occupational competences for workers necessary to fulfill their needs. A review of literature also provided information related to the personal qualities and occupational competences that have been found to be desirable. The interview was also used to assess the extent to which the present education program provided for the needs of potential workers and the availability of field experiences in food service occupations.

Based on the information gathered, it was found that the present school program did not provide for the special needs of students who were interested in such employment. The experimental program was designed and supervised by the investigator with general emphasis on the special needs of youth seeking employment and a specific emphasis on developing minimum attitudes, traits, skills, and knowledge which would permit the student to enter employment in food service.

Following is a brief outline of the detailed program plan though not necessarily the sequence of the wage-earning oriented program and some of the desired outcomes:

Looking to the Future

Understanding the need for wage-earning preparation.

Realization and understanding of the changes taking place in the world of work.

Understanding of the importance of choosing a vocation.

Finding a Job

Understanding of ways to keep a job.

Realization of the importance of securing and keeping a job.

Realization of the responsibilities an individual has in order to keep a job.

Job Compensations

Understanding of the compensations a job offers an individual.

Recognition that there are compensations other than money obtained from a job.

The Future for Food Service Employees

Understanding of the need for trained food service personnel.

Knowledge of various areas of food service occupations.

Awareness of the need for training to become a qualified food service employee.

Safe Food Service

Understanding of factors involved in providing safe food.

Understanding of the laws affecting the preparation and serving of food.

Recognition of the need for proper sanitation procedures.

General Job Responsibilities in Food Service

Recognition and understanding of the lines of authority and responsibility as a food service employee.

Understanding of the policies and procedures established for food service personnel.

Understanding of the food service worker's role in public relations.

Waitress Duties and Responsibilities

Understanding of the requirements or duties a waitress is expected to perform.

Development of the necessary skills and standards for gainful employment as a waitress.

Host or Hostess Duties

Understanding of the need to dispense hospitality when representing the management.

Recognition and understanding of the duties required of a host or hostess.

Evaluation

Personal satisfaction gained.

Relationship between course content and work experience.

Changes needed to meet the demands encountered in the work experience.

The participants selected for the experimental study were carefully screened and limited to 15 as suggested by the State Supervisor of Home Economics in Illinois.

Information which provided a measure of accomplishment for each student was obtained by means of:

1. Results of standardized test scores--Stanford Achievement Tests, Otis I.Q. Test, Iowa Tests of Education, and Illinois Statewide Tests.
2. Individual ratings of student by teachers.
3. Information available from school records.
4. Autobiographical sheets.

The degree of success achieved in the program provided for the development of minimum attitudes, traits, skills, and knowledge for employment in food services and was based upon several kinds of evidence. Evaluations by the student, home economics coordinator, and the employer of the students in the experimental program were made using instruments designed by the investigator. A pre-post test was developed and administered as a measure of achievement.

An appraisal of the value of such a program was made in cooperation with the home economics coordinator and the high school principal.

Student reactions to the program were acquired by the investigator in relation to preparation for work, experiences, and knowledge considered most beneficial and program recommendations.

Assumptions

Basic to this study several assumptions were made:

1. Food service is one of the areas where a need exists for qualified personnel.
2. The need for food service personnel is not confined to Rockford, Illinois but extends to most areas.
3. A wage-earning program included in the home economics curriculum at the secondary level should be a special program based on the needs within the community and narrow enough in scope to develop usable and worthwhile skills.
4. The instruction given could insure adequate preparation for wage-earning and could be inclusive enough and sufficiently intensive to satisfy the need in a particular job situation.

Limitations of Study

This study was limited to the demand for food service workers in Rockford, Illinois. The program designed to meet the demand for food service personnel was primarily for the schools in Rockford, Illinois. The experimental program designed and followed for one semester was used in only one of the four high schools in the city.

This study was also limited to the information obtained during the semester the experimental program was followed. A follow-up study of the program participants was not included in this study.

Major Findings

1. There was evidence that during the work experience that the students possessed favorable attitudes toward criticism and work.

Employers evaluated the participants on a descriptive rating of attitudes supporting this finding. The teacher also made comments relative to the favorable attitudes.

2. Employers indicated that the participants were satisfactory in relation to cooperation, courtesy, initiative, appearance, reliability, and work habits.

Responses made by the employers provided evidence that in relation to cooperation, courtesy, initiative, appearance, reliability, and work habits, the participants were satisfactory.

3. Performance on the job was rated satisfactory by the employers.

The employers provided evidence to support this finding by indicating the level of performance which best described the participant.

4. There was evidence of student growth in recognizing the importance of certain characteristics associated with the work and worker in a food service area.

Responses made by the students on the pre- and post-tests provided evidence that most characteristics associated with the work and worker in a food service area were of greater importance to them after than before the course. This was also recognized by the student, employer, and coordinator on the evaluation forms that each person completed.

5. The quality of responses in problem solving situations as measured by the pre- and post-test indicated pupil gain in ability to think critically and make better judgments in certain situations in the post-test.

Gain was evidenced in ability to recognize the important aspects of the situation, depth and insight in understanding the situation, and the ability to handle the situations maintaining a degree of patience.

6. There was evidence of growth in general knowledge related to employment practices and specific knowledge pertaining to food service employment.

Pre- and post-test results indicated that all fifteen participants in the program showed improvement. There was a mean gain on all parts of the test pertaining to knowledge of employment practices and food service requirements.

7. The participants expressed interest and enthusiasm for the program and the various learning experiences.

The investigator's interview with each participant provided evidence that interest prevailed for a program of this type. It was a course that the participants would recommend to others.

8. Gain in self-confidence resulted through the use of realistic learning experiences related to employment procedures.

Gain in self-confidence was observed by the coordinator in the classroom situations. The interview with each participant elicited and confirmed this outcome. There was definite individual growth toward a self-concept but even greater growth would be desirable for maximum satisfaction.

9. There was evidence that the ability to communicate effectively is essential in securing a job even for a short period of time, as well as in academic achievement.

Self-evaluation brought forth by the investigator's interview confirmed this finding. This was also noted in the coordinator's appraisal of student's strengths and needs.

10. It was the consensus of students and staff that the allotment of time for the program was insufficient to complete adequately the content planned for the course.

This was consistently expressed by the participants in the interviews with the investigator. This was also noted in the evaluation made by the coordinator.

11. The coordinator and school principal were interested in and expressed enthusiasm for the program.

This was repeatedly recognized by the participants and mentioned in the investigator interviews. The coordinator expressed that this was one of the most rewarding experiences of her twenty years of teaching experience. Both the coordinator and school principal expressed interest in this type of program and hoped to continue such programs when sufficient financial assistance was available.

12. A major outcome of the program was in terms of a recognition of learning experiences related to employment.

It was evident that the learning experiences related to employment were of greatest importance to the participant. Evidence of this was obtained by the investigator's interviews.

13. All participants were not offered employment in food service even though growth as a class participant was evident.

Pre- and post-test results indicated growth and improvement but the job interviews did not afford employment to all persons.

Implications

The findings are interpreted and the implications are stated with an awareness of the limitations that existed in this study. Implications resulting from this study may provide a frame of reference for planning high school wage-earning oriented programs and for teacher education programs.

The implications for high school wage-earning oriented programs are grouped in four categories: (1) Administrative personnel, (2) Class participants, (3) Curriculum and teaching methods, and (4) Field experiences. Implications for teacher education programs are grouped in two categories: (1) Pre- and in-service programs and (2) Further research.

Administrative personnel

1. The possibility of an advisory committee may well be explored to serve on a consultant basis to the teacher or curriculum planning committee if wage-earning oriented courses are established in the schools of the city.

Members of the advisory committee could be selected by those with whom they will be directly related and approved by the Board of Education. This committee could serve in various ways: determine the

needs for and nature of programs with wage-earning emphasis, assist and advise in planning work experiences, facilitate and strengthen the relationship of the school with business and industry in the community, and lend assistance as resource persons.

2. An intimate knowledge concerning the home and family background of each participant could be of value to the teacher in planning and providing beneficial learning experiences.

Learning experiences could be planned and provided for a class that would be more effective and beneficial if the teacher had a personal interest and understood the home situation and family background. Adequate information concerning the home and family situation is lacking in most instances. This would possibly provide deeper insight into the responses and reactions elicited from the student. Motivation techniques could probably be more appropriately chosen if the teacher had a thorough understanding of the student's background.

3. If several wage-earning oriented classes were planned a coordinator of work experiences could be of value to the student, teacher, and employer.

A coordinator could serve as a liaison person among student, teacher, and employer. This person could facilitate and strengthen the relationship between those involved in the program as well as assist in identifying training needs and preparation.

Class participants

1. Encourage persons, boys and girls, men and women, who will be available and exclude those who will not be available for employment after instruction and training to enroll in wage-earning courses in which subject matter content relates to specific occupation interests.

Although there may be pertinent factors that might evolve which could prevent employment after instruction and training, it is probably advisable to select class members who will be available for employment. The instruction given becomes effective and meaningful when the theory is put into practice as soon as possible.

Field experiences

1. Investigation of policies and positions of employers in regard to the employment of persons of different races in the early contacts may facilitate placement of participants in the program.

It is possible that some employers would be reluctant to employ persons of other races; therefore, this should be investigated prior to emrollment of class personnel or time of placement. The opportunities that do exist for these persons should be readily available.

Curriculum and teaching methods

1. It is possible that a team teaching approach in wage-earning oriented programs would afford maximum effectiveness by using the optimum talents and abilities of staff members.

Using the talents and abilities of several staff members provides depth and breadth of knowledge and experience which could

enhance the learning process. Education is not the responsibility of one person but rather of many. The contributions that each can make lessens the gap between man and work. Rapport must be maintained among the staff and class members.

2. Depending on the number of wage-earning oriented classes established in a particular school, it is feasible to use large group instruction for general emphasis on employment and small group instruction with emphasis on knowledge and skills required for specific occupations.

It was indicated in this study that general emphasis on certain factors related to employment would be valuable for everyone, regardless of specific employment. Using large group instruction on general employment procedures and practices would enable larger enrollment in wage-earning oriented programs. Space and equipment could also be conserved by this means of instruction. Also related to this possibility is that of using the team teaching approach. Individual differences of the learner could be met with greater adequacy in small groups with emphasis on knowledge and skills required for specific occupations. The chances of meeting the outcome of the learner learning could probably be increased, if small group instruction were possible.

3. Wage-earning oriented courses probably require longer periods of time than some courses due to development of specific skills inherent in employment situations.

It was suggested and recommended repeatedly by the participants to increase the length of time for the course if it were offered again.

The coordinator also indicated in her comments the possibility of extending the course to two semesters since there was an abundance of learning and practice involved. Advanced skill training, money management, and material related to life occupations could be included.

4. Wide use of both real and simulated learning experiences in order to provide opportunity to develop the participants' self-confidence apparently "pays dividends" in preparation for employment.

Various learning experiences provide an opportunity for the participant to develop competence in skill and knowledge and thus gain self-confidence. Confidence in self could be the crux in obtaining employment. Education and opportunity are important but without self-confidence many gaps cannot be bridged easily. Adequate learning experiences could perhaps provide the opportunities that are sometimes lacking in an individual's background of experience.

5. It might be advisable to grant two credits for a wage-earning oriented course with work experience--one credit for classroom performance and one credit for work experience. Some other tangible recognition or evidence of completion of the successful work experience may be desirable.

Allowing two credits for the course work and work experience or some other means of recognition could be a motivating factor for the participant. Since there are sometimes unforeseen factors that prevent a student from participating in the work experience aspect of the program, credit for the class experience could be awarded with

little difficulty. This would also allow the coordinator opportunity to exercise judgment concerning the readiness of the participant for a work experience.

6. Certain considerations may be appropriate as a staff explores wage oriented programs in a total school program.

a. Feasibility of large blocks of time for phases such as laboratory experiences.

b. Feasibility of an imaginative teacher team planning and teaching implementation of such a program.

c. The realism of planning such programs in a community where racial prejudices may exist thus excluding some students from participation.

d. Probability of a total faculty commitment to vocational emphasis in a school program.

Pre- and in-service programs for teacher education

1. To encourage prospective and in-service teachers, it may be necessary for the pre-service and in-service education programs to provide a challenging and stimulating dual focus for preparation to teach to satisfy the current trends and needs of the times.

The training and re-training of teachers are essential parts of the teacher education program. An awareness of the competences needed for the various roles assumed by persons allows for program planning in keeping with the trends of the times. Opportunity to explore and learn must be provided the learner. Various types of programs could be provided for preparing teachers, thus fulfilling

the individual needs to a greater extent than if only one type of preparation were available.

Research

1. Further research is needed with wage-earning oriented programs to determine the extent to which such programs could prepare individuals for the world of work.

Various types of wage-earning oriented programs need to be explored in order to determine with any degree of accuracy the extent to which such programs could prepare individuals for the world of work. Because of the limitations of this study, additional support for the findings in this study are needed to substantiate them.

2. A follow-up study of the participants in the experimental program is advisable as a means of obtaining evidence of the worth of the program after the course was completed.

Since some of the participants did not have a work experience during the semester when the experimental program was used, it would be of value to the coordinator and those interested in programs of this kind to learn the extent to which the program with or without such experience had developed minimum attitudes, traits, skills, and knowledge which facilitated employment at the completion of the school term. It could also provide a basis for further program planning.

3. There is need for further work on the development of evaluation measures.

There appears to be a need for attitude scales toward certain employment situations and evaluation devices for use by employers. Adequate evaluation measures could strengthen wage-earning oriented programs.

Education is important and can serve to bridge the gap between man and work.

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APPENDICES

APPENDIX A

Interview Form

Interview Form

Employer's Name_____
Type of Business_____
Address_____

	Yes	No
Do you employ high school students before their schooling is completed?	____	____
Do you employ students immediately after graduation?	____	____
Do your jobs or services require completion of high school?	____	____
Are workers adequately prepared to assume the job responsibility?	____	____
If not, could the school aid in a training program for specific jobs?	____	____
Would you be willing to cooperate by providing a work experience in training prior to completion of the school program if one were initiated in Rockford?	____	____

What specific jobs or services are most needed?

1. Bakery preparation _____
2. Breakfast cook _____
3. Car hop _____
4. Checker _____
5. Cook's assistant _____
6. Counter girl _____
7. Dish porter _____
8. Dish scraper _____
9. Dishwasher _____
10. Production manager _____
11. Food purchaser _____
12. Fountain girl _____
13. Head cook _____
14. Hostess _____
15. Kitchen supervisor _____
16. Meat cook _____
17. Pastry cook _____
18. Salad cook _____
19. Short-order cook _____
20. Steam table asst. _____
21. Table girl _____
22. Vegetable cook _____
23. Waitress _____
24. Food demonstrator _____
25. Cateress _____
26. Salesperson _____

Others:

What type of training for these workers would be of most value to you in your situation?

_____ general work habits
_____ personal qualities
_____ personal appearance on the job
_____ safety and sanitation
_____ food preparation principles
_____ food service
_____ food purchase and storage
_____ other:

What special personal qualities would you like the worker to possess?

_____ promptness or punctuality
_____ cooperativeness
_____ dependability
_____ honesty
_____ self-confidence
_____ poise
_____ physical stamina
_____ orderly management
_____ neat appearance
_____ well mannered
_____ ability to work with others
_____ ability to follow directions
_____ courteous
_____ others:

APPENDIX B

Food Service Experimental Program

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Unit	Page
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FOOD SERVICES EXPERIMENTAL PROGRAM

Looking to the Future

Desired Outcomes:

To gain an understanding of the need for preparing for wage earning.
To realize the world of work is changing.
To understand the importance of choosing a vocation.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
Why prepare for wage-earning?	Discuss the importance of planning ahead for wage-earning and various implications psychological physical social emotional mental Read, discuss and compare the number of years the average person will work. Use the "Occupational Handbook" to explore the need for preparing for wage-earning.	Information concerning the training and preparation required for various job opportunities is a vital part of the educational program for youth planning ahead for wage-earning.	United States Department of Labor, Occupational Outlook Handbook, Bulletin No. 1300, Superintendent of Documents, U. S. Government Printing Office Washington 25, D. C., 1963-1964. ($4.75) United States Department of Labor, Bureau of Employment Security, The Occupational Outlook for the Decade 1960-1970. U. S. Government Printing Office, Washington 25, D. C., 1961.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Secure U. S. Labor Dept. bulletins giving statistics on workers. Analyze and discuss.		United States Department of Labor, Office of Manpower, Automation, and Training, Young Workers: Their Special Training Needs, Manpower Research Bulletin No. 3, U. S. Government Printing Office, Washington, D. C., 1963.
	Use resource people representing different occupations to explain job opportunities and the need for training.		
	Select various occupations and analyze the preparation needed as special problems in the area of student interest.		United States Department of Labor, The President's Committee on Youth Employment, The Challenge of Jobless Youth, U. S. Government Printing Office, Washington, D. C., 1963.
	Invite a representative from the Employment Bureau to explain the local situation and the demands.		United States Department of Labor, Women's Bureau, What's New About Women Workers? U. S. Government Printing Office, Washington, D. C.
	Discuss the kinds of training needed for wage earning.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Develop a chart to show the training needed for various types of jobs and make comparisons. Read and discuss newspaper and current magazine articles dealing with wage earning preparation.		United States Department of Labor, Women's Bureau, Background Facts on Women Workers in the United States, U. S. Government Printing Office, Washington, D. C., 1964. Venn, Grant. Man, Education, and Work, Post-secondary Vocational and Technical Education, American Council on Education, 1785 Massachusetts Ave., N. W. Washington, D. C., 1964. ($1.50)
What changes are taking place in the world of work?	Trace the trends or work patterns since 1900 and compare them. Discuss the possible reasons for the change in work patterns and the ways in which it has affected the worker. (obsolescence)	Changes that are taking place in the world of work influence the kind and amount of preparation needed to meet the demands in various occupations.	United States Department of Health, Education and Welfare, Office of Education, Education for a Changing World of Work, Pub. No. 80021, Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C., 1962. (.30)

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use local resource people to explain the changes that have taken place in the world of work. Secure and use materials from the U. S. Office of Health, Education and Welfare. Discuss how the changes that are taking place in the world of work are also changing the kind and amount of preparation needed.		United States Department of Health, Education and Welfare, Office of Education, Education for a Changing World of Work, Report of the Panel of Consultants on Vocational Education. U. S. Government Printing Office, Washington, D. C., 1963. ($1.25) Baer, Max F., "Some Employment Trends, "Personnel and Guidance Journal, 41: 4, pp. 300-1, December, 1962 Ravitz, Mel, "The Implications for Changing Employment Patterns," Adult Leadership, 11: pp. 199-200, January, 1963.
Why is it important to choose a vocation?	Discuss what is desired of a vocation and what it means to various people.	Choosing the "right" vocation is a stepping-stone to success.	Science Research Associates, Occupational Briefs on America's Major Job Fields, 259 East Erie Street, Chicago 11, Illnois, 1961. (.35)

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use interest and aptitude tests in guiding students and discussing plans for the future. Investigate the need for, the training, and the future possibilities of individual interests. Investigate the information found in the Occupational Dictionary of Titles. Discuss the satisfactions and expectations desired of a vocation. Use resource people to discuss choosing a vocation.	Self satisfaction is gained if a vocation is carefully selected.	United States Department of Labor, Bureau of Employment Security, Choosing Your Occupation, Supt. of Documents, U. S. Government Printing Office, Washington, D. C., 1962. United States Department of Labor, Dictionary of Occupational Titles, U. S. Government Printing Office, Washington, D. C., 1963. Film--"Planning Your Career," Encyclopedia Britannica Films, 20 North Wacker Drive, Chicago 6, Illinois. Clifton, Mark. Opportunity Unlimited, Philadelphia: Chilton Co., 1959.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Select a vocation and study all aspects of it and report findings to the class.		Hamphreys, J. Anthony. Choosing Your Career, Science Research Associates, 259 East Erie Street, Chicago 11, Illinois.

Finding A Job

Desired Outcomes:
To gain knowledge and an understanding of what is expected of an applicant seeking employment.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What educational preparation is desirable?	Discuss the importance of a high school diploma. Show and discuss the film "Your Earning Power"	The assets of formal education and training become meaningful when one is seeking employment.	Film--"Your Earning Power," Coronet Instructional Films, 65 E. South Water Street, Chicago 1, Illinois.
What credentials do I need? How do I obtain a social security number? What are the benefits of social security? Of what value is a health certificate? Why may a birth certificate be essential? When is a work permit required?	List the credentials believed necessary for employment and discuss. Assemble all the information concerning each credential needed. Have a representative from the Bureau of Employment Security explain how to secure a social security number and the benefits of social security and its program.	There are valuable credentials that are needed and must be provided to fulfill the requirements associated with employment.	Film--"They Need To Know," Social Security Administration. Birth certificate--from the County Court House. Work Permit--Office in the Board of Education Building, S. Madison St. Rockford, Illinois. Health certificates--samples from companies requiring them. Forms from doctors.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss the value of a health certificate for employment--how it protects the employer and the employee. Use birth certificates and discuss the importance of them. Discuss how birth certificates can be secured. Have a representative explain employment regulations of minors. Secure an official from the local school office to discuss work permits. Have each student assemble all the credentials for use in obtaining a job.		Health Dept., City Hall Building, East State St., Rockford, Illinois. Publications from Social Security Administration Office. Post Office Building, South Main St., Rockford, Illinois. Myers, George, Little, Gladys M. and Robinson, Sarah. Planning Your Future, New York: McGraw-Hill Book Co., Inc., 1953. Dreese, Mitchell. How To Get The Job. Science Research Associates, 259 East Erie Street, Chicago 11, Illinois.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Show film--"They Need to Know," which illustrates the importance of being familiar with provisions of Social Security.		
How can I apply for a job? What should be included in a letter of application?	For class use answer an ad in the local paper with a letter of application. Analyze the letters written. Discuss the specific standards of a letter of application. Discuss the information to be included in a letter of application. Age Sex Education Employment experience Name of last employer and period of employment Special abilities and activities	A well written letter containing the information an employer desires is a useful and important contact to make in securing employment.	Angel, Juvenal L. Employment Service Handbook for 1956-7, 2d ed. New York: World Trade Academy Press, Inc., 1956. DeBoer, John J. The New Building Better English, Evanston: Row, Peterson & Co., 1961. Corbin, Richard K. and Porter, G. Perrin. Guide to Modern English 12, Chicago: Scott, Foresman & Co., 1963.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Organizational experiences if applying for first job. References How to reach applicant		Hagar, Hubert, Stewart, Marie M. and Hutchinson, E. Lillian. Business English and Letter Writing, New York: McGraw-Hill Book Co., Inc., 1953.
	Involve other departments such as English and Business Education in writing letters of application.		Stewart, Marie, Hutchinson, E. Lillian, Lanham, Frank and Zimmer, Kenneth. Business English and Communication. New York: McGraw-Hill Book Co. Inc., 1961.
	Write an application for work experience.		Wolfe, Geyer and Mahan. Enjoying English. Chicago: L. W. Singer Co., 1964.
How do I use an application form?	Secure sample application forms and fill them in. Discuss.	A carefully prepared and completed application form "sets the stage" for an initial contact in securing employment.	Preceding references.
	Discuss the information required on application forms and the possible reasons for needing such information.		Sample application forms.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use a resource person to discuss the essentials needed for filling out an application accurately.		
Why is a reference needed? Why are school personnel or former employers often used as references?	Discuss what a reference is and how it is used in applying for work. Secure and discuss the value of a signed consent card for the schools to use when asked for references. Make a list of persons whom you might select for use as references. Write a letter of reference for a person who has used your name as a reference. Discuss the letters.	Since references serve as a major factor in employment one must give careful consideration to those whom he selects.	Preceding References

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss the content of material asked for on reference forms and its importance.		
Whom can I ask for personal or character references? Do I need permission?	Discuss those whom you might ask for a character reference--clergyman, youth leaders, etc. Discuss the information desired by employers from a reference. Discuss the reasons for obtaining permission to use a person for a reference. Write sample letters in response to being asked to be used as a personal reference. Complete sample reference forms and discuss.	When permission is obtained before using a person's name as a reference it promotes a desirable human relationship.	Preceding references

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
Why are interviews important? Why is timing important?	Discuss the importance of promptness for an interview and the times most suitable for an interview. Role play various approaches that might be used in an interview and discuss the merits of each. Discuss the importance of correct speech in an interview. Use an employer to interview 2 or 3 persons before the class and then select the one he would choose for the position and give the reasons for the choice. Enlist the cooperation of counselors or administrators to conduct an interview with a student for experience.	Personal interviews are likely to be satisfying and acceptable when plans are carefully made for the first face to face contact.	Brewton, Peterson and Kinnick. Using Good English 12, River Forest: Laidlow Brothers, 1962. Film--"Strange Interview," General Motors Corporation Detroit, Michigan. Film--"Employment Interview," McGraw-Hill Book Company, Inc., Text-Film Department, 330 West 42nd St., New York 36, New York. Film--"Getting a Job," Encyclopedia Britannica Films, Inc., 1150 Wilmette Ave., Wilmette, Illinois.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Have interview for work experience. Use films on interviewing procedure and evaluate. "Strange Interview" "Employment Interview" "Getting a Job"		
How do I prepare for an interview? Why is appearance important? What should I wear?	Discuss suitable wearing apparel for an interview. Discuss the effect that dress has on the prospective employer. Use a resource person to discuss the importance of proper dress for an interview. Demonstrate proper and improper selection of attire suitable for an interview.	Confidence during the interview is likely to be facilitated through an understanding of the numerous factors that influence the prospective employer.	Myers, George, Little, Gladys M. and Robinson, Sarah. Planning Your Future, New York: McGraw-Hill Book Co., Inc., 1953.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play situations depicting proper and improper dress.		
Why is good grooming essential?	Select suitable make-up for a job interview. Use a resource person to discuss and demonstrate the proper use of make-up. Discuss the importance of good grooming habits in seeking a job. Observe grooming habits of people on the job--how can they be improved.		Angel, Juvenal L. Employment Service Handbook for 1956-7. New York: World Trade Academy Press, Inc., 1956. Bedford, James H. Your Future Job. Los Angeles: The Society for Occupational Research, Ltd., 1950.
What mental preparation can be made for an interview?	Anticipate probable questions that might be asked at an interview and prepare suitable answers. Organize information that you believe might be asked in an interview.		MacGibbon, Elizabeth Gregg. Fitting Yourself for Business. New York: McGraw-Hill Book Co., Inc. 1955. Craig, Hazel Thompson. Thresholds to Adult Living. Peoria, Illinois: Chas. A. Bennett Co., 1962.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play interview situations where you anticipate questions.		
What personal qualities are desirable for an interview? Attitude Poise Dignity Interest and mental alertness Cooperativeness	Discuss the importance of a good attitude in terms of job application. Role play situations which depict various personal qualities and evaluate. Read and discuss references on the importance of desirable personal qualities. Use films and evaluate. "Personal Qualities for Job Success" "I Want A Job" "Improve Your Personality"	When being interviewed for a job the personal qualities one possesses are likely to become deciding factors in applicant selection.	"Personal Qualities For Job Success"--Coronet Instructional Films, Coronet Building, Chicago 1, Illinois. "Improve Your Personality" Coronet--address above. Chapman, Paul W. Your Personality and Your Job. Science Research Associates, 259 East Erie Street, Chicago 11, Illinois.
What manners are essential for an interview?	Discuss appropriate manners and conduct that should be on display at all times.	The interview situation tends to be more effective when good manners	

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play situations to show the importance of good manners. Use Standard Brands Film, "How to Interview."	are used by the applicant and the employer.	"How to Interview"-- Standard Brands Incorporated Educational Service, 420 Lexington Ave. New York 17, New York.

Keeping A Job

Desired Outcomes:

To gain an understanding of ways to keep a job.
To realize the importance of acquiring and keeping a job.
To realize the responsibilities an individual has in order to keep a job.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What is meant by human relations?	Discuss the necessity of getting along with people in order to maintain a job. Illustrate the need for working together for satisfaction. Use and evaluate films. "How to Keep a Job" "You and Your Work" "Development of Your Character" List satisfactory outcomes that come about as the result of good human relations.	Understanding the importance of good human relations is likely to have implications for job success.	"How to Keep a Job"--Coronet Instructional Films, Coronet Building, Chicago 1, Illinois. "You and Your Work"--Coronet. Address above. "Development of Your Character"--Coronet. Address above. United States Department of Health, Education, and Welfare, Food Service Industry--Training Programs and Facilities, U. S. Government Printing Office, Washington, D. C., 1961. (.65)

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use a resource person to discuss the importance of getting along with and working with people.		
What general work habits are important?	List work habits that are desirable if you are to keep a job. Discuss ways in which work habits could be improved to keep a job. Observe the work habits of persons in various occupations in terms of efficiency. Make a list of the work habits you have and analyze them in terms of keeping a job. Discuss the importance of evaluating your own work habits and the work habits	Desirable work habits are likely to result in efficiency and thus enable a person to keep a job.	Preceding reference.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	of others as a means of making improvements.		
How do good manners help you keep a job?	List manners needed in order to keep various jobs. Discuss the importance of using good manners in terms of personal satisfaction and maintaining a desirable job. Role play situations depicting good and poor manners on the job. Evaluate the situations. Make observations of people on the job and analyze how good manners aid in keeping the job.	Good manners are an asset that is likely to be a factor of importance in keeping a job.	Preceding references.
What is meant by job ethics?	Discuss the meaning of job ethics. Discuss the importance of maintaining the	Maintaining a job is likely to be related to one's adherence to the ethics established for an occupation.	

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	standards set forth for a job. Illustrate the events that might occur in chain reaction if job ethics are not adhered to. Use a code of ethics that has been set forth for a job and discuss the meaning of it.		
How do appearance and grooming help me keep a job?	Discuss the importance of one's appearance and good grooming as a way of keeping a job. Cite incidents that are known where appearance and grooming were determining factors in keeping a job. Observe the appearance and grooming techniques used by people who have had the same job for	Keeping a job is likely to be influenced by factors such as appearance and appropriate grooming.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	many years. Is this a contributing factor?		
How does physical stamina aid in keeping a job?	Discuss the physical stamina needed for various kinds of occupations. Use resource people to discuss the importance of being on the job.	Physical stamina required for a particular job is likely to be an important factor that needs consideration when selecting a job.	

Job Compensations

Desired Outcomes:

To gain an understanding of the compensations a job has for an individual.

To recognize that there are compensations obtained from a job.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
Are there retirement benefits?	Discuss the kinds of retirement benefits various occupations provide. Select and report on the retirement benefits available to personnel in various occupations. Discuss how the retirement benefits are established. Use a resource person to discuss retirement benefits.	Compensations and fringe benefits associated with employment are meaningful to the extent that maximum job security or satisfaction is promoted.	
What are fringe benefits?	Discuss what is meant by the term fringe benefits.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	List and discuss fringe benefits that are available to many people in various occupations--are they desirable? Report and make a chart of various local places of employment and the fringe benefits that they offer employees.		
How are promotions obtained?	Discuss the factors that influence promotions. Discuss the ways in which promotions might be handled--the advantages and disadvantages.	Job promotions are likely to be satisfying and acceptable when the factors which influence promotion are understood.	
How can competent work be recognized?	List ways that the employer recognizes competent work. Discuss the need for recognition of work well done.	Optimum job performance is likely to result when the employer recognizes the competent work of an employee.	

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
Why is personal satisfaction important?	Discuss the importance of personal satisfaction obtained from doing a job well. Select a job and list the personal satisfactions that one might receive if the job was done well.	A feeling of personal satisfaction is likely to be gained when one knows a job has been done well.	
What are the components of job security?	Discuss the importance of job security. Discuss some of the ways an individual has of knowing he has some security in his job. Use a resource person to discuss types of job security.	Job security is likely to be facilitated through an understanding and acceptance of the influencing factors.	
What are acceptable wages and hours of work?	Discuss the requirements of the State minimum wage law. Discuss the provision made for increases in wages for	State wage laws are factors that determine local wages and hours of work.	Information from Employment Service.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	various occupations. Chart wage scales for various occupations and compare in terms of training needed, difficulty of work, etc. Discuss vacation pay as a form of job compensation.	The type of occupation and kind of training or preparation needed are likely to be factors related to the wages offered.	Information from board issuing work permits.

The Future for Food Service Employees

Desired Outcomes:

To gain an understanding of the need for trained food service personnel.
To gain a knowledge of various areas of food service occupations.
To gain an increased awareness of the need for training to become a qualified food service employee.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What is the need for trained food service employees? What is the national need for food service employees? What is the local need for food service employees?	Discuss the national and local needs for food service personnel. Use a want ad section of the paper to determine the number of job opportunities being sought through this means at the local level. Use the Occupational Handbook information on service occupations and the growing demand. Chart the changes that have taken place in the demand for service personnel since 1900.	Service occupations in the food service area are challenging when the demand for food service personnel is apparent.	Occupational Outlook Handbook. op. cit. The Occupational Outlook for the Decade 1960 to 1970. op. cit. Background Facts on Women Workers in the United States. op. cit. Film and pamphlets prepared by H. J. Heinz Co. for: National Restaurant Association, 1530 North Lake Shore Drive, Chicago 10, Illinois. Other publications also available from the National Restaurant Association.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Show and discuss the film strip--"New Horizons in Food Service Careers," prepared for the National Restaurant Association by H. J. Heinz Co., Pittsburgh, Pa.		Seligman, Daniel and Mayer, Lawrence A. "The Future Population Mix," Fortune, February 1959.
	Use the pamphlet prepared by H. J. Heinz Co., on "Careers in Quantity Food Service."		Clifton, Mark. op. cit.
	Secure Labor Dept. materials that give statistics on the demand for food service personnel.		
	Use a resource person from the Employment Bureau to discuss opportunities available in food service occupations at the local level.		
	Use a resource person from the food service industry to discuss the		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	need for food service workers.		
What are the areas of food service occupations?	Discuss the areas of food service occupations as management, promotions, sales and sanitation. Select areas of food service occupations and list the special job opportunities in each. Use a resource person from a local food service to discuss the areas of food service and the opportunities in each and the training needed. Develop a chart depicting the areas of food service and the job opportunities in each and how they are related. Read articles in news-	Considering or seeking a job is influenced by one's awareness of the job opportunities available in an area.	Food Service Industry Training Programs and Facilities. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	papers and magazines about food service occupations and discuss.		
What are the qualifications for food service personnel in the area of sales? Appearance Grooming Manners Attitude Ability to work with others Promptness Dependability Initiative Honesty Interest Liking for people Pleasant voice	Discuss the importance of appearance in relation to a food service job in sales such as a waitress or hostess. Observe persons employed as waitresses or hostesses. Evaluate and discuss their personal qualifications. Discuss the physical requisites that are considered important in sales work. Demonstration by hairdresser or barber on the care of the hair or arrangements suitable as well as becoming to wear when wearing a uniform.	Employment possibilities are likely to increase when desirable personal qualifications can be met.	Preceding references. Careers in Quantity Food Service. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discussion lead by cosmetologist on the care of hands, nails and proper application of make-up when working as a waitress or hostess. Discuss the importance of good posture, suggest and practice simple exercises to help posture. Role play situations where various members of the group have conspicuous faults in appearance and one in proper uniform. Select without comment the correctly attired person and discuss the faults of the others. Use information for discussion. Role play situations on working with others. Use various films that are available.	Optimum satisfaction in all areas of food service is likely to be accomplished when a favorable attitude toward the work is developed and maintained.	Food Service Industry Training Programs and Facilities. op. cit.

people. It is predicted, for example, that the entire valley between Sacramento and Fresno will become a belt of cities, and other regions of the state will have similar experiences of dazzling expansion.

Such rapid population growth, of course, implies a rapidly increasing need for dental care. California now stands first among the states in the number of dental schools, with five; and when all are in full operation, it will stand first in the number of dentists graduated annually. However, like other states, California has experienced an increase in the population-per-dentist ratio during the last twenty years; the ratio in California was 1,268 to 1 in 1940. A projection of the 1940-1959 growth curve to 1975 indicates that the ratio will then have risen to about 1,800 persons per dentist. In addition, while many older dentists continue a full-time practice, it is reasonable to expect a number of them to reduce their practice, to retire, or to die. Young dentists will be needed to replace them, in addition to those needed because of increasing population. Finally, it should be remembered that estimates of demand do not take any factors into consideration except the actual number of practicing dentists in relation to the population. Hence, if the dental education program has any positive effects, the demand for dentists will be augmented that much more. With the increased demand for dental

services will come an increased demand for dentists' auxiliaries.

Use of Dental Auxiliary Personnel

Dental hygenists, dental assistants, dental technicians, and receptionists enable the dentist to care for many more patients than he can when he works alone. Obviously this is a strong argument for their increased employment; and at present, only two factors prevent their more widespread use. First, numbers of dentists have not yet learned how to use auxiliaries to improve their productivity or have not reached a level of income that would enable them to employ auxiliaries. The dentists in these categories are in the minority; most dentists can employ some kind of auxiliary. The second, and for our purposes the more serious factor, is that there are simply not enough persons trained for the job. This is true for the present, and if the need for dental care expands even at the rate of the most conservative estimates, the gap between supply and demand will widen considerably, and quickly.

Currently twenty-five junior colleges in California (15 in the north and 10 in the south) offer dental assistant training. In all but two of these colleges, the dental assisting program is a two-year program leading to an Associate in Arts degree. The quality of these programs is well established. State approval of a particular program depends on the adequacy of the physical facilities, admission policies,

library, financial support, and formal educational and training requirements for employment. Standards and requirements set by the Council on Dental Education of the American Dental Association provide: (1) well-defined guidelines for schools or colleges planning programs for the education of dental assistants; (2) protection for the members of the dental profession, who will be the primary employers of the dental assistants; (3) protection for the person who pursues the particular school curriculum; and (4) protection for the public which supports the schools.

quantity?

The quality of students produced by these programs, however, is another matter. At present, there are fewer than 30 approved dental assistant programs offering one and two-year courses, and these schools average less than 50 graduates per class. It is estimated that 240 schools for dental assistants will be required to fulfill the yearly need for dental assistants. So long as the present circumstances continue--the demand high and likely to go higher, the supply of qualified personnel short--what may well occur is that inadequately trained persons will be employed to fill the gap between supply and demand. This is possible because, while dental hygienists, for example, are trained under the direction of a school of dentistry and are licensed by the Board of Dental Examiners, the dental assistant has no

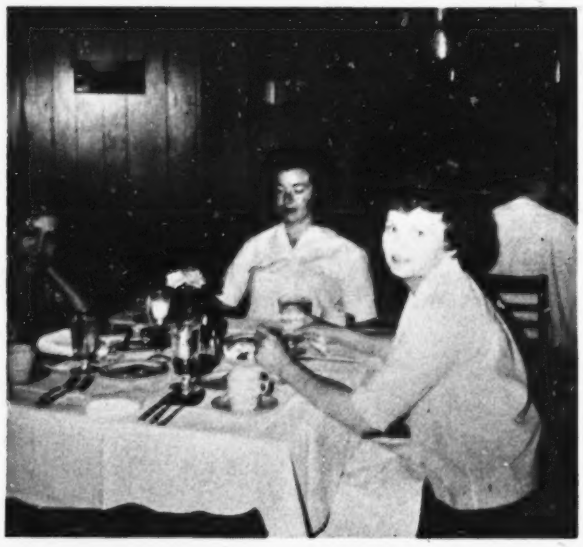
legal status in California or in any other state. Anyone may pursue employment as an assistant; no license is necessary. A dentist may employ anyone as a dental assistant, whether or not she has had formal training for the position.

Nonetheless, dentists naturally prefer well-trained assistants, and the training programs in the California junior colleges strive to provide the best. The objective of every dental assistant--particularly of one who wishes to make available to her employer that quality and standard of service deserved by the profession and the public, who plans to pursue dental assisting as a career, and who finds it desirable to lend additional stature to the field of dental assisting--should be to achieve the title, Currently Certified Dental Assistant. Certification provides evidence that a dental assistant has acquired certain knowledge and skills; and implies, to any prospective employer, status in the dental profession.

Organization of Dental Assisting Workshops

The rapidly increasing demand for dental assistants in dentists' offices has resulted in the dental profession's culling every available source for trained personnel. The Council on Dental Education has recommended that dentists make greater use of the junior colleges in the recruitment of qualified dental assistants. Conversely, the

Improving Instruction in Dental Assisting



junior colleges must keep their dental assistants' program abreast of the rapid technological changes in dentistry. To help the teachers of the California junior college dental assisting programs better prepare their students, a workshop was planned to introduce new techniques, materials, and equipment in dentistry.

The workshop was designed to update the instructors' technical knowledge and to help them develop ways to teach these innovations to their students. The workshop was originally programmed through the efforts of Pauline Anderson and Martha Burkard who operated the workshop in a cooperative arrangement between Los Angeles State College and the Trade-Technical Teacher Education office of the Division of Vocational Education, UCLA. The Bureau of Industrial Education, State Department of Education, sponsored the workshop which was held at the Lake Arrowhead Education Center on August 26, 27, and 28, 1964. (A copy of the program is included in Appendix 1, page 14.) Three areas were concentrated upon: (1) description and discussion of new techniques, materials, and equipment in dentistry; (2) developing programmed instruction for dental assisting classes; (3) development of effective visual aids to amplify instruction in dental assisting programs.

ACTIVITIES

Developments in Dental Techniques, Materials and Equipment

Dr. C. W. Gilman, a staunch supporter of in-service dental assisting teacher programs, spend the first afternoon of the workshop discussing techniques, materials, and equipment that were new in dentistry. He reviewed relatively new or changed materials and the techniques of using them. Among the items Dr. Gilman discussed were powdered gold, quick-cure base plate materials, "hi-fi" wax, meta-cortelone, film holders, blocks, tabs in dental X-ray, bleaching non-vital teeth, and galvanic current. He also described some new and recently refined pieces of equipment, the McShirley amalgamator, high-speed handpieces (electric-powered and air-driven), and multi-purpose syringes. Having spoken about equipment and technique, Dr. Gilman went on to discuss methods of arranging the operatory, and available combinations of dental chair, assisting chair and cabinets. He closed his presentation with a new bookkeeping method now available to dental offices. In his afternoon presentation he was highly informative; and he was an able conference leader as well, permitting wide-ranging discussion and questions during the presentation.

Color Slides and Overlay Projects

Betty Haithwaite presented ways of making and using color slides. The participants observed how inexpensive cameras with inexpensive portra lenses could photograph clear and colorful pictures of the oral cavity. Techniques of showing slides and their flexibility of use during a lesson were demonstrated.

Improving Instruction in Dental Assisting

Clifford Dobson discussed the use and applicability of overlay instruction for dental assistants. He demonstrated methods for making overlays in depth, as well as tricks for their effective use. In addition, he presented the use of charts with other aids during the teaching of lessons.

Programmed Instruction

The use of programmed instruction was demonstrated so that the participants could learn new ways of presenting technical information to their students. The presentation by David Allen gave the participants an opportunity to experience the difficulty in learning new information through conventional textbook reading and through programmed text material on similar subjects. Each participant had an opportunity to use linear programs, scrambled books, and branching programs. Each of the developed programmed texts related directly to the earlier presentation on techniques, materials, and equipment relatively new in dentistry.

Jim Herman presented ten different types of test answer devices that give feed-back of accomplishment to the testee and at the same time are easy to correct by the instructor. These feed-back answer sheets covered examination types such as true and false, multiple-choice, and essay. Both commercial and teacher-made answer sheets

were presented.

A teaching machine was also available to the participants during the workshop. A program was especially designed on the topic of "pegboard accounting systems". The participants had an opportunity to learn about the new bookkeeping system that records appointments, dental progress, and billing.

Work Sessions and Accomplishments

One complete afternoon was used by the participants in creating an instructional aid of their choice. They grouped into four areas of interest, color slides, overlays, charts, and programmed instruction. One group prepared a series of color slides using each other's mouths as subjects. The slides were developed and mounted for display the following day. A series of overlays and charts and a programmed book were developed by the other three groups. On the morning of the last day of the workshop, these instructional aids were presented to the total group.

The workshop concluded with a luncheon speaker, Bruce Conklin, Chairman of the Department of Life Sciences, at Pasadena City College. The total workshop was evaluated by the participants and the consensus was that the workshop was well done and had imbued them with renewed vigor for more effective teaching. Reluctantly, the participants said farewell to old friends and left the beautiful mountain setting, with

plans for returning for another workshop in the summer of 1965.

SUMMARY

Dental assisting instructors occupied in full-time teaching are desirous of keeping informed about new developments in dentistry. To assist these teachers to stay abreast of these technical changes in dentistry as well as changes in teaching, a workshop was held during August, 1964, at the University of California Conference Center, Lake Arrowhead. Thirty-one dental assisting teachers attended this workshop. There was opportunity for each participant to learn about recent techniques, materials, and equipment in dentistry, as well as opportunity to learn new methods and techniques in teaching. The teaching innovations were keyed into the technical subject matter. Slides, overlays, charts, and programmed instructional texts were developed during the workshop session. The overall evaluation of the workshop was couched in terms of praise and requests for more activities of similar nature. A workshop for dental assisting teachers is being planned for the summer of 1965.

Appendix

PROGRAM

Wednesday, August 26, 1964

12:00 - 1:30	Registration
1:30 - 2:00	Opening of Conference ..... Pauline Anderson
2:00 - 4:00	Panel ..... Dr. C. W. Gilman, Chairman New Developments in Dentistry
4:00 - 5:30	Social Hour ..... No Host (Late Registration-Check into rooms)
5:30 - 7:00	Dinner
7:00 - 8:15	Visual Aids by Photography ..... Betty Haithwaite
8:15	Free choice

Thursday, August 27, 1964

7:00 - 8:30	Breakfast
8:30 - 9:00	Meeting for Group Consultants
9:00 -10:00	Developing Programmed Instruction ..... David Allen
10:15 -10:45	Programmed Test Answer Devices ..... Jim Herman
10:45 -11:00	Coffee break
11:00 -12:00	Classroom Techniques for Presenting New Ideas ..... Cliff Dobson (Overhead projector, slides, charts)
12:00 - 1:00	Lunch
1:30 - 2:00	Group Meetings
2:00 - 6:00	Workshops: a. Colored slides b. Overhead projector c. Charts d. Polariod slides e. Programmed teaching
6:00 - 7:00	Dinner
7:00	Free choice

Friday, August 28, 1964

7:00 - 8:30	Breakfast
9:00 - 9:15	Announcements
9:15 -10:00	Summary of Committee Reports ..... David Allen a. Short group reports b. Evaluation session
10:00 -10:30	Report on Ad Hoc Committee and Workshop in San Francisco ..... Betty Clarke
10:30 -12:00	Group - Exchange of Ideas
12:30 - 2:30	Luncheon ..... Cliff Dobson Speaker - Bruce Conklin, PhD Department Chairman, Life Sciences Pasadena City College
2:30 - 3:00	Check-out Time

PARTICIPANTS

Adams, Dorothy
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Armstead, Evelyn A.
Birdsall, Betty J.
Burkard, Martha R.
Escamilla, Mary A.
Escola, Laura
Ford, Virginia A.
Friel, Joyce B.
Hanson, Ellen H.
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King, Ida G.
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Mooney, Wanda V.
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Utilization of Faculty in Associate Degree Programs in Nursing: Report of a Conference (St. Louis, April 3-4, 1964).

National League for Nursing, New York, N.Y. Dept. of Diploma and Associate Degree Programs
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National League for Nursing, 10 Columbus Circle, New York, New York 10019 ($.75).
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*CONFERENCE REPORTS; *HEALTH OCCUPATIONS EDUCATION; *NURSING; *COMMUNITY COLLEGES; FACULTY; *STAFF UTILIZATION; SPEECHES; INSERVICE EDUCATION; STAFF ORIENTATION
NATIONAL LEAGUE FOR NURSING CONFERENCE ON UTILIZATION OF FACULTY IN ASSOCIATE DEGREE PROGRAMS IN NURSING, ST. LOUIS, MISSOURI, APRIL 3-4, 1964

Ninety-one representatives of associate degree nursing programs, junior-community colleges, and state boards of nursing participated in the conference, which was planned to explore faculty utilization with emphasis upon the effective use of nursing faculty. Speeches included "Staff Orientation and Inservice Education" by Joseph P. Cosand and "What to Do with What We Have--Effective Use of the Nursing Faculty" by Eleanor A. Tourtillot. The document includes contributions of the listening panel composed of Wendell Harding, Georgeen DeChow, and Virginia R. Sims. (JK)

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UTILIZATION OF FACULTY

IN

ASSOCIATE DEGREE PROGRAMS IN NURSING

Report of a Conference
Held in St. Louis, Missouri
April 3-4, 1964

NATIONAL LEAGUE FOR NURSING

1964

VT004339

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

Since 1955, the NLN Department of Diploma and Associate Degree Programs has provided consultation services in the interest of associate degree nursing education. Viewed as essential elements of the department's program, these services were supported by the department and grants from two foundations.

In September 1963, the program of consultation services entered a third phase under a special grant from the Sealantic Fund. This phase is designed to:

> help establish associate degree nursing programs in their self-evaluation efforts and thus to encourage continuous self-improvement and progress toward NLN accreditation;
>
> help colleges evaluate their potential for, plan soundly toward, and get a proper start on, new associate degree nursing programs; and encourage and assist state boards of nursing, state leagues for nursing, state departments of education, hospital and medical personnel, and citizen groups in understanding and promoting the sound development of associate degree nursing programs.

To achieve these stated purposes, the plan for implementation includes a series of three national conferences to provide opportunity for discussion of mutual problems and the exchange of ideas. The NLN Subcommittee for Associate Degree Programs in Nursing served as the planning committee for the program of the first conference, which was held in St. Louis April 3-4, 1964. The primary objective of the subcommittee was to identify program topics and suggest conference activities. The group recommended a program that would relate to an exploration of faculty utilization with emphasis upon the effective use of the nursing faculty.

It was toward the fulfillment of this objective that the major papers presented at the conference, "Staff Orientation and Inservice Education" and "What to Do With What We Have--Effective Use of the Nursing Faculty," were directed. The presentation of these papers was followed by a listening panel, general discussions, and group sessions.*

This publication is the report of the first conference, which was attended by 91 representatives of associate degree nursing programs, junior-community colleges, and state boards of nursing.** It has been made available in the hope that the material will be helpful to administrative and teaching personnel as they examine the abilities and the skills of their present faculty and provide for a more effective use of its talents and potentials. The information in the report has implications for and can be applied to all types of educational programs.

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*Questions discussed by the conference group appear in Appendix A.

**A list of the colleges, boards of nursing, and special groups represented appears in Appendix B.

STAFF ORIENTATION AND INSERVICE EDUCATION

Joseph P. Cosand

Educational institutions--elementary schools, junior high schools, high schools, colleges, universities, et cetera--have been talking about staff orientation programs and inservice education throughout my background of experience, and, I am sure, since the inception of formalized instruction.

Schools of education have been talking about the same problems, and I am confident that all of you here have heard them discussed and have participated in such discussions. Since this concern has been with us for such a long time, why, then, are we talking about it again, and why did I agree to make this presentation of such an overworked topic?

I believe strongly that in the current period of educational development, there should be more concern with the topic of inservice education than there was at any other time in my educational experience, which dates back to 1939, for the simple reason that new developments in teaching methodologies are coming before the educational profession with increasing rapidity and urgency. It is appalling how few of us are aware of the implications of these developments. If this is so, and I sincerely believe that it is, what must we do to initiate orientation programs and an on-going inservice educational program for today's colleges?

The success of such an undertaking is dependent, in my estimation, on the full commitment to such a program by the board of trustees, by the president of the institution, the deans, and the faculty itself. The leadership must express this commitment to the faculty, and by leadership I mean the president of the institution and the president of the board. This may be done either in an open meeting or by a written communication. But in any case, the faculty must understand that the board and administration are dedicated to the development of an educational program that will require creativity, vision, and an understanding of the purposes of the college itself on the part of the total faculty.

So often, you will see new colleges organized where there are this understanding and enthusiasm and dedication of purpose, and where you sense a strong desire on the part of the teachers to have the best possible faculty climate--a climate in which inservice education is thought of, not as a formalized thing, but as a responsibility shared by all, with again the understanding that there is full support from the entire administration and the board of trustees.

This enthusiasm, seen on many campuses, is too often absent from long-established campuses, where an apathy or a feeling of inertia has set in and where the words vision, creativity, new procedures have little meaning. I have also seen this happen in the second

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Joseph Cosand is president of the Junior College District of St. Louis, St. Louis County, Missouri.

and third years of new institutions; the original drive and enthusiasm are lost, with the result that administrators and teachers alike fall into the trap of day-to-day procedures, without much thought to the future.

All of us are plagued with day-to-day responsibilities; and it is easy to forget that at all times, if we are to keep up to date and exemplify professional people, we must realize what is taking place on the fringe not only with respect to our own subject disciplines but with respect to educational methodologies and new developments. This inertia or apathy must be fought not only by the administration but by each individual faculty member. The administration is responsible for keeping the board of trustees advised of the institution's inservice educational programs and for regularly recommending that it provide financial, as well as moral, support for their continuance.

We are all aware of boards of trustees who meet regularly and whose meetings are devoted primarily to the approval of trivia; by this I mean the payment of bills and other business-related items. We also are aware of the faculty member who wishes to be left alone to teach his subject, and to teach it the same way it was taught by his professor in graduate school. Practices and attitudes like these, together with a lack of administrative leadership, produce barriers that must be overcome.

To me, a college that is alive must have a faculty, an administration, and a board with a common interest in curriculum and methodology development, in the characteristics of the student body, in follow-up studies of graduates, in instructional resources available to both students and teachers, and in many other matters.

All of these topics and related activities are appropriate for special board meetings and faculty meetings. They are appropriate for workshops and study groups of faculty and administrative personnel, where all can look together at new developments taking place at other institutions and determine which new things should be considered for use or adopted by their own staff members.

We in the Junior College District of St. Louis, St. Louis County, Missouri, have done everything in our power to bring to our total faculty, administration, and board items of interest relating to the topics previously mentioned. We have brought in consultants to meet with small groups and large groups. We have brought in vendors to demonstrate before our total faculty or subject groups pieces of equipment which may represent new methods of presentation. We have discussed with the faculty how they themselves could work best in new areas of instructional development and what facilities they may recommend for our faculty workshop centers.

These topics should be discussed prior to the establishment of such facilities, for in cases where the faculty members themselves are not committed to certain developments, administrative members are not likely to succeed in instituting the use of equipment or methods pertaining to them.

It is amazing to me how often we underestimate our own abilities and those of our peers. Also, it is always interesting to discover how much all of us want to use new methods and new content once we are aware that they are there and once we overcome our own fears.

Self-study committees based upon total faculty or individual subject disciplines permit individual faculty members to express their concerns and to recommend possible solutions to problems that affect the educational offerings. One of the exciting aspects of our program is our curriculum study committee, which represents administration and faculty, each of our three campuses, and most of our subject disciplines. This committee meets weekly and the members are given released time from teaching so that they do not feel too much pressure when they discuss the educational program, with its weaknesses and its strengths, in relation to curriculum, course content, and physical facilities. This is a self-study committee on a broad basis.

The individual members of this committee will take back to the different divisions recommendations which, in turn, will be studied on a much more specific basis and again lead to self-study, this time as related to specific subject fields, such as English or mathematics.

So, these committees do determine the needs of a college faculty and, more than that, suggest how these needs might be met through administrative support and, finally, board support. Once committee recommendations are made and the need for implementation is present, the administration must accept the leadership, but only after a careful analysis of all recommendations has been made. If the administration believes it can support these recommendations, it should take them to the board when board support is needed. Certainly board support is needed if financial commitments are to be made. There is nothing worse than to have such committees in operation while their recommendations are left to decay on paper in some file cabinet. This is a tragedy that too often takes place and is completely negative in its effect on the committee members.

Our board in St. Louis has committed itself to released time for faculty members for this type of self-study. Recommendations from our faculty and administration, when proposed to the board with sufficient justification, have found receptive ears. A dedicated board, aware of its responsibilities to the college and to the community, will support--and support strongly--a creative and dedicated faculty. But the board must know what is going on; and again, this is the responsibility of the administrative leadership.

Faculty members will participate, if encouraged to do so, when they know that their efforts are appreciated and that board and administrative action will be taken to assist them in their study. For this reason, I believe strongly in released time for faculty members on a continuing basis. I think it is equally important to have an installation on campus where members can meet in an atmosphere conducive to study; as is true in our case, this might be called a faculty workshop center. This center should contain equipment that would enable faculty members and student assistants to produce educational materials such as tapes, films, overlays, and charts. We have found that when this released time is made available, and in addition, a work area is provided, we can bring to the campus rich resources from the community and from other colleges as well.

We find that consultants are eager to meet with our self-study committees. We find that vendors are interested in demonstrating equipment to groups of teachers in our centers. We find that a climate has been created that encourages people to work on the fringe where

teachers can be increasingly freed to teach, and to teach to the best of their ability as well as with every possible assistance from the newest types of equipment.

Naturally, if this kind of effort is to be expended in terms of time and money, it is fundamental that a continuing evaluation be made so that we don't at any time feel we have fallen into a trap of "gimmicks" that look good on paper but produce very little of value in the classroom. This on-going examination really is a part of the inservice education program and therefore must be a part of each of the self-study committees.

I have heard educators criticize strongly some of the newest developments in teaching equipment as nothing more than fancy doodads, gimmicks, et cetera without ever looking at the equipment in question or asking a faculty group to study its potential value. These people have their heads in the sand, and yet they are called administrators and are looked to for leadership.

I have also heard many teachers make the same statement, and yet they consider themselves master teachers; in reality, they haven't changed their procedures for years and are teaching the same way they taught when they first entered the teaching profession. These administrators and teachers are not professional in any sense of the word. Far too many are robots; professionally, they died long ago, and for all practical purposes, should have --with respect to their educational professions--been buried.

Look at the great developments in methods and course content that have taken place in recent years in the teaching of chemistry, languages, and mathematics; and we hear more and more about studies in the fields of social science, English, the humanities, et cetera. These didn't just happen. They were supported strongly with time and money, and resulted in exciting opportunities for the participants as well as for those following in the footsteps of the originators.

I find as I visit colleges throughout the United States that many teachers have not yet heard of an overhead projector, and even many of those who have heard do not know how to use it to its fullest degree. It is one of the greatest teaching devices developed, and when used to its fullest extent, it can free a teacher to do a tremendous job of teaching his subject.

Look at the old methods of teaching zoology and biology. Remember those who drew diagrams on the blackboard in colored chalk and then prayed that no one would come in and erase them? Today, the teacher can obtain or develop for himself overlays that when placed on the platform of an overhead projector, can do the job much better than he; moreover, their use makes it possible for him to remain in direct contact with the students while discussing the topic being presented. This is only one example of the many things that are available for us to use if we know how to use them.

The final goal in my estimation of staff orientation and inservice education is the improvement of instruction. We must keep this at all times in the foreground of our thinking, because this is why we are in our profession. If we do not strive constantly to improve instruction, course content, curriculum patterns, and teaching methodologies,

atrophy will set in. In any profession, it is necessary to have people who are dedicated to the development of that profession. If this dedication and development, if creativity, vision, and working on the fringes are not present, then I do not consider the people concerned to be professional. There are many robot jobs available in our society. It is too bad that some board of trustees members and some administrators and teachers fall into this category. When they do, they have forfeited their right to be called professional educators.

This is an exciting period for our profession. I have never seen so many new studies under way. I have never seen so much ferment; and I am confident in my mind and can feel from what is going on in our district that this ferment is going to create--not only in St. Louis but in institutions throughout the United States--improvements in our educational program that will make it possible for teachers to do a much better job of teaching and for students to do a much better job of learning. We are interested in turning out a graduate who has been stimulated to think, to keep informed, and to contribute toward a better society. We must, then, commit ourselves to the creation of a climate in which this product can be developed.

WHAT TO DO WITH WHAT WE HAVE
(Effective Use of the Nursing Faculty)

Eleanor A. Tourtillot

The present and prospective shortage of teachers at all levels and in all areas of education constitutes a crisis in American education. Since teacher shortage in both higher education and nursing education is our concern here today, let me cite a few statistics that will give you an idea of the magnitude of the problem. According to reports from the United States Office of Education, "projections indicate a total full-time equivalent professional staff in American Higher Education as of 1970 of some 402,000. Of this total, 258,000 or 64.2% will be engaged in essentially full-time teaching; 64,000 or 16% will be engaged in the provision of administrative services; and the full-time equivalent of 80,000 or 19.8% will be engaged in the pursuit of organized research."[1]

Junior community college staffing needs will call for an additional 100,000 instructors by 1970. This was reported by Dr. Mersen, Assistant Director for Commissions of the American Association of Junior Colleges, at a recent meeting of the National Health Council and the American Association of Junior Colleges. Mildred Schmidt, speaking at the same meeting and citing from data gathered for her doctoral dissertation, reported that 150 community colleges are currently interested in establishing associate degree programs in nursing. With the imminent probability of this development in nursing education and a rough estimate of six instructors per program, one arrives at a figure of 900 instructors (preferably with preparation at the master's level) needed now. What the figure will be by 1970 is anyone's guess.

According to the Surgeon General's report Toward Quality in Nursing Needs and Goals, to provide adequate staffing for existing schools of nursing and to meet the needs of expanded enrollments will require over 30,000 nurse educators by 1970. "In 1962," the report informs us, "19,500 nurses were employed in schools that prepare professional and practical nurses. In that year, there were 1,200 faculty vacancies in the professional nursing schools, and 225 in the practical nurse programs."[2] The Surgeon General's study also states: "Within our goal of 53,000 professional nurse graduates a year, we visualize doubling the number of graduates of the basic baccalaureate programs, an increase of 15,000 a year in graduates of diploma programs, and 4,000 a year in graduates of associate degree programs."[3] In 1961, the number graduated from associate degree programs was only 917.

The meaning of these figures is plain: "more" is the keynote of our problem. More people, more college-age young people, more students enrolling in colleges, more nurses, more teachers, more everything. To meet this challenge of "more," we will need to use what we have more effectively and efficiently.

President Johnson in his health message to Congress February 10, 1964, said: "The quantity and quality of education for the health disciplines have been unable to keep pace . . . the efficiency of nursing schools and the quality of instruction must be improved."

Eleanor Tourtillot is coordinator of education for nursing at Henry Ford Community College in Dearborn, Michigan.

Meeting the need for faculty personnel cannot be governed by quantitative considerations alone. Better utilization of personnel currently available is a must. This means we will have to direct our efforts toward the use of our staff members more effectively if the quality is to be improved. So to our topic of today, What to Do With What We Have, or how we can use effectively our presently available teaching talent. In the past decade, we have had a number of demonstrations of ways in which this can be done. What are some of the possibilities for better utilization of faculty members? From the preponderance of verbiage on the topic "Faculty Utilization" in the current literature, I would reduce the subject to these four questions for your consideration:

1. Are we cognizant of the problems of the inexperienced teacher?

2. Have we clearly delineated responsibilities and established priorities?

3. Do we use the known labor-saving devices in our instructional programs?

4. Does the educational administrator do more than give lip-service to effective utilization of faculty?

Now to elaborate on our first question: What are the problems of the new teacher? What can be done to increase proficiency in those skills and abilities which she brings with her? Studies made of problems of new faculty members in community colleges give us valuable information and clues. One study by Siehr, Jamrich, and Hereford found "the major problems which ranked highest in frequency, difficulty, and persistence to be: (1) Lack of time for scholarly study (2) Adapting instruction to individual differences (3) Dealing with students who require special attention to overcome deficiencies (4) Acquiring adequate secretarial help (5) Understanding college policies regarding teaching load (6) Challenging superior students (7) Obtaining needed instructional materials (8) Grading or marking student's work (9) Understanding college policies to be followed in curriculum development and revision."[4]

Some of these problems lend themselves to solution partially or totally through staff orientation and inservice education, which were discussed yesterday. Others are solved to the degree that the educational administrator conceives his role to be that of a teacher of teachers as well as the dynamic leader for the total educational endeavor. I shall speak on this point a little later.

The second question posed has to do with responsibilities and priorities. This varies from institution to institution, but a common core of duties and responsibilities can be identified. A survey made by Edward Pessen on the work load and the working day of full-time faculty members showed in addition to the teaching schedule of 15 hours per week the following activities: "Meeting with and counseling students in the courses, 5 hours. Extra curricular activities as counseling clubs, student newspaper, committee work, college-sponsored community work, 3 hours. Preparation for particular courses taught, grading papers, preparing lectures and discussion notes, 20 hours. Keeping up with literature in the field, 14 hours."[5] This gives an interesting total of 57 hours, with little time left for research, writing, and thinking. Other studies have shown even higher work loads--62, 70, 80 hours recorded weekly.

We live and function in an educational milieu in which we do not have sufficient numbers of teachers to do everything it would be nice to do, and surely it is not beyond the realm of possibility to set priorities for the use of the teacher's time. We must do more than say, "It is the teacher's job to teach."

Some of the proposals I make here for conservation of teacher time and maximum use of teaching talent have been heard as a cry in the wilderness so often that to mention them seems redundant, but I fear that in many situations, they have fallen on deaf ears. Returns from the use of teaching talent that we now have available would be greatly enhanced by:

1. Providing teachers with needed secretarial assistance. However, the value of this type of help to the teacher depends in a large measure on the training and skills of the secretary and the ability of the teacher to make wise use of this form of assistance.

2. Freeing the teacher's mind of such mundane problems as "Where am I going to do my work?" and "How far do I have to walk to make a telephone call?" so that he can keep his thoughts on his teaching responsibilities. In simple terms, adequate and appropriate office space and telephone service help to make a productive, self-respecting faculty member.

3. Reducing the amount of paper work, which now threatens to sound the death knell and eventually annihilate the hardiest soul on your faculty. Even those who survive will find it difficult, if not impossible, to do more than an acceptable job of teaching. It takes no teaching skill or ability to fill out forms, requisitions, and questionnaires or to make "laundry lists" and the like, but it does take time. In other words, pencil-pushing activities that contribute little or nothing to the teacher's work of instructing students must be kept to an absolute minimum.

4. Eliminating superfluous committees. Teachers who manage to win the daily battle of paper work may find their "Waterloo" is committee work. It seems to be a rather prevalent practice in educational institutions to organize sufficient numbers and varieties of faculty committees to work through to solution all real--and imaginary--current problems and collectively to show evidence of foresight and sound planning of such magnitude as to forestall the materialization of any future problems! Teachers who are committed to the policy of a sound educational program realize that a certain amount of group effort in the form of committee work is necessary, and will gladly participate. However, we should scrutinize our present aggregate of faculty committees or new committees that are being considered and in both instances, ask ourselves, "Is this committee necessary?"

5. Supplying adequate materials. The teacher who is capable of using teaching methods other than "the textbook wired for sound" needs instructional materials readily available to him. Scouting and commandeering are both time-consuming and dangerous. In this case, I refer to situations in which the teacher finds himself running about hither and yon in an attempt to locate a needed piece of equipment, and once having located it, must produce a strategy that will disengage the needed item from its current possessor without loss of life or limb. The solution to this problem is an administrative policy of service to the faculty--<u>enough</u> equipment and materials, functionally located, and a procedure for distribution without waste of teacher time.

Our third question: Do we use the known labor-saving devices in our educational programs? What about the present array of techniques, devices, and procedures, such as television, films, language laboratories, programmed learning, independent study, team teaching, large-group lecturing, discussion, student-centered versus teacher-centered teaching, and laboratory teaching?

The research on automation in teaching indicates that devices such as television, films, teaching machines, and books can be used to achieve educational objectives. Their usefulness varies according to the objective to be achieved, the characteristics of the students, and the excellence of the materials. They will not eliminate the need for face-to-face contacts between the teacher and the students.

The most glamorous of these technical aids is television. You are all familiar with the promotional materials concerning the advantages of television: "A front seat for every student"; "An expert teacher"; "Accommodates large numbers of students at considerable distance from the teacher." To date, however, research studies have not been conclusive in demonstrating its superiority or inferiority to conventional instructional methods.

The major problem for an instructor in nursing education is insuring that the students get an effective close-up view of the demonstration of the necessary techniques. Medical education has made much progress in this area. University of Kansas Medical School has been using, with a great deal of success, closed-circuit colored television since November, 1951, for teaching surgery to medical students. Closed-circuit television could be used with equal advantage, I believe, in nursing education, especially in the clinical area. The expert clinician giving nursing care to a patient could be observed by as many students as necessary in the college classroom. At present, if a teacher is instructing a student in the care of the tracheostomy apparatus worn by her patient, the procedure of suctioning, and so forth, she does it in a ratio of one to one, or possibly two to one, or at best three to one. This is expensive instruction--effective, no doubt, but not efficient time-wise.

Experiments with teaching nursing through television are being done at present at the New York City Department of Hospitals in New York City, Mercy Hospital School of Nursing in Pittsburgh, Pennsylvania, the Bronx Community College in New York City, and Video Nursing Education, Twin City T.V. Corporation in Minneapolis, Minnesota. I find these all very exciting and promising.

The second of these technical teaching aids is the teaching machine, or programmed instruction. What is programmed instruction or learning? Is this a teaching gadget, a teaching aid, or a substitute teacher? Programmed learning is a process in which subject matter is presented to the learner in such a way that his response to it enables the teacher to determine the next item of information to be presented. This new system makes it possible in the absence of a "live" teacher to carry out some of the critical functions of instruction.

At present, there are very limited materials in nursing per se available through programmed instruction. Within the next few years, however, more will be prepared. Marie Seedor at Teachers College, Columbia University, who did the unit on asepsis is busy preparing others, and eventually will have the area of fundamentals in nursing programmed.

W. B. Saunders' Book Company has some individuals under contract working on programmed instruction.

Sometime ago, an advertising firm promoting television sales used as its main theme the psychological damage and the cultural deprivation to the child in a home without television. For some of us "culturally deprived"--without television, without teaching machines--what other techniques are available? The most exciting, the most promising, and the one on which a great deal of research has been done is team teaching. Just what is team teaching?

Team teaching involves a new approach to the utilization of the teacher's time by offering a flexible instructional program that provides opportunitites for teams of teachers to conduct large-group lectures and small-group seminars and to give individual help to students when needed. The large-group instruction needs to be balanced with small-group discussions to be effective. A larger student-teacher ratio can be assumed by the team of teachers, thus permitting the handling of large numbers of students with fewer teachers.

There are several patterns of organization in team teaching: the classroom teacher plus a television teacher, the classroom teacher plus a teaching machine, the classroom teacher plus a specialist, the classroom master teacher plus less experienced assistant teachers, a group of equally well qualified teachers with different special abilities. Whatever the pattern of organization, the teams function by pooling the resources, talents, and temperaments of two or more teachers through joint planning in varied approaches to the material to be learned. Team teaching provides the teacher with more time for lesson preparation, which results in more efficient and effective preparation and presentation.

While perusing the literature on team teaching, I kept feeling that we in nursing education have been using the concepts inherent in team teaching--at least in degree--but without the prestige of the label! I believe team teaching deserves serious consideration as one method of providing quality instruction to quantitites of students.

For my fourth question, I again go back to the basic problem of what to do with what we have. Does the educational administrator do more than give lip service to effective utilization of faculty? What about the educational administrator? What is his role? It is my considered opinion that the conservation of available talent with maximum benefit to the consumers (the students) of this scarce commodity depends to a large extent on the astuteness of the educational administrator. Having suggested that the responsibility for effective utilization of faculty rests squarely on the shoulders of the educational administrator, I shall delimit my applications specifically and, I hope, practically to nursing education, although these would apply across the board.

The first prerequisite of the administrator of programs in preservice education for nursing is the inclination to spend time with faculty members who are deficient in formal preparation and teaching experience. This willingness on the part of the administrator to spend time with teachers is predicated upon the assumption that she has the ability to teach them how to teach. The teacher of nursing needs the full complement of two competencies—first, expertness as a practitioner of nursing and second, teaching ability. There are definite skills involved in the ability to teach, as well as to nurse. These are not the same, and the individual with both is indeed a rare find.

Those who join our faculties are usually at least competent nurse practitioners, although this may not always be true of the part-time faculty members. Therefore, the problem of the educational administrator becomes that of "walking the extra mile" with those faculty members who need help in improving and developing teaching skills. The administrator must know her faculty, recognize their individual assets and limitations, both personal and professional, and place each member in the teaching area where she can make the greatest contribution to the total instructional program. She must be able to make an objective assessment of her faculty, individually and collectively, and be prepared to give effective guidance when and where it is needed.

If the administrator truly does more than give lip service to effective utilization of faculty, she "walks the extra mile" by working with the faculty in any one or all of the following ways:

1. She sets priorities on her own activities in such a way as to make it possible for her to spend time in both formal and informal settings with beginning teachers. Her first responsibility is to know the faculty members both as individuals and as teachers. "Effective utilization of faculty" becomes nothing more than a meaningless aggregate of words, and efforts directed toward effectiveness become misguided, nonproductive expenditures of energy unless knowledge and understanding of the teachers involved become fact, not fiction.

2. She helps the inexperienced teacher "over the hump," so to speak. The initial efforts of the new teacher should be undergirded by a well-defined, firmly grasped notion of the philosophy and the objectives of what it is she is to teach. It behooves the administrator to provide the necessary time, information, discussion, clarification, and so forth to give the beginning teacher at least this much of a base on which to build a feeling of security.

3. She wears a coat of many colors. Sometimes, she must switch roles. She should be flexible and versatile enough to be a valuable listener and an animated follower when the situation calls for this type of leadership. The teacher needs someone to listen to her ideas and help her to develop and refine them, and a quality of leadership permissive enough to help her to feel she is functioning but directive enough to keep her from obvious pitfalls.

4. She identifies individual strengths and capitalizes on these for the betterment of the total educational program. If a teacher tends to do better and is more interested in the younger student, the administrator will place her with this group. If the teacher tends to be an academician, the administrator can assign her with the more sophisticated students. If the teacher is a good nurse-practitioner, she can be given more concentrated work in clinical teaching--this informal teaching situation may be one of her strengths--and assigned to work with an experienced teacher, which will permit her to assist in classroom teaching until she is more skilled and can assume full responsibility for a course. If she has ability to work with discussion groups or with group activity, she can be assigned here. Much can be accomplished by "pairing off" faculty. Everybody can't be good at everything!

5. She gives inexperienced teachers the help they need with the mechanics of teaching--that is, discussion of lesson plans, approaches to be used, objectives to be attained, construction of teacher-made tests, utilization of evaluation tools, principles and methods of grading, et cetera.

6. She assists new teachers to develop teaching ability. She observes and evaluates their classroom teaching and discusses the observation and evaluation with them, again capitalizing on areas of competency, with guidance and suggestions for strengthening weaker areas. It is interesting to note that teachers are educated for teaching under circumstances where the process of teaching is not emphasized. Most of you have experienced what is known as "practice teaching" in many nursing programs.

7. She provides an internship or an assistantship type of experience. For the first semester, she can assign the beginning teacher to an experienced teacher and give her an opportunity to assist the latter as well as to be assisted by her. This means giving the new teacher a lighter teaching load and less responsibility, which will provide time for orientation to the philosophy and the objectives of the program, for learning how the program functions, and for gaining familiarity with the responsibilities of the instructor, both in the classroom and the clinical area.

8. She makes time and opportunities for growth. Professional growth comes when we have time to think, to meditate, to reflect, to evaluate ourselves. If the teacher is burdened with student contact hours, committee work, routine organizational activities, all of her energies are consumed in "keeping up" or "getting the day's work done," and we can't expect her to do much growing. Growing, learning, developing, all take time. Providing opportunities for growth would include use of short-term courses, workshops, university courses, inservice education, conventions, semester exchanges, et cetera.

9. She sets the tone for an intellectual community, where exciting discussions of the relevance of her particular field to the various other fields are possible. Too often, the talk is about technical aspects of the field rather than about the exciting problems of science, society, et cetera.

In conclusion: Improvement in the quality of education and more effective utilization of faculty can be accomplished only be experimentation and change in accepted practices. As with any departure from tradition, pioneers must expect difficulties and criticism. Kenneth Roberts in his foreword to Northwest Passage says: "On every side of us are men who hunt perpetually for their Northwest passage, too often sacrificing health, strength, and life itself to the search; and who shall say they are not happier in their vain but hopeful quest than wiser, duller folks who sit home venturing nothing, and with sour laugh deriding the seekers for that fabled thoroughfare?"

If we have the courage to take our heads out of the sand, the boldness to view our problems in the light of reality, the conviction that solution is within the scope of our capabilities, and a commitment to action, our footprints in the sands of time shall not be those of seekers who searched in vain.

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REACTIONS OF LISTENING PANEL TO DR. COSAND'S REMARKS

I sense my function to be, in part, enlarging upon Dr. Cosand's remarks and, in part, hoisting a few warning signals as one enters the fringe area of creativity in staff orientation and inservice education. So I say:

1. Faculty study committees should be clearly defined as to duties and goals; otherwise, egos will be disturbed and communication will break down.

2. Beware of so-called efficiency goals, which really imply that we should educate a larger number of students for the same or fewer dollars. First-rate education costs money.

3. Is adding new courses really enrichment or more proliferation to the point where no solids are being fed to the student?

4. Analyze the intellectual equipment of students in relation to a particular time in their lives.

5. Be aware that the student is primary in all research and study. A teacher's job is to create a situation in which maximum learning can and will take place.

6. Develop a basic philosophy for the college that creates and maintains a sense of direction while examining the creative fringe. This directional force should be a distillation of the wisdom of the ages and not subject to caprice or change for the sake of change.

Let me amplify these statements by quoting the following observations made by John Custard, provost and dean of New College in Sarasota, Florida:

"In my study of faculty evaluation for the American Council on Education, I found that although every single reporting institution listed teaching effectiveness as the most important trait considered, not a single one had even an approximately effective system for finding out whether faculty members were or were not good teachers. Until such time as teaching effectiveness is really taken seriously, progress in this important area will be painfully slow.

"The various fads that periodically engulf education are one consequence of the widespread ignorance about human learning. At one time or another, radio, motion pictures, filmstrips, TV, language labs, and teaching machines have been hailed as the saviors of education. So have large classes, small classes, seminars, tutorials, independent study, years abroad, work-study programs, midwinter reading periods, and year-round operation. None of these is either as bad as detractors assert or as good as zealots claim. Since we lack an adequate theoretical framework in which to place these innovations, the pendulum continues to swing wildly from euphoria to cynicism. Neither extreme is particularly helpful.

"In one sense, higher education is like the Vermont farmer who was being exhorted by an eager young county agent to try all the newest farming methods. The old man finally replied, 'Shucks, sonny, I ain't farmin' half as good as I know how to now!'

"A lot is already known about teaching, from knowledge acquired slowly and painfully over centuries of trial and error. Higher education could be improved enormously if more college teachers had the will and the resources to put this knowledge to use.

"At the same time, there is much that needs to be learned about the nature and conditions of human learning. It is fortunate that finally, if belatedly, some of the finest psychologists in the country--McKeachie and Erickson at Michigan, Skinner and Bruner at Harvard, to name a few--are now devoting substantial efforts to this matter. It is a promising development."

--WENDELL HARDING
Dean of Faculty
Vermont College
Montpelier, Vermont

I would like to comment first on four or five points in Dr. Cosand's paper and then raise some questions. First, I certainly agree with Dr. Cosand that new developments in teaching methodology are occurring with great rapidity. Certainly in nursing, we want and need to use new methods, and they immediately bring forth many questions. For example: What types of classrooms do we need if we are going to use open- and closed-circuit television, if we are going to use programmed instruction materials? Many associate degree nursing programs are being developed at the present time. They need to be sure that they are designing today for the tools to be used tomorrow.

Open- and closed-circuit television will offer us the opportunity of providing experiences not available outside of metropolitan and university health centers and make possible experience with a master teacher outside of our own faculty. Programmed materials will reduce the teaching load and release faculty for more individual guidance in student learning. These new teaching methodologies will expand our horizons. In the associate degree program, we have a new philosophy of nursing education to deal with. Happily, we have concurrently wonderful developments in teaching methodology to aid us in the implementation of this philosophy.

Second, Dr. Cosand said that a college that was alive had a faculty and an administration interested in curriculum development, methodology development, characteristics of the student body, follow-up of graduates, et cetera. Basic to this aliveness is the desire to grow and learn and slowly develop qualities we all possess, though it may be to a different degree. Aliveness is a very personal quality, however; it is really an attitude. I don't know why it exists in some groups and not in others. But I imagine these factors are pertinent: First, there is the attitude of the leadership group at all levels. An attitude of curiosity about how to do things better must permeate from the top down, not simply from

the bottom up. An attitude of never being satisfied, of always looking to new ideas, is a necessity. Second, this attitude must be channeled in a structured way, particularly by those people who are responsible for the leadership of a department of a college. This aliveness must be nourished and provided for.

Two of the techniques that Dr. Cosand mentioned were being used in St. Louis to foster this attitude are very interesting: first, the self-study committee with released time for this self-study; second, the faculty workshop center. The self-study committee is a multi-discipline committee composed of both administrative and faculty people, and the faculty members are given released time for this activity. The released-time concept is important, I believe, because in granting it, administration is, in essence, saying, "We value this activity and we value your contribution to it." When we say to faculty who have a full teaching schedule that we expect them, in addition, to engage in self-study, are we saying perhaps, "I do not really value this too much"? This type of self-study committee is not an ordinary faculty meeting but a study group committed to the discussion of weaknesses and strengths of the college curriculum, content, and facilities, and to finding solutions to problems.

The faculty workshop center seems to be a center in which the faculty has the tools and the time to create. Again, the released-time concept is stressed. Faculty are given released time in which to work in this center. In this way, the faculty member grows and is prepared to go back to the student renewed and better able to help the student to grow. It seems to me this again places value on the need and the right of the faculty member for self-growth. I believe that all faculty given an opportunity would participate in something like this.

In his paper, Dr. Cosand refers several times to the responsibility of administrative leadership, and in this, I believe, lies the essence of being and remaining alive as a college or as a program. For the leadership--and here I suppose I do mean top-level administrative leadership--has the responsibility of creating an environment in which aliveness is cherished and required, of providing the tools whereby this aliveness may be maintained, and lastly and most importantly, of committing itself to action in implementing recommendations, in securing needed facilities, et cetera. For the faculty can never be bigger than the administration or the administrator who is giving leadership to them--at least, not while the administration or the administrator is standing in their way. Identifying problems is an important task, but real commitment to solving them is the difficult part of the task.

I would raise three questions to be answered by this group at this meeting. The first relates to staff orientation. What problems are part of the orientation of a new faculty member in the associate degree nursing program? Are these problems different from the problems any new faculty member faces? We may be bringing a person in who is new not only to the situation but to the philosophy of the associate degree nursing program and to the philosophy of the junior community college. In addition, we always have the problem in nursing of orientation to clinical agencies. Some of you are handling this orientation in interesting and effective ways, I am sure. I would like to know what some of these ways are.

My second question is, Is an inservice education program, using some of the techniques Dr. Cosand describes, the answer to our keeping the associate degree program alive? How are we going to refrain from becoming the traditional program of tomorrow? This is a problem leaders in associate degree nursing education need to think through and solve in order to insure for this entire movement continued mobility. I am frightened when I hear we should be teaching certain courses in a certain sequence in the associate degree nursing program. This kind of rigidity is no different from, or any more productive than, the kind of thinking that makes us feel we must have a course in orthopedic nursing, EENT nursing, et cetera. My point is that we need no one defined program for the associate degree nursing program, but we need a way to keep alive and moving and mobile. Third, what avenues have we developed for sharing that which we know and are doing? What type of state and national inservice programs do we need through which we may share? How can we plan them and how can we afford them? We really need to share what we are doing, for it is too expensive in time and money not to do so. What are you doing of particular interest that we should know about at this meeting?

--GEORGEEN DeCHOW, Director
Department of Nursing
Manatee Junior College
Bradenton, Florida

Inservice education is not new in nursing. This is one means by which we try to keep step with our rapidly changing times.

Perhaps we can't be "bigger than the heads," as Miss DeChow said, but I like to feel that nursing can "nudge" them along a little. Nursing has stimulated some colleges to take a critical look at their entire curriculum, teaching methods, and the use of inservice education.

Since nursing was introduced into our college curriculum, the liberal arts core curriculum has been restudied, and many changes have been made. We are now setting up audio-visual centers in several buildings on the campus instead of having the equipment stored in one location. We are actively engaged in planning for the establishing of closed-circuit television and making our own video tapes. This is a joint effort involving particularly the department of education and the department of nursing. We feel this will have unlimited educational possibilities.

These are a few ways in which our nursing department has been able to stimulate the use of progressive educational methods throughout the entire college.

If we can't be "bigger than the heads," let's continue to "nudge" them along and be proud of it.

--VIRGINIA R. SIMS, Director
Department of Nursing
Indiana Central College
Indianapolis, Indiana

APPENDIX A

Questions Discussed at the Conference on Associate Degree Programs April 3-4, 1964

College Staff Orientation and Inservice Education Programs

1. What steps need to be taken to initiate an orientation program and an ongoing inservice education program for college faculty?

2. What factors prevent the development and the implementation of an inservice education program? What steps can be taken to overcome the barriers?

3. What topics and activities are appropriate for total faculty programs?

4. What resources are available within the college and the community for implementing the program?

5. How are the needs of the college faculty determined?

6. Where should responsibility for implementation be placed?

7. What methods can be used to encourage faculty participation?

8. How are the existing programs evaluated to determine effectiveness?

Effective Utilization of the Nursing Faculty

1. What needs might nursing faculty members have that may not be met by the over-all college orientation and inservice education programs?

2. What programs and activities can be planned to meet these needs?

3. What resources are available within the college and the community for implementing the program?

4. Where should responsibility for implementation be placed?

5. How can the program be planned and implemented as an integral part of the ongoing college program?

6. How can assistance be provided for nurse faculty members who lack the educational background for and the experience in teaching necessary to become effective faculty members in the college and in the nursing department?

7. What provisions can be made for the growth of the beginning instructor?

8. Identify the factors that determine the ratio of instructors to students.

9. What teaching techniques can be utilized in meeting the demands that result from increased student enrollment?

APPENDIX B

NATIONAL LEAGUE FOR NURSING
Department of Diploma and Associate Degree Programs
10 Columbus Circle, New York, New York 10019

CONFERENCE ON ASSOCIATE DEGREE PROGRAMS

The Statler Hilton Hotel
Missouri Room
St. Louis, Missouri

April 3-4, 1964

Colleges Represented

(* indicates schools now offering an educational program in nursing.)

Arkansas

Little Rock University
Little Rock

Colorado

*Mesa College
Grand Junction

Florida

*Central Florida Junior College
Ocala

*Junior College of Broward County
Fort Lauderdale

*Manatee Junior College
Bradenton

*Miami-Dade Junior College
Miami

Illinois

*Belleville Junior College
Belleville

Black Hawk College
Moline

Chicago City Junior College
Chicago

Indiana

*Indiana Central College
Indianapolis

*Purdue University
West Lafayette

*Vincennes University
Vincennes

Iowa

*Fort Dodge Community College
Fort Dodge

Kentucky

*University of Kentucky
Henderson

Western Kentucky State College
Bowling Green

Louisiana

Louisiana State University
Alexandria

Maine

Westbrook Junior College
Portland

Michigan

*Flint Community Junior College
Flint

*Kellogg Community College
Battle Creek

Minnesota

Hibbing Junior College
Hibbing

St. Mary's School of Nursing
Minneapolis

Mississippi

Mississippi Delta Junior College
Moorhead

Mississippi Vocational College
Itta Bena

*Northeast Mississippi Junior College
Booneville

*Perkinston Junior College Center
Pascagoula

University of Southern Mississippi
Natchez

Missouri

*Junior College District
St. Louis

*Southeast Missouri State College
Cape Girardeau

Nebraska

University of Omaha
Omaha

New York

*Bronx Community College
Bronx

*Brooklyn College
Brooklyn

*Dutchess Community College
Poughkeepsie

*Monroe Community College
Rochester

*Nassau Community College
Mineola

*New York City Community College
Brooklyn

*School of Nursing, Upstate Medical Center
Syracuse

*State University of New York
Agricultural and Technical Institute
Farmingdale

North Carolina

Gardner-Webb College
Boiling Springs

*University of North Carolina
Greensboro

Oklahoma

Northeastern A&M College
Miami

Pennsylvania

*Gwynedd-Mercy College
Gwynedd

South Carolina

*Lander College
Greenwood

Vermont

*Castleton State College
Castleton

*Vermont College
Montpelier

Washington

*Columbia Basin College
Pasco

*Everett Junior College
Everett

West Virginia

Fairmont State College
Fairmont

Morris Harvey College
Charleston

State Boards of Nursing Represented

Alabama Board of Nurses Examiners
Arizona State Board of Nurse Registration and Nursing Education
Arkansas State Board of Nurse Examiners
Colorado State Board of Nursing
Illinois State Board of Nursing
Kentucky Board of Nursing Education and Nurse Registration
Maine State Board of Nursing
Maryland Board of Examiners of Nurses
Michigan Board of Nursing
Minnesota Board of Nursing
Missouri State Board of Nursing
Nebraska State Board of Nursing
North Carolina Board of Nurse Registration and Nursing Education
Ohio Board of Nursing Education and Nurse Registration
State Board of Nursing for South Carolina

Special Groups Represented

Catholic Conference Schools of Nursing
Institution of Higher Learning, State of Mississippi
Teachers College, Columbia University
New York State Associate Degree Nursing Project

VT 004 414
Follow-Up Study Class of 1965 Oakland Unified School District. Report No. 1.

Oakland Unified School District, Calif. Dept. of Counseling and Occupational Information
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OAKLAND; CALIFORNIA

This document is the first report of a continuing follow-up study of 3,207 students who graduated May 1965, from the seven high schools included in the school district. Response to the first questionnaire was 97.1 percent. Questionnaires were administered in October 1965, May 1966, October 1966, and May 1967. Some of the areas of information contained in the 18 tables of this document include: (1) plans of the students during their senior year, (2) data regarding the employment and occupations represented, (3) break-down of vocational education graduates, and (4) college enrollments, major fields, and withdrawals. Some of the results were: (1) 21.3 percent had planned to go to work, actually 28.3 percent were in this category in October 1965, (2) 50.9 percent planned to go to junior college, 36.5 percent actually enrolled in October 1965, (3) 24.2 percent planned to go to a 4-year college, 19.6 percent actually enrolled in October 1965, (4) analysis indicates many who actually enrolled had not planned to do so, and (5) employment in business occupations includes 65 percent of the graduates working as of May, 1966. Subsequent analysis of the data will be directed to specific identification of predictive criteria of post high school by which success can be ascertained. A collection of the forms and questionnaires used is included in VT 004 740 in this issue. (MM)

VT 004 414

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34p*

FOLLOW-UP STUDY
CLASS of 1965
OAKLAND UNIFIED SCHOOL DISTRICT

REPORT #1

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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December, 1967
Department of Counseling and
Occupational Information
Oakland Unified School District

VT004414

FOLLOW-UP STUDY CLASS OF 1965

INTRODUCTION

The primary responsibility of the schools is to equip young people with the skills and the attitudes which will enable them to step out into the adult world and become effective citizens. This expectation is probably the single most widely used criterion for judging the success of the educational program. The community judges the effectiveness of the schools in terms of the product which it receives in the work world. This criterion of eventual adult success is, however, a most difficult one to assess. The fact that it is difficult, however, in no way absolves school systems of the responsibility of measuring in consistent, systematic, and comprehensive fashion the success of their graduates.

The need for definitive studies of graduates has been highlighted by the implementation of a number of special programs. With the intensifying and the expanding of vocational education programs at the secondary school level under the Vocational Education Act of 1963 there has come a concommitant need to evaluate these programs carefully. Increased attention has been focused on the problems of immediate employability and the role of the secondary school in skill training. The changing nature of the labor market with its drastic reduction in the need for unskilled workers, its rapidly increasing demand for technically skilled persons, and its increasing demand for persons in the service area has multiplied the problems of youth employability. Youth are required now to become much more proficient in the career decision making process.

Increasing opportunities and demands for education beyond high school have further compounded the problems which youth face. The selection of an educational institution or training program beyond high school requires that youth evaluate carefully their own aptitudes and abilities, their own values and motivations, and their personal and career goals. These decisions must be made with an understanding of alternatives and of the consequences of each alternative. Schools are held responsible through their guidance programs for assisting students in making appropriate decisions.

In order to insure that the specific vocational classes are effective and that the career guidance is appropriate, detailed studies need to be made about the eventual patterns of success and failure of persons who have come through the school program and subsequently entered the adult world. Attention needs to be given to those criteria identifiable during the school years which predict success and failure in the post high school situation. These predictive criteria can then be used to assist youth to make appropriate decisions and to provide direction for the establishment of activities and experiences which will assist youth to modify characteristics which have high negative prognostic values.

It is not enough simply to determine what students do in the year or two after they leave high school. Patterns of differential success and failure in post high school activities must be related to personality variables, school and community activities, and measures of academic success identifiable while the student is still a part of the regular school system. Such identification then enables the school to modify its programs to justify continuation of programs and to initiate new curricular and counseling approaches.

This report is an interim statement of the follow-up study of the graduating class of 1965. Added to that baseline group are the graduates from the vocational education classes of 1966. This report is a general report. Additional, more detailed reports on various sub-groups of the total graduating class are presently being written. It is anticipated that this report and subsequent reports will be of major assistance to school personnel in Oakland in program evaluation. It is also anticipated that this study will serve as a model for other studies to be conducted throughout the United States. The techniques and procedures are seen as transferable to other situations.

BACKGROUND: DEVELOPMENT OF PROPOSAL

For the past two and one half years the Oakland Unified School District has been involved in an intensive follow-up of the graduating class of 1965. The need for such a study has been a continuing concern of accreditation committees that have visited the high schools in Oakland. The implementation of Public Law 88-210, the Vocational Education Act of 1963, made possible the initiation of a long-range follow-up study. In the summer of 1964 an application was made to the Department of Vocational Education, California State Department of Education, for funds to conduct a follow-up study. The application was given a favorable consideration, but a more detailed proposal was required. Accordingly, James Barclay and Thomas Soldahl, both of California State College at Hayward, were retained on a consulting basis to work with Alden Badal, Director of Research, and Robert Williams, Director of Counseling, to develop a more detailed proposal. A revised application was submitted to the Department of Vocational Education in December, 1964. This application was approved and provided funds for the period February 1, 1965 through June 30, 1965. John Hills, business education teacher at Skyline High School, was selected to fill the position of Project Coordinator. Subsequently, William Weldy replaced Mr. Hills, who was transferred to another position.

Since that initial funding the project has been continually supported by the Department of Vocational Education under Public Law 88-210. Additional funding for the project has been provided by the Bureau of Pupil Personnel Services under the National Defense Education Act, Title V-A, since February 1966. Miss Marilyn Patterson has worked with the project under the funding of NDEA. Robert White, California State College at Hayward, has also been retained as a consultant under NDEA funds. In the school year 1966-67 Vocational Education funds were provided for continuance of the study. Lack of local matching monies required that other matching sources be sought. The Ford Foundation provided partial matching funds to assist the project. NDEA funds are again being provided for the school year 1967-68. Vocational Education Act funds have been provided by the Department of Vocational Education, but as yet no source of other matching monies has been found.

An application was made in May, 1966, to the United States Office of Education, Bureau of Research, in an amount of one million, one hundred thousand dollars to finance the project through 1970. This application would have extended the project to include not only the graduates of 1965 but also students who would normally have graduated with the class of 1965 but who had dropped out. The project received verbal support and tentative approval in Washington. Cutbacks in the federal appropriation for the Bureau of Research and subsequent changes in the philosophy of the bureau resulted in the project not being funded. Official word on the application was received late in November, 1966.

PROCEDURES

Extensive data have been obtained through the use of graduate survey instruments, follow-up questionnaires, and an employee rating scale.

The graduate survey instruments were compiled by the follow-up study team during the spring of 1965. The graduate survey instruments include a three page information questionnaire, the Minnesota Vocational Interest Inventory, and the Graduate Survey booklet, a compilation of the following instruments -- the Holland Vocational Preference Inventory, Lodahl's Opinions Toward Work, Farquhar's Michigan State Motivation Scales, the selected scales of California Psychological Inventory, and the School Environment Questionnaire (a locally developed instrument which measures student feeling about curriculum, activities and employment).

The survey was administered to the 3,207 twelfth grade students during May, 1965. Ninety-five of these surveys were invalid for a variety of reasons. Baseline data for subsequent follow-up and analysis derived from the 3,112 valid questionnaires on the graduating class of 1965.

In addition to the information obtained in the Graduate Survey a number of other data were added to the pupil information file on the study group. These data include:

1. SCAT verbal, quantitative and total scores
2. STEP writing, reading and mathematics scores
3. grade point averages by various departments, school year and total
4. socio-economic status as determined by use of the Hollingshead two factor index of social position
5. teacher ratings of three top students and three lowest students in each twelfth grade class.

A series of follow-up questionnaires was developed and administered to the 1965 graduating class in October, 1965; in May, 1966; in October, 1966; and in May, 1967. Data from these questionnaires have been analyzed and are discussed later in this report.

One of the problems which confronted the follow-up study team was the measurement of success on the job. Usual criteria of job procurement and job maintenance were deemed insufficient. A major concern of the study was with the personal characteristics which could serve as predictors of success. Accordingly, the General Advisory Committee on Vocational Education to the Oakland Unified School District was asked to provide open-ended statements as to what they saw as the factors which made for success and for failure. They were also asked to submit copies of their present rating scales for use by the follow-up team. The response from the Advisory Committee was very positive. Based upon their statements a tentative employee rating scale of fifty-two items was developed. Major employers in the East Bay area were then asked to cooperate in the validation of the scale. Again, the response was very positive. The tentative employee rating scale was administered to a sample of employees representing the broad range of occupational categories. These ratings were then factor analyzed and a final instrument was developed. The revised employee rating scale was subsequently sent to the employers of 560 students from the graduating class of 1965 who were working. Ninety-four percent of the employers responded. The data from their responses are being analyzed separately and will constitute one of the major follow-up study reports to be generated from this project.

RESULTS

This first report is primarily descriptive. The following tables represent some of the data obtained from the follow-up questionnaires. The high level of response from students is indicative of their interest in the educational program in Oakland. The 97.1 response to the October, 1965, Questionnaire is extremely high. This level of response does enable conclusions to be drawn from the data with a greater degree of confidence than can be done with the usual 50 to 60 percent response to follow-up studies.

Tables 5, 15, 16, and 17 present some interesting data. Many students make plans in their senior year which are not carried out during the following year. Twenty-one and three-tenths percent of the students in the district had planned to go to work or special schools; actually 28.3 percent were in this category in October, 1965. Fifty and nine-tenths percent had planned to go to junior college; 36.5 percent actually enrolled in junior college. Twenty-four and two-tenths percent had planned to go to a four-year college; 19.6 actually enrolled. An analysis of the intentions of those students who actually enrolled in further education, Table 15, indicates that many of the students who actually enrolled in school had not planned to do so. This discrepancy may account for part of the withdrawals as noted in Tables 16 and 17.

Tables 6, 7, 8, 9, and 10 present data regarding the employment of the graduates of 1965. Employment in occupations represented in the business education curriculum includes 65% of those graduates who were working as of May, 1966, (Table 8). This business education field also represents the largest enrollment in the vocational education curriculum in Oakland. Table 6 indicates that students in the business education curriculum also have the highest rate of full time employment in the fields in which they are specifically trained or in related fields. Added to these data is the fact that business represents the single largest major of those students who went on to further education (Table 13). These data would seem to justify the emphasis which the district is placing on preparation of students in the business education field.

Many other comparisons and conclusions can be drawn from the data in the following tables. Subsequent reports will deal specifically with these results.

TABLE 1
STATUS OF JUNE, 1965 GRADUATES
AS OF OCTOBER, 1965

		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	TOTALS
Number of students surveyed	#	663	36	548	249	586	585	445	3,112
	%								
Number of students responding	#	640	33	539	239	567	577	427	3,022
	%	96.5	91.7	98.4	96.0	96.8	98.6	96.0	97.1
Did not respond	#	23	3	9	10	19	8	18	90
	%	3.5	8.3	1.6	4.0	3.2	1.5	4.0	2.9
Working full time	#	152	18	159	45	106	79	71	630
	%	23.8	55.0	29.5	18.8	18.7	13.7	16.6	20.8
Working part time	#	30	4	9	12	9	6	13	83
Not in school	%	4.7	12.1	1.7	5.0	1.6	1.0	3.0	2.7
Unemployed	#	52	4	47	37	19	1	23	183
Seeking work	%	8.1	12.1	8.7	15.5	3.4	0.2	5.4	6.1
Housewives	#	27	2	10	17	9	4	13	82
	%	4.2	6.1	1.9	7.1	1.6	0.7	3.0	2.7
Armed Forces	#	51	2	40	12	12	20	15	152
	%	8.0	6.1	7.4	5.0	2.1	3.5	3.5	5.0
Full time four-year college students	#	65	0	61	13	149	228	61	577
	%	10.2	0.0	11.3	5.4	26.3	39.5	14.3	19.1
Part time four-year college students	#	1	0	3	1	5	3	2	15
	%	0.2	0.0	0.6	0.4	0.9	0.5	0.5	0.5
Full time Jr College students	#	159	1	125	52	192	167	149	845
	%	24.8	3.0	23.2	21.8	33.9	29.0	34.9	28.0
Part time Jr College students	#	51	1	45	40	41	35	45	258
	%	8.0	3.0	8.3	17.0	7.2	6.1	11.0	8.5
Technical School students	#	32	1	35	10	20	23	23	144
	%	5.0	3.0	6.5	4.1	3.5	4.0	5.4	4.8
Others	#	20	0	5	0	5	11	12	53
	%	3.1	0.0	0.9	0.0	0.9	2.0	2.8	1.8

TABLE 2

STATUS OF JUNE, 1965, GRADUATES AS OF MAY, 1966

		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
Number of graduates	#	663	36	548	249	586	585	445	3,112
Number of graduates responding	#	476	21	415	135	436	489	307	2,279
	%	71.79	58.33	75.72	54.22	74.40	83.59	68.99	73.23
Did not respond	#	187	15	133	114	150	96	138	833
	%	28.21	41.67	24.27	45.78	25.60	16.41	31.01	26.77
Working full time	#	150	10	157	41	88	77	81	604
	%	31.51	47.62	37.83	30.37	20.18	15.74	26.38	26.50
	*	11 S		4 S	1 S	9 S	3 S	5 S	33 S
Working part time not in school	#	12	2	1	5	6	9	7	42
	%	2.51	9.52	.24	3.70	1.38	1.84	2.28	1.84
Unemployed seeking work	#	30	3	17	19	16	11	16	112
	%	6.30	14.29	4.10	14.07	3.67	2.25	5.21	4.91
Unemployed not seeking work	#	7	0	6	3	4	4	4	28
	%	1.47	0	1.45	2.22	.92	.82	1.31	1.23
Housewives ***	#	17	0	7	4	5	8	11	52
	%	3.58	0	1.69	2.96	1.15	1.64	3.58	2.28
Armed Forces	#	84	5	54	19	25	27	27	241
	%	17.65	23.81	13.01	14.07	5.73	5.52	8.79	10.58
Full time four-year college students	#	45	0	46	9	124	198	43	465
	%	9.46	0	11.08	6.67	28.44	40.49	14.01	20.40
	**	6 W		5 W		19 W	32 W	4 W	66 W
Part time four-year college students	#	1	0	2	0	2	2	0	7
	%	.21	0	.48	0	.46	.41	0	.31
	**			1 W		1 W	1 W		3 W
Full time Jr. college students	#	92	0	95	22	126	126	96	557
	%	19.33	0	22.89	16.30	28.90	25.77	31.27	24.44
	**	21 W		24 W	3 W	25 W	32 W	22 W	127 W
Part time Jr. college students	#	19	0	17	10	28	15	20	109
	%	3.99	0	4.10	7.41	6.42	3.07	6.52	4.78
	**	7 W		6 W	3 W	16 W	6 W	12 W	50 W
Technical school students	#	19	1	13	3	12	12	2	62
	%	3.99	4.76	3.13	2.22	2.75	2.45	.65	2.73
		2 W		1 W	1 W	1 W	2 W	1 W	8 W

*Number of graduates who in addition to working full time, were also students.
**Number of graduates who in addition to being full time students, were also working.
***The "Housewives" category consists of married females who are unemployed and not seeking work. Married females were not placed into this category if they fit into any of the other categories.

TABLE 3

STATUS OF JUNE, 1965, VOCATIONAL EDUCATION GRADUATES AS OF OCTOBER, 1965

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
Number of V. E. graduates	#	121	109	44	108	73	74	529
Number of V. E. graduates responding	#	114	108	42	102	65	73	504
	%	94.21	99.08	95.45	94.44	89.04	98.65	95.27
Did not respond	#	7	1	2	6	8	1	25
	%	5.79	.92	4.55	5.56	10.96	1.35	4.73
Working full time	#	35	42	12	33	26	24	172
	%	30.70	38.89	28.57	32.35	40.00	32.87	34.13
Working part time	#	8	5	3	4	3	5	28
	%	7.02	4.63	7.14	3.92	4.62	6.85	5.56
Unemployed seeking work	#	3	12	7	13	1	7	43
	%	2.63	11.11	16.67	12.75	1.54	9.59	8.53
Housewives ***	#	8	1	1	4	1	5	20
	%	7.02	.93	2.38	3.92	1.54	6.85	3.97
Armed Forces	#	8	7	3	3	1	0	22
	%	7.02	6.48	7.14	2.94	1.54	0	4.36
Full time college students	#	34	29	4	24	18	22	131
	%	29.82	26.85	9.53	23.53	27.69	30.14	25.99
	**	8 W	4 W		5 W	9 W	5 W	31 W
Part time college students	#	8	9	10	12	5	4	48
	%	7.02	8.33	23.81	11.77	7.69	5.48	9.52
Technical school students	#	10	3	2	9	10	6	40
	%	8.77	2.78	4.76	8.82	15.38	8.22	7.94

*Please note that this table does not include an "Unemployed, not seeking work" category. None of the Vocational Education graduates were in this category as of October, 1965.

**Number of graduates who in addition to being full time students, were also working.

***The "Housewives" category consists of married females who are unemployed and not seeking work. Married females were not placed into this category if they fit into any of the other categories.

TABLE 4

STATUS OF JUNE, 1965, VOCATIONAL EDUCATION GRADUATES AS OF MAY, 1966

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
Number of graduates	#	123	105	44	109	74	73	528
Number of graduates responding	#	113	95	36	95	65	62	466
	%	91.87	90.48	81.82	87.16	87.84	84.93	88.26
Did not respond	#	10	10	8	14	9	11	62
	%	8.13	9.52	18.18	12.84	12.16	15.07	11.74
Working full time	#	45	53	14	33	29	27	201
	%	39.82	55.79	38.88	34.73	44.61	43.55	43.13
	*	6 S	1 S	1 S	1 S	1 S		10 S
Working part time not in school	#	2	0	2	2	1	0	7
	%	1.77	0	5.56	2.11	1.54	0	1.50
Unemployed seeking work	#	8	2	4	8	2	6	30
	%	7.08	2.11	11.11	8.42	3.08	9.68	6.44
Unemployed not seeking work	#	3	0	2	1	1	0	7
	%	2.66	0	5.56	1.05	1.54	0	1.50
Housewives ***	#	4	0	0	2	0	6	12
	%	3.54	0	0	2.11	0	9.68	2.58
Armed Forces	#	18	9	5	9	3	0	44
	%	15.93	9.47	13.89	9.47	4.62	0	9.44
Full time four-year college students	#	7	5	0	1	9	0	22
	%	6.19	5.26	0	1.05	13.84	0	4.72
	**	3 W	1 W			4 W		8 W
Part time four-year college students	#	0	1	0	1	2	0	4
	%	0	1.05	0	1.05	3.08	0	.86
	**		1 W		1 W	1 W		3 W
Full time Jr. college students	#	20	16	3	26	11	12	88
	%	17.70	16.84	8.33	27.37	16.92	19.35	18.88
	**	5 W	8 W	1 W	7 W	3 W	2 W	26 W
Part time Jr. college students	#	1	7	5	10	4	10	37
	%	.89	7.37	13.89	10.53	6.15	16.13	7.94
	**	1 W	3 W		7 W	2 W	5 W	18 W
Technical school students	#	5	2	1	2	3	1	14
	%	4.42	2.11	2.78	2.11	4.62	1.61	3.01
	**					1 W	1 W	2 W

*Number of graduates who in addition to working full time, were also students.

**Number of graduates who in addition to being full time students, were also working.

***The "Housewives" category consists of married females who are unemployed and not seeking work. Married females were not placed into this category if they fit into any of the other categories.

TABLE 5
POST-GRADUATION INTENTIONS AND ACCOMPLISHMENTS
OF THE CLASS OF 1965 AS OF OCTOBER, 1965

School	N	R		Work or Special Schools I	Work or Special Schools A	Junior College I	Junior College A	Four Year College I	Four Year College A	Uncertain or Unknown I	Housewives, Unemployed, Armed Forces or Unknown A
Castlemont	663	640	#	168	214	358	210	96	66	41	150
			%	25.3	33.4	54.0	32.8	14.5	10.3	6.2	23.5
Dewey	36	33	#	15	23	19	2	2	0	0	8
			%	41.7	69.7	52.8	6.1	6.1	0	0	24.2
Fremont	548	539	#	159	203	287	170	82	64	20	102
			%	29.0	37.7	52.4	31.5	15.0	11.9	3.6	18.9
McClymonds	249	239	#	70	67	151	92	19	14	9	66
			%	28.1	28.0	60.6	38.5	7.7	5.9	3.6	27.6
Oakland	586	567	#	80	135	301	233	188	154	17	45
			%	13.6	23.8	51.4	41.1	32.1	27.2	2.9	7.9
Skyline	585	577	#	81	108	214	202	278	231	12	36
			%	13.8	18.7	36.6	35.0	47.5	40.1	2.1	6.2
Technical	445	427	#	88	107	256	194	87	63	14	63
			%	19.8	25.0	57.5	45.4	19.6	14.8	3.1	14.8
Totals	3,112	3,022	#	661	857	1,586	1,103	752	592	113	470
			%	21.3	28.3	50.9	36.5	24.2	19.6	3.6	15.6

Table 5 is a comparison of the actual October, 1965 status of the graduates with their intentions as expressed during May in the Graduate Survey. For example, 168 or 25.3% of the Castlemont students stated an intention to go to work or to special (technical or specialty) schools after graduation. Actually 214 or 33.4% went to work or to special schools.

N = Number of students surveyed in the Spring of 1965

R = Responses to the October follow-up Questionnaire

I = Intentions of students - Spring, 1965

A = Actual Status of students - October, 1965

= Number of students in each category

% = Percent of students in each category

TABLE 6

VOCATIONAL EDUCATION GRADUATES - CLASS OF 1965

OCCUPATIONAL STATUS AS OF OCTOBER 1, 1965

Subject	N	Armed Forces	Continued Full-Time School		Other Reasons Not Working	Total Not Avail. For Work	Tot. Empl. Or Avail. For Work	Employed Full-Time			Empl. Pt. Time	Unemployed Seeking Work	Status Unknown
			Unemployed	Pt. Tm. Empl.				Occupation Trained	Related	Other			
Electronics	M 45	5 - (11%)	14 - (31%)	8 - (18%)	4 - (9%)	31 - (69%)	14 - (31%)	4 - (29%)	1 - (7%)	5 - (36%)	0 - (0%)	2 - (14%)	2 - (14%)
Machine Operators	M 15	4 - (27%)	3 - (20%)	2 - (13%)	1 - (7%)	10 - (67%)	5 - (33%)	0 - (0%)	1 - (20%)	1 - (20%)	0 - (0%)	3 - (60%)	0 - (0%)
Carpentry	M 25	1 - (7%)	0 - (0%)	1 - (6%)	0 - (0%)	2 - (13%)	13 - (87%)	1 - (8%)	0 - (0%)	6 - (46%)	0 - (0%)	5 - (38%)	1 - (8%)
Food Services	M 2	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	2 - (100%)	1 - (50%)	1 - (50%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)
	F 1	0 - (0%)	0 - (0%)	1 - (100%)	0 - (0%)	1 - (100%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)
Child Day Care	F 8	0 - (0%)	0 - (0%)	0 - (0%)	2 - (25%)	2 - (25%)	6 - (75%)	1 - (17%)	0 - (0%)	2 - (33%)	1 - (17%)	2 - (33%)	0 - (0%)
Commercial Clothing	F 9	0 - (0%	2 - (22%)	1 - (11%)	1 - (11%)	4 - (44%)	5 - (56%)	0 - (0%)	0 - (0%)	3 - (60%)	1 - (20%)	1 - (20%)	0 - (0%)
Stenography	M 1	1 - (100%)	0 - (0%)	0 - (0%)	0 - (0%)	1 - (100%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)	0 - (0%)
	F 124	0 - (0%)	30 - (24%)	9 - (7%)	21 - (17%)	60 - (48%)	64 - (52%)	11 - (17%)	32 - (50%)	4 - (6%)	6 - (9%)	8 - (13%)	3 - (5%)
Clerk-Typist	M 9	0 - (0%)	2 - (22%)	0 - (0%)	0 - (0%)	2 - (22%)	7 - (78%)	3 - (43%)	0 - (0%)	1 - (15%)	1 - (14%)	1 - (14%)	1 - (14%)
	F 185	0 - (0%)	59 - (32%)	4 - (2%)	28 - (15%)	91 - (49%)	94 - (51%)	50 - (53%)	8 - (9%)	4 - (4%)	5 - (5)	16 - (17%)	11 - (12%)
Sales	M 3	0 - (0%)	1 - (33%)	1 - (34%)	0 - (0%)	2 - (67%)	1 - (33%)	0 - (0%)	0 - (0%)	1 - (100%)	0 - (0%)	0 - (0%)	0 - (0%)
	F 4	0 - (0%)	0 - (0%)	0 - (0%)	2 - (50%)	2 - (50%)	2 - (50%)	0 - (0%)	0 - (0%)	1 - (50%)	0 - (0%)	1 - (50%)	0 - (0%)
Retailing	M 20	2 - (10%)	5 - (25%)	5 - (25%)	0 - (0%)	12 - (60%)	8 - (40%)	1 - (13%)	2 - (25%)	2 - (25%)	0 - (0%)	3 - (37%)	0 - (0%)
	F 41	0 - (0%)	12 - (29%)	9 - (22%)	9 - (22%)	30 - (73%)	11 - (27%)	0 - (0%)	1 - (9%)	7 - (64%)	2 - (18%)	1 - (9%)	0 - (0%)
Automotive Trades	M 93	10 - (11%)	12 - (13%)	8 - (8%)	13 - (14%)	43 - (46%)	50 - (54%)	0 - (0%)	6 - (12%)	27 - (54%)	4 - (8%)	8 - (16%)	5 - (10%)
Totals	575	23 - (4%)	140 - (24%)	49 - (9%)	81 - (14%)	293 - (51%)	282 - (49%)	72 - (26%)	52 - (18%)	64 - (23%)	20 - (7%)	51 - (18%)	23 - (8%)

NOTES: (1) The total of 575 represents total enrollments. There are 36 duplicates: Thirty individuals enrolled in both Clerk-Typist and Stenography, 3 in both Retailing and Stenography, 1 in Sales and Stenography, 1 in Retailing and Automotive Trades, and 1 in Retailing and Electronics.

(2) Females (372) represent 65 percent of all the enrollments. Males (203) - 35 percent.

(3) Percents were rounded at third decimal place.

(4) See the following page for an explanation of the columns.

Appendix G

TABLE 7

OCCUPATIONAL CLASSIFICATION OF GRADUATES WHO WERE WORKING AND NOT IN SCHOOL AS OF OCTOBER, 1965

OCCUPATION		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	TOTALS
OFFICE	#	86	3	76	12	56	48	38	299
	%	36.2	13.7	45.2	21.1	48.7	56.5	45.2	41.9
MARKETING	#	39	5	43	13	16	18	19	153
	%	21.4	22.7	25.6	22.8	13.9	21.1	22.6	21.5
TRADE INDUSTRIAL	#	26	4	23	13	21	9	12	108
	%	14.3	18.2	13.7	22.8	18.3	10.6	14.3	15.1
HOME ECONOMICS	#	13	2	5	2	9	1	8	40
	%	7.2	9.1	3.0	3.5	7.8	1.2	9.5	5.6
GARDENING	#	2	2	0	2	0	0	0	6
	%	1.1	9.1	0	3.5	0	0	0	0.8
MAINTENANCE	#	12	0	2	6	3	2	0	25
	%	6.6	0	1.0	10.5	2.6	2.4	0	3.5
MEDICAL	#	3	1	3	0	2	0	0	9
	%	1.7	4.5	1.8	0	1.7	0	0	1.3
RECREATIONAL	#	2	0	0	0	0	0	2	4
	%	1.1	0	0	0	0	0	2.4	0.6
MISCELLANEOUS OR UNKNOWN	#	19	5	16	9	8	7	5	69
	%	10.4	22.7	9.5	15.8	7.0	8.2	6.0	9.7
TOTAL NUMBER OF WORKERS		182	22	168	57	115	85	84	713

TABLE 8

OCCUPATIONAL CLASSIFICATION OF JUNE, 1965,
GRADUATES WHO WERE WORKING AS OF MAY, 1966

OCCUPATION		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
OFFICE	#	97	3	100	25	76	75	61	437
	%	48.99	25.00	51.28	47.17	48.72	47.17	48.03	48.56
MARKETING	#	35	3	41	5	22	31	19	156
	%	17.68	25.00	21.03	9.43	14.10	19.50	14.96	17.33
TRADE - INDUSTRIAL	#	34	3	25	7	26	22	13	130
	%	17.17	25.00	12.82	13.21	16.67	13.84	10.24	14.44
HOME ECONOMICS	#	15	1	6	4	9	4	14	53
	%	7.57	8.34	3.08	7.55	5.77	2.52	11.02	5.89
GARDENING	#	1	0	0	3	0	1	1	6
	%	.50	0	0	5.66	0	.63	.79	.67
MAINTENANCE	#	5	0	2	3	5	3	3	21
	%	2.52	0	1.03	5.66	3.20	1.88	2.36	2.33
MEDICAL	#	1	0	1	0	0	3	0	5
	%	.51	0	.51	0	0	1.88	0	.56
RECREATIONAL	#	1	0	3	3	6	4	4	21
	%	.51	0	1.53	5.66	3.85	2.52	3.15	2.33
MISCELLANEOUS OR UNKNOWN	#	7	1	11	3	7	7	5	41
	%	3.54	8.33	5.64	5.66	4.49	4.40	3.94	4.56
UNSKILLED	#	2	1	6	0	5	9	7	30
	%	1.01	8.33	3.08	0	3.20	5.66	5.51	3.33
TOTALS		198	12	195	53	156	159	127	900

TABLE 9

MAJOR EMPLOYERS OF GRADUATES WHO WERE WORKING AND NOT IN SCHOOL AS OF OCTOBER, 1965

EMPLOYERS		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	TOTALS
DISTRIBUTION (Retailers, Wholesalers)	#	33	5	42	9	26	25	24	164
	%	24.2	22.8	25.0	15.8	22.6	29.4	28.5	23.0
GOVERNMENT (Federal, State, County, City, Schools)	#	44	4	21	12	14	8	16	119
	%	18.2	18.2	12.5	21.0	12.2	9.4	19.0	16.7
MANUFACTURING and INDUSTRIAL	#	22	5	38	5	14	9	11	104
	%	12.1	22.8	22.6	8.8	12.2	10.6	13.1	14.6
FINANCIAL, LAW, REAL ESTATE OFFICES	#	5	0	23	1	11	11	10	61
	%	2.7	0	13.7	1.8	9.6	12.9	11.9	8.6
UTILITIES (P.G. & E., P.T. & T., E.B.M.U.D., etc.)	#	10	0	13	2	12	12	4	53
	%	5.5	0	7.7	3.5	10.4	14.1	4.8	7.4
SERVICE FIRMS (Restaurants, Laundries, Service Stations, etc.)	#	10	3	10	3	13	4	8	51
	%	5.5	13.6	6.0	5.3	11.3	4.7	9.5	7.1
PRIVATE FAMILIES	#	5	0	2	4	4	2	0	17
	%	2.7	0	1.2	7.0	3.5	2.4	0	2.4
LABOR UNIONS	#	4	2	1	5	1	0	1	14
	%	2.2	9.1	.6	8.8	.9	0	1.2	2.0
TRANSPORTATION FIRMS	#	7	0	2	2	0	1	0	12
	%	3.8	0	1.2	3.5	0	1.2	0	1.7
NON-PROFIT (Church & Charity Organizations)	#	3	1	0	2	1	1	4	12
	%	1.7	4.5	0	3.5	.9	1.2	4.8	1.7
MEDICAL OFFICES, HOSPITALS	#	2	0	5	0	2	1	2	12
	%	1.1	0	3.0	0	1.7	1.2	2.4	1.7
MASS COMMUNICATIONS (Newspapers, Radio, Television)	#	0	1	0	1	2	2	0	6
	%	0	4.5	0	1.8	1.7	2.4	0	.8
BUILDING and CONSTRUCTION	#	0	0	0	0	0	5	0	5
	%	0	0	0	0	0	5.8	0	.7
MISCELLANEOUS or UNKNOWN EMPLOYERS	#	37	1	11	11	15	4	4	83
	%	20.3	4.5	6.5	19.2	13.0	4.7	4.8	11.6
TOTALS	#	182	22	168	57	115	85	84	713

TABLE 10

MAJOR EMPLOYERS OF JUNE, 1965, GRADUATES
WHO WERE WORKING AS OF MAY, 1966

EMPLOYERS		CASTLE-MONT	DEWEY	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
DISTRIBUTION (Retailers, Wholesalers)	#	31	4	48	4	32	34	17	170
	%	15.66	33.34	24.62	7.55	20.52	21.38	13.39	18.89
GOVERNMENT (Federal, State, County, City, Schools)	#	52	1	32	23	31	15	36	190
	%	26.26	8.33	16.41	43.40	19.87	9.43	28.35	21.11
MANUFACTURING and INDUSTRIAL	#	28	2	20	10	21	10	16	107
	%	14.14	16.67	10.26	18.87	13.46	6.29	12.60	11.89
FINANCIAL, LAW, REAL ESTATE OFFICES	#	17	2	29	1	17	13	15	94
	%	8.58	16.67	14.87	1.89	10.90	8.18	11.81	10.44
UTILITIES (P.G. & E., P.T. & T., E.B.M.U.D., etc.)	#	17	0	18	2	9	20	5	71
	%	8.58	0	9.23	3.77	5.77	12.58	3.94	7.89
SERVICE FIRMS (Restaurants, Laundries, Service Stations, etc.)	#	17	0	21	0	12	28	14	92
	%	8.58	0	10.77	0	7.69	17.61	11.02	10.22
PRIVATE FAMILIES	#	4	0	2	2	4	5	3	20
	%	2.02	0	1.03	3.77	2.56	3.14	2.35	2.22
LABOR UNIONS	#	3	1	1	3	1	1	0	10
	%	1.52	8.33	.51	5.66	.64	.63	0	1.11
TRANSPORTATION FIRMS	#	4	0	2	0	3	2	0	11
	%	2.02	0	1.03	0	1.92	1.26	0	1.22
NON-PROFIT (Church & Charity Organizations)	#	3	0	0	3	2	10	8	26
	%	1.52	0	0	5.66	1.28	6.29	6.30	2.89
MEDICAL OFFICES, HOSPITALS	#	7	0	9	0	5	5	4	30
	%	3.54	0	4.61	0	3.21	3.14	3.15	3.33
MASS COMMUNICATIONS (Newspapers, Radio, Television)	#	3	0	1	0	6	3	4	17
	%	1.52	0	.51	0	3.85	1.89	3.15	1.89
BUILDING and CONSTRUCTION	#	4	1	2	0	4	3	0	14
	%	2.02	8.33	1.03	0	2.56	1.89	0	1.56
MISCELLANEOUS or UNKNOWN EMPLOYERS	#	8	1	10	5	9	10	5	48
	%	4.04	8.33	5.12	9.43	5.77	6.29	3.94	5.34
TOTALS		198	12	195	53	156	159	127	900

TABLE 11

COLLEGE ENROLLMENT OF JUNE, 1965, GRADUATES AS OF OCTOBER, 1965

UNIVERSITIES & 4 YR. COLLEGES	CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
U. C. BERKELEY	13	17	1	50	47	19	147 8.66%
U. C. DAVIS	0	1	0	11	26	4	42 2.48%
U. C. LOS ANGELES	0	2	0	0	1	0	3 .18%
U.C. SANTA BARBARA	0	0	0	3	12	1	16 .94%
U. C. SANTA CRUZ	1	0	0	3	2	4	10 .59%
CALIF. STATE HAYWARD	24	24	7	17	40	6	118 6.95%
CALIF. POLY S. L. O.	1	0	0	2	10	0	13 .77%
CHICO STATE	4	0	0	6	4	0	14 .83%
SAN FRANCISCO STATE	3	7	0	31	12	9	62 3.66%
SAN JOSE STATE	4	1	0	1	5	0	11 .65%
OTHER CALIFORNIA STATE COLLEGES	3	4	0	1	14	5	27 1.59%
CALIF. COLLEGE OF ARTS AND CRAFTS	2	0	0	4	2	3	11 .65%
BRIGHAM YOUNG UNIV.	1	4	0	0	8	0	13 .77%
HOLY NAMES	2	0	1	0	2	0	5 .30%
MILLS COLLEGE	0	0	1	2	2	0	5 .30%
SEATTLE PACIFIC	0	0	0	0	3	1	4 .24%
STANFORD	0	1	0	1	6	0	8 .47%
UNIV. OF OREGON	2	0	1	2	4	2	11 .65%
UNIV. OF THE PACIFIC	1	2	0	4	5	0	12 .71%
OTHER U. S. COLLEGES	8	5	5	12	23	3	56 3.30%
FOREIGN COLLEGES	2	0	0	2	0	0	4 .24%
TOTALS	71	68	16	152	228	57	592 34.93%

TABLE 11 (Continued)

COLLEGE ENROLLMENT OF JUNE, 1965, GRADUATES AS OF OCTOBER, 1965

JUNIOR COLLEGES	CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
MERRITT	111	97	43	135	116	125	627 36.99%
LANEY	89	66	47	79	52	51	384 22.65%
CHABOT	12	2	0	1	3	4	22 1.30%
DIABLO VALLEY	0	0	0	3	1	3	7 .41%
FOOTHILL	0	3	0	0	1	0	4 .24%
LASSEN	0	0	0	2	3	0	5 .30%
OTHER 2 YR. COLLEGES	6	8	4	15	11	10	54 3.18%
TOTALS	218	176	94	235	187	193	1,103 65.07%

TOTAL - UNIVERSITIES & 4 YR. COLLEGES AND JUNIOR COLLEGES - 1,695

TABLE 12

COLLEGE ENROLLMENT OF JUNE, 1965, GRADUATES AS OF MAY, 1966

UNIVERSITIES & 4 YR. COLLEGES	CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
U. C. BERKELEY	8	15	1	44	44	13	125 10.16%
U. C. DAVIS	0	2	0	8	27	4	41 3.33%
U. C. LOS ANGELES	0	2	0	0	1	0	3 .24%
U. C. SANTA BARBARA	0	0	0	2	10	1	13 1.06%
U. C. SANTA CRUZ	1	0	0	4	2	2	9 .73%
CALIF. STATE HAYWARD	17	15	4	17	31	4	88 7.14%
CALIF. POLY S. L. O.	0	0	0	2	7	0	9 .73%
CHICO STATE	3	0	0	7	3	0	13 1.06%
SAN FRANCISCO STATE	4	4	0	25	10	9	52 4.22%
SAN JOSE STATE	2	1	0	1	7	0	11 .89%
OTHER CALIFORNIA STATE COLLEGES	1	2	0	1	13	4	21 1.70%
CALIF. COLLEGE OF ARTS AND CRAFTS	1	1	0	1	1	1	5 .42%
BRIGHAM YOUNG UNIV.	0	2	0	0	8	0	10 .81%
HOLY NAMES	1	0	1	1	1	0	4 .32%
MILLS COLLEGE	0	0	1	2	1	0	4 .32%
SEATTLE PACIFIC	0	0	0	0	3	0	3 .24%
STANFORD	0	1	0	1	6	0	8 .65%
UNIV. OF OREGON	2	0	0	0	3	2	7 .57%
UNIV. OF THE PACIFIC	1	1	0	4	4	0	10 .81%
OTHER U. S. COLLEGES	3	3	2	8	19	3	38 3.08%
FOREIGN COLLEGES	2	0	0	1	0	0	3 .24%
TOTALS	46	49	9	129	201	43	477 38.72%

TABLE 12 (Continued)

COLLEGE ENROLLMENT OF JUNE, 1965, GRADUATES AS OF MAY, 1966

JUNIOR COLLEGES	CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
MERRITT	61	57	14	93	89	100	414 33.60%
LANEY	45	49	17	49	38	13	211 17.13%
CHABOT	8	2	0	6	3	1	20 1.62%
DIABLO VALLEY	0	0	0	1	1	1	3 .24%
FOOTHILL	0	3	0	0	1	0	4 .32%
LASSEN	0	0	0	2	3	0	5 .42%
OTHER 2 YR. COLLEGES	4	2	2	9	6	6	29 2.35%
TOTALS	118	113	33	160	141	121	686 55.68%

OTHER SCHOOLS	CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
ADULT SCHOOLS	10	5	1	4	3	0	23 1.87%
BEAUTY SCHOOLS	5	4	1	3	2	1	16 1.31%
BUSINESS SCHOOLS	4	4	0	4	7	1	20 1.62%
NURSING SCHOOLS	0	1	0	1	1	0	3 .24%
OTHER SCHOOLS	4	1	1	0	1	0	7 .56%
TOTALS	23	15	3	12	14	2	69 5.60%

TABLE 13

MAJORS OF JUNE, 1965, GRADUATES AS OF MAY, 1966

MAJORS		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
AGRICULTURE	#	0	0	0	3	1	0	4
	%	0	0	0	1.05	.31	0	.36
BIOLOGICAL SCIENCES	#	9	11	3	34	33	16	106
	%	5.29	6.47	11.54	11.93	10.31	11.42	9.54
BUSINESS	#	36	35	7	54	43	19	194
	%	21.18	20.59	26.92	18.95	13.44	13.57	17.46
EDUCATION	#	9	13	1	20	12	6	61
	%	5.29	7.65	3.85	7.02	3.75	4.29	5.49
ENGINEERING	#	12	5	0	17	28	14	76
	%	7.06	2.94	0	5.96	8.75	10.00	6.84
ENGLISH	#	7	3	0	5	16	7	38
	%	4.12	1.76	0	1.75	5.00	5.00	3.42
FINE ARTS	#	17	14	1	21	35	13	101
	%	10.00	8.23	3.85	7.37	10.94	9.29	9.09
FOREIGN LANGUAGES	#	4	5	0	3	6	3	21
	%	2.35	2.94	0	1.05	1.87	2.14	1.89
FORESTRY	#	1	5	0	3	7	1	17
	%	.59	2.94	0	1.05	2.19	.71	1.53
HOME ECONOMICS	#	1	1	4	5	7	4	22
	%	.59	.59	15.38	1.75	2.19	2.86	1.98
JOURNALISM	#	1	0	0	1	1	2	5
	%	.59	0	0	.35	.31	1.43	.45
LITERATURE	#	0	0	0	1	0	1	2
	%	0	0	0	.35	0	.71	.18
MATHEMATICS	#	6	9	0	10	12	5	42
	%	3.53	5.29	0	3.51	3.75	3.57	3.78
PHILOSOPHY	#	0	0	0	0	2	0	2
	%	0	0	0	0	.63	0	.18
PHYSICAL EDUCATION AND RECREATION	#	10	10	2	7	8	4	41
	%	5.88	5.88	7.69	2.46	2.50	2.86	3.69
PHYSICAL SCIENCES	#	5	2	0	6	11	2	26
	%	2.94	1.18	0	2.11	3.44	1.43	2.34
PRE-LAW	#	0	1	0	1	1	0	3
	%	0	.59	0	.35	.31	0	.27
PSYCHOLOGY	#	5	6	1	13	13	4	42
	%	2.94	3.53	3.85	4.56	4.06	2.86	3.78
SOCIAL SCIENCES	#	16	24	3	44	66	28	181
	%	9.41	14.12	11.54	15.44	20.62	20.00	16.29
TECHNICAL FIELDS	#	31	25	4	36	18	11	125
	%	18.24	14.71	15.38	12.64	5.63	7.86	11.26
THEOLOGY	#	0	1	0	1	0	0	2
	%	0	.59	0	.35	0	0	.18
MAJOR UNDECIDED OR UNKNOWN	#	17	7	19	16	36	26	121
TOTALS		187	173	45	301	356	166	1,232

TABLE 14

DETAILED ANALYSES OF COLLEGE MAJORS OF THE CLASS OF 1965 AS OF MAY, 1966

A total of 1,233 of the 2,279 graduates (54%) were continuing their education as of May, 1966. The table on the previous page "Majors of June, 1965, Graduates as of May, 1966" groups the graduates into twenty-one major areas of study. On this page and the following three pages, more detailed analyses are made of the larger major areas of study. Included are biological science, business, engineering, fine arts, physical education and recreation, physical science, social science, and technical field majors. The district total on the previous page reads "1,232". However, one graduate of Dewey High School enrolled in junior college was not listed in that table.

BIOLOGICAL SCIENCE MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
BIOLOGY, ZOOLOGY	#	2	1	0	5	5	2	15 - 14.15%
CLINICAL SCIENCES	#	0	0	0	1	1	1	3 - 2.83%
NURSING	#	5	3	2	8	6	8	32 - 30.19%
PRE-DENTAL	#	0	4	0	4	7	1	16 - 15.10%
PRE-MEDICAL	#	0	1	0	5	4	2	12 - 11.32%
VETERINARY	#	0	0	0	2	1	0	3 - 2.83%
OTHERS	#	2	2	1	9	9	2	25 - 23.58%
TOTALS	#	9	11	3	34	33	16	106 - 9.54

TABLE 14 (Continued)

BUSINESS MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
ACCOUNTING	#	1	4	0	10	4	1	20 - 10.31%
DATA PROCESSING	#	3	2	0	2	3	3	13 - 6.70%
OFFICE SKILLS	#	6	4	1	7	8	0	26 - 13.40%
OTHERS (Admin., etc.)	#	26	25	6	35	28	15	135 - 69.59%
TOTALS		36	35	7	54	43	19	194 - 17.46%

ENGINEERING MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
AERONAUTICS	#	1	0	0	1	1	0	3 - 3.95%
ARCHITECTURE	#	2	1	0	4	6	2	15 - 19.74%
ELECTRICAL	#	3	0	0	2	2	1	8 - 10.53%
MECHANICAL	#	1	2	0	5	5	2	15 - 19.73%
OTHERS	#	5	2	0	5	14	9	35 - 46.05%
TOTALS		12	5	0	17	28	14	76 - 6.84%

FINE ART MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
ART	#	8	8	0	10	16	7	49 - 48.52%
FASHION ARTS	#	2	1	0	0	2	2	7 - 6.93%
INTERIOR DECORATING	#	0	0	0	1	2	0	3 - 2.97%
MUSIC	#	4	3	1	7	12	1	28 - 27.72%
SPEECH & DRAMA	#	3	2	0	3	3	3	14 - 13.86%
TOTALS		17	14	1	21	34	13	101 - 9.09%

TABLE 14 (Continued)

PHYSICAL EDUCATION & RECREATION MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
PHYSICAL EDUCATION	#	6	9	2	4	7	3	31 - 75.61%
RECREATION	#	4	1	0	3	1	1	10 - 24.39%
TOTALS	#	10	10	2	7	8	4	41 - 3.69%

PHYSICAL SCIENCE MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
ASTRONOMY	#	0	0	0	1	1	0	2 - 7.69%
CHEMISTRY	#	1	1	0	3	7	1	13 - 50.00%
PHARMACY	#	0	0	0	2	0	0	2 - 7.69%
PHYSICS	#	0	1	0	0	3	1	5 - 19.23%
OTHERS	#	4	0	0	0	0	0	4 - 15.39%
TOTALS		5	2	0	6	11	2	26 - 2.34%

SOCIAL SCIENCE MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
ANTHROPOLOGY	#	1	0	0	1	1	0	3 - 1.66%
CRIMINOLOGY	#	0	1	0	2	3	3	9 - 4.97%
ECONOMICS	#	1	0	0	1	4	0	6 - 3.32%
GEOGRAPHY	#	0	0	0	0	2	1	3 - 1.66%
HISTORY	#	4	4	1	13	21	4	47 - 25.97%
HUMANITIES	#	1	0	0	1	1	0	3 - 1.66%
POLITICAL SCIENCE	#	1	2	0	10	9	3	25 - 13.81%
SOCIAL WELFARE	#	1	3	0	2	2	5	13 - 7.18%
SOCIOLOGY	#	6	9	2	10	18	9	54 - 29.83%
OTHERS	#	1	5	0	4	5	3	18 - 9.94%
TOTALS		16	24	3	44	66	28	181 - 16.29%

TABLE 14 (Continued)

TECHNICAL FIELD MAJORS

		CASTLE-MONT	FREMONT	McCLY-MONDS	OAKLAND	SKYLINE	TECH	DISTRICT
CARPENTRY	#	0	3	0	2	2	0	7 - 5.60%
CEMENT MASON	#	0	0	0	1	0	0	1 - .80%
CHEMISTRY TECH.	#	0	0	0	0	0	1	1 - .80%
COSMETOLOGY*	#	7	4	1	4	1	1	18 - 14.40%
DENTAL ASSISTANT	#	3	4	0	5	7	1	20 - 16.00%
DRAFTING	#	1	4	1	2	0	0	8 - 6.40%
ELECTRONICS TECH.	#	9	8	1	6	7	2	33 - 26.40%
EMBALMING	#	1	0	0	0	0	0	1 - .80%
ENGINEERING TECH.	#	0	0	0	0	0	1	1 - .80%
FRAMEMAN	#	1	0	0	0	0	0	1 - .80%
GRAPHIC ARTS	#	0	0	0	3	0	0	3 - 2.40%
MEDICAL ASSISTANT & LAB. TECHNICIAN	#	2	0	0	5	0	0	7 - 5.60%
MECHANICS, AUTO	#	4	0	1	3	1	1	10 - 8.00%
MECHANICS, OTHER	#	0	0	0	1	0	1	2 - 1.60%
PHOTOGRAPHY	#	0	2	0	1	0	0	3 - 2.40%
REFRIGERATION	#	1	0	0	0	0	0	1 - .80%
X-RAY TECHNICIAN	#	2	0	0	3	0	3	8 - 6.40%
TOTALS		31	25	4	36	18	11	125 - 11.26%

*One graduate of Dewey High School also was a cosmetology major.

TABLE 15

Per Cents of Actual College Enrollees, October, 1965,
Indicating High School Intention to go to College,
By Sex, Race, Socio-Economic Status, and High School Curriculum

MALE	SUBGROUPS	FEMALE
	Race	
60%	Spanish American	45%
76%	Negro	68%
89%	Oriental	93%
79%	Other, White	70%
	SES	
94%	I	96%
88%	II	89%
86%	III	79%
71%	IV	60%
67%	V	53%
	High School Curriculum	
60%	Vocational	50%
94%	College	92%
63%	Other	51%

TABLE 16

College Withdrawals October, 1965 to June, 1966 by Specific Institution

Sex Total	Peralta	U.C. Berkeley	U.C. Davis	Cal State Hayward	San Francisco State
	Enrollment October, 1965				
M	458	77	12	39	23
F	360	67	29	64	35
T	818	144	41	103	58
	Enrollment June, 1966				
M	264	61	9	27	19
F	230	52	21	54	30
T	494	113	30	81	49
	Per Cent Withdrawal				
M	42.4	20.8	25.0	30.8	17.4
F	36.1	22.4	27.6	15.6	14.3
T	39.6	21.5	26.8	21.4	15.5

TABLE 17

College Withdrawals October, 1965 to June, 1966 by Level of Institution

Sex Total	Junior College	Four-Year College	University	Total
	Enrollment October, 1965			
M	490	114	141	745
F	394	170	152	716
T	884	284	293	1461
	Enrollment June, 1966			
M	284	77	105	466
F	251	128	115	494
T	535	205	220	960
	Per Cent Withdrawal			
M	42.0	32.5	25.5	37.4
F	36.3	24.7	24.3	31.0
T	39.5	27.8	24.9	34.3

TABLE 18

Variables Differentiating Students Who Remain at the Same College October, 1965, to May, 1966, from Students Who Withdraw from College October, 1965 to May, 1966

Variable	Level of Significance	
	Males*	Females*
16 Farquhar Job Characteristics Scale	.005	.005
17 Farquhar Situational Choice Inventory	.001	.01
18 Farquhar Word Rating List	.05	.001
20 Average of Farquhar Variables	.001	.001
22 C.P.I. Achievement via Independence Scale	.005	.01
25 C.P.I. Responsibility Scale	.001	.005
26 C.P.I. Socialization Scale	.001	.005
29 S.T.E.P. Math Score	.01	.001
30 S.T.E.P. Reading Score	.001	.001
31 S.T.E.P. Writing Score	.001	.001
32 S.C.A.T. Verbal Score	.001	.001
33 S.C.A.T. Quantitative Score	.001	.001
34 S.C.A.T. Total Score	.001	.001
35 G.P.A. - Sophomore	.001	.001
36 G.P.A. - Junior	.001	.001
37 G.P.A. - Senior	.001	.001
38 G.P.A. - Overall	.001	.001
39 G.P.A. - Overall English	.001	.001
40 G.P.A. - Overall Science	.001	.001
41 G.P.A. - Overall Social Studies	.001	.001
42 G.P.A. - Overall Math	.001	.001
49 G.P.A. - Overall P.E./R.O.T.C.	.001	.01

*Based upon following N's: Remaining - M = 431, F = 470

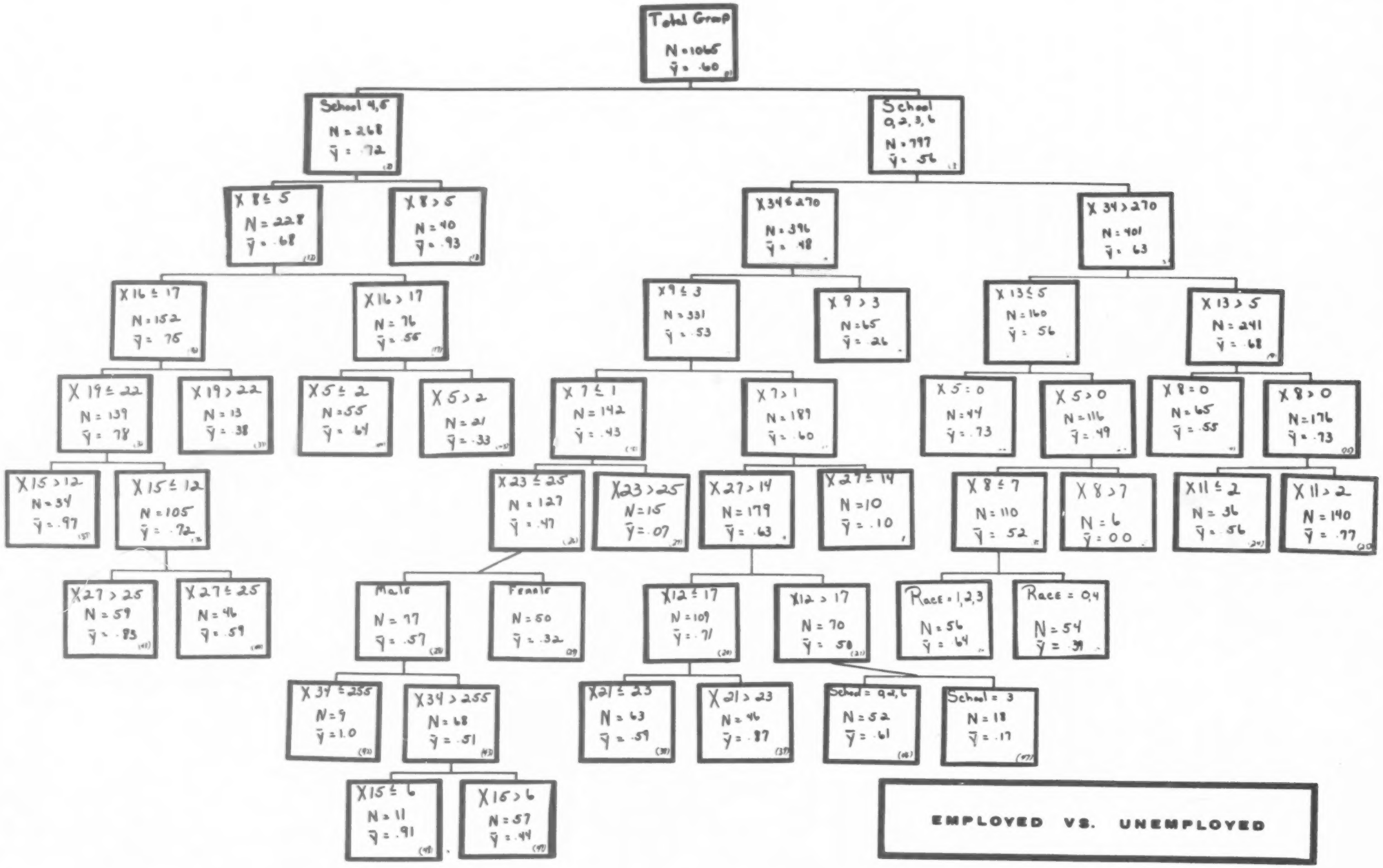
Withdrawing-M = 282, F = 226

SUMMARY

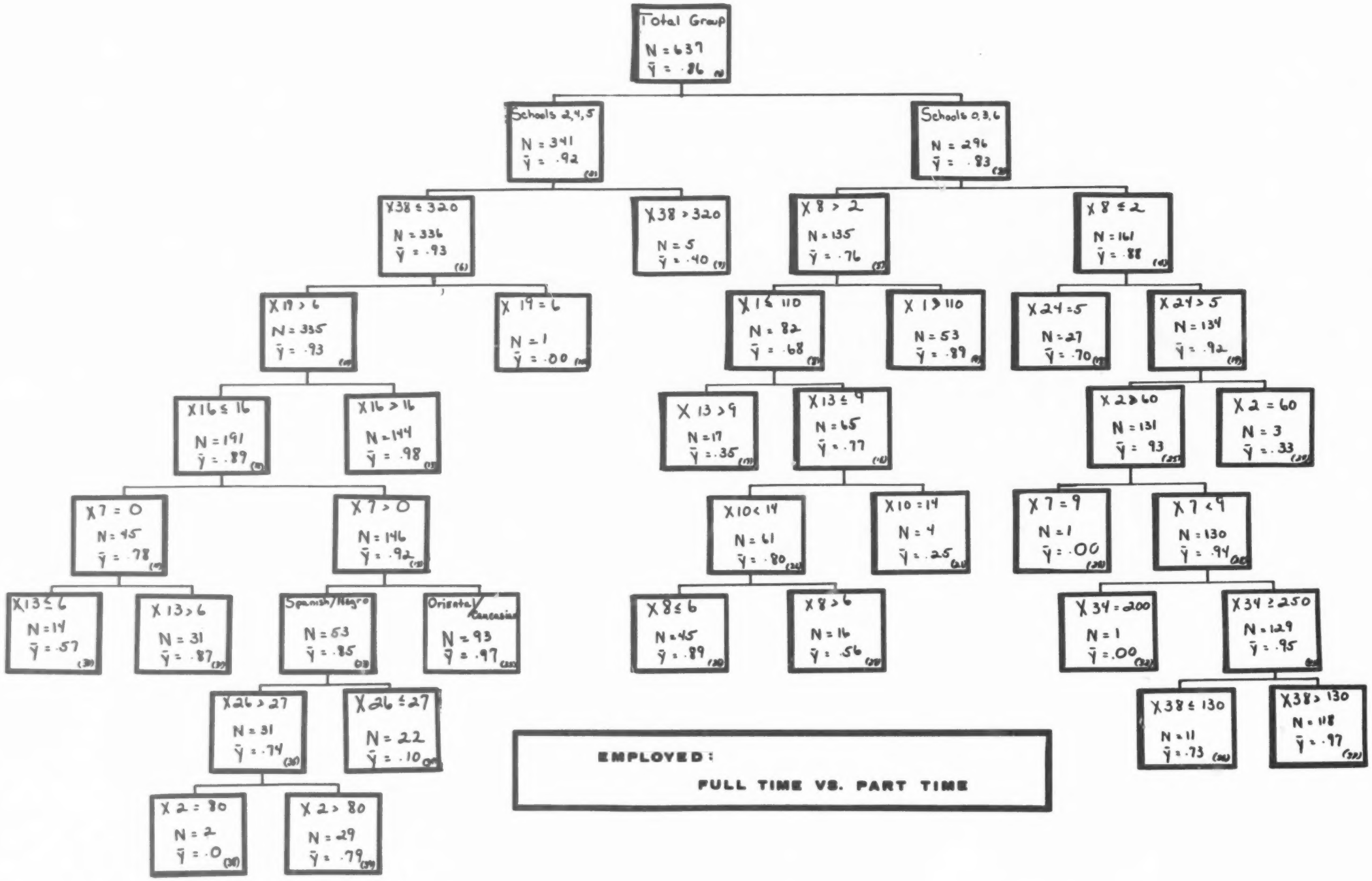
Subsequent analysis of the follow-up data being compiled in this project will be directed to the specific identification of predictive criteria by which probabilities of post high school success in a variety of activities can be ascertained. It is these reports which will have major impact upon curriculum and counseling in the school district.

Much work is yet to be done in this study. The drawing of final conclusions from interim data is to be guarded against. Changing patterns of post high school activities need to be analyzed more thoroughly before major conclusions can be drawn. It seems evident, however, from the data obtained to this date that most students are experiencing success in their post high school activities. Some students are not. It is to this latter group that more specific attention will be focused in this study in the attempt to identify those characteristics with negative prognostic values and to build into the curriculum and counseling programs experiences which will help to modify such characteristics.

The task which the school district has set for itself is involved and complex. It is fraught with difficulty. But it must be done.



EMPLOYED VS. UNEMPLOYED



EMPLOYED:

FULL TIME VS. PART TIME

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss the importance of attitude toward self, employer, other workers, and clientele.		Preceding references
	Chart in terms of time lost and money lost the factor of promptness.		
	Use tape recordings to analyze speaking voice.		
	Chart the characteristics that can be easily recognized in salespersons who show: interest in work initiative capability loyalty honesty dependability willingness to accept direction		
	Use chart to make observations of people on the job.		

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Safe Food Service

Desired Outcomes:

To gain an understanding of factors involved in providing safe food.
To gain knowledge and understanding of the laws affecting the preparation and serving of food.
To recognize the need for proper sanitation procedures.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What sanitation procedures protect the consumer?	Discuss how clean service, clean food, clean hands and healthy workers protect the consumer. Brainstorm. Use a resource person to discuss the importance of protecting the consumer. Discuss the responsibilities of the consumer as well as the employer and employee for safe food service. Chart the diseases that might result from poor sanitary procedures.	Protection for the consumer is enhanced when proper sanitation procedures are practiced. Proper storage and care of food are likely means to a safe food supply. Improper sanitation procedures in food handling is a likely means of transmitting communicable diseases.	Lewis, Dora S., Peckham, Gladys, and Hovey, Helen. Family Meals and Hospitality. New York: The Macmillan Company, 1960. Pollard, L. Belle. Experiences with Foods. New York: Ginn and Company, 1956. Films-- "X is for Mike" Bureau of Audio Visual Instruction, University of Wisconsin, Madison, Wisconsin. "Kitchen Habits" United World Films, Incorporated, 1445 Park Avenue, New York 29, New York.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play situations to illustrate clean service, clean food, clean hands and healthy workers. Use doctor or nurse as resource person to talk on communicable diseases and when it is safe to handle food after illness. Chart diseases that are transmitted to other people through food and the handling of food. Review the importance of good dishwashing techniques. Observe bacterial growths on agar plates as result of improper handling of dishes--work with science department.		"Hospital Food Service" United World Films, Incorporated, 1445 Park Avenue, New York 29, New York. Starr, Mary Catharine. Management For Better Living. Boston: Heath and Company, 1963. Hobbs, Betty C. Food Poisoning and Hygiene. New York: St. Martin's Press, 1955. National Safety Council. Safety in the School Lunchroom. Data Sheet 85, Chicago, Illinois. United States Department of Health, Education and Welfare, Public Health Service. From Hand to Mouth. Washington, D. C., U. S. Government Printing Office, Rev. 1961.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss the storage of various foods to keep them safe. Chart places where food should be stored to keep them safe.		United States Department of Health, Education and Welfare, Public Health Service. Food Service Sanitation Manual. Washington, D. C.: U. S. Government Printing Office, 1962. United States Department of Agriculture. Food For Fitness: A Daily Food Guide. Washington, D. C.: U. S. Government Printing Office, 1963.
What laws affect preparation and serving of food? Federal State Local	Use federal, state and local authorities to discuss regulations for food service. Collect articles from newspapers and magazines concerning violations of food handling regulations. Discuss the importance of the articles and how such violations could have been prevented.	The responsibilities of a food service worker is dependent upon the laws which affect preparation and serving of food.	

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use the school lunch director as a resource person to discuss the sanitation requirements that must be met in the school program. Contact and use the county health director to speak about the regulations for grading and inspecting food service establishments. Discuss ways in which the consumer is protected. Film--"The Scattergerm" View, discuss and evaluate. Develop a check list to be used in making observations of food service establishments to evaluate in terms of state and local regulations.		United States Department of Agriculture pamphlets. State Dept. pamphlets. Film--"The Scattergerm" American Dietetic Association, 620 North Michigan Ave., Chicago, Illinois.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Plan field trips to hospital kitchens, school lunch room kitchens and other food service establishments.		
	Study and discuss the laws which affect the preparation and serving of food. In what ways do the state laws vary from state to state? Compare state laws.		

Job Responsibilities

Desired Outcomes:

To recognize and understand the lines of authority and responsibility as a food service employee.
To gain an understanding of the policies and procedures established for food service personnel.
To gain knowledge and understanding of the food service worker's role in public relations.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What is meant by the line of authority? Why is being cooperative a basic qualification for food service workers?	Discuss lines of authority and responsibility in the various areas of food service, particularly in the area of food service sales. Chart the chain of command in various food service establishments. How do they compare and how do they differ according to the size of the establishment? Role play situations where one and where many people are giving the directions. Evaluate the results of each.	Ability to distinguish lines of authority and the responsibilities in the food service area contributes to job satisfaction. Desirable working relationships is likely to result when there is an understanding of the basic qualifications for employment.	Tonne, Herbert A., Simon, Sidney I., and McGill, Esby C. Business Principles, Organization and Management, New York: McGraw Hill, Gregg Publishing Div., 1958. Training Guide for Restaurant Sales Personnel. Indiana University, Vocational Division, Indiana State Dept. of Public Instruction, Dubuque, Iowa: Wm. C. Brown Co., 1959.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use food service manager as a resource person to explain and demonstrate ways of giving directions to workers.		
	Discuss various ways of giving directions, the advantages and the disadvantages of each.		
	Define and give descriptions of cooperative food service workers.		
	Observe food service workers for evidences of cooperation and use the instances observed for discussion.		
	Observe an athletic event to show the need for cooperation and compare this with the need for cooperation in food service.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What is the role of the food service worker in promoting good public relations? In what ways does the food service worker promote good public relations for the business? How does the food service worker promote or influence customer satisfaction? How does the food service worker interpret customer comments? How does the food service worker build rapport? In what way does the food service worker evaluate customer satisfaction?	Discuss the importance of establishing good public relations, especially in food service establishments. Make a list of ways that a food service worker might establish good public relations. Relate the importance of appearance and grooming of the food service worker to the customers' views. Role play situations which depict different personalities of food service workers and customers. Discuss how the food service worker affects cash sales and the customer.	When the food service worker is aware of his role, it is likely that he will promote and build rapport with the public. Good public relations are likely to be maintained when the food service worker is able to evaluate customer comments.	Dietz, Susan M. The Correct Waitress. New York: Ahrens Publishing Co., 1955. Lefler, Janet, Sack, Louis, and Blanc, Francis. The Waiter and His Public. New York: Ahrens Publishing Co., 1959. Training Guide for Restaurant Sales Personnel. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Observe food service workers in various duties and compare the techniques used by each.		
	Keep a list of questions that customers might ask about food, classify the types of questions and discuss.		
	Role play situations in which the food service worker builds rapport with customer or influences customer satisfaction.		
	Discuss the difference of the likes and dislikes of people of different ages and how to deal effectively with them.		
	Discuss the amount of food returned as an indication of customer satisfaction.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss different ways to handle food in terms of customer satisfaction.		
	Use a resource person to discuss the importance of establishing good public relations.		
	Cite examples showing how tolerance and courtesy can help improve working relations.		
	Report articles in the newspapers and in magazines that relate to the need for good public relations.		

Waitress Duties and Responsibilities

Desired Outcomes:

To gain an understanding of the requirements or duties a waitress is expected to perform.
To develop the necessary skills and standards for gainful employment as a waitress.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What preparation do I need?	Discuss the requirements or qualifications of a waitress. Use a resource person from the food services in the community to explain and discuss the role of the waitress. Observe waitresses at work in different situations and carefully analyze their duties and the manner in which they handle various situations. List experiences that you believe would be of value as you assume the role of a waitress.	Efficiency and satisfaction on the job are likely to be facilitated through an understanding of the preparation required for a waitress. Analyzing responsibilities in waitress work is likely to influence the degree of satisfaction obtained in this occupation.	Lefler, Janet, Sack, Louis, and Blanc, Francis. op. cit. Dietz, Susan. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss and compile a list of rules or suggestions that will help you as a waitress. Review the importance of a good attitude in preparing for gainful employment as a waitress. Discuss the kind of wardrobe needed for waitress duties. Observe the type of dress used by waitresses in various types of food service establishments and discuss their suitability.		
What are the preservice duties of a waitress? What are some of the ways to set a table or fold a napkin? What is included for an individual cover	Use resource person from food services to discuss and explain the general preservice duties that a waitress is often expected to perform. Practice setting the table for various types	Knowledge concerning the various duties a waitress is expected to perform is likely to promote efficiency and personal satisfaction.	Preceding references. Pollard, I. Belle. op. cit. Food Service Industry Training Programs and Facilities. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
in various situations? What are some of the possible side work duties given a waitress?	of table service. Discuss the importance of a properly set table. Observe waitresses as they set a table--can she improve? Discuss typical side work duties such as filling sugar bowls, salt and pepper shakers, folding napkins, cleaning trays and chairs. Discuss the importance of taking pride in your work and knowing that the job is well done. Develop charts that show tables properly set and the placement of flatware, dishes and glassware. Collect pictures of	Following known acceptable procedures for food service consistently contribute to customer and worker satisfaction. Satisfaction for all concerned is apt to result when the waitress is able to recognize the importance of a job well done.	Hill, Amelia Leavitt. Complete Book of Table Setting and Flower Arrangement. rev. ed. New York: Hawthorn, 1957. McLean, Beth Baily. Meal Planning and Table Service. Peoria, Illinois: Charles A. Bennet Co., 1955. Post, Emily. Etiquette: The Blue Book of Social Usage. New York: Funk and Wagnalls Co., 1955-6. School of Hotel Administration. The Essentials of Good Table Service. Ithaca, New York: Cornell University Press, 1960.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	tables that are properly and attractively set. Compare them with poorly set tables. Role play situations involving setting of the table. Discuss how the preservice duties that are done well will help you when the customer arrives.		
What are the service duties that a waitress is expected to perform? How should the order be taken? How should the order be assembled? Is there a correct way to load a tray? What rules should be followed in serving?	Discuss the manner in which an order is taken. What suggestions can the waitress make to the customer? Role play situations where the customer has been given a menu and the order is being taken. Discuss the importance of having a knowledge of serving.	Service duties are likely to become satisfying and acceptable when the waitress performs the duties properly.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
How should the check be presented?	Discuss the various ways that a check might be presented to the customer.	Knowing the terminology used on menus is important for the waitress since this enables her to satisfy the customer.	Preceding references.
What courtesy should be given the customer when he arrives? What courtesy should be given the customer during his stay and when he leaves?	Discuss the waitress role when expected to assemble parts of the order.	Food service work is likely to be rewarding when the waitress can give courteous and efficient service to the customers.	
	Discuss and role play giving the order to the cook.	Competence in evaluating the service given by a waitress is likely to be a valuable learning experience for those interested in food service work.	
	Discuss the order of service for breakfast, luncheon and dinner.		
	Role play the reception and seating of guests by the waiter or waitress.		
	Role play situations which require the waiter or waitress to ask special instructions--how to prepare eggs, steak, etc.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use order forms to practice taking orders.		
	Demonstrate and practice loading a tray and carrying it.		
	Group work--plan menu, present to class the menu and show the service to be given with each member of the group assuming different duties. Discuss and evaluate.		
	Demonstrate types of table service and practice the service procedures.		
	Use resource person to discuss service duties expected of the waiter or waitress.		
	Prepare outlines for table service reference.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play special services such as refilling coffee cups, water glasses, etc.		
	Discuss the different ways to present a check and how to handle the situation.		
	Discuss and demonstrate the courtesy given the customer when he is ready to leave.		
	Discuss the need for accuracy in filling out an order.		
	Observe the service given by a waiter or waitress in a food service establishment. Discuss the ways courtesy was shown.		
	Discuss and demonstrate clearing a table--note the sanitary measures followed.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Role play table clearing situations. Review simple mathematics in figuring checks. Discuss the difference in being a counter waitress.		
What are the closing duties that a waitress may be expected to perform? If the waitress goes off duty while customers are still seated, what should be done?	Discuss the duties required--whether to reset or not, cleaning, refilling and etc. Role play a situation where a waitress goes off duty and the procedure that might be followed if a customer is still seated. Discuss the importance of leaving everything in order. Chart duties that are considered closing duties.	Responsibilities in changing work shifts can be accomplished easily if the waitress accepts a commitment to giving efficient service.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Use a resource person to discuss the importance of leaving everything in order.		
	Discuss the various responsibilities food service workers assume when the food service establishment closes.		

Host or Hostess Duties

Desired Outcomes:

To gain an understanding and knowledge of the need to dispense hospitality when representing the management.

To recognize and understand the duties required of a host or hostess.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What are the duties of a host or hostess as a representative of management? Why must the host or hostess have a thorough knowledge of management policies? Why is a good working relations essential?	Discuss the duties of a host or hostess in welcoming customers. Discuss the importance of hospitality, courtesy, cheerfulness and good will as requisites of the host or hostess. Observe a host or hostess in action. Evaluate the kinds of service given and the manner in which it was given. Discuss situations where a host or hostess is required to interpret management policies and standards.	When representing the management of a food service establishment the host or hostess must understand the management policies and procedures if decisions are to be made wisely.	Food Service Industry Training Programs and Facilities. op. cit.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Discuss the importance of appearance, grooming, and manners.		
	Chart the position of a host or hostess in relation to customers, sales staff (waitresses), management, and kitchen force.		
	List and chart policies with which a host or hostess must be concerned and informed about in relation to seating customers, serving, filling orders in the kitchen, and party service.		
What is the nature of host or hostess work?	List the duties a host or hostess might follow to prepare the dining room for service--ventilation, serving stands, table arrangements, etc.	The numerous duties of a host or hostess are likely to become satisfying when tact and good judgment are exercised in performing them.	Preceding references.
What are the responsibilities in inspecting the dining room?			
To what extent does	Discuss the responsibil-		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
the host or hostess have a responsibility in supervising the dining room staff? In what ways do the host or hostess supervise the serving of customers?	ities the host or hostess has for keeping the dining room in order. List the duties a host or hostess must assume in supervising the dining room staff. Discuss the importance of supervision for efficiency. Role play situations where the host or hostess is receiving special instructions and where they are giving the dining room staff instructions. Chart sample work schedule plans for a staff of dining room workers. Discuss the problems involved in planning work schedules. Discuss assigning work	Interpreting customer needs and wants is likely to be the responsibility of the host or hostess when representing management.	Preceding reference.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	stations to the waitresses--why is this necessary? Discuss the need for checking the appearance for the dining room staff before meal service begins. List items that should be checked. List some of the duties that the host or hostess must assume to insure good service. Discuss. Discuss the importance of assuring the customer good, prompt service and ways this can be done. Role play situations where the host or hostess must accept customer suggestions, complaints or correct errors.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
How does the host or hostess handle customer complaints?	Discuss the kinds of complaints that customers are apt to make. Role play situations in which the host or hostess tries to adjust complaints. List and discuss possible ways to handle various kinds of complaints.	Understanding people is necessary if the host or hostess is to handle customer complaints and difficult customers tactfully.	Preceding references.
Who are some of the difficult to handle customers? Early Late Hurried Grouchy Overfamiliar Angry Troublemaker Tired	Discuss ways that these difficult customers can be identified and how to handle the various situations. Role play situations with various kinds of customers and have groups evaluate the procedures followed. Discuss the importance of good judgment and tact in handling difficult customers.		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
Does the host or hostess make arrangements for special parties?	Discuss the information the host or hostess must obtain in making special arrangements. Make a list of the kinds of information special parties require. Discuss the importance of knowing management rules and regulations regarding special parties. Use a resource person to explain special party services available. Determine food service establishments that cater to special parties and what their rules happen to be. Discuss serving of special parties--what items	Special party rules and regulations are likely to be established as a protection for both the special party and the food establishment.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	must be given extra attention?		
To what extent must the host or hostess assume clerical duties?	Discuss the kinds and amount of clerical work required of a host or hostess.	An understanding of clerical duties is necessary if the host or hostess is to assume these duties satisfactorily.	Preceding references.

Evaluation

Desired Outcomes:

To analyze the program in terms of personal satisfaction gained.
To recognize the relationship between course content and the work experience.
To analyze the basic and specific emphases of the course and recommend changes to meet the demands encountered in the work experience.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
What has this program meant in terms of personal satisfaction?	Discuss the need for evaluation of the course progress and the extent to which it has met personal needs. List ways that this course has been of value in terms of information and experience gained. Observe other members of the class in work experience situations and discuss growth in terms of handling the various situations and their ability to assume responsibility.	Personal satisfaction gained from work experience is a likely factor to consider if evidence of learning is to be evaluated. Analyzing course content in relation to value in the work experience is a possible means of evaluating progress.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	Write up work experiences had during the semester indicating the areas where this course has been beneficial. Discuss the basic emphasis given in the course and how it can be used in other situations.		
What is the relationship between course content and work experience?	Discuss the work experiences had by the members of the class and compare reactions--how has the course content helped? Discuss the need for constructive criticism of both the course and the work experience. Use some of the role playing experiences used before the work experience and compare	Critical and constructive criticism by all those involved can serve as a means of improving the educational program.	Preceding references.

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	with the way the situation is now handled after experience--Were knowledge and experience essential?		
What changes might be made or recommended for a course such as this?	Make suggestions for improving the course based on the experiences encountered during the semester.	Evaluation is an essential part of the educational program if improvement is to take place.	
	Summarize the values of the course that you are now completing giving criticism and praise.	Becoming aware of one's role in the evaluation process may result in a more meaningful experience than has been experienced previously.	
	Discuss the importance of evaluating course content and the work experience.		
	List suitable types of evaluation methods that might be used.		
	Discuss the evaluations given by employers in		

CONTENT	SUGGESTED LEARNING EXPERIENCES	DESIRED LEARNINGS	SUGGESTED REFERENCES
	the work experience situations and the evaluations of students participating in the work experience. Discuss the extent to which objectives or desired outcomes have been met.		

APPENDIX C

Work Experience Agreement

Auburn High School
Cooperative Work Experience Program
Home Economics Department

I. _____ will cooperate with the Home Economics
(Food Service Establishment)
Department of Auburn High School by providing a work experience for a student in the wage-earning oriented class for the purpose of gaining knowledge and experience as a food service worker under the direct supervision of _____.
(Manager)

II. The wage-earning oriented course is designed for one semester with a minimum of _____ hours per week required work experience for nine weeks. Because the student must maintain the academic requirements of the school, no student shall be permitted to work more than _____ hours per week. This student will receive one (1) credit toward graduation, if she has satisfactorily completed the course work and work experience.

III. The instructor of the course shall serve as coordinator and assist the employer in preparing the student for the work experience.

IV. The rate of pay for the student shall be within reasonable range of compensation for a beginning employee for the particular job since she is expected to fulfill the initial responsibilities of a beginner.

V. If the student is unable to fulfill the job responsibilities the employment may be terminated depending upon the recommendation of the employer in consultation with the coordinator.

VI. Personal conduct while participating in the work experience shall be the responsibility of the student together with her parents and shall comply with the rules and regulations established by the employer and Auburn High School.

VII. While participating in the work experience, the student will retain

the status of "student" and it is understood that she will not displace a regular worker in employment.

VIII. The student must assume the responsibility for notifying the employer if she is unable to work because of illness or other emergency and must submit a request signed by the coordinator to the employer in advance of any required school commitments that would affect working hours.

IX. The employer and the student shall make all complaints to the coordinator for consideration and adjustment.

X. The coordinator and the employer shall have periodic evaluation conferences related to student progress. The teacher has final responsibility for the final grade for the work experience, since this is a portion of a school course.

_____	_____
(Coordinator)	(Student)
_____	_____
(Employer)	(Parent or Guardian)

APPENDIX D

Employer's Evaluation

Date Due_____

Auburn High School
Cooperative Work Experience Program

Employer's Evaluation

Student_____ Employer_____

The employer's periodic evaluation of the student's attitudes, traits, and performance is a vital part of the cooperative work experience program. This will enable the school coordinator an opportunity to provide training for the student in the classroom. We will ask you to evaluate the student at the end of the 3rd week, 6th week, and at the end of the work experience. Each evaluation will be a separate form which will be provided by the coordinator.

Check the statements under each item that would best describe the student at this time.

Attitudes, Traits and Performance

Attitude Toward Criticism
1. Asks for constructive criticism _____
2. Accepts criticism, profits by suggestions_____
3. Accepts criticism, does nothing about it_____
4. Resents criticism_____

Attitude Toward Work
1. Positive approach, wants to succeed_____
2. Enjoys work and shows promise_____
3. "I don't care" attitude prevails at times_____
4. Negative approach, appears bored with the job_____

Cooperation
1. Cooperates willingly at all times_____
2. Usually cooperates with others_____
3. Often indicates resentment toward cooperating with others_____
4. Unwilling to cooperate with others _____

Courtesy
1. Always considerate and courteous_____
2. Usually is considerate and polite_____
3. Polite to customer but inconsiderate of fellow workers_____
4. Inconsiderate of others, rude to others _____

Initiative

1. Energetic, capable and willing to go beyond mere assigned duties _____
2. Performs routine work accurately _____
3. Needs occasional prodding to complete routine _____
4. Fails to complete expected work _____

Knowledge of Job

1. Understands the job thoroughly _____
2. Is interested and desires to learn more about job _____
3. Listens to instructions but does not seem to understand _____
4. Has little understanding of the job, does not try to learn _____

Performance on Job

1. Performs duties with high degree of accuracy _____
2. Usually performs skillfully and with relative ease _____
3. Listens to instructions but fails to follow through _____
4. Extremely careless and inaccurate in job performance _____

Personal Appearance

1. Attractive, neat, and appropriately groomed at all times _____
2. Usually is neat and attractive _____
3. Frequently neglects personal appearance _____
4. Must improve personal appearance to maintain the job _____

Reliability

1. Can always be depended upon and extremely conscientious _____
2. Can usually be depended upon, conscientious _____
3. Completes job but requires close supervision _____
4. Unreliable _____

Work Habits

1. Efficient, manages time and energy well _____
2. Industrious but not always efficient _____
3. Frequently wastes time and energy _____
4. Fails to manage time and energy well, lazy _____

Additional comments:

APPENDIX E

Student's Evaluation

Auburn High School
Cooperative Work Experience Program

Student's Evaluation

Place of Employment_____ Name_____

The student's periodic evaluation of himself in relation to attitudes, traits, and performance is a vital part if he is to benefit from the cooperative work experience program. This evaluation will enable the coordinator and the employer the opportunity to provide the training that would be most beneficial.

For each of the following items, write a brief statement that describes you in relation to your work experience at the present time.

Attitude toward criticism (how you react to suggestions)

Attitude toward work (satisfactions gained from work)

Cooperation (ability to get along with people)

Courtesy (politeness to fellow workers and customers)

Initiative (ability to think and act without being urged)

Knowledge of job (understanding of the job, knowing what is expected)

Performance on job (how the work is done)

Personal appearance (how others see you)

Reliability (how well you can be depended upon)

Work habits (how you use time and energy)

Additional comments:

APPENDIX F

Coordinator's Evaluation

Auburn High School
Cooperative Work Experience Program

Coordinator's Evaluation

Name of Student _____

The coordinator's evaluation of each student is based upon several kinds of evidence. Indicate the student strengths and the student needs for each student based on the following evidences:

Student Strengths	Student Needs
Classroom Performance	
Test Performance	
General Attitude Toward Program	

Employer's Evaluation	

Student's Evaluation	

Additional Comments

APPENDIX G

Pre-Post Test

(Pre-test Instructions)

January 27, 1965

Congratulations! You have been selected to participate in an experimental wage-earning oriented program in Home Economics. This being the first course of its kind at Auburn, your participation and cooperation will be needed and greatly appreciated. Your suggestions and comments will also be of value if this course is to continue and future courses planned.

Please complete the following problems. Directions for each problem will vary so it will be necessary to read the directions carefully before you begin. You will not be given a grade on your responses. It will be used to determine your present needs and strengths in this area of study. Thus, it is hoped that experiences can be planned that will be meaningful and useful.

(Post-test Instructions)

May 27, 1965

Thank you for your cooperation and participation in the experimental wage-earning oriented program in Home Economics. Your suggestions and comments are extremely important if this course is to continue and future courses planned.

Please complete the following problems. Directions for each problem will vary so it will be necessary to read the directions carefully before you begin. It will be used as a means of determining the achievement you have made in this area of study.

I. There are numerous factors and characteristics associated with the work and worker in a food service area. Many of these factors and characteristics are listed below for your consideration. Carefully check each item as to the degree of importance it has for a worker in a food service area.

	Unimportant	Somewhat Important	Important	Quite Important	Extremely Important
Personal appearance					
Poise					
Grooming					
Physical stamina					
Self-confidence					
Promptness					
Dependability					
Honesty					
Cheerfulness					
Courtesy					
Initiative					
Attitude toward people					
Interest in people					

	Unimportant	Somewhat Important	Important	Quite Important	Extremely Important
Ability to follow directions					
Ability to use simple arithmetic					
Management of time and equipment					
Work standards					
Sanitation practices					
Safety factors					
Knowledge of menu terms					

II. Setting a table might vary slightly with a food service establishment. However, using a generally accepted form of table service, take the labeled items from the attached packet, arrange them for an individual cover, and secure them to the paper in the space below. The following items should be included in the packet:

a. dinner plate
b. bread and butter plate
c. salad plate
d. cup and saucer
e. water glass
f. salad fork
g. dinner fork
h. dinner knife
i. teaspoon
j. soup spoon
k. napkin

(Items made of gummed labels with removable protective covering)

III. Various problems arise when employed as a food service worker. Carefully read each problem and answer in the space provided.

1. Assuming that sales tax is 4%, how much tax should be added to a bill that totals $8.75?

_____

2. Mr. Smith took his wife and their 3 children whose ages are 13, 10 and 6 out for dinner. The dinner they selected cost $3.75 per meal. For children under 12 the dinner was $1.00 less. How much would the bill be for this dinner?

_____

Adding 4% sales tax, the total would be?

_____

3. How much social security would be deducted if you earned $100.00?

_____

4. Mr. and Mrs. Jones and their four children are having Sunday dinner at the restaurant in which you are employed as waitress. During the meal the children are very noisy and food is spilled on the table and floor. Before the parents have finished their meal the children leave the table and annoy other customers. What would you do?

5. A customer complains to you about the manner in which the food has been prepared. He is not satisfied with any of the food that you have served him. How would you handle this situation?

6. As a hostess you are in charge of the waitresses. What would be your reaction to the waitress who came to work with a soiled uniform, high heeled shoes, dirty finger nails and heavy make-up? What would you do?

IV. Check the <u>letter</u> or <u>letters</u> which are most nearly correct for each situation.

1. For most young people in our society the badge of independence in the adult world is a:

_____a. job
_____b. high school education
_____c. college diploma
_____d. technical training

2. Programs of aid provided through the Social Security Act include:

_____a. unemployment compensation
_____b. old age assistance
_____c. maternal and child-health service
_____d. services for crippled children

3. If you are employed at the present time, the amount deducted from your income for Social Security is:

_____a. 1½%
_____b. 3%
_____c. 4½%
_____d. 5%

4. Items to be included in a letter of application are:

_____a. height and weight
_____b. likes and dislikes
_____c. schooling and work experience
_____d. name and address

5. The procedure considered to be most proper when using a person's name as a reference is:

_____a. to interview the person
_____b. to tell the person
_____c. to ask permission
_____d. to explain the position

6. If you had these choices, which would be most appropriate to wear when being interviewed for a position:

_____a. dainty silk dress and heels
_____b. skirt, sweater, bobby socks and sneakers
_____c. dark cotton dress, hose and heels
_____d. tailored suit, hat and gloves

7. Job ethics implies:

_____a. manners
_____b. standards
_____c. morals
_____d. achievements

8. Workman's compensation benefits might include:

_____a. retirement income
_____b. paid vacation
_____c. fire insurance
_____d. theft insurance
_____e. hospitalization

9. Food service workers are classified as:

_____a. skilled workers
_____b. service workers
_____c. white collar workers
_____d. blue collar workers

10. Occupations included in the food service area are:

_____a. management
_____b. promotions
_____c. sales
_____d. sanitation

11. To provide safe food service requires:

_____a. cooperativeness
_____b. considerateness
_____c. cleanliness
_____d. courtesy

12. The "line of authority" in a food service establishment means the:

_____a. serving of food to customers
_____b. seating the customer
_____c. "chain" of command over services
_____d. preparing the food

13. Promoting customer satisfaction is a key responsibility of the:

_____a. chef
_____b. waitress
_____c. manager
_____d. dish washer

14. Although 15% of the bill is common for a tip, the customer may leave more or less depending upon:

_____a. attractiveness of the waitress
_____b. quality of service received
_____c. amount of food consumed
_____d. courtesy shown by the waitress

15. In applying for many jobs the major emphasis is placed upon:

_____a. knowledge and skills
_____b. personal qualifications
_____c. school achievements
_____d. previous experience

16. Health regulations require that food service workers:

_____a. have a health examination
_____b. have an X-ray
_____c. wear a hairnet
_____d. wear a uniform

V. As a waitress you are asked by the customer to define the following underlined words which appear on a menu:

Table d'hote or Ala carte menu

French onion soup with croutons

Filet Mignon with sauteed mushrooms

Twice baked potato

Julienne carrots

Tossed salad ------ Choice of dressings

Hot rolls Butter

Schaum torte

Demitasse

Table d'hote

Ala carte

Croutons

Filet Mignon

Sauteed

Twice baked

Julienne

Tossed

Schaum torte

Demitasse

VT 004 424

Oregon Statewide Study of Systematic Vocational Education Planning, Implementation, Evaluation--Phase I--Manpower Needs, Data Collection Devices and Occupation Clusters. Appendix (Exhibit B).

Oregon Univ., Eugene
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Dec65 145p.

*VOCATIONAL EDUCATION; OCCUPATIONS; *JOB ANALYSIS; *JOB SKILLS; *EDUCATIONAL NEEDS; *OCCUPATIONAL INFORMATION; CURRICULUM PLANNING; PROGRAM CONTENT; OCCUPATIONAL SURVEYS; OCCUPATIONAL CLUSTERS
OREGON

This appendix was the result of efforts by two teams of labor analysts and a team of curricular analysts. It was published separately from the main report of the "Oregon Statewide Study of Systematic Vocational Education Planning, Implementation, Evaluation: Phase I--Manpower Needs, Data Collection Devices and Occupation Clusters" because of its possible value for vocational counseling and curricular planning. Each of 143 key occupations are outlined to include (1) duties performed, (2) knowledge or skills required, and (3) curricular elements planned. (JM)

VT 004 424

Appendix to

Oregon Statewide Study of Systematic Vocational Education Planning, Implementation, Evaluation:

Phase I - Manpower Needs, Data Collection Devices and Occupation Clusters

EXHIBIT B

The research reported herein was performed pursuant to a contract with the United States Department of Health, Education and Welfare, Office of Education.

BUREAU OF EDUCATIONAL RESEARCH
and
BUREAU OF BUSINESS AND ECONOMIC RESEARCH
University of Oregon
Eugene, Oregon

December, 1965

Appendix to

OREGON STATEWIDE STUDY OF SYSTEMATIC VOCATIONAL EDUCATION PLANNING, IMPLEMENTATION, EVALUATION:

Phase I - Manpower Needs, Data Collection Devices and Occupation Clusters

A Study completed by the BUREAU OF EDUCATIONAL RESEARCH and BUREAU OF BUSINESS AND ECONOMIC RESEARCH under contract with the DIVISION OF VOCATIONAL EDUCATION, Oregon State Department of Education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

December, 1965

INTRODUCTION

This Appendix section has been removed from the full body of the publication "Oregon Statewide Study of Systematic Vocational Education Planning, Implementation, Evaluation: Phase I - Manpower Needs, Data Collection Devices and Occupation Clusters." The development of the contents is fully explained in the text of the full report.

This publication, a collaboration of the efforts of three teams - labor analysts, curricular analysts, and an additional team of labor analysts, may prove to be useful in vocational counseling or curricular planning. School and employment counselors may use this manual for identifying pertinent training requirements for Oregon's "key occupations."

#1 Draftsman (0-48)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Prepares detailed scale drawings giving exact dimensions and specifications for the manufacture or building of physical objects.	1. Have working knowledge of mathematics through descriptive geometry and trigonometry.	1. Reading of technical material.
2. Draws over-all designs from engineering data, sketches, specifications or field notes of engineers.	2. Understand process of fabrication and assembly involved in his specialty.	2. Schematic reading.
3. Analyzes data and makes calculations.	3. Must understand statistics, dynamics, strength of materials and metallurgy.	3. Blueprint reading.
4. Uses engineering handbooks, manufacturers' catalogues, charts and mathematical tables.	4. Capable of developing neat, clean work habits and doing meticulous work of infinite detail.	4. Mechanical drawing.
5. Makes final sketch of proposed drawing, checks dimensions of parts, materials to be used and the relationship of the various parts to the whole structure or device.	5. Must have good eyesight and full use of fingers, hands and arms.	5. Drafting.
	6. Must have ability to visualize objects.	6. Construction principles and codes.
	7. Must be able to do both short and vertical free hand lettering.	7. Construction materials.
	8. Must have complete knowledge of drawing symbols.	8. Personnel relations (among subordinates, co-workers and supervisors).
	9. Uses slide rule, compass, triangles, French curve, drafting machine and special drafting and lettering pens.	9. Legible handwriting.
		10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		11. Writing of technical materials.
		12. Graph, chart, other visual construction.

#2 Laboratory Technician (0-50)

A

Duties performed:

1. Performs medical duties in a hospital or medical laboratory making laboratory tests of urine, blood, animal parasites, infections, animal inoculations and samples of patient's body tissues and fluids.
2. Makes blood counts and smears.
3. Gives biological skin tests.
4. Prepares vaccines.
5. Types blood for transfusions.
6. Identifies bacteria.
7. Prepares reports of tests for physician or pathologist.

B

Knowledge or skills required:

1. Must be able to get along with patients, doctors, and nurses.
2. Must be well trained in the scientific method and be a perfectionist in his concern for detail and accuracy.
3. Must have good vision, color perception, hearing, and finger and manual dexterity.
4. Must have ability to speak distinctly.
5. Suggested high school preparation includes science, mathematics, English, and typing.
6. Uses microtomer, colorimeters, technicons, distillation apparatus, centrifuges, pipettes, petri dishes, test tubes, flasks and microscopes and sometimes radio isotope counters, Coulter counters, auto-analyzers and freezing microtomes.

C

Curricular elements planned:

1. Reading of technical materials.
2. Writing of technical materials.
3. Safety principles.
4. Arithmetic.
5. Laboratory procedures.
6. Personal grooming.
7. Record keeping.
8. Graph, chart, other visual construction.
9. Sanitation principles.
10. Chemistry symbols.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Legible handwriting.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#3 Misc. Medical Therapist (0-52)

Duties performed:

1. Treats disabilities, injuries and diseases according to prescription of physician.
2. Administers heat, light and electric current by means of ultraviolet and infrared lamps, low voltage generators, and short-wave diathermy.
3. Provides therapeutic baths and other water treatments such as whirlpool and contrast baths, moist packs and compresses.
4. Utilizes mechanical devices such as pulleys and walking ramps, and provides instruction in use of prosthetic appliances.
5. Administers massages and other body manipulations.
6. Provides therapeutic exercises including active, passive, and resistance exercises, muscle reeducation and gait training.
7. Maintains clinical records.
8. Provides instruction in posture, body mechanics, and methods of physical therapy.
9. Organize games and sports activities.
10. Administers tests of physical fitness.

B

Knowledge or skills required:

1. Arts and crafts.
2. Anatomy and physiology.
3. Bandaging.
4. Electrotherapy.
5. Ethics.
6. Hydrotherapy.
7. Massage.
8. Occupational therapy.
9. Phototherapy.
10. Physical therapy.
11. Records (medical).

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical material.
3. Writing of technical material.
4. Safety principles.
5. Arithmetic.
6. Laboratory procedure.
7. Personal grooming.
8. Record keeping.
9. Graph, chart, other visual construction.
10. Sanitation principles.
11. First aid procedures.
12. Chemistry symbols.
13. Personnel relations (among subordinates, co-workers and supervisors).
14. Customer relations.
15. Legible handwriting.
16. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#4 Surveyor & Instrument Man (0-64)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Supervises and directs survey party.	1. Have knowledge of surveying instruments.	1. Reading of technical materials.
2. Determines and establishes exact location and measurements of points, elevations, lines, areas, and contours.	2. Good physical stamina.	2. Writing of technical materials.
3. Calculates information from notes, maps, deeds, or other records.	3. Some knowledge of drafting and mechanical drawings.	3. Elements of geometry.
4. Keeps accurate notes, records and sketches of work performed or data secured.	4. Knowledge of mathematics through trigonometry.	4. Elements of trigonometry.
5. Adjusts surveying instruments.		5. Map reading.
6. Plans work of survey party.		6. Customer relations.
		7. Legible handwriting.
		8. Surveying principles.
		9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		10. Schematic reading.
		11. Titles, warranty deeds, and related sales instruments.
		12. Elements of algebra.

#5 Embalmer (0-65)

A

Duties performed:

1. Prepares bodies for burial in conformity with state laws.
2. Washes body with germicidal soap.
3. Sews lips shut and packs body orifices with cotton to prevent leakage.
4. Drains blood from body and replaces it with embalming fluids.
5. Punctures internal organs through abdomen and removes gases.
6. Closes incision and dresses body.
7. Applies cosmetics to restore natural complexion.
8. Places body in coffin.
9. Restores maimed or disfigured bodies to normal appearance with molding wax, plaster of Paris, or other material.

B

Knowledge or skills required:

1. Requires manual and finger dexterity.
2. Recommended training in high school: physiology, chemistry, psychology, English, and public speaking.
3. Desirable attributes are a quality of sympathy, courtesy, tact, honesty and emotional stability.
4. Must be licensed in most states.
5. Must have knowledge of embalming fluids and their use.
6. Must have knowledge of sanitation procedures.

C

Curricular elements planned:

1. Reading of technical materials.
2. Arithmetic.
3. Personal grooming.
4. Sanitation principles.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.)
8. Laboratory procedure.

#6 Electronics Technician (0-67)

A

Duties performed:

1. Applies electronic theory, principles of electrical circuits, electrical testing procedures, engineering mathematics, physics, and related subjects to lay out, build, test, trouble-shoot, repair, and modify developmental and production electronic equipment.
2. Discuss layout and assembly problems with electronic engineer.
3. Draw sketches to clarify design details and functional criteria of electronic units.
4. Assemble experimental circuitry (breadboard) or complete prototype models according to engineering instructions, technical manuals, and knowledge of electronic systems and components and their functions.
5. Recommend changes in circuitry or installation specifications to simplify assembly and maintenance.
6. Set up standard test apparatus or contrive test equipment and circuitry.
7. Conduct functional, operational, environmental, and life tests to evaluate performance and reliability of prototype or production model.
8. Analyze and interpret test data.
9. Adjust, calibrate, aline, and modify circuitry and components and record effect on unit performance.
10. Write technical reports and develop charts, graphs, and schematics to describe and illustrate systems, operating characteristics, malfunctions, deviations from design specifications, and functional limitations for consideration by professional engineering personnel in broader determinations affecting systems design and laboratory procedures.
11. Operate bench lathes, drills, and other machine tools to fabricate non-procurable items such as coils, terminal boards, and chassis.
12. Check out newly installed equipment to evaluate system performance under actual operating conditions.
13. Instruct and supervise lower-grade personnel.

B

Knowledge or skills required:

1. Algebra.
2. Trigonometry.
3. Physics.
4. Principles of electronics.
5. Circuit Theory.
6. Circuit Testing.
7. Circuit tuning.
8. Basic electricity.
9. Fundamentals of batteries, motors, and generators.
10. Lab practice in proper use of hand tools.
11. Communications.
12. Records and reports.
13. Drafting.
14. Blueprints.
15. Layouts.
16. Schematics.

C

Curricular elements planned:

1. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
2. Reading of technical materials.
3. Writing of technical materials.
4. Safety principles.
5. Elements of trigonometry.
6. Basic electricity.
7. Basic electronics.
8. Use of hand tools (mech.).
9. Use of electrical testing equipment.
10. Laboratory procedure.
11. Schematic reading.
12. Blueprint reading.
13. Mechanical drawing.
14. Personnel relations (among subordinates, co-workers and supervisors).
15. Soldering.
16. Legible handwriting.
17. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
18. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
19. Graph, chart, other visual construction.
20. Supervision of personnel.

#7 Technician N. E. C. (0-68)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Plans production schedule.	1. Knowledge of blueprints.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Examines production blueprints.	2. Knowledge of plant production and products.	2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Consults plant capacity data.	3. Knowledge of plant layout.	3. Reading of technical materials.
4. Schedules work for individual department and operations in proper sequence.	4. Knowledge of scheduling and routing.	4. Writing of technical materials.
5. Plans flow of work through plant.	5. Knowledge of raw materials used by plant.	5. Arithmetic.
6. Determines available raw materials.	6. Ability to work with others.	6. Record keeping.
7. Assists department supervisors in maintaining smooth flow of production.	7. Have legible handwriting.	7. Schematic reading.
8. Expedites operations to avoid delay in schedules.	8. Have good form and spatial perception.	8. Personnel relations (among subordinates, co-workers and supervisors).
9. Alters schedules to meet emergencies.	9. Ability to work with data.	9. Legible handwriting.
10. Reports major difficulties to supervisor.		10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
11. Prepares production reports.		11. Mechanical principles.
		12. Blueprint reading.
		13. Safety principles.

#8 Hotel and Restaurant Manager (0-71)

A

Duties performed:

1. Manages hotel and supervises staff.

2. Prorates costs, purchases supplies and supervises publicity procedures.

3. Formulates policy concerning credit, personnel, rates, departmental jurisdiction, publicity and type of trade desired.

4. Responsible for the profitable administration of the hotel's activities.

B

Knowledge or skills required:

1. Must be alert, neat, and possess superior ability to get along with all kinds of people.

2. Must be mentally alert and capable of formulating policy.

3. Must understand the principles of leadership and business administration.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Business mathematics.
4. Negotiable instruments (checks, notes, drafts, etc.).
5. Food planning and preparation.
6. Payroll procedures.
7. Personal grooming.
8. Record keeping.
9. Business correspondence.
10. Bookkeeping principles.
11. Advertising principles.
12. Sanitation principles.
13. Personnel relations (among subordinates, co-workers and supervisors).
14. Customer relations.
15. Supervision of personnel.
16. Management of personnel (interview, selection, promotion, policy formulation).
17. Cost estimates.
18. Cost analysis.
19. Telephone procedures.
20. Leadership ability.
21. Workmanship attitudes (enthusiasm, initiative, drive, etc.)

#9 Retail Manager (0-72)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Supervise sales, maintenance, clerical and other non-selling employees.	1. Business administration.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.)
2. Make reports.	2. Accounting.	2. Filing systems.
3. Take and verify inventories.	3. Economics.	3. Business mathematics.
4. Purchase or requisition goods.	4. Purchasing.	4. Payroll procedures.
5. Handle receipts.	5. Personnel management.	5. Personal grooming.
6. Ascertain that premises and stock are neat and clean.	6. Merchandising.	6. Record keeping.
7. Plan work and promote sales or supervise other workers in performing these duties.	7. Principles of retailing and retail selling.	7. Graph, chart, other visual construction.
	8. Public relations.	8. Business correspondence.
		9. Bookkeeping principles.
		10. Salesmanship principles (demonstration and selling).
		11. Advertising principles.
		12. Display principles (color, form, balance, etc.).
		13. Personnel relations (among subordinates, co-workers and supervisors).
		14. Customer relations.
		15. Supervision of personnel.
		16. Management of personnel (interview, selection, promotion, policy formulation).
		17. Cost estimating.
		18. Cost analysis.
		19. Telephone procedures.
		20. Marketing procedures.
		21. Leadership ability.
		22. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#10 Wholesale Manager (0-73)

A

Duties performed:

1. Estimates needs of firms.
2. Purchases or authorizes purchases of merchandise.
3. Supervises assembling of goods into lots.
4. Supervises distribution of goods through sales outlets.
5. Extends credit to purchasers.
6. Advises customers on market.
7. Grades merchandise.

B

Knowledge or skill required:

1. Wide knowledge of market and products traded.
2. Ability to make analytical judgements.
3. Knowledge of personnel procedures.
4. Knowledge of credit procedures.
5. Knowledge of economics.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Filing systems.
4. Business mathematics.
5. Negotiable instruments (checks, notes, drafts, etc.).
6. Contracts.
7. Payroll procedures.
8. Personal grooming.
9. Record keeping.
10. Graph, chart, other visual construction.
11. Business correspondence.
12. Bookkeeping principles.
13. Salesmanship principles (demonstration and selling).
14. Advertising principles.
15. Display principles (color, form, balance, etc.).
16. Personnel relations (among subordinates, co-workers, and supervisors).
17. Customer relations.
18. Supervision of personnel.
19. Management of personnel (interview, selection, promotion, policy formulation).
20. Cost estimating.
21. Cost analysis.
22. Telephone procedures.
23. Marketing procedures.
24. Leadership ability.
25. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#11 Buyer (0-74)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Purchases merchandise within budgetary limitations in sufficient quantity and with sufficient appeal to warrant its rapid and profitable resale. 2. Assigns selling price to merchandise to include reducing prices to promote the sale of surplus or slow-moving goods. 3. Travels to other cities where concentrated or special markets exist seeking suitable merchandise. 4. Meets and orders merchandise from salesmen at the store. 5. Analyzes sales statistics and customer desires. Establishes and follows a budget for his department.	1. Must understand and practice budgetary principles. 2. Must possess wide knowledge of merchandise and prices. 3. Must have an awareness of what is selling well or will sell well. 4. Must understand sales psychology. 5. Must have considerable energy, be highly competitive, possess mathematical skill and be well versed in bookkeeping principles.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.). 2. Reading of technical materials. 3. Business mathematics. 4. Negotiable instruments (checks, notes, drafts, etc.). 5. Contracts. 6. Laboratory procedure. 7. Personal grooming. 8. Record keeping. 9. Bookkeeping principles. 10. Personnel relations (among subordinates, co-workers and supervisors). 11. Customer relations. 12. Cost estimating. 13. Workmanship attitudes (enthusiasm, initiative, drive, etc.). 14. Cost analysis. 15. Marketing procedures.

#12 All Inspectors (0-79)

A

Duties performed:

1. Inspects (visual and test equipment) and oversees construction.

2. Assures that structure is built according to blueprints and detail sketches.

3. Assures that workmanship and materials comply with specifications.

4. Maintains record of status of project.

B

Knowledge or skills required:

1. Algebra.
2. Geometry.
3. Trigonometry.
4. Physics.
5. Cosntruction surveying.
6. Blueprint reading.
7. Map reading.
8. Mechanical drawing.
9. Drafting.
10. Materials testing.
11. Knowledge of construction.
12. Materials.
13. Methods.

C

Curricular elements planned:

1. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
2. Reading of technical materials.
3. Safety principles.
4. Properties of wood.
5. Properties of metal.
6. Properties of stone, brick, and concrete.
7. Blueprint reading.
8. Mechanical drawing.
9. Construction principles and codes.
10. Construction materials.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Mechanical principles.
14. Schematic reading.
15. Record keeping.
16. Legible handwriting.
17. Graph, chart, other visual construction.

#13 Credit Manager (0-85)

A
Duties performed:

1. Supervises credit and collection department.
2. Investigates credit standing of prospective customers.
3. Prepares and dictates correspondence.
4. Approves or disapproves credit requests.
5. Supervises collection of bad debts or checks.
6. Makes up collection notes to customers.
7. Keeps records of collections.
8. Prepares and submits reports to supervisor.
9. Makes personal or phone contacts with customers.

B
Knowledge or skills required:

1. Have wide knowledge of credit procedures.
2. Knowledge of business law.
3. Knowledge of office procedures.
4. Knowledge of personnel procedures.
5. Knowledge of bookkeeping.
6. Knowledge of letter writing and English usage.

C
Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Filing systems.
4. Business mathematics.
5. Negotiable instruments (checks, notes, drafts, etc.).
6. Contracts.
7. Titles, warranty deeds, and related sales instruments.
8. Personal grooming.
9. Record keeping.
10. Business correspondence.
11. Bookkeeping principles.
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Customer relations.
14. Supervision of personnel.
15. Telephone procedures.
16. Office procedures.
17. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#14 Building Superintendent (Manager) (0-87)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Directs upkeep of and manages apartment house, office or other building.	1. Must have administrative ability.	1. Safety principles.
2. Issues instructions to subordinates concerning cleaning, repair and maintenance of mechanical and electrical equipment and plumbing and structure of buildings.	2. Have knowledge of maintenance and repair requirements for buildings.	2. Filing systems.
3. Plans renovation and redecoration of building.	3. Must have some knowledge of redecorating.	3. Record keeping.
4. Maintains adequate safety protection for public and for building occupants by directing elimination of fire or other hazards, providing necessary fire extinguishing equipment and insuring accessibility to fire escapes.	4. Must be aware of state and local safety regulations concerning fire fighting equipment and fire exits.	4. Blueprint reading.
5. Provides special services such as labor for interoffice moving, and makes arrangements for additional lighting, heating and ventilating equipment as necessary.	5. Must have sufficient knowledge of bookkeeping to keep an account of costs and expenditures.	5. Sanitation principles.
6. Keeps records of labor and materials costs for operating building and issues reports to owners or managing agents.	6. Must be capable of supervising subordinate personnel.	6. Construction principles and codes.
7. May make up payroll.		7. Personnel relations (among subordinates, co-workers and supervisors).
		8. Customer relations.
		9. Supervision of personnel.
		10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		11. Personal grooming.

#15 Purchasing Agent (0-91)

46

A

Duties performed:

1. Purchase (consider such factors as exact specifications, price, quality, quantity, discounts, transportation cost, and delivery time) at the most favorable price consistent with quality, quantity, and other factors, raw materials, equipment, services and supplies required by companies and organizations to carry on their operations.
2. Interview selling agents of other establishments.
3. Draw up contracts and specifications (bids) or approve contracts and specifications drawn up by technical workers.
4. Approve bills for payment.
5. Keep records pertaining to purchases, costs, delivery, inventories, and other items pertaining to purchases.
6. Approve requisitions.
7. Examine sample goods.
8. Watch demonstration of equipment.

B

Knowledge or skills required:

1. Business administration.
2. Accounting.
3. Economics.
4. Purchasing.
5. Warehousing.
6. Traffic.
7. Knowledge of company's operation and purchasing procedures.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Business mathematics.
4. Negotiable instruments (checks, notes, drafts, etc.).
5. Contracts.
6. Personal grooming.
7. Record keeping.
8. Graph, chart, other visual construction.
9. Business correspondence.
10. Bookkeeping principles.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Cost estimating.
13. Cost analysis.
14. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
15. Reading of technical material.
16. Titles, warranty deeds, and related sales instruments.
17. Customer relations.

#16 Inspector, Public Service (0-95)

A

Duties performed:

1. Exercises direct supervision over vessels entering district or goods being transported.
2. Reports all violations to superior.
3. Inspects and searches vessels to determine nature of cargo.
4. Seals ship's stores to prevent sale of dutiable goods.
5. Supervises unloading of cargo.
6. Weighs, inspects, gauges or measures imported goods.
7. Examines papers of ships.
8. Examines baggage of passengers.
9. Takes sample of cargo.

B

Knowledge or skills required:

1. Wide knowledge of laws relating to imports and immigration.
2. Ability to work under stress and time limits.
3. Ability to work harmoniously with others.
4. Wide knowledge of products.
5. Wide knowledge of weights and measures.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Personal grooming.
3. Personnel relations (among subordinates, co-workers, and supervisors).
4. Customer relations.
5. Legible handwriting.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#17 Manager and Official, Production (0-97)

A

Duties performed:

1. Is responsible for the efficient management of an industrial corporation.

2. Coordinates the operation of production, distribution, and selling departments.

3. Determines administrative policies and executes them through subordinate managers.

4. Meets with colleagues to discuss problem areas and means of promoting a smoother operation.

5. Bases decisions on general knowledge of company policy and procedure.

6. Must develop and carry out effective solution to complex administrative problems.

B

Knowledge or skills required:

1. Know capability and limitations of computer technology.

2. Have skill in oral and written communications.

3. Must have supervisory and management skills.

4. Have wide knowledge of business procedures.

5. Must have ability to meet and impress people.

6. Must possess an extensive business education.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, puncuation, vocabulary, spelling, etc.).
3. Reading of technical materials.
4. Safety principles.
5. Business mathematics.
6. Elements of statistics.
7. Negotiable instruments (checks, notes, drafts, etc).
8. Contracts.
9. Payroll procedures.
10. Personal grooming.
11. Record keeping.
12. Graph, chart, other visual construction.
13. Business correspondence.
14. Personnel relations (among subordinates, co-workers and supervisors).
15. Management of personnel (interview, selection, promotion, policy formulation).
16. Speech preparation and delivery.
17. Cost analysis.
18. Production management.
19. Leadership ability.
20. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
21. Titles, warranty deeds and related sales instruments.
22. Supervision of personnel.

#18 Official, Finance, Realty and Insurance (0-98)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Acts as executive officer of bank.	1. Business administration.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Administer policies formulated by board of directors.	2. Banking.	2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Represent directorate in transacting bank business.	3. Accounting.	3. Business mathematics.
4. Approve loans or consult with loan committees.	4. Economics.	4. Elements of statistics.
5. Collect debts due bank.	5. Commercial law.	5. Negotiable instruments (checks, notes, drafts, etc.).
6. Buy and sell collateral.	6. Finance.	6. Contracts.
7. Appraise lands, crops, animals and business enterprises.	7. Political science.	7. Titles, warranty deeds, and related sales instruments.
8. Manage bank.	8. Statistics.	8. Payroll procedures.
9. Supervise subordinate officers.		9. Personal grooming.
		10. Record keeping.
		11. Business correspondence.
		12. Bookkeeping principles.
		13. Personnel relations (among subordinates, co-workers and supervisors).
		14. Customer relations.
		15. Supervision of personnel.
		16. Management of personnel, (interview, selection, promotion, policy formulation).
		17. Legible handwriting.
		18. Speech preparation and delivery.
		19. Cost estimating.
		20. Cost analysis.
		21. Marketing procedures.
		22. Insurance principles.
		23. Office procedures.
		24. Investment principles.
		25. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		26. Leadership abilities.

#19 Manager N.E.C. (0-99)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Supervises operation of an institution.	1. Knowledge of personnel procedures.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Coordinates the operating units.	2. Knowledge of business law.	2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Maintains prescribed standards.	3. Knowledge of bookkeeping.	3. Safety principles.
4. Hires and discharges personnel.	4. Ability to organize and coordinate activities of workers.	4. Business mathematics.
5. Maintains records of income and expenses.	5. Have legible handwriting.	5. Negotiable instruments (checks, notes, drafts, etc.).
6. Prepares reports for Board of Trustees.		6. Contracts.
7. Inspects buildings and facilities and makes recommendations for improvement.		7. Payroll procedures
8. Prepares budget for operating plant.		8. Personal grooming.
		9. Record keeping.
		10. Business correspondence.
		11. Bookkeeping principles.
		12. Sanitation principles.
		13. Personnel relations (among subordinates, co-workers and supervisors).
		14. Management of personnel (interview, selection, promotion, policy formulation).
		15. Cost analysis.
		16. Office procedures.
		17. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		18. Supervision of personnel.
		19. Leadership ability.

#20 Bookkeeper and Clerical (1-01)

A

Duties performed:

1. Keeps complete and systematic set of records of business transactions of an establishment.

2. Examines and records transactions in record books and on forms.

3. Balances books and compiles reports at regular intervals to show receipts, expenditures, accounts payable, accounts receivable, profit or loss, and many other items pertinent to the operation of a business.

4. Calculates wages for employees from plant records or time cards, and makes up checks.

B

Knowledge or skills required:

1. Know how to set up a complete set of books.

2. Know how to make up a payroll.

3. Have knowledge of all phases of arithmetic.

4. Must be able to write legibly.

5. Must be clean and neat.

C

Curricular elements planned:

1. Filing systems.
2. Office machine operation.
3. Business mathematics.
4. Negotiable instruments (checks, notes, drafts, etc.).
5. Payroll procedures.
6. Personal grooming.
7. Record keeping.
8. Bookkeeping principles.
9. Personnel relations (among subordinates, co-workers and supervisors).
10. Legible handwriting.
11. Office procedures.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Arithmetic.
14. Typewriting.

#21 Machine Bookkeeper (1-02)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Keeps records of business transactions using various types of key operated bookkeeping machines.	1. Reading comprehension and speed.	1. Filing systems.
2. Transfer desired data onto bookkeeping forms by depressing machine keys to type items such as names, addresses, purchases, sales and services rendered, and to calculate totals, net amounts, and other items, and to record final computations.	2. Commercial arithmetic.	2. Office machine operation.
	3. Bookkeeping methods.	3. Business mathematics.
	4. Memory for detail.	4. Personal grooming.
	5. Neatness and orderliness.	5. Record keeping.
	6. Finger dexterity and clerical aptitude.	6. Bookkeeping principles.
	7. Ability to do routine work.	7. Personnel relations (among subordinates, co-workers and supervisors).
		8. Office procedures.
		9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		10. Negotiable instruments (checks, notes, drafts, etc.).
		11. Typewriting.

#22 Checker (1-03)

A	B	C
Duties performed:	**Knowledge or skills required:**	**Curricular elements planned:**
1. Performs routine checking duties to insure accuracy of recorded data.	1. Knowledge of arithmetic.	1. Arithmetic.
2. Compares figures on one record against those on other records.	2. Must have clerical ability.	2. Personal grooming.
3. Corrects or records omissions or errors.	3. Must have knowledge of record keeping.	3. Personnel relations (among subordinates, co-workers, and supervisors).
4. Performs simple arithmetic computations.	4. Must have hand-eye co-ordination.	4. Legible handwriting.
		5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#23 Clerk, General (1.04)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Performs general office or clerical work requiring little or no previous experience or training.	1. Must be personable and physically presentable.	1. Filing systems.
2. Addresses envelopes, keeps simple records, delivers messages, files correspondence, assists in operation of office machines, and may do simple typing.	2. Capable of learning simple office procedures.	2. Office machine operation.
	3. Needs a degree of finger and manual dexterity.	3. Arithmetic.
		4. Typewriting.
		5. Personal grooming.
		6. Record keeping.
		7. Personnel relations (among subordinates, co-workers and supervisors).
		8. Office procedures.
		9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#24 Clerk, General Office (1-05)

A

Duties performed:

1. Performs any combination of the following clerical duties:

   files correspondence, records and reports; types letters, forms and reports; prepares bills; computes payrolls; operates calculator, adding machine, duplicator, or other office machines; compiles reports; addresses mail; takes dictation; sorts and distributes mail; tabulates and posts data in record books; keeps inventory and gives oral or written information to callers.

B

Knowledge or skills required:

1. Spelling, punctuation, and grammar.
2. Use of language or other meaningful symbols.
3. Reading comprehension and speed.
4. Legible handwriting.
5. Business arithmetic.
6. Motor coordination.
7. Memory for detail.
8. Neatness and orderliness.

C

Curricular elements planned:

1. Filing systems.
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Office machine operation.
4. Typing.
5. Payroll procedures.
6. Personal grooming.
7. Record keeping.
8. Bookkeeping principles.
9. Customer relations.
10. Legible handwriting.
11. Telephone procedures.
12. Office procedures.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
14. Oral expression (intonation enunciation, pleasantness, grammar, etc.).
15. Arithmetic.
16. Business mathematics.
17. Business correspondence.

#25 Clerk and Teller (1-06)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Receives deposits from customers.	1. Ability to deal with people using tact and courtesy.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Pays out withdrawals.	2. Good finger and manual dexterity and motor coordination.	2. Filing systems.
3. Credits or debits customer's account and makes entries in records.	3. Good clerical ability.	3. Office machine operation.
4. Writes up deposit or withdrawal slip.	4. Knowledge of bookkeeping.	4. Negotiable instruments (checks, notes, drafts, etc.).
5. Records daily transactions.	5. Knowledge of arithmetic.	5. Personal grooming.
6. Balances accounts.	6. Must be able to work with speed and accuracy.	6. Record keeping.
7. Cashes checks.	7. Must have good vision.	7. Personnel relations (among subordinates, co-workers, and supervisors).
8. Examines customer's signature to verify with recorded signature.	8. Able to use adding machine or calculator.	8. Customer relations.
9. Completes new account forms.		9. Legible handwriting.
10. Sorts checks and deposit slips.		10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		11. Arithmetic.

#26 Hotel Clerk (1-07)

A

Duties performed:

1. Registers and assigns rooms to incoming guests in small hotels.
2. Checks out departing guests and receives payment of their accounts.
3. Maintains records of reservations, rooms occupied, and guests' accounts.
4. Gives information to guests.
5. Checks room keys and valuables.
6. Receives and distributes mail, telegrams, and packages.
7. Notifies housekeeper of arrivals and departures.
8. May sell tobacco or newspapers.
9. In large hotels, rents and assigns rooms, arranges transfer of registered guests to other rooms, checks out guests, time-stamps bills, and refers guests to cashier for payment.
10. May supervise bellmen, telephone operator and elevator operators.

B

Knowledge or skills required:

1. Needs knowledge of PBX operation, typing and bookkeeping.
2. High school graduation helpful and often required.
2. Must be highly personable and present an agreeable appearance.
4. Must be neat and clean.
5. Must have ability to speak distinctly.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Personal grooming.
3. Record keeping.
4. Personnel relations (among subordinates, co-workers and supervisors.
5. Customer relations.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
7. Cost analysis.
8. Legible handwriting.
9. Arithmetic.
10. Negotiable instruments (checks, notes, drafts, etc.).
11. PBX operation.
12. Telephone procedures.

#27 Transportation Clerk (1-11)

A Duties performed:	B Knowledge or skill required:	C Curricular elements planned:
1. Performs one or any combination of the following tasks: places seals on locks of loaded freight cars and records seal number on record of freight in car; directs distribution of empty freight cars to shipper or R.R. division and issues instructions to train crews by telephone or telegraph; keeps records of changes to be made for delays in moving or unloading cars at stations; accepts reservations and assigns space in sleeping cars; checks each car of complete train before broken up, noting car number, type, owner, time of arrival, and marks each car to show switching crew disposition to be made of cars; checks in- and out-bound freight cars by number and informs crews where to spot cars for loading or unloading and shippee or consignee where cars are located; checks notices of over, short, or damaged shipments, disposes of refused or unclaimed shipments, checks reports to determine whether shippee, carrier, or consignee is at fault or in error, and reconsigns shipments that have been routed in error; receives discharges and routes express; accepts money and valuables for express shipment, issues receipts and insurance for articles, and cashes drafts, checks and money orders; arranges daily schedules and routes for streetcars or busses; and prepares switching orders for switching crews and keeps records of movement, disposition and location of all cars in yard.	1. Recording machine operating. 2. Reading comprehension and speed. 3. Filing systems and record classifying. 4. Ability to give or follow directions. 5. Manual dexterity and coordination. 6. Attention to detail.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.). 2. Safety principles. 3. Filing systems. 4. Office machine operation. 5. Arithmetic. 6. Typewriting. 7. Record keeping. 8. Personnel relations (among subordinates, co-workers, and supervisors). 9. Legible handwriting. 10. Telephone procedures. 11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#28 Clerk, in Trade (1-12)

A

Duties performed:

1. Opens new accounts for customers.
2. Interviews customers.
3. Explains various payment plans.
4. Assists customer to fill out credit forms.
5. Maintains files of applications.
6. Notifies customer of acceptance or rejection of application.
7. Adjusts complaints.
8. Writes letters to customers.
9. Checks references of customers.

B

Knowledge or skills required:

1. Able to write legibly.
2. Knowledge of elementary bookkeeping.
3. Ability to deal with people tactfully.
4. Must have clerical ability.
5. Must have good vision.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Filing systems.
3. Arithmetic.
4. Typewriting.
5. Personal grooming.
6. Record keeping.
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Customer relations.
9. Legible handwriting.
10. Telephone procedures.
11. Office procedures.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Written expression (grammar, punctuation, vocabulary, spelling, etc.).

#29 Collector. (1-15)

A

Duties performed:

1. Makes collections from customers on overdue accounts.

2. May repossess merchandise.

3. May trace customers who have changed address without notification.

4. May keep records of status of all accounts.

B

Knowledge or skills required:

1. Must be personable and capable of speaking persuasively.

2. Must possess forceful personality.

3. Has need of sufficient arithmetic and bookkeeping to keep a record of accounts.

4. Must be clean and neat.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Contracts.
5. Personal grooming.
6. Record keeping.
7. Business correspondence.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Customer relations.
10. Legible handwriting.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
12. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
13. Negotiable instruments (checks, notes, drafts, etc.).

#30 File Clerk (1-17)

A

Duties performed:

1. Keeps correspondence, cards, invoices, receipts, or other records arranged systematically by alphabet, code number, name or subject matter in file cabinets, drawers, boxes or cases.
2. Indexes files for ready reference.
3. Sorts incoming materials for filing; locates and removes material from files when requested.
4. Performs clerical work in searching for and investigating information in files, inserting additional data on file records, keeping files current, which may require making calculations.
5. Supplies written information from filed data on request.

B

Knowledge or skills required:

1. Reading comprehension and speed.
2. Typing.
3. Sorting and classifying information.
4. Attention to detail.
5. Manual and finger dexterity.
6. Ability to follow directions.

C

Curricular elements planned:

1. Filing systems.
2. Record keeping.
3. Personnel relations (among subordinates, co-workers, and supervisors).
4. Legible handwriting.
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
6. Arithmetic.

#31 Clerk, General Industry (1-18)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Answers customer correspondence.	1. Knowledge of office procedure.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Receives orders for material or merchandise by mail, phone or personally from customer.	2. Ability to work with public.	2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Gives or sends price quotations to customers.	3. Knowledge of arithmetic.	3. Personal grooming.
4. Completes order form listing items making up order.	4. Good finger dexterity and hand-eye coordination.	4. Arithmetic.
5. Distributes order sheets to departments, to be filled.	5. Ability to work rapidly and accurately.	5. Business correspondence.
6. Checks prices and quantity of each item listed on order.	6. Liking for and ability to perform repetitive routine tasks.	6. Personnel relations (among subordinates, co-workers, and supervisors).
7. Checks with credit department for customer.		7. Customer relations.
		8. Legible handwriting.
		9. Telephone procedures.
		10. Office procedures.
		11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
		12. Filing systems.

#32 Messenger and Office Boy (1-23)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Performs a variety of minor clerical and routine unskilled duties in a business office.	1. Must be neat and clean.	1. Filing systems.
2. Furnishes other workers with clerical supplies from stock, delivers verbal and written messages, seals and stamps envelopes, runs errands, distributes and collects mail, assists in tabulating and marking articles, answers phone, assists in filing and operating simple office machines such as the transcribing machine, letter opener, envelope-sealing machine, and stamping machine.	2. Should be personable, willing, and easy to get along with.	2. Office machine operation.
	3. Must be active and alert.	3. Arithmetic.
		4. Laboratory procedure.
		5. Personnel relations (among subordinates, co-workers, and supervisors).
		6. Telephone procedures.
		7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#33 Office Machine Operator (1-25)

A

Duties performed:

1. Operates manual or electrically operated adding or calculating machines by striking numbered keys to make computations needed to prepare payroll, invoices, or to do other statistical work.
2. Uses adding machine to add, subtract, and multiply numbers.
3. Uses calculating machine to add, subtract, multiply, divide, take square root, or do other computations.
4. Prepares statements on billing machine by striking lettered or numbered keys to record name, address, items purchased and amount of money involved in transaction.
5. Depresses other keys to calculate and print totals, discounts and other items.
6. Operates mail preparing and handling machines by feeding incoming mail into machine to open envelopes.
7. Places outgoing mail on machine loading racks to fold enclosures and/or to insert them into envelopes or to seal, address or stamp envelopes.
8. Makes copies of written, printed or typewritten documents by inserting master copy into machine, or placing stencil, mat or raised type on machine, adjusts the mechanism, and starts machine.
9. Punches holes in cards to record items of information by striking keys on key punch machine.
10. Feeds cards into sorting machine to sort them in desired order.
11. Inserts batches of cards into tabulating machine to count items of information, make calculations and print results or records.
12. Keeps the machine properly adjusted to make legible copies.

B

Knowledge or skill required:

1. Motor coordination.
2. Business arithmetic.
3. Speed and accuracy in making mathematical computations.
4. Reading comprehension and speed.
5. Neatness and orderliness.
6. Finger dexterity.
7. Mechanical ability.

C

Curricular elements planned:

1. Office machine operation.
2. Arithmetic.
3. Business mathematics.
4. Typewriting.
5. Personal grooming.
6. Personnel relations (among subordinates, co-workers, and supervisors.).
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#34 Timekeeper (1-26)

A	B	C
Duties performed:	Knowledge or skill required:	Curricular elements planned:
1. Keeps daily record of employees' arrival and departure.	1. Able to write legibly.	1. Office machine operation.
2. Fills out time sheet and time cards.	2. Able to operate office machines.	2. Arithmetic.
3. Supervises use of time clock.	3. Knowledge of arithmetic.	3. Record keeping.
4. Computes time worked by each employee.	4. Knowledge of office procedure.	4. Bookkeeping principles.
5. Computes payroll.	5. Have finger dexterity and hand-eye coordination.	5. Personnel relations (among subordinates, co-workers, and supervisors).
6. Keeps record of materials used and their cost.		6. Legible handwriting.
7. Notifies workers when to appear for work.		7. Office procedures.
8. Pays employees with check or cash.		8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
9. Operates adding machine or calculator.		9. Filing systems.

#35 Postal Clerk (1-27)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Sells postage stamps, money orders, postal cards and stamped envelopes. 2. Sells postal savings certificates and U.S. saving bonds. 3. Registers, insures, and computes mailing costs of letters and parcels. 4. Sorts mail and distributes incoming mail to separate stations or branch offices and carrier routes in accordance with established schemes. 5. Prepares record of daily transactions. 6. Receives complaints concerning mail delivery, mail theft, and lost mail and fills out appropriate forms to initiate proper investigation. 7. Posts circulars on bulletin board for public information. 8. May assist persons filling out applications for social security accounts or register aliens and assist them in making application for alienship. 9. May drive light vehicle to deliver special delivery letters or pick up mail from letter boxes in given area. 10. Cancels outgoing mail by operating an electric cancelling machine.	1. Must be physically capable of handling mail sacks weighing up to eighty pounds. 2. Average finger dexterity and normal vision required. 3. Must be capable of maintaining a courteous attitude toward the public. 4. High school graduation usually required, but some exceptions made. 5. Must have ability in arithmetic sufficient for computing postage and making change. 6. Must have the learning ability to learn the laws as they apply to the post office.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.). 2. Filing systems. 3. Arithmetic. 4. Personal grooming. 5. Record keeping. 6. Personnel relations (among subordinates, co-workers, and supervisors). 7. Customer relations. 8. Legible handwriting. 9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#36 Postal Carrier (1-28)

A	B	C
Duties performed:	**Knowledge or skills required:**	**Curricular elements planned:**
1. Sorts mail according to street and street numbers.	1. Reading comprehension and speed.	1. Filing systems.
2. Delivers mail on foot with or without a mail cart, to private homes and businesses over an established route.	2. Memory for detail.	2. Arithmetic.
3. May drive vehicle to deliver mail or parcel post or to pick up mail at various locations.	3. Manual dexterity and hand-eye coordination.	3. Personal grooming.
4. Sorts mail for rural route by box number.	4. Ability to sort alphabetically.	4. Record keeping.
5. Loads truck or car with sorted mail and delivers over an established route.		5. Personnel relations (among subordinates, co-workers, and supervisors).
6. May sell stamps and determine correct amounts for parcel post on his route.		6. Customer relations.
7. On certain class rural routes may deliver packages other than mail or carry passengers for special fees.		7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#37 Physician and Dentist Assistant (1-32)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Positions patient, adjusts dental chair and drapes patient.	1. Knowledge of human physiology.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arranges dental instruments and materials.	2. Knowledge of elementary chemistry.	2. Reading of technical materials.
3. Hands instruments to dentist.	3. Knowledge of dental equipment and its care.	3. Filing systems.
4. Retracts patient's mouth to expose affected areas.	4. Knowledge of principles of oral hygiene.	4. Arithmetic.
5. Positions suction equipment in patient's mouth.	5. Knowledge of office procedure and typing.	5. Laboratory procedure.
6. Mixes amalgam and other filling materials.	6. Able to work with public tactfully and courteously.	6. Personal grooming.
7. Cleans and sterilizes instruments.	7. Knowledge of filling materials used by dentist.	7. Record keeping.
8. Assists in taking and developing X-ray films.		8. Business correspondence.
9. Determines pulse and respiration of patient under anesthetic.		9. Bookkeeping principles.
10. Keeps records of treatments administered.		10. Sanitation principles.
11. Prepares monthly statements.		11. Personnel relations (among subordinates, co-workers, and supervisors).
12. Schedules appointments.		12. Customer relations.
13. Orders supplies.		13. Legible handwriting.
14. Maintains files.		14. Telephone procedures.
		15. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#38 Secret ary (1-33)

A

Duties performed:

1. Performs general office work in relieving executives and other company officials of minor executive and clerical duties.
2. Takes dictation using shorthand or a stenotype machine.
3. Transcribes dictation and types transcription.
4. Schedules employers business appointments and reminds him of them.
5. Welcomes people entering the office and sends them to the executive or other worker as the situation requires.
6. Answers and makes phone calls.
7. Handles personal and important mail.
8. Writes routine correspondence on own initiative.
9. May supervise other clerical workers.
10. May keep a set of books.

B

Knowledge or skills required:

1. Must be pleasant, self-possessed and confident.
2. Must have a background in typing, shorthand, bookkeeping, business law, business arithmetic, office machines and be skilled in grammar and spelling.
3. Must be neat and clean.
4. Must be capable of making minor decisions.
5. Must have a degree of finger dexterity and clerical aptitude.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Filing systems.
4. Office machine operation.
5. Arithmetic.
6. Typewriting.
7. Personal grooming.
8. Record keeping.
9. Business correspondence.
10. Bookkeeping principles.
11. Shorthand.
12. Personnel relations (among subordinates, co-workers, and supervisors).
13. Customer relations.
14. Legible handwriting.
15. Telephone procedures.
16. Office procedures.
17. Workmanship attitudes (enthusiasm, initiative, drive, etc).

#39 Shipping and Receiving Clerk (1-34)

A Duties performed:	B Knowledge or skills required:	C Curricular elements planned:
1. Performs any combination of the following duties in many different industries: Assembles, packs, wraps, or creates materials, merchandise or parts for shipment to customers, branches, or plant areas by parcel post, freight, air or truck; keeps records of numbers of articles or number of packages, boxes or crates of materials shipped; makes out bills of lading, showing routes to be followed; records weights and shipping charges and keeps file of shipping records; receives incoming shipments of merchandise, materials, articles or parts and insures correctness of shipments, including articles for repair, alteration, crating or storage, by verifying them against records, such as bills of lading and storage receipts; inspects stock for defects and sorts according to amount of damage; unpacks various shipping containers; keeps records of goods received; routes incoming materials to proper departments; receives, examines, and checks goods returned to an establishment; keeps records of factors causing return; may unpack and dispose of goods as instructed after claiming damages from transportation company.	1. Reading comprehension and speed. 2. Memory for detail. 3. Business arithmetic. 4. Typing. 5. Legible handwriting.	1. Filing systems. 2. Arithmetic. 3. Typewriting. 4. Record keeping. 5. Personnel relations (among subordinates, co-workers, and supervisors). 6. Customer relations. 7. Legible handwriting. 8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#40 Technical Clerk NEC (1-35)

A

Duties performed:

1. Develop specifications for paperboard products.
2. Prepares cost estimates.
3. Assists in designing and construction.
4. Determines availability of materials and equipment.
5. Prepares or supervises preparation of samples.
6. Computes shipping rates.
7. Assists in determining best method of processing.
8. Prepares detailed production schedules.
9. Issues work orders.
10. Keeps progress records.
11. Alters product or suggests change to meet customer needs.

B

Knowledge or skills required:

1. Knowledge of drafting and use of drafting tools.
2. Knowledge of mathematics through geometry.
3. Knowledge of raw materials used and products made.
4. Ability to use adding machine and calculator.
5. Knowledge of processes used in plant.
6. Have form and spatial aptitudes.
7. Ability to work with others in teamwork projects.

C

Curricular elements planned:

1. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
2. Reading of technical materials.
3. Writing of technical materials.
4. Business mathematics.
5. Record keeping.
6. Blueprint reading.
7. Personnel relations (among subordinates, co-workers, and supervisors).
8. Customer relations.
9. Legible handwriting.
10. Cost estimating.
11. Cost analysis.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#41 Stenographer and Typist (1-37)

A	B	C
Duties performed:	Skill or knowledge required:	Curricular elements planned:
1. Takes dictation in shorthand or by use of stenotype machine.	1. Must have skill in typing and shorthand.	1. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
2. Transcribes dictated material using a typewriter.	2. Training in business machines and office procedures desirable.	2. Filing systems.
3. May perform a variety of related clerical duties such as filing or typing.	3. High school graduation usually required but some exceptions are made.	3. Office machine operation.
	4. Needs skill in grammar and spelling.	4. Arithmetic.
	5. Must be neat and clean.	5. Typewriting.
	6. Must have a degree of finger dexterity.	6. Personal grooming.
		7. Shorthand.
		8. Personnel relations (among subordinates co-workers and supervisors).
		9. Legible handwriting.
		10. Office procedures.
		11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#42 Stock Clerk (1-38)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Receives, stores, and issues equipment, tools, or material in a stockroom, toolroom, or warehouse.	1. Reading comprehension and speed.	1. Arithmetic.
2. Checks orders against items as listed on invoices or requisitions, grading, counting or weighing the articles.	2. Legible handwriting.	2. Record keeping.
3. Fills requisitions.	3. Business arithmetic.	3. Personnel relations (among subordinates, co-workers, and supervisors).
4. Stores supplies in bins, on floor, or shelves conveniently for removal when needed.	4. Eye-hand coordination.	4. Car or truck operation.
5. Marks articles with identifying codes, figures, or letters.	5. Memory for detail.	5. Legible handwriting.
6. Takes, or keeps perpetual inventory of stock on hand and makes reports.	6. Neatness or orderliness.	6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
7. Orders supplies as needed.		
8. May make minor repairs or adjustments to articles in stock.		
9. May distribute stock to workers on production work.		
10. May drive truck to pick up and deliver parts or supplies to units in other buildings.		

#43 Switchboard Operator (1-42)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Operates cordless or corded switchboard.	1. Have good finger and manual dexterity.	1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Manipulates keys to make connections, to relay calls, and ring phones.	2. Be able to use typewriter, adding machine or other office machines.	2. Typewriting.
3. Plugs "jacks" in holes to make connection.	3. Have high degree of self-control in dealing with public.	3. Personnel relations (among subordinates, co-workers, and supervisors).
4. Gives information to callers or takes messages.	4. Have legible handwriting.	4. Customer relations.
5. Keeps records of calls made, toll charges, and other pertinent information.	5. Knowledge of office procedure and letter writing.	5. Telephone procedures.
6. Performs clerical duties as proof reading, typing and sorting.	6. Pleasant voice.	6. PBX operation.
	7. Emotional control.	7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
	8. Good judgment.	

#44 Agent and Appraiser (1-48)

A

Duties performed:

1. Makes appraisals of real property.
2. Inspects property and prepares a complete description.
3. Obtains a legal description of property and compares it with the actual property to insure the legal description is the same as the property being appraised.
4. Notes the style, age, and quality of construction of all buildings.
5. Describes plumbing and electrical installations and other equipment.
6. Records, analyzes and evaluates amount of rent received and operating expenses involved for income property.
7. Considers such factors as accessibility, street pattern, topography, soil conditions, availability of utilities and transportation facilities.
8. Locates schools, churches and shops when appraising residential property.
9. Checks zoning restrictions, age, size, quality and price range of surrounding properties.
10. Checks recent sales in the vicinity of property being appraised and compares values.
11. Compiles material and sets a definite evaluation.
12. Submits reports to corroborate value established.

B

Knowledge or skill required:

1. Must be personable and tactful.
2. Must be confident and have ability to instill confidence and trust.
3. Must be able to make arithmetical calculations, read and interpret engineering and construction drawings, read maps, and make sound decisions.
4. Must have a reasonably high ability in oral and written communications.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Arithmetic.
4. Business mathematics.
5. Contracts.
6. Titles, warranty deeds, and related sales instruments.
7. Personal grooming.
8. Record keeping.
9. Map reading.
10. Blueprint reading.
11. Graph, chart, other visual construction.
12. Business correspondence.
13. Construction principles and codes.
14. Construction materials.
15. Personnel relations (among subordinates, co-workers and supervisors).
16. Customer relations.
17. Legible handwriting.
18. Cost estimating.
19. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#45 Miscellaneous Clerk, N. E. C. (1-49)

A

Duties Performed:

1. Processes documents, writes checks and purchase orders to satisfy requirements of contracts for lease or purchase of oil, gas, and mineral rights (Title Clerk).
2. Determines from maps and sketches the necessary easements for construction or relocation of gas, electric, or steam lines.
3. Draws up papers, such as agreements, permits and leases (Right-of-Way).
4. Chalks up racing information on sheets in bookmaking establishment.
5. Computes winnings due bettors, cashes winning tickets and balances cash received and paid out (Sheet Writer).
6. Relays instructions by telegraph or telephone to pumping stations on movement of oil through pipe lines.
7. Types reports and orders (Dispatcher, Relay).
8. Enrolls persons for voting, citizenship application or other purposes on forms.
9. Keeps records.
10. May fingerprint (Registration Clerk).
11. Scores examination papers, computes grades and records on grade cards.
12. Stores and issues test supplies and equipment.
13. Administers tests (Grading Clerk).
14. Obtains personal information from applicants for licenses.
15. Conducts oral and written or performance tests.
16. Issues drivers, auto, liquor or other licenses (License Clerk).
17. Keeps records of broadcasting station schedules and arranges for leasing of wires.
18. Prepares permanent record of all broadcasting and sends hook-up requirements to phone company (Program Transmission Supervisor).
19. Maintains time records, compiles payrolls, orders materials and keeps inventory at construction site office (Field Clerk).

B

Knowledge or skill required:

1. Legible handwriting.
2. Typing.
3. Reading comprehension and speed.
4. Memory for detail.
5. Poise and tact.
6. Liking for people.
7. Eye-hand coordination.
8. Business arithmetic.
9. Facility in using language or meaningful symbols.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Filing systems.
4. Arithmetic.
5. Typing.
6. Negotiable instruments notes, drafts, checks, etc.).
7. Personal grooming.
8. Record keeping.
9. Personnel relations (among subordinates, co-workers, and supervisors)
10. Customer relations.
11. Legible handwriting.
12. Telephone procedures.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#46 Demonstrator (1-56)

A

Duties performed:

1. Creates buying interest in product through demonstration.
2. Gives sales talk on product.
3. Demonstrates preparation of product or the use of the product.
4. Performs duties of salesperson.
5. Displays product.
6. Sells product to customer.
7. Emphasizes chief points about product.
8. Writes up sales slips or sales contract.
9. Receives payment and makes change.

B

Knowledge or skill required:

1. Must have pleasant speaking voice.
2. Knowledge of product.
3. Knowledge of selling.
4. Know how to develop product effectively.
5. Be able to work rapidly and accurately.
6. Be able to work with public tactfully and courteously.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Personal grooming.
3. Salesmanship principles (demonstration and selling).
4. Display principles (color, form, balance, etc.).
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#47 Insurance Sales (1-57)

A

Duties performed:

1. Sells various types of insurance protection such as health and life insurance and accident or liability protection.

2. Discusses different types of insurance policies with prospective customer and advises him on insurance needs.

3. Prepares reports of activities, maintains records, and performs other office work.

4. Assists policyholders with benefit claims and changes in insurance coverage or beneficiaries as required.

B

Knowledge or skill required:

1. Must have confident manner and like dealing with people.

2. Must be personable, neat, and clean.

3. Must have considerable ability in oral communication.

4. Must have ability to instill confidence in others.

5. Must be able to make use of insurance tables and have a thorough knowledge of the law as applied to insurance sales.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Business mathematics.
4. Negotiable instruments (checks, notes, drafts, etc.).
5. Personal grooming.
6. Record keeping.
7. Business correspondence.
8. Salesmanship principles (demonstration and selling).
9. Personnel relations (among subordinates, co-workers, and supervisors).
10. Customer relations.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
12. Telephone procedures.
13. Insurance principles.
14. Legible handwriting.
15. Contracts.

46 Real Estate Sales (1-63)

A

Duties performed:

1. Lists real estate for buyers or sellers.
2. Handles transactions for transfer of properties.
3. Acquires properties to sell, rent, lease, or subdivide.
4. Gets clients through referrals, advertising, door-to-door or telephone canvassing, legal notices, and former buyers and sellers.
5. Makes estimates of market value of property.
6. Arranges for clients to inspect properties.
7. Points out advantages and disadvantages of property.
8. Writes contracts for transactions, applying knowledge of laws and legislation and finance regulations.
9. Shows amounts of money involved by parties, where they apply, and reasons for regulations.

B

Knowledge or skill required:

1. Language facility and fluency.
2. Tact, poise and persuasiveness.
3. Drive and initiative.
4. Mental alertness.
5. Business arithmetic.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Business mathematics.
4. Negotiable instruments (checks, notes, drafts, etc.).
5. Contracts.
6. Titles, warranty deeds, and related sales instruments.
7. Personal grooming.
8. Map reading.
9. Business correspondence.
10. Salesmanship principles (demonstration and selling).
11. Advertising principles.
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Customer relations.
14. Legible handwriting.
15. Telephone procedures.
16. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#49 Sales Securities (1-65)

A

Duties performed:

1. Gives information on stocks, bonds, and other securities.
2. Advises customers on market conditions and prospects of various corporations.
3. Transmits buy or sell orders to trading office.
4. Maintains lists of customers and contacts them personally or by phone or writing.

B

Knowledge or skills required:

1. Knowledge of stock market.
2. Knowledge of methods of selling securities.
3. Knowledge of personnel procedures.
4. Knowledge of financial organizations.
5. Knowledge of arithmetic.
6. Must be personable, articulate, and well groomed and have initiative and integrity.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Negotiable instruments (checks, notes, drafts, etc.).
3. Contracts.
4. Personal grooming.
5. Record keeping.
6. Business correspondence.
7. Salesmanship principles (demonstration and selling).
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Customer relations.
10. Legible handwriting.
11. Telephone procedures.
12. Investment principles.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
14. Business mathematics.

#50 Counter Sales (1-70)

A

Duties performed:

1. Receives payment for articles selected by customer.
2. Wraps or bags articles, makes change and makes out sales slip.
3. Keeps merchandise neatly arranged on counter.
4. Informs customers where various items may be found.

B

Knowledge or skills required:

1. Must have a pleasing personality.
2. An interest in sales work.
3. Neat and clean appearance.
4. The ability to express themselves well.
5. Must be able to make change and make out sales slip.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Personal grooming.
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Customer relations.
6. Legible handwriting.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
8. Salesmanship principles. (demonstration and selling).

#51 Sales Specialty (1-75)

A

Duties performed:

1. Displays, explains and sells one special line of merchandise, such as shoes, women's garments, automobile parts or china and glassware, to customers on sales floor.
2. Assists customer in making selections by suggestions and explanations.
3. Emphasizes selling points, such as style, quality, durability, utility, taste,freshness or price.
4. Shows or tells how to use article.
5. Writes sales slip or contract, receives credit or authorization and gives wrapped article to customer or arranges for delivery.
6. Cares for stock on sales floor and requisitions replacements.

P

Knowledge or skills required:

1. Pleasant speaking voice.
2. Mental alertness.
3. Language facility and fluency.
4. Tact,poise and persuasiveness.
5. Drive and initiative.
6. Business arithmetic.
7. Clerical aptitude.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Personal grooming.
4. Salesmanship principles (demonstration and selling).
5. Display principles (color, form, balance, etc.).
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Customer relations.
8. Legible handwriting.
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

A

Duties performed:

1. Solicits customer to demonstrate and sell merchandise.
2. Develops list of customers.
3. Communicates with prospects to arrange interview or demonstration.
4. Talks to customer on salesfloor or in customer's home.
5. Attempts to convince customer of desirability of article.
6. Appraises used model or article for trade-in value.
7. Completes sales contract.
8. Receives payment from customer.
9. Collects delinquent accounts.

B

Knowledge or skills required:

1. Knowledge of sales technique.
2. Knowledge of arithmetic.
3. Have legible handwriting.
4. Some knowledge of product.
5. Pleasing personality.
6. Must be articulate with pleasing voice.
7. Knowledge of sales procedures, sales slips, contracts, and accounts.
8. Knowledge of business law dealing with contracts.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Contracts.
4. Personal grooming.
5. Record keeping.
6. Salesmanship principles (demonstration & selling).
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Customer relations.
9. Legible handwriting.
10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
11. Business mathematics.

#53 Wholesale Salesman (1-85)

A

Duties performed:

1. Calls on retailers and sells industrial chemicals, drugs and medicines.

2. Interests prospective purchasers by showing sample articles and displaying a catalogue.

3. Points out the salable features, merchandise value, economy and other merits of the product.

4. Quotes prices and credit terms.

5. Takes orders and forwards them to home office.

6. Makes periodic reports of business transactions, keeps expense accounts, studies trade periodicals and keeps informed of price changes and other marketing conditions.
7. Usually operates in a restricted territory making periodic calls on customers.

B

Knowledge or skills required:

1. Must have friendly outgoing personality.

2. Must be neat and clean and have ability to express himself well.

3. Must have sufficient ability with arithmetic to make out orders and expense accounts.

4. Must have training in chemistry and pharmaceuticals.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Contracts.
4. Personal grooming.
5. Record keeping.
6. Salesmanship principles (demonstration & selling).
7. Advertising principles.
8. Display principles (color, form, balance, etc.).
9. Personnel relations (among subordinates, co-workers and supervisors).
10. Customer relations.
11. Legible handwriting.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Reading of technical materials.
14. Business correspondence.

#54 Wholesale Salesman (1-86)

A

Duties performed:

1. Calls on and solicits orders for merchandise from buyers in the retail market or industrial consumers.
2. Acquires a trade knowledge of and familiarity with the product sold.
3. Interests prospective purchasers by showing product or displaying a catalog.
4. Points out salable features, merchandise value, salability, economy, durability or other merits of product.
5. Quotes prices and credit terms.
6. Completes sales with hesitant purchasers by offering reduction, giving information on coming price increases or obtaining good will, perhaps by entertaining him.
7. Forwards orders to home office.
8. Makes reports of sales transactions, keeps expense accounts, studies trade periodicals and keeps informed of price changes and market conditions.
9. Arranges window displays or advertising signs in desirable locations.
10. Estimates costs of installing industrial equipment.

B

Knowledge or skills required:

1. Pleasant speaking voice.
2. Language facility and fluency.
3. Mental alertness.
4. Tact, poise and persuasiveness.
5. Drive and initiative.
6. Liking for people.
7. Business arithmetic.
8. Legible handwriting.
9. Clerical ability.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Contracts.
4. Personal grooming.
5. Record keeping.
6. Business correspondence.
7. Salesmanship principles (demonstration & selling).
8. Advertising principles.
9. Personnel relations (among) subordinates, co-workers and supervisors).
10. Customer relations.
11. Legible handwriting.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Reading of technical materials.
14. Business mathematics.

#55 Wholesale Salesman (1-87)

A

Duties performed:

1. Solicits display and classified advertising.
2. Calls on customers to point out advantages of his employer.
3. Prepares list of prospective customers.
4. Examines newspaper and old orders for leads to obtain new prospects.
5. Makes suggestions for display "ads."
6. Illustrates suggestions with mats and writing copy.
7. Makes suggestions for classified "ads."
8. Assists in writing copy using fewest words possible.
9. Develops special advertising campaigns.
10. Collects accounts receivable.

B

Knowledge or skills required:

1. Knowledge of advertising techniques.
2. Knowledge of layout - color schemes, and composition.
3. Knowledge of English.
4. Must be articulate, personable and well groomed.
5. Must be able to work with public using tact and courtesy.
6. Knowledge of arithmetic.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Contracts.
4. Personal grooming.
5. Record keeping.
6. Business correspondence.
7. Salesmanship principles (demonstration & selling).
8. Advertising principles.
9. Display principles (color, form, balance, etc.).
10. Personnel relations (among subordinates, co-workers and supervisors).
11. Customer relations.
12. Legible handwriting.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#56 Bartender (2-21)

A

Duties performed:

1. Mixes and serves alcoholic drinks.

2. Proportions ingredients according to formula.

3. Collects money for drinks and makes change.

4. Orders supplies.

5. Replaces empty beer kegs with full ones.

6. Washes bar, glasses and equipment.

7. Arranges bottled goods and glasses about bar to make attractive display.

B

Knowledge or skills required:

1. Must have a definite liking for people and have a pleasing personality.

2. Must have sufficient skill in arithmetic to keep account of prices and sales and to make out new orders for supplies.

C

Curricular elements planned:

1. Oral expression (intonation, pleasantness, grammar, etc.).

2. Arithmetic.

3. Personal grooming.

4. Sanitation principles.

5. Personnel relations (among subordinates, co-workers and supervisors).

6. Customer relations.

7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#57 Maid - Houseman (2-24)

A

Duties performed:

1. Performs light cleaning duties, such as dusting furniture, and removing trash from rest rooms, dressing rooms, lounges and executive offices.
2. Replenishes rest room supplies.
3. Performs minor personal services for guests (Parlormaid).
4. Performs routine cleaning and heavy lifting duties required in hotel housekeeping, such as cleaning rugs, carpets and upholstered furniture.
5. Arranges furniture; cleans rooms, lobby, lounges and lavatories; hangs draperies; cleans ashtrays; and sets up sample rooms for salesmen.

B

Knowledge or skills required:

1. Willingness to work in a service capacity.
2. Cleanliness and orderliness.
3. Dependability.
4. Courtesy and cheerfulness.

C

Curricular elements planned:

1. Personal grooming.
2. Sanitation principles.
3. Personnel relations (among subordinates, co-workers and supervisors).
4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#58 Steward - Housekeeper (2-25)

A

Duties performed:

1. Purchases or supervises the purchase of food supplies, storage and issuance of food.
2. Supervises kitchen help, except those actually cooking.
3. Arranges for banquets - securing food, equipment, and extra help.
4. Maintains records of food stores.
5. Maintains records of employees' time.
6. Hires and discharges employees.

B

Knowledge or skills required:

1. Knowledge of food and food supplies.
2. Knowledge of market conditions relative to costs of operation.
3. Knowledge of elementary bookkeeping.
4. Knowledge of personnel procedures.
5. Knowledge of arithmetic.
6. Ability to work with others in harmony.

C

Curricular elements planned:

1. Arithmetic.
2. Food planning & prep'n.
3. Personal grooming.
4. Record keeping.
5. Sanitation principles.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
8. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).

#59 Cook (2-26)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Prepares, seasons and cooks, by appropriate methods, soups, meats, vegetables, desserts, and other food stuffs such as sauces, gravies and salads.	1. Good health with a sharp sense of taste and smell required. 2. Must have average vision and hearing. 3. Must be able to withstand heat and changes from heat to cold. 4. Needs enough training in arithmetic to follow and manipulate recipes. 5. Must be able to cook and season numerous types of food for public consumption.	1. Safety principles. 2. Arithmetic. 3. Food planning and preparation. 4. Personal grooming. 5. Sanitation principles. 6. Personnel relations (among subordinates, co-workers and supervisors). 7. Customer relations. 8. Supervision of personnel. 9. Workmanship attitudes (enthusiasm, intiative, drive, etc.).

#60 Waiter - Waitress (2-27)

A

Duties performed:

1. Supervises activities of dining room employees.
2. Adjusts complaints concerning food or service.
3. Hires, discharges and instructs employees, keeps time, and makes out payroll.
4. Assists in preparing menus (Waiter, Head).
5. Sets tables and serves meals according to rules of etiquette.
6. Answers questions concerning food preparation ofproper dinner courses and correct wines (Formal).
7. Serves food to patrons in quick and efficient manner.
8. Sets tables with linen and silverware.
9. Removes dirty dishes to kitchen.
10. Cleans equipment (Waiter, Informal).
11. Serves alcoholic beverages, beer and light luncheon to patrons of bar, inn or taproom (Barmaid).
12. Serves food from steam table to patrons.
13. Slices meats, cheese and butter;prepares salads and sandwiches.
14. Cooks cereal, eggs and waffles; and makes coffee or tea.
15. Cleans counter, steam table and equipment (Counterman, Cafeteria).
16. Greets customer and takes order.
17. Repeats order to cook, and serves food.
18. Collects amount due and makes change.
19. Cuts pies and cakes; cleans counters, refrigerators and other equipment; washes dishes and sells cigars and cigarettes (Counterman, Lunchroom or Coffee Shop).

B

Knowledge or skills required:

1. Willingness to work in a service capacity.
2. Cleanliness and good health.
3. Cheerful disposition.
4. Ability to follow directions.
5. Courtesy.
6. Coordination.
7. Manual dexterity.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Personal grooming.
4. Sanitation principles.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Legible handwriting.
8. Workmanship attitudes (enthusiasm, intitiative, drive, etc.).

#61 Dishwasher - Cooks Helper (2-29)

A

Duties performed:

1. Scrapes dishes.
2. Washes dishes, glassware, and silverware in tubs of hot water.
3. Rinses tableware and dries with dishtowel.
4. Sorts and stacks dishes and glassware.
5. Inserts loaded trays into machine.
6. Removes trays of washed dishes.
7. Drys dishes with towel.
8. Sorts and stacks dishes.
9. Removes garbage cans from kitchen.

B

Knowledge or skills required:

1. Able to perform repetitive routine tasks.
2. Knowledge of soaps and detergents.
3. Ability to work carefully and rapidly.
4. Knowledge of dishwashing machines.
5. Knowledge of sanitary requirements.

C

Curricular elements planned:

1. Safety principles.
2. Food planning and preparation.
3. Sanitation principles.
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#62 Beautician and Barber (2-32)

A

Duties performed:

1. Cuts hair according to instructions of patron, or according to original style, shaping neckline with comb and scissors or clippers.
2. Shaves patron's neck.
3. Shampoos, dries and recombs hair, applying tonic on request.
4. Gives scalp treatments.
5. Shaves male patrons, trims beards and mustaches, and gives facial massages.
6. Removes superfluous hair from eyebrows, ears and nostrils.
7. Keeps own tools sharp.

B

Knowledge or skills required:

1. Must have pleasing personality and be neat and clean.
2. Must be able to stand for long periods of time.
3. Needs good finger and manual dexterity and hand-eye coordination.
4. Must know hair styles and be capable of giving shower, hair cuts, shampoos, and facial and scalp treatments.
5. Must have a knowledge of the facial skin, muscles, nervous system and the blood supply to the face and head.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Personal grooming.
5. Sanitation principles.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Customer relations.
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#63 Practical Nurse (2-38)

A

Duties performed:

1. Performs nursing duties under supervision, in caring for patients in hospital or at home.
2. Assist patient in dressing, personal hygiene, and feeding.
3. Promotes patient's cooperation, gives information on health habits, and maintains comfortable environment.
4. Assists physician with examination or treatment.
5. Applies dressings, takes temperature, pulse, and blood pressure and records on chart, and administers prescribed medicines.
6. Keeps records of patient's food and fluid intake and output.
7. Prepares patient for surgery or obstetrics, and sets up equipment in operating or delivery room.
8. Reports any unfavorable reactions of post-operative patients or of newborn.
9. Assists in emergency treatment, such as administration of glucose, oxygen or blood.
10. Cares for newborn according to prescribed schedule and records feedings and amount of intake.
11. Prepares, sterilizes, stores and fills approved requisitions for instruments, dressings, solutions, and supplies.
12. Maintains records of items issued and posts charges against patient or department.

B

Knowledge or skills required:

1. Willingness to work in a service capacity.
2. Cleanliness and good health.
3. Cheerful disposition.
4. Ability to follow directions.
5. Courtesy.
6. Verbal aptitude, clerical aptitude and coordination.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc).
2. Arithmetic.
3. Personal grooming.
4. Record keeping.
5. Sanitation principles.
6. First aid procedures.
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Customer relations.
9. Legible handwriting.
10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
11. Reading of technical materials.
12. Laboratory procedure.

#64 Recreation Attendant (2-40)

A

Duties performed:

1. Controls mechanical riding device.
2. Instructs patron how to control device or animal.
3. Manipulates controls to start or stop device.
4. Notifies patron of expirations of period for which paid.
5. Drives device on which patrons ride.
6. Determines that patrons are safely seated.
7. Collects fare from patrons.
8. Tests equipment before rides begin.
9. Assists in caring for animals.
10. Oils, refuels, and makes repairs to equipment.

B

Knowledge or skills required:

1. Knowledge of arithmetic.
2. Knowledge of machines used for rides.
3. Knowledge of mechanics hand tools and how to use them.
4. Able to work with public tactfully and courteously.
5. Knowledge of safety rules.
6. Desire to work with people.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Personal grooming.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
8. Use of hand tools (mech.).
9. First aid procedures.

#65 Hospital Attendant (2-42)

A

Duties performed:

1. Assists professional nursing staffs in hospitals by performing routine or less skilled tasks in the care of patients.
2. Bathes and dresses patients.
3. Answers call bells, makes beds and serves food.
4. Assists patients in walking and gives alcohol rubs.
5. Cleans rooms and equipment.
6. Gives enemas, collects specimens, gives and removes bed pans.
7. Takes temperatures and checks pulse.

B

Knowledge or skills required:

1. Must be strong physically to lift and assist patients.
2. Possession of finger and manual dexterity necessary.
3. A neat, clean appearance, cheerful manner, and a genuine interest in caring for the sick are essential.
4. Must be able to understand instructions and be able to record information accurately and legibly.
5. Must be alert and have good habits of personal conduct.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Arithmetic.
3. Personal grooming.
4. Sanitation principles.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Legible handwriting.
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
9. Record keeping.
10. First aid procedures.

#66 Guard and Watchman (2-61)

A

Duties performed:

1. Guards an industrial plant, warehouse, or other property against fire, theft or illegal entry.
2. Makes periodic tours about building and grounds examining windows, doors and gates.
3. Continually watches for irregularities.
4. Registers at regular watch stations to record having made rounds.
5. Polices public parts of building, such as customers floor of a bank, betting booth at race track, or rooms and corridors of museum, to prevent violence, theft, or other irregularities.
6. Stands or walks a post observing people, alert to any suspicious actions.
7. Answers questions regarding services and directs patrons to destination.
8. Maintains order among crowds.
9. Guards messengers carrying money.

B

Knowledge or skills required:

1. Alertness.
2. Memory for detail.
3. Use of firearms.
4. Operate vehicles.
5. Willingness to face dangerous situations.
6. Manual dexterity.
7. Good coordination.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Fire fighting procedures.
4. Record keeping.
5. First aid procedures.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#67 Fireman (2-63)

A

Duties performed:

1. Rides on truck to scene of fire.
2. Connects and mans hose to play water or chemicals on fire.
3. Uses portable fire extinguisher.
4. Demolishes doors, windows or partitions to get at fire.
5. Rescues persons trapped or overcome by smoke.
6. Administers artificial respiration.
7. Drives fire truck.
8. Fills portable fire extinguishers.
9. Inspects premises after fire is extinguished to insure danger is past.
10. Inspects building and makes suggestions for fire prevention.
11. Cleans, lubricates, and repairs firefighting equipment.

B

Knowledge or skills required:

1. Knowledge of firefighting techniques.
2. Knowledge of laws and regulations governing firefighting.
3. Knowledge of firefighting equipment.
4. Knowledge of first aid including artificial respiration.
5. Knowledge of mechanics and how to use mechanic tools.
6. Ability to work with public tactfully and courteously.
7. Must have initiative and good judgment.
8. Must be able to work under stress.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Arithmetic.
4. Fire fighting procedures.
5. Record keeping.
6. Sanitation principles.
7. First aid procedures.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Car or truck operation.
10. Workmanship attitudes (enthusiasm, intiative, drive, etc.).
11. Personal grooming.
12. Map reading.
13. Operation, automotive equipment.

#68 City Policeman (2-66)

A

Duties performed:

1. Patrols designated area on foot, in patrol car or on a motorcycle to preserve law and order, prevent or discover the commission of crime, direct traffic and enforce parking regulations.
2. Answers calls and investigates complaints involving automobile accidents, fires and crimes.
3. Administers first aid, conducts investigations, gathers evidence, obtains names of witnesses and makes arrests.
4. Prepares detailed reports on investigations of crimes and accidents and testifies in court.
5. Does finger printing and photography.

B

Knowledge or skills required:

1. Must be able to write comprehensive reports and use a typewriter.
2. Must be able to administer first aid.
3. Must have a knowledge of the law and its enforcement.
4. Must have a good memory, the ability to think quickly and make sound judgments.
5. Must be expert in the use of fire arms and personal combat.
6. Must be neat and clean and of high moral and ethical character.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Reading of technical materials.
4. Safety principles.
5. Arithmetic.
6. Personal grooming.
7. Record keeping.
8. Sanitation principles.
9. First aid procedures.
10. Personnel relations (among subordinates, co-workers and supervisors).
11. Car or truck operation.
12. Legible handwriting.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#69 County or State Policeman (2-67)

A

Duties performed:

1. Enforces laws and serves legal processes of courts in rural or unincorporated suburban districts.
2. Patrols specified areas in car or on motorcycle to detect infractions of laws.
3. Escorts prisoners to jail or prison or from one prison to another, using physical force to subdue unruly ones if necessary.
4. Maintains order in courtrooms.
5. Serves summonses to persons to be tried for crimes or whose properties are to be foreclosed.
6. Assists in riot control, using force if necessary.

B

Knowledge or skills required:

1. Alertness.
2. Memory for detail.
3. Use of firearms.
4. Operate vehicles.
5. Willingness to face dangerous situations.
6. Manual dexterity.
7. Good coordination.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Written expression (grammar, punctuation, vocabulary, spelling, etc.).
3. Reading of technical materials.
4. Safety principles.
5. Arithmetic.
6. Personal grooming.
7. Record keeping.
8. Sanitation principles.
9. First aid procedures.
10. Personnel relations (among subordinates, co-workers and supervisors).
11. Customer relations.
12. Car or truck operations.
13. Legible handwriting.
14. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#70 Janitor, Charwoman, Window Cleaner, etc.(2-82 to 2-84)

A

Duties performed:

1. Keeps buildings in clean, orderly condition.
2. Operates furnaces and boilers.
3. Sweeps, mops, and scrubs public halls and stairways.
4. Tends furnace and removes ashes.
5. Removes litter and waste paper from offices and apartments.
6. Empties tenants' garbage pails.
7. Trucks or rolls cans to street for pick-up.
8. Makes minor repairs to plumbing and electrical wiring.
9. Cleans sidewalks of snow or debris.

B

Knowledge or skills required:

1. Knowledge of cleaners, waxes, and polishing items.
2. Knowledge of elements of electricity.
3. Knowledge of operation of furnace and boilers.
4. Ability to work with public tactfully.
5. Ability to take orders.
6. Knowledge of sanitation related to public buildings.
7. Able to work without direct supervision.
8. Elements of mechanics and use of hand tools.

C

Curricular elements planned:

1. Safety principles.
2. Sanitation principles.
3. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
4. Use of hand tools (mech.).
5. Use of hand tools (wood).

#71 Porter (2-86)

A

Duties performed:

1. Works in an establishment such as an office building, bank, school or other place of business performing such duties as cleaning floors, halls and stairways.

2. Washes walls, windows and door panes.

3. Burns trash in incinerators.

4. Polishes metal fixtures and trimmings.

5. Dusts furniture and empties waste baskets.

B

Knowledge or skills required:

1. Must be able to climb, stoop and carry.

2. Must be capable of working alone, often without supervision.

3. Must have knowledge of detergents and cleaning equipment.

C

Curricular elements planned:

1. Safety principles.

2. Sanitation principles.

3. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#72 Farmer (3-03)

A

Duties performed:

1. Prepares ground for seeding.
2. Operates various farm machines.
3. Cultivates crops using power machine.
4. Fertilizes crops.
5. Seeds crops using drills, planters, or hand methods.
6. Plants crop by setting out individual plants.
7. Maintains equipment and buildings.
8. Keeps records and books.
9. Harvests and stores crops.
10. Hires and discharges employees.
11. Grows specialized or non-specialized crops such as hops, maple trees, mushrooms, peanuts, potatoes, beans, sugar beets, and other field crops.
12. Plows and tills land.
13. Adds fertilizer or land-deficient material,and weeds growing crops.
14. Irrigates by flooding, ditching, or with sprinkling system.
15. Harvest crop and trucks to storage facility or to plant for further processing.
16. Hires and supervises seasonal labor for hoeing, weeding and harvesting.
17. Builds and maintains fences.

B

Knowledge or skills required:

1. Welding.
2. Machine shop procedures.
3. Knowledge of machine repair and use of mechanics tools.
4. Knowledge of chemistry.
5. Knowledge of agronomy.
6. Knowledge of fertilizers.
7. Personnel methods and techniques.
8. Initiative and use of judgment.
9. Elements of surveying.
10. Mathematics through geometry and trigonometry.
11. Knowledge of economics and market.
12. Must have a knowledge of the soil, fertilizers, irrigation methods, operation of farm machinery, and methods of harvesting, planting, raising and working crops.
13. Liking for outdoor activities.
14. Interest in plant or animal life.
15. Ability to plan activities on yearly basis.
16. Individual responsibility.
17. Good health and agility.
18. Mechanical ability.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Use of hand tools (wood).
4. Use of hand tools (mech.).
5. Maint., automotive equip.
6. Repair., automotive equip.
7. Operation, automotive equipment.
8. Sanitation principles.
9. Bookkeeping principles.
10. Car or truck operation.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
12. Arithmetic.
13. Record keeping.
14. Electric welding.
15. Supervision of personnel.

#73 Groundskeeper (3-40)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Sprays crops, forests and clears areas with chemicals to control insects, thin fruit, or kill young trees, underbrush or other vegetation.	1. Knowledge of chemical sprays and how to mix them.	1. Safety principles.
2. Mixes chemicals with water.	2. Knowledge of vegetation and effect of sprays on them.	2. Arithmetic.
3. Drives vehicle, and manipulates controls to regulate and direct flow of solution to desired areas.	3. Knowledge of arithmetic.	3. Operation, automotive equipment.
4. Presses trigger of nozzle on end of hose to control spray.	4. Knowledge of spray equipment.	4. Car or truck operation.
5. Observes meters and dials to assure correct functioning of equipment.	5. Maintenance of equipment.	5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
6. Uses hand equipment to spray areas.	6. Safety regulations.	6. Maintenance, automotive equipment.
7. Maintains equipment and makes repairs.		7. Repair, automotive equipment.

#74 Baker (4-01)

A

Duties performed:

1. Bakes bread, rolls, muffins, and biscuits.

2. Weighs proper amount of ingredients and mixes them by hand or powered mixing machine.

3. Places dough in proofing box to ferment.

4. Cuts dough into uniform portions with knife or divider and shapes dough by hand.

5. Places dough in greased pans and inserts them in ovens.

6. Prepares dessert pastries ices cakes and pastries.

B

Knowledge or skills required:

1. Should have training in arithmetic, chemistry and bacteriology.

2. Must be able to keep records and read recipes.

3. Must be extremely clean, both physically and in his work habits.

C

Curricular elements planned:

1. Safety principles.

2. Arithmetic.

3. Food planning and preparation.

4. Personal grooming.

5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

6. Sanitation principles.

#75 Skilled Dairy Prod. Process. (4-06)

A	B	C
Duties performed:	**Knowledge or skills required:**	**Curricular elements planned:**
1. Pumps raw milk or ice cream mix from storage to pasteurizing tank.	1. Knowledge of chemistry.	1. Reading of technical materials.
2. Manipulates valves and control.	2. Knowledge of pasteurizing processes.	2. Safety principles.
3. Heats contents to specified temperature.	3. Knowledge of sanitary regulations.	3. Arithmetic.
4. Pumps hot milk through cooling unit.	4. Knowledge of machines and how to maintain them.	4. Operator, industrial equipment.
5. Holds milk or mixture to constant heat for specified time.	5. Use of hand tools.	5. Maintenance, industrial equipment.
6. Reads thermometers and gauges.	6. Work with little supervision.	6. Sanitation principles.
7. Dismantles equipment, cleans, and sterilizes it and reassembles.	7. Responsibility.	7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
8. Pumps ice cream mix from pasteurizer to storage or freezer.		

#76 Cabinet Maker (4-32)

A

Duties performed:

1. Performs hand carpentry to cut, shape, and assemble parts of furniture.
2. Studies blueprints or drawings.
3. Lays out outline or dimensions on paper or stock lumber.
4. Operates woodworking machines as bandsaw, jointer, mortiser, tenoner, molder, grainer, or variety saw.
5. Cuts and prepares parts from stock.
6. Trims joints and parts to make them fit snugly.
7. Uses hand tools such as chisels, saws, planes, or files.
8. Daubs glue on joints.
9. Fits parts together tightly until glue dries.
10. Drives nails, dowels, or screws through joints to reinforce them.
11. Glues and fits subassemblies together to form completed unit.
12. Finishes joints and surfaces with hand scraper and sandpaper.
13. Installs hardware as hinges, catches, or drawer pulls.
14. Cuts out damaged or defective parts using hand tools.
15. Selects and trims piece of wood to match grain and fit hole.
16. Places clamps on repaired part to hold in place.

B

Knowledge or skills required:

1. Knowledge of blueprints and drawings.
2. Knowledge of use of hand and power tools of trade.
3. Knowledge of woods and veneers.
4. Knowledge of arithmetic.
5. Knowledge of sandpaper and other finishing materials.
6. Know how to sharpen and maintain tools.
7. Ability to work without supervision.
8. Knowledge of mechanical drawing and the tools used for this work.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Shop mathematics.
4. Use of hand tools (wood).
5. Use of wood bench equipment.
6. Blueprint reading.
7. Mechanical drawing.
8. Personnel relations (among subordinates, co-workers, and supervisors).
9. Cost estimating.
10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
11. Operator, industrial equipment.
12. Wood finishing.

#77 Woodworking Machine Operator (4-33)

A

Duties performed:

1. Cuts specified designs of furniture parts, automatic lathe patterns, or other wooden pieces of circular cross-section with hand tools as parts are rapidly rotated in wood lathe.
2. Drives center of piece to be turned on a chunk of head stock with hammer or mallet.
3. Operates hand wheel to move tailstock center against piece and force point of center into it.
4. Lock tailstock in place, slide tool rest to position for cutting and start machine.
5. Trims rotating piece to rough cylinder with gauge.
6. Measures and marks lines of cut with rule and pencil.
7. Cuts cylinder to shape with appropriately shaped chisels and checks cuts occasionally with calipers.
8. Smooth piece with sandpaper.
9. Releases tailstock center and removes piece from lathe.

B

Knowledge or skills required:

1. Must have knowledge of the working qualities of various types of wood used in furniture making.
2. Must understand the use and operation of a wood lathe and the various chisels and gauges used in turning round-work.
3. Must be able to measure accurately to the fraction of an inch.
4. Must be able to measure with calipers.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Arithmetic.
4. Use of wood bench equipment.
5. Blueprint reading.
6. Wood finishing.
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
9. Operator, industrial equipment.
10. Shop mathematics.
11. Use of hand tools (wood).
12. Graph, chart, other visual construction.

#78 Upholsterer (4-35)

A

Duties performed:

1. Arranges, installs and secures springs, padding and covering material such as cloth or leather to frames of chairs, davenports, and stationary seats and in automobile interiors.
2. Fits upholstery springs into place and secures.
3. Cuts, fits and secures into place cotton, rubber, or other cushioning material to form a smooth rounded pad.
4. Draws cover over binding and tacks cover tightly to frame or alines and stretches covering over cushions and framework and sews, cements, or tacks into place.
5. Wets leather covering to make it pliable and sews, tacks, or cements in place.
6. Tacks or glues covering over back and trims along seams.
7. Cuts away excess materials.

B

Knowledge or skills required:

1. Interest in working with the hands, and manual and finger dexterity.
2. Spatial aptitude.
3. Knowledge of fabrics and other materials used on job.
4. Knowledge of tools and equipment and able to use tools and equipment on job.
5. Knowledge of mathematics through geometry.
6. Knowledge of shop drawings, job orders, and blueprints.
7. Knowledge of color combinations and schemes.
8. Good hand-eye coordination.

C

Curricular elements planned:

1. Safety principles.
2. Shop mathematics.
3. Personnel relations. (among subordinates, co-workers and supervisors).
4. Cost estimating.
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
6. Arithmetic.

#79 Cooperage (4-38)

A

Duties performed:

1. Assembles staves, boards and rods to form tanks.
2. Arranges boards in shape of bottom and marks for identification.
3. Marks location of dowel holes in boards or staves and drills holes.
4. Drives craze of staves on bottom with hammer until tank is completed.
5. Places washers, rods, and nuts on rectangular tanks to make boards secure.
6. Inspects tank for workmanship, smoothing uneven joints with draw-knife.
7. Marks identification and disassembles tanks for shipment.
8. Places metal hoops around staves to withstand pressure.

B

Knowledge or skills required:

1. Knowledge of hand and power tools of trade.
2. Safety regulations and first aid.
3. Knowledge of blueprints and drawings.
4. Math through geometry.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Use of hand tools (wood).
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Workmanship attitudes, (enthusiasm, initiative, drive, etc.).
6. Arithmetic.
7. Schematic reading.

#80 Semi-skilled Paper and Paper Goods (6-41 and 6-42)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Operates a machine that winds cardboard into a tube for use as the core of a roll of paper.	1. Must be alert and keep careful watch on operation of machine.	1. Safety principles.
2. Loads cardboard stock in machine, fills glue pot and sets saws to cut cores to proper length.	2. Must be able to set up machine to produce rolls of the required size.	2. Operator, industrial equipment.
3. Removes finished cores as they come from machine and stocks them.		3. Personnel relations (among subordinates, co-workers and supervisors).
		4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#81 Skilled Printing Occupations (4-44 and 4-49)

A

Duties performed:

1. Sets type by hand for the printing of short articles, headings and other printed matter and breaks down and distributes type after use.

2. Measures sample to be set with line gauge to determine length of lines.

3. Sets stick to desired length of line using accurate graduate or method indicated on stick.

4. Sets type in lines in stick, reading copy and selecting type from compartments in type case.

5. Slides type from stick into galley when set-up is complete.

6. Measures type and sample copy and inserts leads between lines to adjust type to length of copy.

7. Makes proof set-up.

8. Inspects proof for errors.

B

Knowledge or skills required:

1. Must have good vision, use of arms and good finger dexterity.

2. Recommended high school subjects include English, art, mathematics and physical science.

3. Must have a knowledge of printing systems and techniques.

C

Curricular elements planned:

1. Arithmetic.

2. Operator, industrial equipment.

3. Personnel relations (among subordinates, co-workers and supervisors).

4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#82 Machinist (4-75)

A

Duties performed:

1. Reads blueprints and specifications.
2. Uses all machinists hand tools.
3. Operates machine tools such as lathes, planers, shapers, and milling machines.
4. Selects materials to be worked.
5. Positions and fastens materials in machines.
6. Selects cutting tools to be used.
7. Manipulates controls to regulate speed of machine.
8. Removes finished work from machine.

B

Knowledge or skills required:

1. Knowledge of blueprints.
2. Knowledge of mathematics through geometry (shop mathematics).
3. Knowledge of SAE threads, bolts, and specifications.
4. Knowledge of working properties of various metals.
5. Care and maintenance of tools.
6. Ability to work to close tolerances.
7. Spatial perception.
8. Manual dexterity.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of metal.
4. Shop mathematics.
5. Mechanical principles.
6. Use of metal bench equipment.
7. Blueprint reading.
8. Operator, industrial equipment.
9. Mechanical drawing.
10. Metal finishing.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Arithmetic.
14. Use of hand tools (machinist).

#83 Tool and Die Maker (4-76)

A

Duties performed:

1. Constructs, repairs and maintains dies for forging, punching, stamping or other metal forming work.

2. Makes dies, molds, jigs, fixtures and gauges using lathes, milling machines, shapers, grinders and jog borers.

3. Uses hand tools in making layouts, measuring and performing finishing operations.

4. Works from drawings, sketches or models.

B

Knowledge or skills required:

1. Should have creative ability and the ability to visualize form and space relationships.

2. Must be capable of highly exacting work.

3. Should have a background in geometry and trigonometry.

4. Must be able to set up and operate all machine tools found in a machine shop.

5. Must have ability to read blueprints.

6. Must understand the working qualities of various types of metal.

C

Curricular elements planned:

1. Reading of technical materials.

2. Safety principles.

3. Properties of metal.

4. Arithmetic.

5. Shop mathematics.

6. Mechanical principles.

7. Use of metal bench equipment.

8. Blueprint reading.

9. Operator, industrial equipment.

10. Mechanical drawing.

11. Metal finishing.

12. Workmanship attitudes enthusiasm, initiative, drive, etc.).

13. Use of hand tools (mach.).

#84 Machine Tool Maker (4-78)

A

Duties performed:

1. Shapes external and internal cylindrical surfaces of metal objects, such as castings or forgings, which are best machined when held in a chuck.

2. The machine is semi-automatic, being equipped with a turret that can be set up to present each of the tools required for a cycle of machining operations to the work in sequence.

B

Knowledge or skills required:

1. Read blueprints.

2. Work to close tolerances.

3. Use calipers and other measuring devices.

4. Knowledge of cutting and lubricating oils.

C

Curricular elements planned:

1. Reading of technical materials.

2. Safety principles.

3. Properties of metal.

4. Arithmetic.

5. Shop mathematics.

6. Mechanical principles.

7. Use of hand tools (machinist).

8. Use of metal bench equipment.

9. Blueprint reading.

10. Operator, industrial equipment.

11. Mechanical drawing.

12. Metal finishing.

13. Workmanship attitudes (enthusaiasm, initiative, drive, etc.).

#85 Sheetmetal Worker (4-80)

47

A

Duties performed:

1. Cuts metal with hand or power tools.
2. Shapes metal with hand or power tools.
3. Punches holes in metal using hand or power tools.
4. Assembles component parts into units.
5. Fastens parts together using screws, bolts, rivets, welding, or soldering.
6. Smooths edges and seams using hand or power grinders.
7. Marks pattern on metal using scribes or chalk.
8. Makes shop drawings of articles ordered by customer in shop.
9. Operates hoists to move heavy pieces of metal or completed units.
10. Makes estimates of materials, labor, and other costs.
11. Makes tests in installations for leakage.

B

Knowledge or skills required:

1. Knowledge of blueprints.
2. Knowledge of mechanical or shop drawing.
3. Knowledge of mathematics, through geometry.
4. Know working properties of various metals.
5. Welding, soldering, and grazing.
6. Use of sheet metal worker hand tools and measuring devices.
7. Principles of layout.
8. Good manual dexterity.
9. Form and spatial aptitudes.
10. Safe work practices.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of metal.
4. Arithmetic.
5. Shop mathematics.
6. Use of hand tools (mechanics).
7. Use of metal bench equipment.
8. Blueprint reading.
9. Operator, industrial equipment.
10. Mechanical drawing.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Soldering.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
14. Cost estimating.
15. Mechanical principles.

#86 Coremaker (4-82)

A

Duties performed:

1. Makes sand cores used in molds to form hollows or holes in metal castings.
2. Cleans core box, blows out old sand with compressed air and dusts parting sand over inside of core box to facilitate removal of finished core.
3. Packs and rams core sand solidly into core box using shovel, hands and tamping tool.
4. Sets vent wires and reinforcing wires as sand rises in box.
5. Lifts box from core leaving core on plate for handling and drying.
6. Repairs breaks in core with spoon.
7. Sends core to baking oven to harden it for use in foundry molds.
8. Bakes cores to harden them.
9. Assembles cores of more than one part.

B

Knowledge or skills required:

1. Should have a background in arithmetic, shop drawing and properties of metals.
2. Must be capable of long stretches of repetitive work.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Arithmetic.
4. Blueprint reading.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#87 Structural Steel Worker (4-84)

A

Duties performed:

1. Removes damaged hull, bulkheads, and desk plates.
2. Removes defective rivets by drilling them out and cutting heads off with chipping hammer.
3. Reams and alines rivet holes and drives new rivets.
4. Removes damaged plates by drilling out rivets and chipping off weld metal.
5. Either constructs wooden template from damaged plate, or takes measurements so that new plate can be fabricated.
6. Installs new plates in place of those removed.
7. Performs similar tasks in repair of ships' boilers, condensers, and evaporators, and in replacement and repair of such equipment as loaders, gratings and stacks.

B

Knowledge or skills required:

1. Must be able to read blueprints and use shop mathematics.
2. Must be familiar with welding techniques and ship metallurgical science covering stress and strain of metals.
3. Must be thoroughly familiar with all requirements concerning boilers and pressure vessels.
4. Needs strong physique and mechanical aptitude.
5. Must be able to use heavy-duty bending machines used to bend plate metal.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Arithmetic.
4. Shop mathematics.
5. Mechanical principles.
6. Use of hand tools (mechanics).
7. Use of metal bench equipment.
8. Blueprint reading.
9. Personnel relations (among subordinates, co-workers and supervisors).
10. Electric welding.
11. Gas welding and cutting.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
13. Graph, chart, other visual construction.
14. Operator, industrial equipment.

#88 Welder (4-85)

A

Duties performed:

1. Fuses metals together using arc or gas welding equipment.
2. Positions parts to be welded on flat surface and holds them in place by clamps, wire, or other methods.
3. Assembles welding equipment.
4. Connects torch to hose and hose to regulator.
5. Lights torch and regulates flame.
6. Holds flame to metal until metal melts.
7. Holds welding rod to molten area.
8. Dips rod in flux and applies flux to molten area.
9. Lays out (marks) metal according to blueprint directions.
10. Cuts metal using cutting flame.
11. Inserts electrode (welding rod) into electrode holder.
12. Makes weld by touching electrode to metal and guiding along seam.
13. Controls gas flame or electric heat by using hand controls.

B

Knowledge or skills required:

1. Knowledge of blueprints.
2. Shop drawing.
3. Working properties of metals.
4. Shop mathematics.
5. Use and care of welding equipment.
6. Safe work practices.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Arithmetic.
4. Shop mathematics.
5. Schematic reading.
6. Blueprint reading.
7. Mechanical drawing.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Electric welding.
10. Gas welding and cutting.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
12. Graph, chart, other visual construction.

#89 Electrician (4-97)

A

Duties performed:

1. Lays out, assembles, installs, and tests electrical fixtures, apparatus, control equipment, and wiring used in alarm, radio, communications, light, and power systems of buildings or other construction projects.
2. Plans proposed installation of boxes, and other concealed or recessed equipment to the frame of the structure prior to the erection of walls, the plastering of rooms or pouring of concrete.
3. Measures, cuts, threads, bends, assembles and installs conduit which connects the various outlets, panels, and boxes, using such tools as hacksaw, pipe bender, and threading tool.
4. Draws wires through conduit and splices ends together by stripping insulation back from ends and twisting together and soldering or fastening with presure fasteners.
5. Wraps soldered joints with insulation tape.
6. Tests circuits for continuity and proper connections.

B

Knowledge or skills required:

1. Must have an understanding of the principles of electricity.
2. Reads blueprints, and must be familiar with the state and local building codes.
3. Must have a degree of finger and manual dexterity.
4. Should have a background in arithmetic, physics, and mechanical drawing.
5. Must be able to climb, crawl, bend and stoop.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of metal.
4. Arithmetic.
5. Shop mathematics.
6. Basic electricity.
7. Use of electrical testing materials.
8. Schematic reading.
9. Blueprint reading.
10. Graph, chart, and other visual construction.
11. Mechanical drawing.
12. Contruction principles and codes.
13. Personnel relations (among subordinates, co-workers and supervisors).
14. Soldering.
15. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
16. Use of hand tools (mech.).

#90 Painter, Except Construction (5-16)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Applies coats of stain, filler, and varnish to wooden articles or furniture.	1. Knowledge of woods, their grains and effects of working on them.	1. Properties of wood.
2. Smooths surfaces of piece with fine sand paper and brushes dust from surface.	2. Knowledge of sanding materials and which to use for each purpose.	2. Properties of metal.
3. Brushes or sprays coat of stain to color or shade desired.	3. Knowledge of finishes and finishing materials.	3. Safety principles.
4. Applies filler to dry stained surfaces and rubs into wood using tow or burlap.	4. Color combinations and effects.	4. Wood finishing.
5. Wipes off excess filler with rags.	5. Construction of furniture.	5. Metal finishing.
6. Sands filled surface to smooth grain.		6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
7. Brushes or sprays varnish or lacquer.		7. Personnel relations (among subordinates, co-workers and supervisors).
8. Smooths each coat with fine sandpaper or powdered pumice stone and water.		8. Arithmetic.
9. Rubs final coat with pumice stone and oil to produce satin finish.		
10. Polishes surfaces with wax.		
11. Does graining or other artistic coloring during application of stain.		

#91 Operating Engineer (5-23)

A

Duties performed:

1. Operates various construction equipment as shovels, cranes, tractors, bulldozers, derricks, pile drivers, concrete mixers and others.
2. Operates machines by manipulating various levers, pedals, and other controls.
3. Raises or lowers boom, shovel or other loading or excavating device.
4. Moves machine on the job to desired location.
5. Maintains machines by fueling, oiling, and cleaning.
6. Repairs machines using mechanics hand and power tools.
7. Removes damaged or worn parts and replaces with repaired or new unit.
8. Usually specialized in operation of one or two types of machines.

B

Knowledge or skills required:

1. Knowledge of gasoline and diesel engines.
2. Knowledge of materials to be moved.
3. Use and care of mechanic's tools and equipment.
4. Good hand-eye-foot coordination.
5. Theory and application of power transmission (gears, belts, etc.).

C

Curricular elements planned:

1. Safety principles.
2. Mechanical principles.
3. Use of hand tools (mech.).
4. Operation, automotive equipment.
5. Maintenance, automotive equipment.
6. Repair, automotive equipment.
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#92 Mason (5-24)

A

Duties performed:

1. Lays brick, terra cotta, hollow tile and similar building blocks to construct walks, partitions, arches, fireplaces, chimneys, and other structures.
2. Lays brick in horizontal rows in designs and shapes.
3. Spreads mortar with trowel over brick to serve as binder and taps brick with trowel to imbed it firmly into mortar.
4. Checks vertical and horizontal alinement of structures as work progresses with plumb bob and level.
5. Finishes mortar between blocks with point of trowel.
6. Fastens brick or terra cotta veneer to face of structures with tie wires imbedded in mortar between bricks or in anchor holes in veneer brick.
7. Performs other duties peculiar to bricklaying as required.

B

Knowledge or skills required:

1. Must know the various types of masonry building materials, bonding materials and how they are affected by heat, cold and strain.
2. Must be capable of considerable accuracy in his work.
3. Must be able to read construction blueprints.
4. Must have a good sense of balance and a high degree of manual dexterity.
5. Helpful subjects (background) are arithmetic, mechanical drawing, blueprint reading and shop.

C

Curricular elements planned:

1. Safety principles.
2. Properties of stone, brick and concrete.
3. Arithmetic.
4. Blueprint reading.
5. Construction principles and codes.
6. Construction materials.
7. Personnel relations (among subordinates, co-workers and supervisors).
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#93 Carpenter (5-25)

A

Duties performed:

1. Performs general carpentry work involved in the erection of wooden frame buildings, installing exterior trim, laying floors, building stairways, concrete forms, scaffolds, and similar work entailing the cutting, shaping, and fastening together of boards, plywood and other building materials.
2. Lays out work according to specifications of blueprints.
3. Measures, cuts and installs floor joists and subflooring.
4. Cuts and installs ceiling joists and rafters, and lays subroofing.
5. Sheaths buildings by nailing boards diagonally to the studding or covers studding with plywood.
6. Fastens asphalt and impregnated building paper over sheathing and installs finish siding.
7. Fits and installs prefabricated window frames and sashes.
8. Cuts, fits and nails plasterboard, rock, steel or wood lath or other inside surfacing to studs or inside walls.
9. Cuts, fits and installs moldings, baseboards, doorframes, hardwood floors, paneling, porches, and cabinets.
10. Fits and installs doors, measures for door openings, saws and planes doors to required dimensions, notches door edge for hinges, and marks for position of hinges, installs hinges and inserts pins.

B

Knowledge or skills required:

1. Must have a wide knowledge of building materials and the techniques and processes used in fabrication with these materials.
2. Must have a thorough knowledge of building codes.
3. Must be able to read blueprints and lay out an entire building project from blueprints.
4. Must have considerable experience with carpentry tools.
5. Needs a thorough knowledge of arithmetic.
6. Must be able to cut rafters and should be able to read a square.
7. Should be able to estimate building costs.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Arithmetic.
4. Use of hand tools (wood).
5. Use of wood bench equipment.
6. Blueprint reading.
7. Mechanical drawing.
8. Construction principles and codes.
9. Construction materials.
10. Wood finishing.
11. Personnel relations (among subordinates, co-workers and supervisors).
12. Cost estimating.
13. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#94 Cement Finisher (5-26)

A

Duties performed:

1. Measures linear distances to establish boundaries of work.
2. Constructs, places and anchors required forms for job.
3. Determines location and contour of work to be done.
4. Selects established points to be used as reference points.
5. Calculates dimensions not shown on drawings.
6. Measures predetermined linear distances using tapes, plumb bobs, levels and squares.
7. Constructs wooden forms and screeds using carpenter's tools.
8. Sets in place wooden forms or prefabricated steel forms.
9. Sprays lubricant on form to prevent concrete from adhering.
10. Pours and supervises preliminary leveling.
11. Levels concrete using straight edge and other devices.
12. Applies surface finish.
13. Grinds surface to produce uniform texture.
14. Patches defective concrete.

B

Knowledge or skills required:

1. Knowledge of materials with which he works.
2. Knows what effects weather has on working qualities and setting of concrete.
3. Know how to use and maintain hand and power tools.
4. Know elementary engineering to establish lines, level, and contour of work.
5. Knowledge of blueprints.
6. Knowledge of arithmetic.
7. Know how to compute costs, areas, and volumes.
8. Know how to plan work and to work safely and able to use good judgment, work rapidly and accurately and with little supervision.

C

Curricular elements planned:

1. Safety principles.
2. Properties of stone, brick and concrete.
3. Arithmetic.
4. Shop mathematics.
5. Blueprint reading.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.)

#95 Painter (5-27)

A

Duties performed:

1. Performs all classes of painting work such as painting the exterior of houses, sheds and other structures and painting and decorating the interior of buildings.
2. Mixes paint and matches colors by stirring together the proper proportions of pigment, base and thinner.
3. Uses brushes, rollers or spray gun to apply paint.
4. Erects working scaffold.
5. Removes old paint by applying liquid paint remover or by heating the surface with a blowtorch and scraping off paint.
6. Prepares surface for painting by sandpapering or scraping.

B

Knowledge or skills required:

1. Must be able to read and write and do simple arithmetic.
2. Helpful background subjects would include wood shop, and chemistry.
3. Must be familiar with all types of paintable surfaces and the qualities and content of various types of paint.
4. Cannot be color blind.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Arithmetic.
4. Wood finishing.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#96 Plumber (5-30)

A

Duties performed:

1. Assembles and installs air, gas, water and waste-disposal systems.
2. Lays out job at work site.
3. Determines grade lines, locations of stock, fixtures and meter with tape or rule and marks with chalk.
4. Inserts metal sleeves and hanger inserts before concrete walks, floors and foundations are poured to provide passageways for pipes.
5. Lays soil pipe in trenches exercising care to maintain desired alinement and fall.
6. Packs jute or oakum in joints.
7. Melts lead in propane fire pot and ladles it into joint and secures water-tight connection by use of calking iron and ball pein hammer.
8. Installs appropriate traps.
9. Closes and checks all piping in plumbing system and tests by forcing snake or liquid into pipes and observing for leaks.
10. Sets bath tubs, sinks and lavatories.
11. Cuts openings in walls for pipes.
12. Bends, reams and cuts pipes.

B

Knowledge or skills required:

1. Must be able to plan complete layout of plumbing job from blueprints.
2. Must have broad knowledge of building codes as applied to plumbing.
3. Must know the characteristics of various types of pipes and connections.
4. Must be familiar with pipe cutting and threading.
5. Must be able to use all types of plumbing tools.
6. Must have complete knowledge of water, gas and sewage systems.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Shop mathematics.
4. Use of hand tools (mech.).
5. Use of metal bench equipment.
6. Blueprint reading.
7. Mechanical drawing.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Cost estimating.
10. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#97 Skilled Construction NEC (5-32)

A

Duties performed:

1. Removes or disconnects obstructions such as radiators.
2. Measures and cuts floor covering.
3. Coats floor with floor covering cement.
4. Measures and cuts foundation materials.
5. Lays foundation material over cement and rolls smooth with hand roller.
6. Spreads cement over foundation material covering small area at one time.
7. Lays floor covering on cement, matching patterns and borders.
8. Follows guide lines to keep courses straight and to execute designs.
9. Rolls finished floor surface with hand roller to smooth surface and make covering adhere.
10. Makes cost estimates of material and labor of requested job.

B

Knowledge or skills required:

1. Blueprint reading.
2. Mechanical drawing.
3. Care and use of tools and equipment.
4. Properties and characteristics of carpets, tiles, and linoleum.
5. Cutting, fitting and matching floor coverings.
6. Estimating.
7. Safety and first aid.
8. Personnel and public relations.
9. Planning and layout.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of wood.
4. Properties of metal.
5. Arithmetic.
6. Use of hand tools (wood).
7. Blueprint reading.
8. Construction materials.
9. Personnel relations (among subordinates, co-workers and supervisors).
10. Cost estimating.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#98 Bus or Taxi Driver (5-36)

A

Duties performed:

1. Transports passengers according to a definite route and time schedule in an auto bus.
2. Assists passengers to handle their personal baggage as they board or leave the bus.
3. Collects tickets or cash fares from passengers.
4. Regulates heating, lighting and ventilating equipment of bus for comfort of passengers.
5. Drives bus carefully and in compliance with traffic regulations.
6. Reports delays or accidents.
7. Occasionally makes minor mechanical adjustments to bus or changes tires.
8. Keeps record of cash receipts and ticket fares.
9. Checks gasoline, oil and water before leaving on a run.
10. Loads and unloads baggage checked by passengers and stored in special baggage compartments in the bus.

B

Knowledge or skills required:

1. Must be clean, neat and courteous.
2. Some mechanical experience or training desirable.
3. Must be able to make change for fares paid in cash.
4. Must have high degree of muscular dexterity and coordination.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Personal grooming.
4. Record keeping.
5. Customer relations.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#99 Lineman and Service Man (5-53)

A

Duties performed:

1. Erects power line, consisting of poles, cable, and auxiliary equipment, to conduct electricity from power plant to place of use.
2. Instructs and assists groundman in erecting poles in holes.
3. Climbs pole and attaches cross arms to pole with lag screws.
4. Nails, screws, or bolts, insulators, lightning arrestors, transformers and other auxiliary equipment to pole structure or building.
5. Strings cable from pole to pole or to building with assistance of ground crew, exercising care that proper sag is left in cable to avoid breaking under changing atmospheric conditions.
6. Splices and solders cables for connections.
7. Attaches wires from auxiliary equipment to power line, using pliers, and wraps insulation tape around connections.
8. Repairs or replaces defective power lines and auxiliary equipment; splices and solders broken ends or fallen wires and reconnects wire to insulators or installs new replacement wires.
9. Repairs equipment, such as transformers, cross arms, and braces and replaces burnt fuses, broken lightning arrestors and insulators.
10. Replaces defective poles by erecting new pole and transferring wires, and may test voltage load on transformers by connecting voltage indicator to line leading to transformer.
11. Usually works on energized lines.

B

Knowledge or skills required:

1. Possess mechanical ability.
2. Non-acrophobic.
3. Medium strength occupation.
4. Above average eye-hand-foot coordination, manual dexterity and form perception, average or better spatial perception, motor coordination, verbal and numerical aptitudes.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Basic electricity.
4. Use of hand tools (mech.).
5. Use of electrical testing equipment.
6. Schematic reading.
7. Blueprint reading.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Soldering.
10. Car or truck operation.
11. Workmanship attitudes, (enthusiasm, initiative, drive, etc.).

#100 Meat Cutter (5-58)

A

Duties performed:

1. Cuts, trims, and bones meat to prepare it for cooking or for sale.
2. Cuts whole carcasses of beef, veal, lamb, and pork into halves or quarters.
3. Cuts these into useable cuts as steaks, chops, roasts, ground meat, or others.
4. Prepares fish and sea food.
5. Cleans fish and sea food, disposing of inedible parts.
6. Prepares poultry; removes feathers, internal organs, and other unuseables.
7. Cuts meat into cooking size.
8. Grinds meat for special uses.
9. Sets up grinding machine and disassembles and cleans it after use.
10. Trims fat from carcasses saving useable fat and disposing of other.
11. Displays meat in pleasing way to appeal to customer.
12. Makes suggestions to customer relative to cuts of meat and answers customer's questions.
13. Maintains equipment in good useable and sanitary condition.

B

Knowledge or skills required:

1. Knowledge of tools of trade; knives, saws, slicers, grinders, mixers, etc.
2. Knowledge of equipment.
3. Principles of refrigeration.
4. Slaughtering of animals.
5. Knowledge of arithmetic.
6. Principles of sanitation.
7. Knowledge of meat cutting.
8. Preparing and tying boneless rolled roasts and other cuts.
9. Principles of selling and customer relationships.
10. Principles of meat cooking.
11. Buying meat and record keeping.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Personal grooming.
4. Sanitation principles.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#101 Stationary Engineer (5-72)

A

Duties performed:

1. Operates and maintains stationary engines and mechanical equipment such as steam engines, air compressors, generators, motors, turbines, ventilating and refrigeration equipment, steam boilers and boiler feed water pumps.
2. Observes meters and gauges to determine operating condition of equipment, and makes adjustments or minor repairs necessary to insure efficient performance.
3. Keeps clerical records or temperature of equipment and hours of operation, fuel consumed and temperature and analysis of flue gases.
4. Observes boiler gauges or meters which monitor load changes, steam temperature and pressure flow of fuel at regular intervals and records his observations.
5. Checks the water in the boiler for purity.
6. Treats the boiler water with chemicals to prevent corrosion, scale or growth of algae.
7. Lubricates moving parts, cleans boilers and fireboxes and makes regular inspections for corrosion, leaks or pitted boiler plates.
8. Routinely tests pneumatic, electric or electronic safety controls to assure proper operation.

B

Knowledge or skills required:

1. Must be familiar with trade physics and mathematics, electricity, boiler construction, maintenance, and operation, steam plant operation, reciprocating, rotary and centrifugal machinery theory, operation and maintenance of industrial refrigeration and air conditioning equipment, blueprint reading, welding and industrial safety.
2. Should have a knowledge of mathematics through algebra, chemistry, physics, electronics, electric shop, machine shop, welding, blueprint reading.
3. Mechanical drawing.
4. Reading comprehension is necessary to follow service manuals.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Arithmetic.
4. Shop mathematics.
5. Basic electricity.
6. Pinciples of heating.
7. Principles of pressure.
8. Mechanical principles.
9. Use of hand tools (mech.).
10. Use of metal bench equipment.
11. Use of electrical testing equipment.
12. Record keeping.
13. Blueprint reading.
14. Operator, industrial equipment.
15. Maintenance, industrial equipment.
16. Personnel relations (among subordinates, co-workers and supervisors).
17. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#102 Hoisting and Loading Engineer (5-73)

A

Duties performed:

1. Lifts and moves heavy objects with an electrically powered hoist mounted on a metal bridge which runs along overhead rails.
2. Closes switch to turn on electricity.
3. Moves electrical controller levers and brake pedal to run crane bridge along overhead rails and to run hoisting trolley back or forth across bridge to desired position to pick up load.
4. Moves electric controller levers to lower and raise load cable.
5. Raises load to clear any ground obstruction.
6. Follows signals from workers on the ground in moving crane.
7. Services equipment, greases and makes minor repairs.

B

Knowledge and skills required:

1. Knowledge and judgment in controlling forward lateral and vertical motion.
2. Spatial perception in judging placement of object of a certain size in a given space.
3. Eye-hand coordination and manual dexterity in manipulating duplication of controls and spotting equipment in desired position.
4. Knowledge of the characteristics of electric power and motors to guard against personal injury or damage to equipment.

C

Curricular elements planned:

1. Safety principles.
2. Mechanical principles.
3. Use of hand tools (mech.).
4. Operator, industrial equipment.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#103 Millwright (5-78)

A

Duties performed:

1. Installs new equipment in sawmills, plywood mills, and other manufacturing plants.
2. Dismantles machines for repair or those to be replaced.
3. Repairs machines.
4. Fabricates new parts, repairs old parts, or installs new parts in machine.
5. Moves machinery from old location to another within plant.
6. Disconnects machine, moves it by roller, hoists or other means or dismantles it, moving the parts to new locations and reassembling.
7. Installs, moves, repairs, or changes floors of docks, storage sheds, or other places where heavy planking is needed.
8. Inspects machines while in operation to detect signs of needed repair or malfunctioning.

B

Knowledge or skills required:

1. Knowledge of carpentry and carpenter tools.
2. Basic electricity.
3. Basic plumbing.
4. Use of heavy tools as jacks, hoists, and other heavy duty tools.
5. Mathematics through geometry.
6. Knowledge of safety regulations.
7. Knowledge of metals and their working qualities.
8. Have good manual dexterity.
9. Hand-eye coordination.
10. Knowledge of power transmission by pulleys, belts, shafts, etc.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of wood.
4. Properties of metal.
5. Arithmetic.
6. Shop mathematics.
7. Basic electricity.
8. Mechanical principles.
9. Use of hand tools (wood).
10. Use of hand tools (mech.).
11. Use of metal bench equip.
12. Use of electrical testing equipment.
13. Schematic reading.
14. Blueprint reading.
15. Maintenance, industrial equipment.
16. Repair, industrial equipment.
17. Mechanical drawing.
18. Construction principles and codes.
19. Construction materials.
20. Personnel relations (among subordinates, co-workers, and supervisors).
21. Electric welding.
22. Gas welding and cutting.
23. Cost estimating.
24. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#104 Airplane Engine Mechanic (5-80)

A

Duties performed:

1. Overhauls, services and inspects airplanes and airplane engines.

2. Disassembles and overhauls engines, instruments and airframes.

3. Uses hoists, wrenches, gauges and tools.

4. Performs periodic inspections required on all airplanes.

B

Knowledge or skills required:

1. Must be able to understand instruction, aircraft engine principles and be able to apply those principles.

2. Must have average spatial, form and clerical aptitudes and finger dexterity and motor coordination.

3. Must be able to work to set limits and fine tolerances.

4. Should have a background of physics, chemistry and machine shop.

C

Curricular elements planned:

1. Reading of technical materials.

2. Safety principles.

3. Properties of metal.

4. Arithmetic.

5. Shop mathematics.

6. Mechanical principles.

7. Use of hand tools (mech.).

8. Use of metal bench equip.

9. Use of electrical testing equipment.

10. Schematic reading.

11. Personnel relations (among subordinates, co-workers and supervisors).

12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#105 Auto Mechanic (5-81)

A

Duties performed:

1. Repairs automobiles and light trucks.
2. Disassembles and overhauls engines, transmissions, clutches, differentials and other assemblies.
3. Replaces worn or broken parts, grinds valves, relines and adjusts brakes, and aligns wheels.
4. Uses mechanical hand tools, power tools, chain hoists and testing machines.
5. Repairs generators and starters.

B

Knowledge or skills required:

1. Must have thorough knowledge of electrical and mechanical principles as applied to combustion engines and automobiles.
2. Must be able to interpret technical diagrams, charts and service bulletins.
3. Must know how to use testing machines and instruments found in a garage.
4. Must be familiar with all types of mechanical hand and power tools.
5. Must have good vision, hearing and average finger and manual dexterity.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of metal.
4. Arithmetic.
5. Shop mathematics.
6. Basic electricity.
7. Mechanical principles.
8. Use of hand tools (mech.).
9. Use of metal bench equipment.
10. Use of electrical testing equipment.
11. Schematic reading.
12. Blueprint reading.
13. Maintenance, automotive equipment.
14. Repair, automotive equipment.
15. Personnel relations (among subordinates, co-workers and supervisors).
16. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#106 Other Repairmen (5-83)

A

Duties performed:

1. Examines equipment to determine need of repair.
2. Dismantles machine for access to damaged or worn parts.
3. Removes item and replaces with a new or repaired part.
4. Repairs worn or damaged part using hand and power tools.
5. Reassembles machine and tests its operation.
6. Adjusts machine to insure efficient operation.
7. Adjust machine at request of operator or management.
8. Inspects machine and observes operation for signs of malfunctioning to prevent shut down or work stoppage.
9. (Maintenance Mechanics are found in numerous industries and plants and frequently specialize in types of machines they keep in repair).

B

Knowledge or skills required:

1. Knowledge of hand tools of trade and their use.
2. Knowledge of welding and brazing.
3. Knowledge of blueprints.
4. Knowledge of lubricants.
5. Mathematics through geometry.
6. Knowledge and practice of safety regulations.
7. Principles of machine repair and maintenance.
8. Basic electricity.
9. Machine shop practices.

C

Curricular elements planned:

1. Reading of technical materials.
2. Safety principles.
3. Properties of metal.
4. Arithmetic.
5. Shop mathematics.
6. Basic electricity.
7. Mechanical principles.
8. Use of hand tools (mech.).
9. Use of metal bench equipment.
10. Use of electrical testing equipment.
11. Schematic reading.
12. Blueprint reading.
13. Maintenance, industrial equipment.
14. Repair, industrial equipment.
15. Personnel relations (among subordinates, co-workers and supervisors).
16. Soldering.
17. Electric welding.
18. Gas welding and cutting.
19. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#107 Photo Processing (5-86)

A

Duties performed:

1. Develops and prints photographs.
2. Weighs or measures and mixes chemicals with water to prepare the various solutions needed to develop photographic negatives and prints.
3. Immerses exposed film in a series of timed chemical and water baths which develop and fix the negatives.
4. Works in complete darkness.
5. Dries developed negatives in the air or in an air-draft electric drier.
6. Examines negative for contrast, and selects the appropriate grade of photographic paper to produce clear prints.
7. Fits the negative and print into contact printer and exposes them to the light for a specified time.
8. Develops prints in a series of timed chemical and water baths, similar to those used to develop negatives.
9. Dries the prints either by blotting them and placing them in open-faced frames, or by placing them on thin metal plates.
10. Trims and mounts finished photographs on appropriate background material.

B

Knowledge or skills required:

1. Requires a high degree of finger and manual dexterity.
2. Must have acute color vision.
3. Must be competent in basic arithmetic.
4. A knowledge of chemistry and physics helpful.
5. Must be a meticulous worker capable of keeping a careful time schedule.
6. Must be alert and patient.
7. Must have a knowledge of photography and the photographic processes.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Laboratory procedure.
4. Record keeping.
5. Chemistry symbols.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#108 Foreman, Manufacturing (5-91)

A

Duties performed:

1. A foreman maintains and supervises flow of veneer sheets and strips to machine operators.
2. Visually inspects posted orders on bulletin board to determine quantity, grade, and priority of veneer panels needed.
3. Inspects quantity of veneer on hand and determines amount of desired grade needed to complete orders.
4. Inspects quality of veneer coming from dryer and advises operator to regulate drying machine to correspond with grade needed.
5. Confers with supervisors of edge gluing and pressing sections to insure uniform flow of veneer.
6. Informs supervisor of veneer room of quantity and grade of veneer needed.
7. Periodically inspects supply of veneer at glue spreading machine to determine production.
8. Keeps machines supplied with core and sheet material for plywood production.

B

Knowledge or skills required:

1. Knowledge of work flow of plywood production process.
2. Know various grades of veneer.
3. Maintain stock records.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical materials.
3. Safety principles.
4. Arithmetic.
5. Record keeping.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Supervision of personnel.
8. Legible handwriting.
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#109 Foreman, Construction (5-94)

A

Duties performed:

1. Interprets blueprints, sketches and written or verbal orders.
2. Determines procedure of work.
3. Assigns duties to workers and inspects work for quality and quantity
4. Maintains harmony among workers.
5. Hires and discharges workers.
6. Keeps or supervises keeping of employees time.
7. Keeps or supervises keeping of production records.
8. Inspects machines and equipment to insure proper functioning.
9. Enforces safety regulations.
*10. Supervises clearing of highway right of way; the grading and preparation of subgrade; preparation and laying of road surface (asphalt, brick, gravel, macadam, or concrete); installation of curbing and guard rails.

(*All foremen perform duties down to the asterisk. The foreman on highway construction might supervise only one of the phases listed as duties following the asterisk.)

B

Knowledge or skills required:

1. Knowledge of personnel procedures.
2. Principles of leadership.
3. Knowledge of materials used in construction.
4. Knowledge of highway construction.
5. Knowledge of engineering, legends, grade stakes, and related matters.
6. Knowledge of surveying.
7. Knowledge of safety regulations.
8. Knowledge of construction machines.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical materials.
3. Safety principles.
4. Arithmetic.
5. Shop mathematics.
6. Mechanical principles.
7. Record keeping.
8. Schematic reading.
9. Blueprint reading.
10. Construction principles and codes.
11. Construction materials.
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Car or truck operation.
14. Supervision of personnel.
15. Management of personnel, (interview, selection, promotion, policy formulation).
16. Legible handwriting.
17. Cost estimating.
18. Leadership ability.
19. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#110 Foreman, Transportation, Communications and Utilities (5-95)

A

Duties performed:

1. Supervises the testing and repair of central-office equipment.
2. Directs placing and removing of cross connections or wire distributing frames in a large exchange of several offices.
3. Determines force requirements and establishes schedules to meet service loads.
4. Uses wiring diagrams and test instruments to detect and trace down malfunctions.

B

Knowledge or skills required:

1. Must have a background in electronics to include microwave transmission.
2. Should be familiar with mathematics through trigonometry.
3. Must have a fairly high degree of finger and manual dexterity.
4. Must be able to read complicated electronic schematics.
5. Must have good color vision.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical materials
3. Safety principles.
4. Arithmetic.
5. Shop mathematics.
6. Basic electricity.
7. Basic electronics.
8. Use of hand tools(mech.).
9. Use of electrical testing equipment.
10. Schematic reading.
11. Blueprint reading.
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Soldering.
14. Supervision of personnel.
15. Management of personnel (interview, selection, promotion, policy formulation).
16. Legible handwriting.
17. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
18. Leadership ability.

#111 Foreman, Service, Amusements (5-97)

A

Duties performed:

1. Supervises garage workers engaged in repairing, adjusting, servicing and storing motor vehicles operated by an industrial or commercial establishment.
2. Supervises automobile mechanics and truck mechanics engaged in disassembling and repairing passenger cars and trucks.
3. Visually inspects, tests, or drives repaired vehicle to insure that repairs are adequate.
4. Supervises truck drivers in trucking material or carrying passengers to nearby points.
5. Oversees tire repair and issuance of gas and oil for motor vehicles.
6. May supervise workers engaged in inspection and repair of miscellaneous equipment such as cement mixers, electric trucks, etc.
7. May assign vehicles to drivers.

B

Knowledge or skills required:

1. Detailed knowledge of internal combustion engines and auto and truck component parts to insure quality of repair work performed or advise mechanics.
2. Detailed knowledge of laws involving operation of equipment.
3. Maintain records of service intervals - mechanical failures, tire performance, etc., to insure maximum operation.
4. Maintain stock records to insure reserve supplies on hand and available vehicles for dispatch.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical materials.
3. Safety principles.
4. Shop mathematics.
5. Basic electricity.
6. Mechanical principles.
7. Use of hand tools (mech.).
8. Use of metal bench equipment.
9. Use of electrical testing equipment.
10. Maintenance, automotive equipment.
11. Repair, automotive equipment.
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Car or truck operation.
14. Supervision of personnel.
15. Legible handwriting.
16. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#112 Foreman N.E.C. (5-99)

A

Duties performed:

1. Supervises and directs workers in unloading, storing, and distributing raw materials.
2. Checks incoming materials to determine that all are received.
3. Checks invoices to see that all items are accounted for.
4. Checks storage to insure items are warehoused in proper places.
5. Supervises distribution of materials to various production departments.
6. Supervises storage of manufactured products and maintains records of units and location.
7. Supervises loading out of manufactured items.
8. Maintains records showing items shipped and those still on hand.
9. Prepares items for shipping and supervises making necessary records.
10. Supervises the keeping of records such as receiving slips, shipping orders and inventories.

B

Knowledge or skills required:

1. Knowledge of personnel principles and procedures.
2. Warehousing methods.
3. Knowledge of arithmetic.
4. Bookkeeping principles.
5. Knowledge of transportation, comparative rates of various carriers.
6. Knowledge of safety regulations.
7. Knowledge of packaging, crating, and shipping articles.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Record keeping.
5. Business correspondence.
6. Personnel relations (among subordinates, co-workers and supervisors).
7. Supervision of personnel.
8. Legible handwriting.
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#113 Semiskilled Dairy Prod. (6-06)

A

Duties performed:

1. Weighs batches or lots of milk and cream and records weights.
2. Withdraws samples of each lot for testing.
3. Bottles and labels each sample.
4. Empties cans of milk into tank scale.
5. Tests sweetness of product by taste or smell.
6. Opens valve to empty scale into receiving tank after lot is weighed.
7. Places cans of cream on platform scale and empties cream into receiving tank after they are weighed.
8. Washes cans.

B

Knowledge or skills required:

1. Knowledge of scales and their uses.
2. Sanitary methods of handling milk.
3. Safety regulations.
4. Knowledge of arithmetic and record keeping.
5. Ability to read.
6. Legible handwriting.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Sanitation principles.
4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#114 Semi-Skilled Grain Products (6-08)

A

Duties performed:

1. Operates a steam-heated hydraulic machine to press mixed and ground ingredients into feed pellets for poultry and other stock.

2. Adjusts flow of ingredients from hopper to press.

3. Regulates pressure and temperature of machine by adjusting valves.

B

Knowledge or skills required:

1. Knowledge of appropriate pressure and temperature.

2. Knowledge of grains to discern proper mixture.

3. Knowledge of proportions or fractions to blend to formula requirements.

C

Curricular elements planned:

1. Safety principles.

2. Arithmetic.

3. Operator, industrial equipment.

4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#115 Semi-skilled, Fabricated Textiles(6-21 to 6-27)

A

Duties performed:

1. Performs any or all sewing operations on fabrics or other materials to produce articles such as garments, upholstery, awnings, or other items.
2. Places spools of thread and wound bobbins on machine.
3. Threads machine.
4. Adjusts tension on thread.
5. Raises presser foot of machine to admit piece.
6. Lowers foot.
7. Operates machine by pressing on pedal or using other type of control.
8. Cleans, lubricates and adjusts sewing machine.

B

Knowledge or skills required:

1. Knowledge of sewing machine and their operation.
2. Knowledge of safety rules and first aid.
3. Have good hand-eye-foot coordination.
4. Finger and manual dexterity.
5. Knowledge of fabrics.

C

Curricular elements planned:

1. Safety principles.
2. Properties of textiles.
3. Operator, industrial equipment.
4. Maintains industrial equipment.
5. Workmanship attitudes (enthusiasm, initiative drive, etc.).

#116 Lumber Grader (6-29)

A

Duties performed:

1. Estimates the number of board feet that can be sawed from logs.
2. Measures the diameter on the small end of each log using a scale which is calibrated to show the board feet contained in various-sized logs
3. Records number of board feet in each log in a record book.
4. Calculates loss or waste from cutting, crook, burns and other defects in the log.

B

Knowledge or skills required:

1. High school graduation is usually required.
2. Must have strong background in mathematics.
3. Must have a high degree of physical stamina.
4. Must be able to read a scale and keep accurate records.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Arithmetic.
4. Shop mathematics.
5. Legible handwriting.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#117 Semi-Skilled Logging (6-30)

A

Duties performed:

1. Operate a chain saw powered by small gasoline engine to fell trees and cut felled trees into desired lengths.
2. Determines direction to fell tree to prevent damage.
3. Starts saw engine and places saw at cutting point on tree.
4. Saws to predetermined depth.
5. Uses ax to complete undercut, when felling tree, and starts saw again on opposite side to finish cut.
6. Uses wedges and sledge hammer to prevent binding of saw and to assist in directing the angle of fall.
7. Uses ax to trim limbs.
8. Bucks log to desired length by sawing felled tree.
9. Adjusts and makes minor repair on chain saw.

B

Knowledge or skills required:

1. Manual dexterity.
2. Possess good knowledge of woods.
3. Able to determine good trees that will make good lumber.
4. Able to undercut, saw, and wedge so that tree will fall when desired.
5. Must judge elements that will affect angle of fall such as wind, over-burden of branches on one side or interference of other trees.
6. Alert to hazards of falling limbs, snags, power saw, ax, uneven terrain and fire danger.
7. Judgment in bucking log to best advantage in removal from woods and in lumber recovery - spatial perception.
8. Understand gasoline motor operation and maintenance.
9. Read maps.
10. Mathematical ability in figuring lumber scale - decimals and fractions.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Arithmetic.
4. Operator, industrial equipment.
5. Maintenance, industrial equipment.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#118 Semi-Skilled Woodworking Operator (6-33)

A

Duties performed:

1. Adjusts tension of sanding belt.
2. Adjusts height of table.
3. Starts sander by pushing control button.
4. Manipulates article to be sanded against revolving belt or presses belt down on stock so that entire surface is smoothed.
5. Replaces worn belts with new ones.
6. Loosens clamps, bolts or screw holding belt and removes worn belt.
7. Installs new one and fastens.

B

Knowledge or skills required:

1. Know and practice safety regulations.
2. Knowledge of products being sanded and able to recognize when sanding is completed.
3. Able to do repetitive routine tasks.
4. Have good manual dexterity.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Operator, industrial equipment.
4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#119 Semi-Skilled Furniture Manufacturing (6-36)

A

Duties performed:

1. Performs hand carpentry to assemble and fasten together prefabricated parts into frames, sections, or completes articles of furniture.
2. Trims component parts of joints to make them fit snugly together, using hand tools.
3. Applies glue to joints with brush, fits parts together forming sections or subassemblies, and clamps parts tightly together with hand or machine clamps until glue has set.
4. Drives nails, screws or dowels through joints to reinforce them.
5. Glues and fits subassemblies together in clamps to form completed articles.

B

Knowledge or skills required:

1. Must possess above-average finger and manual dexterity.
2. Must have a familiarity with woodworking principles and woodworking tools.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Use of hand tools (wood).
4. Use of wood bench equipment.
5. Blueprint reading.
6. Operator, industrial equipment.
7. Wood finishing.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#120 Semi-Skilled Misc. Wood Products (6-39)

A

Duties performed:

1. Joins veneer pieces to make larger panels, using splicing machine: fills glue reservoir and adjust heat control to cure glue; adjust pressure and speed of feed mechanism, depending on thickness and species of veneer.
2. Feeds pieces, holding them to edge against guide into machine that automatically applies glue, forces pieces together, and bakes glued edges.
3. Records footage spliced as indicated by meter on machine.
4. May keep matched pieces in marked sequence when working with high-grade face panels.

B

Knowledge or skills required:

1. Form perception when selecting pieces to be joined.
2. Knowledge of glue consistency.
3. Know characteristics of various species of veneer.
4. Know tolerances of veneers in relation to pressures and heat applied.

C

Curricular elements planned:

1. Safety principles.
2. Properties of wood.
3. Operator, industrial equipment.
4. Maintenance, industrial equipment.
5. Personnel relations (among subordinates, co-workers and supervisors)
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#121 Semi-Skilled Printing (6-49)

A

Duties performed:

1. Places pile of paper on feedback of press.
2. Starts press.
3. Lifts sheets and pushes them one at a time against feed guides.
4. Removes and stacks printed sheets from discharge board.
5. Assists Cylinder-Press Man to make press ready.

B

Knowledge or skills required:

1. Knowledge of machine operated.
2. Safety regulations.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Operator, industrial equipment.
4. Personnel relations (among subordinates, co-workers and supervisors)
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#122 Semi-skilled Chemicals (6-50 and 6-54)

A

Duties performed:

1. Prepares paint, lacquer and stain according to formula by machine.
2. Pours ingredients, pigments, vehicle and thinner, into mixing tub or trough.
3. Starts mixing machine and allows it to run specified time.
4. Adds ingredients as required by formula.
5. Empties mixture into containers by tilting tub or opening drain cock.

B

Knowledge or skills required:

1. Must be alert and capable of close attention to his work.
2. Must be able to read and follow the formula for various paint mixtures.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Operator, industrial equipment.
4. Personnel relations (among subordinates, co-workers and supervisors)
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#123 Machine Operator (6-78)

A

Duties performed:

1. Finishes surfaces of new or repaired electric motor or generator commutators.
2. Clamps commutator in position on lathe, adjustscutting tool, starts commutator rotating, feeds cutting tool into commutator by turning handwheel or adjusting automatic feed to cut proper amount of metal from surface or wire ends and excess solder from neck.
3. May grind surface of commutator with grinding attachment in place of cutting tool.
4. Sets up and operates an undercutting machine to cut mica from commutator segments.
5. Replaces ventilating fins on armature shaft, refits bearings, sand papers commutator surfaces by hand, uses small mica cutting hand saw to cut mica from commutator segments.

B

Knowledge or skills required:

1. Set up and operate lathe.
2. Set up and operate undercutting machine.
3. Set up and operate cylindrical grinder machine.
4. Proficiency in use of micrometer,caliper and vernier.
5. Understand mathematical fractions and decimals.
6. Use small hand tools.
7. Work with close tolerances.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Shop mathematics.
4. Use of metal bench equipment.
5. Blueprint reading.
6. Operator, industrial equipment.
7. Metal finishing.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#124 Machine Welder and Cutter (6-85)

A

Duties performed:

1. Assembles cutting equipment by connecting torch to hose and hose to regulator on gas tank.
2. Screws tip into nozzle, lights torch and regulates flow of gas to obtain suitable cutting flame.
3. Holds torch to metal and guides torch along desired cutting line.
4. Interprets blueprints or sketches.
5. Lays out or marks cutting lines on metal.
6. Positions guide wheel of machine against template or traces course of cutting torch with pantograph.
7. Adjusts flame of torch to obtain proper cutting flame.

B

Knowledge or skills required:

1. Knowledge of blueprints and shop sketches.
2. Knowledge of types of metal to be cut.
3. How to use and maintain cutting tools.
4. Principles of lay-out work.
5. First aid and safety.
6. Mechanical drawing.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Shop mathematics.
4. Use of hand tools (mech.).
5. Schematic reading.
6. Blueprint reading.
7. Operator, industrial equipment.
8. Gas welding and cutting.
9. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#125 Semi-Skilled Metal Fabrication other than Electrical (6-93 and 6-95)

A

Duties performed:

1. Forms bodies of tin cans in automatic machine.
2. Feeds flat, cut to size sheets of tin plate into machine by hand or by stacking them in holder or machine.
3. Fills glue and solder reservoirs of machine.
4. Starts machine and watches operation.
5. Cleans and oils machine.
6. Stops and clears machine if a jam occurs.

B

Knowledge or skills required:

1. Must be alert and capable of routine repetitive work.
2. Must have some familiarity with mechanical principles.

C

Curricular elements planned:

1. Safety principles.
2. Operator, industrial equipment.
3. Maintenance, industrial equipment.
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#126 Fabrication of Electrical Equipment (6-97, 6-98 and 7-00)

A

Duties performed:

1. Assembles chassis of electronic equipment such as radio and television, receiver, electric organs and record players, using hand tools and power tools.
2. Places component parts in proper positions to form chassis according to diagram.
3. Bolts and rivets such parts as coils, transformers, tuning units, pointed circuits, subassemblies, tube sockets, and switches to chassis using hand tools, rivet gun, and pneumatic wrench.
4. Inserts ends of wires into chassis terminals, trims ends with wire cutters and solders ends to terminals to connect components.
5. Fastens wires to terminals of printed circuit boards installed on chassis using wire wrapping and welding device or soldering iron.
6. Inserts tubes in sockets.
7. Assembles cables following wiring design and color codes.

B

Knowledge or skills required:

1. Manual dexterity - placing.
2. Finger dexterity.
3. Form perception.
4. Use of hand tools and power tools.
5. Cutting, fitting, assembling, and packaging small units.
6. Read blueprints, circuit outlines or sample assemblies.
7. Color perception.

C

Curricular elements planned:

1. Safety principles.
2. Basic electricity.
3. Use of hand tools (mech.).
4. Schematic reading.
5. Operator, industrial equipment.
6. Soldering.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#127 Automotive Assembler (7-02)

A

Duties performed:

1. Dips assembled radiator core into vat of molten solder.
2. Picks up core using hooks by hand.
3. Tests core by dipping into water and introducing air into radiator.
4. Solders leaks and smooths job using soldering iron.
5. Heats soldering iron and forces fused solder into holes and seams.
6. Removes badly damaged fins and tubes and solders replacements into position.
7. Fuses solder using blowtorch.

B

Knowledge or skills required:

1. Knowledge of first aid and safety regulations.
2. Knowledge of materials used to make radiators.
3. Principles of soldering and types of solder used.
4. Knowledge of tools and equipment used.

C

Curricular elements planned:

1. Safety principles.
2. Properties of metal.
3. Use of hand tools (mech.).
4. Soldering.
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#128 Assembler, Miscellaneous Manufacturing (7-10 and 7-13)

A

Duties performed:

1. Sets up and tends one or more compression-molding machines that mold thermosetting plastic materials into desired shapes.
2. Loads plastic materials into machine and molds plastic objects.
3. Positions a variety of inserts in mold cavity prior to molding object.
4. Disassembles mold to remove plastic objects and assembles mold for re-use.
5. Heats plastic materials over steam table or in automatically controlled oven to prepare material for molding.

B

Knowledge or skills required:

1. Must have a knowledge of mechanical principles and machine operation.
2. Should have a knowledge of chemistry as applied to plastic materials.
3. Must be aware of the effects of heat on plastic materials.

C

Curricular elements planned:

1. Safety principles.
2. Principles of pressure.
3. Operator, industrial equipment.
4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#129 Construction Machinery Operator ,
Bulldozers, Graders, etc. (7-23)

A

Duties performed:

1. Operates small portable concrete mixing machine to mix sand, gravel, cement and water to make concrete.
2. Starts gasoline or electric motor as power unit for mixer.
3. Shovels proper proportion of material into mixing drum or manipulates levers to control feeding of material into mixing drum.
4. Starts drum rotating to mix materials.
5. Manipulates lever to discharge concrete from drum either by tilting drum or opening a discharge chute.
6. Rinses drum with water to remove adhering concrete.
7. Oils, greases, makes minor repairs of mixer machine.
8. May mix material which does not contain coarse aggregates to make mortar (Mortar Mixer Operator).
9. May mix materials to make plaster (Plaster Mixer Operator).

B

Knowledge or skills required:

1. Manual dexterity.
2. Knowledge of materials required for finished product.
3. Close observation and gauging of materials used in accordance with written specifications.
4. Judgment in estimating load size in discharging mixed product.
5. Spatial aptitude.
6. Ability to make minor mechanical repairs on power unit and mixer.
7. Ability to perform prolonged, physical shovel labor.
8. Ability to withstand weather exposure.
9. Arithmetic involving fractions.

C

Curricular elements planned:

1. Safety principles.
2. Operation, automotive equipment.
3. Maintenance, automotive equipment.
4. Car or truck operation.
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#130 Painter, Rough (7-27)

A

Duties performed:

1. Paints outside of structures where finish painting is not required.
2. Mixes paint and matches color by blending proportions of base, pigment, and thinner.
3. Applies paint to surfaces using brushes or spray equipment.
4. Erects working scaffold using carpenter tools or by bolting together sections of metal scaffolding.
5. Removes paint.

B

Knowledge or skills required:

1. Knowledge of paints and their uses.
2. Knowledge of colors and combination of colors.
3. Safety regulations and practices.
4. Knowledge of arithmetic.

C

Curricular elements planned:

1. Safety principles.
2. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#131 Roofer (7-31)

A

Duties performed:

1. Applies alternate layers of roofing paper and hot tar, and a surface layer of gravel, to build up a roof surface.
2. Spreads a layer of hot tar or asphalt over the roof surface.
3. Applies another layer of tar and asphalt over top layer of roofing paper.
4. Spreads a layer of gravel over the tar or asphalt surfaces.
5. Nails metal flashing where necessary.

B

Knowledge or skills required:

1. Must have knowledge of roofing principles, building codes as applied to roofing and drainage and the use of hot tar and asphalt.
2. Must have considerable physical strength to handle rolls of roofing and buckets of tar.
3. Must have a good sense of balance.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Use of hand tools (wood).
4. Construction materials.
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#132 Semi-Skilled Construction N.E.C. (7-32)

A

Duties performed:

1. Selects and places steel bars, rods, stirrups or spirals in concrete forms to reinforce concrete.
2. Fastens rods together with wire or patent fasteners.
3. Cuts bars or rods with hacksaw or oxyacetylene torch.
4. Bends and shapes rods by hand.
5. Bends and shapes rods and pipe by vise for levers.
6. Operates power rod bending machine to shape rods by setting gauges and threading rods through rollers and slots in bending wheel.
7. Moves levers and clutches.

B

Knowledge or skills required:

1. Dexterity in use of hands and hand tools.
2. Eye-hand coordination.
3. Spatial perception.
4. Form perception.
5. Balance.
6. Able towork at extreme elevations and exposed danger positions.
7. Lift heavy materials.
8. Read blueprints.

C

Curricular elements planned:

1. Safety principles.
2. Properties of stone, brick and concrete.
3. Use of hand tools (mech.).
4. Operator, industrial equipment.
5. Gas welding and cutting.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
7. Construction materials.

#133 Routeman (7-35)

A

Duties performed:

1. Drives car or truck over established route.
2. Loads or assists in loading truck.
3. Delivers products to customer's home or establishment and collects empty containers.
4. Collects work to be done as laundry or dry cleaning.
5. Collects payment from customers.
6. Solicits new customers.
7. Keeps record of product sold and money collected.
8. Makes report to business office of employer.
9. Tries to interest customers in new products or services.
10. Marks articles picked up for identification purposes.

B

Knowledge or skills required:

1. Know how to get along with people.
2. Knowledge of product sold.
3. Knowledge of arithmetic.
4. Knowledge of record keeping.
5. Knowledge of principles of selling.
6. Personal grooming and appearance.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Personal grooming.
5. Record keeping.
6. Salesmanship principles (demonstration and selling).
7. Sanitation principles.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Customer relations.
10. Car or truck operation.
11. Legible handwriting.
12. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#134 Chauffeur or Driver (7-36)

A

Duties performed:

1. Drives private car as ordered by owner or other passenger.
2. Performs services such as assisting passengers to enter or leave car and holding umbrellas in wet weather.
3. Keeps car clean and polished and in perfect operating condition.
4. Makes minor repairs and adjustments.

B

Knowledge or skills required:

1. Must be alert to the desires of his employer and courteous at all times.
2. Must be neat and clean.
3. Must have knowledge of mechanical principles of automobiles and methods of care and servicing.
4. Must be a careful and experienced driver with full knowledge of traffic regulations and safety principles.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Personal grooming.
5. Personnel relations, (among subordinates, co-workers and supervisors).
6. Customer relations.
7. Car or truck operation.
8. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#135 Tractor Operator (7-36)

A

Duties performed:

1. Operates gasoline or diesel powered tractor (automotive or crawler-tread).
2. Hauls vehicles or implements, dump wagons, graders, plows, rollers, trailers, cables to pull stumps, cables of winch to raise or lower heavy equipment or materials.
3. Starts engine of tractor.
4. Regulates fuel supply to engine.
5. Drives tractor by manipulating levers, throttle and pedals.
6. Steers tractor by manipulating steering wheel or levers or pedals controlling individual tractor crawler treads.
7. Couples or uncouples load to or from tractor.
8. Manipulates levers to control raising or lowering of scraper blade or other auxiliary equipment.
9. Adjusts equipment and makes minor repairs.
10. Oils, greases engine and tractor parts.

B

Knowledge or skills required:

1. Close attention to control and operation of engine and tractor.
2. Understand functional nature of machine.
3. Dexterity in use of hands.
4. Eye-hand coordination.
5. Judgment of speed and motion.
6. Spatial perception.
7. Read grade stakes.

C

Curricular elements planned:

1. Safety principles.
2. Use of hand tools (mech.).
3. Operation, automotive equipment.
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#136 Cleaner or Presser (7-57)

A

Duties performed:

1. Smooths surface of garments, drapes, slip covers, and other materials using pressing machine to remove wrinkles and flatten seams.
2. Spreads part of article on padded table (buck) of machine.
3. Pulls top half of machine (pressing head) down over buck.
4. Locks head in place.
5. Depresses pedal to create vacuum exhausting steam from press.
6. Opens press and rearranges article, repeating process until required pressing is done.

B

Knowledge or skills required:

1. Knowledge of equipment used.
2. Knowledge of fabrics and effect of pressing on them.
3. Safety regulations.

C

Curricular elements planned:

1. Safety principles.
2. Properties of textiles.
3. Operation, industrial equipment.
4. Sanitation principles.
5. Personnel relations (among subordinates, co-workers and supervisors).
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#137 Auto Service Station Attendant (7-60)

A

Duties performed:

1. Performs duties at automobile service station as requested by customer.
2. Supplies car or truck with air, water, oil and gasoline.
3. Cleans windshield and headlights.
4. Changes oil and lubricates chassis.
5. Changes oil filter and spark plugs.
6. Sells and installs windshield wiper blades, tires, batteries, and other accessories.
7. Repairs tires and washes automobiles.
8. Accepts payment from customer and makes change.

B

Knowledge or skills required:

1. Must be courteous and like serving the public.
2. Must have a wide understanding of the service needs of all makes of automobiles.
3. Must be able to read and follow the directions on lube charts.
4. Must be able to make change and is often required to keep records of sales.
5. Must know the purpose of different types of lubricants.
6. Must know how to operate gasoline pumps, lube rack and tire mounting machine.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Reading of technical materials.
3. Safety principles.
4. Arithmetic.
5. Mechanical principles.
6. Use of hand tools (mech.).
7. Personal grooming.
8. Record keeping.
9. Graph, chart, other visual construction.
10. Maintenance, automotive equipment.
11. Salesmanship principles (demonstration and selling).
12. Personnel relations (among subordinates, co-workers and supervisors).
13. Customer relations.
14. Legible handwriting.
15. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#138 Public Service, Highway, Parks, etc. (7-61)

A

Duties performed:

1. Supervises public use of city, state or national parks.
2. Maintains park buildings and grounds.
3. Directs movement of traffic (auto, pedestrian and equestrian).
4. Parks automobiles.
5. Registers campers and assigns camp sites.
6. Furnishes public with rules and regulations.
7. Patrols park areas to prevent infraction of rules and to detect fires.
8. Keeps camp sites, picnic grounds, and comfort stations free of rubbish.

B

Knowledge or skills required:

1. Planning and organization.
2. Greet public.
3. Language fluency.
4. Tact, patience and understanding.
5. Read blueprints and maps.
6. Use, care for and handle safely carpentry, plumbing, painting, electrical repair tools and equipment, brush hook, shovel, lawn mower and power saw.
7. Manual dexterity.
8. Able to work for prolonged periods of time.
9. Principles and procedures in fire fighting.
10. Render first aid.
11. Be responsible.
12. Respect for law, order and government processes.
13. Ability to adjust to camp life.
14. Interest in forest life.

C

Curricular elements planned:

1. Oral expression (intonation, enunciation, pleasantness, grammar, etc.).
2. Safety principles.
3. Arithmetic.
4. Use of hand tools (wood).
5. Personal grooming.
6. Record keeping.
7. Sanitation principles.
8. Personnel relations (among subordinates, co-workers and supervisors).
9. Customer relations.
10. Car or truck operation.
11. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#139 Packer, Filler, Labeler, or Related, N.E.C. (7-68)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Operates automatic or manually controlled filling machine. 2. Pours liquid into machine tank or turns valve to admit liquid from pipe line. 3. Turn crank to adjust bottle filler and capper to fit size of bottle. 4. Installs correct size guides using hand wrenches. 5. Observes action of filler head, jogging it to stimulate flow of liquid. 6. Fills capper with caps. 7. Stops machine to remove broken, defective or partially filled bottles. 8. Regulates air pressure when filling bottle with carbonated beverages. 9. For manually controlled machine, places tray of bottles beneath filling tubes. 10. Depresses pedal to lower filling tubes into bottle or to raise bottles under tubes.	1. Use of hand tools necessary for adjusting machines. 2. Knowledge of safety regulations. 3. Knowledge of machine operated.	1. Safety principles. 2. Operator, industrial equipment. 3. Personnel relations (among subordinates, co-workers and supervisors). 4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#140 Auto Repair Helper (7-81)

A

Duties performed:

1. Assists automobile mechanic by performing lesser skilled duties involved in automobile repair and maintenance such as greasing and oiling trucks and automobiles and washing automobiles.
2. Makes minor adjustments and repairs under the direction and close supervision of the mechanic such as change spark plugs, replace gasoline or air filters, disconnect accessories and adjust carburetor.

B

Knowledge or skills required:

1. Must have a knowledge of mechanical principles as applied to automobiles.
2. Must have average finger and manual dexterity.
3. Must be able to follow lubrication charts and have a knowledge of different lubricants and their use.

C

Curricular elemtns planned:

1. Safety principles.
2. Properties of metal.
3. Mechanical principles.
4. Use of hand tools (machinist).
5. Personnel relations (among subordinates, co-workers, and supervisors).
6. Car or truck operation.
7. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#141 Mechanic and Repairman, N.E.C. (7-83)

A

Duties performed:

1. Repairs simple electric applicances such as toasters, percolators, electric razors, lamps, and irons at bench or customer location.
2. Examines appliance for breaks in wires or insulation, burned or dirty contacts.
3. Tests for faulty operation by using special test equipment or plugging cord into current outlet.
4. Disassembles appliance using small hand tools.
5. Replaces worn or defective parts such as elements or coils and reassembles.
6. Retests for satisfactory operation.
7. Helps Electrical Appliance Serviceman in repair of more complex appliances by keeping him supplied with tools, keeping work area clean, cleaning appliances and parts, holding material and tools and assisting in lifting and placing appliances.
8. Calls for or delivers appliances.
9. Drives service truck assisting Electrical Appliance Serviceman in picking up or delivery of appliances or parts.

B

Knowledge or skills required:

1. Working knowledge of electricity.
2. Use hand tools and special design.
3. Electrical repair and testing equipment.
4. Manual dexterity.
5. Finger dexterity.
6. Read simple circuit blueprints.
7. Repetitious bench work.
8. Ability to drive light truck.

C

Curricular elements planned:

1. Safety principles.
2. Arithmetic.
3. Basic electricity.
4. Mechanical principles.
5. Use of hand tools (mech.).
6. Use of electrical testing equipment.
7. Schematic reading.
8. Personnel relations (among subordinates, co-workers, and supervisors).
9. Soldering.

#142 Transportation Equipment Washer, Greaser, etc. (7-85)

A

Duties performed:

1. Lubricates parts of automobiles, busses, or trucks using proper type of lubricant on various parts of chassis or motor.
2. Injects grease at various points on chassis.
3. Inspects transmission, differential, and rear housing and fills with grease.
4. Drains crank case by removing plug.
5. Refills with oil.
6. Sprays spring leaves with lubricant using spray gun.
7. Adds water to radiator and battery.
8. Cleans windshield and windows.
9. Repairs flat tires, mounts tires on rim and inflates tires.

B

Knowledge or skills required:

1. Know how to use hand and power greasing equipment.
2. Have knowledge of the different types of lubricants and their uses.
3. Have knowledge of transportation equipment.
4. Have knowledge of and be able to use manufacturer manuals, grease charts, and instructions on care of cars, busses and trucks.
5. Able to work with the public and have knowledge of selling.

C

Curricular elements planned:

1. Safety principles.
2. Use of hand tools (mech.).
3. Maintenance, automotive equipment.
4. Personnel relations (among subordinates, co-workers and supervisors).
5. Operation, car or truck.
6. Workmanship attitudes (enthusiasm, initiative, drive, etc.).

#143 Forklift and Carrier Operator (7-88)

A	B	C
Duties performed:	Knowledge or skills required:	Curricular elements planned:
1. Drives a gasoline powered fork lift truck to haul materials. in and about an industrial plant or other establishments.	1. Must have good coordination and vision.	1. Safety principles.
2. Controls starting and stopping and forward or backward motion of truck by manipulating levers.	2. Must have knowledge of the traffic patterns and safety precautions of the plant in which he works.	2. Operation, automotive equipment.
3. Steers truck by manipulating levers.	3. Must have some knowledge of the lift truck and its controls.	3. Personnel relations (among subordinates, co-workers and supervisors).
4. Steers truck by means of a steering wheel or levers.		4. Workmanship attitudes (enthusiasm, initiative, drive, etc.).
5. Loads and unloads trucks or railroad cars.		

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Technical Education in the Junior College. (Summary Report of Seminar Discussions Spring Semester, 1962-63).

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UNIVERSITY OF CALIFORNIA; EDUCATION 264 CD

The seminar probes deeply into the underlying facets of the total technical education problem and attempts to reach tenable views representing a consensus of the seminar group. The discussions during the second half of the seminar centered on the (1) occupational centered concept, (2) instructor, and (3) functions, composition, and use of advisory services. Difficulties of industrial workers in increasing their skills to keep pace with industrial change has created an awareness of the need for further development of an occupational-centered curriculum in junior colleges. Past studies have shown that the most effective pattern for planning occupation-centered curriculums is through the teamwork of experienced school administrators and competent advisory committees composed of representatives from industry, labor, and the general public. Probably the most critical factor in determining the success or failure of a technical education program is the choice of the instructor. Educational preparation and experience of the instructor must include trade analysis and course construction, methods of teaching industrial subjects, development of instructional material, shop organization and management, and vocational curriculum instruction. Technical programs insensitive to industry soon decay. The administrators and staff must realize this and develop effective advisory groups to provide the necessary communications. (HC)

VT 004 518

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UNIVERSITY of CALIFORNIA • LOS ANGELES

TECHNICAL EDUCATION IN THE JUNIOR COLLEGE

EDUCATION 264 CD: SEMINAR

MELVIN L. BARLOW
PROFESSOR

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SUMMARY REPORT OF SEMINAR DISCUSSIONS
Spring Semester, 1962-63

Division of Vocational Education
University of California
1964

VT004518

Foreword

It is imperative that the junior colleges of California prepare persons to enter into the growing occupational complex of technology. It is therefore appropriate that the role of the junior colleges in technical education be studied intensively.

Junior college administrators will be called upon to solve many problems in relating their programs of instruction to the total requirements of technical occupations. For this reason, they will need to develop among their staff members a new awareness of technical education and of the interdependencies of the junior college and industry.

E. G. KRAMER, Chief
Bureau of Industrial Education
California State Department of Education

Preface

The role of California Junior Colleges in technical education has not been defined clearly. Consequently, the ways in which the junior colleges function in relation to technical education varies widely among the various areas of the state. The nature and scope of technical education are not clearly understood. Some persons view the area of technical education as being closely related to engineering, others see relationships to the skilled trades, and still other persons find relationships with many other educational areas. The rapid development of technology may create technical positions in occupational areas which previously did not have such positions. Furthermore, technology is constantly creating new occupations.

Despite a host of complexities, occupational areas which are technical in nature do exist, and some institution must assume a responsibility to provide technical courses, vocational in purpose, to satisfy the growing requirements of the labor force. The assumption that the junior college has some role to play in satisfying these occupational requirements has developed from rational assessment of the many factors involved.

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Spring Semester, 1962-63

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Technical Education In The Junior College

Accelerated growth of technical education has developed from recent concentrated attention by the federal government to the growing need for technicians. In California the focal point for concern about technical education and for relationships with the federal government is the California State Department of Education, Bureau of Industrial Education. The University of California maintains cooperative relationships with the Bureau of Industrial Education through its Division of Vocational Education.

It is the purpose of Education 264 CD, Seminar: Technical Education in the Junior College, to probe deeply into the underlying facets of the total problem and to attempt to reach tenable views representing a consensus of the seminar group.

This report of seminar discussions for the second half of the course does not pretend to solve, evaluate, or even to be representative of the entire problem area of technical education. The report does represent a summary of seminar discussions upon which the group found reasonable agreement.

Melvin L. Barlow

Los Angeles
January 1964

Part IV

The "Occupational Centered" Concept

Historically, we must assume that there is a need for the "Occupational-Centered Concept" in technical education. That such a concept is applicable, in greater or lesser degree, to all vocational and professional objectives is generally accepted, but it is often difficult to classify the curriculum and training in the junior college as directly occupational, occupational-related, or generally necessary as pre-occupational and post-occupational knowledge. This concept ranges between the extremes of apprenticeship-type training, in which all the studies apply directly to the specific skills of the particular occupation, and lab and research technician training, in which the studies are largely math and science, the general knowledge of which is applied to an ever-changing purpose.

Discussion of the Occupational-Centered concept must of necessity concern itself with certain questions, namely,

1. What does the technician do?
2. What is a technician?
3. What are the sources of the potential technician?
4. What kind of training does the technician need?

On the one hand, we know of the desirable curricula and their values; on the other hand, we must develop and produce

an individual who can perform effectively as a technician--by which performance the individual and the institution will be evaluated and judged.

Determining the Needs Which Shape the Curriculum

The Survey. Many factors must be considered by junior college administrators who contemplate the establishment of a technical education program in their institutions. First, it must be determined whether or not such a training program is needed in the community. If it is found that there is a need, the nature and extent of it must then be determined. This information is usually obtained through a survey. The most satisfactory results are usually obtained when proven techniques and routines are followed.[1] Briefly, the survey should provide data on the following:

1. Occupational distribution of employed technicians by age and sex.
2. Estimated annual turnover by occupations.
3. Technician supply, current and prospective sources.
4. Kinds and numbers of jobs open to junior college graduates or less well-trained students.

---

1. If the technical education programs train for occupations definitely connected to national defense, the junior college may be eligible for financial assistance in addition to that available under the federal Smith-Hughes and George-Barden vocational education acts. See California State Department of Education: "Area Vocational Education Programs," Title VIII, National Defense Education Act of 1958, P.L. 864, 85th Congress.

5. Amount of education and special training needed in various technical occupations.

6. Occupations for which the junior college could help to train technicians.

The survey should also accomplish the following objectives:

1. To determine what technical courses the junior college should offer, expand, or drop.

2. To develop favorable attitudes among business, industrial, and civic leaders toward the educational needs of the community.

3. To inform industrial, business, and civic organizations and leaders about training and other services available at the junior college.

4. To give school personnel a better knowledge of the economic life of the community, business conditions, employees' characteristics, etc.

5. To strengthen school-community relationships and give teachers and administrators an opportunity for personal contacts with business men, civic officials, industrial, and public service leaders.

6. To provide the school guidance program with local occupational and related information.

Let us assume that the survey area has undergone several significant changes in recent years: population growth during the early fifties is attributable to an overflow of workers from the Los Angeles area in search of a convenient "bedroom" community. New employment opportunities during this period centered in trade and service industries, which did little to disturb the strong agricultural economy that had prevailed for many years. The establishment of an important missile testing site a few years ago was an important turning point. In addition to providing a

large payroll, the site attracted private firms in defense-related activities. The establishment of new plants was also stimulated by the availability of industrial acreage and the creation of a very large planned community.

Expanded factory employment, while adding to local payrolls and helping to broaden the tax base, created some problems that were entirely new to the area. Employers found some positions difficult to fill locally, and they foresaw further tightening of the supply with the addition of new employers. However, qualitative and quantitative information pertaining to the extent of the demand for specific skills was lacking. The school representatives desired to train workers needed by the employers, but they could not act until industry defined the required skills. In addition to these questions, some concern was expressed over the lack of applicants at a time when jobless rolls stood at high levels.

In view of the available resources and the need for speedy action, it was decided that the study should concentrate on the industries with the most pressing needs. Defense-related production and research activities were particularly suited to the project as many of the employers need workers with similar skills. Employment in these firms was concentrated in large employing units, and it would therefore be possible to obtain maximum coverage in the survey with a small number of contacts. The final and most persuasive factor was the rapid rate of employment

growth already experienced by these firms. They had created more new job opportunities than any other industrial group, and the upward trend in employment was expected to continue.

Employment Trends. The individual firms selected for study produced electrical machinery, aircraft and ordnance equipment, and related defense equipment. The survey was to compile data for individual industries, which data would in turn be combined with that of related groups of industries. To indicate the extent of this assumed survey, let us keep in mind that the junior college serving this area accommodates about 2,000 students, with an expansion potential of 5,000, and that the above-mentioned firms reported a work-force of about 10,000, with the expectation of doubling in five years.

According to a recent State Employment Office study, the occupations for the above-mentioned industries are in seven major categories: Professional, Semi-professional, Managerial, Administrative, Clerical, Skilled, Semi-skilled. Although technical education is the primary subject of this survey, the junior college must necessarily concern itself, directly and indirectly, with all seven of the above. The technical education program involves largely the categories of the semi-professional and the skilled. However, it will be interesting, as well as helpful, to list the occupations found in the surveyed industries under each of the seven categories:

1. Professional: Accountant, Chemist, Engineers (aeronautical, chemical, civil, construction, dynamics, electrical, electronic, industrial, mechanical, metallurgic, thermodynamics), Sales, Librarian (reference), mathematician, industrial nurse, packaging specialist, physicist, statistician.

2. Semi-professional: Chemical Assistant, Detailer, Draftsman (mechanical, electronic), Electronics Technician, Industrial Designer, Photographer, Programmer (data processing), Research Assistant, Research Writer, Scientific Helper, Specification Writer, Technical Illustrator, X-ray Technician (industrial).

3. Managerial: Industrial Relations Specialist.

4. Administrative: Contact Administrator, Production Planner, Purchasing Agent.

5. Clerical: Bookkeeper (hand, machine), Calculating Machine Operator, General Clerk, Keypunch Operator, Assistant Librarian, Secretary, Stenographer, Tabulating Machine Operator, Typist.

6. Skilled: Bench Carpenter, Glass Blower, Electronics Technician, Electronics Assembler Inspector, Instrument Maker and Repairman, Layout Man, Machinist (hand, bench), Maintenance Mechanic, Major Assembler, Office Machine (salesman), Pipefitter, Sheet Metal Man, Tool or Die Maker, Welder (acetylene, arc, atomic, combination, heliarc).

7. Semi-skilled: Electronics Assembler, Machine Operator, Sewing Machine Operator, Sheet Metal Helper, Sub-assembler.

It can be seen that such a work-force would be characteristic of an area of highly developed technological complexes. The State Employment Office projects the following percentage increases for the seven categories: professional--105%; semi-professional--90%; managerial--90%; administrative--28%; clerical--70%; skilled--85%; semi-skilled--95%.

Assuming that the junior college for this area will graduate

two classes in the next five years, the first based on an enrolment of 2000 and the second on an enrolment of 3000, the junior college would do well to have trained even half of its total enrolment for the prospective work force. This assumes that 25% of the enrolment are transfer students; 25% are in the semi-skilled, shop and clerical courses; 25% in the skilled and semi-professional; and 25% are drop-outs.

Job Descriptions. This phase of the survey would provide the details as outlined in Part 1, "a survey of manpower needs" as related to technical education in the junior college, and following are brief descriptions of what an employee does in specific technical occupations:

(1) Instrumentation Technician builds, installs, maintains, or repairs measurement and control devices. At an instrument plant the job involves coordination work between the engineering department and the machine shop. A factory instrument man might be responsible for the maintenance of gyroscopic, electrical, electronic, optical, and other fine instruments which control or record the quality and quantity of products. New applications of instruments in the manufacture of automatic control apparatus and in the chemical, rubber, paper, petroleum, and food-processing industries are providing new, high-paying positions as engineering aides, trouble-shooters, inspectors, layout, and design men.

Industry has set up the following general requisites for Instrumentation Technician Trainees: background in mathematics

and some knowledge of electricity, mechanics, physics, pneumatics, and chemistry; a high school education or the equivalent; and additional theoretical and practical training at a technical school.

(2) Electronic Technician assists engineers in building, testing, and modifying electronic apparatus, following drawings, sketches, and verbal instructions. Requires wide knowledge of complex and varied test, assembly, and repair procedures. Could work in laboratory or inspect assembly line products. Often involved in development of radar, shoran, loran, sonar, guided missiles, printed circuits, and electronic computers.

Industry does not expect that a junior college will train an employee for a specific job, but will utilize the employee on the basis of training and ability.

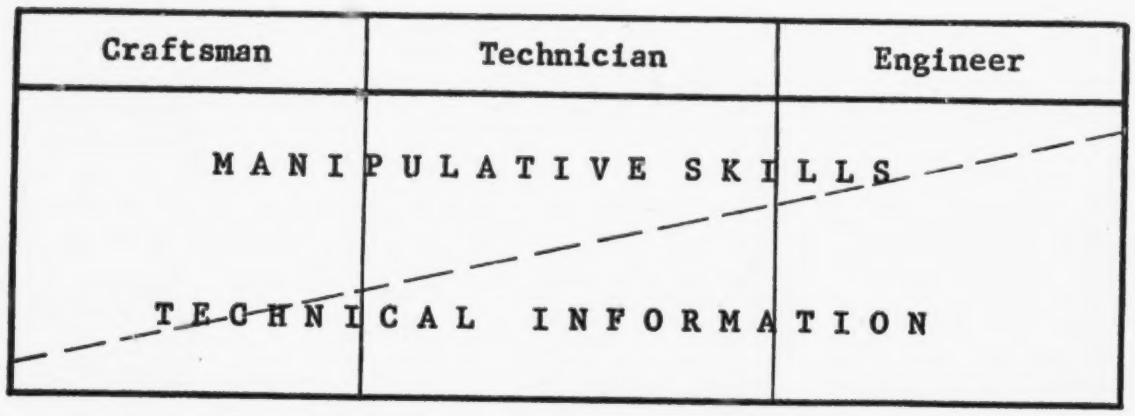
Organization for Direct Employment

Entry Occupation. Before proceeding it might be well to offer a definition of a "technical" employee. The following is as comprehensive as any:

> The technician is a person who works at a job which requires applied technical knowledge and applied technical skill. His work in this respect is somewhat akin to that of the engineer, but usually narrower in scope. His job also requires some manipulated skills, those necessary to handle properly the tools and instruments to perform the technical tasks. In his special field he has considerable technical knowledge of technical-industrial processes, and in the field he knows how to apply the necessary principles of the physical sciences and mathematics. In general, he uses instruments in contrast with tools. His contribution

is mainly through mental effort in contrast with muscular exertion.[2]

The following diagram illustrates the general relationship of manipulative skills and technical information as required for the craftsman, the technician, and the engineer:



This diagram suggests that the "entry occupation" for a technician will usually require roughly equal amounts of training and ability in the use of tools and application of technical knowledge.

From the diagram the following entry occupations for technicians become almost self-explanatory:

(1) WORKING WITH EQUIPMENT

Constructs experimental equipment.
Performs experiments.
Repairs equipment.
Remodels or adapts equipment.
Operates equipment.
Installs equipment.

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2. Emerson, Lynn A., Vocational-Technical Education for American Industry, U.S. Dept. of Health, Education, and Welfare, Washington, D.C., Circ. no. 530.

Sets up equipment for production.
Evaluates equipment.
Designs equipment.

(2) WORKING WITH PRODUCTION

Develops production techniques.
Plans production.
Makes models, prototypes, samples.
Inspects the products made.
Sells items of production.
Works on field problems.
Reports parts and packaging.
Recommends design changes.
Determines cost of production.
Expedites production.

Depending upon the size and complexity of the plant, it is conceivable that the technician's entry occupation might involve not just one of the above specific jobs but several. For example, a student at Ventura College works part-time as a "math aide" and performs several distinct jobs as an engineering assistant. To summarize, a number of duties combining in varying degrees the skill of the craftsman with the skill and knowledge of the professional worker or scientist constitute the technician's field.

Families of Occupations. The rapid industrial growth of California in the past fifteen years has emphasized the evolutionary change in the kinds of occupations that prevail. Manpower needs have accelerated far beyond any anticipated rate. At the same time, industrial workers, accustomed to normal rates of development of knowledge and skill and

adaptability to change, have found many difficulties in increasing their skills to keep pace with these industrial needs. It is natural that this situation within the State should intensify the awareness of the need for further development of an occupation-centered curriculum in the junior colleges.

Interestingly enough, the curriculums in the junior colleges are beginning to correspond favorably to the "clusters or families of occupations" as revealed in a recent Pasadena College Study.[3] A more comprehensive study, for the Los Angeles Junior College District, clearly pictures the increasing need for still greater correlation between technical education curricula and the families of technical occupations.[4]

These studies show that the most effective pattern for planning occupation-centered curricula is through the teamwork of experienced school administrators and competent advisory committees composed of representatives from industry, labor, and the general public. Such planning will provide an adequate and flexible basis for meeting the technical education needs of both the individuals and the community. Both studies mentioned above also found a need for standardization of industrial job classification for both industrial and school training purposes. This is especially important in view of the continuous readjustments in job assignments and retraining.

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3. Survey of Vocational-Technical Needs, Pasadena City Schools, 1961.
4. Dauwalder Report for Los Angeles City Junior College District, 1961.

Following is an alphabetical list of families of technical occupations prepared by the State Department's Bureau of Industrial Education. It can be seen that some of these are also "family-related" such as the Data Processing, Electrical, and Electronic clusters, but the alphabetical listing provides a closer correlation to existing corresponding curricula[5]: (the desirable corresponding curriculum is implicit in the brief description of the TASK)

AIR CONDITIONING

FIELDS	TASKS
Installation	Designs layout for system.
Design and Development	Determines heating and diode needs.
Servicing	Tests for proper performance.
Manufacture	

AIRCRAFT DESIGN

Research	Aids engineer in design work.
Design	Does layout of structures.
Testing	Makes tests and calculations.
Planning	Does liaison work.

CERAMICS

Refractories	Performs physical and chemical analysis.
Abrasives	
Electrical components	Fabricates test specimens.
Porcelain	Observes tests on plant production.
Enamels	

CIVIL TECHNOLOGY

Highways	Estimates costs and prepares specs.
Bridges	Does surveying, drafting, and design.
Dams	
Factories	Supervision.
Military sites	Inspects construction activities.

5. California State Department of Education, Bureau of Industrial Education, Sacramento, 1962, as presented at 24th Annual Conference Industrial Education, March 1962.

DATA PROCESSING

Management centers	Processes masses of statistical data.
Engineering departments	Uses computers to solve problems.
Research and development	

ELECTRICAL

Generation and distribution	Supervises installation of lighting systems.
Industrial electronics	Inspects for code conformance.
Machinery and equipment	Diagrams wiring of machinery, etc.

ELECTRO MECHANICAL

Research and development	Builds complex devices.
Automatic controls	Experiments with time, temperature, weight, and pressure.
Industrial laboratories	Control regulation and operation of machinery.
Manufacturing	

ELECTRONICS

Communications	Designs electronic apparatus.
Aeronautics	Installs electronic units.
Computers	Conducts tests and performs diagnosis.
Research and development	Services and repairs complex machines.
Manufacturing	

ENGINEERING TECHNOLOGY

Research and development	Conducts laboratory experiments.
Industrial production	Sets up, calibrates, and tests instruments.
Test laboratories	Assembles developmental equipment.
	Works on materials, specifications, and methods of manufacture.

INDUSTRIAL TECHNOLOGY

Manufacturing	Prepares layout of machinery.
Extractive industries	Interprets sketches and blueprints.
Utilities	Determines work procedures.

INSTRUMENTATION

Research and development	Checks accuracy of testing instruments.
Industrial plants	Assists in design of automatic controls.
Military installations	Designs and modifies instruments.
Air and spacecraft	Uses schematics.

LABORATORY TECHNOLOGY

Health Service Labs	Research and development.
Testing Labs	Tabulating and analyzing results.
Research Labs	Checking product compliance to specs.
Chemical plants	Assembling test apparatus.
	Performing tests and experiments.

MECHANICAL DESIGN

Construction	Transforms ideas into drawings or layouts.
Research and development	Calculates strength and quality of materials.
Manufacturing	Prepares working plans and detailed drawings.

METALLURGY

Testing Labs	Testing and analyzing metals.
Extractive industries	Developing new alloys.
Research and development	Adapting new metals to specific needs.
Manufacturing	Experimenting with processing of ores.

MISSILES

National Defense Activities	Maintains guidance and control systems.
	Development of propulsion and sources.
	Designs components.
	Experiments in wind tunnels.

NUCLEONICS

AEC Centers	Works with radioisotopes and radiation.
Research and development	Metallurgical and chemical testing processes.
University research	Reads and records data from radiation monitoring film.
Public Health Agencies	Develops reactors.

OPTICS

Nucleonics	Inspects with light beams and rays.
Space Travel	Functional use of refraction.
Instrumentation	Reflection and magnification.
	Measures linear and angular dimensions with comparator.
	Interprets wave lengths of colors in solar spectrum.

SPACE TECHNOLOGY

Dept. of Defense	Tests scale models.
N.A.S.A.	Builds prototype.
Astronautical Labs	Model spacecraft.
Astronautical production	Prepares drawings and plans production.
Research Labs	Liaison work between engineering and production plants.
	Design and development.

TECHNICAL ILLUSTRATION

Aircraft	Makes preliminary sketches.
Missiles	Makes layouts from technical information.
Medical Research and Development	Renders drawings in pencil, ink, and airbrush.
Manufactured products	Does paste-up and makes overlays.
	Researches blueprints.

TOOL DESIGN

Manufacturing	Prepares sketches and designs.
Experimental shops	Re-designs tools for efficiency.
Development Labs	Makes cutting tools, jigs, and special fixtures.
	Operates metal-forming machines.
	Develops new tools.

Lack of information on the above clusters of technical occupations on the part of educators is largely responsible for the lag between education and the actual qualifications needed by industry for adequate on-the-job performance. Amplification of the above list should be made a part of the critical information for administrators, counselors, and instructors.

Course Outlines

Plans were prepared for two-year curricula in Electronic, Civil Engineering, and Mechanical Design Technology; and course outlines were prepared for general physics, descriptive geometry, engineering measurements, blueprint reading, and shop metallurgy.

Skills Required for Competence. There are factors other than "occupational competence" which influence curriculum and course design. Junior college courses must meet the standards for graded courses in accordance with Title 5 of the California Administrative Code in order to qualify for State Aid. As yet, there is nothing in Title 5 which stipulates that the courses must fulfill the requirement of "occupational competence."[6] Nor does there appear to be any provision in Title 5 for verification either of the adequacy of such course outlines, or of their actually being followed. Furthermore, some course outlines have not been revised in over ten years, which, in view of the current rate of development in all fields, seems unwarrantable.

Some recommendations which seem obvious are that more realistic studies of course outlines, as related to curriculum, and of the curriculum, as related to technical occupations, be made. Implementation of these course outlines must also be assured. For the most part, students complete two years of

6. Resolution by the State Board of Education to Amend Sections 130 and 131, and adding Section 131.5 to Title 5.

technical education without ever seeing what goes on in the related entry occupation or the cluster of technical occupations. Following are some topics for consideration:

1. Keeping course outlines current.
2. Indicating standards for achievement in the course outlines: e.g., is academic weakness necessarily incompatible with success in technological skills?
3. Should the desired competence be set and tested by industry itself?
4. To what extent should science and math be "tailored to occupational needs?"
5. Can a course outline adequately correlate an individual's effort in lab, lecture, and shop, with the "related job knowledge?"
6. Does the grading system of A, B, C, D, indicate the student's probability of success?

Few course outlines include a sample test as a measure of occupational competence. Since industry itself is making wider use of testing, it might be well if at the completion of each course the students were tested for mental aptitudes as well as for technical proficiency. For example, tests might be given of Verbal Comprehension, Numerical Ability, Visual Pursuit, Visual Speed and Accuracy, Space Visualization, Numerical Reasoning, Verbal Reasoning, Word Fluency, Manual Speed and Accuracy, and Symbolic Reasoning.

What would it avail a junior college district to have surveys made, buildings constructed and equipped, curriculum developed, and instructors hired, if in the final analysis the course outlines are not substantially fulfilled? For instance, Modesto Junior College recently added two new courses to its Drafting Technology curriculum. The need for these courses had been studied and verified, and the Board approved the recommendations for inclusion in the curriculum. A vocational advisory committee

assisted the faculty members in drafting and refining the course contents. Complete outlines and laboratory worksheets for each of the courses were developed, and textbooks and supplementary materials selected. Competent instructors were assigned and the necessary equipment procured. But no mention was made of how success in the course is to be measured.

Related Job Knowledge. A good technical curriculum must be based on sound educational principles and must be geared to the employers' needs. Continuing evaluations of such programs to determine their effectiveness should be made, and the programs should be modified as required. Evaluations must begin now with a review of the courses the colleges have been offering.

Science and mathematics have been the main subjects covered in both technical and engineering curricula. This will continue to be true, but the same science and math cannot be given in each curriculum. Technical occupations vary widely from the skilled mechanic on one end of the continuum to the professional engineer and scientist on the other. We would like to refer again to the chart on page 9 for a graphic view of this fact. Several levels of workers are needed within each technological field, and it is necessary that course contents and curricula vary to meet the needs of all. Here, we would like to refer to the lists of technical occupations on page 9, 10, 12, 13, 14, and 15 for clarification of this fact. The same math course should not be taught in every curriculum, nor should the same course in physics, electronics, or chemistry. The technician needs many of the skills and much of the knowledge of the skilled

worker, the engineer, and the supervisor, but he requires a modification of the usual training in all of these areas. Curricular adaptations have not kept pace with the changing needs. Mathematics in particular must not only be a study in logic and mental exercise, but also a functioning skill and a usable tool.

Facilities to Simulate Industrial Conditions

As agreement is reached about the organization and content of technical education programs, consideration must turn to the facilities needed for their operation. A study must be made of the space requirements of classrooms, labs, and shops, and of the equipment needed to carry out the instructional program adequately. Instructors should assist in designing and planning the facilities for the courses they will be teaching.

Although instruction in a technical education program is largely a combination of classroom and laboratory activities, the shop, or manipulative part of the training is also important. The type of shop ordinarily used for a vocational education program is usually adequate for most technical curricula. The technician need not be an expert craftsman, though he must have a good working knowledge of the tools, materials, and mechanical processes involved in his occupation.

Laboratories need not be as extensively equipped as the college physics or chemistry laboratory, except when the purpose of the program is to train laboratory technicians. Generally,

laboratory instruction in technical programs applies a particular science to industrial processes, and the lab should be equipped accordingly.

Classrooms and lecture rooms as usually provided in well-designed junior college buildings should prove quite suitable, but may need some modification for the technical program.

In the planning of all facilities, the objectives of the curriculum must be kept in mind. Many, or even all, of the facilities used in a technical education program will also be used in academic, engineering, and general education programs. Therefore, facilities must be planned for these programs as well as for the technical education program. Industry, through advisory committees, will frequently make available unusual, special, or expensive equipment or apparatus for demonstration or test use in shops or laboratories. Advisory committees are also helpful in planning these facilities.

Differences in Facilities Needed for Skilled Trades Training and for Technical Training.[7]

Facility	Skilled Trades Training	Technical Training
Shops	Typical of industry: to provide experience on real and practical jobs.	Uses craft shops in wide variety.
Laboratories	Limited use.	Well-equipped for extensive use for testing, research, and experiments.

7. Meeting Manpower Needs for Technicians: U. S. Dept. of Health, Education, and Welfare, Office of Education, Trade and Industrial Education Branch, Washington, D.C.

Classrooms	Usual type, with standard equipment for demonstrations and individual participation.	Usual type, with standard equipment for demonstrations and individual participation, but more library and reference material.
Drawing or Drafting Rooms	Typical of those in use in industry.	More adequately equipped for more extensive use.
Special Work Areas	Limited use.	Extensive use.
Equipment	Extensive, with work stations for each student, matching conditions in industry.	Less extensive, with more variety for experiments and tests.
Tools and Supplies	Complete set for each student to be used each day.	Less complete, but with wider variety for checking, testing, and experimentation.

For specific recommendations concerning shop and laboratory design, layout, equipment, and other facilities, we refer you to a study made for proposed technical institutes in Connecticut, by P. Bauer, Consultant of Facilities Planning for Technical Institutes in Connecticut. This study first lists the technical curricula for the proposed technical institute, and then gives the details for the number of rooms needed, their capacity, room size, and area in square feet. It then lists the estimated cost of equipment, cost of purchase site, and cost of construction. For a proposed enrolment of 600 day students and 1200 evening students, the total cost is estimated at almost $4,000,000. The cost for a similar technical institute in California might be considerably less.

Instructional Aids

So much is already understood about films, film-strips, charts, records, tapes, etc., that the following discussion is limited to the highly sophisticated use of three-dimensional aids.

Three-dimensional aids greatly facilitate teaching and learning because they enable the instructor to make completely operational demonstrations. The student, too, may not only see but also operate any segment or segments of the mechanism to clarify any single, or series of relations. Many mechanisms normally move too rapidly or cannot be easily observed by students. It is important, then, that the student manipulate the device in order to gain the maximum learning experience from it.

Although industry makes available to schools an almost unlimited quantity of these three-dimensional aids, many instructors utilize the construction of a three-dimensional aid as a project to further focus the students' attention on the principles, concepts, or ideas involved. In the latter case, the instructor must select an aid whose construction will give maximum learning, choosing among samples, cutaways, mock-ups, large scale models, small scale models, or exhibits. The three-dimensional aid that best meets the immediate teaching need will enable the student to acquire greater skill and more knowledge in a given period of time than would otherwise be possible.

Each device should present a single idea, or should be used for demonstrating a limited series of closely related ideas. Movement of the device should clarify or present new ideas rather than develop skill in manipulation of the aid. Construction should be durable enough to prevent embarrassing breakdowns. Workmanship should be of the highest quality. If an aid can teach how a mechanism functions, its appearance and smoothness of operation may well teach standards of workmanship at the same time. Finally, to justify the effort and expense, each teaching aid must actually aid learning. The following is a list of the several kinds of three-dimensional instructional aids:

1. The Cutout, Cutaway, or Cross-sectional Model
2. The Working Model
3. The Enlarged Model
4. The Reduced Model
5. The Scale Model
6. The Transparent Model
7. The Mock-up

The selection of a three-dimensional aid can be facilitated through a careful study of the various devices available. Both size and materials should be selected to contribute to ease of handling, storing, and use in class or shop. Intense colors may be used to focus attention on parts that are of prime importance, and tints may be used to show interrelationships. Color contrasts are used to make obscure areas stand out. Wall charts have long

utilized the value of colors, and a study of such charts will provide color suggestions for adaptation to three-dimensional aids. Color photographs are often used for ideas in the construction of three-dimensional aids.

Advisory Services

Characteristics of Excellence in Engineering Technology Education[8] is the title of the final report of the Evaluation of Technical Institute Education, a project conducted by the American Society for Engineering Education and financed by the National Science Foundation. The report outlines quality standards proposed by the nine-man working committee of the project for constructing, improving, and evaluating engineering technology curricula. The committee defines "engineering technology" as "that part of the engineering field which requires application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities. It lies in the occupational area between the craftsman and the engineer, at the end of the area closest to the engineer" (see diagram, p. 9).

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8. American Society for Engineering Education, University of Illinois, Urbana, Ill.

Part V

The Instructor

Among the factors that determine the success or failure of a technical education program, probably the most critical and most important is the choice of the instructor: an incorrect choice can result in disaster. It would be wise for an administrator not to start a new program until the correct instructor has been secured.

According to the U. S. Dept. of Health, Education, and Welfare, it is imperative that the educational preparation and experience of the teacher include all of the following[1]:

1. Trade analysis and course construction.
2. Methods of teaching industrial subjects.
3. Development of instructional material.
4. Shop organization and management.
5. Vocational curriculum instruction.

It is not enough to know a body of information; rather, the instructor must be able to organize it into meaningful units which may be comprehensible to those students who have had very little previous experience within the particular technical area of study. The knowledge of a technical field and the ability

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1. Teacher Competencies in Trade and Industrial Education, U.S. Department of Health, Education, and Welfare, Vocational Division Bulletin 285, Trade and Industrial Education Series 69 (Washington: U.S. Government Printing Office), pp. 35-39, 41.

to communicate that body of information are often two different aptitudes. According to Johnson, one must know the how as well as the what of technical education.[2] The instructor should know the means by which the skills and concepts within his area of study may be most effectively presented.

The instructor must develop adequate instructional material in order to make the principles more than just abstract words. Vocational-technical instruction depends upon the practical application of theoretical constructs. The teacher who knows everything about a machine, but who is unable to develop means to make the instrument a working tool for his students, is not going to be effective.

Current literature illustrates the wide variety of instructor selection techniques. Here in California, however, the preparation of the instructor in the hands of the University of California follows a required program of teacher education. The value of this is pointed out in a California Department of Education Bulletin[3]:

> In securing qualified instructors, the administrative head of the vocational-technical program can save much valuable time by contacting the supervisor that heads the Trade and

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2. Johnson, Paul H., Preparing For the Vocations (New York: Pamphlet Publications, 1952), pp. 62-63.

3. "Administration of the Program-Selection of Instructors," Technical Education in California Junior Colleges (Sacramento: Bureau of Industrial Education, 1953), p. 11.

> Industrial Education program at the University of California at Berkeley or Los Angeles. The teacher applicant's training, experience, and personal qualifications should be evaluated in terms of the teaching he will do. In general, the instructor should have had at least three years of experience in his occupational field following a suitable learning period.

A more detailed account of the selection of the instructor is found in another Bulletin of the California Department of Education. It stresses a combination of adequate training and experience in their particular specialty for instructors in technical education. They should have a baccalaureate degree in engineering, science, or mathematics.

Most administrators feel that appropriate industrial employment is the absolute requirement in the preparation of a technical education instructor. Without appropriate employment experience an academically trained instructor would find it difficult to relate his knowledge to the industrial occupation for which his students are preparing. Training for the teaching profession, in addition to other academic training and practical industrial experience, is highly desirable for an instructor in a technical education program.[4]

For Walsh, vocational instruction involves more than preparation and experience, and he lists seven basic items to consider in teacher selection. In addition to technical background and competence he stresses the ability to work with colleagues,

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4. "Guidelines for a Technical Education Program," A Study of Technical Education in California (Sacramento: Department of Education, September, 1958), p. 7.

students, parents, and related groups. The technical instructor must literally have the ability to work with both people and machines in order to meet the needs of contemporary vocational instruction. Lacking these abilities, he cannot really prepare his students with a high degree of competence and effectiveness.

Therefore, Walsh states, the education of vocational-technical instructors should include all of the following[5]:

1. Background in interpersonal relations.
2. Supervised teaching in his field.
3. A strong background of work experience.
4. Good recommendations of personal achievement and character.
5. The ability to work with others.
6. Strong technical training.
7. Background in teaching skills.

The creative instructor should have a wide background of information in his field, and should know most of the current developments within it.

He should have extensive and intensive industrial experience. He should have had at least five to seven years of industrial work so that he has been able to see theoretical principles applied.

He should have had extensive experience in working with people. Some interpersonal relations work at the administrative level of his employment experience, while not being absolutely necessary, is a vital asset in providing situations whereby the

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5. Walsh, John P., Teacher Competencies in Trade and Industrial Education (Washington D.C.: U.S. Government Printing Office, 1960).

individual has to work effectively with others in both a subordinate and peer relationship.

The instructor should have at least a minimum of one year of college work in the area of vocational teaching techniques and principles.[6] This background would help him relate his shop knowledge to specific and general class situations, as well as provide him with some understanding of the basic learning media within the area of technical education.

In addition, he should have a minimum of one-term of supervised teaching where he can develop standards for student performance and a dynamic, but realistic drive for accomplishment. The teacher is a model for the class, and he who lights the lamp of learning must have first lit it for himself.

Within the area of vocational-technical education there is still a great deal more to be learned regarding the best preparation techniques for instructors. A great deal has already been accomplished within this field, but much more needs to be done.

Survey of Administrators

Charles R. Allen, made the following statement on instructor competence in the early days of the modern era of vocational

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6. Bulletin for Trade and Industrial Education, Vocational Arts Committee (New York: Vocational Arts, 1959), pp. 12-16.

education[7]:

> "The Two Factors in Successful Instruction -- It is evident that the man who cannot impart what he knows cannot be a successful instructor. It is equally evident that the man who can impart but has nothing to impart is equally a failure -- The successful instructor must therefore, (1) Thoroughly know what he is to teach and (2) be able to impart it effectively."

Many studies have been conducted during the past fifty years in an effort to identify the individual elements which contribute to the social and technical competence of the vocational instructor. A recent study points out some of these attributes as follows[8]:

1. Intelligence.
2. A genuine interest in developing students' personal and professional integrity.
3. A capacity for communicating ideas in oral and written form.
4. A thorough knowledge of the subjects taught and of relevant supporting subjects.
5. Skill in the fundamental of the teaching-learning process.
6. Familiarity with and sympathy toward the goals of vocational education.
7. Technical competence far greater than that of students.
8. Ability to bring broad experience and academic background to bear on his teaching.

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7. Allen, C. R., The Instructor, the Man, and the Job (Philadelphia: J. B. Lippincott Co., 1919), p. 117.

8. McGraw, J. L., Characteristics of Excellence in Engineering Technology Education (Urbana: American Society for Engineering Education, 1962), p. 16.

After identifying the fact that acceptable educational preparation and appropriate industrial experience are essential ingredients in establishing the competence of vocational-technical instructors, members of the study group prepared and circulated a short questionnaire asking the following questions:

I. What do you consider to be the minimum acceptable level of educational preparation for an Engineering Technology Instructor?

II. What do you consider to be the minimum number of years of appropriate industrial experience for an Engineering Technology Instructor?

III. Should an Engineering Technology Instructor seek technical employment in industry during vacation periods as a means of keeping up-to-date with current engineering developments?

The questionnaire was sent to twenty vocational-technical educators in fifteen states.[9] Nineteen persons, or ninety-five percent of those contacted, returned the questionnaire. This excellent response is a testimony to the interest and cooperation which exists at the national level among administrators and supervisors of vocational-technical education.

A summary of the responses to the questions, including special comments, follows:

Responses to Question I. Minimum level of educational preparation:

Type of Diploma or Degree	Percent Responding Affirmatively
1. High School Graduation	0%

9. Connecticut, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Texas, Virginia, and Washington.

2.	Associate Degree	16%
3.	Bachelor of Science Degree	74%
4.	Master of Science Degree	10%
		100%

Responses to Question II. Minimum appropriate industrial experience:

Number of Years		Percent Responding Affirmatively
1.	None	0%
2.	One	7%
3.	Two	27%
4.	Three	53%
5.	Four	13%
6.	Five	0%
		100%

7. Qualified their response (21%):

"Depends on field. Some is essential. Too much at the expense of education is not good."

"Three years acceptable, but prefer five years."

"Four years within last eight years."

"B.S. Degree and several years."

Responses to Question III. Keeping up-to-date by technical employment in an appropriate industry during vacation periods:

Type of Reply		Percent Responding Affirmatively
1.	Yes	68%
2.	No	0%
3.	Has little real bearing on keeping up-to-date	16%

4. Qualified their response 16%

100%

"Desirable."

"This is only one of several ways to keep up. Important issue is to keep up -- not whether it is done by working in industry or not."

"Yes. If work experience is closely related to the instructor's teaching area."

"Yes -- or can be active in engineering societies and reading of current literature."

"Periodically; instructor should also seek NSF Grants."

"Highly desirable."

A Preview of the Future Requirements for Vocational Trade and Technical Teaching Credentials in California

A report issued by the Committee on Credentials of the State Board of Education[10] dated March 14, 1963, appears to be the most up-to-date source of information on the new requirements for the Standard Designated Subjects Teaching Credential (Group 6). Article 8 provides for specialization in Vocational Trade and Technical Teaching. Trade and technical education includes general and specific courses and programs in trade, technical, industrial, pre-professional, semi-professional, public service, and agricultural occupations. Revised (or proposed) education and experience requirements for full-time service as contained in the March 14, 1963, report are summarized below:

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10. Report of the Committee on Credentials of the State Board of Education (Sacramento: State Department of Education, March 14, 1963), pp. 37-41.

Subject Matter Preparation: A total of seven years of preparation in one of the following combinations of educational preparation and qualifying experience, one year of the required experience to be within the three years preceding the date of application, appears to be the pattern for the future:

A. An engineering degree

or

Registration as a Professional Engineer in the State of California (or other equivalent technical preparation and professional registration)

and

Three years of industrial or appropriate occupational experience.

B. A baccalaureate degree

and

three years of occupational experience consonant with the major field of the degree and related to the occupational field to be named in the credential.

C. An associate degree or 60 semester hours of course work from an approved institution

and

three years of experience as a journeyman or comparably qualified worker in addition to an apprenticeship or other recognized equivalent occupational preparation in the trade or technical occupation to be named in the credential.

Additional requirements such as Examinations for Competency and Professional Preparation are not included here.

Summary of Survey

It is interesting to note that the proposed revised requirements for Vocational Trade and Technical Teaching Credentials in California coincide very significantly with the majority opinions expressed by the nineteen vocational administrators and supervisors who responded to the Engineering Technology Questionnaire.

Armed Forces Requirements for Instructors

The Armed Forces of the United States require that their instructors utilize the best methods and procedure for effecting the desired training in the shortest possible time. The achievement of the high degree of success in executing extremely efficient training programs in minimal time, which has characterized the military, requires a careful selection of instructors. The United States Army's method of classifying personnel for instructional assignments was chosen as representative of the methods used by the armed forces in general. It was recognized that although procedures may differ slightly among the various services, the principles which are delineated here should be essentially the same for all.

A Defense Department Technical Manual states, "An Army instructor must in a sense be four men: a soldier, a leader, a specialist, and a teacher . . . . . Men who possess these four characteristics to a satisfactory degree will be capable

Army instructors."[11] The procedures to be used in selecting instructors, outlined in the same publication, are summarized below:

A. Tentative Selection on Records and Observations. The personnel officer and various officers in charge of training make a tentative selection from the available men. The personnel officer can secure information on each man's abilities as indicated by test scores, and has access to records of his experience and achievements in both civilian and Army life.

B. Assignment to Specialist Training. Specialist training provides "a thorough grounding in the technical material which they may later teach."

C. Rating Scale. The company commander, the personnel officer, and at least three other officers who have had charge of some phase of the man's training independently rate potential instructors on the characteristics listed in figure 1. "... at least two ratings on each man should be made several weeks apart ... to get a reliable estimate of the man's potentialities."

D. Interview. The officer in charge should interview each man, to complete the initial selection.

E. Combining Results. The information secured in above steps "should be combined to get a comprehensive basis for deciding

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11. Army Instruction TM 21-250, U.S. War Department (Washington: Government Printing Office, 1955), p. 177.

which men are to receive training in instructional methods."

F. Assignment to Instructional Training. Achievement in this, and in specialist training, "provides a valid basis for the final selection of men competent to become Army instructors."

It is thus apparent that the emphasis is on technical competence first, and that after a man has shown himself qualified in this respect he is then trained in teaching techniques.

Name of man rated

Basis of Ratings: 4-Superior, 3-Excellent, 2-Good, 1-Fair, 0-Unsatisfactory CHARACTERISTICS TO BE OBSERVED		Personnel Officer	Officers in charge of training (1)	(2)	(3)	Company Commander	Interviewer
As soldier	Military bearing and appearance						
	Physical fitness						
	Reaction to orders and assignments						
	Behavior in barracks						
	Behavior in field						
As leader	Leadership in Army activities						
	Leadership in civilian activities						
	Mental alertness						
	Willingness to take responsibility						
	Initiative and aggressiveness						
	Ability to make and carry out plans						
As Special-ist	Mastery of subject matter						
	Interest and enthusiasm						
As teacher	Interest in teaching						
	Interest in men						
	Instructional ability						
	Ability as speaker						
	Date of rating						
	Initials of rater						

Figure I

Industrial Requirements

Each of four divisions of North American Aviation solicited has its own policies and procedures in technical training. Electronics is the major subject taught, although secretarial training, programming, machine and aeronautical mechanics, drafting, technical writing, graphics, and data processing are also offered.

Hughes Aircraft in Fullerton, California, also offered information: their subject matter is restricted to field engineers and field mechanics for world-wide communications systems.

The differences among these five sources are insignificant, all require:

A. Education and Industrial Experience

Four years of college training in an applicable specialty (electronics most useful at Autonetics), or equivalent training in industry or armed services. (equivalent training not defined)

B. Teaching Experience

One year of teaching experience in the specialty preferred.

C. Duties

1. Analyze and work from training requirements for company or customer personnel--defined only in general terms--to develop courses.

2. Secure data necessary to develop and plan courses by preparing broad course outlines and lesson plans, and by selecting appropriate methods of instruction.

3. Conduct courses.

4. Develop and prepare charts, diagrams, models, problems, cases, and other training aids to supplement the instruction. Develop design criteria, instruction, and concepts for training devices.

5. Be responsible for developing training manuals and lesson material in a specialized field.

6. Develop and utilize evaluation techniques such as problems and tests for determining the progress of trainees. Evaluate training courses by contacts with supervision and concerned customer personnel.

D. Philosophy

The order of priority for technical instructor abilities is: (1) technical knowledge and experience and (2) teaching experience. In general, we look for technically qualified people with an interest, but not necessarily experience, in teaching. The Army has had many successes in "making" instructors; they would not expect success in making technical instructors of educational specialists.

Recommendations

The California revised requirements for Vocational Trade and Technical Teaching Credentials are excellent criteria for selecting instructors. However, where possible, administrators should exercise their own intuition and judgment. That is, personality and character should be weighed, and trade-offs between education and experience should be considered. Experience may be more than just duration of service, and non-formal education should also be considered. In short, the question to be answered is "Could the man do the job?" Credential requirements are most beneficial when used as a guide, lawfully but flexibly administrated.

Part VI

Functions, Composition, and Use of Advisory Services

Advisory Committees

Kinds of Advisory Committees. Lay advisory committees are used in virtually every California junior college district offering a program of trade-technical education and training. There are valid reasons for this widespread use which grow out of the very philosophical roots of trade and technical education.

There are several different kinds of advisory committees used in trade-technical programs: General, Administrative, Temporary, Departmental, Special, Occupational, Craft, and Trade.[1] Table I indicates the kind, purpose and function of each type of advisory committee.

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1. Administration of Vocational Education at State and Local Levels, Prepared by the Committee on Research and Publications (Washington D.C.: American Vocational Association, 1953), pp. 3, 4.

TYPE OF COMMITTEE	GENERAL PURPOSE	SPECIFIC FUNCTION
General Advisory Committee for Vocational Education	Advise local school administration on the development of the over-all vocational program.	Provide advisory service in determining general policies and types of vocational programs needed in the community
General Advisory Committee for Trade and Technical Education	Advise local school administration on the development of trade and technical education programs	Provide advisory service in determining general policies on the operation of trade and technical programs and the types of trade and technical programs needed in the community
Trade, Craft, or Occupational Advisory Committee	Advise local school administration on the development of instructional programs of preparatory and extension training in specific occupations	Provide advisory service in determining objectives and in planning details of the program for a specific occupation
Joint Apprenticeship Committee	Develop and administer an apprenticeship training program for a specific trade; May also serve as a trade advisory committee for the local school district	Develop and maintain apprenticeship standards and coordinate on-the-job training of apprentices. Provide advisory services to the school district in determining specific objectives and in planning specific details of supplementary instruction for apprentices
Special or ad hoc Advisory Committees	Temporary advisory committee to the local school administration	Provide advisory service for a specific project or in solving a specific problem

Table I. CHARACTERISTICS OF ADVISORY COMMITTEES FOR LOCAL PROGRAMS OF TRADE AND TECHNICAL EDUCATION

Selection of Advisory Committee Members. Most of the literature on advisory committees indicates that 'it is customary for the groups to select their own delegates.' This suggestion is pointed at the organization of an advisory committee using existing organizations within the community, for example, Joint Apprenticeship Committees, the ASTME, AIA, AMA, Electronic Industries Association, Independent Garagemen's Association, and the like, and Chambers of Commerce, Service Clubs, Veteran's Organizations, and other professional or occupational societies. Such statements as the above are confusing, however, in that the text will suggest in some other place the selection of trade advisory committees, mentioning that school personnel reserve this task or privilege of selection to themselves. Thus, having the group select its own membership is not a method intended for an advisory committee of a junior college trade-technical program.

Some believe that better coordination of training is assured when three levels of the public are identified and used in advisory committees: management, personnel and industrial relations staff, plant superintendents, supervisors, and foremen; organized labor; and others such as apprenticeship groups, employment service personnel, manufacturers representatives, and public service agencies.[2] In some cases representatives

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2. Your Public Relations, A Guide for Vocational Educators, Prepared by the Committee on Research and Publications (Washington D.C.: American Vocational Association, 1954), p. 32.

of federal, state, and local agencies who may be officially concerned with the trade and industrial education program are included as consultant members of the committee.[3] Some believe that organized labor should be represented on all advisory committees for trade and industrial education.[4]

One expert states, "The first thing we do, after establishing a need for a craft committee, is to go to business firms and industries in our area and ask the management to recommend the names of persons who'd be interested. Usually, they will suggest persons in training departments. After gathering names, the superintendent makes a decision on the group's composition."[5] So the final decision is again the school's. USOE expert on advisory committees, Sam King, states, "I would ask executives in two or three firms to serve, and also take a man or two out of the shops. The importance of having someone in management is obvious, but the shop employee should be given an equal measure of respect, particularly in meetings. He knows what shopwork is like and his opinions are likely to be realistic. Now, if I intend to have several craftsmen on my committee, I make sure there's a spread in their ages. An older man will be skilled,

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3. Vocationally Talented Pupils, A Report of the Division of Field Studies and Research (New Brunswick, New Jersey: Rutgers-The State University, 1962), IV, 18.

4. Your Public Relations, p. 33.

5. Sam W. King, and Edward Tracy, "How to Make Your Vocational Training Program Pay Off," School Management, June 1961 p. 46.

but many times the younger man has gone through a training program himself, will understand some problems from the student's point of view, and can provide the kind of practical advice I need. Every person I appoint should be a respectable man of the community who has a knowledge of the business or craft. Beyond this, qualifications are nebulous."[6]

Not more than one-third of the members of an advisory committee should represent large industries. The individual representing an industry should be carefully selected and should be familiar with the functions of the job for which the student is training. Wherever possible, a supervisor of the technical classification for which the training is being offered should serve as an advisory committee member.[7] Wood feels that membership should be changed periodically in order to maintain wider industrial contacts, and that advisory committee membership should include technicians.[8]

There is general agreement in the literature that the following criteria should govern the selection of members:

Type of representative industry

Size of representative industry

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6. Ibid., p. 47.

7. Donald D. Dauwalder, Education and Training for Technical Occupations (Los Angeles: Los Angeles Junior College District, 1961), p. 138.

8. Herbert S. Wood, A Study of Technical Education in California (Sacramento: California State Department of Education, 1959), p. 68.

Geographic areas represented

Individual characteristics

Experience (practical, recent, successful)

Interest in the school program

Available time

Recognized leadership

Appointment and Term of Office for Committee Members. "Regardless of the method of selecting members, appointment of members should be an official act of the board of education, or the superintendent of schools as its designated representative. It is a good policy to send a letter of invitation to each member, signed by either the chairman of the board of education or the superintendent of schools. This is important for three reasons." Appointment by highest school authority gives prestige, it reduces the possibility that the committee will attempt to usurp authority, and it aids the members in understanding the place of the committee in the school organization.[9]

An administrator should first gain the approval and support of the board of education for his plan for an advisory committee. School boards and administrators sometimes fear that advisory committees may assume too much authority and exercise some of the powers ordinarily held as the responsibility of the board. Thus, the educator involved must exhibit good judgment in convincing the board of the value and limitations of lay advisory

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9. Sam W. King, Organization and Effective Use of Advisory Committees (Washington D.C.: U.S. Office of Education, Vocational Division, 1961), p. 27.

committees.[10]

"Many schools appoint committee members for life or for as long as they care to serve, but a regular system of replacement is more satisfactory."[11] Some writers suggest rotating terms to insure "new blood" and to involve more persons. Uninterested or uncooperative members can thus easily be replaced. Advisory committee members who are appointed for a specific term generally serve for one to three years. One source indicates that "The term of office of committee representatives should not exceed one year." Appointments and replacements should be staggered to assure that there are always some experienced members on the committee.[12]

Orientation of Committee Members. "School Boards and School Administrators sometimes fear that advisory committees will assume administrative or legislative authority which is the responsibility of the Board of Education."[13] There should be a clear understanding on the part of all concerned of the committee's role. "Such a statement should be a part of the directive establishing the committee; it should be included in the original letter to the members asking them to serve; it should be restated at the first meeting and at other meetings

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10. Vocational Advisory Committees, op. cit., p. 8.

11. Ibid., p. 12.

12. Ibid.

13. King, Advisory Committees, op. cit., p. 21.

as necessary."[14] "The committee must understand that its purpose is advisory, not administrative, but it should be assured that its recommendations will receive serious consideration."[15] One study of advisory committees in California indicated that more than half of the schools with advisory committees acquaint members with their duties and responsibilities verbally (58% verbally, 30% by a brochure). The study concluded with the hope "that within the near future more schools will adopt a uniform procedure for indoctrinating new advisory committee members."[16]

"As the educator is seeking the assistance of persons experienced in the field, it is his responsibility to state the problems involved in the vocational program and present them to the advisory committee for discussion and recommendation." "However, the topics discussed at meetings should not be confined to those proposed by the school representative." "It is important that he consult with the chairman (or other members of the committee) in order to discover what the laymen believe to be the weakness in the program and to get new, original ideas for improvement and additions."[17]

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14. Ibid., p. 27.

15. Ibid., p. 35.

16. C. Richard Watson, A Manual for Advisory Committeemen (Monterey: Monterey Department of Vocational Education, Monterey Union High School District, circa 1956), p. 4.

17. Lois B. Hargrave, and others, A Manual for Organizing and Using Advisory Committees (Pasadena: Pasadena City Schools, Department of Vocational Education, circa 1956), p. 15.

Meetings of the Committee. Divergent opinions have been expressed over the question of who conducts the advisory committee. Some indicate that the "Chairman of the advisory committee should be a lay person, elected by the members of the committee from their ranks."[18] Others mention that the school coordinator sometimes performs this duty, but it is better for the morale of the group to have this responsibility rotated among the members.[19] Some sources state that the school representative "usually serves in three--or in a combination of three--capacities. He may act as a secretary for the committee; he may serve as general consultant; he may be chairman. Whatever he does, he must remember that he is only an *ex officio* member, requesting and not giving advice."[20]

The school representative usually prepares the agenda for each meeting. "The chairman is responsible for the preparation of the agenda..." but "teachers and other members of the school staff should be encouraged to suggest topics when problems arise in their area."[21] When a lay person serves as chairman of the committee, he should be consulted when the agenda for a meeting is prepared.[22]

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18. *Ibid.*, p. 9.
19. Watson, p. 4.
20. *Vocational Advisory Committees*, p. 15.
21. King, *Advisory Committees*, p. 39.
22. *Vocational Advisory Committees*, p. 14.

The usual officers, when officers are chosen, are the chairman and a secretary. In these situations the chairman is most often elected from the ranks;[23] the secretary's post is held by a school representative. The secretary's position entails recording minutes, notifying members of time and place of meetings, arranging for a meeting room, and providing statistical or descriptive information about the program.[24] "Some schools automatically choose the vocational director as chairman." "Our experts suggest, however, that the chairman of an advisory committee be a layman, elected from the ranks by the members of the committee."

The chairman's duties are to preside at all meetings to appoint subcommittees and to represent the committee in other groups. If the chairman is an educator serving the advisory committee, his duties are, of course, much broader.[25]

There is general agreement in the literature that there should be officers and that the chairman and vice chairman, and perhaps the secretary, should be a layman.[26] There is further agreement on the role of the school representative: no matter what the status of the officers of the group, it is assumed that the school representative will provide the necessary clerical assistance, including the taking of minutes, progress

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23. Hargrave, p. 9.

24. Ibid., p. 10.

25. Vocational Advisory Committees, p. 14.

26. King, Advisory Committees, p. 30; also, Watson, p. 5.

reports, recommendations, and notices of meetings.[27]

"It is generally desirable to meet at the school if an adequate meeting room is available."[28] But, classrooms are the least desirable place to hold an advisory committee meeting. "Most of our committee men are businessmen, so we use the Kiwanis-Rotarian approach. It is understood that our meetings must be over no later than 1:30 P.M., and we stick to the agenda."[29] "Day meetings are often scheduled during the lunch hour."[30] "Meetings are held during the day or evening, at the convenience of the committee members."[31]

"Advisory committees will show the greatest interest if their advice is sought frequently."[32] "There is no general agreement on the maximum number of meetings to be held each year, or whether meetings should be scheduled at regular intervals or called as necessary." "If advisory committees meet only once a year, there is a chance that such meetings will degenerate into a meeting for reporting progress and the committee serves no real function."[33] Craft committees should meet at least once

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27. Hargrave, p. 10.

28. King, Advisory Committees, p. 30.

29. King, "Vocational Training Program," p. 48.

30. King, Advisory Committee, p. 48.

31. Ibid., p. 33.

32. Ibid., p. 50.

33. Ibid., p. 33.

a month to be capable of evaluating a school program.[34] "All committees should meet not less than four times during the year."[35] "After establishment of the course, the advisory committee will continue to meet at least twice a year to consider problems as they arise."[36] One superintendent of schools states that his craft committees "....meet about 6 or 8 times a year."[37]

Some Hints for Successful Meetings

(1) Observe common courtesies and business procedures.

- Provide ample notice of meetings.
- Send out an agenda in advance.
- Arrange for transportation and parking.
- Contact each member personally, by telephone, the day before the meeting.

(2) Before the committee meeting:

- Make certain that the school personnel concerned with the particular program are familiar with every issue in detail.
- Prepare descriptive and statistical information for advisory committee members.

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34. Ibid.

35. William P. Loomis, and others, The Operation of a Local Program of Trade and Industrial Education (Washington D.C.: U.S. Office of Education, Vocational Division 1957), p. 145.

36. James W. Thornton, Jr., The Community Junior College (New York: John Wiley and Sons, 1960), p. 166.

37. King, "Vocational Training Program," p. 46.

- Be careful not to devise strategy for "railroading" a plan through an advisory committee. Such action becomes obvious to the committee and immediately kills committee relations.
- Despite the advice of many experts to the contrary, it is urged that teachers be invited to attend advisory committee meetings. Care must be taken to prevent the instructor's painting himself or the program in a glowing report of the successes enjoyed by "his" program.
- The achievements of the committee will be in direct relation to the demands made on them by the school.
- Thus it becomes the responsibility of the school representative to plan well.

(3) It is better not to have a meeting than to have a poorly planned one, therefore,

- Provide place cards for each member.
- Arrange a convenient conference table.
- Provide a chalkboard or chart stand.
- Provide ashtrays, scratch-pads, pencils, paper, coffee, water, etc.
- Schedule the finest environment the college can offer.

(4) Identify leadership responsible for the conduct of the meeting.

- The election or appointment of a lay chairman is acceptable and is encountered most frequently.
- Having an educator in the leadership role seems more logical, however, since it is he who seeks the advice.

- The educator-chairman-conference leader must exhibit wisdom in avoiding the criticism of using the committee as a "front" or as a "rubber stamp" for predetermined policies.
- There are both advantages and disadvantages to a formal organization for committee meetings.
- Members are often more willing to participate when duties and responsibilities are set forth in a formal fashion.
- Adherence to Roberts' Rules of Order will result in acceptable conduct and procedure, but
- Too rigid rules stifle initiative and active response and may result in a committee that exists only on paper.
- The less formal conference or discussion approach is therefore suggested over the more formal "Roberts' Rules of Order" approach to conducting the advisory committee meeting.
- Formal parliamentary procedures often tend to stifle the interest and activity of the group.
- Informality and flexibility of procedure produces friendly cooperation.
- The conference type of meeting conserves time and secures the widest participation for committee meetings.
- The conference-discussion method will accomplish the maximum.
- Motions, when moved and seconded and carried become decisions of the group. Therefore, it is important and essential that minutes of the business discussed at each meeting be recorded.

- All interested parties and groups should receive the record or minutes of each meeting.

(5) Conference leading technique, a trainable skill, should be developed by the educator responsible for advisory committees. College courses or in-service workshops may serve to polish up these skills.

(6) Some tips for the discussion leader-committee chairman:

- Start on time.
- Stick to the agenda.
- Clearly state the problems to be considered.
- Direct group thinking, but provide the "freedom within a framework" atmosphere conducive to discussion.
- Keep your own opinions to your self.
- Be patient with members of the group.
- Discourage debating.
- Seek agreement: invite discussion--do not squelch criticism, welcome it.
- Keep attention on the problem at hand.
- Secure participation from each member.
- Retain your sense of humor.
- Show appreciation for contributions.
- Preserve an informal atmosphere.
- Avoid playing the school teacher.
- Keep discussion alive until all points are covered.
- Summarize from time to time.
- Record all ideas and conclusions.

- Stop on time.
- Keep in mind the four phases of conference leading: the approach, the drawing out, and the acceptance, and the summation.

(7) A typical agenda for an advisory committee meeting may include:

- Introduction of members.
- Brief explanation of industrial education program.
- Brief review of trade-tech program under consideration.
- Explanation or brief summary of functions of an advisory committee.
- Report of previous meetings or reading of the minutes.
- Reading of communications.
- Reports of sub-committees.
- Unfinished business.
- New business: topics or problems to be discussed.
- Other new business.
- Setting of date for the next meeting.
- Adjournment.

(8) Remember, there are three kinds of meetings: Problem finding, problem solving, and informational. Concentrate on the first two establishing the conference climate. Avoid the third, involving teaching or telling. Keep in mind, a conference is a meeting of people of similar background to exchange thoughts and experiences for the purpose

of reaching workable conclusions on matters presented.

(9) The educator seeking the assistance of experienced persons has the responsibility to state the problems of the industrial education program to the advisory committee for discussion and recommendations.

(10) Schedule the time necessary to properly service the advisory committee.

(11) Develop and publish a handbook for advisory committee members which includes the following:

(a) your philosophy of trade-tech education.

(b) your philosophy of advisory committee usage.

(c) the limits of advisory committee functions.

(d) previous successes enjoyed by the college due to advisory committee action.

(e) the names of each committee and of each committee member.

Give a handbook to each member and occasionally refer to it during meeting. Revise the handbook annually.

Consultants

The term "consultants" used in this paper means those who give professional advice or service in solving problems, organizing for action, evaluating findings, and establishing acceptable productive procedures. Consultants may prove helpful in organizing, planning, or expanding the vocational-technical program of a junior college.

The need for consultation services should be established, the areas of need defined, and the consultant's responsibilities detailed before the service is considered. After these items have been discussed, evaluated, and approved, selection is in order. Consultants for vocational-technical education in the junior colleges should be selected with deliberation and care.

Consider the following items:

1. Reputation. Are the consultants being screened recognized authorities on the junior college study? Are they familiar with the type of community involved? Have they served successfully on similar projects? Are they compatible with others involved in the study? Do their judgments carry an "expert" classification within the community? Would committees listen to their recommendations?
2. Knowledge. Are the consultants being considered familiar with current practices in vocational-technical education? Are they aware of employment trends and problems? Are they aware of faculty needs and resources? Do they know what facilities are required to meet the needs?
3. Time and Cost. How long should the study take? What rate of pay do the consultants charge? Are qualified consultants available from county, state or federal agencies? Are state or federal funds available for paying for consultant service? Can the Department of

Employment play a role in the study? Is there data that can be assembled by staff, advisory committees, or others to save consultant time?

Consultants may be needed for other services than a study, as for example, for pre-organizational planning. Consultants could also aid in the selection and use of advisory committees, and in techniques of public relations and publicity, and of preparing the community to recognize the need for the vocational-technical program. If a junior college needs this kind of service, a consultant could assist its staff with items such as:

1. Listing the areas which need advisory committees.
2. Establishing guides and responsibilities for advisory committees.
3. Determining which organizations or individuals within the community should be utilized on advisory committees.
4. Selecting county, regional, state and federal personnel who can be of assistance.
5. Evaluating organizations, individuals, and others for helpfulness, neutrality, or opposition.
6. Analyzing similar studies made in other communities.
7. Promoting a program to publicize important information relating to the study.
8. Organizing panels or lectures for informing industrial and labor organizations, service clubs, the chamber of commerce, parent groups, faculties, students and the general public.

Consultants may be used in combination, as a "task force"--the idea used by the military, with which the public is somewhat familiar, is also useful in attacking educational problems. Like the navy task force, which employs the number and kinds of ships and weapons to independently undertake a war operation, the educational task force includes individuals with the varying backgrounds and abilities necessary to make a complete study and analysis of a problem.

A task force employed to study technical education would usually include top-level consultants, each with a different area of knowledge and strength. For example, in identifying its needs for a Title VIII project in technical education, a junior college might call in a task force to plan its program. The specialists involved might be from governmental agencies, industry, business, or professional agencies that specialize in such service. In any case, this task force should be composed of individuals who can study and analyze the total problem with competence.

Organized Agencies

Many agencies can furnish services and information related to vocational-technical programs to junior colleges. Prior to utilizing any of these agencies, the college should evaluate each one for its affiliations, its goals, and its potential service. The U.S. Department of Health, Education and Welfare can assist by furnishing detailed information on any agency

being considered. Mr. Lynn A. Emerson, of the Department, issued a pamphlet entitled "Technical Training in the United States," which lists and describes many of these agencies. Some of them are:

1. American Society of Training Directors (ASTD): has information about industrial requirements for training.
2. American Society for Engineering Education, Technical Institute Division (ASEE): sponsors surveys of technical education; evaluates technical programs; has information on teacher training, teacher recruitment, relations with industry, curriculum development, relations with educational organizations and government; conducts research and promotional activities for training technicians.
3. American Vocational Association (AVA): informs the public on developments in all phases of vocational education; promotes legislation for vocational education; publishes a journal and informative pamphlets.
4. Civil Service Commission: develops job specifications for technical government jobs; has a program for the recruitment and utilization of technicians in governmental employment.
5. Department of Health, Education and Welfare (HEW): compiles statistics on technical education; administers the NDEA Act of 1958, along with previous vocational education acts; conducts research and publishes

information relating to vocational-technical education and manpower needs.

6. Department of Labor: conducts studies of technical employment; develops and administers tests for the selection of students for technical training; provides labor market information; assists with the placement of technical workers; publishes a dictionary of occupational titles; assists with the development of training programs and with the conducting of occupational surveys; and publishes occupational outlook information.
7. National Science Foundation (NSF): sponsors extensive surveys on data involving technical employment forecasts; assists with training teachers.
8. Office of Civil Defense Mobilization (OCDM): gathers data on availability of technicians' needs for national emergencies.
9. Electronics Industries Association (EIA): supplies manuals and training aids for education; conducts surveys on industry's aid to technical schools; encourages youth to enter electronics.
10. Instrument Society of America: makes surveys of functions of technicians.
11. American Petroleum Institute: develops instructional materials; cooperates with training programs for the petroleum industry.

In addition to these, there are many state, county and local agencies which can aid the junior college in developing vocational-technical education programs. The yellow pages of metropolitan telephone directories list employment agencies, industrial relations consultants, labor organizations, personnel consultants, and other agencies which can provide valuable information.

In conclusion, there is a wealth of assistance available to the junior college in the area of vocational-technical education, much of which goes untapped. In order for the junior college to provide the curriculum needed, to meet its responsibilities, to improve its public relations program and to furnish the manpower needs for the country, it is important that agencies be utilized by its administration and by its staff.

Informal Contacts

Field states, "The community college makes definite efforts to ascertain the needs of a single community and to organize its work to meet these identified needs. Advisory committees, lay committees, community surveys, planning meetings, meetings of parents, student committees--many means are used to locate expressed and latent wants." In addition to these, it is worthwhile to maintain informal contacts with such organizations as PTA's, Kiwanis, Rotary, Lions, Chambers of Commerce, community coordinating councils, and other groups. Staff representation at meetings, program speakers, films, and so forth help to build the community's interest in and support for the college program.

Beyond the actual functioning of advisory committees in various technical and industrial areas, periodic contacts should be maintained with industry through visitations, follow-up studies of student success at work, and instructor employment in industry. The college staff should keep abreast of the industry in its service area--maintaining a knowledge of the trends, needs, problems and standards that should be met.

What Can We Expect From Advisory Service

Successful technical education programs depend upon a close relationship between the school and the community. Technical programs that are insensitive to industry soon decay.[38] Administrators and teachers alike realize that their "product," the young people educated to assume their responsibility as citizens of the community, will be qualified to the extent that the community participates in developing the programs offered by the school.[39] The advisory committee is the agency which maintains the necessary communications. It may perform any of the following services:

a. Assist in determining training needs.

(1) Insure that the training programs are based on forecasts of needs as far in advance as is practical.

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38. California Plan for Vocational Education (Sacramento: California State Department of Education, 1960), p. 5.

39. King, Advisory Committees, p. 2.

(2) Assure that the training programs are up to date and that the occupational preparation is useful.

b. Recommend qualified persons as teachers.

(1) Select prospective teachers from industries having persons with long experience as skilled craftsmen but little formal technical education, or

(2) Persons with formal degrees and with technical experience.

c. Assist in determining the length and content of courses.

(1) Insure that the curriculum is occupation-centered.

(2) Help determine the hours of attendance in courses presented to meet the student's needs as a worker and as a citizen.

(3) Base the level of curriculum content upon the true needs of the occupation as determined by the particular industry concerned.

(4) Help plan the shop facilities and equipment selection.

d. Maintain public relations.

(1) Develop external support of educational policies through contact with the general public, groups, and industries.

(2) Promote the use of all types of mass media to keep the public informed of what the school is doing.

(3) Improve the public image of technical education

by acquainting a larger number of people with the school program and personnel, thereby increasing the status of the junior college.

e. Set standards for student selection.

(1) Inform school guidance personnel of industry's technical operations and requirements in order to develop selection criteria.

(2) Encourage industry to establish definite employment standards in order to allow the school to develop definite achievement levels for graduation.

f. Placement and follow-up of students.

(1) Encourage industry to cooperate with the school follow-up system.

(2) Encourage industry to place technical school graduates at higher employment levels than those persons who are less prepared.

g. Assist in conducting community surveys.

(1) Develop training programs based upon the real needs of the community.

(2) Encourage interested and qualified laymen to participate in the community survey in order to identify current employment trends.

h. Help secure specialized equipment and training aids. Insure that the college makes the best possible use of the resources of industry and that industry will make equipment and materials available upon request to the college.

i. Develop and maintain apprenticeship standards. Insure that apprenticeship committees not associated directly with the college are consulted in regard to program efficiency.

VT 004 532
Procedures for Developing a Homemaker-Health Aide Service in Iowa.

Iowa State Univ. of Science and Technology, Ames. Cooperative Extension Service
MF AVAILABLE IN VT-ERIC SET.
Pub Date - May66 21p.

*OCCUPATIONAL HOME ECONOMICS; SERVICE OCCUPATIONS; *COMMUNITY SERVICE PROGRAMS; *COMPANIONS (OCCUPATION); MAIDS; CHILD CARE; HOME MANAGEMENT; *PROGRAM DEVELOPMENT
*HOMEMAKER HEALTH AIDE SERVICE

The homemaker-health aide service has been defined by the National Council on Homemaker Service as an organized community program provided through a public or voluntary non-profit agency. Qualified persons are employed, trained and assigned to help in the care of children and the functioning of dependent, physically or emotionally ill or handicapped children and adults. Local needs and facilities call for different administrative patterns. Initiation procedures outlined in the document encompass: (1) promoting the idea through various organizations, (2) appointing a steering committee, (3) determining the need, (4) interpreting the need to the community, (5) exploring auspices for the service, (6) setting up a permanent committee, (7) financing the service, (8) determining operation policies, and (9) making recruitment selection and training of homemakers. The homemakers service person typically performs the following in a home: (1) bathing, feeding, dressing and caring for children, (2) escorting children to and from schools, and helping with homework, (3) assisting disabled adults to get in or out of bed, (4) planning menus, buying and preparing food and serving meals, (5) light cleaning and maintenance of the home, and (6) care of the family's clothing. The appendix contains measurement and survey courses, questions and a sample survey form. (FP)

VT 004 532

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Procedure for Developing a Homemaker-Health Aide Service in Iowa

VT004532

IOWA STATE UNIVERSITY of Science and Technology
COOPERATIVE EXTENSION SERVICE
AMES, IOWA. . . . . .May, 1966. . . . . .V-48

Procedure for—

DEVELOPING A HOMEMAKER—HEALTH AIDE SERVICE IN IOWA

Homemaker - Home Health Aide Services are multiplying rapidly throughout the country. They are established in response to a number of social changes which have made the customary sources of help to individuals and families in crisis or chronic health and welfare conditions inadequate. Through this means, personal care and homemaking services can be provided in an organized way to those having this need.

The Homemaker - Health Aide Service has been defined by the National Council for Homemaker Service as "an organized community program provided through a public or voluntary non-profit agency. Qualified persons known as homemaker-home health aides are employed, trained and assigned by this agency to help maintain, strengthen and safeguard the care of children and the functioning of dependent, physically or emotionally ill or handicapped children and adults in their homes where no responsible person is available for this purpose. The appropriate professional staff of the agency establishes with applicants the need for the service, develops a suitable plan to meet it, assigns and supervises the homemaker-home health aides and continually evaluates whether the help given meets the diagnosed needs of its recipients."

They also define a "homemaker" as "a mature, specially trained woman with skills in homemaking who is employed by a public or voluntary health or welfare agency to help maintain and preserve family life that is threatened with disruption by illness, death, ignorance, social maladjustment or other problems. A pleasant personality, physical and mental well being, experience and training enable her to assume full or partial responsibility for child or adult care, for household management and for maintaining a wholesome atmosphere in the home. She does these things under the general supervision of a social worker, nurse or other appropriate professional person connected with the sponsoring agency. She exercises initiative and judgment in the performance of her duties, recognizes the limits of her responsibility, works cooperatively with family members and shares her observations and problems with those responsible for the homemaker service program."

Prepared by Bernice Bateson, District Home Economics Program Leader, and Margaret Yoder, Assistant State Leader, Home Economics Program.

Purpose of Homemaker-Health Aide Service

These principal purposes are to be served by the Homemaker - Home Health Aide Service:

1. To keep the family together while the natural homemaker (usually the mother) is incapacitated, whether she is in or out of the home; and to prevent family breakdown for any other reason, thus avoiding the shock of separating children from their parents, their brothers and sisters, their schools, their friends.

2. To enable the individual, whenever possible, to remain in his own home among familiar surroundings.

3. To lessen the burden of chronic illness -- physically, mentally, emotionally and economically.

4. To hasten convalescence and to reduce the length of stay in an institution by permitting the patient to remain at home or to return home sooner than he otherwise could. This will free hospital and nursing home beds for those who most need them. For the family, the individual and the community, it will also help offset the cost of expensive institutional care.

5. To keep on his job the employed adult who now so often must take time off to care for children, an elderly parent, or an ill relative.

6. To help assess family and individual strengths and weaknesses so that the family and agency may determine what plan will serve the best interests of the family and the community.

7. To help teach adults and children better ways of management of day-to-day living and better methods of self care.

How to Set Up a Homemaker-Health Aide Service

There is no one way to set up a Homemaker - Home Health Aide Service. Different local needs and local facilities call for different administrative patterns. However, it has become a responsibility of the community to organize the agencies and care-giving facilities serving its people to provide these services on a sub-professional basis.

A flexible service, capable of responding to a wide variety of health and welfare needs of the community, would seem superior to any program geared for service to any particular group such as the aged, the chronically ill, post operative, the mentally ill, postnatal, and the neglected or socially deprived. This is particularly true in areas which are primarily rural.

The broad service program, while having the advantage of the ability to serve a variety of needs, would also have the advantage of multi-disciplinary financial support from the community.

A central organization charged with evaluative and placement functions allows constant supervision necessary for effective functioning of the Homemaker - Home Health Aide and serves as a focal point of coordination between community agencies and gives opportunity for an ongoing in-service training program for aides. Casework conferences are a necessity due to the changing circumstances relevant to each client served.

Homemaker Services are now being provided satisfactorily under both public and private auspices. According to a 1958 study, 110 of 143 agencies surveyed were voluntary -- family-child service agencies, visiting nurse associations and other voluntary agencies for most of which the primary function is the provision of Homemaker services. The remaining services under public auspices were administered by public health agencies, public welfare or a juvenile welfare board.

The most important consideration in this situation is that the service be set up under an agency which will make it acceptable and usable by the greatest number of people.

Since there is no set procedure for establishing a Homemaker - Home Health Aide Service in Iowa, and no single source of funds available for operation, it is essential that local action be taken in setting it up and local support be obtained for the operation. This must essentially be a "grass roots" operation.

Consequently, it becomes important to outline a process of community action by which interested citizens may bring about the development of such a service in their respective communities. County Extension Home Economists in their daily contacts with the leaders of community action are in a very favorable position to foster and help to organize Homemaker - Home Health Aide Services for the communities of Iowa.

I. Initiating the Idea

The idea for Homemaker - Home Health Aide Service may come from anyone who has a sense of the need. This might be from professionals

who deal with individuals and family such as persons from the medical profession, public health, visiting nurses, school nurses or officials, public welfare, Extension service or from lay people who are in a position to observe the need and are concerned or who perhaps themselves have problems which could be helped by such a service.

The person who has the idea should visit informally with two or three select individuals who are in a position to know the need and to help interpret it to the community. These are apt to be from the health, education, welfare and religious agencies and institutions in the county or area. Leadership might be taken by anyone of the agencies or institutions or by a combination of them.

If there is agreement that there is a need in the community and that it should be explored on a broader basis, a meeting of interested individuals should be called.

The ground work for such a meeting should be carefully laid. It is important to have the people present who will actively support such a move and who have influence with specific groups in the community. These should be identified and contacted personally by one of the original group, or by someone whom they feel can successfully obtain the support of the individual. It is well, also, to have in mind someone who might give agressive leadership as chairman of a steering committee when it is formed.

Here is a suggested list of agencies, official bodies, organizations and groups from which to draw influential citizens.

1. Health and welfare agencies, <u>voluntary</u>.

   Family and/or children services.
   Institutions for children and aged.
   Visiting nurses associations.
   Hospitals and clinics.
   Day care centers for children and older persons.
   Community chests and funds.
   Community planning councils and federations.
   Community health councils.
   Local chapters of national health agencies.
      American Cancer Society
      American Heart Association
      American Red Cross
      National Association for Mental Health
      National Foundation
      National Tuberculosis Association
      Etc.

Public (tax supported)

Departments of public welfare, local and state.
Departments of public health, local and state.
Boards of education, local and state.
Departments of recreation (local).
Cooperative Extension Service

2. Official bodies

County Board of Supervisors
City or town councils
City manager or mayor
Boards of health, welfare, education in addition to administrators of official agencies.

3. Organizations

Medical societies and women's auxiliaries.
Hospital auxiliaries.
Nursing associations.
Fraternal organizations.
Veterans organizations.
Civic clubs (men and women).
Service clubs (men and women).
Junior Leagues.
American Association of University Women.
Associations of social workers
Farm organizations.
Federation of women's clubs.
Extension groups.
Home economics clubs.
Parent - Teacher's Associations.
Blue Cross - Blue Shield.

4. Other groups and interests

Newspapers.
Radio and television.
Labor unions.
Employers.
Chambers of commerce.
Churches and church groups.
Interested and influential citizens as individuals.
Local foundations.

II. Appoint a Steering Committee

If the group in the initial meeting decides that action should be taken, a steering committee should be formed. Members should be influential citizens from the list of agencies and organizations given, many of whom might have attended the first meeting. The professionals in the health, education and welfare agencies (including Extension) should, in the main, serve as resources to this committee. Finding the person who has high interest, influence in the community and commitment to the idea, to serve as chairman is important.

Sub-committees should be appointed as needed. These may be desired: Publicity, Finance, Survey.

III. Determine the Need

The need for Homemaker Service in the specific area can be established by various means:

1. By data on:

   - incidence of chronic disease in the area
   - population by age groups
   - health care facilities available in the area and the use of such facilities. If they are inadequate for the quantity of demand, it should be noted.
   - families served by each agency which might need Homemaker - Health Aide Service

2. By surveys conducted with potential users of the services to determine need. These might be specially set up or surveys others have made might be useful. Example: O.E.O. surveys.

   Sample surveys are included in the appendix. Further help is available from the State Department of Health, State Department of Social Welfare and the Cooperative Extension Service.

IV. Interpret the Need to the Community

Community awareness must be developed through a planned procedure. A publicity chairman who has access to various media should be appointed.

Effort should be made to bring understanding on:

1. What Homemaker Service is and what it needs to serve.
2. What the need is in the community for Homemaker Service.
3. Success of other services which have been set up.

This might be done through:

1. Radio - A series of public service presentations, spot announcements and reports of successful programs elsewhere.
2. Newspaper - A series of articles on Homemaker - Home Health Aide Service. Good reporting of what's happening in the community as Homemaker Service develops. Include names of people involved.
3. Television - Public service interviews. If nearby communities have Homemaker Service, utilize some individuals who have been involved in organization and/or as users of the service.
4. Fact sheets to be distributed in grocery sacks, to be included with materials someone else is mailing anyway, and to be distributed through meetings, etc.
5. Speakers bureau. Provide a list of informed people who can speak to groups. Solicit time on their programs. Refer to the list of organizations given earlier.
6. Personal visits to influentials who might not have been involved up to this time.

V. Explore Auspices for the Service

1. It may be desirable to establish a new, independent agency to administer Homemaker - Home Health Aide Service, or

2. A second choice would be to set it up as a part of an existing governmental or private agency. Among others, these have been used: Visiting Nurses Association, Public Health department, hospitals, Departments of Social Welfare.

It should be noted, however, that for a Homemaker - Home Health Aide Service to qualify for providing service under Medicare, it must meet specifications set up in Section 1861 (o) of the Social Security Act. The easiest way to meet this is to base the new service with a certified agency. The State Department of Public Health is the agency designated to certify these in Iowa.

VI. Set Up a Permanent Committee

The committee should be set up with a constitution and by-laws and should be incorporated to enable it to receive funds from various sources.

See a suggested constitution and by-laws in the Appendix.

VII. Determine How the Service Will be Financed

1. The planning committee should explore a wide range of sources of financial support to meet the costs of the service. A primary problem in setting up a Homemaker Service is the availability of funds. Even though new sources of funds are being used to finance homemaker programs, few committees have found it possible to finance all the service needed by all economic and age groups through any one means. A broad base of support is needed on a continuing basis.

2. Initial contributions to help set up the service may come from:

   a. Grants and donations from individuals and organizations.
   b. Service and women's clubs.
   c. Industry.
   d. Philanthropic foundations.
   e. Some have received contributions in form of office space, equipment, telephone service and public relations materials.

3. Fees for homemaker services should cover homemaker's salaries (including Social Security) and transportation, the full or appropriate share of professional and clerical staff involved in supervision and administration; and a proper share of operating expenditures and overhead such as supplies and maintenance.

   Those who can pay for the service should pay the full fee. However, if the service is to be successful, sources of funds to pay for the service to individuals and families who cannot pay must be determined locally -- such as purchase of service by Social welfare departments, the voluntary agencies (Cancer Society, etc.) or Economic Opportunity Act proposals.

4. Other sources of financial aid.

   a. Community chests, United funds and similar agencies.
   b. Public child welfare and assistance funds.
   c. Foundations, gifts, local government revenue.
   d. Management and labor. (This may be a source as Iowa becomes industrialized.)
   e. Services provided under Medicare and pre-paid insurance plans (such as Blue Cross.) As noted earlier, Medicare benefits will not be available as a source of revenue except through contracts with certified home health agencies.

5. Government grants

(1) Various demonstration funds from U.S. Public Health and Welfare. Among others, funds are available through the Community Health Services and Facilities Act of 1961. (P.L.87-395) (Public Health Service) for the support of studies, experiments and demonstrations that will lead to new or improved community health services outside the hospital. State Departments of Social Welfare and Public Health should be contacted to find out possibilities.

(2) Economic Opportunity Act. The establishment of a Homemaker Service could become a component of a Community Action Program (Title II A) with funds being requested for recruitment, training and supervision of the homemakers employed by the Homemaker Service to serve low income people. Funds for training of homemakers could also be requested under the Work-Experience program. (Title V administered by the State Department of Social Welfare.)

(3) Older Americans Act. This act, passed in 1965, might also provide moneys for Homemaker Service facilities serving older people. This act is administered by the Iowa Commission on Aging. Mr. Ray Schwartz is the executive secretary. He may be reached in care of the office of the Governor in Des Moines.

VIII. Determine Policies of Operation

Policies need to be set up by the committee. Studies of successful services have pointed up some guidelines.

1. The service should be available to all segments of the population from very young to very old.

2. The service should be adaptable to a variety of situations.

3. The service should be helpful in various problems; illness, death, emotional disturbances, handicaps, etc.

4. The social values of a homemaker service to families and individuals cannot be expressed in terms of financial measurement. Effective homemaker programs cost money to operate. Experience has shown that it costs less for a community to provide this service from either tax, voluntary or other sources of funds than to pay for alternate services such as foster care, nursing, home care, etc.

5. For the administration of an effective program, casework skills and techniques are necessary.

6. The planning committee should inform the community of objectives, purposes and goals of the homemaker service and maintain a constructive working relationship with other agencies and users of the service.

7. Consultants in child welfare, aging, family casework, medical, psychiatric, social work, home economics and fiscal matters will be essential in getting the service into operation successfully.

8. Staff from state health and welfare departments can be particularly helpful in getting a service into operation.

IX. Recruitment Selection and Training of Homemakers

A large reservoir of woman power for Homemaker Service exists in every community if we recognize the potentialities of middle-aged and older women. For this reason, agencies are urged to select homemakers on the basis of ability and experience with no arbitrary age restriction.

Selection of personnel to serve as Homemakers is one of the most important considerations. Briefly, the criteria for selection are: understanding and interest in service as a "Homemaker;" success as a homemaker in her own home; cheerful, optimistic disposition; evidence of gratifying life experience in interpersonal relationships; ability to work with supervision; ability to exercise independent judgment; ability to communicate; good physical health and adequate intelligence.

Few families will need all the services included in the following list, but these are the kinds of things the Homemaker Service person will do in a home:

Personal and Special Services

For children

1. Individualized personal attention such as bathing, preparation of infant formula, feeding and dressing.

2. Attention to health care including personal hygiene, preparation of special diets as requested by physician, nurse or dietitian; help in getting to medical or dental appointments and in following advice.

3. Escorting children to and from schools, playgrounds and clinics.

4. Helping with homework, story telling and reading.

5. Helping children assume responsibility for themselves and for some of the necessary household chores.

For adults

1. Many of the same kinds of services as given for children. In addition, the dependent, disabled or aging adult requires:

   a. Assistance in getting in or out of bed or to the toilet.

   b. Supervision and assistance in carrying out recommendations of physician, nurse, social worker, physical therapist or nutritionist. The homemaker's role is one of teaching and helping in personal adjustment with the goal of making the person as self-sufficient as possible. Thus, the homemaker is an integral part of the home help team.

Household Management

1. Planning menus, buying food, preparing and serving meals. This requires knowledge of nutrition, prices, cooking and the appreciation of cultural patterns.

2. Light cleaning and maintenance of the home. Heavy cleaning should not be expected of the homemaker aide.

3. Care of family's clothing. This means light washing, ironing and mending. Sometimes the homemaker may be called on to buy clothing.

4. Helping the family plan their expenditure and manage their funds, and sometimes actually paying bills.

5. Suggesting rearrangement of work areas and equipment so that the mother (particularly if she is handicapped) can better perform her duties.

6. Assisting inexperienced, immature and senile persons in planning daily schedules and budgeting time.

Guidelines for Recruitment and Selection

1. A direct line of approach to informal recruiting can be taken with appeals being made to individual community leaders, members of board of education, doctors, pastors and businessmen.

2. As in all phases of Homemaker Service, flexibility is desirable in deciding upon job qualifications.

3. Whatever the chronological age, good health and a good general health history are necessary for the homemaker since her job includes the physical and emotional strain of dealing with active and sometimes disturbed children or adults, long hours, housework, the creation and maintenance of a peaceful environment when possible and meeting diverse situations.

4. Candidates should be carefully screened by persons with knowledge in this field.

5. It is necessary for the homemaker to have pre-employment and annual physical examinations.

Guidelines for Training

Providing training before assignment gives important knowledge about the work to be done. It also establishes a certain "esprit de corps" in the group and gives their work appropriate status.

1. Training should be set up in two stages, each geared to the individual needs and capabilities of the trainee.

   a. Pre-employment training should focus on:

      -The philosphy and purpose of Homemaker - Health Aide Service.
      -Functions of different staff members.
      -Policies of the agency.
      -Skills and understanding necessary to work with people of different age groups and particularly those who are ill or in crisis situations.
      -Principles of body mechanics; transfer techniques etc. generally necessary to the giving of personal care services.
      -Skills of home management such as care of clothing, meal planning, nutrition, personal care.
      -Problems likely to be faced on the job including the relationships of the homemaker to the family, meeting problems she doesn't know how to handle, etc.

If a homemaker's responsibilities are to include extensive personal care of patients, that portion of the training should be accordingly expanded to give orientation to the procedures which will be expected of the employees.

b. In-service training

1. This should be a continuing process designed to further develop the homemaker's skills and to help her as problems arise and needs in families change.

2. Training programs should not be too rigid and should use a variety of teaching techniques including:

   -Individual and group instruction
   -Supervised field experience
   -Demonstrations
   -Workshops

3. Training should be carried out by those in the fields of health, welfare and home economics. Training outlines are available for a 22-hour training course to be conducted on a one-week or two-week basis.

   Usually local professionals can be found who will do the training on a voluntary basis. The public health or school nurse (or nurse in a local hospital) and the county extension home economist or a vocational homemaking teacher are most often obtained to do this job.

   Pay beyond actual incurred expenses during the training period is not encouraged since this tends to attract those interested only in the money being paid. The financial need of the person being trained is not always the best criterion in the selection of the effective homemaker.

Certification of the Homemaker

A certificate indicating that the homemaker has had an approved training program should be provided on the completion of the course.

Many services find that having the homemakers wear an approved uniform or smock with an appropriate insignia gives prestige to the worker and increases her pride in the work she does.

Supervision of the Homemaker

Supervision should be provided on a regular scheduled basis with appropriate arrangements for the supervisor to be readily available to the homemakers, particularly in their early employment.

Either public health nursing or social work can provide this supervision. In fact, if consultation by a social worker and public health nurse is readily available, the actual supervision can be carried out by a person with less than full training, but experience in these fields.

APPENDIX

I. Surveys

Example A:

Homemaker-Home Health Aide Committee Survey

To be distributed and tabulated from various health and welfare agencies.

Client's name_____ Address _____

Reason for needing Homemaker-Home Health Aide service (check):

_____ child care _____ chronic disability _____ convalescent

_____ mentally ill _____ aged

_____ other (explain)

Number of hours per day service is needed: (check)

_____ 1-2 _____ 3-4 _____ 5-8 _____ 8 or more _____ 24 hours a day

Number of days per week service is needed: (check)

____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7

How long will service be needed: (check)

_____ weeks _____ months _____ indefinitely

no. no.

Client's ability to pay: (check)

_____ full cost _____ part cost _____ unable to pay

Referring agency: _____

Please estimate the number of families or individuals your agency would have referred to a homemaker service, if such a service had been available, during the past year. _____

Measurement or Survey for Unmet Needs

Example B:

I. Source

1. Voluntary family and/or children's services.
2. Co-departments of public welfare.

Questions

1. Number of families and individuals during a 12-month period for whom emergency or crisis required placement of children or older persons away from home, in foster homes or institutions.

2. Number of children and adults involved and comparative costs of these types of care and Homemaker Service.

3. Number of such homes which could have been maintained with Homemaker Service.

4. Number of children or adults who reacted to placement by presenting behavior problems, unfavorable emotional reactions, etc.

II. Source

1. Official and non-official health agencies.

Questions

1. Number of mothers with new babies where lack of physical or emotional health prevented proper care of infant or other children.

2. Number of families with handicapped children whose condition was severe enough to disrupt normal care and adjustment of other children in the family.

3. Number of families in which the ill mother's recovery was retarded for want of a homemaker.

4. Number of adult families who needed a homemaker.

III. Source

1. Hospitals (public and private)
2. Physicians (in private practice, clinics, hospitals)

Questions

1. Number of days' care given children, adults and elderly persons in hospitals or nursing homes beyond amount necessary for treatment.

2. Cost of this care (in contrast to convalescent care at home with help).

3. Number of patients involved.

4. Number of patients whose recovery was hampered by worry over home situation.

5. Number of patients who delayed obtaining medical or surgical treatment because of inability to work out plans for care of household during hospitilization.

6. Number of persons admitted to nursing homes who could have remained at home with Homemaker Service.

IV. Source

1. Schools
2. Teachers
3. Parent-Teacher Associations

Questions

1. Number of instances where children stayed home from school to care for brothers and sisters during mother's or father's illness or other crises.

2. Number of days' schooling lost.

3. Number of children involved.

V. Source

1. Churches
2. Ministers

Questions

1. Number of parishioners appealing for assistance for home help in time of crisis.

2. Kinds of situations classified by children, adults, elderly persons.

Example C:

A comparatively simple survey.

Questions	Check or Give Number
1. Is a Homemaker Service needed?	
2. Total number of cases needing Homemakers in last 12 months?	
3. Number of cases where husband remained home from work due to lack of a Homemaker?	
4. Number of cases where home was broken up due to lack of Homemaker Service?	
5. Do you know any women for Homemaker employment?	
6. Should service be a part of family and child service?	
7. Would your agency use it?	

II. Suggested Constitution and By-Laws.

Constitution and By-Laws

Article I

The name of this organization shall be --

Article II

PURPOSE

The purpose of this organization shall be to assist families where illness threatens to disrupt the household, by providing them with a homemaker, trained and supervised to do light housework, run errands, plan, prepare and serve meals, care for children, and preserve the home atmosphere. Service is rendered on a pay basis.

Article III

OFFICERS AND BOARD OF DIRECTORS

Section 1. The officers shall be a President, a Vice-President, a Secretary and a Treasurer, each of whom shall be elected for a term of two years except that, in the first year, the Vice-President and Secretary shall be elected for one year.

Section 2. The Board of Directors shall consist of the officers and the chairmen of standing committees and (a limited number of) members at large. They shall serve for three years except that, in the first year, one-third of the members shall be elected for one year, one-third for two years and one-third for three years.

Article IV

MEETINGS

Section 1. There shall be not less than eight Board of Directors meetings a year.

Section 2. The annual meeting shall take place on_____ .

Section 3. A special meeting may be called by the President or shall be called at the request of one-third of the members of the Board of Directors.

Article V

ADVISORY COMMITTEE

An Advisory Committee, representative of medical, health and welfare groups of the community, shall be appointed by the Board.

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Report of the Annual Conference on Industrial Education (26th, Anaheim, California, March 4-6, 1964).

California State Dept. of Education, Sacramento
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*ANNUAL CONFERENCE ON INDUSTRIAL EDUCATION, ANAHEIM, CALIFORNIA, MARCH 4-6, 1964

The conference was attended by 224 industrial education leaders from the public schools and colleges of California. The proceedings included nine speeches, including "Industrial Arts and Technology in the Future" by Walter C. Brown, "A Design for Educational Leadership in the Vocational Training of California's Work Force" by Richard S. Nelson, "Apprenticeship in our Schools" by Norman R. Stanger, and "Occupational Orientation" by Cortland C. Doan. Presentations of one session provided brief statements on (1) industrial arts at the elementary, secondary, and college level, (2) vocational industrial education at the secondary and college level, and (3) teacher education for both these programs. Small group sessions, panel discussions, and a conference summary presentation are included in detail. (EM)

VT 004 611

Report of the
TWENTY-SIXTH ANNUAL CONFERENCE ON INDUSTRIAL EDUCATION

Anaheim, California
March 4-6, 1964

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CALIFORNIA STATE DEPARTMENT OF EDUCATION

MAX RAFFERTY
Superintendent of Public Instruction
SACRAMENTO, 1964

FOREWORD

The program of education offered by the California public schools is designed to meet the educational needs of all children, youths, and adults. This program is very broad in scope and has great depth, for the educational backgrounds, physical and mental endowments, and interests of people differ greatly. As society becomes increasingly complex, the needs of people become ever more varied.

Industrial education, one phase of this program, must also be broad in scope and have great depth, if it is to offer sufficient flexibility to provide for the differences among people as well as the development of new materials, processes, products, and services. Conferences such as the Twenty-Sixth Annual Conference on Industrial Education afford opportunity to the participants to exchange views and information and to profit from one another's pioneering, successes, and even failures. And in doing so all are in better position to keep industrial education moving and expanding as necessary.

Those who planned this conference, and those who participated in it are to be commended.

Max Rafferty

Superintendent of Public Instruction
and Director of Education

INTRODUCTION

The Twenty-Sixth Annual Industrial Education Conference, held in Anaheim, March 4-6, again brought together industrial education leaders from all sections of California. As the Conference progressed, the consensus was obvious that industrial education was at the crossroads and that the decisions made at the conference and those of the next few months would permanently affect the future of industrial education.

The numbers of persons supporting industrial education vocally and tangibly is unprecendented. Participation in industrial education by supporting services such as that provided by the California State Employment Service is adding another dimension to industrial education. And, finally, new legislation already passed and some that is pending will provide added resources, greater flexibility and undetermined opportunities for an expanded and more effective industrial education program. A portion of this program will operate primarily in the traditional pattern and industrial educators will work directly with employer and employee groups. In addition to these programs, we will be called upon to provide industrial education as a supplement to other public services such as welfare departments and other agencies yet to be created which are being established to eliminate poverty and solve the unemployment problem.

These are the opportunities and these are the challenges to industrial educators. Will we provide the leadership or will it go to the newcomers in the field? Will we point the way or will we, when asked, merely render a service in the manner and to the extent it is requested?

The answers to these questions and of the part we will play in these challenging developments is largely up to us and we should not leave the answers to chance. Many of the presentations at the conference, much of the informal discussion and many of the problems and their proposed solutions dealt with these or related problems. This conference report has been prepared in great detail-much of it almost verbatim, because of its application to the critical situations we are facing or will soon face. It is hoped that it will be reviewed carefully with these thoughts in mind.

Finally, it is quite fitting that appreciation be voiced for all those who are responsible for this Twenty-Sixth Industrial Education Conference.

Ernest G Kramer

Chief, Bureau of Industrial Education

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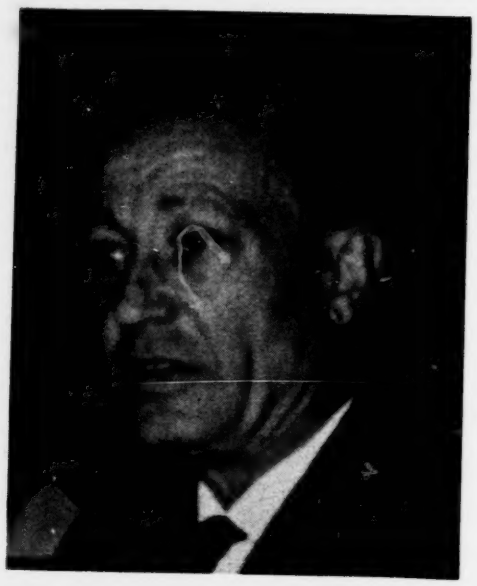
Hastings, H. J.	San Quentin State Prison	San Quentin
Hayball, K. W.	California Conservation Center	Susanville
Hendrickson, R. J.	Diablo Valley College	Concord
Henry, Paul	Cerritos College	Norwalk
Herman, James A.	State Department of Education	Los Angeles
Hooker, Richard R.	Oakland City College - Laney	Oakland
Houck, William G.	Fullerton Junior College	Fullerton

Howell, J. Brady	Santa Barbara City Schools	Santa Barbara
Hunter, Floyd M.	South San Francisco Unified Schools	South San Francisco
Ide, Howard I.	General Services Administration	San Francisco
Imes, Orley B.	Contra Costa College	San Pablo
Irgang, Frank	San Diego State College	San Diego
Isberg, C. C.	Correntional Training Facility	Soledad
Jacobson, Karl F.	State Department of Education	Sacramento
Johnson, Carl A.	Hayward Unified Schools	Hayward
Johnson, Franklin	Los Angeles Trade-Technical College	Los Angeles
Jones, Mark	Tulare County Schools	Visalia
Journigan, Russ	State Department of Education	Sacramento
Judson, Harold I.	Lakewood High School	Lakewood
Kamm, Mrs. Martha	State Department of Education	Los Angeles
Kempf, William A.	Correctional Training Facility	Soledad
Kirkpatrick, Douglas	North Salinas High School	Salinas
Knox, Richard A.	Modesto Junior College	Modesto
Kramer, Ernest G.	State Department of Education	Sacramento
Larsen, Glen M.	Orange County Schools	Santa Ana
Lawrence, Van B.	State Department of Education	Sacramento
Leal, Joseph R.	San Jose Unified Schools	San Jose
Ljubicich, Anthony	West High School	Phoenix, Arizona
Lofgren, Paul	State Department of Education	Berkeley
Lorbeer, Wilbur W.	Los Angeles City Schools	Los Angeles
Loucks, Harry	Sonoma County Schools	Santa Rosa
Mann, William M.	Los Angeles Trade-Technical College	Los Angeles
Marlais, Mark J.	Oakland City College - Laney	Oakland
Martin, Richard L.	Glendale Unified Schools	Glendale
McGaw, S. E.	State Department of Education	Oakland
McGowan, William	California Association Secondary School Administrators	Burlingame
McLaughlin, J. G.	State Department of Education	Sacramento
McNeill, Robert C.	Santa Barbara City College	Santa Barbara
McRobbie, J. M.	California State Polytechnic College	San Luis Obispo
Melchior, W. B.	Long Beach Unified Schools	Long Beach
Mestler, Floyd C.	San Bernardino Valley College	San Bernardino
Meyer, Leo	Chabot College	San Leandro
Miller, Walter	Berkeley Trade School	Berkeley
Montiel, Ernest L.	San Diego City Schools	San Diego
Moore, Donald G.	Folsom Prison	Represa
Moore, Hugh L.	Los Angeles City Schools	Los Angeles
Moorhouse, Robert	Grossmont Adult School	Grossmont
Morosi, J. W.	Los Angeles Trade-Technical College	Los Angeles
Mulkey, Charles R.	Monterey Peninsula College	Monterey

Mullaney, Robert E.	Santa Barbara High School	Santa Barbara
Nameny, William	American Technical Society	Saratoga
Nelson, Richard S.	State Department of Education	Sacramento
Nevins, Richard W.	State Department of Education	Fresno
Newhouse, Glenn I.	Oakland Unified Schools	Oakland
Nichols, D. W.	San Francisco State College	San Francisco
Olsen, Ralph K.	American River Junior College	Sacramento
Oricello, Joseph C.	O'Connell Evening Vocational High School	San Francisco
Orr, Fred E.	Orange County Schools	Santa Ana
Owens, John S.	Orange Coast College	Costa Mesa
Paget, A. F.	California Men's Colony	San Luis Obispo
Park, Yong Moon	Seoul National University	Korea
Patrick, C. W.	San Diego Junior Colleges	San Diego
Paul, C. Allen	Grossmont College	Grossmont
Patterson, C. N.	Long Beach City College, B&TD	Long Beach
Peper, John P.	State Department of Education	Sacramento
Perrin, V. H.	California Medical Facility	Vacaville
Peters, G. F.	State Department of Education	Sacramento
Phares, Gail J.	Burbank Unified Schools	Burbank
Pisor, Ralph M.	Salinas High School	Salinas
Plusch, James O.	Long Beach City College, B&TD	Long Beach
Pope, Clyde A.	State Department of Education	San Clemente
Ralston, Lee W.	Los Angeles County Schools	Los Angeles
Rathbun, Jess	San Francisco Unified Schools	San Francisco
Renworth, George H.	Marin County Schools	San Rafael
Reynolds, Don F.	Los Angeles City Schools	Los Angeles
Reynolds, Jack E.	Sacramento City Unified Schools	Sacramento
Rielley, Michael J.	State Department of Education	Riverside
Rosecrans, George L.	State Department of Education	Oakland
Rowntree, Cedric	State Department of Education	Danville
Ryan, Thomas S.	Glendale Unified Schools	Glendale
Saferite, Elwyn C.	Cerritos College	Norwalk
Schilder, Arthur	Allan Hancock College	Santa Maria
Schorling, H. O.	Fresno State College	Fresno
Schwark, Louis A.	Modesto City Schools	Modesto
Scott, Robert	Deuel Vocational Institution	Tracy
Shaw, Robert H.	State Department of Education	Modesto
Shortess, Harry D.	Vallejo City Schools	Vallejo
Silkett, Bernice	California Institution for Women	Frontera
Silva, J. Winston	State Department of Education	Sacramento
Simonds, Harry E.	Los Angeles City Schools	Los Angeles
Smith, Edgar L.	State Department of Education	Berkeley
Smith, J. R.	Los Angeles City Schools	Los Angeles
Soper, E. W.	Cerritos College	Norwalk
Sorenson, Clarence L.	San Bernardino Adult Vocational School	San Bernardino

Spaulding, Vernon G.	Pasadena City Schools	Pasadena
Stanger, Norman R.	Orange County Schools	Santa Ana
Steele, Lloyd	State Department of Education	Los Angeles
Stegeman, Arthur L.	Humboldt State College	Arcata
Steinberg, David	Los Angeles City Schools	Los Angeles
Steinberg, William	San Diego City Schools	San Diego
Stephenson, J. H.	San Diego Junior Colleges	San Diego
Stinson, R. Jack	Monterey City Schools	Monterey
Stoker, Mack	State Department of Education	Los Angeles
Stone, Mrs. Dorothy W.	State Department of Education	Los Angeles
Strangman, John L.	Stockton Unified Schools	Stockton
Sweeney, Ben	San Jose City College	San Jose
Taxis, David O.	Los Angeles County Schools	Los Angeles
Thiel, Don W.	San Diego State College	San Diego
Theilmann, Wallace	State Department of Education	Sacramento
Thompson, Arthur K.	Shasta College	Redding
Thomsen, E. M.	Los Angeles City Schools	Los Angeles
Thomte, Karl A.	Oakland City College - Laney	Oakland
Tinglof, Mary	Los Angeles City School Board	Los Angeles
Tinker, Fay F.	San Bernardino City Schools	San Bernardino
Tissue, Euel	Deuel Vocational Institution	Tracy
Tobi, Robert	State Department of Education	Los Angeles
Toothaker, John R.	Pasadena City Schools	Pasadena
Trout, B. R.	California Men's Colony	San Luis Obispo
Vanderberg, Mrs. K. R.	State Department of Education	Sacramento
Van Osdel, John	Bakersfield College	Bakersfield
Van Vliet, Frank D.	Sierra Junior College	Rocklin
Wagner, Levi A.	John Swett Union High School	Crockett
Waltz, A. L.	San Francisco City Schools	San Francisco
Ward, Thomas S.	State Department of Education	Sacramento
Warren, Howard	Monterey County Schools	Salinas
Warrick, Glenn D.	Long Beach Unified Schools	Long Beach
Whyte, John W.	Los Angeles City Schools	Los Angeles
Wiens, Jacob H.	College of San Mateo	San Mateo
Wilber, F. Parker	Los Angeles Trade-Technical College	Los Angeles
Williams, Richard A.	State Department of Education	Oakland
Willis, Tom	Salinas High School	Salinas
Wilson, Leslie T.	Addison-Wesley Publishing Co.	Reading, Mass.
Wilson, R. J.	California Conservation Center	Susanville
Winder, George	Los Angeles City Schools	Los Angeles
Wines, L. G.	California Rehabilitation Center	Corona
Wixon, John L.	Contra Costa College	San Pablo
Woltjes, William	Los Angeles City Schools	Los Angeles
Woodward, Robert L.	State Department of Education	Sacramento
Wormley, L. E.	State Department of Corrections	Sacramento
Yager, Alfred H.	Deuel Vocational Institution	Tracy
Younger, Floyd	Cabrillo College	Aptos

ACKNOWLEDGEMENT



George L. Rosecrans

Over the years, members of the Annual Conference have received abstracts of the proceedings within two weeks after the fact; then, a few months later, a complete report.

The man behind this service is George Rosecrans, Special Supervisor, Apprenticeship Training, in the Bureau of Industrial Education. He has supervised the recording of minutes, written and produced the abstract in an unbelievably short period of time, and then put together the final report, with pictures and all the trimmings.

His faithfulness in carrying out this professional responsibility has been outstanding -- and, it seems appropriate to acknowledge, deeply appreciated by the Conference membership.

Edmund G. Brown
Governor

STATE OF CALIFORNIA

(Seal)

Governor's Office
Sacramento

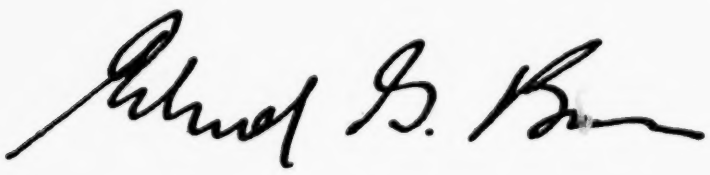
PROCLAMATION

The week of March 1-7, 1964, is being observed in California as Industrial Education Week in honor of the many men and women in education, government and industry who devote uncounted hours and unlimited energy to the furtherance of industrial education in our state.

The joint effort of these people refines our most valuable resource, our young people. It prepares them for becoming productive members of our state's work force. It equips both the young and the established worker with the skills to achieve their greatest potential as workers and earners.

Nearly 200,000 persons enrolled in vocational trade and technical classes during the fiscal year of 1963. This large enrollment is the result of a design for workers and industry drawn by nearly 800 labor-management advisory committees in cooperation with industrial educators who share with more than 600 joint apprenticeship committees the responsibility of instructing apprentices.

Through this enormous effort, programs geared to our advancing technology will keep California's pool of highly skilled labor abreast of our state's progress in the space age.



EDMUND G. BROWN, Governor

Proceedings

of the

TWENTY-SIXTH ANNUAL CONFERENCE ON INDUSTRIAL EDUCATION

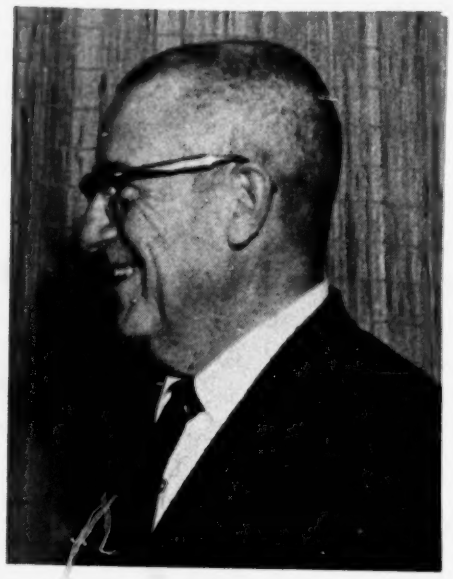
* * * * * *

Wednesday Morning, March 4, 1964

FIRST GENERAL SESSION

Chairman: Mr. Mack Stoker
Regional Supervisor
Bureau of Industrial Education

Recorder: Mr. Robert H. Shaw
Fire Training Instructor
Bureau of Industrial Education



Mack Stoker

Opening Ceremonies:

The Conference group was assisted in the Pledge of Allegiance by the Color Guard of the Western High School, Anaheim, California.

LCDR William J. Wright, CHC, USN, in the Invocation, emphasized the heavy responsibilities which are characteristic of these days, and stressed the need for Divine Guidance.

Mr. Francis A. Grunenfelder, Superintendent of Schools for Orange County, was introduced by Mr. Stoker. Mr. Grunenfelder expressed pleasure in welcoming the industrial educators of California to the Conference, and more especially to Orange County. He quoted an anecdote about the two ways to reach the top of an oak tree - climb it, or sit on an acorn - stating that the latter method indicated ingenuity, which attribute industrial educators must have today. Complimenting Mr. Norman Stanger and his two associates, Mr. Grunenfelder said they were giving the information and leadership necessary to supplement the work being done in the school districts of Orange County in industrial education. He concluded by saying he and his staff are concerned with the things industrial educators are doing, are interested in the things being done, and are highly dedicated to the program.

Mr. Russell Journigan summarized a number of congratulatory messages to the Conference, including a greeting from Senator Kuchel by way of a film clip from Washington, D. C., proclamations by Governor Brown, the Orange County Board of Supervisors, and the Mayor of the City of Anaheim, and a letter from Anthony Celebrezze, Secretary of Health, Education and Welfare: "I am pleased to extend greetings to all who are participating in the California

annual conference on Industrial Education. You have met for very serious purposes. Vocational education is an essential part of our efforts to develop our human resources to end unemployment and to sustain our country's economic growth and scientific advance. In the past California has pioneered in vocational education. Today, as new opportunities unfold and new responsibilities emerge in this field, your decisions and actions can be of great importance to your state and to our country. . . ."

Comments and Introduction: Mr. Mack Stoker

The decisions we make here in the next three days could affect vocational education and public education in California for years. I remember only one other time when the situation was as serious - possibly more serious than now. That was when we were launching the first war training program, or defense training as it was first called to avoid any apprehension that we might be headed for war.

The job was easier then, though, in spite of the seriousness, because we could approach it and grapple with it without the millstone of confusion that weighs us down now. We were organized in 1939. We had taken an inventory of all the equipment and all the vocational shops in California; we had selected instructors and given them assignments of where they would go when the word came. We had selected coordinators and supervisors, and they were given an intensive orientation for the job; and we were all set and ready to go, just sweating it out in summer session. I was teaching at Berkeley then. I think it was on June 27 when the telegram came from Washington. President Roosevelt had signed the Defense Education Act. Word was passed down the hall into the classrooms, and in my class three men got up quietly and walked out and went home to pack. In July the first defense training classes were opened up and down California. We were running the show then. We knew where we were going and we were organized to do it.

Today the problem may be just as critical - and it is certainly more complex - but whereas the way was clear before, the way now is a little cloudy. You work nights and Sundays getting a program ready to go, and a week before it starts it's cancelled. You have a class in operation, everybody's happy, and then a representative of a non-governmental agency blows the whistle and your class is closed. At one meeting you don't need a credential; at the next meeting you can't do without it. In one meeting you can hire a man, and in the next meeting you can't pay his salary. We think we're working for the Department of Health, Education and Welfare, but the Department of Labor can turn your water off.

So what do we do now? This is the situation we face at the opening of this Conference. First, may I suggest that we remember that times of confusion are the times in which well-organized groups may profit. Secondly, let's agree that we don't have time to worry about whose fault it is. Let's go along with Hemingway's wonderful quotation, "Ask not for whom the bell tolls - it tolls for thee." I can't place the blame. But I do know who can make some improvements in the situation. We can. You can. Your Conference Committee knew that it would be impossible to set up the framework or master plan for vocational education. And in this case we can't let the impossible

take a little longer, because the time is fixed. But the wisdom with which we work has no limit. I suggest that one way in which we might stretch our wisdom is to stick to a positive approach. Let's take the Mark Twain story about the captain on a Mississippi riverboat. A nervous old lady asked him, "Captain, are you sure you know all the shoals and sand bars in this terrible river?" "No, ma'am, in fact I don't, but I do know the channel." So let's forget the sand bars and keep a weather eye out for the channel to where we want to go.

And now I would present a man, and let me just invite each of you, as Ernie Kramer stands up here, to look him in the eye and say, "There's a friend of mine."

***

THE PERIOD OF TRANSITION

Ernest G. Kramer
Chief
Bureau of Industrial Education

Ernest G. Kramer

Thank you Mack. Those are words well said and most appropriate to the time and purpose that brings us all here.

Mack's challenge to not overburden you with lengthy discourse that gets nowhere and adds up to a bunch of nothing disturbs me a little bit. For the past two weeks I have been involved in a traveling road show - so that I wonder --

Before I get into the body of my remarks I'd like to make a comment or two relative to the program. I hope you're as excited as I am with what really was represented by that little film clip.* Not only does it demonstrate an attention that I don't think has always been a part of our past in terms of such high places in government, but I think it has some significant implications here relative to our overall status that should rightly relate to some of the things that Mack has said, and make us feel real good in spite of some of the confusion to which Mack has alluded. Secondly, I'm so darned enthused about the main speaker this morning that I would just like to share a little of it and hope it rubs off on you. If, by the time luncheon comes, you haven't been stimulated to the place where you see some new aspects in respect to some of our problems, I'll miss my guess. This gentleman will be one of the highlights of all times in our activities.

*Statement by Senator Kuchel, available upon request from the Bureau of Industrial Education.

Let me say that at this opening spot on our 26th Annual Conference program, it's normally appropriate to review the last twelve months and set something in the nature of a final reference for the future; but it is almost trite now to say that much has happened since we last met in San Francisco.

We talked about the bills that Congress passed. I'm sure you know that President Johnson said that the 1963 Congressional Session may well go down in history as the Educational Congress. And certainly in the affairs of industrial education and vocational education this will be true, as the 88th Congress passed the Perkins Bill, known also as the Vocational Education Act of 1963. At this particular time we do not fully appreciate the impact of this legislation. It is yet to be implemented by way of an appropriation. But we know it is coming and we already know that the legislation, even without the funds, has stirred up an interest in an area of education the like of which we've never seen before.

Suddenly, we in vocational education find friends that we didn't know existed before, and this newly acquired popularity is causing many of us to sort of ponder - well, how come? What's this all about? Is it because the validity of vocational education programs have finally materialized with efforts to fund them adequately? Is it because of the promise of sizeable grants of money with new opportunities to spend it - fewer restrictions? Is it because our society is becoming alarmed by the steady increase in unemployment despite the fact that the magic 800 Dow Jones figure saw a breakthrough last week despite the fact that the year just ending has been in many ways one of the most successful corporate years in our history? Is it because we finally, really, seriously detect a critical imbalance in our educationa program - a program that has been skewed in one direction to the detriment of a great number of our citizens for whom college is either not possible or not realistic? The present wave of interest in vocational education, I think, can be said to be related to all of these facets, and by the same token related to none of them. This is to say there is no one simple answer to fully and completely explain the wave of interest in the program.

It is apparent in more and more ways that there is an unprecedented level of this interest, and this interest is being expressed in many different ways by many different people. It's being expressed in part by people who not very long ago were very little concerned with what we do. It's an interest that's being expressed in part by people who were hoping, possibly, that all the problems of those who do not fit the traditional high school and junior college pattern can now be referred to vocational educators and vocational schools. It's an interest that's being expressed in part by people who believe that successful, gainful employment is one of the principal responsibilities of the public educational program. It's also an interest being expressed by people who appear to be willing to compromise educational purpose merely to get additional money. It's an interest being expressed by people who are sincere but who are misguided, and who would use this opportunity to promote a kind of education that to a large measure would be unrealistic in terms of today's problems.

It appears to me that the Vocational Education Act of 1963 could well become a new benchmark, identifying the place and time where vocational education divested itself of the artificial and obsolete restrictions and, through a new flexibility, sought out nre high ground attainments. Or, it could also be within the realm of possibility that the Vocational Education Act of 1963 could become the benchmark identifying when cupidity gained the upper hand and realistic standards and moral responsibilities were of lesser concern. The possible impact of this new legislation on industrial education should be of great concern to everyone of us. As a result of our high school activity in the last year and a half to two years now, we're more and more recognizing that the educational profession as a whole is not as well informed about industrial education as they should be or as we thought perhaps they were. Indeed, even within our own family of industrial education there is some evidence that we are not as certain as we might be, or ought to be, as to what our future should be.

In such periods of transition when there is indecision, I think we could very well heed the words of George Bernard Shaw, who said, "When there is no ventilation, fresh air is declared unwholesome. When there is no religion, hypocrisy is good taste. When there is no knowledge, ignorance calls itself science."

The advent of the Vocational Education Act of 1963 places a new pressure on the need to have a better understanding of the full potential of the industrial education program, the unique and significant contribution that industrial arts programs can make for all students, and the gainful employment capstan that's offered through trade and technical programs. Those of us here this morning are, or at least we should be fully conversant with the fact that industrial education is a generic term, and as such refers to a family. We are, or at least we should be well versed in the educational contributions possible through the industrial arts program which is designed specifically to prepare all individuals to meet the requirements of an industrial technological culture. We are, or at least we should be well informed as to the specific contribution of trade and technical programs, contributions in the matter of successful entry into employment in industrial or technical occupations.

The interest being expressed in programs that may become possible under the terms of the Perkins Bill, however, serves to point up that perhaps industrial education is not as well understood by our colleagues in education as it should be, and evidence of this lack of understanding is found in many of the questions that are being asked, such questions as:

"Will industrial arts classes qualify for reimbursement from vocational education funds under the new legislation?

"Why shouldn't industrial arts teachers be permitted to teach vocational programs with their present certifications?

"Why not convert the high school program completely to vocational preparatory work?

"Isn't it more economical and more efficient to establish vocational high schools than high schools and institutes, thus permitting the regular high school and junior college to concentrate on the general learnings in the academic line?

"If the curriculum base of pre-employment programs is broadened to meet today's employment needs of industry, how do we distinguish between the broad base of the employment program and a general industrial arts program?"

Now, all these are questions that are pertinent in our own specific field of industrial education, but there's a larger picture, and we must recognize that this Vocational Education Act of 1963 in this larger picture is significantly different from the vocational legislation which has preceded it - significantly different in the fact that it does not utilize the traditional distinctions of agriculture, homemaking, distributive education and trade and industrial education, but rather it introduces some new categories such as the high school, post high school, part time, special needs and ancillary services. This characteristic has caused some of our colleagues in education to have some very interesting, and, I think, very searching questions as to what, for example, should be done with the future organizational structure of vocational education. For example, should consideration be given to reorganizing the existing structure on the state level and more nearly follow the lines that seem to be suggested by the Perkins Bill? What is so unique about the administration and supervision of vocational education that it requires special training and special certification? Why not include vocational education responsibility in the high school unit - and I am thinking again at the state level - and in the junior college unit, rather than in a separate function as it is now organized? Well, it is not my intention this morning to begin our 26th Annual Conference by viewing industrial education with alarm, but rather to invite all of you to look at our problems as realistically as possible, and in the same vein that Mack has already pointed out, because this period of transition offers all of us an unusual opportunity to move our program forward.

If we're going to take advantage of this opportunity, Mack said we have to be organized. I think organization, when you break it down into some of its detail, would include some of the following: I think we must be willing to seek out all the questions that are sincerely being asked by people in our profession, and outside the profession, for that matter. I think further, we must be able to answer these questions logically and understandably, if we would have all our colleagues in education as convinced as we are of the merit of our program. I would say further that we must examine our own motives and cast all our activities in the frame of reference of seeking out the best educational programs for our youth and adults. We must be willing to practice what we preach so that our educational philosophy is not merely an esoteric contemplation, but is a living, functioning fact. It's important that all of us realize that if we in industrial education are unwilling to face up to these questions, there are others who will write the prescription for us; that even now there are observations being made which could well shape our future, and shape it in terms that to us would be unacceptable, but more

significantly would not be in the best interest and the welfare of the students in our program, for whom we have responsibilities.

In an effort to move toward the accomplishment of a realistic assessment, you may already be aware that considerable attention has been paid to this in the structuring of this Conference agenda for our 26th Annual Conference. I call your attention specifically to the program that's scheduled for this afternoon and for Thursday morning, which is referred to as a Master Plan for Industrial Education. In keeping with this program may I very briefly share with you some of the immediate plans that your Bureau of Industrial Education has, which are designed to implement the necessary action. These will indicate to you that there is a very close relationship between the Conference agenda, your discussions during the next three days, and this implementation. Our plans within the Bureau are predicated on some assumptions. One assumption is that there is a discrete difference between industrial arts and trade and technical education- a discrete difference that is logical and significant, and is in the best educational interests of our students. This discrete difference does not, however, argue against teachers and administrators being able to serve across the board in industrial education, just so long as there has been adequate preparation for such service. Further, we feel that the rebirth of vocational education programs in the high schools need not be at the expense of industrial arts, but rather, if it is done properly and done well, should add significantly to the overall strength of industrial arts.

As you know, somewhat in anticipation of the Perkins Bill, and as an outgrowth of action taken in San Diego at our 24th Annual Conference, we have been involved in some experimentation on the high school level. To date we have worked with some 40 school districts in planning activities appropriate to such experimentation, and at this moment there are a number of school districts which actually have projects functioning. The Orange County Superintendent made reference to one of them in his comments relative to Norm Stanger.

For the most part these projects represent efforts to prepare youth for gainful employment in something less than the traditional sessions of one-half days. I would like to emphasize at this point that this effort is still in an experimental stage and we must continue this experimental phase and make some realistic evaluations of the successes we think we will have. This must be done before we can, with any real security, identify long-term guidelines. In the meanwhile we need short-term guidelines, and we need them particularly in the matter of considering how industrial arts teachers may qualify for participation in such programs. Here again there are certain things which we have taken into consideration in this regard; one is that the integrity of both segments of our industrial education program must be protected. To teach successfully means adequate preparation, and one should not attempt to teach industrial arts without adequate preparation. And the corollary is equally true that one should not attempt to teach a trade and technical program without adequate preparation. When we attempt to be all things to all people we court the danger of blunting our effort to the degree that it will have little meaning to anyone. Further, flexibility and standards go hand in hand, and such experimental vocational programs as we have been

referring to should, if they are to be bona fide, meet realistic vocational educational criteria. However, we anticipate that the principal resource relative to teachers for this new approach to programs of gainful employment in high school will of necessity be industrial arts teachers who are currently employed in local school districts. Therefore, we have identified an interim procedure for such teachers to qualify, and this procedure covers these major points.

For an industrial arts teacher to qualify for reimbursement in this experimental procedure in the immediate future he must show evidence of two years of successful working experience in the subject area in which he is to teach. Secondly, he must complete a written technical examination further identifying his subject area competence, and lastly, he must complete the equivalent of four semester hours of teacher preparation in the vocational aspects of trade and technical education. I should like to point out to you that immediately following this 26th Annual Conference we will distribute to the field more precise instructions in this regard, and we will solicit applications from you for teachers in your area that you want to involve in this program. The technical examinations to which I referred at the outset will be given in the seven curriculum areas in which we have been working, and which represent the bulk of our experimentation efforts at the present time. Our present plan is to give these tests during the month of April. They will be given in both of our teacher training centers, UCLA and Berkeley, probably on Saturday at a time that would be appropriate and available to those interested. The teachers who successfully complete these written tests will then be invited to attend our summer session program and complete the necessary preparation. Once having done this they will receive a certification document that will identify the fact that they have met their proficiency in their subject area and qualify for reimbursement from vocational funds.

This is one aspect of the implementation of the Bureau's plan. But another one, more significant still, is the one to which I want to call your attention rather specifically and emphatically at this point. In the larger picture - and we have been talking about some of these implications involving the total program of industrial education in all its aspects - the Bureau of Industrial Education proposes to sponsor the preparation of a "position paper" for industrial education. It is our belief that we need something akin to a position statement that can be used to achieve better understanding both within the profession as well as among lay groups. Now, it's true that many statements have been written setting forth the philosophies, the purposes, and the characteristics of both industrial arts and trade and technical education, and this is not to say that these documents have not been good statements, because many of these statements have been outstanding. However, at this time of transition there is need for a position statement that's keyed to the tempo of the times, and that will constitute in some sense a re-evaluation in the light of a rapidly changing industrial technology. As we contemplate this re-evaluation I think it's appropriate to read to you a proverb I discovered in a little book having to do with a tribe of people in the middle of Africa, where we sometimes don't always think the highest degree of intelligence is being exhibited; but here is something that comes from a rather remote area of the world: "If a man does away with his traditional

way of living, and throws away his good customs, he had better first make certain that he has something of value to replace them."

In order for the preparation of this "position paper" to be fully effective, it should be accompanied by a planned action program that will see the contents of such a paper well distributed amongst the profession to the end that we can achieve a universal understanding and an endorsement of a total program of industrial education of the highest promise. To implement this proposal, then, shortly after the conclusion of this Annual Conference the Bureau will name a broadly representative group to develop this "position paper" in draft form. This representative group will be asked to meet for whatever length of time or number of times necessary to accomplish this chore. One of the principal resources that will be used in this development will be the contributions that will come from our discussions this afternoon and tomorrow morning relative to a Master Plan for Industrial Education.

This draft statement will then be circulated to each and every one of you, and you will have your opportunity to review it and to comment on it. Then, after receiving your individual reactions, we will convene a smaller editorial group to place this document in its final form. It will then be published in a manner of which we can be proud, and copies will be made available to all who need them or can use them. With such material it should then be possible to participate in school administration meetings, school board meetings, meetings of community and industrial groups, to the end that the story of industrial education will gain an understanding and an endorsement that will be as close to universal as we can make it. Therefore, I invite your full participation in this project. It is our hope that we can have such a document available in final form early this fall.

I believe that as the interest that has been generated through the meeting in the Vocational Education Act of 1963 mounts, and continues to mount, the availability of such a "position paper" could well be a significant benchmark in the continued growth and strengthening of both industrial arts and trade and industrial programs. But the very process of thinking through the development of such a "position paper" will stand all of us in good stead at this time of transition. To approach this period of transition without carefully considering the re-evaluation of our total program is to invite others to exercise the leadership that is our responsibility. It is to this immediate goal that this 26th Annual Conference on Industrial Education is dedicated. It is my hope that through the best thinking and the best efforts of all of us, this time of transition will see our total program of industrial education move forward to a new high ground of accomplishment and a stature unequalled in the total program of education.

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Message from Senator Thomas Kuchel:

A 16 mm. sound movie was presented, in which Senator Kuchel greeted the group, and pointed out some of the recent developments in vocational education. He specifically mentioned:

The rapid technical changes which are influencing our activities in both public and private circles;

His conviction that California's outstanding program of vocational education would remain outstanding;

Congress was united, without regard to political party, in its support of the Vocational Education Act of 1963;

Over the next four years, 581 million dollars is authorized for vocational education nationally and, with the matching money involved, over one billion dollars in these four years is the potential aggregate;

The aggregate for California would approximate 35 million;

With increased funding, of equal importance is the direction given for a program of increased scope;

The public school system must be looked to, to meet the challenge of matching vocational educational opportunities with the educational needs of individuals in the context of an ever-changing industrial pattern.

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Mr. Kramer introduced two guests, Hwai Kun Choung, Principal, Kyungnam Technical High School, Korea, and Yong Moon Park, College of Engineering, Seoul National University, Korea. Both gentlemen are students at UCLA under the auspices of the Agency for International Development, United States Operations Mission to Korea, Education Branch.

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In introducing the next speaker, Mr Stoker said: "Dr. Burke is known to a good many of you from his lectures and his program 'Probe', so he is not exactly a stranger to us. You may not know that he received his Bachelor's Degree and his M. A. from the University of California at Los Angeles, and his Ph.D. in International Relations from the University of Pennsylvania. He has worked in educational television - and I think this might be the most significant thing about his background for us - he has looked at these problems from a slightly different view. We are aware that education is broadening in its implications for the people with whom the Department has to work. We're coming around to the position where education must assume responsibility for and must work with social-economic agencies with whom or with which we are not as familiar as we might be, and I think we're going to get some sidelights here. There is one other thing you should know about this speaker. The night before last his home burned down, so naturally we didn't expect him to be here. But at nine o'clock last night he called again and said he had found a place for his family to stay out of the weather until he could get out here, so at four o'clock this morning he arrived at the International Airport where Dave picked him up and brought him over here in time for

him to get a little nap before he has to talk to you. Dr. Albert E. Burke, it's going to be a pleasure and a joy - - "

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Dr. Albert E. Burke

A WAY OF THINKING

Dr. Albert E. Burke
Former Director, Graduate Studies in Conservation and Resource, Yale University and The American Institute of Resource Economics; Head of Burke Enterprises.

Thank you, Mr. Stoker, and ladies and gentlemen.

I've always thought that the greatest handicap to giving a good speech was the one that every speaker has to put up with when he's asked to speak some time in the evening. You usually get an invitation to a cocktail party, after which you sit through an adequate, full-sized meal, and that combination is pretty hard to beat for any speaker. But I assure you that the events of the past few days beat that.

I had a speech for you. It's a pile of ashes at this point. So what I'm going to try to do is recall some of the things I had intended to talk about, and tie them into some of the things I have said on past programs dealing with this topic. I would like to do this from the point of view of what Senator Kuchel called the broad general view; and I would like to do it in terms of two words - industrial intelligence. What I have in mind by those two words is not quite what the Senator had in mind. I'm sure that what he was thinking about was the need to pass on more information and more intelligence about industrial processes and industrial problems to the nation as a whole.

The kind of industrial intelligence I'm interested in is a kind of joker in your deck. It's intelligence that has to do with what comes next in the development of machines that gradually, at an ever-increasing pace, do away with the jobs for which you set up industrial training programs. I use the words industrial intelligence this way because I have tried over the past two or three years, for purposes of my program, to get such organizations as IBM, Westinghouse, General Electric and others to give me some kind of insight to the development of new products which, under the heading of labor-saving devices, indeed save labor by eliminating jobs. And try as I will, I cannot get these people to talk about it. There are understandable reasons for this; some of the reasons have to do with the problems of keeping secret your own developments so some competitor doesn't run off with them. But in the larger sense it leads to a very serious problem for you. If you have no real idea of

what's happening in the field of computer mechanism and automated machinery, if you do not know the pace at which these developments take place, it's awfully hard for you to set up a meaningful program of industrial education that deals with the realities of industry in California, or any other state. Getting this information is the number one problem, and not just because industry doesn't want to release it, but because it's one of the most critical ingredients in your planning - or should be.

This business of industrial intelligence ties into a larger problem, one that has concerned me for a very long time in the field of education. The only way I know to deal with it adequately is to give you an example of the problem as I dealt with it once some time ago. When I went back east to take a teaching job at Yale, I was brought in for two reasons. One of them was that I was one of the few people in this country at the time who knew how to speak Russian, and one of the few people trained to deal with Russian area studies. As it happens, UCLA was one of the first places to really develop a strong interest in this, and I was caught up in it. The other reason was that my training for the largest part was in the physical sciences, and they wanted somebody there who could bridge the gap between the social sciences on the one hand, and the physical sciences on the other, in putting together a series of courses that would deal with the reality of the problems we faced - industrial problems, economic problems, whatever.

There was a pretty clear cut understanding on the parts of quite a few educators at the end of World War II that we had moved into a new kind of phase. We could no longer turn out specialists who were experts in their respective fields but who knew practically nothing about the fields that impinged on theirs. This is not to say that we have not turned out well-rounded people in our history, but the drive to turn out well-rounded people really began with a vengence after World War II, and with stops and starts has continued in some places without any abatement since.

I think this is an excellent thing. And I think that it is because of an incident that occurred to me - oh, I guess it was back in 1956. I had been asked to sit in on a meeting of the State Board of Education up in Hartford. Most of you who know the geography of New England, or at least of Connecticut, know that it takes about an hour to get from New Haven to Hartford by one of the parkways there. I had a two o'clock class; the meeting was called for three-thirty; and somehow I had to get from New Haven to Hartford in half an hour, and that is a neat trick if you stay within the speed limit. I didn't.

I was barreling down the Merritt Parkway heading for Hartford, when I happened to come through an underpass, and I noticed as I sped through that there was a car parked off on the green, off to the right. I did what you'd have done. My foot immediately went to the pedal of the car and I started to slow down. But it was not what you think. It was not a police car standing there. It was a pink Cadillac convertible. The hood was up, and standing in front of it was one of the more enticing products of some of our women's colleges in New England. It was a fairly warm day. It was late Spring. She was dressed to accomodate the weather, and Mother Nature had been extremely kind

in providing the accomodations. I should explain to you at this point that I was raised in that part of the country, and back when I was a young man my father taught me to drive a car. He explained to me that if ever in traveling around the area I happened to see a car in distress somewhere- it was the courteous thing to do to stop and see what one could do to help whoever seemed to be in trouble. And so it was because my father had given me to understand that one always helped somebody under these circumstances that I stopped to see what I could do for this young thing.

There is a story in this cute young thing, because she stood in front of that marvelous product of the 20th Century with an ignition key in her hand, and a look on her face I had caricatured in a cartoon which I had hanging over my desk and still have, or hope to have in my new office, which I call "The Dilemma of Our Times". Here was the product of one of our better women's colleges whose awareness of what went on under the hood of that 20th Century marvel extended as far as the ignition key in her hand. She knew all about the industrial and technological facts of our times; she knew that by putting the key in an appropriate spot on the dashboard and turning it something happened; she knew that in order to make this mechanism work you pushed down on something or you pulled out on something; she knew the mechanics of making this marvelous thing work; but her understanding of what lay behind this process left something to be desired.

The real problem here, whether it's your field or any other, is that you have no control, in the last analysis, over what you can do to solve the industrial problems of the society in which we live, because the outstanding thing about that society in which we live is that it works. It is a representative system of government, and it is young ladies like that one by the thousands, and young men too, coming out of our schools today with no real understanding of what makes our society tick, who constitute the community in which you must work and the community that pays the taxes and the community that must ultimately be concerned about what you're concerned about. If passed on to the American people, then we are indeed in serious trouble. You can't possibly do your job. And the nation can't meet its responsibilities which have a great deal to do with survival in our time.

This is one edge of the problem. There is another. I used to have a perennial guest who'd come to my seminars at the University. I used to call him my psychoneurotic friend, or my mentally disturbed friend. (We face a situation in this country today where mental illness is considered to be one of the really big problems in our times.) And I asked him to come and talk to my students because he seemed to epitomize the heart of what is called mental illness in this country today. He was a former used car salesman who had done very well in his field. He had made a pile of money, and had decided that he would go off to greener pastures. He understood that there were going to be several large awards of war contracts in the Connecticut area- and Connecticut doesn't fall far behind this State in the number of war contracts. He decided that because a new war industry was going to be built in one of the towns not far from where I lived that he would go into house building. Well, there's no reason why he couldn't. It's a free country, and by applying individual initiative you can do anything you like. At least that's

the theory. He went to the local bank and convinced them that he was a good risk. He didn't have to work hard because his credit rating was good there. He had always been good at selling used cars. Why, then, wonder whether or not he'd be good at building houses? If he made a success of one, why obviously he must be able to make a success of the other. What's the difference? The principle's the same.

He bought a square mile of land. On that square mile of land he intended to build about 640 houses, which would have meant that each house would have at least an acre of land around it. And by any measure you must admit that this is a little bigger than the house lots you are familiar with in this area. There was one slight complication. The complication was that the town refused to give him access to the municipal water supply. The reason for that was there simply wasn't enough water to go around for any new developments. But obviously this fellow did not worry too much about this handicap because he knew that there are well diggers around, and he knew that our industry provides such things as pumps, and there is a Connecticut Light and Power Company, and when you put all these simple, obvious things together it means you can dig a well, put a pump on it, and provide water for a house without having to depend on a municipal system. There was a joker in his deck. There was a kind of intelligence he didn't have. There was something he didn't know. He didn't know that you do not just put holes into the ground on which you put pumps to which you connect electric lines in order to get water. Wells do not provide water - the ground does - and if the water is not there in the first place it doesn't make any difference how many wells you put down or how much electricity you use, or what quality pump you put in; you are not going to get water.

I mention this because he went bankrupt after he built his 40th house. It seems that every time Mrs. Smith or Mrs. Jones or Mrs. Brown or the rest of them decided that they wanted to wash their clothes, or their husbands wanted to water the lawn, or do whatever people do in their homes, that they turned their faucets on and they got nothing but air. They complained about this to the local builder, who complained about this to the local pump maker, who complained about this to the local geological survey, who explained a few intelligent facts of life to the man who didn't know something about the field in which he was trying to work. I tell you this story because again it brings us back to the business of intelligence. What that man did not know did not contribute to the welfare of this country, nor did it solve a housing problem in his area. There was something missing; a degree of intelligence was not available. And it was not just the fault of the man who built the house. It was the fault of the bankers who gave him the money; it was the fault of the planners and zoners who had no concept whatsoever of the critical ingredient in the land under their feet. There was something they didn't know. And what we don't know in our time can indeed hurt us.

In some of the programs that I have been doing lately I have been trying to point out that what we live with in our time is not an industrial system any more. Lord knows we have a great problem in acquainting the bulk of our people with the facts of what went on in an industrial age, but the simple truth is that the industrial age is dying. It's dying and being replaced by

what can only be called the age of science. And I separate these two phases in our history because the age of automation is very much a part of the age of science, and is not just another step in the evolution of the industrial process as so many of us like to think it. There is a natural human tendency, and there always has been, to try to cram entirely new things into old bottles. Throughout our history we've had the best examples of this in terms of what goes on in war. You all recall Billy Mitchell, Colonel Nickerson, and the rest of them who tried to point out that you could not do new things with old concepts, that you had to completely revamp and revise your thinking. In terms of the age of automation nothing less than a completely revamped kind of thinking is going to work. This is a terribly difficult thing to put across.

Some months ago a Mr. John Snider testified before an appropriate committee in Washington about the work that was being done by his industry. John Snider happens to be one of the men highest in the pyramid of those who are developing automated machines that are wiping out about 40,000 jobs a week. By his estimate this is a conservative figure. He feels that the machines that are being developed in his own industry will increase that rate in the very near future. He told this to a group of industrialists at the Hartford Club in Hartford, Connecticut, where all the big wheels of our community gather every day to talk about taking new processes and cramming them into old bottles. He tried to convince them that it could not be done with this new process and that we ignore the reality of automation in our time at great peril because there are outside factors that bear on automation today. One of the things he mentioned, I dealt with at great length in a program three years ago which brought the roof down. I can't remember any program that brought in as much derogatory mail because of the reaction it had. I told the story of what had happened at the Brussels Exposition in Europe where the Soviet Union ran off with the first five prizes for the best automated equipment that was entered in the competition in the field of automatic computers. And I went on to say that this was the inevitable result of the kind of educational emphasis, vocational education emphasis that was going on in the Soviet Union and had been going on for at least the past ten years. But certainly it has gone on with increased emphasis since the 22nd Party Congress.

If you look into the proceedings of the 22nd Party Congress you will find that there is outlined - practically no one in this country picked it up or even wanted to discuss it - one whole segment devoted to what is described as a 20-year program of development of automated machinery and automated techniques in order to make the Soviet Union the leading industrial power on earth. Now you can ignore the significance of this, but behind it there are some very serious problems.

In the Soviet Union there is no community that passes judgment on what will be done. In our society you have that young lady with that ignition key to worry about. You have that house builder with his lack of information about some of the facts of life under his feet that can affect what he does to make or break the community or the economy. In the Soviet Union this does not apply. The decisions are made by a small group of men, the educational system is geared to providing the kind of information and training that is

needed and the work is done. The problem here is that the Soviet Union is continually referred to in our publications as inferior by contrast with the American worker and American output, and this is certainly true if you compare the industrial worker who works with his hands at a machine. But, unfortunately, it is not true when you start comparing automated machines because the Soviet-built automatic machine can be just as good as an American-built automatic machine, and can put out just as much in the way of the final product. What lies behind this little-publicized but important part of the 22nd Party Contress is the Soviet Union's way to achieve an objective by by-passing the problem of raising the level of productivity and output of the individual man working at an individual machine. You don't have to develop industry that way any more. You don't have to train your personnel to do these kinds of jobs any more. You can by-pass the problem.

The men who sat in the Hartford Club that day and listened to John Snider talk about what he knew at first hand as the realities of the age of science and the age of automation, walked out of that hall describing Mr. Snider as a "crackpot". Mr. Snider is not a crackpot any more than Billy Mitchell was. Just as Billy Mitchell was dead right, Mr. Snider is dead right. And I don't make this observation at a distance either, because two years ago I made my last trip to the Soviet Union, and I went there for a purpose.

I went to the USSR because I was terribly concerned about things I had been reading in Soviet journals in this country which lead me to believe that some of the developments that were taking place in the field of automatic equipment were the result of a really crash program in the field of basic science. For example, many of our people who have been concerned about our progress in the space race - and you understand how critical automated equipment and computer mechanisms are there - wanted to know how it was possible for the Soviet Union so long ago to send missiles 8000 miles and have them fall within 1000 yards of target. This implied a kind of inertial guidance system, or a guidance system of some kind that was far beyond anything that we had credited them with having. How did they have it? In addition much of the stuff that you can read in Soviet journals about automated processes in the USSR indicates that unlike many of the automated industries we have in this country, they do not work with electronic computers to control vacuum operated equipment in their country. The vacuum operated controls or the gas operated controls that we have on many of our automated machines have to be fed or operated through an intermediary mechanism from electronic computers. In the Soviet Union they seem to have pneumatic computers that are operating these mechanisms directly.

I'd read all about this. I was curious to know what was going on. So I went to the Soviet Union hoping that I might see something. It was pretty much a wasted trip. I saw very little, until I got to the city of Kharkov in the Ukraine. You may not know this, but one of the biggest printing plants in the world for distributing Communist literature in the English language all over the world is located in the city of Kharkov. I wanted to see that plant, and I asked to be taken through it. And I was. I was given the typical tourist treatment, which meant that I saw exactly what my guides intended that I see. But there was one point at which I saw something that was not intended to be seen. As I was passing across one room where the printing presses were

turning out page after page of English written material, a young lady came out of a room that was located off to one side, and I got a very quick glimpse of something that did not exist anywhere else in the factory. I saw a computer mechanism that was being operated by a piece of tape. I hadn't seen it anywhere in that factory. There was no indication that such things existed. I asked my guide if I might look into the room. My guide was adamant. No, this is not permitted. There are times when you can be obnoxious in any language, and so I walked over to the door and I opened it and looked into a room that was filled with the latest automated equipment, as good as anything I'd seen in this country or any place else. I tell you this because what the Soviet Union wants the outside world to know and what it may be doing are two totally different things. From that segment of the 22nd Party Congress to the emphasis on automation to the men in the Hartford Club who did want want to recognize John Snider's realities is a series of very short steps.

Now, in terms of that kind of world, does our industrial education here or anywhere else take into account that kind of problem? How do you train very young men for the realities of an automated, missilized, computerized future if the kind of intelligence I mentioned earlier isn't available to you on which to base your plans? I think it's an important question. There are other implications here that relate. I've suggested some things that you might say have bearing in the field of economics. There are some things happening here that have bearing in the field of politics too. We're going through a kind of political revival in this country today. We have Americans who dislike each other intensely because they do not reflect exactly the political or the social views that we hold. Most of the people who feel very strongly about such things are completely convinced that they have good reason to feel as they do. And yet I've learned in speaking to both sides - all sides, in fact - who hold different political views today, whether they are on Mr. Goldwater's side or Mr. Rockefeller's side or Mr. Johnson's side. I've learned in discussing with all of them that there is only a casual relationship between what they hold in the way of beliefs and an understanding of what it is that makes things as they are for us.

Another program that had quite a response not long ago was one in which I said if we did not get around to understanding that each age sets up its own unprecedented problems which must be dealt with in unprecedented ways, we were going to find outselves falling behind those people who were admittedly and outwardly not our friends. It's terribly important, and I said on that program, to make clear that the age of science and automation itself has changed every one of the basic values on which we've predicated our political and social and economic beliefs. And I went off into this analogy. For those of you who heard it, please bear with me. There are ramifications I did not talk about on that program. I said that as a result of what is happening to us today, as a result of the rate at which jobs are being displaced, as a result of the processes that are displacing men, we were becoming the exact opposite of what we had started out to be. There were two things that made this nation what it is, one of them was a deep respect for work and a deep respect for property. Today society no longer holds the views of earlier Americans about the place of work or the place of property. And this is the

result of what has happened to us in the age of science.

Now, you can, if you like, exercise your freedom as individual citizens in a free society, and decide that someone, somewhere, in someplace is responsible for a problem, but in doing this you ignore the whole trend of history which we had better understand as a free people if we are to see survival in our future. We started out once, understand, in an environment where work was absolutely critical on the part of the people who had little in the way of technology, who faced an essentially hostile environment in which they would have to survive. There was a very small surplus of food. There was a very small surplus of luxury goods. Every man had to work hard if the community in that early time was to survive. The man who did not work hard committed a sin. Historically, the idler has always been an object of ridicule in this country. He is not liked. Today, as a result of what we have made possible in terms of science and technology, one no longer has to work to provide a small margin of surplus. We're operating at considerably less than full capacity in practically every aspect of our economy, and we're concerned about back surpluses which we cannot even give away. We've moved from a situation in the early 1700's where work was one of the pillars of our society, to a time now when you can sit in on labor-management negotiations where the big problem discussed is how can each of us do less work so that we can spread what work is left amongst the greatest number. And be assured that this is the problem with which people in labor are most concerned - and thereby people in management, too. So we are now what amounts to a kind of workless society, and we haven't even begun to see the implications of that.

If you start looking into the background of what is produced and how it is produced in this country, if you deal with such things as the food on your table, the clothes on your back, the shoes that you wear, the essential goods and services with which you must work, you will find that the people who are involved in turning out the essential goods and services of this country make up somewhere around 33% to 36% of the total labor force. The rest of us are not involved in basic production of this kind. They're doing things like I'm doing on television, providing what is called a service, dealing with things that do not have to do with basic output or basic production. Luxury services. Work to workless, but property to propertyless too.

Back in the beginning there was a great respect for property because it was understood the most important thing on which the whole concept of our republican form of government was based, the most important thing about it was a man's stake in the reality of the land under his feet. A man wanted his own land. He worked hard to get it. He went far to get it. The whole of American history is the record of what the individual did to get his own land and to own his own home and to own his own things. Well, let's come up in history to our time. In my town of Cheshire, Connecticut, I went to see the real estate people when I was doing this program because I wanted to check on some of the facts that I'd gotten from federal bulletins - government information - I wanted to check to see if it was correct. I found that in my community of Cheshire, Connecticut, one of every six houses sold changes hands every year. They have mortgages on them. The people who move in and out of them pay a kind of fee for the privilege of living in a house temporarily. They

don't own the house. The bank owns the house through the mortgage. They pay for the right to live in it. In other words, they pay for a housing service. They don't own the house; it's not their property; they see nothing wrong with it. It's quite proper. Similarly, they don't own their transportation. They pay for a transportation service. I checked with several of the used car dealers and new car dealers in the area and I discovered that over half the cars that are purchased are turned in for new models before the old purchase price is paid off. Once again you're paying for a transportation service, you are not paying to own a car.

We've moved from a society in which work was recognized as the pillar of our way of life, to one in which work is no longer that pillar, but becomes a very different kind of problem because of what's happened in the development of science and technology. It isn't as though a little man was sitting in an office some place diabolically dripping blood at his mouth and saying, "I will destroy you and your way of life." It's that the whole process of science, the whole process of developing technology has raised problems that must be faced, and you can't eliminate them by talking about the man who tells you about them; you can't eliminate them by calling him a crackpot.

We have a workless and propertyless society based on what we are doing. We no longer respect property as we did in the early days. This happened at a race track out in New York City: A group of adults, because they did not like the decision of one of the judges who had outlawed one of the horse races, were so incensed they immediately set about smashing everything in sight, and they did something like $60,000 damage to the equipment and the stands. The property did not belong to them. People who do not own property can hardly be expected to have respect for it, and, for that matter, neither can their children. At about the same time a group of youngsters were hauled before the Attorney General of the City of New York - or the State of New York - and charged with malicious mischief in completely destroying two or three houses in which they had held parties - houses which they had rented for the occasion, which did not belong to them. These are demonstrations of a lack of respect for property on the part of elders and younger ones, all of which comes out of the general subject of intelligence in our time, industrial or otherwise.

Now, what I've done here is to state several problems to which there are answers. There isn't a problem I could talk about that doesn't have an answer. However, I can't go into the details of it here unless I have questions from you about this, so I'll put the answer in a kind of general framework by using an example out of history, but one that is especially pertinent to anybody who really calls himself an American. It goes back to the earliest period in which men got the idea that they could run their own affairs. The idea of democracy means only one thing - it means rule of the people. The Greeks, of course, developed the word, and back in the times of the ancient Greeks who developed the word, there was a young man who was terribly concerned about the fact that the people in his day were not living up to their tradition; they were not thinking for themselves; they were not acting for themselves; they were not ruling themselves. They didn't have to, you see. They had what we call experts today, to advise them on how to do whatever it was that they considered a problem. We call them experts. In their day they called them

oracles, and you could find an oracle in every Greek Temple. If you had a problem you went to the oracle. You stated your problem, he gave you the answer, there was nothing more to be done.

The young man understood that if something didn't happen to take the burden of responsibility off the hands of the experts and put it on the shoulders of the people, the idea of democracy would be absolutely impossible. You had to have participation of the people in government; you had to have their participation in every facet of life, or the word "democracy" was meaningless. Now, how do you go about discrediting an expert who knows everything? How do you discredit an oracle who knows everything? He thought about this long and hard, and only after much thought he had the answer - or at least he had an answer he thought would work. He decided that he would go before the oracle with a question that could not be answered, and it was based on a very simple routine.

He went out and caught a humming bird, and he decided he'd put the humming bird in his hand and go before the oracle with this question: "Oh, all great, all knowing, all powerful, all wise one, tell me, what do I have in my hand?" He fully expected that the oracle would tell him that he had a humming bird in his hand. It was at this point that he had the oracle, because his next question would be: "Yes, all great, all knowing, all powerful all wise one, I have a humming bird in my hand. But tell me, is the bird alive or is it dead?" Now, if the oracle said that the bird was alive, he would squeeze the bird in his hand, kill it, and open to show that the bird was dead. If the oracle said the bird was dead, he would open his hand, the bird would fly away, and as you can plainly see, in either case the oracle had had it. So off he went to the temple with the bird in hand, stopped before the oracle, and said: "Oh, all great, all knowing, all powerful, all wise one, what do I have in my hand?" And the oracle told him: "Young man, you have a humming bird in your hand." "That's true, all great, all knowing, all powerful, all wise one, but tell me, is the bird alive or is it dead?" And the oracle's answer is the only answer there is to any of the problems I have spoken about here today, and also to your problems. The oracle's answer was: "Young man, the answer to that is in your hand."

* * *

Dr. Gail J. Phares

QUICKIE:

Dr. Phares demonstrated a fast and economical way to prepare transparencies, in one of a number of "Quickies" spaced throughout the Conference.

* * *

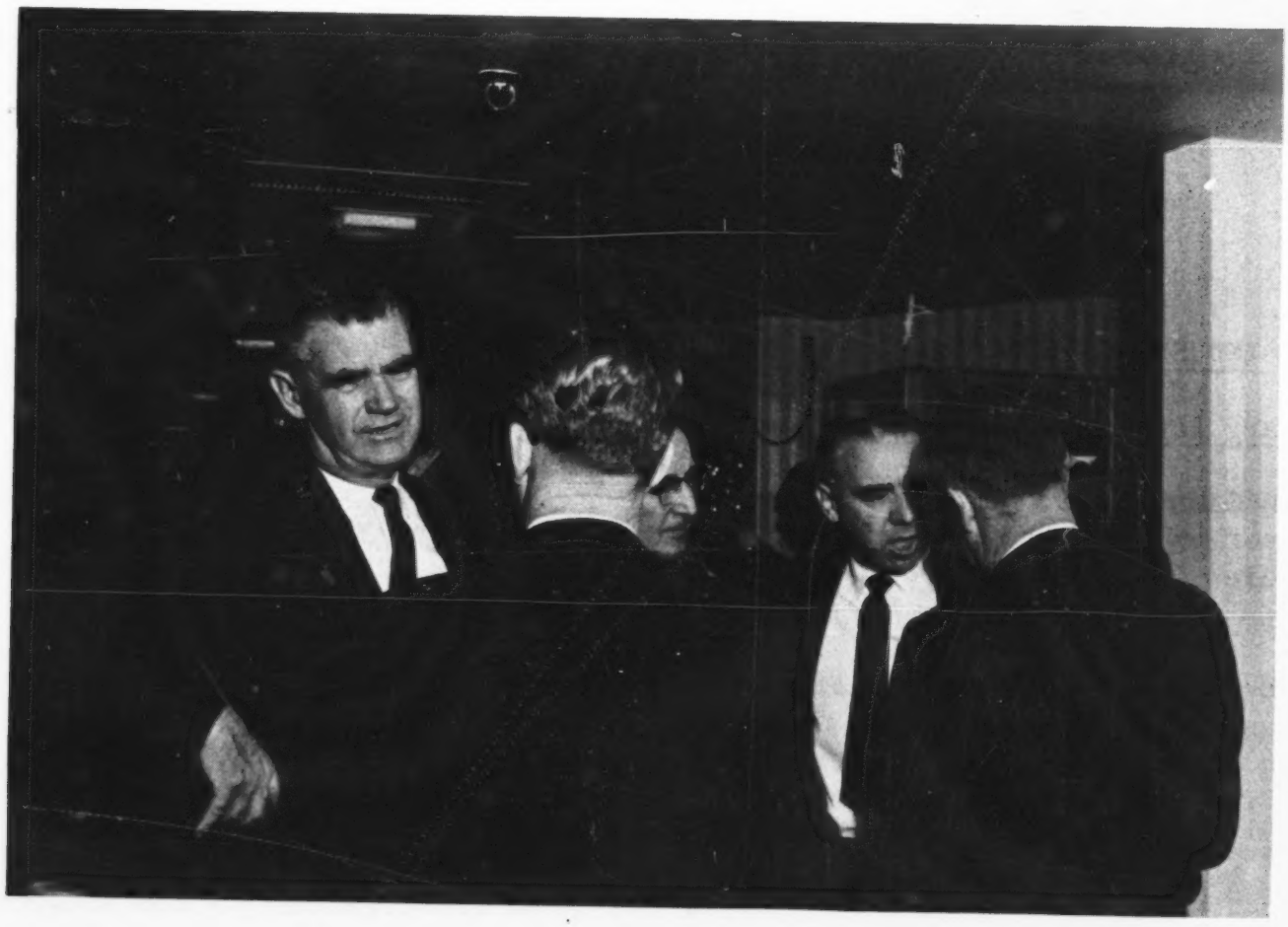
In the question, answer and discussion period which followed Dr. Burke's presentation, the following points were made:

1. You should educate for tomorrow in terms of what you think is going to happen tomorrow, and in terms of what you think is going to be important tomorrow.

2. In considering the place of women in our society, they should not expect or be expected to be duplicates of men, because they aren't. There are some things they cannot do as well as men, and some things they can do better. However, there is no industrial country in the world that makes as little use of the talents of women as we do in this country.

3. Women should not let themselves be intimidated. They should develop their interests and their talents, and if they want a career outside the home, they should go after it.

* * *



Director Smith and Group of Conferees

Wednesday Afternoon

March 4, 1964

SECOND GENERAL SESSION

Van B. Lawrence

Chairman: Mr. Van B. Lawrence
Regional Supervisor
Bureau of Industrial Education

Recorder: Mr. J. Winston Silva
Assistant Supervisor
Peace Officers' Training

Discussion Coordinators:

Dr. Robert L. Woodward
Consultant in Industrial Arts
Bureau of Industrial Education

Mr. James A. Herman
Assistant Supervisor
Trade and Technical Teacher Education
Bureau of Industrial Education

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Topic: INDUSTRIAL EDUCATION, 1964

Elementary Education - Industrial Arts Education

Mr. John Giovannoni, Jr.
Supervisor of Industrial Arts Education
Los Angeles City Schools

With the educational pendulum swinging increasingly toward the academic areas, an appropriate question is, "How can the essential needs of today's children in the field of industrial arts be satisfied and at the same time keep it from becoming an insignificant entity in the elementary school curriculum?"

It is unwise for youngsters to progress from kindergarten to the sixth grade without some basic understanding and appreciation of the industrial technology and culture of America. Industrial arts, as part of the elementary school curriculum, can adequately meet the vital needs of youth, satisfy their appetites; reveal and develop their talents in an educationally sound climate and in an up-to-date manner. From Pestalozzi's early classroom to the threshold of Dr. Teller's nuclear phenomena and beyond, it has long

recognized that children still learn best by educating the senses along with the intellect. An evolving concept of industrial arts as an integral part of the elementary school curriculum is a unique contribution to today's educational program. It provides the creative and purposeful opportunity for children to express their ideas and feelings.

John Giovannoni, Jr.

How can this important ingredient be continued as part of the on-going elementary school program? The following are suggestions for consideration:

1. Have well trained teachers.

2. Provide adequate facilities and material.

3. Offer a purposeful industrial arts program from kindergarten through the sixth grade.

4. Maintain a strong supervisory staff.

5. Keep parents and community informed of values.

6. Integrate with academic subjects (e.g. science and industrial arts, social studies and industry).

7. Offer in-service training for teachers.

8. Supplement with television programs for staff and students.

The educational leaders in industrial arts must stand up and be counted if the industrial arts program in the public schools is to be preserved and improved. This is your role, and this is my role, and we must not be found wanting!

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Junior High School Education: Industrial Arts Education

Mr. Fred A. Baer
Supervisor, Industrial Arts Education
Los Angeles City Schools

The purposes of industrial arts at the junior high school level may be grouped under four main headings:

1. To develop in each student an insight and understanding of industry

and its place in our society;

2. To discover and develop student talents in industrial-technical fields;

3. To develop problem-solving abilities related to the materials, processes and products of industry; and

4. To developskill in using tools and machines proficiently and safely.

The junior high school courses directed toward these purposes are broad, general courses that teach the understanding and use of the tools, materials and processes of industry. When these purposes are attained, the value of industrial arts education to all students, regardless of the future occupation or profession, is evident.

Notable people outside the field of industrial arts have recognized its value, for example: ". . .even the pure mathematician is aided by shop experience. . ." (The Harvard Committee); "Our survival as a nation in this turbulent second half of the 20th Century depends as much upon industrial arts as it does on nuclear physics." (Dr. Max Rafferty); and, "Scientists, engineers, and other highly skilled people constantly utilize industrial arts aptitudes in their work." (Dr. Donald Clark, Director of Placement at Cal Tech.)

To attain the purposes as names, typical California industrial arts programs include a broad selection of offerings. In grades 7, 8 and 9, drafting, electronics, graphic arts, industrial crafts, metals, power mechanics, and woods are offered as introductory courses. These introductory courses offer exploratory experiences to 7th and 8th grade students, either through a sequence of 10-week courses with students rotating through four shops in the 7th grade and two more in the first half of the 8th grade in large schools, or smaller schools may offer the same subjects in various combinations in a general shop under the direction of one teacher.

The areas of drafting, electronics, metals, and woods are usually required of all students. The emphasis in elective courses continues to be a variety of experiences with provision for increased depth of skill and understanding for students wishing to pursue a particular interest. The industrial arts courses offered in large schools are usually taught in separate limited general shops or when offered in small schools as part of the content taught in a comprehensive general shop or in combination shops, such as industrial crafts-wood, electricity-metal, graphic arts-drafting. Power mechanics may be offered in shops primarily devoted to metals or to electricity.

As one reviews industrial arts during the past year, a number of promising practices are evident. There is increased occupational guidance at the junior high school level. Good teachers show films depicting occupations. They plan interesting material for bulletin board displays. They discuss the want ads and help-wanted columns. Students are being made aware of the high school majors leading to terminal type programs as well as the opportunities

in apprenticeship, junior colleges and colleges. Articulation with the high schools is improving. To provide the meaningful guidance necessary, junior and senior high school teachers must know more about each other's programs. More school districts are going to the longer school day which offers seven periods for pupils (five for teachers). This will give opportunity for more students to take elective courses in industrial arts.

The relationship of industrial arts to other subjects has been given additional emphasis. Application of mathematics in industrial arts is not new, but the increased attention it gets is promising. Likewise, language arts continues to be emphasized through teaching spelling, developing language skills for directions and catalog reading, technical writing, and planning. Social science and economics are involved in a doing program, particularly as mass production techniques are taught. Probably the greatest emphasis recently has been in relationships of industrial arts to science. Alert teachers present the pertinent related science.

Changes in curriculum are evolving from current practices as creative teachers try out new ideas. The teaching of power mechanics is not new, but many school districts are taking another look at including "powers" of some type in the junior high school program. This area includes the one-cylinder two-cycle and four-cycle gasoline engine and new areas of power, such as fuel cells, jet engines, and other exotic forms of power and their application.

There is increased interest in the "Research and Development" approach to industrial arts. Some schools report special classes for "academic" or "junior engineers" to develop projects and problems through industrial arts. These are restricted electives for bright students to research, plan, and develop problems which are usually related to science and technology. Some schools permit what amounts to individual study and work on a project by a student. The student has access to all shops and utilizes the resourses of all industrial arts teachers, the science department, and the library.

Another trend, while not new, to be sure, is that more girls are enrolling in industrial arts courses in drafting, electronics, and graphic arts as an elective in the 9th grade. Girls are succeeding in these courses with little modification of content.

Many principals are convinced that the industrial arts program in junior high school has value to all of the students enrolled in the school. With good teaching directed toward the purposes of the program, creative teaching that stimulates new ideas and concepts, and constant evaluation of the program, we can be sure industrial arts will continue to be a vital part of the education of all youth.

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High School Education:
Industrial Arts Education

Dr. Glenn I. Newhouse
Supervisor, Industrial Arts Education
Oakland Public Schools

Glenn I. Newhouse

The California Industrial Arts Curriculum Committee has suggested that the following areas be provided in industrial arts in the State of California: automotive mechanics, drafting, electronics, graphis arts, industrial crafts, metals, photography, power mechanics, and woods. The variety of industrial arts courses that may be provided in a high school depends upon the staff, the facilities, and the needs of the students and the community. In high school, the work becomes increasingly specific and in certain instances borders on specialization depending upon the ability and interest of the students.

The emphasis in this presentation is on promising practices in industrial arts in the high school. There is a need for an industrial arts emphasis in the first two years of high school and, in some instances, a more specialized emphasis in the last two years so that the student would have some skills upon leaving high school.

Industrial education is the generic term that includes both industrial arts education and trade and technical education. If one can take seriously the report of the President's Panel on Vocational Education, clear-cut craft and trade lines are being diminished and preparation is recommended in "families of trades." Modern trade and technical education is coming more closely to resemble a good industrial arts program.

Let us review the four major purposes of industrial arts that should be further developed: (1) Insight and understanding of industry and its place in our society. (2) Talent in industrial-technical fields. (3) Problem-solving ability related to the materials, processes, and products of industry. (4) Skill in using tools and machines proficiently and safely. These purposes are furthered by a program in which emphasis is placed on helping students acquire the knowledge and skills basic to many occupations and professions.

Some promising practices of industrial arts are accelerated courses for the more able. These sometimes carry the prefix of pre-engineering in the areas of metals, electronics, drafting, and others. The objectives of these courses are to serve the college preparatory students, specifically those planning on and capable of entering the fields of engineering, science, business, or industrial arts teaching. If industrial arts is for all students, the needs of this promising group of students who should provide the future leadership for our nation should be met.

Pre-technician or junior college preparatory programs have shown promise in the several districts where they have been tried. In general, the practice has been to utilize a team of four subject area teachers who relate well to high school age students and who are capable in their fields of mathematics, science, language arts, and industrial arts. In this program, a supreme effort is made to emphasize the application of subject matter learned in one class and applied in several others.

The introduction, study, and testing of new industrial materials should be included in all industrial arts classes. The amount depends upon the ability and interests of the students. The book, Industrial Arts and Science, published by the California State Department of Education, offers some suggestions in utilizing scientific principles in industrial arts activities. Several colleges offer material testing laboratories where teachers can gain knowledge in effectively presenting the study of testing of materials in their classes.

It is important that flexibility be maintained in industrial arts programs so that a program can be adapted to the student instead of the student to the program. The program includes opportunities for student experimentation, problem solving, and creativity, and places emphasis on skill and encourages craftmanship. Industry spends as much money on in-plant training of employees as is spent on all public education. This training can be made more effective by providing, through the industrial arts program, a broad base of skills and information suitable for many occupations as well as giving a basis for choices of one's life work. This foundation of industrial skills and knowledge provides a very fine basis for the retraining needs as they arise in the future.

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High School Education: Industrial Education

Mr. B. Gordon Funk
Supervisor, Industrial Education
Los Angeles City Schools

Even before the advent of the Smith-Hughes legislation in 1917, the Los Angeles City Schools were conducting programs in vocational education. In the early days the training provided in vocational programs was satisfactory because it was geared to the needs of society at that time and to the limited numbers of students attending. However, it became apparent in the years before the second World War that the job market was changing with higher standards of preparation and performance being required, yet instability of employment characterized many jobs.

Mr. Willard Wirtz, Secretary of Labor, recently stated: "Thirty days from today a million and a half people in this country will be working for a different employer than the one for whom they are working today. No longer is it true that a job is something that a man can expect to have all his life." Thus, there exists an obvious disparity between the vocational education programs of the past and the actual needs of our economy and society. Newer

programs and newer methods of training youth had to be developed.

Industrial education in the Los Angeles City Schools, reflecting the needs of the youth, has developed into a program of offerings from the elementary school through the junior college. Since the high school is the last formal educational experience for more than 50 per cent of the population, a major emphasis must be placed upon programs at this level. In the Los Angeles program a foundation is built in the junior high school through exploratory experiences in four out of six different subjects in the 7th grade; in the 8th and 9th grades additional courses are recommended and may be elected. The senior high school program offers five major sequences in industrial education. There are: Industrial Arts Major Sequence, Industrial Occupations Major Sequence, Vocational Trade and Technical Major Sequence, Technical Major Sequence, and the College Preparatory Industrial Technology Major Sequence.

The industrial arts classes included in these sequences meet for one hour and are offered on levels 1 and 2. They are prerequisites to the industrial occupations classes, which are double period offered on levels 3, 4, 5, and 6 (two years). The vocational trade and technical classes are three hours and also on a two-year basis (the typical Smith-Hughes Plan C).

A typical senior high school in Los Angeles is constructed for 2,500 students, with nine shops consisting of two metal shops (light and heavy), two auto shops (lab and line), two drafting, electronics, wood, and graphic arts. These shops are designed to serve a dual purpose of industrial arts, (general education), and industrial occupations (where students gain a cluster of skills in a family of occupations which provide entry level employment opportunities).

Instructional guides have been developed in all subject areas of the industrial education program. These guides show a distinct difference between industrial arts 1 and 2, and the industrial occupations levels 3, 4, 5, and 6. Sufficient equipment is also provided in order to carry out both the objectives of industrial arts and the cluster of skills objectives of industrial occupations.

The industrial occupations program is definitely meeting the objectives of providing students sufficient training to meet the entry job requirements of industry. This was confirmed in a survey conducted last June of all students completing the Industrial Occupations Major Sequence, which indicated that all graduates knew where they would be employed after completing high school.

Special programs are continually being developed to offer students opportunities for occupational training beyond those presently available in the curriculum. These may be offered either before or after the regular school. Through these programs a great deal has been learned as to what can and what cannot be done to implement new opportunities in vocational education.

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Technical Education: Industrial Education

Mr. Russell P. Journigan
Supervisor, Technical Education
Bureau of Industrial Education

The presentation by Mr. Journigan is outlined below:

I. Enrollments in technical programs assisted through Title VIII.

	Enrollments	Expenditures
1960-61	36,795	$2,400,000
1962-63	65,389	4,700,000
Increase	88 per cent	98 per cent

II. Activities and accomplishments the past year.

1. A technical education work shop was held at Long Beach City College involving 60 industrial education teachers.

2. Approximately 30 experimental high school occupational programs are now in operation.

3. Curriculum developments at the high school level include the following:

   a. Construction (published)
   b. Electronics (in process)
   c. Metals (in process)
   d. Drafting (in process)
   e. Technical Science (in process)

Russell P. Journigan

4. Curriculum developments at the junior college level include the following:

   a. Nucleonics (published)
   b. Technical Illustration (published)
   c. Tri-College Survey (published)
   d. Educational Needs for the Technical Worker (published)
   e. Electronic Assembly Manual (published)
   f. Photo-Optics Technician (in process)

III. Trends in technical education.

1. A two-track electronics technician program is evolving.

   a. The electronic technician who is a research assistant, an engineering aid or a research and development technician.

   b. The electronic mechanic who repairs electronic equipment related to the production processes, tests equipment, and replaces electronic components.

2. The trend is for the electronics technician programs to be taken over by the mathematics and science departments of the junior colleges.

3. Another trend is for the engineering technician opportunities to gravitate to the graduate of four-year engineering programs. This is because we have not supplied industry with the right kind of research assistants.

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Adult Education

Mr. Richard Smith
Associate Superintendent, Adult Education
Los Angeles City Schools

It is my privilege to represent the adult education teachers in the California Teachers' Association. We do have a tremendous investment and a tremendous commitment to industrial and vocational education in its broad sense.

There are several objectives of adult education related to industrial education. One is occupational in nature - I have a report for you which I will make in a few moments - but I don't want us to forget that Gordon Funk mentioned the cultural aspect of industrial education a little while ago. Last week I had the opportunity to spend a couple of days in Chicago surveying their adult education program - if I can use that term loosely, because it wasn't an adult program, it was extension of the high school.

There was so much concern in Chicago about the place of an adequate cultural educational program that a research man from the University of Chicago was called upon to survey education in all its phases. One of the phases was adult education. They formed a fifteen-member advisory committee composed of citizens of the community, and their commitment to the cultural aspects of adult education was just as strong as they were to the vocational aspects. So don't let us sell ourselves the idea that vocational is the only phase of education about which we must be concerned.

There are a lot of forces at work. The National Government is very active in adult vocational education through the Manpower Development and Training Act. The Perkins Bill is also calling attention to the undereducated and underdeveloped adults who need to have occupational training. Requirements under the guidance of the Bureau of Public Assistance the Social Welfare in the State make it compulsory for adults to attend school. Furthermore, the Educational Policies Commission of the NDEA is recommending two years beyond high school for everyone. This educational emphasis is going to have a tremendous impact on all the adults who live in the United States. If every student, as eventually will happen, gets two years education beyond the high school - or at least this will be the emphasis in all the industrial states - what is going to be the impact on the adults we are working with? They are going to be competing with those who have two years educations beyond high school, while they themselves may not have graduated from high school.

Adult education is going to have to be thought of more constructively, and thought of with a great deal more emphasis. It's going to require additional physical facilities. I was happy to hear Gordon say we were going to recommend that facilities be built alongside the high schools so occupations in depth could be taught to students. Also, we would have the use of these facilities in the hours they were not used by youth. Furthermore, adult education is going to have to have facilities that are going to be available to adults during daytime hours. Automation is going to require it. People are going to be booted out of jobs by automation, and they're not going to be satisfied to be out of jobs. Also, we're not going to be willing to have them on our backs as social welfare recipients for long periods of time.

We have two locations now in the Los Angeles City Schools offering daytime educational opportunities for adults. The Board of Education provided eleven classrooms last fall. At the end of the first two weeks all classrooms were fully occupied between the hours of 8:00 a.m. and 10:00 p.m. The people need education, and they know it. The need is there. They want the opportunity to get education. The adult education teachers have a responsibility to society and a job to do. They must meet the challenge in a way that leaves no doubt as to their understanding, their competence, their dedication.

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Junior College Education: Industrial Arts Education

Mr. Joseph A. Guarisco
Coordinator, Industrial and
Technical Education
College of the Sequoias, Visalia

Joseph A. Guarisco

Many junior college industrial education programs are closely related to the programs of both high school industrial arts and college industrial

arts teacher education. Junior colleges look to the high schools in their service area to supply them with students having a background in industrial arts for their industrial education programs. Many junior college industrial education instructors maintain close liaison with the industrial arts teachers in the high schools through visitations to the high schools, distribution of literature, and meetings with individuals and groups.

Most junior colleges produce brochures for distribution to high schools for the promotion of various programs, often with emphasis on the offerings in industrial education. The deans of the College of the Sequoias visit the high schools in the area every spring to talk to seniors, distribute brochures, and show a movie in which the industrial education activities are always prominently depicted and somewhat glamorized. Catalogs providing detailed information about our courses are mailed to each senior graduating from a high school in our area.

Many junior colleges provide foundation courses for industrial arts teacher education. At the College of the Sequoias we offer industrial arts transfer courses of three semester hours each in automotive mechanics, drafting, electronics, metals, and woods. The content of these courses was developed in cooperation with the Industrial Arts Department of Fresno State College so that students planning to be industrial arts teachers can transfer without loss of units.

At the College of the Sequoias we attempt to recruit at least thirty students each year for our industrial arts transfer program. Thus, we try to maintain an enrollment of sixty prospective industrial arts teachers on our campus from an enrollment of two thousand day students. With the development of programs of industrial technology in the four-year colleges, many of the more capable junior college industrial-vocational students transfer into these programs.

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Charles W. Patrick

Junior College Education:
Vocational Education

Dr. Charles W. Patrick
President
San Diego Junior Colleges

The Master Plan for Higher Education in California defined the functions of the junior college to include:

1. Vocational Education,
2. Transfer Education, and
3. Guidance Services.

In general, the California Junior College Association and junior college administrators have accepted fully the responsibility for developing a strong vocational program. The support of labor and management have been important to the growth and development of the junior college movement, and much of this support stemmed from the potential of the junior college for vocational education. The junior colleges and the Vocational Education Section of the State Department of Education have fostered good working relationships with interested community groups.

This is not true in all states. In some, few or no junior colleges have programs supported from federal vocational funds. In others, separate area or state vocational schools have been created. This much is certain, there is in every state an imperative need for an institution which will provide vocational education on an area or regional basis for selected high school youth, for out-of-school youth and adults, and for high school graduates.

While the junior colleges in California seem the logical institution to serve this important need, there are some serious technical problems which could force the establishment of some other type of institution. Some junior colleges are preoccupied with "technical" education, and seem unable or unwilling to offer needed training of less than two years beyond high school graduation. Other junior colleges are primarily concerned with the transfer function, with emphasis on degrees, with collegiate status and "academic" senates. In all junior colleges, the concept of "graded classes" has left undefined the position of vocational courses. Finally, there is the increasing complication of credentials, course approvals by local councils and the State, and difficulties in starting courses when needed because of registration and matriculation regulations. But even more critical than all these technical difficulties, is the problem of developing qualified vocational leadership -- leaders with vocational know-how who are also able to work within the framework of the junior college in organizing, developing and supervising sound vocational education courses and programs.

In order for the junior colleges of California to realize their full potential for vocational education, the following specific proposals are made:

1. In each junior college, there should be established a line position heading the vocational program. This position should be equal in status, authority and pay to the position heading the academic institutional program.

2. All vocational education in the junior college should be centralized under one division.

3. Each junior college should invest in vocational supervision at least 15% of its gross budget for vocational education.

4. Each junior college should provide adequate attention, leadership, and budget for the development of a strong evening or part-time

vocational education program.

5. In each junior college there should be established vocational classes and opportunities for the vocationally talented high school youth, who may attend the junior college for all or part of the day while still completing their high school diploma.

6. There should be established training programs for leadership in vocational education. Those being trained should be familiar with and competent in all phases of vocational education and in the junior college program.

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Horace O. Schorling

Teacher Education:
Industrial Arts Education

Dr. Horace O. Schorling
Professor of Industrial Arts Education
and Department Chairman
Fresno State College

The industrial arts programs in colleges of California are broad in scope and are generally characterized by the following:

1. Industrial arts teacher education;

2. Education for industry and business;

3. Cooperation with other departments in the preparation of their majors; and

4. Services to the general student, the public and the profession.

Teacher education continues to be one of the most important functions of the colleges of California and the new certification requirements should in no way diminish the quality of the industrial arts graduate. This is a five-year program and includes a baccalaureate degree plus a graduate year.

By agreement, the programs of industrial arts teacher education exceed the minimum requirements of the credential law, and at the same time provide for a significant degree of participation by the junior colleges. The general characteristics of the program are:

1. Fifteen semester hours of foundation (lower division) lecture-laboratory technical courses covering a minimum of five areas

(these may be completed in the junior colleges);

2. Twenty-five semester hours of upper division lecture-laboratory technical courses (at least fifteen semester hours must be completed in one area of concentration);

3. Five semester hours of course work covering philosophy and history, organization and management, safety, and curriculum;

4. Six semester hours of graduate technical courses; and

5. Six semester hours of student teaching.

General trends appear to be:

1. Higher entrance requirements;

2. A common core of liberal arts;

3. Greater emphasis on technology;

4. Greater emphasis on related instruction in mathematics, science, art, and the behavioral sciences;

5. Expanded programs in research and development, mass production and automation, creative problem solving, and product design and development; and

6. Greater specialization.

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Teacher Education:
Trade and Technical Education

Dr. David Allen
Supervisor, Trade and Technical Education
University of California, Los Angeles

David Allen

The following program for the preparation of full-time trade and technical teachers has been in operation at the University of California, Los Angeles, for three years and will become the required program at both UCLA and University of California, Berkeley, beginning with the Summer Session 1964.

The Instructional Process in Vocational Education (First Core, 5 units): The Instructional Process: Learning, Psychometry, Instructional Techniques, Development of Instructional Media, Classroom Counseling and Guidance, with

emphasis on Direct Application to Vocational Education.

Principles and Practices of Vocational Education (Second Core, 5 units): A Comprehensive Study of the History; Philosophy; sociological, economic, and technological environments; Scope and Function of Vocational Education with direct application to the development of Vocational Curricula, teacher-community relationships, instructional effectiveness and educational leadership.

Supervised Teaching in Vocational Education (2 units): Teaching in the area of specialization, supervised jointly by the Division of Vocational Education and the school district where he is employed to teach; classwork in connection therewith as assigned by the Division.

Electives (10 units): The ten units of electives will be determined through testing, counseling, and consultation with administrators of each individual teacher. Based upon the test results and counseling interviews, together with the consultations with administrators, the recommended electives will be designed for each individual teacher in order that his teaching may be the most effective possible.

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J. Winston Silva, Van B. Lawrence, James A. Herman

Thursday Morning

March 5, 1964

THIRD GENERAL SESSION

Ernest G. Kramer

Chairman: Mr. Ernest G. Kramer
Chief
Bureau of Industrial Education

Recorder: Mr. Edward W. Bent
Fire Training Instructor
Bureau of Industrial Education

WHITE HOUSE CONFERENCE: A MASTER PLAN FOR INDUSTRIAL EDUCATION

Conference Orientation:

Mr. J. Lyman Goldsmith, Supervisor of Vocational and Practical Arts Education, Los Angeles City Schools, ably described and engineered the procedures to be followed in this session. These were:

1. Individuals were assigned to specific groups of eight to ten persons. Each of these groups was seated at a table.

2. A general statement was made concerning some aspect of industrial or vocational education, followed by instructions involving a general reaction.

3. The general statement and the general instructions were followed by specific instructions or a specific question to which the members of each group were requested to respond to problems on file cards provided for that purpose. This was to be done on an individual basis, without consultation within the group or with others.

4. After a brief period the cards with the responses were collected and another specific response solicited in like manner.

5. The responses have been reviewed and their content included, to some extent, in the following report. However, on practically all questions there was a wide

James Herman, Lyman Goldsmith

variation, and often diametrically opposite views. There has been no attempt to include all of these.

(Editor's note: Lacking a concensus, the points included appeared to be the most logical or the most prevalent. However, recognizing the human frailities occasioned by personal bias, it is hoped that differences of opinion which you may have, which will be many, will be charged to the frailities of competence rather than to frailities of conscience.)

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White House Conferees Took Their Job Seriously. . .

. . . Worked Hard, As The Results Attest.

#1 - THE VOCATIONAL EDUCATION ACT OF 1963 PROVIDES FOR VOCATIONAL PROGRAMS FOR STUDENTS AGE 15-19; WHAT AREAS OF INSTRUCTION AND TYPES OF PROGRAMS CAN BE PLANNED AND DEVELOPED FOR STUDENTS IN GRADES 9-10?

A. Suggestions Concerning Guidance:

Practical information should be provided at this educational level. Such techniques as field trips, participation in comprehensive shop programs, correlation of shop activities with social study activities and with other school activities should be employed as a part of a vocational guidance program at grades 9 and 10. These should be supplemented by counseling and guidance provided by a counselor with experience and appreciation of the world of work. These experiences provided the students should be supplemented with guest speakers and discussion groups about vocations in which individuals from various occupational fields might participate.

B. Suggestions Concerning Orientation:

There were a number of suggestions concerning the orientation of students to the world of work and to the basic economics of society prior to, or as a part of guidance which involves a specific vocational choice. This orientation should involve basic economics of business and industry, the profit system and the law of supply and demand. The objective is to develop a perspective of the world of work and what makes it tick, before expecting the student to see himself as a future participant performing some specific function in and for this comples society.

This orientation would be aimed also at the development or extension of a system of social, moral and cultural values. This would involve planning and working together on group projects, the design of tangible projects involving both beauty and function, and other similar activities which would further the development of desirable values. A broadly based industrial arts program could be a valuable vehicle for this orientation.

C. Pre-Vocational Programs:

In reviewing the suggestions concerning pre-vocational courses for grades 9-10, the general consensus favored occupationally centered courses planned for families of occupations. These courses would be broader in content than the traditional pre-employment program. However, the purpose of the courses would be more vocational in nature than the usual industrial arts courses and involve a greater element of vocational skills and vocational guidance. There should be some effort and planning to articulate these courses with the specifically vocational programs which might be entered in grades 11 or 12.

D. Course Content for Grades 9-10:

Course content should emphasize broad exploratory experiences. These should acquaint students with all the various areas embraced by the industrial arts program, occupational orientation including industrial organization, and stress on the vocational guidance function of the courses.

#2 - BASIC DIFFERENCES ARE CLAIMED TO EXIST BETWEEN INDUSTRIAL ARTS AND VOCATIONAL INDUSTRIAL EDUCATION. LIST THE CHARACTERISTICS WHICH IDENTIFY INDUSTRIAL OCCUPATIONS PROGRAMS AS DIFFERENT FROM THE INDUSTRIAL ARTS PROGRAM.

A. General Statements:

There is a need for much clarification in the meanings attached to the terms, "industrial arts" and "industrial occupations" programs. At certain levels there is little difference, and there is a large common denominator which should be identified.

Industrial education should be a continuous process starting with the industrial arts objectives and techniques of getting the student motivated and working and, where appropriate for individuals, moving smoothly into the vocational-technical program.

Although in the main the purpose of a particular course may be that of the industrial arts, and have this purpose for most students, it may have vocational significance for some of the students. However, if the purpose of a course nominally called industrial arts is occupational preparation for the majority of the students enrolled in it, its designation, its nominal objective and its standards should be shifted to those of the vocational-industrial education program.

B. Industrial Arts Characteristics:

Industrial arts programs contain initial learning processes directed toward industry in such a way that they explore and interpret industry and provide consumer education. This process of exploration is designed to pique the interest of all students and should be a part of the educational experience of all students. While one of the major purposes of industrial arts is orientation of students to the broad area of industrial activity, the rudimentary knowledge and elementary skills may be the base for further specific occupational training for some students.

The unique characteristics of the preparation and competencies of most industrial arts teachers, and the purposes they espouse

are indicative of the actual purposes being served by the industrial arts program. The training industrial arts teachers receive consists of professional training in teaching techniques, the motivation of students, and broad training in one or more industrial fields rather than training and experience in depth in one occupation or one aspect of an occupation. Ordinarily these teachers are not concerned with the requirements in the work force of any one occupation or of gearing their instruction to the specifications of any one industrial group.

C. Characteristics of Industrial Occupations Training:

The objectives of the students in industrial occupations programs is much more homogeneous than the objectives of industrial arts students as enrollment pre-supposes a specific occupational choice, or at least the choice of an occupational goal within the general area of the instruction. Instruction is geared to the employment needs in an industrial field, is organized and provided with the advice and assistance of an advisory committee from the occupational field involved, and the quality of the program is largely judged by the percentage of employment of graduates in the occupational field covered by the instruction or their induction into further training in the same or closely related occupational field. The training is involved more with specific salable occupational skills and knowledge rather than with orientation, guidance, and consumer appreciations.

Most of the teachers engaged in vocational occupations training have less preparation in pedagogy than do industrial arts teachers but greater experience and more occupational competence in a specific occupation. Consequently, because of their interests and competencies, their guiding purposes and those of vocational occupations training are salable skills and knowledges associated with an occupation, or at least a general occupational field. Assistance and guidance from an advisory committee made up of representatives from the occupational field is sought in determining the content and scope of the curriculum as based upon employment requisites.

#3 - CALIFORNIA PROVIDES SEPARATE PROVISIONS OF TEACHER PREPARATION FOR THE FIELDS OF INDUSTRIAL ARTS AND INDUSTRIAL-VOCATIONAL EDUCATION. THE SIGNIFICANT WAYS IN WHICH THE TEACHER PREPARATION PROGRAMS IN INDUSTRIAL ARTS AND INDUSTRIAL-VOCATIONAL SHOULD BE THE SAME AND SHOULD BE DIFFERENT ARE:

A. Desirable Similarities in Teacher Preparation:

Both teacher preparation programs should include classroom management, teaching techniques and procedures, testing and test preparation, and an understanding and appreciation of a philosophy of education involving education in general as well as industrial arts and vocational-industrial education. Both groups

of teachers should be outstandingly competent in the subject matter they are to teach, and any deficiency should be determined and training prescribed to eliminate it. Both should have a knowledge and practice of good grooming, appropriate clothing, good taste and good manners.

Artificial barriers should not be erected to prevent a flow of teachers from industrial arts to vocational-industrial education and vice versa, with the only barrier being the inability to do the teaching job creditably.

B. Vocational-Industrial Teacher Preparation:

Vocational-industrial teachers should be master craftsmen, which requires a thorough knowledge of the skills and technical information of the occupation. These qualifications may be insured through initial selection or, if not, deficiencies in occupational competence may be made up by prescribed occupational experience and formal training. Many of the vocational teachers are deficient in some of the technical aspects of the occupations, and also in some of the more general subject matter fields such as mathematics and the communications skills. These deficiencies should be removed through prescribed education which would become a recognized requirement as a part of teacher preparation.

In addition to the above, the vocational teacher preparation should include the preparation indicated above in "A".

C. Industrial Arts Teacher Preparation:

The preparation of industrial arts teachers should include broad training in one or more areas of industrial activity. The same depth of occupational competence which is required of the vocational-industrial teacher should not be required of the industrial arts teacher. However, he must have a broader educational preparation in pedagogy, including an emphasis on team teaching involving science, mathematics and social studies, and also basics in general, educational, and vocational counseling and guidance.

In addition to the preparation and competencies indicated above, he should have those that should be common to both groups as indicated previously in "A" for both industrial arts and vocational-industrial teachers.

#4 - THE MAJORITY OF CALIFORNIA HIGH SCHOOLS ARE ORGANIZED AS COMPREHENSIVE HIGH SCHOOLS. SPECIFIC ACTIVITIES AND PROGRAMS GEARED TO JOB ENTRY WHICH CAN BE REALISTICALLY OFFERED WITHIN A COMPREHENSIVE HIGH SCHOOL WERE LISTED AS FOLLOWS:

A. General Course Suggestions:

1. General shop courses providing basic training in several

industrial areas in order to provide potential job entry into several employment areas. In addition to job entry potential, such programs would act as screening programs.

2. Terminal courses for those not intending to continue their full-time education beyond the high school. These would have occupational significance for job entry in a specific occupation or occupational field, and in most instances would intentionally involve salable skills.

3. Pre-technical or the beginnings of a technical program which articulates with the community college program. This might involve a review of basic subject matter such as mathematics slanted to a practical application to the technical field under consideration. The same would be true of the communications skills. However, this would displace all the content specifically associated with the technical field involved.

B. Specific Course Suggestions: (A sampling only of the suggestions)

1. Semi-skilled, or operator level:

   Machine operator, entry draftsman, plastic machine operator, hand freight handler, clerk-typist, file clerk, home gardening and lawn care, service station attendant, store clerks, sales personnel, basic courses in home economics, etc.

2. Pre-apprenticeship training:

   Sheet metal and other building trades, auto mechanics, heavy equipment operator, commercial art, graphic arts, etc.

3. Technician fields: (Usually requiring participation in a post high school program).

   Drafting, electronics, home economics, laboratory techniques, etc.

C. Vocational Guidance:

A "goal centered" counseling program should be established which would assist students in the selection and pursuit of occupations suitable for the respective students. This should involve teachers and counselors with a broad interest in and familiarity with job opportunities and requisites.

This "goal centered" counseling program should be supplemented with an effective referral program involving testing, counseling, and counsultations with a representative of the appropriate occupation or industry. Participation in field trip experiences or in actual exposure to the occupational area in a work-study

program should be employed when feasible.

In such "goal counseling" the parents should not be overlooked.

D. Suggestions for Implementation and Operation:

There should be a broad grounding in the various occupational fields such as that provided by the industrial arts program in the industrial fields, but these kinds of educational opportunities should be extended to include business, agriculture and home economics occupations. The guidance value of this kind of an educational program should be capitalized on with careful analysis of individual achievement, interest, and student potential. The opportunities for enrichment of such a program with field trips and work-study programs should not be overlooked.

The orientation of individuals to occupations and to their capacities may be followed by further occupational preparation for job entry as required by the occupation or by the occupational area. This preparation for job entry may be completed at the high school level or be continued in post high school preparation, again determined by job entry prerequisites or by the demands for additional preparation for more satisfactory job entry and advancement.

This kind of a vocational program may require a longer school day or more periods in the customary six-hour day which would provide for a more varied and flexible high school curriculum and the addition of vocational education to many students' programs. Another solution would be to decrease the number of specifics outside of vocational education for high school graduation or to plan the educational program so that some of the specific requirements for graduation could be satisfied by some of the content of the vocational program.

Leo Meyer of Chabot College Overviews Response Cards

#5 - STANDARDS FOR HIGH SCHOOL GRADUATION ARE ESTABLISHED BY LOCAL SCHOOL DISTRICTS TO MEET STATE AND LOCAL REQUIREMENTS.

A. List the essential academic and vocational requirements which should be established for completion of a vocational program in a vocational high school.

1. Length of Program: Apparently most of the groups were satisfied with the current four-year program as sufficient for completion. However, three persons advocated a five-year program.

2. Time Allocation: Both two hours per day and three hours per day for vocational training were recommended. There was some indication that the school day should be lengthened to accomodate all the academic requirements plus sufficient occupational training to qualify for an entry job.

3. Curriculum: Some of the respondents recommended the usual academic requirements prescribed for college-bound students. Others stated that the required academic competencies such as the quantitative, communications, scientific and social skills should be developed in educational tasks and experiences integrated with the occupational training program. Apparently almost everyone in the group was convinced that mastery of the Three R's and basic science should be a "must".

   Some of the other recommendations which met with less general expression were that all state academic requirements should be eliminated, that all programs should be acceptable for junior college and/or state college entrance, that students be instructed on how to apply for a job, including interview techniques, that advanced courses should be closely linked with local industry and that high school credit should be given for pre-planned work experience.

   Those who expressed an opinion concerning a foreign language requirement were unanimous for eliminating it.

4. Special Vocational High School: All reference made to the specialized vocational high school as opposed to the comprehensive high school indicated that all high schools should be comprehensive high schools in nature.

5. Philosophical Recommendations: Sufficient social studies should be included to prepare for responsible citizenship. There should be a sampling of human interests and developments and experiences which would prepare and motivate each individual for further cultural development.

   There should be sufficient flexibility in the school curriculum to allow an educational program which meets the needs of

each individual and challenges him to his best efforts.

6. Vocational Counseling: There should be more vocational counseling by individuals with a sound understanding of the world of work. This should be accompanied by a schedule of conferences with parents. Such a program would require an expansion in the counseling force, but there were many suggestions that the student load on counselors should be decreased.

#6 - INDICATE WAYS IN WHICH PROGRAMMED INSTRUCTION CAN BE USED IN INDUSTRIAL EDUCATION.

A. Suitability to Industrial Education.

There was no consensus concerning the value of programmed instruction for use in industrial education. The appraisals ran all the way from statements which indicated no application whatever to statements advocating almost the exclusive use of programmed instruction. However, the majority of responses were favorable to some use of programmed instruction, but the extent of use advocated was quite variable.

B. Advantages.

The following are some of the ways which individuals felt programmed instruction could be used advantageously:

1. Provide effective instruction in subject matter in which the teacher was weak.

2. Provide a means for teachers to increase their competencies in subject matter not fully mastered.

3. Free some of the teacher's time for more individual instruction.

C. Suggestions for Use.

Programmed instruction can be used advantageously to:

1. Provide repetitive drill.

2. Instruct small members of students ranging from one individual up.

3. Provide "make up" instruction, or aid the slow learner.

4. For teaching skills, particularly basic skills and short units for adults, especially where the sequence of steps or a similar consideration is important.

5. It is particularly applicable to related and supplemental instruction.

6. It is very valuable for "refresher" courses and for make-up, review and remedial instruction.

7. To relate math and science to manipulative operations.

8. To stimulate interest and otherwise motivate students.

9. To provide more depth and to challenge the above-average student, and to supplement the normal course content with additional material.

10. To provide added opportunities for the slow learner to keep pace with the group, or to catch up when behind.

11. To adapt instruction to individual learning rates, and to individual educational needs and interests.

#7 - KINDS AND TYPES OF INSTRUCTIONAL MATERIALS THE BUREAU OF INDUSTRIAL EDUCATION SHOULD DEVELOP AND DISTRIBUTE.

A. Almost any kind of instructional materials that could be identified with a vocational program was mentioned by one or more persons. Some of the suggestions were:

1. Materials for high school programs for both industrial arts and trade and technical.

2. Materials for the culturally disadvantaged, and for the 8th grade reading ability, or lower.

3. Materials for job orientation.

4. Instructional materials designed for "families" of occupations.

5. Materials to be used for public relations.

6. Reviews of text books, and a listing of teaching devices.

B. Course outlines were recommended for all industrial arts and occupationally centered courses for all grade levels, with emphasis on job entry requirements. Subject areas which were stressed were related science and math, safety and technical writing.

C. Development of apprenticeship instructional materials should be continued and should be extended to include correspondence courses for apprentices, and augmented by pre-apprenticeship course materials.

D. Complete courses of instruction and instructional aids for each area of industrial arts, and for all occupationally centered courses for which there is a demand should be prepared and supplemented by instructional aids such as lesson plans and job sheets, with objective tests, transparencies, drawings, films, tapes, records and mock-ups. In addition, lists of equipment, course-oriented safety manuals, and a listing of reference material should be associated with each course.

E. Objective-type tests should be developed for all courses, standardized, and norms established.

F. There were many suggestions for the development and use of programmed instruction for all courses at all levels.

G. In addition to the development and distribution of courses of study and instructional materials, the potential value of the Bureau of Industrial Education as a clearing house for the preparation of lists of available materials and annotated bibliographies was stressed.

H. Up-to-date guidance materials for use in the junior and senior high schools and junior colleges should be prepared where none are already available, and these provided for extensive use by teachers and counselors.

I. Establishment of loan libraries in several centers of the state, such as the regional offices, would be a very valuable service to the local programs.

#8 - FREE RESPONSES.

A. Public relations came in for considerable support, like honesty and motherhood. The need to have more of it involving the industrial arts and trade and technical programs with other school personnel, with leaders in business and industry, including labor, with students and parents, and with the press and other communications media was recommended. The objective is to improve the image of industrial education and insure support. No specific procedures were suggested.

B. There was a great deal of concern expressed over the relationships between industrial arts and trade and technical personnel. It is essential that industrial education have a united front.

C. There is a serious problem with respect to vocational education in the junior college. This revolves around inadequate representation of vocational education at the administrative line, which results in little effort to accomodate vocational programs. Symptoms are the problems of operating ungraded classes in many junior colleges, the enrollment of individuals at times other than at the

beginning of a semester, and the difficulty in establishing short courses of less than one semester in duration.

D. There were many suggestions relative to research, but the major concern appeared to be for research which would assist in gearing the industrial education to specific occupational needs in occupations. Another recommendation dealt with dissemination of information about the results of pertinent research.

E. Workshops were suggested as follows:

1. Workshops for vocational administrators in efficient operation of an office.

2. Workshops for vocational administrators in making presentations to boards of education and other public groups.

3. Workshops to bring instructors up to date with the latest developments in their respective occupations.

F. Great differences of opinion were indicated in the essential qualifications for authorization of individuals to supervise and/or coordinate industrial education programs. Specific standards covering competencies and credentialing with respect to the use of vocational funds should be spelled out. Several persons recommended more supervision and coordination service, particularly at the local level.

G. Expressions concerning industrial arts indicated more concern for the vocational aspects of industrial arts and getting under the reimbursement tent than meeting the educational needs of the majority of industrial arts students who will not be capitalizing, vocationally, on the industrial arts program. (This is an editorial comment, but should give industrial arts people food for thought.)

H. The leadership problem in industrial education was of considerable concern. Several recommended an increased staff at the state level to serve the local districts better. The same thought was expressed by others for local supervision. Advisory services relative to construction and equipment from the state level, increased state supervision and coordination of the industrial arts program, and specialized services in public relations were all mentioned as essential.

I. There was considerable concern expressed for the credentialing of industrial arts teachers to teach reimbursed classes, and many suggestions concerning the establishment of their competence. The idea was expressed by several that credential requirements for industrial arts teachers and trade and technical teachers should be the same. The same thought applied with respect to coordinators and supervisors.

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Thursday Afternoon

March 5, 1964

INDUSTRIAL ARTS SECTION MEETING

Robert L. Woodward

Chairman: Dr. Robert L. Woodward
Consultant in Industrial Arts
Bureau of Industrial Education

Recorder: Mr. R. Jack Stinson
Consultant, Industrial Education
Monterey Public Schools

Dr. Woodward welcomed the participants and introduced new members. Following the introductions, he reported on:

1. The series of meetings held for industrial arts supervisors in the three regions of the State (purposes of the meetings were to review objectives of industrial arts, agree upon area terminology, determine the inclusion of new industrial arts areas, i.e. power mechanics, and work upon the revision of the junior high level courses of instruction);

2. The State meeting of chairmen of departments of industrial arts teacher education and college administrators (purpose of meeting to decide upon a recommended program of teacher preparation);

3. The preparation and distribution of the brochure titled "Industrial Arts -- A Vital Part of Every Student's Education";

4. The publication and distribution of Industrial Arts Automotive Mechanics, An Introductory Course of Instruction, and a questionnaire relating to this publication;

5. The fourth annual Industrial Arts Exposition and Award Program to be held in Sacramento, March 21-28 (judging to take place on March 16 and 17; Outstanding Award winning students and teachers to be honored March 25 and 26); and

6. The tentative draft of the revised material for the new publication for grades seven, eight, and nine.

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Speaker: Dr. Walter C. Brown
President, American Industrial Arts Association;
Supervisor, Phoenix High School and College System
Phoenix, Arizona

Topic: INDUSTRIAL ARTS AND TECHNOLOGY IN THE FUTURE

Let's go back in history to the year 1880, because it marks the formal beginning of industrial arts in the school.

Industry at this period in history was vastly different than it is today. The idea of interchangeable parts, introduced by Eli Whitney three-quarters of a century before, had seen little use. Henry Ford was a machinist, and the mass in-line production assembly had to wait on the development of a new industry - the automobile. The Wright Brothers had yet to develop the flying machine, which had been pictured by Leonardo da Vinci 500 years earlier. Electricity had been harnessed but was not in general use. This was the industrial setting into which the antecedent of industrial arts was introduced.

We had only begun to catch a vision of a high school education for all with a relatively small percentage of the high-school-age youth in school. Indeed, Manual Training was to be the base for a new type secondary school.

Calvin Woodward and John Runkle seem a little out of date and antiquated to us, but what they introduced into the schools was quite representative of the industry of their day. You have studied the history of industrial arts and know that shopwork in the late 19th Century included experiences in cabinet making, carpentry, lathe, forge, vise work, and blacksmithing.

Industry was just "catching on" in 1880. The machine had been a part of the industrial scene for most of the 19th Century, but not until the latter part did we turn to the machine on a large scale. The giant industries of the early 20th Century were machine industries. Scientific management and shop management were hailed as new bench marks of efficiency in industry.

Two world wars and the competition of foreign markets were all that America needed to launch herself into the leading industrial power in the world.

Henry Ford ushered in the industrial revolution of the first half of the 20th Century with his mass-production plant. Automation promises to be the technological revolution of the second half. The impact of the latter will be greater and will come at a continually increasing pace.

Recent years have seen three great developments -- nuclear energy, automation and data processing by computers. These have tremendous significance in relation to man and to work. Nuclear energy greatly multiplies the energy available to do the world's work. Automation greatly multiplies man's

energies in doing work and the computer greatly multiplies man's ability in the calculating necessary to scientific and industrial achievements.

At one time in our history, technological advance had to wait on the "accident of inspiration" or the natural development of the "genius" of the Franklins, Whitneys, and Edisons. Today, technology will not wait. We demand a much faster action and look to our educational system to shorten the period of development of productive man.

The trinity of production has been land, labor (including managerial and professional), and capital. The importance of each of these has changed over the years. Prior to the colonization of the new continents, land in Europe was in short supply and it was the key factor in production. As the new continents were opened land became plentiful, but capital was needed to develop the land. Capital was found and this seemed to suffice the production needs until the time of rapid technological development.

Today the advance of our technological progress is dependent upon the improvement of the equipment of production and the working force. Both of these are the products of improved man and we turn to education for this improvement.

How Well Has Industrial Arts Kept Up?

This is the industrial climate in which we live and is the subject matter content for industrial arts. Changes have occurred in our program, but taken as a whole these changes have been slow and the gap between school industrial arts programs and the industrial world they seek to interpret has increased. All too often industrial arts instruction has been lost in the maze of "project making" that unfortunately represents the handicraft period of industry more than it does the 20th Century.

We have allowed instruction in industrial arts to fall behind in content, facilities, equipment and visual aids. There are notable exceptions in all subject fields, particularly in electronics and automotives and power mechanics. Students would be highly critical if we lagged here. Graphic arts is another area where we seem to have kept up a little better. But what about drafting, metalwork and woodwork? Do your drafting students have an opportunity to use the drafting machine or the parallels? Will they know how to use the new polyester films being used in industry today? Do they know why such materials are used? Are students afforded an opportunity to develop prints by one of the current industrial methods?

Is your course of metalwork a unit course in machine shop or do students explore and study the broad field of metals? Are you introducing the new techniques in welding and bonding of metals?

If your industrial arts woodworking course is limited to furniture construction and wood turning, then your students are missing a whole exciting field of the wood products industry. Wood laminating is not new, but there are some new techniques being used in both the domestic and industrial fields.

This is a technique which should be included in more industrial arts woodworking courses.

Not so long ago I read an article in which the statement was made, "Into Today Walks Tomorrow". At first it didn't strike me, but later the thought came back with the force of a sledge hammer. "Into Today Walks Tomorrow." I thought, how true. Everyday we see signs of tomorrow. The "tomorrows" of industry enter the door of our industrial arts laboratory by way of the commercial supplier who has a product new to industry, by the professional and trade journals which we receive and through newspaper reports of current happenings in industry. What are we doing to include these changes in our industrial arts programs?

What Can We Do To Improve Our Program of Industrial Arts?

This fall in Phoenix we are organizing a number of advisory councils to work with our instructors of automotive and power mechanics, drafting and electronics, etc., to assist us in our efforts to really represent the industry of today. We started this last year on a small scale by inviting industrial representatives to participate in our instructional improvement half-day programs. These were so successful in the areas in which they were used that several instructors asked if they might invite some of their promising senior students to attend.

With the assistance of these advisory councils, we expect to develop a list of resource persons from industry who would be willing to come to the schools on a half-day basis and speak to industrial arts classes on their specialty. Members of advisory councils can also advise on industrial trends and provide valuable up-to-date information on industry as well as many instructional aids and materials.

Another way to improve our program is to earnestly seek to accomplish the basic objectives of industrial arts -- skills, exploratory experiences, technical information, creativity and problem solving. Industrial Arts is unique in its development of the student in basic skills in tool and machine processes. This is an essential objective of all industrial arts programs and we have been fairly successful in its accomplishment. Regarding the remaining objectives, we have not been overly successful in their accomplishment and, therefore, I think we need to rededicate ourselves to these objectives. Exploratory experiences -- this is accomplished in part at the bench, but since all industrial processes cannot be performed at the bench, other content and methods must be provided. Technical information is very important in industrial arts, but too often crowded out. Here is an opportunity to bring in a speaker to tell the story of automation in local industry and to answer questions students would be stimulated to raise. If industrial arts is truly a representative study of industry, then students should be given an opportunity to study and understand the significant developments.

The cry in the business world today is "teach students to think." No subject in the curriculum lends itself to the development of creative abilities as does industrial arts if the instructor knows what to do and does it.

Too long we have done the thinking for our students; too long have we let students copy designs and duplicate projects. We have slipped the industrial arts straight jacket on students and we forbid them to take it off. Loosen up these jackets! Encourage creative planning, but don't settle for "no planning."

This brings me to the final basic objective of industrial arts. The development of problem solving abilities on the part of our students. Industrial arts is a natural for this. Every assignment or project in industrial arts should have inherent in it a problem or problems to be solved. The student should be thoroughly instructed in the problem solving approach and be expected to use it in reaching the solution.

I believe it is obvious that if we earnestly strived for the accomplishment of these objectives much would be done in the updating and improvement of our program.

Improving Teacher Productivity

There is another area that all of us who seek to improve must consider. This is our productivity. Industrial arts teachers (all teachers, for that matter) must seek ways to improve the productivity of their instruction. There are more things to teach today than ever before, and instructional time seems to move increasingly faster. Let me suggest that we take a hard look at content, method, and project, use of instructional time and class size.

We need to take a look at what is taught in beginning woodwork and take the "instructional sickle" and cut out that which is no longer basic to the needs of youth nor to a representation of modern industry. Sit down and go over that course outline and mark tradition out! In its place, add instructional content that is basic to modern industry, that will make a significant contribution to the education of youth who will live in an increasingly complex industrial world.

Some "sacred cows" have crept into industrial arts and have taken their toll from our productivity. One "sacred cow" is the project. I do not envision industrial arts without the student project, but I do see the need for a different emphasis. The project, in many shops, has become omnipotent. Everything else takes a back seat. I say the project needs reorienting where it becomes the means rather than the end sought.

The pupil-teacher ratio is another "sacred cow". Is 24 students per teacher a magic number we cannot go beyond? I am mindful of the individual nature of much of the instruction and the safety factors involved in shop teaching; does this apply equally to all classes, age groups, and teachers? In Phoenix, our limits are 25 to 28 with a top of 30 in drafting. Most of our instructors agree that this is quite satisfactory and I must admit that I feel that it is quite large enough. I have on numerous occasions defended the maximum size at the supervisory council meetings. I also see the day when school superintendents, boards of education, and citizen groups will

ask for comparative costs on education and for the sake of cutting the budgets industrial arts may be found wanting.

I say we need to look at the "sacred cow" of class size and seek ways of cutting costs in industrial arts. This may involve new methods of team teaching, increased laboratory equipment to accommodate more students, audio visual aids, programmed instruction, and other techniques as yet untried. Larger classes do not necessarily mean more work for teachers and less learning for students. They can mean improved instructional techniques and equipment, greater student learning, easier teaching assignments and increased money for instructional services. This is a challenge we in industrial arts should undertake before we are told to cut our per pupil costs or close up shop.

We have spoken of the increased productivity of our industries. This is a material gain and related to tangible items. This raises the question -- Can the productivity of a personal service be increased? Can the productivity of industrial arts teaching be increased? I believe it can and the only cause of failure to do so is lack of ingenuity, creativeness, know-how, or a lack of desire.

Accomplishments in Industrial Arts

I cannot end this presentation without noting the accomplishments we have witnessed in industrial arts. It would have been an easier task for me to come before you with only this phase of my talk, but this alone, you neither expected nor wanted.

It has been my good fortune over the past 10 years to have visited, first hand, industrial arts programs in 19 states. I want to say what I have seen has been most encouraging.

Enrollments are increasing in industrial arts all across the country and this trend will continue as industrial arts fulfills its promise to youth and to society. More girls are enrolled in industrial arts, and, since more and more women are entering the labor force, this will likely continue.

More schools are offering industrial arts than ever before. Personnel in state departments of education and teacher education institutions are responsible in a large measure for this growth. While the number of schools offering industrial arts is increasing, the number of schools offering "woodwork only" is decreasing.

Paralleling the growth in quantity has been an even more noticeable growth in quality. Teachers are better prepared today than at any other period. They have greater depth of technical subject matter, are better shop organizers and managers and have a better general education to boot. The answer to this is that more of them have the master's degree and beyond.

Not only are industrial arts teachers better prepared, they are taking more leadership in their schools. It is not uncommon for industrial arts

teachers to be selected to head important committees, assist in administrative duties and serve in consulting capacities to various school and community groups.

There was a time in industrial arts that it was difficult to find adequate instructional materials. Today, however, the industrial arts teacher has at his beck and call, subject only to budget limitations, instructional materials ranging from textbooks and workbooks to film transparencies for whole courses.

School shop facilities have improved greatly in the last 20 years. It is not uncommon for school principals to take visitors first to the industrial arts shop on their tour.

A final accomplishment that speaks well for our public relations efforts is the improved school and community understanding of industrial arts. School administrators are more knowledgeable about industrial arts and parents have now arrived at the point where they are using the term industrial arts with greater ease. There may have been a time when the industrial arts teacher found the attitudes of school administrators, fellow teachers and citizens somewhat trying. No longer is this true. You belong to a profession that is now and will continue to be one of the most respected groups in the schools. The industrial arts teacher walks proudly in educational circles.

I have pictured for you some of the changes that have taken place in industry and some of the changes needed in industrial arts. We are living at a time when "change" is the password. There is no standing still -- industrial arts will either keep pace or lose out as a significant part of the school curriculum. The challenge is up to you who are industrial arts teachers, supervisors, and teacher educators.

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Thursday Afternoon

March 5, 1964

TRADE-TECHNICAL SECTION MEETING

Chairman: Dr. Sidney E. McGaw
Regional Supervisor
Bureau of Industrial Education

Recorder: Mr. Edgar L. Smith
Assistant Supervisor
Trade and Technical Teacher Education
Bureau of Industrial Education

Topic: LABOR MANAGEMENT COOPERATION PANEL DISCUSSION

Moderator: Mr. Charles F. Hanna, Chief
Division of Apprenticeship Standards
Department of Industrial Relations

Panel: Dr. John W. Trego
Management-Education Administrator
Hughes Ground Systems Group, Fullerton

Mr. Robert P. Hansler
Director, Industrial Education
Fresno Unified School District

Robert P. Hansler, Charles F. Hanna, John W. Trego,
Sidney E. McGaw and Edgar L. Smith

Dr. McGaw introduced Mr. Hanna, who responded by suggesting that perhaps he had been selected to be moderator because he is such a moderate fellow. He stated that Mr. Charles Sanford, originally scheduled for the panel, was attending a conference of industry coordinators to which he had been previously committed, and that he, Mr. Hanna, would replace him on the panel and endeavor to reflect what might have been Mr. Sanford's views on representing the labor end of the discussion. Mr. Hanna then presented Dr. John W. Trego.

Speaker: Dr. John W. Trego.

Thank you, Chuck, and good afternoon.

I notice by the title the topic is listed as Labor Management Cooperation. I would prefer that it also include the word "education". Even though labor and management cooperate a great deal more than some of you think, I don't think our efforts would be extremely significant - or significant at all - if you people did not form one segment of the triumvirate. So as far as my remarks are concerned I'm going to consider that the topic involves labor, management, and education.

There was a conference held about the middle of January of this year. It was a conference on training and retraining, which I recognize is not the sole broad aspect of the topic which we are dealing with today, but nevertheless is an important facet of it. I'm not so sure how many of you saw the report of the conference. I saw it first at the beginning of this week. There were some significant items written up in the report which I felt were important enough for us to look at here. The conference had a wide representation from public and private organizations. It exemplified a concerted interest in developing a labor force to meet the education, training and high skill requirements of what you people in your conference theme mention as Industrial Education in a Changing World of Work.

We recognize that it is a changing world, and sometimes, perhaps, our thinking stops there. It really doesn't do us a great deal of good simply to recognize that a situation is changing if we don't make any efforts at all to determine in what direction these changes are, where the changes are taking us, and what the significance of these changes are for the type of thing we are trying to do. I think, perhaps, out of this conference will come some of the answers. I would certainly hope so. If you leave the conference only with the feeling that changes are being made, I don't think that we've really accomplished anything. You can ask anyone who is being laid off at a plant because of automation, for example. He'll recognize the fact that changes are being made; but for us the problem goes a great deal deeper.

I would like to bring to this group several of the areas in the conference report that I feel have significance for us. First of all, they recognize the fact that action programs are needed. Now, I presume when they put the emphasis upon action they probably meant enough talking has already gone on, and what we really need now - not only at the national

level but at the state and local levels - are action programs, and the following are some that they say are needed. See if they fit your responsibilities.

The first is to develop a more favorable attitude on the part of government, industry and the public regarding vocational and industrial training. I think this has been mentioned before in such things as considering them second class citizens, whether on the teaching end or the student end. Second, we need to learn more about manpower utilization. Actually, up to this point we've only gotten our foot in the door. Third, we need to close the gaps between government, unions, management and education in the communication of research findings. There is a great deal of research going on but most of us never hear what the outcomes are. They're probably published in some sacrosanct journal which most of us don't get. Fourth, we need action programs for the upgrading and broadening of counseling and employment services. I think the implication here is that there are a lot of people doing counseling and employment service functions who probably don't know much more about what the problems are than the people they are counseling. Fifth, find a better means of projecting technological advances. We hear so much about automation. Everybody recognizes that it's here. How much projection have we done in terms of what will happen in the next one year? Or five years? Or ten years? About all that we can say is that people are being replaced by automation, and some people even hide their heads in the sand to the extent that, "We're really not replacing people as a result of automation; it's simply creating new jobs in other areas." That sounds good but it simply isn't true.

The letter which I received from Dave Allen said that we are to pose some questions for discussion which we feel should present a challenge to industrial educators. I have listed a few. I'm sure these are not all of them, and I'm sure there's nothing unique about them either. First, the industrial educator associations must provide liaison with vocational guidance, vocational training, local employment service and educational institution personnel as to the working environment in representative industries, with emphasis on entry jobs. What I am saying here is that it is the industrial educator associations' responsibility and function to take care of this liaison so that the actual working environment in industry gets back to the people who need to know.

Second, these same industrial education associations should provide feedback to local educational institutions regarding job family trends and new product developments as they influence vocational industrial skill requirements.

Third, the associations should campaign to place industrial educators in strategic advisory and policy-making action groups and on committees in national, state and community circles of influence. Don't let all of these action groups be populated by politicians. We need educators in the action.

Fourth, associations should continue to render curriculum development assistance to local institutions in terms of new trends and developments.

This, I am sure, you people are doing. And, lastly, the associations and your group should provide the initiative and coordination required to propel public and private organizations into action. I think we've been on the soap box in some of the areas much too long.

Don't think that I feel no action has taken place. I have enumerated some of the local actions that I know have occurred, and probably most of you could add to this list. But let me name just a few in case you haven't heard. Some time back USC started a vocational guidance institute in its Youth Study Center for the retraining of those who are trying to help youth find employment. This goes back to the need I mentioned before - at least in my opinion it is a need - for training of counselors and employment service people. There is a Richmond project carried on by Cogswell Polytechnic College, which is a special curriculum in the last two years of high school to prepare male youths for technical work in the oil industry. These are action programs. There are numerous apprenticeship training programs throughout California. My colleagues will mention more of those, I'm sure.

Locally we have three educational institutions that have started work experience programs, a rather unique approach, something a little different in terms of training of technicians. Fullerton Junior College, Orange Coast College and the Los Angeles City Schools have, in the past three years, adopted action programs in this area. Norm Stanger and his industrial education people in Orange County had a workshop in the latter part of last year where they were considering an innovation in the industrial education curriculum. This was a research and development laboratory study. They invited key people from industry and education to get together for discussion, and I understand that experimentation is going on now.

We have, in the State of California, a number of county chapters of industry education councils. This is where educators and industrial people get together in an attempt to solve common problems. We have many training and retraining programs sponsored by governmental agencies - again, you people in the schools know more about these programs than do I. I know they exist. I know that you people have contacted us, and I know in some instances we are trying to cooperate to the best of our ability.

In summation, then, if I may, it appears that programs will be successful when the objectives are specific; not broad objectives, but specific objectives for each program, and when vocational institutions understand the training and retraining needs of the local population. Who best will know them than you people? Programs will be successful when both educators and counselors understand the work environment, the prospects, the trends and requirements of industries, and when training and retraining has as its goal a job. There are too many training and retraining programs that are contemplated purely on the basis, "Well, it would be nice if we could train people for this area." Generally speaking the programs that have already started have discovered that unless you have a job as the end goal for the program, it will suffer. I think these programs will be successful when educators, union leaders, and management people work together.

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Mr. Hanna introduced the next speaker, calling attention to his long service in the field of vocational education, and praising the excellence of both the apprenticeship classes and adult education classes of the Fresno Unified School District.

Speaker: Mr. Robert P. Hansler

Thank you Chuck. I'll see that your words get back to our Chamber of Commerce.

Dr. Gruenfelder, in his welcoming address, made mention of two ways to get to the top of an oak tree. Both represent logical thinking. One was to climb the tree; the other was to sit on an acorn. In this rapid transition, certainly the latter one is out, but a statement means nothing to me unless I can apply it. To me this statement makes application to our situation here today. Certainly we can climb the tree with haste. We might slip in doing so, but the sturdy oak reminds me of the sturdiness of industrial education in which there are many branches.

Three strong branches are represented here today by labor, management and the Division of Apprenticeship Standards. I think we need to work very, very close together with each one of these branches so that we do not slip and meet with pitfalls in the process of climbing to the top. To me, all this is based on timing. It reminds me of a little incident which happened not too long ago. I like to watch children at play, and recently I observed two small girls playing. I walked over to them to ask what they were doing. "We are playing house," was the reply of the two girls. "I am the mother," said one; the other, "I am the father." I looked around and there was a third little girl sitting over on the sidelines. As I started to go, I walked over to this little girl and asked, "Well, why aren't you playing?" "Oh, but I am. I'm the baby, and I'm not due yet." I think it's a matter of planning, and that we make our approach at the right time.

There may be some repetition in this presentation. My colleague today has covered some items. However, I think I can go through here and rather set the stage, as I see it, in industrial education. Due to the rapid changes and the needs of industry, it is necessary for labor and management, the schools and other organizations to work closely together, each being made aware of the other's progress. Various terminology is used in an attempt to describe this progressive age. I prefer the terminology of push-button, this having a practical application to almost everything - elevators, cars, foods, various other factors of this push-button age.

Recently I had the pleasure of touring a new sugar refinery in which I expected to find a large number of people employed. To my surprise there was a very minimum number of employees. The operation was confined to a large control room which stretched out, indicating the various facilities, with a push button controlling electronics to actuate and regulate the flow of the fluids. Two men were controlling the entire plant. Even the control systems were units, so if they failed, the whole unit was pulled out and a

new one inserted to replace it. Two motors used to pull carts with various equipment operated without a driver, merely following magnetic tapes and lines, and on a signal they would drop their load and return for another.

These rapid changes reflect the changes needed by industry whereby a close contact can be kept with each agency. Many crafts or trades now have employed industry coordinators, who have proven to be of tremendous help to the schools. In fact, in some of the larger apprenticeship programs, recently they have employed a person full time to do this work. At a recent meeting of industrial coordinators and school representatives the following discussion took place, which should help to understand the duties and so forth to operate this total program.

An industry coordinator was defined as an individual who is assigned training responsibilities, including apprenticeship, as his principal assignment, with his salary being paid by an employer or employers, by a labor organization, or from a joint labor and management trust fund. In discussing the responsibilities and services of industry coordinators it developed that there was little uniformity or agreement as to the responsibilities and functions among industry coordinators. It further developed that there are two major classifications of responsibilities associated with industry coordinators, namely, administration of training provisions and the field operations associated with training. In some cases an individual is responsible only for administration. In some instances he may have only field responsibilities. In other cases an industry coordinator may be assigned both administrative and field responsibilities. Other variables are the size of the geographical area involved and the number of coordinators doing field work and administration in a specific geographical area. I feel this information is important to us as school people. Rarely do these geographical areas conform to the school district lines, and more often than not several, or sometimes many school districts are involved. This, to me, will be further complicated by the re-districting of many junior colleges - I'm going through it - I've talked with many of my colleagues here who have the same situation - which means more and more we need to work very closely with labor, management, the Division of Apprenticeship Standards, and so on, and I trust that they will be sympathetic to the solving of our problems.

This points up the necessity for coordination and area planning between school districts in addition to the working relationship between the industry coordinators and the school representatives. In order to work together most effectively the respective jurisdictions of the industry representative and the school representative must be known and respected. Also, the pattern of organization and specific responsibilities of industry persons and school persons should be made clear to each other.

The industry coordinators present at the meeting agreed to provide an organizational chart. Some variation in the operation of school districts is inescapable, but considerable uniformity can be developed in the industry-school relationships. The specific functions of advisory committees in this regard were mentioned as follows:

1. Recommendation to the schools concerning the course of study;

2. Recommendation to the schools concerning physical facilities and equipment and supplies; and

3. Recommendation to the schools of desirable persons as applicants for teaching positions.

The group recommended that the schools work more formally with joint apprenticeship committees so that some guidelines can be developed for the relationship between these committees and the schools. A state organization of industry coordinators was suggested and met with general agreement. Such an organization would provide a vehicle for discussion and cooperation between all participants who are working a major part of their time with industrial training programs involving the schools. There was a difference of opinion expressed as to the scope of training which would be the concern of the organization. Some felt that only apprenticeship programs should be considered, while others felt that all training programs for training in industrial occupations should be included.

The formalities of the school operation and the school curriculum were discussed with reference to the rapid changes in industry - which have been presented here by Dr. Trego - and the necessity for new competencies. Often the requirement is only for short, intensive training programs, but the need may be very great. Changes in the adaptation to new problems by the schools must be speeded up. There is need to reconcile standards required by some junior colleges and the practical problems of providing effective class instruction for apprentices. However, it should be recognized that if college credit is desired, the junior college standards must be met. This refers both to the initial screening of enrollees as well as their achievement in the apprenticeship classes. Often the transfer program is over-stressed with very little attention being given to the terminal program. A few junior colleges make no provision for ungraded classes. It was suggested also that some schools in each locality, junior college or adult education school, should be designated as the area vocational education school for the locality. Industry representatives would then know whom to contact when training services from the school were desired.

Recent State and Federal legislation will have a direct effect on industry and education. The MDT Act has made possible many programs for training and retraining of workers when a survey by the State Department of Employment indicates the need for this training. Of course, in many cases this is like gazing into a crystal ball in an attempt to forecast the future needs. Another bill is the Vocational Education Act of 1963, which we've heard referred to as the Perkins Bill. It makes possible the establishment of vocational schools to train high school students and others in various occupational areas to meet the needs of industry.

All of this adds up to the necessity of working very closely together. In the past there has been excellent cooperation between all the parties involved. Personally, I can see no reason why even closer cooperation cannot

be had to do the best possible job of training youth and training displaced workers for the future.

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By way of self-introduction, Mr. Hanna mentioned that he now had to bat for Chuck Sanford. He was speaking for Mr. Sanford,"and since the presentation was being recorded, undoubtedly Mr. Sanford would find out that he believed in a great many things that he didn't believe in before."

Speaker: Mr. Charles F. Hanna

I'm sure that you're familiar with California's apprenticeship program, but I want to briefly set the framework for some of this discussion. We now have 24,000 apprentices, and I think many of you have felt the expansion - you've had to provide the classes for these people, the coordinators, all of this. Just in the past year the program increased by 2000. It has gained 30% in the past ten years. This is contrasted to the national downward trend in apprenticeship, which is continuing. Many other states could look to California to find out how it is we manage, in the face of this national down-trend, to gain ground - albeit, certainly not enough.

Apprenticeship is low cost, and it's efficient in spite of the bread and water diet in apprenticeship that both my agency and yours has been on all these years. We've devised a means, and exploited it to a great extent, to get private industry to carry a share of the load. The advent of private industry funds of more than 60 collective bargaining agreements now provides X amount of cents per journeyman hour for apprenticeship. Now there are employed almost as many private industry coordinators as there are persons on my staff in the Division of Apprenticeship Standards, and more are coming on all the time. Government - and in this I include the schools, the federal government, and the employment service - all of us put together in California expend $130 per 12-month apprentice year per each apprentice. That is all the government support. Now you can make your own comparison, but I don't think you'll find any program of such significance and importance where so little government effort is used in comparison to the results.

Apprenticeship essentially is a tripartite program. Certainly labor and management have primary roles, but the government role by law is equally important. It takes all three parties to make this program go. Also, each governmental agency has a different role, but all these roles must be meshed to make a successful program.

There is much discussion of the selection process of apprenticeship. There are many facets to it. Certainly not the least important is the development of fair and impartial selection processes so that all, regardless of race, creed or color, will have an equal opportunity to compete. Most apprenticeship committees now are engaged in adopting such provisions and in developing such selection processes. In California we are very

much ahead of the game, and all of us are involved in it. We hope that every committee will ultimately have an impartial selection process so that any person who meets the requirements will have a fair chance at least at the few apprenticeship jobs that are available.

Most skilled craft unions have a hiring hall in some form or another, and they guard this very jealously. This is one of the problems encountered in the Manpower Development and Training Act where the law itself gives that prerogative of selection, placement and referral to the Employment Service. Labor and management, where they have so agreed, are not about to give this prerogative to any agency of government. So, in a number of instances we encounter this incompatability in the labor-management agreement and the law itself.

Preparation for apprenticeship is much in the limelight, and a great many youngsters, both high school graduates and those who have not graduated, come up against the selection processes and are found wanting - and are turned away. This leads us to further thought about the orderly processes beginning much before the time the young fellow applies, and carrying on after he completes an apprenticeship. The interested individual would early in his high school career select a career in skills and be advised and counseled as to those academic subjects and shop courses which would qualify him to begin training as an apprentice or as a trainee on the job. Another facet not too well developed, but which will certainly come to the fore if we get any more money from MDTA, is the matter of what industry now defines as pre-apprenticeship employment classes. This would be a group of young people who otherwise qualified - high school graduates by and large - who would be referred to classes conducted by the schools for a four, five or six-week full-time course. This development is very much in the forefront in the carpentry group, and I suspect that in the not too distant future we will at least have some paper describing this kind of course. It is designed to make the individual more desirable on the part of the employer, to make him less apt to fail, and in general to improve the apprenticeship system and provide those kinds of things which the apprentice does not normally get on the job or in his class of related and supplemental instruction.

Regarding the shape of things to come, all of us have witnessed a tremendous increase in interest in all matters involving training for workers - vocational education, apprenticeship, on-the-job training. It is clearly evident that we agencies of government, whether we like it or not, are all under one tent in certain aspects of this, and we will be more involved as time moves along. We are more and more responsible to cooperate and work together very closely. We have no alternative but to do this.

There are two major pieces of legislation - the MDTA, and recently, the Perkins Bill - and no money for either of them right now. But they are good bills, anyway, and we're hopeful that Congress will fund them.

There's consideration in Senator Clark's committee, the Manpower and Employment Committee, of legislation to stimulate and build apprenticeship.

This is the first time in my experience that Congress has taken time to even think about this. Some of you may have heard Dr. Garth Mangrum talk on this subject. He predicts that there will be substantial legislation to really give apprenticeship a shot in the arm, where there has been no legislation nationally since 1937, and none since 1939 in California.

There is room for many more apprentices in national defense industries in the federal, state, county and municipal civil services, and certainly, in private industry. The fact we have unemployed journeymen is beside the point. Only one carpenter in ten serves any semblance of an apprenticeship. In the plumbing trade it is better - maybe one out of two. The other people who come in are not in any sense equipped with all the competencies of journeymen, so there is room for a great many more apprentices.

Research is essential since none of us know just what is needed. We have an inkling, but only research can provide sure answers. Most of the research which is being done by management and government seems to be primarily in two areas: One purpose is to eliminate the need for people through automation, and the other is to destroy what's left through the atomic process. Perhaps I'm not giving due credit to the researchers, but this is how it seems to be to me. I don't know of any real research directed towards creating the need for more people. And after all, that's what this is all about - these people and the need for them.

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In the question, answer and discussion period which followed, the following ideas were expressed.

1. There is a difference between having specific objectives for a training program and having a specific program in terms of content. In terms of our objectives for a training program we should be specific rather than to embrace broad generalities.

2. A short, intensive, full-time pre-apprenticeship program of from 4 to 8 weeks, followed by close supervision in the early apprenticeship period, has been developed or is in the process of being established in several instances. This may represent a trend which, in the long run, could establish a general pattern for pre-apprenticeship programs, followed by apprenticeships. There is some thought of making this pre-apprenticeship program a requisite for apprenticeship.

3. The individuals now being displaced by automation are not now being absorbed on other jobs being created by automation. If jobs are created, they are filled by persons other than those displaced, as the ones displaced do not have the competencies required on the new jobs. Furthermore, they may not have the necessary potential to fill the new jobs, even with adequate training. Some of these persons may be employable, unemployed-

employable that is, with training. Others may become unemployable unemployed even with adequate training opportunities and participation in a training program.

4. Numerous training programs are keeping employed persons employable through training in the use of new materials, techniques, and operations.

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In presenting Mr. Richard Nelson to the group, Dr. McGaw described him as being well qualified to express forward-looking thoughts on a design for educational leadership in the vocational training of California's work force.

A DESIGN FOR EDUCATIONAL LEADERSHIP IN THE VOCATIONAL TRAINING OF CALIFORNIA'S WORK FORCE

Mr. Richard S. Nelson
Assistant Chief
Bureau of Industrial Education

Achievement, acclaim, and challenge were the distinguishing characteristics of Vocational Education in California since last we met in San Francisco at the 25th Annual Conference on Industrial Education. The largest enrollments in the history of the program were recorded. The endless array of occupational curriculums bristled with new and unique patterns of career preparation.

More than half a hundred new facilities were made available to youth and adults. The cumulative effect of systematic job learning by hundreds of thousands upon the economic strength of California was substantial, although difficult to measure accurately.

This week, Governor Brown in a "First Annual" Economic Report to the Legislature said that more than six and one-half million Californians are employed - but more than four hundred thousand Californians are jobless. His number one recommendation in this report was "increased emphasis on Vocational Training . . . ."

Last year, vocational education enrollments in California exceeded those of any other state, and of any other year in this state. Growth of enrollments in vocational education classes in recent years has been enormous, and double the rate of the increase of the population.

California's program of vocational education has always been influenced significantly by the economic and social environment in which it functions. However, the following facts disturb us - or should:

More than 4,000,000 persons 25 years of age and older in California have not achieved high school graduation. This is now generally regarded as the minimum educational level to enable an individual to function effectively in our more demanding technological economy. This number was almost thirty per cent more than were recorded as non-high school graduates in 1950. Even more significant, some 1,300,000 persons in California, 25 years or older, lack even an eighth grade educational achievement, an increase of 16 per cent during the past ten years.

The modern shift from men to machines, essentially the same trend which ushered in the industrial revolution more than 100 years ago, has added the words "automation" and "cybernetics" to the dictionary. Nowhere, has this automated technology advanced faster than in California, and nowhere will its effects be more in evidence. Automation has implications for all workers, which California vocational educators regard as of the utmost significance.

The total task of education for occupational proficiency can never be fully accomplished. There is much more yet to be done. The challenge is constant and formidable and is an insistent spur to further achievement. The spiraling and ever-changing requirements of the old occupations and the unsatisfied demands for proficiency in the new occupations leave no room for complacency.

No one can foresee the exact outlines of the future for vocational education, but in California the following general trends can be perceived and acted upon in the years ahead:

Our increasingly technical world will rely for progress on a highly skilled work force of semi-skilled and skilled workers, technicians, and supporting professional engineers and scientists.

The changing industrial requirements of our technological economy demand that the traditional "mind set" of educators be set aside. Additional educational opportunities must be made available for employed workers in all occupations so that they may increase the technical skills and knowledges that will be required of them.

As we have heard stated before: The unfortunate public impression is that America's only labor need is for more engineers.

Well, certainly we do need more good engineers. And we are doing something about it. There are vast government grants, widespread expansion of engineering schools, a multitude of scholarships and low-interest loans, and the national attention to the problem. Unfortunately, in the excitement to develop more engineers and to conquer outer space, we've begun to think that anyone who isn't a space-age engineer - or at least a college graduate - is doomed to be a second rater.

A nation's technical progress is not necessarily in direct proportion to the number of college graduates available. For example, it has been said that Egypt has more college graduates per capita than England. But no one would suggest that Egypt's labor force is better qualified than England's. What is true, of course, is that a nation's technical progress is strongly tied to its overall labor capability.

Francis Keppel, U. S. Commissioner of Education, said recently:

"This nation is faced with an enormous challenge and the only way it can respond, broadly speaking, is through education -- the chief mechanism of adaptation. We must demand vital reforms; better educational services, broader access to these services by all citizens without regard to age, race or religion, and a deeper commitment by labor, business, and the public to education as a lifelong enterprise. Above all, we must be willing to spend money if we are to achieve intellectual and vocational competence."

The realities of today's world require that in the development of a master plan for public schools, fundamental consideration be given to elevating the position and status of all forms of vocational education in the thinking of students, parents, and educators.

In school programming, curriculum development and training of school teachers in vocational education must be raised to a level of recognition commensurate with academic and scientific training. In the most recent years, a need has developed to extend vocational education programs into institutions offering instruction beyond the high school.

The central purpose of vocational education has been related to facilitating the process of preparing people for work, and helping those employed to become more effective in their work.

Public education in California should recognize that:

The objectives of vocational education must be concurrent with intellectual training and personal development.

Opportunities to develop occupational intelligence must be made available to all, and preparation for entry into an occupation provided for some, and these opportunities are an inherent contribution available through vocational education.

Occupational preparation through vocational education must be in tune with the labor market and open to large numbers of students as an alternative to academic specialization.

There are, however, several misconceptions about vocational education which should be emphasized:

In the first place, vocational education cannot create jobs, but if jobs exist, then vocational education can provide some of the training needed.

Vocational education cannot entirely alleviate the drop-out problem in schools, but it is possible for many potential drop-outs to find new purposes for themselves in vocational education.

Vocational education cannot always take the mental or social misfit and recast him into the form of a technical genius and a model of social virtue, but vocational education frequently can provide the training and education in occupations for which these persons have ability and interest, and make them an asset to society.

Vocational education does not deny a person a right to his cultural heritage, for a sound basic education is an essential requirement for employment, and vocational educators have subscribed to this view for nearly fifty years.

As we view the future objectives of vocational education in California, it will be necessary to take larger strides in adjusting to current needs. A design for educational leadership in the vocational training of California's work force is currently emerging.

The future requires that our program must reflect consideration of the vocational education needs of all groups, of all ages, and all communities in the state. Walter Arnold, Assistant Commissioner, Vocational and Technical Education in the U. S. Office of Education has stated it this way:

> "Vocational education has implications for almost everybody. It must reach into all high schools. . . it must extend into the life of the working people who have long since left school. . . it must offer the variety and quality of training that will insure us against future generations of unemployables and insure today's workers against the spectre of unemployment caused by job obsolescence."

The future educational leadership for vocational education in California, to a large extent, is here in this room today. Through our leadership, we must provide within the framework of public education occupational opportunity for the boys and girls, and the men and women who live and work in California.

It seems to me that we must give major attention to the following seven Objectives of Vocational Education: [1]

1. Vocational education will be more concerned about its economic value and its actual contributions to the economic growth of the state and the nation.

a. The American economy is a cultural heritage that is inseparable from the institutions and ideals of a free and open society founded upon the premises of the Declaration of Independence and the Constitution of the United States of America.

b. The success of the economy is dependent upon the economic success of individuals, and it is axiomatic that a free economy is dependent upon members who are well-informed.

c. It follows that the schools are obligated to offer instruction to inform our youth about the economy in which they participate. This would include knowledge of the American economic system and an individual's role in it.

2. Vocational education will be more closely correlated with current and foreseeable employment needs.

   a. In the future, vocational education programs will have a means of adequate, up-to-date information about employment requirements at federal, state and local levels built into their systems.

   b. Adjustments in classes and in enrollments will be the cooperative responsibility of state and local school administrators.

3. Vocational education will be made available to more of the total population and will be less restrictive than at any time in the past.

   a. Analysis of our practices reveals that we have offered vocational education in only a limited number of occupations and for entirely too few of the population. Future programs must make vocational education available in a wider variety of occupations and under new conditions which will overcome previous restrictions.

   b. Curriculum restrictions must give way to the need for occupational preparation, and schools must become more sensitive to their obligations for the vocational competency of students. We are obligated to the boys and girls, the men and women, to provide generously for their occupational preparation.

4. Quality assurance will be observed and maintained in programs of vocational education.

   a. Students will be selected for vocational education curriculums only when their aptitude, interest and achievement indicate they will be able to attain the required occupational skill.

b. Follow-up studies will be conducted to determine the relevance of the educational program to job placement and the ability to hold a job and advance to a better one.

c. There will be communication with labor and management, the community and the State Department of Employment to develop job specifications and employment opportunity data.

5. The future objectives of vocational education will include increased attention to the occupational requirements of "youth with special needs."

a. Vocational education has avoided the slow learner, the unmotivated student, and the socially and culturally deprived youth who are found in significant numbers in the public schools.

b. General education has failed to meet the needs of such youth and there is little evidence to indicate that general education can do much in the way of appropriate occupational intelligence for these persons.

c. New programs of vocational education will be added to the school curriculum which are occupationally centered, which will lead to employment in jobs known to exist and which can be successful educational experiences for youth who cannot profit from instruction in the traditional programs. Diversity and flexibility must be the keynote of such programs, and instruction should be highly individualized in order to assure the occupational stability of such students when they actually enter upon full-time employment.

d. Specially trained teachers who understand the variety of needs of disadvantaged youth and who are occupationally competent in the vocational areas to be represented should be employed for these programs.

e. In the earlier stages of this work, experimental and pilot programs must be planned and conducted in order to develop practices to serve these youth more effectively.

6. Work-study programs will expand significantly, and be designed to supplement work-experience education.

a. The vocational needs of a vast majority of high school students will be satisfied by a new emphasis upon programs

that relate experience on the job with appropriate school subjects.

b. The present system of subject matter values, which has a strangle hold on the curriculum, must be modified to include school-work programs as being equally as honorable as other subjects in the curriculum.

7. The various components of vocational education will be vastly expanded and improved in the future.

a. Because the instructional programs are increasingly complex, increased services are necessary to make the programs of instruction more effective and more efficient.

b. High quality occupational competence will continue to be a priority item in teacher selection.

c. Every teacher will eventually be required to earn a baccalaureate degree prior to becoming a vocational teacher.

d. Teachers must plan on definite life-long learning experiences, perhaps enforced by certification practices.

e. Much attention will be devoted to leadership development of vocational educators.

By virtue of the critical need for more and better vocational education, it is incumbent upon all to constantly evaluate and appraise operating programs. Constant evaluation is essential, since no educational venture has ever been scrutinized as severely by congressional and legislative agencies, by educators, by industry, by the military and by the general public as will the Manpower Development and Training Act and the Vocational Education Act of 1963.

I recommend for your consideration what I call the Ten Indices of Quality Assurance for Vocational Education. Perhaps these ten items will be the criteria used in approving requests for vocational education funds.

1. The instructional program is directly related to employment opportunities and is based upon advice and counsel from representatives of the occupational group being served.

2. Training is carried to the point of developing marketable skills and abilities sufficient to enable the trainee to get and hold a job.

3. There is appropriate proximity between the time of the training program and actual job entry.

4. The conditions under which instruction is given duplicate as nearly as possible desirable conditions in the occupation itself and at the same time provide effective learning situations.

5. There is administrative support in terms of adequate supervision and coordination of the program.

6. The occupation-centered curriculum is set up and maintained with the advice and cooperation of the labor-management community concerned.

7. The content of the courses in the curriculum are confirmed or changed by periodic analyses of the occupations for which the training is being given.

8. The teachers are occupationally competent in the subject area in which they are giving instruction and possess adequate professional qualifications for teaching.

9. Vocational guidance, including effective follow-up of all students who finish or drop out of a course, is a continuing part of the program.

10. Continuous research and evaluation are integral parts of the program.

Any discussion of a "design for education leadership. . . should include some visions, new horizons or perhaps a mirage or two." I can see the following developments taking place:

Directors of vocational education located in the offices of the County Superintendent of Schools (not all counties, but most) serving a countywide area.

Directors of vocational education in large school districts directly responsible to the Superintendent of Schools. These directors will be supported by subject matter specialists in Agricultural Education, Business Education, Homemaking Education and Industrial Education.

Directors or Deans of Vocational Instruction in junior colleges. These positions to be supported by coordinators and/or supervisors in subject matter areas.

Each high school in the state with an enrollment of 600 or more will identify a person who will have the responsibility for the development and operation of vocational education programs in that school.

The emergence of what I choose to call an Adult Education Institute. This institute will become very active in areas where no junior colleges are available <u>or</u> where existing junior colleges are <u>not</u> providing the services of a "real" or "true" community college.

Expanded programs of vocational education can no longer subscribe to the dictates of academic scheduling, pre-requisite hurdles, matriculation requirements, unrealistic course titles, and prescribed registration dates.

A ten-fold expansion of an in-service teacher education program for vocational teachers and supervisors. These programs to be sponsored by universities, state colleges, junior colleges, and local school districts, and supported with vocational education funds.

Contracts with private schools for vocational education at both the state and local level.

The development of a new federal agency to be called "Office of Economic Opportunity" under the direction of Sargent Shriver. The agency to be established because of the "bureaucratic hassling" between the Departments of Labor, and Health, Education and Welfare, to administer training, retraining, and anti-poverty programs. (See Wall Street Journal, March 3, 1964.)

Further experimentation with the "shared-time" school programs. This provides federal funds for public schools who give science, math, or vocational instruction to parochial school students under a classroom-laboratory-sharing arrangement.

The emergence of experimental and demonstration projects at all levels of education. The prime purpose of this effort will be to provide more vocational education to more people of all ages in all communities in California.

What do you think - visions, new horizons, or a mirage?

"In these and in many other ways vocational education tomorrows will require new standards of performance and new depths of understanding. Those who participate in the fabulous future of vocational education are to be envied." [2]

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[1] Adapted from Changing Emphasis on Vocational Education Objectives -- The Future by M. L. Barlow, Director, Division of Vocational Education, UCLA, April 24, 1963.

[2] American Vocational Journal, October 1962.

PANEL DISCUSSION

Moderator: Mr. Mack Stoker
Regional Supervisor
Bureau of Industrial Education

Mr. Ben M. Scott
Member, State Board of Education

Mr. Walter Coultas
Assistant Superintendent
Los Angeles City Schools, Junior College District

Mr. Joseph H. Stephenson
Director of Vocational Education
San Diego Junior Colleges

Dr. McGaw: I think, Dick, you've raised numerous challenges. I know you've raised some red flags in the minds of some people. We have a panel of consultants that will carry this on under the able leadership of Mack Stoker, the Regional Supervisor here in Southern California.

Mr. Stoker: One of the troubles of trying to evaluate a speech is that you usually try to do it while you're still mad or pleased. And this doesn't work. Evaluation demands relaxation. Maybe these panel members were chosen for a good reason, because they are relaxed individuals. We decided that we wouldn't set up any ground rules. I guess that's the one rule we passed - that there'd be no rules. We all agreed that rules are for when you run out of brains, and we'll find out pretty soon whether we should have written some rules or not. We almost agreed on one rule - that nobody would make a speech. They said they'd agree to that if I would, so we stopped the negotiation at that point.

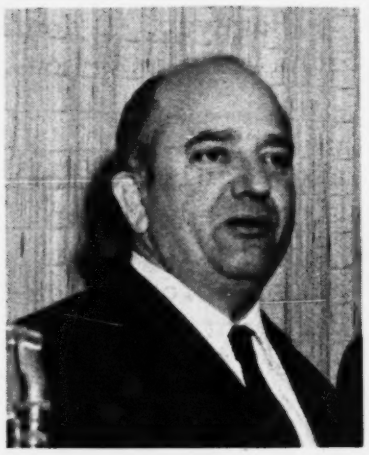
We'll start out - and I see everybody has notes here, so I won't need to ask questions, they'll have their own questions. We'll try to save some of the hot ones until the last so if you should stay for only part of the program, stay for the last part, because that's when the shootin' will start.

Walt, let's start out with you and this industrial education institute. It seemed to me there might be in that some implications that a junior college administrator might not like.

Mr. Coultas: The interesting thing to me on this institute situation that Dick has recommended, I'm for it one hundred per cent. I'm sure that something in this area has to be done, especially with what has happened in the State in the past year or so having to do with criteria for graded classes. There has been a tendency with this criterion for graded classes for many of the junior colleges to endeavor to meet the requirement of the graded class, and in doing so to forget the main purpose is to give the training that's needed by the young people to prepare them to go to work in the

market place. I'm one hundred per cent with the idea that if a junior college is not taking care of this need in a community, there is going to have to be another institution started to do it. I think the junior college can do this if they accept the proposition that they have two areas of training to offer to their community. One is in the area of retraining, upgrading, and I don't see how it's possible to do the job for the community that should be done and call these graded junior college classes. If the junior college is offering a particular program in vocational education in this changing day with the changing needs in various vocations, we in the junior college have to keep ahead of this program and offer year-by-year certain upgrading classes. They might be six weeks in length, a semester in length, or two weeks in length. This just has to be done, and unless the junior colleges accept this fact, then it should be done by some other institution, whether it's an area vocational school, or an adult school.

Howard Campion said for many years that unless the junior colleges accepted the responsibility of giving vocational education in the way that it should be given, and not tied to a lot of academic hocus pocus, there is bound to be another institution started in California to do this job. I'm sure from what Dick Nelson has said that this is what he is talking about. The thing that is surprising to me, in looking through your program here, is that there hasn't been more attention paid to the MDTA program. I think the MDTA program is doing a lot for vocational education in changing some concepts of what vocational education can be in the training of teachers, in lengths of training that a student should go through, and in the possibility of training a person for a particular job, no matter what background he may have in years of schooling or whatever it might be. I think that the junior colleges and the adult schools, whatever institution does the job, are going to have to look at the MDTA as it's been going for lessons in what can be incorporated in the present vocational education program. MDTA is a big operation. Two years ago Los Angeles started out with a budget of $75,000. This year it's $900,000. In the budget for 1964-65 it's $1,900,000. This is a lot of money to spend on vocational education, and if we can't learn some lessons from this kind of money being poured into vocational education, we had better turn in our chips.



Ben Scott

Mr. Scott: I am in an awkward position, as usual. Mr. Nelson led off with a very good summary of my pet project, economics, and he did it so well I feel that I haven't anything left to contribute. I think the big problem you face - that we all face - is getting the people in the right places to be concerned about vocational education. Some of Mr. Nelson's remarks reminded me of the labor meeting I just left in Wilmington. A fellow got up toward the end of the meeting, after everybody had presented problems - and a few ways to handle them - and said, "Well, this is wonderful. Every month we sit here talking to each

other. How do we get it out to where the people can see it and understand it?" I think sooner or later we're going to have to get over a certain barrier of communications and find some more modern way to reach the people with the full story of vocational education. This is in regard to adult education. I'm very concerned about it, as I'm sure all of you are. I'm concerned about the problem of the junior college and its trend. What's frustrating to everybody is how do you get all of this out to the people? It doesn't really do us any good to talk to each other.

Joseph H. Stephenson

Mr. Stephenson: I'm glad I came to this meeting, because I didn't know that junior colleges weren't responsible for training extension people and the people in the night programs. We have almost three times as many people attending our night classes as we do our day program in the junior college. We are a community college. I didn't know there was any other way about it. In the matter of graded classes, I wonder how often we make the mistake of connecting graded classes with classes which offer units? I think if we could separate the two and offer units for courses offered on an extension basis, we would take care of the status situation when a person asks, "Don't I get any units for this?"

The teachers with whom we have the greatest problems are those who think they have become academically respectable and feel that it is beneath their dignity to go back into the trade and keep up with the occupational advances. The people who say that on our salary schedule over here you can get so much more money, are more interested in getting that degree than in getting the information necessary to keep them up with their trade. To say that applicants must have a degree before they enter into the teaching field in vocational education is very liable to water down a vocational program. Too often we have teachers who have acquired their skills during the summer in order to be able to go back the next semester to continue their education to get their degree. We need dedicated people with occupational experience in the field of vocational education, and as long as they continue to have that, the more degrees, the better. However, I don't think we ever want to give occupational experience and technical know-how a back seat in order to get degrees.

Mr. Coultas: I was going to make the same comment about college degrees and the competency of teachers in the area of vocational education. I think this is one of the things that may cause us some difficulty when we get into the area of the expansion of the definition of vocational education under the Vocational Education Act. When we get more into the area of business education, the whole question of teachers' credentials is going to take a lot of consideration and a lot of understanding, a lot of patience and a lot of compromise, if we're going to really meet the charge that is being given to us.

I would like to make one other comment. I'm surprised that in Dick's visions of the future he didn't have one other thing, which I think is one of the most important visions we can have in vocational education. Until every institution has on their campus a person trained as an expert in vocational guidance, we're going to have difficulty getting the right people into the vocational programs. Most of our counselors in the high schools, and in many of the junior colleges are specialists. However, until we have a larger coverage in this area, the tendency for the academically oriented counselor is to give lack of status to vocational education. Until we have vocational specialists as counselors, we're going to have difficulty meeting the challenge and meeting the needs of young people, and steering them into careers in which they can compete and in which they'll be happy.

Mr. Scott: I'd just like to say that I think we all have the same thoughts, but in Atlantic City it was interesting to hear the discussion of the use of - I guess you'd call it data computers or cybernation - they have all kinds of names for it - for a bank of knowledge to help in this vocational education counseling. Some place in the middle west they're working on it. It was quite fascinating to me to hear of it.

Mr. Stoker: At this point, let's feel free to start throwing questions from the audience.

Question: Walter Coultas referred to the fact that we have to have patience when we begin considering the credentials and the experience that the business education people and industrial education people would bring to us. He didn't clarify what the problem was and what we should do about it. I would be interested in hearing about that.

Mr. Coultas: I have sensed that within this whole area of vocational education, especially with the expansion of the definition of what is considered vocational education, there has been a feeling developing between certain areas of vocational education. I've wondered if we have been married to Smith-Hughes, and the way that we get reimbursement from the Smith-Hughes formula, if this possibly will have too much influence on our consideration for the future and our thoughts when federal money becomes available for reimbursement to other areas of vocational education. I think this means we're going to have to use some imagination. We're going to have to do more working as far as the community is concerned. I think this is one of the things that we're learning from M.D.T.A.

George Winder, who is in charge of the M.D.T.A. program in Los Angeles came to me the day before yesterday and he said, "I wonder if you can furnish us a facility to train people who handle small animal shelters in the hospitals of Los Angeles?" Now, this is something altogether new, and I wonder how many of you have ever thought of training young people to go in and handle the rats and mice and cats and dogs that are being used in the laboratories of our large hospitals and our experimental centers in all communities. This is one of the things we're learning from the M.D.T.A. We're looking for opportunities for training in this area, and this area, and this area. Now, I may be treading on some toes, but I think this should

be the approach that should come from the schools themselves rather than from a federal agency.

Mr. Stoker: Let's talk about economics a little bit. Ben, would you care to start us off. What are some of the first relationships that you think we should recognize between vocational education and the economy?

Mr. Scott: What good is all of this if it has no relationship to our American ways - what we stand for - what we fight for - what we die for? I can't understand how it makes any sense to train somebody for a job that may or may not exist when he gets through training, and not have the same individual understand his job in relation to himself, his economic activities, his family life, his matter of choice, filling of unmet needs, of how it fits into paying taxes, and the fact that there are certain economic forces and the fact that he may have to change his job. What worries me, and I'm sure worries all of you, is that we're aware of the economic illiteracy that is generally prevalent in our educational product.

I've been in meetings lately where union after union is getting up and testifying as to how many jobs are being lost due to automation and technological changes. Now, this is bread and butter. I'm afraid that if you have unemployment with economic illiteracy you're going to end up with extremism of some sort, and our country can't afford it. I don't think we can afford not to tell the kids, and the adults too, that they have to go back for retraining, and the truth about why things are the way they are. It's wonderful, and if we understand it, then we know what we've got to do to meet it. This is what is the importance of relating vocational education to economics. If there's anything which will raise vocational education to its rightful status, it's that relationship with economics. You have to understand how a person with a job feels, as well as one without a job. It doesn't do any good to spend all this money training if your product is merely a human machine working a machine that works a machine that works a machine. He must understand what it is and why it is and how important it is, if we're going to keep our free enterprise system. This is what is at stake, as I see it.

Mr. Stephenson: I hope we don't get to the point where we feel that because everybody's going to change their job four or five times, there's no use training them. I just had a chance within the last three weeks to look over the difference between the types of courses we offered in trade extension ten years ago and what we're offering at the present time. Dick Nelson kept using the term "quality assurance". The biggest trade extension program we have in our schools at the present time is in quality control and reliability. We have over 400 people, some of them with Ph.D's, who are coming back into the lowly junior college to take courses in quality control and reliability. No longer will the government accept the word of the contractor that the product is good. They have to prove quality and they have to stand behind their proof. Just within the last few weeks we have received the distinction of being the school within the San Diego area which will train radiographers, having to do with atomic power.

Mr. Scott: I like to watch television. I guess all of you do. It's my way of relaxing. I was just thinking, listening and writing down that the only concern I have for vocational education - if I have any, because of the high quality of the people and the program - is that vocational education really has nothing to fear if it can ever get priority on television over beatle wigs, beauty aids and beer.

Mr. Coultas: I think there's one other thing, too, in vocational education, and that is that we have a tendency not to point out all that we're doing. I was completely surprised the other day when a count was made to see how many of our total teacher stations were devoted to vocational education. We have 711 teacher stations in the 7 colleges. Of these 711, 320 are special vocational education teacher stations - almost 45 per cent. We think many times that we're not concerning ourselves with this vocational education because it just goes along, and we add this program, and this program, and this program. We build this facility, and this facility, and this facility. We, ourselves, do not realize what we're doing in this area. I'm sure that it was a shock to our college president to find out that 45 per cent of our total special facilities in Los Angeles, or our teacher stations were devoted to one area of the expanded definition of vocational education.

I would add one other thing. In order to meet the various levels of abilities there is going to have to develop within you people the knowledge and ability to use programmed learning and teaching machines. I think this is one of the big answers to individual instruction for people in vocational areas. I know the academic people have moved into this to some extent, to take care of individual differences, and I'm sure that it has come about in vocational education. I think it would be desirable for every vocational education instructor to have some ability to utilize programmed instruction to serve the individual differences in his particular classes.

I think we're also going to have to develop training programs in the skills common to all the members in each of the families of occupations. We talk about these families of occupations, and have done so for three or four years now, and nobody's done anything about it. I do think we're going to have to do training in skills common to an occupational area, rather than training for a narrow, specific job.

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Friday Morning

March 6, 1964

FOURTH GENERAL SESSION

Lee D. Bodkin

Chairman: Mr. Lee D. Bodkin
Supervisor, Trade and Technical Teacher Education
Bureau of Industrial Education

Recorder: Dr. Paul V. W. Lofgren
Assistant Supervisor, Trade and Technical Teacher Education
Bureau of Industrial Education

Introducing the first speaker, Chairman Bodkin said:

"Most of you know Norm Stanger, so I do not intend to give you a long pedigree about him. Many of us have the privilege of remembering him year after year - perhaps, even his debut at Long Beach in 1956. Since that time we have come to know and appreciate Norm's capacity for and ability to perform assignments.

"This morning Norm Stanger is going to talk about apprenticeship in our schools. I just want to say that he is Director of Industrial Education for the Orange County Schools, and he has to speak well because his superintendent will be here soon, and he'll hear about it if he doesn't."

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Norman R. Stanger

Speaker: Mr. Norman R. Stanger
Director of Industrial Education
Orange County Schools

Topic: APPRENTICESHIP IN OUR SCHOOLS

Many years ago, in the south, it was the custom to keep a large barrel of sorghum in the cellar for the purpose of making sweetened fodder or syrup. A young boy was sometimes called for sneaking a taste or two.

Occasionally this privilege was offered as a reward, there being no candy or other sweets available. An easy way was merely to reach down in and dip a finger or two into the barrel, a huge thing. Along toward the end of the season the sorghum level in the barrel was getting quite low. One young fellow, having sneaked down for his occasional treat, leaned a wee bit too far, slipped, and fell clear into the barrel! Scrambling hurriedly out onto his feet, one dripping mass of sorghum, with only his eyes showing, he offered up a prayer that could well be my own right now: Lord, please make my tongue worthy of this occasion.

Let me read for you from a 324-year-old document . . . .

> "Know all men that I, Thomas Millard, with the Consent of Henry Wolcott of Windsor unto whose costody and care at whose charge I was brought over out of England into New England, doe bynd myself as an apprentise for eight yeeres to serve William Pynchon of Springfield, his heirs and assigns in all manner of lawful employmt unto the full ext of eight yeeres beginninge the 29 day of Sept 1640 and the said William doth condition to find the said Thomas meat drinke and clothing fitting such an apprentise and at the end of his tyme one new sute of apparell and forty shillings in mony: subscribed this 28 October 1640."

What it was like to be an apprentice in New England in Colonial days is reflected in the 1640 indenture I just quoted. In return for his devoted services to his master for "eight yeeres," all this apprentice received as compensation was "meat, drinke and clothing." He was given, to be sure, the "one new sute of apparell" promised him "at the end of his tyme," but he lost out on the cash mentioned, as evidenced by the following statement at the foot of the indenture:

> "Tho Millard by his owne consent is released and discharged of Mr. Pynchons service this 22. of May 1648 being 4 months before his tyme comes out, in Consideration whereoff he looses the 40 shillings in mony wch should have bin pd him, but Mr. Pynchon giveth him one New sute of Aparell he hath at present."

Stingy though the early indenture was, it forms a connecting link between present and past apprentice training. The apprenticeship agreement which is used today is the modern version of the early indenture. If the ghost of Thomas Millard, the apprentice named in the 1640 indenture, were to go on an industrial snooping tour, he would be surprised at the modern version. He would be surprised to discover, for example, how an apprentice named in a typical machinist apprenticeship agreement of this day and age fares during his training. Instead of food, some clothing, and a few uncertain shillings, he receives he-man wages, increasing every 6 months, approximating $123.20 per week - the average in California; instead of working 60 or more hours a week, he works only 40; instead of slaving for a master in a menial capacity, he is employed by a large company, as a member of a production force, and trained step-by-step on the job, as well

as in the classroom; instead of "eight yeeres" to learn a craft, only four. Instead of living in the house of a master, he lives in a home of his own, as an independent, self-respecting citizen. Instead of a master as sole boss, workers themselves have a voice in training procedure through a joint management-labor apprenticeship committee. And "at the end of his tyme" a certificate is awarded, similar to the diploma awarded graduates of colleges and universities.

The modern apprenticeship agreement is indeed a far cry from the early indenture. Inconceivable, its provisions, to a 300-year-old apprentice ghost. Still more unbelievable to him would be the fact that over 85,000 apprentices in American industry in 1964 will be receiving benefits similar to those of the machinist apprentice I just cited.

Today's apprenticeship agreement, unlike its progenitor, which dealt almost exclusively with the moral behavior of the apprentice, sets forth the work processes in which he is to be trained, and his hours and wages during each period of his training. This and other pertinent information are incorporated in the agreement so that an apprentice may know in advance what may enter into his training. It is merely a working agreement for the mutual understanding and protection of the apprentice and his employer; while the early indenture bound the apprentice - inescapably in most instances - body and soul to a master.

In addition to the indenture, one other remaining link with the past is the transfer of skills, acquired through apprenticeship, from one generation to another. This transfer of skills began some 4,000 years ago, in 2100 B.C., the date of the Babylonian Code of Hammurabi, which made explicit provision that artisans teach their crafts to youth. The records of Egypt, Greece, and Rome in earliest times also reveal this passing on of skills from generation to generation through some form of apprenticeship. Since time immemorial industrial progress has been due in large measure to craftsmen who have learned their trades from their elders.

There are many examples today of families carrying on the printing, silversmith, sheet metal, machinist, bricklaying, carpentry, plumbing and other crafts. The best known among the early printing families in this country is manifestly that of Benjamin Franklin. Posterity has demonstrated again and again his saying, "He who hath a trade hath an estate."

With the expansion of industry in this country and abroad, following the industrial revolution, the apprenticeship system was revolutionized for application to the new machine age. Although the apprentice-master relationship continued to some extent even after the industrial revolution was underway, "domestic apprenticeship," as the early system has been appropriately labeled, gradually disappeared as a result of the size and impersonality of industrial plants and the enactment of public education laws. The previous compensation with board and lodging was changed by employers to payment of wages, which, though insignificant at first, compared with those of today, were graduated in accordance with a pre-determined scale. The term "master" however, has been carried on. "Master machinist", "master plumber", and "master carpenter" are familiar terms to all of us.

Not until the latter part of the 19th century, however, were there any apprenticeship systems established which were at all comparable with those of the present day. During that period and the early part of 1900, the number of plants in which apprentices were trained was limited, and the training provided was, for the most part, somewhat sketchy when measured by modern standards. The great majority of skilled workers in the United States, at that time, came from abroad. Most of the workers who acquired their skills solely in this country did so through their own devices, by watching and getting the advice of experienced men, and by sheer persistence and trial and error.

Although the machine age brought about a rapid advance in production, the working conditions and wages, especially for apprentices, lagged behind the times. What it was like to work in an industrial plant in 1883 is described by a man who began his career as an apprentice that year in a Philadelphia machine shop, Fred H. Colvin, Editor Emeritus of the American Machinist. In his book entitled "60 Years with Men and Machines," he states:

> "An apprentice in the machine shops of 1883 faced a situation not wholly unlike that of the craft guilds of the Middle Ages. In many cases the boy's parents had to reimburse the shop owner for teaching him the secrets of the trade."

He says, however, that in the plant in which he worked:

> "A revolutionary new system was in effect -- the shop owner actually paid the apprentice wages. He was careful, of course, not to turn the apprentice's head with money. In my own case, I began at the rate of 5 cents an hour for a sixty-hour week; or, to put it more impressively, I was paid $3 in cash every Saturday night. All overtime was paid at the regular straight-time rate of 5 cents an hour for young apprentices like myself. At the end of the first month's apprenticeship, the wages were boosted by 16-2/3 per cent, which meant a half dollar a week extra in the pay envelope. What with promises of an additional 50-cent raise every six months thereafter, a young apprentice could see himself developing into a substantial citizen if he but lived long enough."

The first legislation in the United States to promote an organized system of apprenticeship was enacted in Wisconsin. In 1915 this state passed a law placing apprenticeship under the jurisdiction of an industrial commission. The law followed the enactment of a state law requiring all apprentices to attend classroom instruction five hours a week.

Apprenticeship on a national scale in the United States has been a natural outgrowth of an increasing need for skilled workers of which the nation as a whole became keenly aware, as never before, during the boom days following World War I. Due to the curtailment of immigration after that war and the reduction in the number of skilled workers coming from other countries, the need for comprehensive training of apprentices throughout the nation became a vital necessity.

The decade beginning in 1920 saw a concerted effort for a national, uniform system of apprenticeship, initiated by national employer and labor organizations, educators, and government officials - federal, state and local. In the forefront of this movement were representative groups in the construction industry.

The combined effort on the part of the various interests in all industries led to the participation in 1934 of the Federal Government in the promotion of apprenticeship on a national basis. That year the Federal Committee on Apprenticeship was appointed by the Secretary of Labor to serve as the national policy recommending body on apprentice training in the United States.

In 1937, the national apprenticeship law was passed by Congress. This law, popularly known as the Fitzgerald Act, was enacted "to promote the furtherance of labor standards of apprenticeship ... to extend the application of such standards by encouraging the inclusion thereof in contracts of apprenticeship, to bring together employers and labor for the formulation of programs of apprenticeship, to cooperate with state agencies in the formulation of standards of apprenticeship." It is an enabling act in every sense of the word, without mandatory injunctions.

As a result of this Act, the Federal Committee on Apprenticeship was reorganized and enlarged to include an equal number of representatives of employers and labor, as well as representation from the U. S. Office of Education. Also, the Apprentice-Training Service (now known as the Bureau of Apprenticeship and Training) was established as the national administrative agency in the U. S. Department of Labor to carry out the objectives of the law in conformance with the policies determined by the Federal Committee. For the guidance of employers and labor, this committee has recommended certain fundamentals to follow in setting up apprenticeship programs.

America's capacity for industrial achievement, her genius for production and quality workmanship have been due very largely to her craftsmen, the all-around skilled workers - and it is through apprenticeship, as conducted today under modern methods, that young men entering the trades become proficient in the skills required for craftsmanship.

The present-day developments in apprentice training in this country, like the acquirement of skills through apprenticeship, have been a long-term, step-by-step process. These developments, just as those of the apprentice graduates who are launched on careers as craftsmen, form the foundation for future progress - the foundation upon which American industry is building a skilled manpower force never before equaled in any country.

Now, what about apprenticeship in California? We are <u>the</u> leading state in this movement, incidentally.

The teaching of related supplementary information to indentured apprentices is, by law, the duty and responsibility of our schools. An apprenticeship program is encouraged and promoted nationally by the Fitzgerald Act of 1937, as I mentioned earlier, and, as you may know, stimulated in California

by the Shelley-Maloney Apprenticeship Labor Standards Act of 1939.

This act sets up the California Apprenticeship Council. The 16 member California Apprenticeship Council is composed of 12 representatives from employer and employee organizations and two from the general public. In addition, the Director of the Department of Industrial Relations (Mr. Ernie Webb) and the Chief of the Bureau of Industrial Education (our own Ernie Kramer) are ex-officio members named by law.

This council establishes the policies, rules, and regulations governing the apprenticeship program in our state - minimum wages, maximum hours, and working conditions. Moreover, the council is responsible for fostering and promoting the welfare of apprentices and industry, improving the working conditions of apprentices, advancing their opportunities for profitable employment, and subsequently issuing them Certificates of Completion.

While our state law is a voluntary one, and the rules and regulations set up by our California Apprenticeship Council are purposely flexible so as to meet changing local situations, its objective is to set high standards for the training of skilled men. Briefly, the apprenticeship law and the Council policies provide:

1. That an apprentice must be 16 years of age.

2. That he enter into a written agreement with an employer or his agent (the indenture).

3. That his training period shall be not less than 2000 hours (roughly one year).

4. That he shall attend classes of related supplemental instruction, usually for 4 hours a week, and for a minimum of 144 hours per year.

5. That he shall receive an entrance wage of not less than 25% of a journeyman's wage, and that the overall wage during the entire period of apprenticeship shall total at least 50% of a journeyman's wage.

6. The ratio of apprentices to journeymen is based on the number of journeymen in the craft.

7. That he shall receive a certificate of completion upon successful completion of his on-the-job and in-school program.

Apprenticeship standards establish a local joint apprenticeship committee - the JAC - made up of an equal number of employer and employee representatives, a representative of the Division of Apprenticeship Standards (DAS) and other governmental agencies often sit with the committee as consultants. This committee has function and authority delegated to it by law. These include:

1. Holding regular meetings and electing officers.

2. Supervising the enforcement of standards.

3. Developing rules and regulations for controlling apprentices.

4. Evaluating the progress of apprentices and determining wage advancements.

5. Signing and recording individual apprenticeship agreements.

6. Verifying trade certificate records.

Responsibilities connected with the school program are not assigned to the JAC. This responsibility falls on the educators involved in the apprenticeship program. Most of the larger school districts have a coordinator assigned to these tasks. Some of the functions the JAC may perform in connection with the school, however, as an educational advisory committee, are:

1. Recommend potential teachers to be considered by the local board of education.

2. Advise on technical content for the in-school instruction.

3. Recommend kinds of facilities, equipment and supplies needed.

4. Advise on progress of apprentices and the effectiveness of the educational program.

5. Inform sponsoring groups, interested groups and the general public regarding the program.

Note that these are all advisory functions or the dissemination of information.

The employers train the apprentices principally in how-to-do operations or jobs. This is accomplished by providing the opportunity for a wide range of work experience under close supervision, allowing for repetitive drill, and giving the apprentice the information necessary to do the work at hand. This work provides experiences in all phases of the occupation being learned. To insure coverage, each occupation is divided into blocks and units which consist of operations or jobs using similar skills or information.

While the employer trains in how-to-do operations and jobs, the school gives instruction in related technical and trade information to supplement the on-the-job training of apprentices - in effect, to explain the why's and wherefore's of the machines and tools, processes, products, materials, math calculations, interpretations of drawings, sketches and layouts found in the trade. Technical and factual information concerning understanding, attitudes, and relationships are stressed in the apprenticeship school class.

Note that apprenticeship is a cooperative venture undertaken by several agencies of the community; it is not at all strictly a school function. Some of the agencies that are involved are: State and local school boards and their staffs, the county schools office, the county board of supervisors, the joint apprenticeship committee made up of representatives of management and labor, the Division of Apprenticeship Standards of the State Department of Industrial Relations, and others such as the California State Employment Service and the Bureau of Apprenticeship and Training. Each of these agencies has a particular responsibility to perform to assure the success of the apprenticeship training program.

The program is designed for young adults, usually ages 16 to 25 or so, who have been indentured by the local JAC, which, as I mentioned earlier, represents both management and labor. It is a program designed to assure that these persons receive a correct balance of training, of both on-the-job instruction from journeymen, and related supplementary information in the evening school classroom from specially prepared and credentialed teachers, most of whom are themselves journeymen in and from a particular trade. Some are industrial arts teachers who have had the requisite trade experience.

How big a program is this in California? How many people are involved? Here in Orange County we have 1367 apprentices enrolled in 50 evening classes. I think we are somewhat typical of the rest of the state. And, to look back in order to better see ahead, from the 1367 apprentices now enrolled, there were 1066 last year, and 944 the year before that. The growth curve is terrific. The picture at the state level is 23,622 indentured apprentices in over 1000 classes, as of last month.

How are our youth guided into the apprenticeship program? First, youth from all walks of life may enter. They may have received counsel or advice regarding this program from many sources - the industrial educator, frequently the industrial arts teacher, school counselors, dads, uncles, tradesmen, friends, pals and acquaintances who have heard of the advantages of the program (e.g., often some boys, working part-time or summers, are encouraged to continue in that line of work by their bosses).

The information I am presenting has been documented by me through contacts which I have made with several leaders in apprenticeship throughout the state.

In summary, may I repeat that apprenticeship, in its simplest terms, is training for those occupations commonly known as skilled crafts or trades that require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgment.

As practiced by modern industry, apprenticeship is a business-like system of training in which the young worker entering industry is given thorough instruction and experience, both on and off of the job, in all the practical and theoretical aspects of the work in a skilled trade. It is an integral part of the <u>changing world of work</u>.

The greatest single investment that we as a people have is in our skills and know-how. It is imperative that we guard this investment carefully. The watch and care over this investment is given, to a large extent, to Industrial Educators and a good portion of this investment is in the apprenticeship account. It is our job to manage well this investment, and we can continue to be proud of our philosophy expressed so succinctly in the words:

KNOW HOW & CAN DO

*****

Mr. Bodkin said the next speaker had a very unique background to talk on the topic of occupational orientation. After graduating from the University of California, Santa Barbara Campus, Mr. Cortland Doan went into teaching; and having sampled that for some time, decided to go into industry and get the other side of the coin. Satisfying his curiosity, and establishing himself in industry, Mr. Doan returned to teaching, maintaining, however, an engineering consultant firm of his own privately. Most important, though, Mr. Bodkin said, was the fact that Mr. Doan was doing exactly what State Board of Education Member, Ben Scott, had told us we should do: Talk to persons other than ourselves. Mr. Doan has the recipe; he seems to have the capacity and the opportunity to truly bring the community and the schools together.

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Cortland C. Doan

Speaker: Mr. Cortland C. Doan
Industrial Arts Teacher
Glendora High School

Topic: OCCUPATIONAL ORIENTATION

I'd like to show you a program that we carried on at Glendora High School last summer. We were fortunate in obtaining some funds from N.D.E.A., and our Guidance Department decided we should carry on a Math-Science Vocational Program.

Twenty-four math-science students and twenty-nine industrial arts students were enrolled. They were kept as two separate groups. The program consisted primarily of industrial tours. We went to see what industry was doing, to try to find out what the employment opportunities were and what occupations were involved. We discovered some other very interesting information too.

I mentioned that the two groups were kept completely separate. After we started considering the goals that each one of us had in mind, we found they, also, were completely different. The physics instructor was in charge

of the math-science group, and he had a number of students who were oriented toward the biology area. This area had very little interest for the industrial arts people.

We went our own separate ways on organized tours. We each had a bus for the 6-week summer session. The nominal time schedule was 4 hours a day, but both of the instructors counseled the students at the beginning of the session that if they were concerned about the length of time each day they were going to spend in summer school, not to sign up for this course. We were aware that some days we would be well into the afternoon before we got back. As I mentioned before, the program was sponsored through the Guidance Department, and the primary goal was Vocational Guidance. However, from the industrial arts standpoint it was a good strong taste of industry. (At this point some pictures of the tours were projected.)

The last week was really the capping-off of the entire summer. The group was distributed among eight of the various companies we had visited. Each student spent a 40-hour week in one of these companies. This experience was quite an eye-opener for some of them. I am still hearing various comments. For instance, in my graphic arts area I have several fellows who were on this summer program. One of them is a newspaper foreman, and I am constantly hearing in the background, "Well, down at the Los Angeles Times they do it this way." Of course, this makes him quite an authority.

All of the students thoroughly enjoyed the trips, and I have had a number of requests already for repeats. We don't know if we are going to repeat it for sure next summer. We hope we can get the funds to do so. If we do, we are going to take an entirely new group. I think the primary point here is the fact that these students have seen more of American industry and free enterprise than most people see in an entire lifetime.

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Mr. Wendell Noble was introduced and welcomed to the Conference by Chairman Lee Bodkin.

Speaker: Mr. Wendell Noble
Community Relations Director
Glendale Federal Savings and Loan Association

Topic: DO YOU KNOW YOUR FREEDOMS?

(Prepared by Max Skousen with quotations from "The Naked Communist")

Would You Die for Your Freedom? . . . .

Think About it for a Minute . . . . . .

Wendell Noble

Probably, if it were only your own freedom at stake, you would not. You would rather live as a slave than not live at all. For instance, if you were to go to prison for life, you might wish you could die, but you would still fight to live.

However, when it comes to our freedom as a people, most of us would be willing to die fighting in its defense. As a nation we give honor to those who "gave their full measure of devotion" that we might gain and retain this great birthright.

Today we find ourselves heavily committed to the continuing battle of freedom for all mankind. We call it the Cold War. We gird ourselves in a fight for freedom against those who would enslave mankind. But the war does not go too well, for year after year we detect the advances of the enemy. Our defensive position leaves us vulnerable. But what startles us most is that the peoples of the world fear us. Our only explanation is that lies are stronger than the truth. We feel that we are not understood.

The sad fact is, that we, too, lack understanding. Most Americans feel this war is based upon the same issues as were all our previous struggles. In other wars, especially the two great World Wars, the key issue was freedom as opposed to slavery. But this is a new kind of war. "Freedom for all Mankind" is the battle cry of BOTH SIDES. As long as we console ourselves by saying that Communists are hypocritical liars, we will continue to be startled at their successes. A dedicated Communist may be many things, but he is hardly a hypocrite. He is, in fact, more willing to die and more willing to live for his ideals than most of us are for ours.

We can better understand the Cold War if we realize that it is not "Freedom" that Communists reject, but merely OUR concept of Freedom. They feel that their concept of Freedom is far superior to ours, that our type of Freedom is actually slavery. This, then, is the explosive issue that divides the world. We are divided by two diametrically opposed concepts of the very same thing- - FREEDOM.

We can lose this struggle unless we understand why the opposing consept of Freedom has so much appeal. We have a selling job to do. As in any sales approach, we must not only have a thorough knowledge of our own product, but also a knowledge of the product of our competition. A wise salesman is quick to admit the good points of the opposition, for then he is able to command respect when explaining the more superior qualities of his own. Our object is to analyze our own concept of Freedom, and then, through it, better understand those who believe in a different kind of Freedom.

Even among us, freedom is a much misunderstood subject. For example, we should realize that such a thing as unrestricted freedom does not exist. There is no such thing. The reason is, that freedom means simply the chance to choose. Therefore, freedom can only relate itself to specific choices such as the freedom to speak, the freedom to believe or not to believe, the

freedom to buy or not to buy, and so forth. But, these choices have the power to go only in one direction at a time. If a man chooses to walk East he cannot at the same time, be walking West. If a man has ten dollars and chooses to spend that same ten dollars on a night of celebration, he has thereby lost the freedom to spend the ten dollars on some new clothes. Once the choice is made, a person is not free to avoid the consequences of that choice. That is why we say there is no such thing as unrestricted freedom.

A dope addict has lost his freedom. An alcoholic is likewise a slave. Each has lost the power to make any other than one choice. They once had freedom, but that was far back up the line when the significance of the choices seemed so inconsequential. This same pattern is the inevitable consequence of many types of choices. All of us have lost areas of choice because of previous choices.

It is for this reason that a free economy requires a continuous education of its people so that they will exercise their "Freedom to Choose" in such a way that it will sustain sound moral principles and build a dynamic economy with a strong social structure to preserve it. In making such choices, the people must be well informed. They must know enough about each problem to anticipate what the results will be when they have made their choice.

The most controversial and critical of the areas of freedom has to do with the economic side of life. Therefore, let us take a closer look at how freedom operates in a truly free economy. We will find that there are four great freedoms which must always exist in a free enterprise system.

FREEDOM TO TRY

The basic and most obvious freedom in a free economy is that every individual is free to try to better himself in any moral way he desires. This really means freedom to achieve. In effect, we say to every person that he is free to invent a new mousetrap, write a new song, start a new business, or even spend his life on the desert looking for uranium. He may or may not succeed in any of these ventures, but since he is free to try, he will rise or fall on his own ability to master the problems that face him.

Great care must be taken in "civilizing" this freedom to try. Some insist that it is the law of the jungle. And well it might be, in its uncultured state. But wise citizens can establish minimum limits which direct the creative force into productive channels.

FREEDOM TO SELL

If men are to have the Freedom to Try their skill and inventive genius, they must also have the Freedom to Sell that which they produce. Most people find no difficulty in accepting this freedom until a competitor comes along with a better method or production or a new machine, and

takes away the business. The horse, wagon and blacksmith industry probably felt that a limit should be placed upon how many automobiles could be sold in any one year. It is true that the free market which was left open to the new method of transportation did outmode a whole industry. Yet, it is an example of how every advance in product or method has created more abundance and more work.

Freedom to Sell on the open market allows the balance of supply and demand to set the reward. This is the only way the Freedom to Try can be kept in balance with the needs of the people. If too many people try to do one thing, the supply exceeds the demand, thus reducing the reward. Those who are least efficient become discouraged first. By moving to other productive efforts, they automatically and naturally provide a healthy balance of production and consumption.

The explanation of why this system has operated so well is a simple but important one. It demonstrates the principle that the genius of all the people is superior to the genius of any one man or small group of men.

FREEDOM TO BUY

The Freedom to Try and then to Sell can exist only if other people are Free to Buy. This also means people must be free to own and accumulate property. One of the most fatal restrictions on a dynamic free economy is rationing and governmental control of commerce so that the people are told what they can buy, in what quantity, where, and at what price. These artificial devices so completely sabotage capitalism that prices get out of phase, black markets develop, and many human needs are neglected. This is why the United States moved so quickly after World War II to eliminate price controls and rationing. Both are unfriendly to a free economy. France and England failed to follow suit, but West Germany did. As a result, the recovery of Western Germany was one of the sensations of the post-war period, while the recovery of France and England has been extremely slow and painful.

FREEDOM TO FAIL

Supporting the other three economic freedoms, is the most critical freedom of all - the Freedom to Fail. The only way a man can be restricted from failing is to be prohibited from choosing. If we are to prevent a man from failing, we must limit his ability to buy and sell, which means that we must limit his ability to try, to achieve. Many people, not realizing the critical importance of Freedom to Fail, reject it as a terrible thing. They forget that the real joy of successfully accomplishing anything worthwhile is based upon the fact that there could have been failure. There is no such thing as "winning" if there could never have been a "loser". That one might fail, is the greatest motivation to make him succeed.

What is our Concept of Freedom?

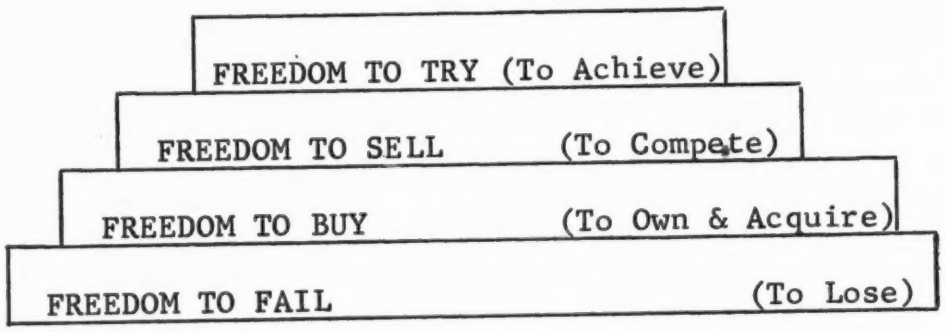
1. Freedom is the right to choose.

2. No such thing as unrestricted freedom.

3. Freedom moves in only one direction at a time.

4. Once a choice is made, a person is not free to avoid the consequences of that choice.

5. Therefore, a free economy is based upon four great freedoms.



Now that we have analyzed the makeup of Freedom to Choose, we are ready to examine the other concept of freedom which is diametrically opposed to it. This other concept takes strong exception with the foundation of economic freedom - The Freedom to Fail - by offering to people Freedom from Failure. We might call this other great concept of freedom, FREEDOM FROM INSECURITY.

It is not difficult to see why many kindly and benevolent people would choose to support those who promise Freedom from Insecurity. These are the people who desire to eliminate the distress caused by failure, or, even better, eliminate the possibility of failure. No one should quarrel with the objective of eliminating suffering. Unemployment, business failures, inadequate learning power, poverty, ignorance and fear are all things that men should unite to reduce. The objective of the proponents of "Freedom From" is fine, but the tragedy of their concept is, that since it violates the natural motivation of Freedom to Choose, their programs fail to fulfill their aims. Not only do they fail to produce security, but they so dissipate the energies of man that free choice is replaced by control and force.

A school teacher was explaining the concepts of Marxian Socialism to her students. To make the point very clear, she applied the concepts of Communism to the school situation. "The way it would work, students," she said, "is that, in order to give everyone in the class freedom from the fear of failing, we would guarantee to each person a passing grade. We would take the surplus of those who get over 70 and give it to those who get less than 70. Thus, everyone could pass. What would you think of such a program?"

Part of the class thought the sharing system would be an excellent program, but others had grave doubts. Then the teacher made a very wise and profound observation, "I am afraid that if we tried the system for awhile, none of you would like it. Few of you would work hard enough to get high grades when those grades would be taken away from you. Since you would know that you could not fail, it wouldn't be long before most of you would be getting below 70. I would not be able to allow the whole class to fail, so I would have to force you to make the minimum grade."

Sad though it may be, the teacher's warning was not mere speculation. It has happened - in each of the many utopian experiments that have tried to make all men share and share alike. The programs either failed because of lethargy or else force was used to compel mediocre performance. Yet this dream continually arises anew in the minds of those who would legislate inequality from the earth.

The Freedom from Insecurity concept is also based upon a logic approach. Its advocates feel that poverty is the greatest evil among manhind. And it certainly does rank high. Second, they feel that poverty is the result of inequality - people not being equal. Which again seems rather obvious. Their next conclusion says that inequality is wrong because it is unnatural, for people are actually equal and should remain so. So their conclusion is then, an obvious one. If we eliminate inequality, we can eliminate poverty!

But this is their tragic fallacy. All men are <u>not</u> equal. Our Declaration of Independance stated that all men are created equal, but immediately defines this equality as their equal rights to life, liberty and the pursuit of happiness. All men are not equally bright, strong, industrious, or thrifty. And if anyone needs proof, all he has to do is give a group of people freedom and they will soon demonstrate their differences in ability.

Those who advocate "equalizing" as the sure way to give all men Freedom from Insecurity, have four popular freedoms which they feel will produce their goal. The words they use ring the fire bell for the radicals and church bells for the crusaders. Their four freedoms are the exact opposite from the four freedoms of a free economy. Instead of being freedoms TO, they are freedoms FROM.

FREEDOM FROM INSECURITY

Freedom from Failure, which is called Freedom from Insecurity, is the glowing promise of the utopians. But under careful analysis, the only way anyone can guarantee ME from failing is to keep me from exercising choice. If I want to make a bad decision, I must be prohibited, or I might fail. This is the actual program behind the super-state concepts. Protect the people from themselves by taking away the Freedom to Choose.

Many social planners feel that they can give people freedom from failure without this obvious extreme of totalitarianism. They allow people the freedom to try things, and if failure occurs, they protect the people from the consequences. After all, such do-gooders proclaim, if a person has done the

best he can, why should he not prosper as much as anyone else? Of course the subsidy is taken from those who do succeed, and for a short period of time all seems fine. Sharing the wealth is only a temporary method of solving the problems of inequality. If such a program is continued, we find the incentive to succeed has been taken away. This tends to dry up the reserve wealth available for benevolent distribution. It is then that the social planners become desperate. No longer can they tolerate free choice, and freedom to choose is restricted as a social necessity.

FREEDOM FROM EXPLOITATION

Freedom from Failure is based upon the promise of Freedom from Exploitation. No one likes to be exploited and society must be ever alert to the misuse of the power to rob others of their just rewards. But, when Freedom from Exploitation is promised as an absolute guarantee, it must come at a great price. Actually, the only way that we can be exploited is to have others buy from us too cheaply. If our labor or products are bought too cheaply then we have been exploited. The only way we can be protected from this is by taking away any choice at what price others can buy. So to guarantee Freedom from Exploitation really means Freedom from Buying.

FREEDOM FROM COMPETITION

Freedom from Exploitation is supposed to be based upon the next freedom, Freedom from Competition. But competition is merely the process of selling in a free market. It is the process by which the best bargain is chosen over lesser bargains. But since competition is not without pain, the "equalizers" wish to free men from this force of rivalry. The only way this can be done is to force all men to sell at the same price, to receive the same wage, all of which is really Freedom from Selling.

FREEDOM FROM STRIVING

The underlying utopian promise is the hope of paradise on earth without effort. But where man is not compelled by necessity to strive, neither is he allowed to achieve. Freedom from Striving is really Freedom from Trying.

What is the Other Concept of Freedom?

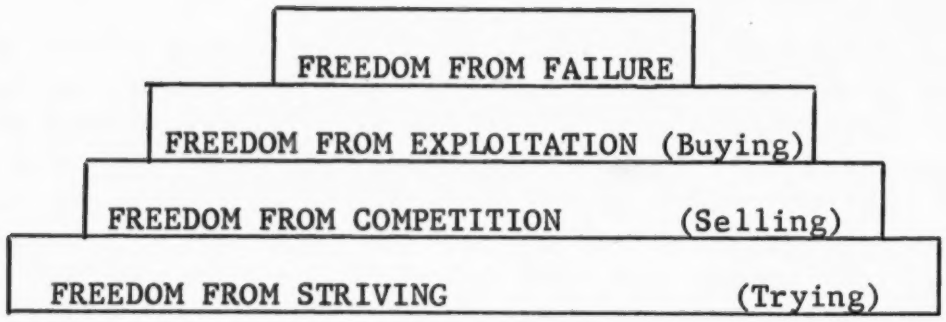
1. They say Freedom is equality - not only in rights, but in rewards.

2. No excuse for inequality.

3. Since poverty is based upon inequality, equality will assure abundance for all.

4. Therefore, true progress must be to establish FREEDOM FROM INSECURITY.

5. Freedom from insecurity is based upon four great Freedoms.



Now that we have seen the basic platforms for the two opposing concepts of Freedom, let us not over-simplify the personal nature of the conflict. Each of us must make decisions every day based upon one or the other of these opposing concepts. Every time we are in trouble and seek help, we must decide upon which basis that help should come. Every time we see another in trouble and offer help, we must decide upon which freedom that help is to be given.

Many parents these days have tended toward the concepts of "Freedom From" in rearing their children. The Freedom from Insecurity parents are in two classes, Those who will not let their children exercise choice so as to prevent any possibility of failure, deprive their children of maturity and independence. The children grow up being afraid to try things, to make decisions, wanting security first. The other class of Freedom from Insecurity parents are those who let their children run loose with no discipline, restrictions or denials. When the children make mistakes, the parents either ignore the infractions or make up for them. These are the unfortunate children who must find the responsibilities of life the hard way. From this type of environment come many of our juvenile delinquents.

In contrast, we find many parents who still believe in the philosophy of Freedom to Choose, which includes the responsibility for choice. These prudent parents prepare their children for greater and greater latitude of choice with carefully set boundaries and clearly defined and enforced conditions. These fortunate children learn the feeling of individual responsibility and initiative. They learn to accept the price of failure as part of the game of life.

What is true with children also applies to adults. We really help others when we help them to help themselves. It seems more charitable and benevolent to completely take over another person's responsibility, but we do so at the price of his dignity and integrity. In a free society, we must not let people fail so completely that they starve or lose their opportunity to try again. But when we cushion people in their fall, it must not be a dole nor a stipend which would be so comfortable that the person would want to relax and stay down. True freedom calls for cushions which are thin -- by design.

What is true with adults is true with nations. Look at Greece. Basic to all the Greek achievement was freedom. They, too, lived in a dangerous world. They were a little, highly civilized people surrounded by barbarous tribes and with the greatest Asiatic power, Persia, always threatening them

Greece rose to the very height, not because she was big - she was very small; not because she was rich - she was very poor; not even because she was wonderfully gifted. She rose because there was in the Greeks the greatest spirit that moves in humanity, the spirit that sets men free.

In the end they succumbed, but the reason they did was not that the enemies outside were so strong, but that their own strength, their spiritual strength, had given way. While they had it, they kept Greece unconquered and they left behind a record in art and thought which still makes the scholar marvel. But when the Athenians finally wanted, not to give to the state but the state to give to them, when the freedom they wanted was freedom from responsibility, then Athens ceased to be free and was never free again.

Most people do not realize that our Pilgrim Fathers started this country out with a communist colony -- at Plymouth, in 1620. In many ways this communal society was set up under the most favorable circumstances. First of all they were isolated from outside help and were desperately motivated to make the plan work in order to survive. Secondly, they had a select group of religious men and women who enjoyed a cooperative, fraternal feeling toward one another. The Pilgrims launched their communist community with the most hopeful expectations. Everything produced went in to a common warehouse, and then the proceeds were doled out according to the idea of the need.

It was this principle, "from each according to his ability, to each according to his need," that was held forth two centuries later by Karl Marx as one of the ideals of the Communist party.

There was a compelling reason why this practice was discontinued -- too often the warehouse ran out of provender, and too many of the colonists starved. And Governor Bradford, in meeting together with the remaining colonists, decided that he would forego this way of life, and institute a new system: that each was to have what he himself produced.

Once a family was given land and corn they had to plant, cultivate, and harvest it, or suffer the consequences. The result was that the following Spring not only were the fathers in the fields, but the women and children were, too, and the success of the project was assured.

Communal production was replaced by private, free enterprise production. The Pilgrim Fathers had discovered that great human secret that a man will compel himself to go ever so much farther than he will permit anyone else to compel him to go.

The theory of free enterprise was discussed for five months in the halls of the Constitutional Convention in Philadelphia in 1787. It was James Madison who held the theory, like grim death, all through the months of forming our constitution, that free competition between men would create more employment, greater progress, more security, with a higher standard of living than any other system.

And right he was. In its earliest stages this system was described as a heartless, selfish institution, but economists have pointed out that after

a slow and painful evolution, it has finally developed into a social-economic tool which has thus far produced more wealth and distributed it more uniformly among the people of this land than any system modern men have tried.

The evolutionary process of further improving and further adapting the free enterprise system to the needs of a highly industrialized society is still going on. Every change produces problems which demand solutions.

As problems have confronted our people, those in or seeking public office have proposed solutions which they hoped would win the support of the popular vote. Many times the arguments for the various opposing solutions appear so logical that the people become confused. It is surprising how much of the fog and haze can be penetrated when we look at each proposal in the light of the two opposing concepts of freedom. There are many notable examples in both modern and ancient history to illustrate what happens when people become more concerned about security than opportunity. Free people require alert, aggressive leadership, and a socially and politically conscious citizenry. This is not easily maintained, but it is the price of true freedom. Sometimes the streak of natural laziness in people makes them wish that a commission, a dictator, or a king would make all the decisions and force the people to do what is good for them. But this is the road to ruin for a free economy. The people must retain the soverign right to choose, for that is all that freedom really is.

One of the most impressive modern documents on American free enterprise in action is a dynamic little book by Ezra Taft Benson, U. S. Secretary of Agriculture, entitled, "Farmers at the Cross Roads." It verified with facts and figures the lesson our generation has learned from experiments with socialism through government control of agriculture.

The government attempted to control farm prices by direct control of farm practices. The so-called "basic crops" which were put under controls were wheat, cotton, corn, rice, tobacco and peanuts. The idea was to give the farmer freedom from insecurity by guaranteeing him a certain minimum price. To do this, it was necessary to control production. Farmers were, therefore, restricted as to the amount of acreage they could plant.

The results were amazing. Take wheat, for example. More than 30 million acres were taken out of wheat production in an attempt to reduce the supply and thereby maintain a good price for wheat. Each wheat farmer received a government check which paid him for NOT planting wheat on a certain percentage of his land. This is what happened:

The farmer used the money to buy better machinery, more fertilizer, and additional help, so that frequently he harvested as much or more wheat from his limited acreage than he had previously raised on his entire farm. In other words, curtailed acreage did not curtail production. Furthermore, land taken out of wheat production could be used to raise other crops, which resulted in an over-supply of feed grain. Feed grain prices went so low that farmers and ranchers were able to greatly increase their cattle and hog production. This pulled the rug out from under meat prices.

The government tried to save the situation by purchasing large quantities of each product which was being overproduced. This, coupled with price supports, encouraged even more people to invest in farming, with the result that vast areas of sub-marginal land were opened up for production. Many of these investors were not farmers at all, and these made a loud noise in favor of higher supports when they could not make their inefficiently operated farms pay off.

The government's support of artificial high prices also had another destructive influence. It encouraged consumers to look around for substitute products of foreign imports. As a result, American farmers not only lost some of their domestic markets, but found they were unable to compete abroad.

What happened to wheat, also happened to cotton and the other "basic" crops. They lost markets everywhere. In the case of cotton, the government reduced acreage from 43 million acres to 17.4 million. Still the surplus quantities continued to climb. Before controls, U. S. cotton farmers exported 7 million bales of cotton per year. During 1955 they sold only 2 million bales abroad. Foreign cotton growers saw what was happening and doubled their sales because U. S. cotton brokers could not compete. So it was with all controlled areas of U. S. agriculture.

In contrast to this, we find that those areas of agriculture which resisted rigid price guarantees did better. Take soybean farming as an example. These producers used the Department of Agriculture to advise and counsel them, but not to control. The Department of Agriculture conducted numerous experiments to reveal new uses for soybeans, and encouraged producers to use cooperative associations for the exploring of new markets. Today, soybean farmers supply half the tonnage for high protein feeds -- twice as much as that which comes from cottonseed meal. Soybeans have risen to fifth place as the farmer's greatest source of farm income. Secretary Benson closes with this significant comment: "A major difference between cotton and soybeans is the fact that cotton decided to fight its battles in the legislative halls while soybeans decided to fight in the market place."

These are merely a few highlights from the lessons which America should have learned during the past twenty-five years of experimentation with socialized agriculture. There are many things which the government can do to encourage the "general welfare" of all agriculture as it did with soybeans, but to try to control prices by Washington edicts rather than by supply and demand eventually proves disastrous.

In some PLANNED economies a well-established business is not allowed to fail because it is described as "essential" to the economy. Therefore, if the product of that company will not sell at a profit, it is subsidized from taxes to make up the difference. The company thereby receives a bonus for its inefficiency. The lessons of efficiency are not learned. The expressed choice to fail is not allowed to result in failure -- other companies soon follow. Almost immediately inertia replaces energy. Progress is slowed to a snail's pace and human needs are no longer adequately satisfied. In a dynamic capitalist economy the fact that a person or company will be allowed

to fail is the very thing which spurs the individual or company to succeed.

In spite of the clear lessons of history, well meaning men and women are continually turning away from the dynamic freedom of choice. They think of themselves as "liberals," when, in reality, they are reverting back to the old, worn out, paternalistic concepts of rigidly "protected" economies.

Yes, when a people want freedom from responsibility more than they want freedom of opportunity ----------THEY WILL CEASE TO BE FREE MEN!

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Friday Afternoon

March 6, 1964

FINAL LUNCHEON SESSION

Richard S. Nelson

Chairman: Mr. Richard S. Nelson
Assistant Chief
Bureau of Industrial Education

Recorder: Mr. Harvey N. Gruber
Fire Training Instructor
Bureau of Industrial Education

"SALUTATIONS TO THE FUTURE"

Mr. Wesley P. Smith
Director of Vocational Education
State Department of Education

You people have met here during these last few days at a time of decision in the history of Industrial Education in California. As industrial educators, you people have had bestowed upon you the highly complimentary and awesome honor of removing some of the misery and acute human discomfort that has been coming during the past few years from this disruptive rate of change in the industry you serve. How well you match up to this task will be measured, I suppose, by the beneficial effects that your efforts produce in dealing with an ever-increasing rate of unemployment in this State, in dealing with an economy that too often needs artificial proding in dealing with the problem that finds a total labor force proficiency that fails to mesh adequately with the needs of modern industrial operation, and in dealing with the problems that find an educational system hard pressed to maintain any semblance of curricular balance.

Wesley P. Smith

Your target has never been identified as clearly as it is now. It's an elusive target, it moves at a variety of speeds, it often fades into indistinction, and it seldom long maintains its same form or same dimensions. It's a privilege for me to share this platform this afternoon in your final session. It's been a privilege for me to be here for these two days, and it's

a privilege to speak to the subject of, "Salutations to the Future". Instead of giving you anything really new or really unique, I'm going to take advantage of an opportunity just to talk to you - kind of a one-sided conversation. I'm going to briefly salute your past. It is because of your past that we are able to salute your future. I salute your perseverance. I believe that 26 years deserves a salute for perseverance - your perseverance in industrial education. I salute your integrity, both your personal integrity and your professional integrity. And we could talk for a long time on just that. I salute your continued professionalism. As I measure professionalism, there are few groups that will come up to the standards of this group. I salute your flexibility. I see you flexible. I salute your indulgence, your humility, your humanity; and I could go on with these salutes to you. It's because of this salute to your past that it is possible for us to offer a salutation to the future.

I salute, too, your present, and your current operations, because this status that you now represent, and this status that you now occupy provides your launching pad into the future. If you didn't have this status, and if we weren't able to salute the current situation, you would not have this opportunity to enter the future as you are going to enter it. You're strong. Never have you been stronger. You're many. You have never been more numerous. You're experienced. Never have you been more experienced than you are now. You're ambitious. You're talented. You're anxious. You're tugging at the bit, and you're ready for action. And I salute you for these attributes.

There are those who today will challenge your efforts and who will challenge your products, and who will challenge your success. Uninformed people. There are those who are too quick to announce criticism of what you are doing and what you have been doing. And there are those who are too quick to fault some of your products, and discredit some of your results. But I say to these doubters, and I say it for you, "Name any nation, anywhere, at any time in all history, which has achieved the massive ability and the demonstrated proficiency of our total industrial work force, as you have." Who can really say what the unemployment situation of our state and nation would be; who can say what the poverty situation of our state and nation would be without your efforts of the past? The other day someone read us a little statement that if the present population of the whole world could be represented by 1000 people, and these 1000 people lived in a single town, 60 would represent the population of the United States and 940 the population of all other nations. But the 60 Americans would have half the income of the entire town, and the 940 persons would share the other half. This is an accomplishment, and you have had a part to do with it. So let the scoffers get in line and let them see what we have done. So, I salute you for this service.

Now, let's examine these components of your future as I have this one-sided conversation with you. You've heard all week, and you'll hear for a long time, it has been a new experience and we didn't know how to operate in it. But it's a pleasant one, a climate of receptiveness, a climate of acceptance, a climate of hope coupled, possibly, with a climate that has some anxieties in it, but totaling a receptiveness of a type and character and amount

that we have never experienced before. Even in war emergencies, we have never experienced the receptiveness toward vocational education in the areas we represent here today, as we find now. There is receptiveness on the part of parents, on the part of the students, on the parts of boards of education and of our colleges, the professions, fellow teachers, administrators, legislators both federal and state, politicians far and wide, and on and on and on.

Such acclaim is bound to leave us in somewhat of a quandry because we've not traveled this road before. In fact, such confidence is frightening. So much is being asked. Cure the drop out problem; reduce juvenile delinquency; eliminate unemployment; destroy poverty. Join me, for a moment at least, in resisting the temptation to accept our program as being the cure for all these things, and join me in telling others that it is not the cure, even though it may be tempting to us. Because, to hold such a point of view would be to practice a fraud upon our communities, upon the state, and upon those who hold such high hopes. In addition to this climate of acceptance, there is a climate of - excuse the negativeness - of misunderstanding. There are many who are friends and who are newcomers to the fold. They place trust in the name of vocational education, but they do not place confidence in the operation. This climate of misunderstanding by so many who are new to us - our new friends - has a meaning for all of us, and probably should be a part of our consideration, if not salutation, for the future, because it involves effective communication. We have not had it in the past - effective communication. We do not have it now, but just possibly, it may be very vitally essential in the future.

We have another kind of a salutation for the future, a salutation given to us not only in new federal legislation, but,I think, given to us by our friends everywhere, having to do with the changing concept of vocational education. The elimination of some of the artificial boundaries that have too long surrounded the concept of vocational education, and the raising of the ceiling as to what constitutes vocational education. This is going to have some real meaning for us, and be a part of your future. I identify it as the potentiality that you have for the development of leadership in the program you represent. You've had some indication of thinking along this line during the week, but there's also a need to examine the organization for vocational education - the organization and staffing for the entire area of the applied arts in our schools. Another part of this salutation for the future is the new freedom we're going to have, and the new freedom we now have to develop our programs as they should be designed and developed in your communities and in the state. I'm no oracle. I'm less of an oracle for certain than I was 15 years ago. But I'm certain - if I'm certain of anything regarding this future - that it has more complexity for you. The various societal problems that have triggered the new popularity for your program are so complex and so profound and so critical that frustrations will be natural, and they will be many. Now, frustrations are not unhealthy if such frustrations prompt us to increased effort and increased action. Frustrations are unhealthy if we permit any feelings of frustration to terminate in feelings of futility.

There's one hopeful approach to our salutation to the future, and this is a recognition that when problems are so complex, as some of those that face us are, we need many kinds of solutions, and there is no single solution. One step toward a solution is not to rest on our laurels, even though

we're getting compliments and tributes, and even though we have built well. It gives us little comfort to have the best program in the whole United States as long as any persons in our state are denied the opportunity for vocational preparation.

I am expressing a personal hope to you right now that each of you here, during this next year, starting from this moment on, will assume a personal responsibility to develop at least one brand new, different and unique approach in the areas you represent. New approaches will be a group of nest eggs to attract further developments. Develop new programs, new operations, new approaches that you can be proud of, that you can brag about, that you can talk about, that you can take pictures of - new approaches that will cause curiosity among your colleagues and in your committees. Initiate new programs that will stir imaginations everywhere. I feel you must do this as your salute to the future. Too often you come to conferences of this type, as I do, with much enthusiasm, and you receive much refueling of that enthusiasm while you're here, but soon after the spirit fades. I'm concerned that this has happened so many times in the past, it can happen again.

An industrial education program that merely ebbs and flows, one minute addressing some of these problems that you have, the next minute retracting from their complexities, is a barren program and will contribute barren results and solutions. On the other hand, an industrial education program with continuity of purpose, and with the will to invent and the will to do something in spite of the difficulties, becomes the producer of the means by which you can not only contain the shock of rapid change, but may alter its effect from evil to good. Why not leave here today with the resolve to develop, to manufacture, to invent, to innovate, to design one thing really different in each locality in the State of California? And do it these next few months. Never have you had such an opportunity in all your history, and never has there been a greater need for such development.

There are the programs for girls and women, programs for the less able, programs for the disenfranchised, the minority groups, the social outcast, the economically disadvantaged; programs involving inservice teacher education, programs involving leadership development, programs involving work experience education, programs involving teacher competency, all kinds of research programs in vocational education, programs in the areas of vocational guidance, programs dealing with drop outs, programs dealing with followup, and so on, and so on, and so on. We need these experimental break-throughs as we look into the future. Of course, we need to tend carefully the on-going programs that have served so well in the past, and will continue to serve effectively.

Now, one final over-arching hope of mine is that when you come back next year you will have in your hip pocket a brand new program that's absolutely new in your community, new, unique and different. I spoke of your will, expressed here earlier this week, to address with force and to address in depth this matter of the real meaning and the real purpose, the real program of industrial education in California, and of how this purpose, how this meaning and how this program is composed of essential components, each blending and fitting together to provide a picture of accomplishment, a picture of harmony,

a picture of the total program of industrial education.

Earlier I mentioned the ebb and flow. You have previously addressed this problem of unity, and then you have retracted from its complexities. I hope that you will keep on addressing it as you have already, in your dedication to the goal, to the development of a master plan for industrial education in our State. It is said the walls of Jericho did not fall because of a lot of trumpet playing and a lot of noise, or because of a lot of people walking around. The walls of Jericho fell because the people walked in unison, and it was this unison of tread that shook the earth and crumbled the walls. And these people of biblical times were denied entry into the promised land until they had learned to walk together, and so be it for you, so be it for all of us. Please don't let the answer to this need for unison escape you again.

As I said at the beginning, I've enjoyed very much being here, and I appreciate the opportunity of talking and having this one-sided conversation during these few minutes.

Thank you.

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Ernie Kramer - Dave Allen

Following Mr. Smith's address, Mr. Kramer acknowledged the work of the many persons involved in the Conference plans. He congratulated Dr. David Allen, the Conference Coordinator, and Mr. Russell Journigan, official photographer and editor of the Conference news bulletins.

Dr. Allen announced that Dr. Robert Woodward would serve as Conference Coordinator for the 1965 Conference on Industrial Education.

Chairman Nelson then called upon Mr. Kramer for a few concluding remarks, before adjourning the Conference, to reconvene jointly with the California Industrial Education Association later in the afternoon.

Speaker: Mr. Ernest G. Kramer

Let me just take a minute or two to consider with you what's happened since this Conference began. I think in many ways we've turned a corner, and this activity we've been involved in at this 26th Annual Conference in a way is representative. I wouldn't go so far as to say the Conference itself should take the full credit for the points of view that have been expressed during the last three days, and the manner in which we have worked together. Certainly some of you know my observation about Florence Nightingale's statement about hospitals, "That whatever else they do, they should not spread disease." I

think whatever else our Annual Conference does, it certainly shouldn't get in the way of progress. I, for one, feel that it has certainly not gotten in the way of progress this time, but has given progress a couple of good bats in the right direction.

You will recall we began on Wednesday morning with the very high and stimulating note through the address by Dr. Albert Burke. I think not only the fact is significant that he brought us a most intriguing and constructive message, but more than that, the fact that his home burned clear to the ground two nights before, he had his family's well-being on his mind, and all the things that go with it, and still he thought enough of his obligation and of this industrial education group to fly all night from Connecticut, get a few hours sleep, and then make the presentation he did to us on Wednesday morning. This is not only a reflection of an individual's integrity, but I think is a high compliment to this group. I submit to you that that very incident is one index of the status we have grown to assume within the past few years. I think in part it's the result of the kind of meeting we have, the manner in which we address ourselves to our problems, and what we do about them in the intervening times between the conferences. I think his message, keyed around the concept of industrial intelligence, was most appropriate to our theme.

I could go on and explain a little more how pleased I was personally with the results of our attack on this master plan theme, the program Wednesday afternoon, particularly the events of Thursday morning in this room when we accumulated somewhere between 3000 and 4000 individual contributions towards this position paper - which, you will recall, we mentioned on Wednesday morning that our Bureau is committed to as a program of work in the immediate future. I think that's a tremendous contribution, one we could have accumulated in no other way.

I don't know that this will surprise you, but a number of you know that yesterday afternoon we had a discussion in the industrial arts meeting that I think, in retrospect, and I hope all those who were there would share this with me, was a most constructive, courageous discussion. We were willing to get some problems out on the table to the place where we can really work at them together, logically, and in the best interests of our industrial education profession, and the people we have a responsibility to serve - mainly, the students in our program. In that particular instance we agreed to hold in abeyance any implementation of a recommendation we made relative to the teacher preparation, until we have an opportunity to work on this further in subsequent meetings. I call to your attention the first of these meetings will be on March 15, and at that time we'll address ourselves to some of these problems.

Oh, I could mention so many other things that happened, but again, it would be an insult to your intelligence, because you've been here all the time, you've worked hard and participated. Really, to fully extend to you the way I honestly feel about this, I'd have to really and figuratively give each one of you in the room a pat on the back. Let me just summarize by saying what we said in our opening session. There were at least four things we thought should

be done if we're going to face up to the future realistically. One of these was to search out all the questions that are sincerely being asked relative to our position in industrial education, and I would submit to you that even in the larger picture of vocational education this would still be appropriate. Secondly, we must be willing to answer all these questions that are sincerely asked, answer them logically, answer them understandably, so that we can communicate with the people in the profession and outside the profession. Thirdly, we should examine our own motives and be sure that that which we do is motivated by seeking out the best answer for the youth and for the adult. Lastly, just as long as we work within the frame of reference of looking for the best educational answer for the youth in our high schools, young adults in our junior colleges, and the adults in our adult education program, then just so long will we be on real firm ground as far as building for the future is concerned.

In this connection, some of you know I have sort of a passion for quoting bits of poetry. I'd like to abuse the privilege a little bit and again refer to the last stanza of a poem by Robert Frost, the last three lines of which go something like this: "Two roads diverged in the yellow wood, and I, I took the one less traveled by, and that has made all the difference." I think this is so appropriate to what we are doing. We're willing not to be motivated by the same old rut we've been in, if it is a rut, but we're willing to take a look at it, to evaluate it, and build our program for the future on the most solid ground we can find. Wes has given us an inspiring address under the general theme of a salutation. This reminds me of the salutation to the dawn from Sanskrit, which I would like to give you at this point. I would like to paraphrase it, at any rate, and my paraphrasing would go something like this: "Look to this day, for it is light. Every day well lived makes every yesterday a wonderful memory, and makes every tomorrow a vision of hope."

And so, I think this 26th Annual Conference represents activity that demonstrates in countless ways that we in industrial education have the capacity to face up to the future, to face up to it realistically, to face up to it logically, and to face up to it democratically. Therefore, I think we can look at our own activity and say we are living each day so that every yesterday will be the wonderful memory of progress in industrial education, and every tomorrow will be a vision of hope for industrial education.

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FRIDAY AFTERNOON

March 6, 1964

JOINT SESSION

Co-Chairmen: Dr. G. Theodore Elmgren, President
California Industrial Education Association

Mr. Ernest G. Kramer, Chief
Bureau of Industrial Education

Dr. Elmgren greeted the joint session with a few appropriate remarks, and then called upon Mr. Kramer to introduce the lecturer.

Mr. Kramer: Perhaps just a word or two of background on this lecture series would be fitting at this time. This is the fourth in the Samuel Leonard Fick Lecture Series, which was inaugurated a little more than four years ago. At this particular time it is my signal honor to present to you the man whom we honor with this lecture series, and for whom the lecture series is named, Samuel Leonard Fick, Chief of the Bureau of Industrial Education, Emeritus. His contribution, not alone to industrial education, but to the total program of education as well, in both California and the Nation, has been widely acclaimed. But, more than that, Sam's stature as a man and a friend is a beacon to all of us. It is my proud honor, ladies and gentlemen, to present to you, Samuel Leonard Fick, for whom this lecture series is named. (Applause.)

This next opportunity I have is likewise, indeed a rare privilege, for I now have the pleasant task of presenting to you the Samuel Leonard Fick lecturer for 1964. This is a most happy occasion, because our speaker and Sam Fick were colleagues in the Department of Education for many years, and I can personally attest to the high regard that each holds for the other. Furthermore, I can say to you that there is no one who stands higher than Frank in his belief in and support of vocational education. It's now my very real privilege and pleasure to present to you Mr. Frank Lindsay, Chief of the Bureau of Secondary Education, who now, with the aid of a ladder, will take us on a trip to the moon.

Mr. Lindsay: It's very heartening to get the applause first, because then you have that, regardless of what happens thereafter. And, Sam, I want to point out that I do regard it as a signal honor, indeed, to be a lecturer in your series. You know, we're both in for some surprises, because this talk was written around the time of the Christmas holidays. Speaking, though, of writing it awhile back reminds me of Robert Browning, who was asked what he intended when he wrote his dramatic monologue, "Sordello", and he said, "When I wrote it, God and I knew what it meant, and now only God knows."

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THE SAMUEL LEONARD FICK LECTURE

ON INDUSTRIAL EDUCATION

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A LADDER TO THE MOON

Frank B. Lindsay, Chief
Bureau of Secondary Education
California State Department of Education

Frank B. Lindsay

Rung One -
The Common Faith of the American People

On January 8, 1964, President Lyndon B. Johnson declared in his first State of the Union message:

"This budget - and this year's legislative program - are designed to help each and every American citizen fulfill his basic hopes:

> his hopes for a fair chance to make good;
> his hopes for fair play from the law;
> his hopes for a full-time job on full-time pay;
> his hopes for a decent home for his family in a decent community;
> his hopes for a good school for his children with good teachers; and
> his hopes for security when faced with sickness, unemployment, or old age."

Although President Johnson was addressing the Congress of the United States, he made plain that he was talking to every one of us since he said that the achievement of these goals "must be won in the field - in every private home and every public office, ... " And he continued:

> "Our chief weapons in a more pinpointed attack will be better schools, better health, better homes, better training and better job opportunities to help more Americans - especially young Americans - escape from squalor and misery."

Quite apart from President Johnson's legislative program and whatever the Congress may or may not enact, his statements have particular significance for this Annual Conference on Industrial Education and the representatives of high schools, junior colleges, and schools for adults here present.

It would be all too easy to dismiss President Johnson's message as election year propaganda designed to create a favorable image with the electorate. The hard fact remains that vocational training, job opportunities and improved family and community living are issues which the American people everywhere must face up to. They cannot be ignored; they will not just go away. A five-point program for young Americans of improved schools, health, homes, occupational training, and work opportunities identify with some precision the tasks which educators like ourselves must undertake here and now, diligently to perform with all the imagination, energy, and practicality we can muster.

Now we can set about this work with confidence that American business and industry as well as parents and the public will accord us cooperation and encouragement. This confidence stems from our common faith in our American way of life whose principal articles C. C. Trillingham ably delineated in his 1962 Samuel Leonard Fick Lecture: Industrial Education Contributes to American Values. (I quote from pages 4-8)

> "The first foundation stone is our system of constitutional government and the American Bill of Rights. . . .Our American way of life rests upon faith in the value of the individual. . . .
>
> "Our second great foundation stone is our American system of free, competitive, economic enterprise that has given us great productivity and increasingly high standards of living. . . .
>
> "Our third foundation stone is our system of universal education where we attempt to give every boy and girl an opportunity for an education as long as they can profit from it. . .Our system of schools is the greatest single unifying force in holding the American people together. . . .
>
> (And)
>
> "The fourth foundation stone of freedom is our system of Judeo-Christian religion which through the centuries has given man motivation, purpose, and direction."

Our educational goals are made possible of realization because the faith of our people is that human life has meaning and direction; that every human being has inborn worth; that each citizen, young or old, must have access to lifelong learning to enable him to make his fullest contribution to the world of work and service to his community and nation. At this 1964 Annual Conference on Industrial Education our focus should center upon the kind and scope of education which most surely and expeditiously may provide young people with knowledge and practice in skills that can render them employable and self-supporting. Then by their own efforts they may find work and become citizens dedicated to American ideals and loyal to the faith of our people.

Rung Two - Moonbeams and Moon-Myths

At this point some of you may have been wondering what relevance "A Ladder

to the Moon" has to the subject at hand. Indeed, a less promising title for a talk to this assemblage of experienced teachers of industrial education scarcely can be imagined. You have a right to be outraged and to infer my remarks are likely to be so much moonshine. Until recently the moon has been left largely to romancers and tin-pan alley music-makers in tune with June and spoon. All at once, however, the moon is seen as threshold to man's flight into outer space. Engineers and technologists elbow poets aside. Already its visible mountains and plains have been mapped with more exactitude than many areas on earth. And so a ladder to the moon may not be too remote from the everyday concerns of industrial education.

The moon is an apt symbol, moreover, to characterize the varying fortunes of the industrial segment of American education. With each shift of public attention from one curriculum to another, your discipline has risen or sometimes been eclipsed as in immediate post-Sputnik years. At time, too, beclouding folklore has obscured its true importance or reduced its luminescence to insubstantial moonbeams. As we turn then to consideration of what kinds of learnings schools must provide to achieve the objectives we have set forth, the first duty is to get rid of some of these moon-myths which hinder a just appraisal of industrial education on the part of the public and students.

The first moon-myth to be brushed aside is the time-honored dichotomy which opposes academic to occupational education. Nothing could be more false. The two bodies of knowledge are complementary. Both are essential components of the education Americans require today. The academic studies summarize the heritages of experience which mankind has gained as human beings have groped and stumbled toward civilization. But words and ideas are powerless to affect the course of human living until they translate into behavior. Practitioners of medicine, agriculture, engineering, and industrial crafts apply their science to the arts of meeting human needs To make invidious distinction between academic studies and vocational arts would have seemed incredible to Leonardo da Vinci, for example, who did not despise invention because he painted The Last Supper and Mona Lisa. Similarly Sir Humphry Davy not only discovered laughing gas and recommended its use in dentistry but he invented the first miner's safety lamp as well as produced potassium and sodium electrolytically. Likewise William Thompson, Lord Kelvin, gave modern form to the two great laws of thermodynamics through researches on heat; also he was actively involved in perfecting the submarine telegraph and in the laying of the first transatlantic cable. Through study of fermentation Louis Pasteur improved the wines and beer of France as well as developed inoculation against rabies. Ralph Waldo Emerson wrote a fable about "The mountain and the squirrel had a quarrel," which disposes of any supposed hierarchy of snobbery among subjects. The squirrel declared:

> "I think it no disgrace
> To occupy my place...
> Talents differ; all is well and wisely put;
> If I cannot carry forests on my back,
> Neither can you crack a nut."

A more subtle delusion is the contention that some studies are too hard for most students to master. Three major causes probably give color to this mistaken notion. The first arises from too single a reliance upon the printed textbook. Textbooks are a great convenience and economize time for those who can read readily. Many students are not word and print-minded. Concepts need to be approached by many routes. Alternative avenues for presentation reside in television, films, and team teaching which any school may utilize without specialized equipment.

And this brings us to a second source of underrating the abilities of some groups of students. Young people today listen and look much more than they read books. It is no use to deplore this state of affairs. Our challenge is to put the current situation to good account. No one is a schoolmaster in his classroom today. He must be a program director of learning and with agility and alertness help students to find meaning in what they see and hear.

I have recently had occasion to examine a series of 120 films produced by the American Institute of Biological Sciences and to correlate these with three versions of high school biology composed by groups of scientists for the Biological Sciences Curriculum Study. No one film or single passage of print so well rounds out any concept as the parallel explanations by three or more biologists each of whom has his own way of pointing out significant details and phrasing his exposition. A student should be urged to check half a dozen references in films or books before he determines that he is unable to grasp an idea. Every author has his own style of expression and pet emphases. Again it is a case of one man's meat may be another's poison.

The science courses recently developed in biology, chemistry, and physics also explode a third assumption about relative hardness among subjects. They all insist upon the central place of the laboratory in learning. This is a far cry from neatly outlining textbook chapters in a notebook or memorizing the periodic table of elements. In short, stress is put upon the action, not words. Industrial education of tomorrow must insist that teachers of English, mathematics and science review, reorder, and rephrase courses so that interconnections with the world of work are made clear so that background that is intelligible to and usable by students becomes firmly established.

A war on poverty of teaching can render great service if it rescues the high school curriculum from its shackles to tradition and relates every day's lessons to human living. This is no starry-eyed life-adjustment deal; it means scrutinizing course content in terms of the realities of American Life in the last decades of the twentieth century. Benjamin C. Willis summed up the situation in his 1963 Samuel Leonard Fick Lecture, "Perspectives on Industrial Education (pages 4-5):

> "Let us look" he said, "to the social changes that affect our culture and so both impinge upon the school and require responsiveness from it. The first of these is the changing pattern and the dominance of urban living. . . .
>
> "Closely related to the urbanization of this country, and indeed depending upon it, is the second social change: that of extraordinary

mobility of people today. . . . (And)

> "The third element influencing our extraordinary social changes is to be found in our advancing technology. . . . Technology has in fact forced us into our mobile and urbanized pattern of life."

In short, while classrooms stand still, people crowd together and mill about. Industrial education, and all education, must take a hard look at present practices. It soon may be the rare student who stays at one school throughout his high school or college years. Yet we still plan course sequences for stationary students.

American education faces two alternatives. One is to impose nationwide a fixed curriculum, which by the way would be obsolete as soon as adopted. The other is to agree upon the behaviors which we believe will stand young people in good stead for living in a mobile economy and urban society. With all sorts of varied content then, each segment directed toward some specific skill, a student might freely move toward mastery of the specified behaviors over a number of routes. Industrial education would then really come into its own, as Howard A. Campion pointed out in the 1961 Samuel Leonard Fick Lecture, "The Industrial Education Image" (page 7):

> "One thing that can be done better in an industrial laboratory or shop is the development of an understanding of the occupation represented in our program and the part these areas of work play in satisfying human wants.
>
> "A second thing we can do is to give the youth who may lack some of the powers of abstraction, a chance to see science and mathematics at <u>work</u> - in real situations. . . . Industrial Education is the vehicle by which mathematics and science can come alive."

Rung Three - The Revolutions of Civilization

It will be a great day for education should the academicians join hands with vocational educators to compose a sensible curriculum; such a more perfect union is long overdue. To put a man on the moon by 1970 not merely puts a strain upon our limited resources of scientists nationwide, it also brings to light our genuine shortages of skilled manpower. We tend to characterize the modern scene in terms of automation, computers, and continuous manufacturing of raw materials into salable products, unbroken by worker shifts or transport of parts between assembly lines. Offstage, however, there lurk forces which menace our civilization. I do not refer to nuclear peril or the envy and hatred of peoples in the newly emerging nations who want abundance like ours, now. The population explosion worldwide coupled with the ruthless waste of resources present humankind with problems of hunger hitherto unknown.

Economist Lester B. Brown in the U. S. Department of Agriculture has just completed a study entitled "Man, Land and Food - Looking Ahead at World

Food Needs." As reviewed in U. S. News and World Report (January 6, 1964, pages 28-31), the output of grain per person in the United States and Canada over the past three decades has risen 44 percent but in Latin America has fallen 16 percent, for example. The breadbasket of North America is the only barrier to starvation in Asia and South America. India with 450 million people today will have 635 million by 1980. Red China annually adds to its numbers the equivalent of Australia's entire population. Cropland for cereals is now 1.20 acres per capita in North America, twice the world average, but is only one-third of an acre per capita in Latin America and less than half an acre in Asia.

We are already aware that our water resources are inadequate, not only in Southern California which seeks relief from the Colorado, Columbia and Snake Rivers. New York City has periodically found itself practically waterless. Industry cannot make jobs if lack of water hampers production; a ton of steel in the making requires as much water as the daily needs of a small-sized town. Then there is air pollution. Smog has blighted vegetable and fruit crops in wide belts around metropolitan areas as well as damaged human lungs. The point to this recital of perils is twofold. It will not be enough to train young people for technical careers if the industries of a region are stunted through lack of essential natural resources and the residential sites become increasingly less habitable. Just as necessary as technological training is sufficient education in science which will enable citizens to decide wisely how to improve and maintain healthful community conditions.

If our ladder truly is to reach to the moon - as Federico Lorca wrote: "La escala llega a la luna" - we had better plan together to educate not only for the immediate tomorrow but in a perspective of history. Civilization is like an onion with successive layers the outgrowths of previous revolutions in human culture. In a forecast of The Next Million Years, written a decade ago, Charles Galton Darwin reviewed four revolutions in human history. "The essential feature of a revolution is that there should be an <u>irreversible</u> change in the ways of life," wrote Darwin. The present Scientific Revolution "is based on the discovery that it is possible to make discoveries about the fundamental nature of the world, so that by their means man can intentionally and deliberately alter his way of life." In contrast to all other periods he says:

> "There are still very different modes of life in different parts of the world, but they are united throughout the whole world by the new knowledge and the new mode introduced by the scientific revolution." (Page 51)

Our failures to recognize and accept a new order on earth continually confront us with unexpected crises and highlight the obsolescence of our education regimen. The real task is not just to bind occupational and academic studies into harmonious union but to prune away tangles of deadwood.

The invention of living in cities was, of course, a preceding revolution. Darwin complains that historians tend to emphasize differences among various civilizations, many ancient and extinct, instead of noting their marked

resemblances. Thus the Greek polis or city-state, Rome with its bread and circuses, and Tokyo today are but fluctuations from an average recurring over millenniums. The agricultural revolution extends back to neolithic times but the surprising fact is that we still rely upon the same few species of cereals and domesticated livestock earliest peoples tamed. Perhaps a reformed curriculum must take note that the more human beings seem to change the more they are the same - aside from numbers.

Man's cultural evolution has superimposed an interitance of learning upon physical heredity. Every act of ours from eating and sleeping to conceiving and rearing children has been greatly influenced by what our predecessors learned. Further, man alters his environment to fit his needs. One need only illustrate this fact by mention of air conditioning, the automobile and airplane, and processed foods. This is a new way of adaptation in contrast to hibernating animals and flying birds. Most of these inventions and machines have been achieved by learned cooperation. Man must be taught how to work and get along with his fellows - this is almost as much the reason for maintaining schools as the curriculum itself. The final feature of our cultural development is learning to look ahead. Too few possess this insight or foresight. Somehow we have to be persuaded to insure the survival of ourselves and our progeny. There will be no ladder to the moon unless we learn how to control disease, shield ourselves from radiation, and carry supplies of water, air, and food along with us.

It is written in the Book of Genesis that Jacob "dreamed, and behold, a ladder set up on the earth, and the top of it reached to heaven:. . . .And Jacob vowed a vow, saying, if God will be with me, and will keep me in this way that I go, and will give me bread to eat, and raiment to put on, so that I come again to my father's house in peace; then shall the Lord be my God." In his vision Jacob saw angels ascending and descending but he was never so bedazzled that he failed to remember it takes bread to eat and clothing against the elements to journey through life. Jacob's vow in a sense is a good start on the curriculum, at once ideal and practical, which we must try to construct.

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Utilization of Mental Health Manpower. A Highlights Report of the National Mental Health Manpower Studies Committee Meeting (March 10-11, 1966).

National Inst. of Mental Health, Bethesda, Md. Manpower Studies and Program Analysis Section
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Pub Date - 66 22p.; Mental Health Manpower, Current Statistical and Activities Report; Number 11, Oct. 1966.

*MANPOWER UTILIZATION; ECONOMIC RESEARCH; OPERATIONS RESEARCH; SYSTEMS APPROACH; SOCIAL PSYCHOLOGY; SPEECHES; *HEALTH OCCUPATIONS; *MENTAL HEALTH

Two reports by guest speakers are presented. Henry David discusses constraints on our freedom to engineer effective utilization and suggests four broad approaches to the general problem of utilization, having to do with: (1) the total administrative behavior of an enterprise or a system, (2) the psychological and physical "climate" of the work situation, (3) the ways in which resources can be deployed and meshed, and (4) the skill-job nexus. Robert F. Lockman outlines the National Manpower Council's four-fold conceptual model of man-power utilization: (1) Technical--Matching skills and job requirements, (2) Economic--maximizing output of goods or services by altering the input of economic and manpower resources, (3) Social--work environment modification, and (4) Political--orienting administrative behavior. In addition, a "systems" approach to the mental health "industry" is suggested. Discussion highlights following each address are included. (JK)

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MENTAL HEALTH MANPOWER
CURRENT STATISTICAL AND ACTIVITIES REPORT

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OCTOBER 1966
NO. 11

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Utilization of Mental Health Manpower

A Highlights Report
of the
National Mental Health Manpower Studies Committee Meeting
March 10-11, 1966
National Institute of Mental Health

Mental Health Manpower, Current Statistical and Activities Report, is prepared by the Manpower Studies and Program Analysis Section, Office of Associate Director for Manpower and Training, National Institute of Mental Health, Bethesda, Maryland 20014. The purpose of this report series is to provide current data and information on mental health manpower which is obtained by means of activities carried out by the Mental Health Manpower Program.

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

FOREWORD

The National Mental Health Manpower Studies Advisory Committee was established to provide a ready source of expert counsel and guidance to the Manpower Studies Program of the National Institute of Mental Health. Members of the Committee have been carefully selected to represent the broad variety of professional associations, organizations and Government agencies concerned with mental health manpower and its major disciplines.

The theme of this year's meeting is one of great importance and widespread interest to all of mental health - the utilization of mental health manpower. The purpose of this report is to present the talks on this subject, presented at the meeting by the two guest speakers, Dr. Henry David of the National Science Foundation and Dr. Robert Lockman of the American Psychiatric Association. Highlights of the discussions following the talks and of the general discussion are also presented.

The meeting was chaired by Dr. Mary F. Liston of the National League for Nursing. Dr. Joseph A. Cavanaugh was responsible for the organization of the meeting. The manuscript was prepared by Dr. Donald R. Jones and Mrs. Harriet Moss, under the direction of Dr. Franklyn N. Arnhoff, Chief, Manpower Studies and Program Analysis Section.

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REFLECTIONS ON MANPOWER UTILIZATION

Henry David
Head, Office of Science Resources Planning
National Science Foundation

I will devote this presentation to certain elementary ideas because I have a very strong conviction that the frequent failure of manpower experts to come to grips with issues results from their readiness to ignore fundamental conceptions and considerations. This frequently leads them to become, in a sense, "instant experts" with a predilection for commitments to relatively quick solutions of very difficult human problems. Implicit in this sort of behavior is the notion that somewhere there are hidden panaceas, and if one could only discover them, they could be applied to the solution of manpower problems.

Let us begin with the general statement that the manpower characteristics of any society, quantitative and qualitative, are a product of the total life of that society. Dealing with any one strand of that total life with respect to either manpower problems or manpower policies, consequently, leads to an almost frightening entanglement of issues. Because of this, manpower specialists understandably work with very high abstractions for analytical and policy purposes. It is easy to forget, however, that the abstractions represent great simplifications of reality and, therefore, may determine in a restrictive sense the way problems are perceived as well as the identification of the instrumentalities at hand for dealing with them. Because manpower resources are shaped by the total life of the society, there are always likely to be more constraints attached to the solution of problems of utilization than one sees at the first glance. These problems are embedded in far more than any simple set of demand and supply relationships, or of ongoing employment policies and practices. Conventional wisdom brought to bear upon these as sources of utilization problems may, therefore, have little utility.

The word "utilization" is one of four key words, each of which represents a complicated cluster of ideas, which we bring to bear in dealing with questions of manpower problems and policies. These words are "demand," "supply," "development," and this magic term "utilization." When I say that the ways in which we think about manpower problems and policies are in effect represented by these four terms--which on the surface may appear to stand for simple notions--I mean that they are our primary tools of analysis or diagnosis and therapy. It is with these that we perceive and state problems and issues and policy approaches. Thus, the structure of manpower policies may be presented in terms of means and ends with respect to demand, supply, development (a general term under which is subsumed education and training, formal and informal work experience, and the like) and finally, utilization. These are obviously not independent or autonomous factors or variables. They are interrelated components of a system in tension. To touch any one of them, is to touch all of the others. Redefining any one of these terms forces redefinition of the others. While it matters which one of these basic ideas is selected for attention or emphasis for analytical or policy-making purposes, it is virtually impossible to ignore the others.

As you know, it has become conventional to prescribe for almost all sorts of manpower ills the medicine of "improved" or "more effective utilization" of manpower resources. We take it for granted that the ways in which we make use of the skills, the knowledge, the capacities, the competences, etc., of people is always susceptible to improvement. We visualize manpower problems--or manpower ills--in terms of imbalances of a rather costly

nature between the supply of people we have available to us and the effective demand made for these people within the market. I emphasize "within the market," because there is a difference between a market demand situation and one which expresses ideal manpower requirements related to the achievement of stipulated goals. However, embedded in the idea of demand in both senses, is the underlying notion that penalties are associated with the failure to have desired functions or tasks performed or goods or services provided, as a result of inadequate supplies of manpower or faulty utilization.

Embedded, therefore, in the idea of effective or improved utilization are preferences concerning the character of the life of the society. Conscious alterations of demand-supply relationships, developmental policies, or utilization practices, thus reflect societal values and standards with respect to the way people should live. We see this clearly illustrated in the health field. All questions involving developmental policies or utilization practices reach out to touch areas of the life of the society. A society can set certain goals, expectations, and aspirations for itself which can determine the nature of its manpower policies. In so doing, the society in effect declares that it is not content to have its manpower resources and the ways they are utilized determined solely by the play of market forces.

I said earlier that there are constraints on what we can do, and this notion calls for elaboration. Some of these constraints are functions of our lack of understanding and knowledge, and, therefore, there is constant pressure to get as much "hard" information about and better understanding of manpower problems and issues as possible. I have a strong hunch that the impulse to translate the yearning for "hard" information solely, into efforts to secure quantitative, statistical information, restricts our understanding of what may be relevant information. In the manpower field, I think we are faced with a need for what may be called highly relevant intelligence which does not take the form of statistical data. We very frequently are led into having problems determined for us by what we think is shown by arrays of quantitative data, for we forget that it is difficult to compel statistical evidence to answer other orders of questions than those which were in the minds of the people who gathered the data. Their interests in gathering the data are not necessarily the interests of those faced with questions of policy determination, which always involve ways of affecting the shape of the future. In any case, "lack of knowledge" constitutes a major constraint on what one can do by way of achieving improved utilization.

There is another constraint in the fact that when we look at people as a resource, we also are compelled to look at them as more than merely means for attaining ends. They are ends in themselves. We are, therefore, severely--and properly--delimited in the ways in which we can think of making use of their skills, capacities, interests, aptitudes, etc. We cannot bypass the central value which we assign to human beings and deal with them merely as instrumentalities. They are the ends which society has an obligation to protect and enhance. I emphasize this because there is an obvious invidious overtone associated with the idea of "making better use of people." Historically most efforts toward "better utilization" within a market economy--a free enterprise economy--have been associated with notions of the exploitation of people, of situations in which a few people make use of large numbers of people as tools or instruments. The more we become conscious of the fact that manpower resources--people--are ends and not solely means, the more we begin to see the degree to which we are delimited in what can be done by way of altering utilization practices.

There are other constraints which have been established, particularly in the area with which you are concerned--the area of services which are very heavily public in character. Other constraints established by law, administrative practice, organizational habits, and the like, all of which have a bearing upon the ways in which one can think of people simply as resource factors or inputs in a production function.

Still other kinds of constraints exist upon which I will touch later. For the moment, what I have said should be enough to indicate that there are limitations on the freedom

we have, particularly in the short run, to engineer more effective improved utilization.

We derive our insights into improved utilization largely from what may be called cases or illustrations of pathology. We get clues to what might be effective utilization by recognizing utilization practices and policies which on the surface are demonstrably poor. The whole thrust toward improved utilization is determined by our diagnosis of what is wrong, what produces problems, or defeats aspirations, or turns out to be too costly, diminishes quality, and so on.

Significant changes in utilization practices tend to be forced by difficulties which we encounter in achieving what we wish to do, rather than by the goal of "effective utilization" as such. This can be demonstrated, I believe, by what has taken place with respect to the changing utilization of Negro manpower, womanpower, engineering personnel, and of paramedical personnel.

It should not be viewed as tragic that our understanding of the potentialities for improved utilization arise from the difficulties we encounter in achieving our aspirations, or from imbalances between demand and supply which we perceive as being too costly to endure. It should be viewed, rather, as an assurance that we have not begun to approximate the number of things we can do in carrying out functions and tasks, and providing services and producing goods, with any set of resources which are available to us. This is why we have so frequently discovered that there is much greater "stretch" in our manpower resources than we contemplated, that there are possibilities of substitutions and transferability that we do not recognize until we are compelled to do so.

We view as cherished--almost sanctified--any set of ongoing practices which we normally employ at the point of recruitment or in training, until we see that there are other opportunities present for making alterations in the combination of resource factors which will give us the end result we want. This is the source of the complex situation which produces efforts to "improve utilization,"--to make it more efficient or effective. It is for this reason that we begin to think about effective utilization by thinking about ineffective utilization, or malutilization, or the waste of skills or people.

Those of us who have lived through the growing concern with manpower problems and policies since World War II will recognize that every situation of difficulty has produced improved approaches to manpower utilization practices and policies. In the early days of the conflict for example, there were contractors who reported to the Government that they could not fulfill the terms of their contracts because of a shortage of workers. It was easy to see why they were short: they were offering tool and die makers less than the going wage; they did not want to hire Negroes; they could not conceive that women could do certain jobs; they provided no internal opportunities for up-grading or training. These were all constraints on the use of available resources which the employers themselves had established.

In the Manpower Report of the President which was released recently, the term "unused human capacity"--underutilization of our manpower resources--is very strongly associated with two central concepts. One is unemployment and the other is underemployment. But the idea of underutilization of human resources may be conceived of in different ways. One can raise questions about utilization in terms of the economy as a whole and ask to what extent the skills embodied in people are not being used, or not being used in relation to end products desired, or not being properly matched with functions to be performed. One can look at utilization in terms of recruitment policies and practices. One can set the problem of utilization by stipulating that the total pool of human resources contains potentialities of skills and abilities which enable the society to realize expectations presently denied to it. In recent years, we have been concerned with unused manpower capacities represented by unemployment and by potential manpower resources not present in the labor force but capable of being brought into active functional relationship with the economy.

The idea of underemployment is a source of underutilization because members of the labor force working part-time or part-year or, more significantly, working in jobs which

result in a smaller contribution to the Gross National Product, or their own individual or family incomes than would be made by other kinds of employment. Such underemployment is the case, for example, among a large part of the rural farm population and among people working at jobs which call for much lower order of skills than they actually possess. We have, of course, adopted policies which seek to render such workers more productive by making relatively modest investments in training or by facilitating their movement to different areas of employment.

A still different way of looking at problems of utilization results from examining the work force of a given enterprise or organization, governmental or private, at a given point in time and ask whether its characteristics and deployment are appropriate to the purposes and activities of the enterprise. It is from this vantage point that I wish now to consider some of the several ways which have been devised to determine the effectiveness of manpower utilization and the criteria which are available for judgments on this score.

We can ask whether, in any one enterprise or for the performance of any one function, there is a reasonably good match between the skills available and the jobs to be performed. Both the skills and the jobs are alterable; both can be redesigned. The way this normally occurs within an organization is in terms of the way jobs are classified, recruitment is pursued in relation to the classification of jobs, and work is assigned.

Job classification, recruitment practices, and work assignments tend to be highly stable and to perpetuate themselves in a formal, restrictive fashion frequently beyond the point of relevance. Other ways of defining jobs and other ways of making work assignments are always potentially present. There is an interesting illustration of this, for example, in the confrontation which occurred not too long ago between the Civil Service Commission with its given structure of job classification and National Aeronautics and Space Administration which has a large indeterminate group of functions and tasks to be performed. In the aerospace field it was quite clear that there was no simple match between people who could be identified by disciplinary training and the kind of work they were going to do. In every case, a very widely different assortment of people could undertake functions which were not necessarily linked with the labels they carried from an educational and training point of view. This led to a reclassification of job structure in terms of function rather than professional training, and opened up new possibilities from the viewpoint of recruitment.

Within this same general area of the problem of the match between jobs and skills, there is another set of standards or criteria which we have come to apply. These have to do with the internal relationships within any given work force of differentiated skills. A simple way to illustrate this is to use the history of the medical profession in the United States and the performance of health functions since the turn of the century. We have simply devised different kinds of skill relationships within medical services for the society as a whole and within the hospital setting. We have considered the extent to which certain functions, duties, and responsibilities, can be transferred from one set of people to another, and considered ways in which nonhuman resources can be used. Here the focus is on the nature of the service, or the nature of the output or function.

In considering how to array different kinds of skills to bring about any given end product, and what flexibility is possible in structuring a work force, we are asking questions about the potentialities for adaptation and for alternative uses not only of people with differentiated skills but also alternative uses of all kinds of resources. An interesting illustration of a constraint which may be imposed upon efforts to introduce utilization changes based upon the complementarity of work skills and technology can be seen in the situation affecting the performance of educational functions below the university level in Great Britain. Strongly unionized teachers there have blocked the introduction of teacher aides, team-teaching, and new technology, maintaining, in effect, that only one possible set of skills arrayed in teachers is suitable for the performance of certain teaching functions.

In considering ways of matching skills to jobs, both of which are always susceptible to

redefinition, it follows that it is possible to establish a criterion which asks whether, in any given type of work, a necessary development of capacity is undertaken, and whether there is a conscious effort to alter skills. This, of course, is a fairly commonplace notion now. We refer to "good" organizations which make an "investment" in their work forces, and "poor" organizations which do not. Presumably the "good investment" is a way of altering the skill capacities of any given work force so as to make for the more efficient utilization of the resources of the enterprise as a whole. I might mention in passing that the criteria used at the point of recruitment have a bearing on the possibilities for bringing about more, rather than fewer matches between skills and required functions.

One line of approach to better utilization revolves around the job skill-function nexus. A second lies in regarding the human resource factor as only one of the several inputs which may be altered to change outputs with respect to reduction of costs, improvements in quality, or expansion of quantity. This approach, more characteristic of the private than of the public sector, emphasizes the role of capital investment in technology and the exploitation of technological capabilities as a route to improved utilization of human resources. It is hardly necessary to note here the extent to which new technologies in the health field put an entirely different light upon the performance of functions from both quantitative and qualitative points of view.

Nontechnological factors represented by knowledge of a conceptual character must not be overlooked. Albee, for example, has argued that the mental health field faces frustration unless it reconceptualizes the meaning of mental disease. He maintains that until a model of the problem of mental health is derived from other than traditional concepts of disease, it is impossible to think of having people available in the numbers desired and with the skills required to deal with what is conventionally called mental disease. I am not competent at all to comment on the substance of this argument, but I am willing to believe that reconceptualization and the establishment of another model could provide another perception of the nature of training, of the flows of required personnel in relation to functions and services, and the like. We see this immediately, for example, with the introduction of new technologies by way of chemotherapy which has altered the character of custodial care and demands for custodial personnel.

In the mental health field with which you are concerned, and also in education, we are badly handicapped by the absence of meaningful measures of productivity. We have learned recently, for example, that in the health field conventional views about the output of doctors linked to desirable ratios of doctors to population are open to question. There is no certainty that having smaller numbers of people for each doctor in the society results in better figures in terms of mortality rates, incidence of disease, and the like--that is, in higher productivity of health services. There are a number of societies in the world where the ratio of doctors to population is much smaller than in the United States, but where the normal measures of health show them to be better off than the United States.

For a long time, an enormous amount of attention was paid to the simple notion that any organization appears from the viewpoint of the work force to be a society in microcosm--a community--and that there were elements in the character of that community, determined by its management, the composition of its work force, its physical setting and so forth, which could either be conducive to greater productivity and improved utilization, or to the reverse. There is a vast body of literature dealing with problems of morale, methods of improving the work setting in physical terms, etc. It is true, of course, that there are roads to improved utilization which lie in the alteration of the human, or psychic, factors and physical factors in the work environment. Unhappily, this has generally led to some extraordinarily heavy emphasis upon such actions as changing the color of the paint on the wall, the introduction of music, the promise of ritual prayer in favor of better human relations, or improved communication. All of these have some bearing upon utilization, and some may even be important. But we have generally settled for introducing such changes without first understanding the very nature of the community

or environment in which we seek to achieve better utilization of manpower.

For a long time it used to be thought that it was important to have a happy and contented work force in any setting in order to have high output of quality work. I do not think that this can be demonstrated by anything that we know, and, as a note of warning, I want to submit the thought that ineffective utilization and discontented and unhappy workers should not be regarded as equivalents. There should be no confusion between an ideal work setting designed from an architect's point of view and high productivity. There should be no confusion between open communication and improved utilization. Communication may be a determinant of output, but not in the simple sense that there must always be large masses of information on paper moving from one desk to another, or that people congregated in the same location must talk with one another. Heavy communication on relatively unimportant administrative-structural-managerial elements and almost total undercommunication on critical policy matters, a situation common in large organizations, is a major source of poor utilization of a work force. Communication designed to make a contribution to effective utilization should be a matter of high concern, but not communication in naive sense of an open flow of all kinds of information. Concern with what is communicated, in what manner, with whom, and with what purpose may save us from the now current disease of overcommunication.

It is perfectly true that the social climate of an organization as defined by its physical and human characteristics and by the quality of its supervision and leadership, can make a very significant difference in that organization's output. In speaking of leadership, supervision, and work climate, I am using loose and ambiguous terms. We have little more than empirical tests for determining effective leadership or supervision, and I doubt that we can say much about the optimal "climate" of an enterprise conducive to effective utilization. On these counts we have no tested prescriptions, but only pragmatic tests to go by. I have seen many occasions in which individuals have demonstrated the highest capacities for leadership and management within one setting and failed utterly in another. What was demonstrated was not a lack of ability but a failure in matching one cluster of highly individual characteristics to the needs of a highly distinctive enterprise. There is, therefore, a danger implicit in tightly prescribed training for supervisory and managerial personnel designed to produce leadership qualities.

The extent to which administrative or management behavior in an enterprise places a high value on the idea of utilization itself is a key factor. Experience suggests that unless management at the highest level is convinced that it does matter how a work force is utilized, that problems of effective utilization are always present and require constant attention, the standard prescriptions for improving utilization are likely to have little impact. There is no greater wisdom to be offered here than the observation which Paul Appleby made a long time ago. He said that the quality which distinguishes the successful managers and administrators from the others is their ability within a given situation to make a "mesh" of things--that is, to put together the very complicated human, technological, physical complex which is to be found in an enterprise so as to achieve its objectives, with the limited resources at its disposal.

I have commented on four broad approaches to the general problem of utilization; one having to do with the total administrative behavior of an enterprise or a system; one having to do with the situation in which people work, its "climate" both psychic and physical; one having to do with ways in which various resources can be deployed and meshed; and finally, one having to do with the skill-job nexus.

I want to close on a note which I hope you will not find disspiriting. And that is that these general lines of approach establish only guidlines--they do not constitute prescriptions. I am persuaded that virtually every work situation and productive activity contains elements of uniqueness. These four approaches, therefore, are merely roads which one can follow to ask painfully detailed, difficult, upsetting, and even subversive questions. I say subversive because in many cases they do subvert a going system. These approaches ask one to find out whether what he has been doing for the last

two months or for the last two decades with respect to recruiting and assigning workers makes sense; whether alternative investments in technology have been fully assessed; whether normal recruitment procedures are productive or self-defeating. The approaches to effective utilization and presumably to correctives of ineffective utilization are only starting points for inquiry for generating sets of searching questions, and some of the answers to the questions which are raised may not be applicable. One might readily redesign, for example, the total structure of medical education in the United States, if one were given that as a formal problem. The chances of being in the situation in which this redesign could be made would, I submit, be very small. There are certain things in our society which cannot be "uninvented." There are, however, significant marginal changes which can be made in practices, in institutional behavior, in training and in education, and in what may be called vision and perception which can matter enormously in the continuing striving for more effective utilization of manpower resources.

HIGHLIGHTS OF DISCUSSION FOLLOWING DR. DAVID'S TALK

The discussion dealt mainly with four aspects of manpower utilization and research:

1. The discrepancy between policy and behavior.
2. The problems of doing research on policy and its consequences.
3. Problems in coordinating large-scale, manpower research.
4. Problems in developing criteria of effectiveness of mental health manpower.

Policy and Behavior

Attention was called to the role of the professions in carrying out the values of our multi-goaled, pluralistic society. While individuals and groups attempt to stipulate values which are meaningful to the group as a whole and have as their objective the well-being of the individual and society, there is difficulty in translating these stated values into behavior. Too often the result is that professional societies settle for rhetorical expressions rather than effective action.

Research on Policy

A distinction was drawn between studies consisting of the collection of large bodies of descriptive data, which may be sociologically and historically interesting, and intelligence information needed for policy formulation. Studies describing the origins and characteristics of scientists have their value in building a body of knowledge but may be totally unrelated to current policy problems. Many changes in manpower utilization have occurred in recent years which tend to render these bodies of past experience irrelevant to present problems.

Furthermore, research which may satisfy the disciplinary values of the investigator is not always the same as that which satisfies the needs of the policy maker. Close association between the policy maker and the researcher should make it possible for the researcher not only to provide answers to the policy maker's current questions but also to tell him what questions he should be concerned with.

Our real problem is to be able to focus our research on what can be called the acutely relevant points of reference. For example, most policies in the manpower field concerning either the replenishment of the manpower pool or increasing it hinge on incentive mechanisms based on the underlying assumption that money makes a significant difference. This provides us with an hypothesis that should be testable through research.

Coordination of Manpower Research

The discussion turned to problems of coordinating the collection of research data to make them compatible with the functions they are designed to serve. There are large bodies of data which simply cannot be and should not be forced into compatibility because they are designed to serve different functions. Efforts made by governmental agencies to force compatibility into the design and reporting of research and to eliminate actual or seeming duplication of research efforts tend to ignore this fact. Such constraints may literally cut policy makers off from their real avenues of effective research utilization.

Criteria of Effectiveness

Measures of the effectiveness of health care generally, such as morbidity and mortality rates and the utilization of mental health personnel specifically, such as ratios of professional personnel to population were considered to have certain basic inadequacies and also, on occasion, to be contradictory. A relatively high ratio of physicians to population, as observed in some countries, does not always go with low morbidity and mortality rates. Such single-index comparisons of the United States, which has wide internal variability, with smaller, more homogeneous nations can be misleading. Thus, conclusions regarding utilization of professional personnel based on such comparisons should be made with considerable caution.

CONCEPTS AND PROPOSALS FOR IMPROVING MANPOWER UTILIZATION IN MENTAL HEALTH

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Definition and a Conceptual Model

Manpower utilization in our society is concerned not only with economic goals, but with humanistic goals, not only with man's utility but with his freedom and dignity. Within this context, mental health manpower utilization can be defined as what work mental health manpower are doing, where and when they are doing it, how effectively they are doing it, and why they are doing it. In the broadest sense, utilization is concerned with both the means available within an organization to achieve its goals and the extra-organizational means which might affect its utilization strategy.

The National Manpower Council has outlined four basic approaches in the search for ways of improving the use of manpower in public and private employment.[1] These approaches are complementary and suggest a multiplicity of factors which may influence utilization as well as a multiplicity of remedial actions for inadequate utilization. They deal with matching skills and job requirements, maximizing output by changing input factors, modifying the work environment, and orienting administrative behavior to the meaning and implications of manpower resources. More generally, they may be viewed, respectively, as technical (who does what), economic (how and when things are most effectively done), social (where they are done), and political (why they are done), thereby directly tying them to the broad definition of utilization given above. Further, their complementary nature may be viewed as a systematic or integrated attack upon utilization problems where effective utilization, in both the quantitative and qualitative sense, is a goal to which the whole of management is committed as a primary means of fulfilling an organization's policies and functions. This is not to deny the fact that more effective manpower utilization may be overridden by fiscal economies or other compelling constraints, but rather to emphasize that it must not be approached in piecemeal or as an isolated problem with any hope of fundamental solution. If manpower utilization is viewed as the investment of human capital, its impact is basic to the production of all goods and services.

A Classification of Proposals

The National Manpower Council's four-fold conceptual model of manpower utilization is useful as a basis of classifying both actual and proposed solutions to utilization problems specific to one organization and for suggesting comprehensive or general solutions which may apply to many organizations. A search of the literature on manpower utilization yielded 120 specific and general solutions, many overlapping, which were unevenly distributed among the four approaches: over 60% dealt with the economic or optimizing approach; about 25% with the technical or matching approach; 10% with the administrative orientation or political approach; and about 5% with the environmental modification or social approach. The classification is not definitive or even mutually exclusive, but it is suggestive of the state of utilization thinking, and it provides a basis for further deliberation.

1. Technical--Matching skills and job requirements
   a. Skills and job requirements (selection and placement of personnel)
      1) Job and occupational analysis, aptitude and achievement testing,

[1] National Manpower Council. Government and Manpower, New York: Columbia University Press, 1964.

personality and biographical inventories, performance evaluation and proficiency testing.

2) Organizational inventories of skills and job requirements, "manpower accounting."

3) Maximum use of available skills.

4) Use of non-mental health specialists for non-mental health jobs or tasks (administrative, clerical, maintenance, business, research).

b. Grouping service and production workers so that their skills complement one another and enhance their effectiveness.[2]

1) Co-locate staffs of complementary specialists and their support personnel.

2) Teams - regular and special purpose (troubleshooters).

3) Inter-group work-flow analysis.

c. Upgrading skills of available personnel

1) Apprenticeships.

2) Workshops.

3) Seminars.

4) Refresher training.

5) Cross-training.

6) Retraining.

7) Extension training.

8) Work-study.

9) Scholarships, fellowships.

10) Inter-agency arrangements with other mental health establishments, schools, colleges, government facilities, industrial training programs.

d. Employment (gearing job requirements to available labor market skills)

1) Labor market analysis.

2) Part-time, variable shift and hours schedules.

3) Tapping unemployed trained personnel resources (older women, retirees).

4) Using other manpower sources--college students, lay volunteers, prisoners, religious groups, former military corpsmen.

5) Job redesign: physician assistants, two-year college programs; "mental health workers/therapists;" "indigenous expediters" for low-income clients.

6) Employment benefits equalization.[3]

2. Economic--Maximizing output of goods or services by altering the input of economic and manpower resources

a. Unused capacity

1) Central admission suites for more efficient screening of new patients.

2) Centrally purchased supplies and locations.

3) Personnel and case registers.

4) Use of prospective and actual retirees.

5) Shift rotation, part-time arrangements.

6) Use of patients themselves for service and production functions.

7) "Remotivation" projects.

8) Transferability of skills.

9) Limiting of professional personnel to activities requiring the most skill and inner-controls.

10) Staff-sharing with other organizations and phone consultation arrangements.

11) Reserve personnel programs with refresher training and variable, flexible working schedules.

12) Child care services to free trained women for professional jobs.

13) Training domestic help to free trained women for professional jobs.

14) For low-income clients--role-playing, "on-the-spot therapy," sociological therapy, family therapy, use of medical settings for psychiatric treatment, use of "expediters" who have been success-

[2] "...member ability and member adjustment are significantly related to group effectiveness..." Richard Heslin. Predicting group task effectiveness from member characteristics. Psychological Bulletin, 1965, 62 (4), 248-56.

[3] "...wage levels and other conditions of employment in health occupations continue to be substantially lower than those of workers in other pursuits..." Herman M. Sturm. Technology and Manpower in the Health Service Industry 1965-1975. Summary of a forthcoming report to be put out by the U.S. Department of Labor.

fully treated as contacts with troubled peers who have not sought professional help.

15) Orientation, liaison, consultation with law, teachers, welfare, clergy, politicians, non-mental health medical and public health specialists for problem identification, prevention, and alleviation.

b. Alternative methods and relative costs
   1) Establishing priority of needs for services, particularly for children.
   2) Automation and labor saving devices and procedures:[4] special carts, roust aides, messenger services, disposables, medical records on wards, unit supervision with co-located offices, short forms, rubber stamps, standardly administered tests and evaluations upon admission.
   3) Increased technician and support personnel supply.
   4) Early identification and treatment research and programs.
   5) Experimentation: audio-visual media for information transmission and treatment, programmed teaching, patient-led task groups for small group therapy, varying staff-patient ratios, smaller unit sizes.
   6) Operations research applications--personnel allocation, patient census control, computer-aided diagnosis, medical record storage-utilization-retrieval, health services delivery strategies, data processing, simulation, dispensing of pharmaceuticals in hospitals.

c. Productivity evaluations
   1) Analysis of admission and discharge records.
   2) Periodic review of medical orders.
   3) Performance evaluation by multiple raters and research on effectiveness criteria for measurement of performance.
   4) "Quality control"--medical audits/personnel audits/end-results studies/direct observation.
   5) Patient "attitude" surveys.

3. Social--Work environment modification

   a. Work climate
      1) Analysis of turnover, accidents, absenteeism, grievances, waste, delays, insubordination, apathy, buck-passing (note that discontent or job dissatisfaction does not necessarily imply malutilization or lowered productivity and that job satisfaction and dissatisfaction may not be related or bipolar).
      2) Working conditions surveys.
      3) Morale surveys.
      4) Suggestion awards.
      5) Grievance handling mechanisms.
      6) Application of positive motivators--creative work and advanced training opportunities, support of professional meeting attendance, achievement and status recognition plans, job review with provisions for merit awards, promotion and increased fringe benefits.
      7) Clarification and resolution of core personnel role confusion.

   b. Supervision
      1) Reducing limits on good supervision with the recognition that it can be obstructed by work group opposition to altered work and performance patterns; detrimental office/work space layouts, organizational structure, production service requirements, physical working conditions, lack of top management backing.
      2) Supervisory selection to avoid arbitrary, excessive, inconsiderate, technically deficient, casual, indifferent supervision.
      3) Supervisory training.
      4) Supervisory reviews.

4. Political--Orienting administrative behavior by sensitizing top management to manpower problems and enhancing its technical knowledge and capacity to act

[4] Sturm (ibid.) in studying the health service industries has focused on imminent technological improvements in patient care: hospital supplies, services, information handling, functional and structural design.

a. Adaptability of administrative services to organizational manpower needs
   1) Definition of organizational tasks to accomplish goals of diagnosis, therapy, rehabilitation, restoration, physical-emotional-social care.
   2) With declining hours in average work week, use of more part-time workers through flexible schedules and hours arrangements.
   3) Provision of range of services whether internally or through liaison arrangement with external agencies.
   4) Changes in patient care patterns.

b. Long range policy planning--to recognize, anticipate, avoid, minimize manpower costs due to delays in program authorization, policy formulation gaps, changes in administration, emergencies
   1) Over-all goal--maximizes number helped, not maximum help for few, especially in public agencies; or restoration of patients to operative levels, not to "complete mental health."
   2) Definition of organizational goals for types of patients and organizational functions in treatment, training, research, evaluation.
   3) Adoption and practice of broad philosophy of what constitutes and who can do tasks to accomplish goals.
   4) Redefinition and experimentation with organizational functions and methods (unit systems, broad range of services, therapy time limits).
   5) Amenability to systems analysis and operations research.
   6) Use of cost control system based on social science research and insights of successful systems managers.[5] "About 15% of all events in a business account for 90% of all results, although time, effort, and money tend to allocate themselves to the 90%. In allocation resources, especially human resources of high potential, the Manager must attend first to those areas which offer the greatest promise. If this would mean no resources would be left to do things which would be nice, but not vital, then it is far better to forget about such projects rather than waste high-potential resources or attempt to get results with low potential ones."[6]
   7) Protection of innovators and creative personnel.

[5] Likert, R. and Seashore, S. E. Making cost control work. Harvard Business Review, 41 (6), 1963, 96-108.

Needed: A Systems Approach to the Mental Health "Industry"

A "system" implies an interrelated complex of functionally related components. The effectiveness of each component depends upon how it fits into the whole, and the effectiveness of the system in turn depends upon the way each component functions. In practice, operational attack upon systems problems involves optimizing a solution over a set of at least partially conflicting objectives.

Etzioni[7] has advocated the systems approach at the national level, maintaining that the one significant element still largely lacking on the domestic front is comprehensive strategic thought, without which key levers cannot be located and new resources effectively used. He points out that many of the problems that the nation has decided to attack are of the "systems" type: they have deep roots, are widespread throughout the society, and cannot be handled efficiently by taking them one at a time. What is needed is more studies of the nation as one combination of societal forces and processes, all interacting with each other. Relatively little investment has been made in studying the way things hang together, the changes in one section that hinder or assist those in others. On the domestic front, we still study each weapon rather than the entire weapons system. The conditions under which a system approach thrives can be specified. Etzioni maintains that these conditions are

[6] Drucker, Peter F. Managing for business effectiveness. Harvard Business Review, 41 (3), 1963, 53-60.

[7] Etzioni, Amitai. The Great Society Needs Mechanical Brain. The Washington Post, Sunday, October 3, 1965, pg. E3. This paragraph summarizes his article.

rarely satisfied by a White House conference or advisory committee, and that what is needed is a much more continuous, professional systematic effort, a "think factory" for domestic problems which deserves the same systematic strategic thought that our military and space policies receive.

The mental health field may be viewed as a component of the health industry, which in turn must be considered with respect to the objectives of the education industry (with which it overlaps) and with governmental programs dealing with Medicare; Heart Disease, Cancer and Stroke; the Poverty Program; and the Veterans programs, to name an important few. Where resources of manpower as well as money are finite, systematic consideration must sooner or later be devoted to the priorities and objectives of such programs which compete for manpower and other resources.

Systems analysis is concerned primarily with the design of future systems, and systems research procedures seek to develop behavioral abstractions of systems which can provide guidance for decision-making for a range of values, to provide a behavioral description of the consequences of various policies of resource utilization, rather than the value of these courses of action. Specifically, they provide statements of relationships between task and resource variables. In contrast, operations research is concerned primarily with the optimization of existing systems to cost criteria. Alternative designs are selected on a cost-effectiveness basis, where effectiveness is measured in terms of system performance, which depends in turn upon allocation of resources.[8]

The general uses of the operations research approach for solving existing problems involves:[9]

a. Formulating objectives and goals.
b. Discovering strategies and constraints under which the system must operate.
c. Reducing excessive numbers of strategies and constraints.
d. Selecting strategies.
e. Determining outcomes.

Both systems analysis and operations research are needed at various levels in the health industry. Existing problems and future designs require better conceptualization and solutions than the intuitive and traditional approaches of the past have provided. Some encouraging developments are underway in these areas, and a selected few are described below.

Senator Gaylord Nelson[10] has proposed a Scientific Manpower Utilization Act to test new ways to use the scientific manpower and know-how of the space age to solve a great variety of social problems by authorizing the Secretary of Labor to contract directly with private firms, universities, or non-profit organizations and with States or groups of States, to undertake studies of the use of systems analysis and systems engineering for a broad range of local and national problems.

The physicist Rosenblith[11] has written about the use of physical methods and instruments in medicine and biology with respect to the $30 billion health care industry where relations between "customer" and industry are largely unstructured. Before a technical, up-to-date health system can be developed, he believes the following must happen:

a. Operations research analysis of health care by team consisting not only of health practitioners but also of physical and life scientists and engineers.
b. Some way needs to be found to meet needs of health institutions who are barely acquainted with resources of industry with capabilities of industries who do not have biomedical competence to qualify as prime contractors.
c. Perhaps the two might establish a specific foundation to manage the job a la space or weapons management.

[8] Howland, Daniel. Approaches to the Systems Problem. Nursing Research, 12, Summer, 1963.

[9] Miller, E. W., and Starr, M. K. Executive Decisions and Operations Research. Englewood Cliffs, N.J.: Prentice-Hall, 1960.

[10] Nelson, Gaylord. A space age trajectory to the great society. Congressional Record, Number 194, Monday, October 18, 1965.

[11] Rosenblith, W.A. Physics and biology--where do they meet? Physics Today, 19 (1), January 1965, 23-24

d. Such a systems management organization as a "think factory" would have the responsibility for formulating specifics, subsystems, and component procurement, appropriate market surveys, acceptance testing, certification of new devices and systems, and some advanced development.

Psychiatrists Brown and Levenson[12] have advocated a systems analysis approach to the planning needed to conceptualize complex programs and to bring resources to bear upon mental health problems.

The Division of Nursing Resources of the U.S. Public Health Service has sponsored research on the development and use of a hospital systems model for the measurement of patient care.

The State of Michigan Department of Mental Health devoted its sixth annual research conference to operations research theory and application, including operations research applications in nursing allocation and census control and the scope and organization of health operations research. One of the conference participants concluded that where systems and operations research solutions have been applied, they have resulted in considerable improvements over traditional and intuitive solutions to systems problems. They have been costly to achieve but have shown wide applicability at substantial economic gains which would seem to more than justify their costs.[13]

(A list of references used in preparing this report will be furnished upon request for UTILIZATION REFERENCES to: Manpower Project, American Psychiatric Association, 1700 - 18th Street, N.W., Washington, D.C. 20009.)

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[12] Brown, Bertram, and Levenson, Alan. The Expanding Vistas of Mental Health Services. Hospital and Community Psychiatry, 17 (1), January 1966, 12-16.

[13] State of Michigan, Department of Mental Health. Operations Research Theory and Applications. Sixth Annual Research Conference, December 10-11, 1963, Michigan State University, East Lansing, Michigan.

HIGHLIGHTS OF DISCUSSION FOLLOWING DR. LOCKMAN'S TALK

A systems approach to mental health manpower utilization, as discussed by Dr. Lockman, was considered to have several important favorable aspects.

1. The development of a grand design would come closer to taking into account the total requirements of our society.
2. It would require that careful and comprehensive thought be given to the overall objectives of mental health manpower planning with a subsequent clarification of goals.
3. Changes which are made to meet a particular problem eventually influence the entire system and may throw it out of balance. On the other hand, a systematically designed adaptation would minimize such disequilibrium.
4. Rapidly developing and far reaching changes in the structure and economics of medical care introduce problems for which an adequate overall design is necessary. To accomplish this design, certain eventualities must be dealt with:

a. Definitions must be forthcoming: What are the mental health disciplines? What are the appropriate qualifications for manpower in these disciplines? What are the measures of effective utilization?

b. To what extent will Federally supported programs for medical care divert resources from present facilities, and how will this affect development of personnel available to treat the mentally ill?

Confronting the systems analysis researcher in the field of mental health manpower are the following problems:

1. There is great variation in the models to be studied and considered for use.
2. There is no unified, coherent power structure through which a systems approach can be applied.
3. The time required to create an over-all design may be such that significant changes take place in the interim.
4. Planning usually does not receive full support from those who have had no part in it. In altering the functioning of a system, old values and procedures are resistant to change.
5. There is a tendency to look for a panacea. This assumes greater uniformity in the variables of patient and therapist than actually exists and the model can be too inflexible to adapt to specific cases.
6. In the disjuncture between research and policy, the researcher may become too far removed from the results of his study to be able to accurately evaluate its consequences.
7. Much of the past success of systems analysis has been related to the production of inanimate products. The vast difference between this situation and the "production" of mentally healthy human beings may seriously reduce the applicability and potential effectiveness of the classical systems approach.

The necessity for recognizing the many variables in our pluralistic society and of retaining the humanistic values was emphasized.

HIGHLIGHTS OF THE GENERAL DISCUSSION

Problems in Doing Manpower Research

The discussion quickly focused on the many practical problems that confront researchers in mental health manpower and the difficulties in developing a generally acceptable research approach. It was suggested that there are three major trends in our society which will have to be taken into account in any overall plan for a comprehensive mental health manpower research effort. These are: 1) the increasing concentration of the population in urban areas; 2) the large number of migrants to urban areas who have no marketable skills and who soon swell the ranks of the unemployed; and 3) the fact that Negroes constitute a large proportion of these migrants, which ultimately contributes to increased racial tension.

These long term trends, and newer ones whose social impact is not yet fully known, make projections of the amount and kind of mental health services which will be needed in the future tenuous at best. Furthermore, changes now occurring in the treatment of the mentally ill and in the required skills make it difficult to predict what the actual supply of mental health manpower will be in the future as the composition of the supply will continue to change. Thus, two of the major elements involved in our efforts to match the supply to the need are now, and will continue to be, in a state of flux.

The problems of adapting classical research approaches to the area of mental health manpower utilization were discussed, such as the difficulty of using the control group--experimental group research design. The apparent low popularity of replication of experiments and projects to test positive, negative and inconclusive findings was also discussed. There are built-in values in our professional and scientific communities that place a high value on new discoveries and new approaches which militate against retesting and replication.

The idea was presented that research may have come to be looked upon as a panacea that eventually will solve all manpower utilization problems. This may have resulted in a lessening of the efforts of many professionals to think up new and different ways to solve them. It was stressed that research has to be done on something, and if people don't think up new ideas there will be nothing to be researched.

It was pointed out that many studies of mental health manpower fail to set up a clear definition of "utilization" with which to structure the study and against which to measure the outcome. One way of looking at utilization that might be an improvement involves two basic elements: 1) the quantitative or productive element, that is, improving utilization by enabling people to make better use of their time, to make more service available to more people, and 2) the qualitative element, that is, improvements which don't necessarily involve greater productivity but which do involve improving the quality of what we produce, that is, more effective treatment of the same number of people. In some published research these two ideas seem to be interwoven, and perhaps this is necessary, but sometimes it seems to make the specific objectives of the research unclear and the results difficult to evaluate.

Meeting Manpower Shortages

It was generally agreed that in the foreseeable future the need for qualified mental health manpower will continue to be greater than the supply and that perhaps more research attention should be given to detecting areas in which critical shortages may be developing and helping to alleviate them.

Several areas needing research were suggested and discussed: 1) increasing the productivity of professional schools by such means as changing from the semester to the trimester system, increasing the productivity of teaching staff through mechanical aids, new techniques, assistants, etc., and simply by enlarging classes where this is possible; 2) incorporating into the formal training of professional mental health personnel subject matter concerned with the efficient utilization

of subprofessional personnel and others with whom professionals will come into contact both informally and in a supervisory capacity. 3) expanding the concept of mental health manpower to include the trained, non-professional who is able to or has to work with certain types or levels of the emotionally disturbed. Reference was made to the indigenous workers who are presently receiving attention, the social service "broker," the mature housewife who may be able to do counseling, religious personnel, etc.

Sources of Data on Manpower

The discussion then moved to the advantages and limitations of using other kinds of manpower data and information currently available and being developed by organizations not directly involved with mental health, such as the Office of Business Economics, the Bureau of the Census, and the Bureau of Labor Statistics. However, it was recognized that data assembled for one purpose may not be readily adaptable, if at all, to the problems and situations faced by other segments of the economy and that often a "free ride" on someone else's research will carry you through a labyrinth to a dead end.

It was suggested that much might be learned that would be valuable to manpower researchers from the approaches taken by other organizations which look at the economy or the labor force as a whole, or who characteristically use production or similar criteria for measuring the effectiveness of certain portions of the economy or a specific national effort.

Areas for Future Research

Throughout the course of the discussion several general areas and specific problems were suggested to which future manpower research might well be directed.

1. Cost analysis studies to determine ways in which the most service can be provided to the most people at the lowest cost.
2. Research on the prevention of mental illness and the implications of the preventive aspects of mental illness for training and utilization of mental health manpower.
3. Criteria for evaluating the effectiveness of treatment programs and the utilization of the manpower involved in them.
4. The development of models for studying manpower performance in various types of settings.
5. Studies of career choice, career patterns and the time and talent utilization aspects of persons whose major function is supposed to be the treatment of the mentally ill.
6. Analysis of the geographic distribution of mental health manpower and its implications for the community mental health centers program.
7. Projections of the supply of and demand for mental health personnel.
8. Ways and means of freeing the fully trained professional to spend more time in actual treatment of the mentally ill. The point was made that our greatest unused supply of therapeutic talent actually may be in that portion of the time of the fully trained professional which is not productively used in treatment but which is eaten away in various administrative, clerical and representational duties which might better be handled by someone else.
9. Measures of need for mental health services.
10. Studies of the training, utilization and general efficiency of management personnel and support staff in mental hospitals and other settings in order to improve their efficiency and effectiveness.
11. Studies of the effects which mental health care insurance programs have had on the use made of mental health facilities and the impact they have had on the economy of the mental health "industry."

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Mental Health Manpower Current Statistical and Activities Reports

No. 1. "Selected Personal Characteristics of Professional Personnel Employed in Mental Health Establishments." National Institute of Mental Health, January-March 1964.

No. 2. "Education of Psychiatric Aides in State and County Hospitals in the United States," National Institute of Mental Health, May 1964.

No. 3. "Selected Characteristics of Psychiatrists in the United States," National Institute of Mental Health, October 1964.

No. 4. "Selected Characteristics of Psychologists Employed in Mental Health Establishments," National Institute of Mental Health, February 1965.

No. 5. "Highlights of Proceedings, Meeting of the National Mental Health Manpower Studies Advisory Committee," National Institute of Mental Health, April 1965.

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No. 7. "Selected Characteristics of Nurses Employed in Mental Health Establishments, 1963," National Institute of Mental Health, July 1965.

No. 8. "Survey of Mental Health Establishments--Staffing Patterns and Survey Methodology," National Institute of Mental Health, October 1965.

No. 9. "Occupational and Personal Characteristics of Psychiatrists in the United States--1965," National Institute of Mental Health, February 1966.

No. 10. "Professional Mental Health Personnel Employed in States," National Institute of Mental Health, April 1966.

Single copies of any or all of the above publications are available without charge from the Public Information Section, Office of the Director, National Institute of Mental Health, Bethesda, Maryland.

VT 004 624

Health Service Occupations, Occupational Needs, Educational Requirements, 1967-1971-1976, Connecticut and Its Areas.

Connecticut Univ., Storrs. Labor Education Center
Connecticut State Dept. of Education, Hartford, Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep67 133p.

*OCCUPATIONAL SURVEYS; *EDUCATIONAL NEEDS; *HEALTH OCCUPATIONS EDUCATION; EMPLOYMENT STATISTICS; EMPLOYMENT PROJECTIONS; *HEALTH PERSONNEL; OCCUPATIONAL INFORMATION; *MANPOWER NEEDS; HEALTH SERVICES; EMPLOYMENT QUALIFICATIONS; PROGRAM CONTENT; CURRICULUM
CONNECTICUT

Occupations directly involved with or supporting the health services in hospitals, convalescent homes, physicians' offices, dentists' offices, dental laboratories, employee's health clinics, and public health agencies were studied. For each occupation, administrators listed current employment, expansion needs, expected withdrawals, and current job vacancies, and indicated their opinions regarding formal education requirements and preferred course content. Some highlights of the findings were: (1) a 57 percent gain in employment growth in 10 years to 52,530 persons in 1966, (2) a need for 59,214 additional trained persons by 1976, inclusive of various levels of nurses but exclusive of doctors, dentists, and others requiring a college degree, (3) largest needs in Hartford, New Haven, and Bridgeport, (4) English and mathematics as the most frequently listed general courses, and geriatrics, bedside care, and body mechanics as the most frequently listed special courses. (JK)

VT 004 624

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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1967 - 1971 - 1976

Connecticut and its areas

Occupational Needs - Educational Requirements

Division of Vocational Education · State Department of Education
Labor Education Center · The University of Connecticut · September 1967

INTRODUCTION

The need and demand for better health care have resulted in a shortage of both facilities and trained personnel. It is clear that the demand for health care will increase, necessitating an even greater number of trained persons in this field. At the same time a record number of students will be entering high school and post secondary schools seeking education and training for the jobs of tomorrow.

It is the responsibility of the Division of Vocational Education of the Connecticut Department of Education to train youth for jobs. In order to do this, it is necessary to obtain a knowledge of job needs and of the type of training required. While the trained worker need for health occupations in general is apparent, information on the types of occupation in short supply, a reasonable estimate of the number needed in future periods, and the nature of training and course content desired, must be obtained. From this information, the Division of Vocational Education will be able to establish courses which will better meet the manpower needs of the health community, and equally important, which will enable our youths to obtain better and more useful jobs than they would without such training.

To obtain this data, the Division of Vocational Education of the Connecticut Board of Education, Joseph T. Murphy, Director, contracted with the Labor Education Center of the University of Connecticut, Professor John J. Glynn, Director, to conduct this study financed by a grant from the U.S. Department of Health, Education, and Welfare under the Vocational Education Act of 1963. The study was under the general supervision of the Vocational Education Services of the Division, Dr. Herbert Righthand, Director, and Dr. Philip Masley, Research Consultant, and conducted by Professor David Pinsky and Mrs. Barbara Lownds of the University.

The study staff is grateful for the excellent cooperation and suggestions from the many persons and organizations in the health field who supplied data and estimates, and were helpful in other ways.

SEPTEMBER 1967

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Health Occupation Study

HIGHLIGHTS

- Connecticut will have a need for 59,214 additional trained persons in health services by 1976. This includes nurses but does not include doctors, dentists, and others requiring a college degree.

- By area, the largest needs are: Hartford 16,428, New Haven 7,262, and Bridgeport 7,159.

- Largest needs by occupation are for registered nurses with a demand by 1976 of 20,940.

- In the technician field, the largest needs will be for medical laboratory technician, 1,234, x-ray technician, 653, and operating room technician, 404.

- Dentists indicate a nine-year need of 1,339 dental hygienists, 1,447 dental assistants and 993 secretary-dental assistants.

- Hospital and convalescent home administrators generally prefer three-year diploma school graduates for staff nurses but college graduates for nurse supervisors and nurse instructors.

- English and Mathematics were the most frequently preferred general courses listed. Geriatrics, bedside care, and body mechanics were the most frequently special courses listed.

- Health services, the most rapid employment growth field in the state, employed 52,530 persons in Connecticut in June 1966, a 19,060 or 57% gain in ten years.

HEALTH SERVICES HAVE LARGE GROWTH NATIONALLY

A growing population, extension of the life span, greater concern with health problems, the growth of private and government health insurance plans, Medicare, and a more affluent society have increased the need for health services throughout the nation. Although facilities have been increased in recent years, the growth of the need for more health care has exceeded this increase, resulting in an unprecedented shortage of both trained personnel and facilities. In many areas, demands for health care have outstripped the availability of physicians, nurses, and other trained health workers. Shortages of hospital nurses are especially critical. Lack of sufficient trained health personnel has become a matter of national concern.[1]

The health personnel needs below the physician level are centered around nursing. The U.S. Surgeon General's Consultant Group on Nursing stated that there would be a need for 850,000 professional nurses by 1970 for "safe, therapeutically effective, and efficient nursing service." The number of nurses now practicing nationally is approximately 621,000. The rate of growth is such that the number of nurses in 1970 will fall far short of this total. While national figures for related health occupations are not available, it is apparent that similar shortages will also develop for other health occupations such as licensed practical nurses, nurse aides, x-ray technicians, dental hygienists.

The continuing shortage of health personnel is emphasized in the U.S. Labor Department's Occupational Outlook Handbook, which states, "A continued rapid expansion of employment in the health field is expected through the mid-1970's, although the rates of growth will differ considerably among the various health service occupations . . . . In addition, many new workers will be needed each year to replace those who retire, die, or - particularly in the case of women - leave the field for other reasons."[2]

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[1] Health Service Industry - U.S. Department of Labor

[2] Occupational Outlook Handbook, 1966-67 edition. U.S. Department of Labor.

FACILITIES AND SERVICES CONTRIBUTE TO ECONOMY

Health services are thought of mainly in terms of improving physical well-being. They also make a major contribution to the nation's economy. With the decline or leveling off of production jobs since the end of World War II, service activities have been providing the bulk of the new jobs for the expanding labor force. Within this category, health occupations have had the most rapid rate of growth.

The total number of jobs in the health service industry was estimated at 2.7 million in 1965. About three-fourths, or 2 million, of this number were in hospitals. Another 250,000 were in nursing homes. Offices and clinics of physicians, dentists, and other practitioners, together with medical and dental laboratories and related establishments, accounted for the other 450,000.

By occupation the largest number employed were the 1,200,000 in nursing, which was nearly half of all in health occupations. In addition to these employment totals were those self employed or working in their occupation outside the health industry. These include some 275,000 active physicians, 95,000 active dentists and 150,000 professional nurses.

The health industry employs more people than all the railroads and automobile manufacturers combined.

NEED FOR CONNECTICUT STUDY

The growth in health services will undoubtedly continue over the next decade. Required to meet this expansion will be trained personnel as well as physical facilities. The lead training time for health service workers involves not only time for actual class learning and work experience, but also time to prepare curricula and build physical facilities.

In order to plan for the expansion of training programs, some concept of the nature and the number of these increasing jobs must be obtained. The Division of Vocational Education of the Connecticut Department of Education

requested the Labor Education Center of the University of Connecticut to conduct a study for Connecticut and its seventeen labor market areas to determine:

a. The type and number of trained workers needed for health services jobs by 1971 and 1976

b. The educational and course content requirements for these jobs

THE STUDY

The selection of the occupations to be studied was made in consultation with key persons in associations representing the various health fields. These included the Connecticut Hospital Association, the Connecticut State Medical Association, the Connecticut State Dental Association, Connecticut State Dental Laboratory Association, the Convalescent Home Association, and Public Health officers. The occupations included not only those directly involved with health services but also supporting occupations such as dietitians, medical secretaries, food service and clerical personnel. In hospitals 38 occupations were studied, 20 in convalescent homes, nine in physicians' offices, six in dentists' offices and dental laboratories, nine in employees health clinics, and 22 in public health. The specific occupations included in each category are shown in the tables showing occupational needs in Appendix B.

To determine future needs, administrators were asked to list for each occupation:

a. Current Employment - full and part time

b. Expansion Needs - 1971 and 1976

c. Expected Withdrawals from the health field

d. Current Job Vacancies

To determine the content of education courses needed to train personnel for these jobs, the respondents were asked to state for each listed occupation their opinion as to the formal education needed and course content preferred.

The study forms used are shown in Appendix A.

THE CONNECTICUT ECONOMY

The level of the Connecticut Economy in terms of income to its people is the highest in the nation. For 1966 the average per capita income for Connecticut was $3,678, the highest of any state while per family income for 1967 averaged over $10,000. There is a wide range in family income however, and in each of the state's four largest cities from 20 to 25% of the families have incomes of $3,000 a year or less.

The state is characterized by its high proportion of manufacturing with 42% of its workers in this activity, the highest proportion of any state. It also leads all states in total and defense production on a per capita basis. The nature of its production is mainly precision metal, electronic and scientific goods. While manufacturing output has been growing, employment has showed little increase due to productivity gains.

The large increases in jobs have been in trade, service, and government.

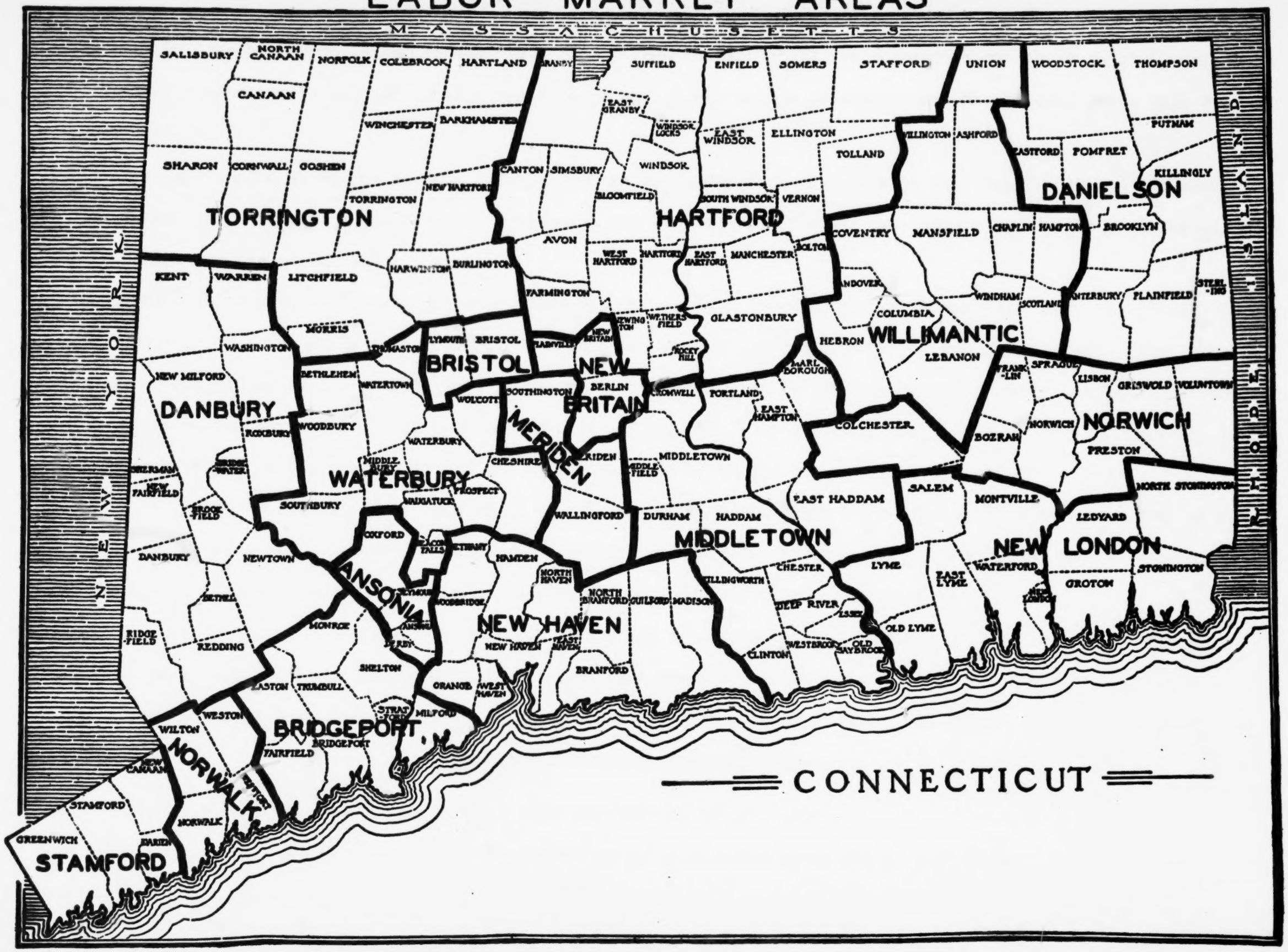
POPULATION LARGEST GROWTH IN NORTHEAST

The population of Connecticut reached 2,914,000 in 1967, a gain of 41,000 during the past year and 521,000 over the past decade. It had the largest rate of population growth in the Northeast and was exceeded in the entire nation only by a few states in the south and far west. By 1975 Connecticut's population is expected to register another gain to 3,462,400, an increase of 548,400. The state has been divided into seventeen labor market areas, each a center of business and industry, reflecting mainly commuting and work patterns. These are shown on the map "Connecticut Labor Market Areas." The largest of these areas in terms of population is Hartford with 637,100 persons followed by Bridgeport 370,200 and New Haven 368,900. Smallest areas are Ansonia 48,500, Danielson 56,700, and Bristol 63,000. The Hartford area is also expected to have the largest population gain, 136,900 or 21.5% by 1976.

Table I
CONNECTICUT POPULATION PROJECTIONS
1967 - 1971 - 1976

	POPULATION		GROWTH 1967 - 76	
	1967	1976	Number	Percentage
Connecticut	2,914,000	3,462,400	548,400	18.8
Ansonia	48,500	57,800	9,300	19.2
Bridgeport	370,200	407,200	37,000	10.0
Bristol	63,000	71,700	8,700	13.8
Danbury	125,800	161,800	36,000	28.6
Danielson	56,700	71,800	15,100	26.6
Hartford	637,100	774,000	136,900	21.5
Meriden	115,600	136,200	20,600	17.8
Middletown	106,400	138,500	32,100	30.2
New Britain	117,000	130,500	13,500	11.5
New Haven	368,900	438,900	70,000	19.0
New London	144,800	170,700	25,900	17.9
Norwalk	125,400	150,100	24,700	19.7
Norwich	66,700	81,100	14,400	21.6
Stamford	214,800	245,900	31,100	14.5
Torrington	80,800	98,500	17,700	21.9
Waterbury	207,300	242,900	35,600	17.2
Windham	65,000	84,800	19,800	30.5

LABOR MARKET AREAS



The largest percentage gains are expected in Windham 30.5%, Middletown 30.2% and Danbury 28.6%. Table I shows the population for each area for 1967 and the expected population for 1976.

HEALTH SERVICES IN CONNECTICUT

The basic health services are provided by hospitals, convalescent homes, rest homes, doctors, dentists, employees health clinics, and public health services. The number of persons employed in Connecticut by these facilities was 52,530 in June 1966, a gain of 19,060 or 57% above the 33,470 employed in 1956. Of the total 43,970 are employed by private and non-profit institutions and 8,560 in government institutions.

In professional occupations, Connecticut is serviced by 4,943 physicians, 1,873 dentists, and 11,537 nurses. In terms of the proportion of these persons to population, Connecticut ranks high among the states, being 3rd in the ratio of physicians to population, 5th in the ratio of dentists and 4th in the ratio of nurses.

The 35 general hospitals in Connecticut have 9,755 beds, which is a ratio of 3.3 per 1,000 population. The Hill Burton Act Administration considers 3.5 as a minimum desirable level for metropolitan areas, 3.0 for intermediate areas, and 2.5 for rural areas in Connecticut. Within Connecticut the highest ratios are 4.6 beds per 1,000 population in Torrington and 4.2 in Stamford. Table II shows the number of general hospital beds and the ratio per 1,000 population for the state and its labor market areas.

Convalescent homes in Connecticut number 175 and provide 13,201 beds. The number of persons 65 years of age and over is 274,600 or 9% of the state's total. The ratio of convalescent home beds to 1,000 persons 65 and over is 48.1.

To provide facilities for current unmet needs and future demand hospitals and convalescent homes have plans for expansion. The hospitals expect to add 4,196 beds to the current 9,755 for a total of 13,951 by 1976. Existing

Table II

GENERAL HOSPITAL BEDS PER 1,000 POPULATION - 1967

Area	Number	Gen.Hosp.Beds	Gen.Hosp.Beds/1,000 Pop.
Connecticut	35	9,755	3.3
Ansonia	1	185	3.8
Bridgeport	4	1,100	3.0
Bristol	1	200	3.2
Danbury	2	350	2.8
Danielson	1	152	2.7
Hartford	7	2,323	3.6
Meriden	3	359	3.1
Middletown	1	254	2.4
New Britain	1	350	3.0
New Haven	2	1,245	3.4
New London	1	327	2.3
Norwalk	1	495	3.9
Norwich	1	187	2.8
Stamford	3	893	4.2
Torrington	3	371	4.6
Waterbury	2	811	3.9
Windham	1	153	2.4

convalescent and rest homes plan to have 21,214 beds by 1976, an increase of 6,754 beds over the current 14,460. In addition new homes may start which will add to these totals.

The number of employee health clinics totals 255 in the state.

Dental laboratories number 106 in Connecticut.

Public health services include state and local health departments, visiting nurse associations, school nurses, mental health centers, retardation regional centers, and rehabilitation centers.

OCCUPATIONAL NEEDS - 1967 to 1971 - 1976

The study covered 49 different occupations in the health field in which 38,867 persons were employed in June 1967 of whom 27,730 worked full time and 11,127 part time. There were 3,734 vacancies in these positions at the time of the study. Expansion plans in the health field called for 12,182 more positions by 1971 and 16,688 by 1976. Replacement needs for persons who withdraw from their occupations are expected to reach 16,271 within four years and 38,792 within the next nine years. Together the job vacancies, expansions and replacements all add up to a need for 32,187 trained persons by 1971 and 59,214 by 1976. Table III "Estimated Demand - 1967 - 1971 - 1976 - Total of State Needs" (pages 12-16) shows the estimated need for each of the 49 occupations studied for the next four and nine years.

LARGEST OCCUPATIONAL NEED IS FOR NURSES

The occupation with the largest need by 1976 is staff nurse with an estimated demand of 18,992. This consists of 1,084 current vacancies, an expansion of 3,572, and a replacement need of 14,336. The total need for all types of registered nurses is 20,940 within the next nine years. Also in the nursing area there will be a need of 10,201 nurse aides and 4,276 licensed practical nurses.

In the technician area, the largest nine year needs will be for medical laboratory technician, 1,234, x-ray technician, 653, and operating room technician, 404.

For dental occupations, there will be a need for 1,447 dental assistants (chairside only), 1,339 dental hygienists, 993 secretary-dental assistants, and 548 dental laboratory technicians.

The secretary-receptionist position in physicians or dentists offices will have a need for 4,070 new workers by 1976.

In the food field, the largest needs will be for dietary aide, 1,014, cook, 837, and cook helper, 667.

LARGEST EMPLOYMENT NEEDS ARE IN HOSPITALS

The bulk of the 59,214 new workers needed by 1976 will be for hospitals which have reported a need of 31,196 by that date. Second largest needs will be 12,837 new workers for convalescent and rest homes. The other needs will be 5,673 for offices of physicians, 5,442 for offices of dentists, dental laboratories, and dental schools, 3,786 for public health and 280 for employees health clinics.

The four and nine year needs by type of office or institution are shown separately for each occupation in the applicable tables IV-IX (pages 17-28).

Health Occupations
Study
Connecticut

Table III
Estimated Demand - 1967 to 1971 and 1976

TOTAL OF STATE NEEDS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	38867	27740	11127	3734	('71)	12182	16271	32187
					('76)	16688	38792	59214
Nurse, Supervisor	622	546	76	44	('71)	139	115	298
					('76)	199	282	525
Nurse, Head	1034	996	38	55	('71)	218	240	513
					('76)	327	583	965
Nurse, Instructor	276	232	44	28	('71)	54	61	143
					('76)	85	145	258
Nurse, Staff	9567	5387	4180	1084	('71)	2347	6100	9531
					('76)	3572	14336	18992
Nurse Anesthetist	143	128	15	9	('71)	48	54	111
					('76)	66	135	210
Nurse, Licensed Practical	2872	2036	836	580	('71)	1030	909	2519
					('76)	1508	2188	4276
Nurse Aide	7578	5306	2272	590	('71)	2573	2543	5706
					('76)	3431	6180	10201
Mental Retardation Aide	1241	1164	77	58	('71)	358	279	695
					('76)	570	683	1311
Psychiatric Aide	1921	1852	69	121	('71)	157	796	1074
					('76)	208	1804	2133
Rehabilitation Aide	39	39	0	14	('71)	41	48	103
					('76)	49	122	185
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	665	418	247	154	('71)	310	394	858
					('76)	444	932	1530
Pharmacy Helper	44	32	12	1	('71)	25	17	43
					('76)	37	44	82
E.E.G. Technician	43	31	12	1	('71)	24	17	42
					('76)	36	50	87
E.K.G. Technician	102	75	27	8	('71)	38	36	82
					('76)	53	92	153
X-Ray Technician	460	398	62	29	('71)	151	176	356
					('76)	219	405	653
Cytotechnician	64	55	9	11	('71)	28	20	59
					('76)	41	52	104
Medical Laboratory Technician	950	716	234	73	('71)	290	308	671
					('76)	445	716	1234
Operating Room Technician	230	212	18	35	('71)	139	74	248
					('76)	187	182	404
Inhalation Therapist	118	92	26	34	('71)	87	46	167
					('76)	123	113	270
Dental Hygienist	595	293	302	118	('71)	400	289	807
					('76)	468	753	1339
Dental Assistant (Chairside only)	441	299	142	101	('71)	441	302	844
					('76)	503	843	1447
Secretary-Dental Assistant	1067	847	220	40	('71)	241	317	598
					('76)	271	682	993

TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	319	291	28	56	('71)	181	110	347
					('76)	257	235	548
Formula Room Worker	17	11	6	1	('71)	3	4	8
					('76)	5	10	16
Pediatric Technician	99	83	16	1	('71)	22	40	63
					('76)	31	99	131
Physical Therapist Aide	61	49	12	16	('71)	80	41	137
					('76)	112	103	231
Social Service Case Aide	67	60	7	16	('71)	102	40	158
					('76)	141	92	249
Central Supply Worker	307	280	27	18	('71)	74	92	184
					('76)	123	209	350
Medical Secretary	422	366	56	35	('71)	163	165	363
					('76)	237	400	672
Secretary-Receptionist (Physician or Dentist's office)	3736	2678	1058	149	('71)	1053	1186	2388
					('76)	1194	2727	4070
Bookkeeping Clerk	217	151	66	5	('71)	57	61	123
					('76)	78	150	233
Computer Operator	11	10	1	0	('71)	24	5	29
					('76)	31	19	50
Key Punch Operator	63	47	16	2	('71)	42	41	85
					('76)	57	104	163
Tabulating Machine Operator	11	8	3	0	('71)	14	8	22
					('76)	19	22	41
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Junior Programmer	4	3	1	1	('71)	15	4	20
					('76)	23	12	36
Nursing Unit Clerk	547	381	166	49	('71)	174	194	417
					('76)	272	467	788
Medical Record Clerk	19	14	5	5	('71)	33	11	49
					('76)	35	29	69
Recreation Director	147	117	30	8	('71)	75	34	117
					('76)	82	95	185
Dietitian	230	150	80	22	('71)	93	52	167
					('76)	122	133	277
Assistant Dietitian	163	137	26	12	('71)	43	42	97
					('76)	74	105	191
Chef	84	83	1	5	('71)	17	16	38
					('76)	22	46	73
Cook	897	721	176	43	('71)	157	247	447
					('76)	201	593	837
Cook Helper	365	280	85	33	('71)	162	173	368
					('76)	204	430	667
Meat Cutter	12	11	1	2	('71)	3	4	9
					('76)	4	10	16
Baker	46	43	3	4	('71)	15	13	32
					('76)	20	34	58
Food Service Supervisor	80	69	11	3	('71)	8	18	29
					('76)	11	45	59
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietary Aide	337	201	136	35	('71)	208	295	538
					('76)	237	742	1014
Laundress	185	118	67	5	('71)	84	84	173
					('76)	97	204	306
Maintenance-General	352	227	125	20	('71)	141	150	311
					('76)	157	355	532

TOTAL

Health Occupations
Study
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Table IV
Estimated Demand - 1967 to 1971 and 1976

HOSPITALS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	18485	13018	5467	2038	('71)	4490	9339	15867
					('76)	7219	21939	31196
Nurse, Supervisor	505	436	69	34	('71)	101	95	230
					('76)	155	229	418
Nurse, Head	779	747	32	34	('71)	173	178	385
					('76)	267	437	738
Nurse, Instructor	276	232	44	28	('71)	54	61	143
					('76)	85	145	258
Nurse, Staff	5367	2368	2999	684	('71)	1104	4746	6534
					('76)	2004	11081	13769
Nurse Anesthetist	128	118	10	5	('71)	43	51	99
					('76)	57	128	190
Nurse, Licensed Practical	1631	1177	454	349	('71)	495	522	1366
					('76)	813	1255	2417
Nurse Aide	3084	2277	807	276	('71)	691	1152	2119
					('76)	1110	2675	4061
Psychiatric Aide	1869	1804	65	109	('71)	104	773	986
					('76)	123	1725	1957
Rehabilitation Aide	39	39	0	14	('71)	35	47	96
					('76)	43	120	177
Orderly	505	318	187	120	('71)	179	312	611
					('76)	292	727	1139

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Pharmacy Helper	44	32	12	1	('71)	25	17	43
					('76)	37	44	82
E.E.G. Technician	37	29	8	1	('71)	22	16	39
					('76)	33	45	79
E.K.G. Technician	101	74	27	8	('71)	38	36	82
					('76)	53	92	153
X-Ray Technician	343	293	50	24	('71)	106	105	235
					('76)	174	238	436
Cytology Technician	64	55	9	11	('71)	28	20	59
					('76)	41	52	104
Medical Laboratory Technician	678	504	174	60	('71)	205	182	447
					('76)	332	440	832
Operating Room Technician	230	212	18	35	('71)	139	74	248
					('76)	187	182	404
Inhalation Therapist	118	92	26	34	('71)	87	46	167
					('76)	123	113	270
Formula Room Worker	17	11	6	1	('71)	3	4	8
					('76)	5	10	16
Pediatric Technician	99	83	16	1	('71)	22	40	63
					('76)	31	99	131
Physical Therapist Aide	49	43	6	9	('71)	41	23	73
					('76)	61	59	129
Social Service Case Aide	63	56	7	13	('71)	76	32	121
					('76)	105	74	192

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Central Supply Worker	305	278	27	18	('71)	71	92	181
					('76)	118	209	345
Medical Secretary	346	298	48	31	('71)	138	127	296
					('76)	203	308	542
Bookkeeping Clerk	211	146	65	4	('71)	51	57	112
					('76)	70	141	215
Computer Operator	11	10	1	0	('71)	24	5	29
					('76)	31	19	50
Key Punch Operator	61	45	16	2	('71)	41	39	82
					('76)	56	100	158
Tabulating Machine Operator	11	8	3	0	('71)	14	8	22
					('76)	19	22	41
Junior Programmer	4	3	1	1	('71)	15	4	20
					('76)	23	12	36
Nursing Unit Clerk	542	376	166	49	('71)	166	191	406
					('76)	261	458	768
Dietitian	159	132	27	14	('71)	38	39	91
					('76)	62	92	168
Assistant Dietitian	163	137	26	12	('71)	43	42	97
					('76)	74	105	191
Chef	74	73	1	4	('71)	9	16	29
					('76)	14	44	62
Cook	295	280	15	25	('71)	43	76	144
					('76)	62	191	278

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook Helper	156	126	30	20	('71)	43	80	143
					('76)	64	191	275
Meat Cutter	12	11	1	2	('71)	3	4	9
					('76)	4	10	16
Baker	44	41	3	4	('71)	15	12	31
					('76)	19	32	55
Food Service Supervisor	65	54	11	1	('71)	5	15	21
					('76)	8	35	44

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Table V
Estimated Demand - 1967 to 1971 and 1976

CONVALESCENT AND REST HOMES

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	8937	5714	3223	933	('71)	3801	2951	7685
					('76)	4549	7355	12837
Nurse, Supervisor	17	15	2	4	('71)	24	6	34
					('76)	25	17	46
Nurse, Head	231	228	3	11	('71)	26	58	95
					('76)	27	128	166
Nurse, Staff	1480	745	735	260	('71)	603	411	1274
					('76)	717	1012	1989
Nurse, Licensed Practical	959	589	370	203	('71)	395	265	863
					('76)	503	646	1352
Nurse Aide	4309	2890	1419	306	('71)	1818	1298	3422
					('76)	2219	3292	5817
Rehabilitation Aide	0	0	0	0	('71)	6	1	7
					('76)	6	2	8
Orderly	160	100	60	34	('71)	129	81	244
					('76)	148	203	385
Medical Laboratory Technician	0	0	0	0	('71)	2	0	2
					('76)	2	0	2
Physical Therapist Aide	9	4	5	7	('71)	14	6	27
					('76)	16	15	38
Recreation Director	147	117	30	8	('71)	75	34	117
					('76)	82	95	185

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietitian	65	14	51	7	('71)	47	13	67
					('76)	52	40	99
Chef	2	2	0	1	('71)	2	0	3
					('76)	2	0	3
Cook	490	331	159	15	('71)	89	155	259
					('76)	105	360	480
Cook Helper	172	117	55	9	('71)	99	82	190
					('76)	113	210	332
Food Service Supervisor	1	1	0	1	('71)	3	0	4
					('76)	3	2	6
Dietary Aide	337	201	136	35	('71)	208	295	538
					('76)	237	742	1014
Medical Secretary	2	1	1	2	('71)	3	1	6
					('76)	3	3	8
Medical Record Clerk	19	14	5	5	('71)	33	11	49
					('76)	35	29	69
Laundress	185	118	67	5	('71)	84	84	173
					('76)	97	204	306
Maintenance-General	352	227	125	20	('71)	141	150	311
					('76)	157	355	532

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Table VI
Estimated Demand - 1967 to 1971 and 1976

OFFICES OF PHYSICIANS IN PRIVATE PRACTICE

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	5167	3834	1333	249	('71)	1359	1708	3316
					('76)	1568	3856	5673
Nurse, Staff	1162	934	228	67	('71)	358	462	887
					('76)	412	1053	1532
Nurse Anesthetist	15	10	5	4	('71)	5	3	12
					('76)	9	7	20
Nurse, Licensed Practical	241	231	10	26	('71)	86	98	210
					('76)	108	223	357
Nurse Aide	136	102	34	6	('71)	15	62	83
					('76)	17	141	164
E.E.G. Technician	4	0	4	0	('71)	0	1	1
					('76)	0	2	2
X-Ray Technician	89	78	11	5	('71)	42	68	115
					('76)	46	156	207
Laboratory Technician	240	180	60	10	('71)	73	115	198
					('76)	95	256	361
Medical Secretary	12	8	4	1	('71)	0	5	6
					('76)	0	11	12
Secretary-Receptionist	3268	2291	977	130	('71)	780	894	1804
					('76)	881	2007	3018

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Table VII
Estimated Demand - 1967 to 1971 and 1976

OFFICES OF DENTISTS IN PRIVATE PRACTICE,
DENTAL LABORATORIES AND DENTAL SCHOOL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	2890	2112	778	341	('71)	1543	1328	3212
					('76)	1834	3267	5442
Nurse, Staff	54	40	14	13	('71)	20	32	65
					('76)	31	67	111
Dental Hygienist	540	247	293	112	('71)	395	274	781
					('76)	462	715	1289
Dental Assistant (Chairside)	441	299	142	101	('71)	441	302	844
					('76)	503	843	1447
Secretary-Dental Assistant (combined)	1067	847	220	40	('71)	241	317	598
					('76)	271	682	993
Secretary-Receptionist	469	388	81	19	('71)	265	293	577
					('76)	310	725	1054
Dental Laboratory Technician	319	291	28	56	('71)	181	110	347
					('76)	257	235	548

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Table VIII
Estimated Demand - 1967 to 1971 and 1976

PUBLIC HEALTH

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	2795	2490	305	169	('71)	961	838	1968
					('76)	1487	2130	3786
Nurse, Supervisor	76	71	5	6	('71)	13	11	30
					('76)	18	29	53
Nurse, Head	24	21	3	10	('71)	19	4	33
					('76)	33	18	61
Nurse, Staff	1045	860	185	57	('71)	238	379	674
					('76)	381	964	1402
Nurse, Licensed Practical	31	29	2	2	('71)	54	23	79
					('76)	84	60	146
Nurse Aide	30	20	10	2	('71)	57	24	83
					('76)	85	57	144
Mental Retardation Aide	1241	1164	77	58	('71)	358	279	695
					('76)	570	683	1311
Psychiatric Aide	52	48	4	12	('71)	53	23	88
					('76)	85	79	176
Orderly	0	0	0	0	('71)	2	1	3
					('76)	4	2	6
E.E.G. Technician	2	2	0	0	('71)	1	1	2
					('76)	1	3	4
X-Ray Technician	8	7	1	0	('71)	3	2	5
					('76)	3	6	9

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Medical Laboratory Technician	16	16	0	2	('71)	10	7	19
					('76)	16	11	29
Dental Hygienist	45	36	9	6	('71)	5	11	22
					('76)	6	31	43
Physical Therapist Aide	3	2	1	0	('71)	25	12	37
					('76)	35	29	64
Social Service Case Aide	4	4	0	3	('71)	26	8	37
					('76)	36	18	57
Central Supply Worker	2	2	0	0	('71)	3	0	3
					('76)	5	0	5
Medical Secretary	24	21	3	1	('71)	20	13	34
					('76)	29	34	64
Bookkeeping Clerk	6	5	1	1	('71)	6	4	11
					('76)	8	9	18
Key Punch Operator	2	2	0	0	('71)	1	2	3
					('76)	1	4	5
Nursing Unit Clerk	5	5	0	0	('71)	8	3	11
					('76)	11	9	20
Dietitian	6	4	2	1	('71)	8	0	9
					('76)	8	1	10
Chef	8	8	0	0	('71)	6	0	6
					('76)	6	2	8
Cook	112	110	2	3	('71)	25	16	44
					('76)	34	42	79

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook Helper	37	37	0	4	('71)	20	11	35
					('76)	27	29	60
Baker	2	2	0	0	('71)	0	1	1
					('76)	1	2	3
Food Service Supervisor	14	14	0	1	('71)	0	3	4
					('76)	0	8	9

Table IX
Estimated Demand - 1967 to 1971 and 1976

EMPLOYEES HEALTH CLINICS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	593	572	21	4	('71)	28	107	139
					('76)	31	245	280
Nurse, Supervisor	24	24	0	0	('71)	1	3	4
					('76)	1	7	8
Nurse, Staff	459	440	19	3	('71)	24	70	97
					('76)	27	159	189
Nurse, Licensed Practical	10	10	0	0	('71)	0	1	1
					('76)	0	4	4
First Aider	19	17	2	0	('71)	2	7	9
					('76)	2	15	17
E.K.G. Technician	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
X-Ray Technician	20	20	0	0	('71)	0	1	1
					('76)	0	5	5
Medical Laboratory Technician	16	16	0	1	('71)	0	4	5
					('76)	0	9	10
Dental Hygienist	10	10	0	0	('71)	0	4	4
					('76)	0	7	7
Medical Secretary	34	34	0	0	('71)	1	17	18
					('76)	1	39	40

NEED FOR HEALTH WORKERS WIDESPREAD THROUGHOUT THE STATE

Every area in Connecticut will have a substantial demand for new health workers by 1976. The largest is in the Hartford area with a need for 16,428 by 1976. Following Hartford in the number needed is New Haven 7,262, Bridgeport 7,159, Waterbury 4,258, and Stamford 3,971. The area needs are summarized in Table X (pages 30-31) "Estimated Demand - 1967 - 1971 - 1976 - Totals - Labor Market Areas."

The specific occupational demands for each area are shown in Tables XI-XXVII (pages 32-103).

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Table X
Estimated Demand - 1967 to 1971 and 1976

LABOR MARKET AREA

	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Connecticut	38867	27740	11127	3734	('71)	12182	16271	32187
					('76)	16688	38792	59214
Ansonia	521	298	223	28	('71)	131	234	393
					('76)	178	568	774
Bridgeport	4479	3210	1269	558	('71)	1247	1959	3764
					('76)	1930	4671	7159
Bristol	565	367	198	30	('71)	211	307	548
					('76)	259	738	1027
Danbury	1677	1278	399	94	('71)	500	693	1287
					('76)	584	1633	2311
Danielson	609	361	248	26	('71)	168	200	394
					('76)	282	501	809
Hartford	8657	6074	2583	1006	('71)	3874	4036	8916
					('76)	5469	9953	16428
Meriden	1647	1080	567	120	('71)	668	630	1418
					('76)	945	1605	2670
Middletown	1924	1462	462	132	('71)	431	871	1434
					('76)	582	2024	2738
New Britain	1383	921	462	109	('71)	373	615	1097
					('76)	441	1436	1986
New Haven	4998	3743	1255	552	('71)	1311	2011	3874
					('76)	2005	4705	7262

LABOR MARKET AREA

Labor Market Area	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
New London	1301	932	369	133	('71)	305	471	909
					('76)	342	1104	1579
Norwalk	1278	922	356	89	('71)	228	483	[illegible]
					('76)	305	1121	1515
Norwich	1893	1533	360	136	('71)	171	756	1063
					('76)	216	1639	1991
Stamford	2753	1825	928	294	('71)	1063	984	2341
					('76)	1248	2429	3971
Torrington	896	611	285	61	('71)	342	355	758
					('76)	503	875	1439
Waterbury	3204	2215	989	277	('71)	914	1314	2505
					('76)	1039	2942	4258
Willimantic	1082	908	174	89	('71)	245	352	686
					('76)	360	848	1297

Table XI
Estimated Demand - 1967 to 1971 and 1976

ANSONIA LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	521	298	223	28	('71)	131	234	393
					('76)	178	568	774
Nurse, Supervisor	12	8	4	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Head	17	17	0	0	('71)	3	4	7
					('76)	6	11	17
Nurse, Instructor	3	3	0	0	('71)	1	1	2
					('76)	1	2	3
Nurse, Staff	180	70	110	17	('71)	19	117	153
					('76)	31	266	314
Nurse Anesthetist	4	4	0	0	('71)	0	2	2
					('76)	0	5	5
Nurse, Licensed Practical	38	20	18	2	('71)	11	10	23
					('76)	16	26	44
Nurse Aide	104	63	41	2	('71)	26	35	63
					('76)	35	90	127
Orderly	5	3	2	2	('71)	7	4	13
					('76)	9	11	22
Pharmacy Helper	2	0	2	0	('71)	0	0	0
					('76)	0	0	0
E.E.G. Technician	1	0	1	0	('71)	1	1	2
					('76)	2	2	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.K.G. Technician	1	1	0	0	('71)	1	1	2
					('76)	2	2	4
X-Ray Technician	8	8	0	0	('71)	3	3	6
					('76)	4	7	11
Cytotechnician	2	2	0	0	('71)	2	1	3
					('76)	2	3	5
Medical Laboratory Technician	20	13	7	0	('71)	7	6	13
					('76)	9	16	25
Operating Room Technician	3	2	1	0	('71)	0	1	1
					('76)	2	3	5
Inhalation Therapist	3	3	0	0	('71)	3	2	5
					('76)	4	6	10
Dental Hygienist	7	3	4	1	('71)	5	3	9
					('76)	5	10	16
Dental Assistant (Chairside only)	3	2	1	0	('71)	4	3	7
					('76)	4	6	10
Secretary-Dental Assistant	14	11	3	1	('71)	3	3	7
					('76)	3	8	12
Dental Laboratory Technician	2	2	0	0	('71)	0	1	1
					('76)	1	1	2
Physical Therapist Aide	2	2	0	0	('71)	2	1	3
					('76)	3	3	6
Social Service Case Aide	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Medical Secretary	5	5	0	0	('71)	1	2	3
					('76)	2	5	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Secretary-Receptionist (Physician or Dentists' Office)	45	33	12	2	('71)	14	15	31
					('76)	15	37	54
Bookkeeping Clerk	2	2	0	0	('71)	1	2	3
					('76)	2	5	7
Computer Operator	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Key Punch Operator	0	0	0	0	('71)	2	0	2
					('76)	2	1	3
Tabulating Machine Operator	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Nursing Unit Clerk	5	5	0	0	('71)	1	2	3
					('76)	2	5	7
Recreation Director	2	1	1	0	('71)	1	0	1
					('76)	1	1	2
Dietitian	2	1	1	0	('71)	1	0	1
					('76)	1	1	2
Cook	8	6	2	0	('71)	1	3	4
					('76)	1	6	7
Cook Helper	11	4	7	1	('71)	3	5	9
					('76)	5	12	18
Baker	1	0	1	0	('71)	0	0	0
					('76)	0	1	1
Food Service Supervisor	4	3	1	0	('71)	0	1	1
					('76)	0	3	3
Dietary Aide	1	0	1	0	('71)	3	1	4
					('76)	3	4	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Laundress	1	0	1	0	('71)	1	2	3
					('76)	1	4	5
Maintenance-General	3	1	2	0	('71)	1	1	2
					('76)	1	2	3

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Table XII
Estimated Demand - 1967 to 1971 and 1976

BRIDGEPORT LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	4479	3210	1269	558	('71)	1247	1959	3764
					('76)	1930	4671	7159
Nurse, Supervisor	74	60	14	9	('71)	15	14	38
					('76)	22	32	63
Nurse, Head	99	96	3	3	('71)	22	26	51
					('76)	46	69	118
Nurse, Instructor	31	25	6	3	('71)	2	6	11
					('76)	2	13	18
Nurse, Staff	1126	667	459	149	('71)	233	754	1136
					('76)	436	1738	2323
Nurse Anesthetist	21	19	2	2	('71)	18	11	31
					('76)	22	30	54
Nurse, Licensed Practical	447	316	131	77	('71)	122	154	353
					('76)	218	371	666
Nurse Aide	949	719	230	105	('71)	112	279	496
					('76)	219	683	1007
Mental Retardation Aide	12	12	0	0	('71)	25	4	29
					('76)	25	11	36
Psychiatric Aide	0	0	0	0	('71)	21	3	24
					('76)	53	17	70
Rehabilitation Aide	1	1	0	10	('71)	8	23	41
					('76)	8	56	74

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	80	60	20	21	('71)	36	64	121
					('76)	51	146	218
Pharmacy Helper	3	3	0	0	('71)	2	0	2
					('76)	4	2	6
E.E.G. Technician	2	1	1	0	('71)	2	0	2
					('76)	4	3	7
E.K.G. Technician	13	9	4	2	('71)	4	3	9
					('76)	6	8	16
X-Ray Technician	61	51	10	5	('71)	15	17	37
					('76)	25	45	75
Cytotechnician	8	8	0	2	('71)	4	1	7
					('76)	7	5	14
Medical Laboratory Technician	126	92	34	10	('71)	34	42	86
					('76)	48	97	155
Operating Room Technician	16	12	4	17	('71)	40	15	72
					('76)	51	38	106
Inhalation Therapist	8	3	5	1	('71)	4	4	9
					('76)	4	9	14
Dental Hygienist	88	47	41	20	('71)	66	49	135
					('76)	79	125	224
Dental Assistant (Chairside only)	82	60	22	20	('71)	81	57	158
					('76)	94	158	272
Secretary-Dental Assistant	173	134	39	5	('71)	40	54	99
					('76)	46	112	163

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	56	52	4	9	('71)	20	19	48
					('76)	34	40	83
Formula Room Worker	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Pediatric Technician	6	5	1	0	('71)	0	2	2
					('76)	3	6	9
Physical Therapist Aide	2	1	1	2	('71)	7	2	11
					('76)	12	8	22
Social Service Case Aide	2	2	0	2	('71)	8	3	13
					('76)	10	7	19
Central Supply Worker	37	31	6	4	('71)	17	10	31
					('76)	30	22	56
Medical Secretary	59	47	12	6	('71)	38	25	69
					('76)	58	67	131
Secretary-Receptionist (Physician or Dentist's office)	513	370	143	20	('71)	144	165	329
					('76)	162	377	559
Bookkeeping Clerk	11	9	2	1	('71)	5	1	7
					('76)	6	5	12
Computer Operator	1	0	1	0	('71)	2	1	3
					('76)	4	3	7
Key Punch Operator	4	2	2	1	('71)	7	3	11
					('76)	11	8	20
Tabulating Machine Operator	0	0	0	0	('71)	1	1	2
					('76)	1	2	3

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Junior Programmer	1	1	0	0	('71)	4	2	6
					('76)	5	5	10
Nursing Unit Clerk	76	59	17	20	('71)	33	40	93
					('76)	37	91	148
Medical Record Clerk	2	2	0	1	('71)	3	2	6
					('76)	3	4	8
Recreation Director	18	16	2	0	('71)	1	6	7
					('76)	1	15	16
Dietitian	30	19	11	5	('71)	10	7	22
					('76)	20	19	44
Assistant Dietitian	11	10	1	2	('71)	3	2	7
					('76)	7	6	15
Chef	5	5	0	1	('71)	1	1	3
					('76)	2	4	7
Cook	61	49	12	7	('71)	11	17	35
					('76)	15	47	69
Cook Helper	37	33	4	5	('71)	11	14	30
					('76)	16	32	53
Meat Cutter	1	1	0	0	('71)	1	0	1
					('76)	2	2	4
Baker	3	2	1	0	('71)	1	1	2
					('76)	1	3	4
Food Service Supervisor	4	4	0	0	('71)	0	1	1
					('76)	0	2	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietary Aide	35	24	11	6	('71)	5	26	37
					('76)	6	61	73
Laundress	18	14	4	1	('71)	2	7	10
					('76)	3	16	20
Maintenance-General	65	56	9	4	('71)	6	21	31
					('76)	11	51	66

Table XIII
Estimated Demand - 1967 to 1971 and 1976

BRISTOL LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	565	367	198	30	('71)	211	307	548
					('76)	259	738	1027
Nurse, Supervisor	13	10	3	2	('71)	2	1	5
					('76)	2	2	6
Nurse, Head	17	17	0	1	('71)	7	5	13
					('76)	7	11	19
Nurse, Instructor	3	3	0	1	('71)	1	1	3
					('76)	1	2	4
Nurse, Staff	181	81	100	14	('71)	38	112	164
					('76)	41	254	309
Nurse Anesthetist	6	6	0	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Licensed Practical	118	81	37	2	('71)	31	66	99
					('76)	32	158	192
Nurse Aide	36	25	11	2	('71)	43	44	89
					('76)	68	102	172
Orderly	13	4	9	2	('71)	7	10	19
					('76)	10	26	38
Pharmacy Helper	0	0	0	0	('71)	1	2	3
					('76)	2	5	7
E.E.G. Technician	0	0	0	0	('71)	1	0	1
					('76)	2	3	5

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.K.G. Technician	0	0	0	0	('71)	1	0	1
					('76)	2	3	5
X-Ray Technician	7	7	0	0	('71)	5	5	10
					('76)	5	13	18
Cytotechnician	1	1	0	0	('71)	1	0	1
					('76)	1	1	2
Medical Laboratory Technician	18	14	4	1	('71)	5	6	12
					('76)	6	15	22
Operating Room Technician	8	8	0	0	('71)	0	4	4
					('76)	1	9	10
Inhalation Therapist	5	5	0	1	('71)	5	4	10
					('76)	6	12	19
Dental Hygienist	8	5	3	1	('71)	6	4	11
					('76)	6	11	18
Dental Assistant (Chairside only)	4	3	1	1	('71)	4	2	7
					('76)	4	8	13
Secretary-Dental Assistant	14	12	2	0	('71)	3	4	7
					('76)	3	9	12
Dental Laboratory Technician	3	3	0	0	('71)	1	1	2
					('76)	2	2	4
Physical Therapist Aide	1	1	0	0	('71)	2	0	2
					('76)	2	2	4
Social Service Case Aide	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Central Supply Worker	7	7	0	0	('71)	1	2	3
					('76)	1	5	6

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Medical Secretary	8	5	3	0	('71)	6	2	8
					('76)	6	7	13
Secretary-Receptionist (Physician or Dentist's office)	60	43	17	2	('71)	17	20	39
					('76)	20	45	67
Bookkeeping Clerk	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Computer Operator	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Key Punch Operator	1	1	0	0	('71)	0	1	1
					('76)	1	2	3
Tabulating Machine Operator	0	0	0	0	('71)	1	1	2
					('76)	1	2	3
Junior Programmer	0	0	0	0	('71)	0	0	0
					('76)	1	0	1
Nursing Unit Clerk	7	7	0	0	('71)	5	2	7
					('76)	7	7	14
Medical Record Clerk	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Recreation Director	2	2	0	0	('71)	1	0	1
					('76)	1	1	2
Dietitian	2	1	1	0	('71)	2	1	3
					('76)	3	2	5
Assistant Dietitian	2	2	0	0	('71)	1	0	1
					('76)	1	1	2
Chef	0	0	0	0	('71)	1	0	1
					('76)	1	0	1

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	8	6	2	0	('71)	2	2	4
					('76)	3	5	8
Cook Helper	2	2	0	0	('71)	3	1	4
					('76)	3	3	6
Baker	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Dietary Aide	2	1	1	0	('71)	2	1	3
					('76)	2	2	4
Laundress	3	1	2	0	('71)	1	1	2
					('76)	1	2	3
Maintenance-General	3	1	2	0	('71)	1	1	2
					('76)	1	2	3

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Table XIV
Estimated Demand - 1967 to 1971 and 1976

DANBURY LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1677	1278	399	94	('71)	500	693	1287
					('76)	584	1633	2311
Nurse, Supervisor	42	40	2	0	('71)	3	7	10
					('76)	3	16	19
Nurse, Head	49	44	5	1	('71)	9	12	22
					('76)	9	28	38
Nurse, Instructor	6	6	0	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Staff	338	160	178	19	('71)	83	214	316
					('76)	94	494	607
Nurse Anesthetist	6	5	1	0	('71)	0	1	1
					('76)	0	3	3
Nurse, Licensed Practical	53	32	21	6	('71)	36	20	62
					('76)	40	48	94
Nurse Aide	175	120	55	7	('71)	99	61	167
					('76)	109	151	267
Mental Retardation Aide	0	0	0	0	('71)	16	2	18
					('76)	49	13	62
Psychiatric Aide	456	456	0	13	('71)	67	192	272
					('76)	67	432	512
Rehabilitation Aide	11	11	0	0	('71)	1	5	6
					('76)	1	13	14

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	16	4	12	1	('71)	6	7	14
					('76)	7	18	26
E.E.G. Technician	1	1	0	0	('71)	0	0	0
					('76)	0	1	1
E.K.G. Technician	7	6	1	0	('71)	1	2	3
					('76)	1	5	6
X-Ray Technician	19	16	3	2	('71)	6	7	15
					('76)	6	18	26
Cytotechnician	4	3	1	0	('71)	1	2	3
					('76)	1	4	5
Medical Laboratory Technician	37	31	6	2	('71)	15	13	30
					('76)	16	29	47
Operating Room Technician	12	12	0	0	('71)	1	2	3
					('76)	1	4	5
Inhalation Therapist	3	3	0	3	('71)	1	1	5
					('76)	1	3	7
Dental Hygienist	22	8	14	4	('71)	14	10	28
					('76)	18	28	50
Dental Assistant (Chairside only)	12	8	4	3	('71)	12	8	23
					('76)	15	21	39
Secretary-Dental Assistant	39	31	8	1	('71)	8	11	20
					('76)	9	23	33
Dental Laboratory Technician	7	7	0	1	('71)	3	2	6
					('76)	5	5	11

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Social Service Case Aide	1	1	0	0	('71)	2	0	2
					('76)	3	0	3
Central Supply Worker	2	2	0	0	('71)	0	0	0
					('76)	0	1	1
Medical Secretary	37	34	3	1	('71)	12	14	27
					('76)	12	31	44
Secretary-Receptionist (Physician or Dentist's office)	185	123	62	10	('71)	53	55	118
					('76)	62	128	200
Bookkeeping Clerk	27	24	3	0	('71)	3	6	9
					('76)	3	14	17
Key Punch Operator	3	2	1	0	('71)	0	2	2
					('76)	0	5	5
Nursing Unit Clerk	7	7	0	1	('71)	0	2	3
					('76)	0	4	5
Medical Record Clerk	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Recreation Director	2	1	1	0	('71)	4	0	4
					('76)	4	2	6
Dietitian	10	8	2	4	('71)	4	2	10
					('76)	4	6	14
Assistant Dietitian	0	0	0	1	('71)	1	0	2
					('76)	1	1	3
Chef	5	5	0	1	('71)	1	1	3
					('76)	1	3	5

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	53	46	7	6	('71)	9	14	29
					('76)	10	36	52
Cook Helper	14	11	3	4	('71)	12	7	23
					('76)	13	19	36
Baker	4	4	0	2	('71)	0	2	4
					('76)	0	4	6
Food Service Supervisor	1	1	0	0	('71)	0	0	0
					('76)	0	1	1
Dietary Aide	4	3	1	1	('71)	7	5	13
					('76)	8	11	20
Laundress	3	1	2	0	('71)	3	1	4
					('76)	4	2	6
Maintenance-General	4	1	3	0	('71)	6	2	8
					('76)	6	5	11

Health Occupations
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Table XV
Estimated Demand - 1967 to 1971 and 1976

DANIELSON LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	609	361	248	26	('71)	168	200	394
					('76)	282	501	809
Nurse, Supervisor	4	4	0	0	('71)	4	2	6
					('76)	5	5	10
Nurse, Head	14	14	0	0	('71)	4	6	10
					('76)	6	14	20
Nurse, Instructor	3	3	0	0	('71)	2	2	4
					('76)	3	6	9
Nurse, Staff	164	95	69	6	('71)	30	45	81
					('76)	55	109	170
Nurse, Licensed Practical	59	34	25	4	('71)	18	16	38
					('76)	33	44	81
Nurse Aide	164	77	87	7	('71)	34	50	91
					('76)	70	125	202
Mental Retardation Aide	3	3	0	0	('71)	7	2	9
					('76)	16	8	24
Orderly	11	8	3	2	('71)	6	4	12
					('76)	11	10	23
Pharmacy Helper	1	0	1	0	('71)	1	1	2
					('76)	1	2	3
E.E.G. Technician	0	0	0	0	('71)	1	0	1
					('76)	1	1	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.K.G. Technician	1	1	0	0	('71)	1	1	2
					('76)	1	3	4
X-Ray Technician	8	6	2	0	('71)	2	4	6
					('76)	5	10	15
Cytology Technician	1	1	0	0	('71)	1	1	2
					('76)	1	2	3
Laboratory Technician	22	16	6	0	('71)	3	7	10
					('76)	4	17	21
Operating Room Technician	3	3	0	0	('71)	1	1	2
					('76)	1	3	4
Inhalation Therapist	1	1	0	0	('71)	2	1	3
					('76)	2	3	5
Dental Hygienist	3	1	2	0	('71)	2	2	4
					('76)	2	4	6
Dental Assistant (Chairside only)	1	0	1	0	('71)	1	1	2
					('76)	2	3	5
Secretary-Dental Assistant	6	4	2	0	('71)	2	2	4
					('76)	2	4	6
Dental Laboratory Technician	3	3	0	0	('71)	1	1	2
					('76)	2	2	4
Formula Room Worker	1	1	0	0	('71)	0	1	1
					('76)	0	2	2
Physical Therapist Aide	1	1	0	0	('71)	2	1	3
					('76)	3	3	6

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Social Service Case Aide	0	0	0	0	('71)	0	0	0
					('76)	1	0	1
Central Supply Worker	2	1	1	0	('71)	1	1	2
					('76)	1	2	3
Medical Secretary	3	2	1	2	('71)	1	1	4
					('76)	2	3	7
Secretary-Receptionist (Physician or Dentist's office)	38	27	11	1	('71)	10	11	22
					('76)	12	27	40
Bookkeeping Clerk	25	17	8	3	('71)	4	7	14
					('76)	4	16	23
Computer Operator	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Key Punch Operator	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Junior Programmer	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Nursing Unit Clerk	4	2	2	0	('71)	1	2	3
					('76)	1	5	6
Recreation Director	3	2	1	0	('71)	1	0	1
					('76)	1	1	2
Dietitian	4	2	2	0	('71)	2	1	3
					('76)	2	3	5
Assistant Dietitian	0	0	0	1	('71)	2	1	4
					('76)	2	2	5

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	23	14	9	0	('71)	6	8	14
					('76)	8	20	28
Cook Helper	6	3	3	0	('71)	7	5	12
					('76)	12	11	23
Baker	2	2	0	0	('71)	1	1	2
					('76)	1	2	3
Dietary Aide	8	5	3	0	('71)	2	6	8
					('76)	3	14	17
Laundress	10	4	6	0	('71)	0	3	3
					('76)	0	8	8
Maintenance-General	7	4	3	0	('71)	2	2	4
					('76)	3	6	9

Table XVI
Estimated Demand - 1967 to 1971 and 1976

HARTFORD LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	8657	6074	2583	1006	('71)	3874	4036	8916
					('76)	5469	9953	16428
Nurse, Supervisor	154	142	12	9	('71)	45	29	83
					('76)	72	66	147
Nurse, Head	227	222	5	20	('71)	77	58	155
					('76)	120	146	286
Nurse, Instructor	56	50	6	11	('71)	27	15	53
					('76)	47	37	95
Nurse, Staff	2378	1351	1027	288	('71)	864	1804	2956
					('76)	1404	4497	6189
Nurse Anesthetist	28	26	2	4	('71)	16	14	34
					('76)	27	38	69
Nurse, Licensed Practical	681	507	174	166	('71)	321	185	672
					('76)	481	457	1104
Nurse Aide	1544	1086	458	128	('71)	838	555	1521
					('76)	1077	1355	2560
Mental Retardation Aide	42	34	8	14	('71)	41	14	69
					('76)	79	37	130
Psychiatric Aide	157	122	35	58	('71)	5	62	125
					('76)	5	145	208
Rehabilitation Aide	18	18	0	4	('71)	17	12	33
					('76)	22	32	58

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	266	186	80	44	('71)	119	128	291
					('76)	187	311	542
Pharmacy Helper	11	8	3	0	('71)	6	2	8
					('76)	8	7	15
E.E.G. Technician	14	10	4	1	('71)	7	5	13
					('76)	11	13	25
E.K.G. Technician	17	14	3	5	('71)	10	8	23
					('76)	14	22	41
X-Ray Technician	117	100	17	1	('71)	43	27	71
					('76)	70	68	139
Cytotechnician	25	22	3	2	('71)	12	7	21
					('76)	18	17	37
Medical Laboratory Technician	235	172	63	15	('71)	103	62	180
					('76)	165	144	324
Operating Room Technician	83	77	6	10	('71)	66	17	93
					('76)	91	47	148
Inhalation Therapist	21	17	4	7	('71)	10	4	21
					('76)	15	10	32
Dental Hygienist	162	93	69	28	('71)	110	78	216
					('76)	133	206	367
Dental Assistant (Chairside only)	132	92	40	30	('71)	133	90	253
					('76)	155	251	436
Secretary-Dental Assistant	278	210	68	13	('71)	70	78	161
					('76)	80	172	265

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	99	91	8	22	('71)	96	34	152
					('76)	116	74	212
Formula Room Worker	6	5	1	1	('71)	2	1	4
					('76)	3	3	7
Pediatric Technician	4	4	0	0	('71)	3	1	4
					('76)	3	2	5
Physical Therapist Aide	13	9	4	7	('71)	14	11	32
					('76)	21	23	51
Social Service Case Aide	6	4	2	3	('71)	15	8	26
					('76)	22	16	41
Central Supply Worker	87	80	7	6	('71)	27	17	50
					('76)	49	42	97
Medical Secretary	142	127	15	19	('71)	69	60	148
					('76)	102	149	270
Secretary-Receptionist (Physician or Dentist's office)	800	583	217	29	('71)	243	258	530
					('76)	272	600	901
Bookkeeping Clerk	72	41	31	1	('71)	28	22	51
					('76)	42	54	97
Computer Operator	5	5	0	0	('71)	7	2	9
					('76)	7	7	14
Key Punch Operator	21	16	5	0	('71)	14	19	33
					('76)	17	47	64
Tabulating Machine Operator	2	1	1	0	('71)	8	4	12
					('76)	12	11	23

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Junior Programmer	1	0	1	0	('71)	3	0	3
					('76)	3	1	4
Nursing Unit Clerk	110	70	40	16	('71)	64	30	110
					('76)	109	78	203
Medical Record Clerk	6	5	1	1	('71)	9	2	12
					('76)	9	5	15
Recreation Director	36	28	8	3	('71)	24	11	38
					('76)	27	29	59
Dietitian	60	42	18	6	('71)	35	19	60
					('76)	45	47	98
Assistant Dietitian	74	58	16	4	('71)	22	18	44
					('76)	40	46	90
Chef	15	15	0	2	('71)	5	2	9
					('76)	5	6	13
Cook	177	141	36	8	('71)	54	66	128
					('76)	69	157	234
Cook Helper	81	67	14	6	('71)	49	47	102
					('76)	56	116	178
Meat Cutter	7	7	0	0	('71)	1	3	4
					('76)	1	5	6
Baker	6	6	0	1	('71)	5	1	7
					('76)	6	3	10
Food Service Supervisor	2	1	1	0	('71)	1	1	2
					('76)	1	1	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietary Aide	69	37	32	7	('71)	64	84	155
					('76)	72	205	284
Laundress	38	26	12	1	('71)	30	23	54
					('76)	34	57	92
Maintenance-General	72	46	26	5	('71)	42	38	85
					('76)	45	91	141

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Table XVII
Estimated Demand - 1967 to 1971 and 1976

MERIDEN LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1647	1080	567	120	('71)	668	630	1418
					('76)	945	1605	2670
Nurse, Supervisor	26	24	2	5	('71)	12	5	22
					('76)	20	18	43
Nurse, Head	52	47	5	0	('71)	10	12	22
					('76)	16	31	47
Nurse, Instructor	11	11	0	0	('71)	3	2	5
					('76)	7	6	13
Nurse, Staff	450	209	241	25	('71)	157	255	437
					('76)	217	614	856
Nurse Anesthetist	6	6	0	0	('71)	1	2	3
					('76)	1	5	6
Nurse, Licensed Practical	101	76	25	13	('71)	47	27	87
					('76)	69	67	149
Nurse Aide	468	321	147	34	('71)	194	131	359
					('76)	269	372	675
Mental Retardation Aide	0	0	0	0	('71)	16	2	18
					('76)	49	14	63
Psychiatric Aide	43	37	6	1	('71)	6	18	25
					('76)	12	45	58
Rehabilitation Aide	1	1	0	0	('71)	2	1	3
					('76)	4	3	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	36	23	13	12	('71)	19	15	46
					('76)	26	37	75
Pharmacy Helper	2	1	1	0	('71)	2	0	2
					('76)	3	1	4
E.E.G. Technician	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
E.K.G. Technician	11	2	9	0	('71)	1	4	5
					('76)	1	9	10
X-Ray Technician	18	15	3	1	('71)	7	5	13
					('76)	10	14	25
Cytotechnician	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Medical Laboratory Technician	44	30	14	4	('71)	15	14	33
					('76)	23	35	62
Operating Room Technician	9	8	1	0	('71)	3	2	5
					('76)	4	4	8
Inhalation Therapist	1	0	1	0	('71)	1	1	2
					('76)	1	2	3
Dental Hygienist	17	6	11	3	('71)	10	8	21
					('76)	12	19	34
Dental Assistant (Chairside only)	7	4	3	2	('71)	7	4	13
					('76)	8	13	23
Secretary-Dental Assistant	26	21	5	2	('71)	6	8	16
					('76)	7	17	26

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	5	5	0	1	('71)	3	2	6
					('76)	4	4	9
Formula Room Worker	4	2	2	0	('71)	0	1	1
					('76)	0	2	2
Pediatric Technician	4	3	1	0	('71)	0	1	1
					('76)	1	3	4
Physical Therapist Aide	7	7	0	0	('71)	6	4	10
					('76)	9	9	18
Social Service Case Aide	2	1	1	2	('71)	6	3	11
					('76)	10	7	19
Central Supply Worker	8	8	0	1	('71)	3	2	6
					('76)	4	5	10
Medical Secretary	18	14	4	2	('71)	11	7	20
					('76)	14	17	33
Secretary-Receptionist (Physician or Dentist's office)	119	85	34	5	('71)	33	38	76
					('76)	39	86	130
Bookkeeping Clerk	12	11	1	0	('71)	7	3	10
					('76)	8	8	16
Nursing Unit Clerk	14	13	1	0	('71)	8	3	11
					('76)	12	8	20
Medical Record Clerk	2	1	1	0	('71)	2	1	3
					('76)	3	2	5
Recreation Director	6	5	1	0	('71)	5	2	7
					('76)	5	5	10

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietitian	9	6	3	0	('71)	7	2	9
					('76)	9	5	14
Assistant Dietitian	6	4	2	2	('71)	3	1	6
					('76)	4	3	9
Chef	8	7	1	1	('71)	2	2	5
					('76)	2	5	8
Cook	37	27	10	2	('71)	11	11	24
					('76)	13	28	43
Cook Helper	12	8	4	1	('71)	13	7	21
					('76)	15	18	34
Baker	3	3	0	0	('71)	3	1	4
					('76)	3	2	5
Dietary Aide	15	10	5	0	('71)	11	13	24
					('76)	13	37	50
Laundress	8	5	3	0	('71)	4	3	7
					('76)	5	7	12
Maintenance-General	18	12	6	1	('71)	10	7	18
					('76)	12	18	31

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Table XVIII
Estimated Demand - 1967 to 1971 and 1976

MIDDLETOWN LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1924	1462	462	132	('71)	431	871	1434
					('76)	582	2024	2738
Nurse, Supervisor	27	27	0	0	('71)	6	5	11
					('76)	8	15	23
Nurse, Head	67	56	11	7	('71)	8	12	27
					('76)	13	28	48
Nurse, Instructor	15	13	2	0	('71)	2	3	5
					('76)	4	7	11
Nurse, Staff	337	161	176	32	('71)	78	221	331
					('76)	133	499	664
Nurse, Licensed Practical	131	95	36	20	('71)	46	42	108
					('76)	65	110	195
Nurse Aide	348	246	102	20	('71)	126	130	276
					('76)	156	319	495
Psychiatric Aide	547	539	8	21	('71)	0	216	237
					('76)	0	474	495
Rehabilitation Aide	1	1	0	0	('71)	6	2	8
					('76)	6	4	10
Orderly	31	15	16	2	('71)	14	52	68
					('76)	21	115	138
Pharmacy Helper	1	0	1	0	('71)	1	2	3
					('76)	2	5	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.E.G. Technician	2	2	0	0	('71)	0	3	3
					('76)	1	6	7
E.K.G. Technician	3	3	0	0	('71)	2	2	4
					('76)	3	7	10
X-Ray Technician	12	11	1	0	('71)	6	4	10
					('76)	8	10	18
Cytotechnician	2	2	0	0	('71)	0	1	1
					('76)	0	3	3
Medical Laboratory Technician	13	11	2	4	('71)	2	8	14
					('76)	4	19	27
Operating Room Technician	2	2	0	1	('71)	5	3	9
					('76)	5	9	15
Inhalation Therapist	3	2	1	0	('71)	1	2	3
					('76)	2	5	7
Dental Hygienist	14	5	9	2	('71)	8	7	17
					('76)	9	16	27
Dental Assistant (Chairside only)	6	4	2	1	('71)	6	4	11
					('76)	7	11	19
Secretary-Dental Assistant	21	17	4	0	('71)	5	7	12
					('76)	6	15	21
Dental Laboratory Technician	4	4	0	0	('71)	2	1	3
					('76)	3	3	6
Pediatric Technician	10	9	1	0	('71)	5	9	14
					('76)	5	23	28

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Physical Therapist Aide	2	0	2	1	('71)	4	3	8
					('76)	4	6	11
Social Service Case Aide	16	15	1	2	('71)	1	3	6
					('76)	1	8	11
Central Supply Worker	7	7	0	0	('71)	5	4	9
					('76)	5	11	16
Medical Secretary	6	5	1	1	('71)	1	3	5
					('76)	2	6	9
Secretary-Receptionist (Physician or Dentist's office)	119	85	34	6	('71)	33	38	77
					('76)	39	84	129
Bookkeeping Clerk	6	2	4	0	('71)	2	4	6
					('76)	3	9	12
Computer Operator	1	1	0	0	('71)	1	1	2
					('76)	1	3	4
Key Punch Operator	4	2	2	0	('71)	3	4	7
					('76)	3	10	13
Nursing Unit Clerk	26	15	11	0	('71)	3	22	25
					('76)	6	49	55
Medical Record Clerk	1	1	0	1	('71)	3	1	5
					('76)	3	2	6
Recreation Director	8	7	1	0	('71)	4	2	6
					('76)	4	5	9
Dietitian	6	3	3	0	('71)	3	1	4
					('76)	4	4	8

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Assistant Dietitian	2	2	0	0	('71)	2	2	4
					('76)	3	5	8
Chef	4	4	0	0	('71)	1	1	2
					('76)	1	3	4
Cook	67	55	12	5	('71)	4	19	28
					('76)	6	44	55
Cook Helper	11	7	4	2	('71)	6	6	14
					('76)	7	16	25
Baker	1	1	0	0	('71)	2	1	3
					('76)	2	3	5
Food Service Supervisor	0	0	0	1	('71)	2	0	3
					('76)	2	1	4
Dietary Aide	8	5	3	2	('71)	9	7	18
					('76)	10	21	33
Laundress	12	8	4	0	('71)	4	5	9
					('76)	5	12	17
Maintenance-General	20	12	8	1	('71)	9	8	18
					('76)	10	19	30

Table XVIX
Estimated Demand - 1967 to 1971 and 1976

NEW BRITAIN LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1383	921	462	109	('71)	373	615	1097
					('76)	441	1436	1986
Nurse, Supervisor	18	12	6	1	('71)	13	3	17
					('76)	13	10	24
Nurse, Head	33	33	0	1	('71)	23	8	32
					('76)	23	22	46
Nurse, Instructor	25	22	3	0	('71)	7	6	13
					('76)	8	14	22
Nurse, Staff	341	155	186	26	('71)	58	223	307
					('76)	84	499	609
Nurse Anesthetist	17	10	7	1	('71)	4	4	9
					('76)	4	10	15
Nurse, Licensed Practical	85	48	37	18	('71)	23	26	67
					('76)	26	64	108
Nurse Aide	364	296	68	21	('71)	80	142	243
					('76)	90	336	447
Orderly	31	11	20	6	('71)	5	21	32
					('76)	5	48	59
Pharmacy Helper	2	2	0	0	('71)	2	2	4
					('76)	2	4	6
E.E.G. Technician	1	1	0	0	('71)	0	1	1
					('76)	0	2	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.K.G. Technician	4	2	2	0	('71)	0	1	1
					('76)	0	2	2
X-Ray Technician	15	14	1	1	('71)	6	13	20
					('76)	8	28	37
Cytotechnician	4	3	1	1	('71)	1	1	3
					('76)	2	3	6
Medical Laboratory Technician	46	37	9	5	('71)	8	10	23
					('76)	11	24	40
Operating Room Technician	7	7	0	0	('71)	0	3	3
					('76)	0	6	6
Inhalation Therapist	11	8	3	6	('71)	22	8	36
					('76)	31	20	57
Dental Hygienist	20	11	9	4	('71)	12	8	24
					('76)	14	22	40
Dental Assistant (Chairside only)	8	5	3	2	('71)	8	5	15
					('76)	9	14	25
Secretary-Dental Assistant	31	25	6	0	('71)	8	10	18
					('76)	9	21	30
Dental Laboratory Technician	8	7	1	2	('71)	4	3	9
					('76)	6	6	14
Pediatric Technician	5	2	3	0	('71)	0	3	3
					('76)	0	6	6
Physical Therapist Aide	4	3	1	0	('71)	2	3	5
					('76)	2	8	10
Social Service Case Aide	3	1	2	0	('71)	2	1	3
					('76)	2	3	5

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Central Supply Worker	12	12	0	0	('71)	2	3	5
					('76)	2	7	9
Medical Secretary	6	4	2	0	('71)	0	5	5
					('76)	0	11	11
Secretary-Receptionist (Physician or Dentist's office)	157	112	45	6	('71)	44	49	99
					('76)	49	112	167
Bookkeeping Clerk	3	3	0	0	('71)	1	3	4
					('76)	1	7	8
Computer Operator	0	0	0	0	('71)	3	0	3
					('76)	4	2	6
Key Punch Operator	5	2	3	1	('71)	2	4	7
					('76)	2	9	12
Tabulating Machine Operator	2	2	0	0	('71)	0	0	0
					('76)	0	0	0
Junior Programmer	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Nursing Unit Clerk	30	20	10	0	('71)	9	9	18
					('76)	10	33	43
Medical Record Clerk	1	0	1	1	('71)	1	1	3
					('76)	1	2	4
Recreation Director	4	3	1	1	('71)	1	0	2
					('76)	1	2	4
Dietitian	8	3	5	1	('71)	3	1	5
					('76)	3	3	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Assistant Dietitian	6	4	2	0	('71)	2	2	4
					('76)	2	4	6
Chef	2	2	0	0	('71)	0	0	0
					('76)	0	0	0
Cook	20	15	5	0	('71)	2	6	8
					('76)	2	13	15
Cook Helper	10	8	2	0	('71)	4	8	12
					('76)	4	17	21
Meat Cutter	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Baker	2	2	0	1	('71)	0	1	2
					('76)	0	1	2
Food Service Supervisor	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Dietary Aide	12	6	6	2	('71)	4	11	17
					('76)	4	25	31
Laundress	7	2	5	1	('71)	3	3	7
					('76)	3	6	10
Maintenance-General	11	4	7	0	('71)	3	4	7
					('76)	3	9	12

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Table XX
Estimated Demand - 1967 to 1971 and 1976

NEW HAVEN LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	4998	3743	1255	552	('71)	1311	2011	3874
					('76)	2005	4705	7262
Nurse, Supervisor	82	77	5	5	('71)	9	13	27
					('76)	15	29	49
Nurse, Head	134	134	0	10	('71)	12	23	45
					('76)	25	52	87
Nurse, Instructor	41	34	7	5	('71)	1	5	11
					('76)	1	11	17
Nurse, Staff	1181	816	365	130	('71)	189	638	957
					('76)	307	1504	1941
Nurse Anesthetist	16	15	1	1	('71)	2	10	13
					('76)	3	22	26
Nurse, Licensed Practical	435	303	132	141	('71)	110	146	397
					('76)	194	324	659
Nurse Aide	1042	759	283	84	('71)	200	401	685
					('76)	373	921	1378
Mental Retardation Aide	35	35	0	0	('71)	59	14	73
					('76)	85	41	126
Psychiatric Aide	90	86	4	14	('71)	44	37	95
					('76)	52	100	166
Rehabilitation Aide	0	0	0	0	('71)	1	0	1
					('76)	2	1	3

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	34	19	15	8	('71)	15	15	38
					('76)	25	35	68
Pharmacy Helper	13	13	0	0	('71)	3	4	7
					('76)	6	9	15
E.E.G. Technician	5	4	1	0	('71)	6	2	8
					('76)	7	5	12
E.K.G. Technician	13	12	1	0	('71)	11	3	14
					('76)	14	6	20
X-Ray Technician	65	59	6	11	('71)	26	42	79
					('76)	39	76	126
Cytotechnician	1	1	0	0	('71)	0	0	0
					('76)	1	0	1
Medical Laboratory Technician	130	106	24	13	('71)	38	50	101
					('76)	80	111	204
Operating Room Technician	43	43	0	0	('71)	4	8	12
					('76)	8	16	24
Inhalation Therapist	34	30	4	7	('71)	25	9	41
					('76)	40	20	67
Dental Hygienist	86	44	42	20	('71)	64	48	132
					('76)	75	124	219
Dental Assistant (Chairside only)	80	58	22	19	('71)	79	55	153
					('76)	90	157	266
Secretary-Dental Assistant	169	133	36	6	('71)	38	52	96
					('76)	43	111	160

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	69	62	7	11	('71)	24	25	60
					('76)	42	51	104
Pediatric Technician	13	10	3	0	('71)	0	5	5
					('76)	0	10	10
Physical Therapist Aide	12	12	0	2	('71)	9	5	16
					('76)	18	11	31
Social Service Case Aide	24	24	0	3	('71)	49	16	68
					('76)	68	35	106
Central Supply Worker	43	41	2	0	('71)	3	22	25
					('76)	6	47	53
Medical Secretary	49	47	2	2	('71)	11	14	27
					('76)	17	32	51
Secretary-Receptionist	503	363	140	20	('71)	142	163	325
(Physician or Dentist's office)					('76)	159	373	552
Bookkeeping Clerk	3	3	0	0	('71)	1	1	2
					('76)	1	3	4
Computer Operator	2	2	0	0	('71)	4	0	4
					('76)	6	0	6
Key Punch Operator	13	13	0	0	('71)	3	3	6
					('76)	5	7	12
Tabulating Machine Operator	3	3	0	0	('71)	2	1	3
					('76)	2	3	5
Junior Programmer	1	1	0	1	('71)	4	2	7
					('76)	9	4	14

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Nursing Unit Clerk	121	87	34	9	('71)	16	37	62
					('76)	34	79	122
Medical Record Clerk	3	1	2	1	('71)	4	2	7
					('76)	5	5	11
Recreation Director	17	15	2	2	('71)	9	4	15
					('76)	12	11	25
Dietitian	41	31	10	0	('71)	6	7	13
					('76)	9	15	24
Assistant Dietitian	19	16	3	0	('71)	2	4	6
					('76)	4	9	13
Chef	6	6	0	0	('71)	0	0	0
					('76)	0	2	2
Cook	104	84	20	8	('71)	6	23	37
					('76)	13	53	74
Cook Helper	57	40	17	12	('71)	9	24	45
					('76)	21	68	101
Meat Cutter	2	1	1	0	('71)	1	0	1
					('76)	1	1	2
Baker	6	6	0	0	('71)	1	0	1
					('76)	1	2	3
Food Service Supervisor	32	23	9	1	('71)	4	8	13
					('76)	7	18	26
Dietary Aide	46	26	20	4	('71)	28	38	70
					('76)	37	110	151

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Laundress	26	14	12	0	('71)	16	12	28
					('76)	20	32	52
Maintenance-General	54	31	23	2	('71)	21	20	43
					('76)	23	49	74

Health Occupations
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Table XXI
Estimated Demand - 1967 to 1971 and 1976

NEW LONDON LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1301	932	369	133	('71)	305	471	909
					('76)	342	1104	1579
Nurse, Supervisor	21	18	3	0	('71)	3	3	6
					('76)	3	7	10
Nurse, Head	31	31	0	2	('71)	2	4	8
					('76)	2	11	15
Nurse, Instructor	18	17	1	0	('71)	0	4	4
					('76)	0	9	9
Nurse, Staff	334	206	128	42	('71)	51	178	271
					('76)	62	403	507
Nurse Anesthetist	10	10	0	0	('71)	0	3	3
					('76)	0	7	7
Nurse, Licensed Practical	84	54	30	18	('71)	19	21	58
					('76)	22	53	93
Nurse Aide	263	178	85	29	('71)	90	79	198
					('76)	96	189	314
Mental Retardation Aide	86	72	14	0	('71)	18	16	34
					('76)	18	41	59
Orderly	9	2	7	11	('71)	4	4	19
					('76)	4	10	25
E.E.G. Technician	2	1	1	0	('71)	0	1	1
					('76)	0	2	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.K.G. Technician	4	4	0	0	('71)	0	1	1
					('76)	0	2	2
X-Ray Technician	15	15	0	0	('71)	1	5	6
					('76)	1	11	12
Cytotechnician	3	3	0	1	('71)	0	1	2
					('76)	0	2	3
Medical Laboratory Technician	26	23	3	3	('71)	3	8	14
					('76)	4	19	26
Operating Room Technician	17	17	0	0	('71)	0	3	3
					('76)	0	8	8
Inhalation Therapist	3	1	2	5	('71)	0	3	8
					('76)	0	7	12
Dental Hygienist	19	8	11	4	('71)	13	8	25
					('76)	14	23	41
Dental Assistant (Chairside only)	9	5	4	2	('71)	9	6	17
					('76)	10	16	28
Secretary-Dental Assistant	32	26	6	0	('71)	7	11	18
					('76)	8	21	29
Dental Laboratory Technician	12	10	2	2	('71)	5	4	11
					('76)	8	9	19
Pediatric Technician	8	8	0	1	('71)	0	3	4
					('76)	0	8	9
Physical Therapist Aide	2	2	0	0	('71)	0	0	0
					('76)	0	1	1

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Social Service Case Aide	1	1	0	0	('71)	0	1	1
					('76)	0	2	2
Central Supply Worker	15	15	0	2	('71)	0	4	6
					('76)	0	8	10
Medical Secretary	12	10	2	0	('71)	3	5	8
					('76)	5	10	15
Secretary-Receptionist (Physician or Dentist's office)	154	110	44	6	('71)	43	48	97
					('76)	48	110	164
Nursing Unit Clerk	24	24	0	0	('71)	0	11	11
					('76)	0	24	24
Medical Record Clerk	0	0	0	0	('71)	2	0	2
					('76)	2	1	3
Recreation Director	4	3	1	0	('71)	2	1	3
					('76)	2	2	4
Dietitian	5	3	2	0	('71)	2	0	2
					('76)	2	1	3
Assistant Dietitian	10	10	0	0	('71)	0	2	2
					('76)	0	6	6
Chef	3	3	0	0	('71)	0	0	0
					('76)	0	1	1
Cook	30	21	9	1	('71)	4	8	13
					('76)	5	19	25
Cook Helper	8	6	2	0	('71)	7	6	13
					('76)	8	15	23

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Baker	4	4	0	0	('71)	0	1	1
					('76)	0	2	2
Dietary Aide	11	7	4	3	('71)	8	11	22
					('76)	9	28	40
Laundress	7	2	5	0	('71)	2	3	5
					('76)	2	7	9
Maintenance-General	8	5	3	1	('71)	7	4	12
					('76)	7	9	17

Table XXII
Estimated Demand - 1967 to 1971 and 1976

NORWALK LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1278	922	356	89	('71)	228	483	800
					('76)	305	1121	1515
Nurse, Supervisor	24	22	2	1	('71)	2	3	6
					('76)	3	9	13
Nurse, Head	35	33	2	1	('71)	2	9	12
					('76)	4	20	25
Nurse, Instructor	15	9	6	0	('71)	0	4	4
					('76)	1	8	9
Nurse, Staff	328	196	132	36	('71)	40	191	267
					('76)	52	437	525
Nurse Anesthetist	1	0	1	0	('71)	0	0	0
					('76)	0	0	0
Nurse, Licensed Practical	58	42	16	5	('71)	13	16	34
					('76)	19	38	62
Nurse Aide	263	204	59	13	('71)	21	77	111
					('76)	32	178	223
Orderly	13	10	3	2	('71)	2	6	10
					('76)	2	13	17
E.E.G. Technician	2	2	0	0	('71)	0	0	0
					('76)	1	1	2
E.K.G. Technician	1	1	0	0	('71)	1	1	2
					('76)	2	2	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
X-Ray Technician	14	13	1	0	('71)	4	6	10
					('76)	5	14	19
Cytotechnician	3	2	1	1	('71)	1	1	3
					('76)	2	2	5
Medical Laboratory Technician	46	35	11	3	('71)	5	13	21
					('76)	8	28	39
Operating Room Technician	6	6	0	0	('71)	0	2	2
					('76)	1	4	5
Dental Hygienist	32	14	18	7	('71)	20	15	42
					('76)	24	38	69
Dental Assistant (Chairside only)	26	17	9	5	('71)	26	19	50
					('76)	29	52	86
Secretary-Dental Assistant	60	48	12	3	('71)	13	17	33
					('76)	15	37	55
Dental Laboratory Technician	10	9	1	2	('71)	3	3	8
					('76)	5	7	14
Pediatric Technician	19	19	0	0	('71)	1	7	8
					('76)	2	16	18
Physical Therapist Aide	2	1	1	1	('71)	1	1	3
					('76)	1	3	5
Social Service Case Aide	1	1	0	0	('71)	1	1	2
					('76)	2	2	4
Central Supply Worker	14	14	0	0	('71)	1	2	3
					('76)	2	5	7

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Medical Secretary	4	2	2	0	('71)	1	2	3
					('76)	2	4	6
Secretary-Receptionist (Physician or Dentist's office)	205	148	57	8	('71)	57	65	130
					('76)	65	150	223
Bookkeeping Clerk	2	2	0	0	('71)	0	0	0
					('76)	1	1	2
Computer Operator	1	1	0	0	('71)	0	0	0
					('76)	1	0	1
Key Punch Operator	4	3	1	0	('71)	1	1	2
					('76)	2	2	4
Junior Programmer	1	1	0	0	('71)	0	0	0
					('76)	1	0	1
Nursing Unit Clerk	17	10	7	0	('71)	0	4	4
					('76)	1	9	10
Medical Record Clerk	2	2	0	0	('71)	1	2	3
					('76)	1	4	5
Recreation Director	4	4	0	0	('71)	2	1	3
					('76)	2	2	4
Dietitian	7	4	3	0	('71)	0	0	0
					('76)	1	1	2
Assistant Dietitian	8	7	1	0	('71)	1	2	3
					('76)	2	4	6
Chef	2	2	0	0	('71)	0	0	0
					('76)	0	0	0

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	13	10	3	0	('71)	2	3	5
					('76)	3	8	11
Cook Helper	4	3	1	1	('71)	1	2	4
					('76)	2	4	7
Baker	1	1	0	0	('71)	0	0	0
					('76)	1	0	1
Dietary Aide	16	13	3	0	('71)	3	3	6
					('76)	5	8	13
Laundress	4	4	0	0	('71)	1	1	2
					('76)	1	3	4
Maintenance-General	10	7	3	0	('71)	1	3	4
					('76)	2	7	9

Table XXIII
Estimated Demand - 1967 to 1971 and 1976

NORWICH LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1893	1533	360	136	('71)	171	756	1063
					('76)	216	1639	1991
Nurse, Supervisor	43	32	11	1	('71)	3	8	12
					('76)	5	20	26
Nurse, Head	76	75	1	6	('71)	4	19	29
					('76)	4	41	51
Nurse, Instructor	13	11	2	2	('71)	0	4	6
					('76)	0	9	11
Nurse, Staff	291	136	155	52	('71)	29	197	278
					('76)	39	372	463
Nurse Anesthetist	4	4	0	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Licensed Practical	100	78	22	23	('71)	16	31	70
					('76)	22	68	113
Nurse Aide	321	246	75	15	('71)	42	98	155
					('76)	52	218	285
Psychiatric Aide	624	608	16	14	('71)	0	263	277
					('76)	0	579	593
Rehabilitation Aide	7	7	0	0	('71)	1	3	4
					('76)	1	9	10
Orderly	20	12	8	1	('71)	2	9	12
					('76)	4	22	27

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.E.G. Technician	1	1	0	0	('71)	0	0	0
					('76)	0	1	1
E.K.G. Technician	3	3	0	0	('71)	0	1	1
					('76)	0	3	3
X-Ray Technician	15	13	2	2	('71)	3	6	11
					('76)	4	14	20
Cytotechnician	1	0	1	0	('71)	0	1	1
					('76)	0	2	2
Medical Laboratory Technician	33	28	5	3	('71)	4	8	15
					('76)	5	21	29
Operating Room Technician	4	2	2	2	('71)	2	3	7
					('76)	2	7	11
Inhalation Therapist	0	0	0	0	('71)	1	0	1
					('76)	2	1	3
Dental Hygienist	9	5	4	1	('71)	6	5	12
					('76)	7	12	20
Dental Assistant (Chairside only)	4	3	1	1	('71)	4	2	7
					('76)	5	7	13
Secretary-Dental Assistant	16	13	3	0	('71)	4	5	9
					('76)	4	10	14
Dental Laboratory Technician	3	3	0	0	('71)	2	1	3
					('76)	3	2	5
Pediatric Technician	5	5	0	0	('71)	0	2	2
					('76)	0	5	5

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Physical Therapist Aide	0	0	0	0	('71)	1	0	1
					('76)	2	0	2
Social Service Case Aide	8	7	1	2	('71)	1	2	5
					('76)	2	5	9
Central Supply Worker	11	11	0	0	('71)	2	3	5
					('76)	2	7	9
Medical Secretary	8	8	0	0	('71)	1	3	4
					('76)	2	8	10
Secretary-Receptionist (Physician or Dentist's office)	80	57	23	4	('71)	23	25	52
					('76)	26	60	90
Bookkeeping Clerk	2	2	0	0	('71)	1	0	1
					('76)	1	1	2
Nursing Unit Clerk	11	7	4	0	('71)	3	2	5
					('76)	6	6	12
Medical Record Clerk	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Recreation Director	8	6	2	0	('71)	0	2	2
					('76)	0	4	4
Dietitian	5	2	3	1	('71)	2	2	5
					('76)	2	3	6
Assistant Dietitian	2	2	0	0	('71)	0	1	1
					('76)	0	2	2
Chef	18	18	0	0	('71)	1	4	5
					('76)	1	11	12

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	62	56	6	0	('71)	3	15	18
					('76)	3	36	39
Cook Helper	22	21	1	0	('71)	3	8	11
					('76)	3	19	22
Baker	4	4	0	0	('71)	0	1	1
					('76)	0	2	2
Food Service Supervisor	21	21	0	0	('71)	0	4	4
					('76)	0	10	10
Dietary Aide	15	11	4	3	('71)	3	10	16
					('76)	3	23	29
Laundress	9	7	2	1	('71)	1	3	5
					('76)	1	7	9
Maintenance-General	14	8	6	2	('71)	2	4	8
					('76)	2	10	14

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Table XXIV
Estimated Demand - 1967 to 1971 and 1976

STAMFORD LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	2753	1825	928	294	('71)	1063	984	2341
					('76)	1248	2429	3971
Nurse, Supervisor	41	32	9	6	('71)	10	11	27
					('76)	11	28	45
Nurse, Head	91	88	3	1	('71)	15	18	34
					('76)	19	45	65
Nurse, Instructor	25	17	8	5	('71)	5	4	14
					('76)	6	11	22
Nurse, Staff	640	364	276	94	('71)	149	322	565
					('76)	194	767	1055
Nurse Anesthetist	8	7	1	0	('71)	5	0	5
					('76)	7	1	8
Nurse, Licensed Practical	184	134	50	40	('71)	99	46	185
					('76)	117	118	275
Nurse Aide	641	375	266	47	('71)	294	183	524
					('76)	328	473	848
Mental Retardation Aide	0	0	0	0	('71)	52	3	55
					('76)	57	17	74
Psychiatric Aide	4	4	0	0	('71)	9	3	12
					('76)	9	7	16
Rehabilitation Aide	0	0	0	0	('71)	5	2	7
					('76)	5	4	9

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Orderly	32	21	11	22	('71)	27	18	67
					('76)	35	44	101
Pharmacy Helper	3	2	1	0	('71)	4	1	5
					('76)	5	3	8
E.E.G. Technician	7	5	2	0	('71)	2	2	4
					('76)	3	4	7
E.K.G. Technician	12	7	5	1	('71)	3	3	7
					('76)	4	7	12
X-Ray Technician	43	35	8	2	('71)	11	15	28
					('76)	13	37	52
Cytotechnician	4	3	1	3	('71)	4	3	10
					('76)	5	7	15
Medical Laboratory Technician	81	53	28	2	('71)	24	31	57
					('76)	30	69	101
Operating Room Technician	7	4	3	4	('71)	8	4	16
					('76)	8	10	22
Inhalation Therapist	16	12	4	3	('71)	8	3	14
					('76)	9	7	19
Dental Hygienist	44	19	25	10	('71)	31	22	63
					('76)	36	65	111
Dental Assistant (Chairside only)	36	21	15	9	('71)	36	24	69
					('76)	39	69	117
Secretary-Dental Assistant	83	68	15	5	('71)	18	23	46
					('76)	20	52	77

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dental Laboratory Technician	22	18	4	4	('71)	8	8	20
					('76)	14	16	34
Formula Room Worker	2	1	1	0	('71)	0	0	0
					('76)	0	0	0
Pediatric Technician	25	18	7	0	('71)	12	7	19
					('76)	14	19	33
Physical Therapist Aide	4	3	1	3	('71)	9	2	14
					('76)	10	5	18
Social Service Case Aide	0	0	0	2	('71)	9	1	12
					('76)	10	4	16
Central Supply Worker	37	33	4	2	('71)	6	13	21
					('76)	10	28	40
Medical Secretary	26	19	7	2	('71)	3	9	14
					('76)	4	18	24
Secretary-Receptionist (Physician or Dentist's office)	380	272	108	14	('71)	102	116	232
					('76)	115	266	395
Bookkeeping Clerk	25	16	9	0	('71)	0	4	4
					('76)	0	10	10
Computer Operator	1	1	0	0	('71)	3	1	4
					('76)	4	4	8
Key Punch Operator	4	2	2	0	('71)	7	2	9
					('76)	7	8	15
Junior Programmer	0	0	0	0	('71)	1	0	1
					('76)	1	1	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Nursing Unit Clerk	50	36	14	0	('71)	13	10	23
					('76)	19	25	44
Medical Record Clerk	1	1	0	0	('71)	2	0	2
					('76)	2	1	3
Recreation Director	9	8	1	1	('71)	5	2	8
					('76)	5	4	10
Dietitian	18	9	9	2	('71)	8	6	16
					('76)	8	14	24
Assistant Dietitian	13	13	0	0	('71)	3	4	7
					('76)	5	10	15
Chef	7	7	0	0	('71)	1	1	2
					('76)	1	4	5
Cook	43	36	7	3	('71)	12	12	27
					('76)	15	31	49
Cook Helper	19	16	3	0	('71)	9	7	16
					('76)	11	20	31
Meat Cutter	1	1	0	2	('71)	0	1	3
					('76)	0	2	4
Baker	3	3	0	0	('71)	1	0	1
					('76)	2	2	4
Food Service Supervisor	1	1	0	0	('71)	1	0	1
					('76)	1	1	2
Dietary Aide	31	22	9	2	('71)	20	26	48
					('76)	21	65	88

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Laundress	10	7	3	0	('71)	3	4	7
					('76)	3	9	12
Maintenance-General	19	11	8	3	('71)	6	7	16
					('76)	6	17	26

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Table XXV
Estimated Demand - 1967 to 1971 and 1976

TORRINGTON LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	896	611	285	61	('71)	342	355	758
					('76)	503	875	1439
Nurse, Supervisor	20	18	2	3	('71)	5	7	15
					('76)	9	16	28
Nurse, Head	25	25	0	0	('71)	8	9	17
					('76)	13	19	32
Nurse, Instructor	3	1	2	0	('71)	1	0	1
					('76)	2	2	4
Nurse, Staff	281	170	111	17	('71)	76	121	214
					('76)	129	312	458
Nurse Anesthetist	4	4	0	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Licensed Practical	66	49	17	4	('71)	26	24	54
					('76)	39	57	100
Nurse Aide	167	121	46	11	('71)	53	55	119
					('76)	73	135	219
Mental Retardation Aide	0	0	0	0	('71)	48	3	51
					('76)	53	16	69
Psychiatric Aide	0	0	0	0	('71)	5	2	7
					('76)	10	5	15
Orderly	23	12	11	4	('71)	7	14	25
					('76)	12	29	45

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Pharmacy Helper	1	0	1	0	('71)	1	1	2
					('76)	2	2	4
E.K.G. Technician	5	4	1	0	('71)	1	3	4
					('76)	2	6	8
X-Ray Technician	16	12	4	1	('71)	5	7	13
					('76)	7	16	24
Cytotechnician	1	0	1	1	('71)	0	0	1
					('76)	0	0	1
Medical Laboratory Technician	27	20	7	4	('71)	5	10	19
					('76)	8	23	35
Operating Room Technician	6	6	0	1	('71)	3	4	8
					('76)	6	9	16
Inhalation Therapist	3	3	0	0	('71)	1	1	2
					('76)	2	2	4
Dental Hygienist	13	6	7	2	('71)	8	6	16
					('76)	8	13	23
Dental Assistant (Chairside only)	6	3	3	1	('71)	6	4	11
					('76)	7	11	19
Secretary-Dental Assistant	20	16	4	3	('71)	4	5	12
					('76)	4	13	20
Dental Laboratory Technician	4	4	0	0	('71)	1	1	2
					('76)	2	3	5
Formula Room Worker	1	0	1	0	('71)	1	1	2
					('76)	2	2	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Pediatric Technician	0	0	0	0	('71)	1	0	1
					('76)	3	1	4
Physical Therapist Aide	1	1	0	0	('71)	1	1	2
					('76)	2	2	4
Social Service Case Aide	0	0	0	0	('71)	4	1	5
					('76)	4	2	6
Central Supply Worker	6	4	2	2	('71)	2	3	7
					('76)	6	7	15
Medical Secretary	6	6	0	0	('71)	1	2	3
					('76)	4	5	9
Secretary-Receptionist (Physician or Dentist's office)	99	71	28	2	('71)	28	32	62
					('76)	32	73	107
Bookkeeping Clerk	10	8	2	0	('71)	1	1	2
					('76)	2	2	4
Key Punch Operator	2	2	0	0	('71)	1	1	2
					('76)	4	3	7
Tabulating Machine Operator	3	1	2	0	('71)	0	0	0
					('76)	1	1	2
Nursing Unit Clerk	18	4	14	2	('71)	12	10	24
					('76)	20	26	48
Recreation Director	3	1	2	0	('71)	1	0	1
					('76)	1	1	2
Dietitian	5	4	1	0	('71)	2	1	3
					('76)	3	3	6

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Assistant Dietitian	5	4	1	1	('71)	1	2	4
					('76)	2	4	7
Chef	5	5	0	0	('71)	3	4	7
					('76)	7	7	14
Cook	14	10	4	1	('71)	6	4	11
					('76)	7	10	18
Cook Helper	11	7	4	0	('71)	6	6	12
					('76)	7	14	21
Baker	2	1	1	0	('71)	0	1	1
					('76)	1	2	3
Dietary Aide	6	3	3	1	('71)	2	4	7
					('76)	2	11	14
Laundress	4	3	1	0	('71)	2	1	3
					('76)	2	3	5
Maintenance-General	4	2	2	0	('71)	3	2	5
					('76)	3	5	8

Health Occupations
Study
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Table XXVI
Estimated Demand - 1967 to 1971 and 1976

WATERBURY LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	3204	2215	989	277	('71)	914	1314	2505
					('76)	1039	2942	4258
Nurse, Supervisor	15	14	1	2	('71)	5	3	10
					('76)	5	6	13
Nurse, Head	50	47	3	2	('71)	7	11	20
					('76)	7	24	33
Nurse, Instructor	5	4	1	1	('71)	1	1	3
					('76)	1	2	4
Nurse, Staff	886	473	413	120	('71)	217	637	974
					('76)	239	1404	1763
Nurse Anesthetist	11	11	0	1	('71)	2	3	6
					('76)	2	6	9
Nurse, Licensed Practical	175	120	55	22	('71)	67	64	153
					('76)	77	146	245
Nurse Aide	597	375	222	46	('71)	253	176	475
					('76)	279	418	743
Mental Retardation Aide	543	506	37	29	('71)	56	92	177
					('76)	99	194	322
Orderly	40	27	13	7	('71)	25	18	50
					('76)	25	45	77
Pharmacy Helper	4	3	1	0	('71)	1	1	2
					('76)	1	2	3

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.E.G. Technician	4	2	2	0	('71)	2	2	4
					('76)	2	4	6
E.K.G. Technician	5	5	0	0	('71)	1	2	3
					('76)	1	4	5
X-Ray Technician	20	16	4	2	('71)	7	7	16
					('76)	7	16	25
Cytotechnician	3	3	0	0	('71)	1	0	1
					('76)	1	1	2
Medical Laboratory Technician	33	27	6	4	('71)	15	10	29
					('76)	18	24	46
Operating Room Technician	4	3	1	0	('71)	3	1	4
					('76)	3	3	6
Inhalation Therapist	6	4	2	0	('71)	2	2	4
					('76)	2	4	6
Dental Hygienist	45	15	30	10	('71)	22	13	45
					('76)	22	31	63
Dental Assistant (Chairside only)	23	13	10	5	('71)	22	16	43
					('76)	22	41	68
Secretary-Dental Assistant	75	70	5	0	('71)	10	24	34
					('76)	10	50	60
Dental Laboratory Technician	11	10	1	2	('71)	7	4	13
					('76)	9	10	21
Physical Therapist Aide	5	4	1	0	('71)	3	3	6
					('76)	5	6	11

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Social Service Case Aide	2	2	0	0	('71)	2	0	2
					('76)	3	0	3
Central Supply Worker	14	12	2	1	('71)	3	4	8
					('76)	3	8	12
Medical Secretary	18	17	1	0	('71)	3	7	10
					('76)	4	17	21
Secretary-Receptionist (Physician or Dentist's office)	238	165	73	12	('71)	56	75	143
					('76)	66	169	247
Bookkeeping Clerk	15	9	6	0	('71)	2	7	9
					('76)	3	14	17
Nursing Unit Clerk	16	9	7	0	('71)	2	5	7
					('76)	2	10	12
Medical Record Clerk	1	1	0	0	('71)	2	0	2
					('76)	2	0	2
Recreation Director	17	12	5	0	('71)	14	3	17
					('76)	14	8	22
Dietitian	14	10	4	2	('71)	4	2	8
					('76)	4	4	10
Assistant Dietitian	5	5	0	0	('71)	0	1	1
					('76)	0	2	2
Chef	3	3	0	0	('71)	1	0	1
					('76)	1	0	1
Cook	137	108	29	2	('71)	23	24	49
					('76)	25	54	81

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook Helper	55	41	14	1	('71)	16	17	34
					('76)	17	39	57
Baker	3	3	0	0	('71)	0	1	1
					('76)	1	2	3
Dietary Aide	52	26	26	4	('71)	31	44	79
					('76)	31	101	136
Laundress	21	18	3	1	('71)	10	11	22
					('76)	10	26	37
Maintenance-General	33	22	11	1	('71)	16	23	40
					('76)	16	47	64

Health Occupations
Study
Connecticut

Table XXVII
Estimated Demand - 1967 to 1971 and 1976

WILLIMANTIC LABOR MARKET AREA

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Studied)	1082	908	174	89	('71)	245	352	686
					('76)	360	848	1297
Nurse, Supervisor	6	6	0	0	('71)	2	0	2
					('76)	3	1	4
Nurse, Head	17	17	0	0	('71)	5	4	9
					('76)	7	11	18
Nurse, Instructor	3	3	0	0	('71)	1	2	3
					('76)	1	4	5
Nurse, Staff	131	77	54	17	('71)	36	71	124
					('76)	55	167	239
Nurse Anesthetist	1	1	0	0	('71)	0	1	1
					('76)	0	2	2
Nurse, Licensed Practical	57	47	10	19	('71)	25	15	59
					('76)	38	39	96
Nurse Aide	132	95	37	19	('71)	68	47	134
					('76)	105	115	239
Mental Retardation Aide	520	502	18	15	('71)	20	127	162
					('76)	40	291	346
Orderly	5	1	4	7	('71)	9	5	21
					('76)	10	12	29
Pharmacy Helper	1	0	1	1	('71)	1	1	3
					('76)	1	2	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.E.G. Technician	1	1	0	0	('71)	1	0	1
					('76)	1	2	3
E.K.G. Technician	2	1	1	0	('71)	0	0	0
					('76)	0	1	1
X-Ray Technician	7	7	0	1	('71)	1	3	5
					('76)	2	8	11
Medical Laboratory Technician	13	8	5	0	('71)	4	10	14
					('76)	6	25	31
Operating Room Technician	0	0	0	0	('71)	3	1	4
					('76)	3	2	5
Inhalation Therapist	0	0	0	1	('71)	1	1	3
					('76)	2	2	5
Dental Hygienist	6	3	3	1	('71)	3	3	7
					('76)	4	6	11
Dental Assistant (Chairside only)	2	1	1	0	('71)	3	2	5
					('76)	3	5	8
Secretary-Dental Assistant	10	8	2	1	('71)	2	3	6
					('76)	2	7	10
Dental Laboratory Technician	1	1	0	0	('71)	1	0	1
					('76)	1	0	1
Formula Room Worker	2	1	1	0	('71)	0	0	0
					('76)	0	1	1
Physical Therapist Aide	3	2	1	0	('71)	17	4	21
					('76)	18	13	31

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Social Service Case Aide	0	0	0	0	('71)	1	0	1
					('76)	2	1	3
Central Supply Worker	5	2	3	0	('71)	1	2	3
					('76)	2	4	6
Medical Secretary	15	14	1	0	('71)	1	4	5
					('76)	1	10	11
Secretary-Receptionist	41	31	10	2	('71)	11	13	26
					('76)	13	30	45
Bookkeeping Clerk	1	1	0	0	('71)	1	0	1
					('76)	1	1	2
Computer Operator	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Key Punch Operator	2	2	0	0	('71)	1	1	2
					('76)	2	1	3
Tabulating Machine Operator	1	1	0	0	('71)	1	1	2
					('76)	1	2	3
Junior Programmer	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Nursing Unit Clerk	11	6	5	1	('71)	4	3	8
					('76)	6	8	15
Medical Record Clerk	0	0	0	0	('71)	1	0	1
					('76)	1	1	2
Recreation Director	4	3	1	1	('71)	0	0	1
					('76)	1	2	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Dietitian	4	2	2	1	('71)	2	0	3
					('76)	2	2	5
Assistant Dietitian	0	0	0	1	('71)	0	0	1
					('76)	1	0	2
Chef	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Cook	40	37	3	0	('71)	1	12	13
					('76)	3	26	29
Cook Helper	5	3	2	0	('71)	3	3	6
					('76)	4	7	11
Baker	1	1	0	0	('71)	0	1	1
					('76)	0	2	2
Food Service Supervisor	14	14	0	1	('71)	0	3	4
					('76)	0	8	9
Dietary Aide	6	2	4	0	('71)	6	5	11
					('76)	8	16	24
Laundress	4	2	2	0	('71)	1	1	2
					('76)	2	3	5
Maintenance-General	7	4	3	0	('71)	5	3	8
					('76)	6	8	14

PART II

Training Facilities and Programs

Training for the health occupations studied is carried on mainly in hospitals and technical schools. The Community Colleges are now planning to add training courses particularly in the nurse related field. In addition to those trained within the state, the manpower supply is affected by those persons who move into the state and by trained persons who move out.

The largest programs are in nursing. Sixteen hospitals have three-year diploma programs, three colleges have four-year baccalaureate programs, and one has a two-year associate degree program. In 1966 the number of nurses graduated was 648, the lowest in over five years. Little change is expected for 1967.

The technical schools throughout the state have increased their programs for licensed practical nurses with 570 expected to graduate this year.

Training for nurse aides is given in most hospitals with a total of 1,369 having completed courses during the past year. High Schools trained 119 nurse aides and convalescent homes have done considerable training on an informal basis. The mental hospitals trained about 400 psychiatric aides.

In the technician field, 207 trainees in hospitals completed courses in x-ray, 97 in medical laboratory, and 70 in operation room areas. Other hospital training and the number completing the course during the year were inhalation therapist 65, nurse anesthetist 30, rehabilitation aide 15, social service case worker 15, and cyto-technician 9.

In the dental area, one university has a course for dental hygienists with 60 graduating, and three technical schools have programs for dental assistants with 55 having completed their class studies during the past year.

Education Required and Course Content Preferred

In order that training and educational programs for health service better meet occupational requirements, Part II of the study form was concerned with the level of education required and the course content preferred.

Among hospital administrators, five replies specified college and 31 diploma school as the minimum required educational level for staff nurse. For nurse instructor all 31 responding listed college as the minimum required educational level. For licensed practical nurse, all 34 responding specified high school plus one year.

For course content general, English and mathematics were the most frequently listed subjects. For staff nurse, English was specified 12 times, mathematics 8 times, and anatomy, biology, physics, and psychology 5 times each. In specialized subjects bedside care was specified 5 times, and general nursing and psychiatric nursing 4 times each.

The minimum educational level required and general and specialized courses preferred for each of the occupations studied as specified by hospitals are listed in Table XXVIII "Minimum Educational Requirements - Hospitals" (pages 106-113).

Among convalescent and rest home administrators, one stated college and 52 a diploma school as a minimum educational level required for staff nurse. For nurse supervisor, eight specified college and two a diploma school as the minimum level. For licensed practical nurse, all 49 reporting specified high school plus one year as the minimum required educational level.

Table XXIX (pages 114-117) shows the minimum educational level required and the general and specialized courses preferred by the convalescent and rest homes for each of the occupations studied.

Table XXVIII
Minimum Educational Requirements
HOSPITALS

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				COURSE CONTENT: SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Nurse, Supervisor	College	25	Accounting	2	Personality, Theories of	1	Administration	6	Management	7
	Diploma Sch.	12	Anatomy	3	Philosophy	1	Bedside Care	4	New Equip. & Techniques	1
			Bacteriology	1	Physics	4	Body Mechan.	3	Nursing Curriculum	8
			Biology	4	Physiology	2	Cardiology	1	Personnel Administration	2
			Chemistry	1	Psychology	5	Counseling	1	Pharmacology	2
			Communication	2	Science	1	Geriatrics	2	Psych.Nursing	2
			English	9	Soc.Psych.	1	Inhalation Therapy	1	Supervision	5
			Group Dynam.	3	Sociology	4	Interpersonal Relations	1		
			Human Relat.	5	Teach.Methods	2				
			Liberal Arts	2						
			Mathematics	5						
Nurse, Head	College	19	Accounting	2	Personality, Theories of	1	Administration	3	Medical-Surg. Nursing	3
	Diploma Sch.	17	Anatomy	3	Philosophy	1	Bedside Care	4	Nursing Curriculum	7
			Bacteriology	1	Physics	4	Body Mechan.	3	Personnel Administration	1
			Biology	4	Physiology	2	Clinical Nurs.	1	Pharmacology	1
			Chemistry	1	Psychology	5	Community Health	1	Phys.Therapy	1
			Communication	2	Science	1	Geriatrics	2	Psych.Nursing	3
			English	10	Soc. Psych.	1	Interpersonal Relations	1	Supervision	5
			Group Dynam.	3	Sociology	2	Management	6		
			Human Relat.	4	Teach.Methods	2				
			Liberal Arts	2						
			Mathematics	6						
Nurse, Instructor	College	31	Accounting	1	Chemistry	1	Bedside Care	3	Geriatrics	1
			Anatomy	3	English	6	Body Mechan.	3	Management	3
			Bacteriology	1	Human Relations	2	Clinical Nurs.	1	Medical-Surg. Nursing	2
			Biology	2	Liberal Arts	1	Counseling	1		

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT							
			GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Nurse, Instructor (Continued)			Mathematics	4	Science	1	New Equip. & Techniques	1	Pharmacology	1
			Physics	3	Sociology	1	Nursing Curriculum	7	Psychiatric Nursing	1
			Physiology	2	Teach.Methods	14				
			Psychology	4						
Nurse, Staff	College	5	Anatomy	5	Mathematics	8	Bedside Care	5	Nutrition	1
	Diploma Sch.	31	Bacteriology	1	Personality, Theories of	1	Body Mechan.	2	Pharmacology	2
			Biology	5	Physics	5	Community Health	1	Phys.Therapy	1
			Chemistry	3	Physiology	2	Geriatrics	3	Psychiatric Nursing	4
			English	12	Psychology	5	Medical-Surg. Nursing	3	Rehabilitation Techniques	2
			Group Dynam.	3	Science	1	Nursing Curriculum	4	Team Leadership	1
			Human Relations	3	Sociology	2				
			Liberal Arts	1						
Nurse, Anesthetist	College	5	Biology	4	Mathematics	3	Anesthesiology	9	Nurs.Curric.	4
	Diploma Sch.	9	Chemistry	3	Physics	3	Bedside Care	1	Oxygen Therapy	2
	Tech. Institute	1	English	3	Science	1				
	High Sch.+ 1 yr	2	Liberal Arts	1						
	High School	1								
Nurse, Licensed Practical	High School + one year	34	Anatomy	4	Physiology	2	Asepsis	1	Nurs. Ethics	1
			Bacteriology	1	Psychology	3	Bedside Care	8	Nurs. Prin.	4
			Biology	2	Reading	1	Body Mechan.	4	Nutrition	1
			Chemistry	1	Science	1	Clinical Nurs.	1	On-the-job Training	1
			English	5	Sociology	1	Community Health	1	Patient Care-General	2
			Hygiene	1	Spelling	1	First Aid	1	Pharmacology	4
			Mathematics	5			Geriatrics	4	Rehabilitation Techniques	1
							LPN Curriculum	7	Safety Skills	1
							Management	1		
							Medical-Surg. Nursing	2		

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				COURSE CONTENT: SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Nurse Aide	High School	31	Anatomy	1	Pers.Decorum	1	Asepsis	1	Nursing Procedures	2
	Elementary Sch.	1	Bacteriology	1	Pers.Groom.	1	Bed Making	2	On-the-job Training	4
			Biology	3	Pers.Hygiene	4	Bedside Care	7	Patient Care-General	2
			English	8	Psychology	2	Body Mechan.	6	Specialized. Equipment	1
			Ethics	1	Science	2	Charting	1	Transporting Patients	1
			Mathematics	3	Spelling	1	First Aid	1		
							Geriatrics	4		
							Home Nursing	1		
							Med. Terms	1		
							Nurs. Ethics	1		
Psychiatric Aide	Hi.Sch. + 1 yr.	1	Biology	2	Physiology	1	Body Mechan.	2	Patient Care-General	1
	High School	11	English	3	Psychology	2	Geriatrics	1	Psychiatric Nursing	4
	Elementary Sch.	1	Mathematics	1			LPN Curriculum	1		
			Personality, Theories of	2			On-the-job Training	1		
Rehabilitation Aide	College	1	Anatomy	1	Physiology	1	Body Mechan.	3	On-the-job Training	2
	High School	10	Biology	1	Psychology	1	Community Service	2	Rehabilitation Techniques	1
			English	2	Sociology	1	Geriatrics	1		
			Mathematics	1			Nursing Procedures	1		
Orderly	High School	21	Anatomy	2	Pers.Decorum	1	Asepsis	4	On-the-job Training	4
	Elementary Sch.	1	Bacteriology	1	Pers.Hygiene	2	Bed Making	1	Operating Rm. Procedures	1
			Biology	3	Physiology	1	Bedside Care	9	Safety Skills	1
			English	6	Psychology	2	Body Mechan.	8	Transporting Patients	1
			Ethics	1	Sociology	1	Geriatrics	2		
			Mathematics	1	Spelling	1	Hosp.Procedure	1		
							Medical Terms	1		
							Nurs.Procedure	2		

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				COURSE CONTENT: SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Pharmacy Helper	Tech. Inst.	1	Accounting	1	Mathematics	9	On-the-job Training	6		
	Junior College	2	Bacteriology	1	Physics	2	Pharmacology	1		
	High School	15	Biology	6	Science	1				
			Chemistry	8	Typing	1				
			English	1						
E.E.G. Technician	Tech. Inst.	2	Anatomy	1	Mathematics	5	E.E.G. Techniques	4	On-the-job Training	4
	Junior College	1	Biology	5	Physics	4	Equipment Use and Care	2		
	Hi.Sch.+ 1 yr.	1	Chemistry	1	Physiology	1				
	High School	12	English	6	Psychology	1				
E.K.G. Technician	Tech. Inst.	1	Anatomy	1	Mathematics	6	E.K.G. Techniques	3	On-the-job Training	7
	Junior College	1	Biology	8	Physics	3	Equipment Use and Care	2		
	High School	22	Chemistry	1	Psychology	1				
			English	7						
X-Ray Technician	Tech. Inst.	8	Anatomy	6	Physics	11	Bedside Care	1	Pathology Techniques	1
	Junior College	14	Biology	9	Physiology	1	Body Mechan.	2	Radiology	14
	High School	7	Chemistry	3	Psychology	2	Geriatrics	1		
			English	5	Science	1				
			Mathematics	9	Typing	1				
Cytotechnician	College	5	Biology	13	Microbiology	1	Cytology	5	Microscopy	2
	Tech. Inst.	6	Chemistry	7	Physics	4	Hematology	1	On-the-job Training	3
	Junior College	7	English	5	Zoology	1	Histology	1		
	High School	2	Mathematics	6						
Medical Laboratory Technician	College	13	Anatomy	1	Mathematics	11	Blood Chemist.	2	Histology	2
	Tech. Inst.	6	Bacteriology	3	Microbiology	1	Clin.Training	1	Lab.Techniq.	4
	Junior College	2	Biology	18	Physics	3	E.E.G. Technq.	1	Med.Technol.	2
	Hi.Sch.+ 1 yr.	5	Chemistry	14	Science	1	E.K.G. Technq.	1	Microscopy	1
	High School	7	English	7			Equipment Use and Care	1	On-the-job Training	1
							Hematology	2	Test Procedure	2

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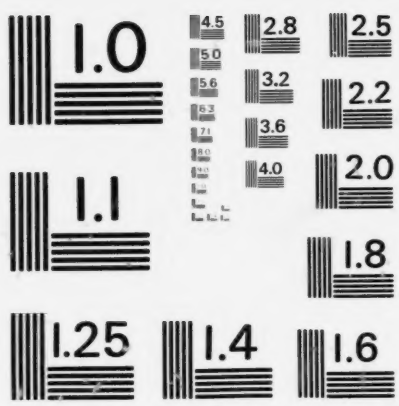

MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Operating Room Technician	Diploma Sch.	1	Anatomy	6	Mathematics	2	Anesthesia	1	Operating Rm. Procedures	2
	Hi.Sch.+ 1 yr.	10	Bacteriology	1	Microbiology	1	Asepsis	3	Pharmacology	1
	High School	12	Biology	5	Physics	1	Body Mechan.	2	Safety Skills	3
			Chemistry	4	Physiology	2	Clin. Train.	1	Sterile Techniques	3
			English	3	Psychology	1	Equipment Use and Care	4	Surgical Instruments	1
							On-the-job Training	6		
Inhalation Therapist	Diploma Sch.	2	Algebra	2	Mathematics	6	Bedside Care	1	Inhalation Techniques	3
	Tech. Inst.	2	Anatomy	7	Microbiology	1	Cardiopulmonary physiology	1	On-the-job Training	4
	Junior College	2	Bacteriology	1	Physics	9	Equipment Use and Care	3	Oxygen Use	2
	Hi.Sch.+ 1 yr.	7	Biology	11	Physiology	4	Geriatrics	1	Sterile Tech.	1
	High School	7	Chemistry	14	Psychology	1				
			English	4						
Formula Room Worker	High School	10	Bacteriology	1	Mathematics	1	First Aid	1	Sterile Techniques	2
			Hygiene	4			On-the-job Training	3		
Pediatric Technician	Hi.Sch.+ 1 yr	4	Biology	1	Mathematics	1	Bedside Care	1	On-the-job Training	3
	High School	4	English	3	Spelling	1	Infant Care	5		
			Hygiene	1						
Physical Therapist Aide	Hi.Sch.+ 1 yr	1	Anatomy	5	Mathematics	1	Body Mechan.	5	On-the-job Training	2
	High School	15	Biology	6	Physics	1	Equipment Use and Care	1	Phys.Therapy	1
			English	5			Geriatrics	1		
Social Service Case Aide	College	14	Biology	1	Liberal Arts	2	On-the-job Training	3	Report Writing	1
	Junior College	3	Economics	1	Psychology	8				
			English	5	Science	1				
			Foreign Lang.	4	Sociology	10				

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OCCUPATION	FORMAL EDUCATION		COURSE CONTENT							
			GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Central Supply Worker	College	1	Bacteriology	2	Hygiene	1	Asepsis	1	Organization	2
	Hi.Sch.+ 1 yr	1	Bus. Math.	2	Record Keep.	2	Body Mechan.	1	Specialized Equipment	1
	High School	21	English	2	Science	1	Medical Terminology	1	Sterile Techniques	3
	Elementary Sch	2	Health	1			On-the-job Training	6		
Medical Secretary	College	1	Anatomy	4	Liberal Arts	1	Medical Dictation	3	On-the-job Training	2
	Diploma Sch.	1	Biology	7	Mathematics	1	Medical Terminology	16	Psychiatric Terminology	1
	Junior College	21	Bookkeeping	2	Physiology	2	Medical Transcription	3	Record Keeping	1
	Hi.Sch.+ 1 yr	2	Commercial Course	4	Shorthand	9				
	High School	8	English	12	Spelling	2				
			Foreign Lang.	1	Typing	14				
Bookkeeping Clerk	College	1	Accounting	6	English	9	Business Administration	1	On-the-job Training	4
	Tech. Inst.	1	Bookkeeping	14	Mathematics	11	Office Procedures	1		
	Junior College	1	Bus. Machines	2	Spelling	1				
	Hi.Sch.+ 1 yr	3	Bus. Math	3	Typing	3				
	High School	21	Commercial Course	1						
Computer Operator	Tech. Inst.	6	Accounting	1	English	4	Computer Course	6	Wiring and Programming	1
	High School	10	Basic Business	2	Mathematics	6	Statistics	2		
			Bookkeeping	1	Spelling	1				
			Bus. Math	1	Typing	1				
Key Punch Operator	Tech. Inst.	4	Accounting	1	English	7	Key Punch Course	5	On-the-job Training	1
	High School	14	Bookkeeping	1	Mathematics	5				
	Elementary Sch	1	Bus. Math	1	Spelling	1				
			Commercial Course	1	Typing	6				

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				COURSE CONTENT: SPECIALIZED			
	level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Tabulating Machine Operator	Junior College	2	Accounting	1	English	2	On-the-job Training	2	Tabulating Course	3
	High School	9	Bookkeeping	4	Spelling	1				
			Bus. Math.	3	Typing	2				
			Commercial Course	1						
Junior Programmer	College	2	Accounting	1	English	4	Administration	1	Systems Analysis	1
	Tech. Inst.	2	Bookkeeping	1	Mathematics	6	Computer Training	2	Wiring and Programming	3
	Junior Colleg.	3	Bus. Math.	1	Physics	1	Statistics	1		
	Hi.Sch.+ 1 yr	2	College Business	1	Spelling	1				
	High School	3	Commercial Course	1	Typing	1				
Nursing Unit Clerk	Junior Colleg.	1	Anatomy	2	English	9	Charting	1	On-the-job Training	2
	Hi.Sch.+ 1 yr	1	Biology	1	Liberal Arts	1	Hospital Orientation	1	Reception Tech.	1
	High School	22	Clerical Train.	4	Mathematics	4	Medical Terminology	3	Telephone Etiquette	1
			Commercial Course	2	Psychology	1				
			Communication	1	Spelling	1				
					Typing	7				
Dietitian	College	31	Accounting	1	Mathematics	4	Dietetics	8	Nutrition	11
			Bacteriology	1	Physiology	2	Employee Relations	2	Quantity Cooking	3
			Biology	2	Psychology	2	Food Management	5	Supervision	1
			Chemistry	6	Science	1	Menu Planning	1	Therapeutic Diets	1
			English	6	Teaching, Principles of	2				
			Foreign Lang.	1						
Assistant Dietitian	College	16	Accounting	1	Physiology	1	Dietetics	6	Menu Planning	1
	Tech. Inst.	1	Bacteriology	1	Psychology	2	Employee Relations	1	Nutrition	4
	Junior Colleg.	1	Chemistry	1	Science	2	Food Management	4	On-the-job Training	5
	High School	8	English	5	Teaching, Principles of	1	Home Economics	1	Therapeutic Diets	1
			Mathematics	5						

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Chef	Tech. Inst.	11	Bacteriology	1	Hygiene	1	Baking	4	Meat Cutting	4
	High School	9	Chemistry	1	Mathematics	2	Dietetics	1	Menu Planning	4
	Elementary Sch	2	English	4	Psychology	1	Economics of Cook.& Purch.	2	Nutrition	1
							Equipment Use and Care	2	On-the-job Training	3
							Food Managemt.	3	Portion Control	1
							Literature of Cooking	1	Quantity Cook.	10
Cook	Tech. Inst.	9	English	3	Mathematics	2	Baking	1	Menu Planning	2
	Hi.Sch.+ 1 yr	1	Hygiene	1			Economics of Cook.& Purch.	1	Nutrition	2
	High School	13					Equipment Use and Care	1	On-the-job Training	5
	Elementary Sch	2					Literature of Cooking	2	Quantity Cook.	6
Cook Helper	Hi.Sch.+ 1 yr	1	English	4	Mathematics	1	Equipment Use and Care	1	Quantity Cook.	2
	High School	15	Hygiene	2			On-the-job Training	6		
	Elementary Sch	7								
Meat Cutter	Tech. Inst.	3	Anatomy	2	English	2	On-the-job Training	2		
	High School	6	Biology	2	Mathematics	3				
	Elementary Sch	1								
Baker	Tech. Inst.	10	English	2	Mathematics	2	Baking - Quantity	5	Nutrition	1
	High School	5	Hygiene	2			Equipment Use and Care	1	On-the-job Training	3
	Elementary Sch	1								

Table XXIX
Minimum Educational Requirements
CONVALESCENT AND REST HOMES

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT							
			GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Nurse, Supervisor	College	8	Anatomy	2	Human Relations	1	Administration	1	Nurs.Curric.	2
	Diploma School	2	Biology	2	Mathematics	2	Bedside Care	2	Nurs. Ethics	1
			Chemistry	1	Physiology	3	Body Mechan.	1	Personnel Tech.	2
			Economics	1	Psychology	3	Geriatrics	3	Pharmacology	1
			English	3	Sociology	2	Group Dynam.	1	Psych.Nursing	2
							Interpersonal Relations	1	Supervision	2
							Legal Aspects	1	Work Simplification	1
							Management	1		
Nurse, Head	College	3	Anatomy	3	Human Relations	1	Adminstration	2	Nurs.Curric.	13
	Diploma School	28	Biology	2	Mathematics	3	Bedside Care	3	Nurs. Ethics	1
			Chemistry	1	Pharmacology	1	Body Mechan.	1	Pharmacology	1
			Communication	1	Physiology	3	Geriatrics	20	Personnel Tech.	2
			Economics	1	Psychology	7	Group Dynam.	1	Psych. Nursing	1
			English	5	Science	1	Interpersonal Relations	1	Supervision	3
			Health	1	Sociology	1			Unit Managemt.	2
Nurse, Staff	College	1	Anatomy	4	Health	1	Bedside Care	7	Nursing Ethics	1
	Diploma School	52	Biology	3	Mathematics	4	Body Mechan.	2	Pharmacology	1
			Chemistry	2	Physiology	2	Geriatrics	32	Phys.Therapy	1
			Communication	1	Psychology	11	Interpersonal Relations	1	Psychiatric Nursing	2
			English	6	Science	1	Nurs.Curric.	27	Supervision	1
			Foreign Lang.	2	Sociology	3				

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT							
			GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Nurse, Licensed Practical	Hi.Sch.+ 1 yr	49	Anatomy	3	Microbiology	1	Bedside Care	9	On-the-job Training	1
			Biology	1	Pers.Developmt	1	Body Mechan.	2	Patient Care-General	2
			English	7	Pers.Hygiene	1	Geriatrics	30	Pharmacology	2
			Ethics	3	Physiology	2	LPN Curric.	15	Psychiatric Nursing	3
			Health	1	Psychology	10	Management	1		
			Human Relations	1	Science	1	Nurs. Ethics	4		
			Mathematics	2			Nurs. Prin.	1		
Nurse Aide	High School	29	Anatomy	12	Pers. Hygiene	2	Bedside Care	25	Patient Bathing and Grooming	9
	Elementary Sch	18	Biology	4	Physiology	1	Body Mechan.	11	Patient Care-General	9
			English	6	Psychology	5	Charting	1	Psychology of Aged	2
			Ethics	4	Pub.Relations	1	Dietary Prin.	1	Sanitation Principles	1
			Gen. Educ.	1	Pub.Speaking	1	Equipment Use and Care	1		
			Gen.Housekeep.	1	Soc. Amenities	1	Geriatrics	9		
			Human Relations	1			Interpersonal Relations	2		
Rehabilitation Aide	High School	1	Biology	1	English	1	Bedside Care	1	Geriatrics	1
							Body Mechan.	1		
Orderly	High School	22	Anatomy	10	Physiology	1	Bedside Nurs.	3	Patient Bathing and Grooming	2
	Elementary Sch.	6	Biology	3	Psychology	3	Body Mechan.	21	Patient Care-General	1
			English	5	Pub.Speaking	1	Geriatrics	4		
			Human Relations	1	Soc. Amenities	1	Housekeeping	1		
			Pers. Hygiene	1			On-the-job Training	1		
Physical Therapy Aide	Junior College	2	Anatomy	1	English	4	Bedside Care	1	Phys. Therapy Methods	1
	High School	3	Biology	3	Psychology	1	Body Mechan.	4		
							Geriatrics	2		

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT: GENERAL				COURSE CONTENT: SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Medical Secretary	High School	1	Typing	1			Record Keeping	1		
Medical Record Clerk	College	1	English	1	Mathematics	1	Charting	1	Record Keeping	1
	Diploma School	1	Commercial Course	1	Shorthand	1	Medical Terminology	2		
	Junior College	1			Typing	2				
	High School	2								
Recreation Director	College	1	English	2	Psychology	22	Arts & Crafts	25	Organization	1
	Junior College	10	Human Relations	5	Pub.Relations	1	Geriatrics	7	Psychiatry	1
	Hi.Sch.+ 1 yr	1	Liberal Arts	1	Soc. Service	1	Group Dynam.	1	Recreation Therapy	2
	High School	31	Music	1	Sociology	1	Motivation	1		
Dietitian	College	17	Biology	2	Mathematics	2	Dietetics	8	Nutrition	1
			Chemistry	1	Science	1	Food Managemt.	2	Quan. Cooking	1
			English	3	Sociology	1	Geriatrics	4	Therapeutic Diets	6
							Marketing	1		
							Menu Planning	1		
Chef	Elementary Sch.	1					Quantity Cooking	1		
Cook	Tech. Inst.	6	Biology	1	Health	1	Economics of Cook.& Purch.	18	Personnel Adjustments	1
	Hi.Sch.+ 1 yr	1	English	4	Mathematics	3	Equipment Use and Care	1	Quan. Cooking	43
	High School	26	Gen. Educ.	1	Pers.Hygiene	2	Food Managemt.	1	Sanitation	4
	Elementary Sch.	18					Geriatrics	3	Therapeutic Diets	36
							Menu Planning	25		
							On-the-job Training	1		

CONVALESCENT AND REST HOMES

OCCUPATION	FORMAL EDUCATION		COURSE CONTENT							
			GENERAL				SPECIALIZED			
	Level	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.	Subject	Resp.
Cook Helper	Tech. Inst.	1	English	3	Mathematics	1	Equipment Use and Care	2	Personnel Adjustments	1
	Junior College	1	Gen. Educ.	1	Pers.Hygiene	2	Geriatrics	2	Quan. Cooking	6
	High School	10					Menu Planning	2	Sanitation	4
	Elementary Sch.	12					On-the-job Training	1	Therapeutic Diets	3
Food Service Supervisor	High School	1	Bookkeeping	1	Mathematics	1	Quan. Cooking	1	Sanitation	1
Dietary Aide	High School	12	English	1	Mathematics	1	Geriatrics	1	Quan. Cooking	1
	Elementary Sch.	21	Gen. Educ.	2	Pers.Hygiene	7	Nutrition	1	Sanitation	14
							On-the-job Training	3	Therapeutic Diets	2
							Psychology of the Aged	4	Tray Preparation	1
Laundress	High School	7	English	1	Home Economics	1	Equipment Use and Care	6	Sanitation	6
	Elementary Sch.	20	Gen. Educ.	1	Mathematics	1	On-the-job Training	5		
Maintenance-General	Tech. Inst.	2	English	1	Mathematics	1	Equipment Use and Care	9	Sanitation	3
	High School	10					Gen.Maintenance Procedures	17	Service School Course	1
	Elementary Sch.	17					On-the-job Training	1		

APPENDIX

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Appendix A - Study Forms Used	A2
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Appendix C - Occupations Studied	A6
Appendix D - Occupational Definitions	A7
Appendix E - Method of Computing Replacements	A13

HEALTH OCCUPATIONS STUDY

Institution _____

Respondent _____

Title _____

Conducted by

The University of Connecticut

in cooperation with

Division of Vocational Education

State Department of Education

Date _____

Interviewer _____

Current Beds _____

Estimated Beds 1971 _____

Estimated Beds 1976 _____

HEALTH OCCUPATIONS STUDY
C O N N E C T I C U T
P A R T I
ESTIMATED DEMAND
1967 to 1971 and 1976

OCCUPATION See attached list of definitions TITIE CODE	CURRENT EMPLOYMENT			CURRENT JOB VACANCIES (Number you would fill now if qualified wrkrs.available)	NUMBER OF NEW JOBS (Expansion)	EXPECTED WITH-DRAWALS FROM HEALTH FIELD (marriage, family, retirement, other business or industry)	COMMENTS
	TOTAL	FULL TIME	PART TIME				
I	II	III	IV	V	VI	VII	VIII
NURSING Nurse, Suprv. 075.128					1971 1976	1971 1976	
Nurse, Head 075.128					1971 1976	1971 1976	
Nurse, Instructor 075.128					1971 1976	1971 1976	
Nurse, Staff 075.378					1971 1976	1971 1976	
Nurse Anesthetist 075.378					1971 1976	1971 1976	
Nurse, Lic. Practical 079.378					1971 1976	1971 1976	
Nurse Aide 355.878					1971 1976	1971 1976	
Psychiatric Aide 355.878					1971 1976	1971 1976	
Rehabilitation Aide 355.878					1971 1976	1971 1976	

HEALTH OCCUPATIONS STUDY
C O N N E C T I C U T
P A R T II
MINIMUM EDUCATIONAL REQUIREMENTS

OCCUPATION See attached list of definitions	FORMAL EDUCATION High School Hi.Sch.plus one Junior College Tech. Institute Diploma School College	COURSE CONTENT List courses of special importance to the occupation.		COMMENTS
		GENERAL (biology, English, math, physics)	SPECIALIZED (bedside care, body mechanics, geriatrics, radiology)	
I	II	III	IV	V
NURSING Nurse, Suprv. 075.128				
Nurse, Head 075.128				
Nurse, Instructor 075.128				
Nurse, Staff 075.378				
Nurse Anesthetist 075.378				
Nurse, Lic. Practical 079.378				
Nurse Aide 355.878				
Psychiatric Aide 355.878				
Rehabilitation Aide 355.878				

THE UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT
06268

LETTER SENT TO

HOSPITALS

Dear - - - - :

The University of Connecticut, under the sponsorship of the Division of Vocational Education of the State Department of Education, is conducting a study of health occupations in Connecticut.

The purpose of this study is to ascertain employment opportunities in this field, and to identify those occupations which have potential for program developments in vocational education at the secondary and post secondary school levels.

In a few days our field investigator, Mrs. Barbara Lounds, will be calling you for an appointment. We will greatly appreciate your cooperation.

Very truly yours,

David Pinsky

David Pinsky
Professor of Labor Education
Labor Education Center

THE UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT
06268

LETTER SENT TO

DENTISTS

Dear Doctor:

The University of Connecticut is conducting a study to determine future needs in the field of health occupations. The study, which is sponsored by the Department of Health, Education and Welfare, will be used by the State Department of Education and other institutions to establish training programs in secondary and post secondary schools.

We have already surveyed the needs for personnel in physicians' offices, hospitals, convalescent homes and in public health. In order to get the complete picture, it is necessary to obtain similar data from dentists in private practice. The purposes and methods of this study have been discussed in detail with and approved by the Connecticut State Dental Association.

Although we recognize that future expansion and replacement needs are difficult to predict, we feel that the dentist himself is in the best position to make this estimate.

Your cooperation in this study may prove invaluable in helping to meet your future needs regarding auxiliary personnel.

Will you kindly complete the enclosed form and return it to us. If there is any question regarding the study or the form itself, please do not hesitate to call.

Very truly yours,

David Pinsky

David Pinsky
Professor of Labor Education
Labor Education Center

OCCUPATIONS STUDIED

HOSPITALS

Nurse, Supervisor
Nurse, Head
Nurse, Instructor
Nurse, Staff
Nurse Anesthetist
Nurse, Licensed Practical
Nurse Aide
Psychiatric Aide
Rehabilitation Aide
Orderly
Pharmacy Helper
E.E.G. Technician
E.K.G. Technician
X-Ray Technician
Cytotechnician
Laboratory Technician
Operating Room Technician
Inhalation Therapist
Formula Room Worker
Pediatric Technician
Physical Therapist Aide
Social Service Case Aide
Central Supply Worker
Medical Secretary
Bookkeeping Clerk
Computer Operator
Key Punch Operator
Tabulating Machine Operator
Junior Programmer
Nursing Unit Clerk
Dietitian
Assistant Dietitian
Chef
Cook
Cook Helper
Meat Cutter
Baker
Food Service Supervisor

CONVALESCENT & REST HOMES

Nurse, Supervisor
Nurse, Head
Nurse, Staff
Nurse, Licensed Practical
Nurse Aide
Rehabilitation Aide
Orderly
Medical Laboratory Technician
Physical Therapist Aide
Recreation Director
Dietitian
Chef
Cook
Cook Helper
Food Service Supervisor
Dietary Aide
Medical Secretary
Medical Record Clerk
Laundress
Maintenance-General

PHYSICIANS

Nurse, Staff
Nurse Anesthetist
Nurse, Licensed Practical
Nurse Aide
E.E.G. Technician
X-Ray Technician
Laboratory Technician
Medical Secretary
Secretary-Receptionist

DENTISTS

Nurse, Staff
Dental Hygienist
Dental Assistant (Chairside)
Secretary-Dental Assistant
Secretary-Receptionist
Dental Laboratory Technician

PUBLIC HEALTH

Nurse, Supervisor
Nurse, Head
Nurse, Staff
Nurse, Licensed Practical
Nurse Aide
Mental Retardation Aide
Psychiatric Aide
Orderly
E.E.G. Technician
X-Ray Technician
Medical Laboratory Technician
Dental Hygienist
Physical Therapist Aide
Social Service Case Aide
Central Supply Worker
Medical Secretary
Bookkeeping Clerk
Key Punch Operator
Nursing Unit Clerk
Dietitian
Chef
Cook
Cook Helper
Baker
Food Service Supervisor

EMPLOYEES HEALTH CLINICS

Nurse, Supervisor
Nurse, Staff
Nurse, Licensed Practical
First Aider
E.K.G. Technician
X-Ray Technician
Medical Laboratory Technician
Dental Hygienist
Medical Secretary

DEFINITION OF TITLES

075.128 Nurse, Supervisor

Supervises and coordinates activities of nursing personnel engaged in specific nursing service, such as obstetrics, orthopedics, pediatrics, and surgery. Plans and organizes orientation and in-service training programs for staff members.

075.128 Nurse, Head

Directs nursing activities and instructs nurses in organized hospital unit. Assigns duties and coordinates nursing services. Orders, or directs ordering of drugs, solutions, and equipment, and accounts for narcotics.

075.128 Nurse, Instructor

Demonstrates and teaches patient care in classroom and clinical units to nursing students. Instructs students in principles and application of physical, biological, and psychological subjects related to nursing.

075.378 Nurse, Staff (General Duty Nurse, Registered Nurse, Professional Nurse)

Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution, administering prescribed medications and treatments in accordance with approved nursing techniques. Aids physician during treatment and examination of patients. May rotate among various clinical services of institution. May assist with operations and deliveries.

075.378 Nurse Anesthetist

Administers intravenous, spinal, and other anesthetics to render persons insensible to pain during surgical operations, deliveries, or other medical and dental procedures. May give patient postoperative care as directed.

079.378 Nurse, Licensed Practical

Under supervision of physician or staff nurse, cares for ill, injured, convalescent and handicapped persons. Takes and records temperature, blood pressure, pulse and respiration rate. Applies compresses, ice bags and hot water bottles. Administers specified medicine. Attends to routine duties in care of patients.

355.878 Nurse Aide (Hospital Attendant or Nursing Assistant)

Assists in care of hospital patients, under direction of nursing and medical staff. Answers lights and bells. Bathes and dresses patients. Serves food and feeds patients. Transports patients. Assists with examinations. Cleans rooms. Takes and records temperature, pulse and respiration rates, and food and liquid intake and output. May apply compresses and hot water bottles.

355.878 Mental Retardation Aide

Attends to physical needs and well-being of mentally retarded patients. Aids in teaching and recreation processes under supervision of professional staff.

355.878 Psychiatric Aide

Assists mentally ill patients, working under direction of nursing and medical staff. Assists patients in grooming, feeding, in becoming accustomed to hospital routine. Encourages them to participate in activities which promote rehabilitation. Aids or restrains to prevent injury. Administers prescribed medications.

355.878 Rehabilitation Aide

Assists in restoring physical, emotional and social effectiveness of medical patients and other disabled persons. Encourages patients to participate in activities which promote rehabilitation.

355.878 Orderly

Performs any of the following duties as directed by nursing and medical staff to care for hospitalized male patients: bathes patients, gives rubs, cleans and shaves operative areas, lifts and transports patients, assists physician in putting on casts and braces. May administer enemas and catheterizations. Sets up equipment such as oxygen tents, x-ray machines and bone fracture equipment. Does cleaning and routine jobs.

074.387 Pharmacy Helper (Pharmacy Clerk)

Mixes pharmaceutical preparations, under direction of pharmacist. Issues medicines, labels and stores supplies, and cleans equipment and work areas in hospital pharmacy. Prepares inventory and orders supplies.

078.368 E.E.G. Technician (Electroencephalograph Technician)

Measures impulse frequencies and differences in electrical potential between various portions of the brain, using equipment that records data as a series of irregular lines on a continuous graph to be used by medical practitioner in diagnosing brain disorders.

078.368 E.K.G. Technician (Electrocardiograph Technician)

Records electromotive variations in actions of heart muscle, using electro-cardiograph machine, to provide data for diagnosis of heart ailments.

078.368 X-Ray Technologist (Radiologic Technologist)

Applies roentgen rays and radioactive substances to patients for diagnostic and therapeutic purposes. Develops film in accordance with photographic techniques. Prepares reports and maintains records of services rendered.

078.381 Cytology Technician (Cytotechnician)

Performs routine laboratory tests to determine pathological condition of cells of the human body. Stains and mounts cells to aid in diagnosing nature and extent of disease or cellular damage.

078.381 Laboratory Technician (Medical Laboratory Assistant, Medical Technician)

Performs routine tests in medical laboratory for use in treatment and diagnosis of disease. Prepares tissue samples, takes blood samples and prepares vaccines. Executes urinalyses and blood counts. Under supervision, makes quantitative and qualitative chemical and biological analyses of body specimens.

079.378 Operating Room Technician (Surgical Technician, Surgical Orderly)

Assists at operations by preparing operative area of patient and arranging and passing instruments under direct supervision of a registered nurse or physician. Maintains specified supply of such fluids as plasma, saline, blood and glucose for use during operation. Adjusts lights and other equipment as directed. Washes and sterilizes equipment. Cleans operating room. May assist in administering blood, plasma, or other injections and transfusions.

079.368 Inhalation Therapist (Oxygen-Therapy Technician)

Sets up and operates various types of oxygen equipment, such as iron lungs, oxygen tents, resuscitators and incubators to administer oxygen and other gases to patients.

078.368 Dental Hygienist

Performs dental prophylactic treatments and instructs groups and individuals in care of teeth and mouth. Charts conditions of decay and disease for diagnosis and treatment by dentist.

079.378 Dental Assistant (Chairside only)

Records patients medical history and dental treatment rendered. Arranges instruments, materials and medications and hands them to dentist as required. Keeps oral operating area clear. Prepares dental amalgam. Sterilizes instruments. May expose and process x-ray films.

079.378 Secretary-Dental Assistant

Performs same duties as Dental Assistant (chairside) in addition to which receives patients, schedules appointments, collects fees for services, answers telephone, orders supplies and pays bills.

712.381 Dental Laboratory Technician

Constructs and repairs dental appliances, according to dentist's prescription. Fabricates full and partial dentures. Constructs crowns, inlays and wire frames. Constructs porcelain teeth. Tests completed appliance for occlusal harmony.

317.887 Formula Room Worker

Prepares, bottles and sterilizes infant formulas.

355.878 Pediatric Technician (Nurse Aid, nursery)

Bathes, weighs, dresses and feeds newborn babies under direction of nursing and medical staff.

355.878 Physical Therapist Aide (Physical Therapy Attendant)

Prepares patients for treatment by physical therapist. Assists patients in dressing, undressing, and moving about. Sets up and assembles such equipment as hydrotherapy tanks and vibrators. May assist in fitting patients with corsets, braces, and hand splints.

195.208 Social Service Case Aide

Aids patients and their families with personal and environmental difficulties which predispose illness or interfere with obtaining maximum benefits from medical care. Works on simpler aspects of cases or provides service to less complex cases under close and regular supervision of caseworker.

223.887 Central Supply Worker (Central Supply Aide)

Cleans, sterilizes, and assembles hospital equipment, supplies, and instruments according to prescribed procedures and techniques. Stores prepared articles and supplies. May fill requisitions, write charges and inventory supplies.

201.368 Medical Secretary

Prepares medical charts and reports for doctor or hospital personnel, utilizing knowledge of medical terminology. May prepare and send bills to patients and record appointments.

237.368 Secretary-Receptionist (Physician or Dentist's Office)

Greets patients. Schedules appointments. Gives information to callers. May prepare and send bills to patients and record appointments. Files correspondence and other records. May take dictation. Composes and types routine correspondence.

210.388 Bookkeeping Clerk (Bookkeeper)

Keeps one section of set of financial records. Verifies and enters details of transactions in account and cash journals. Summarizes details and transfers data to general ledger. Balances books and compiles reports.

213.382 Computer Operator (Digital-Computer Operator or Console Operator)

Monitors and controls electronic digital computer to process business, scientific, or other data, according to operating instructions.

213.582 Key-Punch Operator (Card-Punch Operator, Printing-Card-Punch Operator)

Operates alphabetic and numeric key-punch machine, similar in operation to electric typewriter, to transcribe data from source material onto punch cards and produce prepunched data. May tend machines that automatically sort, merge, or match punchcards into specific groups.

213.782 Tabulating Machine Operator (Tabulating-Equipment Operator, Tabulator Operator)

Operates machine that processes data from tabulating cards into printed records.

219.388 Junior Programmer (Detail Programmer or Program Coder)

Selects symbols from coding system peculiar to make or model of digital computer and applies them to successive steps of completed program for conversion to machine processable instructions. Usually works with Programmer, performing such additional tasks as converting flow charts and diagram of simple problem from rough to finished form, or making minor changes in established programs to adapt them to new requirements.

219.388 Nursing Unit Clerk (Floor Clerk)

Prepares and compiles records in hospital nursing unit, such as obstetrics, pediatrics, or surgery. Keeps file of medical records of patients in unit, including temperature, pulse rate, blood pressure and diet instructions. Keeps time records on unit personnel. Requisitions supplies as directed. Answers telephone, directs visitors and distributes mail, flowers, etc.

249.388 Medical-Record Clerk

Classifies medical records of patients and compiles statistics for use in reports and surveys. Keeps daily statistical record of information such as admissions, discharges, deaths, births, and types of treatment rendered.

079.128 Recreation Director (Recreational Therapist)

Plans, organizes and directs medically approved recreation program for patients in hospitals and other institutions. Directs and organizes such activities as adapted sports, dramatics, social activities and arts and crafts, regulating program in accordance with patients' capabilities, needs and interest.

077.168 Dietitian

Plans and directs food service program. Plans menus and diets. Directs workers engaged in preparation and serving of meals. Maintains and analyzes food cost control records to determine improved methods for purchasing and utilization of food, equipment and supplies. May instruct individuals and groups in application of principles of nutrition to selection of food.

079.588 Assistant Dietitian (Diet Clerk or Diet Aide)

Compiles dietary information for use by kitchen personnel in preparation of foods for hospital patients. Processes new diets and changes as required. May check trays for errors. May keep records of and prepare reports on perpetual inventory, food purchases, total meals served, and food costs.

313.131 Chef (Chief Cook or Kitchen Chef)

Supervises, coordinates, and participates in activities of cooks and other kitchen personnel engaged in preparing and cooking foods. Estimates food consumption, and requisitions or purchases foodstuffs. Selects and develops recipes. May maintain time and payroll records.

315.381 Cook

Prepares and cooks meals in quantities according to menu and number of persons to be served. Plans menus. May serve meals. May order supplies and keep records and accounts. May supervise activities of one or more workers who assist in preparing and serving meals.

317.887 Cook Helper

Assists cook in preparing foods by performing routine duties of a lesser skill.

316.781 Meat Cutter (Meat Butcher)

Cuts, trims, and bones meats to prepare them for cooking, using knives, saw and cleaver. Chops or grinds meats. Shapes and ties roasts. May clean fowl and fish.

313.781 Baker (Bread Baker or Overman)

Prepares bread, rolls, muffins, and biscuits according to recipe. May bake pies, cakes, cookies, and other pastries.

355.878 Dietary Aide - Tray-line Worker

Prepares and delivers food trays to patients. Apportions food servings according to diet list. Places servings in blender to make foods for soft or liquid diets. Collects dirty dishes. Washes dishes and cleans work area.

319.138 Food Service Supervisor

Trains and supervises employees engaged in serving food in hospital and similar institutions and in maintaining cleanliness of food service areas and equipment. Keeps records. Requisitions supplies and equipment.

361.884 Laundress

Washes, dries and irons articles using equipment such as hand iron and small washing and drying machines.

382.884 Maintenance-General

Keeps building in clean and orderly condition and tends furnace and boiler. Takes care of yard and keeps walk clear of snow and debris.

METHOD OF COMPUTING REPLACEMENTS

The respondents reported the number of withdrawals expected in four and nine years in each of the occupations studied. The instructions stated that only those who withdrew from the health field for such reasons as marriage, starting a family, entering another field of employment, or retirement should be included. Persons who left one hospital for another or who left a convalescent home to work for a doctor were not to be counted as a withdrawal. These persons remain in the health field and training a replacement for them is not involved on a community-wide basis.

The total employed by and the total withdrawals from the respondents were tabulated for each occupation for four and nine year periods. From these totals the annual rate of withdrawals from the employed were computed. These rates were then applied annually to the total of currently employed plus replacements plus expansion which yielded annual replacement needs. The annual needs were then totalled to show the four and nine year replacements needed to meet the indicated employment goals in the area.

VT 004 627

Research Training Workshop for Teachers, Coordinators, Directors, Administrators, Directors of Research and Development, and Others, Proceedings. (Kellogg Center for Continuing Education, Michigan State Univ., East Lansing, Oct. 25-27, 1966).

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*RESEARCH TRAINING WORKSHOP, EAST LANSING, MICHIGAN, OCTOBER 25-27, 1966

Summaries of presentations at the workshop included (1) "A Blueprint for Educational Change" by Everett M. Rogers, (2) "Research Coordinating Unit Activities and Rationale for Workshop" by Charles L. Langdon, (3) "Why Michigan Established a Research Coordinating Unit" by Robert M. Winger, (4) "Importance of Research in Local Schools" by Nicholas P. Georgiady, (5) "What Type of Research Can Be Accomplished by Local Schools" by E.J. McClendon, (6) "Program Evaluation and Review Technique (PERT) and Vocational Education" by Desmond L. Cook, (7) "Federal Proposals--A Rationale" by Terry Hughes, (8) "Research Design" by Larry L. Thomas, and (9) "The Michigan State University Research and Development Program" by O. Donald Meaders. (EM)

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Proceedings of
RESEARCH TRAINING WORKSHOP

for

Teachers, Coordinators, Directors,
Administrators, Directors of Research and
Development, and Others

Sponsored by

The Research Coordinating Unit
of the Vocational Education Division
of the Michigan Department of Education

and

Michigan State University
College of Education
and
Continuing Education Service

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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October 25-27, 1966

The Kellogg Center for Continuing Education
Michigan State University
East Lansing, Michigan

VT004627

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WORKSHOP PROGRAM

Kellogg Center for Continuing Education
Michigan State University
East Lansing, Michigan

October 25-27, 1966

Tuesday, October 25, 1966

10:00 a.m. - Lawrence Borosage, Chairman

- Welcome and Program Highlights

- A Blueprint for Educational Change
  -- Everett M. Rogers

- RCU Activities and Rationale for Workshop
  -- Charles L. Langdon

1:15 p.m. - Leon J. Alger, Chairman

- Why Michigan Established a Research Coordinating Unit
  -- Robert M. Winger

- Importance of Research in Local Schools
  -- Nicholas P. Georgiady

- What Type of Research Can Be Accomplished by Local Schools?
  -- E. J. McClendon

- Strategies for Implementing Research - Panel
  -- F. Harold Matthews, Moderator
  -- Edward L. Remick
  -- Robert S. Lankton
  -- Lawrence Borosage
  -- Charles L. Langdon

7:00 p.m. - Charles L. Langdon, Chairman

- Research and Development in the Nation's Schools
  -- John E. Bean

- Case Study Reports of Research Conducted in Local Schools

Detroit	-- Jeanne Reed
Livonia	-- Arlie Fairman
	-- John MacDonald
Portage	-- Thomas Rushcamp
	-- Donald DeLong

Wednesday, October 26, 1966

9:00 a.m. - Harry Blanchard, Chairman

- PERT -- Desmond L. Cook

- Using PERT in the Local Situation - Panel
  - -- Charles L. Langdon, Moderator
  - -- Desmond L. Cook
  - -- Leon J. Alger
  - -- Philip T. Bailey
  - -- Robert E. Turner

1:15 p.m. - Harry Blanchard, Chairman

- Levels of Research - A Research Continuum
  - -- Lawrence Borosage

- Helps on Proposal Writing -- Terry Hughes

- Workshop Session - Proposal Writing Clinic

7:00 p.m. - Philip T. Bailey, Chairman

- What's Going on Now in Research in Michigan - Symposium
  - -- Leon J. Alger, Moderator
  - -- Nicholas P. Georgiady
  - -- Charles L. Langdon
  - -- Kenneth Morse
  - -- Edward J. Erskine
  - -- O. Donald Meaders

- Evaluating Local Programs of Vocational Education
  - -- Harold M. Byram

Thursday, October 27, 1966

9:00 a.m. - Edward L. Remich, Chairman

- Workshop Session - Roving Consultants
  - -- Terry Hughes
  - -- Lawrence Borosage
  - -- Leon J. Alger
  - -- Edward L. Remick
  - -- O. Donald Meaders
  - -- Charles L. Langdon

- Harry Blanchard, Chairman

- Sharing Session - Group Discussion of Projects Planned by Local Schools

12:00 noon - Lunch - Leon J. Alger, Chairman

- Conference Evaluation -- Larry L. Thomas

- Our Challenge -- Lawrence Borosage

PROGRAM PARTICIPANTS

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*Planning Committee Members

Welcome and Program Highlights

Lawrence Borosage
College of Education, Michigan State University

Dr. Borosage welcomed the participants and outlined the highlights of the workshop. He brought to our attention the fact that previously most research work had been accomplished by graduate students and college faculty members. Michigan was one of the first states to have a research department. Previous research was not experimental. However, by the passage of the Vocational Education Act of 1963 we hope that there will be a higher degree of involvement of local people in research activities.

Four points were made by Dr. Borosage. They are:

1. An atmosphere must be developed to encourage more research. At one time it was a struggle to get the topic on a state convention program.

2. Research problems need to be developed so that research can be accomplished to solve laboratory and field problems.

3. Presently, there is an inadequate supply of trained researchers that have the training and capabilities to do the job.

4. It is necessary for researchers to have time, money and facilities to carry on their work.

* * * * * * * * * * * * *

A Blueprint for Educational Change

Everett M. Rogers, Associate Professor
Department of Communication, Michigan State University

The objectives of this proposal are to:

1. Point out the increasing rate of change in the U. S. educational system.

2. Summarize findings from past research on the diffusion of innovations dealing with:

   a. The innovation-decision process.
   b. Adopter categories.
   c. The rate of adoption of innovations.
   d. Opinion leadership and the flow of influence.

3. Speculate about the role of demonstration schools and change agents in the diffusion of educational innovations.

4. Suggest a blueprint for change in education.

REFORM AND REVOLUTION IN EDUCATION

Within the last eight years we have witnessed more interest, effort, and proposals for changing and improving our educational institutions than in the previous 50 years. Dissatisfaction prompted into action by Sputnik provided the basis for various reform programs, many of which eminate from the federal level.

Examples are the Title III monies of the 1965 Elementary and Secondary Education Act, which go to local schools to encourage innovation. Title IV creates 20 regional education laboratories, which are devoted to educational research and dissemination.

It is quite evident that we exist in an era of innovation in education. New concepts and theories, new methods, new materials, new administrative procedures are being advocated in increasing numbers: PSSC, team teaching, programmed instruction, language laboratories, classroom television, modern math, flexible scheduling. Of necessity more emphasis is being placed on change in education, more funds are being devoted to promoting, as well as evaluating, educational change.

Increasing Rate of Adoption

Figure 1 shows the rate of adoption for three educational innovations. These data suggest an increasingly rapid rate of change in the U. S. education. More (1946) found that kindergartens required 50 years to reach widespread adoption, while modern math only required five years (Carlson, 1964-65). This faster rate of educational diffusion may be due (1) to the ethos of the post-Sputnik era, with an increased emphasis upon the importance of education and especially upon certain school subjects, with USOE and foundation support for innovation, etc.; (2) to other concurrent changes from the 1920's to the 1960's like improved travel and mass communication, a more professional school staff, etc; and (3) to differences in the innovations themselves; for example, better "packaging," different relationships with the total school structure, different financial cost, etc.

Brickell's (1964, p. 495) findings offer further evidence of the increasing tempo of educational change. He found the number of innovations in New York (state) public schools tripled in the three years after Sputnik.

Yet in spite of the rapid rate of educational change and the intense interest in reforming education, we know too little about how communication and change occurs. In this paper I shall draw upon findings from research on the diffusion of innovations (although only a portion of these studies were conducted in education) for concepts and generalizations useful to us in executing a blueprint for change in education.

A SUMMARY OF FINDINGS FROM PAST DIFFUSION RESEARCH

I. Innovation-Decision Process

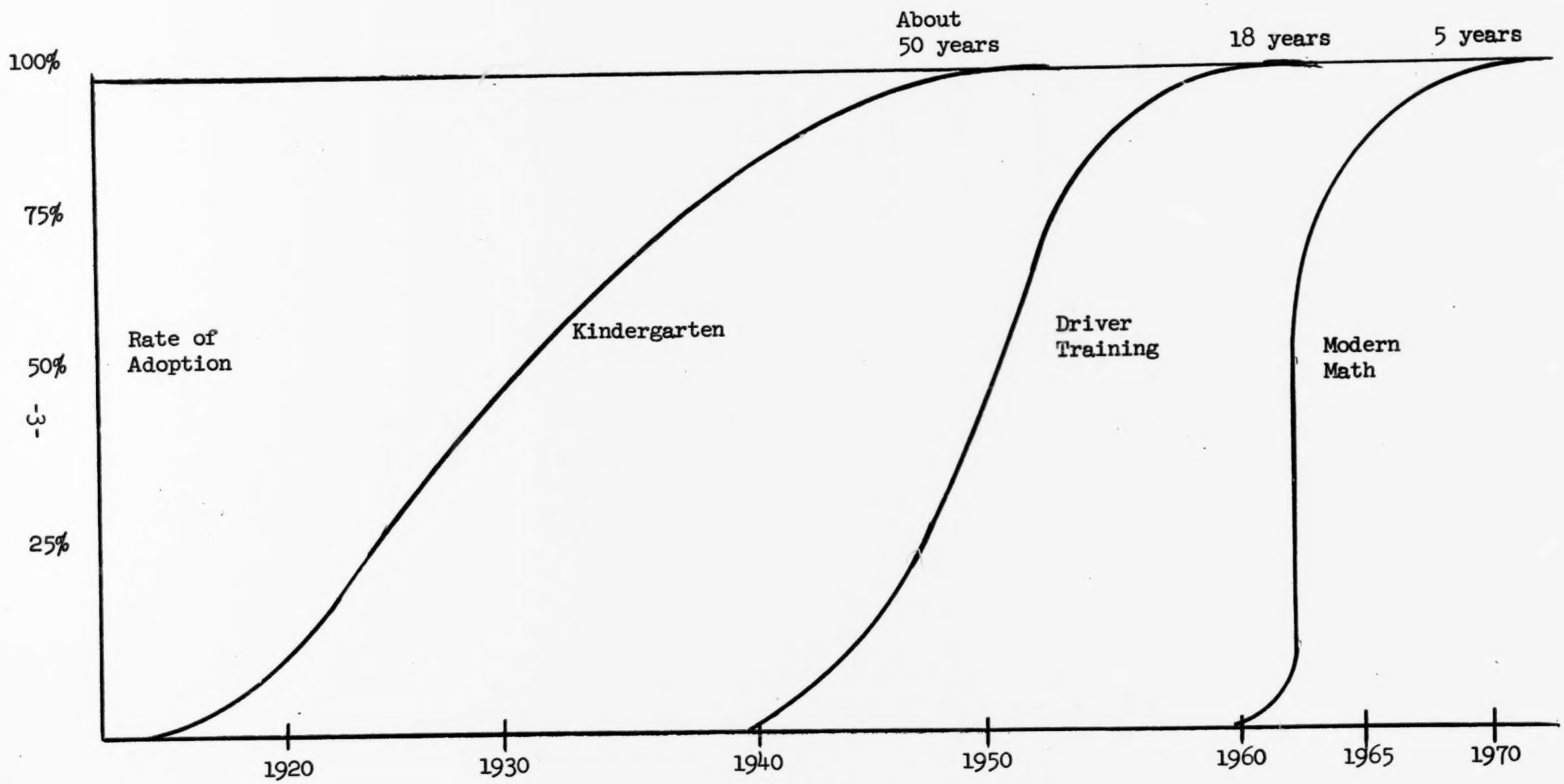


Figure 1 - Approximate Rate of Adoption for Kindergartens, Driver Training, and Modern Math in U.S. Schools

Source: Mort (1946, pp.199-200); Allen (1956); and Carlson (1964).

An innovation is defined as an idea perceived as new by the individual (Rogers, 1962, p. 13). Individuals go through a mental process of learning about a new idea, gaining favorable or unfavorable attitudes toward the innovation, and either adopting or rejecting it. There are three fundamental functions in the innovation-decision process.

1. Knowledge - The individual becomes aware of the new idea, becomes interested, and seeks further information about it.

2. Attitude change - The individual gains either a favorable or unfavorable opinion of the new idea as he obtains more information about it and begins to evaluate the innovation in terms of his situation.

3. Decision - The individual decides to adopt or reject the new idea, perhaps after a small experiment to test its effectiveness.

Two useful generalizations emerging from past research on the innovation-decision process are...

1. That mass media communication channels are most important in creating knowledge about an innovation, but that interpersonal communication channels change attitudes.

2. That cosmopolite communication channels (i.e., channels that are external to the social system) are most important in creating knowledge about an innovation, but that localite communication channels change attitudes.

Types of Innovation Decisions

Individuals may be forced to adopt or reject an innovation in spite of contrary attitudes, when some other individual has a superior power position relative to theirs. This type of forced decision is most likely to occur in organizational settings such as in an industrial firm, a governmental bureaucracy, or in a school. An example is the teacher who adopts modern math because of an administrative decision by the school board, department head, administrator, or curriculum supervisor.

When the individual does have power to decide on adoption or rejection of an innovation, three types of innovation decisions are possible.

1. Optional decision - may occur when the individual has freedom to excercise his choice, although even in this case the individual's decision may be influenced by the norms of his social system (e.g., whether a school teacher's colleagues generally place a positive value on innovation or not).

2. Contingent decision - is one in which the individual may adopt an innovation only after his social system has made an adoption decision, but he is not forced to conform to the system's decision. For example, a teacher cannot adopt (or reject) use of

a tape recorder until the school has decided to purchase one, yet he is not forced to adopt.

3. Collective decision - occurs when the individuals in a social system agree to adopt or reject by consensus, and all must conform to the system's decision. An illustration is the decision made by four science teachers who jointly decided to adopt team teaching.

Research studies dealing with the type of decision involved in the process of selection and adoption of innovations for use within an educational system are not to be found. Certainly, many are of the forced variety, with collective and contingent decisions more common than optional decisions.

The type of decision process involved in adoption of the innovation is likely to affect the rate of adoption. Generally, we would predict the fastest rate of adoption of innovations by forced decision (although likely accompanied by widespread circumvention of the edict for forced adoption), the next fastest for optional decision, and the slowest for contingent and collective decisions, which require group decision-making.

II. Properties of the Innovation and Its Rate of Adoption

The properties of an innovation, as perceived by its adopters, also affect its rate of adoption. Therefore, adoption rates over the same time period are likely to vary with the characteristics of the particular innovation. Generally, more rapid rates of adoption are characteristic of innovations that:

1. Have more relative advantage over the existing ideas being replaced. In education it is often difficult to discern relative advantage, and most innovations have low relative advantage.

2. Are less complex; new ideas that are most easily understood are adopted more quickly than ideas that are difficult to grasp. Since adoption of team teaching is more complex than choosing a new text, we might predict quicker adoption for the new text.

3. Are more visible; new ideas whose results are more plainly seen are more quickly adopted than those whose results are difficult to perceive. The overhead projector is probably more visible to teachers than an innovation like team teaching.

4. Are more divisible for trial; new ideas which allow small scale sample experiments are more readily acceptable than ideas which require a complete change at once and and allow less possibility of trial. It might be easier to adopt programmed instruction in a few classes, than to use "flexible

scheduling" which requires a major change throughout the entire system.

5. Are more compatible; new ideas that fit with presently held values and attitudes more easily gain approval than those contrary to individuals' values. Modern math and PSSC fit current U. S. emphasis upon science; this compatibility with social values undoubtedly speeds their rate of innovation.

III. Adopter Categories

The school as a social system can be categorized with respect to its general position on the innovative scale. Innovativeness is the degree to which an individual is relatively earlier than his peers in a social system in adopting new ideas. Schools that normally try new educational ideas before other schools in the environment fall at the innovative end of the continuum, while schools that are always among the last to adopt or try new ideas can be considered at the laggard end of the continuum.

As was indicated in Fugure 1, most adopter distributions approach an S-shaped ogive over time. This S-curve occurs because in the early years of adoption of an innovation, only a few individuals adopt. Later, the annual rate of adoption increases sharply as a large number of individuals adopt the new idea in each time period. At this point, the innovation becomes part of the lifestream of the social system. In the last stages of diffusion fewer and fewer individuals adopt in each time period as only the last hold-outs remain to adopt. The composite result of this adoption behavior is an S-shaped adopter distribution.

How do innovative schools like Newton, Winnetka, Troy, Shaper Heights, and Cape Kennedy differ from their more laggardly sister schools? In short, innovative schools...

1. Are located in communities of relatively higher social status.

2. Tend to make use of mass media in addition to personal communication channels.

3. Are more cosmopolite; they have connections over a wide geographical area and maintain social relationships outside of the local social system. You are apt to find the superintendents, principals and teachers in more innovative schools, attending more educational conferences, and participating in more educational activities outside their "home" school system.

4. Exert some opinion leadership. Because of their prior experience with the new idea, innovative schools obviously are in a position to influence the adoption decisions of their peer schools.

5. Are often viewed as deviants by peer schools, because they adopt much earlier than the average member of their social system.

6. Are usually wealthier; the Mort studies of the 1930's and 1940's (Ross 1958) found a consistently high relationship between the financial resources of a school system and its innovativeness, although Carlson (1964, p.340) reported no such relationship in the case of modern math. This inconsistency in findings may be due to the promotion of modern math by national and state bodies, including financial inducement to adopt.

IV. Opinion Leadership

In every social system there are certain individuals who have relatively disproportionate share of influence over peer decisions. Opinion leadership is the degree to which individuals are sought out of information and advice. Opinion leaders, when compared to followers, seem to conform more closely to the norms of the social system. They serve as role-models for others in the system. Individuals tend to interact most with others who have similar characteristics, values, etc. We find that the innovator is often too far ahead of the rest of his social system to offer a good model but that opinion leaders who are more often early adopters, are closer to the social norms and can serve as models for adoption at given innovations.

Some of these patterns of influence and opinion leadership can be observed in Figure 2, which shows the spread of modern math among school superintendents in a Pennsylvania county. Undoubtedly, somewhat similar patterns of influence about an innovation occur among teachers within a school, although the sociogram shown here is for the diffusion of an innovation from school-to-school. Note the isolation of Superintendent I, the innovator who adopted in 1958. It was not until Superintendent A adopted in 1959 that the innovation agreed to his peers in the friendship clique of early adopters and early majority. Superintendent B then played a central role in diffusing the innovation to later adopters.

We have briefly discussed some generalizations derived from past research concerning the decision to adopt and the factors that influence rate of adoption.

We conclude that the following elements influence the rate of innovation adoption:

1. a) The type of decision-process.
   b) The communication channels utilized in gaining information for arriving at the decision.
2. The characteristics of the innovation itself.
3. The adopter category into which the school fits.
4. The availability of opinion leaders.

THE ROLE OF DEMONSTRATION IN DIFFUSION

The fact that all units in a social system do not have equal amounts of influence on the decisions of their peers suggests the use of demonstration schools to speed educational change. As Brickell (1961) pointed out, "The most effective way to convince a school staff that it should adopt a new program is to let it observe the successful new program in action. Nothing persuades like a visit."

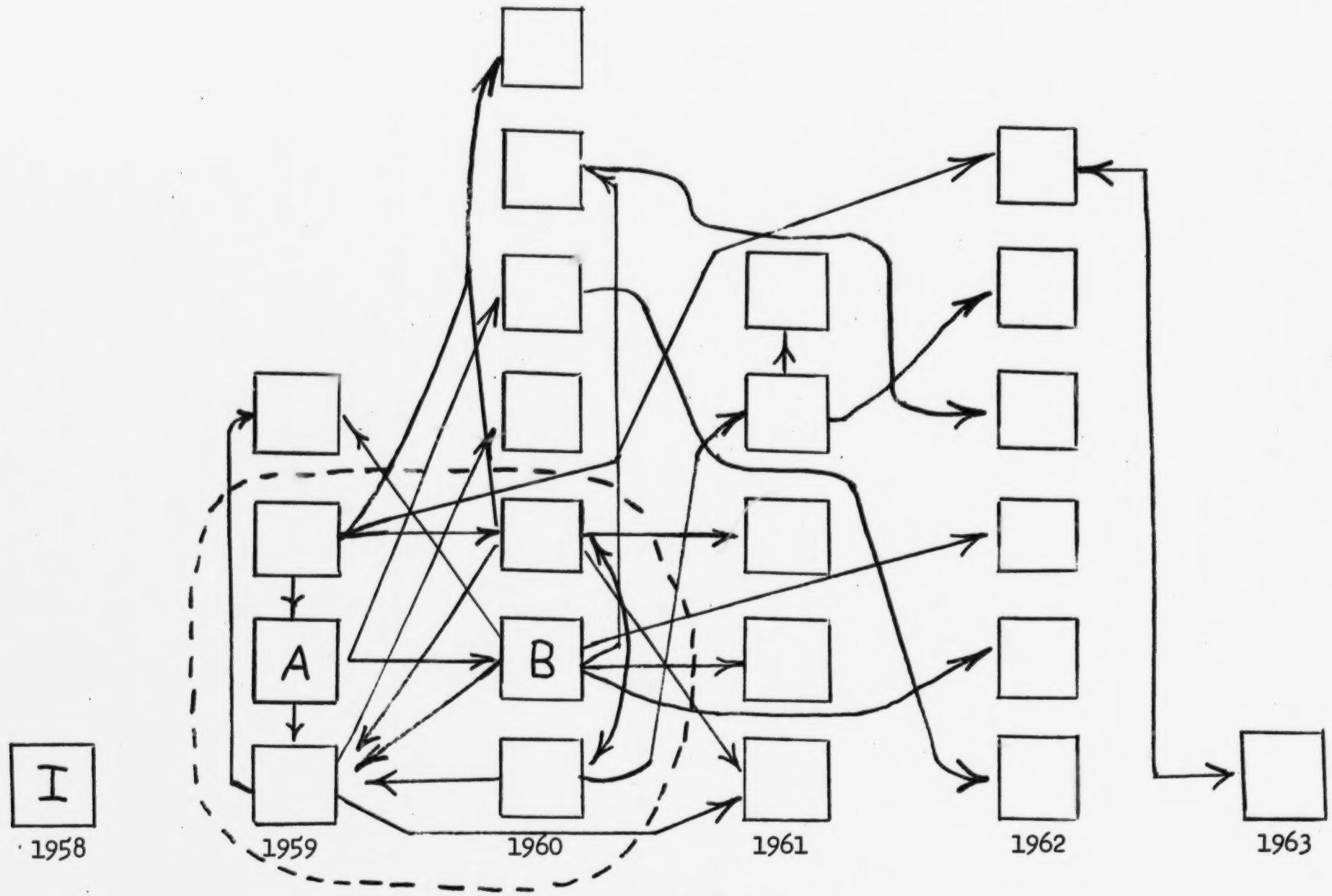


Figure 2 - Patterns of Influence in the Diffusion of Modern Math Among School Superintendents in a Pennsylvania County.

Source: Carlson (1965, p. 19). Note that for the sake of simplicity some superintendents are not shown.

An analogy between education and agriculture has frequently been suggested by those writing about educational change. This is especially so in regard to demonstrations, a communication strategy used for the past 60 years by agricultural extension agents. For example, Brickell (1964, p. 520) recognized similarities between education and agriculture, when he stated, "Demonstrating in ordinary schools is analogous to demonstrating on neighboring farms..."

Homophily is the degree to which those in communication are similar. A common finding in agriculture is that the effectiveness of a demonstration varies directly with the degree to which the demonstrator is similar to the non-demonstrators. Evidence of the importance of homophily is provided by an agricultural investigation conducted by Bailey (1965), who concluded, "The most effective demonstrators were those who were alike or only slightly better than their audience. Those who were markedly higher than their audience had a limited impact." This notion explains why innovators make poor demonstrators; they are too unalike the ordinary farmer.

It would seem the same reasoning would apply to educational change programs. Demonstration schools will be effective in diffusing educational innovations to the extent that these demonstrators are homophilic with the schools we seek to influence. This is one reason why university schools and lab schools are generally ineffective as demonstrations, and are often being discontinued in the U. S. They had largely become elite schools for the education of intellectually-talented faculty children. This eliteness destroyed their credibility as demonstrators.

But demonstration schools are only a partial answer, for we must remember that some innovations lend themselves to demonstration more effectively than do others. A common finding from rival sociological studies of agricultural diffusion is that more visible and communicable ideas (e.g., fertilizer) are more effectively demonstrated than are other innovations like farm recordkeeping (Longest and others, 1961), and therefore are more readily adopted.

Further, we know that demonstrators can be "wornout" if the agents of change concentrate their communication efforts upon them too much. The best example, perhaps, comes from Hardin's (1951) investigation of soil conservation service demonstration farmers. They lost credibility in the eyes of their peer-farmers because the neighbors observed the frequent visits of the soil conservation service change agent with the demonstrator. The change agent's strategy is to utilize demonstrations to make his program of planned change appear to his clients as if it were spontaneous change. When he works too closely with the demonstrator, this gain in credibility is lost.

So in summary, demonstrations are most effective if...

1. The demonstrators are homophilic with their peers.

2. The innovations are demonstrable.

3. The change agent does not wear out the credibility of the demonstrator.

A BLUEPRINT FOR CHANGE IN EDUCATION

The foundation in a plan for educational change may be the demonstrator school, but more than a foundation is necessary if we are to promote change with maximum efficiency and effectiveness.

Today in U.S. education we find nothing quite like the role played by county extension agents in agriculture. Perhaps such a change agent role could be played by staffs of the new regional educational laboratories. Such change agents could come from state departments of education, or from staff members of local school systems. However organized, we need change agents in education. They should be professionals employed on a full-time basis for promoting change. In fact, the demonstration schools will probably succeed in furthering educational change only to the extent to which there is a corps of change agents working in connection with them. Farm demonstrations without county agents usually add up to pooled ignorance.

Five functions that educational change agents could serve in order to multiply the effects of demonstration schools are:

1. Select "Good" Innovations

One important role of the educational change agent should be the selection of good innovations, and discarding of those innovations which will be inappropriate for his clients to adopt. The change agent would thereby play a "gatekeeper" role, which he would be qualified to do on the basis of his superior training, technical expertize, wide communication contacts, and access to other experts. Obviously, we also need a major research effort devoted to develop educational innovations with a high degree of relative advantage over the ideas they replace; we have seldom had these in the past.

2. Develop Ability of Clients to Evaluate Innovations

Too often, change agents simply seek to promote widespread adoption of innovations, rather than to try to increase the ability of their clients to evaluate innovations. Rather, change agents should seek to provide their school staffs with basic understandings about the nature of the innovations they are promoting.

3. "Package" Innovations

Change agents can often achieve a more rapid rate of adoption for a given, "good" innovation by packaging it in certain ways. In essence, this approach seeks to use the characteristics of innovation (for example, relative advantage, compatability, etc.) to achieve a more rapid rate of adoption. An example, perhaps, might be found in the case of modern math. By labeling this idea as "modern," it sponsors imply newness and involve a dominant American value orientation: the new is desirable.

4. Base Programs of Change on Needs

Earlier in this paper, we discussed forced decisions in which the individual must comply with a superior's decision. In other words, the individual "adopter" felt no need for the innovation. One would suspect that once the structural influence were removed, the individual might reject the innovation.

Generally, innovations will be adopted more readily, permanently, and successfully if they answer needs perceived by members of the client system. Research also indicates that if the individual is involved in the decision to adopt, his commitment to that adoption will be stronger. If that decision is reached in a group, he will be further likely to support the innovation. This implies that the change agent should select innovations which promise to fulfill his clients' needs, that he should devote part of his efforts to developing these needs on the part of his clients, and that he should encourage group participation in the decision-process.

5. Anticipate the Consequences of Innovations

A change agent should anticipate the consequences of an innovation in his social system, and if these effects are undesirable, they should be avoided. One means to anticipate the undesirable consequences of innovations is to try them out in pilot schools on a field trial basis.

CONCLUSION

Schools are changing. They can change more rapidly and more appropriate directions if demonstration schools are utilized along with a corps of educational change agents.

* * * * * * * * * * *

RCU Activities and Rationale for Workshop
Charles L. Langdon, Research Coordinator
Division of Vocational Education, MDE

I have chosen two activities to discuss with you since they have relevance to this workshop. They are the Diffusion Study and the R & D Needs Survey. First the Diffusion Study because of its relationship to what Dr. Rogers has just said.

You know it's a funny thing that you sometimes have to travel far to learn about what is going on next door. I attended the National Vocational-Technical Education Seminar on the Administration of Research at Columbus, Ohio, in May, 1965. Dr. Rogers was one of the speakers and I can truthfully say that he held us spellbound while telling us his diffusion story. This was my first awareness of the idea and I can remember writing in my notes that someone should try this in education.

I again heard Dr. Rogers in September, 1965, at Boyne Mt. Lodge when he spoke before the Michigan Curriculum Conference and challenged education to identify its innovative schools and opinion leader schools.

The next stimulation I received was at the first meeting of the advisory committee for the Research Coordinating Unit. (I tell you all of this because it is interesting, to me at least, to look back at the factors that were at work to finally bring action, or adoption.)

The advisory committee, and as I recall this came primarily from our Chairman, Larry Borosage, who is a member of the committee, recommended that if we were to Stimulate, Coordinator, and Disseminate research we should conduct a diffusion study to identify innovative schools and to determine if there exists a communication network for adoption of innovations among the schools of the State.

The clincher came when Jack Thorsen, who was then Research Consultant with the RCU, urged after the advisory committee meeting that we conduct a Diffusion Study. Jack already knew, had an awareness, of the innovation since Dr. Rogers is a member of Jack's doctoral committee.

Well, to end a long story, laggard that I am, I didn't have a chance. We launched a Diffusion Study of the adoption of Vocational Education practices by Services in the State of Michigan. This is where you came into the act.

You will remember a request by letter from Dr. Polley to your superintendent or director of vocational education asking you to fill out the Diffusion Study questionnaire. Copies of a composite questionnaire are provided for you to consult as we show you transparencies from the study.

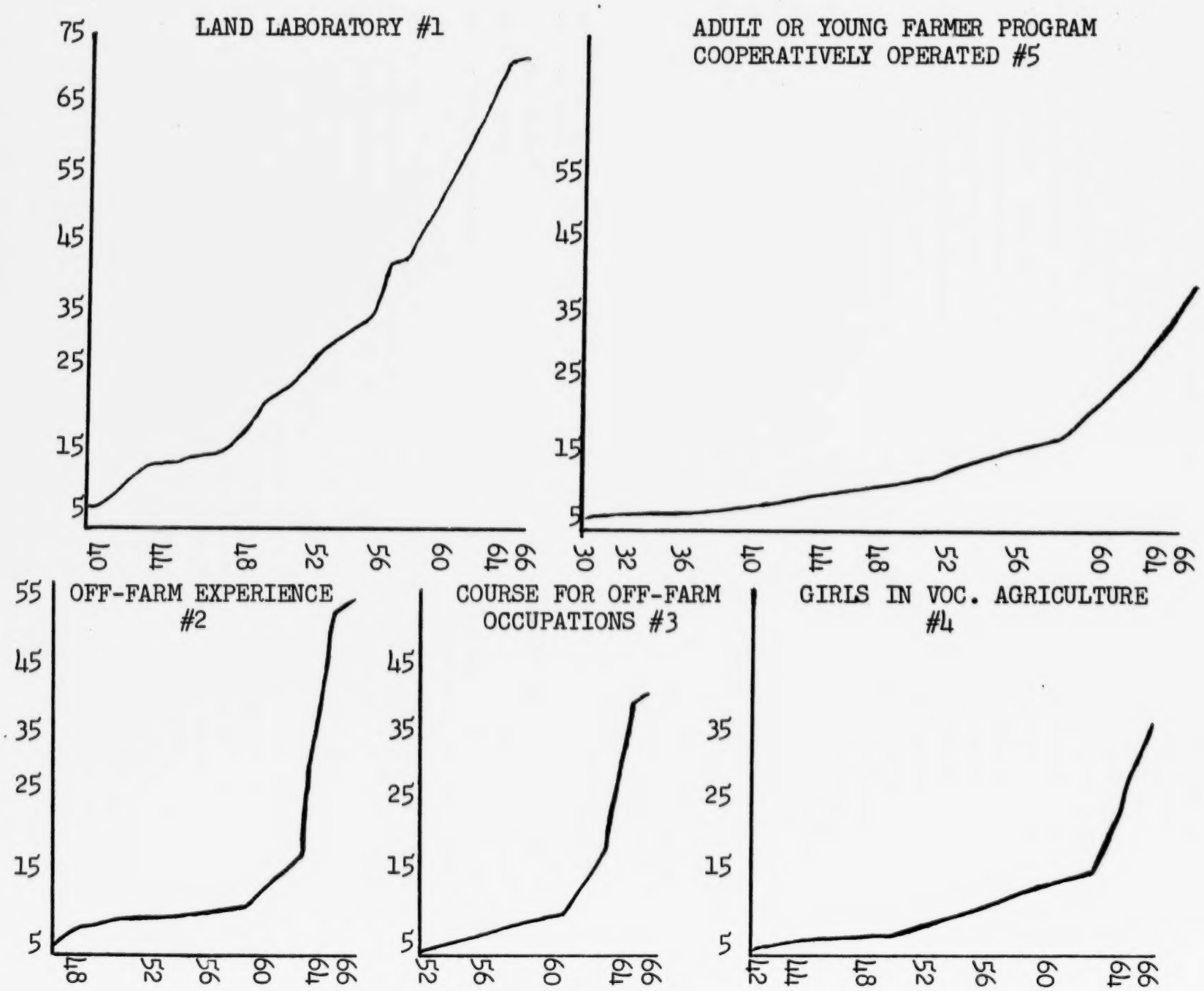
We were pleased to find that a time line does exist in the adoption of an educational innovation or practice similar to that found by Dr. Rogers. With a little imagination you can even see that this takes the rough form of the S-shaped time line. It begins slowly with early adopters and gradually grows. We can assume that with time we would get a leveling off as we reach 90 percent or more adoption, giving us the S-shape. (See Chart No. 1)

In this particular case we have the adoption time line for practice 1- Land Laboratory - for Agriculture. We have plotted time, or year of adoption along the horizontal scale and cumulative percent along the vertical. From the 118 schools reporting, one school first began using a land laboratory in 1940. Adoption reached 72 percent by 1965. Actual adoption was higher or 88 percent but we were unable to show this since 33 schools did not know the year of adoption of the practice and are not included. (See Chart No. 1)

Practice 2 - Off-Farm Supervised Experience Program - gives us an entirely different adoption time line. This practice began in 1948 and did not get underway to any extent until 1963-64, the beginning of the V. E. Act of 1963.

CHART 1

ADOPTION TIME LINES



Now to superimpose these two charts we can see how they differ. We can see the possible effect of legislation on adoption of a practice. The shape of the time line for Practice 2 was probably affected by legislation. The Smith-Hughes Act emphasized farming and discouraged off-farm experiences of students. Those schools adopting the practice prior to passage of the V. E. Act of 1963 did so with tongue in cheek. They were truly innovators. The 1963 Act encourages off-farm experience programs and look what happened! This is what Dr. Rogers describes as a "directed" adoption of an innovation and is characterized by this shape of time line. The idea was first held back by legislation and later encouraged or released. Contrast this with the time line for practice 1. This is described as a spontaneous adoption curve. It moves diagonally across the chart and is less S-shaped.

Time lines for practices 3 and 4 (Course for Students Entering Off-Farm Agricultural Occupations, and Girls in Vo. Ag., respectively) are similar in shape to the time line for practice 2. Practice 5 (Adult and Young Farmer Programs Operated Cooperatively by Two or More Schools) not being affected by legislation, appreciably, shows gradual adoption and has reached only 33 percent. If this were reported just for those schools having adult and young farmer classes the adoption percent would be much higher of course, and the time line would look more like the one for practice 1.

Now let us look at the time lines for the five practices for Office Education. The long flat line is for "Model Office." It started early, 1931, and has reached only about 12 percent adoption. Practice 2 - Overhead Projector - began in 1958 and has already reached adoption in over half of the schools. We see differences in adoption rate. We can make guesses on the effect of costs and complexity.

We also have adoption time lines for five Home Economics practices. Practice 4 - Home and Family Living Class for Senior High School Boys and Girls - shows the highest adoption - about 42 percent. Note the straightness of the line. The other lines are similar in shape indicating an early beginning with a recent "pick up" in adoption. Play Schools in Teaching Child Development has been adopted by a fifth of the schools.

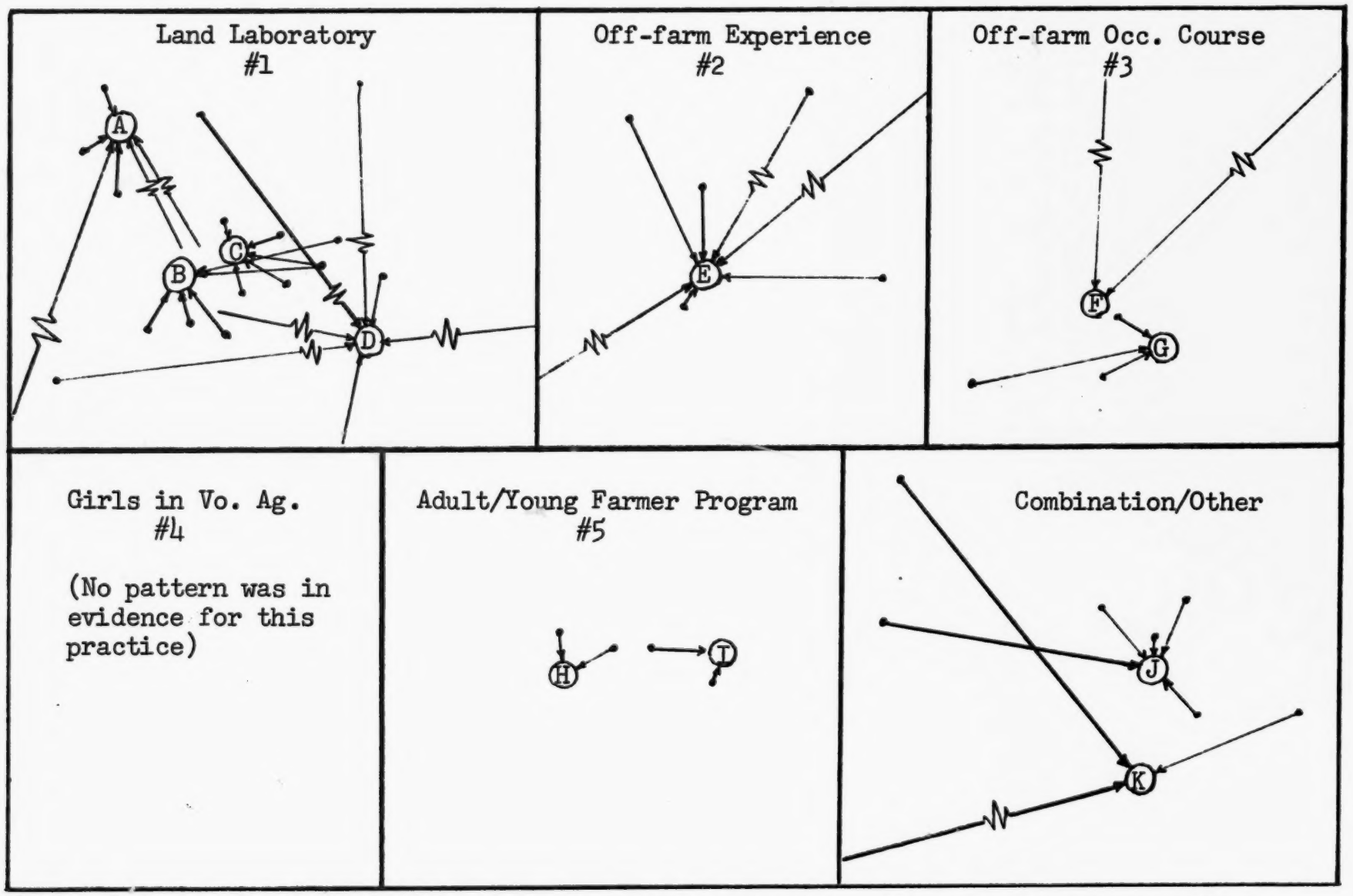
The time lines transparency for T & I is an interesting one. All lines show a similar pattern, an early beginning (1920-22) and adoption percentages ranging from 33 percent to 63 percent. But notice the practices used in the survey - Metals, Woods, Power, Graphic Arts, Drafting. We expect had we used, say, some phase of electronics as a practice we would have entirely different time lines to show you.

The other idea we wanted to test out was whether there may be communication channels existing among schools of the State with regard to adoption of innovations. Is there a communication network among schools? Do people from one school go to another to observe a practice before adopting it? The next set of overlays will show you what we found. (See Chart No. 2)

We will start again with Agriculture practice 1. We found that four

CHART 2

VISITATION NETWORKS BY PRACTICE



Note: Letters "A" through "K" represent schools visited by others to observe practices before adoption. Small dot ⟶ indicates school making the visit.

schools were visited by three or more other schools to observe a Land Laboratory. Now at this point in our report we are confronted with a problem. Do we identify who these schools are, or even give their approximate location by flipping a map of the State over the network?

Adding the overlay for practice 2, we find we add one more school. Practice 3 and 4 add still another school and reinforces one of the previous schools. Practice 5 and the combinations of practices reported add three more schools and reinforce some of the previous schools showing up as opinion leaders.

We were pleased to find that a communication network does exist among schools of the State. We have several questions we would like to pursue:

> Where time lines are parallel, were the adopter schools also the same schools for each practice?
>
> Were the practices that were adopted before 1962 adopted by urban schools, suburban, large, small, etc.?
>
> What are yesterday's innovators today?
>
> Are the schools who have boys and girls in Home Economics the same schools having girls in Agriculture?
>
> If schools were grouped by 5-year adoption periods, what patterns would emerge?

So much for that. Next, what use have we made of this information? This brings us to the second part of the topic assigned to me - "Rationale for this Workshop."

We thought if we identified the innovative and opinion leader schools; also identified the R & D projects needed to improve vocational education; invited teams of persons from the leader schools to a workshop to encourage them to conduct pilot and demonstration programs for others to observe; we could reduce the time lag between research findings and practice. We can reduce the time it takes to improve existing programs and establish new programs of vocational-technical education in Michigan.

We took several different things into consideration in coming up with a list of schools to invite to this Research Training Workshop.

To start with, for each service we identified the schools that were early adopters of each of the five practices. From the five lists, one for each practice, we made a list of schools that appeared as early adopters in two or more practices. Using this list, we made an innovativeness measure scale and came up with a score for each school based on:

1. Early adoption score
2. Total adoption score (How many practices had they tried?)
3. Net adoption score (How many were they still using?)

4. Observation score (Had they observed any new practices?)
5. Trying something new
6. Self-concept of innovativeness score

We did this for each service and came up with a list of schools that showed up well as a result of the diffusion survey. Next, we took a look at schools that showed up in more than one service area. We then met with personnel from each of the Service areas to determine a list of schools that would represent the whole State, and which would give adequate representation for each service area.

Now you know what was meant in Mr. Winger's letter inviting you to this workshop when he said, "Your school has been identified as one of the more innovative ones in the State..."

Let us look now at the R & D Needs Survey. We had the idea that it would be more effective, be better use of money to identify needed research and development, then "put our chips there" than to say "Here is a sum of money, come and get it."

Time will not permit going into a detailed review of the survey results. A copy is provided for you to study at your leisure. A quick look reveals the six groups surveyed by opinionnaire and the R & D categories that received highest priority. They were Teacher Education, Counseling, and Curriculum Development. We hope to explore this further during the workshop sessions Wednesday afternoon and Thursday morning.

In summary, you have heard a "Blueprint for Educational Change" outlined by Everett Rogers. You have heard of our attempts to make a beginning toward trying this out in education. We have placed in your hands results of the R & D Needs Survey. We have invited you as innovators and opinion leaders to this workshop. This workshop is designed to put all of this together for action for improving vocational education in Michigan. We are hopeful that when you go home you will be already launched on your next step on a Research or Development project.

* * * * * * * * * * *

Why Michigan Established a Research Coordinating Unit

Robert M. Winger
Assistant Superintendent for Vocational Education, MDE

It is a pleasure to be with you at the Research Training Workshop and we hope that your participation in this workshop will be most profitable. I rather suspect that some members of our staff could give you a complete list of the reasons that Michigan established a Research Coordinating Unit and I suspect that at the top of the list would be the reason that we finally were given some funds that could be used for this purpose. However, there were many other reasons and I am sure that the Unit has already proved its value to vocational education and that vocational education in Michigan will be improved as a result of the establishment of this Unit.

The Vocational Education Act of 1963 challenges all persons with responsibility for vocational education to improve existing programs and to develop entirely new programs of high quality that will prepare persons for gainful employment or will assist in upgrading those who need it.

Three questions are posed by this challenge:

1. What improvement is needed in existing programs?
2. What new programs are needed?
3. How can the limited funds be used most effectively?

These questions can best be answered by first obtaining reliable and valid information for decision making. One way to get this information is through well-planned, practical research. A great deal of research has been done and is being done in Michigan, but not all of the critical occupational education problems are being attacked. Then too, the research that has been done has not been applied to the extent that it should be - too few people hear about it.

Michigan was one of the first states to employ a vocational education research consultant. This position was established about 1948 and Dr. William Roe was our first research consultant. Our chairman for this afternoon, Lee Alger, was the last to hold this position. When the U. S. Office indicated that Michigan was eligible to establish a Vocational Education Research Coordinating Unit, we submitted a proposal that was accepted and Charles Langdon was selected to head up the Unit. I understand that there are now RCU's in 44 of our states including Hawaii and Alaska.

Michigan was one of the first states to attempt an evaluation of its vocational education program. This was authorized by the State Board in 1958 and Dr. Borosage completed the final evaluation and report. Following the overall evaluation, the State Board authorized the expenditure of approximately $50,000 per year for selected research projects submitted by the various approved teacher education institutions.

When our Research Coordinating Unit was established, we were pleased to learn that the U. S. Office of Education recommended that the RCU place major emphasis on Development rather than Research and that first priority to this emphasis be given to local schools and community colleges. It is good to know that they recognize the help needed for local schools and community colleges.

Objectives of the RCU as recommended by the U. S. Office of Education:

1. Build an atmosphere within the state that commits itself to research and is receptive to it. We need to commit more funds out of our budget for research but the problem is that we need more funds for all purposes. Michigan needed an additional $3,000,000 to meet requests for the current year.

   Incidentallly, the Michigan Manpower Study (Battelle Project) predicts that the U. S. will commit three percent of its total GNP to

research by 1980. Vocational Education also needs to provide for more research if we are to assume a leadership position in program development.

2. Stimulate projects, ideas and understanding of research.

3. Provide leadership in research related activities, seminars and conferences. This workshop is an example of efforts to meet this objective.

4. Coordinate state education research efforts in the State agency and with other State government and professional agencies and professions. Members of the Research Coordinating Unit serve on the State Curriculum Research Committee, and the State Vocational-Technical Education Curriculum Committee. The Unit has assisted in statewide area meetings on the Michigan Manpower Study in cooperation with the Michigan Employment Security Commission, and the Michigan Office of Economic Expansion.

5. Serve as consultants on research ideas and projects that are designed to improve and expand vocational education.

6. Disseminate research information that enables others to utilize recent research findings. You will be given briefs during this workshop that will give information on findings from the various R & D projects that have been aided from State funds.

7. Identify research training needs and personnel.

8. Work toward the identification of basic issues and problems needing research. Charlie (Langdon) has given you a brief report of the Survey of R & D Needs. It is our feeling that we get better results by soliciting the kinds of projects needed than to say here is some money, what do you want to study.

9. Develop long range plans for research.

10. Gather or assist in gathering needed data for a computer based system of educational information. The Unit provides a member of the committee assigned to keep the Division informed on developments of the Vocational Education Information System (VEIS) to be established in the country. Seven states are cooperating with the U. S. Office in developing a system for placing all information reported to the state office and to Washington on data processing cards and tapes.

11. Work with the R & D Center and the U. S. Office of Education personnel in coordination of the total research effort. The RCU is serving as a collection agency for research reports and forwards them to the National Center at Columbus, Ohio, where they are abstracted and forwarded to Central Education Research Information Center.

Close coordination is maintained with the R & D Program here at Michigan State University. The Director, Dr. Peter Haines, is a member of the advisory committee for the RCU.

In closing, I would like to commend Leon Alger and Charlie Langdon for their efforts in making the RCU a success. The Unit has proved to be a most valuable addition to the State office of Vocational Education and we hope that it will be a permanent part of our operations in the future.

Your program indicates that you will have a busy schedule here this week and I am sure it will be a profitable one.

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Importance of Research in Local Schools
Nicholas P. Georgiady, Associate Superintendent
Bureau of Research and Educational Planning, MDE

I have been asked to speak to you this afternoon on the implications of research in local schools. Up until the last decade, I think any one of us in this room could have stepped into an elementary or secondary school classroom and felt quite comfortable. The surroundings would have been very familiar and the textbooks would have been relatively unchanged. Methods of teaching would have been most familiar. The organization of the school would have been almost the same as that that we had attended in our school days. The curriculum would have been quite familiar, too. Now, this would be the situation because society up until that point was relatively stable. Goals were unchanging. The population was quite static and predictable. Professional personnel, that is, teachers and administrators, were being turned out by teacher training institutions in much the same old mold or pattern and apparently were quite adequate to the task of teaching in the classrooms of the time. Now in this kind of a setting, research was considered a scholarly, leisurely process for a few highly skilled but highly trained and somewhat theoretical people, and change resulting from research was extremely slow and quite leisurely, too.

Now let's look at the situation today. Since the beginning of nearly the last decade, that is, since Sputnik, all of this has been altered. Population explosion has been rolling along and snowballing. Scientific knowledge explosion is quite a factor here. There is an accelerating amount of knowledge being generated as a result of scientific research and experimentation. An this acceleration is not only found in science, but it is also found in the pace of life in general. We find ourselves moving more and more rapidly in many, many of the things that we do. We are witnessing a social revolution. Minority groups, which in the past have accepted goals that have been those of an inferior group, are no longer accepting this, and this is right. This is as it should be. All of these factors combine to establish a sense of urgency for us. My point is that in this kind of a setting where things are moving as

rapidly as they are, where changes are taking place, not only with increasing rapidity, but with an almost bewildering complexity, that in this kind of a setting schools cannot isolate themselves from society and when society changes as rapidly as it is, the question arises as to what kinds of changes schools need to make to better serve the needs of youth and older citizens, if these institutions are to carry on their avowed and time-honored functions. Now, if schools are unable to adapt to these kinds of rapid changes, they will be replaced by other social and community agencies, and these other groups will carry on the task that should be carried on by the schools, and I think that we can truthfully and safely say that we are seeing many evidences of educational functions being carried on by non-educational agencies at the present time.

Now, what does all of this mean for schools? First of all, I think that schools need to be aware of the changing nature of society. I have a story here that I use to illustrate this. It seems that there was a group of children, kindergarten children, who were standing on a playground prior to the beginning of the school day. And as children do on a playground, they find all kinds of ways to amuse themselves. Well, now these kindergarten children were making believe (there were two of them) that they were airplanes, and the two boys would spread their arms out and announce the kind of plane they were, and then they would run from one end of the playground to the other, making a noise like an airplane engine. One of the boys said, "I am a B-52 bomber, and I have a wing span of so many feet, and my six engines generate so much horsepower. And I can carry a bomb load of so many tons. And now I'm going off to fly--ZZZZZZZ." And away he went. Well, his companion watched and this boy who was the B-52 bomber ran around the playground and came back to him, and the second boy said, "Well, I am a Caravel, and I have two engines, but they are very powerful engines. And I can climb at the rate of so many feet per second, and I can go almost straight up in the air. Watch me go now." And away he went with his arms spread out, running around the playground. Just as he was getting back to his companion, the school bell rang, and everybody began to run towards the door. If you have ever seen a playground when the bell rings for entry, I think you know exactly what I mean. The boys lined up one behind the other as boys do and waited their turn to go into their classrooms. As they stood in line waiting, the second boy said to the first boy, "Well, here we go again; time to go in for class." And the first boy said, "Well, I think we had better go in and start counting beads again."

Now the point that this illustrates is that there needs to be a close relationship between the kinds of instruction going on inside the classroom and the kind of conditions that prevail outside the classroom. There should be a relationship between the world of the student inside the classroom and outside the classroom as well. Now, in addition to being aware of the changing nature of our society, there is a second point relative to the school's role here. Schools need to organize to better facilitate learning with the resources at hand. Now classes of 25 and 30 as a constant were all right for the past, but let's ask the question now: Why not larger classes, or smaller classes,

depending on the nature of the activities that the students and the teacher are carrying on? We are beginning to work with lectures to large groups of 100 or more. We are beginning to use demonstrations by means of tapes and kinescopes on educational television. Now we have small groups that we are using in the classroom. These are groups of 15 or 10 or 5 down to the individual student. The important thing is that we shouldn't hesitate to try some variations of time-honored practices but to try these and test these on a scientific basis, using the research approach, basically, and making sure that the kinds of results that we come up with are results which can be defended on a sound basis.

Now, it also seems to me that we need to test out and use a variety of media, each with its strength in different areas. We've had a good deal of research in the audio-visual field and individual mediums; for example, we've had research on film and the values that it has for learning. We've had research on the film strip and how it can improve growth and learning. We've had the same kinds of research on the tape recorder, over-head projectors, etc. But these have been done on individual instruments or media. What we need now is more research on the use of these media in conjunction with each other so that the strengths of one can be used to fit in and compliment the strengths of another. The sum total of using these in conjunction with each other can provide, hopefully, far greater benefits than using these singly and in isolation from each other.

There has been very limited research in this area, and I think more is needed. Fully utilizing research methods is the area of team teaching. We've had some research in this area, but I think we need to do more testing. Team teaching is an approach where special competencies of teachers are more fully utilized in organized, planned fashion. We all recognize that certain teachers do some things better than others. Team teaching is the approach which permits a teacher to function in the area which she is the most comfortable and most effective. The benefits here accrue not only to the students who experience more rapid learning and growth, but to the teachers who are able to offer more in this way than in the traditional way.

We are all aware that we are presently witnessing an explosion of knowledge, and this is one of the conditions which is creating some severe problems for education. There has been a great deal said about this. I remember in my own days in high school chemistry the periodic chart of elements had something like 92. Today this is well over 100. I've lost count, and I think probably most of you have, too. The changes in the amount of knowledge that man has access to, the sharp increase in this body of knowledge makes it necessary for schools to utilize even more effectively than it has in the past, the limited time available to it in working with children and youth. It's obvious that there is far more than could be known and ought to be known than the limited hours in the school day permit. Therefore, some decisions have to be made. Most of the study of what should be kept in the school and what should go, and what should be added, must be done in hundreds of thousands of classrooms and thousands of American communities. The studies must be undertaken by those who may have to change the way they do things as a result of the studies. Our schools cannot keep up with the life

they are supposed to sustain and improve unless teachers, pupils, supervisors, administrators, and school patrons continuously examine what they are doing. Singly and in groups, they must use their imaginations creatively and constructively to identify the practices that must be changed to meet the needs and demands of modern life, courageously try out those practices that give better promise, and methodically and systematically gather evidence to test their worth.

Of the approximately 900 men and women who were affiliated with the American Educational Research Association in 1952, few were practitioners in the sense in which the term is used here. Less than 10 percent were supervisors, administrators, or principals. The number of elementary or secondary school classroom teachers who were members could be counted on the fingers of one hand. Professors of education and staff members of educational research bureaus predominated.

Today, thanks largely to influx of large sums of federal dollars into local schools, this has changed. The Vocational Education Act of 1963 established Research Coordinating Units such as the one headed by Charles Langdon for Michigan. Titles I and III of ESEA of 1965 have poured $38,000,000 per year into local school programs in Michigan alone with proviso that there shall be systematic and scientific evaluation of results. Regardless of the fact that motivated this action, the result is that teachers and administrators in these programs are now forced to carry on research relative to these programs. One value of this requirement is that required research may help point up need for clearly stating goals and educational purposes and then measuring the extent to which these have been attained as a result of the project's activity. This also has the concomitant value of helping staff members become more concerned and knowledgeable about the results of their efforts and the extent to which they have succeeded in their work.

In his writings and many of his speeches, Dr. Rogers pointed out lag or gap in time between some research and its widespread adoption in terms of new practices. Fifty years is too long, ten years is too late for the children in school today. This is being decreased and will continue, hopefully, to diminish even further. In a comment at luncheon, E. J. McClendon indicated to me that an AMA study found that children who have morning and afternoon snacks perform better, are more alert, and score higher on tests than those who do not. This knowledge could be very useful to a teacher, if it ever came to her attention. Results of research do no good on the library shelf. These must be disseminated, examined, adapted and adopted. More than communications is involved here. The principle of how people change their practices is paramount. The problem is related to important principles of learning. A teacher is most likely to change his ways of working with pupils when he accumulates and interprets information about these pupils because he wants to work more effectively with them. Reading the traditional research study, conducted by someone else and describing boys and girls in general, may help if he happens to see some relation between the research findings and the instructional problem he is facing. These changes in practice, however, are more likely to occur if they are a consequence of inquiry in which the teacher has

been involved and are based upon evidence he has helped to procure and interpret in his attempts to solve an instructional problem important to him.

It does not mean that everyone has to learn everything for himself, the hard way, so to speak. In one sense, of course, he must do this because no one can learn for him. What is being emphasized, however, is that learning that changes behavior substantially is most likely to result when a person himself tries to improve a situation that makes a difference to him. He then does his best to obtain and interpret some evidence describing the consequences of his presumably more adequate practice. When he defines the problem, hypothesizes actions, studies the consequences and generalizes from them, he will more frequently internalize the experience than when all this is done for him by somebody else, and he reads about it. One reason for this is that in the course of his inquiry, which involves the testing of hypotheses in action, he will actually practice the changed behavior that he has decided is more promising. He will also practice whatever is involved in evaluating the consequences of this changed behavior. He does not read about these practices, he engages in them. And he learns what he does.

There is considerable justification for the belief that research methodology will not begin to have the influence that it might have on American education until thousands of teachers, administrators, and supervisors make more frequent use of the method of science in solving their own practical problems. But the method of science is not easy to employ, especially in an investigation of on-going activities. Not many of the people who are strongly committed to the scientific study of problems others face are disposed to be scientific when they try to improve their own day-to-day activities. Most of them continue to make decisions and engage in practices that are based on inadequate problem definition, subjective recall of evidence, and unsophisticated generalizing.

What this means is that those who are interested in seeing research contribute more substantially to the improvement of American education must do everything within their power to make a scientific attack on practical problems interesting, rewarding, and attractive to large numbers of people. The difference between the way most problems are handled and a more scientific treatment of them is relative. It is entirely possible to improve the clarity with which practical problems are identified, the creativeness with which more promising practices are hypothesized, the skill with which presumably better practices are implemented, the ingenuity with which evidence of the worth of the practices is obtained, and the penetration and sagacity of generalizations resulting from this evidence.

We are now feeling only the beginnings of the effect that modern science and technology will have on our daily lives. This is true even though the consequences of discovery and invention, of man's conquest of nature, are already affecting, in some fashion or other, everything we do and are. We may shut our eyes and say, "This far and no further," but the forces that we have loosed are not so easily held in check. And they

are cumulative in their effects. We have no choice but to learn to live with the changes that scientists and engineers have brought about in our ways of living and earning a living. We must change to survive, and in many respects our lives and the lives of students may be the richer.

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What Type of Research Can Be Accomplished by Local Schools?

E. J. McClendon
Wayne County Intermediate School District

Education, especially including vocational education, is in a growing-up stage. Perhaps it may be said to be experiencing the growth spurt of the early adolescent years. One of the most noticeable characteristics of this growth is the rapid realization that we now must base our decisions on studies and research. In education, as in a court of law, opinion is no longer admissable as evidence. We must have facts. We must have proof. This is a most healthy development.

The emphasis in this presentation will be on systematic study leading to the solution of local school problems. It is a basic premise of this paper that there are many instructional problems in the area of vocational education which lend themselves to solution through research or systematic study and which do not require the service of highly sophisticated researchers. The assistance of the trained research person is usually very helpful but is not essential to effective studies.

What kind of studies can local schools make? The three types chosen for discussion here are certainly not exhaustive but give some idea of the opportunities. The first are status studies or surveys which reveal what conditions, forces or problems currently exist and to what degree. The second are the various forms of comparison studies, these are the studies which compare one situation or one body of information or one group with another in order to determine the impact of change or the extent or degree of similarity or difference. The third, which does not constitute a different research type but which is of sufficient consequence to deserve special attention, is follow-up studies of students. These are the studies which explore what happens to the pupils who enter or complete your programs in vocational education. The three types of studies set forth here are clearly not discreet. Often one may tend to lap over into another or one will lead to the other. Follow-up studies may easily be status studies or comparison studies but have been separated because they demand immediate and continuing attention.

It is not the prime purpose of this report to explore the steps in systematic study, however, there should be some value in reviewing these steps to grasp the frame of reference in which the writer uses the term. The steps, which must be modified for each situation, as used in this paper are as follows:

1. Select the problem you wish to solve. (It must have meaning and consequence for the researcher.)

2. Define and limit the problem to those portions or pieces which lend themselves to solution. (Problems not amenable to solution only lead to frustration.)

3. State your hunches (or hypotheses) which you would like to prove or disprove. What do you really think will be found or the effect of "doing something differently" will be?

4. Develop the methods to test your hunches. This is the point where you will probably decide which of the three types of studies, mentioned earlier, to conduct or that neither if these is suitable and that some other is called for.

5. Gather the facts. Get the most dependable information available to you from the most basic or primary source. To do this you must also select an instrument (or build one) to get your information. It will need testing if you build your own.

6. Organize and analyze your facts. Put the information together in manageable and usable form.

7. Draw conclusions and propose new hypotheses and develop proposals for action. This is the payoff. You can now tell what you have found but you must also make decisions about how much you can depend on these findings and how much further information is needed to support or defend the results.

These steps can be useful in even the most limited study effort.

What kinds of vocational education problems lend themselves to status studies or survey research? There are many of course; the one indicated here are only intended to prompt the reader to think of those which will have meaning for him. Community studies, especially for program planning or program development, represent one large group of status studies which may be needed. Before beginning any of these we should always ask, does someone else collect these data and could we get them? Would they be useful for your purposes? We usually cannot afford to repeat what is already being done because so much is needed.

The following questions are intended to raise some issues which may be central to your future program planning.

> What personnel needs exist for industrial development in your community (especially small industry)? What do industry leaders expect them to be in three or five years?
>
> What are present personnel needs in business?
>
> What business development, especially in retail sales, is anticipated?

What will the personnel needs be for these developments?

What is developing in service industries; for example, food service, or maintenance and what training do their personnel require?

What are job entry requirements for the young people who are being employed in your community? What would employers like them to be?

What other training or educational agencies exist in or near your area which prepare people for vocations? What are their programs and how do they relate to yours?

There is always a need for studies of the community's understanding of the purpose, the need, and the cost of vocational education. How recently has this been done and how is it changing? What should you be doing about it?

Research of this nature (community studies) may be secondary research. There may be people in the employment offices, chambers of commerce, industrial development bureaus or similar agencies who already have the data. Your job may be to assemble, analyze and interpret what they have. Watch out for partial or biased reports however which are limited to a few industries or businesses. Be sure you can trust the collection methods they used.

Perhaps the most obvious group for status studies are our own pupils - what do you really know about the pupils in your program and those who plan to enter it? What are the post school plans of the pupils now enrolled? Do they plan further training? If so, what? Do they have a job in mind? What are the attitudes and expectations of the pupils who are in the program? Do they really expect to get jobs in the trades for which they are preparing? Where do they want to live? How do they feel about working? Do they expect to hold responsible positions as citizens in their communities? What are the expectations of the pupils in the junior high or the tenth grade who hope to enter the program? What are their school performance records? What is their learning potential? What physical, emotional or learning handicaps do they have? What do they really expect to do in a vocational program? Do they see it only as a chance to escape the usual school routine? How do they feel about being in a vocational program? Are they entering by choice or by push?

One group which is unfortunately often overlooked in status studies is the school staff: This includes administrators, teachers and counselors. It has been said that teachers and other educators are often more influential than parents in determining a pupils choice and satisfaction in a career.

How do they really feel about vocational education? Do they feel it is the school's job or proper function? What pupils do they suggest enter the vocational education program? How do they feel about those who are in vocational education? Do they automatically treat the vocational pupil as someone apart? What do they know about the records of pupils

who have completed vocational education? What do they know about course offerings, course content, learning experiences, and teaching methods in the various vocational fields? Staff feelings may make or break an otherwise good program, you must know what these feelings are.

There are always plaguing questions about which way we are going. Comparison studies can give us this information if we have base line or background data for comparison. Comparison studies are the researchers dream. They can also be done by vocational educators. The status studies mentioned above may provide the base line data for later comparisons. Some comparison studies you may wish to make may be prompted by the following questions:

How does your vocational student of today compare with those twenty years ago? How do the vocational students in your school compare with the pupil population as a whole? Some items on which comparison is possible include such things as;

(a) participation in extra curricular activities such as clubs, sports, music, journalism and student government,
(b) school performance as reflected by marks,
(c) reading ability,
(d) mathematics ability,
(e) I.Q. or intellectual capacity,
(f) attitude toward school,
(g) civic responsibility,
(h) expectations about future employment, and/or
(i) outside of school (or in school) jobs or employment.

Comparison studies can also provide insight into some of the issues which concern us. We need to know what the trends are in the job market and in job entry requirements compared with ten years ago - compared with five years ago. How do starting salaries for vocational graduates compare with other high school graduates and how soon after graduation does each graduate or graduating group find employment?

The possibilities for comparisons in studies of the community and staff should not be overlooked. How do the attitudes towards vocational education of beginning teachers, experienced teachers, and administrators compare? How do teacher attitudes compare with the attitudes of parents? How do parents of students in vocational programs compare with the parents in other curricula in their feelings about vocational education? How do employers who have employed both vocational and non-vocational school graduates feel the two compare as effective employees? How do employers feelings about vocational school graduates compare and contrast with the feelings of the community as a whole?

It is often of interest and of value to compare what the employer says is important for beginning employees and what he really considers when he actually chooses new employees. Schools are always concerned with costs. It is often said that vocational programs are much more costly than other curricula. Is this true, if so to what degree? When you consider equipment, space and instruction how do the various

vocational programs compare with science, Latin and physical education? How do the costs of the various vocational programs compare? How do these relate to later employment and productivity?

Studies which follow the graduate after he leaves the school program are probably the most common in this field and possibly the most productive. The point has already been made that this is not a really different type of research but is considered sufficiently significant to deserve consideration as a separate entity. Does your school do follow-up studies on all its graduates, if not you may be the one to initiate such a productive effort. There are questions for which you will need answers. For example:

What are the employment experiences of recent graduates of the vocational program?

(a) How soon after graduation were they employed?
(b) Where are they employed (both geographic location and business or other activity)?
(c) What was the entry occupation?
(d) Are they working in the field they prepared for in the vocational program?
(e) What is the future for them?
(f) Do they consider this as permanent employment or as leading to permanent employment?
(g) What do they think their vocational preparation contributed to their present employment?
(h) Do they plan further education or training, if so, what and where?

There are some graduating groups which should be of particularly great concern to vocational educators. Special attention should be focused upon pupils who have sought further education or training. We need answers to such questions as:

(a) Was this because their high school program was inadequate?
(b) Have they changed their vocational goals, if so, was this influenced by their vocational education?
(c) Have they entered college, if so, how are they progressing and is their vocational education aiding them either to support themselves or in their college work?
(d) Did their vocational education "gear in" effectively with their post high school training, if so, how? If not, why not? Should it have?

Long term studies are needed. If you are initiating a "first" study try to obtain data which will be useful for comparisons for the next 5, 10, 15 or 20 years. Sometimes follow-up studies are able to reach back across the years. Did your school have a vocational program twenty years ago; if so, how many of its graduates can you find? What are they doing and how has their vocational program helped them? What suggestions do they have for the present program? Can you compare last year's graduates with those of the distant past? If no follow-up

studies have been conducted a system should be established now to maintain contact with former pupils. One school sends each graduate a birthday greeting each year with a survey reply card enclosed.

Finding graduates and dropouts after a period of years may be the biggest single order, but you need to hear from them. What has happened to the dropouts from hour program, both those who left school and those who entered another curriculum? How do they compare with your graduates? Are they employed? Did their experience in your program aid them in obtaining employment. Have they sought further training, if so, what and where?

Does your school follow-up other graduates, such as those going to college? How do your graduates compare with them? How does a graduate of your machine shop program compare with a student who majored in math or engineering in college? You could compare such things as earnings, years of employment, future outlook, job satisfaction and role as a citizen.

What is the former pupil's evaluation of his educational experience in the vocational program? This often is a very productive area of study. Some questions you might ask them include:

(a) Did their program really prepare them for the job?
(b) Were there basic skills which should have been included and were not?
(c) How about the guidance service -- did they know what to expect on the job?
(d) Have they had any major difficulties, if so, what?
(e) What do they feel was lacking, excessive or inappropriate in their preparation for entry into a work position?
(f) Are they taking training now? What kind, for what purpose?
(g) Is there a union involved in their field, if so, have they had difficulties in joining the union or have they had conflicts with their union?

In the same sense that follow-up studies are done with former pupils they should also be done with their employers where possible. Here it might be possible to compare the former pupil's evaluation of his preparation with his employer's judgment. If this is to be done the questions to the employer should parallel those to the former students. Usually these must be done where several pupils have been placed, since employers are generally reluctant to report on a specific employee. Other questions you should ask the employer include:

Does he have a training program?
If so, for what skills or competencies?
Are your former pupils included?

It must be apparent that it is the intent of this paper to raise questions not to answer them. The answers will only be found in the systematic studies which will be conducted by local school staffs. However, these questions do seem to have demonstrated that there are many problems which demand solutions for the proper development of the vocational education programs in our schools. Systematic study can assuredly provide us

with something better than an opinion, a guess or a look at some other school as a means to these solutions.

There are some limitations in conducting local school studies which probably should be at least mentioned here. It could be unfair to the person doing his first study not to mention some of these. A person who reads your study report is likely to raise a question about the validity of the instruments. You should test any instrument to see if it really gets you the information you are seeking. You probably do not have the resources for statistical validation so, don't try it. If you can find a valid instrument and it fits your purpose, use it. But don't let questions of validity stop you. Another suggestion is don't try to overgeneralize your findings. If you limit your conclusions to your community, the employers you studied and/or to your own pupils in your own school you need have no fear of being challenged on the results. It is also valuable to remember not to try to draw highly sophisticated inferences -- be satisfied to let the data say what they say and no more. How to handle your results often becomes a concern also. So the question is raised, what about statistical treatment of the data. This is good, if you can get it, because it will help you know how dependable your findings are, but if you can't, do the study anyway. Often there are persons in colleges and universities or research consultants from larger districts or state and county departments who can help you with this detail. If you want their help in statistics you should consult them as you design the study. But don't let it hang on this. With or without statistical treatment, go ahead.

Finally, and perhaps most importantly, be brave enough to act on what you find and then do further studies both to support your original findings and to keep your data current.

There are at least three very important kinds of studies you can do. Choose one of these or another and move out. You can do status studies or status surveys to learn what the situation is at a given point. These will give you a base for further study as well as some important operating information.

You can do comparison studies which will provide an opportunity to look at your program in contrast with others or with itself.

Every school should be conducting continuous follow-up of all of its students -- otherwise we are flying blind. Let the vocational department lead in your school in getting effective studies started.

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PERT and Vocational Education

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Introduction

As I understand vocational education, one of the main goals is to teach students how to use various tools and equipment. You teach that a hammer should be used to do certain jobs and that it is not to be used for other functions. Also, you teach that a screwdriver is not to be used as a lever or as a chisel to dig out wood. Proper use of tools or equipment is thus an important educational objective.

I would like to discuss with you this morning the use of a tool for the more effective management of research and development projects in vocational education. If you understand this technique or tool, you can use it properly. If you fail to understand it, I am sure that what will happen is what happens to many new ideas in education - people will say it is no good. Such a reaction occurs because the new idea is probably not too well understood in terms of what it is for and what it cannot and can do. Data processing is a current example. Every now and then some professional educator raises the question - Are we not depersonalizing the student because his report card is now processed by the computer? Such persons perhaps do not fully understand the advantages of using data processing in education.

The Role of PERT

The specific tool or technique that I would like to present to you for more effective project management is the Program and Evaluation Review Technique, or PERT. To understand this tool, one should be familiar with the context or situation in which it operates - that context is management. Management is defined as the organization, direction, and control of an enterprise to achieve stated objectives. To do the above, management functions through a series of steps known as management cycle. This cycle consists of six steps as follows:

1. Establishing a goal or objective
2. Developing a plan to reach the goal
3. Establishing a schedule
4. Measuring progress toward goal
5. Identifying problems and taking corrective action
6. Replanning in view of decisions made

In general, these six steps can be summarized under two general terms - those of planning and controlling.

In planning, we outline what we believe should take place. These shoulds are basically estimates of time, cost, and performance. The very nature of many research and development projects highlights the problem of estimation more so than in routine, repetitive activities because of the high degree of uncertainty associated with the former kinds of projects.

If planning is well done, it will help us to achieve our goal, but if done poorly, as in many cases it is, we won't know really where we are going or when we should be there at what cost.

Controlling consists of comparing actual progress against the plan to determine where, if any, deviations are occurring. When there are deviations between the shoulds and the actuals, particularly in a negative direction, we look for some change in our plan. Based upon our identification of the cause of this change, certain corrective actions are taken.

Briefly, planning is establishing the shoulds while controlling is comparing actuals to note deviations so that corrective actions can be taken to bring the work back to where we say it should be. The management function in its simplest form consists of these two steps.

To carry out the management process effectively, the manager needs to have information. A valid decision with regard to corrective actions cannot be made without information. It is generally agreed that managers need three basic types of information - that relating to time or schedules, resources or costs, and performance or reliability.

Over the years, many techniques have been developed to provide management with the desired information accurately and quickly. Such techniques are now generally referred to as management information systems. PERT is one of these systems. It has caught the imagination of management, because it offers the hope of providing all three types of desired information at one time. Because numerous histories of PERT's development have been prepared, I will not go into detail on this point. I would like however to give a brief outline of its essential characteristics so that a proper background can be secured for the subsequent panel discussion. For those of you who would like more detail than will be presented this morning, I suggest you read the recent monograph on PERT Applications in Education now being distributed by the U. S. Office of Education.*

The Nature of PERT

Basically, PERT utilized a network to present a graphical portrayal of the tasks or jobs to be done to accomplish a goal or objective as shown in Figure 1. Ease of the arrow lines represents a piece of work that has to be performed to reach a goal and are called activities.

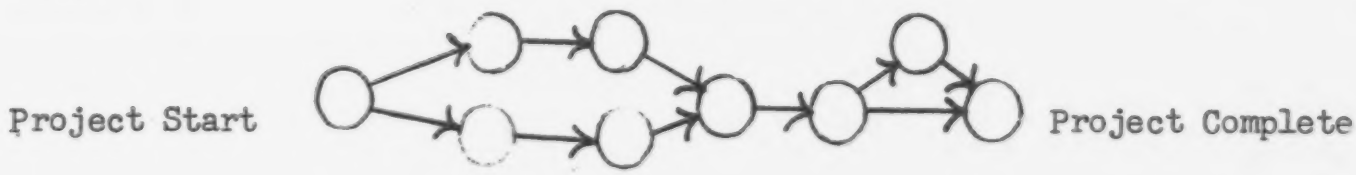

Figure 1. Simple PERT Network

*Desmond L. Cook, PERT Applications in Education, Cooperative Research Monograph No. 17, Superintendent of Documents Catalog No. FS 5.212:12024, U. S. Governmant Printing Office, 45 cents.

The circles represent the start and completion of a piece of work and are called events. Events are instantaneous in nature while activities consume time and resources. Networks can be very detailed or they can be gross in nature depending upon the purpose of the network and the complexity of the project.

Once the network is established, three estimates of time to complete each task on the network are secured. Usually, such estimates are secured in weeks and tenths of weeks and from persons who will be doing the work. For each activity, an optimistic, most likely, and pessimistic time estimate are secured. Using these time estimates, an average time is secured for each activity using standard formulas. The purpose of securing three time estimates is to take into account the uncertainty existing in research and development projects where many of the tasks have never been done before. Once the time estimates have been secured, it is possible to establish the most critical path through the network since it will be longest, most time consuming pathway. Any delay on this pathway, will cause the total project to be delayed.

In a rather large and complex network consisting of many activities and events, the process of calculating the various time information elements needed by a manager can become a rather burdensome task. Many computer programs have been developed so that such calculations can be readily done.

The basic network and its time estimates represent shoulds, and help to establish the project's schedule. Techniques have been developed so that we can add cost estimates to the basic time estimates and thus provide further valuable information to the manager when it is needed for decision-making.

Application of PERT in Vocational Education

The basic principles of PERT have been used in a wide variety of situations in the military-industrial complex. Agencies such as NASA, the Department of Defense, the Bureau of the Budget, and their contractors have made extensive use of PERT. It is only within the last couple of years that efforts have been made to determine the feasibility of using such techniques for the field of education. Let me call to your attention and describe briefly some applications of PERT to your field of vocational education.

One current project going on in Canada, referred to as the Pilot Training Projects is being sponsored by the Technical and Vocational Training Branch of the Department of Manpower and Immigration. The PERT chart developed for this project shows it starting with a joint federal province conference followed by the subsequent activities to be undertaken until a training program is fully underway. The estimated time for completing the project is 100 weeks. For some of the larger pieces of work in the total project, smaller networks have been developed.

Another example is the development of a network for all of the tasks to be undertaken in the development of an area vocational school for a seven county area in Iowa. A booklet describing this project presents

the introductory concepts of PERT. An examination of the booklet reveals that certain key dates have been identified. Also incorporated is a responsibility chart showing which committee or person is responsible for the accomplishment of the various tasks. A computer output is also included which lists all the events and activities on the network, the dates the events are to be reached, and the critical path.

A third example is the Industrial Arts Curriculum Project underway at The Ohio State University under the direction of Professors Towers and Ray. When this project was first conceived, a network representing a projected ten year program was developed. A more detailed network was then prepared for the first phase of the total project. This network was prepared before much of the narrative description was prepared for the project proposal. The initial time estimated was for 24 months but due to certain conditions only 18 months funding was originally provided. With the network available, it was easy to determine what activities might be deleted so that the total time was consistent with the restricted funding period.

A fourth example is a project under the direction of Dr. Allen Lee at the Berkeley Center for Vocational and Technical Education. One phase of the total project involved the interviewing of state department personnel in each of the 50 states. The project staff involved developed networks to show the steps involved in instrument development, travel arrangements, interviewing schedules, and similar activities.

While admittedly brief in description, the above examples do indicate that the technique of planning and controlling projects by use of PERT and other techniques has been slowly developing in the field of education.

What Are Some Benefits from Using PERT?

Based upon the experiences of the above projects in using PERT, my own personal experience in using it on research and development projects, and the experiences of others gained from a consultative relationship, I feel that several benefits accrue from the use of PERT. Briefly, these benefits are as follows:

1. The goals and/or objectives of a project become more clearly defined.
2. An explicit plan is developed for reaching the goals or objectives.
3. A clearer definition of each of the tasks to be done is obtained.
4. Problems and problem areas are identified early and in some cases before they actually occur.
5. It provides valuable assistance in knowing where and when to replan.
6. The network is proof that a plan exists.
7. The network provides a communication tool for the project staff so each person can see his total contribution to the project.

Other specific benefits might be identified, but the above represent what are some of the main ones. Perhaps the most general benefit gained is that planning is made explicit and not left implicit.

Limitations of PERT

No doubt some of you are saying, something that good has to have limitations. I would be the first to admit that is true. Briefly, some of the limitations as I see them are as follows:

1. It is basically objective or goal oriented.
2. A strong planning effort is required to make it function effectively.
3. Anyone planning to use the technique must not only understand the basic concepts and principles, but receive training in the technique.
4. It must be accepted as the management system and not as an adjunct to other systems.
5. It has limited usefulness for routine, repetitive activities.

Conclusion

Keep in mind that PERT is a tool or a technique. It has no inherent value in and of itself. Like any tool, its use and characteristics must be fully understood by the user. It is not a panacea! It is basically a problem seeker and not a problem solver. Properly understood, however, I feel that PERT and similar techniques have tremendous potential for the management of research and development actiivities in the field of education in general and in vocational and technical education in particular.

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Federal Proposals: A Rationale

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Within the last ten years the Federal Government has expanded its involvement with the states to assure quality services to the people of the United States. Billions of dollars have been appropriated from federal tax revenue to finance this involvement through a system of program and project grants and contracts. Areas of Government concern cover the air we breathe, the water we drink, national and international safety, and almost everything else you can name on up to and including education.

In an effort to encourage creativity and enhance initiative most federal monies are made available to the people in a competitive atmosphere (I say "atmosphere" only to assure you that I am fully aware of the political and geo-political factors in the award of a grant or contract).

Furthermore, the American Heritage includes a drive to improve quality of service with every effort to add quantity of service for the people. As a result, with every Federal handout comes a stipulation that change or improvement accompany any activity resulting from its use. Let us pause for a moment and reflect upon this fact. Improvement results from change, and change is a difficult process. Further, it is a controversial process, involving many unknowns. As the Federal Government attempts to catalyze activity in certain areas, it must make decisions concerning the efficacy of the project it supports. More important it must account for the expenditure of all of the billions of dollars it distributes. This accounting is for Congress as your, the people's, representative.

In all of its wisdom the Federal Government has arrived at a process for accomplishing this enormous task. It asks that anyone wishing to tap the Federal till, submit a request for support - in writing - in multiple copies - based on a prescribed format. This request is more commonly called a proposal. The proposal is received by a federal agency and reviewed in the following manner:

1. A staff administrative review to determine appropriateness of subject matter and conditions contained in the legislation which authorized the federal involvement.
2. A review by content and program authorities both within the federal offices and/or anywhere they may be found in our private enterprise oriented society. Colleges, universities, industry, and state and local agencies may provide the person consulted in this review.
3. A budgetary review board on available funds, feasibility, priority, and accountability.
4. A final review and overview of the total impact of the idea, the program. This would involve such factors as geographic and other objective factors. The award would then be made.

You will note that nowhere do I mention political horse trading, pressure, etc. It could occur at any and all points in the submission of a request for federal money. It is an always denied factor in any decision. The force it carries is powerful and dangerous. This force can be the making or the undoing of a great, well documented, idea. This force should never be unleased by the uninformed and cautiously by the knowledgeable.

This brings me finally to the topic of my presentation - the preparing of the proposal necessitated by the previously mentioned rationale.

The attached pages reflect a pattern of operation that I have found very successful in the past ten years. But it hastens me to add - not 100 percent successful - would you believe 95 percent? I also hasten to point out some hard cold facts of life. A good proposal is one that results in some money being given <u>you</u> to carry out <u>your</u> idea. A good proposal may not win a Pulitzer Prize, though a successful proposal - money receiving - may result and has resulted in a Nobel Prize.

These pages are the first stages in a process of taking an idea and reducing it to the written word. The many stages to follow are made easier by the successful completion of the first.

Proposal Plan of Action

To establish a working draft of a proposal the following steps should be taken and the following simple questions must be answered:

1. What - What is it you the author, want to do? Make this answer brief, basic, and all inclusive of what you wish to do.
2. Why - Why do you want to do it? What is the justification for carrying out this activity? Include a history (brief) of the problem it might solve and what has or has not been done to solve it in the past. If pertinent, discuss the literature available on the subject.
3. How - Spell out step by step in as basic a fashion necessary, how you will proceed to accomplish what it is your plan to undertake. Assume no knowledge on the part of your reader and do not play games with words. Establish early and clearly your goals and desired results. Spend time at this point spelling out checks and balances within your project to assure the completion of the goals and the data that would support your assumption at the end of your project, that the goals were achieved. (More commonly called evaluation section.) Describe your design and use whatever diagrams or supporting data you need.
4. Who - Who will do this activity and who will benefit from the successful completion of this activity? Who is available for staff and who can consult ? Who helped formulate and plan and who endorses the idea? Give as much detail as deemed necessary to answer all of the "Who's."
5. Where - Where will this activity take place? What town, what state, what county? What building, what classroom - assume no prior knowledge even if you have talked to a federal program representative. Be specific!
6. When - When will this activity begin? When will it end? If there are steps either by concepts or by days and months spell out the phasing that will result. If your project extends beyond a year, do not include this fact in your basic timetable and add the additional time on in a flexible, broad fashion.

It can be noted that I have not mentioned money or cost up to this point. Needless to say it is an important part of the proposal but not the most important part. Many an unhappy hour is spent worrying about costs and estimates. This is most unfortunate. Let me make a bold faced, blatent promise to you - for every good idea there is enough money to carry it out. The problem lies in the absence of good ideas and the absence of well written proposals to describe the good idea. As you write your above answers you are only thinking about costs - such as staff, rent in a casual way. If you jot down notes on these points when you reach the point we find ourselves now, half of your task is completed. The following outline will raise the necessary points to be considered:

Personnel	
Project Director (Full time @$12,000/yr)	$12,000
Research Assistant (Part time hourly @$5/hr)	4,000
Secretary (Full time @$5,000/yr)	5,000
Staff Benefits (12%, full time professional, 6% part time and hourly)	2,280
TOTAL PERSONNEL	$23,280
Equipment	
Two tape recorders @$400	$ 800
Materials and Supplies	
20 Tapes @$2/each	$ 40
Travel	
2 Professional meetings @$300	$ 600
Local travel (400 miles @$.10/mile)	40
TOTAL TRAVEL	$ 640
Contracted Services	
Consultants (20 days @$100/day)	$ 2,000
Computer Services $160/hour, estimated)	2,000
TOTAL CONTRACTED SERVICES	$ 4,000
Capital Outlay	
Rent	
Build	
Buy	
Site Preparation and Acquisition	--------

* * * * * * * * * * *

Research Design

Larry L. Thomas, Research Intern
Division of Vocational Education, MDE

Much is said about research design without adequate explanation, so that the average educator doesn't really understand just what research design means. As we are more and more into an era of educational research, the problem of good research design should be understood by all teachers and educators. Without proper design the research efforts that are undertaken will be of limited, if any, value. It is in the area of trying to isolate the effects of a certain treatment in an experimental situation that the importance of research design lies. The information that follows is taken from, or based upon, information presented in the Handbook of Research on Teaching. (N. L. Gage, Editor; Chapter 5, by Donald Campbell and Julian Stanley)

There are several different forms that research design can take. The best designs are those that provide for internal validity, that is, the control for sources which could account for differences within the experimental group. The sources for invalidity within the experiment are:

1. History - The specific events occurring between the first and second measurement in addition to the experimental variable.
2. Maturation - Processes within the respondents operating as a function of the passage of time perse, including growing older, growing hungrier, growing more tired, and the like.
3. Testing - The effects of taking a test upon the scores of a second testing.
4. Instrumentation - In which changes in the calibration of a measuring instrument or changes in the observers or scorers used may produce changes in the obtained measurements.
5. Statistical Regression - Operating where groups have been selected on the basis of their extreme scores.
6. Selection - Biases resulting in differential selection of respondents for the comparison groups.
7. Mortality - Differential loss of respondents from the comparison groups.
8. Selection, Maturation, Iteration, etc. - In certain of the multi-group quasi-experimental designs might be mistaken for the effect of the experimental variable.

Without control of the sources of internal invalidity, the results of any experiment would be uninterpretable. There are also some external sources of invalidity with which I am not concerning myself today, but I refer you to the previously mentioned source for discussion of these factors.

Table 1 illustrates some of the different forms that research design may take. In this table the three symbols R, X, and O have the following meanings. The X represents an experimental group of students on which something is being tried. The O represents tests that are administered either before and after, or both, the experimental treatment.

The R, which is of primary importance, for true experimental research, represents random selection of students for the experimental and the control groups. For a more detailed discussion of each design, plus some others, I again refer you to chapter 5 of the Handbook of Research on Teaching.

Table 2 indicates how well those designs control for sources of internal invalidity. From this table can be seen which of the designs are the most sound for use in research activity.

Table 1

Pre-Experimental Designs

1. One-shot case study

X O

2. One-group pretest-posttest design

O X O

3. Static-group comparison

X O

X O

True Experimental Designs

4. Pretest-posttest control group design

R O X O
R O O

5. Posttest-only control group design

R X O
R O

Quasi-Experimental Designs

6. Nonequivalent control group design

O X O
O O

7. Separate-sample pretest-posttest design

R O (X)
R X O

8. Separate-sample pretest-posttest control group design

R O (X)
R X O
R O
R

Table 2

SOURCES OF INVALIDITY

	HISTORY	MATURATION	TESTING	INSTRUMENTATION	REGRESSION	SELECTION	MORTALITY	INTERACTION OF SELECTION AND MATURATION, ETC.
1. ONE-SHOT CASE STUDY	-	-				-	-	
2. ONE-GROUP PRETEST-POSTTEST DESIGN	-	-	-	-	?	+	+	-
3. STATIC-GROUP COMPARISON	+	?	+	+	+	-	-	-
4. PRETEST-POSTTEST CONTROL GROUP DESIGN	+	+	+	+	+	+	+	+
5. POSTTEST-ONLY CONTROL GROUP DESIGN	+	+	+	+	+	+	+	+
6. NONEQUIVALENT CONTROL GROUP DESIGN	+	+	+	+	?	+	+	-
7. SEPARATE-SAMPLE PRETEST-POSTTEST DESIGN	-	-	+	?	+	+	-	-
8. SEPARATE-SAMPLE PRETEST-POSTTEST CONTROL GROUP DESIGN	+	+	+	+	+	+	+	+

SOURCE: Handbook of Research on Teaching
N. L. Gage, Editor, Rand McNally
Chapter 5, Donald Campbell & Julian Stanley

The Michigan State University R & D Program
O. Donald Meaders, Acting Director
Research and Development Program
Michigan State University

About three years ago the basic idea for a R & D Program was first developed as a high priority item among some of the staff members in Vocational Education at Michigan State University. From that point until the present time many things have happened as a result of excellent cooperation among the various vocational teacher education staff members and with the other staff members and administration in the College of Education. Due to the rather limited amount of time available for me this evening to describe the Research and Development Program which is currently underway, I will try to briefly outline the major characteristics of our operation and indicate a few details about the various projects.

Our Research and Development Program is rooted in what we call the "clinical approach recognizes that theoretical constructs must be tried out in the arena of professional practice in the local school. We believe this try-out and testing in the arena of professional practice in local schools can be accomplished under what we call "control conditions." In this way evaluation can rest on the most accurate data that are possible in a given social environment.

The clinical approach, as it has evolved in our program, has two basic aspects in addition to the collection of data to determine how well things are being done. First, we firmly believe that leadership can be developed as a concomitant of program development.

The second concomitant of our clinical process is that we are convinced that schools can be used as a vehicle toward change by locating them as demonstration projects. So, whenever we choose a school, on the basis of interest and willingness to participate, we look at one additional criteria, where is it located? Some schools are innovating schools, or innovators. We also recognize that the grass roots approach is often recognized as people say that they have heard about a new program and respond "Yes, I know that's wonderful, but my school is different." We know schools are different. So we're trying to locate some of our Pilot Programs in areas where that school may serve as a demonstration school to surrounding or adjacent schools.

We have three general types of projects in operation as parts of our total Research and Development Program. We have three projects which deal with rather specific occupational fields, three projects which cut across all areas of vocational education and one project which focuses on leadership development for all areas of vocational education.

The three projects which deal with specific occupational fields are as follows:

1. The Office Block Project
2. The Distributive Education Preparatory Project
3. The Hospitality Education Project

The Vocational Office Block project is our main project in terms of the expenditure of time and energy. This project is operating in a national consortium of five states - Washington, Arizona, Florida, New Jersey and Michigan. It is utilizing a two- and three-hour block of time in the senior year for simulated office experiences. We believe it will provide more effective educational programs for the students than the one-period classes that we call advanced shorthand, advanced transcription, advanced typing, etc. There are thirty-nine schools participating as pilot schools in this project.

The Distributive Education Preparatory Program is operating in Michigan through seventeen pilot schools. We are comparing the results of in-school preparatory instruction under simulated work conditions utilizing project methods with the results of cooperative distributive education programs.

The Hospitality Education Project is an instructional program for persons interested in food sales and services occupations. It is operating in seven schools in Michigan. All of these pilot schools have programs based on a block-time arrangement, team-teaching arrangement with the cafeteria manager, a home economics major, and wherever possible, the assistance of a business or distributive teacher. This particular program is modeled after the project FEAST in San Francisco which is a Ford Foundation program to develop food sales and service education.

The three projects which deal with the entire vocational education program in schools are as follows: the Evaluation Systems Project, the Rural School Project, and the Shared-Time Project.

The Evaluation Systems Project, directed by Dr. Byram, is to be explained in detail later this evening, so I will mention only that we feel it is a project of extreme importance as we are moving into a period of required evaluation for vocational education. The basic philosophy for the Evaluation Systems Project rests in the primary role for the local school system to evaluate its program through the utilization of the professional staff in the school, people from the community, and consultants from beyond the community.

The Rural School Project is operating in three small, rural schools in northern Michigan and is attempting to develop foundation vocational courses which can serve the needs of all youngsters in those schools in the grades nine and ten. There are limited opportunities for providing specialized vocational education programs in the schools where the number of students is quite limited, and the breadth of occupations provided is very limited.

The Shared-Time Project is not at this time operating in pilot schools. The project is focusing on the development of guidelines for implementing area vocational education programs through the use of the shared-time, or dual enrollment concept. Nearly all of the area vocational

education studies which have been conducted in Michigan have contained in their final reports the recommendation that the shared-time concept be a means of implementing improved vocational education for youth and adults in a given area.

The Internship Project is the last project that we have been able to get underway. Although it is the last, it is not the least. We feel that eventually this project must be one of the strongest of all the projects which we have underway. We are attempting to develop through the use of clinical school sites the leadership needed for vocational education programs. We expect to provide internship experiences for persons completing a bachelor degree and meeting requirements for teacher certification, and for persons who have already completed a bachelor degree but wish to meet qualifications for teaching. In addition, we hope to provide arrangements whereby persons who are experienced in the occupational field but lack the professional education requirements will be able to move easily from their industrial or business positions into their teaching field, if that is their objective.

We wish that more time were available to discuss the many aspects of the R and D Program, but are very appreciative of this brief opportunity to describe the current operations to you. Thank you.

* * * * * * * * * * * * * * *

Michigan Educational Research Council
P. Kenneth Morse, President-Elect

The following is an outline of a presentation made by Dr. Morse.

I. Present membership
   A. Public colleges and universities
   B. Statewide educational associations and organizations interested in research
   C. Largest public school systems

II. Projects now under development
   A. Newsletter has been started with 5,000 circulation. Expansion to journal size and stature is anticipated.
   B. Regional and statewide conferences to stimulate research (especially in ESEA Title I and Title III projects).
   C. Liberalization of membership to include more public school systems, private colleges, and community colleges is under discussion. Also, some form of affiliate status for individuals is anticipated.

* * * * * * * * * * * * * * *

Evaluation Systems

Harold M. Byram
College of Education, Michigan State University

The following is an outline of a presentation made by Dr. Byram.

Elements of Successful Local Evaluations

- Strong administrative approval
- Involvement of persons affected by and responsible for programs
  - Professionals
  - Citizens
- Attention to objectives and outcomes
- Provision of faculty time for engaging in evaluative activities
- Freedom to select and plan activities
- A qualified leader
- Consultative services

Promising Activities Tried or Under Way

- Staff development of philosophy and objectives
- Use of faculty committee on evaluation
- Faculty workshops
- Survey of needs and comparison to programs
- Use of citizens' advisory committee
- Follow-up of former students
- Descriptive research on existing programs
- Departmental studies

Steps Involved in the Project

- Select and invite schools to participate
- Local leaders selected and appointed
- Orientation to the project
- Preparation of leaders through a workshop and individual conferences
- Launching the local project
- Periodic progress reports
- Careful recording of accomplishments
- Analysis, interpretation, and recommendations

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VT 004 628

National Curriculum Materials Clinic, Vocational and Technical Education Manpower Development and Training, (Kansas City, Missouri, January 17-19, 1967).

Office of Education (DHEW), Washington, D.C. Div. of Vocational and Technical Education
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MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS; MDTA PROGRAMS; *NATIONAL CURRICULUM MATERIALS CLINIC, KANSAS CITY, MISSOURI, JANUARY 17-19, 1967

Speeches include "Developing a Rationale for Vocational and Technical Education" by Lane C. Ash, "The Leadership Role of the Division of Vocational and Technical Education in Curriculum Materials Development" by Merle E. Strong, "The Leadership Role of State Teacher Educators, Supervisors, and the Curriculum Specialists in Curriculum Materials Development" by F.J. Konecny, "Increasing the Utilization of Existing Curriculum Materials" by Richard L. Lano, "The Changing Nature of Manpower Development and Training" by Aaron Adams, "Trends Affecting Curriculum for Manpower Development and Training Programs" by Ann Donovan, "Curriculum Materials in Manpower Development and Training Project Design" by J. Kelly Mudd, "Curriculum Research to Improve Program Quality" by Robert M. Morgan, and "A Curriculum Development Program to Meet the Needs of the 1970's" by Lane C. Ash. Also included are "Questions from the Floor" and reports of group discussions, reacting panels, problem solving conferences, and symposiums. (JK)

VT 004 628

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult, Vocational and Library Programs
Division of Vocational and Technical Education
Washington, D.C. 20202

NATIONAL CURRICULUM MATERIALS CLINIC

Vocational and Technical Education
Manpower Development and Training

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Hotel President
Kansas City, Missouri
January 17-19, 1967

VT004628

FOREWORD

The President's Panel of Consultants in their report entitled Education for a Changing World of Work stated, "The task of curriculum and course-of-study development, and the accompanying task of providing appropriate instructional materials, is thus a large and complicated one." Because of this fact, and the growing need for increased emphasis on curriculum planning and instructional materials development, the Division of Vocational and Technical Education called a conference of State personnel involved in curriculum planning and instructional material preparation in Kansas City in January 1967. This was the first meeting of its kind wherein curriculum material development was discussed "across the board" by all vocational education services. As a result of the discussions, many helpful suggestions for improving the quality of items being developed and the distribution of available materials were made by the participants. The report contains these suggestions and the reaction of many participants and consultants to the Clinic presentations.

Every effort was made to provide key people in the curriculum field with the opportunity to activily participate in a workshop wherein practical approaches and wise solutions to existing problems could be carefully explored. The presentations made by the conference speakers have been reproduced in this report. Many of the reactions of representatives of various groups present have also been documented herein.

Eight consultants played an important role in keeping a fine group spirit going among the representatives of the services within Vocational Education. The comments and the evaluation of the Clinic have proved helpful to the Division staff. This report of the Clinic should prove helpful to those who have curriculum materials development responsibilities within the States.

Walter M. Arnold
Assistant Commissioner
for Vocational and
Technical Education

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NATIONAL CURRICULUM MATERIALS CLINIC

TUESDAY MORNING SESSION

January 17, 1967

Chairman of the opening session, Earl M. Bowler, Assistant Director of Program Services Branch, U.S. Department of Health, Education and Welfare, presented the keynote speaker, Mr. Lane C. Ash.

Developing a Rationale for Vocational and Technical Education

Lane C. Ash

Vocational education is a device for economic efficiency. It came into being because, among other reasons, the National Commission on Aid to Vocational Education back in 1914 found it to be a wise business investment for the nation. It has been expanded and improved recently because the Panel of Consultants found, in 1962, among other reasons it to be a wise investment in people.

We all have had a particular route through which we have grown up in vocational education be it agriculture, home economics, trades and industry, or whatever. Our previous legislative authority pointed our activities to programs specifically in these occupational areas and the Congress appropriated specific amounts of moneys to conduct training activities in these. But there have come about changes in our social and economic order which, it seems to me, cause us to take some changed directions in vocational education. Our new law is a "people-centered" statute rather than an "occupation-centered" statute. I think this in itself is a recognition by the Congress of the great changes which have taken place.

I would like to cite some examples of reasons why some new directions or changes or new practices or services to people are necessary. These are needs of employers that we have come to know about because persons and organizations have come to us seeking help. These concern labor shortage areas throughout the United States.

One is in the field of civil aviation. The Federal Aviation Agency approached us about a year ago and said, "The space age has so glamorized going to the moon that young people no longer desire to enter the field of civil aviation, and the airlines are hurting. Besides, they are growing. So," said the Federal Aviation Agency, "Can't we join together to do something to ease the situation regarding the shortage and lack of desire of young people to enter this industry?"

And we have done so. You will hear more about this later, I am sure.

Another is in the field of power and communication linemen activity. We have been called upon by an organized group of contractors who have said that the transmission lines of the nation are insufficient to carry the power now being generated and that which is needed to man the communication and electric power requirements of the country. "We have contracts to improve this situation but we can't hire linemen. Can you help us regarding the training of such persons? We will hire them, put them on the payroll, if you will supervise the training activities at the same time."

Civilian pilot instructors are in short supply. The Aircraft Owners and Pilots Association came to us with a proposal to seek out school teachers who have competence in instructing others and who also have a pilot's license of a particular kind, and train them to become civilian flight instructors. You see, one reason they are in short supply, in addition to the fact that it is said there are 95,000 would-be pilots like you and me in the United States, is the fact that to ease the shortage of pilots for commercial aircraft, the great companies are hiring these civilian instructors and giving them the kind of additional training that is necessary for them to man the giant multi-engine transports.

Electromechanical technicians are hard to come by. Our guide through the factory of a machine tool manufacturer showed us some particular kinds of automatic tools that would be familiar to some of you one of which is used in their own production department and he said, "It used to take us thirteen hours to manufacture a standard part produced by this company on this machine before it was operated electronically; now we produce this part in fifty-seven minutes. But the trouble is when we manufacture this machine and set it up under perfect conditions on our own erection floor to be tested for a customer, it is very difficult to make it work, it is so complicated. It takes a mechanical man, an electrical man, and an electronics man all working as a team to make this tool work. Then we ship it, maybe only across the river to the purchaser, and we just can't get it to going in the buyer's facility without this new combination of technological skills that, hopefully, all in the person of one man from now on."

I hardly need discuss shortage of trained persons in the health occupations. This will be the No. 1 or No. 2 industry by 1975 insofar as the employment of people is concerned. Currently 75,000 registered nurses are needed; 25,000 licensed practical nurses are needed; 15,000 X-ray technicians; 30,000 medical technicians; 16,000 therapists; and 240,000 representing all the other paramedical occupations. We in Vocational Education are being urged to do something about this, and we have the authority, and the training competence as you know.

Automobile mechanics, strangely, are in such short supply that the National Automobile Dealers Association has been to us repeatedly seeking financial and technical assistance. "There will be needed by 1970 an additional one million well trained automobile mechanics in the United States."

Tool and die makers, and of course office workers: I don't know how it is where you are, and maybe you have heard me say this before, but in the federal government, that is, in the District of Columbia, we just are unable to employ a competent secretary. So, long ago we called upon vocational education to serve our needs. I suppose for ten years we who are here have found our stenographic help by employing part-time in the second semester of the senior year girls of a local vocational school, who are certified to us by the Principal of that school, who have passed the minimum requirements of the U.S. Civil Service Commission. They come to work at our typewriters after lunch every day. In almost every case these young ladies have worked out satisfactorily, and upon graduation we offered them a full-time job which they accepted and they remained with us from two to six years before they marry. The first thing you know, they become pregnant and off they go, out of the labor market.

In this connection I am reminded, with respect to innovation and change, of a caution. Shortly after the passage of the Act I was in the office of a high authority in the Office of Education and a prominent economist was there said, "We've got to stop training so many typists and clerks and stenographers and start putting our energy in the direction of training computer programmers. That's what's needed! Innovation in office education."

Well, I suppose I have had three stenographers since the economist made that remark, all of whom are now out of the labor market, and any computer programming they had learned back then, by the time they re-enter the labor market, will be out of date. But in the meantime they earned a decent wage, which is what we pay a high school graduate to serve our stenographic needs, and so it is going to be for some time, I think.

Just the other day the newest of these occupations--it's so new it doesn't have a name--came to our attention. This is in the packaging industry. Automatic machines that fill boxes of potato chips or Post Toasties and then close the box and load them into cartons. They are being used in the pharmaceutical industry to put pills in bottles and goo in tubes, and one thing and another. The users of these machines are having difficulty keeping them in full operation. We have been asked to write a textbook to train maintenance mechanics for this industry.

In Elizabeth, New Jersey, at a vocational school, the manufacturers of this equipment have donated fourteen pieces of automatic equipment, and they are training lower level employees in the industries where these machines are being used, at night and on Saturdays, a trade extension type of thing, so that these people can perform the function of keeping packaging devices moving at all times.

You may know about the field of microelectronics. We have been approached by one of the great corporations of the nation with a suggestion that we produce a two-year post-secondary suggested curriculum guide in this field. This is a revolutionary one. One company manufactures a circuit for television which combines 26 transistors, capacitors, and resistors on a chip of silicon only a thirty-second of an inch square.

In this $20-billion industry the jobs of nearly a million electronic technicians and production workers will be greatly affected by the expansion of microminiaturization to the electronics industry.

The International Business Machine Corporation suggested the formation of a consortium to study and do research on a curriculum required to train electromechanical technicians. The Office of Education is participating in this effort, and these institutions are soon to come forth with a suggested curriculum to train, in the form of one person, these two essential skills. We understand that about 70,000 are needed immediately.

In the agriculture-related occupations the Farm Industrial Equipment Institute has informed us that there is need for 17,000 young men with a particular kind of agriculture-related background for sales and service work in farm machinery and equipment.

The National Park Service in the District of Columbia area has need for 600 high school graduates who have knowledge of soils, herbicides, plant and weed identification, and so on, who would be employed at the beginning salary of $5,867 per annum.

In the occupations related to Home Economics Education it is clear that there is pressing need for trained workers for child care facilities and services, for homemaker services, and in the food service industry.

Well, program changes surely are needed on this account, but perhaps are they needed more on account of the needs of people, the needs of people in relation to the manpower requirements of the nation.

Let's consider the various kinds of people who have need for our services. For example, those who are unemployed and not in the labor market. The inner-city disadvantaged youth who either has given up or is not interested or doesn't know how even to seek a job. Men are competing more for jobs traditionally held by women, so women may have to seek employment in areas that are new to them. The Department of Labor reported that men between the ages of 25 and 64 are withdrawing from the job market in an accelerating number especially non-whites. The Department stated, "In 1965 employment of men of this age would have been about 725,000 higher if they had worked at the same rate which existed for white men in 1951 to 1953." They say this represents an annual loss of about $7 billion in gross national product. So think of the implications for adult education for us!

Consider those who are not qualified for employment, the high school graduate for example, who has no salable skills. It is estimated that about half of these between the ages of 16 and 21 are unable to find a job.

The dropouts--the Labor Department estimates that by 1975 those who have not completed high school, in the age group of 25 to 29, will amount to 4.8 million as compared to only 3.3 million today. We know that we lose one-third of the high school students before graduation. That is more than a million annually.

Then there are persons whose occupations have disappeared. They are the slaughterhouse workers, the elevator operators, the rural share-croppers whose jobs are becoming automated, migrant workers who, it is estimated, will be needed less and less. In addition, there are the secondary school students who are not going on to college or higher education of any kind.

Potential dropouts: Surely we know enough about these now to identify them early so as to create curriculum activities just for them, which will hold them in school long enough for them to gain knowledge and skills sufficient to obtain a job. These can be identified--those with low scholastic aptitude, inadequate reading skills, a record of failure, erratic attendance, and other characteristics. I don't think we are doing much about this.

And, finally, employed persons like you and me who need upgrading for advancement, or even to stay abreast of the swift-moving changes in our own occupations.

The point is that authority to serve all of these needs of people and of employers exists under the provisions of the Vocation Education Act of 1963 for training in any occupation that is not professional or does not require a baccalaureate or higher degree.

The fact that relatively little is being done suggests the need for stimulus of program activity in new directions and understanding of the process of planning to meet occupational needs. This involves the use of statistical data including those regarding entrants to the labor force, as well as withdrawals. We must reckon with educational levels, family backgrounds, ethnic problems, and related factors in a constantly changing job market. These must be constantly updated in the effort to anticipate needs five to ten years ahead. And surely we cannot move forward, to meet these new needs without improved curriculum materials.

So where are we today? Starting with what the Panel said, and I quote, "The preparation of instructional materials for vocational education programs lags far behind actual need". Further, the report states "Curriculum and instructional materials should be brought up to date quickly as occupations change and teaching methods become more effective. In vocational education a national plan for coordinating curriculum in materials development has been implemented much too slowly. More state and federal resources should be allocated to this urgent task."

Some progress has been made under this new Act. Fiscal 1965 was a year of gearing up. There was no great increase in enrollments in 1965. Of federal money available to the States, that year they spent 25 percent for construction purposes and 24 percent for equipment. So about half of the federal effort employed by the States in 1965 went for bricks and mortar and hardware, not for the cost of instruction as such. So it will take a year and one-half from then, or maybe two, for the seats in these new buildings to become available to the thousands of additional students who then can be reported as increased enrollments.

Two hundred twenty construction projects were let in 1965 in thirty-three States, and 157 of these were for new structures. The total expenditure reported was $108 million just for construction purposes.

We think that more than 200 additional contracts were let in fiscal 1966, and we project that by the end of fiscal 1967 there will be almost 1,000 new area vocational school facilities or additions to existing facilities in the United States on account of the authority provided by the Act of '63.

We have had significant progress in curriculum development, and you will hear about this later today.

Program developments in health occupations are moving very slowly, but there are three notable Health Centers that you

should hear about. One of these is in Springfield, Massachusetts. This institution offers a comprehensive program in the health occupations as follows:

Courses in operating room techniques, for medical laboratory assistants, dental assistants, licensed practical nurses, inhalation therapy technicians, nurses aides, refresher training for registered nurses, and single courses for all manner of health occupations personnel--for example, biomedical electronics, even for physicians who need to know about the modern laboratory equipment in hospitals and in doctors' offices.

Other developing programs are at the Lindsey-Hopkins School in Dade County, Florida, and at Iowa State University.

There has been progress in training in the agriculture-related occupations. We hear about one that seems of evident need: Farm Business Management. It is believed that only about one-quarter of the farmers in the United States keep adequate records. We have the finest stimulus that I can think of for the adult working farmer who is a private profit-making businessman to go back to school: The Internal Revenue Service has asked them to keep better records to support their income tax returns. So courses are being offered in Farm Business Management with this objective in view. There are probably 200,000 adult farmers taking such courses now.

Technical education is expanding in the fields of agriculture and in the health occupations. Many of these in the latter two occupational areas are at post-secondary level and being conducted in junior and community colleges.

We don't have much to report that is organized specifically for disdavantaged youth or adults. One which should be reported is in the Milwaukee Adult Vocational and Continuation School that we are watching with great interest. This has as its objective all manner of program activities, ranging from release of hostility, where psychiatrists and representatives of penal institutions and the courts and educators are working together to develop a program that takes the hostile youth and gets him ready to enter the regular schoolroom situation in preparation for occupational training. Authority exists to train youth with all manner of special needs, as the lawyers have interpreted the Act--youth with socio-economic and other handicaps including every known kind of physical, emotional and mental disadvantage.

Some progress is being made in vocational guidance. We have become particularly close to the American Personnel and Guidance Association, and working with that organization and with AVA we have held one summertime seminar, funded under Section 4(c) of the Act,

and another is being planned for this coming year. We are unable to say what progress is being made in the training of counselors in the vocational aspects of guidance and counseling.

We still are unable to say that any federal money of the kind that you and I are concerned with goes into providing vocational guidance and counseling services and the preparation and use of occupational information for young people prior to the time they make a choice to enter a vocational school. In the junior high school, for example, we don't provide guidance services for them until after they have come with us, maybe having made an unwise occupational choice. I think we should be working in the junior high school with federal funds for this purpose. More than half of all of those enrolled in programs of vocational education are adults, or at least out of school youth. Many of these persons have no vocational counseling services available to them, for the simple reason that they come to the schoolhouse at night when the counselors have gone home. It seems to me the middle-aged man who is striving to upgrade himself in his occupation or studying to re-train for another occupation has a great need for counseling as does the high school student.

We have a good record of employment of graduates. I think from all of your States the records have shown a consistently high record of employment of vocational program graduates and leavers, as compared to other secondary school graduates and leavers.

The Office has a new structural organization, and I guess we are still learning how to operate in it. The part of the Division of Vocational and Technical Education that is concerned with the activities of this conference is called the Program Services Branch which Dr. Strong now heads. This Branch concerns itself with those things that the Panel said assure quality control in vocational education. It is concerned with those things that go on in the classroom and the teaching-learning, human development situation, as against the expenditure of funds and the reporting of these, the legal interpretations, the State plans, and so on. This latter activity is in our new State Vocational Services Branch.

New to us, and new to the Office of Education in any big way, is the activity of a Program Planning Branch. We are constantly required to make projections of need for as far ahead as the next ten years: How many area vocational schools will be needed in the United States ten years from now, for example? This and other requirements, are handled in our Program Planning Branch.

You have been introduced to members of the Field Staff from three or four of our Regional offices. There are nine of these offices throughout the United States, very meagerly staffed with overworked people who are at the beck and call, many of them, of the Labor Department, the State Employment Security Agencies to approve Manpower projects, to assist you in developing new and improved

programs of agricultural education or health education or home economics education. The Office is regionalizing its activity and it is going the whole way.

Each State, in order to qualify for its funds, must submit annually and have approved, that is, accepted by the Office, what we call a Statement of Projected Program Activities. This is a rather searching look by the State at its own economic situation and manpower and training needs. This is examined in the Office of Education on the basis of the thoroughness, the comprehensiveness of the State's own look, and then some moneys are sent to the State on account of their statutory allotments. This requirement has caused the States, many of them, to take a new look at their own vocational education activities.

You do know that by law each of the States has a cooperative agreement with their Employment Security Agencies, a statutory requirement, in order that State boards may be made aware of employment opportunities and needs and State Employment Security Agencies may be made aware of the number and competencies of persons coming into the labor market, and for other purposes.

For the first time in history we are about to have a statutory evaluation. Built into the law, you know, is the requirement that an Advisory Council report to the Secretary of Health, Education and Welfare not later than January 1, 1968. The appointment of that committee was just announced the other day. This ad hoc committee is now at work.

There are still gaps and unmet needs. There is the large city problem and the rural problem and the programs for persons who have special needs, the need for additional facilities, and the need for more trained teachers and improved curriculum.

In the Office of Education we are speaking of some program proposals which we think will lead to improved education and training opportunities for all young people. I should like to cite these briefly before I stop.

We believe that in the junior high school there should be a new kind of orientation to the world of work for all pupils. Now, this is not merely working with tools, visiting plants, and reading or taking a course in occupations. It would be a well organized, broadly oriented experience for all pupils in grades seven to nine with a view to developing in them a new acquaintance with the world of work so that they may make better educational and occupational choices. What is the role of work in a technological society? What is the significance of work for a young person? Down where I live there are some young people in school who are unable to tell the counselor what their fathers do. They work for a secret agency.

Many of them have never been in the kind of a place of business where you and I went to work as kids and knew one machine tool from another long before we were legally old enough to operate them. Young people do not have the same opportunity in growing up to make the kind of choices that I think we did. So we would promote and hope to obtain funds for some pilot projects in each of the States to develop a program of occupational orientation for all students from grade seven to nine.

As the second of these proposals we would have a work study, work experience, part-time extension, or whatever you call it, activity for all high school students, whether they are going on to college or not.

This work experience should be arranged by the school and have some relation to their own curricular needs or their own goals in life. Dr. Grant Venn cites the case of two young men in his school system in Wood County, West Virginia, one of whom came from a long line of physicians who was certainly going into medicine. He was working as a time keeper on a construction project. The other boy was one whose occupational goal was certainly to operate a bulldozer. He was working for the local veterinarian. So Dr. Venn said, "Why can't the school help engineer these work experiences for pay which are more nearly in line with the occupational needs and desires of young people?"

We think that this actual experience with the world of work has many contributions to growing up in addition to the income which would be provided--you know, what your responsibility is to your supervisor in a work situation, not school oriented; what it means if you don't show up on time; what it is like to give up a chosen activity because your employer needs you then, and so on.

The third of our proposals would provide a job entry placement service in every high school in the country for dropouts or graduates, for everyone who is not surely going on to some form of higher education.

These proposals are our official proposals of interest at the moment. In one school, a secondary school of 4,000 students where under private foundation funds these services were made possible, over a three-year period the dropout rate was reduced from 8.3 percent to 2.3 percent.

In conclusion, may I say we have not yet made any great or significant impact upon the education and training needs of the nation, but we have the potentiality to do so. The need for more and better vocational and technical education is very great. If it were possible to gear up completely and rapidly to meet the needs of people and of employers fully, the program could hardly move forward without more

attention to the curriculum and the production and proper use of instructional materials. It is my hope that when I come before you again I shall have learned enough about how you think this should be done to give this "charge" that Earl Bowler has asked me to do, come Thursday afternoon.

Questions From the Floor

o What can we really do, from the federal level down and all the way back up, to get adequate information about employment and job openings?

MR. ASH: I am pleased that you identified yourself as being with a R.C.U. I had intended to speak of this; but, since the 4(c) people are going to be here on Thursday, I thought perhaps they would do so. I don't know the answer to your question. There is provision in the agreement drawn between the Office of Education and the Bureau of Employment Security, or rather between their counterparts in the States, that federal vocational moneys and State moneys to match, can be made available for purposes of conducting surveys. Well, that sounds fine--if there is enough money left over from their regular vocational activities. Certainly the Department of Labor needs more money to perform these services, more area skill surveys, and more of the kind of surveys that we vocational educators ask to be made at the local and State levels to help us determine what the training needs are.

o I am concerned with getting more organized, broadened experience units down into the junior high schools, and I am convinced that this is much too late, because of the fact that we are introducing in our junior high school program extra courses in science and mathematics and foreign language. The day isn't long enough to provide the kind of experiences that you mention, and the community and the parents are not convinced that these kids are not going on to college.

I propose that we start down much lower, say, third grade, in which these units could be introduced in an inter-disciplinary manner, where the emphasis is general rather than specific. One day, let's say, they could take nursing, another day auto mechanics, another day electronics. Parents could be brought in to play certain roles. Maybe they will get an idea of what the curriculum is about in that way rather than wait until junior high school.

MR. ASH: That is very good. Unquestionably many young persons grow up with attitudes toward particular occupations that seem to be transmitted to them by, well, elementary school teachers, and by the time they get to junior high school they have a dislike of one occupation or another. Our proposal would start at grade seven.

o Where would we get the money to set up some pilot programs?

MR. ASH: We would seek legislative authority to make it possible to do things on a pilot basis. It is not something, even if you had the money, that you would be able to do tomorrow, I am sure. It would be a long range thing.

o When you use the "we"--and I have in my notes here "The U.S. Office of Education"--concerning these beliefs, are you referring to the Division beliefs or the U.S. Office high echelons?

MR. ASH: These ideas originated in the Bureau of Adult and Vocational Education, of which the Division of Vocational and Technical Education is one of four divisions.

o I have just come from visiting five schools in the so-called disadvantaged areas of St. Louis where young boys fifteen and sixteen years old in the ninth grade are eager for a job, girls who have seen all kinds of horrors in their communities are eager for a job. They want an education too.

I am ready to start some pilot programs in St. Louis tomorrow, if I can get some money. We would like to see each one of these schools have a future homemakers organization or a bachelor organization so that we could provide experiences for these young people, to look into the world of work under the guise of a club, something that would give them a sense of belonging, and have projects that would have real meaning to them in their life and in the world of work.

MR. ASH: I think this is excellent. When I said that we don't have much to report concerning programs for youth with special needs, it is this that I am talking about. We just haven't known how, or had the wherewithal up to now, to do the special things that are required in these situations. I think this is a wonderful thing that you propose.

TUESDAY AFTERNOON SESSION

January 17, 1967

CHAIRMAN JULIA DALRYMPLE: It is customary for educators to think in terms of a motivational technique in any teaching session. This afternoon we have two speakers. Following their presentations there will be an opportunity to discuss the material covered. A report will be made by the chairman of each of the 14 listening teams.

Our first speaker is Dr. Merle E. Strong.

The Leadership Role of the Division of Vocational and Technical Education in Curriculum Materials Development

Merle E. Strong

If you expect that I will be conclusive about the role of the Division of Vocational and Technical Education, you may be disappointed. Our accomplishments in some areas fall behind what we see as optimum, and in some areas our role is perhaps not entirely clear because it is an evolving one, which involves a partnership with State and local programs.

Occasionally, we are asked to consider the question of whether the federal government should be involved in curriculum development in the first place, or whether this is completely a local prerogative. Since we attempt to involve vocational educators across the nation, we see our role as one of cooperation and coordination, not dictation.

A majority of our efforts involve the development of curriculum guides, course guides, and the like, leaving the detailed development to State people and local communities. I suspect that this position needs some evaluation.

The need for a cooperative, coordinated approach to curriculu development becomes exceedingly apparent when we view the complexity of the problem that we face in vocational education. It is much more complex than in many other areas.

First of all, we are talking about a broad range of programs, all occupations are not considered professional, that is, not requiring a baccalaureate degree. We are talking about training that is appropriate for a broad range of people: Youth, adults, the talented, and the less talented. So we include almost everybody.

We are talking about programs for many kinds of institutions, with differing purposes, philosophies and patterns of operation. For example, programs in comprehensive high schools, vocational and technical high schools, technical institutes, junior colleges, and four-year colleges.

We are also talking about preparatory programs for school youth, for out-of-school youth, and for adults. Also included are part-time programs for updating and retraining. Obviously, curriculum development for vocational education is quite complex.

The word "curriculum" means many things to different people. We sometimes talk about the curriculum of the school when we mean all of the offerings in the kindergarten through twelfth grade school system, or the offerings of a junior college.

As vocational educators, we need to have a concern for this total curriculum. However, our concern at this meeting should be primarily focused on the content needed to prepare for or to upgrade in a specific occupation or closely related cluster of occupations. This thinking may be a little narrow for some of you but it will be helpful as we move into this meeting if we can focus on the materials unique to vocational education in preparing for gainful employment.

Emphasis in this meeting will be on curriculum materials development to meet rather immediate, identifiable needs, rather than on enumeration of sophisticated, or long-range research needs.

Our interest nationally is in the need for more adequate programs now. It is well documented that the greatest impairment to adequate program development in the early years of vocational education was the lack of appropriate curriculum materials. While we have come a long way, our present problem is similar because of our broadened mission and the change in occupations brought about by our changing technology.

We need a degree of standardization in the kinds of curriculum materials and programs we develop because of the mobility of our work force. Let me give you an example of a need for a degree of standardization. The military, primarily through the Armed Forces Committee of the American Vocational Association, has been directing its attention toward equating civilian training to the training in the military, so that they might recruit persons at some advanced level of pay and make maximum use of their talents, experience and education. There is also a concern that persons receiving good training in the military equate this training with civilian training. Some 1,500 courses are offered in the military which ought to receive consideration when a person moves back into the civilian world.

Another vocational area of interest is that of bringing about some efficiencies through cooperative effort in curriculum materials development. The notion that the curriculum and all instructional materials should be developed by the individual teacher is passe, if it ever had any validity.

Three things, I think, mitigate against this idea. First, teachers are usually hired to teach, and they just do not have time to spend on curriculum materials development. Secondly, since they often lack the competency and motivation to do the job, the quality of the product that they develop may be questionable. And, thirdly, their breadth of experience in the occupation is often limiting in terms of developing a curriculum that is broad and covers the main points of the occupational training.

Many of the States have long felt there should be a cooperative effort at the State level and therefore we have a great number of State curriculum laboratories in the various services. This makes sense and especially that there is some cooperative effort.

In the development of curriculum materials, our work mainly has been identifying needs, contracting for materials, and giving supervision and leadership to development and production of materials. The steps are something like this:

First, we identify a need through the effort of the total staff of the Division, particularly those in the Occupations Section and the Manpower Development Training staff.

After needs have been identified, they are verified with the persons concerned, the trade associations, the professional groups, or any other groups that could be helpful to us; such as the Labor Department.

Then a contractor is sought. A contractor might be a college, a university, or a State curriculum laboratory. It could be an individual, an association, a private group or it could be a commercial group. The contractor does not have to be a non-profit organization. However, I think most of us favor the idea of contracting with vocational curriculum laboratories or people in the universities because we need to build competence and experience in this area. In addition, it is desirable that we do as much as possible in-house.

Then a contract is developed. The contract has a time-table and most of them run between twelve and eighteen months. The contract usually provides for the use of advisory or consulting groups because we feel in most cases in curriculum development that no one person has all the answers. We suggest a format because the material should be recognizable and acceptable to a broad range of

vocational people. Following the contract negotiations, the contractor provides us with an outline, developed with a consulting committee. This outline is approved in the Division. The manuscript is then developed. The contractor furnishes copies of the manuscript for review within the Division. Additional copies are sent to the advisory consulting committee for review. The consulting committee and the representative of our Division then meet jointly to review the material and make suggestions to the contractor, after which a manuscript is reproduced with 225 copies for distribution by the Division.

The material is further edited prior to reproduction by the Government Printing Office. Most of our material, unless only a limited number of copies are needed, is reproduced by the Government Printing Office and is made available for sale.

We have had considerable accomplishment in this area. There have been sixty-one different curriculum guides developed through this contracting process, covering a broad range of occupations. There are six in distribution and marketing; two in health; one in office occupations; some 20 in the technical occupations area; eight or so in home economics; and a dozen or so in trade and industrial education. We are trying to cover the field while identifying needs that are most critical.

About 18 publications are now in process for publication through the Government Printing Office. We have about 32 that are in the final stage of development. Twenty are in preliminary stages of contracting.

Then, we have a list of needed curriculum materials that have been suggested as needed. During the conference, you will be suggesting and identifying other materials which will be considered with this list from which priorities then will be established.

Another phase of the curriculum effort in the Office of Education is that carried on under 4(c) of Public Law 88-210. In general, activities are primarily research in nature, while we are involved in activities that are primarily developmental in nature. We work closely together, however.

I would like to suggest some items that might be considered for a model from a nation-wide viewpoint in terms of curriculum materials development. Hopefully, you will address yourself to some of these in your discussion.

First, we believe there is a need for a better method of identifying curriculum materials needs on a nation-wide basis to assure that the needs of all the States are known for all programs.

There is need for an information system covering materials that are available. I am not sure that we are doing a very good job nation-wide of making everyone knowledgeable about what is available.

Miss Wilson from the Ohio Center will be here later in the program to talk about ERIC and we will get some ideas about the extent to which ERIC may help us fill this need.

Somehow nationally we need to have a clearinghouse function for materials that are being developed to maximize the resources. It just doesn't make sense to have several of our laboratories working in the same occupational area and not be aware of the duplication of effort.

A number of States are adding new laboratories. We need to provide leadership in the development and operation of curriculum laboratories. We ought to give leadership to development of some standard formats so that material will be readily acceptable across State lines. By this I do not mean that the Division of Vocational and Technical Education should develop the format and say, "Here it is, use it Cooperatively, we ought to develop formats that we all can reasonably live with. Then the material would be more identifiable, more acceptable to teachers, and would be more extensively used.

The need is to find ways to make materials more readily available. Some of you have State laboratories that give the material away. My bias is that the best way to make material available is to put a price on it. In this way it is feasible to supply it in quantities to all who want it.

Somehow we need to cooperate in the development of leadership in curriculum materials. We have to find ways to develop the people who can do the kind of work that we want.

Several years ago, the idea of having a National Curriculum Materials Committee was adopted. This Committee accomplished a great deal. Although it did not last because of lack of adequate support, its experiences might have implications for your discussions in that suggestions might be made to help us solve some of today's problems.

The Committee addressed itself to the identification of needs. There was a sharing of information among laboratories. We collected information on materials that were being developed. A Curriculum Catalogue was the result of the efforts of the Committee. There also was established a liaison person in each State who was the focal point for curriculum materials information. This list is still being used extensively. These ideas might be of interest in your discussion groups.

We have had good success in some areas but we have a long way to go in others. The Ad Hoc Advisory Council on Vocational Education is going to look at the curriculum materials development area. That this evaluation committee will recommend some massive efforts in the area of curriculum materials development is a genuine possibility. In addition to the development of materials for our traditional and emerging occupations, work is needed in refining the whole curriculum, from kindergarten through the twelth grade.

Let me emphasize several areas I think are critical. Tremendous numbers of workers are needed in the health occupations.

We haven't come very far in developing curriculum materials for the disadvantaged, nor in identifying the occupations or agreeing entirely upon method. Traditionally we have not been involved in the training of people for semi or single skill occupations.

There are many needs in the Manpower Development Training Area. Short-term, intensive programs, very often for people who are academically handicapped are surely needed.

Further work is needed in the wage-earning occupations related to home economics abilities and skills.

Another broad area in which we have done little is the social service occupations.

The training of educational aides and other kinds of sub-professional workers in education should be explored.

Finally, there are several areas in technical education where much work is needed.

CHAIRMAN: Let us move from the leadership role at the federal level to a view of the potential of the leadership role at the State level.

We will now hear from Mr. Konecny, our second speaker.

The Leadership Role of State Teacher Educators, Supervisors and the Curriculum Specialists in Curriculum Materials Development

F. J. Konecny

Introduction

In this period of breath-taking progress in scientific and technical developments we have had the privilege of hearing many excellent discussions of technical education as it is today and as we hope it will be in the future. The changing picture almost creates a "hysteria" effect that drives people to request the leadership to "do something."

The overwhelming problem in technical education today is the issue of what to do about the rapid expansion of new knowledge. You have heard speakers say or may have read that the world's knowledge was doubled for the first time between the dawn of history and 1700. The second doubling occurred by 1900 and the fourth by 1960. The amount of knowledge becoming available is staggering . . . it is paralyzing! If this be true, and I believe it is, we are entering an age in which the world's gross supply of information is likely to be doubled every 10 years and we must reorganize, realign and rearrange practically everything we are doing in technical education to keep pace with the new dimensions. The changing needs are accelerating demands for skilled manpower in new technologies and this means new training programs and increased pressure for new educational tools.

Out of these emerging developments in technical education comes the recognition that a nationwide EVALUATION of all occupational training programs is necessary to our future progress. This impending appraisal of programs brings into the spotlight those programs and courses that have been perpetuated beyond the time they serve a useful and bona fide vocational or technical purpose.

We all are encouraged by the recognition that vocational and technical education is a vital necessity to our economy and national existence. This is a happy situation but with it has come from outside of professional education a variety of "EXPERTS" whose efforts are influencing vocational-technical education in many ways--some stimulating and desirable, others are harmful.

More could be said but it is believed that we can agree that curriculum development activities should reflect changing technological developments and this is the time to question with utmost severity the leadership role that teacher educators,

supervisors and curriculum specialists have in curriculum materials development at the State level.

Leadership at the State Level

1. Identification and understanding of technological forces

If we are, and I believe we are, in an era that will see action to relieve traffic congestion in metropolitan communities; reduce or control air and water pollution; eliminate the blight of slums; improve international communications--all of which will be done in part with the involvement of technical education. But, can technical education be effective, can curriculums be functional without an understanding of the technological forces which created the problems?

The answer is apparent. It is necessary that leadership in curriculum development take into account the specific nature of technological changes that brings into being the need for a new curriculum or the modification of an existing one. The solution is an intellectual and scholarly approach to identify the basic elements which must be considered in curriculum development.

Curriculum writers cannot presume to change either individuals or society in accordance with their own views, no matter how "right" they may think themselves to be. They must have sources of data that will guide them in developing a program that will accomplish the changes desired. With such facts, the resulting curriculums will be relevant and meaningful in a world in which science and technology are basic to the changes that are taking place.

2. Human values in curriculum development

We often hear that science and technology are subverting human values--that too much attention is given in curriculum development to the "material" goals. Admittedly, the impact of science and technology is important in man's pursuit of the good life but we need an outlook appropriate to the new circumstance. For many years we have equated WORK TO VIRTUE. It may be in the near future that the real problem is to prepare an individual to NOT work very long for a living and "to be content" will be as virtuous as labor itself.

Here is a need for leadership of the highest order. We cannot engage in curriculum development that adds to the ignorance of the present and does not deal with the future. There are plenty of cook-book style laboratories, and unimaginative classroom exercises-all on the nuts and bolts level without any genuine insight into the significance of science and technology.

Leadership in curriculum development must explore until it finds that which is meaningful education for a world in which science and technology are the fountains of the fundamental changes that students must deal with. State leadership can help to establish the parameters for technical curricula in relation to our society and culture.

3. The student's viewpoint

Does the student enter a predestined program? Yes, in most instances and this situation is probably unavoidable. Who in fact is responsible for the curriculum? If the best curriculum is one that permits each student to develop intellectually, then we need a different curriculum for every student. But in practice the student is regimented and very little leeway is provided for the "adventuresome" student. Theoretically, there should be as many different curriculums as there are students. To be practical, schools of all types must follow time tested educational procedures and these have limitations.

Is the student as deeply concerned about his education as those who have charge of it? We make assumptions which may not always be valid. For example, we presuppose--perhaps rightly and perhaps not, that the incoming student does not know what he wants to do so we tell him to follow a certain curriculum as if it were a "bouncing ball" to success.

Just how creative a role should a student have in curriculum development? When one asks this question, he should be aware that there is needed a more extensive system of sympathetic, knowledgable and responsive counseling in order to help the student plan his own education and contribute to curriculum design.

It should not be assumed that curriculum writers should invite students to the conference table. It is believed that there is an area of common interest as reflected by counselors and those students who realize their future depends upon and derives from their pursuit of a given curriculum. State leadership can and should investigate this area of interest because an educationally perfect curriculum that does not interest students will be useless.

4. The teacher and curriculum development

Where does State leadership in curriculum development come into contact with the teacher? Regardless of how educationally sound a curriculum is, it will be of little value if the courses are not properly taught. One major error in curriculum planning is to plan the curriculum solely in terms of the subject matter without taking into consideration the faculty who are to implement it.

It has been said that "curricula should be designed like golf courses or bars, for pleasure--faculty pleasure." This implies that the primary determinant of the effectiveness of a curriculum is its effect upon the attitudes of the teachers who are to put it into operation. In the final analysis, they must design and execute situations for learning.

This topic is of major importance because we hear so much about educational television, tele-lecture, learning lab access, team teaching and numerous other approaches that are intended to teach large groups, save teachers time, reduce the number of teachers required and instructional costs. If, in technical education, the personal exchange of ideas and feelings are important, how are curriculum planners to deal with these new innovations?

Teachers tend to become more specialized in their field instead of moving out and becoming more knowledgeable about other areas. State leadership has always been interested in the continuing education of teachers. By involving teachers in some phase of curriculum development, they learn more about subjects outside their sphere of teaching, they get a fresh perception of the teaching role, and their enthusiasm is increased because they will have battled through the conflicts and compromises of a new curriculum and finally have a chance to put their ideas into practice.

Those concerned with curriculum development at the State level should know that a good curriculum provides the teacher with the tools to achieve one of the great satisfactions of teaching; namely, the opportunity to see students grow and this is a very important element for growth of a teacher.

No curriculum is better than the teachers who implement it and the quality of teaching depends not only on the skill and dedication the teacher brings to it but also on the effect of the curriculum on the teacher's development. Thus, if the plan for curriculum development is the ultimate objective of student learning, it must, at the same time plan for teacher growth as well.

5. Other factors

Equally important to this discussion, is the secondary school curriculum. Naturally, curriculum development for programs in large urban centers have some advantages because of the many resources that are available. But, are the youth in other areas to be denied the advantages of their Big City counterparts? In this nation, the answer is an unqualified NO! Then, what adjustments must be made and how can people in State leadership determine the validity of their positions?

This raises the important question of prerequisites and remedial courses to remove deficiences--How are student pre-enrollment needs identified? What are the mechanics for offering special courses and what standards are to be observed?

The curricula for technical education are separate and distinct for a given occupational field. But it is recognized that their are other experiences that pupils have under the supervision of the school, both in the classroom and out, which promote the progress of the student to a selected occupational goal. Such activities are generally overlooked when a curriculum is being written.

If a curriculum is to provide for or encourage individualism, imaginative planning, development of research and problem solving skills and other activities that permit students to pursue their own special interests under the auspicies of the school, who is to bring into focus the appreciation of those things that are so essential in facing the problems of tomorrow? Leadership from outside a school's administration can contribute to the broadening of the perspective of those engaged in curriculum development. It can challenge the administrators and teachers to forsake neatly ordered, rigidly constructed, assembly line, completely predictable response approach and move toward having the student question the teacher and engage in self directed study.

It is not suggested, however, that the approach to curriculum development should be so loose that it can accommodate any need and eventually be reduced to a review of the most elementary concepts in a field.

State Leadership Functions

The foregoing discussion has attempted to present some of the broader aspects of the leadership role of those responsible at the State level for curriculum development. What specific tasks or functions should be performed by State level curriculum workers?

Provide, through regional centers or a State office, curriculum development services to educational systems or institutions that need information for planning, operating and evaluating instructional programs. Specifically:

1. Establish educational patterns through research and pilot programs and give direction to curriculum development for both preparatory and continuing technical education.

2. Provide data regarding need for new programs, for adjusting or modifying existing programs to keep them up to date and for decisions regarding closing of obsolete programs.

3. Provide the expertise for curriculum development at all levels to produce curricula that will be meaningful, interrelated and functionally oriented and coordinate the efforts of knowledgeable people who can produce acceptable curriculum materials.

4. Develop the competence of teachers in the most effective utilization of a curriculum in which they may not have had any part in developing.

5. Involve trade associations, professional societies and management organizations in curriculum development work to prevent duplication of effort, circumvent possible controversies, and most important, obtain the services of those persons who have the knowledge and ability to contribute a maximum to a curriculum project.

6. Collect resource material and curriculum guides and distribute to or provide a loan service that will place these into the hands of the people having a need for them and can best use them in curriculum construction activities.

7. Provide guidance in development of a format that will parallel existing and/or national patterns of curriculum work.

8. Participate in a national exchange of curriculum materials and establish cooperative arrangements to use highly qualified personnel in the States to produce better curriculums than ordinarily produced by individuals in a local situation.

9. Create a climate to encourage curriculum development activities and undertake the development of specific curricula by unifying local activities; scheduling special workshops or contracting with individuals or agencies.

10. Evaluate, review and initiate action to refine or revise curriculum materials as new developments occur in an occupational area.

11. Collect, edit, reproduce and distribute curriculum materials produced locally or arrange for publication by appropriate agencies or firms.

No attempt has been made to outline the individual role of the Teacher Educator, Supervisor and Curriculum Specialist. Each has definitive responsibilities regarding curriculum development. Top level leadership is essential to get these three offices to function without duplication or contradicting each other's efforts.

It is essential that a continuous review of curriculum needs and activities be carried on within the State and the findings be correlated with national needs and activities. The task of program development is a large one, it is complicated by the diversity of occupational objectives, and by differences in educational levels and types of programs.

The field of technical education is both promising and perplexing. It is important now and will be more important in the years ahead. It is our means for meeting the tremendous need for technically trained personnel to cope with an accelerating technological revolution. Teacher Educators, Supervisors and Curriculum Material Specialists must become more involved with all aspects of curriculum development. They have the responsibility of providing the expertise necessary to initiate new occupational curriculums that are sensitive to changes; that will prepare individuals for higher level jobs that did not exist at the time they enrolled and which will provide a foundation for continuing education. This is a challenging role and there are very few guideposts.

CHAIRMAN: Thank you, for the stimulation, the excitement that these presentations have given us. Mr. Bowler will now handle the listening team reports:

For Team No. 1 the question was: <u>What things not said, should have been given consideration?</u>

VON H. ROBERTSON, Salt Lake City, Utah: Our group as we listened were concerned with three major areas:

The first, what is the Office of Education doing to provide the States with their findings on curriculum needs so that the States may be able to provide information or have such information available? What is being done, or what should be done, or what can be done, to bring a closer relationship between the Office of Education and the States, or the States and the Office of Education?

The first concept that we considered was that curriculum materials should be developed at the national level. This was one of the points that he brought out. We felt that one of the barriers was the length of time involved getting material to the States and adapting it to the local area. We need the curriculum materials now. He pointed out that it took from twelve to eighteen months to get material through the contract and into publication.

Another barrier seems to be a lack of communication between the national level and the State and local levels; some local people who actually need publications may not know where to go to get them nor how to use them.

We discussed the degree of standardization of the format. One barrier was whether, because of the many different people and groups with which we work, we can have a standard format.

Then the third concept with which we worked was the need for a National Curriculum Committee. We felt that establishing the committee would take time, distance would be a barrier, and the money involved might cause delay. We felt that it would be difficult to get a group of representative people within the United States with enough variety to cover all of the people with whom we work.

ROBERT DAY SARTIN, Mississippi: The first change that would have to come about to put Dr. Strong's ideas to work would be greater agreement as to exactly what needs to be done.

The second thing needed would be agreement among the committee as to what should be done. Perhaps each State needs to consider that curriculum materials development is important enough to employ at least one full-time person. I gather all States do not have this. The other extreme is, a State with a complete all-services laboratory. The availability of funds for this activity is always a problem, but it just has to come about if we are going to work in the area.

As a group, we should be mature enough not to always rely on the U.S. Office to hold these meetings, but to have enough regional and State initiative to get together to develop materials and to communicate.

Much emphasis needs to be placed upon developing people who know how to prepare curriculum materials. There is little or no training in this area.

There is quite a long list of materials that have been developed under contract. Many of us did not know until we came here how many of these items were under contract, how many were being developed, and how many had been reproduced.

Can we follow-through beyond the Head State Supervisor or the State Director so that the people off the State office list may get more information about these things? Shouldn't more effort be made to get the materials that are being developed, listed, and disseminated further along the line toward the local level so that we who are out in the field know more about what is being done?

The third question that was not discussed: What should we be doing hereafter to make a more cooperative and continuous effort in this curriculum development plan?

ELLEN CHAMPOUX, Manhattan, Kansas: Our question was: What was said that does not check with your experience or views?

We came up with some statements and some questions. The first statement of agreement was that there is need for a national agency or organization to analyze new and existing occupations. Analysis then should be used as a basis for the development of curriculum material pertaining to these occupations. Discussion centered around the fact that there had been many surveys made. The question is, are we spinning our wheels in continuing to make these surveys?

Second point raised was that seminars or opportunities should be provided for teachers to participate in the development of teaching materials and curriculum. We feel that it is important for teachers to be involved not be just handed materials.

The third point was that we feel there is a need for an adequate definition of "disadvantaged youth." What criteria do we use in judging a person as disadvantaged?

The fourth suggestion was for more coordination between research and curriculum development; specifically, what materials have been developed under 4(c) programs that have not been disseminated

MARTHA SEAWRIGHT, South Carolina: What are the major barriers to putting to work concepts presented by Dr. Strong?

We started first by trying to list some of the concepts that he brought out in his talk and, believe it or not, I think we spent most of our time outlining the concepts that he presented in his comments. We did take three, however, and develop these with some of the barriers as we saw them.

JAMES L. BLUE, Olympia, Washington: Which concepts seemed least practical or workable?

Although we took little exception to the seven or eight concepts that Dr. Strong presented, we felt that his suggestion for standardization of format, which we interpreted to mean physical format, was the least workable. It is more important to have agreement on knowledge necessary for effective vocational education than upon the format to be used in the development of curricula.

The fact that there are so many differences from State to State, so many changes in subject matter, and changes from day to day as our technological advances plunge onward, that to standardize the physical format might indeed prevent the necessary changes in subject matter considerations.

Wouldn't a periodic Curriculum Development Newsletter produced by a centralized clearinghouse agency serve as an effective means of keeping States abreast of current curricular activities throughout the nation?

GEORGE FUKA, Chicago: When we attempted to identify how we could put some of the concepts to work there were some easily identified restrictions. The questions I am going to pose identify some of the preventive items that might be considered.

First, does not legislation restrict the implications of viable concepts from being put to work?

Secondly, we did not feel that one could standardize a curriculum materials development activity in light of the rapid growth in the body of knowledge which Mr. Konecny referred to, nor in the light of the continuous technological change with which we are living.

Thirdly, we were thinking in terms of fusing what we now delineate as vocational education with general education. Perhaps the U.S. Office could be instrumental in providing the leadership for a program design that enables us to treat all students in light of their capabilities, competencies, and disadvantages.

Finally, the finances used in putting these concepts to work would have to be examined in terms of not necessarily getting additional money, but in redirecting some finances that are presently available at the State level to the local districts so that they could implement new concepts?

MRS. ESTER RENAUD PAGAN, Puerto Rico: The group agreed that the speaker made at least eight suggestions, but we had no time to discuss the practicability of all of them.

The first one was the creation of a National Clearinghouse of Curriculum Materials to maximize the resources. Of course, this presupposes the creation of a local clearinghouse.

There should be some degree of standardization in curriculum development format. We had a discussion on the degree, but we didn't reach an agreement--but some degree is needed.

An up-to-date catalogue of available material should be provided annually so that we can use them and to give them to the teachers.

Curriculum development is a group enterprise that should include the teacher.

CHAIRMAN BOWLER: Very well, let's analyze the reactions to Mr. Konecny's presentation and let's ask Team No. 12 to report first.

LUCY ROBINSON, Tallahassee, Florida: We were asked to react to some of the points which were least workable or practical. We felt that it was a little impractical to expect students to become involved in curriculum planning. Oftentimes we, as teachers or educators on a broad base, have much trouble trying to decide what is practical and what is workable in curriculum involvement and planning, much less should we expect students to come up with what would be fairly effective in planning curriculum.

We felt also that to say theoretically there should be a curriculum for every child is a little impractical.

To say that the evaluation of a curriculum can be based on its implementation by the teacher is not totally workable.

The group did not feel that it is a completely realistic approach to say that we can provide materials that will fit all kinds of people in all areas of the country in all kinds of programs.

ELEANOR JOHNSTON, South Dakota: Our question was: What was said that does not check with your experience or views?

Our speaker seemed to be changing some of the activity of the State Department of Education from what seems to be a maintenance activity to a cutting edge or development function.

He mentioned that we would prepare for jobs that do not exist when the training was started. Aren't many of these developments evolutionary rather than new? Aren't there some basic things in occupational clusters?

He talked about the Supervisor of the State Department having a function of collecting and distributing research. Who is going to do the research?

He talked about involving students, but how? We are not sure what he meant by "teacher development, teacher specialization, and teacher breadth."

MRS. MARIE HUGG, Jefferson City, Missouri: We rephrased the question: What things not said, need to be given consideration?

We are now cognizant of the scope of the job and why it must be done. We need specifics of how we must do it. Where is the starting point? We had thirteen points given by our speaker. Who should identify the responsibilities of each person in this curriculum development team--the teacher educator, the supervisor, or the curriculum specialist? It may be that they perceive their role in a very similar way.

How do we evaluate the availability of data--facts, figures, and research findings? We feel we need continuous inservice training for our teacher educators, supervisors, and curriculum specialists. How do we provide it?

For whom is the curriculum being developed? We heard that it involved planning for future jobs that do not even as yet exist.

We feel a keen need to identify the service responsibility for curriculum development--how to merge, marry, mix, converge in developing curriculum for occupations with related knowledges and skills and for general education and vocational education.

What training does the curriculum person need to become competent in developing curriculum for these new emerging occupations? How far should we go in developing curriculums? Should we give the teacher all the answers in a day-to-day prescription that she or he must follow, or should we form a starting point or a nucleus of concepts or big ideas that would be further developed by the teacher in preparing his own curriculum?

HOWARD E. HEDINGER, Raleigh, North Carolina: After much discussion we came up with three items that might be barriers to any concept in development of curriculum:

1. Money
2. Personnel
3. Time

The economics of having to employ local teachers to work with curriculums on a full-time basis concerns us. We are also concerned with where we could get qualified personnel at the State level.

We need cooperation, coordination, and communication between services and between teacher educators and State staff in developing these important curriculums.

Time: It takes time to get our local committees together, to get their ideas, to break down resistance to change, to keep up to date in all areas.

T.L. RUSHING, Tallahassee, Florida: We would like to start off by saying that there aren't too many problems that couldn't be solved by change.

We would like to establish a system of regional curriculum material centers. Typically, these would serve five to eight States with a strong national unit to coordinate the efforts of the regional centers. Educational media, audio-visual aids, and curriculum materials would be housed in these centers and distributed from there. They would be developed by member States and in some cases procured commercially in volume lots. In many cases, material developed in one region would be adapted for use by other regions, thereby avoiding duplication of effort.

We felt that there is a need to strike from some State plans any stipulation that "Vocational programs must satisfy a specific local need." State boundary lines need to be less of a barrier than they have been in the past. In some cases travel across States lines, and even across county lines, is almost impossible to get approved.

The center should be so organized that participating States can't evade the responsibility for materials development, because they can't delegate this responsibility.

BEULAH HIRSCHLEIN, Oklahoma City, Oklahoma: What were the more practical suggestions given by Mr. Konecny?

Curriculum development is everyone's responsibility. In addition to leadership from the State and national levels it should include persons at the grass-roots level--teachers, administrators, lay people, as well as representatives of business and industry. State leadership, if it is to be effective, must be acceptable to the local levels. The climate for curriculum development should place much emphasis on individual creativity. Curriculum writers, or specialists must conform to the needs of society rather than reflect their own whims, desires, or opinions. The improvement of instruction should be student oriented. The primary objective is to develop and maintain quality programs for people.

Times are changing. States must have dynamic systems, rather than static systems, for curriculum development.

Curriculum materials should not be binding upon a teacher. There should be freedom to adapt to a local situation or need. Each State should develop a procedure which would be best for that State, developing better guideposts for curriculum development.

Curriculum improvement should be based on legitimate data. State leadership should be keenly aware of developments which carry implications for curriculum improvement and bring these to the attention of all involved.

Each State has a responsibility for coordination and accumulation of better ideas from other States.

JAMES B. KARNES, Columbia, Missouri: What are some ways the concepts presented may be put to work?

We came up with about three major concepts. One is, we need to set up a systems approach with a man-at-the-top curriculum materials program in each State. Then well trained specialists in each field should be employed to help implement the development of these materials.

We need to give high priority to earmarking the funds that would be used to develop curriculum materials, because this is where the money will be spent.

We also need to establish a structure, format, and procedure to do the job. A few things to be done have already been mentioned: Eliminate duplication of effort; provide programs for developing curriculum materials specialists, establish a centralized library in each State; distribute instructional materials through the regional offices; and, work through the interagencies of the State departments, colleges, universities, and the Research Coordinating Units. We felt that the one person at the top in each State could function at this level.

WEDNESDAY MORNING SESSION

January 18, 1967

Chairman of the Wednesday morning session was Vivian Culver who introduced Mr. Richard Lano.

Increasing the Utilization of Existing Curriculum Materials

Richard L. Lano

Of all the subjects that could have created a theme for this conference, I strongly believe that one of the most important has been selected. The development and use of curriculum materials is nearly the most important aspect of any vocational program. I am sure that greater attention will be focused upon it in the near future due to emerging occupations and modernization of existing occupations.

Curriculum Development

In order to provide for some sort of springboard, let us review the process of curriculum development in general terms. Initially, the pulse of the community is taken to determine what occupational areas offer opportunities to adequately prepare students. Some occupations are practically national in scope and thus depend less on local scenes; however, mobility should be considered as well as ways of keeping the local program consistent with broader occupational needs. Regional occupational programs which depend upon climate, geography, and the like, should parallel local opportunities.

Once the occupational area has been established for a program, that occupation is analyzed to determine what specialties, responsibilities, and general requirements it contains. The process is usually called an occupational analysis. It results in a list of descriptions which make up the occupation.

Advisory committees then compare the list with the local school's capabilities. Those items which can be provided by the school are assembled into a potential course outline.

The course outline becomes organized into teachable segments which take into account facilities, time, accreditation, student profiles, and the like. From the outline, a curriculum is developed.

From the proposed curriculum, curriculum materials are developed. They are essentially of three kinds: Information, teaching aids, and evaluative instruments. The development of these materials is not automatic--it is real work and should be undertaken very seriously since the materials reflect all the philosophy of the occupation, the curriculum, and the institution.

Curriculum materials can be developed for a large occupational area or for the local program or a combination of the two. Curriculum committees, advisory committees, and staff committees, can assist in developing prototype materials. Teachers should also play a part in the developing of these materials since the problem of getting their support later on depends upon their understanding of how the materials came into being. This is particularly important in local situations.

Curriculum materials may already exist which will perform the desired functions. A modestly extensive inquiry will reveal typically the titles only, but one will also find comprehensive descriptions. National, State, and local agencies maintain centers for the development of curriculum materials. Course outlines, sample lesson plans, student information sheets, and similar materials are available for a number of occupations. They are provided by educational, occupational, and civic organizations. Samples may be ordered for examination. Organizations also exist which catalog and describe teaching aids. The January 15th issue of Education Summary describes an educational clearinghouse for new teaching aids which will be established by a grant from the U.S. Office of Education. It will become operational in two years.

This overview has the purpose of simply providing a basis for discussion later. It can also be thought of as bringing us to the point where we can assume for upcoming examples that we have a curriculum and materials and can proceed to consider their dissemination and use.

Implementing the Curriculum and Materials

When we have a new curriculum which includes the anticipated materials, how do we get it into the classroom? The first step is to inform all interested parties of the new developments. The next step is to bring together those who will be directly affected in implementing the materials in the classroom. This means administration, staff, consultants, teachers, and industry. Now having further support, we organize institutes, workshops, and meetings to provide the teachers with opportunity to examine and practice using the materials.

Teachers are many times reluctant to use new materials. Probably the most prevalent reason for this is that they feel a bit insecure with some of the subject matter. This is not always obvious to those already enthusiastic over the new developments. One can, however, make this assumption and then plan to instruct the teachers in the subject matter as well as the methodology. The subject matter instruction occurs indirectly using such tactics as allowing them to take proposed examinations home and look them over, providing numerous subject matter sources and references at the institute, and providing time for discussion which focuses only on the subject.

Whether new methods are needed or not, teachers should be provided the opportunity to practice teaching with the new materials in a supervised setting. The importance of this practice becomes apparent as each teacher encounters minor difficulties along the way. With encouragement at the proper time, attitudes will strengthen toward the acceptance of anything new.

Selected teachers and institutions can then commence a trial period, if this seems feasible, in order to work out any kinks. Somehow, actual classroom instruction differs from planned, supervised practice sessions. Close attention must be paid to the trial as it progresses--frequent evaluations and discussions must be conducted. This then provides a basis for alterations prior to general use of the curriculum and materials. It should be pointed out that these statements apply to existing curriculum materials as well as to newly developed materials. What may appear as existing to one teacher may appear brand new to another--the process of implementation is the same.

To bring this discussion into the classroom where a job is to be done, let us now consider the final aspect of curriculum: its use in instruction.

Curriculum in Instruction

The process of instruction can be thought of as consisting of three parts:

1. Having and teaching toward well-defined specific objectives.
2. Continuous active student participation.
3. Continuous evaluation of instruction.

Specific Objectives

Instructional objectives have not been mentioned until now so that we can focus specifically on their importance in curriculum and instruction. Every curriculum includes some form of goals or

objectives; however, most are nebulous and institution-centered. These are actually purposes, not objectives. Further examples of purpose are college catalogs, course descriptions, the Seven Cardinal Principles of Secondary Education, and the imperative educational needs of youth. We all need to have either purposes or goals to keep us from losing our direction and doubling our efforts. I want to talk specifically about behavioral objectives, not about purposes.

I am sure that you are aware of work in this area being done across the nation in almost all disciplines. The applied ideas of behavioral objectives began in the late 1930's. Extensive use can be made of behavioral objectives in programmed instruction. There is, however, no intensive application of behavioral objectives in vocational education. Thus, in spite of traditionally being an occupation-centered group which tries to tailor all instruction to the requirements of a vocation, we are not in a position to be able to specify precise objectives before instruction begins and then evaluate what is learned compared to these objectives.

Objectives are statements which describe final results. They are student-centered. Behavioral objectives are statements that specify the student's terminal behavior(s) as a result of the instruction and these behaviors can be measured. They describe <u>what</u> the student will be able to do, the <u>conditions</u> under which he will perform, and the <u>criteria</u> for success. In having clearly stated student-centered objectives, we are no longer in a fog as to how deep to go, when mastery has been achieved, and to what central level we wish to teach in order to accommodate the larger average student group at the expense of both extremes.

The development of good behavioral objectives is not simple. Each justified task that the student is required to learn must be stated in a way which requires the student to demonstrate his ability to perform the task under a given set of conditions. In addition, we specify how well the task must be performed in order for the student to be considered successful. A typical behavioral objective might be worded as follows:

> "Given a list of 35 chemical elements, the learner must be able to recall and write the valences of at least 30."

or

> "The student must be able to write the names and addresses of at least three-fifths of the five New York doctors who recommend the ingredients in Brand X."

Objectives play a major role in both curriculum and the process of instruction. Curriculums can be developed which contain behavioral objectives for each topic to be taught. However, I wish here to emphasize only the use of behavioral objectives by the instructor in his own class.

An adjunct to behavioral objectives is the concept of the level of instruction. A few educators have attempted very elaborate classification systems for assigning levels and testing for their attainment in general education realms. The value to vocational educators in assigning various levels to instruction lies principally in maximizing the use of instructional time.

A topic of instruction, when assigned an appropriate level, can occupy as little or as much time as is required in order for students to attain the level. The chief time saver is the fact that much over-learning can be eliminated in so-called peripheral areas and that time can be devoted to the more important areas that really need the time. Suppose we devise a scale of numbers ranging from one through five. For each number we list the corresponding competency expected of the student who receives that level of instruction. The relationship looks like this:

Instructional level	Competency
1	Knowledge
2	Comprehension
3	Application
4	Analysis
5	Synthesis

How do you determine what level to assign? One way is to survey the occupation to find out what level its proficient individuals utilize in carrying out a list of tasks developed by you. The next step is to have an educational advisory committee review the recommendations in light of the school's capabilities. Finally, we implement our instruction to coincide with the levels and try it out.

A very important phase of this application of levels of instruction to the classroom is careful evaluation of the progress of students based upon objective evaluations. It may turn out that some levels may need to be lowered while others may be raised. After initial trial periods are underway, the value of assigning and teaching to levels will show itself to be indispensable.

In practice, the levels are within the stated behavioral objectives. Behaviors which require recall, recognition, demonstration of knowledge, and the like are level 1 behaviors.

Now let us consider the on-going active process of teaching and learning.

Active Student Participation

Following the trend of the thought just discussed, if specific objectives exist for instruction, and if the students know ahead of time what they are, student interest and participation will increase if only for the reason that the student always knows exactly where he's been and where he's going.

Although specific objectives help produce more student participation, they alone cannot guarantee it. Some means must be provided whereby a teacher has pre-planned participation activities in front of him or her as instruction is given. Many lesson plans consist of outlines, notes, key thoughts, or written material which the teacher will transmit to the student. They are all teacher-centered, that is, they contain the material to be presented. In order to stimulate active participation from the students, the pre-planned activities must also be on the lesson plan. The activities may consist of simple questions to test for knowledge or comprehension gained from a single lecture, or they may include rather elaborate experiments, or exercises which test the application of a body of knowledge or the analysis of problem situations. The important thing is that they are there for the teacher to use at the time.

Several methods can be employed in providing for these active responses. One way is to use a lesson plan which is divided into two columns. The left column is used to include those items of information which the teacher wishes to present. The right column contains the student activity items. The items in the right column are keyed to the presentation items on the left so that they can be used at the time they are needed. As the teacher keeps getting evidence that the students can demonstrate what they have just learned, he or she progresses to the next topic. When the students are unable to demonstrate the required competency, the teacher backs up and reinforces the learning until the competency is achieved. This method of active participation is a form of student feedback which should be continual in nature. Experiments have shown that the same subject-matter content taught both with and without the active participation is demonstrated using students in a final examination to a much more successful degree by those students engaging actively in instruction.

Evaluation

This is a time when very few people in vocational education wish to volunteer to stand before a group and talk about evaluation. However, I am going to discuss only the evaluation of instruction

based on the use of behavioral objectives, levels of instruction, and active student participation. How would you evaluate the results of these things? May I suggest . . .

1. Comparisons between students instructed this way with students instructed more conventionally in terms of:

    a. achievement
    b. attitude
    c. change of goals (before vs. after instruction)
    d. student self-concept

2. Student achievement compared to assigned behavioral objectives and levels.

3. Changes in the quality of work as the student progresses.

4. Observations of school guidance counselors or other teachers.

5. Solicited parent comments about the student's work habits, attitudes, self-confidence, and the like.

6. Employers' opinions of qualifications for placement.

7. Employers' opinions of success after placement.

The significance of evaluation lies not in the fact that you are simply doing it, but instead, that it provides you with information on which to base decisions for the future.

Compendium

Thoughts concerning greater utilization of existing curriculum materials have been presented. We have looked at a generalized process of curriculum development, some ways of implementing curriculum and materials, and the use of these materials in the classroom. The central thesis has been the importance of having the right kind of materials and using them properly as opposed to acquiring great masses of materials without consideration for goals.

My last comments are directed toward the vocational teacher. He or she is the key to improving instruction by whatever means. He or she must be occupationally competent, must keep tuned in on the world of work, and must constantly strive to achieve that last full measure. It's up to all of us to see that we don't stagnate and relegate ourselves to following that time tested "perfect curriculum" at the expense of seeing new sunrises. In this respect, we share one thing with William Randolph Hearst as he looked out the window at Hearst Castle and maintained that he owned his own view.

CHAIRMAN: The next portion of our program deals with Manpower Development and Training. We have a symposium. There will be three speakers.

The first speaker is Dr. Aaron Adams:

The Changing Nature of Manpower Development and Training

Aaron Adams

We were involved, federally involved in vocational education before some of us were born. Mr. Smith and Mr. Hughes, I understand, started this business. We grew up, some of us taught a while, and we had a second major change in vocational education legislation in the George-Barden Act. Then there was a major overhaul in vocational education now known as the Vocational Education Act of 1963.

During this period we have associated programs with the vocational education mainstream, such as the War Production Training program, such as the G.I. Bill following World War II and the Korean War. I know there has been a temptation to consider the Manpower Development Training program as a type of temporary extra-duty exertion, and maybe in the same sense of War Production Training or in the sense of the G.I. Bill. This is natural because of the characteristics that we find that are similar.

I am not being presumptive in trying to compare an upstart program such as Manpower Development and Training with the fine program in vocational education, but I would like to draw a comparison in terms of here it has been nearly half a century in which we have realized three basic changes in legislation, in program objectives and directions. On the other hand, Manpower is not yet five years old and including the original bill it has been re-structured six times. Now for reasons unknown to me, the last change happened overnight. There were amendments that followed within twenty-four hours of one another.

Even so, the brief span of life of the Manpower Development and Training program precedes the War on Proverty. We would have you understand and distinguish our program from other programs with similarities, to name specifically the O.E.O. program, the Job Corps, the Neighborhood Youth Corps, and a variety of others. The characteristic we would have you remember is that Manpower has been with vocational educators from its inception. It is, relatively speaking, a stable, established and old program.

Vocational educators, I find, have not realized that while they are participating extensively in vocational education applications through the Manpower Development and Training program, there were those other than vocational educators who also were participating extensively in the Manpower Development and Training Act of 1962. This has not changed.

The thing that has not changed through this period of time is a phrase in the Act to the effect that "our role as educators in MDTA is to provide training needed to equip persons referred to the Secretary of H.E.W. by the Secretary of Labor." This has not changed. However, the characteristics of those persons being referred have changed. They have changed substantially and they will continue to change.

The project proposal device has not changed. This project proposal mechanism or device that has been with us throughout the Act is the thing that creates this mood of "here and now" rather than a mood of "here and hereafter" that so many of us yearn for.

The change I would have you be aware of, though, in the law as most recently amended, is the change in our relationship as vocational educators to the Secretary of H.E.W.

Previously, vocational education had an exclusive in terms of agreements to be written for training to be conducted under our Section, Section 231 in the States. The current amendment provides only for preferential treatment to vocational educators. It is designed now to provide for a variety of choices or alternatives in terms of agreements and persons involved with the Secretary of H.E.W. in the States in Manpower Development and Training.

Something has been said of the reorganization in the Office of Education or reorganization of the Division of Vocational and Technical Education. Actually this is not a recent change; we are just now beginning to feel the shock waves from a reorganization of the entire Office of Education.

I think we would have you realize that the Bureau is a new creation, in that there are four vocational education divisions in that Bureau. This will come home to us as we have the series of nine regional conferences, which will be Bureau conferences and replace the Division conferences that we experienced last year.

Regionalization of the activities of the Office of Education is a new experience, although I would say that Manpower has been regionalized from the outset. In fact, offices of the Office of Education have been doing business at the Regional stands for a number of years. We understand that April 1 is to be a date at which all regionalization is to be realized and be effective.

There is a change, then, in the organization, in that we now find ourselves a Division of Manpower Development and Training with a State Programs Branch in a National Programs Branch. It is in a section of the former, the State Programs Branch, that we find a curriculum section.

If you can imagine the organization charts of our two Divisions now, and if it were likely that the two little blocks representing curriculum could be aligned on a chart they would be holding hands--the Division of Vocational and Technical Education and the Division of Manpower Development and Training. The Division of Manpower Development and Training must and does depend upon this hand-holding relationship with the curriculum section of the Division of Vocational and Technical Education.

Let me get crude now and talk to you about our money. Approximately half of the $350-million provided for this year for Manpower activities was provided to buy up project proposals in the States and among the States. We would have you realize that the other half of that amount of money has been available and is available this year for other agencies to do the same sort of training, and possibly outside your sphere of awareness. This is understandable because it is the other half that the Secretary of Labor simply chose not to refer to the Secretary of H.E.W. There is no change in this. There is some change in the dollar amount that is made available for our half. I can tell you that these other agencies are doing a commendable job of training unemployed people, and I also know that they are doing a very commendable job in developing curriculum materials.

We have asked and received additional funds for our part of this Manpower program to help crank up curriculum material. We asked for something over a quarter of a million this year--well, something like $100,000 over a quarter of a million this year--and received it for the purpose of developing curriculum materials. In some States we are providing, through their State budget, ninety per cent of the cost of the salaries for MDT curriculum personnel. We are also appointing several metro-rural development budgets which will make an impact on the curriculum situation.

The Manpower staff places their confidence in you for the assistance we need in developing realistic curriculum materials for the Manpower Development and Training program.

CHAIRMAN: Now we come to the "Womanpower" of "Manpower," the second speaker of the symposium is Miss Ann Donovan.

Trends Affecting Curriculum for Manpower Development and Training Programs

Ann Donovan

We will concern ourselves with those trends and goals that have an effect on curriculum and relate them to the WHO, that is the trainee; the WHAT, the occupational needs, the training, and the jobs trained for; the WHERE, which now may be in public schools, private schools, or rented facilities; the WHEN, year round, clock round, about forty hours in each program per week; the WHY, training for entry, upgrading, and refresher.

First, Manpower has been given boundaries within which it can select its trainees. The first boundary was 65 per cent of the trainees must be the disadvantaged.

And now we have a whole list of things that qualify one as "disadvantaged":

Educationally deficient--that means illiterate or at a level of literacy which will not be acceptable in a job skill;

Handicapped--physical, mental, or emotional which may be taken care of, thereby enabling a person to be employed;

Inmate of correctional institution with the hope of parole;

Long-term unemployed--that is, persons who have been unemployed fifteen or more weeks, and who desire to be employed;

Minority groups;

Older Workers--and that is anyone over forty-five;

Poverty levels; (persons with income less than $3,000/year)

Prison releases;

Disadvantaged youth who are out of school and out of work;

Selective Service rejectees or volunteer rejectees.

In training these groups, the training will be trainee oriented, or person to person. This has a direct influence on curriculum.

The second boundary is that 35 percent of the trainees will be able to fill shortages in emerging skill occupations. The training will be job oriented, focused on providing more and better trained personnel for industry. This is similar to that which was done in the beginning of MDTA, the "cream of the crop" type.

These two boundaries indicate why certain facilities have been closed, even though there is still a continuing need for those employment demands.

As we follow the Act we see that originally it was mostly related to those who are now in the 35 percent, that is, a specific job filling function. But since then, the amendments have been concerned particularly with the 65 percent. We added basic education. That not being enough, and implications in the amendments that there was a need for work attitudes, employability skills, call it what you may, there was an increase to basic education. Now we have added medical services to a certain dollar amount for these people to further increase their employability.

The emphasis in all this is focused on the residual pockets of hard core unemployed; emergencies, or selected training shortages that accompany declining employment in certain areas; the rural out-of-school youth; the problems of the older worker; the increase in teen-age unemployment, particularly among the minority groups, and this is considerably higher among the female minority groups.

All of these trends point up some curriculum needs:

1. More basic education which is occupationally oriented or of interest to these people. This may be considered as part of the occupational curriculum or possibly as a separate entity.

2. More pre-occupational planned curricula, not just haphazard or a try here and a try there, but actually curricula planned to meet occupational goals. These may need to include work descriptions, techniques for job seeking, dress, and manner of conduct.

This curriculum will have one particular noted need for the disadvantaged: That is, it must meet a specific need. The welder may only need to know how to weld from here to here. The auto mechanic may only need brake training or tire changing--if I get in any deeper you will see how little I know about automobiles. They do not need the all-purpose, universal product. However, it may take almost as many hours to train them in the specific need

as it does to train someone else in the entire program. You can't just take that piece out of an already existing curriculum and intend it to do what it needs to do.

We must also provide the WHY to go with the HOW in all of these coupled projects, the coupled OJT projects.

Due to the project-by-project nature of MDTA, it is particularly important that curriculums be entwined with teacher training. Many of these teachers, although they meet the certification requirements of the State, are temporarily released from some of the teacher training requirements or get them as they go along. Therefore, manuals of curriculum must take this into consideration and present to the instructor, as part of the curriculum development, the HOW and the WHEN for using program materials, transparencies, and visual a:

There are also trends which affect the occupation which is not specifically for the disadvantaged. Some of these may vary from availability to money to many other needs.

In this category we have:

1. The health occupations which are presently being influenced by additional moneys, which were influenced by medicare and the direct interest of the President.

2. Upgrading, which is important particularly because it leaves the lower level entry positions open for the disadvantaged.

3. Refresher training, which brings back to the labor market some of the people who had previous training, therefore reducing the amount of training necessary. It does, however, require particular curriculum consideration.

4. Prison inmates, aside from the usual training they are finding in many instances this may point up for these people a higher potential.

As we look at the curriculum needs we cannot but be impressed by the mass market need. We must weigh many things. The insatiable demand for the ten leading occupations will continue, but there are in many cases throughout the country good curriculum material for these. Some of these may need evaluation by people who have worked with them, and possible refinement.

Secondly, we have the new and emerging occupations. These are such occupations as the coin machine operator repairman. These may need development in the curriculum, they may need pilot tryouts and then refining, and they may need to be made available in sizable quantities.

We also have the unique occupation, which needs only a guideline or an outline which are not needed in quantity but are needed in quality and need the consideration of curriculum people. These are such things as termite treater, fruit tree pruner, and stake hopper.

Speaking for the curriculum section of Manpower Development and Training, these are some of the things we hope to see: Materials developed within States or regions which may be shared for trainees with similar characteristics. We hope that those who have developed and used materials may get together and evaluate and refine these, their combined materials, to find the best of these.

The national office can help each of the regional areas keep abreast of what is going on in the other regions. Recently we asked for information from the different States and many of the States represented here, in fact over two-thirds of the States, sent in their comments, what they were doing, and we are amazed at some of the fine things that are happening. They indicated needs they have recognized and that we have been talking about.

This year some States have requested, and are having coordinators, review all MDTA curricula. This type of activity should not be lost to the other States. Some have asked to develop printed material pertaining to curriculum development. This, too, should be shared. They have asked that local occupational instructors have the funds to compile, write, and publish course outlines. These are some of the things that the States have that we feel should be made available from State to State and that the national office can keep the regions abreast of.

CHAIRMAN: The third speaker of the sumposium is Mr. J. Kelly Mudd.

Curriculum Materials in Manpower Development and Training Project Design

J. Kelly Mudd

As you know, the Manpower program operates on a project basis. It is not a grant-in-aid program. A project may be for just one course or it may be multiple-occupations.

The project is made up of four or five parts. One is the MT-2, which is a summary of the whole project. It tells the training cost, and the labor cost; it tells what the occupation is, where the training is going to take place, whether at a private school or public school, the length of course, when the project will start, and the like.

Then, there is an MT-1 that has a lot to do with curriculum. The best way to explain an MT-1 is to say that it is a "cutting order." If you work in industry or business, this is the job order--the cutting order.

There are two very important things on this MT-1 or cutting order. One is the characteristics of the trainee. The second is what these people should be able to do after twenty weeks or eighteen weeks or thirty-six weeks of training.

Then we have an OE-4014, which is the curriculum outline. It is not a complete curriculum, but it is a break-down of topics, hours, and so forth. This item is looked over very closely at the local level by the Employment Security people and the vocational educators.

Where there is an active Occupational Committee, they look this over, too.

When it gets to the State level, it goes through a much tighter screen and is looked over by Employment Security and the State vocational people. In States where there is close cooperation, the Manpower representative calls on the other services and gets them involved.

When it gets to the Regional office, we take another look at it to see that everything is all right.

The OE-4014 is looked over at three different levels as to--"does the curriculum suit the characteristics of the trainee and will they be able to do what we want them to do when they finish with the program?"

One of our weak points has been getting curriculums designed. We really need help, but we have just struggled along and done the best we could.

The philosophy of Manpower, of course, is to take an unemployed person and get him employed as soon as possible. It is a little different from our regular program. We try to get them out on the job as quickly as we can.

The Manpower curriculum involves a very intensive occupational training program. In this region, in ninety-five percent of the cases, the trainee is in the program forty hours a week. When I taught day trade at a senior high school I recall that I taught three hours a day, five days a week, for thirty-six

weeks, to get in 540 hours of actual laboratory student-instructor contact. In MDT in 14 weeks we get in 560 hours. A student in a regular two year high school program would get in 1,080 hours. In 27 weeks we get in 1,080 hours. This has a terrific bearing on writing a curriculum. This is "intensive" training and we are concerned about giving a person enough occupational skills to get him employed and keep him employed.

Another comparison of the curriculum: We in this region are using what we call the "wheel," the "merry-go-round," or the "family of occupations," concept. The pattern is that you take in a citizen any day of the week any week of the year. When you get him as far as he can go, he gets off, and that opens up the occupational training station to bring in another trainee. To do this successfully you must have good communication with the local employment office.

In the early days, if we enrolled a person as an auto-mechanic, the Employment Security people wanted him to be a full-fledged auto-mechanic. Now if we find that all a trainee can do is tape the car to get it ready to be painted, then we make him the best taper in Kansas City. Wherever we train him, we get him out in six or seven weeks and bring in another person to take the training station. If we have a person who can go all the way, we take him all the way.

We are starting to train in "families of occupations." If you look in the dictionary of occupations you will see that there are many jobs in which you can earn a living in the field of auto-mechanics. The same thing is true in food services. Some trainees make good salad makers; others can learn a variety of jobs in the foods trades. Health is another field where training in a cluster of tasks is possible. You can do this with many occupations.

Dealing with unemployed adults who have been forced out of work because of automation, we find that they need something besides the three R's. Many have to be motivated. We have to train in inter-personal relations, employee-employer relations, grooming, and social abilities. Here is where all vocational services can work together, where we need the guiding hand of the Home economics people, the technical people, and the agricultural people.

We are also getting into training where, instead of taking a citizen through the whole of third grade arithmetic, he gets just the fractions he needs. After two or three days of real concentrated fractions, he gets back in the occupation. The material should be related to an occupation. Adults will learn to read, write, spell, and do those things that are necessary because they see a need for it. We need to build curriculums that these citizens' can relate to their experience.

The regular curriculum is not oriented to the disadvantaged citizen. Local educators last week from seven States, said, "Be sure to underline 'not' and'oriented'," and I've done that. There seems to be nothing for the disadvantaged in occupational curriculums or in basic knowledge curriculums.

They also tell me that the people developing the curriculum should be on the firing line. Communities are different; not the people in the community. For example, the operations in a machine shop in Pennsylvania are the same, but the clientele they are dealing with is different from the clientele in the Great Plains area. The machine shops around Detroit are all geared to the automobile industry. Communities differ and the way in which a business operates is different.

Another Manpower challenge in 1967 is that we need curriculums now, not a month from now, or a year from now. When the Labor Department gives the State an MT-1, this cutting order, under the rules and regulations the State has thirty days to act on it. So you don't have much time to let a contract and get a curriculum. We have to have it all within thirty days.

The citizens with whom we work in Manpower are unemployed, underemployed, or force-outs from the regular school, that is they cannot benefit from the program provided by the local Board of Education so they are forced out.

Another difference between the citizens we work with in Manpower and these in the regular program is that many MDT trainees have been or are traveling on a descending path of experiences and accomplishments and have had problems before entering the program. Most regular preparatory students are traveling on an upward plane of experience and achievement. In other words, the Manpower student we get has not had a lot of success.

Most MDT trainees have not had recent educational experiences. Help is needed to re-establish learning habits and to adjust to attending school. Youth in the regular preparatory program, on the other hand, are experiencing pretty tight academic education programs. They are on the upward move.

Many MDT trainees not only lack recent educational experience, but their last contact with educational instruction was neither happy nor rewarding. Perhaps it forced them out of the local school system before completing the program.

The average MDT citizen has social and economic responsibilities including a family. These require time and energy and may bring about other problems.

In the regular school you have always had individual differences, but in the Manpower program the spread of individual differences is much greater. Yet, we get this cutting order, the MT-1, that tells us, for example, that in so many weeks to have a trainee ready to type so many words a minute.

When we repeat a program we may find the difference between two groups is so great that the same curriculum may not work. The difference between two groups may be such that you have to revamp or cut down the curriculum. The selection of the citizens for the Manpower program has a big bearing on the curriculum.

In Manpower, you have to have an adjustment period. All problems, such as health, family, police records, social records, social welfare, welfare, and so forth must be handled. A special team is needed to work with these people, not just one counselor. Where we have used the team approach, we have been very successful.

In the 40-hour week, training is intensive, and diversified. The administrator must have some imagination when dealing with schedules, facilities, equipment, and staff. These folks we are training need to know many more things than the three R's. They need to know how to perform in our society. They need to know good grooming.

Here are some areas we're training for in a "family of occupations:" Form Builder Helper; Air Hammer Operator; Mop Man; Concrete Gun Operator Helper; Asphalt Dump Man; Blaster, Powder Man. These are examples of a family of occupations. Included in the things we are going to teach them are: Blasting--it takes 20 hours to teach them that. Now this curriculum was written by people who actually go out and blast in rocks in this part of the country! The course was designed to meet the needs of this project.

CHAIRMAN: We have a group of people assigned to the responsibility of serving as a Reaction Panel. It has been their job to listen to and react. We will now hear from this Reaction Panel

MODERATOR F. J. KONECNY: We will ask Mr. Dugger to comment:

CECIL DUGGER, Stillwater, Oklahoma: As stated today, "We already know pretty well what we ought to do--what we need now are some ways and means of accomplishing these ends." Can we not only save time, turn out a better qualified product, and improve instructional materials, courses, and teaching faculty through better coordination of effort?

How often can it be said at our educational institutions that as far as the student (or learner) is concerned, the mathematics course materials are unrelated to the physics materials, and both in turn, are unrelated to the electronic principles?

Do you get the feeling sometime that curricula are designed to meet the needs of the teacher and administrator rather than the needs of the learner? It would be interesting to observe the progress of a student in an education program where the courses are sequenced in good learning order, content of courses sequenced to really aid the learner, and where the teachers involved get together several times a week to coordinate their teaching activities to meet the needs of students.

Such sequencing of courses and subject matter will produce better occupationally prepared individuals in less time.

MODERATOR: Mr. Berndt will now present his reactions:

WILLIAM BERNDT: Mr. Lano, this is addressed to you. You used the term "learning level." In my experience, and perhaps in the experience of some of the participants, we would think of "learning level" as being related to secondary, post-secondary, or whatever. Will you clarify this for us?

RICHARD LANO: This is not the first time that this has been brought up. We have been using the term "levels" just as you used them--the level-grade level, or chronological sequence. Another way of describing levels would be "advance" as opposed to "beginning."

A different way of thinking of levels is a sort of hierarchy where knowledge occurs first. This would be an introduction to the subject and going on to greater competencies. So I really couldn't give a definition of "levels" to fit this and to exclude all others. But I would thoroughly agree with you that this could become confusing and lead people to think of things other than what we meant.

WILLIAM BERNDT: Then we were saying level of attainment, level of achievement, level of competency, or depth of instruction.

RICHARD LANO: Right.

MODERATOR: Miss Dalrymple, may we have your reaction?

JULIA DALRYMPLE: I have a question in relation to the use of the taxonomy in the cognitive domain. I would certainly assume that as vocational educators we will be highly interested in dealing with the psychomotor domain. This morning we heard a different interpretation of the use of the cognitive domain.

What did you mean when you spoke of instructing conventionall as being different from what you were presenting at that time. "Conventionally for whom?" Would be the question I would ask.

RICHARD LANO: What I mean by "conventionally" is a situation where we consider a larger segment of a curriculum and its associated lesson plans which are and have been for a number of years teacher centered. You see, we have not described terminal behavior.

JULIA DALRYMPLE: As educators we have been revising curricula for some years. We have been told time and time again that there are things we should do: We should change the curriculum; We should change our teaching; We should do this; We should do that. Now we have heard it again this morning.

So I would like to ask some questions: How shall we do it? Will we be released from full-time employment to do it? What funds are available to support the development of the curriculum and industrial materials? Can one of the many committees be given full responsibility for producing curriculum and/or instructional materials so that we can get them into the hands of teachers and into the classrooms where they belong?

MODERATOR: We come now to Robert Balthaser for his comments.

ROBERT D. BALTHASER: Mr. Lano's presentation, I think was structured only to the entry level jobs. When you take a behavioral approach, you talk only about entry level.

Dr. Adams, I do not see--I am going to answer my questions--why the regions were necessary just to parallel the Department of Labo problem? The advantage I've seen in terms of crossing State lines is getting people-problems solved.

Miss Donovan, I have a question on who is determining which of these people are handicapped, and what is the definition of "handicapped?" Why are you spending 65 percent of your money on this group?

We have made a study in Ohio where 26 percent of all high school graduates are going into office occupations, yet the minority

school groups in the major cities are not taking the courses that will get them ready for these jobs.

It seems to me that in programmed learning you have a basic answer for your carousal. I don't know how much of this is going to come out. Our textbook publishers are "way behind" on this because they are not geared to occupations. This is the thing that has to be built in on terms of minute jobs. In other words, every machine may have three or four levels of programmed learning, either attached directly to the machine or on software in a side-by-side type of operation.

Wednesday afternoon the group was divided according to service areas, i.e., Home Economics, Health Occupations, Technical, Trade, Office, Distribution, and Agriculture. Reports of the discussions were given Thursday afternoon. See page 75.

THURSDAY MORNING SESSION

January 18, 1967

CHAIRMAN KNOEBEL: It gives me pleasure to present to you Dr. Robert Morgan.

Curriculum Research to Improve Program Quality

Robert M. Morgan

The Federal legislation supporting occupational training has a long history dating back to the Morrill Act of 1862; this support has not been large until the last few years. It is still not large compared to the total expenditure for education. For example, the authorization for last year under the Vocational Education Act of 1963 was only $175 million compared to a total expenditure of almost $40 billion.

Other major legislation supporting occupational training outside formal educational programs include the Manpower Development and Training Act and the Economic Opportunity Act. Approximately 110,000 persons received training under MDTA in 1965.

It seems clear that Federal funds should be used to assist the established public educational institutions to develop more rapidly educational and training programs which are responsive to a dynamic economy. The availability of such funds has grown to the $3 billion level in the last two years.

A soaring technology and a healthy modern economy depend to a large extent upon our ability to adapt to changes in productive capacity due to the adoption of better and more efficient machinery and equipment. Not only are skilled engineers needed to design and install the improved equipment, but more technically trained personnel are required to plan and manage production, to maintain and trouble-shoot expensive automated apparatus, to sell and service the product, and conduct research for newer and better products. A growing modern economy also requires more and more teachers, scientists, and professional managers, advertising and sales people, computer programmers and technicians, and mechanics and maintenance workers of all kinds.

Young job-seekers, faced with the fact that there is a continuing shift from production-oriented occupations to service occupations, require cognitive, communicative and social skills. Many of the former types of entry-level occupations are now unavailable to youngsters entering the labor market. Further, while qualifying for

an entry-level occupation is a necessity, it can no longer be viewed as a final career commitment but should be looked upon as the first in a series of job changes leading, hopefully, to a stable and remunerative working career.

Unfortunately, much of what is now taught in our public schools fails to recognize that technology is generating profound changes in the nature of work. The tendency in the past to separate general and vocational education has penalized both those who are college-bound and those who plan to terminate their formal education at the end of high school or junior college. The academically oriented students are directed to those college preparatory programs which will enhance their performance on the college entrance exams. They have little opportunity to acquire a knowledge of the functionings of the business and industrial community. At the same time, vocational students receive too little opportunity to develop competence in the basic learning skills which they must have if they are to cope adequately with present day society.

The tendency to separate those in the college preparatory programs and those who have been tagged as vocationally oriented handicaps both groups. Those who plan to go on to college are not at all prepared to cope with the question, "What happens if I must leave college before graduation?" On the other hand, those exposed to current vocational programs find themselves being trained for a narrow range of job skills. Even if such a student should qualify for his first job, he is still faced with the frequent demand to adapt to a changing labor market. A third and large segment of our public school population is not enrolled in either vocational preparatory or college oriented programs and receives very little in the way of occupational preparation.

From the perspective of providing for the optimum development of <u>all</u> students, the present allocation of resources and the types of curriculum available in the secondary schools are inadequate.

The problems and shortcomings associated with our present-day program of secondary education indicates a need for major revision in this field. Fortunately, the same technology which created many of these problems offers some hope for their solution. The computer, for example, can serve as an intermediary between employers and school counselors, making possible far better information systems for funneling industry's job needs to curriculum planners in the schools. Flexible scheduling through computers can make possible the development of learning experiences to meet the particular needs of individual students. And indications are that computer-assisted instructional

techniques can succeed in permitting the student to involve himself at his own rate in the learning process. Even computer games have been successfully employed as a method of teaching teenagers to think through appropriate career choices.

The use of instructional television, single concept films, videotapes, teaching machines, and simulators has opened new approaches to solving educational problems. Textbooks are appearing which gear the information to the background and reading level of the student. Experiments with tutorial programs involving older students and/or subprofessionals offer hope for giving more intensive attention to those children requiring it, while at the same time helping to offset the spiraling cost of education. Each of these examples illustrates that we are in the take-off stage and can, with appropriate planning and funding, achieve the outer reaches of educational excellence.

Under the stimulation of Federal legislation, new opportuniti for research on major curriculum redesign are now possible. Fortunately, this opportunity is occurring at a time when teachers, curriculum planners, and school administrators are under pressure by local employers and parents to provide today's youngsters with the kind of education which will qualify them to find and hold jobs. It would be a mistake, however, to let employers with their frequently narrow entry-level skill requirements or even parents with their sometimes unrealistic career expectations dictate the type of education which should be available in our schools. The educator and the employer must work together to determine the appropriate knowledge, skills, and attitudes which will qualify today's students for their life roles as employed adults and citizens.

While most of the research and development efforts in curriculum have been small and fragmented--that is, directed to the improvement of a particular subject matter area--recent pilot efforts of redesign of an entire curriculum are in evidence. A number have been focused on the problem of keeping young people in the system long enough for them to benefit from the experience. The most important feature that characterizes these efforts is the integration of two educational areas that are traditionally quite separate--the academic and the vocational.

In Richmond, California, for example, a major effort was made to integrate the vocational and general educational curricula. This was done by redesigning the content of traditionally taught subjects so that they related as much as possible to job training programs. Math was taught by means of job-related examples and problems. Communication skills were related to performance requirements on-the-jo

What were at one time judged to be potential dropouts in the tenth grade became, by their senior year in high school, candidates for technical training at nearby junior colleges.

Another effort in relating the verbal-skill-oriented high school's general education program to the interests of many students was carried out by an M.I.T. curriculum study group last summer under the leadership of Professor Nathaniel Frank. Working with a group of dropouts, they successfully managed to capture and hold the interest of youngsters who rejected the normal pattern of schooling. It was necessary to develop a free interchange among the different academic subject matters, bringing together various pieces of learning into a cohesive whole, in which the various areas are not fragmented but have an overall direction and purpose. By following this course of action, Mr. Frank and his group minimized the possibility of early failure as youngsters move from the relatively unstructured atmosphere of the elementary school into the more structured curriculum of the secondary school.

A recently appointed curriculum advisory group to the Bureau of Research in the U.S. Office of Education has also studied this problem and has recommended that an extensive redefinition of the total curriculum must be made to meet the needs of those students who neither go on to college nor graduate from high school with occupational skills.

Job Corps centers have provided an excellent opportunity for designing learner-centered programs independent of many of the traditional constraints. In trying to define what the end product of such a program should be, the poverty warriors determined that the "good guy" needs many of the things offered by the traditional school system and much more. He not only needs basic educational skills but he needs to know about the workings of our society and his role in it; he needs to develop a realistic and favorable self-concept; he needs several career strategies to be able to operate effectively in our free enterprise system; and he needs the personal development that will permit him to make socially adaptive responses.

It would be impossible to design an educational program for our public schools which would be responsive to these needs without radically overhauling the present system. Such a program should lead to options which will permit the maximum self-actualization of each individual. If a youngster leaves school before graduation, he should leave with useful tools. The student who graduates from the program should possess the necessary qualifications for maximum flexibility in his post-high school activities. He might enter a university or a community college and pursue an academic program. He might enter a community college or a technical school and receive post-high school occupational training. He should also have entry-level

occupational skills which permit him to go to work. He should have the additional option of continuing his education in an adult education program, if he chooses.

The key point is that he should be able to decide which option after high school graduation, not three or four years before!

The first step in building such a curriculum is to look at those behavioral requirements needed for entry into such a variety of post-high school activities. These behavioral requirements should be stated specifically and in measurable terms. Following the lead of the systems analyst, we should describe as precisely as possible the specifications of the desired end product. What are the ingredients of a high school program which will assure the attainment of these specifications? It will likely include academic as well as occupational training but may also include such components as personal development, real work experience, and post-high school placement functions. Even the vocational or school-sponsored recreation or social programs may be considered an integral component in this system. Each of these components and sub-parts must be defined in terms of its contribution to the attainment of the specified behavioral objectives. This permits empirical validation of the program leading to further refinements in the model.

The most important feature of such a curriculum is that it is learner rather than process of subject matter centered. The integration and interaction of the components will be a result of careful systems design. There will be no discrete demarcation between academic and vocational skill training or between these and other parts of the system. The curriculum must be developed so that each activity relates logically to all other activities and leads to the efficient attainment of the behavioral objectives.

A massive research effort is required to develop and validate this system and the feasibility of such an effort is presently being studied. The characteristics of this system should include the following:

(1) It will permit maximum flexibility of post-high school activity options.

(2) A learner may opt out of the system but he should not opt into a cul de sac within the system.

(3) It will utilize appropriate self-paced and self-instructional technology and maximally accommodate individual differences in learning rates.

(4) It will allow each student to succeed in his learning experiences.

(5) It will be interesting, challenging and intrinsically motivating to each student.

(6) It should be capable of implementation in or adaptable to many different school systems.

(7) It will lead efficiently and effectively to the attainment of specific behavioral objectives.

(8) It should be, in the implementation stages, cost effective.

While content and structure are difficult to state meaningful without a great deal more specificity, the following is an attempt to state several objectives of such a curriculum. The new curriculum should:

(1) Emphasize the articulation between academic and vocational learning for the purpose of fusing the two programs. Employing vocational preparation as the principal vehicle, the inculcation of basic learning skills could be made more palatable to many students who otherwise have difficulty seeing the value of a general education.

(2) Expose the student to an understanding of the "real world" through a series of experiences which capitalize on the universal desire of youth to investigate for himself. Abstract, verbal principles would be acquired through nonverbal stimuli, such as seeing, feeling, manipulating, and even smelling.

(3) Develop a core of "generalizable" skills related to a cluster of occupations rather than just those related to one specialized occupation.

(4) Orient students to the attitudes and habits which go with successful job performance.

(5) Provide a background for the prospective worker by helping him to understand how he fits within the economic and civic institutions of our country.

(6) Make students aware that learning is life-oriented and need not, indeed must not, stop with his exit from formal education.

(7) Help students cope with a changing labor market through developing their problem-solving ability and career strategies which can lead to an adequate level of income and responsibility.

(8) Create within the student a sense of self-reliance and awareness which leads him to seek out appropriate careers with realistic aspiration levels.

Before such an organic curriculum can become operational, a number of unknowns must be resolved by research.

The problems of logistics alone are large and complex. How do you control the flow of students through the program without inhibiting individualized learning? Is it possible that courses as we know them will lose their identity as the optimum mosaic of learning experiences evolves? Without "Carnegie units" how can school accreditation be preserved? What problems in retraining of teachers are likely to occur? As the roles of teachers change, will the emerging roles be acceptable to teachers? Would this system work better in a 48-week time cycle than the present 36-week cycle? In what ways does the guidance activity have to develop in order to serve the system objectives? How much of traditional instructional media will "fit" and what will be the nature of required new media? What are the problems involved in cataloging the specific behavioral objectives of an entire curriculum, especially one as ambitious as this. What are the difficulties in trying to appropriately fuse academic and vocational skill training?

These and many other fundamental questions must be answered before we reach the "Kittyhawk" phase of what could be the moonshot for general education. Several projects addressed to these problems are already underway and others will soon be undertaken.

An example of a relevant research activity which is in the planning stages is a project which will involve the design and validation of a multi-media teaching model. This model might comprise one instructional sub-system of the organic curriculum.

The first step in the design of this model is the development of the course content (which is as far as many past curriculum redesign efforts have gone). Following this, all the behavioral objectives that are associated with the course content will be specified. Using the sequences of behavioral objectives, instructional strategies will be designed. These strategies will involve the

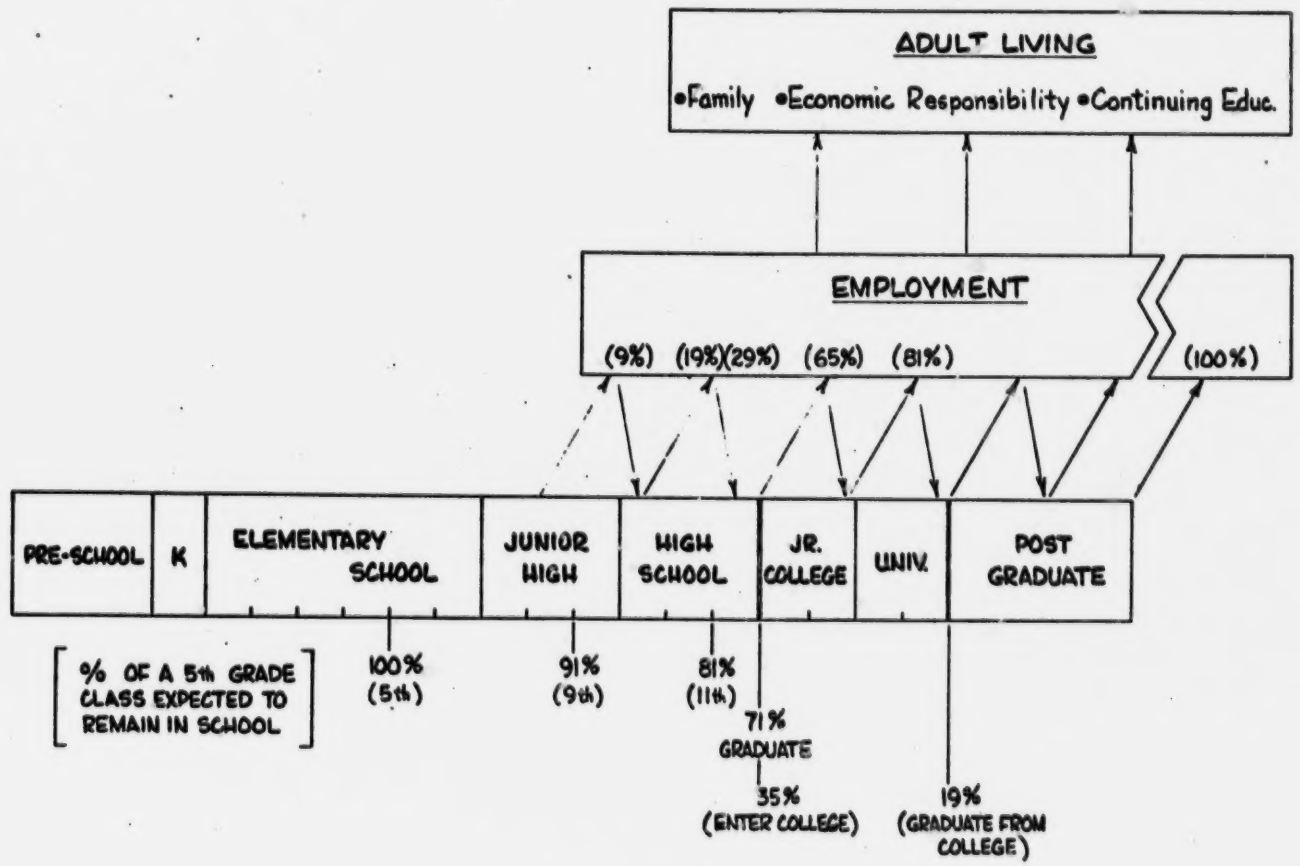
selection or design of modular instructional activities which will use whatever media or method or combination of these that appears to be most appropriate for the attainment of the objectives. The method/media mix for any given sequence of objectives might include programmed instruction, single concept films, text readings, tutorial sessions, group discussions, computer-assisted instruction, slide-tape presentations, etc. The optimum mix of learning experiences will be developed by systematically varying the method/media permutations and testing for their teaching effectiveness.

This validation of the learning experiences will require sensitive and sophisticated instruments for frequent measurement of behavioral objective attainment. Implicit in this system is that the student only learns what he doesn't already know and that he will move as rapidly as his ability and motivation will permit.

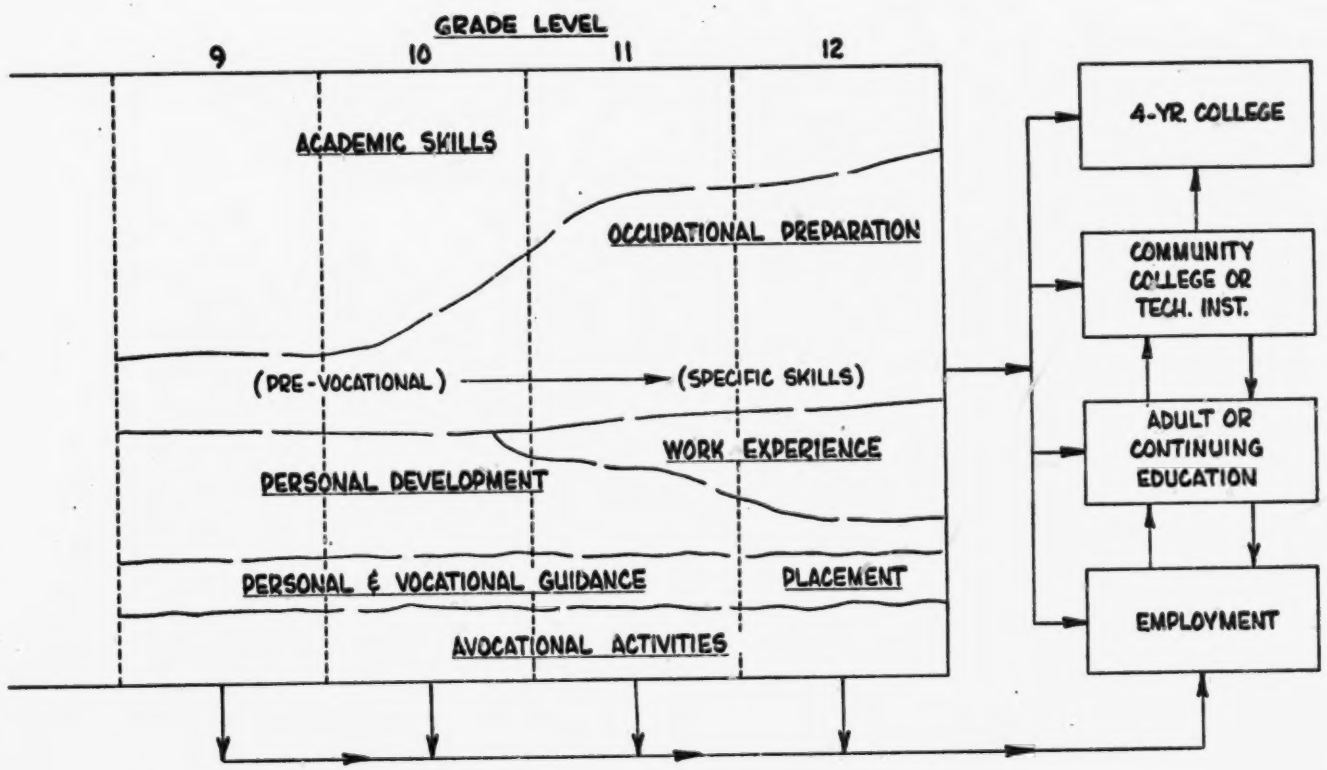
The behavioral objectives and information about what method/media combinations are most appropriate for teaching them, to what kinds of students, are then stored in a computer. When the student enrolls in the course, he is measured in terms of his entry performance on a representative sample of the behavioral objectives and this information is fed into the computer. The computer then looks at the characteristics of the student and how much he already knows and prescribes an empirically validated learning package for him. When this package is completed, the learner will be retested and the next learning package will be prescribed.

This will be "programmed instruction" in the broadest and most desirable sense. The student will have almost immediate knowledge of results, will work at his own rate and have a high proporation of success experience in the learning situation. It is likely that much of the material in this system will be self-instructional.

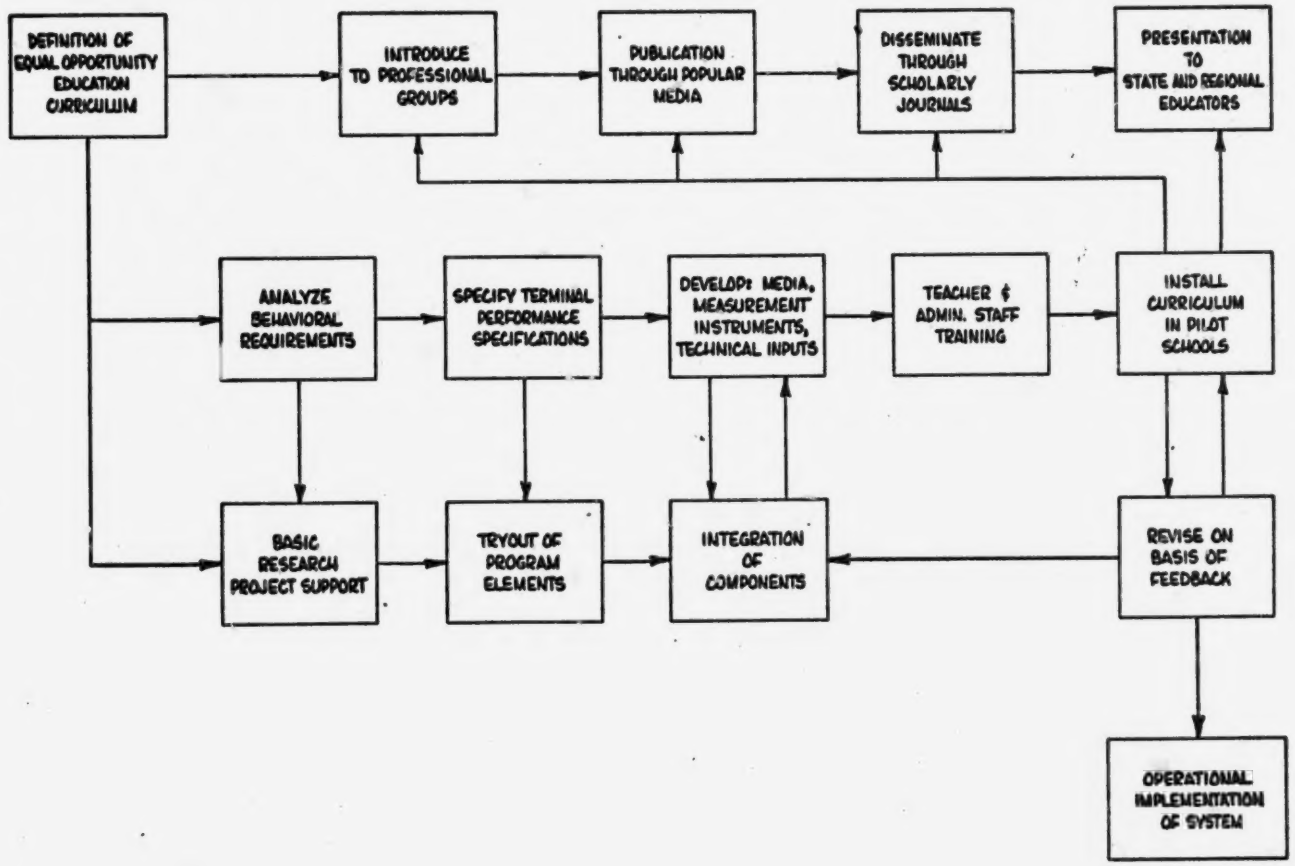
While this experiment involves only single courses, the model should prove equally effective with an entire curriculum. The utility of such an instructional system in the curriculum that has been described should be clear. Indeed, the curriculum visualized probably could not work without such a flexible and individualized instructional program.


ADULT LIVING
•Family •Economic Responsibility •Continuing Educ.
EMPLOYMENT
(9%) (19%)(29%) (65%) (81%)
(100%)
PRE-SCHOOL
K
ELEMENTARY SCHOOL
JUNIOR HIGH
HIGH SCHOOL
JR. COLLEGE
UNIV.
POST GRADUATE
% OF A 5th GRADE CLASS EXPECTED TO REMAIN IN SCHOOL
100% (5th)
91% (9th)
81% (11th)
71% GRADUATE
35% (ENTER COLLEGE)
19% (GRADUATE FROM COLLEGE)

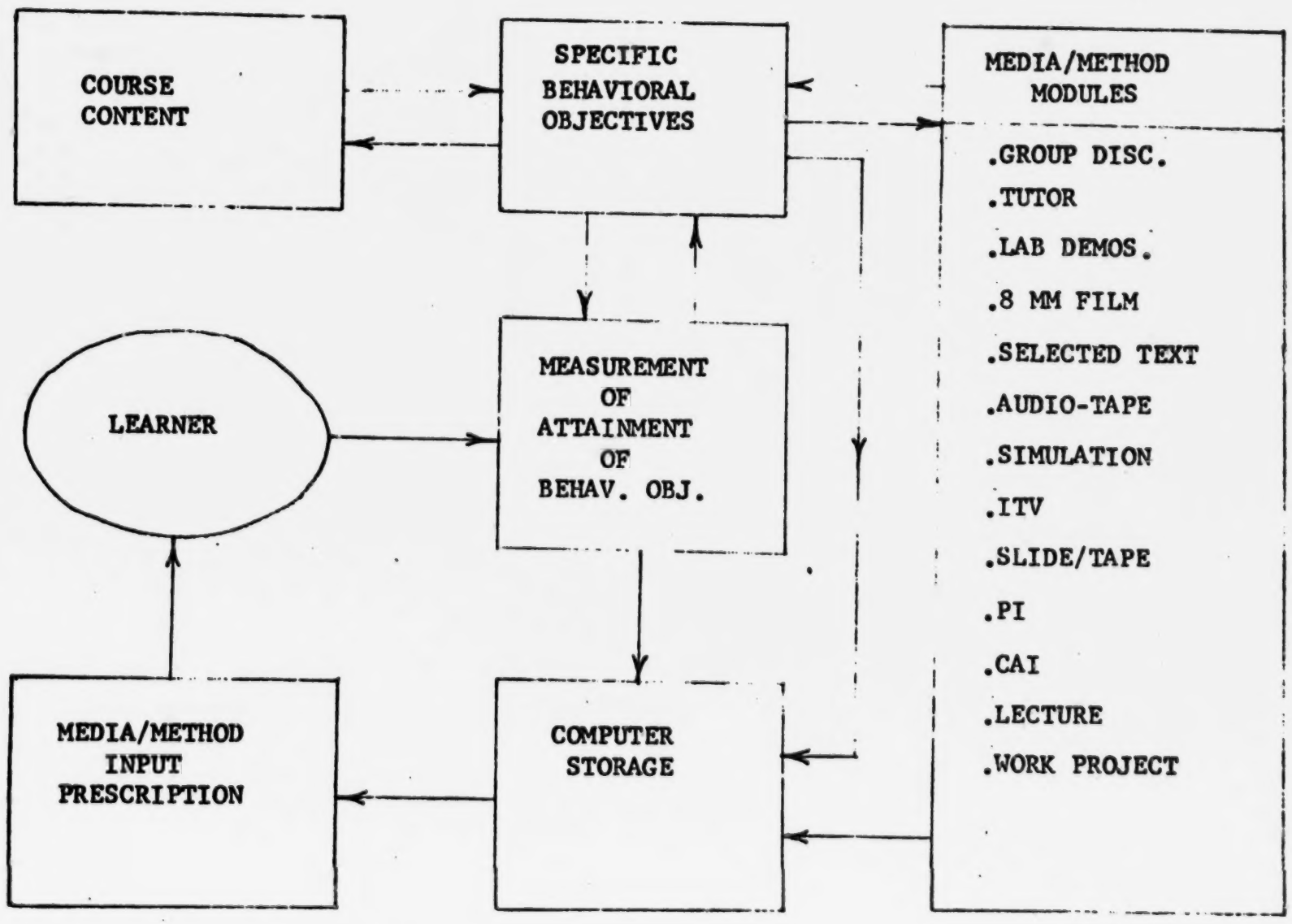
55


GRADE LEVEL
9
10
11
12
ACADEMIC SKILLS
OCCUPATIONAL PREPARATION
(PRE-VOCATIONAL)
(SPECIFIC SKILLS)
WORK EXPERIENCE
PERSONAL DEVELOPMENT
PERSONAL & VOCATIONAL GUIDANCE
PLACEMENT
AVOCATIONAL ACTIVITIES
4-YR. COLLEGE
COMMUNITY COLLEGE OR TECH. INST.
ADULT OR CONTINUING EDUCATION
EMPLOYMENT

• FUNCTIONAL FLOW OF CURRICULUM DEFINITION, DESIGN, PRODUCTION & VALIDATION



MODEL FOR A SINGLE COURSE INSTRUCTIONAL SYSTEM



CHAIRMAN: Now it gives me pleasure to present Mr. Thaine McCormick who will introduce the next phase of our program.

Curriculum Material Resources to Improve Program Quality

THAINE D. McCORMICK: It is my privilege to present members of the symposium.

First to appear will be John Matthews, who is professor and head of the Vocational Agricultural Service Division of the University of Illinois in the College of Agriculture.

Second, will be Jerome Levendowski, a Distributive Education teacher in background, coordinator, researcher, teacher educator, presently on educational leave to the University of Idaho.

Next: Anthony Bevacqua who comes to you with a background of teaching extension adult work and high school vocational education work.

Fourth, F. J. Konecny. He is a Texan, an educator, a vocational educator.

Fifth, Mrs. Celianna I. Wilson of the Ohio Research Center.

JOHN W. MATTHEWS, Urbana, Illinois: Vocational Agriculture Service is a Division of the College of Agriculture at the University of Illinois, and we have been given the following primary responsibilities:

First, to prepare and distribute subject matter teaching aids in agriculture to the teachers of Vocational Agriculture. These consist of printed materials of various kinds: Audio visual aids, slide films, overhead projection materials, tape recordings, loan kits of laboratory materials--we have quite a number of these at the present time--electrical wiring kits, electric motors, electrical controls, and surveying, concrete, and engine analysis kits.

Our second important charge is to help teachers keep up to date in this rapidly changing world of agriculture. We use two important means of working towards this end: The first we call "Agricultural Releases." This is a series of monthly packets of new materials on agriculture that gathered primarily from college bulletins circulars, monographs, conference proceedings, research results, anything that we can get our hands on that is sent out on a subscription basis.

Then there are in-service non-credit courses for teachers. Last year, for example, we conducted forty-seven such courses out in the State of Illinois, with a total teacher contact of 633 individuals.

We serve as a liaison between the teachers of vocational agriculture and the college. Here are a few specific things that we do in this regard: We may obtain answers to specific teacher problems; we help obtain speakers or consultants for adult class work; and, we work to facilitate the distribution of college publications in quantities for classroom use.

Our service was established back in 1938, so we are almost thirty years old. The staff has grown from one man to five permanent staff members, three half-time graduate assistants, two non-academic men, two full-time secretaries, four part-time secretaries, and an average of about ten student employees. The latter are all trainees in the teacher education curriculum in vocational agriculture.

We are set up administratively responsible to the Associate Dean of Agriculture in charge of resident instruction.

Our permanent staff members are all former teachers of vocational agriculture with an average of ten years' high school experience. All are qualified as teacher educators. Each man has a subject matter area of specialization and responsibility. We have one man in agricultural economics; one in agricultural mechanics; one in animal and dairy science; and one in plant and soil science. Then we pick up some of the other areas, entomology, plant pathology, and so on.

We are officed in the main building of the College of Agriculture, and have in addition a 50' x 100' building for our operations center that is located out on the fringe area. Here we do our printing, storing, shipping, photographic development, and servicing of loan kits. We list and stock approximately 500 different items, all for sale to schools.

We keep as many of the operations as possible under our own control. For example, our men write the material, we type it in justified form with special equipment, we make our own plates, have our own offset printing machinery, we fold, assemble, staple, punch, trim, package, and ship. We do our own billing, collecting, and accounting.

Our budget comes from two sources: From appropriated funds and from a revolving account. Our current annual budget from College appropriation for permanent staff salaries and office

operating expense is $77,000. I will give you these figures just in round numbers. Additional payroll from our Revolving Account is $25,000. Total sales last year, which went into the Revolving Account, were approximately $69,000. Total operating cost paid out of this same Revolving Account, $66,000. So we operate essentially on a non-profit basis, considerably below that if you consider the staff salaries.

Our assets as of last July, including building inventory, equipment inventory, salable items inventory, cash balance, and accounts receivable, were $127,000.

A breakdown of our sales distribution last year showed approximately three-fourths of our materials went to Illinois, and this came to just over $100 per Department of Vocational Agriculture in the State. The other one-fourth went to thirty-five States and four foreign countries.

We try to be sensitive to the needs as expressed by teachers and teacher educators, supervisors, and others, and then do our best to meet these needs.

The following points are important in setting up and operating a curriculum materials service:

1. Secure good people with successful teaching experience and an interest in, and some flare for, producing materials. Select teachers trained in materials development.

2. Cultivate the interest, cooperation, and as much financial support as possible from your parent institution or organization.

3. Keep as much control as possible over the various phases of production and distribution. This permits you to provide prompt service. Our policy is to ship orders the same day they are received, or no later than the following day.

4. Maintain the greatest possible degree of autonomy and control over your funds. This is best handled through a revolving account into which you deposit all returns and from which you are free--and underline that word "free"--to authorize expenditures.

5. Maintain a strict fiscal responsibility and a flawless accounting system. This can't be stressed too strongly. Try to keep this system better and easier to audit than most systems in your institution.

6. Finally, provide for regular feedback and suggestions from an advisory committee of teachers and from regular consultation with teacher educators, State staff, and other qualified individuals.

JEROME C. LEVENDOWSKI, Sacramento, California: One point basic to curriculum development and the development of instructional materials is pretty well identified by a quotation by Albert Einstein: "Imagination is more important than knowledge."

I would like to contrast within our Vocational Education Section the differences between two Bureaus in their operation. In the first one I will explain how we provide instructional materials in the Bureau of Business Education for Distributive Education teachers, and then I will explain how the Bureau of Industrial Education provides materials for its apprenticeship training programs. You will see some of the principles are the same but our procedures, even within the same section, are quite different.

First, we find that we must have a budget. It is important that this budget is defined because it sets some limitations or it sets the framework in which we can work. Therefore, we need a commitment. How much money will we have to work with in the coming year?

Second is the identification of needs, and maybe the identification of needs might come before the budget. But, where and how do you identify these needs:

1. Consulting with Advisory Committees
2. Talking to teachers in some of our regional meetings
3. Communicating with Regional Supervisors who have good rapport with the school districts.

Next is the selection of an individual or a group to work on these projects or on a publication. Frankly, this is one of our most difficult problems. It was pointed out here in one of the previous sessions that we don't have enough people at the teacher level with competencies to work on the development of instructional materials. There is a real need for us to do some work in this particular area. One of our most difficult challenges is the selection of competent personnel. They may have a very good technical background, they know the subject matter well, but they may have difficulty in preparing materials.

We have a separate Bureau within our State Department of Education which we do not control. The materials produced are submitted to this particular Bureau for editing and publication. To be very frank, sometimes it takes a little time to get some of these materials out.

Mr. VanWagen in our State has done an excellent job in providing leadership in the development of materials. They are available free to our teachers within the State and we do, on a limited exchange basis, distribute materials to other teacher education institutions and to other State Supervisors. Basically, our materials are not for sale.

We also have within our State approximately twenty-five curriculum laboratories to which we send these materials. These laboratories have been established in some of the libraries in State colleges. Students may go right to the State college and pick up these materials.

Let us contrast that operation with the operation of the Bureau of Industrial Education. The Bureau of Industrial Education has one full-time person who is primarily responsible for the development of apprenticeship materials. They have a full-time person and we don't. This person works with the California Joint Apprenticeship Committee. We work with advisory committees and so does he. In some discussions with him, I found he has some of the same problems. How do you identify contractors? How do you get trained people? How do you locate staff to prepare materials?

The materials from the Bureau of Industrial Education are available for sale; and these materials are listed in one of the U.S. Office of Education publications handed to you in your packet.

There are really basically four stages in curriculum or instructional materials development:

1. The design, and this is where you need curriculum consultants to help;

2. The evaluation and field testing. Many times we are a little negligent here because we don't field test the materials; we want to get them out right away;

3. The dissemination. We do a fair job of disseminating our materials in our State.

4. Implementation. Often teachers to whom I have sent materials say "Gee, I don't think I have those," or "I am sure they are on the shelves," but they haven't looked at them.

In this process of implementation there is a need for in-service teacher education to make these people feel secure in the use of new material. All of us are pretty rigid in our thinking and we resist new ideas and changes.

ANTHONY J. BEVACQUA, Raleigh, North Carolina: There is little variation in the techniques and procedures used in the development of material. These techniques have been given to you by a number of resource people during this meeting. They are time-tested. They are sound. They are good. They are functional.

We have two Departments in North Carolina: The Department of Public Instruction and a separate Department of Community Colleges. Both operate under the auspices and policy-making decisions of one State Board of Education. The Department of Public Instruction deals primarily with secondary vocational programs; the Department of Community Colleges picks up program development and supervision of vocational education and occupational training which takes place in our post-high school institutions. The junior colleges and the colleges of higher learning function under the auspices of a State Board of Higher Education.

Administratively, the curriculum laboratory staff answers to the Director of Community Colleges. The policy-making Board is the same Board that functions in the high school programs and post-secondary. Their premise is this: We will not do something in this Department at the expense of existing departments. It is good to have one State Board of Education that supports occupational education. You are always fighting for the almighty dollar, and with one Board to convince, half the task is already accomplished.

The responsibility assigned to the Laboratory is the development of material for the post-secondary school system. We have devoted a large portion of our time and financial support to this area because of the need. The material needed for the operation of these institutions was tremendous; consequently, the State Board said, "Work on this! However, do not neglect the secondary school system and their vocational materials needs." This is the nature of our operation at present. The bulk of our staff time, the bulk of our resources, are now going into the post-secondary school system.

The first allocation of money was almost insignificant. I think it amounted to about $35,000. This money was to be used for the employment of one man, a coordinator. They threw into the pot some consultant money, some money that could be utilized to purchase instructional materials from other states, and undergirded all of it with some minimum clerical assistance. This is where we began six years ago, an innovation of the State Board of Education.

We presently have a staff consisting of a Coordinator and a Coordinator of Program Development. These are different people: One Coordinator supervises and administers the whole operation while the program development person looks after the fine points of instructional materials development.

Supporting these people is a program development staff in all services: Technical education, trade and industrial, agriculture, health occupations, you name them, we've got them. We also have a mathematics and science person to support these people. Basically, this is our program development staff.

We augment this staff with consultants and part-time people who are brought in when needed. When the task is completed we release these consultants and pick up others.

To support the staff we have adequate clerical help. We also have an Audio-Visual Section. On this staff is a media resource specialist, a commercial artist, and an artist draftsmen. The latter is a subprofessional person. We have a technical-clerk, and being good vocational people, we employ a cooperative program student. This is our audio visual group.

This group produces the visual materials necessary to suppor course development. These people meet with all committees. They are immediately available to conduct seminars and workshops in the develop ment and utilization of visual aids for local staff and State staff personnel.

We also have on our staff a full-time editor. This editor functions in a dual role: First, he edits instructional materials or course materials; and secondly, he produces a quarterly magazine which we call "The Open Door." This publication goes to all school superintendents, principals, advisory committee members, college presidents, industrialists, and members of the General Assembly. Apparently they have been reading it because we have some nice comments from assemblymen. The publication helps in recruitment and it provides a source of current information.

We operate on our own budget. It is prepared and administer by us. We work on a line item basis and the system is sufficiently flexible to move money from one item to another. All this is done in the curriculum laboratory; we don't have to go through anybody.

We have been pleased with our efforts in the development of the laboratory. We have a very competent staff that is flexible in its thinking and broad enough to do the job. They are dedicated to meeting instructional materials needs of North Carolina.

FRANK J. KONECNY, Waco, Texas: What is the value of these curriculum materials to the administration? How does this effort improve the quality of programs? Well, certainly it provides a guide for certain decisions that have to be made: Whether or not to offer a particular program or curriculum, the time required, the equipment, the space, the facilities, the kind of teachers and teacher

competencies that you need, the number of teachers, budget, and the selection of a consulting committee to guide the program. This gives you some idea of what kinds of people you ought to have, or you ought to invite, to assist you. And it provides certain educational specifications that your architect will have to have before he can begin to develop the needed facilities. It will have value to the supervisor and to the teacher trainer to guide in the preparation of the teachers who are to implement this curriculum, or these curricula. A curriculum guide will provide advance information about the skills to be taught, the techniques to be employed, the methods and the resources that will be needed, schedules to be prepared. It will provide a measure of support for that teacher who may be a little bit shaky in certain areas and it will give him some direction.

What about the values of these materials to the teacher? Well, certainly they define the goals that are desired. A curriculum guide provides direction for handling areas that may not be within the teachers' immediate experiences. It eliminates the common frustrations that a new teacher has when he begins to develop course content, courses of study, the priority of certain topics, the timing, and this sort of thing. If you have ever been a teacher-trainer and you have had the problem of trying to decide, define, or explain to a new teacher, particularly people from the occupational areas, "What is a job? What is a unit? What is a block?" you know that this is frustrating. If you have some guides, this helps the teacher to get settled down and go to work. They save time that can be devoted to other activities important in the teaching process. I am referring specifically to counseling, working with individual students, and preventing important content omissions.

How are these curriculum materials produced?

Basically in our State it is an outgrowth of certain identifiable needs. For example, the benefits to the new teacher. Here is a person who today is working, tomorrow he is teaching. I am referring more or less to the trade, vocational, or technical areas. However, this would be applicable to new teachers who come from four-year institution programs as well.

We need these curriculum materials to promote new programs--programs that are needed. Someone has to explain, "What are you going to teach, how much is it going to cost, where do you go from here, and this sort of thing." We need these new materials or these curriculum materials to delineate the scope and the content of short courses which ought to be of ever-increasing importance in our work as we move into this continuing education program. In our State this is a

function of the staff of the State Board for Vocational Education. They label it "ancillary services," and delegate it to other people in other institutions or other agencies. The service is implemented in various ways. Some of it is delegated to teacher training institutions, to departments; some of the staff in the State Department carry on certain activities; some of it is local effort, which is converted to statewide effort by picking up the product and moving it into a distribution center.

Eventually, you have to have this material brought to the teacher. The teacher must be instructed in how to use it, and perhaps supervised while doing some phases of teaching using it.

MRS. C. WILSON, Columbus: All of you have received copies of the purple brochure which tells you about Central ERIC and the other brochure about the ERIC Clearinghouse for Vocational and Technical Education. This will give you a little background information.

We are all aware of the fact that there has been a tremendous increase in the amount of printed information that is now being produced and is available. This has come about for a number of reasons. One of the most important factors has been the technical advances in printing and in reproduction. As you know, there has been a great deal of use of offset printing and electrostatic reproduction.

A second factor has been the tremendous increase and interest in and need for research and development activities, with the result that many of the world's best minds are now working on research problems in the physical sciences, the biological sciences, the social sciences, and the field of education. The results of the efforts of the scientists and researchers are easily reproduced. Thus, we have tons and tons of paper to deal with.

This has brought about a need to organize all of this information and recorded paper. We must organize it in a manner that will lead the user to the particular report or item that he needs. As a result, many services are springing up across the country to serve the various kinds of needs in the information field. One kind is the abstracting service. I believe that we are all aware of chemical abstracts, sociological abstracts, and psychological abstracts. It has been found that reading an informative abstract is one of the most effective methods of saving time and enabling a reader to extend the coverage of recorded information. If you have one hundred articles to read, we find that you would prefer reading one hundred abstracts, or assigning one hundred abstracts perhaps to students and from this selecting maybe ten or twenty or maybe five articles that you want to read in full.

Or perhaps this is a curriculum guide. If you were presented with one hundred curriculum guides, do you want to read all of these? Would you prefer having an abstract about the hundred curriculum guides and from the abstract then decide which curriculum guide you would like to read in full?

The U.S. Office of Education is now establishing an abstract publication. This is called "Research in Education" and the first issue began with a November issue. An annual subscription may be obtained through the Government Printing Office for $11.00 per year. This first issue has only 44 abstracts, a final report, and 111 abstracts of current projects which are funded through the U.S. Office of Education, Bureau of Research. However, in the next few months, in the year 1967, the twelve clearinghouses funded by the Office of Education will begin to feed in abstracts of materials in their respective subject areas. The names of these clearinghouses and the subject areas covered by each clearinghouse are listed in the purple brochure. If you will look in your purple brochure you will find the names of these clearinghouses and their subject areas.

This new publication will become an increasingly important timesaver for each one of you as it brings information together from many facets of the education field. It has indexes, authors, subjects, contracts; in fact, there are five indexes to each section. One section is set up by E.D. number; this is the ERIC document number. The other section is set up by ERIC project number. They have even color-coded it to help you.

After you have examined the abstracts in this bulletin you may find there are several items which you wish to read. You will then be able to order a reproduction of this material from Bell & Howell in Cleveland, Ohio, using the ERIC document number, either on microfiche at nine cents a sheet or as hard copy at four cents a page. The microfiche is a very easily filed kind of fiche. It has the ERIC document number, the author, the corporate body involved, and the title. It could be filed in a number of ways, depending upon your particular group, but it is findable by the ERIC document number.

If a document can be reproduced in full, which would mean about 50 to 60 sheets, you could actually buy the full document for nine cents on this sheet. There are also trailer fiche which contain the remaining pages of a longer document. So this can be ordered from Bell & Howell in Cleveland. These are actually available right now. In other words, if you had a copy of this publication and decided you wanted to see a microfiche of items that are in here, you could write to Bell & Howell today to get this. I should mention that in writing to Bell & Howell it would be a good idea to get their order blanks because it is necessary to order by E.D. number. It

would not be possible to write to Bell & Howell and say, "What do you have in the way of curriculum materials on a particular substantive area of interest?" They would not be able to answer this question. There are other ways which ERIC will get at answering this kind of question.

A teacher, an administrator, a researcher should be able to have his own personal library in his desk drawer with a small reader on his desk. Bell & Howell is working on a small reader that will be portable. You will be able to carry it on a plane with you and read these, if you wish. You will also be able to project the microfiche onto a screen in a classroom. This should be available very shortly.

I would also like to comment on the name which you see here and on the ERIC name: Educational Research Information Center. There has been perhaps some misunderstanding, naturally, using the term "research," that many people feel only research items will be listed in this publication. But if you had read the fine print that was originally issued by the ERIC office, it stated that the publication or the activities of the ERIC office would include research documents and research related. It is very interesting to try to find an interpretation of what "research related" is, but I find that it includes many kinds of materials. So this will give the full panorama for educators and researchers to get at important materials, not just the strictly research items but there will be research related materials.

The Clearinghouse for Vocational and Technical Education is the agency for bringing together materials on vocational and technical education. It is responsible for abstracting, indexing, and disseminating these materials. You will notice in the brochure that was distributed to you that there is a list of the kinds of materials being acquired for input into the system. This list, along with many other aspects of the local clearinghouse program, came about as the result of efforts of several advisory groups, and these were ad hoc advisory groups, and the Center's National Advisory Committee which meets twice a year.

These groups represented an extensive cross-section of the vocational and technical education profession. On this list you will find curriculum materials.

The first function of the clearinghouse in regard to curriculum materials or any other materials is to collect and bring together these materials in a central location. We can then establish

guidelines for identification of items to be abstracted, and guidelines for information to be included in the abstract. However, it is not the function of the clearinghouse to determine the value or the usefulness of these materials. I would like to emphasize that statement: It is not the function of the clearinghouse to determine the value of these materials. The value or usefulness of curriculum materials can only be determined by recognized competent professional members of vocational and technical education through use and/or periodic review.

The ERIC Clearinghouse for Vocational and Technical Education does not want to become known as the agency for placing the Good Housekeeping seal of approval upon any of the material that it abstracts.

In conclusion, the ERIC system has initiated an abstracting service for the field of education. For those who want to see a complete copy of an abstracted item, the medium of microfiche at nine cents a sheet is provided, or hard copy at four cents a page.

Now it should be noted that a teacher guide, consisting of 200 pages which might sell for $3.00 or $4.00 at a curriculum lab, or might be distributed free, would cost $8.00 for a hard copy through the ERIC system. Therefore, those who want multiple copies will still need to obtain them through the curriculum lab or a State agency. We are not in the printing business.

In regard to the activities of a group such as the one meeting here this week, the ERIC system will be able to provide titles and abstracts of curriculum materials which have been developed by many different groups. This should be of assistance in determining what has been developed and where additional activity in the development of materials is needed. We want to provide a system that will be helpful to you and will give you time to do the activities that many of the people are speaking about here. We hope to be a timesaving device for you.

CHAIRMAN: This concludes our morning session.

THURSDAY AFTERNOON SESSION

January 19, 1967

CHAIRMAN ANN DONOVAN: First, we are to have the Distributive Education group discussion report.

JEROME LEVENDOWSKI: We had a very interesting committee of ten people representing seven States. Here are our reactions:

No. 1: We felt that really there are enough instructional materials on the market, in our State universities, at the State level, and in private publishing houses to do a good job of instruction in our field. However, we don't know where they are, and we don't know how we can get them. We feel we are not fully aware of our potential in terms of the instructional resources available to us at the State teacher education institutions.

No. 2: Most States and teacher education institutions do prepare instructional materials. However, because of the lack of funds, they are unable to disseminate these materials on a broad base to the fifty States and to the teacher education institutions. Again pointing out, the materials are there, but we have a problem in financing. How do we get it out to the other agencies?

No. 3: We need to examine the possibility of more standardization in our curricula, because we recognize the mobility of the population. We felt there should be at least an examination to determine whether or not we could do something to standardize programs.

No. 4: There is a need for guidelines for the development of curricula from the high school into the post-secondary school levels.

No. 5: There is an urgent need for more information and materials to implement the "Project Plan" in distributive education.

We all agreed that there are two words in the English language that are quite similar but have different meanings--"adopt" and "adapt." Many times our teachers confuse these terms, and sometimes we don't recognize the differences immediately, either. In the distribution of materials to the State it is not meant that these are offered for adoption purposes; it means to examine and adapt. You select the best and implement.

Suggestions:

1. We suggest that the regional offices serve as a clearing house for the materials prepared by the States and teacher education institutions. Each of the regions have standing committees in the occupational areas. Therefore, these committees could help the regional offices to acquire available materials.

2. Money should be made available for personnel to continue their education, to develop the necessary competencies needed in curricula development, and to prepare instructional materials. This approach has been used quite successfully in the area of mathematics and science through NDEA funds.

One of our speakers mentioned that many of our people do not have the competencies to do a good job. Let's give them an opportunity. We can identify promising teachers and provide them with the funds to go back to school to give us a base from which to work.

3. Regional and national seminars should be conducted for State personnel and teacher educators in curricula development.

4. Efforts should be made to cut down on the red tape in the submission of materials by the contractor and the printing and distribution of these materials to the States.

5. A publication should be developed which would provide a current list of materials available from the States and various publishing houses.

6. A representative advisory committee should be formed to examine and develop a body of knowledge for course content so we can better articulate programs of secondary and post-secondary schools.

7. A representative for distributive education from the U.S. Office of Education needs to be present at future national clinics so that he can not only hear our words, but some of our emotions in our meetings.

We need the three C's of curriculum development; we need Cooperation, Coordination, and Communication.

CHAIRMAN: Now for curriculum development in Office Occupations.

ROBERT BALTHASER: Basically, we agree there is a need for a consulting committee. We think a representative from each service from each State within a region should be appointed to a committee establishing needs for national curriculum materials. These representatives would meet annually at the regional conferences. One office education representative will always be included in the U.S. Office Committee. State Directors and R.C. Unit members should be on this committee. Selection will be rotated on a predetermined basis as organized.

The second discussion field was national publicity and the idea of a listing service of marketed items, not the free or limited editions available around the State, but those available to schools and interested personnel.

We believe that States developing material should send copies to all other States, to the U.S. Office of Education, and to ERIC, and that a subscription list should be made available for distribution. This catalogue would be in such form that it would be updated on a monthly basis, or no longer than a quarterly basis, with deletions and additions. Complete revision should be scheduled for a minimum of five years, or concurrent with the evaluation schedule.

Communication of information should be as free as possible to the U.S. Office, the State and the local schools. Flow of materials from the local schools, however, should be centered in the authority of the States.

The regional offices of the U.S. Office should act as a facilitating agency in the compilation of materials and give assistance to the schools and the States in this flow.

Each State should identify a liaison person on curriculum materials between that State and the Office of Education. This may involve an individual employed full-time or part-time on the regular staff, or on a teacher education staff.

To provide a complete curricular development it is proposed that assignments for specific development be made to reduce omission of guides and materials. These assignments may be to existing State laboratories to separate contractors, or to private agencies, as is now being done.

It is expected that there will be some duplication of effort in curricular materials development, due to the unique problems of certain areas, such as dual language areas on the perimeter of our country.

The U.S. Office should report all curricular materials developed, but not necessarily make distribution, leaving this to the States for implementation. Each State should make a study of existing materials before embarking on a complete project proposal of curriculum materials.

We have not adapted our teacher education program in office occupations to the emerging occupations, nor have we provided teachers to work with students who deviate significantly from the norm. So we think materials need to be developed to assist teacher educators of office occupations teachers to meet the new vocational program needs.

A trend set in two or three years ago elevating our content to the "management" level. This has reached a point where our teachers now do not know what they are teaching. Consequently, I visualize our taking a stand on what you think a teacher should be able to teach. This should be done by this group, and not let the regions structure your teachers right out of programs.

CHAIRMAN: The Home Economics report is next.

JULIA DALRYMPLE: The report for Home Economics is specific. It was prepared by members of the group and Mrs. Carolyn Brown the recorder.

Discussion related to the development of curriculum materials resulted in six recommendations to the Division of Vocational and Technical Education.

Recommendations:

1. That encouragement be provided at the national level for an interdisciplinary approach to the development of appropriate curriculum materials for vocational education programs in such areas as human development and interpersonal relationships.

Support:

There are basic understandings and/or competencies in becoming a satisfactory person in the working force regardless of the curricular area of concentration for a specific occupation.

These learnings lend themselves to a team-teaching approach to total occupational preparation, thus duplication of effort is minimized.

Home economists could make a significant contribution to all services since these aspects are of specific concern, and have been, consistently, through the years.

2. That vocational curriculum personnel give attention to determining the personal qualities (attitudes, values, interpersonal relationships) required of satisfactory workers in particular occupations to be included in job descriptions.

Support--The importance of these factors in satisfactory performance of workers has been recognized by employers, consistently.

3. That an annual up-to-date listing of available curriculum materials in some form to be developed and distributed to all professional Home Economics Education regularly.

Support--A sharing of such materials would help to avoid duplication of effort, provide needed help for those who develop programs, and aid in unifying efforts to provide quality in programs.

4. That a home economist be appointed to the staff of the Program Services Branch of the Division of Vocational and Technical Education.

Support--As a member of the Vocational Education team a competent person could serve appropriate general functions, interdisciplinary functions, and as a knowledgeable resource person in regard to home economics curricular matters.

5. That national and/or regional institutes be conducted for the purpose of developing new and/or synthesizing existing curriculum materials in each of the home economics related occupational areas.

Support--The combining of the best ideas and the coordination of the best efforts from many curriculum resources into materials capable of adaptation to specific situations could be a means of strengthening programs.

6. That an attractive universally usable interpretative bulletin be produced that provides information related to home economics oriented occupations.

Support--Such information is not now available to guidance counselors and others who are expected to be knowledgeable in occupational counseling.

CHAIRMAN: May I remind you that yesterday the Trade and Industrial and Technical Education were broken into two separate discussion groups. Now the Trade and Industrial Education report.

ANTHONY J. BEVACQUA: We did separate T & I from the Technical for the purposes of this workshop. However, on the basis of a communication from Dr. Arnold to Mr. Ash, we regrouped at the beginning of the meeting. Mr. Ash presented a problem relative to the training possibilities of some 70,000 individuals in the electromechanical area. After hearing the problem as given by Mr. Ash, we separated into two groups.

The Problem: Dr. Arnold has been approached by one of the nations' leading industries. Their representative suggests that current regional and national employment surveys fail to identify the need for over 70,000 workers in the electromechanical area which will emerge in the next few years.

The question was asked of the group, "What is the reaction of persons involved in the development of trade and technical curricula to this need?"

The group responded to the challenge in a positive manner. It was suggested that vocational educators could help in providing trained personnel if answers to the following points could be furnished by the industry:

1. Will industry identify worker qualifications, recruit and place (employ) student trainees?

2. Will industry identify and describe competencies and the possible future of employment in the electromechanical field?

3. What is the role of vocational-technical education and the company in planning and financing facilities and equipment; in designing curriculum and instructional materials; in instructor recruitment and training?

4. Will clear direct channels of communication leading from the national, State and local levels and between educational administrators and industrial management be established and maintained?

CHAIRMAN: Our next report covers the Technical Education Workshop.

ROBERT KNOEBEL: The group of fifteen people represented ten States with a combination of approximately 475 years of experience.

The group covered three major areas, which are:

1. Curriculum materials development in the ten States varied from the very well organized to those still on the drawing board. Six States had curriculum laboratories and four did not. Generally, those States that had curriculum laboratories were used to up-date materials and continue to develop new materials. These curriculum laboratories varied in organization structures from independent agencies to sub-divisions of other agencies. Regardless of the structure, they performed basically the same function.

2. Suggestions developed for high school electromechanical training include:

a. The program should be broken down and developed in smaller areas where demands can be interpreted and where curriculum laboratories exist.

b. The program should be started in the high school.

c. The program could and should be started immediately.

d. Industry should share the responsibility of training teachers, administrators, supervisors, and in selling the needs of this curriculum to the public.

e. The regional offices should be a clearinghouse for national curriculum materials distribution and should be kept informed of national developments.

f. Industry should assist in providing facilities.

g. We should encourage maximum use of post-secondary resources for training personnel for this field.

h. Industry should define characteristics of desired employees; i.e., skills, knowledge, attitudes, and habits.

3. Suggestions for additional curriculum development:

a. Police technology

b. Welding technology.

c. Teacher and classroom techniques and innovations.

d. Introductory communications skills for adults.

e. Electromechanical training.

f. A revised and updated list of publications produced by the several States.

CHAIRMAN: Next, the Agriculture Workshop report.

JOHN W. MATTHEWS: The following is a summary of important information presented by the 23 representatives in the agricultural education group:

1. Seventeen States are producing curriculum materials.

2. Most States are working independently in agriculture, but three States are organized "across the board" in all vocational areas, or have plans to do so.

3. Several States reported involving teachers, other resource people, and commercial agencies in materials development.

4. A number of States are unable to charge for materials and are therefore, handicapped in making out-of-State distribution. Others are permitted to sell all their materials.

5. One State reported a novel means of financing through a State tax of $.05 per ton on feed and fertilizer used by farmers.

6. One State is using a common format for materials used in all vocational areas with success.

7. All expressed a keen interest in exchanging samples of materials.

8. One State reported good use being made of materials being produced by a professional agency.

The following recommendations were made by the group:

1. That a national consulting committee be established to assist the Curriculum Materials Section of the Division of Vocationa and Technical Education. This committee should include one person from agriculture, to be selected from the existing Professional Information Committee of the Agriculture Division of AVA.

2. Provision should be made for feedback from this committee to the States.

3. The U.S. Office should ask each Chief State Supervisor of Agriculture to name a contact man for his State.

4. Each contact man should send the title and a brief description of each new item to the U.S. Office as soon as it is approved for publication.

5. The U.S. Office should report this information in a newsletter to be sent monthly (or at some other regular interval) to all of the contact men in the several States.

6. An agricultural representative should be placed in all of the nine Regional Offices not now having such an individual, and these representatives should be asked to assist in coordinating the efforts in each region.

7. That opportunity be provided at each of the Regional Conferences for curriculum materials specialists to meet together, display their materials, and discuss their future plans to avoid unnecessary duplication of efforts.

It should be noted that a publication is already being produced annually by the Professional Information Committee of the Agricultural Division of AVA. It is entitled "A Description and Source Listing of Professional Information in Agricultural Education." This is a listing of new curriculum materials in agriculture available from the several States and is given national distribution.

Finally, we wish to commend the U.S. Office for organizing this National Curriculum Materials Clinic, for the excellent programs arranged, and for the opportunity to meet and discuss our common problems.

CHAIRMAN: The Health Occupations Workshop report follows.

VIVIAN CULVER: Problems currently faced in respective health occupations education responsibilities include:

1. Lack of communication and understanding between Area Vocational Schools and two year post-secondary institutions.

2. Lack of interest on the part of senior institutions in making it possible to allow transfer credit for other than regular college parallel courses. Indicated need for early and serious discourse between junior and senior institutions.

3. Evidence that some parent professional groups are not too charitable to the idea of having lesser trained personnel working in the field. Some would deny their existence; others would so circumscribe their tasks that the job holds little appeal and small satisfaction. One senses this resistance when seeking professional group guidance in the preparation of program materials.

4. The matter of State laws defining certain occupations and provide for licensure and minimum standards for conducting programs pointed up another boundary line to reckon with in defining supportive health personnel and the curricula to prepare them. By the same token, those health occupations without benefit of statutory control require the immediate need for guidelines to ensure consistency in sound curriculum planning patient, but persistent, effort must continue to be made by general educators to utilize related professional groups in curriculum planning efforts.

5. It was recognized that the production of instructional materials in and of itself is not sufficient to ensure effectiveness. It seems imperative that instructors be helped to understand the worth of such material and they come to realize such worth when they perceive how a piece of material serves in an effective teaching-learning process.

Suggestions concerning:

Premise I

1. Each region establish its own curriculum committee for health occupations education.

2. Each region have a curriculum laboratory.

3. Materials be parceled out to regions for national distribution.

4. Chairman of the Regional Curriculum Committee could serve on a national consulting committee.

5. Development of curriculum materials should be kept close to grass roots level.

6. The National Consulting Committee could disseminate information concerning area efforts and keep tabs on what is being produced where and the terms of availability. A news letter (or loose leaf) type communication sent to Regions could provide the information. Regions in turn, could take responsibility for informing members through channels which ensure the proper destination of such information and/or materials.

Premise II

The group would endorse the development of a list of publications (not necessarily in printed form) to include all vocational education rather than one for each service to avoid duplication of efforts.

Premise III

It was suggested that a curriculum specialist be on the staff of each regional office.

A searching effort be made to eliminate bottlenecks in the distribution of materials. The time involved in producing materials and in getting them to the people who need and can use them is a matter of great importance in this day of all-at-onceness in health occupations education.

CHAIRMAN: There was a group with similar interests that wished to get together, and did so last evening. They are now going to give us their report:

OPERATING LABORATORIES

Von H. Robertson

This was a group that got together last night because they were interested in further information about curriculum laboratories now in existence, what they are doing, and what they can do.

One thing we did was to state a number of things we were going to ask the U.S. Office to do for the curriculum laboratories.

The most important one has already been presented five or six times. That is to provide some means of disseminating current information about what is developed, what is now available, what is becoming available through contract, and what is on the boards being planned for development. The office now has that in about seven forms, and we won't need to ask that again.

The one thing I was asked to present to this body was the idea that this kind of meeting be conducted on an annual basis. That was already been presented several times, too. I was instructed to propose to this group, either in resolution form or by vote of commendation, that the U.S. Office be commended for this meeting and ask the Division to plan such a meeting annually hereafter where curriculum development people could get together, exchange ideas, and plan for future work.

CHAIRMAN: This afternoon our speaker is Mr. Lane C. Ash.

A Curriculum Development Program to Meet The Needs of The 1970's

Lane C. Ash

While we have been concerned pretty much here with meeting immediate needs, that is, developing materials in novel occupational areas so that we may get people to work promptly, I think soon we must get over this brush-fire operation and concern ourselves with a comprehensive program for the years ahead. We must reckon with the growth and development of all individuals, such as will enable them to find their place in society and become effective citizens, employable citizens. This means educational services truly for all persons of all ages in all communities of the State, as the law says. This, I think, is the important function of a total program of vocational education.

If I am to think that many years ahead to the '70s, it requires me to do a little forecasting. Once again I shall speak of change and I think we are in for a more rapidly accelerated rate of change.

Only last Tuesday did I tell you of a consortium of six technical institutes, cooperating with a large manufacturer of business machines with the aid of the Office of Education in developing a two year post-secondary electromechanical technician training program. That was Tuesday. At nine o'clock on Wednesday morning I learned that

the same corporation has decided its earlier estimates, made only two years ago, of need for this kind of technician were inadequate. When I said 70,000 in my presentation to you then, they now believe this is an underestimate. And further, they believe that the post-secondary schools of the nation are not going to produce the right kind of people in the proper number to keep this industry moving forward. They now ask if the secondary schools of the nation, the high schools, can cooperate with them in a particular kind of training program in grades eleven and twelve, or maybe starting in grade ten.

This is a practical example of the speed of change.

We surely will need to discover, and cause to be effected, new ways to get things done.

I suppose there will be by 1975 many new products on the market which are not yet even conceived, things not yet invented, or cures yet to be discovered.

This reminds me to ask if we have examined history sufficiently to discover guidelines in our work. Some years ago when in Cairo on a mission for the Foreign Service of the United States, in the home of foreign service personnel, there were gathered together some American architects and construction men. I have always remembered the remark of one of the architects who said: "Those Egyptians knew how to do things back before the birth of Christ that we have not yet discovered in engineering and architectural ways." What does history have to tell us as we grope for ways to cope with the changing conditions in this technological society?

More assumptions: There surely will be improved health of the nation, and we are vitally involved in this, as I said the other day.

There will be many more older persons. I think we have to discover in America appropriate ways to train older workers. The British are 'way ahead in this. This involves not only enrolling them in the schoolroom and imparting knowledge and skills and understandings but it involves an understanding of the older worker as a human being, how he functions, his motivations, his reactions, his capabilities. How do you select from among a group those who, if trained, can perform successfully when placed on a given occupation? We have much to learn because older workers, among others whom I shall cite, are going to be required to man the productive enterprise of this great nation if we are to maintain our leadership among countries of the world. Given an enormous increase in population, I suspect that more and better trained working hands of all ages, representing all kinds of persons, will be necessary to keep the nation strong.

I make the assumption that there will be an increase in the gross national product. This will require more productive hands, more occupational competencies, new kinds of competencies, and more responsibility for all of us to work cooperatively in the adjustment of persons to these situations.

There surely will be more students in school, and certainly more of them will remain in school for longer periods of time. This is on our side, as we shall have them longer to work with in training them for improved competencies and effectiveness as citizens.

There will be improved methods of teacher training. Really, at the conference, this is one of the first times when we of all services have sat down together for three days to talk earnestly about any common problem in vocational education. Surely teacher trainers in any one field have a great deal to learn from those in the other fields. But I don't know many of us who have taken pains to learn what these things are. I suspect we shall be doing more of this.

I make the assumption that there will be new kinds of assistance for the training, financial assistance and stimulus for the training and upgrading of teachers in all aspects of vocational education. This kind of assistance is provided to almost all other kinds of professional persons in our country, and I think soon to come will be assistance to enable us to prepare new persons to teach in vocational education and to upgrade those who are already in service.

I make the assumption that we will have discovered workable ways to reach the hard core unemployed, particularly those whom Dr. Conant has taught us to recognize as sources of social dynamite. I suspect we shall find ways, learn ways, workable ways to make these persons desire to become effective producing members of society.

It is forecast that before long half the people in the nation will be twenty-five years of age or under. The President of City College in New York said: "This generation has no utopia. Its idea is the Happening--capital 'H.' Let it be concrete. Let it be vivid. Let it be personal. Let it be now." One recent magazine article says: "The student has become the most powerful, invisible force in the reform of education, and indirectly, in the reform of American society." And it concludes by referring to these persons as having grown up with rapid change. "They are better prepared to accommodate to it than any other generation in history. Indeed, they embrace it as a virtue in itself." I suspect this increasingly large segment of our population will have a great deal to do with the development of curriculum in vocational education, as in other kinds of education. They must become a part with us of our planning for the education and training of youth--the "Now" generation, they call it.

I'll make the assumption that there will be greater involvement of other interested agencies in the development of curriculum. The Armed Forces, private industry, organized labor, scholars in other disciplines.

I suspect there will be more cooperative programs, I mean the kind that distributive education had to be by law before the passage of the 1963 Act, and what the Trade and Industrial Education people call part-time cooperative programs under supervision at work and at school by a trained coordinator. I think there will be more of these. And I think there are reasons why there should be, first of all, studies of the North Atlantic Region, which have gone on for more than a generation have persistently shown that graduates of such programs in those thirteen States have had a ten percentage points better employment average than graduates of the full-time preparatory trade and industrial programs, and their employment percentage was pretty high.

But there are some other things that we don't hear about or don't talk about too much. I'll cite two: One of these was expressed by a counselor who was a member of a team representing industry. Secondary education and the universities engaged to select the D.E. Student of the Year in a certain State. It was brought out that here was a student who had an unfortunate background. He wasn't poverty stricken or disadvantaged in the sense of the law but he wasn't growing up in the kind of a climate which would seem to assure for him a successful place in life. But through distributive education, through his association under supervision at work as part of a school program, he attained a real measure of personal significance that seemed to indicate that he was really on his way. I think this can be attributed to a part-time cooperative sort of a situation, for this particular boy at least.

Another example concerns the successful employment experience of D.E. graduates. The manager of a large department store in a suburb of Washington, D.C., spoke about a lad who is now employed full time. For two years he had come to them as a part-time cooperative D.E. student. In that store he is now manager of a department that did a million dollars worth of business last year.

Now, if these assumptions are correct and are really fundamental to the development of curriculum, in fact to the kind of education and training that will be needed this many years ahead, I can think of some procedures which will point the direction toward improved development of curriculum in the days ahead.

One of these is federal leadership. I find that I get to talking about this without defining it because I am a Civil Service Examiner, have been for many years, and I suppose others understand that function as well as I do. Leadership is one of the selective factors that we use in classifying a job in the Office of Education in order to assign a grade to it, meaning to assign how much pay the job is worth. I get to talking about leadership as though everybody

understands what I mean, and I guess they don't, so I am going to explain by describing the man who drove in the car pool in which I rode a number of years ago and who epitomizes to me leadership at the federal level. His title was "Specialist in the Teaching of Science at the Elementary School." This fellow came to the Office with a professional clientele. He was a well-known speaker about science in the elementary school. He wrote a great deal for the professional journals, original stuff. He also wrote books for children. He had a flair for writing what children would read. He was President of the Science Teachers Association. What I am saying is that he was well-known and respected. When he came to the U.S. Office of Education he was well enough known as an expert to exercise his leadership capability and was frequently invited by States and cities to advise them in the improvement of teaching science in the elementary school. This is what I call leadership at the federal level.

Now, we have it in vocational education, including curriculum development, in the person of employees who are known to you and me, but they are so busy doing other things that they are unable to get at the large job of examining national need, of assisting you in the establishment of a curriculum laboratory, of helping you find ways to assure that teachers do in fact make an effort to use new and innovative curriculum materials. I think these are services which we must be equipped to render to you, because I think if we have them available you will ask for these services.

Up to now, as you have heard, we are busy full time finding contractors who will negotiate with us for a price to write a manuscript which our professional specialists, that is, in agriculture, home economics and others, indicate to us represent great national need. Unfortunately, we have been understaffed in the Office in that department. As a consequence, we have not been able to develop materials in all of the fields of vocational education. We have almos nothing in the health occupations, so we have to find a way through a new kind of national leadership to discover what your needs are and to assist in the various ways that we can in serving these needs.

I suspect, as it was during World War II when there was a great need to build ships and the Congress appropriated millions of dollars and we discovered that schools near shipyards in one State were developing exactly the same teaching materials as were being prepared in another State far away, "How to Train a Shipfitter" or a "Marine Boilermaker," and we had to negotiate and have the States agree not to be doing the same thing and also to fill some gaps. I think we can help you with this in our function of national leadership

I think we need some more State laboratories. I think they should be comprehensive in the sense that they have specialists in all of the services of vocational education. This is the way we get our business done, through the several services of vocational education. I think, as you have heard earlier, both they and we should have consulting committees representative of all the services. I think this effort must be expanded.

I think there must be greater involvement of all personnel in the vocational teacher training institutions in all services. By these I mean institutions of higher education designated by State Boards of Vocational Education to train teachers in all fields of vocational education.

There must be a new relationship between those in State supervision and those in teacher training with respect to curriculum development and the use of instructional materials of all kinds.

We know that many schools, if not States in the nation, are either unaware of what comes out of the negotiated contracts that we are permitted to develop, or the teachers don't use them, or whatever. We haven't yet, I think, addressed ourselves to the fundamental problem of seeing to it that the classroom teacher knows what is available and receives professional assistance in how to use it, encouragement in the use of it.

In conclusion, it seems to me if these things come to pass, this will be exciting indeed. To perform needed functions will take great courage and energy, and will require in us an innovating spirit and call for leadership of the highest order. This, I think, will be vocational and technical education at its best.

CHAIRMAN: The last part of the program is a Clinic Summary and Closing Statement.

Clinic Summary and Closing Statement

Earl M. Bowler

As has been indicated, this was the first conference in the area of curriculum materials development in which we were working across the board with all services. As you well know, the planning and carrying to completion of a trail-blazing three-day meeting that does not lag or drag, is quite a challenge. If there is credit for success,

I think it should be divided in many directions: First, credit should go to you for coming. We were pleased with the number who came, the diligence with which you performed, the way you stuck to the agenda, and the enthusiasm shown in group sections. All of us in the Office of Education are delighted with the constructive suggestions you have reported this afternoon. Certainly, the whole performance on your part measures up fully to our expectations. We are delighted with you. I stress that!

In giving credit for the success that we have experienced here, I would name Dr. Arnold and Lane C. Ash for assisting us in getting this Clinic on the road and for making sure that we had the resources with which to carry out the program.

Credit should be given to Mr. Berndt and Mr. Perazzoli, our able aides and assistants, who have worked both early and late, here in Kansas City and back in Washington, to make sure that every detail worked out smoothly.

Next, word of commendation should go to our consultants and the program personalities who gave their very best to this meeting.

Back to my initial statement--you are the key, however, to success. You are on the firing line, and I hope that we can work closely with you in implementing the recommendations that you have set forth.

With that, we close the conference!

Appendix A

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult, Vocational, and Library Programs
Division of Vocational and Technical Education
Washington, D.C. 20202

For Discussion Purposes Only

CLINIC OBJECTIVES

Curriculum planners and the developers of instructional materials feel the need to exchange ideas, develop channels of communication, and to reaffirm applicable Federal-State relationships in vocational-technical education. Specific objectives of the Clinic therefore are:

To identify current and projected curricula needs in all vocational education services.

To ascertain the nature and the availability of curriculum materials and the types of laboratory facilities utilized by the States to develop the materials.

To consider ways to extend the curriculum materials development services of the Division of Vocational and Technical Education to the States, area schools, and local programs.

To assess the extent to which States are developing adequate curricula and curriculum materials for the socio-economically disadvantaged.

To analyze the leadership role of the teacher educator, State supervisor and curriculum specialist and to provide guidelines for the development of quality programs providing curriculum materials for vocational-technical teachers.

Appendix B

List of Participants

NATIONAL CURRICULUM MATERIALS CLINIC

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January 17-19, 1967

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Appendix C

Post Conference Report of Consultants: An Abstract

Introductory Statement

A staff of eight consultants representing the several services in vocational education was available to assist in conducting the sectional meetings of the Clinic. These specialists came from various States and were selected upon the recommendation of program specialists in the Office of Education.

One of the many assignments the consultants were given was that of preparing a report of their reaction to the Clinic. This report was to be based upon their observing and listening during the Clinic. In addition, the consultants were to get group reaction as a result of conducting group discussions.

Their reports are concise and helpful. Great liberty has been taken in abstracting from their individual reports the items that follow:

o The U.S. Office of Education should followup on this initial effort to stimulate curriculum development by the States. The regional office could schedule periodic workshops for curriculum specialists within each region.

o The U.S. Office of Education should develop broad guidelines for State curriculum development activities leading to a second National Clinic to design a national curriculum development structure whereby the efforts of educators and the private sector can be effectively combined to produce needed curriculum materials speedily, economically and in acceptable and usable format.

o The U.S. Office of Education Curriculum Materials Section should report the title and a brief description of each new curriculum item in a news letter to be sent monthly (or at some other regular interval) to all contact persons in the several States.

o There are too few basic books dealing with vocational curriculum development. Some phase of curriculum planning or development should be a part of all national conferences from this point on.

o Each State should designate a person for liaison activities with other States and the U.S. Office of Education.

o There is too much of a time lag between the time the contractor submits his material to the U.S. Office of Education and the distribution of these materials.

o A subscriber service should be organized that reports all developed materials that will be marketed other than publishing company documents.

o Clinics should be conducted at the regional level, thus, allowing greater participation by teacher educators and local and State department personnel who have responsibilities for curriculum development and the preparation of instructional material.

o A structured approach to curriculum material development needs to be sponsored rather than "crash" activity. The need for a consulting committee is evident. A person from the field involved, rotated from the different regions each term should serve as liaison to U.S. Office of Education.

o Production and distribution of curriculum materials will have to come closer to the grassroots level. This would call for regional effort by smaller groups with specific charges. The U.S. Office of Education could be the facilitators.

o To prepare and distribute instructional material is only half a loaf. The instructor needs to have more insight into the teaching-learning process and the part played by instructional material in the process.

o Time and money must be made available so that State people can be released to coordinate, supervise, and develop curriculum and instructional materials.

o The regional offices should play an important role in coordinating the efforts of individual States in the region.

o The U.S. Office of Education could promote regional conferences for instructors to help them use materials effectively and to assess the value of the items used.

o A summary of 4(c) research projects should be provided at future conferences.

o The projected guides do not go into teacher education in any depth including providing (material for) teachers of adult courses, special needs teachers, post-secondary teachers, and teachers in secondary education.

o Opportunity should be provided at each regional conference for curriculum materials specialists to meet together, display their materials, and discuss their future plans to avoid unnecessary duplication of effort.

Distributive Education

There is an urgent need for student materials that can be used in distributive education programs organized around the "project plan." There should be separate publications for the secondary and post-secondary programs. These publications should include a variety of projects designed at different levels of difficulty.

We need a guide that can be used for the development and administration of programs for adults. It should give attention to preparatory and supplementary programs at the employee, mid-management, and management levels.

There is a need for curriculum guides and instructional materials in specialized occupational areas, such as: food distribution, fashion-merchandising, home furnishings, and the like.

There is a definite need for a publication and materials for programs for students with special needs. This publication might include suggestions for content, materials, teaching strategies, and similar topics.

The U.S. Office of Education should identify and fund an educational institution that could serve as a national instructional materials center for distributive education. This center could reproduce the materials prepared by the States. These materials could be sent to State staff and teacher educators as a means of stimulating new ideas.

Office Education

Specifically, in office education it is hard to detail what our needs are except that procedures would assist us in material development and dissemination. There are many "guides" and publication scheduled from the U.S. Office of Education, presently, so it was hard

to determine future needs until the guides are released and utilized. The office education field has a very fine publication program with private publishers at the present time. The materials these companies produce are related to finite areas in office education without concern for the total occupational approach. The planned U.S.O.E. guides were designed to bring together all of the finite and infinite areas of office education to an occupational approach. The breakout of these ideas into sub-ideas cannot be fully understood until the guides are released.

Health Occupations

It seemed the participants were in serious need of orientation to the vast field of health occupations especially as it relates to their respective "facilitator" role on a State-wide basis. Some are for going ahead without using other available people who could be of tremendous help to them.

There is work to be done by those in upper leadership positions to better acquaint themselves with the forces and existing boundaries at work in the burgeoning growth of health occupations. This understanding is imperative if they are to be the most effective change-agents during this formative period.

Trade and Technical Education

The combining of persons from all vocational-technical and manpower services enabled those from each group to learn about curriculum development activities outside their sphere of interest. It helped them to locate sources of materials or information needed to develop occupational training programs with content from two or more occupational areas. Further movement in this direction should help to reduce the duplication of effort that has been the practice in years past.

It is recommended that U.S.O.E. establish a pattern for National Clinics so that State personnel can make long range plans for sending persons with responsibility for curriculum materials development. It is recognized that a long range schedule will be tentative and subject to change, but this is preferred to announcing a clinic after the work schedule within the States has been established.

Agricultural Education

The U.S. Office of Education should ask each Chief Supervisor of Agriculture to name a contact man for his State.

An agricultural representative should be placed in all of the nine regional offices not now having such an individual. This representative should be consulted and asked to assist in coordinating the efforts in each region.

Recognition should be given to the annual publication of the Professional Information Committee, Agricultural Division, AVA, entitled A Description and Source Listing of Professional Information in Agricultural Education. This publication is being distributed nationally to agriculture supervisors, teacher-educators, and teachers.

Home Economics

The home economics educators made the following recommendations:

That encouragement be provided at the national level for an interdisciplinary approach to the development of appropriate curriculum materials for vocational education programs in such areas as human development and interpersonal relationships.

That vocational curriculum personnel give attention to determining the personal qualities (attitudes, values, interpersonal relationships) required of satisfactory workers in particular occupations and include these in job descriptions.

That an annual up-to-date listing, including abstracts of available curriculum materials in some form and from some source be developed and distributed to all professional home economics educators regularly.

That a home economist be appointed to the staff of Program Services Branch of the Division of Vocational and Technical Education.

Teacher Education

Is it possible in the future to develop a separate curriculum materials booklet for vocational teacher education? The booklet should be similar to the 1963 booklet for Trade and Industrial Education.

Do you foresee in the future any national clinics devoted exclusively to vocational teacher education? A very warm feeling for all of the people at the conference is held by the participants and they are further encouraged as to the value of public vocational education in the United States.

Appendix D

CLINIC SESSIONS

9:30 a.m. Tuesday, January 17 Aztec Room

Chairman: Earl M. Bowler

WELCOME AND REMARKS: Beauford W. Robinson
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OVERVIEW AND OBJECTIVES OF CLINIC

Earl M. Bowler

DEVELOPING A RATIONALE FOR VOCATIONAL AND TECHNICAL EDUCATION

Lane C. Ash

- Discussion

1:30 p.m. Aztec Room

Chairman: Julia I. Dalrymple

THE LEADERSHIP ROLE OF THE DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION IN CURRICULUM MATERIALS DEVELOPMENT

Merle E. Strong

THE LEADERSHIP ROLE OF THE TEACHER EDUCATOR, SUPERVISOR, AND THE CURRICULUM SPECIALIST IN THE STATE

F. J. Konecny

- Group Discussion
- Summary

9:00 a.m. Wednesday, January 18 Aztec Room

Chairman: Vivian Culver

INCREASING THE UTILIZATION OF EXISTING CURRICULUM MATERIALS

Richard Lano

MANPOWER DEVELOPMENT AND TRAINING - Symposium

The Changing Nature of Manpower Development and Training

Aaron Adams

Trends Affecting Curriculum for Manpower Development and Training Programs

Ann Donovan

Curriculum Materials in Manpower Development and Training Project Design

J. Kelly Mudd

o Reaction Panel

F. J. Konecny - Leader
Cecil Dugger
William Berndt
Julia Dalrymple
Robert Balthaser

1:30 p.m. - 4:30 p.m.

PROBLEM SOLVING WORKSHOPS

Areas	Discussion Leaders	Room No.
Distributive Education	Jerome Levendowski	211
Office Education	Robert Balthaser	215
Home Economics	Julia Dalrymple	225
Trade	Anthony Bevacqua	221
Agriculture	John Matthews	217
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9:00 a.m. Thursday, January 19 Aztec Room

Chairman: Robert Knoebel

CURRICULUM RESEARCH TO IMPROVE PROGRAM QUALITY

Robert M. Morgan

- Panel: Members to be announced

CURRICULUM MATERIAL RESOURCES TO IMPROVE PROGRAM QUALITY

- Symposium

Thaine McCormick - Leader	Anthony Bevacqua
John Matthews	F. J. Konecny
Jerome Levendowski	Mrs. Celianna I. Wilson

1:30 p.m.

Chairman: Ann Donovan

PROBLEM SOLVING CONFERENCE OUTCOMES

- Reports by Discussion Leaders --

Distributive Education	Trade and Technical
Office Education	Agriculture
Home Economics	Health

A CURRICULUM DEVELOPMENT PROGRAM TO MEET THE NEEDS OF THE 1970's

Lane C. Ash

CLINIC SUMMARY AND CLOSING STATEMENT

Earl M. Bowler

VT 004 637
Schaefer, Carl J., And Others
Follow-Up Study of 1963 Graduates of Trade and Industrial Programs in Public Vocational and Technical High Schools, North Atlantic Region.

Office of Education (DHEW), Washington, D.C.
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*FOLLOWUP STUDIES; *VOCATIONAL FOLLOWUP; *TRADE AND INDUSTRIAL EDUCATION; *HIGH SCHOOL GRADUATES; JOB PLACEMENT; WAGES; EDUCATIONAL PROGRAMS; PROGRAM EVALUATION; PROGRAM EFFECTIVENESS; *JOB PLACEMENT; EMPLOYMENT EXPERIENCE; COOPERATIVE PROGRAMS; OCCUPATIONS

Follow-up information from the 1963 graduates of high school trade and industrial education programs in 12 North Atlantic states and the District of Columbia was obtained, compiled by State, tabulated for the Region as a whole, and analyzed for significant trends. Although there were slightly fewer graduates than in 1962, the number available for employment was the largest in history. About 75 percent of the graduates of day preparatory programs and 80 percent of the graduates from part-time cooperative programs sought employment. At the time the data were collected, 72 percent of the day preparatory graduates were employed in jobs related to their training and 90 percent of the part-time cooperative graduates were similarly employed. The median hourly wage for the 1963 graduates was estimated to be $1.54. The number of courses offered has increased each year with a total of 1,606 courses in 84 different programs. Programs which have been dropped and added indicate that the states are sensitive to local needs and have adjusted accordingly. The part-time cooperative programs seem to be increasing through general support of industry, educators, government, and the public at large. When the 13,610 graduates who were employed in jobs related to their education earn close to $45 million as entry pay, there can be no doubt that the investment in vocational education pays extremely high dividends. (HC)

VT 004 637

FOLLOW-UP STUDY OF

1963

GRADUATES

of Trade and Industrial Programs

in Public Vocational and Technical High Schools

North Atlantic Region

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

With this 1963 edition of the North Atlantic Follow-up Study of Graduates of Trade and Technical Education Programs, the series comes to an end. For close to forty years it has been a herald of the ultimate success of any program of vocational education - the placement of its graduates as workers in the world of work.

Many of those whose statistical story of success was told in the first edition of this Study, have labored long at their craft, contributed in accordance with their abilities to the welfare of their fellowman and have retired. So it shall be with this Study. Having spanned a working lifetime and providing a signal service for those for whom its story was significant, it too passes on to retirement.

But its work will be continued on a broader scale. What we have done for the field of trade and industrial education for so many years in the North Atlantic Region is now being done by the Division of Vocational and Technical Education of the United States Office of Education for all fields of vocational education in all the States as part of its normal responsibility for the collection and dissemination of data. It is significant that the format of the collection instrument being used was adapted from this Study.

And so, to Franklin Connolly and Dr. Carl J. Schaefer of New Jersey, and the other members of the Study Committee who were responsible for this last edition, as well as the hundreds of dedicated trade and industrial educators responsible for past editions, hearty congratulations from us all for a job well done -- and finished.

Theodore J. Cote
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SUMMARY AND DISCUSSION OF FINDINGS

Introduction:

Among the objectives of vocational education are; to prepare students for the world of work, to provide employable skills, and to meet the needs of industry. The extent to which students are employed in jobs related to their training should therefore be an indicator of 1) the success of vocational education and 2) the adaptation of curricular offerings to the current local employment needs. With the expanded interest in vocational and technical education on all levels of government - federal, state and local - the annual summary of placement data provided by the states of the North Atlantic Region deserves more careful consideration than ever before.

Due to the reorganization which has taken place in the U.S. Office of Education Division of Vocational & Technical Education, this Follow-up Study of 1963 graduates will be the last of an annual series. The 1963 study was initiated by Mr. Franklin Connolly, prior to his retirement as State Supervisor of Vocational Guidance in New Jersey. It was completed by Dr. Carl J. Schaefer, Chairman, Department of Vocational-Technical Education, Rutgers - the State University with the assistance of Mrs. Elaine W. House, Research Associate, and Mr. Benjamin Shapiro, Director of the Curriculum Laboratory.

The Problem

In its broadest sense the problem was twofold. First, the 1963 graduates from trade and industrial education programs had to be contacted to secure follow-up information as to <u>what</u> happened after graduation. Were they employed; if so, in what occupation, how much were they paid, and so forth. Second, the data had to be compiled by the respective states and subsequently tabulated for the Region as a whole. Analyses could be then made to determine if significant trends existed. In this respect the following questions were asked:

1. Has there been any change in the general aspect of placement, as indicated in Tables I and IV?

2. Is there any change in the types of courses offered?

3. Has there been a significant increase or decrease in the number of graduates from various occupations?

4. What occupations provide the best hourly wage?

The Procedure:

The procedure followed consisted of working through members of a thirteen member state committee (including the District of Columbia) to secure the data from each state. The State of New Jersey, under the direction of Franklin Connolly, assumed the responsibility of compiling and publishing the 1963 report.

Once the response from each state was received, the data were tabulated in summary tables and analyzed according to the questions stated in the problem.

It should be noted, however, that the procedure was a time-consuming undertaking (data processing equipment was not used) and in some cases repeated reminders of commitments were necessary. All of this caused considerable delay and some confusion of the data needed. Nevertheless, 100 percent returns were eventually achieved and the study data are considered complete within the limitations imposed at the local and state levels of response.

Compilation of the data by states is represented by Tables I - VI of the Appendix. In order to provide data which would be as comparable as possible for research purposes, it was felt that the reporting form should not be significantly altered, and an attempt was made to retain course descriptions which had been used in previous years. Once the data were tabulated, the findings were compared with those of 1961 and 1962.

Findings:

Although there appeared to be slightly fewer graduates than in 1962, the number available for employment was the largest in history, due to the fact that fewer students continued in full-time school or entered the armed forces. In each type of program, there were approximately three boys graduated for every girl. About 75% of the graduates of all day programs were available for employment, a slightly higher percentage than in the two previous years. Eighty percent of the graduates of part-time cooperative programs sought jobs upon graduation.

In all day preparatory programs, the percent of graduates in jobs related to their training increased slightly each year and 72% of those available for employment in June 1963 were employed at the time the data were gathered. Girls continued to show a higher relationship between training and placement (81%) than did boys. The part-time cooperative programs experienced a 90% ratio between availability and job-related placement, with the males being more successful than the females in this respect.

If one considers the total number of graduates seeking employment who were successful in finding jobs, the proportion of placements increases. At the time the study was made, 94% of the all day graduates and 98% of the part-time graduates had been placed. Proportionately, more males than females had been employed.

The median hourly wage for the 1963 graduates (Column 9, Table I) was estimated at $1.54, or an annual gross pay of $3,203 per graduate. Although there are variations from state to state and occupation to occupation, there was no significant difference between the median hourly wage earned by graduates of all day and part-time cooperative programs. The range of median hourly wages was considerably wider in the all day programs, however (from $3.75 - .90 in contrast to $1.85 - 1.12). During the period 1961 to 1963, the all day programs reflected an 8¢ per hour increase in wages while there was a 19¢ per hour increase for the part-time cooperative programs.

Tables 1, 2, 7 & 8 indicate programs in which median hourly wages differed more than 20¢ from the estimated regional median of $1.54. In order to make the data more meaningful, the following information was compiled:

1) number of states offering the program
2) number of programs offered
3) number of graduates in 1963

Including an estimate for Maine and New Hampshire, where median hourly wages were not provided, the estimated annual wages amounted to $38,934,896., or nearly 39 million dollars. This figure included only graduates of full time programs. When the estimated annual wages of part-time programs were added, the total came to $44,823,062.

The number of course offerings apparently has increased each year. There are 84 different programs offered on an all day basis, comprising at least 1606 courses. All states but Maine and Rhode Island report both male and female graduates. Six states furnished data concerning part-time cooperative programs, with New York providing about two thirds of the total number of graduates. An estimated 336 courses are offered in 37 different programs. Massachusetts and New Jersey enroll boys only in their part-time cooperative programs. Delaware reported no part-time cooperative program since 1961, at which time 18 courses were offered.

The rank of states by number of graduates remained virtually unchanged so far as all day programs are concerned. However, it must be noted that Maryland, which reported no all day programs in 1961 ranked 6th in 1963. The rank of states has fluctuated considerably in respect to part-time programs.

There were changes in the programs themselves. Some either were no longer offered as separate programs or did not have any graduates in 1963. (See Tables 4 and 10). Courses also were added, particularly in the case of all day programs. (See Tables 3 and 9). Delaware took the lead in program innovations, reporting graduates of 6 programs not listed in the two previous years.

As has been previously stated, enrollment varied from program to program. Some showed an increase in number of graduates, and in others just the reverse was true. Tables 5 and 6 highlight some of the more pronounced changes.

Consistently, the states of the North Atlantic Region have been able to account for a large number of their graduates. More than 94% of the 1963 graduates of all day programs were included in their study. In the part-time programs, the follow-up was even more successful, with 98% of the graduates included in the data.

Discussion:

Although caution must be used in making sweeping generalizations about the North Atlantic Region graduates of trade, industrial and technical programs, certain implications may be drawn from the data as submitted and analyzed. One of the most obvious, but often neglected, aspects of the study is the fact that 24,289 students graduated from trade and industrial programs in June 1963. Many of these students might not have been able (for a variety of reasons) to succeed in a conventional type of secondary school program and might have dropped out of school at some time before graduation. Therefore, the fact that almost 72% of the all-day and 90% of the part-time graduates not only were trained in a skill, but found employment has a double significance. These young people, primarily in the crucial 17-19 age group, not only have a diploma but a salable skill -- they have proved it by finding employment in occupations for which they were trained.

In addition to being able to secure entry jobs, the graduates who are the subjects of this follow-up study should also be able to be retrained more readily. They should thus feel a higher degree of job security than youth with no skill training who enter the job market directly upon graduation from high school.

The number of graduates who were successful in finding employment in occupations for which they trained can be interpreted as a minimum. Particularly in the case of the students who completed all-day programs, two factors must be considered. First, some of the graduates, unemployed at the time the data were gathered, were not yet 18 and could not by law be hired until that time. Secondly, some of the students not accounted for can be assumed working in jobs relating to their training.

An inspection of the programs which have been dropped (or did not have graduates in 1963) and those added indicates that the states of the North Atlantic Region were sensitive to local needs and adjusted these offerings to some extent. Since these changes were made before the Vocational Education Act of 1963 was passed, the states are to be commended for their efforts to meet the needs of industry and the community. I n general, the trend has been away from a specific job-oriented, narrow type of training. The programs added appear to offer a broader orientation toward a cluster of occupations or preparation for a variety of service jobs. The same trend is noticed in the Tables which indicate marked increases and decreases in the number of graduates over the 1961-3 period. (See Tables 5 and 6).

The practical nurse and beauty operator programs accounted for 64% of the female graduates. There are 25 different programs offered for girls, most of them leading to service occupations. Many of the newer offerings prepare for jobs in the field of health. Since the passage of the Medicare Bill, it is likely that existing programs will be expanded and that new programs will be offered. Vocational education could, and hopefully will, play a much more important role in the training of girls. However, until the time that the general public looks with more favor on vocational education, (other than business education) for girls, it seems likely that most of the girls will continue to attend local secondary schools.

The data can be misleading concerning the median hourly wage. For instance, Tables II and V indicate that female beauty operators earned a median wage of $1.35 and $1.12 respectively. Presumably, tips are not included in this figure, and the actual annual earnings were in reality considerably higher than estimated. This same reservation would apply to any occupation where gratuities are involved. Since beauty operators play such a substantial part in the statistics for females, comprising about 35% of those in jobs related to their training, any marked increase upward would be reflected in the totals shown in line 1, of Tables I - III. It was noted that when programs trained both males and females, the females generally received lower starting wages. This is usually the case for women, regardless of occupation or amount of education, one might add.

Many of the programs which lead to lower paying jobs are suitable for youth with special needs, the handicapped of all types, including those youth with some degree of retardation. Often these are youth who do not complete high school and end up unemployed or underemployed due to lack of training, a burden to their families, to the community and also to themselves. It is heartening to notice that a number of programs existed in 1963, many of them comparatively new, in which these youth could obtain occupational training.

The number of programs available in the programs which led to median wages of $1.74 or over, and the number of graduates involved, is encouraging. It should be noted that some of the programs also appear in Table 5 which indicates a marked increase in number of graduates. The earning potential of these graduates represents a substantial sum, particularly when it is considered (as holdstrue in all areas) that the wages under discussion are merely entry wages.

It can be predicted that, for a variety of reasons, there will be a great growth in the part-time cooperative programs. There seems to be increasing general support from industry, educators, government and the public at large for this type of program. The number of coordinators and teachers has increased; for years the development of the programs was hampered by a lack of trained personnel. This type of program is also cheaper for the district, due to the fact that expensive shops need not be provided in the schools. There is also a growing body of evidence that, for certain students, this is the preferred type of education.

When it is considered that the 13,610 graduates of 1963 who were employed in jobs related to their education earned, as entry pay, close to 45 million dollars, and will probably continue to be employed for 30-40 years, there is no doubt but that investment in vocational education pays extremely high dividends. It must also be kept in mind that a substantial number of the 10,678 graduates who were not available for employment at the time of the study may in the future be employed in jobs related to their training. Thus, all estimates would be increased to an unknown degree.

The statesof the North Atlantic Region are to be commended for their efforts to provide vocational education to students, and also for their cooperation in providing data for the annual follow-up studies. Even under the most favorable of conditions, studies of this nature are difficult to make.

The Panel of Consultants[1] commented on the lack of data available to appraise vocational education and made use of the follow-up studies previously submitted by the North Atlantic Region. The 1963 report should provide an invaluable source of information for those interested in the field of vocational education.

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[1] U. S. Office of Education. "Education for a Changing World of Work", report of the Panel of Consultants on Vocational Education, Washington, D. C.: U.S. Department of Health, Education and Welfare 1964

STATEMENT OF USES

The findings of this study are of value only if they are used constructively in each school and state. Following is a list of various ways in which the results of the study have been used over a period of years.

1. Used with local Boards of Education and State Board for Vocational Education to show evidence as to services provided to youth by the vocational education program.

2. Used with members of legislature and legislative committees to show effectiveness of program of vocational education.

3. Used in working with planning committees when new schools are under construction or consideration as indication of variety of trade training opportunities available in area.

4. Used with consulting or advisory committees to show evidence of placement and need or lack of need for training.

5. Used to emphasize the primary objective of vocational education, "training for useful employment."

6. Used as a means of identifying strengths and weaknesses in local programs.

7. Used for publicity purposes on state and/or local level.

8. Used at state-wide meetings of local directors and supervisors to focus attention on:

   a. Employment and placement trends
   b. Reasons for good or poor placement
   c. Courses with marginal values
   d. Causes for lack of completion of training

9. Used with craft committees when it is desirable to bring about an improvement in the placement of graduates in those craft fields.

10. Used with guidance personnel to determine guidance policies for local schools.

11. Used by instructors as basis of discussion with employers in carrying on extended programs of follow-up of graduates five to ten years after graduation.

12. Used by guidance counselors when counseling students to indicate opportunities for employment in various trade fields.

13. Used by guidance personnel to indicate wage trends at state and local levels and indication of placement opportunities.

14. Used by state supervisors for consultation with local directors or supervisors to aid in recognizing need for establishment, consolidation, reorganization and/or elimination of training opportunities in certain trade areas.

15. Used to point up weaknesses in student selection practices.

ALL DAY PROGRAMS 1963 GRADUATES

Table 1

Programs with Median Hourly Wage above $1.74 @ Hour
($3619 Annual Est. Wage)

	$ per hour	no. of states offering	no. of programs	no. of graduates
Barbers	$ 2.50	2	5	35
Brick, Stone Mason, Tilesetter	2.08	7	23	160
Carpenter	1.74	8	112	1152
Chemist, Industrial - male	1.93	2	3	17
female	1.83			1
Draftsman	1.75	10	90	726
Graphic Arts	1.75	1	1	4
Mechanic, Airplane	1.75	6	7*	644
Mechanic, Auto Body and Fender	1.77	7	29	191
Nursery and Landscaping	1.75	1	1	1
Technical Trades				
Aircraft	1.83	2	3	52
Communications - male	1.83	2	3	29
female	3.75	-	-	1
Computer and programming	1.75	1	2	18
Electrical-Electronics	1.83	12	123	1659
Engineer - Steam	1.83	1	1	6
Highway Engineering Aide	2.02	1	2	56
Laboratory Technician	1.75	1	1	5
Oil, Heat and Power	2.10	1	1	10
Scientific Glass Blowing	2.00	1	1	9
Tool and Die Maker	1.77	2	9	72
Totals			417	4848

* possible reporting error. (Could be 87 or 97)

ALL DAY PROGRAMS 1963 GRADUATES

Table 2

Programs with Median Hourly Wage below $1.34 @ Hour
($2787 Annual Est. Wage)

	$ per hour	no. of states offering	no. of programs	no. of graduates
Commercial Foods	$ 1.25	2	5	16
Dental Assistant	1.33	5	7	185
Dietician's Assistant - female	1.17	1	1	4
Dry Cleaning	1.29	1	2	11
Food Trades Worker - female	1.20	NA	NA	122
Foundryman	1.30	1	2	6
Hospital Aide	1.20	1	1*	424
Laboratory Assistant	.90	1	1	3
Luggage Maker	1.25	1	1	1
Optical Lens	1.33	2	2	11
Totalizator Repair	1.25	1	1	1
Needle Trades - female	1.27	1	25	680
Nurses Aide	1.09	2	2	3
Nursery Assistant	1.29	1	2	23
Pharmacist's Assistant	1.15	1	1	2
Ship Building	1.30	2	2	22
Structural Iron Worker	1.25	1	1	2
Surgical Aide	1.31	1	1	18
Totals			57	1534

* possible error? Maybe 21

ALL DAY PROGRAMS 1963 GRADUATES

Table 3

Curriculums Added

Name	States
Building Maintenance	Pennsylvania
Dietician's Assistant	Delaware
Electro Plater	Delaware
Graphic Arts	New Hampshire
Housekeeper	District of Columbia
Laboratory Assistant	Delaware
Luggage Maker	Delaware
Optical and Lens	New York, Pennsylvania
Totalizator Repair	Delaware
Nurses Aide	Delaware, New Jersey
Pharmacist's Assistant	Delaware
Physician's Laboratory Assistant	Delaware
Technician, Civil Construction	Pennsylvania
Technician, Highway Engineering Aide	New York
Technician, Operating Room	Massachusetts
Total: 15	7

Table 4

Curriculums No Longer Offered, Or Reporting No Graduates

Boiler Maker	Millinery
Costume Design	Millwrighting
Fashion Merchandising	Sculpture and Performing Arts
Fur Manufacturing	Sign Painting
Glove Manufacturing	Silk Screen
Maritime Trades	Sports, Vocational
Meatcutting and Merchandising	
Total: 13	

ALL DAY PROGRAMS 1963 GRADUATES

Table 5

Curriculums Showing a Marked Increase in Number of Graduates

	1961	1962	1963	%increase 1961-3
Baker	64	76	132	106
Beauty Operator	1609	1716	1970	22
Cabinet Making	465	553	608	31
Carpenter	1000	1063	1152	15
Dental Assistant	46	146	185	302
Food Trades	183	212	297	62
Air Conditioning	16	36	97	506
Autobody	160	173	191	19
Maintenance and Service Mechanic	2	28	36	1700
Radio and Television Repair	472	466	500	6
Practical Nurse	1370	1623	1676	23
Printing and Lithographing	919	1022	1148	25
Secretary, Technical	27	30	37	189
Technician, Chemical	10	140	160	1500
Technician, Electrical-Electronic	778	1538	1659	113
Technician, Metallurgical	0	10	216	

ALL DAY PROGRAMS 1963 GRADUATES

Table 6

Curriculums Showing a Marked Decrease in Number of Graduates

	1961	1962	1963	% decrease 1961-3
Barber	73	53	35	52
Building Trades	190	158	86	55
Business Training	52	27	8	85
Machinist	2623	2567	2492	5
Patternmaker	107	69	77	30
Sheet Metal	456	412	370	19
Woodworking	141	184	76	46
Computer Programming*	24	24	18	25

* All 1963 graduates were females.

PART TIME COOPERATIVE 1963 GRADUATES

Table 7

Programs with Median Hourly Wage above $1.74 @ Hour
($3619 Annual Est. Wage)

	$ per hour	no. of states offering	no. of courses	no. of graduates
Plumber and Pipefitter	$ 1.84	3	6	13

*

* Machinists, who represent almost 11% of the graduates, have a median hourly wage of $1.71 per hour (5 states, 28 programs, 268 graduates)

Table 8

Programs with Median Hourly Wage below $1.34 @ Hour
($2787 Annual Est. Wage)

	$ per hour	no. of states offering	no. of courses	no. of graduates
Artist, Commercial (female)	$ 1.20	1	N/A	4
Beauty Operator	1.12	2	5	81
Draftsman, Architectural	1.25	1	1	4
Food Trades Worker - female	1.25	2	27	13
Needle Trades - dressmaker	1.25	2	12	120
Patternmaker	1.25	1	1	1
Total			46	223

PART TIME COOPERATIVE 1963 GRADUATES

Table 9

Programs Added

Program	State
Air Conditioning and Refrigeration	New York
Roofer and Slater	New York
Total: 2	1

Table 10

Programs Dropped, Or Showing No Graduates

Dental Assistant and Mechanic
Floor Laying
Fur Manufacturing
Glazing
Hardware Handling
Mechanic, Boat Building
Mechanic, Building Repair
Mechanic, Farm Machinery
Mechanic, Oil Burner
Mechanic, Office Machines
Service Station Management
Tailoring
Veterinarian's Assistant
Well Driller

Total: 14

ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PREPARATION PROGRAMS

TABLE I
SUMMARY OF PLACEMENT DATA BY STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PREPARATORY PROGRAM
NORTH ATLANTIC REGION

State (1)	Rank of State by Number of Graduates (1')	Number of Courses (1a)*	Number of Graduates (2)	Not available for employment: Number Continued in Full-Time School (3)	Not available for employment: Number Entered Armed Forces (4)	Not available for employment: Other (Marriage, Death, Illness etc.) (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) equals (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column (7) (9)	Number in Jobs Not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)	Estimated Annual Wages of Graduates Employed in Work for Which Trained Or in Work Related Thereto Based on 40 Hour Week (52 Weeks) (13)
										$				
TOTAL		1606	22166	2297	2849	221	16799	12074	71.9	1.54	2456	1018	1251	$ 38,695,437.00
Male			16482	1941	2843	85	11617	7884	67.9	1.60	2109	728	896	26,237,952.00
Female			5684	356	6	136	5182	4190	80.8	1.39	347	290	355	12,114,128.00
Connecticut		139	1510	155	174	9	1172	982	83.8	1.80	115	31	44	3,676,608.00
Male	5		1110	138	174	6	792	650	82.1	1.84	101	12	29	2,487,680.00
Female			400	17	-	3	380	332	87.4	1.46	14	19	15	1,008,217.00
Delaware		43	182	11	27	-	144	125	86.8	1.25	11	5	3	325,000.00
Male	11		136	7	27	-	102	84	82.4	1.23	10	5	3	214,905.00
Female			46	4	-	-	42	41	97.6	1.12	1	-	-	95,514.00
District of Columbia		61	442	36	21	6	379	261	68.9	1.87	65	6	47	1,015,186.00
Male	8		284	28	21	-	235	144	61.3	1.97	56	6	29	590,054.00
Female			158	8	-	6	144	117	81.2	1.38	9	-	18	335,837.00
Maine		18	109	10	25	1	73	47	64.4	NA	26	-	-	
Male	13		109	10	25	1	73	47	64.4	-	26	-	-	
Female			-	-	-	-	-	-	-	-	-	-	-	
Maryland		133	1398	323	172	24	879	496	56.4	NA	174	59	150	(1,681,285.00)
Male	6		1200	267	172	21	740	421	56.9	1.61	166	43	110	1,409,845.00
Female			198	56	-	3	139	75	54.0	1.74	8	16	40	271,440.00
Massachusetts		301	2792	152	330	37	2273	1965	86.4	1.50	225	36	47	6,130,800.00
Male	3	266	2132	136	329	16	1651	1408	85.3	1.50	185	18	40	4,392,960.00
Female		35	660	16	1	21	622	557	89.6	1.40	40	18	7	1,621,984.00
New Hampshire		16	118	19	39	-	60	34	56.7	NA	15	7	4	
Male	12	15	113	19	39	-	55	31	56.4	-	14	6	4	
Female		1	5	-	-	-	5	3	60.0	-	1	1	-	
New Jersey			2140	92	178	48	1822	1614	88.6	1.61	164	36	8	5,404,963.00
Male	4	NA	1177	73	177	10	917	768	83.8	1.70	133	12	4	2,715,648.00
Female			963	19	1	38	905	846	93.5	1.52	31	24	4	2,674,714.00

* Does not include number of courses for New Jersey

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New York		257	8057	952	802	96	6207	4161	67.0	$1.56	851	467	728	$13,501,613.00
Male	1		5389	758	800	31	3800	2383	62.7	1.58	638	299	480	7,831,491.00
Female			2668	194	2	65	2407	1778	73.9	1.42	213	168	248	5,251,501.00
Pennsylvania		466	3988	380	789	-	2819	1702	60.4	1.34	640	288	189	4,743,814.00
Male	2	442	3592	344	787	-	2465	1438	58.4	-	610	248	169	(4,007,994.00)
Female		24	396	36	2	-	354	264	73.7	-	30	40	20	(735,821.00)
Rhode Island	10	36	216	15	54	-	147	107	72.8	1.82	28	4	8	405,059.00
All Male		36	216	15	54	-	147	107	72.8	1.82	28	4	8	405,059.00
Vermont		37	334	36	83	-	215	168	78.1	1.21	31	10	6	422,822.00
Male	9	33	252	33	83	-	136	95	69.9	1.26	31	6	4	248,976.00
Female		4	82	3	-	-	79	73	92.4	1.15	-	4	2	174,616.00
West Virginia		99	880	116	155	-	609	412	67.6	1.45	111	69	17	1,242,592.00
Male	7		772	113	155	-	504	308	61.1	1.50	111	69	16	960,960.00
Female			108	3	-	-	105	104	99	1.35	-	-	1	292,032.00

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ALL TRADES	1606	22166	2297	2849	221	16799	12074	71.9	$1.54	2456	1018	1251
Male		16482	1941	2843	85	11617	7884	67.9	1.60	2109	728	896
Female		5684	356	6	136	5182	4190	80.8	1.39	347	290	355
ARTIST, COMM'L ADVERTISING	20	741	201	45	8	487	362	79	1.50	57	26	42
Male		421	108	45	2	267	199	78	1.53	29	16	23
Female		320	193	-	6	220	163	77	1.42	28	10	19
BAKER	9	132	9	9	-	114	99	87	1.45	8	5	2
Male		129	9	9	-	109	94	86	1.45	8	5	-
Female		5	-	-	-	5	5	100	1.50	-	-	-
BARBER												
All Male	5	35	9	1	-	25	20	80	2.50	2	-	3
BEAUTY OPERATOR	58	1970	59	3	66	1842	1418	80.2	1.36	160	131	133
Male	1	30	2	-	1	26	15	77.8	1.56	10	1	-
Female	57	1940	57	3	65	1816	1403	79.5	1.35	150	130	133
BRICK and STONE MASON and TILE SETTER												
All Male	20	160	14	21	-	125	69	56.2	2.08	39	10	7
BUILDING TRADES CONSTRUCTION												
All Male	13	86	7	21		57	38	56.2	1.54	17	-	4
BUILDING MAINTENANCE												
All Male	3	15	-	3	—	12	9	75	1.58	2	1	-
BUSINESS TRAINING												
All Female	-	8	-	-	—	8	7	88	-	-	1	-

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CABINET MAKING												
All Male	53	608	29	134	1	444	256	64.5	$1.37	120	25	43
CARPENTER												
All Male	102	1152	67	184	5	836	531	73.1	1.74	176	61	67
CHEMIST, INDUSTRIAL	2	18	5	4	-	9	8	88	1.83	1	-	-
Male	-	17	5	4	-	8	7	87.5	1.93	1	-	-
Female	-	1	-	-	-	1	1	100	1.83	-	-	-
COMMERCIAL FOOD	5	16	2	1	-	13	11	66	1.25	-	-	2
Male	3	12	1	1	-	10	10	100	1.25	-	-	-
Female	2	4	1	-	-	3	1	33	1.25	-	-	2
DENTAL ASSISTANT												
All Female	7	185	8	-	3	174	121	78.4	1.33	15	7	17
DIETICIANS' ASSISTANT												
All Female	1	4	-	-	-	3	2	67	1.17	2	-	-
DRAFTSMAN	82	726	136	117	3	470	352	83	1.75	80	20	18
Male	-	721	135	117	3	466	348	83	1.75	80	20	18
Female	-	5	1	-	-	4	4	100	1.63	-	-	-
DRY CLEANING and PRESSING												
All Male	2	11	1	1	-	9	5	55.5	1.29	2	2	-
ELECTRICIANS												
All Male	125	1827	285	328	9	1205	667	63.6	1.61	270	118	150
ELECTRO-PLATER												
All Male	1	2	-	1	-	1	-	-	-	-	-	1

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PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FOOD TRADES WORKERS	33	297	45	16	8	228	197	82.5	$1.40	14	6	11
Male	25	175	26	15	1	133	121	90.2	1.48	6	3	3
Female	8	122	19	1	7	95	76	74.0	1.20	8	3	8
FOUNDRYMAN												
All Male	2	6	-	1	-	5	5	100	1.30	-	-	-
GRAPHIC ARTS												
All Male	1	4	-	-	-	4	4	100	1.75	-	-	-
HOSPITAL AIDES and ATTENDANTS												
All Female	1	424	51	1	9	363	166	46	1.20	57	60	80
HOUSEKEEPER												
All Female	1	11	-	-	1	10	6	60	1.35	1	-	3
INTERIOR DECORATOR												
All Male	1	12	2	-	-	10	4	40	1.50	6	-	-
JEWELER and WATCHMAKER												
All Male	4	20	1	3	-	16	15	95	1.44	1	-	-
LABORATORY ASSISTANT												
All Male	1	3	1	-	-	2	2	100	.90	-	-	-
LUGGAGE MAKER												
All Male	1	1	-	-	-	1	1	100	1.25	-	-	-

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MACHINIST All Male	233	2492	233	429	12	1818	1336	83.2	$1.66	284	101	97
MECHANICS and REPAIRMEN All Male	316	4598	541	859	23	3175	2008	70	1.56	627	209	331
MECHANICS and REPAIRMEN AIR CONDITIONING & REFRIGERATION All Male	8	97	7	20	-	70	54	77	1.51	10	3	3
MECHANICS and REPAIRMEN AIRPLANE All Male	6	636	171	131	-	334	154	46	1.75	66	27	87
MECHANICS and REPAIRMEN AUTO BODY, FENDER All Male	21	181	5	37	-	139	101	75.1	1.77	25	6	7
MECHANICS and REPAIRMEN AUTOMOTIVE All Male	218	2843	215	535	22	2071	1401	67	1.67	423	117	130
MECHANICS and REPAIRMEN DIESEL All Male	2	13	2	2	-	9	6	63	1.63	3	-	-
MECHANICS and REPAIRMEN INSTRUMENTS All Male	1	4	-	1	-	3	3	100	1.50	-	-	-

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1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MECHANICS and REPAIRMEN MAINTENANCE & SERVICE All Male	4	36	2	7	1	26	15	53	$1.70	6	4	1
MECHANICS and REPAIRMEN NEC REPAIR All Male	3	24	1	2	-	21	10	50	1.35	3	7	1
MECHANICS and REPAIRMEN OPTICAL & LENS All Male	2	11	-	2	-	9	5	55	1.33	-	2	2
MECHANICS and REPAIRMEN RADIO & TV All Male	25	474	75	86	-	313	151	53.1	1.69	59	29	74
MECHANICS and REPAIRMEN SHOE REPAIR All Male	9	126	42	1	-	83	49	61	1.60	12	2	20
MECHANICS and REPAIRMEN TOTALIZATOR REPAIR All Male	1	1	-	-	-	1	1	100	1.25	-	-	-
MEDICAL ASSISTANT All Female	2	45	1	1	1	42	36	86	1.50	1	2	3

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PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NEEDLE TRADES DRESSMAKER, TAILOR, MACHINE OPERATOR	50	806	86	8	20	692	515	74.4	$1.36	68	44	65
Male	31	126	27	8	2	89	57	67.2	1.47	10	8	14
Female	19	680	59	-	18	603	458	73.6	1.27	58	36	51
NURSE, AIDES												
All Female	1	3	1	-	-	2	2	100	1.09	-	-	-
NURSE, PRACTICAL	44	1568	47	3	20	1498	1422	94.2	1.50	18	38	20
Male	3	10	1	1	-	8	8	100	1.58	-	-	-
Female	41	1558	46	2	20	1490	1414	92.6	1.45	18	38	20
NURSERY ASSISTANT												
All Female	2	23	5	-	1	17	5	29	1.29	3	-	9
NURSERY and LANDSCAPING												
All Male	1	1	-	-	-	1	1	100	1.75	-	-	-
PAINTER, PAPERHANGER												
All Male	18	96	10	12	-	74	56	57.6	1.66	13	2	3
PATTERNMAKER												
All Male	14	77	3	15	-	59	34	64	1.63	13	8	4
PHARMACISTS' ASSISTANT												
All Male	1	2	-	-	-	2	2	100	1.15	-	-	-
PHOTOGRAPHER, COMMERCIAL & TECHNICAL	3	36	4	6	1	25	21	86.5	1.53	2	1	1
Male		32	3	6	1	22	19	94.0	1.48	1	1	1
Female		4	1	-	-	3	2	91.7	1.68	1	-	-

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course (1)	Number of Courses (1a)*	Number of Graduates (2)	Not Available for Employment: Number Continued in Full-Time School (3)	Not Available for Employment: Number Entered Armed Forces (4)	Not Available for Employment: Other (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column 7 (9)	Number in Jobs not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)
PHYSICS LAB. ASSISTANT												
All Male	1	4	-	-	-	4	3	75	$1.35	1	-	-
PLUMBER, PIPEFITTER												
All Male	25	176	11	26	-	139	111	73.1	1.60	19	5	4
PRINTING OCCUPATIONS, LITHOGRAPHY	73	1141	105	154	16	866	705	76.6	1.55	103	23	35
Male	72	1139	105	154	16	864	703	76.6	1.55	103	23	35
Female	1	2	-	-	-	2	2	100	1.40	-	-	-
SECRETARY, TECHNICAL												
All Female	-	37	1	-	-	36	36	100	1.62	-	-	-
SHEET METAL WORKER												
All Male	56	337	19	50	1	257	189	74.5	1.58	34	15	19
SHIPBUILDING TRADES												
All Male	2	22	-	4	-	18	5	30	1.30	5	5	3
STRUCTURE, IRON WORKER												
All Male	1	2	-	-	-	2	2	100	1.25	-	-	-
TECHNICAL TRADES	228	2675	1156	312	15	1192	911	84.3	1.71	199	43	39
Male	227	2533	1132	312	11	1078	804	77.5	1.73	193	42	39
Female	1	142	24	-	4	114	107	94.3	1.77	6	1	-
TECHNICAL TRADES AIRCRAFT												
All Male	3	52	38	5	-	9	4	44	1.83	3	-	2

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1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TECHNICAL TRADES CHEMICAL	8	160	126	3	2	29	22	77	1.58	6	1	-
Male	-	153	123	3	2	25	18	66	1.60	6	1	-
Female	-	7	3	-	-	4	4	100	1.64	-	-	-
TECHNICAL TRADES CIVIL CONSTRUCT.												
All Male	1	4	1	-	-	3	3	100	1.65	-	-	-
TECHNICAL TRADES COMMUNICATIONS	1	30	1	1	2	26	25	97	2.79	1	-	-
Male		29	1	1	2	25	24	96	1.83	1	-	-
Female		1	-	-	-	1	1	100	3.75	-	-	-
TECHNICAL TRADES COMPUTER PROGRAMMING	2	18	6	2	-	10	6	60	1.75	3	1	-
Male	1	6	3	2	-	1	1	100	-	-	-	-
Female	1	12	3	-	-	9	5	55	-	3	1	-
TECHNICAL TRADES DENTAL												
All Female	-	21	-	-	1	20	20	100	1.65	-	-	-
TECHNICAL TRADES DESIGN and DRAFTING												
All Male	14	185	18	24	-	143	123	68	1.63	15	3	2
TECHNICAL TRADES ELECTRICAL-ELECTRONICS	109	1642	692	240	6	704	510	75	1.83	135	33	26
Male		1639	691	240	6	702	510	75	1.83	133	33	26
Female		3	1	-	-	2	-	-	-	2	-	-
TECHNICAL TRADES ENGINEERS, STEAM												
All Male	1	6	-	-	-	6	5	83	1.83	1	-	-

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course (1)	Number of Courses (1a)*	Number of Graduates (2)	Not Available for Employment: Number Continued in Full-Time School (3)	Not Available for Employment: Number Entered Armed Forces (4)	Not Available for Employment: Other (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column 7 (9)	Number in Jobs not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)
TECHNICAL TRADES HIGHWAY ENGINEERING AIDE												
All Male	2	56	46	2	-	8	6	75	$2.02	2	-	-
TECHNICAL TRADES INDUSTRIAL DESIGN												
All Male	1	2	-	-	-	2	2	100	1.25	-	-	-
TECHNICAL TRADES INSTRUMENT MECH. (Internal Combustion Engine)												
All Male	1	12	1	5	-	6	4	66.6	1.60	1	1	-
TECHNICAL TRADES LABORATORY												
All Male	-	5	-	1	-	4	3	75	1.75	1	-	-
TECHNICAL TRADES MEDICAL												
All Female	-	17	-	-	1	16	15	94	1.55	1	-	-
TECHNICAL TRADES METALLURGICAL												
All Male	15	216	113	21	-	82	55	89	1.70	19	1	7
TECHNICAL TRADES NEC	8	165	112	5	1	47	31	66	1.58	11	3	2
Male		143	97	5	1	40	24	60	1.70	11	3	2
Female		22	15	-	-	7	7	100	1.35	-	-	-
TECHNICAL TRADES OIL, HEAT and POWER												
All Male	1	10	-	3	-	7	7	100	2.10	-	-	-

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TABLE II
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TECHNICAL TRADES OPERATING ROOM												
All Female	1	20	2	-	1	17	17	100	$1.50	-	-	-
TECHNICAL TRADES SCIENTIFIC GLASSBLOWING												
All Male	-	9	-	-	-	9	9	100	2.00	-	-	-
TECHNICAL TRADES SURGICAL												
All Female	1	18	-	-	1	17	17	100	1.31	-	-	-
TECHNICAL TRADES X-RAY	2	27	-	-	-	27	27	100	1.40	-	-	-
Male	1	6	-	-	-	6	6	100	1.40	-	-	-
Female	1	21	-	-	-	21	21	100	1.40	-	-	-
TEXTILE WORKERS												
All Male	2	9	-	-	-	9	8	88	1.35	1	-	-
TOOL and DIE MAKER												
All Male	7	72	8	14	-	50	48	98	1.79	2	-	-
UPHOLSTERER												
All Male	9	70	8	8	-	54	32	73.1	1.56	12	2	8
VOCATIONAL HOMEMAKER												
All Female	3	10	2	-	-	8	8	100	1.40	-	-	-
WELDER												
All Male	28	185	7	46	-	132	86	71	1.69	18	15	13
WOODWORK INDUSTRIES												
All Male	8	76	22	6	-	48	24	50	1.62	11	5	8

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TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ALL TRADES	1606	22166	2297	2849	221	16799	12074	71.9	$1.54	2456	1018	1251
Male		16482	1941	2843	85	11617	7884	67.9	1.60	2109	728	896
Female		5684	356	6	126	5182	4190	80.8	1.39	347	290	355
ARTIST, COMM'L ADVERTISING	24	741	201	45	8	487	362	79	1.50	57	26	42
Male	21	421	108	45	2	267	199	78	1.45	29	16	23
Female	3	320	93	-	6	220	163	77	1.40	28	10	19
Delaware												
All Male	1	1	0	0	-	1	1	100	1.30	0	0	0
District of Columbia	1	7	1	1	-	5	5	100	1.50	-	-	-
Male		6	1	1	-	4	4	100	1.50	-	-	-
Female		1	-	-	-	1	1	100	1.50	-	-	-
Maryland	4	53	17	5	1	30	14	46.7	1.46	-	2	14
Male		46	17	5	1	23	12	52.2	1.50	-	2	9
Female		7	-	-	-	7	2	28.6	1.25	-	-	5
New Jersey	4	10	2	-	-	8	6	75	1.37	2	-	-
Male	2	4	1	-	-	3	2	67	1.70	1	-	-
Female	2	6	1	-	-	5	4	80	1.21	1	-	-
New York	10	605	163	34	7	401	316	79	1.47	49	13	23
Male		309	74	34	1	200	163	81	1.47	22	3	12
Female		296	89	-	6	201	153	76	1.46	27	10	11
Pennsylvania	4	65	18	5	-	42	20	47.6	1.30	6	11	5
Male	3	56	15	5	-	36	17	47.2	1.30	6	11	2
Female	1	9	3	-	-	6	3	50	1.25	-	-	3
BAKER	11	132	9	9	-	114	99	87	1.45	8	5	2
Male		127	9	9	-	109	94	86	1.45	8	5	2
Female		5	-	-	-	5	5	100	1.50	-	-	-

TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
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NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Connecticut	2	37	-	2	-	35	34	99	$1.55	-	1	-
Male		32	-	2	-	30	29	-	1.50	-	1	-
Female		5	-	-	-	5	5	-	1.60	-	-	-
District of Columbia												
All Male		5	-	-	-	5	4	80	1.50	-	-	1
Maryland												
All Male	1	5	-	1	-	4	4	80	1.25	-	-	-
Massachusetts												
All Male	1	20	4	1	-	15	13	79	1.55	1	1	-
New Hampshire												
All Male	1	4	0	0	-	4	3	75	3.50	0	1	0
New Jersey												
All Male	2	11	1	1	-	9	7	77	2.43	2	-	-
New York												
All Male	2	43	4	3	-	36	28	78	1.63	5	2	1
Pennsylvania												
All Male	2	7	-	1	-	6	6	100	1.35	-	-	-
BARBER												
All Male	5	35	9	1	-	25	20	80	2.50	2	-	3
District of Columbia	4	27	2	-	-	25	20	80	2.50	2	-	3
Maryland	1	8	7	1	-	-	-	-	-	-	-	-
BEAUTY OPERATOR	68	1970	59	3	66	1842	1418	80.2	1.36	160	131	133
Male	1	30	2	-	1	26	15	77.8	1.56	10	1	-
Female	67	1940	57	3	65	1816	1403	79.5	1.35	150	130	133
Connecticut												
All Female	7	74	8	-	2	64	48	75	1.33	9	4	3

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Delaware												
All Female	2	19	2	-	-	17	17	100	$1.12	0	0	0
District of Columbia												
All Female	3	30	-	-	4	26	24	92	1.50	2	-	-
Maryland	5	100	19	-	-	81	55	67.9	1.85	4	8	14
Male		1	1	-	-	-	-	-	-	-	-	-
Female		99	18	-	-	81	55	67.9	1.85	4	8	14
Massachusetts	6	173	-	-	6	167	143	93	1.30	18	5	1
Male		2	-	-	-	2	2	100	1.50	-	-	-
Female		171	-	-	6	165	141	86	1.15	18	5	1
New Hampshire												
All Female	1	5	-	-	-	5	3	60	1.00	1	1	-
New Jersey	10	286	10	1	23	252	228	90	1.48	16	7	1
Male		12	1	-	1	9	8	88	1.69	1	-	-
Female		274	9	1	22	243	220	90	1.48	15	7	-
New York	25	1106	16	-	31	1059	778	73	1.50	91	79	111
Male		13	0	-	-	13	3	23	1.49	9	1	0
Female		1093	16	-	31	1046	775	74	1.52	82	78	111
Pennsylvania	9	177	4	2	-	171	122	71.3	1.20	19	27	3
Male	1	2	0	0	-	2	2	100	-	0	0	0
Female	8	175	4	2	-	169	120	71.0	1.20	19	27	3
BRICK and STONE MASON and TILE SETTER												
All Male	23	160	14	21	-	125	69	56.2	2.08	39	10	7
Connecticut	2	7	-	-	-	7	5	71	2.07	2	-	-
District of Columbia	2	15	1	-	-	14	10	71	3.25	2	-	2
Maryland	8	50	5	8	-	37	21	56.7	2.03	13	1	2
New Jersey	3	23	-	5	-	18	6	33	1.72	10	1	1
New York	1	14	1	3	0	10	5	50	1.66	2	2	1

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Pennsylvania	5	44	3	5	-	36	20	55.5	$1.75	9	6	1
West Virginia	2	7	4	-	-	3	2	67.0	1.60	1	-	-
BUILDING TRADES CONSTRUCTION												
All Male	14	86	7	21	-	57	38	56.2	1.54	17	-	4
Delaware	5	26	3	7	-	16	9	56	1.28	5	0	2
Maine	4	25	2	2	-	21	16	76.2	-	5	0	-
New Hampshire	2	11	2	4	-	5	1	20	-	4	0	2
New Jersey	1	10	-	5	-	5	2	40	1.75	3	-	-
Pennsylvania	2	14	-	3	-	10	10	100	1.60	-	-	-
BUILDING MAINTENANCE												
All Male	3	15	0	3	-	12	9	75	1.58	2	1	-
Pennsylvania	3	15	-	3	-	12	9	75	1.58	2	1	-
BUSINESS TRAINING												
All Female	1	8	-	-	-	8	7	88	-	-	1	-
New Jersey	1	8	-	-	-	8	7	88	-	-	1	-
CABINET MAKING												
All Male	56	608	29	134	1	444	256	64.5	1.37	120	25	43
District of Columbia	1	2	-	-	-	2	2	100	1.80	-	-	-
Maine	2	9	-	2	-	7	4	57.1	-	3	-	-
Maryland	6	52	-	12	1	39	12	30.8	1.42	19	5	3
Massachusetts	12	125	2	23	-	100	83	83	1.50	15	-	2
New Jersey	3	15	-	3	-	12	9	75	1.61	3	-	-
New York	2	128	7	20	-	101	33	33	1.58	32	6	30
Pennsylvania	19	196	13	55	-	128	74	57.7	1.55	37	9	8
Vermont	2	24	1	7	-	16	12	80	1.50	4	-	-
West Virginia	9	57	6	12	-	39	27	69	1.35	7	5	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CARPENTER												
All Male	172	1152	67	184	5	836	531	73.1	$1.74	176	61	67
Connecticut	14	147	7	29	-	111	79	71	1.96	26	1	5
District of Columbia	1	5	-	2	-	3	3	100	2.00	-	-	-
Massachusetts	25	201	11	31	3	156	138	89	1.60	15	2	1
New Jersey	10	109	2	18	2	87	65	76	1.60	19	2	1
New York	23	357	26	55	-	276	141	51	1.67	59	25	51
Pennsylvania	31	240	20	48	-	172	82	47.6	1.50	51	31	8
Rhode Island	6	28	1	6	-	21	15	70	2.06	5	-	1
Vermont	2	15	-	5	-	10	8	80	1.50	1	-	-
CHEMIST, INDUSTRIAL	3	18	5	4	-	9	8	88	1.83	1	-	-
Male		17	5	4	-	8	7	87.5	1.93	1	-	-
Female		1	-	-	-	1	1	100	1.83	-	-	-
New Jersey	2	9	3	2	-	4	4	100	2.07	-	-	-
Male		8	3	2	-	3	3	100	2.26	-	-	-
Female		1	-	-	-	1	1	100	1.50	-	-	-
Pennsylvania All Male	1	9	2	2	-	5	4	80	1.60	1	-	-
COMMERCIAL FOOD	5	16	2	1	-	13	11	66	1.25	-	-	2
Male	3	12	1	1	-	10	10	100	1.25	-	-	-
Female		4	1	-	-	3	1	33	1.25	-	-	2
Delaware All Male	3	12	1	1	-	10	10	100	1.25	-	-	-
District of Columbia All Female	2	4	1	-	-	3	1	33	1.25	-	-	2
DENTAL ASSISTANT All Female	7	185	8	-	3	174	121	78.4	1.33	15	7	17
Connecticut	1	23	-	-	-	23	20	87	1.45	-	1	2
Delaware	1	5	-	-	-	5	5	100	1.00	-	-	-
Massachusetts	2	30	-	-	-	30	24	80	1.50	5	1	-
New York	1	81	5	-	3	73	44	60	1.38	9	5	15
Pennsylvania	2	46	3	-	-	43	28	65.1	-	1	-	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DIETICIANS' ASSISTANT												
All Female	1	4	-	-	-	3	2	67	$1.17	2	-	-
Delaware	1	4	-	-	-	3	2	67	1.17	2	-	-
DRAFTSMAN	90	726	136	117	3	470	352	83	1.75	80	20	18
Male		721	135	117	3	466	348	83	1.75	80	20	18
Female		5	1	-	-	4	4	100	1.63	-	-	-
Connecticut	19	131	30	19	-	82	67	84	1.77	12	2	1
Male		128	30	19	-	79	64	78	1.78	12	2	1
Female		3	-	-	-	3	3	100	1.76	-	-	-
District of Columbia												
All Male	3	19	3	-	-	16	9	56	2.00	6	-	1
Maryland												
All Male	1	6	1	-	-	5	1	20	2.25	3	1	-
Massachusetts												
All Male	14	107	11	12	3	93	79	84	1.50	12	1	1
New Jersey	8	73	13	10	-	50	44	88	1.59	-	-	-
Male		72	13	10	-	49	43	87	1.59	-	-	-
Female		1	-	-	-	1	1	100	1.50	-	-	-
New York	7	94	25	24	-	45	32	71	1.75	9	2	2
Male		93	24	24	-	45	32	71	1.75	9	2	2
Female		1	1	-	-	-	-	-	-	-	-	-
Pennsylvania												
All Male	28	238	38	41	-	153	93	60	1.55	37	10	13
Rhode Island												
All Male	1	7	3	-	-	4	3	75	1.83	-	1	-
Vermont												
All Male	3	16	4	5	-	7	7	-	1.50	1	-	-
West Virginia												
All Male	6	35	8	6	-	21	18	86	1.80	-	3	-
DRY CLEANING and PRESSING												
All Male	2	11	1	1	-	9	5	55.5	1.29	2	2	-
Maryland	2	11	1	1	-	9	5	55.5	1.29	2	2	-

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ELECTRICIANS												
All Male	136	1827	285	328	9	1205	667	63.6	$1.61	270	118	150
Connecticut	14	167	28	31	1	107	78	73	1.87	22	1	6
Delaware	2	18	0	3	-	15	15	100	1.25	-	-	-
District of Columbia	4	28	2	3	-	23	11	50	1.52	10	1	1
Maine	1	5	-	3	-	2	-	-	-	2	-	-
Maryland	7	50	18	2	-	30	13	52.2	2.00	4	2	11
New Hampshire	1	11	3	6	-	2	2	-	-	-	-	-
New Jersey	11	100	11	12	3	74	65	90	1.60	8	1	-
New York	21	855	141	115	5	594	287	48	1.76	110	84	113
Pennsylvania	58	469	59	121	-	289	156	53	1.45	94	23	16
Rhode Island	4	13	2	5	-	6	3	50	1.45	3	-	-
West Virginia	13	111	21	27	-	63	37	59	1.50	17	6	3
ELECTRO-PLATER												
All Male	1	2	-	1	-	1	-	-	-	-	-	1
Delaware	1	2	-	1	-	1	-	-	-	-	-	1
FOOD TRADES WORKERS	39	297	45	16	8	228	197	82.5	1.40	14	6	11
Male	31	175	26	15	1	133	121	90.2	1.48	6	3	3
Female	8	122	19	1	7	95	76	74	1.20	8	3	8
Connecticut	2	16	1	3	-	12	10	84	2.10	1	1	-
Male		15	1	3	-	11	10	91	2.11	1	-	-
Female		1	-	-	-	1	-	-	-	-	1	-
Maryland	5	30	20	-	2	8	5	62.5	1.25	-	1	2
Male		8	6	-	-	2	2	100	1.25	-	-	-
Female		22	14	-	2	6	3	50	1.25	-	1	2
Massachusetts	8	66	2	-	4	60	54	94	1.50	5	-	1
Male	3	14	-	-	-	14	14	100	1.75	-	-	-
Female	5	52	2	-	4	46	40	87	1.25	5	-	1
New Jersey	6	22	1	-	-	21	16	76	1.16	3	2	-
Male		6	-	-	-	6	4	67	1.26	1	1	-
Female		16	1	-	-	15	12	80	1.11	2	1	-
New York	7	102	15	3	2	82	72	88	1.39	4	2	4
Male		86	13	2	1	70	64	91	1.54	3	2	1
Female		16	2	1	1	12	8	67	1.21	1	-	3

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(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Pennsylvania	9	56	5	9	-	42	38	90.4	$1.20	-	-	4
Male	6	41	5	9	-	27	25	92.5	1.20	-	-	2
Female	3	15	-	-	-	15	13	86.0	1.20	-	-	2
Vermont												
All Male	1	1	-	-	-	1	-	-	1.25	1	-	-
West Virginia												
All Male	1	4	1	1	-	2	2	100	1.05	1	-	-
FOUNDRYMAN												
All Male	2	6	-	1	-	5	5	100	1.30	-	-	-
Pennsylvania	2	6	-	1	-	5	5	100	1.30	-	-	-
GRAPHIC ARTS												
All Male	1	4	-	-	-	4	4	100	1.75	-	-	-
New Hampshire	1	4	-	-	-	4	4	100	1.75	-	-	-
HOSPITAL AIDES & ATTENDANTS												
All Female	1	424	51	1	9	363	166	46	1.20	57	60	80
New York	1	424	51	1	9	363	166	46	1.20	57	60	80
HOUSEKEEPER												
All Female	1	11	-	-	1	10	6	60	1.35	1	-	3
District of Columbia	1	11	-	-	1	10	6	60	1.35	1	-	3
INTERIOR DECORATOR												
All Male	1	12	2	-	-	10	4	40	1.50	6	-	-
Maryland	1	12	2	-	-	10	4	40	1.50	6	-	-
JEWELER & WATCHMAKER												
All Male	4	20	1	3	-	16	15	95	1.44	1	-	-
Delaware	1	1	-	-	-	1	1	100	1.00	-	-	-
District of Columbia	1	3	-	1	-	2	2	100	1.97	-	-	-
New York	2	16	1	2	-	13	12	92	1.37	1	-	-

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LABORATORY ASSISTANT												
All Male	1	3	1	-	-	2	2	100	$ .90	-	-	-
Delaware	1	3	1	-	-	2	2	100	.90	-	-	-
LUGGAGE MAKER												
All Male	1	1	-	-	-	1	1	100	1.25	-	-	-
Delaware	1	1	-	-	-	1	1	100	1.25	-	-	-
MACHINIST												
All Male	245	2492	233	429	12	1818	1336	83.2	1.66	289	101	97
Connecticut	15	178	25	18	2	133	112	85	1.89	10	3	8
Delaware	2	7	-	1	-	6	5	83	1.27	1	-	-
District of Columbia	2	7	-	1	-	6	4	67	2.25	-	-	2
Maine	4	32	5	6	-	21	16	76.2	-	5	-	-
Maryland	15	109	15	27	1	66	45	68.2	1.67	14	4	3
Massachusetts	38	342	13	53	2	274	250	91	1.65	19	2	3
New Hampshire	4	42	8	10	-	24	15	36	1.65	6	3	-
New Jersey	12	135	4	19	1	111	101	91	1.63	10	-	-
New York	34	640	73	76	6	485	356	73	1.68	67	21	41
Pennsylvania	79	664	56	131	-	477	297	62.2	1.45	106	42	32
Rhode Island	6	44	-	15	-	29	24	83	1.64	3	1	1
Vermont	8	53	6	21	-	26	20	76	1.50	3	1	2
West Virginia	26	239	28	51	-	160	91	57	1.65	40	24	5
MECHANICS & REPAIRMEN												
All Male	346	4598	541	859	23	3175	2008	70	1.56	627	209	331
AIR CONDITIONING & REFRIGERATION												
All Male	10	97	7	20	-	70	54	77	1.51	10	3	3
District of Columbia	1	3	-	-	-	3	2	67	1.25	1	-	-
New Jersey	2	15	1	-	-	14	13	93	1.75	1	-	-
New York	3	66	4	15	-	47	33	70	1.78	8	3	3
Pennsylvania	4	13	2	5	-	6	6	100	1.25	-	-	-

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Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AIRPLANE												
All Male	7	644	174	132	-	338	154	46	$1.75	69	28	87
Connecticut	1	11	1	1	-	9	7	78	2.16	2	-	-
Maryland	1	6	-	-	-	6	5	83	1.50	1	-	-
Massachusetts	1	6	1	-	-	5	-	-	-	5	-	-
New Jersey	2	15	5	2	-	8	5	63	1.72	3	-	-
New York	3	598	164	128	-	306	137	45	1.63	55	27	87
West Virginia	1	3	3	1	-	4	-	-	-	3	1	0
AUTO BODY, FENDER												
All Male	29	191	7	42	-	142	103	75.1	1.77	26	6	7
Connecticut	1	8	2	1	-	5	5	100	2.05	-	-	-
District of Columbia	2	5	1	1	-	3	1	33	1.90	1	-	1
Massachusetts	7	34	-	6	-	28	23	82	1.50	2	1	2
New Jersey	6	33	1	3	-	29	21	71	1.56	7	-	1
New York	1	12	-	4	-	8	8	100	1.65	-	-	-
Pennsylvania	10	89	1	22	-	66	43	65.1	1.45	15	5	3
West Virginia	2	10	2	5	-	3	2	67	1.85	1	-	-
AUTOMOTIVE												
All Male	245	2951	229	552	22	2148	1455	67	1.67	434	126	133
Connecticut	13	152	16	21	1	114	94	82	1.69	15	2	3
Delaware	6	19	-	6	-	13	10	77	1.34	2	1	-
District of Columbia	3	32	4	2	-	26	17	65	2.15	4	2	3
Maine	4	21	-	4	1	16	7	43.8	-	9	0	-
Maryland	24	394	65	76	3	250	150	60	1.52	64	12	24
Massachusetts	42	322	15	55	3	249	223	90	1.50	24	-	2
New Hampshire	2	26	5	13	-	8	3	37.5	1.79	3	2	-
New Jersey	15	165	4	33	1	127	101	80	1.64	25	1	-
New York	42	925	77	149	13	686	454	66	1.60	129	46	57
Pennsylvania	69	661	25	139	-	497	283	56.9	1.45	127	48	39
Rhode Island	5	55	-	13	2	40	28	70	1.46	10	1	1
Vermont	8	71	4	24	-	43	31	72	1.35	10	2	-
West Virginia	12	108	14	17	-	77	54	70	1.40	11	9	3

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Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DIESEL												
All Male	2	13	2	2	-	9	6	63	$1.63	3	-	-
District of Columbia	1	6	2	-	-	4	1	25	1.90	3	-	-
Massachusetts	1	7	-	2	-	5	5	100	1.35	-	-	-
INSTRUMENTS												
All Male	1	4	-	1	-	3	3	100	1.50	-	-	-
Connecticut	1	4	-	1	-	3	3	100	1.50	-	-	-
MAINTENANCE & SERVICE												
All Male	4	36	2	7	1	26	15	53	1.70	6	4	1
Delaware	1	1	-	-	1	-	-	-	-	-	-	-
District of Columbia	1	10	1	1	-	8	3	38	1.75	4	1	-
New York	2	25	1	6	-	18	12	67	1.66	2	3	1
NEC REPAIR												
All Male	3	24	1	2	-	21	10	50	1.35	3	7	1
District of Columbia	1	3	1	1	-	1	-	-	-	1	-	-
New York	2	21	-	1	-	20	10	50	1.35	2	7	1
OPTICAL & LENS												
All Male	2	11	-	2	-	9	5	55	1.33	-	2	2
New York	1	7	0	2	-	5	3	60	1.35	-	2	-
Pennsylvania	1	4	-	-	-	4	2	50	1.30	-	-	2
RADIO & TV												
All Male	29	500	77	98	-	325	153	53.1	1.69	64	29	77
Delaware	1	12	-	6	-	6	6	100	1.25	-	-	-
District of Columbia	3	15	5	-	-	10	2	20	2.20	3	-	5
Maryland	3	47	4	6	-	37	8	21.6	2.07	2	2	25
New Jersey	3	17	3	-	-	14	13	93	1.80	-	1	-
New York	4	311	48	44	-	219	112	51	1.54	47	23	37
Pennsylvania	10	53	12	23	-	18	6	33.3	1.30	3	3	6
Vermont	2	19	3	7	-	9	4	44	1.50	4	-	1
West Virginia	3	26	2	12	-	12	2	17	1.00	5	2	3

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Trade or Course (1)	Number of Courses (1a)	Number of Graduates (2)	Not Available for Employment: Number Continued in Full-Time School (3)	Not Available for Employment: Number Entered Armed Forces (4)	Not Available for Employment: Other (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column 7 (9)	Number in Jobs not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)
SHOE REPAIR												
All Male	9	126	42	1	-	83	49	61	$1.60	12	2	20
Delaware	1	-	-	-	-	-	-	-	-	-	-	-
District of Columbia	2	17	3	1	-	13	5	38	2.45	6	-	2
Maryland	4	22	12	-	-	10	3	30	1.25	1	2	4
Massachusetts	1	86	27	-	-	59	40	65	1.40	5	-	14
Pennsylvania	1	1	-	-	-	1	1	100	1.30	-	-	-
TOTALIZATOR												
All Male	1	1	-	-	-	1	1	100	1.25	-	-	-
Delaware	1	1	-	-	-	1	1	100	1.25	-	-	-
MEDICAL ASSISTANT												
All Female	2	45	1	1	1	42	36	86	1.50	1	2	3
Massachusetts	2	45	1	1	1	42	36	86	1.50	1	2	3
NEEDLE TRADES, DRESSMAKER, TAILOR, MACHINE OPERATOR	56	806	86	8	20	692	515	74.4	1.36	68	44	66
Male	31	126	27	8	2	89	57	67.2	1.47	10	8	15
Female	25	680	59	-	18	603	458	73.6	1.27	58	36	51
Connecticut												
All Female	5	33	5	-	-	28	23	82	1.32	4	-	1
Delaware												
All Male	1	5	-	1	-	4	-	-	1.25	-	4	-
District of Columbia	5	26	4	1	-	21	14	78	1.79	4	-	4
Male	3	10	3	1	-	6	6	83	2.20	1	-	-
Female	2	16	1	-	-	15	8	73	1.38	3	-	4
Maryland	9	103	38	-	1	64	22	33	1.42	5	7	30
Male		34	15	-	-	19	7	33	1.35	1	-	11
Female		69	23	-	1	45	15	33.3	1.50	4	7	19
Massachusetts												
All Female	7	79	8	-	2	69	66	95	1.31	3	-	-
New Jersey												
All Female	6	91	2	-	5	84	68	81	1.19	7	8	1

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
New York	17	388	27	6	12	343	264	77	$1.35	38	15	26
Male		66	9	6	2	49	35	71	1.47	7	4	3
Female		322	18	-	10	294	229	78	1.32	31	11	23
Pennsylvania	5	77	1	-	-	76	57	75	1.15	5	10	4
Male	1	11	-	-	-	11	9	81.8	1.15	1	-	1
Female	4	66	1	-	-	65	48	72.7	1.15	4	10	3
Rhode Island												
All Male	1	4	1	-	-	3	1	33	1.25	2	-	-
NURSE, AIDES												
All Female	2	3	1	-	-	2	2	100	1.09	-	-	-
Delaware	1	2	1	-	-	1	1	100	1.09	-	-	-
New Jersey	1	1	-	-	-	1	1	100	-	-	-	-
NURSE, PRACTICAL	64	1676	50	3	20	1603	1526	94.2	1.50	18	38	21
Male	3	10	1	1	-	8	8	100	1.58	-	-	-
Female	61	1666	49	2	20	1595	1518	92.6	1.45	18	38	21
Connecticut	4	247	1	-	1	245	223	91	1.65	-	13	9
Male		2	-	-	-	2	2	100	1.61	-	-	-
Female		245	1	-	1	243	221	91	1.69	-	13	9
Delaware												
All Female	1	6	-	1	-	5	5	100	1.30	-	-	-
District of Columbia												
All Female	2	73	1	-	-	72	72	100	-	-	-	-
Massachusetts	13	249	4	1	7	237	217	95	1.55	8	-	2
Male	3	6	1	1	-	4	4	100	1.60	-	-	-
Female	10	243	3	-	7	233	213	91	1.50	8	10	2
New Jersey	17	428	5	1	7	415	405	98	1.64	3	5	2
Male		2	-	-	-	2	2	100	1.32	-	-	-
Female		426	5	1	7	413	403	98	1.64	3	5	2
New York												
All Female	16	431	11	-	5	415	401	97	1.50	5	4	5
Pennsylvania												
All Female	4	52	22	-	-	30	26	86.6	1.25	2	2	-
Vermont												
All Female	4	82	3	-	-	79	73	92	1.15	-	4	2
West Virginia												
All Female	3	108	3	-	-	105	104	99	1.34	-	-	1

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NURSERY ASSISTANT												
All Female	2	23	5	-	1	17	5	29	$1.29	3	-	9
District of Columbia	2	23	5	-	1	17	5	29	1.29	3	-	9
NURSERY & LANDSCAPING												
All Male	1	1	-	-	-	1	1	100	1.75	-	-	-
District of Columbia	1	1	-	-	-	1	1	100	1.75	-	-	-
PAINTER, PAPERHANGER												
All Male	22	96	10	12	-	74	56	51.6	1.66	13	2	3
Connecticut	1	5	1	-	-	4	3	75	2.08	-	-	1
District of Columbia	1	8	-	1	-	7	5	71	1.90	2	-	-
Maryland	3	13	7	-	-	6	2	33	1.75	2	1	1
Massachusetts	10	44	-	6	-	38	31	81	1.50	6	-	1
New Jersey	4	21	-	4	-	17	13	76	1.46	3	1	-
New York	1	3	2	-	-	1	1	-	-	-	-	-
Rhode Island	2	2	-	1	-	1	1	100	1.25	-	-	-
PATTERNMAKER												
All Male	14	77	3	15	-	59	34	64	1.63	13	8	4
Massachusetts	4	14	-	-	-	14	10	71	1.70	2	-	2
New York	3	13	1	1	-	11	8	73	1.45	1	-	2
Pennsylvania	7	50	2	14	-	34	16	47	1.75	10	8	-
PHARMACISTS' ASSISTANT												
All Male	1	2	-	-	-	2	2	100	1.15	-	-	-
Delaware	1	2	-	-	-	2	2	100	1.15	-	-	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PHOTOGRAPHER, COMMERCIAL & TECHNICAL	4	36	4	6	1	25	21	86.5	$1.53	2	1	1
Male		32	3	6	1	22	19	94	1.48	1	1	1
Female		4	1	-	-	3	2	91.7	1.68	1	-	-
Delaware												
All Male	1	3	1	-	-	2	2	100	1.25	-	-	-
District of Columbia												
All Male	1	5	-	-	-	5	5	100	2.00	-	-	-
New Jersey												
All Male	1	2	-	-	-	2	2	100	1.25	-	-	-
New York	1	26	3	6	1	16	12	75	1.56	2	1	1
Male		22	2	6	1	13	10	77	1.44	1	1	1
Female		4	1	-	-	3	2	67	1.68	1	-	-
PHYSICS LAB. ASSISTANT												
All Male	1	4	-	-	-	4	3	75	1.35	1	-	-
Delaware	1	4	-	-	-	4	3	75	1.35	1	-	-
PLUMBER, PIPEFITTER												
All Male	30	180	11	27	-	142	114	73.1	1.60	19	5	4
Connecticut	6	41	3	9	-	29	25	86	1.86	2	-	2
Delaware	1	10	-	-	-	10	10	100	1.30	-	-	-
District of Columbia	1	3	-	-	-	3	3	100	2.15	-	-	-
Maryland	1	1	-	-	-	1	-	-	-	1	-	-
Massachusetts	5	32	-	5	-	27	25	93	1.50	1	-	1
New Jersey	4	11	2	1	-	8	8	100	1.47	-	-	-
New York	3	55	5	5	-	45	29	64	1.59	11	4	1
Pennsylvania	6	23	1	6	-	16	11	68.7	1.35	4	1	-
West Virginia	1	4	-	1	-	3	3	100	1.25	-	-	-
PRINTING OCCUPATIONS, LITHOGRAPHY	82	1148	105	157	16	870	707	76.6	1.55	104	24	35
Male	81	1146	105	157	16	868	705	76.6	1.55	104	24	35
Female	1	2	-	-	-	2	2	100	1.40	-	-	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Connecticut												
All Male	7	63	3	11	1	48	41	83	$1.53	5	-	2
Delaware												
All Male	1	3	-	-	-	3	3	100	1.25	-	-	-
District of Columbia												
All Male	4	37	2	-	-	35	17	50	2.00	9	1	8
Maine												
All Male	1	5	-	2	-	3	2	67	-	1	-	-
Maryland												
All Male	5	83	10	7	12	54	40	74.1	1.64	7	2	5
Massachusetts	17	157	7	21	1	128	103	80	1.50	21	2	2
Male	16	155	7	21	1	126	101	80	1.50	21	2	2
Female	1	2	-	-	-	2	2	100	1.40	-	-	-
New Jersey												
All Male	8	68	1	6	-	61	56	92	1.49	3	1	1
New York												
All Male	9	495	71	62	2	360	327	91	1.56	19	4	10
Pennsylvania												
All Male	23	191	9	38	-	144	92	63.8	1.45	33	12	7
Rhode Island												
All Male	5	28	1	4	-	23	20	87	-	3	-	-
Vermont												
All Male	1	11	1	3	-	7	4	57	-	2	1	-
West Virginia												
All Male	1	7	-	3	-	4	2	50	1.50	1	1	-
SECRETARY, TECHNICAL												
All Female	1	37	1	-	-	36	36	100	1.62	-	-	-
New Jersey	1	37	1	-	-	36	36	100	1.62	-	-	-
SHEET METAL WORKER												
All Male	66	370	21	62	1	286	189	74.5	1.58	46	23	19
District of Columbia	2	6	-	-	-	6	4	67	1.50	1	1	-
Maryland	4	17	4	-	-	13	10	76.9	1.67	2	1	-
Massachusetts	20	107	2	14	1	90	82	91	1.50	5	-	3
New Hampshire	1	5	-	1	-	4	2	50	1.45	2	-	-

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(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
New Jersey	4	36	3	11	-	22	18	92	$1.82	4	-	-
New York	5	61	5	12	-	44	28	64	1.57	7	2	7
Pennsylvania	20	90	4	15	-	71	39	54.9	1.60	13	11	8
Rhode Island	2	5	-	3	-	2	1	50	-	-	-	1
Vermont	2	10	1	4	-	5	5	100	1.50	-	-	-
West Virginia	6	33	2	2	-	29	9	31	1.36	12	8	-
SHIPBUILDING TRADES												
All Male	2	22	-	4	-	18	5	30	1.30	5	5	3
Massachusetts	1	4	-	1	-	3	1	33	1.35	2	-	-
New York	1	18	-	3	-	15	4	27	1.25	3	5	3
STRUCTURE, IRON WORKER												
All Male	1	2	-	-	-	2	2	100	1.25	-	-	-
Delaware	1	2	-	-	-	2	2	100	1.25	-	-	-
TECHNICAL TRADES	228	2675	1156	312	15	1192	911	84.3	1.71	199	43	39
Male	227	2533	1132	312	11	1078	804	77.5	1.73	193	42	39
Female	1	142	24	-	4	114	107	94.3	1.77	6	1	-
AIRCRAFT												
All Male	3	52	38	5	-	9	4	67	1.83	3	-	2
New York	2	47	36	5	-	6	4	67	1.83	1	0	1
Pennsylvania	1	5	2	-	-	3	-	-	-	2	-	1
CHEMICAL	9	160	126	3	2	29	22	77	1.58	6	1	-
Male		153	123	3	2	25	18	66	1.60	6	1	-
Female		7	3	-	-	4	4	100	1.64	-	-	-
Connecticut	1	7	3	-	-	4	4	100	1.64	-	-	-
Male		2	2	-	-	-	-	-	-	-	-	-
Female		5	1	-	-	4	4	100	1.64	-	-	-
Delaware												
All Male	1	5	-	-	-	5	5	100	1.50	-	-	-
New Jersey												
All Male	1	4	3	-	-	1	1	100	1.60	-	-	-
New York	5	141	120	3	2	16	12	75	1.80	3	-	-
Male		139	118	3	2	16	12	75	1.80	3	-	-
Female		2	2	-	-	-	-	-	-	-	-	-

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ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Pennsylvania												
All Male	1	3	-	-	-	3	-	-	-	-	-	-
CIVIL CONSTRUCT.												
All Male	1	4	1	-	-	3	3	100	$1.65	-	-	-
Pennsylvania	1	4	1	-	-	3	3	100	1.65	-	-	-
COMMUNICATIONS	3	30	1	1	2	26	25	97	2.79	1	-	-
Male		29	1	1	2	25	24	96	1.83	1	-	-
Female		1	-	-	-	1	1	100	3.75	-	-	-
Massachusetts												
All Male	1	12	1	-	1	10	10	100	1.50	-	-	-
New Jersey	2	18	-	1	1	16	15	94	2.27	1	-	-
Male		17	-	1	1	15	14	93	2.16	1	-	-
Female		1	-	-	-	1	1	100	3.75	-	-	-
COMPUTER PROGRAMMING												
Pennsylvania	2	18	6	2	-	10	6	60	1.75	3	1	-
Male	1	6	3	2	-	1	1	100	-	-	-	-
Female	1	12	3	-	-	9	5	55	-	3	1	-
DENTAL												
All Female	2	21	-	-	1	20	20	100	1.65	-	-	-
New Jersey	2	21	-	-	1	20	20	100	1.65	-	-	-
DESIGN & DRAFTING												
All Male	23	185	18	24	-	143	123	68	1.63	15	3	2
Delaware	1	4	-	-	-	4	1	25	1.50	3	-	-
Maryland	3	16	-	-	-	16	16	100	1.61	-	-	-
Massachusetts	3	23	3	3	-	17	16	95	1.68	1	-	-
New Hampshire	2	7	1	3	-	3	1	33	1.40	1	-	1
New Jersey	9	83	2	6	-	75	68	91	2.05	6	1	-
Pennsylvania	4	45	8	12	-	25	19	65.4	1.65	3	2	1
Vermont	1	7	4	-	-	3	7	66	1.50	1	-	-

TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ELECTRIC-ELECTRONICS	123	1659	702	240	6	711	516	75	$1.85	136	33	26
Male		1656	701	240	6	709	516	75	1.85	134	33	26
Female		3	1	-	-	2	-	-	-	2	-	-
Connecticut												
All Male	8	72	11	14	1	46	41	89	1.86	3	2	-
Delaware												
All Male	1	4	1	-	-	3	3	100	1.35	-	-	-
Maine												
All Male	2	12	3	6	-	3	2	66	-	1	-	-
Maryland												
All Male	7	97	51	11	3	32	24	75	1.44	7	-	1
Massachusetts												
All Male	42	386	40	78	1	267	208	68	1.48	49	4	6
New Hampshire												
All Male	1	3	-	2	-	1	-	-	-	-	-	1
New Jersey												
All Male	12	133	11	24	1	97	83	90	1.80	12	2	-
New York	20	642	502	33	-	107	75	70	1.83	19	6	7
Male		639	501	33	-	105	75	70	1.83	17	6	7
Female		3	1	-	-	2	-	-	-	2	-	-
Pennsylvania												
All Male	22	244	59	59	-	126	66	52.3	1.75	38	16	6
Rhode Island												
All Male	3	25	5	7	-	13	6	46	2.85	2	1	4
Vermont												
All Male	3	24	9	6	-	9	2	22	1.30	4	2	1
West Virginia												
All Male	2	17	10	-	-	7	6	86	2.55	1	-	-
ENGINEERS, STEAM												
All Male	1	6	-	-	-	6	5	83	1.83	1	-	-
Massachusetts	1	6	-	-	-	6	5	83	1.83	1	-	-
HIGHWAY ENGINEERING AIDE												
All Male	2	56	46	2	-	8	6	75	2.02	2	-	-
New York	2	56	46	2	-	8	6	75	2.02	2	-	-

TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
INDUSTRIAL DESIGN												
All Male	1	2	-	-	-	2	2	100	$1.25	-	-	-
Massachusetts	1	2	-	-	-	2	2	100	1.25	-	-	-
INSTRUMENT MECH. (Internal Combustion Equipment)												
All Male	1	12	1	5	-	6	4	66.6	1.60	1	1	-
New York	1	12	1	5	-	6	4	66.6	1.60	1	1	-
LABORATORY TECHNICIAN												
All Male	1	5	-	1	-	4	3	75	1.75	1	-	-
New Jersey	1	5	-	1	-	4	3	75	1.75	1	-	-
MEDICAL TECHNICIAN												
All Female	1	17	-	-	1	16	15	94	1.55	1	-	-
New Jersey	1	17	-	-	1	16	15	94	1.55	1	-	-
METALLURGICAL												
All Male	17	216	113	21	-	82	55	89	1.70	19	1	7
Massachusetts	1	2	-	1	-	1	1	100	1.75	-	-	-
New Jersey	2	7	-	3	-	4	4	100	1.67	-	-	-
New York	13	202	113	15	-	74	50	68	1.93	16	1	7
Pennsylvania	1	5	-	2	-	3	-	-	1.50	3	-	-
NEC												
New York	8	165	112	5	1	47	31	66	1.58	11	3	2
Male		143	97	5	1	40	24	60	1.70	11	3	2
Female		22	15	-	-	7	7	100	1.35	-	-	-
OIL, HEAT, POWER												
All Male	1	10	-	3	-	7	7	100	2.10	-	-	-
Massachusetts	1	10	-	3	-	7	7	100	2.10	-	-	-
OPERATING ROOM												
All Female	1	20	2	-	1	17	17	100	1.50	-	-	-
Massachusetts	1	20	2	-	1	17	17	100	1.50	-	-	-

TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SCIENTIFIC GLASSBLOWING												
All Male	1	9	-	-	-	9	9	100	$2.00	-	-	-
New Jersey	1	9	-	-	-	9	9	100	2.00	-	-	-
SURGICAL												
All Female	1	18	-	-	1	17	17	100	1.31	-	-	-
Massachusetts	1	18	-	-	1	17	17	100	1.31	-	-	-
X-RAY												
Pennsylvania	2	27	-	-	-	27	27	100	1.40	-	-	-
Male	1	6	-	-	-	6	6	100	1.40	-	-	-
Female	1	21	-	-	-	21	21	100	1.40	-	-	-
TEXTILE WORKERS												
All Male	2	9	-	-	-	9	8	88	1.35	1	-	-
Pennsylvania	1	4	-	-	-	4	3	75	1.35	1	-	-
Rhode Island	1	5	-	-	-	5	5	100	-	-	-	-
TOOL & DIE MAKER												
All Male	9	72	8	14	-	50	48	98	1.79	2	-	-
Connecticut	7	58	8	10	-	40	39	98	1.91	1	-	-
New Jersey	2	14	-	4	-	10	9	90	1.67	1	-	-
UPHOLSTERER												
All Male	10	70	8	8	-	54	32	73.1	1.56	12	2	8
District of Columbia	1	2	1	-	-	1	1	100	2.50	-	-	-
Maryland	2	5	4	-	-	1	-	-	-	-	-	1
Massachusetts	3	8	-	2	-	6	5	83	1.25	1	-	-
New Jersey	1	8	1	2	-	5	4	80	1.35	1	-	-
New York	1	36	2	4	-	30	17	57	1.40	8	2	3
Pennsylvania	2	11	-	-	-	11	5	45.4	1.30	2	-	4
VOCATIONAL HOMEMAKER												
All Female	3	10	2	-	-	8	8	100	1.40	-	-	-
Connecticut	3	10	2	-	-	8	8	100	1.40	-	-	-

TABLE III
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
ALL DAY TRADE, INDUSTRIAL AND TECHNICAL PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
WELDER												
All Male	40	291	19	63	-	209	139	71	$1.69	30	25	15
Delaware	-	-	-	-	-	-	-	-	-	-	-	-
District of Columbia	1	4	1	-	-	3	3	100	1.80	-	-	-
Maryland	3	29	1	7	-	21	8	38.1	1.52	3	5	5
Massachusetts	8	43	2	8	-	33	30	91	1.65	3	-	-
New Jersey	1	5	-	-	-	5	4	80	1.50	1	-	-
New York	4	43	-	12	-	31	19	61	1.95	3	6	3
Pennsylvania	13	61	3	19	-	39	22	56.4	1.70	8	4	5
West Virginia	11	106	12	17	-	77	53	69	1.94	12	10	2
WOODWORK INDUSTRIES												
All Male	8	76	22	6	-	48	24	50	1.62	11	5	8
Maryland	7	71	22	6	-	43	23	53.5	1.79	10	3	7
Pennsylvania	1	5	-	-	-	5	1	20	1.45	1	2	1

PART TIME COOPERATIVE PROGRAM

TABLE IV
SUMMARY OF PLACEMENT DATA BY STATES
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

State (1)	Rank of State by Number of Graduates (1')	Number of Courses (1a)*	Number of Graduates (2)	Not available for employment: Number Continued in Full-Time School (3)	Not available for employment: Number Entered Armed Forces (4)	Not available for employment: Other (Marriage, Death, Illness etc.) (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) equals (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column (7) (9)	Number in Jobs Not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)	Estimated Annual Wages of Graduates Employed in Work for Which Trained Or in Work Related Thereto Based on 40 Hour Week (52 Weeks) (13)
TOTAL		336	2123	169	220	28	1706	1536	90.0	$1.53	88	40	42	$4,888,166.00
Male			1660	123	212	7	1318	1237	93.9	1.54	51	15	15	3,962,358.00
Female			463	46	8	21	388	299	77.1	1.27	37	25	27	789,838.00
Maine		3	20	6	3	-	11	8	72.7	NA	3	-	-	
Male	6		15	5	3	-	7	6	85.7	-	1	-	-	
Female			5	1	0	-	4	2	50.0	-	2	-	-	
Massachusetts		58												
All Male	2		519	9	64	-	446	443	99.3	1.60	2	-	1	976,726.00
New Jersey		5												
All Male	4		61	2	6	1	52	43	82.7	1.55	8	1	-	138,632.00
New York		228	1321	140	121	27	1033	891	86.3	1.54	70	35	37	2,854.051.00
Male	1		875	97	113	6	659	603	91.5	1.56	35	11	10	1,956,614.00
Female			446	43	8	21	374	288	77.0	1.30	35	24	27	778,752.00
Pennsylvania	3	36	165	5	22	-	138	126	91.3	1.40	5	3	4	369,912.00
Male		34	159	5	22	-	132	120	90.9	1.40	5	3	4	349,440.00
Female		2	6	0	0	-	6	6	100.	1.15	0	0	0	14,352.00
Vermont		3	37	7	4	-	26	25	96.2	1.45	-	1	-	75,400.00
Male	5		31	5	4	-	22	22	100.0	1.45	-	-	-	66,352.00
Female			6	2	-	-	4	3	75.0	1.25	-	1	-	7,800.00

* There were 3 part-time Vocational Industrial Programs in Maine during the year 1963. There is no follow-up study of these graduates based on their occupation.

TABLE V
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ALL TRADES	336	2123	169	220	28	1706	1536	90	$1.53	88	40	42
Male		1660	123	212	7	1318	1237	93.9	1.54	51	15	15
Female		463	46	8	21	388	299	77.1	1.27	37	25	27
ARTIST, COMM'L ADVERTISING	6	18	3	-	1	14	11	78.6	1.28	2	1	-
Male		14	2	-	1	11	9	81.8	1.35	2	-	-
Female		4	1	-	-	3	2	66.7	1.20	-	1	-
AUTO MECHANIC All Male	3	24	2	3	-	19	15	79	1.51	4	-	-
BAKER All Male	3	23	3	-	-	20	19	95	1.55	1	-	-
BARBER All Male	1	1	-	-	-	1	1	100	1.50	-	-	-
BEAUTY OPERATOR All Female	5	81	5	-	4	72	65	90.3	1.12	5	1	1
BRICKLAYER All Male	1	1	0	0	0	1	1	100	1.60	0	0	0
CABINET-MAKER All Male	14	85	-	28	-	57	50	87.7	1.36	2	3	2
CARPENTER All Male	14	49	2	6	1	40	35	87.5	1.39	3	1	1
DRAFTSMAN (Architectural) All Male	1	4	-	-	-	4	4	100	1.25	-	-	-
DRAFTSMAN All Male	6	27	1	-	-	26	26	100	1.40	-	-	-
ELECTRICIAN All Male	12	29	3	4	-	22	18	81.8	1.43	-	1	3

TABLE V
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment: Number Continued in Full-Time School	Not Available for Employment: Number Entered Armed Forces	Not Available for Employment: Other	Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FLORICULTURE	8	11	-	2	1	8	5	63	$1.56	2	1	-
Male		10	-	2	-	8	5	63	1.56	2	1	-
Female		1	-	-	1	-	-	-	-	-	-	-
FOOD TRADES WORKER	28	100	14	7	3	76	66	80	1.37	7	2	1
Male		87	11	7	2	67	61	94	1.48	4	1	1
Female		13	13	-	1	9	5	58	1.25	3	-	-
HOSPITAL AIDES & ATTENDANTS	7	232	34	9	15	174	121	69	1.59	16	16	21
Male		16	8	2	1	5	5	100	1.65	-	-	-
Female		216	26	7	14	169	116	68	1.53	16	16	21
LAUNDERER, DRY CLEANER & PRESSER												
All Male	5	5	-	-	-	5	3	60	1.36	2	-	-
MACHINIST												
All Male	28	268	8	25	-	235	226	96.2	1.71	5	3	1
MECHANICS & REPAIRMEN	117	357	9	60	3	281	260	94.8	1.56	14	2	5
Male		338	5	59	2	268	251	96	1.56	14	1	2
Female		19	4	1	1	13	9	93.6	1.53	-	1	3
AIR CONDITIONING & REFRIGERATION												
All Male	3	3	-	2	-	1	1	100	1.55	-	-	-
APPLIANCE												
All Male	3	7	-	1	-	6	6	100	1.59	-	-	-
AUTOMOTIVE												
All Male	56	277	10	46	2	219	207	94.5	1.58	10	-	2
AUTO BODY, FENDER												
All Male	16	41	-	2	-	39	36	94	1.63	3	-	-

TABLE V
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

Trade or Course	Number of Courses	Number of Graduates	Not Available for Employment			Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12)	Number in Jobs Related to Training	Percent in Jobs Related to Training	Median Hourly Wage for Graduates in Column 7	Number in Jobs not Related to Training	Number Unemployed	Number Unaccounted for
			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)*	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MAINTENANCE, SERVICE												
All Male	17	25	1	9	-	15	12	80	$1.54	2	1	-
NEC	21	32	4	4	1	23	18	79	1.60	1	1	3
Male		13	-	3	-	10	9	90	1.63	1	-	0
Female		19	4	1	1	13	9	69	1.38	-	1	3
OPTICAL & LENS												
All Male	1	2	-	-	-	2	-	.00	-	2	-	-
RADIO & TV												
All Male	5	8	2	-	-	6	6	100	1.58	-	-	-
SHOE REPAIR												
All Male	4	5	-	1	-	4	4	100	1.41	-	-	-
NEEDLE TRADES, DRESSMAKER, TAILOR, MACHINE OPERATOR	12	145	7	2	-	136	119	87	1.34	9	5	3
Male		25	2	2	-	21	19	90	1.40	1	-	1
Female		120	5	-	-	115	100	86	1.25	8	5	2
PAINTER, PAPERHANGER												
All Male	3	9	-	-	-	9	9	100	1.50	-	-	-
PATTERNMAKER												
All Male	1	1	-	-	-	1	1	100	1.25	-	-	-
PHOTOGRAPHER (Commercial)												
All Male	2	3	-	-	-	3	1	33	1.40	1	1	-
PLUMBER & PIPEFITTER												
All Male	6	13	-	-	-	13	12	92.3	1.84	1	-	-

TABLE V
PLACEMENT DATA BY OCCUPATIONS
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

Trade or Course (1)	Number of Courses (1a)*	Number of Graduates (2)	Not Available for Employment: Number Continued in Full-Time School (3)	Not Available for Employment: Number Entered Armed Forces (4)	Not Available for Employment: Other (5)	Number Available for Jobs (Col. 2 minus 3, 4, 5) = (Col. 7 plus 10, 11, 12) (6)	Number in Jobs Related to Training (7)	Percent in Jobs Related to Training (8)	Median Hourly Wage for Graduates in Column 7 (9)	Number in Jobs not Related to Training (10)	Number Unemployed (11)	Number Unaccounted for (12)
PRINTER												
All Male	22	441	63	48	-	330	321	99	$1.45	7	1	1
ROOFER & SLATER												
All Male	3	3	1	-	-	2	2	100	1.52	-	-	-
SHEET METAL WORKER												
All Male	8	34	1	5	-	28	25	96	1.60	-	1	2
TECHNICAL TRADES												
All Male	8	94	1	9	-	84	83	99	1.45	1	-	-
ELECTRICAL												
All Male	7	93	1	9	-	83	82	99	1.40	1	-	-
ELECTRONIC												
All Male	1	1	-	-	-	1	1	100	1.50	-	-	-
UPHOLSTERER												
All Male	3	19	-	4	-	15	11	80	1.38	2	1	1
WELDER												
All Male	6	7	-	3	-	4	3	84	1.47	1	-	1

TABLE VI
PLACEMENT DATA BY OCCUPATIONS AND STATES
1963 GRADUATES
PART-TIME COOPERATIVE PROGRAMS
NORTH ATLANTIC REGION

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(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ALL TRADES	336	2123	169	220	28	1706	1536	90	$1.53	88	40	42
Male		1660	123	212	7	1318	1237	93.9	1.54	51	15	15
Female		463	46	8	21	388	299	77.1	1.27	37	25	27
ARTIST, COMM'L ADVERTISING	6	18	3	-	1	14	11	78.6	1.28	2	1	-
Male		14	2	-	1	11	9	81.8	1.35	2	-	-
Female		4	1	-	-	3	2	66.7	1.20	-	1	-
New York	5	13	3	-	1	9	6	73	1.28	2	1	-
Male		9	2	-	1	6	4	80	1.35	2	-	-
Female		4	1	-	-	3	2	66.7	1.20	-	1	-
Pennsylvania All Male	1	5	0	0	0	5	5	100	N.A.	0	0	0
BAKER All Male	3	23	3	-	-	20	19	95	1.55	1	0	0
New York	2	16	3	-	-	13	12	92	1.55	1	-	-
Pennsylvania	1	7	0	0	-	7	7	100	1.30	0	0	0
BARBER All Male	1	1	-	-	-	1	1	100	1.50	-	-	-
New York	1	1	-	-	-	1	1	100	1.50	-	-	-
BEAUTY OPERATOR All Female	5	81	5	0	4	72	65	90.3	1.12	5	1	1
New York	4	76	5	-	4	67	60	89	1.12	5	1	1
Pennsylvania	1	5	0	0	-	5	5	100	1.15	0	0	0
BRICKLAYER All Male	1	1	0	0	-	1	1	100	1.60	-	-	-
Pennsylvania	1	1	0	0	-	1	1	100	1.60	-	-	-
CABINET MAKER All Male	14	85	-	28	-	57	50	87.7	1.36	2	3	2
Massachusetts	3	40	-	14	-	26	26	100	1.35	-	-	-
New Jersey	1	1	-	-	-	1	-	-	-	1	-	-
New York	5	13	-	5	-	8	3	38	1.38	1	3	1
Pennsylvania	5	31	0	9	0	22	21	95.4	1.40	0	0	1

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(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CARPENTER												
All Male	14	49	2	6	1	40	35	87.5	$1.39	3	1	1
Massachusetts	5	15	-	-	-	15	15	100	1.45	-	-	-
New Jersey	1	8	-	1	1	6	2	33	1.25	3	1	-
New York	6	8	1	1	-	6	5	83	1.42	-	-	1
Pennsylvania	1	3	0	0	0	3	3	100	1.35	0	0	0
Vermont	1	15	1	4	-	10	10	100	1.45	-	-	-
DRAFTSMAN (Architectural)												
All Male	1	4	-	-	-	4	4	100	1.25	-	-	-
Massachusetts	1	4	-	-	-	4	4	100	1.25	-	-	-
DRAFTSMAN												
All Male	6	27	1	-	-	26	26	100	1.40	-	-	-
Massachusetts	3	15	1	-	-	14	14	100	1.25	-	-	-
New Jersey	1	2	-	-	-	2	2	100	1.50	-	-	-
New York	1	1	-	-	-	1	1	100	1.56	-	-	-
Pennsylvania	1	9	0	0	0	9	9	100	1.40	0	0	0
ELECTRICIAN												
All Male	12	29	3	4	0	22	18	81.8	1.43	0	1	3
New York	3	6	1	1	-	4	3	75	1.43	-	1	-
Pennsylvania	9	23	2	3	-	18	15	100	1.40	0	0	3
FLORICULTURE	8	11	-	2	1	8	5	63	1.56	2	1	-
Male		10	-	2	-	8	5	63	1.56	2	1	-
Female		1	-	-	1	-	-	-	-	-	-	-
New York	8	11	-	2	1	8	5	63	1.56	2	1	-
Male		10	-	2	-	8	5	63	1.56	2	1	-
Female		1	-	-	1	-	-	-	-	-	-	-
FOOD TRADES WORKER	28	100	14	7	3	76	66	80	1.37	7	2	1
Male		87	11	7	2	67	61	94	1.48	4	1	1
Female		13	3	-	1	9	5	58	1.25	3	1	-
New York	27	93	11	7	3	72	63	85	1.48	7	1	1
Male		86	10	7	2	67	61	94	1.48	4	1	1
Female		7	1	-	1	5	2	40	-	3	-	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Vermont	1	7	3	-	-	4	3	75	$1.25	-	1	-
Male		1	1	-	-	-	-	-	-	-	-	-
Female		6	2	-	-	4	3	75	1.25	-	1	-
HOSPITAL AIDES & ATTENDANTS	7	232	34	9	15	174	121	69	1.59	16	16	21
Male		16	8	2	1	5	5	100	1.65	-	-	-
Female		216	26	7	14	169	116	68	1.53	16	16	21
New York	7	232	34	9	15	174	121	69	1.59	16	16	21
Male		16	8	2	1	5	5	100	1.65	-	-	-
Female		216	26	7	14	169	116	68	1.53	16	16	21
LAUNDERER, DRY CLEANER & PRESSER												
All Male	5	5	-	-	-	5	3	60	1.36	2	-	-
New York	5	5	-	-	-	5	3	60	1.36	2	-	-
MACHINIST												
All Male	28	268	8	25	-	235	226	96.2	1.71	5	3	1
Massachusetts	10	148	2	13	-	133	132	99	1.60	1	-	-
New Jersey	2	19	-	1	-	18	18	100	1.71	-	-	-
New York	11	49	2	5	-	42	37	88	1.89	3	1	1
Pennsylvania	4	37	1	6	-	30	27	90	1.40	1	2	0
Vermont	1	15	3	-	-	12	12	100	1.65	-	-	-
MECHANICS & REPAIRMEN	117	357	9	60	3	281	260	94.8	1.56	14	2	5
Male		338	5	59	2	268	251	96	1.56	14	1	2
Female		19	4	1	1	13	9	93.6	1.53	-	1	3
AIR CONDITIONING & REFRIGERATION												
All Male	3	3	-	2	-	1	1	100	1.55	-	-	-
New York	3	3	-	2	-	1	1	100	1.55	-	-	-
APPLIANCE												
All Male	3	7	-	1	-	6	6	100	1.59	-	-	-
New York	3	7	-	1	-	6	6	100	1.59	-	-	-

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AUTOMOTIVE												
All Male	56	277	10	46	2	219	207	94.5	$1.58	10	-	2
Massachusetts	8	93	1	13	-	79	79	100	1.70	-	-	-
New Jersey	3	24	2	3	-	19	15	79	1.51	4	0	0
New York	39	141	5	28	2	106	98	92	1.46	6	-	2
Pennsylvania	6	19	2	2	0	15	15	100	1.35	0	0	0
AUTO BODY, FENDER												
All Male	16	41	-	2	-	39	36	94	1.63	3	-	-
Massachusetts	3	15	-	1	-	14	14	100	1.65	-	-	-
New York	13	26	-	1	-	25	22	88	1.61	3	-	-
NEC	21	32	4	4	1	23	18	79	1.60	1	1	3
Male		13	-	3	-	10	9	90	1.63	1	-	0
Female		19	4	1	1	13	9	69	1.38	-	1	3
New York	21	32	4	4	1	23	18	79	1.60	1	1	3
Male		13	-	3	-	10	9	90	1.63	1	-	0
Female		19	4	1	1	13	9	69	1.38	-	1	3
OPTICAL or LENS												
All Male	1	2	-	-	-	2	-	-	-	2	-	-
New York	1	2	-	-	-	2	-	-	-	2	-	-
RADIO & TV												
All Male	5	8	2	-	-	6	6	100	1.58	-	-	-
Massachusetts	1	3	-	-	-	3	3	100	1.25	-	-	-
New Jersey	1	1	-	-	-	1	1	100	1.40	-	-	-
New York	3	4	2	-	-	2	2	100	2.10	-	-	-
SHOE REPAIR												
All Male	4	5	-	1	-	4	4	100	1.41	-	-	-
New York	4	5	-	1	-	4	4	100	1.41	-	-	-
NEEDLE TRADES, DRESSMAKER, TAILOR, MACHINE OPERATOR	12	145	7	2	-	136	119	87	1.34	9	5	3
Male		25	2	2	-	21	19	90	1.40	1	0	1
Female		120	5	-	-	115	100	86	1.25	8	5	2

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
New York	11	144	7	2	-	135	118	87	$1.34	9	5	3
Male		25	2	2	-	21	19	90	1.40	1	0	1
Female		119	5	-	-	114	99	86	1.25	8	5	2
Pennsylvania												
All Female	1	1	0	0	-	1	1	100	1.15	0	0	0
PAINTER, PAPERHANGER												
All Male	3	9	-	-	-	9	9	100	1.50	-	-	-
Massachusetts	1	4	-	-	-	4	4	100	1.25	-	-	-
New York	2	5	-	-	-	5	5	100	1.76	-	-	-
PATTERMAKER												
All Male	1	1	-	-	-	1	1	100	1.25	-	-	-
Massachusetts	1	1	-	-	-	1	1	100	1.25	-	-	-
PHOTOGRAPHER (Commercial)												
All Male	2	3	-	-	-	3	1	33	1.40	1	1	-
New York	2	3	-	-	-	3	1	33	1.40	1	1	-
PLUMBER & PIPEFITTER												
All Male	6	13	-	-	-	13	12	92.3	1.84	1	-	-
Massachusetts	1	4	-	-	-	4	4	100	1.58	-	-	-
New York	4	4	-	-	-	4	3	75	2.09	1	-	-
Pennsylvania	1	5	0	0	0	5	5	100	1.30	0	0	0
PRINTER												
All Male	22	441	63	48	-	330	321	99	1.45	7	1	1
Massachusetts	5	45	3	6	-	36	36	100	1.50	-	-	-
New Jersey	2	6	-	1	-	5	5	100	1.20	-	-	-
New York	11	377	60	41	-	276	272	98	1.66	3	-	1
Pennsylvania	4	13	0	0	-	13	8	61.5	1.35	4	1	0

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			Number Continued in Full-Time School	Number Entered Armed Forces	Other							
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ROOFER & SLATER												
All Male	3	3	1	-	-	2	2	100	$1.52	-	-	-
New York	3	3	1	-	-	2	2	100	1.52	-	-	-
SHEET METAL WORKER												
All Male	8	34	1	5	-	28	25	96	1.60	-	1	2
Massachusetts	5	27	1	4	-	22	21	96	1.60	-	-	1
New York	1	2	-	-	-	2	-	-	-	-	1	1
Pennsylvania	2	5	0	1	-	4	4	100	1.50	0	0	0
TECHNICAL TRADES												
All Male	8	94	1	9	-	84	83	99	1.45	1	-	-
ELECTRICAL												
Massachusetts	7	93	1	9	-	83	82	99	1.40	1	-	-
ELECTRONIC												
Massachusetts	1	1	-	-	-	1	1	100	1.50	-	-	-
UPHOLSTERER												
All Male	3	19	-	4	-	15	11	80	1.38	2	1	1
Massachusetts	2	10	-	4	-	6	6	100	1.50	-	-	-
New York	1	9	-	-	-	9	5	60	1.26	2	1	1
WELDER												
All Male	6	7	-	3	-	4	3	75	1.47	1	-	-
Massachusetts	1	1	-	-	-	1	1	100	1.25	-	-	-
New York	4	5	-	2	-	3	2	67	1.69	1	-	-
Pennsylvania	1	1	0	1	0	0	0	0	0	0	0	0

VT 004 643

Evaluation--The Whys and the Ways: Report of the 1964 Regional Workshops of the Council of Member Agencies of the Department of Diploma and Associate Degree Programs.

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*NATIONAL LEAGUE FOR NURSING REGIONAL WORKSHOPS OF THE COUNCIL OF MEMBER AGENCIES OF THE DEPARTMENT OF DIPLOMA AND ASSOCIATE DEGREE PROGRAMS, NOVEMBER, 1964

A total of 1,131 representatives of 628 member agencies and 21 guests attended the November workshops held in New York, Baltimore, Indianapolis, Kansas City, Memphis, and Denver in order to: (1) identify the essential elements of a systematic evaluation of a school, its educational program, and its services to students, (2) permit agency member representatives to participate in the development of an evaluation plan, and (3) stimulate representatives to initiate a systematic evaluation or to review their current evaluation methods. One of four papers by general educators was presented at each of the six workshops. These papers included in the report are, "Philosophic and Pragmatic Considerations for Evaluation in Nursing Education" by Benjamin Rosner and three different papers entitled, "Evaluation: A Faculty Commitment" by Trafford P. Maher, Keith Case, and Donald C. Manlove respectively. Also included in the other presentations in the report are "An Approach to Systematic Evaluation" by Eunice M. King, and "Evaluation of the Total School Program" by Emma D. Robinson. Materials used by small groups in the development of evaluation plans are appended. (JK)

VT 004 643

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EVALUATION— THE WHYS AND THE WAYS

Report of the 1964 Regional Workshops of the Council of Member Agencies of the Department of Diploma and Associate Degree Programs

NATIONAL LEAGUE FOR NURSING
1965

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EVALUATION—THE WHYS AND THE WAYS

Report of the 1964 Regional Workshops of the Council of Member Agencies of the Department of Diploma and Associate Degree Programs

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SUMMARY OF THE 1964 REGIONAL WORKSHOPS

The fifth annual series of regional workshops of the member agencies of the Department of Diploma and Associate Degree Programs was held in November, 1964. The program was organized by the program planning committee of the Council of Member Agencies, composed of the chairman and the vice-chairman of the council and the four regional vice-chairmen.

Theme and Purposes

Inasmuch as several member agencies had let it be known that evaluation was of particular interest to them at this time, the committee selected as the general theme of the workshops Planning for Systematic Evaluation of the Total Program. The purposes to be achieved within the framework of this theme were defined as follows:

1. To identify the essential elements of a systematic evaluation of a school, its educational program, and the services provided to students.
2. To permit the representatives of agency members to participate, through a workshop, in the development of a plan for a systematic evaluation of the total program.
3. To stimulate the representatives to initiate a systematic evaluation or to review their current method of evaluating their total program.

The Program

The program for each of the six workshops was the same. On the first morning of the two-day session, a prominent educator outside the field of nursing presented his views on the topic Evaluation: A Faculty Commitment. After a question-and-answer period, the participants met in small groups to consider Developing a Plan for Evaluation of the Total Educational Program. Among the materials distributed for the workshops were a set of questions pertaining to the subject of evaluation, sample guides to the evaluative process, and forms to be used by each group in developing an approach to systematic evaluation. At the close of the workshops, some groups reported that the suggestions for effective small-group participation published in the September, 1964 issue of Memo to NLN Member Agencies proved very helpful to them.

On the second day of the workshops, a nurse educator spoke on An Approach to Systematic Evaluation. The content of her speech was based on actual experience--on evaluation as it is being carried out in her own school. Again, there was a question-and-answer period, followed by a sharing of ideas.

Six educators in all presented papers at the meetings--four general educators and two nurse educators. Dr. Rosner and Rev. T.P. Maher, among the general educators, spoke at two regional meetings each; Dr. Manlove and Dr. Case covered one each. The nurse educators, Mrs. Robinson and Mrs. King, divided the six meetings equally between them. The six papers are contained in this report.

Location and Dates of Meetings

The places and dates of the meetings were as follows:

NORTH ATLANTIC REGION: New York, New York, November 2 and 3, 1964.
Baltimore, Maryland, November 5 and 6, 1964.
MIDWESTERN REGION: Indianapolis, Indiana, November 9 and 10, 1964.
Kansas City, Missouri, November 16 and 17, 1964.
SOUTHERN REGION: Memphis, Tennessee, November 12 and 13, 1964.
WESTERN REGION: Denver, Colorado, November 19 and 20, 1964.

Attendance

The number of agencies of the department was 700 in 1964, 9 more than in 1963. The number of agencies represented at the workshops was 628, or 90 percent of the membership, while in 1963, 83 percent was represented. The total number of persons attending also rose--from 1,088 in 1963 to 1,131 in 1964.

The following table gives the statistical record of the meetings:

Region	Number of Member Agencies in Region	Agencies Represented at Workshops		Number of Representatives	Number of Guests
		Number	Percent		
North Atlantic					
A	144	130	90	233	2
B	136	127	93	241	3
Midwestern					
A	113	108	95	189	6
B	136	119	87	227*	1
Southern	126	108	86	182	8
Western	45	36	80	59	1
Total	700	628	90	1,131	21

*Includes representatives of five associate degree programs from other regions.

Workshop Materials

For the first time in the annual report of regional workshops, we are including appendixes containing the workshop materials distributed to the participants and used by them as a guide in their discussions. We hope that these materials will help to clarify just what we attempted to accomplish at the meetings.

In Appendix A, for example, you will find not only Background Information, which is, basically, a concise explanation of what an evaluation of the total school program seeks to achieve, but definitions of terms often used in the educational setting without agreement as to their precise meaning. We included the latter because we feel that consensus as to terminology will lead to better communication among educators.

In Appendix B are questions that each member of the profession should ask himself about the process of evaluation. For those who wish to gauge the extent of their knowledge of the subject, we have also supplied the answers.

Appendix C is entitled Developing a Plan for the Systematic Evaluation of the Total Program. Here sample charts are provided to suggest ways of determining the degree to which specific beliefs and objectives are being realized within the program.

Appendix D is devoted to methods of group discussion. In addition to guidelines for group behavior and group leaders, we have incorporated questions for self-evaluation in the group situation. The first set of questions pertains to self-evaluation by the group as a whole; the second is intended for use by each individual member of the group to measure the value of his contribution and, if necessary, to explore ways of enhancing it.

Results of the Meetings

As this report goes to press, it is somewhat premature to evaluate the practical results of the workshops. That the vast majority of the participants were vitally interested in the theme and eager to extend their familiarity with it was evident. We trust that the workshops sustained their enthusiasm and deepened their knowledge of evaluation through the exchange of experiences. We believe, too, that

faculty members who did not attend the workshops feel equally involved in the subject and are equally aware of its undeniable significance in an age fraught with social changes demanding a new view of the educational process. It is to be hoped that the interest of the participants and non-participants will merge into a serious commitment to evaluation on the part of all educators and that the sharing of ideas and experiences in the workshops will have ever-widening repercussions in the home schools.

PHILOSOPHIC AND PRAGMATIC CONSIDERATIONS FOR EVALUATION IN NURSING EDUCATION

Benjamin Rosner

I am very pleased for this opportunity to consider with you some of the philosophic and pragmatic issues of evaluation in nursing education. It is for me extremely gratifying, not only because the philosophy and practice of evaluation nurture my neurologic and gastric appetites, but also, and more so, because I have been able today to renew some of my earlier associations with League personnel and to share once more in their efforts to stimulate and contribute to quality programs at all levels of nursing education. But, delighted as I am, I am also somewhat anxious because I have never experienced firsthand the realities and limitations within which evaluation in nursing education must necessarily take place. I cannot, therefore, speak to the business of evaluation in nursing education with anything that approaches the sophistication required for the job. Fortunately, your program committee has anticipated me and has arranged for a nurse-educator to speak to these issues with the knowledges and appreciations that only an intimate association with nursing and nursing education can provide. My remarks, consequently, grow out of considerations and experiences in general education. I hope you will find in them some relevance to the unique circumstances of nursing education.

We are living today in perhaps the most challenging and exciting era of the history of American education. The changes visible on the American educational scene have been propelled to headline significance not only because of increasing enrollments, not only because of the heightened sensitivity of the American public to the political and social issues that activate our schools, but also because of the accelerated activity in curriculum development and the potential revolution in the science and technology of instruction itself. But change does not necessarily signify growth, and the responsible educator must constantly differentiate ferment from progress.

I am reminded, in this regard, of the story that Paul Diederich, one of my colleagues at ETS, tells about his experience with one foundation project. Apparently, four evaluators were huddled on a street corner in New York late at night after the theatre. Their overcoats were buttoned up to the chin, and they were stamping their feet to keep warm. Snow was falling, and there was six inches of it on the ground. They were waiting for one of the massive snow sweepers of the New York City Department of Sanitation to pass by.

It was an impressive monster, with a rotary brush about four feet in diameter and ten feet across as its operative unit. It came past snorting and clanking, with the brush whirling madly. Unfortunately, either something had gone wrong with the machinery or the operator had failed to push down his lever far enough, for the edge of the brush was some four inches above the top of the snow. The operator was either too preoccupied with his controls or too proud to look back to see that nothing was happening.

One of the evaluators peered after him and observed, "It looks like a foundation project to me."

The moral of this story is that we must look back to see whether our students, like the snow, are lying behind us, serenely unruffled.

I have been asked to consider both the rationale and the technique of educational evaluation. Let me say that, in the time allotted, we can only skim the surface, if, in fact, we are not four inches above it. My comments are addressed to four major questions, and whatever is left unsaid here can either be discussed later or left for the final examination. I would like to consider, therefore, the philosophic reason why a faculty should engage in evaluation of its program, a brief description of the evaluation paradigm, the roles of the faculty and others in the evaluation process, and finally, the use of evaluation data in suggesting curricular revision.

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Educators are concerned with the organization of learning experiences. Their attention is focused initially on the identification of objectives of learning and subsequently on the development of programs for learning. Inevitably, controversy and debate attend both phases of their work. When, eventually, statements of purpose and statements of program are issued, the statements define current curricular belief. Ultimately, the faculty is engaged in supporting its convictions--ultimately, the faculty is engaged in banishing its doubts. But a faculty is human and subject to human frailty. The techniques used to support its convictions may be more or less rational, more or less sound. Let us examine a few of the popular methods employed for this purpose.

In their classic text, "An Introduction to Logic and Scientific Method," Cohen and Nagel identify four methods of stabilizing belief. The first is the method of tenacity--the closing of one's mind to all contradictory evidence or opinion and the frequent reiteration of one's personal conviction. Needless to say, it is extremely popular. But while such a method, like aspirin, may offer temporary relief from the pressures of conflicting opinion, it is ineffective for long-range--24-hour--comfort. A second ingredient must be found. Simple, stubborn resistance must be fortified, like a doctor's prescription, with appeal to authority. The method of authority, however, may take two forms--appeal to authoritative judgment or appeal to authoritarian omniscience. It is a distinction in infallibility. The appeal to authoritative judgment is an appeal to expertise--to longer study, to greater experience--but not to infallibility. The appeal to a physician for diagnosis of a physical ailment is one example. We respect his judgment, but we reserve the right to question his opinion. We may, and indeed we do, seek out a second or even a third opinion. On the other hand, appeals to authoritarian agencies are appeals for infallible, omniscient pronouncements. Some political systems tend to adopt this approach, and, I must admit, so do the pronouncements of some experts. And, as instructors and administrators, shall we not confess that we, too, have found it a very effective persuader? The difficulty with appeals to authoritarian sources is, obviously, that conflicting opinions may seek refuge in equally conflicting authoritarian agencies with contraindicated consequences. Appeal to authoritarian infallibility is, therefore, ineffective as a means of banishing doubt.

Cohen and Nagel's third method is the method of intuition--not feminine infallibility--but the method of self-evident truths. The method of intuition appeals to an understanding of the real meaning of a statement as the only necessary condition for recognizing its truth. It is frequently described by the sentence "If you only understood what I'm saying, you'd see I'm right." How often have we concluded our arguments with just such appeals? How often have we appealed to the sheer reasonableness of a proposition as a sufficient condition for its validity? How many in this room, for example, would question the assertion "The more you know about a student, the better teacher you are"? It seems self-evident--it isn't, however, unequivocally true. The few studies conducted on this question fail to support its general validity. The more information some teachers have, the more confused they become. Information alone is inadequate--it must be translated into use.

I have already suggested the character of the fourth method--the method of science. It differs from the others in at least two important respects. First, it begins with doubt. Whereas the other methods are inadequate to resolving doubt, science encourages it--thrives upon it. Secondly, the method of science seeks to test its rational considerations by observations of natural events. This combination of tentative, hypothetical formulations checked against empirical observations is, perhaps, the cornerstone of the scientific method. But science is more than a combination of logic and human experience. It includes presuppositions about the natural world and presuppositions about the nature of man. It includes attitudes and values. In brief, it is the most complex system of logical, psychological, and technological phenomena that man has yet devised to comprehend himself and his natural world. To date, it has proven itself the most successful system. I would like to suggest, therefore, that if educational phenomena can be regarded as natural phenomena -- specifically, if educational programs can be reduced to observable events, then the method of science is the most appropriate method of stabilizing belief about educational issues. Further, I would propose that educational evaluation is none other than the application of the method of science to educational phenomena; and finally, that evaluation in nursing education is the application of the scientific method to an examination of the beliefs that characterize the purposes and programs of professional schools of nursing. Let us pursue this further.

I have suggested that a faculty evaluates its program in order to reduce the uncertainty inherent in its educational practices. Are there, in fact, uncertainties in nursing education? Are they amenable to systematic inquiry? Can they be reduced by the method of science? Let us examine the skeletal outlines

of an educational program for the purpose of identifying the elements in it that are potentially uncertain.

An educational program consists, first, of a statement of purpose--a reason for being. Typically, the statement of purpose consists of a series of educational objectives, or goals. We cannot, at this time, explore the bases of such goals except, perhaps, to state that they are formulated in terms of the perceived needs of society. Educational objectives, then, define a program's direction. Until such time as they are changed, educational goals identify the desirable outcomes of a series of learning experiences. They are the criteria by which specific curricular practices are evaluated. But educational objectives are also subject to change and, consequently, are also subject to assessment. Let us assume, however, that at any given moment a clear-cut, reasonable statement of purpose exists and that it lends definition to the institution's reason for being.

To achieve the desired objectives, a sequence of learning experiences is established. These experiences consist of certain defined courses of study hypothesized to achieve desired societal objectives. The courses of study contain specific units of content hypothesized to contribute to the objectives of instruction. The course content is presented in terms of specific instructional techniques hypothesized to maximize learning. The faculty is selected according to specific criteria hypothesized to contribute ultimately to the effectiveness of the course of instruction. The students are admitted according to specific regulations hypothesized to select chiefly those applicants most likely to benefit from the program of instruction. The students, the faculty, the program of study are housed in physical quarters hypothesized to facilitate the attainment of educational objectives. And the whole -- and many other elements to which I have not even referred -- is integrated, articulated, coordinated, and administered in patterns hypothesized to promote the program's purpose. Any given program is, consequently, an instance of a complex system of hypotheses designed to produce desirable behavioral change. It is as if a series of "if ... then ..." hypotheses were operationally translated into a natural setting, with all the "if" clauses referring to specific educational practices and all the "then" clauses identifying specific objectives of instruction. And hypotheses are not certainties. Hypotheses must be confirmed.

The point I am trying to make is that a faculty assumes responsibility for evaluating its program because each phase of the program is a hypothesis that demands confirmation. As conditions change, as course content is revised, as newer instructional techniques and materials are introduced, as the faculty, as the students, as the purpose of the program itself change, newer "if ... then ..." statements emerge and require confirmation. Evaluation is, consequently, a continuous process.

In presenting the "reduction of uncertainty" as the major reason for a faculty's commitment to evaluation of its program, I have had, necessarily, to refer to the major aspects of the evaluation paradigm. At this point, I would like to present it in greater detail.

We have seen that the objectives of instruction serve as a guide for the assessment of specific learning experiences. Unfortunately, this is not as simple as it sounds. Too frequently, educational objectives are presented in broad generalities permitting wide interpretation or no interpretation at all. "To promote good citizenship" may mean voting in all elections, assisting a blind man across the street, obeying traffic regulations, notifying the FBI about potentially dangerous citizens, or reporting the income of your neighbor to the Commissioner of Internal Revenue. It may mean any of these things, all of these things, or none of them. Before evaluation of specific practices may be undertaken, a faculty must define each objective in behavioral or observable terms. This, too, is not as simple as it seems, but it is an indispensable aspect of the evaluation process. Initially, much of the faculty's evaluative activity will be concerned with behavioral specification of ambiguous instructional objectives. In this regard, Bloom's Taxonomy of Educational Objectives, Part I: The Cognitive Domain may prove extremely helpful. Some of you may already have examined it. I would encourage the rest of you to do so. Recently, Part II: The Affective Domain was published, but we have had too little experience with it for me to recommend it with equal enthusiasm. It may, however, prove an equally valuable guide.

After translating educational objectives into behavioral terms, the faculty's next step is to select and/or construct measures of the desirable behaviors. This, too, is a rather complex task. For intellectual goals, several competing instruments may be available, and the faculty's role is careful selection in terms of such measurement criteria as test validity, test reliability, the availability of appropriate norms, and costs. For other objectives, notably objectives concerned with personal and social growth, the faculty may have to construct its own instruments. This is an even more difficult assignment. Test construction is a highly skilled activity demanding considerable technical sophistication. It is not a job to be entrusted lightly. For this reason, a faculty without the necessary competence

would do well to secure the services of expert consultants. Such a person or agency would assist not only in the design and the construction of evaluation instruments but also in the selection of available devices. But more about the role of consultants later. At this point, I wish merely to emphasize the complexity of the criterion problem, for the measures of behavioral outcome are, in fact, the criteria used to assess the effectiveness of the educational program.

Having specified behavioral outcomes, having selected or constructed appropriate measuring devices, the faculty is ready to consider their use as criteria of curricular effectiveness. The typical uses of evaluative criteria are as measurements of student growth. Growth is defined as change in student performance from pretest measurement to posttest measurement--in other words, the difference between scores made at the beginning of a program and scores made at the conclusion of the program. Once again, there are many difficulties in the interpretation of score differences. Once again, a faculty would be wise to work with expert help.

The final phase of the evaluation program requires a statement of significance. A judgment has to be made as to whether a difference in performance can be considered to support a given curriculum practice or not. Usually, such statements are accompanied by statistical tests, and unless the faculty is capable of evaluating its data, it would be wise again to secure the assistance of expert consultants.

In summary, the evaluation procedure consists of statements of desirable or valued outcomes, evidence as to whether an outcome is attained under specific educational circumstances, and a decision to continue or to modify the specific educational circumstances.

Let me consider now the roles of four groups of persons involved in the evaluation process--the role of administrators, the faculty, the students, and consultants--recognizing that the board of trustees, the professional public, and society at large are also interested spectators.

I cannot say that administrators are the most important persons in the process, but I cannot say that they aren't. This is not only politic, it is true. The administrator sets the educational climate of the institution. He can encourage evaluation of the program or he can stifle it. He obviously controls the budget to support it, and he obviously makes the decision to incorporate its consequences. He does not need to be an expert, but he can provide for one should he need to. By his actions, evaluation can become meaningful, dynamic activity or it can be reduced to an exercise. In short, evaluation of the program begins and ends with his decisions. This needs no explication.

Although the administrator may actually take part in the evaluative process, the principal work load is shared by the faculty. If the administrator has done his job, if the climate and resources are suitable, the faculty can assume major responsibility for the evaluative effort. By and large, the faculty will translate educational objectives into behavioral criteria, assist in the identification or the construction of evaluative instruments, participate in the collection and the organization of data, assume or share responsibility for the analysis of data, and help in the interpretation of findings. They will be principally concerned with the evaluative decision and with making recommendations for continuation or revision of existing practices. Whereas an administrator can support evaluative activity and approve recommended changes, only the faculty can assure the adoption of instructional changes in the classroom situation. Obviously, administration-faculty rapport is indispensable to sound educational practice.

At times, it would be nice if evaluation could take place without students; but, alas, it cannot. As we have seen, educational objectives are ultimately reduced to descriptions of desirable student behavior, and assessments of program effectiveness are ultimately reduced to descriptions of student growth. Students, consequently, must be part of the enterprise. But besides taking tests and otherwise participating as guinea pigs, students can frequently assist, if only in a small way, with the interpretation of findings and with recommendations for change. It is not unusual for students to share with their instructors difficulties with particular textbooks, materials, or equipment. It is also not unusual for students to recommend desirable changes in instructional procedure. But, just as administration-faculty rapport is indispensable for major curriculum evaluation, so faculty-student relationships define the extent of student participation in more limited phases of curriculum analysis. The student is an important component of the evaluative process.

I have already referred, perhaps too frequently, to the role of the evaluation consultant. Let me say first that this is the most expendable or the least expendable role in the process. If the faculty possess the necessary technical competence, the consultant is unnecessary. The truth of the matter, however, is that most faculties do not. What is worse is that many faculties do not know they do not. Evaluation

is a complex, technical business. The conduct of a meaningful evaluation program requires sophistication in measurement, experimental design, and statistical analysis that is typically beyond the capacity of most instructional personnel. The uneducated administration and analysis of tests are more detrimental to sound educational practice than no testing at all. And I am not thinking of the wasted effort and the wasted money alone. I am concerned particularly with the consequences of ill-advised decisions --the perpetuation of faulty practices or the abandonment of sound ones. A faculty engaged in the serious and costly business of evaluation requires the soundest advice. The faculty must demand it. Administrators must provide it. Both owe it to themselves and their students.

The entire evaluation program would be meaningless, however, if the faculty failed to consider evaluative data as a sound basis for curriculum change. This is not to suggest that the consequence of all evaluation is change. On the contrary, evaluation may lend support to existing practice. Frequently, comparisons of "traditional" and "modern" practice favor the "traditional." But when the data indicate change, the faculty must be ready to act upon it.

Three conditions must be satisfied if a faculty is to accept evaluative data as a guide to curricular revision. Perhaps foremost is the faculty's recognition of its current curricular effort as a series of hypotheses awaiting confirmation or rejection under experimental conditions. It is, in brief, an appreciation of the methods of science as a guide to the reduction of uncertainty. Unless the evaluation process is rooted in the attitudes and presuppositions of science, evaluative data are of little consequence.

Secondly, the faculty must be assured that the administration is interested in acting upon the outcomes of evaluative activity. Nothing is so damaging to faculty morale as administration disinterest. If the faculty's recommendations for curricular revision are ignored or arbitrarily rejected, subsequent evaluative efforts are likely to prove inconsequential. Curriculum revision occurs when curriculum revision is possible. The administration must make it possible. The faculty must know it.

Finally, evaluative data suggest curricular change if the data themselves are meaningful. Trivial findings are unlikely to demand heroic actions. The experimental design must be geared to critically significant differences--differences in student performance that make a difference--differences that account for differences in cost as well as differences in growth. Decision-making guidelines must be incorporated in the design of the evaluation program. In assessing the relative effectiveness of two instructional procedures, the faculty must decide in advance how much of a difference is a significant difference--not merely a statistically significant, non-chance difference, but a difference that demands curricular attention. The failure to specify in advance the magnitude of a meaningful difference leads only to indecision. Facts do not speak for themselves--they speak only to questions. The faculty must pose significant evaluation problems, so that the data lead unambiguously to meaningful curriculum decisions.

In conclusion, I would like to offer the following observation. It seems to me that the evaluation paradigm has served as an effective framework for the assessment of nursing practice. I would like to suggest that it is an equally effective framework for the assessment of nursing education.

EVALUATION: A FACULTY COMMITMENT

Trafford P. Maher, S.J.

Somehow, a faculty faced with the concept of evaluation finds itself somewhat in the same position as the farmer who brought his gawky eighteen-year-old son to a Danish folk high school.

"My boy wants to spend five months at your school," the farmer said to Professor Grundtvig, founder of the famous Folk School in Denmark. "However, I've looked over your course of studies, and I see only such courses as history, literature, civics, geography, and science. Nothing about farming. Tell me, will my son be a better farmer after he takes this program with you?" Professor Grundtvig was silent for a moment, then replied quietly, "No, your son won't learn how to make better butter at our Folk School. But all his life he will be ashamed to make bad butter."

The process of evaluation will not necessarily teach one anything about the content or the art of his science, but it will inevitably teach the stable professional not to be less than the best he can be in both his science and its art. Confrontation with evaluation in today's society demands a deep personal commitment, for it goes to the heart, the central core of any profession.

Yet, there are severe difficulties. There is man's tendency to live in a phantasy world when it is a question of himself, his efficiency, or the quality of his general performance. Similarly, the college--or a school or a department--too easily lives in a groove in which the constant chant is "Let things be."

Outcomes of evaluation often demand change. Change threatens. In the face of the demand to change, complacency is pricked, and people become uncomfortable, often defensive.

Too frequently, then, even when evaluation is in progress, faculties and their administrations can so manipulate the process that it remains abstract, impersonal, amorphous, and hence inefficient. This tendency to manipulate evaluation cartoons and prostitutes the evaluative process. Moreover, it can mean fostering indifference to the deep moral obligation involved. Justice itself then is scorned, for it is justice that orders evaluation.

In an age when the needs of society demand the best possible product professional education can produce and at a time when education itself costs the consumer such sacrifices in time, energy, and money, justice clamors the louder for faculties and administrations to foster always deeper integrity, humility, persistence, and credibility.

Each of the above words needs emphasis and reflection. Integrity in this context means that faculties and administrators are predictably consistent in their adherence to basic principles of sound professionalism. The focus here is to "play the game as well as they talk it." Humility means those qualities that make one unafraid to face the true facts of the situation. In other words, false pride does not make one "hide his head." Persistence merely means that once an evaluative program is conceived and launched, it will not die "a-borning." Credibility means that there is a mutual feeling of trust among faculty members and between the faculty and the administration.

To satisfy justice, to meet the needs of society, ongoing evaluation plus periodic evaluation in depth is essential!

Each member of the administration and the faculty must heed the words of Charles Malik and ask: "Am I caught in an ominous drift? Do I postpone personal decision, and when I do decide, do I make decisions that count, that pay off, that are of quality?" Says Malik:

> Nothing is more obvious . . . than that history is decisively in the making today, and yet the quality of decision is largely absent. There is an ominous drift; people appear overwhelmed. . . . It is as though the complexity and multiplicity of present issues is too much for the minds of men. But if one thing is certain, it is that where people refuse to decide, events will decide for them.

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And if personal decision is both difficult and risky, it is not at all certain that to allow events to decide impersonally, although relatively easy, is not itself a decision involving the greatest risks.[1]

There are even deeper personal issued to be faced.

John Henry Newman, English scholar, littérateur, and churchman of the last century helps us here. In his diary entry for a certain March in the last century, he records some of his reflections as he meditates on the meaning of the central purposes of any life of service.

He says here that God has created each one of us to do Him some definite service. He has committed to each one of us some work to be done that He has not committed to any other human being past, present, or future. However unsure we may be about what that precise service is, we do know that somehow we are necessary for God's purposes as we deal with our fellow human beings. Each of us has a part in the great work of God. Just what is that part? What is that unique service? Newman has the answer: Each of us is to be a bond of connection between persons. We are to be a link in a chain. Inevitably, this description of Newman's gives rise to certain essential questions that each of us must answer as he evaluates his personal and professional life. What is the quality of our communication? To what extent are we truly links in the chain, a true bond of connection between persons? The answer to these questions spells out our professional proficiency.

How costly is faulty or completely ineffective communication? What happens in terms of our professional responsibilities if we neglect evaluating our communication skills? Alan Paton in his book Too Late the Phalarope gives us a mature insight.

In the opening page of his book, the second character speaks. She is the aunt of the protagonist of the novel.

> "Perhaps I could have saved him, with only a word, two words out of my mouth. Perhaps I could have saved us all. But I never spoke them.
>
> "Strange it is that one could have run crying to the house of a man that one loved, to save him from danger, and he could say to one, 'Have I not told you not to come to this house?' and strange it is that one should withdraw silent and ashamed. For he spoke hard and bitter words to me, and shut the door of his soul on me, and I withdrew. But I should have hammered on it, I should have broken it down with my naked hands, I should have cried out there not ceasing, for behind it there was a man in danger, the bravest and gentlest of them all. . . .
>
> "Yes, I should have cried out my knowledge at him, it might have saved him, it might have saved us all. Then may the Lord Jesus Christ have mercy upon me, that I held my peace that was no peace at all."[2]

At this point, there are some working propositions to be entertained as each of us faces his commitment to evaluation:

1. Communication is the lifeline of human relations.
2. Jobs are done through people. The efficiency of people is in direct proportion to the quality of their communication.
3. An individual's ability to communicate efficiently, comfortably, and rewardingly is in direct proportion to the validity of the knowledge he has about himself.
4. The director or the administrator and each member of the faculty have as one of their prime functions the improvement of the communications climate.

To a very great extent, the significance and the quality of the evaluative process depend on the professional and personal internal security of the administrator. Given a weak administrator, the probability of a shallow evaluation is likely. The converse is also true: Given a strong,well-informed administrator, the probability is that the evaluative process will be deep and meaningful.

You may ask, What is the meaning of communication in this context? In this context, in the academic and technical setting, communication is a process that embraces every action, reaction, and interaction that takes place among persons for the purpose of transmitting feelings and meanings.

If the evaluative process is to be more than surface gyrations, it must bear down hard on essential facets of the academic and technical setting. When the academic and technical setting is nursing, faculties must clearly understand the role and the position of the science it serves: medicine.

The focal point of all medicine in its essence and in all of its ancillary areas is caring for the patient. Dr. F.W. Peabody has given the secret for us here: "The secret of caring for the patient is caring for the patient."[3]

Caring for the patient encompasses both the science and the art of medicine. The science of medicine embraces the total accumulation of knowledge and technique regarding man as a biologic entity plus what we know about the psychosomatic relationship in man. The art of medicine embraces the skillful application of this knowledge to a particular person for the maintenance of health or the curing or the alleviation of disease. The meeting place of the science and the art is the patient.

At this juncture, we find we have an excellent framework in which to evaluate both the curriculum and the quality of instruction as well as the quality of administration in the nursing school.

Evaluation must take into account that there are very grave dangers in any technological society in rapid transition. In such a society, the medical profession and all of its auxiliary areas run the risk of becoming almost obsessively preoccupied with only the science of medicine. There must be constant caution. Nurse educators as well as those who conduct schools of medicine must keep uppermost in their minds that the scientific interests of medicine dare not block the ministry of medicine. The science of medicine and the art of medicine are not mutually exclusive, although there is the constant temptation to become so fascinated with the etiology and the cure of disease that the patient as a person may be lost sight of. This need not happen if training and inservice programs are in the hands of persons who are keeping a proper perspective and a proper set of values. Emphasis must constantly be put upon the fact that in all of living, science and art complement each other. They constitute a continuum in the service of mankind.

In exercising the cautions that a technological and rapidly changing society makes necessary, recall that compassion is priceless to all art, but compassion without sound scientific knowledge is maudlin. Scientific knowledge without compassion and wisdom is a frozen storehouse of ineffectual material.

The faculty and the administration of any educational program in nursing must be aware of the fact that scientific knowledges are more readily taught--even though these knowledges are accumulating today at a rate that staggers even the most brilliant mind--than the application of scientific knowledge to the sick person, which is not so easily taught. The application of scientific knowledge is largely a function of the quality, the skill, the perceptiveness, and the sensitivity of the practitioner herself. The scientific knowledge and the art of medicine can be efficiently and gracefully wedded in the same person.

Evaluation of the curriculum and the quality of the instruction must take into account the following points:

1. The growth and development of the individual student precisely as a person.
2. The grasp of fundamental knowledge in its refinement, in its integration with other known facts, and in its general and particular purpose.
3. The application of that knowledge in particular cases after having considered all allied relevant circumstances. In short, the prudent application of knowledge, the prudent use of skill, must be a central objective of both the curriculum and the instruction.

For an evaluation to be maximally productive, it must be perceived as a deep personal educational experience for all involved. The evaluative process is nothing other than an attempt to measure a situation against a given set of norms. To make the evaluative process useful, at the outset each faculty member should restate his own view of the school's objectives and philosophy. Such a statement should take into account those general objectives shared by other similar institutions. Further, it should outline those particular objectives unique to the individual institution.

The emphasis here is on the individual faculty member's personal view of what the objectives are operationally. This view may or may not positively correlate with the official statement of goals listed in the school's bulletins, catalogues, schedules, and other promotional statements.

At best, the formulation of goals in official statements is abstract, vague, and impersonal. Too often, these statements lack credibility precisely because they have about them the feeling of irrelevance.

If individual faculty members are truly close to their work, if they are perceiving accurately the day-to-day operations, and if they are noting what is actually happening to the students, they should be able to state the de facto goals as they are detected in the reality situation. Further, they should then be able to build on these goals to bring them closer to what the particular institution's aims should be.

In preparing for evaluation, principles of the evaluative format or organization should be clearly set forward. These principles should follow the areas of:

1. The instructional structure.
2. The curriculum content and sequence.

3. Guidance and counseling.
4. The faculty and administrative arrangements.
5. Student "feedback".
6. Graduate follow-up.

The need in the evaluative process for student feedback is essential. A faculty and its administration should know how the student body is reacting to the training and educational experience. Students vary in their degree of insight and maturity; hence, some of their statements per se may not be too helpful. Nevertheless, it is always important for planning to know how each student is perceiving the situation. We must deal with those perceptions if the educational program is to be maximally effective.

A key issue not to be overlooked is that of faculty morale.

When considering the problem of faculty morale, it is well to recall that persons and institutions are products of heredity or tradition, environment, and the ongoing decisions of administrators and individual faculty members. For instance, in coming into an institution, one can immediately sense certain subtle but very real factors. In one institution, one can sense that the faculty feels a tingle of excitement in its work. There is evidence of a feeling of genuine contentment. There is the reality here of an institution that deals primarily with ideas and not personalities.

On entering another institution, one sees such factors or symptoms as boredom, tiredness, anxiety about promotions and salary increases. Yet, in this institution, the salaries might even be higher than in the previous institution. Also, in this particular institution, the faculty teaching load may be smaller than in the former.

What causes the difference between these two institutions and their atmosphere? Is it leadership? Is it the administrative climate? There have been some studies made on this issue of faculty morale, and these should be consulted in facing up to the evaluative operation.

We do know that high faculty morale is related to institutional positive goals clearly stated and kept in view. A faculty that knows where it is going is a faculty that tends to be very positive in its outlook. High morale also demands mutual support from all facets of the enterprise. There must be mutual respect, mutual acceptance. If there are some members of the faculty who resist change for improvement and others who pull ahead, the faculty finds itself fragmentized, and low morale, low efficiency, and a poor product are the result. High morale is also related to a faculty body that somehow or other shares the facing of common problems without feeling any particular threat of danger to any member of the faculty. This demands, of course, that the individual faculty members have a deep belief that each can actually help in the attainment of the institutional goals.

Once more, attention must be focused on the role of the administrator as a forceful factor in faculty morale. Experiments have shown that the administrator committed to democratic procedures and processes in administration is the sort of person who is very likely to have a faculty with high morale. The insecure, autocratic administrator tends to posit the conditions that yield low morale.

Faculty morale is also related to the following factors: the concept of role--whether it helps or hinders; the concept of self-image; the concept of leadership and followership; the concept of status, attainment, and chances for satisfaction (motivation); the concept of mobility--that is, promotion; the problem of "marginal status" of teachers in the United States; the concept of cultures and subcultures--for instance, the subculture that one finds in nursing.

The subcultures of the nursing field under consideration here are made up of the various status levels--for example, the Ph.D. nurse, the M.S. nurse, the A.B. or B.S. nurse, the L.P. nurse, and finally, the nurse's aide. This hierarchy constitutes a cogent reality. This reality must be dealt with frankly and objectively.

There are manifold implications in all of these points for improvement as a result of the evaluative process-- such items as the quality of communication, clear-cut channels of communication, the flavor of democracy in leadership that leads to firm, clear decisions, and finally, total faculty awareness of the wide varieties of motivations and the institution's ability to meet the needs of each individual.

In approaching any meaningful evaluation, it is altogether necessary to view the total program precisely as a whole.

1. Values, loyalties, and commitments.
   a. Value: principles (guidelines), the why (goals), knowledge (progress), the how.
   b. Loyalites: connected with quality of leadership, quality of intrinsic worth of curriculum, quality of understanding--that is, communication.

c. Commitments: reason why, motives.

2. Concepts of prevention (positive) and concepts of cure (negative).
   a. Examples of medicine in general.
   b. Examples of education in general.
   c. Saturate curriculum.
   d. Saturate teaching.
3. Does the education operation offer:
   a. Personal development and satisfaction?
   b. Chance for significant service (the concept of love)?
4. Student's progress (related to admission requirements and criteria of admissions).
5. Personal development, professional development, and area of skills.
   a. Attitudes, self-concept, needs.
   b. Knowledge (not myths and folklore but fact).
   c. Ability to conform. This brings up the question of guidance and counseling. How is it done? How realistic is it? What is the institution's personnel point of view?

One can correlate the faculty's morale, quality of communication, values, loyalites, and commitments in the program with the quality of product. The latter can be learned through follow-up studies of the graduates.

Professor Grundtvig might well say that evaluation will not supply the science of any field but it will keep a faculty from failing in the art of its field. Since most persons cherish success and try to avoid failure, on professional and personal grounds alone a faculty should be committed to evaluation. The demands of justice and charity make commitment a serious obligation.

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EVALUATION: A FACULTY COMMITMENT

Keith Case

That we are going to continue to have program changes is certain. The only open question is how, on what basis, by what procedure are we going to have them. Thirty years of personal observation of and experience with program changes in our educational establishment in this country has led me to hold certain opinions about the bases for change in educational programs. Several rather typical bases for program changes can be observed in our educational institutions today.

Among them are program changes made on the basis of whim or feeling. Administrative and/or faculty groups and individuals involved in making the changes simply prefer another type of program or certain changes within an existent program. No further basis is needed, beyond a coat of "whitewash" where advisable. The changes are unilaterally instituted without regard to any facts of efficiency, effectiveness, productivity, or human values.

Then there are haphazard program changes, based on something coming up in the operation of the program that suggests that things are not going as well as desired. The changes are initiated to take care of the immediate circumstance, without much attention to whether the circumstance is more than happenchance or to what effects the one change will have on the rest of the program. This type of change quickly produces a "crazy-quilt" effect, along with considerable instability, throughout the program.

Often, also, program changes are instituted on insufficient evidence due to inadequate gathering and interpretation of data. A lack of thoroughness at this basic level often vitiates what would otherwise be an adequate evaluational study. At times, sound evaluational conclusions can be arrived at by chance and intuition from sensitive use of the incomplete data, but this is comparatively rare.

Another recurrent basis for program change is analogy; in other words, changes are made simply because someone else in a presumably similar situation changed his program in a certain direction. This process differs from legitimate background studies of national tendencies or of changes in closely similar programs on a selective basis. In either case, it is highly questionable whether there is sufficient basis for program changes.

Program changes on the basis of inadequate knowledge of the process of evaluation and impatience with its full and careful use are also prevalent. This includes two distinct kinds of base for change: (1) sincere evaluational studies ineffectively carried out, resulting in an inadequate or defective basis for change and (2) pseudo studies designed to whitewash a decision for a given change already made on a different basis. Often, faculty groups and/or administrative officers feel that full evaluation is too slow, tedious, and expensive a means of making changes; yet, they may feel that there should be at least some factual base for the change. Hence, the use of a "shorthand" approach, often aggravated by actual lack of knowledge and ability in conducting an adequate study.

In still other instances, program changes have been effected on the basis of opinion, expert or otherwise. Often, program changes are made to conform with the opinion of some influential individual or faculty group as to what is correct and desirable. At times, the change may be made on the basis of so-called expert opinion as a result, say, of the recommendation of a consultant or an accreditation team. While responsible and knowledgeable opinion can certainly be considered in the evaluational pattern, particularly as a guide to areas for possible investigation, it is by no means an adequate substitute for full and accurate evaluation.

Program changes on these inadequate or faulty bases originate as much in faculty groups as in administrative officers and reflect the abdication by the faculty of its rights and professional responsibilities fully as much as it does so-called administrative manipulation. The mere transfer of responsibility from one group or person to another does little to rectify the situation.

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Actually, there is only one real solution. Program changes must be based on sound and thorough evaluation systematically carried out by individuals willing to make themselves fully competent in handling the necessary procedures. Those undertaking the responsibility must understand the nature of the process of evaluation, the procedure by which it must be carried out, and how the results can be effectively used in initiating program changes. In addition, they must have developed at least minimal professional skills in the area.

UNDERLYING REASONS FOR PROGRAM EVALUATION

Perhaps one reason for poor program evaluation--or for none at all--on the part of an educational institution is the failure to recognize any pertinent need for such evaluation. This is, in one sense, entirely reasonable. Thorough evaluation is arduous, expensive, time-consuming. While each program must clarify its own specific reasons for undertaking a program of evaluation, certain general reasons for program evaluation can be suggested for consideration.

1. To guide the ongoing program and maintain it at optimum efficiency and effectiveness: Adequate evaluation can be designed to ensure that the program will operate continuously at the existing level of quality. No program will run itself automatically. It must be continuously monitored as a basis for guiding, directing, redirecting as needed. This ongoing guidance will function at three major levels:
   a. The administrative function of the program, in the form of the continuing day-by-day decisions that must be made to ensure that the structure and the function do not become distorted, incomplete, or misdirected.
   b. The teaching function or process as the teacher attempts to control and direct his teaching behaviors so as to produce the teaching results called for by the objectives of the program.
   c. The learning function of the student as he attempts to participate in the learning activities called for by the curriculum and thus contribute to his own growth through realizing the course objectives and outcomes within his own experience.

Ongoing evaluation of a systematic nature is obviously essential to effective continuous guidance and direction of this character.

2. To improve progressively the ability of the program to reach the ultimate goals that brought it into existence initially: Adequate evaluation can lead to improving the qualitative level at which the program is designed to function. Existing levels are often matters of temporary expediency. The goals of the program may call for extensive improvements in the program before these goals can be adequately reached. This improvement may include (a) still further clarification of objectives and revision of them if necessary; (b) improvement of approaches, methods, techniques, curriculum, materials, instructional devices; (c) improvement in teaching skills of the staff; (d) improvement in administrative procedures; (e) improvement in educational conditions and increase in educational potentialities; and (f) improvement in the quality of entering students and in their learning capacity after entrance.
3. To ensure the highest possible quality in the final results of the program on a continuing basis: Not only must the operation of each part of the program be continuously monitored for effectiveness and improved through evaluation of its functioning, but the final results, the product, of the program must be continuously evaluated for quality. The educational program is responsible for producing a product of the highest possible quality as the students go out into their professional work. Only careful evaluation of results on a continuing basis can ensure that this is being consistently done.
4. To stimulate, encourage, motivate the participants in the program: As evaluation is fed back to the people involved in the program, it affects their reaction and attitude toward the program, toward one another, and toward themselves. This, in turn, affects morale and the level of effort voluntarily given to the program by the participants. The very fact that evaluation is undertaken has an effect; the manner of the evaluational effort may have even greater effect. Constructively handled, evaluation can have a strong positive effect on the program and everyone in it.
5. To improve the validity and relevance of the program as a whole and in each of its parts: Evalu-

ation forces specific, exact, realistic thinking on a systematic basis about all aspects of the educational program. This includes the dimensions of the contribution of the particular program to the over-all goals of the institution of which it is a part and of the professional area to which it contributes. It also involves the examination of the contribution of the program to the participants in it. The continuing presence in our educational institutions of invalid and irrelevant programs is not uncommon, due to a lack of these particular dimensions in our program evaluation.

REASONS FOR FACULTY EVALUATION

Why evaluation by the faculty? This is quite a different question from the one just considered. Even though we can agree on the necessity for program evaluation, is there any cogent reason why such evaluation should be a faculty responsibility and function? There appears to be some tendency on the part of faculty members and faculty groups to (1) be doubtful of the value of program evaluation altogether and (2) regard program evaluation as an administrative activity external to faculty responsibility and function on the implicit assumption that faculty is not actually responsible for the academic program beyond teaching in it and objecting, as a matter of principle, to administrative policy concerning it! As a result, certain consequent conditions have grown up that have a bearing on a consideration of the question of faculty commitment to program evaluation.

1. Faculty divorces itself from any feelings of responsibility for the effective functioning of the total program.
2. Faculty view their own classrooms and themselves functioning in them as teachers as being separate and apart from the program of which their classes must be a part.
3. Faculty view program change as externally imposed and therefore necessarily to be resisted.
4. Faculty view evaluation as external and outside the program, as administrative in nature, and as an actual or at least a potential threat. This sometimes includes a feeling that such evaluation is "prying and probing" for ulterior motives inimical to the welfare of those in the program.
5. Faculty regard evaluation as technical, mysterious, complicated, something to be done by "experts" with special, esoteric knowledge.
6. Faculty are reluctant to participate in evaluational activities as a normal part of their functioning as faculty members.
7. Faculty are reluctant to use the results of evaluation; often, they do not even possess the knowledge and experience through which the results could be meaningfully used.
8. As a result, evaluation often has much less effect and makes a much smaller program contribution than it should, considering what it costs and what values it could bring.

While logic is not likely to be the determining factor in faculty commitment to program evaluation, an examination of the purely logical reasons and advantages for such commitment may still be helpful. Program evaluation is:

1. A professional responsibility, parallel with that of teaching itself and equal to those of professional study and research. In addition to this general responsibility, a given faculty is specifically responsible professionally for the program in which it teaches.
2. A means of professional growth through a close study and examination of the nature of the actual teaching-learning process on a systematic basis. This type of study is a source of both individual and group growth. Also involved is a growth in ability to evaluate effectively, a normal part of each faculty member's professional equipment.
3. A means of instructional improvement--in fact, the only really cogent means of providing a basis for actual instructional upgrading. Constant instructional improvement is a continuing faculty responsibility, both individual and group. It extends to all levels, from our own classroom on a given day clear through to the functioning of the total program on a ten-year basis. We must recognize, as faculty, that we are responsible for instruction; if not, we have no other function that I know of. As individual faculty members, we are responsible for effective instruction in our own classrooms; as departmental faculty, we are responsible for our departmental area; as total faculty, we are responsible for the effectiveness of the whole program.
4. A means of professional orientation. Faculty frequently do not know what is going on in their own program, go on working blindly, feel confused and frustrated, often feel depressed because they

are "lost sheep" and have no sense of accomplishment, indulge in unrealistic thinking about themselves and their teaching. This is simply a case of disorientation. Program evaluation allows everyone to know what is going on and where he stands on a factual basis.

5. A means of professional self-defense. It is far wiser to evaluate ourselves and our programs and to improve them than to have others in administrative positions or from the outside do it for us and impose the results upon us. We find such conditions hard to accept, yet we refuse to accept the alternative of assuming responsibility for evaluation of our own programs. The results of program evaluation also provide a factual base upon which further support can be asked and expected. Through sound evaluational results, the soundness of the program can be readily demonstrated to others.
6. A means of faculty growth as a professional group. We too often overlook the need to be a functioning professional group and to be personally a part of such a group. A faculty is tied together by the working relationships it establishes among its members. Most committee work contributes only mildly to welding the faculty into a true professional group, mainly because of a lack of relevance of the work of the committee to the ongoing program. Program evaluation makes a direct contribution because of its high relevance.
6. A means of program improvement. The faculty is responsible for the program and its actual effectiveness; in the final analysis, no one else can be, simply because no one else can do anything about it. Only through the faculty can the necessary data be gathered in their entirety; only through the faculty can the necessary changes be implemented. Furthermore, the faculty knows the program best--or should, at any rate. This gives them the best possible position from which to carry on realistic evaluation.

Ultimately, each faculty member and faculty body must make its own decision as to its commitment to its own program evaluation. Administration can do little more than encourage and make possible such professional commitment. In making its decision, faculty members would be wise to consider not only the reasons for and the advantages of faculty assumption of such responsibility but also the reverse side of the coin--what is lost by not doing so and what serious consequences are thereby incurred.

THE PROCESS OF COLLECTING AND HANDLING DATA

Before we can go on to consider the means of evaluation, two matters must have already been cleared: (1) the specific objectives of the evaluational program must have been clarified and (2) the exact areas of evaluation must have been specified. At this point, we are dealing with the steps to be taken to accomplish the specified objectives and the selection of the instruments, devices, and procedures required as a means of doing so.

Choosing the Means

In choosing the means of evaluation, certain primary considerations, must be kept in mind as a functional guide. Those selected must be consistent with the specific nature of the objective and capable of accomplishing it. The relationship must be as close as possible. Moreover, they must be capable of actually measuring or testing as required, and in a valid fashion. What they measure should be what they purport to measure, and that should be what the objective calls for. The data yielded must be valid and relevant to the objective--precise, accurate, and consistent. They should be capable of being accurately and validly interpreted, and when interpreted, should fit meaningfully within and contribute to the total pattern of data upon which the evaluation must be based. Also imperative is that the means be capable of being used within the actual situation facing us and by the available personnel. They should be the most economical and efficient ones possible--easy to administer, score, handle, and interpret. If feasible, they should be capable of being cross-checked by other means for verification. We should not rely on the validity of any one instrument or device if it is possible to do otherwise. The data yielded by some devices are so ambiguous as to be virtually noninterpretable and therefore nearly useless.

Types of Data-Collecting Devices

Detailed discussion of the various types of data-collecting devices is not possible at this point. Furthermore, most of these devices are quite familiar. The important thing is to recognize that each type will have certain advantages as well as certain disadvantages when used to collect data in a given area and for a given evaluational purpose. These aspects of the device must be known and used as a background for interpretation of the data derived.

The following listing may be suggestive, but it is by no means inclusive of such devices. Effort must be made to build up an adequate repertoire of devices for continuing use in a particular program of evaluation.

1. Tests: These include group or individual, paper-and-pencil or oral, standardized or informal types covering a wide range, from achievement tests to psychological tests. Such tests form the most commonly used type of data-gathering device (and usually the most abused, also!). Tests must be selected or constructed with discrimination if they are to yield reliably the precise data needed. Careful study should be given to selection, construction, use, and interpretation of tests in general, with attention to the variety of types available for use in program evaluation.
2. Inventories: The same range will be found in inventories as in tests, and many of the same considerations will apply. A well-constructed inventory properly administered can yield a greater quantity of information more economically than almost any other type of device. A careful examination of the limitations of inventories for certain uses should be made, however, and those limits should be carefully respected.
3. Interviews: Effective and sensitive interviewing by a skilled interviewer can uncover data in depth that would not be normally available by any other means. Since interviewing is expensive of time and energy, it should not be used to gather data more economically available through other means. The type of interview selected should conform with the type of data it is designed to produce.
4. Observation: Controlled observation by an outside observer is valuable for eliciting a range of behavioral data accessible through such observation. Self-observation by a given individual is valuable for eliciting introspective data. In both cases, the structuring of the observational and recording procedure will affect the type of data obtained.
5. Rating Scales: The rating of given aspects of the particular area by selected individuals on the basis of a prepared scale can yield data based on their experience with the area and their reaction to it. Such judgmental data must be interpreted strictly within the limits of their nature and the knowledge of the people furnishing them. Problems in constructing a useful scale must be understood, and the scale should be carefully pretested before use.
6. Anecdotal Records: Ongoing records or diaries kept by participants in the program can be revealing. They are, however, difficult to use in abstracting, recording, and interpreting relevant data.
7. Experiments: While not normally used in program evaluation, the experimental method is valuable for testing hypotheses and yielding valuable operational data. Experiments tend to be expensive, time-consuming, and somewhat difficult to handle, especially if they are not kept clean-cut and simple. Experimental design must be carefully planned to yield the kind of data wanted.
8. Performance Sampling: This approach is especially valuable for assessing the over-all effects of the instruction-learning process. Types range all the way from examination and rating of student work produced during a course to observations of ongoing performance on the job under controlled conditions. In using performance sampling, the type of sample, the means of examining the sample, and the method of recording the data must be carefully selected.
9. Feed-back Data: As both informal and formal responses fed back as a part of the ongoing operations of the program are collected, indirect data on program operation can be derived. Feed-back data will probably be increasingly utilized, especially as effective instruments are devised to elicit and record them.

Data-Handling

The data-handling procedure must include the means of recording the data for further interpretation and use. The method of recording must distort the data as little as possible while at the same time organizing them for effective interpretation. Three distinct phases in data-handling can be recognized:

(1) the method of recording data, as already discussed, to provide for an accurate record that preserves the data with minimal distortion; (2) the method of grouping and organizing the data into meaningful configurations that bring relevant data into conjunction; and (3) the method of displaying the data for quick, economical examination preparatory to interpretation. This includes use of various graphic and other visual devices, all of which can affect the data and their interpretation. This closes that phase of the evaluation having to do with the collecting and handling of data and prepares the way for interpretation as a basis for deriving conclusions.

USE OF DATA IN INITIATING CHANGES

Simply collecting data accomplishes little or nothing by itself. The process of moving from the collection of data to actual changes is by no means a simple step. An examination of the stages in the progression may make this clear.

Moving Through Interpretation to Conclusions

This stage begins with a careful interpretation of the relevance, significance, and meaning of the data. "Meaning" in data rests with what they tell us about the dimensions and the conditions of the aspect being examined. But this meaning is always strictly in terms of the particular measuring device involved, never general or abstract. For example, the actual intelligence of a person is never derived from a so-called intelligence test; the data are only a given score yielded by a given test that calls for a certain manner of handling the responses to its items. The relevance and the value of the device and the data it yields lie in its relationship to the dimension being evaluated. Data from a paper-and-pencil type of intelligence test might have very limited relevance to ability to listen to and follow oral directions. The interpretation is always an inference from the data concerning what the data suggest about the status of the particular dimension. The inference is tested by examination of the closeness with which the data actually lead to and support it. The probability that the interpretation is a description of the actual conditions must be assessed in light of (a) the device used; (b) the data yielded; and (c) the reasoning used to produce the interpretation. An interpretation is designed to be a factual statement of actual conditions.

The interpretation, once carefully formulated, becomes evidence for further reasoning toward an evaluative conclusion. In this reasoning process, the evidence is examined against the evaluational standards already established. Conclusions are impossible without such evaluational standards, and these standards will affect the final result fully as much as the evidence does. Impossibly high standards, for instance, can produce a conclusion of program failure even when the data may indicate substantial productiveness. In any case, the evidence must be examined against the standards, and a factual judgment should be arrived at that states the degree to which the program has been successful in meeting the standards.

The evaluational conclusions, thus formulated, form the basis for a "picture" of the status of the program in the light of evidence and standards. These conclusions do not, in themselves, call for or provide for changes, which become the consideration in the next stage.

Moving From Conclusions to Decisions for Change

This stage involves a decision-making sequence of thinking, centering in such questions as (1) which phases of the program are producing satisfactory results; (2) which phases indicate possible weakness; and (3) which phases must be eliminated or radically altered. A decision for change is no more than deciding to depart from the status quo in some unspecified manner yet to be determined, in the hope of achieving improvement of a given kind. It does not, in itself, specify the nature of that change. At this point, a decision is required either way--either to change or not to change (and thus to continue on the present course). Either decision should be the result of a legitimate, effective decision-making process, not the result of default or snap judgment.

Moving Through Problem-Solving to Decisions for Implementation

Once a decision for change in a particular aspect has been made, the question becomes, What kind of a change is called for? This, in turn, raises the question of what is the problem involved in the failure of the program to meet the required standards and what is the most desirable solution or solutions to the problem. This, in turn, calls for a problem-solving approach in the thinking, which must be accurate, reliable, and valid. Groups involved at this stage in the evaluational process must (1) understand the problem-solving process; (2) possess an adequate procedure to follow; (3) have minimal training and experience in problem-solving; (4) be willing and able to carry through the procedures carefully and accurately; and (5) be prepared to test each step in the procedure. Only then can the results be depended upon.

In program evaluation, the problem-solving sequence will produce several carefully developed alternatives from which to choose, each of which will have both advantages and disadvantages. It is rare that only a single solution will be possible or that one solution so far outweighs all others that its choice is inevitable. In the next step, then, we are moving to decisions for implementation: (1) Which of the possible alternatives should be selected and on what basis? (2) How should it be implemented in terms of the conditions the implementation must meet? The process is again typically a decision-making procedure.

Moving From Decision to Actual Implementation

The decision for implementation does not end the process. The work next moves into a planning stage centering in the question, How can the change called for by the decision actually be implemented in such a way as to produce the desired results? This step is contained within the evaluational program simply because it requires a close knowledge of all that has been taking place up to this point. The terminal result will be a plan for bringing about the change called for by the decision. Actual implementation, however, requires in addition the procedure and means for setting this plan into motion and for guiding it during the course of the change.

This total plan for implementation should then be reviewed and the final decision made to set it into motion. On its completion, after a routine check to ensure that it was actually carried out as specified, the matter must rest until the next cycle of the evaluation program determines how well the change is functioning against the standards it must meet.

The process we have been describing is at the heart of effective program evaluation. Failure to work through the stages carefully and accurately can only result in expensive failure in a variety of ways: failure to make changes when needed, making the wrong changes, making changes when not needed, making ineffective yet costly changes. The unfortunate result is usually to discredit the whole concept of program evaluation. The process of program evaluation requires the ability to reason cogently, to use decision-making procedures, to handle problem-solving, to plan soundly, and to carry out the plan into action.

INVOLVEMENT OF FACULTY IN PROGRAM EVALUATION

The specific professional involvement of faculty, individually and as a whole, in program evaluation not only arises out of initial commitment but, in turn, contributes to deeper professional commitment on a basis of deepening understanding, concern, and willingness to contribute. Such commitment cannot be forced; it can be only voluntary, arising out of a deep professional concern as an educator and a professional person in the area. For this reason, there should be no attempt to require or force it upon faculty. Concerned administrators can do no more than make it possible and then encourage and facilitate its growth.

The specific means for such facilitation will almost certainly vary with the circumstances surrounding the particular program and the faculty responsible for it. No mechanical program for faculty involvement can be laid down; however, several suggestions can be made.

1. The faculty should make a study of program evaluation, beginning with an examination of the advantages to the program for which the faculty is responsible. This should be done under faculty leadership but can employ visiting consultants who are capable of stimulating interest and concern. The exact nature of such a faculty study program should be carefully considered and planned by or with faculty leadership.
2. Concerned individual faculty members should be given concrete encouragement and assistance in further exploration, leading eventually to the development of specific knowledge and capability in program evaluation.
3. Faculty members and groups should be invited to participate and encouraged to assume the maximum responsibility they are willing to undertake. This should be on a positive basis, not by an implied or "undercover" forcing beyond the actual willingness to take part.
4. The issue of program evaluation should become the subject of faculty dialogue, both formal and informal.
5. At appropriate times, stimulating consultants should be made available for presentations and discussions with the faculty.
6. Actual program evaluation should not be undertaken prematurely. When undertaken, it should be on such a basis that success can be assured at the level undertaken with the means available. Expert consultant help should be provided to build confidence and ensure adequate success, as well as to guide procedures. If initial efforts are successful and rewarding, the faculty will be ready to undertake further program evaluation.
7. Avoid trial and error, "bootstrap" approaches that are likely to be frustrating, time-consuming, tension-producing, and generally unrewarding. Actually, they are more expensive in the long run than an evaluation program handled on a highly professional level.
8. Actual efforts at program evaluation should be prepared for by specific training in the requisite skills and abilities and through ensuring that adequate faculty leadership has been developed.

The only justification for the effort involved on the part of all concerned must be found in the very real and significant rewards that can come through effective program evaluation. If these rewards seem to justify the effort, then faculty involvement should be begun on a pragmatic, down-to-earth basis. It must be recognized that this cannot be a "crash program"; it must be thought of and worked with on a long-range basis.

EVALUATION: A FACULTY COMMITMENT

Donald C. Manlove

A generation ago, the eminent philosopher Alfred North Whitehead dramatically insisted on the profound danger of failure in education. His words are appropriate here. "When one considers in its length and in its breadth the importance of this question of the education of the nation's young, the broken lives, the defeated hopes, the national failures, which result from the frivolous inertia with which it is treated, it is difficult to restrain within oneself a savage rage. In the conditions of modern life the rule is absolute, the race which does not value trained intelligence is doomed. Not all your heroism, not all your social charm, not all your wit, not all your victories on land or sea, can move back the finger of fate. Today we maintain ourselves. Tomorrow science will have moved forward yet one more step, and there will be no appeal from the judgment which will then be pronounced on the uneducated."

The American public finds itself in an unique age--an age that poses dilemmas of great magnitude to educators. This unique age confronts the world with changes that occur more rapidly and in greater number than any other period of mankind. Dr. Robert Oppenheimer gives one insight into the problem areas created by change when he relates:

> This world of ours is a new world, in which the unity of knowledge, the nature of human communities, the order of ideas, the very notion of society and culture have changed, and will not return to what they have been in the past. What is new is new not because it has never been there before, but because it has changed in quality. One thing that is new is the prevalence of newness, the changing scale and scope of the change itself, so that the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval.[1]

Confronted with this change, educators must bring to bear all of their resources that will enable our schools to assist students to identify and understand problems resulting from an unstable society.

The history of education in the United States is a story of constant crisis. This became especially evident in 1957 when the Russians announced the successful launching of an earth satellite--Sputnik I. The public interest in our educational systems created by this incident was in the "nature of a crashing crescendo."[2] Some of the interest, tragically, was stimulated by self-styled educational critics and by extremist organizations who would use the schools to perpetuate their ideological interests. Herold Hunt sounds an alarm by stating:

> Now there is a new and antagonistic philosophy competing for acceptance and loyalty in the United States. It is a philosophy that has as its main tenet the totalitarian concept that the individual is the intellectual, economic and political chattel of the state, in direct contrast to the American philosophy in which the individual is not only not subservient to but actually is served by the state.[3]

In this day when there is an abundance of criticism of education, it becomes the role of evaluation to provide valid evidence of the quality of accomplishment and progress being made in our educational institutions.

Thus, change and criticism resulting from change combine to make evaluation of our educational institutions of utmost importance. This is especially true because the survival and the future of the United States depend to a large degree on providing a better education for all students. "Failure to engage systematically in evaluation in reaching the many decisions necessary in education means that decisions by prejudice, by tradition, or by rationalization are paramount and such patterns of decision

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making are not consistent with the aims of education, which in our culture are based upon the assumption that informed judgments can and should be wiser judgment."[4]

Evaluation is being carried on continuously, and all of us are engaged in it. For example, at this very minute, you are evaluating me and I am evaluating you.

In this age with an open season on education, everyone is evaluating: the elementary school, the secondary school, the college, the university, other educational institutions, including those concerned with nursing education. This is a healthy situation, for education is our greatest resource and our most important enterprise. The point is, we do not have a choice as to whether there will be evaluation. Our choice is whether the evaluation will be a planned, organized, and systematic one, effectively carried out by members of the institution and the profession or whether it will be left to the incidental, unorganized, uninformed, fragmented approach of individuals from without drawing upon limited information and experience.

What is meant by the term evaluation? Is evaluation synonymous with measurement? These are two questions that many educators fail to comprehend.

"Evaluation, as applied to education, is believed to have originated as a part of the Progressive Education revolt against the traditional curriculum."[5] As originally conceived, evaluation included the concepts of measurement as used in psychology and education; however, the term implied a more comprehensive program of appraisal than the more conventional testing and examination programs. Evaluation assumes a purpose--that of discovering what is good or desirable from the standpoint of the individual or society or both. In measurement, the emphasis is upon one aspect of subject-matter achievement or upon specific skills and abilities.

L.L. Boykin distinguishes between evaluation and measurement by stressing that in an evaluation the collected data are interpreted and appraised against a set of values or standards and that the philosophy and the sense of values of the evaluators will determine what objectives of the program are important, as well as what data will be regarded as relevant in the situation. "While measurement may be highly mechanical and at times a routine, evaluation can never be; at every stage evaluation requires the exercise of mature judgment."[6] Thus, evaluation is a far more inclusive term than measurement, since it involves not only the collection and analysis of data but the placing of some value upon them or the reaching of a conclusion regarding their worth. One may define evaluation as a comprehensive, continuous, and cooperatively developed process of review that in the final analysis must be interpreted and explained in terms of its principles, functions, characteristics, and purposes. Putting it another way: Evaluation implies the systematic and objective gathering and treatment of data. In its broad context, evaluation is a several-step process. It may be narrow in scope or all-inclusive. It is a process of inquiry that attempts to place a value or values upon a situation or a thing by selecting standards or criteria.

The criteria selected should be related to institutional quality. Criteria differ from minimum standards in that (1) they represent the typical situation in institutions of a particular kind (some are quantifiable and some are not) and (2) they are viewed, not as standards to be insisted upon, but as guides in evaluating institutions. They are indicators of quality, which enable an evaluator to arrive at a judgment as to whether, weighing all things in the balance, the program or the institution is acceptable.[7]

This is a matter involving heavy reliance upon the judgment of perceptive, experienced observers. There are many very important and tangible elements that can be identified and evaluated only through the exercise of good judgment.

As the administration and the staff work together in preparing for the evaluation, these questions might well be asked:

1. Why are we evaluating?
2. What will be the scope?
3. Who will be involved in the process?
4. What evaluative instruments will be used?
5. How will the findings be analyzed and interpreted?
6. What will be done with the findings after the project is completed?
7. How do we use the evaluation as a stimulus and an impetus for an ongoing program of improvement?

If an evaluation is to be successful, the purposes of the evaluation must be understood clearly by the administration, the staff, students, parents, and the community. The methods, procedures, and types

of evidence used in the evaluation should be known and understood by all. Much misunderstanding and adverse criticism may be avoided by properly communicating the purposes of the evaluation. Although institutions may sometimes evaluate to gain admission to accrediting associations, it is hoped that the primary purpose of evaluation is to identify the progress being made and to make value assessments of the program. Gail Shannon appropriately summarized the purpose of evaluating: "We need to find out what we have done in an educational situation during a given period and then determine the quality of the accomplishment."[8]

In planning the evaluation, the basic principle that must be observed is "that a school or institution should be evaluated in terms of what it is striving to do and in terms of the extent to which it is meeting the needs of the students who are enrolled or for whom it is responsible."[9] What a school is striving to do can be determined by comprehending the school's philosophy and objectives.

All appraisals should be in terms of completely valid goals of the institution, such as are formulated by the boards, the administration, and the faculty of the institution. In other words, all concerned with the educational enterprise must define its basic aims and purposes and then evaluate all practices and learning experiences in terms of how well they contribute to the attainment of these aims. We evaluate the extent to which we have achieved our objectives and purposes. Evaluation validates the hypothesis upon which the institution operates. A school or an institution cannot be considered to be a good one if it is responsible for the education of all the youth in a community and yet offers a program in which only a small percentage of the youth of that community can make satisfactory progress.

A major problem in evaluation is deciding which aspects of the program are to be evaluated. The need for comprehensiveness mandates that an evaluation should include all the major objectives of the program.

The National Commission on Accrediting, realizing the difficulty of assessing each service bearing on the educational process, has recommended that an evaluation should appraise "those aspects of an institution which appear to have the most direct bearing on the quality of the institution's product, or educational consequence."[10] The commission judged eight facets of the institutional quality to be of primary concern. It also provided questions and observations to be considered in evaluating each facet, which are essentially as follows:

1. Objectives
   a. Are our objectives appropriate for the student body and the community that we seek to serve?
   b. Are our objectives stated with sufficient precision, so that we know what student behaviors we are attempting to develop?
   c. Did we use sound procedures in arriving at our objectives?
   d. Are our objectives expressed clearly enough, so that we can translate them into curricular offerings and other types of learning experiences?
   e. To what extent are we concerned about our objectives?
   f. What evidence is there that we are concerned?

2. Curriculum
   a. Does our curriculum implement our stated objectives?
   b. How well does the curriculum recognize the instructional needs of our students?
   c. Does our curriculum "mesh" (transverse) with the other schools in the educational ladder (elementary, secondary, college, graduate schools)?
   d. How well does our program meet the needs of our students and society? (Note: The evaluation of the curriculum in a liberal arts college or a public high school represents quite a different problem from that which exists in the professional program (nursing) or college. In professional education, there generally is greater agreement as to the fundamentals that must be included in the program.)

3. Faculty
   a. How do the training and the experience of the members of our faculty compare with those of other institutions?
   b. How do our faculty members compare in scholarly productivity with those in similar institutions?
   c. What about the attitudes of our faculty toward scholarship, teaching, and students?

d. What is the quality of our faculty morale?
e. How do the professional, community, and other service activities of our faculty compare with those of faculty members elsewhere?

4. Teaching
   a. The effectiveness of teaching should be measured primarily in terms of student performance.
   b. Teaching effectiveness may be estimated by student ratings of the quality of teaching, both in individual courses and in a college or a university as a whole. (This, however, is debatable.)
   c. Has the institute made any effort at appraisal and has it done various things to improve its teaching?
   d. Does the administration know what goes on in the classroom?

5. Students
   a. How do our students compare in academic aptitude with those enrolled in other institutions of our type?
   b. Assuming that our courses and teaching procedures are equivalent to those in comparable institutions, how does the achievement of our students compare with those in other colleges and universities as shown by test scores, honors won, and number furthering their education?
   c. Is the morale of our students satisfactory?
   d. What sorts of background do our students have in comparison with those in other institutions?

6. Student Personnel Services
   a. How adequate is the range of our student personnel services?
   b. How do the qualifications of our personnel staff members compare with those in other institutions?
   c. Are students satisfied with our counseling and advisory services?
   d. Does the faculty think well of our student personnel program?
   e. Do our personnel services produce results; for example, does counseling help to improve scholastic work, reduce dropouts, and improve morale?

7. Institutional Research
   a. Is institutional research being conducted?
   b. What is being done with the findings?

8. Library
   a. Is the library used sufficiently by students and staff?
   b. Is there a proper interaction of the library staff with students and faculty members in the discussion of the library as an essential and vital teaching tool?

There are other factors worthy of primary emphasis. They include intellectual atmosphere, finances, and administrative organization. It should be emphasized that these factors for evaluation are only recommendations; the prime principle in deciding what aspects of the program to evaluate will depend heavily on the nature of the objectives and the philosophy of the program.

The North Central Association of Colleges and Secondary Schools has available a Guide For the Evaluation of Institutions of Higher Education, which is designed to assist not only NCA consultants and examiners but also institutional faculties engaged in self-study. It does not provide answers but a basis on which judgments may be formulated and conclusions drawn.

Experience has shown that a useful device for identifying the significant elements in an educational program is a set of basic questions. Finding answers to these questions that can be supported by objective evidence or by reasonable criteria is a necessary first step in the evaluation process. The Guide asks seven basic questions:[11]

1. Is the educational task of the institution clearly defined?
2. Are the necessary resources available for carrying out the task of the institution?
3. Is the institution well organized for carrying out its educational task?
4. Are the curriculum and instructional programs adapted to goals of the institution?
5. Are conditions of faculty service likely to promote high morale?
6. Is student life on the campus well balanced and educationally meaningful?
7. Is the level of achievement of students consistent with the goals of the institution?

In planning the evaluation of a program, an important segment to consider is the process to be used in collecting data. The planning group must decide the type of analysis patterns that will be used and the amount and the type of statistical data to be compiled. Once again, the nature of the objectives and the scope of the evaluation will guide the group in making these decisions.

Modern evaluation uses a variety of instruments in the collection of data. These instruments include achievement, aptitude and character tests, rating scales, questionnaires, personal interviews, controlled-observation techniques, sociometric techniques, judgment scales of products, and anectodal records. It may even be necessary that a school design and develop an original instrument to meet its specific need. Validity and reliability of the instruments selected are of immense importance to the success of the evaluation.

Three other important guidelines in data collection are:

1. The instruments selected in data collecting must yield comparative data. (Comparative, or normative, data will permit an institution to determine where it stands with respect to similar institutions.) The availability of comparative data is an effective stimulus to self-improvement and makes for a more objective evaluation of the school.
2. An adequate evaluation requires the use of both qualitative and quantitative data. "Qualitative data merely indicate the presence or absence of acts, components, and aspects of things, whereas quantitative data indicate their amounts."[12]
3. Due to the complexity of the evaluative process in educational institutions, "techniques which are more effective and economical in time and effort should be used in data collecting."[13]

The collected data must be properly interpreted, so that the institute may initiate change and make revisions that will lead to definite improvements in the services offered by the school to its students and the community. An adequate evaluation leads to improvement of the learning situation, to the growth of the faculty, to better administration and supervision, to guidance services, and to new and improved curriculum offerings.

The Evaluative Criteria developed by the National Study of School Evaluation makes some valuable suggestions in using the interpretation of the collected data. "The worst thing that could happen would be for nothing to happen. And almost as bad would be to attempt to change everything 'overnight' and thus achieve a most unwholesome state of chaos (educational indigestion). The logical thing to do in most schools would be to develop an organized plan of improving the school's program over a period of time, in line with the findings of the evaluation."[14]

An organized plan for improving the school's program would include:

1. Familiarizing every member of the faculty with the main findings of the evaluation. Emphasis should be placed upon both strong and weak areas of the school.
2. Committees used in original evaluation may be retained for the period of improvement, but it would be a wise psychological step to allow a "rest period." The exact time of reactivation is the decision of the administrator.
3. Once the committees begin their task of improvement, a priority of work should be established for the findings. The priorities may include:
   a. Areas of immediate attention.
   b. Areas that could be improved.
   c. Areas that would call for long-range planning.[15]
4. There must be an effective follow-up program to insure that improvements are being made.

I have repeatedly made reference to faculty and staff involvement; now let me probe this aspect more deeply. For success, it is imperative that the faculty of an institution participate in each phase of the evaluation. Intense involvement of the staff in all aspects of the evaluation reveals an attitude of strong interest. Research shows that probably the greatest barrier to evaluation is an unenthusiastic faculty that fails to accept the values of the evaluating process. It is only human for an individual to fear the new, which creates uncertainty that may disturb the security in which he works; but if an individual is allowed to participate in the new process, he will more readily accept the changes affecting him. It is a principle of democracy that those affected by judgments or decisions should understand them and participate in making them. Therefore, faculty participation in an evaluation program is a sound democratic practice. Furthermore, research findings vividly demonstrate that when a faculty helps to define the ends they are working toward, productivity is greatly increased. Kimball Wiles states that evidence provided by studies that are available leads to the conclusion that participation of the faculty

in decision-making will result in higher morale, maintenance of interest, and willingness to change.[16]

Other beneficial results of such evaluation are that it:

1. Creates a recognition of shortcomings and needs. As we seek to satisfy these needs and to rectify the shortcomings, we grow and develop as individuals. Both personal and professional improvement stems from this kind of evaluation.
2. Provides an impetus for critical self-analysis and self-improvement. The nature of it motivates us to examine ourselves and our program carefully and to see ways and means of bringing about improvement.
3. Helps to filter out and crystallize the dissatisfactions that eventually give rise to curriculum improvement and needed organizational and administrative changes.
4. Encourages experimentation and a search for better ways of instruction.
5. Enables the faculty to become self-energized. Instruction is stimulated as faculty members are challenged to reexamine methods and accomplishment and to seek improvement.
6. Creates an esprit de corps that makes the seeking of improvement permeate the entire administration and staff.
7. Helps the entire staff to coordinate teaching and program into a unified educational experience for students.
8. Reaffirms the fact that each teacher has a stake in determining program and curriculum. Staff feel a greater compulsion to participate because of a feeling of partnership.

The evaluation, then, must be a group endeavor involving faculty, students, supervisors, and administrators. It must use group techniques and approaches that are compatible with democratic interaction for its successful fulfillment. The involvement of members of the community may provide a sound basis for good public relations. If the evaluation is based on commonly accepted values formulated by all, then community support will ensue. "A sound evaluation program provides a certain psychological security to the faculty, students, parents and the community."[17]

The "crystal ball" visualizes a thorny path for American education, without giving easy solutions to the problems. If educational institutions are to provide realistic programs, then evaluation is axiomatic. Educators must be positive--no one can imitate the "ostrich with his head in the sand"-- because the role of American education is in jeopardy.

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AN APPROACH TO SYSTEMATIC EVALUATION

Eunice M. King

When I have finished today, I may be like Louis, who completed his first day at school and climbed upon his father's lap to give him his impressions thereof. "Well, Son," his father asked, "how do you think you will like school?" Whereupon the countenance of Louis took on a most serious expression. "To tell you the truth, Dad," he answered, "I believe I have started something I can't finish." My presentation this afternoon may well compare with the story of Louis.

In evaluation, there is no end; it is a continuous, ongoing process. There is nothing new about evaluation. From the time we begin to make choices as individuals, evaluation, whether conscious or unconscious, is present; it is a lifelong process, and in all daily living, in order to introduce some semblance of order and direction, a person is continuously retaining and discarding ways of responding on the basis of some benefit to himself. This selective process is back of all cognition and learning.

My task is to describe some of our experiences in establishing and implementing a plan for evaluating our total program. In some of our schools, we have long found evaluation to be a persistent major problem. We have struggled with some areas, neglected others; and many of us have thought of grades or credits as constituting a program of evaluation. In many schools, evaluation relates to the program of studies only, with no consideration given to other services or facets of the school.

As we know, many changes have evolved in nursing education that have created a need for improved means of evaluation. The future presents many challenges. I think the adage "The journey of a thousand miles begins with one step" is appropriate here.

THE FIRST STEP IN PLANNING AN EVALUATION PROGRAM

First of all, for a program to be effective, the school staff must know something about the process in which they are engaging--that is, "Knowledge is a better starting point than ignorance." We, in our school, felt that before a program could be planned or implemented the staff should have a thorough knowledge and understanding of:

1. What evaluation is.
2. The governing principles of evaluation.
3. The purposes of evaluation.
4. The facets of an institution that are subject to continuous study and evaluation.
5. The methods used in evaluations.
6. How to interpret results.

This study can be undertaken in a number of ways: through committee work, as a group with the entire faculty participating, as a part of the faculty educational program, or in other ways. Each faculty has different needs, determined by the educational background and experience of the group. Participation will provide the major key to evaluation improvement.

In our school, we planned an intensive study for one year and included all staff members. This was deemed necessary, as all play a vital part in our evaluating program. Our plan included:

1. An outline for the entire course of study. The major headings were:
   a. Philosophy: meaning and interpretation.
   b. Philosophy of education.
   c. Philosophy of evaluation What is evaluation?
   d. The interrelationship of evaluation and an educational philosophy.
   e. Characteristics of evaluation.

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f. Principles of evaluation.
g. Purposes of evaluation.
h. Evaluation as a teaching-learning technique.
i. The frame of reference for a program of evaluation.
j. The process of evaluation: (1) How to evaluate--methods, (2) when to evaluate, (3) who should be responsible.

2. Reference material to be used. A rather extensive bibliography was compiled.
3. The scheduling of weekly meetings for the purpose of maintaining interest and continuity.
4. A topic to study and an assigned reference for each staff member, so that on coming together each person would be prepared for the discussion.

We also utilized resource persons from our local college and other persons in the community qualified in this area.

THE SECOND STEP IN PLANNING AN EVALUATION PROGRAM

After the staff felt reasonably secure in their knowledge and understanding of the broad realm of evaluation, we went on to the second step--the over-all planning of a total program. Through group participation, we defined the term evaluation as we would use it, developed our philosophy of evaluation, agreed upon some characteristics and guiding principles of evaluation, and stated our specific objectives.

1. Definition of evaluation: As we explored this area, we found there were many definitions. Semantics may differ, but the meaning is evident: a philosophical point of view. We believe that evaluation is:
   a. The process through which progress towards the realization of the purposes of the program is assessed.
   b. The process whereby the need for improvements is determined on the basis of systematic collection, analysis, and use of data.
   c. A process that, in any context, involves a judgment based on a comparison: the application of value to a problem.
2. Group agreement on some characteristics of evaluation--basic concepts or assumptions:
   a. Evaluation is both a means and an end. (1) Means: tests, grades, student opinionnaires, research studies, et cetera, for identifying strengths and weaknesses. (2) End, or goal: the individual's development--that is, knowledge, attitudes, abilities, et cetera. The outcomes must be found in the students.
   b. Evaluation includes measurement but is broader in scope.
   c. Evaluation is a process involving frequent use of different kinds of techniques.
   d. Evaluation is intellectual in nature.
   e. Evaluation is not simply a basis for decisions; rather, it is a significant and necessary educational experience for both students and faculty.
   f. Meaningful evaluation is self-imposed, predominately subjective, and clearly separated from punishment and coercion.
   g. Good evaluation is possible only if the process by which a student learns is understood. Evaluation is inherent in the learning process.
   h. Sought values determine outcomes in evaluation.
   i. Evaluation is a group endeavor.
   j. The evaluation of an educational program in nursing is based upon the same principles that apply to evaluating the outcome of any type of educational program.
3. Guiding principles: Principle was defined by us as a fundamental truth, a primary or basic law. Principles serve as a basis for evaluation and as a guide in formulating goals and in developing procedures to evaluate the attainment of goals. Smith and Tyler, in Appraising and Recording Student Progress,[1] list some basic principles. These original assumptions remain the backbone of modern evaluation principles.
   a. Education is the process which seeks to change the behavior pattern of human beings. Evaluation should be a continuing process.

b. The kinds of changes in behavior patterns in human beings which the school seeks to bring about are its educational objectives. Evaluation must be in terms of student behavior.
c. An educational program is appraised by finding out how far the objectives of the program are actually being realized. An evaluation of the educational program is a process for finding out to what degree these changes in the student are actually taking place.
d. Human behavior is so complex that it cannot be adequately described or measured by a single dimension. Multiple scores, categories, or descriptions must be developed.
e. The way in which the student organizes his behavior patterns is an important aspect to be appraised.
f. The selection of evaluation techniques should be made in terms of the appropriateness of these techniques for the kinds of behavior appraised.
g. Evaluation should be a stimulating force leading to definite improvement in both teaching and learning, and in the growth and development of students.
h. Evaluation should include all who participate in the program.

From this basis, we developed and stated some guiding principles for our program.

4. Objectives for a Program of Evaluation: Objectives should evolve from the stated philosophy and objectives of the school. The purpose of stating objectives is to provide direction, motivation, planning, and organization--a road map, we might say. Broad objectives should include:
   a. Making a periodic check on the effectiveness of the total educational institution with a view to indicating its strengths and weaknesses.
   b. Validating the hypotheses upon which the educational institution operates.
   c. Providing information basic to the effective guidance of individual students. Too often, our objectives tend toward identifying weaknesses without giving sufficient recognition to established laws of learning--Thorndike's law of reward and punishment, for example.
   d. Providing a certain amount of psychological security to the school staff, the students, and the community.
   e. Providing a sound basis for public relations.
   f. Clarifying school and curriculum objectives. Evaluations may reveal that achievement of an objective is not possible or cannot be measured.
   g. Determining the progress a student is making toward achieving the aim of the program.
   h. Discovering effectiveness or weaknesses in teaching.
   i. Creating a stimulus for helping the student maintain strengths and overcome weaknesses.

As a faculty group, we formulated specific objectives based on the philosophy and the objectives of our school.

In brief, then, the second stage in our planning involved the development of a philosophy of evaluation, group agreement on some characteristics and principles of evaluation, and the stating of our specific objectives.

THE THIRD STEP IN PLANNING AN EVALUATION PROGRAM

Step number 3 is based on the assumption that evaluation of the educational program is a process. We identified five major areas in this process: What? Why? How? When? Who? (See Exhibit 1.)

Of course, the decisions relating to What?--the first element of the process--will influence answers to the other questions. Dressler in Evaluation in Higher Education states:

> The analysis of any complex organism or phenomenon is a necessary prelude to a new and more insightful synthesis. . . . Upon first approach one notes the obvious features as faculty, administration, students, student personnel organizations, physical plant, financial resources, personnel policies. The very ease with which these features are identified suggests the need to identify other less obvious elements which interrelate them. The identification of essential elements is not an easy task. The nature, extent, and role of evaluation practices in any institution depend on the educational philosophy of the faculty and that of the administration and supporting institutions to a lesser degree. Evaluation practices typically result from comprehension and interaction of these views.[2]

In looking at the whole operation, identification of the essential elements is a very necessary phase in developing a systematic program. An educational program must have the material and the human resources essential for providing the learning experiences planned if it is to attain the selected objectives and goals. (See Exhibit 2.)

Before we proceeded to the other steps, we did an extensive institutional self-study. The purpose of this study was to gain a deeper insight and a broader perspective for future planning. One of the best ways to bring dissatisfactions out into the open is to carry on an evaluation of the total school. Surveys by outside experts generally concentrate on the collection of objective data. Self-studies can emphasize philosophical considerations; thus self-evaluation becomes a process of synthesis, resulting in increased understanding of the over-all purposes and problems involved. From this study, we defined areas to be reviewed and evaluated regularly, and we identified criteria by which to judge the program as we explored the needs of the students in the school, the needs of the community and society, and the basic ideas that the school was attempting to teach. We replaced year-to-year expediency with long-term planning. After our self-study had been analyzed and written up in summary form, we submitted the report to a leading nurse educator in the state who served as a resource person in further identifying strengths and possible weaknesses.

After identifying the elements to be evaluated within our frame of reference (see Exhibit 2), we proceeded to the mechanics: What? Why? How? When? Who? In discussing several major elements, I will cover components of the five key words, giving some examples in an attempt to show the processes we followed. These examples are not inclusive by any means, as many more could be given.

PHILOSOPHY OF THE SCHOOL--FRAMEWORK FOR THE TOTAL PROCESS OF EVALUATION

What

We know that the different concepts regarding God, man, and the world held by men have resulted in the development of a number of different systems of philosophy, and since philosophy and education are related so intimately, different theories of education have developed. The philosophy of education has been defined as the application of the fundamental principles of a philosophy of life to the work of education. Faculties, as a whole, must formulate a philosophy, incorporating their beliefs concerning God and the origin, nature, and destiny of man; their beliefs as to what education is and how students learn; and their interpretation of democracy, values, character, integration, discipline, motivation, experience, freedom, "the good life," et cetera. The aim of the educational institution or unit is an all-encompassing, single purpose; in nursing, this purpose would be to prepare the student for professional practice, that is, to develop the learner as a person, as a citizen, as a nurse.

In schematic form, this process can be shown as follows:

Philosophy of Life → Philosophy of the School → Specific Aims → Goals

Why

The philosophy is the statement of beliefs. It provides the purpose--the ultimate aim--of the educational program and serves as a guide to its realization. It forms the basis for the selection of the objectives and identifies the competences of the product of the school. Kirkpatrick states in Philosophy of Education: "Philosophizing and education are two stages of the same endeavor, philosophizing to think out better values and ideals, education to realize these in human life, in human personality."[3]

How

The established criteria are self-evident; they are the ultimate goal and are in keeping with current trends and different schools of thought.

1. What is education?
2. What is learning?

3. What is the best atmosphere to foster learning?
4. What is motivation? Who is responsible for student learning experiences?
5. What is nursing? What are the current trends in nursing? In the 1952 Report of the President's Commission, health is defined; on the basis of this definition, nursing leaders have defined the role of the nurse as that of a participating member of the health team in all phases of the health cycle: promotion and maintenance of health, prevention of disease, and performance of diagnostic, therapeutic, curative, and rehabilitative measures.
6. What are the needs of society?
7. What are the characteristics and the needs of students?

I should like to suggest here some methods and instruments for use in identifying the How of evaluation:

1. Take the stated philosophy and ask each staff member to do a written analysis. Example:

Philosophy	Your Interpretation
We believe that learning is a change in behavior that results from experience.	My interpretation is that learning is individual and takes place through active participation. It is evidenced by changes in behavior resulting from experience, interaction, and personal associations, thus involving changes in thinking, feeling, and acting. (Interpretation could continue as to theories of learning, characteristics, types of learning, principles, environment for learning, direction of learning activities.)

2. Questionnaires using questions such as:
   a. Name and define the kind of philosophy expressed in the school's philosophy.
   b. Give your definition of nursing, education, theory of learning, et cetera.
   c. Do you feel the philosophy is stated in such a way that it can be used in planning the whole educational program?
   d. Who should assume responsibility for the direction of the student's learning experience? Why?
   e. What kind of atmosphere fosters learning?
   f. Why should objectives be stated in terms of changes in behavior?
   g. List the competences you think a graduate of this school should have. Why?
   h. Why is it the school's responsibility to help develop students as persons and citizens as well as nurses?
   i. How realistic is our philosophy in terms of:
      1) availability of potential students?
      2) prepared instructional personnel?
      3) clinical resources?
      4) physical facilities?
      5) community resources?
   j. Does the statement of philosophy reflect the convictions and thinking of the present faculty?
   k. Are the stated purpose and the over-all objectives feasible and realistic within the scope of the present material and the human resources of this community, this hospital, and this school?
3. An appraisal session to explore, formulate, and record our beliefs. The entire faculty reviews the philosophy in order to:
   a. Determine if revisions are necessary.
   b. Show the creative thinking of the faculty as a whole.
   c. Reexamine our ultimate goal in the light of modern trends.
   d. Determine the atmosphere within which the faculty and the students work toward the accomplishment of goals.
   e. Clarify the interpretation of the beliefs to staff members, students, and the community.
   f. Provide unity of thought and unity of purpose within the staff.
   g. Guide the faculty in determining the kind of school they want.

When

Evaluation may take place annually or biannually. We plan a yearly evaluation in our school. In some schools, a biannual evaluation will be preferable. Frequency of evaluation will depend upon the permanency of the staff and educational trends.

Who

The decision as to who will take part in the evaluation program will depend upon the type of school. Our entire staff participated. In schools with large faculties, committee work might be indicated.

EDUCATIONAL GOALS

The same five key questions we asked about the philosophy of our school we applied to our educational goals.

What

Educational goals are the specific bases for the total evaluation process. They can be broken down into the following objectives: (1) school objectives (ultimate objectives); (2) objectives for student health services, the guidance program, faculty organization, student organization, et cetera; and (3) curriculum objectives, including course objectives and unit objectives. Objectives are formulated and expressed in terms of behavior, which is defined as the manner of one's conduct and is synonomous with action. It is a continuous phenomenon and consists of a person's performance, or overt behavior, and associated correct behavior, past and present.

Why

In reality, these objectives become the stated philosophy at work. Objectives serve as a basis for planning and implementing each course of study, program, or service. Classification of objectives is important for evaluation, because the types of objectives indicate the kinds of educational techniques essential. Following is an example of classification: (1) objectives having to do with acquisition of information under one heading; (2) objectives having to do with application of principles under another heading; (3) objectives having to do with methods of thinking under a third heading.

These, then, provide you with areas to be evaluated. Looking at the elements separately, we can readily identify the Why.

1. School objectives state the ultimate objectives in a given society and describe the competences and personal characteristics of the product of the school.
2. Health service objectives serve as a guide in developing and implementing the health program, the purposes of which are to promote good personal health practices, to maintain and promote physical and mental health, and to care for students during illnesses.
3. Guidance program objectives form the basis of an organized service designed to give systematic aid to students in making adjustments to various types of problems that they must meet--educational, health, moral, social, civic, and personal. It helps the student to know himself as an individual and as a member of society and enables him to correct certain shortcomings.
4. Faculty organization objectives will indicate the purpose, the structure,and the functions of the organization and its relationship to the governing body. Each committee has specific functions. On the basis of these functions, goals are established and plans are made for the achievement of the goals. Evaluation of the accomplishments follows, with recommendations to the appropriate sources.
5. Student organization objectives will show the purpose, the structure, and the functions of the organization and its place in the framework of the school. Students accept responsibility for their own behavior and for the welfare of the entire student body. Leadership ability should be developed and opportunities for exercising leadership should be provided.

To illustrate further the process we employed, I will now take up the area of curriculum.

1. Curriculum objectives are used to assist the staff in identifying objectives for specific courses and units, to define the changes that are expected to occur in students as a result of participation in the planned program of studies and learning experiences. That is, the objectives are stated in behavioristic terms. The curriculum objectives really show the philosophy in action.
2. Course objectives are used by each instructor to translate the broad school and curriculum objectives into course objectives and express these in terms of behaviors: thinking, feeling, act-ting, and understanding.
3. Unit objectives result from the course objectives and are expressed in terms of knowledge (things known--facts, information, principles, scientific laws and theories), understandings, attitudes, values, behavior patterns (habits), motor skills, communication skills, interests, appreciations, human relations, and general behavior patterns. On the basis of our unit objectives, materials and experiences are developed to bring about pupil activity toward the ultimate goal or major aim.

In the area of "behaviors," we experienced some difficulty. We were using terms such as critical thinking, understanding facts and principles, attitudes, interests and appreciations, communication skills, and habits without having developed a description of these categories of behavior. In describing the category critical thinking behaviors, for example, we would have to include such abilities as to think logically, apply principles, solve problems, and interpret data. Let us take the last-mentioned, "ability to interpret data," and try to determine what behaviors give evidence of it. We would find, I believe, the following: (1) the ability to perceive relationship in data, the ability to make comparisons, to see elements common to several ideas in data, and to reorganize tendencies or trends; (2) the ability to recognize the limitations of data--abstention from making judgments relating to implied causes, effects, or purposes until all the necessary facts are at hand; (3) the ability to evaluate dependability of data--here, for example, the student might question the competence, bias, or integrity of the person who presents the data; (4) the ability to draw possible conclusions from hypotheses--for example, the student might infer probable causes or predict probable effects; (5) the ability to recall information.

The descriptions of the objectives must be developed, and this brings us to the How.

How

The criteria for the evaluation of educational goals are stated in the respective objectives. They are the behaviors that can reasonably be expected of the student at various stages of learning. The question is, How do we know that behavior changes have occurred?

The desired outcomes are the same as stated in the teacher's objectives. These are broad areas for evaluation throughout the program of studies where we appraise student progress. Minimum acceptable competence includes (1) scholastic ability, for the measurement of which we have an established testing and grading system--national standardized achievement tests in appraising over-all competence; (2) performance ability in nursing practice, for which achievement levels are defined throughout the program, with methods established to measure these devices; (3) desirable personal characteristics, for which standards have been defined and measuring techniques developed.

Methods and instruments to be used in determining minimum competence include:

1. Curriculum Objectives:
   a. A written analysis by each instructor: State each objective. Have each instructor state in writing how her course of study helps to meet the objective.
   b. Questions to be answered by each instructor: (1) What purposes do objectives serve? (2) Why should objectives be stated in terms of changes in behavior? (3) Do the current curriculum objectives really identify those learning outcomes that enable us to achieve our philosophy and objectives? (4) Are they all attainable objectives?
   c. Discussion session: Take each objective and have each instructor tell how the objective is met.
   d. Written impressions and recommendations by senior students (form designed to evaluate all objectives).
   e. Comparison studies: A comparison record containing the following data should be kept in each class throughout the entire program of studies: (1) high school averages; (2) pre-entrance examination scores; (3) college grade averages; (4) final course grade in each course in the

nursing curriculum; (5) NLN achievement test scores; and (6) state board grades. This type of record gives a complete profile of each student.

f. Graphic chart showing course grade, standardized achievement scores, and state board results in all major nursing courses.

g. Follow-up studies: after one year, three years, five years. These should include (1) questionnaires to graduates and to their employers; (2) direct observation; (3) verbal impressions.

h. Use of ANA Statement of F. S. & Q. for General Duty Nurse to measure senior student performance.

i. Evaluation of senior performance against criteria established by the nursing service department for the expected performance of the new graduate.

j. Comparison of the performance of the school's graduates on the state board examination with state and national means.

The data obtained by means of the methods and instruments indicated above are used (1) as a basis for curriculum change; (2) to determine the teacher's role in the teaching-learning process; (3) to determine if objectives are being met; (4) to revise and restate objectives; (5) to study withdrawals due to failure or for reasons arising from the planned program of studies; (6) to focus the energies of the faculty and the students on common goals.

2. Course Objectives:

a. A written analysis by the school staff: The objectives for each area are stated and then analyzed according to these four categories:

Behaviors	Learning Experiences	Content	Method of Evaluation
Desired behavior changes are the learning opportunities.	Learning objectives are guides to planned experiences.	Identifying situations where behaviors can be displayed.	Methods for obtaining evidence regarding each objective.

b. A summary of the student's final grades in the various courses.

c. Analysis reports of teacher-constructed tests.

d. Standardized achievement test scores.

e. Student-performance evaluation reports by instructors and students.

f. Student experience records.

g. Reports by students of their impressions of classroom and laboratory experiences.

h. A summary report of conferences.

i. Records comparing classes. (Show averages for five or six classes.)

The data obtained from the above are used to (1) identify strengths and weaknesses; (2) identify objectives; (3) plan for improved learning experiences; (4) revise and improve methods of evaluating; (5) improve test construction; (6) make recommendations to the curriculum committee and the faculty as a whole and to study failures.

3. Unit Objectives:

In evaluating unit objectives, we are really involved in the synthesis process. Here we are evaluating competence at the very basic level. As each unit objective is met, we fulfill the course objective; as each course objective is met, we achieve the total curriculum objectives. Gathering data on the How is very important in unit objectives.

a. Observation.

1) Direct observation provides data on overt behaviors.

2) The student diary provides pertinent data on aspects of covert behavior.

3) The nursing care plan provides data on the student's ability to observe and judge facts--whether she can identify the problem or the need and state the objective, the scientific principles involved, the methods of approach, and the outcomes.

4) Process recording provides data on covert behavior and on the nursing process.

5) Checklists record behaviors, scientfic skills, and techniques.

6) Anecdotal notes record significant data in more detail--one anecdotal note is required for each major unit.

b. Student self-reports.
c. Instruction evaluation reports on students.
d. Patient evaluations.
e. Written examinations designed to test the objectives.
f. Oral reports and other planned activities designed to determine communication skills, attitudes, interests, appreciations, et cetera.

In order to evaluate unit objectives, we found that it was essential that we first identify clearly the levels of expected behavior within the program and then determine if these behaviors were achieved by the student. This tends to prevent each evaluator from using her individual criteria and therefore gives both the student and the instructor a more valid record of growth. We are continuously gathering data to apply to criteria.

To illustrate what I mean by identifying levels of expected behavior, let us take the unit objective "ability to report and record clearly pertinent information covering the surgical patient" and show how it is demonstrated on each of the three achievement levels. On Level 1, the student makes little distinction between important and unimportant information, noting very brief essentials. On Level 2, the student, in reporting and in recording, gives excessive information. On Level 3, the student grasps and reports sufficient detail with clarity and completeness.

The results obtained from the evaluation of unit objectives are used (1) as a basis for improving teaching methods; (2) as a basis for restating unit objectives; (3) to determine if the objectives are being met; (4) to assist students in self-understanding and growth; (5) to identify strengths and weaknesses in course content and planned experiences; (6) to determine proper placement of objectives and learning experiences.

When

Curriculum objectives are evaluated annually, course objectives at the completion of each course of study, as well as annually, and unit objectives daily, weekly, and at the completion of the unit.

Who

The curriculum committee is primarily responsible for the evaluation of the curriculum objectives, but its findings are submitted to the faculty for analysis and approval. Senior students, also, participate by making a total evaluation of the entire program of studies.

In the evaluation of course objectives, the entire school--students as well as staff--take part. Each instructor makes a report to the curriculum committee at the completion of a course and at the annual meeting of the committee. Students give written impressions of all learning experiences at the end of each course.

In addition to school staff and students, those participating in the evaluation of unit objectives are patients, nursing personnel, and community resource persons.

THE FOURTH STEP IN PLANNING AN EVALUATION PROGRAM

The fourth step is to design a master plan. In our school, a yearly calendar is used, showing the intervals at which the various aspects of the program will be evaluated--weekly, monthly, at the end of each semester, or yearly. In addition to what is to be evaluated, the master chart indicates (1) how--for example, through analysis or questionnaires; (2) when each step in the process is to take place--the time the forms will be distributed, the date they are due back, the date for the submission of summaries for the annual faculty meeting, the dates for mid-term or semester reports by students, et cetera; and (3) who will participate in the various phases of the process.

The evaluation plan is as important as the curriculum plan, the admission plan, or any other organized methods within the school. By scheduling the entire plan, we can function on a systematic basis as we do in other areas of the school.

THE FIFTH STEP IN AN EVALUATION PROGRAM

We are now ready for summarizing and using the results. As we evaluate each element, we summarize strengths and weaknesses and indicate what is satisfactory and what needs change or improvement. All is combined into a meaningful whole.

A complete report is prepared for the annual meeting. As a result of discussion at the annual meeting, recommendations are made in the annual report to the governing board, objectives for the coming year are outlined, changes are identified, and short- and long-range plans are made.

In any broad, over-all program, there are bound to be positive as well as negative outcomes. I will indicate some of these very briefly.

Positive Outcomes:

1. The evaluation program provides a sense of satisfaction and increased security for all concerned. This cannot be overestimated. A systematic plan provides constant reassurance that one is moving in the right direction.
2. The implications for improvement in all aspects of a school are inherent in a planned program of evaluation. Evaluation leads to reconsideration of the total curriculum. Objectives are clarified and behaviors more thoroughly defined.
3. A thorough plan of evaluating student progress in learning and the use of a number of tools make it possible to estimate the student's achievements more reliably. A program of evaluation furnishes data about individual students essential to wise guidance.
4. Planned evaluation ensures periodic appraisal of the degree to which students are achieving the objectives.
5. It is a potent method of continuing staff education.
6. Dissatisfactions are created in the minds of the instructors. This is good, especially in schools in which faculties are complacent. One major function of an evaluation program in schools in which faculties are self-satisfied is to bring to the attention of the staff ideas that will cause dissatisfaction with the present methods of work. Staff members can compare and contrast methods and, in the process, see better ways of working. In other words, create a desire in the members of the staff to move from their present status. In curriculum change, the most important asset is instructor dissatisfaction. Not all are dissatisfied at the same time or in the same way, however.
7. When dissatisfactions are brought out into the open, it is important to have an organizational framework for doing something about them; a systematic program of evaluation provides this. Constructive cothinking is the process by which the faculty grows and the program is improved.
8. Giving students an opportunity at faculty meetings or through written reports to present their ideas as to how the school could be improved is a way of making faculty members more aware of things that can be done to improve the school.

Negative Outcomes:

1. Changes: There may be a temptation to make changes too hastily. Changes should not be made until all facts are gathered; nor should they be made for change's sake. Time must be provided for planning. For example, when evaluating courses at the end of one semester, several groups from the same course should be evaluated before validating changes. Many variables are involved. Data from five groups in one year provide a better picture than data from one group.
2. Follow-up studies: Questionnaires to employers, for example, designed to evaluate performance in first-level positions (that of head nurse or supervisor) may not be measuring what they are designed to measure. In such a case, the questions must be redesigned and made more explanatory and specific.
3. Staff approach and acceptance: Evaluation can be a real threat to the "ego." One's philosophy must be Don't ask if you are not willing to receive. Evaluation can be a very traumatic experience if not fully understood and accepted as a process by staff, students, and all persons involved.
4. Danger of insufficient orientation of students to the total process.
5. Collecting too much evidence: In planning a program, the kind and amount of evidence sought should be determined. Superfluous evidence must be avoided.
6. Mistaking facts for decisions: Facts are used as a basis for judgment, but facts are not decisions.

Plans for organizing data must be made. Although all persons looking at the evidence may agree on what the facts are, they may not see the same implications for action.

7. Wrong emphasis: One major problem we may encounter is the tendency of groups to center upon what is wrong without identifying what is right.

In conclusion, I would like to emphasize that as faculty groups we must recognize that there is no one best program or method of evaluation to use. Each school must devise the best way of working in its particular situation, with the recognition that the "ideal" program can probably never be achieved. The best that can be hoped for is that the program for this year is better than last year's was and that next year's program will be better than the present one. Improvement is a continuous process.

As I said in the beginning, "The journey of a thousand miles begins with one step." I have outlined the five major steps we took in our school in organizing and implementing a systematic program of evaluation. Five steps and many miles to go, but in the words of Carlyle: ". . . our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand."

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EXHIBIT 1

FIVE KEY WORDS

I. What

A. What is to be evaluated?
B. Frame of reference for evaluation.
C. Identification of essential elements.

II. Why

The reason for the existence of the element--the objective.

III. How

How can we determine whether purposes are being achieved or obtained? By:

A. Establishing criteria.
Determining the kind of information needed.
B. Developing reliable instruments for evaluation based on established criteria; they should be objective, reliable, valid, and practical in design.
C. Revising and improving appraisal methods.
D. Using the results:
To identify strengths and weaknesses.
For future planning: short-term, long-term.
To determine the need for improvements.
To diagnose difficulties and avoid confusion.
To interpret results to the administrative body, to the clientele of the school, to accrediting agencies, and to the general public.
E. To assess and replan.

IV. When

A. A comprehensive program of evaluation requires careful, cooperative planning by the staff.
B. Priorities must be established and a systematic plan indicating a specific time when each part will be evaluated must be developed (timetable).
C. Progress reports should be made as indicated.

V. Who

By the student.
By individual faculty members.
By committees of the faculty.
By the faculty as a whole.
By resource persons.
By accrediting agencies.
By patients.

The Process--Basic Platform for
Systematic Program Evaluation

EXHIBIT 2

BROAD CRITERIA

1. The organizational framework (autocratic or democratic, dynamic or static).
2. The accepted educational philosophy.
3. Educational standards set or recommended
   by the state accrediting agency, by voluntary accrediting agencies, by the profession, by the individual school, by the community.
4. Current trends in nursing.
5. Demands of society--present and possible future common social goals.
6. Needs of a particular community.
7. Characteristics of students.
8. Contributions from various fields of learning.
9. The educational objectives--behavior described in advance serve as criteria.
10. The institutional and community resources--material and human.

ELEMENTS

Educational Setting

1. The nursing school.
   a. Institutional resources: physical facilities, equipment, finances, and human resources.
   b. Organization and administration: administration framework, faculty organization, functions of the faculty, inservice education, orientation plan for new employees, records and reports.
2. The hospital.
   a. Facilities available: size, location, general or special.
   b. Organization and administration.
   c. Personnel: qualifications, ratios, staffing pattern.
   d. Nursing service policies and procedures.
   e. Inservice education.

Community Resources

1. Agencies available for learning opportunities.
2. Personnel: qualifications.
3. Operating relationships.
4. Contracts and agreements.
5. Economic and cultural level of the community.

Student Material

1. Characteristics of students (background--cultural and educational).
2. Recruitment plans.
3. Admission requirements.
4. Selection policies.
5. Student governing bodies.
6. Student personnel service: counseling and guidance, housing, health, social activities.

Philosophy of the School

1. Application of the fundamental principles of a philosophy of life to the work of education.
2. A set of beliefs--philosophical principles. Statements of beliefs about education, learning, nursing, and cultural-social development; the origin, nature, and destiny of man.
3. Aim of the school: What educational purposes should the school seek to attain?

Educational Goals

1. Ultimate objectives in a given society: progressive, effective adjustment, social consciousness, an integrated personality, actions based on habits of thinking and problem-solving.
2. General objectives: nursing competency, technical skill, skill in human relations, high professional ideals, skill in self-direction, continued growth, personality development.

Curriculum Objectives

1. Educational purposes.
2. Educational experiences needed to achieve the purposes of the curriculum.
3. Organization of experiences so as to provide continuity, sequence, and integration of experiences.
4. Evaluation as an educative process.

Identification of Essential Elements--"What"
The Frame of Reference for Systematic Program Evaluation

EVALUATION OF THE TOTAL SCHOOL PROGRAM

Emma D. Robinson

Evaluation of a school program is an essential component of the success of a school and must be an inherent aspect of the total planning of the program. The reasons for evaluation of any educational program, the general approaches that might be used, and the consequences were outlined by the speaker yesterday. In addition, the terms evaluation and school program have been defined for our use during this workshop and are as follows.

Evaluation: the process whereby the need for improvements is determined on the basis of a systematic collection, analysis, and use of data.

School program: the entire scope and pattern of activity of a school, embracing the arrangement or sequence of subjects for groups of students pursuing studies at defined levels; out-of-class activities and services designed for the welfare of the students; and the responsibilities of personnel in the conduct of both curricular and extracurricular activities.

Use of this information, plus additional general information distributed for use during the workshop sessions, has enabled all of you, in groups, to develop hypothetical plans for the evaluation of a total educational program. It is certainly hoped that these hypothetical plans may aid you in the evaluation programs that you plan in your home school of nursing.

Now I would like to share with you some of the experiences the faculty in my home school have had in developing our evaluation program.

The planning of an evaluation program must be systematic and must involve the identification of all facets of the program. All identified services and programs must be defined, the methods of evaluation for each service or program must be clearly stated, a specific schedule for completion of the evaluation must be determined, and the implementation of potential recommendations for improvement that may result from the evaluation process must be considered. Appraisal of this type, therefore, involves acts of judgment, and valid, usable criteria must be utilized in the judging process.

The framework for the process of evaluation, really its specific basis, must be the philosophy and the objectives of the school. These form the criteria to be used in judging each of the identified services or programs. The beliefs recorded in the philosophy of a school must lead directly to its specific objectives, which, in turn, must lead directly to the specific objectives of the identified facets of the school program. For example, a stated school objective may be "to encourage the development of problem-solving attitudes." It then becomes necessary to use the behavioral concepts identified in this objective as the criteria for review of the various parts of the school program in order to determine whether the means to accomplish the objective have been identified and implemented in the planned learning experiences.

The validity of school objectives, which are the criteria of evaluation, must be determined by each faculty and are really philosophical problems of value. In order for them to be usable, both in the initial development of the school program and its subsequent evaluation, the objectives must be clear, concise, and realistic.

It is generally accepted that the purpose of education is to bring about changes in behavior; therefore, statements of objectives must be specific, operational statements. They should be stated in terms of changes that are expected to be effected in the behavior of students.[1] The behaviors identified in the objectives may be considered the ends of the educational process, or what we expect of the student upon graduation. All of the services and programs of the school are the means of achieving the ends. Methods of evaluating the means and the ends can be developed in relation to each school program, and there must be a determination of the changes that have taken place in the student as they

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relate to the desired changes.[2] As many methods as possible should be instituted in the evaluation process, and they should be determined by the behavior to be evaluated. Paper-and-pencil achievement tests, observational records, questionnaires, interviews, checklists, chronological records of student progress, and faculty evaluation of student progress are examples of methods that may be used to evidence the behavioral change desired of a student in the program being evaluated.

Whenever possible, therefore, the faculty should attempt to record behavior at the beginning of an experience, the changes that occur, and the permanency of the change.[3] For example, when evaluating records in a school of nursing, one should see to it that the student's cumulative record includes her achievement in each clinical area in terms of the behavioral changes expected of her--according to the statements of course and school objectives--at the completion of the learning experiences in each area.

In summary, seven principles of evaluation of an educational program have been identified by Amy Frances Brown. I believe that they may help us to transfer to nursing the general comments made by the speaker yesterday. They are as follows:

1. Evaluation consists of finding out to what extent the objectives are being achieved.
2. The objective should be stated in terms of behavior or reactions to be measured, and also in terms of the content in which the behavior is to operate.
3. The method of evaluation should be selected on the basis of the behavior which is to be measured.
4. Any satisfactory program of evaluation includes a variety of instruments.
5. The decision as to whether a student has had adequate experience in a given area should be made in terms of excellence of performance and quality of experience, not in terms of time spent and numbers of times the student has had a given experience.
6. Records of clinical practice should reflect the objectives of the practice and give evidence of the extent to which students have achieved the objectives.
7. The plan of evaluation should be comprehensive enough to measure adequately the behaviors considered important.[4]

Planning for total school evaluation and implementation of the program are intertwined and involve development of a number of evaluation programs within the school. School evaluation cannot be limited to only a few weeks of the year. Effective evaluation must be a continuous year-round activity and must actually be a part of all school activities. I use the words effective evaluation carefully, because an inherent part of evaluation is the utilization of pertinent recommendations that develop from the evaluation process.

All committee activities and all course planning must be actively considered in the evaluation program, so that committee projects and changes in course construction are given priority according to the findings of the yearly evaluation analysis of the faculty or according to the individual consideration of committee members or instructors within their individual projects or courses.

Actually, the planned evaluation program forms a circle. Year-round activities of committees and faculty must be evaluated and implemented constantly by the individuals concerned. The programs and services that make up the school activities function through committee and faculty activities and are evaluated as a whole by the entire faculty once yearly. As the yearly evaluation progresses, recommendations are formulated and implemented by committee and individual faculty members. These phases of school development must be constantly repeated for effective evaluation.

One of the major steps in an evaluation plan is the identification of those elements of the school that are its essential programs and services. A number of sources were used by our faculty in the identification and description of these elements. They included Criteria for the Evaluation of Educational Programs in Nursing Leading to a Diploma published by the National League for Nursing, the Pennsylvania Board of Nursing's Handbook for Schools of Nursing, and several curriculum authorities from fields of general education as well as nursing education.

Several aspects of an educational program were considered: (1) its formulations of plans and purposes; (2) its resources, both material and personal, including those persons who carry out the purposes of the school; (3) its processes, including administration, supervision, and instruction; and (4) its results or effects.[5] These aspects seemed too broad for adequate appraisal by the faculty, and further delineation was indicated. The final categories that were selected were those identified in the criteria: philosophy and objectives, organization and administration, faculty, students, curriculum,

evaluation, facilities, and records and reports. Even though philosophy and objectives are identified as a separate element, it must be remembered that the basis for evaluation of each element is the objectives of the educational program. The factors that are essential in the evaluation process are determined by the philosophy and the objectives of the school. They must be identified by the faculty and are really a matter of values. For example, when the curriculum is evaluated, the faculty may want to identify specifically the competencies of a graduate nurse and the degree to which they expect their students to achieve these competencies at each level of the program. The identified competencies, in a sense, are summaries of the entire school program in that they define the end results of the program. They become factors to be used in evaluation of the school program and must stem from the values that the faculty includes in its statements of philosophy and objectives.

This, however, is just one aspect of curriculum evaluation. Each course must be evaluated to be sure that it is helping to accomplish the objectives of the school. In our school, we identified four levels within the school program and developed objectives for each level. The level objectives are basically derived from the school objectives and illustrate to what degree the school objectives are achieved at each level. The fourth-level objectives contain the identified competencies that the school's graduates are expected to achieve and clearly illustrate the school objectives.

Each course is evaluated according to the appropriate level objectives within which it falls. Using the same school objective previously stated in an example, "to encourage the development of problem-solving attitudes," the related Level I objective is "to understand the scientific method." A course in Level I is Science Principles, and one of its objectives relating directly to the stated school and level objectives is "to develop a scientific approach." The learning experiences planned by the instructor must be such as to enable the student to achieve the behavioral changes indicated in the course objective. This general procedure is followed with every course objective and every course within each level. The faculty can then consider the whole -- all school objectives as they individually relate to all course objectives and all course objectives as they relate to desired behavioral changes and planned learning experiences. Since clinical activities are some of the planned learning experiences in each course, all of the student's experiences in the school are included in the level evaluation with the exception of those activities not related to the classroom. Nonclassroom activities--for example, student-government functions--are related separately to school objectives, since these have been identified by our faculty as essential activities in a student's school experiences. A third part of curriculum evaluation, which is primarily a part of our curriculum committee activity, is a more detailed examination of course content.

Certain criteria have been adopted by the faculty for individual course evaluation. They include the following:

1. Reliability, which refers to a method of constructing and presenting content to provide a similar experience for each learner.
2. Continuity, which refers to the recurring emphases that serve as threads to unify all learning experiences.
3. Sequence, which refers to the successive experiences necessary to increase the breadth and depth of learning.
4. Emphasis, which refers to values stressed in the content.
5. Clearness, which refers to the simplicity and conciseness of organization.
6. Integration, which refers to the horizontal relationships used to promote harmonious learning that will help the student to unify her behavior.
7. Consistency, which refers to uniformity and universality of content.

Each course is evaluated according to each criterion, using prepared points of emphasis. For example, when evaluating the reliability of a course, three points of emphasis are to be considered. They are:

1. Does the content include the essential factual material to fulfill the objectives? Consider whether the facts are clearly and concisely presented; whether the content is based on principles (known facts); whether the principles that are intended are evident.
2. Are comparable learning experiences provided for each student? Consider whether each student has similar exposure to the content; whether the evaluative methods used indicate if learning experiences are adequate or not.

3. Do the desired behavior changes occur in each student? Consider whether evaluative methods during the program indicate implementation of content; whether the standardized tests corroborate the results of teacher-made examinations; whether the clinical performance of the students indicates that principles derived from the program are being applied.

As each of these points is evaluated by a committee member, examples of application and implementation within the course are listed. In addition, the committee lists the strengths and the weaknesses of the course, with suggestions for improvement as the course is reviewed. Since all courses on one level are reviewed before those on another level are started, it is possible to see the total picture of the reliability, continuity, emphasis, sequence, clearness, integration, and consistency of courses on that level. In addition, it can be established whether or not the learning experiences provided within the courses will achieve the stated objectives for that level. As all levels are completed, it also becomes possible to tell whether these criteria form valid threads throughout the school program.

In summary, evaluation involves identifying pertinent factors necessary to a specific essential element in the school program. The factors represent the values identified by the faculty as essential to success of the school program and must be based on its philosophy and objectives.

I have identified some of the factors thought by our faculty to be essential in curriculum evaluation, and the factors identified with other essential elements will be discussed later.

A final part of the planning for total school evaluation involves the development and the implementation of an agenda by the faculty for the over-all review of each of the elements that have been identified as the essential components of the school. I have listed these earlier with a brief description as to how they are identified. It is quite likely that most of these will have been reviewed in parts during the year's normal faculty activities, either as a result of individual job responsibilities or committee responsibilities. The development of the agenda will depend on the priorities determined by the faculty as to the major needs of the program.

In our school, one faculty meeting each month is reserved for evaluation and, as the subject for each month's meeting is determined, the method of review is also considered. In addition, a week is set aside each year in early summer to consider the past year's activities and to make plans for the next year.

In order to illustrate to you how essential it is that every year's evaluation program have continuity and be planned according to needs identified the previous year and to demonstrate also the importance of daily individual and committee activities, I would like to describe briefly part of our evaluation activities last year and their effect on our plans for the present school year. Because of recommendations made as a result of the evaluation activities in 1962, the evaluation faculty meetings of the early months of the 1963-1964 school year were devoted to a review of each level of the program. The school objectives as they related to the objectives of each course on a specific level were identified along with the behavioral changes expected in the student if she achieved the objectives and absorbed the learning experiences provided to enable her to change her behavior. These were prepared in graphic form, using four columns. The first school objective was listed in the first column on the left. The second column listed the objectives of all courses on that level that related to that specific school objective. The third column listed the expected behavioral changes associated with each course objective. The fourth column listed the learning experiences planned by the instructor of each course to accomplish the behavioral changes and, therefore, to achieve the objectives of the course. In this way, it was possible for the faculty to determine whether school objective number one was achieved by students who successfully completed the courses on that level.

A basic assumption of the evaluation process is that successful completion of a course implies that the student has made the behavioral changes required to demonstrate achievement of the specific course objective. Each school objective was considered in turn, using the outlined method, and Nursing I, II, III, and IV were completed.

If changes in a course had been recommended as a result of the previous year's evaluation and affected objectives, expected behavioral changes, or planned learning experiences, the faculty frequently placed that aspect of the course where modification had been indicated on the agenda for evaluation week at the end of the school year. The remainder of the 1963-1964 schedule of evaluation meetings included a review of each of the identified elements.

The order of review was determined by school needs; however, we have found that philosophy and objectives should be among the first elements considered. Since the beliefs identified in the philosophy

of the school determine the objectives and the objectives are the basis of all school evaluation, they must be firmly in the mind of each faculty member throughout the evaluation process. Our faculty agreed that the following factors should be considered as the school's philosophy and objectives were reviewed: (1) the major beliefs in the philosophy and how these beliefs relate to hospital philosophy, how education, learning, nursing, and nursing education are defined, how students learn and the kind of atmosphere that fosters learning; (2) the means by which the faculty assumes responsibility for the direction of all learning experiences, including the identification of the desired behavioral changes that it hopes to develop in students; (3) the achievement by the graduate of the school of the competencies that have been identified; and (4) the controls exerted on students selected for entrance into the school, the faculty employed, the clinical resources utilized, the physical facilities required, and the community resources utilized.

The list of factors to be considered were distributed to each faculty member for her individual consideration prior to the group discussion. As each factor was discussed, the group formulated statements that indicated how it was fulfilled through the existing philosophy and objectives. If the faculty felt that the formulated statement of philosophy or the objectives did not satisfy the values implied by the identified factor, suggestions for improvement and/or recommendations were indicated. All suggestions and recommendations were referred to the appropriate faculty member, standing committee, or ad hoc committee for immediate implementation in the school program, for consideration and implementation during evaluation week, or for consideration and implementation during the next school year, depending on the recommendation.

The second essential element of the school program evaluated last year was organization and administration. The factors considered essential in the evaluation of this element were as follows:

1. The organizational pattern of the hospital and the school, including identification of the legal authority of the school, persons responsible for the general policies and the judicial functions of the school, persons responsible for administrative control, the degree to which the faculty is involved in decisions affecting the conduct of the school, and the relationships of the school with the board of control, related units, and agencies that contribute to student education.
2. Faculty functioning as a formally organized group, including the purposes, the functions, and the membership of the over-all organization, and its operational procedures with regard to officers, meetings, and committee structure.
3. Identification of responsibility for final action on the policy-making level.
4. Identification of the clinical areas where instruction and laboratory experiences are planned and supervised by the faculty employed by the home school.
5. Budgetary allowances for the school, including the adequacy of the budget to achieve school objectives, the accounting system, with cost analysis of total school activities, and estimation of the total cost of operating the school; also, the identification of the following persons: those responsible for consulting the faculty in budgetary procedures, those who participate in drafting, reviewing and, if needed, revising the budget and/or interpreting the budget, and those responsible for controlling the approved budget.

According to recommendations and suggestions for improvement after evaluation of organization and administration, there was a need for (1) a more detailed organizational chart for the school--one that would identify each faculty member as an individual rather than as part of a group according to job category and (2) analysis of the standing committees identified in the faculty bylaws to determine whether all were needed for adequate functioning of the school and whether some of the ad hoc committees that had functioned in the past year should be identified as standing committees. Both recommendations were directed to an ad hoc bylaws committee to be appointed in the 1964-1965 school year. It was also recommended that the monetary value of student experience on clinical units be recalculated by the standing coordinating committee during the 1964-1965 school year.

The third essential element to be evaluated was faculty, and the factors considered essential were:

1. The number of full-time qualified personnel whose primary responsibility was development and implementation of the educational program.
2. The number of qualified faculty members in general and in each major teaching area, the ratio of instructors to students in the classroom and in the clinical area, and the adequacy of the number of instructors for the development and the implementation of the program.
3. Personnel policies from the standpoint of their effect on the growth and the stability of the faculty,

covering those having reference to continued personal education of instructors through formal university courses, workshops, institutes, meetings, et cetera.

4. Resource persons used as consultants.
5. Policies established for the selection of faculty members, including those pertaining to qualifications.
6. Job descriptions, including an enumeration of specific job functions.

Recommendations and suggestions for improvement included a review of the organizational system with relation to the desirability of having department chairmen serve as general assistants to the person responsible for the educational program, an analysis of the ratio of teachers to students--which would take into account the work load of the teachers--to determine whether additional faculty were needed, and an evaluation--with respect to level and number of students--of rotation on selected medical-surgical units. All of these recommendations will be considered by ad hoc committees during the 1964-1965 school year.

The fourth element to be evaluated was students, and the factors considered essential were:

1. The selection procedure and its relationship to the philosophy and the objectives of the school.
2. The health program and its provisions for physical and emotional health--including policies pertaining to the provision of adequate food, rest, vacations, recreation, and time for learning--as well as care during illness.
3. Supervision of residence facilities, including dining facilities, and maintenance of an atmosphere conducive to wholesome group living.
4. Facilities and opportunities for participation in social, recreational, cultural, and professional activities.
5. Counseling and guidance resources.
6. Student-government organization.
7. Financial assistance available to students.

The fifth element to be evaluated was facilities, and the factors considered essential were:

1. The number of classrooms, conference rooms, and laboratories necessary to permit the scheduling of classes on an educational basis.
2. The number of classrooms and conference rooms in the clinical area.
3. The characteristics of classrooms and conference rooms with respect to lighting, heating, ventilation, and pleasantness.
4. The quality of equipment, instructional materials, and supplies as well as their quantity in relation to the number of faculty and students.
5. The quality of the library, including its worth in extending knowledge and in developing leisure habits of students and faculty; its location, hours, heating, lighting, ventilation, seating arrangement and capacity, and equipment; its personnel, financing, and holdings--which should include sufficient reference titles, periodicals, and other materials and be subject to a periodic review for the purpose of discarding obsolete materials and acquiring new ones; the administration of its system of accessioning, classifying, and cataloguing, and maintenance of a reserve section.
6. Office space for faculty, including its adequacy in size and equipment, its accessibility to areas of activity, and its conduciveness to uninterrupted work and conferences.
7. The organization of the nursing-service departments where students have clinical experiences, the environment they provide, attitudes toward the development of personnel and recognition of students as learners, the quality and quantity of patient care, availability of supplies and equipment, the understanding on the part of nursing-service personnel of the objectives of the educational program, and the relationships of nursing-service personnel with faculty members.

Recommendations and suggestions for improvement included bulletin boards in specified classrooms, bookcases for instructors' offices, purchase of a new 16-mm. film projector, improvement of lighting in instructors' offices, the use of offices in the clinical areas for charting or consultation rather than of private offices, a desk for each instructor in the residence, with conference areas provided if sharing an office is required. All of these recommendations were handled immediately by administrative means and have either been implemented or will be implemented as soon as equipment can be purchased and installed. It was also recommended that programed material be investigated and that nursing service personnel consider the appropriate areas. This will be done during the next school year by appropriate faculty members and committees.

The sixth element to be evaluated was records and reports, and the factors considered essential to the evaluation were as follows:

1. The system of records from the standpoint of standardization, integration, and simplicity.
2. The inclusion in records of information consistent with their purpose.
3. The content of records from the standpoint of the freedom of expression encouraged in persons providing the data and the freedom to record curriculum patterns.
4. Orientation of faculty members to the interpretation and the use of records.
5. Storage provisions for records.
6. Availability of records for use by faculty members.
7. The types of reports required and the persons who participate in their preparation.
8. The format of minutes and policies relating to their distribution and use.
9. Content of the school bulletin.
10. Records of other school policies.

Recommendations and suggestions for improvement included the following, to be considered in the next school year: review of the cumulative record and the permanent record of students, investigation of a system of centralizing student health reports and counseling records, and review of all school records to determine duplication or repetition. It was also recommended that more adequate space be provided for the use of student records by the faculty. This has been considered by the administration, and a relocation of office space has resulted.

The seventh element to be evaluated was the evaluation process itself, and the factors considered essential were as follows:

1. The system of evaluation, including its relation to the philosophy and the objectives of the program, its essential elements, the frequency of evaluation, its relation to levels of learning experiences, and the method of assessing student performance.
2. The types of measuring instruments used--teacher and standardized.
3. The degree and the types of self-evaluation by students.
4. Comparison of the performance of the school's graduates on the licensure examination with state and national means.
5. Follow-up reports and opinions of graduates of the school.
6. Implementation of data collected from the evaluation process.

Recommendations and suggestions for improvement included a review of the over-all evaluation plan of the school and all its separate facets. This will be done in the next school year.

The last element to be evaluated was curriculum, and some of the factors essential to its evaluation were reviewed. They were:

1. An analysis of the degree to which the students of the school achieve the competencies identified by the faculty as essential for a graduate nurse.
2. An analysis of each course and extracurricular activities in relation to their contribution to level objectives and school objectives.
3. An analysis of course content in depth, using identified criteria.

Other factors essential to the evaluation of the curriculum include:

1. An analysis of curriculum committee objectives, functions, and membership.
2. An analysis of the coordination of activities with the affiliating agency.
3. Identification of persons who share responsibility and authority in curriculum implementation.
4. A method that will enable the faculty to assume responsibility for planning total curriculum development.
5. The relationship of curriculum plans to the philosophy and the objectives of the school and to current health needs and trends.
6. An analysis of teaching methods to determine the quality of instruction.
7. An analysis of learning experiences throughout the program with respect to their distribution, quality, and quantity.

The final part of the year's evaluation activities took place in June, when the entire faculty was free to attend evaluation and curriculum meetings. Several items on the agenda during this week referred to activities not completed during the regular school year; some of them had been tabled until then because all the pertinent data could not be collected at an earlier time.

The agenda during evaluation week in June regularly includes three additional aspects of the school's evaluation program not previously mentioned. One is a summary of follow-up questionnaires returned

by former graduates of the school. Another is a summary of level evaluations completed by students within the school. These are invaluable aids in evaluating the competency of graduates of the school and the attitudes of students in the school. The third is an analysis of the correlation between state board examination results and student selection policies and school achievement at each level of the program.

The progress of students and effectiveness of the program should be reviewed periodically in these ways for the purpose of reevaluating the total instructional program. Just as monthly meetings are important for considering all aspects of each element, this one week each year is important for considering the total school program and combining all the separate elements of the evaluation into a meaningful whole.

I hope that by now I have indicated to you how one year's evaluation program can help in determining the evaluation program, the committee activities and, in some cases, the individual faculty activities for the next year. This year, in their review and, if indicated, in their recommendations for improvements in the school program, individuals, standing committees and, when necessary, ad hoc committees in our school are acting as directed by faculty action during evaluation meetings. They are presenting summaries of their findings during the scheduled evaluation meetings. This year's agenda was, therefore, determined, to a large degree, by the length of time it would take to collect the necessary data. The same content that I have reviewed will be considered by the entire faculty; however, several individual faculty members will examine each element as a whole before then and give additional study, prior to group discussion, to any specific factor of the element that action last year singled out as needing modification.

The methods or tools used in the entire evaluation process are determined by each faculty to meet its needs. I have outlined our methods, and some of the tools that we used were implied; however, it is unlikely that any other faculty could use exactly the same tools. For instance, our monthly evaluation meetings were guided by a form, given to each faculty member, that listed the factors to be considered in evaluating each element in a column on the right, with enough space for comments by the individual; a column was provided on the left for listing suggestions and/or recommendations for improvement. The tools used for detailed course evaluation included two forms, one that was given to the curriculum committee members who were evaluating the course and one used by the curriculum committee secretary. The former indicated the name of the course, the evaluator, the dates assigned for the evaluation, and the date the form was submitted to the committee. Each criterion was defined in one column, the point to be emphasized in the evaluation was indicated in another, along with possible examples of its application, and a third column was left blank for the evaluator to list examples of ways in which the criterion might be implemented. The form used by the curriculum committee secretary was a summary of the course or program, with each criterion listed; also provided in this form were a column to summarize strengths, a column to summarize weaknesses, and a column to list suggestions for improvement.

Another tool was the questionnaire sent to former graduates of the school. Still other tools that we used in various parts of the evaluative process, more common perhaps but not always recognized as tools of evaluation, included the anecdotal record, checklists, rating scales, written and oral examinations, standardized achievement tests, written reports and projects, clinical conferences, and the organization and writing of nursing care plans used in the evaluation of course and clinical performance. As has been indicated in the workshop sessions at this convention, each faculty must identify appropriate tools and methods for evaluating each school objective as it relates to each identified element of the program.

The expected outcome of a plan for total program evaluation should be program improvement. The degree to which the program improves depends on the philosophy of the faculty regarding education and evaluation. Rines identifies certain assumptions basic to an evaluation program that can lead to program improvement. They are:

1. Learning to be a skilled practitioner in nursing is a cumulative process.
2. Good evaluation is possible only if the process by which a student learns is understood.
3. The objectives of the nursing aspects of an educational program represent desirable outcomes that can be evaluated.
4. The outcomes of an educational program are changes in behavior which can be observed.
5. The evaluation of the outcomes of an educational program in nursing is based on principles that are the same for the evaluation of the outcomes of any educational program.[6]

In addition, Rines lists principles of evaluation originally developed by Smith and Tyler that have been accepted by many authorities as guiding principles.

1. Evaluation should be in terms of the objectives (the desired outcomes) of the educational program.
2. Evaluation must be in terms of observed student behavior.
3. Evaluation should take into consideration the behavior that is appropriate for the stage of learning which the student has reached.
4. Evaluation should be a continuing process.
5. Evaluation takes into consideration the stage of growth and development which the student has reached.
6. Evaluation should include all who participate in the educational program.
7. Evaluation should be a stimulating force leading to definite improvement in both teaching and learning situations and in the growth and development of students.
8. Evaluation should be in terms of units appropriate to the behavior being measured.[7]

I think that these assumptions and principles summarize all that I have said and are basic to a successful evaluation program -- a program the results of which, if all facts are known, cause the faculty to initiate changes.

It is obvious that the school philosophy and objectives are the basis for the entire process, and the extent to which they are realized determines the quality of the educational program.

An effective evaluation program, therefore, is essential if the faculty is to arrive at a valid judgment as to the quality of the school program and its adequacy in meeting the stated objectives of the school and the needs of society.

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APPENDIX A

PURPOSES OF THE 1964 REGIONAL WORKSHOPS, DEFINITIONS, AND BACKGROUND INFORMATION

Purposes of the Workshops

1. To identify the essential elements of a systematic evaluation of a school, its educational program, and the services provided to students.
2. To permit the representatives of agency members to participate, through a workshop, in the development of a plan for a systematic evaluation of the total program.
3. To stimulate the representatives to initiate a systematic evaluation or to review their current method of evaluating their total programs.

Definitions

Workshop--A group working together on a specific project or problem in which many are interested.

Characteristics of a workshop:

1. It involves active participation by all attending.
2. It focuses on a problem that is of common concern to many different groups in the discharge of their job responsibilities.
3. It employs an approach that can readily be adapted to a particular situation or program.
4. It promotes the pooling of talents and ideas of all individual participants.
5. It recognizes that each participant will assume responsibility for the productivity of the group.

Educational Program--The scope and pattern of activity of a school, embracing the arrangement or sequence of subjects for groups of students pursuing studies at defined levels; out-of-class activities and services designed for the welfare of the students; and the responsibilities of personnel in the conduct of both curricular and extracurricular activities.

Evaluation--The process whereby the need for improvements is determined on the basis of a systematic collection, analysis, and use of data.

Purposes of Evaluation

1. To insure continuous, effective, and improved operation of the program.
2. To diagnose difficulties and avoid confusion.
3. To help the staff effect improvements and advances in the program.
4. To test new approaches to problems and to conduct pilot studies.

A systematic plan for evaluation is one that clearly defines all services and programs to be included in the evaluation, describes the methods of approach to the study, and assigns a precise time for the implementation of each stage in the process.

BACKGROUND INFORMATION

The quality of an educational program is determined by the extent to which it achieves the objectives that have been identified. In order to meet this criterion, the objectives must be translated into specific and operational statements of behavior based on accepted beliefs. There is a great advantage to be had when the faculty itself is responsible for formulating beliefs (philosophy), developing objectives, and selecting or constructing evaluation instruments. The act of stating these objectives requires clarification, making them more real and meaningful to the faculty. Improved methods of evaluation are bound to emerge in the process.

Since the beliefs and objectives of an educational program relate to all facets of student development, it is necessary for the nursing faculty to evaluate each service that is an essential part of this development. Therefore, the faculty must work out a systematic evaluation plan that will include appraisal of the chosen beliefs and objectives in the light of current trends in nursing practice and of the possible future demands of society. Such an approach to evaluation carries with it the need to evaluate all phases of the educational program: its structural pattern, faculty organization, and curriculum; its agreements and relationships with cooperating groups or agencies; the qualifications, functions, and effectiveness of the administrative, instructional, and other personnel; and its facilities for administration, teaching, and learning. Also to be reviewed are its policies and procedures relating to the selection of students, the student organization, and personnel services, such as counseling and guidance, health, social activities, and housing. Other points to consider are: Is the library well stocked and up to date? Are the methods of keeping records and preparing reports as good as they might be? Also important to determine is whether the program is in keeping with the current trends in the educational process and with the expectations of the graduate.

After each part of the program is measured separately, all must be combined into a meaningful whole, for only when the entire picture is viewed, can one arrive at a valid judgment as to the adequacy of the program in meeting the chosen objectives of the school and the needs of society. It is essential for the success of a systematic evaluation plan for the total educational program that the faculty establish a comprehensive timetable. This should indicate all the aspects of the program to be evaluated together with the time when each step of the process is to be started and completed.

APPENDIX B

PROCESS OF EVALUATION OF THE ESSENTIAL ELEMENTS OF AN EDUCATIONAL ENDEAVOR

Directions

The following questions are to be answered by your group on the basis of the knowledge the members have about the process of evaluation. It is suggested that the answer sheet be used to determine if further reading and study of the evaluation process need to be pursued by the individuals of the group when they return to their home schools.

Self-Evaluation Questions

1. What constitutes the framework for the total process of evaluation?

2. What is the specific basis for the total process?

3. What are the essential elements of a school?

4. What forms the basis for the evaluation of each essential element of the educational program?

5. What factors are essential to the elements to be evaluated?

6. What kind of information is needed about the factors identified in question 5?

7. What methods and tools are appropriate for the process of program evaluation?

8. What do we do with the results of an evaluation procedure?

9. Who has responsibility for planning and implementing the program of systematic evaluation of an educational program?

Answers to Self-Evaluation Questions

1. The philosophy, or beliefs, of the school of nursing and the needs of society.

2. The objectives of the school of nursing.

3. Beliefs, objectives, organization of school and personnel, faculty organization, means of establishing cooperative relationships with other agencies or institutions, financial plan, faculty (all phases), student recruitment and selection, student welfare (health, counseling, housing, recreation, et cetera), curriculum (including each course), facilities (for administrative, instructional, and clerical personnel and for instructional and personnel services), library, and records and reports.

4. The specific objectives of or reasons for the existence of the element.

5. Personnel, characteristics of the students, facilities, equipment, financial support, records and/or reports.

6. The content of the program, the characteristics of the situation, or the specific services offered. For example: The health program that offers complete physical and dental examinations annually, provides for consultation services in a variety of medical specialties, and implements a comprehensive health counseling program through the medical and nursing staffs will differ from the health program in a school that has one physician to care for all student health needs, provides for only limited health counseling, and offers only a superficial physical examination following admission and prior to graduation.

7. Questionnaires, interviews, inventories, observation of the specific situation, rating scales, written examinations of all types, self-evaluations (teacher and student), reports (factual and self-reports of attitudes or interests), records, diaries, autobiographies, case studies, standardized tests serving various purposes, samples of projects, and analysis of creative products.

8. Analyze, interpret, and utilize collected data.

9. All faculty members, including administrative and other personnel directly concerned with the essential elements of the educational program.

APPENDIX C

DEVELOPING A PLAN FOR THE SYSTEMATIC EVALUATION OF THE TOTAL PROGRAM

The attached plan suggests one way of developing a systematic approach to evaluating the total program on the basis of the beliefs and the objectives of a school.

The first part of the plan (Step I) requires that the faculty determine what student behaviors are inherent in each school objective, in what essential elements of the educational program the behavior might be observed and fostered, what kinds of information and situations are a part of the essential element fostering the behaviors, what kinds of evaluation tools or methods are pertinent to the situations and information identified, and what specific personnel might be involved in this part of the evaluation program. Outcomes and recommendations will be based on the results of all evaluative tools.

As plans for different school objectives are worked out, it will be found that while some of the headings included in the sample under discussion will be the same, others may have to be dropped and new ones added, depending upon the specific objective. As each plan is implemented, additional details will need attention. For example, in evaluating a particular objective, a particular element may assume special importance and require a more expanded treatment than it would in plans relating to other objectives. We believe that if such an approach is used for each school objective, a comprehensive plan for evaluating the total program will eventually evolve.

The second part of the plan presented here (Step II) is an example of how a health program might be evaluated in the light of a particular objective selected by the school.

Neither part of the plan is complete, since details will be determined by the situation at hand.

For the purposes of this workshop, we would like each group to develop an evaluation plan using the one attached as an example. First, evaluate the specific objective assigned to the group in terms of Step I. Then select a particular element that contributes to this objective and work out a scheme (Step II) for evaluating it. The third activity will be to begin to identify specific data that might be collected through the use of one evaluative tool.

It is suggested that each group select an element outside the curriculum area for the second step, since we expect to concentrate on the evaluation of curriculum in a future workshop.

BELIEF: AN EDUCATIONAL PROGRAM TO BE EFFECTIVE PROVIDES OPPORTUNITIES FOR THE STUDENT TO BECOME SELF-DIRECTIVE

STEP I

SCHOOL OBJECTIVE	EXPECTED BEHAVIORS IDENTIFIED BY OBJECTIVE	ESSENTIAL ELEMENTS OF SCHOOL RELATED TO OBJECTIVE	SITUATIONS IN ELEMENTS CONTRIBUTING TO OBJECTIVE	EVALUATION: TOOLS & METHODS	PERSONNEL INVOLVED	OUTCOMES AND RECOMMENDATIONS
Initiates action to meet the needs of a situation	Knows sources of materials and services Recognizes problem Formulates plan Individual Group Seeks assistance Implements plan Analyzes outcome	Faculty organization Committee participation Student personnel services Health program Counseling program Group living Student organization Curriculum Resources Library Faculty Community	Objectives or reasons for the existence of the element Facilities and services available in the situation Ways students are informed about services Kinds of problems a student has and seeks help with Who is available to provide or implement the service or program? From whom can the student seek assistance? Does she seek assistance? When is the service available? What financial resources are needed to support the service? What purpose does each record serve? How is it used?	Interviews Staff Students Questionnaire Faculty Students Observation of behavior in Classroom Clinical laboratory Out-of-class activities Study schedules Class Staff Identification of content in courses Records	Director Associate director Specific instructors Nursing Nutritionist Others, such as college personnel Counselor Physician Health nurse Advisors to student organization and classes	

BELIEF: AN EDUCATIONAL PROGRAM TO BE EFFECTIVE PROVIDES OPPORTUNITIES FOR THE STUDENT TO BECOME SELF-DIRECTIVE

STEP II

SCHOOL OBJECTIVE	ESSENTIAL ELEMENT AND OBJECTIVES	SITUATIONS IN ELEMENT CONTRIBUTING TO OBJECTIVES	EVALUATION: TOOLS OR METHODS	SPECIFIC DATA TO BE COLLECTED	PERSONNEL WITH MAJOR RESPONSIBILITY FOR COLLECTING DATA	SUMMARY OF OUTCOMES AND RECOMMENDATIONS
Initiates action to meet needs of a situation	Health program Seeks health counseling on own initiative Knows how to use available resources Recognizes need for establishing personal habits that promote maintenance of health	Facilities available Health office Hospital Emergency room Mental health clinic Services available Health counseling Hospitalization insurance Annual physical examinations Routine laboratory tests and x-rays Information given to students in Orientation program Courses with related content: nutrition, introduction to nursing, maternity nursing, etc.	Review of class schedules and availability of personnel Interview Health nurse Physician Counselor Instructors Questionnaire Identify specific questions for faculty, other personnel, and students. Identification of specific content Courses Examinations	Interview Cite your role in orienting student to health program or related activities Did you refer student or other personnel to another source? If so, did you determine if student followed through with the referral? Describe how student was able to develop a plan for meeting her particular problem	Health nurse	

BELIEF: AN EDUCATIONAL PROGRAM TO BE EFFECTIVE PROVIDES OPPORTUNITIES FOR THE STUDENT TO BECOME SELF-DIRECTIVE

STEP II--Continued

SCHOOL OBJECTIVE	ESSENTIAL ELEMENT AND OBJECTIVES	SITUATIONS IN ELEMENT CONTRIBUTING TO OBJECTIVES	EVALUATION: TOOLS OR METHODS	SPECIFIC DATA TO BE COLLECTED	PERSONNEL WITH MAJOR RESPONSIBILITY FOR COLLECTING DATA	SUMMARY OF OUTCOMES AND RECOMMENDATIONS
		Student problems Need to be determined for each situation. Examples: weight, skin, pregnancy, etc. Program is implemented by Health nurse School physician Specialists (as needed) Student seeks assistance from physician, health nurse, specific faculty members, counselor and/or nutritionist, etc., depending upon the situation. When service is available Health nurse: Monday to Friday, 8:00-4:30 Physician: Monday to Friday, 8:30-9:00 Other: by appointment Financial support Student fees General funds Contributed service by physicians	Records Summary of Individual Groups	Identification of specific content Outline major areas of content related to health of student.	Instructors Anatomy and physiology Chemistry Introduction to nursing Nutritionist	

BELIEF: AN EDUCATIONAL PROGRAM TO BE EFFECTIVE PROVIDES OPPORTUNITIES FOR THE STUDENT TO BECOME SELF-DIRECTIVE

STEP I

SCHOOL OBJECTIVE	EXPECTED BEHAVIORS IDENTIFIED BY OBJECTIVE	ESSENTIAL ELEMENTS OF SCHOOL RELATED TO OBJECTIVE	SITUATIONS IN ELEMENTS CONTRIBUTING TO OBJECTIVE	EVALUATION: TOOLS & METHODS	PERSONNEL INVOLVED	OUTCOMES AND RECOMMENDA-TIONS
Utilizes problem-solving techniques in nursing situations						
Utilizes resources available in school and community that are appropriate to nursing situations						

STEP II

SCHOOL OBJECTIVE	ESSENTIAL ELEMENT AND OBJECTIVES	SITUATIONS IN ELEMENT CONTRIBUTING TO OBJECTIVES	EVALUATION: TOOLS OR METHODS	SPECIFIC DATA TO BE COLLECTED	PERSONNEL WITH MAJOR RESPONSI-BILITY FOR COL-LECTING DATA	SUMMARY OF OUTCOMES AND RECOM-MENDATIONS
Utilizes problem-solving techniques in nursing situations						
Utilizes resources available in school and community that are appropriate to nursing situations						

APPENDIX D

GUIDELINES FOR EFFECTIVE GROUP WORK

Guidelines for Group Behavior

1. The productivity of a group depends on the ability of its members to exchange ideas freely and clearly and to become involved in its processes and decisions.
2. Each member of the group feels free to give of himself and make a contribution toward the work of the group.
3. The ability of the group to function properly is not necessarily dependent upon the leader.
4. Members of the group must be willing to assume responsibility for the way the group acts.
5. The group refuses to permit one member or the leader to dominate discussions or decisions.

Guidelines for Group Leaders

1. The leader maintains a flexible and unbiased attitude throughout the session so that the group can arrive at its own decisions and assume responsibility for them.
2. The leader facilitates and coordinates group effort in the selection of a problem, its definition, and its solution, and keeps discussion and action consistent within the scope of the problem.
3. The leader is resourceful in the use of procedures that will enable the group to work together and to develop a loyalty to one another and to the group as a whole.
4. The leader recognizes each individual's potential and creates an atmosphere in which each member of the group can make a contribution.
5. The leader is careful to suggest--not direct--the use of a particular procedure or technique in approaching and discussing a problem.

Self-Evaluation by the Group

1. Did we identify the goals for today's meetings? What were these goals?
2. Were the problems discussed pertinent to the goals? If not, what factors were responsible for our straying?
3. What did we accomplish today?
4. Did each member of the group make a contribution to the discussion? If not, identify the factors that prevented active participation by each member.

Self-Evaluation by Individual Members of the Group

1. Did I understand the goals set up by the group? If not, did I indicate this to the group?
2. Was I an active and contributing member of the group or was I a passive member? What factors contributed to my role in the group?
3. Did I contribute ideas that appeared to be useful to other members of the group?
4. Were my contributions to the discussions pertinent to the goals or did I inject unrelated topics or issues into the discussions?
5. How did I feel about the other members of the group?

VT 004 644

Extending and Expanding Agricultural Education Through Growth; Report of the Central States Seminar in Agricultural Education (46th, Chicago, Illinois, February 20-23, 1967).

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 71p.

*AGRICULTURAL EDUCATION; *CONFERENCE REPORTS; STUDENT TEACHING; TEACHER EDUCATION; YOUNG FARMER EDUCATION; ADULT FARMER EDUCATION; AGRICULTURAL ENGINEERING; YOUTH CLUBS; EDUCATIONAL NEEDS; PROGRAM EVALUATION; INSTRUCTIONAL MATERIALS; SUPERVISION; COOPERATING TEACHERS; TECHNICAL EDUCATION; COOPERATIVE EDUCATION; *PROGRAM PLANNING; *EDUCATIONAL PRACTICE; INSTRUCTIONAL IMPROVEMENT
*CENTRAL STATES SEMINAR IN AGRICULTURAL EDUCATION, CHICAGO, ILLINOIS, FEBRUARY 20-23, 1967

Conference presentations included: (1) Conducting Programs of Vocational Agriculture to Meet the Present and Emerging Responsibilities of Secondary Education, (2) Updating Student Teaching Programs, (3) Issues in Teacher Education, (4) The Role of Vocational Agriculture, and (5) Young and Adult Farmer Instruction in a Rapidly Changing World of Agriculture. The minutes or reports of committees or meeting sections are included in the areas of agricultural mechanics, teacher education, executive secretaries, needs, evaluation, instructional materials, supervising teachers, and state supervision. Descriptions are provided of ongoing adult farmer education, young farmer education, technical education, community college, post-secondary, cooperative, and Manpower Development and Training Act programs. Participants represented 14 states and Washington, D.C. (JM)

VT 004 644

OCT 30 1967

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REPORT OF THE

CENTRAL STATES SEMINAR

IN AGRICULTURAL EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Conference Theme

EXTENDING AND EXPANDING

AGRICULTURAL EDUCATION THROUGH GROWTH

Sherman House

Clark & Randolph Streets

Chicago, Illinois

February 20-23, 1967

VT004644

FORTY-SIXTH ANNUAL
CENTRAL REGIONAL CONFERENCE
For Supervisors and Teacher Trainers
in Agricultural Education

EXTENDING AND EXPANDING

AGRICULTURAL EDUCATION THROUGH GROWTH

Chairmen

Program Chairman - Ralph Guthrie, Illinois
Regional Chairman - C. V. Roderich, Missouri

Secretary

C. W. Dalbey, Iowa

Conference Participants

Illinois

Don Coil
Ralph A. Guthrie
Allan L. Utech
James F. Nickell
George A. Richter
Orval C. Floyd
Lloyd J. Phipps
Milton Stinson
George Jefferson
Benton K. Bristol
Norman D. Ehresman
John H. Herbst
J. Robert Warmbrod
Roger Courson
Gerald R. Fuller
Paul Hemp
Donald P. Higgs
Kenneth E. James
Keith McGuire
John W. Matthews
Sol Siegel
Roland F. Espenschied
John D. Sweeney
Robert W. Walker
R. Glen Willard
W. H. Witt
Gene Wood
Al Redding

Indiana

Rod McKinney
Don Pennington
Delmar Johnson
Coleman Harris
R. R. Bentley
John P. Strouse
L. R. Hilterbrand
Howard P. Addison
James Clouse
Byron Callaha
E. E. Clarin
Hollie Thomas

Iowa

Donald L. Ahrens
Gerald F. Barton
C. E. Bundy
Everett L. Clover
Harold R. Crawford
C. W. Dalbey
Robert J. Ford
Herb Hansen
Elwood J. Mabon
Gary C. McVey
Larry L. Reding

Kansas

Ray Agan
James Albracht
Howard Bradley
Dale Brooks
Clint Jacobs
Wilbur Rawson

Kentucky

Bill Bingham
Harold Binkley
M. M. Botto
Floyd Cox
Eldon Heathcott
Robert L. Kelley
C. O. Neel
Billy James Vice
H. O. Williams

Michigan

Carl F. Albrecht
Robert Anderson
Harold M. Byram
Raymond M. Clark
John J. Cragun
William Gleason
Raymond Garner

Michigan Cont.

Jim Hannemann
Edwin St. John
Thomas H. Kerrey
Walter W. McCarley
Floyd McKinney
O. Donald Meaders
Neil Sneep
Paul Sweany
Richard M. Swenson

Minnesota

W. Forrest Bear
G. R. Cochran
Edward Hartog
William Hohenhaus
Kenneth Johnson
Martin McMillion
John Murray
Clifford L. Nelson
Edgar Persons
Milo J. Peterson

Missouri

G. F. Ekstrom
Raymond D. Hagan
J. D. Harris

Missouri Cont.

Carl M. Humphrey
C. V. Roderich
William J. Rose
Curtis R. Weston

Nebraska

Roy Dillon
Alan A. Kahler
Stanely Matzke, Jr.
M. G. McCreight
Roland Peterson
Les Thompson
Dale G. Zikmund

Ohio

Ralph E. Bender
Leon Bovcher
James E. Dougan
Gilbert S. Guiler
Paul F. Pulse
Harlan E. Ridenour
Richard H. Wilson
Willard H. Wolf
Ralph J. Woodin

South Dakota

Duane Acker
Dr. Hilding Gadda
H. E. Urton

Wisconsin

Dale C. Aebischer
Doyle Beyl
Walter T. Bjoraker
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Charles DeNeere
F. J. Doering
P. Kimiti
Virgil O. Martinson
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Fred J. Pumper
Charles Saloutos
John F. Thompson
Marvin Thompson
Donald N. McDowell

Washington, D.C.

Homer Edwards
Wm. Paul Gray
Phil Teske
Walter Jacoby

GUESTS

Ray Darling
General Motors Corporation

Frank Farone
General Motors Corporation

Leland Bradley
Lafayette, Indiana

Russell L. Guinn
Interstate Publisher

Carl Harst
Swift & Co.

Don Moeller
Swift & Co.

W. T. Schnathorst
International Harvester

Phil Schmidt
National Safety Council

Shami, Mohammad Ansar
Michigan State University

Mrs. Khalida K. Shami
Michigan State University

James L. Willman
American Zinc Institute

Blasio Ishabakak
Wisconsin State University

Del Shirley
Cal Poly, California

Allard A.A. Sanga
River Falls, Wisconsin

Ralph J. Knobel, Y.F.
Fairbury, Nebraska

Donald Gazda
Jackson, Minnesota

Jerry Smith, Y.F.
Rensselaer, Indiana

George R. Glass, Y.F.
Sac City, Iowa

Harold Binkley - Kentucky

CONDUCTING PROGRAMS OF VOCATIONAL AGRICULTURE TO MEET THE PRESENT AND EMERGING RESPONSIBILITIES OF SECONDARY EDUCATION

The basic philosophy of vocational education in agriculture must be kept clearly in mind as we move to meet the responsibilities of secondary education. It has been largely responsible for the success of the program since the start and will be responsible for the success of the programs in the future. In light of "too numerous demands" now and emerging from school administrators, other teachers, and lay people, there will be less emphasis on the directed or supervised occupational experience. The leadership in vocational agriculture must be alert and must "hold the ground" else it will lose the respect of the public for the quality of the program it has had over the year.

I would like to reinforce the use and adaption of some new terminology--use of word "experience" for "practice." The psychologist will accept "experience" where they have not been willing to accept "practice," as meaning the same as it has to us in vocational education. In addition, I believe it is time to use the term AGRICULTURAL OCCUPATIONS and drop, to the extent we can, "off-farm" and "non-farm."

Our job at the secondary level is to prepare students for "job entry," whether the job be farming or any one of a dozen jobs in agricultural occupations--to enter a job with enough "know how," confidence, and a "success pattern" to advance in the chosen vocation, to develop a desire to attend a technical school in agriculture, or to move on through college and become a professional man in agriculture.

There follows 12 fundamental steps in making plans to conduct programs:

1. Develop policy for education in agricultural occupations. The local school system should adopt policy which will provide guidelines for the development of programs.

2. Planning programs and procedures. Many people should help develop them - teachers of academic subjects, other vocational teachers, guidance counselors, curriculum directors, and others. "Involvement of people" in planning programs and procedures is the best way to "build in" understanding of a program and cooperation in carrying it through.

3. Use of an advisory committee. Advisory committees properly organized and carefully used can be a significant help in improving existing programs and developing new programs. An advisory committee should be carefully oriented in terms of what the school or department is setting out to do, what the pattern of instruction will be, and what standards are to be adhered to before it is asked to render advice.

4. Provide adequate funds, facilities, and teacher time. Education for agricultural occupations is not cheap education. There will be a temptation to use substandard, cramped facilities and discarded equipment, to reduce teaching time, to provide minimum supervised occupational experience, and to not meet expenditures for adequate teaching aids. Leaders in agricultural education must not let this happen. Public perception of the program will result from the kind of facilities and equipment provided.

5. Involve people in general education. Teachers of English, chemistry, physics, general science, speech, business and others should have a part in planning the program. Leaders in agricultural education should cause these people to feel they are making a definite contribution to the success of the program.

6. Involve other vocational services. Agricultural education and the students in the program will be greatly handicapped if it undertakes to provide programs without the assistance of colleagues in the other vocational education services--either participating in training students direct or in helping to prepare teachers of agriculture to adequately teach certain aspects of program.

7. Work with labor and the Employment Security offices and other governmental agencies. The good will and cooperative of these agencies will help materially in providing effective programs. Certain laws that govern the employment of young workers must be observed. These are important in providing occupational experience while students are in training.

8. Develop programs in cooperation with employers. Working closely with prospective employers of the students for their training is a must. The cooperating employer must understand his training responsibility in the program. And, he must provide each student with tasks of increasing responsibility. The student's work must be at the convenience of the employer--when he can make effective use of the student in the business.

9. Selling the program, recruiting, screening, and counseling students. The program will need to be sold to parents, prospective students, school people, agricultural business men and others. Students admitted to the program should be those who are seriously preparing for work in the agricultural occupation after graduation or who plan to pursue further training in the occupation.

10. Flexible scheduling. Students should be placed for occupational experience in 3 to 4 hour blocks of time and at the convenience of the agricultural business--when "business is moving." This means all classes for students must be scheduled in the AM or PM so they may work in the PM or AM.

11. Updating one's qualifications in an agricultural occupation. Teachers must know what they are to teach. Short courses in most areas of agricultural occupations are available; one can go to see and study programs in operation; and one can work in an agricultural business (or give intensive study) for a week during a busy season. A combination of all three should do much to prepare a teacher for the task.

12. Public information. Keep the public informed as to what the agriculture picture is, what the department of agriculture is doing, what the results are, what needs to be done, and involve them (the public) in the program.

Kenneth E. James - Illinois

UP-DATING STUDENT TEACHING PROGRAMS

Inquiring from friends in education, administration, and college teachers associated with student teaching concerning what needs to be done to up-date student teaching, I was both surprised and encouraged. Many suggestions for all student teaching to improve and up-date are already common practice in agricultural education. There is considerable agreement and consistency among the agricultural education programs in the central states. This is not to be interpreted as meaning that we have no need for up-dating our student teaching program in agricultural education.

There is little doubt as to the importance of the professional laboratory experience in the teacher education program. The role of the supervising teacher is challenging and rewarding. This leads me to some basic considerations which should be kept in mind as we provide professional laboratory experiences in up-dating student teaching. I have seven areas for consideration.

1. Student teaching centers should have a "Total Program in Vocational Agriculture" including agricultural occupations program. This includes the basic agriculture courses, occupational courses, an active FFA chapter, adult education program and advisory council. Summer experience is a part of this total program.

2. Student teaching centers should have a successful program. A student teacher observing and participating in a good program will help bridge the gap between theory and practice. A supervising teacher should gradually let the student accept increasing responsibility until the student sees himself as a teacher of a successful department.

3. Students in non-farm agricultural occupations must be recruited and prepared to teach non-production agriculture. We must encourage students with special interests to prepare for these areas.

4. Some student teaching centers should have or establish and use land laboratories, school laboratories, greenhouses or other in-school facilities. This would provide opportunity for student teachers with special interest.

5. Provide in-service growth of the supervising teacher. This is a common practice and is more necessary now than before in sharing the innovations developed in keeping up with the changing programs.

6. Provide opportunity for student participation in professional relationships. This is most important. The NVATA has provided special student membership and now the AVA is also providing the same opportunity. This helps to determine the professional attitude of a student teacher and to feel like an active member of the profession.

7. Maintain high standards with flexibility. With the teacher shortage, pressures may be felt to lower the requirements. Rather than lower standards, we should exert effort in the area of recruitment and take steps to increase the holding power.

THE ROLE OF VOCATIONAL AGRICULTURE IN SECONDARY EDUCATION

Duane Acker

1. Will assume the role is multiple and includes (a) preparation for farming and certain nonfarm occupations as part of a terminal program, (b) for some students an integral part of a preuniversity program, and (c) basic preparation for some who will subsequently complete post-high school vocational programs.

2. The role may also be discussed in another dimension--instruction related to farming vs. instruction related to nonfarm businesses and industries vs. instruction related to the biological, physical and economic sciences undergirding agriculture. In this dimension, I will also assume the role is multiple.

3. Multiple roles in two dimensions suggest confusion and dilution of effort. This is not necessarily so. My comments pertain to nation-wide vo-ag programs, certainly the north central states. A vo-ag teacher and his supervisors and advisors can crystallize a specific set of missions for the individual school, influenced by type of community, student motivations and abilities, post-high school vocational training opportunities, etc.

4. In the north central states the multiple roles are especially important and we should focus on certain deterrents to our ability and willingness to accept certain roles--contribution to a preuniversity program, or instruction related to nonfarm businesses or industries, for example.

5. Some of these deterrents may be (a) university curriculum of teacher short in basic sciences, (b) university curriculum short in business courses, (c) teachers uncomfortable and lacking in confidence with nonfarm projects, (d) jealousies among vocational units--agriculture vs. trades and industries vs. business, (e) failures in continuing education of teachers, (f) limited reward for those who "moved out," (g) narrow interpretation of legislative base of program (prior to 1963), (h) size of high school and number of vo-ag teachers, (i) attitudes of administrators and school boards.

PERSONS WITH SPECIAL NEEDS

Milton E. Stinson

The JOBS Project is designed to transform unemployed youth of Chicago into productive, working young men and women. The program has been planned cooperatively by the Bureau of Apprenticeship and Training, The Illinois State Employment Service, the Illinois State Department of Vocational Education and Rehabilitation, the Chicago Committee on Urban Opportunity and three private youth serving organizations, the Chicago Boys Clubs, the Chicago Youth Centers and the YMCA of Metropolitan Chicago. During three years of operation the JOBS Project has been responsible for the enrollment and training of over 5,000 young men and women. JOBS has returned over $\frac{1}{2}$ of these previously unemployed young persons to the ranks of productive citizens through the avenues of our training and employment programs.

JOBS is recognized as a major force in combatting ignorance and poverty among the disadvantaged youth of Chicago. Increasingly the Project is the prime source of technique, method and a resource for similar employment programs throughout the nation. As a properly conceived youth training and employment program, the JOBS Project offers the following supportive services to youth in our program:

1. A Basic Education Program designed to upgrade the trainees' reading, writing and arithmetic skills.

2. A staff of Employment Placement Counselors who will aid in the screening and selection of trainees for OJT as well as helping develop the trainees' job attitude, knowledge of the working world and his work sophistication.

3. A Group Work staff of semi-professionals who have the responsibility of influencing trainee habits, attitudes and norms.

4. A trained Casework staff will provide effective assistance in dealing with the critical personal problems incident to the disadvantaged youth, and therefore affect their job performance.

Additional supportive services available to the OJT staff include a psychological counselingservice for trainees with adjustment problems, a community living experience for youth who need a new environment for fuller development, medical examinations, legal counseling, a credit education program, a job etiquette and grooming program, and educational trips to business and industry.

The project has attempted to address itself to the problem of not only finding employment opportunities for disadvantaged youth, but also in properly preparing these youth for industry, and also preparing industry to receive the youth.

It is our feeling that through the process of group discussion many of the attitudinal changes necessary for the youngster to function effectively in employment can be brought about. Before disadvantage youth can properly accept any type of training, literacy or skill, they must be in a receptive frame of mind to participate in the learning process.

All of our trainees will repeatedly face retraining during the course of their work careers as automation upgrades job skills. It is the hope of our staff that we can help these young people develop within themselves a sense of personal selfconfidence which will make them willing and able to accept retraining when it comes.

Minutes of Agricultural Mechanics
Interest Group

February 20, 1967

Sherman House-Chicago

Meeting called to order by Dr. Clint Jacobs, Kansas, at 1:15 p.m. in the Jade Room.

Dr. Forrest Bear was elected chariman of the agricultural mechanics group for 1967-68.

Report of activities in the way of workshops, special schools was presented by various states.

Carl Albrecht, Michigan, reported on special college credit workshops in Farm Power. College credit was received by enrolling students in a special problems class in Agricultural Engineering. The workshops were for 6 hours each day from July 5-22, 1966. The workshops were held on the Michigan State Campus.

Forrest Bear, Minnesota, reported on electrical controls workshops conducted in Minnesota. Money for the construction of six control demonstrations kits was supplied by the Minnesota Farm Electrification Council. The Edison Electric Institute manual "Elec. and Basic Controls" was used as the instructional manual.

Curtis Weston, Missouri, reported on electric motor, electrical controls and electrical protection workshops which were conducted for Missouri teachers. Twenty-three demonstration panels were constructed and supplied to the sub-districts of teachers. Two publications were written and distributed at the time of the workshops. There were, "Teaching Electricity in Vocational Agriculture" and "Practical Farm Wiring Demonstrations." Weston also reported that a slide flim-strip of 140 frames has been prepared on Placing, Finishing and Curing Concrete and will be distributed to Missouri teachers.

Roland Espenschied, Illinois, surveyed the group to see if teachers pay any fees for attending workshops. Most states do not charge any fee for workshop training sessions unless it involves books or supplies. Twenty-five kits on motor tune-up have been prepared for loan to Illinois teachers.

Floyd Cox, Kentucky, reported on electrical workshops on wiring, motors, and controls in cooperation with power suppliers in Kentucky.

Research activities in other states was discussed by Ben Bristol, Illinois. He also indicated a need for a newsletter to keep Agricultural Mechanics personnel up-to-date on research activities in the United States. He agreed to author the first pilot issues to see if it served a function.

Changing Patterns in Agricultural Education Teacher Training Curriculum with Implications for Agricultural Mechanization.

Michigan reports that a student can get a double major, one in ag. education and one in ag. mechanization. Thirty semester hours in ag. mechanization are available to students.

Ag. mechanization courses in the Agricultural Education curriculum are being increased at Minnesota.

Missouri has 15 semester hours in Ag. Mechanization with three additional hours in a course in methodology.

Kansas is revising its course requirements in Ag. mechanization for their Agricultural Education majors.

Nebraska has for two years offered the Ag. Mech - Ag. Education option for certification, with prospects for dual options in other areas.

Kentucky has recently established a degree program in Agricultural Mechanization.

Group adjourned to join the Teaching Aids group to see an "Automated Teaching Service" demonstration put on by Ken-Cook Company of Milwaukee, Wisconsin. This is a programmed learning technique which has much possibility in the Ag. Education and Ag. Mechanization field.

2nd Session.

Weston reported on the core curriculum materials being prepared in Missouri for the basic agricultural courses in Ag. I and II, also he explained the semester courses of instruction for Ag. III and IV.

Much discussion developed regarding the role of the Agricultural Engineering Specialist in relationship to the American Society of Agricultural Engineers. Nothing much was resolved other than the men involved should continue to pay their dues of $35.00 to ASAE and attempt to help develop stronger cooperation between Agricultural Engineering Departments and the Agricultural Mechanization program.

The possibility of attempting to set up an institute to train personnel in farm power and machinery was discussed to great length. It was agreed that Kansas would attempt to write a proposal and see if it could be funded under the U. S. Office of Education 4(c) funds. Attempts should be made to have other projects in Agricultural Mechanics funded under the U. S. Office of Education.

It was suggested that more time be requested for next years session with part of one day of the main program be devoted to Agricultural Mechanics. Also a tour of industry was suggested.

Respectfully submitted
Curtis R. Weston, Secretary

PROGRESS REPORT - ADULT FARM CLASSES - 1966

Appleton-Kimberly-Kaukauna Voc. & Adult Schools

	1st year group	2nd year group	3nd year group	4th or more group
	21	19	18	23
Gross Farm income	$15,469	$19,018	$23,835	$31,182
Farm Expenses	9,613	10,593	11,847	15,411
Net before depreciation	5,856	8,425	11,988	15,771
Taxable income	3,968	6,094	9,172	12,334
Labor income	3,506	5,342	8,132	10,692
Increase in net worth	1,049	1,802	3,997	5,167
Butterfat per cow	372	407	443	462

Adult farm training program is an <u>intensive</u> training program for farm operators.

1. 30-36 hrs. of classes per year-night classes October through April plus field trips in Spring and Summer.

2. Up to 18 hours individual on-the-farm.

3. Farm analysis to point out strong and weak points in farm operation.

4. Planned refinancing of farm operation when it will help the operator.

5. Introduction to other farm agencies such as Soil Conservation, D.H.I.A. and Extension programs.

APPLETON YOUNG FARMER CLUB

1967

Purpose of the club:

1. Keep young farmers abreast of changes in farming.
2. Develop rural leadership.
3. Provide social and recreational activities.
4. Promote better rural - urban relationships.
5. Provide a dependable and a reasonably priced source of seeds and fertilizers.

Program for 1967 and committee assignments:

March 1 - Farm tour for trainees in farm classes

March 15 - Educational meeting on farm financing
Pine Castle Hall - Francis Brux, Gordon Kerrigan

April 5 - Business meeting - Ashauers Hall, Greenville
Gerald Ebben, Cornelius Ebben.

May 4 - Award Banquet - Silver Dome, Greenville - Isadore Marx, Gordon Kieffer, John Van Wychen, Martin Ven Rooy

July 9 - Family picnic - place to be selected by Committee
Clarence Marx, Gordon Kieffer, John Van Wychen

September 6 - Business meeting - May-Nors, Little Chute
Ronald Thyssen, Gerald Weyenberg

October 10 - Educational Meeting - Kaukauna Vocational School
Panel on Wills and Inheritance - Richard Killian, Tony Welhouse, Peter Mischler

Novermber 8 - Ladies Night - Darboy Club
Vernon Newhouse, Merlin Van Asten

January 10 - Reorganization Meeting - Penning's Hall
Sylvester Lehrer, Stanley Skinkis

Special Committee:

Rural-Urban - Don Pennings, Thos. Zerbe, Merlin Plamann
Seed-fertilizer - Herbert Vande Corput, Peter Ver Voort, Marvin Fox
Good-will - Ray Wagner, Myron Vande Walle, Ron Mischler
Membership - Ted Vosters, Marvin Fox, Vernon Stingle
Nominating - Norbert Van Hoof, Ray and Robert Romenesko

1967 Officers:

President - Marvin Fox
Vice President - Melvin Green
Secretary - Ronald Thyssen
Treasure - James Verhasselt
Director - LeRoy Van Asten
Director - Ted Vosters

SUGGESTED COURSE OF STUDY
WISCONSIN
ADULT FARM TRAINING PROGRAM
ADAPTED TO FOX CITIES VOC. & ADULT SCHOOL

Year I

Feeds and Feeding	12 hrs.
Herd Management	12 hrs.
Herd records	2 hrs.
Weed control	4 hrs.
Farm Arithmetic	4 hrs.
	34 hrs.

Year II

Feeding review	2 hrs.
Soils & Fertilizers	16 hrs.
Crop production	
Alfalfa	6 hrs.
Corn	6 hrs.
Grains	2 hrs.
	32 hrs.

Year III

Farm Management	10 hrs.
Analyzing farm records	10 hrs.
Income tax problems	4 hrs.
	24 hrs.

Year IV

Animal breeding	8 hrs.
Marketing	10 hrs.
Insurance	2 hrs.
Electricity	4 hrs.
	24 hrs.

Year V

Farm buildings	8 hrs.
Farm power	6 hrs.
Using government agencies	4 hrs.
Farm organizations	2 hrs.
Parlimentary procedure	2 hrs.
New developments	2 hrs.
	24 hrs.

Individual Instruction on-the-farm suggested

1st year	20 hrs.
2nd year	18 hrs.
3rd year	12 hrs.
4th year	8 hrs.
5th year	8 hrs.
Average per year	13 hrs.

NOTE: Alternate years IV & V
Special classes are scheduled in Farm Welding
Machinery repair
Public speaking

Wives of trainees attend special meetings on farm records in the first and third year.

Management Makes the Difference

	Farm A	Farm B
Crop acres	154	153
Animal units	68	77
Acres per Animal unit	2.2	2.0
Gross income	32,570.00	26,281.00
Cash expenses	10,980.00	19,340.00
Per cent expenses	34%	65%
Net income, before depr.	21,590.00	6,941.00
Normal depreciation	4,092.00	5,837.00
Net after depreciation	17,498.00	1,104.00
Machinery investment	132.00	195.00
Feed purchased	3,052.00	9,431.00
Fertilizer	1,288.00	534.00
Machinery repairs	688.00	2,686.00
Gas and oil	950.00	1,293.00
Taxes	1,237.00	973.00
Insurance	200.00	583.00
Trucking	850.00	560.00
Milk income per cow	656.00	495.00
Sale of livestock	4,588.00	6,245.00
Weed control	Herbicides	Cultivation

These two farms are neighbors. The soil type is the same. Both have adequate drainage. Both have adequate buildings in excellent condition. Both farmers are about the same age. Both have the same amount of family help. Both farmers started from scratch, and both are hard workers.

Keeping Expenses Down is Important.

Analysis of Farm C - 125 crop acres, 58 Animal units.

Income--

Milk----------	$18,819.00
Cattle---------	2,178.00
Miscellaneous--	90.00
Total--------	$21,087.00

Summary--

Income---------	$21,087.00
Expense--------	7,171.00
Net----------	13,916.00
Depreciation---	2,160.00
Total--------	$11,755.00

Expenses--

Feed----------	$1,071.00
Fertilizer------	1,271.00
Livestock-------	304.00
Fuel----------	591.00
Repairs---------	554.00
Total---------	$7,171.00

Machinery Investment per acre------$	97.00
Expenses--------	34%

Some observation on this operation

1. Feed purchased per animal unit is under $20.00. On some farms this is $150.00.

2. He is spending over $10.00 per acre on fertilizer.

3. Livestock expense is $5.30 per animal unit with $5.00 per cow for breeding, it is obvious that there is much spent for veterinary. He has learned to do much of this himself.

4. The farm fuel bill is $4.73 per acre. He doesn't have several inefficient tractors, and he doesn't work land needlessly. On some farms this is $10.00

5. Repairs - about $4.00 per crop acre. He has a welder and knows how to use it; and more important he uses it the year around.

6. Recently he [illegible]lt a 106' x 32' shed. We would estimate the cost of thi[illegible]t $4,240.00. He built this for $2,080. Old power poles and a discarded stave silo that he bought framed the building. The covering is life - time metal sheeting.

FARM MANAGEMENT

Note - Good farm management is simply making the correct decisions. Correct decisions cannot be made without correct information and good judgment. Here are some problems in decision making.

Possibility No. 1 - Buy a silo for $15,000.00

Possibility No. 2 - Spend less for silo and buy other things:

Same size silo	$4,086.00	Shed over bunk	$ 3,000.00
Silo unloader	1,096.00	Pipeline milker	4,240.00
Concrete yard and bunk	1,596.00	Total cost	14,702.00
Bunk Feeder	687.00		

Possibility No. 3 - Spend less for silo and buy other things:

Same size silo	$3,940.00	Tiled 40 acres	$ 2,400.00
Silo unloader	1,048.00	Surface drainage on 80 acres	1,000.00
Bunk and concrete	1,315.00	Corrective fertilizer on 120 acres	1,680.00
Feeder	1,075.00	Total cost	16,378.00
Pole shed 40 x 80	3,460.00		
30 free stalls	460.00		

Possibility No. 4 - Spend less for silo and buy other things:

Same size silo	$4,120.00	Self propelled Swather (trade made)	$ 3,200.00
Silo unloader	1,100.00	Total cost	15,685.00
Concrete yard and bunk	1,355.00		
Bunk feeder	885.00		
Pipeline milker	5,025.00		

Possibility No. 5 - Spend less for silo and buy other things:

A smaller silo	$3,240.00	New 4-bedroom home	$13,200.00
Silo unloader	975.00	Total cost	18,605.00
Concrete and bunk	520.00		
Bunk feeder	670.00		

ENROLLMENT OF FARM OPERATORS AND HIRED FARM WORKERS IN YOUNG AND ADULT FARMER CLASSES. CENTRAL STATES, 1965

State	Number of farm operators in state 1964	Number of hired farm workers in state (150 days or more) 1964	Total operators and hired workers 1964	Percent enrolled in young and adult farmer classes, 1965
Illinois	132,821	25,491	158,312	6.2
Indiana	108,082	13,368	121,450	4.1
Iowa	154,162	20,315	174,477	8.7
Kansas	92,439	12,896	105,335	.4
Kentucky	133,038	14,245	147,283	2.5
Michigan	93,504	14,858	108,362	1.8
Minnesota	121,163	15,999	147,162	8.8
Missouri	147,315	15,646	162,961	2.1
Nebraska	80,163	12,267	92,430	4.0
N. Dakota	48,836	10,753	59,589	--
Ohio	120,381	18,825	139,206	6.1
S. Dakota	49,702	8,267	57,969	4.3
Wisconsin	118,816	21,377	140,193	4.7
TOTALS	1,410,422	204,307	1,614,729	4.6

Data from 1964 U. S. Census of Agriculture, Preliminary Report, U.S.D.A., and from Vocational and Technical Education, Fiscal Year 1965, U.S.O.E.

C. E. Bundy, Iowa

TECHNICAL TRAINING PROGRAMS AT MSU
Dr. Harold J. Ecker

Training Program	Date Started	On-Campus Study	Work Experience	Number Enrolled
Young Farmer	1894	4 8-Week Terms	8 Months	190
Commercial Floriculture	1946	4 11-Week Terms	1 Year	48
Elevator and Farm Supply	1946	4 11-Week Terms	6 Months	34
Farm Equipment Service and Sales	1946	4 11-Week Terms	6 Months	38
Landscape and Nursery Industry	1946	4 11-Week Terms	1 Year	62
Soil Technicians	1965	4 11-Week Terms	6 Months	22
Turfgrass Management	1966	4 11-Week Terms	6 Months	15
Food Processing	1967	4 11-Week Terms	6 Months	--
Pest Control	Planning Stage	4 11-Week Terms	6 Months	--

Short Course students are on campus fall and winter terms for two consecutive years. They serve placement training between the on-campus sessions.

All of the above programs are coordinated by the Short Course Department. Administratively Short Courses are under the Dean of Resident Instruction in the College of Agriculture. The Short Course Department has three full-time staff members, seven part-time lecturer positions, and two office girls.

A staff member of an academic department is assigned as coordinator of the training program. His duties include: teaching; student advising; on-the-job training supervisor; and liaison between the department, the industry and the short course department.

Most of the courses in the training programs are taught by regular staff members in the various departments on campus. Short Course teachers are paid out of regular department teaching budgets. In all cases, short course classes are taught in separate sections. There are approximately 95 MSU staff members teaching short course classes--each a specialist in his field.

A few specialized courses are taught by part-time lecturers hired by the Short Course Department. This method is used only where the need cannot be filled by MSU staff.

Each curriculum is designed to fit the needs of the industry involved. An industry advisory committee helps work out the program of study. Some broad guidelines have developed over the years. In most programs, the courses break down to approximately one-fourth basic college courses, one-fourth basic agricultural courses, one-fourth business subjects, and one-fourth technical subject matter in the student's field.

Short Courses are financed out of the University's general budget. Short Course teaching budgets are requested through departments. Travel funds, supplies and services, and short course staff are budgeted through the Short Course Department. Student fees, state appropriations, and reimbursement from Vocational funds are channeled back into the University general fund.

Short Courses have been an integral part of the College of Agriculture since 1894. Many agricultural leaders in Michigan are short course graduates. Our future will hinge on our success in meeting the needs of modern agriculture, and not on our illustrious past.

CENTRAL STATES SEMINAR IN AGRICULTURE

February 21, 1967

Stanley Matzke - Nebraska

The University of Nebraska School of Technical Agriculture was started in October 1965 by a resolution of the state legislature, changing the old University of Nebraska School of Technical Agriculture, a residential high school for ranch and farm kids, to a post high school in Technical Agriculture. The high school had specialized in Voc-Ag and Home Ec. since 1911 and reached a student enrollment of 525 in the late 40's. Since then its enrollment has decreased.

The University of Nebraska School of Technical Agriculture is operated by the University of Nebraska Ag College although it is located 250 west in a small agricultural town of Curtis. The programs offered are non-academic in nature, or more positively, they are technical or progmatic in the aims.

The school opened with two programs, Ag Machinery Mechanics, and Ag Drafting, Surveying & Soil Science with 31 students. The programs offered the first three years were limited since the high school was and is still occupying the same campus.

The second year, two more courses were added - Ag Business and Commercial Horticulture, with returning students (22) and new students (49) an enrollment of 71 was reached.

Next year a Production Ag course will be offered to bring the total to five programs and an enrollment of 110 is expected.

Some basic characteristics of the programs are:

1. Industrially oriented. We have advisory committees from industry. Even in the Production Ag we have them.

2. Our instructors are industrially oriented with selection based upon experience rather than degrees. Half of the staff have degrees and the other half do not.

3. We have attempted to build our programs with emphasis in one area and to supplement this with related subjects. One example is in the Ag Business. We have a strong business program with special related courses of fertilizers, feeds and feeding, chemicals, machinery, and seed and grain processing.

4. Our related subjects, mathematics, physics, chemistry, oral and written communications, and human relations are taught separately to each of the departments when the course contest requires it. Example: in the math area the math for Ag Machinery Mechanics is basic arithmetic, business math, and some algebra. In the Drafting area, we go as far as calculus. We try to stress to what is needed and required to know rather than nice to know materials.

We have attempted to select instructors who like students and can relate to students.

What we are doing probably is not too much different than most other states except in most cases agricultural courses are an adendum to technical and industrial programs, if agriculture is offered in an area vocational technical school, community college, or junior college. In our school we are like Gerber's Baby Foods, Technical Agriculture is our only product.

Although we are part of an academic institution, our instructors are not researchers or college professors, they are Vocational Technical Educators.

PROGRAMS IN REVIEW-WILLMAR AREA VOCATIONAL SCHOOL

February 20, 1967

Edward C. Hartog

We have two programs dealing in post high school training in the field of agriculture. One we call Production Agriculture and the other Agricultural Supplies Technology. There are five main areas which effect our programs at Willmar. They are (1) Research and Development (2) Promotion (3) Recruitment of students and instructors (4) Terminology (5) Facilities.

Research and Development. Both of our programs are children of research projects. We established the Production Agriculture program in 1963 to train farm boys who have chosen farming as their occupational goal. The Agricultural Supplies Technology program was established in 1965. It trains for entrance into grain, feed, seed, fertilizer, and agricultural supplies businesses. Curriculum breakdown on the two programs is this:

Production Agriculture	
Technical Agriculture	42%
Farm Mechanics	30%
Farm Management	16%
Business and Related	12%

Agricultural Supplies Technology	
Technical Agriculture	27%
Mechanics	8%
Agricultural Business & Mgt.	18%
General Business	29%
Distributive Education	10%
Supervised Work Experience	8%

Promotion - Ways in which we further the growth, development, and progress of our programs are:

(1) Advisory Committee - Industry has been extremely cooperative in providing manpower to serve in an advisory capacity.
(2) Folder of Materials - We have developed a folder which we present to personnel directors and other interested persons.
(3) Agricultural Seminar Class - We invite 40-45 persons from industry to talk to our sophomore students.
(4) Class Field Trips - Each year we spend two days touring businesses in the Twin City area.
(5) Program Guide - We have a guide for vo-ag instructors and counselors describing our programs, entrance requirements, and jobs available.

Recruitment of Students and Instructors - Although we have quotas for our programs because of facility limitations we have never had too many students. We will accept in Production Agriculture 15 students; in Agricultural Supplies Technology 35 freshmen and 20 sophomores. Recruitment remains one of our big problems. All of our instructors are former high school vo-ag instructors. The business and distributive education instructors are specialized in a particular field.

Terminology - We are expanding in the post high school training programs in agriculture. There is real merit in using common terminology throughout the state and also nationally. An Agricultural Supplies Technology program in Minnesota, Illinois, or Michigan should all reflect similiar training.

Facilities - The need for specialized laboratory space is a critical need. Much of the large commerical equipment is just out of financial reach and we will have to depend on supervised work experience to gain access to this type of equipment.

CENTRAL STATES SEMINAR IN AGRICULTURAL EDUCATION

The North Central Kansas Area Vocational-Technical School was established by the State Board for Vocational Education in early 1964. Doors were opened in rented facilities in September of that year with 112 high school students and 39 post-high students. Fifteen participating school districts cooperated to establish a financial base to establish the school.

This past September we opened the doors to 250 students, 50 high school, and 200 post-high, with four Unified School Districts establishing the financial base for the school.

Two programs in Agriculture Education were offered this year, Farm Equipment Mechanics and Technical Agriculture, which is production agriculture. Plans are now being made to expand both courses in the near future. Other programs are: Prof. Welding, Carpentry-Cabinet Making, Heavy Equipment Operation, Auto Mechanics, Diesel Mechanics, Electricity.

The School has obtained a journalism description as being an open country answer to vocational education. It is located in the north central Kansas plains area where agriculture and its related business activity is initially the business climate of the area.

The comprehensive survey that was used to substantiate the need for the school reveals overwhelming evidence that agriculture and its related business should be a strong area of instruction within the school.

The four-county survey reveals that 9,201 persons were employed in production agriculture, 295 in farm machinery repair, 495 in grain, seed and feed employment, and 50 in miscellaneous agriculture groups. This accounted for 59 percent of the employed people of the area.

Because of the large number of people involved in production agriculture, our advisory committee felt that this area of instruction should be included in the school curriculum.

After surveying student interest, however, we discovered that far more interest existed in agriculture mechanics than other areas; therefore, we chose to initiate the agriculture program with mechanics. The second year, which is this year, we began the production program and expect to expand into the third area, the business side of agriculture this coming September.

The Agriculture Mechanics course is organized on a six hour per day, nine-month term. One hour each day is spent in the classroom on related materials. The course was established with the services of a fine advisory committee made up of managers, owners, and mechanics from common farm equipment dealerships throughout our area.

The committee emphasized, that each student must have a general knowledge of mechanics; he should know to disassemble, measure wear, and reassemble an engine and other tractor parts. If he could do this, their shops would hire him and would be able to keep him busy.

Other aspects of shopwork such as combines, balers, and pickers require specialists to a certain degree, who have learned the skills through experience while working as line mechanics.

Our committee emphasized that they require all new mechanics to be proficient on tractors and engines with very little regard for other farm machinery. They have spelled out to us in no uncertain terms that if there was a choice of training time they would recommend that it be spent on tractors and power plants not seeding, tillage, and harvesting equipment.

The production agriculture course has been established in a leased facility. We were fortunate to acquire a vacant veterinarian clinic. It includes 30 acres, two irrigation wells, and a complete line of irrigation equipment.

The livestock pens and scales are kept in constant use, teaching the more technical aspects of livestock production. The irrigation equipment is to be put to usethis spring.

We have hopes of constructing a small feed processing plant on the farm to teach rations, mill equipment operation, and all the other related livestock feeding skills. Students are put on jobs during the last six weeks of training.

The total program, when complete, will include three areas of instruction, Agriculture Machinery Mechanics, Production Agriculture, and Seed, Feed and Fertilizer. We believe we can combine these three areas along with our excellent Business Department to offer a student a choice of course work that will be challenging and satisfy some of the needs in post-high school training in agriculture for our area of Kansas.

DANVILLE JUNIOR COLLEGE

Danville Junior College is a comprehensive Junior College offering curricula in Transfer, Occupational Oriented, and Adult Education.

The Agriculture Programs in the Occupational Oriented areas are: Ornamental Horticulture, Production Agriculture, and Agriculture Mechanics.

The Ornamental Horticulture program is in the second year. At the present time there are forty-seven students enrolled in the program, which are from throughout the State of Illinois, and also some out of state students. The program includes the areas of Landscaping, Turf, Nursery, Arboriculture, Greenhouse, and Floriculture. There are three six weeks supervised occupational training periods in which students are placed on the job to gain actual work experience in their desired areas of study. The interest has been very high and the college has not been able to enroll all the students that have applied.

The Production Agriculture Program started in September of 1966. The program was designed for students who wish to go back to the farm or into Agriculture related businesses. The program started with twenty students from the East Central Illinois area. The Production Agriculture program has two six weeks occupational experience training periods.

The Agriculture Mechanics program also started in September of 1966. The program is designed for employment in the farm machinery and equipment business. There are two six week occupation experience periods where students are placed in Farm Machinery and Equipment businesses. Most of the students are from the East Central Illinois area.

These programs are two years in length with a summer session between the first and second year. At the present time no new programs are being planned, but a change in the second year curricula is under study to add more specialization in some area, such as Turf, Landscaping etc.

The College has five full time Agriculture instructors and four part time instructors, (that is they teach part time in Agriculture and part time in transfer programs). The College has an open door policy but as yet we have not been able to take all the students that apply. Some selection has been necessary.

TEACHER EDUCATORS IN AGRICULTURE

Life Room, Sherman House, Chicago
February 20, 1967

Harold Byram, Chairman

Richard Wilson, Secretary

AGENDA

1:15 AATEA regional business meeting

- Report of the vice president - Harold Byram
- Progress report on AATEA education text
- Membership status
- New business
  - Financial support for annual student-teacher conference - Kenneth James
  - Other
- Election of regional vice president for 1968-69

1:45 Communications

- Supply of and demand for teachers of agriculture in the region - Ralph Woodin
- Progress reports from the states on teacher recruitment
- Supply of and demand for college and university teachers including teacher educators - Lloyd Phipps
- Student-teacher conference for 1967 - Norman Ehresman

2:15 Developments in the region

- Adjustments and innovations in curriculum
  - Michigan - Raymond Garner
  - Minnesota - Horticulture, Martin McMillion
    - Brazil, Gordon Swanson
  - Missouri - George Ekstrom
  - Others - Willard Wolf, Ohio

2:45 BREAK

3:00 Issues in Teacher Education

- Curricular content in technical agriculture in teacher preparation programs of the future: Are we in danger of crowding out essential technical preparation? Can a program prepare teachers for flexibility and also prepare for depth (specialization)? Should it? Have we overemphasized off-farm occupations in teacher preparation programs?

Panel discussion: Milo Peterson - Chairman, Ray Agan, Walter Bjoraker, Clarence Bundy, Hilding Gadda, and Richard Swenson

4:00 Other Issues

1. Up-dating student-teacher programs - Kenneth James
2. The leadership role of teacher educators to state recruitment commissions - Ralph Woodin

4:30 ADJOURNMENT

REPORT OF TEACHER EDUCATION SECTION OF THE CENTRAL STATES SEMINAR IN AGRICULTURAL EDUCATION

Brief Review of the Meeting

The Teacher Education Section was chaired by Harold Byram, Regional Vice-President of the AATEA. Regional business was considered. Byram reported actions of the executive board during the AVA meeting at Denver. He reported Dr. James Atherton as new editor of the AATEA journal. As of January AATEA membership was 108; membership of the central region was 39 of a potential 85.

A progress report on the AATEA text on teacher education was heard with the word that copy was ready for the printer.

The question of financial support for the annual student teacher conference at Kansas City during the FFA Convention was considered. It was moved by Ray Agan and seconded by Clarence Bundy that AATEA organization underwrite the relatively small costs involved with this meeting. Motion carried.

Officers were elected for next year. Harold Byram will continue as Regional Vice-President through the 1967 AVA meeting. Regional Vice-President for the following two years is Richard H. Wilson; alternate - James Clouse.

Consideration was given to the supply and demand prospects for teachers of agriculture. A discussion lead by Ralph J. Woodin. Reports from state representatives completed the tabulation included with this meeting summary. Lloyd Phipps presented remarks concerning our need to recruit and prepare personnel to meet the demand for advanced positions in the professions. Phil Teske of the U. S. Office of Education reported concerning the current status of project grants and prospects for the next year or so.

Brief reports concerning innovations or developments in the region were presented. Raymond Garner discussed the Michigan State Curriculum in agricultural education. Martin McMillion reported on the Minnesota Horticultural Training Program. Milo Peterson reported for Gordon Swanson concerning the Brazil program. George Ekstrom discussed the Missouri basic curriculum in Agriculture I and II. Willard Wolf mentioned curriculum developments in Ohio.

Issues in teacher education were reviewed by a panel chaired by Peterson and composed of Ray Agan, Walter Bjoraker, Clarence Bundy, Hilding Gadda and Dean Richard Swanson. Copies of these presentations were provided the secretary and follow this report. Ken James presented a paper on up-dating student teaching programs. Ralph Woodin remarked briefly concerning teacher educators and state programs to recruit for teaching vocational agriculture.

The meeting adjourned with the note by Chairman Byram that it was among the best attended of any for a number of years.

Richard H. Wilson, Secretary

Supply and Demand for

Teachers of Vocational Agriculture

In the Central Region

	Number of persons qualified for teaching Vocational Agriculture					Number of teaching positions in state					Estimated Starting Salary
State	1. 7/1/66 to 6/30/67 Total	2. 7/1/67 to 6/30/68 Total	3. Net Change	4. Percent who entered vo-ag teaching 7/1/65 to 7/1/66	5. Total available for teaching vo-ag 7/1/67	6. Total 7/1/66	7. Estimated total 7/1/67	8. Positions to be filled 7/1/67	9. Percent turnover (Item 8 + Item 6)	10. Net teacher supply (+ or -)	7/1/67
Illinois	92	99	+7	60	60	456	460	50	10+	-10	$7000.00
Indiana	28	33	+5	60	18	264	270	24	9	-6	7500.00
Iowa	30	32	+2	65	20	247	260	40	15	-20	7600.00
Kansas	12	20	+8	65	7-8	185	185	28	12-15	-20	6300.00
Kentucky	27	30	+3	80	24	290	292	25	10	-3	6300.00
Michigan	25	30	+5	65	25	221	207	25	12	-4	7200.00
Minn.	36	45	+9	70	30	366	385	49	10-	-19	7000.00
Missouri	25	30	+5	75	21	254	260	25	10-12	-10	7000.00
Nebraska	28	45	+17	90	26	117	120	25	21	-2	6700.00
N.Dakota											
Ohio	52	58	+6	64	37	368	375	45	12.2	-8	6700.00
S.Dakota	17	22	+5	83	15	65	66	15	23	even	6000.00
U. S. Office											
Wis.	43	58	+15	50	25	302	305	30	10	-5	7000.00

PRESENTATION FOR PANEL ON ISSUES IN TEACHER EDUCATION
CENTRAL REGIONAL SEMINAR IN AGRICULTURAL EDUCATION
SHERMAN HOUSE, CHICAGO, ILLINOIS, FEBRUARY 20, 1967

Ray Agan

It has been of great interest for me to follow the Central States Conference-Seminar over the years. This must be my 9th or 10th consecutive year now, and I am still convinced that it is the best conference or seminar (whichever we are now allowed to call it) in existence for us who work in this field. It is most interesting to study the conference themes which range from--"Vocational Agriculture at the Crossroads," "A Forward Look at Young and Adult Farmer Education," "Charting Vocational Agriculture for the Years Ahead," "Implementing the Vocational Education Act of 1963," etc., and now "Extending and Expanding Vocational Agriculture Through Growth." The minutes of these conferences could write the history of Vocational Agriculture in this region. Last year I had the pleasure of addressing this group concerning the problem of "What and How to Teach." I touched at that time on the importance of teaching by concepts and transferable bodies of knowledge. I believe that this applies directly to our topic today. Last fall I was guest of the Dean of Education of the University of Puerto Rico for a dinner along with some other Phi Delta Kappans. The conversation naturally centered on educational issues and philosophy. The "Good Dean" said that to him what to teach was no problem, because he concentrated his teaching on the things which were eternally true. At first I was nearly fighting angry at such a remark and embarrassed to be in this position with such a gracious and dignified host, but as we discussed this philosophy further I saw we were really in agreement--that our teaching should be based about those fundamental concepts that grow like a snowball as we apply them in new and different situations. The list of concepts for teacher education in agricultural education is not complete--possibly they never should be--but let me expound on a few of them.

Concept Number 1 is SURVEY. Community survey is not a new concept to us in Vocational Agriculture. Our community patterns change but the responsibility of teacher educators to prepare leaders in agriculture to make accurate surveys and base teaching principles on these surveys is not changed. If surveys indicate more emphasis on Off-Farm Agricultural Occupations in Vocational Agricultural classes the well prepared teacher should adjust his subject matter and related educational experience presentations to meet this need. If curriculi in Agricultural Education needs to be adjusted to better equip our teachers for surveying modern situations, then so be it. Teacher certification regulations in Kansas require 50 semester hours of General Education which should install enough general concepts for this task. The application, of the concepts to surveying, however, may have to be taught through the courses and seminar in Agricultural Education.

Concept Number 2 is MEETING NEEDS. This has long been basic to our field and still is. If teachers can transfer and adopt the knowledges, appreciations, and psyco motor skills received in university courses toward preparing students to meet needs, the educational process has always in the past been declared satisfactory, and I believe it always will. In a mobile population we have not in the past been too disturbed because we in the Central area have not taught the Citrus, cotton, and tropical agriculture phases of our field. Students have migrated as agriculturalists to these areas from our classes and have achieved success. In a different kind of mobility where students go to Off-Farm Agricultural Occupations,

I believe the Meeting Needs concept will assist them to be equally as successful if not more so. Many of our follow-up surveys have shown employers to be well satisfied with employees who were graduates from agriculture because they "knew how to work," they were "interested in their job," etc. Few mentioned that he could do an exceptional job of overhead welding or figuring rations for cattle. It is true that our curriculum must always center about production agriculture realizing that it is increasingly difficult to teach or learn the entire vast field. However, the university graduate who has the concept of continuous study will be able to adopt already learned bodies of knowledge and to acquire new ones designed to meet the needs of students.

Concept Number 3 is LOGICAL APPROACH or seasonal teaching as we have tended to call it. It is still a valid teaching principle whether we are teaching production agriculture or agricultural salesmanship. Production agriculture will always be the core of our program and the central portion of it. However, a concept approach can save time in covering this vast area and increase understanding. For example, by taking a few minutes after teaching the problems of "The Feeding of Balanced Rations for Fattening Hogs," the identification of the "big ideas" concerning the proteins, carbohydrates, minerals, etc., can be identified and concepts formed which apply to all nutrition. The concept "cleanliness" for example is important to all phases of production agriculture and off-farm agricultural occupations. As educators in agriculture perhaps this is our largest task--to assist the future teacher to categorize the cognitive domain, or knowledge, into transferable clusters which transfer.

Concept Number 4 is GUIDANCE. An expanded function of guidance is necessary in modern vocational agriculture. Here perhaps the popular terminology of affective domain enters in. The basic principle of teaching through the Future Farmers of America is vital here. Attitudes, relationships, leadership, and citizenship all are involved.

At the university where I work the curriculum committee speaks frequently of "Education for the Cocktail Hour." Surprising from the dry state of Kansas? Basically, what they are trying to do is not as bad as it might sound to you. They are referring to many of these attributes such as leadership and relationships, fortified with general knowledge to be able to converse readily on most subjects.

Concept Number 5 is the tried and true "LEARNING BY DOING." We need to base our teaching around those worthwhile activities students tend to do anyhow. So far the "Education for the Cocktail Hour" has not been a learning by doing regularly scheduled course at our institution. Our entry into the field of off-farm agricultural occupations has perhaps introduced the sub-concept of "Exploratory Experiences." This is not entirely new. In the production agriculture supervised farming program the freshman student has customarily "projected around" finding his interest for a supervised farming program. For our students taking vocational agriculture for the area of off-farm agricultural occupations the testing and trying of different occupations is a key and vital part of the vocational agriculture program. "Occupational Experience" is a companion sub-concept we have always had in the field except that detail may involve the supervised experience of the student in employment in place of the on-farm supervised phase of the instruction normally given. "Community Involvement" is a third sub-concept in this area which educators in vocational agriculture have long used. In the off-farm phase of the program greater use will need to be made of community resources for the presentation of knowledges, attitudes, and psyco motor skills.

Concepts 6, 7, and 8 are PLACEMENT, FOLLOW-UP, and EVALUATION. I do not need to take your time to expand on the importance of these concepts.

If we as teacher educators can keep the concept approach of education foremost in our thinking and our methods courses, I believe we can maintain a program which will be flexible enough and have sufficient depth and specialization to prepare teachers of boys and girls interested in agricultural occupations including farming. I believe these teachers can "chase the rabbits as well as tree the coons." When I used to hunt as a farm lad, I was not choosy whether it was a rabbit or coon I caught. There has always been and always will be a place for the specialist but for us it will be at the post-high school, area technical school, junior college, or higher education levels. This requires for the teacher higher education of a specialized nature. Our horticulture teachers in vocational agriculture have had to take additional courses and get help from community specialists. Again this is not really new. In 1948 I returned to the field of teaching vocational agriculture after 5 years of working in the dairy industry and found a school shop with many electric and oxyacetylene welders. I had never taken a course in welding or had a welding torch in my hand before. However, during that first summer I spent several hours applying all transferable principles I could remember from the old forge and metal working courses I have had and seeking help from the local blacksmiths. When classes opened in the fall, I was successfully teaching welding because it was needed. May I submit that any teacher of vocational agriculture finding a similar need may prepare himself for the task before him?

I do believe that our concept of continuous education for teachers in the terms of in-service education is of utmost importance for teacher educators. We have to continually give in-service assistance to aid the teacher to follow the concepts of

SURVEY

MEETING NEEDS

LOGICAL APPROACHES

GUIDANCE

LEARNING BY DOING

PLACEMENT

FOLLOW-UP, and

EVALUATION

In-service education for ourselves to meet the challenge before us is as essential for us as for the men who graduate from our courses. That is why we are here today.

Executive Secretaries Meeting
February 20, 1967
Sherman House

Called to order by Gerald Barton, Iowa.

Coleman Harris, Indiana, nominated as Chairman. Motion to close nominations. Mr. Harris was unanimously elected.

Raymond Hagen, Missouri, was nominated and elected as secretary.

Earl Kantner, Ohio, was nominated and elected as Chairman of Central Region Public Speaking Contest.

Public Speaking Contest - Michigan, Minnesota, and Missouri to select judges for speaking contest - one from each state.

Motion by Coil, Illinois, that Mr. Kantner survey the possibility of holding a subregional contest in public speaking on basis of Region V and Kentucky for one subregion and Region VI for the other subregion. Seconded by Hagen. Motion passed.

Judging of Foundation Awards - Indiana, Kansas, North Dakota

Report from Homer Edwards
John Foltz in Washington office to work with FFA Foundation - also to work on forms - other responsibilities to be decided.

Funds allotted to survey junior college or post high school students as to needs for a youth organization.

National FFA Dairy Contest will be held at Waterloo this year.

National Outlook Conference on Rural Youth to be held in Washington, D.C., October 23-26, 1967. More information will be sent later. This is a limited invitation program - 15-20 youths from the nation.

FFA Week materials will be part of the official FFA Catalogue.

Recommended that national magazine and membership list and forms remain as is for at least one more year. These forms such as American Farmer, Foundation forms, etc., are needed no later than July. Moved by Kelley, seconded by Hagen. Motion passed.

Keaton Vandemark, Central Region Vice President, brought greetings and participated in the meeting.

Motion by Kelley, seconded by Harris that national magazine and dues be sent directly to magazine office to speed up the process.

National Seminar for Youth Leaders will be held at FFA Leadership Training Center, Hardinsburg, Kentucky, June 11-16, 1967. For 130 people - 50 FFA Executive Secretaries or their substitutes; DECA-20; VICA-20; Home Ec.-20; Office Occupations-20.

General State FFA foundations were reported to be a success where they are operating.

Discussion of State Farmer degree and State Agriculturist degree. Recommend further study of this problem.

Phil Schmidt, National Safety Council, needs ideas on what states could provide in way of safety program - 5-15 minutes - more or less - to present to the National Safety Congress Youth Session. Your help is solicited. List of hazardous occupations will be in your hands in the near future. Safety kits should arrive near April 1, unless requested later.

Indiana - Points out potential of State Foundation Brochure. Foundation also pointed out as very successful.

Orientation camp program - vital to contact students prior to their entry in vo-ag.

Exchange program - sending boys to Mexico and Puerto Rico. Spreading opportunities to more boys.

Booklet of all forms that are to be used for the year.

Michigan - Academic awards for those with better than 3 point. Recognition of off-farm agriculture program.

Ohio - Advocate starting FFA programs in spring.

Wisconsin - Junior Dairyman Association. Seventy-five schools participating - hold a convention and state dairy show.

Missouri - Interested in doing something for off-farm degree.

Iowa - Children's Barnyard. Iowa membership up in spite of fewer schools.

Illinois - International Understanding - need to place two Denmark boys on farms in other states.

Keaton Vandemark reports a study committee is now working on exchange program. You will hear more later.

Also a special study committee to plan a national center at Alexandria, Virginia for FFA members. FFA National Officers need time to discuss this problem at state conventions.

Theme - FFA Challenging Youth in Agriculture. (1968)

Do we need to extend an FFA to post high school - opinion was that this problem should be studied.

Motion to adjourn by Kelley, seconded by Harris.

Meeting adjourned.

UP-DATING STUDENT TEACHING PROGRAMS

Kenneth E. James - Illinois

Teaching as a profession is getting more publicity and recognition everyday. Pick up the major newspaper and magazines and you will find numerous articles concerning the teaching profession--most of them favorable. This past week my wife brought home a ladies magazine from the supermarket. This magazine has a circulation of several million and is sold throughout the nation. In an article entitled, "The Most Important Profession", the statement was made that in a social gathering, if one would ask which profession they consider the most important, the consensus of opinion will be teaching.

We have witnessed a tremendous growth in the whole student teaching program over the last 15 years.

In the past weeks as I have inquired from friends in education, administrators, and college teachers, as to what needs to be done to up-date student teaching, I was both surprised and encouraged. Many suggestions for improvement are already being followed by agricultural education and in common practice for a number of years. This includes such practices as supervising teachers conferences, sending the student teacher out to the cooperating schools for the opening of school, college supervisors supervising in their own teaching area and following up of first year teachers. This is not to be interpreted as meaning that we have no need for up-dating our student teaching program in agriculture. Rather, the great change in emphasis in agricultural education in the past three years has made more need for up-dating our student teaching program.

Five years ago I joined the staff at Illinois State University to initiate the teacher education program to meet the certification requirements for vocational agriculture teachers in our state. At that time my institution was a single purpose teacher preparation institution and had been preparing teachers in general agriculture for many years. The past year our institution has become multi-purpose. The Department of Professional Laboratory Experience at ISU has the distinction of having the sixth largest student teaching enrollment in the nation--nearly 1800 student teachers this year; the larger part are off-campus teaching assignments. At our institution all our students in agriculture education are placed for student teaching in cooperation with the Department of Professional Laboratory Experiences. I believe that they had a very fine student teaching program. In order to sell this change of vocational agriculture requirements to our curriculum committee, it was necessary to write to all the institutions offering teacher education in agriculture in the central region concerning their offerings in agriculture education. Representatives of all 16 institutions responded and most of you are present today. The study indicated considerable agreement and consistency among the agricultural education programs in the central states.

For the past three years I have been an active member of the state and national association for student teachers and have attended the state meetings. I have been inspired by the number of publications and studies concerning student teaching. In the State of Illinois, minimum standards for student teaching programs were adopted on April 30, 1965 and will be applied by the State Teacher Certification Board, effective not later than September 1, 1967. This includes the qualification of staff members from the college responsible for supervision, his load and ratio of student teachers, including travel time away from the campus.

There is little doubt as to the importance of the professional laboratory experience in the teacher education program. The role of the supervising teacher is challenging and rewarding. This leads me to some basic considerations which should be kept in mind as we provide professional laboratory experiences in updating student teaching. I have seven areas for consideration.

1. Student teaching centers should have a "Total Program in Vocational Agriculture" including agricultural occupational program. This includes the basic agriculture courses, as they are being called. Many schools require the completion of basic agriculture courses prior to enrollment in the occupations course. Course titles and course content must be changed in high school and these changes must be made known to the guidance counselor and students. The "total program concept" includes an active FFA chapter, adult education program, and an active advisory council. The supervised agricultural experience program should include production agriculture and non-farm agriculture occupations. The fact that no student teacher at present has come through a high school program including courses in non-farm agricultural occupations, makes it necessary for him to participate in such a program.

A part of this "total program" is the summer experience of the student teacher, in order to give him an idea of the importance of summer activities and his own orientation to the high school and community. The summer experience will help the student teacher see the total program in vocational agriculture.

2. Student teaching centers should have a successful program. A student teacher observing and participating in a good program will help bridge the gap between theory and practice. The supervising teacher helps the student teacher build teaching skills through observation of his teaching. Observation is particularly important at the beginning of the student teaching period. The supervising teacher sets a good example for the student teacher in appearance, grooming, speech, and appropriate mannerisms. The supervising teacher should confer with the student teacher in regard to his immediate and long time objectives. He should gradually let the student accept increasing responsibility until the student sees himself as a teacher of a successful department.

The supervising teacher is becoming recognized as the most influencial person in a teacher education program. He spends more time with the student teacher perhaps than any other one person.

3. Students in non-farm agricultural occupations must be recruited and prepared to teach non-production agriculture. As we move into the broader areas of expanding our agriculture program to non-farm agricultural occupations we must encourage students with special interests, such as in the areas of agricultural mechanics, to prepare to teach these subjects in multi-teacher departments.

4. Some student teaching centers should have or establish and use land laboratories, school laboratories, greenhouses or other in-school facilities. It is not feasable for all student centers to have greehouses land laboratories, but a reasonable number of the centers used should provide this type of specialized training for student teachers with special interest. However, most schools should be providing and using land laboratories.

5. Provide in-service growth of the supervising teacher. In-service education for supervising teacher includes a number of activities. This includes individual conferences, group conferences, and on-campus conferences to help the supervising

teacher obtain an understanding of the total teacher education program of the institution. This is a common practice in agriculture and perhaps is more necessary now than before in sharing the innovations developed in new programs. Workshops or seminars and credit courses are needed to provide principles and techniques of supervising student teachers.

6. Provide opportunity for student participation in professional relationships. This is most important. Our national organizations have provided the leadership for student participation by offering student membership. The NVATA has for a number of years provided a special student membership and now the AVA is also providing the same. The professional attitude of the supervising teacher and the school in which he is student teaching greatly determines the professional attitude of the student teacher. The feeling of belonging to a profession may be deepened by contact with other established teachers. To have the opportunity to participate in sectional activities, teachers institutes, and even to work on professional committees in the school are all a part of helping the student to feel like an active member of the profession.

7. Maintain high standards with flexibility. With the teacher shortage, pressures may be felt to lower the certification requirements. In the past issue of AATEA[1], Dr. Wiegers says, "Let us not forget, however, that the certification of vocational agriculture teachers has been a powerful force in helping the profession to maintain high standards." He further states, "Postive steps should be taken in many states to study the situation in dept. Changes are needed to place more responsibility on the profession, breakdown barriers between states and establish a reciprocity pact based on the approve-program approach, simplify certification procedures and provide more flexibility.

In summary - We can be proud of our student teaching program. However, there are some changes to be made to keep up with the changes that have been made in the agriculture program. With the wisdom and interest we have throughout this country in the agricultural education profession, and with the many challenges and opportunities before us, we can continue to up-date our student teaching program.

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[1]Wiegers, Jr., George W. The Journal of the American Association of Teacher Educators in Agriculture, Vol. 7, No. 2, November, 1966, pp. 16-17.

ISSUES IN TEACHER EDUCATION

C. E. Bundy - Iowa State University

The problem of meeting the man power needs of an expanding program in vocational agriculture both at the high school and post-high school levels has greatly taxed the resources of teacher education departments. A more acute problem, however, is that of providing in the pre-service program the competencies necessary for success in the varied teaching situations in our respective states. The problem would be relatively simple if we could expand to a five year curriculum. In the long run this may be the best answer to the problem. At present, however, it appears that we must find other solutions.

One solution to the problem would be through reorganization of school districts and enlarge the attendance centers to justify specialists in the various areas of subject matter. Curricula then could be organized so that Agricultural Education majors could prepare themselves for employment in a special type of farming or related agricultural employment area. It will be sometime, however, before large numbers can be employed in this manner.

The vocational agriculture departments represented by the teacher educators in the states involved in this seminar are in the main one-man departments. There is a common core of competencies needed by instructors in the one-man departments. The specialized competencies, however, may vary widely from community to community. At least five economic or type of farming areas exist in the State of Iowa. One area is largely cash grain farming; one is a specialized dairy area. In one the emphasis is largely swine production and beef cattle feeding whereas in another section of the state, the problems are largely related to soil conservation and pasture farming.

There appears to be at least three approaches to the problem. One is to provide a curriculum with a well balanced core program with sufficient electives for the student to specialize in the area or areas of his interest. The second approach would be to provide a balanced program which would include some preparation in all areas of specialization, thus, resulting in very few electives. The third possibility would be to provide two or more curricula each designed to prepare individuals for employment in a specific type of farming or off-farm agricultural employment situation.

The Iowa program at present is one of the second type which provides somewhat a balance in preparation in all areas of subject matter thought to be necessary in teacher preparation. Approximately 21 quarter credit hours are required in each of the four agricultural subject matter fields, agronomics science, livestock and poultry science, agricultural economics and farm management, and in agricultural engineering. Approximately 15 quarter credits are required in each of the communications, biological science, physical science and social studies and humanities fields. Approximately 36 credits are required in professional subjects which include psychology, general education, and agricultural education. Approximately 10 credits in mathematics and statistics are required, thus, leaving only 10 credits as electives in a 200 credit curriculum. The addition of an extra quarter of work would add greatly to the development of an area of a specialization.

The content of courses in production agriculture in our Colleges of Agriculture has changed greatly during the past 10 years. Greater emphasis is being given to scientific principles and concepts and less emphasis upon application. It is imperative that we obtain from the various departments in our Colleges of Agriculture the course content that will best meet the needs of our prospective teachers. In most cases this needs to be done without the providing of specialized courses for majors in agricultural education. Considerable improvement can come about in our teacher education programs through the improvement of content and methodology in courses taught by service departments. In most cases improvement can best come about through change of course content rather than by the addition of new courses.

Each course included in agricultural education curricula must be carefully evaluated. In some courses another course in the same discipline or area may better meet the needs of our teachers. It is also likely that men preparing for other types of work may need the same type of preparation that our men need. By working with the curriculum committees of the various departments, it may be possible to greatly improve the content of the courses included in the curriculum.

Most teachers develop their specialization after their first employment. It probably is not logical for us to assume that we can turn out men in four years who are specialists. One answer to the problem is the providing of a greatly improved in-service training program for vocational agriculture instructors. Another answer is the providing of improved offerings of instructional aids and materials. The undergraduate preparation should develop a trainee to the place that he can make adjustments and be creative in planning instructional programs and in obtaining new subject matter needed in the community in which he is teaching. The personnel and resources allocated to the development of instructional aids and materials may in the future prove to be the most productive phase of teacher education.

There is no question that many teachers leave their vocational agriculture positions because they find themselves attempting to do an impossible job. Satisfaction in employment is associated with accomplishment, appreciation of the value of the program to others and rewards (financial and otherwise). Instructors who are not well prepared or who are working under a load that will not permit them to become prepared cannot possibly take satisfaction in their accomplishments. Continued employment under these conditions can only result in dissatisfaction and emotional instability. Teacher educators have responsibility of preparing trainees for varied responsibilities and in-service programs for instructors varying in ability and preparation. Teacher education programs must deal more directly with the personal and humanistic problems of the individual. This we have not done to any great degree heretofore.

Some College of Agriculture personnel believe that the answer to our problem is to have prospective teachers enroll in specialized curricula and then elect those courses necessary to meet the requirements to qualify as teachers of vocational agriculture. In some cases this could be done in a four-year period. In many cases it would require 14 or more quarters of work. This does not seem to be the answer in states where we already have a serious shortage of teachers. Neither is it an answer when the specialized curricula in the department involved includes depth as specialization beyond that needed by teachers of vocational agriculture.

To summarize, it appears that there are many approaches to the development of a satisfactory teacher education program in agriculture for our respective states. The approach made should provide a common core of competencies needed by all teachers and sufficient preparation in the various areas of specialization so that the individual could quite readily adapt himself to the needs of the community in which he becomes employed. Without question there is need for more depth in knowledge of soil science, agricultural chemicals, agricultural policy, farm management, agricultural credit, animal breeding, animal nutrition, farm machinery maintenance in operation, and in farm power.

Our teachers need a better understanding of both the biological and physical sciences and must be more scholarly in mathematics.

As leader and citizens in the respective communities, they are going to need to be more understanding of the problems of government, society, and as individuals. More emphasis must be given to the humanities than has been provided in the past.

The tradition, ancient history and filler must be squeezed out of our offerings in professional courses. These courses must be up to date and include the innovations which have proven themselves or are proving themselves at the present time. The student teaching period probably will need to be lengthened and include opportunity for experience in agricultural occupations other than farming as well as in farming communities. It is not an impossible task.

ISSUES IN TEACHER EDUCATION

Dr. Hilding Gadda - South Dakota State University

Curricular Content in Technical Agriculture in Teacher Preparation Programs of the future.

1. Are agriculture subject matter courses being squeezed out by emphasis on science, humanities, math, etc.?

Fifteen years ago at our institution, technical agriculture courses comprised 43% of the total curriculum for undergraduate Agricultural Education majors. Today, our 55 semester credits of required technical agriculture make up 40% of the total curriculum.

This moderate reduction of agriculture credits has been caused mainly by the requirement of six credits in the humanities. The science and math requirements have remained rather constant.

The squeeze threat in our case does not loom large; however, to reduce agriculture credit requirements to a point below 40% of the total curricular requirement does not seem wise, and eternal vigilance is necessary. Membership on curriculum committees by teacher educators in agriculture is to be recommended as a laudable safeguard.

2. How can we meet the challenge of preparing teachers with specialization in such fields as horticulture, for example, and at the same time prepare teachers for comprehensive programs that have been rather difficult up to this point?

There are several "facts of life" associated with teacher preparation in agriculture which deserve consideration prior to any attempt to solve this problem:

1. It is quite safe to say that the vast majority of teachers of agriculture enter teaching either in the state in which they are prepared, or in an adjacent state. The needs of the more or less immediate geographic area deserve primary consideration by any institution preparing teachers.
2. In view of the critical shortage of teachers, four-year pre-service preparation programs are likely to persist for some time in the future. This places limits on the kind and amount of preparation possible.
3. Most local vocational agriculture programs are still one-teacher, rather than multiple-teacher programs. While this situation may change over time, the continuation of many one-teacher programs is imminent.

In view of these considerations, it appears logical that the comprehensive teacher preparation program should deserve primary emphasis at the pre-service preparation level. Options for such fields of specialization as horticulture should be provided at the in-service and graduate level for those who find they need them as a consequence of the geography of their placement or of their professional aspirations, or both.

If we believe that what is taught in vocational agriculture should be taught in depth, and should be carried through to the doing level, the typical teacher in a single-teacher department cannot carry out a vast array of specialized programs. Accordingly, I would hold that the options of additional specialization such as horticulture programs need to be relegated to a point beyond the baccalaureate degree program.

3. What problems of an administrative nature are imminent, and how should they be dealt with?

In my own case, most of these bridges have not yet been crossed, and consequently, I should be the last to attempt to provide the ready-made solutions. However, the specific problems appear to be interwoven with the following:

1. Curriculum development
2. Teacher certification--kinds of credits and number of credits needed for specialized programs
3. Occupational experience needs--how they can be met, and how to determine requirements
4. Needs for research
5. Recruitment of prospective teachers
6. Ascertaining staff needs and procuring staff
7. The problem of providing graduate credit for some specializations for those who desire to include them in their graduate programs

4. Should the basic program in production agriculture receive the main emphasis, even as it is basic to all off-farm agricultural occupations?

My response to this question is a resounding <u>yes</u>.

I believe that Mr. Hunsicker has made the statement that about 70% of the emphasis should remain with production agriculture, because without production agriculture, off-farm agriculture cannot exist or develop. We in Agricultural Education cannot hope to be all things to all people, and we must do first what we can do best. I'm afraid that some good programs in production agriculture have been scuttled as the result of a bandwagon.

In situations where needs exist for the additional specialized programs, teachers can still get their houses in order and provide them. Teacher education should be alert to such needs and tool up accordingly.

I am vitally interested in Milo's reference to "rabbit dogs versus coon hounds." The university I serve is known as the Jack Rabbit Campus. About a year ago, our student association presented the governor with a bone for his dog, in order that he would not chase jack rabbits. Thus far, at least, we have concentrated our attention primarily on the coon hounds, because in our case, production agriculture is very basic.

CENTRAL STATES SEMINAR IN AGRICULTURAL EDUCATION
February 21, 1967
Sherman House - Chicago

Everett Clover

Topic of the Day: Post Secondary Technical Education in Agriculture

Subject of This Paper: The Agri-Business Program in Muscatine, Iowa

A new two year "Feed and Fertilizer Marketing Technology" program is now offered at the Muscatine Campus of the Eastern Iowa Community College, one of Iowa's newly organized Vocational-Technical-Community College area schools for post secondary education. It is approved and supervised by both the Chief of Ag. Ed. and of D.E. in Iowa.

Farm consolidation rates indicate that many farm reared youth with agricultural backgrounds may desire employment and training in farm supply occupations. There are many opportunities in the farm supply business.

The program is operated, with the guidance of an advisory committee representing industry, to train sales, service, and management personnel for the feed, seed, grain, agricultural chemical, and fertilizer businesses. Credits earned are not transferable.

The curriculum consists of three integrated instructional areas. These areas are:

1. Competency Areas (Classroom Training)
2. Employment Experience Training and Projects
3. Alpha Mu Sigma (Club Activity)

The competency areas included are divided equally between business and distributive courses and those dealing in technical agriculture. Business and distributive courses develop understandings in occupational relations, sales training, business and management practices, advertising, and accounting. Technical agriculture courses include needed instruction in feeds, seed, grain, fertilizers, agricultural chemicals, and modern farm practices. Students complete 1398 hours of classroom instruction in these competency areas.

Employment experience is a desirable and unique aspect of this training program. Practical experience under actual conditions allows the student to become aware of employment requirements and opportunities for continuing employment, as well as to develop abilities, skills, and understandings needed

in the business. A rotation schedule causes the classroom periods and employment experience periods to be alternated. A period is nine weeks in length. The student acquires 1392 hours on training stations learning by doing.

A project requiring individual initiative and research is completed during each employment experience period. The project encourages the student to discover much more about the business than he would as a usual employee.

The staff members coordinate the program of employment experience and project development by traveling to the training station often to see that the training plan and agreement is being carried out in such a way that real learning results.

Leadership experience is provided through the activity known as Alpha Mu Sigma (Agricultural Marketing Society) which is affiliated with the State and National Post Secondary DECA organization.

Classes opened in the fall of 1965 with thirty-four 18 and 19 year old young men enrolled and with two instructors. Thirty-six new freshmen enrolled last fall and two new faculty members were added to the staff. At the present time there are forty-two students in the program. The first class members to successfully complete the program will graduate this spring and will receive an Associate of Applied Science Degree.

Personnel managers of many industries are auditing the course, interviewing our students and are interested in hiring the graduates of the program this spring. "Industry" is very cooperative in assisting in the development of training stations and in providing resource persons and instructional materials. Some have made substantial gifts of money to be used for the program.

EVALUATION OF ILLINOIS POST-HIGH SCHOOL EDUCATIONAL PROGRAMS IN AGRICULTURE

Tuesday Afternoon

Eugene S. Wood

This project is financed by the Research Coordinating Unit of the Illinois Board of Vocational Education and Rehabilitation and Southern Illinois University. Illinois has five junior colleges offering instruction in one or more of the following two-year programs: Agricultural Supplies, Agricultural Mechanization, Ornamental Horticulture, and Agricultural Production.

The major objective of the study was to analyze the influence of the post-high school programs on the students and to determine how successful these students are when employed.

The first phase of the study was an attempt to determine the background, interests, and abilities of the students enrolled in the schools and programs. Information was collected on 238 students who enrolled in 1964-65 and on 228 students who enrolled in 1966.

The second phase of the study was to try to determine student competencies and attitudes at the end of the first year on-job training as rated by the student, his employer, and college supervisor. Approximately 130 students were included in this phase of the study.

The third phase of this evaluation project was the contacting of the graduates and their employers six months after graduation. Only one school and program had graduates in 1966. Thirty-eight graduates completed this program in June, 1966.

The following conclusions may be drawn from the preliminary report:

1. It would appear that students in the lower one-half of their graduating class will be successful in these programs.
2. The majority of the students in these programs, other than Ornamental Horticulture, are farm boys with vocational agriculture background.
3. The parents and the vocational agriculture teachers have the most influence on recruiting students for these programs.
4. The employers showed a high degree of interest in continuing as a training station.
5. The employers indicated that 95 percent of the on-job training students would be acceptable as permanent employees.
6. Several students remain after graduation as permanent employees at their on-job-training stations.
7. It would appear that twenty-year old students graduating from two-year programs at a time of high military draft, high employment, and greater emphasis on education may make several changes after graduation.

IN-SERVICE TRAINING FOR TEACHERS OF AGRICULTURE IN POST-SECONDARY PROGRAMS

Tuesday Afternoon

Lloyd J. Phipps
University of Illinois

I. A rapid expansion of programs and teachers anticipated.

II. Primary teacher education problems.

A. Assisting present and prospective teachers adjust to the demands of post-secondary teaching.

B. Assisting technician--persons not educated as teachers--develop competence as teachers.

C. Preparing or assisting teachers develop competencies needed as directors of post-secondary programs to organize and administer these programs.

III. Teacher education programs needed.

A. Programs designed to provide the practical experience needed, or to supplement previous practical experience obtained, to teach the content post-secondary teachers are assigned to teach. We cannot depend on obtaining teachers with all the practical experience needed from the present or past employees of agricultural businesses.

B. Programs needed that will help recruit the potential successful teachers and screen-out the potential unsuccessful teachers.

C. Programs specifically geared to the unique needs of technicians--persons who have not prepared themselves to teach--who are working as teachers or aids in post-secondary programs.

D. Programs designed to handle the apparent compulsion of new post-secondary teachers to attempt to change post-secondary programs into transfer programs.

E. Programs to educate directors of post-secondary programs in agriculture for their jobs.

F. Programs at the undergraduate level for prospective teachers that will permit specialization in a substantive area in agriculture so that they will be prepared for teaching in a post-secondary program.

SUPERVISION OF TECHNICAL EDUCATION PROGRAMS IN AGRICULTURE
Tuesday Afternoon

J. E. Dougan

The continuing agricultural revolution and the impact of new and powerful economic forces on agricultural production, processing, marketing and distribution is the basic cause of today's need for technically trained individuals in agriculture.

Technical education in agriculture prepares for the occupational area between the skilled and the scientist and is on the continuum nearest to the professional employer. The agricultural technician performs a para-professional service to the profession.

The technical curriculum must be so structured so that it prepares the student to enter a job and be productive with a minimum of additional training after employment, to provide him with a background which will enable him to advance with the developments in the technology, and to enable him with a reasonable amount of experience and additional education to advance into positions of increased responsibility.

The state vocational education in agriculture staff need to become managers of agricultural technology programs within the state. In states where Technical Educational is under the jurisdiction of a Board of Regents, state staffs in agricultural education should establish standards and provide the supervision of technical programs. The state staff should appoint a state advisory committee representing the industry and the profession for each agricultural technology program being developed. The state staff should develop definite guidelines and functions of the state advisory committee. This committee in turn will assist in establishing standards for the technology program.

State supervision of technical education programs consist of two phases, namely, the organizational stage and the operational stage.

Some supervisory reponsibilities under the organizational stage:

1. Assist in determining the true employment requirements for agricultural technician in the community and state for graduates from the program being developed.
2. Assist in the development of the two-year curriculum.
3. Assist in the planning of the necessary facilities.
4. Assist in the determination of the equipment required.
5. Assist in the recruitment of students for the program.
6. Assist in obtaining favorable publicity for the program throughout industry and the state and community as a whole.
7. Assist in developing an on-the-job training programs for students who are enrolled in a technician education program requiring occupational placement during the two-year instructional period.
8. Approve the certification of the coordinator and faculty members.
9. Select a state advisory committee and serve as a temporary chairman.

Some supervisory responsibilities under the operational stage:

1. A periodic review of the curriculum. Changes in the requirements of industry and technology are thus brought to the attention of the technical school.
2. A periodic review of each course being taught within the curriculum. This enables each instructor to critically evaluate his course. Obsolete subject matter is thus eliminated and new subject matter is introduced.
3. Assist in the planning of new facilities.
4. Assist in the development of specific laboratory experiments and new teaching techniques.
5. Keep the faculty and the administration fully informed regarding changes in manpower requirements within the industry.
6. Develop with the coordinator a procedure for appraising the teaching performance.
7. Plan and conduct in-service training workshops for the teaching staff.
8. Plan and conduct a statewide conference for coordinators and faculty members.

GUIDELINES FOR MORE EFFECTIVE SUPERVISION OF AGRICULTURAL TECHNOLOGY PROGRAMS

1. Develop a master plan for technical education programs within the state. This will involve the identification of specific technician programs and determining the number needed and geographical location of each within the state.
2. Establish definite standards for each technology program.
3. The curriculum for the technology program should stand along side of the baccalaureate degree program.
4. The technical subject matter and laboratory experience should deal with a broad body of knowledge related to a technology in agriculture rather than some specific job or occupation within that technology.
5. Agricultural technician training programs should be accredited by national organizations.

6. Establish a uniform reimbursement pattern for instructional salaries and equipment.
7. Develop appropriate forms for approval of programs including teaching staff.
8. Develop uniform report forms to be used in all technical programs in vocational education.

"THE ROLE OF VOCATIONAL AGRICULTURE"
Don Moeller
Swift & Company
February 20, 1967 - Chicago

Introduction to Topic:

At the offset, it should be clear in your minds that I did not take on this assignment to talk with you this morning thinking that you felt that I had all the answers to the problems related to Vocational Agriculture. I would rather hope that you might expect from me an idea or two, some personal reactions acquired by moving about in the agricultural scope, and that you might expect me to hint at some criticisms and suggestions. You should expect that when this speaker and the panel conclude this session, and when this seminar breaks up that some ideas have been generated which will produce a stronger vocational agricultural program in these Central States.

Some time ago, I heard a comment in a discussion which seems relevant here. There is little point in telling one another what we already know. However, if negative or positive reactions on my part develops a favorable reaction on you, we may well have accomplished something.

Luther Burbank once said, "It is well for people to think, to change their minds occasionally in order to keep them clean."

Those in education and industry who have failed to heed this suggestion may today be looking at youth education and training through clouded eyes. The vast change that has occurred and is still taking place in our economic and social order fairly cries out for a comparable change in education. Yet, in what is known the world over as a classically advanced agriculture, we are lacking in many areas in its most important ingredient...schooling.

The role of vocational agriculture, as I see it, involves three facets--- the first of which is most significant in our American heritage -- that is, to develop the boy, the individual -- for manhood. Vo-Ag and the FFA are unique in our educational system in that they make available, at the crucial age of young men, some of the basics in developing stronger leadership, aggressiveness and deeper understandings.

I consider it an insult on your intelligence to dwell on this point any longer. You do not have to be sold on this -- and neither do I.

The second role of vocational agriculture is the local community's answer to further serve and invest in its youth resources. Vo-Ag, along with other school programs, goes further than reading, writing, and arithmetic in the development of educational attainment. It rounds out, to the extent of the availability of tax dollars, the desires which a given community feels it must have in its school curriculum.

The third a most significant role of vocational agriculture is in the recognition as being an essential tool in the broad and greater complex of food and fiber production. As time passes, the essential food and fiber enterprises will receive increased emphasis in both the domestic and foreign markets. This makes vocational agriculture an integral part of the business of food production.

To place emphasis on this, I want to quote Dr. Herrill DeGraff, President of the American Meat Institute, who said in mid-January at Purdue, and I quote, "Food production is a business. It is more a business and less a way of life than ever before, and it will be even more so in the years ahead..."

It is the role of vocational agriculture to instill in the minds of those students currently sitting in the classrooms an appreciation of demands of tomorrow's agriculture which will force sound management adjustments. It must ask that they accept influences of strong competition. It must alert to the expectation of constant technological change. Tomorrow's agriculturalists will produce commodities within narrow specification ranges whether it be livestock, poultry or other food and fiber crops. Finally, these students must now take for granted that they will be forced to alter and adjust to sociological changes or be pushed to the wayside where others will then take over.

The vocational agriculture classroom must produce a climate that expects, probably even demands, both constant change and constant challenge.

It is easy to overlook the magnitude of the changes that have taken place in industry if we concentrate only on the "revolution" that has been occurring in agriculture. Thus, the challenge to education is not only to equip the relatively few farm-bound youths with modern educational tools, but to recognize the needs for the greater number who are industry-bound. And the two sets of tools are not as dissimilar as it sometimes stated. Dr. T. W. Schultz, of the University of Chicago, recently pointed out that, in general, farm people and their leadership are not conversant with the ideas, philosophy and historical growth with which agriculture today is so interwoven. He concedes that they understand the technical basis of modern agriculture, but indicates that comprehension is low when it comes to shaking off the decades of suspicion of anything new in "big business," the "social standards," and international economics.

Do you agree that we can appropriately ask our vocational training advisors if they feel competent in discussing these cultural, economic, and historical issues as they relate to agriculture today and its affects on tomorrow? It seems to me that for young folks who will not go on to college, but move directly to agriculture or to agri-related businesses, that they should at least have a working knowledge of these matters to give them an understanding of "What's going on". For the college-bound youth, the question is even more pertinent for the agricultural college facility which will likewise be funneling graduates into modern agriculture and agri-related businesses..."what makes this whole thing tick?"

One significant observation concerning a great many vocational agriculture and agricultural college graduates is their lack of exposure to the elements of economic and social organization. The boy with a farm background generally has for the most of his life been exposed and indeed trained in the techniques of modern agriculture. Vocational training further enhances his background and college presumably brings it to its zenith.

For the young man returning to the farm, this educational accomplishment represents a basic ingredient to success -- as -- again he presumably has the knowledge to combine in some sequence the other agricultural inputs of land, labor, capital, and business enterprise.

But as Schultz points out, this is no longer the end of the story..

The farmers and agricultural leaders of the future who cannot relate the economic and social changes of the rest of the nation and the world, to the progress or lack thereof in agriculture, will indeed be seeing the future through clouded eyes. Those, who today find it difficult, if not impossible, to relate their business to such things as the European economic community, economics of beef imports into the U.S., the re-discount rate of the Federal Reserve Bank, farm price support programs, public law 480, etc., are going to repeat indefinitely the myths of agricultural fundamentalism.

The functions for education have two primary purposes as I might relate them to vocational agriculture. The first function is to recognize talent of the farmers of tomorrow, explore their needs and then provide the avenues to fulfill their mental capabilities. The second function is to guide those boys who cannot return to the farm into avenues of possible future employment which will utilize the rich experiences they have had as sons of the soil.

At which level a boy decides whether or not he will go back to the farm is not up to the teacher to decide. I do not believe that parents should make this decision and when it comes in a young man's mind is determined by himself as he personally makes his everyday decisions as life progresses. It is the responsibility of the education facility to prepare this young man for whichever route he takes in life so that the 50 additional productive years that he has can be performed in an atmosphere of growth, productivity, and happiness.

It is the additional responsibility of the Vo-Ag Teacher in contact with the boy and his parents (as well as the local educational facility) to expose the student to the advantages of certain alternatives, the awareness of technological change, and alertness to the boys own responsibilities. I am reminded too that specialization has changed considerably from the time I bought my first York gilt, and raised the litter, to our persent day confinement feeding of hogs. It doesn't hurt to point out either that a tremendous amount of technological know-how went out the window when we canned horsemeat for dog food and converted to tractors for farm power. Power technology in the machine age in the last two decades is multiplied many times over that which existed for live horses.

For the young farm lad going to agri-related business from high school or college, his educational accomplishment is burdened even further. In addition, to meet the educational tool of understanding, he has some other hurdles to overcome which are often unique in his environmental background.

In many instances, the young man from the farm is handicapped in the fields of social, cultural, and economic experiences. This often acts as a barrier in his own mind at those all too rare moments when he sits down to figure out just what he can do in "big business." This writer has seen more than a few cases where this lack of social and cultural exposure has become the base of an inferiority complex. Many of these farm boys have been conditioned by cultural, social, and family experiences to the point of almost outright rejection of the material and social aspects of the business world. Let us recognize that the spread of both advantages and disadvantages between a farm boy and his city cousin is narrowing, and I believe this is desirable. Vo-Ag has done its part.

Don't misunderstand, I'm not referring to the unemployables - men who live in either a farm or city environment, who by their living standards, experiences, schooling, etc., cannot progress beyond the straight manual labor force.

An off-shoot thought on this matter might be in order because in a real sense, unrealistic conditioning takes place in many farm communities and families today. Boys often "pick up" a contempt for sales work in business and industry from their associations in their communities, their families, etc. Yet, approximately 4 or 5 out of 6 will be seeking employment in business and industry where sales work is the largest beginning opportunity for the "budding industrialist". Boys seem to get the inference that businessmen in large corporations just sit in plush offices and tick off multimillion dollar decisions on the basis of mysteriously acquired "inside information." They fail to realize that the facts of business life are, that with few notable exceptions, top management in business and industry is the product of hard dedicated work on the foundation of a realistic knowledge of business procedures and techniques.

There are some additional specifics that should be mentioned in passing; items like: being able to read a trail balance sheet, write and talk effectively, principles of business leadership and management, plus others.

All of this seems to me to be seated in a decided lack of knowledge of business fundamentals.

There is another challenge to youth training -- not far removed from the foregoing discussion...it revolves around the motivation of farm youth to extend their educational goals.

By and large, farm parents do a poor job of "selling" their offspring on the growing necessity of a college education in today's competitive business world -- farm or city. Dean D. C. Archer, Director of Resident Instruction, Kansas State University, is author of the statement that "Only one-third of the rural youth who are capable of completing college work, ever go to college." The reasons for this startling fact are no doubt fairly diverse. They probably range from financial to almost complete indifference on the part of parents and children.

But, whatever the reasons, is not the existence of the situation in itself an opportunity for vocational education?

To facilitate the next portion of this talk, I want to try another technique. I will use "The Ten Commands" only as a tool to activate ideas. Basically, questions will be asked.

I. Supervision.

1. As a supervisor what portion of your time is devoted to straight supervision? When you have supervised, what have you done, and do the teachers know that you have done it?

2. As a teacher-trainer, what guidelines are you using when you supervise your trainees and how often do you evaluate your procedures?

3. Is it possible to evaluate your progress in what you are trying to achieve and do the results compare to neighboring states?

4. What goals have you set for your program and what means do you use to check on yourself?

II. Recruiting.

1. How important is recruiting and is it your responsibility?

2. Who is following the sharp Vo-Ag students, through college, into industry and into farming?

3. Where are the success stories so vital in selling recruits?

4. Do you believe that enough recruiting is currently being done?

5. Who gets the new job when a vacancy opens up? Is he the best qualified person...is he proven...has he had the experience?

III. Organization.

1. What are the goals for the FFA for 5 yrs., 10 yrs. etc.

2. or, have we gone far enough with the FFA?

3. Do you support your teachers' organization and insist on giving some guidance...as the supervisor or teacher-trainer?

4. When have you last re-evaluated your opinions on the importance of organizations?

IV. Motivation and Innovation.

1. Are you up to par with other educational agencies when it comes to motivation and innovation?

2. Is your cleverness obvious...naturally, honesty, and integrity must always be preserved, but how do you stand up to the crowd when the real obstacles present themselves. Are you there with new ideas?

V. Study.

1. When did you last take leave of your job to study and up-date yourself?

2. Do you have an organized plan to read and study, or is it haphazard?

3. Have you ever participated in speed reading, comprehension, and other types of self-improvement programs?

VI. Communication.

1. Your image...how do you work on it?

2. How do you make sure that you produce timely communication procedures?

3. No other program in our entire educational system provides such a golden opportunity to develop public speaking advantages as does Vo-Ag and its entire program.

4. Are you satisfied that public speaking training is adequate for the boys in your State?

VII. Changing times, You either do --- or you lose.

Do you permit diehard associates to influence the thinking of your constituents with a constant "let's wait and see" attitude? For clarification, I am not speaking of change for change sake alone, but I am referring to leadership and acknowledging an improvement over the old and initiating prompt correction.

VIII. Leadership.

1. With bookshelves full of guidelines to develop leadership, do you read this material from time to time and find a system that meets with your personality and then work on it?

2. Since leading takes practice, how have you trained your own children and how do they stack up with others in school, church, and college? Followers are leaders, too, teaching followship teaches leadership.

IV. Production.

1. Do you prove your production capabilities to those from whom you expect production?

2. Do you provide the guidelines to others so that they might evaluate their own production?

3. How much waste do you permit?

X. Relaxation.

1. Do you have a plan for relaxation?

2. When was the last time that you had a thoroughly relaxing experience?

Is it a foolish suggestion to learn of the reaction of your Vo-Ag teachers if, in a separate mailing, you sent them a booklet or guidelines on the importance of relaxation -- vacations, hobbies, or other extracurricular activities?

The final portion of my talk will dwell on several other areas that need clarification in my mind as I visit and discuss the roll of vocational agriculture with teachers and associates.

1. What value do you place on adult and young farmer programs?

It was instilled in my mind as a teacher that both of these programs were an integral part of the total Vo-Ag. program. Why then do you have this diverse opinion on the subject between states in this area, or even within the States. Could you leave this seminar agreeing on a statement on your stand on this matter and clarify the issue for the teachers, superintendents of the schools, school boards, and the agri-business community?

Judging contest. Is it time to again check on the value of each of the judging contests and how they are set up and conducted? Can we get closer to "how farmers farm" with some basic revisions? I think we can and should!

2. What is FFA time and what is Vo-Ag time?

   What proportion of a teacher's total time should be devoted to developing and maintaining the FFA Chapter as a part in the "role of vocational agriculture?" All kinds of programs exist, and can you as a group agree on a policy that has some meaning to a new Vo-Ag teacher going on the job.

   In this light, I would also like to learn of your reaction as to the value of the FFA Foundation and its benefits. Are we past the stage for the need of the foundation on a national level? If so, are alternatives feasible for industry to show both its interest and support? Should we or can we ask for leadership on this matter from you?

3. Can you agree, stand by and support a "farm shop program" in your school systems? Can you expect a Vo-Ag instructor to adequately produce if you do not insist that he be provided with the basic tools to teach. If supervisors and teacher trainers cannot or will not give the leadership in the "farm shop" program what alternatives are there for the local teacher to use?

SUMMARY

The role of Vo-Ag is to guide young men (people) so that they can make their own decisions through guidance to most effectively use their talents in years to come for the good of society. As I see it is to first provide training for the future farmers, secondly for adult farmers, and third for those who must leave the farm and head into the agri-related industries, and finally to training those who insist on an agricultural training program whether they fit into the above program or not.

The Role of Professional Education In The Present Dilemma

George S. Jefferson, Consultant
State Board of Vocational Education and
Rehabilitation, State of Illinois

(1) Along with scientific discovery in the 1960's; (2) Automation and Cyhernation; and (3) the 1954 Supreme Court decision: Brown vs. Board of Education; the American Public School System is bombarded with criticism beyond survival.

With increased State and Federal help the problems persist.

School administration is not meeting its challenge. The classroom is not meeting its challenge. Tests have no validity beyond middle class cultural standards.

Colleges and Universities cannot turn out teachers to cope with ghetto schools.

Meaningful EVALUATION is needed. Generalization based on enthusiasm and good will is useless.

Research at all levels: Local, Regional, State, and National is needed. Basic research in colleges and universities is badly needed to point up Relationships.

John W. Craig
Board of Education
City of Chicago

The Cooperative Work Training Program was established in the Chicago Public School System September, 1964 with the cooperation of the State Board of Vocational Education and Rehabilitation. The program was to be an experimental program funded under the Vocational Act of 1963 and was under the auspices of the Research Coordinating Unit, Mr. Vernon E. Burgener, Coordinator in charge. The program opened in three schools and has since expanded to nineteen schools and twenty-two programs. Currently there are approximately 845 students enrolled in the Cooperative Work Training Program and these students will have earned over $100,000 for the school year from September 1966 to June 1967. It is hoped that the program will become a regular part of the State Board of Vocational Education and Rehabilitation such as the I.C.E., H.E.R.O., and Interrelated Programs are at this time. The Cooperative Work Training Program is aimed at the students with special needs. The majority of students in the program could be classified as overage and/or under-achievers who are 16 years old or older. The students spend one-half day in school and a minimum of 15 hours and a maximum of 20 hours per week on the job. They receive academic credit for the related materials class held in school and for on-the-job training. The program can be found in two types of schools: The E.V.G. Centers (these schools are intended for over-age and/or under-achieving elementary students who are 15 years of age or older), and the general high schools. It is hoped that the program will be expanded to include ten additional schools as of September, 1967.

MOTIVATION

Sol Siegel
February 23, 1967

My personal affiliation is with one of the Manpower Development and Training Act Programs, namely the Cashier, Currency Exchange Program conducted in a private school, the Marion Business College. The initial orientation in our particular program conveys to the student the fact the he or she is really no different than any other person in as much as all individuals have a desire for success and favor in the eyes of others. We do everything to communicate to the student that we understand many of the problems with which he has coped most of his life. We attempt to arouse the motivation which possibly has been dormant in the student.

The results of the program and how it has benefited our nation as a whole... the cost being insignificant in comparison to the results achieved...

Some of the statements made by the previous students...the fact that they have become better citizens...taxpaying citizens...citizens who now have human dignity...have lost self pity and more important, the fact that they can now show a better way of life to their own offspring.

In conclusion, the job of the teacher is not merely one of teaching, but one of counseling, motivating, and understanding the personal needs of the student as well.

The programs of the Manpower Act are not to be tossed off lightly. It is only through education and understanding that we can better the standards of all the people in the Democracy in which we live. If it is true that "an ounce of prevention is worth a pound of cure", then it may also be said that "a dollar spent on education is worth ten dollars spent on public assistance."

YOUNG AND ADULT FARMER INSTRUCTION IN A RAPIDLY CHANGING WORLD OF AGRICULTURE

C. E. Bundy
Iowa State University

Farmers have discovered that they can net the greatest return on their capital and labor by investing in commercial fertilizer and modern farm machinery. Private as well as business investments are made in terms of yield and security. Are we in agricultural education investing funds and personnel in activities which will net the greatest return? According to the 1964 U. S. Census of Agriculture there were 1,410,000 farm operators in the 13 states represented in this seminar. In addition, there were 204,000 hired farm workers in these states who are employed 150 days or more during the year. Only 4.6% of these persons were enrolled in young and adult farmer classes in 1965.

It is anticipated that we will have in the vicinity of 245 million people to feed in the United States by 1980. This 28% increase in population will mean about 50 million more people to feed. Technology in agriculture is doubling each 10 years. Many practices and machines become obsolete in less than 5 years. Technological developments probably will become more rapid and more dynamic during the next 10-year period. The increases in size of farm businesses, of capital and labor resources and competence in agricultural technology point to increased emphasis in young-adult farmer programs in farm management, farm record keeping and record analysis.

We have an administrative problem. Public school administrators have not in general been willing to staff and finance programs in adult education. Approximately $\frac{1}{4}$ of our resources in vocational agriculture in Iowa are allocated to the young and adult farmer phase of the total program. Changes coming about in the agricultural extension service in most of our states will make it possible for teachers of vocational agriculture to assume greater responsibility in the local communities for young and adult farmer education than has been assumed in the past.

As teacher educators and as consultants we must help teachers analyze their individual situations and develop goals concerning educational programs for farmers and farm workers. We must consider the following points: (1) Farms are increasing in size but are decreasing in number. They are becoming more specialized. (2) Farming is big business involving increased amounts of capital technology and labor resources. (3) With the increase in size of farms, we have increases in numbers of hired farm workers. (4) The demand for food due to population increases in this country and in the world necessitates a change in direction from control production to increase production and food reserves. (5) Much greater emphasis in educational programs must be given the making of farm management decisions based upon farm records and record analyses. (6) Vocational agriculture, agricultural extension, commercial personnel and Colleges of Agriculture must share in providing educational programs for farm operators and workers. (7) We are reaching less than 5% of farm operators and hired workers in young and adult farmer classes. (8) Added capital and personnel in local schools must be provided if educational programs are to be available for the operators and farm workers in our states. The over-worked teacher in a one man department cannot provide the instruction needed. (9) We must move toward multiple man departments with personnel specializing in young and adult farmer education programs. (10) We have a teacher recruitment problem. Every effort should be extended to increase the number of individuals in the pre-service program, to increase the

the tenure of existing teachers and lastly to bring back into vocational agriculture former teachers who are now employed in other types of work. (11) We must "beef up" our teacher education programs. We must provide for experience in young and adult farmer instruction on the part of our trainees. (12) Our young and adult farmer programs should be beamed at the early adopter and early majority groups. (13) Instructors must be given help in establishing goals for themselves in meeting the educational needs of the farmers of their communities. Farmers will attend educational programs when they are interesting and when they gain new ideas that can be applied on their farms.

MEMBER PANEL YOUNG FARMER WORK

I feel that a young farmer organization should be looked upon as a continuing year around educational program. This will enable the instructor to teach more around current, seasonal problems. It will enable him to spread his work out over a longer span of time, instead of a four or five month period. This will in turn stimulate more interest for the program year around.

The instructor should be concerned with four primary points in the construction of a workable program. First of all, he should try to determine to whom he is going to appeal.

I'm sure you will find that they will be men who are in the process of becoming, or have become, established in farming or agricultural related fields. For the most part, he will be working with men of from twenty-one to thirty-five years of age. They are very energetic, progressive, and at times, they will tend to be too overly progressive. They are quick to grasp new ideas and make use of them, and as a whole, they are more intelligent and better educated than their predecessors. This will not only include farm operators, but men who work for them.

So, now bearing in mind the type of man that we are concerned with, let us turn to points two and three, and thus proceed with the formulation of a well rounded educational program that will best fit formal, or as the case may be, informal educational experiences that will contribute to a successful agricultural profession.

Second, he will have to determine the needs of the group, and third, he will have to arrive at the best and most interesting way to meet these needs.

I'm sure that you gentlemen will agree with me when I say that a program of this type is of no value unless it is centered and taught around the problems, interests, and activities of the men in this organization. Here is where an advisory council from within the group can be of immense value, for without their guidance and views on the needs of the group as a whole, the instructor would be faced with problems and situations which, I'm sure, would seriously impair the effectiveness, and ultimately, the success of their program.

In the past ten years that our program has been functioning, we have found that two meetings per month throughout the fall, winter, and spring seasons has worked the best. At the first meeting of the new year, we elect a council consisting of four members of our group, plus the class instructor. They in turn meet and set up the agenda for the coming year. These meetings usually consist

of a series on animal nutrition, soil and crop management, and such topics as future markets, tax planning, estate planning, farm credit and financing, machinery needs and feasibility, plus an assortment of other topics that the council thinks would be of importance and interest to the group. We try and use as many outside speakers that would be of interest. There are some pitfalls to the use of these speakers, but as a whole, they contribute very well to our program.

In the past we have tried to do some instruction in the field of agricultural mechanics, such as welding, minor machinery repair, and just general use of the farm shop of our local school by the members of our class. I personally question the feasibility of this part of our program because I don't believe that the farm operator or manager of today has the time or tools that are required to service or make major repairs on the highly sophisticated and complicated machinery that we use today. I don't believe he will ever do enough welding to be proficient at it, or justify the capital outlay for the welder. I'm sure that in the future this will be even more true. I think that if we feel that we should move in this direction, it should be on subjects concerning the understanding of systems, such as hydraulics and their use and corn drying, just to name two. If some time in the future, we get more into the field of ag-related professions, or even vocational training, this may change, but for the present, I'm not convinced that it's time well spent.

At the second or third meeting of the year, the council will get an opinion from the group as to what and where they would like to spend time on an all day tour. In the past, these tours have consisted of visits to feed, machinery, and industrial plants; various feed lots; and Iowa State University. Generally they are well received and are looked upon as one of the highlights of our year's program.

I would strongly urge that the program throughout the year remain flexible enough to accommodate any new technology or subject matter that might be of interest to the group as a whole.

As the academic and group participation of our class is of great importance, I feel that the recreational and social functions of our organization also play an important roll in the success of a well rounded, balanced program. We accomplish this by having a supper night out for the wives or girlfriends plus a chili supper and picnic in the summer time for the entire family. In addition to these three yearly events, after each meeting, we have coffee and donuts and sit around and chat about our mutual problems.

On the farm visits and supervision by the teacher of vocational agriculture, may, to some extent, be of value to the individual and to the teacher as well. For here is where the teacher will get to know these men better, build more interest for the program, and first hand, observe the real current problems in the farming industry. Rather than trying to accomplish two to three on the farm visits per year to each individual class member, I feel the instructor's time would be better spent in visiting and counseling with the individual who most needs his time.

As the teacher proceeds in setting up his instructional material and procedure for each individual meeting, I feel that he would be far better off to conduct his meetings more on group participation methods. Have a prepared text, but keep away from a lecture type course. Use a lot of thought-provoking material and statements. Encourage group discussion, but be careful that you don't get drawn away from your main topic. This is easily done with a group of this type.

Another point that I would like to caution against is, do not try to encourage participation in new developments that have no proven value behind them. Most of the men in the class will not be financially able to withstand any major set back---so consequently, we will want to be concerned with ideas that are basically sound. Be forward looking but with a certain degree of caution, for, as I stated earlier, because of their youth and their desire to be a success, they may at times be overly progressive. I traveled down this road once myself, and, I assure you, it is not a pleasant journey back, so if I may, I would like to inject my own personal philosophy, that I feel it is far better for a man to grow up before he tries to grow out to any degree.

It is possible that it would be feasable to do some organized experimenting in certain fields such as chemicals, nutrition, or tillage methods. But this should be done on a small scale through the organization as a whole.

The fourth point that the instructor will probably be concerned with, as are educators in all fields, is how best to evaluate the degree of success of the program. I have my own ideas on how this could be accomplished, but as I have never been a teacher or instructor of any kind, I shall not attempt to try and tell you gentlemen, who are professionals in the field of agricultural education how best this can be accomplished.

I would just like to leave you with this thought; Over the past ten years that our program has been in operation, it has been highly successful because of their great desire to succeed, and the dedication of these men and their instructor to the agricultural profession. And, gentlemen, these young men of this generation look upon all forms of agriculture as a highly sophisticated profession. They know that what is accepted today may not apply next year because of the continuing advancement in technology, procedures, and systems.

And in regard to the vocational agricultural teacher who is helping to guide these young farmers of today, I feel he will find as much, if not more application and appreciation of his teachings and efforts in this particular field of agricultural education, and thus gain a high degree of personal satisfaction for his endeavors.

WHAT ARE YOUNG FARMERS LOOKING FOR IN AN EDUCATION PROGRAM?

Donald Gazda
Jackson, Minnesota

I'm 27 years old, married and the father of two daughters.

My brother and I started farming in 1958 after our father's death. We farmed 296 acres when first starting and this has increased to 700 acres. Only 120 acres of the land is owned by our parternship. The remaining land is rented on a crop share lease. Our field crops consist of corn, soybeans, and alfalfa. The average corn yields are over 100 bushels and the soybean yields have averaged 35 bushels an acre. We feed cattle, lambs, and feeder pigs for the fat market. Our records show an average production of 106,000 pounds of pork, 119,000 pounds of beef and 25,000 pounds of lamb over the last three years. Our average change in net worth has been $16,000.00 and we have realized an average return to labor and capital of $31,000.00 over the same period of time.

With this background information on my farming operation, I would like to express my views as to what a Young Farmer Program should consist of.

The young man becoming established in farming today is moving into a very competitive business venture. He must compete with his fellow businessman for land, labor, and capital, as-well-as the consumers dollar when marketing his product. He must realize the need for some outside guidance from a credit institution, industry, extension service or the local Vocational Agriculture department. He will make use of all these sources but will find the educational facilities of his school most valuable. The enrollment in an organized Young Farmer Program in his Vo-Ag department will be the first step in a continuing educational process.

In Minnesota, the majority of our young farmer groups meet in the high school for a series of classes covering a single area of interest or a variety of subjects. Discussion, lunch, and recreation follows the instructional program. In some parts of the state an intensive program in farm mechanics is a part of the Young Farmer Program. A follow up on on-the-farm instruction is most beneficial.

In Jackson, we feel the Young Farmer Program should be based on farm management. Through this approach, we can use the analysis of our farm business to make decisions on what to do in the farming operation. The old approach of how to do should have been taught by past experience or by magazines, radio, T.V., or general information meetings.

The farm family keeps complete records of cash receipts, cash expenses, beginning and ending inventories and feed fed to each livestock enterprise. The year's records are summarized showing average capital investment, return to capital and labor, change in net worth and feed costs per 100 pounds of livestock, milk or dozen of eggs produced. The yearly business analysis is used to obtain credit, and make adjustments in the farm business.

This winter we are holding group seminars covering several interest areas. These will consist of livestock nutrition, crops and seeds, fertilizer and chemicals, and credit. We hope to utilize the experiences of the group as a teaching device.

Farm Mechanics is a growing area of instruction for our people. Our farm shop facilities are available to young farmers, many afternoons and evenings during the year. Welding and metal fabrication class sessions have been utilized to the fullest extent. Tractor cabs and snow blowers are just a few of the projects turned out after such skills have been acquired.

One of the greatest advantages of being enrolled in an organized class is the scheduled on-the-farm visit by the instructor. With the scheduled visit, time is set aside by the farm family and the teacher, so some concrete work can be accomplished. On these visits, records, livestock, and crops are checked. Problems pertaining to the farm business are discussed. Sometimes it is a big up to have an outsider point out the weaknesses and strengths of the farm program and suggest some alternatives. The summaries of past year's records are most helpful in making these decisions.

In Jackson, our Young Farmer Group is very flexible (the service-school) and may consist of ten to twenty young men. Their ages may vary from 18 to 30 years. After two or three years, they are absorbed into an adult farm management class. The married couple is moved into a management group as soon as possible.

I realize many young farmers or farm families are not participating in any form of organized instruction. I'm sure you have heard the reasons for not taking part in such a program. The usual excuse is, "I'm just getting started in farming, while the rest of the fellows are well established in farming." A couple of other excuses are, "I'm too busy or I'm getting along fine without any outside help."

In the future, I believe the beginning farmer and his family are going to need and depend on a stronger educational program. If our local school district doesn't meet these needs, we will have to depend on industry or organize our own organizations. I feel more of our people are going to join farm management groups. The farmer is going to need more complicated records and a more elaborate analysis of his farm business. These will be a must, if we are going to justify our need for credit, use our labor most efficiently and convince a landlord that we can handle his additional land. The Vo-Ag department is most qualified to supervise and offer classroom instruction in farm management.

Farm Mechanics is going to have to be a growing part of the young farmer program. I believe the increased cost of machinery, power and materials handling equipment, is going to require the learning of skills, so the young farmer can do more of his maintenance and repair work. Short courses in specialized areas should be expanded so we can cope with problems arising from working with more complicated equipment and buildings.

I sometimes wonder if there should be a different program for beginning and adult farmers. I believe our goals are similar - an adequate farm business that will support the growing needs of our family, community, and country.

YOUNG FARMER PANEL

Ralph J. Knobel
Nebraska

First, let me say that it is a genuine honor and a sincere pleasure for me to be here. I do not believe that I have been associated with as much talent in Agriculture Education at one time since back in the days that I regularly attended the National FFA Conventions.

As you have noted on the program, the topic to be discussed by us young farmers is "What are Young Farmers Looking for in an Educational Program?" My comments will fall into two subdivisions under this general topic, the first being the demands of Young Farmers from Agriculture Education, which for the most part, are directed from the high school vocational agriculture department.

Any Young Farmer Education program must in itself be very attractive to the young men concerned if it is to even exist. If the program does not meet the demands and needs of the men concerned, it is destined to failure from the start, because 100% of the young farmer enrollees are there on a voluntary basis.

So first, in any program for Young Farmers, incorporate local Young Farmer leadership in the planning. This is absolutely essential. After decisions have been reached as to what areas are to be discussed, make sure that no topic for any one lesson or session is too broad. It is well to remember to cover what you cover very well. You are dealing with an intelligent and informed group of professional men. They want to know a lot about a little and not a little about a lot. They want technical information about a technical business. When you go hunting, you can choose between a rifle or a shotgun, depending upon the effect you want your trajectory to have. The shotgun splatters over a wide area, but has little penetration and is just pointed in the general direction of the target. The rifle covers a small area, but penetrates deeply, and must be aimed directly at the target. It is well to carry the rifle when planning a Young Farmer educational program.

We, in our Young Farmer Chapter in Fairbury, Nebraska, have turned entirely to outside professionals to speak at our meetings, and this does not mean that we do not have a very competent Ag teacher. We have a group of about 30 aggressive, intelligent, and well read men in the chapter. Seven of the thirty or about 25% have their Bachelor of Science degrees in Agriculture which is as much and more recent formal education than that of our teacher. I believe if our objective is to do the very best job in diseminating technical information to the young farm men in a community, then we will have to import professionals involved in the area of study quite often. This means men coming to us from Agriculture Experiment Stations, Ag Extension Service, business, and industry.

Put yourself in the position of presenting a program on the mechanics of production, yield potential, economic practicality, and the general future of hybrid wheat, or a comprehensive presentation of the mechanics, advantages, risks and other details of the livestock futures market and how it can fit into the opeartion of the Young Farmers involved. I'm not saying that the Ag teacher cannot do the job, but in most cases there is someone who can do it better, and if that is the case, bring him in. A well rounded technical Young Farmer program can be almost like a graduate course in practical agriculture which benefits the Ag instructor almost as much as the farmers.

I might mention that good speakers and good attendance are interdependent upon each other. Good turnouts can constantly demand and deserve good speakers. But good speakers demand good turnouts. You must constantly have both or soon will have neither. Here is where the Ag teacher must do some effective organizing and recruiting to getthings moving. A few of the topics that have been covered at our meetings have been:

Ag Wills and Estate Planning presented by the head trust officer of a Lincoln bank.
How to Appraise Rural Real Estate presented by an appraiser for Doane Agriculture Service, Inc.
Technicalities of Minimum Tillage, presented by an equipment manufacture's representative.
Oyster Shell Feeding to Beef Fattening Cattle by a PhD. conducting research at the Nebr. Exp. Station.
Trace Element Fertility presented by an Extension Agronomist.

The second area that I would like to briefly discuss is the concern for and future expectations of our high school vocational agriculture department. We are young men earning our living from farming, but we are more than that. We are parents of sons that are being reared on the farm and we have a sincere interest in their future.

As farmers have become fewer, it has largely been a matter of survival of the fittest. Success seems to survive. With our diminishing rural population, we are seeing an upbreeding of our rural youth. Intelligence is mostly inherited. Ambition and drive are largely environmental. The qualities of excellence in the successful farmers that have survived the mass competition of the weeding out process, reproduce, and I firmly believe that the degree of excellence of our rural youth is rising.

I would be the first to admit that these young men can do anything as well as their urban counterparts whether it be in the fields of education, chemistry, engineering, the manual skills, selling shoes, or what have you. But, gentlemen, I am here to tell you that the time has arrived when we no longer have farm boys to spare. There are 23 million needed in Agribusiness. Seven million are on the farms and 16 million are directly serving and supporting the agriculture industry. When it comes to a career associated with the agriculture industry, the farm boy with his rural heritage has a built-in advantage and he could be capitalizing upon it. Farm backgrounds are nothing short of a natural resource. We can do nothing to increase the supply, we can only develop what we have while we have it.

What can we do about it? We have to go do some training for this area of Agri-Business. We will have to broaded the scope of training in Vocational Agriculture. Vocational agriculture no longer means farming only. In fact over 2 out of 3 that stay in the agriculture industry will not be farmers.

We need some education in human relations for these men. they will no longer be the independent farmer that has never had a boss. They will need to know how to work, cooperate, and get along with other people as well as to evaluate and understand them as much as possible. We've got to teach some psychology, some salesmanship, and all the record keeping, accounting, and mathematics that we can squeeze into the schedule.

Finally, we need active liason between the state department of Vocational Education and the high school administrations. The greatest crime committed against our rural youth today is the bad advice given by the misguided counselors when they start to high school. You prople through your area consultants and your local Ag teachers are going to have to get these people straightened out. Let them know that Vocational Agriculture is actually College Preparatory for the Agriculture Industry. If a Vo-Ag department is not college prep for the agriculture industry, then someone has some work to do. We also know that not everyone will go to college. We may have to work toward two sections. One for the college preparatory and the other a bit more remedial with a bit more of the manual skills emphasized. Most high school vocational agriculture departments are less than half of their potential size. The important thing is to keep our rural youth in the business of agriculture. Unless I miss my guess, 95% of you assembled here today were raised on the farm. You know better than anyone the value of an agriculture background. You can serve agriculture better than anyone else. Couple this with the fact that we have no more farm boys to spare, and we are left with a challenge and an opportunity to develop a vocational agricultural program that will attract the rural youth and fill both their needs and those of this complex business of agriculture.

REPORT FROM GROUP ON DETERMINING NEEDS
Tuesday Afternoon
By O. Donald Meaders
Michigan State University

I. General - Guidelines for the determination of need (location and kinds) for post high school technical programs in agriculture must include at least four areas.

A. Needs of the industry
B. Interest of people in agricultural occupations
C. Resources needed to conduct quality programs
   1. Physical facilities and equipment
   2. Staff
D. Curriculum

II. Some practices used in various states

A. State-wide advisory committees
   1. By industry (floriculture, farm machinery, etc.)
   2. Overall (representing total agricultural industry)
   3. Specific for various programs of instructors
B. College and/or university appointed advisory committees for development of programs at those institutions
C. Utilization of recommendations from advisory committees for secondary-level programs.
D. State-wide studies conducted by
   1. Employment Security Commissions
   2. State Research Councils
   3. Universities (MSU - Project 80--Projection of Production Agriculture in 1980, etc.)
E. Legislative action requesting studies of need for community colleges including need for post high school vocational educators
F. Studies conducted on a sub-region basis within the states.
   1. Studies of need for agricultural occupations
   2. Studies of need for vocational-technical education including agricultural occupations
G. Competency studies
   1. Based on job titles and/or clusters of job titles
   2. Based on industry functions
H. Include studies of need for programs in production agriculture

III. Practices for determining number and location of programs are not yet clearly identified in most states. State policies establishing jurisdiction and other guidelines are being developed.

GROUP: EVALUATION
By R. J. Ford
Secretary
Iowa

The evaluation form used by Dr. Wood is an example of the types of evaluation which may be used for post secondary programs.

In the past, evaluation has been somewhat stereotyped in numerical evaluation techniques. We measure in precentages, dollars and numbers enrolled etc. Some thought needs to be given evaluation of the individual personalities and leadership qualities which industry values highly.

An accurate evaluation would include a pre-test and post-test system to determine where the individual is before entering the program. The post-test evaluation would determine how far the individual progressed.

Guidelines for Evaluation:

1. Needs and objectives must be established and spelled out.

2. A continuous, systematic evaluation should be developed to measure success one, five, and ten years after departure from the program.

3. In terms of placement, success should be measured not only in entry into the original occupational goal, but it should also consider advancement in other areas.

4. Who should evaluate? The man conducting the program should definitely be involved along with others.

5. The program committee for 1968 should consider devoting one day to evaluations.

EXECUTIVE SECRETARIES' MEETING
February 20, 1967
Gerald Barton - Chairman
G. D. Carl - Secretary

Coleman Harris - Indiana - Chairman for 1968
Raymond Hagen - Missouri - Secretary for 1968

Recommend Earl Kantner, Ohio to be in charge of Central Region Public Speaking.

Michigan, Minnesota, and Missouri to select judges for speaking contest, one from each state.

Mr. Kantner asked to survey states as to holding a sub-regional public speaking contest.

Judging Foundation awards - Indiana, Kansas, and North Dakota.

Homer Edwards reports John Faltz to work on forms along with other responsibilities. Forms will be delivered at an earlier date. National FFA Week materials will be part of the FFA catalogue.

Funds have been allotted to survey youth organization needs for post high school students.

National Outlook Conference on Rural Youth to be held in Washington, D.C., October 23-26, 1967. More information to be sent later.

National Seminar for youth leaders to be held in Hardenburg, Kentucky, June 11-16, 1967.

Keaton Vandemark brought greetings. He reported on plans for a National FFA center at Alexandria, Virginia

Theme for National FFA Week - 1968 -"FFA - Challenging Youth in Agriculture."

Phil Schmidt, National Safety Council, reports safety material will be on time.

In general, State FFA Foundations were reported to be a success where they are operating.

Recommend a study to made of a possible State Agriculturist Degree along with the State Farmer Degree.

General exchange of materials. Request that such a meeting as this be recommended for next year.

INSTRUCTIONAL MATERIALS SECTION
February 20, 1967
James Albracht - Secretary
Kansas State University

The meeting was called to order by Dr. Raymond Clark at 1:15 p.m. The first item of business was the election of a chairman for the coming year. It was moved by Matthews and seconded that Hilding Gadda be unanimously elected as chairman. Motion carried.

A representative from each of the states reported on the instructional materials which were developed or were being developed by members of the teacher education and state supervisory staffs of his state.

Reports of the instruction materials being prepared by the states appeared to indicate that nearly all of the states were preparing teaching units. It was suggested that if all of the states used the same teaching unit format the materials would have a greater utilization value for other states.

It was reported that industry was interested in the development of instructional materials. Vocational agriculture teachers of Indiana were preparing teaching materials, and the 3M Company was making plans to reproduce them. The South Dakota Electric Company has printed a book "Electrical Text Book for Farming and Homemaking" and may be purchased for $3.50.

Professor Matthews reported on the A.V.A publication "A Description and Source Listing of Professional Information in Agricultural Education." Mr. Mabon reported on a method of determining the economic value of a vocational agriculture program in Iowa.

The meeting was concluded with a demonstration of programmed instructional machines and materials by the Ken Cook Company of Milwaukee, Wisconsin.

SUPERVISING TEACHERS
Monday Afternoon
By Edgar Persons - Secretary

A poll of the four states represented showed a wide variance in the student teaching practice. Students teach for a period varying from five to ten weeks during the regular school term with from zero to three weeks of observation in the teaching center during late summer prior to the teaching experience.

The session was directed at answering the following eight questions. A brief resume of the discussion accompanies each query.

Q. 1. How should teachers be introduced into the teaching experience and how soon should student teachers have all classes?

A. Students should be given a few days or weeks to observe before working gradually toward carrying the full teaching load. Student teachers should carry a full teaching load for about one-half of the period.

Q. 2. Should supervising teachers always be present?

A. No - Student teachers need to be on their own on occasion. Supervising teachers should be available for counsel following a class presentation.

Q. 3. How far can student teachers go in discipline?

A. Generally as far as the teacher is allowed. Classroom discipline should be handled by the student teacher.

Q. 4. Are student teachers too busy with assigned paper work and activity?

A. No. Student teachers may do more than necessary in some states because of the forms provided. Generally not a problem.

Q. 5. What is the role of the college supervisor?

A. He is expected to observe the student teacher, consult with student and supervising teacher, and offer suggestions for improvement of the teaching experience.

Q. 6. Should student teachers be expected to participate in extra curricular activities?

A. Yes, but not to the extent that it interfers with the teaching experience.

Q. 7. Do supervising teachers make follow-up visits to student teachers that have been placed in Vo-Ag teaching positions?

A. While most agreed the idea had merit, only a few were able to carry out the practice.

Q. 8. How do you aid in recruiting students for Ag. Education?

A. Any way that is possible. The use of a state committee, career, brochures, letters, and personal contact were some of the ways suggested?

The planning committee is urged to consider the means of increasing participation by supervising teachers.

SUMMARY REPORT
By H. E. Edwards

We must be more interested in goals and results than on procedures or ways and means. All of us are dedicated to providing the best possible program of vocational education in agriculture to all those who need and desire it.

The information that has been accumulated came from at least three sources (1) from the questionnaire sent to State Supervisors (2) the summary from the State Directors reports on Projected Program activities, and (3) the annual summary of state statistic reports. All of the information provided in this report will be mimeographed and mailed to each state staff member.

As the information on vocational agriculture program has been accumulated it is only natural that some concerns should arise. Among them are the following:

1. The lack of uniformity in reporting programs' results.

2. The failure of states to document and report favorable results.

3. The need for using the OE numbers and titles in reporting enrollments.

4. The need for vocational teachers in agriculture.

5. The need for standards on supervised occupational experience programs for pre-employment students.

6. Definite plans for agricultural education in area vocational schools and post-high school complexes.

7. The occupational competency at the entry level for graduates at each level.

It is hoped that the information obtained and the concerns listed will be usable as this conference continues its deliberations.

GUIDELINES FOR TEACHER EDUCATION
Alan Kahler - Secretary
Nebraska

1. It is the responsiblility of teacher education to recruit and educate teachers for post-high school programs; provide extensive in-service education programs for those all ready in this profession; evaluate programs and teacher effectiveness; and identify and research problems in the area of post-high school education.

2. Teacher educators must be involved in selecting those individuals to be trained for post-high school education programs.

3. Persons holding professional degrees with technical training should be used to train agricultural technicians.

4. Teacher educators must be involved in establishing accreditation criteria for teachers in post-high school programs.

5. A committee represented by one teacher educator and one supervisor from each state should work out acceptable accreditation criteria in close cooperation with the North Central Association accreditation committee.

6. Programs must be established that will provide intensive technical training for professional people planning to become post-high school teachers of agricultural technicians.

7. Teacher educators must be involved in the planning of policies affecting the total vocational agriculture program at the post-high school level.

Thursday, February 23

I. Program for Persons With Special Needs - Mr. George Jefferson, Moderator

A. Mr. John Craig - Chicago Board of Education - gave a slide presentation of the cooperative work training program of the Chicago schools.

B. Mr. Sol Siegel of Marion Business College discussed his program.

C. Mr. Milton Stenson discussed the Jobs Program which is sponsored by the YMCA High School, Chicago Boys Clubs, and Chicago Youth Centers.

D. Mr. Jefferson discussed the Role of Professional Education.

E. The session was then opened for Questions and Interaction by the questioning panel and participants.

II. Recessed for a twenty minute coffee break.

III. Presentation by Dr. Robert Filbeck, Program Director, Lincoln Job Corp Center

Topic: Working with Persons with Special Needs

His program is based on two types of needs:

1. Educational needs
2. Psychological needs

<u>Educational Needs</u>

1. Basic skill training
2. Enlarged and improved language base
3. Reading Development
4. Math Development
5. Understandings of social behaviors

<u>Psychological Needs</u>

1. Committed to immediate need gratification
2. Addiction to avoiding behavior
3. Addicted to impulsive reaction
4. Self image as inadequate people
5. Very concrete minded
6. Need for recognition
7. Students are materialistic
8. Suspicious of adults and other authoritative figures
9. Very low insight

SECONDARY EDUCATION
Wednesday Afternoon

Dr. Willard H. Wolf, Ohio, chairman, called the meeting to order at 1:15 p.m.

Dr. Hilding W. Gadda, South Dakota, introduced the speaker, Dr. Duane Acker, also from South Dakota. Dean Acker, the Director of Experiment Station, South Dakota State University, presentation was on the "Role of Vocational Agriculture in Secondary Education."

Assuming that vocational agriculture has multiple roles, Dr. Acker preceded to list deterents (and some recommendations) to vocational agriculture effectively carrying out these roles. Assumptions were that the role of vocational is to (1) prepare for farming (terminal education), (2) pre-university training, and (3) prepare for continuing education (post-secondary). Other multiple roles include training in farming vs. training in non-farming occupations vs. basic sciences according to Dr. Acker.

Deterents to the training for pre-university role were discussed by Dean Acker. Broader programs of vocational agriculture, in-service training for teachers, rewarding persons for good programs, a curriculum relating basic sciences and agriculture, and better attitudes and understandings on the part of school administrators (superintendents, principals, counselors), other teachers, lay and professional people (including teachers of agriculture and persons in the College of Agriculture) would be recommended.

Dr. Wolf introduced the second speaker, Dr. Harold Binkley from the University of Kentucky. Dr. Binkley, chairman, Department of Agricultural Education, spoke on "Conducting Programs of Vocational Agriculture to Meet the Present and Emerging Responsibilities of Secondary Education."

Dr. Binkley spoke on basic philosophy of vocational agriculture including terminology and fundamental procedures that have been effective in our program. He stressed student's having success experiences, and two basic tasks of conducting present and emerging programs: (1) Deciding what programs are needed and can be supported with adequate supervised experiences at the local or community level (2) Developing good plans for getting program started and carried through on sound basis.

Fundamental steps were discussed in getting ready to conduct programs:

1. Develop policy for education in agricultural occupations.
2. Plan program and procedures
3. Use advisory committees
4. Provide adequate funds, facilities, and teacher time.
5. Involve people in general education
6. Involve people in other vocational services
7. Work with Labor and the Employment Security Office and other government agencies.
8. Develop programs in cooperation with employers and organizations.
9. Sell the program (to parents, prospective students, and prospective employers of agricultural businesses to provide supervised experience)
10. Recruit, screen and counsel students
11. Provide flexible scheduling (employer-cooperator as well as at the school.

12. Update teacher's qualifications in an agricultural occupation
13. Establish guidelines for programs
14. Provide public information

States reported innovations in teaching procedures such as using school flower-trial beds, organizing clubs to supplement the FFA where new programs have been developed, providing more specialization of the curriculum for the senior (and junior in some cases) class, using agricultural surveys, and providing kits of diagnostic equipment (tractors for example) for teachers to use.

Area schools seem to be the largest expansion of building facilities, but a few states indicated greenhouse construction and some have facilities and persons working full time on instructional materials.

Pilot programs in supervised agricultural experience and post-secondary (especially young and adult farmers) programs are being expanded. Several states reported working with guidance counselors and school administrators to guide the proper persons into vocational agriculture programs. Favorable reports comparing vocational agriculture graduates (from the high school) to non-graduates were given of college student--in grades and especially leadership.

Other ideas were "group" supervision (teachers of a county or more--a few teachers), providing guidance materials (to counselors and others), using a high school placement inventory and an agricultural achievement test, letting vocational agriculture instructors provide more leadership on planning programs, and using persons from more than one service area (other than vocational agriculture) to carry out a program.

STATE SUPERVISORS
February 20, 1967
C. W. Dalbey, Secretary

Meeting called to order by Guthrie.

A. Changing role of state supervisors.

   1. Group supervision - more of it
   2. Work with supervising teachers.
      a. There is a place for personal supervision
      b. Use group supervision according to your needs

B. Discussion followed on agriculture in area schools. The state from none to eight programs also on qualifications of teachers. Use of advisory councils - technical. Councils for each program.

C. FFA application on 1966 form okay.

D. Reporting vocational agriculture students

E. Off-farm occupations in small communities.

   1. Problem of transporting students to work stations.

F. Problems of training

SUPERVISION
Tuesday Session

Supervision of Post Secondary Programs should:

1. Contribute to the improvement of the total education profession and the democratic processes.

2. Provide leadership and direction in appraising the needs for post secondary education for each curricula.

3. Provide leadership in program planning and involve representative groups.

4. Promote and utilize education research.

5. Aid in and promote coordination of other education and agriculture agencies for improvement in agricultural education.

6. Stimulate local participation for coordinating a unified state program.

7. Contribute to improvement in instruction.

8. Take a more aggressive role in training and/or retraining of teachers. (AVA report of supervisors)

9. Become involved in change as need becomes apparent.

10. Participate in certification and teacher approval for post secondary programs.

11. Encourage leadership development activities for post secondary students.

12. Cooperate in programs of collecting and disseminating information that promotes desirable public relations.

13. Operate within the legal framework of written state plans.

14. Encourage, promote, and assist in evaluative endeavors that would strengthen the program.

Central States Seminar
in Agriculture Education
February 20, 1967
G. D. Carl, Secretary

Meeting opened 8:15 a.m. by Chairman C. V. Roderick

Invocation - Harold Byram

Introduction and roll call by states.

Conference Plans and probable outcome - Ralph Guthrie

Sharing of Ideas - important outcome
Invitation to coffee sponsored by National Safety Council - Phil Schmidt

Nominating Committee appointed by Chairman Roderick -
Bender, Chairman of Committee
Bradley, Hagan, Cochran - members

The Role of Agricultural Education - Don Moeller - Swift & Company

Little point in telling each other what we already know.

The Role of Vocational Agriculture:

1. To develop the boy
2. To serve the community
3. To promote food and fuller production

Functions of Education as related to Vocational Agriculture:

1. Recognize talent of Future Farmers
2. Guide those who will be non-farmers

What industry looks for in college graduates:

1. Ability to communicate
2. Leadership traits
3. Motivation, enthusiasm
4. Mental ability
5. Suitable background for job
6. Education and experience
7. Suitable temperament and personality for job
8. Attitude toward transfer

The ten commands:

1. Supervise
2. Recruit
3. Organize
4. Motivate and innovate
5. Study
6. Communicate
7. Change
8. Lead
9. Produce
10. Relax

What's with:

1. Adult and Young Farmer Programs
2. Vo-Ag time and FFA time
3. What about National Foundation
4. Farm Shop Program
5. Judging contests

John Thompson, Wisconsin - Summary

States should consider the role of vocational agriculture education for modern society. Objectives must arise out of the disciplines of education. Vocational Agriculture should serve more than farm boys - vo-ag is suffering from "hardening of the categories." I think any attempt to speak of our role in modern society must begin with education objectives and reach into many disciplines for our content.

R. A. McKinney - Indiana -
Team approach needed to fill needs of students.

Carl Humphrey - Missouri -
The most important part of vocational education is the boy. Modern community is much larger than it formerly was - still need to fill needs. Vo-Ag does best in a good school where there are other kinds of good instruction. More boys have been able to go to college because of FFA than any other factor. We need to tell other people about our boy's successes.

Homer Edwards -
New Innovations now operating in states.

Memorial services were conducted during the conference for the following men:

Dr. W. F. Stewart, Ohio, deceased February 18, 1967.

Mr. Raymond C. Wall, Wisconsin, deceased November 16, 1966.

Mr. Lloyd B. Fidler, Ohio, deceased February 17, 1967.

Mr. Arthur F. Kennedy, Ohio, deceased September 12, 1966.

VT 004 666
A Vocational, Technical and Adult Education District for the Fox Cities Area of Wisconsin.

Vocational, Technical and Adult Schools of Neenah, Menasha, Kimberly, Kaukauna and Appleton, Wis.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 23p.

*SCHOOL DISTRICTS; *AREA VOCATIONAL SCHOOLS; *SCHOOL ORGANIZATION; *PROGRAM PROPOSALS; PROGRAM COSTS; STUDENT ENROLLMENT; ASSESSED VALUATION
FOX CITIES AREA; WISCONSIN

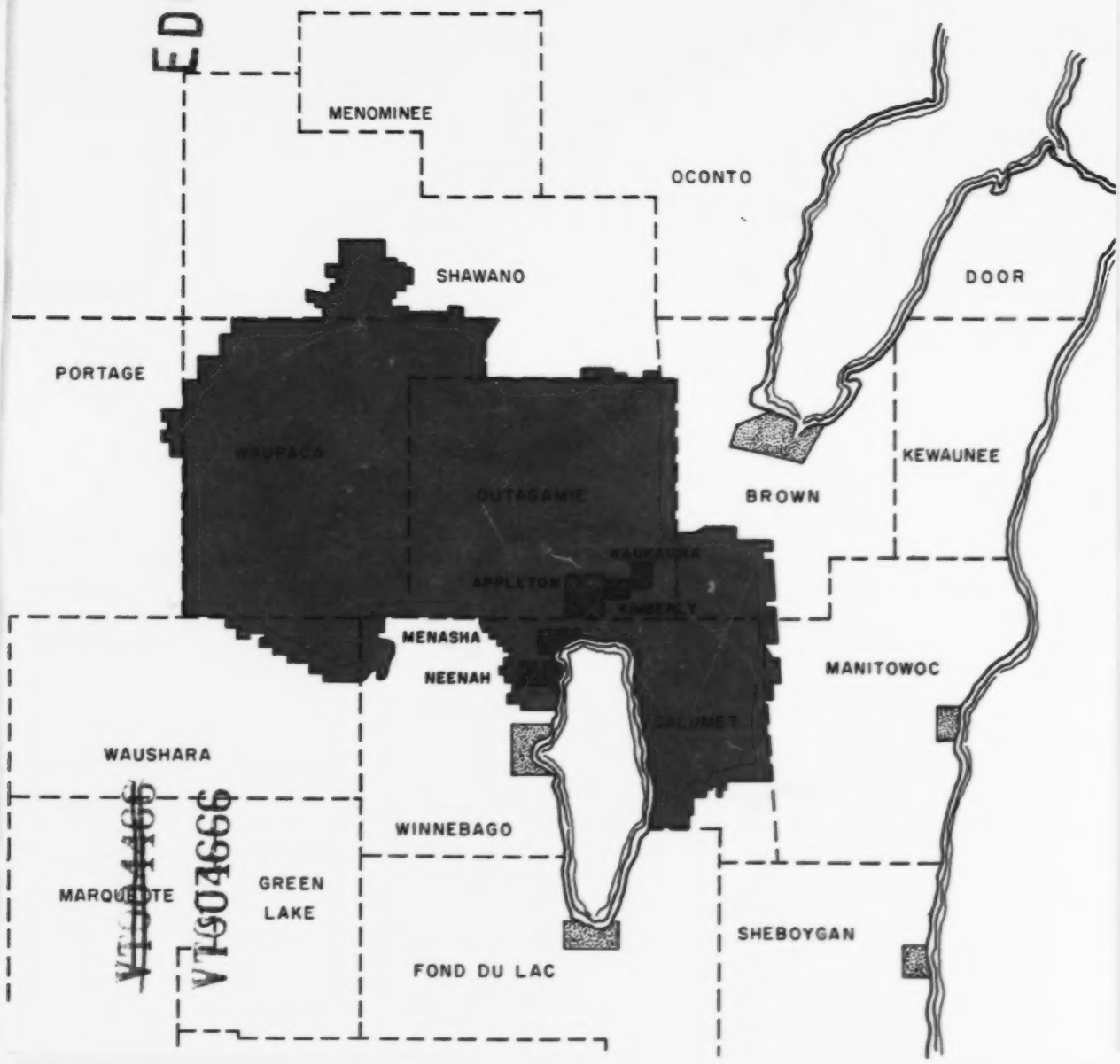
A proposal for an Area Vocational Technical and Adult Education District in the Fox Cities region is presented. The proposed area is defined and statistics which satisfy the criteria for establishing such a district are presented. Maps and statistics on enrollment and taxation are included. (EM)

VT 004 666

1966

A VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICT FOR THE FOX CITIES AREA OF WISCONSIN

ED036657



This booklet has been prepared by the Vocational, Technical and Adult Schools of Neenah, Menasha, Kimberly, Kaukauna and Appleton.

It presents to the State Board of Vocational, Technical and Adult Education and the Coordinating Committee on Higher Education, a proposal for an Area Vocational, Technical and Adult Education District in the Fox Cities region.

It defines the proposed area and shows statistically that such area satisfies the criteria for an area Vocational, Technical and Adult Education District.

FOREWORD

A presentation of the degree to which this area meets the tentative criteria follows. It is readily obvious that the area more than meets the proposed criteria, or any that may be adopted.

Since new facilities will have to be created, it is important that the area be permitted to proceed without delay.

The following school districts have resolutions on file in the office of the State Board of Vocational, Technical and Adult Education: Neenah, Menasha, Kimberly, Stockbridge, Hortonville, Shiocton, Appleton, Wrightstown, Seymour, Clintonville, Waupaca, Manawa, Chilton, Brillion, Little Chute and Bear Creek. These districts have an equalized tax base more than double the proposed criteria.

The critical item in the criteria is whether or not the entire 23 general school districts will choose to become a part of the district on a voluntary basis at this time. Districts not in the area would continue to provide enrollment; hence, the population and student base would include the entire area even though they were not formally a part for tax purposes.

We have reason to believe, however, that substantially all the districts will seek to become a part of the area when they know the State Board and Coordinating Committee are prepared to act in creating area districts of Vocational, Technical and Adult Education.

There has been a long history of cooperation between the Vocational and Adult Schools of Neenah, Menasha, Kaukauna, Kimberly and Appleton. These communities have come to be known as the Fox Cities and, in the interest of brevity, will be so referred to in this publication.

For many educational purposes, the five schools have functioned as a single unit. For example: The five schools jointly employ circuit teachers with apprentices from the area attending a designated school. This has been done for over 30 years and has resulted in a more comprehensive program than could have been provided by individual school effort. The total Adult program of all five schools is freely available to the residents of the five communities. Programs are jointly undertaken when a single community could neither provide an adequate enrollment or where the cost would be prohibitive. Joint teacher training programs are held every year. The five schools hold a single apprentice graduation program. A single high school credit program is provided for adults of the five cities. These are some examples of how the five schools have

functioned as a unit. Therefore, it could be said that, in fact, the five Fox Cities Vocational, Technical and Adult Schools have been giving educational service on an area basis.

In an effort to enlarge the geographical area of service, all five schools have made the administrative unit co-terminous with the school district in which the city is located. This has provided a rather large continuous geographical area. It, in effect, has made the five schools a compact area school.

Hence, when it became evident that larger administrative units would be necessary to provide the quality of post-high school programs a modern society and economy require, the boards of the five schools met on April 22, 1964, to organize and plan for an area school.

When the legislature enacted what is now Chapter 292, the schools were substantially ready with plans for an area school that would meet the criteria subsequently prepared by the State Planning Committee. A meeting was held with board members of the 23 school districts to explain the proposed plan.

The Fox Cities has the third largest population of any proposed area in the State. The communities are a cohesive economic and social unit. The area is characterized by a strong economy and people interested in Vocational, Technical and Adult Education. The five Fox Cities that would be a nucleus for an area district are geared to many common factors. People live in one city and work in another. No residence requirements or restrictions for public or private employment characterize the employment policies of any of the cities. Pulp and paper manufacturing and processing and other manufacturing and servicing activities oriented to the pulp and paper industry loom large in the economy of all five cities. The need for an area school is urgent and the major units are eager to organize.

In all studies initiated to date by the state office, and in all statements issuing therefrom, the Fox Cities district appeared early as an area that should have a Vocational, Technical and Adult School.

PART I

The proposed area to be included in a Fox Cities Vocational, Technical and Adult School District is as follows:

It is proposed to create an Area Vocational, Technical and Adult School District composed of 23 school districts. A map is attached showing the location of these districts.

In summary, the area is composed of:

7 districts in Waupaca County
9 districts in Outagamie County
2 districts in Winnebago County
1 district in Brown County (& Outagamie)
4 districts in Calumet County

The proposed area includes:

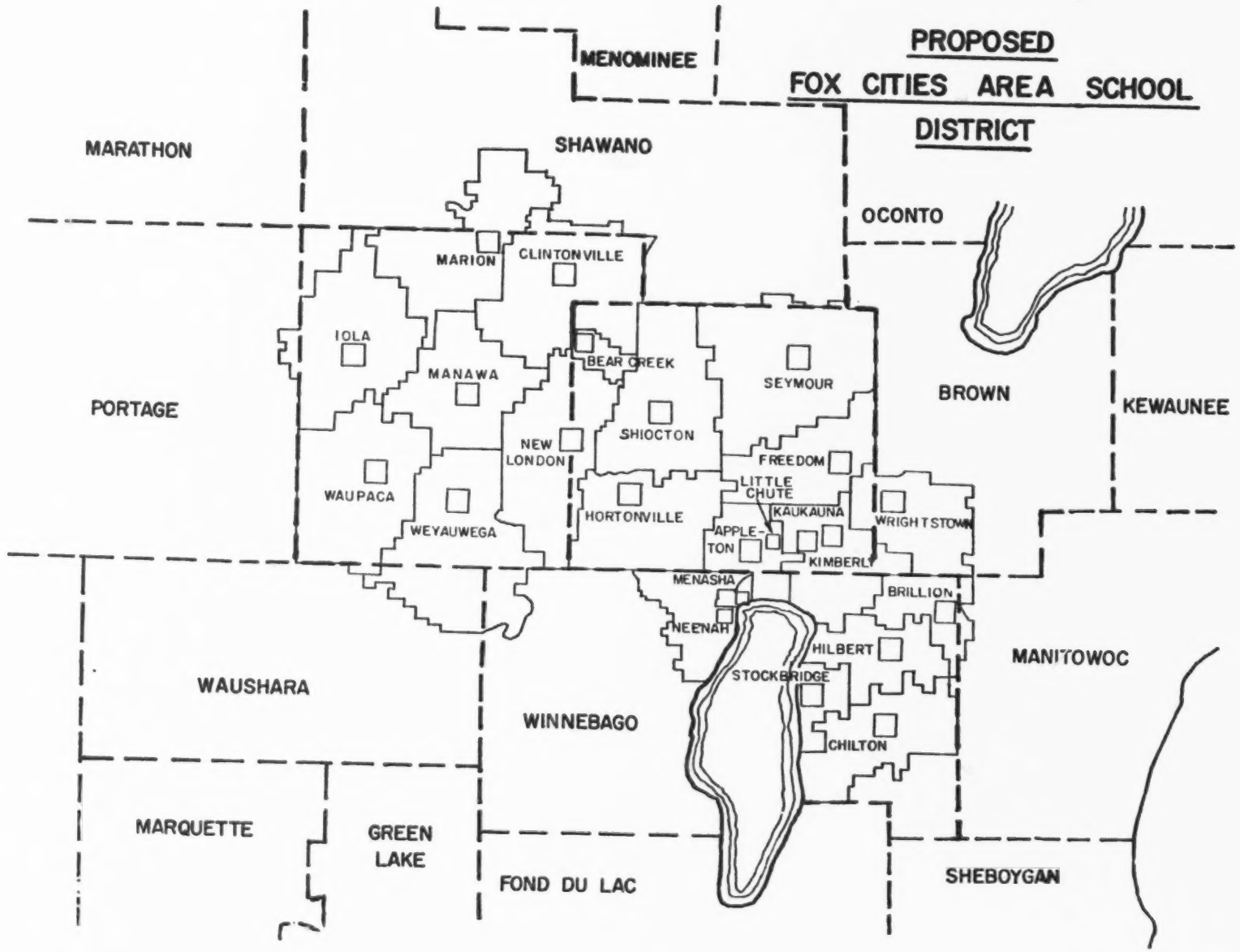
All of Outagamie County
Nearly all of Waupaca County
The School District of Wrightstown in Brown County
The School Districts of Neenah and Menasha in Winnebago County
Four School Districts in Calumet County

These facts are stated as supplementary:

One ward of the City of Appleton is in Calumet County
Part of the City of Appleton Joint School District No. 10 is in the Town of Menasha, Winnebago County
Part of the School Districts of Kaukauna and Kimberly are in Calumet County
Part of the Kaukauna School District is in Brown County
Part of the Wrightstown District is in Outagamie County.
This district is much closer to the Fox Cities Area and the district school board has voted to become a part of the Fox Cities Area.

The School Districts of Neenah and Menasha cite these reasons for wishing to be a part of the Fox Cities area, as per letter to Mr. C. L. Greiber of March 11, 1966:

1. The cities of Neenah, Menasha, Appleton, Kimberly and Kaukauna have conducted programs on an "area" basis for more than 30 years.


PROPOSED
FOX CITIES AREA SCHOOL
DISTRICT
MENOMINEE
MARATHON
SHAWANO
OCONTO
MARION
CLINTONVILLE
IOLA
MANAWA
BEAR CREEK
SEYMOUR
BROWN
KEWAUNEE
PORTAGE
NEW LONDON
SHIOCTON
FREEDOM
LITTLE CHUTE
KAUKAUNA
WAUPACA
WEYAUWEGA
HORTONVILLE
APPLE-TON
WRIGHTSTOWN
KIMBERLY
MENASHA
BRILLION
NEENAH
HILBERT
STOCKBRIDGE
MANITOWOC
WAUSHARA
WINNEBAGO
CHILTON
MARQUETTE
GREEN LAKE
FOND DU LAC
SHEBOYGAN

2. These same cities have jointly employed circuit instructors for many years.
3. The Advisory Committees for the various trades have jurisdictions which straddle the Winnebago-Outagamie County line.
4. Because of proximity, the existing schools have practiced reciprocity with regard to adult evening school offerings.
5. A recent merger puts Neenah, Menasha and Appleton under a single W. S. E. S. Manager.
6. There is no question about the adequacy of the tax base and population to support an area program.
7. The concentration of population in this area should be a factor to consider for its effect on travel distance for large numbers of potential students.
8. The cohesiveness of this area was demonstrated by the establishment (in 1956) of a Regional Planning Commission. Membership in the Commission includes:

   Four cities: Appleton, Kaukauna, Menasha and Neenah

   Three villages: Kimberly, Combined Locks, and Little Chute

   Five townships: Buchanan, Harrison, Grand Chute, Menasha and Neenah

We recommend the right of self determination for the fringe districts.

The fringe school districts in the proposed area should be permitted to decide which district they wish to be a part of. By this means, the natural interests of the district would be served. This would mean, for example, that:

Wrightstown could decide to be a part of Green Bay or the Fox Cities Area

Seymour could be a part of Green Bay or the Fox Cities Area

Waupaca and Weyauwega could be a part of Oshkosh or the Fox Cities Area

Iola could be a part of Portage, Marathon or the Fox Cities Area

Neenah-Menasha could be a part of Oshkosh or the Fox Cities Area

Chilton could be a part of the Fox Cities, Fond du Lac, or Manitowoc-Sheboygan Area

Brillion could be a part of the Fox Cities or Manitowoc-Sheboygan Area

Much can be said in support of granting this degree of self determination to these areas.

PART II

The reasons for proposing that the area be organized on a school district basis are:

The Fox Cities' Vocational, Technical and Adult Schools wish to have the school for this area organized on a school district basis as is provided for in Chapter 292, Laws of 1965, 41:155 (2).

A. The School District Method preserves the traditional means of appointing Vocational and Adult School Board Members. This has been the method used for 55 years in Wisconsin and has resulted in very strong school boards.

B. In placing the appointive power in district school board chairmen, it continues this responsibility in educationally oriented boards and people.

C. School boards will, in the case of the Fox Cities Area, be more representative appointive agencies than any other choice available.

D. The means of preserving educational cooperation between secondary and Vocational, Technical and Adult Education will be preserved and maintained.

E. Interests antagonistic or unfavorable to, or uninterested in, a program of Vocational, Technical and Adult Education would not be given appointive power.

F. Regardless of which method is used (school districts or counties) the tax in support of area schools will be collected by the same units of government (municipalities or townships).

> This is cited here because one of the objectives to the school district method was stated to be the difficulty encountered in collecting the taxes.

G. In the case of the Fox Cities, there has been a long tradition of close cooperation between the respective Boards of Education and the Boards of Vocational, Technical and Adult Education. This has resulted in special and successful programs.

H. In the proposed area for the Fox Cities, the appointive power would reside in the chairmen of 23 boards of education. This

poses no particular problem as the legislature in Section 41:155, para. 5 (c) has, fortunately, provided adequately therefore.

I. The School District method provides the best means of recognizing the preferences and interests of fringe school districts.

J. Resolutions from sixteen school districts which are located in, or adjacent to, the Fox Cities Area and which express the wish to be a part of a Fox Cities District, have been submitted to the State Board of Vocational, Technical and Adult Education. These districts are Appleton, Hortonville, Kimberly, Menasha, Neenah, Shiocton, Stockbridge, Wrightstown, Seymour, Clintonville, Waupaca, Manawa, Chilton, Brillion, Little Chute and Bear Creek.

K. The five Fox Cities Vocational, Technical and Adult Schools earnestly hope that the State Board of Vocational, Technical and Adult Education will not seek to deny to any area the means to use school districts as expressly stated in 41:155 of the Laws of 1965.

L. The Fox Cities Vocational, Technical and Adult Schools wish to have an area district organized on as many of the 23 school districts as may wish to become a part thereof, or on as many as the State Board of Vocational, Technical and Adult Education and the C. C. H. E. in their wisdom will approve.

M. The flexibility that would permit the organization of area Vocational, Technical and Adult Education districts on a school district basis was intentionally incorporated by the legislature in Chapter 292, and hence no area should be denied the opportunity to use this means of area organization.

PART III

Degree to which the proposed area meets state criteria:

Following are statistics, with indicated source, that show the degree to which the proposed area meets the criteria as adopted by the State Board of Vocational, Technical and Adult Education:

A. *High School graduates in the area*

Following is a table showing the number of 1966 high school graduates in the 23 districts. This information was supplied by the high school principals of each school.

TABLE I

NUMBER OF HIGH SCHOOL GRADUATES

School District	*'66 Graduates*
1. Appleton (b)	885
2. Neenah	389
3. Menasha (b)	356
4. Kaukauna	300
5. Kimberly	145
6. Hortonville	88
7. Shiocton	60
8. Stockbridge	32
9. Wrightstown	60
10. New London (a)	166
11. Brillion	77
12. Freedom	74
13. Hilbert	56
14. Iola	43
15. Waupaca	138
16. Bear Creek	25
17. Seymour	162
18. Marion (a)	81
19. Manawa	83
20. Chilton	127
21. Clintonville	171
22. Weyauwega	83
23. Little Chute (c)	97
Total	3,698

Note: a—1965 Figures b—Including Parochial c—St. John's Only

Based on the figures obtained in previous years, it would appear safe to project a 25% increase in high school graduates by 1970. The number of 1970 graduates in the area would then be 4,623.

B. *Number of full-time post high school students in the program:*

Using the 18% figure adopted by the area development committee, this would indicate a full-time post high school enrollment of 948 which is well in excess of the 780 criteria standard. Further, these are 1966 or current figures. Projecting a 1970 figure based on per cent of growth in the past four years, the full-time enrollment would be 1,185.

C. *Part-time Enrollment*

A part-time enrollment of 10,428 is projected. Again, this is based on the criteria figure of 11 times the full-time enrollment.

D. *Present Enrollment Statistics*

The five present Vocational, Technical and Adult Schools in the area have enrollment statistics as follows: (1965-66 School Year)

TABLE II
ENROLLMENT

Full-time Post High School

Appleton	337
Neenah-Menasha	48
Joint (Apprentices)	63
Total full-time	448

Note: Apprentice ratio—4 apprentices = 1 full-time

Part-time Enrollment

Appleton	3,444
Neenah	2,263
Menasha	1,422
Kaukauna	1,380
Kimberly	225
Total part-time	8,734

E. *Instructional Costs*

The cost of the potential program based on criteria figures is as follows:

948 Full-time students @ $1,100 = $1,042,800
948 Full-time students @ $1,250 = $1,185,000

10,428 Part-time students ½ F.T. cost = $521,400
10,428 Part-time students ½ F.T. cost = $592,500

Total Instructional Costs:

Minimum	$1,564,200
Maximum	$1,777,500

Local share of the above amounts would be a minimum of $521,400 and a maximum of $592,500.

Construction Costs:

948 Full-time students x $2,000 = $1,896,000
948 Full-time students x $3,000 = $2,844,000

Minimum Annual Cost $101,120
Maximum Annual Cost $151,680

The minimum annual projected local budget requirements based on a full-time enrollment of 948 and a part-time enrollment of 10,428, would then be $521,400 plus annual bonding cost of $101,120, or $622,520. The maximum would be $744,180.

F. *Tax Base Required*

Based on costs just cited in Section E, a minimum tax base of $311,260,000 would be required and a maximum of $371,393,000. This would be for 1966 figures. Projecting this to 1970 would add 25%. However, 1970 evaluations would proceed apace.

G. *Tax Base Available*

Following is a table of 1965 equalized tax base valuations obtained July 26, 1966, from the State Department of Public Instruction.

TABLE III

1965 VALUATIONS

School District		*Equalized Value*
Jt.	Neenah C.	206,458,400
Jt. 1,	Menasha C.	132,771,900
Jt. 10,	Appleton C.	378,087,100
Jt. 1,	Hortonville V.	28,122,300
Jt. 2,	Weyauwega C.	25,643,300
Jt. 1,	Waupaca C.	40,489,300
Jt. 1,	Iola V.	11,454,400
Jt. 3,	Marion C.	15,206,300
Jt. 7,	Manawa C.	16,768,400
Jt. 1,	Clintonville C.	46,138,600
Jt. 4,	Hilbert V.	13,726,900
Jt. 1,	Chilton C.	34,271,500
Jt. 5,	Bear Creek V.	3,725,600
Jt. 3,	New London C.	44,736,100
Jt. 2,	Shiocton V.	10,471,600
Jt. 4,	Seymour C.	38,512,200
Jt. 3,	Freedom	17,068,300
Jt. 1,	Little Chute V.	17,569,700
Jt. 6,	Kimberly V.	66,603,800
Jt. 2,	Kaukauna C.	95,193,000
Jt. 1,	Wrightstown V.	16,122,500
Jt. 2,	Brillion C.	23,176,800
Jt. 1,	Stockbridge V.	7,582,400
	Total.....	1,289,900,400

The total tax base available is $1,289,900,400 which is more than three times the maximum required to finance the program.

It is quite evident that the potential tax base is sufficient to support a program with a total annual budget of seven and one-half millions of dollars, assuming that two-thirds will come from other sources as the criteria states.

H. *Population*

Following is Table IV which shows populations of the proposed area:

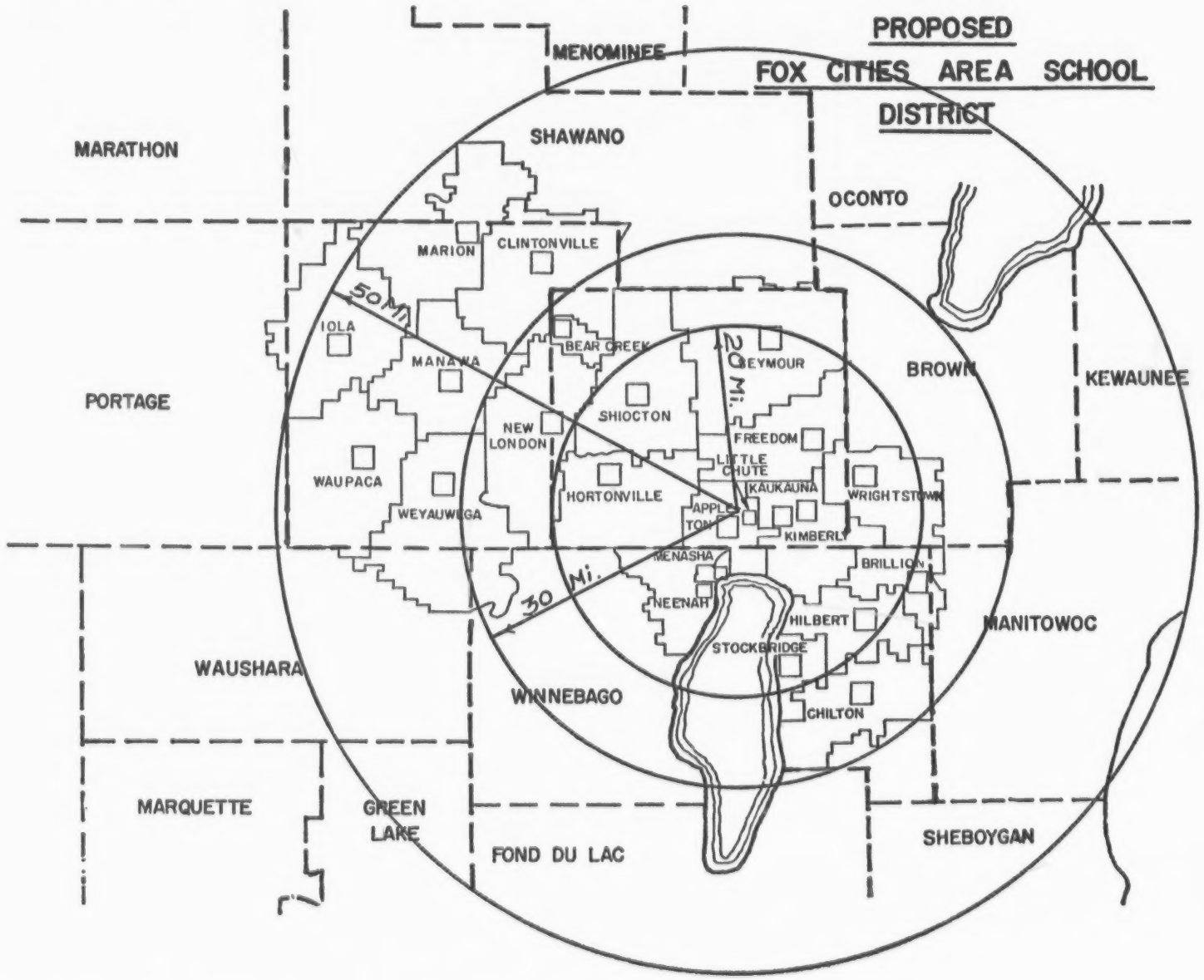
TABLE IV

	1965 *State Board of Health*
Outagamie County	108,200
Waupaca County	35,350
Calumet County	23,950
Neenah School District	33,050
Menasha School District	17,043
Total	217,593

NOTE: Rather than present a population summary based on districts and communities, the above summation based on counties and districts is used since State Board of Health figures based on districts only were not available. It is believed the above are conservative. The population exceeds the criteria.

I. *Travel Distance*

The proposed area is a fairly compact one. The maximum distance from a central point is estimated to be less than 50 miles. The maximum distance in the opposite diagonal is well under 20 miles. Further, the greater the distance the less dense the population becomes. A point can easily be chosen for the location of the school where 80% of the population would be less than 20 miles from the school. In fact, more than 60% of the population of the area would be 10 miles or less from any reasonable site. The following map shows travel distances in the proposed area.


PROPOSED
FOX CITIES AREA SCHOOL
DISTRICT
MENOMINEE
MARATHON
SHAWANO
OCONTO
MARION
CLINTONVILLE
50 Mi.
IOLA
MANAWA
BEAR CREEK
SEYMOUR
20 Mi.
BROWN
KEWAUNEE
PORTAGE
SHIOCTON
NEW LONDON
FREEDOM
LITTLE CHUTE
WAUPACA
HORTONVILLE
KAUKAUNA
WRIGHTSTOWN
WEYAUWEGA
APPLETON
KIMBERLY
MENASHA
BRILLION
30 Mi.
NEENAH
HILBERT
MANITOWOC
STOCKBRIDGE
WAUSHARA
WINNEBAGO
CHILTON
MARQUETTE
GREEN LAKE
FOND DU LAC
SHEBOYGAN

PART IV

Statistical Summary and Comment

Following is a summary, by category, which shows the degree to which the proposed area meets the state criteria. It should be kept in mind that these typically are 1965-66 figures, while criteria standards are proposed for 1970. By 1970, for example, it is conservatively estimated that the number of high school graduates will be 4,623.

TABLE V

Criteria Category	*Criteria Standard*	*Proposed Area*
High School Graduates	3,000	3,698
Full-time Enrollment	780	948
Part-time	8,500	10,428
Cost-Minimum	$ 457,330	
Tax Base	$450,000,000	$1,289,900,400
Population	188,000	217,593
Travel	50	50
	(80% within 20 miles)	

The sixteen districts that have submitted resolutions represent an equalized tax base of $1,066,872,100. This is more than double the criteria standard. The resources are present to support a quality area program. The population base and high school graduates in the area exceed the criteria standards.

Present programs represent a total already in excess of the criteria for part-time students. Full-time post high school enrollment in the current school year should total 500.

There is a staff of professionally competent people with years of experience in Vocational, Technical and Adult Education ready to carry forward a strong program. There are 11 post high school programs for which students are being enrolled. Five are approved to grant the Associate of Arts Degree.

A new facility should be constructed. The acquisition of a site, the preparation of building plans, and a determination of long-range program development will take time. Hence, early approval is of considerable importance to this area.

PART V

Request for creation of an Area Vocational, Technical and Adult Education District

The following general school districts respectfully request the earliest possible formation of an Area Vocational, Technical and Adult Education District. It is our desire to begin the planning of programs; acquire a site for a new technical facility; prepare plans for buildings; project an educational service for all the area; employ additional educational personnel; and create a suitable administrative facility for a broad area program.

Hortonville Joint School District No. 1
Resolution, December 6, 1965
Robert Hauk, Clerk
Luther Huebner, President

Menasha Joint School District No. 1
Resolution, December 13, 1965
Frank A. Rosch, President
R. A. Pocquette, Secretary

Kimberly Joint District No. 6
Resolution, December 13, 1965
Harold Wentzel, Director
Marie Ruys, Secretary

Stockbridge Joint School District No. 1
Resolution, December 16, 1965
Paul J. Dobias, Principal

Shiocton Joint School District No. 2
Resolution, January 1, 1966
Milan Ratsch, President
Clarence Knorr, Clerk
Norman Defferding, Treasurer

Neenah Joint School District No. 1
Resolution, January 3, 1966
Members of Neenah Joint School District
Board of Education

Marion Joint City District No. 3
January 10, 1966
Marvin Hintz, President

Appleton Joint School District No. 10
Resolution, January 10, 1966
Mrs. Myrl N. Davis, President
Mrs. Walter Heil, Secretary

Seymour Joint School District No. 4
Resolution, August 23, 1966
Jean D. Melchert, Clerk

Clintonville Joint School District No. 1
Resolution, August 25, 1966
Harland H. Kirchner, President
Margaret McCauley, Clerk

Joint School District No. 5
Village of Bear Creek & Towns
of Deer Creek and Maple Creek,
Outagamie County and Towns of
Bear Creek and Lebanon,
Waupaca, County
Resolution, September 8, 1966
Herbert Poppe, President
Bernice Fletcher, Clerk
Leland E. Murray, Treasurer

Wrightstown Joint School District No. 1
September 12, 1966
Alfred Haese, President
Mrs. Gertrude Vande Hey, Clerk

Little Wolf Joint School District No. 7
Resolution, September 13, 1966
Stewart Craig, President
Lester E. Miller, Treasurer
Dr. Elvin Prather, Clerk

Joint School District No. 1
City of Waupaca
Resolution, September 20, 1966
Raymond Martin, President
Mrs. Ward Fonstad, Clerk

Little Chute Joint School District No. 1
Resolution, September 26, 1966
Dr. Francis X. Van Lieshout, President
Helen Kaehn, Clerk

Weyauwega Joint School District No. 2
October 3, 1966
Albert Hahn, President
Darrel Johnson, Clerk

Freedom Joint School District No. 3
October 5, 1966
Cy Weyenberg, Director
Al Smudde, Clerk
William G. Hofacker Jr., Treasurer

Brillion Joint School District No. 2
October 10, 1966
Roy Fischer, President
Walter Keller, Clerk

Iola-Scandinavia Joint School District No. 1
October 10, 1966
Reuben Rambo, President
Palmer Myhra, Secretary

Joint School District No. 1
City of Chilton
Resolution, October 10, 1966
G. G. Bloomer, President
A. W. Larson, Clerk

This brochure was developed and is presented by the five Fox Cities Vocational, Technical and Adult Schools.

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Dr. Donald Scott	*Ex-officio*
James J. Malotke	*School Director*

VT 004 674
Pratzner, Frank C.
An Investigation of the Effectiveness of an Auto-Instructional Program for Teaching Selected Concepts and Manipulative Techniques of Drafting to Beginning Industrial Arts Students.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jun65 164p.

*INDUSTRIAL ARTS; *DRAFTING; GRADE 7; LEARNING; *SKILL DEVELOPMENT; PROGRAMED UNITS; EXPERIMENTAL TEACHING; CONTROL GROUPS; ELECTROMECHANICAL AIDS; FUNDAMENTAL CONCEPTS; *PROGRAMED INSTRUCTION; MASTERS THESES; EXPERIMENTAL GROUPS; INSTRUCTIONAL MATERIALS; *METHODS RESEARCH; PERFORMANCE TESTS

The usefulness and comparative effectiveness of programed instruction in teaching selected concepts and skills in drafting were investigated. The population and sample consisted of 36 boys enrolled in the seventh grade at the University of Minnesota High School, 1964-65. On the basis of the Lorge-Thorndike Verbal Test, the experienced and non-experienced students were placed in ranked pairs and the upper member of the pair was assigned to an experimental or control group by the flip of a coin. No original significant differences or interactions were found between these groups or between the experienced and non-experienced groups. The experimental group treatment consisted of instruction from a programed unit written by the investigator. The criterion measure was a specially prepared drafting procedure on an electrically wired drafting board. Findings indicated that the program provided an effective cognitive learning experience for the non-experienced and experienced groups but that it was a hindrance to the non-experienced group in developing manipulative skills. The appendix includes: (1) "A Program of Instruction for Beginning Drafting," (2) an instrument to determine previous drafting knowledge and experience (3) data relevant to the sample, (4) a drafting board schematic, (5) the criterion measure, and (6) directions for conducting the group testing sessions. (Not available in hard copy due to marginal legibility of original document). (EM)

VT 004 674

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OFFICE OF EDUCATION

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AN INVESTIGATION OF THE EFFECTIVENESS OF AN AUTO-INSTRUCTIONAL PROGRAM FOR TEACHING SELECTED CONCEPTS AND MANIPULATIVE TECHNIQUES OF DRAFTING TO BEGINNING INDUSTRIAL ARTS STUDENTS

An Independent Paper

(Nine Quarter Credits)

Ind. 200, Research Problems

Dr. Jerome Moss, Jr., Adviser

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

---

by

Frank C. Pratzner

June 1965

ACKNOWLEDGEMENTS

The investigator would like to take this opportunity to express sincere gratitude to the many individuals who have helped in the completion of this report.

Especially acknowledged is the generous advice and encouragement offered throughout the conduct of the study and preparation of the final report by the investigator's major adviser, Dr. Jerome Moss, Jr.

The investigator is also indebted to Dr. Wells Hively for his valuable advice and suggestions during the writing of the program of instruction and analysis of the study data, and to Dr. Robert Randleman for his assistance in printing the program used in the study.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

The intent of the auto-instructional program (APPENDIX A) investigated in the study was to teach some of the basic concepts and manipulative skills of drafting to beginning industrial arts students. The skills taught are those related to the way in which the T-Square and 45°-90° Triangle can be manipulated to draw several distinct kinds of lines; the geometrical concepts taught included parallelism, perpendicularity and congruence.

The Problem.

The primary purposes of this investigation were to determine (a) whether the program can lead to significant learning, as distinguished from chance learning, of the concepts and manipulative skills it attempts to teach, and (b) whether there are differences in the effectiveness of the program between students who have had and students who have not had a previous introduction to beginning drafting. Another equally important purpose of the study was to gather data which could be used to improve the effectiveness of the program as a teaching device.

Specific Questions.

The specific questions which the study attempted to answer were:

(1) When seventh grade students, with a mixed amount of prior drafting experience, are permitted to study the program of instruction, what evidence is there that a significant amount of cognitive and manipulative skill initial learning has occurred?

(2) When seventh grade students who have not had previous drafting experience are permitted to study the program of instruction as the only means for learning selected cognitive and manipulative aspects of beginning drafting, what evidence is there that a significant amount of initial learning has occurred?

(3) When seventh grade students who have had previous freehand mechanical sketching experience are permitted to study the program of instruction, what evidence is there that a significant amount of cognitive and manipulative skill initial learning has occurred?

(4) What differences are evident between the two groups of students of the effectiveness of the

program on initial learning of cognitive and manipulative skills?

(5) Utilizing a tabulation of the errors on each response item in the program, what portions of the program can be shown to be effective to the extent that they are capable of evoking the desired responses from the students? Will this indicate needed changes, additions and possible improvements in the program?

Justification of the Study.

The ideal tutorial relationship between one student and one teacher seems to be a thing of the distant past. The future of our educational system would seem to be dependent upon continued improvement of modern teaching methods based upon a growing amount of scientific research and a better understanding of the student as an individual.

C. Nelson Grote and Clyde M. Hackler, writing in the Thirteenth Yearbook of the American Council on Industrial Arts Teacher Education, Classroom Research In Industrial Arts, have stated that,

> The problem area of (teaching) methodology as it relates to the task of maximizing the total learning

process represents a rich and rewarding area of study.[1] The authors feel that this is especially true because,

> New scientific findings in the fields of the physical, social and behavioral sciences require a continuous sensitivity and consciousness of methodology in the classroom. Teachers must constantly re-evaluate and assess method in light of previously validated and anticipated behavioral changes.[2]

It was because of the dynamic quality of this general problem area and a strong interest in the area, growing out of several years of classroom teaching and a study of programmed instruction, that the experimenter was prompted to undertake the investigation herein reported.

Regarding a discussion related to this problem area, Grote and Hackler have posed the researchable question,

> What are some of the alternatives in curriculum organization that could provide...necessary prerequisite competencies (i.e. drafting ability) more efficiently from the standpoint of time and more effectively in regard to immediacy of application?[3]

Within the past few years, programmed instruction has been introduced into the nation's schools. The growing

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[1]C. N. Grote and C. M. Hackler, "Selected Problem Areas With Implications For Action Research," In American Council on Industrial Arts Teacher Education. Classroom Research In Industrial Arts. Thirteenth Yearbook, Porter, C. B. ed., Bloomington, Illinois: McKnight & McKnight Publishing Company, 1964. pp. 127.

[2]Ibid., pp. 126.

[3]Ibid., pp. 130.

amount of research on programmed instruction has indicated that the new teaching technology can be helpful in meeting some of the problems which have been imposed upon the school system and its teaching staff by increased enrollments, a shortage of qualified instructors, and the demand for a more efficient and effective educational system. Programmed instruction has been based upon the scientific laboratory analysis of animal behavior and has attempted to apply the theories of learning that have resulted from this analysis to human behavior. A major part of the research currently underway has as its objectives the improvement of the methods and techniques of programmed instruction and the study of the effectiveness of programmed instruction for teaching varied subjects at different age and grade levels. However, few programs currently available deal with teaching manipulative skill. The investigator was able to find very little information and research specifically concerning the effectiveness of programmed instruction for teaching this kind of behavior. Industrial arts courses typically involve instruction in manipulative tasks as well as verbal learning, but few programs of any kind are available for use in industrial arts which purport to develop motor skills.

> Experimentation must begin to demonstrate alternative solutions in the development of technical competency ...Programmed instructional materials...may provide very satisfactory solutions and alternatives to the

questions of: (1) condensing the time requirement, (2) synthesizing the essential content and (3) maximizing application (transfer) of principles and concepts.[4]

The program of instruction investigated in this study was written by the experimenter in partial fulfillment of the requirements of a graduate course sequence, Principles and Techniques of Programmed Instruction, six credits, taught by Dr. Wells Hively at the University of Minnesota. In the course of developing the program it was presented twice to the instructor and members of the class in programming for their criticism and recommended improvements, and was revised each time. The third revision of the program has benefited from this critique and from the performance and results of two sixth grade students who have used the program in a pilot study. Writing the program was an attempt by the experimenter to add to the growing number of programs applicable to an industrial arts area, and, in addition, would attempt to apply programming techniques to teaching manipulative skills. The study was subsequently undertaken in an attempt to determine the effectiveness of the program, as well as to provide needed information regarding the appropriateness and effectiveness of programming manipulative skills. Indeed, as Grote and Hackler have suggested,

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[4]Ibid., pp. 136.

> ...the nature of the student involvement may be of questionable value in the teaching-learning process and for research purposes should become the variable.[5]

The use of new teaching techniques and other technological innovations seem to attract a great deal of attention and attain widespread use upon their introduction, but their use levels off in frequency and application and they rapidly become less important. Although this period of impact and duration may vary with each new innovation, the lag in time between the introduction of a new innovation and its indiscreet use, partly growing out of its novelty, can be reduced by deliberate analytical investigation. Typically this critical period of time has not been wisely used by educators in the recognition of, and planning for, effective utilization of technological innovations.[6] The experimenter felt that since the guides for writing a program dealing with the cognitive and manipulative content of an industrial arts subject were not very extensive, the program was in need of a more thorough investigation than the subjective evaluation previously given to it. It was

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[5] Ibid., pp. 139.

[6] Ibid., pp. 140.

decided to try out the program with the actual intended population before recommending that it be put to general use.

Definition of Terms.

Program of Instruction. A program of instruction, or auto-instructional program, refers, in this report, to a teaching technique or method of ordering and presenting the student with specific content he is to learn in controlled cumulative steps (frames). Holland has defined programmed instruction as a process of "modifying or controlling behavior"[7] and has indicated that "behavior is learned only when it is emitted and then reinforced."[8] The effective control of behavior is possible by controlling those stimuli in the presence of which the desired behavior is likely to be emitted[9] so that it can be reinforced. According to Skinner, "When a response has been reinforced, it will be

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[7]J. G. Holland, "Teaching Machines: An Application of Principles from the Laboratory," In Lumsdaine, A. A. and Glaser, R. Teaching Machines and Programmed Instruction: A Source Book, Washington, D. C.: Department of Audio-Visual Instruction, National Education Association, 1960, pp. 215.

[8]Ibid.

[9]A. A. Lumsdaine, Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, Washington, D. C.: National Academy of Sciences, National Research Council, 1961, pp. 1.

emitted more frequently in the future."[10] A program of instruction, therefore, fulfills the following criteria: (1) It presents the learner with stimulus material, (2) provides the opportunity for the learner to respond to the material in some way, and (3) gives immediate reinforcement to the learner by providing knowledge of the correctness of his response.

Teaching Machine. A teaching machine, in one form or another, is a part of a program of instruction. It is through the use of a teaching machine that the instructions and information in a program (the frames of a program) are presented to the learner. It is a device, mechanical or printed, which actually substitutes for the individual human teacher in the presentation of content to the learner. According to Stolurow, the teaching machine is defined as a, "...mechanism that presents information to a student and controls his behavior in a predetermined interacting relationship."[11]

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[10] J. G. Holland and B. F. Skinner, The Analysis of Behavior, New York: McGraw-Hill Book Company, Inc., 1961, pp. 44.

[11] L. M. Stolurow, Teaching By Machine, Cooperative Research Monograph No. 6, Washington, D. C.: U. S. Government Printing Office, 1961, pp. 5.

Cognitive Content. With reference to the program investigated in the study, cognitive content refers to the informational sections of the program designed to develop intellectual components of concepts.. Cognitive content is used to designate verbal and symbolic material such as terminology, definitions and other subject matter information. Also, cognitive learning refers to the learning and activity which takes place within the learner and does not require an external expression or demonstration at the time of learning..

Manipulative Content. Manipulative content refers to the content of the program of instruction which requires that the learner respond by performing an observable motor act.. Its purpose is to develop manipulative skills and the ability to control the movement and muscles of the parts of the anatomy involved in a particular task. It improves motor dexterity and coordination in the performance of a task, that may or may not involve special devices and aids, but will involve observable motor activity by the learner..

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature revealed early in the undertaking that, in the vast amount of literature on programmed instruction, little information was available specifically regarding the programming of manipulative skills. Some of the literature available on this aspect of programming was helpful in writing the program and in conducting the investigation. A brief review of the research closely related to programming manipulative tasks will be presented here.

The learner's responses in a program of instruction have been the subject of much research and some of this research has implications for programming manipulative tasks. Lumsdaine has indicated that, "Learning involves new response capabilities that were not elicitable prior to learning."[1] On the basis of this definition of learning, instructional control over learning reduces to control of stimulus conditions, and, for instruction to be more effective, it must identify the stimulus through which desired responses can

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[1]A. A. Lumsdaine, Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, Washington, D. C.: National Academy of Sciences, National Research Council, 1961, pp. 1.

be controlled during learning.[2]

Goldbeck and Campbell, employing sixty-three seventh grade students randomly assigned to overt and covert response groups, tested the hypothesis that,

> ...on a program of independent facts...the efficacy of a response mode is dependent on the cueing characteristics that determine learning response difficulty.[3]

They found that the overt response group (written answers) was superior at the intermediate level of response difficulty and inferior to the covert response (thought of answers) at the easy level, concluding that,

> The value of requiring an overt response differs radically and depends upon the conditions under which the response is made.[4]

It is also significant to note that the program employed in this study dealt with verbal or cognitive material, required a written verbal response as the overt response mode and found that the overt response mode was the least efficient in terms of the time required to complete the program.

A review of the research on the comparative value of

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[2]Ibid., pp. 2.

[3]R. A. Goldbeck and V. N. Campbell, "The Effects of Response Mode and Response Difficulty on Programmed Instruction," Journal of Educational Psychology, 53:110-117, 1962.

[4]Ibid.

overt versus covert responses reveals that the findings of these studies are not clearly consistent.. It was partly because of this inconsistency that Stolurow and Walker undertook their study comparing the effectiveness of these two response modes. A sample of fifty-one university students in the 1961 spring semester of Psychology 100 at the University of Illinois were taught some basic concepts of descriptive statistics by programmed self-instruction using a cutback page, linear programmed text.[5] There was no significant difference found between the two response groups on immediate or retention measures of learning,[6] but it was found that "...mean times to complete the program were significantly different...in favor of the covert response group taking less time." The authors later concluded that "The data suggest that learning...is more efficient with a covert response practice method."[7]

Of considerable and more obvious significance to the investigator's program and study was an investigation con-

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[5]L. M. Stolurow and C. C. Walker, "A Comparison of Overt and Covert Response in Programmed Learning," Journal of Educational Research, 55:421, 1962.

[6]Ibid., pp. 422.

[7]Ibid., pp. 427.

ducted by Cummings and Goldstein.[8] They compared the effectiveness of overt and covert response modes on two kinds of learning tasks. The program used in the study consisted of one hundred and nineteen frames on the diagnosis of myocardial infraction. Sixty-eight paid, volunteer undergraduate students at Stern College were randomly assigned to overt and covert response groups. The investigators hypothesized that:

> (a) On material requiring non-verbal or pictorial responses, the overt responders would score significantly better than the covert responders and that there would be no difference when the material required only typical short verbal responses. (b) On non-verbal material, overt responders would be superior on immediate and delayed posttests.

Both of the above hypotheses were confirmed.

> The additional unexpected finding that the overt group was superior on verbal material was concluded to indicate that certain kinds of verbal responses which are long, intricate, or unfamiliar contain large amounts of new material and need more than a covert response...

Summarizing the relationship of this research to the investigator's problem is further facilitated by reference to several studies which are closely related to the previously cited work, as well as the programming of motor tasks, and concern the effective combination and amount of demonstration and practice afforded the student in the learning

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[8] A. Cummings and L. S. Goldstein, "The Effect of Overt and Covert Responding on Two Kinds of Learning Tasks," New York: The Center for Programmed Instruction, 1962. (Mimeographed)

of manipulative tasks.

In a study undertaken with Air Force trainees to determine the effects of various amounts of demonstration and practice, and the optimum amount of actual practice desirable in learning to read a slide rule, Kimble and Wulff used a twenty minute recorded narration and individual printed booklets cued to the recording.[9] In the first experiment conducted as part of the study, the subjects were divided into three groups, and in the second experiment they were divided into five groups. Each group of trainees heard the same recorded narration, and each studied four identical demonstration examples in the printed booklets. Except for these first four demonstration examples in the booklets, which were the same for all groups, the groups varied in the number of subsequent practice examples provided in the booklets from sixteen practice examples to no practice examples.[10] In this study, practice was taken to mean,

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[9]G. A. Kimble and J. J. Wulff, "The Effectiveness of Instruction in Reading a Scale as Influenced by the Relative Amounts of Demonstration and Problem Solving Practice," As reported in Lumsdaine, A. A. ed., Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, Washington, D. C.: National Academy of Sciences, National Research Council, 1961, pp. 230.

[10]Ibid.

> ...either studying the solution to the location of a given number shown on the printed scale, or drawing a vertical line to show the location of the number given.[11]

The investigators found that an intermediate amount of practice was superior to more or less practice and point out in conclusion that,

> This is not intended to imply that fifty percent participation will always be superior (but that) the optimal proportion of participation will usually be less than one hundred percent and greater than zero percent... depending upon the total number of both kinds of examples used and the difficulty of the tasks.[12]

With respect to the difficulty of tasks and the different kinds of tasks which have been investigated and reported in the literature on programmed instruction, the investigator has studied several available reports of research involving mechanical assembly tasks. These kinds of tasks typically include manipulative activity by the subjects. Although the findings and results of these studies could not be generalized from one study to another, or from one particular mechanical assembly task to other kinds of assembly or manipulative tasks, it would have made this review unduly long if a review of each study had been attempted. Since the general design and methods of procedure of

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[11] Ibid.

[12] Ibid., pp. 229.

the several studies were similar in many respects, the investigator has attempted to review two of the studies dealing with manipulative tasks and to report only the significant results of several similar studies.

In the first Margolius and Sheffield study an eighteen minute 16mm film demonstrating the step-by-step assembly of an automobile ignition distributor was shown to forty male undergraduates at Boston University.[13] In their second experiment the film was shown to thirty paid volunteer, male undergraduates at Boston University attending the summer session.[14] All subjects in both experiments viewed the entire film three times and practiced the assembly with each demonstration. The fourth and final assembly without instruction was considered the terminal performance test. The important difference among subjects was in the method of interpolating demonstration and practice sessions.[15]

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[13]G. J. Margolius and F. D. Sheffield, "Optimum Methods of Combining Practice with Filmed Demonstration in Teaching Complex Response Sequences: Serial Learning of a Mechanical-Assembly Task," In Lumsdaine, A. A. ed., Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, Washington, D. C.: National Academy of Sciences, National Research Council, 1961, pp. 230.

[14]Ibid.

[15]Ibid.

> Specifically, the purpose was to intersperse overt practice at the end of each "natural unit" and/or "demonstration-assimilation span" (Seventy-five percent of the learners could reproduce the demonstration perfectly at the end of one D-A Span.) of demonstration material and compare the degree of learning with that produced with an equal amount of overt practice given (1) at the end of larger sub-units of the film, (2) at the end of the entire film, and (3) at the end of units of increasing size, starting with smallest and ending with the entire demonstration.[16]

In addition, the second experiment compared condition three, a variation of this condition, and a self-pacing condition.

The experimenters found that on the final test performance in both experiments, the whole method of practice at the end of the entire film showed the poorest results and concluded that interspersed overt practice was superior to practice only at the end of demonstration. Although the Self-Paced method was the poorest of the interspersed practice conditions, the experimenters pointed out that generalization of this finding is risky because of the many individual subject differences in pacing.[17]

> The preferred methods of interspersing practice appear to be either the use of D-A Span segments of demonstration and practice or the use of a Transition method starting with such units and progressing to successively larger units.[18]

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[16] Ibid., pp. 35.

[17] Ibid., pp. 52.

[18] Ibid., pp. 53.

Having especially important implications for this investigator's study was the finding that, "without some sort of correction of errors during practice the learner's performance will suffer during practice."[19]

Maccoby and Sheffield, in a similar study with a different kind of mechanical assembly task, arrived at essentially the same conclusion as Margolius and Sheffield. Demonstration of an entire task before practice was inferior to other methods of interspersing practice, and the most successful method was, again, a transition one beginning with short steps and increasing the steps until the whole demonstration was seen before practice.[20]

Margolius, Sheffield and Maccoby have concentrated much of their research on the learning of mechanical-assembly tasks and have studied the effects of demonstration and practice on this kind of learning. On the basis of another study similar to those already reported in this review, the three experimenters working together have suggested that,

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[19] Ibid., pp. 53.

[20] N. Maccoby and F. D. Sheffield, "Theory and Experimental Research on the Teaching of Complex Sequential Procedures by Alternate Demonstration and Practice," As reported in Schramm, W. ed., The Research on Programmed Instruction. An Annotated Bibliography, U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C.: Bulletin 1964, No. 35, 1964, pp. 78-79.

> ...a task which is intrinsically well-organized and which is presented with due attention to this organization, will be learned readily with little intra-serial interference.[21]

Stolurow has reported the results of two separate studies dealing with the relationship of verbal training and performance or motor training.[22]

> In the Briggs and Besnard study[23] the training was given with respect to perceptual and motor skills and the results did not show transfer to the verbal symbolic test...In the Cantor and Brown study[24] the reverse was the case.. The training was given on the verbal skills and did not seem to be revealed clearly in performance differences.

Stolurow has concluded that,

> Together these data suggest that teaching machine practice in technical areas must be deliberately planned to cover both aspects of the job and not just one of them...Either the verbal training is deliberately planned to relate to overt motor performance or it is not. If it is directly related, it may transfer; but if it is not, the data indicate that it probably will not

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[21] G. J. Margolius, F. D. Sheffield and N. Maccoby, "Repetitive Versus Consecutive Demonstration and Practice in the Learning of a Serial Mechanical-Assembly Task," In Lumsdaine, A. A. ed., Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, Washington, D. C.: National Academy of Sciences, National Research Council, 1961, pp. 100.

[22] L. M. Stolurow, Teaching By Machine, pp. 115.

[23] L. J. Briggs and G. C. Besnard, "Experimental Procedure for Increasing Reinforced Practice in Training Air Force Mechanics for an Electronic System," In Stolurow, Teaching By Machine, pp. 115.

[24] J. H. Cantor and J. S. Brown, "An Evaluation of the Trainer-Tester and Punchboard Tutor as Electronics Trouble Shooting Training Aids," In Stolurow, Op. cit., pp. 115.

> transfer to motor performance...the studies taken together indicate that teaching machines can be effective both for teaching verbal, symbolic skills which mediate performance and for teaching overt manipulative performance.[25]

Because of the very close task similarity between a program and study by Weiss, Maccoby and Sheffield and the investigator's program, their findings and conclusions were of particular interest and importance to the investigator. The study was essentially a parallel study, having the same purpose and using similar demonstration-practice conditions, to the Margolius and Sheffield experiment previously noted.. ("Optimum Methods of Combining Practice with Filmed Demonstration in Teaching Complex Response Sequences: Serial Learning of a Mechanical-Assembly Task") In the present study,[26] a geometric-construction task involving construction of a five-sided equilateral polygon using pencil, paper, straight edge and compass was depicted in a film using step-by-step close-up shots and descriptive narration.[27] The

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[25]Stolurow, Op. cit. pp. 115.

[26]W. Weiss, N. Maccoby and F. D. Sheffield, "Combining Practice With Demonstration in Teaching Complex Sequences: Serial Learning of a Geometric-Construction Task," In Lumsdaine, A. A. ed., Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, 1961, pp. 55.

[27]Ibid., pp. 57.

subjects were approximately nine hundred junior and senior high school students in experiment one, and sixty-five college students in experiment two, who viewed the entire film twice and practiced the construction along with each showing.[28] The findings and conclusions from this study are not generally in agreement with those of the mechanical assembly study.

> The most striking feature of the results is the tendency for the smaller segment forms of practice to give good performance during training but to show deterioration in performance in the final test, in which there is no immediate support from the demonstration...the conclusion appears warranted that for this geometry task some form of Larger-Segment practice is desirable for transfer to the test conditions...[29]

The experimenters suggest that practicing only small segments of the task makes it difficult to integrate the segments into a whole. The entire task is never actually practiced in its entirety until possibly at the very end, and interruption for demonstration and practice has an adverse effect upon performing the entire sequence unaided and uncued.[30] Because of the different findings of the two studies, it appears that there are inherent differences between the two kinds of tasks.[31] Several of these differ-

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[28] Ibid., pp. 58.

[29] Ibid., pp. 74-75.

[30] Ibid.

[31] Ibid., pp. 76.

ences have been summarized in TABLE I, page twenty-four. Perhaps the most important conclusion to be drawn from these results is that,

> ...the optimum method of utilizing overt practice in connection with a demonstration is not necessarily the method which maximizes correct performance of the overt responses during practice.[32]

The research on student responses in programmed instruction has had implications for the investigator's study and on the development of programmed instruction in general. Much of this research has been conducted with programs which teach straight verbal material, and regardless of the particular subject matter content, have dealt with verbal learning as opposed to non-verbal or manipulative learning. In either case, the use of special teaching machines other than textbooks to implement programs inevitably involved financial considerations and may have included physical alterations or adaptations of the typical classroom as well. It is, therefore, imperative that anticipation of the use of this kind of special equipment with any program be justified on the basis of a substantial contribution to learning from the program.

Determination of whether a program of instruction should involve overt student responses will be aided in

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[32] Ibid. pp. 76.

TABLE I

INHERENT DIFFERENCES BETWEEN A MECHANICAL-ASSEMBLY TASK AND A GEOMETRIC-CONSTRUCTION TASK*

Mechanical-Assembly Task	Geometric-Construction Task
A three-dimensional task	A two-dimensional task using pencil, paper, ruler and compass.
Different parts get covered from view as assembly proceeds	Can be viewed in its entirety at all stages of construction.
Partly a recognition and reconstruction task with parts visible at outset to provide cues.	Essentially a straight recall task without external reminders and cues.
A long sequence of steps can make this task complex.	May be a complex task but usually for reasons other than length or number of steps.

*The information presented in TABLE I is taken from Weiss, Maccoby and Sheffield, In Lumsdaine, A. A. ed., Student Responses in Programmed Instruction - A Symposium on Programmed Instruction, 1961, pp. 55-76. It has been summarized in the above table by the investigator.

many cases by the following suggestions from the literature.

(1) When it is difficult or impossible to program important material which ordinarily demands overt responses by the student, then the requirement of overt responses in the program would seem to be in order.

(2) If the content to be taught in a program is judged to be of at least intermediate difficulty for the intended users, then overt responses may facilitate learning of the material. Or, if the material included in a program would not ordinarily be considered difficult for the average user but the intended students are not average for some of several reasons (mentally retarded, physically handicapped, completely naive), perhaps overt responses would increase the effectiveness of the program.

(3) Whether or not the choice of requiring overt responses is dependent upon the foregoing suggestions, the programmer should also consider the likelihood that overt responses to a program may increase the time required to study and complete the program.

(4) Perhaps the single most important consideration

in the possible requirement of overt responses is the value student responses have in analysis of the program. Each student's completed program is a permanent record of his individual progress, and together the programs of a class provide the basis not only for analysis but for change and improvement in subsequent instruction.

The reader will recall that one of the specific purposes of the present study was to gather data to improve the investigator's program. Requiring the student to overtly respond to a program makes possible a tabulation of the errors per individual program item as well as a tabulation of errors for each student.. If the allowable error per program item is kept low and a constant effort is made to eradicate the errors during more extensive use of the program, then it becomes increasingly possible to predict the future effectiveness of the program. Tabulation of the incorrect frame responses gives visible evidence of weak points in the program and indicates where revisions or additions are needed.. The incorrect responses may also give clues concerning the reasons for the errors; possible improvements may be suggested.. Perhaps the incorrect responses were correct responses to a previous item and the discrimination between the two concepts or two responses must be sharpened and more clearly defined. Perhaps an entire concept being presented

over a series of items has been misunderstood even from its introduction, and the entire series requires that additional information or explanation be given before the response is called for. Or perhaps, even after a careful analysis, the incorrect responses to an item do not suggest a specific course of action and it is, therefore, desirable to substitute an equivalent form of the item in the program. In any of these events, the overt responses of the student to the program provide the opportunity for a continuous process of analysis and improvement.

As Stolurow has suggested, teaching machines (and programs of instruction) seem to be suitable for both cognitive and manipulative learning provided that both kinds of learning are carefully planned for either separately or in relationship to each other. Planning of this kind is not made clearly evident in the small amount of literature which deals with programming manipulative tasks.

The investigator is of the opinion that much of the cognitive and manipulative content of industrial arts drafting can be successfully programmed. After cognitive and manipulative content are clearly defined, it is then necessary to specify and state the cognitive and manipulative aspects of the particular task to be taught. In the area of drafting, this has resulted in the identification of several major manipulative techniques which apparently are central

in importance to many different types of drawing. In these cases, it is the cognitive content which typically changes from one drawing task to another, while the basic manipulative techniques remain the same for each.[33]

Two of the most important considerations in the programming of non-verbal tasks are the problems of (1) determining the progress and performance of the subject at any given point in the program and, (2) providing for the most appropriate and immediate reinforcement. These two factors apparently cannot always be provided for by means of a teaching machine or program, and where they cannot, the task is not readily programmed without the intervention of the human teacher. This seems to have been the case in the studies of the mechanical assembly and geometric construction tasks, and in these instances, the human teacher substituted for special equipment in judging performance and providing reinforcement.

As a result of this review of the literature, the investigator's program of instruction was written to include overt responses by the subjects. The overt responses required were those ordinarily required when the drafting content is studied. The manipulative aspects of the content were

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[33]The program of instruction employed in this study was an attempt to teach several of these basic manipulative techniques.

judged to be of intermediate difficulty for naive students, and ordinarily required overt responses were incorporated to facilitate learning of the content. Overt responses by the subjects provided a permanent record and a basis for the subsequent analysis of the program. Specially designed equipment was used together with the program of instruction to implement the overt responses of the subjects. This apparatus made it possible for the program to be used as a self-contained teaching machine not requiring the participation of a human teacher; the subjects' progress at various points in the program was self-determined, and immediate reinforcement was provided by means of the apparatus.

CHAPTER III

DESIGN OF THE STUDY

Population and Sample.

The population and sample for the investigation consisted of the thirty-six boys enrolled in the seventh grade at University High School, University of Minnesota in the 1964-65 school year.[1] Prior to the opening of school in September, 1964, the school administration alphabetized the names of the subjects and assigned all of the odd numbered subjects (N =18) to a class which later received rudimentary instruction and practice in freehand pictorial sketching techniques for approximately three of the eighteen weeks that they were enrolled in the course Industrial Arts I. This class was designated by the investigator as the experienced class. The even numbered subjects (N =18) were assigned to a music course (nine weeks) and an art appreciation course (nine weeks) during the same period of time that the odd numbered students were in the industrial arts course. The even numbered subjects were designated as the non-experienced class.

The naivety of the subjects with regard to drafting

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[1]The original population size was thirty-seven subjects. It was necessary to drop one student from the sample because he had participated in the pilot study to develop the program. See APPENDIX E.

knowledge or experience prior to the seventh grade was confirmed by use of a questionnaire (APPENDIX B) devised by the investigator to yield a have-had, have-not-had measure of previous drafting experience. The questionnaire also served to obtain an estimate of the ability of the subjects to read a full-divided scale. All of the data from the questionnaire has been summarized and presented in APPENDIX C for the reader's reference.

During the week of September 8, 1964, the first week of school for the 1964-65 school year, the thirty-six subjects, as members of the incoming seventh grade class, participated in a testing program conducted by the guidance and counseling department at University High School. Following the testing period, the investigator obtained the scores for each of the subjects on the following measures: the Lorge-Thorndike Verbal, Non-Verbal tests, the Iowa Tests of Basic Skills (Test V - Vocabulary and Test R - Reading Comprehension), and the Ravens Progressive Matrices (A, B, C, D, E). These scores are presented in APPENDIX D.

On the basis of their scores on the Lorge-Thorndike Verbal test, the subjects in both the experienced and non-experienced classes were ranked in decending order. The subjects in each class were then paired, and the upper member of each of the pairs of subjects was randomly assigned to either an experimental or a control group on the basis

of the flip of a coin. The other member of each pair was assigned to the opposite group. APPENDIX E indicates the arrangement of subjects into experienced and non-experienced classes, the designation of pairs of subjects in each of the classes and the assignment of subjects to experimental and control groups. The composition of the groups can be depicted as follows:

TABLE II

NUMBERS OF SUBJECTS ASSIGNED TO GROUPS IN THE EXPERIMENT

	Groups	
Classes	Experimental	Control
Experienced	9	9
Non-Experienced	9	9

Following the distribution of subjects to experimental and control groups, and experienced and non-experienced classes, two-way factorial analyses of variance were performed using the subject scores on the Lorge-Thorndike Verbal and Non-Verbal tests, the two tests of the Iowa Tests of Basic Skills and the Ravens Progressive Matrices. Reference to APPENDIX F will show that there were no significant differences found between experimental and control groups or between the experienced and non-experienced groups, and that there were no

interactions on any of these pre-experimental measures.

The X^2 statistic was used to determine equation of groups on the basis of their scores on drafting questionnaire items regarding ability to read a scale and items regarding prior knowledge of the T-Square and 45°-90° Triangle. No significant differences were found between groups in their ability to read a scale or knowledge of the 45°-90° Triangle. There was a significant difference found between the experienced control group and the non-experienced experimental group in their knowledge of the T-Square. The experienced control group made fewer errors identifying and correctly naming the T-Square.

Instructional Materials and Criterion Test.

Drawing Board. Each of the subjects in the experimental group was provided with an electrically wired drawing board (APPENDIX G). The surface of each of the boards was covered with a sheet of tin plate, and this metal surface was electrically connected to a flash light battery mounted beneath the board which supplied the power for the apparatus. A small bulb was prominently mounted in the middle of the upper edge of the drawing surface of the board and connected to the battery. An insulated wire also ran through a hole in the board to the drawing surface; a large sewing needle was fastened to one end of the wire. When the needle-

point of this wire checker was touched to any part of the metal drawing surface, the electrical circuit was closed and the bulb lighted. Two, one-quarter inch diameter, wooden pins were inserted into the metal drawing surface projecting approximately one-quarter of an inch above the surface. These two pins were accurately positioned to correspond to two holes of the same size in the top edge of the program pages and cardboard templates. This arrangement made it possible for the naive students to accurately mount and remove program pages and templates on the drawing surface.

Program of Instruction. The printed program investigated in the study consisted of forty-nine frames which presented definitions and explanations of intersecting lines, parallel lines and perpendicular lines. Each page of the program contained one frame, and each frame typically required the student to respond to, or practice, the material in that frame by using a pencil, a twelve inch, full-divided scale, a T-Square and an eight inch, 45°-90° Triangle. The practice provided was in drawing parallel horizontal, vertical and inclined lines and perpendicular lines through given points. The program practice with the equipment was intended to progress from the simple to the more complex material and to develop enough skill with the equipment to enable the student to copy and transfer various simple figures.

The copies of the program used in the study were printed on seventy-pound offset paper. This precautionary measure made it virtually impossible to see through the pages of the program when it was being used and locate the holes in the cardboard templates positioned beneath the printed pages. The complete program is included in APPENDIX A.

Cardboard Templates. Each subject in the experimental group was provided with a set of forty-eight cardboard templates. Several typical templates have been included in APPENDIX P, and are representative of the general style of the templates. Each of the templates had a particular format or arrangement of holes which corresponded to a particular page (frame) of the program. The printed page from the program, which required an overt drawing response by the student, was positioned over the cardboard template on the drawing board surface. This was accomplished by sliding first the cardboard template, and then the program page, over the two pins projecting above the drawing surface.

The templates served both a mechanical and a pedagogical purpose in the program of instruction. Mechanically, their function was to electrically insulate the area between the program page and the metal surface of the drawing board. The cardboard for the templates was thick enough to prevent the needle-point of the wire checker from penetrating through to the metal surface beneath. In this way, only the metal

surface exposed in the holes in the templates could be contacted with the wire checker and the bulb on the surface of the drawing board lighted. After the student had drawn a line, he could determine the correctness or accuracy of his drawing by piercing the drawing page with the needle-point of the wire checker. If the drawing was correct, the point passed through the hole in the template and contacted the metal surface. This closed the electrical circuit and caused the bulb to be lighted.

The pedagogical functions of the templates were several and were related to the mechanical functions. In the program, the constructed response or drawing that the student was required to make should have been, in part, an actual demonstration of his attendance to the controlling properties of the stimulus (parallel, vertical, horizontal, etc.). The student's confirmation of a response (lighting the bulb) should have been partly the result of having "paid attention" to the stimulus. Paying attention in general, and the correct response to a specific stimulus, should have been reinforced and strengthened. The knowledge of the fact that he would be asked to demonstrate his attention to the instructions by using the wire checker and templates should have strengthened this behavior.

Use of the templates was also an attempt to determine student progress and performance at any point in the

program and to control reinforcement. In order for the student to have confirmed a response and have received reinforcement, he should have responded accurately to the frame. The investigator theorized that one way in which to shape the desired degree of manipulative skill was through the process of successive approximation[2] by which each attempt to bring the performance of the manipulative task gradually closer to a criterion level of performance was reinforced. Where it was possible, the size of the holes in the templates were successively decreased in diameter from three-eights of an inch to one-sixteenth of an inch to control the degree of precision and accuracy of the responses. By gradually decreasing the diameter of the template holes, more skillful handling of the equipment and more accurate drawings would be required for reinforcement, until the criterion level of performance had been attained. After this point had been reached, review and practice of the particular drawing response would be on a variable-interval schedule of presentation and on a continuous schedule of reinforcement.[3]

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[2]A more detailed explanation of successive approximation is given in Holland and Skinner, The Analysis of Behavior, pp. 97-111.

[3]Schedules of reinforcement have been defined and clarified by Holland and Skinner, Op. cit., pp. 117-137.

Criterion Test of Learning. The criterion test of learning administered to the entire sample of thirty-six subjects was divided into two distinct sections, a cognitive section and manipulative section. A copy of the test has been included in APPENDIX H. The cognitive section of the test was written as a verbal information test to yield a measure of how much information or knowledge certain subjects possessed about beginning drafting and how much information had been learned by other subjects (experimental) as a result of having studied the program of instruction. In the cognitive section of the test, the subjects were not required to use any of the drafting instruments employed in the program of instruction. Test items in this section were written in an attempt to measure understanding of terminology and definitions taught in the program. The manipulative section of the test was a performance test intended to measure the subjects' skill and ability using the drafting equipment. For the experimental group, the manipulative section was to yield a measure of the motor skills developed in using the drafting equipment as a result of having studied the program of instruction.

Test items in the criterion test were written to correspond to items in the program of instruction. For example, content tested in criterion test item number four is the content taught in program items eighteen through

twenty-one. In the copy of the criterion test included in APPENDIX H, the items in the program of instruction which correspond to the criterion test item have been enumerated. The grade point value which had been assigned to each test item in the scoring of the tests has also been indicated in the copy of the test included in the appendix.

In order to obtain a measure of the content validity of the criterion test, the test and the program of instruction were submitted to three individuals in the Department of Trade and Industrial Education at the University of Minnesota who were familiar with the subject matter of drafting and the nature of the intended population of the study. These persons unanimously agreed that the items on the criterion test were representative of the content in the program, and that each item could be answered correctly based upon information contained in the program.

Following the administration of the criterion test to the subjects of this study, estimates of the internal consistency of each section of the criterion test were calculated using the Kuder-Richardson formula for estimating reliability. Reliability coefficients of .78 and .94 were obtained for the cognitive and manipulative sections of the test respectively. These were considered sufficiently high to permit using both sections of the test in the subsequent experimental analyses.

General Design and Collection of Data.

Due to the normal scheduling of courses for the seventh grade at University High School, it was necessary that the data for the study be gathered on a day shortly after the experienced class had completed their industrial arts freehand sketching experience, and before the non-experienced class would ordinarily have rotated into the industrial arts course. An appropriate date was thus determined (January 21, 1965) and approved by the high school administration.

In the time prior to the date of the treatment, the investigator made arrangements to have the required number of programs of instruction printed. During the same time, the required sets of cardboard templates were made and the required number of drawing boards constructed.

Arrangements were made, and approved by the high school administration, for informing the instructors of the subjects of the upcoming study. The office staff was also provided with a list of the subjects in each group. Near the conclusion of the regular class period immediately before the groups were to report for the study, each subject was presented with a notice informing him that, at the conclusion of that regular class period, he was to report immediately to the investigator in the room designated for the study. The subjects, therefore, had no previous knowledge of their

participation in the study. (The drafting experience questionnaire had been completed by the subjects approximately one month prior to the study date in a regular class period, and nothing was mentioned at that time concerning the study or the actual purpose of the questionnaire.)

The room employed for the study was the drafting room of the industrial arts area. Although the room was entirely separate from the shop areas and had its own entrance, one wall was a glass wall, and it was possible to look out on the shop area from the desks in the drafting room. Since the non-experienced subjects of both the experimental and control groups had not been in the industrial arts shops prior to the study, and since regular industrial arts classes were in session in the shop area during the treatment, it was decided to mask the entire glass wall of the drafting room and eliminate possible distractions from the shop. Power equipment in the shop was not used on the day of the study, and other noises from the shop area could not be heard when the doors to the room were closed. The same room was used by both the experimental and control groups.

At approximately 10:20 a.m. on January twenty-first, the subjects in the control group began to arrive for the study and were randomly seated at desks pre-arranged with the electrical drawing boards. The session was started promptly at 10:30 a.m. with all subjects present. A ten minute

motivational introduction and directions for taking the cognitive section of the criterion test were given by the investigator. The cognitive section of the criterion test was distributed, and all subjects worked on this section of the test for twenty minutes. At the end of twenty minutes, work on the cognitive section was terminated and the tests collected.. The drafting instruments necessary for completion of the manipulative section of the criterion test were then distributed, and the investigator gave a brief explanation and demonstration of the T-Square and 45°-90° Triangle indicating (1) the proper names of the instruments, (2) the way in which each was correctly used, and (3) what each instrument was used for. No time was provided for student practice with the equipment, and explicit directions were given not to handle the equipment before instructed to do so. A brief explanation and demonstration of the method for fastening the test pages to the drawing board was also given. Ten minutes was provided for the instructions and demonstrations. The manipulative section of the criterion test was then distributed, and approximately twenty minutes allowed for its completion. At the end of approximately twenty minutes, work on the manipulative section was terminated and the tests collected. At the conclusion of the session, at approximately 11:35 a.m., the subjects arranged the drafting equipment on the desks for later use by the experimental

group, and, before leaving, their assistance in the study was acknowledged. The control group was not, however, told that the subjects in the experimental group would also be participating in the study.

A detailed copy of the investigator's verbal instructions and directions to the control group has been included in APPENDIX I.

The experimental group was also assembled for the treatment on January twenty-first; the experimental session was begun promptly at twelve noon with all subjects present. The motivational introduction to the experimental group was the same as that given previously to the control group. The introduction was followed by a brief explanation of the program of instruction and demonstration of the use of the program and electrical drawing board. A detailed copy of the investigator's verbal instructions and directions to the experimental group has been included in APPENDIX J. Following these instructions, the subjects worked individually on the program of instruction, at their own rate of speed, and with short rest periods as determined by each subject. The number of actual rest periods per subject varied from no rest periods to three rest periods. At the end of two hours and forty-five minutes, all work on the program of instruction was terminated and the programs collected. Four subjects completed the entire program; the number of items

completed by the other subjects varied from twenty-eight (one student), to fifty (three students).

The experimental group had thirty-five minutes in which to complete both the cognitive and manipulative sections of the criterion test. At the conclusion of thirty-five minutes, work on the test was terminated. All subjects completed the entire test. The tests were collected, and the subjects' participation was acknowledged before they were dismissed from school for the day.

CHAPTER IV

FINDINGS AND TESTS OF HYPOTHESES

A summary of the test scores made by the experimental and control groups on both sections of the criterion test are presented in TABLE III. The test scores represent the total number of test items answered correctly by each student out of a possible total of thirty and twenty-nine correct answers on the cognitive and manipulative sections respectively.

TABLE IV is a presentation of the data for a two-way analysis of variance performed for the cognitive section of the criterion test to test the hypotheses:

(1) H_0: The mean score of the experimental population does not differ from the mean score of the control population on the cognitive section of the criterion test.

(2) H_0: The mean score of the experienced population does not differ from the mean score of the non-experienced population on the cognitive section of the criterion test.

(3) H_0: There is no interaction between treatment populations and experience populations as measured by the mean scores on the cognitive section of the criterion test.

TABLE III

STUDENT SCORES ON THE CRITERION TEST

Experimental Group			Control Group		
Student	Cognitive Test Score	Manipulative Score	Student	Cognitive Test Score	Manipulative Score
1	26	14	4	9	18
2	29	27	5	12	17
3	30	21	9	14	23
6	19	7	10	14	14
7	28	8	11	8	23
8	28	25	12	19	20
13	24	8	16	11	16
14	24	14	21	17	19
15	28	7	23	5	12
17	24	22	26	22	18
18	24	10	27	17	26
19	26	9	28	17	14
20	27	24	29	15	22
22	26	21	30	24	23
24	28	27	31	15	15
25	30	13	33	19	3
32	27	25	34	9	12
35	11	11	36	17	16

TABLE IV

TWO-WAY ANALYSIS OF VARIANCE FOR THE CRITERION TEST COGNITIVE SECTION

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 25.777 s^2 = 146.96	N = 9 $\bar{X}$ = 15.777 s^2 = 62.27	N = 18 $\bar{X}$ = 20.777 s^2 = 104.62
Non-Experienced	N = 9 $\bar{X}$ = 25.222 s^2 = 148.43	N = 9 $\bar{X}$ = 13.555 s^2 = 45.58	N = 18 $\bar{X}$ = 19.388 s^2 = 97.00
Totals	N = 18 $\bar{X}$ = 25.555 s^2 = 147.69	N = 18 $\bar{X}$ = 14.666 s^2 = 53.93	

SY	DF	SS	MS	F
A columns	1	1056.500	1056.500	45.386*
B rows	1	17.611	17.611	.756
R x C AB	1	6.000	6.000	.258
Error	32	744.889	23.278	
Total	35	1825.000		

$$\frac{s^2 \text{ (largest)}}{s^2 \text{ (smallest)}} = 3.26.$$ Not significant at α .05.

*F of 4.15 is significant at the .05 level.

The results of these tests, shown in TABLE IV, indicate the rejection of the first hypothesis; there was a difference between the mean scores of the experimental and control groups which was significant at the .05 level, in favor of the experimental group. Hypothesis two and three were accepted; there was no statistically significant difference between the experienced and non-experienced populations, and there was no interaction.

In order to determine whether there were differences in initial cognitive learning between the experienced experimental and experienced control groups, the non-experienced experimental and non-experienced control groups, and the experienced experimental and non-experienced experimental groups, the X^2 statistic was employed. TABLE V shows the total number of errors made by each group on the cognitive section of the criterion test; these were used as observed frequencies.

TABLE V

NUMBER OF ERRORS MADE BY EXPERIMENTAL AND CONTROL GROUPS ON THE COGNITIVE SECTION OF THE CRITERION TEST

	Experimental	Control
Experienced	38	128
Non-Experienced	43	148

The following three hypotheses were tested at the .05 level of significance; the results are indicated in parentheses following each hypothesis.

(4) H_o: There is no difference in the number of errors made on the cognitive section of the criterion test by the experienced control group and the experienced experimental group. (X^2 needed 3.84; X^2 obtained 48.78; hypothesis rejected.)

(5) H_o: There is no difference in the number of errors made by the non-experienced experimental group and the non-experienced control group. (X^2 needed 3.84; X^2 obtained 57.72; hypothesis rejected.)

(6) H_o: There is no difference in the number of errors made by the experienced experimental group and the non-experienced experimental group. (X^2 needed 3.84; X^2 obtained .15; hypothesis accepted.)

Reference to TABLE VI shows the data used to test hypotheses stated in terms of the mean scores of the manipulative section of the criterion test.

(7) H_o: The mean score of the experimental population does not differ from the mean score of the control population on the manipulative

section of the criterion test.

(8) H_o: The mean score of the experienced population does not differ from the mean score of the non-experienced population on the manipulative section of the test.

(9) H_o: There is no interaction between treatment populations and experienced populations as measured by the mean scores on the manipulative section of the criterion test.

TABLE VI shows that hypotheses seven and eight are accepted (no significant differences between the means) but that hypothesis nine is rejected; there is a significant interaction (.05) between treatment populations and experienced populations as measured by the mean scores on the manipulative section of the criterion test.

In order to (a) verify the analysis of variance finding of a significant interaction between treatment and experience populations on the manipulative scores of the criterion test, and, (b) identify the nature of the interaction as well as possible differences between groups with similar backgrounds of experience, the X^2 statistic was employed. TABLE VII shows the total number of errors made by each group on the manipulative section of the criterion test; these were used as observed frequencies.

TABLE VI

TWO-WAY ANALYSIS OF VARIANCE FOR THE CRITERION TEST MANIPULATIVE SECTION

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 20.000 s^2 = 105.46	N = 9 $\bar{X}$ = 16.777 s^2 = 65.67	N = 18 $\bar{X}$ = 18.388 s^2 = 85.57
Non-Experienced	N = 9 $\bar{X}$ = 12.555 s^2 = 43.89	N = 9 $\bar{X}$ = 18.888 s^2 = 86.05	N = 18 $\bar{X}$ = 15.722 s^2 = 64.97
Totals	N = 18 $\bar{X}$ = 16.277 s^2 = 74.68	N = 18 $\bar{X}$ = 17.833 s^2 = 75.86	

SY	DF	SS	MS	F
A columns	1	21.778	21.778	.69
B rows	1	64.000	64.000	2.03
R x C AB	1	205.444	205.444	6.53*
Errors	32	1006.667	31.458	
Total	35	1297.889		

$$\frac{s^2 \text{ (largest)}}{s^2 \text{ (smallest)}} = 2.40.$$ Not significant at .05.

*F of 4.15 is significant at the .05 level.

TABLE VII

NUMBER OF ERRORS MADE BY EXPERIMENTAL AND CONTROL GROUPS ON THE MANIPULATIVE SECTION OF THE CRITERION TEST

	Experimental	Control
Experienced	81	110
Non-Experienced	149	91

The following six hypotheses were tested at the .05 level of significance; the results are shown in parentheses following each hypothesis.

(10) H_0: There is no difference in the number of errors made on the manipulative section of the criterion test by the experienced experimental group and the experienced control group. (X^2 needed 3.84; X^2 obtained 4.40; hypothesis rejected.)

(11) H_0: There is no difference in the number of errors made by the non-experienced experimental group and the non-experienced control group. (X^2 needed 3.84; X^2 obtained 14.00; hypothesis rejected.)

(12) H_0: There is no difference in the number of errors made by the experienced experimental group and the non-experienced experimental group. (X^2 needed 3.84; X^2 obtained 20.10; hypothesis rejected.)

(13) H_0: There is no difference in the number of errors made by the experienced control group and the non-experienced control group. (X^2 needed 3.84; X^2 obtained 1.79; hypothesis accepted.)

(14) H_0: There is no difference in the number of errors made by the experienced experimental group and the non-experienced control group. (X^2 needed 3.84; X^2 obtained .58; hypothesis accepted.)

(15) H_0: There is no difference in the number of errors made by the non-experienced experimental group and the experienced control group. (X^2 needed 3.84; X^2 obtained 4.76; hypothesis rejected.)

An inspection of the errors made by the experienced and non-experienced groups who studied the program of instruction (experimental) revealed that both groups made incorrect responses on the program; the non-experienced group made fifty errors, and the experienced group made eighty-two errors. Using the X^2 statistic, the following hypothesis was tested:

(16) H_0: The experienced and non-experienced experimental populations do not differ in the total number of incorrect responses made on the program.

A X^2 value of 7.76 was obtained which is significant at the .05 level. Hypothesis sixteen was, therefore, rejected, and the alternate hypothesis, that there was a significant difference between the experienced and non-experienced experimental populations in the total number of errors made on the program, accepted.

The program items on which two or more errors occurred have been presented in APPENDIX K of the report.

CHAPTER V

CONCLUSIONS, INTERPRETATIONS AND RECOMMENDATIONS

Conclusions.

Five questions were posed as a part of the statement of the problem in CHAPTER I. Within the limitations of the particular program and population utilized, the following conclusions appear warranted.

(1) When seventh grade students, with a mixed amount of prior drafting experience, were permitted to study the program of instruction, they:

(a) learned a significant amount of the cognitive content of the program.

(b) did not develop manipulative skills to a significant degree.

(2) When seventh grade students who have not had previous drafting experience (non-experienced experimental group) were permitted to study the program of instruction, they:

(a) learned a significant amount of the cognitive content of the program.

(b) found the program to be a hinderance to the development of manipulative skills.

(3) When seventh grade students who have had previous freehand mechanical sketching experience (experi-

enced experimental group) were permitted to study the program of instruction, they:

(a) learned a significant amount of the cognitive content of the program.

(b) developed manipulative skills to a significant degree.

(4) When seventh grade students with prior freehand mechanical sketching experience and seventh grade students with no previous drafting experience were permitted to study the program of instruction,

(a) the two groups learned an equal amount of the cognitive content of the program.

(b) the two groups developed an unequal amount of manipulative skills. The group with prior freehand mechanical sketching experience developed significantly more skill.

(5) A tabulation of the errors on each response item in the program showed that some items were capable of evoking the desired responses from the subjects without errors. There were twenty items with more than two errors; these items (APPENDIX K) are in immediate need of revision and improvement. An inspection of the individual errors

has given clues to the necessary changes.

Interpretations.

The conclusions indicate that the program provided an effective learning experience with respect to cognitive outcomes for the naive and experienced populations. However, the program was shown to be a hinderance to the naive (non-experienced) population in developing relevant manipulative skills; they not only developed less skill than the experienced population, but they developed less skill than the naive group which did not take the program.

Some possible explanations of the conclusions with respect to manipulative skill development follow:

(1) The experienced and non-experienced populations of the experimental group were, in fact, not equal populations prior to the study. Somewhere in their previous drafting experience, the experienced group may have developed some learning outcomes which aided them in their performance on the manipulative section of the test. As far as could be determined, this was not specific information or motor skills directly related to the content of the program of instruction, but may have been general information or attitudes about drawing which may have transferred from one content to the other. Perhaps an attitude with regard to accuracy or precision in drawing may have been instilled and transferred to

the drawing in the program and on the test. Or perhaps a degree of skill in reading and following technical directions was developed and transferred to study of the program. The non-experienced population, not having been exposed to the same instruction, may have lacked this ability and attitude, and may have been confused by the directions and misled in their manipulative attempts.

Inspection of the frames in the program of instruction (APPENDIX K) will show that errors occurred on two separate blocks of items consisting of three and four consecutive frames respectively. One block of program items on which excessive errors occurred consisted of items 42 through 45. The number of errors on each of these items has been shown in APPENDIX K; it is evident that on the items in this block, the error rate is relatively high. Items 42 and 45, and all items following 45, consisted of the formation of integrated chains of behavior. That is, in each frame, the first line drawn, plus the set of directions and measurements for the second line to be drawn, serve together as the cue or prompt for drawing the second line, and each successive step thereafter is an accumulation and integration of all of the previous steps. Although items 43 and 44 are not of this same type, they do attempt to introduce a manipulative technique which is useful in drawing the various steps in the other frames. The freehand pictorial sketching experience that the

experienced populations received also involved the formation of similar chains of behavior; this ability may have been previously learned and transferred to study of the program.

Manipulative test items 24 through 29 were included in the criterion test to measure whether the subjects had developed the ability to accurately perform the chains of behavior taught in the program as single units of behavior without the necessity of additional prompts and clues for proceeding through the sequence of steps. Because of the high error rate in the program on items 42 through 45, and because most of the subjects were unable to go beyond item 47 in the program, and were, therefore, not exposed to the entire sequence of practice frames, a high error rate was expected and obtained on the related test items; the errors made by the groups on test items 24 through 29 are shown in TABLE VIII.

TABLE VIII

INCORRECT RESPONSES MADE BY THE EXPERIMENTAL AND CONTROL GROUPS ON MANIPULATIVE TEST ITEMS 24 THROUGH 29

	Experimental	Control
Experienced	19	22
Non-Experienced	35	23
Totals	54	45

The X^2 statistic was employed to test the following hypotheses. The results are shown in parentheses after each hypothesis.

(1) H_0: There is no difference between the non-experienced experimental group and the non-experienced control group. (X^2 needed 3.84; X^2 obtained 2.48; hypothesis accepted.)

(2) H_0: There is no difference between the experienced experimental group and the experienced control group. (X^2 needed 3.84; X^2 obtained .24; hypothesis accepted.)

(3) H_0: There is no difference between the non-experienced experimental group and the experienced experimental group. (X^2 needed 3.84; X^2 obtained 4.74; hypothesis rejected.)

(2) Ability to accurately read a scale may have been a factor in the non-experienced experimental group's poor performance on the manipulative section of the test. The summary of incorrect responses to drafting questionnaire items dealing with the ability to read a scale (APPENDIX C) indicates that on the items which required reading a scale from one-fourth inch to one-sixteenth inch accuracy (items D, E, F), the two populations of the experimental and control groups made errors as shown in TABLE IX.

TABLE IX

INCORRECT RESPONSES MADE BY THE EXPERIMENTAL AND CONTROL GROUPS ON DRAFTING QUESTIONNAIRE ITEMS REQUIRING READING A SCALE

	Experimental			Control		
	D	E	F	D	E	F
Experienced	2	2	3	1	4	4
Non-Experienced	2	5	6	2	3	4
Totals	4	7	9	3	7	8

Although the differences between groups were not found to be significant at the .05 level, the differences suggest that ability, or lack of ability, to read a scale may have been a factor in the differences found on the manipulative section of the test. A verification of this conclusion was obtained by testing for differences between groups on a section of the manipulative test which required that the subjects use the scale for making measurements. The test items considered were items: 6,7,8,12,13,14,18,19,20 and have been designated in the copy of the test in APPENDIX H. The total number of errors on these items are shown in TABLE X.

The X^2 statistic was employed to test the following hypotheses; the results are shown in parentheses after each hypothesis.

(1) H_o: There was no difference between the non-experienced experimental group and the non-

TABLE X

INCORRECT RESPONSES MADE BY THE EXPERIMENTAL AND CONTROL GROUPS ON MANIPULATIVE TEST ITEMS REQUIRING THE USE OF A SCALE

	Experimental	Control	Totals
Experienced	32	53	85
Non-Experienced	55	39	94
Totals	87	92	179

experienced control group. (X^2 needed 3.84; X^2 obtained 2.72; hypothesis accepted.)

(2) H_o: There was no difference between the experienced experimental group and the experienced control group. (X^2 needed 3.84; X^2 obtained 5.18; hypothesis rejected.)

(3) H_o: There was no difference between the non-experienced experimental group and the experienced experimental group. (X^2 needed 3.84; X^2 obtained 8.78; hypothesis rejected.)

A summary of the program of instruction items on which more than two errors were made has been included in APPENDIX K, and indicates where improvements are needed to substantially decrease the number of errors which were made in the program. An analysis of the errors and an explanation of the possible causes have been explained on the pages of the program included in APPENDIX A of the report.

As previously noted, errors occurred on two separate blocks of program items consisting of three and four consecutive frames respectively. One block of items (items 42 through 45) has already been discussed. The block of program items 18 through 20 was designed as part of a larger sequence to teach the abstraction of parallelism and to develop the ability to draw parallel horizontal lines. Since the error rate on these items in the program was relatively high (7, 7, 3 errors respectively), the subjects were not expected to have learned the content.

Cognitive test items 11a, 11d and 12a were intended to measure the subject's understanding of parallelism. The error rate on these test items was relatively low (1, 2, 1 errors respectively); it was concluded that the program items were relatively effective in teaching the cognitive aspects of parallelism despite the error rate. Manipulative test items 9, 10 and 11 were intended to measure the subject's skill in drawing parallel horizontal lines, and these test items had a relatively high error rate (7, 4, 6 errors respectively). It was, therefore, concluded that the program items were not effective for teaching the manipulative skill of drawing parallel horizontal lines, and that the subjects did not develop the desired degree of skill.

The analysis of errors on program items has suggested that many of the errors were due to (1) misunderstanding

and/or misinterpretation of the directions and instructions in the program, (2) not having completed the entire response to particular frames, and (3) not having had adequate time for all subjects to complete the entire program. Also, the conclusion seems appropriate that the pressure of time caused some subjects to work hastily, and as a result, inaccurately on many of the frames in the latter part of the program.

Recommendations.

Efforts will be made to improve the items on which errors seemed to have been caused by inadequate or incomplete directions and instructions. These improvements will be based upon the recommendations enumerated on the pages of the program in APPENDIX A. Those items which were only partially completed will be revised to either (1) make the parts not completed more obvious so that the chances of overlooking them are not as likely, or (2) eliminate those parts which, as a result of the study, have been suggested as being unnecessary. Only if adequate time is allowed for study of the entire program can the program be expected to be most effective.

It is recommended that a new version of the program of instruction be written to reflect those changes and improvements suggested by this study. The revised program should then be tested by means of a similarly designed

study for the purpose of determining additional and continued improvements.

For maximum effectiveness, particularly in developing the manipulative techniques taught in the program, an introductory unit to drawing prior to study of the program is recommended. It is further recommended that use of a revised program be employed only with students who have had adequate instruction on how to read and use a scale, or that an additional section be included within a revised program on the use of a scale.

CHAPTER VI

SUMMARY

The research which was undertaken was an investigation of the effectiveness of a teacher-made program of instruction. The program of instruction was written to teach selected concepts and manipulative techniques of beginning drafting to seventh grade industrial arts students. The study attempted to answer the following major questions.

(1) Can the program lead to significant learning, as distinguished from chance learning, of the cognitive and manipulative content it includes?

(2) Are there differences in the effectiveness of the program between experienced students, who have had some previous freehand pictorial sketching practice, and non-experienced students, who have not had this prior experience?

(3) Can certain sections or parts of the program be shown to be more effective than other parts, and if so, what steps might be taken to improve the less effective sections?

A large part of the research being undertaken currently in the field of programmed instruction has as its objectives the improvement of the methods and techniques of programming, and the study of the effectiveness of programmed

instruction for teaching varied subjects at different age and grade levels. Very few programs are available, however, for industrial arts courses which typically involve both manipulative skill development as well as verbal learning, and little significant information can be found about techniques for programming manipulative skill. The future of our educational system is dependent upon continued improvement of modern teaching methods, based upon a growing amount of scientific research. The program which was investigated in the study was written to help fill the need for experimental programs of instruction in industrial arts courses, and the study was undertaken to determine the effectiveness of the program before it was put to wider use with students.

The population and sample for the study consisted of the seventh grade boys (N=36) enrolled in University High School, University of Minnesota. The subjects were randomly divided into non-experienced and experienced classes with the experienced group receiving about three weeks of rudimentary, freehand, pictorial drawing experience. The non-experienced group received no industrial arts instruction. The subjects of both populations were then ranked and paired on the basis of their scores on the Lorge-Thorndike Verbal test. One member of each pair of subjects was randomly assigned to an experimental group, which was permitted to

study the program of instruction, and the other member of each of the pairs was assigned to a control group. The experimental and control groups each consisted of eighteen subjects: nine subjects from the experienced class, and nine from the non-experienced class. The two groups were then checked for significant differences using their scores on five pre-experimental measures, and no significant differences were found between groups. The groups were also compared for differences in their knowledge of the T-Square and 45°-90° Triangle. The experienced control group made significantly fewer errors than the experienced experimental group in identifying and naming the T-Square correctly. No other differences were found.

The program of instruction consisted of both a printed program and a set of cardboard templates designed for use with an electrically wired drawing board. Each page of the program contained one frame requiring the student to respond to the frame using the T-Square and 45°-90° Triangle. Each of these frames had a matching cardboard template, and together the program page and the template were positioned accurately on the drawing board surface. As the subjects drew their responses, they were able to determine the accuracy of their work by inserting a needle-point wire checker into the drawing page at various check points. At these points, the needle pierced the drawing page, passed

through a hole in the template beneath, and touched the metal drawing surface. This caused an electrical circuit to be closed, and lighted a small bulb on the drawing board. The lighted bulb informed the subject that his work was accurate.

The criterion test of learning used in the study was divided into a cognitive section, which was designed to measure verbal knowledge and understanding, and a manipulative section, designed to measure performance and skill using the T-Square and 45°-90° Triangle employed in the program. The content validity and internal consistency of both sections of the test were judged to be adequate.

Both of the groups met at different times on the same day under identical physical conditions. The control group was motivated to do their best work and given the cognitive section of the criterion test. This was followed by a minimum required explanation of the drafting equipment and then the manipulative section of the criterion test. The experimental group was also motivated to do their best work, and an explanation and short demonstration of the proper use of the program and apparatus was given. This was followed by a work period on the program of approximately two hours and forty-five minutes, and concluded with the subjects completing both sections of the criterion test.

It was found and later concluded, that the program of

instruction was relatively effective in teaching the cognitive content of the program, but not as effective, as written, for developing the desired level of manipulative ability. While both the experienced and non-experienced groups who studied the program learned significant amounts of cognitive material, and the experienced experimental group did better than the control groups on the manipulative section, the non-experienced group did not do as well as the control group on the manipulative section of the criterion test. Investigation into the possible causes of the interaction found between groups on the manipulative section of the test suggested that the prior experience of the experienced group probably aided the subjects of this group in their study of the program, and that the directions and instructions in the program confused and misled the non-experienced group in their manipulative attempts. It was further determined that lack of ability to read and use a scale, especially for making measurements below one-quarter of an inch accuracy, might have resulted in many errors on the program frames and the manipulative items of the criterion test.

Because of the number of errors on many of the program frames, it has been recommended that the twenty items with more than two errors be revised, and an improved version of the program be written. This revision should include rewriting inadequate or incomplete instructions and directions

in the program, and revising or eliminating those parts of the frames only partially completed.

It has been further recommended that the revised program of instruction be used only when adequate time is available for its completion. To make the most effective use of a revised program, it has also been suggested that it be used only with students who have the required ability to read and use a scale, or that a new section be added at the beginning of the program to teach the reading and use of the scale..

Finally, a revised form of the program of instruction should also be investigated. A study designed similar to this one should be undertaken to determine where additional improvements might be made, and to confirm the findings and conclusions of this study, particularly those conclusions related to the characteristics of experienced and non-experienced groups which were suggested as having influenced the effectiveness of the program.

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APPENDIX

APPENDIX A

A PROGRAM OF INSTRUCTION

FOR

BEGINNING DRAFTING

(Third Revised Copy)

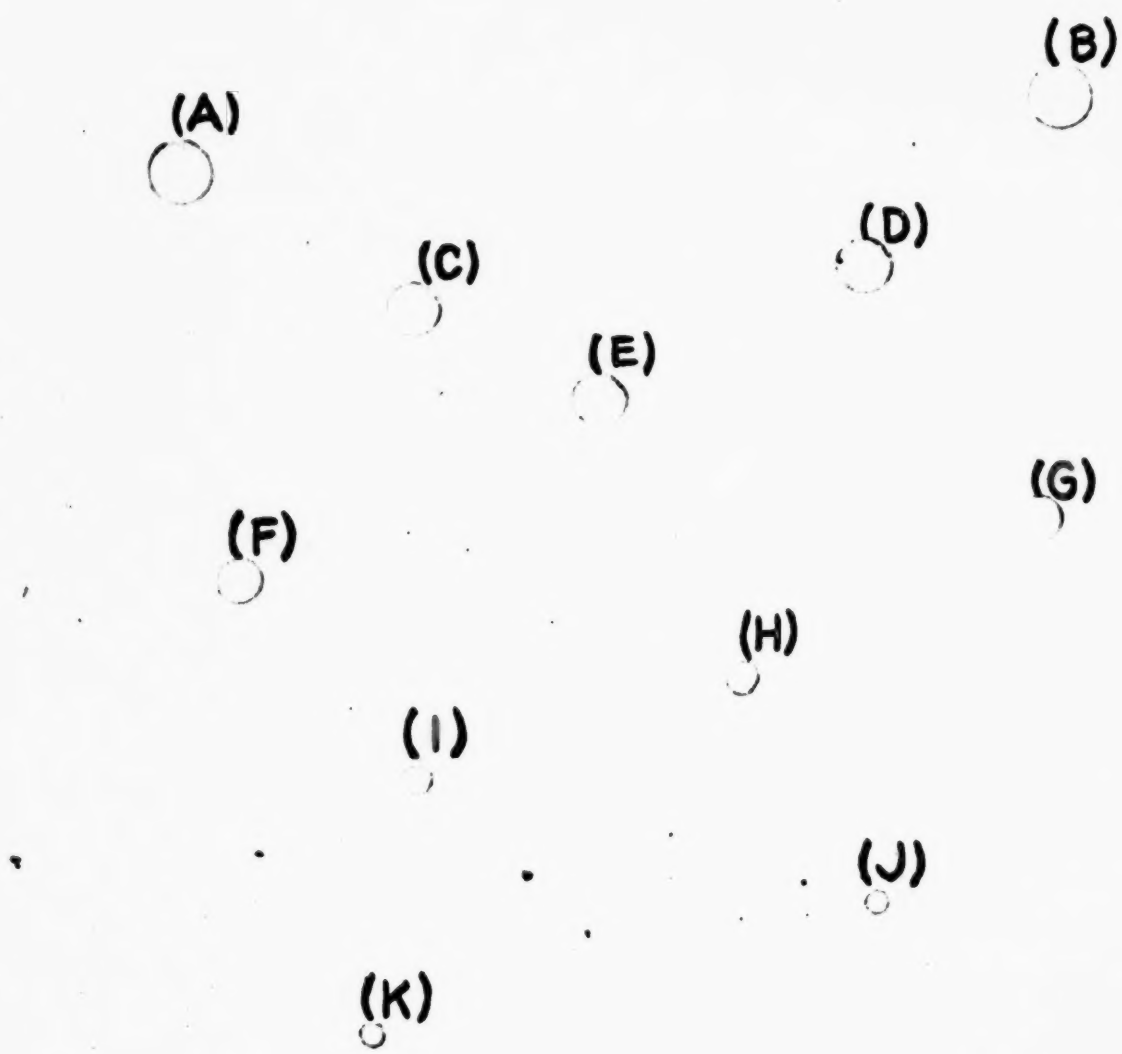
Frank C. Pratzner

October 30, 1964

SLIP THESE TWO HOLES OVER THE PRONGS
ON THE DRAWING BOARD SURFACE

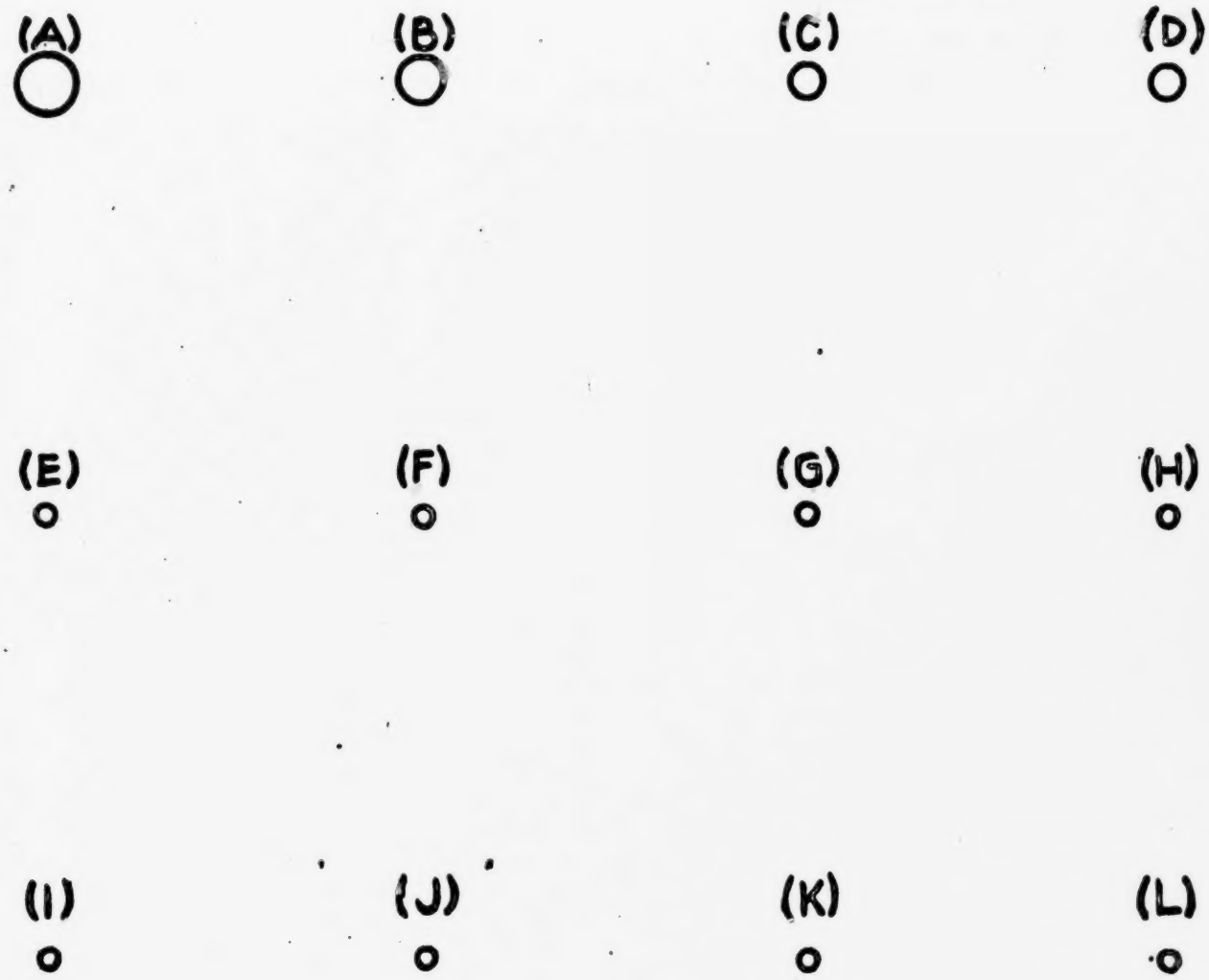
1. Fasten this cardboard template on the drawing board. Do this by carefully slipping the two holes at the top of the page down over the metal prongs on the drawing board surface. Gently smooth the template down flat on the drawing board surface.

Using the wire probe, insert it into each of the holes below. Start at the hole labeled "A," and check each hole in alphabetical order. When the probe is correctly inserted into each hole, the bulb at the top of the drawing board will light. This tells you that you are right. If the bulb does not light, you have checked the point incorrectly. Try again and this time be sure that the wire probe goes into the hole and touches the drawing board in the hole.



Take this page off the board when you are finished and place it on the desk out of the way. Then take Page 2 from the pack, and proceed by fastening it to the drawing board to begin work. Follow this same procedure for each new page.

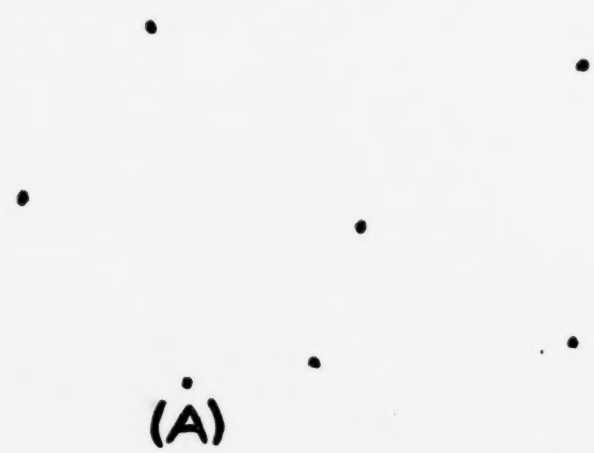
2. Using the wire probe, check each of the points below in alphabetical order. Again, the bulb will light if you are working carefully, but will not light if you are being careless.



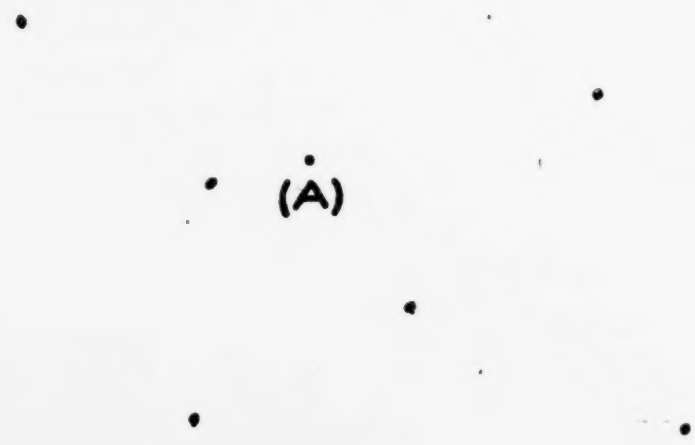
The last two lines above (Point "E" through Point "L") indicate the exact amount of tolerance you will have for the entire program. All of the lines to be drawn in the problems of the program must be <u>very carefully</u> drawn.

3. Use the ruler you have been given, and do each problem below. Circle each of your answers, and check the point with the probe.

A. Find a point which is 1" away from point "A." Circle the point.



B. Find a point which is 2" away from point "A."

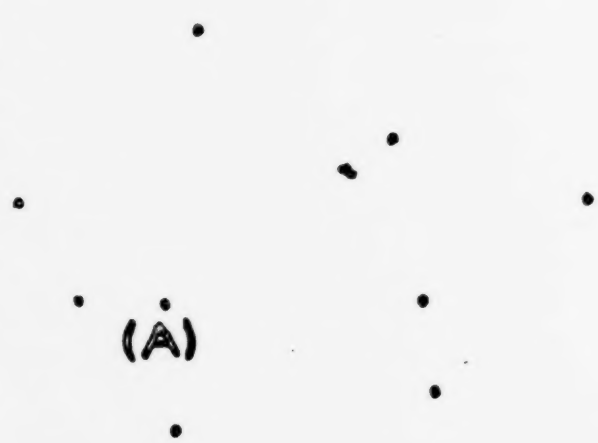


C. Find a point which is 7/8" away from point "A."

D. Find a point which is 5/16" away from point "A."

E. Find a point which is 2 1/4" away from point "A."

F. Find a point which is 1 1/8" away from point "A."



4. Using the ruler, measure to find the following points, and answer the questions below. Write your answers in the space after each question. You can check your answers by comparing them with the correct answers given at the bottom of Page 6.

A. How far is point "B" from point "A"? _____

B. How far is point "C" from point "A"? _____

C. How far is point "C" from point "B"? _____

D. How far is point "D" from point "A"? _____

E. How far is point "D" from point "B"? _____

(B)

(C)

(A)

Part C and E above are items requiring measurements to 1/16 inch accuracy. These parts require more critical measurements than the other parts of this frame. Since this degree of accuracy comes early in the program, perhaps the importance of very accurate and careful measurements on these two particular parts should be emphasized. A seperate frame might be written to follow this frame requiring several 1/16 inch measurements, and these two measurements need not be included in this frame.

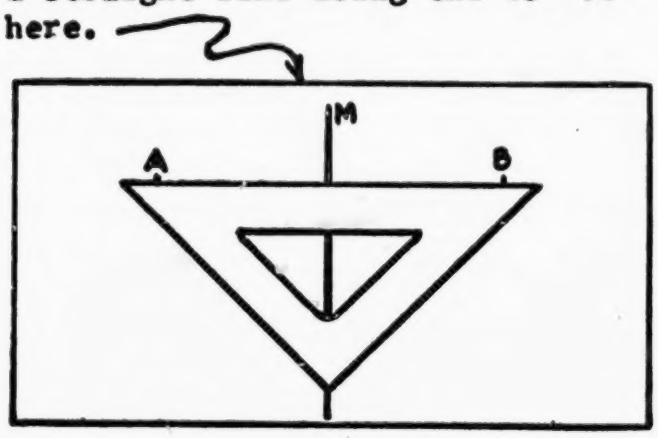
(D)

5. Starting at point "A" on the line drawn below, measure and mark-off the following distances:

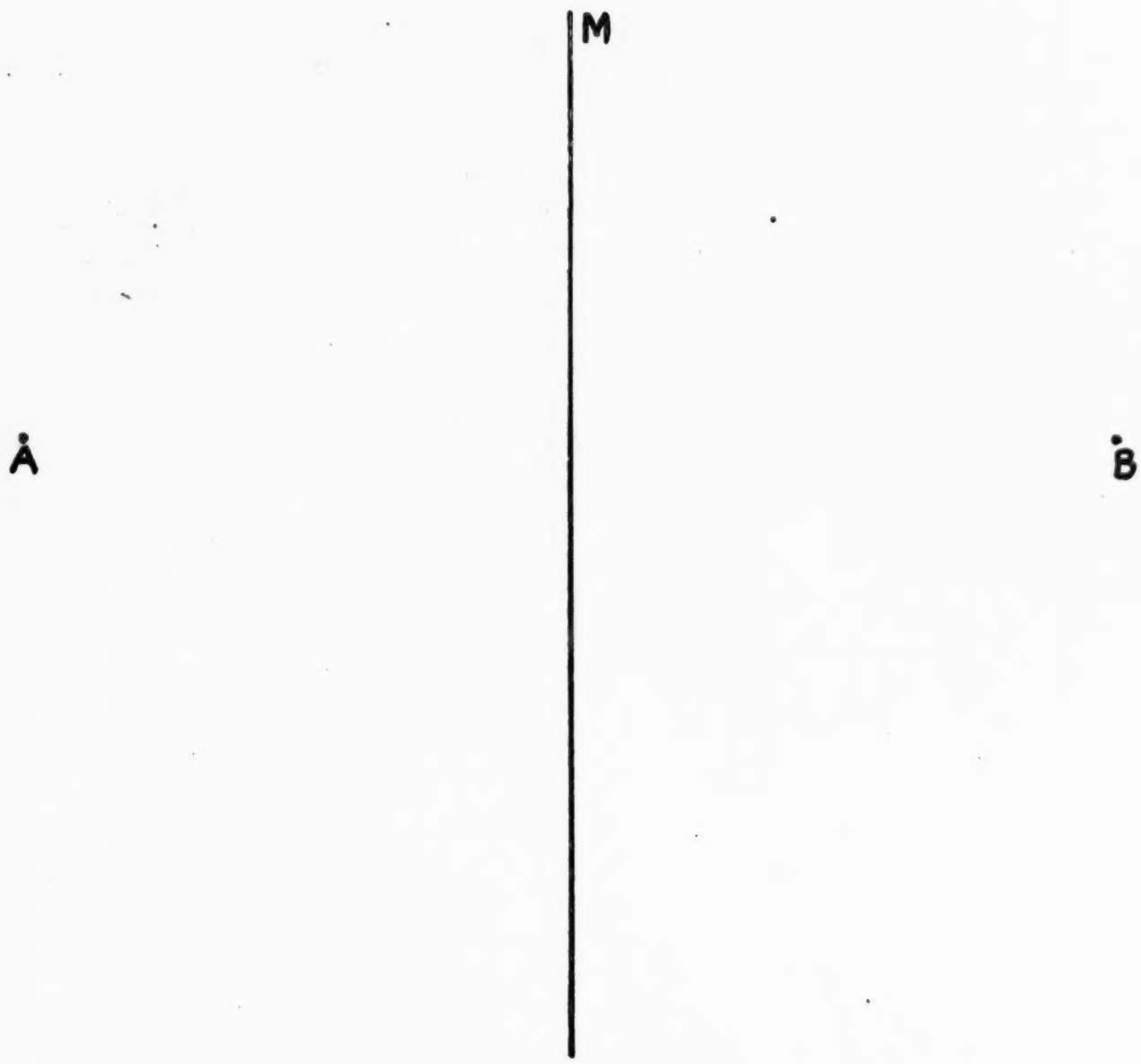
A. From point "A," measure and mark-off 1". Label the point "1."
B. From point "1," measure and mark-off 2". Label point "2."
C. From point "2," measure and mark-off 1 1/8". Label point "3."
D. From point "3," measure and mark-off 3/16". Label point "4."
E. From point "4," measure and mark-off 5/8". Label point "5."
F. From point "5," measure and mark-off 1 9/16". Label point "6."

Check each point with the wire probe immediately after marking each measurement.

6. Below are two points labeled "A" and "B." Connect these two points with a straight line using the 45°-90° triangle as illustrated in the example here.



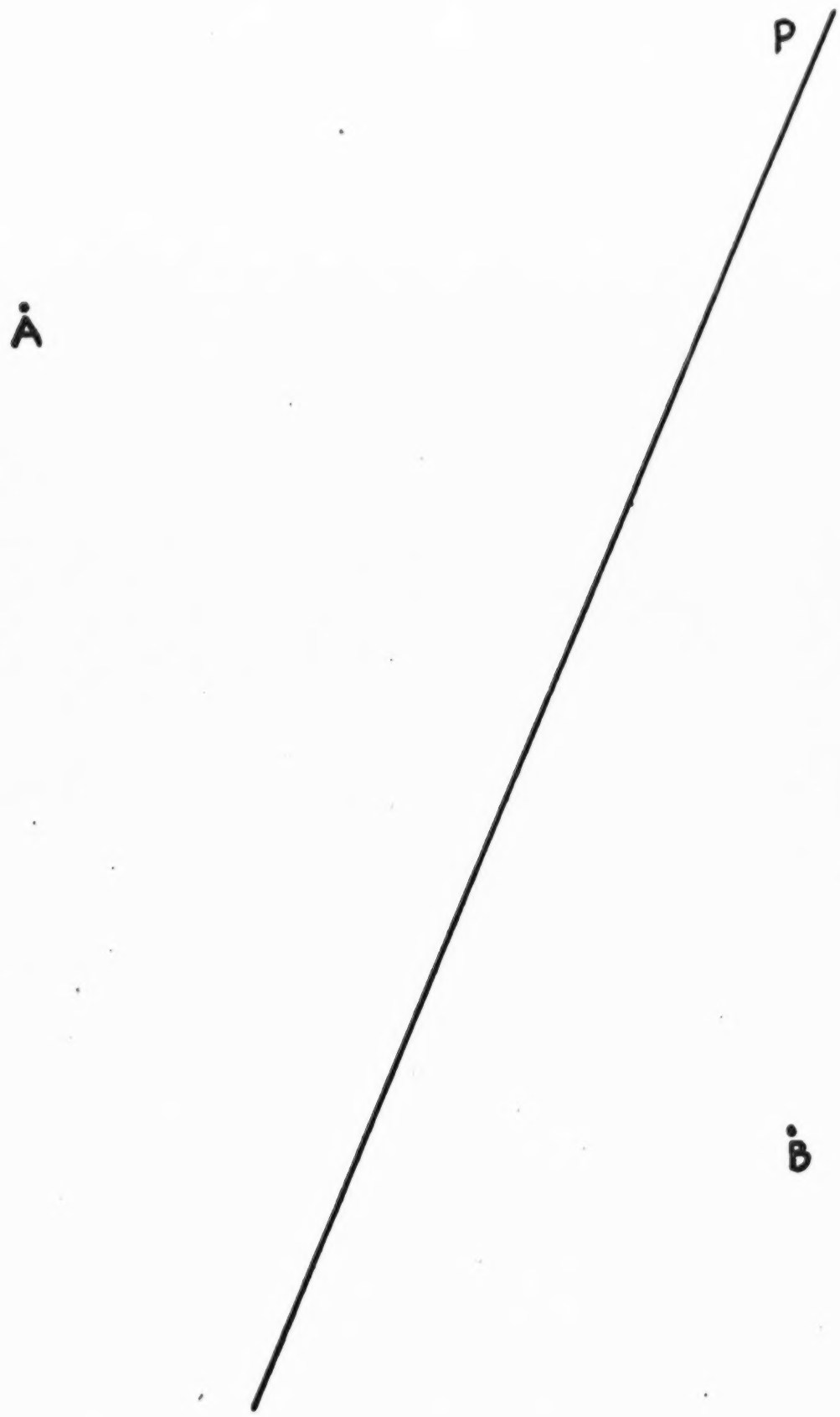
When you have done this, use the wire probe, and check the point where the line you have drawn crosses or intersects the line labeled "M." If you have worked carefully, the bulb will light indicating you are correct.



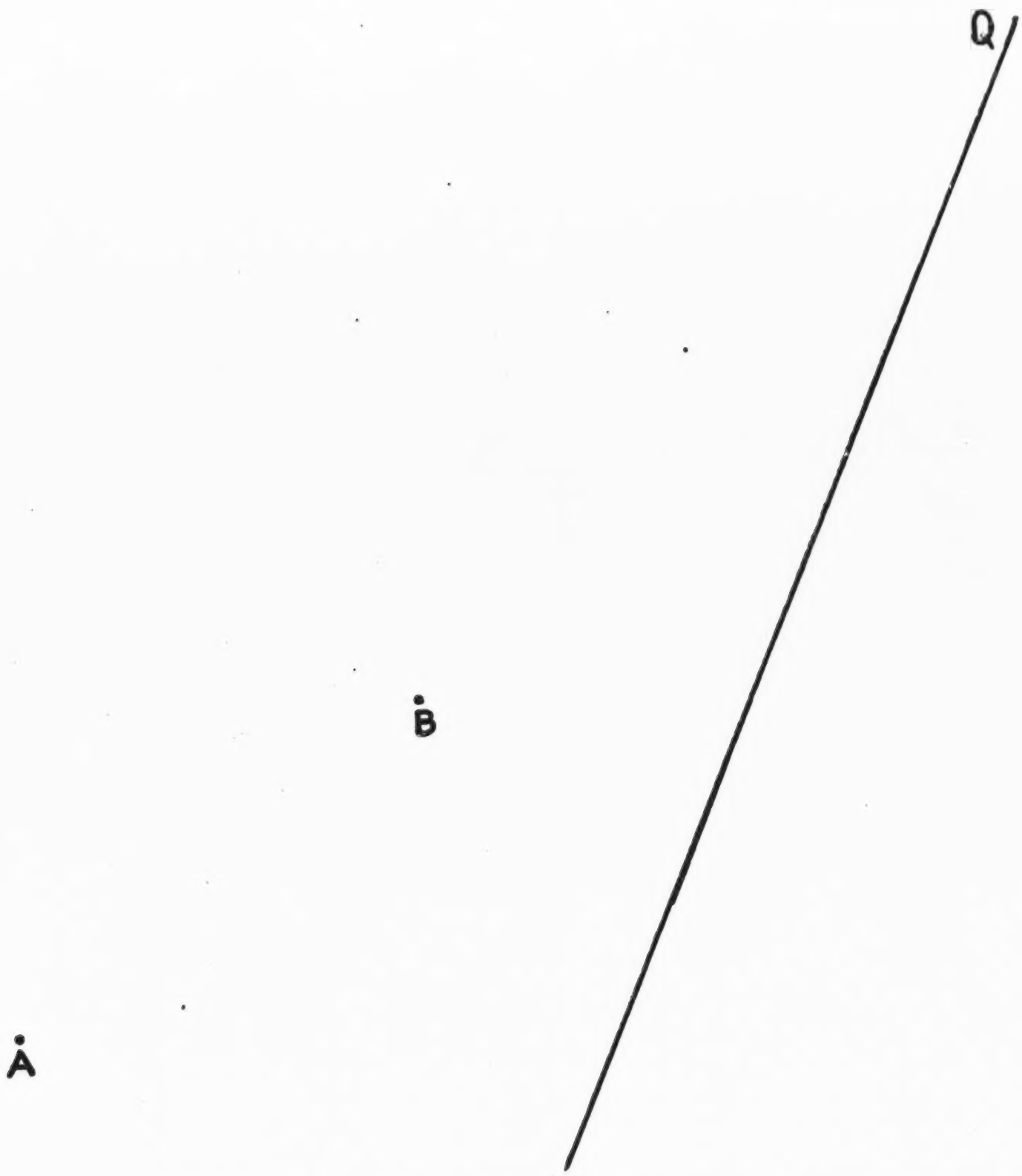
ANSWERS TO PROBLEM #4

A. 2 1/8" B. 1" C. 2 11/16" D. 3" E. 4 15/16"

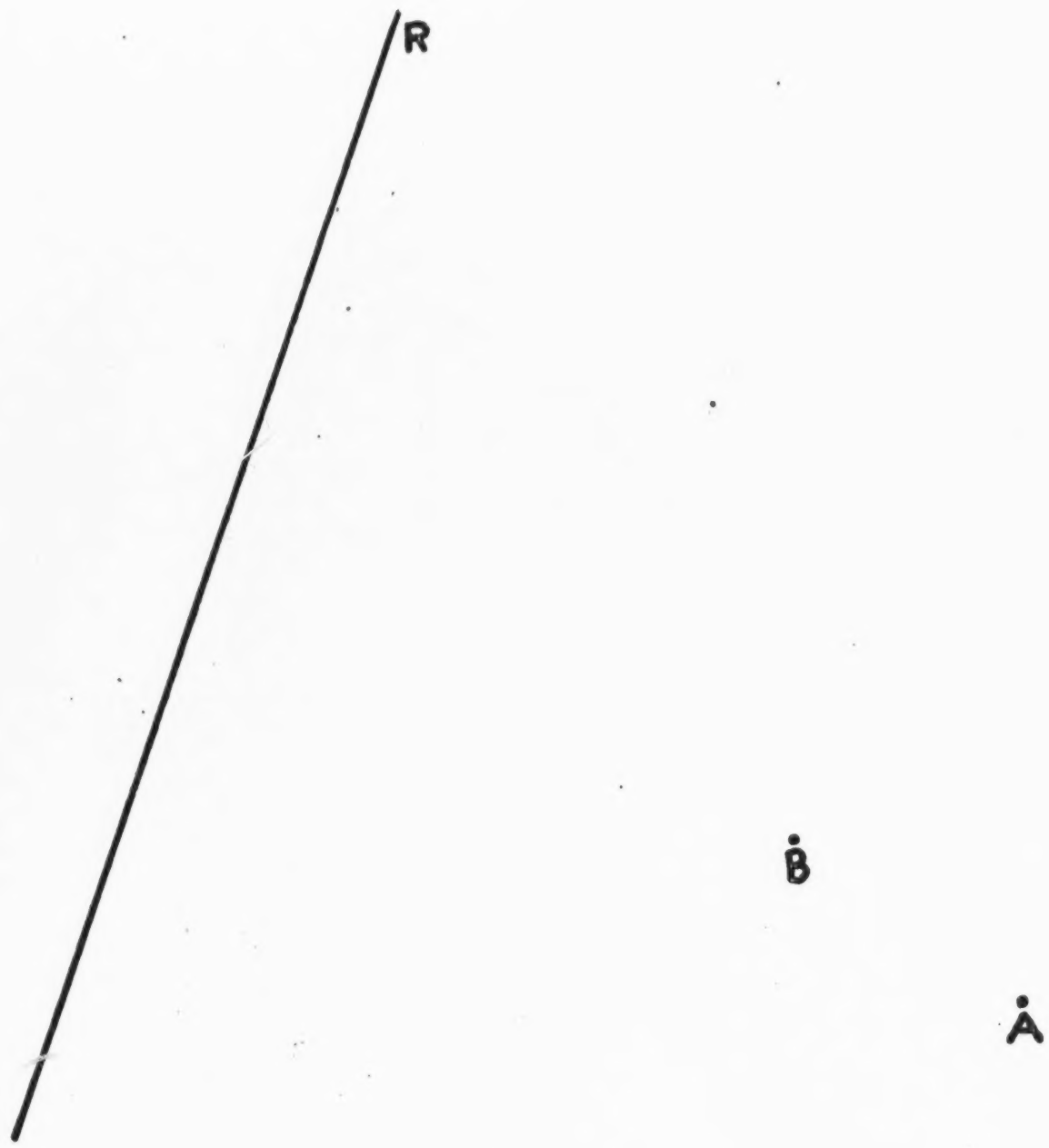
7. Connect the two points below with a straight line, and again check the point where your line <u>intersects</u> line "P." Be sure to check this point with the wire probe to find out if you are correct.



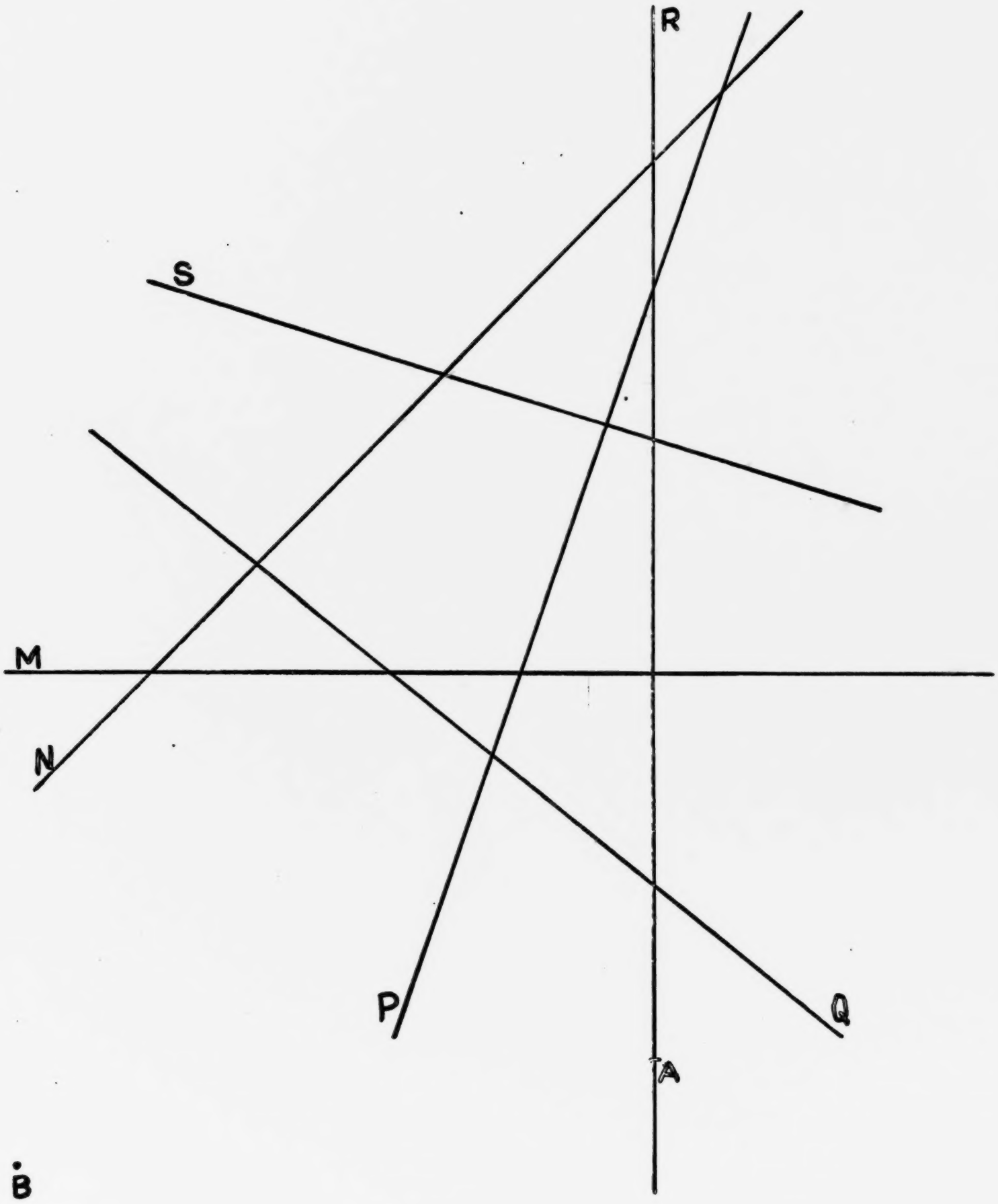
8. Below are two points labeled "A" and "B." In this problem both of the points are on the <u>same side</u> of the line labeled "Q." Carefully connect point "A" and "B" with a straight line, and continue drawing the line (extend it) until it <u>intersects</u> or crosses line "Q." If you are correct, the bulb will light when you check the <u>intersection</u> of your line and line "Q" with the wire probe.



9. Connect the two points below with a straight line, and extend the line to <u>intersect</u> line "R." Check the point of <u>intersection</u> of your line and line "R."

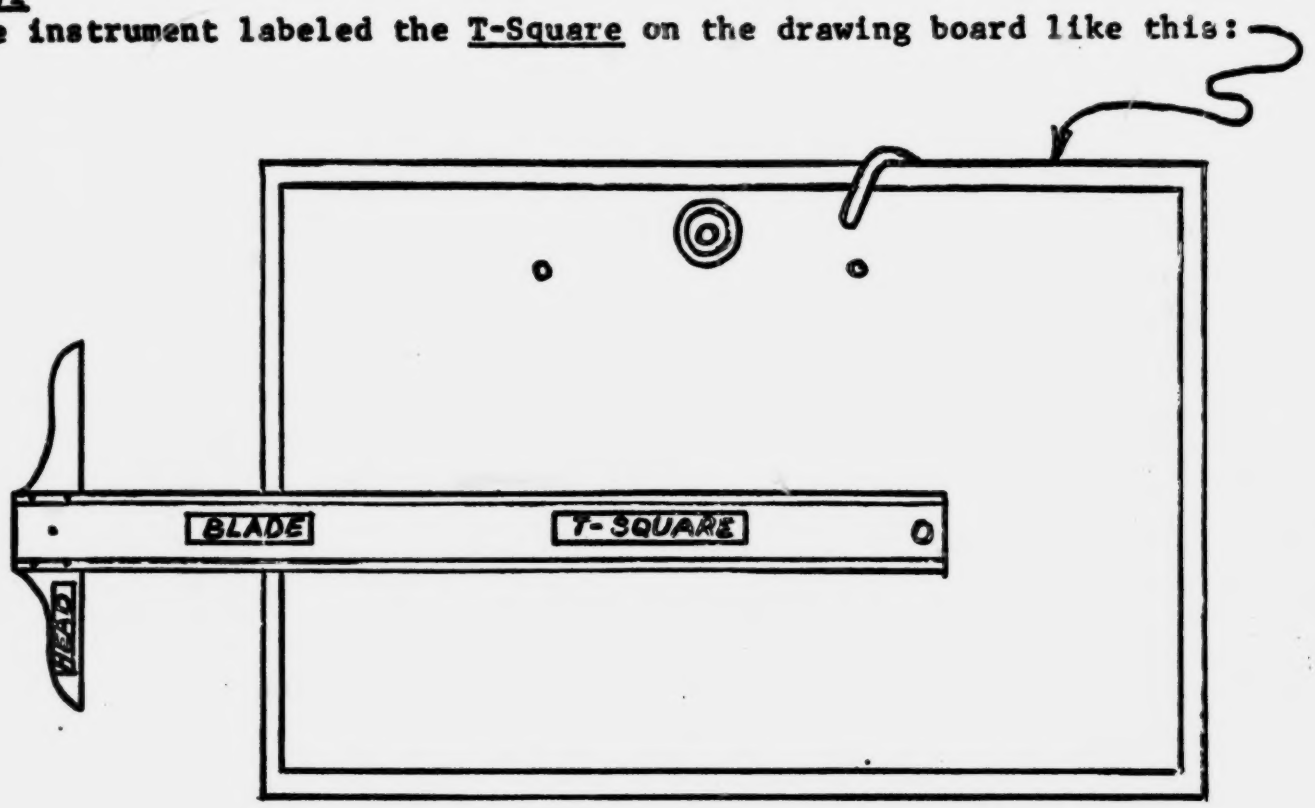


10. Using the wire probe, check each of the points of <u>intersection</u> of line "M" and line "N," line "P" and line "Q," line "R" and line "S." Now draw a line connecting points "A" and "B," and extend it to intersect line "Q." Check the point at "A" and also the point where your line <u>intersects</u> line "Q."

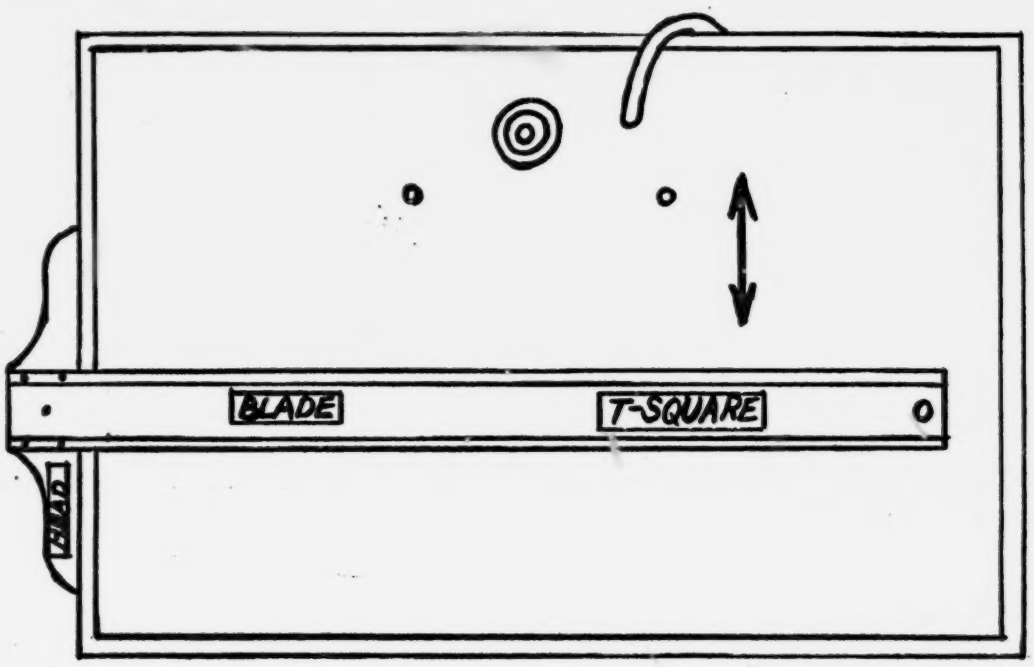


DO NOT FASTEN TO DRAWING BOARD. READ
BELOW AND FOLLOW THE DIRECTIONS CAREFULLY.

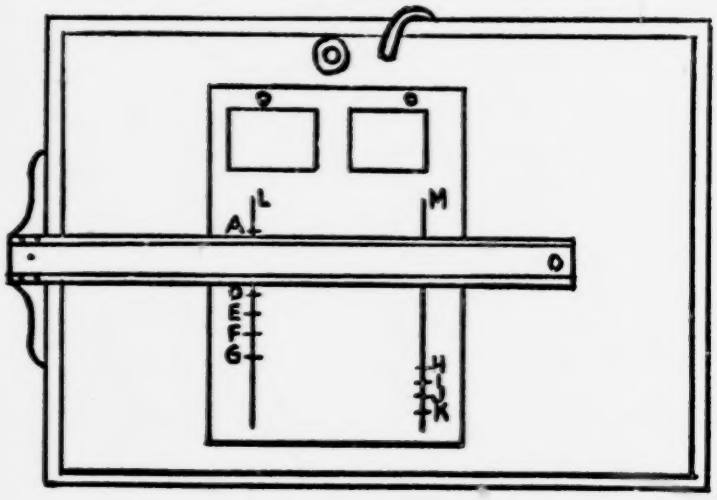
11. PANEL #1
Lay the instrument labeled the T-Square on the drawing board like this:

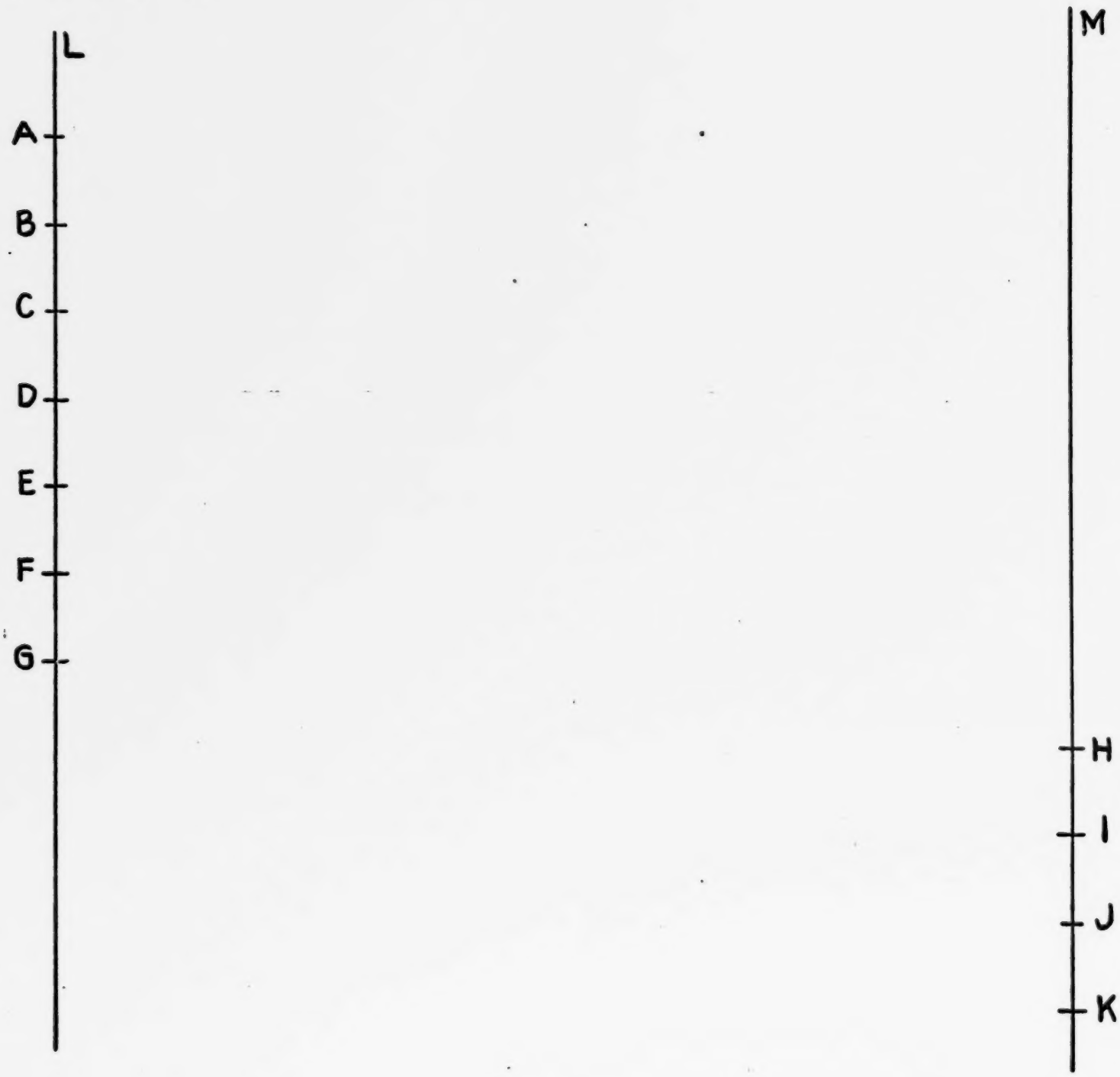


12. PANEL #2
Now push the T-Square over so that the part labeled the Head is tight against the left edge of the board. Hold it there with your left hand, and slide it up and down. Do this several times until you feel you can do it with ease. Always be sure that you can hear the click of the Head against the edge of the board before drawing a line.



13. Slide the T-Square up to point "A." Holding the T-Square firmly in place so it doesn't move accidently, draw a line starting at point "A" and extend it until it passes through line "M." Check the point of intersection of your line and line "M" with the wire probe. Continue to draw lines with the T-Square at each of the points "A" through "G" to intersect line "M." Check each intersection at line "M." Now slide the T-Square down to point "H," and for the points "H" through "K" draw lines to intersect line "L." Check each intersection at line "L."

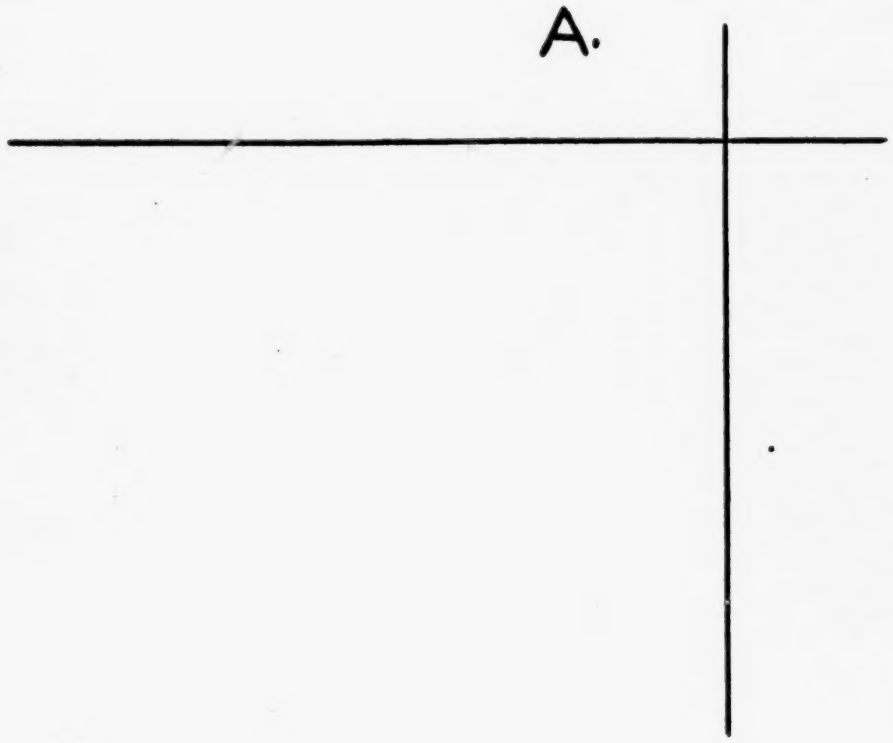




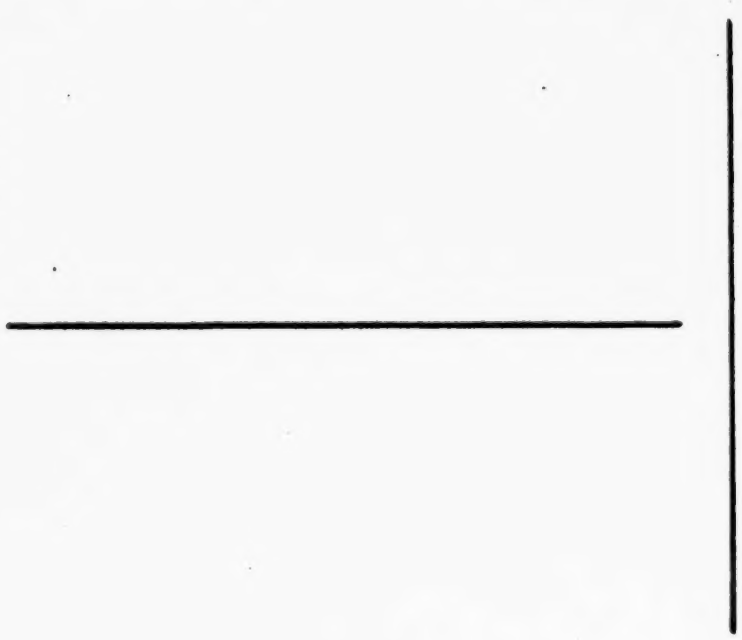
TAKE THE T-SQUARE OFF THE DRAWING BOARD, & LAY IT OUT OF THE WAY.

14. A line which passes through or crosses a second line is said to <u>intersect</u> the line, or the lines <u>intersect</u> each other. With this in mind, circle the letter of the example below which shows two <u>intersecting</u> lines. Check your choice by touching the <u>point of intersection</u> of the two lines with the wire probe.

A.



B.



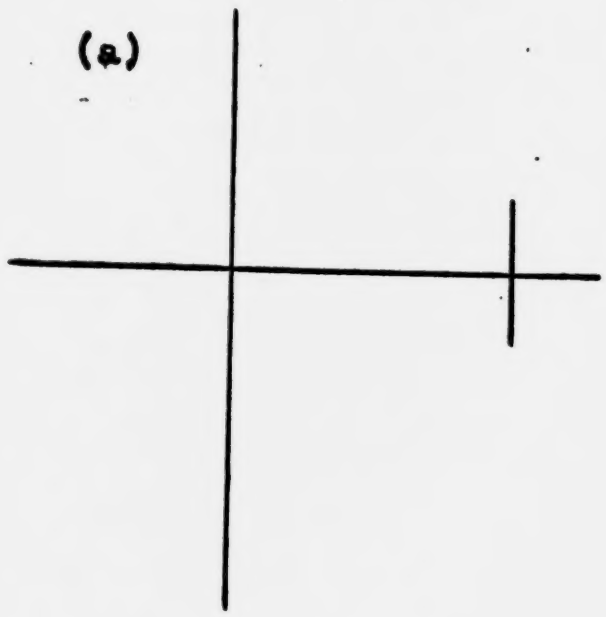
FRAME 15a, b. 17c

Reference to the completed programs of the subjects who missed these items suggested that, since all of the items concern the discrimination between intersecting and non-intersecting lines, the subjects had not fully learned the discrimination at this point. Two of the subjects who missed these items did so because they failed to respond to the item. This also suggested some possible indecision about the discrimination between the two kinds of lines. This probably is not due to inadequate practice opportunity in forming the discrimination, but is more likely due to lack of a clear statement of the different characteristics of the two kinds of lines (lack of a clear definition of intersecting lines). The first attempt to improve the item should, therefore, be to rewrite the definition of intersecting lines to be clear, and include more adequate examples of the intersecting lines before asking the subjects to respond to these items.

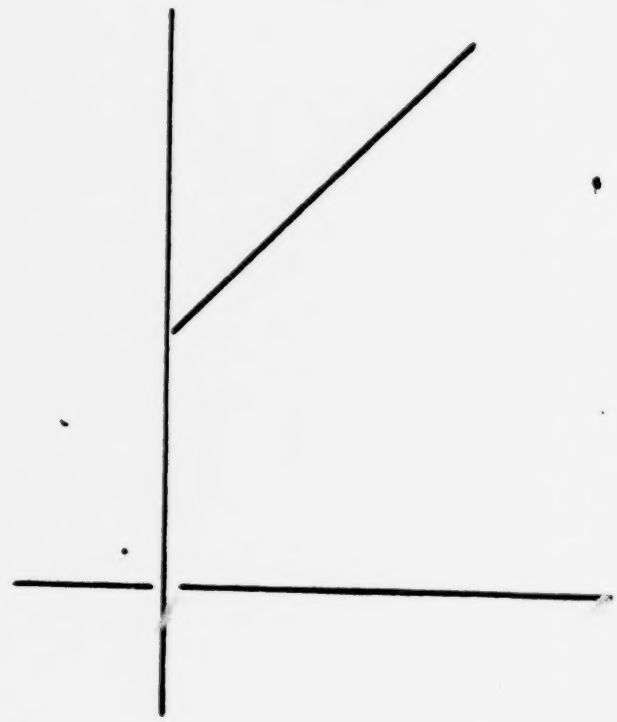
15. Study the examples below. Identify the examples showing <u>intersecting</u> lines by circling the letters of your choices. Check your choices with the wire probe by touching the <u>points of intersection</u>.

A.

(a)

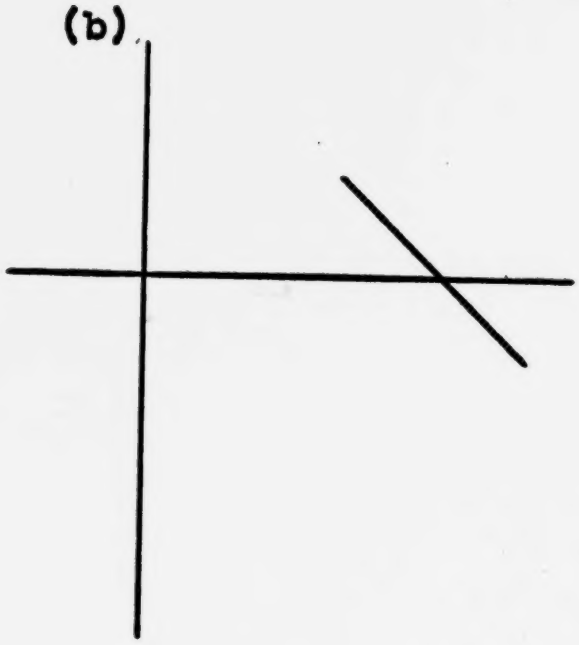


B.

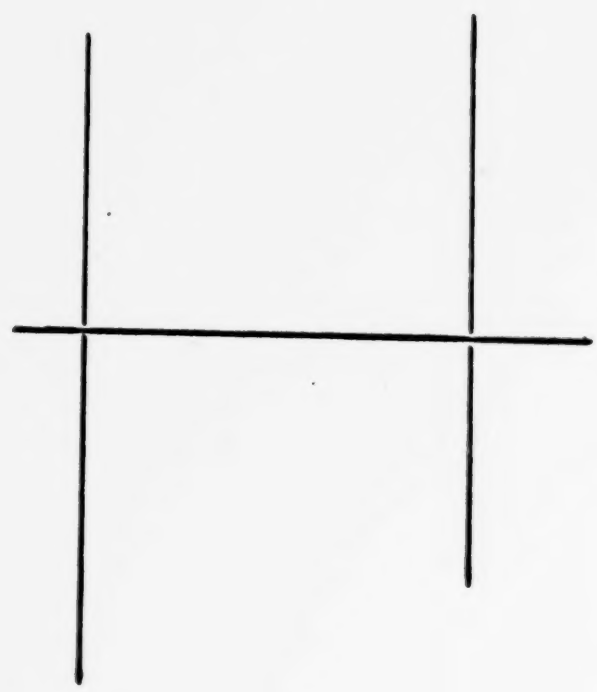


C.

(b)

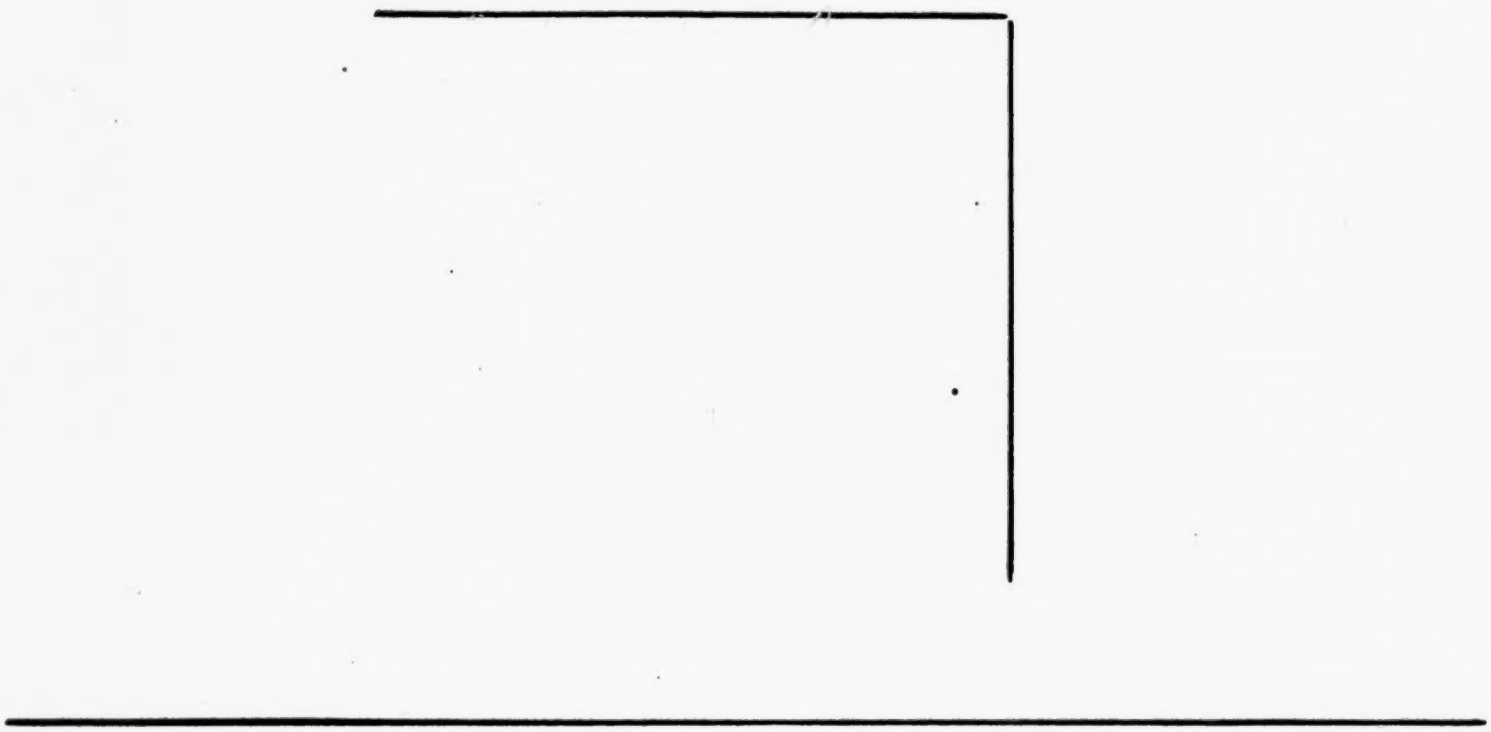


D.

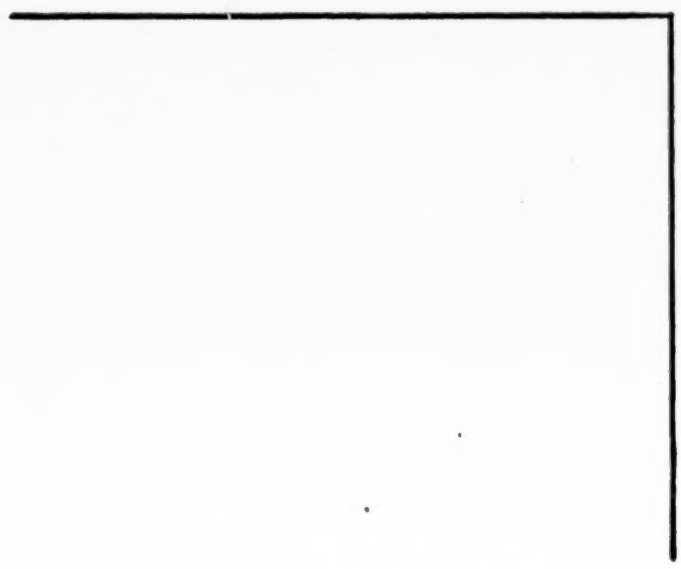


16. When a line touches another line, without actually passing through the line, it is also an intersecting line. Identify the example below showing intersecting lines by circling the letter of your choice. Check the point of intersection of the lines.

A.



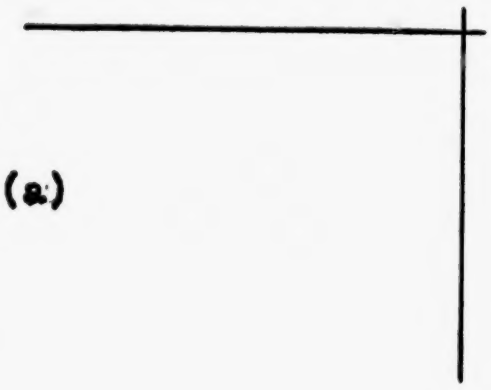
B.



17. Identify the lines which <u>intersect and cross</u> each other.. Circle the letters of your choices, and check the points of intersection.

A.

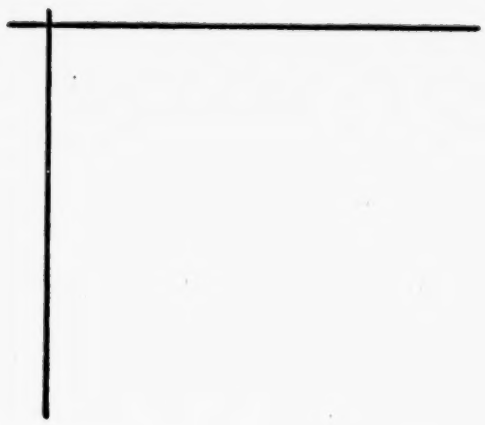
(a)



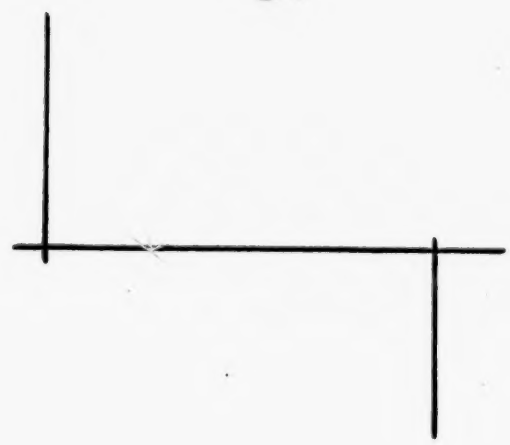
B.

C.

(b)

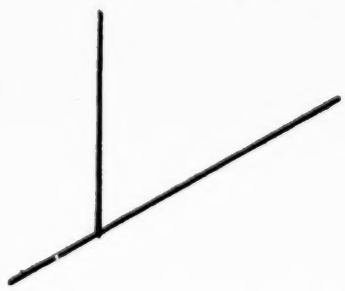


D.



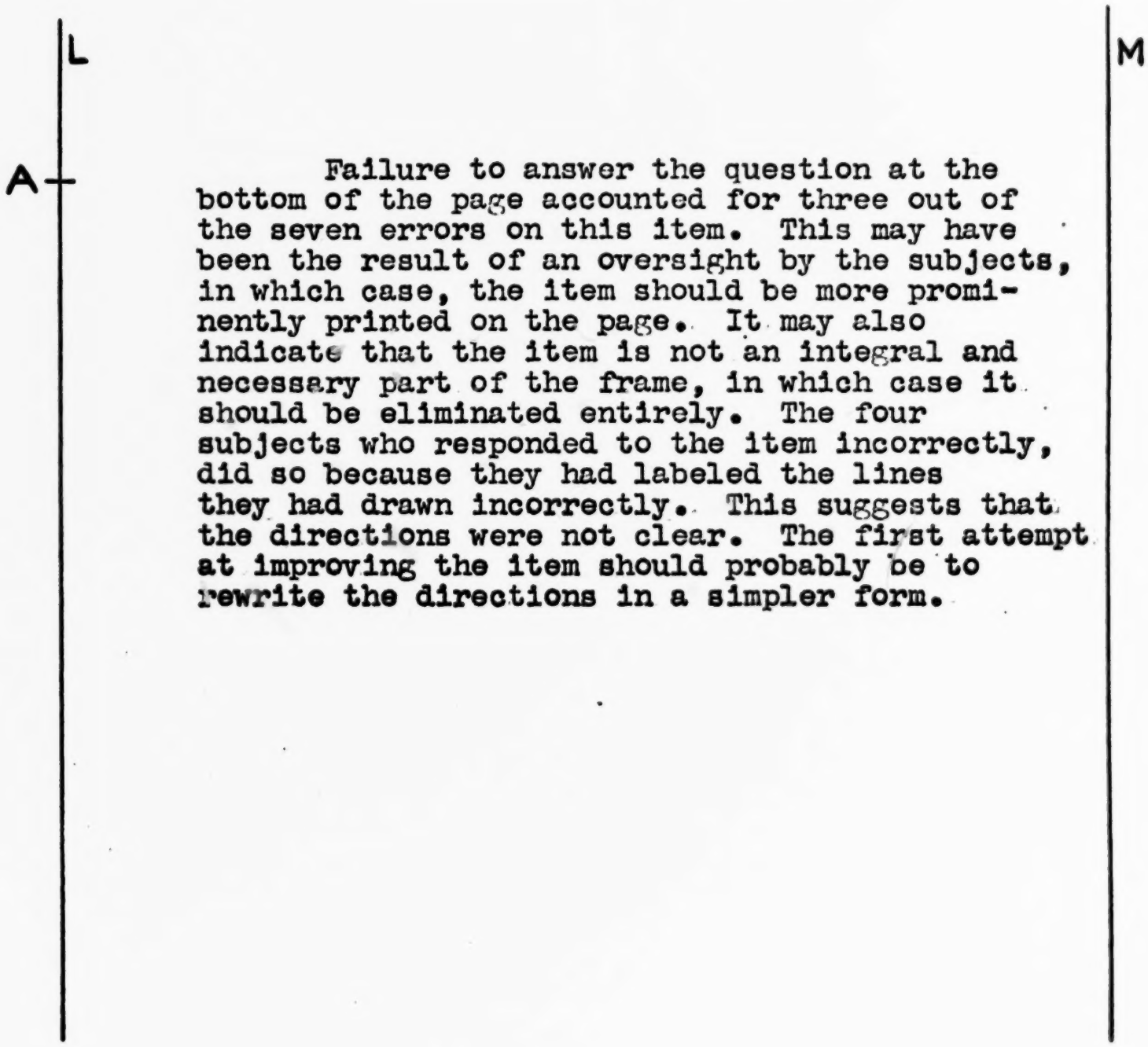
E.

(c)



F.

18. Using the T-Square, draw a horizontal line from point "A" on line "L" to intersect line "M." Your horizontal line should stop exactly at line "M" and not pass through it. Your horizontal line still intersects line "M" because it touches the line. Label the point where your line intersects line "M" as point "B." Next, measure down 1" from point "B" on line "M," mark the point "C," and draw a second horizontal line from point "C" to intersect line "L." Mark the point "D" and draw a third line from point "E" to intersect line "M." Check all points of intersection.

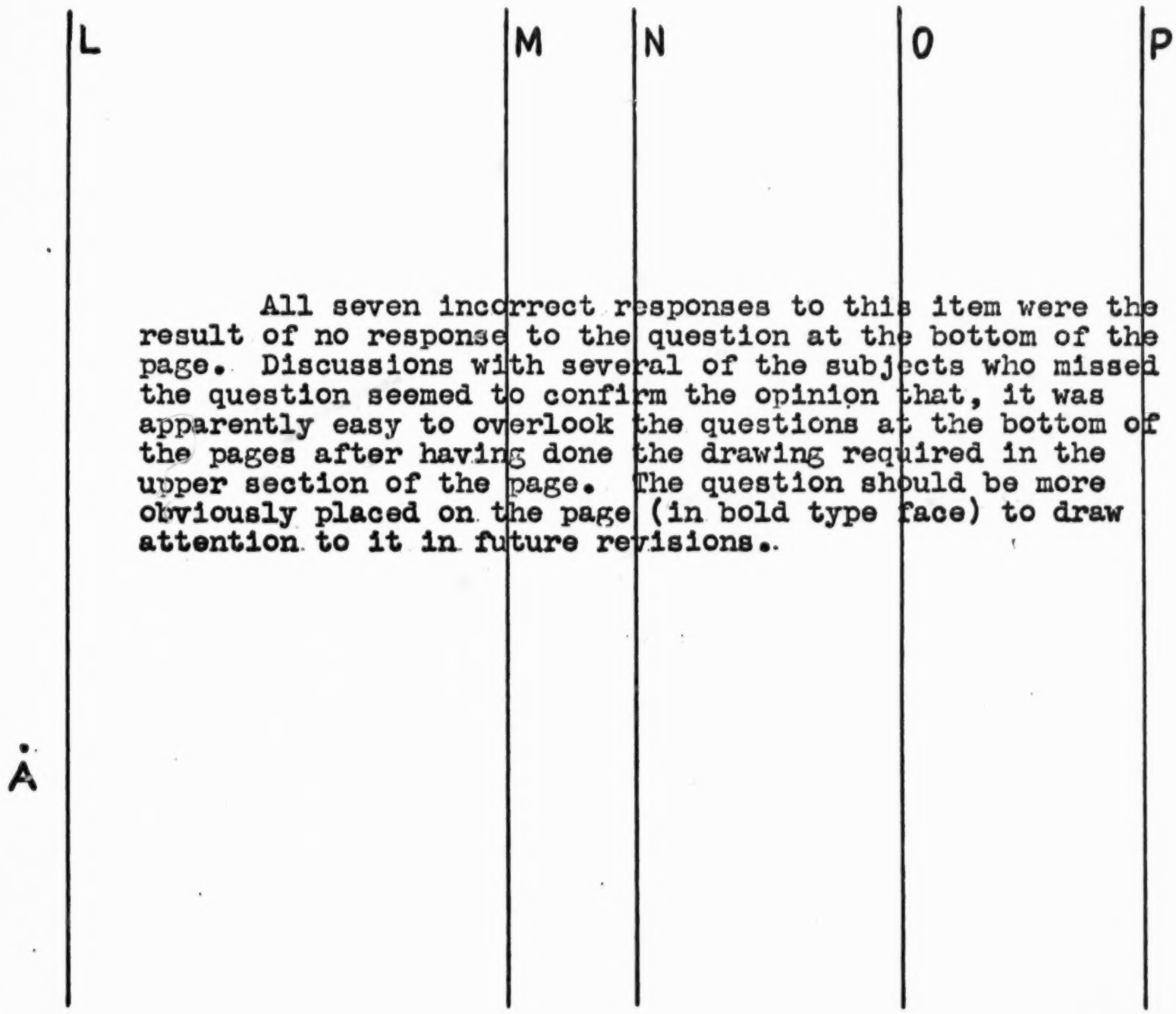


Failure to answer the question at the bottom of the page accounted for three out of the seven errors on this item. This may have been the result of an oversight by the subjects, in which case, the item should be more prominently printed on the page. It may also indicate that the item is not an integral and necessary part of the frame, in which case it should be eliminated entirely. The four subjects who responded to the item incorrectly, did so because they had labeled the lines they had drawn incorrectly. This suggests that the directions were not clear. The first attempt at improving the item should probably be to rewrite the directions in a simpler form.

How far is it from point "A" to point "E" on line "L"? Measure it and write your answer here. _____

ANSWER ON BOTTOM OF PAGE 18

19. Using the T-Square, draw a line "A" passing through point "A" and intersecting lines "L," "M," "N," "O," "P." Check the points of intersection. Where your line intersects line "L," measure up 2" on line "L" and label the point "B." Using the T-Square, draw a new line "B" passing through point "B" and intersecting all of the given lines. Check all points of intersection.



All seven incorrect responses to this item were the result of no response to the question at the bottom of the page. Discussions with several of the subjects who missed the question seemed to confirm the opinion that, it was apparently easy to overlook the questions at the bottom of the pages after having done the drawing required in the upper section of the page. The question should be more obviously placed on the page (in bold type face) to draw attention to it in future revisions.

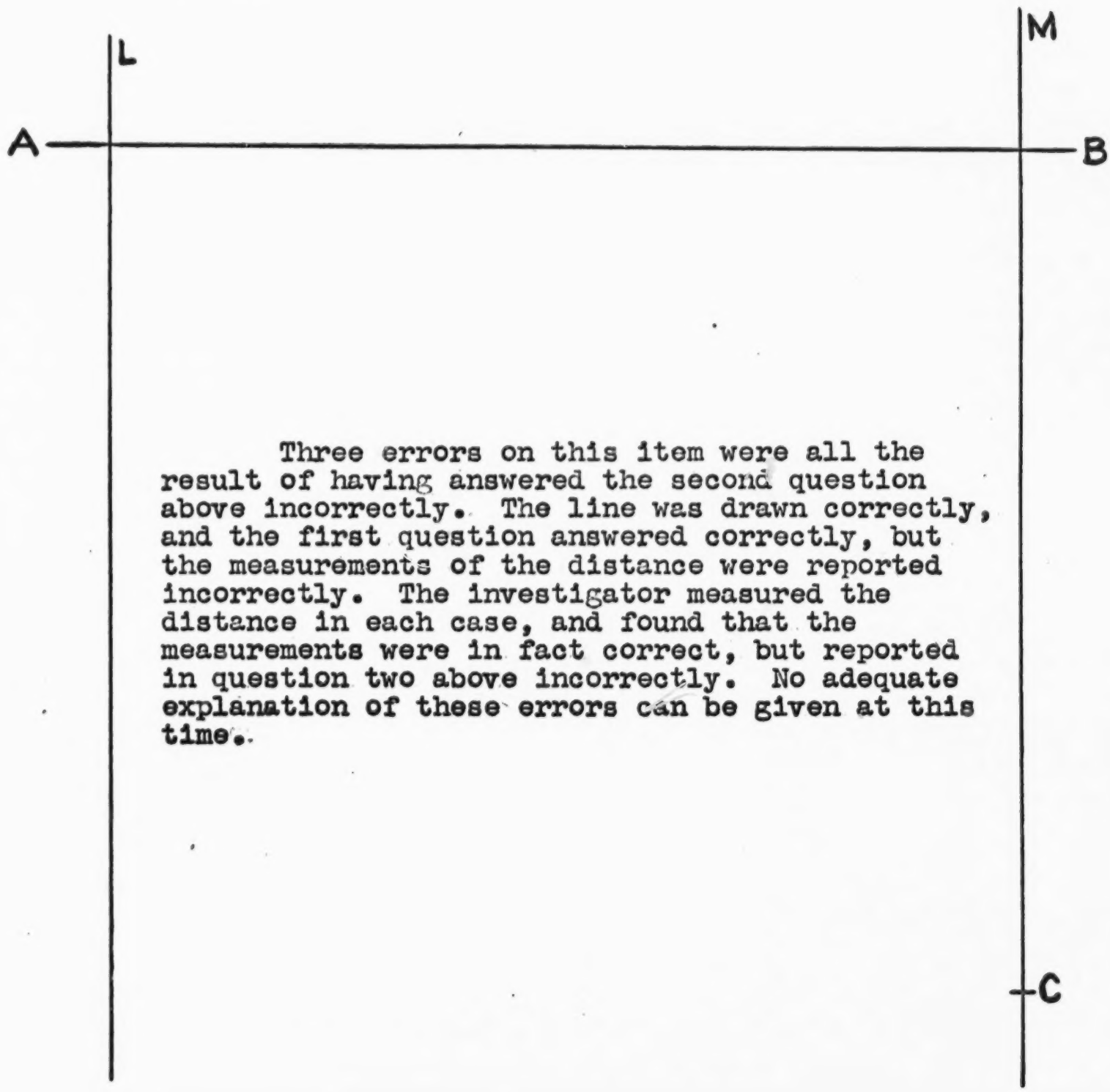
How far is it from line "A" to line "B" measured on each of the given lines?_____

ANSWER ON BOTTOM OF PAGE 19

ANSWER TO PROBLEM #18 ON PAGE 17 IS 3"

20. Using the T-Square, draw a horizontal line at the position "C" on line "M." Check the intersection of your line at line "L." Measure the distance from your line to the given line "AB" on both line "L" and line "M."
Are the distances measured on line "L" and "M" the same? _____
What is this distance? _____

When two lines are equally spaced along their entire length, the lines are said to be parallel lines.



Three errors on this item were all the result of having answered the second question above incorrectly. The line was drawn correctly, and the first question answered correctly, but the measurements of the distance were reported incorrectly. The investigator measured the distance in each case, and found that the measurements were in fact correct, but reported in question two above incorrectly. No adequate explanation of these errors can be given at this time.

ANSWER TO PROBLEM #19 ON PAGE 18 IS 2"

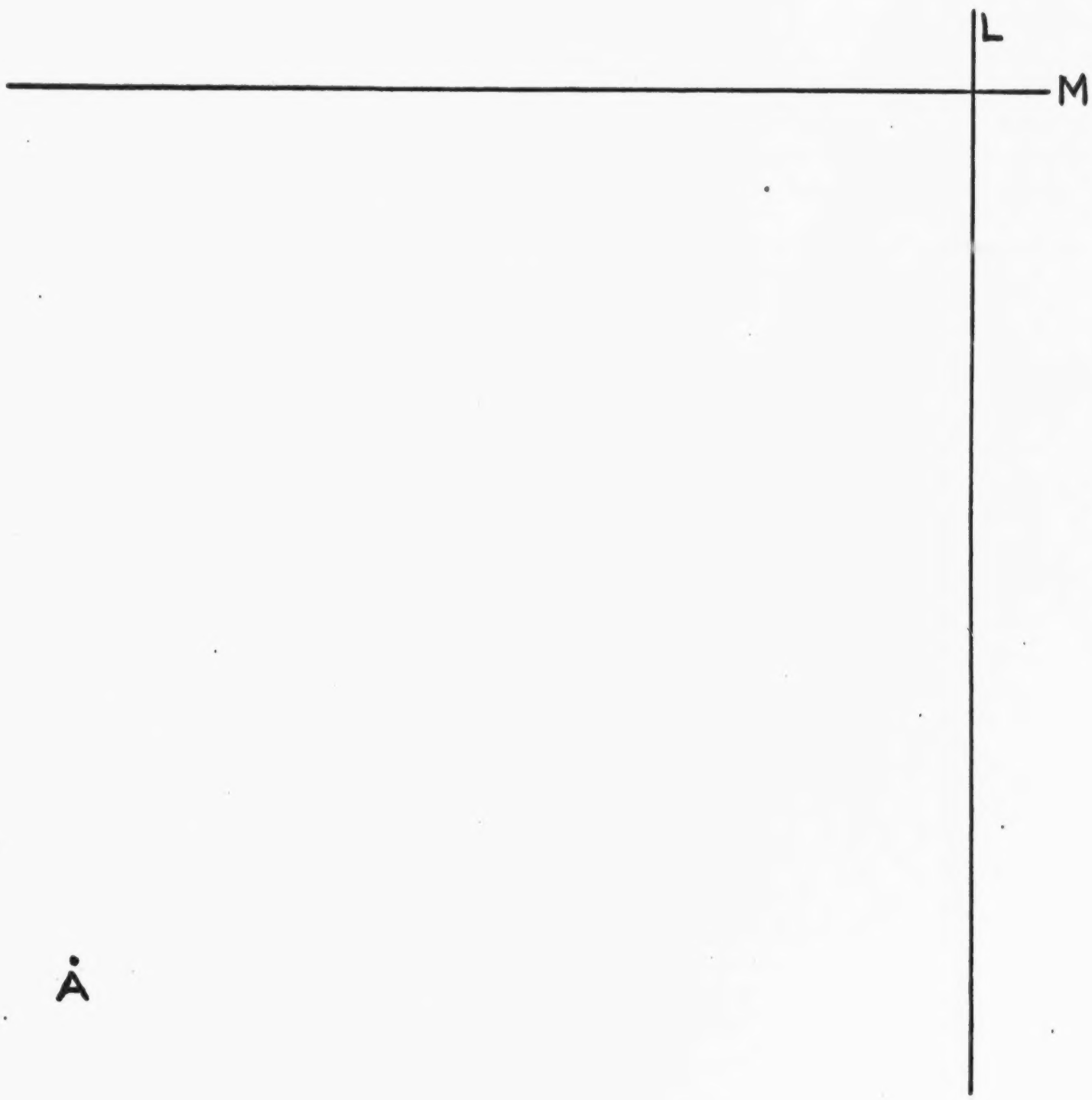
21. Using the T-Square, draw a <u>horizontal</u> line passing through point "A" and <u>parallel</u> to the horizontal line labeled "M."

Measure the distance from your line to line "M" on line "L," and also measure the distance between the two lines at several other points along the lines.

Are all of your measurements the same? _____

Are the two lines parallel? _____

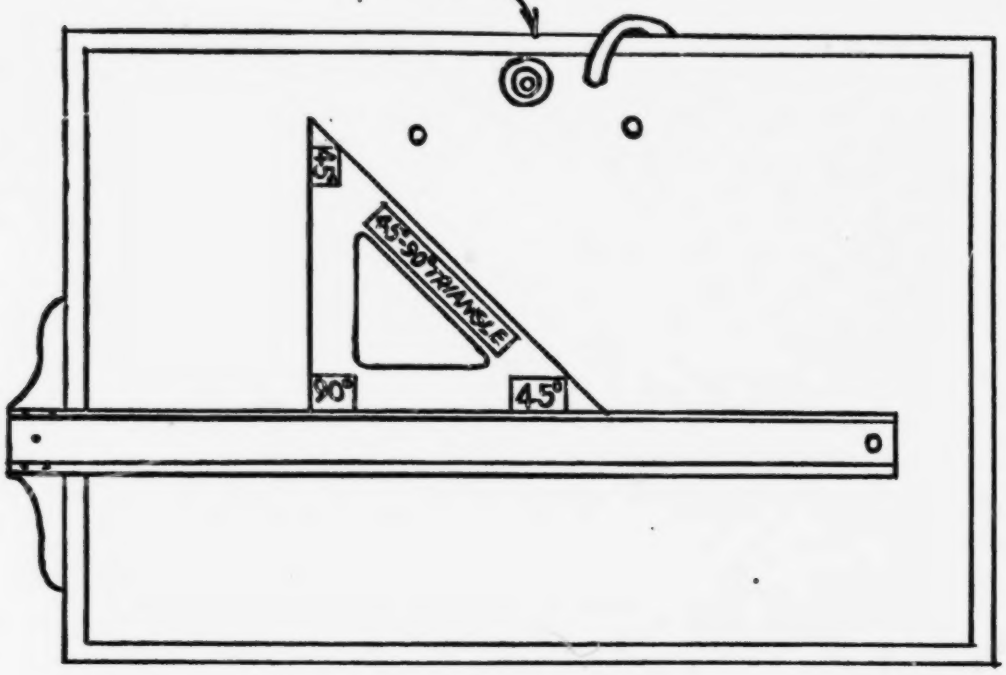
Check the point of intersection of your line at line "L." If the bulb lights your line is drawn correctly, and the two lines are parallel.



DO NOT FASTEN TO THE DRAWING BOARD. READ BELOW AND FOLLOW THE DIRECTIONS CAREFULLY.

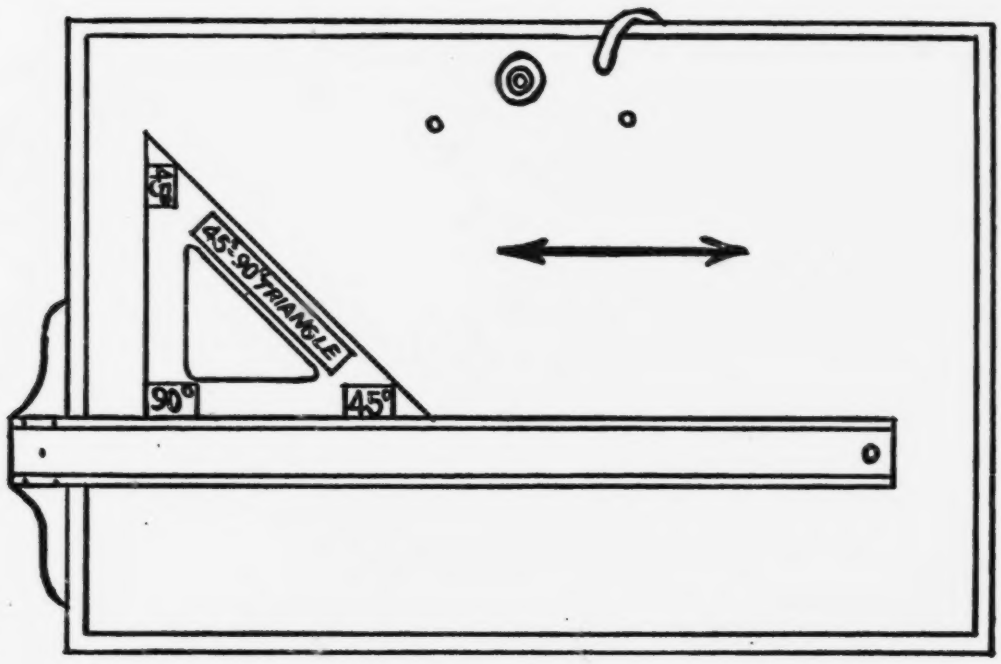
22. PANEL #3

Lay the T-Square on the drawing board. Lay the plastic triangle which has been given to you marked 45°-90° Triangle on the board so that it is resting on the T-Square Blade like this



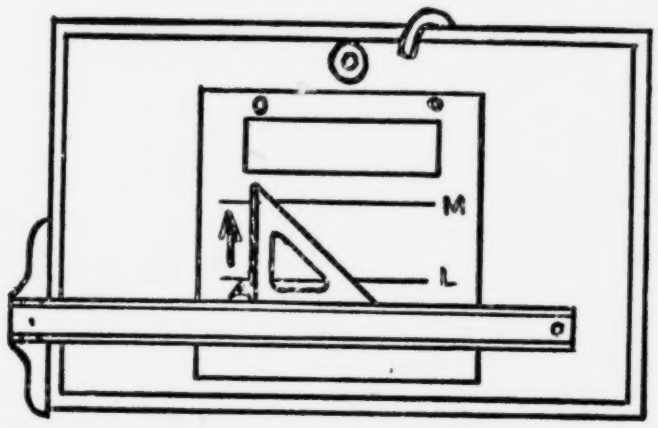
23. PANEL #4

Holding the T-Square firmly in place with your left hand, slide the 45°-90° Triangle back and forth, from left to right, along the T-Square blade several times until you feel sure you can do this with ease. Be absolutly sure that the T-Square does not move at all during your practice and check often to be sure that it hasn't moved.

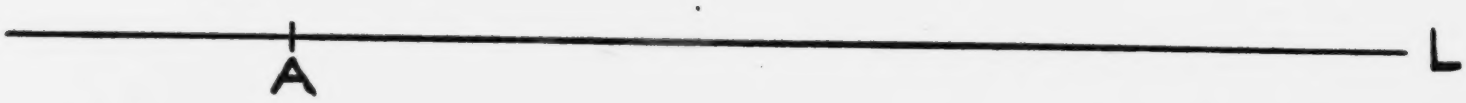


FASTEN THE SHEET TO THE DRAWING BOARD.

24. Follow the example to the right, and slide the 45°-90° Triangle over to point "A" below. Be sure that the T-Square and the triangle are properly placed and held firmly in position. (See Panels #24 and #25.)
Draw a <u>vertical</u> line starting at point "A," and extend it up until it intersects line "M."



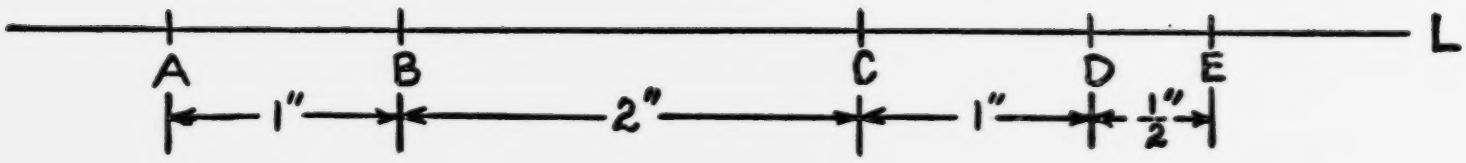
Check the point of intersection of your <u>vertical</u> line and line "M."



25. Arrange the T-Square and 45°-90° Triangle below in the position for drawing a vertical line. Without moving the T-Square, slide the triangle to each point on line "L" (A, B, C, D, E), and draw parallel vertical lines extending up to intersect line "M." Check all points of intersection on line "M," and label the points a, b, c, d, e from left to right on line "M."

M

Two of the three incorrect responses to part E below were the result of not having answered the question. No adequate explanation of this occurance can be suggested.



Without actually measuring, how far should it be from:

point "a" to point "b"? _____
point "b" to point "c"? _____
point "c" to point "d"? _____ (E)
point "d" to point "e"? _____
point "b" to point "d"? _____
point "a" to point "e"? _____

How would you describe the lines you have drawn? _____

_____

ANSWERS ON BOTTOM OF PAGE 24

26. Adjust the T-Square and triangle, and draw a vertical line at point "A" on line "L" to intersect line "M" at point "B." Measure over 1" on line "L" from point "A," and mark the point "C." From point "C" draw a vertical line parallel to the first line that you drew at point "A," and extend it to intersect line "M." Mark this point "D." Continue drawing parallel vertical lines 1" apart to point "H."
Check all points of intersection at line "M."

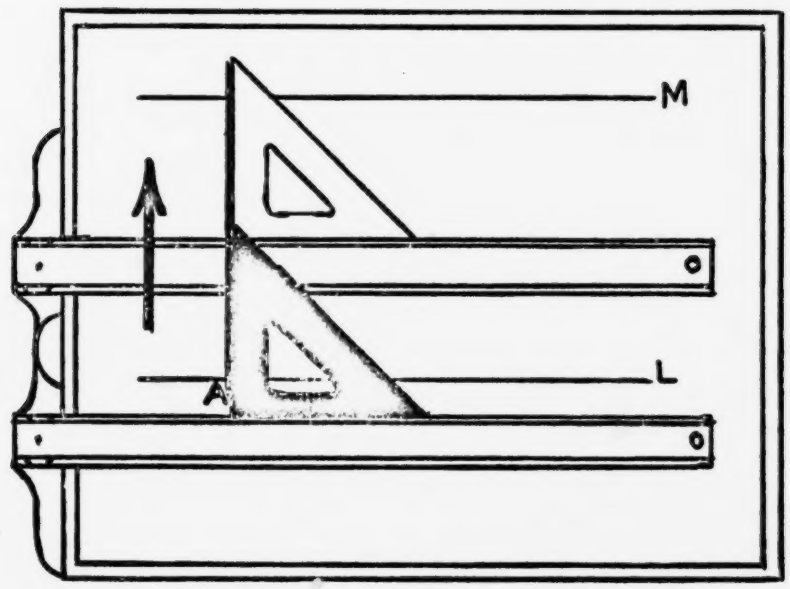
One subject drew only one line instead of the four required lines. Of the remaining five subjects, three apparently were using the T-Square inaccurately, and two showed signs of having had difficulty drawing vertical lines with the 45°-90° Triangle.

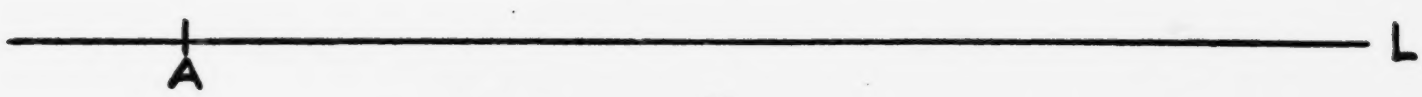
An additional frame between frame 25 and this frame, giving more practice drawing vertical lines, may provide the additional practice with the equipment which seems to be needed before this item can be responded to correctly by all.

ANSWERS TO PROBLEM #25 ON PAGE 23

1. 1" 2. 2" 3. 1" 4. 1/2" 5. 3" 6. 4 1/2"

27. Slide the triangle over to point "A" on line "L," and draw a vertical line to intersect line "M." Since the triangle isn't long enough to draw the entire length, draw the longest line possible; then follow the example below.





28. Draw a vertical line of any length from point "A" below. Draw a horizontal line from point "B" to intersect the vertical line.
Check the point of intersection of the two lines.

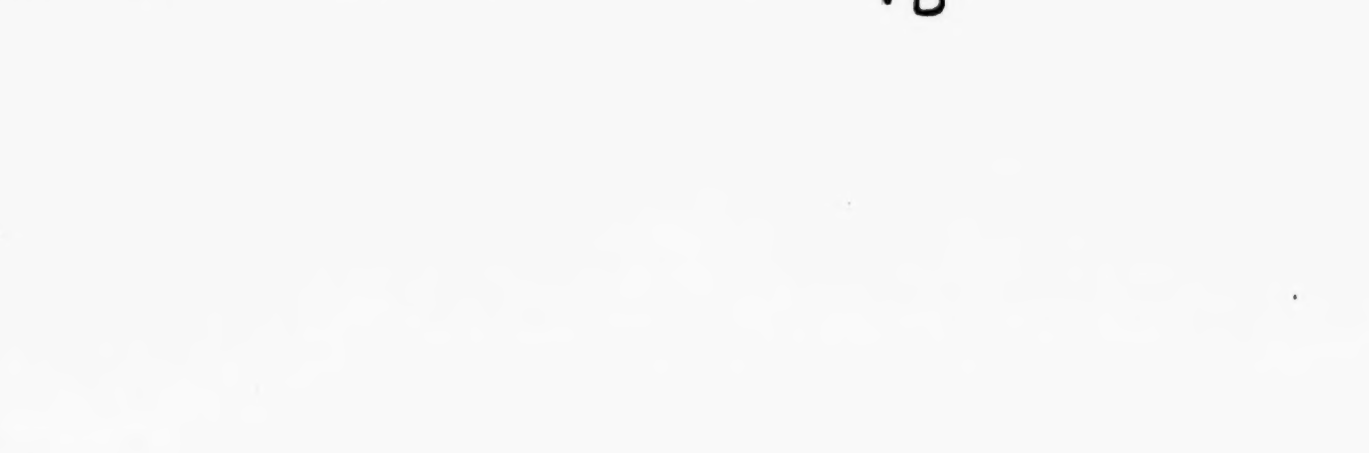
One subject responded to this item incorrectly by connecting points A and B with a straight line. The remaining two errors were the result of inaccuracy of the vertical lines in both cases, and the horizontal and vertical lines in one of the two cases.

Perhaps the additional frame between frame 25 and 26, to practice using the equipment correctly to draw vertical lines, may be adequate to eliminate the errors on this frame in future versions of the program.

B.

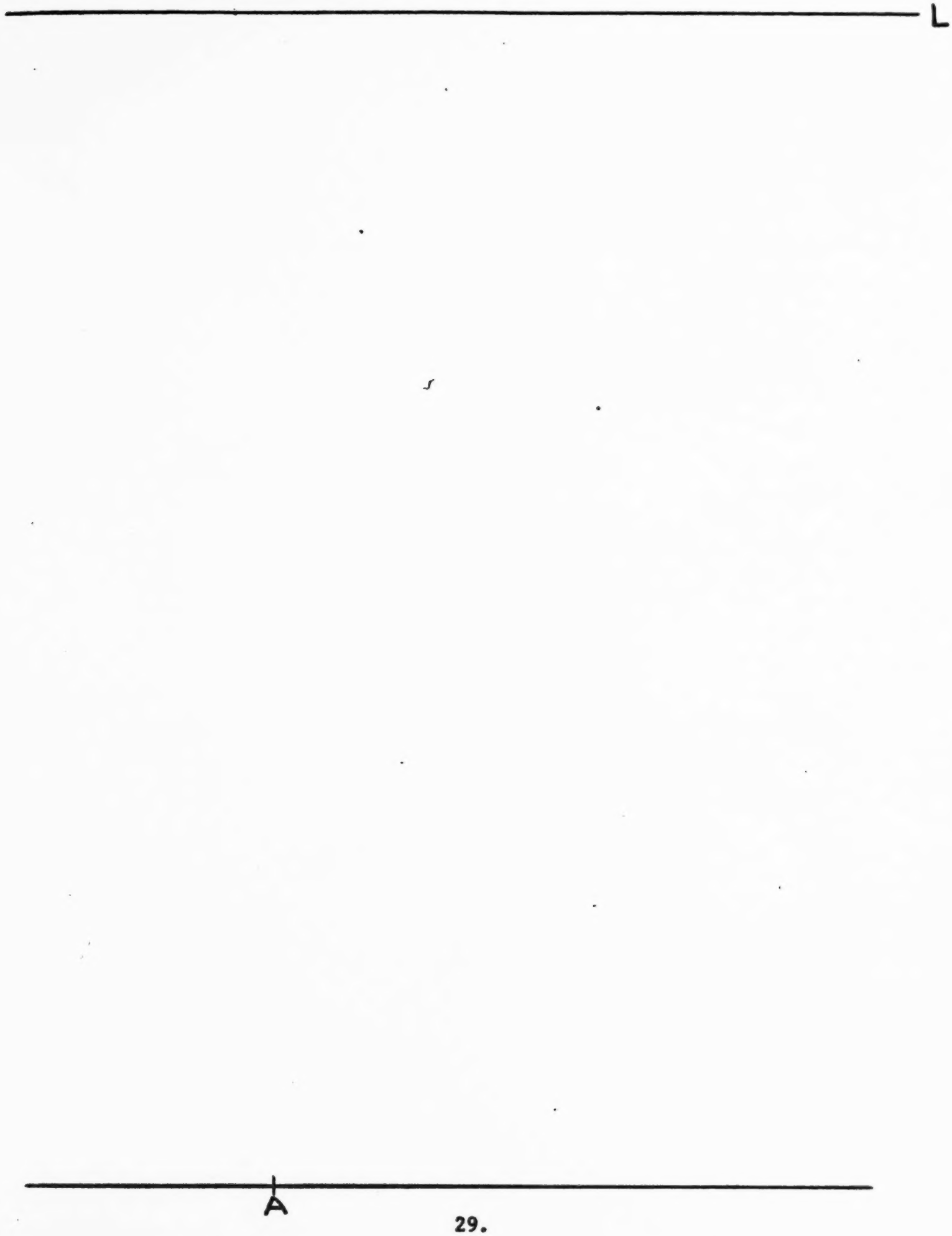
A

29. When a horizontal line and a vertical line intersect, like they did in the last problem, the lines are <u>perpendicular</u> to each other. Draw a line <u>perpendicular</u> to the horizontal line "A" from the point "B."
Check the point of intersection at line "A."



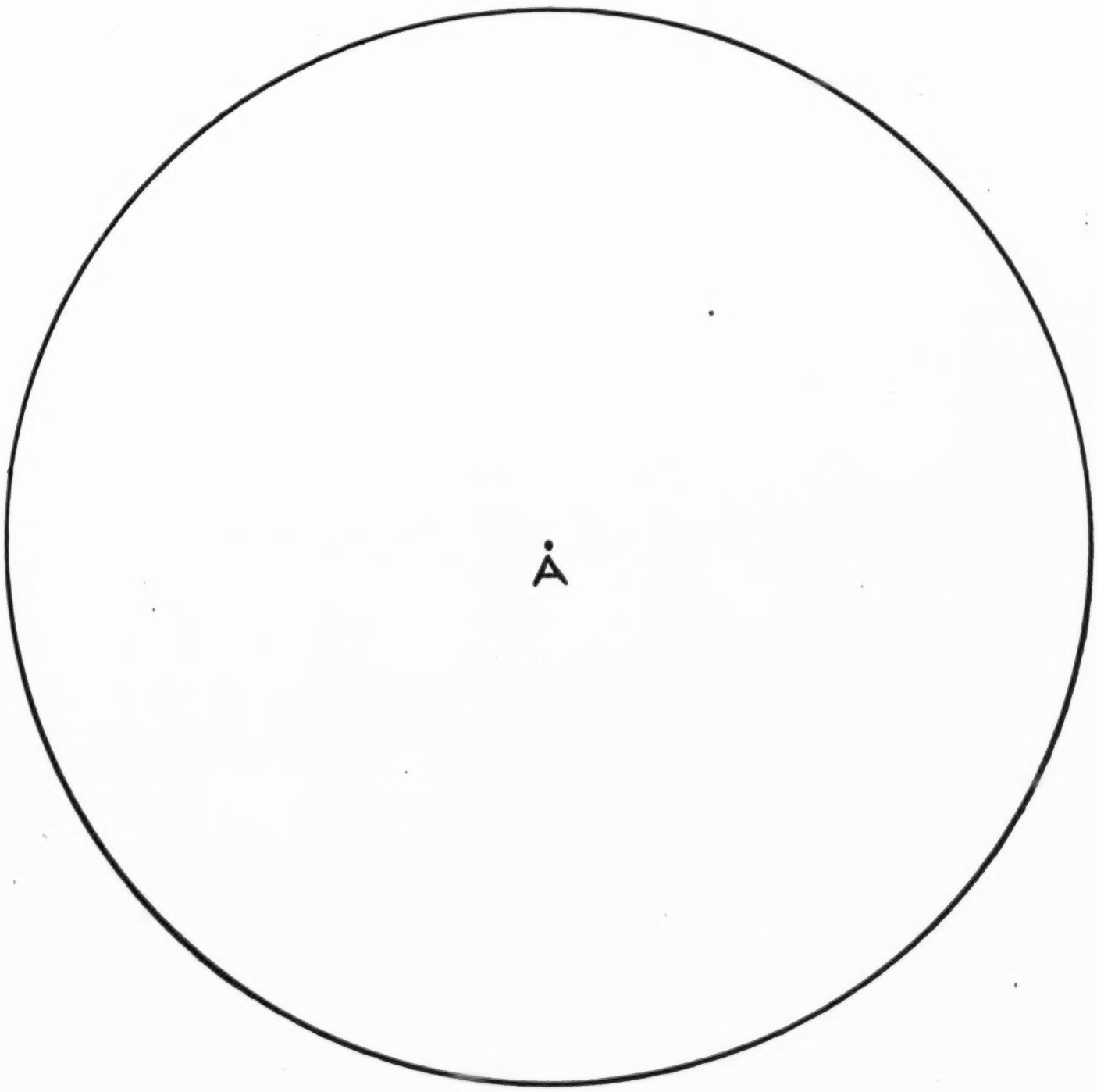
30. At point "A," draw a line <u>perpendicular</u> to the line, and extend your line up to intersect line "L."
Check the point of intersection at line "L."

31. At point "A," draw a line <u>perpendicular</u> to the line, and extend your line up to intersect line "L."
Check the point of intersection at line "L."

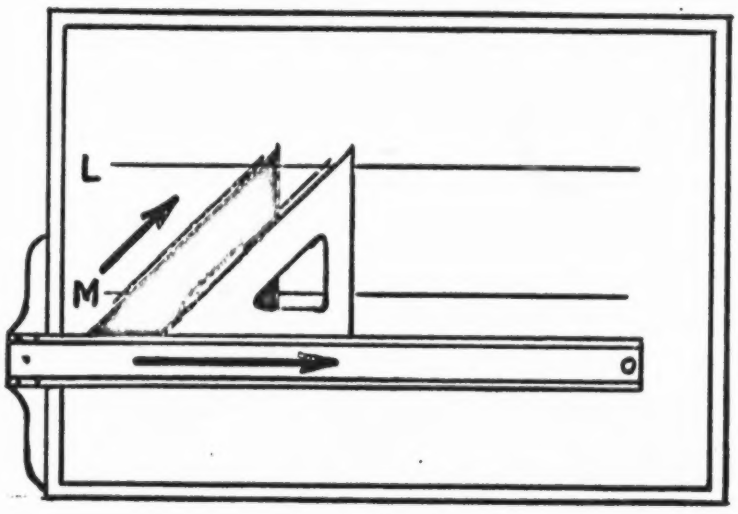


32. Draw a horizontal and a vertical line perpendicular to each other at point "A." It is necessary that your two lines be long enough to intersect the circle.
Check the intersection of the perpendicular lines at the circle.

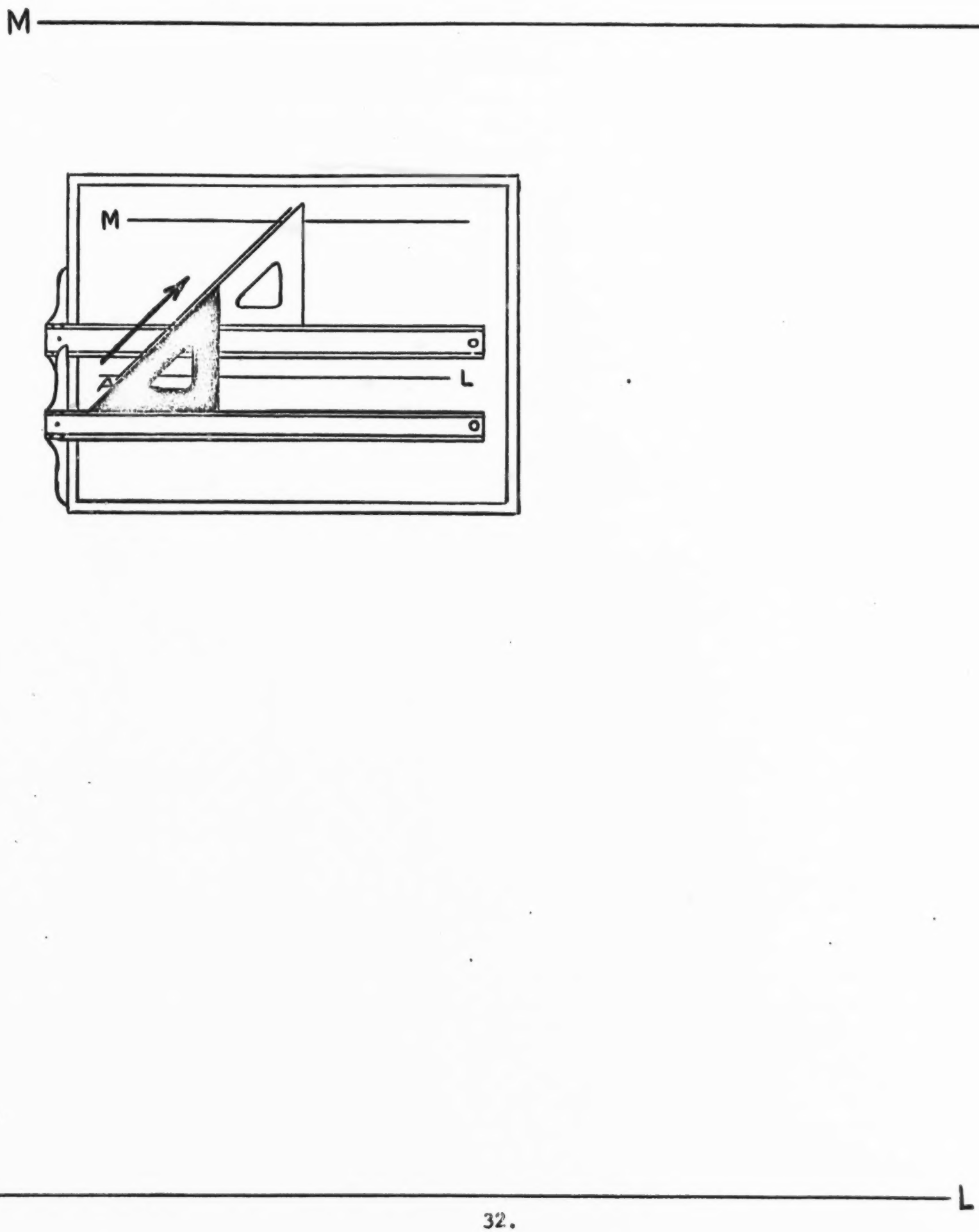
Three of the four incorrect responses on this item were apparently due to misinterpretation of the directions and resulted in incomplete responses ( ). This suggested that the directions should be more completely detailed.



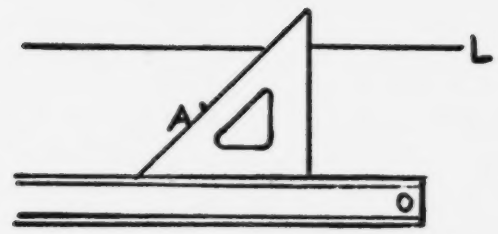
33. Rest the 45°-90° Triangle on the T-Square as illustrated on the right, and by sliding the triangle to each new point on the line "L" (without moving the T-Square), draw <u>parallel 45° lines</u> to intersect line "M." After drawing each line, check the point of intersection of the line at line "M."



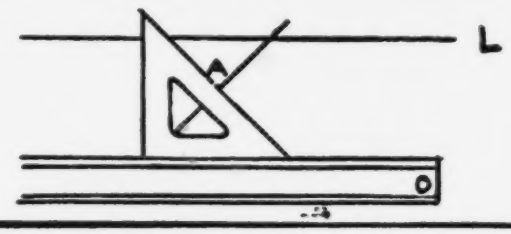
34. Adjust the triangle and T-Square at point "A" on line "L," and draw a 45° line upward to the right to intersect line "M." Since the triangle isn't long enough to draw the entire length, draw the longest line possible; then follow the example below.



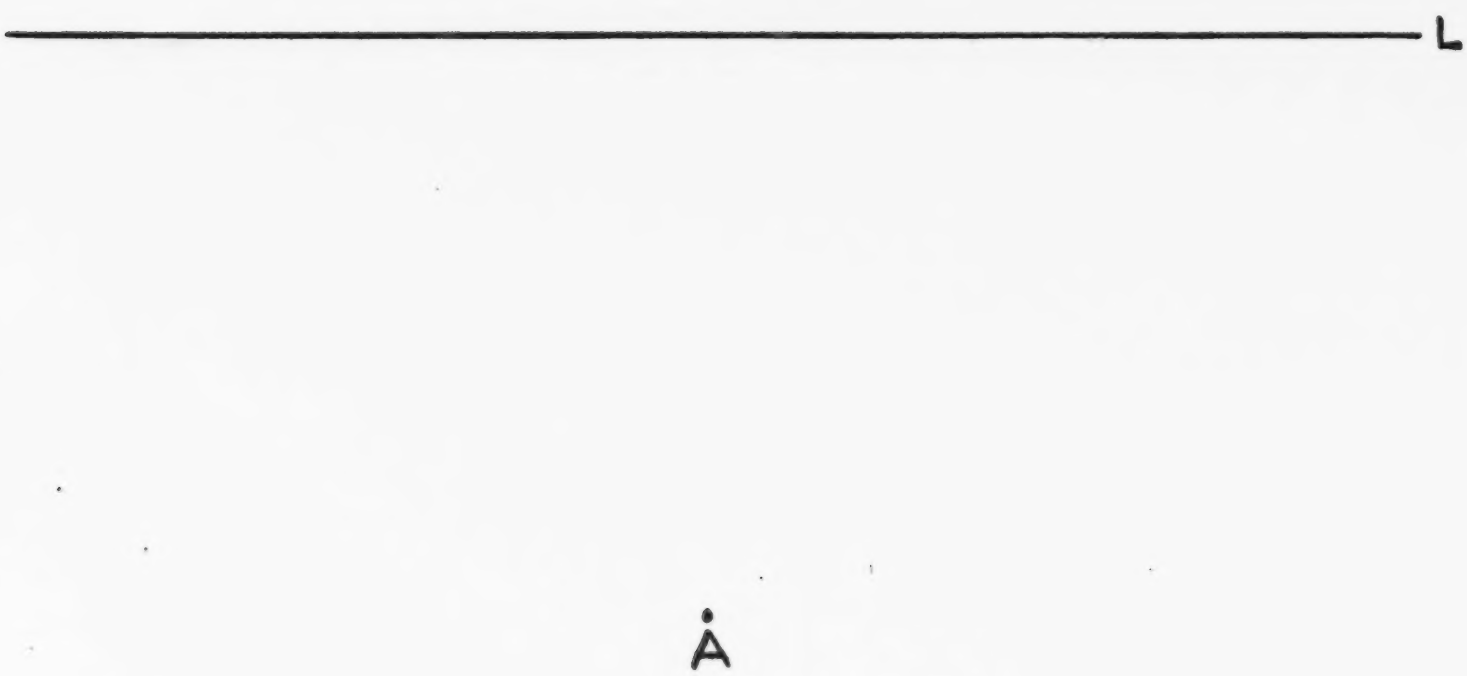
35. A. At point "A" below, draw a 45° line upward to the right. Notice that the line should intersect the point "A" and line "L" like this:



B. Without moving the T-Square, turn the triangle <u>over</u> from right to left so that the 45° side is now on the <u>left</u> like this:

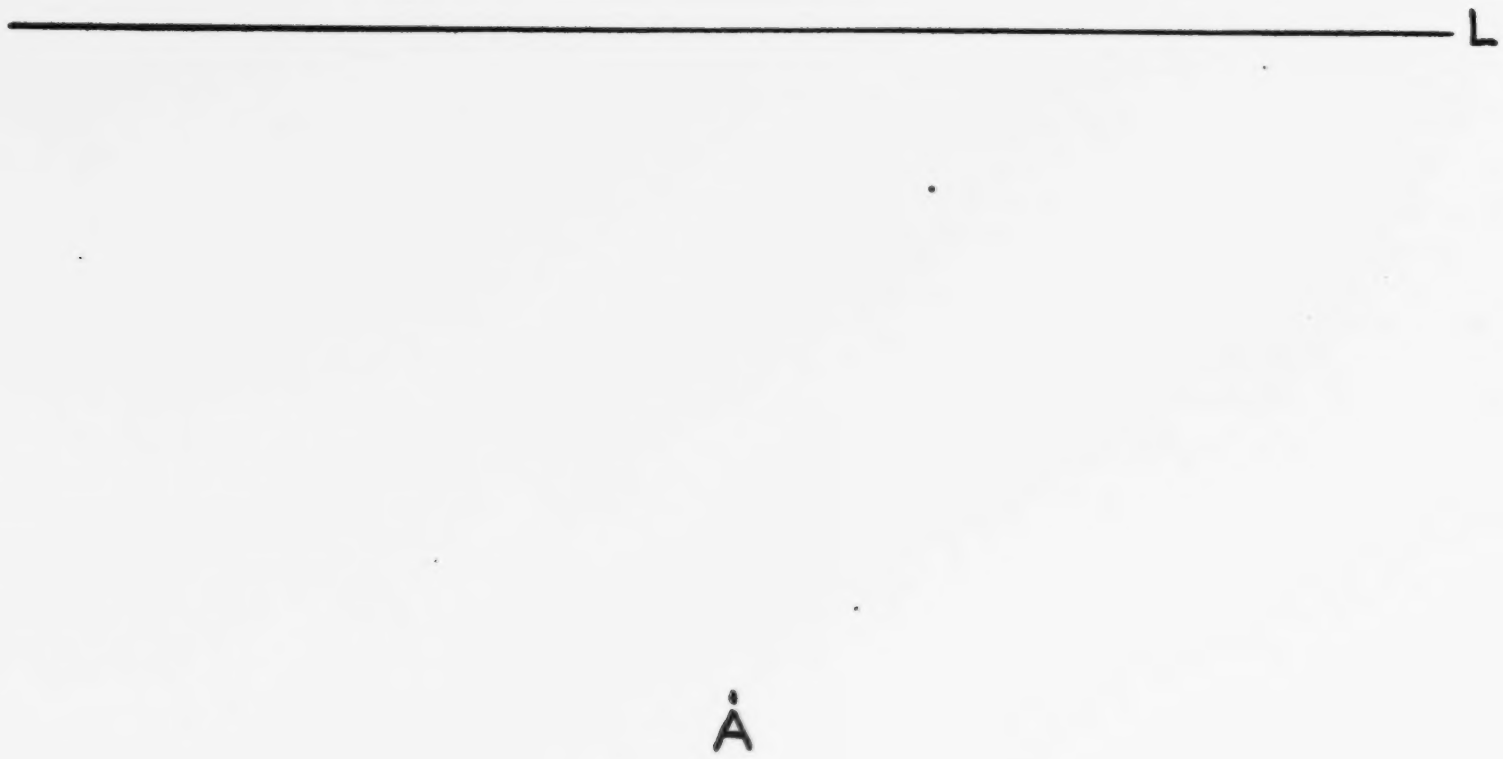


C. With the triangle in this new position, draw a second 45° line intersecting the first line at the point "A" and also line "L." This line will be <u>perpendicular</u> to the first line.
Check the intersections of the two lines at line "L."

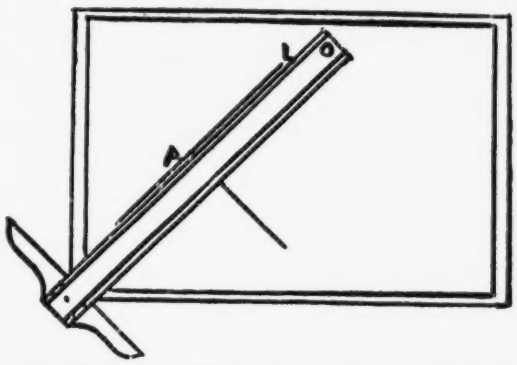


36. Draw a 45° line <u>perpendicular</u> to the given line at point "A." Check the point of intersection of your line at line "L."

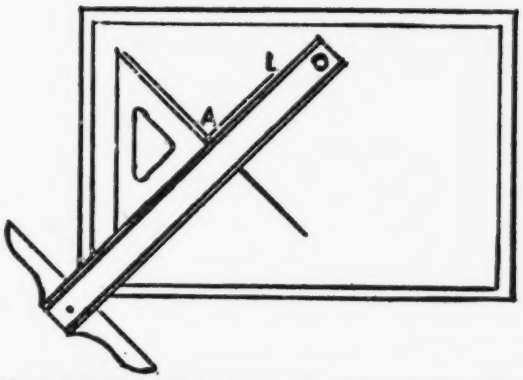
37. At point "A" below, draw two 45° lines <u>perpendicular</u> to each other, and extend the lines to intersect line "L."
Check the points of intersection at line "L."



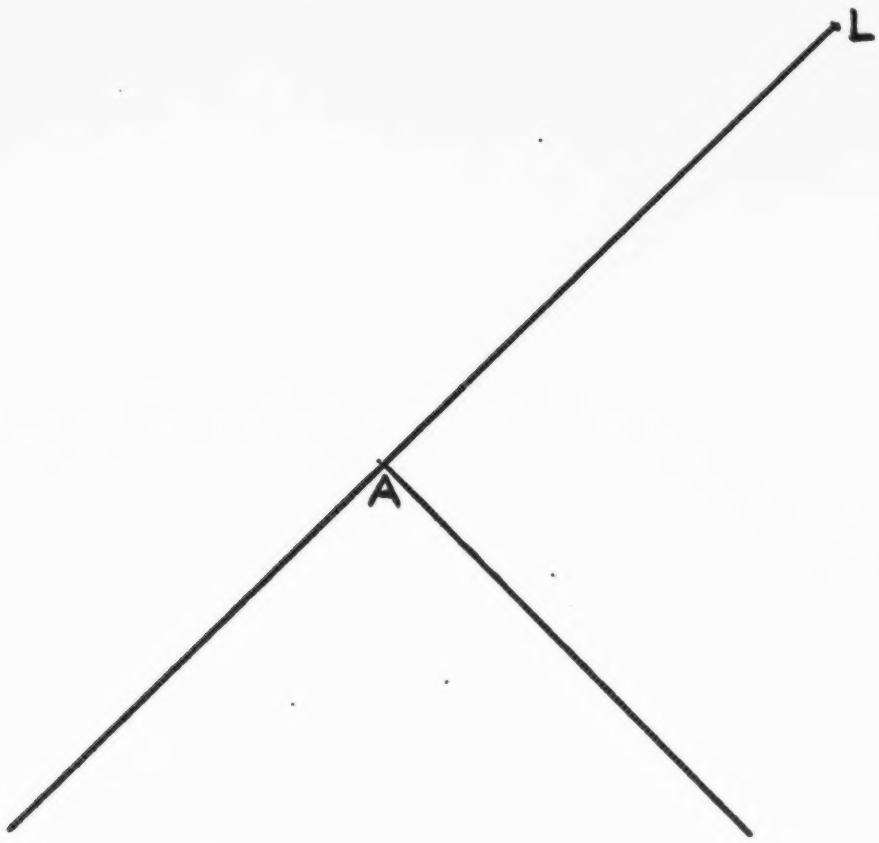
38. A. Adjust the T-Square to the 45° line labeled "L" below. The T-Square should be aligned with the 45° line like this. Hold it <u>very tightly</u> in place so that it cannot possibly slip.



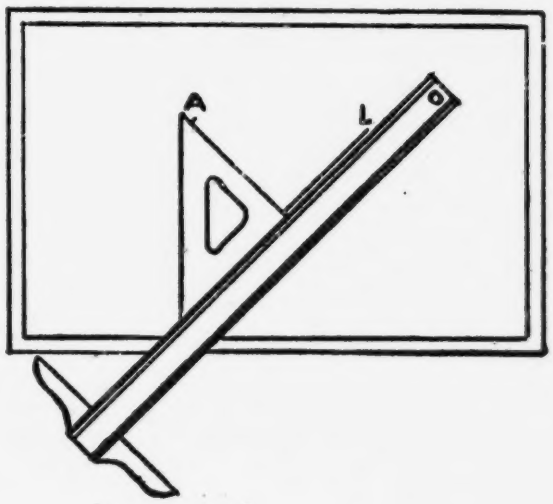
B. Place the 45°-90° Triangle on the T-Square so that the vertical side of the triangle is at point "A" on line "L" like this. Now hold <u>both</u> the T-Square and the 45°-90° Triangle <u>tightly</u> in place so that neither can move accidently.



C. With the triangle in this position, draw a line from point "A" any length, and label the line "M." Line "M" is <u>perpendicular</u> to the given line "L." Measure the distance along line "L" from point "A" to the end of the line. Measure and lay off an equal distance from point "A" on line "M." Now check this point on line "M."

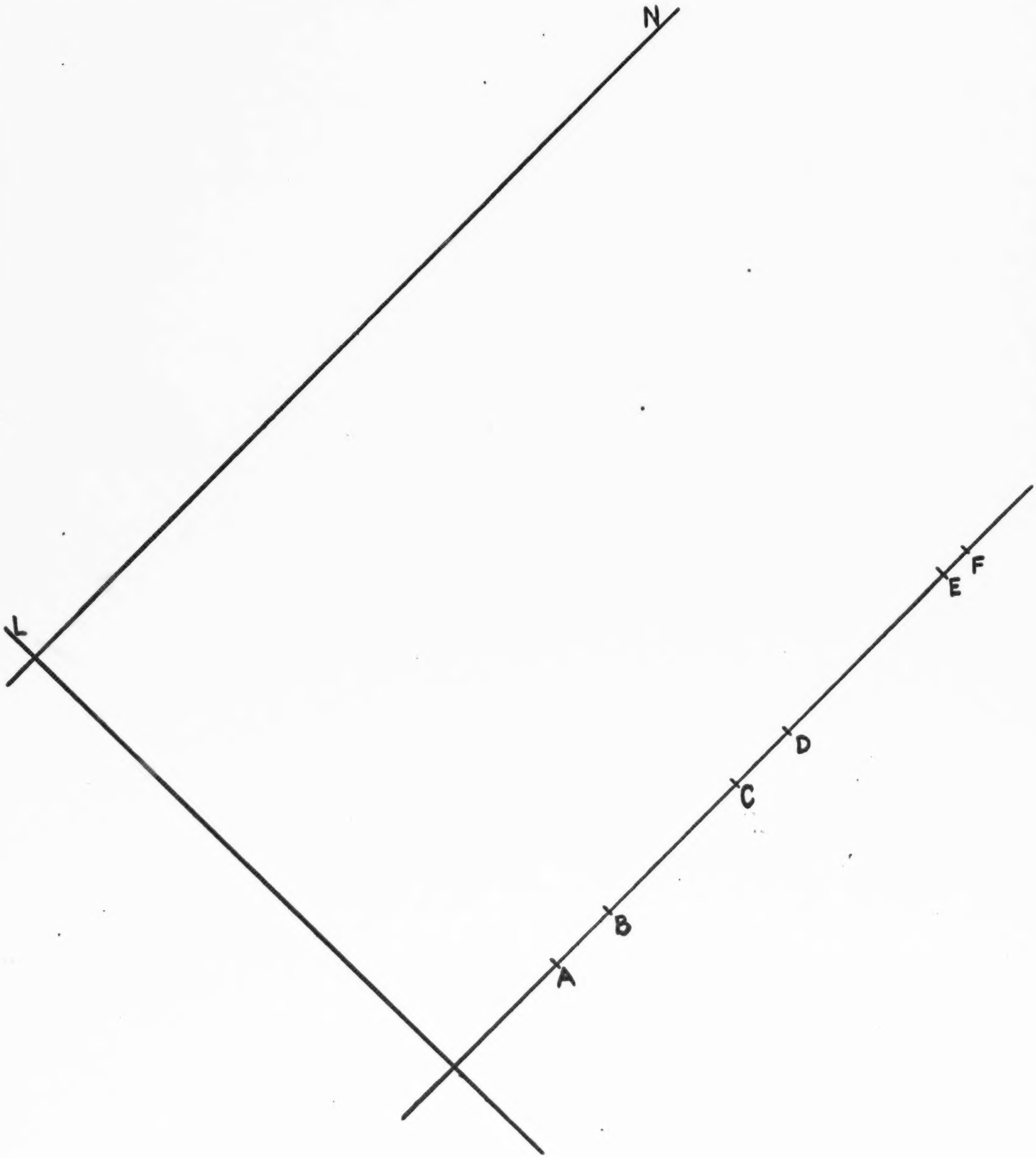


Adjust the T-Square and triangle on line "L" below, and draw a line starting at point "A" and passing through line "L" <u>perpendicular</u> to it. Check the point of intersection of the two lines.



40. Line the T-Square up on the line given below, and use the triangle to draw a line <u>perpendicular</u> to the line passing through the point "A." Check the point of intersection of the two lines.

41. At the points A, B, C, D, E, F below, draw lines <u>parallel</u> to line "L" and <u>perpendicular</u> to line "M."
Check the intersections of these lines at line "N."



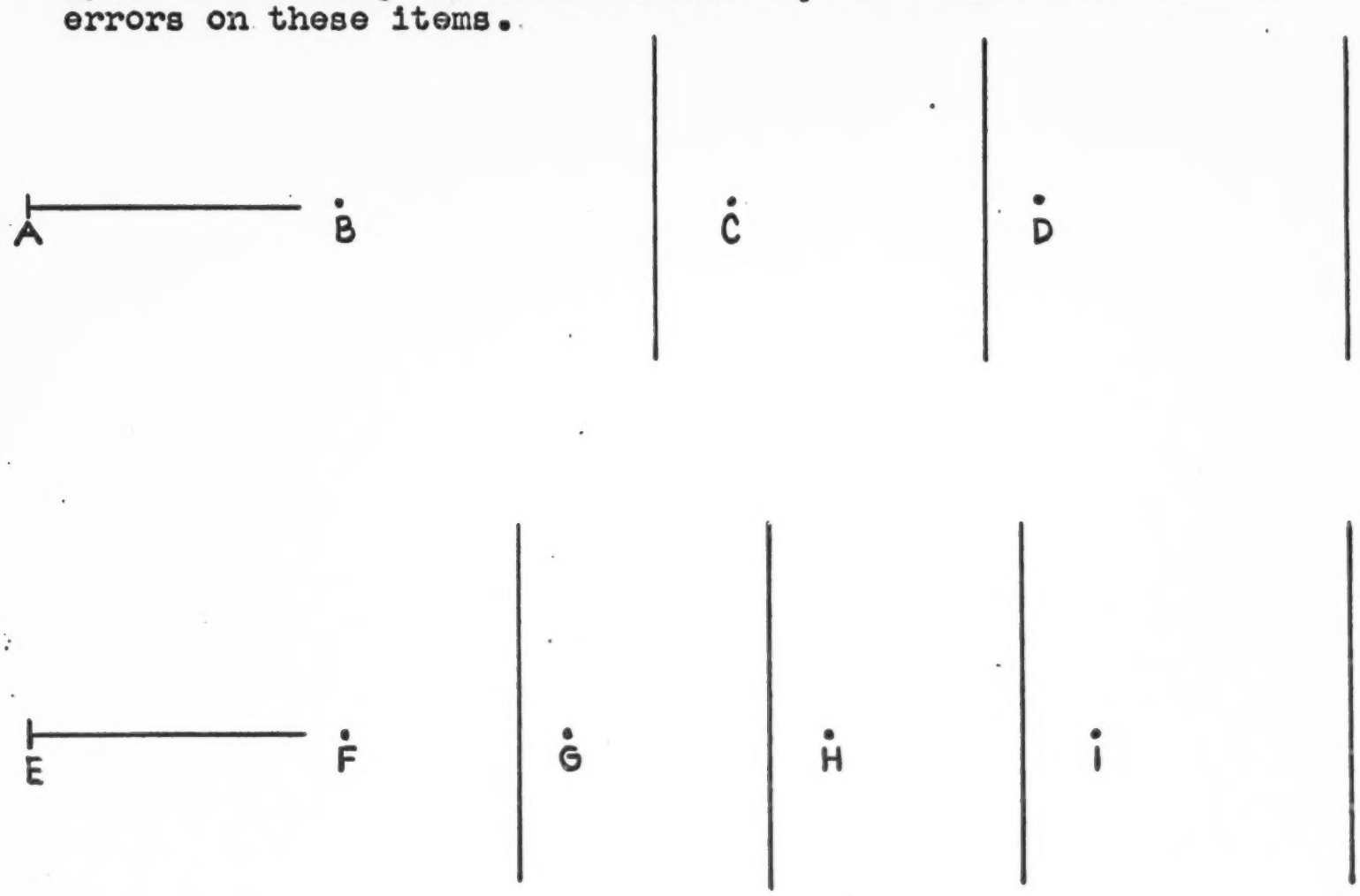
42. At point "A" below, draw a perpendicular line extending upward and label the line "M." From point "A," measure upward 4" on line "M," and label the point "B." Using the T-Square, draw a line perpendicular to line "M" at point "B" and parallel to line "L." Label the line "N." Measure 4" from point "B" on line "N," and at this point draw a vertical line to intersect line "L."
Check all points of intersection.

Most of the errors on this item were due to incorrectly drawn vertical lines. Perhaps the directions should be listed in discrete steps and each step checked immediately after it is completed to avoid the accumulation of errors. Also, step one (drawing the first vertical line at point A) could be stressed as being especially critical.

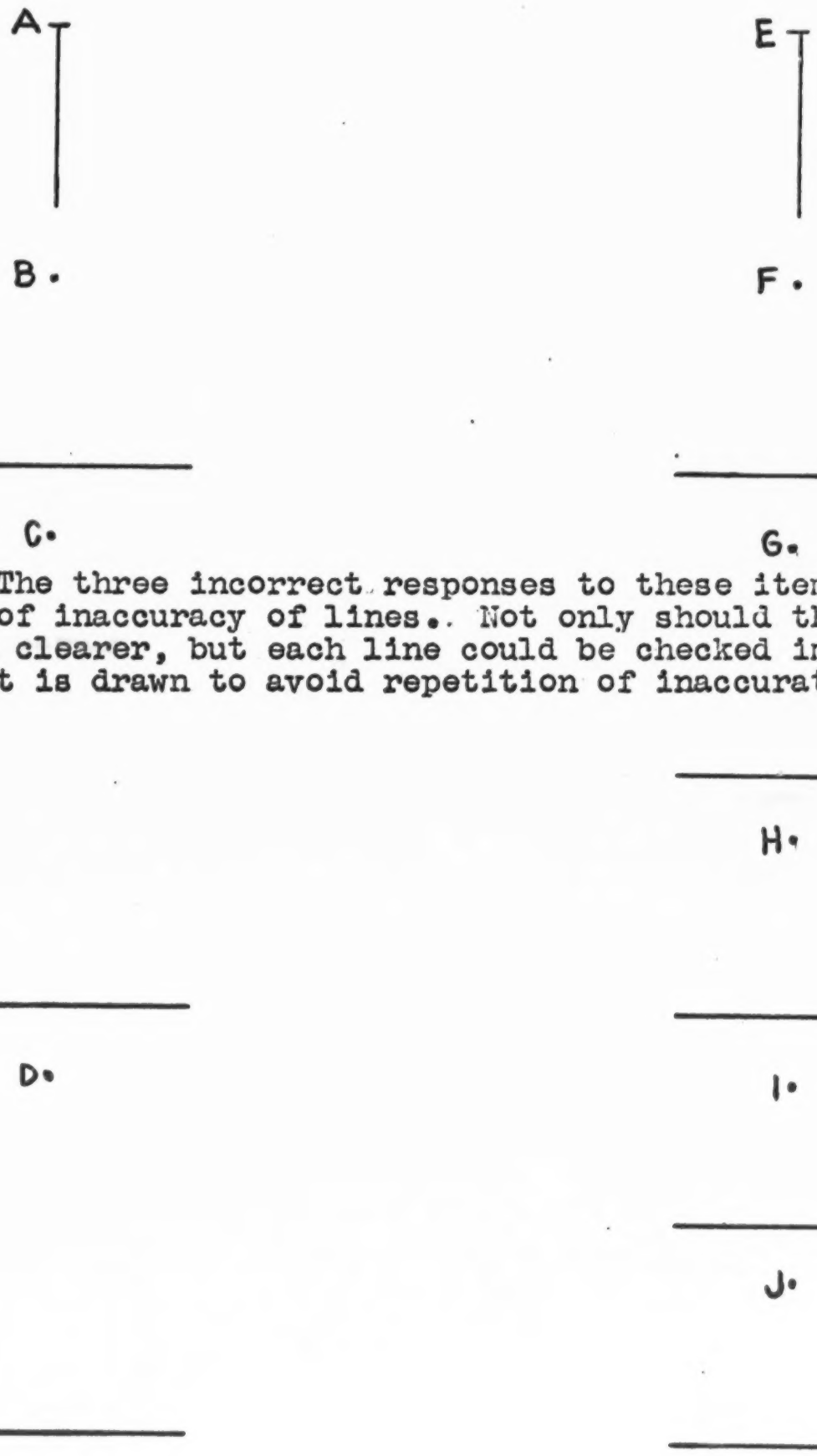
Below at point "A" is a short horizontal line. Align the T-Square with this line, and at the points B, C, D copy short horizontal lines each one just long enough to intersect the given vertical lines. Check the intersection of each horizontal and vertical line.

Continue at point "F," and draw horizontal lines using the given line at "E" to align the T-Square. Check the intersection of each horizontal and vertical line.

One subject did not complete section b of this item, and one subject obviously did not understand the directions and drew the required lines incorrectly. The lines drawn by the remaining incorrect responders (5) were inaccurate but did not seem to follow any particular pattern. An important consideration and possible explanation for some of the errors on this and the remaining program items was the lack of adequate time to complete the program. Excessive speed and subsequent carelessness may have been the cause of errors on these items.



4. On the left below at point "A" is a short vertical line. Line the T-Square and triangle up on this line, and at points B, C, D copy short vertical lines, each one long enough to intersect the given horizontal line. Check the intersection of each vertical and horizontal line; then continue drawing at point "F," and check these lines when drawn.

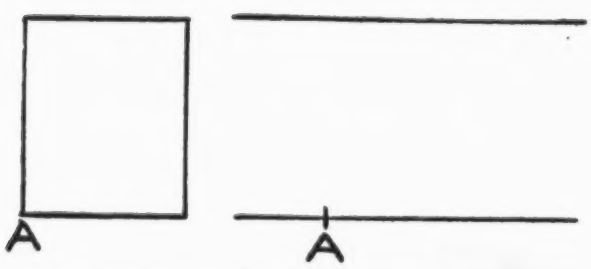


The three incorrect responses to these items were the result of inaccuracy of lines. Not only should the directions be made clearer, but each line could be checked immediately after it is drawn to avoid repetition of inaccurate drawing.

Copy the figure below starting at point "A" on the right of the figure. To do this, always copy all of the lines you possibly can before making any measurements. When you find that you cannot draw any further without measuring, that is the time to start measuring.

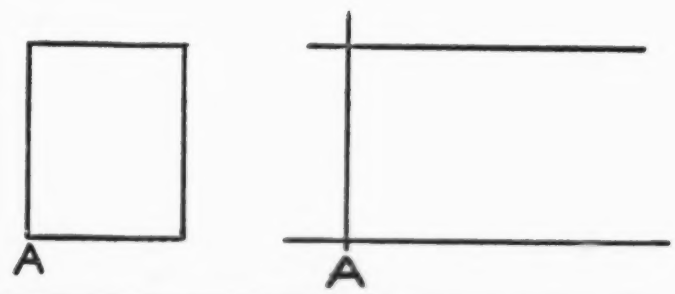
STEP #1

A. Align the T-Square with the two lines shown below and copy them as shown here.



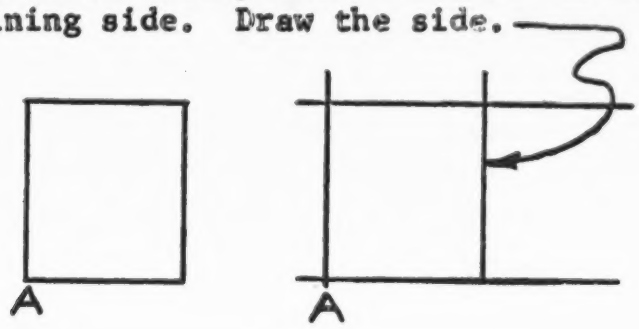
STEP #2

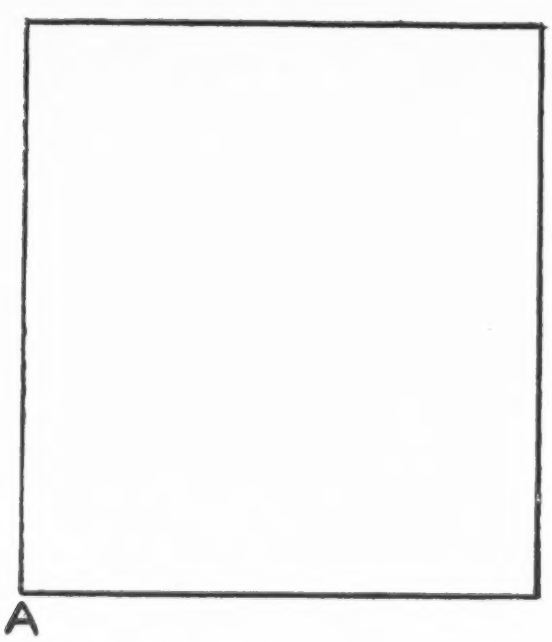
B. At point "A," draw a vertical line upward to intersect the upper horizontal line like this:



STEP #3

C. Now measure the width of the figure to find out exactly where to draw the remaining side. Draw the side.

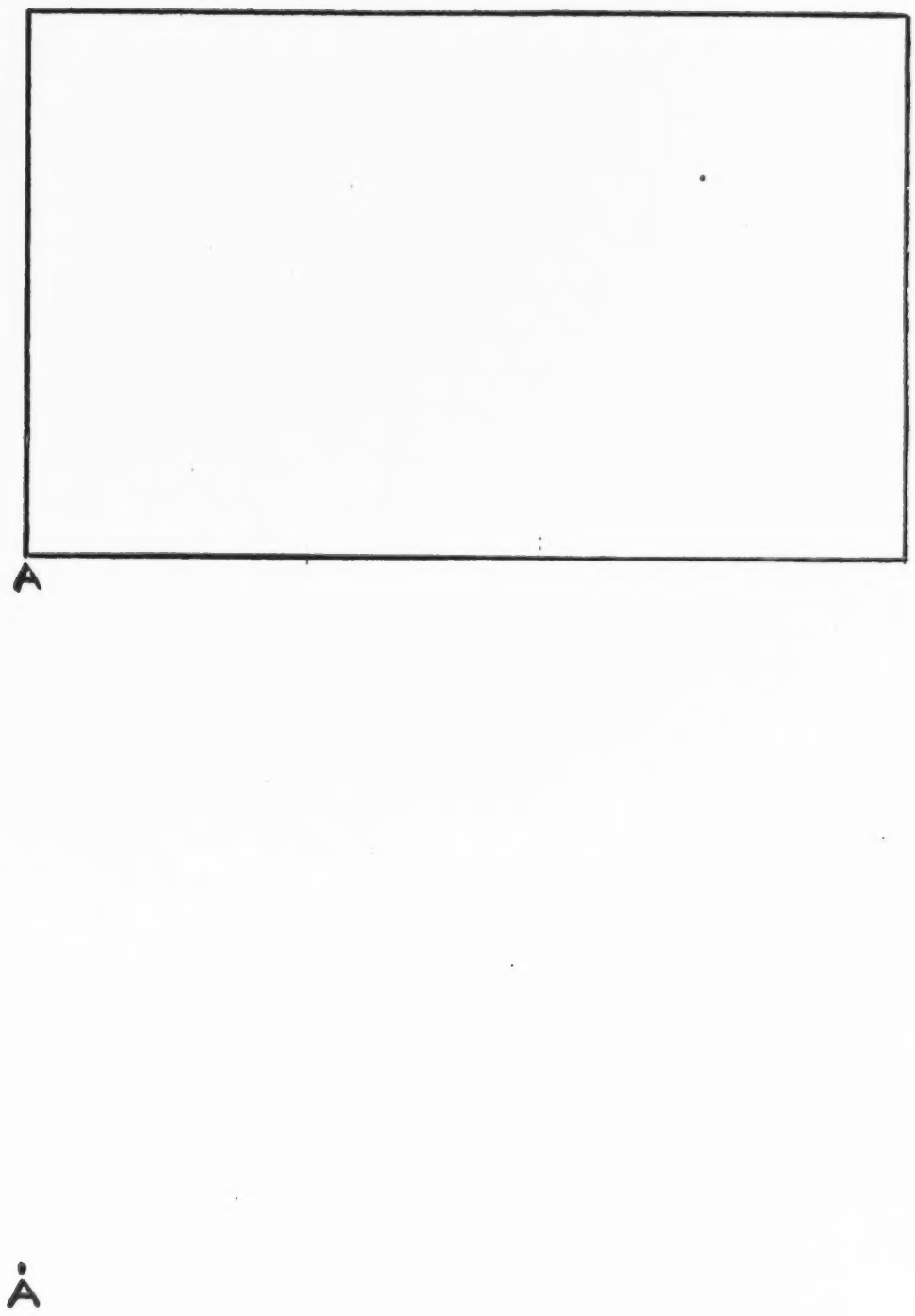




Much of the inaccuracy on this item seems to have been caused by the fact that the drawing had to be done near the bottom of the page, and near the bottom of the drawing board as well. Handling the drawing equipment under the conditions thus imposed is more difficult, and better results might be obtained if the drawing were located higher up on the page.

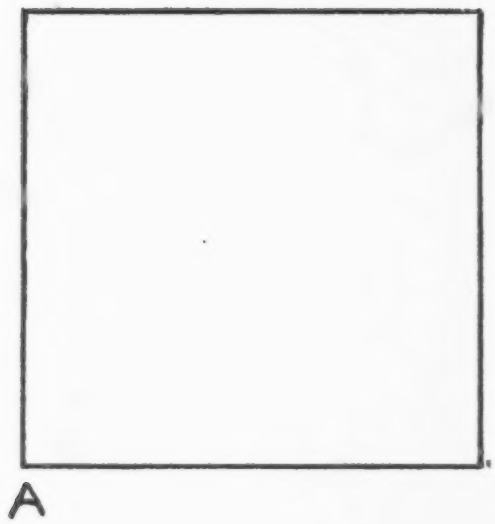
A

Copy the figure shown below starting at the point marked "A." Do not make any horizontal measurements. Copy the vertical sides directly from the given figure. Check all points of intersection.



7. Copy the figure given below starting at the point marked "A." Measure and copy all sizes from the given figure. Check all points of intersection.

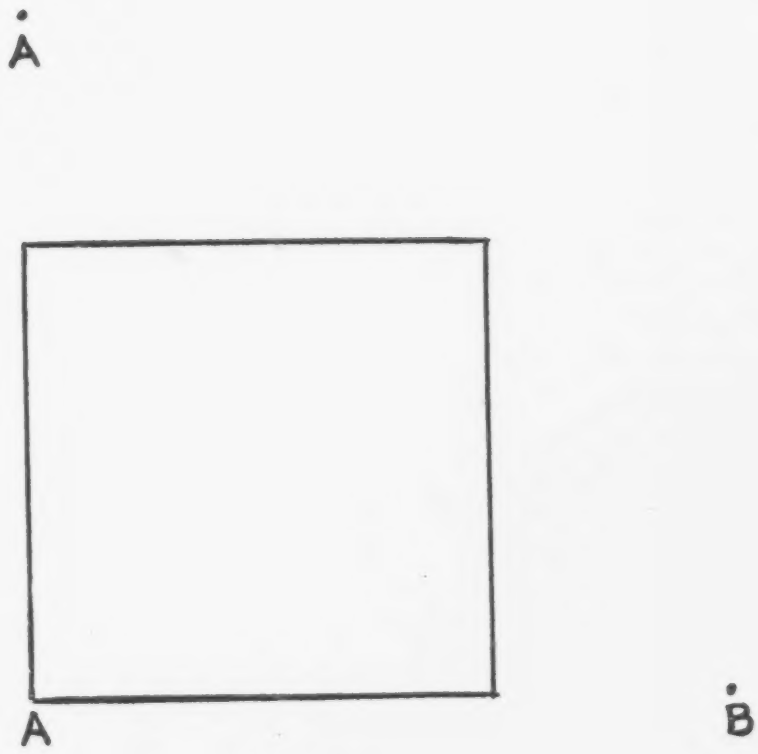
(Notice that neither vertical nor horizontal lines can be copied in this problem and that <u>two</u> actual measurements with the ruler are necessary.)



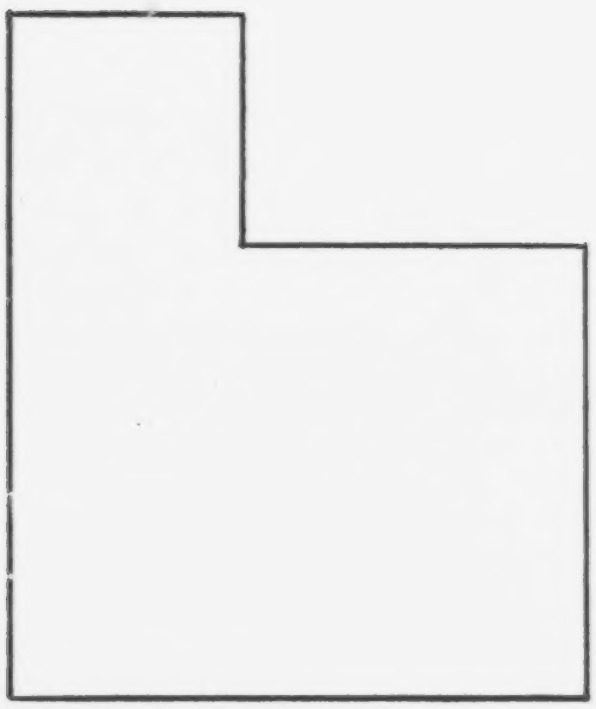
The errors made on this item varied considerably. One common error in many cases was inaccurate measurement. This suggests that lack of skill in reading a scale, or haste in making measurements because of the pressure of time, caused many of the errors.

The suggestions for improvement are, that adequate time be provided for completion of the program in the future, and that the student have the ability to read a scale before starting work on the program.

... Copy the figure shown below at point "A" and again at point "B." Check all points of intersection.



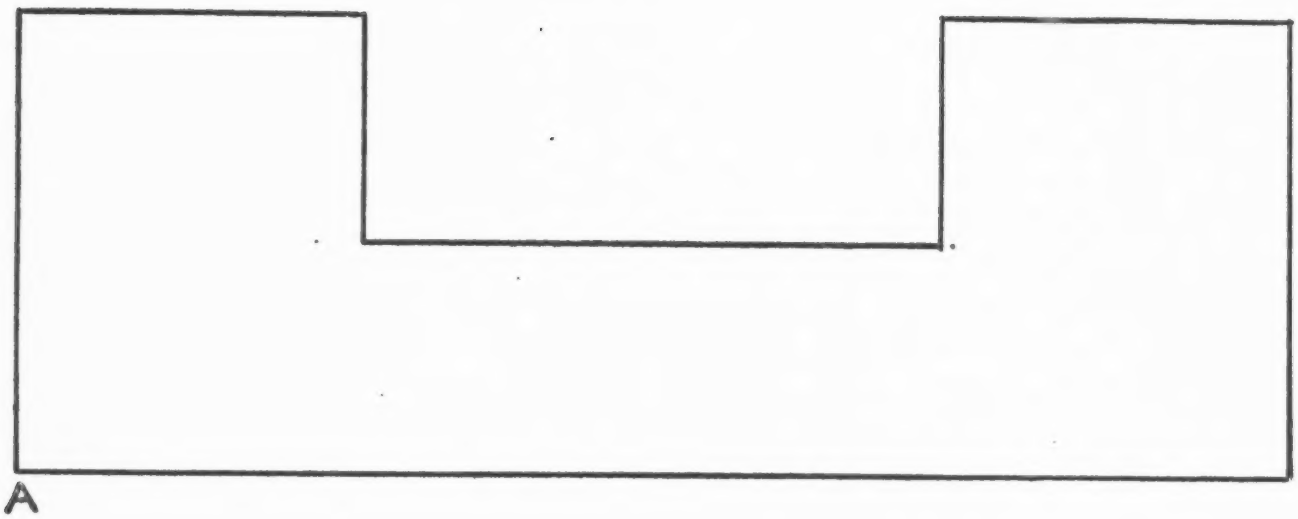
... Copy the figure below at position "A." Find all necessary sizes on the given figure. Do not measure any vertical distances; copy the horizontal sides from the given figure.
Check all points of intersection.



A

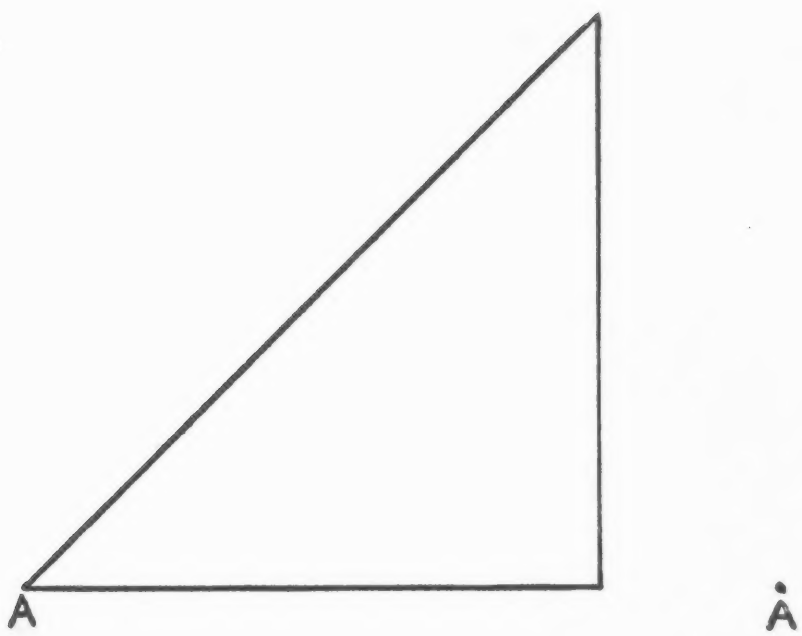
Å

50. Copy the figure shown below at position "A." Find all necessary sizes on the given figure. <u>Do not</u> make any horizontal measurements; copy all vertical sides from the given figure.

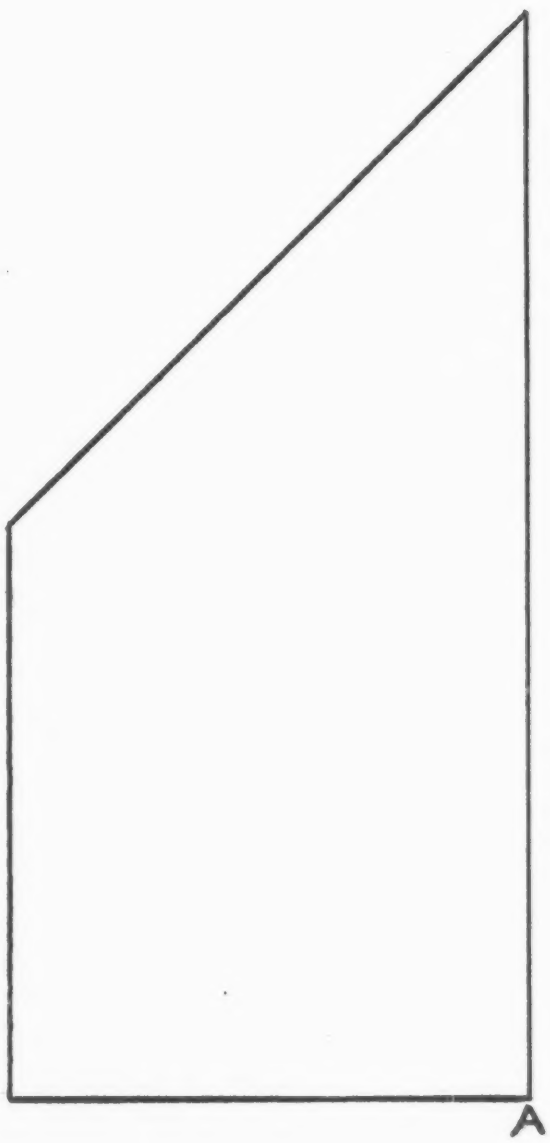


A

ɔl. Copy the figure shown below at the new position "A."
Check all points of intersection.



52. Copy the figure shown below at the new position "A." Check all points of intersection.



A

APPENDIX B

PREVIOUS DRAWING KNOWLEDGE & EXPERIENCE

NAME _____ AGE _____

ANSWER ALL OF THE FOLLOWING QUESTIONS WHICH APPLY TO YOU.

1. What a few of your favorite hobbies _____

_____

2. Does your father ever help you in anything with your hobby? YES - NO

3. Does your mother ever help you in anything with your hobby? YES - NO

4. What is your father's occupation? _____

5. What is your mother's occupation? _____

6. Have you ever studied or taking an mechanical drawing in school? YES-NO

7. If you answered YES to question 6, answer the following also.

   A. In what grade did you study it? _____

   B. Describe as best you can what you remember studying. _____

8. Have you learned any drafting or mechanical drawing in some other way outside of school? YES - NO

9. If you answered YES to question 8, answer the following also.

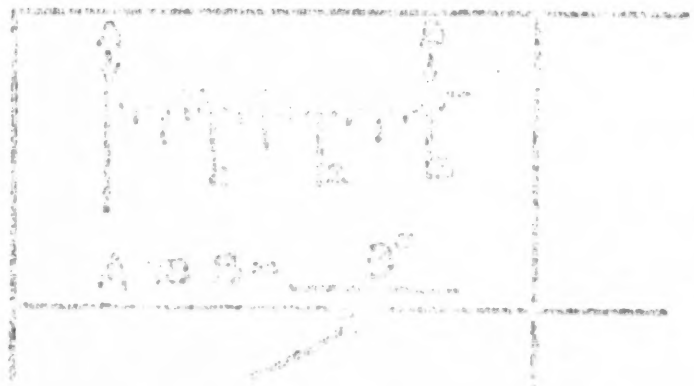
   A. When did you learn it? _____

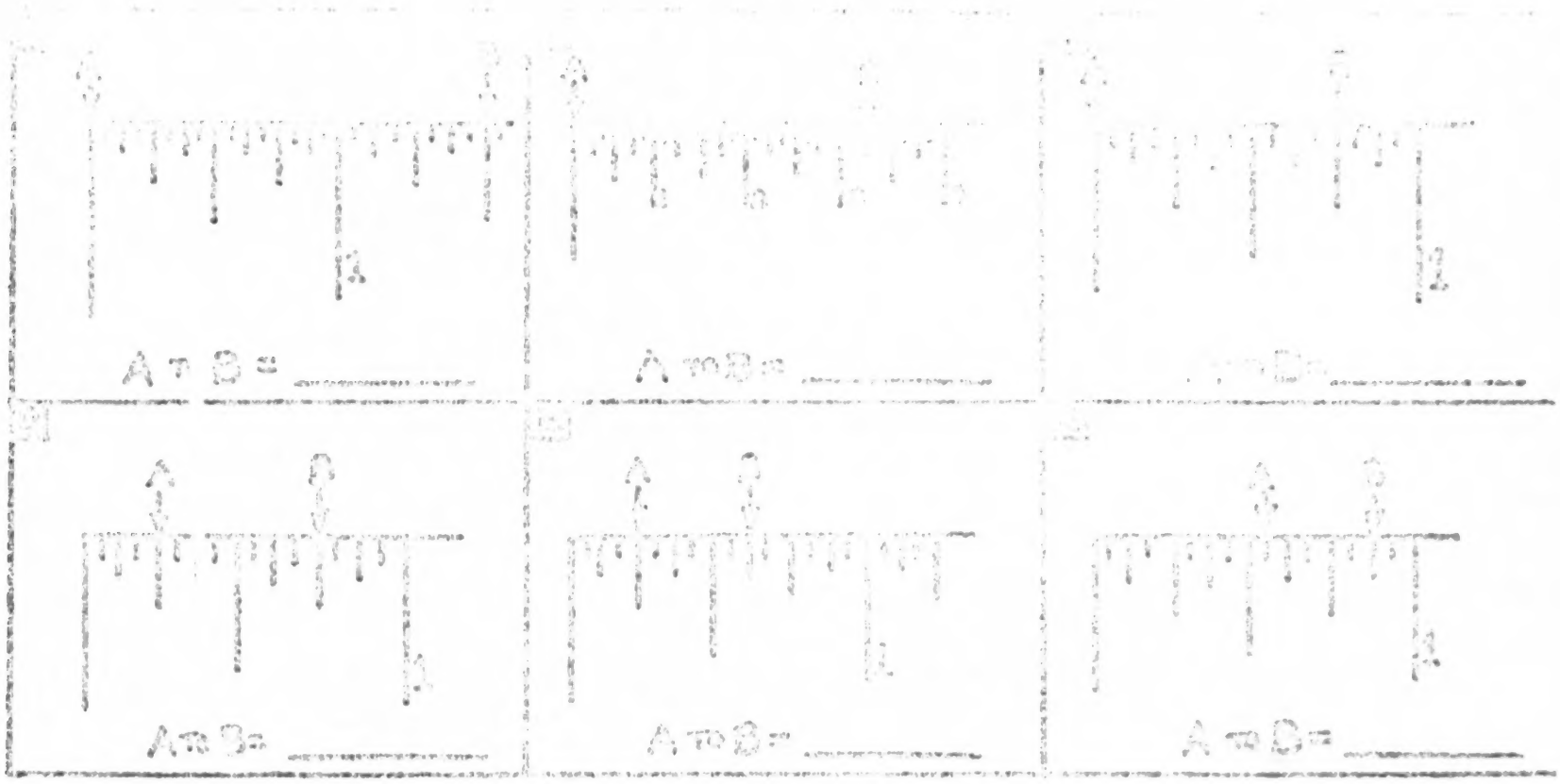
   B. Where did you learn it? _____

   C. Describe as best you can what you learned. _____

10. What is the distance from A to B on each of the rulers on the following page?

Example - Write your answer here





11.

A. What is the name for this tool? _____

B. What is it used for? _____

_____

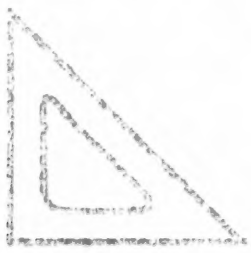
_____

C. How is it used? _____

_____

_____

12.



A. What is the name for this tool? _____

B. What is it used for? _____

_____

_____

C. How is it used? _____

_____

_____

APPENDIX C

SUMMARY OF STUDENT REPLIES TO PREVIOUS DRAFTING KNOWLEDGE AND EXPERIENCE QUESTIONNAIRE

1. Listing of Hobbies. None of the subjects reported hobbies or special interests in, or closely related to the area of drafting. The most frequently mentioned hobbies in order of frequency were:

   A. Collections (Stamps, Coins, Rocks)
   B. Sports (All Types)
   C. Miscellaneous (Photography, model making, musical instruments, painting, reading)

2-3. Parental Help. The subjects receiving help from either or both parents, and those not receiving help, were approximately equal. Because none of the hobbies reported dealt with drafting, the assistance given to subjects by their parents was not felt to be of improtance to the study.

4. Fathers' Occupations.

Academic	Professional	Clerical	Business	Sales	Other
7	10	2	4	6	7

5. Mothers' Occupations.

Homemaker	Professional	Clerical
28	5	3

6-7. Previous Drafting Experience In School.

   A. All subjects in the experimental class (N = 18) who were enrolled in the industrial arts course at University High School reported the sketching experience which was a part of the course. No other school experiences related to drafting were reported.

B. All subjects except two in the non-experienced group, who did not take the industrial arts course prior to the study, reported no previous drafting experience. One of the students reporting previous experience reported building a scale model of a building in the fourth grade, and one reported freehand sketching in the sixth grade. The investigator's interview of these two subjects regarding their past experiences confirmed that the experiences were so remotely removed from the area of drafting in kind and time that they would not affect the students' participation in the study.

8-9. Previous Drafting Experience Outside of School. All but four subjects reported no previous drafting experience outside of school. Individual interviews with the subjects reporting some experience revealed that the experience was of a very ordinary kind and not related to the programmed material of the study.

10. Ability to Read a Scale. Summary of Incorrect Responses

	Experimental (N =18)	Control (N =18)
Question 10		
A	1	1
B	2	2
C	2	1
D	4	3
E	7	7
F	9	8

NOTE: This table should be read as follows: One-half of the subjects in the experimental group answered part F of the question incorrectly; eight subjects in the control group answered the same part incorrectly.

11-12. Knowledge of Drafting Equipment. Summary of Correct Responses

	Experimental (N = 18)	Control (N = 18)
T-Square		
A. Identification	2	7
B. Purpose	1	2
C. Use	1	3
45°-90° Triangle		
A. Identification	0	0
B. Purpose	0	0
C. Use	1	0

NOTE: This table should be read as follows: One subject out of eighteen in the experimental group correctly explained how a T-Square can be used, while three subjects out of eighteen in the control group correctly explained its usage.

APPENDIX D

INDIVIDUAL SCORES OF SUBJECTS ON
PRE-EXPERIMENTAL MEASURES

Subjects	Lorge-Thorndike, Verbal	Lorge-Thorndike, Non-Verbal	Ravens Progressive Matrices	ITBS	
				Test V Voc.	Test R Reading Comp.
1	133	110	39	45	58
2	130	137	50	46	66
3	127	117	43	42	62
4	122	133	36	37	41
5	118	113	36	30	51
6	94	97	38	27	26
7	126	113	46	36	42
8	127	129	26	43	46
9	128	123	43	45	62
10	109	107	36	35	35
11	122	118	44	40	47
12	119	114	27	40	49
13	143	117	42	47	67
14	112	99	30	42	41
15	116	115	41	38	57
16	124	110	43	33	51
17	117	109	39	29	39
18	108	97	31	33	38
19	121	121	40	37	55
20	122	87	37	40	65
21	141	137	41	44	55
22	140	146	50	45	69
23	117	114	33	32	52
24	124	128	45	43	65
25	126	125	44	37	58
26	132	130	43	42	54
27	128	138	44	41	62
28	128	120	43	47	56
29	126	132	46	46	63
30	117	111	42	47	72
31	116	130	43	37	53
32	108	93	41	34	58
33	111	99	35	35	44
34	102	98	42	37	41
35	99	97	32	10	18
36	117	128	47	34	53

APPENDIX E

ASSIGNMENT OF SUBJECTS FROM NON-EXPERIENCED AND EXPERIENCED GROUPS TO EXPERIMENTAL AND CONTROL GROUPS

Non-Experienced			Experienced		
Subject	Lorge-Thorndike, Verbal Score	Group	Subject	Lorge-Thorndike, Verbal Score	Group
13	143	E	22	140	E
21	141	C	26	132	C
1	133	E	2	130	E
9	128	C	28	128	C
27	128	C	8	127	E
3	127	E	16	124	C
7	126	E	24	124	E
29	126	C	4	122	C
25	126	E	20	122	E
11	122	C	12	119	C
19	121	E	30	117	C
5	118	C	36	117	C
17	117	E	14	112	E *
23	117	C	10	109	C
15	116	E	18	108	E
31	116	C	32	108	E
33	111	C	34	102	C
35	99	E	6	94	E

*The original sample consisted of thirty-seven subjects. Only after the subjects had been assigned to experimental and control groups was it discovered that one of the students had previously studied the program of instruction in the sixth grade pilot study and, therefore, could not participate in the study. This necessitated a re-pairing of previously assigned subjects and resulted in the above grouping. It was subsequently determined that this re-grouping did not seriously upset the equation of the groups.

APPENDIX F

TWO-WAY ANALYSIS OF VARIANCE FOR PRE-EXPERIMENTAL MEASURES

I

DATA FROM SUBJECT SCORES ON THE
LORGE-THORNDIKE VERBAL TEST

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 118.333 S = 14.01	N = 9 $\bar{X}$ = 118.888 S = 9.22	N = 18 $\bar{X}$ = 118.611 S = 12.02
Non-Experienced	N = 9 $\bar{X}$ = 123.111 S = 12.24	N = 9 $\bar{X}$ = 123.000 S = 8.93	N = 18 $\bar{X}$ = 123.055 S = 10.72
Totals	N = 18 $\bar{X}$ = 120.722 S = 13.17	N = 18 $\bar{X}$ = 120.944 S = 9.22	

SY	DF	SS	MS	F*
A columns	1	.444	.444	.003
B rows	1	177.778	177.778	1.390
R x C AB	1	1.000	1.000	.008
Error	32	4089.778	127.806	
Total	35	4269.000		

*No significant differences or interactions between groups or classes within groups. F = 4.15 at the .05 level.

$$\frac{S^2 \text{ (largest)}}{S^2 \text{ (smallest)}} = 2.47.$$ Not significant at α .05.

II

DATA FROM SUBJECT SCORES ON THE
LORGE-THORNDIKE NON-VERBAL TEST

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 112.555 S = 21.93	N = 9 $\bar{X}$ = 116.778 S = 11.78	N = 18 $\bar{X}$ = 114.667 S = 17.74
Non-Experienced	N = 9 $\bar{X}$ = 113.778 S = 8.06	N = 9 $\bar{X}$ = 122.667 S = 12.91	N = 18 $\bar{X}$ = 118.222 S = 10.76
Totals	N = 18 $\bar{X}$ = 113.167 S = 16.68	N = 18 $\bar{X}$ = 119.722 S = 12.35	

SY	DF	SS	MS	F*
A columns	1	386.778	386.778	1.796
B rows	1	113.778	113.778	.528
R x C AB	1	50.000	50.000	.232
Error	32	6889.333	215.292	
Total	35	7438.889		

*No significant differences or interactions between groups or classes within groups. F = 4.15 at the .05 level.

$$\frac{s^2 \text{ (largest)}}{s^2 \text{ (smallest)}} = 7.53. \text{ Significant at } \alpha\ .05.$$

III

DATA FROM SUBJECT SCORES ON THE RAVENS PROGRESSIVE MATRICES (A, B, C, D, E)

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 38.667 S = 8.66	N = 9 $\bar{X}$ = 39.889 S = 5.97	N = 18 $\bar{X}$ = 39.278 S = 7.44
Non-Experienced	N = 9 $\bar{X}$ = 40.667 S = 4.00	N = 9 $\bar{X}$ = 39.889 S = 4.67	N = 18 $\bar{X}$ = 40.611 S = 4.35
Totals	N = 18 $\bar{X}$ = 39.667 S = 6.75	N = 18 $\bar{X}$ = 40.222 S = 5.36	

SY	DF	SS	MS	F*
A columns	1	2.778	2.778	.075
B rows	1	16.000	16.000	.431
R x C AB	1	4.000	4.000	.108
Error	32	1187.111	37.097	
Total	35	1209.889		

*No significant differences or interactions between groups or classes within groups. F = 4.15 at the .05 level.

$$\frac{S^2 \text{ (largest)}}{S^2 \text{ (smallest)}} = 4.69.$$ Not significant at α .05.

IV

DATA FROM SUBJECT SCORES ON THE
ITBS - TEST V, VOCABULARY

	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 39.222 S = 6.44	N = 9 $\bar{X}$ = 39.111 S = 5.16	N = 18 $\bar{X}$ = 39.167 S = 5.83
Non-Experienced	N = 9 $\bar{X}$ = 35.667 S = 11.00	N = 9 $\bar{X}$ = 38.889 S = 5.76	N = 18 $\bar{X}$ = 37.278 S = 8.78
Totals	N = 18 $\bar{X}$ = 37.444 S = 9.01	N = 18 $\bar{X}$ = 39.000 S = 5.46	

SY	DF	SS	MS	F*
A columns	1	21.778	21.778	.389
B rows	1	32.111	32.111	.575
R x C AB	1	25.000	25.000	.448
Error	32	1787.333	55.854	
Total	35	1866.222		

*No significant differences or interactions between groups or classes within groups. F = 4.15 at the .05 level.

$$\frac{S^2 \text{ (largest)}}{S^2 \text{ (smallest)}} = 4.55.$$ Not significant at α .05.

V

DATA FROM SUBJECT SCORES ON THE
ITBS - READING COMPREHENSION TEST

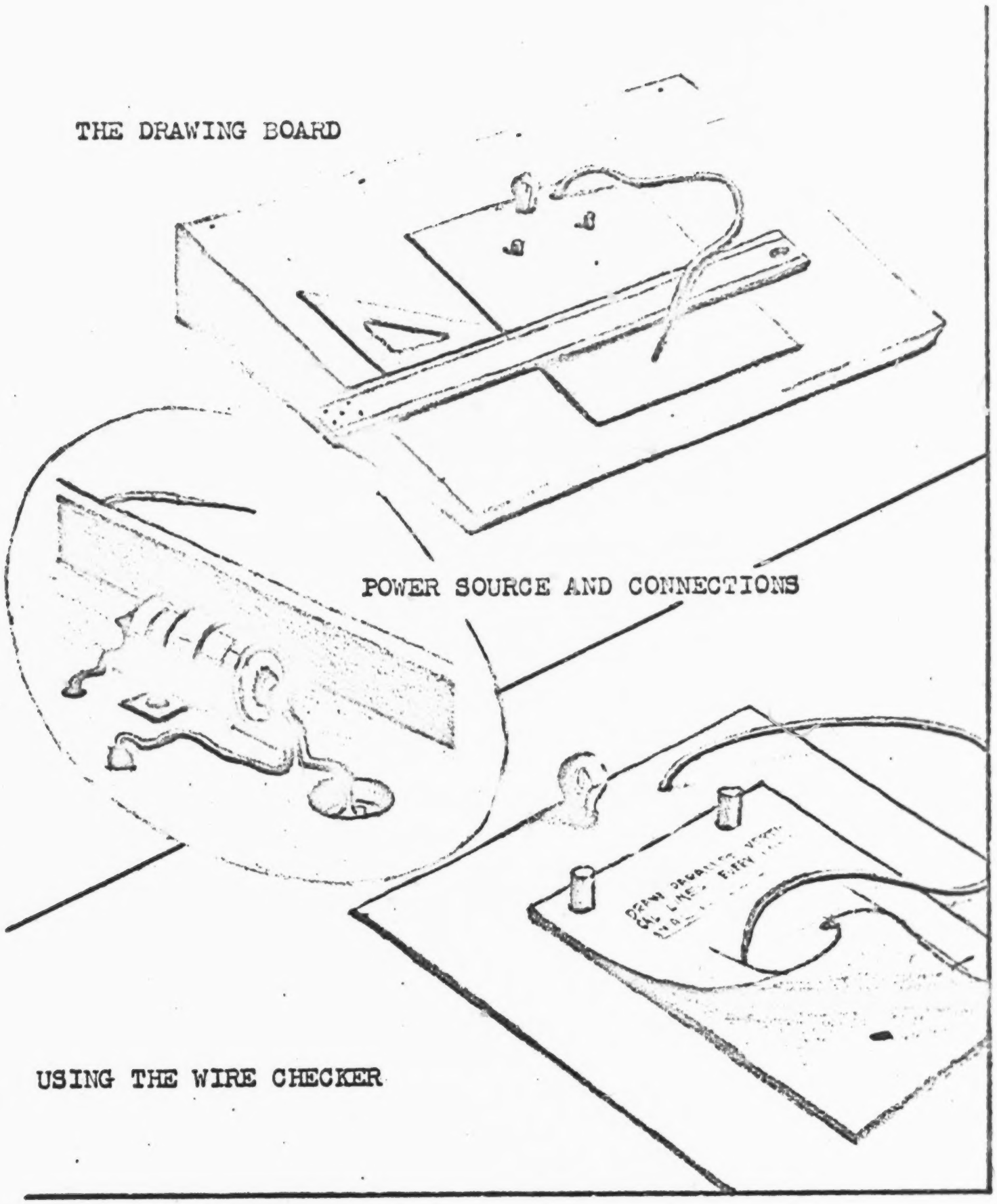
	Experimental	Control	Totals
Experienced	N = 9 $\bar{X}$ = 52.667 S = 15.35	N = 9 $\bar{X}$ = 50.222 S = 10.80	N = 18 $\bar{X}$ = 51.444 S = 13.27
Non-Experienced	N = 9 $\bar{X}$ = 50.667 S = 15.17	N = 9 $\bar{X}$ = 54.333 S = 6.82	N = 18 $\bar{X}$ = 52.500 S = 11.76
Totals	N = 18 $\bar{X}$ = 51.667 S = 15.26	N = 18 $\bar{X}$ = 52.278 S = 9.03	

SY	DF	SS	MS	F*
A columns	1	3.361	3.361	.002
B rows	1	10.028	10.028	.063
R x C AB	1	84.027	84.027	.335
Error	32	5029.556	157.174	
Total	35	5126.972		

*No significant differences or interactions between groups or classes within groups. F = 4.15 at the .05 level.

$$\frac{S^2 \text{ (largest)}}{S^2 \text{ (smallest)}} = 5.06.$$ Not significant at .05.

APPENDIX G


THE DRAWING BOARD
POWER SOURCE AND CONNECTIONS
USING THE WIRE CHECKER

Each response on this section of the test was valued at one point each for a total of thirty possible points.

T-Square (11-13 and 18-21)

45°-90° Triangle (22-25)

(22-28)

A. a T-Square.

B. a Triangle.

C. both a T-Square and Triangle.

D. either a T-Square or a Triangle.

4. When two 45° lines are drawn [illegible] they are ___Parallel___ to each [illegible] (18-21)

5. When two 45° lines are drawn [illegible] directions and cross each other they are ___Perpendicular___ to each other. (35-42)

6. Any two lines which cross each other are said to ___Intersect___ each other. (6-10)

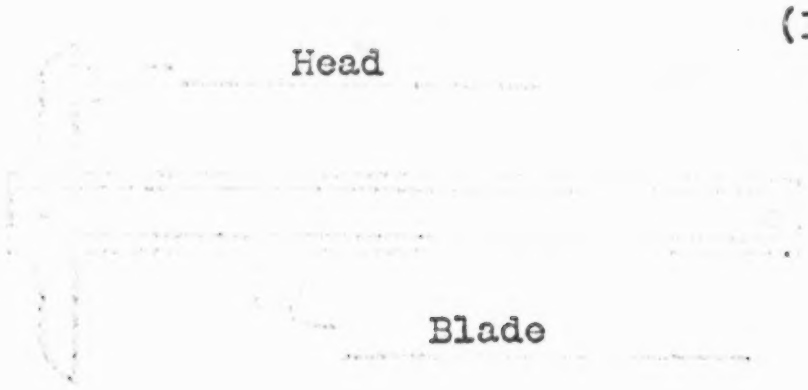
7. When point A is connected to point B by a straight line, this line will ___Intersect___ line CD. (6-10)

NOTE: Figures indicated in parentheses refer to corresponding numbers of items in the program of instruction.

9. Label the illustration below with the correct terms.

Name NOT SCORED*

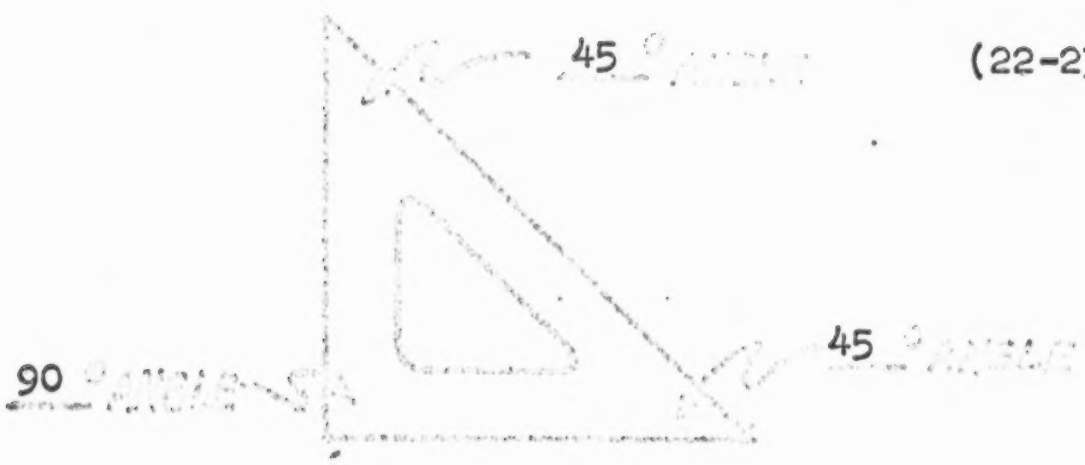
(11-12)



9. Label the illustration below with the correct terms.

Name NOT SCORED*

(22-23)



10.

A. What kind of line is the line ABC that is called? **A Horizontal Line** (13, 18-21)

B. What kind of line is the line CD? **Vertical** (24-28)

C. These two lines are **Perpendicular** to each other at their point of intersection. (29-32)

*These two items were not adequately clear and subject responses to the items were not included in the scoring of the test.

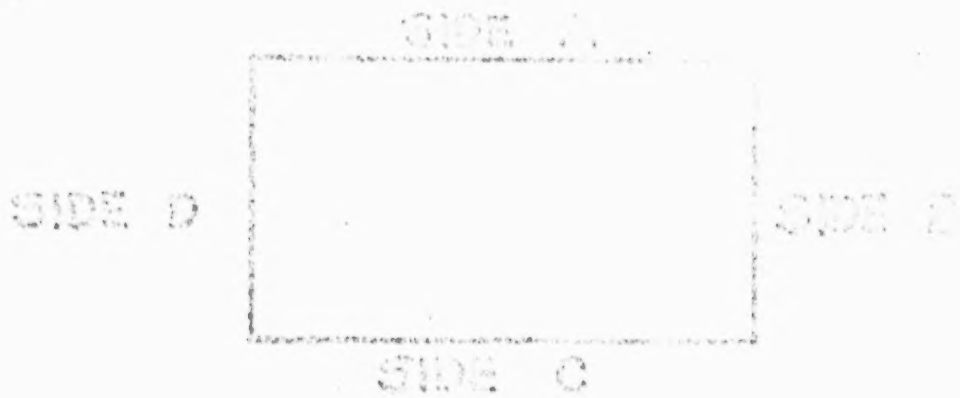
11.

A. Side A is ___Parallel___ to side C. (18-21)

B. Side A is ___Perpendicular___ to side D. (29-32)

C. Side C is ___Perpendicular___ to side B.

D. Side D is ___Parallel___ to side B.

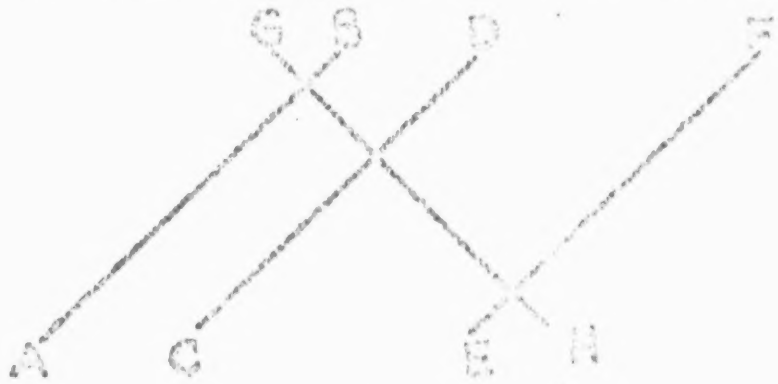


12.

A. Line AB is ___Parallel___ to line CD. (18-21)

B. Line GH is ___Perpendicular___ to line CD. (29-32)

C. Line CD is perpendicular to line ___GH___.



Identify the following examples which illustrate intersecting lines. (Circle the letter of your choice.) (6-10, 14-19)

13.

14.

A

(B)

15.

(A)

B

Study the illustration below and do the following:

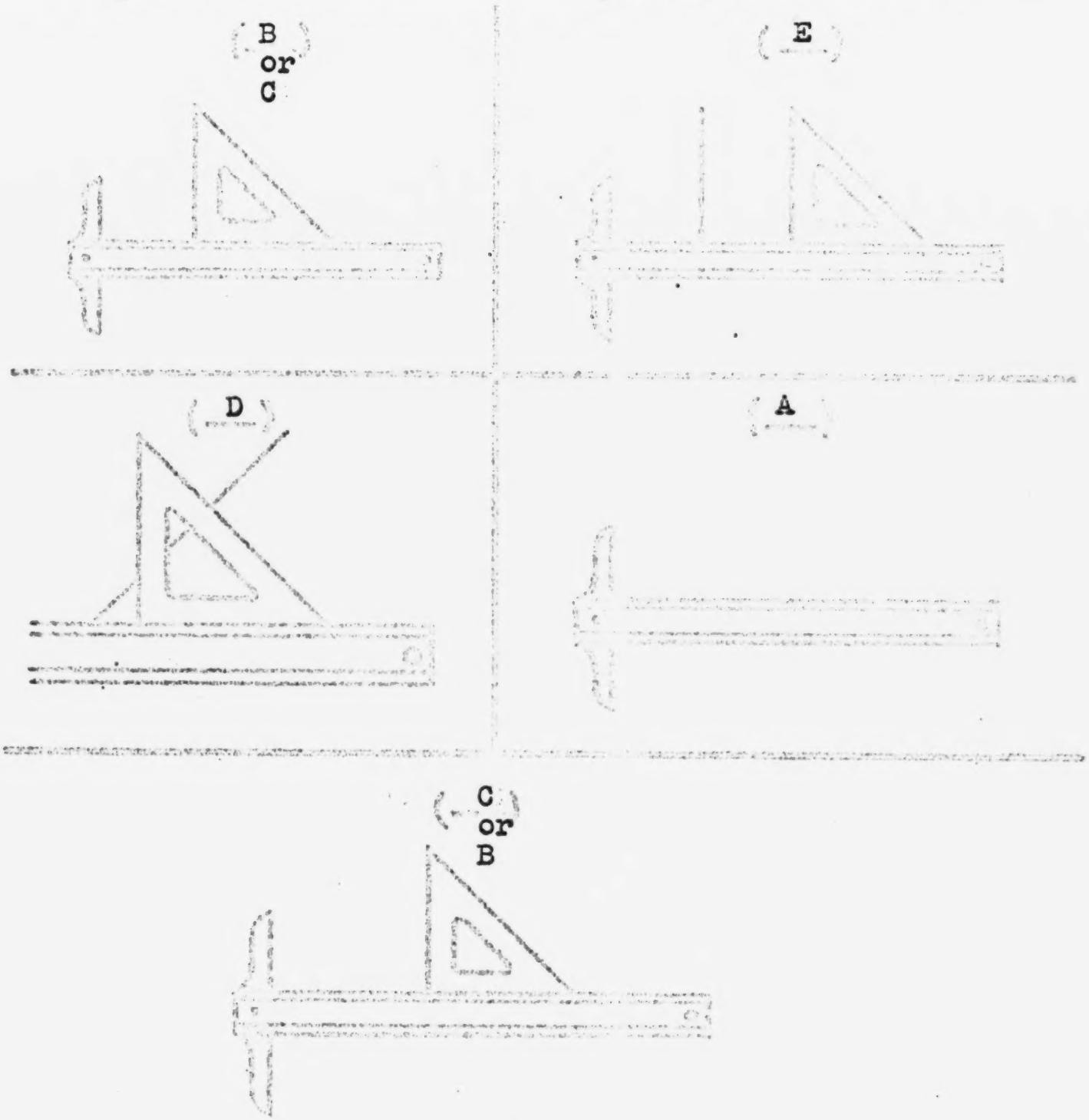
16. Label the illustration (A) which shows how to draw a horizontal line. (11-13)

17. Label the illustration (B) which shows how to draw a vertical line. (22-24)

18. Label the illustration (C) which shows how to draw a 45° line. (33-34)

19. Label the illustration (D) which shows how to draw a perpendicular line. (29-32)

20. Label the illustration (E) which shows how to draw parallel lines. (18-21)



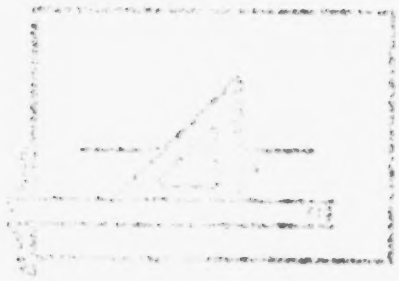
Manipulative Section

Directions: [illegible] Before starting any work on the problem on the [illegible] on the board, [illegible] on [illegible] board. To do this very [illegible] the top of each page [illegible] on the drawing board [illegible] drawing board before starting on [illegible]

Be sure to read the directions and study the illustrations for each problem very carefully before [illegible] any work.

1. Follow the illustration on the left and draw a vertical line perpendicular to the given line at point [illegible].

(29-32)

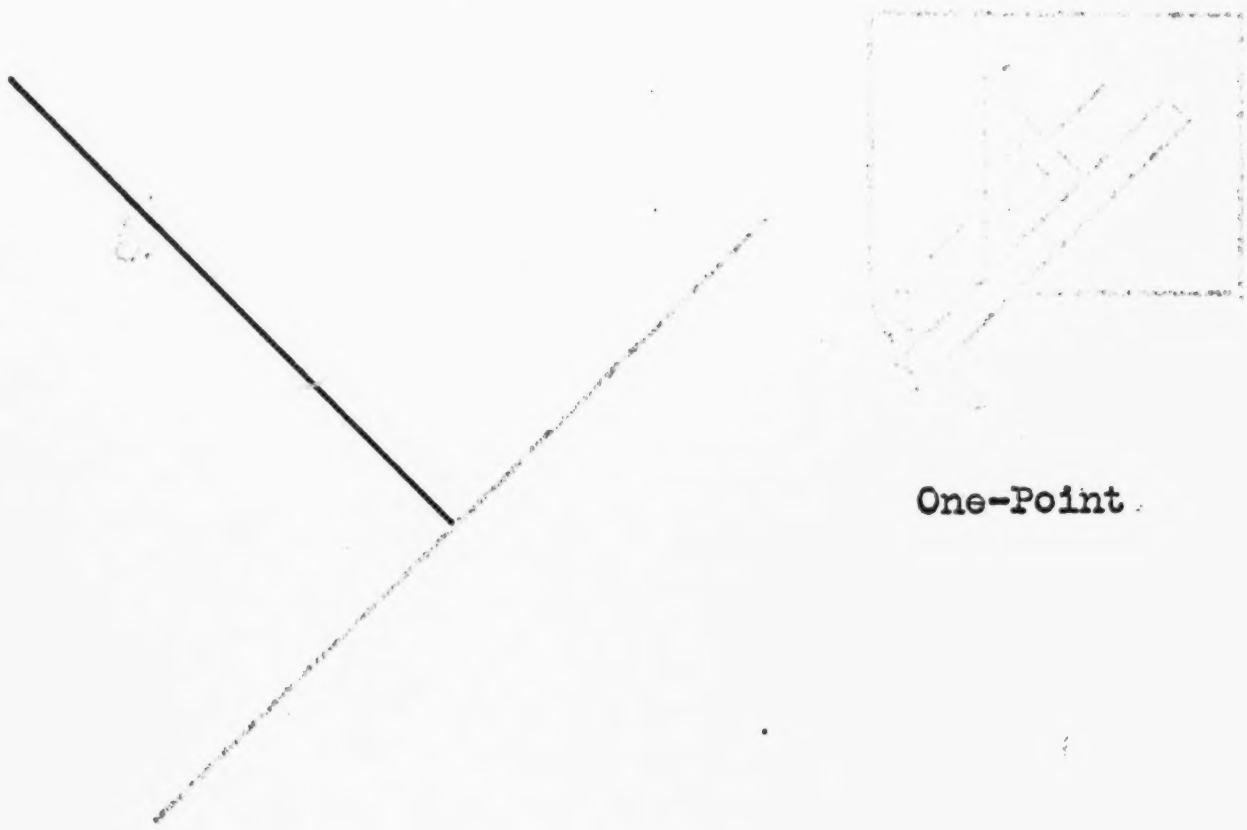


One-Point

NOTE: There are twenty-nine possible points on the manipulative section of the test.

2. Follow the illustrations for each problem, and draw lines perpendicular to the given lines through the given points. (35-40)

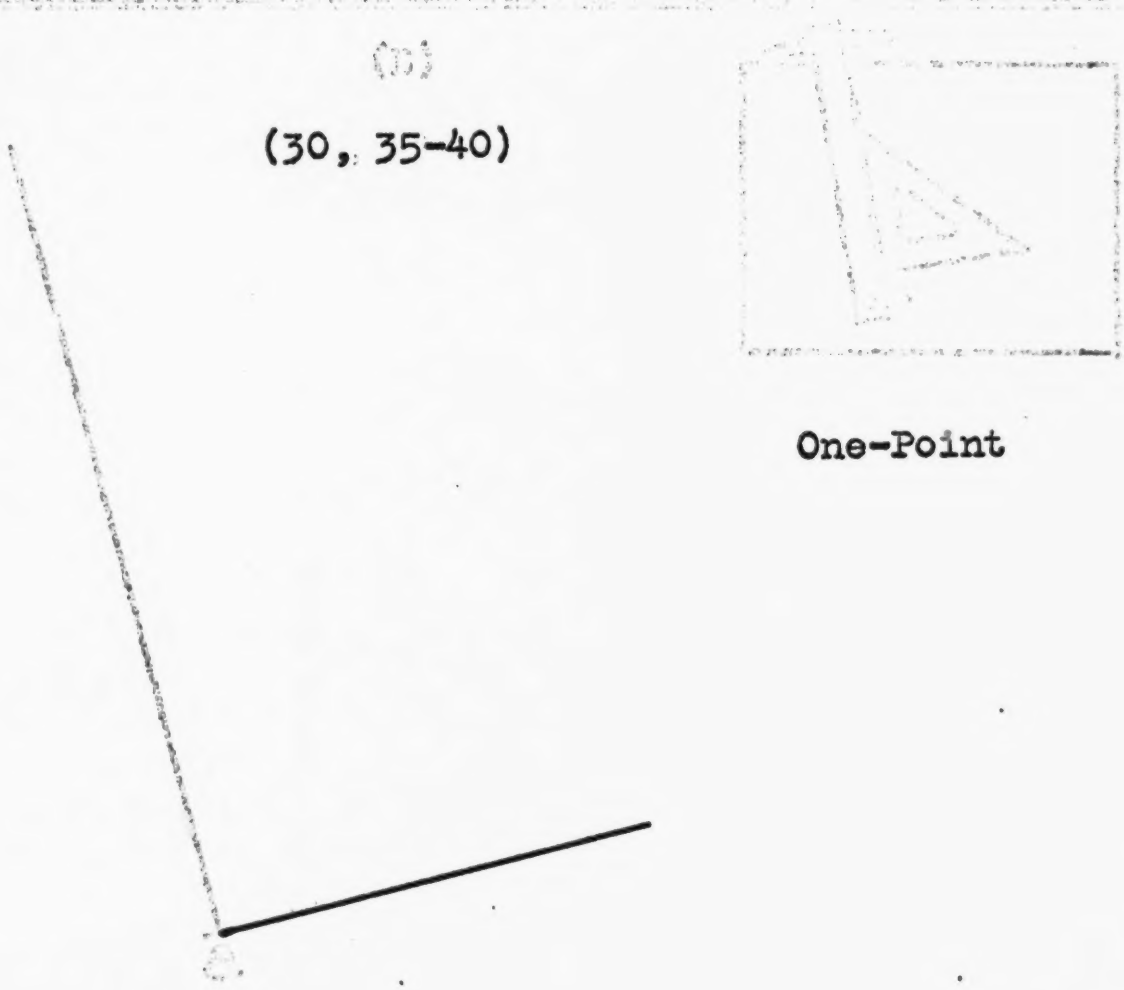
(A)



One-Point

(B)

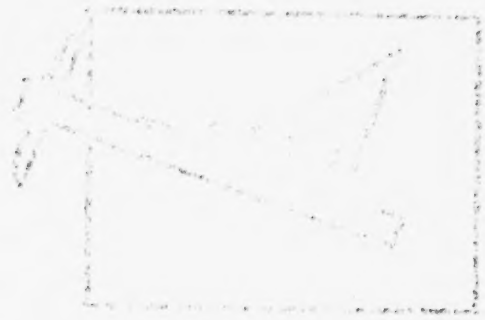
(30, 35-40)



One-Point

(C)

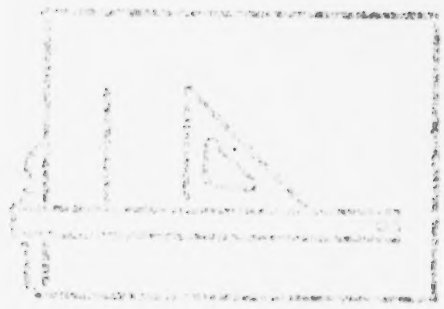
(35-40)



One-Point

3. Draw a line parallel to the given line below.

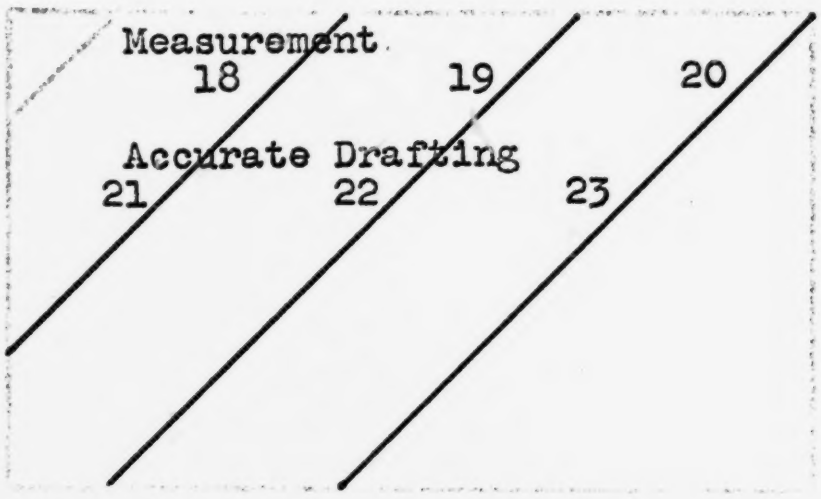
(24-26)



One-Point

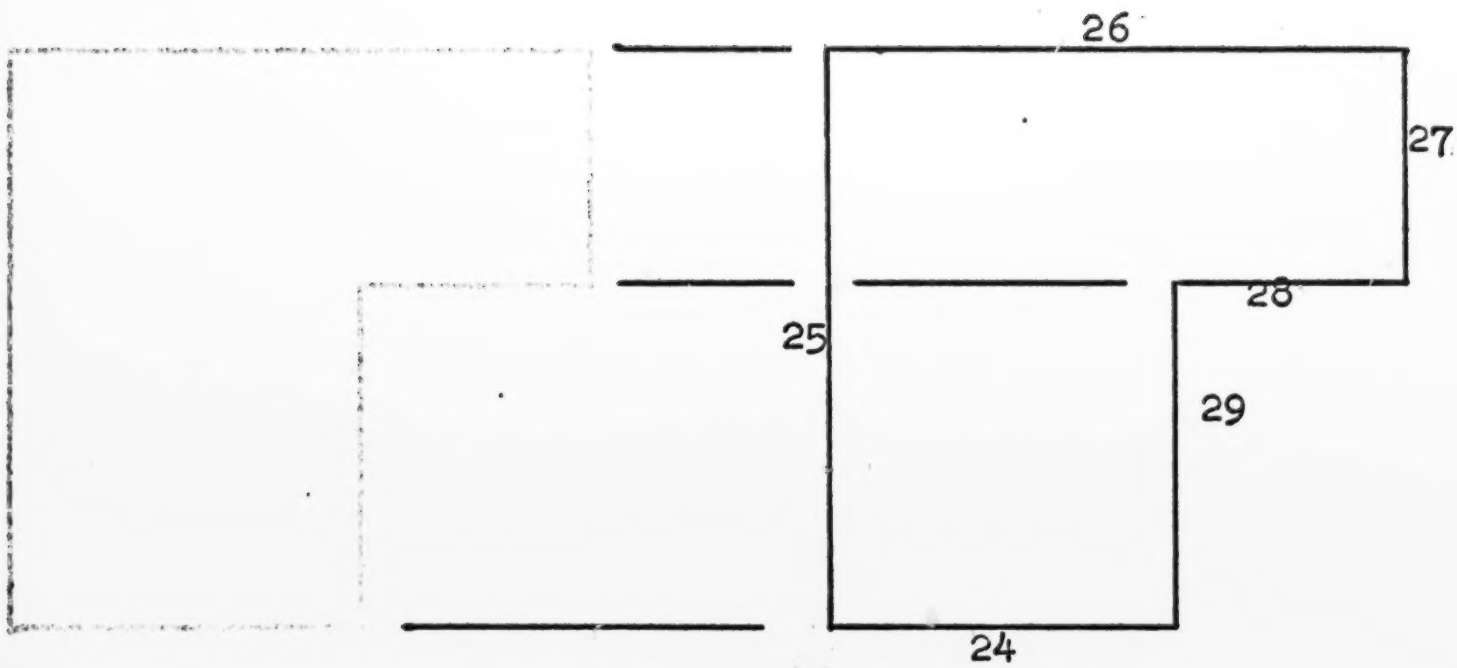
Measurement	Accurate Drafting
6	9
7	10
8	11

Measurement		
12	13	14
Accurate Drafting		
15	16	17



Each item on this page was valued at six points. One point for each correct measurement (3 points total), and one point for each correctly drawn line (3 points total).

7. Copy the figure which is shown below on the left. Copy your figure starting at the point A and make it the same size and shape as the given figure.



This item included the six distinct responses labeled above. Each response was valued at one point.

APPENDIX I

DIRECTIONS AND INSTRUCTIONS FOR THE CONTROL GROUP TESTING SESSION

(Subjects in the control group entered the classroom and were randomly seated. The testing session was begun promptly at 10:30 a.m.)

INTRODUCTION (Approximately Two Minutes)

The reason for your having been called here this morning was to participate, in a very important way, in a research project. The purpose of the project will be to try to find out how well students like you, who are in the seventh grade, can learn certain aspects of drafting when it is not taught by a regular teacher. Instead of a teacher to teach drafting, students will study it alone and learn how to use drafting equipment working by themselves.

This group has a very important part to play in the study. In just a few minutes you will be asked to answer some questions about your knowledge of drafting and how well you are able to draw.

Some of you now are taking industrial arts and have done some freehand sketching in shop. Others have not. Whether you have studied drafting, or not, isn't very important and to what you will be doing shortly, and each of you should try to do the very best job he can in answering all of the questions.

I will now pass out the questions. Please do not look at the questions. Keep the sheets face-downward on your desk until you are told to turn them over.

PASS OUT THE COGNITIVE SECTION OF THE CRITERION TEST FACE-DOWNWARD TO THE STUDENTS.

DIRECTIONS AND INSTRUCTIONS FOR THE COGNITIVE SECTION OF TEST
(Approximately Eight Minutes)

1. Turn the questions over to the first page. Print your name in the space provided and today's date, Jan. 21, 1965.

2. When you are told to begin working, you will have twenty minutes to work on the questions you now have. At the end of this time, you will be asked to stop work and you

should stop working immediately.

3. If you finish all of the questions before time is called, turn your sheets face-downward on your desk, and wait quietly until the time is up.

4. Be sure to answer all questions. If you do not know the answer to a question, write a question mark in the space, and go on to the next one. Do not leave blank spaces when you do not know the answers. Write a question mark so that I know you haven't missed or forgotten that question.

5. If you have any questions, ask them now. After you have started to work, questions cannot be answered. (Pause)

BEGIN WORKING

CALL A STOP TO THE WORK AFTER TWENTY MINUTES AND QUICKLY COLLECT ALL TESTS.

DISTRIBUTE T-SQUARES AND 45°-90° TRIANGLES TO EACH DESK WITH THE EXPLICIT INSTRUCTIONS NOT TO HANDLE THE EQUIPMENT UNTIL INSTRUCTED TO DO SO.

DIRECTIONS AND INSTRUCTIONS FOR THE MANIPULATIVE SECTION OF TEST (Approximately Ten Minutes)

1. The second part of the questions will require that you use the equipment you have been given.

2. Take the instrument labeled T-Square, and lay it on the drawing board like this. (Demonstrate) Do not move or use it otherwise. Listen to the explanation for using this instrument.

EXPLAIN AND DEMONSTRATE THE T-SQUARE USE.

3. Take the instrument labeled 45°-90° Triangle, and lay it on the drawing board like this. (Demonstrate) Do not move or use it otherwise.

EXPLAIN AND DEMONSTRATE ITS USE.

4. You will need these two instruments to answer the next section of questions. Try to do the best job you can on these questions also.

PASS OUT THE MANIPULATIVE SECTION OF THE CRITERION TEST FACE-DOWNWARD TO THE STUDENTS.

5. Turn the pages over, please. Write your name on each page in the upper right-hand corner of the page. Look at the top page, and notice that it has two holes in the top edge, as do all of the other pages. Each page should be positioned on the drawing board before beginning to do any work on the page.

DEMONSTRATE AND EXPLAIN FASTENING OF PAGE 6 ON THE DRAWING BOARD

6. Move the instruments out of the way, and fasten Page 6 to the drawing board.

ANSWER QUESTIONS AND GIVE INDIVIDUAL ASSISTANCE

7. Now, begin to read the directions on Page 6, and do exactly what the directions tell you to do. Read all directions carefully before doing any work. When you have completed the first page, take it off the board, fasten the next page on the board in the same way, read the directions carefully, and continue working.

8. You will have approximately twenty minutes to complete the questions. When you are asked to stop working, stop immediately.

BEGIN WORKING

CALL A STOP AFTER TWENTY MINUTES AND COLLECT ALL TESTS.

HAVE STUDENTS ARRANGE EQUIPMENT ON THE DESKS FOR USE BY THE EXPERIMENTAL GROUP.

THANK STUDENTS FOR THEIR PARTICIPATION IN THE STUDY.

APPENDIX J

DIRECTIONS AND INSTRUCTIONS TO THE EXPERIMENTAL GROUP

(Subjects in the experimental group entered the classroom and were randomly seated. Work on the program of instruction began promptly at twelve noon.)

INTRODUCTION (Approximately Two Minutes)

The reason for your having been called here today was so that you could participate, in a very important way, in a research project. The purpose of the project will be to try to find out how well students like you, who are in the seventh grade, can learn certain aspects of drafting when it is not taught by a regular teacher. Instead of a teacher to teach you drafting, you will study it alone and learn how to use drafting equipment working by yourself.

Before we actually begin to do any work, you should know that the success of the project will be determined, to a large extent, by whether you do your best work here today. It is very important to the project that you try to do the very best you possibly can throughout the rest of the period. Also, it is very important to you that you do your best work, because this is the only way in which you can expect to learn something about the subject and methods of the draftsman.

DIRECTIONS AND INSTRUCTIONS FOR THE PROGRAM OF INSTRUCTION
(Approximately Eight Minutes)

1. Take the rubber bands from the stack of pages labeled Program of Instruction.

2. Take the cover sheet off the stack, and place it on the side of the desk, out of the way. Take Page 1 from the stack, and position it very carefully over the two pins on the surface of the drawing board like this. (Demonstrate) Do not do any other work yet.

ANSWER QUESTIONS AND GIVE INDIVIDUAL ASSISTANCE

3. Every page following this first page must also be positioned on the drawing board like you have just done. But, if you will take Page 2 and look at it now, you will see that each of the remaining pages on the stack is

followed by a special cardboard template. It is very important that both the printed page itself, and the cardboard template, be positioned on the drawing board together. The cardboard template should go down on the board first, then the page is positioned on top of the cardboard. (Demonstrate) You must be sure that you have the cardboard template down first, then the printed page on top of it. Both should be positioned very carefully on the drawing board before attempting to do any work on the page.

4. All of the other directions and instructions you will need as you continue to work will be printed on the pages of the program. Read all directions very carefully before beginning work, and follow all directions exactly.

5. You will have approximately two and three-quarter hours to work, at your own speed, on the program. This is a long time. If you feel that you need to take short rests as you work, this is all right providing that you sit quietly and do not disturbe the others sitting near you.

6. You should try to complete the entire program before the time is called. Do the best job you can, and complete each page entirely before going on to the next one. Do not waste time. When you have completed a page, start on the next page as quickly as you can.

7. If you have any questions, ask them now. After you have started to work, questions cannot be answered. (Pause)

BEGIN WORKING

CALL A STOP TO THE WORK AFTER TWO AND THREE-QUARTER HOURS AND QUICKLY ASSEMBLE PROGRAMS AND TEMPLATES AND COLLECT THEM.

DIRECTIONS AND INSTRUCTIONS FOR TAKING THE CRITERION TEST.
(Approximately Five Minutes)

The directions given to the experimental group were exactly the same as those given to the control group for the cognitive section of the criterion test and these have been listed in APPENDIX I.

The experimental group had approximately thrity-five minutes to work on the criterion test.

APPENDIX K

SUMMARY OF PROGRAM ITEMS WITH MORE THAN TWO ERRORS

	Program Items *																			
	4c	4e	15a	15b	17c	18	19	20	25e	26	28	32	42a	42b	42c	43a	43b	44a	45	47
Experienced	4	4	1	1	0	3	4	2	2	2	1	1	2	0	4	2	2	2	2	1
Non-Experienced	4	1	2	3	3	4	3	1	1	4	2	3	4	3	2	1	2	1	3	5
Total	8	5	3	4	3	7	7	3	3	6	3	4	6	3	6	3	4	3	5	6

*Items up to number 47 have been included in the summary. The remaining part of the program could not be included because eight out of eighteen subjects were unable to go beyond item number 47. Program items up to number 47 which are not shown in the table were items with two errors or less.

APPENDIX L

ERRORS MADE BY THE NON-EXPERIENCED AND EXPERIENCED GROUPS OF THE EXPERIMENTAL GROUP ON THE COGNITIVE SECTION OF THE CRITERION TEST

		Cognitive Test Items																												
		1	2	3	4	5	6	7	8a	b	9a	b	c	10a	b	c	11a	b	c	d	12a	b	c	13	14	15	16	17	18	19	20
Experienced Students	2													x																	
	6		x	x	x	x										x					x	x					x	x		x	x
	8				x	x																									
	14						x							x	x								x				x		x		
	18		x																			x	x			x			x	x	
	20												x															x		x	
	22				x	x																							x	x	
	24													x	x																
	32			x				x																				x			
		0	2	2	3	3	1	1	0	0	0	1	3	2	1	0	0	0	0	1	2	2	0	0	1	2	3	3	4	1
Non-Experienced Students	1															x		x	x				x								
	3																														
	7																											x		x	
	13					x								x	x				x							x	x				
	15													x	x																
	17				x	x								x	x																
	19											x	x	x	x																
	25																														
	35	x	x			x			x		x			x	x	x	x	x	x	x		x	x				x	x	x	x	x
		1	1	0	1	3	0	0	1		1	0	1	1	5	5	2	1	2	2	2	0	1	2	0	1	1	1	3	1	3	1

APPENDIX M

ERRORS MADE BY THE NON-EXPERIENCED AND EXPERIENCED GROUPS OF THE EXPERIMENTAL GROUP ON THE MANIPULATIVE SECTION OF THE CRITERION TEST

		Manipulative Test Items																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Experienced Students	2																		x	x										
	6		x	x	x		x	x	x	x	x		x	x	x			x	x	x	x	x	x	x	x		x		x	x
	8			x																							x	x	x	
	14		x	x	x		x	x	x				x	x	x				x	x	x					x	x		x	
	18		x	x	x		x	x	x	x	x	x		x		x			x	x	x	x						x	x	
	20		x	x	x																							x		x
	22		x	x					x										x	x	x						x	x		
	24																												x	
	32		x	x																x									x	
		0	6	7	4	0	3	3	4	2	2	1	2	3	2	1	0	1	5	6	4	2	2	2	1	1	5	4	6	2
Non-Experienced Students	1												x	x	x	x	x	x	x	x	x	x	x	x			x		x	x
	3											x						x	x	x	x			x					x	x
	7		x	x					x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	13	x	x		x	x	x	x	x	x		x	x	x	x				x	x	x	x	x				x	x	x	x
	15		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x		x	x	x	x
	17			x								x							x	x							x	x	x	
	19		x	x	x	x		x		x	x	x		x	x				x	x	x	x	x	x			x	x	x	x
	25			x			x	x	x				x	x	x	x	x	x	x	x	x						x	x	x	
	35	x	x	x	x		x			x				x					x	x	x	x	x		x	x	x	x	x	x
		2	5	6	4	2	4	4	3	5	2	5	5	7	6	4	4	5	9	9	8	5	5	4	3	2	8	7	9	6

APPENDIX N

ERRORS MADE BY THE NON-EXPERIENCED AND EXPERIENCED GROUPS OF THE CONTROL GROUP ON THE COGNITIVE SECTION OF THE CRITERION TEST

		Cognitive Test Items																													
		1	2	3	4	5	6	7	8a	b	9a	b	c	10a	b	c	11a	b	c	d	12a	b	c	13	14	15	16	17	18	19	20
Experienced Students	4	x	x	x	x	x			x	x	x	x		x		x		x	x	x	x	x	x				x	x		x	x
	10	x	x	x		x	x	x	x	x	x	x	x			x						x	x					x			x
	12	x	x						x	x	x	x	x				x	x	x	x											
	16		x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x	x	x		x						
	26		x	x					x	x	x	x	x			x															
	28	x	x	x		x			x	x				x	x			x	x							x			x	x	
	30		x	x			x		x	x			x																		
	34		x	x	x	x			x	x	x	x	x			x	x	x	x	x	x	x	x			x		x		x	x
	36	x	x	x					x	x	x	x	x	x	x													x	x	x	
		5	9	8	3	5	2	1	9	9	7	7	7	4	2	5	3	5	5	4	3	4	4	0	1	2	1	4	2	4	3
Non-Experienced Students	5		x	x		x	x	x	x	x	x	x	x	x	x	x									x		x	x		x	x
	9	x	x	x		x		x	x	x	x	x	x			x		x	x									x	x	x	x
	11	x	x	x		x		x	x	x	x	x	x	x	x	x		x	x		x	x	x				x	x		x	x
	21		x	x	x	x			x	x				x	x			x	x										x	x	x
	23	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x				x	x	x	x	x
	27	x	x		x	x	x	x	x							x											x	x		x	x
	29		x		x	x	x	x	x	x	x	x	x	x	x	.					x						x				
	31	x	x	x		x			x	x	x	x	x			x		x	x			x	x					x			
	33		x	x		x			x	x		x				x		x	x			x	x								
		5	9	6	4	9	4	6	9	9	6	7	5	5	5	7	1	6	6	1	2	4	4	0	1	0	5	6	3	6	7

APPENDIX O

ERRORS MADE BY THE NON-EXPERIENCED AND EXPERIENCED GROUPS OF THE CONTROL GROUP ON THE MANIPULATIVE SECTION OF THE CRITERION TEST

		Manipulative Test Items																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Experienced Students	4	x		x	x		x	x	x											x	x							x	x	x
	10	x	x	x	x		x	x	x	x	x		x	x	x				x	x	x									
	12		x	x										x					x	x	x							x	x	x
	16		x	x	x		x	x	x				x	x	x				x	x	x							x		
	26	x	x	x			x			x		x	x		x						x								x	x
	28	x	x	x	x						x	x		x					x	x	x					x	x	x	x	x
	30		x	x			x	x	x																			x		
	34			x	x		x	x	x				x	x	x				x	x	x	x	x	x				x	x	x
	36		x	x	x								x	x	x				x	x	x						x	x	x	x
		4	7	9	6	0	6	5	5	2	2	2	5	6	5	0	0	0	6	7	8	1	1	1	0	1	2	7	6	6
Non-Experienced Students	5	x	x	x						x									x	x	x	x	x				x	x	x	
	9	x	x						x										x									x		x
	11		x	x	x															x			x						x	
	21			x	x			x					x						x	x	x						x	x		x
	23	x	x	x	x								x	x	x	x	x	x	x	x	x						x	x	x	x
	27													x							x								x	
	29		x															x	x	x	x							x		x
	31				x			x	x				x	x	x			x	x	x	x					x		x	x	x
	33		x		x		x	x	x	x			x	x	x	x			x	x	x					x		x		x
		3	6	4	5	0	1	3	3	2	0	0	4	4	3	2	1	3	7	7	7	1	2	0	0	2	3	7	5	6

VT 004 675
Johnston, Philip M.
An Analysis of Enrollments and a Follow-Up Study of Selected Students Who Have Attended the Austin Area Vocational School.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 305p.

STUDENT ENROLLMENT; GRADUATE SURVEYS; *VOCATIONAL FOLLOWUP; *AREA VOCATIONAL SCHOOLS; QUESTIONNAIRES; VOCATIONAL EDUCATION; WAGES; INDIVIDUAL CHARACTERISTICS; *LONGITUDINAL STUDIES; EDUCATIONAL PLANNING; EMPLOYMENT EXPERIENCE; PROGRAM DESCRIPTIONS; SUCCESS FACTORS; *PROGRAM EVALUATION; PARTICIPANT SATISFACTION; MASTERS THESES
AUSTIN AREA VOCATIONAL SCHOOL; MINNESOTA

To provide evaluative and student follow-up information for local program planning purposes, a population of 1,887 persons enrolled in 12 day-trade programs conducted during the 8 school years from 1953-1960 was stratified into eight groups according to the number of hours of attendance. A 25 percent random sample was selected for questionnaire contact. After nine follow-up efforts, 387 responses, an 82.2 percent return, were received. A study of the school's permanent records was also conducted. Findings included: (1) two-thirds of the students were enrolled for less than 1,100 hours, (2) 162 out of 303 students (53.1 percent) had completed the cosmetology course, (3) 101 out of 120 students (84.2 percent) had completed the practical nurse course, (4) completion rates in other courses ranged from 0.0 percent in appliance repair and printing to 20.4 percent in electronics, (5) the modal hourly pay rate for respondents working in the trade for which they were trained was $1.76 to $2.00, (6) the model hourly pay rate for respondents employed in occupations unrelated to their training was $2.76 to $3.00, and (7) 48.7 percent worked at the trade for which they were trained for more than 30 days. (EM)

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AN ANALYSIS OF ENROLLMENTS AND A FOLLOW-UP STUDY OF SELECTED STUDENTS WHO HAVE ATTENDED THE AUSTIN AREA VOCATIONAL SCHOOL .

An Independent Paper
(Nine Quarter Credits)
Ind. 200, Research Problem
Professor Howard F. Nelson, Adviser

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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1964

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The writer also wishes to record an expression of deep gratitude to my wife for her encouragement as assistance throughout my graduate work.

P.M.J.

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

The Austin Area Vocational-Technical School, located in Austin, Minnesota, operates as a part of the Austin Public School System under the federal and state laws governing the operation of area vocational-technical schools. The School has provided the community and surrounding area with vocational programs in agriculture, home economics, distributive education, office practices, day trade, and trade extension on a high school and post high school level which were developed to meet the needs of the individual student and labor market being served.

The main objective of the School has been to provide each individual student with a background of training that would enable him to obtain employment and/or advancement in his chosen occupational field as well as provide for his self-satisfaction and also meet the requirements of the employer.

The instructional procedures associated with each training program have been directed toward the personality factors associated with the maturity, attitude, and desires

of each student who has been enrolled in relation to his capacities to acquire the skills and related information required for success in his selected occupational field. The study should provide the School with information that will serve as a basis for improving the training programs to better meet the employment objective.

I. THE PROBLEM

Statement of the problem. Vocational education is becoming more important and is being accepted as a necessary and desirable addition to the curriculum of many of our public schools. The Smith-Hughes Act of 1917 was the first major federal act to provide funds specifically for vocational education. The Act provided $500,000.00 for the fiscal year that ended in June of 1918 and stipulated that the amount be increased to three million dollars for the fiscal year of 1926 and be maintained at that level thereafter. The most recent federal act was the Vocational Act of 1963 which allocated sixty million dollars for the 1964 fiscal year with expenditures to climb to 260 million dollars annually by 1967. The new appropriations are to be used to strengthen and expand the present vocational education

programs, to initiate new programs to meet today's needs, and to correct the misconception of vocational education as being a dumping ground for academic misfits by pioneering new programs to realistically meet the current and future manpower needs of the nation.

Vocational education, while emerging as a new force in public education, has received much publicity, both favorable and unfavorable. It was the purpose of this paper to investigate the training being offered by the Austin Area Vocational-Technical School by: (1) observing the success of the student after leaving school in relation to the training received, (2) finding the areas in which the School failed to provide training for success on the job, (3) determining the effectiveness of the present objectives of the various courses offered as reflected by on-the-job performance, (4) evaluating the present program designed to interest prospective students in the School and what it offers, and (5) formulating a plan for continuous follow-up studies where feasible.

Importance of the study. The Austin Area Vocational-Technical School was established in 1951, and to date, this represents the first major follow-up study which has been undertaken. Vocational education must be dynamic to meet the changing needs of our economy and to keep pace with the technological advances taking place in industry; consequently, this study meets a definite need.

Information gained from an analysis of the permanent records and from the follow-up of a selected number of former students serves as a basis for: (1) evaluating each training program and adjusting it to meet any needs that are presently being overlooked, (2) counseling and selecting persons for training who indicate a desire to enroll in a given course that meets their interest, (3) determining the validity of the person's selection of a vocation in relation to his present occupation, (4) determining to what extent the School meets its obligations in respect to area and resident needs, (5) examining critically the number of hours of training desirable to make a person employable from a given training program, (6) planning for the future by the faculty and administration.

The study resulted in a number of changes in the permanent record system and a number of other administrative procedures which have been altered for efficiency. The faculty developed a new awareness of the need for training programs to meet the needs of industry. The completed study contains information that will be of value to each faculty member in relation to course content and instructional methods.

Delimitations of the study. The investigator early discovered that it would be necessary to make a detailed study of all the persons who had attended the Austin Area Vocational-Technical School in addition to the actual follow-up of a selected number of students. This decision was prompted by the fact that only a very small percentage of the students enrolled had actually completed the specified number of hours of training required for graduation.

It was not possible to arbitrarily select a criterion that would be acceptable in describing a graduate. State licensing requirements dictate the lengths of several training programs. The majority of the training programs were originally set up to coincide with the length and hours of

instruction in the Austin High School. These training programs encompassed two school years of training and were established to cover approximately 2,000 clock hours of instruction. For these reasons then, the students selected for the analysis and follow-up study represented the 1,887 day trade students enrolled during the eight school years, 1953-54 through 1960-61. The follow-up study was limited to a random sample of 471 students drawn from this total population of 1,887.

The data included in the analysis was limited to the information available from the permanent records. The information secured by means of the follow-up study was limited to what, in the investigator's opinion, would be of the greatest value to the Austin Area Vocational-Technical School in appraising the effectiveness of the training being provided.

II. DEFINITION OF TERMS USED

Terms requiring explanation have been defined for the purpose of this study as follows:

Area student. A student enrolled in the Austin Area Vocational-Technical School who was not a resident of Mower

County Independent School District #492, Austin, Minnesota.

Resident student. A student enrolled in the Austin Area Vocational-Technical School who resided in Independent District #492.

Post high school student. A student enrolled in Austin Area Vocational-Technical School who was not enrolled in the Austin High School.

Veteran. A student attending the Austin Area Vocational-Technical School who received benefits from the Federal Government as a result of military service.

Austin high school student. A student who attended the Austin Area Vocational-Technical School to earn credits toward graduation from the Austin High School. Austin High School students have been allowed to enroll as sophomores, juniors, and seniors in a vocational course for three consecutive hours of training for three credits. Currently, the enrollments are restricted to seniors and they may not enroll in Electronics, Farm Equipment Mechanics, Practical

Nursing, and Cosmetology. The training and course work in these areas was such that they would not be able to profit by attending on a half-time basis.

Pacelli student. A student who attended the Austin Area Vocational-Technical School to earn credits toward high school graduation from the Pacelli High School, located in Austin, Minnesota.

Rehabilitation student. A student who attended the Austin Area Vocational-Technical School who received benefits from the State of Minnesota or the Federal Government.

Student. Any person who has attended the Austin Area Vocational-Technical School. A student may have been classified under one or more of the descriptive headings used in this paper.

High school dropout. A student who attended the Austin Area Vocational-Technical School but who had not graduated from high school and had not gained any significant work experience or time in military service to increase

his maturity since termination of his high school or grammar school experiences. The majority of these students reported in this paper enrolled in the Austin Area Vocational-Technical School shortly after dropping out of high school. A student beyond the age of 18 who had several years of work experience or military service since leaving high school was considered as a post high school student. The records used in compiling this information was not complete as to high school graduation for all students included in the study.

Austin high school dropout. A student enrolled as an Austin High School student who did not graduate from high school.

Pacelli dropout. A student enrolled as a post high school student from the Pacelli High School who did not graduate from high school.

Post high school dropout. A student enrolled at the age of 16, 17, or 18 who had not graduated from high school.

Summer only dropout. A student who attended only during the summer and did not graduate from high school.

War orphan. A student attending the Austin Area Vocational-Technical School who received benefits under the War Orphan Act from the Federal Government.

Junior college student. A student enrolled in the Austin Area Vocational-Technical School who received credit toward graduation from the Austin Junior College or obtained training from the Austin Area Vocational-Technical School on a conjunctive enrollment or consecutive enrollment program.

Evening only student. A veteran who attended an evening class for three consecutive hours per day - five days a week.

Summer only student. A student enrolled only during the summer.

Full-time enrollment. A student enrolled for six consecutive hours per day.

Part-time enrollment. A student enrolled for three consecutive hours per day.

Enrollment. Each department in which a student took training was considered an enrollment. A number of students transferred from one department to another. The total enrollments (2,006) exceed the number of students (1,887) who were enrolled by the number of transfers (119).

Grade point averages. The grade point averages were determined by assigning the following numerical values to the letter grades: A - 4, B - 3, C - 2, D - 1, and F - 0. The investigator arbitrarily determined the student's letter grade average for the portion of training completed. Plus and minus modifiers of grades were omitted. Grade point averages were not computed for students with less than 300 hours of training due to the incompleteness of these records.

Graduate. A student who successfully completed the requirements for graduation. All students were required to maintain a "C" grade average. Practical Nursing students must have completed one calendar year of training and

Cosmetology students must have completed 1,500 clock hours of training in compliance with the State Licensing Laws. All other day trade students were required to complete 2,000 clock hours of training; however, at the discretion of the vocational director a student may have been given credit for a limited amount of work experience in lieu of the training requirements. The granting of the diploma was withheld until the student's employer provided the school with evidence of satisfactory work experience.

Diploma. A diploma was awarded to any student meeting the graduation requirements: 2,000 clock hours of training with a "C" grade average for the day trade classes with the exceptions mentioned in defining a graduate, and for Practical Nursing and Cosmetology students.

Trade certificate. A trade certificate was awarded to any student who completed 1,000 clock hours of training and who maintained a "C" average. Trade certificates were not issued to students enrolled in Practical Nursing, Cosmetology, and Electronics.

Course. The term course refers to a program of instruction as it was carried out in each training program (department) of the school.

School. This term refers to the Austin Area Vocational-Technical School unless otherwise designated.

Shop. The portion of the training carried out under the conditions simulating those found on the job. Shop training consists of working with the tools and materials of a given trade, developing manipulative skills, and relating technical information to practical applications.

Related training. The portion of the training which consisted of classroom work, demonstrations, field trips, lectures, and the utilization of audio-visual aids.

Training. This term includes all activities of an instructional nature that occurred while the student was enrolled.

Instruction. This term includes all activities carried out by the instructor in the shop or classroom.

Closed-form questionnaire. A questionnaire that provided a number of responses from which the respondent selected his response by simply checking choices. This form while easy to tabulate, was so designed as to include all possible responses.

Open-end or free-response questionnaire. A questionnaire that provided spaces for the respondent to reply in essay form. This form secured the respondent's opinion, but presented difficulties in tabulation.

III. ORGANIZATION OF THE REMAINDER OF THE STUDY

The study was instituted with full approval and cooperation of the Austin Public School System, the Vocational Division of the State Department of Education, and the faculty and administration of the Austin Area Vocational-Technical School. The importance of this study was emphasized by the fact that a similar study has not been undertaken in any of the other area vocational-technical schools in Minnesota. The outcome of the study should provide a pattern for studies in the other area schools in Minnesota.

Dr. Howard F. Nelson, major adviser from the University of Minnesota, approved the preliminary plan for the study expressing the hope that the investigation would result in information of value to the State Department of Vocational Education and to the University of Minnesota in future investigations of this type, and as a source of information on the operation of the area schools for students enrolled in Industrial Education at the University of Minnesota

The investigator endeavored to arrange the chapters in an orderly sequence to adequately summarize the findings of the study and to arrive at conclusions and recommendations resulting from the findings.

A summary of the pursual of the literature concerning the use of the questionnaire was presented in Chapter II. A review of similar follow-up studies was also included, along with information associated with the questionnaire method of investigation.

To provide a background upon which to devlop the study in an understandable form, Chapter III was devoted to the history, organization, and administration of the School.

The philosophy of the School and content of the courses are a part of this chapter.

Chapter IV provides an analysis of the permanent records of the School. The investigator felt this analysis was essential to an overall understanding of the development and operation of the School in relation to the training that has been provided.

The selection of the items included in the questionnaire, implementation of the questionnaire, and related questionnaire techniques are presented in Chapter V.

Chapter VI provides a tabular presentation of the results obtained by means of the questionnaire, and includes the comments made by the respondents.

The summary, conclusions, and recommendations based upon the results of the study and the investigator's judgment are enumerated in Chapter VII.

The Appendices include specimens of the various forms used in securing and tabulating the data for the study. Brief course outlines for each training program are also included along with a number of forms developed by the investigator as a by-product of the research conducted in connection with the study.

The investigator's position with the School as Trade and Industry Coordinator at the time of this investigation involved responsibilities in the areas of counseling, placement, public relations, course content, and follow-up.

CHAPTER II

REVIEW OF THE LITERATURE

Chapter II provides a review of the literature with respect to the selection of the research problem and the techniques employed to successfully complete the study. The investigator limited the review of the literature to the methods and techniques most applicable to this study.

I. SELECTION OF THE RESEARCH TECHNIQUE

Determination of the problem. Reviewing the literature regarding the selection of a research problem and the suggested techniques to be observed provided the investigator with a sense of direction. Francis J. Rummel offered the following set of guiding principles:

1. The researcher should have a high degree of personal interest in the topic selected for investigation.

2. The researcher should choose a topic of significance.

3. The topic should be within the researcher's capabilities.

4. The topic should be one for which the necessary data are available to the researcher.[1]

Selection of the research instrument. The investigator's decision to do an analysis and follow-up study of the students who had attended the School (eight school years of 1953-61) was prompted by personal interest and a desire to obtain information indicating the effectiveness of the training programs in placing persons in occupations for which they had received training. The information available from the permanent records of the School consisted of the student's name, age, attendance, address, and course pursued.

A follow-up study employing a questionnaire seemed the only logical approach to use to obtain the desired information. A review of the characteristics of the population served to justify the use of the questionnaire. The population consisted of 1,887 former students from which a random sample of 471 persons was selected. The individuals in the population came from a geographical

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[1]Francis J. Rummel, An Introduction to Research Procedures in Education (New York: Harper and Brothers Publishers, 1958), pp. 24-30.

distribution that precluded the possibility of employing the personal interview method or even contact by telephone. The age of the former students was such that many of them would be in the armed forces or might have moved out of the area to obtain employment. The questionnaire was the only method by which direct contact could be effected with a large number of persons in an economical manner.

II. THE QUESTIONNAIRE METHOD

After selecting the questionnaire method, the investigator was confronted by a number of questions that had to be answered: (1) What questions were to be used to elicit the desired information? (2) What form should be used in stating the questions or items? (3) How were the potential respondents to be contacted? (4) Will the data obtained be easy to tabulate? (5) What methods and mechanics should be considered to effect a high per cent of returns? (6) What considerations should be given to the reliability and validity of the responses? (7) Would it be advisable to conduct a preliminary study? (8) What were some of the objections to the questionnaire

method? (9) What were the individual characteristics of the potential respondents that could prove detrimental in securing an acceptable number of returns? (10) What portion of the total population should be contacted to assure adequate data upon which to draw valid conclusions? (11) What type of letter should accompany the questionnaire? (12) What results have been obtained by other investigators who have conducted comparable studies? (13) What precautions should the investigator observe to avoid prejudicing the results?

Application of the questionnaire method. Informed writers in educational research are in general agreement that the questionnaire method has its limitations. "Nevertheless, for some studies or for certain phases of studies, a questionnaire is about the only practical device available to the investigator."[2] D. B. Van Dalen further states: "If the questionnaire is to secure useful and valid data, the weaknesses of the instrument must be

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[2]D. B. Van Dalen, "Questionnaires That Answer Your Questions," The School Executive, LXXVIII (November, 1958), p. 72.

realized and overcome."[3] To overcome the deficiencies of the questionnaire method, Harry I. Wigderson, Director of Research for the Public Schools of Peoria, Illinois has offered the following suggestions:

> If, after realistically scrutinizing the objections to the use of a questionnaire, you still are determined to go ahead, please follow these simple rules:
>
> 1. Define objectives.
>
> 2. Delimit objectives.
>
> 3. Use this formula for a questionnaire: brevity, clarity, simplicity.
>
> 4. Pretest.
>
> 5. Present results anyone can understand.[4]

Research, the questionnaire, and follow-up procedures. What to investigate, and how to investigate, are the two major problems of the researcher as stated by Francis J. Rummel.

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[3] Ibid.

[4] Harry I. Wigderson, "So You're Going to Send Out a Questionnaire," The Nations Schools, LXIX (January, 1959), p. 47.

After having determined what is to be investigated, the researcher must decide:

1. How to select a sampling of all the information or data that might be available somewhere, to constitute the basis upon which sound conclusions can be reached in answer to the questions raised.

2. What techniques of collecting these data are best adapted to the specific questions and purposes of the investigation.

3. How to collect, organize, and assemble these data to make them amenable to sound analysis and interpretation.

4. How to analyze and interpret the data to make manifest the evidence they bear on the problem for investigation so that sound inferences or conclusions can be forthcoming.[5]

The questionnaire should not contain items that can be readily and accurately obtained by other means. A lengthy questionnaire may be met by immediate rejection on the part of the recipient. "After looking at the lengthy comprehensive questionnaire sent out under the Selective Service Act, a young farmer scrawled across the first page, 'I am ready when you want me,' and

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[5]Rummel, op. cit., p. 57.

returned it."[6] Mildred Parten listed a number of considerations that should be kept in mind in designing the questionnaire. The most important are:

1. Who will make the entries on the schedule?

2. Does the physical appearance of the schedule affect the cooperation the survey receives?

3. How are the questions worded?

4. Is the sequence of questions on the schedule to be followed exactly?

5. How many questions are to appear on the form?

6. Is the purpose of the questions to ascertain facts, test knowledge of the informant, or discover his beliefs, opinions, or attitudes?

7. Is the schedule to be used in future or periodic surveys?

8. What manipulation and processing by the office staff will the schedule receive after the field collection is completed?[7]

Prior planning in relation to the sampling design serves to detect problems that might otherwise go

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[6]Mildred Parten, Surveys, Polls, and Samples: Practical Procedures (New York: Harper and Bros., 1950), p. 157.

[7]Ibid., pp. 157-159.

unnoticed. Initial planning adds efficiency and economy to the completion of the research problem. Mildred Parten recommends these preliminary plans in relation to the entire sampling design:

1. Define the universe.
2. Selection of the sampling unit and unit of tabulation.
3. Locate and select the source list.
4. Decide on the type or types of sampling to be used, i.e. whether to use, random, stratified, purposive, or other techniques.
5. Decide on the size of the sample or sampling ratio.
6. Plan the sampling procedure as a whole and write sampling instructions.
7. Prepare the source list for sampling and draw the sample.
8. Check the selection.
9. Transcribe identifying information to sample cards, e.g. name, address, sample number, district, etc.
10. Prepare sampling tables to test the sample before the field investigation.
11. Control the sample during the collection period.
12. Office control of the sample.
13. Test the sample.

14. Adjust or correct the sample if necessary.

15. Interpret the data obtained in the survey in the light of the reliability of the public.

16. Publish sampling methods.[8]

After determining that the problem to be investigated required a sampling design with the data to be secured by means of a questionnaire, the investigator obtained beneficial information by examining similar follow-up studies which have been conducted. Added emphasis for the importance of developing and maintaining a continuous follow-up of day trade students was obtained by examining the information and suggested procedures provided in a bulletin from the Area Vocational Education Division of the U. S. Office of Education.

Purposes:

1. To determine what becomes of the vocational-technical education graduates and dropouts and to determine outstanding achievement among them.

2. To determine whether vocational-technical classes are meeting the basic objective 'To fit for useful employment.'

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[8] Ibid., pp. 116-121.

3. To use follow-up information on graduates to gain the interest, cooperation, and support of the public in behalf of vocational-technical education.

Procedures:

1. Discuss with superintendent and principal the need and procedure for a continuous follow-up study of vocational-technical education students.

2. First assemble a list of names, addresses, and birthdates as complete as possible, of all vocational-technical education graduates and dropouts from beginning of program classifying them in separate groups by year of graduation or dropout.

3. Prepare a permanent record card with as complete data as possible on each student--previous and present students. Arrange cards by year of class-graduates and dropouts.

4. Record name and address of each graduate and dropout on birthdate diary page of a daily book at least 6" by 9". (Obtain general purpose date diary from bookstore.)

5. One week in advance of the graduate's birthdate anniversary each year mail a double card birthday greeting signed by the instructor asking for completion and return on the self-addressed portion of the card. Summer birthday cards can be prepared by your students before the close of school in spring and mailed by you personally each week.

6. Record data from the return card on the permanent record card in your office and file the return card by class year. Each year when the latest mailing card is returned, the old card may be removed from the active file.

7. Upon request by the State office each school year, compile data from permanent record cards on the summary form furnished by State Office and mail to State Office. The State Office can then summarize the information for the whole state.

8. The whole program of followup should be explained in detail and "sold" to all students from the time they enter the program.

9. Once the system is in operation it does not involve a great amount of work because the detail of the system is spread out over the 52 weeks of the year.[9]

The investigator felt that the preceding plan of contacting each former student by postal card annually on his birthday as outlined by the U. S. Office of Education was impractical for the following reasons: It would (1) involve too much secretarial time and expense,

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[9]Area Vocational Education Division of Vocational Education, U. S. Office of Education, "Outline of a Suggested Procedure For Conducting a Continuous Followup of Vocational-Technical Education Dropouts" (Washington, D.C.: June, 1960) 2 pp. (Mimeographed).

(2) involve too many persons over an extended period of time, (3) be difficult to tabulate the data obtained concurrently with a given school year, and (4) result in confusion in the maintenance of adequate addresses.

During a ten year period the Austin Area Vocational-Technical School enrolled over 2,000 students. To maintain a continuous follow-up on this number of persons by contacting them annually on their birthdays would be impractical. However, the method has merit for a follow-up study for a single school year or for a periodic follow-up. The mechanics involved could be revised to meet the local conditions of a given school.

Objections to the questionnaire method. A careful review of the literature made the investigator aware of the many shortcomings associated with the questionnaire method. These objections can be summarized by reversing the statements made by Carter V. Good and Douglas E. Scates on questionnaire construction.

1. The recipient is unable to ascertain any logical reasoning associated with the questions asked.

2. Questions are stated to elicit a predetermined response.

3. The inclusion of trivial questions.

4. The questionnaire is too long and formidable to inspire interest on the part of the recipient.

5. The responses are complicated and require that computations be made by the respondent.

6. Information is required that could be readily obtained from other sources.

7. The questions included are not applicable to the recipient.

8. Inconclusive questions are interspersed and stated in "shotgun" fashion.

9. The questions are not clearly stated.

10. The items are phrased to expediate tabulation.

11. Opinion questions are included when the investigator is actually desirous of obtaining factual responses.

12. The inclusion of personal questions prejudices the respondent, and may result in his giving invalid responses.[10]

The investigator was determined to avoid these mistakes in this study by concentrating on the development of a

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[10]Carter V. Good and Douglas E. Scates, Methods of Research (New York: Appleton-Century-Crofts, Inc., 1954), pp. 615-619.

questionnaire which would be concise and easily completed by the respondent.

Selection and development of the questionnaire questions. After the researcher has selected the objectives to be determined by a survey, an instrument must be prepared that will achieve these objectives. The development of a questionnaire involves procedures closely allied to the procedures observed in test construction. The accuracy and truthfulness of the answers supplied by the respondent to a questionnaire may be associated with the terms validity and reliability. "Any test is valid to the degree that it serves a specific purpose."[11] The overall results of a test are generally used to ascertain the degree to which the test has met a specific purpose; however, each item included in a questionnaire must have been so designed that valid and reliable results will be reflected in the tabulation of the item.

To achieve valid and reliable results the researcher must select an item form applicable to the survey being contemplated.

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[11] C. C. Ross and Julian C. Stanley, Measurement in Today's Schools (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1954), p. 121.

> The type of item is determined by the arrangement of words and phrases in composing it, the directions to the respondent in answering it, and the provisions made for recording and tabulating the response. A major consideration in planning the types of items in the questionnaire is the degree of objectivity necessary or desirable in tabulating the responses. All item forms may be divided into two main classes: (1) items to which the respondent supplies the words, numbers, or other symbols which constitute the responses, and (2) items to which the respondent selects responses from among those presented with the items. The major forms of items may be classified as the free-response, open-end or short-answer, which represent the supply type; and the yes-no, true-false, or multiple-choice, which represent the selection type.[12]

The supply type and the selection type may be referred to, respectively, as the open-form and the closed-form questionnaire. The closed-form adapts well to the tabulation of categorized data.

The content of the questions deserves careful consideration. D. S. Van Dalen offers these questions in this respect.

1. Was a careful evaluation of the necessity of each question made?

2. Is each question sharply delineated to elicit the specific responses required as data?

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[12] Rummel, op.cit., pp. 89-90.

3. Do the questions adequately cover the decisive features of the needed data?

4. Do the questions suit the respondent's present level of information?

5. Do more specific concrete questions need to be incorporated to secure an accurate description of the respondent's behavior?

6. Does a more general type of question need to be asked to elicit general attitudes or overall facts?

7. Are the questions colored by personal or sponsorship biases, loaded in one direction, or asked at the improper time?

8. Are the questions socially acceptable so that they lessen the possibility of falsification of answers?

9. Do the questions afford a sufficient number of alternatives to permit the respondent to express himself properly and rightfully?[13]

The writer was prompted to examine the recognized methods and procedures of constructing test questions in an effort to incorporate the information gained into the development of questionnaire items that would produce valid and reliable results related to the objectives of the study. Robert L. Ebel provided a number of general suggestions for writing the test item.

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[13]Van Dalen, loc. cit.

1. Express the item as clearly as possible.

2. Choose words that have precise meaning whenever possible.

3. Avoid complex or awkward word arrangements.

4. Include all qualifications needed to provide a reasonable basis for response selection.

5. Avoid the inclusion of nonfunctional words in the item.

6. Avoid unessential specificity in the stem or the response.

7. Avoid irrelevant inaccuracies in any part of the item.

8. Adapt the level of difficulty of the item to the group and purpose for which it is intended.

9. Avoid irrelevant clues to the correct response.

10. In order to defeat the rote-learner, avoid stereotyped phraseology in the stem or the correct response.

11. Avoid irrelevant sources of difficulty.[14]

The writing of items for a questionnaire differs in some respects from the writing of test questions. Items

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[14] Robert L. Ebel, "Writing the Test Item," Educational Measurement, ed. E. P. Lindquist (Menasha, Wisconsin: George Banta Publishing Company, 1951), pp. 213-227.

included in a questionnaire relate directly to the respondent's experiences, while test questions relate to learning experiences that may or may not have been assimilated by the persons completing the questions. Mildred Parten's suggestions for wording questionnaire items were very helpful on this part of the review.

1. Use simple words which are familiar to all potential informants.

2. Make questions as concise as possible.

3. Formulate the questions to yield exactly the information desired, in terms that lend themselves to tabulation and statistical treatment.

4. Avoid "double-barreled" or multiple-meaning questions.

5. Avoid ambiguous questions.

6. Avoid leading questions, i.e., questions worded in such a way as to suggest the answers.

7. Decide as to your use of prestige names.

8. Avoid "danger words," catchwords, stereotypes, or words with emotional connotations.

9. Decide whether to include direct questions.

10. Be cautious in the use of phrases which may reflect upon the prestige of the informant.

11. Decide whether to personalize some of the questions.

12. Allow for all possible responses.

13. Make the alternatives in multiple choice questions realistic.

14. When a long check-list is used, either use card questions or see that the items are rotated on different runs of the schedule.

15. Keep to a minimum the amount of writing required on the schedule.

16. Plan to include a few questions that will serve as checks in the accuracy and consistency of the questions as a whole.

17. Avoid questions that call out responses toward socially accepted norms or values.

18. Avoid apparently unreasonable questions using a brief explanation justifying the answer.

19. Plan to compare the responses to many simple questions with responses to other questions which put the same issue in different context.[14]

The importance of properly worded questions on a questionnaire to be filled out by the informant was emphasized by examining several selected examples given by Frederick E. Croxton and Dudley E. Crowden.

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[14]Parten, op. cit., pp. 200-215.

1. Questions should be clearly stated. For example, the question "Married or single?" might be answered "Yes," which is meaningless. It would have been equally meaningless had the answer been "No." The question, as stated often yields such ambiguous answers; furthermore, there are other categories which should be considered. There are several correct ways of asking such a question. One may say, "State whether married or single." Better and more complete is the following form:

Check whether:

____Single	____Widowed
____Married	____Divorced

This question is easy to answer, as are all questions designed to be answered by yes or no, a number, a check mark, or an underscore.

2. "Leading" questions should never be asked. Putting the answer into the mouth of the informant is not a scientific attempt to arrive at facts, but rather an attempt to support a preconceived idea. The enumerator is asking a leading question if he starts with, "Why do you like Our Soap best?" instead of asking first, "Which soap do you prefer? and second, "Why do you prefer it?"

3. Except when studying attitudes, an objective reply is always preferable to a subjective reply. If a question is to be asked concerning the condition of a roof, it should not read, "Is condition of roof excellent, good, fair, or poor?" Rather a set of definite questions should be asked as to whether or not the roof leaks,

as to the age of the roof, the material used in the roof, and so on.[15]

The sequence of the questions should be such that it creates an holds the interest of the respondent. In this respect D. B. Van Dalen raised a number of questions that should be considered by the researcher in arranging the items to be included on the questionnaire form.

1. Do the preceding questions create certain mental sets, aid in the recall of ideas, or make subsequent topics inappropriate?

2. Are the questions grouped to hold the respondent's train of thought?

3. Are the questions strategically located to arouse interest, to maintain attention, or avoid resistance?

4. Are follow-up questions or "probes" subsequently to be used?[16]

Once the selection and arrangement of the questions has been completed the researcher must develop a format for the questionnaire. The investigator arrived at a number of conclusions in this respect from the literature

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[15]Frederick E. Croxton and Dudley J. Cowden, Practical Business Statistics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1960), p. 133.

[16]Van Dalen, loc. cit.

and subsequent examination of a number of questionnaires that had been used in follow-up studies similar to this one. In an endeavor to secure a high percent of returns these factors were observed to be important: (1) The questionnaire should be commercially printed to enhance the appearance and reduce the number of pages required. (2) The name of the sponsoring institution should appear on the form. (3) The directions and method for making the responses should be brief and concise. (4) Reference to the term "questionnaire" should be avoided. (5) The respondent should be provided with a space for his signature. (6) The respondent should be invited to make comments on items designed to elicit his opinion with sufficient space being provided for this purpose. "Little or no question should be raised against one's ability to express his attitude."[17]

Selection of the sample. The selection of the sample involves one of the most important problems to be resolved by the researcher. The size of the sample must be large enough to provide reliable data upon which

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[17]Leonard V. Koss, The Questionnaire In Education (New York: The MacMillian Company, 1928), p. 101.

conclusions can be based. The sample selected must be representative of the entire population being considered. An unbiased means of selecting the sample must be employed to avoid prejudice attributable to the judgment of the researcher.

Mildred Parten indicated some of the characteristics of an ideal sampling plan deserving of further emphasis:

1. The sample should yield an unbiased picture of the population of which it purports to be a sample.

2. The sampling method chosen should be the most efficient way of securing the desired information with the funds available.

3. The sample should be so defined that there is no question as to which groups are included or excluded, or as to what groups it represents.

4. The sample should be large enough to give statistically reliable results for the characteristics which are to be measured by the survey.[18]

5. A sampling method is said to be satisfactory for the questions under consideration if it can be depended upon

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[18] Parten, op. cit., pp. 114-115.

> to yield samples (less than 100 per cent) that lead to the same action as would have been taken on the basis of a complete count.[19]

"Random samples may be defined as those drawn in a way that there is no reason to believe that bias will result, and that every case in the population has an equal chance of being selected."[20] Randomness may be achieved by thoroughly mixing the items together and then drawing the desired number; however, bias may be introduced on the part of the person selecting the sample. To avoid any chance of bias entering into the selection of the sample a table of random numbers may be employed. The population is first numbered serially with numbers of equal digits, and then the samples are selected by the order in which the numbers occur in the table. Francis J. Rummel recommended this method as entirely void of bias,

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[19] W. Edward Deming and Frederick F. Stephens, "On the Interpretation of Censuse as Samples," Journal of the American Statistical Association, 36:45-49, 1941, cited by Mildred Parten, Surveys, Polls, and Samples: Practical Procedures (New York: Harper and Bros., 1950), p. 114.

[20] Rummel, op. cit., p. 140.

provided the initial numbers to appear in the table have not been observed in advance by the person selecting the sample.[21]

The sample desired for each strata of the population may be drawn by using a table of random numbers. The same sample ratio should be maintained for each strata as well as for the entire population.

Involved mathematical calculations may be used to determine the optimum sample size. These procedures are beyond the scope of this study. However, the investigator was desirous of locating a method that would be satisfactory and would yield reliable results.

> There is a statistical rule which says that the reliability of samples is proportionate to the square root of the size of the samples. The square root of 100 is 10, and the square root of 200 is a little more than 14. Therefore, doubling the size of the sample in this instance increases the reliability less than 1/2. In order to obtain twice the reliability it would be necessary to take a sample of 400 instead of 100, the square root of 400 being 20 as compared with the square root of 100, which is 10.

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[21] Croxton and Cowden, op. cit., p. 133.

RELATION BETWEEN AMOUNTS OF WORK REQUIRED AND RELIABILITY OBTAINED FOR VARIOUS SIZED SAMPLES

No. of Entries Audited	Work Involved	Index of Reliability
1,000	10 %	31.6
2,000	20	44.7
3,000	30	54.8
4,000	40	63.3
5,000	50	70.7
6,000	60	77.5
7,000	70	83.6
8,000	80	89.6
9,000	90	94.9
10,000	100	100.0

> It is obvious from this table that there is some sample which represents a balance between the amount of work required and the reliability of the corresponding results. The size of sample which balances the amount of auditing work with reliability is approximately 25 per cent.[22]

The optimum sample size of 25 per cent was determined by graphing the sample size against the square root of the sample size. Based upon the foregoing statistical procedures, the investigator was prompted to draw from the total population of 1,887 persons included in this study a 25 per cent random sample consisting of 471 persons.

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[22]"Test-Checking," Public Auditing (Chicago, Illinois: International Accountants Society, Inc., 1960), pp. 2-4.

Factors effecting the per cent of returns. The investigator was interested in being aware of any external factors that might have a bearing on the per cent of returns. The factors to be considered are those which are not associated with the mechanics of the questionnaire method as it applies to a follow-up study of the nature herein described. Leonard V. Koss suggested that the ability and willingness of a respondent to supply reliable information be taken into consideration in the validation of data obtained by means of the questionnaire.[23]

Mathew N. Chappel stated that "what people are able to report depends upon the impressions made by the experience itself and the conditions under which it is recalled in the present."

The principal factors in remembering are:

1. Recency. Other things being equal, the more recent the event the more readily and accurately it is recalled.

2. Primacy. Associations that are formed first have an advantage over those formed later on.

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[23]Koss, op. cit., p. 99.

3. Frequency. The more frequent an experience, the more chance of its being remembered, if there is an appropriate stimulus.

4. Duration. The longer the time, especially distributed time, during which a person is exposed to an experience, the more likely he is to remember it.

5. Vividness. The strength of the impression is an important factor. Personal experiences are generally more vivid than the experience of others which we can learn about only secondhand.

6. Interest. Interesting experiences are more easily remembered.

7. Meaningfulness. It is easier to recall what is comprehensible than what is meaningless.

8. Setting. An appropriate environmental setting is a great aid to remembering.

9. Set. The set of readiness to remember a particular experience is well understood.

10. Mode. Ability to remember varies greatly with the mode of remembering called for by the situation. It is a well-known fact, for instance, that the recognition of what is present is far easier than the recall without clues of a past experience.[24]

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[24]Mathew N. Chappel, "Factors Influencing Recall of Radio Programs," Public Opinion Quarterly, 6:107-114, 1942, cited by Mildred Parten, Surveys, Polls, and Samples: Practical Procedures (New York: Harper and Bros., 1950), pp. 179-181.

A study of 688 subjects, who had made a pregraduation promise to respond to the questionnaire, from four Wisconsin high schools conducted by Robert L. Mooren and John W. M. Rothney in 1956 indicated that:

1. There was no significant difference among the personal and general groups in terms of speed and quantity of response. This is the major finding of the study. (The respondents were divided into two groups with one-half receiving a handwritten letter and one-half receiving a mimeographed letter. A self-addressed, stamped return envelope was enclosed with both groups.)

2. Girls generally responded faster and more completely than boys. Subjects who were in post-high school training responded significantly faster than those subjects who were employed, in the armed forces, in farming, and married girls. Rural subjects responded faster than those who lived in cities.

3. Subjects who scored higher on intelligent tests, those who ranked high in their high school graduating class, and those who were satisfied with their post high school activity responded faster and more fully than their opposites.[25]

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[25]Robert L. Mooren and John W. M. Rothney, "Personalizing the Follow Up Study", The Personnel and Guidance Journal, (March, 1956), pp. 409-412.

Research has indicated that individuals are prone to make unrealistic occupational choices for a number of reasons. An individual who has had an unpleasant experience as a result of having made an undesirable occupational choice is likely to exhibit a negative attitude in respect to the occupation. This attitude may be a factor that will influence a respondent in a given follow-up study.

A study conducted by C. C. Scarborough and C. D. Bryant to determine who should enroll in vocational courses in high school indicated that vocational maturity has a direct bearing on occupational choice. They concluded from their study "that students in secondary schools should not be expected to make final occupational choices."[26]

THREE PERIODS OF OCCUPATIONAL CHOICE

Period	Age	Stages
Fantasy Choice	6 - 10	
Tentative Choices	11 - 17	Interest (11-12) Capacity (13-14) Value (15-16) Transition (17)

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[26]C. C. Scarborough and C. D. Bryant, "Vocational Courses in High School: Who Should Enroll?," American Vocational Journal, (November, 1962), pp. 24-25.

Period	Age	Stages
Realistic Choices	18	

> . . . The occupational choices of a 16 year-old boy or girl, initially enrolled in a vocational course, is still only tentative. On the other hand, the research also indicates that the occupational choice would be just as 'realistic' at an earlier age, even as young as 11 years. The stage of the tentative choice varies as indicated in the outline.[27]

William P. Spence found that vocational interest is predicted on the person's experiences during adolescence. The vocational interests of an individual go through a gradual change during this period, and tend to become "fixed" with maturity.[28]

> E. K. Strong made several studies of the differences in interests which are associated with the differences in age. He found that the interests of men between 25 and 55 years of age change very little. When the slight differences that do occur in the age bracket are contrasted with the differences to be found among occupational groups or between men or women, or between unskilled and

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[27] Ibid.

[28] William P. Spence, "Adolescent Vocational Interest Versus Industrial Exploratory Experiences," Industrial Arts and Vocational Education, (September, 1961), pp. 9-10.

professional men, it must be realized that age and experience that goes with age change an adult man's interests very little. At 25 years of age he is largely what he is going to be and even at 20 years of age has acquired pretty much the interests he will have throughout life. The interests of some are pretty well crystalized by age 18.[29]

The unrealism of youth with regard to their vocational future has been a known fact since the 1930's when Howard M. Bell conducted a national study of the depression youth of the country. In the results of this study reported below, the first figure refers to the percentage of youth desiring to enter the field, while the second figure refers to the percentage of youth employed in the field. Similar studies today show little change from these earlier findings.

	Youth Goal	Youth Employed
Professional-Technical	38.3%	7.5%
Managerial	39.1%	4.1%
Office-sales	18.5%	27.1%
Skilled	18.2%	4.3%

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[29] E. K. Strong, Jr., Change of Interest With Age (Palo Alto, California: Stanford University Press, n.d.), cited by Spence, Ibid.

	Youth Goal	Youth Employed
Semiskilled	16.3%	24.9%
Unskilled	2.5%	14.6%[30]

Significance of the pilot study and letter of transmittal. The pilot study was completed by mailing the questionnaire, return envelope, and letter of transmittal (covering letter) to a selected group of respondents. The respondents were asked to critically analyze each item in the questionnaire for content and clarity. The comments and suggestions received were then used to revise the questionnaire. The pilot study responses were also used in setting up rough tables to check the tabulating procedures to be used in editing and summarizing the results of the entire study. The persons comprising the pilot study group were then omitted from the study to avoid introduction of any bias that could result from repeated responses to the same or re-worded items.

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[30]Advisory Committee to State Board of Education on Guidance, Counseling and Testing, Guidance: Minnesota's Responsibility to the Development of Youth (Saint Paul, Minnesota: A Guidance Publication of the State of Minnesota Department of Education Guidance Unit, 1958), p. 4. (Reference to Howard Bell's original study was not cited).

The characteristics of the covering letter are adequately stated by John E. Nixon.

1. Print the covering letter if possible. Otherwise, use the most attractive means of publication available.

2. Address the letter personally and specifically to individual respondents.

3. Arouse interest in the study briefly and quickly in the letter.

4. Use the letter head of the sponsoring agency, or of the sending institution.

5. Obtain the recommendation, sponsorship, or approval of noted authorities for inclusion in the letter, and their signature at the bottom of the page along with that of the compiler.

6. Keep the letter short and on one page.[31]

Implementation of follow-up procedures. To secure the greatest number of possible returns the researcher must have a plan that can be put into effect soon after

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[31]John E. Nixon, "The Mechanics of Questionnaire Construction," Journal of Educational Research, XLVII (March, 1954), p. 485.

the initial mailing of the questionnaires which will elicit replies from those who have failed to respond within a reasonable length of time.

Francis J. Rummel has listed a number of techniques that have been found to be quite helpful in this respect:

1. About two weeks after sending out the questionnaire, mail a card or letter to the recipients calling their attention to it. If necessary send out a second reminder card.

2. It is sometimes helpful to make a second mailing of the questionnaire with a new cover page or accompanying letter. This should indicate the possibility of the respondent's misplacing the original questionnaire or permitting it to get "buried" in other correspondence.

3. A personal letter, individually written and signed, may be enclosed with a second questionnaire making a special appeal for cooperation. At this time a return, stamped envelope may be of assistance.

4. A short form of the questionnaire may be sent by air mail. This form should include the most essential items. Upon receipt of the short form, a supplementary form including the other required items may be sent to those responding to the short form.

5. In some types of studies it may be possible for the researcher partially to fill out the questionnaire for the

> respondent. He could then send it to the respondent and ask him to check the responses for accuracy and to the remaining items.[32]

Importance of a high percentage of returns. A high percentage of returns from a properly drawn sample eliminates the possibility of any bias and enhances the reliability and validity of the data so obtained.

> Conclusions based upon small percentages of returns are often suspected of bias, although this is not necessarily true, if the sampling is well done, that is, if it is representative of the individuals in the populations and if the returns are also representative of the population, the percentage of returns is not particularly meaningful in itself. The most important factor in the analysis of data is to have an adequate number of representative returns rather than any given percentage of the number of questionnaires originally distributed.[33]

As indicated by J. R. Shannon:

> It is desirable to get 99 to 100 per cent returns to be assured of good representation of the group sampled. However, the majority of the graduate research studies

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[32] Rummel, op. cit., pp. 105-106.

[33] Rummel, op. cit., p. 109.

have been based on much smaller percentages of returns.

About 72 percent returns in 170 Masters themes completed.

About 71 percent returns in 204 Doctoral dissertations.

About 81 percent returns in 59 studies reported in the Journal of Educational Research.[34]

Editing, tabulating, and summarizing the data follow in the respective order given and lead to the conclusions and recommendations that are to be derived from any given study.

Croxton and Cowden discussed the necessity of editing "unreadable" writing and suggested that items be omitted for the purposes of tabulation. To avoid bias they suggested that questionable items be omitted or verified by re-contact with the respondent. A logical plan for tabulating the data and the subsequent arrangement of

---

[34] J. R. Shannon, "Percentage of Returns of Quesionnaires in Reputable Education Research," Journal of Educational Research, 42:138-141, October, 1948, cited by Francis J. Rummel, An Introduction to Research Procedures in Education (New York: Harper and Brothers Publishers, 1958), p. 109.

it into an integrated form for summarization dictates the next step to be followed. From the tables and charts developed the data can be summarized to pinpoint the conclusions and recommendations pertinent to the problem being investigated.[35]

In reviewing the literature the investigator was made aware of the importance of being completely objective in respect to editing the questionnaires. The writers reviewed were in agreement that it was not humanly possible to make judgments without introducing bias. Bias in turn effects the reliability and validity of a study.

III. REVIEW OF SELECTED FOLLOW-UP STUDIES

The review of selected follow-up studies was undertaken to provide the investigator with a background upon which to base the study herein described. This section of Chapter II was based upon the format developed by Milton E. Larson and Simon T. O'Loughlin.[36]

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[35] Croxton and Cowden, loc. cit., pp. 137-140.

[36] Milton E. Larson and Simon T. O'Loughlin, "A Follow-Up Study of Selected Graduates of Dunwoody Industrial Institute" (Unpublished Master's thesis, University of Minnesota, Minneapolis, 1956), pp. 29-33.

Delimitations. The investigator was interested in the format and techniques employed by other institutions and persons who had conducted similar follow-up studies of trade and industrial students. Opportunities for a comparison of findings were also given consideration and were incorporated into this study as they were deemed to be applicable.

Purposes. The purposes of this review were undertaken to:

1. Critically examine the studies selected in relation to the criteria established from a careful review of the literature.

2. Provide the investigator with a means of comparing the studies in relation to the established criteria. The tabular form was adopted as illustrated in Table I.

3. Establish techniques and procedures that have been successfully used by others to obtain valid and reliable data.

Studies selected. Table I summarizes the techniques and methods used in the four follow-up studies that were

selected and reviewed. The four studies selected for review were these:

1. St. Cloud Technical High School, Class of 1954 - Five years after graduation; made in 1959

2. Mankato Area Vocational-Technical School, 1947-48 through 1951-52; made in 1953

3. Dunwoody Industrial Institute Graduates, 1949-50 through 1951-52; made in 1956

4. North Dakota State School of Science Graduates, 1955 through 1960; made in 1962

The studies selected were all concerned with graduates of trade and industrial training programs similar to the training programs that were being offered by the Austin Area Vocational-Technical School. The investigator was unable to locate any studies that had been concerned with the entire enrollment in relation to the number of graduates.

Summary based on analysis of selected studies. A high percentage of returns was obtained by the Dunwoody Study, which reflected the value of observing the criteria cited in the literature relating to the use of pilot

studies, random sampling methods, closed-end questionnaires, concise printed forms, and follow up of the non-respondents. Reliability and validity were also verified by the Dunwoody Study in adhering to recommended procedures involving the use of the questionnaire.

Conclusions. A follow-up study was developed as a result of careful planning and was executed in a manner designed to elicit reliable and valid data which was used to substantiate the objectives of the study and meet the criteria stated in the literature.

TABLE I

ANALYSIS OF IMPORTANT SPECIFIC TECHNIQUES EMPLOYED IN SELECTED FOLLOW-UP STUDIES

Principles, Techniques, or Methods Used or Indicated	Students Reviewed			
	St. Cloud Technical High School, class of 1954--five years after graduation	Mankato Area Vocational-Technical School graduates 1947-48 through 1951-52	Dunwoody Industrial Institute graduates--1949-50 through 1954-55; made in 1956	North Dakota State School of Science graduates--1955 through 1960; made in 1962
1. Listed objectives	Yes	Yes	Yes	Yes
2. Pilot study	*NG	NG	Yes	NG
3. Random sampling with random numbers	No	No	Yes	No
4. Sample size - per cent	100	87.5	25	100
5. Open-end, closed-end, or combination of open-end and closed-end questionnaire	Open-end	Combination	Closed end	Combination
6. Mimeographed or printed questionnaire	Mimeographed	Printed	Printed	Printed
7. Pages in questionnaire	1	3	1	3
8. Brief and concise with simple wording	Yes	Yes	Yes	Yes
9. Amount of time and writing required of respondent (little, some, much)	Much	Much	Little	Some

* NG indicates not given in the study

TABLE I (continued)

Principles, Techniques, or Methods Used or Indicated	Students Reviewed	St. Cloud Technical High School, class of 1954--five years after graduation	Mankato Area Vocational-Technical School graduates 1947-48 through 1951-52	Dunwoody Industrial Institute graduates--1949-50 through 1954-55; made in 1956	North Dakota State School of Science graduates--1955 through 1960; made in 1962
10. Personalized contacts		NG	Some	Some	NG
11. Enclosed stamped, self-addressed return		NG	Yes	Yes	NG
12. Number of follow-up contacts after initial questionnaire		0	1	4	0
13. Percentage of returns		74.5	62	90	52
14. Validity of study		NG	NG	Yes	NG
15. Reliability of study		NG	NG	Yes	NG
16. Sampling of non-respondents		NG	NG	Yes	NG

CHAPTER III

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

Chapter III was included in this study to provide background information relative to the location, community and area characteristics, history, philosophy, organization and administration, and day trade course offerings of the Austin Area Vocational-Technical School.

I. THE SCHOOL

Introduction. The scope of this study has been limited to the day trade programs that were conducted by the School during the eight school years from 1953-54 through 1960-61.

The information contained in this section of Chapter III pertaining to the city of Austin was obtained from a review compiled by the Austin Chamber of Commerce in 1961.[1]

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[1]"Austin: A Statistical and General Review," prepared by the Austin Chamber of Commerce and included in the Austin City Directory (Kansas City, Missouri: R. L. Polk and Co., 1961), pp. 11-13.

Location. The School is located in Austin, Minnesota. Austin, the county seat of Mower County, is situated about 100 miles south of Minneapolis and about twelve miles from the Iowa line. The population of Austin according to the 1960 census was 27,908 with local estimates placing the population in 1961 at 29,500.

Community and area characteristics. Austin has one major industry, George A. Hormel and Company, which employed 4,272 people in the city as of October 26, 1963, and spent an average of $2,031,737.00 per week in the city for wages, salaries, taxes, livestock, transportation, and supplies during the fiscal year of 1963.[2]

The retail trade area of Austin has a radius of 25 miles and a population of 75,000. The land area is predominantly devoted to agriculture.

The consumer spendable income of the city and surrounding area has been set at $61,525,000.00 annually, and is derived from 30 manufacturing establishments employing 11,445 workers.

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[2] Austin Daily Herald, December 18, 1963.

The Austin Public School system including the Austin Area Vocational-Technical School and the Austin Junior College had combined enrollments of 8,153 in 1961, and during the same year the parochial schools had a total enrollment of 2,817 students.

History of the School and course offerings. The School was established in 1951. The day trade courses that were offered during the 1951-52 school years included Auto Mechanics, Carpentry, Cosmetology, and Machine Shop. The programs in effect at the time this study was undertaken included in addition to these listed the following: Auto Body Rebuilding, Electronics, Farm Equipment Mechanics, Practical Nursing, Sheet Metal, and Welding. Sheet Metal has been subsequently discontinued due to a lack of sufficient enrollments. Appliance Repair and Printing have also been offered and have been discontinued for lack of sufficient enrollments. The Electronics course was originally a Radio and television repair course, but the emphasis at the time this study was completed had been shifted to industrial electronics.

The day trade courses are offered in conformity with the Smith Hughes Law. Classes meet six hours per day and are divided into two consecutive three-hour sessions. Students may enroll on a part-time basis, but are required to attend an entire three-hour session without interruption.

Any person sixteen years of age or older who can profit from the instruction may attend. High school students receive three credits toward graduation for attending a day trade course three hours per day for one school year. Appendix A contains brief course outlines for each department and a general information sheet about the School.

Instructional objectives. The day trade training programs were developed to provide the student with a background of training in the manipulative skills coupled with the necessary related information that would enable him to obtain employment and advance in his trade through work experience upon termination of his training. To meet these objectives students were required to maintain average grades, attend regularly, and exhibit an attitude compatable with the acceptable standards of their chosen occupation.

Philosophy of the School. The educational philosophy of the School has been developed by a cooperative effort of the entire faculty and administration to insure mutual understanding on the part of everyone involved.

> Vocational education must provide training in trade and industrial manipulative skills which are needed for successful entrance into trade and industrial jobs. This requires that the persons enrolled in the various programs must be physically capable of developing these skills and have the potential to comprehend the technical related information required in the application of the various skills.
>
> Vocational education should recognize the needs of the community and those who make up the community. This includes preparing those who are entering a vocation for the first job; upgrading those already employed and/or retraining those who may find it necessary to change from one field of employment to another.
>
> Vocational education also accepts responsibility toward the individual to provide information of a vocational guidance nature; offer encouragement to students participating in the training programs; and challange all vocational students to develop a pride in workmanship.
>
> Vocational education is carried on by stimulating student's curiosity in practical application of jobs through a doing process. It is only by this method

> that the trainee will experience the analytical approach to problem solving.[3]

The educational philosophy of the School has taken the training objectives into consideration and has re-emphasized them.

II. ORGANIZATION AND ADMINISTRATION

State plan. Each state must have passed enabling legislation to become eligible to receive funds for vocational education under the Smith Hughes Act and subsequent acts resulting from federal legislation. The investigator did not feel that a detailed account of the legal aspects of vocational education was necessary in this study. The state plan for vocational education sets forth the basic regulations pertaining to the operation of the area vocational-technical schools which of course includes Austin.

Board of education. The local school board of a community has jurisdiction over an area vocational-

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[3]"Faculty Handbook" (Mimeographed booklet prepared in 1961 by the administrative staff of the Austin Area Vocational School), p. 2.

technical school because it comprises a part of the local public school system. The director of the area school is in turn responsible to the superintendent of schools.

Administration. The director of an area vocational-technical school has complete responsibility for the entire operation of his respective school. The direct may obtain assistance from the staff of specialists maintained by the vocational division of the state department of education if this become necessary. The local director will have a teaching and supervisory staff commensurate with the size and activities of the school.

At the time this study was undertaken the Austin Area Vocational-Technical School had a staff comprised of the director, one trade and industry coordinator, two secretaries, and fifteen instructors to provide training to an enrollment of approximately 250 students in nine trade and industry programs. The vocational director in Austin also has responsibilities in a number of other vocational areas that have been omitted from this study, namely, agriculture, home economics, trade extension, and industrial arts.

Personnel services. The entire staff of the School is involved in public relations, recruitment, and placement of students. The director is responsible for the selection and enrollment of students.

Advisory committees are composed of persons from labor and management selected by their respective organizations on an equal representation basis to meet with the director to provide him with assistance and suggestions on the operation of a given training program.

These committees have been very effective in Austin and have served to foster good school-community relationships.

CHAPTER IV

ANALYSIS OF THE PERMANENT RECORDS OF THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

The information contained in this chapter was obtained by analyzing the permanent records. The investigator selected the information that was complete for each student and pertinent to the study.

I. PERMANENT RECORDS

Description of the permanent records. The permanent record for each student consisted of a manila folder printed on the inside to provide space for the following information: student's complete name, sex, age, birthdate, course or courses pursued, starting date, date of withdrawal, address (including county, school district number, and telephone number), parent or guardian (including complete address), occupation of parent or guardian, school year and attendance record, grades received, and placement record (information on placement was incomplete).

In addition to the entries made on the folder each folder contained assorted information in the following

forms: application form, correspondence, veteran and rehabilitation data, absence and tardy slips, memoranda relating to the student's activities, high school transcript, test scores, withdrawal form, office attendance record, and grade cards.

Organization of the data. The data as it was found by the investigator was not in a form that would lend to analysis or tabulation. To remedy this situation a four inch by six inch card was printed. A sample of this card is included in Appendix C. Space was provided on the card for all the information that was to be transferred from the permanent records concerning each student. Numbered spaces were also provided to facilitate tabulation of the data to be obtained by means of the questionnaire. A separate card was completed for each of the 2,006 enrollments included in the study.

Editing the data. The data was edited as it was transferred from the student's permanent record folder to the printed card. Calculations relative to the student's grade and attendance percentage were completed. The investigator found it necessary to verify the data relative to

dropouts. This was done by consulting the records of the Austin High School and the Pacelli High School and by logical inferences on the part of the investigator in a number of cases. The data relative to the student's grades was incomplete for those who had been in attendance for less than one quarter or for less than 300 hours. These grades were omitted from the study for this reason.

Summary of the selected data. Each student who had been enrolled automatically fit into three areas of student classification. He was either: (1) an area or a resident student, (2) a post high school or an Austin High School student, or (3) a full-time or a half-time student. In addition to the various student classifications, information on personal and school statistics had been included in the following summation:

I. Geographical student classifications
   A. Resident
   B. Area

II. General student classification
   A. Post high
      1. Veteran
      2. Rehabilitation
         a) Veteran
         b) State
      3. War Orphan
      4. Austin Junior College

5. Dropout
6. Pacelli
   a) Dropout

B. Austin High School
   1. Austin High School dropout

III. Student attendance classifications
   A. Full-time
   B. Half-time
      1. Summer only
      2. Evening only
      3. Half-time and full-time combinations

IV. Personal statistics
   A. Name
   B. Address
   C. County and school district
   D. Age

V. School statistics
   A. Attendance
   B. Grade
   C. Course or courses pursued
   D. Hours enrolled
   E. School years enrolled

General description of the population. The population consisted of the 1,887 students who had attended the School during the eight school years from 1953 through 1961 and had been enrolled in the twelve, day trade programs listed on page 63 of Chapter III. The student was placed with the year group that coincided with his date of initial enrollment.

Designation of hour groupings. The arrangement of the data for tabulation and selection of the sample was based upon the primary objective of the study: To determine the utilization of the training by the former student in relation to the number of hours he had been in attendance. A person's success on a job was assumed to be directly related to the amount of time that was devoted to preparation. The investigator selected the hour groupings as follows:

> 0-100 Hour Group was designated to include students enrolled on a summer-only basis and those who had withdrawn or transfered for lack of interest.
>
> 101-300 Hour Group was established to include students who had attended several summer sessions and those who had withdrawn for lack of interest.
>
> 301-600 Hour Group was used to include students who had attended on a half-time basis for one year. Austin and Pacelli High School students were in this group if they had attended only one year as high school students.
>
> 601-1,100 Hour Group was designated to include students who had attended on a full-time basis for one year, or had attended on a half-time basis for two years. Students in this group with 1,000 hours of training received trade certificates.

1,101-1,600 Hour Group was specified to include Austin High School and Pacelli High School students who had attended as post high school students upon graduation from high school. Practical Nursing and Cosmetology students who had completed their training are in this group.

1,601-1,800 Hour Group was designated to include students who had attended on a full or part-time basis for 1-1/2 years or longer. Austin and Pacelli High School students who attended for one year on a full-time basis upon graduating from high school would be in this group.

1,801-2,000 Hour Group was established to include students who had completed their training and had been awarded diplomas upon evidence of successful work experience.

2,001-3,000 Hour Group was designated to include students who had completed their training and had received diplomas.

Arrangement of the population for initial tabulations. The printed data cards were first arranged in alphabetical order and numbered consecutively from 1 through 1,187. The second step involved sorting the cards into the eight school-year groups. The cards were then sorted by departments as a fourth step. The fifth step involved sorting the cards into the eight different hour groupings. The cards were then in an arrangement

for the initial tabulation of the data on a series of forms that had been developed for this purpose. The investigator was able to cross-check and verify the accuracy of the resulting tables by matching the totals for the various hour groupings with the count for a given department. The totals of the various department counts were checked against the total number of students or enrollments for a given year.

II. TABULAR PRESENTATION

The text and tabular presentation was developed to describe the population and provide a background of information that was deemed essential to the overall understanding of the study. The population consisted of 1,887 persons enrolled in twelve different training programs during the eight school years from 1953 through 1961. The 1,887 persons accounted for 2,006 enrollments. 113 persons were responsible for 119 transfers. The study was based on the year of initial enrollment and the number of hours of training completed by the person. This was credited to the department in which he was initially enrolled. This plan was evolved to avoid confusion over

the number of persons included in the study. The text for each table clarifies this distinction.

Initial enrollments by departments. The distribution of the 1,887 persons by the year of initial enrollment, department, and hour grouping has been summarized in Table II, page 77. A random sample of 25 per cent of this population was selected as a representative group to be contacted by means of a questionnaire. Selection of the random sample has been fully explained in Chapter VI.

As indicated by Table II, 64.8 per cent of the students were in the hour groupings ranging from 301 hours of training through 1,600 hours of training. The permanent records did not provide information indicating the reasons given by students for withdrawing from the training programs, so it was not possible to draw any conclusions from this information. The tabulations in Table II show that 10.2 per cent of the students were in training from 1,801 hours to over 3,000 hours. Students having training in excess of 2,200 hours were either enrolled in more than one department, or they had taken additional hours of training to make up failing grades, or they had been

TABLE II

STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT BY HOUR GROUPS FOR THE EIGHT YEARS COVERED BY THE STUDY (1953 THROUGH 1961)

Department	Number of Students								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total number of students by departments
Auto Body	41	46	98	60	19	4	8	9	285
Auto Mechanics	31	44	88	77	38	7	17	36	338
Appliance Repair	2	5	14	7	1	0	2	0	31
Carpentry	18	17	37	64	20	7	15	18	196
Cosmetology	32	41	33	25	170	1	0	1	303
Electronics	27	36	45	56	13	11	20	27	235
Farm Mechanics	1	2	6	15	0	0	4	8	36
Machine Shop	13	14	29	42	26	4	11	11	150
Practical Nursing	5	4	4	23	82	2	0	0	120
Printing	0	1	6	4	0	0	0	0	11
Sheet Metal	6	13	25	29	11	0	4	4	92
Welding	15	11	28	19	9	2	4	2	90
Student totals for each hour group	191	234	413	421	389	38	85	116	1887
Percentage of students in each hour group	10.2	12.3	21.9	22.3	20.6	2.0	4.6	6.1	100%

enrolled during the 1959-60 school year when Radio and Television was changed to Industrial Electronics requiring their attendance for an additional year.

The Cosmetology Department had 162 students who completed the 1,500 hour course out of the 303 students who had been enrolled for a completion record of 53.1 per cent. The one year course in Practical Nursing was completed by 101 students out of a total enrollment of 120 students for a completion record of 84.2 per cent. Due to the transfers involved, Table II, page 77, does not provide an accurate count of the number of persons who completed their training and received diplomas in the other departments. Table IV, page 82, may be referred to for this information.

Auto Mechanics had the largest number of initial enrollments with 338 students, while printing had the smallest enrollment with 11 students. Appendix C provides summaries of the initial enrollments by departments for each of the eight years included in the study.

Student transfers by departments. One hundred thirteen (113) persons made a total of 119 transfers. Four persons were enrolled in three departments, one person was enrolled in four departments, and 108 persons were enrolled in two departments. The number of persons making transfers varied from a high of thirty-five during the 1954-55 school year to a low of three during the 1959-60 school year. Fourteen persons made transfers during the 1953-54 school year, twenty-two persons made transfers during the 1955-56 school year, seventeen persons made transfers during the 1956-57 school year, eleven persons made transfers during the 1957-58 school year, six persons made transfers during the 1958-59 school year, and five persons made transfers during the 1960-61 school year.

Table III, page 80, provides a summary of the transfers by departments. Auto Mechanics was the most active department for transfers with twenty-one persons transferring out of the department and thirty-three persons transferring into the department. Ten students transferred out of Appliance Repair to other departments at the time the course was discontinued. Ten persons transferred from Auto Mechanics to Carpentry. These transfers were made by

TABLE III

ENROLLMENT TRANSFERS BY DEPARTMENTS FOR THE EIGHT SCHOOL YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Department From Which Transfer Was Initiated	Number of transfers by Department: Department To Which Student Transferred	Auto Body	Auto Mechanics	Appliance Repair	Carpentry	Cosmetology	Electronics	Farm Mechanics	Machine Shop	Practical Nursing	Printing	Sheet Metal	Welding	Total Students Transferring out of Department
Auto Body		0	8	0	1	0	2	0	6	0	0	0	4	21
Auto Mechanics		7	0	0	0	0	5	1	3	0	0	1	4	21
Appliance Repair		2	5	0	0	0	0	0	1	0	0	0	2	10
Carpentry		2	10	0	0	0	2	0	1	0	0	1	2	18
Cosmetology		0	0	0	0	0	0	0	0	0	0	0	0	0
Electronics		3	4	0	0	0	0	0	3	0	0	0	0	10
Farm Mechanics		0	0	0	0	0	0	0	0	0	0	0	0	0
Machine Shop		5	3	0	0	0	9	0	0	0	0	0	4	21
Practical Nursing		0	0	0	0	0	0	0	0	0	0	0	0	0
Printing		1	0	0	0	0	0	0	0	0	0	0	1	2
Sheet Metal		1	1	0	0	0	1	0	2	0	0	0	2	7
Welding		2	2	0	0	0	0	0	3	0	0	2	0	9
Total Students Transferring Into Department		23	33	0	1	0	19	1	19	0	0	4	19	119

veterans attending evening classes on a part-time basis. Carpentry and Auto Mechanics were the only courses offered at night.

Enrollments by departments. The 2,006 enrollments have been distributed by departments and hour groupings in Table IV, page 82, for the eight years included in the study. It can be assumed that persons completing over 1,800 hours of training received diplomas. The completion record for diplomas was as follows: Auto Body - 3.5 per cent, Auto Mechanics - 12.6 per cent, Appliance Repair - 0.0 per cent, Carpentry - 12.6 per cent, Electronics - 20.4 per cent, Farm Mechanics - 32.4 per cent, Machine shop - 11.8 per cent, Printing - 0.0 per cent, Sheet Metal - 8.3 per cent, and Welding - 6.4 per cent. Persons completing 1,000 or more hours of training were awarded trade certificates; however, these persons were not tabulated in this study. The School policy relative to trade certificates was not constant for the eight years included in the study. Appendix D contains a summary of the enrollments by departments for each of the eight years included in the study.

TABLE IV

ENROLLMENTS BY DEPARTMENTS AND HOUR GROUPINGS FOR THE GHT SCHOOL YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Department	Number of enrollments by hour groups								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total enrollments by Departments
Auto Body	47	52	116	63	17	2	5	6	308
Auto Mechanics	38	54	101	84	37	10	14	33	371
Appliance Repair	3	8	16	4	0	0	0	0	31
Carpentry	19	17	43	66	22	5	13	12	197
Cosmetology	32	41	33	25	170	1	0	1	303
Electronics	30	45	50	53	14	10	21	31	254
Farm Mechanics	1	2	7	15	0	0	4	8	37
Machine Shop	17	16	41	41	27	7	11	9	169
Practical Nursing	5	4	4	23	82	2	0	0	120
Printing	0	2	7	2	0	0	0	0	11
Sheet Metal	8	15	28	28	8	1	5	3	96
Welding	18	16	37	17	10	4	5	2	109
Total enrollments by hour groups	218	272	483	421	387	42	78	105	2006

Student classifications by departments. The 1,887 persons who had attended the School from 1953 through 1961 have been summarized by student classifications, hour groupings, and resident and area status in Table V, page 84.

Residents of the Austin School District accounted for 1,329 persons, while 558 persons had attended as non-resident students.

The largest student classification consisted of the 426 persons who had attended as Austin High School students. The smallest group consisted of three persons who had attended summer school, but had failed to meet the requirements for graduation from high school. The 128 persons classified as veterans attending evenings (Veterans Eve Only) were enrolled in either Carpentry or Auto Mechanics. It was interesting to note that only two non-veterans had been enrolled in the evening classes.

The Austin High School (AHS) had 111 students enrolled who continued their training as post high school students. Fifty-three students enrolled as Austin High School students completed the 1,500 hours required for graduation from Cosmetology. One Austin High School student was enrolled as a War Orphan; he completed the Machine Shop course and received a diploma.

TABLE V

PERSONS INITIALLY ENROLLED BY HOUR GROUPINGS, STUDENT CLASSIFICATIONS, AND BY RESIDENT AND AREA STATUS FOR THE EIGHT SCHOOL YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Res-Area Status	Student Classifications	Number of students by hour groups								
	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	9	4	174	125	82	7	7	18	426
	AHS Drops	14	23	28	22	4	1	0	0	92
	Pacelli	2	2	27	12	5	1	1	1	51
	Pacelli Drops	2	5	10	4	1	0	0	1	23
	Post High	39	43	41	51	101	2	4	7	288
	Post High Drops	15	10	12	12	7	0	4	3	63
	Summer Only	37	36	2	0	0	0	0	0	75
	Summer Drops	2	1	0	0	0	0	0	0	3
	Veterans	25	25	33	30	30	8	16	14	181
	Veterans Eve Only	9	9	14	20	17	8	18	21	116
	Rehabilitation	1	3	2	1	1	0	2	1	11
Area Students	Post High	27	48	50	106	121	3	24	39	418
	Post High Drops	2	8	5	7	6	0	4	1	33
	Veterans	5	9	12	17	8	4	3	6	64
	Veterans Eve Only	1	4	1	4	2	0	0	0	12
	Rehabilitation	1	4	2	10	4	4	2	4	31
Resident total		155	161	343	277	248	27	52	66	1329
Area Totals		36	73	70	144	141	11	33	50	558
Res-Area Totals		191	234	413	421	389	38	85	116	1887

Only one out of the ninety-two students classified as Austin High School dropouts (AHS Drops) completed more than 1,600 hours of training.

Five of the fifty-one Pacelli students continued as post high school students with only one completing over 1,800 hours of training.

The summer only students were enrolled in Auto Mechanics, Auto Body Rebuilding, Electronics and Cosmetology.

The rehabilitation students were either sponsored by the Veterans Administration or the State of Minnesota.

A number of students belonged to several classifications and could not be adequately tabulated for this reason. Five area post-high students, one rehabilitation student, and one resident post-high student were enrolled as summer-only students. One resident, post-high student was enrolled as a War Orphan and completed the course in Cosmetology. A number of students attended the Austin Junior College and the Austin Area Vocational School at the same time. The records were incomplete in respect to these students; however, it is the opinion of the investigator that this number would be about twenty-five. During

the eight years covered by this study there was no record of any student graduating from the Austin Junior College with credits toward graduation having been earned by attending the Austin Area Vocational School. Appendix E contains a summary of student classifications by departments for each of the eight years included in the study.

Student classifications by school years. The student classifications for the eight school years included in the study have been summarized in Table VI, page 87. Austin High School students accounted for 426 persons of the total school population of 1,887. The number of persons enrolled as Austin High School students varied from a low of fourteen enrollments during the 1960-61 school year to a high of 101 enrollments during the 1955-56 school year.

The number of students initially enrolled as Austin High School students who did not graduate from high school ranged from one person during the 1959-60 school year to twenty-eight persons during the 1954-55 school year out of a total of ninety-two persons in this classification.

Fifty-one Pacelli High School students earned credits toward graduation, while twenty-three others were enrolled

TABLE VI

PERSONS INITIALLY ENROLLED BY STUDENT CLASSIFICATIONS FOR EACH OF THE EIGHT SCHOOL YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Res-Area Status	Student Classifications	School Year	Numbers of students by years								Student Totals for each Classification
			1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	
Resident Students	AHS		42	91	101	77	34	49	18	14	426
	AHS Drops		4	28	12	17	8	18	1	4	92
	Pacelli		5	23	9	8	5	1	0	0	51
	Pacelli Drops		0	10	3	8	0	1	1	0	23
	Post High		36	37	23	28	36	37	47	44	288
	Post High Drops		2	6	19	8	13	8	3	4	63
	Summer Only		2	7	17	9	8	13	7	12	75
	Summer Only Drops		0	1	0	1	1	0	0	0	3
	Veterans		18	58	36	17	26	18	7	1	181
	Veterans Eve Only		11	31	25	18	18	8	3	2	116
	Rehabilitation		0	5	1	2	0	1	0	2	11
Area Students	Post High		9	28	36	41	43	78	82	101	418
	Post High Drops		0	4	4	5	2	6	7	5	33
	Veterans		0	11	22	10	7	9	3	2	64
	Veterans Eve Only		0	2	4	0	5	1	0	0	12
	Rehabilitation		0	7	8	6	4	3	1	2	31
Resident Totals			120	297	246	193	149	154	87	83	1329
Area Totals			9	52	74	62	61	97	93	110	558
Res-Area Totals			129	349	320	255	210	251	180	193	1887

who did not graduate from high school and have been listed as dropouts.

Resident post high school students accounted for 208 persons, while 418 persons were enrolled as area post high school students. The area post high school students increased from an enrollment of nine persons during the 1953-54 school year to an enrollment of 101 persons during the 1960-61 school year.

Sixty-three persons were enrolled as resident post high school dropouts and thirty persons were enrolled as area high school dropouts during the eight school years from 1953 through 1961.

Seventy-eight persons were enrolled as summer-only students with three of these persons being recorded as high school dropouts.

The veteran enrollment consisted of 245 persons enrolled during the day with 128 additional persons enrolled in evening classes. A portion of the forty-two persons enrolled as rehabilitation students were also veterans. Appendix F includes a summary of student classifications for each of the eight school years in this study.

Student grades. The grade point averages for the 1,516 enrollments in the hour groupings beyond 301 hours of training ranged from 2.0 to 2.8 as indicated by Table VII. The overall average for the 1,516 enrollments was 2.3 for a C plus grade. The grade point average as computed by departments for the eight school years included in the study ranged from a 2.1 to a 2.9 average. The grade point average computed by each school year ranged from a 2.1 to a 2.4 average. The grade point averages showed a general increase in direct relation to the number of hours of training completed by the student.

TABLE VII

GRADE AVERAGES IN RELATION TO THE NUMBER OF HOURS ENROLLED FOR THE ENROLLMENTS FROM 1953 THROUGH 1961

Grade Averages, By Enrollments	Grade point averages and enrollments								
Hours Enrolled	0-100	101-300	301-600	601-1100	1101-1600	1601-1800	1801-2000	2001-3000	Average Grade for Total Enrollment
Grade point averages	-	-	2.0	2.3	2.4	2.7	2.5	2.8	2.3
Number of enrollments	218	272	483	421	387	42	78	105	1516

Student ages in relation to part-time and full-time enrollments. The number of persons enrolled as half-time students ranged from a low of thirty-seven persons during 1960-61 school year to a high of 206 persons during the 1955-56 school year. The number of persons enrolled as full-time students increased from forty persons in 1953 to 156 persons in 1960.

The average age of the persons enrolled as part-time students ranged from 17.7 years to 19.9 years. The average age of the persons enrolled as full-time students ranged from 19.5 years to 20.5 years. Table VIII, page 91, summarizes the part-time and full-time enrollments in relation to the ages of the persons enrolled.

Attendance and hours of training for the total enrollment. Table IX, page 92, summarizes the average number of hours enrolled and the average percentages of attendance for the 2,006 enrollments included in the study. The attendance record improved from a low of 88.7 per cent during the 1954-55 school year to a high of 94.1 per cent during the 1960-61 school year.

TABLE VIII

AVERAGE AGES OF FULL-TIME AND PART-TIME STUDENTS ENROLLED DURING EACH OF THE YEARS INCLUDED IN THE STUDY (1953-1961)

Ages for Full-Time and Part-Time Students	Average ages for numbers enrolled							
Year	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961
Total number of half-time students	89	261	206	166	108	112	37	37
Average age of half-time students	19.0	18.9	18.4	18.3	19.9	18.2	18.0	17.7
Total number of full-time students	40	88	144	89	102	139	143	156
Average age of full-time students	22.5	22.4	21.4	22.5	21.2	21.8	20.4	20.5
Total number of half-time and full-time students	129	349	320	255	210	251	180	193
Average age of full-time and part-time students	20.1	19.8	19.5	19.8	20.5	20.2	19.9	20.0

TABLE IX

ENROLLMENT TOTALS, ENROLLMENT AVERAGES, ATTENDANCE AVERAGES, AND HOURS OF INSTRUCTION PROVIDED FOR EACH OF THE EIGHT YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Hours and Enrollments	Average hours and percentages of attendance							
Year	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961
Average number of hours enrolled	917	744	700	672	860	893	1089	1003
Average percentage of attendance	89.3	88.3	89.8	91.6	90.9	91.3	93.8	94.1
Total enrollment hours for the year (thousands)	118T	266T	244T	187T	201T	231T	208T	210T
Total enrollments for the year	129	358	349	278	233	259	191	209

The total enrollment hours or hours of instruction varied from a low of 118,376 hours during the 1953-54 school year to a high of 266,453 hours during the 1954-55 school year.

Hours of training by departments and years. The average number of hours of training per enrollment varied from 409 hours for Appliance Repair during the 1954-55 school year to 1,312 hours for Electronics during the 1958-59 school year. The average number of hours of training for the 2,006 enrollments over the eight years included in the study was slightly over 800 hours. Table X, page 94, provides a summary of the average number of hours of training per enrollment by departments for each of the eight years included in the study.

Resident and area students by counties. Table XI, page 95, provides a summary of the resident and area students for each of the eight years included in the study. Students from twenty-nine counties in Minnesota and two states make up the total population of 1,887 persons with 1,329 having attended from the local school district and 558 having attended from outside of Mower County School District Number 492.

TABLE X

AVERAGE NUMBER OF HOURS ENROLLED FOR EACH ENROLLMENT BY DEPARTMENTS AND BY THE YEAR OF INITIAL ENROLLMENT FOR THE EIGHT YEARS INCLUDED IN THE STUDY (1953 THROUGH 1961)

Departments	Average hours enrolled for each enrollment							
Year	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1990-1961
Auto Body	-	490	596	441	496	548	773	596
Auto Mechanics	1097	793	680	628	924	622	964	1240
Appliance Repair	-	409	-	-	-	-	-	-
Carpentry	924	936	889	860	746	725	981	1191
Cosmetology	1022	1026	811	757	1262	1133	1099	964
Electronics	560	704	788	840	886	1312	1242	1199
Farm Mechanics	-	-	-	-	-	786	1267	1232
Machine Shop	906	701	556	820	1106	1227	1285	937
Practical Nursing	-	-	-	756	1000	1154	1293	1245
Printing	455	510	-	-	-	-	-	-
Sheet Metal	-	590	670	632	558	1169	1220	565
Welding	-	-	632	547	729	490	951	688
Average for the year	917.6	744.3	700.1	672.1	860.7	893.0	1089.5	1003.6

TABLE XI

RESIDENT AND AREA ENROLLMENTS BY COUNTIES

Counties and States	Year	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	Totals
		Number of enrollments								
Blue Earth		-	-	-	-	-	1	1	2	4
Carver		-	-	-	-	-	-	2	-	2
Cottonwood		-	-	-	-	-	1	-	-	1
Dodge*		-	5	3	3	2	5	5	4	27
Faribault		-	-	5	4	-	10	4	11	34
Fillmore*		-	6	6	4	1	7	7	10	41
Freeborn*		3	15	17	8	18	20	21	23	125
Goodhue		-	-	1	2	-	1	1	2	7
Hennepin		-	-	-	-	1	-	-	2	3
Isanti		-	-	1	-	-	-	-	-	1
Jackson		-	-	-	-	-	1	-	-	1
Le Seur		-	-	-	1	-	-	-	-	1
McLoed		-	-	-	-	-	2	1	-	3
Martin		-	1	1	2	2	2	4	1	13
Mower		4	12	18	7	17	25	16	29	128
Murray		-	-	-	-	2	-	-	-	2
Nobles		-	-	-	1	2	-	2	1	6
Olmsted*		-	2	5	6	3	4	9	8	37
Pipestone		-	-	-	-	-	1	-	-	1
Redwood		-	-	-	-	2	-	1	-	3
Rice		-	1	1	-	-	2	1	1	6
Rock		-	-	1	-	-	-	-	-	1
Roseau		-	-	-	-	-	-	-	1	1
St. Louis		-	-	-	-	-	1	1	-	2
Steele*		1	6	3	11	5	8	8	5	47
Todd		-	-	-	-	-	-	1	-	1
Wabasha		-	-	1	3	-	-	6	1	11
Waseca		-	1	2	2	1	1	1	2	10

TABLE XI (continued)

Counties and States	Year	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	Totals
		Number of enrollments								
Winona		-	2	1	1	-	1	-	-	5
Iowa		1	1	8	7	5	4	1	6	33
Wisconsin		-	-	-	-	-	-	-	1	1
Area Totals		9	52	74	62	61	97	93	110	538
Resident Totals		120	297	246	193	149	154	87	83	1329
Resident and Area Totals		129	349	320	255	210	251	180	193	1887

The majority of the 558 area students came from Mower County and the five adjacent counties: Dodge, Fillmore, Freeborn, Olmsted, and Steele. These six counties accounted for 405 of the area total of 558 students.

The number of area students increased from nine persons during the 1953-54 school year to 110 persons during the 1960-61 school year.

Enrollments by hour groups and school years. Table XII, page 98, summarizes the enrollments by hour groupings for each of the eight school years included in the study. Area and resident students were classified separately in the table to allow for comparisons. The three hour groupings ranging from 301 hours of training through 1,600 hours of training accounted for 1,223 persons, with 425 persons completing less than 301 hours of training, while 239 persons completed over 1,000 hours of training.

The area students in proportion to their number had a better record in relation to the number of hours of training completed than the resident students. Over ten per cent

TABLE XII

NUMBER OF STUDENTS ENROLLED IN EACH HOUR GROUP BY SCHOOL YEARS

Hour Groups	Years	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	Totals
		Number of enrollment								
0 - 100 Hours										
Resident totals		8	33	38	21	26	23	3	3	155
Area totals		2	1	9	7	5	3	6	5	36
Res - area totals		10	34	47	28	31	26	9	8	191
101 - 300 Hours										
Resident totals		8	37	32	22	15	16	12	19	161
Area totals		1	11	11	19	8	9	5	9	73
Res - area totals		9	48	43	41	23	25	17	28	234
301 - 600 Hours										
Resident totals		22	85	67	69	23	41	19	17	343
Area totals		4	10	9	5	10	15	6	11	70
Res - area totals		26	95	76	74	33	56	25	28	413
601 - 1,100 Hours										
Resident totals		34	68	50	44	30	30	11	10	277
Area totals		1	7	29	16	18	21	25	27	144
Res - area totals		35	75	79	60	48	51	36	37	421
1,101 - 1,600 Hours										
Resident totals		29	41	35	19	31	32	33	28	248
Area totals		1	15	14	8	15	28	28	32	141
Res - area totals		30	56	49	27	46	60	61	60	389

TABLE XII (continued)

Hour Groups	Years	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	Totals
		Number of enrollment								
1,601 - 1,800 Hours										
Resident totals		4	9	5	1	3	3	0	2	27
Area totals		0	3	1	1	2	1	1	2	11
Res - area totals		4	12	6	2	5	4	1	4	38
1,801 - 2,000 Hours										
Resident totals		8	13	10	3	8	3	5	2	52
Area totals		0	3	0	1	1	3	10	15	33
Res - area totals		8	16	10	4	9	6	15	17	85
2,001 - 3,000 Hours										
Resident totals		7	11	9	14	13	6	4	2	66
Area totals		0	2	1	5	4	17	12	9	50
Res - area totals		7	13	10	19	17	23	16	11	116
Summary 1953 - 1961										
Resident totals		120	297	246	193	149	154	87	83	1329
Area totals		9	52	74	62	61	97	93	110	558
Res - area totals		129	349	320	255	210	251	180	193	1887

of the area students completed over 2,000 hours of training compared to a completion percentage of less than six per cent for resident students.

III. SUMMARY AND CONCLUSIONS

The summary and conclusions have been based upon the selected data that were obtained by analyzing the permanent records and from the investigator's association with the School during the years included in this study. The scope of the study was limited to a general study of the population; therefore, the supporting research was not fully tabulated in some instances. The investigator was primarily interested in the success of the students in relation to the training that they had received. For this reason further analysis of the data would have been necessary to statistically support a number of the conclusions.

Geographical student classifications. The proportion of area students in relation to resident students increased from 6.2 per cent of the enrollment during the 1953-54 school year to 57 per cent of the enrollment for

the 1960-61 school year. The majority of the area students were within commuting distance of the School. The School apparently meets the needs of the persons in the area that it serves. Proximity to a school exerts a great deal of influence on the individual's decision to continue his education beyond high school. The fact that most of the area students were able to commute to School or return to their homes on week ends was a factor that was desirable from a financial standpoint.

General student classifications. The largest group of students consisted of 706 post high school students out of the total population of 1,887 students. These students were mostly recent high school graduates at the time of their enrollment. A number of them were recently discharged service men or men desirous of learning a trade to insure advancement and steady employment.

Graduation from their respective high schools was not achieved by 115 of the 592 persons who had been enrolled as Austin High School and Pacelli High School students. Thirty-eight of these students completed over 1,800 hours of training. Fifty-six Cosmetology students

enrolled as high school students completed the required 1,500 hours of training. Only 111 high school students continued their training as post high school students.

The record made by high school students seems to indicate that their decision to enroll in a trade preparatory program was not based upon a desire to pursue the training beyond high school. High school juniors and seniors enrolled in a trade preparatory program were unable to take electives in the high school that would have better prepared them for their future in a selected trade preparatory course. Many of the persons enrolled as high school students lacked the maturity necessary for a trade preparatory program. Others were unable to hold a job upon completion of their training for the same reason. Their background in mathematics was insufficient for Machine Shop and Electronics.

School policy in regard to high school students showed a marked shift in the number of high school enrollments over the eight years included in the study. High school enrollments dropped from 152 during the 1954-1955 school year to eighteen during the 1960-1961 school years.

Practically all of the 128 men who were enrolled as veterans in the evening classes in Carpentry and Auto Mechanics were employed concurrently on full-time jobs unrelated to their respective training programs. Only two men not receiving benefits from the Federal Government were enrolled in an evening class. These evening programs were discontinued at the time the veteran's eligibility expired.

The number of veterans enrolled in day classes totaled 245 persons. Seventy-eight students were enrolled as summer-only students. One would question whether the summer-only students had any serious intentions of pursuing their respective trades at the time they enrolled.

Students selected for trade preparatory programs should be screened closely on the basis of their maturity, desire, aptitudes, and intentions to pursue the trade for which they have elected to take training.

Student attendance classifications. The number of half-time students dropped from a high of 261 persons during the 1954-55 school year to a low of thirty-seven students during the 1960-61 school year. The drop in

half-time students can be attributed to the smaller numbers of high school students being accepted and to the termination of the evening classes for veterans. Full-time students are more desirable than half-time students, and they seem to be better students in all respects. The number of students transferring from one department to another dropped with the reduction in the number of half-time students. The average attendance increased as the student body shifted to a greater percentage of full-time students.

Personal statistics. Permanent records must be complete in respect to the student's name, address, parents or guardian, and school district. A careful check should be made at the time the student registers to eliminate nicknames and to obtain a complete name. Maiden names for married women should be included in the record. The names of the husband, parents, or guardian and their addresses are essential to the success of any future follow-up study.

School statistics. The school statistics should be complete in respect to attendance, grades, course pursued, and placement.

The investigator recommends that information relative to placement and goals at the time of enrollment be included in the permanent records. Each year a number of persons were enrolled for short-term training to upgrade them for advancement on their job. The record keeping system made no allowances for such cases.

The statistics for a school should accurately reflect the training that has been provided. A large number of persons completing only a few hours of training may give the wrong impression unless the reasons are adequately recorded. Work on this study prompted the investigator to develop a withdrawal form that would provide this type of information. The form developed was very similar to the form used by the Saint Paul Vocational School, Saint Paul, Minnesota. A permanent record card was also developed. Copies of the withdrawal form and the permanent record card are included in Appendix G.

CHAPTER V

QUESTIONNAIRE CONTENT, DEVELOPMENT AND PROCEDURES

This chapter reviews the contents of the questionnaire and the procedures used in its implementation. The writer was primarily interested in securing information relative to occupational selections and the resulting success achieved by the persons upon termination of their training in relation to the number of hours enrolled.

I. QUESTIONNAIRE CONTENTS

The items included in the questionnaire have been categorized into four areas to provide a summary as follows:

I. Course selection and content understanding
   - A. Reason for selecting a given course
   - B. External influences on course selection
   - C. Initial knowledge of course content
   - D. Sequence of course content
   - E. Reliability of initial course selection
   - F. Initial course enrollment
   - G. Final course enrollment
   - H. Reason for terminating training

II. Occupational utililization of training
   - A. Occupational status in relation to training received
   - B. Present occupational status
   - C. Occupation status upon termination of training

D. Length of training program
E. Utilization of training in military service

III. Occupational information
A. Present salary
B. Starting salary
C. Geographical location of respondent

IV. Suggestions and comments
A. Improvement of training programs
B. General comments and suggestions
C. Willingness to sign questionnaire

II. CONTENT DEVELOPMENT

The investigator initially listed all of the items that were felt to be of value in studying the population selected. This list was further expanded by examining the questionnaires used in the studies reported in Chater II. The items were then sorted to conform to the two main objectives of the study, namely, validity of the student's occupational choice and his resulting success in relation to the hours of training completed in a given course.

Content and form of the pilot study. The items selected for inclusion in the pilot study were refined as to style and content to comply with the recognized standards

suggested from the review of the literature. The items were arranged in a logical order to elicit a total response from the respondent. Consideration was also given to the method that would be employed in tabulating the responses. The pilot study questionnaire was then mimeographed in the form represented by the sample in Appendix H.

Pilot study letter of transmittal. The pilot study letter, included in Appendix H, was mimeographed with each inside address being typed individually. The investigator signed each letter. A self-addressed, stamped envelope was included with the initial mailing.

Pilot study coding. Each questionnaire and return envelope were coded by number and course. The typed coding was effected to facilitate sorting and tabulating of the returns. The respondent's name was also typed in the space beneath the signature blank. The investigator felt that an opportunity to sign the questionnaire would be an aid in obtaining valid and reliable responses to the items.

Pilot study mailing list. The investigator arbitrarily selected former students from each of the eight school

years included in the study with attention being given to the courses pursued and the length of the training involved. The former students in most cases were known to the writer. This fact was of value in securing suggestions for the revision of the pilot study questionnaire. The comments and suggestions received from eighteen respondents prompted a number of revisions in the questionnaire that added clarity to the final form included in Appendix I.

III. QUESTIONNAIRE PROCEDURES

The revisions reflected from the pilot study were incorporated into the letter of transmittal and questionnaire form located in Appendix I. The forms were commercially printed to conserve on space and to add respondent appeal.

Selection of the sample. The 1,887 persons included in the study extending over the eight school years from 1953 through 1961 were sorted by departments and hour groupings as shown in Appendix J.

The optimum sample size was determined to be 25 per cent of the population from the table on page 43 of Chapter II. The individual cards were then assembled in

alphabetical order and consecutively numbered from 1 through 1,887. A table of random numbers was used to select the sample of 471 persons representing 25 per cent of the population by hour groupings and departments.

Letter of transmittal. The letter of transmittal as it appears in Appendix I was mailed on October 15, 1963 to the 471 persons making up the random sample. Each letter was personally signed by the investigator. The inside addresses were individually typed. The former student's name was typed on each questionnaire along with a code consisting of the department abbreviation and number of the tabulation card. A coded, self-addressed, stamped, return envelope was also enclosed.

Responses and follow-up. By November 19, 1963, 131 responses had been received for a 27.8 per cent of return. The first follow-up letter was mailed on this date along with a return envelope and another copy of the questionnaire.

Examples of all of the follow-up letters and forms used in the study are located in Appendix I. The forms were mimeographed and in most instances personalized by

having the inside addresses individually typed with the writer signing them in ink. Personal comments urging the person to respond were frequently added.

The Austin City Director and the telephone books for the local area were consulted in an effort to locate correct addresses. Parents and known acquaintances of the persons included in the sample were contacted by telephone and by mail to validate addresses.

The second follow-up letter was mailed on December 9, 1963 under the signature of the Director, Mr. Morton A. Carney, along with a copy of the questionnaire. Responses at the time of this mailing totaled 231 for a return of 49.0 per cent.

The investigator personally called all of the non-respondents in the Austin area by telephone during the first week in January. These contacts clarified the purpose of the questionnaire in the minds of persons and served to secure their cooperation.

The third follow-up form, questionnaire, and return, stamped envelope was mailed on January 12, 1964. The responses on this date numbered 316 for a return of 67.1 per cent. The yellow form requested the recipient to provide the address of the former student. To avoid having

the letters discarded, they were mailed in plain envelopes with the return address and coding being eliminated. The questionnaires, however, were coded by means of pin holes pricked in the paper.

The fourth and fifth follow-ups consisted of post cards mailed on January 17, and January 24 with the following respective returns being obtained: 339 for a return of 71.2 per cent and 359 for a return of 76.2 per cent.

The pink form, questionnaire, and stamped, return envelope were mailed on February 14, 1964. Responses on this date totaled 378 or 80.3 per cent. The investigator had discovered by this time that a number of non-respondents felt that the forms were being mailed to encourage them to re-enroll. Parents were reluctant to forward the questionnaire to persons in the armed forces, especially to anyone stationed overseas. Air mail letters and air mail return envelopes were mailed to all persons having addresses outside the United States.

The seventh follow-up was a post card with a personal hand written appeal by the investigator and mailed on February 25, 1964. The responses totaled 380 or 80.7 per cent at the time of this mailing.

The original letter of transmittal with a personal message by the investigator was mailed on March 2, 1964 as the eighth follow-up. Responses on this date totaled 393 for a return of 83.4 per cent. A copy of the questionnaire and a stamped, return envelope were included in this mailing.

The ninth and final follow-up consisted of a post card with a personal message that was mailed on March 2, 1964. Tabulation and editing of the questionnaires was commenced on March 16, 1964. Three additional responses were received after this deadline, bringing the total to 395 or 83.9 per cent.

Summary of responses. Table XIII, page 114, summarizes the responses obtained from the random sample of 471 persons. The investigator felt that a return of 82.2 per cent was exceptional, considering the diversity of the clock-hours of training completed by the population.

The five unusable responses consisted of four returns reporting the persons deceased, and one return from a person who claimed that he had never been enrolled. The investigator assumed that the person had been enrolled, but never actually attended.

The investigator's judgment ruled out the value of conducting any survey of the non-respondents. Every effort was made to secure responses from the total population. The twenty-four persons for whom the investigator had addresses, but failed to obtain responses, were contacted repeatedly without success.

TABLE XIII

SUMMARY OF RESPONDENTS AND NON-RESPONDENTS TO THE QUESTIONNAIRE

	Number	Percentage
Responses tabulated for the study	387	82.2
Unusable responses received	5	1.1
Responses received too late to tabulate	3	.6
Persons who failed to cooperate, although their correct addresses were available	24	5.1
Persons for whom addresses were unobtainable	52	11.1
Total persons selected for the sample	471	100.0

CHAPTER VI

INFORMATION OBTAINED BY MEANS OF THE QUESTIONNAIRE

The investigator carefully followed all of the established procedures relating to the construction of the questionnaire, tabulation of the data, and methods to be employed to ascertain the validity and reliability of the results, as stated in the review of the literature reported in Chapter II.

Again, it should be stated that this study encompassed all of the persons who attended the School during the eight years from 1953 through 1961. The comparable studies available for examination were confined to a stratified population consisting of only the graduates of a given school.

I. QUESTIONNAIRE MECHANICS EMPLOYED

The validity of the respondents' answers to the items included in the questionnaire were verified by comparing their responses to the data constituting the permanent records of the School. Reliability of the respondents'

responses to the questionnaire were verified by cross-checking items designed to elicit identical data.

The investigator was desirous of ascertaining the extent to which the random sample was representative of the entire population. The random sample was selected on the basis of the enrollment clock hours completed by an individual from a given department. To reconcile the various strata of the population to the random sample the investigator assumed that the responses to the questionnaire were also a random sample of these strata. The investigator's approach in verifying this assumption is presented in this section by employing a number of tables comparing the random sample to the entire population.

Responses to the random sample. The random sample was drawn from the population strata summarized by Table IV on page 82. The 82 per cent response has been broken down by hour groups and departments in Table XIV, page 117. The responses by hour groups ranged from 65 per cent for the 0-100 hour group to 100 per cent for the 1601-1800 hour group. The department responses ranged from 63 per cent for Appliance Repair to 100 per cent for Printing.

TABLE XIV

PERCENTAGES OF RESPONSES OBTAINED IN COMPARISON TO THE NUMBERS OF PERSONS SELECTED FOR THE RANDOM SAMPLE

Department	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Department Totals by Numbers and Percentages
		Number of students and percentages*								
Auto Body		10	11	25	15	5	1	2	2	71
		80	91	72	80	100	100	50	100	80
Auto Mechanics		8	11	22	19	10	2	4	8	84
		38	73	73	74	90	100	75	100	75
Appliance Repair		1	1	4	1	0	0	1	0	8
		0	100	75	0	0	0	100	0	63
Carpentry		4	4	9	16	5	2	4	5	49
		75	75	89	100	60	100	100	100	90
Cosmetology		9	10	8	6	43	0	0	0	76
		56	70	63	67	100	0	0	0	84
Electronics		7	9	11	14	3	3	5	7	59
		57	78	82	71	67	100	100	86	78
Farm Mechanics		0	1	2	4	0	0	0	2	9
		0	100	100	75	0	0	0	100	89
Machine Shop		3	4	7	11	5	1	3	3	37
		67	50	100	82	100	100	100	100	86
Practical Nursing		0	1	1	5	22	1	0	0	30
		0	100	0	80	95	100	0	0	90
Printing		0	0	2	1	0	0	0	0	3
		0	0	100	100	0	0	0	0	100
Sheet Metal		2	3	6	7	3	0	1	1	23
		100	100	100	86	33	0	100	100	82

*The top number indicates the random sample size and the bottom number indicates the percentage of the sample obtained from respondents.

TABLE XIV (continued)

Department	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Department Totals by Numbers and Percentages
		Number of students and percentages *								
Welding		4 100	3 33	6 100	5 80	2 50	0 0	1 100	1 100	22 82
Total sample size by hour group		48	58	103	104	98	10	21	29	471
Average percentage of response by hour group		65	76	80	80	92	100	90	97	82

*The top number indicates the random sample size and the bottom number indicates the percentage of the sample obtained from respondents.

The percentages of responses increased in proportion to the clock hours of training completed by the respondent. The fluctuations from the 82 per cent average can in the main be attributed to the small numbers of persons representing these strata of the population.

Strata reconciliation method employed. The investigator assumed that the 387 responses to the random sample of 471 for an 82 per cent response represented a random sample of the total population of 1,887 persons. Comparing the 387 responses to the total population of 1,887 a percentage figure of 20.5 per cent was obtained. Judgment of the investigator indicated that the responses received by means of the questionnaire should nearly match this percentage in strata other than those that had served as a basis for drawing the original sample.

The criteria upon which the random sample was drawn included the hours of training completed by a person who had been initially enrolled in a given department.

Reconcilliation of the population by hour groupings. The percentages ranged from 16.2 per cent for the 0 - 100 hour group to 24.1 per cent for the 2,000 - 3,000 hour group

with the variations being 7.9 per cent. The greatest variation from the average figure of 20.5 per cent was 4.3 per cent for the 0 - 100 hour group.

The persons who were enrolled for a short time would be expected to evidence less interest in responding to the questionnaire than those who completed a given course. Table XV, page 121, gives the percentages for the various hour groupings.

Reconciliation of the population by school years. As shown in Table XVI, page 122, the percentages varied from 14.7 per cent for the 1953-54 school year to 22.8 per cent for the 1960-61 school year for a total difference of 7.1 per cent.

The largest variation from the average percentage of 20.5 per cent was 5.8 per cent for the 1953-54 school year. The investigator attributed this variation to the smaller size of the strata, and to the inadequacy of the school records which made it impossible to locate correct addresses for a portion of this group.

TABLE XV

RECONCILIATION OF THE 387 RESPONSES TO THE TOTAL POPULATION (BY HOUR GROUPINGS)

Hour Groupings	Number of Persons Initially Enrolled	Number of Responses Received	Percentage of Population
0 - 100	191	31	16.2
101 - 300	234	44	18.8
301 - 600	413	82	19.9
601 - 1100	421	83	19.7
1101 - 1600	389	90	23.1
1601 - 1800	38	10	26.3
1801 - 2000	85	19	22.3
2001 - 3000	116	28	24.1
Totals	1,887	387	20.5

TABLE XVI

RECONCILIATION OF THE 387 RESPONSES TO THE TOTAL POPULATION (BY SCHOOL YEARS)

School Year	Number of Persons Initially Enrolled	Number of Responses Received	Percentage of Population
1953 - 1954	129	19	14.7
1954 - 1955	349	64	18.3
1955 - 1956	320	69	21.6
1956 - 1957	255	56	22.0
1957 - 1958	210	42	20.0
1958 - 1959	251	54	21.5
1959 - 1960	180	39	21.7
1960 - 1961	193	44	22.8
Totals	1,887	387	20.5*

*The 20.5 per cent indicates the percentage of responses as reconciled to the total population.

Reconciliation of the population by departments. The percentages given in Table XVII, page 124, show that responses varied from a low of 16.1 per cent for Appliance Repair to a high of 27.3 per cent for Printing with the difference being 11.2 per cent. Printing resulted in the largest difference from the average of 20.5 per cent with a variation of 6.8 per cent.

Excluding Printing and Appliance Repair, the next largest variation was 2.0 per cent for Farm Mechanics. These three departments represented the smallest enrollments, and in the case of printing a 100 per cent response was received from a random sample representing 27 per cent of the population.

Reconciliation of the population by student classifications, area and resident status. Table XVIII, page 125, shows the percentages of responses for the student classifications varied from 9.1 per cent for resident students rehabilitation to 66.7 per cent for summer only dropouts. These variations can be attributed to the small numbers of persons included in these strata, to chance in selecting the sample, and the fact that two of the three summer only dropouts in the population responded.

TABLE XVII

RECONCILIATION OF THE 387 RESPONSES TO THE TOTAL POPULATION (BY DEPARTMENTS)

Departments	Number of Persons Initially Enrolled	Number of Responses Received	Percentage of Population
Auto Body	285	57	20.0
Auto Mechanics=	338	63	18.6
Appliance Repair	31	5	16.1
Carpentry	196	44	22.4
Cosmetology	303	64	21.1
Electronics	235	46	19.6
Farm Mechanics	36	8	22.2
Machine Shop	150	32	21.3
Practical Nursing	120	27	22.5
Printing	11	3	27.3
Sheet Metal	92	20	21.7
Welding	90	18	20.0
Totals	1,887	387	20.5

TABLE XVIII

RECONCILIATION OF THE 387 RESPONSES TO THE TOTAL POPULATION (BY STUDENT CLASSIFICATIONS, AREA, AND RESIDENT STATUS)

	Student Classifications	Number of Persons Initially Enrolled	Number of Responses Received	Percentage of Population
Resident Students	AHS	426	85	20.0
	AHS Drops	92	15	16.3
	Pacelli	51	9	17.6
	Pacelli Drops	23	4	17.4
	Post High	288	74	25.7
	Post High Drops	63	14	20.7
	Summer Only	75	15	20.0
	Summer Drops	3	2	66.7
	Veterans	181	37	20.4
	Veterans Eve Only	116	24	20.7
	Rehabilitation	11	1	9.1
Area Students	Post High	418	85	20.3
	Post High Drops	33	6	18.2
	Veterans	64	13	20.3
	Veterans Eve Only	12	0	0.0
	Rehabilitation	31	3	9.7
Totals	Resident Totals	1,329	280	21.0
	Area Totals	558	107	19.2
	Res - Area Totals	1,887	387	20.5

A response of 25.7 per cent from the resident post high school students represented a 5.2 per cent difference from the 20.5 per cent average. The remaining student classification variances by percentage of response were small and in the opinion of the investigator reflect the interest that would be expected from the respondents represented by these strata.

Reconciliation of the population by combined student classifications. The only variances of any significance from the 20.5 per cent average were the 16.5 per cent return for high school dropouts and the 9.5 per cent return for rehabilitation students as shown by Table XIX, page 127.

Validity of the sample as reconciled to the population. Tables XV through XIX reconciled the various strata of the population to the responses obtained. By eliminating the strata that were too small to provide statistically accurate samples, the investigator found that the variations from the 20.5 per cent average were less than 5 per cent.

TABLE XIX

RECONCILIATION OF THE 387 RESPONSES TO THE TOTAL POPULATION (BY COMBINED STUDENT CLASSIFICATIONS)

Student Classifications	Number of Persons Initially Enrolled	Number of Responses Received	Percentage of Population
High School	477	94	19.7
High School Drops	115	19	16.5
Post High	781	174	22.3
Post High Drops	99	22	22.2
Veterans	373	74	19.8
Rehabilitation	42	4	9.5
Totals	1,887	387	20.5

The results of the reconciliations, in the investigator's judgment, were conclusive proof that the responses obtained by means of the questionnaire represented an unbiased, valid sample of the various strata of the population.

Validity of responses. Item number 1 of the questionnaire located in Appendix I was used to verify the accuracy of the responses against corresponding information obtained from the permanent records of the School. A validity of 97.7 per cent was obtained from the 387 returns with 1 person having omitted the item, and with invalid information being provided by 8 persons.

The investigator referred to the Austin City Directory and personally contacted many of the respondents by telephone during the time that the study was being completed. These contacts served as a means of indirectly verifying the information provided by responses to item 17 of the questionnaire. No discrepancies were observed.

Reliability of responses. Several items were included in the questionnaire located in Appendix I for the purpose of checking the consistency of the respondents' responses.

Items 1 and 15 provided identical responses from 355 persons for a reliability of 94.9 per cent.

The responses to items 5 and 17 were identical from 373 respondents for a reliability of 97.4 per cent. Ten persons provided false information and four persons failed to respond.

Total number of responses. A response of 82 per cent was obtained from the 387 responses received out of the random sample of 471 persons. Table XC, located in Appendix J, summarizes the number of responses to each item of the questionnaire by the strata designating the various hour groupings used as a criterion in drawing the random sample.

II. TABULAR PRESENTATION

The tables and associated texts have been prepared to summarize the information obtained from the responses to the questionnaire. The text accompanying each table has served to highlight the findings deemed to be of the greatest significance to the problem by the investigator.

Tabulation of the data coincides with the criteria used in selecting the random sample. Each questionnaire item has been separately tabulated with respect to departments and hour groupings. The abbreviations used for the various departments may be verified by referring to item one of the questionnaire included in Appendix I.

Unless otherwise stated, the figures in the tables are recorded as percentages and reflect the responses obtained to each item to the nearest per cent or to the nearest tenth of one per cent.

The tables and texts have been categorized into four areas as follows: (1) course selection and content understanding, (2) occupational utilization of training, (3) occupational information, and (4) suggestions and comments.

Course selection and content understanding. The six questionnaire items tabulated in this section were designed to elicit information from the respondent in respect to his reason for having elected to attend the Austin Area Vocational-Technical School, his reason for having selected a given trade, his opinion of the adequacy with which the instructor had outlined the course content

at the beginning of the training program, his prior knowledge of the content of the course in which he had been enrolled, the occupational choice that he would now make if he had an opportunity to repeat the experience, his reason for having withdrawn from the training program.

Tables XX and XXI, pages 132 and 133, indicate that 63.9 per cent of the respondents had attended the School to learn a trade at which they had expected to be permanently employed; 16.1 per cent had attended to develop skills for leisure time activities; 6.3 per cent had attended to develop skills related to their jobs; 6.5 per cent had attended to obtain training that would enable them to advance to better jobs; 2.1 per cent had attended to obtain credits toward high school graduation; and 4.6 per cent had attended for no definite reason. It should be noted that the 2.1 per cent of the respondents who indicated their reason for attending was to obtain credits toward high school graduation is not a percentage that in any way reflects the number of high school students who had been enrolled during the eight school years included in the study.

TABLE XX

REASONS GIVEN BY RESPONDENTS FOR ATTENDING THE SCHOOL (BY HOUR GROUPINGS)

Reasons for Attending	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
To learn a trade for permanent employment	45	55	49	60	85	60	78	75	63.9
To be with a friend	3	2	0	0	0	0	0	0	0.5
To develop skills for leisure time activities	32	16	25	16	7	30	11	4	16.1
To develop added skills related to my job	7	11	11	8	0	10	0	0	6.3
To obtain training for advancement to a better job	0	11	4	6	5	0	11	21	6.5
To obtain credits toward high school graduation	3	0	2	5	1	0	0	0	2.1
No definite reason	10	5	9	5	2	0	0	0	4.6

TABLE XXI

REASONS GIVEN BY RESPONDENTS FOR ATTENDING THE SCHOOL (BY DEPARTMENTS)

Reasons for Attending	Departments	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
	Percentages													
To learn a trade for permanent employment		49	53	20	39	90	78	50	85	93	67	40	44	63.9
To be with a friend		0	2	0	0	2	0	0	0	0	0	0	0	0.5
To develop skills for leisure time activities		36	26	20	41	0	7	0	3	0	0	0	11	16.1
To develop added skills related to my job		4	8	0	7	2	7	50	3	0	0	15	11	6.3
To obtain training for advancement to a better job		2	5	40	11	2	2	0	6	7	33	20	17	6.5
To obtain credits toward high school graduation		5	3	20	0	2	2	0	0	0	0	0	0	2.1
No definite reason		4	3	0	2	2	4	0	3	0	0	25	17	4.6

Tables XXII and XXIII, pages 135 and 136, summarize the reasons given by the respondents for having enrolled in the trade of their choice. The respondents were asked to select the chief reason; however, a number of them provided more than one response to this item, which necessitated some editing. Approximately one-half of the respondents indicated that their chief reason for enrolling had been to learn a trade. About one-tenth of the respondents had been prompted to enroll as a result of work experience in the trade. It was interesting to note that none of the respondents had been influenced to enroll as a result of high school career day contacts. The remaining reasons given by respondents for having enrolled individually represented small percentages, namely: advice of family, no particular reason, advice of other students, high school experience, experience in the armed forces, lack of interest in academic subjects, no prospects of attending college, to use veterans' benefits, and miscellaneous reasons.

TABLE XXII

CHIEF REASON GIVEN BY RESPONDENTS FOR HAVING ENROLLED IN A GIVEN TRADE TRAINING PROGRAM (BY HOUR GROUPINGS)

Reasons for Enrolling	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
No particular reason	16	10	10	7	8	10	11	4	8.8
Advice of family	3	12	2	2	2	10	0	4	3.6
Advice of students	0	0	0	4	2	10	0	0	1.6
Advice of counselor	3	2	4	9	0	0	5	0	3.4
High school shop experience	10	7	10	2	4	0	0	4	5.2
Work experience in the trade	13	14	15	10	2	0	11	4	9.1
Experience in armed forces	3	0	2	1	1	10	11	0	2.1
No prospect to attend college	0	2	7	2	2	0	11	0	3.4
Lack of interest in academic subjects	3	5	2	2	2	10	0	0	2.6
To use veterans benefits	3	5	7	12	4	30	11	7	7.5
To learn a trade	36	35	36	45	69	20	40	77	48.3
High school career day contact	0	0	0	0	0	0	0	0	0.0
Other influences	10	10	5	4	4	0	0	0	4.4

TABLE XXIII

CHIEF REASON GIVEN BY RESPONDENTS FOR HAVING ENROLLED IN A GIVEN TRADE TRAINING PROGRAM (BY DEPARTMENTS)

Reasons for Enrolling	Hour Groups	Percentages												
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
No particular reason		14	11	0	2	9	7	0	3	11	0	10	16	8.8
Advice of family		2	0	0	2	6	7	0	3	0	0	15	6	3.6
Advice of students		4	0	0	0	0	2	0	0	11	0	0	0	1.6
Advice of counselor		0	0	0	0	2	8	25	6	4	0	5	10	3.4
High school shop experience		7	5	20	12	0	2	0	10	0	34	10	0	5.2
Work experience in the trade		7	17	0	9	2	11	37	6	7	0	10	6	9.1
Experience in armed forces		0	0	0	0	0	15	0	0	0	33	0	0	2.1
No prospect to attend college		2	2	20	7	3	2	0	0	4	0	10	6	3.4
Lack of interest in academic subjects		5	5	0	0	0	7	0	0	0	0	0	6	2.6
To use veterans benefits		4	11	20	34	0	2	13	0	0	0	10	0	7.5
To learn a trade		43	46	20	32	75	30	25	72	59	33	30	50	48.3
High school career day contact		0	0	0	0	0	0	0	0	0	0	0	0	0.0
Other influence		12	3	20	2	3	7	0	0	4	0	0	0	4.4

As shown by Tables XXIV and XXV, on page 138, three-fourths of the respondents indicated that they had had sufficient prior knowledge regarding the content of the course in which they had been enrolled, opposed to one-fourth of the respondents who indicated that they had lacked sufficient knowledge regarding the content of the course. The 1,601 - 2,000 hour group shown in Table XXIV indicates that 100 per cent of the respondents had had sufficient prior knowledge regarding the content of the course in which they had been enrolled, opposed to 52 per cent of the respondents in the 0 - 100 hour group who indicated that they had lacked sufficient knowledge regarding the content of the course.

The data showing percentages of respondents' opinions regarding the adequacy with which the instructor had outlined the course at the beginning of the training program are presented in Tables XXVI and XXVII, page 139, Nine-tenths of the respondents felt that their instructors had adquately explained the content of the course to their satisfaction.

TABLE XXIV

PRIOR KNOWLEDGE OF RESPONDENTS REGARDING THEIR UNDERSTANDING OF THE CONTENT OF THE COURSE IN WHICH THEY WERE ENROLLED (BY HOUR GROUPINGS)

Prior Knowledge / Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Had sufficient knowledge	74	68	79	71	79	100	74	84	76.2
Lacked sufficient knowledge	26	32	21	29	21	0	26	16	23.8

TABLE XXV

PRIOR KNOWLEDGE OF RESPONDENTS REGARDING THEIR UNDERSTANDING OF THE CONTENT OF THE COURSE IN WHICH THEY WERE ENROLLED (BY DEPARTMENTS)

Prior Knowledge / Departments	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Had sufficient knowledge	84	74	50	60	82	89	50	73	81	100	67	72	76.2
Lacked sufficient knowledge	16	26	50	40	18	11	50	27	19	0	33	28	23.8

TABLE XXVI

OPINIONS OF THE RESPONDENTS REGARDING THE ADEQUACY WITH WHICH THE INSTRUCTORS HAD OUTLINED THE COURSE AT THE BEGINNING OF THE TRAINING PROGRAM (BY HOUR GROUPINGS)

Adequacy of Course Outline	Percentages									
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	200 - 3000	Average of Total Groups
Adequate	87	88	88	89	95	89	84	79	89.2
Inadequate	13	12	12	11	5	11	16	21	10.8

TABLE XXVII

OPINIONS OF THE RESPONDENTS REGARDING THE ADEQUACY WITH WHICH THE INSTRUCTOR HAD OUTLINED THE COURSE AT THE BEGINNING OF THE TRAINING PROGRAM (BY DEPARTMENTS)

Adequacy of Course Outline	Percentages												
Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Adequate	96	84	100	79	95	83	75	93	89	100	95	100	89.2
Inadequate	4	16	0	21	5	17	25	7	11	0	5	0	10.8

The information contained in Tables XXVIII and XXIX on pages 141 and 142 show that as of the date of completing the questionnaire, 50.0 per cent of the respondents would select the same trade that they had pursued while enrolled; whereas, only 18.7 per cent would select a different trade. Selection of a profession would be made by 17.6 per cent of the respondents, 8.7 per cent would enter business; 1.1 per cent would enter agriculture, and 3.9 per cent would select occupations not included in the stated choices.

The reasons given by respondents for having terminated their training are tabulated in Tables XXX and XXXI on pages 143 and 144. The acceptance of employment in the trade for which trained accounted for 12.2 per cent of the respondents, while 2.0 per cent of the respondents had accepted employment unrelated to their training program, and 3.8 per cent of the respondents had returned to the jobs held prior to enrolling. The remaining reasons given by respondents for withdrawing included the following: 34.6 per cent indicated having completed the course, 14.0 per cent had graduated from high school, 4.6 per cent for lack of interest, 6.4 per cent because of financial problems, 2.8 per cent to enter college, while 2.2 per cent were needed at home.

TABLE XXVIII

OCCUPATIONAL CHOICES RESPONDENTS INDICATED THAT THEY WOULD MAKE AT THE TIME OF COMPLETING THE QUESTIONNAIRE (BY HOUR GROUPINGS)

Occupational Choices	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total groups
Select the same trade	29	35	36	51	79	30	53	52	50.0
Select another trade	26	21	17	22	11	20	11	32	18.7
Select a profession	23	26	24	19	6	40	21	4	17.6
Enter business	19	2	17	6	3	10	10	4	8.7
Enter agriculture	0	7	0	1	0	0	0	0	1.1
Other	3	9	6	1	1	0	5	8	3.9

TABLE XXIX

OCCUPATIONAL CHOICES RESPONDENTS INDICATED THAT THEY WOULD MAKE AT THE TIME OF COMPLETING THE QUESTIONNAIRE (BY DEPARTMENTS)

Occupational Choices	Percentages												
Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Select same trade	38	40	40	34	73	46	37	58	89	33	35	39	50.0
Select another trade	20	30	0	18	16	12	25	9	7	0	25	33	18.7
Select a profession	15	16	40	27	3	37	0	26	4	33	20	16	17.6
Enter business	16	10	20	14	5	5	13	4	0	34	10	6	8.7
Enter agriculture	0	2	0	2	0	0	25	0	0	0	0	0	1.1
Other	11	2	0	5	3	0	0	3	0	0	10	6	3.9

TABLE XXX

REASONS GIVEN BY RESPONDENTS FOR WITHDRAWING FROM THE SCHOOL (BY HOUR GROUPINGS)

Reasons for Withdrawing	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Accepted employment in trade for which trained	6	7	1	20	16	20	16	7	12.2
Accepted employment in unrelated field	0	2	0	6	1	0	5	0	2.0
Lack of interest	16	9	9	3	0	0	0	0	4.6
Financial problems	6	14	10	5	3	0	11	0	6.4
To enter college	13	0	6	1	0	10	0	0	2.8
Completed the course	10	12	12	17	70	40	58	85	34.6
Graduated from high school	10	5	30	23	3	10	5	4	14.0
Needed at home	3	2	1	1	5	10	0	0	2.2
Returned to job held prior to enrolling	13	7	3	7	0	0	0	0	3.8
Other	23	42	28	17	2	10	5	4	17.4

TABLE XXXI

REASONS GIVEN BY RESPONDENTS FOR WITHDRAWING FROM THE SCHOOL (BY DEPARTMENTS)

Reasons for Withdrawing	Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
		Percentages												
Accepted employment in trade for which trained		11	8	0	14	3	9	14	41	12	34	5	6	12.2
Accepted employment in unrelated field		0	3	0	0	0	4	14	6	4	0	0	0	2.0
Lack of interest		7	3	0	7	6	2	0	0	0	0	10	11	4.6
Financial problems		5	6	20	2	5	11	0	3	0	0	20	17	6.4
To enter college		4	2	0	5	0	4	0	10	0	0	5	0	2.8
Completed the course		21	19	40	25	65	37	14	25	80	33	15	21	34.6
Graduated from high school		21	25	0	13	5	13	30	9	0	33	10	17	14.0
Needed at home		2	5	0	9	0	0	0	0	0	0	0	6	2.2
Returned to job held prior to enrolling		2	7	0	5	2	4	14	0	0	0	10	11	3.8
Other		27	22	40	20	14	16	14	6	4	0	25	11	17.4

Occupational utilization of training. The five questionnaire items tabulated in this section were designed to elicit information from the respondent in respect to his employment status following his withdrawal from the Austin Area Vocational-Technical School, his occupational status at the time of completing the return, his occupational status immediately following withdrawal from School, his opinion regarding the length of time that he had been in training in respect to obtaining employment in the trade for which he had received training, his utilization of the training in military service.

The investigator believes that the success accorded a training program can be verified by determining the extent to which the training was utilized under actual job conditions by the recipients.

The questionnaire item dealing with the respondent's employment status following his withdrawal from School and the item dealing with his employment status at the time of his completion of the questionnaire have not only been tabulated by departments and hour groupings, but have also been tabulated by school years, student classifications, and combined student classifications. These tabulations

should be carefully studied by the reader; they will serve as a basis for many of the conclusions and recommendations contained in Chapter VII.

Here, again, the reader should review the reconciliation tables in the first part of Chapter VI; so that an awareness to strata represented by a limited number of responses may be clarified, namely, Appliance Repair, Farm Mechanics, Printing, summer only drops, and rehabilitation students.

Tables XXXII through XXXVI on page 147 through 151, respectively, are tabular presentations of the responses obtained to item two of the questionnaire located in Appensix I relating to the employment term of the respondents immediately following their withdrawal from the School. The percentages summarizing the responses on these five tables show that 45.8 per cent of the respondents had never worked at the trade for which they had received training, while 5.5 per cent of the respondents had worked at the trade for which they had received training for less than thirty days. Approximately one-half of the respondents (48.7 per cent) had worked at the trade for which they had received training for more than thirty days for an average of 33.4 months per respondent at the time the questionnaire was returned.

TABLE XXXII

EMPLOYMENT TERM OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL IN THE TRADE FOR WHICH THEY HAD RECEIVED TRAINING (BY HOUR GROUPINGS)

Employment Term	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Never worked at the trade	82	68	66	47	15	30	37	30	45.8
Worked at the trade less than 30 days	6	11	8	4	3	0	0	11	5.5
Worked at the trade more than 30 days	12	21	26	49	82	70	63	59	48.7
Average number of months worked at the trade*	36	39	30	43	33	38	45	32	35.4

*These figures were obtained by averaging the total number of months employed by the number of respondents who had worked at the trade for which they trained for more than one month.

TABLE XXXIII

EMPLOYMENT TERM OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL IN THE TRADE FOR WHICH THEY HAD RECEIVED TRAINING (BY DEPARTMENTS)

Employment Term	Departments	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
		Percentages												
Never worked at the trade		60	60	80	50	30	49	38	26	8	0	70	56	45.8
Worked at the trade less than 30 days		10	5	0	12	3	0	0	7	0	0	10	5	5.5
Worked at the trade more than 30 days		30	35	20	38	67	51	62	67	92	100	20	39	48.7
Average number of months worked at the trade*		28	33	16	34	33	47	18	52	29	46	37	29	35.4

*These figures were obtained by averaging the total number of months employed by the number of respondents who had worked at the trade for which they trained for more than one month.

TABLE XXXIV

EMPLOYMENT TERM OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL IN THE TRADE FOR WHICH THEY HAD RECEIVED TRAINING (BY SCHOOL YEARS)

Employment Term	School Years	1953 - 1954	1954 - 1955	1955 - 1956	1956 - 1957	1957 - 1958	1958 - 1959	1959 - 1960	1960 - 1961	Average of Total Groups
		Percentages								
Never worked at the trade		50	56	47	49	38	50	26	42	45.8
Worked at the trade less than 30 days		11	6	7	7	2	6	5	0	5.5
Worked at the trade more than 30 days		39	38	46	44	60	44	69	58	48.7

TABLE XXXV

EMPLOYMENT TERM OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL IN THE TRADE FOR WHICH THEY HAD RECEIVED TRAINING (BY STUDENT CLASSIFICATIONS)

Employment Term	Student Classifications	Percentages																	
		Austin High School	Austin High Dropouts	Pacelli High School	Pacelli High Dropouts	Post High School	Post High Dropouts	Summer Only	Summer Only Dropouts	Veterans	Veterans Eve Only	Rehabilitation	Post High School	Post High Dropouts	Veterans	Rehabilitation	Resident Totals	Area Totals	Average of Total Groups
		Resident students											Area Students						
Never worked at the trade		54	80	45	25	37	71	64	50	49	79	00	25	67	23	00	53	27	45.8
Worked at the trade less than 30 days		9	00	00	25	1	00	7	00	8	4	00	5	00	8	100	5	6	5.5
Worked at the trade more than 30 days		37	20	55	50	62	29	29	50	43	17	100	70	33	69	00	42	67	48.7

TABLE XXXVI

EMPLOYMENT TERM OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL IN THE TRADE FOR WHICH THEY HAD RECEIVED TRAINING (BY COMBINED STUDENT CLASSIFICATIONS)

Employment Term	Combined Student Classification	High School	High School Drops	Post High	Post High Drops	Veterans	Rehabilitation	Average of Total Groups
Never worked at the trade		53	68	33	68	54	00	45.8
Worked at the trade less than 30 days		9	5	4	0	7	50	5.5
Worked at the trade more than 30 days		38	27	63	32	39	50	48.7

It should be noted in Table XXXII on page 147, that the percentages by hour groupings ranged from 12 per cent for the 0 - 100 hour group to 82 per cent for the 1,100 - 1,600 hour group compared to the 48.7 per cent average for those who had worked at their trade for more than 30 days. This would show that there was a greater likelihood for those respondents who had completed a longer term of training to pursue the trade for which they had trained upon their withdrawal from School. However, it should be also noted that the average number of months employed for those who had worked at their trade for more than 30 days ranged from 30 months for the 301 - 600 hour group to 43 months for the 601 - 1,100 hour group compared to an average of 35.4 months for all the hour groups. It appears from this data that once a former student had been employed in the trade for which he had received training his chances of continuing in the trade evidence no definite correlation to the actual length of time that he had been enrolled.

Table XXXIII on page 148 shows that the percentages of respondents by departments who had worked at their trade for more than 30 days, disregarding Appliance Repair and

Printing, ranged from 20 per cent for sheet metal to 92 per cent for Practical Nursing as compared to an average of 48.7 per cent for all departments. The average number of months worked at the trade by those respondents who had been employed for more than 30 days in the trade for which they had received training ranged from a low of 28 months for Auto Body to a high of 52 months for Machine Shop as compared to an average of 35.4 months for all departments. Here, again, the average for Appliance Repair and Printing have been eliminated along with Farm Mechanics.

As shown in Table XXXIV on page 149, the percentage of respondents who had worked at their respective trades for more than 30 days ranged from 38 per cent for the 1954-1955 school year to 69 per cent for the 1959-1960 school year as compared to an overall average of 48.7 per cent for the eight school years included in the study. A year to year trend indicating a gradual increase, although erratic, in the percentages of persons who had obtained employment in their respective trades was evident from this tabulation.

Table XXXV on page 150 which compares the resident and area student classifications shows that 42 per cent of

the area respondents had been employed for more than 30 days in the respective trades for which they had been in training, while 67 per cent of the area students had been so employed in comparison to the overall average of 48.7 per cent for the two groups combined. Only 17 per cent of the veterans who had been enrolled on an evening only basis had been employed in their respective trades for more than 30 days, whereas 69 per cent of the veterans in the area status had been employed for more than 30 days. It was interesting to note that 29 per cent of the summer only students had been employed in their respective trades for more than 30 days.

Table XXXVI on page 151 shows that of the combined student classsifications, irrespective of area and resident status, with respect to the term of employment following their withdrawal from the School, 48.7 per cent of the respondents worked at the trade for which they had received training for more than 30 days, 5.5 per cent were employed in their respective trades for less than 30 days, while 45.8 per cent of the respondents had never worked at the trade for which they had obtained training while enrolled. The data shows that 38 per cent of the respondents classified

as high school students had worked at their trade for more than 30 days, while only 27 per cent of the respondents classified as high school dropouts had worked at their trade for more than 30 days, whereas only 32 per cent of those classified as post high school dropouts had worked at the trade for more than 30 days. Thirty-nine (39) per cent of the respondents classified as veterans and 50 per cent of the respondents classified as rehabilitation students had worked at their respective trades for more than 30 days.

Tables XXXVII through XLI on pages 156 through 161, respectively, are tabular presentations of the responses obtained to item five of the questionnaire located in Appendix I relating to the employment status of the respondents on the date that they completed the item. The percentages summarizing the responses on these five tables show that 19.4 per cent of the respondents were working at the trade for which trained, 2.3 per cent were working at their trade in a supervisory capacity, 3.4 per cent were in military service using the training, and 4.1 per cent were self-employed in the field for which they had been trained;

TABLE XXXVII

EMPLOYMENT STATUS OF RESPONDENTS AT THE TIME THE QUESTIONNAIRE WAS COMPLETED (BY HOUR GROUPINGS)

Employment Status	Percentages								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Working at trade for which trained*	0	16	7	19	32	20	37	32	19.4
Working in an allied occupation	10	2	11	8	4	10	0	11	7.3
Working in a non-related occupation	37	37	52	40	18	40	48	24	35.8
Working in trade in supervisory capacity*	3	0	2	3	1	10	5	4	2.3
In military service using the training*	0	2	10	3	1	0	0	4	3.4
In military service not using the training	10	9	6	7	1	0	5	13	6.7
Attending college full-time	7	2	4	3	1	10	0	0	2.3
Unemployed	7	12	2	1	3	0	5	4	3.9
Self employed in field trained for*	7	2	2	3	8	10	0	4	4.1
Self employed in another field	10	7	0	7	0	0	0	4	3.4
Housewife	6	9	4	5	30	0	0	0	10.4
Other	3	2	0	1	1	0	0	0	1.0
*Total persons in the trade	10	20	22	26	41	40	42	43	29.5

TABLE XXXVIII

EMPLOYMENT STATUS OF RESPONDENTS AT THE TIME THE QUESTIONNAIRE WAS COMPLETED (BY DEPARTMENTS)

Employment Status	Hour Groups	Percentages												
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Working at trade for which trained*	11	16	0	5	14	26	13	44	59	67	5	11	19.4
Working in an allied occupation	4	11	0	9	0	7	22	13	4	0	20	6	7.3
Working in a non-related occupation	45	52	40	65	12	30	22	22	7	0	45	35	35.8
Working in trade in supervisory capacity*	2	2	0	5	2	4	0	3	0	0	0	6	2.3
In military service using the training*	4	2	40	2	0	9	13	3	0	0	0	6	3.4
In military service not using training	12	11	0	2	3	9	0	3	0	0	10	12	6.7
Attending college full-time	5	0	0	5	0	2	13	3	4	0	0	0	2.3
Unemployed	8	2	20	2	2	2	13	0	4	0	10	12	3.9
Self-employed in field trained for*	5	0	0	0	14	2	13	3	0	33	0	0	4.1
Self-employed in another field	2	3	0	5	0	7	0	3	0	0	10	12	3.4

TABLE XXXVIII (continued)

Employment Status	Hour Groups	Percentages												
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Housewife		0	0	0	0	53	0	0	0	22	0	0	0	10.4
Other		2	1	0	0	0	2	0	3	0	0	0	0	1.0
* Total persons in trade*		21	19	40	11	30	41	38	53	60	100	5	24	29.5

TABLE XXXIX

EMPLOYMENT STATUS OF RESPONDENTS AT THE TIME THE QUESTIONNAIRE WAS COMPLETED (BY SCHOOL YEARS)

Employment Status	Percentages								
	School Years 1953 - 1954	1954 - 1955	1955 - 1956	1956 - 1957	1957 - 1958	1958 - 1959	1959 - 1960	1960 - 1961	Average of Total Groups
Working at trade for which trained*	11	14	7	14	28	23	26	39	19.4
Working in an allied occupation	0	9	9	4	5	9	13	5	7.3
Working in a non-related occupation	58	41	48	43	28	27	18	25	35.8
Working in trade in supervisory capacity*	5	3	3	7	0	0	0	0	2.3
In military service using the training*	0	3	6	7	0	0	3	5	3.4
In military service not using training	5	3	6	5	10	13	10	2	6.7
Attending college full-time	0	0	1	0	5	6	5	2	2.3
Unemployed	5	2	3	4	5	6	7	2	3.9
Self-employed in field trained for*	5	6	1	5	5	2	5	4	4.1
Self-employed in another field	0	6	6	4	0	3	0	2	3.4
Housewife	11	11	9	7	12	11	13	12	10.4
Other	0	2	1	0	2	0	0	2	1.0
*Total persons in the trade	21	27	17	34	36	23	33	50	29.5

TABLE XL

EMPLOYMENT STATUS OF RESPONDENTS AT THE TIME THE QUESTIONNAIRE WAS COMPLETED (BY STUDENT CLASSIFICATIONS)

Employment Status	Student Classification	Percentages																	
		Austin High School	Austin High Dropouts	Pacelli High School	Pacelli High Dropouts	Post High School	Post High Dropouts	Summer Only	Summer Only Dropouts	Veterans	Veterans Eve Only	Rehabilitation	Post High School	Post High Dropouts	Veterans	Rehabilitation	Resident Totals	Area Totals	Average of Total Groups
In trade*	Resident Students	12	13	0	25	25	8	0	50	27	0	0	31	33	31	0	16	30	19.4
Allied job	Resident Students	8	7	0	0	4	15	20	0	5	8	0	6	17	8	34	7	7	7.3
Unrelated job	Resident Students	40	40	34	25	27	22	26	0	46	80	100	27	0	45	33	39	28	35.8
Supervisor*	Resident Students	5	0	0	0	1	0	7	0	3	4	0	1	0	0	0	3	1	2.3
Trade - service	Resident Students	5	13	33	0	1	0	7	0	0	0	0	1	0	8	0	4	2	3.4
In service	Resident Students	10	7	11	25	5	8	13	50	5	0	0	5	17	0	0	8	5	6.7
College	Resident Students	3	0	11	0	1	0	7	0	0	0	0	2	17	0	0	2	3	2.3
Unemployed	Resident Students	3	0	0	0	3	31	13	0	3	0	0	2	16	0	0	4	3	3.9
Self-trade*	Resident Students	1	0	0	0	8	8	0	0	3	0	0	7	0	0	33	3	7	4.1
Self - other	Resident Students	0	0	0	25	3	0	0	0	0	8	0	8	0	8	0	2	7	3.4
Housewife	Resident Students	12	20	11	0	22	8	0	0	3	0	0	10	0	0	0	11	7	10.4
Other	Resident Students	1	0	0	0	0	0	7	0	5	0	0	0	0	0	0	1	0	1.0
*Total persons in trade		22	26	33	25	35	15	13	50	32	4	0	40	33	38	33	26	39	29.5

TABLE XLI

EMPLOYMENT STATUS OF RESPONDENTS AT THE TIME THE QUESTIONNAIRE WAS COMPLETED (BY COMBINED STUDENT CLASSIFICATIONS)

Employment Status	Percentages						
	Combined Student Classifications	High School	High School Drops	Post High	Post High Drops	Veterans	Rehabilitation	Average of Total Groups
In trade*		11	15	25	19	19	0	19.4
Allied job		7	5	6	14	7	25	7.3
Unrelated job		39	38	27	14	57	50	35.8
Supervisor in trade*		4	0	2	0	3	0	2.3
In trade in service*		8	11	2	0	1	0	3.4
In military service		10	11	6	14	3	0	6.7
Attending college		4	0	2	4	0	0	2.3
Unemployed		3	0	3	23	1	0	3.9
Self-employed - trade*		1	0	7	4	1	25	4.1
Self-employed - other		0	5	5	4	4	0	3.4
Housewife		12	15	14	4	1	0	10.4
Other		1	0	1	0	3	0	1.0
*Total persons in trade		23	26	36	23	24	25	29.5

these four categories accounted for a total of 29.5 per cent of the respondents. The remaining three-fourths of the respondents were not working at the trades for which they had received training while enrolled; however, 7.3 per cent were working in occupations allied to the training that they had received, and only 3.9 per cent of the respondents indicated that they were unemployed.

The largest group of respondents, 35.8 per cent indicated that they were working in non-related occupations, while 2.3 per cent of the respondents indicated that they were attending college full-time, and 1.0 per cent of the respondents listed their employment status in terms that did not allow for tabulation under the choices provided in the questionnaire. Over ten (10.4) per cent of the respondents indicated they were housewives, 6.7 per cent of the respondents were in military service not using their training, and 3.4 per cent of the respondents were self-employed in a field unrelated to their training.

It should be noted in Table XXXVII on page 156 that the percentages by hour groupings ranged from 10 per cent for the 0 - 100 hour group to 43 per cent for the 2,001 - 3,000 hour group compared to the 29.5 per cent overall

average for those respondents who had indicated that they were employed in the trade for which they had received training. This would suggest that there was a greater likelihood for those persons who had completed a longer term of training to remain in the trade for which they had received training at the School.

Table XXXVIII on page 157 shows that the percentages of respondents by departments who were working at their trades when the questionnaire was completed ranged from a low of 5 per cent for Sheet Metal to a high of 60 per cent for Practical Nursing as compared to an overall average of 29.5 per cent for all departments. Twenty-one per cent of the Auto Body respondents and 19 per cent of the Auto Mechanics respondents were employed at their trades, whereas 41 per cent of the Electronic respondents and 53 per cent of the Machine Shop respondents were employed at their trades. Only 11 per cent of the carpentry respondents indicated that they were employed in the trade, whereas, approximately one-fourth of the Welding and Cosmetology respondents were employed in their respective trades.

As shown in Table XXXIX on page 159, the percentages of respondents who indicated that they were employed in the trade for which they had been trained while enrolled at the School ranged from a low of 17 per cent for the 1955-1956 school year to a high of 50 per cent for the 1960-1961 school year as compared to an overall average of 29.5 per cent for the eight school years included in the study. A year to year trend indicating a gradual increase, although erratic, in the percentages of persons who remained employed in their respective trades was evident from this tabulation.

Table XL on page 160 which compares the resident and area student classifications shows that 39 per cent of the area respondents were employed in their respective trades, and only 26 per cent of the resident students were so employed in comparison to an overall average of 29.5 per cent for the two groups.

Table XLI on page 161 shows that of the combined student classifications, irrespective of area and resident status, with respect to their employment status at the time of completing the questionnaire, 29.5 per cent of the respondents were employed in the trade for which they had

been trained. The breakdown of the combined student classifications shows that 23 per cent of the high school respondents were employed at the trade for which they had been trained in comparison to 26 per cent of the high school dropouts. Thirty-six (36) per cent of the post high school respondents were employed in their respective trades, whereas only 23 per cent of the post high school dropouts were so employed. Twenty-four (24) per cent of the veterans and 25 per cent of the rehabilitation students were employed in the trades for which they had received training.

Tables XLII and XLIII on page 166 and 167 are tabulations of the employment status of the respondents following their withdrawal from the School. The largest group of respondents (37.1 per cent) obtained employment in the trade for which trained and the smallest group of respondents (2.6 per cent) indicated that they had been unemployed. Respondents who had returned to the job which they had held prior to enrolling accounted for 3.2 per cent of the group compared to 7.9 per cent of the respondents who were still employed on the same job held on a full-time basis while enrolled. Fifteen (15) per cent of the respondents had

TABLE XLII

EMPLOYMENT STATUS OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL (BY HOUR GROUPINGS)

Employment Status	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Employed on present job held full-time while enrolled	0	5	6	10	7	30	11	16	7.9
Employed in trade for which trained	3	16	12	36	73	50	47	56	37.1
Entered armed forces	16	26	31	14	5	0	0	0	15.0
Enrolled in college	10	9	12	6	0	10	0	0	6.0
Accepted employment in a field unrelated to training received	52	19	31	27	8	10	37	28	24.5
Unemployed	3	9	0	1	5	0	0	0	2.6
Returned to job held prior to enrolling	3	9	4	4	1	0	0	0	3.2
Other	13	7	4	2	1	10	5	0	3.7

TABLE XLIII

EMPLOYMENT STATUS OF RESPONDENTS FOLLOWING THEIR WITHDRAWAL FROM SCHOOL (BY DEPARTMENTS)

Employment Status	Hour Groups	Percentages												
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Employed on present job held full-time while enrolled		2	14	20	35	0	2	0	7	0	0	5	0	7.9
Employed in trade for which trained		20	18	0	23	60	35	61	56	89	67	15	22	37.1
Entered armed forces		19	30	40	9	3	17	0	17	0	33	10	17	15.0
Enrolled in college		11	2	0	12	0	11	0	13	0	0	10	0	6.0
Accepted employment in a field unrelated to training received		33	29	40	17	15	31	13	7	7	0	45	55	24.5
Unemployed		4	0	0	2	10	0	0	0	0	0	5	0	2.6
Returned to job held prior to enrolling		7	5	0	2	2	0	13	0	0	0	5	6	3.2
Other		4	2	0	0	10	4	13	0	4	0	5	0	3.7

entered the armed forces, 6 per cent of the respondents enrolled in colleges, and 24.5 per cent accepted employment in a field unrelated to the training program which they had pursued while enrolled at the School.

It was interesting to note in Table XLII on page 166 that 73 per cent of the respondents in the 1,101 - 1,600 hour group obtained employment in the trade for which they had been trained. These percentages compare with the 60 per cent of the cosmetology respondents and the 89 per cent of the practical nursing respondents who indicated in Table XLIII on page 167 that they obtained employment in their respective trades following their withdrawal from the School. Here, again, it may be noted that there was a direct relationship between the length of the enrollment term and the likelihood of the respondent being employed in the trade for which he had received training.

The data contained in Tables XLIV and XLV on page 169 shows that 64.7 per cent of the respondents felt that their term of enrollment had been about right in relation to obtaining employment in the trade for which they had received training; 33.2 per cent of the respondents felt

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TABLE XLIV

OPINIONS OF RESPONDENTS REGARDING THE LENGTH OF TIME SPENT IN A TRAINING PROGRAM IN RELATION TO OBTAINING EMPLOYMENT IN THE TRADE (BY HOUR GROUPINGS)

Length of Time	Hour Groups	Percentages								
		0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Too long		0	0	1	1	0	22	6	8	2.1
Too short		57	41	58	28	21	0	18	12	33.2
About right		43	59	41	71	79	78	76	80	64.7

TABLE XLV

OPINIONS OF RESPONDENTS REGARDING THE LENGTH OF TIME SPENT IN A TRAINING PROGRAM IN RELATION TO OBTAINING EMPLOYMENT IN THE TRADE (BY DEPARTMENTS)

Length of Time	Hour Groups	Percentages												
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups
Too long		0	2	20	2	0	5	0	7	0	0	0	0	2.1
Too short		40	49	80	22	16	36	13	41	12	50	36	44	33.2
About right		60	49	0	76	84	59	87	52	88	50	64	56	64.7

that their term of enrollment had been too short, and 2.1 per cent of the respondents indicated that their term of enrollment had been too long.

Table XLIV on page 169 shows that the percentages of responses ranged from a low of 43 per cent for the 0 - 100 hour group to a high of 80 per cent for the 2,001 - 3,000 hour group for the respondents who felt that their term of training had been about right in relation to obtaining employment in the trade for which they had been enrolled; it appeared evident from these percentages that the respondent's success in obtaining employment in his trade was related to the length of time that he had been enrolled.

As shown in Tables XLVI and XLVII on pages 171 and 172, 53 per cent of the respondents who had entered the armed forces after withdrawing from the School indicated that the training in their respective trades was of no value to them, 8.7 per cent of the respondents followed up their trade in the service, and 33.1 per cent of the respondents indicated that they were able to get into a related field in the service as a result of the training that they had received while enrolled. About one-fourth of the

TABLE XLVI

USE MADE OF THE TRAINING IN THE ARMED FORCES BY RESPONDENTS WHO ENTERED MILITARY SERVICE AFTER WITHDRAWING FROM SCHOOL (BY HOUR GROUPINGS)

Use Made of Training in the Armed Forces	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
Followed up trade	13	7	10	0	25	0	25	17	8.7
Training of no value	74	67	59	44	50	0	25	50	55.3
Got into a related field because of the training	13	7	31	56	25	100	50	33	33.1
Other	0	19	0	0	0	0	0	0	2.9

TABLE XLVII

USE MADE OF THE TRAINING IN THE ARMED FORCES BY RESPONDENTS WHO ENTERED MILITARY SERVICE AFTER WITHDRAWING FROM SCHOOL (BY DEPARTMENTS)

Use Made of Training in the Armed Forces	Hour Groups	Percentages												Average of Total Groups
		AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	
Followed up trade		0	11	0	0	0	25	0	12	0	0	0	0	8.7
Training of no value		67	63	0	75	100	15	75	44	0	100	83	80	55.3
Got into a related field because of the training		33	26	67	25	0	50	25	44	0	0	17	20	33.1
Other		0	0	33	0	0	10	0	0	0	0	0	0	2.9

respondents had entered the armed forces after withdrawing from the School, or 103 persons out of the 387 responses received. Table XLVI on page 171 shows that Auto Mechanics, Electronics, and Machine Shop were the only trades that the respondents had followed up in the armed forces.

Occupational information. The three questionnaire items tabulated in this section were designed to elicit information from the respondents in respect to their hourly wage rate on their first job after withdrawing from School, their hourly wage rate on the date the questionnaires were returned, and the geographical location of their place of employment on the date the questionnaires were returned. Each item has been tabulated by departments and hour groups.

As shown in Tables XLVIII and XLIX on pages 174 and 176, the hourly wage rates of the respondents at the time the questionnaires were returned ranged from less than $1.00 per hour to over $4.00 per hour. The largest (modal) group of respondents (18.7 per cent) were receiving from $2.76 - $3.00 per hour and the smallest group of respondents (1.3 per cent) were receiving from $3.76 - $4.00 per hour.

TABLE XLVIII

HOURLY PAY RATE OF RESPONDENTS ON THE DATE THAT THE QUESTIONNAIRE WAS COMPLETED (BY HOUR GROUPINGS)

Hourly Pay Rates Unrelated to Trade in the Trade*	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups	Sum of the Two Averages
		Percentages									
$1.00 and under		0	4	10	8	2	0	7	13	6.4	
		0*	0	0	0	3	0	0	0	0.7	7.1
$1.01 - $1.25		0	4	1	0	5	11	0	0	2.0	
		0	4	2	0	8	0	0	0	2.4	4.4
$1.26 - $1.50		14	12	3	0	3	0	0	4	3.7	
		0	4	0	0	5	0	0	4	1.7	5.4
$1.51 - $1.75		9	0	3	4	2	0	7	0	3.1	
		0	0	1	2	14	11	0	13	5.1	8.2
$1.76 - $2.00		5	0	5	4	2	0	0	3	3.4	
		0	0	3	6	17	11	23	8	7.4	10.8
$2.01 - $2.25		9	8	10	8	1	0	7	4	6.8	
		0	4	0	3	2	0	0	9	2.0	8.8
$2.26 - $2.50		9	8	7	14	5	0	0	4	7.8	
		0	4	2	3	0	0	0	0	1.4	9.2
$2.51 - $2.75		9	12	9	10	3	0	0	8	7.5	
		0	4	0	3	2	11	0	0	1.7	9.2
$2.76 - $3.00		22	20	22	10	5	34	7	4	13.6	
		0	0	3	5	6	11	14	12	5.1	18.7
$3.01 - $3.25		5	8	3	3	3	11	0	4	3.7	
		4	0	0	1	5	0	7	0	2.0	5.7

TABLE XLVIII (continued)

Hourly Pay Rates Unrelated to Trade in the Trade*	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups	Sum of the Two Averages
		Percentages									
$3.26 - $3.50		5	0	2	3	0	0	7	0	2.0	
		0	0	2	1	0	0	14	0	1.4	3.4
$3.51 - $3.75		0	0	1	3	3	0	0	0	1.7	
		0	0	0	0	0	0	0	0	0.0	1.7
$3.76 - $4.00		0	0	1	1	2	0	0	0	1.0	
		0	0	2	0	0	0	0	0	0.3	1.3
$4.01 and over		4	4	6	5	2	0	0	8	4.4	
		5	0	2	3	0	0	7	0	1.7	6.1

*The bottom percentages in each group represent the respondents employed in the trade for which trained. Percentages for a given group may be obtained by adding the two figures.

TABLE XLIX

HOURLY PAY RATE OF RESPONDENTS ON THE DATE THAT THE QUESTIONNAIRE WAS COMPLETED (BY DEPARTMENTS)

Hourly Pay Rate	Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups	Sum of the Two Averages
		Percentages													
Unrelated to Trade		13	5	0	3	7	0	40	3	0	0	6	20	6.4	.1
In the Trade*		0*	2	0	0	4	0	0	0	0	0	0	0	0.7	7.1
$1.00 and under		4	0	0	0	4	3	0	0	10	0	0	0	2.0	
$1.01 - $1.25		0	2	0	0	18	3	0	0	0	0	0	0	2.4	4.4
$1.26 - $1.50		7	2	0	0	15	3	0	6	0	0	0	0	3.7	
		0	2	0	0	7	0	20	0	5	0	0	0	1.7	5.4
$1.51 - $1.75		0	6	0	2	4	0	0	0	5	0	6	13	3.1	
		0	5	0	3	0	3	0	0	47	0	0	0	5.1	8.2
$1.76 - $2.00		6	0	0	5	3	6	0	3	0	0	0	7	3.4	
		5	5	0	0	15	5	0	7	33	0	0	13	7.4	10.8
$2.01 - $2.25		12	11	25	3	0	3	20	7	0	0	18	0	6.8	
		4	2	0	0	4	3	0	3	0	0	0	0	2.0	8.8
$2.26 - $2.50		8	7	25	14	4	5	0	8	0	0	12	13	7.8	
		3	0	0	0	0	0	0	6	0	33	0	0	1.4	9.2
$2.51 - $2.75		7	9	25	11	0	17	20	3	0	0	6	0	7.5	
		0	0	0	3	4	3	0	7	0	0	0	0	1.7	9.2
$2.76 - $3.00		14	16	0	30	0	18	0	6	0	0	23	13	13.6	
		2	2	0	2	11	8	0	16	0	0	0	7	5.1	18.7
$3.01 - $3.25		2	9	25	3	0	0	0	3	0	0	6	7	3.7	
		2	0	0	0	0	3	0	13	0	0	0	0	2.0	5.7

TABLE XLIX (continued)

Hourly Pay Rate Unrelated to Trade In the Trade*	Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups	Sum of the Two Averages
		Percentages													
		2	2	0	5	0	0	0	6	0	0	0	0	2.0	3.4
$3.26 - $3.50		0	0	0	3	0	6	0	0	0	34	0	0	1.4	3.4
		0	4	0	5	0	0	0	3	0	0	0	0	1.7	
$3.51 - $3.75		0	0	0	0	0	0	0	0	0	0	0	0	0.0	1.7
		2	0	0	5	0	0	0	0	0	0	0	0	1.0	
$3.76 - $4.00		0	0	0	0	0	0	0	0	0	33	0	0	0.3	1.3
		5	7	0	3	0	8	0	0	0	0	17	0	4.4	
$4.00 and over		2	2	0	0	0	3	0	0	0	0	6	7	1.7	6.1

*The bottom percentages in each group represent the respondents employed in the trade for which trained. Percentages for a given group may be obtained by adding the two figures.

The hourly wage rates of the remaining respondents were fairly well distributed throughout the ranges from under $1.00 per hour to over $4.00 per hour. The investigator did not feel that a computation indicating the average wage rate for the entire population would be of any value; the reader should carefully study the tables.

Approximately one-third (29.5 per cent as shown by Table XXXVII on page 156) of the respondents were employed in the trade for which they had been trained at the time their questionnaires were returned; however, the investigator was unable to discern any inclusive evidence indicating that the respondents employed in the trades for which they had been trained were receiving higher wage rates than those respondents employed in occupations unrelated to the training they had received while enrolled at the School.

The investigator felt that an indication of the going hourly wage rate for the respondents employed in their respective trades at the time of completing the questionnaire could be obtained from the modal hourly rate for each department, as indicated by Table XLIX on page 176. The departments and hourly rates (highest

figure in each wage grouping) tabulated against the modal percentages were listed in an ascending order; likewise, for comparative purposes, the modal hourly rates for the respondents who were employed in occupations unrelated to the training they had received while enrolled were listed as shown below:

Departments	Employed in the trade	Not employed in the trade
Cosmetology	$1.25	$1.50
Farm Mechanics	$1.50	$1.00 and under
Practical Nursing	$1.75	$1.25
Auto Body	$2.00	$3.00
Auto Mechanics	$2.00	$3.00
Electronics	$3.00	$2.75
Machine Shop	$3.00	$2.50
Carpentry	$3.50	$3.00
Printing	$3.50	No figure
Sheet Metal	$4.00 and over	$3.00
Welding	$4.00 and over	$1.00 and under
Appliance Repair	No figure	$3.25

The preceding tabulation shows that three departments, namely, Cosmetology, Auto Body, and Auto Mechanics, had respondents earning a higher wage rate in an occupation other than the trade for which they had received training; however, this evidence was still inconclusive, as several of the departments were represented by bimodal and tri-modal wage groupings. The modal percentage for those respondents who were employed in the trade for which they had received training while enrolled was 7.4 per cent for the $1.76 - $2.00 per hour group, and the modal percentage for those respondents who were employed in occupations unrelated to the training they had received while enrolled was 13.6 per cent for the $2.76 - $3.00 hour group.

As shown in Table XLVIII and XLIX on pages 174 and 176, the hourly wage rates of the respondents as a total group at the time the questionnaires were completed are represented by bimodal percentages of 18.4 per cent for the $1.00 and under hour group and 22.2 per cent for the $1.01 - $1.25 hour group.

The investigator felt than an indication of the beginning hourly wage rate for the respondents employed in their respective trades following their withdrawal

from School could be obtained from the modal hourly rate for each department, as indicated by Table LI on page 184. The departments and hourly rates (highest figure in each wage grouping) tabulated in respect to the modal percentages were listed in an ascending order; likewise, for comparative purposes, the modal hourly rates for the respondents who were employed in occupations unrelated to the training they had received while enrolled were listed as shown below:

Departments	Employed in the trade	Not employed in the trade
Cosmetology	$1.00 and under	$1.25
Auto Body	$1.25	$1.25
Carpentry	$1.25	$1.50
Farm Mechanics	$1.25	$1.75
Electronics	$1.50	$1.75
Practical Nursing	$1.75	$1.50
Sheet Metal	$1.75	$1.50
Auto Mechanics	$2.00	$2.50
Machine Shop	$2.00	$2.75
Printing	$2.25	$1.25
Welding	$2.75	$2.50
Appliance Repair	No figure	$2.00

TABLE L

HOURLY PAY RATES OF RESPONDENTS ON THEIR FIRST JOB AFTER WITHDRAWING FROM SCHOOL (BY HOUR GROUPINGS)

Hourly Pay Rates	Percentages									
Unrelated to Trade / In the Trade*	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 300	Average of Total Groups	Sum of Two Averages
	18	19	13	10	3	0	0	0	8.8	
$1.00 and under	0*	5	2	2	27	20	0	11	9.6	18.4
	29	24	19	6	3	0	0	10	10.7	
$1.01 - $1.25	0	0	6	14	22	0	0	11	11.5	22.2
	29	5	15	7	2	20	0	21	9.5	
$1.26 - $1.50	0	0	2	8	11	20	31	5	7.6	17.1
	6	14	11	9	0	0	0	11	6.9	
$1.51 - $1.75	0	5	2	11	14	20	8	0	8.0	14.9
	0	5	4	9	3	0	15	0	5.0	
$1.76 - $2.00	0	0	0	6	7	20	15	21	6.1	11.1
	6	5	6	5	3	0	7	0	4.2	
$2.01 - $2.25	0	0	0	3	0	0	8	5	1.5	5.7
	6	13	10	3	3	0	0	5	5.3	
$2.26 - $2.50	0	0	0	0	0	0	0	0	0.0	5.3
	0	5	6	3	0	0	0	0	1.9	
$2.51 - $2.75	0	0	4	2	0	00	8	0	1.9	3.8
	6	0	0	2	2	0	0	0	1.1	
$2.76 - $3.00	0	0	0	0	0	0	8	0	0.4	1.5
	0	0	0	0	0	0	0	0	0.0	
$3.01 - $3.25	0	0	0	0	0	0	0	0	0.0	0.0

TABLE L (continued)

Hourly Pay Rate	Percentages									
Unrelated to Trade / In the Trade	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups	Sum of the Two Averages
$3.26 - $3.50	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0.0 0.0	0.0
$3.51 - $3.75	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0.0 0.0	0.0
$3.76 - $4.00	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0.0 0.0	0.0
$4.01 and over	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0.0 0.0	0.0

*The bottom percentages in each group represent the respondents employed in the trade for which trained. Percentages for a given group may be obtained by adding the two figures.

TABLE LI

HOURLY PAY RATES OF RESPONDENTS ON THEIR FIRST JOB AFTER WITHDRAWING FROM SCHOOL (BY DEPARTMENTS)

Hourly Pay Rates	Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups	Sum of the Two Averages
		Percentages													
$1.00 and Under	Unrelated to Trade	13	14	25	4	11	3	14	0	0	0	13	14	8.8	18.4
	In the Trade	3*	8	0	0	43	3	14	0	0	0	0	0	9.6	
$1.01-$1.25	Unrelated to Trade	17	14	0	9	12	10	0	4	0	50	19	14	10.7	22.2
	In the Trade	13	5	0	18	25	0	43	4	17	0	0	0	11.5	
$1.26-$1.50	Unrelated to Trade	16	5	25	18	2	13	0	8	5	0	19	14	9.5	17.1
	In the Trade	3	3	0	0	5	13	0	12	30	0	0	7	7.6	
$1.51-$1.75	Unrelated to Trade	5	8	25	0	2	16	15	8	0	0	18	0	6.9	14.9
	In the Trade	3	0	0	9	0	9	14	16	35	0	6	7	8.0	
$1.76-$2.00	Unrelated to Trade	5	3	25	13	0	7	0	0	4	0	13	0	5.0	11.1
	In the Trade	3	8	0	0	0	10	0	32	9	0	0	0	6.1	
$2.01-$2.25	Unrelated to Trade	8	5	0	4	0	3	0	4	0	0	6	13	4.2	5.7
	In the Trade	0	3	0	4	0	0	0	4	0	50	0	0	1.5	
$2.26-$2.50	Unrelated to Trade	5	16	0	13	0	3	0	0	0	0	0	14	5.3	5.3
	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
$2.51-$2.75	Unrelated to Trade	0	5	0	0	0	0	0	4	0	0	6	0	1.9	3.8
	In the Trade	0	3	0	0	0	10	0	4	0	0	0	9	1.9	
$2.76-$3.00	Unrelated to Trade	6	0	0	4	0	0	0	0	0	0	0	8	1.1	1.5
	In the Trade	0	0	0	4	0	0	0	0	0	0	0	0	0.4	
$3.01-$3.25	Unrelated to Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	

TABLE LI (continued)

Hourly Pay Rate	Hour Groups	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	Average of Total Groups	Sum of the Two Averages
		Percentages													
	Unrelated to Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
$3.26-$3.50	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
	Unrelated to Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
$3.51-$3.75	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
	Unrelated to Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
$3.76-$4.00	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
	Unrelated to Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	
$4.01 and over	In the Trade	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0

*The bottom percentages in each group represent the respondents employed in the trade for which trained. Percentages for a given group may be obtained by adding the two figures.

The foregoing tabulation which shows the modal hourly rates respondents received upon their withdrawal from School may be compared to the tabulation on page 179 showing the modal hourly rates respondents were receiving at the time the questionnaires were completed. The investigator felt that these comparisons tended to show the monetary opportunities for advancement in the various trades included in the study. The differences (increases in the hourly wage rates by departments have been listed in an ascending order, as follows:

Practical Nursing	$0.00
Auto Mechanics	$0.00
Cosmetology	$0.25
Farm Mechanics	$0.25
Auto Body	$0.75
Machine Shop	$1.00
Printing	$1.25
Welding	$1.25
Electronics	$1.50
Carpentry	$2.25
Sheet Metal	$2.25
Appliance Repair	No figures

Here, again, it should be noted that the evidence was inconclusive because of the multimodal hourly rates for a number of the departments; however, it may be hypothesized that the lack of opportunity for monetary advancement in some of the trades resulted in occupational changes on the part of a number of the persons included in the study.

Tables LII and LIII on pages 188 and 189 show the geographical location of the respondents at the time the questionnaires were returned. The largest group of respondents (35.3 per cent) were living in the city of Austin and the smallest group of respondents (10.7 per cent) were located within a 35 mile radius of the city of Austin. Thirty (30.1) per cent of the respondents were residing in the State of Minnesota and 23.9 per cent of the respondents were residing outside of the State.

Suggestions and comments. The questionnaire items summarized in this section were developed to elicit information from the respondents relative to their comments, willingness to sign the form, and requests for a summary of the study.

TABLE LII

GEOGRAPHICAL LOCATION OF RESPONDENTS ON THE DATE QUESTIONNAIRE WAS COMPLETED (BY HOUR GROUPINGS*)

Geographical Location	Percentages								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Average of Total Groups
City of Austin	32	32	39	39	40	60	32	30	35.3
Within a 35 mile radius of Austin	13	16	6	7	12	0	16	18	10.7
State of Minnesota	26	26	22	40	32	30	42	22	30.1
Outside of Minnesota	29	26	33	24	16	10	10	30	23.9

*The data for this table was obtained from responses to item 17 on the questionnaire included in Appendix I.

TABLE LIII

GEOGRAPHICAL LOCATION OF RESPONDENTS ON THE DATE QUESTIONNAIRE WAS COMPLETED (BY DEPARTMENTS*)

Geographical Location	Percentages												
	Hour Groups												Average of Total Groups
	AB	AM	AR	CA	CO	EL	FM	MS	PN	PR	SM	WE	
City of Austin	42	27	40	66	39	18	25	13	48	0	30	33	35.3
Within a 35 mile radius of Austin	5	18	0	0	17	9	0	9	4	34	20	17	10.7
State of Minnesota	18	25	20	18	24	46	50	69	30	33	35	22	30.1
Outside of Minnesota	35	30	40	16	20	27	25	9	18	33	15	28	23.9

*The data for this table was obtained from respondents answers to item 17 on the questionnaire included in Appendix I.

Ninety-seven (97) per cent of the respondents signed their names in the space provided for this purpose on the questionnaire, and only 13 persons out of a total response from 387 persons requested a summary of the study.

The comments and suggestions provided by the respondents have been summarized in part III of this chapter.

III. COMMENTS OF RESPONDENTS

The comments and suggestions provided by the respondents were representative of each department and hour grouping; however, they have been summarized as one group to effect a consolidation of the data.

The 270 comments received from 229 respondents out of a total of the 387 questionnaire returns were classified into 8 categories, namely: physical facilities, course content and organization of the training program, instructional methods, selection and admission of students to training programs, reputation of the School, placement, observations relative to training, miscellaneous comments, and specific suggestions by departments.

The method used for presenting a summary of this data has included the numbers of comments in each classification followed by respondent quotations selected by the investigator as being representative of the data.

Physical facilities. Seven comments relating to the physical facilities of the School were received from four respondents indicating a lack of equipment, and four respondents commented on the crowded conditions in the departments in which they had been enrolled.

Selected comment:

> "While I was there, there were too many students working on a project at a time."

Course content and organization of training programs. Seventy-seven comments relating to the course content of the training programs were received with five respondents indicating that the numbers of students per class had been excessive, while three respondents felt that the high school students should have been segregated from the post high school students, and sixty-nine respondents mentioned a lack of training in a specific area of the trade in which they had been enrolled.

Selected comments:

Make it more technical and put in more theory.

Students attending the course full time should be considered in a different status and allowed to progress more rapidly than part time students. Also adult privileges should not be limited or restricted because of the presence of high school kids.

More mathematics and book work should be involved because this is something that you don't get on the job.

Instructional methods. Fifteen comments relating to instructional methods were received with one person indicating a lack of instructor cooperation, while three persons felt that students should be allowed to advance at their own rate, nine persons stated that there had been a lack of adequate supervision by their instructors, and two persons felt their instructors had exhibited a lack of understanding.

Selected comments:

Have instructors that will explain things to you rather than be off some place where you cannot find them when you need help.

A more strict and fast moving coverage of the training program.

I would suggest that you form a two class system, whereby the people who wish to get more out of a class will not be slowed down by those not so equipped.

Selection and admission of students to training programs. Twenty-nine comments relating to the selection and admission of students were received with nineteen persons indicating that they felt there had been a lack of an occupational goal on the part of a number of the high school students and veterans who had been enrolled. Eight persons stated that should have been advance couseling available, and two persons indicated that they had failed to fully utilize the opportunity afforded them by the training programs.

Selected comments:

> I'm sorry that I didn't make better use of my education benefits. It has hurt me in many ways, and I should have been more sincere.
>
> At the time I was enrolled too many ex-servicemen were there, primarily for monetary reasons.
>
> I feel that I would be better off if I had taken chemistry, more math, and other subjects so I could have gone to college.

Reputation of the School. Three persons stated they had found that employers were not acquainted with the School. They felt that this lack of knowledge on the part of these employers had adversely affected their chances of obtaining employment.

Selected comment:

". . . the school should be more recognized."

Placement. Eight comments relating to placement were obtained with four persons stating that they had not received adequate assistance in locating employment, and four persons indicated that there had been a lack of job opportunity in the trade for which they had received training.

Selected comments:

> I believe that there could be a little closer relation between the school and the prospective employer, . . . helping the finished student get a job in the trade.
>
> I just wish there had been opportunities for this type of work in the immediate area.
>
> I would still be in the trade had I had year around work.

Observations relative to training. Comments from 107 persons relating to their opinions of the School and the training being offered were received with 77 persons expressing appreciation to their former instructors and a satisfaction with the training they had received. Twenty persons stated varying degrees of dissatisfaction

with the School, and ten persons indicated that they would have liked to have been able to complete their training.

Selected comments:

> I feel that the training was good. It will continue to be good only if the School keeps abreast of changing methods in industry.
>
> The training I received at the Austin Area Vocational School enabled me to double my income which has enabled me to send my children on to college.
>
> I think that the Austin Area Vocational School is exceptionally well staffed and equipped and a very necessary branch of our schools.
>
> I think Austin has one of the cleanest and nicest vocational schools. The only improvement I can think of would be to make it larger, so more could attend.
>
> Do not enroll high school kids in these programs. It is only a system of goldbricking for them. They are not ready for it and it takes the instructor away from helping people such as myself who would like to benefit from the experience. This is why I quit.
>
> Get more patient and understanding instructors, so you feel as though you are improving and accomplishing something.

Miscellaneous comments. Thirty-four of the comments were classified as miscellaneous with the majority of these respondents indicating that they had been enrolled for too short a time to provide any constructive suggestions.

One person felt that the length of the school day should be extended. Several persons felt that the instructors should spend more time in supervising and assisting the students with their shop work.

Specific suggestions by departments. The respondents were requested to provide specific suggestions for improving the training program in which they had been enrolled. These suggestions have been summarized by departments irrespective of the number of hours of training that had been completed by the person offering the suggestion. The deficiences in the training programs, as noted by the respondents should not be construed as being indicative of the training programs as they were functioning at the time this study was completed; however, the suggestions should be critically evaluated by the school administration and instructional staff to determine whether any changes in the training programs are warranted.

Auto Body. Instruction should be provided on making estimates with more training being provided on wheel aligning and frame straightening.

Auto Mechanics. Additional training should be provided on generators, regulators, starters, carburetors, and tune-up in general. The equipment being used for tune-up instruction is too modern compared to the equipment found in the trade, so more training should be provided on the basic pieces of test equipment. The course should be more specialized in such areas as automatic transmissions rather than being so general. Each student should have the experience of completely overhauling an engine. The classroom time for the second year should be cut to a minimum with students being required to do more homework, thus providing more time for shop work. Students should not be allowed to spend so much time making minor repairs on their own cars.

Appliance Repair. It should be noted that the course was only offered during the 1954-1955 school year and was discontinued for lack of enrollments.

Carpentry. A greater emphasis should be placed on mathematics and other related subjects of the trade. Provisions should be made for a greater number of shop projects more closely associated with the actual work of the trade. Frequent trips should be made to construction sites.

Cosmetology. Training in hair styling (high fashion) should be included as a part of the course along with experience on tinting and bleaching hair. There should be more time available for floor work. Stress should be placed on using the left hand in doing the work.

Electronics. The course should be made more technical and include more training in the area of industrial electronics with less emphasis being placed on radio and television work. A unit of instruction on how to run a small business should be added. The test equipment should be of a better quality comparable to that found in industry. Training should be included that would lead to radio-telephone licensing.

Farm Mechanics. The amount of training provided on diesel engines, electrical systems, and hydraulics should be increased. A unit on basic machine knowledge should be added. More time should be devoted to "trouble shooting" on tractors.

Machine Shop. Provisions should be made for additional training in mathematics, blueprint reading, metallurgy, layout work, set up work, and mold making.

More stress should be placed on working accuracy to small tolerances.

Practical Nursing. The training program should be strengthened in the areas of physical therapy, medications, obstetrics, communicable diseases, and diet therapy. Instruction should be provided on the procedures of human relations involved in working with doctors.

Printing. It should be noted that the course was offered only during the 1954-1955 school year and was discontinued for lack of enrollments.

Sheet Metal. It should be noted that the course was discontinued at the end of the 1960-1961 school year because of insufficient enrollments.

Welding. Training on the sigma welder should be added. More work of a practical nature should be provided along with additional training on reading blueprints. Stress should be placed on welding with the left hand.

Summary. The fact that 60 per cent of the returns included either comments or suggestions or both was indicative of a high degree of interest in the study on the part of the respondents. Seventy-seven persons voluntarily expressed a feeling of appreciation of their instructors

and a sense of satisfaction with the training they had received while enrolled at the Austin Area Vocational-Technical School.

The specific suggestions for improving the training being offered by each department were varied; however, the suggestions that more mathematics be included in Machine Shop and that additional training be given in hair styling (high fashions) in Cosmetology were numerous and should be given serious consideration.

One person suggested that the school day should be lengthened. The investigator has felt that this was noteworthy and would bear further investigation by the administration and instructional staff of the School.

CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The investigator has endeavored in this chapter to correlate the facts obtained from the analysis of the permanent records with the data obtained by means of the questionnaire into a meaningful summary from which a number of conclusions and recommendations have been drawn relating to the success of the Austin Area Vocational-Technical School in training persons to enter and/or advance in the trade for which they had received training while enrolled.

I. SUMMARY AND CONCLUSIONS

The main objective of the School has been to provide a student with a background of training to enable him to obtain employment and/or advance in his chosen occupational field in a manner which would provide for his self-satisfaction and also meet the requirements of the employer.

This study was mainly concerned with observing the success of the former student on the job in the trade for which he received training, finding the areas in which the

School failed to provide training for success on the job, and determining the effectiveness of the present objectives of the various trade training programs.

Follow-up studies conducted by other trade training institutions have generally been oriented toward determining the success of the graduates of a given school in relation to the trade for which they had received training. The ratio of graduates to the total enrollments of the Austin Area Vocational-Technical School for the eight school years from 1953 through 1961 was too small to provide for a basis upon which any type of follow-up study could be undertaken. This fact prompted investigator to make a detailed analysis of the permanent records of the School.

The analysis of the permanent records of the School provided data which were used as a basis for drawing a random sample of the entire population. The findings of this study were mainly based upon data obtained by means of a questionnaire which was sent to 471 former students out of the total population of 1,887 persons. Responses were obtained from 387 former students for a return of 82 per cent.

The data obtained by means of the questionnaire and analysis of the permanent records of the School were tabulated and organized by tables to effect a concise presentation of the findings. A few of the most significant findings have been summarized in the paragraphs that follow.

About two-thirds of the students were enrolled for less than 1,100 hours of training.

The Cosmetology department had 162 students who completed the 1,500 hour course out of 303 students who had been enrolled for a completion record of 53.1 per cent. The one year course in Practical Nursing was completed by 101 students out of a total enrollment of 120 students for a completion record of 84.2 per cent.

It was assumed that persons completing over 1,800 hours of training in the other departments had received diplomas. The completion record for diplomas was as follows: Auto Body - 3.5 per cent, Auto Mechanics - 12.6 per cent, Appliance Repair - 0.0 per cent, Carpentry - 12.6 per cent, Electronics - 20.4 per cent, Farm Mechanics - 32.4 per cent, Machine Shop - 11.8 per cent, Printing - 0.0 per cent, Sheet Metal - 8.3 per cent, and Welding - 6.4 per cent.

The number of part-time students ranged from a high of 206 persons during the 1955-56 school year to a low of 37 persons during the 1960-61 school year, while the number of students making transfers from one department to another varied from a high of 35 persons during the 1954-55 school year to a low of 3 persons during the 1959-60 school year. The average percentage of attendance increased from 89.3 per cent for the 1953-54 school year to 94.1 per cent for the 1960-61 school year, while the average number of hours enrolled per enrollment varied from a low of 672 hours for the 1956-57 school year to a high of 1,089 hours for the 1959-60 school year, as compared to an overall average of about 800 hours for the eight years included in the study. The preceding facts indicate that the holding power of the School has shown continuous improvement.

The proportion of area students increased from 6.2 per cent during the 1953-54 school year to 57 per cent during the 1960-61 school year which indicated that the School had been publicized and was gaining recognition in the geographical area that it serves as a training institution.

Three-fourths of the respondents indicated that they had had sufficient prior knowledge regarding the content of

the course in which they had been enrolled, while nine-tenths of the respondents indicated that the instructor had adequately outlined the content of the course for them. About five per cent of the respondents had withdrawn because of a lack of interest. These facts would tend to indicate a need for additional counseling relative to course content and occupational goals.

The fact that 16.1 per cent of the respondents indicated that their reason for having attended the School was to develop skills for leisure time activities was interesting and somewhat contrary to the objectives of the School. It may be assumed that the majority of these persons were either high school students enrolled on a part-time basis in day classes or veterans enrolled on a part-time basis in evening classes.

Experience in the armed forces prompted 2.1 per cent of the persons to enroll, while only 8.7 per cent of the 103 persons who had entered the armed forces following their withdrawal from School followed up their trade in the service.

The modal hourly pay rate of the respondents working in the trade for which they had received training was from

$1.76 to $2.00 per hour, while the modal pay rate for respondents employed in occupations unrelated to their training was from $2.76 to $3.00 per hour. Although inconclusive, these facts would tend to indicate that there had been a lack of opportunity for advancement in some of the trades. However, there was a definite correlation between the hours of training completed by a respondent and the hourly rate that he was receiving in the trade for which he had received training.

Forty-six (46) per cent of the respondents resided in Austin or within a radius of 30 miles, while 30.1 per cent lived in Minnesota, while 23.9 per cent were residing outside of Minnesota.

The comments relating to specific suggestions for improving the training programs were numerous and difficult to tabulate; however, the need for additional training in hair styling (high fashions) in Cosmetology, and the need for additional mathematics in Machine Shop deserve mention. It should also be noted that seventy-seven persons voluntarily expressed sentiments of a complimentary nature.

Also, two-thirds (63.9 per cent) of the respondents indicated that their reason for having enrolled at the

School was to obtain training in a trade at which they had anticipated obtaining permanent employment upon termination of their training. Responses to the questionnaire indicated that only 48.7 per cent of the respondents worked at the trade for which they had received training for more than 30 days or for an average employment term of 35.4 months following their withdrawal from School. Only 29.5 per cent of the respondents indicated at the time the questionnaires were returned that they were still employed in the trade for which they had received training. The preceding findings would indicate that only about one-half (difference between 63.0 per cent and 29.5 per cent) attained their original goal by obtaining permanent employment in the trade for which they had received training. The findings of the study are indicative of a number of reasons for the respondents having changed their original occupational goal, namely: lack of opportunity for monetary advancement in some of the trades, marriage on the part of a number of the women who had been enrolled in Cosmetology and Practical Nursing, and possibly the lack of sufficient training prior to employment in a number of cases.

As stated in the preceding paragraph, 29.5 per cent of the respondents at the time the questionnaires were returned indicated that they were currently employed in the trade for which they had received training. Tabulation of this fact by hour groupings showed a range of 10 per cent for the 0 - 100 hour group to 43 per cent for the 2,001 - 3,000 hour group, while the range tabulated by school years increased from 21 per cent for the 1953-54 school year to 50 per cent for the 1960-61 school year. These findings indicate a year by year growth in the quality of instruction that has been provided by the School, and emphasizes the increased opportunities for permanent employment to be gained by students who completed a given trade training program.

II. RECOMMENDATIONS

The recommendations are based upon the findings of the study coupled with the investigator's experience and judgment gained through his associations with the School as an instructor and as the trade and industry coordinator during the school years from 1953 through 1961.

Only 29.5 per cent of the respondents indicated that they were still employed in the trade for which they had received training, as compared to 48.7 per cent of the respondents who were so employed following their withdrawal from School.

Recommendation number 1. Any future follow-up study should be directed toward determining the reasons for former students having left the trade for which they had received training and in which they had been employed. This information should then be verified by contacting their former employers.

The average number of hours of training per enrollment was about 800 hours for the eight school years included in the study; however, this varied with each training program. The study did not provide any conclusive evidence that employment in a trade was predicated on completion of the course. Practical Nursing and Cosmetology are excepted because these course lengths comply with State licensing regulations.

Recommendation number 2. A careful study should be made by the school administration and the instructional staff to determine if the present course lengths

(approximately 2,100 hours) are realistic in relation to the performance on the job expected by the potential employers in the respective trades. Such a study should also be concerned with the length of the school day, and the starting and completion dates for each training program.

The data representing the analysis of the permanent records and the findings obtained by means of the questionnaire contained information that was pertinent to each training program.

Recommendation number 3. The completed study should be made available to each instructor along with any supportive data not included in the tables and texts of the study.

Only four per cent of the veterans who had been enrolled on a part-time basis in the evening classes in Carpentry and Auto Mechanics indicated they were currently employed in the trade for which they had received training. A check of the Austin City Directory indicated that the majority of these veterans were still employed on the jobs that they had held on full-time basis while enrolled. Only two non-veterans enrolled in either of the two evening classes. The attendance record of the 128 veterans

was very low in comparison to the attendance record of the School as a whole. There were a number of instances where veterans completed over 2,000 hours of training, but had attendance records of 75 per cent and below. This would indicate that they had been carried on the school rolls for over 3,000 hours or for a period extending over five school years. The majority of the veterans in the evening classes obviously had been enrolled to take advantage of the monetary benefits provided by the Federal government, and had had no intention of seeking employment in the trade for which they had received training.

Recommendation number 4. The School should establish attendance regulations stating the maximum number of hours that a person may be carried on the rolls prior to completion of a given course. Students should be required to maintain an attendance record between 90 and 95 per cent. Careful consideration should be given to the approval of any similar programs in the future.

The fact that 5.5 per cent of the respondents indicated that they had worked at their trade for less than 30 days following their withdrawal from School would tend to indicate that they had encountered problems on their first job.

Recommendation number 5. The School should contact employers to determine their satisfaction with a former student within two weeks after the person was employed. These contacts would serve to mediate any problems that may have developed that would jeopardize the person's chances for success on his first job.

The statistics for a school should accurately reflect the training that has been provided. A large number of persons completing only a few hours of training may convey the wrong impression unless the reasons are adequately recorded. As a by product of this study, the investigator developed a withdrawal form and a permanent record card that provided for recording of the reasons given by students for withdrawing from a given training program.

The overall statistics compiled as a result of this study were not impressive; however, these statistics do not make any allowances for the goals, aspirations, personal problems, and abilities of the persons who collectively made up the population studied. The statistics do show that the School has a record of consistent improvement in the areas of selection and placement. The elimination of the majority of the part-time students and high school

students from the training programs resulted in a more stable and mature school population.

The investigator believes that the findings of this study demonstrate that the Austin Area Vocational-Technical School has effectively met its obligations to train persons for employment in the various trades for which it has provided training.

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APPENDICES

APPENDIX A

COURSE OUTLINE FOR EACH DEPARTMENT -

GENERAL INFORMATION SHEET

Austin Area Vocational School
Auto Body Rebuilding

Frank Wasko & Everett Pratt, Instructors
Course Outline

The 2,000 hour course is designed to train a young man for employment in the trade as an apprentice. A student receives instruction in all phases of auto body rebuilding. Care and proper use of tools is emphasized throughout the entire course with special attention being given to safety at all times. Minnesota residents under the age of 21 may attend on a tuition-free basis.

Welding and Brazing (Care & Use of Equipment)	90
Metal Theory - Shrinking - Classification of Damages	130
Metal Repair and Analysis	330
Metal Straightening Procedures - Metal Finishing - Metal Alignment - Estimating - Customer Relations	500
Leading and Soldering	90
Preparation, Painting, and Cleanup	500
Glass Cutting and Polishing - Upholstering	60
Wheel Alignment and Frame Work	300
Total Course Hours	2,000

The Auto Body Shop has a complete line of Bear Equipment for frame work. A large paint booth is available for painting and refinishing. Hand tools and special equipments are on hand for all types of metal work.

The first year is devoted to the development of hand skills, along with the related information necessary to complete a metal straightening and refinishing job. Actually the student goes through the entire procedure on each job. The instructors work closely with each student, providing jobs of increasing difficulty over the second year.

Related instruction is provided at the time that it fits with the job being done in the shop. Students are instructed in the use of manufacturer's manuals, and are required to read and keep abreast of the current literature in the field.

Graduates upon completion of the 2,000 hour course have been able to go on the job and go right to work with very little supervision by the employer.

Additional information on the Auto Body Course may be obtained by visiting the school, or by sending a letter addressed to the Director of the Austin Area Vocational School located in Austin, Minnesota

Information on graduates may be obtained by calling either of the following Austin numbers: HEmlock 3-7301 - Extension 32 or 41.

Austin Area Vocational-Technical School
Auto Mechanics - Course Outline

Richard Hoffman, Glen Malenke
& Helmer Bang, Instructors

RELATED INFORMATION - YEAR ONE

Mathematics and Related Physics	70
Fundamentals of Science	20
Tool Crib - Safety - Care and Use of Tools	30

SHOP WORK - YEAR ONE

Chassis	
Brakes (Including Power)	85
Front End Suspensions	85
Steering Control, Wheel Alignment, and Tires	90
Power Trains (Automatic Transmissions)	90
Engines	
Construction, Design, and Rebuilding	350
Electrical	
Basic Fundamentals, Wiring, Repair, and Testing	100
Carburetor	
Basic Fundamentals, Theory, and Repair	80
TOTAL HOURS FIRST YEAR	1,000

RELATED INFORMATION - YEAR TWO

Trouble Shooting and Diagnosis	100
Cost Estimating	25
Customer, Employer, and Employee Relationships	25
Industry Trends and Changing Economic Conditions	25

SHOP WORK - YEAR TWO

Advanced Training and Production in Chassis Units	250
Advanced Training and Production work in Engine Overhaul Procedures	275
Advanced Training and Production in Electrical Components (Testing Equipment - Oscilloscope)	200
Advanced Training and Production in Carburetor Overhauling	100
TOTAL HOURS SECOND YEAR	1,000

Each student is closely supervised and is given an opportunity to progress at his rate on assignments of increasing difficulty. Upon completion of the two year course in Auto Mechanics, a student will be able to obtain employment as an advanced apprentice. Graduates have been able to advance rapidly on the job with very little supervision being required.

Minnesota residents under the age of 21 may attend on a tuition-free basis. Additional information may be obtained by mail from the Director of the School, or by calling HEmlock 3-7301 Extension 32 or 41, at Austin.

Austin Area Vocational-Technical School
Carpentry

R. O. Hannem, Instructor
Course Outline

The vocational course in Carpentry consists of 2,000 hours of shop instruction over a period of two years.

The first year is directed toward the learning of the basic skills of the trade and the proper use and care of the tools and machines involved. These skills are developed through actual work experience, provided by the instructor, under realistic job situations. Each student is allowed to progress at his own rate with ample time being devoted to individual instruction.

The second year students work on advanced problems, architectural drafting, blueprint reading, build and cabinet making.

	Hours
Care and Use of Tools and Machines	80
Related General Information	30
Footings and Foundations	100
Rough Framing	200
Roof Framing	180
Exterior Finish	125
Interior Finish	125
Stairways	50
Cabinet and Cupboard Construction	320
Practical Carpentry Construction Problems	400
Blueprint Reading and Architectural Drafting	250
Safety Practices and Safe Work Habits are Stressed Throughout the Two Years of Training	30
Related Mathematics for the Carpentry Trade	80
Getting Along With Fellow Tradesmen. Advancing One's Self on the Job and in the Trade	30
TOTAL HOURS	2,000

The training is provided on a tuition-free basis to Minnesota residents under the age of 21 who have completed high school. To obtain application forms and additional information, contact: Morton A. Carney, Director.

Austin Area Vocational School
Cosmetology - Course Outline

Mrs. Olive Schultz
Mrs. Marvel Nason

.NITATION AND STERILIZATION - Personal Hygiene - Sterilization . . . . . .
DERMATOLOGY - Structure of Skin - Skin Conditions - Skin Glands . . . . . .
TRICHOLOGY - Structure of Hair - Blood & Nerve Supply - Color - Conditions . . . . .
NAILS - Strucutre & Composition - Nail Irregularities - Growth & Regeneration . . .
ELECTRICITY - Conductors & Non-conductors - High Frequency (Methods of Use) . . . . .
ANATOMY - Osteology (Bones) - Myology (Muscles) - Neurology (Nerves) . . . . . .
FACIAL TREATMENTS - Types of Manipulations - Cosmetics - Special Treatments . . . . .
EYEBROW ARCHING - Purpose and Effect - Correct Shaping - Use of Eyebrow Pencil . . . .
MANICURING - Preparation - Procedures of: Plain, Oil, Removal of Stain . . . . . .
SHAMPOO AND RINSES - Preparation For a Shampoo - Commercial Shampoos - Rinses . . . .
Scalp and HAIR TREATMENTS - Electricity and Therapeutic Ray - Hair Conditions . . . .
HAIR COLORING - Brief History - Classification of Hair Coloring . . . . . .
HAIR BLEACHING - Corrective Treatments - Application - Purpose and Effects . . . . . .
LASH AND BROWN TINT - Technique - Safety and Sanitary Measures . . . . . .
HAIR CUTTING - Brief History from World War I - Fundamentals of Hair Cutting . . . .
HAIR STYLING - Artistry in Hair Styling - Pin Curling - Finger Waving . . . . . .
PERMANENT WAVING (Cold) - Methods of Permanent Waving - Test Curling . . . . . .
BUSINESS MANAGEMENT - Ethics in a Beauty Shop - Salesmanship - Records . . . . . .
MINNESOTA HAIRDRESSING AND BEAUTY CULTURE LAWS - Requirements for Operators, Manager-operators, Manicurists and Demonstrators - License Fees . . . . . .

The above outline is a listing of the subjects covered in the Cosmetology Course at the Austin Area Vocational-Technical School as taken from the "Curriculum For Minnesota Approved Beauty Culture Schools - 1500 Hours of Theory and Practice In The Following Subjects." The main headings are complete - with space permitting a listing of only a few of the sub-topics in each of the main units.

Students attend classes 6 hours per day until they have completed their 1500 hours of training. Approximately 1/3 of the time is devoted to classroom work involving demonstrations and theory. The remaining 2/3 of the time is spent in practicing the skills on other students and on patrons under the supervision of the instructor.

Minnesota State Laws requires a person to complete 1500 hours of training before taking the State Board Examination. To secure a Manager-Operator license a person must be 21 years of age, and have at least 1 year of experience beyond the 1500 hours of school instruction.

Minnesota residents under the age of 21 years may attend the Austin Area Vocational Technical School on a tuition-free basis. Enrollments are accepted throughout the year with new classes starting in June, September, and January.

Austin Area Vocational - Technical School
Industrial Electronics

C. A. Raymond, Instructor
William Beck, Instructor

INTRODUCTION TO COMMUNICATIONS History, Wave Motion, Receivers, Soldering, Tools . . .	30 Hours	
NATURE OF DIRECT AND ALTERNATING CURRENT . . .	50	
MAGNETISM AND MEASURING INSTRUMENTS Ammeter, VTVM, Ohmmeter, Series and Parallel Circuits VOM, VTVM, Oscilloscope, Signal Tracer, Repair of . . .	180	
ALTERNATING CURRENT Induced EMF, Sine Curve, Inductance, Signal Generators . . .	150	
VACUUM TUBES History, Diodes-Pentodes, Tube Ratings, Tube Defects . . .	125	
POWER SUPPLIES AC-DC Power Supplies, Transformers, Filters, Selenium . . .	76	
AMPLIFICATION Sound, Voltage and Power Amplifiers, A-F Circuits . . .	80	
VACUUM TUBE AND CRYSTAL DETECTORS RF Signals, Hartley OSC, Heterodyne Detection . . .	76	
SIGNAL GENERATION (OSC) L-C & R-C Oscillators, Commercial Generators . . .	50	
RECEIVER PRINCIPLES - A.M. & F.M. TRF, Test Points, AVC, Alignment, Trouble Shooting . . .	60	
PULSE CIRCUITS, MULTIVIBRATORS, BLOCKING OSCILLATORS, RADAR CIRCUITS . . .	265	
SYNCHROS AND SERVOMECHANISMS Set up and Operate Synchros and Servos, Error Detecting . .	40	
COMPUTERS Counting Systems, Programming, Timing Pulses . . .	175	
SEMI CONDUCTORS Transistors, Silicon Components, Build Transistor Circuits, Tunnel Diodes . . .	303	
APPLIED PHYSICS Mechanics, Heat, Sound, and Light . . .	60	
APPLIED MATHEMATICS Algebra, Trigonometry, Vector Algebra, Slide Rule . . .	300	
HUMAN RELATIONS AND TECHNICAL REPORT WRITING	60	2080 Hours

The above is a very brief outline of the two-year course in Industrial Electronics. Students become proficient in the use, repair, and calibration of all the basic test equipment.

1-17-63

Austin Area Vocational School
Farm Equipment Mechanics

Henry Vogel, Instructor
Course Outline

YEAR I: Set-Up and Repair of Section 2 Machinery

Machinery - Each student has an opportunity to set-up and repair several makes of each machine. The machines are secured in the main from the area implement dealers; however, students are allowed to bring in machines belonging to their parents. Repair work follows the set-up work.

SHOP WORK:

Manure Spreaders and Plows	90
Disc Harrows and Cultivators	60
Hay Balers and Mowers	90
Combines and Grain Drills	120
Corn Pickers and Corn Planters	120
Miscellaneous Machines	140

RELATED INFORMATION

Parts and Service Manuals	40
Safety and Use of Tools	100
Clinics by Manufacturers	100
Personnel Development	40
Welding	100

TOTAL HOURS FIRST YEAR 1000

YEAR II: Tractor Repair

Tractors - Each student will have an opportunity to participate in the complete overhaul of 6 to 10 tractors. The students work together on each job. The related information is covered at the time that it fits with the work at hand.

SHOP WORK:

Gasoline Tractors and Gasoline Engines	320
Diesel Tractors	170
L. P. Gas Burning Tractors	10
Hydraulic Equipment	150

RELATED INFORMATION

Shop Supervision	100
Tractor Electrical System	150
Lectures and Clinics	100

TOTAL HOURS SECOND YEAR 1000

The course extends over 2 years with classes meeting six hours per day during the regular 39 week school year: September - June. The course is open to Minnesota residents under the age of 21 on a tuition-free basis. Young men with a farm background are able to prepare themselves for employment in a dealership. Students are encouraged to work in a dealership between their first and second year of training.

AUSTIN AREA VOCATIONAL SCHOOL
Machine Shop

Donald Beam, Instructor
Ronald Lokken, Instructor

FIRST YEAR - 1,000 HOURS

The students are acquainted with the various machines and hand tools. A lot of emphasis is placed on Mathematics and Blueprint Reading.

Drill Press
Drill grinding, drilling, reaming, counter boring, tapping, lubrication, speeds, feeds, and safety.

Milling Machine
General set-up, slotting, face milling, vertical and horizontal milling, helical milling dividing head, lubrication speeds, feeds and safety.

Lathes - Engine
Turning, facing, boring, tapping, threading set-up, speeds, lubrication, and safety.

Grinders (surface and tool & cutter)
Selection of grinding wheels - mounting, dressing set-ups, cutter clearances, lubrication, speeds, feeds, and safety.

Heat Treating
Types and treatments of tool steels, hardening and draw temperatures, carbide tip brazing, case hardening, annealing, and safety.

Mathematics
Whole numbers, fractions, decimals, percentage, formulas, ration and proportion dividing head, threads, gears, trigonometry.

Miscellaneous Machines
Machine repair and other work considered necessary to complete the program.

Blueprint Reading

Shaper
Tool bit grinding - work holding surface and angle cutting, squaring, speeds, feeds, and safety.

SECOND YEAR - 1,000 HOURS

Students having completed the first year of training are now ready to go ahead on individual projects in the areas of Tool & Die Making, Mold Making, Jigs and Fixtures, and General Machining.

Welding
Basic principles of gas and electric welding - choice of rods.

Foundry
Principles of foundry work.

Individual Projects

Tool Making - Tool & Die Making - Mold Making - General Machining Projects - esigning.

Job Preparation

Letters of Application - Personal Data Sheet - Application Form - Personal Interview - Apprenticeship - General Information about the Machine Trades - Human Relations.

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL
PRACTICAL NURSING CURRICULUM 1963-1964

Geneva Gerischer, Instructor
Edna Rolands, Instructor

Classroom

Vocational Relations I	30 hours
Body Structure and Functions	30 hours
Personal, Family, and Community Health	45 hours
Nutrition for the Well and the Ill	30 hours
Practical Nursing, Basic Principles and Practices	180 hours
Nursing of Adult Patients with Medical and Surgical Conditions	120 hours
Nursing of Children	15 hours
Nursing of Mothers and Newborn Infants	15 hours
Nursing of the Mentally Ill	15 hours
Total Hours	480

Weeks of Clinical Experiences (Hospital)

Orientation to the care of the sick person and his environment	6 weeks
Nursing of Adult Patients with Medical and Surgical Conditions	18-24 weeks
Nursing of Children	4 weeks
Nursing of Mothers and Newborn Infants	6 weeks
Nursing of Patients with Geriatric Conditions	4 weeks
Other special areas:	
Post Anesthesia Room	2 weeks
Central Supply Service	2 weeks
Physical Therapy	1 week
Diet Therapy Clinical Experience	1 week
Total Weeks	50

The Austin Practical Nursing Program extends over a period of 52 weeks, including 2 weeks vacation during the course. It involves approximately 1800 hours of theory and clinical practice. The above outline shows the minimum hours of classroom curriculum and the weeks of clinical experience required in the specified areas, except the special areas which may be planned as desired in the hospitals under quidance and supervision. Upon completion of the course, the graduate is eligible to take the Minnesota State Licensing Examination to become a Licensed Practical Nurse.

Applicants must be between the ages of 17-1/2 and 55. A birth certificate or a baptismal certificate is required. High school graduates with a satisfactory record are preferred, however, evidence of an equivalent amount of learning experience is acceptable. Signed examination sheets are required from the family doctor and dentist. Each applicant is personally interviewed.

Minnesota residents under the age of 21 may attend on a tuition-free basis. Residents of the local school district (#492) over 21 are required to pay a fee of $215 for the course. Non-residents over 21 pay a fee of $345 for the course. The fees may be paid on a monthly basis. New classes start the first Monday after July 4. Advance registration is recommended - this will avoid your being placed on a waiting list.

For complete information and registration procedures, contact the Austin Area Vocational-Technical School by mailing a letter to: Morton A. Carney, Director - Austin, Minnesota - or call HEmlock 3-7301.

Austin Area Vocational School
Welding

Ed Johnston, Instructor
Course Outline

ARC WELDING		GAS WELDING	
Flat Position	62	Flat Position	36
Horizontal	28	Horizontal	25
Vertical Down	18	Vertical	30
Vertical Up	80	Overhead	30
Overhead	55	Brazing	12
Pipe Welding	42	Cast Iron Welding	12
Sheet Metal Welding	30	Pipe Welding	20
Heliarc	10	Miscellaneous Metals	25
Miscellaneous Metals	30	Miscellaneous Projects	35
Miscellaneous Projects	40	Miscellaneous Repairs	40
Miscellaneous Repairs	40	Cutting	40
Welding Tests	40	Welding Tests	25
Classroom Instruction	125	Classroom Instruction	70
	600		400

The above lists summarize 1,000 Hours of Instruction for Year One

Shop Work

Review of Gas and Arc Welding	250
Special Welding Applications	20
Hard Surfacing	10
Special Low Temperature Brazing	10
Practical Projects - Trailers, Railings, Repairs, Etc.	540

Related Information

Identifying Metal - Selection of Correct Welding Rod	30
Advanced Drawing and Blueprint Reading - Shop Layout	70
General Trade Information - Publications	70
Total Hours Second Year	1,000

Class sizes are restricted to insure that each student has his own welding station at all times. Small classes allow the instructor to work individually with each student. Students advance at their own rate on jobs of increasing difficulty.

The shop equipment is new and of a quality found in industry; 12 arc welders, 8 gas stations, 1 automatic cutting machine, grinders, drills, and numerous small tools.

Minnesota residents under the age of 21 may attend on a tuition-free basis. Contact the School Director for additional information by mail or by calling HEmlock 3-7301 - Extension 32 or 41. Visitors are always welcome.

THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL
Austin, Minnesota

The Austin Area Vocational-Technical School was established in Austin, Minnesota as a part of the public school system in 1951 and at present provides post high school training to an enrollment of about 250 in:

Carpentry - Farm Equipment Mechanics - Welding

Machine Shop (Tool & Die) - Automotive Mechanics

Auto Body Rebuilding - Industrial Electronics - Practical Nursing

Cosmetology (Beauty School)

The training is available on a tuition-free basis to Minnesota residents under the age of 21 who have completed high school. Applicants under the age of 21 that have not completed high school must have the approval of their local districts before their enrollment can be completed. Persons over the age of 21 pay a nominal tuition fee. The School is approved by the Veterans Administration - Korean Veterans and War Orphans.

Instruction is carried on in a modern well-equipped building that was opened to students in the fall of 1954. Each instructor is a skilled craftsman with years of practical experience in his particular trade. Classes are kept small (15-18) to allow for individual instruction. Because of the small class sizes, the instructors are able to become well acquainted with each student.

In most instances, as mentioned above, the students are able to attend without paying any tuition charges. The major expense is for board and room. Students are able to secure suitable rooms at reasonable rates in private homes. There are a few incidental expenses for books and tools, but these will not exceed $50.00 per year in most cases.

Classes are in session six hours per day on a nine month term with summer classes in some courses. Enrollments are accepted throughout the entire school year in most of the departments; however, there are a few exceptions. Interested persons are encouraged to start their training in the fall of the year. Most of the courses are set up to include 2,000 hours of training. Practical Nursing is a 12 month course. The training period for Cosmetology is 1500 hours.

Visitors are always welcome at the Austin Area Vocational-Technical School. Here is an opportunity to see the young men and women learning to do the same jobs that they actually will be doing upon leaving school.

Additional information may be obtained by contacting the Director of Vocational Education - Austin Area Vocational-Technical School - Austin, Minnesota.

APPENDIX B

ENROLLMENT DATA CARD

Shop	Year	Hours H-F	% Attend Tardy	Age Grade	Area - Res		Class.	

1	8	15	22 ... ...
2	9	16	23 ... ...
3	10	17	24 ... ...
4	11	18	25 ... ...
5	12	19	26 ... ...
6	13	20	27 ... ...
7	14	21	28 ... ...

APPENDIX C

TABLES SHOWING THE NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR EACH OF THE SCHOOL YEARS INCLUDED IN THE STUDY (BY HOUR GROUPINGS)

TABLE LIV

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1953-54 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	-	-	-	-	-	-	-	-	-
Auto Mechanics	1	1	7	6	5	1	5	3	29
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	1	-	7	9	2	2	3	4	28
Cosmetology	6	3	2	2	21	-	-	-	34
Electronics	2	4	6	10	-	-	-	-	22
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	-	-	4	7	2	1	-	-	14
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	1	-	1	-	-	-	-	2
Sheet Metal	-	-	-	-	-	-	-	-	-
Welding	-	-	-	-	-	-	-	-	-
Student Totals for Each Hour Group	10	9	26	35	30	4	8	7	129

TABLE LV

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1954-55 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	5	7	17	5	3	1	-	1	39
Auto Mechanics	2	8	18	13	7	2	2	6	58
Appliance Repair	2	5	14	7	1	-	2	-	31
Carpentry	6	6	8	17	5	3	6	3	54
Cosmetology	4	6	7	6	27	1	-	1	52
Electronics	10	7	13	9	7	4	3	1	54
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	4	4	8	9	4	1	3	1	34
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	-	6	3	-	-	-	-	9
Sheet Metal	1	5	4	6	2	-	-	-	18
Welding	-	-	-	-	-	-	-	-	-
Student Totals for Each Hour Group	34	48	95	75	56	12	16	13	349

TABLE LVI

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1955-56 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	7	6	33	17	4	-	1	1	69
Auto Mechanics	7	6	15	16	8	1	1	3	57
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	7	3	3	13	5	1	3	3	38
Cosmetology	9	11	2	1	21	-	-	-	44
Electronics	6	8	9	8	4	3	3	2	43
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	6	4	5	11	3	-	1	-	30
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	4	5	7	8	4	-	1	1	30
Welding	1	-	2	5	-	1	-	-	9
Student Totals for Each Hour Group	47	43	76	79	49	6	10	10	320

TABLE LVII

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1956-57 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	5	6	18	7	-	-	-	1	37
Auto Mechanics	7	10	20	14	4	1	-	4	60
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	1	2	5	9	1	-	1	3	22
Cosmetology	3	7	8	4	11	-	-	-	33
Electronics	7	6	3	7	2	1	2	7	35
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	1	4	1	6	6	-	1	3	22
Practical Nursing	-	2	-	5	-	-	-	-	7
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	2	5	5	1	-	-	-	13
Welding	4	2	14	3	2	-	-	1	26
Student Totals for Each Hour Group	28	41	74	60	27	2	4	19	255

TABLE LVIII

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1957-58 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	13	4	7	6	4	1	1	2	38
Auto Mechanics	6	9	9	7	4	2	4	9	50
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	1	2	4	5	2	-	-	2	16
Cosmetology	1	1	2	4	23	-	-	-	31
Electronics	2	3	4	4	-	2	1	2	18
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	1	-	2	2	5	-	1	2	13
Practical Nursing	2	-	-	13	5	-	-	-	20
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	1	3	4	2	-	-	-	10
Welding	3	3	2	3	1	-	2	-	14
Student Totals for Each Hour Group	29	23	33	48	46	5	9	17	210

TABLE LIX

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1958-59 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	7	6	12	13	1	-	1	2	43
Auto Mechanics	6	8	9	9	5	-	-	3	40
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	2	2	7	5	1	1	-	1	19
Cosmetology	3	1	4	2	23	-	-	-	33
Electronics	-	2	7	8	-	-	-	11	28
Farm Mechanics	1	1	2	4	-	-	1	1	10
Machine Shop	1	-	4	1	1	2	2	3	14
Practical Nursing	2	1	1	2	26	1	-	-	33
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	-	4	3	2	-	2	1	12
Welding	4	4	5	4	1	-	-	1	19
Student Totals for Each Hour Group	26	25	56	51	60	4	6	23	251

65

TABLE LX

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1959-60 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Number of Students by Departments
Auto Body	2	7	4	5	4	1	2	2	27
Auto Mechanics	2	1	5	7	2	-	-	5	22
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	-	1	2	5	1	-	1	1	11
Cosmetology	3	4	4	2	24	-	-	-	37
Electronics	-	1	3	5	-	-	6	1	16
Farm Mechanics	-	-	2	7	-	-	1	4	14
Machine Shop	-	1	2	1	2	-	3	1	10
Practical Nursing	-	1	2	1	25	-	-	-	29
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	1	-	-	1	-	-	1	2	5
Welding	1	1	1	2	3	-	1	-	9
Student Totals for Each Hour Group	9	17	25	36	61	1	15	16	180

TABLE LXI

NUMBER OF STUDENTS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE 1960-61 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Students								Total Number of Students by Departments
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	
Auto Body	2	10	6	7	3	1	3	-	32
Auto Mechanics	-	1	5	5	3	-	5	3	22
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	-	1	1	1	3	-	1	1	8
Cosmetology	3	8	4	4	20	-	-	-	39
Electronics	-	5	-	5	-	1	5	3	19
Farm Mechanics	-	1	2	4	-	-	2	3	12
Machine Shop	-	1	3	5	3	-	-	1	13
Practical Nursing	1	-	1	2	26	1	-	-	31
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	-	2	2	-	-	-	-	4
Welding	2	1	4	2	2	1	1	-	13
Student Totals for Each Hour Group	8	28	28	37	60	4	17	11	193

APPENDIX D

TABLES SHOWING THE DEPARTMENT ENROLLMENTS FOR EACH OF THE SCHOOL YEARS INCLUDED IN THE STUDY (BY HOUR GROUPINGS)

TABLE LXII

DEPARTMENT ENROLLMENTS FOR THE 1953-54 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	-	-	-	-	-	-	-	-	-
Auto Mechanics	1	1	9	6	5	1	3	3	29
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	1	-	7	14	5	-	1	-	28
Cosmetology	6	3	2	2	21	-	-	-	34
Electronics	2	5	6	9	-	-	-	-	22
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	-	-	4	7	2	1	-	-	14
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	1	-	1	-	-	-	-	2
Sheet Metal	-	-	-	-	-	-	-	-	-
Welding	-	-	-	-	-	-	-	-	-
Total Enrollments by Hour Group	10	10	28	39	33	2	4	3	129

TABLE LXIII

DEPARTMENT ENROLLMENTS FOR THE 1954-55 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	5	8	18	5	3	-	-	-	39
Auto Mechanics	3	11	19	17	7	3	1	5	66
Appliance Repair	3	8	16	4	-	-	-	-	31
Carpentry	6	6	10	16	4	3	6	3	54
Cosmetology	4	6	7	6	27	1	-	1	52
Electronics	11	7	15	6	8	3	3	2	55
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	4	5	9	8	4	1	3	-	34
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	1	7	1	-	-	-	-	9
Sheet Metal	1	5	5	5	2	-	-	-	18
Welding	-	-	-	-	-	-	-	-	-
Total Enrollments by Hour Groups	37	57	106	68	55	11	13	11	358

TABLE LXIV

DEPARTMENT ENROLLMENTS FOR THE 1955-56 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	7	7	38	18	3	-	1	1	75
Auto Mechanics	10	7	20	17	7	1	1	2	65
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	7	3	5	11	5	1	3	3	38
Cosmetology	9	11	2	1	21	-	-	-	44
Electronics	7	9	10	7	4	3	3	2	45
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	9	2	12	8	3	-	1	-	35
Practical Nursing	-	-	-	-	-	-	-	-	-
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	4	5	10	7	3	-	2	-	31
Welding	1	3	5	5	1	1	-	-	16
Total Enrollments by Hour Groups	54	47	102	74	47	6	11	8	349

TABLE LXV

DEPARTMENT ENROLLMENTS FOR THE 1956-57 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	8	5	26	7	-	-	-	-	46
Auto Mechanics	10	11	22	15	4	1	-	4	67
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	1	3	5	9	1	-	1	2	22
Cosmetology	3	7	8	4	11	-	-	-	33
Electronics	8	8	4	6	2	1	2	7	38
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	2	6	3	4	6	-	1	2	24
Practical Nursing	-	2	-	5	-	-	-	-	7
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	2	5	6	-	-	-	-	13
Welding	4	3	16	2	2	-	-	1	28
Total Enrollments by Hour Groups	36	47	89	58	26	2	4	16	278

TABLE LXVI

DEPARTMENT ENROLLMENTS FOR THE 1957-58 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	15	4	10	8	3	-	-	-	42
Auto Mechanics	6	10	12	9	4	2	4	9	56
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	2	1	5	5	2	-	-	1	16
Cosmetology	1	1	2	4	23	-	-	-	31
Electronics	2	5	5	4	-	2	1	3	22
Farm Mechanics	-	-	-	-	-	-	-	-	-
Machine Shop	1	1	2	3	5	-	1	2	15
Practical Nursing	2	-	-	13	5	-	-	-	20
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	1	2	3	4	1	-	-	-	11
Welding	3	4	4	4	1	2	2	-	20
Total Enrollments by Hour Groups	33	28	43	54	44	6	8	17	233

TABLE LXVII

DEPARTMENT ENROLLMENTS FOR THE 1958-59 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
	Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	7	7	14	12	1	-	1	1	43
Auto Mechanics	6	11	8	8	6	-	-	2	41
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	2	2	8	5	1	1	-	1	20
Cosmetology	3	1	4	2	23	-	-	-	33
Electronics	-	3	7	9	-	-	-	11	30
Farm Mechanics	1	1	3	4	-	-	1	1	11
Machine Shop	1	-	5	1	2	2	2	3	16
Practical Nursing	2	1	1	2	26	1	-	-	33
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	-	-	4	3	2	1	2	1	13
Welding	5	4	5	3	1	-	-	1	19
Total Enrollments by Hour Groups	27	30	59	49	62	5	6	21	259

TABLE LXVIII

DEPARTMENT ENROLLMENTS FOR THE 1959-60 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								Total Enrollments by Departments
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	
Auto Body	3	9	4	5	4	1	2	2	30
Auto Mechanics	2	2	5	7	1	-	-	5	22
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	-	1	2	5	1	-	1	1	11
Cosmetology	3	4	4	2	24	-	-	-	37
Electronics	-	1	3	6	-	-	6	1	17
Farm Mechanics	-	-	2	7	-	-	1	4	14
Machine Shop	-	1	2	2	2	3	3	1	14
Practical Nursing	-	1	2	1	25	-	--	-	29
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	1	1	-	1	-	-	1	2	6
Welding	2	1	1	2	3	-	2	-	11
Total Enrollments by Hour Groups	11	21	25	38	60	4	16	16	191

TABLE LXIX

DEPARTMENT ENROLLMENTS FOR THE 1960-61 SCHOOL YEAR (BY HOUR GROUPINGS)

Departments	Number of Enrollments								
Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Total Enrollments by Departments
Auto Body	2	12	6	8	3	1	1	-	33
Auto Mechanics	-	1	6	5	3	2	5	3	25
Appliance Repair	-	-	-	-	-	-	-	-	-
Carpentry	-	1	1	1	3	-	1	1	8
Cosmetology	3	8	4	4	20	-	-	-	39
Electronics	-	7	-	6	-	1	6	5	25
Farm Mechanics	-	1	2	4	-	-	2	3	12
Machine Shop	-	1	4	8	3	-	-	1	17
Practical Nursing	1	-	1	2	26	1	-	-	31
Printing	-	-	-	-	-	-	-	-	-
Sheet Metal	1	-	1	2	-	-	-	-	4
Welding	3	1	6	1	2	1	1	-	15
Total Enrollments by Hour Groups	10	32	31	41	60	6	16	13	209

APPENDIX E

TABLES SHOWING THE PERSONS INITIALLY ENROLLED IN EACH DEPARTMENT FOR THE SCHOOL YEARS INCLUDED IN THH STUDY (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

TABLE LXX

PERSONS INITIALLY ENROLLED IN AUTO BODY FOR THE 1954-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	5	-	61	25	5	1	1	5	103
	AHS Drops	1	6	8	5	1	-	-	-	21
	Pacelli	-	-	1	2	1	1	-	-	5
	Pacelli Drops	-	-	1	-	-	-	-	-	1
	Post High	2	6	3	2	2	-	1	1	17
	Post High Drops	5	3	4	5	3	-	2	1	23
	Summer Only	18	19	1	-	-	-	-	-	38
	Summer Only Drops	1	-	-	-	-	-	-	-	1
	Veterans	4	1	4	3	3	-	1	1	17
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	1	1	-	-	-	-	-	2
Area Students	Post High	5	7	10	17	4	-	1	1	45
	Post High Drops	-	-	2	-	-	-	1	-	3
	Veterans	-	1	2	1	-	1	1	-	6
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	2	-	-	-	1	-	-	3
Totals	Resident Totals	36	36	84	42	15	2	5	8	228
	Area Totals	5	10	14	18	4	2	3	1	57
	Res-Area Totals	41	46	98	60	19	4	8	9	285

TABLE LXXI

PERSONS INITIALLY ENROLLED IN AUTO MECHANICS FOR THE 1953-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	1	36	25	5	-	1	5	73
	AHS Drops	4	7	7	3	1	-	-	-	22
	Pacelli	-	1	12	2	2	-	1	-	18
	Pacelli Drops	1	1	5	1	-	-	-	1	9
	Post High	5	5	5	5	1	-	-	3	24
	Post High Drops	1	2	1	-	1	-	-	2	7
	Summer Only	9	4	1	-	-	-	-	-	14
	Summer Only Drops	1	-	-	-	-	-	-	-	1
	Veterans	5	6	2	6	8	2	5	3	37
	Veterans Eve Only	1	4	10	7	9	5	5	13	54
	Rehabilitation	-	-	-	-	1	-	-	-	1
Area Students	Post High	2	3	6	16	6	-	4	8	45
	Post High Drops	1	4	-	5	1	-	1	-	12
	Veterans	1	3	2	1	2	-	-	-	9
	Veterans Eve Only	-	3	1	3	-	-	-	-	7
	Rehabilitation	-	-	-	3	1	-	-	1	5
Totals	Resident Totals	27	31	79	49	28	7	12	27	260
	Area Totals	4	13	9	28	10	0	5	9	78
	Res-Area Totals	31	44	88	77	38	7	17	36	338

TABLE LXXII

PERSONS INITIALLY ENROLLED IN APPLIANCE REPAIR FOR THE 1954-55 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classification	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	2	-	-	-	-	-	2
	AHS Drops	-	1	1	-	-	-	-	-	2
	Pacelli	-	-	6	4	-	-	-	-	10
	Pacelli Drops	-	-	1	1	-	-	-	-	2
	Post High	1	1	-	-	-	-	-	-	2
	Post High Drop	-	-	-	-	-	-	-	-	-
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	1	-	4	2	1	-	1	-	9
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	1	-	-	-	-	-	-	-
Area Students	Post High	-	2	-	-	-	-	-	-	2
	Post High Drop	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Totals	Resident Totals	2	3	14	7	1	0	1	0	28
	Area Totals	0	2	0	0	0	0	1	0	3
	Res-Area Totals	2	5	14	7	1	0	2	0	31

TABLE LXXIII

PERSONS INITIALLY ENROLLED IN CARPENTRY FOR THE 1953-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	1	14	15	4	1	-	3	38
	AHS Drops	-	-	1	9	-	1	-	-	11
	Pacelli	-	-	3	2	-	-	-	-	5
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	3	3	3	-	1	-	-	1	11
	Post High Drops	1	2	-	-	-	-	-	-	3
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	4	1	6	5	2	2	1	3	24
	Veterans Eve Only	8	5	4	13	8	3	13	8	62
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	1	3	5	8	2	-	1	3	23
	Post High Drops	-	-	-	1	1	-	-	-	2
	Veterans	-	1	1	8	-	-	-	-	10
	Veterans Eve Only	1	1	-	1	2	-	-	-	5
	Rehabilitation	-	-	-	2	-	-	-	-	2
Totals	Resident Totals	16	12	31	44	15	7	14	15	154
	Area Totals	2	5	6	20	5	0	1	3	42
	Res-Area Totals	18	17	37	64	20	7	15	18	196

TABLE LXXIV

PERSONS INITIALLY ENROLLED IN COSMETOLOGY FOR THE 1953-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	3	1	7	7	53	1	-	1	73
	AHS Drops	2	4	7	2	2	-	-	-	17
	Pacelli	1	-	2	-	2	-	-	-	5
	Pacelli Drops	-	2	2	1	1	-	-	-	6
	Post High	13	14	8	6	45	-	-	-	86
	Post High Drops	1	-	3	2	2	-	-	-	8
	Summer Only	1	9	-	-	-	-	-	-	10
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	1	1	-	1	-	-	-	-	3
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	10	10	4	5	62	-	-	-	91
	Post High Drops	-	-	-	1	2	-	-	-	3
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	1	-	-	-	1
Totals	Resident Totals	22	31	29	19	105	1	0	1	208
	Area Totals	10	10	4	6	65	0	0	0	95
	Res-Area Totals	32	41	33	25	170	1	0	1	303

TABLE LXXV

PERSONS INITIALLY ENROLLED IN ELECTRONICS FOR THE 1953-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	12	19	4	3	3	3	44
	AHS Drops	1	-	1	-	-	-	-	-	2
	Pacelli	-	1	2	1	-	-	-	-	4
	Pacelli Drops	1	1	-	-	-	-	-	-	2
	Post High	5	8	10	11	-	-	-	1	35
	Post High Drops	-	-	1	-	-	-	-	-	1
	Summer Only	9	4	-	-	-	-	-	-	13
	Summer Only Drops	-	1	-	-	-	-	-	-	1
	Veterans	7	7	10	6	4	1	4	4	43
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	1	1	-	-	-	-	1	3
Area Students	Post High	2	10	5	17	2	2	10	11	59
	Post High Drops	-	2	1	-	-	-	1	1	5
	Veterans	2	1	1	2	3	3	1	5	18
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	1	-	-	2	1	1	4
Totals	Resident Totals	23	23	37	37	8	4	7	9	148
	Area Totals	4	13	8	19	5	7	13	18	87
	Res-Area Totals	27	36	45	56	13	11	20	27	235

TABLE LXXVI

PERSONS INITIALLY ENROLLED IN FARM MECHANICS FOR THE 1958-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	-	-	-	-	-	-	-
	AHS Drops	-	-	-	-	-	-	-	-	-
	Pacelli	-	-	-	-	-	-	-	-	-
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	1	1	-	2	-	-	-	-	4
	Post High Drops	-	-	-	-	-	-	-	-	-
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	-	1	5	13	-	-	4	7	30
	Post High Drops	-	-	1	-	-	-	-	-	1
	Veterans	-	-	-	-	-	-	-	-	1
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabiliation	-	-	-	-	-	-	-	--	-
Totals	Resident Totals	1	1	0	2	0	0	0	0	4
	Area Totals	0	1	6	13	0	0	4	8	32
	Res-Area Totals	1	2	6	15	0	0	4	8	36

TABLE LXXVII

PERSONS INITIALLY ENROLLED IN MACHINE SHOP FOR THE 1953-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	1	1	13	18	10	1	2	-	46
	AHS Drops	2	1	-	1	-	-	-	-	4
	Pacelli	1	-	-	1	-	-	-	1	3
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	4	1	7	5	-	-	3	1	21
	Post High Drops	-	-	-	-	-	-	-	-	-
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	1	4	2	2	4	2	3	2	20
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	1	-	-	-	-	-	1	-	2
Area Students	Post High	2	3	5	12	10	1	1	5	39
	Post High Drops	-	2	-	-	-	-	-	-	2
	Veterans	1	1	2	3	2	-	1	-	10
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	1	-	-	-	-	-	2	3
Totals	Resident Totals	10	7	22	27	14	3	9	4	96
	Area Totals	3	7	7	15	12	1	2	7	54
	Res-Area Totals	13	14	29	42	26	4	11	11	150

TABLE LXXIX

PERSONS INITIALLY ENROLLED IN PRINTING FOR THE 1953-55 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	3	2	-	-	-	-	5
	AHS Drops	-	-	1	1	-	-	-	-	2
	Pacelli	-	-	-	-	-	-	-	-	-
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	-	-	1	-	-	-	-	-	1
	Post High Drops	-	-	-	-	-	-	-	-	-
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	1	-	1	-	-	-	-	2
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	-	-	1	-	-	-	-	-	1
	Post High Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Totals	Resident Totals	0	1	5	4	0	0	0	0	10
	Area Totals	0	0	1	0	0	0	0	0	1
	Res-Area Totals	0	1	6	4	0	0	0	0	11

TABLE LXXVIII

PERSONS INITIALLY ENROLLED IN PRACTICAL NURSING FOR THE 1956-61 SCHOOL YEARS (BY HOUR GROUPS STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons								
	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	-	-	-	-	-	-	-
	AHS Drops	-	-	-	-	-	-	-	-	-
	Pacelli	-	-	-	-	-	-	-	-	-
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	4	3	3	15	47	2	-	-	74
	Post High Drops	-	-	-	-	-	-	-	-	-
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	1	1	1	8	35	-	-	-	46
	Post High Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Totals	Resident Totals	4	3	3	15	47	2	0	0	74
	Area Totals	1	1	1	8	35	0	0	0	46
	Res-Area Totals	5	4	4	23	82	2	0	0	120

TABLE LXXX

PERSONS INITIALLY ENROLLED IN SHEET METAL FOR THE 1954-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	11	11	1	-	-	-	23
	AHS Drops	1	2	-	-	-	-	-	-	3
	Pacelli	-	-	1	-	-	-	-	-	1
	Pacelli Drops	-	1	1	1	-	-	-	-	3
	Post High	1	-	1	3	2	-	-	-	7
	Post High Drops	2	3	1	2	-	-	1	-	9
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	1	4	1	3	7	-	-	1	17
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	1	-	1
Area Students	Post High	1	2	7	7	-	-	2	3	22
	Post High Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	1	2	1	1	-	-	-	5
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	1	-	-	-	-	-
Totals	Resident Totals	5	10	16	20	10	0	2	1	64
	Area Totals	1	3	9	9	1	0	2	3	28
	Res-Area Totals	6	13	25	29	11	0	4	4	92

TABLE LXXXI

PERSONS INITIALLY ENROLLED IN WELDING FOR THE 1955-61 SCHOOL YEARS (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	15	3	-	-	-	1	19
	AHS Drops	3	2	2	1	-	-	-	-	8
	Pacelli	-	-	-	-	-	-	-	-	-
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	-	1	-	2	3	-	-	-	6
	Post High Drops	5	-	2	3	1	-	1	-	12
	Summer Only	-	-	-	-	-	-	-	-	-
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	1	-	4	1	1	1	1	-	9
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	1	-	-	-	-	-
Area Students	Post High	3	6	1	3	-	-	1	1	15
	Post High Drops	1	-	1	-	2	-	1	-	5
	Veterans	1	1	2	1	-	-	-	-	5
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	1	1	1	4	2	1	-	-	10
Totals	Resident Totals	9	3	23	11	5	1	2	1	55
	Area Totals	6	8	5	8	4	1	2	1	35
	Res-Area Totals	15	11	28	19	9	2	4	2	90

APPENDIX F

TABLES SHOWING THE INITIAL ENROLLMENTS FOR EACH OF THE SCHOOL YEARS INCLUDED IN THE STUDY (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

TABLE LXXXII

INITIAL ENROLLMENTS FOR THE 1953-54 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	3	19	17	2	-	1	42
	AHS Drops	-	-	2	1	1	-	-	-	4
	Pacelli	-	-	3	1	-	-	1	-	5
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	6	6	11	6	7	-	-	-	36
	Post High Drops	-	-	2	-	-	-	-	-	2
	Summer Only	2	-	-	-	-	-	-	-	2
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	2	-	5	4	1	4	2	18
	Veterans Eve Only	-	-	1	2	-	1	3	4	11
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	2	1	4	1	1	-	-	-	9
	Post High Drops	-	-	-	-	-	-	-	-	-
	Veterans	-	-	-	-	-	-	-	-	-
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	-	-	-	-	-	-	-	-
Totals	Resident Totals	8	8	22	34	29	4	8	7	120
	Area Totals	2	1	4	1	1	0	0	0	9
	Res- Area Totals	10	9	26	35	30	4	8	7	129

TABLE LXXXIII

INITIAL ENROLLMENTS FOR THE 1954-55 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	3	-	36	22	23	3	2	2	91
	AHS Drops	3	5	6	11	2	1	-	-	28
	Pacelli	-	1	13	8	1	-	-	-	23
	Pacelli Drops	1	1	5	2	1	-	-	-	10
	Post High	9	10	6	8	3	-	-	1	37
	Post High Drops	-	2	3	1	-	-	-	-	6
	Summer Only	4	3	-	-	-	-	-	-	7
	Summer Only Drops	1	-	-	-	-	-	-	-	1
	Veterans	9	11	14	9	8	1	4	2	58
	Veterans Eve Only	3	2	-	7	3	4	6	6	31
	Rehabilitation	-	2	2	-	-	-	1	-	5
Area Students	Post High	-	4	10	4	9	-	-	1	28
	Post High Drops	-	2	-	-	1	-	1	-	4
	Veterans	1	3	-	2	3	2	-	-	11
	Veterans Eve Only	-	-	-	-	2	-	-	-	2
	Rehabilitation	-	2	-	1	-	1	2	1	7
Totals	Resident Totals	33	37	85	68	41	9	13	11	297
	Area Totals	1	11	10	7	15	3	3	2	52
	Res-Area Totals	34	48	95	75	56	12	16	13	349

TABLE LXXXIV

INITIAL ENROLLMENTS FOR THE 1955-56 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons								
	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	3	4	48	32	10	1	2	1	101
	AHS Drops	2	6	2	2	-	-	-	-	12
	Pacelli	2	1	2	2	2	-	-	-	9
	Pacelli Drops	-	1	1	1	-	-	-	-	3
	Post High	5	6	4	1	7	-	-	-	23
	Post High Drops	4	4	2	1	4	-	2	2	19
	Summer Only	11	6	-	-	-	-	-	-	17
	Summer Only Drops	-	-	-	-	-	-	-	-	-
	Veterans	6	3	6	7	7	3	2	2	36
	Veterans Eve Only	4	1	2	4	5	1	4	4	25
	Rehabilitation	1	-	-	-	-	-	-	-	1
Area Students	Post High	6	8	3	8	11	-	-	-	36
	Post High Drops	1	1	-	1	-	-	-	1	4
	Veterans	1	2	5	12	1	1	-	-	22
	Veterans Eve Only	1	-	-	3	-	-	-	-	4
	Rehabilitation	-	-	1	5	2	-	-	-	8
Totals	Resident Totals	38	32	67	50	35	5	10	9	246
	Area Totals	9	11	9	29	14	1	0	1	74
	Res-Area Totals	47	43	76	79	49	6	10	10	320

TABLE LXXXV

INITIAL ENROLLMENTS FOR THE 1956-57 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons								
	Hour Groups	0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	1	-	40	22	9	-	1	4	77
	AHS Drops	5	5	4	3	-	-	-	-	17
	Pacelli	-	-	6	-	1	-	-	1	8
	Pacelli Drops	1	2	3	1	-	-	-	1	8
	Post High	3	6	5	8	5	-	1	-	28
	Post High Drops	1	1	1	4	-	-	-	1	8
	Summer Only	6	3	-	-	-	-	-	-	9
	Summer Only Drops	-	1	-	-	-	-	-	-	1
	Veterans	3	2	4	3	2	-	-	3	17
	Veterans Eve Only	1	2	6	2	2	1	1	3	18
	Rehabilitation	-	-	-	1	-	-	-	1	2
Area Students	Post High	5	13	4	10	6	-	1	2	41
	Post High Drops	-	2	-	3	-	-	-	-	5
	Veterans	2	3	1	1	1	-	-	2	10
	Veterans Eve Only	-	-	-	-	-	-	-	-	-
	Rehabilitation	-	1	-	2	1	1	-	1	6
Totals	Resident Totals	21	22	69	44	19	1	3	14	193
	Area Totals	7	19	5	16	8	1	1	5	62
	Res-Area Totals	28	41	74	60	27	2	4	19	255

TABLE LXXXVI

INITIAL ENROLLMENTS FOR THE 1957-58 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	1	-	8	11	9	-	-	5	34
	AHS Drops	1	-	4	2	1	-	-	-	8
	Pacelli	-	-	3	-	1	1	-	-	5
	Pacelli Drops	-	-	-	-	-	-	-	-	-
	Post High	8	5	2	10	11	-	-	-	36
	Post High Drops	4	3	1	3	1	-	1	-	13
	Summer Only	6	1	1	-	-	-	-	-	8
	Summer Only Drops	1	-	-	-	-	-	-	-	1
	Veterans	5	4	2	2	4	1	4	4	26
	Veterans Eve Only	-	2	2	2	4	1	3	4	18
	Rehabilitation	-	-	-	-	-	-	-	-	-
Area Students	Post High	2	4	4	15	14	1	-	3	43
	Post High Drops	-	-	1	1	-	-	-	-	2
	Veterans	1	1	3	-	1	-	1	-	7
	Veterans Eve Only	-	3	1	1	-	-	-	-	5
	Rehabilitation	-	-	1	1	-	1	-	1	4
Totals	Resident Totals	26	15	23	30	31	3	8	13	149
	Area Totals	3	8	10	18	15	2	1	4	61
	Res-Area Totals	29	23	33	48	46	5	9	17	210

TABLE LXXXVII

INITIAL ENROLLMENTS FOR THE 1958-59 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	1	-	21	14	8	-	1	4	49
	AHS Drops	3	5	7	3	-	-	-	-	18
	Pacelli	-	-	-	1	-	-	-	-	1
	Pacelli Drops	-	1	-	-	-	-	-	-	1
	Post High	7	2	4	5	16	1	-	2	37
	Post High Drops	4	-	2	2	-	-	-	-	8
	Summer Only	5	7	1	-	-	-	-	-	13
	Summer Only Drops	-	-	-	-	-	-	-	-	0
	Veterans	2	-	5	3	5	2	1	-	18
	Veterans Eve Only	1	1	1	2	3	-	-	-	8
	Rehabilitation	-	-	-	-	-	-	1	-	1
Area Students	Post High	2	4	11	18	27	1	2	13	78
	Post High Drops	-	3	2	1	-	-	-	-	6
	Veterans	-	-	2	1	1	-	1	4	9
	Veterans Eve Only	-	1	-	-	-	-	-	-	1
	Rehabilitation	1	1	-	1	-	-	-	-	3
Totals	Resident Total	23	16	41	30	32	3	3	6	154
	Area Totals	3	9	15	21	28	1	3	17	97
	Res-Area Totals	26	25	56	51	60	4	6	23	251

TABLE LXXXVIII

INITIAL ENROLLMENTS FOR THE 1959-60 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	10	4	3	-	-	-	18
	AHS Drops	-	1	-	-	-	-	-	-	1
	Pacelli	-	-	-	-	-	-	-	-	-
	Pacelli Drops	-	-	1	-	-	-	-	-	1
	Post High	1	3	5	5	29	-	2	2	47
	Post High Drops	1	-	-	-	1	-	1	-	3
	Summer Only	1	6	-	-	-	-	-	-	7
	Summer Only Drops	-	-	-	-	-	-	-	-	0
	Veterans	-	2	2	1	-	-	1	1	7
	Veterans Eve Only	-	-	1	1	-	-	1	-	3
	Rehabilitation	-	-	-	-	-	-	-	-	0
Area Students	Post High	6	5	4	25	22	-	8	12	82
	Post High Drops	-	-	1	-	4	-	2	-	7
	Veterans	-	-	1	-	1	1	-	-	3
	Veterans Eve Only	-	-	-	-	-	-	-	-	0
	Rehabilitation	-	-	-	-	1	-	-	-	1
Totals	Resident Totals	3	12	19	11	33	0	5	4	87
	Area Totals	6	5	6	25	28	1	10	12	93
	Res-Area Totals	9	17	25	36	61	1	15	16	180

TABLE LXXXIX

INITIAL ENROLLMENTS FOR THE 1960-61 SCHOOL YEAR (BY HOUR GROUPS, STUDENT CLASSIFICATIONS, RESIDENT AND AREA STATUS)

Res-Area Status	Student Classifications	Number of Persons: Hour Groups 0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	Student Totals for each Classification
Resident Students	AHS	-	-	8	1	3	1	1	-	14
	AHS Drops	-	1	3	-	-	-	-	-	4
	Pacelli	-	-	-	-	-	-	-	-	0
	Pacelli Drops	-	-	-	-	-	-	-	-	0
	Post High	-	5	4	8	23	1	1	2	44
	Post High Drops	1	-	1	1	1	-	-	-	4
	Summer Only	2	10	-	-	-	-	-	-	12
	Summer Only Drops	-	-	-	-	-	-	-	-	0
	Veterans	-	1	-	-	-	-	-	-	1
	Veterans Eve Only	-	1	1	-	-	-	-	-	2
	Rehabilitation	-	1	-	-	1	-	-	-	2
Area Students	Post High	4	9	10	25	31	1	13	8	101
	Post High Drops	1	-	1	1	1	-	1	-	5
	Veterans	-	-	-	1	-	-	1	-	2
	Veterans Eve Only	-	-	-	-	-	-	-	-	0
	Rehabilitation	-	-	-	-	-	1	-	1	2
Totals	Resident Totals	3	19	17	10	28	2	2	2	83
	Area Totals	5	9	11	27	32	2	15	9	110
	Res-Area Totals	8	28	28	37	60	4	17	11	193

APPENDIX G

WITHDRAWAL FROM AND PERMANENT RECORD CARD

WITHDRAWAL FROM SCHOOL

Austin Area Vocational-Technical School

Name_____ Department_____

Date Enrolled_____ Date Withdrawn_____

TO BE COMPLETED BY THE STUDENT: Hours of training completed_____

_____hereby petitions to be dropped from the school rolls because: (Check appropriate boxes which apply to your case.)

☐ Completed training_____ (name of course) _____ (date)

☐ Has taken a job_____ (name of employer) _____ (address of employer)

Describe nature and duties of job:_____

_____ (name of supervisor) _____ (starting date) _____ (salary - per hr or month)

TO BE COMPLETED BY THE INSTRUCTOR:

☐ Textbooks returned ☐ Grade card turned into the office

☐ Fees or fines collected ☐ Evaluation sheet turned into the office

_____Total hours of training to date

☐ Everything cleared for withdrawal

Use the space below to comment on any area not checked:

_____ (signature of instructor) _____

TO BE COMPLETED BY THE VOCATIONAL OFFICE:

☐ Forwarding address_____ no. street town state in care of

☐ Any necessary papers signed ☐ Tuition paid ☐ Badge checked in

☐ Debts Comment concerning any area not checked_____

☐ Record of job placement (verify information given by student in interview.)

☐ Everything cleared for withdrawal from school. ☐ Graduation discussed

TO BE COMPLETED BY THE VOCATIONAL DIRECTOR OR COORDINATOR: ☐ Cert. ☐ Diploma

Reason for Termination (Number)_____

Future Plans (Number)_____

Enrollment Objective was achieved ☐ Yes ☐ No_____

Interview:_____

_____

_____

Approved_____ (Vocational Director or Coordinator) _____ (Date)

PERMANENT RECORD CARD

Front Side

Mr. Miss Mrs. ..... Birthdate .....
Last First Middle Month Day Year

Address ..... Tel. .....

Previous training and exp. .....

Parent or Guardian .....Address .....

Reason for Withdrawal .....Future Plans .....

Objective was Achieved Yes..... No..... Comment .....

Diploma Issued (date) ..... Cert. Issued (date) .....

Year	Course	Start	Stop	Status	Age	Grade	Days at	Hours at	Days ab	Tardy

Emp. by ..... Totals

Address ..... Salary .....

Duties ..... Starting Date .....

Graduated from ..... High School Address .....

Date of graduation ..... Rank in Class..... or Comp. ..... Grade .....

Branch of Service ..... S No. .... Dates Served: from ..... to.....

Months Served .... Known physical defects .....

Instructor Evaluation .....

Transcript issued to ..... Date .....

GATB Scores: G ... V.... N.... S.... P.... Q.... K.... F.... M.... Date.....

DAT Scores: N.... M.... A.... V.... S.... Date taken .....

PERMANENT RECORD CARD (continued)

Back Side

Name ..... Course..... Age....
Address ..... County ..... Dist. .....
A.M..... P.H..... Vet..... HS Drop..... Res..... Enrolled.....
P.M..... AHS..... WO..... Rehab.... NRes..... Withdrew .....

QR	Days in Qr	Days Enr	Days Ab	Tardy	Hours Att	Hours Enr
I						
II						
III						
IV						
Total						

Wk	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

APPENDIX H

PILOT STUDY FORMS

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL
AUSTIN PUBLIC SCHOOLS — AUSTIN, MINNESOTA

PILOT STUDY FORM

LETTER OF TRANSMITTAL

A survey is being made to determine the ways in which the Austin Area Vocational-Technical School has been of service to students through the training it has offered.

The study is being conducted in cooperation with the faculty and administration of the vocational school under the supervision of the Industrial Education Department of the University of Minnesota.

You are one of a small select group of former students to which the original questionnaire is being mailed for suggestions on its improvement. As you answer each question, underline and provide comments in the margin on any items that are not clear. Please comment freely.

Your cooperation in returning the completed questionnaire by September 16 will make it possible to mail the revised form to the other students at an early date.

Your name will not be used in the study. All responses will be kept confidential. Each response is essential to the final results of the study. A summary of the study will be mailed to you upon request.

Your immediate completion and return of the questionnaire will be appreciated.

Sincerely yours,

Philip M. Johnston
Trade & Industry Coordinator

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

AUSTIN PUBLIC SCHOOLS — AUSTIN, MINNESOTA

PILOT STUDY FORM

Your comments placed in the margin will be very helpful in evaluating the clearness of each item. Underline any word, item, or statement that is not easily understood. Use the back of the sheet for additional comments whenever there is not enough space along the margin.

DIRECTIONS: Please check with an X the response which best reveals your experience or reason in each of the numbered items. Do not leave out any item.

ITEM	COMMENTS ON CLEARNESS OF ITEMS

1. CHECK THE DEPARTMENT OR DEPARTMENTS IN WHICH YOU WERE ENROLLED ATTENDING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

___ A. Auto Body Rebuilding
___ B. Auto Mechanics
___ C. Appliance Repair
___ D. Carpentry
___ E. Cosmetology
___ F. Electronics (Radio & TV)
___ G. Farm Mechanics
___ H. Machine Shop
___ I. Practical Nursing
___ J. Printing
___ K. Sheet Metal
___ L. Welding

2. CHECK THE ITEM THAT DESCRIBES YOUR EMPLOYMENT STATUS IN THE TRADE FOR WHICH YOU RECEIVED TRAINING FOLLOWING YOUR WITHDRAWAL FROM THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

___ A. Never worked at the trade

___ B. Worked at the trade less than 30 days

___ C. Other, indicate the number of months worked at the trade _____

3. CHECK THE STATEMENT THAT DESCRIBES YOUR REASON FOR ATTENDING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

___ A. To learn a trade and become employable

___ B. To be with a friend

___ C. To develop skills for leisure time activities

___ D. To obtain information and skills of value on my present job

___ E. To obtain information and skills for advancement to a better job

___ F. To obtain credits toward high school graduation

___ G. No definite reason

4. I FELT THAT I KNEW FROM THE BEGINNING WHAT I WOULD BE LEARNING IN MY COURSE, AND THE GENERAL ORDER IN WHICH THE TRAINING PROGRAM WOULD BE TAUGHT.

___ A. Yes ___ B. No

5. CHECK THE ITEM THAT BEST EXPLAINS YOUR PRESENT POSITION:

___ A. Working at the trade for which I trained

___ B. Working in an allied occupation

___ C. Working in a non-related occupation

___ D. Working in trade in supervisory capacity

___ E. In military service - using training

___ F. In military service - not using training

___ G. Enrolled full time in college or university

___ H. Unemployed

___ I. Self employed in field trained for

___ J. Self employed in field other than trained for

___ K. Housewife

___ L. Other _____

ITEM

COMMENTS ON CLEARNESS OF ITEMS

6. CHECK THE STATEMENT THAT DESCRIBES YOUR EMPLOYMENT STATUS FOLLOWING YOUR WITHDRAWAL FROM THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

___ A. Employed on my present job that I held on a full time basis while enrolled

___ B. Employed in the trade for which trained

___ C. Entered the armed forces

___ D. Enrolled in a college

___ E. Accepted employment in a field not related to the training received

___ F. Unemployed

___ G. Other _____

7. CHECK THE STATEMENT THAT DESCRIBES YOUR REASON FOR LEAVING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

___ A. To accept employment in the trade for which I trained

___ B. To accept employment in a related field

___ C. Lack of interest in the trade

___ D. Financial problems

___ E. Other _____

8. IF YOU WERE TO MAKE YOUR OCCUPATIONAL CHOICE TODAY WOULD YOU:

___ A. Select the same trade

___ B. Select another trade

___ C. Select a profession

___ D. Enter business

___ E. Enter agriculture

___ F. Other _____

ITEMS

COMMENTS ON CLEARNESS OF ITEMS

9. WHAT WAS THE CHIEF REASON INFLUENCING YOU TO ENROLL IN THE TRADE TRAINING PROGRAM? (CHECK ONE ONLY)

___ A. No particular influence

___ B. Advice of family

___ C. Advice of other students

___ D. Advice of counselor

___ E. High school shop experience

___ F. Work experience in the trade

___ G. Experience in the armed forces

___ H. Had no prospect for attending four year college

___ I. Lack of interest in academic subjects

___ J. To take advantage of veterans' benefits

___ K. To learn a trade

___ L. High school career day contact

___ M. Other influence, explain _____

_____

10. IN RELATION TO OBTAINING EMPLOYMENT IN THE TRADE FOR WHICH I RECEIVED TRAINING MY TRAINING PERIOD WAS:

___ A. Too long

___ B. Too short

___ C. About right

11. I FELT THAT I DID NOT KNOW FROM THE BEGINNING OF MY COURSE JUST WHAT I WOULD BE EXPECTED TO LEARN AND THE GENERAL ORDER IN WHICH THE TRAINING PROGRAM WOULD BE TAUGHT.

___ A. Yes ___ B. No

12. TO BE ANSWERED IF YOU ENTERED MILITARY SERVICE AFTER LEAVING SCHOOL, CHECK THE STATEMENT THAT INDICATES YOUR USE OF THE TRAINING IN SERVICE:

___ A. Followed up my trade in the service

___ B. The training was of no value to me in the service

___ C. The training enabled me to get into a related field in the service

___ D. Other _____

ITEM

COMMENTS ON CLEARNESS OF ITEMS

13. INDICATE YOUR PRESENT SALARY BY CHECKING THE APPROPRIATE HOURLY RATE.

____ A. $1.00 and under	____ H. $2.51 - $2.75
____ B. $1.01 - $1.25	____ I. $2.76 - $3.00
____ C. $1.26 - $1.50	____ J. $3.01 - $3.25
____ D. $1.51 - $1.75	____ K. $3.26 - $3.50
____ E. $1.76 - $2.00	____ L. $3.51 - $3.75
____ F. $2.01 - $2.25	____ M. $3.76 - $4.00
____ G. $2.26 - $2.50	____ N. $4.00 and over

14. INDICATE YOUR SALARY ON YOUR FIRST JOB AFTER LEAVING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL BY CIRCLING THE APPROPRIATE HOURLY RATE LISTED UNDER ITEM 13 ABOVE.

15. DEPARTMENT IN WHICH YOU WERE ENROLLED AT THE TIME OF YOUR WITHDRAWAL FROM THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL:

_____

16. WHAT SPECIFIC SUGGESTIONS DO YOU HAVE TO OFFER FOR THE IMPROVEMENT OF THE TRADE SCHOOL TRAINING IN THE TRADE FOR WHICH YOU TRAINED?

_____

_____

_____

_____

_____

(For additional space use the back of sheet)

ITEM

COMMENTS ON CLEARNESS OF ITEMS

17. PROVIDE THE NAME AND ADDRESS OF YOUR PRESENT EMPLOYER AND INDICATE YOUR JOB TITLE - WHAT YOU DO:

Employer _____

Street address _____

City and state _____

Your job title and duties _____

_____

18. YOU MAY SIGN YOUR NAME IN THE SPACE PROVIDED.

_____

ADDITIONAL COMMENTS: It is hoped that the comments received from former students will lead to changes in the instructional programs that will be beneficial. Please feel free to comment on anything that may be helpful in this respect. Use the space below.

APPENDIX I

FINAL STUDY FORMS

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

AUSTIN PUBLIC SCHOOLS — AUSTIN, MINNESOTA

285

se mark with X your response to each of the numbered items. Provide information in the blanks.

1. CHECK THE DEPARTMENT OR DEPARTMENTS IN WHICH YOU WERE ENROLLED WHILE ATTENDING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

.... A. Auto Body Rebuilding
.... B. Auto Mechanics
.... C. Appliance Repair
.... D. Carpentry
.... E. Cosmetology
.... F. Electronics (Radio & TV)
.... G. Farm Mechanics
.... H. Machine Shop
.... I. Practical Nursing
.... J. Printing
.... K. Sheet Metal
.... L. Welding

2. CHECK THE ITEM THAT DESCRIBES YOUR EMPLOYMENT STATUS IN THE TRADE FOR WHICH YOU RECEIVED TRAINING FOLLOWING YOUR WITHDRAWAL FROM THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

.... A. Never worked at the trade
.... B. Worked at the trade less than 30 days
.... C. Other, indicate the number of months worked at the trade.....

3. CHECK THE STATEMENT THAT DESCRIBES YOUR REASON FOR ATTENDING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

.... A. To learn the trade in which I later expected to be employed on a full time basis.
.... B. To be with a friend.
.... C. To develop skills for leisure time activities
.... D. To develop additional skills related to my job
.... E. To obtain information and skills for advancement to a better job
.... F. To obtain credits toward high school graduation
.... G. No definite reason

4. I FELT THAT I KNEW FROM THE BEGINNING WHAT I WOULD BE LEARNING IN MY COURSE, AND THE GENERAL ORDER IN WHICH THE TRAINING PROGRAM WOULD BE TAUGHT.

.... A. Yes .... B. No

5. CHECK THE ITEM THAT BEST EXPLAINS YOUR PRESENT POSITION.

.... A. Working at the trade for which I trained
. B. Working in an allied occupation
. C. Working in a non-related occupation
.... D. Working in trade in supervisory capacity
.... E. In military service — using training
.... F. In military service — not using training
.... G. Enrolled full time in college or university
.... H. Unemployed
.... I. Self employed in field trained for
.... J. Self employed in field other than trained for
.... K. Housewife
.... L. Other .....

6. CHECK THE STATEMENT THAT DESCRIBES YOUR EMPLOYMENT STATUS FOLLOWING YOUR WITHDRAWAL FROM THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

.... A. Employed on my present job that I held on a full time basis while enrolled
.... B. Employed in the trade for which trained
.... C. Entered the armed forces
.... D. Enrolled in a college
.... E. Accepted employment in a field not related to the training received
.... F. Unemployed
.... G. Returned to job held proir to enrollment
.... H. Other .....

7. CHECK THE STATEMENT THAT DESCRIBES YOUR REASON FOR LEAVING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL.

.... A. To accept employment in the trade for which I trained
.... B. To accept employment in a related field
.... C. Lack of interest in the trade
.... D. Financial problems
.... E. Enter college
.... F. Completed the course
.... G. Graduated from high school
.... H. Needed at home
.... I. Return to job held prior to enrollment
.... J. Other .....

8. IF YOU WERE TO MAKE YOUR OCCUPATIONAL CHOICE TODAY WOULD YOU:

.... A. Select the same trade
.... B. Select another trade
.... C. Select a profession
.... D. Enter business
.... E. Enter agriculture
.... F. Other .....

9. WHAT WAS THE CHIEF REASON INFLUENCING YOU TO ENROLL IN THE TRADE TRAINING PROGRAM? (CHECK ONE ONLY)

.... A. No particular influence
. B. Advice of family
.... C. Advice of other students
.... D. Advice of counselor
.... E. High School shop experience
.... F. Work experience in the trade
.... G. Experience in the armed forces
.... H. Had no prospect for attending four year college
.... I. Lack of interest in academic subjects
.... J. To take advantage of veterans' benefits
.... K. To learn a trade
.... L. High school career day contact
.... M. Other influence, explain .....
.....

10. IN RELATION TO OBTAINING EMPLOYMENT IN THE TRADE FOR WHICH I RECEIVED TRAINING, MY TRAINING PERIOD WAS:

.... A. Too long .... B. Too short .... C. About right

11. AT THE BEGINNING OF THE COURSE THE INSTRUCTOR OUTLINED THE CONTENT OF THE COURSE ADEQUATELY FOR ME.

.... A. Yes .... B. No

12. CHECK THE STATEMENT THAT INDICATES YOUR USE OF THE TRAINING IN SERVICE. (TO BE ANSWERED IF YOU ENTERED MILITARY SERVICE AFTER LEAVING SCHOOL).

.... A. Followed up my trade in the service
.... B. The training was of no value to me in the service
.... C. The training enabled me to get into a related field in the service
.... D. Other .....

13. INDICATE YOUR PRESENT SALARY BY CHECKING THE APPROPRIATE HOURLY RATE.

.... A. $1.00 and under
.... B. $1.01 - $1.25
.... C. $1.26 - $1.50
.... D. $1.51 - $1.75
.... E. $1.76 - $2.00
.... F. $2.01 - $2.25
.... G. $2.26 - $2.50
.... H. $2.51 - $2.75
.... I. $2.76 - $3.00
.... J. $3.01 - $3.25
.... K. $3.26 - $3.50
.... L. $3.51 - $3.75
.... M. $3.76 - $4.00
.... N. $4.00 and over

14. INDICATE YOUR STARTING SALARY ON YOUR FIRST JOB AFTER LEAVING THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL BY CIRCLING THE NEAREST HOURLY RATE LISTED UNDER ITEM 13 ABOVE.

15. IN WHAT DEPARTMENT WERE YOU ENROLLED ON YOUR LAST DAY IN ATTENDANCE AT THE AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL?

.....

16. WHAT SPECIFIC SUGGESTIONS DO YOU HAVE TO OFFER FOR THE IMPROVEMENT OF THE TRADE SCHOOL TRAINING IN THE TRADE FOR WHICH YOU TRAINED?

.....
.....
.....
.....
.....
.....

17. PROVIDE THE NAME AND ADDRESS OF YOUR PRESENT EMPLOYER AND INDICATE YOUR JOB TITLE — WHAT YOU DO:

Employer .....

Street Address .....

City and State .....

Your job title and duties.....

.....

18. YOU MAY SIGN YOUR NAME IN THE SPACE PROVIDED.

.....

Use the space below for comments and suggestions that may be helpful to the Austin Area Vocational-Technical School. If there is not sufficient space on this sheet, use an additional sheet.

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

AUSTIN PUBLIC SCHOOLS — AUSTIN, MINNESOTA

LETTER OF TRANSMITTAL

Greetings to you from the Austin Area Vocational-Technical School:

As a former student you are in a position to provide information that will be helpful to our school in making improvements. We believe that every former student has had experiences in the workaday world from which we could profit and pass on to others through changes in our training programs.

A survey of the students enrolled during the 1953-61 school years is being made to determine the ways in which the Austin Area Vocational-Technical School has been of service to students through the training it has offered. You are one of a select group of former students to whom the questionnaire is being mailed. Your name will not be used in the study. All responses will be kept confidential.

I know that you are being asked to use some of your time, but I think you will find it very well spent. There is an old saying "that two heads are better than one." For this reason, your response is very important. A copy of the summary of the survey will be mailed to you upon request. I would like to be able to report to you at that time that all 471 of the former students contacted had returned their completed forms.

The study is being conducted in cooperation with the faculty and administration of the Vocational School under the supervision of the Industrial Education Department of the University of Minnesota.

Your immediate completion and return of the questionnaire will be appreciated. Take a few minutes right now to complete and return the form.

Please let me take this opportunity to extend to you an invitation to stop and visit us at the Vocational School. We can probably tell you where a lot of your former classmates are located and what they are doing. It is always an enjoyable experience for us to see and hear from former students.

Sincerely yours,

Philip M. Johnston
Trade & Industry Coordinator

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL
Austin, Minnesota

FIRST FOLLOW-UP LETTER

IF THE PERSON TO WHOM THIS IS ADDRESSED NO LONGER LIVES AT THIS ADDRESS, PLEASE FORWARD THE LETTER IMMEDIATELY.

Several weeks ago a copy of the enclosed questionnaire was mailed to you at the above address. I have not received your completed form, so a second form has been enclosed for your convenience in case the first copy has been mislaid. If you have completed and returned the form, please accept my thanks.

The replies that I have received have provided some interesting information. Your former classmates are employed in many different occupations in many different states and foreign countries. Out of 471 forms mailed a total of 131 have been received. The final results of the study require that as many responses as possible be received.

You may feel that your response is not important - this is not so. Your response is as important as anyone elses, regardless of the amount of time you were enrolled.

Vocational education is being asked to do a better job of training for larger numbers of people. To do this job we must have information upon which to base the training programs that are being offered and being considered as future offerings. No one is better qualified to provide this information than our former students. Your experiences since leaving school are important.

Please take a few minutes right now and complete the form. A summary of the completed study will be mailed to you upon request. I am sure that you want this summary to be as complete as possible. It will provide you with information about the school and students who have been enrolled. IT IS VERY URGENT THAT YOUR REPLY BE RETURNED BY DECEMBER 20TH.

The information that you supply on the completed questionnaire will be kept confidential. No names will be mentioned in the completed study, so you are free to express your opinions.

Please feel free to stop and visit the school anytime you happen to be in Austin. We can provide you with information about your former classmates. The instructors are always glad to chat with former students and show them the improvements that have been made in the training programs.

Sincerely yours,

Philip M. Johnston
Trade & Industry Coordinator

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

AUSTIN PUBLIC SCHOOLS — AUSTIN, MINNESOTA

SECOND FOLLOW-UP LETTER

Greetings to you from the Austin Area Vocational-Technical School:

As a former student you are in a position to provide information that will be helpful to our school in making improvements. We believe that every former student has had experiences in the workaday world from which we could profit and pass on to others through changes in our training programs.

A survey of the students enrolled during the 1953-61 school years is being made to determine the ways in which the Austin Area Vocational-Technical School has been of service to students through the training it has offered. You are one of a select group of former students to whom the questionnaire is being mailed. Your name will not be used in the study. All responses will be kept confidential.

I know that you are being asked to use some of your time, but I think you will find it very well spent. There is an old saying "that two heads are better than one." For this reason, your response is very important. A copy of the summary of the survey will be mailed to you upon request. I would like to be able to report to you at that time that all 471 of the former students contacted had returned their completed forms.

The study is being conducted in cooperation with the faculty and administration of the Vocational School under the supervision of the Industrial Education Department of the University of Minnesota.

Your immediate completion and return of the questionnaire will be appreciated. Take a few minutes right now to complete and return the form.

Please let me take this opportunity to extend to you an invitation to stop and visit us at the Vocational School. We can probably tell you where a lot of your former classmates are located and what they are doing. It is always an enjoyable experience for us to see and hear from former students.

Sincerely yours,

Philip M. Johnston
Trade & Industry Coordinator

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL
AUSTIN, MINNESOTA

THIRD FOLLOW-UP FORM

To the Person Opening This Letter:

Several copies of the enclosed survey sheet and accompanying letter have been mailed to this address since the middle of November 1963.

We are very interested in having this form completed and returned as soon as possible.

If the person to whom this letter has been addressed has moved or no longer lives at this address, would you please forward the questionnaire.

Use the enclosed return envelope to send us the correct address for the person to whom the letter is addressed.

Name_____

Street_____

City_____ State_____

(Include complete address for anyone in the armed forces.)

IF THE PERSON TO WHOM THE LETTER IS ADDRESSED STILL LIVES AT THIS ADDRESS, WE WOULD LIKE VERY MUCH TO HAVE YOU COMPLETE AND RETURN THE QUESTIONNAIRE AS SOON AS POSSIBLE. EACH REPLY IS VERY NECESSARY AND IMPORTANT.

THANK YOU IN ADVANCE FOR YOUR HELP.

Sincerely yours,

Philip M. Johnston

Philip M. Johnston
Trade & Industry Coordinator

FOURTH AND FIFTH FOLLOW-UPS

POST CARD

Dear Former Student:

You received a questionnaire from the Austin Area Vocational School a few days ago.

To date your reply has not been received. A complete study will not be possible without your reply. Your response will assure completion of the study.

PLEASE TAKE A FEW MINUTES TODAY TO COMPLETE AND RETURN THE FORM. (Summaries will be mailed as soon as the study is completed. State your request on the bottom of the form.)

Thank you very much for this favor.

Sincerely yours,

(S)

Philip M. Johnston

AUSTIN AREA VOCATIONAL-TECHNICAL SCHOOL

AUSTIN, MINNESOTA

February 14, 1964

SIXTH FOLLOW-UP FORM

Dear Former Student:

YOUR HELP IS NEEDED

Please take a few minutes to complete and return the enclosed questionnaire. The information is very necessary to the study that is being conducted to determine the effectiveness of the training that has been provided by the Austin Area Vocational-Technical School.

The form has nothing to do with your returning to school. We would just like to have your opinions concerning your training with us regardless of the length of time that you were enrolled.

Your response is very important to the completion of the study. A few minutes of your time will enable us to complete the study. If you wish to have a summary of the completed study, please indicate this fact on the questionnaire.

Thank you very much for doing us this favor.

Sincerely yours,

Philip M Johnston

Philip M. Johnston
Trade & Industry Coordinator

Enc: Return envelope
Questionnaire

P.S. Please forward the envelope and questionnaire if the person no longer lives at this address.

APPENDIX J

TABLE SHOWING THE RESPONSES TO QUESTIONNAIRE ITEMS BY HOUR GROUPINGS WITH CORRESPONDING TABLES INDICATED

TABLE XC

RESPONSES TO QUESTIONNAIRE ITEMS
BY HOUR GROUPINGS WITH
CORRESPONDEING TABLES INDICATED

Questionnaire Item Number	Table Number as Given in Chapter VI	Number of Students by Hour Groups								Response Totals for Each Item
		0 - 100	101 - 300	301 - 600	601 - 1100	1101 - 1600	1601 - 1800	1801 - 2000	2001 - 3000	
1		31	43	82	83	90	10	19	28	386
2	XXXII	31	44	82	81	89	10	19	27	383
3	XX	31	44	81	83	89	10	19	28	385
4	XXIV	31	40	77	82	86	10	19	25	370
5	XXXVII	30	44	82	83	90	10	19	28	386
6	XLII	31	43	81	83	88	10	19	25	381
7	XXX	31	43	81	82	89	10	19	28	383
8	XXVIII	31	43	82	81	89	10	19	25	380
9	XXII	31	43	82	83	90	10	19	27	385
10	XLIV	21	34	73	72	85	9	17	26	337
11	XXVI	30	42	78	82	87	9	19	24	371
12*	XLVI	8	16	39	25	4	1	4	6	103
13	XLVIII	22	25	68	71	62	9	14	24	295
14	L	17	21	52	65	70	5	13	19	262
15		29	41	78	82	85	10	19	28	372
16	LII	31	43	82	83	90	10	19	27	385
17		17	25	53	57	56	5	11	20	244
18		28	44	80	82	86	10	19	27	376
Total Questionnaires Received for Each Group		31	44	82	83	90	10	19	28	387

*This item required a response from only those persons who had entered the armed forces after termination of their training.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL EDUCATION

(To be filled out, preferably by person making study, at time study is completed and checked by adviser; otherwise by adviser.)

Author JOHNSTON, PHILIP, MURRAY
(Last name) (First name) (Middle name)

Title AN ANALYSIS OF ENROLLMENTS AND A FOLLOW-UP STUDY OF
(Give exact title from title page -- also subtitle)

SELECTED STUDENTS WHO HAVE ATTENDED THE AUSTIN AREA VOCATIONAL SCHOOL

Degree granted M.A., Date 1964, No. pages in report 307

Granted by University of Minnesota
(Name of institution)

Where available* Department of Industrial Education
(Source and address)

Purpose of study: To complete an analysis of the permanent (enrollment) records of the Austin Area Vocational School to determine the hours of training that had been completed by former students, to ascertain the success of the former students in the trade for which they had received training while enrolled, and to solicit suggestions from the former students that could be used to improve the training being provided by the School.

Source of data and method of study: The data were obtained from an analysis of the permanent records of the School, and from the responses to a questionnaire that was sent to a selected number of former students. The information relating to the procedures and mechanics to be followed in conducting a follow-up study was obtained from a review of the literature. These reference materials were obtained from the Library of the University of Minnesota, Vocational Division of the Minnesota Department of Education, Vocational Division of the U. S. Office of Education, recent follow-up ~~xxxxxxxxxxxxxxxxxxxx~~ studies, and from miscellaneous sources acquired by purchase on the part of the investigator.

Findings and Conclusions: Practically all of the former students had expressed satisfaction with the training that they had received, however, only 29.6 per cent of the respondents were currently employed in the trade for which they had received training. The findings of the study indicate that the Austin Area Vocational School (established in 1951) is emerging as a recognized trade training institution. The progress of the School has been steady as reflected by the fact that the percentage of persons employed in the trade for which they had been trained increased from a low of 21 per cent for the 1953-54 school year to a high of 50 per ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ cent for the 1960-61 school year.

(Use additional page if necessary and staple to this one; do not write on back of sheet.)

VT 004 679
Berndt, Fred
A Follow-Up Study of Graduates and Selected Early-Leavers from St. Paul Technical Vocational School.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 148p.

*VOCATIONAL FOLLOWUP; GRADUATE SURVEYS; MASTERS THESES; *AREA VOCATIONAL SCHOOLS; GRADUATES; DROPOUTS; *EMPLOYMENT EXPERIENCE; COMPARATIVE ANALYSIS; QUESTIONNAIRES; PARTICIPANT SATISFACTION; JOB SATISFACTION; *VOCATIONAL ADJUSTMENT
ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL

The purposes of this followup study were to determine: (1) the number of graduates or early leavers who obtained training related jobs, (2) the number of workers who had progressed in the same field of work, (3) any marked differences between graduates and early leavers relative to employment or advancement, and (4) a punched card system for future followup studies. The samples consisted of 368 graduates who entered the St. Paul Technical Vocational School between September 1955 and June 1959, and 105 early leavers who entered between September 1957 and June 1959 and completed at least 1 year of training. Findings included: (1) 25 percent did not have full time employment while in school, (2) 59 percent had been aided by the school placement office, (3) 92 percent of the graduates and 41 percent of the early leavers entered a training-related job or military classification, (4) 2 percent of the graduates and 29 percent of the early leavers were in the military service, (5) 69 percent of the graduates and 35 percent of the early leavers were still with their original employer as of June 1962, and (6) 78 percent reported satisfaction with their occupation. The questionnaire and response frequencies for each item are included. This masters thesis was submitted to the University of Minnesota. (EM)

VT 004 679

ED036657

Y10046 79

A FOLLOW-UP STUDY OF GRADUATES AND SELECTED EARLY-LEAVERS FROM ST. PAUL TECHNICAL VOCATIONAL SCHOOL

An independent paper
(nine quarter credits)
Ind. 200 Research problems
Professor Howard F. Nelson, Adviser

Submitted by
Fred Berndt
Candidate for the Degree
Master of Arts
Plan B

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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University of Minnesota
1964

VT 4619

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

A method commonly used by vocational schools to evaluate the effectiveness of their educational program involves the use of a follow-up study of former students to determine their present occupations and to seek their opinions concerning the courses and experiences which proved valuable to them. The record of the follow-up study conducted at the St. Paul, Minnesota, Technical Vocational School during the spring of 1962 forms the substance of the present study. The school, a publicly-supported institution, offers pre-employment instruction in technical and semi-professional occupations.

I. THE PROBLEM

Statement of the problem. The Trade and Industrial Coordinator at the St. Paul Technical Vocational School had, for many years, recorded statistics on the number of graduates initially placed in industry. An accurate record of non-graduates, however, had never been kept. Faculty members were aware that many non-graduates were employed in various trades, but estimates were somewhat vague and difficult to substantiate due to lack of organized data. The school had performed a definite service for those students who, though not considered graduates, should be recognized as a

successfully trained student. In addition, the school had performed a service for industry and for the community by supplying the training needed for the employment they desired.

A follow-up study of former graduates and non-graduates was suggested as one method to secure data to determine the percentage of students using their trade training in industry. These data could be used, as well, in formulating plans for curricular revision and in making plans for expansion of the training facilities.

Purpose of this study. The primary purpose of this study was to obtain the following classes of data: (1) the number of graduates and early-leavers who had secured jobs in the field of their shop training; (2) the number of workers who had progressed in the same field of work; and (3) any marked differences between early-leavers and graduates in maintaining continuous employment and advancement on the job.

The secondary purpose of this study was to set up and put into operation a system for recording cumulative record data for each student on IBM cards and thus to facilitate a long term study of students at the St. Paul Technical Vocational School.

Delimitations of the study. The investigation was confined to two groups of students who began their trade training at the St. Paul Technical School between September 1955 and June 1959. The larger group was the school graduates from

the previously stated group. The second group was composed of a smaller number of students who began their training between September 1957 and June 1959 and completed one year or longer of training. This group was named the 'early-leavers' in this report.

The investigator sought only those data which were felt to be of greatest value to the Vocational School. These consisted of vital information for the appraisal of the school in preparing young men for entrance into specific trades or technical occupations taught at the Vocational School.

II. DEFINITION OF TERMS

Graduate. A student who had successfully finished all units of study for a particular occupation. This varied from two to four years depending upon the area of training selected.

Early-leaver. A student who had completed at least one full year at St. Paul Technical Vocational School, but had not completed all units of study required for graduation in a particular shop or technical area of training.

Shop. A class consisting of actual practical work done by the manipulation of tools or machines or by hand operations performed in industry by skilled tradesmen in the respective trades for which the students were being trained.

Related classes. Courses of study in specific areas required in a trade or in technical training taught by

academic teachers in separate classrooms. At the St. Paul Vocational School, related subjects include mathematics, technical writing, related mechanical drawing and physics.

Validity. A determination of whether a study has served the purpose for which it was designed. This requires that each item in the study be defined and that the objectives for each item be stated. A valid study will provide the elements which satisfy the previously stated objectives.

Reliability. The reliability of a test or a questionnaire refers to the ability of the instrument to procure the same results each time administered. Ideally the questions to be answered should have the same meaning to all individuals and should receive a consistent answer upon repetition of the test or questionnaire.

III. ORGANIZATION OF THE REMAINDER OF THE STUDY

In Chapter II, a review of literature appropriate to the study was made with special emphasis upon follow-up methods and techniques, construction of questionnaires, mailing and follow-up procedures, editing and summarization of replies, tabulation of replies for IBM cards and forms of presenting data. An examination of several follow-up studies carried out in vocational schools concludes the chapter.

In Chapter III, a general orientation to the St. Paul Technical Vocational School has been given as a basis for understanding the history, organization and curricular offerings of the school.

The procedures for the accumulation of results by the construction of a questionnaire, mailing procedures, pilot study and the examination of the replies for validity and reliability has been presented in Chapter IV.

The construction of a code book for punching IBM cards with the data gained from the returned questionnaires has been explained in Chapter V.

An interpretation of the results of the survey have been tabulated and presented in Chapter VI. In the following chapter the summarization, conclusions and recommendations based on the returned data have been presented by the investigator.

In the Appendix the forms used in this study have been included, as well as a statistical tabulation of all data recorded in the summary.

CHAPTER II

REVIEW OF THE LITERATURE

I. LITERATURE OF FOLLOW-UP METHODS AND TECHNIQUES

The purpose of this chapter was to search through the wealth of educational literature which pertains to follow-up methods and techniques used and recorded by experienced research investigators. Many books and authors were reviewed, but only those subjects have been set forth in this chapter which appeared to be of particular significance in the study of the St. Paul Technical Vocational School. Literature which pertained to questionnaires, criticism, construction, appearance, distribution, collection tabulation and analysis were considered for this literature review.

The follow-up study. A follow-up study provides for an investigation of individuals who have left an institution after having completed a program, a treatment or a course of study. This type of study deals with what has happened to students and what the impact of the institution and its program has been upon them as individuals. By examining their status or by seeking their opinions, one may obtain an idea of the adequacy or inadequacy of the institution's program. Which courses, experiences or treatments proved to be valuable? Which proved to be ineffective or of limited worth? Studies

of this type enable an institution to evaluate various aspects of its program in light of actual results.[1]

Methods of securing data from former students. An examination of educational research books revealed that the personal interview and questionnaire were the most commonly used methods in a follow-up study.

The personal interview would certainly produce usable responses and would function as an ideal method if the investigator could find means for getting all former students to be interviewed. This method would be effective, but time consuming, for those young men still enrolled in school. If, on the other hand, the investigator had to go personally to each former student's home or place of business, it would, more than likely, become a herculean task to interview the six hundred students.

Interview by telephone makes it possible to secure usable responses with much less demand of time on the part of the investigator than does the personal interview. This method, however, requires that the respondents live within a small geographic area to keep expenses minimal. Another conceivable drawback might be the number of calls necessary to find the individual at home and willing to talk for an extended period.

The questionnaire, probably the most widely used and abused of data gathering devices, seemed to be the most

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[1] John W. Best, Research in Education (New York: Prentice Hall, Inc., 1959), p. 120.

advantageous. This method allows the respondent time to think through his answers and perhaps encourages the individual to honestly evaluate the various courses of study or individual classes taken while in school. The respondent would have some degree of anonymity if he were not required to sign his name to the reply.[2] There would be less fear of having to explain exactly why the former student did not like a particular feature of the school, particularly in the present study where the individual making the study was a current teacher at the school.

Misuse and criticisms of questionnaires. "The apparent ease of planning and using a questionnaire tend to make it appealing to novices in research."[3] This uncritical attitude has resulted in many surveys being conducted by means of poorly prepared questionnaires flooding the mail and ending up unanswered in waste baskets.

Travers pointed out that during the past twenty years the questionnaire has been largely replaced by the elaborate interview in most survey techniques, although educational research still relies on the questionnaire. He believed that the central difficulty in direct mail techniques was the percentage of returns which rarely exceeded the forty per cent level except by calling on the non-respondents.[4]

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[2] Alvin Barr, Robert Davis, and Palmer Johnson, Educational Research and Appraisal (New York: Lippincott Co., 1953), p. 66.

[3] Ibid.

[4] Robert M. W. Travers, An Introduction to Educational Research (New York: MacMillan Co., 1958), p. 249.

At one time Travers considered it simply a matter of chance whether a person would respond to a mailed questionnaire. However, he gave evidence that recent research by Wallace had revealed that the tendency to return questionnaires was directly proportional to the amount of education of the receiver. In a series of four questionnaires sent out by Wallace, those persons who returned the first one also tended to return the other three. He discovered that while the respondents and non-respondents differed in education, they differed little in socio-economic status. Wallace stated that the safest rule in deciding whether or not to use a questionnaire was - don't.[5]

Another author, Harold Abelson, published a list of the most frequent misuses of the correspondence method:

1. Request for information which is available in other sources.

2. Sheer length of response often expected tends to discourage the busy recipient.

3. Failure to arouse any motive to answer.

4. Frequent inclusion of questions of apparent unimportance.

5. Employment of questions which, because they are suggestive or because they naturally encourage responses which favor the respondent, result in misleading answers.

6. Common occurence of equivocal questions.[6]

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[5] David Wallace, "A Case For and Against Mail Questionnaires", Public Opinion Quarterly, XVIII, 40-52 cited by Travers, op. cit., p. 248.

[6] Harold H. Abelson, The Art of Educational Research (Yonkers, New York: World Book Co., 1933), p. 72.

The previously cited criticisms of Travers, Wallace and Abelson regarding the questionnaire method of securing information helped the investigator avoid some of the misuses of the correspondence method.

Reliability and validity of questionnaires. Davis indicated that the statistical method for determining the reliability and validity of questionnaires are often unwieldy and unsatisfactory. More practical and dependable questionnaire items which are carefully formulated to qualify the responses being sought should eliminate some of the causes which impair reliability and validity.[7]

Large numbers of non-respondents can introduce a bias into the reliability of a study which no amount of statistical manipulation or refinement can erase. A 95 per cent return on a 10 per cent sample may yield results of greater reliability than a 70 per cent response to a full coverage.[8]

"The validity of questionnaires can be judged by checking against evidence already on record."[9] These records could easily be secured in school situations from placement and scholastic records on file.

The following criteria were suggested by Davis in Educational Research and Appraisal as a guide to be used in

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[7] Barr, Davis and Johnson, op. cit., p. 67.

[8] W. Edwards Deming, "On Errors in Surveys", American Sociological Review 9:359, 1944.

[9] Carter Good, and Douglas Scates, Methods of Research (New York, 1954), p. 623.

constructing questionnaires to improve both reliability and validity.

1. Objectivity in meaning and scoring should be sought.
   a. The questions should be formulated to enable the individual to supply information in specific categories and express specific points of view.
   b. It should be possible to record replies so they can be tabulated and described by statistical techniques.

2. The appropriateness of drawing out information from the students should be carefully determined.

3. Opportunity to include supplementary information to clarify the reply.

4. The questionnaire should be focused upon specific purposes.[10]

In conclusion, the reliability and validity of a follow-up study can be improved by securing a high percentage of returns, by checking responses against other evidence and by carefully constructing the questionnaire items.

II. CONSTRUCTION OF QUESTIONNAIRES

Types of questionnaire items. The type of item used results from the arrangement of words and phrases composing it, by the directions to the respondent, and by the provision made for recording and tabulating the response. Question item forms usually fall into two main classes: (1) the supply type in which the respondent supplies the words or symbols and (2) the selection type in which the respondent selects responses from among those presented with the question, such as yes-no, true-false, or multiple choice.[11]

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[10] Barr, Davis and Johnson, op. cit., p. 67.

[11] Francis J. Rummel, An Introduction to Research Procedures in Education (New York: Harper and Brothers, 1958), p. 89.

Free answer question. Payne stated that the free answer question was uninfluenced, secured a wide variety of responses, made a good introduction, and provided background for other questions. This type of question often begins with the wording, "What do you think about (subject)?" It allows the respondent to have his own say-so about a topic.[12] The length of the answer to this type of question usually conforms to the amount of space available on the blank. The answer may be biased by the verbal ability of the respondent and by the time available to him. He may very well overlook things which he would have reported had he thought of them.

Many teachers have tried this type of question using a short answer blank and have found answers that are appropriate synonyms or near equivalents, but still remote from the writer's intent.

The free response type of question appears to have great merit, but also presents a number of problems in attempting to tabulate and summarize the answers.

Selection type question. An alternative to the free answer type of question, the two-way question, suggests only two possible responses. This type of question reduces decisions to simple terms and becomes very easy to record and tabulate. The yes or no type of question can be likened

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[12] Stanley L. Payne, The Art of Asking Questions (Princeton, New Jersey: Princeton University Press, 1951), p. 49.

to the language of the computer capable of millions of decisions in a minute. Possibly, if enough questions could be prepared to cover all phases of a subject and if the respondents were willing and able to answer every item, it would be an ideal type of questionnaire. However, many questions which require truthful answers must be qualified and do not lend themselves to the two-way question. Payne summarized the two-way question in this manner: "The two-way question is satisfactory so long as the two choices it presents are realistic. It is the type of question to use when the issue clearly divides people into two groups."[13]

"If free-answer questions are the most casual type of query, then multiple choice questions are the most formal."[14] The free response and two-way questions are both used in every day conversation, but researchers seldom use the multiple choice question because of the amount of thought it involves. The form of the multiple choice question consists of an introductory question and two or more suggested answers with the possibility of an additional blank where the respondent can register an unlisted response which applied to his own opinions or feelings. This form of question also lends itself to the use of a separate answer sheet as currently used with many standardized tests. Rummel stated, "This form is the easiest to use and the most objective for tabulating and summarizing responses."[15]

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[13] Ibid., p. 70.

[14] Ibid., p. 75.

[15] Rummel, op. cit., p. 92.

Since there are no sharp lines of distinction between a questionnaire and a test, the general rules for test construction are applicable as guides to the construction of items for the questionnaire.[16] In the following twelve guides to the construction of items for a research questionnaire much valuable information has been summarized by Ebel.

1. Include all qualifications needed to provide a reasonable basis for response selection.
2. Avoid unessential specificity in the item question or in the responses.
3. Avoid the inclusion of trivial questions.
4. Make the suggested answers for selection as simple as possible.
5. Be sure the items apply to the situation from the standpoint of the respondent.
6. Refrain from asking questions of opinion unless opinion is specifically required.
7. Avoid items that are too suggestive or too unstimulating. They should not lead a respondent to go beyond the facts, nor should they fail to enlist responses that would not, at the time, occur to him.
8. Phrase questions to avoid the academically or socially acceptable responses. Make it possible for the respondent to answer truthfully without embarrassment.
9. Avoid questions that may be checked with multiple responses when only one response is desired.
10. Whenever possible, questions should be worded in such a way that they can be answered by a check mark.
11. Ask questions in such a manner that they will relieve the respondent of as much complex thinking as possible.
12. Avoid the use of words which are susceptible to different interpretations; e.g., moral or immoral,

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[16] Ibid., p. 97.

good or bad, rich or poor, intelligent or ignorant, laborer or capitalist.[17]

Extended study of the free answer, two-way, and multiple choice questions revealed that each type of question item had some distinct advantages as well as inherent disadvantages. A well constructed questionnaire should utilize the question items best suited to the information needed. Each question should be stated in the most easily understandable language.

Question wording. "At the present stage of development of the survey method, improvements in question wording and in other phases can contribute far more to accuracy than further improvements in sampling can."[18] Payne made an exhaustive study of question wording and suggested the following cautions as being absolutely necessary in constructing questions.

1. Use as few words as necessary. You can ask most questions in twenty words or less.

2. Use simple words if you can find any that adequately express the idea.

3. Trade jargon may be all right in the trade, if all the trade uses it; but it will not do for the general public.

4. Check in the dictionary to see if the word actually does have the meaning you intend.

5. While there, see what other meanings it may have which may confuse the issue.

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[17] Robert L. Ebel. "Writing the Test Item." Chap. in Educational Measurement (ed. E. F. Lindquist). (Washington, D.C.: American Council on Education, 1951) p. 207.

[18] Payne, op. cit., p. 4.

6. If you use a synonym, make sure that it actually is synonymous with the idea at hand.

7. Words that are frequently used are to be preferred, other things being equal, of course.

8. Familiar words are the most useful if they do not have too many meanings in context.[19]

The wording of questions used in questionnaires presents a critical dimension because there are no opportunities for the investigator to further clarify his question for the respondent. If the respondent misunderstands the questions, the proper answer will be absent and the investigator will most likely be misinformed by the response.

Sequence of questions. After the selected types of questions have been written in the best possible wording, they still need to be arranged in a logical order on the questionnaire. Parten's experience with questionnaires taught her the importance of the sequence of questions in securing data from respondents. This author suggested the following:

1. Questions should be arranged logically if confusion and misunderstanding are to be avoided.

2. If general and specific questions are used, the general ones should precede the specific ones.

3. The opening questions should have human interest appeal.

4. The opening questions should be easily answered.

5. The opening question should not give the impression that the interviewer has an ax to grind or that he is selling or advertising something.

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[19] Ibid., p. 234.

6. Questions to which the informant may be sensitive should not be placed at the very end because this may leave him with misgivings and make it difficult to check-interview him later.[20]

Directions for responding. Directions for responding are customarily included with the question items. The directions need not be lengthy but should be stated precisely to insure that the questionnaire elicits the desired type of response. The directions should be easily identifiable by use of boldface type, capital letters, italics or underscoring. The directions for answering the questions should be accompanied by the assurance that the respondent's identity will not be revealed and that the information supplied will not be used adversely to his interests.[21]

Preliminary tryout of the questionnaire. Expert criticism of the questionnaire should be made before the forms are sent to the printer. In the case of a school follow-up study the school principal, counselor and other interested educators could be an excellent source for criticism and be in a position to offer suggestions. The next step should be a trial run using participants similar to those designated as the source of information. The returns should be tabulated and an analysis of the data made to determine whether it warrants conclusions significant for the intended purpose of the study.[22]

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[20] Parten, op. cit., pp. 157-218.

[21] Rummel, op. cit., pp. 93-94.

[22] Ibid., p. 106.

"In editing the tryout return, items should be cross-checked for consistency of responses in different parts of the questionnaire."[23] Where there are responses contrary to known efforts should be undertaken to find out why these contradictions exist. Some questions may need revision if more than one answer has been given when only one answer applied. The fault could also be in the directions given to the respondent. This preliminary tryout should help to delete useless items and round out the study properly.[24]

Questionnaire format. The mechanical arrangement and appearance of the questionnaire are of prime importance in obtaining good returns. A well designed questionnaire will convey the impression of being important and professional, and tend to encourage answering.[25] Parten suggested six devices for improving the appearance of the questionnaire.

1. Number each item consecutively. Never repeat a number on the questionnaire.

2. Allow enough space for clear and legible entries. Completeness of the response is frequently related to the amount of space provided. Avoid crowding.

3. Arrange the items in columns or rows so that items not filled in can be seen at a glance.

4. Allow space for notes.

5. Place answer boxes, circles, x's, numbers, in parentheses or brackets after questions so that all the respondent has to do is check the correct answers.

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[23] Ibid., p. 98.

[24] Good, op. cit., p. 662.

[25] Rummel, op. cit., p. 106.

6. The schedule should appear neat and easy to fill out. This is particularly necessary in mail questionnaires.[26]

III. MAILING AND FOLLOW-UP PROCEDURES

Sampling considerations. "The nature of the research problem determines the kind of sampling procedure to use and to whom the questionnaires should be sent."[27] It becomes necessary to know whether the respondents are in a position to freely respond to the questionnaire. Some individuals cannot be located due to change of address to an unknown location or they are deceased. Some individuals will be negligent, indifferent or too busy to reply. The size of the sample must be large enough so that a valid analysis can be made of the findings.

Regardless of the size of the sample determined, the researcher should strive for a high percentage of returns. Careful refinement of the questionnaire, follow-up procedures and sponsorship of the study can help insure a high response rate from the mailings. Although desirable to have a 90 per cent return, this ideal may not always be achieved by graduate student research. Shannon, who investigated this subject, found:

> About 72 per cent returns in 170 Masters' theses.
> About 71 per cent returns in 204 Doctoral dissertations.
> About 81 per cent returns in 59 studies reported in the Journal of Educational Research.[28]

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[26] Parten, op. cit., p. 217.

[27] Rummel, op. cit., p. 108.

[28] J. R. Shannon, "Percentage of Returns of Questionnaires in Reputable Educational Research." Journal of Educational Research (October, 1948) 42:138-141. Cited by Rummel, op. cit., p. 109.

Conclusions based upon small percentages of returns may be suspected of being biased, but this need not be true of a sample relatively large and representative of the individuals in the population. "The most important factor in the analysis of data is to have an adequate number of representative returns rather than any given percentage of the number of questionnaires originally distributed."[29]

The covering letter. The covering letter serves to solicit the cooperation of individuals receiving the questionnaire. The letter should be written on stationery from one of the survey sponsors indicating the agency backing the survey. The importance, purpose and use of the information should be clearly stated so that the respondent knows why the information is desired. Simple instructions explaining how to answer the questions and the short amount of time required to do so may encourage the receiver to respond.[30]

Customarily, the researcher should inform the individual that his replies will be held confidential, and assurance of this fact may be given by not requiring a signature. Individuals seldom question a serial number on the form if assured that the information will be seen only by the investigator who needs some form of identification to avoid repeated mailings.[31]

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[29] Ibid., p. 109.

[30] Parten, op. cit., p. 230.

[31] Ibid., p. 466.

A self-addressed and stamped envelope should be included with the covering letter and questionnaire to make the return of the information as easy as possible.[32]

Follow-up procedures. The research worker must use some type of follow-up procedure to solicit the cooperation of recipients of the questionnaire and to avoid an insufficient return of the completed instruments. Approximately two weeks after the questionnaires have been mailed, a reminder card should be sent. The card should simply and courteously remind the recipient that his answers to the questionnaire are important, but as of the date of mailing, his answer has not been received.[33]

When the return of questionnaires begin to taper off for the second time, a second reminder with a new questionnaire and return envelope should be mailed. By this time the recipient may have misplaced the original mailing and may fill out the second one immediately to avoid losing it.[34]

Later follow-up procedures may include telephoning some of the non-respondents or going to their homes for personal interviews to increase the percentage of returns. Toops sent out six letters and in the sixth promised not to bother his informants further if they heeded this appeal. In this way he secured a 100 per cent return for a questionnaire to trade

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[32] Ibid., p. 388.

[33] Rummel, op. cit., p. 105.

[34] Ibid., p. 106.

school graduates.[35] Apparently, the greater number of follow-up letters, the higher the proportion of returns may be expected.

Study of non-respondents. After several follow-up attempts have been made and a 100 per cent return has not been achieved, it seems advisable to sample the non-respondents to eliminate the possibility of a biased study report. One way to eliminate this chance involves the conduct of a study of non-respondents and to compare this with the respondents' replies and thus determine whether any marked differences do exist. If all the cards of non-respondents are placed in one alphabetical file, selection of every nth card at regular intervals assures the sampler that he will have an adequate cross-section.[36]

The persons in the study sample should be contacted by all possible means so that all of the questionnaires are returned. The returns should then be tabulated separately before being combined with the larger sample of respondents. In this manner any differences between respondents and non-respondents can be determined and weighed in reporting the survey.[37] The sampling of the non-respondents will help to confirm or disprove the possibility that respondents constituted a different population than non-respondents.

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[35] Herbert A.K. Toops, "Validating the Questionnaire Method," Journal of Personnel Research, 1923, 2:153-169.

[36] Parten, op. cit., p. 267.

[37] Good, op. cit., p. 628.

Conclusions. Good mailing and effective follow-up techniques are essential to the success of a survey. An investigator using good follow-up procedures could conveivably procure returns from an inferior questionnaire, even though the data gathered might not be usable. On the other hand, the use of ineffective mailing and follow-up techniques could be the cause of an ideal questionnaire receiving a low percentage of replies that casts a bias upon the survey. An investigator should construct the best questionnaire possible and use the previously recommended procedures in order to secure an adequate return of the questionnaires.

IV. EDITING AND SUMMARIZING THE REPLIES

Preparation for analysis. When the questionnaires begin arriving, they should be checked by the investigator to see whether they are completed, consistent in responses and in agreement with known facts. The investigator also must judge whether his intended summarizing categories are consistent with comments written on the questionnaire. In some cases the details or totals may be listed in the wrong columns and will need to be moved to the correct positions. If the questionnaires are edited as soon as they begin to arrive, any serious misunderstandings by the respondents can be corrected by contacting them before they have forgotten or are unavailable.[38]

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[38] Good, op. cit., p. 628.

Investigators should keep all returned questionnaires until the end of the project. Frequently questions arise which can only be answered by consulting the original source.[39]

Editing data from the replies. After having determined the proper classification and systematic arrangement of data, the data should be carefully edited to retain those items which have bearing on the problem under consideration. The items should be grouped to provide a common result and should be described according to their character and extent.[40]

The investigator should seek to avoid any of the following actions which result in misinterpretations and invalid conclusions based upon the data available:

1. Intending only to convince others and thereby choosing only those data that uphold his position
2. Stating propositions for which he has insufficient evidence
3. Appealing to notions people want to believe to be true
4. Supplying fragmentary ideas that superficially support beliefs
5. Addressing propositions to people's prejudices
6. Using loose analogies and defective syllogisms
7. Confusing objective facts and facts of opinion
8. Judging high values from frequency of occurences only
9. Generalizing on factors and conditions that have only been assumed
10. Determining results on only the known factors without qualifications for other possibilities affecting results

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[39] Ibid., p. 629.

[40] Rummel, op. cit., p. 127.

11. Interpreting relationships as cause and effect when they are merely casual relationships.[41]

V. TABULATION OF REPLIES

In the preceding pages, the methods for gathering the statistical data have been considered. Discussion of tabulating the mass of individual returns into a concise and logical arrangement will be the next step. The sorting and counting process can be done either by hand or by machine depending upon the facilities and money available. The following discussion will be concerned with machine tabulation using key punch cards.

Description of key punch cards. Three kinds of key punch cards are generally available: the IBM 80 column card, the Remington Rand column card and the Royal McBee edge punched card. This discussion has been limited to the IBM card available to the Vocational School for use in this study. Of course, other cards could have been used in a similar manner.

The IBM card, a smooth-surfaced, high quality paper, comes in a standard size of 3 1/4 by 7 3/8 inches. Eighty columns of digits extend across the length of the card. Each column contains twelve punching positions, of which ten are indicated by digits 0 to 9 to correspond to the numerical

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[41] Walter Earl Spahr and Rinehart J. Swenson, Methods and Status of Scientific Research. (New York, 1930), p. 275. Cited by Rummel, op. cit., p. 128.

data to be punched and two positions without numbers at the top of the card. Thus, the card contains 960 positions for the recording of numerical data. For example, if the date December 25, 1963 were to be recorded on a card, it would be indicated as 12-25-63 by punching the corresponding digits in six adjacent columns.[42]

Coding information for key punching. The first step in the analysis of data for key punching consists of the coding of facts involved. This means, each class of facts must have a number assigned to it.[43] A code may be alphabetical, numerical or a combination of the two. The simplest type of coding necessitates the assignment of numbers according to a sequence of listed items. Another type of coding calls for the assignment of numbers in sequence to data in alphabetical order. The use of a coding structure facilitates more rapid machine processing in classifying or arranging due to the ability to act upon the code number rather than upon longer designation of data. With the coding method a saving accrues because the number of card columns decreases, thus reducing the amount of punching or increasing the amount of data which may be punched on the card.[44] The partial code for cumulative records of school children

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[42] "The IBM Card" (IBM Corporation, St. Paul)

[43] Robert Travers. An Introduction to Educational Research (New York, 1958), p. 412.

[44] "The IBM Card", op. cit.

reproduced below illustrates the coding method discussed.[45]

Column	Number Data
42. Progress through school	0 = never held back a grade 1 = held back one grade 2 = held back two or more grades
43. Absenteeism from all causes (average days per year over period of record)	0 = 5 days or less 1 = 6-10 days 2 = 11-15 days 3 = 16 or more days
44. Speech	1 = no speech difficulties reported 2 = speech difficulties but no action taken 3 = speech difficulties and remedial work started

When a code has been determined for the particular survey, the column numbers can be rewritten on mimeographed sheets or tabulation sheets to represent the columns on the data card. The response code number can be written in the correct columns to facilitate key punching by an experienced operator. This procedure allows the investigator to save expensive key punch time and to familiarize himself with the data being recorded.[46]

During the recording of replies on the tabulation sheets any decisions on the part of the investigator relative to coding should be noted in a coding manual, because these decisions can be forgotten very quickly.[47]

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[45] Travers, op. cit., p. 412.

[46] Charles H. Blackstrom, Gerald D. Hursh. Survey Research (University of Northwestern Press, 1963), p. 155.

[47] Ibid., p. 155.

One method for securing a response classification scheme for open-end questions requires the investigator to read a 25 per cent sample and list the actual answers on a sheet. This should reveal meaningful answer categories that can be assigned to punch numbers.[48]

Blackstrom suggested the following precautions to observe while devising a coding scheme for recording data.

1. Use columns economically. One card per respondent is easier to handle than two cards.

2. If two cards are necessary designate card 1 from card 2 in a special column number 80 so there will be no confusion. Identification items will need to be on both cards.

3. Use one column for each question where possible without losing information.

4. Case numbers must be punched in 3 or 4 columns. Use all columns. If the number is less than 1000, punch in zeros to fill the space.

5. Some code should appear for each column. Punch a zero if no information is available for the column to indicate the item was not skipped.

6. If multiple coding is necessary write down numbers in ascending order 2-5 for convenience of the punch operator. Be certain to put this in the code book.

7. Two different items can be coded in the same column by dividing the column into 1-5 and 5-9. Indicate this in the code book.[49]

The purpose of this section on coding has been to give information to the researcher on how to utilize an IBM card for survey purposes. The advice of Rummel could profitably be heeded by all researchers before beginning an extensive,

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[48] Ibid., p. 155.

[49] Ibid., p. 162.

complicated and expensive key punch operation: "A researcher should always consult a technician specializing in this method of analysis for the most efficient system of coding for his particular research study."[50]

VI. FORMS OF PRESENTING EVIDENCE

Statistical tables. After the data have been tabulated they must be arranged, at least in part, into what are commonly referred to as the "shorthand of statistics."[51] The advantages of presenting statistical data in tabular form have been summarized by Young.

1. Statistical tables conserve space and reduce explanatory and descriptive statements to a minimum.
2. The visualization of relations and the process of comparison is greatly facilitated by tables.
3. Tabulated data can be more easily remembered than data which are not tabulated.
4. A tabular arrangement facilitates the summation of items and the detection of errors and omissions.
5. Statistical tables provide a basis for computations.[52]

Tables may be classified into formal and informal types. The formal table, usually quite large, should be confined to one page to avoid the necessity of folding out pages to be seen in entirety. The table should contain a logical unit of evidence to make the textual discussion of the table

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[50] Rummel, op. cit., p. 261.

[51] Pauline V. Young. Scientific Social Surveys and Research (New York, 1949), p. 293.

[52] Ibid., p. 293.

easier for the reader. Each table should be identified by a descriptive title and carry a number for identification purposes.[53]

The informal table, one presented on the same page as its textual discussion, should also contain a title and bear a number to identify it. This table proves suitable for small units of information, not exceeding eight or ten typewritten lines.[54]

Graphic presentation of distributions. Graphic presentation of distributions will enhance the written report if produced accurately and not used as a means of eliminating the written explanation. Graphs, charts, figures and pictures may be supplemental to textual and tabular presentations which do not easily reveal their significance. Hillway compiled the simple, concise explanations of the varieties and uses of graphs listed below:

1. The line graph can be effectively used to present relative increases and decreases over a period of time.

2. The bar graph may be used to show relative amounts when comparisons are difficult among a number of similar items.

3. The pie chart serves best for presenting percentages of parts with reference to the whole.

4. Maps can be used to show geographical relationships.

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[53] Rummel, op. cit., p. 286.

[54] Ibid., p. 286.

5. Flow charts can be used to show channels of authority in an organization.[55]

Textual description of evidence. The textual form of presenting evidence consists of an account of the facts in an explanatory or descriptive manner. This form should be used for the type of data that is brief, easily understood and of such a nature that an adequate discussion of the evidence cannot be made without it. Extensive use of this method may bore the reader and thereby reduce the effectiveness of the presentation in the research paper. The textual form of description can be used to point out general information related to the problem determination and to present specific reference to relationships, agreements, disagreements and unique features in tables, charts and graphs which might otherwise be overlooked by a reader.[56]

Conclusion. A brief description of some of the methods available to an investigator in presenting facts, figures, relationships, agreements and disagreements secured from a research project has been made. The three methods of presentation, (1) statistical tables, (2) graphs, charts and figures and (3) textual description allows an investigator to share his research project with any interested persons in a stimulating and clear manner.

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[55] Tyrus Hillway, Introduction to Research (Cambridge, Massachusetts, 1956), pp. 246-250.

[56] Rummel, op. cit., pp. 285-286.

VII. REVIEW OF PARTICULAR STUDIES

Studies selected. In order to better conduct a follow-up study this investigator examined several other studies carried out in Minnesota vocational schools. Although no effort was made to summarize the results and findings of the studies, particular attention was focused upon the methods used in conducting the studies.

The studies examined included: (1) "Five Year Follow-up Survey of Trade and Industrial Students of the Mankato Area Vocational-Technical School" by Frank G. Kalin, Director of Vocational and Adult Education, a study made in 1952 two years after graduation; (2) "Day Trade Preparatory Graduates, Central Region, Class of 1948, a Follow-up Study;" the particular section consulted was carried out in 1953 at the St. Paul Vocational School as part of the larger Central Region Study; and (3) "Follow-up Study of Selected Graduates of Dunwoody Industrial Institute" completed by Milton E. Larson and Simon O'Loughlin in 1956. These specific studies were selected because they were conducted in vocational schools which teach similar trades and which are located in the same geographical region of the state as the current study.

Differences noted in the studies. Examination of Table I, page 33, shows certain similarities and certain differences among these three studies. All of the investigators listed their objectives, used printed questionnaires and included stamped self-addressed envelopes with their mailings.

TABLE I

ANALYSIS OF IMPORTANT TECHNIQUES USED IN SELECTED FOLLOW-UP STUDIES

Principles, techniques, or methods used or indicated	STUDIES REVIEWED	Mankato Area Vocational Technical School 1947 through 1952	Day-Trade Preparatory Central Region Class 1948 St. Paul Vocational Sch.	Dunwoody Institute Classes 1949 through 1955. Made in 1956
1.	Listed objectives	Yes	Yes	Yes
2.	Pilot study	*NG	*NG	Yes
3.	Number in study	175	111	343
4.	Per cent of Replies	62%	72%	90%
5.	Sample size-per cent	87.5	100	25
6.	Printed Questionnaires	Yes	Yes	Yes
7.	Pages in Questionnaire	3	4	2
8.	Amount of time and writing required (little, some, much)	Much	Some	Some
9.	Number of contacts	1	NG	3
10.	Self-addressed stamped envelope	Yes	Yes	Yes
11.	Validity of study	NG	No	Yes
12.	Reliability of study	NG	No	Yes
13.	Sampling of Non-respondents	NG	No	Yes
14.	Kinds of questions open-end			
	closed			
	combination	Comb.	Comb.	Closed
15.	Personalized contacts	Yes	No	Yes

*NG indicates information not given in study

Differences among the studies existed in the number of pages per questionnaire, ranging from 2 to 4. The Dunwoody study required the least amount of writing and appeared to be the shortest, even though it asked more questions than the other two studies. The format of the pages and closed answer questions accounted for the differences in appearance. The Dunwoody study was the only one of the three which indicated that the validity and reliability of the replies had been checked, that non-respondents had been sampled and that a pilot study had been carried out.

Conclusions. Each of the studies examined obviously required much work on the part of the investigators. It was obvious that the Dunwoody study had the highest percentage of returns and had used more of the generally recognized principles and recommendations derived from the review of the literature than employed by either of the other investigators. It may well be that part of the thoroughness of the study can be attributed to the fact that a pair of interested teachers worked together, stimulating one another to do the job in the best possible manner. If pairs of qualified and interested teachers in other vocational schools would work together on similar projects, more good research work might be done in this area.

CHAPTER III

ORIENTATION TO THE ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL

Location of school. The St. Paul Technical Vocational School, located near the heart of the downtown St. Paul area at 14th and Jackson Streets, presently holds classes in two other buildings as well. Pattern making and welding classes are taught at the Mechanic Arts High School, while the Ramsey Annex houses the architectural drafting, electronics and plumbing classes.

Plans have been prepared for a new building and location of adequate size to house under one roof the present shops plus the Girls' Vocational School. This new facility will be located near the St. Paul Cathedral.

History of the school. In 1920 the St. Paul Vocational training facilities began in the old Central High School at 10th and Minnesota Streets. In 1922 the present building at 14th and Jackson Streets was first occupied. The State Board of Education designated the school as an Area Technical Vocational School in 1952.

School organization. The school day for preparatory students extends seven hours in length, from 8:30 a.m. to 4:00 p.m., Monday through Friday. The school year runs for ten months.

The school day of seven hours may be divided, as determined by course requirements and the needs of the individual students, into a shop or laboratory period of three and one-half hours and hourly sessions for such related subjects as mathematics, English, blue-print reading, drawing or related shop work.

The program. The school offers pre-employment instruction in the following technical and semi-professional occupations.

Trade Pre-Apprenticeship Program

Auto Mechanic	Patternmaker
Cabinet Maker	Printer
Carpenter	Sheet Metal Worker
Electrician	Watchmaker
Machinist	Welder
Tool and Die Maker	

Technical Program

Architectural Draftsman	Radio and Television Technician
Engineering Draftsman	Industrial Electronics Technician
Engineering and Tool Designer	
Instrument Technician	

Admission requirements. The minimum requirement for admittance for students with exceptional ability requires completion of grade nine and the attainment of age fifteen. These students pursue a three year program in one of the trade pre-apprenticeship programs. Upon completion of all

requirements for vocational training and high school academic credits, the student receives a high school and St. Paul Vocational School diploma.

High school graduates, veterans and adults may participate in accelerated courses which require approximately two years to complete. Vocational school diplomas are awarded upon course completion.

Employment. The school provides free employment services for full or part time positions in cooperation with business and industrial organizations. The instructional program must be kept to date by conducting surveys of local needs and by cooperating with business and trade organizations. The school trade and industrial coordinator functions as the placement officer.

Aims and purposes of the school. The Vocational Technical School satisfies the educational needs of youth and adults by (1) preparing youth for initial employment, (2) upgrading workers already employed to meet the increased requirements of job opportunities and demands and (3) retraining those who have become displaced because of technological prog ess. The St. Paul School Board recently issued a statement setting forth the purpose for the new vocational-technical school.

> The purpose of the vocational-technical school shall be primarily to meet the educational needs of post high school students who want to prepare for entrance into beginning jobs in the fields served by the St. Paul Vocational-Technical School. It also shall serve the

> educational needs of those high school students who have the maturity as well as the interest, aptitude and ability to profit by preparatory instruction.[57]

The statement quoted does not give great detail about the operation of the school, but rather serves as a general statement broad enough to encompass the program, yet specific enough to establish some boundaries within which the school operates.

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[57] St. Paul Board of Education, "School Board Minutes, June 19, 1962." Cited in Principals' News Letter #1 by A. C. Taylor, October, 1962.

CHAPTER IV

OBJECTIVES, TECHNIQUES AND PROCEDURES

This chapter contains (1) the main underlying objectives the investigator wished to accomplish at the beginning of his study, (2) the construction of the questionnaire prepared to carry out these objectives and (3) the mailing and follow-up procedures used to conduct the study.

As stated previously in Chapter I the investigator desired to gather information from former students to answer the question, "Does the St. Paul Vocational School adequately prepare students for entry into and continued employment in selected occupations?" Before designing the questionnaire, information to be collected was listed so that appropriate questions could be written. These facts were organized and listed in the following manner:

I. Preparation for employment
   - A. Use made of training
     1. First job title and duties
     2. Present job title and duties
   - B. Adequacy of training
     1. Area least well trained in
     2. Chief value of shop training
     3. Adaptability of training
   - C. Geographical location of available work
     1. First job location
     2. Present job location

II. Placement and guidance services
   - A. Method of securing first job
   - B. Worker's satisfaction with job
   - C. Stability of occupational choice
   - D. Reason for occupational change
   - E. Outside work load as a student

III. Additional education for advancement on job
   A. College level training
   B. Apprenticeship or in-plant training
   C. Home study

IV. Worker's comments and opinions
   A. Value of shop training
   B. Value of each related class
   C. Suggestions for improving or updating training
   D. Miscellaneous comments and suggestions.

The investigator considered this factual information adequate for the scope of this study. Detailed explanations of the important techniques and procedures used to secure results are discussed in the following pages.

Formulation of the questionnaire. The questionnaire was designed to be contained on a single sheet of paper eight and one-half inches by eleven inches in size, printed on both sides. Examination of other questionnaires included: (1) The Dunwoody Study by Milton E. Larson and Simon T. O'Loughlin, (2) a questionnaire published by the American Vocational Association, (3) A Follow-up Study of High School Students by the Minnesota Association of Secondary School Principals, and (4) a 1948 study at the St. Paul Vocational School. These questionnaires yielded a sufficient supply of questions which were used with certain adaptations in this study.

The closed form question has been selected for ease in indicating responses and ease in tabulating replies. Space for additional replies or explanations has been provided in nearly every case. A separate request for voluntary comments or suggestions was included along with sufficient space on the single sheet of paper. A code number was affixed at the

top of the questionnaire to the right of the school name and study identification printed at the top center of the front page. Names or further identification was not required on the questionnaire although many workers signed their names.

A typewritten form of the proposed questionnaire was circulated among the principal, counselor and other interested faculty members at the school. Several helpful suggestions were made and incorporated before the type was set. The proof pages were again circulated among various members of the staff and several minor corrections made. Next, fifty of the questionnaires were printed by the print shop for use in the pilot study.

Letter of transmittal. The letter of transmittal had the official name and address of the school at the top of the page and indicated the sponsorship of the school. The salutation "Dear Former Student" was used to open the letter. The initial paragraph greeted the graduate on a friendly note and made an appeal to him to recall his vocational school career. The second paragraph explained the purpose of the study, outlined simple directions, gave the length of time necessary to complete and return the questionnaire, and explained the code number. The third paragraph contained an offer to supply the last known address of former classmates. The final statement thanked the student for his cooperation. Each letter was signed with the investigator's name. The letter was reproduced by mimeograph and contained 231 words.

It should be noted here that the investigator was known by approximately three-quarters of the students involved in the survey and thus the tone of the letter was relatively informal. A copy of the letter has been included in Appendix A.

Formation of the mailing list. In the early planning stage of the follow-up study, all the graduates and early leavers enrolled between September, 1955 and June, 1959 were to be contacted in the follow-up study. A total of 440 graduates and 341 early-leavers were included in the prospective mailing list. To eliminate some of the clerical labor involved in searching for the present addresses of students who had been separated from the school for five or six years, the early-leavers enrolled between September, 1955 and June, 1957 were removed from the list. There remained 440 graduates and 179 early-leavers to be contacted by mail.

A separate file card was prepared for each individual to be contacted. The card contained the last known address, telephone number, part-time job held while enrolled in school, year of separation from the school and the shop area of the student's training. The graduates' names were placed on cards one-fourth inch larger than the cards used for the early-leavers so that they could be easily identified when necessary. Part of the information listed on the cards was designed to be used in determining the validity of the answers to the questionnaires. This has been reported under a separate heading.

Pilot study. In the review of literature, the necessity of conducting a trial run of the questionnaire had been emphasized. The newly constructed questionnaire was tried out in a pilot study. The investigator was aware that many of the students included in the study's mailing list were presently attending the Vocational Evening School one or more nights per week. Forty sheet metal and electrical apprentices were selected for the pilot study because of their ready availability for further questioning or clarification if this were found to be necessary.

The regular mailing procedure was carried out with a letter of transmittal, a questionnaire and a self-addressed envelope inside a larger envelope with the student's name typed on it. Stamps were not included on the return envelope. The Evening School instructors were asked personally by the investigator to distribute the envelopes to the respective students in their classes. They were asked to request that the students complete the questionnaires, put them into the inner envelope, seal them and return the questionnaires to the office. The beginning of the class hour devoted to attendance and clerical matters was suggested as an appropriate time to allow the students to fill out the questionnaires. After class the instructors placed the returns in the investigator's mail box in the main office.

Within two weeks, all of the replies had been received, examined and a trial tally had been carried out. The test for validity was applied to each of the questionnaires; it

appeared that they were reasonably complete and accurately filled out. Since no changes seemed to be necessary as a result of the pilot study, additional questionnaires were ordered from the print shop for the main mailing.

Mailing procedure. The first mailing was carried out in a manner similar to the pilot study, but stamps were included. The personally signed letter of transmittal and the questionnaire were folded around the stamped self-addressed envelope for the return of the questionnaire, placed into a number 10 out-going envelope and deposited for mailing on April 28, 1962. Within three weeks, 214 replies (34 per cent) plus 55 returns from the post office with out-dated addresses had been returned. Each of the names was checked by the investigator in the St. Paul and Minneapolis telephone books and in the city directory which resulted in the location of 30 of the 55 individuals. The original materials were remailed to each of these individuals at their current addresses. Samples of the questionnaire and letter of transmittal are included in Appendix A.

The second mailing consisted of a mimeographed post card which reminded the former students that their replies had not been received as of May 18; they were asked to mail them immediately. They were informed that a second questionnaire could be secured by telephoning Capitol 4-3828. The mimeographed card was personalized by use of a handwritten first name salutation and the investigator's signature. These cards were mailed on May 18, 1962. The returns from the second

mailing added 119 responses to the first returns and brought the total number of responses to 333, a 53 per cent return. During the interval between the first and second mailings, 23 telephone calls and 5 post cards were received from students and parents requesting new questionnaires which were mailed promptly.

The third mailing consisted of a letter of transmittal shorter than the original letter and intended primarily for fast easy reading. It urged the individual to complete the enclosed questionnaire and return it immediately in the self-addressed envelope. The letter contained a personal hand-written salutation and the investigator's personal signature; the remainder of the letter was mimeographed. Ten of the letters were returned with outdated addresses requiring additional search for current addresses before being remailed. Replies from the third mailing continued to come in during the summer months of 1962 from students who were members of the Armed Services. The third mailing added 114 replies and brought the total number of replies to 447, 72 per cent of the total number of questionnaires mailed. A sample second letter and the post card reminder have been included in Appendix A.

Sampling of non-respondents. The fourth mailing was carried out to check on non-respondents as had been recommended by Mildred Parten who was cited in the review of literature. A random sample of each fifth card in both the graduate and early-leaver files yielded 13 graduates and 16 early leavers

to be contacted in any way possible. A third letter of transmittal sent to the selected men mentioned that over 400 workers had replied but that the school was anxious to learn of their opinions and experiences which were considered of equal importance with the others. They were urged to return the enclosed questionnaire in the stamped self-addressed envelope immediately. The mimeographed letter had a hand-written first name salutation and the personal signature of the investigator. Within a few days the post office returned three more undelivered letters. The investigator checked all possible sources of information in an attempt to determine the most recent addresses of the three students but finally was forced to give up his efforts to contact them. No further mailing was carried out. Appendix A contains a sample of this final letter.

The twenty-six returns from the sample of non-respondents trickled in slowly at about one per day until all twenty-six had been returned. Each evening the investigator telephoned a few of the non-respondents to secure their cooperation. A final form was secured by going to one individual's home address three times before he could be contacted. A separate tabulation of the twenty-six returns was made before combining with the others. A complete analysis of the study of non-respondents has been made in the next chapter. Table II on page 47 contains a summary of the mailings made in the study.

The mailing part of the questionnaire required a great deal of time to complete because of the clerical work involved.

TABLE II

SUMMARY OF ALL MAILINGS AND RETURNS

Mailing	Number Mailed	Number Received	Per cent of Total	Wrong Address	Evening School Sent	Evening School Received	Total Received	Return Per cent
Pilot					40	40	40	6
First Letter	557	159	28	55	22	15	214	34
Card	398	116	29	0	7	3	333	53
Second Letter	282	114	40	10	4	0	447	72
Non-Res.	29	26	90	3	0	0	473	76

Some respondents received four mailings while others needed intensive research for current addresses. At times this required one-half hour or more ending in a fruitless search. One hundred or more telephone calls helped to secure returns through personal contact with workers, parents and wives who were urged to return the questionnaire. Mild pressure upon students currently enrolled in the investigator's classes helped secure returns from members of their families included in the survey. Not all of the work was lacking in personal enjoyment for the investigator was interested in many of his former students who had used their training to good advantage and had words of appreciation for the educational

and vocational experiences the school faculty had made possible for them.

Check for validity of the responses. In Chapter II reference was made to Carter Good who suggested that the validity of questionnaires could be judged easily by checking a reply against evidence already on file. The investigator employed this method. Known facts had been recorded on each student's mailing card such as date of leaving school and shop area of training. In addition to this information the office records usually stated the part time jobs held while in school, the reason for termination and job accepted by student.

When a return was received from a student, his mailing card was removed from the mailing list, compared to the reply for all items available and then moved to another section of the file. This was one positive check performed for all replies. No questionnaire needed to be discarded because of misinformation.

The fact that a large portion of the students were familiar to the investigator aided in determining the validity of the responses. In a few instances the investigator consulted the shop instructor to verify statements about the first job or the present job which seemed questionable. Each time the instructor verified the student's information.

Reliability. Internal consistency was verified by cross-checking of particular questions. For workers employed

in a trade, question number 6 stating why his present job differed from the area of his training and question number 7 inquiring why he was not presently working at a full time job were inspected to see if they had been left blank. A total of 8 of the 473 replies or 1.8 per cent required correction. Former students presently in the Armed Services or in school were checked to see whether further clarification of their present status had been made in question number 7. The responses of three students or 3.5 per cent in this check were discovered to have made this error.

Statements of opinion were not questioned. The investigator was primarily interested in securing accurate replies from all former students and provided several methods of double-checking the returns to insure accuracy in the study.

CHAPTER V

IBM CARD TABULATION CODE BOOK

As mentioned in Chapter I the secondary purpose of this study was to set up an IBM record system that would contain cumulative records and employment data about each student attending the St. Paul Technical Vocational School to facilitate and encourage long range studies of the students. This chapter contains the code book information and presents the arrangement of data for key punching. No mention has been made of the machines used to punch or interpret the punched card.

General guiding principles used in the code book. In accordance with Blackstone and Hursh, a code book was organized and coding data written down as decisions were made to facilitate other investigators in more easily understanding the data collected and in entering data collected later.

The numbers in this code book started at column 49 because this follow-up study was a continuation of a study made earlier by Gehard Nelson concerning guidance information available from cumulative folders of the same students concerned in this study.[58] The last column number used in this study was 77.

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[58] Gehard Nelson, "Guidance Factors Contributing to An Appropriate Choice at the St. Paul Technical Vocational School" (unpublished Master's paper, Stout Institute, Menomonie, Wisconsin, 1960).

The general guiding principle in this tabulation was to analyze the data into the smallest and most meaningful units possible within the framework of one or two columns of the IBM cards. It was desirable to break the present and first jobs of the workers into fine distinctions in order to examine the exact kind of work in which the worker was engaged. Column number 56 was divided into two questions to conserve space. The columns were arranged as much as possible in the general order of the questionnaire to facilitate the tabulation for the investigator.

The replies were carefully transferred to a large 30 column tabulation sheet especially designed with a column number and a brief note at the top of each column indicating information contained there as a double check for accuracy in posting and later for key punching. A zero, with very few exceptions, meant that the respondent had not answered the question but that the investigator had looked for the answer.

CODE BOOK

ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL

FOLLOW-UP STUDY 1955-59

59 Column WAS THIS STUDENT INCLUDED IN THE FOLLOW-UP STUDY?

1=Was not included
2=Was included

Explanation: Not all students entering school stayed at least one year; therefore, only the cumulative record information was included on the IBM card and no follow-up study information was recorded.

60 Column RETURN OF THE QUESTIONNAIRE

1=Post Office return, address unknown
2=Questionnaire not returned
3=Returned by student
4=Information received from relative

Explanation: In some instances the parent returned the questionnaire explaining the position his son held in the Military Service; the designation '4' was used to indicate this. In the case of Post Office returns '1' was used to indicate that the address could not be located and no further mailing was attempted. When a letter was remailed and not returned, the designation '2' was used.

61 Column TIME OF RETURN

1=First mailing
2=Second mailing
3=Third mailing
4=Study of non-respondents; fourth mailing

Explanation: The pilot study was included in the first mailing.

62 Column OUTSIDE JOB AFTER SCHOOL

0=Was not stated
1=No outside work during school attendance.
2=Worked full time while attending school, 40 or more hours per week
3=Worked 30-39 hours per week
4=Worked 20-29 hours per week
5=Worked 10-19 hours per week
6=Worked less than 10 hours per week
7=Worked only during the summer
8=Had a paper route

Explanation: This item was recorded using the highest figure given on the questionnaire. This referred only to the job which the student held while he attended school or during his summer vacation. A summer vacation job was designated '7'.

53-54 Columns FIRST JOB AFTER LEAVING SCHOOL

00=Was not stated
01=Job was the same trade or technical field for which the student was trained in school
02=Job employed manipulatory skills and background knowledge taught in trade or technical area but labeled by a different name. (TV repair man belonged to the electronic trade).
03=Job employed background knowledge taught in trade training (electronic draftsman) (truck driver for auto shop)
04=Job employed manipulatory skills taught in trade training (production type work using trade skills)
05=Job as helper in trade trained for with possibility of apprenticeship when an opening developed (machine helper in printing trade)
06=Job as learner in trade trained for in school helping a journeyman (small company, no apprenticeship, but working in the trade)
07=Was employed as assembler in field trained for (assembled cabinets or electronic units as beginning jobs)
08=Continued same job as held while attending school (trade related) (Used schooling to advance himself in the same company)
09=Continued same job as held while attending school (not trade related; didn't use training as full time occupation)
11=Entered family business (trade related)
12=Entered family business (not trade related)
13=Entered school for further training (college, trade school)
14=Returned to previous high school for academic program (usually applied to high school age students)
15=Military service (a trade related classification)
16=Military service (not a trade related classification, the student may not have included enough information to know)
17=Not in trade trained for (held different work not fitting any category above)

Explanation: This classification system was designed to pin point the kind of employment the student procured immediately after leaving school.

55 Column LOCATION OF FIRST JOB

0=Was not stated
1=In St. Paul proper
2=In St. Paul Suburbs: South St. Paul, North St. Paul, West St. Paul, White Bear, Forest Lake, Stillwater, Lake Elmo, Hastings
3=In Minneapolis and Minneapolis Suburbs (generally west of the Mississippi River)
4=Within State (out of metropolitan area applied to St. Paul and Minneapolis students as determined by former student addresses)
5=Close to hometown (for area vocational students who had a home address out of the St. Paul-Minneapolis metropolitan area)
6=Was employed in a state other than Minnesota; for example: Hudson, Wisconsin
7=Was engaged in Military Service (location of service was of no concern to the study)

Explanation: The purpose of this question was to determine whether the student was using his training in the community where he had received it. Any student who had attended school after leaving Vocational School was marked '0', not stated.

56 Column LENGTH OF EMPLOYMENT AT FIRST JOB AFTER LEAVING SCHOOL

0=Was not stated
1=Worked less than 6 months at job.
2=Worked 6 to 12 months at first job.
3=Worked 13 to 18 months at first job.
4=Worked 19 to 24 months at first job.
5=Worked 25 or more months at first job.
6=Quit job before 6 months or was laid off before 6 months.
7=Quit job after 6-12 months or was laid off after same.
8=Quit job after 13-18 months or was laid off after same.
9=Quit job after 19-24 months or was laid off after same.

Explanation: The first numbers 1 through 5 would also indicate that the worker has been at his first job for this period of time. He may have been out of school for less than 6 months and would have been marked '1'. The reply indicated that his first job and present job were with the same company. No distinction was made between 'quit' and 'laid off' in this column, but this information could be indicated in the next column under '9'. Apprentices were considered to be working for the Joint Apprentice Committee even though they were shifted from employer to employer. Students in military service were marked '0'.

57 Column REASON FOR LEAVING FIRST JOB (Still in same occupational field as training)

0=Was not stated or was not applicable
1=Advancement in position in another company
2=Advancement in position in same company (started apprenticeship or continued employment)
3=Better working conditions
4=More money
5=Better chance for advancement in another company
6=Started own business in same occupation
7=Entered military service
8=Was transferred by apprenticeship committee
9=Was laid off or shop was closed

Explanation: Column 57 was to be used when the student started working in his trade and shifted to another job in his trade. If the student started in a different trade this column was checked '0' and column 58 recorded the reason.

58 Column REASON FOR LEAVING FIRST JOB (Started work in different occupational field)

0=Did not apply
1=Was not stated
2=Advancement in position in another company
3=Better working conditions
4=More money
5=Entered Armed Services
6=Started his own business in another occupation
7=Entered training for a different trade
8=Was laid off
9=Health limitations

Explanation: Column was to be used when a student began working outside his trade training field. If the student's answer was recorded in column 57 check '0' in column 58 as indicating this column does not apply to this situation.

59-60 Columns PRESENT JOB AT TIME OF REPLY

00=Was not stated
01=Job was in the same trade or technical field for which the student had been trained in school
02=Job employed manipulatory skills and background knowledge taught in trade of technical area but labeled by a different name (TV repair man belonged to electronic trade)
03=Job employed background knowledge taught in trade training (electronic draftsman) (truck driver for auto shop)

04=Job employed manipulatory skills taught in trade training (production type work using trade skills - running a lathe)
05=Job as helper in field trained for with possibility of apprenticeship when an opening developed (machine helper in printing trade)
06=Job as learner in field trained for in school helping a journeyman (small company, no apprenticeship, but working in the trade)
07=Worked as assembler in field trained for (assembled cabinets or electronic units as beginning jobs)
08=Continued same job as held while attending school (trade related; used schooling to advance himself in the same company)
09=Continued same job as held while attending school (not trade related; did not use training as full time occupation)
11=Entered family business (trade related)
12=Entered family business (not trade related)
13=Enrolled for further training (college, trade school)
14=Military service (trade-related classification)
15=Military service (trade-unrelated classification)
16=Not working in trade studied

Explanation: This classification system was designed to answer the kind of job the student was doing at the time of the study. The only difference between this classification and the column 53-54 lay in number '14' which was not included in this classification.

61 Column PRESENT JOB LOCATION

0=Was not stated
1=In St. Paul proper
2=In St. Paul suburbs: South St. Paul, North St. Paul, West St. Paul, White Bear, Forest Lake, Stillwater, Lake Elmo and Hastings.
3=In Minneapolis and Minneapolis suburbs (generally west of the Mississippi River)
4=Within state (outside metropolitan area applied to St. Paul and Minneapolis students as determined by former student address)
5=Near home town (for area vocational students who had a home address outside the metropolitan area)
6=Was employed in a state other than Minnesota (for example, Hudson, Wisconsin)
7=Was engaged in military service (location of service was of no concern to the study)
8=Foreign country

62 Column APPRENTICESHIP TRAINING

0=Was not stated
1=Did not serve an apprenticeship
2=Serving a Minnesota Voluntary Apprenticeship

3=Serving a Company Program apprenticeship
4=Journeyman under Minnesota Voluntary Apprenticeship
5=Journeyman under a company plan.
6=Journeyman by experience (no particular plan)

Explanation: Machinist or carpentry trades often do not have recognized apprentice programs. In these areas a worker claiming to be a journeyman in the present job answer should be checked '6' by experience. All sheet metal and electric journeymen are classified '4' because of strong union regulations regarding apprenticeship. Answers for '1', '2', and '3' were specifically stated on the questionnaire; otherwise '0', 'not stated,' was designated.

63 Column METHOD OF SECURING FIRST JOB

0=Was not stated
1=School coordinator
2=Shop instructor
3=State Employment Agency
4=Newspaper advertisement
5=Private employment agency
6=Friends or relatives
7=Own efforts
8=Joint apprenticeship committee
9=Other methods

Explanation: This tabulation applied to any job taken by the student after leaving school. Those who had enlisted in the Military service were included under '7', own efforts. The joint apprenticeship committee secured all jobs for which the code number '8' was used.

64 Column WHY PRESENT JOB WAS DIFFERENT FROM TRADE TRAINED FOR

0=Was not stated or was not applicable
1=No job available in individual's occupation
2=Developed new interest
3=Disliked trade for which trained
4=Found better opportunity for promotion
5=Found work with better salary
6=Used training as preparation for another occupation
7=Health reasons
8=No future in trade trained for
9=Other

Explanation: 'Not stated' or 'did not apply' were checked when the worker had not changed his occupation from what he had trained for or when he did not give information why he had listed a job different from his shop training.

65 Column PRESENT ACTIVITY IF NOT EMPLOYED FULL TIME

0=Was not stated or did not apply
1=In Military service using vocational training
2=In Military service not using trade training
3=Self-employed using vocational training
4=Self-employed not using trade training
5=Unemployed
6=Enrolled in full time college or university work
7=Enrolled in trade school
8=Other work

Explanation: The only ones who answered this question were those who were engaged in the military services, self-employed, unemployed or attending school. The majority of responses fit into the '0' code because the worker was employed in the area of his trade training.

66 Column LENGTH OF UNEMPLOYMENT

0=Was not stated or did not apply
1=Unemployed 1 to 2 months
2=Unemployed 2 to 3 months
3=Unemployed 3 to 4 months
4=Unemployed 4 to 5 months
5=Unemployed 5 to 6 months
6=Unemployed 6 to 7 months
7=Unemployed 7 to 8 months
8=Unemployed 8 to 9 months
9=Unemployed over 9 months

Explanation: This category was designed for those who had checked column 65 code number '5'; all others checked '0' for 'did not apply.' A student attending school full time was not considered unemployed.

67 Column DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (Presently working in trade trained for)

0=Was not stated
1=Well satisfied
2=Satisfied
3=Slightly dissatisfied
4=Highly dissatisfied
5=Did not apply

Explanation: This category was only for workers presently working in their training occupation. All others checked '5' for 'did not apply.'

68 Column DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (Presently working in occupation differing from training)

0=Did not apply
1=Was not stated
2=Very satisfied
3=Satisfied
4=Slightly dissatisfied
5=Highly dissatisfied

Explanation: This category was designed for workers who were employed at a trade other than their training occupation. Students were not included.

69 Column DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (Presently in the Military Service)

0=Did not apply
1=Was not stated
2=Well satisfied
3=Satisfied
4=Slightly dissatisfied
5=Highly dissatisfied

Explanation: This category was only for students presently in the Armed Services.

70 Column CHIEF VALUE OF SHOP OR LABORATORY INSTRUCTION RECEIVED IN TRAINING

0=Was not stated
1=Was not working at occupation studied
2=No special advantage
3=Helped to obtain employment
4=Gave a good foundation for advancement on the job
5=Helped to begin at a higher wage
6=Provided a foundation for additional training
7=Other values

Explanation: Code number '1' meant that the individual was not presently working in the trade for which he had been trained. If an individual checked this on the return and also indicated he was working at the trade currently, '0' was the proper designation.

71 Column EVALUATION OF MATHEMATICS CLASS

0=Was not stated
1=Did not take class
2=Very valuable
3=Valuable
4=Of some value
5=Of doubtful value

72 Column EVALUATION OF RELATED DRAWING CLASS

0=Was not stated
1=Did not take class
2=Very valuable
3=Valuable
4=Of some value
5=Of doubtful value

73 Column EVALUATION OF PHYSICS CLASS

0=Was not stated
1=Did not take class
2=Very valuable
3=Valuable
4=Of some value
5=Of doubtful value

74 Column EVALUATION OF TECHNICAL WRITING CLASS

0=Was not stated
1=Did not take class
2=Very valuable
3=Valuable
4=Of some value
5=Of doubtful value

75 Column SPECIFIC LACK OF PREPARATION IN PARTICULAR TRADE

0=Was not stated
1=Not employed in trade or occupation studied
2=Experienced no particular difficulty
3=Found it difficult to get along with other workers
4=Needed additional technical knowledge
5=Other
6=Needed more shop and practical work

Explanation: 'Not working in trade or occupation' meant that the individual was not in the trade for which he had been trained. If respondent checked the item '1' a '0' designation for 'not stated' should be recorded.

76 Column MOST HELPFUL MEANS OF SELF-IMPROVEMENT OTHER THAN WORK EXPERIENCE

0=Was not stated
1=Trade extension or apprentice classes (Vocational Evening School)
2=University extension classes
3=Trade organizations
4=Joint apprenticeship committee

5=Technical societies
6=Trade periodicals and books
7=In-plant training or learning on the job
8=Other

Explanation: This category was designed for all respondents regardless of present occupation. Code number '4', 'Joint apprenticeship committee' was listed because this committee sponsored apprentice schooling and thus opportunity was given for workers to credit the group. Code number '1', 'trade extension and apprentice classes' was considered similar to code number '4' or 'joint apprentice committee classes.'

77 Column OCCUPATION CHOICE AFTER EXPERIENCE IN TRADE

0=Was not stated
1=Selection of same trade
2=Selection of another trade
3=Selection of agriculture
4=Selection of profession
5=Selection of selling or business position

Explanation: This category was designed for all respondents regardless of present occupation.

CHAPTER VI

ANALYSIS OF THE QUESTIONNAIRE RETURNS

Chapter IV dealt with the procedures for forming the mailing list, pilot study, the main mailings, the follow-up procedures used and the mailing to non-respondents as well as the procedure for checking the validity and reliability of the returns. In Chapter V the method for recording the data was explained through the use of the code book that contained detailed recording procedures used by the investigator.

Originally, the investigator intended to devise an IBM card system, to have the cards punched and to be able to use a sorting machine to tally all the cards into the various desired categories. However, because of delays in getting the cards punched in the school department, the investigator manually tabulated the data from the sheets originally intended for the key punch operator. The results showed the same degree of accuracy as if they had been mechanically processed, although they had been secured by a slower and more tedious system.

This chapter examines the non-respondents to establish a basis for making the conclusions regarding the two year group of early leaving students who were omitted from the mailing list and those former students who did not respond to the questionnaire. After these tallies have been presented,

they will be combined with the entire survey and significant conclusions pointed out.

I. STUDY OF THE NON-RESPONDENTS

The fourth mailing to non-respondents was carried out to determine why former students had not replied to the questionnaire. Was it because they were no longer employed in the trade, because they were unemployed, or was it because they were not inclined to answer their mail? A random sample of each fifth card in both the graduate and early-leaver file yielded names of thirteen graduates and sixteen early-leavers. Three of the early-leavers' letters were returned by the post office and present addresses could not be located, even though the first class letters mailed to them previously had not been returned. This made the early-leaver and graduate groups of equal size and therefore, easier to make comparisons between the two groups.

The respondents' and non-respondents' replies were examined and compared on a statistical sheet to determine whether there were important differences between them. Only slight differences were observed. The investigator decided to publish figures and comparisons on five important areas: (1) first job after leaving school, (2) present job, (3) method of securing first job, (4) second choice of occupation and (5) chief value of shop or laboratory instruction.

These five questions were selected to eliminate the possibility that other investigators might say that the

non-respondents did not reply because they were not working in their area of training, had had no assistance in obtaining a job or because their training had been of little value. The comparison between respondents was carried out to eliminate such ideas.

Method used to indicate comparisons. In the following tables the three mailings have been separated from the study of the non-respondents which comprised the fourth mailing. The tables have been segregated into graduates and early-leavers for both respondents and non-respondents. The table columns follow the order given below:

Graduates		Early-leavers	
Per cent of Replies	Number of Replies	Number of Replies	Per cent of Replies

The percentage columns do not always total 100 per cent because individual statistics have been rounded off to the nearest whole per cent. It should be noted that unless otherwise stated the number of individuals who did not answer a particular item was given and figured into the total percentage of individuals in the study. This tends to lower the percentages in all other categories.

Comparison of first jobs of respondents and non-respondents. Table III on page 65 shows that comparison of the first job accepted by the respondents and by the non-respondents included 8 per cent more graduates. Three (3) per cent fewer early-leavers had started a trade-related job in industry or had been engaged in military service after leaving school. Fewer

TABLE III

COMPARISON OF FIRST JOBS
OF RESPONDENTS AND NON-RESPONDENTS

First job after leaving school	Respondents				Non-Respondents			
	Graduates		E.Leavers		Graduates		E.Leaver	
	Per cent	Number	Number	Per cent	Per cent	Number	Number	Per cent
Entered trade related job	92	326	38	41	100	13	5	38
Joined military - un-related trade	2	6	19	21	0	0	2	16
Not in trade or not stated	6	23	35	38	0	0	6	46
Total in groups		325	92			13	13	

non-respondents had joined the military in non-trade related classification than had the respondents. There did not appear to be much difference between the first jobs of the respondents and of the non-respondents.

Comparison of the present jobs of respondents and non-respondents. Close examination of the figures in Table IV, page 66, does not show any difference between early-leaver respondents and non-respondents; that is, both groups contain 38 per cent who were employed in a related trade. The graduate respondents showed a 13 per cent larger number of those who were engaged in the trade than did the non-respondents. However, if one more non-respondent graduate had been in a

trade-related job, the figures involved would have been almost equal, the percentage increasing from 69 to 77 per cent which would have meant only a 5 per cent difference between the two groups.

Nearly the same percentage of respondents and non-respondents were hired for their first position in the trade for which they had been trained. A somewhat lower percentage of graduates were presently working in their trades. It should be noted that the percentages of respondents and non-respondents were of almost equal size. Thus, this does not constitute an important difference between them. Any suggestion that non-respondents had not replied because they were not working at their trades could be challenged from the evidence here which shows the contrary.

TABLE IV

COMPARISON OF PRESENT JOBS
OF RESPONDENTS AND NON-RESPONDENTS

	Respondents				Non-Respondent			
	Graduate		E.Leaver		Graduate		E.Leaver	
Present job	Per cent	Number	Number	Per cent	Per cent	Number	Number	Per cent
Trade-related	82	286	35	38	69	9	5	38
Military - not trade-related	6	20	18	20		0	3	23
Not in trade or did not reply	14	49	39	42	31	4	5	38

Comparison of respondents' and non-respondents' methods of securing first jobs. The comparison of figures between the respondents and the non-respondents in Table V shows that the school, through the coordinator, shop instructor and apprenticeship committees placed 60 per cent of the respondents. Only 46 per cent of the non-respondents, however, secured employment in this way. In addition, 39 per cent of the non-respondents stated that they had secured jobs by

TABLE V

COMPARISON OF RESPONDENTS' AND NON-RESPONDENTS' METHODS OF SECURING INITIAL EMPLOYMENT

Method of securing first job	Respondents				Non-Respondent			
	Graduate		E.Leaver		Graduate		E.Leaver	
	Per cent	Number	Number	Per cent	Per cent	Number	Number	Per cent
School coordinator	31	109	2	2	23	3	2	15
Shop instructor	12	42	8	9	23	3	0	
Apprenticeship committee	30	105	1	1	23	3	0	
Own efforts	19	68	39	42	31	4	6	46
Friends or relatives	3	10	8	7		0	0	
State employment	2	9	6	7		0	0	
All other methods	2	9	7	8		0	2	15
Not stated	1	4	22	24		0	2	15

their own efforts while 24 per cent of the respondents had done so. The combination of non-respondents who had not used the school placement service but had rather relied on their own efforts to a greater degree suggests a greater degree of self-reliance and perhaps a lessened appreciation of their school training. This perhaps constituted one reason why they failed to respond to the questionnaire.

Comparison of respondents' and non-respondents' occupational choice were they to choose at present. In answer to the question, "If you were to make your occupational choice today, what occupation would you choose?", many observations could be made. Table VI contains the answers given by both

TABLE VI

COMPARISON OF RESPONDENTS' AND NON-RESPONDENTS' OCCUPATIONAL CHOICES WERE THEY TO CHOOSE AT PRESENT

	Respondents				Non-Respondents			
	Graduate		E.Leaver		Graduate		E.Leaver	
Were I to choose at present, I would choose	Per cent	Number	Number	Per cent	Per cent	Number	Number	Per cent
Same trade	65	230	38	41	46	6	4	31
Another trade	15	53	17	18	23	3	2	15
Profession	12	42	10	11	15	2	1	8
Sales	3	11	3	3		0	0	
Agriculture	1	5	0			0	0	
Not stated	4	14	24	26	15	2	6	46

the respondents and non-respondents and points out differences between the two. The first response, "I would choose the same trade again," was mentioned by 60 per cent of the respondents and was indicated by only 39 per cent of the non-respondents. Also of interest was the absence of response by 9 per cent of the respondents and 30 per cent of the non-respondents. The 21 per cent variation between the groups indicated that the non-respondents were not as satisfied with their trade choices as were their counterparts. It also perhaps indicated that they did not feel as loyal to the school as did the respondents.

Comparison of respondents' and non-respondents' opinion of the value of their shop training. The tabulations for the question, "What do you consider the chief value of your shop training," are recorded in Table VII, page 70. Examination of this table indicates that 53 per cent of the respondents felt that the training had built an adequate foundation for further training and advancement on the job. Thirty-one per cent of the non-respondents did not consider their training of such significant value as did the respondents. Following the trend of the previously stated comparisons, 27 per cent of the non-respondents failed to answer while only 10 per cent of the respondents did not answer. Of interest was the fact that none of the non-respondents checked the item "Training was of no particular advantage." From this may be concluded that some advantages had been acquired from attendance at the Vocational School.

TABLE VII

COMPARISON OF RESPONDENTS' AND NON-RESPONDENTS' OPINION OF THE VALUE OF THEIR SHOP TRAINING

Chief Value of Shop Instruction	Respondents				Non-Respondents			
	Graduate		E.Leaver		Graduate		E.Leaver	
	Per cent	Number	Number	Per cent	Per cent	Number	Number	Per cent
Foundation for advancement	26	68	6	7	23	3	0	
Foundation for Additional training	31	111	25	27	15	2	3	23
Helpful in obtaining employment	19	68	6	7	15	2	2	15
Higher initial wage	6	23	1	1		0	0	
No particular advantage	3	11	3	2		0	0	
Not working at trade	6	23	26	28	31	4	3	23
Not stated	6	21	23	25	15	2	5	38
Other	2	7	0			0	0	

Conclusions from the study of non-respondents. The study of non-respondents was made to determine whether a marked difference existed between them and the respondents which would indicate why they had not replied to the questionnaires sent them. The statistics indicated that the first jobs individuals of both groups had held were in trade-related occupations in approximately the same percentages of cases. As of the summer of 1962, 30 per cent of the non-respondents

had entered a different occupation while only 10 per cent of the respondents had changed occupations. The non-respondents seemed to have secured a higher proportion of their own employment and had not availed themselves of the placement aid through the Vocational School. The non-respondents appeared less inclined to repeat their choice of occupation than respondents did. The number of unanswered questions rose to 30 per cent in the case of the non-respondents but remained close to 10 per cent for the respondents.

In conclusion, the non-respondents could be characterized as being similar to the respondents occupationally but unlike them in job satisfaction, in warmth toward their alma mater and in willingness to respond to questionnaires.

II. PRESENTATION OF THE COMBINED MAILING

This section of the report presents findings from all of the mailings including the pilot study, the main mailings and the study of non-respondents. The order followed for the presentation of these findings was: (1) information regarding the first job the worker accepted in industry or in the military service, (2) the present job the worker held in industry or in the military service, (3) opinions he holds about the training received at the Vocational School and (4) comments and suggestions written by the worker on the questionnaires.

Procedure to be followed in presenting statistics. The complete statistical report included in the appendix serves

as a basis for the individual tables given in this chapter. Categories have been combined in certain cases to make the tables more compact and more easily understandable. Both percentages and numbers of responses have been listed for most items. It should be remembered when consulting statistics about early-leavers that only two years of early-leavers were included in the study rather than four. Only 179 early-leavers were included; 162 were eliminated. This meant that if the totals in any category for the early-leavers were increased by eight-ninths, this number would approximate the number for four years. The percentages, however, would remain the same.

The percentages were computed from the total number of returned questionnaires from the 386 graduates and the 105 early-leavers, unless otherwise specified. The percentage columns may not always total 100 per cent because individual entries have been rounded off to the nearest whole per cent.

Percentage of questionnaires returned. Four hundred and forty (440) graduates and 179 early-leavers were included in the mailing list. Of this number 24 graduates and 22 early-leavers could not be located due to expired mailing addresses and inability to locate new addresses, or their parents' addresses in either the city directories of Minneapolis or St. Paul. Further information about the mailing procedures may be obtained by consulting Table II, page 47, in Chapter IV. The two methods for calculating percentages of returns follow below.

The first method for figuring the percentage of returns is shown in Table VIII. This method included the post office returns in the total percentages and indicated that 83.5 per cent of the graduates and 58.6 per cent of the early-leavers responded, a total response of 473 replies from 619 questionnaires. equals a 76.4 per cent.

TABLE VIII

PERCENTAGE OF REPLIES FROM ALL MAILINGS

	Graduates		Early-leavers	
	Per cent	Number	Number	Per cent
Post office returns--address unknown	5.4	24	22	12.2
Questionnaires not returned	10.9	48	52	29.0
Questionnaires returned	83.5	368	105	58.6

(Percentage of return for both groups = 76.4)

A second method for figuring the percentage of returns was based on the fact that if an individual could not be contacted, he had no opportunity to respond. Table IX, page 74, which used this alternate method, shows the total number of questionnaires sent minus those which were unmailable for various reasons. By this method, the percentage of returns was raised to 88.4 per cent for graduates and to 66.8 per cent for early-leavers, giving an average return of 82.3 per cent return from those persons contacted by mail. This method resulted in a higher percentage of returns, but did not increase

the number of replies upon which the findings for the study were based.

TABLE IX

PERCENTAGE OF REPLIES FROM INDIVIDUALS RECEIVING QUESTIONNAIRES

	Graduates	E.Leavers
Number of questionnaires mailed	440	179
Returns from post office - address unknown	- 24	- 22
Number of students receiving questionnaires	416	157
Returns of former students	368	105
Percentage of return	88.4	66.8

(Percentage of return for both groups = 82.3)

A. FIRST JOB AFTER LEAVING SCHOOL

Use made of trade training after leaving school. This question was one of the more significant questions posed by the questionnaire because it contained the answer to the students' question, "Can I find employment in my trade after I complete Vocational School training?" Table X, page 75, contains the information regarding the use made of the Vocational School training. A more detailed analysis of the table can be found in Appendix B, item number 5.

The graduates experienced a higher degree of success in obtaining jobs in their trades: Ninety-one (91) per cent in

a trade or trade-related job and 1 per cent in the military service with a trade-related classification. Thirty-two (32) per cent of the early-leavers entered the particular trade or closely related job while an additional 9 per cent joined the military services in a trade-related classification.

TABLE X

USE MADE OF TRADE TRAINING IMMEDIATELY AFTER LEAVING SCHOOL

Use made of training	Graduates		Early-leavers	
	Per cent	Number	Number	Per cent
In trade or closely related job	91	335	33	32
Military service - trade-related classification	1	4	10	9
Total number and per cent using training	92	339	43	41
Military service - not trade-related classification	2	6	21	20
Not using trade training	6	22	41	39
Total number and percentage of workers not using training	8	28	62	59

The follow-up study indicated that 92 per cent of the graduates and 41 per cent of the early-leavers used their trade training in the first job they accepted after leaving school.

Number of workers placed in industry for every one hundred listed graduates. Actually more workers are prepared

for industry than are claimed by the school's records. Table X, page 75, indicates that for every 100 graduates, 92 took employment in their particular trade or in a related occupation. At the same time that 100 graduated, 77 other students had completed one or more years of school and had decided to terminate their training for various reasons. Of this group approximately 40 per cent, or 30 students, also used their trade training in industry or in the military services. Therefore, for every 100 graduates of the school, 122 students actually entered trade-related jobs either in the labor market or in the military services.

From the group of students who enrolled between September, 1955 and June, 1959, the school graduated 440 students and placed 537 workers in trade and related jobs or military services.

Geographical location of first job. Industries in the Twin City metropolitan area hired 97 per cent of the 389 students who indicated where they were initially employed. None of those engaged in the military services were included in Table XI, page 77, which combined the graduates and early-leavers into a single grouping. Appendix B, item number 6 records this information in greater detail.

Seventy-three (73) per cent of the students accepted jobs within the St. Paul city limits while 9 per cent were employed in the St. Paul suburbs. Industries in Minneapolis and its suburbs hired 15 per cent of the students. Only 5

TABLE XI

GEOGRAPHICAL LOCATION OF FIRST JOB

Location of job	Number	Per cent
St. Paul	284	73
St. Paul suburbs	38	9
Minneapolis and suburbs	57	15
Outside the metropolitan area	5	1
States other than Minnesota	5	1
Total replies	389	

NOTE: Location of military personnel was not included in the table.

students were hired outside the metropolitan area; 2 of these were area vocational students. Five (5) students decided to work outside the state of Minnesota.

The observations from Table XI indicated that the Vocational School students were in demand in the St. Paul-Minneapolis metropolitan area. The school was training young men for jobs which were available to them in the immediate community. Students tended to remain in the area for employment.

Method of securing first job. Assistance in securing a job after separation from the school is part of the service offered to each student. A record of the students' response to the method used in obtaining their initial employment is given in Table XII, page 78, and in table 11 in Appendix B.

TABLE XII

METHOD OF SECURING FIRST JOB

Method Used	Graduates		Early-leavers	
	Per cent	Number	Number	Per cent
School coordinator	30	112	4	4
Shop instructor	12	45	9	9
Own initiative	20	72	45	43
Joint apprentice committee	29	108	1	1
Friends or relatives	3	10	8	7
State employment agency	2	8	6	6
Private employment agency	.5	2	3	3
Newspaper	.5	2	2	2
All other methods	1	5	3	3
Not stated	1	4	24	23

NOTE: The above table includes any type of job the student accepted, whether trade-related or not. Those joining the military services were included in the category, "Own initiative."

The replies include any type of job the student accepted, whether trade-related or not.

The school coordinator and instructors placed a total of 59 per cent of those students who desired jobs in industry. This figure does not indicate subsequent assistance given to a student after initial employment. The shop instructor and

coordinator worked together in placing 170 of the students, or 36 per cent, in jobs. The coordinator, working with the apprenticeship committee, placed another 109, or 23 per cent, of the students in appropriate apprenticeships.

Students' efforts, along with those of friends or relatives, accounted for 28 per cent, or 135 job placements, including the 41 young men in the military services. No effort was made to discourage individual initiative in procuring employment.

Differences between graduates and early-leavers in securing their first jobs. In Table XII, page 78, certain differences between graduates and early-leavers can be noted by the methods they used to secure their initial employment. (1) A much higher percentage of early-leavers, 23 per cent, left this question unanswered, while only 1 per cent of the graduates failed to respond. (2) The school was credited by 62 per cent of the graduates and by 13 per cent of the early-leavers with assistance in securing employment. (3) The apprenticeship committees aided one early-leaver and 108 graduates. (4) By using such outside help as friends or relatives, employment agencies and newspapers, 18 per cent of the early-leavers secured employment while only 6 per cent of the graduates used these methods. (5) Some young men secured jobs through their own initiative; 18 per cent of the graduates and 6 per cent of the early-leavers reported this method. (This figure was secured by subtracting the

number of students who entered military service from the totals on Table XII.)

Number of students in apprenticeship training. Not all trades and technical areas taught in the St. Paul Technical Vocational School had joint apprenticeship committees. The following shops are considered apprenticeable trades and were the only ones included in this tabulation: auto, cabinet, carpentry, electric, tool and die, pattern, print and sheet metal.

Table XIII reveals that the 260 graduate replies from these eight shops indicated that 60 per cent, or 156 workers, were engaged in or had finished apprenticeships. Of the 63 early-leavers replying to this item 13 per cent, or 8 workers were engaged in an apprenticeship program. The previous figures indicate strongly that the apprenticeship committees prefer graduates.

TABLE XIII

NUMBER OF WORKERS IN APPRENTICESHIP TRAINING

Shop	Per cent	Number	Shop	Per cent	Number
Electric	95	68	Auto	38	8
Sheet Metal	94	34	Print	37	10
Cabinet	50	14	Tool and die	35	23
Pattern	50	14	Carpentry	33	7

NOTE: Total replies are 323, including graduates and early-leavers.

The electric and sheet metal shops had both the highest number enrolled for undergraduate training and the highest percentage of students who pursued apprenticeships. The remaining shops placed between one-third and one-half of their graduates in apprenticeship training programs after graduation. Very few early-leavers were accepted into such programs.

Length of time Vocational trained worker remained at his first job. Table XIV, page 82, was constructed to determine whether the graduate and early-leaver differed in their stability as employees. The table is similar to item number 7 in Appendix B. Certain qualifications govern the following statistics. (1) No military service records were included; the percentages were figured on 358 graduates and 74 early-leavers. (2) Any job the student accepted after leaving school has been included.

Examination of figures in Table XIV revealed that 70 per cent of the graduates and 54 per cent of the early-leavers were still working for their first employer. Twenty-four (24) per cent of the graduates and 27 per cent of the early-leavers had been employed for a minimal period of two years. Nine (9) per cent of the graduates and 8 per cent of the early-leavers had been out of school less than six months; this accounted for the number who had worked for a shorter period. The greatest difference between the early-leavers and graduates was discovered in the six to twelve month employment range in which 25 per cent of the graduates were listed

TABLE XIV

LENGTH OF EMPLOYMENT AT FIRST JOB

	Graduates		Early-leavers	
	Per cent	Number	Number	Per cent
In Military Service (not figured in)		11	31	
Not stated on reply	10	34	14	20
Has worked less than 6 months	9	32	6	8
Has worked 6 to 12 months	24	84	4	5
Has worked 13 to 18 months	11	39	7	9
Has worked 19 to 24 months	5	16	3	4
Has worked 25 or more months	24	84	20	27
Total number and per cent at same job	70	255	40	54
Quit or laid off before 6 months	7	24	6	8
Quit or laid off between 6 to 12 months	4	13	5	7
Quit or laid off between 13 to 18 months	3	12	4	5
Quit or laid off between 19 to 24 months	6	20	5	7
Number of replies included		358	74	

NOTE: Apprentices were considered to be working for the Joint Apprenticeship Committee even though they were shifted from employer to employer.

and only 5 per cent of the early-leavers. No reason was observed for the difference at this particular time interval. With the exception of this single interval, little difference seemed to exist between graduates and early-leavers in stability of employment after leaving school. A rather low percentage of workers were laid off or quit their jobs before six months of employment had elapsed with 7 per cent of the graduates and 8 per cent of the early-leavers in this category.

It was not possible to determine the exact length of employment at the same shop because some of the workers involved in the study had left school less than 6 months previously, while other had been separated for four years.

Number of students in the Military Services. Each year approximately 2 per cent of the graduates and 29 per cent of the early-leavers at the Vocational School join the military services immediately upon leaving school. A detailed record of this information is given in Table XV, page 84.

A second interesting fact found in this table is the number of workers who left their jobs to engage in the defense of their country. These percentages stood in marked contrast to the number who left school to join the service, 6.7 per cent of the graduates and 7.6 per cent of the early-leavers. In this comparison the percentages were nearly identical. No information was available to determine whether finances, family problems, draft age, patriotism, scholastic ability or present opportunity was the determining factor for students to leave school to join the military service before they were graduated.

TABLE XV

NUMBER OF STUDENTS IN THE MILITARY SERVICE

Time of joining the Service	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Joined immediately after leaving school				
Trade related classification	.4	4	10	9
Non-trade related classification	1.6	6	21	20
Left first job for military service	6.7	24	8	7.6
Presently in military service				
Trade related classification	4.8	16	12	11.4
Non-trade related classification	6.5	20	21	19

*Percentage is figured on complete number of replies from 368 graduates and 105 early-leavers.

Close examination of Table XV reveals an apparent contradiction; when combining the number of students who joined immediately after leaving school with the number who left their jobs to enter, this total does not equal the number reporting they were currently in the service. However, some of the former students could have returned from the service in this five year span.

Regardless of the reasons why boys entered the service, there were presently 36 graduates and 33 early-leavers involved in the service. Of this group 44 per cent of the graduate students in the military service and 36 per cent of the early-leavers indicated trade-related classifications.

It could be expected that their Vocational School training might have qualified them for further schooling or experience in their chosen occupation.

B. PRESENT JOB OF FORMER STUDENT

Present utilization of trade training. Table XVI, page 86, summarizes the present use of former students' trade training. The table appears as an abridged version of Appendix B, item number 12. The percentages of workers in the trade has dropped 12 per cent for the graduates and 2 per cent for the early-leavers. Examination of the 12 per cent loss of graduates revealed that 5 per cent of these men had entered the military service in a non-trade related classification and 2 per cent were presently enrolled in school. The remaining 5 per cent had entered different occupations. The early-leavers had 3 per cent fewer workers who were utilizing their trade training in the military or in industry. At the current time 75 per cent of the graduates were using their training in industry and 5 per cent in the military. The percentage of early-leavers did not run as high; 27 per cent indicated their employment in industry and 11 per cent in the military.

To determine whether the previous percentages of former students who had utilized their trade training tended to lessen rapidly as years passed, a separate tabulation was made for the class of 1955-1956 graduates. It could not have been carried out for the early-leavers because they had not been

contacted in the study. Most of the graduates in question had been separated from the school for four or five years. The findings from examination of 169 graduate students revealed that 127 (or 75 per cent) were still employed in their particular trades, 16 (or 9 per cent) had entered the Armed Services, and 26 (or 15 per cent) were no longer working in their trade. These figures fall within a few percentage points of the results of the entire survey.

TABLE XVI

PRESENT UTILIZATION OF TRADE TRAINING

Use made of training as of July 1962	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Working in trade or related job	75	279	28	27
Military Service: trade related classification	5	16	12	11
Total number using trade training	80	295	40	38
Military Service: not trade related	6	20	21	19
In school or college	2	9	5	5
Not in trade trained for, or not stated	12	44	39	38
Total number not using trade training	20	73	65	61

The estimated number of students, from four year period, presently working in their trades. As of July 1962 an estimated 466 former students currently worked in their trades

in industry or held related classifications in the military services. Table XVII, which follows, includes the calculations made in arriving at 466 as the number of students in their particular trades. The basis for percentages and numbers was secured from Table XVI, page 86, in addition to the study of non-respondents Table III, page 65.

TABLE XVII

THE ESTIMATED NUMBER OF STUDENTS FROM FOUR YEAR PERIOD CURRENTLY WORKING IN THEIR TRADES

Calculations	Actual Replies	Estimated no. of workers
80% of 355 replies from graduates	286	
69% of 85 non-respondent graduates	9	50
38% of 92 early-leavers	35	
38% of 249 non-respondent early-leavers and 2 years not sampled	5	90
Total actual and estimated students who are currently working in a trade related job		466

NOTE: Former students in trade related military classifications were included.

The previous figures were 9 per cent lower than comparable figures for initial employment in the trade. Some students had been separated from school for as long as five years while others had been working for only a few months. Reasons for leaving the trade will be discussed and explained on pages 91 and 92. The education which boys obtained at the Vocational

School was utilized by 60 per cent of all students who had attended for one year or longer.

Geographical location of present job. Industries in the Twin City metropolitan area were found to currently employ 93 per cent of the 372 students who reported where they were working. None of those engaged in military service were included in Table XVIII which combines the graduates and early-leavers into a single group. More detailed information appears in Appendix B, item number 13.

TABLE XVIII

GEOGRAPHICAL LOCATION OF PRESENT JOB

Location of job	Number	Per cent
St. Paul	276	74
St. Paul suburbs	30	8
Minneapolis and suburbs	44	11
Outside metropolitan area	3	.7
Outside the state of Minnesota	17	4
Foreign country	2	
Total replies	389	

NOTE: Location of military personnel was not included in this table.

Currently 81 per cent of the workers were employed in St. Paul and its suburbs, 11 per cent in Minneapolis and its suburbs and 4 per cent outside the state of Minnesota. Only

two students were working outside the United States. Seventeen (17) workers reported they are working out of state. This represents a movement of 14 workers out of the Twin City metropolitan area. No information was available to indicate why these workers had decided to leave Minnesota, but it does indicate that perhaps other states were recruiting trained workers through newspaper advertisements and employment offices.

Reasons for shifting jobs within the occupation. This category was organized to determine why workers in the trade shifted employers. Table XIX, page 90, (the same table as that found in Appendix B, item 8 with the exception of the method of figuring percentages) indicates these findings. The percentages in Table XIX were figured on the base of 315 replies from the graduates and 37 replies from the early-leavers.

The percentage of workers still employed by their original company or apprenticeship committee amounted to 60 per cent of the graduates and 46 per cent of the early-leavers. A certain segment of workers--7 per cent of the graduates and 21 per cent of the early-leavers did not leave their employment voluntarily but terminated to serve in the military. Fifteen (15) per cent of the graduates and 8 per cent of the early-leavers can be accounted for by the fact that they were laid off or their shops were closed. Tabulation of the previous figures indicated that if conditions

TABLE XIX

REASONS FOR SHIFTING JOBS WITHIN THE OCCUPATION

History of employment	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Currently with original employer				
Same company	30	99	15	40
Apprentice committee	29	91	2	6
Total with original employer	60	190	17	46
Left original employer for				
Military service	7	24	8	21
Laid off or shop closure	15	48	3	8
Number of workers who may have remained with their original employer if conditions had remained the same	83	262	28	75
Left original employer purposely				
Better opportunities for advancement	10	34	5	13
Better working conditions	2	6	2	5
Started own business	1	4	0	
Larger salary	3	9	2	6
Total number who shifted employers	17	53	9	24
Number of replies included in table		315	37	

had not changed (military and lay-offs) 82 per cent of the graduates and 75 per cent of the early-leavers may have remained with their first company.

Seventeen (17) per cent of the graduates and 23 per cent of the early-leavers had left their first employers for reasons

of advancement, larger salaries, for better working conditions, or to start their own businesses.

The statistics gathered for this topic seemed to indicate that the graduates were less likely to change jobs than the early-leavers, but the difference between the two groups was not of great import. The statistics also indicated that the Vocational School trained worker was able to transfer from one company to another when necessary because of lay-off or unsatisfactory working conditions.

Reasons for shifting occupations other than trade training. A disturbing and recurrent question in any school offering terminal education is the question, "Why did the student leave the occupation for which he seemed so anxious to train?" Table XX, page 92, contains the tabulation of replies regarding this subject. This table compares with the one found in Appendix B, item number 14 with the exception of the different number of replies used in calculating the percentages. Everyone who returned a questionnaire did not reply to this item because of its limited application to workers no longer employed in their trade areas or those engaged in military service. The following figures represent responses from 82 per cent of the graduates and 64 per cent of the early-leavers who had shifted occupations. The percentages were figured on replies from 52 graduates and 41 early-leavers.

"A better paying job," and "development of new interests" were the two most frequently given reasons for workers'

TABLE XX

REASONS FOR WORKERS' SHIFTING TO OCCUPATIONS OTHER THAN TRADE TRAINING

Reason for changing occupation	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Development of new interests	17	9	10	24
Better paying job	21	11	8	19
No job available	17	9	6	15
Training used as preparation for advancement	12	6	5	12
Better opportunity for advancement	12	6	2	5
Disliked trade	2	1	3	7
Health reasons	2	1	1	2
No future in present job	2	1	0	
Miscellaneous	15	8	7	17
Total number of replies		52	41	

shifting occupations. Thirty-eight (38) per cent of the graduates and 43 per cent of the early-leavers stated these as their reasons for leaving. Twenty-four (24) per cent of the graduates and 17 per cent of the early-leavers felt that they had more favorable opportunities for advancement by changing to a different occupation. Notice that few workers shifted occupations because they disliked their particular trades or because they felt a future was lacking in their areas. Shop instructors constantly offer guidance to students

helping the student determine the advisability of entering or continuing a particular training program. Past experience shows that some young men began a program of training with a false conception of the trade; after they discovered the actual facts and tried the shop work, they often decided to quit before the school year was completed. The student became a drop-out on the school records, but he was still somewhat better off for having attended school for even a short period of time and for having gained more information about the range of occupations available.

The problem of unemployment. Unemployment did not appear to be one of the significant problems faced by former Vocational School students. Only 1 per cent (four students) of the graduates reported that they had been unemployed; two had been on strike with the pattern trade and one early-leaver reported that he was unemployed. The percentage of unemployment in July, 1962 (including those on strike) totaled one and one-half per cent for the 473 students who reported. During July, 1962 the Twin City unemployment statistic ranged between 5 and 6 per cent.

These figures indicated that the Vocational School trained student had saleable skills which were in demand in his geographical area and that he was less apt to be unemployed than the general population.

Additional schooling after leaving the Vocational School. One specific part of the questionnaire was designed to

determine whether the former students had continued their education. The replies indicated that approximately 75 per cent had continued study in one form or another after leaving the school. A tabulation of the kinds of additional schooling reported by the workers is given in Table XXI. A more detailed tabulation is presented in Appendix B, item 26. All percentages used are figured on the total number of questionnaires returned, although 21 per cent of the graduates and 56 per cent of the early-leavers failed to answer the question under consideration.

A greater percentage of graduates reported additional educational programs after leaving school than did the early-leavers as evidenced by the 21 per cent of graduates and the 56 per cent of early-leavers who did not list an activity.

TABLE XXI

MOST HELPFUL MEANS OF SELF-IMPROVEMENT OTHER THAN WORKING

	Graduates		E.Leavers	
Kind of activity	Per cent	Number	Number	Per cent
Joint apprenticeship classes Trade extension classes	40	146	6	6
In-plant training programs	19	69	18	17
Trade periodicals and books	9	33	3	3
University extension classes	5	20	4	4
Military service schools	6	21	15	15
Not stated	21	77	59	56

NOTE: Percentages were figured on all returned questionnaires.

Apprenticeship classes were usually open only to men working in the particular trade preparing for a journeyman's card; consequently, the graduates, with 40 per cent attendance, compared with the early-leavers' attendance of six per cent reflected how few early-leavers become apprentices. The in-plant programs accounted for 19 per cent of the graduates and 17 per cent of the early-leavers. Approximately 5 per cent of all workers were enrolled in university extension classes.

One of the objectives in vocational training is to get the student to realize that learning and study are not finished upon graduation. The previous statistics cited indicated that school instructors were getting this concept across to their students; approximately 75 per cent had continued to pursue educational training after working hours.

Number of students working in addition to attending school. One of the first questions posed on the questionnaire pertained to any outside work performed by the student while he had attended school full time. Detailed information to this question appears in Appendix B, item number 4. Findings from the question revealed that 21 per cent of the students worked a full (40 hour) week in addition to attending classes. Thirty-three (33) per cent had worked from 20 to 39 hours per week. Only 25 per cent indicated that they had held no part-time employment. No apparent differences between graduates and early-leavers was observed in the break-down of replies.

C. WORKERS' OPINIONS OF SCHOOL TRAINING

Several questions of importance to the school's program and value centered upon how former students regarded their shop classes and related classes in terms of adequacy of occupational preparation.

Chief value of shop or laboratory instruction. Each worker was asked to state what he considered the chief value of the shop or laboratory instruction which he had received in his trade training program. He was directed to check one of the five responses listed or to record his personal opinions in the space provided. Table XXII contains a summary of the replies received. Appendix B, item number 20 contains the

TABLE XXII

CHIEF VALUE OF SHOP OR LABORATORY TRAINING TO THE WORKER

Reply Given	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Foundation for additional training	35	113	28	56
Foundation for advancement on the job	30	94	9	18
Helpful in obtaining employment	22	70	8	18
Helpful in beginning at higher wage	7	23	2	4
No special advantage	1	4	0	
Miscellaneous	2	7	0	
Percentages figured on replies from		311	47	

same information with the percentages figured on the basis of questionnaires sent out. In Table XXII, page 96, the percentages were figured on 311 graduates and 47 early-leavers currently working in their particular trades.

The most frequently indicated value of shop and laboratory training was as a foundation for additional training, checked by 35 per cent of the graduates and 56 per cent of the early-leavers. Thirty (30) per cent of the graduates and 18 per cent of the early-leavers stated "It provided a good foundation for advancement on the job." These two responses somewhat overlapped in that the students' training benefited them both in learning and in advancing on the job. A combination of these two items showed that 65 per cent of the graduates and 74 per cent of the early-leavers considered themselves more adequately prepared for employment and learning on the job because they had attended the Vocational School.

The third most frequently stated advantage was, "It was helpful in obtaining employment," One reason for this response by 22 per cent of the graduates and 18 per cent of the early-leavers might be that certain apprenticeships were closed to non-vocational students and that other skilled trades preferred beginning workers with vocational school training.

Seven (7) per cent of the graduates and 4 per cent of the early-leavers indicated that their training had been most beneficial because they were able to begin at a higher wage-earning level.

Only 1 per cent of the graduates and none of the early-leavers checked the item, "The training was of no special advantage." Re-examination of these questionnaires showed that the two of the young men in question were presently electronic assemblers who were dissatisfied with their jobs. Another young man who was currently working in a bindery department indicated that if he were to choose another occupation, he would select a profession. The fourth man stated that he would select the same trade and that he was satisfied with his present job.

Seven graduates listed some further advantage gained from having attended the Vocational School. These were considered as comments and will be discussed at a later point in the study. With the exception of the four students who responded negatively, all former students indicated that they had received actual advantage from attending the St. Paul Technical Vocational School.

An examination for differences between responses by graduates and the early-leavers revealed similarities in all of the items; however, the number and percentage of replies to the questions posed varied.

Aspect of the trade for which worker felt least well-prepared. Question number 14 was designed to provide an opportunity for former students to register their problems upon entering their particular trades. The replies from 305 graduates and 34 early-leavers have been tabulated in Table XXIII, page 99, which is similar to the table in Appendix B,

TABLE XXIII

ASPECT OF THE TRADE IN WHICH WORKER FELT LEAST WELL PREPARED

Area of lack of preparation	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Experienced no particular difficulty	63	193	13	38
Needed additional technical knowledge	25	77	14	41
Needed more shop and practical work	3	9	1	3
Experienced interpersonal difficulties	2	6	2	6
Other written comments	7	20	4	12
Percentages figured on replies from		305	34	

item number 25 with the exception of the base number used to compute the percentages.

The majority of workers, 63 per cent of the graduates and 38 per cent of the early-leavers, indicated that they had experienced no particular difficulty upon entering their trades. A need for more technical knowledge was mentioned by 25 per cent of the graduates and 41 per cent of the early-leavers. Very few workers indicated that they felt inadequate in the area of shop and practical knowledge. Six (6) per cent of the early-leavers and 2 per cent of the graduates stated that they had difficulty getting along with other workers on the job.

In conclusion, the early-leavers felt that they needed further technical training. A smaller percentage of graduates also felt a need for more technical knowledge. Comments such as these should be considered when the curriculum is examined for revision by the administration. Judging from the low percentage (3) of workers who checked this item and from the large percentage (60) who stated that they had experienced no particular difficulty on the job, the quantity of shop work required by the school appeared to have been sufficient.

Workers' opinion of related classes. Question number 10 was included in the questionnaire to determine the current feelings of former students toward their related class training in mathematics, drawing, physics and technical writing. It was assumed that these workers had had opportunity to utilize their related training and were thus able to evaluate their training more objectively than when they were in school.

The question was posed for each related subject on a continuum from 'very valuable' to 'of doubtful value.' The non-commital response of 'some value' will be mentioned only incidentally because of its neutral connotation. A second deviation from the normal practice for summarizing results of related classes occurred because not all students were required to take all subjects offered in the curriculum. Therefore, only those actually enrolled in the particular classes under consideration will be used in determining the percentages.

The graduates and early-leavers have not been separated in the tabulations which follow in Table XXIV and Table XXV, page 102. For purposes of comparison, the tables in Appendix B, items 21 through 24 have been figured on the entire number of questionnaires.

TABLE XXIV

WORKERS' OPINION OF MATHEMATICS AND DRAWING CLASSES

Value of class	Math		Drawing	
	Per cent	Number	Per cent	Number
Very valuable	60	272	37	172
Valuable	23	105	26	121
Of some value	7	34	20	93
Of doubtful value	1	3	7	30
Not stated	10	45	10	45
Total number enrolled in class		454		461

Workers' rating of mathematics class. In table XXIV, the 454 replies regarding mathematics class showed that 83 per cent considered it valuable while 1 per cent indicated that it was of doubtful value. Mathematics was the most highly rated subject with 60 per cent of the respondents rating this particular subject as 'very valuable.'

Workers' rating of related drawing class. The related drawing class was rated by 461 workers. Table XXIV states that 62 per cent of those tabulated considered it a valuable

TABLE XXV

WORKERS' OPINION OF TECHNICAL WRITING AND PHYSICS CLASSES

Value of class	Tech. Writing		Physics	
	Per cent	Number	Per cent	Number
Very valuable	10	24	23	72
Valuable	20	45	26	64
Of some value	26	59	24	84
Of doubtful value	13	30	9	29
Not stated	29	66	19	60
Total number enrolled in class		224		309

course. This particular class received a number of unsolicited comments which will be examined in the section reserved for student comments.

Workers' rating of technical writing class. Since writing became a requirement of students recently, only 224 of the former students involved in this study had taken the course. Table XXV shows that 30 per cent of the respondents considered technical writing as valuable and 13 per cent thought that it had been of doubtful value.

Workers' rating of physics class. The physics class was a graduation requirement for those students who did not study the subject while in high school. Table XXV, containing 309 replies, indicated that 50 per cent of the students

considered it valuable while 9 per cent thought that it had been of doubtful value.

D. WORKERS' OPINIONS CONCERNING THEIR TRADES

Workers' satisfaction with present job. Question number 8 on the questionnaire was designed to learn whether workers were satisfied by the jobs at which they were employed. Tabulation of this question necessitated division into three groupings to arrive at an accurate answer. Those former students currently employed in their particular area of trade comprised the first group. The second group consisted of those workers who were no longer employed in their area of trade training and group three was reserved for those former students who were currently engaged in military service. Since little difference between the early-leavers and the graduates in these categories was evidenced, the groups were combined in this particular tabulation in Table XXVI.

TABLE XXVI

WORKERS' SATISFACTION WITH PRESENT JOB

Degree of satisfaction with occupation	In trade		Different Occupation		Military	
	Per cent	Number	Per cent	Number	Per cent	Number
No reply given	13	43	10	7	7	4
Very satisfied	43	147	36	27	23	13
Satisfied	35	118	33	25	39	22
Slightly dissatisfied	7	23	14	10	14	8
Highly dissatisfied	2	6	5	5	15	9
Total number in category		337		74		56

Three hundred and thirty-seven (337) workers were included currently in the trade category. Seventy-eight (78) per cent of the trade workers reported that they were satisfied with their present occupations while 9 per cent stated dissatisfaction with their present occupation. The remaining 13 per cent did not respond.

Of the 74 workers who had changed occupations, 69 per cent reported that they were satisfied with their new jobs; 19 per cent were not. Ten (10) per cent of this group did not respond. The group of workers in the area of their trade training appeared to be more content with their jobs than did those who had changed occupations. No way was devised to determine whether the workers who had changed occupations would have been more satisfied had they remained with their first employer or whether they were merely perpetual gripers.

It could be expected that the men in the Armed Services would be dissatisfied with their occupations. However, only 29 per cent expressed discontent. Sixty-two (62) per cent of those in the military reported that they were satisfied. It should be noted that approximately 40 per cent of these former students had remained in their trade-related classification. The fact carries definite weight in the conclusion reached.

Workers' present evaluation of their occupational choice. Item number 16 on the questionnaire was included to determine whether the worker would select the same occupation were he to choose a second time. It was felt that after having worked at the occupation he would know whether he had made a wise

choice. If counseling, guidance and development of skills had been carried out perfectly in school, it could be expected that the worker would never regret his choice. Table XXVII records the workers' evaluations. In Appendix B, item 27 the percentages have been figured using the entire group as a base; however, in Table XXVII only the 352 graduates and the 75 early-leavers who answered the question have been included.

TABLE XXVII

WORKERS' PRESENT EVALUATION OF THEIR OCCUPATIONAL CHOICE

Opinion of worker were he to choose his occupation a second time	Graduates		E.Leavers	
	Per cent	Number	Number	Per cent
Select the same trade	67	236	42	56
Select another trade	16	56	19	18
Select a profession	13	44	11	15
Select sales or business	3	11	3	4
Select agriculture	1	5	0	
Total number in category		352	75	

Sixty-seven (67) per cent of the graduates and 56 per cent of the early-leavers indicated that they would select the same trade. The workers who desired to enter different trades numbered 16 per cent of the graduates and 25 per cent of the early-leavers. Thirteen (13) per cent of the graduates and 15 per cent of the early-leavers indicated that they would select a profession. Three (3) per cent of the graduates and

4 per cent of the early-leavers stated that they would like to enter business or selling fields. Only five graduates indicated that they would choose agriculture.

A somewhat surprising result of the third ranking choice was the large number of workers who desired to be engaged in professions. The highest concentration of workers expressing this desire came from 41 per cent of the 39 engineering drafting workers. The remaining shop and technically trained workers reported a desire for a profession in about 10 per cent of the replies. Personal interviews with each of those desiring professional status would perhaps explain their reasons for the replies stated on their questionnaires.

When all the workers, who would choose the same trade or a different trade, were combined into one group, it was found that 83 per cent of the graduates and 81 per cent of the early-leavers would choose a trade as a lifetime occupation. Thus it appeared that the school selection, guidance, counseling and training efforts were concentrated on individuals who intended to spend their working days in a trade or technical employment. The group of young people for whom the school program was designed were being served quite adequately by it.

E. WORKERS' ADDITIONAL COMMENTS AND SUGGESTIONS

Space for comments and suggestions was provided and requested on the back side of the questionnaire. A total of 191 workers comprising 40 per cent of all respondents supplied

a total of 234 personal comments. These varied remarks have been grouped together by subject matter and by shops and are presented in tabular form in Tables XXVIII, XXIX and XXX found on pages 108 through 110. The arrangement of these tables in scattergram form makes it easy to see which trades the workers represented and commented about. At the end of each line the total number of workers making similar comments was recorded.

The most frequently mentioned comment (36 workers) recorded in Table XXVIII, page 108, was, "I received a very fine training at the Vocational School." In the category pertaining to the shop and laboratory training 17 workers stated, "The shop program needs additional specialized training." Four workers in electronics and two workers each in the engineering drafting, pattern, printing and sheet metal shop responded in this way. An additional 14 workers felt that shop training should be made more similar to actual work experience. Five electrical workers, and 2 each from carpentry, engineering drafting and sheet metal shops gave this response. The request, however, would be difficult to carry out in a limited shop situation in which both general principles and processes are taught. Nine workers noted the need for more equipment.

In Table XXIX, page 109, which contains comments from the related drawing and mathematics classes, 27 workers reported that the mathematical emphasis needed to be strengthened in the architectural and engineering drafting, electronics and

TABLE XXVIII

COMMENTS FROM WORKERS CONCERNING VOCATIONAL TRAINING IN SHOP AND LABORATORY

COMMENTS FROM RESPONDENTS	Auto	A.Drafting	Cabinet	Carpentry	Electric	Electronics	Eng.Drafting	Machine	Pattern	Print	Sheet Metal	Watch	Weld	Total Responses
ABOUT OVER ALL VOCATIONAL TRAINING														
Very fine training	I	IIII	III	II	III	I ~~IIII~~	III	III ~~IIII~~	I		III	I	I	36
Training well accepted in industry						I								1
Need new school					II									2
Need more help for slow students	I							II						3
Need follow-up of placements								I						1
PERTAINING TO SHOP AND LAB TRAINING														
Need training more like actual job				II	~~IIII~~		II	I		I	II			14
Need additional specialized training				I	I	IIII	II	I	II	II	II	I		17
More knowledge of materials necessary					II									2
Need more shop trips					I									1
More shop and Lab equipment needed			I		III	I		I		III				9
More emphasis on speed of work needed								I						1
Need related welding	I										I			2
Need related machine shop	I													1
Theory needs improvement				I										1
Need Apprenticeship Committee				II					I					3

TABLE XXIX

COMMENTS FROM WORKERS CONCERNING RELATED MATHEMATICS AND DRAWING CLASSES

COMMENTS FROM RESPONDENTS	Auto	A.Drafting	Cabinet	Carpentry	Electric	Electronics	Eng.Drafting	Machine	Pattern	Print	Sheet Metal	Watch	Weld	Total Responses
RELATED CLASSES IN GENERAL														
Well planned			I			I	I	I	I					5
Too much stress	I			I	I									3
Not practical											II			2
DRAWING CLASS														
Increase amount of drawing	I							IIII	I					6
Need more blueprint reading		I	IIII	I	IIII			III ~~IIII~~			IIII			22
Need real shop drawings			I	I				I						3
Too much emphasis on technicalities	I		I	I				II						5
Need drawing related to trade			IIII		III			I						8
MATH CLASS														
Need more and higher math	I	IIII	II	II	II	IIII	IIII	I ~~IIII~~	II					27
Need math related to trade	I	II				I		~~IIII~~		I	I			11
Need smaller classes more individual instruction				I				I						2
Only one kind of math in the room at one time						I								1

TABLE XXX

COMMENTS FROM WORKERS CONCERNING PHYSICS AND TECHNICAL WRITING CLASSES AND MISCELLANEOUS COMMENTS

COMMENTS FROM RESPONDENTS	Auto	A.Drafting	Cabinet	Carpentry	Electric	Electronics	Eng.Drafting	Machine	Pattern	Print	Sheet Metal	Watch	Weld	Total Responses
PHYSICS CLASS														
Need more physics		I		I		III	III	I		I				10
Need physics related to job				I				II						3
Too much emphasis	I										II			3
Above my comprehension				I							I			2
TECHNICAL WRITING														
Need more writing		I												1
Need business English	I	II				II	II	I						8
Too much emphasis					II	I		II						5
MISCELLANEOUS COMMENTS														
Need to know what foreman expects								I						1
Didn't like an office all day		I					I							2
Not enough job opportunities		I					I		I				I	4
Poor pay for beginners		II					I							3
Too much night school											I			1

machine shop areas. Eleven workers, including 5 machine shop workers and 2 architectural drafting workers, felt that the mathematics course should be more closely related to those trades. That the related drawing class needed more blueprint reading experience was indicated by 8 machine shop, 4 sheet metal, 4 electric and 4 cabinet shop workers. Other cabinet shop workers stated that they would like the drawing course to be more closely related to their particular trade.

In Table XXX, page 110, which contains comments from the physics and technical writing classes, 10 workers noted that they would appreciate a greater emphasis upon physics. Three of these responses came from engineering drafting and electronics workers. In three of the technical trades--architectural drafting, electronics and engineering drafting--workers requested a business English course. Only 4 workers--1 each from architectural drafting, engineering drafting, pattern and welding--indicated that there were insufficient job opportunities in their fields. Thus all but 1 per cent of all respondents felt that sufficient employment opportunities existed.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this section of the report was to take a conclusive look at the purposes, nature, and the findings of this follow-up study and to focus attention upon constructive uses of the facts and statistics presented.

I. SUMMARY AND CONCLUSIONS

This study originated with the problem of determining how graduates and early-leavers utilized their training at the St. Paul Technical Vocational School. Since the school's principle goal is to prepare young men for careers in skilled trades and technical areas of employment, it was felt that the success of the training offered could best be determined by the number of graduates and early-leavers who used their instruction to enter and advance in their chosen occupations. To evaluate the success of former students it was considered necessary to conduct a follow-up study to acquire current data as reported by the former students, to organize the information, and to make meaningful interpretations of the data.

The method employed to secure the information was to contact the former students by mail with a questionnaire containing the specific information desired and to repeat the mailing until a high percentage of returns had been received.

A smaller study of non-respondents was designed to sample the remainder.

A careful study of appropriate literature was made, with special consideration of methods and techniques used to secure information relating to occupational surveys in the skilled trades area. Of particular interest were the experiences and recommendations of other investigators in constructing and securing data from their questionnaire.

After several efforts to contact the graduates and early-leavers in which the importance of the return and the ease of reporting were emphasized, a high percentage of questionnaires was returned.

All information was analyzed and recorded to be placed on IBM cards for later tabulation. The information presented in this report was hand-tabulated, organized into tables and summarized to determine the first job, present occupation, adequacy of training, workers' opinions and comments regarding the training offered by the St. Paul Technical Vocational School. The significant findings of the study have been summarized in the paragraphs which follow.

Only 25 per cent of the students indicated that they had had no full time employment while attending school.

The school placement service had aided 59 per cent of the students in securing their first jobs in a trade after leaving school; friends or relatives and individual effort accounted for the placement of 28 per cent of the students in industry.

Ninety-two (92) per cent of the graduates and 41 per cent of the early-leavers entered the trade for which they had trained or held a related military service classification.

For every 100 graduates of the school 122 students actually entered trade-related jobs in the labor market or in the military service.

An estimated 537 students (of the 781 students who attended school for one year or more between September, 1955 and June, 1960) entered a trade or related military service classification.

Two (2) per cent of the graduates and 29 per cent of the early-leavers were engaged in military service; one-half of them were placed in trade-related classifications.

In the apprenticeable trades, 60 per cent of the graduates and 13 per cent of the early-leavers currently were serving or had finished an apprenticeship.

Sixty-nine (69) per cent of the graduates and 35 per cent of the early-leavers as of June, 1962 were still working for their original employer; 25 per cent of the graduates and 33 per cent of the early-leavers had worked for a period of two years or more.

Tabulations indicated that 82 per cent of the graduates and 75 per cent of the early-leavers might have stayed with their initial employers if such conditions as lay-offs or calls to the military service had not interrupted employment. Little difference seemed to exist between graduates and early-leavers in stability of employment after leaving school.

Eighty (80) per cent of the graduates and 38 per cent of the early-leavers as of June, 1962 replied that they were currently in trades or trade-related classifications in the military service.

A separate tabulation of the class of 1955-56 with its 169 graduates showed that 127 (75 per cent) were still employed in their particular trades and that 9 per cent were engaged in military service.

Eighty-one (81) per cent of the students were currently working in the St. Paul area, with 11 per cent in Minneapolis and 4 per cent outside the state of Minnesota.

Of the 340 workers presently employed in particular trades, 78 per cent reported satisfaction with their occupations.

Possibilities of higher paying jobs and development of new interests were the two most frequent reasons for shifting occupations from trade-related jobs to some other type of work.

The percentage of unemployment on June 30, 1962, including workers on strike, was one and one-half per cent for the 473 students who reported in this study; the over-all unemployment statistic in the Twin City area ranged between 5 and 6 per cent.

Replies indicated that approximately 75 per cent of the former students had pursued further study or schooling of some kind after working hours.

Sixty-five (65) per cent of the graduates and 75 per cent of the early-leavers felt that they were better prepared for working and learning on the job as a result of attending the Vocational School.

That "Vocational School training was helpful in obtaining employment," was indicated by 22 per cent of the graduates and 18 per cent of the early-leavers.

Only four graduates and no early-leavers stated "Training was of no special advantage."

A substantial majority of workers stated that they had had no particular difficulty on the job as 63 per cent of the graduates and 38 per cent of the early-leavers checked this item.

Twenty-five (25) per cent of the graduates and 41 per cent of the early-leavers indicated that they could have used more technical knowledge when they began their employment. Very few workers mentioned that they lacked shop or practical knowledge.

Of the 454 replies rating mathematics, 83 per cent considered it of value while 1 per cent indicated that it had been of doubtful value.

The related drawing class rated by 461 workers was considered valuable by 62 per cent while 7 per cent indicated it was of doubtful value.

Physics class with 309 replies was judged valuable by 50 per cent and of doubtful value by 9 per cent.

Technical writing rated by 224 workers was considered valuable by 30 per cent and of little value by 19 per cent.

Sixty-five (65) per cent of all replies indicated that the workers would select the same trade were they to choose their occupations once again; 17 per cent indicated that they

would choose a different trade if it were possible. A total of 82 per cent, however, definitely preferred their particular trades to all other occupations.

A total of 191 students, comprising 40 per cent of all respondents, supplied a total of 234 personal comments. The most frequently mentioned one (36 per cent of the responses) was, "I received a very fine training at the Vocational School."

In the related class areas, some workers felt that the mathematics courses needed to be strengthened in the architectural and engineering drafting and machine shop courses. Workers expressed a desire for more blue print reading in the building and machine areas which related to industrial prints.

It appeared from the information obtained in this follow-up study that most of the students were currently engaged in the trades for which they had taken specialized training and that they were satisfied with the occupations of their choice. The comments from workers indicated that they felt their training had prepared them adequately for responsible positions in their particular skilled trades. The findings of this study indicate that the St. Paul Area Technical Vocational School is very effectively meeting the needs of the community and of its young adults in skilled trade training.

II. RECOMMENDATIONS

FINDINGS: The present system of keeping records of former students was cumbersome and time-consuming to consult and discouraged further study of student records.

RECOMMENDATIONS:

1. IBM cards should be punched for each student when he separated from the school so that all information would be readily accessible for analysis of his scholastic career. A system was devised and cards were punched with this information for the students enrolled between September, 1955 and June, 1959. The system should be extended and could be kept up to date with a minimum of clerical assistance. Results of follow-up studies could thus be punched on the cards after the studies had been completed. Such a system could become a model for other vocational schools to emulate in acquiring research data concerning technical vocational schools.

2. Equipment necessary for the preceding student personnel work might be made available as part of tabular punch card operator training or office machines training department in the school. These two departments could do the necessary card punching and reading of cards for the administrative and guidance departments and for the trade and industrial coordinator.

FINDINGS: Approximately 31 per cent of the early-leavers enter the trade for which they were trained without completing their courses of study.

RECOMMENDATIONS:

1. Each instructor should stress the value of a completed training for entry into an occupation.

2. Each instructor should stress the findings of this study that the Joint Apprenticeship Committee only offers apprenticeship to graduates.

3. The counselor should require parental permission or signature before allowing a student to separate himself from the school. At times students become discouraged and leave school before consulting their parents. Since the highest percentage of students are under 20 years of age and live at the family home, this step would be feasible.

4. School personnel should not secure jobs for early-leavers, except under emergency situations. Approximately 12 per cent of the early-leavers reported that the shop instructor or coordinator had secured jobs for them before leaving school.

FINDINGS: Examination of the student records indicated that many of the early-leavers had done well in shop work but tended to be slow in related subjects. When they developed a certain proficiency in their shop work they left school for a variety of reasons and entered directly into their trades.

RECOMMENDATIONS:

1. Periodic examination, at least twice per semester, of the student's progress report should be carried out. If it is noted that the related subjects have dropped behind schedule, a change in outside work or in school program should be made at that time. Doubling the related class time or temporary removal from shop work might be necessary to correct the imbalance.

2. In shops with admission waiting lists, some entrants should be encouraged to begin related classes while waiting for an opening in the shop. This would help to complete related class work on schedule. It would definitely encourage the student to make a good impression for early admittance into shop.

3. After the counselor has had an initial interview with the prospective students, he should request those testing below average in academic subjects to begin related class work and show satisfactory progress before being admitted into shop classes.

FINDINGS: Approximately 12 per cent of the students take initial employment in Minneapolis.

RECOMMENDATIONS:

A bi-monthly Vocational School Newsletter should be sent to personnel managers in St. Paul and its immediate vicinity informing them of the school and prospective graduates ready for the labor market. This would also help place young men during the summer months and thus gain practical experience while school was not in session.

FINDINGS: A considerable disagreement exists about the amount and type of training required for entry into and advancement in an occupation. This was evidenced by two facts: (1) the

number of students who left school for employment in their trades before fulfilling all school requirements; and (2) the large number of workers who stated that more training was necessary in shop and related classes.

RECOMMENDATIONS:

1. Joint apprenticeship committees should be activated in all apprenticeable trade areas.

2. A job analysis of occupations currently taught in the school should be formulated to determine which skills the worker in the trades needs or does not need.

3. The joint apprenticeship committees should review the standards for beginning apprentices to promote the advantages of pre-apprenticeship training to the employer of shortened apprentice training on the job and of the ease of training the worker to the journeymen level of competence.

4. An advisory committee should be established to aid in constructing a curriculum to be followed at the Vocational School in the shop and in the related classes.

5. Each advisory committee should aid the school to establish minimal requirements for graduation and entry into particular occupations. The Vocational School should offer additional subjects at a higher level periodically for those students who desire more than the minimal training in evening school or day program where demand warranted such special classes.

FINDINGS: Twenty-one (21) per cent of the graduates failed to note any formal or informal study after leaving school.

RECOMMENDATION:

Additional stress on continuing education should be placed on workers by their instructors to keep up with the latest developments in their particular occupations.

FINDINGS: Fifty-four (54) per cent of the students reported that they had worked twenty-to-forty hours a week in addition to attending classes.

RECOMMENDATION:

A special study of students working at half to full time jobs concurrent with school attendance should be made to determine whether the school or work load needs adjustment so that maximum use of expensive machines, buildings and personnel could best be utilized. An individual working full time while attending school might leave a training station vacant for one quarter of time. It may be possible that two such students could attend school one-half time and fill one training station at all times and thus better utilize the investments of the community in educational facilities. It is possible that the students would be better rested, would accumulate fewer absences and would do a better job both in school and at his employment under these circumstances. The school and community would find that it takes less total shop and class time to prepare the student for his chosen occupation.

General considerations: As a result of the findings and through the knowledge gained during the period of this study, the investigator recommends that the following actions be taken.

1. All Vocational School faculty members should be provided with a resume of this study.

2. Additional study should be conducted by the instructor of individual shops cited in the study. A statistical sheet for each shop has been prepared and is available for distribution to individual instructors.

3. Periodic follow-up studies should be carried out to obtain pertinent information concerning specific departmental and trade areas.

4. Partial follow-up studies should be planned to contact the graduates of the previous year to keep placement statistics current and to note any recent employment trends of supply and demand of trained beginning workers in specific occupations.

5. A second follow-up study should be conducted after the students have been separated from the school for a period of five years to determine whether they have become recognized journeymen or whether they have left the trade. This would also allow opportunity to encourage workers to avail themselves of additional training for advancing in their particular occupations. Their comments about the training received in the St. Paul Area Technical Vocational School would help keep the curriculum abreast of changes in the particular occupations.

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APPENDIX A

Code No._____

FOLLOW UP SURVEY
ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL

EMPLOYMENT HISTORY:

1. While attending St. Paul Vocational School did you also work for wages? (check one) Yes____ No____
   If your answer is yes please answer the following
   Job title_____ Hours worked per week_____Hours

2. Please tell us about your first job after leaving school

Date		Company Name	Job Title	Explain what you did	Reason for Leaving
From					
To		City State			

3. Please tell us about your present job if it differs from the one above

Date		Company Name	Job Title	Explain the work you are doing
From				
To		City State		

4. Are you serving an apprenticeship ? ____Yes ____ No. If your answer is yes, please check plan.
   ____Company program or Minnesota Voluntary Apprenticeship____

5. How did you secure your first full time job after leaving school? (check one)
   ____School Coordinator, Mr. Teichroew
   ____Shop Instructor
   ____State Employment Agency
   ____Newspaper
   ____Private employment office
   ____Friends and relatives
   ____My own efforts
   ____Joint Apprenticeship Committee
   ____Other (explain)_____

6. If your present job is different from the trade for which you were trained, give your chief reason for changing to another occupation. (check only one)
   ____No job available in my occupation
   ____Developed new interest
   ____Disliked trade for which I trained
   ____Found better opportunity for promotion
   ____This work pays better
   ____Used training as preparation of another occupation
   ____Other (explain)_____

7. If you are not presently working at a full time job, check one or more items that describe what you are doing.
   ____In Military Service using vocational training.
   ____In Military Service not using vocational training.
   ____Self employed using vocational training.
   ____Self employed not using vocational training.
   ____Unemployed (how long?) months Reason_____
   ____Enrolled full time in College or University (state name)_____
   ____Other (explain)_____

EVALUATION OF TRAINING

8. How well satisfied are you with your present occupation?
   ____Very Satisfied
   ____Satisfied
   ____Slightly dissatisfied
   ____Highly dissatisfied

9. What do you consider to be the chief value of the shop or laboratory instruction received in your trade training program? (check only one)
   ____Not working at occupation studied.
   ____No special advantage
   ____It helped me to obtain employment
   ____It gave me a good foundation for advancing on the job
   ____It helped me to begin at a higher wage
   ____It provided a foundation for additional training
   ____Other (Explain)_____

10. How valuable do you consider the related classes listed below? (place the letter corresponding to your opinion in each column)

10 Math	11 Drawing	12 Technical writing	13 Physics

a didn't take class
b very valuable
c valuable
d of some value
e of doubtful value

Suggestions for improvements_____

14. For what aspect of your trade or occupation did you find that you were least well prepared when you started to work? (check only one)
   ____Not working at trade or occupation studied
   ____Experienced no particular difficulty
   ____Found it difficult to get along with other workers
   ____Needed additional technical knowledge
   ____Other (explain)_____

15. My most helpful means of self improvement other than work experience since leaving St. Paul Vocational School. (check only one)
   ____Trade Extension or apprentice classes (St. Paul Vocational Evening School)
   ____University Extension classes
   ____Trade organizations (give name)_____
   ____Joint Apprenticeship Committee
   ____Technical societies (give name)_____
   ____Trade periodicals and books
   ____In plant training program
   ____Other (explain)_____

16. If you were to make your occupational choice today would you (check one)
   ____Select the same trade?
   ____Select another trade?
   ____Enter agriculture?
   ____Select a profession?
   ____Enter selling or business world?

17. Use this space to make any comments or suggestions you desire.

ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL
14 th at Jackson St.
St. Paul 1, Minn.

Dear Former Student:

You are one of the students who entered St. Paul Technical Vocational School since September 1955. We know that you have had time to evaluate the training received at this school. You probably have told your friends about it, will you tell us too?

We are interested in finding out how you have made use of skills and technical information learned here at school. A questionnaire is enclosed with this letter so you can easily state your experiences since leaving school. It will take about 10 minutes to fill it out and return to the school. Please answer every question. If you don't find an adequate statement listed with the questions use the space marked "Other" to record your answer. Your name will not be mentioned in connection with any information obtained through this study. The code number is to avoid unnecessary repeat mailing.

We are anxious to contact and hear from each student. If you could give us the address of any classmate of yours, who has moved since attending school, we would appreciate it. Feel free to ask us for present addresses of any classmates you would like to get in touch with. Be sure to include the student's full name, year of attendance, and name of his shop class. We will mail you his last known address.

Thank you for your help and cooperation.

Sincerely yours,

Fred Berndt

REMINDER CARD 2ND MAILING

ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL
14 th at Jackson St. St. Paul 1, Minn.

On April 28 you were mailed a questionnaire from the School. The faculty is very interested in learning how you are using your Vocational School training on the job.

As of May 18 I hadn't received your reply. Would you fill it out right away and put it in the mail? If you need a new form call Ca-4-3828 and a new one will be sent.

I'll be watching the mail for your reply.

Sincerely yours,

THIRD MAILING

ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL
14 th at Jackson St.
St. Paul 1, Minn.

June 8, 1962

Over 275 former St. Paul Area Technical Vocational students have replied to the school questionnaire sent out last April 28.

The mailing record shows your reply has not been received.

As you probably know the replies from this follow-up study are important for future curriculum changes in the school.

Your reply is urgently needed today. Don't bother to look for the first questionnaire, just fill out the one included in this envelope and send it back to the school by return mail.

I'll be watching the mail for your reply.

Sincerely yours,

Fred Berndt

MAILING TO NON-RESPONDENTS

ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL
14 th at Jackson St.
St. Paul 1, Minn.

Oct. 5, 1962

Over 400 former St. Paul Area Technical Vocational Students have replied to the school questionnaire sent out last spring.

Maybe you forgot to mail your completed questionnaire in last summer. At any rate we are still anxious to hear from you. It is not too late to be included as one of the fellows that took time to help future students in your former school.

We want to know if your training at the Vocational School proved to be of benefit to you. Only you can tell us this.

The answers are being tabulated now. Why not include your ideas, opinions, experiences, or gripes in this tabulation by former students? (Yours are just as important as theirs.)

Please fill this questionnaire out right away and return it in the stamped addressed envelope.

I will be looking for your reply very soon.

Sincerely yours,

Fred Berndt

A P P E N D I X B

FOLLOW-UP STUDY
ST. PAUL AREA TECHNICAL VOCATIONAL SCHOOL
September 1955 to June 1959

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
				(1) STUDENTS INCLUDED IN STUDY
	440	179		Included in study
				(2) RETURN OF THE QUESTIONNAIRE
5.4	24	22	12.2	Post Office return, address unknown
10.9	48	52	29.0	Questionnaire not returned
82.2	362	94	52.5	Returned by student
1.3	6	11	6.1	Information received from relative
				(3) TIME OF RETURN
52.1	192	32	30.4	First mailing
28.2	102	27	25.7	Second mailing
16.5	61	33	31.4	Third mailing
2.9	13	13	12.3	Study of non-respondents; 4th mailing
	368	105		
				(4) OUTSIDE JOB AFTER SCHOOL
6.5	24	20	19.0	Not stated
27.7	102	25	23.8	No outside work during school attendance
21.7	80	20	19.0	Worked full-time (40 hrs. or more) while attending school
13.3	49	18	17.1	Worked 30-39 hours per week
19.8	73	17	16.1	Worked 20-29 hours per week
7.3	27	2	1.9	Worked 10-19 hours per week
2.1	8	1	.9	Worked less than 10 hours per week
.8	3	0		Worked only during the summer
.5	2	1	.9	Had a paper route

(5) FIRST JOB AFTER LEAVING SCHOOL

Graduate		E.Leaver		
Per Cent	No.	No.	Per cent	
1.0	4	10	7.6	Not stated
76.9	283	21	20.0	Job was the same trade or technical field for which student was trained.
4.8	17	4	3.8	Job employed manipulatory skills and background knowledge taught in trade or technical area but labeled by a different name. (TV repair man belonged to the electronic trade)
1.6	6	2	1.9	Job employed background knowledge taught in trade training (electronic draftsman) (truck driver for auto shop)
2.7	10	3	2.8	Job employed manipulatory skills taught in trade training (production type work using trade skill)
1.6	6	1	.9	Job as helper in trade trained for with possibility of apprenticeship when an opening developed (machine helper in printing trade)
.2	1			Job as learner in field trained for in school helping a journeyman (small company, no apprenticeship, but working at the trade)
1.9	7	1	.9	Was employed as assembler in field trained for (assemble cabinets or electronic units as beginning jobs)
1.0	4	1	.9	Continued same job as held while attending school (trade related-used schooling to advance himself in company)
2.1	8	5	4.7	Continued same job as held while attending school (not trade related as full time occupation
.2	1			Went into family business (trade related)
		1	.9	Went into family business (not trade related)
.2	1			Went to school for further training (college, trade school)
1.0	4	10	9.0	Military service (a trade related classification)
1.6	6	21	20.0	Military service (not a trade related classification) (may not have included enough information to determine)
2.7	10	25	23.8	Not in trade trained for (held different job not fitting any category above)

(6) LOCATION OF FIRST JOB (military service and schooling not included)

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
8.9	35	18	17.1	Not stated
64.6	238	46	43.8	In St. Paul proper
9.2	34	4	3.8	In St. Paul Suburbs: S.St. Paul, W.St.Paul, N.St.Paul, White Bear, Forest Lake, Hastings,etc.
13.3	49	8	7.6	In Minneapolis and Suburbs (Usually west of Mississippi)
.5	2	1	.9	Within State (out of Metropolitan Area) St. Paul residents
.5	2			Close to home town (for Area Vocational students only)
.8	3	2	1.9	Was employed in state other than Minnesota
1.3	5	26	24.7	Military service duty

(7) LENGTH OF EMPLOYMENT AT FIRST JOB AFTER LEAVING SCHOOL (military service not given) (Joint apprenticeship committee employment considered continuous)

11.9	44	45	42.8	Not stated	
8.6	32	6	5.7	Less than 6 months at job	
22.8	84	4	3.8	Worked 6 to 12 months at first job)	
10.5	39	7	6.6	Worked 13 to 18 months at first job)	Still employed at first job
4.3	16	3	2.8	Worked 19 to 24 months at first job)	
22.8	84	20	18.0	Worked 25 months or longer at first job)	
6.5	24	6	5.7	Quit job before 6 months or laid off before 6 months	
3.5	13	5	4.7	Quit job after 6-12 months or was laid off after same	
3.2	12	4	3.8	Quit job after 13-18 months or was laid off after same	
5.4	20	5	4.7	Quit job after 19-24 months or was laid off after same	

(8) REASON FOR LEAVING FIRST JOB
(still in same occupational field)

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
14.4	53	68	64.7	Was not stated or was not applicable
2.9	11	2	1.9	Advancement in position in another company
26.9	99	15	14.2	Advancement in position in same company (start apprenticeship or continue employment)
1.6	6	2	1.9	Better working conditions
2.3	9	2	1.9	More money
6.2	23	3	2.8	Better chance for advancement in another company
1.0	4			Started own business in same occupation
6.5	24	8	7.6	Entered military services
24.7	91	2	1.9	Was transferred by apprenticeship committee
13.0	48	3	2.8	Was laid off or shop was closed

(9) REASON FOR LEAVING FIRST JOB (different occupational field than training)

93.7	345	89	84.7	Was not applicable
.2	1	4	3.8	Was not stated
2.1	8			Advancement in position in another company
.2	1			Better working conditions
.5	2	1	1.0	More money
.5	2	5	4.7	Entered Armed Services
.2	1	1	1.0	Started his own business in another occupation
1.0	4	2	1.9	Entered training for a different trade
.8	3	4	3.8	Was laid off
.2	1			Health limitations

(10) APPRENTICESHIP

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
2.4	9	22	20.9	Was not stated
51.0	190	74	70.4	Did not serve an apprenticeship
29.0	107	5	4.7	Presently serving a Minnesota Voluntary Apprenticeship
4.0	15	4	3.8	Presently serving a company program of training
12.7	47			Journeyman under Minnesota Voluntary Apprenticeship
	0	0		Journeyman under company plan
	0	0		Journeyman by experience (no particular plan)

(11) METHOD OF SECURING FIRST JOB

1.0	4	24	22.8	Was not stated
30.4	112	4	3.8	School Coordinator
12.2	45	9	8.5	Shop instructor
2.1	8	6	5.7	State Employment Agency
.5	2	2	1.9	Newspaper advertisement
.5	2	3	2.8	Private employment agency
2.7	10	8	7.6	Friends and relatives
19.5	72	45	42.8	Own efforts (includes those that joined Military Service)
29.3	108	1	1.0	Joint Apprenticeship Committee
1.3	5	3	2.8	Other methods

(12) PRESENT JOB AT TIME OF REPLY

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
1.0	7	6	5.1	Was not stated
64.0	237	20	19.0	Job was the same trade or technical field for which student had been trained in school
4.6	17	2	1.9	Job employed manipulatory skills and background knowledge taught in trade or technical area but labeled by a different name (TV repair belongs to electronic trade)
2.4	9	1	.9	Job employed background knowledge taught in trade training (electronic draftsman) (truck driver for auto shop)
1.1	4	2	1.9	Job employed manipulatory skills taught in trade training (production type work)
	0	0		Job as helper in field trained for with possibility of apprenticeship when an opening developed (machine helper)
.2	1	0		Job as learner in field trained for in school helping a journeyman (small company, no apprenticeship, but working in the trade)
.8	3	1	.9	Worked as assembler in field trained for (assembled cabinets or electronic units)
.4	2	1	.9	Continued same job as held while attending school (trade related-used training in occupation)
1.6	6	4	3.8	Continued same job as held while attending school (not trade related-not using training in occupation
1.6	6	1	.9	Went into family business (trade related)
.4	2	1	.9	Went into family business (not trade related)
2.4	9	5	4.5	Went to school for further training (college, trade school)
4.3	16	12	11.4	Military service (a trade related classification)
5.4	20	21	19.0	Military service (not a trade related classification)
7.8	29	28	26.6	Not working in trade studied

(13) LOCATION OF PRESENT JOB

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
4.8	18	13	11.4	Was not stated
63.0	234	42	40.0	In St. Paul proper
6.7	25	5	4.7	In St. Paul Suburbs: North, South, West St. Paul, White Bear, Forest Lake, Hastings,etc.
10.0	39	5	4.7	In Minneapolis or Suburbs (usually west of Mississippi)
.4	2	0		Within State (out of Metropolitan Area) for St. Paul resident
.2	1	0		Close to home town (for Area Vocational students)
2.9	11	6	5.1	Is working in different state
9.7	36	34	32.3	Armed Services
.4	2	0		In foreign country

(14) WHY PRESENT JOB WAS DIFFERENT FROM TRADE TRAINED FOR

85.8	316	64	60.9	Not stated or was not applicable
2.4	9	6	5.7	No job available in individual's occupation
2.4	9	10	9.5	Developed new interest
.2	1	3	2.8	Disliked trade for which trained
1.6	6	2	1.9	Found better opportunity for promotion
2.9	11	8	7.6	Found work with better salary
1.6	6	5	4.7	Used training as preparation for another occupation
.2	1	0		Health reasons
.2	1	0		No future in trade trained for
2.1	8	7	6.6	Other reasons

(15) PRESENT ACTIVITY IF NOT EMPLOYED FULL TIME

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
86.4	318	70	66.6	Not stated or did not apply
4.3	16	9	8.5	In Military Service using Vocational training
4.0	15	17	16.1	In Military Service not using Vocational training
1.1	4	2	1.9	Self-employed using Vocational training
1.9	6	1	.9	Unemployed
1.9	7	2	1.9	Enrolled full time in college or university
.2	1	3	2.8	Enrolled in trade school
.2	1	0		Other activities

(16) LENGTH OF UNEMPLOYMENT

98.0	361	104	99.1	Not stated or not applicable
.2	1	1	.9	1-2 months
	0	0		2-3 months
.2	1	0		3-4 months
.2	1	0		4-5 months
.2	1	0		5-6 months
.2	1	0		6-7 months
.4	2	0		Out on strike--pattern shop

(17) DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (same occupation as trained for)

5.7	21	22	20.9	Was not stated
38.0	140	7	6.6	Well satisfied
28.8	106	12	11.4	Satisfied
5.9	22	1	1.0	Slightly dissatisfied
1.0	4	2	1.9	Highly dissatisfied
20.3	75	61	58.0	Was not applicable

(18) DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (Presently working in occupation differing from training)

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
87.2	321	78	74.2	Did not apply
1.0	4	3	2.8	Was not stated
5.1	19	8	7.6	Well satisfied
4.0	15	10	9.5	Satisfied
1.6	6	4	3.8	Slightly dissatisfied
.8	3	2	1.9	Highly dissatisfied

(19) DEGREE OF SATISFACTION WITH PRESENT OCCUPATION (Presently in military service)

91.5	337	80	76.1	Did not apply
.2	1	3	2.8	Was not stated
1.9	7	6	5.7	Well satisfied
3.5	13	9	8.5	Satisfied
1.0	4	4	3.8	Slightly dissatisfied
1.6	6	3	2.8	Highly dissatisfied

(20) CHIEF VALUE OF SHOP OR LAB INSTRUCTION RECEIVED IN TRAINING

6.2	23	29	27.6	Was not stated
7.3	27	26	24.7	Not working at occupation studied
19.0	70	8	7.6	Helped to obtain employment
25.5	94	9	8.5	Gave a good foundation for advancing on the job
6.2	23	2	1.9	Helped to begin at a higher wage
30.7	113	28	26.6	Provided a foundation for additional training
1.9	7	0		Other values
2.9	11	3	2.8	No special advantage

(21) EVALUATION OF MATHEMATICS CLASS

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
4.6	17	28	25.7	Was not stated
2.4	9	5	4.7	Did not take class
60.0	224	48	45.7	Very valuable
24.4	90	15	14.2	Valuable
6.7	25	9	8.5	Of some value
.8	3	0		Of doubtful value

(22) EVALUATION OF RELATED DRAWING CLASS

4.0	15	30	28.5	Was not stated
1.9	7	5	4.7	Did not take class
38.5	142	30	28.5	Very valuable
27.7	102	19	18.0	Valuable
21.4	79	14	13.0	Of some value
6.2	23	7	6.6	Of doubtful value

(23) EVALUATION OF TECHNICAL WRITING CLASS

8.6	32	34	32.3	Was not stated
54.3	200	49	46.6	Did not take class
5.7	21	3	2.8	Very valuable
11.1	41	4	3.8	Valuable
12.7	47	12	11.4	Of some value
7.3	27	3	2.8	Of doubtful value

(24) EVALUATION OF PHYSICS CLASS

7.6	28	32	30.4	Was not stated
36.9	136	28	26.4	Did not take class
16.4	57	15	14.2	Very valuable
13.3	49	15	14.2	Valuable
19.2	71	13	12.3	Of some value
7.3	27	2	1.9	Of doubtful value

(25) SPECIFIC LACK OF PREPARATION IN PARTICULAR TRADE

Graduate Per cent	Graduate No.	E.Leaver No.	E.Leaver Per cent	
9.7	36	35	33.0	Was not stated
6.7	25	37	35.2	Was not employed at trade or occupation studied
52.4	193	13	12.3	Experienced no particular difficulty
1.6	6	2	1.9	Found it difficult to get along with other workers
20.9	77	14	13.3	Needed additional technical knowledge
5.4	20	4	3.8	Other written comments
2.4	9	1	1.0	Needed more shop and practical work

(26) MOST HELPFUL MEANS OF SELF-IMPROVEMENT OTHER THAN WORKING

20.9	77	59	56.1	Was not stated
36.1	133	6	5.7	Trade extension or apprentice classes
5.4	20	4	3.8	University Extension classes
.2	1	0		Trade organizations
3.2	13	0		Joint Apprentice Committee
.2	1	0		Technical societies
8.9	33	3	2.8	Trade periodicals and books
18.7	69	18	17.1	In plant training program or learning on the job
5.7	21	15	15.0	Military service schools

(27) WORKERS' PRESENT EVALUATION OF THEIR OCCUPATIONAL CHOICES

4.8	16	30	27.8	Was not stated
64.0	236	42	40.0	Selection of the same trade
15.2	56	19	18.0	Selection of another trade
1.3	5	0		Selection of agriculture
11.9	44	11	10.4	Selection of a profession
2.9	11	3	2.8	Selection of selling or business position

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL EDUCATION

(To be filled out, preferably by person making study, at time study is completed and checked by adviser; otherwise by adviser.)

Author BERNDT (Last name) FRED (First name) PAUL (Middle name)

Title A FOLLOW-UP STUDY OF GRADUATES AND SELECTED EARLY-LEAVERS FROM ST. PAUL TECHNICAL VOCATIONAL SCHOOL

Degree granted M.A. Date 1964 No. pages in report 142

Granted by UNIVERSITY OF MINNESOTA (Name of institution)

Where Available* MINNEAPOLIS, MINNESOTA (Source and address)

Purpose of study:

The primary purpose was to obtain the following classes of data about the St. Paul Technical Vocational School students: (1) the number of graduates and early-leavers who had secured jobs in the field of their shop training; (2) the number of workers who had progressed in the same field of work; and (3) any marked differences between early-leavers and graduates in maintaining continuous employment and advancement on the job. The secondary purpose was to set up a system for recording cumulative record data and follow-up study on IBM cards.

Source of data and method of study:

Review of pertinent literature pertaining to follow-up studies. A mailed questionnaire to 440 graduates and 179 early-leavers enrolled between September 1955 and June 1959 who attended school one year or more. The source of data included replies from 88 per cent of the graduates and 67 per cent of the early-leavers receiving questionnaire.

Findings and conclusions:

The study revealed that 92 per cent of the graduates and 41 per cent of the early-leavers entered their particular trades or held related military service classifications; (2) for every 100 graduates the school actually placed 122 workers in trades or related occupations; (3) the class of 1956-1957 graduates reported that 75 per cent were still employed in their trades with an additional 9 per cent engaged in the military service; (4) unemployment was one and one-half per cent; and (5) there appear to be slight differences in job stability, unemployment or change of occupations between graduates and early leavers.

* Check here ( ) if available on microfilm.
(Use additional page if necessary and staple to this one; Do not write on back of sheet.)

VT 004 740
The Graduate Survey.

Oakland Public Schools, Calif.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 85p.

*FOLLOWUP STUDIES; *QUESTIONNAIRES; *EDUCATIONAL RESEARCH; *RESEARCH TOOLS; RECORDS (FORMS); GRADUATE SURVEYS; HIGH SCHOOL GRADUATES; SCHOOL SURVEYS

This document is a collection of the forms and questionnaires used in the continuing follow-up of all high school graduates of the Oakland Public Schools. "Follow-up Study Class of 1965 Oakland Unified School District" (VT 004 414 in this issue) is the first report of the findings. (MM)

VT 004 740

OAKLAND PUBLIC SCHOOLS

THE GRADUATE SURVEY

19 65

ED0 36657

VT004740

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

THE GRADUATE SURVEY

OF 1965

GENERAL DIRECTIONS

---

1. These questionnaires review your interests, your experiences, and your opinions about your high school education. They also cover your views toward your future--your hopes and goals and your life's work. The results of these questionnaires plus the follow-up studies will enable us to improve your schools. Please complete these questionnaires exactly according to the directions.

2. For most of the survey, there are no right or wrong answers. The answer you put down for each question simply shows your opinion. There are some parts, however, which ask factual information. Example: How many jobs have you held? THE RESULTS OF THESE QUESTIONNAIRES WILL IN NO WAY AFFECT YOUR SCHOOL GRADES AND WILL BE USED FOR RESEARCH PURPOSES ONLY. Please answer each question frankly.

3. Answer every question. Do not skip any item.

4. Work as rapidly as you can. Do not spend too much time on any one question.

5. Some questions require you to select 1 answer out of 5 possible choices. In other cases there are less than 5 choices. Please study the following examples.

EXAMPLE NO. 1 What program did you take in high school?

(A) Industrial
(B) Commercial-business
(C) General
(D) College preparatory
(E) Other

A B C D E

MARK 1 OF THE 5 CHOICES

In this example the student was in a general high school program. Therefore, he has blackened the space under the letter "C."

EXAMPLE NO. 2 I prefer:

(A) A job where I solve problems no one else can.
(B) A job which permits me to take off when I want

A B C D E

MARK EITHER A OR B
Ignore C, D, and E

In this example the student prefers statement A. Therefore, he has blackened the space under the letter "A."

6. If you have any questions now or later, raise your hand and one of the assistants will help you.

7. Remember, if you make a mistake, erase completely.

8. Turn to the next page and begin work.

PLEASE DO NOT WRITE IN THIS BOOKLET

PART 1

ACCOMPLISHMENTS, HOPES, GOALS

USE ANSWER SHEET SIDE A FOR NOS. 1-150

DIRECTIONS FOR NOS. 1-35 - This is a list of items which describes various accomplishments and hopes. Think over each item carefully. Then choose one of the following statements which most closely describes how you feel, and mark your answer in the appropriate space on the answer sheet.

(A) Essential to you; something you must achieve
(B) Very important for you to achieve, but not essential
(C) Somewhat important for you to achieve
(D) Of little importance for you to achieve
(E) Of no importance for you to achieve

1. Becoming happy and content
2. Being well-off financially
3. Inventing or developing a useful product or device
4. Helping others who are in difficulty
5. Becoming accomplished in one of the performing arts (acting, dancing, etc.)
6. Developing a meaningful philosophy of life
7. Becoming an authority on a special subject in my field
8. Doing something which will make my parents proud of me
9. Becoming an outstanding athlete
10. Making sacrifices for the sake of the happiness of others
11. Becoming a community leader
12. Becoming influential in public affairs
13. Becoming a mature and well-adjusted person
14. Following a formal religious code
15. Having the time and means to relax and enjoy life
16. Making a theoretical contribution to science
17. Making a technical contribution to science
18. Writing good fiction (poems, novels, short stories, etc.)
19. Being well read
20. Obtaining awards or recognition
21. Never being obligated to people
22. Keeping in good physical condition
23. Producing good artistic work (painting, sculpture, decorating, etc.)
24. Becoming an accomplished musician (performer or composer)
25. Becoming an expert in finance and commerce
26. Keeping up to date with political affairs
27. Being well-liked
28. Being a good husband or wife
29. Being a good parent
30. Finding a real purpose in life
31. Being active in religious affairs
32. Having executive responsibility for the work of others
33. Avoiding hard work
34. Engaging in exciting and stimulating activities
35. Being successful in a business of my own

P A R T 2

TRAITS, SELF-EVALUATION

DIRECTIONS FOR NOS. 37-67 - This is a list of items which can be used to describe people. Rate yourself on each of these traits as you really think you are when comparing yourself to the other members of your school class. We want the most accurate estimate of HOW YOU SEE YOURSELF. Mark one letter in the appropriate space on the answer sheet. NOTE: SKIP NO. 36, and -

BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 37.

(A) Top ten percent
(B) Above average
(C) Average
(D) Below average
(E) Bottom ten percent

37. Originality
38. Leadership
39. Mechanical ability
40. Popularity
41. Athletic ability
42. Understanding of others
43. Drive to achieve
44. Mathematical ability
45. Scholarship
46. Sociability
47. Artistic ability
48. Aggressiveness
49. Speaking ability
50. Self-control
51. Independence
52. Scientific ability
53. Conservatism
54. Practical mindedness
55. Writing ability
56. Expressiveness
57. Cheerfulness
58. Self-confidence (social)
59. Self-confidence (intellectual)
60. Perseverance
61. Popularity with the opposite sex
62. Research ability
63. Physical energy
64. Sense of humor
65. Physical health
66. Acting ability
67. Sensitivity to the needs of others

P A R T 3

OPINIONS TOWARD WORK

DIRECTIONS FOR NOS. 69-88 - Many high school students have had various jobs. Perhaps you have a job now. In any case the purpose of this questionnaire is to learn more about your opinions towards work. Think of a job which you have had which you liked very well. If you have not had a job, answer these items in the way you think you would feel if you did have a job.

The statements may agree with your attitudes, or they may not agree. There are no right or wrong answers. Blacken the appropriate space on the answer sheet.

NOTE: SKIP NO. 68, AND
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 69.

(A) Agree strongly - most representative of my feelings
(B) Agree somewhat - usually representative of my feelings
(C) Indifferent - neither agree nor disagree
(D) Disagree somewhat - usually not representative of my feelings
(E) Disagree strongly - never representative of my feelings

69. I'll stay overtime to finish a job even if I'm not paid for it.
70. You can measure a person pretty well by how good a job he does.
71. The major satisfaction in my life comes from my job.
72. For me, mornings at work really fly by.
73. I usually show up for work a little early, to get things ready.
74. The most important things that happen to me involve my work.
75. Sometimes I lie awake at night thinking ahead to the next day's work.
76. I'm really a perfectionist about my work.
77. I feel depressed when I fail at something connected with my job.
78. I have other activities more important than my work.
79. I live, eat, and breathe my job.
80. I would probably keep working even if I didn't need money.
81. Quite often I feel like staying home from work instead of coming in.
82. To me, my work is only a small part of who I am.
83. I am very much involved personally in my work.
84. I avoid taking on extra duties and responsibilities in my work.
85. I used to be more ambitious about my work than I am now.
86. Most things in life are more important than work.
87. I used to care about my work, but now other things are more important to me.
88. Sometimes I'd like to kick myself for the mistakes I made in my work.

P A R T 4

OPINIONS TOWARD OCCUPATIONS

DIRECTIONS FOR NOS. 89-248 - This is an inventory of your feelings and attitudes about many kinds of work. Show the occupations which interest or appeal to you by blackening space "A" for "Yes." Blacken space "B" for "No" for the occupations you dislike or find uninteresting. If undecided, blacken space "C."

Work at your own rate, but put down your first reaction rather than thinking it over at great length. The results cannot be made more accurate by spending considerable time on each answer.

(A) Yes - The occupation is interesting or appealing.
(B) No - The occupation is uninteresting or I dislike it.
(C) Undecided

89. Aviator
90. Private investigator
91. YMCA secretary
92. Detective
93. Post office clerk
94. Route salesman
95. Electronic technician
96. Humorist
97. Photographer
98. Interplanetary scientist
99. Airplane mechanic
100. Meteorologist
101. Foreign missionary
102. Bookkeeper
103. Speculator
104. Poet
105. Deep sea diver
106. Newspaper editor
107. Nursery school teacher
108. Lawyer
109. Fish and wildlife specialist
110. Biologist
111. High school teacher
112. Quality control expert
113. Buyer
114. Symphony conductor
115. Wrecker (building)
116. Narcotics inspector
117. Elementary school teacher
118. School principal
119. Power station operator
120. Astronomer
121. Juvenile delinquency expert

P L E A S E D O N O T W R I T E I N T H I S B O O K L E T

122. Budget reviewer
123. Stock & bond salesman
124. Musician
125. Prize fighter
126. Diplomat
127. Experimental laboratory engineer
128. Crane operator
129. Master plumber
130. Aeronautical design engineer
131. Speech therapist
132. Traffic manager
133. Manufacturer's representative
134. Author
135. Fireman
136. Army general
137. Interior decorator
138. Novelist
139. Power shovel operator
140. Anthropologist
141. Marriage counselor
142. Statistician
143. Television producer
144. Commercial artist
145. Wild animal trainer
146. U. N. official
147. Sculptor
148. Automobile mechanic
149. Surveyor
150. Zoologist

TURN SHEET OVER AND USE ANSWER SHEET SIDE B FOR NOS. 151-270.

151. Physical education teacher
152. Court stenographer
153. Hotel manager
154. Free lance writer
155. Stunt man (motion picture)
156. Criminal lawyer
157. Professional athlete
158. Carpenter
159. Construction inspector
160. Chemist
161. Playground director
162. Bank teller
163. Business executive
164. Musical arranger
165. Jockey
166. Ventriloquist
167. Army officer
168. Banker

169. Radio operator
170. Independent research scientist
171. Clinical Psychologist
172. Tax expert
173. Restaurant worker
174. Art dealer
175. Motorcycle driver
176. Police judge
177. Referee (sporting events)
178. Truck gardener
179. Filling station attendant
180. Writer of scientific or technical articles
181. Social science teacher
182. Inventory controller
183. Master of ceremonies
184. Dramatic coach
185. Blaster (dynamiter)
186. Mind reader
187. English teacher
188. Sales manager
189. Tree surgeon
190. Editor of a scientific journal
191. Director of welfare agency
192. IBM equipment operator
193. Traveling salesman
194. Concert singer
195 F.B.I. agent
196. Prosecuting attorney
197. Factory foreman
198. College professor
199. Tool designer
200. Geologist
201. Assistant city school superintendent
202. Financial analyst
203. Real estate salesman
204. Composer
205. Mountain climber
206. Congressional investigator
207. Portrait artist
208. Machinist
209. Locomotive engineer
210. Botanist
211. Personal counselor
212. Cost estimator
213. Industrial relations consultant
214. Stage director
215. Explorer

216. Supreme court judge
217. Draftsman
218. Judge
219. Photoengraver
220. Scientific research worker
221. Psychiatric case worker
222. Pay roll clerk
223. Sports promoter
224. Playwright
225. Test pilot
226. Criminologist
227. Children's clothing designer
228. Truck driver
229. Electrician
230. Physicist
231. Vocational counselor
232. Bank examiner
233. Political campaign manager
234. Cartoonist
235. Racing car driver
236. Book censor
237. Social worker
238. Locksmith
239. Funeral director
240. Counter-intelligence man
241. Architect
242. Shipping & receiving clerk
243. Criminal psychologist
244. Insurance clerk
245. Barber
246. Bill collector
247. Ward attendant
248. Masseur

P A R T 5

DIRECTIONS FOR NOS. 251-270 - The following is a list of characteristics which may apply to you. Mark "A" in the appropriate space on the answer sheet if you feel the sentence is like you. Mark "B" if you think it is not like you. NOTE: SKIP NOS. 249-250, and -

BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 251.

251. I am usually able to judge why other students do what they do.
252. I am able to make groups, clubs, or organizations function effectively.
253. Most of the time, I think things will work out well.
254. I find it easy to talk with all kinds of people.
255. I am good at playing games which involve imitating others.
256. I believe I have good practical judgment.
257. If I want to, I can be a very persuasive person.
258. People seek me out to tell me about their troubles.
259. I have a reputation for being able to cope with difficult people.
260. My physical energy is greater than that of the average person my age.
261. I am seldom ill.
262. I would enjoy being an actor (actress).
263. My friends regard me as a person with good practical judgment.
264. I know what I want to do with my life.
265. I have a clear picture of what I am like as a person.
266. My physical endurance is greater than that of the average person my age.
267. My friends think that I am shrewd and insightful about other people.
268. My physical health is excellent.
269. I find it easy to play many roles--student, leader, follower, church goer, athlete, traveler, etc.
270. I have good coordination.

PLEASE DO NOT WRITE IN THIS BOOKLET

PART 6

A. The School Environment

DIRECTIONS FOR NOS. 1-118 - Please blacken the appropriate space on the answer sheet for each question in this section. NOTE: THE NUMBERS ON THE ANSWER SHEET GO FROM LEFT TO RIGHT. Before you blacken any answer, be sure the answer sheet number is the same as the question number.

USE ANSWER SHEET SIDE C FOR NOS. 1-144

1. What program did you take in high school? (What was your major emphasis?)

   (A) Industrial
   (B) Commercial-business
   (C) General
   (D) College preparatory
   (E) Other

2. If you were planning your high school work all over again, what program would you take?

   (A) Industrial
   (B) Commercial-business
   (C) General
   (D) College preparatory
   (E) Other

3. If you would take a different program, why would you change? If there is more than one reason, please check the one you consider the most important. CHECK ONLY ONE.

   (A) Would not change
   (B) To prepare for employment
   (C) To prepare for college entrance
   (D) To learn the basic skills of reading, writing, arithmetic, etc.
   (E) Other

4. How do you feel about your high school?

(A) Like it very much
(B) Like it
(C) Neither like it nor dislike it
(D) Dislike it
(E) Dislike it very much

DIRECTIONS FOR NOS. 5-16 - Please indicate your opinions towards the various school activities by blackening the answer sheet in the appropriate space.

(A) Very satisfactory
(B) Satisfactory
(C) Unsatisfactory
(D) Very unsatisfactory
(E) Did not participate

5. Student government
6. Social clubs
7. Athletics
8. Music clubs
9. Art club
10. Drama club
11. School publications club
12. Literary or language clubs
13. Debating clubs
14. Science or nature clubs
15. Service clubs
16. American Field Service (A.F.S.)

DIRECTIONS FOR NOS. 17-21 - Please indicate your opinions towards the various out-of-school activities described below by blackening the answer sheet in the appropriate space.

(A) Very satisfactory
(B) Satisfactory
(C) Unsatisfactory
(D) Very unsatisfactory
(E) Did not participate

17. Church clubs
18. Service clubs
19. Recreation groups
20. Athletic groups
21. Other organized groups

DIRECTIONS FOR NOS. 22-60 - If you have taken any of the courses listed below, please blacken the answer sheet space which appropriately describes your feeling for each subject listed.

(A) Very satisfactory
(B) Satisfactory
(C) Unsatisfactory
(D) Very unsatisfactory
(E) Did not take

22. Algebra
23. American government
24. Art
25. Auto shop
26. Biology
27. Bookkeeping
28. Business English
29. Business practice (Business arithmetic)
30. Chemistry
31. Crafts
32. Distributive education (Sales)
33. Driver education
34. Driver training
35. Electronics
36. English
37. Foreign language
38. General mathematics
39. Geometry
40. Homemaking - Child care
41. Homemaking - Clothing emphasis
42. Homemaking - Foods emphasis
43. Homemaking - General
44. Machine shop (Metal)
45. Mechanical Drawing (Drafting)
46. Music - Instrumental
47. Music - Choral
48. Notehand
49. Office practice
50. Other science (Physical science, general science, etc.)
51. Other social studies (World history, geography)
52. Physical education
53. Physics
54. Physiology
55. Print shop (Graphic arts)
56. R.O.T.C.
57. Shorthand
58. Typing
59. U. S. history
60. Wood shop (Cabinet)

DIRECTIONS FOR NOS. 61-66 - Below is a list of abilities. Please indicate on the appropriate space on the answer sheet the degree of help you received from your high school education in developing them.

(A) Very helpful
(B) Helpful
(C) Of little help
(D) Of no help

61. Do everyday arithmetic
62. Express yourself in writing
63. Give a talk to a group
64. Read rapidly
65. Study effectively
66. Use reasonably good English in speaking

B. Personal Interests and Experiences

DIRECTIONS FOR NOS. 67-79 - How much time during each school day, on the average, do you spend watching the following kinds of television programs? Please blacken the appropriate space on the answer sheet.

(A) Very little or none
(B) About an hour a day
(C) About two hours a day
(D) About three hours a day
(E) More than three hours a day

67. Detective stories or mysteries
68. Western and adventure stories
69. Variety shows
70. Comedy
71. Teenage music and dancing
72. Serious drama, music
73. Documentaries or coverage of special events
74. Educational courses, programs, or talks
75. Quiz, panel, or audience participation shows
76. Cartoons
77. Movies
78. Sports events
79. Family life

DIRECTIONS FOR NOS. 80-86 - How often on the average, during the last year, have you done each of the following?

(A) Rarely or never
(B) Less than once a week
(C) Once a week
(D) Twice a week
(E) More than twice a week

80. Attended club meetings
81. Attended church social meetings
82. Attended athletic events
83. Attended movies
84. Attended dances
85. Gone on dates
86. Participated in sports (Basketball, swimming, skiing, etc.

87. During your high school career, have you attended any summer school or evening school for the purpose of make-up or remedial work?

(A) Yes
(B) No

88. During your high school career, have you attended any summer school or evening school for the purpose of taking extra (enrichment) courses?

(A) Yes
(B) No

DIRECTIONS FOR NOS. 89-95 - Here are some of the things teenagers think and talk about. During the last year, how often have you thought about each of them?

(A) Rarely or never
(B) Less than once a week
(C) Once a week
(D) Twice a week
(E) More than twice a week

89. Your educational and occupational plans after high school
90. TV, sports, movies, popular music
91. Personal values--decent behavior, religion, honesty, etc.
92. World unrest, the cold war, threats to the American way of life
93. The news events of the day
94. Science
95. Literature, music, art

DIRECTIONS FOR NOS. 96-105 - How helpful do you feel your high school education was in preparing you to meet the following adult problems?

(A) Very helpful
(B) Helpful
(C) Of little help
(D) Of no help

96. Using money wisely
97. Conducting and participating in group meetings
98. Enjoying cultural activities (opera, music, art, ballet, etc.)
99. Getting along with the opposite sex
100. Getting along with people
101. Getting and holding a job
102. Meeting problems of family living (getting along with parents, marital relations, caring for children, etc.)
103. Solving problems of a personal kind (worries, conflicts, etc.)
104. Understanding current events, foreign affairs, politics, voting, etc.
105. Using leisure time wisely through hobbies, recreational activities, etc.

C. Employment Information

DIRECTIONS: These items are concerned with information regarding employment. We hope to use this information to help us improve the occupational preparation of our students. Please blacken the appropriate spaces on the answer sheet.

106. How many full-time (30 or more hours per week) jobs have you held?

(A) None
(B) One
(C) Two
(D) Three
(E) Four or more

107. How many part-time (less than 30 hours per week) jobs have you held?

(A) None
(B) 1-3
(C) 4-5
(D) 6-10
(E) 11 or more

108. How well satisfied are you with your present job?

(A) Thoroughly satisfied
(B) Satisfied
(C) Dissatisfied
(D) Completely dissatisfied
(E) Have no job now

109. To what extent is your present job like the type of work you plan to follow when you graduate from high school?

(A) Have no job now
(B) Exactly the kind of job that I plan to follow
(C) Closely related, but not what I plan to follow
(D) Somewhat related
(E) Not related at all

110. In addition to your being a student, which one of the following best describes your present employment status? Consider 30 hours or more per week as full-time employment.

(A) Unemployed
(B) Unemployed and seeking work
(C) Employed full-time
(D) Employed part-time
(E) None of these

111. Why did you leave your last job?

(A) Have held no job
(B) Got a better job
(C) Disliked the type of work
(D) Laid off
(E) None of these

112. When did you decide on what you now consider will be your occupation?

(A) Undecided now
(B) Before entering elementary school
(C) In elementary school
(D) In junior high school
(E) In senior high school

113. How do you feel about your occupational choice?

(A) Very satisfied and very certain
(B) Satisfied and certain
(C) Satisfied but uncertain
(D) Dissatisfied and uncertain
(E) Have made no choice

114. Why did you make your occupational choice?

(A) Have made no choice
(B) Because of the security it offers
(C) Because I'm sure I'll be happy doing it
(D) Because of financial rewards and opportunities
(E) Other

115. What type of school do you plan to attend after high school?

(A) Will not attend any school
(B) Technical, trade, or professional school
(C) Business school
(D) Junior college
(E) Four- year college

116. If you plan to go to a four-year school, where do you plan to attend?

(A) Do not plan to attend
(B) State university
(C) State college
(D) Private university
(E) Private college

117. While attending schools indicated in items 115 or 116, how much of your expenses do you plan to earn during the school year?

(A) Will not attend
(B) Little or none
(C) One-half
(D) Three-quarters
(E) All

118. How long do you plan to attend school beyond high school?

(A) Will not attend
(B) One year or less
(C) Two years
(D) Four years
(E) More than four years

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PART 7

JOB CHARACTERISTICS SCALE

DIRECTIONS FOR NOS. 125-144 - This is a survey to find out your job preferences. There are no right or wrong answers. What kind of a job do you prefer? In the following items you will find two job characteristics paired. From each pair choose the one characteristic you value most for your future job, after your education. If you prefer characteristic "A", mark A in the space on the answer sheet. If you prefer "B", then mark in the B space. (Ignore spaces C, D, E.) Be sure to mark only one choice for each pair. Do not omit any items. In some cases, it will be hard to make a choice between the items because you may want to choose both items or neither. But remember, you must make a choice. NOTE: SKIP NOS. 119 THROUGH 124 ON THE ANSWER SHEET AND GO DIRECTLY TO NO. 125.

I prefer:

125. (A) A job where I solve problems no one else can
(B) A job which permits me to take days off when I want

126. (A) A job which does not require a college education
(B) A job where I could decide how the work is to be done

127. (A) A job where I solve problems no one else can
(B) A job which does not require a college education

128. (A) A job where my opinion is valued
(B) A job where I could not be fired

129. (A) A job which does not tie me down
(B) A job which absorbs my interests

I prefer:

130. (A) A job where I could be known for outstanding accomplishments
(B) A job which does not require a college education

131. (A) A job where I could decide how the work is to be done
(B) A job where I make few if any decisions

132. (A) A job which does not tie me down
(B) A job where I could continue to learn the rest of my life

133. (A) A job where I could not be fired
(B) A job which absorbs my interests

134. (A) A job where I make few if any decisions
(B) A job where I solve problems no one else can

I prefer:

135. (A) A job where I could become known for outstanding accomplishments
(B) A job which requires little thinking

136. (A) A job which has high work standards
(B) A job where I make few if any decisions

137. (A) A job with short working hours
(B) A job where I solve problems no one else can

138. (A) A job which requires little thinking
(B) A job where my opinion is valued

139. (A) A job where I make few if any decisions
(B) A job where I could become known for outstanding accomplishments

I prefer:

140. (A) A job where I could not be fired
(B) A job where I could decide how the work is to be done

141. (A) A job which does not require a college education
(B) A job where I could continue to learn the rest of my life

142. (A) A job where my opinion is valued
(B) A job where I make few if any decisions

143. (A) A job which does not require a college education
(B) A job where I could express my ideas, talents, and skills

144. (A) A job which requires little thinking
(B) A job where I solve problems no one else can

PLEASE DO NOT WRITE IN THIS BOOKLET

PART 8

SITUATIONAL CHOICE INVENTORY*

USE ANSWER SHEET SIDE D FOR NOS. 151-195

DIRECTIONS FOR NOS. 151-195 - This is a survey of your choices. There are no right or wrong answers. The inventory is made up of pairs of statements. Read each pair carefully. Choose the one you would most prefer or like to do.

Answer all questions as honestly and frankly as you can. Only in this way will the results be meaningful. Remember this inventory is about you and you alone. This is not a survey of what you can do, but of what you would like to do.

If you prefer statement "A" in the pair, mark space A on the answer sheet. If you prefer statement "B", mark the B space. (Ignore spaces C, D, E.) Be sure to mark only one choice for each pair. Do not omit any items. In some cases, it will be hard to make a choice between the items because you may want to choose both items or neither. But remember, you must make a choice. NOTE: SKIP NOS. 145 THROUGH 150.

I would prefer to:

151. (A) Avoid failing in school, or
(B) Do well in school

152. (A) Receive a grade on the basis of how well I did on the teacher's test, or
(B) Get a grade on the basis of how hard I tried

153. (A) Have the best teachers in the state in my school, or
(B) Have a large recreation center in my school

154. (A) Buy a car, or
(B) Continue my education

155. (A) Be well prepared for a job after graduation from high school, or
(B) Be well prepared to continue learning

I would prefer to:

156. (A) Have the teacher give everyone the same grade at the beginning of the term and know I had passed, or
(B) Take chances on getting a higher or lower grade at the end of the course

157. (A) Develop a new product which may or may not be good, or
(B) Make a product as good as the best one available

158. (A) Receive money for my good grades, or
(B) Be allowed to take any course I wanted because of good grades

159. (A) Be successful in finishing a job, or
(B) Finish a job

160. (A) Get excellent grades because I have a great deal of ability, or
(B) Get average grades because I have average ability

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I would prefer to:

161. (A) Be graded at the end of a course with the possibility of making an "A", or
(B) Get a "C" at the beginning of a course along with everyone else

162. (A) Make quick decisions and sometimes be right and sometimes wrong, or
(B) Deliberate over decisions and usually be right

163. (A) Be allowed to take extra courses before or after school, or
(B) Just take courses offered during the school day

164. (A) Complete a job which I recognize as difficult, or
(B) Complete a job which others recognize as difficult

165. (A) Do as well as most of my classmates, or
(B) Do better than most of my classmates

I would prefer to:

166. (A) Be considered as being strong but not very smart, or
(B) Be considered as being weak but smart

167. (A) Be known as a person with much ability, or
(B) Be known as a person with adequate ability

168. (A) Work at many less important jobs which I know I could finish, or
(B) Work at one very important job which may never be entirely finished in my lifetime

169. (A) Be paid for how well I did a job, or
(B) Be paid the same amount no matter how I did the job

170. (A) Work rapidly just "skimming" along, or
(B) Work slowly with great thoroughness

I would prefer to:

171. (A) Have a better job than my father has, or
(B) Have a job like my father has

172. (A) Have a great deal of money, or
(B) Be an expert in my favorite school subject

173. (A) Have average ability and be liked by many people, or
(B) Have superior ability but not be liked by as many people

174. (A) Have everybody in the class get a "C" at the beginning of the course, or
(B) Be graded at the end of the course with the possibility of getting a higher or lower mark

175. (A) Receive a grade on the basis of how much my teacher thinks I have learned, or
(B) Take a course from an instructor who gives "C"'s

I would prefer to:

176: (A) Be paid for the amount of work I did, or
(B) Be paid by the hour

177. (A) Study my assignments during study hall, or
(B) Wait to study until the mood strikes me

178. (A) Think of an idea that nobody has ever thought of, or
(B) Set a world's speed record

179. (A) Do what I think is right, or
(B) Do what others think is right

180. (A) Work overtime to make more money, or
(B) Get more schooling to make more money

I would prefer to:

181. (A) Inherit a great deal of money, or
(B) Earn a great deal of money

182. (A) Wait until I had finished college and make a better salary, or
(B) Get a job right after high school and make a good salary

183. (A) Plan my life in advance, or
(B) Live my life from day to day

184. (A) Study to go to college, or
(B) Study to get out of high school

185. (A) Have a great deal of influence over people, or
(B) Have a great deal of ambition

I would prefer to:

186. (A) Carry out the plans of others, or
(B) Create something of my own

187. (A) Be known as being a "good guy" or a "good gal", or
(B) Be known as a person who "does things well"

188. (A) Be very happy, or
(B) Have lots of money

189. (A) Be known as a person who knows his own mind, or
(B) Be known as a person who gets help in making decisions

190. (A) Do something like everyone else, or
(B) Do something outstanding

I would prefer to:

191. (A) Put together a new object, or
(B) Develop new ideas

192. (A) Be demanding on myself to do good work, or
(B) Be demanding on my friends so that they will do good work

193. (A) Do something that I have done before, or
(B) Do something that I never have done before

194. (A) Discover a gold mine, or
(B) Discover a new medicine

195. (A) Have one of my children win a beauty contest, or
(B) Have one of my children win a college scholarship

PLEASE DO NOT WRITE IN THIS BOOKLET

PART 9

WORD RATING LIST

DIRECTIONS FOR NOS. 199-246 - The following is a list of words teachers may use to describe students. You are to rate yourself on each word as you think your teachers would rate you.

Be sure to describe yourself as your teachers would, not as you would describe yourself.

Read each word carefully, then decide which of the following ratings would be chosen by your teachers to describe you.

(A) This word would never describe me.
(B) This word would sometimes describe me.
(C) This word usually describes me.
(D) This word always describes me.

After you decide how your teacher might rate you, mark the special answer sheet. Ignore column "E". Make your marks heavy and black. Do not skip any words. In some cases, it may be hard to decide, but you must make a choice. Work rapidly. Do not spend too much time on any one word. NOTE: SKIP NOS. 196-198 ON THE ANSWER SHEET AND GO DIRECTLY TO NO. 199.

Ratings:		Never	Sometimes	Usually	Always
Teachers feel that I am:					
199.	patient	A	B	C	D
200.	talented	A	B	C	D
201.	inefficient	A	B	C	D
202.	practical	A	B	C	D
203.	confident	A	B	C	D
204.	logical	A	B	C	D
205.	smart	A	B	C	D
206.	successful	A	B	C	D
207.	careful	A	B	C	D
208.	thorough	A	B	C	D
209.	orderly	A	B	C	D
210.	purposeful	A	B	C	D
211.	uninterested	A	B	C	D
212.	studious	A	B	C	D
213.	different	A	B	C	D
214.	responsible	A	B	C	D
215.	original	A	B	C	D
216.	consistent	A	B	C	D
217.	intelligent	A	B	C	D
218.	in-the-know	A	B	C	D
219.	rebellious	A	B	C	D
220.	nervous	A	B	C	D
221.	systematic	A	B	C	D
222.	reckless	A	B	C	D
223.	dependable	A	B	C	D
224.	a person who postpones	A	B	C	D
225.	exacting	A	B	C	D
226.	lazy	A	B	C	D

Ratings:	Never	Sometimes	Usually	Always
Teachers feel that I am:				
227. stubborn	A	B	C	D
228. carefree	A	B	C	D
229. intellectual	A	B	C	D
230. alert	A	B	C	D
231. above average	A	B	C	D
232. productive	A	B	C	D
233. a thinker	A	B	C	D
234. ambitious	A	B	C	D
235. contented	A	B	C	D
236. an achiever	A	B	C	D
237. a planner	A	B	C	D
238. competent	A	B	C	D
239. inconsistent	A	B	C	D
240. teachable	A	B	C	D
241. impatient	A	B	C	D
242. passive	A	B	C	D
243. efficient	A	B	C	D
244. easily distracted	A	B	C	D
245. reliable	A	B	C	D
246. serious	A	B	C	D

P A R T 10

HUMAN TRAIT INVENTORY

DIRECTIONS FOR NOS. 247-272 - The following is a list of statements about YOU. Read each statement carefully! Then decide whether this statement is how you always feel, usually feel, sometimes feel or never feel.

(A) This statement would never describe the way I feel
(B) This statement sometimes describes the way I feel
(C) This statement usually describes the way I feel
(D) This statement always describes the way I feel

Answer each statement--Do not leave any blank.

There are no right or wrong answers. The answers apply only to you. The way you answer these statements will not affect your school marks in any way. Mark between the lines under the letter that best describes how you feel.

In marking your answers on the separate answer sheet, be sure that the number of the statement in the booklet is the same as the number on the answer sheet. It is best to mark your first impression, try not to change your answer. If you change an answer, erase completely your first choice and then blacken between the lines under the other column.

Remember to answer the statements as they apply to you!

Ratings:		Never	Sometimes	Usually	Always
247.	I worry about my grades	A	B	C	D
248.	I have been quite independent and free from family rule	A	B	C	D
249.	When I have an opinion, I stand up for it	A	B	C	D
250.	It is difficult for me to keep interested in most of my school subjects	A	B	C	D
251.	I have difficulty working under strict rules and regulations	A	B	C	D
252.	I flirt	A	B	C	D
253.	Most of my school subjects are a complete waste of time	A	B	C	D
254.	Most of my school subjects are useful	A	B	C	D
255.	I find it difficult to find the time to study my assignment for the next day	A	B	C	D
256.	I have done something that is considered dangerous just for the thrill of it	A	B	C	D
257.	When I was a youngster, I stole things	A	B	C	D
258.	Even when I do sit down to study, I find that my mind tends to wander	A	B	C	D
259.	I have to be in the mood before I can study	A	B	C	D

Ratings:		Never	Sometimes	Usually	Always
260.	I like to make the best grades possible	A	B	C	D
261.	I like to study	A	B	C	D
262.	I like to plan very carefully what courses I will take in school	A	B	C	D
263.	I have played hooky from school	A	B	C	D
264.	I plan my activities in advance	A	B	C	D
265.	I want very much to be a success	A	B	C	D
266.	I work under a great deal of tension	A	B	C	D
267.	I have trouble waiting for a class to be over	A	B	C	D
268.	I get disgusted with myself if I don't do as well as I should	A	B	C	D
269.	I feel that I haven't any goals or purpose in life	A	B	C	D
270.	I like to be consistent in the things I do	A	B	C	D
271.	I like to go to the movies more than once a week	A	B	C	D
272.	I would like to belong to a motorcycle club	A	B	C	D

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PART 11

USE ANSWER SHEET SIDE E FOR NOS. 1-142

DIRECTIONS FOR NOS. 1-279 - Parts 11-17 contain a series of statements. Read each one, decide how you feel about it, and then mark your answer in the appropriate space on the answer sheet. Some statements appear more than once. Please mark an answer each time.

If you agree with the statement, or feel that it is true about you, mark the letter A.

If you disagree with the statement or feel that it is not true about you, mark the letter B.

In marking your answer on the answer sheet, make sure that the number of the statement in this booklet is the same as the number on the answer sheet. Be sure to answer either TRUE (A) or FALSE (B) for every statement even if you have to guess at some.

1. I have a very strong desire to be a success in the world.
2. I liked "Alice in Wonderland" by Lewis Carroll.
3. I usually go to the movies more than once a week.
4. I have had very peculiar and strange experiences.
5. I am often said to be hotheaded.
6. When I was going to school I played hooky quite often.
7. I think I would like the work of a school teacher.
8. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.
9. Planning one's activities in advance is very likely to take most of the fun out of life.
10. I was a slow learner in school
11. There is something wrong with a person who can't take orders without getting angry or resentful.
12. I wake up fresh and rested most mornings.
13. I have a tendency to give up easily when I meet difficult problems.
14. I certainly feel useless at times.
15. I have the wanderlust and am never happy unless I am roaming or traveling about.
16. I am sometimes cross and grouchy without any good reason.
17. My parents have often disapproved of my friends.
18. My way of doing things is apt to be misunderstood by others.
19. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.
20. I like to keep people guessing what I'm going to do next.
21. If given the chance I would make a good leader of people.
22. In school I was sometimes sent to the principal for cutting up.
23. I like to read about history.
24. I am so touchy on some subjects that I can't talk about them.
25. I like to talk before groups of people.
26. I am often bothered by useless thoughts which keep running through my mind.
27. I like to plan out my activities in advance.
28. I must admit I find it very hard to work under strict rules and regulations.
29. I like large, noisy parties.

30. I always try to do at least a little better than what is expected of me.
31. I would be very unhappy if I was not successful at something I had seriously started to do.
32. I often lose my temper.
33. I often get disgusted with myself.
34. Society owes a lot more to the businessman and the manufacturer than it does to the artist and the professor.
35. I think I would like to belong to a motor-cycle club.
36. I used to like it very much when one of my papers was read to the class in school.
37. I don't seem to care what happens to me.

P A R T 1 2

SKIP NOS. 38-40 AND.
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 41

41. Our thinking would be a lot better off if we would just forget about words like "probably," "approximately," and "perhaps."
42. I liked "Alice in Wonderland" by Lewis Carroll.
43. I have had very peculiar and strange experiences.
44. I have very few fears compared to my friends.
45. For most questions there is just one right answer, once a person is able to get all the facts.
46. I seem to be about as capable and smart as most others around me.
47. I usually take an active part in the entertainment at parties.
48. The trouble with many people is that they don't take things seriously enough.
49. It is always a good thing to be frank.
50. It is annoying to listen to a lecturer who cannot seem to make up his mind as to what he really believes.
51. I don't blame anyone for trying to grab all he can get in this world.
52. I was a slow learner in school.
53. I like poetry.
54. Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world."
55. It is all right to get around the law if you don't actually break it.
56. Parents are much too easy on their children nowadays.
57. I have a tendency to give up easily when I meet difficult problems.
58. Teachers often expect too much work from the students.
59. I think I would like to fight in a boxing match sometime.
60. I like to plan a home study schedule and then follow it.
61. I have often found people jealous of my good ideas, just because they had not thought of them first.
62. People pretend to care more about one another than they really do.
63. The future is too uncertain for a person to make serious plans.
64. The man who provides temptation by leaving valuable property unprotected is about as much to blame for its theft as the one who steals it

65. I sometimes feel that I am a burden to others.
66. Only a fool would try to change our American way of life.
67. Lawbreakers are almost always caught and punished.
68. I dread the thought of an earthquake.
69. I often lose my temper.
70. I am bothered by people outside, on streetcars, in stores, etc., watching me.
71. I feel that I have often been punished without cause.

P A R T 1 3

NOTE: SKIP NO. 72, AND
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 73.

73. I doubt whether I would make a good leader.
74. I think I would enjoy having authority over other people.
75. I find it hard to keep my mind on a task or job.
76. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.
77. When in a group of people I have trouble thinking of the right things to talk about.
78. School teachers complain a lot about their pay, but it seems to me that they get as much as they deserve.
79. I don't blame anyone for trying to grab all he can get in this world.
80. Every citizen should take the time to find out about national affairs, even if it means giving up some personal pleasures.
81. I should like to belong to several clubs or lodges.
82. I am certainly lacking in self-confidence.
83. When I work on a committee I like to take charge of things.
84. If given the chance I would make a good leader of people.
85. Sometimes at elections I vote for men about whom I know very little.
86. I very much like hunting.
87. A person does not need to worry about other people if only he looks after himself.
88. I can honestly say that I do not really mind paying my taxes because I feel that's one of the things I can do for what I get from the community.
89. When prices are high you can't blame a person for getting all he can while the getting is good.
90. In school I found it very hard to talk before the class.
91. I am a better talker than a listener.
92. I would be willing to give money myself in order to right a wrong, even though I was not mixed up in it in the first place.
93. We should cut down on our use of oil, if necessary, so that there will be plenty left for the people fifty or a hundred years from now.
94. When the community makes a decision, it is up to a person to help carry it out even if he had been against it.
95. I would rather have people dislike me than look down on me.
96. I must admit I try to see what others think before I take a stand.
97. People should not have to pay taxes for the schools if they do not have children.

98. In a group, I usually take the responsibility for getting people introduced.
99. I would be willing to describe myself as a pretty "strong" personality.
100. There are times when I act like a coward.
101. I must admit I am a pretty fair talker.
102. I have strong political opinions.
103. I think I am usually a leader in my group.
104. I seem to do things that I regret more often than other people do.
105. Disobedience to any government is never justified.
106. I enjoy planning things, and deciding what each person should do.
107. I would rather not have very much responsibility for other people.
108. I usually have to stop and think before I act even in trifling matters.
109. It is pretty easy for people to win arguments with me.
110. I have not lived the right kind of life.
111. I have a natural talent for influencing people.
112. I like to give orders and get things moving.
113. I am embarrassed with people I do not know well.
114. I'm not the type to be a political leader.
115. People seem naturally to turn to me when decisions have to be made.
116. I dislike to have to talk in front of a group of people.
117. I have more trouble concentrating than others seem to have.

P A R T 1 4

NOTE: SKIP NOS. 118-120, AND
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 121.

121. I often wish people would be more definite about things.
122. It is annoying to listen to a lecturer who cannot seem to make up his mind as to what he really believes.
123. I find that a well-ordered mode of life with regular hours is congenial to my temperament.
124. It is hard for me to sympathize with someone who is always doubting and unsure about things.
125. I often start things I never finish.
126. Our thinking would be a lot better off if we would just forget about words like "probably," "approximately," and "perhaps."
127. I never make judgments about people until I am sure of the facts.
128. A strong person will be able to make up his mind even on the most difficult questions.
129. For most questions there is just one right answer, once a person is able to get all the facts.
130. I like to have a place for everything and everything in its place.
131. I don't like to work on a problem unless there is the possibility of coming out with a clear-cut and unambiguous answer.
132. It bothers me when something unexpected interrupts my daily routine.
133. Most of the arguments or quarrels I get into are over matters of principle.

134. I am known as a hard and steady worker.
135. I don't like things to be uncertain and unpredictable.
136. Once I have my mind made up I seldom change it.
137. I think I am stricter about right and wrong than most people.
138. I am in favor of a very strict enforcement of all laws, no matter what the consequences.
139. I always see to it that my work is carefully planned and organized.
140. The trouble with many people is that they don't take things seriously enough.
141. I set a high standard for myself and I feel others should do the same.
142. People who seem unsure and uncertain about things make me feel uncomfortable.

P A R T 1 5

USE ANSWER SHEET SIDE F FOR NOS. 151-279
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 151

151. There's no use in doing things for people; you only find that you get it in the neck in the long run.
152. A person who doesn't vote is not a good citizen.
153. I have had very peculiar and strange experiences.
154. When a person "pads" his income tax report so as to get out of some of his taxes, it is just as bad as stealing money from the government.
155. It's a good thing to know people in the right places so you can get traffic tags, and such things, taken care of.
156. When I was going to school I played hooky quite often.
157. It's no use worrying my head about public affairs; I can't do anything about them anyhow.
158. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.
159. Every family owes it to the city to keep their sidewalks cleared in the summer.
160. I liked school.
161. We ought to worry about our own country and let the rest of the world take care of itself.
162. When I get bored I like to stir up some excitement.
163. As long as a person votes every four years, he has done his duty as a citizen.
164. I am fascinated by fire.
165. School teachers complain a lot about their pay, but it seems to me that they get as much as they deserve.
166. I was a slow learner in school.
167. I do not dread seeing a doctor about a sickness or injury.
168. I think I would like to drive a racing car.
169. I seldom or never have dizzy spells.
170. It is all right to get around the law if you don't actually break it.
171. Every citizen should take the time to find out about national affairs, even if it means giving up some personal pleasures.
172. My parents have often disapproved of my friends.
173. When I work on a committee I like to take charge of things.

174. In school my marks in deportment were quite regularly bad.
175. I would be ashamed not to use my privilege of voting.
176. I enjoy a race or game better when I bet on it.
177. I have often found people jealous of my good ideas, just because they had not thought of them first.
178. I very much like hunting.
179. I have never been in trouble with the law.
180. It makes me angry when I hear of someone who has been wrongly prevented from voting.
181. People have a real duty to take care of their aged parents, even if it means making some pretty big sacrifices.
182. We ought to pay our elected officials better than we do.
183. I can honestly say that I do not really mind paying my taxes because I feel that's one of the things I can do for what I get from the community.
184. When prices are high you can't blame a person for getting all he can while the getting is good.
185. We ought to let Europe get out of its own mess; it made its bed, let it lie in it.
186. If I get too much change in a store, I always give it back.
187. I like to read about science.
188. I have never done anything dangerous for the thrill of it.
189. As a youngster I was suspended from school one or more times for cutting up.
190. I feel that I have often been punished without cause.
191. Police cars should be especially marked so that you can always see them coming.

P A R T 1 6

NOTE: SKIP NOS. 192-194
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 195.

195. I often feel that I made a wrong choice in my occupation.
196. When I was going to school I played hooky quite often.
197. I think Lincoln was greater than Washington.
198. I would do most anything on a dare.
199. With things going as they are, it's pretty hard to keep up hope of amounting to something.
200. I think I am stricter about right and wrong than most people.
201 I am somewhat afraid of the dark.
202. I hardly ever get excited or thrilled.
203. My parents have often disapproved of my friends.
204. My home life was always happy.
205. I often act on the spur of the moment without stopping to think.
206. My parents have generally let me make my own decisions.
207. I would rather go without something than ask for a favor.
208. I have had more than my share of things to worry about.
209. When I meet a stranger I often think that he is better than I am.
210. Before I do something I try to consider how my friends will react to it.
211. I have never been in trouble with the law.

212. In school I was sometimes sent to the principal for cutting up.
213. I keep out of trouble at all costs.
214. Most of the time I feel happy.
215. I often feel as though I have done something wrong or wicked.
216. It is hard for me to act natural when I am with new people.
217. I often think about how I look and what impression I am making upon others.
218. I find it easy to "drop" or "break with" a friend.
219. I get nervous when I have to ask someone for a job.
220. I never worry about my looks.
221. I go out of my way to meet trouble rather than try to escape it.
222. I seem to do things that I regret more often than other people do.
223. My table manners are not quite as good at home as when I am out in company.
224. It is pretty easy for people to win arguments with me.
225. I know who is responsible for most of my troubles.
226. I get pretty discouraged with the law when a smart lawyer gets a criminal free.
227. Even when I have gotten into trouble I was usually trying to do the right thing.
228. It is very important to me to have enough friends and social life.
229. Life usually hands me a pretty raw deal.
230. People often talk about me behind my back.
231. I would never play cards (poker) with a stranger.
232. I don't think I'm quite as happy as others seem to be.
233. It often seems that my life has no meaning.
234. My home as a child was less peaceful and quiet than those of most other people.
235. Even the idea of giving a talk in public makes me afraid.
236. As a youngster in school I used to give the teachers lots of trouble.
237. If the pay was right I would like to travel with a circus or carnival.
238. I never cared much for school.
239. A person is better off if he doesn't trust anyone.

P A R T 1 7

NOTE: SKIP NOS. 240-242, AND
BE SURE TO START THIS PART ON THE ANSWER SHEET WITH NO. 243.

243. Several times a week I feel as if something dreadful is about to happen.
244. I find it hard to keep my mind on a task or job.
245. Sometimes I cross the street just to avoid meeting someone.
246. Once a week or oftener I feel suddenly hot all over, without apparent cause.
247. I can remember "playing sick" to get out of something.
248. I usually expect to succeed in things I do.
249. I am so touchy on some subjects that I can't talk about them.
250. I usually feel that life is worthwhile.
251. I think most people would lie to get ahead.

252. At times I have a strong urge to do something harmful or shocking.
253. I don't seem to care what happens to me.
254. I am afraid to be alone in the dark.
255. I have nightmares every few nights.
256. I have a great deal of stomach trouble.
257. I have been afraid of things or people that I knew could not hurt me.
258. Any man who is able and willing to work hard has a good chance of succeeding.
259. I hardly ever feel pain in the back of the neck.
260. When I was a child I didn't care to be a member of a crowd or gang.
261. When I am feeling very happy and active, someone who is blue or low will spoil it all.
262. Everything tastes the same.
263. Much of the time my head seems to hurt all over.
264. I am made nervous by certain animals.
265. No one seems to understand me.
266. I dream frequently about things that are best kept to myself.
267. There are certain people whom I dislike so much that I am inwardly pleased when they are catching it for something they have done.
268. My mouth feels dry almost all the time.
269. When I am cornered I tell that portion of the truth which is not likely to hurt me.
270. Life usually hands me a pretty raw deal.
271. I have one or more bad habits which are so strong that it is no use fighting against them.
272. I am bothered by acid stomach several times a week.
273. I get all the sympathy I should.
274. I have often felt guilty because I have pretended to feel more sorry about something than I really was.
275. My skin seems to be unusually sensitive to touch.
276. I am troubled by attacks of nausea and vomiting.
277. I would have been more successful if people had given me a fair chance.
278. Almost every day something happens to frighten me.
279. There seems to be a lump in my throat much of the time.

VOCATIONAL GUIDANCE FOLLOW UP STUDY, 1965

EXPLANATION OF 'X' VARIABLES

Variable number	Instrument
X(1)	Holland Accomplishments, Hopes, Goals
X(2)	Holland Traits, Self-evaluation
X(3)	Lodahl Opinions Toward Work
X(4)	Holland Vocational Preference Inventory Realistic Scale
X(5)	Holland V.P.I. Intellectual Scale
X(6)	Holland V.P.I. Conventional Scale
X(7)	Holland V.P.I. Enterprising Scale
X(8)	Holland V.P.I. Social Scale
X(9)	Holland V.P.I. Artistic Scale
X(10)	Holland V.P.I. Self-control
X(11)	Holland V.P.I. Masculinity Scale
X(12)	Holland V.P.I. Status Scale
X(13)	Holland V.P.I. Infrequency Scale
X(14)	Holland V.P.I. Acquiescence Scale
X(15)	Holland Interpersonal Competency Scale
X(16)	Farquhar Job Characteristics Scale
X(17)	Farquhar Situational Choice Inventory

Variable number	Instrument
X(18)	Farquhar Word Rating List
X(19)	Farquhar Human Trait Inventory
X(20)	Average of Farquhar variables
X(21)	California Psychological Inventory Achievement via Conformance Scale
X(22)	C.P.I. Achievement via Independence Scale
X(23)	C.P.I. Dominance Scale
X(24)	C.P.I. Flexibility Scale
X(25)	C.P.I. Responsibility Scale
X(26)	C.P.I. Socialization Scale
X(27)	C.P.I. Sense of Well-being Scale
X(28)	S.E.S. index
X(29)	S.T.E.P. Math Score
X(30)	S.T.E.P. Reading Score
X(31)	S.T.E.P. Writing Score
X(32)	S.C.A.T. Verbal Score
X(33)	S.C.A.T. Quantitative Score
X(34)	S.C.A.T. Total Score
X(35)	G.P.A. - Sophomore
X(36)	G.P.A. - Junior
X(37)	G.P.A. - Senior
X(38)	G.P.A. - Overall
X(39)	G.P.A. - Overall English

Variable number	Instrument
X(40)	G.P.A. - Overall Science
X(41)	G.P.A. - Overall Social Studies
X(42)	G.P.A. - Overall Math

((X(43)-G.P.A. -Overall Foreign Lang., X(44)-G.P.A. -Overall Ind. Arts,)
((X(45)-G.P.A. -Overall Bus. Ed., X(46)-G.P.A. -Overall Homemaking,)
((X(47)-G.P.A. -Overall Art, X(48)-G.P.A. -Overall Music,)

X(43) through X(48) omitted.

X(49)	G.P.A. - Overall P.E./R.O.T.C.
((X(50)	G.P.A. - Overall Other -- omitted.))
X(51)	Minnesota Vocational Interest Inventory Baker
X(52)	M.V.I.I. Food Service Manager
X(53)	M.V.I.I. Milk Wagon Driver
X(54)	M.V.I.I. Retail Sales Clerk
X(55)	M.V.I.I. Stock Clerk
X(56)	M.V.I.I. Printer
X(57)	M.V.I.I. Tab. Machine Operator
X(58)	M.V.I.I. Warehouseman
X(59)	M.V.I.I. Hospital Attendant
X(60)	M.V.I.I. Pressman
X(61)	M.V.I.I. Carpenter
X(62)	M.V.I.I. Painter
X(63)	M.V.I.I. Plasterer
X(64)	M.V.I.I. Truck Driver
X(65)	M.V.I.I. Truck Mechanic
X(66)	M.V.I.I. Industrial Education Teacher
X(67)	M.V.I.I. Sheet Metal Worker

Variable number	Instrument
X(68)	M.V.I.I. Plumber
X(69)	M.V.I.I. Machinist
X(70)	M.V.I.I. Electrician
X(71)	M.V.I.I. Radio-TV Repairman
X(72)	M.V.I.I. Mechanical Scale
X(73)	M.V.I.I. Health Service Scale
X(74)	M.V.I.I. Office Work Scale
X(75)	M.V.I.I. Electronics Scale
X(76)	M.V.I.I. Food Service Scale
X(77)	M.V.I.I. Carpentry Scale
X(78)	M.V.I.I. Sales-Office Scale
X(79)	M.V.I.I. "Clean Hands"
X(80)	M.V.I.I. Outdoors

THE GRADUATE SURVEY

INFORMATION SHEET

DIRECTIONS: Please answer the following items carefully. If a written response is called for, please print the information clearly.

_____ 1. Name _____ _____
(Last) (First) (Initial) (Identification Number)

_____ 2. Present High School (Circle one) Castlemont Dewey Fremont Technical McClymonds Oakland Skyline

_____ 3. Birth date _____ 4. Sex: Male Female
(Month) (Day) (Year) (Circle)

_____ 5. Social Security No. [ ][ ][ ] 6. Telephone No. _____

_____ 7. Present address _____
(Street) (City) (Zone)

In order to help us locate you in the future, please give the name, address, and telephone number of someone who will always know where you will be living. Please print.

_____ 8. Name _____

_____ 9. Address _____
(Street) (City) (State)

_____ 10. Telephone No. _____

_____ 11. What was your major in high school? _____

_____ 12. How many years have you been in the Oakland School system? _____

_____ 13. If you plan to continue your education, please give the name of the school you expect to attend. _____

_____ 14. If you plan to be working full time following high school graduation, do you already have a job waiting for you? (Do not include "summer only" work).

YES _____ NO
(Circle one)

_____ 15. If you answered "Yes" in Question No. 14, what type of work will you be doing? _____

_____ 16. If you answered "Yes" in Question No. 14, what is the name and address of your employer? _____
(Name of Firm)

_____
(Street Address)

_____
(City and State)

Information about father or male guardian

17. Circle below the highest grade in school that he has completed:

Don't know, 5th or below, 6th, 7th, 8th, 9th, 10th,

11th, 12th. College: 1 yr. 2 yrs. 3 yrs. 4 yrs. 5 yrs. or more.

Title of job father or male guardian holds _____

Describe briefly the kind of work he does _____

_____

_____

Information about mother or female guardian

18. Circle below the highest grade in school that she has completed

Don't know, 5th or below, 6th, 7th, 8th, 9th, 10th,

11th, 12th. College: 1 yr. 2 yrs. 3 yrs. 4 yrs. 5 yrs. or more.

Title of job mother or female guardian holds _____

Describe briefly the kind of work she does _____

_____

_____

19. Please list the type of jobs (either full or part-time) that you have held. List only jobs you have held for two months or longer. Please print.

(a) _____

(b) _____

(c) _____

(d) _____

(e) _____

20. If you have a job at the present time, what is your present average weekly income before deductions? _____

21. What do you think your weekly income will be when you are 40 years old? (Assume salaries will stay about as they are now). _____

Below is a list of typical high school courses. Would you answer the questions by carefully writing the number of the course in the appropriate blank. For example, if in answer to Item No. 23 you liked biology best, you would write 5 in the answer column. BE SURE TO WRITE YOUR ANSWERS IN THE COLUMN AT THE RIGHT, NOT AT THE LEFT.

____ 23. Of all the subjects you have taken in high school, which subject did you like best? 23. _____

____ 24. Of all the subjects you have taken in high school, which subject did you like least? 24. _____

____ 25. What two subjects offered in your school do you most strongly wish you would have taken? (Write two numbers from the list below). 25(a). _____ 25(b). _____

____ 26. If you plan to continue your education following high school graduation, what two subjects do you feel will be the most valuable to you. (Write two numbers from the list below. NOTE: Do not answer this question if you are planning to be working full time following high school graduation.) 26(a). _____ 26(b). _____

____ 27. If you plan to be working full time following high graduation, which two subjects do you feel will be the most valuable to you? (Write two numbers from the list below. NOTE: Do not answer if you plan to continue your education after graduation.) 27(a) _____ 27(b) _____

1. Algebra
2. American government
3. Art
4. Auto shop
5. Biology
6. Bookkeeping
7. Business English
8. Business practice (Business arithmetic)
9. Chemistry
10. Crafts
11. Distributive education (Sales)
12. Driver education
13. Driver training
14. Electronics
15. English
16. Foreign language
17. General mathematics
18. Geometry
19. Homemaking - Child care
20. Homemaking - Clothing emphasis
21. Homemaking - Foods emphasis
22. Homemaking - General
23. Machine shop (Metal)
24. Mechanical Drawing (Drafting)
25. Music - Instrumental
26. Music - Choral
27. Notehand
28. Office practice
29. Other science (Physical science, general science, etc.)
30. Other social studies (World history, geography)
31. Physical education
32. Physics
33. Physiology
34. Print shop (Graphic arts)
35. R.O.T.C.
36. Shorthand
37. Typing
38. U. S. History
39. Wood shop (Cabinet)

28. Are there any courses that you would like to have taken that were not offered at your school? (PRINT the name of the course whether it is on the above list or not.)

____ (a)_____ (c) _____

____ (b)_____ (d) _____

OAKLAND PUBLIC SCHOOLS

RESEARCH DEPARTMENT

1025 Second Avenue Oakland, California

94606

Dear October 14, 1965

The Graduate Survey, in which you took part last spring, provided us with a great deal of information about our graduating seniors. As you may remember, we said that we would be contacting all graduates from time to time for information related to their post-high school activities. The analysis of this information, along with other data collected in the spring survey, will eventually help us to improve education in the Oakland Public Schools.

We are asking you to complete the enclosed questionnaire at this time. The replies you give us will let us know what happens to our students shortly after graduation. Your answers, in addition, will enable us to see to what extent our high school courses have helped our graduates find employment.

May I thank you at this time for your cooperation in completing the questionnaire. We hope that you will continue to help us now and in the future as our study progresses.

Please use the enclosed stamped envelope for your reply. We would appreciate receiving your questionnaire as soon as possible. Thank you again for your participation.

Sincerely yours,

Alden W. Badal

Alden W. Badal
Director of Research

Enclosures

P. S. This questionnaire will take only five minutes of your time. Please return it today!

Appendix B

O A K L A N D P U B L I C S C H O O L S

RESEARCH DEPARTMENT

1025 Second Avenue Oakland, California

94606

Dear

November 1, 1965

You may recall that you recently received a letter and questionnaire from us regarding your activities since your high school graduation.

The questionnaire represents a very important aspect of the Graduate Survey in which you participated at your school last spring. The information you give us will be most important to our study, and the replies we receive will be very carefully considered.

In case you have misplaced the questionnaire, we are enclosing another one and a stamped envelope for your convenience in replying.

Thank you very much for your cooperation. We would appreciate hearing from you as soon as possible.

Sincerely yours,

Alden W. Badal

Alden W. Badal
Director of Research

Enclosures

Appendix C

O A K L A N D P U B L I C S C H O O L S

RESEARCH DEPARTMENT

1025 Second Avenue Oakland, California

94606

Dear November 9, 1965

We have not heard from you as yet! We are attempting to contact all members of the 1965 graduating class regarding their activities since leaving high school.

Since the questionnaire you received earlier is an important aspect of the Graduate Survey in which you took part at your school last spring, the completed form will help us to determine what happens to our students shortly after their graduation. The information we receive will also aid us in our attempt to improve education in our schools.

Because we have not heard from you, and in case you have misplaced or lost the two questionnaires we have previously mailed, we are enclosing another one and a stamped envelope for your convenience in replying. Your answers will be given very careful attention and will be held completely confidential.

Thank you for your cooperation. Would it be possible for us to hear from you by this Friday.

Sincerely yours,

Alden W. Badal

Alden W. Badal
Director of Research

Enclosures

Appendix D

OAKLAND PUBLIC SCHOOLS

THE GRADUATE SURVEY 1965 OCTOBER QUESTIONNAIRE

____ 1. DIRECTIONS: Please answer the following items carefully. If a written response is called for, please print the information clearly. Ignore the lines on the left-hand margin. These will be used for coding.

____ 2. Name _____
(PRINT) (Last Name) (First) (Initial)

____ 3. Present address _____
(Number and Street) (City and State)

____ 4. Telephone number _____

____ 5. High School (Circle one) Castlemont Dewey Fremont Skyline McClymonds Oakland Technical

____ 6. At the time of your graduation, did you plan to continue your education primarily as a full-time college student?

Yes_____ No_____

____ 7. At the time of your graduation, did you plan to go to work full time?

Yes_____ No_____

What is your present status? CHECK ONLY THE ONE ANSWER in Items 8-17 which most accurately describes your situation.

____ 8. WORKING - Full-time (30 hours or more per week) _____

____ 9. WORKING - Part-time (29 hours or less per week) _____
(Not a student)

____ 10. UNEMPLOYED - Seeking work _____

____ 11. HOUSEWIFE _____

____ 12. MEMBER OF THE ARMED SERVICES _____ BRANCH _____

____ 13. STUDENT - Full-time (12 units or more, Jr. or 4-year college) _____
(Not holding any job)

____ 14. STUDENT - Full-time (12 units or more, Jr. or 4-year college) _____
(Working part time)

____ 15. STUDENT - Part-time (Less than 12 units, Jr. or 4-year college) _____

____ 16. STUDENT - Professional or technical school (Nursing, dental assisting, secretarial schools, automation, electronics, beauty, private engineering schools, etc.) ____

____ 17. OTHER _____
(If you have checked No. 17, please state what you are doing)

FOR THOSE WORKING FULL TIME: Answer Items 18-21 only if you are working 30 hours or more per week.

_____ 18. Name of employer _____

_____ 19. Address of employer _____
(Number and Street) (City and State)

_____ 20. Please print the title of your job _____

_____ 21. Please describe the type of work you are doing _____

_____

FOR COLLEGE STUDENTS: Answer one item from Nos. 22-24. Answer only if you are a student attending a junior college or four-year college.

_____ 22. FULL-TIME STUDENT (12 units or more) - What school do you attend?

_____
(Name of School) (City and State)

_____ 23. PART-TIME STUDENT (less than 12 units) - What school do you attend? (Not working)

_____
(Name of School) (City and State)

_____ 24. PART-TIME STUDENT (less than 12 units) - What kind of work are you doing? (Working)

_____
(Describe briefly the type of work you are doing)

_____
(Name of School) (City and State)

_____ 25. If you are attending a professional or technical school, what is the name and location of that school?

_____
(Name of School) (City and State)

_____ 26. How satisfactory would you regard your present situation either in school or at work? (Check one)

(a) Very satisfactory _____ (b) Satisfactory _____ (c) Unsatisfactory ___
(d) Very unsatisfactory _____ (e) Unable to judge _____

_____ 27. How satisfactory do you think your high school education was in preparing you for what you are now doing in school or at work? (Check one)

(a) Very satisfactory _____ (b) Satisfactory ____ (c) Unsatisfactory ____
(d) Very unsatisfactory _____ (e) Unable to judge _____

_____ 28. If you are planning to make a change in your present situation (school or work), when do you plan to make this change? (Check one)

(a) 3 months _____ (b) 6 months _____ (c) 12 months _____
(d) 18 months _____ (e) Not planning a change _____

_____ 29. In order to help us locate you in the future, please give the name, address, and telephone number of someone who will always know where you will be living. Please print.

Name _____

Address _____
(Number and Street) (City and State)

Telephone number _____

OAKLAND PUBLIC SCHOOLS

McCLYMONDS HIGH SCHOOL
2607 Myrtle Street
Oakland, California --- 94607

May 3, 1966

Dear Parent:

The Oakland Unified School District is attempting to expand vocational courses in order to provide the best possible education for your children. In the spring of 1965 all graduates of each of the seven Oakland high schools were surveyed. Follow-up questionnaires were sent to each graduate in October and a second questionnaire is being sent to each 1965 graduate this month.

This year we are adding to the Follow-up Study by surveying high school seniors who are enrolled in vocational classes. The survey will take approximately four hours and will be conducted in the Oakland high schools at a time convenient to the vocational teachers at the individual high schools during the weeks of May 2nd and May 9th. The surveys will be conducted only during the time that the vocational classes regularly meet. Next year there will be surveys and interviews of the representative McClymonds graduates. There also will be follow-ups with employers and colleges. The Follow-up Study is funded by the Vocational Education Act of 1963.

This study is extremely important. It will provide information for improving our schools. Additional classes, changes in present courses, improved counseling--these are some of the benefits that will come from this study. Above all, the study will help our young people to develop skills and attitudes needed in the world of work.

We need the help of McClymonds parents to make this project a success. We ask your cooperation in encouraging your son or daughter to complete the questionnaire and to take part in the later Follow-up Study.

Sincerely yours,

Benjamin Hargrave
Principal

BH:eg

OAKLAND PUBLIC SCHOOLS
Department of Counseling and Occupational Information

NDEA EDUCATIONAL GUIDANCE FOLLOW-UP STUDY

April _____ 1966

DIRECTIONS: Please answer the following items carefully. If a written response is called for, please PRINT the information clearly. Please circle your answer as well as indicate the number in the space provided in the left hand margin. Please note that both sides of the paper have been used.

____ 1. Name _____
PRINT (Last Name) (First) (Initial)

____ 2. Name at time of graduation, if different _____

____ 3. Social Security No. _____ 4. Marital Status _____

____ 5. Present College Address _____
(Number & Street) (City & State)

____ 6. Telephone No. _____ College Name _____

____ 7. Permanent Address -- Name and address of person through whom you can always be reached _____
(Name) (Number & Street)

_____
(City & State) (Telephone No.)

____ 8. Please indicate to what extent you are employed:

1. Full time 2. Part time (scheduled)
3. Part time (unscheduled - baby sitting, etc.)
4. Not employed - seeking work
5. Not employed - not seeking work (ill, housewife, etc.)

____ 9. Please print the title of your job _____

____ 10. Please describe the type of work you are doing _____

_____

____ 11. Name of Employer _____

____ 12. Address of Employer _____
(Number & Street) (City & State)

If you have any additional comments, please do not hesitate to write in the margin.

____ 13. Please indicate to what extent you are attending college or technical school.

1. Full time
2. If not a student now but were on October 31.
3. Part time
4. Not a student
5. If enrolled in October but no longer in college, indicate the primary reason for the change _____

_____

____ 14. Please indicate your college enrollment at this time.

1. University 2. Four-year college 3. Trade or technical school
4. College preparatory transfer program at jr. college
5. Terminal program at jr. college 6. _____

____ 15. Did you attend summer school last summer?

1. Yes 2. No

____ 16. If yes, please indicate the main reason for your attending summer school.

1. I wanted to get some requirements finished before my first semester.
2. I felt the necessity of "getting started" in order to be more prepared for the first semester.
3. I had some qualifying or remedial courses to take.
4. I had nothing better to do.
5. Other _____

____ 17. Please indicate the courses you took in summer school.

1. 2. 3.

____ 18. To what extent did you have paid employment in the Summer of 1965?

1. Full or nearly full time 2. More than half time 3. Half time
4. Some but less than half time 5. Little or no work

____ 19. How necessary was summer work to going on to school?

1. 2. 3.
Required.....Not crucial, but helpful.....Not needed

____ 20. Failure to have summer employment would have resulted in which of the following:

1. Different study arrangement (number of units taken, etc.)
2. Different college
3. Changing my standard of living
4. Living at home rather than at school
5. Going into debt for my education
6. Employment rate during school year
7. Made little or no difference
8. Other _____
(Write in)

Even if you have discontinued your school, please answer on the basis of the time you spent at school.

____ 21. How well do you feel your high school prepared you for academic success in college?

1. Extremely well
2. Rather well
3. Adequately
4. Not very well
5. Poorly

____ 22. What course or courses do you feel were not important for academic success in college?

1. 2.

____ 23. Are there courses you now feel you should have taken while in high school?

1. Yes 2. No

____ 24. If yes, please indicate which courses you wish you had taken.

1. 2.

____ 25. Do you feel that any of your college courses are an undesirable duplication of work you did in high school?

1. Yes 2. No

____ 26. If yes, which college courses are an undesirable duplication of work?

1. 2.

____ 27. What is your major or probable major area of study?

1. 2.

____ 28. How sure are you that you will continue in that major area?

1. Very sure
2. Somewhat sure
3. Undecided
4. Unsure
5. Very unsure

____ 29. Since when have you felt that you would take college work in this area of study?

1.	2.	3.	4.
Elementary school....	Jr. high school.....	Sr. high school.....	This year

____ 30. Which one of the following was most important in making your decision?

1. Test results
2. Prior achievement
3. Enjoy the subject
4. Preparing for a vocation in this field
5. Easy classes
6. Parents' encouragement
7. Friends in this major
8. College requires statement of major
9. Status
10. Financial reasons
11. No specific reason
12. Other _____

____ 31. Who was most influential in your making this decision?

1. Parent 2. Teacher 3. Counselor 4. Friends 5. Nobody
6. Other _____
(Write in)

____ 32. How does getting good grades in college compare with getting good grades in high school?

1. More difficult 3. Less difficult
2. About the same

____ 33. How does your study time in college compare with your study time in high school?

1. Much more 3. Less
2. About the same

____ 34. How would you rate your energy level?

1. Very high 3. Medium 5. Very low
2. High 4. Low

____ 35. How does pressure you feel for succeeding academically in college compare with the pressure you felt for succeeding in high school?

1. Much greater 3. About the same 5. A great deal less
2. Greater 4. Somewhat less

____ 36. Would you classify the pressure you feel for academic success in college as:

1. Extreme 3. Moderate 5. Insignificant
2. Strong 4. Slight

____ 37. What effect does this pressure have upon you?

1. It is a positive motivational force
2. There is no particular effect
3. It makes me nervous, anxious to the point of interfering with effective study

____ 38. Indicate from whom you now receive the greatest amount of this pressure for success.

1. Parents
2. Self
3. Faculty
4. Deans
5. Friends
6. Other _____
(Please specify)

____ 39. What career are you presently planning to follow?

1. 2. Not yet decided

If you indicated a choice, please answer questions 40 through 45.
If you did not indicate a choice, please skip to question 46.

____ 40. How certain do you feel you will enter this career?

1. Very certain 3. Uncertain
2. Somewhat certain

____ 41. Since when have you felt you would prepare for this career?

1. Elementary school 2. Jr. high school 3. Sr. high school
4. This year

____ 42. Which of the following was most important in your selecting this career?

1. People in this career enjoy a goodly amount of prestige and are well regarded.
2. There is a great demand for persons entering this career.
3. There are great opportunities for advancement for people trained in this career.
4. People trained in this career generally have a high income.
5. This career will provide conditions and surroundings in which to work that will be to my liking.
6. There is no other career that could give me the same feelings of satisfaction and fulfillment because of my personal values and characteristics.
7. This career offers a great deal of security.
8. Because it utilizes my particular abilities, interests and talents in completing this job duties and responsibilities.
9. Family tradition or opportunities.
10. Other _____

____ 43. Who was most influential in your making this decision?

1. Parent 2. Teacher 3. Counselor 4. Friend
5. Other _____
(Write in)

____ 44. Are you and your parents in general agreement as to your choice of career?

1. Yes 2. No

____ 45. If not, please explain what your parents' aspirations are for your career. _____

_____

____ 46. What are your housing arrangements?

1. With parents
2. With relatives
3. Dormitory
4. Fraternity or sorority
5. Boarding house or co-op
6. Apartment (alone)
7. Apartment (with friends)
8. Married student housing
9. Other _____
(Write in)

____ 47. In general, how satisfied are you with the institution you are attending?

1. Very satisfied
2. Quite satisfied
3. It's OK
4. Somewhat dissatisfied
5. Very dissatisfied

____ 48. Are you planning to enroll next term at the same institution?

1. Yes
2. No

____ 49. If no, please specify why you have decided not to return.

_____

_____

____ 50. How certain are you you will finish four years of college?

1. Very sure
2. Somewhat sure
3. Doubtful
4. Very doubtful

____ 51. In which college sponsored extra-curricular activities do you most actively participate?

1. 2.
3. 4.

____ 52. In which of these did you participate while you were in high school?

1. 2.
3. 4.

____ 53. List those activities in which you were involved to a major degree in high school but in which you are no longer participating.

1. 2.
3. 4.

____ 54. To which colleges did you formally apply?

1. 2.
3. 4.

____ 55. By which colleges were you accepted?

1. 2.
3. 4.

____ 56. What is the major reason for your enrolling in the institution in which you did?

1. Location
2. Finances
3. Prestige
4. Special curriculum
5. Parents' influence
6. Scholarship available
7. Friends
8. Eligible for admission
9. Another family member attending
10. Other _____
(Write in)

____ 57. Indicate your satisfaction with the following at your college:

	Mostly Satisfactory	Mostly Unsatisfactory	Unable to Answer
1. Class size			
2. Institution size			
3. Instructors			
4. Intellectual challenge			
5. Grading procedures			
6. Opportunities for participation in extra-curricular activities			
7. Social climate			
8. Opportunities to pursue special interests			
9. Variety of course offerings			
SPECIAL SERVICES			
10. College counseling			
11. Academic advising			
12. Health service			
13. Financial assistance			
14. Employment assistance			
15. Housing			

____ 58. To what extent have you encountered problems of the kind listed below in adjusting to college?

	Major Problem	Minor Problem	No Problem
1. Emotional			
2. Health			
3. Financial			
4. Family			
a. Father			
b. Mother			
c. Brothers			
d. Sisters			
e. Other (please specify)			
5. Friends			
6. Dating			
7. Study environment			
8. Academic			
9. Religious			
10. Moral			
11. Career planning			
12. Military			
13. Other (please specify)			

____ 59. Estimate your college costs PER YEAR:

1. Tuition _____ $ _____
2. Incidental fees _____ _____
3. Books _____ _____
4. Other (please indicate)

_____ _____

_____ _____

_____ _____

Total $ _____

_____ 60. Please indicate the source(s) of the money you are using to attend college. Please be as specific as possible, showing amount received yearly from:

Parents
- current income..... $_____
- savings..... _____
- loan (to you)..... _____

Loan
- bank..... _____
- college..... _____
- government..... _____
- personal..... _____

Scholarship (please indicate the source and amount of your scholarship)
- 1. _____
- 2. _____

Self
- current income..... _____
- savings..... _____
- savings, summer work..... _____

Relatives..... _____
Friends..... _____
Other _____ _____

_____ _____

_____ 61. Please indicate approximately how much it costs you per month to attend school. Entries should be limited to money actually paid out. If your board and room are not paid in money, do not indicate an equivalent amount. Please break down your expenditures (round to dollars) into the following categories:

1. Board.....$ _____ }..... $_____
2. Room..... _____ }
3. Clothes, personal needs..... _____
4. Trasnportation..... _____
5. Recreation..... _____
6. Incidentals, miscellaneous..... _____
7. Other _____..... _____
   (Write in)

_____..... _____

_____..... _____

_____ 62. Estimate the minimum amount, if different, on which you could get along..... $_____.

WEEKLY TIME CHART

1. ENTER IN EACH SQUARE THE NUMBER OF HOURS PER DAY TO THE NEAREST HOUR FOR EACH ACTIVITY

2. ENTER THE TOTALS IN THE RIGHT HAND COLUMN. YOUR GRAND TOTAL OF HOURS MUST BE 168 (i.e., 7 DAYS X 24 HOURS).

ACTIVITIES	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	TOTAL HOURS
CLASS, LABORATORIES & SECTIONS								
STUDYING								
EATING								
SLEEPING								
RECREATION								
DATING								
EMPLOYMENT								
PERSONAL								
TRANSPORTATION (IF TO AND FROM SCHOOL)								
MISCELLANEOUS & UNACCOUNTED								

GRAND TOTAL
(168)

O A K L A N D P U B L I C S C H O O L S

DEPARTMENT OF COUNSELING AND OCCUPATIONAL INFORMATION

1025 Second Avenue Oakland, California 94606
Telephone 836-2622

October 30, 1966

Dear

The response to last year's Educational Follow-up Survey was outstanding, and we thank you sincerely for your participation.

As we mentioned to you before, we will be contacting you from time to time for information regarding your post-high school educational activities. The data collected from you and all the other 1965 Oakland graduates who went on to college is now being analyzed with particular emphasis on improving college preparatory education in the Oakland Public Schools.

The enclosed questionnaire will take barely five minutes of your time, and your answers are so very important to the survey.

Our thanks to you for your cooperation and continued participation. Your questions and comments, as always, are most welcome. Should you care to contact us, please call at the above number, extension 769.

Sincerely,

Marilyn Patterson

Marilyn Patterson
Counselor on Special Assignment

MP:bl
Encl.

P.S. The stamped envelope has been enclosed for your convenience.

O A K L A N D P U B L I C S C H O O L S

DEPARTMENT OF COUNSELING AND OCCUPATIONAL INFORMATION

1025 Second Avenue Oakland, California 94606
Telephone 836-2622

January 18, 1967

Dear

After our contact by telephone to your home, we sent you a questionnaire the first part of the year.

It is most important that we receive your reply, , for it will be of tremendous help in our evaluating the curriculum at Castlemont High School. Without <u>your</u> observations and evaluations we do not have as complete a reference as we would like.

Thank you for the time and interest you are giving us. These few minutes of your time are an important contribution to the future planning of the Oakland Public Schools. If there is any part of the survey you would care to discuss, please call me at the above number, extension 769.

Sincerely,

Marilyn Patterson

Marilyn Patterson
Counselor on Special Assignment

MP:bl

OAKLAND PUBLIC SCHOOLS
Department of Counseling and Occupational Information
1025 Second Avenue -- Oakland, California 94606

October NDEA EDUCATIONAL GUIDANCE FOLLOW-UP STUDY 1966

DIRECTIONS: Please answer the following items carefully. Please PRINT the information clearly and return the questionnaire in the enclosed self-addressed envelope.

1. Name at time of graduation _____ _____
(Last Name) (First Name) (Initial) (Code)

2. Present name if different from name at time of graduation _____
(Last Name) (First Name) (Initial)

3. Present address _____
(Number & Street) (City) (State) (ZIP Code)

4. Telephone Number _____ 5. Marital status: Single _____ Married _____

6. In order to help us locate you in the future, please PRINT the name, address, and telephone number of someone who will always know where you will be living.

Name _____ Relative _____ or Friend _____
(State relationship)

Address _____ Telephone Number _____
(Number & Street) (City) (State)

YOUR PRESENT STATUS! Check (to the left) the item or items (7 through 13) which most accurately describe your situation. If you are working and also a student, please check the appropriate items concerning both work and school.

7. ____ Working (30 hours or more per week) 8. ____ Working (29 hours or less per week)

If you checked 7 or 8, please complete the following information:

A. Name of Employer _____

B. Address of Employer _____ Telephone _____
(Number & Street) (City) (State)

C. Name of Supervisor or Foreman _____

D. Job title or description of work you do _____

_____

_____

9. ____ Unemployed -- seeking work 10. ____ Unemployed -- not seeking work

11. ____ Member of Armed Forces -- ACTIVE DUTY

If you checked 11, please complete the following information:

A. Branch of the Armed Forces in which you serve _____ B. Rank _____

C. Job title or description of work you do _____

_____

12. ____ Schooling discontinued temporarily 13. ____ Schooling discontinued permanently

If you checked 12, or 13 --

A. Please indicate why you are no longer in school _____

_____

B. Please indicate what your plans are _____

_____

14. Have you changed schools since last June?

1. Yes 2. No

If you said yes, what was your major reason for changing institutions? _____

_____

15. ___ Student full time (12 units or more) 16. ___ Student part time (11 units or less)

If you checked 15 or 16, please complete the following information:

A. Name of school, college or university _____

B. Location _____
(City) (State)

C. What was your major in June? _____

D. What is your major now? _____

16. ____ If you have indicated a change indicate which of these were (yes) and were not (no) important in your changing your major.

	Yes	No		Yes	No
1. Aptitude test results	___	___	9. Changes in personal plans	___	___
2. Vocational interest test results	___	___	10. Friends in new major	___	___
3. Parents' encouragement	___	___	11. Greater enjoyment out of new major	___	___
4. Easier classes in new major	___	___	12. Status/prestige new major	___	___
5. Vocational preparation for this field	___	___	13. Financial reasons	___	___
6. Counseling interview	___	___	14. Poor grade in first major selected	___	___
7. Wanted greater academic challenge	___	___	15. New career goal	___	___
8. Disappointed in subject matter	___	___	16. No specific reason	___	___
			17. Other	___	___

17. ____ Discuss in more detail the single most important factor in making your decision.

_____

_____

18. ____ How sure are you that you will continue in your present major?

1. Very sure 2. Somewhat sure 3. Unsure 4. Very unsure

19. ____ What career are you presently planning to follow?

1. 2. Still undecided

20. ____ What are your housing arrangements? I live:

1. With parents
2. With relatives
3. In dormitory
4. In fraternity or sorority
5. In boarding house or co-op
6. In apartment (alone)
7. In apartment (with friends)
8. In married student housing
9. Other _____ (Write in)

21. ____ In general, how satisfied are you with the institution you are attending?

1. Very satisfied 2. Satisfied 3. Dissatisfied 4. Very dissatisfied

22. ____ Are you planning to enroll next term at the same institution?

1. Yes 2. No

23. ____ If no, please specify why you have decided not to return. (Write in)

_____

_____

24. ____ How certain are you that you will finish four years of college?

1. Very sure 2. Somewhat sure 3. Doubtful 4. Very doubtful

25. ____ If you answered doubtful or very doubtful, what do you expect to be doing?

_____

_____

OAKLAND PUBLIC SCHOOLS

Department of Counseling and Occupational Information
1025 Second Avenue Oakland, California 94606
Telephone 836-2622

May 26, 1967

Dear

Our follow-up study of your class has reached its second birthday. It has been two years since you completed the Graduate Survey in May of your senior year of high school. The cooperation of the graduates of 1965 has been splendid and we are most appreciative. The information we have received from you and your classmates has been most helpful to us.

As of May, 1966, about one-half of the 1965 graduates of all the Oakland high schools were attending a four-year college, a junior college, or a technical school. One-fourth were working full time. About one of every five males was in the military service. The remaining graduates fell into the following categories: part-time work, part-time college, unemployed and seeking work, and unemployed and not seeking work.

If you are looking for work or are considering changing your present job, you may find interesting the fact that almost one-half of those working are employed in office occupations. Approximately 17 per cent are employed in marketing positions and 15 per cent work at trade-industrial occupations. Governmental agencies (Federal, state, county, and city) appear to be the leading employer; one of every five reported working for such agencies. A very close second is the distribution firms, which employ almost the same number. These firms include department, grocery, drug stores, warehouses and other businesses that are engaged in selling goods. The largest single employer appears to be the Pacific Telephone and Telegraph Company which employs more than 50 of our 1965 graduates. This information has been expressed in graphs on the reverse side of this sheet.

This follow-up study continues to be extremely important. It is providing information that is now being used to improve our schools. Additional classes, changes in present courses, and improved counseling are some of the benefits that are coming from this study.

We now hope you will complete the enclosed Spring questionnaire. Once again, please be assured that your specific answers will be kept confidential. Would you please take time now to fill out this questionnaire and return it to us today in the enclosed stamped envelope.

Thank you once more for the important contribution you are making.

Sincerely,

Robert C. Williams

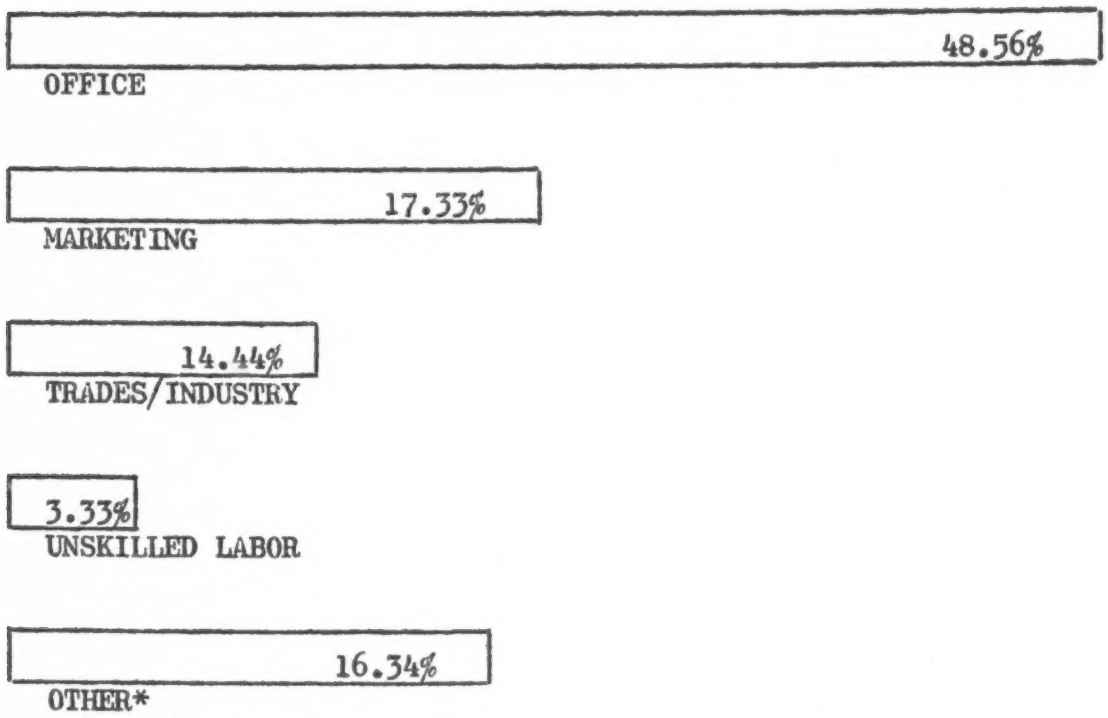
Robert C. Williams
Director

RCW:bl
Encls.

OAKLAND PUBLIC SCHOOLS

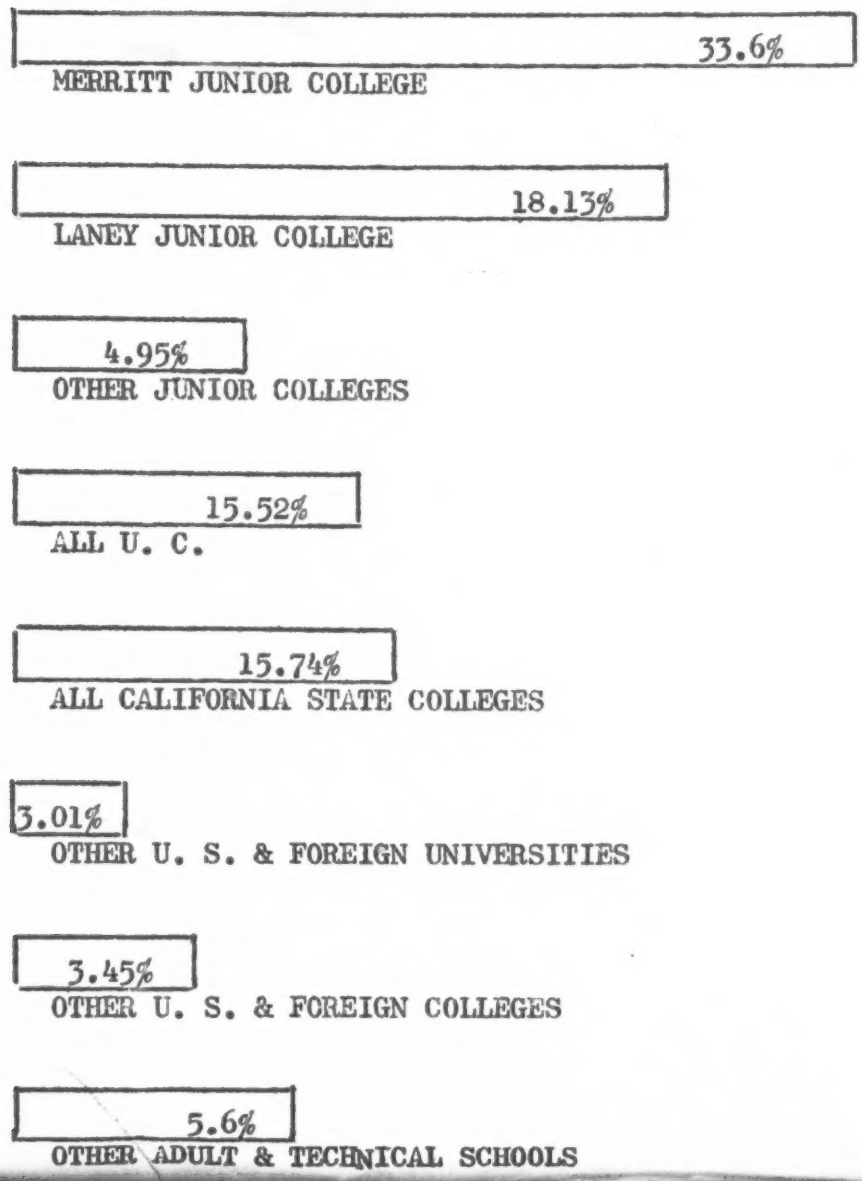
Department of Counseling and Occupational Information
1025 Second Avenue -- Oakland, California 94606

AREAS OF EMPLOYMENT OF 1965 OAKLAND PUBLIC SCHOOLS GRADUATES
RESPONDING TO 1966 VOCATIONAL GUIDANCE FOLLOW-UP STUDY



*Home Economics, Miscellaneous/Unknown, Recreational, Maintenance, Gardening, Medical

SCHOOLS ATTENDED BY 1965 OAKLAND PUBLIC SCHOOLS GRADUATES
RESPONDING TO 1966 NDEA EDUCATION FOLLOW-UP SURVEY



OAKLAND PUBLIC SCHOOLS
Department of Counseling and Occupational Information

Dear

The information we have received from the _____graduates of the class of 1965 has been most helpful in our follow-up study. However, we need YOUR Spring 1967 questionnaire filled out and returned to us if we are to have complete and accurate statistics.

The response to our study has been in the finest tradition, and we trust you will join your fellow graduates in providing the Oakland Public Schools with information used to improve our schools. As you recall, additional classes, changes in present courses and improved counseling are some of the benefits that are coming from this study.

On the reverse side of this sheet we have expressed in graph form information from the 1966 questionnaires you returned. With YOUR questionnaire added to those we have already received for Spring 1967 we will be able to update this information as well as accurately inform you about changes in colleges and employment and armed forces enlistments of your former classmates. We will also be able to present a profile of college majors and junior college terminal programs. Much more information is available, of course, and should you ever wish to discuss any of the material with us we would be delighted to hear from you.

We do hope you will complete the enclosed Spring questionnaire TODAY and mail it to us. Once again, please be assured that your specific answers are kept confidential.

Thank you once more for the important contribution you are making.

Sincerely,

Robert C. Williams

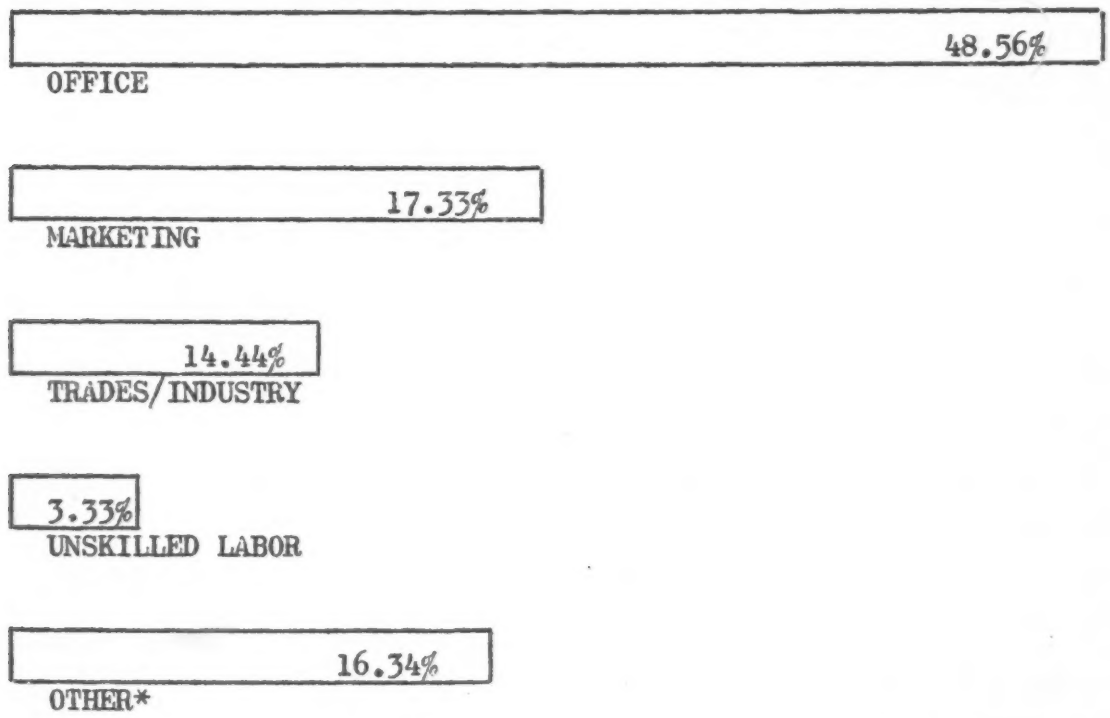
Robert C. Williams
Director of Counseling

RCW:mb

OAKLAND PUBLIC SCHOOLS

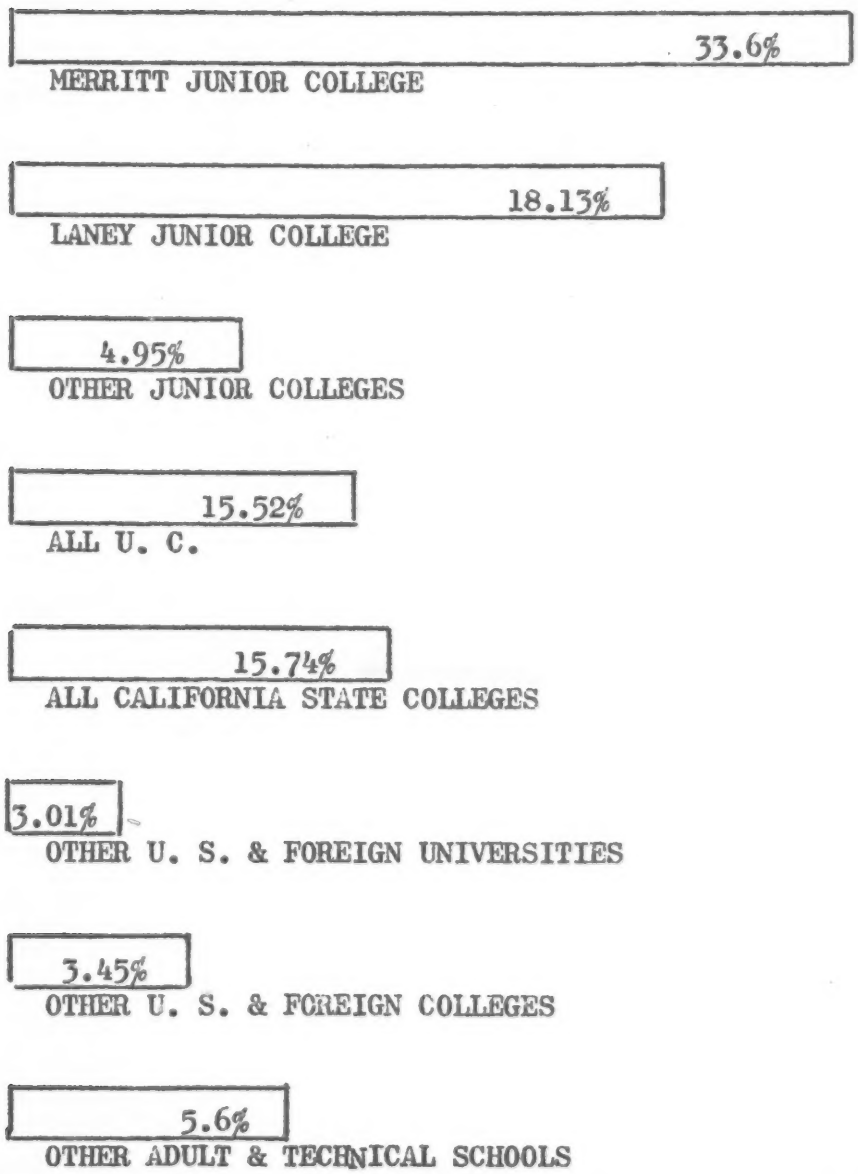
Department of Counseling and Occupational Information
1025 Second Avenue -- Oakland, California 94606

AREAS OF EMPLOYMENT OF 1965 OAKLAND PUBLIC SCHOOLS GRADUATES
RESPONDING TO 1966 VOCATIONAL GUIDANCE FOLLOW-UP STUDY



*Home Economics, Miscellaneous/Unknown, Recreational, Maintenance, Gardening, Medical

SCHOOLS ATTENDED BY 1965 OAKLAND PUBLIC SCHOOLS GRADUATES
RESPONDING TO 1966 NDEA EDUCATION FOLLOW-UP SURVEY



16. ____ Discuss in detail the single most important factor in making your decision to change your major _____

_____

17. ____ How sure are you that you will continue in your present major? (Circle answer)

1. Very sure 2. Somewhat sure 3. Unsure 4. Very unsure

18. ____ What career are you presently planning to follow?

1. 2. Not yet decided

19. ____ What are your housing arrangements? I live: (Please circle)

1. With parents
2. With relatives
3. In dormitory
4. In fraternity or sorority
5. In boarding house or co-op
6. In apartment (alone)
7. In apartment (with friends)
8. In married student housing
9. Other _____ (Write in)

20. ____ In general, how satisfied are you with the institution you are attending?

1. Very satisfied 2. Satisfied 3. Dissatisfied 4. Very dissatisfied

21. ____ Please circle the type of jr. college program in which you have been enrolled.

1. Terminal (A.A. Degree) 2. Vocational 3. Transfer

If you are enrolled in a terminal or vocational program, please answer 22-25.

22. ____ My plans after graduation are as follows: (Please circle)

a. I have a job
b. I will be (am seeking employment)
c. I will be joining the Armed Forces
d. Other _____ (Write in - please be specific)

23. ____ If you already have a job waiting for you, please answer the following:

a. Job title _____
b. Name of employer _____
c. Address of employer _____

24. ____ Please circle the manner in which you got your job.

a. Calif. Dept. of Employment
   1. Adult Division
   2. Youth Opportunities Centers
b. Private Employment Agency
c. College Placement Agency
d. Junior college teacher
e. Junior college counselor
f. Relative/friend
g. I personally made direct application
h. I passed Civil Service test or similar test
i. Newspaper ad
j. Other _____ (Write in)

25. ____ If you have not yet located a job, please indicate from the above list the contacts you have made. Use the appropriate letters A - J.

1. 3. 5. 7. 9. 11.
2. 4. 6. 8. 10.

If you are in a transfer program, please answer items 26 - 28.

26. ____ Is your transfer program at junior college complete? Yes ____ No ____

27. ____ If you answered "No", how many units have you taken? _____

28. ____ Is the extension of attendance at junior college necessary because of:

_____ Grade point average
_____ Subject requirements
_____ Interrupted schooling
_____ Total units necessary for admission
_____ Change of major
_____ Other (Write in)

29. ____ If you answered No. 28 - name the colleges to which you have applied.

1. 2. 3.

30. ____ Colleges by which you have been accepted.

1. 2. 3.

31. ____ Proposed major in college _____

OAKLAND PUBLIC SCHOOLS
Department of Counseling and Occupational Information
1025 Second Avenue -- Oakland, California 94606

May — NDEA EDUCATIONAL GUIDANCE FOLLOW-UP STUDY — 1967

DIRECTIONS: Please answer the following items carefully. Please PRINT the information clearly and return the questionnaire in the enclosed self-addressed envelope.

1. Name at time of graduation _____ (Last Name) (First Name) (Initial) (Code)

2. Present name if different from name at time of graduation _____ (Last Name) (First Name) (Initial)

3. Present address _____ (Number & Street) (City) (State) (ZIP Code)

4. Telephone Number _____ 5. Marital status: Single ____ Married ____

6. In order to help us locate you in the future, please PRINT the name, address, and telephone number of someone who will always know where you will be living.

Name _____ Relative _____ (State relationship) or Friend ____

Address _____ (Number & Street) (City) (State) Telephone No. _____

YOUR PRESENT STATUS! Check (to the left) the item or items (7 through 13) which most accurately describe your situation. If you are working and also a student, please check the appropriate items concerning both work and school.

7. ___ Working (30 hrs. or more per week) 8. ___ Working (29 hrs. or less per week)

If you checked 7 or 8, please complete the following information:

A. Name of Employer _____

B. Address of Employer _____ (No. & Street) (City) (State) Telephone _____

C. Name of Supervisor or Foreman _____

D. Job title or description of work you do _____

_____

9. ___ Unemployed -- seeking work 10. ___ Unemployed -- not seeking work

11. ___ Member of Armed Forces -- ACTIVE DUTY

If you checked 11, please complete the following information:

A. Branch of the Armed Forces in which you serve _____ B. Rank _____

C. Job title or description of work you do _____

_____

12. ___ Schooling discontinued temporarily 13. ___ Schooling discontinued permanently

If you checked 12, or 13 --

A. Please indicate why you are no longer in school _____

_____

B. Please indicate what your plans are _____

_____

14. Have you changed schools since last October?
1. Yes 2. No

If you said yes, what was your major reason for changing institutions? _____

_____

15. ___ Student (12 units or more) 16. ___ Student (11 units or less)

If you checked 15 or 16, please complete the following information:

A. Name of school, college or university _____

B. Location _____ (City) (State)

C. What was your major in October? _____

D. What is your major now? _____

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1. Name at time of graduation _____ _____
(Last Name) (First Name) (Initial) (Code)

2. Present name if different from name at time of graduation _____
(Last Name) (First Name) (Initial)

3. Present address _____
(Number & Street) (City) (State) (ZIP Code)

4. Telephone Number _____ 5. Marital status: Single _____ Married _____

6. In order to help us locate you in the future, please PRINT the name, address, and telephone number of someone who will always know where you will be living.

Name _____ Relative _____ or Friend _____
(State relationship)

Address _____ Telephone Number _____
(Number & Street) (City) (State)

YOUR PRESENT STATUS! Check (to the left) the item or items (7 through 13) which most accurately describe your situation. If you are working and also a student, please check the appropriate items concerning both work and school.

7. ____ Working (30 hours or more per week) 8. ____ Working (29 hours or less per week)

If you checked 7 or 8, please complete the following information:

A. Name of Employer _____

B. Address of Employer _____ Telephone _____
(Number & Street) (City) (State)

C. Name of Supervisor or Foreman _____

D. Job title or description of work you do _____

_____

9. ____ Unemployed — seeking work 10. ____ Unemployed — not seeking work

11. ____ Member of Armed Forces — ACTIVE DUTY

If you checked 11, please complete the following information:

A. Branch of the Armed Forces in which you serve _____ B. Rank _____

C. Job title or description of work you do _____

_____

12. ____ Schooling discontinued temporarily 13. ____ Schooling discontinued permanently

If you checked 12, or 13 —

A. Please indicate why you are no longer in school _____

_____

B. Please indicate what your plans are _____

_____

14. Have you changed schools since last October?
1. Yes 2. No

If you said yes, what was your major reason for changing institutions? _____

_____

15. ____ Student full time (12 units or more) 16. ___ Student part time (11 units or less)

If you checked 15 or 16, please complete the following information:

A. Name of school, college or university _____

B. Location _____
(City) (State)

C. What was your major in October? _____

D. What is your major now? _____

16. ____ Discuss in detail the single most important factor in making your decision to change your major.

_____

_____

_____

17. ____ How sure are you that you will continue in your present major? (Circle answer)

1. Very sure 2. Somewhat sure 3. Unsure 4. Very unsure

18. ____ What career are you presently planning to follow?

1. 2. Not yet decided

19. ____ What are your housing arrangements? I live: (Circle answer)

1. With parents
2. With relatives
3. In dormitory
4. In fraternity or sorority
5. In boarding house or co-op
6. In apartment (alone)
7. In apartment (with friends)
8. In married student housing
9. Other _____ (Write in)

20. ____ In general, how satisfied are you with the institution you are attending? (Circle answer)

1. Very satisfied 2. Satisfied 3. Dissatisfied 4. Very dissatisfied

21. ____ Are you planning to enroll next term at the same institution?

1. Yes 2. No

22. ____ If no, please specify why you have decided not to return. (Write in)

_____

_____

23. ____ How certain are you that you will finish four years of college? (Circle answer)

1. Very sure 2. Somewhat sure 3. Doubtful 4. Very doubtful

24. ____ If you answered doubtful or very doubtful, what do you expect to be doing?

_____

_____

25. ____ How many years of post graduate training do you anticipate taking? (Circle answer)

1. Three or more 2. Two years 3. One year 4. None at all

OAKLAND UNIFIED SCHOOL DISTRICT
Department of Counseling

E M P L O Y E E R A T I N G S C A L E *

Name of Employee_____ I. D.#_____ Sex_____ School_____ Job Title_____

Job Duties_____ Approximate number of months employed_____

Name of Rater_____ Firm_____ Date of Rating_____

This scale is constructed to allow you to make some important decisions about the personal traits and skills of employees. Below is a sample rating of a grocery clerk. You will note that there are adjectives which describe this clerk and five numbers between the adjectives. Here are what the numbers between the adjective mean:

TALL	5	4	3	2	1	SHORT
	Very Tall	Moderately Tall	Average	Moderately Short	Very Short	

EXAMPLE: Grocery Clerk

TALL	(5)	4	3	2	1	SHORT
QUICK	5	4	3	(2)	1	SLOW
HAPPY	5	4	3	2	1	SAD

In the example, the grocery clerk is rated as Very Tall; therefore, number 5 is circled right next to the adjective TALL. If he were Very Short, number 1 should be circled right next to the adjective SHORT. The numbers in between the two adjectives represent varying degrees of whatever trait we are measuring. On the next adjective pair, number 2 is circled to indicate he is more slow than quick.

The same approach applies to the next adjective ratings. Look at the words HAPPY and SAD and circle the appropriate number between them, thinking about a grocery clerk who waits on you. Remember the numbers between the adjectives represent varying degrees between the adjectives. Look at your own rating above: if he is VERY HAPPY, number 5 should be circled - right next to the word HAPPY. If he is VERY SAD, number 1 should be circled right next to the word SAD. MOST PEOPLE FALL SOMEWHERE IN BETWEEN.

ON THE REVERSE SIDE OF THIS PAGE YOU WILL FIND A NUMBER OF THESE ADJECTIVES AND OTHER TRAITS WHICH RELATE TO EMPLOYEES. KEEP IN MIND THE EMPLOYEE. BE SURE TO PLACE A CIRCLE AROUND THE NUMBER BEST DESCRIBING HIM, OR HER, ON EACH TRAIT. DO NOT THINK TOO LONG ABOUT THESE RATINGS. PUT DOWN YOUR FIRST IMPRESSION. BE SURE TO COMPLETE EVERY ITEM.

*RESTRICTED: Permission required by the Oakland Unified School District to reproduce this scale.

BE SURE TO COMPLETE EVERY ITEM

CIRCLE ONE NUMBER ONLY FOR EACH ITEM ON THE SCALE

CHARACTERISTICS:

(1)	Considerate	5	4	3	2	1	Inconsiderate
(2)	Efficient	5	4	3	2	1	Inefficient
(3)	Does good quality work	5	4	3	2	1	Does poor quality work
(4)	Sociable	5	4	3	2	1	Unsociable
(5)	Works well under pressure	5	4	3	2	1	Works poorly under pressure
(6)	Organized	5	4	3	2	1	Unorganized
(7)	Cooperative	5	4	3	2	1	Uncooperative
(8)	Reliable	5	4	3	2	1	Unreliable
(9)	Shows good judgment	5	4	3	2	1	Shows poor judgment
(10)	Relaxed	5	4	3	2	1	Tense
(11)	Thorough	5	4	3	2	1	Slip-shod
(12)	Completes assignments	5	4	3	2	1	Doesn't complete assignments
(13)	Communicative	5	4	3	2	1	Quiet
(14)	Accurate	5	4	3	2	1	Inaccurate
(15)	Is regular in attendance	5	4	3	2	1	Is absent frequently
(16)	Accomodating	5	4	3	2	1	Demanding
(17)	Responsible	5	4	3	2	1	Irresponsible
(18)	Catches on quickly	5	4	3	2	1	Doesn't catch on quickly
(19)	Obliging	5	4	3	2	1	Obstructive
(20)	Neat	5	4	3	2	1	Sloppy
(21)	Communicates well in writing	5	4	3	2	1	Communicates poorly in writing
(22)	Outgoing	5	4	3	2	1	Withdrawn
(23)	Dependable	5	4	3	2	1	Undependable
(24)	Is punctual	5	4	3	2	1	Is late often

OVERALL EFFECTIVENESS OF EMPLOYEE

(25) Excellent 5 4 3 2 1 Poor

INSTRUCTIONS FOR ADMINISTERING

THE GRADUATE SURVEY OF 1965

Morning Session

It is presumed that the students who are about to take this survey have already been given information about the nature of the study--its importance, the types of questionnaires, and the follow-up aspect. The examiner, therefore, can proceed directly with the instructions students need to complete the various questionnaires.

The directions below which are boxed can be read aloud to the students. The information which is not boxed is intended for general use by the examiner.

After the students are assembled and there have been some introductory remarks, say:

> The survey time has now begun. There should be no talking among you until you have been dismissed for lunch. We shall now pass out the envelopes which contain the materials you will use today. Please do not open your envelope until asked to do so.

The envelopes should then be distributed. If the survey is given in an auditorium, each student should have a lapboard. There should be a number of assistants helping in this distribution. When everyone has an envelope, say:

> Open your envelope and take out the pencil only. Leave all other materials in the envelope.
>
> Print your name on the envelope - in the middle of the front side, last name first. (Pause.)
>
> Now open the envelope and take out the four IBM sheets which are stapled together. Please handle all of your materials very carefully. Do not fold or bend any of the papers unless you are told to do so.
>
> Do not separate this packet of answer sheets at any time during the day.
>
> The top sheet is a special name code form for your name and your identification number. Turn the name code sheet over by bending it carefully at the staple (Examiner please demonstrate). Print your name - last name first at the upper left corner on the back side of this sheet. (Pause.)

Now turn over to the front side and complete the form as follows: Note the sample at the upper left side showing the first name of Alexander. The student has taken his pencil and has printed "A", "L", "E", "X", "A", "N" in the boxes on the left side. Then he has blackened each appropriate space to the right of his name.

Note that on the first line, to the right of box No. 1, the space for "A" was blackened; on the second line, to the right of box No. 2, the space for "L" was blackened - the space for "L" is in the third group of letters to the right. This procedure was followed through "N". The student ignored the rest of the letters after "N".

Now with your pencil print your first name, middle initial, and last name in the boxes at the left side of the name sheet. Be sure to work downward as shown in the example.

IF YOU HAVE ANY QUESTIONS, RAISE YOUR HAND, AND ONE OF THE ASSISTANTS WILL HELP YOU.

(Pause.)

Now with your pencil blacken the appropriate space to the right of all the letters in your name that you have printed. Make sure you fill in all of each space used, and that you have made each mark heavy and black.

If you make a mistake, erase the error completely. Leave no stray marks.

(Pause.)

If you have not yet finished printing and coding your name, please raise your hand.

Pause until all are finished, then say:

Please look at the number printed in black at the upper right-hand side of the name sheet. This is your identification number. It is most important that you use this number correctly throughout the survey. On the left side of this identification number section, there is an arrow pointing downward.

Directly under this arrow, using the first four boxes, write your identification number, using one box for each number. You will use only the top four boxes. Ignore the boxes numbered 5, 6 and 7.

Now with your pencil blacken each appropriate space to the right of your identification number. This is done in just the same way that you did your name. If you need assistance, raise your hand.

When the name sheet is completed, the next task will be to complete the identifying information on the answer sheet.

On Answer Sheet Side A, the student will complete all the information called for.

On Side B, he will repeat his name and his identification number. On the remaining sides, C, D, E and F, he must repeat his name and his identification number.

Note: On Sides C and E, which are front sides of the answer sheets, the student need not repeat any information except his name and identification number.

When everyone is finished with the name sheet, say:

At this time we will enter some information on each of the attached answer sheets. Leave the answer sheets stapled together. Bend the name sheet over carefully at the staple (Examiner please demonstrate). Incidentally, this is the only type of folding or bending that will be necessary during the survey with the rest of the other sheets. Note that there are some divider sheets - do not remove or write on these sheets.

Be sure that you have three answer sheets. These answer sheets should be stapled in the following order:

Answer Sheet A (reverse side is B)

Answer Sheet C (reverse side is D)

Answer Sheet E (reverse side is F)

Be certain that these answer sheet sides are stapled in the order I have just read. I'll repeat: First is answer sheet side A; second should be answer sheet side C, and the last sheet should appear as answer sheet side E.

Look carefully at your answer sheets. Be certain that the identification number is the same number that you have used on your name sheet. It is absolutely necessary that this number is the same on all six sides of your answer sheets and on the name sheet. Please check this now, looking at both sides of the answer sheets and at the name sheet. If you find that your numbers are not the same, raise your hand and an assistant will help.

(Pause.)

After you have made sure these numbers are all correct, please fill out the information called for at the top of Answer Sheet Side A. Please print. For the section called "grade or class", put homeroom. For the section called "instructor", put the name of your homeroom teacher. If your homeroom is part of a regular period, put the name of that teacher. If you have no homeroom, put the name of your counselor.

For the section called "name of test", put the words, "Graduate Survey". Ignore the section called "Part 1 2".

(Pause.)

Now observe the box at the upper right side of Answer Sheet Side A called "Identification Number".

Write your identification number in the boxes under the arrow pointing downward. Use only the top four boxes. Ignore the rest of the boxes.

Now with your pencil blacken the appropriate spaces to the right of your number, just the way you did on the name sheet.

If you make a mistake, erase the error completely. Be sure your marks in the spaces are heavy and clear. Raise your hand if you need help.

(Pause.)

Now turn over to Answer Sheet Side B. Print your full name on the upper left side. Then record your identification number by writing your four numbers in the top four spaces under the arrow. Then blacken the appropriate spaces as you have done before.

(Pause.)

Follow the same procedure exactly for Sides C, D, E, and F as you did for Side B.

(Pause - wait until all have finished)

If you have not finished writing your name and coding your number, raise your hand.

(Pause further, if necessary)

Now before we go on, please check the following:

1. Make sure that your number on all six sides of the answer sheet is the same as the number on your name sheet.
2. Make sure that you have filled out all the information called for on Answer Sheet Side A.
3. Make sure that you have written your name and your identification number on all six sides of the answer sheets, and that you have blackened the number in the proper spaces.
4. Please note that when you start filling in the answer sheets, be sure that you are using the correct side of the answer sheet.

5. Please note also that the answers will be written on the answer sheets going from left to right, not downward. For example, the first four questions will be answered on the top line of the answer sheet, moving across from left to right. The answer to Question No. 5 would be placed at the beginning of the second line.

Raise your hand if you have any questions.

We are now ready to proceed with the survey. DO NOT WRITE IN THE BOOKLET. You will not need any scratch paper.

Remember that these questionnaires deal largely with your experiences and your opinions. Except for the factual information called for, there are no right or wrong answers. Therefore, please answer every question. Remember that the results of these questionnaires will not in any way affect your grades or your graduation. The results will be used for research purposes only. Your frankness in answering each question is very important to the study. Incidentally, some items are repeated throughout portions of the questionnaires. This is done to develop separate answer scales. Please answer every question even though it may be repeated.

Now look through the rest of your package of papers. You will see that there is an Information Sheet and also a leaflet called the Minnesota Vocational Interest Inventory. More instructions for completing these forms will be given later.

Now open your booklet to the first page for the general directions on the series of questionnaires. Please read these directions. (Pause.)

If you have any questions now or later in the day, raise your hand and an assistant will help you.

(Pause. When all are ready to proceed, say:)

At this time we are ready to begin. Turn to the next page and begin. Work rapidly, but be sure to answer every question.

NOTE TO EXAMINER: If students find it necessary to leave the room, assistants will issue passes. No more than one or two students should be allowed out of the room at any one time.

It is recommended that a short stretch period be provided approximately halfway through the morning session. The exact time for this break period should be determined at the discretion of the examiner at each school.

- -

AFTERNOON SESSION

At the beginning of this session, please give directions for completing the Minnesota Vocational Interest Inventory and the Information Sheet. Even though the students may not have completed all of the questionnaires in the booklet, it will be necessary to ask them to stop wherever they are and to listen to the next instructions.

When all of the students are seated, say:

May I have your attention at this time. I realize that you are probably right in the middle of a questionnaire, but it is necessary at this time to give you some instructions for completing the Information Sheet and the Minnesota Vocational Interest Inventory—the leaflet printed in blue.

Please look at the mimeographed Information Sheet first - this will be done last when you have completed all of the other work. You can see that the items are self-explanatory. Please print the information for each question as carefully as possible.

Now look at the blue Minnesota Vocational Interest Inventory. Be sure that you are looking at the first page - it has the name of the survey at the upper right-hand side - Minnesota Vocational Interest Inventory. Look at the left side of Page 1. Notice the directions for completing your name and other information.

With your pencil, starting with the name grid at the left, print your last name, one letter to a box. SKIP ONE BOX AFTER COMPLETING YOUR LAST NAME - then print your first name - if you do not have enough room to print all of your first name, simply print as much of it as you can, one letter to a box. Be sure you have skipped one box between your last name and your first name. (Pause.)

Now with your pencil blacken the appropriate circles below the letters of your name.

FOR EXAMPLE - if your name is Smith, you would have written S in the first box. Now you would go down column one and blacken the circle for the letter S. In the second column you would go down to the letter M and blacken it.

Please blacken all appropriate circles for your last name and your first name. When you get to the box that you have skipped between your last name and your first name, blacken the blank circle at the top of this column and proceed to the first letter of your first name.

Be sure that you have made your marks in the circles heavy and black. If you have a question raise your hand.

NOTE: If you have any blank boxes after completing your first name, blacken the blank circle under those blank boxes. (Pause.)

Now go down to the next section on the left - write in your age and today's date - Print the month - M a y - then the date - then the year, 1965. Put the name of your school. In the section entitled Education, blacken the appropriate circles, the 8 under grade school and the 12 under high school. Skip the college section.

Skip the section entitled For Working Men Only.

Now go down to the row of boxes under the Working Men section. Please write your number, one number to a box, in the first four boxes.

Please blacken the appropriate circles for your identification number, using the first four columns only. (Pause.)

Ignore the remaining boxes and the remaining circles - use only the first four boxes and the first four columns.

In this booklet you will find many activities listed - they are arranged in groups of three. In each group you should choose the one thing that you would like most to do, and the one thing you would dislike most to do.

For the item you would like most to do, you would blacken in the circle (L) in front of it. For the item you would dislike most to do (or like the least), blacken the (D) circle in front of it. Leave the circle in front of the third item blank.

Look at the example. These marks indicate that the item, "Study welding", is liked most, and the item, "Study carpentry", is disliked the most (or liked the least). The other item is left blank.

In other words you must pick out two items - one that you would like the most and the one you would dislike the most, and you would mark accordingly, L for like and D for dislike. You would always have one item left blank.

Be sure to pick two items for each group of three. Even if you don't really like any one item very much or dislike any one item very much, make the choice anyway, basing your judgment on the three items listed.

Are there any questions up to this point? Raise your hand if you have any questions. (Pause.)

Now please listen carefully - in a few moments you will start this Minnesota Vocational Interest Inventory. Even though you have not completed all the questionnaires in the booklet, please finish this Minnesota survey first - then go back to the questionnaires and take

up where you left off and finish them. When you have finished all of the questionnaires, then complete the Information Sheet.

Again, may I ask you to handle all materials carefully. Avoid bending or folding them.

Note: If you finish all the materials before the end of the day, please read or study. Remain at your seat quietly until everyone is dismissed.

Now - go right ahead with the Minnesota survey. Finish that. Then return to the questionnaires - finish them - then complete the Information Sheet.

A few minutes before the end of the school day, you should see that the assistants are stationed at designated exits to collect the materials as suggested below. It would be advantageous to have worked out a closing and collection procedure that would be effective at your school.

Please announce:

There are just a few minutes left. Please listen very carefully to the directions for the closing procedures. IT IS VERY IMPORTANT to follow these instructions exactly, so please listen attentively.

1. IF YOU HAVE COMPLETED ALL the questionnaires, the Information Sheet, and the Minnesota Vocational Interest Inventory, write the word "Complete" under your name on the front side of the envelope. Please note that all of this work must be completed. Incomplete work will have to be finished at a later date. Be certain that the Information Sheet is completely filled out, including page 3.
2. IF YOU DID NOT HAVE TIME TO FINISH ALL the materials, write the word "Incomplete" under your name on the front side of the envelope.
3. IF YOU HAVE COMPLETED ALL the materials, put back into the envelope the following: (a) The completed information sheet, (b) the

completed IBM name sheet and answer sheets, and (c) the completed Minnesota Vocational Interest Inventory. Please secure the envelope with its clasp. Do not put the questionnaire booklet or the pencil back into the envelope. These will be collected separately in a few minutes.

3. IF YOU DID NOT FINISH ALL THE materials, put EVERYTHING BACK INTO THE ENVELOPE - the IBM name sheet and answer sheets, the questionnaire booklet, the Minnesota Vocational Interest Inventory, the Information Sheet, and the pencil. Please secure the envelope with its clasp. These envelopes will be collected in a few moments.

A suggested collection procedure is given below. Feel free to modify the directions to suit your own preferred routine.

After the students have completely followed the directions given above, announce the collection of materials as follows. Be sure that you have enough teacher assistants to help in this closing process.

At this time please turn in the materials as follows. LISTEN VERY CAREFULLY TO THE DIRECTIONS. It is very important that this is done correctly.

1. FOR THOSE WHO HAVE COMPLETED ALL THEIR WORK pass in your materials as follows:

   (a) Pass all your pencils to the left - the teacher assistants will collect the pencils on the aisles.

   (Pause as long as necessary).

   (b) Next pass the questionnaire booklet to your left - the assistants will collect these.

   (c) Lastly, pass your envelopes to your left for collection.

   (Pause.)

2. FOR THOSE WHO HAVE NOT COMPLETED ALL THEIR WORK, pass the envelope to your left. Be sure you have put everything back into the envelope. The assistants will collect these envelopes.

3. When you are dismissed, please carry your lapboard to the designated exits and stack it neatly.

Thank you very much for your cooperation today. You are participating in a program which will be very helpful to your school. We hope to contact you in the future either by mail or through an interview.

VT 004 791
Stephenson, Don
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CONTRA COSTA COLLEGE

The 178 students who have graduated from the Contra Costa College electronics program during its 14-year operation were surveyed to seek student evaluation of the level of skills necessary for entry into an electronics position and to determine how adequately they felt the program taught these skills. A response of 48 percent yielded 78 usable replies from which the five most important skills and information needed for entry positions were identified as: (1) knowledge of basic electronic theory and circuits, (2) trouble shooting, (3) knowledge of basic electrical theory and circuits, (4) use and care of instruments, and (5) knowledge and application of semiconductors. Respondents felt these areas were generally taught with the proper emphasis except that too little emphasis was placed on the information and skills of trouble shooting. They evaluated the program favorably in terms of basic information, experience in the laboratory, and in theory taught. A more comprehensive study investigating the program dropouts is needed to determine how adequately the program meets the needs of all the students. Also, an in-depth examination of the nearly one-third who transfer to 4-year schools may provide information on possible curricular changes for those who intend to transfer. (HC)

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CONTRA COSTA COLLEGE

RESEARCH & PLANNING

Selection Approaches to Vocational Education Students

(SAVES Project)

THE EFFECTIVENESS OF THE CONTRA COSTA COLLEGE ELECTRONICS PROGRAM IN PREPARING ITS GRADUATES FOR EMPLOYMENT AS REPORTED BY POST-GRADUATE STUDENTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Investigator: Don Stephenson

January 15, 1968

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THE EFFECTIVENESS OF THE CONTRA COSTA COLLEGE
ELECTRONICS PROGRAM IN PREPARING ITS
GRADUATES FOR EMPLOYMENT AS REPORTED
BY POST-GRADUATE STUDENTS

In the late spring of 1967 a survey of the graduates of the Contra Costa College electronics program was conducted in an effort to seek student evaluation of the level of skills necessary for entry into an electronics position and to determine how adequately these skills are taught in the electronics program, as indicated by student evaluation.

Those students contacted stretched over the 14 year history of the electronics program. Characteristically, the longer a student has been away from the institution the less likely he is to respond. One hundred seventy eight former students were polled and 87 returned the questionnaire. A response of 48 percent was received, which compares favorably with surveys of a similar design and nature. Nine of the replies were not usable for a variety of reasons, consequently the information in this paper is a reflection of the reports of 78 former students.

The following information and conclusions are based on the results of the survey:

1. 29% (23 respondents) have not worked in the electronics field.
2. 35% (27 respondents) took formal classes in electronics since leaving Contra Costa College electronics program.
   a. 17% (13) in the service.
   b. 1% (1) out of state college.
   c. 8% (6) state college or university.
   d. 4% (3) in other junior colleges.
   e. 5% (4) private or industry related schools.

3. It is difficult to adequately determine the average starting salary since changes in salary schedules have risen dramatically over the last few years. The usual starting salary (43% of the respondents) is between 400 and 500 dollars a month with three respondents reporting over $600 beginning salary. The type of job determines, to a large extent, the salary received.

4. Of those who responded to the question, "What was the title of your beginning position in the electronics field" 43% indicated they started as electronics technicians. The rest of the respondents were scattered across customer, engineer, repair and maintenance, electronics instructor, electricians, transmission, assembler, test technician, radio and TV repair, and sales. 17 of the 41 who described their duties indicated that their time was spent in maintenance and repair. An additional eight respondents indicated that they worked in technical fields related to electronics.

5. Twenty-three out of 73 respondents (32%) indicated that they had enrolled in college offering a bachelor's degree since leaving Contra Costa College. The school they are most likely to attend is San Francisco State College. A large variety of other colleges enrolled one or two of the former students with the bay area colleges picking up 75% of those who go on to degree colleges. An additional few students indicated that they went on to some industrial schools for advanced study. Only four of the twenty who indicated their collegiate major had left the field of electronics and majored in non-related fields.

6. As a result of being asked to rate how necessary certain skills and information was for their beginning job in electronics the former students placed the following emphasis: (on a scale of 1 through 5 with 1 representing vitally necessary, 3 representing moderately necessary, and 5 representing something not needed)

SKILLS & INFORMATION FOR ENTRY POSITIONS	AVERAGE SCORE	RANK
Knowledge of basic electronic theory and circuits	1.5	1
Trouble Shooting	1.62	2
Knowledge of basic electrical theory and circuits	1.65	3
Use and care of instruments	1.7	4
Knowledge and application of semiconductors (transistors, etc.)	2.0	5
Maintenance and repair of electronic equipment	2.1	6
Knowledge of tubes (gas diodes, triodes, and high vacuum)	2.4	7
Knowledge of electronic industry	2.9	8
Installation of electronic equipment	3.0	9
Manufacturing of electronic equipment	3.7	10

7. When asked to specify how adequately they thought the same information and skills were taught the former students indicated the following: (using a similar 1-5 scale)

SKILLS AND INFORMATION TAUGHT IN CLASS	TEACHING EMPHASIS		BEGINNING JOB	
	SCORE	RANK	SCORE	RANK
Knowledge of basic electronic theory and circuits	1.8	1	1.5	1
Trouble shooting	2.6	6	1.62	2
Knowledge of basic electrical theory and circuits	2.0	3	1.65	3
Use and care of instruments	2.3	4	1.7	4
Knowledge & application of semi-conductors, transistors, etc.	2.5	5	2.0	5
Maintenance and repair of electronic equipment	2.8	7	2.1	6
Knowledge of tubes (gas diodes, triodes and high vacuum)	1.9	2	2.4	7
Knowledge of electronic industry	3.0	8	2.9	8
Installation of electronic equipment	3.2	9	3.0	9
Manufacturing of electronic equipment	3.6	10	3.7	10

8. The following conclusions may be drawn from an analysis of the importance of the information and skills required on the beginning electronics job and an analysis of the reported classroom emphasis upon the same information and skills:

a. There is a high degree of harmony between the order of importance of information and skills taught at Contra Costa College and the order of importance of information and skills needed on the beginning job.[1] (see footnote)

b. The reported heavy classroom emphasis on knowledge of tubes appears out of harmony with the requirements of the entry job in the electronics field. It is possible that the rapid change-over to transistors in most electronics areas has a great deal to do with the apparent disparity.

The problem is highlighted by the fact that the average score for classroom emphasis is 1.9 and the beginning job requirements score is 2.4. This means that the students see a real difference between the emphasis of tubes on the job and in the classroom. The role of transistors, though ranked fifth in importance in both the classroom and on the job, indicates that the rapid change-over to transistors is likely to be the cause of the problem since the teaching emphasis is 2.5 and the job requirement is 2.0 on a 5 point scale.

---

(1) The rank order correlation coefficient comparing the classroom emphasis and information and skills needed for an entry job in electronics is .745. This correlation, which is a comparison of rankings of the scores for each of the 10 areas of investigation, is significant at the .04 level of confidence. This means that there are only four chances in one hundred that such a relationship could occur by chance.

c. It should also be noted that though the students indicated that trouble shooting was given more than moderate attention in class, the requirements of the job seems to place considerably more emphasis upon their ability to trouble-shoot.

Only a knowledge of basic electronic theory (which is fundamental to trouble shooting) appears to be more important than trouble shooting. It should also be stated that unless all of the other skills and information being examined are adequately learned it is unlikely that a person can be an effective trouble shooter.

d. It is recommended that the electronics department evaluate the reported over-emphasis on knowledge of tubes and the under-emphasis on trouble shooting.

9. When asked to evaluate the strong points of the program only 4 respondents indicated that they thought it is a poor program. All other responses were favorable in terms of good basic information, experience in the laboratory, and in theory taught.

50% of the respondents would send their best friend interested in electroncs to the Contra Costa College electronics program. A few (7) respondents would advise their friend to go into the United States Navy or into specialized electronics schools. A most interesting side light to this question is revealed in the fact that 19 of the 56 respondents (34%) who answered this question would refer him to a junior college electronics program. This would indicate that, though the students feel they have been adequately trained, a sizeable number (48%) feel the same train-

ing would be obtained in nearly any junior college.

The meaning of such replies are hard to evaluate since nearly one-half of the students did not specify Contra Costa College. However, it seems fair to conclude that they feel that the Contra Costa College electronics program served their needs since only 7 specified they would send their friends to a different junior college. In light of the information on the adequacy of classroom instruction in preparing students for their first full-time job in electronics it is difficult to understand why nearly half of the students did not specify that they would send their best friend to the Contra Costa College electronics program. Apparently the survey question was framed in such a way that nearly one-half of the respondents did not give clear answers.

10. Recommendations for further study.

a. A more comprehensive report, investigating all those who completed one or more semesters in the electronics program would provide a great deal of valuable information on how adequately the program meets the needs of <u>all</u> of its students. The present report deals only with those who successfully completed the program and ignores the fate of many others who enter the program and do not complete it. The following questions should be asked: (1) How do those who have the program before completion feel about the program?; Do they quit school or transfer to another curriculum?; Do they go to work - if so, do they work in electronics?; what are the reasons for leaving the program?; and, do those who do not continue possess special characteristics which may be used

to identify them before they enter and before they leave the program?

b. An in-depth examination of the nearly one-third who transfer from what is essentially a terminal program to four year schools may provide information relative to possible curricular changes for those who intend to transfer.

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Bloomquist, Gilbert R., And Others
Articulation of Occupational Education in Clackamas County

Clackamas Community Coll., Oregon City, Oreg.
Oregon State Dept. of Education, Salem. Div. of Community Colleges and Vocational Education
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CLACKAMAS COUNTY; OREGON

The purpose of this study was to get a better understanding of the articulation problems in occupational programs and to determine what should be done to better coordinate occupational programs between the high schools and community colleges of the county. Some of the conclusions were: (1) Common knowledge, skills and information for families of jobs should be articulated in planning curriculums and in guiding students, (2) Written vocational education and training programs should be prepared for students planning to enter fields requiring less than a baccalaureate degree, and (3) Occupational courses offered in county high schools were somewhat limited. Recommendations were to: (1) determine which occupational courses should be given in both high school and community college, (2) determine whether or not certain courses should be given in the high school or community college, (3) determine where a gap exists between curriculums, (4) determine which exploratory courses should be offered in high schools, (5) study cooperative planning between high schools and community colleges to eliminate duplication of equipment and facilities, (6) determine employment needs that are not being met, and (7) determine what community college courses might be given as advanced placement courses or for waiver of course at the high school or community college. (MM)

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ARTICULATION OF OCCUPATIONAL EDUCATION IN CLACKAMAS COUNTY

A Study of Vocational Education in High Schools of Clackamas County and the Relationship to Clackamas Community College Occupational Curriculums

VT004793

ARTICULATION OF OCCUPATIONAL EDUCATION IN CLACKAMAS COUNTY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Dr. Roy G. Mikalson, President

G. R. Bloomquist, Assoc. Dean of
Occupational Education

Clackamas Community College

This research report prepared by
Clackamas Community College, Oregon City, Oregon
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Division of Community Colleges and Vocational Education
May - October, 1967

FOREWARD & ACKNOWLEDGEMENTS

Continual expansion of occupational (vocational-technical) programs in the high schools and community colleges without adequate consideration for overlap or duplication of courses is causing concern among educators and the tax paying public. This study was initiated by the Oregon State Department of Education, Vocational Education Division, and the Clackamas Community College to get a better understanding of the articulation problems in occupational programs and to determine what should be done to better articulate occupational programs in Clackamas County.

Dr. Roy G. Mikalson, President of Clackamas Community College, and Dr. William G. Loomis, Director of Vocational Education for the Oregon State Department of Education initiated the proposal for this study.

Dr. Ditto, Supt. of Oregon City Schools; Chester Tunnell, Supt. of West Linn Schools; Leo Crisman, Supt. of Molalla Schools; James Putnam, formerly Supt. of Colton Schools; Charles MacKenzie, Supt. of Canby Schools; Bob Crain, Director of Vocational Education of Milwaukie Occupational Skills Center; Al Pfahl, Director of Vocational Education, West Linn Public Schools, gave the initial support to introduce the study through cooperation of school districts in Clackamas County.

Superintendent of the Clackamas County Intermediate Education District, L. G. Rood, gave advice and information essential to the completion of this study. Superintendents of schools and high school principals, counselors and vocational directors of the various school districts in Clackamas County and

the LaSalle High School principal gave freely of their time to provide information for this study.

The Occupational Advisory Council of Clackamas Community College provided support and added information for this study. Jim Lotz, Gordon Patterson and Al Pfahl were selected from the Council to serve in an advisory capacity.

The Oregon Apprenticeship Council, Portland Office, and Oregon State Employment Service, Portland Office, provided resource information.

Research resource material was provided by Dr. T. Antoinette Ryan of the Oregon State University Research Coordinating Unit and Ronald Kaiser of the State Department of Education.

The final report was reviewed by Dr. Mikalson, President, and Dr. John Hakanson, Dean of Instruction, of Clackamas Community College.

Gilbert R. Bloomquist, Assoc. Dean of
Occupational Education, Clackamas Community
College, Project Director.

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Section One

INTRODUCTION

The Problem: How can more effective articulation of high school and post high school occupational education be realized?

Problems--multiplicity of problems--these are compounded in our rapidly changing world. Scientific discovery with its resultant technological developments presents an almost insurmountable job in occupational education.

Changing occupations and totally new occupations require constant restructuring of occupational education to prepare our students for employment. Knowledge and skills required for performance on a particular job today may be considerably changed a year from now due to technological change. To prepare a student for a particular occupation today from junior high through secondary school and community college involves consideration for change. Provision for adjustment to change in occupational demands must be built into occupational education curriculums.

Education and training for families of jobs in occupational clusters will more adequately provide for this change. General background education and skill training common to a group of occupations will allow for changing job demands. As an example, we find that in the electronic industry many new inventions and utilization of electronic devices and equipment have brought about changing job demands.

The major problem confronting education is to provide for on-going articulation of occupational education from the exploratory courses in junior high or ninth and tenth grades, to occupational preparation for an occupational cluster in the eleventh and twelith grades, to a more specialized occupational education in the community college and/or apprenticeship or in proprietary schools.

The key problem to this study is:

> HOW TO ARTICULATE OCCUPATIONAL EDUCATION BETWEEN THE HIGH SCHOOL AND THE COMMUNITY COLLEGE IN CLACKAMAS COUNTY.

Educators are individualists and as such, are prone to take off in many directions with much to be desired in the articulation of their efforts. To articulate occupational education between the high school and community college consideration must be given to:

1. How can guidance personnel contribute to better articulation in occupational education?

2. How can exploratory pre-vocational courses be articulated in occupational education?

3. How can vocational courses in the high schools be articulated with the post high school occupational programs?

What are the functions of education counselors in the articulation of high and post high school occupational education? Varying viewpoints have been expressed by authorities regarding the responsibility of counselors in guiding students toward occupational (vocational) careers. Some authorities recommend separate counseling for guidance leading to baccalaureate degrees as differentiated from vocational or job guidance.

Because of budget limitation, many schools do not provide for counselors specializing in only the college preparation or vocational goals. Most schools find it necessary to expect counselors to provide educational guidance for college or university careers and vocational fields.

The question usually raised is whether a counselor can be adequately prepared to guide students in both areas. An academically trained person has the background by educational experience and professional training to provide academic guidance. Doubts are expressed as to whether or not a counselor can adequately guide students in vocational or job-oriented goals if he has not had practical experience in jobs requiring less than a professional degree.

The first question to consider is: What are the responsibilities of the counselor for occupational guidance as differentiated from academic or college preparation guidance? Too often vocational guidance is given second consideration with guidance for college preparation getting the major emphasis. The usual plan of our "required" courses in high schools is for college preparation. This is historic. The original purpose of secondary or "prep" schools was college preparation. As a consequence, vocational guidance and planning can become no plan and something a student "drops down to" if he can't make the college prep.

When vocational guidance is provided at the end of high schooling, it comes too late. "Limitations inherent in eleventh hour vocational guidance (contemptuously termed "crises counseling" by Super (1957) can be avoided only by bringing professional influences to bear on the choice

process many years before the necessity for choice arises (thereby avoiding crises) and by insisting that vocational considerations are not neglected where educational decisions are made."[1]

The second question to consider: Is a planned vocational guidance program in operation to assist every student in selecting a career field on the basis of interests and aptitudes shown in pre-vocational exploratory courses? Guidance and occupational information must be provided to help the student make the best vocational choice. Again, we often find the academic plan of providing reading material for vocational information inadequate.

Studies and practical experience have shown that parental direction and bias are of considerable importance in a student's choice of a vocational field beyond his personal interests and aptitudes. The attitudes of the parents toward a job and the status it represents often determine the career choice. Dawes points out that "The educational vocational counselor, also, should work occasionally with the student's parents, particularly if he felt that their influence on the child's vocational thinking was misguided."[2]

There is no substitution for experiencing the work involved in a job to provide better career selection. Pre-vocational exploratory courses or job orientation or work experience in business or industry will resolve vocational career choices when other means fail. Direct information from

[1]Dawes, Peter P., What Will the School Counselor Do, Educational Research, Vol. 9, No. 2, Feb. 1967, pp. 90-91.
[2]Ibid.

employed persons in business and industry provides some of our most meaningful information for students. The "Youth Town" experience as provided Danish youth after they reach the age of fourteen is a good example of a more realistic method of offering the student an opportunity to get a better look and feel of jobs in business and industry.[3]

The third question to consider: Is provision made for personal contact by the student with a successful person in the occupation before planning a vocational program? After a career goal has been selected is a definite plan developed for the student to articulate high school vocational education with the career goal? Again we find that students are given a choice of varied exploratory or vocational courses as a "fill in" with no intent of articulation with post high school education or training.

The fourth question: Is a written vocational study and training program planned after careful guidance and selection of a vocational career objective? Vocational education which can be offered in the high school is naturally limited because of costs and time required. Therefore, it follows that articulation should be made with post high school institutions or on-the-job training plan to successfully place the student on the job for which he is preparing.

The fifth question: Is a definite occupational education program planned for each student beyond high school?

[3]Sedlacek, Franz, Danish Youth Town: Practical Vocational Orientation, Oregon Education Journal, Vol. 41, No. 16, May 1967.

How are the exploratory and pre-vocational courses articulated in occupational education? It is basic to articulation of occupational education between the high school and post high school that adequate experiences in exploratory courses be made available in high school. Courses in agriculture, industrial arts, home economics, secretarial and business which are not particularly oriented to placement on a job are the usual exploratory areas. It is essential that the student taking exploratory courses should have the opportunity to try more than one occupational related exploratory courses. Such exploratory experiences should give a basis for determining interest and perhaps aptitudes in an occupational cluster. When the occupational cluster has been determined, is a planned program of education developed for the student in courses that are related and concentrated in the cluster? Is consideration given to articulation of these courses within the occupational cluster in the high school, and/or post high school education in a planned program of study?

How can vocational courses in the high schools be articulated with the post high school occupational programs? Vocational courses offered in high school are often established without consideration of need or the possible duplication in an apprenticeship, vocational school, community college or private school. Articulation with existing programs in other institutions should be a preliminary step to the addition of vocational courses or programs. In like manner, the post high school institutions should take into consideration existing vocational courses which are established to meet local employment needs.

Obviously, duplicate courses may be offered in some subjects where the need exists in both high school and adult levels. An example would be typing. Many persons who need such a skill in their jobs have not taken the course in high school and later, as employed persons, find that it is necessary. Likewise, a person who enters training in an engineering technician field might possibly not have taken basic drafting in high school. In such cases the basic drafting fundamentals would need to be offered both in high school and post high school.

Not only should careful consideration be given to the articulation of vocational courses in high school and post high school, but consideration should be given to articulation of mathematics and science courses in high school which are pre-requisite to post high school occupational programs. Post high school programs such as electronic engineering technology, civil engineering technology and the like, should be articulated with preparatory mathematics and science courses in high school.

On-the-job training and apprenticeships which would be taken following high school graduation should be articulated with skill training and basic preparatory science and mathematics courses in high school. In some apprenticeships such preparation may need to be articulated between the high school, community college and apprenticeship or an in-plant or on-the-job training program.

The basic problem to consider is--How can better articulation be accomplished between the high school and post high school education and training facilities in the planning of vocational programs?

Methods and Limitations of This Study.

1. Area and Grade Levels

To identify the problems of articulation of occupational education in the high school and community college or post high school levels in Clackamas County, interviews have been made with the high school personnel in the area served by Clackamas Community College to determine the extent of pre-vocational or exploratory courses and vocational courses offered and planned for the future in the high schools of Clackamas County. These interviews did not include the junior high schools which in many instances provide pre-vocational or exploratory courses. Some consideration was given to the junior high pre-vocational courses where the junior high grades, particularly the ninth, were a part of the high school.

The area of the County considered in this Study is only that part of Clackamas County included in the boundaries of Clackamas Community College District. This excludes the Lake Oswego and Sandy High Schools. The Catholic LaSalle High School was included with the public high schools.

2. Sources of Data

Information on employment needs in various occupational clusters for which the articulation is concerned was obtained from the Oregon State Dept. of Employment Study published in November, 1966. The section relating to the Greater Portland Area is used as a basis of determining occupational employment by cluster. This area was considered due to the fact that a great number of persons living in Clackamas County work in the Portland metropolitan center. An analysis of the location of employment of apprentices living in Clackamas County verified the fact that the majority work in the city limits of Portland.

The Clackamas Study of 1965 has also been used as a source of information relating to vocational education needs as shown in Clackamas County.

The Job Cluster Study of Lane County (1965) and the Oregon State Dept. of Education's Guide to Structure and Articulation of Occupational Education Programs have been used as a basis for the identity of clusters. The finalized occupational clusters to be considered in this study are a composite of these studies, existing groupings offered in the Clackamas County High Schools, and the

projected curriculum offerings to be given at Clackamas Community College.

The basic information to be used to arrive at conclusions and recommendations for better articulation was obtained by personal interview with persons involved with vocational curriculums at the various high schools included in the Study. An attempt was made to include the superintendent, principal, vocational director, director of guidance and curriculum director in each of the interviews where feasible. In some instances this was not possible and as a consequence some of the information may be incomplete and not accurately identified.

It is obvious that there would be differences of opinion between persons at various schools about the identification of courses that would be classed as exploratory or vocational. The determination as to whether or not a course would be considered as vocational was on the basis of whether or not it would lead to employment because of knowledge and skills learned in the course. Employability because of courses offered was determined by the person interviewed. The person interviewed also determined whether the course was pre-vocational or college preparatory.

Identification of courses to be added in the next five to ten years was in many instances on the basis of, "I think so, if we get the needed budget money."

Course outlines for high school pre-vocational and vocational courses were requested, but very few were obtained. Analysis of course content would have been valuable to determine coverage in relation to the community college courses. Such an analysis would determine where articulation can be made and where some changes would need to be made.

3. Definition of terms

Distributive Education--Education directed toward jobs in marketing or merchandising of goods or services. These jobs may be found either in the retailing, wholesaling, manufacturing, transportation and financial businesses.

Entry job--The beginning job in a career occupation, usually related to a job which takes a minimum of preliminary education or skill training. Additional training would usually be necessary on the job after employment.

Exploratory or pre-vocational course--Course which provides some related practical experience that may develop interest in an occupational field.

Industrial arts--Courses involved in basic manipulative work such as woodworking, machine work, drafting, which are not specifically oriented toward job entry. These courses are essentially exploratory in nature.

Job cluster--A grouping of jobs which have common basic knowledge and skills. An example would be the mechanic cluster which could include auto mechanic, tractor mechanic, diesel mechanic, etc.

Occupational curriculum--A grouping of courses required for completion of a program of studies to qualify a person for a specific occupation.

On-the-Job training--Practical work experience in business or industry with supervised training for a specific occupation. Usually related and general school courses are planned as part of the total occupational education and training program.

Technical education--Education including technical information, and understanding principles of science and technology as applied to modern design, production and distribution. Knowledge of the technical field with ability to solve technical problems involving more than technical skills is included in a technical curriculum.

Vocational--Insofar as this study is concerned, vocational relates to subject matter and skill training for jobs which are basically skilled or semi-skilled in manipulative work such as typing, operating or repairing machines, selling, storing, packing, etc.

Changing Concepts and Demand for Occupational Education

Since the passage of the Vocational Education Act of 1963, many studies have been made on national, state and local levels to determine where vocational education is needed and to identify the occupational fields for which education and training are needed. Needless to say, these studies have supported the findings of the President's Consultants on Vocational Education (1962) which pointed out the need for expansion of vocational education in secondary and post high schools and the inclusion of occupational training which had not previously been provided. Previous to the passage of the Vocational Act of 1963, vocational education had become somewhat stereotyped and limited to narrowed programs within such confines as agriculture education, trade and industrial education, distributive education, homemaking and some limited health fields.

The rapid changes in technology, mobility of our population, urbanization, and population explosion have forced us to re-examine education for work. Margaret Mead, the anthropologist, pointed out that: "The most vivid truth of our age is that no one will live all his life in the world into which he was born, and no one will die in the world in which he

worked in his maturity."[4]

It is becoming increasingly apparent that our young people will need to have a rising general education level and increasing skill competence to meet the challenge of change. Also it is evident that education and training for the world of work will require continual processes of retraining during the life span of the individual.

In the past there has been a distinct division between general education and vocational education. We have become more aware of the dependence of vocational education on general education such as "language and arithmetic skill and basic knowledge of the world about us."[5] There are other factors of our education which need attention such as cultural and personality development. "The teaching of skills in job performance is of minor importance when compared to the development of an adequate personality. 95% of job failures can be attributed to inadequacies in personality development.....When two men with equal job capabilities are being considered for promotion, the one with the pleasing personality usually wins."[6]

With the many and varied new jobs developing in this technological age it is essential that programs of vocational education be planned for an ever-widening range of occupations. Flexibility of planning of the

[4]Mead, Margaret, Education for a Changing World of Work, Report of the Panel of Consultants on Vocational Education, U. S. Govt.
[5]Ibid., P. 264.
[6]Wright, Stanley A., Patterns for Secondary Schools, Is Separate Education for Vocational Educational Students the Answer?, The Balance Sheet, Vol. 47, No. 9, May, 1966, pp. 398-399.

curriculum structure must be maintained to meet the changing demands of our society. To be more specific, the education and training given in the auto mechanics program of recent years might be drastically changed with the advent of gas turbine engines and electrically powered automobiles. In like manner, in business education where data processing has become an important part of the business field, the accent in education and training will need to be restructured to meet the new systems of accounting and record keeping.

Occupational Opportunities Present and Projected in the Greater Portland Area

Occupational education planning in Clackamas County must take into consideration the employment opportunities in the Greater Portland metropolitan area as many employed person living in Clackamas County are employed in the Greater Portland Area. The study of the Oregon State Dept. of Employment of November, 1966 is used as a basis of determing the required needs. This study included Clackamas, Multnomah and Washington counties in the Greater Portland Area.

In planning for better articulation of high school and post high school occupational education, employment opportunities should be given first consideration. To plan for articulation where all high schools would feed into a community college curriculum and where limited employment or work is available, would be misleading to our young people. Also in some curriculums the high schools and community college may be training for the same entry job without consideration of job needs.

To better view this relationship, the added occupational needs in the Greater Portland Area will be shown by job families or job clusters. Articulation of education and training will be presented in job clusters as the training for similar jobs in a cluster involves education and training common to all jobs in the cluster. Only jobs requiring less than a baccalaureate degree but requiring special occupational education will be considered. (Note Tables 1 through 12)

Table 1

ATRICULTURAL OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Agricultural Service	1,470	225

(This study does not include self-employed farmers, and separation of mechanics, sales and service jobs related to agriculture.)

Table 2

BUSINESS (MARKETING AND DISTRIBUTIVE) OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Shipping & Receiving Clerks	1,833	380
Stock Clerks & Storekeepers	1,642	219
Sales Clerks, Counter	4,360	751
Salesman, Insurance	1,808	553
Salesman, Real Estate	853	202
Salesman, Specialty	7,777	1,706
Salesman to Consumer	2,179	366
Salesman, Other	7,410	2,578
Other Sales Jobs	1,961	443
Checkers	2,005	340
Transportation, Communication, & Utilities	4,936	451

Table 3

CONSTRUCTION OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Construction Occupations (Semi-skilled)	1,419	145
Construction Occupations (Skilled)	10,627	1,458
Drilling & Blasting	105	28
Stationary Portable & Hoisting Engineers	1,058	102
Surveyor	461	41

Table 4

ELECTRICAL--ELECTRONIC OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs To 1969
Electronic Technician	1,292	104
Radio Operators	133	22

(Maintenance, construction and service electrician not included as these are included under other categories.)

Table 5

FOOD SERVICE OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Cooks	3,852	490
Food Processing	984	131
Food Servers	7,067	847
Kitchen Helpers	4,464	529

Table 6

HEALTH OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Medical Personal Service	4,588	770
Medical Technicians	1,853	243
Registered Nurses	4,530	640

Table 7

MECHANICAL OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Automotive Truck & Bus Mechanics	4,954	897
Millwrights & Repairmen	6,496	633

Table 8

METAL WORKING OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Lab Assistants	500	50
Metal Working (Skilled Machinist, Tool & Die Makers, Structural Steel, Boilermakers, etc.)	9,256	1,507
Metal Working (Semi-skilled such as Machine Operators, Chippers, Burners, etc.)	8,095	1,530

Table 9

GRAPHICS OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Draftsman	1,614	347
Printing (Skilled)	2,119	566
Printing (Semi-skilled)	168	42

Table 10

OFFICE OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Accounting Clerks & Cashiers	4,028	528
Bank Tellers	1,102	218
Bookkeepers	6,233	733
Clerk, General	2,704	448
Clerk, General Office	7,721	1,178
Clerk, Direct Service	325	56
Credit Clerk	621	109
Office Machine Operators	2,577	507
Personnel Clerks	283	64
Receptionists	1,064	188
Secretary & Stenographer	8,593	1,442
Typist & Clerk-Typist	4,487	753

Table 11

WOOD PRODUCTS OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Lumber & Wood Products Mfg. (Semi-skilled)	3,518	188
Lumber Production (Skilled)	1,890	154
Pulp & Paper Production (Semi-skilled)	720	38
Pulp & Paper Production (Skilled)	303	19

Table 12

GOVERNMENT SERVICE OCCUPATIONS IN GREATER PORTLAND AREA

	1966 Employment	Added Needs to 1969
Firemen	1,393	293
Law Officers	1,854	274
Personnel Technicians	250	63
Postal Service	2,997	445

Demand for qualified personnel as shown in the previous tables indicates need for occupational education for a variety of jobs. Education and training for these jobs will be provided by high schools, proprietary schools, community colleges and apprenticeship in the Greater Portland Area. This calls for cooperative planning between the various agencies and private schools and articulation between the high schools and post high school levels of occupational education.

Findings of the Vocational-Technical Education Study in Clackamas County

This study began in June, 1965 and was completed in August, 1965. The present articulation study is a follow-up to the 1965 study. Vocational programs have been added in the high schools since this study was completed. Other programs are being planned. Clackamas Community College began offering occupational education in 1966-67. The 1965 study pointed out vocational courses and course content that should be provided in Clackamas County.

The next logical step in the development of vocational programs is an orderly planning and articulation of programs in the Clackamas Community College and the high schools. Clackamas Community College was not in existence during the 1965 study and as a consequence, that study was not concerned with the articulation of vocational (sic, occupational programs) programs in the Community College.

The 1965 study pointed out the need for expansion of vocational education in the high schools of Clackamas County. This study was made to determine:

1. Were high school graduates adequately prepared for employment?

2. Would vocational education increase the percent of high school students completing high school?

3. What vocational education was being given for employment?

4. What added education needed to be given to prepare a high school student for employment?

5. How could education for employment be achieved?

The 1965 Study provided the following information:

1. The requirements for various jobs in Clackamas County.

2. The number employed in various occupational groups.

3. The opinions as expressed by employers for and against vocational education in high schools.

4. The suggestions by people in business and industry regarding vocational subjects that should be provided in high school.

5. The general attitude of business and industry toward apprenticeships and work-study programs.

6. The vocational subjects being given in high schools.

From analysis of the Clackamas (1965) Study it is obvious that the consensus of opinion among employers was one that favors expansion of vocational education in high schools. Employers suggested innumerable subjects which should be provided young people before entering employment. Some of the subject areas suggested were beyond the capacity of the usual high school. Many suggested subjects could be more adequately provided in the community college. To give an example, advanced accounting, as suggested in this Study, would be beyond the usual range and possibilities of the high school curriculums. Also, a general data processing study and practice would not be feasible in

most of the high schools because of the expense and the advanced nature of this type of program.

Other occupational fields for which a need for training was suggested by the employer groups were engineering aide, technician and surveyor's assistant. These programs are usually of a post high school level due to the preliminary courses in mathematics and science which must be provided in the high school before entering such programs. Practical nursing, another suggested training area, is a program which involves extensive work experience within the hospital and could more adequately be provided after the completion of high school courses. Subject fields such as police training, fireman training, electronics technology, real estate selling, heavy equipment operation, and many others included in the suggestions, could be more adequately given on the community college level.

It is evident from an analysis of the 1965 Study that careful study and planning of the articulation of occupational training programs between the high schools and the community college is essential. The 1965 Study pointed out that high school training in occupational skills and technical education would be valuable to a young person before entering an apprenticeship. Such education would likewise apply to many programs offered in the community college occupational education. Careful articulation would need to be made between the high school and community college and/or the high school, community college and apprenticeship. An example of such articulation would be in the area of machinist training where considerable on-the-job experience

is required in some industries for adequate performance. In such instances the basic exploratory courses and some limited machine shop training would be given in the high school with more intensive application in the community college, followed by application of the knowledge gained in an apprenticeship.

Basic skills and knowledge required for employment in various fields suggested a need for coordination in the planning of curriculums between the high school and post high school to prevent duplication of education and training. The 1965 Study pointed out that the following skills and/or knowledge were essential for a person entering the construction industry: basic mechanical principles; operation of dozers, graders, etc.; industrial safety; utilization of common tools; welding and cutting methods; blueprint reading; slide rule; knowledge of high pressure or hydraulic systems. Obviously many of these learning experiences might be given in the high school or community college or more narrowly limited to one level. Planning should be jointly considered by the high school and post high school curriculum planners. In like manner, various processes, operations and knowledge were indicated as necessary for employment in manufacturing industries, wholesale distribution field, trade fields, retail trade, transportation, finance, services, and government. These functions need to be identified by the high school and college in cooperative planning so as to effectively articulate occupational education.

Occupational Education Clusters in High Schools

Occupations for which job entry or college preparatory training can be

given in high schools may be grouped in families or job clusters. These clusters are those which have much in common insofar as basic information and skills are concerned. To give an example, mechanical jobs such as auto mechanics, diesel mechanics, machinery mechanics, and maintenance mechanics have much in common. Basic information regarding internal combustion, levers, gears, etc. are similar. Skills of machining, welding and trouble shooting analysis have a commonality among these occupations.

The Oregon State Department of Education, Division of Vocational Education and Community Colleges made a study of these clusters and suggested the following: *

1. Mechanical
2. Office Occupations (Including Clerical, Stenographic and Accounting
3. Marketing
4. Agricultural
5. Food Service
6. Construction
7. Wood Products
8. Metal Working
9. Health
10. Electrical-Electronic

In this Study graphics has been added to include the many jobs represented in the printing, drafting fields, and commercial art.

The occupational clusters which were studies in the high schools of Clackamas County were:

1. Agricultural
2. Business (Marketing & Distribution)
3. Construction
4. Electrical-Electronic
5. Food Service
6. Health
7. Mechanical
8. Metal Working
9. Office Occupations (Secretarial, Bookkeeping & Clerical)
10. Wood Products
11. Graphics

*Oregon State Department of Education, Division of Community Colleges and Vocational Education, Guide to Structure and Articulation of Occupational Education Programs, Supt. of Public Instruction Salem, Oregon, 1967.

Occupational or vocational education, as identified for federal and state re-imbursement are those courses which provide specific education and/or training for direct job entry. Some courses offered as vocational courses may also be considered as exploratory or preparatory for a more intensive program of study in the community college or on-the-job training.

No attempt will be made in this Study to judge whether a course should be considered exploratory or vocational. In many courses this can only be determined by the results obtained by the student. Some may find it useful only as an exploratory course or preparation for apprenticeship or community college education. Others may find the course helpful for direct job entry.

The State Department of Education identified occupational courses as "those courses which include common skills, knowledge, concepts and principles identified by analysis of the occupation for which the course prepares the student."[7] Courses for occupational education must provide a "minimum of ten hours per week to provide the intensive and extensive instruction necessary for effective entry occupational performance."[8]

[7]Oregon State Dept. of Education, Div. Community Colleges & Vocational Education, Guide to Structure and Articulation of Occupational Education Programs, Supt. of Public Instruction, Salem, Oregon, 1967.
[8]Ibid.

Chart I

CLUSTERED GROUPS OF OCCUPATIONAL COURSES SUGGESTED BY STATE DEPT. OF EDUCATION FOR SECONDARY SCHOOLS

Mechanical Cluster

Industrial Mechanical Practices & Machines
Internal Combustion Engines
Hydraulics & Pneumatics
Power Transmission & Mechanical Linkage
Basic Electricity
Industrial Science
Blueprint Reading & Sketching
Welding Fundamentals

Office Cluster

Typewriting II
Business Machines
Bookkeeping I & II
Business Mathematics
Business Law
Business English
Business Economics
Data Processing
Shorthand I & II
Business Organization & Management
Clerical Practices
Secretarial Practices

Marketing Cluster

Marketing I & II
Business Speech
Advertising Lab
Commercial Art
Business Math
Business English
Business Law
Employment Lab

Agriculture

Agricultural Science
Landscape Horticulture
Forestry
Farm Operation & Management
Agricultural Mechanics
Bookkeeping I
Internal Combustion Engines
Hydraulics & Pneumatics
Basic Marketing
Business Economics
Welding
Drafting & Sketching
Basic Mechanics

Food Service

Health Sanitation & Safety
Preparation for Employment
Nutrition & Menu Planning
General Business Procedure

Related to Food Service

Introduction to Food Service
Food Service Knowledge & Skills
Quantity Food Service
Quantity Food Preparation

Chart I (Cont.)

Construction Cluster

Architectural Drawing & Planning
Blueprint Reading & Sketching
Construction Accounting & Computing
Welding Fundamentals
Fundamentals of Building Construction
Building Materials & Construction Procedures--Wood, Masonry
Structural & Interior Building Materials & Procedures
Advanced Construction Techniques

Wood Products Cluster

The Forest Industry
Logging Practices & Basic Wood Products
Finished Wood Materials
Advanced Wood Processes & Materials
Blueprint Reading & Sketching
Industrial Science
Industrial Maintenance Practices & Machines
Welding Fundamentals

Metal Working Cluster

Basic Metalworking Practices & Machines
Machining & Forming Techniques
Materials & Metal Processing
Fabrication Methods & Production Tech.
Basic Electricity
Industrial Science
Blueprint Reading & Sketching
Welding Fundamentals

Health Cluster

Body Structure & Function
Microbes & Disease
Employer-Employee Relations
Health Service Skills I
Patient Relations
Health Service Skills

Electricity-Electronics Cluster

DC Circuit Principles & Analysis
AC Circuit Principles & Analysis
Electron Tubes & Solid State Devices
Industrial Controls & Instruments
Basic Metal Working Practices & Machines
Industrial Science
Blueprint Reading & Sketching
Welding Fundamentals

Graphics Cluster

Blueprint Reading & Sketching
Architectural Drawing & Planning
Commercial Art
Graphic Art
Printing
Photography

The courses as suggested by clusters are being offered in some high schools under other title. The aforementioned courses are only suggestions and do not limit courses which might be offered as occupational courses.

Occupational Programs in the Community College

Programs offered in the community college are often a continuation of courses begun in the high schools such as machine technology and secretarial science. Other programs such as engineering technician curriculum are built on preparatory course work in the mathematics and science courses given in high school.

Many of the beginning courses given in the general vocational programs such as typing or shorthand in secretarial programs will begin at the same level as the high school courses. This duplication of courses is provided to make it possible for a student to take the beginning courses in the community college if he has not had the course in high school.

The length of pre-employment education and training varies with programs. A program in home health aide may last from six to eight weeks; welding technology may run three quarters; practical nursing may extend into four quarters; and engineering technologies may operate full time from six to eight quarters.

Many courses offered in the community college are common to many curriculums in the occupational cluster. As an example, basic electrical theory and a common foundation in mathematics would be given in all curriculums in the electricity-electronic cluster. Students in the electronic engineering technician curriculum would be scheduled through a higher level of technical mathematics and electricity-electronic theory.

A selected group of general education courses are usually included in a

community college curriculum. Such a group can represent eighteen to twenty-five credits in a two-year program and can include communication skills, American institutions, personal health, physical education, and others.

Job clusters for which high school vocational-technical courses are planned will usually lead to more specialized programs in post high school institutions. Some of the typical programs which the high school student may progress to are suggested by the following chart:

Chart II

TYPICAL PROGRAMS IN COMMUNITY COLLEGES IN OCCUPATIONAL CLUSTERS

Agriculture.	1.	Farm Equipment Service
	2.	Forestry Aide
	3.	Landscaping -Ground Maintenance
	4.	Livestock Technology
	5.	Dairy Technology
	6.	Horticulture & Floriculture
	7.	Feed, Seed and Fertilizers
Business (Marketing & Distribution.	1.	Business Mid-Management
	2.	Real Estate & Insurance
	3.	Retail Sales, Purchasing & Merchandising
	4.	Transportation & Traffic Management
	5.	Hotel-Motel Management
Construction	1.	Surveying
	2.	Structural Engineering Technology
	3.	Civil Engineering Technology
	4.	Highway Engineering Technology
	5.	Architectural Technology
	6.	Building Construction Technology
	7.	Carpentry
	8.	Building Maintenance

Chart II (Cont.)

Electricity-Electronics.	1.	Electronic Engineering Technology
	2.	Radio & Television Servicing
	3.	Communications Technology
	4.	Industrial Electronics
	5.	Appliance Repair
	6.	Electronic Mechanics
Food Service	1.	Baking
	2.	Institutional Cookery
	3.	Food Processing Technology
	4.	Cooks & Chefs Training
Health	1.	Dental Assisting
	2.	Dental Laboratory Technology
	3.	Medical Assisting
	4.	Practical Nursing
	5.	X-Ray Technology
	6.	Medical Laboratory Assisting
	7.	Physical Therapy Assistant
	8.	Sanitation Technology
Mechanical	1.	Airframe & Power Plant Mechanic
	2.	Industrial Technology
	3.	Automotive Mechanics
	4.	Diesel Technology
	5.	Automotive Body Repair
	6.	Marine Technology
	7.	Automotive Tune-up & Instrumentation Technology
	8.	Office Machines Technology
	9.	Heavy Equipment Technology
	10.	Hydraulics Technology
Metal Working.	1.	Machine Tool Technology
	2.	Welding Technology
	3.	Machine Shop
	4.	Metallurgical Technology
Office (Clerical, Stenographic, Bookkeeping & Accounting)	1.	Library Aide
	2.	Instructional Materials Technology
	3.	Clerk-Typist
	4.	File Clerk
	5.	Data Processing Clerk

Chart II (Cont.)

Office (Cont.).	6.	Sales Clerk
	7.	Legal Secretary
	8.	Secretary - Medical or Dental
	9.	Stenographer
	10.	Bookkeeper
	11.	Data Processing Programs
Wood Products	1.	Forest Product Technology
	2.	Pulp & Paper Technology
	3.	Forest Technician
	4.	Chemical Technology
Graphics.	1.	Machine Design
	2.	Technical Drafting
	3.	Publications Technician
	4.	Commercial Art Technician
	5.	Graphic Arts Technology

Generally, the accepted practice in the articulation of vocational programs between the high school and community college is left to the students' personal interests. A student selects a vocational program on the basis of interest and in some schools by aptitude tests. No specific courses are established for entry into a community college vocational curriculum.

In the guidance and counseling of students for admissions to community college vocational curriculums, consideration is given to placement in programs that the student may have successfully experienced in high school. A student planning to enter a machine shop or mechanic course need not have had previous courses to enter these programs. Also a student who may have previously taken machine shop or auto mechanics would not necessarily be given credit for this study in the community college. Articulation and due consideration for previous courses or vocational preparation needs to be more clearly defined for entry to such courses.

In engineering technology community college course. articulation is more clearly defined. A student planning to enter the technical courses is usually required to have taken algebra and possibly some trigonometry along with basic physics. Even though pre-requisites are more clearly defined in the technical courses, a considerable amount of overlapping is experienced in the mathematics and physical science courses. This overlap should be articulated with waiver of courses or advanced credit for courses taken in high school which are similar to some of the community college courses.

Courses which may overlap in the community college and high school and need articulation are:

CHART III

SIMILAR OCCUPATION COURSES OFFERED IN
HIGH SCHOOLS AND COMMUNITY COLLEGES

Auto Mechanics	Retail Selling
Machine Shop	Business Mathematics
Basic Physical Science	Algebra
Typing & Shorthand	Trigonometry
Basic Woodworking	Physics
Drafting	Electrical Theory
Electrical-Electronic Theory	Electronic Theory
Food Preparation	Office Practice
First Aid	Business Machines
Office Procedures	Bookkeeping
Botany & Wood Products	Welding

As is often the case in education, we find ourselves going over the same ground again and again only to lose student interest and waste student and instructor time. It is incumbent on occupational educators to examine

more carefully this overlap. Such overlapping can only place education open to criticism from the student, business, industry and the tax supporting public for inefficient expenditure of educational effort.

As occupational programs are begun and expanded in the high school, programs in the community colleges will undergo change. Some basic fundamental courses, and in some cases, complete curriculums, will be dropped. More engineering technology programs and curriculums requiring high school preparatory study will develop. Also programs requiring costly outlay for equipment and laboratories which would be difficult to finance and justify in high schools, will become the expected service of a community college.

Occupational programs in the community college must offer education and training that adequately prepare students for employment. As an "open door" institution, the college must plan quality programs which will place students on the job to justify the existence of any program.

SECTION TWO

OCCUPATIONAL EDUCATION IN CLACKAMAS COUNTY

Vocational Guidance in Clackamas County.

1. Planning student programs for occupational objectives.

Expansion of vocational education in high schools and community colleges has placed increasing emphasis on guidance for occupational objectives. Without adequate guidance the expanded vocational programs would be of little value. Vocational Courses have been added in the high school to offer other choices to the student than college preparatory education. To determine what planning has been made for students in high schools of Clackamas County the survey interviews asked for specific information on vocational guidance. The following Table (Table 13) reports the present situation.

2. Vocationally oriented exploratory courses offered in high schools of Clackamas County.

Vocational counselors in the high school are the prime movers for the student's articulation of exploratory courses with vocational courses. With the many devices and techniques which the counselor may use for student career guidance none is more helpful than exploratory courses. The student should be given an opportunity to try more than one occupationally oriented exploratory course. The following Table (Table 14) gives some indication of the exploratory courses available to high school students in Clackamas County.

Table 13

VOCATIONAL GUIDANCE IN CLACKAMAS COUNTY HIGH SCHOOLS

1. Guidance given all students in the selection of career field on basis of exploratory pre-vocational course.	Yes 11	No 1
2. Provision made for student contact with person knowledgeable in selected field before selection of career field.	Yes 8	No 4
3. A written vocational study and training program is prepared for those planning career fields upon completion of high school.	Yes 8	No 3
4. Individual guidance is provided in planning vocation education programs beyond high school.	Yes 10	No 2

PRE-OCCUPATIONAL (EXPLORATORY) COURSES OFFERED IN

Table 14 - HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Pre-Occ. to High School Courses	Pre-Occ. to Comm. Coll. Courses	Pre-Occ. for Univ. Courses
		9	10	11	12	90	180	360	540			
Agricultural												
Modern Concepts in Agriculture	5	5					5			5	5	5
Agricultural Science	4		4				4			4	4	4
Agriculture I	1	1					1			1	1	1
Farm Machine Assembly	1			1	1	1				1	1	1
Power Mechanica	1			1	1	1				1	1	1
Forestry	1		1	1	1		1			1	1	1
General Shop	1	1					1			1	1	1
Biology	1		1				1			1	1	1
Business (Marketing & Distribution												
General Business	3	2	2	2	2	1	2			3	2	2
Distributive Education I	3			3			3			3	3	3
Journalism I	1	1	1	1	1		1			1	1	1
Construction												
Construction Skills	1			1	1	1				1	1	1
General Shop	3	3	3	2	2		3			3	3	3
General Shop II	1		1	1	1		1			1	1	1
Woodworking I	3	1	2	1	1		3			3	2	1
Woodworking II	6		5	2	1		6			6	5	5
Woodworking III	4			3	1		4			4	4	3
Machine Woodworking	1		1				1			1		
Industrial Arts Survey	4	4				4	4			4	4	4
Mechanical Drawing I	2	2	2	2	2		2			2	2	1
Mechanical Drawing II	4		4	1	1		4			4	4	4
Industrial Ed. I	1	1					1			1		

Table 14 (Cont.) - PRE-OCCUPATIONAL (EXPLORATORY) COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level 9	10	11	12	Total Class Hrs. 90	180	360	540	Pre-Occ. to High School Courses	Pre-Occ. to Comm. Coll. Courses	Pre-Occ. for Univ. Courses
Electrical-Electronic												
General Shop	1	1	1					1		1	1	1
Basic Electricity & Electronics	1		1	1	1			1		1	1	1
Electronics I (AC-DC)	3	1	1	3	3			3		3	2	1
Electricity (AC-DC)	1		1	1	1			1		1		
Physical Science	4	4						4		4	4	4
Food Service												
Home Economics I	8	8	1	1	1			8		8	6	6
Home Economics II	7	1	6	1	1			7		7	5	5
Home Economics III	5			5				5		5	3	3
Home Economics IV	5				5			5		5	3	3
Family Meals	1		1	1	1	1				1		
Family Clothing	1		1	1	1	1				1		
Clothing-Formal Occ.	1		1	1	1	1				1		
Home Furnishings	1		1	1	1	1				1		
Family Living & Child Dev.	1		1	1	1	1				1		
Specialties in Food	1		1	1	1	1				1		
Health												
Homemaking I	8	8	2	2	2			8		8	8	7
Homemaking II	6	1	6	1	1			6		6	6	6
Homemaking III	4			4				4		4	4	4
Homemaking IV	4				4			4		4	4	4
Family Living & Child Dev.	1		1	1	1	1				1		
Health	1	1	1					1		1	1	1
Health III	1			1		1				1	1	

Table 14 (Cont.) - PRE-OCCUPATIONAL (EXPLORATORY) COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Pre-Occ. to High School Courses	Pre-Occ. to Comm. Coll. Courses	Pre-Occ. for Univ. Courses
		9	10	11	12	90	180	360	540			
Health IV	1				1	1				1	1	
Physical Education	1	1	1					1		1	1	1
Biology	1		1				1			1	1	1
Health Career Club	1									(no credit given)		
Mechanical												
General Shop	1	1	1				1			1	1	1
Power Mechanics	1			1	2	1				1	1	1
Industrial Arts Survey	4	4					4			4	4	4
Mechanical Drawing II	1		1				1			1	1	1
Metal Work II	3		3				3			3	3	3
Metal Work III	3			3			3			3	3	
Industrial Education I	1	1					1					
Metal Working Occupations												
Industrial Arts	4	4					4			4	4	4
Metal Work I	1		1				1			1		
Metal Work II	8		4	4			8			8	7	7
Metal Work III	1				1		1			1	1	1
General Shop	2	2	2	1	1		2			2	2	2
General Metals	1		1	1	1		1			1	1	1
Crafts	1		1	1	1	1				1	1	1
Exploratory Metals	1	1					1			1	1	1
Industrial Education	1	1					1			1		
Mechanical Drawing II	3		3				3			3	3	3

Table 14 (Cont.) - PRE-OCCUPATIONAL (EXPLORATORY) COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Courses	No. Schools Offering Course	Grade Level				Total Class Hrs.				Pre-Occ. to High School Courses	Pre-Occ. to Comm. Coll. Courses	Pre-Occ. for Univ. Courses
		9	10	11	12	90	180	360	540			
Office Occupations												
Business Law	4			1	4	3	1			4	4	4
Business Organization	3				3	3				3	3	3
General Business	3	1	3	3	3	1	1	1		3	2	2
Typing I	3	2	3	3	3	1	3			3	2	2
Bookkeeping I	1		1	1	1		1			1	1	1
Commercial Law	1			1	1		1			1	1	1
Personal Typing	1		1	1	1	1				1	1	1
Personal Record Keeping	1			1	1	1				1	1	1
Practical Law	1			1	1	1				1	1	1
Wood Products Occupations												
Conservation	1			1	1		1			1	1	1
Woodworking I	2	1	1	1	1		2			2	2	2
Woodworking II	3											
Woodworking III	3											
Industrial Arts	3											
Industrial Education I	1	1					1			1		
General Shop	1	1	1				1			1	1	1
Forestry	1			1	1		1			1	1	1

Table 14 (Cont.) - PRE-OCCUPATIONAL (EXPLORATORY) COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Pre-Occ. to High School Courses	Pre-Occ. to Comm. Coll. Courses	Pre-Occ. for Univ. Courses
		9	10	11	12	90	180	360	540			
Graphics												
Drafting	4	2	3	4	3		3	1		4	3	4
Basic Drafting	1	1					1					
Art I	1		1				1			1	1	1
Art II	1			1			1			1	1	1
Other												
Homemaking I	3	3					3			3	3	3
Homemaking II	3		3				3			3	3	3
Journalism	3											
Stagecraft	3											

Vocational-Technical Courses Offered in High Schools in Clackamas County

Increasing interest in vocational education has brought about an expansion of course offerings. The courses now being offered are basically in the traditional groups--agriculture, homemaking, industrial, business and distributive. The developing concept of job clusters is requiring a re-evaluation of course offerings on a pattern of families of job clusters. The courses as offered in the high schools of Clackamas County have been clusted to meet the new concept of families of occupational opportunities. (Table 15)

On-the-Job Training Given as Part of the High School Vocational Programming

On-the-job training as offered in the high schools of Clackamas County are limited. Many of these programs have grown in an unplanned manner. Tie-in of pre-vocational and general education courses to the job training has been limited. The following Table indicates the programs now being given. (Table 16)

Occupational Curriculum Expansion Planned for the Next 5 to 10 Years by High Schools in Clackamas County

The present trend of increasing interest in vocational education on local, state and national levels has required extensive planning for addition of new courses. In keeping with the new concept of grouping vocational courses in families of related occupations, or job clusters, the following proposed courses are being planned by various high schools. Some school officials indicated that other courses are being planned pending completion of present studies. (Table 17)

Table 15 - OCCUPATIONALLY ORIENTED COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Prep. for Job Entry	Prep. for Comm. College	Prep. for Univ.
		9	10	11	12	90	180	360	540			
Agriculture												
Crop Production	1		1	1	1			1		1	1	1
Livestock Production	1		1	1	1			1		1	1	1
Animal Nutrition, Genetics & Disease	1			1	1			1		1	1	1
Plant Propagation & Soils	1			1	1			1		1	1	1
Farm Management & Agriculture Business	2				2	1		1		2	2	2
Farm Machine Assembly	1			1	1	1				1	1	1
Agriculture Horticulture	1			1	1			1		1	1	1
Agriculture Resources	1			1	1			1		1	1	1
Agriculture Technology & Production	2		1	2	2			2		2	2	2
Agriculture Machinery	3		1	2	3	1		2		3	3	2
Agriculture I	1	1						1		1	1	1
Agriculture II	2	1	1					1	1	2	2	1
Agriculture III	2	1		1				2		2	2	1
Agriculture IV	1	1						1		1	1	1
Forestry	1				1	1				1	1	1
Landscape & Horticulture I	1				1	1				1	1	1
Landscape & Horticulture II	1				1	1				1	1	1
Agriculture Supply & Finance	1				1	1				1	1	1
Modern Agricultural Concepts	1	1	1	1	1			1		1	1	
Landscape, Gardening & Greenhouse	1		1	1	1			1		1	1	
Agriculture Shop	1		1	1	1			1		1	1	

* One school at 720 hours

Table 15 (Cont.) - OCCUPATIONALLY ORIENTED COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Prep. for Job Entry	Prep. for Comm. College	Prep. for Univ.
		9	10	11	12	90	180	360	540			
Business (Marketing & Distribution)												
Distributive Education I	3		1	2	3		2	1		3	3	2
Distributive Education II	4			1	4		3		*	4	4	1
Journalism II	1		1	1	1		1			1	1	1
Construction												
Woodworking II	2		1	2	2		1	1		2	2	2
Woodworking III	2			1	1		2			2	2	2
Building Construction I	1			1				1			1	
Building Construction II	1				1				1	1	1	
Mechanical Drawing III	4			4	1		3	1		4	4	4
Mechanical Drawing IV	3				3		3			3	3	3
Shop III	1			1	1		1			1	1	1
Furniture Production	1			1	1		1	1		1	1	
Carpentry & Materials Research	1			1	1		1			1	1	1
Electrical-Electronics												
Electrical-Electronics I	1			1				1		1	1	
Electrical-Electronics II	2		1	1	2		1		1	2	2	1
Solid State Electronics	1			1	1		1			1	1	1

* One school at 720 hours

Table 15 (Cont.) - OCCUPATIONALLY ORIENTED COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs.				Prep. for Job Entry	Prep. for Comm. College	Prep. for Univ.
		9	10	11	12	90	180	360	540			
Food Service												
Food Preparation	1		1	1	1		1			1	1	1
Homemaking I	1	1					1			1	1	1
Homemaking II	2		2	1	1		1	1		2	2	2
Homemaking III	2			2	1		1	1		2	2	2
Homemaking IV	2				2		1	1		2	2	2
Dress Design	1		1	1	1	1				1	1	
Health												
Child Services I	1			1				1		1	1	
Child Services II	1				1				1	1	1	
Homemaking I	1	1					1			1	1	1
Homemaking II	1		1				1			1	1	1
Homemaking III	1			1			1			1	1	1
Sr. Homemaking	1				1		1			1	1	1
Mechanical												
Auto Mechanics	3		1	2	3		1		1 *	3	3	2
Power Mechanics	1			1	1		1			1	1	1
Industrial Mechanics I	1			1				1			1	
Industrial Mechanics II	1				1				1	1	1	

* One school at 2160 hours: 3 shop hrs. per day for 1080 hrs. per year for two years

Table 15 (Cont.) - OCCUPATIONALLY ORIENTED COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Course	Grade Level				Total Class Hrs				Prep. for Job Entry	Prep. for Comm. College	Prep. for Univ.
		9	10	11	12	90	180	360	540			
Metal Working												
Metal Working I	1			1				1			1	
Metal Working II	1				1				1	1	1	
Beginning Metal Technology	1		1	1	1		1			1	1	1
Machine Shop	2			2	2				2 *	2	2	2
Auto Body	2			2	2				2	2	2	2
Office												
Typing I	8	3	8	3	3		7	1		8	8	8
Typing II	8	1	2	7	5		6	1		8	8	8
Shorthand I	11		1	11	7		10	1		11	11	11
Shorthand II	9			2	9		8	1		9	9	9
Bookkeeping I	10		1	10	9		9	1		10	10	10
Bookkeeping II	3			1	3		3			3	3	3
Office Practice	5		1	2	5		4	1		5	5	5
Business Law	1			1			1			1	1	1
Business Machines & Office Prac.	1				1		1			1	1	1
Transcription & Office Prac.	4				4		3	1		4	4	4
Clerical Practice	4			1	4		3	1		4	4	4
Library Practice	1		1	1	1		1			1	1	1

* One school at 2160 hours: 3 shop hrs. per day for 1080 hrs. per year for two years

Table 15 (Cont.) - OCCUPATIONALLY ORIENTED COURSES OFFERED IN HIGH SCHOOLS IN CLACKAMAS COUNTY BY CLUSTERS

Course	No. Schools Offering Courses	Grade Level				Total Class Hrs.				Prep. for Job Entry	Prep. for Comm. College	Prep. for Univ..
		9	10	11	12	90	180	360	540			
Wood Products												
Machine Woodworking	1		1	1	1		1			1		
Agriculture IV (Forestry)	1				1	1				1	1	1
Graphics												
Graphic Reproduction I	1			1				1			1	
Graphic Reproduction II	1				1				1	1	1	
Drafting & Design I	1			1				1			1	
Drafting & Design II	4		2	3	4		2	1	1	4	4	3
Drafting III	2			1	2		1	1		2	2	2
Engineering Drafting	1		1	1	1		1			1	1	1
Architectural Drafting	1		1	1	1		1			1	1	1
Drafting Research & Development	1				1		1			1	1	1
Photography	1		1	1	1	1				1	1	1

BLANK INSERT

Table 16 - ON-THE-JOB TRAINING OFFERED AS PART OF HIGH SCHOOL PROGRAMS IN CLACKAMAS COUNTY

Course	No. Schools Offering Course	Grade Level 9	10	11	12	Work Hrs. School Year	Job Entry	College Entry
Agriculture								
Agriculture Work Experience	4	3	3	1	1		1	3
On-Farm Projects	2	1	1	2	1		1	1
On-Job Work Projects	1	1	1	1			1	1
Agriculture-Business	1				1	360	1	1
Business (Marketing & Distribution)								
Distributive Education	4			3	4	180	1	1
Distributive Education II	2			1	2	1 @ 360 1 @ 720	2	2
Construction								
Woodworking Assistant	1				1	180	1	1
Electrical-Electronics								
Electrical-Electronics Assistant	1				1	180	1	1

Table 16 (Cont.) - ON-THE-JOB TRAINING OFFERED AS PART OF HIGH SCHOOL PROGRAMS IN CLACKAMAS COUNTY

Course	No. Schools Offering Course	Grade Level 9	10	11	12	Work Hrs. School Year	Job Entry	College Entry
Food Service								
Cafeteria Work	2							
Distributive Education-Waitress Training	1			1	1	1440	1	1
Health								
Homemaking I	1	1				180	1	1
Homemaking II	1		1			180	1	1
Homemaking III	1			1		180	1	1
Sr. Homemaking	1				1	180	1	1
Child Services I	1			1		360	1	1
Child Services II	1				1	540	1	1
Mechanical								
None								
Metal Working								
None								
Office								
Office Work Experience	7		1	4	6	1 @ 90 2 @ 180 2 @ 360	6	6

Table 16 (Cont.) - ON-THE-JOB TRAINING OFFERED AS PART OF HIGH SCHOOL PROGRAMS IN CLACKAMAS COUNTY

Course	No. Schools Offering Course	Grade Level 9 10 11 12	Work Hrs. School Year	Job Entry	College Entry
Wood Products					
Forest Lab	1	In conjuntion with Forestry Class			
Graphics					
None					
Other					
Work Experience	2	Sewing at Pendleton Woolen Mills			

Table 17 - OCCUPATIONALLY ORIENTED COURSE EXPANSION PLANNED FOR HIGH SCHOOLS IN CLACKAMAS COUNTY DURING NEXT 5 to 10 YEARS

Course	No. High Schools Offering Course	No. High Schools Plan to Add Courses	Comm. Col. Prep.	University Prep.
Agriculture				
Distribution & Management	None	1	1	1
Business (Marketing & Distribution)				
Salesmanship	None	1	1	1
Marketing	None	1	1	1
Construction				
Carpentry	1	1	1	1
Electrical-Electronics				
Electronics	2	2	1	1
DC Circuit Principles & Analysis	None	1	1	1
AC Principles & Analysis	None	1	1	1
Electron Tubes & Solid State Devices	1	1	1	1
Industrial Controls & Instruments	None	1	1	1
Food Services				
Homemaking	2	1	1	1

Table 17 (Cont.) - OCCUPATIONALLY ORIENTED COURSE EXPANSION PLANNED FOR HIGH SCHOOLS IN CLACKAMAS COUNTY DURING NEXT 5 TO 10 YEARS

Course	No. High Schools Offering Course	No. High Schools Plan to Add Courses	Comm. Col. Prep.	University Prep.
Health				
None				
Mechanical				
Internal Combustion Engines	None	1	1	1
Hydraulics & Pneumatics	None	1	1	1
Power Transmission & Mechanical Linkage	None	1	1	1
Power Mechanics	1	1	1	1
Auto Mechanics	3	1	1	1
Metal Working				
Basic Metal Working Practices & Machines	None	1	1	1
Machining & Forming Techniques	None	1	1	1
Materials & Metal Processing	None	1	1	1
Fabrication & Production Techniques	None	1	1	1
Metal Working	1	1	1	1
Machine Shop	2	1	1	1
Office				
Data Processing	None	1	1	1
Business Machines	1	1	1	1
Accounting	None	1	1	1

Table 17 (Cont.) - OCCUPATIONALLY ORIENTED COURSE EXPANSION PLANNED FOR HIGH SCHOOLS IN CLACKAMAS COUNTY DURING NEXT 5 TO 10 YEARS

Course	No. High Schools Offering Course	No. High Schools Plan to Add Courses	Comm. Col. Prep.	University Prep.
Wood Products				
None				
Graphics				
Drafting III	2	1	1	1
Engineering Graphics	None	1	1	1
Commercial Art	None	1	1	1

Occupational Education at Clackamas Community College

1. Curriculums being offered.

Clackamas Community College began its first year of full time operation in the school year 1967-68. A limited number of curriculums are offered due to budget curtailment. Two budget defeats during the spring and summer required the elimination of the planned electronic curriculum and restrictions on other newly planned programs. The following programs represent the beginning of comprehensive, full-time occupational curriculums. (Chart IV)

2. Additional occupational curriculums suggested for Clackamas Community College.

Employment opportunities in Clackamas County and the Greater Portland Area have indicated a need for occupational education in various curriculums. Tentative proposals will include a gradual expansion of occupational education by the addition of a few programs every year for the next five to ten years. Chart V, pg. 49, shows curriculums which are being considered.

Chart IV - OCCUPATIONAL CURRICULUMS AT CLACKAMAS COMMUNITY COLLEGE - 1967-68

Curriculum	Length Curriculum	Pre-Voc. Courses Helpful (Yes-No)	Pre-Voc. Courses Essential (Yes-No)	Prep. for Job Entry	University Prep.
Full Time Programs					
Auto Body & Fender Repair	6 qtrs.	Yes	No	Yes	No
Auto Mechanics	6 qtrs.	Yes	No	Yes	No
Drafting Technology	6 qtrs.	Yes	No	Yes	Helpful
Office Clerical-Bookkeeping	3 qtrs.	Yes	No	Yes	Helpful
Practical Nursing	3 qtrs.	Yes	No	Yes	No
Machine Technology	6 qtrs.	Yes	No	Yes	No
Secretarial	3 qtrs.	Yes	No	Yes	Helpful
Welding Technology	3 qtrs.	Yes	No	Yes	No
Short Term Programs					
Home Health Aid	8 wks.	Yes	No	Yes	No
Library Aid (Clerical)	4 wks.	Yes	Yes	Yes	Helpful
Selected Courses from Following Programs					
Law Enforcement	6 qtrs.	Yes	No	Yes	Helpful
Fire Protection	6 qtrs.	Yes	No	Yes	No

Chart V - ADDITIONAL OCCUPATIONAL CURRICULUMS SUGGESTED FOR CLACKAMAS COMMUNITY COLLEGE DURING NEXT 5 TO 10 YEARS

Curriculum	Length Curriculum	Pre-Voc. Courses Helpful (Yes-No)	Pre-Voc. Courses Essential (Yes-No)	Prep. for Job Entry	University Prep.
Electronics Technology	6 qtrs.	Yes	Yes	Yes	Helpful
Business-Merchandising	6 qtrs.	Yes	No	Yes	Helpful
Secretarial Science	6 qtrs.	Yes	No	Yes	Helpful
Second year options in Legal, Medical, or Executive					
Farm Equipment Service	6 qtrs.	Yes	No	Yes	No
Construction Technology	6 qtrs.	Yes	No	Yes	Helpful
Building Maintenance	3 qtrs.	Yes	No	Yes	No
Dental Assisting	4 qtrs.	Yes	No	Yes	No
Diesel Technology	7 qtrs.	Yes	Yes	Yes	No
Marine Engine Mechanic	7 qtrs.	Yes	No	Yes	No
Hydraulics Mechanic	6 qtrs.	Yes	No	Yes	No
Business Data Processing	6 qtrs.	Yes	Yes	Yes	Helpful
Pulp & Paper Technology	6 qtrs.	Yes	No	Yes	Helpful
Commercial Art Technology	6 qtrs	Yes	No	Yes	Helpful

Section III

SUMMARY & CONCLUSIONS

Occupational Opportunities in Clackamas County and the Greater Portland Area

The Study of Technical Vocational Education for High School Students in Clackamas County, 1965, emphasized the need for expanded vocational technical education in Clackamas County. Employers interviewed in this study suggested many subject areas which should be offered in the public schools. No attempt was made to delineate what should be given in high school or post high school. Some of the suggestions included subjects such as those given engineering technician students. Such study would require preparatory courses in math and science which would normally be given in the high school. The engineering technician subject matter would logically follow in the post high school years.

This study pointed out the need for development of certain basic skills in school shop or business classes before job entry. Many of the basic functions, knowledge, and skills which were recommended are common to various jobs. The need for planning occupational education in job clusters was evident. The study also suggested subject matter without indication of need for articulation at different educational levels.

The Oregon State Department of Employment in its study, Technological Change and Its Impaction--The Oregon Labor Force, 1966, points out the expanding needs for qualified persons in many occupational areas requiring less than a baccalaureate degree.

Jobs for which occupational education and training might be provided in the high school or community college were selected by occupational clusters. The clusters as identified were those that have been suggested by the State Department of Education and The Job Cluster Curriculum, Lane County Study of 1965, and the present study, namely:

1. Agriculture
2. Business (Marketing & Distribution
3. Construction
4. Electrical-Electronic
5. Food Service
6. Health
7. Mechanical
8. Metal Working
9. Office (Secretarial, Bookkeeping, Clerical)
10. Food Products
11. Graphics
12. Government

It is evident from the anticipated needs for additional workers for the period 1966-69 that the greatest demand will be in the business area. It is anticipated that over eight thousand additional workers will be needed in business. Second in order of job openings is the office occupational area in which there will be openings for approximately six thousand persons. The other occupational clusters would be ranked as follows:

3rd, Metal Working
4th, Food Services
5th, Construction
6th, Health
7th, Mechanical
8th, Government Service
9th, Graphics
10th, Wood Products
11th, Agriculture
12th, Electrical-Electronic

The indicated needs shown by the Greater Portland Area study would suggest that schools should analyze carefully their programs to determine whether the courses offered in any one program or curriculum are proportionate to the needs of business and industry.

Articulating Occupational Education for Job Clusters.

From information obtained from the studies which have been made, it is

obvious that common knowledge, skills and information for families of jobs should be articulated in planning curriculums and in guiding students in their studies. Too many times individual occupational courses have been set up to develop a particular skill without reference to a goal such as an occupational career field.

In such a well-known job field as represented by office occupations, courses such as typing, business machines, bookkeeping, business law, business english and others are common job preparatory courses. In like manner, persons planning to enter various mechanical fields in the mechanic occupational clusters would have common basic courses such as industrial mechanical, internal combustion engines, hydraulics, electricity and others. In planning curriculums on the job cluster basis it is essential that articulation be made by the various instructional areas and the post high school educational institutions, if additional occupational training is needed beyond the high school level. Consideration needs to be given to identification of the curriculum requirements in the community college which would be on-going occupational education in more depth for programs begun in high school.

Occupational Guidance for Better Articulation

The survey of high school occupational guidance brought out the importance attached to careful selection of career fields on the basis of exploratory pre-vocational courses. The results of the survey also suggested that written vocational education and training programs should be prepared for those planning to enter occupational fields requiring less than a baccalaureate degree. The study further suggested that individual guidance should

be provided for students selecting occupational fields which required post high school occupational education to articulate the high school courses with the selected occupation.

The survey of high schools in Clackamas County indicated a variety of occupational exploratory courses being offered in most high schools. These courses were offered in most instances as one year courses of one hour per day. In most instances these courses could be taken electively anywhere from the 9th to the 12th grades. The major emphasis appeared to be given in the 9th, 10th and 11th grades. These courses were offered as both pre-vocational to high school vocational offerings and post high school occupational course offerings. A fairly broad offering of exploratory courses were indicated in all of the occupational clusters with the exception of business (marketing and distribution), electrical-electronic and graphics.

Occupational Education Offered in Clackamas County.

Occupational courses offered in the high schools of Clackamas County area served by the Clackamas Community College, were somewhat limited. From a study of the answers to the questionnaire, it is evident that many of the schools offered a selection of office-type courses. Some offered vocational agricultural courses. There was a considerable lack of offerings in the other job clusters. The random offering of courses in other areas did not appear to be articulated with occupational goals or job clusters. A developing pattern of occupational course offerings directed more toward the job cluster concept is evident in the Milwaukie Occupational Skill Center and West Linn High School.

The occupational curriculum expansion as planned for the high schools in Clackamas County are being directed towards a broader offering in occupational clustered courses. It is obvious from the courses involved in developing occupational clustered programs that much planning will need to be done to articulate courses. The study indicates need for education and training in the business (marketing and distribution) cluster, but none is indicated. It is obvious from the lack of planning for additional courses in areas where there is a distinct need that some coordination and planning should develop between the high schools and the community college.

Occupational education being offered at the Clackamas Community College during its first year of full time operation (67-68) has comprehensive programs which need to be articulated with the high school occupational courses. The study points out that some of the community college curriculums overlap some course work given in the high schools. Curriculums such as drafting, office clerk, machine technology, secretarial, and welding involve some duplication of basic course work at both levels. An articulated plan of evaluation and granting of credits or waiver of basic courses needs to be made. The curriculums which may be added to the Clackamas Community College program offerings during the next five to ten years should include involved programs that will require some preparatory course work in the high school. Adequate planning will need to be made to articulate the two levels, particularly in the following areas: electronics, business (merchandising), secretarial science in the legal, medical and executive options,

instruction technology, diesel technology, hydraulics mechanics, and possibly business data processing.

In considering the high school vocational technical courses and the community college occupational curriculums being offered at present, along with the projected additions, it is obvious that some intensive study by job cluster areas will need to be done by the high schools and community college to better articulate course offerings.

Section IV

RECOMMENDATIONS

Any research study suggests many ideas for improvement, or innovation, which become obvious as a knowledgeable person studies the findings and conclusions. A research study is of little use unless action follows to remedy problem conditions noted.

To improve articulation between the high schools and community college a funded, on-going project should be provided to analyze occupational course offerings in high schools and the community college in Clackamas County to--

1. determine which occupational courses should be given in both high school and community college and to standardize course content in subjects such as typing, shorthand, drafting and similar courses which are basic for occupational preparation.
2. determine whether or not certain occupational courses should be given only in the high school or community college.
3. determine whether a gap exists between some community college curriculums and the high schools and identify course content to be given in the high school.
4. to determine which exploratory courses should be given in high schools not now offering pre-vocational experience

for the various occupational clusters.

5. to study and suggest cooperative planning between high schools, or high schools and the community college, to cooperatively offer selected occupational courses in centralized facilities to eliminate duplication of costly equipment and facilities.

6. to determine whether other occupational programs should be added because of employment needs in the Greater Portland Areas, which are not being adequately met. Such determination to be studied and coordinated with other schools offering occupational education in the Greater Portland Area.

7. to determine what community college courses might be given as advanced placement courses or for waiver of course either at the high school or community college.

Following analysis and study of recommendations by qualified consultant or consultants, a workshop should be planned for each occupational cluster. All high school teachers involved in occupational education, counselors, and community college occupational instructors should work together to plan implementation of suggestions developed through the workshop.

Appendix A

Clackamas Community College
270 Warner Milne Road, Oregon City, Ore.

Office of Occupational Education
Date _____

INTERVIEW QUESTIONNAIRE
FOR
ARTICULATION OF OCCUPATIONAL EDUCATION IN CLACKAMAS COUNTY

Section I. GENERAL INFORMATION

1. High School _____ Sch. Dist. _____

2. Address _____ Phone _____
(Street)

_____ Zip Code _____
(City)

3. Superintendent _____ Phone _____

4. Principal _____ Phone _____

5. Director, Supervisor or Coordinatory of Vocational Education

_____ Phone _____

5.1 Educational background of Director or Supervisor

5.11 Degree _____

5.12 Major _____

5.13 Minor _____

5.14 Certificate _____

5.2 Work experience other than education

5.21 Occupation _____

5.22 Yrs. experience (as trained worker) _____

_____

5.3 Other pertinent information regarding school or supervisors:

Section II. VOCATIONAL GUIDANCE

6. Is a planned vocational guidance program in operation to assist every student in selecting a career field on the basis of interests and aptitudes shown in pre-vocational exploratory courses? Yes ____ No____ Comment:

_____

_____

_____

7. Is there provision for student contact with persons who are knowledgeable about an occupation before planning a definite vocational program?

Yes ____ No____ Comment: _____

_____

_____

8. Is the student aided in planning a written vocational study and training program in high school vocational courses? Yes____ No____ Comment:

_____

_____

_____

9. Are students guided individually in planning a definite vocational education program beyond high school, such as is offered in community colleges, technical schools, proprietary schools and apprenticeships? Yes____ No____

Comment: _____

_____

_____

Section III. PRE-VOCATIONAL AND VOCATIONAL COURSES (Exploratory)
(Include courses to be added next 3 to 5 years and place in parenthesis.)

10. Agricultural Occupations

10.1 Pre-vocational Courses	Grade Level	No. Sem.	Total Hours	Credit Units	Job Entry	Com. Col. Prep.	Univ. Prep.
10.11							
10.12							
10.13							
10.14							
10.15							

10.2 Vocational Courses	Grade Level	No. Sem.	Total Hours	Credit Units	Job Entry	Com. Col. Prep.	Univ. Prep.
10.21							
10.22							
10.23							
10.24							
10.25							

10.3 On the Job Work Experience Programs	Grade Level	No. Sem.	Total Hours	Credit Units	Job Entry	Com. Col. Prep.	Univ. Prep.
10.31							
10.32							

APPENDIX NOTE:

A separate questionnaire page similar to the previous page for Section III was included for each occupational cluster, namely:

11. Business (Marketing & Distribution)
12. Construction
13. Electrical-Electronics
14. Food Service
15. Health
16. Mechanical
17. Metal Working
18. Office (Secty, Bkkg.)
19. Wood Products
20. Graphics

CLACKAMAS COMMUNITY COLLEGE SECRETARIAL CURRICULUM
WITH SUGGESTED ARTICULATION OF HIGH SCHOOL COURSES

Community College Curriculum	* Similar High School Courses
Typing I.	Typing I
Typing II	Typing II
Typing III.	None
Shorthand I	Shorthand I
Shorthand II	Shorthand II
Shortland III	None
Office Procedures I	Office Practice
Office Procedures II & III	None
Business Communications I, II, III	None
Electives: (3 or more college level courses)	None

*Suggested evaluation for application to Clackamas Community College curriculum to be made by joint committee of community college and high schools in Clackamas County.

Appendix C

CLACKAMAS COMMUNITY COLLEGE DRAFTING TECHNOLOGY CURRICULUM (2 YRS.) WITH SUGGESTED ARTICULATION OF HIGH SCHOOL COURSES

Community College Curriculum	* Similar High School Courses
Drafting I & II	2nd Yr. Drafting
Intro. Fabrication Practices	None
Project Drafting I.	3rd Yr. Drafting
Project Drafting II	None
Advanced Machine Drafting I	Engineering Drafting
Advanced Machine Drafting II & III.	None
Electrical Drafting	None
Production Planning..	None
Metals Application, Treatment & Testing.	None
Technical Illustration	None
Architectural Drafting	Architectural Drafting
Structural Drafting	None
Mathematics II.	Algebra
Mathematics III	Triginometry
Mechanical Science.	Physics
Science of Heat, Sound & Light.	Physics
Electrical Science.	Electrical Theory
Communication Skills I & II	None
Applied Economics	None
Technical Report Writing.	None
Employer-Employee Relations	None
Applied Physics I, II & III	None
Engineering Problems I & II	None
Industrial Safety	None
Health.	None
Physical Education.	None

*Suggested evaluation for application to Clackamas Community College curriculum to be made by joint committee of community college and high scholls in Clackamas County.

SUGGESTED ARTICULATION OF HIGH SCHOOL OCCUPATIONAL EXPLORATORY COURSES AND COMMUNITY COLLEGE CURRICULUM IN CLACKAMAS COUNTY

High School Exploratory Courses	Preparatory for Community College Curriculum
Electrical-Electronic Cluster	
General Shop (Including Electrical)	Electronic Technician
Basic Electricity	
Electronic I	
Physical Science	
General Science	
Health Cluster	
Family Living	Practical Nursing
Child Development	
Health	
Biology	
Health Career Club	
Mechanical Cluster	
General Shop	(Auto Mechanics
Power Mechanics	(Auto Body & Fender
Industrial Arts	(Machine Technology
Mechanical Drawing	(Welding Technology
Metal Work	
Industrial Education	
General Metals	
Crafts	
Exploratory Metal	
Office Cluster (Secty. & Bkkg.)	
Typing	(Secretarial
Shorthand	(Bookkeeping
Bookkeeping	(Office Clerical
Business Law	
General Business	
Record Keeping	

SUGGESTED ARTICULATION OF HIGH SCHOOL OCCUPATIONAL EXPLORATORY COURSES AND COMMUNITY COLLEGE CURRICULUM IN CLACKAMAS COUNTY

High School Exploratory Courses	Preparatory for Community College Curriculum
Business (Marketing-Distribution) Cluster	
General Business Distributive Education Business Law Commercial Law Business Organization	Business-Merchandising
Government (Public Service) Cluster	
Modern Problems Social Studies Occupational Psychology U.S.Government	Law Enforcement Fire Protection

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VT 004 805

A Position Statement Concerning the Development of Area Vocational and Technical Education Programs in Michigan.

Michigan State Dept. of Education, Lansing
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jul67 10p.

*AREA VOCATIONAL SCHOOLS; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *PROGRAM COORDINATION; *GUIDELINES; PROGRAM DEVELOPMENT; SECONDARY EDUCATION; POST SECONDARY EDUCATION
MICHIGAN

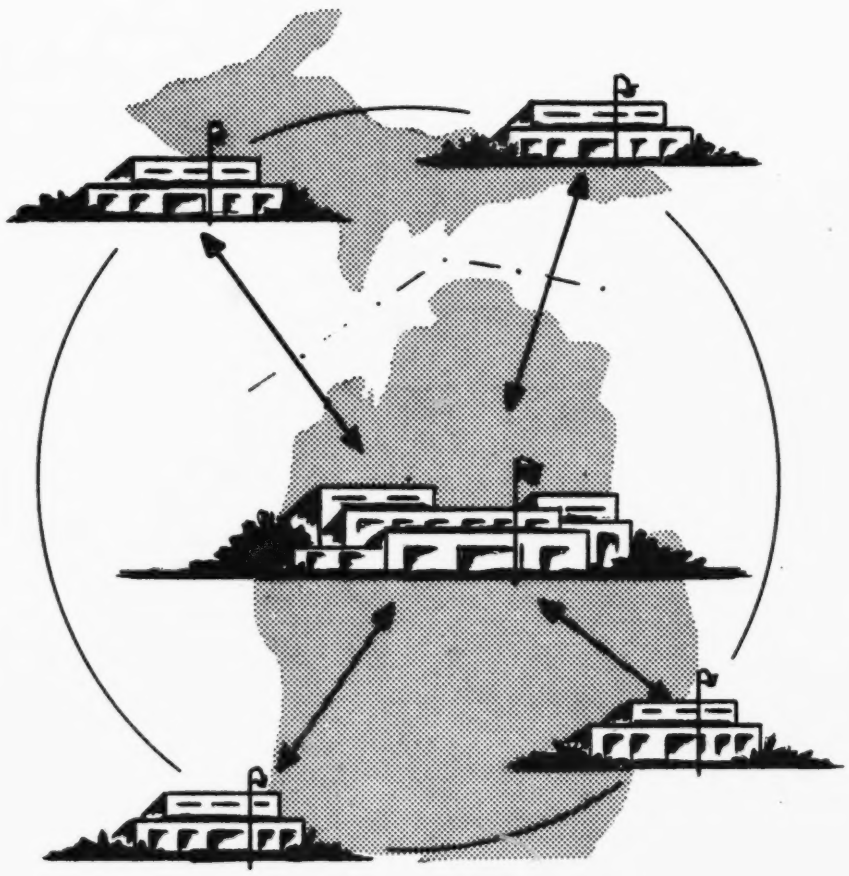
The area vocational and technical school concept emphasizes cooperative arrangements between two or more school districts. It is based upon the conviction that all persons should have easy access to quality vocational education programs directed to individual occupational preparation needs, abilities, and interests. It includes a centralized extension of vocational programs in high schools and of post-secondary vocational and technical programs. All districts should provide exploratory and pre-vocational programs at the junior high and early high school levels and expanded vocational training opportunities of area centers. Students enrolled in area vocational centers would spend half-time at the center and half-time at their home high school with their identity remaining with the home school. Differences between the several regions of Michigan keep a single pattern of organization from effectively serving all regions. Therefore, the local school districts, intermediate districts, community college districts, 4-year colleges and universities, and the State Department of Education must work cooperatively to plan, implement, and articulate area vocational-technical programs. Adequate continuing education in each region should be served by a community college offering post-secondary vocational-technical courses. (HC)

VT 004 805

ED0 36657

A POSITION STATEMENT

Concerning the Development of AREA VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS in Michigan



U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE BOARD OF EDUCATION
DEPARTMENT OF EDUCATION
LANSING, MICHIGAN

JULY, 1967

VT004805

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F O R E W O R D

During the past decade, life in America has been materially affected by a broad range of technological developments. As a result, American education is being challenged to provide youth and adults with expanded opportunities for becoming and remaining occupationally competent in the radically changing world of work.

Michigan's recently completed area studies of vocational-technical education consistently support the need for vocational education. They report, also, existing inadequacies in the extent and quality of vocational education in all regions of the State. These studies recommend the establishment of area vocational-technical education programs to serve better the occupational training needs of Michigan youth and adults.

This statement which has been approved by the State Board of Education is designed to provide suggested guidelines for the development of adequate vocational-technical programs on an area basis at both the secondary and post-secondary levels.

Ira Polley

Superintendent of Public Instruction

DEFINITIONS

The following terms are used frequently throughout this statement and require definition:

Vocational Education. The term "vocational education" refers to that phase of education designed to develop specific skills, abilities, understandings, attitudes, work habits and appreciations, encompassing specialized knowledge and information needed by youth and adults to enter and make progress in employment on a useful and productive basis. The term excludes education designed to prepare persons for occupations generally considered professional or which require a baccalaureate or higher degree. The term also excludes education which is intended for all students and is commonly known as General Education.

Technical Education. "Technical Education" is a phase of vocational education and refers to level of training and work capability. It is generally associated with semi-professional occupations which require broad technical competence based on proficiency in the application of mathematical, scientific or other principles.

Area Center. A building or complex of buildings designated by the State Board of Education to be used expressly for providing vocational education programs.

Facilities. When used in this document, this term means buildings and equipment.

THE AREA PROGRAM CONCEPT

The area vocational and technical concept emphasizes cooperative arrangements between two or more school districts, usually adjacent, or between high schools within large districts for the purpose of operating jointly-shared vocational education programs for people in relatively large geographical areas or areas of high population density. The area concept includes, also, post-secondary vocational and technical programs on an area basis through strategically located community colleges.

The area concept is based upon the conviction that all persons shouls have easy access to quality vocational education programs directed to individual occupational preparation needs, abilities and interests.

The area program serves as a centralized extension of existing vocational programs in participating high schools. Any program for which a single high school has sufficient financial resources and students may be offered in that school. To participate in vocational programs not provided in their home high schools, students would be transported to another facility for occupational training.

The area program concept provides that students retain their identity with, receive their general education in, and graduate from, their home high schools.

An area vocational program has the following advantages:

1. It provides for a broader tax base distributed over a larger population than is usually present in a single school district.
2. It avoids unnecessary duplication of equipment, services, and costs which might occur if two or more neighboring districts elected to offer identical or similar training programs.
3. It makes possible a broader range of curriculum offerings and, therefore, a more extensive program of occupational training opportunities.
4. It offers training opportunities to a larger number of persons than is possible in smaller schools serving single communities.
5. The area program concept is the best means through which single school districts lacking sufficient financial resources and/or students can provide adequate vocational education opportunities to enable all youth and adults to develop and maintain satisfactory occupational competence.

THE ROLE OF EDUCATIONAL INSTITUTIONS IN VOCATIONAL AND TECHNICAL EDUCATION

To assure that all Michigan citizens who need it will have ready access to adequate occupational preparation, specific responsibilities rest with the high schools, secondary area vocational centers, community colleges, four-year colleges and universities, intermediate school districts, and the State Department of Education.

The K-12 District. Each K-12 school district should provide elementary and junior high school students with an opportunity to acquire wholesome attitudes toward work and an awareness of the world of work.

These basic understandings should be integrated into the total school program by relating the student's basic education to the world of work. Some schools might elect to offer broad occupational exploratory programs at the junior high school level designed to further develop student interests, and would encourage and assist teachers and counselors to identify each student's interests and abilities prior to his high school entrance.

All K-12 districts should attempt to provide exploratory and pre-vocational programs at the junior high and early senior high school levels. These experiences should be organized as specific courses and be available to all students, and should include as many as possible of the major professional and non-professional occupational areas.

Vocational programs would not be generally offered until the later senior high school years (grades 11-12). Each K-12 district should consider offering all programs for which it has sufficient resources and interested students.

Every K-12 district should provide guidance and counseling for students at all levels to assist each to identify individual interests and aptitudes. The effectiveness of all vocational education programs is dependent upon quality guidance and counseling.

The Secondary Area Vocational Center. The secondary area vocational center should serve to expand the vocational training opportunities of participating K-12 districts. Those programs which cannot be provided by each individual district for lack of sufficient student demand and/or financial resources might be successfully provided in the jointly-supported area center.

Secondary area vocational centers should, in most cases, serve students in grades 11 and 12 whose needs cannot be met by vocational education courses offered in their own schools. Students enrolled in the center would usually spend one-half time there and one-half time in their home schools; however, their identity should remain with the home school.

The Community College. Adequate vocational education programs must provide for continuing education. To accomplish this, each region of the State should be served by a community college or be part of a community college district. The community college should serve as the post-secondary area vocational-technical institution. In some instances, a university or college offering vocational-technical education programs in their region can serve this function.

The community college should provide vocational and technical programs for post-high school students who desire to continue their education, and for out-of-school youth and adults in need of training or retraining. Secondary area vocational programs could be operated by the community college if requested to do so by K-12 districts involved.

The post-secondary institutions--community colleges and the four-year universities and colleges--need to plan for providing the specialized occupational training programs not available in all areas of the State.

Such a statewide plan is essential to avoiding undesirable duplication and competition and to make most judicious use of State and local funds.

The Intermediate School District. Intermediate districts should assist local school districts in any cooperative activities designed to facilitate and improve vocational and technical education programs. Where an area vocational center is desirable and cannot be provided within a single K-12 district, the intermediate school district can serve as the tax-levying and coordinating agency for developing an area program. The intermediate district would be required to enter into a contractual relationship with one or more of the constituent districts, or the community college, for operating the program. The intermediate district is not empowered by law to act as the operating agency for area vocational education programs.

The State Department of Education. The Department of Education recognized leadership as its principal role with respect to vocational and technical program development. While the concept of local autonomy is well established in Michigan, the Department accepts responsibility for providing guidance in the decision making process relative to local programs of education consistent with the provisions in the Michigan State Plan for Vocational Education.

The Department of Education must assume a supporting role by assisting educational agencies in the developmental process inherent in the continuous improvement of the total educational program.

Program articulation among the K-12 districts, secondary area vocational centers, community colleges and four-year colleges and universities is essential. Without this, the educational program will be less effective in preparing Michigan citizens for full participation in society and in the world of work.

ORGANIZATIONAL PATTERNS FOR AREA VOCATIONAL-TECHNICAL EDUCATION PROGRAMS

A multiplicity of difference between the several regions within the State dictate that no single pattern of organization will effectively serve all regions.

To secure maximum development of opportunities for vocational and technical education in all regions of the State, local school districts, intermediate districts, community college districts, four-year colleges and universities and the State Department of Education must work cooperatively to plan and implement area vocational-technical programs. Official designation will be given by the State Board of Education specifically for area center buildings and operating districts.

A. Secondary Area Vocational Programs

1. When designated buildings are used, two or more secondary districts could provide cooperatively an area program by using any of the following four patterns:
   a. Buildings owned and operated by and located at one of the participating high schools, or

b. Separate buildings owned by the intermediate district and operated by one of the cooperating school districts, or the community college serving the region, or
c. Buildings owned and operated jointly by two or more K-12 districts under an inter-governmental contract, or
d. Buildings owned and operated by the community college serving the region located at the college site or in other locations accessible to all people in the area.

These programs could be financed locally in the following ways:
a. By a tax levied by the intermediate district.
b. By charter millage or additional millage levied by the community college district to operate secondary programs.

It is possible to finance some area vocational programs on a tuition basis. However, due to the undesirable aspects of tuition arrangements, they should be used on an interim basis only.

2. School districts of the first and second class could own and operate area vocational centers by using facilities strategically located within their district and officially approved by the State Board of Education as area vocational centers. Financing area programs would be the responsibility of the operating district.

B. Post-Secondary Vocational and Technical Education Programs

Post-secondary area vocational and technical education programs should be operated and financed by the community college, or by a four-year institution offering vocational-technical education programs, in each region of the State.

Facilities should be located at the college site or in other locations readily accessible to all persons in the service area. If the region is also served by a separate secondary area vocational education center (as described in A.1.b., above), these facilities should be available to the community college for operating post-secondary vocational and technical education programs at times when not being used for secondary programs. This procedure will eliminate needless duplication of facilities within the area and will permit maximum utilization of the secondary area facilities.

VT 004 823
Martin, John M.
Lower-Class Delinquency and Work Programs. Training Series.

New York Univ., N.Y. Center for the Study of Unemployed Youth
Office of Juvenile Delinquency and Youth Development (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Center for the Study of Unemployed Youth, Graduate School of Social Work, New York University, 853 Broadway, New York, New York 10003 ($0.45).
Pub Date - Feb66 27p.

*REHABILITATION PROGRAMS; *DELINQUENT REHABILITATION; *LOWER CLASS; *JOB TRAINING; *CULTURAL FACTORS; DELINQUENCY CAUSES; DELINQUENCY PREVENTION; WORK EXPERIENCE PROGRAMS; VOCATIONAL EDUCATION; DELINQUENCY; SOCIOCULTURAL PATTERNS

In considering the complex relationships between delinquency and work programs, this presentation is based on the premise that in the community sense, power reinforces ideological commitments in deciding which explanations people will endorse or condemn with respect to the causation of crime and delinquency, and which efforts to prevent and control such behavior they will support. In appraising current efforts dealing with delinquency among lower class adolescence and youth, it is a fundamental fact that they are not innovative or human oriented. Although work programs and vocational training are considered to be mechanisms for social reform, basic changes and the life situation of the lower class are largely ignored by programs targeted on delinquency and related welfare problems. Basic economic and political issues which bear directly on the general welfare of the populations out of which most official offenders are drawn continue to remain essentially outside the concern of correctional, educational, and vocational programs designed to meet the delinquency problem. (CH)

VT 004 823

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LOWER-CLASS DELINQUENCY AND WORK PROGRAMS

by John M. Martin

TRAINING SERIES

VT004823

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LOWER-CLASS DELINQUENCY

AND

WORK PROGRAMS

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Professor of Sociology

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New York City

Prepared for:
NEW YORK UNIVERSITY
Graduate School of Social Work
Center For The Study of
Unemployed Youth
February, 1966

This paper is part of a project conducted by the N.Y.U. Center for the Study of Unemployed Youth under a grant provided by the Office of Juvenile Delinquency and Youth Development, U.S. Department of Health, Education, and Welfare to develop curriculum materials for program planners and operators.

LOWER-CLASS DELINQUENCY AND WORK PROGRAMS

Introduction

Contemporary America's endorsement or condemnation of particular programs intended to deal with crime and delinquency apparently is influenced primarily by the American people's public endorsement of particular interpretations of why such deviancy occurs. Such interpretations, more technically called theories, would seem to dictate the nature of what the American public through its representatives tries to do about curtailing such behavior. Closer inspection, however, reveals that such a connection is rather tenuous; indeed it may be called a connection in only a very special sense.

Several complicating factors may be noted. First, in almost any society many radically different interpretations about delinquency causation compete with each other for public support at one and the same time. It is difficult to pinpoint any one as the expression of the public mind. In the United States today, for example, social science perspectives are challenging psychiatric perspectives in the interpretation of delinquent behavior, while both compete with moralistic points of view.

Secondly, a particular interpretation or theory about the etiology of juvenile delinquency, for example, may be so broad and all-encompassing that it is impossible for any society to implement an action program capable of remedying the situation. Thus, for instance, it may be argued that the development of urbanization and industrialization in the modern world almost inevitably gives rise to drastically increased rates of delinquency. Significant as this generalization may be, mounting a meaningful action program to reduce the dysfunctional aspects of what in many other ways is a highly functional institutional arrangement taxes the best minds in our society.

Finally, almost unnoticed by the public at large, the forces of ideology and power work subtly but pervasively to influence the specification and the endorsement of the particular theories of crime and delinquency causation put forth in society, as well as the types of programs undertaken to deal with these social problems.

In the community sense, power reinforces ideological commitments in deciding which explanations people will endorse or condemn with respect to the causation of crime and delinquency and which efforts to prevent and control such behavior they will support. That communities and even whole societies are organized along a power dimension, in one kind or another of

social stratification system, is certainly no startling revelation. Many American observers have long recognized this, even while others have been heatedly denying the existence of such stratification. What seldom has been made explicit is that community power alignments — pitting interest group against interest group — are intimately involved in public policy questions in the area of crime and delinquency. That this should cause surprise is a very nice question in itself, since the existence of power alignments and accompanying cleavages and conflicts are readily noted on the international scene; while domestically, in such areas as union-management disputes, in the civil rights movement, and recently even in universities, such alignments are clearly seen.

If a demographic appraisal were to be made in the United States over the past decades of the characteristics of the people arrested, tried, convicted, placed on probation, sent to prison, or executed, one fact would plainly emerge: vastly overrepresented in all these categories are the poor and the near-poor, both white and non-white, but especially the non-white. A similar demographic picture would be created by an examination of juveniles apprehended by the police, brought to juvenile court for "help," and referred to training schools or probation for "treatment".

The criminal law and the police, judicial, and correctional agencies which support its function in such a way that, whether intended or not, a pronounced split or cleavage is worked in the society: on one side are the more established, more "respectable," dominant groups and their representatives, some of whom actually provide the manpower for law enforcement agencies; on the other, are lower-class populations, especially colored minorities, many of whose members never get in "trouble," but nevertheless from among whose ranks are drawn most of the populations dealt with by police, court, and correction.[1]

Still another facet of power and its relationship to crime and delinquency has not received much attention in public discussions. This is the view that the vast professional bureaucracies which have been created in modern society to deal with crime and delinquency and other types of long recognized social problems do themselves function as interest groups in the power sense.[2] The point here is not simply that policy formation in such bureauc-

1 For a general review of the evidence that the poor are grossly overrepresented in the law enforcement process, see Edwin H. Sutherland and Donald R. Cressey, **Principles of Criminology,** 5th ed., Chicago, Ill.; J. B. Lippincott Co., 1955, pp. 189-191; see also Frank E. Hartung, "Trends in the Use of Capital Punishment," **The Annals of the Academy of Political and Social Science,** 284:8-19 (November 1952).

2 Richard A. Cloward and Frances Fox Piven, "Politics, Professionalism and Poverty," paper prepaper for Columbia University School of Social Work Arden House Conference on, "The Role of Government in Promoting Social Change," Harriman, New York, November 18-21, 1965.

racies is under the control of community elites, which in fact seems to be very much the case. Rather the point is that such bureaucracies, alone and in coalition, are so organized and so structured that the chance for outside criticism and subsequent innovation and change is held to a minimum by a variety of devices and structural impediments. Instead of change, organizational equilibrium and enhancement are furthered by diverse means, including the formation of bureaucratic coalitions and their political constituencies and the consolidation of professional expertise, which typically involves either the subtle evasion or outright rejection of the views of so-called "non-professionals". Also vital to the maintenance of such equilibrium is the control and neutralization of "clients" themselves, especially by programs which whether by design or not prevent effective interaction among recipients and thereby prevent their possible collective political organization and action.

In sum, interpretations of the causes of crime and delinquency, as well as the types of programs developed to deal with such behavior, are intimately and extensively influenced by both ideology and power.[3] Because of our democratic ideals, it is perhaps easier, and certainly more comfortable, to recognize this in history and in anthropological studies of other societies than to acknowledge it as a valid observation applicable to the contemporary United States. Here it is much less threatening in the psychic sense, and far more rewarding in the interest group sense, to think of crime and delinquency as caused by the character traits of offenders themselves or by the "pathology" of their families than it is to see such problems as frequently rooted in vast social, cultural, economic, and political dislocations which serve to favor those who hold power. Thus it is easy to contemplate the punishment, adjustment, "treatment," and retraining of individual offenders and would-be offenders on a case-by-case basis, thereby striving to bring them into closer conformity with essentially middle-class models.[4] It is far more difficult and downright threatening to consider ways and means of redistributing organized, collective power which when more equally shared by **all** segments of society might then be used by the "under-classes" to question more decisively dominant life styles or even to challenge sharply the control of community institutions, including those whose job it is to deal with social problems among the poor.

3 For a further development of this same theme, see John M. Martin and Joseph P. Fitzpatrick, **Delinquent Behavior: A Redefinition of the Problem.** New York: Random House, 1965.

4 It should be noted that the long-standing controversy in penology between the punishment vs. the treatment schools of thought as to how best to deal with individual offenders is really only a quarrel over means. In boh instances the effort works to increase individual conformity to middle-class standards.

The Forms of Delinquent Behavior

In the public mind, delinquency means law violation by children, adolescents, and youth. In the legal sense, **juvenile** delinquency means behavior by individuals under a clearly stipulated age limit, most typically eighteen, which may provide the occasion for a juvenile court to take jurisdiction and to assign to the individual involved the legal status of juvenile delinquent. Such behavior is usually so broadly defined that it includes not only acts which if committed by an adult would constitute a crime, but also such behaviors as truancy, incorrigibility, and running away, which if committed by an adult would in no way constitute law violation.

In any careful consideration of adolescent and youth delinquency it is useful and in many respects necessary to categorize such law violation according to its sub-types. Although many students of the problem have not found it necessary to make such distinctions, and although the general public seems to conceptualize the problem of youth crime by means of a single crude stereotype which overemphasizes physical violence, the present trend in criminology is strongly toward conceptualizing both crime and delinquency according to its various forms of expression. Thus, for example, a recent publication about the young adult offender considers the types of offenses committed by such people according to the following breakdown: crimes against property, offenses against the person, offenses against the State and public order, traffic offenses, vagrancy and other minor offenses, and narcotics offenses.[5] Of the many other recent attempts to distinguish among various forms of delinquency and youth crime, one of the best known is Cloward and Ohlin's effort to identify, describe, and explain "conflict," "criminal," and "retreatist" types of gang delinquency as they arise among lower-class, urban populations.[6]

Examination of official statistics for young adult offenders leads to the clear-cut conclusion that almost everywhere offenses against property are the most numerous.[7] In the United States, for example, of some 486 thousand arrests in seven major offense categories reported during 1964 for persons under 21 years of age, only 5 per cent were aggravated assault, forcible rape, and criminal homicide, while almost 95 per cent were for larceny, burglary, auto theft, and robbery.[8]

5 **The Young Adult Offender: A Review of Current Practices and Programmes in Prevention and Treatment.** New York: Department of Economic and Social Affairs, United Nations, 1965, pp. 11-15.

6 Richard A. Cloward and Lloyd E. Ohlin, **Delinquency and Opportunity.** New York: Free Press of Glencoe, Inc., 1960.

7 **The Young Adult Offender, op. cit.,** p. 11.

8 **Uniform Crime Reports for the United States, 1964.** Washington, D.C.; United States Department of Justice, Table 21.

In the juvenile court the same general pattern seems to hold true, at least for boys who outnumber girls in the court about four to one. Thus, for example, from national data reported on by Cavan for 1957, some 62 per cent of the boys appearing in juvenile court that year were involved in some kind of property offense, including malicious mischief, whereas only 3 per cent were involved in injuring persons, and only 35 per cent in ungovernability and other miscellaneous kinds of offenses.[9]

Social Stratification in the United States

Modern American society is usually visualized as basically organized along the lines of a class system with easy reference being made to the subdivisions of "upper," "middle," and "lower" classes, each of which in turn is sometimes subdivided. Such distinctions are most generally made in terms of differences in occupation, income, and formal education, which are simply referred to as differences in "SES".

From this perspective marked and in some ways drastic changes have occurred in the American class system during recent decades. A comparison between the occupational structure of the United States for 1900 and for 1960 reveals, for example, that in sixty years time the occupational structure of the nation has shifted from its heavy involvements in manual, unskilled, blue-collar work toward progressively heavier involvements in skilled blue-collar and especially white-collar employment.[10] Comparable shifts have also occurred in family income.[11]

Based on such SES indices as these, it is clear that the proportion of Americans who can be classified as being lower class is declining, while the proportion belonging to other classes, especially the middle class, has markedly increased.

But social stratification in the United States has not developed simply as a social class system. It has also developed, and as Glazer and Moynihan has pointed out,[12] seems progressively to be developing, on the basis of ethnicity, race, and religion. Thus, in large American cities four major alignments are emerging: white Protestants, Catholics, Jews, and Negros. Depending on the region, additional groupings may be added, such as Mexican-Americans or Puerto Ricans. Such alignments are perhaps best visualized as parallel structures, existing side by side in the same community, which

9 Ruth S. Cavan, **Juvenile Delinquency.** Philadelphia: J. B. Lippincott Co., 1962, p. 28.

10 Murray Gendell and Hans L. Zetterberg (eds.), **A Sociological Almanac for the United States,** second edition. New York: Charles Scribner's Sons, 1964, Table 4.53.

11 **Ibid.,** Table 4.72.

12 Nathan Glazer and Daniel Patrick Moynihan, **Beyond the Melting Pot.** Cambridge, Mass.: The M.I.T. Press and Harvard University Press, 1963.

overlay in vertical fashion the horizontal divisions of the American social class system. In such a scheme, each of the involved ethnic-racial-religious parallel structures has within it its own horizontal social class divisions, although the proportion of each which is upper, middle, or lower class varies greatly from parallel structure to parallel structure. Thus, in New York City, for example, the number of Negros or Puerto Ricans who are lower class is very great, while the number who are upper or near upper class is very small; on the other hand, the proportionate class distribution of white Protestants is just the opposite.

Of the many complexities introduced into the analysis of social stratification in the United States by this overlay of ethnic-racial-and religious structures on the existing class system, one is particularly pertinent to the present discussion. This is the possibility that there has developed in America a Negro-Mexican-Puerto Rican lower class which, more or less isolated from the traditional routes of vertical mobility, does the dirty work at the lowest rungs of the occupational ladder, while at the same time pushing up to the next rung or two the lower-class whites, especially those who are native born.[13] In New York City, for example, where Negroes and Puerto Ricans constitute close to 25 per cent of the population, it is very likely that ". . . the overwhelming portion of both groups constitutes a submerged, exploited, and very possibly permanent proletariat".[14]

This is the residual class in which a variety of studies have revealed both official delinquency and youth unemployment, as well as numerous other social problems to be concentrated in the sense that far greater proportions of the members of this class are involved or characterized by such problems.[15] Thus, for example, more than 60 per cent of American non-white families in 1960 were living below the poverty line (i.e., with incomes below $4,000), contrasted with some 28 percent of white families.[16]

It is also in this residual class that class consciousness in the Marxian sense is beginning to develop, especially among Negroes as they respond to the challenges of the federal "War on Poverty" program and as they advance the cause of the civil rights movement. Class consciousness of this kind demands that ". . . there must be (1) a rational awareness of and identification with one's own class interests; (2) an awareness of and rejection of other

13 Kurt B. Mayer, **Class and Society.** New York: Random House, 1955, pp. 73-75.

14 Glazer and Moynihan, **op. cit.,** p. 299.

15 See, e.g., **Poverty and Deprivation in the United States.** Washington, D.C.: Conference on Economic Progress, 1962; **The Challenge of Jobless Youth.** Washington, D.C.: President's Committee on Youth Employment, 1963; **The Negro Family: The Case for National Action.** Washington, D.C.: U.S. Department of Labor, 1965.

16 **Poverty and Deprivation in the United States, op. cit.,** p. 55.

class interests as illegitimate; and (3) an awareness of and a readiness to use collective political means to the collective political end of realizing one's interests".[17]

The chief difficulty with standard SES formulations of social class and ethnic-racial-and religious modifications of this view of social stratification is that they tend to miss other cultural or subcultural differences which may exist within the various classes. A recent attempt to describe such differences in the American urban lower class proceeded in the following fashion.[18] First, the position was taken that differences in social opportunities available to different groups in areas such as income, jobs, education, and housing lead over time to the development of differences in: (1) family structure and neighborhood organization; (2) demographic characteristics, such as death and infant mortality rates; and (3) value orientations in four key areas relating to how man perceives, feels about, and relates himself to his environment, understood in terms of others, the material world, and the supernatural. There is no need here to dwell on the specifics of the value orientations involved in this analysis. The principal point is that differences in the value orientations shared by participants in the different subcultures making up the American urban lower class in turn lead to differences in behavior in four crucial areas: (1) the expression of religious and moral codes; (2) child-rearing practices and aspiration; (3) social action and politics; and (4) achievement, family life; consumer practices; and leisure activities. All four, in reciprocal fashion, feed back to influence strongly both the response different lower-class groups make toward available opportunities, as well as the kind of reception they get from those who man the entrance gates to opportunity structures.

This particular study concluded that, taken together, differences in value orientations and differences in behavior among urban lower-class populations can be conceptualized as falling into five different categories or subcultural life styles: **strivers; consistent copers; inconsistent copers; reliefers;** and **hold-overs.**

Although care was taken in this study not to make value judgments about the relative "worth" of each of these subcultures, the investigator clearly recognized that society itself, operating from a middle-class perspective, does rank these subcultures hierarchially, from strivers down to hold-overs. Furthermore, it was acknowledged that strivers, for example, by

17 C. Wright Mills, **White Collar.** New York: Oxford University Press, 1951, p. 325.

18 Madeline Helena Engel, **A Reconceptualization of Urban Lower Class Subcultures.** New York: Juvenile Corrections Project, Department of Sociology and Anthropology, Fordham University, January, 1966.

virtue of their life style are far more compatible with the core culture of industrialized, urbanized, and highly competitive America, than are life styles closer to the bottom of the hierarchy. Lastly, it was clearly stated that the different value orientations and behavior patterns manifested within each of the five subcultures differentially equipped participants to rise toward or into the urban middle class.

Thus, in terms of the present discussion, strivers are more employable or are already employed, are more anxious to move upward when given the opportunity, are more likely to have children who are making out reasonably well in school and who are also apt to be only slightly involved in delinquent behavior. In sum, the emphasis strivers put on respectability, security, and mobility works to make their children, compared to those from other lower-class subcultures, highly employable and only slightly delinquent. On the other hand, the variables of employability and delinquency appear to reverse themselves progressively and drastically when attention is shifted toward the other end of the lower-class hierarchy where the hold-overs are found. Hold-overs who linger on in urban slum areas, sharing the maladapted life of alcoholics, derelicts, addicts, psychotics, and "hard core families" at the bottom of the heap are almost totally unemployable, while at the same time highly delinquent in a chaotic, disorganized way. In the middle of the hierarchy, where the inconsistent copers are located, employability is mixed, with work being intermittent and often at jobs on the docks or in construction where there is a daily "shape-up," and delinquency tends to be moderately high and often of the violent gang type. The key to understanding inconsistent copers is that they have a life style which emphasizes fun, excitement, thrills, and a general escape from boredom and routine.

Finally, in terms of this typology, each ethnic-racial-and religious segment of the urban lower class may be visualized as containing within it all five subcultures, but in far different combinations or proportions. Thus the Irish Catholic segment of the lower class in Boston or New York City, for example, is likely to contain far more strivers and consistent copers than reliefers and hold-overs. On the other hand, lower-class Negroes in the same cities are likely to cluster much more in the latter than in the former categories.

Delinquency and Work

For centuries unemployment, idleness, poverty, and deprivation have been cited as explanations for crime and delinquency. In Elizabethan England, for example, with the decline of feudalism, the growth of towns and trade, the rise of pauperism, and the sharp increases in property crimes and

crimes of violence, distinctions were made in highly moralistic terms between the "worthy" and the "unworthy" poor. The former were defined as "good" people who because of age, illness, or injury were unable to work; the latter as "bad" people who would not work and who were therefore fit subjects for workhouses where they could be made to produce.

Although these notions are widespread even today, the development of modern social and behavioral science has led to the articulation of more sophisticated views about crime and delinquency causation. Some of the more recent interpretations have cited the built-in "criminogenic" characteristics of highly competitive modern societies, conflicts in social norms wherein one set of definitions holds to be criminal that which is considered quite acceptable or even highly commendable by other social definitions, structural dislocations in society which result in the development of socially induced personality stress leading toward criminality, various forms of family pathology which result in the inadequate socialization of children who become delinquent, and various psychopathological interpretations of a given individual's criminal behavior.[19] The list can of course become almost inexhaustible. Nearly every man has his own particular interpretation of why people do not act as he thinks they ought to act, especially why the people he calls "criminals" act as they do. In part such differences reflect deeply seated differences in the personality of definers themselves, but such differences in interpretation also reflect differences in the social climate of the times. Thus, when psychology was on the rise in the United States, during the years after World War I to about 1960, to pick a somewhat arbitrary second date, it was widely held that criminals and delinquents were atypical in terms of their psychological traits. During the earlier part of this time period they were seen as feebleminded. Later, after the acceptance of psychoanalysis, they were seen as suffering from some kind of personality disturbance, or defect which, in turn, was typically viewed as rooted in faulty family life. During the last five or ten years in America the fashion in the study of crime and delinquency causation has shifted more and more to broader social and cultural analysis. Right now, growing out of an increased acceptance of "opportunity" theory, first reactivated by Cloward and Ohlin,[20] and also because of the present War on Poverty, more attention is again being paid to poverty and unemployment as causes of crime and delinquency.

Does poverty cause delinquency? Does unemployment cause delin-

19 For a more detailed survey of various theories of delinquency and crime causation, see Martin and Fitzpatrick, **op. cit.,** Chaps. 2-4.

20 Cloward and Ohlin, **op. cit.**

quency? Put boldly and bluntly, both questions are difficult, and perhaps impossible, to answer. Some poor people commit crime. Some do not. Some unemployed commit crime. Some do not. Some rich people, both employed and not employed, commit crime. The situation is most confusing. What is known seems to be essentially this, although even here the evidence is not completely solid: on the gross statistical level and dealing only with officially reported cases, crimes by juveniles seem to decrease somewhat with general unemployment; on the other hand, crimes by adults seem to increase sharply with unemployment and to decrease sharply with full employment.[21] Since property crimes far outnumber crimes against the person in official statistics, the conclusion regarding adults seems to make especially good sense. It is also known that there is a close relationship between property crimes by juveniles, which is also their most important type of offense, and unemployment rates in comparable age groups.[22]

Yet, just because two things vary together does not necessarily mean one causes the other, as every good research person knows. Both may simply vary together in response to other unspecified forces.

The same observation may be made with respect to evidence that shows very clearly that regularity of pre-prison employment is related to successful adjustment upon release from prison.[23] Again both may reflect a third variable. This possibility has caused a number of criminologists to take what some may consider an overly-cautious stand with respect to the causal role poverty and unemployment play in crime and delinquency. In essence the position is this:[24]

> The study of economic conditions and their relationship to crime and delinquency does not demonstrate that economic conditions per se, unrelated to psychological variables and considered outside of social definitions, are important causes of this kind of deviancy; a causal relationship may well exist, **but** it is mediated through some additional condition such as envy, bitterness, or the desire to succeed at any cost, or because adverse economic conditions operating in company with historically different cultural traditions define crime and delinquency, especially

21 Daniel Glaser, **The Effectiveness of a Prison and Parole System.** Indianapolis, Inc.: The Bobbs-Merrill Co., Inc., 1964, p. 9.

22 Belton M. Fleisher, "The Effect of Unemployment on Juvenile Delinquency," **Journal of Political Economy,** 81:543-555 (December 1963).

23 Glaser, **op. cit.,** p. 233; Lloyd E. Ohlin, **Selection for Parole.** New York: Russell Sage Foundation, 1951, Chap. 4.

24 See, e.g., Sutherland and Cressey, **op. cit.,** pp. 189-195; Harry Elmer Barnes and Negley K. Teeters, **New Horizons in Criminology,** third edition. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1959, Chap. 9; Martin and Fitzpatrick, **op. cit.,** pp. 77-80.

predatory forms of such deviancy, as acceptable modes of behavior for given populations in solving the problems they face.

Thus, in the case of an individual actor, the question is really not the degree of his poverty or unemployment alone. To this must be added certain psychological traits or inculcated cultural definitions which set him up as ready to react with a predatory response once a problem which he believes can be "solved" by such a response presents itself. When poverty and unemployment **plus** such psychological traits and cultural definitions can be shown to be endemic in populations which constantly face the most severe economic hardships, then very high rates of theft and other property crimes among such groups cannot only be tabulated, they can also be explained. When such traits and definitions are absent or greatly reduced in a population, then, despite its degree of poverty, the group can be expected to have a low property crime rate.

Given these qualifications and cautions, it does seem fair enough to conclude that property crime among lower-class populations, which constitutes the bulk of the official crime problem in modern society, does frequently represent a kind of economic activity. Glaser has put the matter succinctly in terms of the imprisoned offenders he studied: most convicted offenders follow a "zig-zag" path in terms of their careers, alternating back and forth between legitimate and illegitimate means of pursuing economic and other goals, depending both upon the relative availability of, and the relative degree of satisfaction provided by, such means.[25]

This brief review of the relationship between poverty and crime and delinquency, sets the stage for a more detailed review of various work programs society has devised for its offenders and would-be offenders. Actually of course both poverty and unemployment as explanations of crime, and work programs as methods of dealing with criminals are very closely related notions. For one thing, acceptance of such explanations suggests the immediate need for programs devoted to putting criminals and would-be criminals to work in the hope that perhaps they can learn a trade or in some other way benefit from such an experience. For another, if work programs for prisoners have been started, for example, because the products of their labor can be sold at a profit, there is a marked tendency to try to justify such programs with the rationale that work is good for prisoners, that it teaches them honest habits, and that it prepares them to take their places at good and honest jobs once they are released.

Not only does lack of work as an interpretation of the cause of crime and delinquency logically lead to the establishment of work programs for dealing

25 Glaser, **op. cit.**, pp. 465-466.

with such deviancy and vice versa, but, as was suggested in the Introduction to this paper, ideology and power, through history, have also been heavily involved in the endorsement and active support given to such points of view. Thus, almost without exception, the idea that jobs would do much to reduce the crime problem and that criminals and delinquents should be taught, encouraged, or made to work has been advanced by spokesmen for those groups that hold the power in society. In this respect, established society's official attitudes toward work and criminals represent a most interesting example of what Hofstadter calls "status politics".[26] Politics in the conventional interest group sense means political struggle over materialistic issues, such as jobs, money, or land. Status politics, which is a much more subtle term, means a struggle over deep psychic and cultural commitments to other values which are taken as ultimate goals shaped in large measure by rigid moral and religious attitudes and beliefs. Those playing the game of status politics quickly and enthusiastically transfer their views to broader social and economic questions which relate not just to how they themselves should live, but also to how all members of society should live. When moved by these forces, such people easily try to solve the most complex social problems on the basis of faith and morals rather than on the basis of fact. Carried to its extreme, status politics within a society can and often has amounted to a kind of domestic jingoism in which those in power use all devices at their command to effect the compliance of non-conformers.

Status politics is a useful concept for analytical purposes in terms of the present discussion. The traditional ascetic Protestant view, which although waning is still widely shared by many Americans, Protestant and non-Protestant alike, defines work in two ways. Work is first of all quite naturally a way of producing goods and services. It is also much more. It is also a means for instilling moral discipline, as well as a reward for virtue and industry. In terms of this perspective, work for delinquents and criminals seems not only very just and very moral, but also highly efficacious as a means of reforming the individual wrong-doer.

Needless to say, wrong-doers themselves have had comparatively little to say, in a public way, about the idea that they should work. They have had especially little to say that has gone on the public record and that has influenced public policy about whether or not they should work at the kinds of low-status and sometimes arduous types of labor typically open to them or forced upon them. Nevertheless, it seems reasonable to venture that, even after allowances have been made for ethnic and other differences, most wrong-doers are much less interested in work per se, particularly work that

26 Richard Hofstadter, **The Paranoid Style in American Politics.** New York: A. A. Knopf, 1965, pp. 81 ff.

borders on exploitation, than they are interested in obtaining satisfying, decent-paying, steady jobs which they may even define as jobs with a future. There is little in history that suggests the idea that work for criminals, delinquents, and the nearly so has meant employment in the latter sense. Rather it has in actuality meant enforced labor while in custody; lower-class jobs with little real hope of vertical mobility upon release; or unemployment or marginal employment augmented by welfare assistance. Thus, for example, Glaser found that even though many of the prisoners he examined were very interested in moving up to better jobs after release, only a few actually achieved them. For most, post-release jobs meant semi-skilled, unskilled, menial, or odd jobs, including the most unstable types of employment. For many others, total unemployment was the mode of adjustment.[27] In commenting upon this aspect of his study, Glaser forthrightly noted that because of their limited employment experience and education, as well as because of the stigma associated with a prison record, the career aspirations of the prisoners and parolees he examined were **unrealistic.**[28]

Many would perhaps concur with this conclusion. On the other hand, it would seem that many others would just keep on hoping despite the evidence. The latter would seem to include numerous people who advocate and run work and vocational training programs designed to assist or rehabilitate actual or potential delinquents and criminals. Mostly of course the matter is not even discussed, at least officially, and the general impression lingers that such programs efforts will somehow or other result not only in work for this segment of the population, but also that such people, through honest, steady work, do have a good chance of moving up the social class ladder. One of the very few programs in the correctional field that faced this problem head on was the now defunct "Provo Experiment" for habitual teenaged delinquents in Utah. The authors of the article which originally reported this program put the matter in this way:[29]

> "The first consideration involved the necessity of establishing (a program) structure which could pose realistically and clearly the alternatives open to habitually delinquent boys. What are these alternatives? Since in most cases delinquents are lower-class individuals who not only lack many of the social skills but who have been school failures as well, the alternatives are not great. Some may become professional criminals but this is a small minority. Therefore, most of them have two principal

27 Glaser, **op. cit.**, Chap. 14.

28 **Ibid.**, p. 313.

29 LaMar T. Empey and Jerome Rabow, "The Provo Experiment in Delinquency Rehabilitation," **American Sociological Review**, 26:679-695 (October 1961).

choices: (1) they can continue to be delinquent and expect, in most cases, to end up in prison; or (2) they can learn to live a rather marginal life in which they will be able to operate sufficiently within the law to avoid being locked up. Acceptance of the second alternative by delinquents would not mean that they would have to change their entire style of living, but it does mean that most would have to find employment and be willing to disregard delinquent behavior in favor of the drudgery of everyday living."

But despite this candid exception, most programs designed to correct, rehabilitate, or assist young offenders or young potential offenders through work seem to avoid carefully any conclusion that, even when outright unemployment can be overcome, little or no social mobility can be expected to occur for many, perhaps most, of their charges. Most agencies are simply silent in this regard, leaving the assumption implicit that their programs can be expected, given enough money and personnel, to render "valuable service" to most of their clientele. Usually a small but highly visible number of "successful" graduates can be cited, or a large number of cases served or contacted can be enumerated, to lend weight to this conclusion. Some agencies, particularly prestige-conscious private ones which have greater freedom in selecting clients than do public agencies, point out that they can work successfully with only "selected" cases, but the criteria of selection are often soft and most imprecise. Almost no agency attempts to put the matter bluntly in terms of:

— a description of just which types of inmates, trainees, or clients can be assisted to become vertically mobile through its work and training program;

— a description of just which types will probably remain non-mobile, even if they manage to become employed; and

— a description of just which types are probably destined to live out their lives among the ranks of the unemployed, and under the perpetual care of welfare, correctional, and mental health agencies which function to meet the survival needs of the residual group.

One reason why both agencies and public decision makers speak softly or not at all about such matters is that it would be an extremely unpopular position to take in a society which places strong emphasis on both humanitarian and egalitarian values. Another reason lurking just below the level of public consciousness may well be the realization that such frankness would reveal that almost every contemporary program aiming to engage delinquents and near-delinquents in work is likely to leave behind virtually un-

touched a large residue of individuals whose only future is membership in a pauper class. Except for the most pronounced Social Darwinist, today hardly anyone, particularly anyone likely to become a member of such a class, would fondly embrace this revelation. Finally perhaps, athough there are a few exceptions, most agencies addressing themselves to the delinquency problem do not visualize their programs from the perspective of social class. They are so sharply focused on adolescents as **individuals** from a moralistic, educational, training, work, or psychiatric perspective that they fail to understand the social class consequences of what they are doing.

A brief historical review of various work and training programs designed to deal with offenders will provide additional understanding of the kind of work and the nature of the work situations offered to or forced upon criminals and delinquents today.

After the decline in the use of torture and execution as a means of dealing with criminals, work under the conditions of enforced confinement was gradually substituted as a means of punishing, disciplining, training, or otherwise dealing with offender populations. Beginning in late 16th and 17th century Europe, interim methods included transportation to overseas colonies and galley slavery, but these methods themselves may be viewed as special forms of enforced labor. The social movement toward enforced labor programs as a means of dealing with criminals seems clearly related to a number of basic changes occurring in Western society at the time, including the Reformation and the rise of the Protestant Ethic, the beginnings of the Industrial Revolution in the late 18th century, and the development of the Age of Enlightenment. The last particularly seems to have given special impetus to the devolpment of prisons and other types of humanitarian "total institutions" as a means of dealing with individual offenders, especially after the early 1800's. Given the development of penitentiaries and other kinds of residential facilities for criminals, it probably seemed natural, sensible, and very moral to the decision makers of the time to put the inmates of such institutions to work, especially if the fruits of their labor could be used to pay for the costs of their confinement, to support their families, and even to make a profit for the state or for private entrepreneurs.

By the end of the 19th century and during the first years of the 20th, prison industry in the United States was in its heyday. However, slowly from the outside, largely because of the Great Depression in the 1930's organized labor and organized management began to pressure for legislation that would curtail competition from this source. Although World War II gave a new breath of life to prison industry, the respite was brief. Actually by 1940 restrictive state and federal legislation had so effectively curtailed prison

industry that today only a small percentage of prisoners are employed in industrial tasks.[30]

Vocational training instead of actual production came into vogue for juveniles and younger adult offenders with the development of "houses of refuge," reform schools, and training schools, some of which today are still called industrial or agricultural schools, and with the reformatory movement. The keystones to programs in these early institutions for young offenders were: hard work, stern discipline, and education. The roots of training schools and reformatories can be traced back at least to the very early 1700's when Pope Clement XI opened an institution to be run along monastic lines for the reformation of wayward youth. By the early and middle 1800's houses of refuge for children in trouble began to be founded in New York City. The first state reformatory for young adults was opened in Elmira, New York, in 1876. In the decades following a large number of other reformatories were opened in various states and by the federal government. As described by Z. Brockway, who was the first superintendent at Elmira, the ideal reformatory program sounds surprisingly modern. Key phrases written by Brockway indicate this: ". . . modern sanitary appliances . . . cleanliness . . . liberal prison diet . . . scientific physical culture . . . manual training . . . trade instruction . . . a curriculum that reaches from an adaptation of the kindergarten . . . up to the usual high school course . . . special college subjects . . . a well-selected library . . . religious opportunities."[31] The history of criminology shows, however, that the reformatory movement never really got off the ground. It was never able to implement vigorously the ideas upon which it was based. A number of difficulties intervened, including the central problem of the inherent conflict between the interests of custody and those of training and rehabilitation in a "total institution" given over to the care of young adult offenders, many of whom were quite difficult to contain. Yet the belief that work — in this case, vocational training, remedial education, sound athletics, and a good diet, buttressed today by limited amounts of casework services, psychology, and psychiatry — is good for wayward youth remains clearly evident in today's institutional programs for young adult offenders and in many institutions for juvenile delinquents, particularly those operated under public auspices. In other institutions for delinquents, some of which are now called residential treatment centers, work and vocational training are de-emphasized and, in keeping with the fashions of the day, remedial education and psychiatrically-oriented therapy are stressed. Yet, even in such settings the vestiges of older work-oriented programs often remain.

30 Barnes and Teeters, **op. cit.**, pp. 533-537.

31 **Ibid.**, pp. 426-427.

Work and work training for delinquents, youthful offenders, and other problem individuals of similar age are also very much emphasized in various non-institutional programs striving for the adjustment of such types. Thus, for example, work history and work potential play important roles in selecting candidates for probation and in the probationary supervision of both juvenile and youthful offenders by representatives of appropriate courts.[32] Probation, now so common, can be traced back at least to the work of John Augustus, a Boston shoemaker, who in the middle of the 18th century took numerous minor offenders under his care in an effort to make them into "sober, industrious" citizens. Today in selecting those to be placed on probation, a good deal of care is taken to see that the privilege is granted only to those whose personality traits, educational achievement, family stability, and work history mark them as "good risks". Other things being equal, alolescents and youthful offends with stable educational and work histories are far more likely to be placed on probation than those without such attributes. Even when young probationers fail to exhibit these traits to any marked degree, the terms of probation typically require that they, as well as other probationers, stay in school or stay employed, although given the low educational and work capacities of the average young probationer, the rule is applied very flexibly.

The same emphasis on work and education is found in the parole field as it is practiced with adolescent and youthful offenders released from institutional care.[33] Modern parole was first adopted by New York State in 1869, in the same law authorizing the Elmira Reformatory. Parole as a system, however, traces its roots into earlier history in both Europe and the United States. Assistance to ex-prisoners was rendered by American philanthropic societies as far back as the late 1700's. In 1845 Massachusetts appointed the first state agent for this purpose. Today, requirements for release on parole cite the perennial "a home and a job" or the equivalent in terms of educational plans for younger offenders. But again, as in probation, this rule is usually very liberally interpreted.

During the last few years in the United States, various non-correctional programs aimed at delinquency prevention have sprung up, many of which are sharply focused on work as a means of overcoming delinquency. A current program in Kansas City, Missouri, illustrates this trend.[34] This six-year program, which will terminate in 1969, is based on Robert J. Havighurst's notion of work as a delinquency-prevention devise. Working with "predelin-

32 For a description of probation, see Sutherland and Cressey, **op. cit.,** Chap. 21.

33 For a description of parole, see **ibid.,** Chap. 28.

34 **Youth Programs in Perspective.** Washington, D.C.: United States Department of Health, Education, and Welfare, 1965, pp. 17-19.

quent" boys in the Kansas City Public School System, the program is attempting to test the hypothesis ". . . that boys vulnerable to delinquency will become less delinquent if they are given a systematic work experience. . . ." In three stages the effort, starting with eighth grade boys, is slowly striving to place these boys in full-time jobs by the time they reach 18 years of age. The underlying idea in this program, as in many others, ". . . is that work has intrinsic value and can be used to steer wayward youth onto the right tract".

Many other community programs in the delinquency or closely related fields are moving in the same direction. For example, under the leadership of the President's Committee on Juvenile Delinquency and Youth Crime, by late 1963 some eighteen community-based anti-delinquency programs were started with federal, local, and foundation funds. Although these new programs were specifically charged to demonstrate methods for bringing about institutional change rather than simply individual adjustment as a means of preventing delinquency, to date most of the money and effort in these programs has been service, rather than reform, oriented. And service in these programs, although highly innovative in some ways, emphasizes heavily job training and remedial education as efforts to better equip individual youngsters with delinquency-prone backgrounds to find a place in the on-going world. Thus, much as is true of the more traditional correctional approaches to delinquency through work and remedial educational programs, the more recent community-based programs also put the heaviest stress on individual change and adjustment.

This also seems to be essentially true for many of the new federal War on Poverty programs, which in some respects are direct descendents of community-based anti-delinquency programs. In others ways the new anti-poverty efforts resemble the Civilian Conservation Corps and National Youth Administration programs of the late 1930's. Thus, the Job Corps, the Neighborhood Youth Corps, the College Work-Study program, and the Head Start program — all aimed at underprivileged children and youth — seem to be essentially geared to better equipping young people through education and work training to slip quietly into their established place in their already well-established communities. It remains to be seen whether or not the controversial heart of the federal law which set up The Office of Economic Opportunity can be used by the poor at the local level for social reform, or whether it will end up as another idealistic, opportunistic, but essentially undelivered or undeliverable promise. This provision, which by now hardly needs to be quoted, states that local anti-poverty programs financed by federal funds must be "developed, conducted, and administered with maximum feasible participation of residents of the areas and members of the groups served".

At the moment, the future looks fairly bleak in this regard. Despite the existence of the O.E.O. legislation, the civil rights movement, court rulings, and various executive orders and other legislation, both local and federal, the old dilemma remains. Modified a bit and dented in places, but still reasonably intact is the basic ideological and power conflict between on the one hand American egalitarian ideals, and on the other, the insistence by major portions of American society that other portions, especially colored minorities, shall not be allowed to pass up the social ladder to affluence and power.

In sum, almost all programs attempting to deal with the problem of delinquency through work remain centered on providing some kind of actual work experiences, vocational training, or remedial education. All three are used as means for enabling **individual** delinquents, youthful offenders, and the nearly so to fit better into the present framework of economic institutions. Despite the civil right movement and other efforts at social change and institutional reform, delinquency prevention and control programs, as well as the new federal anti-poverty programs, remain essentially conventional in the manner in which they address themselves to the relationships between delinquency and the world of work. Finally, almost all programs, past and present, seem to ignore or slight the consequences of developing and multiplying programs which tend to serve effectively only the so-called "better" cases which in social class terms may be expected to be those already closest to the middle class in appearance, behavior, attitudes, motivation, values, and, in sum, general style of life.

Summary and Conclusions

The fundamental fact to be faced in considering present efforts to deal with delinquency among lower-class adolescents and youth is that they are not so very different from efforts which were used a hundred or even two hundred years ago. This year, as in past years, the central effort is to seek better to adjust and fit individual delinquents and potential delinquents into the ongoing social system. The delinquent himself remains the patient, not society. Personal deficiencies of one sort or another, depending upon the fashion of the times, are perceived to be at the root of the problem. Control, adjustment, treatment, training linger on as the key words. Today work programs and vocational training are back in vogue. But today as yesterday social reform in terms of basic changes in the life situation of the lower class is largely ignored by programs targeted on delinquency and related welfare problems. Basic economic and political issues which cut deep into the very heart of the manner in which society is organized, and which bear directly on the general welfare of the populations out of which most official offenders are drawn, continue essentially to remain outside of the concern of correc-

tional, educational, and vocational programs designed to meet the delinquency problem.

The second fact to be understood is that existing programs continually fail to make explicit what they are trying to do, or more significantly, what they are **not** trying to do. Almost all efforts to describe existing programs portray them as being inherently on the right track. Deficiencies, when they are in fact acknowledged, are defined not as deficiences in basic orientation and purpose, but as shortages in trained personnel and in the lack of sufficient money really needed to do a good job. The sponsors, directors, and workers in present programs almost never acknowledge, perhaps even to themselves, that by seeking to render service to delinquents and near-delinquents on a case-by-case basis by means of a traniing or therapeutic model they are ignoring the economic, political, and social class dimensions of the behavioral problems they are attempting to solve. Certainly no hint is ever given that present programs may actually contribute to the political impotency of lower-class populations. Thus, in carrying out their work, program managers typically seem committed with little reservation to an "order theory" of society which addresses "social problems" in terms of more efficient methods of social control whereby individual "deviants" may be better absorbed or assimilated into what is perceived to be a "healthy" dominant segment of society. Even when it may be crucial for understanding the nature of the problems which confront them, program managers usually act as though they never heard of a "conflict theory" of society which, viewing society as a contested struggle between classes and other collectivities, with opposed aims and perspectives, addresses "social problems" in terms of radical transformations in the existing social system and equates "health" with the unrealized aspirations of subordinate but rising interest groups.[35]

The final fact to be grasped is that present programs simply do not have the power to reach in any general way all significant sectors of the lower-class population. True, present efforts can be expected to reach some members of the target population, but chiefly those whose group value orientations and behavioral patterns already approximate those characteristics of the middle class. Thus, today's efforts can be expected to single out and move up those members of the lower class who are already closest to the middle-class life style, leaving behind all those who do not measure up.

Taking all this into account, what can be done to improve matters? Many ways of proceeding can and have been suggested. None offers any quick or total solution. Lower-class delinquency can be reduced, but it can hardly be

35 For a discussion by sociologists of the differences between order and conflict theories of social problems, see Commentary and Debate, **American Journal of Sociology,** 71:701-721 (May 1966).

eliminated. Given this caution, what might be done? How can some gains be made?

Grant for the sake of discussion that much lower-class delinquency involves economic motives in the sense that a deprived boy steals money to buy something he otherwise could not afford, or that a poor but attractive girl sells herself to a series of sexual partners to be able to dress well or to help out financially at home. Grant also that economic deprivation in the long term sense results in absent fathers, youthful alienation, and in many other consequences that are believed to be linked to delinquency. Yet, much lower-class delinquency (the exact amount is unknown) is simply not rooted in economic need. It is especially not rooted in economic need which can be met quickly and easily by a work program for today's adolescents and youth who are, or who are close to being, delinquent. Some examples of this are deviant behavior undertaken for fun, "kicks," or excitement, or for the purpose of achieving status or "rep," or for the ends of maintaining in-group solidarity or security, or finally as a way for acting out deep-seated psychopathologies not grounded in economic deprivation. A work program for young people given to engaging in such behavior just does not make sense as an appropriate means of dealing with their delinquency, especially if the young people involved have adjusted, or are in the process of adjusting, in some kind of satisfactory fashion to an educational or work role, as may often be the case. Work programs make sense as delinquency prevention devices only with respect to those delinquents and those forms of delinquency which can reasonably be explained by a lack of work. Thus, for example, work programs that focus sharply on entry-level jobs, paying $1.25 to $1.50 per hour, may have some impact, in delinquency prevention terms, on loosely knit and violence ridden "Slumtowns" where unemployment is high and income extremely low; however, such programs are likely to have much less impact on the youths of our tightly knit "Racketvilles," where both legitimate and illegitimate employment opportunities are reasonably good and income is up, or on the youths of our partially knit "Haulburgs," where the theft subculture is well developed and where income is also up.[36]

Three sets of variables are involved in the problem: types of work programs, types of delinquents, and types of delinquency. Only the first — types of work programs — is under the control of the program designer. The other two are conditions with which he must come to grips. Subcultural analysis, of the kind suggested in this paper, would seem to be a practical way for the designer of work programs to address the difficult question: What kinds of delinquents can be expected to profit from what kinds of work programs and

36 For a description of these three types of communities, see Irving Spergel, **Racketville, Slumtown, Haulburg.** Chicago, University of Chicago Press, 1964.

what kinds of delinquency are likely to be reduced by such programs? Three general strategies can be suggested for answering this question.

First, a great deal more attention can be paid to identifying, describing, and counting the kinds of adolescents and youth who can profit most from existing work programs, both those in residential institutions like training schools, and those that are community-based and non-residential in nature. Moving in on this task by means of subcultural analysis would seem to be a most promising approach. To do it, program designers would have to learn to think in **cultural** terms rather than in terms of an individualistic or psychological perspective which now is most common. The switch would be difficult, but perhaps rewarding since it would focus attention on the collective or shared quality of the problem. A case, a client, or a trainee would be seen not as an isolated individual, but as a representative or specimen of a specific style of life. His life style could then be assessed in terms of how closely it matched the type of training offered by the program, and a judgment could be made as to whether or not such a person could be expected to profit from the available program. Those who were likely to benefit could then be involved, and those unlikely to profit, excluded, thus cutting down on the drop-out or failure rate.

As experience built up with respect to such distinctions and as estimates could be made about the number of adolescents and youth who need to be effectively reached by existing work programs, some judgments could be made about the necessity for developing radically different programs to deal with those whose life style simply did not permit them to profit from present programs. Once started a strategy could be developed by which the cultural life styles of youths could be "matched" with appropriate types of jobs and kinds of job training. Obviously not all jobs are the same, nor do they appeal equally to youth with different life styles. Just as obviously, our economy finds it difficult, if not impossible, to absorb given types of youths, such as reliefers and hold-overs. In some such instances, work in the usual sense may be quite unrealistic and work programs inappropriate. If the number of persons unlikely to be reached by existing work programs proved large — say 25 to 40 per cent of all those in need — then the pressure would be on to do something drastic, in or outside of work programs, about dealing with as many as possible among the excluded population. This pressure would be doubly increased when it became apparent, as it probably soon would, that those not effectively reached, say hold-overs, reliefers, and many inconsistent copers, were not only the ones most in need of assistance, but were also those who were most thoroughly characterized by the most socially noxious forms of delinquency. An imaginative matching of delinquents by life style with different types of work opportunities and kinds of work train-

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ing might reasonably be expected to increase the efficiency of work programs which attempt to deal with such populations.

A second strategy might be this: from an intimate knowledge of life styles characteristic of different subcultures of the lower class, specific but limited work program modifications might be suggested. For example, according to Engel, strivers frequently dream of moving upward to the middle class by means of owning their own small business. Programs might be geared to deal with such needs not only in terms of specific training for certain occupations, but also by facilitating the special financing which would provide aspiring entrepreneurs with the modest loans necessary to ease their entry into the proprietorship class. Similarly, programs might be constructed to meet the special economic needs of people from other lower-class subcultures. One simple example: inconsistent copers often are dock or construction workers dependent on a weekly wage. They might receive some small economic advantage from the availability of low credit loans on a weekly basis, or from the ability to "touch" (draw upon) their weekly earnings when they have some money on the books instead of waiting until pay day. This "touching" system has long been the practice on the Boston docks and there may well be some merit in the idea that it not only helps to reduce loan-sharking on Boston's waterfront, but also eases some of the financial needs of may of the families whose husbands and sons work there.

No single change of this order is likely to accomplish startling results. However, based upon an intimate and thorough-going knowledge of the way of life characteristic of various lower-class subcultures, a multiplicity of small, quiet innovations could be undertaken — innovations which would never suggest themselves if only the presuppositions of the middle class were used to perceive the problems of the lower class and to formulate programs for meeting them.

One final strategy needs to be discussed. Basic, fundamental changes in the way society is organized are necesary if delinquency and other welfare problems endemic in the American lower class are to be dealt with efficiently. Work is simply not enough, particularly if it is work at jobs or near-jobs which offer no way out of marginal economic status. The only general strategy that would seem to have half a chance of success would be a much more radical and long range one in which social opportunities in the broadest of senses over the generations were truly open to absolutely the widest sectors of the lower class, especially the most oppressed minorities. Present delinquency and work programs may feel constrained not to undertake change of this order, but prefer to abandon the field to other agencies and social movements, such as the courts and the civil rights movement. Be that as it may,

systematic knowledge of the way of life of the various groups in the lower class is also highly useful for any group or program interested in seeking institutional change by militant means to benefit lower-class people. Thus, although strivers are given to joining organizations such as the PTA and district political clubs, their basic emphasis on respectability and security restrains them from being likely candidates for militant political action. Of all the five lower-class subcultures discussed in this paper, inconsistent copers seem to be the best candidates for such tasks. Their desire for fun and excitement, keen interest in action, and strong in-group loyalty make them potentially fine candidates for participating in mass movements when and if recruited and directed by resourceful leaders. Because of the growing race consciousness of the American Negro, inconsistent copers of that race would seem to be especially well suited to join in militant programs aimed at opening up social opportunities.

In sum, work program designers should know their programs, as well as the types of delinquents, and the types of delinquency with which they are trying to deal. A cultural perspective offers a most useful frame of reference for gaining such knowledge.

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This survey is one of a series of manpower studies designed to provide the United States Employment Service (USES) and its affiliated state employment services with labor market information needed to carry out operating responsibilities. A survey of 673 individual establishments in the aerospace industry in August 1964 was made to ascertain the role of manpower in the industry. Aerospace employment declined sharply in 1964 for the first time since 1958 when the industry was initially surveyed. Most of the decline was attributable to the missile segment of the industry, and was most pronounced in the West and Northwest. Despite this decline, about half of all establishments reported occupational shortages. One-third of all firms reported a shortage of engineers in the electrical, mechanical, and aeronautical fields. Skilled jobs most commonly reported in short supply were for machinist, draftsman, tool and die maker, and electronic technician. The statistical data and employment trends in aerospace activities should be used with caution since establishments engaged in missile and space vehicle work has increased appreciably since the initial survey in 1958. (HC)

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INDUSTRY MANPOWER SURVEYS No. 112

AEROSPACE EMPLOYMENT

Job Market Developments

May 1965

U.S. DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary
MANPOWER ADMINISTRATION
Washington, D.C. 20210

INDUSTRY MANPOWER SURVEYS

The current survey is one of a series of manpower studies prepared by the United States Employment Service of the Bureau of Employment Security. Other reports published since January 1960 are listed below.

Bituminous Coal Mining: No. 106, December 1963.

Blast Furnaces, Steel Works, and Rolling Mills: No. 96, May 1960; No. 100, May 1961.

Computing Machines: No. 98, January 1961.

Department Stores: No. 109, April 1964.

Footwear: No. 104, September 1962.

Household Machinery: No. 75, February 1956.

The Machine Tool Industry: No. 110, May 1964.

Meat Packing: No. 101, September 1961; No. 108, April 1964.

Missiles and Aircraft: No. 102, January 1962; No. 105, May 1963; No. 111, June 1964.

Petroleum Refining: No. 97, December 1960.

Plastics: No. 99, March 1961.

Telephone Communication: No. 103, May 1962.

Tires and Tubes: No. 107, March 1964.

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INDUSTRY MANPOWER SURVEYS No. 112

AEROSPACE EMPLOYMENT

Job Market Developments

BUREAU OF EMPLOYMENT SECURITY
Robert C. Goodwin, Administrator
U.S. EMPLOYMENT SERVICE
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AEROSPACE EMPLOYMENT

Preface

This report is the sixth in a series on the "aerospace" industry. While not specifically defined by the Standard Industrial Classification Code, the "aerospace" industry is commonly considered to encompass the missile, space vehicle, and aircraft fields. Previous studies in this series were undertaken in August 1963 (Industry Manpower Survey No. 111), August 1962 (Industry Manpower Survey No. 105), August 1961 (Industry Manpower Survey No. 102), October 1959 (Industry Manpower Survey No. 95), and October 1958 (Industry Manpower Survey No. 93).

The current analysis is based largely on 673 individual establishment reports gathered in August 1964 by local offices of the State employment services affiliated with the U.S. Employment Service.

For purposes of the study, missile and space vehicle activities were defined as including research, development, or production of complete missiles and space vehicles and/or component items--such as launching vehicles (rockets), satellites, missile airframes, ground control and testing units, propulsion units, warheards, fuel, reentry vehicles, electronic and other parts designed for inclusion in the missile or space vehicle--or in ground support equipment. Not included in the survey were contract construction activities such as the building of missile launching bases or test sites.

The major purpose of this survey is to provide the public employment service system with job market information needed to carry out its operating responsibilities. These responsibilities include guidance and counseling, determination of job shortages, sources of job recruitment, and impact of industry trends on area employment, development of more effective employer relations, making suggestions for establishment of training programs, evaluation of existing training programs as they affect displaced industry workers, and determination of local area impact of imports for implementation of the Trade Expansion Act.

In addition, these industry statements provide information useful to the Bureau of Employment Security in working with the Department of Defense and other Government agencies, and for filling informational requests from private sources.

The report was prepared by Ernest F. Schroeder, under the direction of Norman Medvin, Chief, Branch of Skill and Industry Surveys, Division of Research and Publications, Office of Manpower Analysis and Utilization of the United States Employment Service.

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AEROSPACE EMPLOYMENT

May 1965

HIGHLIGHTS

Aerospace employment took a sharp turnabout in 1964 according to a survey conducted by the United States Employment Service and its affiliated State employment services. The number of workers engaged in aircraft, missile, and space vehicle activities over the survey year ending August 1964 declined 7 percent, or 81,400, to 1,103,000. Most of the drop was attributable to layoffs in missile and space vehicle activities where employment fell 9 percent, or 65,500, to 705,000.

The bulk of the layoffs in missile and space vehicle work were centered in three major industry groups--ordnance, electrical machinery, equipment and supplies, and aircraft and parts. Over-the-year gains were restricted to commercial and nonprofit institutions engaged primarily in research and development work which have received increased emphasis in recent years.

Area-wise, 27 of the Nation's 150 major labor areas accounted for as many as 7 out of every 10 missile and space vehicle workers. The Los Angeles-Long Beach area alone still represented the country's leading missile and space vehicle center employing about one out of every four missile and space vehicle workers. Of the 27 areas, only 6--Akron, Buffalo, Milwaukee, New Orleans, Phoenix, and San Bernardino-Riverside-Ontario reported net gains. Four areas which have a high concentration of missile employment and experienced substantial layoffs--Lawrence-Haverhill, San Diego, San Jose, and Seattle--were classified in the substantial unemployment category in August 1964. By April 1965, Seattle was the only one of the four areas which moved to the moderate unemployment category.

Despite the decline in aerospace employment, about half of all establishments reported occupational shortages. One-third of the firms had difficulty recruiting engineers, particularly electrical, mechanical, and aeronautical. Most of these firms were located in the Los Angeles-Long Beach, New York, and Philadelphia areas. Skilled jobs most commonly reported in short supply were for machinists, draftsmen, tool and die makers, and electronic technicians. These shortages arose for a variety of reasons, such as job specifications requiring lengthy training and experience essential for proper job performance in a particular occupation.

The United States Employment Service and its affiliated State agencies play an active role in assisting the aerospace industry in meeting its manpower needs and developing job opportunities for displaced workers. The services provided cover a wide range of activities including interarea recruitment, counseling, testing, placement, initiating of training programs, and research designed to maximize the use of skills possessed by displaced workers.

Aerospace Employment Declined Sharply

Aerospace employment in 1964 declined sharply for the first time since 1958 when the industry was initially surveyed. Employment dropped by 81,400, or 6.9 percent, to 1,103,000 over the year ending August 1964 (Table 1). Most of the decline, however, was attributable to the missile segment which in August 1964 accounted for 705,000 workers--65,500, or 8.5 percent, less than in the corresponding month of 1963.

Layoffs in missile activities were especially pronounced within those aircraft plants which employ one-fifth of the Nation's missile workers. For instance, while employment in the production and development of manned aircraft alone declined by 15,900, or 3.8 percent, missile employment in aircraft plants declined 12.7 percent to 138,800. The sharp turnabout in overall missile employment came as no surprise in view of official pronouncements in 1964 of the likelihood of curtailments in some defense activities and the dim view expressed by employers in the 1963 survey of any significant pickup in missile employment by early 1964.

Despite the sharp decline in missile and space vehicle employment, the work force in this sector of aerospace activities in 1964 continued to exceed the number of workers engaged in the development and production of manned aircraft and its components. On the basis of the August 1964 survey, missile and space vehicle employment both within and outside the aircraft industry totaled 705,000, while the number of workers engaged in the development and production of manned aircraft was estimated at 453,700 for August 1964. 1/

Missile Decline Centered in Three Industries

Losses in the Nation's missile and space vehicle work force were centered in three major industry groups--ordnance (SIC 19), electrical machinery, equipment, and supplies (SIC 36), and aircraft and parts (SIC 372)--which together employ two out of every three missile and space vehicle workers (Table 2). The three industries reported a net loss of 61,400, or about 90 percent of the losses experienced by 17 of the 20 major industry groups surveyed. The electrical machinery group had by far the largest loss--over 30,000, or 44 percent, of the total decline, with firms engaged primarily in the manufacture of electrical communication equipment and parts (SIC 3662) responsible for most of the electrical industry's overall missile decline.

1/ The figure of 453,700 was obtained by subtracting the reported 138,800 missile and space vehicle workers in aircraft plants from the August 1964 total (compiled and published by the Bureau of Labor Statistics) of 592,500 workers in the aircraft industry. The BLS figure represents total employment, whereas the figures on aircraft in this survey cover aircraft establishments with 500 or more employees.

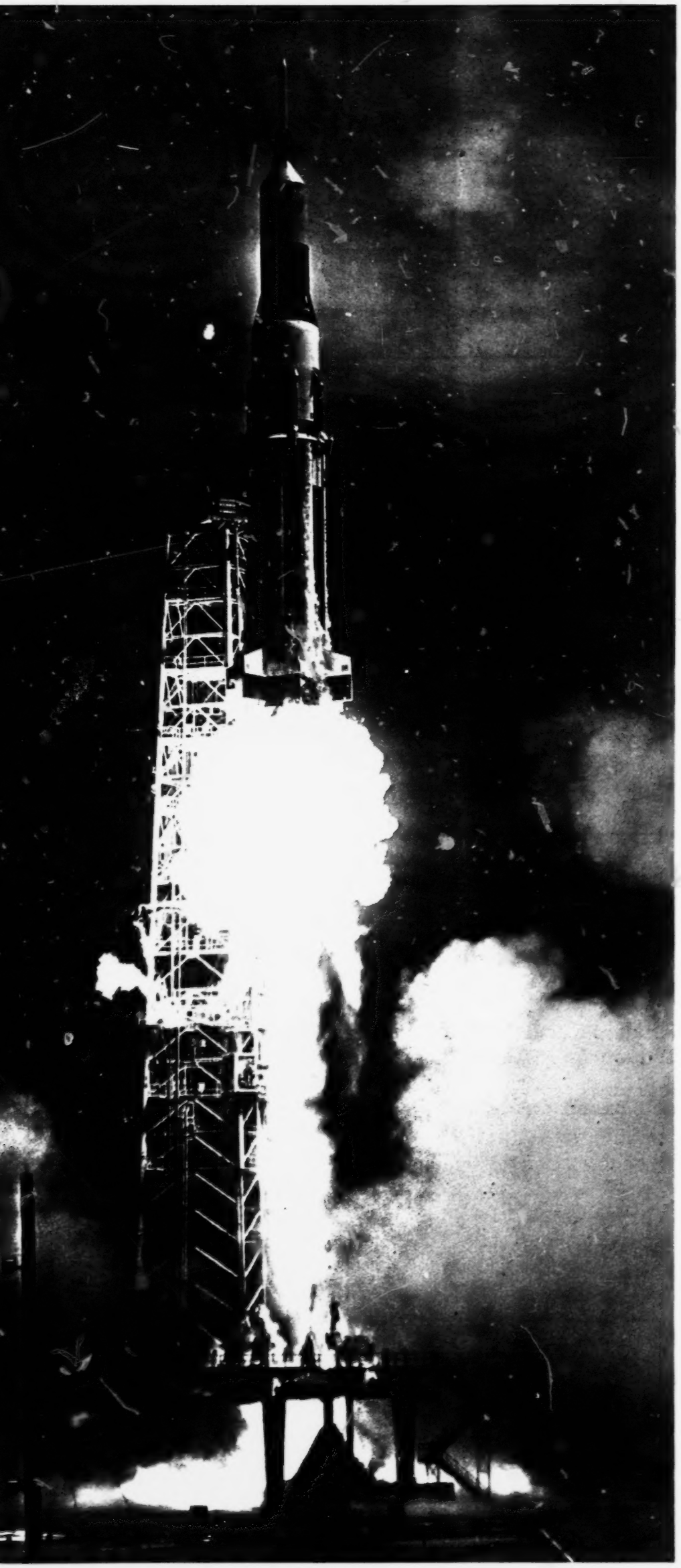
Table 1.--Missile and Space Vehicle Employment in Reporting Establishments, by Type of Activity August 1964

Type of activity	Employment August 1964 (000)	Percent change Aug. 1963 to Aug. 1964
Total, missile, and space vehicle 1/	705.0	-8.5
Missile, and space vehicle within aircraft industry	138.8	-12.7
Missile, and space vehicle in industries other than aircraft	566.2	-7.4
Total, aircraft 1/ 2/	536.6	-6.3
Aircraft, excluding missile and space vehicle	397.8	-3.8
Total, missile, space vehicle, and aircraft (unduplicated count)	1,102.8	-6.9

1/ The employment total for each of the two categories designated "missile and space vehicle, 705,000" and "aircraft 536,600" adds to more than the overall unduplicated total (1,102,800), since each category includes missile and space vehicle employment within the aircraft and parts industry (138,800).

2/ Category is comparable to "Aircraft and Parts Industry (SIC 372)" as defined in the Standard Industrial Classification Code.

Source: U.S. Employment Service, based on data from affiliated State employment services.



Cape Kennedy, Fla.--Saturn I (SA-7) lifts off its launch complex at 12:22 p.m., EDT, September 18, 1964, carrying the Apollo command module (boilerplate) into an earth orbit. Total weight in orbit was 36,700 pounds, consisting of the spent S-IV stage, instrument unit, Apollo command and service modules. Objectives of this flight were to further test the propulsion, structural, guidance, and flight control systems of the two-stage Saturn I and the Apollo spacecraft during flight.

Photo courtesy of NASA

Among the three industry groups--ordnance, electrical machinery, and aircraft --aircraft is the only one which has had a declining share of the missile work force. Ordnance and electrical machinery employed, respectively, about one out of every four missile and space vehicle workers between August 1961 and August 1964 while the aircraft industry employed one out of five missile and space vehicle workers in August 1964 compared with one out of every four in August 1961. Part of this shift in missile and space vehicle employment from the aircraft industry is due to changes in industry code classifications and not necessarily to a loss from aircraft-owned companies. For instance, if an aircraft plant should shift its activity primarily to manufacturing of completely assembled missiles and space vehicles, it could be classified in the ordnance industry instead of the aircraft industry.

Sizable increases of 1,400 each were reported among firms engaged in commercial as well as in nonprofit research and development activities (SIC 73 and SIC 89). These gains were not surprising in view of the increased emphasis given to development work in recent years. Evidence of further growth in these industry groups is obtained from previous surveys in this series. For instance, between August 1961 and August 1964, overall missile and space vehicle employment increased by 25 percent while in commercial and nonprofit research and development firms the missile increases were respectively 42 percent and 64 percent.

The ordnance industry leads all other industry groups in the relative number of workers employed in missile and space vehicle activities. In August 1964, about 68 percent of all ordnance workers engaged in such activities; the aircraft and electrical machinery followed with 23 percent and 10 percent, respectively. Each of the remaining industry groups had less than 10 percent of their workers engaged in missile work. However, when compared with the total work force in those plants reporting some missile and space vehicle employment such employment, of course, constituted a higher proportion of the plants' total employment. For instance, among plants in the ordnance industry reporting missile and space vehicle activities about 85 percent of the surveyed plants' work force were employed in such activities (Table 2).

Layoffs Heaviest in the West and Northeast

The impact of the sharp downswing in missile and space vehicle employment was most pronounced in the West and Northeast (Table 3). The North Central region also experienced significant losses. The West and Northeast respectively reported over-the-year losses of 38,700 and 24,200, or 9.7 percent and 16.4 percent. The North Central region's missile and space vehicle employment declined 6,000, or 6.5 percent, while the South showed a gain of 3,300 workers, or 2.3 percent.

Over-the-year employment changes for each region were determined largely by substantial employment fluctuations in only a few States in each of the regions. Most of the decline in the West was attributable to losses in

Table 2.--Missile and Space Vehicle Employment in Reporting Establishments, by Industry Groups, August 1964

SIC 1/ Industry Code	Industry Group	All Establishments: Number	All Establishments: Employment (000)	Missile and Space Vehicle: Employment (000)	Missile and Space Vehicle: Percent distribution	Missile and Space Vehicle: Percent of all plant employment	Missile and Space Vehicle: Percent change Aug. '63 to Aug. '64
Total, U.S.		625	1,467.9	705.0	100.0	48.0	-8.5
19	Ordnance	61	200.3	169.2	24.0	84.5	-6.1
36	Electrical machinery, equipment, and supplies	168	283.2	159.1	22.6	56.2	-15.9
372	Aircraft and parts	121 2/	416.8	138.8	19.7	33.3	-12.7
91	Federal Government	42	160.4	84.5	12.0	52.7	-0.1
73	Miscellaneous business services 3/	54	57.9	46.5	6.6	80.3	+3.0
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	40	101.0	36.2	5.1	35.9	-9.7
89	Miscellaneous engineering, nonprofit, educational and scientific research services	31	51.6	30.8	4.4	59.8	+4.7
35	Machinery, except electrical	39	51.5	13.7	1.9	26.6	-1.9
28	Chemicals and allied products	12	11.7	5.9	0.8	51.0	-14.6
34	Fabricated metal products, except ordrance, machinery, and transportation equipment	12	12.0	5.4	0.8	45.4	-2.8
---	Other industry groups	45	121.5	14.9	2.1	12.3	-7.4

1/ Standard Industrial Classification Code.
2/ Includes only aircraft plants with missile and space vehicle employment.
3/ Includes commercial research, development, and testing laboratories.

Source: U.S. Employment Service, based on data from affiliated State employment services.

California (19,100), Washington and Utah (5,400). Losses in the Northeast were concentrated in Pennsylvania (9,500), Massachusetts (8,100), and New Jersey (4,600). The decline in the North Central region was principally in Missouri (2,700), Minnesota (2,000), and Ohio (1,700); while in the South, the overall gain resulted primarily from increases in Louisiana (3,600), Oklahoma (2,600), and Florida (1,200).

Noticeable shifts occurred in recent years in the regional distribution of the Nation's missile and space vehicle work force. The Northeast in August 1964 employed roughly 18 percent of all missile and space vehicle workers compared with 21 percent in August 1962. The South, in contrast, showed a gain in its share of the work force with 21 percent in August 1964 compared with 18 percent in August 1962. The leading missile and space vehicle center, however, is still the West which accounted for close to 51 percent of the Nation's missile workers in August 1964 as in August 1962. In the North Central States, the relative distribution of missile employment remained stable at about 11 percent.

Most Missile Centers Report Declines

Seven out of every 10 of the Nation's missile and space vehicle workers were employed in 27 of the country's 150 major labor areas as of August 1964 (Table 4). For the 27 areas, the net over-the-year employment loss totaled 53,000 for a 10 percent decline. All but six of the areas-Akron, Buffalo, Milwaukee, New Orleans, Phoenix, and San Bernardino-Riverside-Ontario--had fewer employed missile and space vehicle workers in August 1964 than a year earlier.

The Los Angeles-Long Beach area continued as the Nation's leading missile and space vehicle center with 27 percent of the Nation's missile work force. Despite over-the-year employment losses, the area employed a slightly higher share of the country's total missile work force in August 1964 than in August 1963--27 percent and 25 percent, respectively. Three additional areas in California for which employment can be reported separately--San Bernardino-Riverside-Ontario, San Diego, and San Jose--accounted for a total of 69,000 workers. When these three areas are combined with the Los Angeles-Long Beach area, all four areas together employed over 36 percent of all missile and space vehicle workers in August 1964, a slightly lower proportion than in August 1963. Other ranking missile and space vehicle centers are Boston, Dayton, New York, Philadelphia, Sacramento, and Seattle.

Where missile employment represents a significant segment of the area's work force, variations in such employment can have a considerable impact on the area's economy and job opportunities. Among the 27 areas, the highest concentration of missile employment was in San Jose where 13 percent of the area's wage and salary workers were engaged in some type of missile and space vehicle activity. Other areas having a significant proportion of missile and space vehicle workers (from 6 to 10 percent) were Dayton, Lawrence-Haverhill, Los Angeles-Long Beach, San Bernardino-

Table 3.--Missile and Space Vehicle Employment in Reporting Establishments, by Region and Selected States, August 1964

Region and selected States	Number of reporting establishments	Missile and space vehicle employment August 1964		Percent change Aug. 1963 to Aug. 1964
		Number (000)	Percent distribution	
Total, U.S.	625	705.0	100.0	- 8.5
Northeast	178	123.2	17.5	-16.4
New York	47	31.4	4.4	- 1.5
Massachusetts	32	28.7	4.1	-22.1
New Jersey	24	24.5	3.5	-15.9
Pennsylvania	45	20.6	2.9	-31.7
Connecticut	24	14.7	2.1	- 3.8
North Central	99	75.0	10.6	- 6.5
Ohio	30	30.2	4.3	- 5.5
Minnesota	9	13.0	1.8	- 9.2
Missouri	11	11.5	1.6	-18.9
Michigan	11	5.3	0.7	- 8.7
South	119	146.5	20.8	+ 2.3
Florida	25	48.6	6.9	+ 2.4
Alabama	21	31.2	4.4	+ 5.1
Maryland	19	21.1	3.0	- 7.4
Louisiana	3	11.0	1.6	+48.8
Texas	17	8.4	1.2	-10.1
Tennessee	4	6.5	0.9	- 7.9
North Carolina	6	5.1	0.7	+ 0.4
Virginia	9	4.4	0.6	-26.1
West	229	360.4	51.1	- 9.7
California	192	299.5	42.5	- 6.0
Utah	6	11.1	1.6	-32.8
Arizona	11	7.6	1.1	+ 9.0
New Mexico	11	6.8	1.0	+ 0.4

Note: Listing includes States with at least three establishments with no firm accounting for 80 percent or more of employment total in reporting establishments so as to avoid disclosure of individual firm data. In addition, only States with missile and space vehicle employment of 4,000 or more are listed. Three States with substantial missile and space vehicle employment--Colorado, Washington and Wisconsin--are not listed because of disclosure of information for individual establishments. States are grouped by census region. Regional totals also include employment in States not listed which have some missile or space vehicle employment.

Source: U.S. Employment Service, based on data from affiliated State employment services.

Table 4.--Missile and Space Vehicle Employment in Reporting Establishments by Selected Major Labor Areas, August 1964

Area	Missile and space vehicle employment: Total (000)	Percent change Aug. '63 to Aug. '64	Percent of area nonagricultural wage and salary employment	Area classification 1/ Aug. '64
Total, U.S.	705.0	-8.5	1.2	--
Total, 27 Areas	499.7	-9.5	2.7	--
Percent: 27 areas of U.S. total	70.9	--	--	--
Los Angeles-Long Beach, Calif.	186.9	-1.9	6.9	C
San Jose, Calif.	35.6	-10.4	13.1	D
Philadelphia, Pa.	20.2	-35.8	1.3	D
New York, N. Y.	19.5	-4.6	0.4	C
San Diego, Calif.	19.3	-22.2	7.4	D
Dayton, Ohio	16.1	-1.3	6.1	B
Boston, Mass.	15.0	-24.3	0.4	C
San Bernardino-Riverside-Ontario, Calif.	14.3	+1.8	6.3	C
Minneapolis-St. Paul, Minn.	12.9	-13.5	2.1	C
Baltimore, Md.	12.5	-8.6	1.9	C
Washington, D. C.	11.0	-9.8	1.3	B
New Orleans, La.	11.0	+48.8	3.5	C
St. Louis, Mo.	9.6	-21.1	1.2	C
Paterson-Clifton-Passaic, N. J.	7.0	-24.8	1.8	D
Salt Lake City, Utah	6.3	-32.2	4.0	C
Newark, N. J.	6.3	-0.2	0.9	C
Phoenix, Arizona	5.7	+128.0	2.6	C
Buffalo, N. Y.	5.1	+20.2	1.2	C
Hartford, Conn.	4.8	-4.9	1.9	C
Tampa-St. Petersburg, Fla.	4.6	-2.5	2.1	C
Dallas, Tex.	4.5	-23.1	1.0	C
Akron, Ohio	4.1	+8.6	2.3	C
Seattle, Wash.	2/	2/	2/	D
Sacramento, Calif.	2/	2/	2/	C
Denver, Colo.	2/	2/	2/	C
Milwaukee, Wis.	2/	2/	2/	C
Lawrence-Haverhill, Mass.	2/	2/	2/	D

1/ "B" classification designates areas with relatively low employment; "C" rating relates to areas of moderate unemployment; "D" listing pertains to areas of relatively substantial unemployment.

2/ Figures withheld to avoid disclosure of information for individual establishments.

Note: Major areas shown include only those with missile and space vehicle employment of 4,000 or more.

Source: U.S. Employment Service, based on data from affiliated State employment services.

Riverside-Ontario, Sacramento, San Diego, and Seattle. Four of these areas which were classified as having substantial unemployment in August 1964--Lawrence-Haverhill, San Diego, San Jose, and Seattle--reported significant over-the-year employment declines in missile activities. Since August 1964, further layoffs occurred in aerospace plants in each of these areas. Except for the Seattle area which moved into the moderate unemployment category in April 1965, the remaining areas were still classified as having substantial unemployment as of April 1965. The problem arising from a missile decline may be accentuated in areas other than the 27 listed where missile employment may constitute a very large proportion of the area's total work force.

Largest Firms Losing Their Share of Missile Work Force

The largest firms, i.e., those with 5,000 or more workers, have been losing their relative share of the missile and space vehicle work force in recent years, although these firms still comprise a majority of such workers (Table 5). About 52 percent of all missile and space vehicle workers were in firms with 5,000 or more workers in August 1964, compared with 58 percent in August 1961. During this same period the relative share of missile employment in firms with 1,000-4,999 workers increased from 33 percent to 35 percent, and in firms with 250-999 workers, the increase was from 8 percent to 11 percent. Firms with fewer than 250 workers also showed some gains, but data respecting these firms were of limited value since an indeterminate number are excluded from the survey since coverage is restricted to firms with 200 or more missile workers unless the firms previously met such employment requirements.

Missile and space vehicle employment constitutes a smaller segment of the work force in the larger establishments than of the work force in smaller firms. Among surveyed firms, only 2 out of 5 workers in plants with 5,000 or more employees were engaged in missile and space vehicle activities in August 1964 compared with 1 out of every 2 workers in plants with 1,000-4,999 employees (Table 5). In plants with 250-999 workers, more than 3 out of 5 workers were employed on missile and space vehicle projects, whereas in plants with fewer than 250 workers, 7 out of 10 workers were engaged in such projects.

The largest over-the-year relative decline in missile employment was experienced by firms with fewer than 250 workers where there is a greater reliance on missile and space contracts as evidenced by the high concentration of missile and space vehicle workers.

Job Losses in Aircraft Plants Accentuated by Missile Decline

The decline in employment in aircraft plants over the year ending August 1964 was accentuated by heavy job losses in the missile and space vehicle segment of the industry (Table 6). Nationwide, employment in surveyed aircraft plants, including both manned aircraft and missile and space vehicle activities, declined slightly over 6 percent, or 36,100, to 536,600.

Table 5.--Missile and Space Vehicle Employment by Size of Establishment, Reporting Establishments, August 1964

Employment by plant size	All Establishments		Missile and space vehicle		As percent of all plant employment	Percent change Aug. 1963 to Aug. 1964
	Number	Employment (000)	Employment (000)	Percent distribution		
Total	625	1,467.9	705.0	100.0	48.0	-8.5
Under 250	113	15.8	11.3	1.6	71.6	-43.4
250-999	225	123.4	78.5	11.1	63.6	-8.8
1,000-4,999	208	475.4	250.0	35.4	52.6	-7.8
5,000 and over	79	853.3	365.2	51.8	42.8	-7.1

Source: U.S. Employment Service, based on data from affiliated State employment services.

Table 6.--Aircraft Employment in Reporting Aircraft Establishments, by Industry Segment, August 1964

Industry group	Number of reporting establishments	Employment, August 1964 (000)			Percent change Aug. 1963 to Aug. 1964		
		Total plant	Missile and space vehicle only		Total plant	Missile and space vehicle only	Aircraft only
			Number	Percent of plant total			
Aircraft and parts, total	169	536.6	138.8	25.9	-6.3	-12.7	-3.8
Aircraft	48	305.1	47.5	15.6	-5.4	-23.7	-1.0
Aircraft engines and engine parts	58	171.2	75.6	44.1	-7.4	-7.0	-7.7
Other aircraft parts and equipment	63	60.3	15.7	26.0	-7.4	+2.3	-10.3

Source: U.S. Employment Service, based on data from affiliated State employment services.

Table 7.--Aircraft Employment in Reporting Establishments, in Selected Major Labor Areas, August 1964 1/

Area	Total aircraft (000)	Missile and space vehicle only (000)	Percent change from Aug.'63		As percent of area's mfg. employment	Area classification 2/ Aug.'64
			Total aircraft	Missile and space vehicle		
Total, U.S.	536.6	138.8	-6.3	-12.7	3.1	--
Total, 23 areas 1/	462.3	111.6	-6.1	-11.9	7.7	--
Percent, 23 areas of U.S. total	86.1	80.4	---	---	--	--
Los Angeles-Long Beach, Calif.	101.0	31.4	-1.8	+1.9	11.8	C
Hartford, Conn.	36.3	3.5	-7.9	-5.3	40.8	C
New York, N. Y.	30.4	3.8	-17.4	+43.2	2.7	C
Wichita, Kans.	28.8	2.9	+10.3	+62.8	63.1	C
San Diego, Calif.	12.9	2.7	-13.8	-32.5	26.3	D
Boston, Mass.	8.5	2.1	-2.5	+0.5	3.2	C
Buffalo, N.Y.	5.5	1.1	-4.1	-8.3	3.2	C
Phoenix, Ariz.	5.1	2.1	+14.9	+260.0	11.7	C

1/ Includes only areas with 4,000 or more workers in reporting aircraft plants. The following 15 areas are not listed separately to avoid disclosure of information for individual establishments: Atlanta, Bridgeport, Cincinnati, Cleveland, Columbus, Dallas, Fort Worth, Indianapolis, New Haven, Paterson-Clifton-Passaic, Philadelphia, Sacramento, Salt Lake City, Seattle, and St. Louis.

2/ "C" rating relates to areas of moderate unemployment; "D" listing pertains to areas of relatively substantial unemployment.

Source: U.S. Employment Service, based on data from affiliated State employment services.

However, in manned aircraft activities alone, employment declined only 3.8 percent, or 15,900, to 397,800, while in the missile and space vehicle segment, employment dropped almost 13 percent, or 20,200, to 138,800.

Among the Nation's 23 principal aircraft centers, 18 had losses over the year ending August 1964 while 5 showed gains--Atlanta, Fort Worth, Phoenix, St. Louis, and Wichita.

More recent information becoming available indicates some further changes in the industry's employment since collection of the August 1964 survey data on aircraft employment shown on Table 7. Additional aircraft layoffs, up to April 1965, occurred in the four principal aircraft labor areas classified as having substantial unemployment in August 1964 (Paterson-Clifton-Passaic, Philadelphia, San Diego, Seattle). All areas, except San Diego, however, moved into the moderate unemployment category by April 1965. Of the remaining principal 19 labor areas, aircraft layoffs between August 1964 and April 1965 were reported in the following 13 areas: Boston, Bridgeport, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Fort Worth, Los Angeles-Long Beach, Sacramento, Salt Lake City, St. Louis, and Wichita.

Firms Anticipated Modest Short-Term Losses

Firms engaged in aerospace activities were requested in August 1964, at the time of the survey, to estimate their labor needs through February 1965. They anticipated a modest decline (about 1 percent) in overall aerospace employment and in each of its principal segments.

Some expansion in missile and space vehicle employment, however, was expected by machinery and equipment (other than electrical) manufactures, instrument makers, educational institutions, commercial as well as nonprofit engineering and scientific research establishments, and the Federal Government.

Regionally, only the South and Northeast anticipated some gains in missile and space vehicle employment, with the South expecting by far the greater increase. Contributing principally to the expected gains in the South were favorable forecasts in Alabama, Florida, Louisiana, and Texas. The modest increase anticipated in the Northeast was attributable mainly to Connecticut, New Hampshire, and Pennsylvania.

As in the August 1963 survey, the employer 6 month forecast in August 1964 for aircraft employment was also in line with actual employment developments for the period. Between August 1963 and February 1964, as well as between August 1964 and February 1965, aircraft employment showed little change as was predicated by employers. However, for 1964 as a whole, aircraft employment averaged about 5 percent below the 1963 level. It is not possible to check the accuracy of the employers' August missile forecast since comparable series do not exist.

What looks like an elevated football field or the deck of an aircraft carrier is the top of a giant crawler-transporter used to carry Apollo-Saturn V rockets and their usable launch pads from the Vertical Assembly Building to the launch area on Merritt Island, Florida. When finished, the 131-foot-long, 114-foot-wide, and 20-foot-high vehicle will weigh about 5.5 million pounds and will be powered by a 5,600 h.p. diesel-electric system.

This is one of four tractor units that will be used to support the self-propelled platform to carry the Apollo-Saturn launch vehicle. Four of these tractor units will be mechanically tied together in pairs, front and rear, to make up the steerable platform.

Photos courtesy of NASA

Aerospace Firms Still Report Shortages

Despite the employment decline, approximately half of all aerospace establishments reported occupational shortages at the time of the survey. The shortages --even in areas where heavy layoffs occurred--arose for a variety of reasons. These included job specifications requiring lengthy training and experience considered essential to proper job performance in a particular occupation.

One-third of all firms reported a shortage of engineers, most of whom were electrical, mechanical, and aeronautical. Among the Nation's principal aerospace centers, the largest number of firms reporting engineering shortages were located in the Los Angeles-Long Beach, New York, Philadelphia, and San Bernardino-Riverside areas. Skilled jobs most commonly reported in short supply were for machinist, draftsman, tool and die maker, and electronic technician. Establishments reporting such shortages were widely distributed throughout the industry's principal labor areas. However, about one-seventh of all firms reporting a shortage of machinists were located in the Los Angeles-Long Beach area.

Employment Service Assists Industry and Displaced Workers

The Employment Service and its affiliated State employment services have performed a number of services to assist the industry in meeting its manpower needs and aiding displaced workers. The services provided cover a broad spectrum of activities including interarea recruitment, counseling, testing, placement, initiation of training programs, and research designed to maximize the use of skills of displaced workers.

One firm arranged for all of its hourly wage workers to be screened by the local public employment service and relied upon the Employment Service as its main source of recruiting new workers. Another firm arranged for the Employment Service to test and recruit most of its production workers. In another instance, the local State employment office administered a specific battery of tests for a firm's entry applicants in accordance with a previously indicated job analysis and testing program. Still another firm entered into a cooperative program to test typists, stenographers, electronic conduit installers, and other workers. This program was subsequently expanded to include welders and assembly mechanics. Also, master job orders were provided for certain recurrent job openings. In one of the Western States, the State Employment Service conducted an intensive labor area survey for a firm before it located in the area. In another instance, a survey was undertaken on an Indian Reservation to test and recruit females for production workers for a nearby firm. Also in the West, defense workers in a small area severely hit by recent cutbacks due to completion of a missile contract are receiving assistance in securing employment through the Employment Service. The local office has been meeting with laid-off workers to provide them with job information and arrange interviews with recruiters from firms outside the area. Job applications are also placed in the Employment Service interarea

recruitment system. The firm which laid off the workers installed a direct line in the local employment service office which is tied in to the firm's nationwide telephone. This arrangement for use of job applicants is particularly effective since it permits on-the-spot discussion between the prospective employer and employee.

State agencies are also conducting research on the characteristics of displaced aerospace industry workers and the transferability of their skills to other jobs. In Washington, the State employment security agency under contract with the Department of Defense and the U.S. Arms Control and Disarmament Agency is conducting a study of the effect of the cancellation of the Dyna-Soar contract on the employees of the Boeing Company in Seattle.

Similarly, the Division of Employment of the New York State Department of Labor is undertaking a study of employees laid off by Republic Aviation in the Nassau-Suffolk area.

Training programs established under the Manpower Development and Training Act (MDTA) continue to fill shortages in aerospace and related jobs. For example, Huntsville, Alabama, workers were trained as draftsmen for shortages in aerospace jobs. In Phoenix, MDTA graduates in electronic assembly and machine-shop courses were recruited by aerospace firms in that locality. In addition, other aerospace firms in such States as Louisiana, Indiana, Missouri, Ohio, Texas, and Washington have also recruited or are planning to hire workers who have received MDTA training.

APPENDIX

Notes Regarding Scope and Method of Survey

Selection of Establishments

The survey covered major missile and/or space vehicle establishments, including both prime contractors and principal subcontractors--as listed primarily by the Department of Defense and the National Aeronautics and Space Administration--and aircraft plants (Standard Industrial Classification Code 372) with 500 or more employees. Included also were establishments with at least 200 employees engaged in missile and space vehicle production not necessarily included in the Department of Defense or NASA list. Employment in surveyed aircraft establishments accounted for about 90 percent of the aircraft industry's estimated employment.

Collection of Data

For each plant surveyed, information was collected on total employment and on the number of workers engaged in missile and/or space vehicle work. In some instances, it was not possible to obtain a precise breakdown of the plant workforce engaged in a missile or space vehicle activity since the same employees would also perform operations on items other than missiles or space vehicles. In addition, some items produced may have been destined for a variety of applications, including missiles and space vehicles. When these types of problems were encountered in the reporting of missile or space vehicles employment, employers were asked to estimate such employment as accurately as possible. (One basis used for such estimates was the proportion of total sales accounted for by missiles and/or space vehicle components). Some information on missile and space vehicle employment in individual establishments was also obtained from the Defense Department and from the National Aeronautics and Space Administration. In aircraft, coverage of larger plants--accounting for the bulk of industry employment--is presumed to be virtually complete since employment in all of the surveyed aircraft plants approximated 90 percent of the industry's total employment.

For missile plants, a number of qualifications regarding the data need to be noted. Establishments in the list obtained from the Department of Defense, and supplemented by the National Aeronautics and Space Administration, were not selected on a uniform basis. There was no specified cutoff applied to employment or volume of output. The list, however, probably contained some minor subcontractors. Such firms are not required to report directly to the Federal procurement agency granting the contract. While there have been a number of attempts to compile definitive lists of establishments engaged in missile and space vehicle activity, it has not been possible to determine the actual proportion of total missile or space vehicle activity represented by these plants.

Since it is probable that a number of small plants engaged in missile and/or space vehicle activity are not included in this survey, applicability of the data with respect to smaller establishments is limited. Consequently, any conclusions regarding the distribution of missile work among plants by size of the plants are subject to the above qualification.

It should also be noted that comparison of employment trends in aerospace activities reported in the six aerospace manpower surveys now published by the Bureau should be made with caution. The number of surveyed establishments engaged in missile and space vehicle work has increased appreciably since the initial survey in 1958 due not only to the rapid growth in these activities but also because of more comprehensive coverage. In addition, adjustments have been made in some instances to employment data reported in previous surveys on the basis of later information.

GPO 892-155

State Employment Security Agencies Affiliated With the Bureau of Employment Security

ALABAMA	Department of Industrial Relations, State Office Building, Montgomery 36104
ALASKA	Employment Security Division, Department of Labor, Box 2661, Juneau 99801
ARIZONA	Arizona Employment Security Commission, State Employment Service, 1717 West Jefferson Street, Phoenix 85005; Unemployment Compensation Division, P.O. Box 6123, Phoenix 85005
ARKANSAS	Employment Security Division, Department of Labor, Employment Security-Welfare Building, Box 2981, Little Rock 72203
CALIFORNIA	Department of Employment, 800 Capitol Mall, Sacramento 95814
COLORADO	Department of Employment, 1210 Sherman Street, Denver 80203
CONNECTICUT	Connecticut Employment Security Division, Hartford 06115
DELAWARE	Employment Security Commission, 801 West Street, Wilmington 19899
DIST. OF COL.	United States Employment Service of the District of Columbia, Employment Security Building, Sixth and Pennsylvania Avenue, N.W., Washington 20001; Unemployment Compensation Board, Sixth and Pennsylvania Avenue, N.W., Washington 20001
FLORIDA	Industrial Commission, Caldwell Building, Tallahassee 32301
GEORGIA	Employment Security Agency, Department of Labor, State Labor Building, Atlanta 30303
GUAM	Department of Labor and Personnel, Government of Guam, Agana 96910
HAWAII	Employment Service Division, Department of Labor and Industrial Relations, 825 Mililani Street, Honolulu 96813
IDAHO	Employment Security Agency, P.O. Box 520, 317 Main Street, Boise 83701
ILLINOIS	Employment Security Administrator, Department of Labor, 165 North Canal Street, Room 200, Chicago 60606
INDIANA	Employment Security Division, 10 North Senate Avenue, Indianapolis 46204
IOWA	Employment Security Commission, 1000 East Grand Avenue, Des Moines 50319
KANSAS	Employment Security Division, State Labor Department, 401 Topeka Boulevard, Topeka 66603
KENTUCKY	Bureau of Employment Security, Department of Economic Security, Capitol Office Building, Frankfort 40601
LOUISIANA	Division of Employment Security, Department of Labor, Employment Security Building, 2200 Baton Rouge Expressway, P.O. Box 4094, Capitol Station, Baton Rouge 70804
MAINE	Employment Security Commission, 20 Union Street, Augusta 04332
MARYLAND	Department of Employment Security, 1100 North Eutaw Street, Baltimore 21201
MASSACHUSETTS	Division of Employment Security, 881 Commonwealth Avenue, Boston 02215
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SOUTH CAROLINA	Employment Security Commission, 1225 Laurel Street, P.O. Box 995, Columbia 29202
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VIRGINIA	Virginia Employment Commission, 703 East Main Street, P. O. Box 1358, Richmond 23211
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WASHINGTON	Employment Security Department, Employment Security Building, P.O. Box 367, Olympia 98501
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The United States Employment Service (USES) and affiliated state units surveyed 15 major machine tool manufacturing centers in May of 1964 to ascertain the role of manpower in the industry. Employment in the machine tool industry has not increased as rapidly as machine shipments. Major causes for this difference appear to be (1) an increased output to manhours worked, (2) a different basis for shipment figures and employment figures, (3) shipment figures cannot be translated to constant dollars, and (4) the long lead time for manufacture makes it difficult to closely relate shipments and employment. The 15 centers reported a continued shortage of highly skilled metalworkers and shortages for semi-skilled metal-workers were also widespread but less acute. A possible recruitment source for qualified metalworkers is the permanent layoffs of almost 3,500 workers between November 1963 and March 1964. The traditional source of metalworkers has been vocational schools, apprenticeships, and on-the-job training programs. Since 1962 more than 10,000 workers in metalworking occupations have been approved for training under the Manpower Development and Training Act. It appeared that the industry can achieve a substantial increase in output with some additional recruitment and possible further extension of the workweek. (HC)

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INDUSTRY MANPOWER SURVEYS No. 110

MACHINE TOOLS

Labor Market Developments

May 1964

U.S. DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary
MANPOWER ADMINISTRATION
Washington, D.C., 20210

INDUSTRY MANPOWER SURVEYS

The current survey is one of a series of manpower studies prepared by the United States Employment Service of the Bureau of Employment Security. Other reports published since January 1960 are listed below.

Bituminous Coal Mining: No. 106, December 1963.

Blast Furnaces, Steel Works, and Rolling Mills: No. 96, May 1960; No. 100, May 1961.

Computing Machines: No. 98, January 1961.

Department Stores: No. 109, April 1964.

Footwear: No. 104, September 1962.

Meat Packing: No. 101, September 1961; No. 108, April 1964.

Missiles and Aircraft: No. 95, April 1960; No. 102, January 1962; No. 105, May 1963; No. 111, June 1963.

Petroleum Refining: No. 97, December 1960.

Plastics: No. 99, March 1961.

Telephone Communication: No. 103, May 1962.

Tires and Tubes: No. 107, March 1964.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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INDUSTRY MANPOWER SURVEYS No. 110

MACHINE TOOLS

Labor Market Developments

BUREAU OF EMPLOYMENT SECURITY
Robert C. Goodwin, Administrator
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Louis Levine, Director

MACHINE TOOLS

Foreword

The industry covered by this survey is defined as machine tools and encompasses essentially the manufacture of metal cutting and metal forming types of machine tools as respectively defined under Standard Industrial Classification Codes 3541 and 3542.

The analysis is based on data from a variety of sources. These include a special survey by the United States Employment Service and affiliated State employment services in May 1964 of labor demand and supply conditions in 15 major machine tool centers, operating data from the USES interarea recruitment and labor market area reporting systems, and training programs under the Manpower Development and Training Act of 1962. Supplementary data, of either a manpower nature or otherwise, were obtained from the Department of Commerce, Bureau of Labor Statistics, and the National Machine Tool Builders Association.

The purpose of this survey is to provide the public employment service with labor market information needed to carry out its operating responsibilities which include guidance and counseling; determination of job shortages, sources of job recruitment, and impact of industry trends on area employment; development of more effective employer relations; provision of information for establishment of training programs; evaluation of existing training programs as they affect displaced metalworking machinery workers; and assessment of local area impact of imports for implementation of the Trade Expansion Act.

These industry statements also provide information for the United States Employment Service in discharging its responsibilities at the national level for work with the Department of Defense and other Government agencies, and in filling informational requests from private sources.

The report was prepared by Norman Medvin, Chief, and Caryl L. Holiber, Labor Economist, Branch of Skill and Industry Surveys, Division of Research and Publications, Office of Manpower Analysis and Utilization of the United States Employment Service.

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MACHINE TOOLS

May 1964

Introduction

The machine tool industry is in one of its historic and recurrent periods of expansion, according to a survey conducted by the United States Employment Service and its affiliated State employment services. Business volume and employment rose rapidly in 1963, and the momentum of business demand carried over into the first quarter of 1964. All economic indicators point to a continued and vigorous expansion, at least for the remainder of the year.

To ascertain the role that manpower has played in the recent past in the machine tool industry and may play in the coming few months, the USES and affiliated State employment services surveyed as of early May 1964 labor demand and supply conditions in 15 major machine tool centers--Springfield, Vt.; Worcester, Mass.; Providence-Pawtucket, R. I.; Hartford, Bridgeport, and New Britain, Conn.; Cincinnati and Cleveland, Ohio; Detroit, Mich.; Buffalo and Rochester, N. Y.; Chicago and Rockford, Ill.; and Fond du Lac and Milwaukee, Wis.

Industry Expands Since 1958

Business activity in the machine tool industry has been on a continuous rise since 1958 with the exception of 1 year. Shipments in 1963 for cutting and forming tools totaled an estimated $1.5 billion, according to the Census Bureau, up 50 percent from the $998 million in 1958. Despite the sharp increase in shipments during these years, the industry has still not fully

Table 1.--Machine Tool Shipments in Current and Constant Dollars, 1956-1963 (millions of dollars)

Year	Shipments current dollars	Index of shipments: current dollars	Index of shipments: constant dollars
1956	$2,284	--	--
1957	2,232	--	--
1958	998	100	100
1959	1,112	111	110
1960	1,266	127	121
1961	1,242	124	116
1962	1,430	143	132
1963	1,508 1/	151	139

1/ Estimated.

Source: The figures for shipments in current dollars are from the Census of Manufactures. The index of shipments in constant dollars is estimated by applying the wholesale price index for the metalworking industries.

recovered from the severe drop in 1958 when shipments contracted by more than half from the $2.2 billion level of the two previous years.

The uptrend of recent years continued at an accelerated rate in early 1964. Shipments for the first quarter of the year, based on data from the National Machine Tool Builders Association, ran 25 percent over the corresponding quarter a year ago. For April 1964, the shipments showed a gain of 39 percent over April 1963. If this pace is maintained, the industry will achieve a 2 billion dollar volume, approaching once again the boom levels of 1956-57.

Employment Rises at a Slower Rate

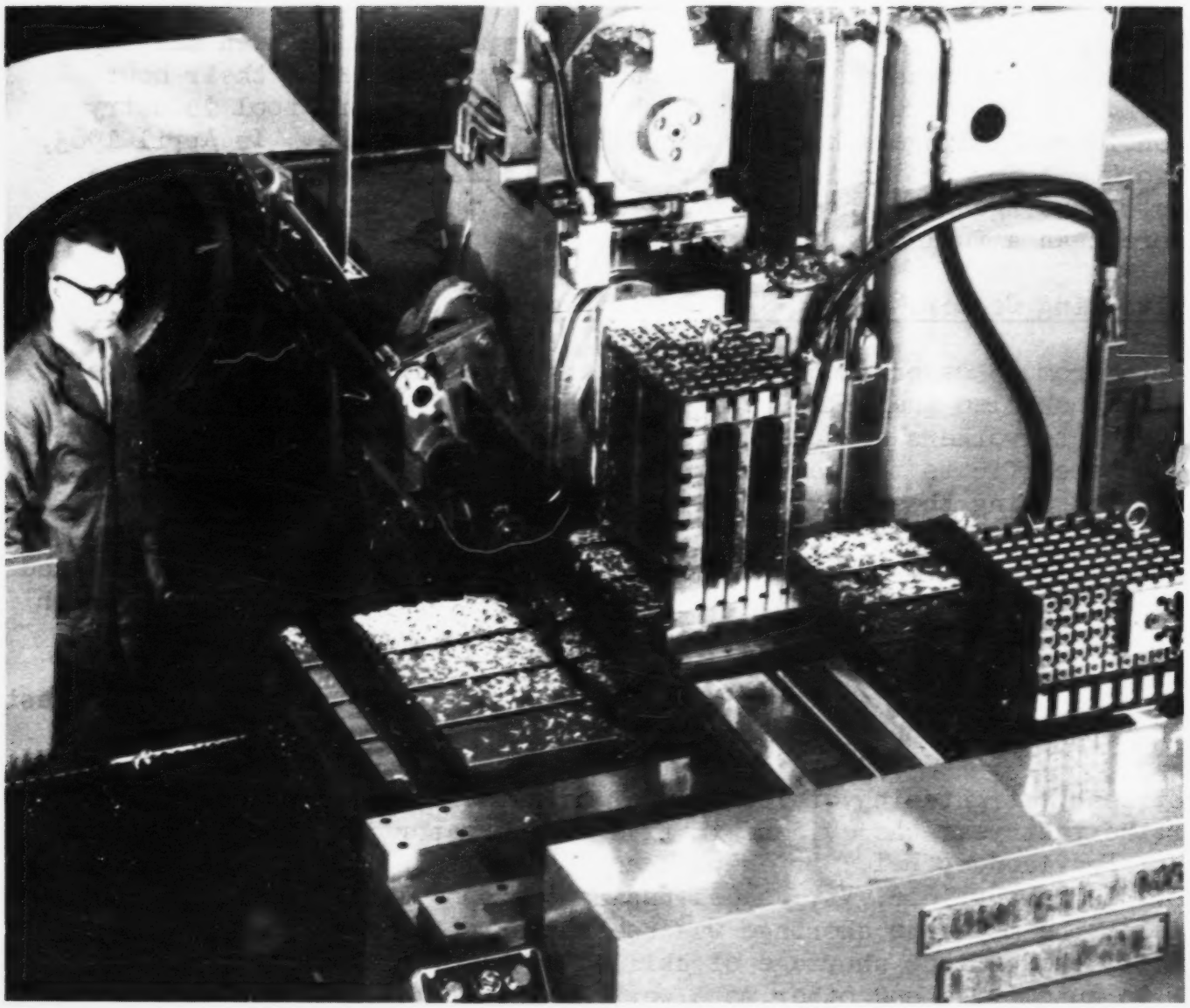
Employment generally has not increased as fast as shipments. It appears that major causes for the difference are as follows: 1) Output in the industry has been increasing somewhat faster than manhours worked; 2) shipment figures provided by the U.S. Department of Commerce cover cutting and forming tools, according to its definition of the industry. Employment figures provided by the Bureau of Labor Statistics cover not only cutting and forming tools (SIC 3541 and 3542) but also metalworking machinery except machine tools (SIC 3548). This latter group has some 40,000 workers, only a very small number of whom are engaged in machine tool output; 3) shipment figures cannot be translated precisely into constant dollars; and 4) the long lead time for manufacture makes it difficult to relate shipments and employment closely.

Table 2.--Employment in the Machine Tool Industry
1958-1963 and April 1963-1964
(in thousands)

Year	Total	Cutting tools 1/	Forming and other 2/
1958	116.1	64.7	51.4
1959	119.3	64.8	54.5
1960	129.8	69.5	60.3
1961	122.4	64.1	58.3
1962	127.3	67.4	59.9
1963	131.1	70.3	60.8
April 1963	129.4	69.4	60.0
January 1964	136.3	73.4	62.9
April 1964	140.7	75.5	65.2

1/ Metal cutting (SIC 3541).
2/ Metal forming and metalworking machinery except machine tools (SIC 3542 and 3548).

Source: Bureau of Labor Statistics.



This Omnimil is a multi-operation production center with 3 or 4-axis numerical control, including automatic tool changing. Optional pallet changer and modular fixture blocks, as illustrated, simplify work loading and unloading.

Photo Courtesy of Sundstrand Corporation

Employment has been rising steadily, with the exception of 1961, since 1958, paralleling changes in direction for shipments reported in constant dollars. It is of interest to note, however, that the employment increase between 1958 and 1963 totaled 13 percent as against an increase of 39 percent in sales adjusted for price changes (constant dollars).

Machine tool employment moved up 8.7 percent between April 1963 and April 1964 (table 2). According to a Bureau of Employment Security survey of large firms representing one-third of the industry's work force, the rate of increase among sampled firms ranged widely, and a number of them even reported declines. Despite recent reports of manpower recruitment difficulties, employment showed a gain of over 3 percent, or 4,400 workers, between January and April.

In addition to expanding their work force, employers have been meeting part of their increasing volume of business by lengthening their hours of work. As a general rule, the workweek in the machine tool industry is considerably longer than for manufacturing as a whole. In April 1963, the workweek for production workers in the metalcutting segment of the industry averaged 42.9 hours. By April 1964, the workweek had increased by more than a full hour to 44.3 hours.

Metalworking Centers Report Skill Shortages

Reports from 15 major machine-tool centers cite the continued shortage of highly skilled and well-qualified metalworkers. Shortages for semi-skilled metalworkers are also widespread but less acute. These shortages are not specific to the machine tool industry but are significant for all industries using these worker skills.

Ten of the 15 reporting areas characterized the local shortages of skilled metalworkers as serious. The exceptions were Buffalo and Milwaukee which reported moderate shortages; Chicago which tagged the current situation as "spotty"; Springfield, Vt., where stepped-up activity resulted in a balanced labor supply and demand picture in the spring of 1964; and Rochester which reported no job orders from the machine tool industry.

A noticeable tightening of local labor markets for metalworkers in 1964 over the past year was evident in five of the reporting areas: Worcester, Mass.; Providence, R.I.; Bridgeport and New Britain, Conn.; and Cincinnati, Ohio. In Springfield, Vt., added business erased local surpluses. In Buffalo, the moderate shortage was somewhat greater than last year. In Detroit, the serious shortage of skilled metalworkers was heightened by a boom in automotive and other metalworking industries. In Cleveland, some small relief in the continuing shortage was attributed to layoffs arising from the completion of a government contract for the manufacture of rifles.

As might be expected, the most significant shortages were among the skilled metalworking trades. Stringencies appeared most obvious for tool and die makers, machinists, and the entire gamut of skilled machine operators experienced on such tools as the turret-lathe, engine lathe, milling-machine, horizontal boring and milling machine, and cylindrical grinders.

Among semiskilled metalworkers the picture was varied. Although shortages of semiskilled workers were generally reported in all areas, specific occupations were in balance in some. For example, in Chicago, vertical turret lathe operators, shaper operators, planer operators, and surface grinder operators were judged in balanced supply as were machine tenders in New Britain, Conn. Similarly, there was no shortage of general machine operators in Cincinnati. In Detroit, the shortage for semiskilled workers was largely confined to metal finishers, gagers, and semiskilled machine operators. Most of the areas reported adequate supplies of unskilled workers and reported little or no difficulty in obtaining entry workers for training in semiskilled and skilled metalworking occupations.

Interarea Recruitment Is
One-fourth Below Peak

The interarea recruitment system of the Federal-State employment service interarea recruitment system produces statistics on job openings for occupations for which qualified workers are not available within local labor market areas. These data indicate skill shortages throughout the Nation, since jobs are not placed in the interarea recruitment system unless the local employment service office is unable to find workers within the area in which the job is located, the employer is willing to recruit workers from other areas, and the wages offered are similar to those paid within the area.

As of June 1964, there were nearly 1,800 jobs for skilled metalworkers placed in interarea recruitment by State employment services. This figure represented more than a third of all skilled worker jobs placed in interarea recruitment and was 29 percent higher than total hard-to-fill openings for skilled metalworkers in June 1963. However, in June 1964, orders in interarea recruitment for skilled metalworkers were still nearly 12 percent below the total reported for July 1962--the most recent peak. The increase between 1963 and 1964 has remained, as of May, substantially below the rise between 1961 and 1962. The relatively strong showing in each of the first 6 months of 1964, however, suggests that added stringencies may be developing.

Interarea recruitment for semiskilled workers is a relatively small proportion of total hard-to-fill jobs (about 6 percent) for which employers utilize the Federal-State network. Recruitment of semiskilled metalworkers reached a peak in mid-1962 when about 350 such workers were being sought. In June 1964, interarea recruitment of semiskilled metalworkers totaled 160--compared with 125 a year earlier.

Mass Layoffs Are a
Possible Recruitment Source

Permanent layoffs of almost 3,500 workers (Appendix, table I), employed as skilled and semiskilled metalworkers, were reported to the Federal-State employment service system between November 1963 and March 1964 as part of a voluntary program for reporting on plant shutdowns and mass layoffs. Nearly 1,800 of these workers were machinists, tool and die makers, and other skilled machine shop workers.

Permanent layoffs reported were heavily concentrated in eastern centers. Over two-fifths of the skilled metalworkers and 70 percent of the semiskilled metalworker layoffs reported during this 5-month period were in New York, N.Y.; Paterson, N.J.; Boston, Springfield, and Worcester, Mass.; Portsmouth, N.H.; and Hartford, Conn. Layoffs of skilled metalworkers were also significant in Los Angeles and San Diego, Calif., and Milwaukee, Wis. The displaced workers were employed largely in ordnance, machinery, aircraft, instrument, and Federal facilities. Although some of the layoffs occurred in Milwaukee, Wis., Worcester, Mass., and Hartford, Conn., most of the displaced workers were not located in areas in which there has been an expansion in employment in the machine tool industry during the past year.

Some of these workers undoubtedly found work soon after their layoff. Nevertheless, the areas in which these layoffs took place represent a possible source of recruitment.

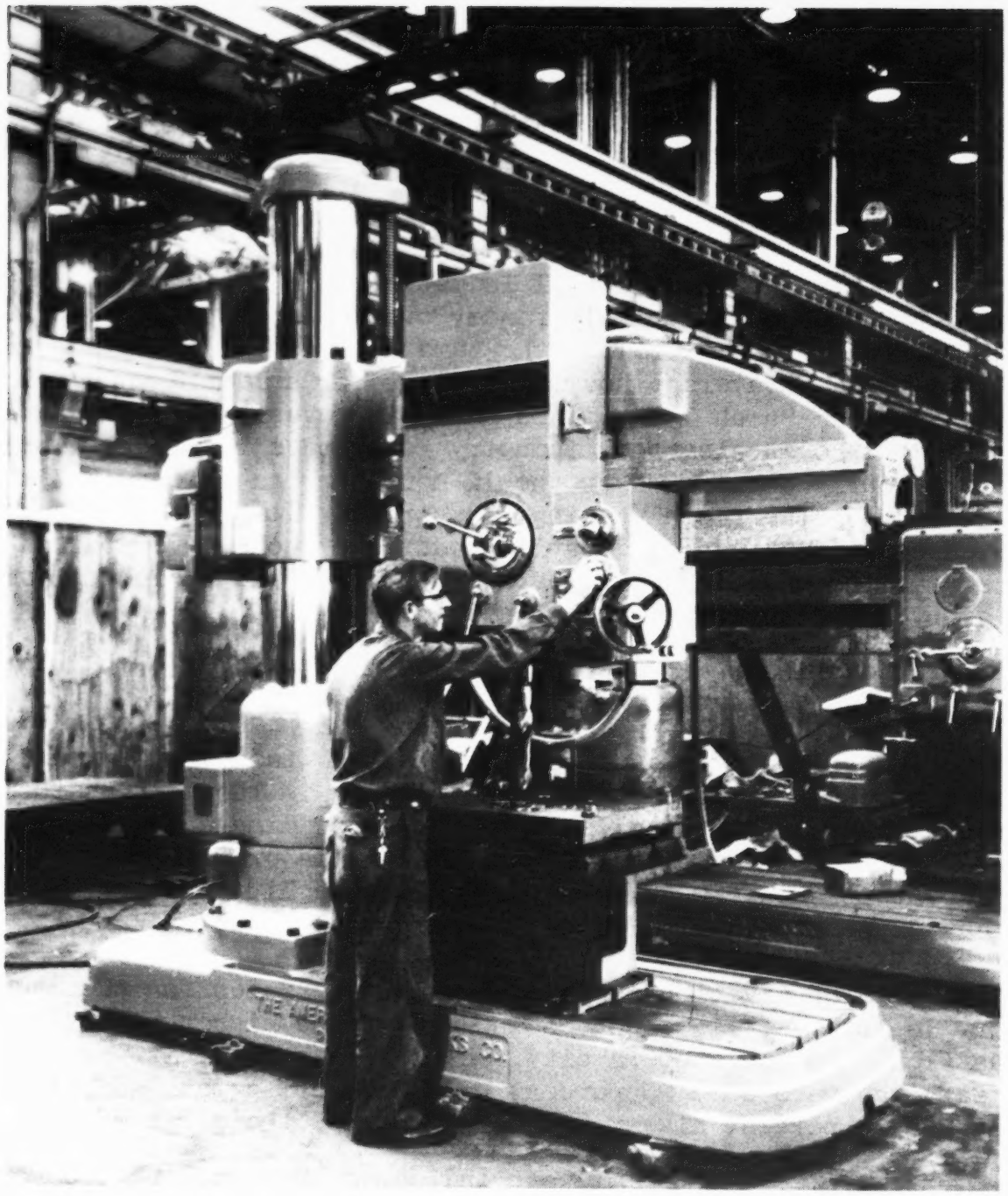
Training

The traditional sources of training for metalworkers have been local vocational schools; apprenticeships, both formal and informal; and on-the-job training programs. Since 1962, training under the Manpower Development and Training Act has been focused upon occupations in which there is a "reasonable expectation of employment." The linking of occupational training under this program to the requirements of the labor market has inevitably led to sizable training programs for skilled and semiskilled metalworking occupations.

Between August 1, 1962, and April 30, 1964, training for more than 10,000 workers in skilled and semiskilled metalworking occupations was approved under the Manpower Development and Training Act--nearly 8 percent of total trainee approvals since the inception of the program (Appendix, table II). Most of the approved projects are designed to train semiskilled workers. These projects are broadly distributed (in 31 States as of June 1963) and are located in the major metalworking centers in which there appears to be a shortage of qualified workers. In fact, 11 of the 15 areas reporting on current labor demand and supply conditions for metalworking occupations in mid-May 1964 reported on specific programming for skilled and semiskilled metalworkers under the provisions of the Manpower Development and Training Act. Two areas in which some of this training has already been completed reported that over 90 percent of the trainees were placed in occupations related to their metalworking training.

Local public employment offices provided additional information concerning training programs in their areas. Training is part of the local picture in all of the reporting areas. However, the extent and nature of the training varied markedly. Some of the areas reported apprenticeship programs are preparing workers for skilled metalworking occupations. In Detroit, a well-organized program involving 100 employers and nearly 900 apprentices in tool and die making occupations was reported. In Bridgeport, 45 firms had 175 apprentices enrolled in machinist, tool and die-making, and pattern making occupations. In Chicago, a labor union-employer agreement was concluded late in 1962 and provided for the acceptance of graduates of local Manpower Development and Training Act programs to the second-year apprenticeship level, thus improving the local supply of apprenticed skilled metalworkers.

Similarly, on-the-job training programs were an important feature of local training programs in at least six of the reporting areas. However, the emphasis upon formal training was limited primarily to large firms, and the number of programs deemed relatively small as compared with current and anticipated needs. Exceptions, again, were evident. In Springfield, Vt., the only area reporting a balanced labor supply and demand situation with reference to the machine tool industry in mid-May 1964, training for metalworking occupations is accomplished through a cooperative training program initiated in the high school and concluded through on-the-job apprenticeship. Separate on-the-job training is also conducted by local employers



This operator is pre-selecting feed on a 5' 15", 32-speed radial drill.
Photo Courtesy of American Tool Works Company

who have lowered entry requirements in recent years in an effort to develop an adequate supply of metalworkers.

Average Hourly
Earnings Are High

Wage rates in the machine tool industry, on the average, would not seem to be a factor inhibiting the recruitment of workers. The 1963 average hourly earning rate of $2.89 in the metal cutting portion of the machine tool industry appears to be competitive with other metalworking activities. A comparison of these rates (table 3) reveals that certain specialized industries such as steam engines and turbines and the tool and die industry do have higher wage rates on the average. (The difference in wage rates among

industries could reflect different occupational structures, but it is believed that this factor does not have any significant effect on this analysis.) On the other hand, average hourly earnings for the machine tool (metal cutting) industry compare more than favorably with those for such other industries as construction and related machinery, farm machinery, and machine tool accessories. Certainly, hourly earnings are considerably higher than the average of $2.63 for all durable goods combined.

On the assumption that the machine tool industry may have found it necessary to increase its wages relatively faster over the past year than other industries competing for more or less the same labor supply, an analysis was made of the trend in average hourly earnings for selected industries between March 1963 and March 1964. This analysis reveals that the metal cutting portion of the machine tool industry reported a rise of 3.1 percent in average hourly earnings over the 12-month period which was less than for many of the other metalworking industries. It was the same percentage increase as reported for durable goods as a whole, even though the over-the-year increase in hourly earnings for machine tools was somewhat inflated by longer overtime work (table 3).

Rising Wages Are Not Likely to Ease Shortage

In response to the following question of the United States Employment Service--"If there were a 5 to 10 percent wage increase in the machine tool industry, would this--in your judgment--reduce or eliminate the (manpower) shortage?"--almost all local employment offices in major machine tool centers replied that such a wage increase would have little or no effect on recruitment of scarce skills for the machine tool industry.

The reason for this observation was that hourly wage rates for the machine tool industry in at least five centers appeared to be higher than for competing industries. In one eastern city, on the other hand, it was estimated that earnings were some 25 percent below competing metalworking centers, and even a 10 percent hike would hardly narrow the differential.

Comments from two centers in the Midwest indicated that such a rise would have only a temporary effect because it would be matched by other industries.

Table 3.--Average Hourly Earnings of Production Workers in Selected Industries, 1963-1964

Industry	Average hourly earnings			
		March		Percent change
	1963	1963	1964	
Durable goods	$2.63	$2.61	$2.69	+3.1
Steam engines and turbines	3.27	3.23	3.34	+3.4
Special dies, tools, jigs, and fixtures	3.18	3.20	3.35	+4.7
Machine tools, metal cutting types	2.89	2.88	2.97	+3.1
Construction and related machinery	2.79	2.77	2.87	+3.6
Farm machineryand equipment	2.75	2.74	2.84	+3.6
Machine tool accessories	2.74	2.73	2.83	+3.7

Source: Bureau of Labor Statistics.

Many local employment offices reported that overtime work was of sufficient duration so that weekly earnings were substantially higher than for other industries even if hourly rates were only comparable.

Excluded from an appraisal of wage raise impact were five areas where manpower appeared tight but the shortage was described in very moderate terms.

Hiring Specifications Contain Rigidities

Some of the manpower problems experienced by the machine tool industry are attributed to certain rigidities in recruitment. Not all plants practice the same rigidities, of course, but it appears obvious that one or more of these restrictive hiring practices are found in many establishments.

Age limitations were frequently mentioned, e.g., in hiring, age 45, and in compulsory retirement, age 65. An age factor in hiring can be particularly restrictive in the machine tool industry in view of the large number of craftsmen in the older age categories. Similarly, a compulsory retirement age reduces a competent and vital labor supply and prevents consideration of 65-plus workers who may be willing to return in an emergency situation.

Insistence on men only is common. While women could probably not be employed on the heavier equipment, they were used during World War II on the lighter accessories and precision tools. In 1946, while still under the influence of wartime patterns, the metalworking machinery industries reported that women comprised 17 percent of their work force. In 1963, this proportion was only 11 percent.

High school graduation appears to be the main educational requirement for hiring. Some firms have relaxed this specification in the current scarcity but the impression from the reports is that this practice is more adhered to than modified.

The extent to which nonwhites are employed in this industry is unknown. The occasional reference, however, indicates that this group may be a broad, untapped reservoir, in some cases even above the entry grade. In speaking of the hiring of trainees at the second year apprenticeship level, the Chicago local office reported: "All of the 34 graduates have been eagerly grabbed up by the industry; several were Negroes who were hired by firms taking on such workers in skilled jobs for the first time."

Industry Outlook

Business activity for the industry will undoubtedly continue to be brisk for the remainder of the year and probably well into 1965. Backlogs were on the rise throughout 1963 and have increased fractionally in each of the first 4 months of 1964.

For cutting type machine tools, the estimated backlog in April 1964 was 6.7 months, compared to 4.2 months in January 1963. The increase was even greater for metal forming tools, rising to 8.9 months from 4.8 months at the beginning of 1963.

Industry and government sources suggest that the industry will witness at least a 30 percent rise in sales over 1963. This expansion rate appears already to have been achieved in the first 4 months of this year, projecting from reports by the National Machine Tool Builders Association.

On the basis of currently available data, it appears that the industry can achieve a substantial increase in output with some additional recruitment and possible further extension of the workweek.

APPENDIX

APPENDIX

Table A.--Number of Permanent Layoffs Reported for Skilled and Semiskilled Metalworkers by Industry and Labor Market Area - November 1963-March 1964

Industry and labor market	Skilled metalworkers				Semiskilled metalworkers
	Total	Machinists	Tool & die-makers	Mach. shop & rel. occ. n.e.c.	
All industries	1,783	576	245	961	1,673
Hartford, Conn.	11	--	--	11	49
Canton, Ohio	19	14	5	--	108
Boston, Mass.	9	--	--	9	93
Los Angeles, Calif.	176	50	31	95	31
Milwaukee, Wis.	131	5	--	126	--
New York, N.Y.	108	29	27	52	532
Paterson, N.J.	328	85	15	128	31
Portsmouth, N.H.	116	113	3	--	--
San Diego, Calif.	121	15	23	86	38
Springfield, Mass.	27	--	23	4	320
Worcester, Mass.	160	10	10	140	140
Seattle, Wash. 2/					
Ordnance	333	36	24	273	746
New York, N.Y.	--	--	--	--	530
Worcester, Mass.	160	10	10	140	140
Nonelectrical machinery	235	25	6	204	128
Milwaukee, Wis.	131	5	--	126	--
Electrical machinery	315	116	92	107	139
Los Angeles, Calif.	45	23	--	22	14
Aircraft	340	46	77	217	73
Hartford, Conn.	11	--	--	11	49
Los Angeles, Calif.	58	14	21	23	17
New York, N.Y.	80	15	13	52	2
San Diego, Calif.	89	11	22	56	5
Seattle, Wash. 2/					
Instruments	184	85	6	93	124
Boston, Mass.	9	--	--	9	93
Paterson, N.J.	174	84	6	84	31
Federal Government	144	114	26	4	320
Portsmouth, N.H. 1/	116	113	3	--	--
Springfield, Mass.	27	--	23	4	320
All other industries	232	154	15	63	143
Akron, Ohio	60	60	--	--	--
Canton, Ohio	19	14	5	--	108

Source: State employment security agencies.

1/ Impending layoff to take place in June 1964.

2/ Available data on aircraft layoffs in Seattle limited to information on the number of jobs being eliminated. These total 242 machinist, 68 tool and die maker, and 100 tooling mechanic plant job titles. A labor management agreement provides for a rolling adjustment in the layoff of these workers. This means that personnel actually laid off may not be skilled in the job titles which have been eliminated. For example, a machinist may accept a lower classification in another plant division with the ultimate layoff affecting a worker with another skill.

APPENDIX

Table B.--Number of Projects and Trainees in Skilled and Semiskilled Metalworking Occupations for which Training Was Approved Under MDTA August 1962-April 1964 1/

Occupation	Projects	Trainees
Total	332	10,507
Skilled metalworkers	91	2,766
Machinists	43	1,121
Toolmakers, die sinkers, and setters	3	39
Machine shop and related occupations, n.e.c.	45	1,606
Semiskilled metalworkers	218	7,608
Machine shop and related occupations, n.e.c.	218	7,608
Metalworkers' apprentices		
Machinists	15	38
Toolmakers, die sinkers, and setters	8	95

1/ Training in these occupations is generally at the entry level; and it is necessary that workers be given additional training on the job before becoming fully qualified.

Source: State employment security agencies and the Bureau of Apprenticeship and Training.

GPO 880-814

State Employment Security Agencies Affiliated With the Bureau of Employment Security

ALABAMA	Department of Industrial Relations, State Office Building, Montgomery 36104
ALASKA	Employment Security Division, Department of Labor, Box 2661, Juneau 99801
ARIZONA	Arizona Employment Security Commission, State Employment Service, 1717 West Jefferson Street, Phoenix 85005; Unemployment Compensation Division, P.O. Box 6123, Phoenix 85005
ARKANSAS	Employment Security Division, Department of Labor, Employment Security-Welfare Building, Box 2981, Little Rock 72203
CALIFORNIA	Department of Employment, 800 Capitol Avenue, Sacramento 95814
COLORADO	Department of Employment, 1210 Sherman Street, Denver 80203
CONNECTICUT	Connecticut Employment Security Division, Hartford 06115
DELAWARE	Employment Security Commission, 801 West Street, Wilmington 19899
DIST. OF COL.	United States Employment Service of the District of Columbia, Employment Security Building, Sixth and Pennsylvania Avenue, N.W., Washington 20001; Unemployment Compensation Board, Sixth and Pennsylvania Avenue, N.W., Washington 20001
FLORIDA	Industrial Commission, Caldwell Building, Tallahassee 32301
GEORGIA	Employment Security Agency, Department of Labor, State Labor Building, Atlanta 30303
GUAM	Department of Labor and Personnel, Government of Guam, Agana 96910
HAWAII	Employment Service Division, Department of Labor and Industrial Relations, 825 Mililani Street, Honolulu 96813
IDAHO	Employment Security Agency, P.O. Box 520, 317 Main Street, Boise 83701
ILLINOIS	Employment Security Administrator, Department of Labor, 165 North Canal Street, Room 200, Chicago 60606
INDIANA	Employment Security Division, 10 North Senate Avenue, Indianapolis 46204
IOWA	Employment Security Commission, 1000 East Grand Avenue, Des Moines 50319
KANSAS	Employment Security Division, State Labor Department, 401 Topeka Boulevard, Topeka 66603
KENTUCKY	Bureau of Employment Security, Department of Economic Security, Capitol Office Building, Frankfort 40601
LOUISIANA	Division of Employment Security, Department of Labor, Employment Security Building, 2200 Baton Rouge Expressway, P.O. Box 4094, Capitol Station, Baton Rouge 70804
MAINE	Employment Security Commission, 20 Union Street, Augusta 04332
MARYLAND	Department of Employment Security, 1100 North Eutaw Street, Baltimore 21201
MASSACHUSETTS	Division of Employment Security, 881 Commonwealth Avenue, Boston 02215
MICHIGAN	Employment Security Commission, 514 Boulevard Building, 7310 Woodward Avenue, Detroit 48202
MINNESOTA	Department of Employment Security, 369 Cedar Street, St. Paul 55101
MISSISSIPPI	Employment Security Commission, P.O. Box 1699, 1520 West Capitol Street, Jackson 39203
MISSOURI	Division of Employment Security, Department of Labor and Industrial Relations, 421 East Dunklin Street, Jefferson City 65101
MONTANA	Unemployment Compensation Commission, Unemployment Compensation Commission Building, P.O. Box 1728, Helena 59601
NEBRASKA	Division of Employment, Department of Labor, 550 South Sixteenth Street, P.O. Box 4600, State House Station, Lincoln 68509
NEVADA	Employment Security Department, P.O. Box 602, Carson City 89701
NEW HAMPSHIRE	Department of Employment Security, 34 South Main Street, Concord 03301
NEW JERSEY	Division of Employment Security, Department of Labor and Industry Building, John Fitch Plaza, Trenton 08625
NEW MEXICO	Employment Security Commission, 924 Park Street, S.W., P.O. Box 1799, Albuquerque, 87103
NEW YORK	Division of Employment, Department of Labor, State Office Building Campus, Albany 12201
NORTH CAROLINA	Employment Security Commission, P.O. Box 589, Jones & North McDowell Sts., Raleigh 27602
NORTH DAKOTA	North Dakota State Employment Service, 207 East Broadway, Box 568, Bismarck; Unemployment Compensation Division, 201 East Broadway, Box 450, Bismarck 58502
OHIO	Bureau of Unemployment Compensation, 427 Cleveland Avenue, Columbus 43216
OKLAHOMA	Employment Security Commission, Will Rogers Memorial Office Building, Oklahoma City 73105
OREGON	Department of Employment, 403 Labor & Industries Building, Salem 97310
PENNSYLVANIA	Bureau of Employment Security, Department of Labor and Industry Building, Seventh and Forster Streets, Harrisburg 17121
PUERTO RICO	Bureau of Employment Security, 414 Barbosa Avenue, Hato Rey, San Juan 00917
RHODE ISLAND	Department of Employment Security, 24 Mason Street, Providence 02903
SOUTH CAROLINA	Employment Security Commission, 1225 Laurel Street, P.O. Box 995, Columbia 29202
SOUTH DAKOTA	Employment Security Department, 310 Lincoln Street South, Aberdeen 57401
TENNESSEE	Department of Employment Security, Cordell Hull State Office Building, Nashville 37219
TEXAS	Texas Employment Commission, TEC Building, Austin 78701
UTAH	Department of Employment Security, Industrial Commission, 174 Social Hall Avenue, P.O. Box 2100, Salt Lake City 84110
VERMONT	Department of Employment Security, P.O. Box 708, National Life Drive, Montpelier 05602
VIRGINIA	Virginia Employment Commission, 703 East Main Street, P. O. Box 1358, Richmond 23211
VIRGIN ISLANDS	Virgin Islands Employment Security Agency, P.O. Box 1092, Charlotte Amalie, St. Thomas 00802
WASHINGTON	Employment Security Department, Employment Security Building, P.O. Box 367, Olympia 98501
WEST VIRGINIA	Department of Employment Security, State Office Building, California and Washington Streets, Charleston 25305
WISCONSIN	Wisconsin State Employment Service, P. O. Box 1607, 4802 Sheboygan Avenue, Madison 53701; Unemployment Compensation Department, P. O. Box 644, 4802 Sheboygan Avenue, Madison 53701
WYOMING	Employment Security Commission, ESC Building, Center and Midwest Streets, P.O. Box 760, Casper 82602

VT 004 930

A Study of Travel Regulations for Vocational Education Departments.

Wyoming Research Coordinating Unit in Vocational-Technical Education, Cheyenne
Wyoming State Dept. of Education, Cheyenne
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan68 7p.

ADMINISTRATIVE POLICY; *PERSONNEL POLICY; EXPENDITURES; VOCATIONAL EDUCATION; *STATE DEPARTMENTS OF EDUCATION; NATIONAL SURVEYS; *TRAVEL; QUESTIONNAIRES; STATE SUPERVISORS; VOCATIONAL DIRECTORS

All Directors of Vocational Education in the 50 states, Washington, D.C., the Virgin Islands, Guam, and Puerto Rico were administered a six-item questionnaire covering aspects of in-state and out-of-state travel regulations of Vocational Education Department staff members. Only two questionnaires were not returned. Among the results were: (1) 35 states do not restrict the number of trips per year while 12 states do, (2) 45 states do not limit the number of miles per year, (3) 42 states do not limit the number of days away from the office, but a few states set a limit of 10 to 14 days, (4) Restrictions on out-of-state travel are based on state board policy in nine states, statutory provisions in four states, and department or division policy in 25 states, (5) Out-of-state travel policies are in written form in 23 states, (6) Out-of-state per diem figures range from $7.50 to $25.00 while in-state figures range from $6.00 to $25.00, (7) 28 states allow actual expenses on some occasions, and (8) Final authority for approval of out-of-state travel rests with the State Director of Vocational Education in 13 states and with the Chief State School Officer in 26 states. (ET)

VT 004 930

ED0 36657

A STUDY OF TRAVEL REGULATIONS FOR VOCATIONAL EDUCATION DEPARTMENTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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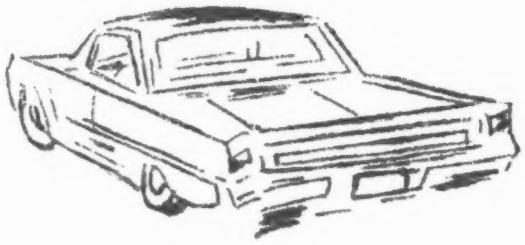
Prepared By
Research Coordinating Unit

Wyoming Department of Education
Harry Roberts, State Superintendent
Capitol Building
Cheyenne, Wyoming

VT004930



INTRODUCTION

A study of the regulations governing the travel by staff members of the Vocational Education Departments throughout the country has been completed by the Wyoming Research Coordinating Unit.

Fifty-four questionnaires were distributed to the Directors of Vocational Education in the fifty states, Washington, D. C., the Virgin Islands, Guam and Puerto Rico. One of the states and one territory failed to reply as of January 8, 1968.

Six questions covering all aspects of both in-state and out-of-state travel were asked on the questionnaire. Some of the replies failed to show an answer for one or more of the questions, accounting for the difference in the number of relevant answers to the various questions.

In compiling the results of this study, no distinction has been made between the 50 states, Washington, D. C., or the three territories. Therefore, all of the replies are referred to as "states".

QUESTION ONE: Are there travel restrictions placed upon your professional staff with respect to:

1. Number of trips per year----------Yes_____No_____.
   If yes, how many are allowed?_____.
2. Miles per year----------Yes_____No_____.
   If yes, how many?_____.
3. Days away from office----------Yes_____No_____.
   If yes, how many?_____.

There were 12 "yes" answers to the first part of the question, while 35 of the responses said there was no limit on the number of trips per year. Of the yes answers, the specific number of trips per year varies. They include:

1. limit not set
2. limit varies
3. from one to three trips
4. one trip (two states)
5. from one to two trips
6. two trips
7. director--two trips; supervisor--one trip

There were 45 negative answers to the second part of the question, which concerned limits on the number of miles per year. There were no affirmative answers to this part of the question.

However, there were four replies which stated there are restrictions on the number of days away from the office. These limits include:

1. limit being determined
2. 14 days
3. 10 days

There were 42 replies stating there is no limit on the number of days away from the office.

QUESTION TWO: Are restrictions on out-of-state travel based on (check the appropriate blank or blanks): state board policy_____; statutory_____; department or division policy_____: other (elaborate) _____.

State Board policy is the source of travel regulations in nine of the states. Statutory provisions regulate out-of-state travel in another four of the states. Twenty-five of the states look to department or division policy in determining their travel in other states. Other sources of policy-making on out-of-state travel include:

1. Deputy Superintendent of Public Instruction (two states)
2. Governor (two states)
3. Department of Allotment of Funds and Superintendent of Public Instruction
4. Department of Finance and Administration
5. Superintendent, Board and then Legislature
6. State Board of Examiners
7. Employee request and board approval
8. State Director of Vocational Education
9. Best use of available travel funds
10. Include in annual travel plan or send written request to Commissioner of Education
11. Budgetary allocations from Division
12. Travel Board and Board of Public Works
13. Governor and Executive Council approve travel over 700 miles if it is for more than one person
14. Availability of funds
15. Executive order
16. Commissioner interpretation of state policy

Several of these sources were in addition to one or more of the three policy sources listed in the question.

QUESTION THREE: Are out-of-state travel policies in written form?

Yes_____No_____. If yes, please enclose a copy.

The replies were nearly evenly divided on this question, as 23 of the states indicated that such policies are in written form, while 24 of the states said they are not.

QUESTION FOUR: Each year, certain meetings are called and are of benefit to your professional staff. Do your State Supervisors attend annually:

1. The AVA meeting----------Yes_____No_____.
2. The annual meeting of the youth organization associated with the Supervisor's area--Yes_____No_____.
3. The State Supervisor's annual meeting----Yes_____No_____.
4. U.S.O.E. regional meeting----------Yes_____No_____.
5. Other (please elaborate)_____.

Thirty-seven of the responses showed that the State Supervisors attend the AVA meeting. However, two of these indicated that only a selected few attend this meeting. Nine states do not send their supervisors to the AVA meeting. Thirty-eight states send their supervisors to the annual meeting in their area, while seven do not. Thirty-nine of the state supervisors attend the annual meeting of the youth organization associated with their areas. Seven states do not attend the youth meetings. Forty-two of the state supervisors attend U.S.O.E. regional meetings, while four do not.

Three states replied that their supervisors also attend meetings that 1) are constructively related to their work; 2) are of importance to proper development and improvement; and 3) are special conferences for advisory purposes.

QUESTION FIVE: In your organization, final authority for approval of out-of-state travel rests with: the Vocational Area Supervisor _____, the State Director of Vocational Education _____, Chief State School Officer _____, other (elaborate) _____.

In the majority of the states, the Chief State School Officer is the final authority, as indicated on 26 of the replies. The State Director of Vocational Education is the final authority in 13 of the states. None of the states rely on the Vocational Area Supervisor as the final authority. In addition to, or in combination with, the above persons, there are other persons and departments which must give final approval for out-of-state travel in many of the states. These include:

1. Associate State Superintendent for Instruction (two states)
2. State Board for Vocational Education (two states)
3. State Board for Vocational Education, State Director and then the Governor
4. Governor (seven states)
5. Deputy Superintendent of Instruction
6. Comptroller of State
7. Department of Finance and Administration
8. Director recommends to State Board for approval
9. Travel Board and Board of Public Works
10. Budget Bureau
11. Governor, if more than one person
12. Reviewed by Central Budget Agency
13. State Director of Vocational Education for travel (whether in-state or out-of-state) up to 300 miles. Commissioner for Basic Education for travel over 300 miles.
14. Governor's office, Administration and Finance.

QUESTION SIX: Would you place the appropriate dollar figures in the appropriate blanks for the amount of per diem allowed: in-state_____, out-of-state_____. At any time, are actual expenses allowed? Yes_____ No_____. If yes, how is this determined?

Per diem allowances for in-state travel range from $6.00 to $25.00. They are:

1. $6.00 (meal allowances only, actual cost of lodging added)
2. $7.50 (meal allowances only, actual cost of lodging added)
3. $10.00--two states
4. $10.50
5. $11.00--two states
6. $11.50
7. $12.00--five states
8. $12.50
9. $13.00--three states
10. $14.00--three states
11. $15.00
12. $15.50
13. $18.00--three states
14. $20.00--three states
15. $21.00--two states
16. $25.00

Out-of-state per diem figures ranged from $7.50 to $25.00. They are:

1. $7.50 (meal allowances only, actual cost of lodging added)
2. $15.00--three states
3. $16.00--six states, in one of the states, an exception is made in Washington, D. C., where the per diem is $25.00.
4. $17.00
5. $17.50
6. $18.00--three states
7. $19.00
8. $20.00--six states
9. $21.00--two states
10. $23.00
11. $25.00--four states

Concerning the question of whether actual expenses are allowed at any time, 28 states replied in the affirmative, while 22 states stated they are not.

VT 004 946
Allen, David; Meyer, John M.
The 8.1 Credential, Review and Analysis.

California State Dept. of Education, Sacramento. Bureau of Industrial Education
California Univ., Los Angeles. Div. of Vocational Education
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*TEACHER CERTIFICATION; CREDENTIALS; *INDUSTRIAL ARTS TEACHERS; *TRADE AND INDUSTRIAL TEACHERS; VOCATIONAL EDUCATION; TABLES (DATA); *PROGRAM EVALUATION; TEACHER CHARACTERISTICS
CALIFORNIA

In 1965 The California State Board of Education authorized a new 8.1 credential which provided for the teaching of both industrial arts and trade and technical education subjects in grades 9 through 12. The credential was created to assist in the further development of occupational education programs in the California high schools. Because the credential encompassed parts of two different areas, it was agreed that the effect of the credential on instructional quality would be reviewed after a 2-year period. This report contains statistical data obtained from the regional offices of the Bureau of Industrial Education, the Trade and Technical Teacher Education Offices, and from a questionnaire mailed to industrial arts teachers enrolled in a 1966-67 vocational education class designed to fulfill credential requirements. No attempt is made to interpret the data, but to provide information for interpretation by an evaluation committee appointed by the Bureau of Industrial Education. Tabular data provides comparisons between the industrial arts and trade and technical teachers by subject area, work experience, teaching experience, and level of educational attainment. (HC)

VT 004 946

The 8.1 Credential

Review and Analysis

David Allen

John M. Meyer

Bureau of Industrial Education
California State Department of Education
in cooperation with
Division of Vocational Education
University of California

ED036657

VT004946

THE 8.1 CREDENTIAL

REVIEW AND ANALYSIS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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David Allen **John M. Meyer**

THE BUREAU OF INDUSTRIAL EDUCATION

CALIFORNIA STATE DEPARTMENT OF EDUCATION

IN COOPERATION WITH

THE DIVISION OF VOCATIONAL EDUCATION

UNIVERSITY OF CALIFORNIA

NOVEMBER, 1967

Preface

The Article 8.1 credential was created to assist in the further development of occupational education programs in the California high schools. Because this new credential encompassed parts of two different areas - industrial arts and trade and technical education - it was agreed that the effect of the credential on instructional quality would be reviewed after a two-year period by the Bureau of Industrial Education, California State Department of Education. Two years have passed since the agreement was made and the review is now being planned.

The information contained in this report is statistical in nature and is to be used in evaluating the effectiveness of the credential. The data were obtained directly from three sources: from the files in the three regional offices of the Bureau of Industrial Education; the Trade and Technical Teacher Education Offices, University of California at Berkeley and Los Angeles; and from a questionnaire mailed to those enrolled in the 1966-67 Vocational Education 8.1 Class. No attempt is made in this report to interpret the data; rather, the interpretation will be achieved through the services of a blue ribbon evaluation committee appointed by the Bureau of Industrial Education.

Richard S. Nelson
Chief, Bureau of Industrial Education
California State Department of Education

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Introduction

For a decade prior to the passage of the Vocational Education Act of 1963, trade and technical education in California was being offered more and more in the junior colleges and less and less in the high schools. The passage of the Vocational Education Act increased the emphasis on serving youth in the high schools. In many schools, only one teacher was required to teach both the industrial arts and the trade and technical subjects. The desire on the part of the schools to employ one teacher for both these areas prompted the California State Board of Education to amend its regulations on July 8, 1965, with a new credential authorization (Article 8.1). This provided for the teaching of both industrial arts and trade and technical education (occupational) subjects in grades 9 - 12 by qualified individuals whose base teaching credential permitted teaching either industrial arts or trade and technical subjects.

Not only did the Article 8.1 credential provide a means for utilizing the services of employed teachers; for the first time since the enactment of federal legislation for vocational education, in 1917, an avenue was provided for supervisors holding a base industrial arts teaching credential and appropriate supervision credentials to be reimbursed from federal funds.

A year-long series of meetings of a special committee appointed by the Bureau of Industrial Education developed the framework for the credential. The committee members represented the industrial arts teacher education departments of the state colleges, the trade and technical teacher education program of the University of California, county supervisors of both industrial arts and trade and technical education program of the University of California, county supervisors of both industrial arts and trade and technical education, school district supervisors of both industrial arts and trade and technical education, high school district superintendents, California State Department of Education supervisors of both industrial arts and trade and technical education, and representatives of the California Industrial Education Association and the California Vocational Association.

The 8.1 credential authorization was an attempt to provide industrial education to the students in the public secondary schools of our state with increased emphasis on both industrial arts and trade and technical education, and improved articulation between both programs. Being hybrid in nature, this credential aroused apprehension among the various elements in both industrial arts and trade and technical education. This apprehension was due in part to misunderstanding of the concepts behind the credential,

and in part to concern for the ability either of industrial arts teachers to teach trade and technical subjects, or of the trade and technical teachers to teach industrial arts subjects. Although individuals from both groups - industrial arts and trade and technical - are sincere in protecting the integrity of the programs they represent, their reactions have been such as to create concern for the validity of the concept of industrial education.

This study is not concerned with the philosophical values of industrial arts or trade and technical education. It is concerned with a review of the following three major topics: (1) the characteristics of industrial arts and trade and technical teachers holding the 8.1 credential; (2) the teacher education program in vocational education provided for industrial arts teachers holding the 8.1 credential, which was conducted during the 1966-67 school year; and (3) the scope of the program in which these teachers are teaching.

Comparison between the industrial arts and trade and technical teachers covered in this study is shown in Table 1. As of June 30, 1967, there were 394 industrial arts and 78 trade and technical teachers holding the Article 8.1 credential. The age range for the industrial arts teacher is greater by ten years than for the trade and technical teacher, whereas the median, mode, and mean are approximately the same, within a two-year range. The trade and technical teachers have approximately six years more work experience than the industrial arts teachers. The industrial arts teachers have approximately six years more teaching experience than the trade and technical teachers. The level of educational attainment for the majority of industrial arts teachers is the baccalaureate degree, whereas the range for the majority of trade and technical teachers is between two years of college or the "AA" degree, and the baccalaureate degree.

Tables 2 through 7 and Figure 1 display the comparisons between the industrial arts and the trade and technical teachers by subject area, work experience, teaching experience, and level of educational attainment. The difference in years of work experience between industrial arts and trade and technical teachers is about the same, regardless of instructional area. The difference between the high mean and low mean for work experience of the industrial arts teachers in the six instructional areas is 1.8 years. The highest mean for years of work experience is 5.3, in metals, and the lowest mean is 3.5, in graphic arts. For trade and technical teachers, the difference between the high mean and low mean for work experience in the six instructional areas is 2.5 years. The highest mean is 11.5 years, in drafting, and the lowest mean is nine years, in graphic arts.

The industrial arts teachers' range of teaching experience in the various instructional areas varies from 5.8 to 9.9 years. The greatest difference is 8.1 years, in the graphic arts area, and the smallest difference is 2.4 years, in automotive. Stated in mathematical terms, there appears to be a conjugate relationship between the years of work experience of the trade and technical teachers and the years of teaching experience of the industrial arts teachers.

There are no significant differences in educational attainment of the industrial arts teachers by the various instructional areas. It is only in the wood area that there are no trade and technical teachers having a baccalaureate degree.

When comparing the educational attainment of industrial arts

teachers to that of trade and technical teachers (Fig. 1) it is found that of the trade and technical teachers who have an 8.1 credential and are teaching industrial arts, only 6 percent (5 persons) have no more than a high school education. It should be noted that 36 percent of the trade and technical teachers, on the basis of college unit credit given through the Swan Bill evaluation procedures, are approximately 24 units away from a baccalaureate degree. The proportions of trade and technical teachers and of industrial arts teachers who achieved a level of educational attainment beyond their respective credential requirements are approximately the same.

Table 1. Characteristics of Industrial Arts and Trade and Technical Teachers

		Industrial Arts N = 394	Trade and Technical N = 78
Age in Years	Range	24-64	23-53
	Median	37.5	37.0
	Mode	38.0	38.0
	Mean	39.5	37.8
Years of Work Experience	Range	2-25	7-28
	Median	3.7	9.0
	Mode	2.0	8.0
	Mean	4.6	10.3
Years of Teaching Experience	Range	0-32	0-13
	Median	7.2	2.0
	Mode	3.0	1.0
	Mean	8.2	2.5
Educational Attainment	H.S.	0	5
	1 yr. Col.	0	14
	2 yr/AA	0	28
	B.A.	255	27
	M.A.	138	4
	Ed.D.	1	0

Table 2

Table 2. Characteristics of Industrial Arts and Trade and Technical Teachers, Auto Mechanics Area.

		Industrial Arts N = 87	Trade and Technical N = 19
Years of Work Experience	Range	2-25	7-26
	Median	3	8
	Mode	2	8
	Mean	4.8	10.1
Years of Teaching Experience	Range	0-19	0-13
	Median	4	3
	Mode	3	1
	Mean	5.8	3.4
Educational Attainment	H.S.	0	3
	1 yr. Col.	0	5
	2 yr/AA	0	9
	B.A.	59	1
	M.A.	28	1

Table 3

Table 3. Characteristics of Industrial Arts and Trade and Technical Teachers, Drafting Area.

		Industrial Arts N = 68	Trade and Technical N = 7
Years of Work Experience	Range	2-15	7-19
	Median	3	9
	Mode	2	10
	Mean	4.0	11.5
Years of Teaching Experience	Range	1-31	0-4
	Median	9	1
	Mode	11	1
	Mean	9.6	1.7
Educational Attainment	H.S.	0	0
	1 yr. Col.	0	1
	2 yr/AA	0	0
	B.A.	44	5
	M.A.	23	1
	Ed.D.	1	

Table 4

Table 4. Characteristics of Industrial Arts and Trade and Technical Teachers, Electronics Area.

		Industrial Arts N = 57	Trade and Technical N = 11
Years of Work Experience	Range	2-21	7-28
	Median	3	7
	Mode	3	7
	Mean	4.8	10.8
Years of Teaching Experience	Range	1-32	0-7
	Median	7	2
	Mode	3	3
	Mean	8.4	1.9
Educational Attainment	H.S.	0	0
	1 yr. Col.	0	1
	2 yr/AA	0	3
	B.A.	34	7
	M.A.	23	0

Table 5. Characteristics of Industrial Arts and Trade and Technical Teachers, Graphic Arts Area.

		Industrial Arts N = 33	Trade and Technical N = 11
Years of Work Experience	Range	2-9	7-12
	Median	3	9
	Mode	2	9
	Mean	3.2	9
Years of Teaching Experience	Range	1-30	0-4
	Median	10	2
	Mode	10	2
	Mean	9.9	1.8
Educational Attainment	H.S.	0	1
	1 yr. Col.	0	1
	2 yr/AA	0	2
	B.A.	21	7
	M.A.	12	0

Table 6

Table 6. Characteristics of Industrial Arts and Trade and Technical Teachers, Metals Area.

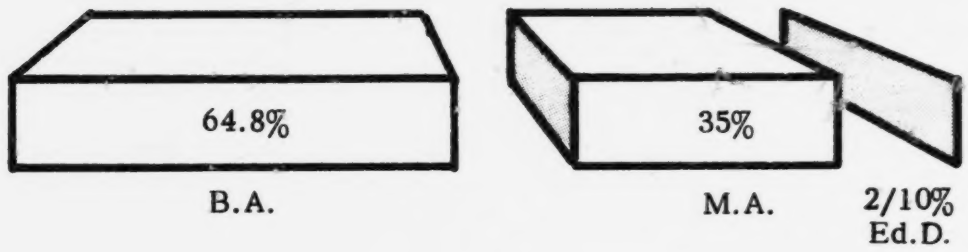
		Industrial Arts N = 69	Trade and Technical N = 24
Years of Work Experience	Range	2-25	7-16
	Median	4	9
	Mode	3	9
	Mean	5.3	10.4
Years of Teaching Experience	Range	1-26	0-12
	Median	7	2
	Mode	7	2
	Mean	7.5	2.3
Educational Attainment	H.S.	0	1
	1 yr. Col.	0	3
	2 yr/AA	0	11
	B.A.	45	7
	M.A.	24	2

Table 7. Characteristics of Industrial Arts and Trade and Technical Teachers, Woods Area.

		Industrial Arts N = 80	Trade and Technical N = 6
Years of Work Experience	Range	2-20	7-14
	Median	3	8
	Mode	2.5	7
	Mean	4.5	9.2
Years of Teaching Experience	Range	0-30	1-9
	Median	8	2
	Mode	14	3
	Mean	8.8	3.1
Educational Attainment	H.S.	0	0
	1 yr. Col.	0	3
	2 yr/AA	0	3
	B.A.	52	0
	M.A.	28	0

Figure 1

INDUSTRIAL ARTS



TRADE AND TECHNICAL

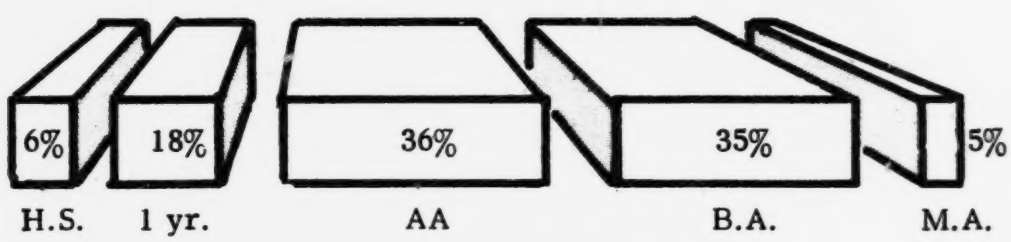


Figure 1. Educational Attainment of Industrial Arts and Trade and Technical Teachers.

Tables 8 through 11 compare industrial arts teachers by ten-year age groupings in relation to work experience in industry, years of teaching experience, and level of educational attainment. The tables also show the numbers and proportions of teachers in each age grouping who have completed all requirements for the 8.1 credential. It should be noted that in all age groups except the highest (55-64), approximately two-thirds of the industrial arts teachers have completed all 8.1 requirements.

Figure 2 compares the work experience of industrial arts teachers with their teaching experience, by age groups. It appears that after they enter the teaching field there is relatively little additional work experience in industry accumulated by these teachers. Specifically, while teaching experience increases by 400 percent between the lowest and the highest age groups, the amount of work experience rises by 75 percent over the same time span.

By subject areas, the mean level of work experience is highest for electronics in the lowest age grouping, for automotive in the 35-44 age range, for drafting in the 45-54 grouping, and for electronics in the highest age range.

The means for years of teaching experience by subject areas are highest for wood in the 23-34 age grouping, for drafting at age 35-44, and for graphic arts at age 45-54 and again in the 55-64 age grouping.

Table 8

Table 8. Characteristics of Industrial Arts Teachers in 25-34-year Age Group, by Subject Areas. (N=121)

		Auto (N=33)	Draft (N=21)	Elec. (N=16)	Gr. Arts (N=9)	Metal (N=20)	Wood (N=22)	Total (N=121)
Years of Work Exper.	Range	2-10	2-6	2-9	2-4	2-13	2-13	2-13
	Median	3	3	4	2	3	3	3
	Mode	2	3	2	2	3	2	2
	Mean	3.8	3.0	5.0	2.5	4.0	3.9	3.6
Years of Teach. Exper.	Range	0-11	1-10	1-9	1-8	1-11	1-9	0-11
	Median	3	3	3	4	3	4	3
	Mode	3	3	2	4	2	2.5	3
	Mean	3.5	4.3	4.1	3.8	4.3	4.6	4.1
Educational Attainment	B.A.	27	16	14	6	15	21	99
	M.A.	6	5	2	3	5	1	22
Clear Credential		27	9	12	6	15	13	82

NOTE: One teacher, in Graphic Arts, was 24 years old at the time of the study. His data are included in the table above.

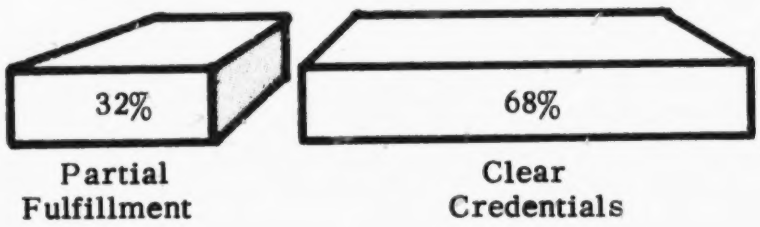


Table 9. Characteristics of Industrial Arts Teachers in 35-44-year Age Group, by Subject Areas. (N=162)

		Auto (N=37)	Draft (N=27)	Elec. (N=20)	Gr. Arts (N=17)	Metal (N=27)	Wood (N=34)	Total (N=162)
Years of Work Exper.	Range	2-25	2-14	2-9	2-9	2-12	2-20	2-25
	Median	3	2	3	3	4	3	3
	Mode	2	2	3	3	3	3	2
	Mean	5	3.7	3.9	3.9	4.8	4.7	4.5
Years of Teach. Exper.	Range	1-19	2-18	1-17	1-17	2-17	0-18	0-19
	Median	6	11	8	10	7	7	8
	Mode	12	11	7	10	7	7	10
	Mean	7.6	10.3	8.4	9.1	6.4	7.7	8.1
Educational Attainment	B.A.	22	16	8	11	16	19	92
	M.A.	15	11	12	6	11	15	70
Clear Credential		27	13	13	14	15	22	104

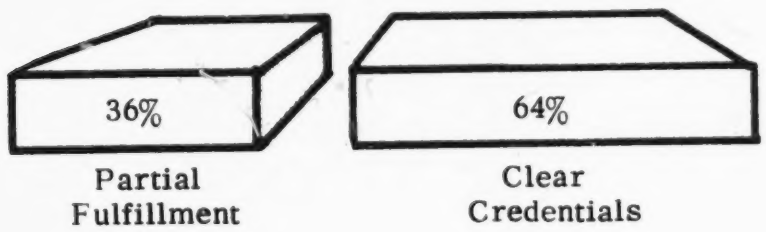


Table 10

Table 10. Characteristics of Industrial Arts Teachers in 45-54-year Age Group, by Subject Areas. (N=90)

		Auto (N=15)	Draft (N=13)	Elec. (N=17)	Gr. Arts (N=5)	Metal (N=18)	Wood (N=22)	Total (N=90)
Years of Work Exper.	Range	2-20	2-15	2-21	4-8	2-17	2-13	2-20
	Median	3	3	3	2	4	3	3
	Mode	3	2	3	2	2	2	2
	Mean	5.4	6.4	5.7	3.6	6.0	4.5	5.3
Years of Teach. Exper.	Range	1-18	1-25	2-25	13-19	1-26	2-30	1-30
	Median	4	9	6	16	11	14	11
	Mode	4	9	3	16	11	14	6
	Mean	6.1	9.9	9.0	16.6	11.6	14.8	10.5
Educational Attainment	B.A.	9	9	9	4	12	10	55
	M.A.	6	4	7	1	5	12	35
Clear Credential		7	10	15	3	13	13	61

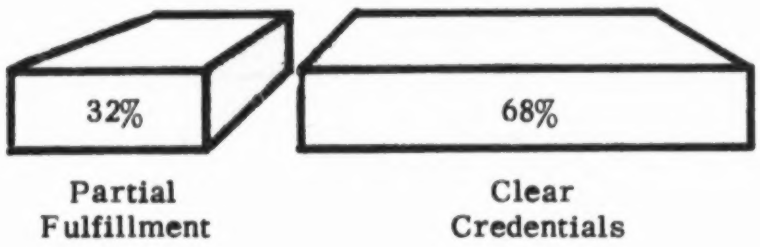


Table 11. Characteristics of Industrial Arts Teachers in 55-64-year Age Group, by Subject Areas. (N=21)

		Auto (N=2)	Draft (N=7)	Elec. (N=4)	Gr. Arts (N=2)	Metal (N=4)	Wood (N=2)	Total (N=21)
Years of Work Exper.	Range	3-10	2-10	2-13	3-5	2-25	2-12	2-25
	Median	N/S	3	6	N/S	N/S	N/S	3
	Mode	N/S	2	N/S	N/S	N/S	N/S	2
	Mean	N/S	3.7	7.7	4.0	N/S	N/S	6.3
Years of Teach. Exper.	Range	6-16	15-31	22-32	27-30	6-22	19-22	6-32
	Median	N/S	22	23	N/S	N/S	N/S	22
	Mode	N/S	N/S	N/S	N/S	N/S	N/S	22
	Mean	N/S	22.3	26.0	28.5	N/S	N/S	20
Educational Attainment	B.A.	1	3	2	0	1	2	9
	M.A.	1	3	2	2	3	0	11
	Ed.D.	0	1	0	0	0	0	1
Clear Credential		1	4	2	0	1	1	9

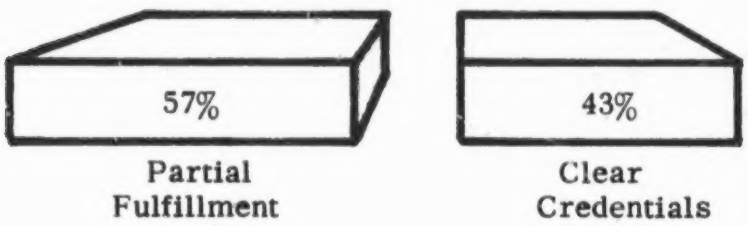


Figure 2

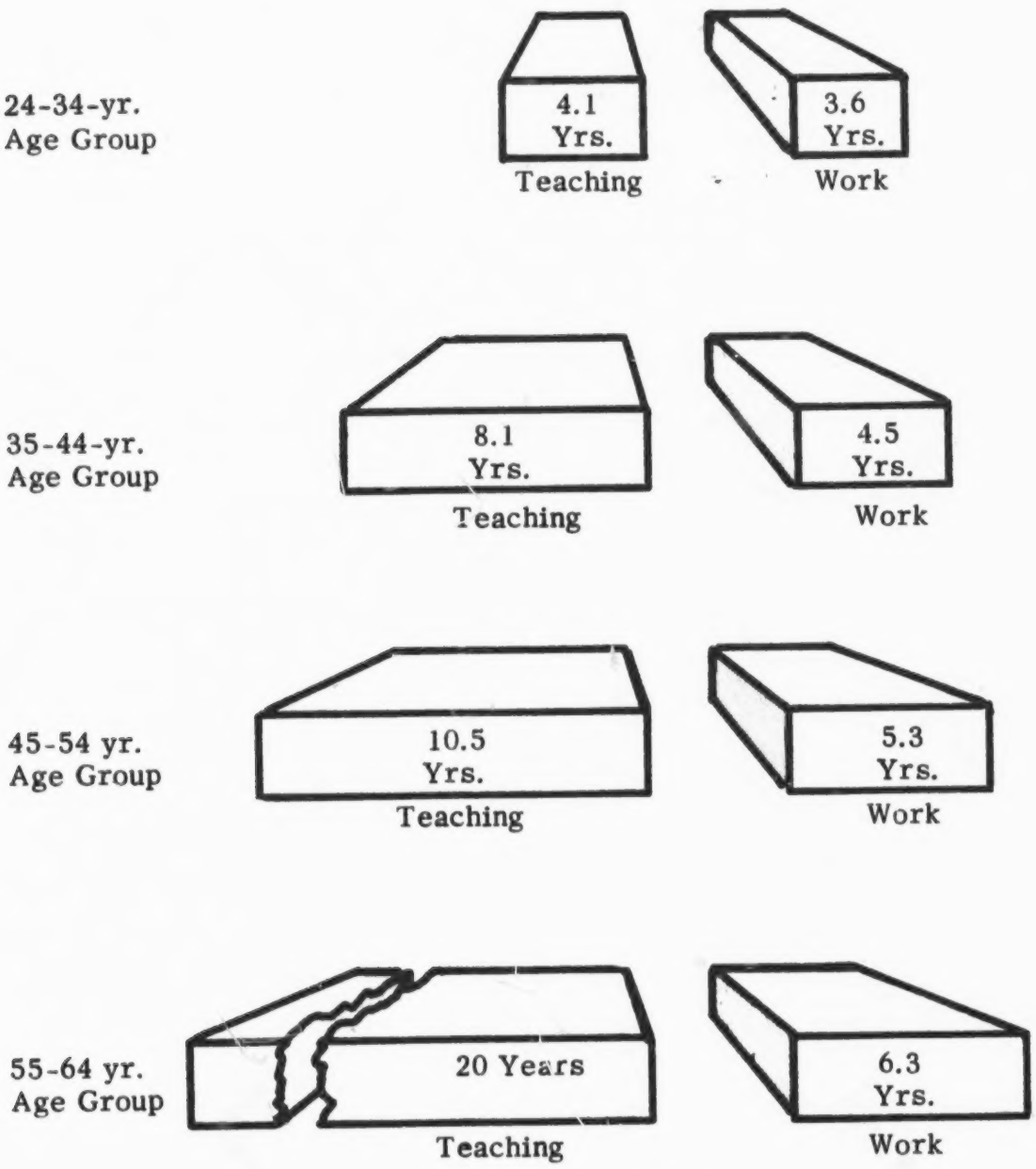


Figure 2. Work Experience and Teaching Experience of Industrial Arts Teachers by Age Goups.

(Mean Distribution)

Tables 12 through 14 compare trade and technical teachers by age groupings in relation to work experience, teaching experience and educational attainment. Two of the teachers have completed all requirements for the 8.1 credential and approximately two-thirds of the remaining 76 teachers are in various stages approaching completion of credential requirements. There is a definite relationship between age and years of work experience. The older the individual, the more years of work experience. Conversely, the younger the group, the higher the level of educational attainment. In the 23-34 year age group, 54.5 percent of the teachers have earned a baccalaureate or a masters degree. The instructional area of woods is the only one in which teachers do not have a baccalaureate degree, whereas in the instructional area of drafting, six of the seven teachers have a baccalaureate or higher degree.

Figure 3 compares work experience and teaching experience of trade and technical teachers. There is no evidence that after entering teaching, work experience in industry continues to accumulate; however, the mean range for work experience is approximately double for trade and technical teachers over industrial arts teachers (Figure 2) by age grouping. The mean range for teaching experience is approximately three and one-half times higher for industrial arts than for trade and technical teachers of the entire age grouping. It should be noted that there are no trade and technical teachers in the 55-64 age group, unlike the industrial arts teachers who hold an 8.1 credential.

Table 12

Table 12. Characteristics of Trade and Technical Teachers in the 23-34-year Age Group, by Subject Areas. (N=27)

		Auto (N=4)	Draft (N=2)	Elec. (N=5)	Gr. Arts (N=4)	Metal (N=10)	Wood (N=2)	Total (N=27)
Years of Work Exper.	Range	7	7-8	7-11	7-10	7-10	7.9	7-12
	Median	7	--	7	8	8	--	8
	Mode	7	--	7	8	8	--	7
	Mean	7	7	8.2	8.2	8.6	8	8.1
Years of Teach. Exper.	Range	0-4	0-2	1-3	1-4	0-4	1-2	0-4
	Median	1.5	--	2	2	1	--	2
	Mode	--	--	2	2	2	--	2
	Mean	1.8	1	2	2.3	1.5	1.5	1.7
Educa-tional Attain-ment	H.S.	1	0	0	0	1	0	2
	1 yr. Col.	1	0	0	0	2	0	3
	A.A.	2	0	2	1	3	2	10
	B.A.	0	1	3	3	4	0	11
	M.A.	0	1	0	0	0	0	1

NOTE 1: One teacher, in Auto, was 23, and one, in Graphic Arts, was 24 at the time of the study. Their data are included in the table above.

2: Where data in Tables 12, 13, and 14 are insufficient for statistical calculations, the items affected are marked with a dash (--).

Table 13. Characteristics of Trade and Technical Teachers in the 35-44-year Age Group, by Subject Areas. (N=34)

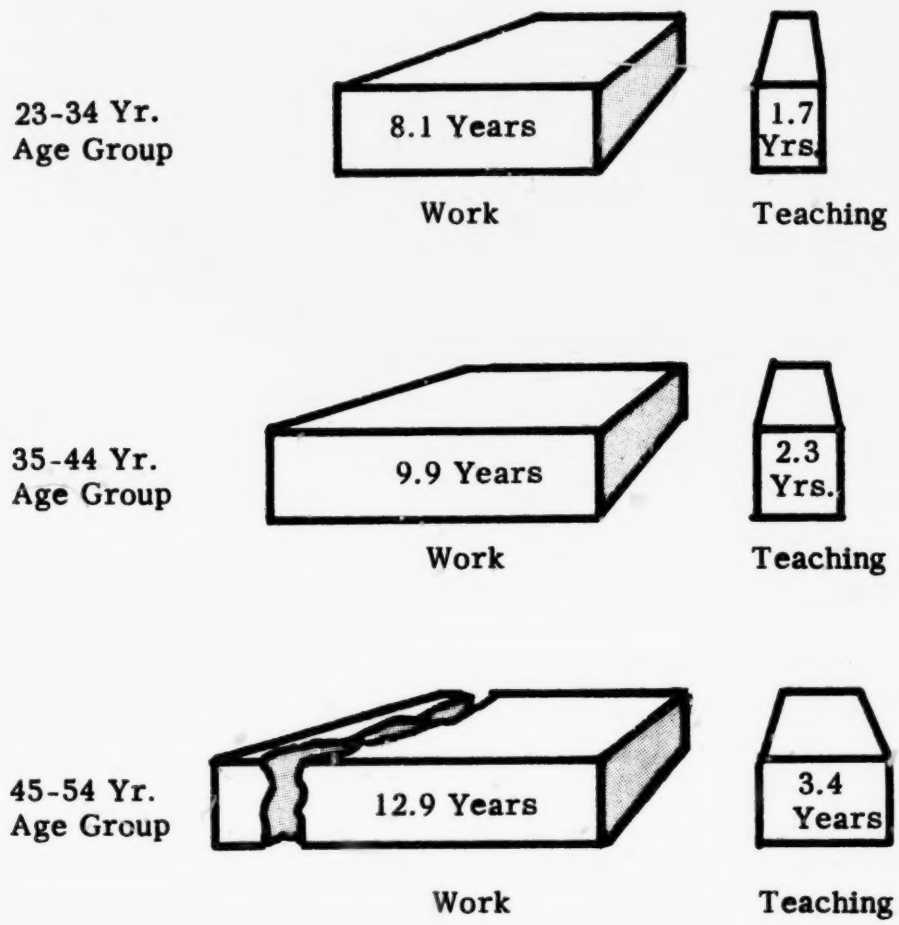
		Auto (N=10)	Draft (N=2)	Elec. (N=3)	Gr. Arts (N=7)	Metal (N=11)	Wood (N=1)	Total (N=34)
Years of Work Exper.	Range	7-17	10-15	7-8	7-12	5-14	7	7-15
	Median	9	--	--	9	11	--	9
	Mode	12	--	--	9	12	--	7
	Mean	10.4	12.5	7.3	9.0	10.1	7	9.9
Years of Teach. Exper.	Range	0-10	0-4	1-2	0-4	0-5	9	0-9
	Median	3	--	--	1	2	--	2
	Mode	1	--	--	1	1	--	1
	Mean	3	2	1.3	1.5	2.1	9	2.3
Educational Attainment	H.S.	1	0	0	1	0	0	2
	1 yr. Col.	3	0	0	1	0	1	5
	A.A.	5	0	0	1	8	0	14
	B.A.	0	2	3	4	2	0	11
	M.A.	1	0	0	0	1	0	2

Table 14

Table 14. Characteristics of Trade and Technical Teachers in the 45-54-year Age Group, by Subject Areas. (N=17)

		Auto (N=5)	Draft (N=3)	Elec. (N=3)	Gr. Arts (N=0)	Metal (N=3)	Wood (N=3)	Total (N=17)
Years of Work Exper.	Range	7-26	7-19	7-28	--	9-16	8-14	7-28
	Median	8	--	--	--	--	--	14.0
	Mode	7	--	--	--	--	--	7
	Mean	11.6	12.6	16.6	--	14.6	12.0	12.9
Years of Teach. Exper.	Range	1-13	0-3	0-7	--	2-12	1-3	0-13
	Median	3	--	--	--	--	--	3
	Mode	3	--	--	--	--	--	3
	Mean	5.2	1	2.3	--	5.3	2.3	3.4
Educational Attainment	H.S.	1	0	0	0	0	0	1
	1 yr. Col.	1	1	1	0	1	2	6
	A.A.	2	0	1	0	0	1	4
	B.A.	1	2	1	0	1	0	5
	M.A.	0	0	0	0	1	0	1

Figure 3



55-64 Yr.
Age Group

Note: There were no Trade and Technical teachers in this age grouping.

Figure 3. Work Experience and Teaching Experience of Trade and Technical Teachers by Age Groups.

Results of Proficiency Examinations

Requirements for the 8.1 credential include ". . . completion of appropriate. . . examinations . . . to determine subject matter competency in the occupational field related to the subject to be listed on the credential." Table 15 compares the examination scores of 98 industrial arts and 78 trade and technical teachers who have taken the proficiency tests to date. The statistics are presented according to total combinations of years of work experience and years of teaching experience. In no case can the combination total less than two years for industrial arts teachers or seven years for trade and technical teachers.

As Table 15 shows, the mean average performance in all cases was higher for trade and technical teachers than for industrial arts teachers. The most noticeable similarity in test scores between the two groups of teachers occurs in the automotive and drafting areas. These high scores may be due to the similarity of the learning activities and work experience activities unique to these two areas, that is, there may be little difference between the experience one gains while learning automotive and drafting in relation to the experience on the job, other than increased proficiency resulting from repetition and other variables that would not be tested on a written examination.

The only area in which industrial arts teachers' examination results appear to be weak is metals, for those teachers having a combination of two to six years of experience. The trade and technical teachers' lowest scores are in the graphic arts area, in the seven to 12 year combined experience category.

Table 15

Table 15. Proficiency Examination Scores by Subject Areas in in Relation to Work Experience and Teaching Experience.[1]

(Mean Distribution)

(Industrial Arts - N=98) (Trade/Technical - N=78)

	Combined Experience					
	2-6 years		7-12 years		13 years and over	
	I. A.	T. T.	I. A.	T. T.	I. A.	T. T.
	(N=27)	(N=0)	(N=34)	(N=46)	(N=37)	(N=32)
Auto.	71.6	--	71.0	71.2	76.4	78.8
Drafting	76.3	--	74.4	78.5	75.5	78.0
Electronics	68.6	--	65.0	74.0	70.0	78.2
Graphic Arts	70.0	--	55.3	64.9	62.4	72.0
Metals	52.3	--	57.7	72.6	68.6	72.0
Wood	62.3	--	70.0	71.6	66.4	77.2

[1] Work experience and Teaching experience have been combined to produce the categories for combined experience (see page 25).

UC Class for 8.1 Industrial Arts Teachers

During the 1966-67 school year a special class was conducted for industrial arts teachers having the 8.1 credential authorization, so that they could fulfill the credential requirement for a course in vocational education. Classes were held in three locations: Berkeley, Los Angeles, and San Diego. There were 401 teachers in attendance. Although the classes were intended for teachers holding the 8.1 credential authorization, not all teachers who required the course enrolled. At the same time, 63 industrial arts teachers enrolled who did not hold this credential but who have qualified for it and who, as of this date, have not made application for it.

There were 80 enrolled at Berkeley, 245 at Los Angeles, and 76 at San Diego. The course was specially designed to provide those enrolled with maximum contact in a minimum period of time with the literature and practices of vocational education.

During September, 1967, four months after the close of the class, a questionnaire was mailed to all who had completed the course. Of the 401 enrolled, 35 did not complete the course. No effort was made to contact the 63 who failed to apply for a credential, for whom accurate mailing addresses were not available. The questionnaire, therefore, was sent to 303 enrollees, and 169, or 56 percent, were completed and returned at the time of this writing. There was no follow-up, so that all returns were in response to the initial mailing. Researchers consider 56 percent a normal rate of return to a mail questionnaire without a follow-up. For the purposes of this study, it provides a statistically adequate sample.

The questionnaire was designed to ascertain the degree of overall agreement among the enrollees as to eight major features that had been incorporated in the course. These eight features were compared one with the other in a series of statements representing 12 different combinations of features. Respondents were asked to rank for each cluster the statements presented in clusters of four. In addition, space was provided in which the respondents could make suggestions for course additions and deletions and add any general comments they might wish to make concerning the course.

Once the data from the returned questionnaires had been collected, a modified Kendall "W" Test for concordance was used to determine statistically whether there was overall agreement among those answering the questionnaire in relation to their overall judgments of the clusters of variables. A high significance value of

W was found for those answering the questionnaire, indicating that they had applied essentially the same standards in ranking the eight features that were being studied. It should be emphasized that a high or significant value of W does not indicate that the answers were correct; in fact, they could all be incorrect and still show a high significance value. What the test does show is that all respondents were more or less in agreement in their judgments.

The significance of W was determined through the use of the Chi-square formula for large samples. Through application of this formula, it was confirmed at the .01 level of confidence that the judgments used by those answering the questionnaire were arrived at more through agreement on standards than through having selected answers by mere chance.

The eight features emphasized by the respondents are shown below in rank order, from highest to lowest:

1. Developing a process of student selection, placement, follow-up, job application, and advisory services.

2. Conducting community occupational surveys for the establishment and operation of vocational programs.

3. Developing programmed instruction.

4. Establishing educational objectives by defining behavioral goals in occupational instruction and defining levels of instruction.

5. Using instructional resource material and instructional pass-outs.

6. Providing printed material for a review for the final examination.

7. Identifying the relationships and goals of industrial arts and technical and industrial education in the present and future world of work.

8. Developing profiles of high school students from material within their cumulative record folders, and identifying counseling problems.

Figure 4 displays the overall rating given the course in the open-end portion of the questionnaire. Although 3 percent (five individuals) reported that they found the course to be of no value,

Figure 4

97 percent reacted favorably to the course and its content; of these, 17 percent felt the course was very beneficial and could suggest no changes.

VERY FAVORABLE

Course was well planned and content most beneficial - no change indicated.

FAVORABLE

Provided constructive comments and suggested some changes and/or deletions.

NOT FAVORABLE

Course was of absolutely no value.

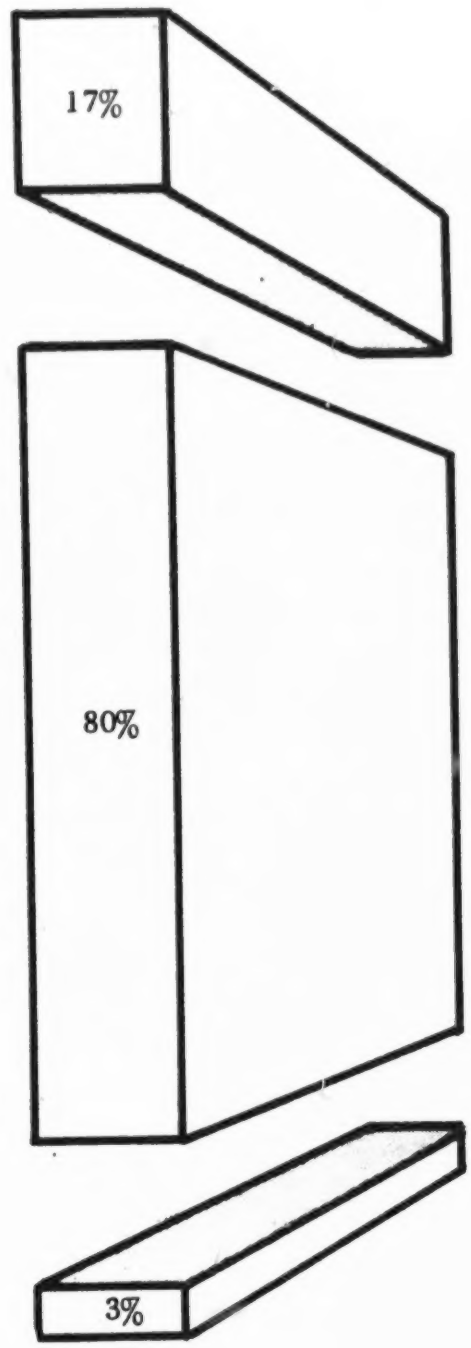


Figure 4. Student Reaction to 8.1 Course Content. (N=169)

The effectiveness of the 8.1 credential can be evaluated by analyzing the scope of occupational programs in the high schools. During the 1966-67 school year, there were 282 industrial arts and 78 trade and technical teachers teaching both occupational and industrial arts programs in the California high schools. Table 16 identifies the school districts where the industrial arts teachers holding the 8.1 credential were teaching. The Southern Region of the state had 220 - 78 percent - of these teachers instructing in occupational programs. Of these, 167, or 59 percent, were employed in the Los Angeles City School District. The Coastal and Central Valley Regions had approximately equal numbers of industrial arts teachers teaching in occupational programs - 35 and 27, respectively. San Lorenzo, with 10, had the largest number of such teachers in the Coastal Region and Fresno, with 7, led in the Central Valley.

Of the trade and technical teachers teaching in both occupational and industrial arts programs, the majority were found in the Southern Region. Table 17 displays the distribution of these teachers within the state. Again, the Los Angeles City Schools employed the greatest number of these teachers. Most other districts employed only one such teacher. Two correctional institutions, both located in Stockton (Central Valley), employed three of the 78 trade and technical teachers holding the 8.1 credential.

The extent to which occupational programs are serving the youth of the state is displayed in Figure 5. This display shows the relationship by school districts between the number of teachers in occupational programs and the percentage of students served attending the schools in which these teachers are located. In addition, Figure 5 indicates the number of schools in which these teachers are employed, and shows the relationship of teachers, schools and students served, grouped by five ADA categories. The ratio upon which these percentages are based was calculated through an average teaching load of 25 students per teacher and based on the total ADA population of the districts in which the teachers were employed. The highest proportion of students served, 3 percent, was found in the smallest ADA category. All other categories showed 1.3 percent or fewer students served.

Table 16

Table 16. Industrial Arts Teachers Holding 8.1 Credentials Teaching Occupational Programs During the 1966-67 School Year, by Regions and School Districts.

Central Valley		Coastal		Southern	
Chico	1	Analy	1	Alhambra	1
Fresno	7	Berkeley	1	Anaheim	5
Hughson	1	Freemont	2	Antelope Valley	2
Lake Tahoe	1	Gilroy	1	Bassett	1
Manteca	1	Gonzales	1	Bellflower	1
Placer	3	Eastside	1	Carpinteria	3
Sacramento	2	John Swett	3	Coachella Valley	3
San Juan	4	Livermore	1	Downey	1
Shasta	1	Oakland	7	Grossmont	1
Stockton	1	San Francisco	4	Los Angeles	167
Visalia	1	So. San Francisco	1	Santa Barbara	1
Woodland	1	San Lorenzo	10	San Bernardino	1
Yuba City	3	Sequoia	1	San Diego	29
		Willits	1	Sweetwater	3
				Ventura	1
	27		35		220

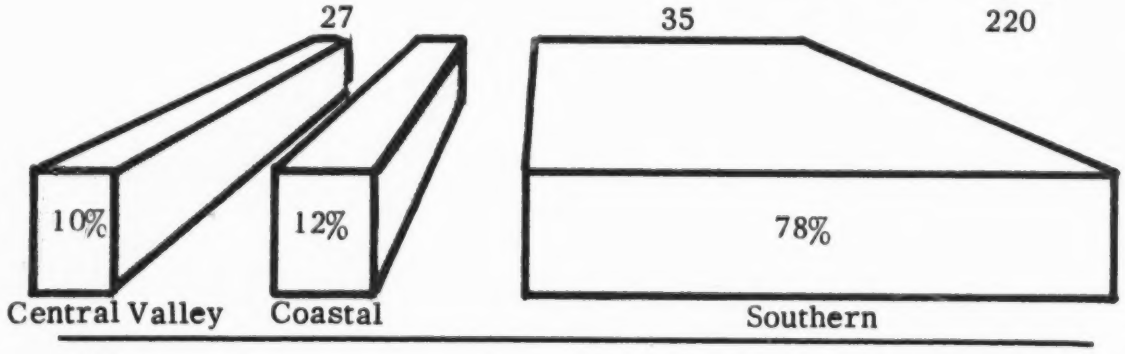


Table 17. Trade and Technical Teachers Holding 8.1 Credentials Teaching Occupational Programs During the 1966-67 School Year, by Regions and School Districts.

Central Valley		Coastal		Southern	
CYA, Stockton*	1	Martinez	1	Downey	1
Hughson	1	San Lorenzo	1	La Puente	1
Karl Holton*	2	Vallejo	4	Los Angeles City	64
				Newport Beach	1
				Simi	1
	4		6		68

*Correctional

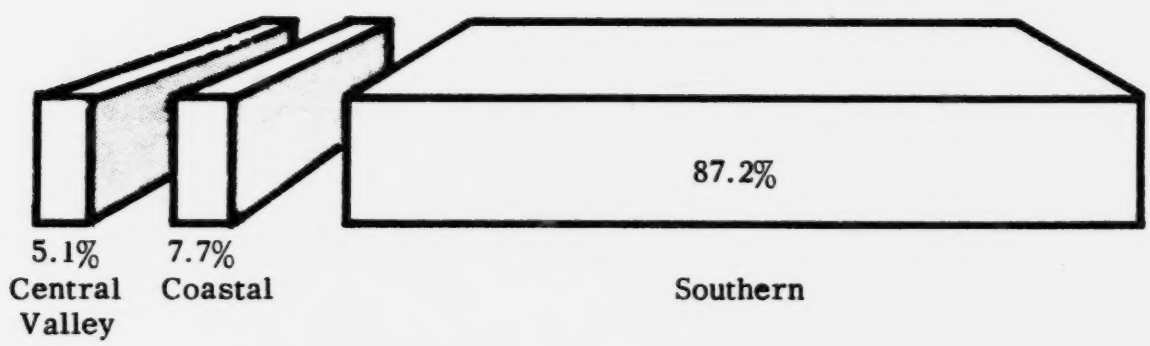


Figure 5

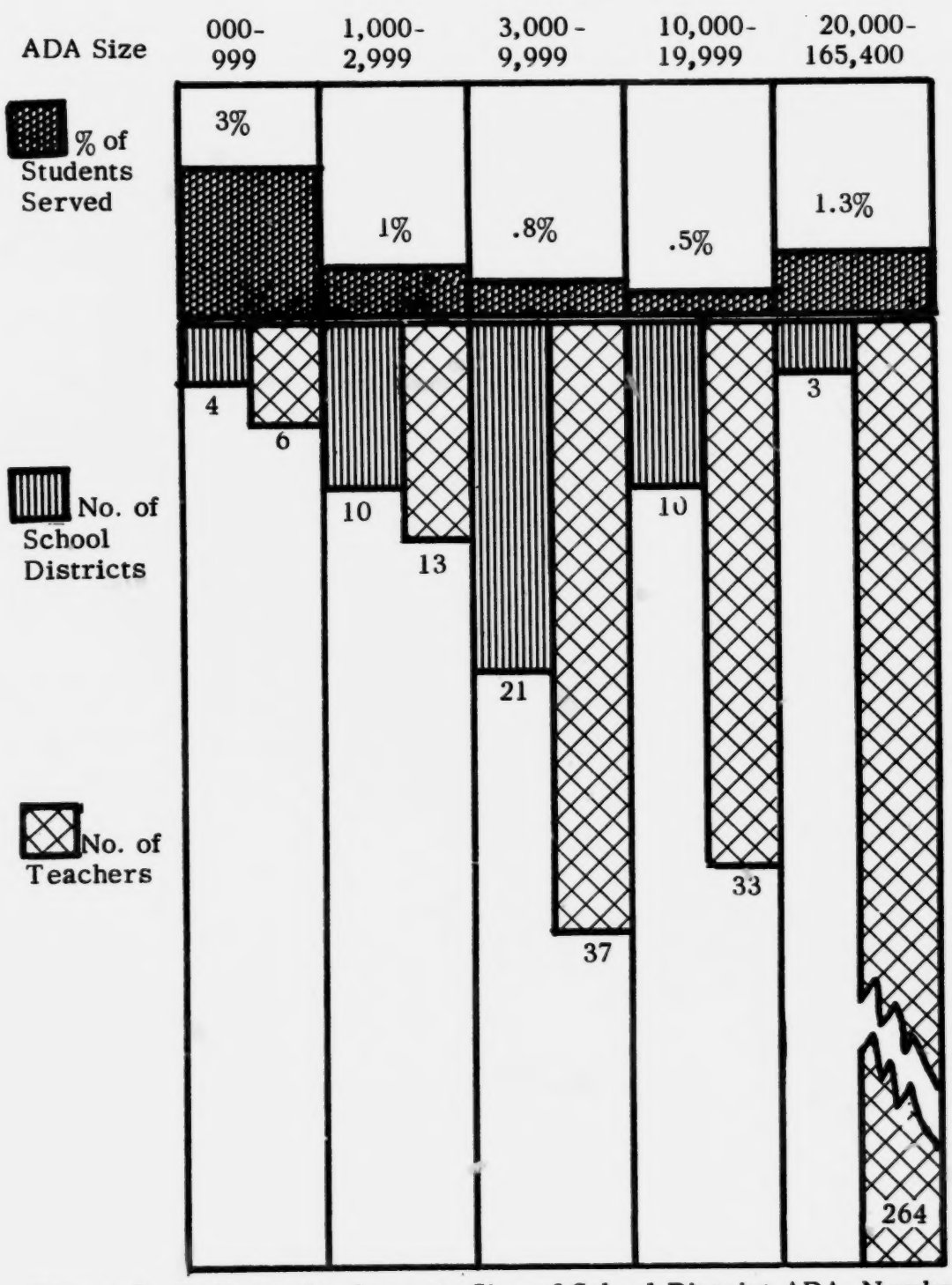


Figure 5. Relationship between Size of School District ADA, Number of School Districts within ADA Category, Percentage of Students Served, and Number of Teachers Teaching Occupational Programs.

Corollary

It can be concluded that 282 industrial arts teachers were teaching occupational programs during the 1966-67 school year, of whom the majority might not have been teaching in occupational programs were it not for the 8.1 credential. There appears to be a greater proportion of students served in the rural areas, although the greatest total numbers of students served are found in the larger school districts.

Of the 394 industrial arts teachers holding the 8.1 credential, however, only 72.8 percent were teaching in occupational programs during the past school year. In addition, there are 63 industrial arts teachers (13.7 percent of the combined total of 457) who have completed requirements for the 8.1 credential, but who for one reason or another have failed to apply for the credential, and thus probably are not teaching occupational classes.

With over 40 percent of the industrial arts teachers who now hold or who are qualified for the 8.1 credential not teaching in occupational programs, the assumption that credential restrictions prevent program growth appears not to be valid. It does raise the question as to what other obstacles are preventing the growth of occupational programs in the high schools of the state.

VT 004 960
Area Vocational-Technical Schools in Idaho. Vo-Ed No. 88.

Idaho State Board for Vocational Education, Boise
MF AVAILABLE IN VT-ERIC SET
Pub Date - 65 15p.

*AREA VOCATIONAL SCHOOLS; *POST SECONDARY EDUCATION; *PROGRAM DEVELOPMENT; *PROGRAM DESCRIPTIONS; FINANCIAL SUPPORT
IDAHO

Area vocational-technical schools in Idaho are financed with a combination of federal, state, and local funds and are operated at the post-secondary level. Geographically and population-wise, the state lends itself to at least six area vocational technical schools; five of the areas now have such a school in operation and the sixth has been proposed. Insofar as possible area vocational schools are associated with a junior college or state educational institution. (MM)

VT 004 960

ED036657

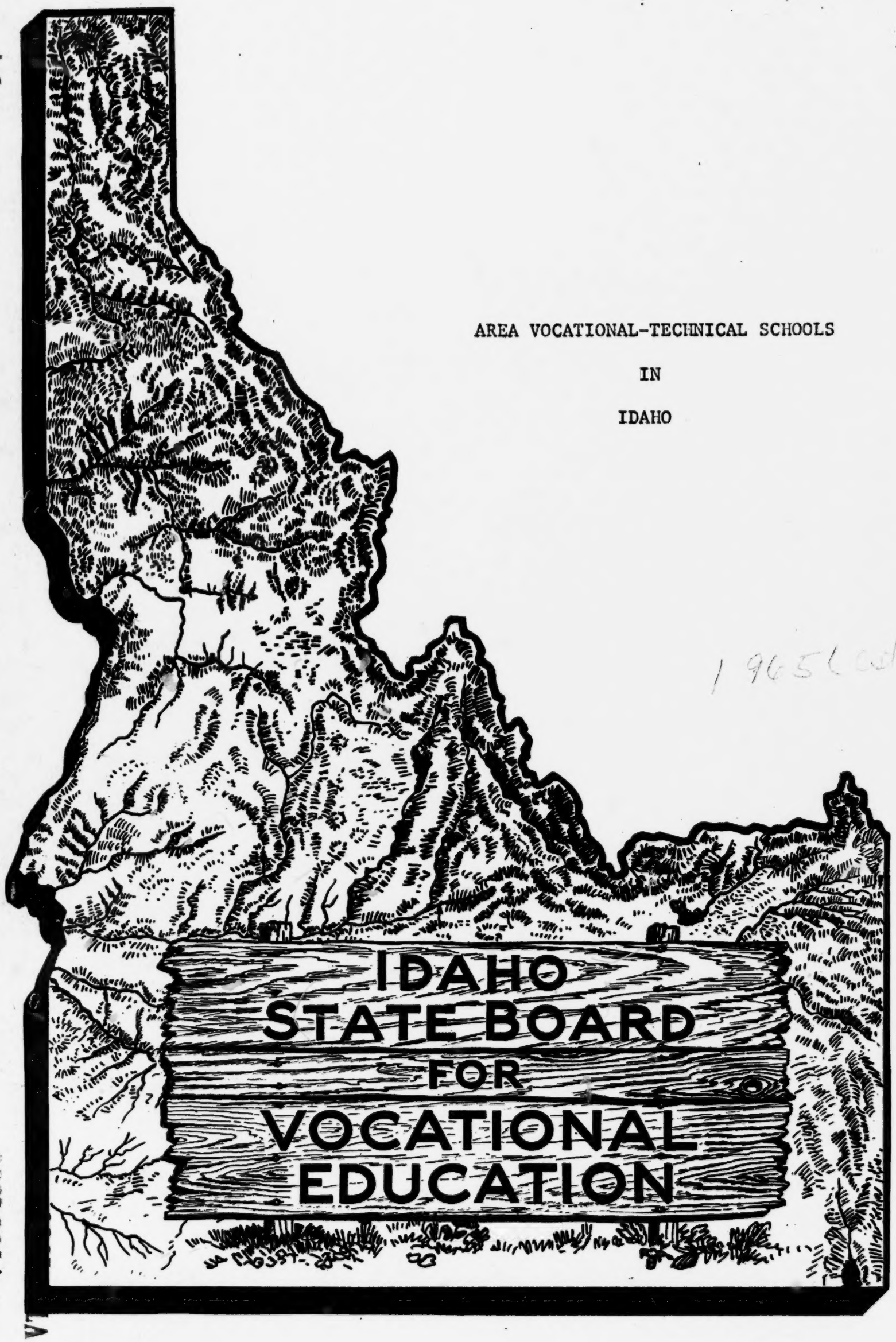
13p VO-ED NO. 88

AREA VOCATIONAL-TECHNICAL SCHOOLS

IN

IDAHO

1965(cd)



VT004960

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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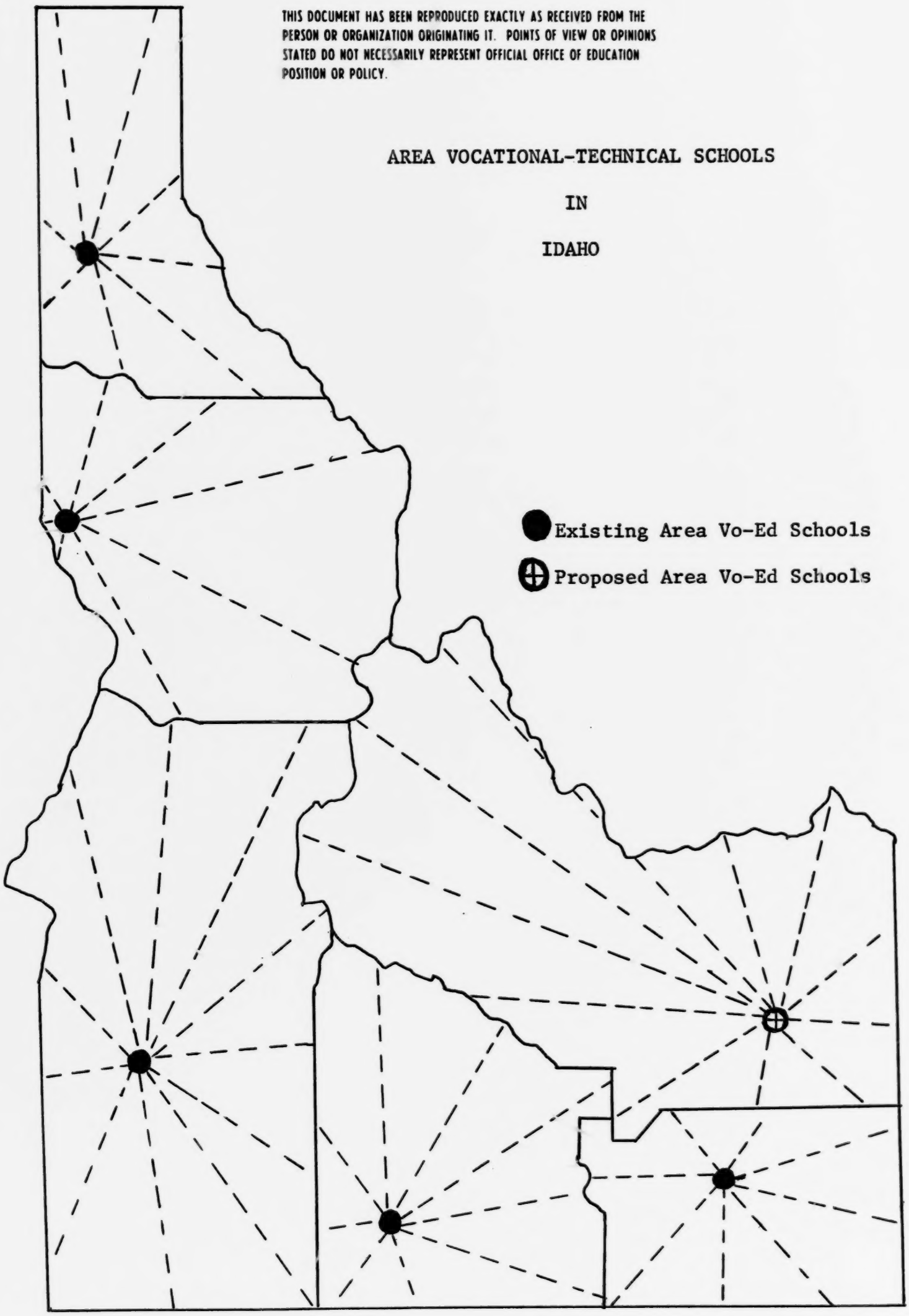
AREA VOCATIONAL-TECHNICAL SCHOOLS

IN

IDAHO



PURPOSE

Area Vocational-Technical Schools are basically intended to afford residents of a specific geographic area with the means to acquire the skills and related knowledge that are necessary for entrance into and continuation in occupations that do not normally require a baccalaureate or higher degree. Education and training offered at Area Vocational-Technical Schools does not lead to a baccalaureate or higher degree and is intended for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

JUSTIFICATION

Many of the high school youth in Idaho cannot be reached with the type of Vocational Education that is suited to their needs due to the fact that high schools in general cannot, due to excess costs, offer the breadth of Vocational Education curriculum that will meet the needs of all youth. For example, a high school may offer a program in Vocational auto mechanics or a program in Vocational agriculture and prepare youth for employment as auto mechanics or employment in the broad field of agriculture; however, it could not logically be assumed that all youth in that school would be suited for or want to be trained for these types of work. Consequently, many youth will complete or drop high school without an opportunity for vocational training. In addition, some occupations, especially the highly technical, require a higher degree of skill and depth of related knowledge than can be attained in the high school. Training for these occupations is especially suited to the Area Vocational-Technical School.

Full-time Area Vocational-Technical Schools can offer a broad range of Vocational Education classes and programs in all divisions of Vocational Education and give the depth of training necessary for success in employment.

LOCATION OF AREA VOCATIONAL-TECHNICAL SCHOOLS

The success of an Area Vocational-Technical School depends, to a great extent, upon the location of the school. Experience has shown that if Area Vocational-Technical Schools are to serve the maximum number of persons and derive the maximum benefit from dollars spent, their location must be associated with population. Experience and study has also shown that the greater percentage of those attending Area Vocational-Technical Schools live within 50 to 75 miles of the school.

Area Vocational-Technical Schools can either be associated with a college or university or be an independent State-operated school. Area Schools associated with a college or university have distinct advantages to some students in that those students who desire may avail themselves of academic courses offered by the school during the evening or other hours outside scheduled Vocational Education classes.

The Idaho State Board for Vocational Education has ruled that insofar as possible Area Vocational-Technical Schools in Idaho should be associated with a junior college or State educational institution.

NEED FOR AREA VOCATIONAL-TECHNICAL SCHOOLS IN IDAHO

Idaho, both geographically and population-wise, lends itself to at least six (6) Area Vocational-Technical Schools as follows:

Northern Area of State
North Central Area of State
Southwestern Area of State
South Central Area of State
Southeastern Area of State
Upper Snake River and Lost River Area of State
(See map on page 3.)

Area-type Vocational-Technical Schools are now operating at:

Northern - North Idaho Junior College, Coeur d'Alene
Southwestern - Boise Junior College, Boise
Southeastern - Idaho State University, Pocatello

A new Area School will be inaugurated in the South Central Area of the State, at Twin Falls, in September, 1965. This Area School will be associated with the College of Southern Idaho Junior College District.

A second new Area School will be inaugurated in the North Central Area of the State in September, 1966. This Area School will be associated with the Lewis-Clark Normal School.

Future plans include further development of facilities and course offerings at North Idaho Junior College, Boise Junior College, Idaho State University, College of Southern Idaho Junior College District and the Lewis-Clark Normal Area Vocational-Technical Schools and the development of facilities and programs of instruction in the Upper Snake River and Arco Area in the vicinity of Idaho Falls.

FINANCING

Area Vocational-Technical Schools in Idaho are financed with a combination of Federal, State and Local funds. The Vocational Education Act of 1963 (Perkins Bill) provided considerable stimulus to the development of Area Vocational-Technical Schools, especially the construction of facilities. (See Policies for Area Vocational Education Schools in Idaho for more complete financing plans, pages 9 and 10.)

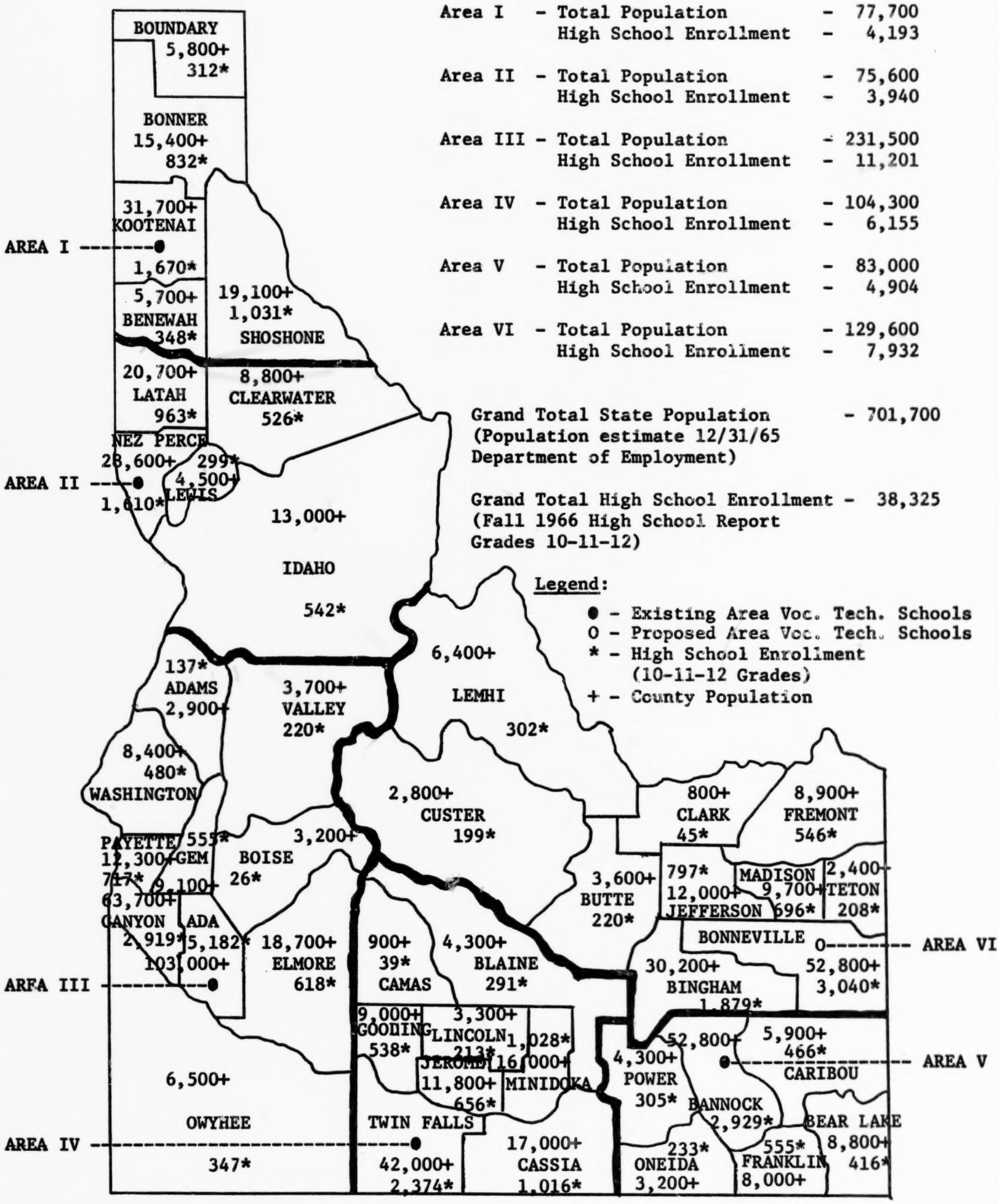
Exhibit A

AREA VOCATIONAL-TECHNICAL SCHOOLS

Area I	- Total Population	- 77,700
	High School Enrollment	- 4,193
Area II	- Total Population	- 75,600
	High School Enrollment	- 3,940
Area III	- Total Population	- 231,500
	High School Enrollment	- 11,201
Area IV	- Total Population	- 104,300
	High School Enrollment	- 6,155
Area V	- Total Population	- 83,000
	High School Enrollment	- 4,904
Area VI	- Total Population	- 129,600
	High School Enrollment	- 7,932

Grand Total State Population - 701,700
(Population estimate 12/31/65
Department of Employment)

Grand Total High School Enrollment - 38,325
(Fall 1966 High School Report
Grades 10-11-12)



IDAHO VOCATIONAL-TECHNICAL EDUCATION PROGRAMS AT AREA VOCATIONAL-TECHNICAL SCHOOLS (School Year 1967-68)

Name of Curriculum	Where* Available	Length Yrs.	Entrance** Requirements
Agri-Business	T	2	HSA
Appliance Repair	T	1	HSA
Auto Mechanics	B-C-L-P-T	2	HSA
Auto Service Station Specialist	B-P	1	HSA
Auto Body and Fender	B-C-P-T	1 or 2	HSA
Aviation Mechanics (F.A.A. approved)	P	2	HSA
Business Machine Repair	B-P	2	HSA
Cabinet Making	B	1 or 2	HSA
Care and Guidance of Children	P	1 or 2	HSA
Civil Engineering Technology	P	2	HSA
Clothing Management and Services	C-P-T	1 or 2	HSA
Cosmetology	P	1	HSA
Crop and Soil Technology	P	2	HSA
Data Processing	B	2	HSA
Dental Assistant	B	1	HSA
Diesel Mechanics	P	2	HSA
Distribution, Marketing, Mid-Management	B-C-L-P-T	2	HSA
Drafting and Design	B-C-L-P	2	HSA-M
Electronics	P	3	HSA-M
Electronics Equipment Servicing	C-T	2	HSA
Food Management and Services	P-T	2	HSA
Forestry Aide	C	2	HSA
Home Furnishings Equipment and Services	P-T	1 or 2	HSA
Industrial Electronics	B-C	2	HSA-M
Industrial Mechanics	L	2	HSA
Institution and Home Management Services	P-T	1	HSA
Instrumentation	P	2	HSA-M
Machine Shop	B-P	2	HSA
Office Occupations	P	1	HSA
Ornamental Horticulture	B	2	HSA
Peace Officer Training	L-P-T	2	HSA
Practical Nursing	B-L-P-T	1	HSA
Printing	P	2	HSA
Upholstering	P	2	HSA
Visiting Homemakers	P	1	HSA
Welding	B-P-T	2	HSA

Key to abbreviations and symbols

* Schools where curriculums are offered:

- B - Boise, Boise College - W. L. Gottenberg, Acting Local Director
- C - Coeur d'Alene, North Idaho Junior College - Clarence E. Haught, Local Director
- L - Lewiston, Lewis-Clark Normal School - Marion L. Shinn, Local Director
- P - Pocatello, Idaho State University, Jack L. Rucker, Local Director
- T - Twin Falls, College of Southern Idaho Junior College District, Orville Bradley, Local Director

** Entrance Requirements:

- HSA - High school graduation and/or Aptitude Test
- M - One year Algebra and one year Geometry

PROPOSALS FOR VOCATIONAL EDUCATION
FROM
PUBLIC SCHOOLS AND AREA VOCATIONAL EDUCATION SCHOOLS

The Idaho State Board for Vocational Education will recognize, within financial limitations and existing policy, a proposal for Vocational Education programs from a school provided that:

1. There is reasonable documented assurance that employment opportunities will exist for the graduates in the community, the State or elsewhere, in the occupation or occupations for which training is given.

2. There is reasonable assurance of initial and continuing enrollment for the proposed Vocational Education program and that enrollment practices will give consideration to the intention of the student to enter employment in the occupation or occupations for which training is given, and to the ability of the student to profit from the instruction as determined by adequate testing and guidance.

3. The school has sought out and is using the advice and counsel of persons who are representative of the industry or occupation for which training is given.

4. The proposed instructional program is based upon an analysis of the occupation for which the training is given.

5. Time allowance for the proposed Vocational Education program is sufficient to attain the objectives for the program as determined by the occupational analysis. (Program scheduling at Area Vocational Education Schools will be consistent with Policies for Area Vocational Education Schools.)

6. Adequate initial facilities and equipment will be available for the total proposed program or plans give evidence that the equipment and facilities will be supplemented according to a reasonable schedule.

7. There is reasonable assurance that the administrative, supervisory and instructional staff is adequate in both quantity and quality and that the policies of the school are conducive to the development and maintenance of the proposed program.

8. The cost of the proposed Vocational Education program is realistic in light of the training to be offered and the number of students to be reached.

9. There is assurance from the school that such records and reports of program operation, as are required by the State Board, will be submitted to the State Board within designated time limits.

Approved:
July 11, 1964
Amended:
April 10, 1965

IDAHO STATE BOARD FOR VOCATIONAL EDUCATION

POLICIES FOR AREA VOCATIONAL EDUCATION SCHOOLS IN IDAHO

This document sets forth policies of the Idaho State Board for Vocational Education and will form a basis for cooperative agreements to operate Area Vocational Education Schools in Idaho.

Operation of an Area Vocational Education program will be under the direct administration of local school authorities; however, the policies outlined in this document will be followed to assure maintenance of quality in Vocational Education programs operated by Area Vocational Education Schools.

Therefore, in order to utilize funds appropriated under any Vocational Acts for support of an Area Vocational Education School, these policies will be inviolate.

A. Personnel Structure

1. Local Director of Vocational Education. When a program encompasses more than one division of Vocational Education; i.e., Office Education, Distributive Education, Agricultural Education, Trade and Industrial Education, and/or Home Economics Education, and the number of courses and enrollment justifies, a full- or part-time local director shall be designated by the school to administer and coordinate the total program of Vocational Education. The State Board for Vocational Education will approve and reimburse 100 per cent of the salary for time spent as local director provided he meets the requirements for the position of local director as outlined in the Idaho State Plan for Vocational Education.

2. Local Divisional Supervisors. Divisional supervisors or supervisors, either full- or part-time, will meet the qualifications and carry out appropriate duties as outlined in the Idaho State Plan for Vocational Education. Salaries of divisional supervisors will be reimbursed 100 per cent.

3. Instructional Staff. All members of the instructional staff, either full- or part-time, will be qualified as outlined in the Idaho State Plan for Vocational Education. Salaries of instructional staff will be reimbursed 100 per cent for full-time and within established maximums for part-time instruction.

4. Supporting Office Staff. Fifty per cent of the salaries of supporting office staff will be reimbursed in other than State-owned and operated schools.

5. State Department of Vocational Education Approval. Local directors, divisional supervisors, and instructional staff members must be approved by the State Department of Vocational Education prior to their appointment.

6. Other Professional Vocational Education Personnel Cost. Office space will be provided by the school for professional personnel, such as area supervisors, who are assigned by the State Board and serve an area in which an Area Vocational Education School is located. One hundred per cent of all salaries and travel, capital outlay and other expense associated with such personnel will be reimbursed.

B. Enrollment Practices

1. Acceptance of Students. Students will be accepted on a nondiscriminatory basis. Enrollment will not be limited by school boundaries within the State of Idaho.

2. Background of Students. Students will be over 14 years of age, will have completed or left high school, and will be available for full-time instruction in preparation for entry into an occupation.

3. Ability to Profit from the Instruction. Students will be enrolled on the basis of their ability to profit from the instruction as determined by aptitude and ability tests and their background.

C. Instructional Program

Instruction must be designed to fit for gainful employment in occupations where there is reasonable expectation for employment, and must be especially and particularly suited to the needs of those preparing to enter into a particular occupational field.

1. The program will be designed to provide the knowledge and skill compentencies necessary to perform in the occupation for which training is given rather than being timed to fit an administrative structure, and the completion diploma or certificate will be based entirely upon the student's achievement in the vocational course of study.
2. Documentary evidence will be required to indicate that the program of instruction is based upon the advice and counsel of potential employers and other individuals or groups having a knowledge of the occupation.
3. The instructional program will be designed to prepare for occupations which are not considered as professional or as requiring a baccalaureate or higher degree.
4. The vocational program will be scheduled to provide full-time instruction which is generally considered as being 30 hours per week and will be scheduled in such manner as to make the maximum use of the vocational student's time and of the vocational facility for the Vocational Education program.
5. Special vocational training programs for those persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular Vocational Education program, are encouraged. Should special policies for such training be needed, the State Board will develop same.
6. Training programs requested will be reviewed and evaluated in terms of labor market needs. Special consideration will be given to information from public employment agencies, occupational advisory committees and/or

other organizations that can substantiate employment needs in an occupation.

7. Training programs will continually be evaluated to assure that the curriculum and instruction are effective in meeting occupational needs of the learner.

8. Subjects or activities which are of a general nature and not directed toward the specific occupation for which training is given will be optional to the student and will not be considered as being reimbursable. Such subjects and/or activities will be taken or carried on by the vocational student outside his daily vocational schedule.

D. Financing

1. State-Owned and Operated Area Vocational Education Schools

a. Area Vocational Schools Attached to Existing State Institutions

In Area Schools attached to existing institutions, the State Board for Vocational Education will reimburse 100 per cent of buildings, instructional costs, equipment, supplies, maintenance of vocational equipment, and administration and supervision directly related to the vocational program.

b. Independent Area Vocational Schools

All costs of operation of a State-owned and operated independent Area Vocational School will be supplied by the State Board for Vocational Education.

2. Area Vocational Education Schools Operated Under Local Boards

a. Buildings

State Board participation in the construction of Area Vocational Education facilities at public education institutions which operate under the jurisdiction of a local board will be limited to fifty per cent. State Board participation in construction will be contingent upon a written agreement between the local board and

the Idaho State Board for Vocational Education stipulating that the buildings constructed through the use of public Vocational funds will be used in accordance with these policies and the provisions of the Vocational Education Act of 1963, and/or subsequent legislation and that there will be no reduction of present usable facilities.

b. Equipment

Instructional equipment necessary to operate a training program will be directly related to the occupation and be based upon advice and counsel from representatives of the occupation being served. Reimbursement on purchase and maintenance of equipment will be 100 per cent after final approval by the State Department of Vocational Education. Such equipment will remain the property of the Idaho State Board for Vocational Education. The school will provide adequate insurance on all State-owned equipment in its custody.

c. Salaries

Reimbursement on salaries will be as outlined under Section A - Personnel Structure for an Area Vocational Education School.

E. General Considerations

1. Construction Standards. Construction of any facilities using funds appropriated under the Vocational Education Act of 1963, and any matching funds will be under the jurisdiction of the State Department of Public Works and will comply with labor standards as outlined in the Vocational Education Act of 1963.

2. Continued Financing. Continuation of financing as outlined is contingent upon the availability of appropriated funds.

3. Area School Designation. A school may operate vocational courses with reimbursement as agreed upon between the school and the Department of Vocational Education; however, to be designated as an Area Vocational Education School, and qualify for reimbursement as such, the vocational program will provide a minimum of five different courses and be operated and maintained as outlined in these policies.

4. Any school designated as an Area Vocational Education School will receive equal recognition in request for funds. In reviewing requests, student enrollment, student placement, students denied permission to enter due to shortage of facilities, population potential, area needs and time of request will be considered prior to approval by the State Board for Vocstional Education.

VT 004 996
Jakubauskas, Edward B.
Iowa State University of Science and Technology, Industrial Relations Center. Interim Report, June 1-December 31, 1967.

Iowa State Univ. of Science and Technology, Ames. Industrial Relations Center
Manpower Administration (DOL), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET. Contract 91-17-66-61
Pub Date - 67 52p.

*RESEARCH AND DEVELOPMENT CENTERS; *ACTIVITIES; LEADERSHIP TRAINING; GRADUATE STUDY; RESEARCH PROJECTS; CONFERENCES; WORKSHOPS; INSTITUTES (TRAINING PROGRAMS)
*INDUSTRIAL RELATIONS CENTER; IOWA STATE UNIVERSITY

The mission of the manpower institutional grant at Iowa State University is to (1) conduct basic manpower research of regional and national significance, (2) develop a supply of new scholars in manpower through the M.S. degree program of the Industrial Relations Center as well as through the existing M.S. and Ph.D. programs in economics, sociology, and psychology, (3) update the skills of scholars and practitioners through summer institutes and workshops, and (4) develop and maintain a central clearinghouse of published and on-going research for colleges and universities. During the first year and a half the staff of the Center has grown to 16 faculty members, 14 graduate students, and three supportive staff members. Graduate student completions include one Ph.D. degree and 5 M.S. degrees. An outside Advisory Council of prominent officials and citizens is in the process of formation to advise the Center in its activities. Ten publications have resulted from the research activities of the Center and 14 are in process or have been accepted for publication. Research and consulting support have been given to such agencies as the Manpower Development Council, Iowa Department of Public Instruction, and the Iowa Department of Health. (HC)

VT 004 996

ED036657

(1)

UNITED STATES DEPARTMENT OF LABOR

MANPOWER ADMINISTRATION

WASHINGTON, D. C. 20010

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Interim Report

6-1-67 to 12-31-67

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

INDUSTRIAL RELATIONS CENTER

Curtiss Hall

Ames, Iowa 50010

VT004996

Contract Number: 91-17-66-61

Dr. Edward B. Jakubauskas
Professor of Economics
and Director,
Industrial Relations Center

PROGRESS REPORT

Grantee: Iowa State University of Science and Technology, Ames, Iowa

Contract Number: 91-17-66-61

Period Covered by Report: June 1, 1967 to December 31, 1967

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I. Summary

The mission of the manpower institutional grant at Iowa State University is four-fold:

1. To conduct basic manpower research of regional and national significance;
2. To develop a supply of new scholars in manpower through the M.S. degree program of the Industrial Relations Center as well as through the existing M.S. and Ph.D. programs in economics, sociology and psychology;
3. To update the skills of scholars and practitioners through summer institutes and workshops;
4. To develop and maintain a central clearinghouse of published and on-going research for colleges and universities in this region. To disseminate research results to scholars and practitioners in the manpower field.

During the first year and a half the staff of our Center has grown to 16 faculty, 14 graduate students, and 3 supportive staff members.

In terms of graduate student completions, one Ph.D. degree and five M.S. degrees have been awarded.

An outside "Advisory Council" of prominent officials and citizens is in the process of formation to advise our Center in its activities.

Ten publications have resulted from the research activities of our Center---14 publications are in process or have been accepted for publication.

Research and consulting support have been given to the Iowa Commission on the Aging, Manpower Development Council, Iowa Department of Public Instruction, Regional Manpower Advisory Committee, Iowa Department of Health, Central Iowa Mental Health Center and the Governor's office of Arizona.

A successful Summer Manpower Research Institute was held in June 1967, and attended by about 30 scholars from colleges and universities in the Great Plains States Region. Also, a Health Manpower Conference has been planned jointly by our Center and the University of Iowa, Iowa City. A conference is also being planned focusing upon Consumer Protection for the Disadvantaged.

Research activity under this grant has been expanded in the areas of: (1) Health Manpower Research; (2) Job Vacancy and Occupational Employment Forecasting; (3) Manpower Program Evaluation; (4) Managerial and Leadership Behavior; and (5) Older Worker and Labor Force Withdrawal Studies.

II. Staff, Office Space, Equipment

A. Industrial Relations Center Senior Research Staff

The staff involved in the activities of the manpower institutional grant and the Industrial Relations Center has been expanded to include staff members from the departments of industrial engineering and government.

Appointments to the Industrial Relations Center are made on an annual basis by the "Industrial Relations Advisory Committee." Those appointed to the Center are eligible for financial support through released time for research, small grants to initiate new research, current expense, and the provision of research assistants. Faculty associated with the Center are also supported through university funds and other grants.

Current staff includes:

1. Economics:

   a. Edward B. Jakubauskas, Professor and Director of the Industrial Relations Center (and since July 31, 1967, Chairman, Industrial Relations Advisory Committee);

   b. Harold W. Davey, Professor (on leave, 1967-68);

   c. Neil Palomba, Assistant Professor, and Research Director, Industrial Relations Center;

   d. James A. Socknat, Visiting Assistant Professor (1967-68), Program Planning and Development Director;

   e. Raymond R. Beneke, Professor;

   f. Sydney C. James, Associate Professor.

2. Sociology:

   a. Harry Cohen, Associate Professor;

   b. Jon Doerflinger, Associate Professor.

3. Psychology:

   a. Arthur C. MacKinney, Professor and Head, Department of Psychology;

   b. Edwin Hutchins, Professor;

   c. Donald Zytowski, Assistant Professor;

   d. Tom Lyons, Assistant Professor;

   e. Aaron Lowin, Assistant Professor;

   f. Donald Penner, Assistant Professor.

4. Other:

   a. Donald E. Boles, Professor of Government;

   b. Clifford E. Smith, Associate Professor of Industrial Engineering.

5. Supportive Staff:

   a. Mrs. Anne Culp, Office Manager;

   b. Mrs. Primrose Jackson, Publications Editor;

   c. Mrs. Marilyn Carlson, Secretary.

6. Graduate Student Research Staff Associated with the Industrial Relations Center:

   (See III C.)

7. Staff Changes:

   a. William Kenkel, Sociology, to University of Kentucky;

   b. Ward Bauder, Sociology, to Cornell University;

   c. Dennis Maki, Economics, to Simon Fraser University, Vancouver, British Columbia.

B. Office Space

On October 20th, the Industrial Relations Center moved into its permanent quarters in rooms 310, 311, and 312. In addition, room 313 was assigned to Sociology and to Harry Cohen of our Center. Currently, rooms 310-313 are occupied by 11 members of our Center staff.

The contribution of prime office space by the university underscores, in our estimation, the administration's high priority for our Center's mission.

A Center library conference room has been established in room 311. This will also be utilized as a seminar room.

C. Equipment

On September 21st the final shipment of office equipment for the Center arrived. Equipment purchases are not provided for directly in the budget of our manpower grant but are made available as a contribution of the university from the "Science Equipment Fund." The value of this equipment totaled $5,279.24 in December 1967.

III. Graduate Education and the Development of Manpower Specialists

A. Degrees offered

One of the major purposes of the U. S. Department of Labor's manpower institutional grant program is to increase the quantity and quality of research and action personnel involved in the manpower field.

The basic philosophy of the faculty associated withthe Inddustrial Relations Center has been to avoid the development of any specialized degree in "Manpower Studies." Rather, the attempt has been to utilize basic theories found in the various social science disciplines, and to construct a program of graduate study for each student which will make it possible for him to adapt to changing research and action needs.

The staff associated with the Industrial Relations Center is able to offer programs of study at the M.S. and Ph.D. levels in economics, psychology, and sociology. Additional disciplines will be added in the future.

In addition to this, a new M.S. degree in Industrial Relations, established in June 1966, is offered by the "Industrial Relations Advisory Committee," comprising faculty members from economics, sociology and psychology.

Thus, graduate students interested in pursuing work in manpower have a choice of seven degrees. Heavy emphasis is placed upon statistical methods as well as on behavioral and institutional factors. Each student's program of study is individualized - yet it includes a "core" of social science theory and statistical methods.

B. Courses in the Manpower Field

Two courses have been specifically designed for undergraduate and graduate students in manpower studies. At the senior undergraduate level (open to graduate students for minor credit) a course in "Manpower Economics" (Econ 441) was elected by 30 students in the Winter Quarter 1967, and by 29 students in the Winter Quarter 1968.

At the graduate level a course on "Advanced Labor Market Analysis" (Economics 592) was elected by 9 students in the Spring Quarter 1967, and by 7 students in the Fall Quarter 1967.

For the future, a course will be offered on "Comparative Manpower Development." This course will focus upon manpower development and utilization problems of developing nations.

C. Graduate Students Associated with the Industrial Relations Center

1. Completions, degrees awarded, and thesis topics:

a. Dennis R. Maki, Ph.D., Economics
(Thesis: "A Forecasting Model of Manpower Requirements in the Health Occupations")

b. Karen S. Hawley, M.S., Economics
(Thesis: "Economics of Collective Bargaining by Nurses")

c. Robert F. Danzer, M.S., Economics
(Thesis: "Economic Implications of Converting from a Wage Incentive to a Guaranteed Salaried Method of Payment for Production Workers")

d. Jean-Romain Rousseau, M.S., Economics
(Thesis: Regional Analysis of Unemployment, the Province of Quebec, 1946-1966")

e. Kermit A. Buntrock, M.S., Economics-Education
(Thesis: "Occupational Problems and Vocational Training Needs of High School Dropouts from Rural Areas in Iowa")

f. Marilyn Ann Nouri, M.S., Sociology
(Thesis: "Variables Related to Future Work Commitment of Non-Employed Mothers")

Karen Hawley and Marilyn Nouri completed graduate degrees through support from the manpower institutional grant. It is noteworthy that Miss Hawley is now employed as Research Director of the California Association of Nurses. This was a direct result of the manpower institutional grant and the Industrial Relations Center's research program in the health manpower field.

2. Staff changes

Blaine Roberts and Harold See have transferred from research to the teaching staff in the Department of Economics for 1967-68.

3. Graduate students financed in whole or in part through the manpower institutional grant:

Economics

a. Vienna Taylor
b. Mary Faden (1/4 time)
c. Randyl D. Elkin (1/4 time)
d. Kenneth Heitmann

Sociology

a. Motoko Lee
b. Carolyn Taff (1/4 time starting Dec. 1, 1967)

Psychology

a. Gerald Trumm (until Dec. 31, 1967)

Statistics

a. Gregory Fawcett (starting Dec. 1, 1967)

4. Graduate students financed through U. S. Office of Education funds and manpower institutional grant:

Economics

a. Catherine Palomba
b. Kenneth Mericle

Graduate students pursuing work in manpower but financed through other sources include:

Economics

a. John Martens
b. James Booth
c. Robert Kirk
d. John M. Leyes

Sociology

a. Joan Doerflinger

Psychology

a. James M. Thomas
b. Anthony J. Reilley
c. Michael J. Kavanaugh
d. Eugene Holmblad
e. James Craig
f. Peter R. Prunkl
g. John Moore
h. Russell Vaught

D. Off-Campus Visitors

The development of competent manpower specialists depends on many factors besides courses, credits, and degrees. The essential purpose of a "Center" is to provide a consortium of scholars from varied disciplines who are involved in research and in action programs in the manpower field. Thus, an academic environment should provide a means for the exchange of ideas, research results, and new paths of intellectual inquiry.

Thus, in addition to campus visitors invited to the Summer Manpower Research Institute in June 1967 (see VIII below), the following persons visited with our Center staff:

a. William S. Peters, Director, Arizona Joint Economic Development Committee, September 19th.

b. Phyllis Roberts, Nurse Coordinator, Iowa Department of Health, September 28th.

c. Jack Weidemann and Pat Powers, Iowa State Manpower Development Council OJT Project, October 11th.

d. Frank Robinson, Iowa State Manpower Development Council, Governor's Program for the Employment of Youth, October 18th.

e. Philip Duggan, Industrial Relations Department, Maytag Company, October 26th.

f. Ray Schwartz, Iowa Commission on the Aging, November 9th and December 14th.

In the next few months we hope to have the following visitors at our Center:

a. Burt Weisbrod, University of Wisconsin, April 4, 1968.

b. Ben Seligman, University of Massachusetts, April 10, 1968.

IV. Research

One of the primary missions of the manpower grant is to generate new knowledge in the field of manpower and human resources. An extension of this mission is to make this research available to action agencies to improve programs and operations.

To maximize the effectiveness of our Center's research program over the long-run, clusters of projects have been organized within major areas of research.

At present research activities are carried out in five major research areas: (A) Health Manpower; (B) Job Vacancy and Occupational Employment Forecasting; (C) Managerial and Leadership Studies; (D) Manpower Program Evaluation; and (E) Labor Force Withdrawal Studies.

A. Health Manpower

1. The U. S. Office of Education has approved a $9,864 pilot-feasibility grant to develop a cooperative research-action program with health agencies in Iowa.

   A cooperative arrangement has been developed with staff members of the Center for Health Occupations (University of Iowa, Iowa City) and the State Department of Health in Des Moines. Included in planning activities are about 75 officials involved in the health field in the state and region.

   A conference has been planned for March 13 and 14, 1968, where plans for a comprehensive health manpower program will be developed. (A copy of the project proposal is available upon request.)

2. A Theoretical Recursive Model for Estimating Health Man-Power Requirements.

   Dr. Dennis Maki has completed his doctoral dissertation and a manuscript is ready for final printing. He has developed a very useful model for estimating health manpower requirements at the national level. (A copy of this study is available on request.)

3. Nursing Manpower Demand and Supply

Dr. Harold W. Davey and Karen Hawley have completed their study relating to demand and supply, and the behavior of nurses in the labor market. This study has been published by our Center, and initial printing of 300 copies was very quickly exhausted.

An arrangement has been made with Iowa State University Press to reprint and publish this study. (Available in January 1968.)

4. Turnover, Absenteeism, and Labor Force Behavior of Nurses (Thomas Lyons and Carolyn Taff)

Thomas Lyons (Psychology) is preparing a manuscript for publication on "A Study of Social-Psychological Variables as They Relate to Turnover, Propensity to Leave, and Absenteeism Among Hospital Staff Nurses." This will be published as a part of our Center's "Health Manpower Research Series."

Professor Lyons has also submitted a project proposal to the Manpower Administration for financial support of a "Longitudinal Study of Hospital Nursing Satisfaction Turnover," which will be a continuation of earlier research carried out by Lyons at the University of Michigan.

6. Health Care Costs of Nursing Homes in Iowa

Mary Faden, in cooperation with the Commission on the Aging and the State Department of Health, is conducting a study of health care costs of nursing homes in Iowa. Due to the fact that Iowa has a large and growing proportion of older citizens, a study of health care costs is important for future operations in this field.

B. Job Vacancy and Occupational Employment Forecasting

1. Jakubauskas and Palomba have published the second report in a series of studies on job vacancies in Iowa manufacturing. The third report will be published early in the spring of 1968. Close cooperation has been maintained with BES staff personnel in Washington. Plans call for the use of a BES method for expanding sample survey returns to the universe for Iowa manufacturing. (The first and second Job Vacancy Reports are available upon request.)

2. Beneke, James and Heitmann are involved in analysis of the operations of a selected number of large commercial farms in Iowa to forecast the skill content of highly skilled farm jobs and future manpower needs.

   Reduction of farm employment in Iowa and the region has taken place concurrent with the growth of demand for highly skilled high-wage farm labor. With rapid consolidation of farm acreage projected in the future, many highly skilled jobs will be available to those entering the labor force. The new jobs will bear little resemblance to farm occupations of the past.

   In a sense, this project will attempt to look into the future to see what farm manpower requirements and job content will be like in the next decade.

3. Jakubauskas, N. Palomba and C. Palomba are involved in a manpower forecasting study of occupational employment trends at the regional level. Input-output data developed at the national level will be utilized in this study. This project is financed in part through a grant from the Graduate College of Iowa State University (National Manpower Accounts Research) and our manpower institutional grant.

C. <u>Leadership, Supervision, and Managerial Manpower Studies</u>

1. "Components of Effective Supervision" Project. (Interim report submitted by Aaron Lowin.

   "Working with Jim Craig, we ran a laboratory simulation to examine the effects of performance on managerial style and found, not unexpectedly that style is heavily contingent on subordinate's <u>prior</u> activities. Mike Kavanagh and I completed and submitted a report of an earlier study on sociometric status and job satisfaction, in which it was found that the effects of status on satisfaction seem to depend on the interaction of (1) how one's fellow employees see oneself and (2) how one perceives this social fact.

   "I have also been supervising Jerry Trumm's research on the changing character of managerial style with experience in an organization."

2. "Manager Style on Three Levels of Supervision." (Interim report submitted by Gerald Trumm, Psychology.)

"This thesis is concerned with the relationship between the manager style exhibited by persons on various levels of supervision. Manager style is defined as how an individual does his job and what type of supervision he uses. A considerable amount of research has been done on the influence of manager style on such things as employee satisfaction, productivity, and absenteeism; however, few studies have investigated the influence of a manager's style upon the supervisory behavior or manager style exhibited by his subordinates who are in a supervisory position. It is the purpose of this thesis to investigate whether the manager style exhibited by an individual at a particular level in the management hierarchy is related to the style employed by his supervisor.

"Data for this study will be obtained from a research project which is being conducted with a large industrial organization under the direction of several faculty members. Data on manager style have been collected from three levels of supervision: (1) plant managers, N = 25; (2) department heads, N = 120; and (3) foremen, N = 240. These data were collected by means of a self-report questionnaire containing 135 items related to the following 15 dimensions of manager style as identified by Roach and Fleishman: personal compliance, job knowledge, direction of group performance, rewarding performance, company loyalty, acceptance of responsibility, group spirit, personal drive, impartiality, poise, initiating structure, consideration, open-mindedness, cheerfulness, and approachability. Several typical questionnaire items are (1) listen readily to suggestions for the improvement of work; (2) I refuse to give in when people disagree with me; and (3) I know all phases of all jobs in my department. Each item was responded to on the basis of a 1-99 point scale. A value of 1 indicated a very nondescriptive statement and a value of 99 indicated a very descriptive statement. The respondent was instructed to respond to each item on the basis of how descriptive it was of his typical performance on-the-job.

"Correlation coefficients will be computed over the 15 dimensions of manager style for the following comparisons:

(1) plant manager vs. department head
(2) department head vs. best rated foremen
(3) department head vs. poorest rated foremen
(4) plant manager vs. best rated foremen
(5) plant manager vs. poorest rated foremen
(6) best rated foremen vs. poorest rated foremen.

"The general hypothesis is that there will be a significant relationship between the manager style, as measured by the 15 dimensions, of an individual and his supervisor.

"It is also hypothesized that there will be more similarity of manager style between a supervisor and the best rated foremen than between a supervisor and the poorest rates foremen.

"Additional hypotheses are being developed regarding the similarity of manager style of best and poorest rated foremen."

D. Other Research Projects Supported in Part Through Funds Under the Manpower Grant.

1. Withdrawal Patterns from the Labor Force (Doerflinger-Lee)

One graduate research assistant in sociology (Lee) is working with Professor Jon Doerflinger in a continuing study of modes of withdrawal from active occupational roles by farmers, small town merchants, professionals, and factory workers age 50 and older in Iowa.

Interim Progress Report Submitted by Doerflinger:

"A part of our investigation sponsored by the Industrial Relations Center includes an investigation of the relationship of home activities to work activities of actively engaged men past 50.

"Home and work have become forces which compete for men's time; therefore the intent of the study was to explore this relationship of withdrawal from work activity to engagement in household tasks.

"The data were collected from a sample of five occupational groups of men 50 years old and above in Iowa. The five

occupational groups were farmers, factory workers, proprietors, salaried professionals and self-employed professionals. Six specific household tasks were selected for the study. The three traditionally male tasks chosen were lawn mowing, gardening and fixing broken things. The three traditionally female tasks chosen were washing dishes, washing clothes and cooking.

"The data indicate that substantial proportion of the men were involved in a variety of household tasks. Across occupational groups, the participation ranged from nearly 80 per cent in fixing broken things to approximately 17 per cent in washing clothes. The hierarchy of household task participation among five occupational groups, from the highest to lowest, was as follows: factory workers, salaried professionals, farmers, proprietors and self-employed professionals.

"The major findings were as follows: the association between change in occupational work load, measured by weeks per year of working and hours worked per week, and change in household task participation was almost none, mainly due to the fact that most of the people in the sample made no change either in occupational work load or in household task participation during the past ten years and most of the men do not plan to make changes in the next five years.

"Where changes were made the reasons given were predominantly non-work related reasons.

"Another part of the study is connected with changes made in sources of income and net worth which occur as persons age. Large occupational differences were noted and it was apparent that shifts in income source and net worth do occur with age.

2. Work and Alienation in Society (Cohen)

Through released faculty time under the manpower grant, Professor Harry Cohen is involved in a continuing research program on the problems of alienation in modern society.

Interim Progress Report Submitted by Cohen:

"I am doing some library research (aided in part by the part-time work of two graduate assistants not funded by this grant but through the Department of Sociology funds) and writing a book on the basic problems of life under the pressures of a rapidly changing, technologically-based, industrial society. The major interest here is on the alienating factors in modern society that lead people to be alienated from work, from nature, from technology, from other people, and from society and self. Evidence for such alienating factors are, among other things, styles of life, love, play, work, education, religious worship, and such as reflected in many sources by perceptive people such as in paintings, sculpture, modeling styles, novels, dance and the like, and it is in the gathering of reference sources of such studies that I have used the three hours per week help of one graduate student, and twenty hours per week work of another, both not supported from grant funds because this aspect of the research, although essential for the book in general, is not that directly related to the purposes of the Manpower Grant. These students have worked for me from mid-September until mid-November. One shall continue to spend one hour or two per week at the library for me during this academic quarter (November-February) also.

"During the months of June and July I completed in nearly finished form a chapter entitled, "Gemeinschaft, Gesellschaft and Psuedo-Gemeinschaft." These terms really reflect the the change in our society from a communal, close-relationship type to a more business-oriented, rationally-oriented type. In turn we are witnessing a change to great use of the pseudo-gemeinschaft, that is the faking of a gemeinschaft feeling (attachment, relatedness, liking, friendship, etc.) but for gesellschaft enos (rational, market or business-type of goals.) This, plus problems in the gesellschaft nature of society, as well as confused evaluations of gemeinschaft and gesellschaft, are leading to personal and social problems. These are analyzed in this chapter. This chapter was written and researched on my own personal time and funds with the exception of secretarial help drawn from the Sociology Department and not from the Manpower Grant.

"In June I also participated in the Manpower Research Institute here at Iowa State University on June 15 and presented a speech entitled 'Sociological Theory: Changing Conceptions of Work.' This was supported through the Manpower Grant.

"From September 1 to November 30 I was supported by one-quarter time released time through the Manpower Grant. During this time I completed the rough draft of a 175 page (in handwritten copy) chapter entitled, 'Anomie, Anomia and Alienation.' This chapter is one of the more important in the book and traces the meaning and development of such problems for our society. Alienation from work, among other issues is traced in this chapter.

"On November 14-16 I presented one speech and four lectures at Southwest Missouri State College, Springfield, Missouri, partially supported by a travel grant from the Manpower Grant. Professional staff of the college, especially sociologists and economists, attended the speech, as well as an estimated near 400 students, and other interested persons, including the Manpower Director of the Ozarks Area Community Action Corporation. The topic was 'Anomie, Anomia, Alienation: Problems of an Industrial Society.' The lectures were attended mainly by students with some representation from the professional staff as well. Subjects of the lectures most closely related to the purpose of the Manpower Grant were: 'Work and its Discontents,' and 'The Division of Labor: Dysfunctions and Karl Marx.'"

V. Publications

A. Published, Available on Request

1. "Human Resources Development," Special Issue of four articles prepared jointly by the staff of the Iowa State Manpower Development Council, the Industrial Relations Center of Iowa State University, and published by the Bureau of Business and Economic Research of the University of Iowa, Iowa City. Iowa Business Digest, October, 1966.

2. Palomba, Neil A., Handbook for Estimation of Labor Supply by Use of a Community Survey. Published jointly by the Industrial Relations Center and the Iowa State Manpower Development Council, Des Moines, Iowa, February 1967.

3. Jakubauskas, Edward B. and Palomba, Neil A., Job Vacancies in Iowa Manufacturing Establishments, March-August 1966. Published jointly by the Industrial Relations Center and the Iowa State Manpower Development Council, Des Moines, Iowa, April 1967.

4. Jakubauskas, Edward B. and Palomba, Neil A., Job Vacancies in Iowa Manufacturing Establishments, March-August 1967. Industrial Relations Center, October 1967.

5. MacKinney, Arthur C., "The Assessment of Performance Change: An Inductive Example," Organizational Behavior and Human Performance, Vol. 2, No. 1, February 1967.

6. MacKinney, Arthur C., "Conceptualizations of a Longitudinal Study of Manager Performance," published by the Creativity Research Institute of the Richardson Foundation, Inc. July 1967.

7. Jakubauskas, Edward B., and Baumel, C. Phillip, Human Resources Development, Iowa State University Press, Ames, Iowa, October 1967.

8. Jakubauskas, Edward B., "The Implications of Manpower Supply and Demand upon Vocational-Technical Education in the West North Central States Region," paper presented at the Conference on the Policy Issues and Developmental Problems of Post-High School Vocational-Technical Education in Region VI, Ames, Iowa, November 14, 1967.

9. Jakubauskas, Edward B. "The Economics of Aging," paper presented at the First Governor's Conference on the Aging, sponsored by the Iowa Commission on the Aging, Des Moines, Iowa, October 3, 1967.

10. Hawley, Karen, The Economics of Collective Bargaining by Nurses, Industrial Relations Center, Iowa State University, Ames, Iowa, September, 1967. (will be re-printed by Iowa State University Press in January 1968.) This publication is the first of our "Health Manpower Research Series."

B. In Process or Accepted for Publication

1. Jakubauskas, Edward B. and Palomba, Neil A., Manpower Economics. Text in preparation for the Addison-Wesley Publishing Company.

2. Jakubauskas, Edward B., Socknat, James A., and Ropes, John M., The Iowa State Manpower Development Council: An Experiment in Human Resource Program Coordination. (Book in process)

3. Lowin, Aaron, "Prescriptions for Research in Participative Decision-Making." (Accepted for publication.)

4. Palomba, Neil A., "Unemployment Compensation Program: Stabilizing or Destabilizing." (Accepted for publication Journal of Political Economy, February 1968.)

5. Palomba, Neil A., "Evaluation of Iowa's Governor's Drop-out Program." (Available on request.)

6. Palomba, Neil A., and Davis, J. Ronnie, "On the Military Draft as a Progressive Tax-in-Kind." (In process)

7. Palomba, Neil A., "Strike Activity and Union Membership: An Empirical Approach." (Submitted for publication.)

8. Palomba, Neil A., and Palomba, Catherine, "Industry-Occupation Matrix of Iowa's Employment for 1975." (In process.)

9. Cohen, Harry, "Union-Management Conflict: An Application of the March and Simon Hypotheses." (Will be published as part of research series of our Industrial Relations Center.)

10. Maki, Dennis R., A Forecasting Model of Manpower Requirements in the Health Occupations. (Completed. Will be published as the second publication in our "Health Manpower Research Series.")

11. Lyons, Thomas F., A Study of Social-Psychological Variables as They Relate to Turnover, Propensity to Leave, and Absenteeism Among Hospital Staff Nurses. (Completed monograph. Will be published as the third publication in our "Health Manpower Research Series.")

12. Davey, Harold W., "Union-Management Cooperation Revisited," Business Perspectives Southern Illinois University, Carbondale, Illinois. (To be published in the winter of 1968.)

13. Davey, Harold W., "Present and Future Labor Relations Problems in the Meat Packing Industry." (To be published in the Labor Law Journal.)

14. Palomba, Neil, and Jakubauskas, Edward B., Proceedings of the First Annual Summer Manpower Research Institute, to be published in April 1968.

15. Lowin, Aaron, "A Theory of Participative Decision-Making," (In press. To be published in Organizational Behavior and Human Performance.)

16. Lowin, Aaron, "Objective and Self-Report Sociometric Scores and Job Satisfaction." (Submitted to Midwestern Psychological Association, 1967.)

17. Lowin, Aaron, "The Effect of Productivity on Managerial Style: Subject Lesson in the Ambiguity of Correlational Data." (Submitted to Journal of Personality and Social Psychology.)

C. Publication Plans for 1968

Our Industrial Relations Center has developed an arrangement with Iowa State University Press for publishing significant research results suitable for monograph or book publication. One book, Human Resources Development was published under this arrangement in October 1967, and Karen Hawley's Economics of Collective Bargaining by Nurses will be published in January 1967.

A part-time "publications editor" has been hired to assist our Center in its research and publishing program, and a statistician will be added in 1968-69.

D. Mailing Lists and Dissemination of Research

To date the following items have been mailed to the indicated people and organizations:

ECONOMICS OF COLLECTIVE BARGAINING BY NURSES:

U. S. Department of Labor Officials
Industrial Relations Center Directors
Other Research Centers
Six Other Manpower Grants
Iowa State Health Officials
American Nurses' Association
Division of Nursing, Department of Health, Education and Welfare
Labor Education & Research Service, Ohio State University
Nurses' Association, Montreal, Canada
Department of Economics, Brown University
Health Occupations Training Bureau, Commonwealth of Mass.
Practical Nursing Study, University of Illinois
Research Institute for Business & Economics--University of Southern California
St. Joseph Hospital Library, Ottumwa, Iowa
Center for Vocational & Technical Education, Ohio State University
California Nurses' Association
Iowa Nurses' Association
Six Hospitals in Iowa
Department of Economics, Mankato State College
Illinois Nurses' Association
Graduate School of Business Administration, University of California
(In addition there were 20 individual requests for this publication after our supply was depleted.)

JOB VACANCIES IN MANUFACTURING ESTABLISHMENTS VOL. 1

Manufacturing Firms surveyed
High School Guidance Counselors
County Extension Directors

JOB VACANCIES IN MANUFACTURING ESTABLISHMENTS VOL. 2

Area Vocational Schools
Employment Security Offices in Iowa

FIRST ANNUAL PROGRESS REPORT

U. S. Department of Labor Officials
I. S. U. Administration
Regional and State Manpower Officials
Industrial Relations Directors
National Manpower Advisory Committee
Regional Manpower Advisory Committee
Great Plains States Liaison Representatives
Six Other Manpower Grants
Manpower, Human Resource and Vocational Education Research Centers
Participants and Faculty of Summer Manpower Research Institute
Iowa Employment Security Commission
U. S. Department of Labor Bureau of Employment Security
Iowa State Government Officials
National Scholars (Manpower)

HUMAN RESOURCES DEVELOPMENT BOOK PUBLICITY

Great Plains States Regional Scholars
Summer Manpower Research Institute Participants
Industrial Relations Librarians
National I.R.R.A. Members (approximately 3,000)

COMPLIMENTARY COPIES OF HUMAN RESOURCES DEVELOPMENT BOOK:

Participants and Speakers in Human Resources Development Conference
I. S. U. Administration
U. S. Department of Labor Officials
Liaison Representatives

PROJECT PROFILES

Great Plains States Liaison Representatives
1967 Summer Manpower Research Institute Participants
ERIC Information Centers
Industrial Relations Centers
Manpower, Human Resources and Vocational Education Research Centers

VI. Supporting Activity to Action-Agencies

A major goal of our manpower grant is the provision of research support and consulting services to action agencies.

A. Iowa Commission on the Aging

Jakubauskas has been appointed by the Governor to a four-year term on the Iowa Commission on the Aging. Within the Commission a sub-committee on employment, income, and retirement has been formulated by Jakubauskas.

On October 3, Jakubauskas was a plenary speaker at the State Conference on the Aging.

Also research projects are being formulated on:

1. Health Costs of Nursing Homes in Iowa (Mary Faden.)

2. The Hard-Core Unemployed Older Worker and the Use of OJT as a Placement Instrument (V. Taylor.)

B. Cooperation with the Iowa State Manpower Development Council--Office of Economic Opportunity, and Other State and Local Agencies.

From the inception of the Industrial Relations Center at Iowa State University and the award of the manpower grant, a close working relationship has continued to exist with the Manpower Development Council--Office of Economic Opportunity.

Socknat has assisted the MDC-OEO in developing a project proposal for Iowa under the U. S. Department of Labor's Government Recruiting, Employment, and Training Program (GREAT).

The Industrial Relations Center has also cooperated with MDC-OEO in the preparation and dissemination of "Project Profiles"--a series of publications describing innovative programs of MDC-OEO.

Palomba assisted the MDC-OEO in preparing an "Evaluation of the Governor's Dropout Program." (A description of this program is available upon request.)

Socknat has been appointed by the State Superintendent of Public Instruction to the "State Advisory Committee on School District Organization." This committee advises the Department of Public Instruction on implementation in Iowa of the Great Plains School District Organization Project. This project will run from March 18, 1966 to June 30, 1968.

Jakubauskas is a consultant to the Central Iowa Mental Health Center.

C. Iowa Intergovernmental Commission

Jakubauskas was appointed to the Iowa Intergovernmental Commission on April 15, 1966. During the period of this report Jakubauskas attended a meeting of the Commission on November 1st. The problems of youth in Iowa were discussed in this one-day meeting.

The purpose of this Commission is to facilitate communication and develop better liaison between local and state governments.

D. Manpower and Job Market Information Committee

The Industrial Relations Center has continued to work with this committee in developing better occupational information--particularly for the emerging Area Vocational Schools.

The Industrial Relations Center is involved in an on-going "Job Vacancy Survey of Manufacturing Establishments in Iowa." Palomba has been working closely with Washington staff of the U. S. Bureau of Employment Security on various aspects of this study.

E. Regional Manpower/Research Agencies

In August 1967, copies of progress reports and other materials on the Industrial Relations Center were sent to all Employment Security Commissions in the six-state Great Plains States Region. In addition to this contact was made with Mr. John Lehman of the Regional Bureau of Labor Statistics Office.

Close liaison has continued with Mr. John Newton, Secretariat, National and Regional Manpower Advisory Committees, U. S. Department of Labor, and also with individual members of the Regional Manpower Advisory Committee.

F. Comprehensive Health Manpower Planning

Probably the most significant example of service by our Center has been the development of comprehensive health manpower planning for Iowa and the region. Under combined funds of the manpower institutional grant and a pilot-planning grant of the U. S. Office of Education (awarded in September 1967) plans are being formulated for a broad-based research program in health manpower. This includes an on-going publication series of the Industrial Relations Center, and the involvement of health and education agencies in the development of a total comprehensive program for health manpower planning. A major conference has been planned for March 13 & 14, 1968--jointly sponsored by Iowa State University and the University of Iowa (Iowa City). Close cooperation on this project is also being maintained with state agencies, particularly the State Department of Health, and the Department of Public Instruction.

G. Assisting Government Agencies in Consumer Protection Program Planning

(See VIII C)

VII. Six-State Cooperation in Manpower Research

A. Cooperation to date

One of the major factors leading to the award of a manpower institutional grant to Iowa State was the unique arrangement for regional cooperation among colleges and universities in the region.

In addition to the regional participation of college and university staff members in the Annual Manpower Research Institutes (See VIII below) cooperation has emerged in a number of activities including:

1. Iowa State University-University of Iowa cooperation in the sponsorship of a regional health manpower conference scheduled for March 13 & 14, 1968.

2. Staff visit by Harry Cohen of our Center on November 14-16 at Southwest Missouri State College, Springfield, Missouri. Professor Cohen gave one speech and four lectures to sociologists and economists at that institution, plus an estimated 400 students. Topics under discussion were "Anomie, Anomia, Alienation: Problems of an Industrial Society", "Work and its Discontents," and "The Division of Labor" Dysfunctions and Karl Marx."

3. After attending our Summer Manpower Research Institute in June, Professor David E. Cooper developed a "Manpower Institute" at Iowa Wesleyan College in Mount Pleasant. One of our staff members had prepared a paper for this Institute and was scheduled to be a major speaker at Iowa Wesleyan on December 2nd. A last minute cancellation of a chartered plane flight from Ames prevented attendance and cooperation at this very worthwhile institute.

B. List of Cooperating Colleges and Universities

To date (December 5, 1967) 69 colleges, universities, and associations of higher education are cooperating with our Center in the activities of the manpower institutional grant. Each of the institutions has designated a liaison representative who is our contact person for research publications, notices of conferences and institutes, and clearinghouse for information.

Participating institutions and liaison representatives include:

Colleges and Addresses	Liaison Representatives
Park College Parkville, Missouri 64152	John M. Hamilton Acting Dean of the College
Nebraska Wesleyan University 50th & St. Paul Streets Lincoln, Nebraska	Dr. M. D. Evans
Sioux Falls College Sioux Falls, South Dakota	A. M. Gowan, Dean
University of Omaha Omaha, Nebraska 68101	Dr. Russell Snyder Department of Economics
University of North Dakota Grand Forks, North Dakota 58201	Dr. W. E. Koenker Vice Pres. for Academic Affairs
Saint Louis University Saint Louis, Missouri 63103	Dr. Sam Barone Assoc. Professor of Economics
Dana College Blair, Nebraska	Gilbert Regan
University of Iowa Iowa City, Iowa	Dean Billy L. Barnes College of Business Admin.
Southwest Missouri State College Springfield, Missouri	Kenneth D. Oliver, Jr. Asst. to the President
The Iowa Assn. of Private Colleges and Universities 442 Des Moines Building Des Moines, Iowa 50309	Dr. Irwin J. Lubbers President
Southern State College Springfield, South Dakota	Dr. Clair T. Blikre
Valley City State College Valley City, North Dakota	R. L. Lokken, President
Central College Pella, Iowa	William H. Thompson Vice Pres. for Development

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Wayne State College Wayne, Nebraska	Dean Norman Nordstrand
Clarke College Dubuque, Iowa 52001	Sister Mary St. Rose Burke, BVM Dean of Studies
William Penn College Oskaloosa, Iowa 52577	Dr. Stuart Baller Associate Dean
State College of Iowa Cedar Falls, Iowa	Daryl Pendergraft Executive Dean and Assistant to the President
Upper Iowa University Fayette, Iowa	Dr. Herschel Hendrix Vice President
Minot State College Minot, North Dakota	Dr. Randolph N. Foster Dean of the College
Dickinson State College Dickinson, North Dakota	O. A. Dehong
North Dakota State University Fargo, North Dakota 58102	Dr. L. D. Loftsgard Vice President
Wichita State University Wichita, Kansas	F. D. Jabara, Dean College of Business Admin.
University of Nebraska Lincoln, Nebraska 68506	Dr. E. S. Wallace, Director Bureau of Business Research
University of Missouri 202 Jesse Hall Columbia, Missouri 65201	Dr. Ellis R. Graham Assoc. Dean of Grad. School
University of Missouri 5100 Rockhill Road Kansas City, Missouri 64110	Dean Wesley Dale Graduate School
University of Missouri Rolla, Missouri 65401	Dean Dudley Thompson Dean of Faculties
University of Missouri 8001 Natural Bridge Road St. Louis, Missouri 63121	Dr. Paschal Twyman Asst. to Chancellor for Research

Friends University Wichita, Kansas	Harley J. Stucky Vice Pres. of Academic Affairs
McPherson College McPherson, Kansas 67460	Dr. Marlin L. Frantz Dean of Academic Affairs
William Woods College Fulton, Missouri 65261	L. C. Smith Academic Dean
Kansas State Teachers College Emporia, Kansas 66801	Dr. Joost Yff Assistant Coordinator of Research & Institute Grants
Missouri Valley College Marshall, Missouri 65340	Gerald K. Saunders Economics Department
South Dakota School of Mines & Technology Rapid City, South Dakota	Dr. John Paul Gries Dean, Graduate Division
Northeast Missouri State Teachers College Kirksville, Missouri 63501	Dr. J. C. Wright Division of Education
Stephens College Columbia, Missouri 65201	Mr. Ralph C. Leyden Dir. of Educational Development
The School of the Ozarks Point Lookout, Missouri	J. F. Findlay Vice Pres. for Academic Affairs
Kansas State University Manhattan, Kansas 66502	(to be designated) Assoc Dean, Graduate School
Luther College Decorah, Iowa	Curtis Reiso Development Office
Union College Lincoln, Nebraska 68506	Laurence R. Downing
Creighton University Omaha, Nebraska 68131	Rev. Richard C. Harrington, S.J. Vice Pres for Academic Affairs
Graceland College Lamoni, Iowa 50140	Dr. F. S. Hough, Chairman Division of Social Science
Peru State College Peru, Nebraska 68421	Dr. Darrell Wininger Coordinator of Research & Grants

St. Mary College Xavier, Kansas 66098	Terrance M. Brungardt Chairman, Dept. of Sociology
Coe College Cedar Rapids, Iowa 52402	Ralph W. Pixler Dean of the College
St. Ambrose College Davenport, Iowa	Col. C. J. Williams Assistant to the President
Tarkio College Institute of Ethics Tarkio, Missouri 64491	Dr. Phillip W. Van Vlack Vice President
Rockhurst College 5225 Troest Avenue Kansas City, Missouri 64110	Rev. Frank J. Murphy, S.J.
Central Missouri State College Warrensburg, Missouri	Dr. Tom D. Edmunds Asst. to the President
University of South Dakota Vermillion, South Dakota	Mr. Vincent Montgomery Bureau of Business Research
Baker University Baldwin City, Kansas 66006	Dr. Donald Eilenstine Chairman, Dept. of Economics and Business Administration
Washington University St. Louis, Missouri	Prof. Edward Kalachek Dept. of Economics
Southeast Missouri State College Cape Girardeau, Missouri 63701	Dr. Mark F. Scully President
Loras College 1450 Alta Vista Dubuque, Iowa	Mr. Gerard Noonan Registrar
Huron College Huron, South Dakota	Dr. Phillip H. Mergler Dean of the College
Dakota Wesleyan University Mitchell, South Dakota 57301	Dr. Rex Skelley, Head Dept. of Education and Psychology
Evangel College Springfield, Missouri	Joel Chaney Chairman, Business Dept.
Midland Lutheran College Fremont, Nebraska 68025	Dr. Wm. F. Zimmerman Vice President

Donnelley College 1236 Sandusky Kansas City, Kansas 66102	Mr. Thomas Beier
Buena Vista College Storm Lake, Iowa 50588	Dr. John P. Williams
Wartburg College Waverly, Iowa 50677	Dr. Melvin L. Kramer Chairman, Business Admin. and Economics
Culver-Stockton College Canton, Missouri 63435	Dr. Henson Harris Vice Pres. Academic Affairs
Chadron State College Chadron, Nebraska	Eugene M. Hughes Admin. Asst.
Center for Regional Studies University of Kansas Lawrence, Kansas	David L. Huff, Director
South Dakota State University Brookings, South Dakota 57006	Prof. Howard Sauer, Head Dept. of Rural Sociology
Westmar College LeMars, Iowa 51031	Prof. Robert Henrich Dept. of Sociology
Iowa Wesleyan College Mount Pleasant, Iowa	Prof. David E. Cooper Dept. of Economics
St. Benedict's College Archison, Kansas 66002	Rev. Gerald Senecal, O.S.B.
Grinnell College Grinnell, Iowa	Dr. Robert Haveman Department of Economics
Fort Hays Kansas State College Hays, Kansas	Dr. W. O. Moreland

C. Regional Clearinghouse for Manpower Research

One provision of the manpower grant to Iowa State University calls for the establishment of a clearinghouse of published and on-going research for colleges and universities in this region.

Over the last six months a considerable volume of publications have been sent to colleges participating in our manpower grant. (See V. above) For the future, plans call for the possible development of a regional journal which would focus upon research and publications appropriate to the Great Plains States Region. This, however, would in all likelihood be developed sometime beyond 1969.

VIII. Conferences, Workshops, and Institutes

A. Participation of Staff in the U. S. Department of Labor's Summer Manpower Research Institute

During August 1967, Socknat and Palomba attended a one-month Summer Manpower Institute sponsored by the Manpower Administration in Washington, D. C. This proved to be a successful and worthwhile program for our staff.

B. Regional Vocational Education Conference

On November 13, 14 & 15, a Regional Conference on Policy Issues and Developmental Problems was sponsored jointly by the Center for Agricultural and Economic Adjustment and the Department of Education--both at Iowa State University.

Our Industrial Relations Center cooperated in this conference by mailing out invitations to all colleges and universities in the region. Also, Jakubauskas presented a paper on "The Implications of Manpower Supply and Demand Upon Vocational-Technical Education in the West North Central States Region." (A copy of this paper is available upon request.)

C. Planned Conference on "Consumer Education and Protection for the Poor.

Socknat and Jakubauskas are cooperating with I.S.U. Extension staff members (Maxon and Whetstone) in the development of a conference on consumer education and protection for various target groups, including the aged, poor, welfare recipients, MDTA trainees, etc. Audience of the conference will be state officials in agencies dealing with the target groups.

The conference will explore needs of the target groups for consumer education and protection and possible program action which would complement or supplement the work of the agencies represented.

From the conference it is hoped that a pilot program can be developed for action to implement the best ideas presented by the speakers. These will be drawn from around the country as well as within the state. Thus, the conference really provides "spadework" for a pilot project of action.

The Governor Iowa has endorsed the project most enthusiastically and hopefully he will keynote the conference and spearhead the effort to translate the resulting program suggestions into pilot program status.

D. First Annual Summer Manpower Research Institute

To promote research activity within colleges and universities in the six-state Great Plains States Region and to upgrade and improve the skills of scholars in the manpower field, a non-degree Summer Manpower Research Institute was started by our Industrial Relations Center in 1967.

Attending the Institute were the following participants:

Professor Robert L. Hermann, General Beadle State College, Madison, S. Dak.

Professor John A. Delehanty, Kansas State University, Manhattan

Professor David E. Cooper, Iowa Wesleyan College, Mount Pleasant

Professor Perry Thompson, Tarkio College, Tarkio, Missouri

Professor E. J. Paul, Drake University, Des Moines, Iowa

Professor Clarence W. Ketch, Southwest Missouri State College, Springfield

Professor J. David Lages, Southwest Missouri State College, Springfield

Rev. Edmund A. Kurth, Loras College, Dubuque, Iowa

Mr. Milton E. Holtz, Southern State College, Springfield, South Dakota

Professor J. Richard Simon, The University of Iowa, Iowa City

Professor John E. Kramer, University of Missouri, St. Louis

Professor Ingo Walter, University of Missouri, St. Louis

Professor Frank A. Raley, College of Engineering and Architecture, Fargo, N. Dak.

Professor Wayne Anderson, University of Missouri, Columbia

Professor Donald J. Schneider, Loras College, Dubuque, Iowa

Professor Russell A. Snyder, Municipal University of Omaha

Professor Jerald F. Robinson, University of Missouri, Columbia

Professor Norman Ehresman, University of North Dakota, Grand Forks, N. Dak.

Rev. Austin E. Miller, S.J., Creighton University, Omaha

In addition, the following participated as guest lecturers and faculty:

Robert Herman, Labor Economist, Division of Adult and Vocational Research, U. S. Office of Education, Washington, D. C.

Prof. Karl Fox, Head, Department of Economics, Iowa State University, Ames.

Martin McGuire, Office of Program Plans and Analysis Director, Economic Development Administration, U. S. Department of Commerce, Washington, D. C.

Prof. Trevor Howe, Department of Education, Iowa State University Ames.

Dr. Kenneth Wold, Director, Research Coordinating Unit, Iowa Department of Public Instruction, Des Moines.

Prof. Aaron Lowin, Department of Psychology, Iowa State University, Ames.

Prof. Tom Lyons, Department of Psychology, Iowa State University, Ames.

Prof. Don Zytowski, Department of Psychology, Iowa State University, Ames.

Prof. James Whittington, Department of Sociology and Anthropology, Iowa State University, Ames.

Prof. Charles Holt, Department of Economics, University of Wisconsin, Madison.

Dr. Joseph E. Morton, The W. E. Upjohn Institute for Employment Research, Washington, D. C.

John Goltman, Regional Representative, Public Health Service Regional Office, U. S. Department of Health, Education and Welfare, Kansas City, Missouri.

Dr. Walter Williams, Deputy Director, Research & Plans Division, Office of Research Plans, Programs & Evaluation, Office of Economic Opportunity, Washington.

Professor Jack Siegman, Department of Sociology, University of Nebraska, Lincoln.

Arnie Solem, Regional Director, U. S. Bureau of Employment Security, Kansas City, Missouri.

Prof. Edwin Henry, Graduate School of Business, University of Rochester, Rochester, N. Y.

David E. Knuti, Manpower Specialist, U. S. Office of Economic Opportunity, Kansas City, Missouri.

Prof. Ward W. Bauder, Department of Sociology & Anthropology, Iowa State University, Ames.

Mr. Joseph E. Epstein, Chief, Economic Development & Manpower Resource Group, Office of Manpower Policy, Evaluation & Research, U. S. Department of Labor, Washington, D. C.

Prof. Harry Cohen, Department of Sociology & Anthropology, Iowa State University, Ames.

George Inada, U. S. Public Health Service, Arlington, Va.

As a whole, the Institute was a success. The multi-disciplinary nature of the Institute was of interest to all participants. One weakness (which will be corrected in the Second Annual Institute planned for June 1968) was a lack of adequate time for discussion. We plan to schedule fewer speakers next year and to make possible a greater interchange of ideas. (A program listing the speakers and topics of the Institute is available on request.)

At the conclusion of the Institute in June 1967, participants were asked for an evaluation of the various sessions as well as the institute as a whole. Excluding the faculty evaluation report (which must remain an internal document only) the Institute evaluation is reproduced here--unedited. For the benefit of those who might plan to replicate our Institute, our shortcomings are presented along withour strong points. (Proceedings of the Institute will be available by March 1968.)

SMRI EVALUATION

I. Evaluation:

A. This Institute attempted to increase the teaching and research skills of college and university scholars involved, or interested in manpower research by use of a multi-disciplinary approach to the manpower field.

How successful was this Institute in achieving its goal?

very successful	7
successful	13
fair extent	6
unsuccessful	0

B. To what extent did the speakers fulfill their assignments?*

fullest extent	3
satisfactorily	20
fair extent	2
poorly	0

C. Was the level of presentation by the speakers*

too technical	1
about right	22
too elementary	1

*Several participants made note of the fact that the quality of the speakers varied a great deal.

E. Audience participation

1. Do you believe the audience participation during the first day's session (Research Programs) was

too much	0
about right	10
too little	16

2. Do you believe the audience participation during the second day's session (Regional and Area Development) was

too much	0
about right	10
too little	15

3. Do you believe the audience participation during the third day's session (Psychological Research) was

too much	0
about right	7
too little	18

4. Do you believe the audience participation during the fourth day's session (Sociological & Anthropological Research) was

too much	0
about right	5
too little	20

5. Do you believe the audience participation during the fifth day's session (Methodology and Research Needs) was

too much	1
about right	10
too little	14

F. Please list at least one concrete achievement of the conference:

1. The opportunity to learn more about the perspective from which other social scientists approach manpower problems and issues of interest to an economist.

2. Gave me a better understanding of the positions of other disciplines in approaching problems in research.

3. Awareness of the need for an interdisciplinary approach to research.

4. Excellent interdisciplinary aspect.

5. The communication of ideas with different "experts" from different areas.

6. Several - but just getting specialists together in an interdisciplinary conference on common ground was an accomplishment.

7. Communication and coordination appears to be a basic need in this area, and I think conferences of this nature are a step in this direction.

8. The respect shown for cross-discipline accomplishments is very highly desired and needed. I think you made some contributions to it.

9. I learned something about what anthropologists and economists have to contribute. (from a psychologist)

10. Concrete specification of meaningful research needs and an appreciation of the contribution of other disciplines.

11. Introduction to a number and variety of persons engaged in action programs who are in a position to make explicit demands upon the more ivory-tower type participants. Perhaps more of future research will be need-oriented.

12. I really believe the conference succeeded in bringing many specialties to bear on the central topic of manpower research. It gave me a better appreciation than heretofore of the value of an interdisciplinary approach.

13. Interdisciplinary approach.

14. For me it achieved a stated goal--acquainting me with the general manpower concerns of other disciplines.

15. Important information function in an interdisciplinary sense, for all disciplines represented.

16. The presentation of current manpower programs and plans underway.

17. Interdisciplinary nature created much broader base and viewpoint of problems and solutions.

18. Recognition in each participant of problems of other areas.

19. Having a bit of allergy to research, I'm a convert to the importance of research in ultimately getting message by teachers across to public.

20. A greater conceptualization of the interdisciplinary aspects of manpower research. In addition, certain research ideas were formulated.

21. Introduction to the total picture which I think all researchers should have, but are frequently in no position to get.

22. Broaden one's perception of research going on in other disciplines.

23. I gained many new insights to the other disciplines.

24. Made us all aware of other discipline's contribution to the research problems.

25. Bringing people together to exchange ideas.

II. Planning

A. Would you attend a second Institute of this nature next year? Yes 24 - No 1

B. What length Institute would you prefer? 2 days-1; 3 days-7; 4 days-2; 4½ days-1; 5 days-14; 10 days-1.

C. Do you think a similar Institute focused on a more narrow subject, (e.g., Health Manpower) would be useful? Yes 20 - No 6.

D. List one or two topics that you would like to see included in a future program:

1. Training in industry (theoretical questions, empirical data, public policy issues involved.)

2. Education's role in manpower problems.

3. Problems of aging, small towns, minority groups.

4. More business participation.

5. Since we talk about unemployed people - I think employers should have a share in program.

6. I feel a professional manager from business and industry should have been invited to share his thinking and give this group an idea as to how their research findings are applied.

7. Some historical viewpoints or assessments by historians (by history professor).

8. More specific findings in specific areas of motivation of those not inclined to work.

9. The current topics were about right.

10. I would like to see one day at least, divided into sub-areas of say health manpower; labor market withdrawal - the aged; government representatives describing resources of their departments and their needs.

11. Middle management approach to manpower problems.

12. Manpower problems as related to American Negroes and/or urban manpower problems. You must realize, however, that these issues reflect my own research interests.

13. Aggregate manpower planning within framework of macroeconomic projections in vigorous terms; political aspects of the manpower problem.

14. Job and geographic mobility.

15. Interdisciplinary nature created much broader base and viewpoint of problems and solutions.

16. Small business manpower problems.

17. Manpower at a particular level rather than type. Skilled level workers rather than health occupation workers.

18. Topics were well selected.

19. More on economic and political problems.

20. Expanding employment.

21. Dimensions of the world of work.

E. What is the single area in which a similar Institute could <u>best</u> improve?

1. Less emphasis on long lectures and more of a "workshop" orientation.

2. Stress to speakers to connect their presentation to the purpose of the Institute.

3. Less speakers, more discussion.

4. Present a few "solutions" and then discuss, debate, destroy, etc.

5. More group participation and fewer speakers--voice amplification.

6. Small group participation; more provision for individual acquaintances of members, and even more disciplines included in the institute.

7. Fewer structural speakers - more interaction.

8. Get better representatives from government.

9. Fewer speakers - more time for discussion is needed.

10. One half day lecture and one half day devoted to a more specific session on one of the special topics.

11. Difficult to say. Anthropological research--prefer a systematic presentation of existing contributions.

12. More discussion among participants - fewer lectures.

13. Narrowing the focus to one or two discrete areas.

14. Federal, state and local politics of manpower questions.

15. Concentrate on any specific aspect of manpower.

16. Possibly a passing out beforehand of difficult papers and/or speeches.

17. More specific information of research problems.

18. Best conference seating arrangements. I would suggest a "U" type arrangement which would facilitate lecturers as well as discussions. I realize this is an operational suggestion, but it would have helped to get off to a faster start.

19. Afternoons might be left free for panel or open discussion, making greater participation on part of those attending and also getting greater breadth and depth that members might contribute.

20. More group participation, fewer speakers.

21. Role of unions and manpower programs.

22. Application of the ideas to specific problems.

23. Intensive analysis of smaller areas.

24. More interaction between students.

F. Comments:

1. I enjoyed my stay. I would suggest one discussion leader for each half-day session, rather than two formal presentations per half-day session.

2. I think it was too "economics" oriented and not enough psych., soc., and education oriented.

3. The institute was well organized; could be improved by perhaps a sharper focus to individual sessions.

4. Enjoyed the five days very much. But, I feel we tried to cover too much. Actually got more from coffee sessions. Think perhaps at Iowa State an evening session would be good, since the night life in Ames would not be a drawback to this. In dealing with manpower problems I feel industry should be represented unless we feel that this hard-core problem can only be solved by government.

5. Very well planned and executed--dragged in a few instances.

6. Considering this is the first institute, I think it was a job well done.

7. In all, a good institute, but could be structurally reworked to avoid the tendency of speakers to take an hour to say a few minutes worth of facts.

8. There were too many speakers, and the discussion time was too brief.

9. Generally acceptable, but needs vitality. Also, the Director could possibly play a more direct role.

10. I think the institute reflected a tremendous amount of planning by the leaders. I am sure it was quite successful, particularly for a first time. I cannot think of any negative features--merely ways in which future institutes could be improved. You might try breaking the group down into smaller discussion sections at some time during the meeting.

11. An excellent conference, particularly because of its interdisciplinary nature.

12. Not enough direction to specific research problems, opportunities and techniques, but very satisfactory otherwise.

13. Need some concrete tasks to work on in small group sessions.

14. Mr. Lages' ideas should be seconded, but we must also include consideration of placing disadvantaged in expanding government employment.

G. Occupation:

College teacher - Economics
Educational Researcher
Anthropology
Anthropology - Teacher
Economics - Teacher
Educator
History Professor
Sociologist
Psychologist
Economist
Asst. Prof. Sociology/Anthropology
Economics Teacher
College Professor - Economics
Asst. Prof. Sociology
Asst. Prof. Economics
Professor
Engineering Educator
Chairman, Social Order Conference
Economist - Educator
Educator, Vocational Education
Economist

Labor Economist - Academic
Psychologist
Economist
Psychologist

E. Second Annual Manpower Research Institute

Palomba, Director of the Summer Institute, is in the process of planning for the June 1968 Institute. Invitations will be mailed out in January 1968.

Thirty new scholars will be invited to participate--bringing the total interaction of scholars with our Center to 60. Over the course of the next few years a closer program of cooperation will develop from participation in these institutes.

F. Comprehensive Health Manpower Conference March 13 & 14, 1968.

(See VI - F)

IX. Progress to Date and Future Plans

A. Progress to Date

Over the last six months a successful Summer Manpower Research Institute was held (See VIII above), a full range of research activity has been sponsored in the manpower field, and some projects have already led to final publication and dissemination.

Research activity has covered a wide range of disciplines, research methodologies, and subject areas. Basically our manpower grant activity has attempted to sponsor and promote research within specific related areas: (1) Health Manpower, (2) Job Vacancy Survey and Employment Forecasts in local areas, (3) Leadership and Managerial Studies, (4) Manpower Program Evaluation, and (5) Labor Force Withdrawal Studies.

In addition, research projects have been financed to assist faculty members in developing new programs, or in preparing publications.

A publications editor has been added to our staff to assist staff members in the development of research material for scholarly journals, evaluation reports for action-agencies, and manuscripts for book publishers.

A number of research areas are being developed with a long-run view of establishing expanding research institutes within our Center. For example, our health manpower studies are being developed with the hope that a regional health manpower Center may emerge in the next two years. Our manpower program evaluation studies are looking toward the development of a "Regional Human Resources Planning Agency" patterned after the RAND model in defense activities. Lastly, our job vacancy and occupational employment forecast research will, hopefully, lead to a state-wide or region-wide "population and labor force survey" which will bring together many of the piecemeal and uncoordinated studies which are being conducted in our region at the local level.

The emphasis of our Center has been not only on research, but to a large extent upon assistance to action-agencies in applying research findings to problems of manpower/human resource development and utilization.

B. Future Plans

In the next six months, conferences are being planned on:

1. Health Manpower
2. Consumer Protection for the Poor & Elderly
3. Manpower Research Institute

In relation to publications, a reprint and monograph series will be launched, as well as a research-publication cooperative arrangement with Iowa State University Press.

On-going operations will include the development of a clearinghouse for research publication for our region and the development of manpower specialists through our degree programs.

C. The Director's Personal Evaluation

At present we have reached the halfway mark on our three-year manpower institutional grant. Even at this stage we feel reasonably secure to note that: (1) multi-disciplinary research is both feasible and profitable, (2) colleges and universities in our region are strongly interested in cooperating in regional manpower research programs, (3) action-agencies can benefit from the involvement of university staff in supportive and consulting roles, (4) research activities of institutions of higher education can benefit through a close working relationship with action-agencies.

VT 005 358
Licensed Practical Nurses in Nursing Services.

National League for Nursing, New York, N.Y.
MF AVAILABLE IN VT-ERIC SET.
National League for Nursing, 10 Columbus Circle, New York, New York 10019 ($1.50).
Pub Date - 65 49p.

*PRACTICAL NURSES; *HISTORICAL REVIEWS; ACCREDITATION (INSTITUTIONS); LEGAL RESPONSIBILITIES; JOB PLACEMENT; *OCCUPATIONAL INFORMATION; CERTIFICATION; *STAFF ROLE; *HEALTH OCCUPATIONS EDUCATION; EMPLOYEE RESPONSIBILITY; EMPLOYMENT PRACTICES; HEALTH SERVICES

This pamphlet provides information regarding the role of the practical nurse for the use of employers and supervisors of practical nurses, nursing service personnel, faculties of schools of practical nursing, and practical nurses seeking employment. "The Growth of Practical Nursing in the United States" traces the history of practical nursing and presents information about school approval, licensure, state examinations and continuing education. "Employing the Licensed Practical Nurse Today" discusses legal aspects and employment and utilization of the practical nurse. "The Licensed Practical Nurse at Work" discusses personnel practices and the relationship between the practical nurse and the registered nurse. "Helpful Hints for the Licensed Practical Nurse" covers seeking a position, private duty and work in a hospital or health agency. "Summary of Licensed Practical Nursing Practice" describes the role of the practical nurse in the home, hospital, health agency, nursing homes or homes for the aged, industry or camp, and homes for the disabled or mentally retarded. "Helpful Organizations for Both Employer and Employee" explains nursing service registries and various nursing organizations. Appendixes include a statement of functions of the practical nurse, the American Nurses' Association (ANA) definition of nursing practice, the ANA principles of legislation relating to the practice of nursing, a bibliography, and a glossary. (JK)

VT 005 358

LICENSED PRACTICAL NURSES IN NURSING SERVICES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NATIONAL LEAGUE FOR NURSING

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Foreword

This pamphlet is directed to employers and supervisors of licensed practical nurses, to all nursing service personnel, to faculties of schools of practical nursing, to licensed practical nurses who are seeking employment, and to all who are concerned with the interpretation of the role of the licensed practical nurse in nursing services.

In keeping with its objective of improving nursing service for the people of this country, the National League for Nursing has established long range and immediate goals in nursing service and nursing education. Because practical nursing is an integral part of nursing, its development has been of concern to NLN since the organization's inception. At NLN's first convention in 1953, the members voted for licensed practical nurse membership in the organization. Ever since, licensed practical nurses and those interested in practical nursing service and education have had a voice in NLN. Since 1955 one member of the NLN Board of Directors has always been a licensed practical nurse.

In the years since 1953, as practical nursing's role in all of nursing has grown in significance, so work for its improvement has come to form an ever-increasing part of NLN's overall program. Practical nursing interests were represented in the League at first by a committee of representatives of national nursing organizations; in 1956 a full-time consultant in practical nursing joined the NLN staff; and in 1957 a Council on Practical Nursing was formed by petition of NLN members who felt the need for a forum in which to discuss matters pertaining to practical nursing education and service. The need for guidance in the improvement of practical nursing education led to the establishment of a Department of Practical Nursing Programs in 1961 under the Division of Nursing Education. The addition of this new department gave practical nursing education a status equal to that of all other NLN programs of nursing education. In the Division of Nursing Education, practical nursing education programs can be evaluated and further developed and promoted in close relationship to all other programs of nursing education.

The development of any new program that is designed to prepare a person to work within the framework of an established profession is usually attended by problems and by lack of acceptance by some of the members of that profession, even when the need for the assistance of the new worker is recognized. The history of programs for the

preparation of licensed practical nurses has provided no exception to this rule. When such programs begin to take shape in an era of rapid social change and scientific advances, even greater difficulties arise in stabilizing the roles of the new worker and in revising the curriculum to keep pace with increasing demands made upon that worker by her employer.

The licensed practical nurse has proved her worth in nursing services. She is employed today in practically every setting where nursing is practiced. Laws controlling her practice exist in every state and territory. Programs for the education of licensed practical nurses have been increasing at the rate of 50 new ones each year. These programs graduate approximately one third of all the students who graduate annually from all types of programs of nursing education.

Through the efforts of many agencies and organizations, much progress has been made in the interpretation of the proper functions of the licensed practical nurse, who may work in a variety of situations and may care for patients with a wide range of nursing needs. Her functions have been defined in the American Nurses' Association-National Federation of Licensed Practical Nurses *Statement of Functions of the Licensed Practical Nurse,* published in 1957 and revised in 1964. Yet in many areas, misuse of this worker still persists, both in over-extension of her role — especially during peak periods of professional nurse shortage — and in limitation of her activities to such an extent that her full potential is not reached.

The employment in increasing numbers of graduates of approved schools of practical nursing has made it safe to increase the responsibilities delegated to the licensed practical nurse. Unfortunately, many times the very same responsibilities are given to practical nurses who have never attended a practical nursing school and who are licensed by waiver, and even to nurses' aides who are not licensed at all. This is an unsafe and often illegal practice. The American Nurses' Association has issued a pamphlet, the *ANA Statement on Auxiliary Personnel in Nursing Service,* which carefully delineates procedures that may be carried out by nurses' aides, thus indicating that such duties are distinctly different from the functions of the licensed practical nurse.

Another source of concern is the delegation to practical nurses of many responsibilities which should always remain those of professional nurses. Still another is that far too many LPNs function with inadequate supervision. While it is recognized that it is both impossible and undesirable to fix an exact optimal ratio of registered professional nurses to licensed practical nurses, the Committee on Revisions of Practical Nursing Publications wishes to emphasize here — as this booklet emphasizes throughout — that the practical nurse must work *under the supervision of the professional nurse* in institutions and

agencies; and that ways should be sought to offer similar guidance to those practical nurses who are employed in private practice in homes.

NLN believes most heartily that it is impossible to set up a list of duties which can always be performed safely and satisfactorily by licensed practical nurses in all types of situations. The *ANA-NFLPN Statement of Functions of the LPN* provides a listing of the functions the LPN may perform; but also explains that sometimes, because of the complexity of the patient situation, these functions must be carried out by the professional nurse. It therefore becomes an important responsibility of the registered professional nurse, under whose guidance the licensed practical nurse works, to exercise judgment in giving assignments to licensed practical nurses, weighing the requirements of the nursing situation with the abilities of the individual employee. *Each employing agency is urged to give attention to its own needs and demands for service in each of its departments or divisions and to examine carefully its own resources for staff and the necessary supervising personnel.*

There has been some criticism that the curriculum for programs of practical nursing education is out of tune with employment demands. It must be understood that the curriculum has been, and continues to be, in a state of constant revision as efforts are made to improve its content. However, it should be remembered that practical nursing programs are usually no more than one year in length, and it is not possible to incorporate within the curriculum of such a program sufficient learnings to prepare practical nurses to satisfy all needs in all types of nursing services. The licensed practical nurse is not intended to be a replacement for the professional nurse. Practical nursing is a distinct vocational field of practice, and the responsibilities of the licensed practical nurse are limited by the short term of her preparation. However, the inclusion of well-prepared and well-supervised licensed practical nurses on the staff often makes it possible to release the time of registered professional nurses so that their unique skills can be used to greater advantage for the patient.

The nursing of patients is not a mechanical procedure: it contains many changeable and changing elements; it uses to advantage many persons with differentiated types of preparation; it requires direction and guidance at all levels. Well-prepared nursing administrators, instructors, supervisors, and group leaders can and should give such guidance.

ELISABETH PHILLIPS, *Chairman*
Committee on Revisions of
Practical Nursing Publications

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*This committee is an expansion of the one that originated under the NLN Interdivisional Council on Practical Nursing.

M. Olga Weiss, R.N., former associate editor of *Nursing Outlook*, served as writer of this publication.

THE GROWTH OF PRACTICAL NURSING IN THE UNITED STATES

LAYING THE FOUNDATION

The early development of practical nursing in this country was largely unplanned and for many years proceeded independently of professional nursing. Early practitioners of practical nursing rarely had any specific training for their tasks.

In 1897, there were some 100,000 persons practicing as practical nurses in the United States, but only one formally organized practical nurse training program is on record as having existed at that time — an eight-week course offered by the Ballard School of the New York Y.W.C.A.

By the 1920's, professional nursing leaders were becoming alarmed at the number of persons who were practicing nursing with little or no formal education or training, especially as these individuals were employed mostly in private homes where they worked without supervision.

Effect of World War II demands

The situation began to change in the early 1940's when World War II brought heavy demands from the armed forces for professional nurses. Of necessity, practical nurses began to be employed in hospitals in large numbers, and recognition was at last accorded to this category of worker. As demands for practical nurses proliferated, programs of education for practical nursing increased also, with the approval and encouragement of the national nursing organizations.

Professional Nursing's Responsibility

The interest of professional nursing in practical nursing is old and legitimate. By definition, professional nursing is responsible for providing safe nursing service to the public, and practical nurses help to provide such service, working under the direction of the professional nurse or physician or both.

In 1936, professional nursing's concern for protecting the public and insuring safe nursing was causing a concentration of interest on the increasing numbers of "subsidiary workers," as they were then called. In July, 1936, Susan C. Francis, president of the American Nurses' Association, reported in the *American Journal of Nursing* that a Joint Committee of the ANA, the National League of Nursing Education (NLNE), and the National Organization for Public Health Nursing

(NOPHN) was working on various aspects of the problem presented by this group of workers in nursing.

Opinion on the subject was divided among professional nurses at the time. At the 1936 ANA convention in June, private duty nurses protested the Joint Committee's proposal that courses for subsidiary workers be endorsed; but in September, an editorial in the *Journal* urged a different point of view. Under the title "Whither?" the editors wrote: "Nursing, both locally and nationally, has evaded the issue of the subsidiary worker for many years. Pressure from various branches of the profession will not ease the task of the Joint Committee on this subject for the time has arrived when it is imperatively necessary for the organized profession to come to some definite decision on this subject and to provide informed and constructive guidance. . . . Such workers are needed, both from the standpoint of hospital economics and that of a stable, well-integrated service."

Need for subsidiary workers affirmed

Early Suggested Program

By July, 1939, a subcommittee of the Joint Committee had completed a suggested course of study for practical nurses. This was first published, under the title *Subsidiary Workers in Nursing Agencies,* in the *Journal* and in *Public Health Nursing,* official magazine of the NOPHN, and then issued in 1940 as a separate pamphlet by the ANA with the title *Subsidiary Workers in the Care of the Sick.* The pamphlet was revised in 1947 and again in 1951. The title too underwent several revisions, keeping pace with changing terminology and attitudes. In 1947 it became *Practical Nurses and Auxiliary Workers for the Care of the Sick,* and in 1951 *Practical Nurses in Nursing Services.*

Interest Widens

Between the years 1947 and 1951 the membership on the Joint Committee was enlarged to include wider representation of nursing interests. In 1951, *Practical Nurses in Nursing Service* carried the notation that it had been prepared by a Joint Committee composed of representatives of ANA, NLNE, NOPHN, and the National Association of Colored Graduate Nurses, the Association of Collegiate Schools of Nursing, the American Association of Industrial Nurses, in cooperation with the National Association for Practical Nurse Education (NAPNE)[1] and the National Federation of Licensed Practical Nurses (NFLPN). The two practical nursing organizations had come into being during

NFLPN and NAPNE formed

1. In 1959 the name of this organization was changed to National Association for Practical Nurse Education and Service, and it is now known as NAPNES.

the 1940's. NAPNE was formed in 1941 by a group of 28 persons, mostly directors of practical nursing programs. NFLPN, the membership organization of licensed practical nurses, was formed in 1949.

Licensure promoted

In 1945 NAPNE initiated consultation and accreditation services for practical nursing programs, primarily for those in the majority of states that were without licensure. In 1944 only 15 states had laws for the registration of a nursing group other than graduate professional nurses, and these were permissive laws. Licensure for practical nurses was then being actively promoted by ANA, through its legislative committee, and by NAPNE and the Joint Committee. NFLPN joined in these efforts after its formation.

In 1952 when the National League for Nursing (NLN) was formed, the Joint Committee, by vote of all the professional nursing organizations, became an NLN committee. At the same time NLN and NAPNE began exploring together the possibility of NAPNE's becoming the Department of Practical Nursing Education in NLN. When in 1956 this plan failed to materialize, an NLN Council on Practical Nursing was formed and the Committee on Practical Nursing (the former Joint Committee) voted to dissolve itself in favor of the Council. In 1961 the Council in its turn gave way to the new NLN Department of Practical Nursing Programs, the fifth department of NLN.

Functions Are Defined

First statement on functions

This review of the activities of the nursing organizations makes it clear that all of them worked together to promote programs of education for practical nursing and to assist in setting standards for the programs. In continuing cooperation, ANA and NFLPN developed and published, in 1957, the *Statement of Functions of the Licensed Practical Nurse,* which was revised in 1964. This statement provides all employers with a guide to the use of the practical nurse. (See Appendix I for full text.)

HOW PRACTICAL NURSING PROGRAMS DEVELOPED

Early teaching geared to non-nursing duties

Though programs of practical nursing received organizational support, there was initially considerable resistance to them from the members at large of the nursing profession. It took courage and daring for educators in nursing to move into this field of instruction, even though the practical nurse's role in the forties was very limited. Her preparation was geared largely to employment in the home for the care of the convalescent and chronically ill patient, and the curriculum then offered reflected this goal, with instruction heavily weighted toward functions other than nursing: housekeeping, preparation of meals,

cleaning, and laundering. The programs ranged from six to nine months in length and consisted of a block of theory, followed by a few months of clinical experience in the hospital. The clinical practice period was of an apprentice type, with students working under the supervision of nursing service personnel of the hospital.

The Curriculum Takes Shape

As the fifties approached, several guidelines appeared which were helpful to the developing programs. The U.S. Office of Education (USOE) in 1947 published *Practical Nursing, An Analysis of the Practical Nurse Occupation, With Suggestions for the Organization of Training Programs,* and followed it, in 1950, with *Practical Nursing Curriculum.* These documents were developed by a committee representing all the nursing organizations, the U.S. Public Health Service (USPHS), the American Hospital Association, the American Red Cross, the Veterans Administration, the American Home Economics Association, the USOE, and the lay public. The information in these booklets included an accepted definition of the practical nurse as "a person trained to care for subacute, convalescent, and chronic patients requiring services at home or in institutions, who works under the direction of a licensed physician or a registered professional nurse, and who is prepared to give household assistance, when necessary."

PN's role defined . . .

The booklets were explicit about the controls and limitations that should be placed on the practical nurse's activities at all times. Even so, because of the considerable disagreement at that time about which procedures a practical nurse might perform, only those techniques which all the committee members agreed might be assigned to her were included. As a result, such procedures as bladder catheterization, giving nose or eye drops, and similar ones were excluded, while the giving of oral medications, insulin injections, and hypodermic injections, when no calculation of divided doses was required, were included. It was under the influence of these publications that the curriculum began to be stabilized at one year and its content to become more uniform.

and her duties described

Experimentation

In the late forties, the Kellogg Foundation, by providing funds for setting up experimental one-year programs of practical nursing in Michigan, gave significant guidance to the country as a whole. A few years later funds from the same source were granted to five southern states to expand and strengthen practical nursing programs. This second project not only identified problems but brought about improvement in the programs and promoted the pattern of having advisory committees on practical nursing education to the State Departments

of Public Instruction and a registered professional nurse as state consultant or supervisor of practical nursing — a pattern later followed by many other states. Through these projects the Kellogg Foundation provided more than $750,000 for the development of practical nursing education.

The Michigan Study

A major impact was made on practical nursing education with the publication in 1957 of a summary of a study of practical nursing education that had been carried out in Michigan between 1947 and 1952. In this publication, *Facts About Practical Nurse Education in Michigan* by Ralph Tyler, the project was evaluated and methods of improving practical nurse education in Michigan were suggested. It was pointed out that there was a lack of sustained objectives throughout the programs of practical nursing. This lack was attributed to the fact that in the first four months of the program, theoretical instruction was given by the faculty of a school, while the eight months that were devoted to practice were usually under the supervision of nursing service personnel who had little relationship to the faculty. The report noted that a program should have an accepted philosophy, with written objectives that supported or reflected the philosophy; and that the objectives should be few in number and should be implemented throughout the program by means of selected learning experiences for the students.

Need for objectives derived from philosophy

Another suggestion made in the report was that a variety of agencies be used for clinical experiences so that the students could be prepared for the expanding role of the practical nurse in nursing services. Qualifications of faculty and students were also discussed, and an outline of the general principles underlying the learning process was included.

Public Education in Practical Nursing

As time went on, and in accord with the trend in professional nursing toward placing nursing programs in educational institutions, increasing numbers of practical nursing programs were established under the administration of public educational auspices. To give guidance to those programs developing under vocational education, the USPHS lent several registered nurses as consultants to the USOE for short periods. In 1956, Federal legislation was enacted which provided for an annual appropriation of five million dollars to be used, with matching funds provided by the states, for the expansion and improvement of practical nursing programs under vocational administration. These funds were in addition to those available under the Smith-Hughes and George-Barden acts. Also in 1956 a section on Practical Nursing Edu-

Federal and state help increases

cation was created under the branch of Trade and Industrial Education in the USOE, with a staff of three registered professional nurses to assist with the implementation of the law.

NLN steps up activities

Concurrently with these developments, NLN began to intensify its activities in practical nursing, with the help, after its formation in 1957, of the Council on Practical Nursing. In 1956, under a grant from the Kellogg Foundation, NLN hired a consultant to help develop practical nursing education within the organization. Beginning at that time efforts were made to coordinate NLN's activities in improving and expanding practical nursing education with those of USOE.

NLN-USOE Cooperation in the Field

Intra-regional conferences held

One of the joint projects of these two agencies has been the annual collection by questionnaire of statistics on admissions to and graduations from practical nursing programs. In 1960 they co-sponsored seven intra-regional conferences for educators in practical nursing to interpret the new USOE publication *Guides for Developing Curricula for the Education of Practical Nurses* and the NLN publication, developed through the NLN Council on Practical Nursing, *Self-Evaluation Guide for Schools and Programs of Practical Nursing.*

Significance of 1960 Report

Report shows growth . . .

In 1960 too a questionnaire study of all practical nursing programs in the country was made through the joint efforts of NLN, USPHS, and USOE. The report of this study, *Education for Practical Nursing, 1960,* provided significant information on practical nursing students and on the programs in existence in that year. It revealed the tremendous growth that was taking place in this area: in 1950 there were 150 state-approved programs and 3,000 practical nursing students were graduated that year; in 1960 there were 662 state-approved programs that graduated 16,000 students. The report also showed that in the 1959-60 school year more than 23,000 students were admitted to practical nursing education programs, and that of these, two-thirds were high school graduates whose average age was 25. This was in contrast to earlier years, when practical nursing students were mostly older women, frequently with only grade school education.

and need for program improvement

Questions about the curriculum had elicited the information that, while all programs provided clinical experience in medical and surgical nursing, obstetrical nursing, and pediatric nursing, the number of weeks spent by students in each area varied greatly. Few programs offered experience in psychiatric nursing. The prevalent pattern of the curriculum was shown to consist still of a large amount of theory followed by practice. Stipends were paid to students in two-thirds of

the programs. It was evident from the recommendations made by the committee that guided the study that the programs appeared to be far from educationally sound. The major recommendation asked that "NLN take leadership in developing evaluation criteria for programs of practical nursing which are essential to the operation of a good program."

Development of accrediting criteria begins

Soon after it was established in 1961, the NLN Department of Practical Nursing Programs began to develop criteria for the evaluation of practical nursing programs. This activity was carried out through its Council of Member Agencies, which is made up of representatives of programs of practical nursing. At the request of the Council, NLN initiated plans to offer an accrediting service for programs of practical nursing which would be carried out under the policies of the NLN Division of Nursing Education.

Rapid Growth Continues

A third of all nurse graduates are PNs

By 1963, the number of state-approved programs of practical nursing had grown to 823. Of these, over three-fourths were under the control of educational institutions or agencies — usually state and local boards of education — as part of the public vocational programs. A few were under college or university control, and the rest were largely under the control of hospitals. In 1961-62 more than a third of all nurses graduated in the United States were practical nurses. Of 49,292 nurses graduated from all nursing programs in that year, 18,106, or 36.7 per cent, were graduated from practical nursing programs.[2]

Nor does it seem that the peak has been reached. Programs continue to increase at a rate of more than 50 new ones a year, largely under the impetus of funds made available under the Manpower Development and Training Act of 1962.

Today's Curriculum

Programs relate more closely to PN role and functions

Soon after 1960, in workshops held on the state and national level, it began to be evident that changes were taking place in the practical nursing curriculum. Faculties in practical nursing programs began developing philosophy and objectives for their programs of study that were in keeping with the accepted roles of the licensed practical nurse and the *Statement of Functions.*

Today students are being introduced to the clinical area early in the program and experiences are more carefully selected. Content has expanded and now includes scientific principles and concepts taught

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2. *Practical Nurse Education — Impact of Federal Aid on Basic Preparatory Programs, 1957-1962.* Unpublished report from the Health Occupations Section, Division of Vocational and Technical Education, USOE. 1963. pp. 14, 16.

in their application to nursing. Less time is being spent by the student in actual patient contact and more time is being given to pre-planning conferences and evaluation conferences following assignments in patient care. Stipends are being eliminated, and the programs are becoming less service-centered as they are planned to meet the educational needs of the students.

This resume shows the many forces that have served to bring about changes in practical nursing education and in the use of the services of practical nurses. Practical nursing, from a beginning as a service of general helpfulness to the sick in their homes, practiced by anyone who wished to undertake it, has grown into a recognized practice, based on a defined list of functions, for which the practitioner is prepared in a formal program of education taught in state-approved schools. This practice is limited by the length of the preparatory program and by the licensing laws governing the practice of nursing.

MAINTAINING GOOD NURSING PRACTICE

State Approval of Schools

States set standards for schools . . .

States use a system of state approval of schools to help protect the public from poor nursing practice. State approval of a particular school means that the school has met the minimum standards of that state for the preparation of practical nurses for licensure. Various approaches to further accreditation of practical nursing schools have been made and the methods of doing this are still being explored.

Each state has its own board of nursing and its own laws setting forth what constitutes nursing practice. The law in each state holds both the employer of licensed practical nurses and the licensed practical nurse herself responsible for knowing what is stated in the act governing practical nursing for hire.

Licensure

and for practitioners

Throughout the *Statement of Functions* reference is made to the "licensed practical nurse." Licensure is a state-controlled, official permit conferring on the individual the right and privilege of practicing his vocation. All states and the other areas coming under Federal jurisdiction — District of Columbia, Guam, Puerto Rico, Samoa, and the Virgin Islands — now have licensing laws for practical nursing. They show some variance, but all require the licensee to pass a written examination.

In most of the jurisdictions, the laws are permissive: they merely require that those who use the titles of licensed practical nurse (LPN) or licensed vocational nurse (LVN) must be licensed. Thirteen states now consider that they have mandatory laws, which require that *all* who nurse for hire must be licensed. Because the practice of licensing practical nurses is comparatively recent, most licensing laws, when they were first enacted, specified a grace period of several years during which those persons who had had no formal preparation but who had been working in the field of practical nursing prior to the passage of the laws might be licensed by waiver. By 1959 only a few states were still licensing by waiver and the grace period had ended in most states. Most state constitutions require, however, that when the law governing nursing practice is amended an additional waiver period be set to protect those persons already practicing nursing without a license who will be adversely affected by the new amendment.[3]

Licensure by waiver lessening

State Examinations

Although all states but one use the State Board Test Pool Examination for licensure, passing scores differ from state to state. However, 95% of the students who entered and completed practical nursing programs in 1957-58 took state examinations, and of that percentage, 95% passed the examination the first time they took it. In no geographic area did fewer than 92% of those examined pass.

Continuing Education for LPNs

Licensed practical nurses have shown great interest in obtaining further education and experience. This seems to be as necessary for the LPN as for everyone else, if she is to keep abreast of the many changes taking place in medical and nursing practice today. Because of this, NLN's Department of Practical Nursing Programs published a statement on continuing education for the licensed practical nurse, stressing the value and importance of inservice education *which it is the responsibility of employing agencies to provide.*

Principles of sound programs for continuing education

For those licensed practical nurses who wish more formal continuing education, the statement listed the following principles of sound programs:

1. They should have specific, realistic, and attainable objectives pertinent to recognized needs in patient care and relevant to the role of practical nurses in the area.

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3. For an explanation of licensure by waiver, see Glossary.

2. The instructional program should be supplemental to the previous education and experience of the worker in practical nursing.
3. All courses dealing with nursing care of patients should provide clinical practice correlated with theory.
4. The content and methods used and the time allotted for the course should be consistent *with the abilities and needs of the students to be enrolled.*
5. Instruction and clinical supervision should be provided by well-qualified instructors who are familiar with practical nurse education.
6. The course should be organized only when sufficient numbers of students require instruction to meet needs identified in employment.
7. No programs should be set up mainly to augment nursing services at a relatively low cost.
8. The courses may be offered through various administrative frameworks, provided that all of the foregoing principles of sound education are followed.

The Steering Committee of the Department of Practical Nursing Programs believes that all programs for continuing education are justified if they meet the general principles outlined above. It wishes to re-emphasize that any continuing education program for practical nurses should be geared toward improving direct patient care. It urges that in every way possible, prospective candidates for continuing education programs be reminded that completion of these extension or postgraduate courses will in no way affect their licensure status but will contribute to the worker's continuing competence in the practice of practical nursing.

EMPLOYING THE LICENSED PRACTICAL NURSE TODAY

The *Statement of Functions* describes the work of the licensed practical nurse as being an integral part of nursing and says, "The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations the licensed practical nurse functions as an assistant to the registered professional nurse." The statement then explains what is meant by "simple" and "complex" nursing situations.

This concise statement, agreed on by both the membership organizations — the National Federation of Licensed Practical Nurses and the American Nurses' Association — is a useful guide to the scope of activities that may be assigned to the practical nurse. Both employer and employee should study the information it contains carefully and copies of the full statement should be available for the use of all personnel in employment areas.

THE LAW AND PRACTICAL NURSING

Restrictions on Practice

Responsibility of the RN for nursing service

By law, the licensed practical nurse is responsible for the safe performance of only those acts for which she has been prepared. It is important to note that the *Statement of Functions* stresses that "the professional nurse has ultimate responsibility for nursing service, including the responsibility for assignment of all nursing personnel." The broad term "nursing service" refers to care of the sick, disabled or infirm, and aged, whether the care is given in the patients' homes, in hospitals, nursing homes or homes for the aged, in public health clinics, in industrial situations or schools. It also includes preventive measures for persons of all ages.

From the foregoing, it may be seen that the employer provides the setting and environment in which the licensed practical nurse will practice, and the law defines her status and sets limits of practice. But the practitioner has the ultimate responsibility for the practice she

performs, the extent of which is determined by her preparation and qualifications for the tasks assigned her.

Understanding the Restrictions

Importance of laws controlling nursing . . .

It is important that the functions and role of the licensed practical nurse be clearly understood by all concerned: the practitioner, the employer, and even the recipient of services. The physician, the registered professional nurse, and the employer share a vital interest in the safe and proper care of all patients with such legal and educational bodies as have been established to set standards for safe and proper care.

The ANA has prepared legislative materials to give guidance to its constituent state associations when laws for the control of nursing are considered. Definitions of both professional and practical nursing have been designed for use as models in the licensing law (Appendices II and III).

In private practice, in hospitals, in public health agencies, or in nursing homes of any type, the practical nurse's duties must be clearly defined and must not be extended beyond those defined under the law. In carrying out her duties, the practical nurse must understand the cause and effect of an order executed. More simply stated, the practitioner is expected to know what she is doing and the consequences of her act.

Vulnerability of the LPN

with special reference to LPN role

This is particularly true of practical nursing, as Lesnik and Anderson point out in *Nursing Practice and the Law.* They say that practical nurses appear to be in a more vulnerable position than professional nurses at present as they expand their functions.[4] They state further that "The injection of medication by a nurse is a medical act which must be ordered by a physician," and add that when suit is brought because of difficulties following an injection, the courts show concern *"whether or not the nurse performed the act with due care."* [Italics ours.] "Due care" would imply understanding of cause and effect.[5]

These authors also quote the following description of the role of the LPN from the 1957 version of the *ANA-NFLPN Statement of Functions:* "The fundamental role of the licensed practical nurse is to provide nursing care to patients in those instances where the nursing needs do not require the constant attention of the professional nurse. The ultimate responsibility for evaluating the nursing needs of patients, for developing nursing care plans, and for delegating appropriate nursing functions rests with the professional nurse. Responsibility for con-

4. Lesnik and Anderson, *Nursing Practice and the Law,* 2d ed. rev., 1962. p. ix.
5. Ibid, pp. 285-287

tinuing evaluation of nursing service, for teaching and guidance of nursing personnel also ultimately rests with the professional nurse. It is recognized that in their care of patients, the licensed practical nurse sometimes works under the direction of the licensed physician without professional nurse supervision."[6]

Responsibility of Hiring Agency

From such reports, it seems essential that hiring agencies be familiar with the laws governing nursing practice in their states. They should feel free to ask the licensed practical nurse to perform any nursing function for which she has been prepared, but they must know just which functions she has been prepared to do. Furthermore, agencies must provide for the supervision of her practice by qualified and responsible persons. Both the agency and the licensed practical nurse should be aware of the fact that the practitioner can be held liable even when suit is brought against the employing agency. This suggests that the licensed practical nurse must be very much aware of the limitations that are imposed on her by virtue of her training and preparation, just as all others concerned with the care of the sick and disabled must be aware of their individual moral and legal responsibilities.

Employing agencies must know laws on LPN practice

Much thought has been put into determining the nature of this responsibility as is evidenced by the published materials about the expanding roles which practical nurses are being asked to fill, and the methods various agencies are using to help the licensed practical nurses meet these roles. It is generally believed that no licensed practical nurse should administer medication *if the dosage to be given is to be calculated as a fraction of a single tablet, ampule, or vial.* Many agencies and institutions have been particularly concerned about this.

ENGAGING THE LICENSED PRACTICAL NURSE

Making the Best Use of the LPN's Skill

Today, licensed practical nurses are employed in practically all situations where nursing is practiced — in institutions of all types, in public health agencies, in the home, in physicians' offices, in industry, and in schools. In all situations, the first concern of the practical nurse, as of the professional nurse, is the care of the patient. The employment of a licensed practical nurse for hospital housekeeping, secretarial duties, maid service, or for duties usually assigned to aides, is misuse of the practical nurse's education and experience. Employers of practical

The LPN is a nurse . . .

6. Ibid, p. 23

nurses in institutions and agencies need to define clearly the practical nursing duties required by their particular agency. They should also analyze these duties so that they will know what previous education and experience is needed by the practitioner before she may perform them.

she is not a housekeeper

Physicians, employment agencies, placement bureaus, and others who recommend practical nurses for duty in private homes and offices should be equally certain that the patient's nursing care is the paramount reason for the practical nurse's presence and that the nursing needs are such as can be met by the practical nurse. More and more towns and cities now have supervised homemaker health aide services available for non-nursing work, thus releasing the practical nurse for more direct care to patients. The licensed practical nurse is reminded, also, that she should make quite clear what her acceptance of a position implies in the way of duties she can and will perform. An exception can be made to this principle in instances where the patient who is alone in his home needs both nurse and homemaker service and no other help is available, or where the mother is ill and the practical nurse is substituting for her until other help is obtained.

Placement Service

Reliable sources of licensed practical nurses maintain ethical practices, investigate their registrants, and, whenever possible, try to select the person best fitted by preparation and abilities to the requirements of the position available. Such agencies will indicate to both employer and employee the placement fees and the standard fees for licensed practical nursing services in that area. Major sources of placement are:

- Counseling and placement services of some state professional nurses' associations
- Local offices of state employment services
- Local branches of licensed practical nurses' associations
- Nurses' professional registries
- Hospital registries
- Classified advertising section of nursing journals.

Employment Practices

Responsibility of nursing service employing LPNs

For Work in Agency or Institution: The responsibility for selecting and hiring licensed practical nurses by an agency or institution should rest with the director of nursing service or a professional nurse delegated by her. The personnel department or director, however, may recruit applicants, screen them, and hold the initial interview, as it does for all other workers hired by the institution or agency. Establishing quali-

fications for the position to be filled, conducting the final interview, and appointing the accepted applicant should be the functions of the nursing service department, however. Subsequent relationships, such as introduction to work, supervision, orientation, inservice education, and the responsibility for promotion and dismissal are the responsibilities of the nursing department, with the cooperation of the personnel department. This necessitates a very close working relationship between the personnel director and the director of nursing service.

Need for cooperation with personnel director

Whoever is responsible for the initial clearance of applicants in hospitals and health agencies needs to have knowledge of:

Information needed by initial interviewer

1. Professional nursing interpretation of qualifications for positions open to licensed practical nurses, including the agency's policies governing the scope and limitations of the practical nursing functions.
2. Acceptable standards for specified positions with a complete job description of each, in writing.
3. Salary scales commensurate with the responsibilities of the job and with those paid for similar work in the agency and in the community.
4. Personnel policies of the institution as they pertain to all employees.

During the interview, the job description and personnel policies are discussed with the applicant in order that there may be no misunderstanding of her functions, responsibilities, and privileges.

Standards for private practitioners in hospitals

For Private Duty in Hospitals: In order to maintain high standards of service in a hospital, private patients who employ practical nurses as private practitioners must conform to certain standards:

1. The licensed practical nurse must meet the qualifications required of other licensed practical nurses on the regular hospital staff.
2. Registered professional nurses shall provide supervision of the licensed practical nurse.
3. The licensed practical nurse will be expected to adhere to hospital rules and regulations in effect for licensed practical nurses.
4. It should be understood both by the patient and by the practical nurse that if the patient's condition requires professional nursing service, either part- or full-time, it must be provided. Part-time nursing usually can be given by the staff nurses on the floor. If full-time professional services are needed, a private duty professional nurse should be employed. The head nurse or supervisor, often in consultation

with the physician, must be the one to make the decision in this matter, rather than the patient or his family. In case of difficulty, the final authority rests with the hospital administrator.

Standards for private practitioners in the home

For Private Duty in the Home: The decision to hire a licensed practical nurse for private duty in a patient's home usually is made by the physician at the request of the patient or his family. The family should ask to see the nurse's license for the current year, and determine, if possible, that it is the original license and not a duplicate or copy. In private practice in the home, the licensed practical nurse works with considerably more self direction, since the supervision of her activities usually rests with the physician. For this reason, it is expected that the physician also will be familiar with the legal limitations of the licensed practical nurse and will not suggest the employment of a licensed practical nurse if the patient situation is one which requires the services of a registered professional nurse. The licensed practical nurse bears the responsibility to refuse an assignment to a specific patient situation when the requirements are for duties and responsibilities beyond those for which she has been prepared.

Determining Applicant's Qualifications

Qualifications vary with place of employment

Qualifications required of practical nurses who serve in institutional positions where professional supervision is always available may differ from those required of practical nurses who work indirectly under the supervision of a registered professional nurse or physician. Such institutions as nursing homes for the aged or convalescent long-term patients, handicapped children, or patients with subacute conditions, as well as public health agencies supplying nursing services, require very well-prepared and experienced practical nurses. Many cities and states have regulations regarding the ratio of practical to professional nurses in some types of institutions, the ratio depending on the type and condition of those receiving care in the institution. If the licensed practical nurse is employed in industry, it is recommended that she work under a registered professional nurse.

How was license obtained?

Licensure: The licensed practical nurse should have evidence of current licensure in the state in which she is seeking employment. If she is waiting for endorsement of licensure, having secured her original license in another state, it should be determined whether she may legally practice during the interim. Since licensure laws have been passed fairly recently in many states, information should be provided whether the license has been obtained by waiver, by examination only, or by examination after graduation from an approved school.

Work Experience: References should be current and accessible. A telephone discussion with the person who gives a reference is helpful, if possible, in addition to the written information presented. Official placement agencies and most other reputable employment services keep a running record of previous employment of the people on their lists. This is confidential information and is released only to bonafide prospective employers, usually at the prospective employee's request. These records indicate the applicant's capabilities and special aptitudes. Some agencies keep a record of fingerprints with work records. This is a growing trend.

What was previous experience?

Educational Program: Consideration should be given to the formal preparation the applicant has had. It is becoming increasingly clear that the functions expected of the practical nurse call for a formal course of study which includes correlated theory and supervised clinical practice. Graduation from a state-approved school in preparation for licensure gives assurance of overall ability. In addition, while all practical nursing programs include experience in medical and surgical nursing, maternity nursing, and child care, there is some variability in the other clinical experiences provided. Some include psychiatric experience while others do not; some provide more experience in giving medications or greater amounts of geriatric experience than others. These variations all make a difference in the capability of the applicant for a position, particularly if she is applying for her first position. A thorough understanding of the educational preparation of the individual licensed practical nurse, as well as a knowledge of her proficiency in various skills, will be helpful to the employer who should be familiar with the curriculum of the local programs.

What did applicant's education include?

Skills: A skill inventory will help both employer and employee. This is a check-list of the procedures and activities the individual LPN is prepared to perform. It is a helpful guide for both the practitioner and the employer to further inservice education. It is especially helpful for the nongraduate, practical nurse who has been licensed by waiver. Skills determined in the initial employment interview can be strengthened or new skills taught in orientation and inservice programs geared especially to the individual. Once the employer knows on what basis the practical nurse is licensed, what her preparation and experience in nursing has been, and what skills she has, plans can be made to help her attain her fullest potential with dignity and no loss of respect. If long years of experience have resulted in special skills, these should be given attention and recognition while the newer skills needed are being taught.

What are her skills?

Age: Age requirements for licensed practical nurses will differ in various institutions and agencies, but many states have laws against

discriminatory hiring. Older nurses often find work in homes and small institutions more congenial than work in large, urban hospitals, however. The middle-aged or older practical nurse often likes the continued contact with long-term residents of nursing homes, or prefers working in the same unit and on the same tour of duty with certain clearly defined routines, or being associated with a public health nursing agency which provides care for patients in their own homes on a visit basis. The younger nurse often wants to work with more acutely ill patients and see rapid changes in condition.

Age a factor in determining placement

References and Interviews: The employer who hires through a reputable agency or placement bureau need not collect references and check licensure because the agency will have all this information for him. If the applicant has applied directly to the hospital or agency, however, the license and work references should be studied before further consideration is given to employment. A personal interview is recommended in all events, as it gives the employer an opportunity to gain an impression of the applicant's attitude toward the work, and to observe the applicant's appearance, manner, and any obvious physical defects which may be a hindrance in the position being considered.

When to check references

Personal interviews also permit prospective employers to get first-hand information and impressions about the applicant's knowledge of practical nursing duties, formal preparation and experience, and general fitness for the position open. This is especially valuable in assessing the probable capabilities of the nurse who has been licensed by waiver. She may have acquired a great deal of skill and knowledge in only one area of nursing. Only through personal interviewing, usually, can a prospective employer learn in what functions and activities the waivered nurse possesses or lacks skill. If she has done most of her work in homes for the aged, for instance, she may be totally unable to perform at the level expected on a large, active surgical unit of a general hospital until she has had special inservice education and supervised experience. In applying for a position, the practical nurse is very apt to feel her service in any one area for a long period qualifies her for any other position in practical nursing, and a tactful interviewer can clarify this without degrading the past experience and lack of formal education. License by waiver gave recognition to many persons who had performed faithfully and well for many years in certain areas of health service without formal standardized education in practical nursing. Today's practice requires a much wider knowledge and range of skills than many of these older practitioners possess or even claim.

Use of the personal interview

For this reason as much as any, the final interview of an applicant to a practical nursing position in a hospital or health agency should be held with a member of the nursing service department.

This interview is also beneficial to the applicant since it gives her an opportunity to ask questions and to gain an impression of the agency with which she may become affiliated. It also affords her an opportunity to learn about the personnel policies of the agency and gain other pertinent job information.

Value of interview to applicant

It is considered good personnel practice by some institutions to accept new nursing service personnel for a probation period determined by the institution, with permanent staff acceptance depending on mutual satisfaction with the position and the employment conditions.

Physical Examination: Some agencies require a pre-employment physical examination; others arrange for a physical examination in the probationary period. The examination should include a chest x-ray, serological tests, and any other physical testing which might be indicated. The applicant should be required to present proof of immunological protection against smallpox, tetanus, or any other condition the employer feels should be guarded against in the type of work the applicant will be doing.

What the physical examination includes

THE LICENSED PRACTICAL NURSE AT WORK

Personnel Policies for LPNs

Personnel policies covering hours of work, holidays, leaves of absence, excused leave to attend meetings, sick leave, vacation time, and retirement and insurance benefits should be the same for the practical nurses as for professional staff nurses. The practical nurse is a working member of the health team, and there should be no difference in personnel policies for her representation on appropriate committees, inclusion in inservice education programs, or any agency activities related to her role in patient care.

Hours of Work and Vacation: Employees working in excess of the established hours of work per day should receive additional compensation in money or in time — depending on the employing agency's policies — which should be made clear to the employee when she accepts the position. As far as is possible, straight eight-hour duty is the rule, and evening and night shifts usually have a salary differential. Rotation of hours, with a fair division of the less popular hours and services is recommended, and schedules should be planned well in advance so that nursing personnel can make their personal plans for time off duty. It is recommended that vacation schedules be planned early and requests for certain vacation dates be accepted up to a clearly stated period. As soon as the schedule is complete, it should be posted so that

Determining hours and compensation

all nursing service employees can see it and so that any necessary readjustments can be made promptly.

Use of sick leave

Sick Leave: Sick leave varies from agency to agency, and from institution to institution, but it is customary to grant the same amount of annual sick leave to all members of the nursing staff. Common usage suggests two weeks a year as a minimum with longer periods granted on necessity and dependent on length of unbroken service, tenure, and expected ability on return. Sick leave is intended for protection in time of need only and should be cumulative up to a specified amount, and for purposes of sick leave only.

Establishing salary scales

Salaries: Nursing salaries and nursing department budgets differ from one geographic area to another, depending on local costs of living, local customs, and state standards, as well as source of agency funds. A salary scale which is fair to licensed practical nurses and to other nursing service personnel is recommended, keeping in mind the educational preparation and responsibilities of these other members of the nursing staff. Also to be considered in establishing a salary scale are: special requirements of certain jobs; the applicant's qualifications, proficiency, and length of service (experience); and clearly defined salary increases based on efficiency as well as on tenure.

Retirement

Retirement Plans: Retirement plans for the personnel, workmen's compensation, and unemployment insurance will vary from one institution to another, but plans for these "fringe benefits" should include all members of the nursing service personnel.

Protecting the employees' health

Health Care: Customarily, clinic and professional services are placed at the disposal of employees in hospitals, and a program of health supervision, routine physical examinations, and various tests should be offered. Health services should be clearly defined and any treatment needed should be prescribed and given through the institutions' organized health service, and not by individual staff members of the employee's unit. Some large hospitals and agencies use the services of an occupational health nurse, and many require hospital insurance coverage. If no group plan is available, the individual should be urged to carry her own insurance. Accidents and injuries are covered by state laws on workmen's compensation insurance. A preventive health program is recommended for all health agency employees; weight control, recreation, correction of minor defects, and health counseling make for healthier employees and less loss of service through sick time.

Helping RNs and LPNs to Work Together

Need to Clarify Work Assignments: Professional nurse consultants in hospital nursing service report that there is still not as much acceptance of licensed practical nurses on nursing staffs as there should be. Many

professional nurses still have only limited understanding of the qualifications of licensed practical nurses, and there is still some struggle for status. In view of the great need for better nursing care for our nation's sick and disabled, the defined responsibility of the registered professional nurse for guidance and direction of the LPN, and the tremendous worth demonstrated by practical nurses when used wisely, there is need for a thorough understanding of the LPN's abilities and functions by the professional nurses. Furthermore, the registered professional nurse must be helped to understand her supervisory or guidance role.

The RN's responsibility for guidance

The LPN is not a replacement for the professional nurse, but a well-prepared assistant, qualified to give direct care to patients, with certain restrictions that are outlined in the *Statement of Functions.* This means that the LPN should be considered a part of the nursing team, should have thorough knowledge of the nursing care plan, and should participate in planning the nursing care for patients. She should be as much a part of nursing conferences as all other staff, and her work should be coordinated with the work of all others who share in giving nursing care. While she should not be expected to make the judgments and carry the responsibilities which require the knowledge of the professional nurse, she can become a valuable assistant to the professional nurse under whose supervision she works. Her observational skill, her ability to report and record and to perform selected acts can be of great worth, even in the complex situations of nursing care. In addition, she can be given assignments which require considerable self direction in less complex situations.

Using the LPN's abilities as assistant

Making Assignments: The wisdom of the professional nurse in making assignments, the guidance and stimulation which she provides and the confidence and respect she shows for the abilities of the licensed practical nurse will determine the worth and continuing development of the licensed practical nurse under her supervision. Every effort should be made to help the LPN reach her potential for service, yet care should be taken to avoid continuing her education in skills beyond those for which her preparation has provided the essential basic knowledge. It is generally conceded that when the licensed practical nurse is found carrying responsibilities beyond her abilities, the responsibility for this over-utilization usually rests with the registered professional nurse who has made the assignments or with administration which fails to supervise adequately the professional nurse responsible for making assignments.

Assignments affect quality of practice

Of necessity, a clear work assignment requires that the LPN's immediate supervisor (the registered nurse on duty where the LPN is assigned, a team leader, a head nurse, or a supervisor) *evaluate* the practitioner's performance. The LPN should evaluate her own performance, as well. To do this the evaluator — either the LPN herself

and/or the supervising person — checks the LPN's performance against the expectations based on her previous performance and on her education and experience in the activity being evaluated.

Organizational charts help clarify duties

Organizational Charts: An organizational chart of even the most simple form, which clearly shows the lines of authority and to whom each member of the nursing team is immediately responsible, is most useful for all members of the nursing service team to have — in fact, for all members of the health team in the institution.

The nursing team needs to be clearly defined and its collective and individual responsibilities outlined for each unit using a team. When each person knows what his job is and to whom he is responsible, the work flows more smoothly, and the recipient — the patient — receives the best care with the least disturbance. The practical nurse in a hospital reports to the head nurse, but she is responsible for care to the team leader on whose team she is placed and is accountable for those activities of patient care of which she is capable and that she is assigned to give. In drawing up an organizational chart, the person who does it must make clear that when a person with a specific task is unable to carry out that task, someone else must assume responsibility for it. When patients are the center of the work load, no task can be left waiting for the return of the assigned worker. It is suggested that all team plans, indeed all nursing care plans, list both primary and secondary responsibilities of individual workers. This is particularly necessary today when the team is making wider use of nonprofessional workers and there is danger of the patient being lost in the interweaving of the strands of job responsibility.

Technical procedure books can increase efficiency

Technical Procedure Books: Employers could well spend considerable time and effort devising simple procedure books which are useful tools in untangling these job responsibilities. The time spent in planning and making them is saved over and over again when they are put into use. Uniformity of procedure within a unit or institution is a most efficient means of assuring prompt and proper care. In setting up such a book, a committee of both professional and practical nurses should work together, and once the book is completed, it should be reviewed and revised regularly. A standing committee with members recruited from all nursing service staffs and rotated on it helps get the views and interest of the entire staff in proper procedure. And well-worked-out procedures can save money in cutting down on waste of time and materials.

Using the policy manual . . .

Other Aids to Understanding: Employers are urged to maintain a policy manual which will serve as a useful guide to all nursing service personnel. It will also serve as a reference, so that the nursing staff member who is questioned about a specific action taken may refer to the manual. Preparation and maintenance of such a manual is best

left to administrative professional nursing personnel, who may seek consultation about needs from the rest of the nursing staff.

Nursing care plans, properly made and carried out, help assure all patients of better, safer care. They are usually made out by the person who will be giving care, or is responsible for the care given, to specific patients. The head nurse and/or the team leader may make out the plan and discuss it with the team members so that each person knows what is being done for the patient and why. Psychological support of the patient and comfort measures are part of the plan to meet the patient's needs, while care which is moving toward self help is part of the plan to help him gain independence as he gets nearer to discharge from hospital care. The type of illness and the prognosis will determine the individual aspects of the nursing care plan, as will the individual personality of the patient. Although there may be some individual work assignments within the nursing care plan, the plan is essentially a guide to all who will be giving any aspect of the patient's care. Properly used, it prevents errors and assures safe care.

the nursing care plan . . .

In the home the practical nurse is responsible for making the nursing care plan and for carrying it out; in institutions and agencies the practical nurse assists in making the nursing care plan and assists as a member of the team in carrying it out.

Assignment sheets are simple administrative tools worked out to fit the needs of each institution. The carefully planned assignment sheet makes it possible to use the skills and knowledge of every member of the nursing team to his highest potential, and allows for supervised practice of newly acquired skills and expression of newly acquired knowledge. There is little or no reason for not making an assignment sheet well in advance so that all the nursing personnel concerned will know what their duties will be and when, and they can then make their own plans for meeting their responsibilities within the team or unit of their assignment. Such sheets need to be updated daily by the head nurse to keep up with census changes and changes in patients' conditions and treatments. Rotation of less pleasant duties and onerous tasks helps maintain good employee relationships and keeps the entire nursing team informed of all aspects of nursing care.

the assignment sheet

Nursing Care Conferences: Nursing care conferences offer another method of keeping nursing personnel up to date. They are useful for reviewing patient situations in light of changes in care required. Their use in relation to the care of specific patients helps to unify efforts toward specific goals, and they are educational for the participants. The licensed practical nurse has a valuable contribution to make in such conferences and should be expected to be an active participant.

Nursing care conference unifies effort

Charting: The matter of charting or recording and who does it is under considerable discussion these days, and new chart forms are

Charting — what, when, and how?

constantly being devised to cut down on unnecessary clerical work. It is vital to remember that certain information must be recorded in order that the patient's physician and other workers may know what has been happening in their absence, as well as for legal purposes. The chart or record is still the major form of imparting information from one person to another in a large institution or agency. The person who makes an observation, gives a medication or a treatment, is the person who should chart it — from the point of view both of common sense and legality. Charts are still considered useful records in law, and a report of an action written by someone other than the person observing that action or carrying it out is only hearsay evidence and of no real value. The report of an observation or treatment, simply and clearly written, and signed and dated by the observer is a valuable aid to the physician and allows him to approach the writer directly for further information or clarification of what has been written. Directions on how to write notes on charts should be included in the procedure manual; in addition the value of such notes should be clearly understood by all personnel. It is necessary for employing agencies to keep work records which include summaries of work assignments and periodic evaluations of performance. These are of value not only within the agency but also when writing references for others.

HELPFUL HINTS FOR THE LICENSED PRACTICAL NURSE

The licensed practical nurse should be aware of the foregoing suggestions to employers, just as the employer should know the following suggestions for employees.

Seeking a Position

What the placement service wants to know

Because of the need for personnel in nursing, practical nurses find it easy to secure employment. Applications may be made directly to a hospital or health agency, or the licensed practical nurse may wish to be on a private duty registry with a qualified agency.

An ethical placement service will be licensed and will meet certain standards established by the state. It will want the following information, which is what a prospective employer will want if the applicant goes to one directly:

1. Applicant's name, age, and health history
2. Previous schooling and a transcript of grades
3. Proof of licensure
4. Previous employment record

5. References of previous employers (few prospective employers are interested in personal references)
6. Fingerprints (in some states)

Licensure must be current, and most agencies will request the registrants to bring in current registration data for keeping the records up to date (most states require an annual renewal of registration and licensure). In some states it is the legal responsibility of the employing agency to see the licensure and its renewal.

In addition to private employment agencies, each state has a state employment service, and within some states there are local offices as well. Qualified personnel interview registrants and try to find work which will suit both the nurse and the prospective employer. Whether private or public, a placement agency is merely the liaison between prospective employer and employee.

Record keeping in private duty

In addition to the records required by the placement service, the LPN doing private duty must keep certain other records for herself, notably records of earnings for income tax purposes and of contributions to Old Age and Survivors Insurance (OASI). LPNs in private duty are covered under social security benefits as self-employed practitioners and as such must pay their own tax.

Private Duty

The licensed practical nurse who prefers to do private duty because she likes working with just one patient to whom she can give her full attention may work in a hospital or a private home. When employed on private duty in a hospital, the LPN is subject to that hospital's rules and regulations, and she will be expected to keep in touch with the head nurse of her patient's floor as well as with her patient's physician. When employed in a private home, the LPN is responsible to the patient's physician and will follow *only* his orders and instructions and will follow them implicitly. If it is beyond her ability to carry out the orders or instructions, she is duty bound to report this to the physician, who may teach her or suggest she call upon the local visiting nurse association for help and instruction. If change in the patient's condition is such that the services of a professional nurse are required, she should make this known to the attending physician.

Fees

On accepting a "case," the private duty LPN must have her current registration with her at all times and must be prepared to show it to the physician and/or family if requested. Fees should be established at the first visit, should not be altered from the original agreement, and should conform to the local rates established by the official practical nurses' organization. If there is a change in the number of working hours originally agreed on, the employer and LPN should

arrange a new fee, basing it on the established rates. The nurse should submit her bill in writing and give a receipt for payment. The employer will need the receipt as proof of payment for income tax deduction purposes.

Transportation and meals

Unless some arrangement about transportation fees has been made in advance, the LPN is expected to pay her own transportation. Provision of meals is dependent on local practice. In some areas, eight-hour duty entitles the LPN to one meal; 12 hours entitles her to two meals, and 20 hours to three meals. Meals should be taken with the family when possible; if taken alone, the same food as the family eats should be served the LPN. If she is asked to eat outside the home, the family should reimburse her for meals at reasonable cost.

Special responsibilities of the private duty LPN

In a private home, the LPN is expected to carry out the attending physician's orders and instructions; give complete nursing care to the patient; take care of the patient's room, meals and dishes, and personal laundry; take care of her own room if she sleeps in the home; keep a complete record of care given to the patient; and carry out such other duties she may be asked to undertake if they contribute directly to the patient's welfare and ease the tension created by the illness in the family. For a long case, the placement agency may be asked to supply a relief nurse for time-off duty. Such service will depend on the agency, but it is the usual practice. If, however, the LPN must seek her own relief nurse, the family should check the relief nurse's credentials.

Guide for private duty practitioners

Some placement services provide general directions or suggestions for nursing in the home which are extremely helpful to the employees being placed. The Professional Placement Center of the New York State Employment Service has prepared a pamphlet as a guide to licensed practical nurses who are referred to patients in private homes by the Center. It contains general information on fees, time off, meals, duties, and equipment. It states that the patient's family usually can be expected to furnish equipment needed in the care of the patient, but suggests that the licensed practical nurse may find it helpful to carry in a small case certain items of her own, such as:

a 2cc syringe
needles for hypodermic and intramuscular injections
bandage scissors
mouth and rectal thermometers

Work in Hospital or Health Agency

A rule of thumb which may be applied by the hospital, public health agency, or clinic that employs licensed practical nurses is that the criterion for deciding on the amount and type of nursing care for each

patient is the patient's condition and not the type of duties in themselves. The LPN must be aware of the limitations imposed on her by the law and by reason of her preparation and experience, as must the employing agency. Supervision by a registered professional nurse and/or physician is necessary, and she must know what duties the licensed practical nurse can safely perform.

The LPN on the nursing team

With the increased use of team nursing, the LPN will have specific team responsibilities for the care of patients, depending on the type of institution and agency in which she works, and on the other members of the team. She may be supervised by the team leader, or the head nurse, or the supervisor. The organizational chart which shows lines of authority is useful in guiding all personnel to the proper authority for team work. Usually the team leader, a registered professional nurse, is responsible for planning the nursing care of a specified number of patients, and assigns activities having to do with that care to her team members. The assignment given to the licensed practical nurse will depend on the evaluation of her work by the team leader and supervisor.

SUMMARY OF LICENSED PRACTICAL NURSING PRACTICE

1. In the home, the private duty licensed practical nurse carries out the physician's orders for the care of the patient. If the procedure is complex or she is unfamiliar with it, she must notify the physician who may then teach her how to perform it or recommend that she get help from the local visiting nurse agency or public health nurse. The LPN keeps careful records of her observations, of treatments and medications given, and these records become part of the patient's record in the physician's safekeeping when the case is completed. The LPN carries out only those household duties that are related to the patient's health and welfare, or that are an emergency measure, taken until household help may be obtained.

2. In hospitals, the LPN may be a private duty nurse or a member of the nursing team, or she may have specific duties assigned her within the range of her preparation and experience. She works under the supervision of a registered professional nurse and within the rules and regulations of the hospital.

3. In health agencies, she works in close relationship to the professional staff nurse. She will make visits to patients' homes by herself, but a public health nurse will also make some of the visits to these same patients. In this way, they share care of the patients and share

information about them. More and more health agencies are using teams to give care to patients living in a defined geographic area. In such agencies, the licensed practical nurse becomes a regular member of the team. In public health clinics, the licensed practical nurse is usually assigned specific responsibilities in keeping with her preparation. In all instances, she works under the supervision of a public health nurse.

4. In nursing homes and homes for the aged, the LPN will have duties similar to those she might have in a hospital, but most of the patients will be long-term patients who need help with physical care, some exercise, and diversional activity. A professional nurse usually will be the supervisor; however, the specific nursing duties will vary with the type of institution and locale.

5. In industry, in camp nursing, and special situations where she is without immediate supervision and has a number of well persons under her care, the LPN should have special background in first aid. She must be under the direction and guidance of a physician, and if a public health nurse is available, the LPN should call on her for help in supervising any procedures which may be needed but with which she is unfamiliar. In industry, where professional nurses are employed, she often acts as their assistant.

6. Homes for the disabled, crippled, or mentally retarded are employing more LPNs and the duties here will vary with the institution. Usually they encompass maintaining physical cleanliness and teaching self care, help in feeding, diversional activities, and some physical exercises under the guidance of a physical therapist. Here again the professional nurse usually will provide supervision.

HELPFUL ORGANIZATIONS FOR BOTH EMPLOYER AND EMPLOYEE

Nursing Service Registries

What a registry does

A registry is simply a place in which a record of official registrants is kept. In an employment service or office a formal record is made of those who use the services. Records of prospective employees are kept along with the proper information concerning the kind of service in demand. For licensed practical nurses, this means a registry — whether official or proprietary — will have records of each prospective employee in which will be noted current licensure in the state (and a record of licensure and registration in other states if any), her educational background, work experience, references, health record, and any special information pertinent to the registrant. In addition, the

service will keep a record of the kinds of services demanded by prospective employers and it will make an effort to see that the employee recommended for a particular service is prepared and qualified to carry out that service.

Privacy for personnel records

Personnel records are considered confidential, and no ethical registry or placement service will use the records as reference for charge accounts, bank loans, or such. Only the pertinent parts of records are sent on request to prospective employers, and then only with the prospective employee's consent. The use of an agency is helpful in that such records are kept up to date, the agency usually has skilled interviewers who can help place the prospective employee in the situation her skills suit her for, and it is a sort of clearinghouse for general information about employment of licensed practical nurses.

Other sources of employment information

In some states, the state office of the employment services provides placement service for practical nurses, as do some local professional nurse associations, licensed practical nurse associations, and a few practical nursing schools. Most reputable agencies make an effort to stand behind the persons they place and will be themselves licensed to serve as employment agencies. They may be found in the telephone directory by looking in the classified section under "Nurses" or under the state services. Local branches of practical or professional nursing associations can be helpful in those areas that do not have other registries.

Nursing Organizations

The value of nursing organizations

The licensed practical nurse is usually encouraged to join her own membership organization as soon as she is eligible, which is shortly after having graduated and passed the state licensure examination. Being a member of an organized group is most helpful to the individual member in keeping up to date with what is going on in her world and on how changes in medicine and professional nursing will affect practical nursing — both education and practice. Too, being a member of her organization gives her a voice in those changes. Employers are urged to encourage LPNs on their staffs to join the organizations and to give them adequate time off duty for attending both local and national meetings, on an equal basis with professional nurses and on a rotating basis so that all nursing personnel have an opportunity to be active in their groups.

The following national nursing organizations include those especially concerned with practical nursing.

NFLPN

National Federation of Licensed Practical Nurses (250 West 57th Street, New York, N.Y. 10019) was formed in 1949. It is a national membership organization, exclusively for licensed practical or licensed

vocational nurses, a federation of state associations of these nurses and individual members. Local branches of the state associations are known as divisions.

NAPNES

National Association for Practical Nurse Education and Service (535 Fifth Avenue, New York, N.Y. 10017) is a national organization begun in 1941 to promote sound practical nurse education. Its members include licensed practical nurses, students in state-approved schools of practical nursing, registered professional nurses, and representatives of vocational education and lay citizens interested in the special activities of the association.

NLN

National League for Nursing (10 Columbus Circle, New York, N.Y. 10019) is a national organization for members of the nursing team, allied professionals, and lay persons interested in improving nursing services and nursing education. Within the NLN is the Department of Practical Nursing Programs, which works cooperatively with the practical nursing groups in raising the standards of education. A sizable number of licensed practical nurses belong to this department; and one licensed practical nurse serves on the elected departmental steering committee of eight members. Other licensed practical nurses belong to either of the League's two nursing service departments — hospital nursing and public health nursing.

ANA

Professional nurses have a responsibility for, as well as an interest in, licensed practical nurses. The *American Nurses' Association* (10 Columbus Circle, New York, N.Y. 10019) — especially through its Committee of State Boards of Nursing, its Committee on Allied Nursing Personnel, and its new Joint Committee of Official Representatives of ANA-NFLPN — considers problems of interest and importance relative to desirable standards of practice, to education, and to licensure, etcetera.

APPENDIX I

STATEMENT OF FUNCTIONS OF THE LICENSED PRACTICAL NURSE*

This statement, which is an elaboration of the one adopted in 1957, was approved by the Executive Board of the National Federation of Licensed Practical Nurses in October, 1963, and by the Board of Directors of the American Nurses' Association in January, 1964.

Purpose

This statement is intended to serve as a guide to:

1. The utilization of the licensed practical nurse in nursing services.
2. Self-evaluation of practice by the licensed practical nurse.
3. Development and evaluation of educational standards in the preparation of the licensed practical nurse.
4. Interpretation of licensing legislation.

Education and Licensure

The LPN should be prepared and qualified for nursing practice by:

1. Education
   a. Preservice preparation in a program in practical nursing approved by the state board of nursing.
   b. Orientation and continuing inservice education.
   c. Instruction, within the scope of practical nursing, of the practitioner who qualifies for further training in specialized fields peculiar to the agency.
2. Licensure by state board of nursing.

Personal Qualifications

Personal and vocational growth and development should be sustained by:

1. Maintenance of good health practices.
2. Active participation in and the promotion of nursing organizations; inservice education programs; workshops; institutes; other educational and community activities.

Role Description

The work of the LPN is an integral part of nursing. The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations the licensed practical nurse functions as an assistant to the registered professional nurse.

A simple nursing situation is one that is relatively free of scientific complexity. In a simple nursing situation the clinical state of the patient is relatively stable and the measures of care offered by the physician require abilities based on a comparatively fixed and limited body of scientific facts and can be performed by following a defined procedure step by step. Measures of medical and personal care are not subject to continuously changing and complex modifications because of the clinical or behavioral state of the patient. The nursing that the patient requires is primarily of a physical character and not instructional.

In more complex situations, the licensed practical nurse facilitates patient care by meeting specific nursing requirements of patients as directed, such as preparing equipment, supplies and facilities for patient care, helping the professional nurse to perform nursing measures, and communicating significant observations to the registered professional nurse.

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Legal Status

The legal responsibility of the LPN extends to two areas:

1. Licensure to practice practical nursing according to state law.
2. Performance limited to those acts for which he or she has been prepared.

Although it is true that the LPN's responsibility extends to these two areas, bearing in mind the individual's personal responsibility under the law, it is equally true that the professional nurse has ultimate responsibility for nursing service, including the responsibility for assignment of all nursing personnel.

Functions

The selection of the functions or the specific procedures to be performed by the LPN depends upon a realistic appraisal of the elements within the situations, such as the complexity of scientific principles underlying the procedure or function; the ability and skills the LPN has acquired and demonstrated; the amount and character of the supervision required by the LPN to perform the functions; and the patients' needs and the ability of the LPN to provide safe nursing care to meet those needs.

In this context, the LPN performs the following functions:

A. Participates in the planning, implementation, and evaluation of nursing care in complex situations, and in giving nursing care in simple nursing situations by:

   1. Providing for the emotional and physical comfort and safety of patients through:
      a. Understanding of human relationships between and among patients, families and personnel.
      b. Recognizing and understanding cultural backgrounds, spiritual needs; respecting the religious beliefs of individual patients.
      c. Recognizing and understanding the effects of social and economic problems upon patients.
      d. Protecting patients from behavior that would damage their self-esteem or relationship with families, other patients or personnel.
      e. Participating in the development, revision, and implementation of policies and procedures designed to insure comfort and safety of patients and personnel.
      f. Assisting the patient with activities of daily living and encouraging appropriate self-care.
      g. Considering needs of the patient for an attractive, comfortable and safe environment.

For effective practice the LPN must know and utilize fundamental principles of human behavior and have an appreciation of the effects of stress upon individuals and groups.

A practical understanding of human growth and behavior makes it possible to note signs of change or disturbance in the patient's activity patterns. These may relate to illness, to individual responses to the institutional environment, and to personnel.

Representation and participation on committees and in conferences relevant to personnel and nursing care utilizes staff resources to develop a mutual understanding of the individual's role and responsibility in nursing service, e.g. a Committee on Infection Control.

   2. Observing, recording and reporting to the appropriate person:
      a. General physical and mental condition of patients, signs and symptoms which may be indicative of change.
      b. Stresses in human relationships between patients and patients' families, visitors and personnel.
   3. Performing nursing procedures for which the preparation of the LPN has provided the necessary degree of skill and judgment, such as:
      a. Administration of medications and treatments prescribed for the patient.
      b. Preparation and care of patients receiving specialized treatments.
      c. Performance of special nursing techniques in caring for patients with communicable diseases.
      d. Practice of first-aid measures.
      e. Preparation and after care of equipment for treatments, including ster-

ilization and observation of aseptic techniques.

4. Assisting with the rehabilitation of patients according to the patient care plan through:

   a. Awareness of and encouraging the interests and special aptitudes of patients.

   b. Encouraging patients to help themselves within their own capabilities in performing activities of daily living.

   c. Knowledge and application of the principles of prevention of deformities; the normal range of motion; body mechanics and body alignment.

   d. Utilizing the community resources and facilities for continuing patient care.

B. Promoting effectiveness of the employing health service agency through:

   1. Utilizing opportunities in contacts with patients' relatives to promote better understanding of policies pertaining to the health service.

   2. Fostering cooperative effort through understanding the functions of all personnel involved in patient care.

   3. Utilizing community resources and relationships for better understanding by the public of health services.

APPENDIX II

DEFINITION OF NURSING PRACTICE

This definition of nursing practice has been approved by the American Nurses' Association as suitable for inclusion in a licensing law.

Practice of Nursing

1. The practice of professional nursing means the performance for compensation of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatments as prescribed by a licensed physician or dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures.

Explanation

The nursing practice act must contain a definition of the practice which it seeks to regulate. This definition must be stated in terms of the acts which persons licensed under the law are permitted to perform, and which in the interest of public health and safety all others are forbidden to perform.

For the purposes of the law, the definition of nursing practice should be stated in terms broad enough to permit flexibility in the utilization of nursing personnel within the bounds of safety. It must also permit changes in practice consistent with trends in the practice of nursing and related health professions.

In order that the interests of the public and the practitioner both be protected, the definition of nursing practice in the licensing law must clearly differentiate between those acts which are independent nursing functions and those which are dependent upon the prescription of the physician or the dentist.

The statements of functions prepared and approved by the sections of the American Nurses' Association are the principal authority for this legal definition of nursing practice. The definition reflects the essential and, for the most part, common elements of nursing practice described in the definitions of nursing functions adopted by the occupational groups represented in the sections of the professional organization.

Delegation by medical authority is provided for the circumscribed area of nursing practice where such delegation is required, namely, for the administration of medications and treatments. For clarity, the definition includes a prohibition of acts of diagnosis and prescription of therapeutic or corrective measures.

Practice of Nursing

2. The practice of practical nursing means the performance for compensation of selected acts in the care of the ill, injured, or infirm under the direction of a registered professional nurse or a licensed physician or a licensed dentist; and not requiring the substantial specialized skill, judgment, and knowledge required in professional nursing.

Explanation

Also provided are the elements of substantial specialized judgment and skill which characterize professional nursing and the nature of the preparation required for the safe practice of professional nursing.

Where the law seeks to regulate practical nursing, it must define a second level of practice as well and, in doing so, must differentiate between professional and practical nursing.

The definition provides for the essential differences in the two levels of nursing practice through requiring that the acts of nursing which may be performed by a ractical nurse be selected by and performed under the direction of a professional person who is either a nurse, a physician, or a dentist.

The Statement of Functions of the Licensed Practical Nurse approved by the American Nurses' Association and the National Federation of Licensed Practical Nurses is the principal authority by which this legal definition of practical nursing is to be interpreted.

The law should not require the practical nurse to exercise the same degree of judgment and skill as is required for professional nursing as the nature of her preparation does not permit such a requirement.

Since the law is not intended to prohibit gratuitous care of the sick by members of a patient's family or friends, it is necessary to include the consideration of compensation in the definition.

APPENDIX III

PRINCIPLES OF LEGISLATION RELATING TO THE PRACTICE OF NURSING

Approved by the Board of Directors of the American Nurses' Association, September 1953. Revised January 1958.

When preparing to draft licensing legislation relating to nursing, it is always well to start with principles in mind. While the need for such legislation arises from conditions existing within the state, these conditions, in themselves, should not alone determine the provisions of the licensing act that the state association drafts and promotes. Rather, it is the responsibility of the nursing profession to promote legislation relating to its practice which will provide the best possible protection of the public health and welfare.

The public, and the practitioner, will be best served by legislation that is based upon principles which have official professional approval. The following statement has been prepared to guide nurses in drafting and promoting nursing practice acts.

Principle

1. The primary purpose of a licensing law for the control of the practice of nursing is to protect the health of the people by establishing minimum standards which qualified practitioners must meet.

Reason

It is recognized that licensure involves achievement, but it is a minimum of achievement which is deemed adequate to guarantee safe performance in any field of practice, including nursing.

2. All persons who, for compensation, are engaged in the practice of nursing as defined in the law should be licensed.

Mandatory licensure for the practice of nursing is the goal towards which nursing should move. It is generally accepted in any field of practice that complete protection of the people is accomplished only if all who practice as defined in the law are licensed. The people should not be expected to have to differentiate between competent and incompetent practitioners. It should be the function of the nursing profession to fulfill its social responsibility by assisting the public to secure protection through the promotion of adequate nursing practice legislation.

3. There should be one nursing practice act in a state with provisions for licensing the practitioners of nursing.

Since nursing is one occupational field the practice should be controlled by one licensing law. More than one law in a field with a fundamental core of principles basic to its practice creates problems in control which are confusing both to the public and to the practitioners.

4. There should be one licensing board for nursing in a state composed of licensed registered nurses qualified to carry out the functions of the board as provided in the law.

One nursing practice act necessitates only one licensing board. The major function of the board is to license qualified practitioners of nursing. This involves the evaluation of eligibility of candidates, the determination of type

Principle	Reason
	and scope of examinations and the testing of individual competency for licensure. The board is also required to accredit educational programs for the preparation of nursing practitioners. This involves the evaluation of all aspects of these educational programs — purpose, curriculum, faculty, students, facilities, organization and administration. In the interest of the public only those licensed registered nurses who are best qualified by general and professional educational preparation and educational experience should be appointed to the state licensing board for nurses.
5. All candidates for licensure should have completed an educational program for the preparation of nursing practitioners accredited by the board and should be required to pass a licensing examination before a license is granted.	The licensing examination should be taken after the legal completion of the program. The license should be issued after the candidate has fulfilled all the requirements of the law for demonstrating competency to practice.
6. Exceptions to, or waiver of, certain requirements for licensure should be provided for a limited period of time when new licensure requirements are first made effective or when they are made mandatory. However, all candidates for whom these requirements are waived should be required to demonstrate competence by passing an examination before a license is granted.	A law is unconstitutional which is retroactive and which legislates out of existence the right of livelihood of current practitioners who do not meet the requirements for licensure.

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APPENDIX V

GLOSSARY

Approved school: A school that has met the minimum standard requirements for the preparation of practical nurses for licensure in the state in which the school is located, as adjudged by the state's board of nursing or board of nurse examiners.

Assignment sheet: The posted list of nursing service personnel and the patients for whom they will be responsible while on duty. Secondary duties may be listed as well, if the institution does not have special aides for certain daily routines such as serving meals, extra nourishment, fresh water, etc.

Daily care conference: A conference concerning immediate matters of the unit held most frequently some time in the morning with the personnel on the morning tour of duty.

Evaluation: The process of measuring present performance of duties. Everyone evaluates performance — the patient, the person carrying out the task, the immediate supervising person. Formal evaluation may take several forms, but is usually carried out at least once a year and is a written record which the person evaluated and the evaluator go over together to plan future work.

Licensure by waiver: The granting of a license on the basis of length of service, waiving — or disregarding — the legal requirements for licensure. When a state enacts new licensure laws affecting nursing, or when it makes licensing for nursing mandatory, it establishes a period of time during which the legal requirements for licensure are waived for certain practitioners. During this period persons who have been working as nurses for a specified number of years may be granted a license on the basis of their service alone. This waiver clause — also called a grandfather clause — is made necessary by the fact that a law is unconstitutional if it is retroactive and legislates out of existence the right to livelihood of current practitioners.

Nursing care conference: A conference especially arranged to discuss matters of specific nursing concern, such as a new type of treatment to be carried out or a special problem presented by one of the patients.

Nursing care plan: A written plan for the nursing care of the individual patient. The plan is prepared and adopted to follow a continuum covering the illness from the acute phase through the period of maximum responsibility for self care.

Nursing team: The group of personnel working together to give nursing care to a specfic patient or group of patients. Each member of the group has special duties which interweave with the duties and work of the other team members for the patient's best interest.

Skill inventory: A formal listing of proven abilities in nursing skills done by the performer and by the immediate supervising person to help in improving skills and acquiring new skills.

Tour of duty report: The report given by the persons going off duty to those coming on duty. Some institutions have only one person who takes such a report and relays it to the other oncoming personnel; some have all oncoming personnel hear the report, which is usually made by the offgoing team leader or head nurse.

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Prater, Robert L.; Webster, Lester S.
A Study of the Status of Students Enrolled in the School of Industries, 1966-1967.

Texas Southern Univ., Houston. School of Industries
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*SCHOOL SURVEYS; *COLLEGE STUDENTS; *TRADE AND INDUSTRIAL EDUCATION; *STUDENT CHARACTERISTICS; EMPLOYMENT STATUS; STUDENT ATTITUDES; FAMILY CHARACTERISTICS; ACADEMIC ACHIEVEMENT; EDUCATIONAL BACKGROUND; FINANCIAL PROBLEMS; NEGRO STUDENTS; NEGRO COLLEGES; OCCUPATIONAL ASPIRATION; STUDENT COLLEGE RELATIONSHIP; *STUDENT ROLE; QUESTIONNAIRES
SCHOOL OF INDUSTRIES; *TEXAS SOUTHERN UNIVERSITY

The purpose of this study was to gain insight into the background and status of students enrolled in the School of Industries during the second semester of the 1966-67 school year. The data were collected by questionnaire from 335 students and put into tabular form for analysis. Findings relative to the level of parents' education and their job status reveal that the school is primarily attracting students from the upper social strata among the Negro population. A large number of students were employed full time which indicated an atypical student population in which obtaining an education is a secondary matter to be accomplished only if it can be done within their existing employment pattern. There appears to be a definite need to consider offering evening courses to fit the employment patterns of students. The respondents' plans for doing further study appear to be extremely unrealistic in view of the amount of such study done by graduates in the past. Students' comments reveal that many are concerned about the quality of education they are receiving; however, faculty was aware of many of the inadequacies expressed. Some of the recommendations were that a similar study be made of the entire student body and that the faculty put forth more effort in improving various aspects of the instructional program and physical facilities. (HC)

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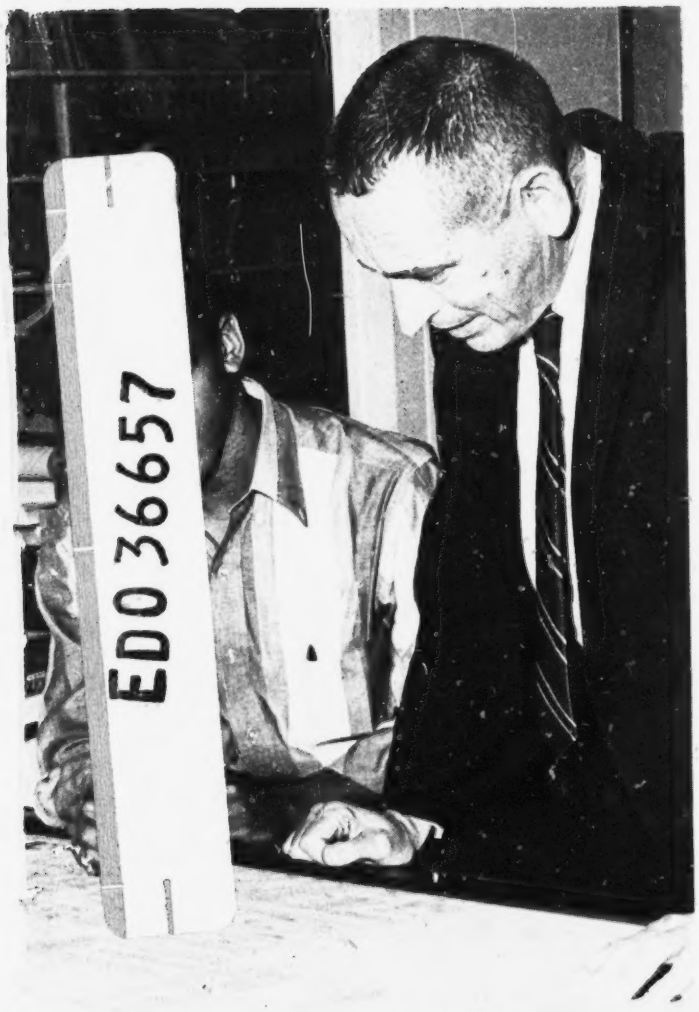

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A STUDY OF THE STATUS OF STUDENTS ENROLLED IN THE SCHOOL OF INDUSTRIES 1966-1967

A Study of the Status of Students Enrolled in the School of Industries

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

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and

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Texas Southern University
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1968

ABOUT THE COVER

The photos on the cover represent activities of students in the classroom and in industry. They are as follows: (1) Johnnie Jordan, a senior drafting major, receiving some tips from his supervisor, Mr. Robert J. Minchew, while working as a cooperative education student with the architectural firm of Wilson, Morris, Crain and Anderson of Houston, Texas; (2) Dalton Durall, an electronics major, is measuring the output of power supply he constructed for a short wave transmitter in the electronics laboratory; and (3) Leon Hubert, a drafting major, is developing his skill in the effective use of the drafting machine.

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FOREWORD

Approximately forty-five hundred (4,500) students attend Texas Southern University each semester during the school year. Those students enroll in six areas which are the College of Arts and Sciences, School of Business, School of Industries, School of Law, School of Pharmacy, and the Graduate School. The School of Industries ranks third with approximately four hundred (400) students.

The idea to make a study of the students enrolled in the School of Industries was prompted by my hearing one student say to two other students "I came from work to class." The students were in a class in Wood Technology near a door which opens into a corridor.

My interest in the student's statement caused me to go in the shop and talk with him briefly. The student worked from eleven at night until seven the next morning, and then came to an eight o'clock class. He was married, had children, and was enrolled in several courses. As we talked the strain he was under financially, physically, and educationally became clearer to me. I congratulated him and stated that a study would probably be made of the status of students in the School of Industries so that we, the faculty, may know more about their various interests and problems in order that we may do a better job of teaching, counseling, and advising the students.

The idea of the study was discussed with two faculty members, Dr. Robert L. Prater and Mr. Lester S. Webster. They were both interested and Dr. Prater became the principal investigator.

Only students in the School of Industries filled out questionnaires supplying information for the study. My candid opinion is the findings are quite applicable to a large percentage of the students enrolled in other areas of the University as well as at other institutions. For that reason, the study is being printed for free distribution to interested faculty members and students of the University. A limited number of free copies are available to anyone who may be interested.

Acknowledgment and thanks are extended to Dr. Prater and Mr. Webster for making the study, to the other faculty members in the School of Industries for their cooperation and assistance, and to the students for supplying information requested on questionnaires. Helpful corrections and suggestions were made by Mr. Lewis R. Morris of the English Department for which we are grateful.

Special thanks are extended to the University Research Committee and the T. J. Bettes Foundation for funds which paid the cost of printing the study.

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January, 1968

Chapter I

INTRODUCTION

A. THE PROBLEM

There were three-hundred and eighty-five (385) students enrolled in the various departments of the School of Industries during the second semester of the 1966-1967 school year. Although most of these students were enrolled in courses in at least one of the departments in the School, very little was known officially about the type of students we had. The School of Industries faculty has always been vitally concerned with knowing more about the kinds of students it attracts, their ambitions and aspirations, scholastic performance, employment status and general family background.

Casual observation and conversations with many students suggested that large numbers were employed, married, and had financial obligations that may have been somewhat more than expected in an undergraduate population, especially when the majority of the population comes from socio-economic disadvantaged backgrounds. Furthermore, a few counseling sessions suggest that there is much we need to know about our students, if we are to do an effective job of counseling and directing.

There is some concern now about the development of competent leaders in Vocational-Technical Education. The Vocational-Education Act of 1963 (Public Law 88-210) is concerned with this need. The Bureau of Adult and Vocational Research in the Office of Education is also concerned with recruiting and developing leaders in this field. In view of this concern, the School of Industries staff felt that it should take a close look at its current student population, with a view of more effectively developing its potential. An assessment of the currrent student population can do much to strengthen the School's program.

One key phase of the study was concerned with determining the extent to which the School of Industries is attracting students who show potential and desire to move into leadership roles in the field. Traditionally, students in Industrial Education have shown little interest in further formal education beyond the baccalaureate degree. Therefore, the investigators were concerned with identifying the degree to which the students aspire to do graduate study or advanced technical work in Industrial Education or related fields.

It has been estimated that the dropout rate among students in the School of Industries is much higher than that for the total university, in general. Therefore, this study might suggest problems that could be dealt with and thereby reduce the dropout rate. A more effective recruiting program should also emerge as a result of the findings of the investigation.

B. OBJECTIVES OF THE STUDY

The purpose of the study is to gain some insight into the background and status of students enrolled in the School of Industries during the second semester of the 1966-67 school year. This investigation should aid in improving communication between the students and faculty thereby resulting in more effective teaching. More specifically, the study will attempt to answer the following questions:

1. What is the status of our students in terms of academic ability, employment, marriage, and military service?
2. What financial obligations do the students have? What are the major causes of these obligations, if any?
3. To what extent do our students plan their study, and the amount of time devoted to study by them?
4. What factors influenced our majors to enter the program in the School of Industries? What are their plans after graduation?
5. What is the geographic distribution of our students? And from what section of Texas do they come? What size families do they come from? What is the educational background of their adult sisters and brothers?
6. What recommendations do the students have for improving their learning and the total program in the School of Industries?
7. What is the status of the parents of students in the School of Industries in terms of their level of educational attainment and their employment?

C. PROCEDURES

The population used for the investigation was the students enrolled in the School of Industries during the spring semester of the 1966-1967 school year. Information and data for the study were obtained from three major sources:

1. An information form designed by the investigators and filled out by the students.
2. The School of Industries Office.
3. The *Statistical Abstract of the United States, 1966.*

The data gathered have been put in tabular form for analysis. Where possible, comparisons were made with other studies or Bureau of Census reports. Means and Medians were computed and reported where appropriate for the analysis of data collected. Three-hundred and thirty-five (335) of the three-hundred and eighty-five (385) students enrolled participated in the Study. This represented an eighty-seven (87%) percent return or participation rate.

Chapter II

RELATED RESEARCH

The researchers reviewed the literature for similar studies. Several were found that have some relationship to the proposed investigation and are summarized below:

Professor Clifton Claye[1] of Texas Southern University made a study of students enrolled in the University in 1961. His findings, although admittedly from a small sample, led him to suggest the following conclusions:

1. There is no significant relationship between rank (decile) in high school graduation class or achievement, and persistence for students enrolled at Texas Southern University.
2. Neither the size of the graduating class nor the size of the high school enrollment is significantly related to achievement and persistence.
3. Participation in extra-class activities on the part of students at Texas Southern University is significantly related to achievement and persistence.
4. Scores made on the mathematics section of STEP and the English Cooperative Test are significantly related to persistence and achievement among Texas Southern University students.
5. The lack of financial support is the major reason for non-persistence among Texas Southern University students.
6. Grade point average is significantly related to persistence among students enrolled in Texas Southern University.
7. With the exception of grade point averages, mathematics test scores, and the number of semesters enrolled, there is no difference between those students who persist and those who do not at Texas Southern University.
8. Levels of aspiration, as defined, appear to be significantly related in a positive manner to persistence and achievement among Texas Southern students.

In commenting on the implications of his study, Professor Claye stated that (1) continued research on the student population at Texas Southern University is implicit, and (2) future research in this direction, obviously, should be delimited to specified curricula and/or schools within the University.

Brown[2] investigated the status of the married students at Bennett College during the school years 1960-62. Several findings have implications for the proposed study. Three of them were summarized as follows:

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[1]Claye, Cliton M., "A Study of Some Factors Associated With Persistence and Achievement Among Students at Texas Southern University, Mimeographed) 1962.

[2]Brown, Charles I., "The Married Student at Bennett College", *Journal of Negro Education*, Vol. 32, No. 2, pp. 183-186, Spring 1966.

1. Approximately 20% of the married students were employed.

2. In response to the question concerning the advantages that married students, 39.1% indicated that it was "a greater realization of value of education", while 34.7% indicated it was "a greater degree of maturity."

3. The respondents listed the following as the primary difficulties or disadvantages of the Married students: (1) Too little time to study because of family responsibility — 34.77% and (2) Regaining study habit skills — 26%.

Larson[3] conducted a study to determine the characteristics of students, teachers, and curricula of the Michigan Public Community Colleges' industrial-technical education programs. Although his study of the students was made after graduation, the characteristics studied were those present while the respondents were students. A summary of these characteristics is as follows:

1. Twelve percent were married at the time of enrollment. Fifty-four percent were residents of the local school district.

2. Sixty percent came from homes in which the father worked as either an unskilled, semi-skilled, or skilled worker.

3. Over one-half of the students had taken some of their college work on a part-time basis.

4. Fifty-two percent of the students worked on a part-time job and twenty-two percent on full-time jobs while attending college.

A study of the factors that relate to choice of a college in the Utah State University System was made by Holm.[4] He attempted to determine (1) whether factors related to freshmen student choices of Utah State University, College of Southern Utah and Snow College differed significantly among schools and between male and female students; (2) whether home residency was related to choice and (3) whether the time when freshmen students made their decisions to enroll in a particular school was significantly related to the school, the sex of the students, and home residency. Smith emphasized the following findings:

1. The location of the school, the quality of instruction offered, the type of school, and the student's finances were factors most often mentioned as being significant.

2. The factors of least importance were (1) loyalty to home town, orientation programs offered and student government.

Smith[5] made a study to determine some of the characteristics of evening college students and to examine the relationships among these

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[3]Larson, Milton Irving, "A Study of the Characteristics of Students, Teachers and the Curriculum of Industrial-Technical Education in the Public Community Junior Colleges of Michigan," Unpublished doctor's disseration, Michigan State University, Lansing, Michigan, 1966.

[4]Holm, Floyd, "Factors that Relate to Student Choices of a College in the Utah State University System," Unpublished doctor's dissertation, University of Southern California, Los Angeles, 1965.

[5]Smith, Arthur Edward, "Profile of the Evening College Student: The Background, Life Roles ,and Academic Performance of Evening Division Students, in an Urban University," Unpublished doctor's dissertation, St. Louis University, St. Louis, 1962.

characteristics and the students' academic performance. The approach was based, in part, on the need for the development of a feasible method or orientation for incoming Deans and Directors of evening colleges. Factors were selected for their revelance to the background, life roles, and academic performance. The following findings were reported:

1. Findings showed that the clientele was relatively homogeneous when grouped according to factors relating to the socio-economic background, intelligence, age and religious affiliation of the students.
2. The classifications based on high school performance, current life roles, and measures of performance in the evening division revealed greater disparity.

A study by Garai[6] also has some implications for the proposed investigation. He sought to determine the level of information of college students on current affairs. The following three hypotheses were postulated: (1) The level of information of seniors should be significantly higher than that of freshmen. (2) Staten Island Community College students were expected to have a somewhat lower level of information than students of the other colleges which have higher admission requirements. (3) Information on entertainment, sports, and popular brands of merchandise was expected to be significantly greater than information on current affairs. The first two hypothteses were not supported. However, the findings did lead the author to make the following conclusions:

1. A college education does not appear to lead to a significant increase in the level of information of college students on current affairs.

2. The familiarity of students with entertainment, sports, and well-known brands was more extensive than their knowledge of current affairs.

Smith[7] made a study to assess the difference between high-ability achieving and non-achieving college freshmen at the University of Kentucky in 1960. All of these students had scored in the top 5 percent on the College Qualification Tests. The chi-square method of statistical analysis was used. Data from 25 of the 67 interview items were found to be significant at the .05 level of probability.

The findings in the investigation led Smith to make the following conclusions:

1. There is no significant difference between a student's financial ability to attend the University of Kentucky, and his achievement or non-achievement.

2. There is no definite relationship in the number of professionally occupied mothers and fathers between achievers and non-achievers.

3. Part-time employment is not significantly related to either achievement or non-achievement.

4. Students who come to the University of Kentucky from the larger metropolitan areas possess a matrix of values and attitudes

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[6]Garai, Jasef Ernest, "Information of College Students on Current Affairs," *Journal of Education Sociology*, October, 1962, pp. 57-65.

[7]Smith, Leland, "Significant Differences Between High - Ability Achieving and Non-Achieving College Freshmen as Revealed by Interview Data." *Journal of Educational Research*, Vol. 59, No. 1, pp. 10-12.

concerning education which seems to make them more prone to non-achievement.

5. Non-achievers are more authoritarian and extra-punitive in personality than are achievers.

6. The majority of gifted students desire a closer, warmer relationship with advisors and members of the faculty.

7. Non-achievers do not report for mid-term counseling, partly because of a propensity to delay action, but also because of a negative image they have of the administration.

8. Freshmen students having high ability scores evince a great need to identify faculty members who will show a personal interest in them.

Chapter III

SIGNIFICANT CHARACTERISTICS OF THE STUDENTS

This chapter of the report is designed to give a general picture of the 335 students who participated in the study in regards to classification, admission, marital and military status and general geographic distribution. The number who cooperated in filling out the information form represented approximately 87 percent of the total enrollment at the time the study was being made. The information and data presented in this section should be helpful in developing a fairly comprehensive view of the typical School of Industries student.

Classification and Admission

Table I presents a breakdown of the 335 students by classification and also by the method in which they were admitted to the university. The wide margin by which the freshman class outnumbered the other classes reflects the high dropout rate in the School of Industries and, perhaps, the entire University. As indicated, the freshman class is almost twice as large as the sophomore class. The freshman class is more than four (4) times larger than the senior class.

As expected, most of the students were admitted as high school graduates. However, it does show that 27 of the 335 respondents transferred from other institutions. There were some transfer students in all four classifications, with the largest number of transfer students being in the freshman and junior classes. The name of the high schools from which the students graduated can be found in the Appendix. The list of post high school institutions which some of the transfer students attended is also in the Appendix. Four (4) students were admitted by presenting satisfactory General Education Development (GED) Test Scores.

TABLE I

ADMISSION TO THE UNIVERSITY
(By Classification)

	METHOD OF ADMISSION			
Classification	General Ed. Devl. Test	High School Graduation	Trans. From Other College	Total
Freshman	4	141	9	154
Sophomore	0	81	6	87
Junior	0	49	9	58
Senior	0	33	2	35
Special	0	0	1*	1
Totals	4	304	27	335

*Student has a bachelor's degree but is doing advanced technical study in electronics.

Since Freshmen were the only ones admitted by the G. E. D. test, it suggests several possibilities, two of which might be stated as follows: (1) perhaps there will be an increasing number of freshmen admitted by the G. E. D. test in coming years or (2) students admitted by presenting G. E. D. scores do not persist beyond the Freshman year. At any rate, those students presenting G. E. D. scores for admission to the school should be observed closely. A thorough knowledge of their problems and progress should have many implications for counseling and guidance.

Factors Influencing Students to Enroll

The data illustrated in Table II is a compilation of the factors that influenced students to enroll in the School of Industries.

TABLE II

FACTORS THAT INFLUENCED STUDENTS TO ENROLL IN THE SCHOOL OF INDUSTRIES

FACTORS	FREQUENCY
1. High School Shop Experience	159
2. Work Experience	61
3. Other Influence	59
4. Parents	24
5. Counselor	22
6. No Response	8
7. High School Principal	2
TOTAL	335

The data are self-explantory. However, one comment seems timely, and that is, counselors, parents and high school principals appear to be having very little influence on the vocational plans of those who come to major in the various programs in the School of Industries. The high school shop experience is the major factor contributing to their selection of a major here at the University.

The reader might find some interest in comparing the factors influencing the occupational choice of our students who are actually enrolled in the university and the factors which influenced high school *seniors* in naming an occupational choice.[8]

Marital and Military Status

The student population reflects the fact that America is continuing to require its male population to serve in the Armed Forces. The fifty married students are an indication of that nationwide trend toward an increasing number of married students in the undergraduate population. As one can observe from Table III below, 52 of the 335 persons who participated in the study are veterans of military service. This represents approximately 16 percent of those studied. The survey further reveals that the majority of the married students are veterans.

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[8]Turner, B. A., *Occupational Choices of High School Seniors in the Space Age*, Texas Southern University, Houston, Texas, 1964, p. 47.

TABLE III

MARITAL AND MILITARY STATUS

MARITAL STATUS		MILITARY STATUS	
Married	50	Veterans	52
Single	285	Non-Veterans	283
TOTALS	335		335

The relatively large number of veterans enrolled probably reflects the fact that a G. I. Bill was recently enacted by Congress for persons who have served in the Armed Forces since January 31, 1955. Prior to the passage of the latest G. I. Bill (P. L. 89-358), persons who entered the military service after January 31, 1955 were not eligible for educational benefits.

In view of the new bill, enrollment of veterans can be expected to increase at a fairly large rate for the next few years. As the veteran enrollment increases, there is also likely to be an increasing need and/or demand for evening classes in the School of Industries and the entire University. This will be due to the fact that many veterans and non-veterans will find it necessary to hold full-time jobs while pursuing their education.

Geographic Distribution

It is often interesting to take note of where an institution draws its students. This includes knowing from which states and countries they come. It is also interesting and significant to take a look at the *sections* of the state (the state in which the institution is located) from which you are attracting students.

Data were gathered to identify the students by state and place of residence. As revealed in Table IV students enrolled in the School of Industries during the second semester of the 1966-67 school year were residents of eight (8) different states.

The Table shows that 322 of the students participating in the study were from Texas, while 13 were from seven other states. The largest number of out-of-state students are from the state of Indiana. There were no foreign students enrolled in the School of Industries. The out-of-state students are enrolled in 5 different departments in the School. The highest percent is enrolled in the Drafting Department.

Data from the University Registrar's Office revealed that students enrolled in the University as a whole during the second semester of the 1966-67 school year came from thirty-three (33) different states and seventeen (17) foreign countries.*

*Registrar's Office, Texas Southern University, 1966-67.

TABLE IV

STUDENT ENROLLMENT BY STATE OF RESIDENCE

STATE OF RESIDENCE	NUMBER	MAJOR
Alabama	1	Drafting
California	1	Electronics
Florida	2	Printing Drafting
Indiana	4	Drafting (2) Welding (Metal) Wood
Louisiana	3	Electronics (2) Undecided
New Jersey	1	Woodwork
Out-of-State (Total)	13	
Texas (Total)	322	
City of Houston	228	
Outside of Houston	94	
(TOTAL)	335	

It is significant to note that 68 percent of the students who participated in the study are residents of the Houston Metropolitan Area. The niney-four (94) Texas residents who live outside of the Houston Metropolitan Area come from 53 different cities and towns. Table V indicates that the largest number — 8 — come from the city of Dallas. Other cities and towns with four or more students enrolled in the School of Industries are as follows: Galveston, 6; Beaumont, 5; Conroe, 4; La Marque, 4 and Sherman, 4.

TABLE V

RESIDENTS OF TEXAS
(Excluding City of Houston)

CITY OR TOWN	COUNTY	NO.
1. Amarillo	Potter-Randall	1
2. Austin	Travis	1
3. Bay City	Matagorda	1
4. Beaumont	Jefferson	5
5. Camden	Polk	2
6. Chester	Tyler	1
7. Clarksville	Red River	1
8. Cleveland	Liberty	1

TABLE V
(Continued)

9.	Conroe	Montgomery	4
10.	Cuero	De Witt	1
11.	Daingerfield	Morris	1
12.	Dallas	Dallas	8
13.	Dayton	Liberty	1
14.	Dickinson	Galveston	1
15.	Eagle Lake	Colorado	1
16.	Fairbanks	Harris	1
17.	Ft. Worth	Tarrant	1
18.	Galveston	Galveston	6
19.	Garrison	Nacogdoches	1
20.	Geneva	Sabine	1
21.	Gilmer	Upshur	2
22.	Highland	Erath	1
23.	Humble	Harris	1
24.	Huntsville	Walker	2
25.	Jasper	Jasper	1
26.	Jefferson	Marion	2
27.	Katy	Harris, Fort Bend and Waller	1
28.	Kendleton	Fort Bend	1
29.	La Marque	Galveston	4
30.	Liberty	Liberty	1
31.	Lufkin	Angelina	3
32.	Marietta	Cass	1
33.	New Waverly	Walker	1
34.	Omaha	Morris	1
35.	Ore City	Upshur	1
36.	Palestine	Anderson	1
37.	Pittsburg	Camp	1
38.	Port Arthur	Jefferson	2
39.	Raywood	Liberty	2
40.	Richards	Grimes	1
41.	San Antonio	Dexar	3
42.	San Augustine	San Augustine	2
43.	Sherman	Grayson	4
44.	Silsbee	Hardin	2
45.	Streetman	Freestone-Navarro	1
46.	Sugarland	Fort Bend	1
47.	Terrell	Kaufman	3
48.	Trinty	Trinity	1
49.	Tyler	Smith	2

TABLE V
(Continued)

50.	Waco	McLennan	1
51.	Wharton	Wharton	1
52.	Wichita Falls	Wichita	2
53.	Wortham	Freestone	1
	TOTAL		94

Texas students who live outside of Houston are shown on the map of the State of Texas which follows. Because of the necessity of using a small map, no attempt was made to place the symbols (dots) in the exact city or town location. The dots representing the students' locations were placed near the center of the respective counties. The reader will need to refer back to Table V to determine the number of students from various counties, if desired. As indicated by the map, the majority of students enrolled in the School of Industries come from the Eastern section of the state, with the heaviest concentration in the East Central section. Furthermore, these students come from only *42* of the *260* counties in the state. This information suggests that a more active job of recruiting needs to be done, especially within the state. The students from the various areas are compared in academic performance in a later section of the study.

OUTLINE OF THE STATE OF TEXAS WITH COUNTY DIVISIONS

FIGURE I

Dots Represent the Counties in which the Texas Residents Live

SOURCE: U. S. BUREAU OF CENSUS, 1960 CENSUS OF POPULATION, VOL. I, PART 45 (TEXAS) - 2.

Chapter IV

FAMILY SIZE, EDUCATION AND JOB STATUS

It was the opinion of the investigators that some insights could be gotten from taking a look at the family background of the students. This included determining the size of the families, i. e., the number of sisters and brothers each had, as well as the education of parents and siblings. In view of the recognized importance of the family unit, a study of its size, level of educational attainment, employment level, and occupational distribution should add an interesting and significant dimension to the report.

Family Size

It is revealed in Table VI that 300 of the 335 respondents indicated having at least one sister or brother. Thirty-five (35) had no sisters, nor brothers. At least 193 of the students had three (3) or more siblings. One student had fifteen (15) sisters and brothers, only three of whom were ages twenty-one and above, as revealed by studying Columns 1 and 4 of the Table.

According to the figures in the Table, the average number of siblings that the 335 respondents had was 3.55. When the respondents themselves are added to this figure it means that our students come from families in which the average number of children per family is 4.55.

Table VI further shows that only 493 of the siblings were 21 years of age and above. The educational level of this group is treated in Table VII. The figures in Table VI reveal that only about 42 percent of the siblings were 21 years of age and above. Therefore, it should be fairly accurate to conclude that the majority of our students have some sisters and brothers who are younger than they are. Although the study was not concerned with future recruitment we should regard the younger sisters and brothers as a tremendous source for potential students here at Texas Southern University. Thus, our interest in them should be expresed whenever there is an (occasion) or opportunity to do so.

TABLE VI

FAMILY SIZE

No. of Sisters and Brothers	Frequency	Total	No. of Sisters and Brothers 21 and Above
15	1	15	3
13	1	13	
11	4	44	23
10	3	30	13

TABLE VI (Continued)

9	7	63	26
8	13	101	55
7	24	168	76
6	26	156	83
5	26	130	36
4	43	172	71
3	45	135	42
2	50	100	42
1	57	57	23
0	35	0	
TOTALS	335	1184	493

Average number of sisters and brothers = 3.55

3.55 + (respondent) = 4.55 children per family

Educational Attainment of Parents

In order to gain some insight into the family background of the students the researchers gathered data relative to the amount of formal education attained by the parents and siblings of the students who were enrolled in the School of Industries.

The Table below reveals that nineteen (19) of the fathers and twenty-six (26) of the mothers have completed 16 years of schooling or above.

It should be interesting to observe that there are more mothers than fathers who are college graduates. However, this is the typical pattern among the Negro population in the United States. Table VII further reveals that the mean school years completed by the fathers was 10.04. By comparison the mean years of schooling completed by the mothers was 10.70. The median educational level was found to be one half school year higher among the mothers than the fathers, i e.; 10.33 years for the fathers and 10.83 years for the mothers. By way of comparison it should be pointed out that on a nationwide basis the median school years completed by Negro females in 1965 was also exactly one half year higher than for Negro males. For Negro females in 1965 it was 9.2 years, and for Negro males it was only 8.7 years.[9] This finding also shows that our students come from families whose educational backgrounds are somewhat higher than the Negro population, in general.

In the White population, the level of educational attainment is more nearly equal for the sexes than in the non-white population. For example, in 1965 the median school years completed by each sex were as follows: white females, 12.1 years and white males, 12.0 years.[10] Since the

[9] United States Government Printing Office, *Statistical Abstracts of the United States*, 1966, p. 113.
[10] *Ibid.*

median school years completed by all races and sexes 25 years old and over in 1965 were 11.8 years,[11] it reveals that the parental educational level of our students is slightly more than one year lower than that of the total United States population.

Inasmuch as parents of college and university students represent a select group, it would have been meaningful to compare the level of other parents of college and university students. Studies revealing such data were not reviewed by the writers. However, one study just completed shows that the parents of a group of *high school students* used in the study ranked somewhat lower than the parents of the *respondents* in overall educational attainment and occupational status.[12]

TABLE VII

FORMAL EDUCATION OF PARENTS

FATHERS		MOTHERS	
School Years Completed	Frequency	School Years Completed	Frequency
18	2	18	7
17	8	17	5
16	9	16	14
15	7	15	3
14	10	14	16
13	9	13	8
12	68	12	107
11	21	11	39
10	27	10	18
9	18	9	24
8	18	8	22
7	19	7	13
6	19	6	15
5	10	5	3
4	4	4	3
3	7	3	3
2	1	2	0
1	1	1	0
0	0	0	0
TOTALS	258		300

Mean Years Completed = 10.04 Mean Years Completed = 10.70
Median Years Completed=10.33 Median Years Completed=10.83
Range: 1 Year to 18 Years Range: 3 Years to 18 Years

[11] *Ibid.*

[12] Atwell, V. D. and Bryant, Ira B., "An Experiment To Determine To What Extent Cultural Growth Will Increase Academic Achievement," Part I, Kashmere Gardens High School, Houston, Texas, 1967, p. 7.

Educational Attainment of Siblings

Although data were collected on all the sisters and brothers the respondents had, only those who were twenty-one (21) years of age and above were analyzed for their level of educational attainment. This was done because so many of those below age twenty-one (21) were still in school. Furthermore, the age limit used makes it easier to compare with Bureau of Census statistics, if desired.

A summary of the educational attainment of sisters and brothers of the respondents is shown in Table VIII. This includes only those who were 21 years of age and above. As revealed in the Table, the years of school completed by sisters and brothers twenty-one (21) years old and above ranged from four (4) years to twenty (20) years. The median school years completed were 12.80. The mean school years completed were 13.13. The data indicate that the years of school completed by the largest number of sisters and brothers were 12 and 16 respectively. One hundred and eighty-six (186) had finished high school. Sixty-nine (69) had finished at least four years of college. There were 103 who had completed four years of college or more. Thirty-four had studied beyond the bachelor's degree. No attempt was made to determine the difference, if any, between the sexes, in ducational attainment.

TABLE VIII

EDUCATIONAL ATTAINMENT OF SISTERS AND BROTHERS

Years of School Completed	Frequency
20	1
19	5
18	9
17	19
16	69
15	43
14	46
13	37
12	186
11	30
10	10
9	7
8	10
7	1
6	3
5	7
4	2
TOTAL	485*

Mean School Year Completed = 13.13
Median School Year Completed = 12.80

*This figure differs from the figure in Table VI because there were eight (8) persons listed as twenty-one (21) and above but the years of school completed were not indicated.

Occupational Status of Parents

It is generally agreed that the occupation of the parent is a tremendously important element in the life of the family. With this in mind the writers attempted to collect data on the job status of the parents. Our American society has begun to realize that one's occupation or job is closely tied to, and affects, his entire life and well-being. This view is not new, however, for it was expressed by Lynd and Lynd in their classical study of "Middletown" in 1929.[13] They contended that "One's job is the watershed down which all other phases of his life tend to flow." More and more we are recognizing that one's work is of utmost importance to him and to those whom he must support and live with. For this reason various forms of adult and vocational education programs may be just as important for the fathers and mothers of the students used in the study as the "head starts" are for their younger sisters and brothers. The importance of the relationship between the job and one's status was vividly expresed by Brookover and Nosow as follows: "The individual has few other statuses which are capable of offering him a respected position in the community. A man's occupation in American society is now his single most significant status-conferring role. Whether it be high or low, a job status allows the individual to form stable conceptions of himself and his position in the community."[14]

Table IX and X contain a list of job titles the students listed as representing the type work done by their fathers and mothers. Admittedly, some of the data furnished by the respondents were not easy to categorize. However, it is felt that a fairly accurate picture of the job status of the parent was attained. As you perhaps recognize there are many names given that do not represent typical job titles but instead represent the nature of the business employed in, for example, "Factory Worker" or "Steel Worker." No effort was made to consolidate any of the titles submitted, even though the writer felt that there could have been some grouping if more specific data had been available from the respondents' regarding their parents' occupations.

As indicated there were sixty-six (66) different entries listed for the fathers, representing their occupations, job titles, or present employment status. Among this group there were sixty-three (63) different job titles listed and three other categories; namely, no comments, unemployed, and retired. The largest number of fathers with skilled job titles were those listed as carpenters and auto mechanics. There were 9 and 8 respectively listed in these two groups. However, it is very likely that some additional carpenters would be included among the group listed as contractors and/or construction workers. Two hundred and fifty-three (253) of the fathers are accounted for in Table IX.

The eighty-two (82) fathers indicated in the "no comments" group represent two different types of persons. They are as follows: (1) those

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[13]Lynd, Robert and Lynd, Helen M., *Middletown: A Study in American Culture*, Harcourt Brace and Company, New York, N.Y., 1929.

[14]Brookover, Wilbur B. and Sigmund Nosow, *Education For A Changing World of Work*, "A Sociological Analysis of Vocational Education in the United States," U.S. Government Printing Office, Washington, D.C., 1963, p. 9.

fathers who are deceased and, (2) those fathers who were living but could not be accounted for by the respondents. In the case of the latter type it was assumed that the fathers were living but were no longer living with the family unit. This may well be the cause of a number of students apparently having to work to support themselves while attending the university. This item is reflected in a later section on student employment.

Table X reveals that the mothers were listed in thirty-four (34) different categories. Among this group there were thirty (30) job titles listed and four other categories, namely, "housewife," "no comments," "retired," and "unemployed." Housewife was the largest single category listed. However, that group will not be used in the classification which follows in Table XI. The largest number of employed mothers in any one category was maids. The four other largest number of employed mothers was classified as follows: cooks, 29; nurses (excluding registered nurses), 20; teachers, 16 and beauticians, 11.

In an effort to consolidate the various job titles and make the occupational distribution more meaningful to those who read the report, it was decided to group them into the major occupational groups used by the United States Department of Labor.

TABLE IX
OCCUPATIONS OF PARENTS
(Fathers)

	Job Titles	Frequency
1.	Advertising Salesman	1
2.	Auto Mechanic	8
3.	Bar Manager	1
4.	Barber	2
5.	Bartender	1
6.	Brick Mason	2
7.	Bus Driver	2
8.	Business Manager	1
9.	Care Taker	1
10.	Career Soldier	2
11.	Carpenter	9
12.	Chauffer	2
13.	Civil Service	1
14.	Clerk	13
15.	Cook	4
16.	Construction Worker	8
17.	Contractor	6
18.	Crane Operator	2
19.	Disabled Veteran	2
20.	Electrian	2
21.	Elementary Principal	1
22.	Factory Worker	2
23.	Farmer	6
24.	Machine Operator	6
25.	Fireman	2

TABLE IX
(Fathers Continued)

26.	Foreman	9
27.	Fork Lift Operator	1
28.	Interior Cleaner	1
29.	Janitor	4
30.	Lawyer	1
31.	Longshoreman	8
32.	Laborer	29
33.	Machinist	2
34.	Mail Carrier	3
35.	Mail Clerk	1
36.	Maintenance	3
37.	Manager	2
38.	Metal Cutter	1
39.	Minister	3
40.	Musician	1
41.	No Comments	82
42.	Nurse's Aid	1
43.	Roofing Contractor	1
44.	Plumber	1
45.	Pipe Fitter	1
46.	Policeman	1
47.	Porter	4
48.	Postal Employee	1
49.	President of Business Firm	1
50.	Railroad Worker	7
51.	Reconditioner	1
52.	Retired	11
53.	Salesman	1
54.	Self-employed	9
55.	Service Station Attendant	1
56.	Shoe Repairman	1
57.	Steel Worker	18
58.	Tailor	1
59.	Teacher	7
60.	Tire Repairman	1
61.	Truck Driver	19
62.	Unemployed	3
63.	Waiter	2
64.	Warehouseman	1
65.	Water Department Employee	1
66.	Welder	1
	TOTAL	335

Table XI gives a breakdown of the distribution of the mothers and fathers among the various groups. Only those persons actually employed were included in Table XI. Housewives were excluded from this group.

As might be expected, there are wide differences in occupational distribution between the two groups especially in those jobs requiring

the most education and training. On the other hand the percent of the respondents' parents were proportionately high in the lower level jobs as revealed in Table XI. However, when compared to the occupational distribution of the non-white population as a whole, the respondents parents are distributed in higher level jobs in a larger percent.[15]

It is also interesting to compare the distribution of the fathers with that of the mothers in Table XI. The percent of females employed in three of the first four occupational groups is higher than the males. This is a significant point because this is just the reverse of what is found in the white population. Non-white females are also distributed in larger percentages in these four groups in the nation as a whole.[16]

TABLE X

OCCUPATIONS OF PARENTS

(Mothers)

Occupations	Frequency
1. Barber	1
2. Beautician	11
3. Bus Driver	1
4. Cafe Owner	1
5. Cashier	1
6. Canner	1
7. Clerk	7
8. Civil Service	1
9. Cook	20
10. Day Care Sitter	1
11. Dress Factory Worker	1
12. Dietician	1
13. Factory Worker	1
14. Housewife	100
15. Housework (Maid)	44
16. Lunchroom Manager	2
17. Laundry Worker	1
18. Night Club Operator	1
19. No Comments	74
20. Nurse (Registered)	4
21. Nurse (Aides, L. V. N.'s)	20
22. Post Office Employee	1
23. Real Estate	1
24. Refinisher	1
25. Retired	4
26. Sales Lady	3
27. Seamstress	3
28. Secretary	3
29. Self Employed	1
30. Social Worker	1
31. Supervisor of Nursery School	1

[15]United States Government Printing Office, *Statistical Abstracts of the United States*, 1966, p. 7.
[16]*Ibid.* p. 7.

TABLE X (Continued)

32.	Teacher	16
33.	Unemployed	3
34.	Waitress	3
	TOTAL	335

Table XI indicates that the largest percent of the fathers were classified as laborers. It is interesting to note that the percent who were employed as craftsmen, etc. was slightly higher than the percent in this category for the nation as a whole in 1966. On the other hand, there was only *one* father listed as a salesman. This represents less than one-tenth (1/10) of the precent distribution in sales for the entire employed labor force in 1966. (See Table XI for comparrison). The percent of the mothers in sales was almost four times higher than that for the fathers. One and fifty-two hundredth (1.52) percent were in sales. The percent of the respondents' parents who were classified as service workers was found to be about three times as high as that for the nation.

The percent of mothers in the professional category was more than twice as high as that for the fathers. The percent distribution in this category was much higher for *both* sexes than for the non-white percent distribution in the professional category in the nation as a whole. By way of comparison the percentage of non-white employed females in the professional category in the nation as a whole is considerably higher than the percent for the non-white males in this same group. However, the difference is much greater on the national level than it was found to be among the respondents' parents.

As indicated earlier, Table XI also illustrates the occupational distribution of the total United States employment in 1966. A comparison can be made between the population as a whole and the combined job categories of the mothers and fathers of the students included in the report. As stated earlier, the employment status and categories of the respondents' parents compare favorably with the total employed group in several of the categories. In some categories the comparison is very unfavorable. However, the total occupational pattern of the parents suggests that the socio-economic background of students in the School of Industries is higher, on the average, than that of students in institutions similar to Texas Southern University. A thorough investigation of this point might have some merit in vew of the current interest in predominantly Negro institutions.

The fact that the percent of the parents who were laborers is almost three times as high as that for the nation as a whole clearly illustrates a need for increased occupational training for these parents. The Manpower Report of the President, 1967 includes a statement which shows concern for workers who are in the age bracket of many of the parents of our students. It was stated as follows: "In 1966, workers aged 45 or over represented only 10 percent of all MDTA trainees, although more than 25 percent of all unemployed workers, many of them long-term unemployed, were in this age group. The relatively low representation of older workers in the training projects has been

TABLE XI
OCCUPATIONAL DISTRIBUTION OF PARENTS

MAJOR OCCUPATION GROUP	FATHERS NO.	FATHERS %	MOTHERS NO.	MOTHERS %	BOTH PARENTS NO.	BOTH PARENTS %	** TOTAL U. S. EMPLYMT %
Professional, technical, and kindred workers	15	6.27	23	14.93	38	9.66	12.32
Managers, officials, and proprietors, except farm	21	8.75	5	3.24	26	6.61	10.11
Clerical and kindred workers	14	5.8	11	7.14	25	6.63	15.51
Sales workers	1	41	5	3.24	6	1.52	6.51
Craftsmen, foremen, kindred workers	40	16.7	4	2.59	44	11.19	12.74
Operatives and kindred workers	30	12.55	3	1.94	33	8.39	18.55
Laborers, except farm and mine	63	26.3	3	1.94	66	16.66	5.40
Service workers*	43	17.9	103	64.94	146	37.15	12.88
Farmers and farm managers, laborers and foremen	6	2.51	0	0	6	1.52	5.95
N. E. C. (Not Elsewhere Classified)	6	4.99	0	0	6	1.52	0.00
TOTALS	239	100	157	100	396	100	100

* Includes private household workers

** **Manpower Report of the President,** March, 1966, U. S. Department of Labor, Washington, D. C., p. 43.

due partly to the legislative mandate that MDTA training must be in occupations where there is reasonable prospect of employment. Nevertheless, MDTA demonstration projects have shown that older workers can profit substantially from occupational training. Trainees in the 45 and-over age group have been almost as successful as younger ones in obtaining work."[17]

[17] "United States Government Printing Office, *Manpower Report of the President*, 1967, "Meeting the Need of Special Groups," p. 63. Washington, D. C.

Chapter V

ACADEMIC PERFORMANCE OF STUDENTS

Group Performance and Study Time

One of the concerns of the investigation was the matter of study time. Primarily we were concerned with whether or not students have study schedules and the amount of time devoted to study. In order to get some idea of the students' study habits the following two questions were asked:

(1) Do you have a study schedule?

(2) How many hours do you study per week?

The writers made the assumption that study habits for the second semester were about the same as for the first semester. There are only 245 students shown in the Table. This number is less than the number of students involved in the study because some students were eliminated because they were enrolled for the first time and, therefore, had no grade point averages. Some had grade point averages but did not estimate their amount of study time. In this case they were also eliminated.

Table XII gives an academic picture of our students, including their study efforts in terms of the amount of time devoted to studying. As indicated, no consistent relationship or pattern exists between study time and academic performance (grade point average). Texas Southern University uses the three point grading system, i e., A=3.00; B=2.00; and C=1.00. No effort was made to compute any correlations between these two variables — academic performance and study time — because ability and aptitude factors were not controlled. It was assumed that the respondents were honest and reasonable in their estimates. However, some of the comments made by students regarding the item concerning study time led the writers to suspect that the respondents may have been somewhat liberal in their estimates of study time.

The Table shows that the average ratio of class load (semester hours) to study time (clock hours) ranged from 1:1.1 for the students enrolled for eleven hours (that is, for each semester hour enrolled, the student studied one hour per week) to 1:6 for the one student who was enrolled for two (2) semester hours. As indicated at the bottom of the Table the *overall ratio* of semester hours enrolled for, to the amount of study time (clock hours) was 1:1.87. However, when the ratio is computed for only those who were enrolled for full class loads (12 hours or more), the ratio drops to 1:1.25. The recommended amount of time for studying varies by author and subject matter, however, most authorities would recommend that the number of hours of study time per week be *at least* twice the number of semester hours for which the student is enrolled. For example, if he is enrolled for 12 semester hours, he should study, on the average, twenty-four (24) hours per week. Some experts on the subject of amount of study time recommend three (3) hours of study weekly for each semester hour enrolled.

TABLE XII

RATIO OF CLASS LOAD TO STUDY TIME

SEM. LOAD	FREQUENCY	STUDY TIME PER WEEK: GROUP RANGE (HOURS)	STUDY TIME PER WEEK: GROUP AVERAGE (HOURS)	FIRST SEM. GRADE POINT: RANGE	FIRST SEM. GRADE POINT: AVERAGE	RATIO OF SEM. LOAD TO STUDY TIME
18	8	15-36	21.75	0.60-2.21	1.51	1:1.21
17	18	10-50	24.28	0.50-2.06	1.23	1:1.43
16	28	5-40	18.43	0.41-2.20	1.28	1:1.15
15	38	5-60	19.92	0.31-2.00	0.90	1:1.32
14	46	1-80	18.43	0.23-2.66	1.05	1:1.32
13	33	5-35	15.82	0.25-2.83	1.10	1:1.22
12	39	3-30	13.05	0.16-2.62	1.04	1:1.09
11	13	2-22	12.08	0.46-2.30	1.27	1:1.10
10	6	14-24	17.17	0.20-2.60	1.15	1:1.72
9	4	12-22	16.00	0.40-1.33	0.93	1:1.77
8	3	5-28	17.33	0.46-0.92	0.63	1:2.16
7	2	6-20	13.00	0.00-0.61	0.31	1:1.85
6	4	4-25	13.75	0.50-1.60	1.13	1:2.29
5	2	12-21½	12.25	0.92-1.06	0.99	1:2.45
2	1	8-12	12.00	1.00	1.00	1:6.00
TOTALS	245				15.52	

OVERALL AVERAGE = 1.03 OVERALL RATIO = 1:1.87

RATIO FOR FULL TIME STUDENTS = 1:1.25

According to the Table, there were only ten (10) students who estimated that they were spending at least two hours studying for each semester hour enrolled. In view of the fact that the grade point averages were relatively low, it would appear that some improvement could be made by merely increasing the number of study hours. As indicated the grade point averages were less than 1.00 for students enrolled for 15, 9, 8, 7, and 5 semester hours respectively during the current semester. The overall grade point average for the 245 students included in this analysis was 1.03.

Academic Performance and Place of Residence

There was also some concern about the performance of students when classified by place of residence, that is, the location given by the student as home. The students were first classified into three groups as follows: (1) Texas, (City of Houston), (2) Texas, (outside of Houston) and, (3) Out-of-state students.

As indicated in Table XIII, only ten (10) out-of-state students are listed. This is because the remainder were enrolled for the first time and, therefore, did not have grades on file. There were actually 13 students identified earlier in the report as out-of-state students.

Ninety-four students whose permanent residences were listed as being in Texas, but outside of Houston, were included in the study. However, only 74 could be included in this analysis because the remainder did not have any grades on file. The seventy-four forms were divided into classes (Freshman, Sophomore, Junior and Senior). A random selection of an equal number of students whose homes were in the city of Houston was made, by class, so as to have an equal number from each class in the sample.

The data in Table XIII reveal that those students from the city of Houston had the lowest grade point average. Their average was .22 points lower than the out-of-state students and .17 points lower than the other Texas students. This finding was not surprising to the writers. It had been informally observed that the students living in the Houston Metropolitan area ,on the average, were not doing as well academically as students from other areas of the state and nation. Please keep in mind, however, that we are concerned only with the average performance. There are extreme examples in each group.

In view of this finding relative to academic performance and place of residence, the reader might wish to refer to conclusion #4 in the related literature section on page three (3).

TABLE XIII

PLACE OF RESIDENCE AND ACADEMIC PERFORMANCE

Place of Residence	Frequency	Average
Texas (Houston)	74	1.07
Texas (Out-of-City)	74	1.24
Out-of-State	10	1.29
TOTAL	158	

Chapter VI

EMPLOYMENT STATUS

Number Employed

The faculty and staff of the School of Industries were aware that there was a high degree of employment among our students, however, documented evidence of the degree of such employment was not available. Therefore, an item on the information form was designed to gather data on the employment status of our students. This information is illustrated below in Table XIV. It shows both the number who were employed and the number of hours they worked weekly.

The Table indicates that 192 of the 335 students who participated in the study were employed at the time of the study. This represents approximately 57 percent of those who participated. The number of hours they worked per week ranged from four (4) hours per week by one student to seventy (70) hours per week by two students. Statistical treatment of the data reveals that the mean number of hours the employed School of Industries' students worked per week were 30.55. The median number of hours worked was 30.48 (See Appendix for Computations). It is further revealed that 76 of the respondents were working full time, that is, 40 or more hours per week.

TABLE XIV

TOTAL HOURS EMPLOYED

(Weekly)

Number of Hours Employed Weekly	Frequency
70	2
57	1
56	3
51	1
50	1
48	4
45	6
42	2
41	1
40	55
38	3
37	1
36	2
35	9
33	2
32	1
30	11

TABLE XIV (Continued)

29	
28	3
27	3
26	2
25	2
24	5
23	6
22	1
20	2
18	20
17	1
16	1
15	4
13	15
12	1
10	5
8	3
6	8
5	2
4	2
	1
TOTAL	192

Mean number of hours working weekly = 30.55
Median number of hours working weekly = 30.28

The Employers

The names of all the employers, who could be identified by the information written on the forms were compiled and are shown in Table XV. There were ninety (90) employers who could be positively identified. An additional forty (40) employers could not be identified in terms of being able to communicate with them by letter or telephone. However, this list was compiled and can be found in the Appendix. Only one student each was working for each of the unidentified employers. Texas Southern University was the largest single employer, with 13 students employed at the time of the study. The other leading employers and the number of students employed by them were as follows: Cameron Iron Works, 9; J. Weingarten's, 9; Foley's 7; United States Post Office, 6; Pacini's Superette, 5; and Hughes Tools, 4. All other listed in the Table were employing three (3) students or less.

No efforts was made to tabulate and analyze the type of jobs held by our students. However, most of them appear to be in service type jobs such as porters, drivers, etc. There were several who were skilled and semi-skilled workers. Some were in trainee positions being trained for skilled jobs in some of the large firms.

In view of the efforts of many employers to expand and enlarge employment opportunities for minority groups, it would appear that those of us on the School of Industries Faculty might work closer with our students in trying to get them in jobs that are more closely related to the kind of work for which they are being trained.

TABLE XV

EMPLOYERS OF STUDENTS ENROLLED IN THE SCHOOL OF INDUSTRIES

	Name of Employer	Frequency
1.	A. O. Smith of Texas	2
2.	American Hat Company	1
3.	Bemis Company	1
4.	Braniff International	1
5.	Cameron Iron Works, Inc.	9
6.	Celco Air Tools	1
7.	Central Gryehound Line	1
8.	Clear Creek Inn	1
9.	Combs Engineers Company, Inc.	1
10.	Continental Can Company	1
11.	Continental Hotel	1
12.	Danburg's Department Store	1
13.	Delta Airlines	1
14.	Der Wienerschnitzel	1
15.	Dugan Drugs, Inc.	1
16.	Eastern Airlines	1
17.	Emerson Company	1
18.	Foley Newsome Oil Company	2
19.	Foley's Department Store	7
20.	Foremost Dairies	1
21.	G. and S. Supermarket	1
22.	General Electric	2
23.	George K. Coleman	1
24.	Gribble Stencil Company	1
25.	Grocer's Supply	1
26.	Houston Cigar Division	1
27.	Hughes Tool	4
28.	I. B. M. Corporation	1
29.	J. Weingarten's	9
30.	J.s Packem	1
31.	Jack-IN-THE-BOX	1
32.	Koenig Iron Works	1
33.	Kroger Company	1
34.	Leon Sacco	1
35.	Lewis and Coker	1
36.	Lincoln Drive Inn	1
37.	M. D. Anderson Hospital	1
38.	Mading's Drug	1
39.	Maxwell House Coffee	1
40.	Medical Arts Hospital	2
41.	Metal Goods Corporation	1
42.	Methodist Hospital	1
43.	Mikada, Inc.	1
44.	Montgomery Wards	1
45.	Nathans of Houston	1
46.	National Car Rental	2
47.	National Shirt Shop	1

TABLE XV

EMPLOYERS OF STUDENTS ENROLLED IN THE SCHOOL OF INDUSTRIES
(Continued)

	Name of Employer	Frequency
48.	National Supply Div. Armco Steel	1
49	Pacini Superette	5
50.	Pleasant Foods Center	1
51.	Prince's Drive Inn	1
52.	Raco Metal Company	1
53.	Ray Barnett's	1
54.	Rayco Tire and Automotive Center	1
55.	Reed International	2
56.	Reed Roller Bit	1
57.	River Oaks Country Club	3
58.	Roberts Electric Company	1
59.	Sadler and Harrison Auto Supply	1
60.	Safari Steakhouse	1
61.	Sakowitz Brothers	1
62.	Schepps Grocery Supply	1
63.	Sears Roebuck and Company	2
64.	Self-employed	1
65.	Servomatic Foods	1
66.	Southern National Bank	1
67.	Southwestern Bell Telephone	1
68.	St. Anthony Center (For The Aged)	1
69.	St. Joseph's Hospital	1
70.	St. Luke's Hospital	1
71.	Sunbeam Supermarket	1
72.	Ten-Ten Parking Garage	1
73.	Tex-Tube, Div. of Detroit Steel	3
74.	Texas Highway Department	1
75.	Texas Medical Center	1
76.	Texas Instruments, Inc.	2
77.	Texas National Bank of Commerce	2
78.	Texas Southern University	13
79.	Thacher's Service Station	1
80.	Todd Shipyards Corporation	1
81.	University Gulf Service Station	1
82.	University of Houston Maintenance	1
83.	Upward Bound	1
84.	U. S. Post Office	6
85.	U-Tote'M, Inc.	3
86.	Veteran's Hospital	1
87.	Walgreen Drug Company	2
88.	West Gulf Maritime Industry	1
89.	Y. M. C. A.	1
90.	Ski Club*	1
	TOTAL	152

*Out of order

Employment and Academic Performance

The data illustrated in Table XVI are an attempt to show the average academic performance of the respondents who were employed for the various number of clock hours weekly. No effort was made to compute correlations between the number of hours employed and academic performance. It seems fairly obvious from the data presented that there is no correlation. This pattern is to be expected since the academic ability and aptitude of the respondents were not considered.

In view of the data revealed in the Table, the following general statements can be supported:

1. Many of our students are able to make passing grades at the University while holding full-time and part-time jobs.

2. It is evident that many students are in need of counseling because of their academic deficiencies. Working long hours may well be the cause of much of this deficiency.

The differences in the total number employed in Table XIV and the number shown in Table XVI are due to the fact that 70 had to be eliminated from Table XVI because they were enrolled for the first time, and, therefore, did not have any earned grade points as of the time the forms were filled out. Or some of them may have had grade point averages but did not report them.

In this phase of the study, it was assumed that most of the students who were employed at the time of the study were also employed during the first semester of the 1966-67 school year.

The academic performance of the students who were *not* employed is shown in Table XVII and can be compared with that of those who *were* employed. The preceding Table (Table XVI) shows the *overall* grade point average of the employed group to be 1.01. By comparison, the overall grade point average of the unemployed group was found to be slightly higher than the employed group. As revealed in Table XVII, it was found to be 1.10 for the students not working. By referring to Table XVI you will find that many of the employed group are doing as well or better academically than the non-employed group. This finding was of interest — although not surprising — to the writers. Several research studies have supported the general conclusions that working, up to a certain point, does not necessarily adversely affect the student's academic performance. In fact, some findings have strongly suggested that the psycholocial effect of satisfying work experience can be a stimulus to the student and thereby result in more efficient, productive classwork.

Table XVII shows the grade point averages of the one hundred and twenty-three (123) students who were *not* employed and who had been enrolled during the first semester of the 1966-67 school year. It is interesting to note that the four persons enrolled for the greatest number of semester hours (18) earned the highest averages. This may be some food for thought for those of us who are very strict about "maximum loads."

TABLE XVI

EMPLOYMENT AND ACADEMIC PERFORMANCE

Number of Hours Employed (Weekly)	Frequency	Grade Point Average*
70	1	.50
57	1	.92
56	3	1.07
51	1	.87
50	2	.77
48	3	.84
45	2	.80
42	2	1.15
41	1	.46
40	43	1.07
38	3	.60
37	1	.60
36	1	.84
35	5	1.22
33	1	1.06
32	1	.37
30	10	1.14
29	3	1.76
28	2	.87
27	2	.96
25	6	1.02
24	4	1.10
23	1	1.76
22	1	.98
20	9	.93
18	1	1.50
17	2	1.17
16	3	1.56
15	7	1.44
TOTALS	122	29.33

$$\text{Overall Group Grade Point Average} - \frac{29.33}{29} = 1.01$$

*The figures in this column were obtained by computing the averages of the students who were working the respective number of hours per week.

TABLE XVII

ACADEMIC PERFORMANCE OF NON-EMPLOYED STUDENTS

Semester Hours Enrolled For	Non-Employed* Students (Frequency)	Total Semester G. P. A.	Average** G. P. A.
18	4	6.60	1.65
17	9	11.94	1.33
16	14	15.37	1.10
15	25	20.88	.83
14	27	21.32	.79
13	13	10.55	.81
12	24	21.33	.88
11	3	4.00	1.33
9	3	2.83	.94
6	1	1.35	1.35
TOTALS	123		11.01

$$\text{Overall Group Grade Point Average} = \frac{11.01}{10} = 1.10$$

* Only those who had been in school the first semester of the 1966-1967 school year were included in this table because grade point averages were required.

** These figures were obtained by adding the grade point averages of students enrolled for the respective number of semester hours and dividing by the number of students in that same group.

Chapter VII

FINANCIAL OBLIGATIONS

One condition that is closely allied to one's employment status is the matter of his financial obligations. Financial matters are ones with which all of us must contend. However, for one who is involved in the rigorous task of studying, unusual financial obligations can hamper his academic performances.

One of the key factors relative to financial obligations is the matter of automobile ownership by students. However, for many students an automobile is an absolute necessity since he must get from home to school as well as from home to work, or directly from school to work. Other forms of transportation would not be adequate for meeting the "tight" schedules which many of them must follow.

In addition to the financial burden imposed by the automobile, some studies have suggested that there is some adverse relationship between automobile ownership and academic achievement. However, it becomes difficult to determine whether automobile ownership per se adversely affects academic performance or whether the responsibility of working to pay for it is the major factor. Even in the latter case, the financial burden imposed by automobile ownership would be an indirect cause of low achievement.

Car Ownership

As implied earlier there is much concern today about the life of the college and university student and especially those items, conditions, and activities which adversely affect his life and progress at the University. Informal conversation with faculty and staff members reveals that there is growing concern about the apparent high percentage of our students who drive cars. This is of special concern since our student body is predominantly Negro and, therefore, consists of a large percentage of the so-called "socio-economic disadvantaged."

As revealed in Table XVIII, 156 of the 335 students participating in the study owned automobiles. This represents 47 percent of the participating group. It may be interesting to note that two relatively new cars — 1966 and 1965 — are owned by the largest number of students. The number owning cars made in these years were 20 and 18 respectively. It was further revealed that many of our students own relatively expensive makes and models.

TABLE XVIII

CAR OWNERSHIP

Car Year	Frequency	Currently Making Monthly Payments	Other Financial Obligations
1967	9	8	3
1966	20	16	15
1965	18	15	11

TABLE XVIII (Continued)

1964	5	3	5
1963	5	4	4
1962	10	6	8
1961	9	6	7
1960	14	4	8
1959	8	1	4
1958	6	2	2
1957	15	1	5
1956	9	0	6
1955	11	2	6
1954	4	0	3
1953	4	0	1
1952	1	0	0
1951	5	0	1
1950	2	0	1
1949	1	1	1
1948	1	1	0
TOTALS	156	70	91

The data collected also showed that 70 of the 156 persons owning cars were currently making payments on them. In addition, 91 of the car owners indicated that they had other financial obligations.

Students were asked to estimate their total monthly financial obligations, but many expressed concern that this was a "personal" matter and did not furnish this information. Therefore, the estimated amounts submitted by some of the respondents were not included in the study. No attempt was made to establish a casual relationship between the two variables — ownership of an automobile and academic performance.

It should be of further interest to note that some of the students own relatively expensive makes, even though many are old. The detail breakdown is shown in Table XIX. No effort was made to compile the body styles of these cars, but many of them were in the expensive category.

The matter of automobile ownership by such large number of our students is one that should be of some concern to all of us. Although it is an absolute necessity for some, for others it is the "car" which is causing them to *have to work*. So for many, it is a kind of "vicious cycle," whereby the car is needed to get to work and the work is needed primarily to pay for the car. One brings on the need for the other. This is especially true in the case of many of the students (single) who do not have families to support and the type of transportation needs normally associated with a famliy unit. For many of the single students a part-time job would likely be sufficient were it not for the relatively high monthly car payment. Based on the statement on marital status and the data shown in Table III, (page 16) at least *106* of the 156 students who owned automobiles are single.

However, this is assuming that *all* of the fifty married students are car owners.

The situation just described may have implications for greater concern for better economic and consumer education on the part of our students. Mrs. Esther Peterson, Special Assistant to the President for Consumer Affairs spoke to this point recently when she said, "My concern about consumer education, however, is heightened by the fact that while children are big spenders today, they will be far bigger consumers tomorrow, as heads of families. That young marriages are becoming the norm is common knowledge. Less commonly recognized is the fact that financial troubles constitute one of the chief reasons for the dissolution of these young marriages. Consumer education can thus promote family stability."[18]

This is not intended to offend any of the students who participated in the study. It should be pointed out that many of them were reluctant to furnish the information in this section. For that reason extreme care has been taken to avoid using names in connection with any of the data. In view of what we know about our students' academic performance and the need to sacrifice some of the pleasures in life for better preparation for the future, we wonder how many of them measure up to that "homemade" definition of maturity that is defined as: "that stage in life when one can sacrifice a present pleasure for a greater pleasure in the future."

TABLE XIX

TYPES OF CARS OWNED

	Make	Frequency
1.	Buick	3
2.	Chevrolet	72
3.	Dodge	4
4.	Ford	31
5.	Mercury	4
6.	MGA	3
7.	Oldsmobile	5
8.	Peugeot	1
9.	Plymouth	4
10.	Pontiac	15
11.	Rambler	2
12.	Renault	1
13.	Studebaker	2
14.	Sunbeam	1
15.	Volkswagen	8
	TOTAL	156

[18]Peterson, Esther, "Education for Consumers": An Editorial, *N. E. A. Journal*, January, 1966, Washington, D. C., p. 15.

Chapter VIII

EDUCATIONAL AND VOCATIONAL PLANS

Educational Plans

What graduates of an institution do when they receive their degrees should always be of concern to those who have worked with them while they were students. The group with which this study was concerned has not graduated and, therefore, we can not say what they have done. However, we did try to ascertain an estimate of what the respondents *planned* to do in life. We were concerned with two major types of plans — educational and vocational plans.

Table XX reveals the results of the questions concerning the students' plans for continuing their education. Of the 335 respondents, there were 217, or 62.8 percent who expressed plans for continuing their studies after leaving Texas Southern University.

Of the 217 who indicated they *did* have plans of continuing their education, the responses were distributed as follows: (1) Plan to earn a master's degree in Industrial Education, 48.4%;(2) Plan to attend an advanced technical school, 37.32%; and (3) Plan to earn a doctor's degree in Industrial Education, 11.52%. There were 2.76 percent who indicated plans for further study, but did not specify the nature of their plans.

It is encouraging to see as many of the students as shown expressing plans for various types of advanced degrees. There is a tremendous need for persons with such training to direct and help implement the various programs now sponsored by the local, state and federal government. However, in view of the small number who have earned advanced degrees since the program in the School of Industries was begun in the late forties, the expressions of intent appear to be somewhat unrealistic. According to a liberal estimate by the Dean of the School of Industries and other staff members who have fairly close informal contact with the graduates only about 5 of the School of Industries graduates have earned master's degrees in Industrial Education and, so far, none seem to have earned the Doctor's degree in Industrial Education. However, in regards to this point, the writers would hasten to add that the Industrial Education graduates of other institutions similar to Texas Southern University probably have not done any better. The writers were able to make this assertion because of their intimate knowledge of other predominantly Negro institutions offering degrees in the field.

TABLE XX
EDUCATIONAL PLANS

Plans For Further Study	Frequency	Advanced Technical	Master's Degree	Doctor's Degree	Other Study Plans	Total
YES	217	81	105	25	6	217
NO	118					118
Totals	335					335

Vocational Plans

One of the major objectives of the investigation was to determine the vocational objectives of the students enrolled. What students aspire to become in life should be of concern to those who are responsible for providing the appropriate training, guidance, and counseling.

Three hundred and forty-five (345) responses were given to the question that asked: "What are your vocational plans?" The Table indicates that the largest number — 73 — were hopeful of becoming draftsmen.

The other three top choices were as follows: teacher — 62, electronics technician — 51, and automechanic — 45. It is interesting to note that twenty-eight (28) respondents expressed a desire to become engineers. They were distributed among the engineering fields as follows: Electrical Engineer — 20, Engineer (Not Specified) — 6, Industrial Engineer — 1, Mechanical Engineer — 1.

The total number of responses exceeds the total number of respondents because several of them listed two vocational choices. In these cases both choices were recorded in the Table.

As was emphasized above twenty-eight (28) of the students indicated that their vocational plans are to become engineers. Of this number, twenty (20) plan to be electrical engineers ,six (6) plan to be engineers (area not specified), one (1) expressed a desire to become an industrial engineer, and one (1) wishes to be a mechanical engineer. Eight students expressed the desire to become architects.

The above-mentioned vocational plans relative to the study of engineering are cited with special emphasis because they represent vocational objectives which will require these students to transfer to other institutions either before or after graduation from Texas Southern University. The faculty of the School of Industries is aware that there are usually several Industrial Education majors who have ultimate plans of becoming engineers. However, this is the first documented evidence of the extent of this desire. The writers are cognizant of the fact that this has some implications for future program planning for the School of Industries as well as for other departments or schools in the University.

The need for closer student contact and guidance is also suggested. For example, the fact that the 6 respondents expressed a desire to become "engineers," but did not specify which area, suggests that there is a lack of information about the various engineering fields. Furthermore, informal contact with many of these students who desire to become engineers reveals that information about the requirements for engineering programs is very much inadequate. Many of them have no realistic concept of the training or entrance requirements. This apparent lack of vital occupational and educational information has serious implications for all of us and especially for the counseling programs in the high school. It is a reflection of the inadequacy of the counseling programs in many of the local schools as well as many schools throughout the state and nation.

It should be pointed out that the percent which expressed a desire to become teachers was surprisingly high. This view is based on the

response that the writers usually get when the question regarding plans for teaching is raised in class. Usually it is a very small percent who expresses plans for careers in teaching industrial arts or Trade and Industrial Education. Inasmuch as there are fairly high academic requirements to be met for admission to the teacher education program here at Texas Southern University, it suggests that it may be necessary to identify, at an early stage, those persons who desire to prepare for careers in teaching.

During recent years there has been an increase in the demand for "shop" teachers. The demand has been for both industrial arts teachers and vocational-industrial teachers. Much of this demand has been due to the concern for the economically deprived and the effort to find ways of meeting the needs of students who are prime "dropout potential." The liberal provisions of the Vocational Education Act of 1963 plus the inclusion of Industrial Arts in the Provision of Title XI of the National Defense Education Act attest to the need for, and the increased importance of, these two types of teachers in our society. The reports listed below reveal the type of concern that now exists regarding the training of Industrial Education Teachers.[19, 20]

TABLE XXI

VOCATIONAL PLANS

Job Title	Frequency	Percent
Air Craft Mechanic	2	.58
Architect	8	2.32
Auto-Mechanic	45	13.04
Aviator	1	.29
Building Contractor	1	.29
Building Inspector	1	.29
Business Manager	1	.29
Commercial Artist	2	.58
Counselor	3	.87
Draftsman	73	21.15
Electrical Engineer	20	5.79
Electrician	8	2.32
Electronics Technician	51	14.77
Engineer (Not Specified)	6	1.74
Heating and Air Conditioning	1	.29
Inadequate Information	3	.87
Industrial Engineer	1	.29
Machinist	4	1.16
Mechanical Engineer	1	.29

[19]"Finding and Training New Teachers: A Special Report," *Industrial Arts and Vocational Education*, June, 1967, pp. 39 - 59.

[20]Ressler, Ralph, "Recruitment of Industrial Arts Teacher in the State of Ohio," Unpublished doctoral dissertation, The Ohio State University, Columbus, Ohio, 1966.

TABLE XXI (Continued)

No Response	22	6.37
Photographer	10	2.89
Plumber	2	.58
Printer	3	.87
Salesman	1	.29
Teacher	62	17.97
Undecided	6	1.74
Welder	1	.29
Woodworker	6	1.74
TOTALS	345	100

It is encouraging to note that the two teaching areas — Drafting and Electronics — designated by the majority of the participants are ones which are extremely important in today's technological society. The number desiring to become auto-mechanic teachers is also encouraging since there is expected to be a continuous demand for automotive mechanics. A growing population and the trend toward the two-car and three-car family is expected to keep the demand high for the next decade.

TABLE XXII

NUMBER EXPRESSING DESIRE TO BE TEACHERS

Area of Specialization	Number	Percent
Drafting	24	34.8
Electronics	17	24.7
Auto-Mechanics	10	14.5
Woodworking	10	14.5
Metal Craft	2	2.9
Did Not Specify	1	1.5
Leathercraft	1	1.5
Photography	1	1.5
Printing	1	1.5
Undecided	1	1.5
Welding	1	1.5
TOTALS	69*	100

*The total number of teachers in this table exceeds the number in Table XXI because several respondents listed two teaching areas.

Chapter IX

STUDENT REACTIONS, COMMENTS AND SUGGESTIONS

A significant phase of the study is considered to be that part which deals with student reactions and suggestions. It is often said that there is a lack of communication between the student population and its faculty and administration. Therefore, the investigators felt that solicitation of written remarks and suggestions from the students would add a special dimension to the report and some tangible benefits might be derived from a study of their comments and suggestions.

An effort was also made to get an evaluation of the instructional program by means of a check-list. However, due to an apparent fallacy in the structure of the items, the results were not adequate enough to include it in the report. Therefore, no effort was made to analyze them.

As revealed by the list of remarks, they were many and varied. An effort was made to get a *sampling* of the remarks. No effort was made to tabulate frequencies of certain statements or place any special significance on those that were submitted by several respondents. Many of the suggestions most striking to the writers were made only *once*. An examination of the returns revealed that only about 60 percent of the students wrote any comments on their forms. Included in about 90 percent of the suggestions were the ones concerned with the need for better facilities and equipment.

Below is a selected list of the suggestions made by our students. As one examines the list of suggestions, he sees that they do provide some "food for thought." It should be pointed out that at least two respondents made suggestions for improvements that they felt were appropriate for the "entire University." The exact words of the respondents were used so as to avoid the danger of changing the meaning of the statements.

Selected Remarks By Students

1. Need a better Industrial Club to keep students as a whole unit.
2. Drafting machines are needed for experience.
3. In general, the faculty is O.K., but there is not enough of the latest equipment to do an elaborate job of teaching.
4. I have observed that some of the teachers come late to class and when they do, to my idea, it seems as though no lesson plan has been prepared for that class.
5. I think most of the courses in the School of Industries are well taught and are very beneficial.

6. I think there should be a better system for janitorial work, or sufficient personnel to perform such work.

7. Need a stronger drafting department.

8. Need more and better auto-mechanic facilities. Need more teachers in the shop.

9. I think the teachers in may electronic class are great. They are always prepared and are here to help you anytime you need them.

10. Some instructors are O.K. They understand some of the problems. Others do not.

11. I think the only thing the Industries need is more and better equipment as to draw the interest of the student more.

12. Get a blower system for the woodshop.

13. Better placement service.

14. I don't think the teachers give enough assistance in our studies.

15. Some better teachers.

16. Teachers are often late but well prepared.

17. More outside work such as field trips.

18. Sometime the teachers are late for class but their lessons are very well prepared.

19. More outside activity concerning the course. More film would help.

20. Teachers seems to be very interested in me and see that I get ahead.

21. Don't have enough books in library to give an assignment.

22. Later classes offered to enable more to attend.

23. The instructor should take his classes to different manufacturers and show them the practices of the company as compared to what is taught in class.

24. The teachers on a whole are good instructors. But there is very little teacher - student relationships in regards to study problems.

25. I suggest more up-to-date equipment for laboratory uses. Laboratory is too poorly equipped. Thus putting the instructor and the students at a disadvantage.

26. I would like to have more library work in my major interest.

27. What will I be able to do with a degree from T. S. U. in photography? I don't see any jobs for me as a student in my field. Can you help Me?

28. Teachers shouldn't mark a student absent for being five minutes late.

29. Give more lab work in the shop.

30. More concern for the students in other areas as well as

Industrial Education.

31. I had very little need to go to the library for previous courses in Industrial Education before this semester; but teacher X has given me numerous assignments requiring use of library books.

32. Many courses should be revised so as not to teach the same thing from course to course.

33. I wish that the School would not teach only the repairing of things (automobiles, T.V., chairs) but would teach how they are constructed. I feel that knowing how and why a thing works as it does is more important than how to repair it. Anyone can learn how to repair something, but it is the why and how that are important. If you learn the general knowledge then you will know not only about T.V.'s but also the large computers. I feel we need more modern equipment in order to keep up with the modern world. This goes for all areas.

34. I feel we should have a counselor or someone to help students with special problems. Each student will be required to go to the counselor and discuss problems once every three weeks. This way teacher and student will understand the problems of one another.

35. Teachers should spend more time lecturing to students, rather than turning them loose on their own.

36. The suggestions that I have for improving the instruction in the School of Industries would be for the teachers and the students to take more pride in the School of Industries. I think we should have activity ideas that will help us to feel we are a part of the student body.

37. Have found T. S. U. Industrial Education department to be similar to my high school where I learned most everything on my own.

38. In the Electrical Department, more equipment and demonstration to be given out by the instructor as well as in other departments of Industrial Education.

39. Teachers should take classes more seriously. Teachers should make classes appeal to the student's interest. More favorable atmosphere (janitor service). Facilities (Tables instead of desks).

40. I think T. S. U.'s Electronic department would turn out lot better students if more experimental equipment were obtained. Enlarge the shop. Obtain more equipment. Enlarge the faculty.

41. More classroom material (Instruments).

42. The students should be given a brief outline of the course and should be aware of what is expected of him.

43. Teachers don't practice what they preach about coming to class on time.

44. Clean the classrooms. Demand PEACE AND QUIET. Replace old paper on the drafting tables. If possible arrange to instruct

small classes (30 students). Try to have classes well equipped. Present your class as if it is a challenge. Do not let a student think he has it made. Develop an organization of UNITY sponsored by all the branches of the School of Industries.

45. I personally feel that the School of Industries needs a complete evaluation, the teachers are below standards, the school is looked down-upon, the rest of the university does not like to associate itself with the School of Industries. The School of Industries is hurting the student more than helping him in his preparation for a job in the future. The drafting department is a disgrace to any college student.

46. Some instructors here tend to deviate from the subject instructed 90% of the total class period.

47. Instructors should stick to the subject at hand. They very definitely should give more exams and give the student a better chance to express himself. I might add, however, that this is prevelant in all schools at T. S. U.

48. More reading and homework.

49. Show more film illustrating subjects that are hard for most slow students to understand. I think movies are the best way to teach slow students.

50. I think these 7 and 8 hour courses are too much just for 3 semester hours. The teachers do not use this time as lab or anything. Most of the time they don't even come to class the the extra hours.

Chapter X

SUMMARY OF MAJOR FINDINGS CONCLUSIONS, AND RECOMMENDATIONS

Major Findings

1. Of the 335 students who participated in the study, they were distributed among the four classes as follows: Freshman, 154; Sophomores, 87; Juniors, 58; Seniors 35; and Special 1.

2. Twenty-seven (27) of the 335 participating students transferred to Texas Southern University from other post high school institutions; four (4) were admitted by the G. E. D. test; all of the others were regular high school graduates.

3. Approvimately 17 percent of the respondents were .married About the same percent — 17 — were Veterans of Military Service.

4. Sixty-eight (68) percent of the 335 students who participated in the study are residents of the Houston Metropolitan area, approximately 28 percent are from other sections of Texas and approximately 4 percent are out-of-state residents. Students enrolled in the School of Industries come from eight different states.

5. The distribution of the respondents' parents in the labor force differs widely from teh distribution for the total employed population. The two categories in which the parents differed most were in sales and farming. Only six of the 392 parents were in sales, and only six were in farming.

6. The level of educational attainment of the respondents' mothers was higher than for the fathers. The median school years completed by each was as follows: fathers, 10.33 years; and mothers, 10.83 years. The mean school years completed by fathers and mothers were 10.04 and 10.70, respectively.

7. The median school years completed by the respondents' siblings who were 21 years of age and above was 12.80. The respondents came from families in which the average number of children was 4.55.

8. The students enrolled for full loads, i e., twelve semester hours or more, reported that they studied 1.25 hours per week for each semester hour enrolled. The study time reported by the *entire* group averaged 1.90 hours per week for each semester hour enrolled.

9. The grade point averages for the students when classified by place of residence were as follows: Houston Metropolitan area, 1.07; Texas (outside of Houston), 1.24 and out-of-state, 1.29.

10. One-hundred ninety-two or 57 percent, of the respondents were employed at the time the study was made. The number of hours they were working per week ranged from 4 to 70. Seventy-

six (76) were working 40 or more hours per week. The mean number of hours they worked was 30.55, and median hours working was 30.48. They were employed by one-hundred and thirty different firms and businesses.

11. The overall average of the entire group studied was 1.03. The overall grade point average of employed students was 1.01. For the students who were *not* employed it was 1.10.

12. One hundred and fifty-six (156) of the respondents owned cars. Seventy (70) of these were being paid for at the time the data were collected. In addition, 91 of the car owners had other financial obligations.

13. Approximately sixty-three percent of the respondents plan to do some advanced study after leaving Texas Southern University. Those who plan further study were distributed as follows: Plan to earn a master's degree in Industrial Education, 48.4 percent; Plan to earn a doctor's degree in Industrial Education, 11.52 percent; Plan to attend an advanced technical school, 37.32 percent; Other study plans, 2.76 percent.

14. Twenty-six different occupations were listed as the vocational choices of the respondents. The five top occupations listed by them were as follows: Drafting — 73; Teaching — 62; Electronics — 51; Auto-Mechanics — 45; and Engineering — 28.

Conclusions

Insofar as the data gathered from the Survey are accurate and representative of the entire School of Industries student body, the following conclusions may be drawn.

1. Even though much is being said and done about the so called disadvantaged youth, the findings of this study relative to the level of education of the parents and their job status, suggest that we still are primarily attracting students from the upper social strata among the Negro population.

2. Since such a large number of our students are employed full time it is apparent that our student population is not a "typical" one. It, therefore, seems accurate to conclude that, for most of them, obtaining an education has to be a "secondary" matter to be accomplished only if it can be done within their existing employment pattern.

3. Since full-time employment is an absolute necessity for many of these students and their economic resources are so limited they are to be *commended* for *even attempting* to pursue a college degree.

4. In view of the fact that more than half of the participating students were employed, there appears to be a definite need to consider the need for offering some evening courses in the School of Industries, in particular, and the University, in general.

5. Since Texas Southern University is a predominantly Negro institution and purports to have large numbers of disadvantaged students it is startling to see so many students driving and ap-

parently having to work to pay for automobiles at the expense of their academic pursuit. Therefore, if Texas Southern University is going to help "save" the disadvantaged it must find a way, or ways by which it can help instill some "economic sense" in its students. Consumer education is an absolute necessity in our society, and especially for those who are already economically disadvantaged.

6. The imbalance between the level of educational attainment of the parents is consistent with the pattern found among Negroes in the Nation as a whole.

7. The plans the respondents expressed for doing further study appear to be extremely unrealistic in view of the amount of such study done by graduates in the past.

8. The comments made by the students reveal that many are concerned about the quality of education they are receiving at Texas Southern University. The faculty and staff were aware of many of the inadequacies expressed regarding facilities in the School of Industries.

In view of the findings and conclusions, the following recommendations are made:

Recommendations

1. A similar study of the entire student body should be made. Where necessary it should be broadened in scope.

2. A study should be made to attempt to determine and define the values held by our students.

3. Inasmuch as so many of our students are employed the following should be done: (a) some effort should be made by the faculty and staff in the School of Industries to assist these students in finding employment in work that would be related to their area of specialization, and (b) the School should try conducting a few evening and night classes on an experimental basis.

4. A concerted effort should be made to recruit more students from throughout the state of Texas.

5. In view of the comments, suggestions, and reactions expressed by the students regarding various aspects of the instructional program and physical facilities, the writers made the following recommendations: (1) That the faculty put forth more effort in preparing for their teaching assignments, (2) that an effort be made to acquire and maintain adequate and attractive classrooms and laboratories, and (3) that definite class and study assignments be made that will require students to use the University library and other available resources.

6. The writers recommend that Texas Southern University take the initiative in developing and promoting various forms of adult education programs that could be helpful in upgrading many of the parents and other adults for better jobs that are available in the Houston area.

APPENDIX

MEAN NUMBER OF WORKING HOURS PER WEEK

RANGE	f	d	fd	
67 — 75	2	4	8	
58 — 66	0	3	0	
49 — 57	6	2	12	
40 — 48	68	1	68	(+ 88)
31 — 39	18	0		
22 — 30	35	—1	—35	
13 — 21	42	—2	—84	
4 — 12	21	—3	—63	(—182)
	N = 192		Z	= — 94

$$M = AM + \frac{fd}{n} \times i$$

$$M = 35 + \frac{-94}{192} \times 9$$

$$M = 35 - \frac{846}{192}$$

$$M = 35 - 4.45$$

$$M = 30.55$$

M = Mean
AM = Assumed Mean
f = Frequency
d = Deviation
n = Number

MEDIAN NUMBER OF WORKING HOURS PER WEEK

RANGE	f	cf
67 — 75	2	192
58 — 66	0	190
49 — 57	6	190
40 — 48	68	184
31 — 39	18	116
22 — 30	35	98
13 — 21	42	63
4 — 12	21	21
	N = 192	

$$Mdn = L + \frac{\frac{1}{2}n - fb}{f} \times i$$

$$Mdn = 22 + \frac{96 - 63}{35} \times 9$$

$$Mdn = 22 + \frac{33}{35} \times 9$$

$$Mdn = 22 + \frac{297}{35}$$

$$Mdn = 22 + 8.48$$

$$Mdn = 30.48$$

L = Lower Limit
n = Number
f = Frequency
cf = Cumulative Frequency
fb = Frequency Below

EDUCATIONAL ATTAINMENT OF SIBLINGS

(Mean School Years Completed)

RANGE	f	d	fd	
20 — 22	1	3	3	
17 — 19	33	2	66	
14 — 16	158	1	158	+227
11 — 13	253	0	0	
8 — 10	27	—1	—27	
5 — 7	11	—2	—22	
2 — 4	2	—3	— 6	— 55
	485			

$$\text{Mean} = \text{AM} + \frac{\text{fd}}{\text{n}} \times \text{i}$$

$$\text{Mean} = 12 + \frac{172}{485} \times 3$$

$$\text{Mean} = 12 + 1.126$$

$$\text{Mean} = 13.13$$

EDUCATIONAL ATTAINMENT OF SIBLINGS

(Median Years of School Completed)

RANGE	f	cf
20 — 22	1	485
17 — 19	33	484
14 — 16	158	451
11 — 13	253	293
8 — 10	27	50
5 — 7	11	13
2 — 4	2	2
	n = 485	

$$\text{Median} = L + \frac{n/2 - fb}{f} \times i$$

$$\text{Median} = 10.5 + \frac{243 - 50}{253} \times 3$$

$$\text{Median} = 10.5 + \frac{193}{253} \times 3$$

$$\text{Median} = 10.5 + .7628 \times 3$$

$$\text{Median} = 10.5 + 2.288$$

$$\text{Median} = 12.80$$

L = Lower Limit
n = Number
f = Frequency
cf = Cumulative Frequency
fb = Frequency Below

EDUCATIONAL ATTAINMENT OF MOTHERS
(Mean School Years Completed)

RANGE	f	d	fd	
16 - 18	26	2	52	
13 - 15	27	1	27	+79
10 - 12	164	0	0	
7 - 9	59	−1	−59	
4 - 6	21	−2	−42	
1 - 3	3	−3	− 9	−110
	n = 300			

$$\text{Mean} = AM + \frac{fd}{n} \times i$$

$$\text{Mean} = 11 + \frac{-31}{300} \times 3$$

Mean = 11 — .10 x 3
Mean = 11 — .30
Mean = 10.70

EDUCATIONAL ATTAINMENT OF MOTHERS
(Median Years of School Completed)

RANGE	f	cf
16 - 18	26	300
13 - 15	27	274
10 - 12	164	247
7 - 9	59	83
4 - 6	21	24
1 - 3	3	3
	n = 300	

$$\text{Median} = L + \frac{n/2 - fb}{f} \times i$$

$$\text{Median} = 9.5 + \frac{150 - 83}{164} \times 3$$

$$\text{Median} = 9.5 + \frac{67}{164} \times 3$$

Median = 9.5 + .409 x 3
Median = 9.5 + 1.227
Median = 10.83

EDUCATIONAL ATTAINMENT OF FATHERS
(Mean School Years Completed)

RANGE	f	d	fd	
16 - 18	19	2	38	
13 - 15	26	1	26	+64
10 - 12	116	0	0	
7 - 9	55	—1	—55	
4 - 6	33	—2	—66	
1 - 3	9	—3	—27	—148

n = 258

$$\text{Mean} = AM + \frac{fd}{n} \times i$$

$$\text{Mean} = 11 + \frac{-84}{258} \times 3$$

Mean = 11 + —.32 x 3
Mean = 11 — .96
Mean = 10.04

EDUCATIONAL ATTAINMENT OF FATHERS
(Median School Years Completed)

RANGE	f	cf
16 - 18	19	258
13 - 15	26	239
10 - 12	116	213
7 - 9	55	97
4 - 6	33	42
1 - 3	9	9

n = 258

$$\text{Median} = L + \frac{n/2 - fb}{f} \times i$$

$$\text{Median} = 9.5 + \frac{258/2 - 97}{116} \times 3$$

$$\text{Median} = 9.5 + \frac{129 - 97}{116} \times 3$$

Median = 9.5 + .828
Median = 10.33

UNIDENTIFIED EMPLOYERS OF STUDENTS ENROLLED IN THE SCHOOL OF INDUSTRIES

	Name of Employer	Frequency
1.	Alfred Scott	1
2.	Anthony Narvarro	1
3.	Bernard Wolf	1
4.	Brennan	1
5.	Brenner	1
6.	Bruce	1
7.	Cason	1
8.	Cook and Assistant Manager	1
9.	David Fotek	1
10.	Dixie D. Houston	1
11.	Dixie D. Johnson	1
12.	Dodger Place	1
13.	Eddie's Wonousky	1
14.	Eugene Morris	1
15.	Garner	1
16.	Harold Henry Service Station	1
17.	Harry Baker	1
18.	His and Her, Own	1
19.	Holman	1
20.	Hunter	1
21.	J. W. Link	1
22.	James Richard	1
23.	Joe Richards	1
24.	John Henry Coleman	1
25.	Katy	1
26.	Minky	1
27.	Porter	1
28.	R. Curtis	1
29.	Raymond	1
30.	S. T. Jones	1
31.	System	1
32.	Thomas Mays	1
33.	Tony Vallone	1
34.	Vargos	1
35.	W. Berard	1
36.	W. P. Flower	1
37.	W. E. C. O.	1
38.	Warehouse	1
39.	Wayne Shank	1
40.	William Wong	1

ROSTER OF SCHOOLS

	NAME	FREQUENCY	LOCATION
1.	A. A. Wilson	1	Malvern, Arkansas
2.	A. G. Hilliard	1	Bay City, Texas
3.	A. M. Story	1	Palestine, Texas
4.	A. W. Jackson	1	Rosenberg, Texas
5.	B. C. Elmore	3	Houston, Texas
6.	Blackshear	1	Hearne, Texas
7.	Booker T. Washington	3	Conroe, Texas
8.	Booker T. Washington	3	Dallas, Texas
9.	Booker T. Washington	13	Houston, Texas
10.	Booker T. Washington	1	Midlothain, Texas
11.	Booker T. Washington	2	Wichita Falls, Texas
12.	Bruce	2	Gilmer, Texas
13.	Burnett	3	Terrell, Texas
14.	Como	1	Fort Worth, Texas
15.	Carlson	1	St. Martinville, Louisianna
16.	Carverdale	1	Fairbanks, Texas
17.	Central	7	Galveston, Texas
18.	Central	1	Evansville, Indiana
19.	Central	1	Jefferson, Texas
20.	C. G. Woodson	1	Raywood, Texas
21.	Charlton-Pollard	1	Beaumont, Texas
22.	Charles R. Drew	1	Crosby, Texas
23.	Cheatham	1	Clarksville, Texas
24.	Chester	2	Chester, Texas
25.	Colberet	1	Dayton, Texas
26.	Columbia	1	West Columbia, Texas
27.	Daule	1	Cuero, Texas
28.	Dogan	1	Fairfield, Texas
29.	Douglas	1	Cleveland, Texas
30.	Downsville	1	Waco, Texas
31.	Dunbar	2	Lufkin, Texas
32.	Dunbar	1	Oakwood, Texas
33.	Dunbar	1	Okmulgee, Oklahoma
34.	Dunbar	1	West, Texas
35.	Dwight Morrow	1	Englewood, New Jersey
36.	Edwards	1	Gonzales, Texas
37.	E. H. Henry	1	Eagle Lake, Texas
38.	Emmett J. Scott	2	Tyler, Texas
39.	Evan E. Worthing	24	Houston, Texas
40.	Fidelity Manor	6	Houston, Texas
41.	Fisher	1	Tyler, Texas
42.	Freeman	1	Caldwell, Texas
43.	Fred Douglas	2	Sherman, Texas
44.	Froebel	1	Gary, Indiana
45.	F. W. Wheeler	1	Wortham, Texas
46.	George Washington Carver	6	Houston, Texas
47.	Hamilton Park	3	Dallas, Texas
48.	Hebert	4	Beaumont, Texas

ROSTER OF SCHOOLS
(Continued)

	NAME		LOCATION
49.	Holy Rosary Institute	1	Lafayette, Louisiana
50.	Hungerford Consolidated	1	Kendleton, Texas
51.	I. M. Terrell	1	Fort Worth, Texas
52.	Jack Yates	43	Houston, Texas
53.	James Madison	1	Dallas, Texas
54.	J. H. Rowe	2	Jasper, Texas
55.	Kashmere Gardens	28	Houston, Texas
56.	Katie B. Thomas	1	Elton, Louisiana
57.	Katy	1	Katy, Texas
58.	Klein	1	Spring, Texas
59.	Anderson	1	Austin, Texas
60.	L. G. Pinkston	1	Dallas, Texas
61.	Lincoln	4	La Marque, Texas
62.	Lincoln	1	Morrow, Louisiana
63.	Lincoln	1	Palestine, Texas
64.	Lincoln	3	Port Arthur, Texas
65.	Lincoln	1	San Augustine, Texas
66.	Luther Burbank	1	Sacramento, California
67.	Marshall	1	Angleton, Texas
68.	Mary A. Brown	1	Smithville, Texas
69.	Mary C. Womack	1	Longview, Texas
70.	Mayfield	1	Homer, Louisiana
71.	Magnolia	1	Vacherie, Louisiana
72.	McMittress	1	Emerson, Arkansas
73.	Middletown	2	Tampa, Florida
74.	M. R. Wood	1	Sugarland, Texas
75.	Pickard High	1	Brenham, Texas
76.	Phillis Wheatley	40	Houston, Texas
77.	Phillis Wheatley	3	San Antonio, Texas
78.	Rhoads	3	Daingerfield, Texas
79.	Richmond	1	Richmond, Indiana
80.	Rome Free Academy	1	Rome, New York
81.	Ryan (Adult Eve. Class)	1	Houston, Texas
82.	Sam Houston	3	Huntsville, Texas
83.	St. Augustine	1	New Orleans, Louisiana
84.	St. Nicholas	2	Houston, Texas
85.	Thomas Johnson	2	Hemphill, Texas
86.	Troebel	1	Gary, Indiana
87.	Tuskegee Institute	1	Tuskegee, Alabama
88.	Waldo-Mathew	2	Silsbee, Texas
89.	W. E. Hall	1	Richards, Texas
90.	West Liberty	1	Liberty, Texas
91.	Westside High	2	Trinity, Texas
92.	Wharton Training	1	Wharton, Texas
93.	Willow Street High	1	Franklin, Louisiana
94.	W. O. Boston	1	(Not Indicated)
95.	Woodson	1	Raywood, Texas

NAMES OF COLLEGES AND JUNIOR COLLEGES STUDENTS TRANSFERRED FROM

	NAME	FREQUENCY	PLACE
1.	Amarillo Junior College	1	Amarillo, Texas
2.	Bishop College	1	Dallas, Texas
3.	Compton Junior College	1	Compton, California
4.	Grambling College	2	Grambling, Louisiana
5.	Hampton Institute	1	Hampton, Virginia
6.	Howard Junior College	1	Big Spring, Texas
7.	Jarvis Christian College	1	Hawkins, Texas
8.	Los Angeles City College	1	Los Angeles, California
9.	North Texas State	1	Denton, Texas
10.	Navarro Junior College	1	Corsicana, Texas
11.	Prairie View A.&M. College	8	Prairie View, Texas
12.	San Antonio College	1	San Antonio, Texas
13.	San Jacinto Jr. college	1	Houston, Texas
14.	St. Philip's Jr. College	5	San Antonio, Texas
15.	South Texas Jr. College	1	Houston, Texas
16.	Southern University	1	Baton Rouge, Louisiana
17.	University of Southwestern Louisiana	1	Lafayette, Louisiana
18.	University of Texas	1	Austin, Texas
	TOTAL	30	

APPENDIX

Information Form

A STUDY OF THE STATUS OF STUDENTS ENROLLED IN THE SCHOOL OF INDUSTRIES, 1966-67

1. Name ..... Age .....
2. Classification .....
3. Address (Local) .....
4. Home Address .....
5. Marital Status: ..Single ..Married ..Widow ..Widower
6. How many children do you have? Other dependents .....
7. How were you admitted to Texas Southern University?

   High School Graduate

   ..G. E. D. Examination

   ..Transfer from another college
8. Name and address of high school from which you graduated

   .....
9. Name of your high school principal

   .....
10. Year of high school graduation
11. If you transferred from another college, give its name and address .....

    .....
12. Are you a veteran? ..Yes ..No
13. If answer to No. 12 is Yes, how many years did you serve in the armed forces? .....

    Branch of Service ..... Rank .....
14. Are both of your parents living? .....Yes .....No

15. If your answer to No. 14. is No, check the appropriate item below.

..... Father Only ..... Mother Only

16. If living, do they own their home? ..... Yes ..... No

17. Are you employed? ..... Yes ..... No

18. If employed, give name of your employer. .....

.....

19. What is your job title? .....

.....

20. How many hours do you work per week? .....

21. For how many semester hours are you enrolled this semester? .....

22. How have you found your college work? (Check one)

..... More difficult than expected

..... Less difficult than expected

..... About as expected

23. Do you have a study schedule? ..... Yes ..... No

24. What is the estimated number of hours you study per week .....

25. Have you visited the University Library this semester?

..... Yes ..... No

26. If you are married, do you own your home?

..... Yes ..... No ..... Not married

27. Do you personally own an automobile ..... Yes ..... No

28. If Yes to above question, please give following information:

Make ..... Model ..... Year .....
(Ex.: Ford, etc.) (Ex.: Fairlane, etc.) (Ex.: 1956

29. Are you currently making regular payments on the above described automobile? ..... Yes ..... No

(a) Do you have other major financial obligations?

..... Yes ..... No

(b) If Yes, please estimate total amount (monthly) here:

.....

30. Do you plan to get a degree from Texas Southern University?

..... Yes ..... No

31. If Yes, do you have any plans for further study after finishing here? ..... Yes ..... No

32. If Yes to No. 31, please indicate what plans you have (Check all that apply).

..... Do advanced technical study

..... Earn a master's degree in Industrial Education

..... Earn a doctor's degree in Industrial Education

..... Other: (Specify) .....

.....

33. Do you plan to be enrolled at Texas Southern during the summer? ..... Yes ..... No

34. If your answer to No. 33 is No, briefly state your summer plans: .....

.....

.....

35. Do you plan to enroll in the School of Industries in September, 1967? ..... Yes ..... No

36. If your answer to No. 35 is No, please indicate your plans for September below: .....

.....

.....

.....

37. If living, how many years of formal training does each parent have? (Example: 5, 6, etc.)

Mother ..... years of schooling

Father: ..... years of schooling

Guardian: ..... years of schooling

38. If your parents are employed, what type work do they do? (Specify job title, if possible; Example: carpenter, waitress, etc.)

Mother: .....

Father: .....

39. Do you have sisters and/or brothers? ..... Yes ..... No

If Yes, please indicate how many: .....

Sisters: Age: ..... Years of School completed: .....

.....

.....

.....

.....

.....

.....

Brothers: Age: ..... Years of School completed: .....

.....

.....

.....

.....

.....

40. What influenced you to enroll in the School of Industries program?

..... High School shop experience

..... Counselor

..... Work Experience

..... Parents

..... High School Principal

..... Other Influence (Specify) .....

.....

41. What is your major area of emphasis in the School of Industries? (Example: Electronics)

.....

42. What are your vocational plans? (Specify what you would like to be.) (For example: auto-mechanic, plumber, teacher)

.....

43. If you **do not** live on campus, give estimated distance (in miles) you live from Texas Southern University.

..... Miles

44. If you work, please give the following information:

Distance from home to your job ..... miles

Distance from T. S. U. to your job ..... miles

45. Give your honest reaction to your instruction in courses taken in the School of Industries by checking ( ) the appropriate items below.

YES	NO	
.....	.....	Most of them are very interesting.
.....	.....	Most of them are difficult to follow.
.....	.....	Teachers are available for conferences when needed.
.....	.....	Teachers are always on time and well prepared.
.....	.....	Would like to have more opportunity to express myself in class.
.....	.....	Think more audio-visual aids should be used in class.
.....	.....	Teachers are often late for classes.
.....	.....	Courses are not challenging enough for me.
.....	.....	Teachers give too many assignments.

.... Would like to have more written work to do.

.... Teachers **do not** give enough homework.

.... Would like to have more tests in my classes.

.... Would like to have more assistance from my teachers in my studies.

.... Would like to have more assignments that require use of the library.

REMARKS: .....

.....

.....

.....

.....

46. What suggestions, if any, do you have for improving the instruction in the School of Industries? (Write as many as you wish below.)

.....

.....

.....

.....

.....

47. Please fill in the information requested below:

ACT SCORES:

English ..... Mathematics .....

Natural Science ..... Social Studies .....

Composite .....

HIGH SCHOOL CLASS RANK (if known): .....

FIRST SEMESTER G. P. A.: .....

CUMULATIE G. P. A.: .....

VT 005 452
Counselor's Guide. Technical Institutes, Community Colleges, Technical Institute Units.

North Carolina State Board of Education, Raleigh. Dept. of Community Colleges
MF AVAILABLE IN VT-ERIC SET.
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*PROGRAM DESCRIPTIONS; *CURRICULUM; *COMMUNITY COLLEGES; *TECHNICAL INSTITUTES; TRANSFER PROGRAMS; TECHNICAL EDUCATION; DIRECTORIES
NORTH CAROLINA

The 13 community colleges, 18 technical institutes, and 19 technical institute units in North Carolina offer educational opportunity beyond the high school to any high school graduate or to any person who is 18 years old or older who is not a high school graduate. These institutions are nonresident, multipurpose, community centered, and differ only in the breadth of curriculum offerings. The technical institutes and technical institute units offer vocational programs designed to train workers in a particular trade, and courses in general adult education and community services for self-improvement. Technical education programs which offer an associate in applied science degree are also available in the institutions. The community colleges offer the same types of programs provided by the technical institutes plus a 2-year academic program with the associate of arts degree. The four sections of this guide are divided to provide information on: (1) admission policies, guidance and counseling services, tuition and fees, financial aid, student activities, and job placement, (2) educational programs available with course and curriculum listings, (3) curriculum offerings in each institution, and (4) the nature of the various curriculums offered. (HC)

VT 005 452

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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COUNSELOR'S GUIDE

North Carolina Department of Community Colleges

TECHNICAL INSTITUTES

COMMUNITY COLLEGES

TECHNICAL INSTITUTE UNITS

FOREWORD

The 1963 North Carolina General Assembly established a system of industrial education centers, technical institutes, community colleges, and extension units throughout the State.

In 1967, the law was amended to provide for only three types of institutions in the community college system: community colleges, technical institutes, and technical institute units. These institutions and units extend educational opportunity beyond the high school to any high school graduate or to any person who is 18 years old or older who is not a high school graduate. In addition to academic courses, these institutions offer a wide selection of occupationally oriented courses taught by instructors drawn from the occupation or trade offered. Also, courses in general adult education and community services for self-improvement are available.

At present there are 13 community colleges, 18 technical institutes, and 19 technical institute units in operation. These institutions are nonresident, multipurpose, and community centered. The only difference among the institutions is in the breadth of curriculum offerings.

The technical institute and technical institute unit offer vocational programs consisting of courses and curriculums designed to train workers for a particular trade, and courses in general adult education and community services for self-improvement. They also provide two-year technical programs that include curriculums which prepare students for work in agriculture, business, health fields, and industry. An Associate in Applied Science Degree is awarded for the completion of the technical program. A diploma or certificate is awarded to those who complete the vocational program, and a certificate is awarded for the completion of courses in general adult education and community services.

The community college offers the same type of programs provided by the technical institute, plus a two-year academic program which may lead to transfer to a senior college. An Associate in Arts Degree is awarded for the completion of the academic program.

This *Counselor's Guide* has been prepared largely for the use of guidance counselors in the public schools of the State.

NORTH CAROLINA DEPARTMENT OF COMMUNITY COLLEGES
RALEIGH, NORTH CAROLINA
January, 1967. Revised January, 1968.

PREFACE

This publication provides information concerning North Carolina's system of community colleges, technical institutes, and technical institute units. A map showing the locations of these institutions and showing their geographical relationships is shown on the reverse of the Contents.

Section I includes general information regarding admission policies, guidance and counseling services, tuition and fees, financial aid, student activities, and job placement.

Section II gives a brief explanation of the types of educational programs, with a listing of courses and curriculums offered.

Section III contains the curriculum offerings in each institution (Part A) and as a cross reference the names of institutions which offer each of the curriculums (Part B).

Section IV gives a description of the various curriculums offered.

Additional information on any program or institution may be secured from the institution's catalog or the Director of Student Personnel of the institution offering the specific program. The name and address of each institution is found in Section III.

Six new technical institute units have been approved and are in the process of development, but are not included in Section III because information about courses offered, etc., is not available as this Guide goes to press. Direct contact should be made by interested persons. These six new units are as follows:

Bladen County Technical Institute Unit, P. O. Box 875, Elizabethtown, N. C.
Edgecombe County Technical Institute Unit, Tarboro, N. C.
Halifax County Technical Institute Unit, P. O. Box 445, Halifax, N. C.
Martin County Technical Institute Unit, P. O. Drawer 866, Williamston, N. C.
Montgomery County Technical Institute Unit, P. O. Box 157, Troy, N. C.
Nash County Technical Institute Unit, Box 84, Benvenue Road, Rocky Mount, N. C.

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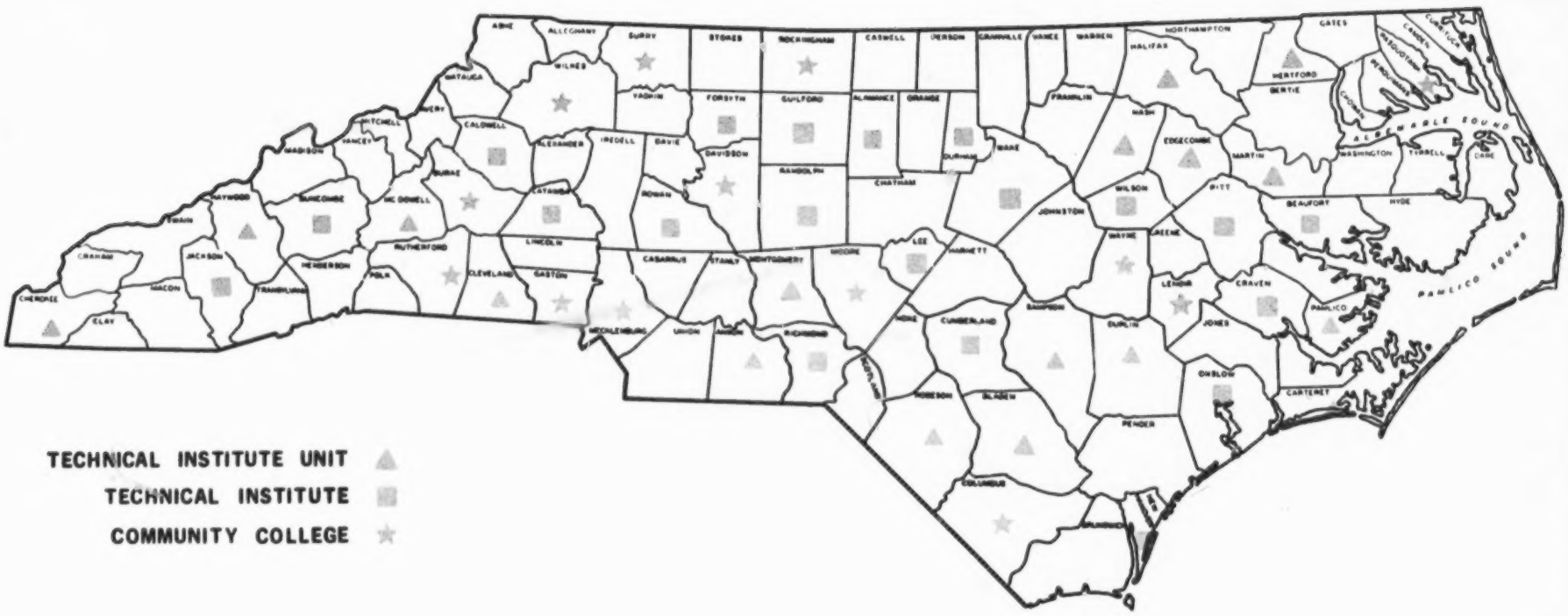
NORTH CAROLINA SYSTEM OF INSTITUTIONS



TECHNICAL INSTITUTE UNIT ▲

TECHNICAL INSTITUTE ■

COMMUNITY COLLEGE ★

SECTION I

GENERAL INFORMATION

ADMISSION REQUIREMENTS

The institutions and technical institute units in the community college system will admit to some appropriate educational program all applicants who are high school graduates or who are 18 years old or older. This may be immediate admission to a full curriculum program, or it may be admission to a guided studies program designed to remove educational deficiencies in one or more subject areas. In order to determine the proper placement of each student, each curriculum program applicant must submit a high school transcript, take a battery of aptitude tests, and have an interview with a counselor. These aptitude test scores aid the counselor in advising the student on appropriate course placement and other educational planning.

To be admitted to any of the associate degree programs, a person must be a graduate of an accredited secondary school or possess an Adult High School Diploma or a High School Equivalency Certificate. Programs are provided in institutions to assist applicants in obtaining the Adult High School Diploma or the Equivalency Certificate.

In addition, to be admitted to the technical programs a person should have high school credit for one unit of algebra and one unit of plane geometry or the equivalent of these in modern mathematics. Those who fail to meet the accepted standards for technical mathematics may be required to complete successfully a prerequisite mathematics course to remove deficiency. Applicants in Engineering Technology programs should have high school credit for one unit of physical science with laboratory.

To be admitted to the regular one-year vocational program, a person should have satisfactorily completed a minimum of eight units of accredited secondary school work. One of these units should be in algebra or an equivalent in modern mathematics. Those who have not successfully completed the eight units may be required to take other courses to eliminate this deficiency.

COUNSELING SERVICES

Counseling and guidance services are provided by the Student Personnel Office in each institution. A testing program is administered by this office to assist the applicant in determining which

program he is most qualified to enter. Continuing counseling services are available to the student in selecting courses to meet his educational goals.

Professionally trained counselors are available to assist students in resolving problems of a more personal nature that may interfere with progress toward their chosen educational objectives.

TUITION AND FEES

Since the institutions are intended to extend universal educational opportunity beyond the high school, tuition and fees are kept at a minimum. Charges for tuition and fees vary according to (1) the student's status as a resident or non-resident of North Carolina, (2) classification of student (full-time or part-time), and (3) the curriculum in which the student is enrolled. The following is the policy on student fees approved by the State Board of Education June 2, 1966:

I. *Curriculum Program Fees*

The formula for computation of credit-hour equivalency and credit hours into tuition charges is as follows:

1 class hour = 1 credit hour
2 laboratory hours = 1 credit hour
3 shop hours = 1 credit hour

$$\frac{\text{number of weeks in course} \times \text{credit hour equivalency}}{11} \times \$3.00 \text{ or } \$2.50 =$$

tuition per quarter, rounded off to nearest 50¢ with maximums as indicated below. Registration fees are not charged separately but become part of tuition fees.

A. College Parallel: Tuition fee of $3.00 per credit hour with a maximum tuition charge of $42 per quarter.

B. Technical and Vocational: Tuition fee of $2.50 per credit hour with a maximum tuition charge of $32 per quarter.

C. Development Classes: Regularly enrolled students who are assigned to organized developmental classes to prepare them to enter regular curriculum classes shall be charged tuition for such classes at the $2.50 per credit hour rate, with such classes equated in terms of credit hours in the same way as shown above.

D. Learning Laboratory: No tuition fees charged. A damage fee may be charged students for lost, mutilated, or destroyed materials, such fees to be deposited in a local account and used for the learning laboratory. The fees thus charged shall not exceed replacement costs.

II. *Curriculum Program Advance Registration Payments*

When a curriculum student registers in advance of the opening of the regular registration period of a quarter, he may be

required to pay tuition charges made for the curriculum classes for which registered up to a maximum of $15. This advance payment is not refundable unless covered by the refund policy stated below. This advance payment shall be credited against the full tuition charges due from the student during the regular registration period.

III. *Late Registration Fees*

A late registration fee of up to $5.00 may be charged curriculum students registering after the specified closing date of registrations, with such fees becoming State funds.

IV. *Refund Policy for Curriculum Students*

Tuition refund for students shall not be made unless the student is, in the judgment of the institution, compelled to withdraw for unavoidable reasons. In such cases, two-thirds (⅔) of the student's tuition may be refunded if the student withdraws within ten (10) calendar days after the first day of classes as published in the school calendar. Tuition refunds will not be considered after that time. Tuition refunds will not be considered for tuitions of five dollars ($5.00) or less, except when a course or curriculum fails to materialize, then all the students' tuitions shall be refunded.

V. *Local Activity Fees*

Institutions may establish local activity fees not to exceed $20.00 per student per academic year. Such fees may be used for purposes within the discretion of local institutions.

VI. *Breakage Fees*

Institutions shall charge no breakage fee, property-damage fee, or laboratory fee to students, but in case of breakage or damage due to gross negligence or maliciousness, a student shall be expected to remunerate the institution. His credit may be withheld until proper payment is made.

VII. *Library Fines*

All library fines, except book-replacement fines, shall become local funds and be used for improvement of the library.

VIII. *Purchase of Uniforms*

Student uniforms or other special wearing apparel shall not be paid for from State budgeted funds *except* in the case of those educational programs (e.g. LPN) where it is found necessary by the State Board of Education that the wearing of uniforms be required. (Laundering of uniforms is the student's responsibility.)

IX. *Out-of-State Students' Charges*

Any student whose legal residence is outside of North Carolina, or, in the case of students who are boarding or living with relatives in the community, whose parents or guardians live outside the State, will pay tuition fees two and one-half times the in-State rate, except where Federal or State law prohibits.

X. *Extension Programs*

A. Except as provided for under self-supporting extension programs there shall be no registration or tuition charges.

B. Students enrolled in extension classes in the following extension programs shall not be required to pay fees of any kind:

Fire Service Training
Law Enforcement Training
New Industry Training
Basic Adult Classes (Grades 1-8)
Commercial Fisheries Training

C. Students enrolled in other extension classes supported in whole or in part from State funds shall, when such is necessary, be charged an *instructional materials fee*, which fee shall become State funds and be so deposited. Whether or not instructional materials are required and the fees that should be charged to balance out such costs for extension classes shall be determined by the chief administrative officers of institutions and extension units. If a fee that is uniform for such extension classes is desired, it is suggested that this be 10¢ per contact hour with a minimum of $2.00 per course.

D. Self-Supporting Extension Classes

An institution in the community college system shall have the authority to sponsor self-supporting programs, seminars, cultural exhibits, and the like, as differentiated from normal organized class instruction, deposit income, if any, to a local account, and pay all expenses from such local account.

Institutions may also offer self-supporting organized class instruction in recreational or avocational areas by making special request to the Department of Community Colleges, showing income to offset expenditures, and justifying same. Such income will be State funds, and deposited accordingly. Expenditures will be made from an allocation of State funds made to the institution on the basis of the increased receipts shown in the application.

FINANCIAL AID

Financial aid is available to students at all of the institutions in the community college system. The requirements for obtaining loans and the manner in which they are repaid vary. The student's academic promise and financial needs are considered before financial aid is awarded.

Several funds are available on a Statewide basis, whereas others specify the section of the State in which they may be granted. Funds that are available on a Statewide basis include:

National Defense Education Act Student Loan Fund
Vocational Work-Study Program Under the Vocational Act of 1963
Work-Study Program Under Title I, Part C. of the Economic Opportunity Act of 1964
Vocational Assistance
Veterans Administration Assistance
State Board of Education Student Loan Fund

Vocational and Technical Education
North Carolina Bankers' Student Loan Plan
James E. and Mary Z. Bryan Foundation
North Carolina Rural Rehabilitation Corporation

A prospective student who is interested in either the funds named above or loans provided by local foundations should contact the Student Aid Officer at the institution of his choice.

V. A., SOCIAL SECURITY, AND D. V. R. BENEFITS

Some of the institutions are approved for the training of persons eligible for benefits under the Veterans Administration, Social Security Commission, and the Division of Vocational Rehabilitation of the State Department of Public Instruction.

Additional information concerning these benefits is available at the Student Personnel Office or from offices of the above named agencies.

HOUSING

The institutions in the community college system are nonresidential institutions; there are no dormitories available. However, the Student Personnel Office usually assists students who live out of the commuting area in finding a suitable place to live while enrolled in the institution.

LIBRARY SERVICES

The libraries in the institutions in the community college system have well-rounded reference collections which include many technical and scientific volumes not usually found in small libraries. All programs are well represented in the collection, which ranges from non-skilled to highly technical occupations and from basic education to liberal arts.

Periodicals form an important function in the library by providing up-to-date information for reference as well as for pleasure reading. Also available in the libraries are films, filmstrips and recordings.

SUMMER QUARTER

Most of the community colleges and all of the technical institutes and technical institute units operate on the quarter system. The summer quarter is the same length as the other quarters, thus making it possible for a student to continue his education at the same pace throughout a calendar year.

EVENING COURSES

The institutions are open from 8:00 a.m. until 10:00 p.m. Classes are scheduled as necessary during this period of time. The evening offerings usually are planned to accommodate persons who are employed during the day and who wish to attend classes on a part-time basis. Curriculum courses are scheduled so that the part-time student may complete the required course work for a curriculum program. These evening classes are usually scheduled between 6:00 p.m. and 10:00 p.m.

PLACEMENT

The institutions give assistance to students in finding jobs. Many employers visit the schools on a regular basis, and all schools work closely with the Employment Security Commission in placing their graduates.

STUDENT ACTIVITIES

Certain extracurricular activities are available to students enrolled in institutions in the community college system. These activities are considered to be a part of the total educational opportunities available to all students. Most institutions provide students with the opportunity to participate in social clubs, professional organizations, or interest groups. Student body associations and student administered publications, such as newspapers and annuals, are common activities available at most schools.

Student Guidance

SECTION II

EDUCATIONAL PROGRAMS

COLLEGE PARALLEL PROGRAMS

The community colleges offer a wide range of college parallel programs leading to a two-year Associate in Arts Degree. These programs include two years of courses paralleling the freshman and sophomore years at many colleges and universities. During these two years the students receive a general education in the areas of English, humanities, mathematics, science, and the social sciences; in addition, they may begin specialized work in their major field of interest.

Graduation Requirements for the Associate in Arts Degree

A minimum of 96 quarter hours of credit with at least a "C" average and satisfactory completion of an approved program of study are required for graduation and the awarding of the Associate in Arts Degree.

College Transfer

Students desiring to pursue an academic transfer program at a community college will, through guidance and program advisement, be admitted into academic programs in which they have interest and ability. Students who maintain a "C" average and complete two years of a planned program should be able to transfer to the junior year of most senior institutions without loss of time or credit. In a few instances, there may be minor credit loss due to slight differences in institutional requirements. Even in these cases, however, the problems and occurrences are being reduced through the efforts of the Joint Committee on College Transfer Students which is sponsored by the North Carolina Association of Colleges and Universities, the North Carolina Association of Junior Colleges, the State Board of Higher Education, and the State Board of Education.

GENERAL EDUCATION PROGRAM

The General Education Program is designed for the student who is basically interested in two years of education beyond the high school. It provides for a basic exposure to the liberal studies (general education) and enables the student to tailor the program beyond that point to personal interests rather than partic-

ular technical or professional requirements. It is also beneficial to those students who want to improve their knowledge of our culture in its many facets.

This program provides a basic core of course work amounting to 59 quarter hours in the following areas: English and literature, fine arts and philosophy, mathematics, social science, and science. This introduction into the broad fields of knowledge permits the student to find himself and clarify his life goals. With this background he is able to choose intelligently up to 37 quarter hours of elective course work in terms of his own interests and social needs.

When the student has completed the basic general education requirements and accumulated satisfactory course work to a total of 96 quarter hours, he will be granted an Associate in General Education Degree.

TECHNICAL PROGRAMS

Technical programs are offered in the community colleges and technical institutes. These programs prepare the students for entry jobs in fields recognized as semi-professional. With experience many technicians move into professional and managerial positions. Student enrolled in the technical programs, in addition to taking courses that are occupational in nature, take general education courses in the areas of English and social science. Even though the technical programs are college level, they are designed for entrance into employment, not for college transfer. Certain courses in the technical programs, however, may be accepted by a four-year college or university as transfer credit, usually on the basis of qualifying examinations. In general, these programs are two academic years in length and lead to the awarding of an Associate in Applied Science Degree. The gradaute of the technical program usually works in close cooperation with and under the direct supervision of a professionally trained person.

VOCATIONAL PROGRAMS

The community colleges, technical institutes, and technical institute units offer vocational programs which are designed to train people for entrance into a skilled occupation. These programs range from one to four quarters in length, depending upon the development of skills and job proficiency. Certificates are usually awarded on the completion of the one to three quarter programs, which include mainly courses in skill training. Diplomas are awarded upon the completion of the four quarter programs, which also include courses in communication skills

In-Service Education Workshop

and the social sciences directly related to the occupational goals of the programs. The occupational entry of the graduate is at the semi-skilled level, but his training will permit him to progress rapidly to the skilled or "craftsman" level.

EXTENSION PROGRAMS

Extension courses are offered to people in governmental agencies and industry, and to voluntary groups. These courses are designed to meet the training needs of the following specific groups: firemen, law enforcement personnel, supervisory personnel in both industry and government, restaurant and motel personnel, and people engaged in fisheries occupations.

These programs are designed either to upgrade a person in his job, to develop new skills so that a person may be more proficient in his vocation, or to train a person for an occupation in one or more of the above-mentioned areas.

The courses are generally offered in the evening; however, they may be taught at other times convenient for the students, provided that qualified instructors are available. The location of these classes is determined by the institution for the convenience of the students, and on the availability of facilities and necessary equipment.

These courses, which are occupationally oriented, do not lead to a degree, but a certificate is awarded at the completion of a prescribed course of instruction.

The list of extension courses follows:

FIRE SERVICE TRAINING COURSES

Forcible Entry
Rope Practices
Portable Extinguishers
Ladder Practices
Hose Practices
Salvage and Overhaul Practices
Fire Stream Practices
Ventilation
Rescue Practices
Protective Breathing Equipment
Firefighting Procedures
Introduction to Fire Fighting
Home Fire Safety
Company Officer Training
Arson Detection
Hospital Fire Safety
Fire Apparatus Practices
Peace Time Radiation Hazards in the Fire Service
Rescue Squad Training

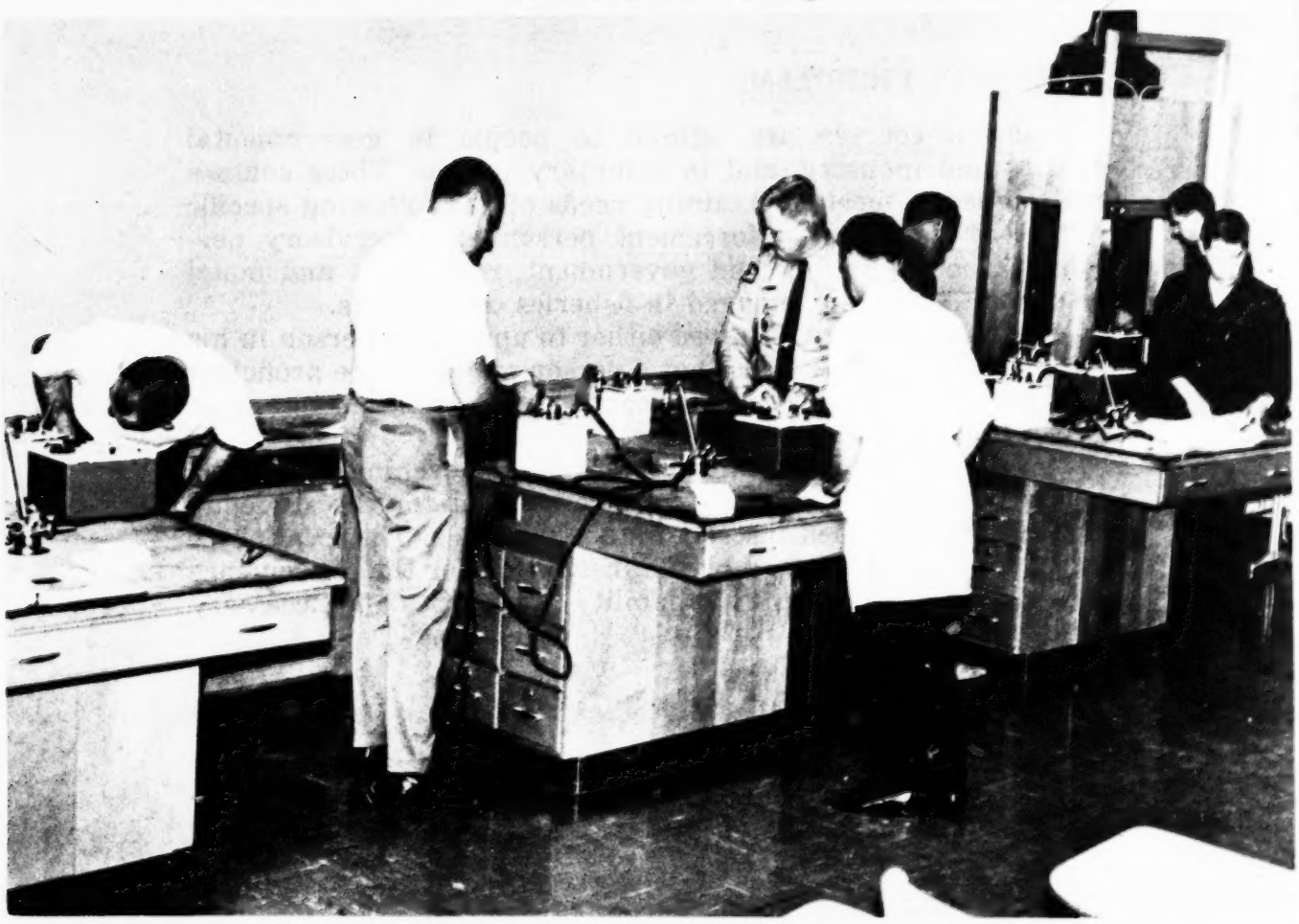
FISHERIES OCCUPATIONS COURSES

Marine Engines
Marine Welding
Marine Records
Navigation
Net Mending
Crab Picking
Outboard Motor Repair
Marine Communications
Marine Electronics
Crab Pot Making

HOSPITALITY COURSES

Food Service Selling
Service Station Selling
Basic Nutrition and Menu Planning
Commercial and Institutional Cooking
Motel-Hotel Front Office Procedures
Hotel-Motel Law

Law Enforcement Training



Your Hotel-Motel and Its Economy
Hotel-Motel Accounting
Motel-Hotel Maintenance and Engineering
Food and Beverage Control
Food and Beverage Purchasing
Hotel-Motel Human Relations
Supervisory Housekeeping
Food and Beverage Management and Service

LAW ENFORCEMENT TRAINING COURSES

Basic Law Enforcement I
Basic Law Enforcement II
Chemical Tests for Alcohol—Operator's Training
Chemical Tests for Alcohol—Operator's Retraining
Chemical Tests for Alcohol—Technical Supervisor's Training
Elements of Chemical Tests for Administrative Personnel
Elements of Supervision of Police Personnel—First Line Supervisor's Course
Police Administration and Management Courses
Criminal Investigation Seminars

SUPERVISORY DEVELOPMENT TRAINING COURSES

Principles of Supervision (Seven Parts)
Human Relations I
Human Relations II
Effective Speaking
Art of Motivating People
Conference Leadership
Job Methods
Work Measurement
Job Analysis Training
Cost Accounting for Supervisors

INDUSTRY—UPDATING AND UPGRADING

Basic Blueprint Reading
Basic Circuit Theory
Basic Machine Shop Practice
Billing and Specifications
Chemistry
Computer Orientation
Conference Leadership
Construction Estimate and Cost
Industrial Electronic Control
Plant Maintenance
Welding
Work Procedures

ADULT EDUCATION AND COMMUNITY SERVICE PROGRAMS

The institutions in the community college system offer a great variety of adult education and community service courses. These courses may begin at any time during the year and may be offered during either day or evening hours. When a person has successfully completed an adult education course, he is awarded a certificate.

A well-balanced program of adult education offered by an institution includes instruction that prepares adults for better family living, for more job opportunities, for promotion in present employment, for civic and community leadership, and for self-realization.

Depending on needs in the area, certain of the following courses may be offered. Those that are recreational or avocational are self-supporting.

CONSUMER EDUCATION

Family Finance
Homeowners Insurance
Social Security
Law for the Layman
Credit Buying
Consumer Problems
Personal Income Tax
Personal Investments

CITIZENSHIP

North Carolina History
American History
U. S. Government
Courts and Law
Political Parties
The Constitution
How to Become an American Citizen

PARENT EDUCATION

Early Teenage Problems
Adolescent Behavior
Preschool Problems
Prenatal Care
Child Care and Development
Parent-Child Relationships
Maternity Care
Child Psychology
Foster Parenthood

LANGUAGE ARTS

American Literature
Creative Writing
Public Speaking
Leadership Training for Community Life or Group Dynamics
General Wood, Metal or Plastics Shop
General Mechanical Drawing and Sketching
Ceramics

HOMEMAKING

Cooking and Menu Planning
Dressmaking
Nutrition
Sewing
Tailoring
Budget Meals
Clothing—Selecting and Remodeling
Interior Decorating
Landscaping
Gardening
Home Appliance Repair
Home Remodeling
How to Plan a Home
How to Buy a Home
Beauty Care for the Wife

INDUSTRIAL ARTS

Architectural Drawing
How to Fix Your Auto (for women)

DISCUSSION GROUPS

Great Decisions
Great Books
You and Your Community
Rural-Urban Life
The Ways of Mankind
Economic Reasoning
Discovering Modern Poetry
Aging and You
Introduction to the Humanities
Ways to Justice
Looking at Modern Painting
The Power to Govern
World Politics

FAMILY LIFE

Preparation for Marriage
Career Guidance
Home and School Relations
Mental Hygiene
Handicapped Children
Exceptional Children
Community-Family Relations
Human Relations
Family Life Education
Children and Guidance
Rapid Reading

CREATIVE ARTS

Fine Arts
Painting and Drawing
Ceramics
China Painting
Lapidary Art
Leathercraft
Mosaic Tile Designing and Setting
Humanities
Gerontology
Art Exhibits
Speakers Bureau
Community Plays
Community Concerts
Forums on Community and Civic Affairs
Film Forums
Programs for Community Development

FOREIGN LANGUAGES
Conversational French Beginning
Conversational Spanish Beginning
Conversational Spanish Intermediate
Conversational Russian Beginning

HEALTH AND SAFETY
First Aid
Driver Education
Physical and Mental Health
Fire Prevention

ADVANCED COURSES
New Modern Mathematics for Parents
Science
Civil Defense Education
Democracy in the Home
Interpersonal Relationships

BUSINESS EDUCATION
Personal Typing
Shorthand—Note Taking
Retail Merchandising
Business Law
Consumer Economics
Clerical Office Procedures
Basic Business
Business Math
Consumer Math
Accounting I
Accounting II
Business English for Secretaries
General Economics
Secretarial Office Procedure

ACADEMIC ADULT ELEMENTARY SCHOOL
GRADES 1-8
For adults who have not completed elementary school

ACADEMIC ADULT HIGH SCHOOL
GRADES 9-12
For adults who dropped out of high school

High School Diploma Program

The State Board of Education on November 3, 1966 approved an Agreement of Affiliation for the policies and regulations governing the adult high school diploma program. Any person who is 21 years of age or older may enter the adult high school diploma program. Each program of instruction is sufficiently extensive in duration and intensity within a scheduled unit of time to enable the adult to develop competencies necessary to complete the necessary classes for the diploma. The adult may progress at his own rate and complete the course or entire program when he passes the end-of-the-course tests. The adult is placed in the high school program by a grade placement test or transcript. The program is not a superimposed public high school program, but is specially designed for adults. Instruction may be offered in either regular groups of classroom work or by supervised individual programmed learning as offered in learning laboratories. When a person completes the entire program, he is required to take a standardized test and score at the twelfth grade completion level (12:9) to qualify for the adult high school diploma.

High School Equivalency Program

The equivalency program makes it possible for an adult to take the General Educational Development test (GED) to determine if he can score at the twelfth grade completion level in English, mathematics, science and social studies. If an adult is able to make the necessary scores, he is then offered the equivalency certificate issued by the State Department of Public Instruction. This test costs $10.00 and requires eight to ten hours for examination time. There are over fifteen test centers in the State. A person must be 21 years of age before the Equivalency Certificate is issued. He must live in the State at least twelve months prior to making application for the examination. Should a person fail one or several parts of the five-part examination, he may then enroll in necessary courses through the institutions of the community college system, and at the end of the course or a minimum of six months later, retake the necessary tests. The nearest institution in the community college system may be contacted for more information about the equivalency program.

LEARNING LABORATORY

Leaning laboratories have been established within the institutions of the community college system. These laboratories offer programmed instruction which presents the material to be learned in small, sequential steps which move gradually from basic and easily learned knowledge to the more difficult. The student can enroll in the learning laboratory at any time during the year. He sets his own work schedule and progresses at his own rate.

Among the areas of study available in the programmed materials are arithmetic, English, social science, mathematics, foreign language, business, science, and general interest. The reading programs provide instruction from the second grade to college level.

The learning laboratory is designed for several categories: the person who wants to prepare for the High School Equivalency Examination; the person who desires to remove deficiencies so that he can enter a regular curriculum program of the institution; the person who wants to be better prepared in his present job or to prepare for advancement on his job; or the person who wants to study a subject for his own self-improvement.

GUIDED STUDIES PROGRAMS

The institutions and extension units offer specialized courses for students who need to improve their skills so that they can perform at the level required. An individual who desires to enter

a specific curriculum program and who has deficiencies in prerequisites or low entrance tests results is guided into a program of study designed to increase his proficiency. These programs are designed to meet the individual's needs for the curriculum to be entered.

APPRENTICESHIP PROGRAMS

The apprenticeship program has been recognized as one of the leading methods for acquiring the skills and knowledges necessary to become a craftsman. The institutions in the community college system in cooperation with labor, business, and industry provide the related instruction for the apprentice. Apprenticeship programs are usually outlined in a two to four-year curriculum of on-the-job experiences and related instruction. The institutions conduct the related instruction for both registered and non-registered apprentices.

The apprentice may attend the classroom portion of his training during the day or evening when the desired classes are offered. Many of the courses may be studied by the programmed method in the Learning Laboratory. The major apprenticeable trades offered in North Carolina have been outlined as a guide, using the trade level courses to assist industry, the institutions, the local advisory committees in establishing programs.

An individual desiring entrance into such a program should consult his employer or the nearest institution in the community college system. A high school senior or any post-secondary aged person desiring an apprenticeship program may consult the guidance counselor, the student personnel of the local institution, a coordinator for one of the trades that work for the contractors, or the Apprenticeship Representative in the district or county.

SECTION III
CURRICULUM OFFERINGS

This section of this publication is devoted to the curriculum offerings of each institution. These offerings are listed under College Parallel, Technical, and Vocational by the respective institution in Part A. Included in this list are the address and telephone number of the institution, should further information be desired concerning a particular program or institution. Part B of this section lists the institutions according to curriculums offered.

These programs are those currently being offered for 1967-68. This list is not a guarantee of an offering, but is subject to change as the needs change.

PART A: CURRICULUMS BY INSTITUTIONS

COMMUNITY COLLEGES

Central Piedmont Community College

1141 Elizabeth Avenue
Charlotte, North Carolina 28204
Telephone Number: 372-2590 (Area Code: 704)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies

Accounting
Business Administration
Electronic Data Processing—Business
Electronic Data Processing—Scientific
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical
Traffic and Transportation

Engineering Technologies

Chemical
Civil
Drafting and Design—Mechanical
Electrical
Electronics
Manufacturing

Health Occupations Technologies
Dental Hygiene
Nursing
Special Technologies
Commercial Art and Advertising Design
Fire Science
Police Science

Vocational:

Diploma Programs
Air Conditioning and Refrigeration Service
Auto Body Repair
Auto Mechanics
Dental Assistant
Machinist
Medical Office Assistant
Practical Nursing
Welding

College of the Albemarle

Elizabeth City, North Carolina 27909
Telephone Number: 335-5461 (Area Code: 919)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies
Business Administration
Engineering Technologies
Drafting and Design—Mechanical
Electronics

Vocational:

Diploma Programs
Auto Mechanics
Machinist
Marine Mechanics
Practical Nursing
Welding

Davidson County Community College

P. O. Box 843
Lexington, North Carolina 27292
Telephone Number: 249-8146 (Area Code: 704)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Agricultural and Biological Technologies
Agricultural Business
Soil and Water Conservation
Business Technologies
Business Administration
Secretarial—Executive

Public Service Technologies
Police Science
Engineering Technologies
Drafting and Design—Mechanical
Electrical

Vocational:

Diploma Programs
Auto Body Repair
Auto Mechanics
Drafting—Mechanical
Electrical Installation and Maintenance
Machinist
Radio and TV Servicing
Welding

Gaston College

(Accredited by Southern Association of Colleges and Schools)

Dallas, North Carolina 28034
Telephone Number: 922-3136 (Area Code: 704)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies
Business Administration
Secretarial—Executive
Secretarial—Legal
Engineering Technologies
Chemical
*Civil
*Electrical
*Electronics
Industrial Engineering Technology
*Mechanical and Production

Vocational:

Diploma Programs
Air Conditioning and Refrigeration Service
Auto Mechanics
Building Materials Management and Sales
Drafting—Mechanical
Electrical Installation and Maintenance
Electronics
Machinist
Tool and Die Making
Welding

Isothermal Community College

P. O. Box 36
Spindale, North Carolina 28160
Telephone Number: 631-3636 (Area Code: 704)

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*An ECPD accredited Engineering Technician Curriculum.

College Parallel:
- Liberal Arts
- Pre-Professional

Technical:
- Business Technologies
  - Business Administration
  - Secretarial—Executive
- Engineering Technologies
  - Electronics

Vocational:
- Diploma Programs
  - Auto Mechanics
  - Electrical Installation and Maintenance

Lenoir County Community College

P. O. Box 188
Kinston, North Carolina 28501
Telephone Number: 527-2196 (Area Code: 919)

College Parallel:
- Liberal Arts
- Pre-Professional

Technical:
- Agricultural and Biological Technologies
  - Agricultural Business
  - Ornamental Horticulture
- Business Technologies
  - Accounting
  - Business Administration
  - Court Reporting
  - Secretarial—Executive
  - Secretarial—Legal
  - Secretarial—Medical
- Engineering Technologies
  - Drafting and Design—Mechanical
  - Electronics

Vocational:
- Diploma Programs
  - Air Conditioning and Refrigeration Service
  - Auto Mechanics
  - Cosmetology
  - *Electronics Servicing
  - Machinist
  - Welding

Rockingham Community College

Wentworth, North Carolina 27375
Telephone Number: 342-2336 (Area Code: 919)

College Parallel:
- Liberal Arts
- Pre-Professional

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*See Radio and TV Servicing for description.

Technical:

Business Technologies
- Business Administration
- Electronic Data Processing—Business
- Secretarial—Executive

Engineering Technologies
- Drafting and Design—Mechanical
- Manufacturing

Health Occupations Technologies
- Nursing

Special Technologies
- Textile

Vocational:

Diploma Programs
- Auto Mechanics
- Machinist
- Welding

Sandhills Community College

P. O. Box 1379
Southern Pines, North Carolina 28387
Telephone Number: 692-6185 (Area Code: 919)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive
- Secretarial—Legal
- Secretarial—Medical

Health Occupations Technologies
- Nursing

Vocational:

Diploma Programs
- Auto Body Repair
- Auto Mechanics
- Drafting—Building Trades
- Radio and TV Servicing

Certificate Programs
- Nurses' Assistant

Southeastern Community College

(Accredited by Southern Association of Colleges and Schools)

P. O. Box 151
Whiteville, North Carolina 28472
Telephone Number: 654-1711 (Area Code: 919)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive
- Secretarial—Legal
- Secretarial—Medical

Health Occupations Technologies
- Nursing

Vocational:

Diploma Programs
- Auto Mechanics
- Cosmetology
- Practical Nursing
- Radio and TV Servicing
- Welding

Surry Community College

P. O. Box 304
Dobson, North Carolina 27017
Telephone Number: 386-4955 (Area Code: 919)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Agricultural and Biological Technologies
- Agricultural Business

Business Technologies
- Business Administration
- Secretarial—Executive

Engineering Technologies
- Drafting and Design—Mechanical
- Electronics

Vocational:

Diploma Programs
- Auto Mechanics
- Carpentry
- Electrical Installation and Maintenance
- Practical Nursing
- Welding

Wayne Community College

P. O. Box 1878
Goldsboro, North Carolina 27530
Telephone Number: 735-5151 (Area Code: 919)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Agricultural and Biological Technologies
- Forest Management
- Poultry and Livestock
- Recreational Grounds Management
- Soil and Water Conservation

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive
- Secretarial—Medical

Engineering Technologies
- Drafting and Design—Mechanical
- Electronics

Health Occupations Technologies
- Dental Hygiene

Vocational:

Diploma Programs
- Auto Mechanics
- Dental Assistant
- Diesel Vehicle Maintenance
- Machinist
- Practical Nursing
- Sheet Metal
- Welding

Certificate Programs
- Electrical Lineman
- Nurses' Assistant

Western Piedmont Community College

P. O. Box 549
Morganton, North Carolina 28655
Telephone Number: 437-8688 (Area Code: 704)

College Parallel:

Liberal Arts
Pre-Professional

Technical:

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive
- Secretarial—Medical

Engineering Technologies
- Industrial Engineering Technology

Health Occupations Technologies
- Nursing

Vocational:

Diploma Programs
- Auto Mechanics
- Drafting—Mechanical

Wilkes Community College

P. O. Box 120
Wilkesboro, North Carolina 28697
Telephone Number: 838-7136 (Area Code: 919)

College Parallel:

- Liberal Arts
- Pre-Professional

Technical:

- Agricultural and Biological Technologies
  - Agricultural Business
  - Agricultural Equipment
  - Food Processing
  - Poultry and Livestock
- Business Technologies
  - Accounting
  - Business Administration
  - Court Reporting
  - Electronic Data Processing—Business
  - Hotel and Motel Management
  - Secretarial—Executive
  - Secretarial—Legal
  - Secretarial—Medical
- Engineering Technologies
  - Civil
  - Industrial Management

Vocational:

- Diploma Programs
  - Auto Mechanics
  - Carpentry
  - Drafting—Building Trades
  - Masonry
  - Practical Nursing
  - Radio and TV Servicing

TECHNICAL INSTITUTES

Asheville-Buncombe Technical Institute

340 Victoria Road
Asheville, North Carolina 28801
Telephone Number: 254-8185 (Area Code: 704)

Technical:

- Business Technologies
  - Business Administration
  - Electronic Data Processing—Business
  - Secretarial—Executive
- Engineering Technologies
  - Chemical
  - Civil
  - Drafting and Design—Mechanical
  - Electronics
  - Manufacturing

Vocational:

Diploma Programs

Air Conditioning and Refrigeration Service
Auto Mechanics
Carpentry
Culinary Science
Diesel Vehicle Maintenance
Machinist
Practical Nursing
Tool and Die Making
Welding

Beaufort County Technical Institute

P. O. Box 155
Washington, North Carolina 27889
Telephone Number: 946-6194 (Area Code: 919)

Technical:

Business Technologies

Business Administration
Secretarial—Executive

Vocational:

Diploma Programs

Auto Mechanics
Electrical Installation and Maintenance
Practical Nursing
Welding

Caldwell Technical Institute

P. O. Box 600
Lenoir, North Carolina 28645
Telephone Numbers: Lenoir 728-4323 (Area Code: 704)
Granite Falls 396-3311 (Area Code: 704)

General Education:

General Education

Technical:

Business Technologies

Business Administration
Electronic Data Processing—Business (1 yr.)
Secretarial—Executive
Secretarial—Medical

Special Technologies

Library Assistant

Vocational:

Diploma Programs

Auto Mechanics
Cosmetology
Drafting—Furniture
Drafting—Mechanical
Electrical Installation and Maintenance
Practical Nursing (Banner Elk)
Practical Nursing (Lenoir)
Production Assistant (Furniture)
Textile Production
Welding

Cape Fear Technical Institute

411 North Front Street
Wilmington, North Carolina 28401
Telephone Number: 763-9876 (Area Code: 919)

Technical:

- Business Technologies
  - Business Administration
  - Secretarial—Engineering and Technical
- Engineering Technologies
  - Chemical
  - Drafting and Design—Mechanical
  - Electronics
  - Instrumentation
- Special Technologies
  - Marine

Vocational:

- Diploma Programs
  - Air Conditioning and Refrigeration Service
  - Auto Mechanics
  - Drafting—Mechanical
  - Machinist
  - Marine Mechanics
  - Operating Room Assistant
  - Practical Nursing
  - Radio and TV Servicing
  - Welding

Catawba Valley Technical Institute

Hickory, North Carolina 28601
Telephone Number: 464-4106 (Area Code: 704)

Technical:

- Agricultural and Biological Technologies
  - Agricultural Business
  - Ornamental Horticulture
- Business Technologies
  - Accounting
  - Business Administration
  - Electronic Data Processing—Business
  - Secretarial—Executive
  - Secretarial—Legal
  - Secretarial—Medical
  - Traffic and Transportation
- Engineering Technologies
  - Architectural
  - Drafting and Design—Furniture
  - Drafting and Design—Mechanical
  - Electromechanical
  - Electronics

Vocational:

- Diploma Programs
  - Auto Mechanics
  - Electrical Installation and Maintenance
  - Machinist
  - Practical Nursing
  - Radio and TV Servicing

Certificate Programs
Upholstering
Upholstery Sewing

Central Carolina Technical Institute

Route 2, Box 27
Sanford, North Carolina 27330
Telephone Number: 775-4249 (Area Code: 919)

Technical:

Agricultural and Biological Technologies
Agricultural Business
Agricultural Research
Veterinary Medical
Business Technologies
Business Administration
Engineering Technologies
Drafting and Design—Mechanical
Electronics

Vocational:

Diploma Programs
Auto Mechanics
Drafting and Design—Mechanical
Industrial Maintenance—Electromechanical
Machinist
Tool and Die Making
Practical Nursing
Certification Programs
Electrical Lineman

Craven Technical Institute

P. O. Box 638
New Bern, North Carolina 28560
Telephone Number: 637-6802 (Area Code: 919);
Croatan Branch 638-1226

Technical:

Business Technologies
Business Administration
Secretarial—Executive

Vocational:

Diploma Programs
Drafting—Mechanical
Machinist
Practical Nursing
Welding

Durham Technical Institute

P. O. Drawer 11307, E. D. Station
Durham, North Carolina 27703
Telephone Number: 596-8293 (Area Code: 919)

Technical:

Business Technologies
Accounting
Business Administration

Secretarial—Engineering and Technical
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical
Engineering Technologies
Drafting and Design—Mechanical
Electronics
Health Occupations Technologies
Dental Laboratory
Special Technologies
Transportation Maintenance

Vocational:

Diploma Programs
Auto Mechanics
Drafting—Building Trades
Drafting—Mechanical
Practical Nursing
Certificate Programs
Nurses' Assistant

Fayetteville Technical Institute

(Accredited by Southern Association of Colleges and Schools)

P. O. Box 5236
Fayetteville, North Carolina 28303
Telephone Number: 484-4121 (Area Code: 919)

Technical:

Agricultural and Biological Technologies
Agricultural Business
Business Technologies
Accounting
Business Administration
Secretarial—Engineering and Technical
Secretarial—Executive
Engineering Technologies
Air Conditioning and Refrigeration
*Civil
Drafting and Design—Mechanical
*Electronics
*Sanitary

Vocational:

Diploma Programs
Air Conditioning and Refrigeration Service
Auto Mechanics
Machinist
Practical Nursing
Radio and TV Servicing
Tool and Die Making
Welding

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*An ECPD accredited Engineering Technician Curriculum.

Forsyth Technical Institute

2100 Silas Creek Parkway
Winston-Salem, North Carolina 27103
Telephone Number: 723-0377 (Area Code: 919)

Technical:

- Agricultural and Biological Technologies
  - Agricultural Business
  - Ornamental Horticulture
- Business Technologies
  - Business Administration
  - Printing Management
  - Secretarial—Executive
- Engineering Technologies
  - Drafting and Design—Mechanical
  - Electronics
  - Manufacturing

Vocational:

- Diploma Programs
  - Air Conditioning and Refrigeration Service
  - Auto Mechanics
  - Diesel Vehicle Maintenance
  - Drafting—Building Trades
  - Graphic Arts—Printing
  - Machinist
  - Practical Nursing
  - Radio and TV Servicing
  - Welding

Guilford Technical Institute

P. O. Box 309
Jamestown, North Carolina 27282
Telephone Numbers: Greensboro 292-5780 (Area Code: 919)
High Point 454-1126 (Area Code: 919)

Technical:

- Business Technologies
  - Accounting
  - Business Administration
  - Secretarial—Executive
  - Secretarial—Legal
  - Secretarial—Medical
- Engineering Technologies
  - Civil
  - Drafting and Design—Mechanical
  - Electronics
- Special Technologies
  - Commercial Art and Advertising Design
  - Furniture Manufacturing

Vocational:

- Diploma Programs
  - Air Conditioning and Refrigeration Service
  - Auto Mechanics
  - Cosmetology

Drafting—Mechanical
Machinist
Practical Nursing
Welding
Certificate Programs
Knitting Machine Fixing
Upholstering
Upholstery Sewing

Onslow Technical Institute

255 Wilmington Highway
Jacksonville, North Carolina 28540
Telephone Number: 346-4256 (Area Code: 919)

Technical:
Business Technologies
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical

Vocational:
Diploma Programs
Air Conditioning and Refrigeration Service
Auto Mechanics
Masonry
Practical Nursing
Radio and TV Servicing
Welding

Pitt Technical Institute

P. O. Box 97
Greenville, North Carolina 27834
Telephone Number: 756-3130 (Area Code: 919)

Technical:
Agricultural and Biological Technologies
Agricultural Business
Agricultural Chemicals
Business Technologies
Accounting
Business Administration
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical
Engineering Technologies
Architectural
Electronics
Public Service Technologies
Police Science

Vocational:
Diploma Programs
Auto Mechanics
Machinist
Practical Nursing (Roanoke Rapids)
Radio and TV Servicing
Certificate Programs
Farriering (Horseshoeing)

Randolph Technical Institute

P. O. Box 1009
Asheboro, North Carolina 27203
Telephone Number: 629-1471 (Area Code: 919)

Technical:

Agricultural and Biological Technologies
- Agricultural Business

Business Technologies
- Secretarial—Executive

Engineering Technologies
- Electronics

Special Technologies
- Interior Design

Vocational:

Diploma Programs
- Auto Mechanics
- Drafting—Mechanical
- Electrical Installation and Maintenance
- Machinist
- Practical Nursing
- Welding

Richmond Technical Institute

P. O. Box 1189
Hamlet, North Carolina 28379
Telephone Number: 582-1980 (Area Code: 919)

Technical:

Business Technologies
- Business Administration
- Electronic Data Processing—Business
- Secretarial—Engineering and Technical
- Secretarial—Executive

Engineering Technologies
- Electronics
- Fire and Safety

Vocational:

Diploma Programs
- Auto Mechanics
- Drafting—Architectural
- Drafting—Mechanical
- Practical Nursing
- Radio and TV Servicing

Rowan Technical Institute

P. O. Box 1555
Salisbury, North Carolina 28144
Telephone Number: 636-6480 (Area Code: 704)

Technical:

Business Technologies
- Business Administration
- Secretarial—Executive
- Secretarial—Medical

Engineering Technologies
Drafting and Design—Mechanical
Electronics
Fire and Safety
Manufacturing

Vocational:

Diploma Programs
Air Conditioning and Refrigeration Service
Auto Mechanics
Drafting—Mechanical
Electrical Installation and Maintenance
Machinist
Practical Nursing
Radio and TV Servicing
Welding

Certificate Programs
Sewing Machine Mechanic

Southwestern Technical Institute

P. O. Box 95
Sylva, North Carolina 28779
Telephone Number: 586-4091 (Area Code: 704)

Technical:

Business Technologies
Accounting
Business Administration
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical

Vocational:

Diploma Programs
Auto Mechanics
Drafting—Mechanical
*Industrial Electronics
Practical Nursing

Certificate Programs
Masonry

Technical Institute of Alamance

411 Camp Road
Burlington, North Carolina 27218
Telephone Number: 226-6307 (Area Code: 919)

Technical:

Business Technologies
Business Administration
Electronic Data Processing—Business
Electronic Data Processing—Scientific
Secretarial—Engineering and Technical
Secretarial—Medical

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*See Radio and TV Servicing for curriculum description.

Engineering Technologies
Chemical
Drafting and Design—Mechanical
Electronics
Manufacturing
Special Technologies
Commercial Art and Advertising Design

Vocational:
Diploma Programs
Air Conditioning and Refrigeration Service
Auto Mechanics
Dental Assistant
Machinist
Practical Nursing

W. W. Holding Technical Institute

Route 3, Box 127
Raleigh, North Carolina 27603
Telephone Number: 772-0551 (Area Code: 919)

Technical:
Business Technologies
Court Reporting
Electrical Data Processing—Business
Secretarial—Executive
Secretarial—Legal
Secretarial—Medical
Engineering Technologies
Architectural
Civil
Electrical
Electronics

Vocational:
Diploma Programs
Auto Mechanics
Drafting—Electrical-Electronics
Drafting—Mechanical
Electrical Installation and Maintenance
Machinist
Medical Laboratory Assistant
Practical Nursing
Radio and TV Servicing
Tool and Die Making
Certificate Programs
Nurses' Assistant

Wilson County Technical Institute

902 Herring Avenue
Wilson, North Carolina 27895
Telephone Number: 237-1195 (Area Code: 919)

Technical:
Agricultural and Biological Technologies
Agricultural Equipment

Business Technologies
Accounting
Business Administration
Secretarial—Executive
Engineering Technologies
Air Conditioning and Refrigeration
Drafting and Design—Mechanical
Electronics
Special Technologies
Transportation Maintenance

Vocational:

Diploma Programs
Auto Mechanics
Machinist
Practical Nursing
Welding

TECHNICAL INSTITUTE UNITS

Ansonville Technical Institute Unit

P. O. Box 68
Ansonville, North Carolina 28007
Telephone Number: 826-2575 (Area Code: 704)

Technical:

Business Technologies
Business Administration
Secretarial—Executive

Vocational:

Diploma Programs
Auto Mechanics
Electrical Installation and Maintenance
Welding
Certificate Programs
Masonry

Carteret Technical Institute Unit

P. O. Box 550
Morehead City, North Carolina 28557
Telephone Number: 726-5756 (Area Code: 919)

Technical:

Business Technologies
Business Administration
Secretarial—Executive
Engineering Technologies
Electronics

Vocational:

Diploma Programs
Marine Mechanics
Practical Nursing
Welding

Cleveland County Technical Institute Unit

118 N. Morgan Street
Shelby, North Carolina 28150
Telephone Number: 482-4379 (Area Code: 704)

Technical:

Business Technologies
- Business Administration
- Secretarial—Executive

Vocational:

Diploma Programs
- Auto Mechanics
- Drafting—Mechanical
- Practical Nursing
- Welding

Haywood Technical Institute Unit

P. O. Box 457
Clyde, North Carolina 28721
Telephone Number: 627-2832 (Area Code: 704)

Technical:

Agricultural and Biological Technologies
- Forest Management

Business Technologies
- Business Administration
- Secretarial—Executive
- Secretarial—Medical

Vocational:

Diploma Programs
- Air Conditioning and Refrigeration Service
- Auto Mechanics
- Electrical Installation and Maintenance
- Practical Nursing

James Sprunt Technical Institute Unit

P. O. Box 398
Kenansville, North Carolina 28349
Telephone Number: 296-2441 (Area Code: 919)

Technical:

Agricultural and Biological Technologies
- Agricultural Business
- Poultry and Livestock

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive

Special Technologies
- Commercial Art and Advertising Design

Vocational:

Diploma Programs
- Air Conditioning and Refrigeration Service
- Auto Mechanics

Cosmetology
Drafting—Mechanical
Electrical Installation and Maintenance
Practical Nursing
Radio and TV Servicing
Welding
Certificate Programs
Masonry

Marion-McDowell Technical Institute Unit

29 State Street
Marion, North Carolina 28752
Telephone Number: 695-0183 (Area Code: 704)

Technical:

Business Technologies
Business Administration

Vocational:

Diploma Programs
Auto Mechanics
Drafting—Mechanical
Electrical Installation and Maintenance

Pamlico County Technical Institute Unit

P. O. Box 1215
Alliance, North Carolina 28509
Telephone Number: 745-4531 (Area Code: 919)

Technical:

No organized curriculums

Vocational:

Diploma Programs
Marine Mechanics
Certificate Programs
Masonry

Roanoke-Chowan Technical Institute Unit

P. O. Box 548
Ahoskie, North Carolina 27910
Telephone Number: 332-2871

Technical:

Business Technologies
Secretarial—Executive

Vocational:

Diploma Programs
Auto Mechanics
Light Construction
Welding
Certificate Programs
Nurses' Assistant

Robeson County Technical Institute Unit

P. O. Box 98
St. Pauls, North Carolina 28384
Telephone Number: 739-7072 (Area Code: 919)

Technical:

Business Technologies
- Business Administration
- Secretarial—Executive

Vocational:

Diploma Programs
- Drafting—Building Trades
- Farm Machinery
- Practical Nursing
- Welding

Sampson Technical Institute Unit

P. O. Drawer 855
Clinton, North Carolina 28328
Telephone Number: 564-2112 (Herring—Area Code: 919)

Technical:

Business Technologies
- Accounting
- Business Administration
- Secretarial—Executive
- Secretarial—Legal
- Secretarial—Medical

Vocational:

Diploma Programs
- Auto Mechanics
- Practical Nursing

Tri-County Technical Institute Unit

P. O. Box 40
Murphy, North Carolina 28906
Telephone Number: 837-3810 (Area Code: 704)

Technical:

Business Technologies
- Secretarial—Executive

Vocational:

Diploma Programs
- Carpentry
- Cosmetology
- Welding

Certificate Programs
- Masonry

PART B: INSTITUTIONS BY CURRICULUMS

COLLEGE PARALLEL CURRICULUMS

Complete two-year liberal arts and pre-professional programs are being offered for 1966-67 by all of the community colleges. For more specific information concerning programs or admissions, consult the institution's catalog and the College Parallel Programs Chart on Page 93.

Liberal Arts and Pre-Professional

Central Piedmont Community College
College of the Albemarle
Davidson County Community College
Gaston College
Isothermal Community College
Lenoir County Community College
Rockingham Community College
Sandhills Community College
Southeastern Community College
Surry Community College
Wayne Community College
Western Piedmont Community College
Wilkes Community College

TECHNICAL CURRICULUMS

Accounting

Catawba Valley Technical Institute
Central Piedmont Community College
Durham Technical Institute
Fayetteville Technical Institute
Guilford Technical Institute
James Sprunt Technical Institute Unit
Lenoir County Community College
Pitt Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
Wayne Community College
Western Piedmont Community College
Wilkes Community College
Wilson County Technical Institute

Agricultural Business

Catawba Valley Technical Institute
Central Carolina Technical Institute
Davidson County Community College
Fayetteville Technical Institute
Forsyth Technical Institute
James Sprunt Technical Institute Unit
Lenoir County Community College
Pitt Technical Institute
Randolph Technical Institute
Surry Community College
Wilkes Community College

Agricultural Chemicals

Pitt Technical Institute

Agricultural Equipment

Wilkes Community College
Wilson County Technical Institute

Agricultural Research

Central Carolina Technical Institute

Air Conditioning and Refrigeration

Fayetteville Technical Institute
Technical Institute of Alamance
Wilson County Technical Institute

Architectural

Catawba Valley Technical Institute
Pitt Technical Institute
W. W. Holding Technical Institute

Business Administration

Ansonville Technical Institute Unit
Asheville-Buncombe Technical Institute
Beaufort County Technical Institute
Caldwell Technical Institute
Cape Fear Technical Institute
Carteret Technical Institute Unit
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
Cleveland County Technical Institute Unit
College of the Albemarle
Craven Technical Institute
Davidson County Community College
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Haywood County Technical Institute Unit
Isothermal Community College
James Sprunt Technical Institute Unit
Lenoir County Community College
Marion-McDowell Technical Institute Unit
Pitt Technical Institute
Randolph Technical Institute
Richmond Technical Institute
Robeson County Technical Institute Unit
Rockingham Community College
Rowan Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
Surry Community College
Technical Institute of Alamance
Wayne Community College
Western Piedmont Community College
Wilkes Community College
Wilson Technical Institute

Chemical

Asheville-Buncombe Technical Institute
Cape Fear Technical Institute
Central Piedmont Community College
Gaston College
Guilford Technical Institute
Technical Institute of Alamance

Civil

Asheville-Buncombe Technical Institute
Central Piedmont Community College
Fayetteville Technical Institute
Gaston College
Guilford Technical Institute
Wilkes Community College
W. W. Holding Technical Institute

Commercial Art and Advertising Design

Central Piedmont Community College
Guilford Technical Institute
James Sprunt Technical Institute Unit
Technical Institute of Alamance

Court Reporting

Lenoir County Community College
Wilkes Community College
W. W. Holding Technical Institute

Dental Hygiene

Central Piedmont Community College
Wayne Community College

Dental Laboratory

Durham Technical Institute

Drafting and Design—Furniture

Catawba Valley Technical Institute

Drafting and Design—Mechanical

Asheville-Buncombe Technical Institute
Cape Fear Technical Institute
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
College of the Albemarle
Davidson County Community College
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Guilford Technical Institute
Lenoir County Community College
Rockingham Community College
Rowan Technical Institute
Surry Community College
Technical Institute of Alamance
Wayne Community College
Wilson County Technical Institute

Electrical Engineering Technology

Central Piedmont Community College
Davidson County Community College
Gaston College
W. W. Holding Technical Institute

Electromechanical

Catawba Valley Technical Institute

Electronic Data Processing—Business

Asheville-Buncombe Technical Institute
Caldwell Technical Institute
Catawba Valley Technical Institute
Central Piedmont Community College
Richmond Technical Institute
Rockingham Community College
Technical Institute of Alamance
W. W. Holding Technical Institute
Wilkes Community College

Electronic Data Processing—Scientific

Central Piedmont Community College
Technical Institute of Alamance

Electronics

Asheville-Buncombe Technical Institute
Cape Fear Technical Institute
Carteret Technical Institute Unit
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
College of the Albemarle
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Isothermal Community College
Lenoir County Community College
Pitt Technical Institute
Randolph Technical Institute
Richmond Technical Institute
Rowan Technical Institute
Surry Community College
Technical Institute of Alamance
Wayne Community College
W. W. Holding Technical Institute
Wilson County Technical Institute

Fire Science

Central Piedmont Community College

Fire and Safety

Richmond Technical Institute
Rowan Technical Institute

Food Processing

Wilkes Community College

Forest Management

Haywood Technical Institute Unit
Wayne Community College

Furniture Manufacturing

Guilford Technical Institute

Hotel and Motel Management
Asheville-Buncombe Technical Institute
Wilkes Community College

Industrial Engineering
Gaston College
Western Piedmont Community College

Industrial Management
Wilkes Community College

Instrumentation
Cape Fear Technical Institute

Interior Design
Randolph Technical Institute

Library Assistant
Caldwell Technical Institute

Manufacturing
Asheville-Buncombe Technical Institute
Central Piedmont Community College
Forsyth Technical Institute
Rockingham Community College
Rowan Technical Institute
Technical Institute of Alamance

Marine
Cape Fear Technical Institute

Mechanical and Production
Gaston College

Nursing
Central Piedmont Community College
Rockingham Community College
Sandhills Community College
Southeastern Community College
Western Piedmont Community College

Ornamental Horticulture
Catawba Valley Technical Institute
Forsyth Technical Institute
Lenoir County Community College

Police Science
Central Piedmont Community College
Davidson County Community College
Pitt Technical Institute

Printing Management
Forsyth Technical Institute

Poultry and Livestock
James Sprunt Technical Institute Unit
Wayne Community College
Wilkes Community College

Recreational Grounds Management
Wayne Community College

Sanitary
Fayetteville Technical Institute

Secretarial—Engineering and Technical
Cape Fear Technical Institute
Durham Technical Institute
Fayetteville Technical Institute
Richmond Technical Institute
Technical Institute of Alamance

Secretarial—Executive
Ansonville Technical Institute Unit
Asheville-Buncombe Technical Institute
Beaufort County Technical Institute
Caldwell Technical Institute
Carteret Technical Institute Unit
Catawba Valley Technical Institute
Central Piedmont Community College
Cleveland County Technical Institute Unit
Craven Technical Institute
Davidson County Community College
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Haywood County Technical Institute Unit
Isothermal Community College
James Sprunt Technical Institute Unit
Lenoir Community College
Onslow Technical Institute
Pitt Technical Institute
Richmond Technical Institute
Roanoke-Chowan Technical Institute Unit

Robeson County Technical Institute Unit
Rockingham Community College
Rowan Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
Tri-County Technical Institute Unit
W. W. Holding Technical Institute
Wayne Community College
Western Piedmont Community College
Wilkes Community College
Wilson County Technical Institute

Secretarial—Legal

Catawba Valley Technical Institute
Central Piedmont Community College
Durham Technical Institute
Gaston College
Guilford Technical Institute
Lenoir County Community College
Onslow Technical Institute
Pitt Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
W. W. Holding Technical Institute
Wilkes Community College

Secretarial—Medical

Caldwell Technical Institute
Catawba Valley Technical Institute
Central Piedmont Community College
Durham Technical Institute
Guilford Technical Institute
Haywood Technical Institute Unit
Jackson County Technical Institute Unit
Lenoir County Community College
Onslow Technical Institute
Pitt Technical Institute
Rowan Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
Technical Institute of Alamance
Wayne Community College
Western Piedmont Community College
Wilkes Community College
W. W. Holding Technical Institute

Soil and Water Conservation

Davidson County Community College
Wayne Community College

Textile

Rockingham Community College

Traffic and Transportation

Catawba Valley Technical Institute
Central Piedmont Community College

Transportation Maintenance

Durham Technical Institute
Wilson County Technical Institute

Veterinary Medical

Central Carolina Technical Institute

VOCATIONAL CURRICULUMS

Air Conditioning and Refrigeration Service

Asheville-Buncombe Technical Institute
Cape Fear Technical Institute
Central Piedmont Community College
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Haywood County Technical Institute Unit
Lenoir County Community College

James Sprunt Technical Institute Unit
Onslow Technical Institute
Rowan Technical Institute

Auto Body Repair

Central Piedmont Community College
Davidson County Community College
Sandhills Community College

Auto Mechanics

Ansonville Technical Institute Unit
Asheville-Buncombe Technical Institute
Beaufort County Technical Institute
Caldwell Technical Institute
Cape Fear Technical Institute
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
Cleveland County Technical Institute Unit
College of the Albemarle
Davidson County Community College
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Haywood County Technical Institute Unit
Isothermal Community College
James Sprunt Technical Institute Unit
Lenoir County Community College
Marion-McDowell Technical Institute Unit
Onslow Technical Institute
Pitt Technical Institute
Randolph Technical Institute
Richmond Technical Institute
Roanoke-Chowan Technical Institute Unit
Rockingham Community College
Rowan Technical Institute
Sampson Technical Institute Unit
Sandhills Community College
Southeastern Community College
Southwestern Technical Institute
Surry Community College
Technical Institute of Alamance
W. W. Holding Technical Institute
Wayne Community College
Western Piedmont Community College
Wilkes Community College
Wilson County Technical Institute

Carpentry

Asheville-Buncombe Technical Institute
Tri-County Technical Institute Unit
Wilkes Community College

Cosmetology

Caldwell Technical Institute
Guilford Technical Institute
James Sprunt Technical Institute Unit
Lenoir County Community College
Tri-County Technical Institute Unit
Southeastern Community College
Surry Community College

Dental Assistant

Central Piedmont Community College
Technical Institute of Alamance
Wayne Community College

Diesel Vehicle Maintenance

Asheville-Buncombe Technical Institute
Forsyth Technical Institute
Wayne Community College

Drafting—Building Trades

Durham Technical Institute
Forsyth Technical Institute
Richmond Technical Institute
Robeson County Technical Institute Unit
Sandhills Community College
Wilkes Community College

Drafting—Electrical Electronics

W. W. Holding Technical Institute

Drafting—Furniture

Caldwell Technical Institute

Drafting—Mechanical

Cape Fear Technical Institute
Caldwell Technical Institute
Central Carolina Technical Institute
Cleveland County Technical Institute Unit
Craven Technical Institute
Davidson County Community College
Durham Technical Institute
Gaston College
Guilford Technical Institute
James Sprunt Technical Institute Unit
Marion-McDowell Technical Institute Unit
Randolph Technical Institute
Richmond Technical Institute
Robeson County Technical Institute Unit
Rowan Technical Institute
Southwestern Technical Institute
W. W. Holding Technical Institute
Western Piedmont Community College

Electrical Installation and Maintenance

Ansonville Technical Institute Unit
Caldwell Technical Institute
Catawba Valley Technical Institute
Davidson County Community College
Gaston College
Haywood County Technical Institute Unit
Isothermal Community College
James Sprunt Technical Institute Unit
Marion-McDowell Technical Institute Unit
Randolph Technical Institute
Rowan Technical Institute
Surry Community College
Tidewater Technical Institute
W. W. Holding Technical Institute

Electrical Lineman

Central Carolina Technical Institute
Wayne Community College

Farm Machinery

Robeson County Technical Institute Unit

Farriering (Horseshoeing)

Pitt Technical Institute

Graphic Arts—Printing

Forsyth Technical Institute

Heavy Equipment Operator

Wilson County Technical Institute

Industrial Maintenance—Electromechanical

Central Carolina Technical Institute

Knitting Machine Fixing

Catawba Valley Technical Institute
Guilford Technical Institute

Light Construction

Roanoke-Chowan Technical Institute Unit

Machinist

Asheville-Buncombe Technical Institute
Cape Fear Technical Institute
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
College of the Albemarle
Craven Technical Institute
Davidson County Community College
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
Lenoir County Community College
Pitt Technical Institute
Randolph Technical Institute
Richmond Technical Institute
Rockingham Community College
Rowan Technical Institute
Technical Institute of Alamance
Wayne Community College
W. W. Holding Technical Institute
Wilson County Technical Institute

Marine Mechanics

Cape Fear Technical Institute
Carteret Technical Institute Unit
College of the Albemarle
Pamlico County Technical Institute Unit

Masonry

Ansonville Technical Institute Unit
James Sprunt Technical Institute Unit
Onslow Technical Institute
Pamlico County Technical Institute Unit
Southwestern Technical Institute
Tri-County Technical Institute Unit
Wilkes Community College

Medical Laboratory Assistant

W. W. Holding Technical Institute

Medical Office Assistant

Central Piedmont Community College

Nurses' Assistant

Durham Technical Institute
Roanoke-Chowan Technical Institute Unit
W. W. Holding Technical Institute
Wayne Community College

Practical Nursing

Asheville-Buncombe Technical Institute
Beaufort County Technical Institute
Caldwell Technical Institute (Banner Elk)
Caldwell Technical Institute (Lenoir)
Cape Fear Technical Institute
Carteret Technical Institute Unit
Catawba Valley Technical Institute
Central Carolina Technical Institute
Central Piedmont Community College
Cleveland County Technical Institute Unit
College of the Albemarle
Craven Technical Institute
Durham Technical Institute
Fayetteville Technical Institute
Forsyth Technical Institute
Guilford Technical Institute
Haywood County Technical Institute Unit
James Sprunt Technical Institute Unit
Onslow Technical Institute
Pitt Technical Institute (Roanoke Rapids)
Randolph Technical Institute
Richmond Technical Institute
Robeson County Technical Institute Unit
Rowan Technical Institute
Sampson Technical Institute
Southeastern Community College
Southwestern Technical Institute
Surry Community College
Technical Institute of Alamance
W. W. Holding Technical Institute
Wayne Community College
Wilson County Technical Institute (Tarboro)
Wilkes Community College

Operating Room Assistant

Cape Fear Technical Institute

Production Assistant (Furniture)

Caldwell Technical Institute

Psychiatric Aide

Wayne Technical Institute

Radio and TV Servicing

Cape Fear Technical Institute
Catawba Valley Technical Institute
Davidson County Community College
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
James Sprunt Technical Institute Unit
Lenoir County Community College
Onslow Technical Institute
Pitt Technical Institute
Richmond Technical Institute
Rowan Technical Institute
Sandhills Community College

Southeastern Community College
Southwestern Technical Institute
W. W. Holding Technical Institute
Wilkes Community College

Sewing Machine Mechanic

Rowan Technical Institute

Sheet Metal

Guilford Technical Institute
Wayne Community College

Textile Production

Caldwell Technical Institute

Tool and Die Making

Asheville-Buncombe Technical Institute
Central Carolina Technical Institute
Fayetteville Technical Institute
Gaston College
W. W. Holding Technical Institute

Upholstering

Catawba Valley Technical Institute
Guilford Technical Institute

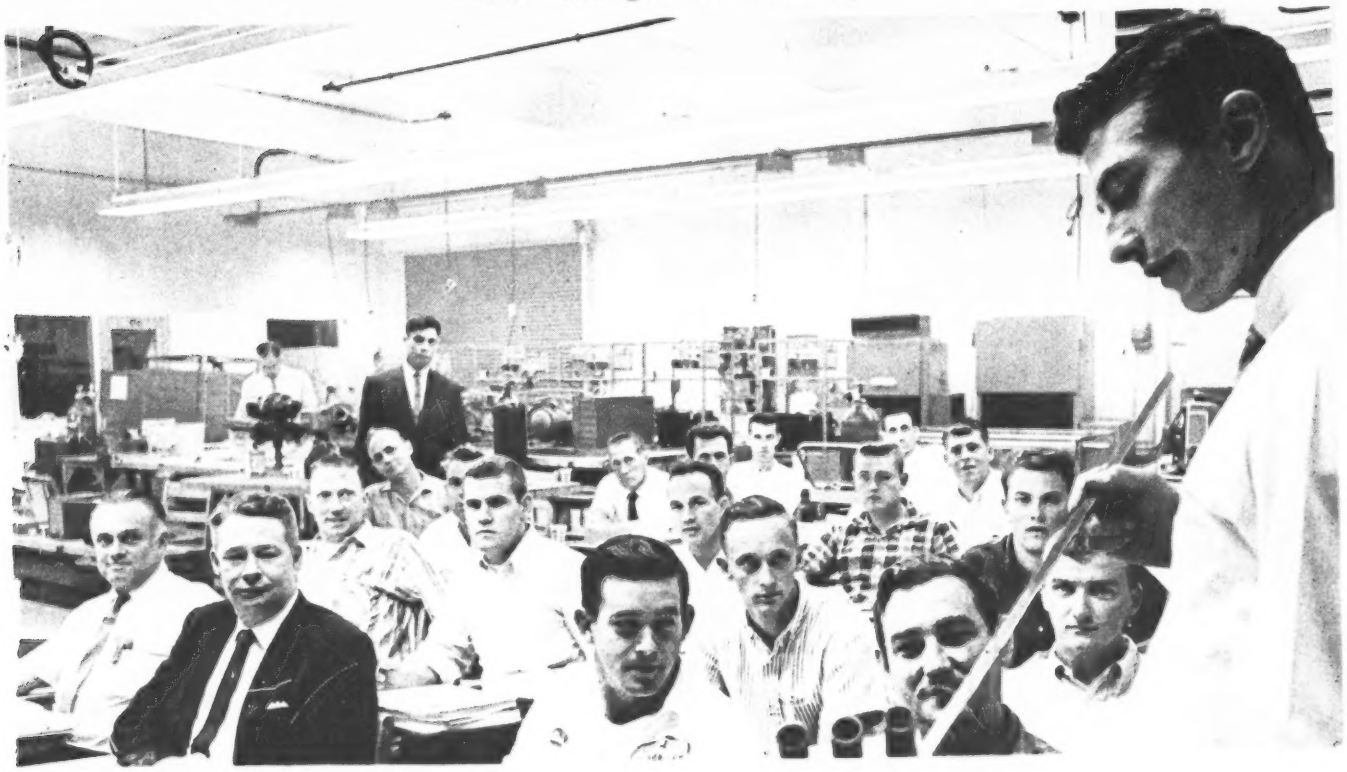
Upholstery Sewing

Catawba Valley Technical Institute
Guilford Technical Institute

Welding

Ansonville Technical Institute Unit
Asheville-Buncombe Technical Institute
Beaufort County Technical Institute
Caldwell Technical Institute
Cape Fear Technical Institute
Carteret Technical Institute Unit
Central Piedmont Community College
Cleveland County Technical Institute Unit
College of the Albemarle
Craven Technical Institute
Davidson County Community College
Fayetteville Technical Institute
Forsyth Technical Institute
Gaston College
Guilford Technical Institute
James Sprunt Technical Institute Unit
Onslow Technical Institute
Randolph Technical Institute
Roanoke-Chowan Technical Institute Unit
Robeson County Technical Institute Unit
Rockingham Community College
Rowan Technical Institute
Southeastern Community College
Surry Community College
Tri-County Technical Institute Unit
Wayne Community College
Wilson County Technical Institute

Diesel—Refrigeration Servicing



SECTION IV

CURRICULUM DESCRIPTIONS

COLLEGE PARALLEL PROGRAMS

In today's highly interrelated and specialized industrial society, there are many professional and occupational opportunities from which to choose. Organized knowledge has increased to the point that greater numbers of curriculum alternatives now confront college students. From this increase in knowledge, two important questions emerge: (1) What constitutes the basic knowledge necessary for all; and (2) how can a student intelligently choose a program of preparation which will fit his needs and challenge his interests? To help students as they deal with problems related to these two questions, the community colleges of North Carolina are developing programs of general education in the arts and sciences. These programs are being developed within guidelines established by the Curriculum Committee of the Community College Advisory Council. Within this framework, all transfer students are expected to take a *minimum* of at least one year of English, one year of social science, one year of humanities, and two years of physical and biological sciences and mathematics (one year must be in a laboratory science). In a two-year program involving 96 quarter hours, the student should take 45 quarter hours within the general education block described. Students are expected to take additional course work in the area of liberal arts, along with such professional courses as they may take in line with their educational objectives. Exposure to the liberal arts provides a common core of experience for all transfer students, some insight into the basic areas of knowledge, and a frame of reference from which the student may make an intelligent and realistic decision regarding his professional goals.

In college parallel, there are two major program classifications—the liberal arts and certain more specialized pre-professional programs. Programs in both of these major classifications build on the common foundation of general education.

LIBERAL ARTS

Students who intend to transfer to a senior college of arts and sciences for their baccalaureate degree should include all of the courses provided by their local community college within the

general education framework described. In addition to completing the general education requirements, students should broaden and deepen their knowledge by selecting courses that will lead towards their major field of concentration in the arts and sciences. Most institutions also require two years of work in physical education and in a foreign language for liberal arts majors. Successful completion of the program leads to an Associate in Arts degree.

PRE-PROFESSIONAL PROGRAMS

Community colleges also offer pre-professional programs. Students in these programs are expected to take the general education core of liberal arts courses suggested within the guidelines of the Community College Advisory Council. This core amounts to at least 45 quarter hours. Beyond this point, however, students will probably take fewer courses in the liberal arts than the liberal arts major. The additional course work will, to a large extent, be in pre-professional courses related to specialized educational goals. Students who satisfactory complete a pre-professional program receive an Associate in Arts degree.

Students desiring detailed information concerning pre-professional programs should consult the catalog of the institution they choose to attend. See chart of academic programs by institution on page 93.

TECHNICAL CURRICULUMS

AGRICULTURAL AND BIOLOGICAL TECHNOLOGIES

American agriculture has advanced more in the past 50 years than in all prior years of our history. Modern farming and ranching, combined with a progressive system of marketing, processing, and merchandising, provide abundant, wholesome food when, where, and how it is wanted; and other farm products with new qualities for home and industry.

Agriculture is an intricately woven web of businesses, including not only those that produce food and fiber, but also organizations that supply and service our farms, and the businesses that process, store, handle, and sell farm products. These businesses employ approximately 40 percent of the working force in the United States and over 50 percent in North Carolina.

The technological explosion in agriculture and the rapid expansion of the off-farm phase of the nation's biggest industry have brought about an increasing need for semi-professional

workers known as "technicians." The agricultural industry needs individuals with a good understanding of agriculture who can exercise sound judgment and competently perform such activities as selling, servicing, supervising, controlling, evaluating, diagnosing, building, operating, and testing in specialized situations.

Examples of areas where agricultural and biological technicians are needed are farm supply and equipment firms, feed and fertilizer plants, horticultural enterprises, poultry hatcheries, agricultural chemicals firms, agricultural research installations, food processing plants, forest services and industries, soil and water conservation districts, veterinary hospitals, and other veterinary medical operations, recreational areas, and large, specialized farming operations.

Two-year curriculums have been developed to meet the needs for technicians in agriculture and biology and are offered in the comprehensive Community College System. Graduates are awarded the Associate in Applied Science degree (A.A.S.).

T01 Agricultural Business Technology

The Agricultural Business Curriculum is designed to help students acquire knowledge, understandings, and abilities in the field of agricultural business, including agricultural production. Objectives of this curriculum are to develop in the student an understanding of the principles of organization and management in agricultural businesses and industries; an understanding of the application of the principles of business management to agricultural production and of the abilities essential to the management of an efficient well-organized farming operation; an understanding of the basic principles of our economic system, marketing, credit, price concepts, governmental policies, and programs relating to agriculture; and an understanding of the agricultural sciences most essential to the production and marketing of agricultural products.

A graduate of this curriculum should qualify for various jobs in agricultural business and industry—salesman or store manager in farm supply stores; agricultural field serviceman; salesman, demonstrator or plant manager of food and food companies; farm products inspector; salesman or office manager of farm products marketing firms; and farm manager.

T02 Agricultural Chemicals Technology

The Agricultural Chemicals Curriculum is designed to prepare the student for entry into the field of agricultural chemicals. This field involves the development, testing, production, sale, and application of pesticides and fertilizers. The curriculum will give the student a functional understanding of the basic agricultural sciences relating to the agricultural chemicals industry; applied chemistry; business organization, procedures, and management of firms producing, marketing and applying agricultural chemicals; and the formulation and use of farm chemicals and their relation to profitable agricultural production, including safety procedures.

The agricultural chemicals industry offers employment opportunities for technically educated individuals in sales, research,

production and manufacturing, management, and custom farm application of chemicals. Positions are available in the larger companies as well as in the smaller farm supply businesses.

T03 Agricultural Equipment Technology

The Agricultural Equipment Curriculum is designed to help the student develop the ability to select, demonstrate, install, and maintain internal combustion engines and agricultural equipment. He learns to utilize technical bulletins and manuals relative to the agricultural equipment industry, and he is taught to communicate effectively and to deal with individual human behavior problems peculiar to the agricultural equipment industry. The student gains an understanding of the principles of general business organization, management, and procedures relating to the agricultural equipment industry and selected areas of agricultural economics applicable to the industry. He also gains the ability to utilize the knowledge and skills acquired in solving problems of the agricultural equipment industry.

Employment is found in areas of manufacturing and distributing equipment. Local distributors employ technicians for sales, service, and general maintenance of farm equipment.

T04 Veterinary Medical Technology

The Veterinary Medical Curriculum is designed to develop knowledge, understanding, and ability in the principles and procedures of a technical and practical nature involved in operation of an animal hospital; the skills needed in assisting the professional worker with the reception, observation, care, and treatment of animals; the performance of certain laboratory tests involved in animal care and research, under professional guidance and direction; and the effective communication and human relations in the animal science field.

Graduates of this curriculum will find job opportunities as animal hospital technicians to assist the veterinarian in animal care, inspection, hospital and clinical practice, animal colony and research work. Although emphasis in the curriculum is placed upon developing proficiency in assisting the practicing veterinarian, the instruction will also prepare the student for job opportunities as public and private research and regulatory laboratory technicians and veterinary supply salesmen.

T05 Food Processing Technology

The Food Processing Curriculum is designed to give students an understanding of the principles, methods, techniques, and skills which are essential for successful employment and advancement in the food processing industry.

Specific job opportunities in the food processing industries are found in production management, buying, processing management and supervision, quality control, sanitation, grading and inspection, equipment maintenance, sales, and laboratory testing. Some of the employment opportunities in allied industries include sales and service representatives of companies manufacturing equipment and supplies for the food processing industries.

T06 Agricultural Research Technology

The Agricultural Research Curriculum is designed to prepare students for entry into the extremely important and rapidly growing

Veterinary Medical Technology

field of agricultural research—involving the development, testing, production, and use of pesticides, chemicals, biologicals, plant strains, and animals. Governmental and industrial agencies conduct basic and developmental research on a wide variety of agricultural materials, products, and methods. The scope of activities within the field is practically unlimited.

Upon graduation from this curriculum, an individual should qualify for positions with State and Federal experiment stations and farms; research centers of pharmaceutical, fertilizer, and chemical companies; large farms; and sales and service organizations. The multiplicity of job opportunities places this program in a unique position for providing positions with futures.

T07 Forest Management Technology

The Forest Management Curriculum is designed to help students acquire technical knowledge, understandings, and abilities essential in developing and conserving our forests and water resources for maximum production and income. Its objectives are to develop student understanding and ability in the principles and practices involved in the production and utilization of forests and the conservation of forest and water resources with emphasis on practical application, and in effective ways of communicating and dealing with individual human behavior in working with the public.

Graduates should be qualified for entry into positions as forest technicians with Federal and State forestry agencies and private forestry industries. The graduate will have abilities in timber cruising, marking trees, forest surveying, log and tree scaling, procuring forest products, supervising forest cutting operations,

Ornamental Horticulture Technology

locating and maintaining forest roads, forest protecting, operating forestry equipment, preparing records, and performing various related technical activities.

T09 Ornamental Horticulture Technology

The Ornamental Horticulture Curriculum is designed to help young men and women acquire knowledge, understandings, and skills in the production, use, distribution, and maintenance of ornamental plant materials.

Among the numerous employment opportunities for which the graduate of this curriculum should qualify are nursery and greenhouse foreman, planting and maintenance supervisor, and golf course and park maintenance supervisor. The graduate should have developed abilities and understandings in the reproduction, planting, cultivation, and maintenance of a variety of ornamental plants that are essential for jobs in the ornamental horticulture industry.

T10 Poultry and Livestock Technology

The Poultry and Livestock Curriculum is designed to teach the student about producing, marketing, processing, and distributing

livestock and poultry and their products according to the scientific principles essential to efficient and profitable operations. The student learns about the specializations of the livestock and poultry industry, including automation, materials handling, manpower efficiency, production control and schedules, contractual arrangements, and vertical and horizontal integration. He also gains an understanding of practical principles of our economic system. Governmental policies and programs pertaining to agricultural production and marketing are emphasized.

Occupational opportunities include such jobs as feed salesmen, equipment salesmen, field servicemen, flock or herd managers, feed mill managers, and buyers of poultry and livestock.

T11 Recreational Grounds Management Technology

The Recreational Grounds Management Curriculum is designed to provide students with the necessary knowledge, understandings, and skills to enable them to manage and maintain developed recreational land areas. The curriculum is composed of courses drawn from the areas of ornamental horticulture, soil and water conservation, and forestry — as well as courses in communications and the social sciences.

Employment for graduates of this program would be found at golf courses and local, State, and National parks and gardens.

T13 Soil and Water Conservation Technology

The Soil and Water Conservation Curriculum is designed to develop the student's understanding of the principles involved in soil and water conservation as well as an understanding of farm production problems related to soil and water conservation. He is taught how to supply farmers, ranchers, and others with technical assistance in planning, applying, and maintaining measures and structural improvements for soil and water conservation as well as how to communicate effectively and to deal with individual human behavior problems in working with farmers and ranchers.

Soil and Water Conservation Technology

Although the curriculum is primarily aimed at training soil and water conservation technicians for the Soil Conservation Service (SCS), graduates should be qualified to serve in a technical capacity with the Agricultural Stabilization and Conservation Service (ASCS) and with golf club associations. The duties of the soil conservation technician may involve laying out contour farming, strip cropping, grassing waterways, tiling drains, and making surveys for earth moving; collecting soil samples, interpreting soil in terms of use and treatment; preparing drawings and specifications for structural work; assembling information from field notes; explaining and demonstrating conservation methods and practices; making farm maps from aerial photographs or land maps; making changes in farm plans; helping land operators pool resources for group conservation jobs; preparing records; supervising various work projects; and performing various related activities.

BUSINESS TECHNOLOGIES

Business technologies offered in the community college system are two years in length, leading to an Associate in Applied Science degree. "Business and office occupations" means those occupations pursued by individuals in public or private enterprises or organizations which are related to the facilitating function of an office, and includes such activities as recording and retrieving data, supervising and coordinating office activities, handling internal and external communications, and reporting information.

Business Technology—Secretarial

Another important phase of the training is that of distributive occupations. A distributive occupation means an occupation that is followed by proprietors, managers, or employees engaged primarily in marketing or mechandising goods or services. These occupations are commonly found in various business establishments such as retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing.

The successful business enterprise can no longer operate with only a few typists and bookkeepers. Today's business office is automated to a considerable degree. Fewer hand workers, but more "think workers," are required. Technicians are required for business data processing, machine accounting, inventory control, customer billing, information retrieval, microfilming records, and copy reproduction. The private secretary, too, must supplement her typing and shorthand with many new skills and abilities to meet the demands of her position today.

With modern methods of communications, reproduction and storage of records, and information retrieval, the number of typists, file clerks, and stenographers needed by business offices has reached a plateau and may even begin to decline in the near future. The new technology in the business office requires persons with new knowledge and skills—most of them at a level beyond that previously provided.

T16 Accounting Technology

The Accounting Curriculum is designed to teach students the necessary accounting theories and skills for entry into the accounting profession. Objectives of this curriculum are to develop an understanding of the principles of organization and management in business operations, the fundamentals of accounting and analysis of financial statements, and effective communications for business.

The graduate of the Accounting Curriculum may qualify for various jobs in business and industry leading to any of the following accounting positions: accounting clerk, payroll clerk, accounting machine operator, auditor, and cost accountant. The duties and responsibilities of an accountant may include: record transactions, render periodic reports, maintain cost records, make special reports, complete tax returns, audit the books, and advise management in areas of financial affairs.

T18 Business Administration Technology

The Business Administration Curriculum is designed to prepare the student for employment in one of many occupations common to business. Training is aimed at preparing the student in every phase of administrative work that might be encountered in the average business. Objectives of this curriculum are to develop an understanding of the principles of organization and management in business operations, effective communications for business, and human relations as they apply to the successful operations in the rapidly expanding business economy.

The graduate of the Business Administration Curriculum may enter a variety of careers from beginning sales person or office clerk to manager trainee. The duties and responsibilities of this graduate may include: making up and filing reports, tabulating and posting data in various books, sending out bills, checking calculations, adjusting complaints, operating various office machines, and assisting managers in supervising. Positions are available in businesses such as advertising; banking; credit; finance; retailing; wholesaling; hotel, tourist, and travel industry; insurance; transportation; and communications.

T22 Electronic Data Processing Technology—Business

The Business Data Processing Curriculum is designed to give the student functional competence in the application of data processing systems, and experience in computer programming of business records and accounts, inventory, sales, and income and expenditures essential to business and to management decisions.

The business data processing specialist analyzes and defines systems requirements to develop a program for electronic data processing; conducts detailed analyses of systems requirements, and develops all levels of block diagrams and logical flow charts. He translates program details into coded instructions; establishes test

Electronic Data Processing

data; tests, refines, and revises programs and documents procedures: It is his job to ascertain if other combinations of instructions would achieve greater flexibility, better machine utilization, or more dependable results. He may prepare a complete set of operating instructions for use by a console operator; on occasion, he may operate the console in processing program.

T23 Electronic Data Processing Technology—Scientific

The Curriculum of Scientific Data Processing is designed to assist students in preparing for techniques of programming in scientific research and industry. Emphasis in the second year of this curriculum is upon requirements which include differential equations, calculus, numerical analysis, theory of probability, and statistics.

The scientific data processing specialist analyzes and defines requirements to develop programs for electronic data processing; conducts detailed analyses of systems requirements, and develops all levels of block diagrams and logical flow charts; translates program details into coded instructions; develops and prepares plans; establishes test data; tests, refines, and revises programs. He also evaluates and modifies existing programs as procedure or content of reports change.

T25 Hotel and Motel Management Technology

The Hotel and Motel Management Curriculum is a two-year program designed to develop students for work as supervisory and management personnel in motels, hotels, restaurants and clubs. Areas of study include front office management, accounting, sales promotion, food and beverage control, personnel management, food preparation, and services. An internship program is also provided to enable the student to acquire experience under the direction of a qualified manager and college supervisor.

The graduate has an opportunity for employment in over sixty different positions with airlines, colleges, schools, convalescent homes, government services, hospitals, motels, clubs, and restaurants.

T26 Printing Management Technology

The Printing Management Curriculum is designed to prepare the student for initial employment as a trainee or assistant in the management offices of the graphic arts industry. A completely equipped graphics arts department, staffed by experienced instructors, enables the student to receive instruction in an actual "on-the-job" atmosphere. This instruction will lead to positions of management after several years of "on-the-job" experiences in various phases of the printing industry.

The printing industry is divided into five main categories: bindery, hand composition, linotyping, letter-press work, and offset-press work. The experienced printer who wishes to specialize in the management phase of the graphic arts industry will have opportunities for administrative positions.

T28 Court Reporting

The purpose of the Court Reporting Curriculum is to provide specialized training in the accepted procedures required by the profession, and to enable persons to become proficient soon after

accepting employment. The curriculum is designed to offer students the necessary skills in typing, Stenograph machine shorthand, dictation, transcription, and terminology for employment as a court reporter and/or conference reporter.

The graduate of the Court Reporting Curriculum should find opportunity for immediate employment, rapid advancement, and a good income. The duties of a court reporter may consist of recording examinations, testimony, opinions, judge's charge to jury, judgment or sentence of court, and other proceedings in a court of law. The duties of a conference-convention reporter may consist of recording proceedings of conferences, conventions, board meetings, and informal business or committee meetings. The graduate may be employed by a reporting firm, or work on a free-lance basis.

T29 Secretarial Technology—Engineering and Technical

The Engineering and Technical Secretary Curriculum is designed to prepare a student for a position in the office of a firm concerned with research, development and production in the scientific fields. The curriculum provides students with the necessary secretarial skills, understanding and appreciation of the scientific method, the beginnings of a technical vocabulary, and a feeling of respect for scientific accuracy.

Graduates of this program may qualify for employment as stenographer-secretaries or technical secretaries. They are in demand where engineers and other technical personnel find a need for secretarial help who can understand the specialized language of electrical, mechanical, civil, and chemical engineers. The duties of an engineering and technical secretary may consist of taking dictation and transcribing letters, memoranda and reports; meeting office callers and screening telephone calls; filing; and scheduling appointments.

T30 Secretarial Technology—Executive

The purpose of the Executive Secretary Curriculum is to provide students with training in the accepted procedures required by the business world. It is designed to give students the necessary secretarial training in typing, dictation, transcription, and terminology for employment. The special training in secretarial subjects is supplemented by related courses in mathematics, accounting, business law, and personality development.

The graduate may be employed as a stenographer or a secretary. Stenographers are primarily responsible for taking dictation and transcribing letters, memoranda, and reports. The secretary, in addition to taking dictation and transcribing, is given more responsibility in connection with meeting office callers, screening telephone calls, and being an assistant to an executive. She may enter a secretarial position in a variety of offices in businesses such as insurance companies, banks, marketing institutions, and financial firms.

T31 Secretarial Technology—Legal

The purpose of the Legal Secretary Curriculum is to provide specialized training in the accepted procedures required by the legal profession. The curriculum is designed to give students the necessary secretarial skills in typing, dictation, transcription, and

terminology for employment in the legal profession. The special training in secretarial subjects is supplemented by related courses in mathematics, accounting, business law, and personality development.

The duties of a legal secretary may consist of taking dictation and transcribing letters, memoranda and reports; meeting office callers and screening telephone calls; filing; and scheduling appointments. Opportunities for employment exist in a variety of secretarial positions in the legal profession such as in lawyers' offices and state and local government offices.

T32 Secretarial Technology—Medical

The purpose of the Medical Secretary Curriculum is to provide specialized training in the accepted procedures required by the medical profession. The curriculum is designed to provide students the necessary secretarial training in typing, dictation, transcription, and terminology for employment in the medical profession. The special training in secretarial subjects is supplemented by related courses in mathematics, accounting, business law, and personality development.

The duties of a medical secretary may consist of taking dictation and transcribing letters, memoranda and reports; meeting office callers and screening telephone calls; filing; and scheduling appointments. The graduate may enter a secretarial position in a variety of offices such as physicians, private and public hospitals, federal and state health programs, and the drug and pharmaceutical industry.

T34 Traffic and Transportation Technology

The purpose of the Traffic and Transportation Curriculum is to provide training in new techniques and a study of the latest State and federal regulations applicable to traffic and transportation. Specific objectives of this curriculum are to develop an understanding of (1) the principles of organization and management in the traffic and transportation industry, (2) effective communications for business, (3) the Interstate Commerce Act and related acts as they apply to traffic and transportation, and (4) the role traffic and transportation plays in the business economy.

The graduate of this curriculum may seek career opportunities in the traffic and transportation industry as moving counselor, claims clerk, dispatcher, rate specialist, or operational clerk.

ENGINEERING TECHNOLOGIES

Engineering technologies offered in the community college system are two years in length, leading to an Associate in Applied Science degree. A planned sequence of college-level courses offers study in science, mathematics, materials, and other related subject matter essential to each engineering technology specialty.

The engineering technician stands between the engineer, who originates the work, and those who are concerned with completing the work. He adapts theory to production. He must understand the engineer's language, read drawings and specifications

prepared by the engineer, prepare detailed plans from the engineer's suggestions, understand machine operations, and be skilled in the use of tools and equipment needed for technical jobs. He uses drafting instruments; collects data; performs laboratory tests; and may service, control, build, operate, or test machinery and equipment.

Highly skilled technicians are becoming an increasingly essential part of the scientific and management team in modern scientific research, development, production, and services in all fields of applied science. The engineering technician may specialize in an area of interest, move into management, or continue his education to become an engineer.

T36 Air Conditioning and Refrigeration Engineering Technology

The Air Conditioning and Refrigeration Curriculum is designed to prepare the student to assist in planning, installing, operating and maintaining air conditioning equipment. The required technical information is presented and related skills are developed to enable the graduate to function efficiently when working with engineers, systems designers, skilled craftsmen, salesmen, and others in the field.

The air conditioning and refrigeration technician may be employed in areas of sales, installation, maintenance, production drafting, systems design, or as a research engineering assistant. He is involved with equipment for regulating temperature and humidity. He works with control systems, ducts and piping for distribution of air, water, steam, and refrigerants.

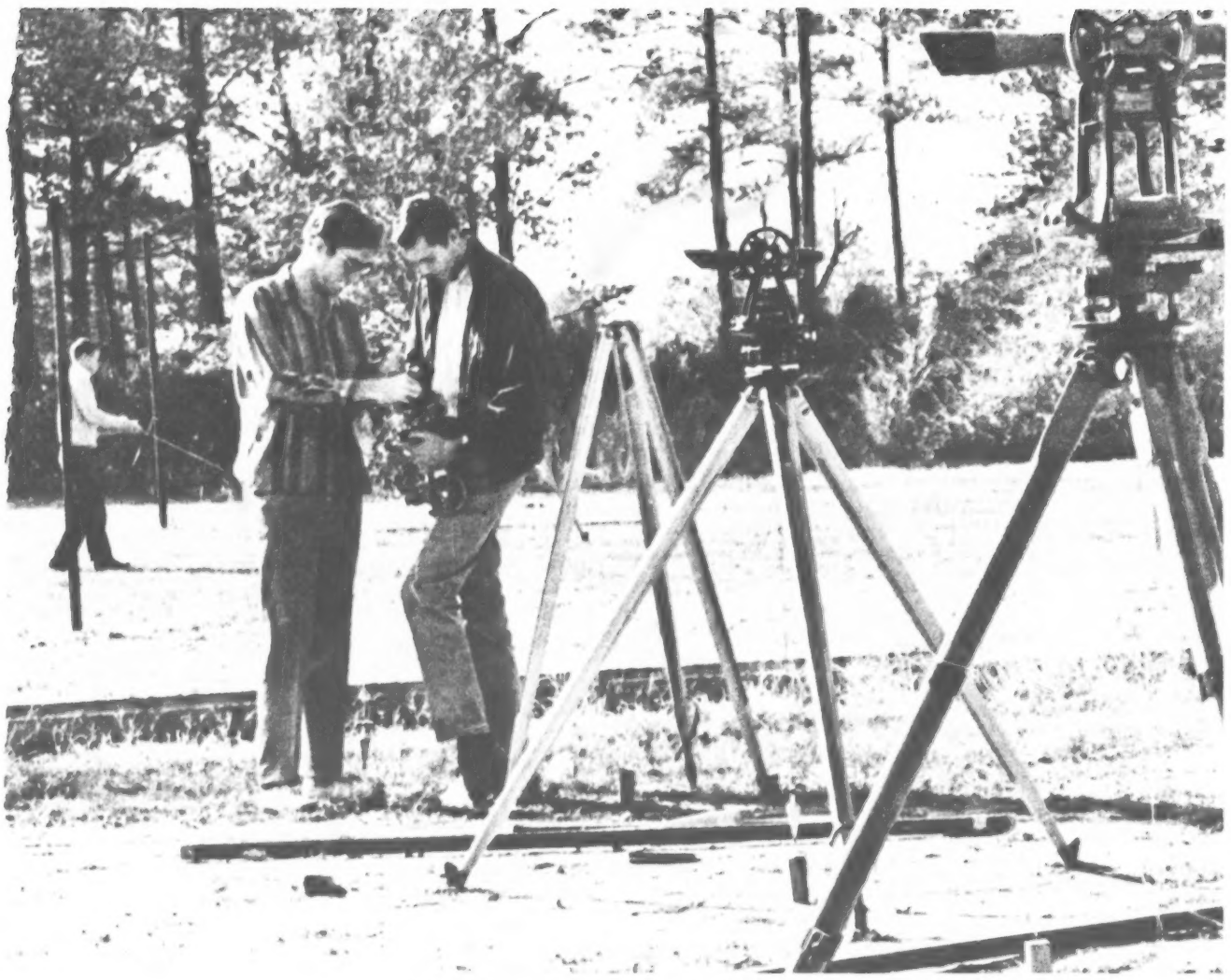
T37 Chemical Technology

The Chemical Curriculum is designed to prepare individuals to serve in two distinct roles: (1) research assistant to a chemist in the laboratory; and (2) planning and production assistant to chemical engineers in converting the research chemist's discoveries into actual industrial production.

The chemical analyst performs quantitative and qualitative chemical analyses of processes involved in a production situation. He tests samples of raw materials to determine that they are within specification limits required for manufacture of desired products; analyzes samples of products at intermediate manufacturing steps so as to supply data to processing personnel; analyzes samples of finished products to determine whether quality warrants release for shipment; and prepares laboratory test reports, checks analyses with specifications, and consults with laboratory supervisors.

T38 Civil Engineering Technology

This curriculum provides the necessary basic background and related theory to train technicians who will work with skilled draftsmen and engineers in performing the various functions included in the construction field. The civil technician carries out many of the planning and supervising tasks necessary in the construction of highways, bridges, power plants, dams, missile sites, airfields, water and sewage treatment plants, industrial buildings, and utilities. He



Civil Engineering Technology

may estimate costs, order materials, interpret specifications, compute earthwork cuts and fills, compute storm drainage requirements, survey, and do drafting work. He also may be responsible for seeing that construction activities are performed in proper sequence and for inspecting the work as it progresses to see that it conforms with blueprints and specifications.

Upon graduating from this program, a person should qualify for various jobs, such as instrument man, party chief, quantity survey man, material tester (laboratory testing), expediter, field clerk, materials man, construction equipment and materials salesman, or field draftsman.

T39 Electromechanical Engineering Technology

Advances in both manufacturing and maintenance techniques over the past decade have made it necessary to bridge the gap between electronics and mechanics with a technician versed in both disciplines. This type technician eliminates many communication and specialty problems and provides a highly efficient individual who can approach electromechanical problems, analyze the situation, find a solution, and actually pe·form the service, thus requiring only one technician instead of two or more. This curriculum provides courses to give the student a background in electricity-electronics,

in mechanical operations and functions, and in electromechanical systems covering such devices as computers, servomechanisms, and numerical control systems.

The electromechanical technician fabricates, tests, analyses, and adjusts precision electromechanical instruments, such as temperature probes and aerodynamic probes; follows blueprints and sketches; uses handtools and metal working machines, and verifies dimensions. He assembles wires, insulation, and electrical components, using holding fixtures, binocular microscope, files, soldering tools, tweezers, wire cutters, pliers, and screwdriver; installs electrical assemblies and hardware in housings, using hand tools and soldering equipment; tests assembled instruments for circuit continuity and operational reliability using multimeter, oscilloscope, oscillator, vacuum tube voltmeter, and bridge; and records and analyses test results and repairs or adjusts instruments according to analysis. The electromechanical technician has employment possibilities with industry and business in maintenance, production, research, development or sales as an engineering assistant, engineering aide, or trouble shooter.

T41 Architectural Technology

The Architectural Curriculum is designed to provide the individual with knowledge and skills that will lead to employment and advancement in the field of architectural drafting. Technical courses are included which will enable the graduate to advance into related areas of work as job experience is obtained. This program represents the education requirements as established by the Architectural Advisory Committee.

Architectural technicians are concerned with turning the architect's design sketches into complete and accurate working plans and detail drawings for construction purposes. The architectural technician may prepare floor plans; elevation drawings; construction details; mechanical equipment layouts; door, window and room schedules; and site plans. He will be involved in work requiring a knowledge of building codes, specifications, and contract documents. After gaining experience, the technician may be involved in estimating, field inspecting or in collecting site data and other information pertinent to construction.

T42 Furniture Drafting and Design Technology

The Furniture Drafting and Design Curriculum has been designed for training persons in the performance of basic duties as a furniture draftsman. Emphasis is placed upon ability to think and plan, as well as upon drafting procedures and techniques of the furniture industry.

Furniture drafting and design technicians perform many duties. Working from pictorial drawings and written and verbal general specifications of the designer, they will draw the necessary assembly and detail drawings for production. They frequently coordinate sample production and development of finishes, investigate new materials and methods, research design problems, assist in showroom planning and set-up, and work with sales and customer services. Technicians with experience of this nature may often be called upon to act as product development supervisor and to contribute greatly in product design. Furniture design-drafting technicians are

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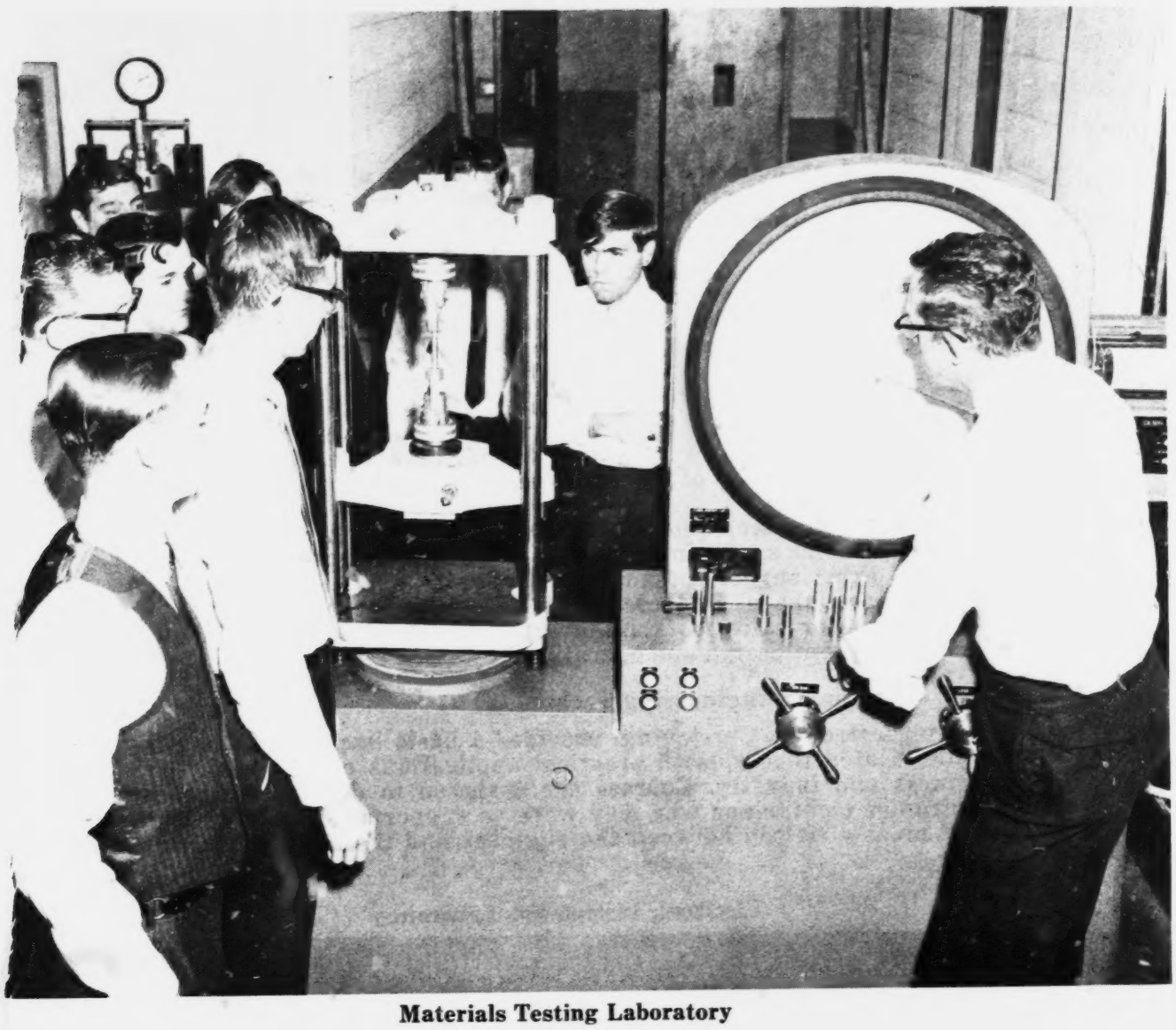

Materials Testing Laboratory

employed by all classifications of household furniture manufacturers; institutional, office, and church furniture manufacturers; design consultants; and interior designers.

T43 Mechanical Drafting and Design Engineering Technology

The Mechanical Drafting and Design Curriculum has been designed for training persons in the performance of basic duties as a mechanical draftsman. Emphasis is placed upon ability to think and plan, as well as upon drafting procedures and techniques used by mechanical draftsmen.

Mechanical drafting and design technicians perform many aspects of drafting in a specialized field, such as the developing of the drawing of a section, sub-assembly or major component. Investigating design factors and availability of material and equipment, production methods and facilities are frequent assignments. They assist in the design of units and controls from specifications by utilizing drawings of existing units and reports on functional performance. They may draw components in industrial fields based on engineers' original design concepts or specific ideas. Also, they may

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be assigned as coordinators for the execution of related work of other design, production, tooling, material, and planning groups. Technicians with experience in this classification may often supervise the preparation of working drawings. These technicians are employed in many types of manufacturing, fabrication, research development, and service industries. Substantial numbers also are employed in communications; transportation; public utilities; consulting engineering firms; and federal, state, and local governments.

T44 Electrical Engineering Technology

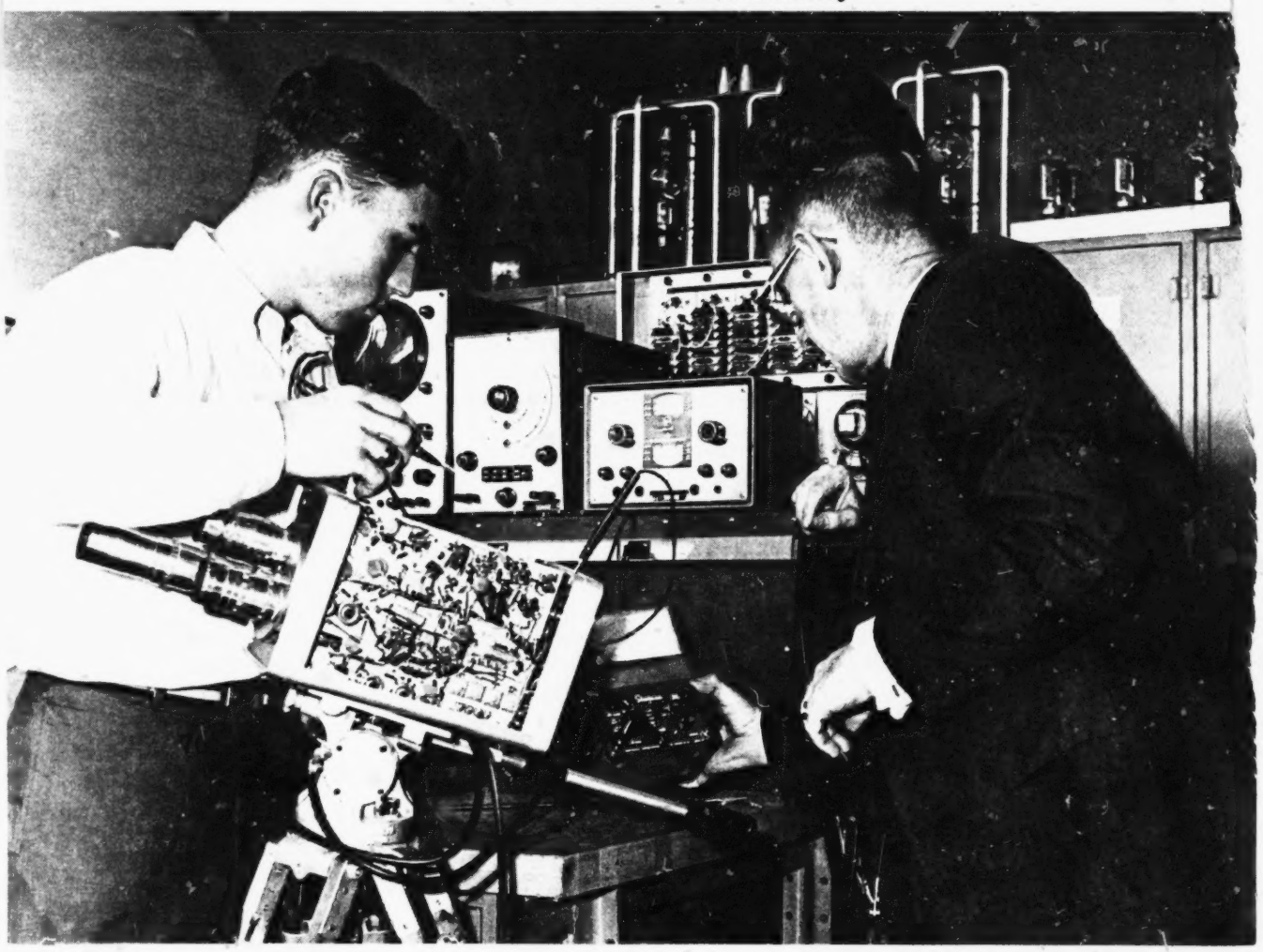
The objective of the Electrical Curriculum is to train technicians for jobs in the areas of research, design, development, production, maintenance, and sale of electrical equipment and power generation plants.

The electrical technology technician may work as a laboratory technician, or as an engineering aide in research, design, or development in direct support of an engineer, or as a liaison between the engineer and the skilled craftsman. He may accept a position in maintenance or sales work requiring a strong background in electrical equipment design and operation.

T45 Electronics Engineering Technology

The Electronics Curriculum provides a basic background in electronic related theory, with practical applications of electronics for business and industry. Courses are designed to develop competent electronics technicians who may work as supported help to an engineer, or as a liaison between the engineer and the skills craftsman.

Electronic Instruments Laboratory



The electronics technician will start in one or more of the following areas: research, design, development, production, maintenance, or sales. He may be an assistant to an engineer, an engineering aide, laboratory technician, supervisor, or equipment specialist.

T46 Fire and Safety Engineering Technology

The Fire and Safety Curriculum provides a basic background in fire protection, safety, and related subjects. Specific skills are developed in many phases of the occupation. Students are trained to determine fire and safety hazards and to analyze methods of eliminating hazards.

Opportunities in the field of fire engineering technology are broad in scope. Employment may be found with insurance companies, industrial firms, governmental agencies, educational organizations, fire equipment manufacturers, research foundations, and municipal and state departments. Positions involve making inspections and recommendations of processes for safety and building construction.

T47 Industrial Engineering Technology

The Industrial Engineering Technology Curriculum is designed for students who are interested in the manufacturing phase of industry. The curriculum provides basic training in the application of inspection, time and motion study, production planning, materials handling, plant layout, statistical quality control, and cost control of a modern manufacturing enterprise.

The following are titles of positions held by graduates in industrial engineering technology: methods analyst, production planner, inspector, quality control analyst, time study man, cost estimator, plant layout draftsman, foreman, and production scheduler.

T48 Instrumentation Technology

The Instrumentation Technology Curriculum provides a program of study to develop knowledge of measuring and controlling devices and to develop the technical skills involved in the application of instrumental control to processes, systems, and operations of modern industry. The instrumentation technician is a key person in keeping a manufacturing firm operating. He is responsible to both production and production control and must deal with variables that affect manufacturing processes, such as temperature, pressure, flow, level, humidity, density, viscosity, etc. In many plants when a piece of equipment breaks down, employees are laid off until the instrumentation man can repair the equipment and production be resumed. His knowledge of mechanics, electronics, and the manufacturing processes involved are key factors in how quickly a machine or plant may again resume operation.

The instrumentation technician in most manufacturing plants works with or assists engineers in their work, and therefore his training is similar to that of the engineer. He selects, installs, calibrates, checks out and maintains sensing, telemetering, and recording instrumentation and circuitry. Other functions include devising, setting up, and operating instrumentation equipment involved in testing mechanical, structural, or electrical equipment. He may work as an instrumentation technician, engineering aid or associate, service specialist, laboratory technician, or instrument field service technician.

T49 Industrial Management Technology

The Industrial Management Curriculum is designed to develop the individual's abilities in business and industrial management, psychology, production methods, and the general and social education that broadens one's perspective. This training should provide one with the opportunity to advance in an industrial occupation and to assume the responsibilities that go with supervisory and mid-management positions in industry.

The supervisor or foreman in industry coordinates the activities of workers. His duties may encompass interpreting of company policies to workers, planning production schedules and estimating man hour requirements for job completion, establishing or adjusting work procedures, analyzing and resolving work problems, and initiating or suggesting plans to motivate workers to achieve work goals.

T50 Manufacturing Engineering Technology

The primary objective of the Manufacturing Curriculum is the training of personnel to assist the engineer or small industry in planning, tooling, operating, servicing, and supervising manufacturing operations. This curriculum provides a basic background of mechanical and related theory, with specific skills in the use of manufacturing and testing equipment. Students are given experiences in operating and servicing machines, accompanied by general education and management courses.

A graduate of this program may qualify for an entry position in one of several manufacturing functions: methods analysis, production scheduling, quality control, materials testing, plant layout, time study, machine tooling, maintenance, and equipment and instrument work.

T51 Mechanical and Production Engineering Technology

(See T50 Manufacturing Engineering Technology for description.)

T52 Sanitary Engineering Technology

The Sanitary Curriculum is designed to train technicians to work in the areas related to sanitary engineering and public health. The student will receive related courses in mathematics, science, drafting, and surveying, in addition to specialized technical courses such as water and waste treatment, sanitation, control systems, and plant equipment and maintenance.

The graduate will be qualified for entry into a variety of positions, such as public health engineering aide, sanitarian aide, treatment plant operators, stream sanitation technicians, industrial waste technicians, technical sales and services of equipment and chemicals, water plant operators, and engineering technician positions with federal, state, and local governments and municipalities.

HEALTH OCCUPATIONS TECHNOLOGIES

Health occupations technologies prepare individuals to function in a close working relationship with professionals in providing services to persons with health problems. The semi-professional nature of these occupations dictates certain personal attributes

required for successful performance, such as favorable appearance, a pleasant manner, social skills sufficient to communicate effectively and establish rapport with many types of people, and a genuine interest in helping others. Health technology curriculums are designed to provide a broad base in general education in addition to specific occupational preparation. Graduates must be prepared to fulfill a definite role in various aspects of health—prevention, diagnosis, treatment, rehabilitation, and patient education—at an intermediate level on the health team.

T54 Dental Hygiene

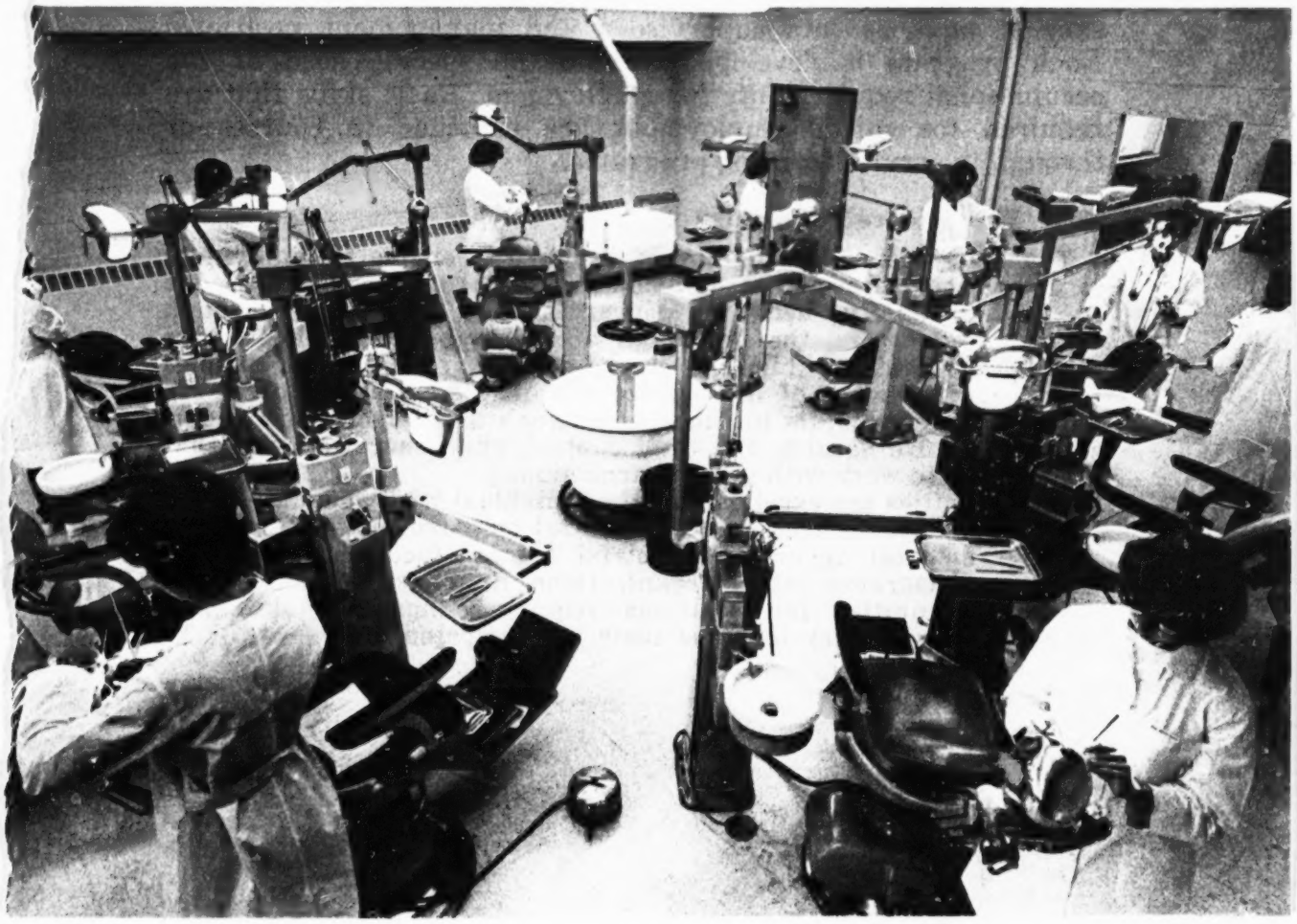
The purpose of the Dental Hygiene Curriculum is to prepare the student to function as a professional member of the dental health team under the direct supervision of a dentist. The student learns to perform prophylactic treatments, to make oral examinations, to clean and polish teeth, and to instruct patients in oral hygiene. Related courses prepare the student for understanding and applying scientific knowledge to the performance of these procedures.

Dental hygienists work in dental offices, schools, public health, industry, and government health programs.

T55 Dental Laboratory Technology

The Dental Laboratory Curriculum is designed to train dental health technicians to fabricate dental prosthetic appliances. Students learn how to use the various specialized hand instruments and machines required in making artificial dental parts. A complete study

Dental Hygiene



is made of the materials used, such as gypsum compounds, precious and semi-precious metals, acrylic plastic compounds, ceramic clays, and waxes.

The work of the dental laboratory technician is confined to the dental laboratory. The dental laboratory technician fabricates the dental prosthetic appliance from written prescriptions and impressions. He may also be employed as salesman or work as a technical representative for manufacturers of dental equipment and supplies.

T59 Nursing

The Nursing Curriculum is designed to prepare students to function in the technical aspects of nursing. The student learns to perform those duties usually ascribed to the beginning registered nurse, giving patient-centered bedside nursing. Related courses provide the student with basic scientific knowledge and with understanding of human relations necessary for effective bedside nursing.

The registered nurse graduate of an associate degree program performs those nursing procedures related to direct patient care, including procedures related to hygienic needs of patients, treatments and medications, diagnosis, prevention of illness, and rehabilitation.

PUBLIC SERVICE TECHNOLOGIES

The public service field covers a broad area of job opportunities for service in public administration and civil service. These programs are designed to provide educational opportunities to persons interested in employment in such jobs as are found in fire departments, law enforcement departments, and municipal and local governments. The programs are two years in length and are designed to provide the individual with the education necessary to advance into supervisory and management positions. Each program is developed around the specific need of the occupational requirements for employment. Basic skills that are required for initial employment are provided in courses or through in-service training programs.

T63 Fire Science Technology

The Fire Science Curriculum is designed to enable the individual to draw from a vast store of technical and professional knowledge in making effective decisions concerning fire protection. Through technical education, the individual acquires specialized knowledge of this vital field of public service and develops specific competencies for the performance of fire service administrative and supervisory duties. The curriculum includes areas such as the scientific understanding of fire hazards and their control, and general courses that prepare one to work with people harmoniously.

Opportunities are excellent for the individual with adequate training and ability. Students seeking gainful employment may be hired by governmental agencies, industrial firms, educational organizations, and insurance rating organizations. Employed persons should have opportunities for positions requiring increased skill and responsibility as they increase their job competence.

Fireman Training in Flammable Liquids

T64 Police Science Technology

The Police Science Technology Curriculum is designed to prepare the student for entry into the field of police work and other allied occupations. Police science vocations have evolved from simple jobs, requiring minimal requirements, to highly complex activities requiring great capacity for highly specialized knowledge and techniques.

Job opportunities are abundant on the federal, state, county, and municipal levels. Many industries now employ skilled technicians trained in protective techniques.

SPECIAL TECHNOLOGIES

The special technology curriculums are two-year technical programs that could not be categorized under a specific heading. These programs are developed around the special needs of the occupational area which they represent. Job opportunities are

exceedingly plentiful in each area, and each curriculum provides training for advancement as well as for occupational entry. Among these curriculums are Commercial Art and Advertising Design, Furniture Manufacturing, Library Assistant, Marine Technology, Textile Technology, and Transportation Maintenance.

T70 Commercial Art and Advertising Design Technology

The Commercial Art and Advertising Design Curriculum provides the student with a sound, well-rounded background for technical and creative achievement that will be valuable to him throughout his professional life. Graduates of this curriculum should have an adequate background in illustration, layout and lettering, design, and production to enter into one or more of the commercial art occupations.

The commercial art and advertising artist creates and designs layouts and illustrations for printing, posters, signboards, billboards, and show cards. He may design and prepare charts, diagrams, sketches, and maps for publication and exhibition and perform responsible illustrative work for package design, photography, lettering and art work for the printing processes. Opportunities for graduates of this program may be in art and design studios, advertising agencies, newspapers and magazines, department stores, industrial advertising departments, government agencies, television studios, and printing and publishing houses.

T75 Furniture Manufacturing Technology

The Furniture Manufacturing Curriculum is designed to train persons for technical work in furniture manufacturing. The student learns about materials, production procedures, time study, plant layout, and general operation of plants.

The technician assists the engineer with plant operations such as cutting, planing, shaping, fabricating, and finishing furniture. He may also work as a plant layout technician or as a time-study man.

T77 Interior Design Technology

The Interior Design Curriculum is designed to prepare students for a variety of job opportunities in the field of design. The curriculum is based upon the fact that today's residential and commercial interiors must creatively express contemporary living. The study of historical styles as well as currently manufactured products, coordination of color, furniture, floor coverings, fabrics, wallpapers, drapery, paneling, hardware, paints and accessories is an integral part of the course. The student has the opportunity to cover the elements of interior design and to demonstrate his abilities in interior coordination. Beautiful, functional interiors must be sold as well as created and to assist the student in this area, courses are included in sales development, psychology, and other related courses.

Graduates of this program may qualify for various positions with the following types of employers: interior design studios, furniture manufacturers, architects, furniture design studios, photography studios and any type of business dealing with interior furnishings.

T80 Library Assistant Technology

The Library Assistant Curriculum is designed to prepare persons for work in libraries of public schools, hospitals, government, and industry. The curriculum provides basic library skills to prepare interested students to enter library work above the minimum clerk status; and introduces the variety of library work into which a trained person may work, suiting abilities to the particular job.

The graduate of this curriculum has a variety of career opportunities. Graduates are qualified for general library duties, assisting in ordering, processing and cataloging materials; binding related pamphlets and periodicals; mending torn materials; and keeping the vertical file up to date. A library assistant receives task assignments from, and is directly responsible to, the professional librarian.

T85 Marine Technology

The Marine Technology Curriculum is designed to provide the science and mathematics needed to meet the challenging requirement of the marine research technician. This curriculum provides the student with a first-hand opportunity to become proficient in the knowledge and skills of the mariner. Practical operations are conducted aboard the school's ship, docked at the Cape Fear Technical Institute at Wilmington, North Carolina.

Marine Technology

Graduates of this curriculum perform experiments and data collecting activities associated with a marine biology laboratory. They may operate radar, loran, direction finders, ship radio, depth recorders, fish-finders, and the gyro compass. In addition, they participate in fish dragging operations, use electronic devices, and perform the daily routine tasks necessary for the proper maintenance of the vessel. Marine technology graduates receive instruction in navigation, oceanography, marine engineering, and marine biology. Graduates of this curriculum may find job opportunities with the U. S. Navy Oceanographic Office, the U. S. Geodetic Survey, research foundations, private survey companies, marine salvage companies, marine construction companies, fish processing plants, marinas, boat yards or private fishing concerns. They may also find employment on towboats and yachts.

T90 Textile Technology

The Textile Curriculum is designed to prepare students with a well-rounded understanding of the theory and principles relating to the processing of textile materials. Basic purpose of the curriculum is to prepare students to become competent textile technologists for eventual supervisory positions within the industry. The curriculum offers selected areas of study in fiber and yarn, fabric, knitting, general textiles, and textile management.

Positions are available in the area of textile technology as an aide to a textile engineer. Positions are found in manufacturing, physical testing, and applied research for the textile industry.

T95 Transportation Maintenance Technology

The Transportation Maintenance Curriculum is designed to train students as technicians in the automotive and trucking field. The curriculum provides for principles of design, operation, laboratory tests on materials and equipment, and preventative maintenance. The student develops the ability to execute or supervise diagnostic tests and repairs.

These technicians serve the industry as equipment salesmen, laboratory testers, technical service representatives, automotive and truck service specialists, diagnosticians, diesel technicians, and service managers.

VOCATIONAL CURRICULUMS

DIPLOMA PROGRAMS

Diploma programs are designed to provide the student with training in a curriculum composed of a sequence of courses four quarters in length. The curriculum includes general education as well as trade or skill development courses. A diploma is issued to the graduate of the program.

V01 Auto Body Repair

The Auto Body Repair Curriculum provides training in the use of the equipment and materials of the auto body mechanic trade. The student studies the construction of the automobile body and techniques of auto body repairing, rebuilding, and refinishing.

Repairing, straightening, aligning, metal finishing, and painting of automobile bodies and frames are typical jobs performed. Job titles include automobile body repairman, automotive painter, and frame and chassis repairman.

V03 Auto Mechanics

The Auto Mechanics Curriculum provides a training program for developing the basic knowledge and skills needed to inspect, diagnose, repair, and adjust automotive vehicles. Manual skills are developed in practical shop work. Thorough understanding of the operating principles involved in the modern automobile comes in class assignments, discussions, and shop practice.

Automobile mechanics maintain and repair mechanical, electrical, and body parts of passenger cars, trucks, and buses. In some communities and rural areas, they also may service tractors or marine engines and other gasoline-powered equipment. Mechanics inspect and test to determine the causes of faulty operation. They repair or replace defective parts to restore the vehicle or machine to proper operating condition and use shop manuals and other technical publications as references for technical data.

V06 Building Materials Management and Sales

The Building Materials Management and Sales Curriculum is designed to prepare students for a cluster of jobs in the lumber and building materials industry. A balance of classroom instruction and laboratory practice is arranged to develop the broad skills needed to function effectively in the variety of positions that graduates may occupy upon completion of the program.

Some typical positions graduates might fill with lumber or building materials dealers are: inside salesman, outside salesman, building trades draftsman, estimator, yard foreman, assistant manager, manager trainee, supervisor trainee, or dispatcher.

V07 Carpentry

The Carpentry Curriculum is designed to provide instruction in construction methods, characteristics of wood and composition products, blueprint reading, and mathematics. Practical laboratory problems that cannot be demonstrated or practiced on the job are solved.

There are a variety of jobs — from form building to cabinet making — that involve cutting, fitting, and installing framing, sheathing, floors, baseboards, moldings, frames, windows, and doors. All these jobs require related knowledge and the skillful use of carpenter's tools. The graduate should enter the trade as an apprentice.

V09 Cosmetology

The Cosmetology Curriculum is designed for men and women with special aptitudes for personal service work dealing with the care of face, hair, hands, and skin. Study and practice in the preparation and use of cosmetics and processes that aid in beauty culture are emphasized.

Upon completion of training, students must take a comprehensive examination administered by the State, following which they are

issued a license to practice. They operate beauty salons—shampooing, waving, curling, bleaching, tinting, and styling hair. They also give scalp and hair conditioning treatments, manicures, and facials.

V10 Culinary Science

The Culinary Science Curriculum is designed to present a sequence of courses that will take the student from the elementary aspects of cooking into the highly skilled areas of baking and pastry making. The students in the field of culinary science must understand nutrition as it relates to health. With the understanding of nutrition, the student will prepare menus for production. The program will require a student to work from the menu through production and into service. As the skills of cooking, menu planning, and food purchasing are developed in the culinary laboratory, other skills in sanitation and hygiene, accounting, supervision, and human relations will be developed in the classroom.

The graduate will normally make the point of entry into the food industry in a training program and ultimately become a chef. Occupational opportunities are provided for baking and pastry, catering, dining room operation, food purchasing, junior chef, menu planning, and quality food preparation.

V11 Dental Assistant

The purpose of the Dental Assistant Curriculum is to prepare students for working in dental offices as dental assistants. The student learns to render chairside assistance to the dentist, to take dental X rays, to care for dental supplies and equipment, and to carry out the clerical procedures of the dental office. Related courses prepare the student for maintaining effective public and patient relations and for understanding scientific principles basic to dental procedures.

The dental assistant prepares patients for examinations and/or treatments, keeps supplies and equipment in readiness, assists the dentist at the chairside, makes appointments, maintains patient records, receives payments, keeps books, and performs other clerical tasks required for efficient operation of the dental office.

V13 Diesel Vehicle Maintenance

This Diesel Vehicle Maintenance Curriculum is designed for experienced mechanics or for students who have completed trade courses in internal combustion engines. The number of diesel engines used in various industries and truck and marine transportation require trained mechanics. In addition, the mechanic needs to be trained in the use of dynamometer and fuel-injection equipment.

Many job openings exist for mechanics who have had training in diesel engines. Diesel engines are used to power farm and construction machinery, electric generators, feed mill equipment, trucks, buses, trains, and ships.

V14 Drafting—Furniture

The Furniture Drafting Curriculum is designed to prepare students to enter the field of furniture drafting. The first two quarters contain courses basic to all fields of drafting. The third and fourth quarters contain specialization and related courses that prepare one to enter furniture drafting occupations. Each course is prepared

Dental Assisting

to enable an individual to advance rapidly in drafting proficiency upon entering the field of work. Courses are arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrative, architects, engineers, skilled workmen—and must be able to communicate effectively with them. Courses to develop knowledge and skills in communication, human relations, economics and industrial organization are provided to assist the student in developing understandings and confidence in his relations with other persons.

The furniture draftsman performs the general duties of a draftsman and also specializes in making rough drafting sketches of proposed furniture pieces and then drawing necessary details from the sketch. He prepares accurate scale drawings of furniture parts or groups to reduced or full scale and specifications and bills of materials for manufacture. He is employed in the furniture industry.

V15 Drafting—Building Trades

The Building Trades Drafting Curriculum is designed to prepare individuals to do drafting for the building industry. Courses are

Drafting

arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrators, architects, engineers, skilled workmen—and must be able to communicate effectively with them.

The building trades draftsman performs the general duties of a draftsman and also specializes in organizing and making detail and working drawings of structures and mechanical equipment from preliminary sketches of the designer. He utilizes knowledge of various machines, engineering practices, mathematics, building materials, and other physical sciences to complete the drawings.

V16 Drafting—Electrical Electronics

This curriculum is designed to prepare students to enter the field of electrical-electronic drafting. The first two quarters contain courses basic to all fields of drafting. The third and fourth quarters contain specialization and related courses that prepare one to enter electrical-electronic drafting occupations. Each course is prepared to enable an individual to advance rapidly in drafting proficiency upon entering the field of work. Courses are arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrative, architect, engineers, skilled workmen—and must be able to communicate effectively with them. Courses to develop knowledge and skills in communication, human relations, economics and industrial organization are provided to assist the student in developing understandings and confidence in his relations with other persons.

The electrical-electronic draftsman prepares instrument drawings for electrical power systems, electrical parts, electronics parts, schematics, wiring diagrams, sheet metal chassis, and mechanical parts applicable to the electrical or electronics industries.

V17 Drafting—Mechanical

This curriculum is designed to prepare individuals to enter the field of mechanical drafting. Courses are arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrators, engineers, skilled workmen—and must be able to communicate effectively with them.

The mechanical draftsman performs duties of a draftsman, but also specializes in making rough drafting sketches of proposed mechanical devices, and then drawing necessary details. He also prepares accurate scale drawings of parts or machines from specifications.

V18 Electrical Installation and Maintenance

The Electrical Installation and Maintenance Curriculum is designed to provide a training program in the basic knowledge, fundamentals, and practices involved in the electrical trades. A large portion of the program is laboratory and shop instruction designed to give the student practical knowledge and application experience in the fundamentals taught in class.

The graduate of the electrical installation and maintenance curriculum is qualified to enter an electrical trade as an on-the-job trainee or apprentice, assisting in the planning, layout, installation, check out, and maintenance of systems in residential, commercial, or industrial plants.

V20 Farm Machinery

The Farm Machinery Curriculum is designed to provide broad training to permit entrance into the field best suited to the interest and aptitude of the graduate. Emphasis is placed on the basic theories of farm machinery mechanics and the related laboratory and shop techniques, with specialization to be developed later in employment.

Graduates of this curriculum can quickly adapt themselves for employment in the areas of sales, service, distribution, installation, and maintenance. They may estimate cost and plan equipment installations or provide the service that must be done in the field. They make inspections and tests to determine the causes of faulty operation, and repair or replace defective parts to restore the tractor or other gasoline-powered equipment to proper operating condition.

V22 Graphic Arts—Printing

This curriculum is designed to give individuals experience and a working knowledge of all phases of print shop operation. Ample opportunities are provided to develop the student in the various areas of the graphic arts industry. A printer can become a scholar, an artist, a business man, or a craftsman.

There are many distinct occupations in the graphic arts industry. The graduate must be able to set type by hand as well as with

various machines. He should be able to perpare copy and artwork, proof read, operate presses and linotype, understand the photomechanical process, and operate bindery equipment.

V24 Air Conditioning and Refrigeration Service

The Air Conditioning and Refrigeration Service Curriculum is designed to give students a working knowledge of all types of mechanical equipment used in order to install, trouble shoot, and service them. The student learns the principles of air conditioning and refrigeration mechanisms and their controls. He learns to read blueprints, to fabricate sheet metal ducts, and to adjust automatic controls.

Positions are found in sales and service to install, maintain, and repair equipment. There are installation jobs with contractors of commercial and industrial buildings, and maintenance jobs with hotels and office buildings.

V28 Industrial Maintenance—Electromechanical

The curriculum in Electromechanical Industrial Maintenance is designed to prepare students to repair and maintain machinery, electrical wiring and fixtures, and hydraulic and pneumatic devices found in industrial establishments.

An electromechanical serviceman may be required to install, maintain, and service mechanical equipment; follow blueprints and sketches; and use hand tools, metal-working machines, measuring instruments, and testing instruments. He operates metal-working machines, such as the lathe, milling machine, and drill press to make repairs. He uses the micrometer and calipers to verify dimensions. He assembles wires, insulation, and electrical components, using hand tools and soldering equipment, faulty connections, and defective parts. He tests electrical circuits and components to locate shorts, faulty connections, and defective parts. And he inspects, tests, and repairs hydraulic equipment.

V29 Light Construction

The Light Construction Curriculum is designed to meet definite needs in the building trades industry. Major instruction is provided in carpentry and in masonry skills, with minor studies in electrical wiring and plumbing. Students study applied mathematics, blueprint reading and sketching, safety, and other related subjects. They must learn the methods used in laying out a small structure, mixing and laying cement, rough framing, laying brick and block, roofing, exterior and interior finishing.

A graduate may find employment with home builders or with commercial building contractors. He may enter the building trades as an apprentice with advanced credit. Or he may work as a building maintenance mechanic in small industries or public buildings, including schools, hospitals, and apartment houses. After sufficient experience in the trade, some workers may establish their own business.

V30 Medical Laboratory Assistant

The Medical Laboratory Assistant Curriculum is designed to prepare the student to work in medical laboratories as assistant to a registered medical technologist and/or physician. The student learns to perform laboratory tests in the areas of blood banking, bacteriology, hematology, serology, and parasitology.

The medical laboratory assistant collects specimens from patients, prepares and stains slides, carries out chemical analyses on blood and other body fluids, takes electrocardiograms, and performs basal metabolism tests. Laboratory assistants may work under the supervision of a registered medical technologist and/or physician in hospital laboratories, doctors' offices, or research laboratories.

V31 Medical Office Assistant

A medical office assistant is a person, preferably a woman, trained to assist the licensed physician in his office. The institution offering the program should be at the Junior Community College level and accredited by one of the official accrediting agencies. The program should require two years to complete and should award an associate in applied science degree. It should include courses in all subjects covered in the American Association of Medical Assistant Certification Study Outline. In addition, there should be courses in academic subjects which are required by the institution in an associate degree program.

Duties of the medical office assistant include preparing patients for the physician's examination, cleaning and sterilizing supplies, preparing the examining room, assisting in the collection of specimens, performing routine laboratory tests, X-ray procedures, and assisting with or carrying out treatments prescribed by the physician. If the medical assistant is the only assistant in the physician's office, she may receive patients, make appointments, complete insurance forms, collect fees, type business letters, and assist in keeping medical records.

V32 Machinist

The Machinist Curriculum is designed to give individuals the opportunity to acquire basic skills and the related technical information necessary to gain employment in a machine shop. The machinist is a skilled worker who shapes metal by using machine tools and hand tools.

This skilled worker must be able to set-up and operate the machine tools found in a modern shop. He makes standard calculations relating to dimensions of work, tooling, feeds, and speeds of machining. He must know the composition of metals so that he can anneal and harden tools and metal parts.

V34 Marine Mechanics

The Marine Mechanics Curriculum is designed to provide training for individuals interested in becoming mechanics to service and maintain the propulsion system for boats and various types of marine equipment. Manual skills in servicing marine equipment are developed in practical shop work. A thorough understanding of the operating principles of this equipment is provided through classroom instruction, laboratory experiments, group discussions, and shop practice.

Marine engine mechanics maintain and repair mechanical, electrical, hydraulic, and pneumatic equipment used on boats and in industrial applications. Mechanics inspect and test the equipment to determine the causes of faulty operations; repair or replace defective parts to restore the machine or unit to proper operating condition; and use shop manuals, manufacturers' maintenance manuals, and other publications for technical information.

V38 Practical Nursing

The Practical Nursing Curriculum is designed to make available to qualified persons the opportunity to prepare for participation in care of patients of all ages, in various states of dependency, and with a variety of illness conditions. Throughout the program the student is expected to grow continuously in acquisition of knowledge and understandings related to nursing, the biological sciences, the social sciences, and in skills related to nursing practice, communications, interpersonal relations, and use of good judgment.

The licensed practical nurse is prepared to function in a variety of situations: hospitals of all types, nursing homes, clinics, doctors' and dentists' offices, and in some public health facilities. In all situations the LPN functions under supervision of a registered nurse and/or licensed physician. This supervision may be minimal in situations where the patient's condition is stable and not complex; or it may consist of continuous direction in situations requiring the knowledge and skills of the registered nurse or physician. In the latter situation, the LPN may function in an assisting role in order to avoid assuming responsibility beyond that for which the program can prepare the individual.

Practical Nursing

V40 Production Assistant (Furniture)

A person trained as a production assistant may be assigned to either a line or staff position, depending on the specific needs of the employing firm, and the background, experience, training, and other qualifications of the person. In a staff position, he may be concerned with time studies, cost records and estimates, or quality control. As such, he would accept task assignments from, and be directly responsible to, the department head or plant superintendent. In a line position, he may assist with production control, or work at the foreman or sub-foreman level. As such, he would accept task assignments from either the plant superintendent, foreman, or his immediate superior in the line organization.

The production management assistant accepts task assignments from and is directly responsible to the plant superintendent. He is directly concerned with maintenance of production flow of high quality articles. He assists the superintendent in coordinating all manufacturing activities leading to the proper quantity and quality of production. He is also concerned with cost analysis and with more efficient production methods. In this position, he must have a good understanding of the total manufacturing process, including raw materials needed, production scheduling, billing and routing, construction methods, cost analysis, and quality control.

V42 Radio and TV Servicing

The curriculum in Radio and TV Servicing is designed to provide the basic knowledge and skills involved in the installation, maintenance, and servicing of radios, televisions, and sound amplifier systems. A large portion of time is spent in the laboratory verifying electronic principles and developing servicing techniques.

A radio and television serviceman may be required to install, maintain, and service amplitude modulated and frequency modulated home and auto radios; transistorized radios; monochrome and color television sets; intercommunication, public address, and paging systems; high fidelity and sterophonic amplifiers; record players and tape recorders. His work will require meeting the public, both in the repair shop and on service calls. A serviceman who establishes his own business will also need to know how to maintain business records and inventory.

V44 Sheet Metal

The Sheet Metal Curriculum is designed to provide the student with an introduction to the sheet metal trade, shop tools and equipment, simple layouts, pattern development, and related subjects. Practice is given in the making of typical fittings, elbows and transitions using modern machines.

Sheet metal workers fabricate and install ducts which are used for ventilating, air conditioning and heating, dust collecting, tobacco processing, and various other systems. They assist in planning, layout, installation, and checkout of systems. Job opportunities exist in many areas of the construction, roofing and manufacturing industries as apprentices.

V47 Textile Production

The curriculum in Textile Production is designed to provide training for individuals employed or who are seeking employment in the

textile industry. It is designed to provide the individual with the basic knowledges and skills necessary to enter into or to advance into the more responsible positions requiring leadership ability and a thorough knowledge of textile operations. Courses are included in this program to provide the individual with an understanding of the manufacturing process from the raw product to finished material. Courses, such as textile fiber, yarn manufacturing, weaving, knitting, fabric design and analysis, and textile testing are designed with laboratories to provide experiences in the practical as well as the theoretical aspects of the industry. The program concludes with courses in industrial organizations, supervisory responsibility, cost records and cost estimates, production control, and work measurement to provide the individual with the background and knowledge for advancement into supervisory responsibilities.

The textile industry is North Carolina's leading employer. Its demand for trained personnel in the production phase has greatly increased over the past few years. Many opportunities are available in responsible jobs in production and textile testing for the graduate of this program.

V48 Tool and Die Making

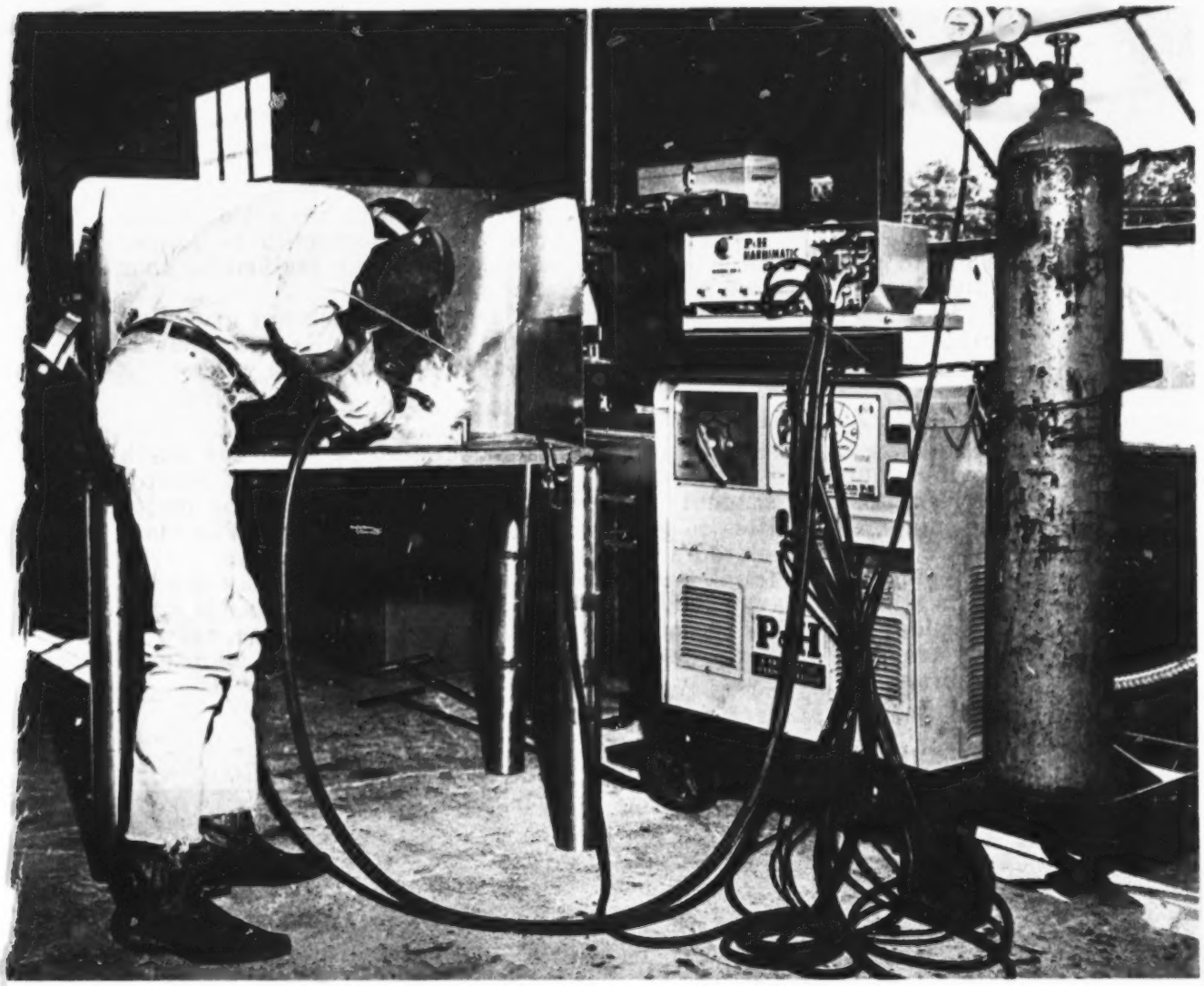
The curriculum in Tool and Die Making is designed to prepare a student for the mass production of parts to the same specifications. These parts may be produced by punching or stamping them into the required sizes and shapes. It is the responsibility of the tool and die maker to produce the special tools and fixtures for these machining operations. He may also produce the guages and the other inspection tools used in checking machined parts. To complete this training successfully, a student should have a high school diploma or its equivalent. He should have a good knowledge of mathematics and be able to use his hands skillfully in the manipulation of tools. He should be a selected graduate from a recognized machinist program or present equivalent work experience.

A student enrolling in a full-time day program in tool and die making should gain the necessary skill and related information to make it possible for him to obtain employment in this field. Typical jobs which he might secure in the manufacturing field include: toolmaker, diemaker, tool repairman, tool (set-up) man, and tool inspector. A tool and die maker analyzes a variety of specifications, lays out metal stock, sets up and operates machine tools. He fits and assembles parts to make and repair metal working dies, cutting tools, jogs, fixtures, guages, and machinists' hand tools. He computes dimensions, decides on machining to be done, and plans layout and assembly operations.

V50 Welding

The Welding Curriculum is designed to give students sound understanding of the principles, methods, techniques, and skills essential for successful employment in the welding field and metals industry. Welders join metals by applying intense heat, and sometimes pressure, to form a permanent bond between intersecting sections.

Welding offers employment in practically any industry: shipbuilding, automotive, aircraft, guided missiles, heavy equipment, railroads, construction, pipe fitting, production shop, job shop and many others.



Welding

CERTIFICATE PROGRAMS

Certificate programs are those developed as either a curriculum or single course type program three quarters or less in length. These programs are primarily concerned with skill development and basic knowledges of trades. A certificate is issued upon completion of a program.

V60 Electrical Lineman

The Electrical Lineman Curriculum is designed to provide needed theory and practice which the lineman would find difficult to obtain on the job. The students gain experience in field practice, use of instruments and test equipment, safety and first aid, and related subjects in this program.

Employment opportunities as apprentice lineman to work toward the rating of journeyman lineman are numerous. There is a shortage of workers in this field among operating utilities, private contractors, telephone companies, and municipalities.

V62 Farriering (Horseshoeing)

The curriculum in Farriering is designed to teach the art of fitting iron shoes to the hoofed feet of horses. The blacksmith no longer exists to perform this work, so craftsmen must be trained to shoe riding horses and race horses.

The farrier may find employment at large horse farms or grooming stables. He may establish regular routes or make calls to stables at race tracks, riding academies, or private farms to do the work.

V64 Heavy Equipment Operator

Students interested in the operational functions of heavy earth moving equipment are trained in the Heavy Equipment Operator Curriculum. The student may choose two machines for his major and minor specialities to learn the operational functions. The class work consists of related subjects and operational principles.

Employment is found with contractors and state highway departments that use heavy earth moving equipment. The following is a list of typical earth moving equipment: pull shovel or back hoe, crawler type tractors, motor grader, scraper, shovel, drag line, clamshell, and crane.

Heavy Equipment Operator Training

V66 Hospital Ward Clerk

The Hospital Ward Clerk Curriculum is designed to prepare qualified ward clerks to perform non-nursing duties related to patient records and ward management, thereby freeing nursing personnel for direct patient care.

The ward clerk transfers medical orders from the chart to ward forms; enters information on the chart; maintains ward supplies; transmits routine inter-departmental, patient, and visitor communications; and functions as receptionist for the nursing unit.

V68 Knitting Machine Fixing

The curriculum in Knitting Machine Fixing is designed to prepare students to adjust, maintain, and repair hosiery knitting machines. Some of the operations practiced in the course include stitch forming; machine lubricating; positioning needles; replacing parts, attachments, and driving mechanisms; and trouble shooting.

The workers adjust, maintain, and repair knitting machines. Preventative maintenance is practiced by proper lubrication and replacement of worn parts on the machines.

V70 Masonry

The curriculum in Masonry is designed to train the individual to enter the trade with the knowledge and basic skills that will enable him to perform effectively. He must have a knowledge of basic mathematics, blueprint reading, and masonry technology. He must know the methods used in laying out a masonry job, with specific reference to rigid insulation, refractories, and masonry units specified for residential, commercial, and industrial construction.

Most masons are employed by contractors in the building construction field to lay brick and blocks made of tile, concrete, glass, gypsum, or terra cotta. Also, he constructs or repairs walls, partitions, arches, sewers, furnaces, and other masonry structures.

V72 Nurses' Assistant

The Nurses' Assistant Curriculum is designed to prepare both men and women for participation in bedside nursing.

The nursing assistant who does not need the skills or knowledge of a licensed practical nurse or registered nurse renders bedside nursing care to selected patients. The nursing assistant also performs certain nursing procedures according to policies of the employing hospital.

V73 Operating Room Assistant

This curriculum is designed to prepare a person by an organized educational program to share in the care of the patient in the operating room by functioning as a member of the surgical team, under the direct and continuous supervision of the registered nurse and the physician. The curriculum is planned for approximately 20-24 weeks. There will be approximately 10 weeks of classroom work and 10 weeks of clinical practice in the operating room under the direct supervision of qualified instructors.

The student will develop the knowledge and basic skills necessary to perform proficiently the functions of an assistant to the surgeon in the more common surgical procedures.

V76 Psychiatric Aide

The Psychiatric Aide Curriculum is designed to prepare specialized nursing assistants for patient care in institutions of the Department of Mental Health.

The psychiatric nursing assistant performs routine nursing care and routine ward duties of a non-professional nature.

V78 Sewing Machine Mechanic

The Sewing Machine Mechanic Curriculum is designed to prepare the student to adjust, maintain, repair, and rebuild all types of industrial sewing machines. Each student is required to disassemble, repair, assemble, and adjust the major types of power sewing machines. He begins with the study of the basic machines and works toward the more complex models.

There are many opportunities in the sewing industry for trained mechanics. They are employed in the garment factories that make blouses, dresses, dungarees, suits, sportswear, and other wearing apparel. The mechanic is in constant demand to adjust and repair malfunctioning sewing machines.

V82 Upholstering

In the Upholstering Curriculum students are taught the fundamentals and techniques of furniture upholstery work by starting on basic wooden frames. Materials and methods of padding and installing springs are studied and practiced on regular manufactured frames. Various styles and types of furniture are used in the training.

Many opportunities are available for trained upholstery workers in furniture plants and in upholstery shops. There are opportunities to become a general upholsterer or to specialize in an assembly operation doing piece work.

V86 Upholstery Sewing

In the Upholstery Sewing Curriculum industrial-type sewing machines are used to sew fabric and leather-type materials for upholstery work. Students are trained in the fundamentals of sewing operations so that speed and production may be attained. Preventative maintenance is also taught to insure good machine operation.

Jobs are available in all types of upholstery shops for manufacturing new furniture and re-upholstering. In many large factories, the sewer is paid for the work by the piece.

COLLEGE PARALLEL PROGRAMS 1967-68

COMMUNITY COLLEGES	PROGRAMS		PRE-PROFESSIONAL																							
	LIBERAL ARTS	Agriculture	Architecture	Art	Business Adm.	Business Ed.	Dental	Drama	Engineering	Forestry	Journalism	Law	Mathematics	Medical	Ministerial	Music	Nursing	Optometry	Pharmacy	Physical Therapy	Public Adm.	Science**	Social Work	Teaching Elem.	Teaching Sec.	Vet. Medicine
Central Piedmont	X	X				X	X		X	X	X	X		X					X		X		X	X	X	
College of the Albemarle	X				X	X																				
Davidson County	X				X				X				X									X		X	X	
Gaston College	X	X		X	X		X		X	X	X	X	X	X	X	X		X	X			X	X	X	X	
Isothermal	X				X			X	X			X	X	X		X							X	X	X	
Lenoir County	X	X			X	X	X		X			X	X	X	X			X	X	X		X	X	X	X	
Rockingham	X	X			X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sandhills	X		X		X		X		X	X		X	X	X	X	X			X			X	X	X	X	X
Southeastern	X			X	X	X	X		X	X		X	X	X	X	X	X				X	X	X	X	X	
Surry	X				X				X																	
Wayne	X																							X	X	
Western Piedmont	X			X	X				X	X				X										X	X	
Wilkes	X				X	X	X		X			X	X	X			X				X	X		X	X	X

* Central Piedmont Community College offers only the Freshman year of the pharmacology program.

** Pre-science is a flexible program designed to provide the first two years of college course work for the following majors; astronomy, biology, chemistry, geology, meteorology, and physics.

TECHNICAL PROGRAMS 1967-68

INSTITUTIONS / PROGRAMS	Accounting	Ag. Business	Agricultural Chemicals	Ag. Equipment	Agricultural Research	Air Conditioning	Architectural	Business Administration	Chemical	Civil	Commercial Art	Court Reporting	Dental Hygiene	Dental Laboratory	Drafting & Design—Furn.	Drafting & Design—Mech.	Electrical	Electromechanical	Electronics	E. D. P.—Business	E. D. P.—Scientific	Fire and Safety	Fire Science	Food Processing	Forest Management	Furniture Manufacturing	Hotel & Motel Management	Industrial Engineering	Industrial Management	Instrumentation	Interior Design	Library Assistant	Manufacturing	Marine	Mechanical & Production	Nursing	Ornamental Horticulture	Police Science	Poultry and Livestock	Printing Management	Recreational Grounds Mangt.	Sanitary	Secretarial—Eng. & Tech.	Secretarial—Executive	Secretarial—Legal	Secretarial—Medical	Soil and Water Conservation	Textile	Traffic & Transportation	Transportation Maintenance	Veterinary Medical
COMMUNITY COLLEGES																																																					
Central Piedmont	X							X	X	X	X		X			X	X		X	X			X																														
College of the Albemarle								X								X																																					
Davidson County		X						X								X	X																																				
Gaston College								X		X	X						X		X									X							X									X	X									
Isothermal								X											X																																			
Lenoir County	X	X						X				X				X			X																	X																		
Rockingham								X								X				X													X																					
Sandhills	X							X																																														
Southeastern	X							X																												X																		
Surry		X						X								X			X																																			
Wayne	X							X					X			X			X					X																													
Western Piedmont	X							X																																														
Wilkes	X	X		X				X		X		X								X																																	
TECHNICAL INSTITUTES																																																					
Asheville-Buncombe								X	X	X						X			X	X							X																											
Beaufort County								X																																														
Caldwell								X												X																																		
Cape Fear								X	X							X			X																																			
Catawba Valley	X	X					X	X						X		X		X	X	X																																	
Central Carolina		X			X			X								X			X																																		
Craven								X																																														
Durham	X							X								X			X																																			
Fayetteville	X	X				X		X					X			X			X																																		
Forsyth		X						X								X			X														X			X																	
Guilford	X							X					X	X		X			X						X																												
Onslow								X	X	X						X																																					
Pitt	X	X	X				X	X		X						X			X																		X																
Randolph		X																	X													X																					
Richmond								X								X			X	X																																		
Rowan								X								X			X					X									X																					
Southwestern	X							X																																														
Technical Inst. of Alamance							X	X	X			X				X			X	X	X											X																						
Wilson County	X			X			X	X								X			X																																			
W. W. Holding							X			X		X				X	X			X																																		
TECHNICAL INST. UNITS																																																					
Ansonville								X								X																																					
Carteret								X								X																																					
Cleveland								X								X																																					
Haywood								X								X									X																												
James Sprunt	X	X						X						X		X																					X																
Marion-McDowell								X																																													
Pamlico County																																																					
Robeson County																																																					
Roanoke-Chowan																																																					
Sampson	X							X																																													
Tri-County																X																																					
Craven								X																																													
Central Carolina		X			X			X								X			X																																		
Catawba Valley	X	X					X	X								X			X	X																																	
Cape Fear								X								X			X																																		
Caldwell								X												X																																	
Beaufort County								X																																													
Asheville-Buncombe								X	X	X						X			X	X							X																										
TECHNICAL INSTITUTES																																																					
Wilkes	X	X		X				X		X		X								X																																	
Western Piedmont	X							X																																													
Wayne	X							X						X					X						X																											
Surry		X						X								X			X																																		
Southeastern	X							X																																													
Sandhills	X							X																																													
Rockingham								X								X																	X																				
Lenoir County	X	X						X				X							X																																		
Isothermal								X											X																																		
Gaston College								X	X	X							X		X									X							X									X	X									
Davidson County		X						X								X	X																																				
College of the Albemarle								X								X			X																																			
Central Piedmont		X						X	X	X				X		X	X		X	X			X													X																		

VOCATIONAL PROGRAMS 1967-68

INSTITUTIONS / PROGRAMS	Air Cond. & Refri. Service	Auto Body Repair	Auto Mechanics	Bldg. Mat. M'ment. & Sales	Carpentry	Cosmetology	Culinary Science	Dental Assistant	Diesel Vehicle Maintenance	Drafting—Furniture	Drafting—Building Trades	Drafting—Electrical-Electronics	Drafting—Mechanical	Elec. Install. & Maint.	Electrical Lineman	Farm Machinery Mechanics	Farriering (Horseshoeing)	Graphic Arts—Printing	Heavy Equip. Operator	Hospital Ward Clerk	Knitting Machine Fixing	Light Construction	Machinist	Ind. Maint.—Electromech.	Marine Mechanics	Masonry	Medical Lab. Assistant	Medical Office Asst.	Nurses' Assistant	Operating Room Asst.	Practical Nursing	Production Assist. (Furn.)	Psychiatric Aide	Radio & TV Servicing	Sewing Machine Mechanic	Sheet Metal	Textile Production	Tool & Die Making	Upholstering	Upholstery Sewing	Welding
COMMUNITY COLLEGES																																									
Central Piedmont	X	X	X					X															X							X	X										X
College of the Albemarle			X																				X		X						X										X
Davidson County		X	X										X	X									X											X							X
Gaston College	X		X	X									X	X									X											X				X			X
Isothermal			X											X																											X
Lenoir County	X		X			X																	X											X							X
Rockingham			X																				X																		X
Sandhills		X	X								X																		X					X							
Southeastern			X			X																									X			X							X
Surry			X		X									X																	X										X
Wayne			X					X	X						X								X						X		X					X					X
Western Piedmont			X										X																												
Wilkes			X		X						X															X					X			X							
TECHNICAL INSTITUTES																																									
Asheville-Buncombe	X		X		X		X		X														X								X							X			X
Beaufort County			X											X																	X										X
Caldwell			X			X				X			X	X																	X	X					X				X
Cape Fear	X		X										X										X		X					X	X			X							X
Catawba Valley			X											X								X	X								X			X					X	X	
Central Carolina			X										X		X								X	X							X							X			
Craven													X										X								X										X
Durham			X								X		X																X		X										
Fayetteville	X		X																				X								X			X				X			X
Forsyth	X		X						X		X							X					X								X			X							X
Guilford	X		X			X							X									X	X								X					X			X	X	X
Onslow	X		X																							X					X			X							X
Pitt			X														X						X								X			X							
Randolph			X										X	X									X								X										X
Richmond			X								X		X										X								X			X							
Rowan	X		X										X	X									X								X			X	X						X
Southwestern			X										X													X					X			X							
Technical Inst. of Alamance			X					X															X								X										
Wilson County			X												X				X				X								X										X
W. W. Holding			X								X	X	X	X									X				X		X		X			X				X			
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Ansonville			X											X												X															X
Carteret County																									X						X										X
Cleveland			X										X																		X										X
Haywood County	X		X											X																	X										
James Sprunt	X		X			X							X	X												X					X			X							X
Marion-McDowell			X										X	X																											
Pamlico County																									X	X															
Roanoke-Chowan			X																			X							X												X
Robeson County													X			X															X										X
Sampson			X																												X										
Tri-County					X	X																				X															X

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To use, bend book and follow margin index to page with black edge marker.

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Section II: Educational Programs

Section III: Curriculum Offerings

Section IV: Curriculum Descriptions

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VT 005 457
Byram, Harold M.; McKinney, Floyd
Evaluation of Local Vocational Education Programs, A Manual for Administrators, Teachers, and Citizens.
Curriculum and Instructional Materials No. 3.

Michigan State Univ., East Lansing. Dept. of Secondary Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Mar68 85p.

*PROGRAM EVALUATION; *GUIDELINES; *PROGRAM GUIDES; *VOCATIONAL EDUCATION; EDUCATIONAL NEEDS; LEADERSHIP RESPONSIBILITY; JOB PLACEMENT; EDUCATIONAL OBJECTIVES; VOCATIONAL FOLLOWUP; CITIZEN PARTICIPATION; PROGRAM PLANNING

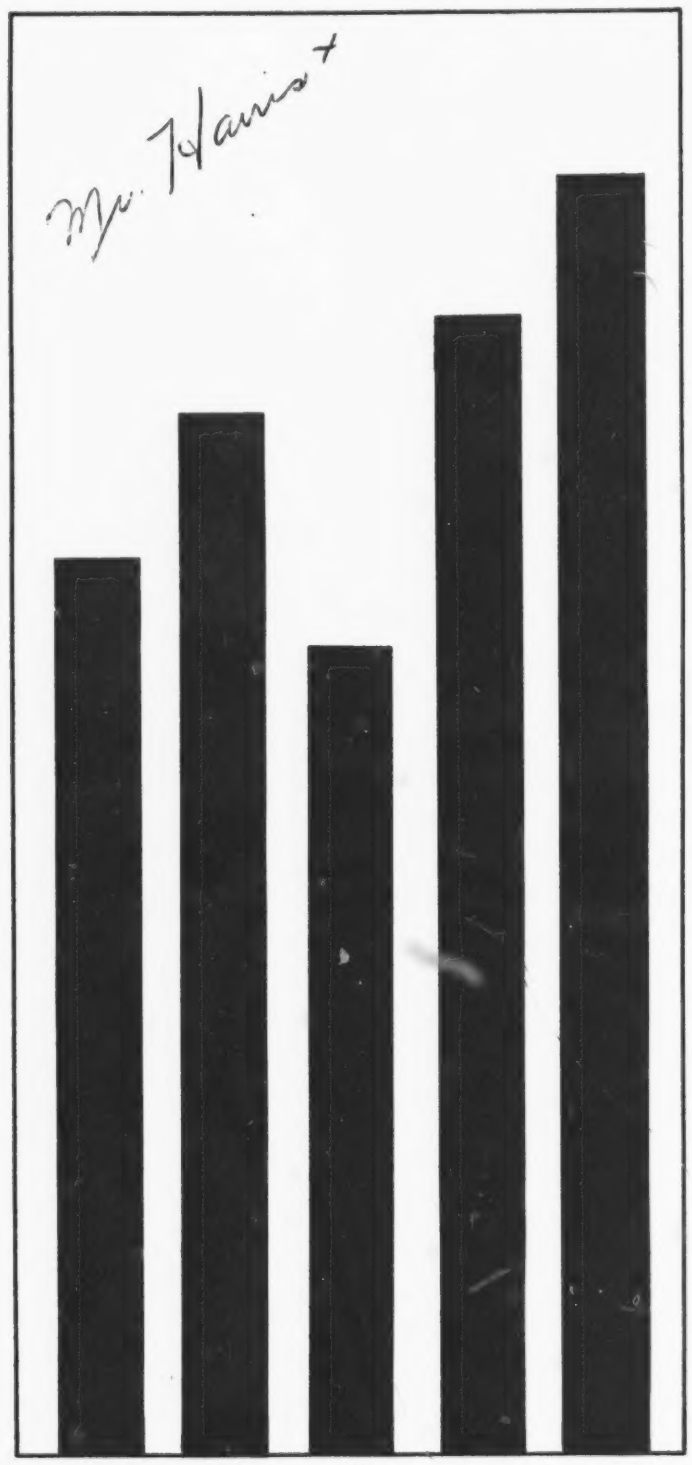
Information on preparing and organizing educational staffs and citizen groups for the systematic study and analysis of occupational education for evaluation purposes is presented. It is based on the viewpoint that local evaluation is a team effort of educators assisted by citizens and is focused on the human results of the program in terms of meeting the needs of people and of the business community for trained workers. Major chapters are: (1) Preparation for Evaluation of Local Programs of Vocational Education, (2) The Role of the Chairman or Leader of the Local Program Evaluation, (3) Development of Philosophy and Objectives of Occupational Education, (4) Approaches to the Assessment of Outcomes of the Programs, (5) The Organization and Use of a School Placement in Service Evaluation, (6) Conducting Follow-Up Studies, (7) Processes of Citizen Involvement in Program Evaluation, (8) Studying Needs for Vocational Education with Reference to Existing Programs, and (9) Reporting and Implementing. The appendix includes (1) forms for student application, placement office employer record, placement office referral, and individual placement record, (2) an interview evaluation checklist, and (3) a citizen's committee evaluation checklist. This is a revised edition of ED 010 791 or VT 000 026 (ARM Fall 1967). (EM)

VT 005 457

55p APR 3 1968

RESEARCH & DEVELOPMENT PROGRAM
In Vocational-Technical Education

ED036657



Evaluation of Local Vocational Education Programs

Second Edition

Department of Secondary Education and Curriculum
College of Education
Michigan State University
East Lansing, Michigan

March, 1968

VT005457

RESEARCH & DEVELOPMENT PROGRAM
In Vocational-Technical Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EVALUATION OF LOCAL VOCATIONAL EDUCATION PROGRAMS

Second Edition

A Manual for Administrators, Teachers, and Citizens

Curriculum and Instructional Materials No. 3

Harold M. Byram
Professor of Education and
Project Leader

and

Floyd McKinney
Graduate Assistant and
Assistant Project Leader

Department of Secondary Education and Curriculum
College of Education
Michigan State University
East Lansing, Michigan

March, 1968

OVERVIEW

The first edition of this manual was one outcome of the research project, "Development and Demonstration of Procedures for Evaluation of a Comprehensive Program of Vocational Education in the Public Schools," conducted from April 15, 1963 to July, 1965. The project was financed by the Michigan Department of Public Instruction as a part of its program of encouraging and supporting research in vocational education. This second edition incorporates many of the procedures that were tried out, as well as new ones demonstrated in a second project, "Evaluation Systems for Programs of Vocational Education in the Public Schools", M.S.U. Research and Development Program in Vocational-Technical Education, Contract No. O.E. 5-85-111, Project No. 701, financed by Michigan State University and the United States Office of Education.

The assumption underlying both these projects was that the public schools are seeking more effective ways of determining the effectiveness of these programs for preparing employment-bound youth and adults for a changing occupational complex. The past seven years have seen an up-surge of interest in and concern for the evaluation of vocational education -- on the part of citizens as well as on the part of school administrators and their staffs. This manual is intended to serve these broad interests and needs.

As presented in this manual, local program evaluation could be a major undertaking involving a number of professional people and citizens. Many of the procedures could, of course, be followed without as much staff involvement as is suggested.

The principles and practices in this manual are based to a large extent on the experiences of, and study by the staffs of three Michigan public schools which cooperated in the first project, and 10 schools cooperating in the second project during 1966 and 1967, (See Appendix H for list of cooperating schools).

The instruments and other forms included in the appendix are some of those which were developed for, or used in these schools. The cooperation and help of the local project directors and research associates are hereby acknowledged. These men were aided by their administrators as well as by teachers' committees and citizens' committees.

The authors of the manual were assisted in the preparation of the manuscript of the first edition by Arlynn D. Anderson, formerly

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1. THE POINT OF VIEW OF THIS MANUAL

Why Conduct Program Evaluation

Programs of vocational and technical education may have far reaching effects on the speed of development and expansion of the economy. They help to shape the future work and lives of youth and adults. From many quarters have come questions as to the degree to which such programs are as available as they should be and are as effective as they might be in meeting the needs of those who support them. Vocational and technical education is the most expensive part of school programs. It is natural that the evaluation of vocational education programs has been given highest priority by the U.S. Office of Education for support of research and development.

What Is Involved in Local Program Evaluation

Teachers have been evaluating the achievement of their students for years, but perhaps may not have gone beyond this. The concern here is with the question, "What does the total effort of the teachers and the students add up to in terms of providing what was hoped for in preparation for work." It is recognized that programs are being evaluated, perhaps informally or indirectly, but the concern here is with a systematic, organized approach.

Evaluation is prerequisite to improvement of program. It properly starts with the identification or formulation of program goals or objectives. The point of focus is the extent to which these goals are being achieved in the program.

The Process and the Product

The basic concern of people affected by programs of occupational education is whether they are getting what they hope to from the programs, and whether this is comparable to what they are putting in. This is the product or output. The input or process has to be considered, too to determine whether the input is justified or adequate.

Most accreditation, and state evaluations of local programs have placed considerable emphasis on the ways and means (the process). The approach has been to set up standards to be met and to determine how nearly a school program measures up to it and/or how a given program compares with others in the state. Most people involved in or affected by such programs usually have only a token interest in this approach. It is not treated at length in this manual.

Self Evaluation and "Outside" Evaluation

An evaluation may be made by the school staff and administration through committee work. The advantage of this approach is that the persons involved must subsequently implement recommendations for change and bring about the changes or improvements recommended. The difficulty which sometimes occurs, however, is that the people operating the program may be so close to it that they fail to sense some of the important elements to be examined or the significant needs to be explored. Some school people may feel that they lack necessary competence in developing evaluation instruments, or in analyzing and interpreting the data to be collected.

It is not surprising, therefore, to find that some evaluations of vocational education programs have been carried out by employing outside experts to come into the school and either make the evaluation or assist school people in making it. The benefits of expertise are obtained, but this approach also has some shortcomings. Outside experts may not sense all of the concerns of the school staff and of the people of the community. Moreover, there is no assurance that the findings and recommendations of such a group of evaluators will be heeded or implemented, especially if those who are to carry them out have not had a part in formulating them.

Some evaluations, conducted by teams of professional evaluators also tend to stress ways and means rather than goals and outcomes. This emphasis often results from the development and use of instru-

ments based on "evaluative criteria."[1] These instruments tend to stress the measurement of conformity to pre-determined standards regarding laboratories and shops and their equipment, the qualifications of teachers, the scheduling of classes, and the selection of class personnel.

Involvement in the Evaluation

One of the principles of evaluation receiving increasing acceptance is that those who are to be affected by an evaluation program and/or who will be responsible for implementing any changes which may result from it should be involved in the process of evaluation. This is to say that those who are to check on the program outcomes should be those who helped to establish the goals of the program. So, theoretically at least, every school staff member -- but particularly those who have responsibilities for specialized occupational

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[1] These formalized instruments may, however, be of value to a school committee on evaluation. Examples and sources are:

a. "Evaluative Criteria for Distributive Education," "Evaluative Criteria for Vocational Agriculture," and "Evaluative Criteria for Industrial Arts Education." American Vocational Association, 1025 15th. St., N.W., Washington, D.C. 20005.
b. "A Procedure for Evaluating a Local Program of Trade and Industrial Education." American Technical Society, Chicago, Illinois.
c. "Evaluative Criteria for Business Departments of Secondary Schools," Monograph #90. South-Western Publishing Company, Cincinnati, Ohio.
d. "Evaluative Criteria for Use in Evaluating Secondary School Programs of Vocational Education," The Cooperative Study of Secondary-School Standards. National Education Association, Washington, D.C.
e. "Evaluative Criteria for Vocational Technical Programs," Commonwealth of Pennsylvania, Department of Public Instruction, Bureau of Curriculum Planning and School Evaluation, Harrisburg, Pennsylvania.
f. The Vocational Education Division, State Department of Public Instruction, Raleigh, North Carolina has developed separate "evaluative criteria" for the following fields: distributive education, home economics education, industrial cooperative training, trade preparatory training, guidance services, administrative and supervisory personnel, and a self evaluation guide.

preparation -- should be involved more or less in the total evaluation project. Pressure of staff assignments and lack of time naturally will result in the assignment of many of the time-consuming aspects to a portion of the staff and administrators rather than to all.

The Point of View of This Manual

The local evaluation of vocational and technical education is looked upon as a team effort. The team is one made up of professional educators. This team is assisted by interested and concerned citizens. The focus is on the human results of the programs in terms of meeting the needs of people and of the business community for trained workers.

It is assumed that these teams or committees will develop instruments and devices to aid in evaluation, thus only a limited number of these are included here. Consultants are to be utilized for their expertise, but not to come to the school to make evaluations. The sections that follow will deal with the preparation for and organization of staff and citizen groups for the systematic study and analysis, which may lead to eventual program improvements.

2. PREPARATION FOR EVALUATION OF LOCAL PROGRAMS OF VOCATIONAL EDUCATION

Deciding on What to Include in the Evaluation

The scope of an evaluation of vocational education will depend upon what administrators and teachers want to include with the advice of knowledgeable citizens. As far as curriculum is concerned, it is suggested that all of the curriculum that has vocational objectives be considered -- at both the high school and post-high school levels. Evaluation should not be limited to those subjects reimbursable under the National Vocational Education Acts. On the other hand, most schools offer several practical arts courses such as industrial arts and home economics at the junior high school level. These are usually thought of as a part of general education, and would not necessarily be included in a total program evaluation. While home economics, as a field of study, has not aimed primarily at preparation for wage-earning employment, it should be included. Any practical arts program could be included at the discretion of those in charge of the local study, and depending on their relevance to occupational education.

If the evaluation of the program is to be comprehensive, it should not be narrowed to the formalized courses currently offered in the several fields. For example, even though no instruction in vocational agriculture may be offered in a given school, it should be considered, since there may be a need for such instruction in terms of employment opportunities and/or occupational interests on the part of high school students or adults. Likewise, a school that offeres no preparation for industrial or distributive occupations should consider whether needs in these areas are being met.

Since it would be hoped that all subjects in a school curriculum contribute either directly or indirectly to preparing youth and adults for the world of work, the total school curriculum should be considered. The amount of emphasis which would be placed on each area of the curriculum, however, would depend on how specifically each area does or could contribute to preparation for employment.

It is highly important that the evaluation include post-high school phases of the program. More specialized vocational education should, and probably will, be given at this level. The demand for adult vocational and technical education, resulting from the changing occupational complex, including the need for re-training, serves to underline the importance of the post-high school levels.

The growing importance of post-high school education lends support to the inclusion of all former students in the school regardless of the curriculum pursued by them. The actual conditions where they are employed and the characteristics of these youth are of importance, whether they are continuing their education or are working.

The program of vocational guidance definitely needs to be considered. A guidance program should include provisions for placement of graduates in employment, and for follow-up of these and former students.

Broadening the Approach of Evaluation

Teachers generally have accepted responsibility for evaluation of their instruction. They usually have tended to focus on evaluation of student achievement. Beyond this, some teachers have also sought to validate the content of the courses they teach by asking for reactions of students and parents to the content of these courses. Going a step further, some teachers have gone about evaluation quite systematically -- by identifying objectives, behavioral goals, and outcomes, and then determining the kinds of evidence to collect and interpret.

It has been rather infrequently, however, that teachers have given much more than passing thought to the provisions for vocational education of the school as a whole. The comprehensiveness of the entire program of studies, and the extent to which they combine in ways which prepare youth and adults for the world of work, have not constituted a primary concern of many teachers.

Before a project on the evaluation of vocational education programs is started, it should be made clear to administrators, teachers, and citizens, that total effectiveness is to be studied.

This effectiveness should be judged in terms of the extent to which all aspects of the school programs help the individual to become employed, satisfied, and successful in the changing world of work.

Administrative Directives and Authority in Program Evaluation

The initiation of a project to evaluate the total program of vocational education in a school may come from the chief administrator of a system or from the board of education. The school board should be made aware of the need for evaluation and what will be involved. The project should be initiated, only when the board and the school staff want and feel the need for it.

One of the next steps is to appoint an individual as the leader of the evaluation effort. In a small school this person could be a teacher, if time were provided for him to do this work. It could be the high school principal. However, if the principal is to direct the study, it would be desirable that he be freed from some of his regular duties, or that a staff member be assigned to him as an assistant on evaluation -- with time provided in the staff member's schedule to do this work.

In a few small schools and many medium-sized schools, and in all large schools, the appointment of a local director of vocational education either part time or full time would be justified. Since direction of program evaluation should be one of the functions to be performed by a local director, he might be the logical person to be assigned this responsibility. One important point needs to be stressed here, however. The local director of vocational education is not generally regarded as being a line-staff officer. However, if a line-staff officer is named to be the director of the study, he may have a co-director or assistant to whom might be delegated the authority necessary to provide the leadership required to elicit cooperation on the part of staff. Staff members should be made aware of the responsibilities assigned to the leader of the evaluation project and of their own roles as they cooperate with him.

The person who is to direct the evaluation of programs of vocational education should be one who is interested in, and who has understandings about, occupational education; and who has sufficient experiential background and education to justify him in this leader-

ship position. Other individuals who could be considered would include the curriculum coordinator, the director of research, or the assistant principal. In small schools, this role might need to be accepted by the superintendent of schools.

In addition to time available for working with teachers, committees, and employers, and time for study, research, and writing, the director of evaluation should be provided with clerical help, equipment, supplies, and necessary travel funds. It has been demonstrated that the designation of a research associate from among the school staff is a successful practice. This person can work with the local evaluation leader as a partner on a two-member team. He should have released time for development of statements of objectives and instruments for gathering data; and for reporting on staff and committee activities and outcomes of the evaluation effort. The role of the leader is described in greater detail in the following section.

3. THE ROLE OF THE CHAIRMAN OR LEADER OF THE LOCAL PROGRAM EVALUATION

Orientation of Staff, Communications

Several activities have been found effective for orientation of staff to an evaluation project. Perhaps the most common is the use of regular faculty meetings for two-way communications regarding those parts of the school program contributing most directly to preparation for the world of work. The faculty discussion presents an opportunity for many staff members to increase their understanding of specialized instruction for employment-bound youth.

Faculty meetings have been used to emphasize the point that every staff member may make a contribution to occupational preparation through instruction and guidance. They also have been used to point out the need for development of occupationally oriented courses which could be beneficial to all students looking forward to employment.

Some local leaders have, in addition to or in place of these general staff meetings, held conferences of all teachers of vocational and practical arts courses. These may be held during pre-school-opening conferences or during the regular school year.

Consultants have been used in all of these types of meetings -- to raise or discuss questions concerning what aspects of occupational preparation ought to be studied. They also have been asked to explain the meaning of, and the varied approaches to, evaluation; and to describe evaluation practices used by other schools. Other

effective means of orientation of staff to the project have included a professional newsletter, and/or a school newspaper.

Organizing and Utilizing a Staff Committee on Evaluation

Some teachers have a tendency to feel threatened at the prospect of an evaluation. They fear that it may mean an evaluation of them as teachers or of their courses or instruction. Such persons may have a tendency to acquiesce to an evaluation if it is directed at such aspects as equipment and facilities. It is very important to get them to look at program evaluation in an objective manner.

There is a great deal to be gained from the appointment and use of a staff committee. In some systems there may have existed only minimal communication among teachers in different vocational education specializations or between them and other teachers.

The appointment should be officially made by the administration. There is need for an understanding at the outset of the approximate amount of time and effort that will be expected.

Identifying and Selecting Areas Needing Study

The central question to be answered by the local leader and staff or staff committee is: What do we need to study with respect to vocational-technical education in this school and community? Consultants may be helpful at this point by suggesting questions to be considered. Some typical concerns might be:

- What should this school be trying to do to prepare employment-bound youth for the world of work?
- How can we determine if our former students are successful in getting employment and succeeding in it?
- What do the changes in occupations and employment mean for this school program?
- Is our program successful in meeting the needs of former students and other adults who lose employment or who are seeking other or better work opportunities?
- What occupational categories or fields, not represented by existing curricula or departments in the school,

should be considered -- in view of the changing occupational scene?

- How effective is this school in helping youth to take advantage of occupational preparation programs here, and/or in an area vocational school?

- To what extent does the present curricular offering reflect the occupational training interests of students?

The director should encourage the school staff to bring up these and other pertinent questions. The staff committee may then proceed to select from them those that will be studied.

Coordination of Staff and Committee Activities in the Evaluation Process

Effective ways of coordinating staff work include the use of staff committee on evaluation, and the use of small group meetings. A common practice is to hold a monthly meeting of the vocational department heads. In a larger school such meetings are often alternated with semi-monthly meetings of smaller groups.

The leader of the local evaluation project is in a key position to cooperatively develop purposes and plans for the project. His role encompasses functions described in this section and, in addition, those functions necessary to give leadership to the other activities discussed in this manual.

Local leaders and their associates have found that keeping records of their own activities helps to clarify for themselves and others their roles in evaluation. These records have included logs of their own activities, minutes of meetings and conferences, and copies of materials produced -- including data-gathering instruments, correspondence, and similar materials. Some or all of these records may be of value in helping directors to evaluate their own activities.

Providing Time for Committee and Individual Work in Evaluation

In schools where a concerted effort at local program evaluation has been made the staff time problem has had to be dealt with. A variety of ways of meeting this problem is revealed and may be suggestive to other schools.

In some schools total school curriculum study programs have been under way, with provision for staff time made by the administration. In these schools the vocational education evaluation committee has been a part of the curriculum study program.

Some schools have budgeted funds for inservice education and curriculum planning. These could be used to support staff activities in the evaluation program.

There are almost always members of school staffs who are matriculated at a university for graduate study. Independent study or research for graduate credit is another way of encouraging staff work on evaluation. Some schools have enlisted staff members' time and effort through credit workshops conducted by a university or by a local educator approved by the university. There are many instances of staff members who, when working on a comprehensive evaluation program, have found "spin-off" research that they can do on a subsidiary problem for independent study credit or for thesis.

As teachers and school administrators negotiate master contracts in the future, they may well include provisions for time to work on projects of this sort and others calculated to improve the instructional program of the school.

4. DEVELOPMENT OF PHILOSOPHY AND OBJECTIVES OF OCCUPATIONAL EDUCATION

The Total School Program in Relation to Occupational Education

The term, "occupational education," is used here to connote all of the education provided by the school that helps to prepare individuals for entrance to and sucess in the occupation. It includes, in addition to vocational education, vocational guidance, the development of attitudes toward, and habits of work, and abilities to continue learning. A statement of philosophy and objectives of occupational education, therefore, should be developed by the entire school staff. An excerpt from such a statement developed by the faculty of one school follows:

> Successful occupational training implies effective use of basic skills begun in elementary schools. It must be related to academic and cultural courses in the secondary schools. The interdependency of all disciplines must be recognized as being fundamental to the total educational development of secondary youth. Therefore, all subject areas must contribute to the goals of training for occupational competence. A program of occupational training for all youth which focuses upon good achievement of basic learning skills and related student interests and abilities and instruction to realistic goals will require all teachers to think how the separate disciplines contribute to these occupational goals. Such a program will be in the best interests of the individuals, the community, and the nation.

Objectives to Which Most School Subjects May Contribute

The faculty activity of discussing and developing a statement of philosophy is an essential step leading to enunciating objectives. An example of statements of staff objectives developed in the same school follows:

- To develop staff appreciation for realistic goals of all their students
- To maintain sincere and continuing support of the community
- To develop attitudes of parents in terms of what is realistic for their children

A statement by this school of what it regards as suitable objectives of instruction also follows:

All students should have an opportunity to develop:

- An appreciation of doing a job well, regardless of kind or degree, recognizing that there is dignity in all kinds of work
- An understanding of how work can become a source of satisfaction as well as a source of income
- Abilities, limitations(sic) and interests vocationally and avocationally
- An appreciation of good interpersonal relationships vital to the free enterprise system
- An appreciation of tools, materials, knowledge, skills and terminology used in given occupations
- A basis for selecting further high school or post-high school training
- Economic understanding

Objectives of Specialized Instruction Programs for Youth and Adults

Attention here is focused on the series of courses and experiences that make up an instructional program for each field of vocational

education represented in the school vocational curricula. The staff members identified with each field, aided by a citizens' advisory committee, should be expected to formulate the objectives for each field.

These objectives should reflect those of the total offering supporting the broad occupational objectives. They should, as well, reflect the state, regional, and national trends in occupational opportunities and employment needs of the people, and the interests of youth and adults who make up the clientele. As an example, the following are a few of the objectives in a list for a business education program as formulated in another school by the staff in this field as it prepared to evaluate outcomes:

- To stimulate interest in further education in business
- To provide skills with which to help finance college
- To develop competency in handling and controlling the management of business operations
- To provide an opportunity for the development of understanding of financial and administrative control

The wording of statements of the objectives listed thus far in this section could be criticised by experts in taxonomy of educational objectives. It must be recognized, however, that these statements are meaningful to those who formulated them, and thus would be expected to prove useful to them.

Identifying Outcomes Anticipated from Specialized Courses

The next break-down in the hierarchy of objectives should focus on individual courses. Teachers generally feel more at home in performing this task. Among the objectives that they should consider are those relating to job performance -- that is, to occupational competencies or abilities and skills. Examples of such statements, stemming from a number of school evaluation reports, follow:

Field	Course	Examples of Competency
Agriculture	Mechanics	Ability to perform maintenance operations on a farm tractor
	Management	Ability to keep general farm accounts

Field	Course	Examples of Competency
Agriculture	Horticulture	Ability to grow chrysanthemums
	Animal Husbandry	Ability to plan a ration for growing pigs
Office	Typing II	Ability to set up and type letters using a variety of letter styles and different types of punctuation
	Business Machines	Ability to operate all machines assigned
	Bookkeeping	Ability to make initial entries in a journal
Distribution	Merchandising	Ability to present information to sell a product
	Display	Ability to arrange cosmetics attractively in a show case
Service Occupations	Food Service	Ability to set an attractive table
		Ability to meet people and to serve them
Home Economics	Food	Ability to plan, prepare and serve attractive, well-balanced meals
	Home Nursing	Ability to make a patient's bed give a bed bath, and administer medicine as prescribed by a physician
	Interior Decorating	Understanding of qualities to look for in the selection of carpets, draperies, upholstery, etc.
Industrial Education	Drafting	Ability to completely detail

Field	Course	Examples of Competency
Industrial Education	Drafting (cont.)	components from layout and assembly drawings
	Fluid Power	Ability to maintain and repair hydraulic and pneumatic components
	Machine Shop II	Ability to set up a project using the mass production method

Most statements of objectives naturally will include, in addition to competencies or abilities, certain attitudes, understandings, and appreciations. These factors are important in teaching, and their attainment should be evaluated by teachers as a regular and continuing activity. Primary attention in the evaluation, however, may be placed on competencies, since employers often do mention qualifications in terms of these attributes.

The competencies illustrated above are worded in a general manner. In this form it is possible to use them for subjective evaluations that may be elicited from employers, and for self appraisals by former students. If objective means are to be employed in assessing these outcomes, however, it will be necessary to "spell out" standards of attainment.

Setting Standards of Attainment for These Outcomes

When the outcomes of instruction, in terms of specific competencies, have been identified and stated to a reasonably specific degree, a pertinent question to ask is: How well is it hoped that the individual student will be able to do what we say he should? For example, if the learner should acquire competency to adjust the brakes on an automobile, the question is: How well should we expect him to do this? Should he be able to do the job in a given amount of time? Should he be equally competent on all makes of cars, or on just certain ones? Against what standard shall acceptibility of performance be measured? Mager[1] refers to these as behavioral goals, a study of his suggestions for derivation of these may be helpful at this point.

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[1] Robert F. Mager, Preparing Instructional Objectives, Palo Alto, California: Fearon Publishers, 1962, pp. 13-43.

Some of the statements of occupational competencies or abilities may need to be broken down into component parts before a specific goal can be stated in such a way that attainment could be readily measured. A logical source of standards for specific competencies is the requirement for entry employment. The degree of attainment might vary according to the local school offering. Following are some specific statements of this type:

Typing I	Ability to type 25 words per minute for five minutes, with three errors or less
Shorthand I	Ability to take dictation at 60 words per minute for three minutes, and transcribe with 95% accuracy
Drafting III	Ability to apply limit dimensioning in terms of tolerance and allowance based upon judgment and A.S.A. Limit tables
Soils	Ability to classify a given tract of land on the U.S.D.A., S.C.S. classifications, with 95% accuracy
Wardrobe Care	Ability to identify major natural fabrics and combinations as displayed in a fabric shop, with 95% accuracy
Food Service	Ability to prepare at least ten customer bills in a place of business, with no errors

Some of the foregoing statements may be made more specific through study of employment requirements, and by adjusting them to the age or grade level of students to whom they apply. Both employers of full-time graduates, and of part-time students on a cooperative-education basis, are in a position to state, in fairly specific terms, the minimum abilities they are looking for in employees. These abilities may be modified by teachers in terms of what it is reasonable to expect of the students in question. The assessment of attainment of specific outcomes, as well as of other, more general outcomes will be treated in the following section.

5. APPROACHES TO THE ASSESSMENT OF OUTCOMES OF THE PROGRAMS

The measurement of the attainment of objectives, both of programs and courses that compose these, is a very basic approach, as indicated in the preceding section. Actually, this may properly be thought of as an approach to quality control.

Means of Quality Control

American industries and businesses have been increasingly emphasizing quality control. When quality control is inadequate, manufacturers find it necessary to recall products already in use by consumers and to remedy deficiencies. An example is in the automobile industry. Schools generally would find such a retrieval and "re-teaching" procedure impractical, although some types of adult education would fall under this category.

A number of questions could logically be raised by an evaluation committee. Included might be these:

- Is high quality instruction characteristic of current instruction in classroom, laboratory and shop?
- Is quality built into the supervised on-the-job experiences?
- Is there evidence of satisfactory achievement in the various youth organizations, e.g. FFA, FHA, VICA, DECA, and FBLA?

Since good occupational education includes good guidance a fundamental question also might be raised regarding this: Are students making realistic occupational and educational choices and plans? Evidences needed for answering such a question would relate to occupational choices claimed and vocational interests objectively measured; to educational plans in relation to potential ability to pursue further study, as well as resources for further study; and to occupational opportunities and what students know about these.

Another question to be considered is whether vocational students are those who have a potential for success in the occupations represented in the programs. This should not be merely an inventory of enrollees, but should involve the determination of why other students with similar potential are not enrolled or encouraged to enroll.

The committee activities appropriate to assessment of quality control through the questions just stated may suggest several activities: developing new improved measures of achievement in line with behavioral goals; securing ratings on students in their on-the-job learning experiences; studying students' records and their vocational and educational plans; and studying students not currently enrolled in vocational courses.

Assessment Through Follow-up

Placement and follow-up of former students should be built into any school program that includes preparation for work. Through these it is possible to evaluate the appropriateness of placement; the success of former students, in their early full-time employment; their job satisfaction and adjustment concerns; and some inklings in regard to possible improvements in the program.

Placement service is described in the final section of this manual. Successful practices in conducting follow-up studies are described in section 7.

Assessment Through Employer Feed-back

Employer satisfaction with workers who are former students can be obtained through questionnaire or interview. The interview may be either informal or highly structured. It is recognized that there would be some limitations on the validity or helpfulness of feed-back information. On the other hand, without some assessment of this sort it is very difficult to determine the appropriateness of the substan-

tive content and behavioral objectives of courses offered. Teachers who interview employers will benefit greatly from this type of contact. Interviewing techniques are discussed in section 7.

If a structured evaluation from employers is desired a supervisor's rating scale may be developed. Such a form is shown in a report of a recent multi-city survey of vocational education programs.[1] It provides for a five-point rating on overall performance and preparation, and on 18 qualities and competencies in four areas: occupational knowledge, manipulative skills, personal and social qualities, and work qualities and habits.

Appraisal Through Citizens' Committees

Employer feed-back may be brought about in a more structured way than that described in the preceding paragraphs. This is through organizing their representatives and other citizens into committees to study data and other information needed to determine the extent to which intended or hoped for outcomes are being realized.

It is important not to allow or encourage the committee to be a "rubber stamp" for programs. If it has a part in setting goals and criteria, as well as in making judgments in the light of the information provided it, then it would contribute significantly to the total evaluation effort. Procedures in citizen involvement are treated in greater detail in section 8.

Utilizing Services of Consultants

As used here, a consultant is a person from outside the school staff who has had experience and/or education that qualify him to give advice, information, and/or suggestions regarding professional decisions, plans, or other matters which should be studied.

They may be persons living in the community, or in nearby communities, or who work in state or federal agencies, or in state institutions of higher education.

Consultant service is most appropriately requested after some prelim-

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[1] Jacob J. Kaufman, et. al., The Role of the Secondary Schools in the Preparation of Youth for Employment, University Park, Pennsylvania: The Institute for Research on Human Resources, The Pennsylvania State University, 1967, pp. D-40-D-12.

inary work has been done on the problem being dealt with. When advice of a specialized nature, or information is needed, either or both may be available from or through a consultant. Universities with programs of vocational teacher education have members on their staffs who have knowledge and experience in vocational education, and in research and evaluation. The consultants on the staff of many state departments of public instruction have similar competencies. They also have direct access to certain information regarding programs in schools. The state employment offices of the U.S. Department of Labor have staff members with a background of acquaintance with labor market trends, unemployment information, and some training programs (e.g., Manpower Development and Training). County directors of the cooperative extension service have served as consultants for some educational planning committees. There are many business, industrial, and agricultural associations which have staff members who have access to, and should be able to supply pertinent occupational information.

Some of the types of persons just named, who are employed to give consultant service, as well as others who are state or county employees, will give a limited amount of consultant service without cost to the local school, or with reimbursement of expenses. It is sometimes necessary to contract for such services, particularly if a consultant is to be used several times, or over a substantial period of time. Listed below are a few of the specific kinds of help which may be available from consultants:

- Meeting with the board of education to discuss bases for evaluation of vocational education
- Assisting in determining the phases or questions which should be studied
- Suggesting possible solutions to problems relating to evaluation procedures
- Supplying information necessary for development or modification of overall objectives
- Giving advice on organizing and using citizens' advisory committees
- Assisting in identifying local resource persons and/or consultants
- Assisting in developing data-gathering instruments such as survey forms, questionnaires, and interview forms

- Providing occupational information of state or national scope
- Adapting instruments to data processing equipment
- Assisting in determining how to analyze, summarize and interpret data
- Assisting the local director in training staff members in evaluation practices
- Working with other consultants, thereby serving as a contact with yet another agency of potential assistance

The leader of the local evaluation project, or a local administrator, would do well to think rather specifically of the questions to be asked of a consultant. He also should consider the specific type of information, or instruction, or advice, that should be sought. These questions could be in writing, and they should be stated rather specifically if the time of the consultant and of the school staff are to be well utilized.

If a consultant is brought in to give help to plan a survey or other type of inquiry, it would be appropriate to have developed a statement of the purposes and the scope of the proposed study. When a consultant is invited to meet with an advisory committee or a staff committee, the committee members should be informed in advance that the consultant will be present, and of the type of help that may be expected from him. This would be unnecessary if the committee, as a body, previously had discussed its need for help and had requested a consultant for this.

When a consultant is asked to deal with, or to react to considerable local data or other information, the relevant documentations should be supplied to him in advance so that he may study them. If there are controversial local issues, they should be made known so that the consultant can decide whether to avoid them, to supply information to aid in settling them, or to take a position with respect to them -- depending on the understanding on these matters between the leader of the evaluation and the consultant. In addition, proper interpretation of local conditions should be given to the consultant if effective results are to be expected.

Staff and Administrative Cooperation with Consultants

The staff evaluation committee or others utilizing consultants, should schedule and plan their own activities so as to be free from conflict-

ing duties or activities at the time agreed on for consultant work. In fairness to the consultant and certainly in the interests of accomplishing the purposes of conferences with the consultant, arrangements should be carried through for unhurried consultation, free from distractions.

Records should be kept of matters that have been discussed, including recommendations by the consultant, and tentative decisions regarding next steps to be taken. Implementation of decisions reached through consultant service is often dependent upon support from administrators, thus, they should be involved in inviting consultants and in directly working with them -- along with the local leader of the evaluation, the school staff, and the committee(s). Some evaluations may be conducted under contract with an institution or organization, using consultants as chief investigators or directors. One value of the evaluation project in which local staff and citizens are involved, however, is that the same persons who take part in conducting the evaluation also are the ones who may have the responsibility for putting recommended changes into effect. They are not bound to follow the suggestions of consultants, but they should consider them and "select those which they those which they think should be accepted."

If an advisory committee has been used, it should further be used for advice or for the implementation of any recommendations made by consultants. A recent publication on using consultants may be of interest.[2]

Having dealt with organizational and general procedural aspects of evaluation, attention is next directed to certain specific activities. The first of these are placement and follow-up of former students and are treated in the following sections.

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[2] American Association of Junior Colleges, On Using and Being a Consultant, Washington, D.C.: The association, 1315 Sixteenth St., N.W., 1967, p. 34.

6. THE ORGANIZATION AND USE OF A SCHOOL PLACEMENT SERVICE IN EVALUATION

Why Should the School Have a Placement Service?

Any school considering whether to establish a placement service probably accepts the premise that the effectiveness of its occupational education program would be indicated, in part at least, by the extent to which former students have found, obtained, and succeeded in employment. This section of the manual devoted to describing such service is included because of its relevance to evaluation. A rationale may need to be stated in order to provide a basis for decision making with respect to placement by responsible individuals. Following are some of the reasons for a placement office in the school.

1. Placement is a part of a school guidance program. Not to provide for placement is to reduce the scope and effectiveness of guidance.

2. Placement records need to be available in the school for program evaluation.

3. Employers look to the schools for information about graduating students.

4. Help in placement should be accessible to students. Governmental employment offices are often located at some distance from the school, both in large cities and in small, or medium-size towns. Students could have almost daily contact with a school placement office.

5. The school is in a good position to prepare students for applications and interviews.

6. Important employer contacts can be brought about. Such contacts may contribute to evaluation of specialized programs; and to curricular improvements in line with job characteristics. These contacts are of value to the faculty members as they endeavor to make their instruction more realistic in terms of the world of work.

7. A director of a school placement service can work with faculty members more effectively than one in an agency outside the school.

8. A placement service provides a means for contact with governmental placement agencies and for communicating their information to the faculty.

9. A school placement agency can assist with cooperative education and work-study programs.

Some of the services which have been provided by placement programs operated within school systems are:

1. Assisting in informing students of the job opportunities available and of the job qualifications needed

2. Assisting with studies and surveys to determine job qualifications in demand and using information for curriculum planning

3. Making contacts with employers in regard to their needs -- current and anticipated -- and contacts with agencies in the community that may have some similar information

4. Interpreting the school program to employers

5. Providing information to, and counseling students, recruiting and registering, and interviewing

6. Making referrals and scheduling student-employment recruiter interviews

7. Maintaining records of jobs, applicants, referrals and placements

8. Making contacts with faculty regarding nominations, recom-

mendations, and "feed-back" information from employers

9. Using records and information in follow-up and other evaluation activities.

How Should a Placement Service be Organized and Operated?

The schools that have operated placement services have recognized their value. The size of the student body, numbers of qualified personnel for its operation, faculty time, school finances, and facilities are all factors which may place limits on plans for a placement service. However, in spite of the operational problems which may arise, the need for such a service should be satisfied as adequately as possible.

Procedures for organizing and operating placement services will naturally vary by schools. The successful procedures followed in a Michigan school,[1] however, could be adapted and used by other schools. The guidelines for operating procedures, suggested and discussed below, are based largely upon this program.

Some of the considerations deserving special attention during the organizational and operational phases of a placement servce are: (1) how to provide effective means for aiding students and graduates to appraise their potentialities for employment; (2) how to provide means by which the students and graduates may become aware of job opportunities; and (3) how to provide means of coordinating the needs of students and graduates for employment with the requirements of employers.

One or more planning committees, augmented by representatives from community business and industry, could be used to help start a placement service. These committees would function under the direction of a representative from each of the vocational services or departments of the school. They could be of great assistance in providing a comprehensive approach to placement. Contact between the business community and school personnel often provide a wealth of information useful in developing a placement service.

After conducting and analyzing preliminary studies, additional staff time for coordinating and planning will be required. Before planning can continue, it should be understood by the school administrator who

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[1] Acknowledgement is given to William F. Gayde, Director of Vocational Education, Fitzgerald Public Schools, Warren, Michigan.

has the responsibility for making staff assignments that operating a placement service will require the use of staff time not previously allocated for this function. In most cases, an addition to the operational budget will be required, and revised scheduling of staff time may be necessary. These two factors should not discourage the planning or establishment of a placement service.

One recommendation that has been made regarding money, time, and personnel for programs of educational research and innovation, is that "School systems should allocate an appropriate proportion of their annual operating budgets -- hopefully not less than one percent -- for the support of research and innovation."[2] The same is also true of time allotments. Adequate time should be provided for each staff member to participate in functions necessary for the successful operation of the placement program. The decision as to how time and money are to be allotted is one that will be made by the board of education and/or the school administrator. However, a reasonable and carefully planned recommendation presented by a planning committee will enhance the chances for acceptance and final approval.

Who will be responsible for the successful operation of the placement program? While such a program will be subject to school policy, it is best that, in the interests of continuity of operation, the responsibility of directing a placement program be delegated to one person. Other staff members involved in the program should serve and function under this person's leadership, and they should be responsible to him. The criteria discussed in an earlier section concerning the selection of personnel within the school should be kept in mind when naming the persons who are to be responsible for the management of the placement service.

The coordinators of the cooperative education program, and preferably one person selected from each vocational service or department in the school, should work with the person(s) supervising the placement program. Coordinators must be available to trainees during school hours and during on-the-job visitation periods. Individual advice and assistance is provided to coordinate school and job experiences to the best advantage of each student. Holding joint appointment in vocational education and guidance has been found to be a good practice.

Procedure and operation of placement programs will vary from school to school. But in general, many of the main functions and the following

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[2] National Education Association, Schools for the Sixties: A Summary Report of the Book. Washington, D.C.: National Education Association, 1961, p. 5. (Complete Report from McGraw-Hill, New York, 146pp.)

guidelines for implementation will apply to all schools.[3]

1. GUIDANCE:

   a. Cooperative Education Trainees -- Coordinators are available during school hours and during work station visits. Advice and assistance are provided to coordinate school and job experiences.

   b. Graduating Class -- Provide information and advice to help qualified students apply for positions reported to be available from civil service, apprenticeship programs, personnel offices, State Employment Security Commission, military services and other sources.

2. STUDENT RELATIONS:

   a. Cooperative Education Trainees -- High school juniors can make application for cooperative education programs. Successful candidates are placed on jobs during their senior year.

   b. Graduating Class -- Applications may be made by any graduating seniors early in the spring. Information and referrals are made by the placement office.

   c. Graduates -- Placement Office applications are kept on file indefinitely. Graduates with open applications will receive first consideration for employer requests.

   d. Part-time Employees -- Any student qualified for, and interested in, part-time jobs may register for placement. The registration may be done through a counselor, but placement should be made by a coordinator.

3. EMPLOYER SERVICE:

   The placement office should maintain an employer file, listing those employers desiring recommendations for job applications.

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[3] Kenneth Boogren and J.L. Teufner, "How to Develop a Job Placement Program," Michigan Industrial Education Newsletter, 24, 1:3 (October, 1964).

4. FOLLOW-UP STUDIES:

Studies are made periodically to determine: (1) the value and effectiveness of on-the-job training; (2) post-high school education and work experience; (3) certain kinds of information which can be obtained through special studies; (4) evaluation of the vocational education program.

Each school having a placement program will probably use variations of the foregoing functions, chosen and designated to fit the needs of the community served. In general, the design of the program will be functional. It will deal with the realities of the work situations faced by students, graduates, and other potential employees.[4]

How Can Placement Records be Used in Evaluation?

As with any school function, forms and records will be necessary. The types and numbers of forms used will vary with the idealogy used in their construction. But three points should be kept in mind during the development and use phases. First, the records are necessary. Because they are necessary, they should be as inclusive as possible, but be held to a minimum number. Second, the information gathered through the use of these forms must have purpose. Too often, many data are gathered which have little use in accomplishing the purposes for which they were intended. This observation leads to the third point: The forms should be reviewed periodically to see whether they have maximum use. In the face of rapid change, obsolescence resulting from inability to recognize the reality of true working conditions, can only impede the education of work-bound youth in public schools.

Basically, three types of forms are essential for use in a placement program: An application form,[5] an employer record,[6] and a referral card.[7] All three are interrelated in their use in placement. Examples of these forms are included in the appendix of this report.

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[4] For additional information on organizing a school placement service see Milton C. Mohs, Service Through Placement, Washington, D.C.: American Association of Junior Colleges, 1962, 102pp.

[5] See Appendix A.

[6] See Appendix B.

[7] See Appendix C.

The application form should be designed to provide information about the student which will be pertinent -- such as personal history, skills, high school and post-high school education, standardized test scores, and type of work preferred. In addition, this form should be designed with space to record previous employment, and referrals made by the placement office. Three items on the application form should be of particular importance. They should be carefully correlated and interpreted: the type of work preferred, specific courses studied, and ability, interest, and mental maturity test scores.

The second form, the employer record, is one that should be kept for each employer, past, present, or potential. Information about the firm, the type of service desired, the qualifications expected of employees, and the salary should be recorded. In addition to this information, space should be provided on the form to record referrals, when they were made, and any short remarks that might strengthen future relations with the firm in question.

The referral card is important because it provides an applicant with a "calling card." On this calling card, there should be a ready source of information about the applicant which normally is unavailable to employers in smaller community businesses. If this form is designed so that one section of the card can be detached, filled in by the employer, and mailed back to the placement office, it will provide information as to whether the applicant was hired, and why or why not. These cards, showing reasons for hiring an applicant, may suggest traits not previously discovered about a particular applicant. For this reason, the referral cards can become one of the more important records of the placement office. The information received also may be used by the guidance services.

Records should be maintained for graduates as well as for undergraduates. Graduate records will include more nearly complete information on an individual, and some means of keeping them separate is desirable. One suggestion to help solve this problem is to use different colored paper for the different groups.

All records must be carefully maintained so as to reflect as nearly as possible the interests and abilities of potential employees, the needs of the employers, and correlation of the two. A permanent and current record for each individual who has sought assistance from the placement office should be maintained in order to have an up-to-date file that contains information essential to the operation of the placement service.[8]

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[8] See Appendix D.

7. CONDUCTING FOLLOW-UP STUDIES

What Is Involved in Follow-up?

One of the more important functions of evaluation is that of determining what vocational experience and training will be required of future students. Follow-up studies provide one means of estimating the impact of former training programs on the former student's present job performance, satisfaction, and advancement. Youth with marketable skills may find satisfaction and advance in a world of work in which jobs requiring skill and specialized training are rapidly increasing. Even if untrained youth do obtain permanent employment, they are the first to suffer at any sign of economic decline. This seeming paradox emphasizes the increased need for continuing study and evaluation of the persons concerned.

Follow-up requires a contact with persons who have in the past shared some kind of common experience. In the case of vocational education evaluation contacts would include all former students enrolled in any vocational education course, or they might involve only those former students who were enrolled in a specific vocational course or sequence. An example of the latter might be former auto-body students. Follow-up studies attempt to measure the impact of the educational and/or training process on the future actions of these individuals.

This section of the manual will deal with the kinds of follow-up studies which can be conducted, including the telephone and face-to-face interviews, and the ways a school system might use these various kinds. Other points to be considered include:

- necessary administrative arrangements
- groups to include
- steps in performing a successful follow-up study
- securing results from the information gained in a study

Deciding on the Kind of Follow-up Study to Make

Schools involved in conducting follow-up studies have generally used either descriptive or explanatory studies[1] with most of them in the former category. The main differences between descriptive and explanatory studies are those of a conceptual nature.

In the past many descriptive studies have secured very little information other than the employment status of the former student. Some schools have conducted descriptive studies that have obtained information regarding the total employment record of former students but these have been rather infrequent. Other information could be sought in a descriptive study that would more adequately reflect the value of the students' education and/or training. The descriptive study "... describes the characteristics of individuals, groups, or situations by drawing inferences from data primarily with an informative rather than heuristic purpose."[2] It is of value to schools for evaluation purposes and is generally classified as a placement report, a one-time descriptive study, trend study, or a longitudinal study.

Placement reports have been used by schools a short time after the student completed training or dropped out of the program. In this type of study it is assumed that initial job placement is likely to be very similar to the individual's long-term occupational career.

The placement report provides only information about the job of an individual at the specific time of contact.

The chief limitation of the placement report -- the initial job placement only -- can be eliminated by using the one-time descriptive study

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[1] The Use of Follow-up Studies in the Evaluation of Vocational Education, Washington, D.C.: Bureau of Social Science Research, Inc., May, 1966, p. 2.

[2] Ibid., p. 4.

at a longer time period from the students' graduation or leaving school. If the 1959 students are surveyed in 1969, this would provide a ten-year period in which to secure job histories of former students. Data can be gathered from the students' former teachers, present and former employers, as well as the former student himself. Examples of questions used in one-time descriptive studies by one school include the following:

21. At the present time, how many miles do you live from Our Town?

_____21.1 Less than 30 _____21.3 50-99

_____21.2 30-49 _____21.4 100-149, etc.

21. What is your current employment status?

_____21.1 Unemployed, seeking work

_____21.2 Employed full-time, not self employed

_____21.3 Employed part-time

_____21.4 Employed at more than one job

_____21.5 Housewife full-time, not otherwise employed

_____21.6 Student, employed at a job full-time

_____21.7 Student, full-time, no job

_____21.8 Self employed (farmer, store owner, etc.)

_____21.9 Other (please specify)_____

The trend study differs from the one-time descriptive study in that at least two groups or "cohorts" who are former students of different classes are considered. For instance, a school could conduct a survey of the former students of the classes of 1967, 1962, and 1957. (Students who did not complete their programs would be considered members of the class with which they would normally have graduated.)

The trend study would enable the school to investigate trends and make comparisons in regard to education and/or training and employment of the former students.

The longitudinal study is similar to the one-time descriptive study except that it entails the collection of data on the same individuals at different times over a period of several years. The chief advantage of the longitudinal study is in the establishment of long-time occupational career patterns of the individuals. With this type of information the vocational program can be better evaluated in light of how the training received by students is aiding them in their preparation for life-time careers.

"The explanatory study attempts to explain a situation, test a theory, or draw inferences of causality."[3] Explanatory studies may be of two kinds, diagnostic and experimental. These studies have not been previously made to any great extent by local school systems. They are more difficult to initiate, ususally more expensive, and require more human resources, but if these drawbacks can be overcome the results obtained from the explanatory study can be very valuable in assessing vocational education.

The diagnostic study attempts to discover and assess the importance of the various elements of the conditions being investigated. It attempts to pinpoint the reason for the situation existing as it does. The purpose of the diagnostic study "...is to find explanations for differing employment histories in differing characteristics of groups, or in differing qualities and types of vocational training."[4]

The diagnostic study does not rely, totally, on information about placement in the area for which the person was trained. It attempts to discover the more important reasons for success or failure.

These studies "...try to create new situations by manipulating the environment and introducing experimental factors to gain an understanding of the actual operation of a system."[5] Examples of these kinds of studies might include the comparison of students manipulated so they would receive different types or kinds of educational and/or training experiences and a study of the effects of student educational and/or training opportunities on career pattern development.

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[3] Ibid., p. 10.

[4] Ibid., p. 12.

[5] Ibid., p. 10.

Interview, Questionnaire, or Combination?

The question of whether to use follow-up techniques involving interviews, questionnaires, or a combination of the two is one which should receive early consideration, even though the staff committee and citizens' committee should be given the opportunity to make recommendations. The type of follow-up study and the type of information desired are decisions which will help in determining the method by which the facts are to be obtained.

While interview techniques have their advantages, very few schools would have the necessary resources to attempt interviewing all the former students of selected classes. Those students living close to the school could be interviewed if sufficient released staff time could be arranged. The interview offers the advantage of providing staff exposure to individuals in their working environment, as well as furnishing the opportunity to gain deeper insight into the problems of occupational preparation as perceived by former students.

In some situations the telephone interview should be considered. A later portion of this section carries a discussion of the telephone interview.

Necessary Administrative Arrangements

The school administration should be consulted concerning the use of staff time, instrument approval, mailing procedures, dissemination of results, and implementation of findings.

Local school staffs may possess sufficient talent to be of considerable help in construction of the follow-up instrument and the analysis of the data collected. Care should be taken to assure that teachers' efforts will be directed at projects worthy of and consistent with their training and experiences. Teachers should not be expected to perform routine clerical chores in connection with the project.

Nearly all vocational teachers carry heavy responsibilities in addition to their teaching loads, making it necessary to arrange released time for those teachers able to make contribution to the follow-up study processes.

Vocational teachers, administrators, and counselors should have extensive knowledge of the objectives of the various programs. This knowledge is essential in constructing the follow-up study instrument.

If interviews are used this offers an excellent opportunity for staff members to become better acquainted with former students -- their beliefs, their needs, and the conditions under which they work.

Involvement of staff in planning and conducting a follow-up study is very important. Staff members involved in decision-making processes from the beginning to the end of the study will likely be more appreciative of the findings of the study.

Citizen committee members can frequently present a viewpoint that would be useful in preparing and conducting the student follow-up study. Following are some specific examples of things that have been done by citizens committees in planning and conducting student follow-up studies:

- Helped to develop questionnaire forms
- Helped to develop interview forms
- Helped to try out or "dry run" forms
- Helped interview former students
- Read and reacted to data assembled from the follow-up study and
- Helped acquaint the community with the findings of the study

A source of excellent information and help, which is frequently overlooked, is the current student body. When questions arise as to the understanding of items in the instrument this group can provide a good source of information.

If evaluation is to be a continuing, on-going process then it makes good sense to prepare the current student body for future follow-up surveys in which they will be asked to cooperate after they leave school. Students should be made aware of the purposes of follow-up studies and the service they can provide by keeping the school informed of their current addresses and by properly and quickly answering and returning the instrument. Students should become accustomed to providing certain kinds of information relating to them. It has been found helpful in securing future reliable responses to let students presently enrolled review follow-up instruments typical of what they might see after they have secured a job.

What Information Can Be Expected From a Follow-up Study of Former Students?

Perhaps, no one is in a better position to furnish information of value for evaluation than the former student who is now responsible for applying his learning experiences on a job. Some of the things a follow-up study can reveal are:

1. The number of former students who became employed in jobs for which they were trained or in closely related jobs
2. The degree of difficulty or ease of obtaining employment
3. The names of employers which might be added to a growing list of possible places of employment
4. Job titles and job descriptions as perceived by employees
5. Working conditions encountered
6. The abilities acquired in school that have been used on the job and in performing the duties of it
7. The tasks required on the job for which abilities had not been acquired in school
8. Other specific training and education shown to be needed by future employees

The school's cumulative record of each student should contain information which will prove helpful in assessing the vocational education program. Included would be aptitude, attitude, and achievement scores by subjects, by years.

Aptitude tests of various kinds may have been recorded concerning the student's capacity to learn or perform certain types of tasks. This information, checked against the progress of the former student, should help to substantiate the analysis of the follow-up study. The types of aptitude test results most likely to be beneficial include: intelligence, manual dexterity, mechanical aptitude, and aptitude tests for specific vocations.

The attitude of the individual may account for some of the answers and conclusions he gives on the follow-up study. Anecdotal records, checklists, and rating scales are but a few of the attitude measures

that may be found in the student's cumulative file.

Comparisons can be made of high, middle, and low group achievers compared to their progress in the world of work. Achievement by subject and by years may also provide some interesting and valuable comparisons.

Some of the information needed to effectively evaluate the vocational program can be secured through the follow-up instrument. One of the more important questions on the instrument concerns the job held by the individual. While at first this may seem a very simple task, once the instrument is returned for tabulation the tremendous diversity and inconsistencies of reporting the correct job title will be evident. Due to the complexity of jobs the question concerning job title will need to be an open-end one. A question of the same type as the example below should be sufficient:

21. What is your present job title?_____

If a double check is desired on the reply the respondent can be asked in another question to describe the type of work he does. If no previous records exist about the employment of the individual it would be highly desirable to establish long-term career patterns of former students. Some schools have used the following type of question to determine the number of different jobs held by the respondent.

21. How many different full-time jobs have you held since leaving high school?

_____21.1 None	_____21.4 Three
_____21.2 One	_____21.5 More than three (Please specify number)
_____21.3 Two	_____

If it is not known what the former students' first <u>full-time</u> job was this information and related information could be secured by asking:

21. Title of your first full-time job_____

21. On your first full-time job, were you self-employed?

_____21.1 Yes _____21.2 No

The salary is an indication of the advancement and responsibility

held by the respondent. The information can be obtained by the use of a simple question such as:

21. What is your present pay (before deductions)?

$_____per week or $_____per month

If machine analysis of the instrument is to be used the following question form would be more desirable.

This format is also easier to tabulate by hand methods and is easier for the respondent to check.

21. What is your present pay per week (before deductions)?

_____21.1 $250. - more _____21.3 $175. - 199.

_____21.2 $200. - 249. _____21.4 $150. - 174., etc.

How well the worker does and how much he progresses is very closely related to his satisfaction with his job. A series of questions used by one school provides some indication of job satisfaction.

21. Are you planning on changing jobs?

_____21.1 Yes _____21.2 No

21. If answer to the previous item is yes, why do you want to change?

_____21.1 Developed new interest

_____21.2 Dislike present occupation

_____21.3 Found better opportunity

_____21.4 Never intended to follow my present occupation

_____21.5 Not suited for present occupation

_____21.6 Poor pay

_____21.7 Other (Please specify)_____

21. How do you like your present job?

_____21.1 Very well _____21.3 Not very well

_____21.2 Fairly well _____21.4 Not at all

21. How long do you plan to stay in the same kind of work?

_____21.1 I plan to make it a career

_____21.2 At present I have no plans to change

_____21.3 Probably a few years

_____21.4 I want to change soon

Findings uncovered by a follow-up study of students must be considered in light of the employment situation. This involves the securing of data from employers and labor market analysts by either a questionnaire or an interview. Most of the principles utilized in the student follow-up would apply in securing information from employers and labor market analysts.

To properly plan programs, teachers need a knowledge of the short-range and long-term opportunities for job seekers, the skill requirements for workers today and in the future, and the unmet labor needs that employers have now and expect to have in the future.

What Groups Should Be Included in a Follow-up Study?

Secondary school students should be included in the study. Students frequently are able to provide some valuable impressions and opinions in regard to the training they are receiving and this source of information should not be overlooked. A substantial number of these students may have part-time employment through the co-op program or job experience through other part-time or summer jobs. Some follow-up projects have asked respondents to rate school courses as to their effectiveness in preparation for their chosen occupation. This type of an evaluation is of questionable value because of the difficulty for the respondents to separate course value from teacher effectiveness. The evaluation will be more effective if the respondents are asked to evaluate the abilities and skills they developed as a result of their vocational education, without reference to a specific course. They should rate them particularly with respect to helping them perform effectively in their job.

All former students should be included, those who graduated and those who did not graduate. The "dropouts" should not be overlooked in follow-up studies, because in some schools they might comprise a rather sizable proportion of the classes, resulting in invalid or misleading data if they are ignored.

A group growing in importance and also frequently overlooked is the adults who have enrolled in vocational training programs. If the school is to adequately serve the individual, industry, and business it needs to know all that is possible about the success and failures of its courses for adult training, updating and retraining.

What Are the Steps in Performing a Successful Follow-up Study?

The follow-up study should be conducted in line with the objectives established for the total evaluation program. There can be no precise and definite procedure that would apply to every school since each system has its own unique characteristics. The person responsible for directing the evaluation project should, in consultation and on the advice of the staff committee and the citizens' committee, conduct the study along the general guidelines that follow.

Select programs to be studied

The total vocational offering should be undergoing continuous evaluation, but it may be necessary in certain situations to evaluate the program offered by one department or in certain instances a specific course within a department. If the evaluation is to be most effective in terms of total impact for curriculum improvement then the total vocational offering should be evaluated.

Select classes of former students to study and secure addresses

The classes of former students to be studied should be chosen early in the follow-up procedure so that addresses of the former students can be secured. Some schools select a class one year after graduation and follow-up the members of the class for a long period of time -- twenty years or more. Other schools have found their resources more suited to a follow-up of students one, three and five years after graduation. Certain types of occupations may require a longer period of establishment. Military service requirements affect entry time for many potential workers. These and other factors should be considered in selecting the class of members to follow up.

The assembling of a complete mailing list of all former students can

be a long and difficult task however, every effort should be made to locate all former students of the classes being studied.

School files in the placement office and/or the guidance office provide an excellent starting place. Other sources of information include: public employment offices, state tax rolls, and religious, civic and student organizations. Every effort should be made by the school to keep an accurate, up-to-date mailing list of all former students. Posting of the names and last year in school of those individuals with unknown addresses may be considered. Students can frequently fill in addresses of those individuals they know.

Design follow-up instruments

The preparation of the instrument should be under the supervision of one person or a committee and be subject to the review and advice of the staff committee and the citizens' committee.

Some follow-up instruments produce disappointing results because of the way in which the items are worded. Appropriate and usable responses require items with a clear intent and meaning. Generally the items should be kept as brief as possible. Where possible, one should avoid unnecessary items and written replies. Where a written reply must be used, be sure to leave adequate space for the answer.

Appropriate length of the interview is an uncertain issue. Some research seems to indicate that the use of correct procedures in conducting the follow-up and prior preparation of students for the follow-up may be more important than the instrument length. The instrument should not be shortened to the extent that needed information is not obtained. The physical design of the instrument depends somewhat on whether computer analysis is to be used. If it is, the instrument should be designed in consultation with a representative of the computer service. If a question has several possible responses the tabulation of the results is made easier by also placing the number of the question to the right of the statements so that the item checked by the respondent can be placed there. An example follows:

21. What is your current marital status?

_____	21.1 Single -- never married	_____	21.3 Divorced
_____	21.2 Married	_____	21.4 Married more than once

Before the instrument is mailed to large numbers of individuals there

should be a trial run. This may be done with a small cross-section of former students and/or present students enrolled in the program. It may be desirable to try the instrument with some students who have left school, or with former students not to be included in the follow-up.

Use correct mailing procedure

After the classes of former students have been selected for study each person should receive a code number. This code number would then be placed on his questionnaire, eliminating the necessity of the use of names on the questionnaire. One must be doubly sure, that the questionnaires are placed into the envelopes so that the code number on the questionnaire is the number assigned to the student to whom the envelope is addressed.

A cover letter should accompany the questionnaire to the former student. The letter should be signed by a person whom the former student will recognize and trust. This may be a school administrator, a member of the guidance or placement office, or a key faculty member. School personnel who worked closely with students during their high school careers are more likely to secure responses from these students after they have graduated or left school.

The cover letter should be brief, indicating the purpose of the follow-up study, the use to be made of the findings in high school curriculum planning, and the importance of hearing from each individual. A time may be suggested as to when the questionnaire should be returned. A stamped, addressed return envelope should be included with the follow-up instrument and cover letter.

If the class sizes are large enough to make it feasible, careful consideration should be given to the development of computerized mailing lists. Working in conjunction with the alumni association these lists would have greater usage and would prove cheaper in some situations, since they could be used by both parties. The mailing pattern must avoid all holidays if the highest possible percentage of returns is to be achieved. The following pattern is suggested at seven-to-ten-day intervals.

First Mailing - questionnaire, cover letter, and return envelope stamped and addressed

Second Mailing - a reminder card to those who have not returned their questionnaire

Third Mailing - second questionnaire, second cover letter, and return envelope stamped and addressed to those who have not returned their questionnaire

Fourth Mailing - a reminder card to those who have not returned their questionnaire

Inevitably some of the questionnaires will be returned marked "Address Unknown." Every effort should be made to secure these addresses. For significant findings, returns should be received from at least seventy-five percent of all former students.

Determine the cost of a follow-up study

From a cost-analysis standpoint, four major activities are involved in a follow-up study: (1) preparation of the questionnaire, (2) mailing, (3) data processing, and (4) interpretation of results, including preparation of a report. The cost items in each of these activities cluster around professional staff time, clerical staff time, and materials. Many variables exist, and differ from school to school when a cost estimate is attempted. The following represents selected variables which should usually be considered when attempting to budget for a follow-up study.

Members of the professional staff will need to supervise the collection of names and addresses of former students, the assigning of code numbers, and the preparation of cover letters, and "thank-you" cards.

The professional staff should supervise the coding of responses to items of the instrument, and plan for the analysis and interpretation of data. Review of related studies, summarization of findings, conclusions, recommendations, design of tables and figures, and supervision of the preparation of the final report will all require professional staff time.

Clerical staff should be available during the period of preparation of the follow-up instrument for typing and duplicating of sample copies. Clerical time will be needed for preparation of lists of names, addresses, assignment of code numbers, addressing envelopes, typing of cover letters and thank-you cards, and, in some instances, the typing, duplicating, and assembling of the follow-up instrument itself. A clerk can check questionnaires received and code responses to some questions. Time should also be allotted for typing and assembling the final report. Printing of forms would have advantages, but may increase costs.

Typical materials needed include stencils, paper, letterhead stationary for cover letters and correspondence, envelopes, stamps and postal cards. Where computer analysis is used, the cost of key-punching data onto cards, programmer time, cards, and preparation of tables (computer time) will need to be included in the total cost figure.

As indicated earlier, the questionnaire is not the only method by which information about former students can be secured. The face-to-face interview and the telephone interview provide different kinds of opportunities to secure needed information.

Preparing and Conducting a Good Interview

The interview -- the art of conducting a conversation with a purpose -- is relied upon by many people in a great variety of important situations. Generally the type of interviewing most likely to be done in connection with follow-up studies is of a fact-finding nature. An appraisal type interview might be used in determining the performance of a former student.

Many statistical facts can be obtained through the use of a questionnaire or documentary search at a much faster and cheaper rate than by the interview method. The chief reasons given by one authority for conducting an interview are "...(1) to secure subjective facts and (2) to secure additional leads that may provide access to more sources of objective data."[6]

The following suggestions growing out of experiences of a number of schools may help to assure the success of the interview. Time spent in preparation for the interview can pay tremendous dividends.

a. What is the objective of the interview? There must be some definite facts or reasons for which one would consider the interview. What are they?

b. Select the interviewee. If only a few former students or employers are to be interviewed they should represent a cross-section of the total group.

c. Secure as much information as possible about the interviewee. This will better enable one to establish rapport with the

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[6] Interviewing and Counselling, (Washington, D.C.: Social Security Administration, U.S. Department of Health, Education, and Welfare, June, 1964), p. 17.

interviewee, and to better understand his responses to questions to be asked.

d. Secure in advance an appointment with the interviewee. The individuals to be interviewed, in most cases, will have very busy schedules. Making an appointment shows that you have consideration for his time as well as yours. At the time the appointment is made arrange for the interview to take place in private surroundings. Others should not be able to hear what is said during the interview.

e. Develop and "dry-run" an interview instrument. It is probably best to have an instrument for the interviews, particularly if several persons are interviewing.

f. Visualize the situation. How would you feel if you were in the place of the interviewee? How should you react to various types of answers and temperament on the part of the interviewee? Perhaps most of all, the interviewer should know himself. The interviewer's prejudices and attitudes should not influence the reactions and responses of the interviewee.

g. During the interview quickly establish rapport with the interviewee. As the interviewer, this is your responsibility. Be sure the interviewee knows the purposes of the interview. Why are you there? What is said, if it is to be of any value, should be in strict confidence. A feeling of trust must be created between the interviewer and interviewee.

The interviewer should maintain composure. The interviewee may not do this, but that is his prerogative and not that of the interviewer's.

The interviewer should feel relaxed during the interview. A knowledge of the interviewee, sports, interests, education, and other factors, will help the interviewer be more effective in establishing rapport.

The interviewer is conducting the interview to learn, but little is learned unless he listens. The interviewer must not hear just the spoken word of the interviewee, but he must also understand what the interviewee is saying.

h. Pace the interview and close on time. Don't make the inter-

view a race with the clocks but do honor the appointment time commitment. Close the interview by expressing your appreciation for the time and cooperation of the interviewee.

i. Write a letter of appreciation. Good public relations makes sense and this is an opportunity which should not be missed. If the interviews were made during the interviewee's working hours a copy of the letter to his immediate supervisor may help to assure that future interviews can take place under similar circumstances.

j. Evaluate effectiveness of the interview. As you make each interview check yourself using the "Interview Evaluation Checklist" located in the appendix.[1]

The Telephone Interview

Some schools and many private concerns have used the telephone survey with varying degrees of success. The telephone survey definitely limits the breadth of information one can get and certainly limits those questions where several items might be listed for the student to select from. If the information needed can be answered by the use of a telephone interview there is little difference in cost. Many private concerns frequently use long-distance telephone interviews. One must consider the purposes of the study and make a determination of whether these can be attained using the telephone interview with its limitations. The telephone interview may prove a valuable means of contacting those former students who unofficially dropped school.

Securing Results From the Collected Information

The correct interpretation of the data collected is a challenging and important job. In the hands of the inexperienced, or the person with an "axe to grind" the data could be interpreted in many wrong and even harmful ways.

A common error in reporting percentage of returns from former students is to compute the percentage on the basis of instruments returned in response to the first mailing. The percentage of returns of former students of a particular class should be computed, using

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[1] See Appendix E.

the total number of students enrolled in that class, not just those for whom addresses were found.

Before a particular class or department is criticized it may prove fruitful to check the number of courses the respondents had from that particular department. A small number of responses from former students of a particular deparment might lead to misleading conclusions, otherwise.

Percentages can be very misleading. Where small numbers are involved it is best to report these in raw data form. Seventy percent can be very convincing, whereas 7 out of 10 may immediately show that there is a lack of sufficient responses to be meaningful. But, would 100 responses show the same percentage?

Certainly, continuous records should be kept in a permanent file of students' addresses. If the data secured have been punched on computer cards, the storage problem is somewhat eased. If large numbers are involved in follow-up studies this would eventually necessitate a more careful selection of items to be recorded. If follow-up studies of these same former students are to be made in later years, the jobs held by them should be made a part of the school's permanent records, so that career patterns can be studied. Other information will be kept on file by many schools but this should be determined by the objectives of the total evaluation project.

The information gathered in the follow-up study should be disseminated to administrators, teachers, citizens' committees, board of education members, students, alumni, and to the community in general. The news media of the community should be made aware of the findings.

Other sections of the manual deal with the principles and procedures of dissemination and implementation which should be utilized during and at the completion of the follow-up study and total evaluation effort.

8. PROCESSES OF CITIZEN INVOLVEMENT IN PROGRAM EVALUATION

Why Involve Citizens?

A principle underlying the basic framework for evaluation, as proposed in this manual, is that those affected by the program should have a part in the evaluation. Most citizens of a community do evaluate a program of vocational education. Whether this is done willy-nilly or in a systematic manner will depend on the planning that goes into the project, the extent of involvement of citizens, and especially the adequacy of two-way communications.

Communications from citizens may provide information about interests, felt needs, employers needs, and opinions. This information may be of help in formulating the over-all objectives of each phase of the program, and the purpose and practices involved in the evaluation project. The avenues for both types of communication should be kept open at all times. In addition to mass media a most effective means of communication is through the citizens' committee.

If the school is to reach its goals it will be necessary for the citizens to know what is transpiring within their schools. Likewise, the school needs to know what outcomes the people are desirous of it attaining. The interest shown by taxpayers in serving on citizen committees is an indication of their interest and willingness to help the school. Most citizens are interested and seriously concerned about their schools. The school exists for the purpose of serving the people of the community. It is then quite natural to

keep the citizens of the community well informed and to include them in a consultation role.

Purposes and Identification of Citizens' Committees

Citizens' committees might have one or several purposes. They may be involved in more than evaluation activities, depending on the intent of the school at the time the committees are established. The chief purpose of the citizens' committee is to formulate, to recommend, and to evaluate policies and programs as they relate to the specific tasks established for the committee. Some have been skeptical of citizens' committees for fear they would usurp the prerogatives of the board of education or the school administration. This is not the intent of citizens' committees, for they have no authority to delegate nor to legislate.

The name of a citizens' committee varies from community to community. In some schools, a citizens' committee may be called "committee of consultants on vocational education" if the local administration prefers to avoid the word "advisory." If the group is to serve only for vocational education evaluation it may well be called the "citizens' committee for vocational education evaluation." The name chosen for the group should reflect the philosophy of the school and the purposes of the group.

Kinds of Committees

Kinds of vocational citizens' committees that exist in the different schools are rather varied, but may be classified as general, departmental, and craft committees. The general committee is usually a permanent one organized to give advice on the total program of vocational education in the school. Evaluation could be one of several functions or interests of such a committee. A variation of this would be a sub-committee on evaluation. A departmental committee would serve a single department. Industrial education frequently utilizes craft committees for one course or training program.

While it is conceivable that a temporary group or sub-committee might serve some purposes satisfactorily, the evaluation of vocational programs is a continuous process. Thus, there is need for permanence and continuity provided by the permanent citizens' committee. It should be understood of course, that such a committee could be abolished at any time by the board of education.

Selecting Members of Citizens' Committees

Once it is decided that a citizens' committee is needed, approval and support from the local board of education should be sought.

If the board of education does not have a statement of policy concerning citizens' committees, one should be developed. Typical of the items included in such statements would be the following:

a) purposes and functions of the committee

b) the number of members

c) method of selecting members

d) length of members terms

e) communication procedures

f) committee relationships with board of education, administrators, teachers, students, press and other citizens

Qualifications of Committee Members

Suggested criteria for membership on a citizens' committee for evaluating the total program of vocational education are the following:

- Knowledge of a field of work and/or work experience in the community
- Knowledge of employer requirements and needs for employees, particularly beginning workers -- including persons currently working with beginning workers
- Interest in the school and its program -- which may have been demonstrated by assistance on a cooperative occupational education program and/or by helping with field trips, etc.
- Willingness to serve, and with time to give to committee activities
- Confidence on the part of citizens in the person's judgment -- which is not always possible to determine in a suburban fringe area, or in a community with a rapidly changing population

- Ability to communicate information and ideas to the community and to the committee

Size of the Committee

The size of the committee is an important consideration. It will vary by size of the community, the scope of the vocational education offering, the diversity of businesses and industries in the community, and the purpose of the committee. The committee should not be so large as to be unwieldy or so small as to be unrepresentative of the community. Twelve to twenty committee members have proved to be a desirable number for general committees. Departmental and craft committees have been smaller.

The Nomination and Appointment Process

Committee members should be appointed for a definite length of time. Replacements should be staggered and selected by the same process as the original committee members. No member should be allowed to succeed himself so that "new blood" can be brought in.

The members of the staff committee ordinarily are asked to suggest names of persons to be considered for nomination to the citizens committee. Persons suggested should not be nominated by organizations or agencies, although the head of an organization may be asked to suggest someone for the committee. No member should be thought of as "representing" an organization or agency. Every member on a committee should regard himself as representing citizens, rather than representing any particular group, organization, or company.

Names of prospective members may be further screened by local administrators. Some informal or unofficial inquiry may be made to ascertain willingness to serve. The nominations, when submitted to the board of education, may include more names than needed for the committee -- the board may then be asked to select a given number for the citizens' committee. The board may, of course, add names, if it chooses to do so. Persons selected by the board should receive official notification of their selection.

Citizen Group Organization

After the members of the citizens' committee have accepted their

appointments they should formally organize. The committee chairman and vice-chairman should be lay members duly elected from the ranks of the committee.

School Representative

The school representative is largely responsible for the committee's success. He is an ex officio member and may act as committee secretary and/or general consultant. In most situations the school representative would be the director of vocational education in circumstances where the committee is created for a specific segment of the vocational curriculum the teacher responsible for the segment should also attend the meetings.

The most important duties of the school representative are the orientation of members concerning vocational education, keeping members informed about the school programs, keeping minutes of committee meetings, and notifying members of committee meeting dates and places. Meetings should be held only when there is a need for the group to meet.

Committee Recommendations

Generally it is considered best for recommendations of the committee to be written, thereby reducing the chance of misinterpretations. The recommendations should be presented through the normal chain of operations established for the school system.

What Can Citizens' Committees Do?

Following are some specific examples of things that have been done by citizens' committees in the area of program evaluation:

- Discuss the over-all objectives of vocational education of the local public school
- Give advice on departmental objectives
- Give advice on the occupational scope to be considered for the program
- Help to acquaint the community with occupational opportunities and employment needs

- Help to develop and/or try out interview forms and conduct interviews with employers

- Help conduct a survey by mail to get evaluations from parents and from other citizens

- Give suggestions on placement of graduates and on the school placement service

- Help teachers to be more comfortable in talking with employers and employees about employment opportunities and needs

- Read and react to data assembled and analyzed regarding outcomes of the local program of vocational education

- Give advice regarding the follow-up studies

Examples of specific recommendations and activities drawn from reports by citizens' committees are:

- Recommend establishing a guidance program

- Suggest adding a course on business machines to the business department

- Advice on equipping a mechanics shop

- Develop suggestions for over-all program policies for consideration by the school administrators and the board

- Assist in identifying potential special teachers for adult vocational courses

- Help to promote new programs or courses -- through talks at community meetings, at gatherings of organizations, and in other ways

- Help to promote adult vocational education courses, and

- Advise new vocational teachers on occupational training needs in the community

A citizens' committee cannot administer a school program, nor can it take over functions of the board of education. It should not be expected to make professional decisions which the school staff and other public servants are qualified and employed to do.

How Can the Effectiveness of the Citizens' Committee Be Evaluated?

Organizing and using citizens' committees requires a great deal of staff time and effort. Such time and effort can only be justified if the committee has been effective. A "Checklist for Evaluating School Citizens' Committees for Vocational Education" has been provided in the Appendix.[1] This checklist should be helpful in evaluating citizens' committees as their functions relate to vocational education evaluation.

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[1] See Appendix F.

9. STUDYING NEEDS FOR VOCATIONAL EDUCATION WITH REFERENCE TO EXISTING PROGRAMS

Deciding on Kinds of Needs To Be Studied

Studying needs for vocational education is, in a sense, a validation of the current program. The underlying theory is that there should be a positive correlation between occupations for which training is provided in the school on the one hand, and (1) the opportunities for placement of former students and graduates, and/or (2) the in-service, employment training needs of adults.

Since there are a variety of needs that conceivably might be studied, an early decision should be made as to where the focus is to be. One focus might be on the needs for which high school or post-high school training would be appropriate. A study with this emphasis should include an assessment of the potential work stations for cooperative occupational education programs. It would be anticipated that such programs could be started if not already in existence or that they would need to be enlarged or expanded to include additional occupational fields.

Another approach which has been used is to make an inventory of occupations represented by people living in the community or area. This approach conceivably could include the occupations of persons commuting to other cities to work. The commuters coming into the community to work might draw attention to local shortages which make it necessary to "import" workers with certain kinds of competencies.

Follow-up studies of former students show that although, on leaving or graduating from school, many have entered work close to home -- probably within commuting distance -- some have migrated to different communities. This fact suggests two other kinds of needs which may well be studied. One is the broader occupational interests of some students which may, in part, account for these migrations. The other is the occupational training needs and the employment possibilities of the region or the state.

Using Data from Agencies and Organizations

The U.S. Department of Labor is an example of a Federal agency having state offices with branches, and with several arms or services from which different kinds of data may be obtained. Examples of such services are the Employment Service, the Bureau of Labor Statistics, and the Bureau of Apprenticeship. Some services of the Department of Commerce and of the Department of Agriculture may also be considered.

Organizations sometimes have occupational data which are otherwise not available. Examples of such organizations are Chambers of Commerce, and organizations of business such as the Farm and Power Equipment Association. Larger businesses or industrial organizations, themselves, likewise may have access to employment information not otherwise generally available.

Using Census and Other Recorded Data

The most recent decennial general censuses and the quinquennial agricultural censuses are of value in gaining an over-all picture of a county or of a state. One of the shortcomings of these data is that the classification of occupations is too general to be of great value. The classification also is oriented to production-management in business and industries rather than to occupations or occupational clusters.

Whatever the shortcomings of periodically recorded data such as the census, there is inherent in them the possibility of showing trends. Following are examples of trends in three Michigan counties from 1940 to 1960 noted in analyses presented in the MVEEP report.[1] Cler-

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[1] Vocational Education in Michigan. The Final Report of the Michigan Vocational Education Evaluation Project. Office of Research and Publications, College of Education, Michigan State University, 1963. pp. 160, 167, 171.

ical, sales, and kindred workers increased in Calhoun and Otsego counties from 8.1% to 10.2% and from 8.5% to 13.6%, respectively. But in the metropolitan fringe county of Macomb, these workers increased from 12.3% to 22.7%. In the professional, technical, and kindred category, Otsego made no significant increase while Macomb jumped from 5.5% to 11.9%. In Otsego County, with many tourist businesses, the proportion of women in the labor force employed as service workers nearly doubled by increasing from 16.5% to 31%, as contrasted with an increase for all employed in this category in Calhoun County only from 8.1% to 10.2%

Collecting Data for an Area to Determine Manpower Needs

The evaluation committee might properly build a rather comprehensive list of logical questions about manpower needs. From this list could be selected those which seem important to the committee's objectives, and which appear to be of the type that could be answered through interview or questionnaire. The following list is suggestive only, but it may serve as a beginning for studying occupations other than farming.

- How many persons are usually employed in each occupation: male, female; part-time, full-time?
- What are the minimum and maximum ages of persons in each occupation?
- How many persons have been separated from their employment in each occupation within the past 12 months? (Temporary layoffs are not included.)
- In what occupations are there current shortages of workers? What are the reasons?
- In what occupations are there qualified workers who are unemployed? What are the reasons?
- For what jobs would employees be preferred who have specific training prior to initial employment?
- What kinds of vocational training do the several firms think the schools should give? What on-the-job training could these firms give?
- How many new workers have been imported from another community

during the past twelve months?

- How many residents in the community commute to work in another community? What are the jobs at which these persons are employed, and what is the number employed at each job?

- Where do employers recruit new and relatively inexperienced employees less than twenty-five years of age?

In addition to these questions, others relating to farming may be included. For example:

- What is the number of full-time, established, farm operators in the community?

- What is the number of persons employed in other occupations part-time, and in operating a farm part-time?

- What is the number of young farmers not yet fully established as sole operators of farms? How many are working in partnerships, at home working for wages, for an allowance, or have enterprises of their own?

- What is the number of persons employed on farms the year round?

- What are farmers' interests and needs for adult classes in agriculture?

Each evaluation committee probably will wish to develop its own form for collecting information on questions listed above. A caution to be observed is to avoid collecting data which will not be analyzed, or which are not really needed to answer the questions posed.

Where several communities or schools wish to cooperate in making an area study, the procedures for collecting data could be quite similar to those previously described. Many more people might need to be involved. In addition, more weight would be attached to data available on a regional or national basis. In many states area studies to determine needs for area vocational and technical education centers already have been made. These should also be considered by a committee evaluating a local program.

Analyzing Data to Determine Needs

The amount of analysis given to collected data often will depend upon the questions to be answered. If trends are desired, then one should seek data from which trends may be inferred. Sheer numbers of employees in a certain job may not be as significant as the annual turnover, or the annual rate of expansion, in a certain occupational cluster or field.

A study based on data collected only once might be of limited value in showing trends. Therefore, an analysis that shows employers' future plans and hiring patterns could be helpful. Some of the factors influencing trends include people's habits of buying and their habits of leisure. The length of a workers' employability in an occupation is also a factor. Jobs for which employers are seeking employees with specific training, as contrasted with general requirements, or with those of other employers -- as expressed in previous years -- would be worth analyzing if such information were available.

Evaluating Existing Programs in Terms of Needs: Theoretical and Actual, Current and Projected

We return to the theory underlying this chapter, namely that the existing programs should match the theoretical and actual, the current and projected needs. If the extent of matching is to be determined, it would be necessary first to list possible programs of vocational and technical education with the courses and/or other units named, and then to list the occupations for which these programs provide instruction -- for entrance, up-grading, or retraining.

These lists would be built upon the data collected from the sources just described. The current program could be placed parallel to this revised program. The differences between "what should be" and "what is" would become starting points for developing tentative evaluations.

Most committees should be greatly concerned with accessibility of training to clientele to be served by the school. Besides the accessibility gap as regards needs and offerings, the existence of other possible gaps could be determined. The lack of offerings for a particular age group, and/or the lack of a variety of programs for girls or women, are examples of areas which might need to be examined. Until the practical realities of the situation are assessed, the

identification of gaps or inadequacies would be somewhat theoretical. There would remain, for example, in addition to the obvious matter of financing programs, the assessment of staff competencies, staff requirements, and the facilities available for training.

10. REPORTING AND IMPLEMENTING

Preparing and Disseminating the Report of the Study

It has been intimated in a preceding section that committee activities, the results of various analyses, and certain other phases of an evaluative study should be reported from time to time. For example, the objectives of the total program, when stated and approved by all appropriate persons or groups, may be given wide dissemination to all interested persons. Likewise, a follow-up study of former students, as one phase of an evaluation project, may be reported as soon as completed.

But periodically -- meaning every year, two years, or five years -- the results of all phases of the evalution project should be drawn together into one report. The content of the report largely depends on the persons for whom it is intended. All teachers and administrators in the school should be interested in it. All members of citizens' advisory committees for the school, as well as members of the board of education, should be informed of the results of the entire study. Heads of some businesses, industries, and associations of these enterprises should be considered as parts of the audience. In short, everyone who is in a position to help advise concerning the findings, or help to implement them, should be considered as part of the total audience. In fact, the general public should be considered for an appropriate type of report.

Since people will vary in their background and professional educa-

tion, care must be taken to present the report so that all can understand it. Use should be made of charts, graphs, diagrams, and other visual aids as means of illustrating such information as trends, statistical information, and other quantitative data.

There are several logical ways to organize the report -- depending on the nature of the project itself and on the desires and interests of the people who are making and/or using it. It may be organized by curricula, or by departments. Under either of these alternatives, each department would report on its own "self-evaluation." It may be organized by objectives, outcomes, or goals to be attained, and to present evidence (or show lack of evidence) on the attainment of these goals. It may be organized chronologically -- in order of occurrence or completion of different phases of the project.

Principles of Implementation[1]

The identification of the audience for the report of the evaluation has just been elaborated on. The important things to have in mind are: that communication must go to all who will have a part in making decisions and in carrying out recommendations; and that the ideas and facts should be communicated in a number of ways, not just through a written report. People must be aware of, and informed about the situation before they can be expected to act.

There must be a generating, or building of interest through classification of the relation of outcomes and recommendations to the goals held by each audience. The involvement here must go beyond that which prevailed during the actual conduct of the study.

Decisions and recommendations should be arrived at cooperatively and be mutually agreeable to different segments of the power stucture: the parents, voters, administration, faculty, business and civic organizations.

The implementation or adoption of changes or innovation is seldom easy. Otherwise the changes would have been made before. Those

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[1] Acknowledgement of some of these principles is given to Dr. Gordon McCloskey in an address on the Implementation Process delivered to participating schools in the Evaluation Systems Project, at Michigan State University, October 26, 1967.

directing the study and its implementation should study ways of smoothing action and overcoming difficulties.

Finally, the psychology of motivation should be recognized by providing recognition and/or reward for the contributions made by different people or groups to the study.

Planning for Immediate Changes

Some changes may be made while evaluation activities are still in progress, if the need for such changes is brought to light. Changes which can be made readily, should be carried out as soon as possible if they promise to better the program. A few examples would be:

- Developing cooperative activities between vocational teachers and guidance counselors
- Organizing a placement service for students
- Adding a teacher or coordinator where justified -- or assigning some of these duties to another staff member
- Starting team teaching, where appropriate
- Up-dating courses in the light of new information

It is pertinent to state again that evaluation should be a continuous process. Therefore, as changes are made, both immediate and long-range plans should be laid for evaluating additions to the program, new services, or other changes.

Planning for Long-Range Changes and Future Evaluations

Perhaps the more important results to be expected as use is made of the evaluation are those which are of a long-range nature. Ordinarily, these results would grow out of rather wide spread consideration of the evaluation report, and detailed discussion of the long-range implications/applications of the recommendations. Examples of long-range changes are:

- Planning and development of a new vocational or technical program to meet an emerging need

- Planning for the phasing out of less effective parts of the curriculum or for merging with other parts

- Development of a new institutional unit at the post-high school level, including buildings

- Development of long-range cooperative arrangements with other schools whereby their resources are pooled and/or more fully utilized on a shared-time basis

Some of the specific studies made will be repetitive in nature, for example, the study of occupational status of each graduating class one or two years later. Other examples may be annual departmental self-evaluations, annual evaluative discussions by an advisory committee, and continuing revision of teacher-made instruments for measuring student achievement.

Beyond these, there may be some approaches suggested in this manual that were not selected by a school evaluation committee. These approaches may be identified for future trial. Not all possible means of evaluation discussed in this manual have been demonstrated by actual use in schools. Imaginative and creative educators will find new and better ways of assessing the effectiveness of programs for developing occupational competence.

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APPENDIX A

PART TIME STUDENT PLACEMENT OFFICE APPLICATION

PLEASE PRINT Date _____

Name _____ Grade & Section _____

Address _____ Phone _____

Birthdate _____ Age _____ Social Security No. _____

Height _____ Weight _____ Transportation, Yes ___ No _____

Type of Work Preferred _____

SKILLS BUSINESS OR INDUSTRIAL MACHINE SKILLS

Typing (speed) _____ _____ _____ _____

Shorthand (Speed) _____ _____ _____ _____

HIGH SCHOOL COURSES COMPLETED (Please List Final Grades Earned in each Course)

BUSINESS	BUSINESS	INDUSTRIAL	SCIENCE AND MATH

PRESENT SCHEDULE (Include Second Semester Schedule)

	ROOM	CLASS	TEACHER		ROOM	CLASS	TEACHER
1.				5.			
2.				6.			
3.				7.			
4.				8.			

HAVE YOU HAD ANY PAST EXPERIENCE? (List Employer, Address, and Type of Work)

_____

_____

REFERRALS: Date _____ Place _____ Results _____

Date _____ Place _____ Results _____

APPENDIX B

PLACEMENT OFFICE EMPLOYER RECORD

Fitzgerald High School, Warren, Michigan

Name of Concern _____ Date _____

Address _____ Phone _____

Person Requesting Service _____ Position _____

Type of Business _____

Type of Service Desired _____

Qualifications Desired _____

Hours per day/week _____ A.M. _____ P.M. _____

Hourly Rate _____ Salary _____ Date of Interview _____

Type of Service Desired _____

Qualifications Desired _____

Hours per day/week _____ A.M. _____ P.M. _____

Hourly Rate _____ Salary _____ Date of Interview _____

Referrals:

Name _____ Grade/Section/Grad _____ Date _____

Remarks _____

Name _____ Grade/Section/Grad _____ Date _____

Remarks _____

Name _____ Grade/Section/Grad _____ Date _____

Remarks _____

Name _____ Grade/Section/Grad _____ Date _____

Remarks _____

APPENDIX C

PLACEMENT OFFICE REFERRAL FORM

Fitzgerald High School, Warren, Michigan

This introduces _____ Age _____

Address _____ Phone _____

Applying for the job of _____

at _____, _____
Name of Concern Address

Applicant is to see _____ Date _____

Related High School Courses

_____ _____

_____ _____

_____ _____

_____ _____

Work Experience or Post High School Education

_____

Referred by: _____ Phone 757-7070, Ext. 215

PLEASE DETACH

As an aid to our placement services, please fill out this self-addressed form and mail to: Placement Office, Fitzgerald High School, Warren, Michigan

_____ was interviewed

for the job of _____ _____
Name of Concern

The applicant is: (please check one)

_____ Hired _____ Not Hired

Reasons for not hiring the applicant:

_____

_____

Remarks:

_____

_____

_____ _____ _____
Date Signed Title

APPENDIX D

SUGGESTED FORM FOR KEEPING INDIVIDUAL PLACEMENT RECORDS*

Firm _____ Co-op F.T. _____

Address _____

Phone _____

Nature of Business _____

_____

_____

Person Contacted	Position
_____	_____
_____	_____
_____	_____

Referrals _____

_____

_____

_____

_____

Hired _____

_____

_____

_____

Approval No. _____

_____

Salary _____

Special Approval _____

Skills _____

_____

_____

_____

_____

Typ.	Sig.	Mld.	Ret.

---

* Submitted by the Fitzgerald High School, Warren, Michigan. The information is recorded on 3" x 5" cards, and is kept in a permanent file in the placement office.

APPENDIX E

INTERVIEW EVALUATION CHECKLIST*

		YES	NO
1.	Were you friendly?		
	a. Did you really feel friendly?	___	___
	b. Was the friendliness communicated?	___	___
	c. Did the interviewee respond to your friendliness?	___	___
2.	Were you interested in the interviewee as an individual?	___	___
3.	Did you prepare adequately for the interview?	___	___
4.	Did you state your purpose as soon as possible?	___	___
5.	Were you unhurried and relaxed?	___	___
6.	Did the interviewee seem at ease?	___	___
7.	Did you try to reduce his nervousness or fear?	___	___
8.	Did you get him to say what was on his mind?	___	___
9.	Did you give him enough time to talk?	___	___
10.	Did you interrupt his explanations?	___	___
11.	Were your questions clear and non-argumentative?	___	___
12.	Did you listen to everything he said?	___	___
13.	Was your attitude respectful?	___	___
14.	Did you encourage him to elaborate on unclear points?	___	___
15.	Did you invite him to ask questions or raise additional problems?	___	___
16.	Did your gestures help convey your attitude?	___	___
17.	Did you refrain from giving advice or lecturing?	___	___
18.	Did you make any reference to the need for continuous communications between the individual and the school?	___	___
19.	Did you answer questions of his that you could answer?	___	___
20.	Did you close on a friendly and appreciative note?	___	___

*Adapted from Interviewing and Counselling (Washington, D.C.: Social Security Administration, U.S. Department of Health, Education, and Welfare, June, 1964), p. 21.

APPENDIX F

CHECKLIST FOR EVALUATING SCHOOL CITIZENS' COMMITTEES FOR VOCATIONAL EDUCATION EVALUATION

Directions: Mark each question in relation to the operation of the citizens' committee evaluating vocational education in your school system.

YES	NO	
		1. Is provision made for the permanence and continuity of the committee?
		2. Has the local board of education developed policies relative to:
		a. citizen committee functions
		b. number of committee members
		c. method in which members are chosen
		d. method of replacing members when their terms expire or when vacancies occur
		e. procedures for communicating with school personnel and board members
		f. relationships of the committee to board members, administrators, teachers, students, and the community
		3. Are members of the citizens' committee nominated by the school staff?
		4. Does the board of education approve the appointment of individuals to the citizens' committee?
		5. Are members selected because of their:
		a. interest
		b. knowledge
		c. ability
		d. willingness to serve
		e. "segment or interest group" representation

APPENDIX F (Cont.)

YES	NO	
		6. Members are notified of their appointment by:
		a. letter
		b. personal visit by a school representative
		7. Are committee members appointed for a definite length of time?
		8. Are committee membership replacements staggered?
		9. Does structure provide that members will not succeed themselves?
		10. Is the chairman elected from the ranks of the committee?
		11. Is the school represented by an ex-officio member of the committee?
		12. Are committee members aware of the specific purposes for which the committee is formed?
		13. Are committee members informed well in advance of meeting dates and places?
		14. Are committee meetings held only when sufficient need exists to merit the meeting of the committee?
		15. Is publicity provided for committee activities?
		16. Are formal committee recommendations written?
		17. Are committee recommendations channeled through appropriate school authorities?
		18. Does the citizens' committee accept the philosophy that its duty is that of recommendation, not of legislation or administration?
		19. Does committee membership include representatives of all social classes in the community?
		20. Are young adults represented in the committee membership?

YES	NO	
		21. Is there a feeling of need for the citizens' committee by:
		a. board members
		b. administrators
		c. school staff personnel
		22. Are research expenses of the committee paid for by the school?
		23. As related specifically to vocational education evaluation, does the citizens' committee:
		a. make suggestions concerning the objectives of the school program of vocational education
		b. advise on curriculum planning
		c. make suggestions regarding the extent to which occupational skills should be taught in the school
		d. help develop instruments for follow-up of students
		e. help conduct surveys of former students, parents, and/or employers
		f. help acquaint the community with the needs of vocational education
		g. provide feedback to employers and other citizens
		h. help assemble and analyze materials relative to program evaluation
		i. help develop procedures for follow-up of students
		j. help interview former students, parents, and/or employers

Directions: Mark the remaining questions using the following key:

S - satisfactory progress in this area

P - only partial success in this area

N - not satisfied with progress in this area

S	P	N	
			24. Are committee members fully aware of the purpose of the citizens' committee?

APPENDIX F (Cont.)

S	P	N	
			25. Do committee members possess a working knowledge of the philosophy and objectives of vocational education?
			26. Is an information program provided that will keep committee members abreast of new vocational education developments?
			27. Is the committee formally organized?
			28. Does the school representative perceive his duty largely as that of requesting rather than giving advice?
			29. Are committee members well oriented in the principles of vocational education?
			30. Do school personnel work with the citizens' committee when the citizens' committee is concerned with a specific portion of the school curriculum for which a school staff member is responsible?
			31. Are committee members invited to school functions?
			32. Are committee members considered a part of the "school family?"
			33. Are preconceived notions sublimated or minimized in actions of the citizens' committee?
			34. Does the committee study and debate the issues before making final recommendations?
			35. Can the committee request school personnel to conduct research?
			36. Does the school provide adequate research services for the citizens' committee?

APPENDIX G

GRADUATE PLACEMENT OFFICE APPLICATION

Fitzgerald High School, Warren, Michigan

PLEASE PRINT Date _____

Name _____ Marital Status M S (Circle One)

Address _____ Phone _____ Year Grad. _____

Birthdate _____ Age _____ Social Security No. _____

Height _____ Weight _____ Transportation Yes _____ No _____

Type of Work Preferred _____

Summer _____ Full-Time _____ Part-Time _____ Apprenticeship _____

SKILLS BUSINESS OR INDUSTRIAL MACHINE SKILLS

Typing (Speed) _____ _____ _____ _____

Shorthand (Speed) _____ _____ _____ _____

Foreign Lang. (Type) ____ (Speak) ____ (Write) ____ (Co-op) ____ Yr.__

EDUCATION - HIGH SCHOOL (Please List Final Grades Earned in Each Course)

BUSINESS	BUSINESS	INDUSTRIAL	SCIENCE AND MATH

REFERRALS: Date _____ Place _____ Results _____

Date _____ Place _____ Results _____

Date _____ Place _____ Results _____

Date _____ Place _____ Results _____

EMPLOYMENT RECORD (Include All Jobs for Which You Received Earnings.)

DATES FROM	TO	EMPLOYER	ADDRESS	SUPERVISOR	POSITION	FULL/PART TIME

APPENDIX H

LIST OF MICHIGAN SCHOOLS COOPERATING IN THE TWO EVALUATION PROJECTS

Alpena
Benton Harbor
Big Rapids
Corunna
Fremont
Gaylord
Hillsdale
Lansing
Marshall
Niles
Sault Ste. Marie
Warren - Fitzgerald
Waterford Township (P.O. Pontiac)

VT 005 483

Administrative Plan for Vocational-Technical Education in Rhode Island.

Rhode Island State Dept. of Education, Providence. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Vocational Division, Rhode Island State Department of Education, Roger Williams Building, Hayes Street, Providence, Rhode Island 02908 (no charge).
Pub Date - 68 7p.

*STATE STANDARDS; *ADMINISTRATIVE POLICY; *VOCATIONAL EDUCATION; EDUCATIONAL ADMINISTRATION; *ADMINISTRATIVE ORGANIZATION
RHODE ISLAND

This document is a statement of the administrative plan as adopted by the State Board of Education for implementation at the local and state levels and includes the areas of: (1) policy, (2) administration (administrative responsibilities, advisory committees, state standards, and others), and (3) operations (vocational-technical programs in comprehensive high schools and vocational-technical high schools). (MM)

VT 005 483

ED036657

ADMINISTRATIVE PLAN

FOR

VOCATIONAL-TECHNICAL EDUCATION

IN

RHODE ISLAND

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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RHODE ISLAND STATE DEPARTMENT OF EDUCATION

DIVISION OF VOCATIONAL EDUCATION

PROVIDENCE, RHODE ISLAND

VT005483

OPENING STATEMENT

The following administrative plan is adopted by the State Board of Education for implementation at the local and state levels subject to the supervision of the Board.

I. Policy

The role which today's students will play in tomorrow's world is a complex one. It challenges the schools to provide the kind of education which will produce students able to make meaningful contributions to society, to sustain and improve the nation's economy, to adapt to change as change is demanded of them, to support themselves and their families, to develop to their own greatest potential, and to lead a full and rewarding personal life.

The State Board of Education believes that schools best respond to this challenge when they provide students with a broad basic education, designed to develop the capacity to think as well as to do, and to produce reasoning and reasonable adults with the ability to use their experiences to advantage in their own growth and development.

It is the Board's desire that all students selected for admission to the Area Vocational-Technical Schools of the State have such basic education in as much depth as is feasible prior to beginning their training for the world of work.

The Board is also aware, however, that proper timing is essential for the student's admission into the vocational-technical aspect of his educational program. Consideration must be given both to the objectives of the program and the needs of the student. The length of a course may vary from one to two to three years, with the nature of the occupational field which the student expects to enter. Students vary also - in maturity, in outlook, in aspiration, in readiness. Both the program and the student will benefit if the timing is geared to meet the requirements of each.

With this in mind, the Board places the responsibility for student selection, admission and programming in the hands of the Commissioner who is directed to take such steps as in his judgment are necessary or desirable to implement the foregoing policy with the understanding, however, that no student below grade 10 be admitted to the state area vocational schools.

It is also the intention of the Board that maximum use of the area school facilities will be made by the communities for the educational needs of adults.

II. Administration

A. The State Board of Education authorizes the expenditure of funds for construction of facilities for vocational and occupational education which shall be designated as area schools, for purchasing equipment, and, in certain instances (defined later in this plan) for staffing the program.

B. A policy of local administration will be established for all area schools with the exception of the Blackstone Valley school which will be State operated.

C. An area liaison committee will be established in each area consisting of the superintendent and one member of the school committee from each participating school system, such member to be appointed by the respective committee. This committee will act as the liaison agent between the sending and receiving school districts and will assist in the development of short term and long range plans for the improvement and expansion of the program.

D. An area advisory committee will be established in each area consisting of representatives from business, industry, labor and education generally representative of the community and able to advise on program offerings in light of the needs of the area.

E. The acceptance of the following State standards by both receiving and sending schools to be a prerequisite for participation and receipt of State and/or Federal subsidies.

1. Objective of Instruction

   All students accepted in the receiving school will have an objective which is a matter of record. The objective may be a specific recognized occupation or a cluster of closely related occupations in an occupational field.

2. Offering of Vocational Instruction

   In establishing, continuing or terminating a program of vocational-technical instruction, the interests, needs, and abilities of all persons in the State and/or area and the need and opportunity in the employment market will be considered.

3. Access to Vocational Instruction Offered

   In areas that do not provide specific programs to meet individual needs, individual student may request acceptance at another area school provided facilities are reasonably available for additional enrollees in the program offered by the alternate area school.

4. Selection of Students

Individuals will be admitted for enrollment in classes and provided instruction for each type of occupation or occupational field on the basis of:

a) A standard of achievement met by students so as to meet the requirements for completing the previous grade satisfactorily.

b) A satisfactory citizenship and attendance record.

c) Consideration of aptitude, achievement and intelligence test results for indication of consistency with the educational objective of the applicant.

d) Recommendation of the sending school.

5. Soundness and Quality of Instruction

The program of academic, occupational and related instruction will be based on a consideration of the skills and knowledge required in the occupation for which the instruction is being provided, and should include a planned course of study based upon a logical sequence of those essentials of experience and/or education deemed necessary for the individual to meet his objective.

6. Counsel and Advice

The program of instruction will be developed and conducted in consultation with the Associate Commissioner of Vocational-Technical Education, area professional committee, the area advisory committee, potential employers and other individuals or groups having skills and substantive knowledge of the occupation or occupational field representing the occupational objective.

7. Cooperative Work Experience

Cooperative work arrangements may be made for twelfth grade students to provide on-the-job experiences.

The program will provide for the following:

a) Employment of student-learners in conformity with Federal, State and local laws.

b) Employment in a manner which prevents exploitation of student-learners for private gain.

c) Supplemental instruction provided by the area school.

8. Adequate Facilities, Equipment and Materials

Classrooms, libraries, shops, laboratories, and other facilities including instructional equipment, supplies, teaching aids and other materials will be adequate in supply and quality to meet the occupational objectives for which the education is intended.

9. Qualified Teachers and Supervisors

Instruction will be conducted and supervised by teachers, consultants and supervisors meeting state certification requirements.

E. The Associate Commissioner of Vocational-Technical Education in the State Department of Education will be designated as the person to determine compliance with the standards; to assist in establishing and conducting programs; to serve as liaison between the State Department of Education and the schools; and to work cooperatively with the coordinators, principals, superintendents and school committees in all areas of the program.

F. An agreement will be entered into between the State Board of Education and the school committee of the community where the school designated as the area school is located; both parties to agree to the designation of the area school, the school committee to agree to provide water, heat, light, janitorial services, adequate teaching staff, supplies, textbooks and any other services required to maintain standards; the State Board to agree to provide certain construction, renovating, equipment and administrative and guidance staffing. The school committee would also agree that the facilities be available for upgrading, retraining and similar programs approved by the State Board of Education. Such agreement will not be required in the case of the Blackstone Valley School which will be State-operated.

G. When possible, workshops for persons who have socio-economic or other handicaps which prevent them from succeeding in the regular vocational programs will also be provided.

H. The state will maintain title to the buildings constructed and the equipment purchased with State and/or Federal funds.

III. Operation

A. Vocational-Technical Programs in Comprehensive High Schools

1. The principal of the area school will be directly responsible for the operation of the school, including the vocational program under the direction of the superintendent of schools.

2. An area coordinator will be appointed by the school committee of the area school with approval of the Commissioner of Education, to be responsible to the principal of the school; his salary to be set by the school committee with the approval of the Commissioner of Education and to be reimbursed 100% by the state.

3. Guidance counselors to work with vocational-technical students will be appointed by the school committee with the approval of the Commissioner of Education at the ratio of at least 1 to 200 students; their salaries to be set by the school committee consistent with the local school pay plan and to be reimbursed 100% by the state.

4. The area coordinator will be appointed as soon as possible and guidance counselors will be appointed at least six months prior to the opening of the school.

5. All other teachers and school personnel will be appointed by the school committee.

6. The program of studies will be established by the receiving school committee subject to the continuing review, evaluation, and acceptance by the Board of Education. Programs will be initiated and developed with the assistance of the Associate Commissioner of Vocational-Technical Education, Area Liaison Committee, the Area Advisory Committee, potential employers and other individuals or groups having skills and substantive knowledge of the occupation field representing the occupational objective.

7. Individual student scheduling will be determined by the area school but with cooperative planning by the sending school.

8. Tuition will be charged by the area school to the sending school in an amount not to exceed the per capita cost of operation.

9. Transportation will be the responsibility of the sending school committee.

10. Admission quotas for each community in the area will be made on a percentage basis determined by the most recent October enrollment figures for the 10th grades in all schools. Applications for admission will be screened by a committee consisting of the area coordinator and the vocational guidance counselor in conjunction with appropriate staff from the sending school. Responsibility for admission will rest with the area coordinator.

B. Blackstone Valley Vocational-Technical High School

Subject to the supervision and control of the State Board of Education:

1. The principal of the vocational-technical school will be directly responsible for the operation of the school.

2. The principal and all other faculty and staff of the school will be appointed by the Commissioner of Education.

3. Guidance Counselors will be appointed by the Commissioner of Education at the ratio of at least 1 to 200 students.

4. Per-Pupil tuition will be charged by the State Board to each of the sending school districts in an amount not to exceed the per capita cost of operation.

5. Transportation will be provided by the sending school committees.

6. Admission quotas for each community in the Blackstone Valley will be made on a percentage basis determined by the most recent tenth grade October enrollment figures in all sending schools; applications for admission will be screened by the vocational-technical school principal and vocational-technical school guidance counselors in conjunction with the appropriate staff from the sending schools; and responsibility for admission and retention of students as well as reallocation of unused admission quotas will rest with the vocational-technical school principal.

VT 005 560
The Use of Tests in Schools of Nursing: The NLN Achievement Tests. Third Edition. Pamphlet No. 2

National League for Nursing, New York, N.Y.
MF AVAILABLE IN VT-ERIC SET.
National League for Nursing, 10 Columbus Circle, New York, New York 10019 ($1.25).
Pub Date - 64 46p.

*ACHIEVEMENT TESTS; *STANDARDIZED TESTS; *NURSING; PRACTICAL NURSING; *HEALTH OCCUPATIONS EDUCATION; *PROFESSIONAL EDUCATION; TEST CONSTRUCTION; TEST RELIABILITY; TEST VALIDITY; ITEM ANALYSIS; TEST INTERPRETATION; CURRICULUM DEVELOPMENT

Achievement tests for schools of professional and practical nursing help schools determine how their students compare with those in similar programs in terms of commonly accepted objectives. National League of Nursing achievement tests are described in the introductory section of this booklet. The section on test development discusses the test plan, writing of test questions, content validation, experimental administration and item analysis, standardization, percentiles, "passing" or "failing," estimated reliability, and validity. The section on test services covers ordering, administration, return of test materials, retesting, and scoring and reporting. The section on the utilization of test reports discusses estimation of test results by individual schools, identification through test results of deviations in curriculum objectives, and the relationship of these findings to curriculum development. The section on test limitations is followed by the final section which emphasizes the importance of the role of test users in improving the achievement tests. (JK)

VT 005 560

THE USE OF TESTS IN SCHOOLS OF NURSING

The NLN Achievement Tests

Pamphlet No. 2

Third Edition

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Achievement Tests

The evaluation of student achievement, which is important in all education, is especially important in programs that prepare for the health services. The school of nursing has the responsibility to the public of placing a stamp marked "competent" upon each of its graduates. A corollary of this responsibility is that of ascertaining throughout the educational program the extent to which each student is developing the requisite abilities. Fairness to the student and economy in the use of resources demand that such measurement of abilities be continuous throughout the student's educational experience in nursing.

A variety of evaluation tools are required for the measurement of student attainment in the nursing program. Paper-and-pencil achievement tests are one useful kind of tool, providing for the measurement of the student's attainment of objectives in the cognitive realm (as contrasted with objectives in the realm of attitude or of motor-sensory ability, which require other types of evaluation tools). Among paper-and-pencil tests, objective tests provide for the measurement of knowledge, understanding, judgment, application of principles—in fact, most abilities in the cognitive realm, but not those involving creativity, ingenuity, and the organization of communications. It is important for faculties to be aware of the broad scope of abilities measurable by objective tests but, at the same time, to recognize what such tests cannot accomplish and to provide a total program of evaluation that will give consideration to all curriculum objectives.

The Function of National Standardized Achievement Tests

Among the many questions concerning evaluation that the faculty of a school may ponder is one with which national standardized tests can provide special assistance. That question is, How do our students compare with those in other programs of the same type throughout the country in terms of commonly accepted objectives? The concept of a common core of objectives among programs is necessary if the terms "professional nurse" and "practical nurse" are to have real meaning. Such terms must have the same meaning from state to state if the public is to be well served. The National League for Nursing provides achievement tests for schools of professional nursing and schools of practical

nursing in order to assist them in meeting their commitments to the student and the public.

In addition to providing information on the above question, national standardized tests also help, though somewhat less directly, to answer the question, How do our curriculum goals compare with those of other schools? The curriculum, rather than the individual student, is the focus of this aspect of evaluation. On evaluation problems pertaining to objectives of a school's curriculum that differ in kind or in emphasis from objectives commonly held by other schools, national standardized tests provide relatively little help, and faculty-made evaluation tools are essential.

Descriptions of the NLN Achievement Tests

NLN provides achievement tests for basic professional nursing programs and for practical nursing programs.

Achievement Tests for Basic Professional Nursing Programs.—Although the number of tests provided varies somewhat from time to time, depending upon trends in nursing education and the expressed needs of schools, about a dozen separate tests are generally available in the *regular achievement test series* and about a half-dozen in the *comprehensive achievement test series.* Tests are provided in the natural sciences basic to nursing, in the applied sciences, and in the major clinical nursing areas. The tests in the regular achievement test series (for example, the Obstetric Nursing Test and the Basic Pharmacology Test) are intended for administration at the completion of specific learning experiences in the student's program. The tests in the comprehensive series (for example, the Disaster Nursing Test and the Pharmacology in Clinical Nursing Test) tend to cut across course boundaries and are intended for administration late in the student's program. The *Brochure of NLN Achievement Tests in Professional Nursing,* available free of charge from the NLN Evaluation Service, provides a description of each of the current tests, with sample questions and normative data.

Achievement Tests for Practical Nursing Programs.—These tests are in clinical nursing and in basic subject areas of the practical nursing curriculum. Descriptive material on the currently available tests is provided in the *Brochure of NLN Test Services for Schools of Practical Nursing,* also available free of charge from the NLN Evaluation Service.

NLN tests are not sold. Schools using the tests purchase NLN's service rather than the tests themselves. A list of the tests currently offered and the cost of the service may be found in the publications list of the NLN Division of Nursing Education as well as in the brochures described above.

Development of the NLN Achievement Tests

Each NLN achievement test is developed in response to the needs of schools of nursing expressed by the schools themselves and by councils and committees of NLN. Changes in curriculum trends are likely to require the development of new tests from time to time and the elimination of some older tests. Once the need for a new test has been established, the test is constructed by a process consisting of four phases:

1. Planning, blueprinting, and initial test-item development.
2. Content validation, involving a nationwide review.
3. Experimental administration.
4. Final production and standardization.

The construction of an NLN achievement test is a painstaking process that takes a year or more and involves the participation of many people, including experts in the particular area covered by the test, specialists in test construction and evaluation, a hundred or more faculty groups, and students in nursing who are representative of the group of students to whom the test will be given.

Development of the Test Plan

The plan for each test is developed by a group of educators in the curriculum area covered by the test, with the assistance of the NLN test construction staff. The educators are selected from different parts of the country and from the types of educational programs for which the test is to be prepared. These people, forming a working committee, meet together for a week or more to plan and develop an initial draft of test items.

The working committee first discusses and decides upon the general scope of the test to be developed. This discussion may be relatively short when the test is in a traditional curriculum area, the scope of which is well understood, and longer when the test relates to a swiftly changing curriculum area or to a combination of areas for which NLN has not previously constructed a test.

Decisions regarding the content and the concepts to be included in the test constitute the next step. For a clinical test, the committee usually prefers to start with the general question, What kinds of nursing situations should the examinee be prepared to meet, and what understandings are

necessary to meet them successfully? For a science or an applied science test, the question is likely to be, What understandings related to this science are needed in meeting nursing problems? Some type of coding system is always used for classifying the questions in an NLN achievement test. Appendix A presents NLN's detailed list of abilities for use in classifying test items. More commonly, a shorter list that is appropriate for the individual test under development is selected. A list devised for analyzing a medical-surgical nursing test is shown below.

A grid such as that shown on page 5 is sometimes useful in test construction. That a given group of items tests knowledge alone while another group tests application of knowledge can in many instances, however, be only a surmise in a nationally used test, since judgments that some students arrive at by reasoned application of knowledge will have been specifically taught to others in the classroom or the clinical laboratory. Grids used for NLN tests, therefore, generally pertain to content rather than to levels of cognition.

Code For Clinical Nursing Test Items

A. The selection and carrying out of physical measures in accordance with patients' needs; the "what-to-do" and "how-to-do" of nursing.

B. The theory of nursing and medical care, exclusive of psychological aspects; the purposes, the "why" of physical measures used.

C. Interpersonal responses to patients, families, and others and measures to provide kinds of emotional climates.

D. The theory of psychological aspects of care; the "why" of choices of responses or approaches and of teaching methods.

E. Differentiation between normal and abnormal (not in terms of specific diseases); knowledge of physical and mental health, growth and development.

F. Manifestations of specific diseases and abnormalities; pathology, symptoms, complications, sequelae, prognosis. (This category includes the symptoms and abnormalities produced by surgery when they are not the desired outcome of the surgery.)

G. Cause and control of disease: predisposing factors, etiology, transfer, prevention, incidence, and epidemiology of disease. (The cause of a symptom, however, is coded under F, and the prevention of a symptom under A or C.)

H. Roles and functions of other workers and of nurses as differentiated from other workers.

I. Roles and functions of agencies and institutions; sources of information.

PART OF A POSSIBLE TEST PLAN FOR A NURSING OF CHILDREN TEST

COGNITIVE LEVELS	PERCENTAGE OF ITEMS BY AGE GROUPS				
	Infancy 22%	Preschool years 22%	Early school years 22%	Adolescence 10%	General 24%
1. Knowledge of terms	normal 1% illness 0%				
2. Knowledge of facts, principles, and methods	normal 3% illness 3%				
3a. Application of facts and principles and evaluation of evidence (other than 3b)	normal 3% illness 5%				
3b. Application of psychosocial facts and principles and evaluation of evidence	normal 4% illness 3%				

Classification systems for test questions such as those mentioned above are likely to be used early in the construction of a science test but somewhat later in the construction of a clinical nursing test. They are, after all, artificial devices, and test constructors in clinical nursing areas tend first to focus directly on the needs of patients in determining test content and only later to group such needs according to content. A committee developing a test plan in the nursing of children, for example, might start with the general idea that between one-fourth and one-fifth of the questions should be related to infancy and that equal emphasis should be given to the normal infant and the sick infant. The committee members might also agree that questions testing only terminology should be at a minimum and that the majority of questions should test application of knowledge, or at least the use of a constellation of facts. Agreement upon specific percentages of items to be in various categories might come much later.

A teacher of nursing wishing to ascertain her students' attainment in a curriculum area develops at first, not a test plan, but an over-all evaluation plan.[1] That is, the teacher arranges for the evaluation of the students'

[1] For further discussion of such a plan, see *The Use of Tests in Schools of Nursing. Pamphlet No. 5: The Construction and Use of Teacher-Made Tests.* New York, National League for Nursing, 1957, pp. 46-55.

progress toward all of the objectives of the course, including progress the measurement of which requires observation of students at the time they are confronted with clinical nursing problems, in small group situations, and in interviews, as well as progress that can be measured by written means, including paper-and-pencil tests. The constructors of the NLN achievement tests, of course, confine themselves to those abilities that can be measured by objective paper-and-pencil tests, which include all the abilities measurable by written means except those related to creativity, ingenuity, and ability to organize materials.

The Writing of Test Questions

An initial draft of test questions is constructed according to specifications of the test plan by the group that developed the plan. Additional groups are usually required for the development of certain portions of the test. The construction of test questions is a time-consuming task; sometimes it takes a whole day to prepare a dozen questions, some of which may later be discarded.

All of the rules that teachers follow in constructing sound objective questions for their own tests[2] are important in the development of the NLN achievement tests. In addition, since the NLN tests are used nationally, the constructors must endeavor to include only content related to practices that are nationwide rather than local or regional.

Form of Questions.—The multiple-choice form of question is used on the NLN achievement tests because it is usable for testing both knowledge and judgment, it provides a meaningful measure in a relatively short space of time, and it can be scored easily and quickly. This kind of question is written in the form of a statement or question followed by alternative answers, all of which are plausible but one of which completes the statement or answers the question more adequately than do the others.

Type of Questions.—Most of the questions in the clinical nursing tests are constructed around specific nursing situations, that is, they are developed, not around disease entities per se, but around specific patients—around, for example, "Ralph Dirkson, a steelworker and father of three small children, who has symptoms of a brain tumor." The use of the specific patient-nurse situation provides for the measurement of understandings from a variety of subject matter areas (nutrition, pharmacology, psychology, sociology, epidemiology, and so forth) in the kinds of nursing problems that present themselves in real life. Thus, not only can knowledge per se be tested but also application of knowledge in a variety of "live" situations.

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[2] See *The Construction and Use of Teacher-Made Tests.*

The instructions for NLN achievement tests direct the student to select the "best" answer, not merely a "correct" answer. This permits testing for more discriminating judgment than would be true if none of the wrong options contained any aspect of correctness. It is important for the nurse to be able to distinguish a highly useful action not only from harmful actions but also from only slightly helpful ones. The "best" answer is, of course, best only in terms of the choices offered, not necessarily in terms of all possible actions. It is especially important to keep this in mind in considering direct-quotation types of options, where possible verbal responses of a nurse to a patient or a co-worker are presented.

Content Validation

The first draft of the test is completed. The experts who have prepared it believe that the questions are useful and that the test as a whole conforms to the specifications of the original test plan. Moreover, they believe that the test presents a fair picture of the abilities that schools of nursing across the country are trying to help their students to develop.

Before the review draft of the test is developed, however, each patient situation and each test item is studied carefully in terms of the content of published references and texts in the field, not at all with the idea of making the test like the texts, but to obtain a preliminary survey of the extent to which the principles underlying the correct answers find general acceptance in the field. If support for the item cannot be found in reference books, is it in the most recent medical and nursing journals? Or, at least, can no *contradictory* evidence be found? In the latter case, the item may still deserve to be included in the next draft in order to receive the attention of many faculty groups.

The next step is a nationwide review of the test by schools of the type that will be consumers of the test in its final form. Typically, a test intended for use in basic professional nursing programs is sent to the faculties of about 150 programs. The reviewers are asked to "take" the test, since this provides further validation of the items, and to indicate for each item whether it should remain in the test in its present form or be revised or be omitted entirely. The reviewers are provided an opportunity to comment on each question and, in addition, to react to the content of the test as a whole. The reviewers may also be asked their opinions on the desirability of subscores. The data from the review are tabulated and the written opinions are compiled separately for each test item. (For professional nursing tests, data from diploma and baccalaureate degree programs are tabulated separately.) These findings provide a basis for the modification or the deletion of items (the review draft

being considerably longer than the final form). Thus, the next draft of the test comes into being—the experimental form.

Experimentation

Experimental Administration.—For a further evaluation—this time in the crucible of experience—the test is then administered to between 500 and 1,500 students (depending on the type of test) in schools of nursing that have agreed to cooperate in the trial run. These schools include an adequate sampling of every type of school that will be using the test—large schools and small schools, schools under educational and under hospital control, schools in public and in private institutions, schools operated under sectarian and under nonsectarian auspices, and schools in every region of the country. The students tested are at that stage in the educational program that is appropriate for the particular test. In the case of professional nursing tests, separate item-analysis data are obtained from diploma and baccalaureate degree programs.

Item (Question) Analysis.—The trial run among a large number of students provides information on the difficulty of each question, that is, on the percentage of examinees who got the answer right. It also provides information on the discriminatory value of each question. It must be remembered that national achievement tests are aimed at measuring the *relative* achievement of students, that is, at differentiating between the students of high achievement and those of low achievement. Tests on which a great majority of students achieve high scores or a great majority achieve low scores would obviously not fulfill this discriminatory function.

It follows from this function of a national test that one criterion of a good test question is its ability to discriminate between students with high scores and those with low scores. A test question that is answered correctly by all those taking the test, or by none of those taking it, has no discriminatory value. Those preparing the test questions attempt to eliminate such questions, although a few, to which most students will know the best answer, may be retained because of their "shock absorber" usefulness in giving the students a feeling of confidence.

Equally valueless for purposes of discrimination are those questions to which the lower scoring students give correct answers more frequently than do those with high scores. A question that is answered correctly by more low scorers than high scorers is judged to be of negative discriminatory value and is eliminated.

For the NLN tests, each question's discriminating ability, or statistical validity, is ascertained by the use of biserial correlations. The student's

total score on the test is compared with the student's "score" on each question, that is, whether her answer was right or wrong.

The process used by NLN obtains for the correct answer in each test question the exact biserial correlation and, in addition, the biserial correlation for each incorrect alternative in the question. The scores made by all of the students who took the test are used, and each test score is used in its actual magnitude. The method has been made feasible by the use of the IBM electronic computing machines. (This process superseded at NLN a number of years ago a less exact process, perhaps familiar to readers, in which a comparison is made of the performance of, roughly, the top and the bottom quarter of the examinees.)

An example of the card used for NLN's item analysis is shown in Appendix B.

Standardization

The NLN achievement tests are standardized against the scores of a large and representative sample of students from all regions in the country, including those students whose scores were used for item analysis. Thereafter, for the period of one full calendar year, the performance of students who take the test is expressed in relation to this normative group.

The tests in practical nursing are standardized against the scores of students in practical nurse programs. The achievement tests in professional nursing are used in programs that lead to a diploma or associate degree and in programs that lead to a baccalaureate degree. Accordingly, the standardization group for this test series includes students from programs of these several types. In addition, since faculties in basic professional schools want to compare the test performance of their students with that of students in good schools of similar type, normative data for these tests are provided in terms of two other representative groups: students in NLN-accredited diploma programs and students in NLN-accredited baccalaureate degree programs. It is not yet possible to provide similar data for students in the small number of accredited associate degree programs.

Percentiles

A student's standing in comparison with the other members of the standardization group, as with the members of any group, can be expressed in a variety of ways. For example, the group might be divided into thirds in terms of performance on the test, and a student would be referred to as belonging to the top third or middle third or bottom third

of the group. Or the group might be divided into quarters, or quartiles, or, if it is fairly large, into tenths, or deciles. The large number of students whose performance is measured on the NLN achievement tests indicates the need for even further division into hundredths, or percentiles.

The percentile (sometimes called centile) that is placed beside a student's name on the report of the NLN achievement test indicates the percentage of students in the group with which she is being compared who have made a lower score than she has. A student whose score places her in the top hundredth will be in the 99th percentile, since the scores of 99 percent of the group are lower than hers. Percentiles from 75 through 99 represent the top quarter of scores in a group; from 67 through 99, the top third, and a percentile of 50 indicates typical (median) performance.

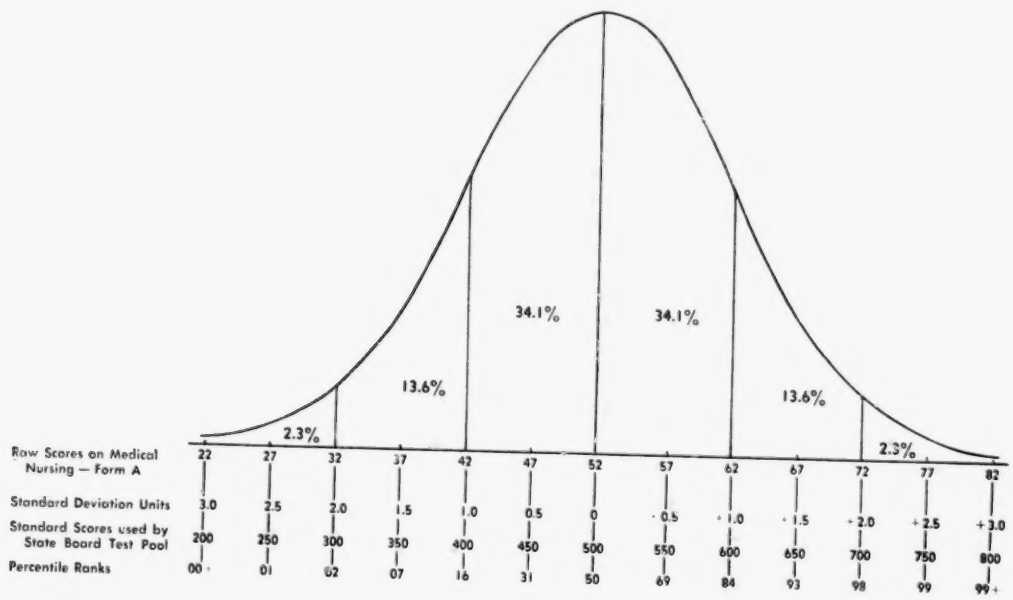
The percentile in which a student's performance places her has far more meaning than has the raw score. To be told that Mary Jones selected the correct answer to 65 questions on a test is not much help in itself. The implication would be quite different if there were only 70 questions in the test than if there were 200. Also, it would be important to have information on the difficulty of the test and on the range of scores of other students in order to interpret Mary Jones's score. Therefore, percentiles are provided for the interpretation of NLN achievement tests, as is true of many other standardized examinations.

When percentiles are used for such interpretation, it is important to remember that in examinations like the NLN achievement tests, equal differences in percentiles do not necessarily indicate equal differences in ability. These tests have been constructed in such a way that a great many individuals achieve scores that are near the median, whereas a relatively small number make scores at either extreme.

Such a distribution of scores is illustrated in Figure 1, the theoretical normal curve, which is somewhat like the curve that is obtained from a plotting of the scores made on an NLN achievement test. Suppose that this curve represents the scores of 1,000 students who took a particular test. Then, 341 would achieve scores in the 10-point interval 42-52, while the scores of only 23 students would be between 22 and 32. The 341 students scoring between 42 and 52 represent 34.1 hundredths of the total group, and their scores would accordingly extend over a span of 34 percentiles (16-50), with a score of 42 falling at the 16th percentile and a score of 52 at the 50th percentile (median). The 23 students who scored between 22 and 32 would represent only 2.3 percentiles of the total group, so that in this case a difference of 10 raw score points would represent a difference of only 2.3 percentiles. Thus, in this test, the stu-

Figure 1

The Theoretical Normal Curve and Its Relationship to Standard Scores (SBTP) and Percentiles



dents in the 0 and 2d percentiles would be as widely separated in ability as are the students in the 16th and 50th percentiles.[3]

This disparity in the differences in ability as indicated by equal percentile intervals has been emphasized because it is of considerable practical importance in the interpretation of NLN achievement test scores. It would not be too surprising if of two classmates of apparently equal ability, one were to score in the 55th percentile on an NLN achievement test and the other were to score in the 45th percentile; however, a student who scores in the 99th percentile is considerably superior, as far as the abilities measured by the test are concerned, to the student who scores in the 89th percentile. Again, a faculty which has set the admissions standards and geared the educational program of its school for students of average ability in nursing would have no reason to revise its program if the students' scores on the NLN achievement tests cluster around the 60th or 40th percentiles; such test results might well be considered within the average range. On the other hand, when a class whose scores are expected to center around the 20th percentile achieves a median score in the 10th

[3] For a fuller explanation of the relationship between percentiles and scores, see *The Use of Tests in Schools of Nursing. Pamphlet No. 1: The NLN Pre-Nursing and Guidance Examination.* 3d ed. New York, National League for Nursing, 1961.

percentile, a re-evaluation of the various aspects of the program might well be indicated.

Similarly, in the State Board Test Pool Examinations, which are scored according to a standard score system, an interval between two scores will represent a much larger percentile difference when the scores are near the mean (500) than it will for scores near the extremes (200 and 800). In these examinations, about two-thirds of the persons tested score between 400 and 600, one-sixth between 200 and 400, and one-sixth between 600 and 800. Thus, a score of 400 is in the lowest sixth of all scores and at about the 16th percentile, and a score of 350 is at about the 7th percentile.[4] (These statements all pertain to a normal distribution of scores. If the scores did not fall into the bell-shaped distribution, the relationship of percentiles to standard scores would vary accordingly.) When comparisons are made between a person's score on an NLN achievement test and one of the State Board Tests, the relationship between percentiles and standard scores should be borne in mind, as well as the fact that the objectives of the two types of tests are different.

"Passing" or "Failing"

From the foregoing discussion, it is evident that the results of an NLN achievement test show only how each student's achievement compares with that of other students throughout the country with respect to the abilities measured by the test. These abilities are related to the objectives that are characteristic of all programs of a certain type, but they do not encompass the additional objectives that a faculty of an individual school may have formulated. Only the faculty in each school can determine the extent to which a particular NLN achievement test measures progress toward all the objectives of the school's curriculum or unit of instruction in that curriculum. Again, even insofar as the core of common objectives is concerned, only the faculty can determine the level of achievement expected of students in a particular school. For these reasons, no specific passing mark is designated by the NLN for any of its achievement tests.

Estimated Reliability

In the language of tests, a measurement procedure is reliable to the extent that repeated measurement gives consistent results for the individual

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[4] For a fuller explanation of the relationship between percentiles and standard scores, see *The Use of Tests in Schools of Nursing, Pamphlet No. 5: The Construction and Use of Teacher-Made Tests.* New York, National League for Nursing, 1957, pp. 86-88.

—consistent in that her score remains substantially the same, or her standing in the group shows little change, when the measurement is repeated. Just as a reliable ruler is one that always gives a reading of 12 inches for a one-foot distance—not 11 inches one day and 13 the next—so a reliable test is one on which a student who makes a score of 75 would make the same or nearly the same score on comparable occasions.

In tests like the NLN achievement tests, such factors as the examinee's memory and the knowledge that she gains from intervening experience tend to influence the results obtained on a readministration of the test. Accordingly, for this type of test, readministration to the same student or group of students is an unsuitable method for determining reliability. Instead, reliability is usually estimated by determining the extent to which the test is affected by various factors that have been found to influence the reliability of tests of this kind.

Among the factors that influence the reliability of a test is the number of questions it contains. The estimated reliability bears a direct relationship to the length of the test, with longer tests tending to be more reliable than shorter tests. The wording of the questions, the motivation of the person taking it, the length of time given for answering the questions, and other conditions under which it is administered also affect reliability. Not all of these factors are measurable by, or within the control of, the test makers, but some improvements can result from the comments of the reviewers and from an examination of the results of the experimental administration. A point of ambiguity in a test item that may not have been apparent to the test-writing groups becomes readily apparent when the test is both "taken" and criticized by more than a hundred faculty groups in schools throughout the country. If by chance the reviewers failed to call attention to the ambiguity, a study of the results of the experimental administration would be likely to uncover the difficulty, and the item would be deleted from the test.

Another factor that influences the reliability of a test is its internal consistency. Other things being equal, the more homogeneous the content of a test, the higher its internal consistency, and therefore its reliability, can be expected to be. For example, a test that consists solely of arithmetic problems would be expected to have a higher reliability than it would if questions on anatomy were inserted. An NLN achievement test in clinical nursing measures understandings in many areas—human relations, disease manifestations, application of sciences, nursing methods, and so forth—and therefore tends to have a lower internal consistency than does a test in a single "pure" science.

The reliability of NLN tests is estimated according to one of the Kuder-Richardson formulas, which interpret reliability as being measured by

the internal consistency of the test.[5] This formula also takes into account the number of questions in the test; all other things being equal, the estimated reliability of a long test is higher than that of a shorter test. For NLN achievement tests, the estimated reliability is computed on the basis of the questions that survive the trial run; the questions that are to be discarded from the test are omitted. The measure used to indicate the extent of reliability, the coefficient of estimated reliability, can vary from 0.00 (totally unreliable) to 1.00 (completely reliable).

The coefficients of estimated reliability for NLN achievement tests generally range between .70 and .90. The estimated reliabilities for parts of tests that yield subscores may be higher or lower than those of the total tests. The parts of tests are, of course, shorter than the total tests and tend to have lower reliabilities. The greater homogeneity of the part of the test on which the subscore is based is more than offset by the fact that the part is shorter than the whole.

The coefficients of estimated reliability for the current NLN achievement tests are included in the brochures mentioned on page 2, which are available from the NLN Evaluation Service free of charge.

Validity

A test is never just "valid"; it is always valid for a purpose. An ophthalmoscope is a valid instrument for an eye examination but not for examination of the colon. A test is constructed for a purpose, and its validity refers to the extent to which it measures what it is supposed to measure. The validity of an achievement test is established chiefly by analysis of what the test covers. Such validity is called content validity. (For selection tests, on the other hand, one looks chiefly for predictive validity.)

One gauge of the content validity of national achievement tests in nursing is the breadth of participation in the construction of these tests. If the educators who develop and review a test are widely representative of the type of educational program that will be using the test, it is likely that the test will measure the ability of students in terms of some of the common objectives of a large number of schools and therefore in terms of the competencies that the graduates of these schools are expected to possess. The entire process by which the NLN achievement tests are developed is such as to provide content validity (see page 7). The

[5] G. F. Kuder and M. W. Richardson, "The Theory of the Estimation of Test Reliability," *Psychometrika*, Vol. 2 (1937), pp. 151-160; and M. W. Richardson and G. F. Kuder, "The Calculation of Test Reliability Coefficients Based Upon the Method of Rational Equivalence," *Journal of Educational Psychology*, Vol. 30 (1939), pp. 681-687.

extent to which these tests are valid is the result of the cooperation of nurse educators throughout the country. It is upon the breadth of their collective experience and the depth of their collective knowledge that the usefulness of the NLN tests depends; it is to their enthusiasm and untiring efforts that the success of these tests can be attributed.

To obtain predictive validation of achievement tests in nursing would require the definition of what constitutes levels of success in the practice of the graduate, the practitioner. Such definitions have never been developed either for nursing or for other professions. In the absence of criteria for predictive validity, the test maker must use the criteria that are available for content validation; for example, the statements of the functions of nurses published by the American Nurses' Association and those findings of curriculum and nursing service projects of NLN and other groups that indicate responsibilities of practitioners of nursing and the abilities they need.

Sometimes the question is asked as to whether the validity of an achievement test is not established by the extent to which the test results correlate positively with those for the corresponding licensure test. Although a sizable positive correlation is found between such pairs of tests, it should be kept in mind that the purposes of licensure and achievement tests are different and that the norms groups are different.

The Servicing of the NLN Achievement Tests

The NLN achievement tests are available to:

1. Schools of nursing in the United States and Canada whose graduates are eligible for admission to a licensing examination. The tests can be ordered by the administrator of such a school or by her authorized agent, who may be a member of the school's faculty or a representative of a hospital or a college to which the school has delegated responsibility for instruction in part of the educational program.
2. Licensing authorities who wish to use the tests in connection with their evaluation of the credentials of foreign nurses or of other nurses who have applied for registration in their jurisdiction.

Directors, deans, or educational directors of schools eligible to use NLN achievement tests may obtain from the NLN Evaluation Service a copy of any achievement test that the faculty wishes to review. The purpose of the review should be stated in the letter of request. Legitimate goals of the review of an NLN achievement test include its use to determine the appropriate time in the program at which to administer the test and to identify broad areas of content represented by the items. It is not appropriate to use the review of a test to determine curriculum objectives or course content. The security of the tests must, of course, be maintained if they are to be most useful to you and to other users. Therefore, test review should be limited to qualified and appropriate persons, and none of the test content should be copied.

Ordering

Institutions wishing to use one or more of the NLN achievement tests are requested to order them directly from the NLN Evaluation Service, 10 Columbus Circle, New York, New York 10019.

The following procedures should be followed closely, so that orders may be filled accurately and promptly:

1. If possible, send the order to NLN on the form that NLN provides for this purpose. Copies of this form are sent routinely to a school with each test report. A larger quantity of order forms will be sent upon request.

A school may use one order form for ordering tests that will be administered on different dates. However, it is always important to make certain that the correct testing date for each test is given.

2. If an order form is not available, include the following information in the letter of request:
   a. The complete title of each test to be given.
   b. The number of students who are expected to take it.
   c. The *exact* date scheduled for its administration.
   d. The name, title, and address of the person to whom the test materials are to be shipped.
   e. The name, title, and address of the person(s) to whom the test reports and the invoice are to be sent.
3. Check to be sure that all the information listed under "2" is given and that it is exact. If the indicated date is "as soon as possible," the tests are sent to reach the school within three weeks after the order is received by the NLN Evaluation Service.
4. Mail the order in time for it to reach the NLN Evaluation Service at least three weeks before the test is to be administered. If the test is to be administered within this three-week period, indicate whether or not the school is willing to pay the postage charges for any necessary special handling.
5. Check the materials as soon as they are received and notify the NLN Evaluation Service immediately of any discrepancy between the order placed and the order received.
6. Do *not* send payment with orders.

Administration

If test results are to be meaningful to a faculty, the test must be administered at the most appropriate time in the students' program. The difference in time of administration of the regular achievement series and the comprehensive achievement series has been mentioned previously (see page 2). Descriptive materials in each test provide clues as to the appropriate time of administration; if a faculty interested in using a test for the first time finds that these are not sufficient, it may wish to obtain a review copy of the test. (For method of obtaining a review copy, see page 16.)

Prior to the administration of an NLN achievement test, it is desirable for the instructor in the course to help the students understand what NLN achievement tests are and the reasons they are given. At this time, she might well put herself in the place of her students when they are con-

fronted with questions about new situations—their anxiety and their possible feeling that inasmuch as they have not been taught the answers to these specific questions, they have been less well prepared for the test than have students in other schools. She might point out that since the practice of nursing involves the application of nursing principles to one new situation after another, it is quite reasonable that students be tested on their ability to apply principles that they have learned to situations with which they have not previously been confronted. For this reason, she might explain, the questions will involve situations that are new to all students taking the test throughout the country. Also, she might attempt to forestall any unwarranted feelings of failure with the following explanation: of the thousands of students throughout the country who are taking the examinations in question, virtually none will know the answers to all the questions, and some students will know the answers to less than half the questions.

The tests may be administered by an official representative of the test user. So that the conditions of administration may not be prejudicial to any of the many groups of students who take the same test, it is important that these conditions be as uniform as possible for all groups. In particular, it is important that the directions for marking answers on answer sheets be followed explicitly. A copy of directions for the administration of achievement tests is supplied with each shipment of test materials. This should be reviewed by the examiner before she administers the test.

Return of Test Materials

The directions for the administration of achievement tests also contain information about the responsibilities of the test users as regards the receipt and return of test materials. In this connection, it should be emphasized that subscribers to the test service do not purchase the booklets in which the tests are printed; they merely have the privilege of using them. All tests are copyrighted, and no test or part of any test may be reproduced in any form.

Test materials are returned to NLN at the user's expense. Answer sheets should be returned within 24 hours after the tests are administered, so that they may be scored and the results reported promptly. Envelopes with a capacity of 40 answer sheets are provided in each NLN shipment for the return of used answer sheets. Any special billing or reporting instructions should accompany the answer sheets to which they apply.

Test booklets and other supplies must be returned within three days after the administration of the test. Labels and other supplies for the return shipment are enclosed with each order. Instructions for the return

of the booklets and the answer sheets are included in the directions for the administration and should be followed carefully. The materials may be returned most economically as "Educational Materials," though this is also the slowest method. For this reason, users may elect to use "Educational Materials" postage for returning booklets and supplies but may prefer to use first-class mail or airmail postage for the return of answer sheets.

Retesting

The decision lies with the faculty, of course, as to whether the readministration of an achievement test might be useful. However, the faculty might well question what value, if any, could be derived from a second testing.

In the first place, the results of an immediate retest are usually considered of dubious value because students are likely to profit from their initial experience. On the other hand, if the interval between testings is long, changes in scores might be attributed to the students' development in the intervening period. In the latter case, however, one could not rule out the possibility that the improved performance might be a result of the students' having focused attention (consciously or unconsciously) on material related to items covered in the test. In the case of tests that are used for selection purposes, it is desirable that subsequent development be taken into account so that retesting a year or more after the administration of the original test can yield usable scores. The NLN achievement tests, however, are usually given at the conclusion of a unit of instruction to evaluate the extent to which that unit has helped students progress toward certain objectives. If the time-span between a test and a retest is long enough to minimize the effect of the first testing, the retest will more than likely measure development that has taken place in other courses as well as in the one that is being evaluated by the test. It should be pointed out that the comprehensive achievement test series, intended for administration relatively late in the students' program, was developed to help meet the needs of schools that otherwise might be inclined to repeat the administration of the regular achievement tests.

Scoring and Reporting

The used answer sheets are scored at NLN headquarters. Any step in the scoring or recording process in which there is any possibility of an error is checked. Answer sheets are retained for three months.

FIGURE 2

NATIONAL LEAGUE FOR NURSING • • EVALUATION SERVICE • • 10 COLUMBUS CIRCLE, NEW YORK 19, N. Y.

REPORT OF NLN ACHIEVEMENT TESTS

CHEMISTRY
NAME OF TEST

63
FORM OF TEST

MO. | DAY | YR.
5 | 20 | 64
DATE OF TESTING

PERCENTILE NORMS ARE BASED ON PERFORMANCE OF:

STUDENTS IN ACCREDITED DIPLOMA PROGRAMS		STUDENTS IN ACCREDITED DEGREE PROGRAMS		ALL STUDENTS TAKING THIS ACHIEVEMENT TEST		PERIOD ON WHICH NORMS ARE BASED
1162	27	416	10	1582	38	1963
NO. STUDENTS	NO. SCHOOLS	NO. STUDENTS	NO. SCHOOLS	NO. STUDENTS	NO. SCHOOLS	

DIRECTOR SCH OF NURSING
CENTRAL HOSPITAL
NEW YORK N Y 10019

21741
SCHOOL CODE

10001
NLN ORDER NO.

MO. | DAY | YR.
5 | 28 | 64
REPORT DATE

TEST NO.	NAME OF STUDENT	INORGANIC				ORGANIC				BIOCHEMISTRY				TOTAL				HOME SCHOOL
		RAW SCORE	PERCENTILES DIP.	DEG.	ALL	RAW SCORE	PERCENTILES DIP.	DEG.	ALL	RAW SCORE	PERCENTILES DIP.	DEG.	ALL	RAW SCORE	PERCENTILES DIP.	DEG.	ALL	
2	ADAMS PATRICIA	12	33	21	30	18	78	64	75	16	57	49	55	046	58	41	54	21741
2	BAKER ELOISE	25	86	72	83	20	83	70	80	26	94	85	92	071	92	80	89	21741
2	EDWARDS KAREN	28	92	81	89	26	96	87	93	24	90	79	87	078	96	88	94	21741
2	GREEN SANDRA	23	81	64	77	23	92	79	89	23	88	77	85	069	90	77	87	21741
2	INGRAM CHARLOTTE	17	56	35	51	13	55	44	52	16	57	49	55	046	58	41	54	21741
2	LONG NAOMI	17	56	35	51	18	78	64	75	20	77	67	74	055	75	57	70	21741
2	NELSON RUTH	09	21	14	19	07	23	17	22	11	29	25	28	027	20	14	18	21741
2	PETERSON DONALD	19	65	44	60	14	62	48	58	18	70	59	68	051	68	50	63	21741
2	UPTON KENNETH	22	79	60	74	16	69	55	65	21	81	71	79	059	80	63	75	21741
2	WILLIAMS DELORES	27	91	78	88	21	87	74	84	25	92	83	90	073	93	83	90	21741
2	YOUNG LAURENE	24	83	67	79	22	90	77	87	22	86	74	83	068	90	76	86	21741
2	ZANE PETER	36	99	97	98	31	99	93	97	35	99	99	99	102	99	98	99	21741
2	CLASS MEAN	22	79	60	74	19	81	67	77	21	81	71	79	062	83	66	79	21741
2	MAX SCORE POSSIBLE	45	99	99	99	45	99	99	99	45	99	99	99	135	99	99	99	21741

A list of names, scores, and percentiles, as shown in Figures 2 and 3, constitutes the report of an NLN achievement test. Figure 2 illustrates a report that provides subscores. Figure 3 presents an example of one that provides a total score only. "Diploma" and "Degree" percentiles, which are shown in Figures 2 and 3, would, of course, not appear in a report of a practical nursing achievement test.

Within ten working days after the answer sheets have been received at NLN headquarters, the report is sent to the person who has been authorized by the school or other subscriber to receive it. To forestall possible faulty interpretation of the test results, the report is not sent to students.

FIGURE 3

NATIONAL LEAGUE FOR NURSING
EVALUATION SERVICE
10 COLUMBUS CIRCLE NEW YORK 19, N. Y.

REPORT OF NLN ACHIEVEMENT TESTS

DIRECTOR SCH OF NURSING
CENTRAL HOSPITAL
NEW YORK N Y

21741 SCHOOL CODE | 10001 NLN ORDER NO. | MO. 7 DAY 4 YR. 63 REPORT DATE

5 BASIC PHARMACOLOGY NAME OF TEST | 60 FORM OF TEST | MO. 5 DAY 30 YR. 63 DATE OF TESTING

THE PERCENTILE NORMS ARE BASED ON THE PERFORMANCE OF

KIND OF STUDENTS	NUMBER OF STUDENTS	NUMBER OF SCHOOLS REPRESENTED	PERIOD ON WHICH NORMS ARE BASED
Students in accredited diploma programs	9353	251	1962
Students in accredited degree programs	786	27	1962
All students taking this achievement test	13978	451	1962

TEST NO.	NAME OF STUDENT	RAW SCORE	PERCENTILES DIP.	DEG.	ALL	STUDENT IDENT. NO.
5	CHURCH HARRY	83	91	84	90	21741
5	DILLON NELLIE	80	87	78	86	21741
5	FINAGAN JOAN	79	85	76	84	21741
5	HUBBARD ADELE	72	67	55	66	21741
5	JACKSON ANNE	83	91	84	90	21741
5	JONES JANE	77	81	71	80	21741
5	KAUFMAN SYBFSTRE	81	88	81	88	21741
5	MCCLINTON MARY	74	73	62	72	21741
5	MORGAN GRACE	82	90	83	89	21741
5	OWENS STELLA	75	76	66	75	21741
5	REYNIERE ELAINE	68	52	42	53	21741
5	SMITH ELLEN	72	67	55	66	21741
5	THOMAS JEAN	83	91	84	90	21741
5	WINFIELD JANE	63	34	25	35	21741
5	CLASS MEAN	77	81	71	80	21741
5	MAX SCORE POSSIBLE	119	99	99	99	21741

Records of results are retained in the files of the NLN Evaluation Service for one year after the report is issued. During this period a school may obtain a duplicate report upon payment of a minimum fee. Upon payment of a fee, a duplicate report will also be sent to another school to which a student is transferring as part of her transcript, provided permission is given in writing by the school in which the test was administered.

Use of the NLN Achievement Tests

The report of an NLN achievement test has been received by a school of nursing. Behind this report lie thousands of hours of effort by test makers and faculty reviewers, by students who participated in the experimental administration, by psychometricians who provided item-analysis data and standardized the test, and by clerks and machine operators who scored the tests. All this work has been directed toward one end—assisting faculties in schools of nursing in the evaluation of their students' attainment of educational objectives. The test report that is used, and used wisely, toward this end justifies all the effort that has gone into it. When a report is merely glanced over and filed away, this effort has been in vain. The faculty members who use a test skillfully contribute as much to its value as do those who cooperate in its development.

This is not to say, however, that the faculty of a school is bound to accept as significant the results of a test that it believes is not in accord with appropriate objectives or is otherwise not suited to its particular situation. When a test is administered to its students, any faculty has a right to form some judgment as to its usefulness and to let this judgment influence the extent to which it uses the test. In the following discussion on the use of the NLN achievement tests, it is assumed that the faculty of a school has accepted the test as useful and wishes to put it to the use for which it is intended.

Estimates of Expected Achievement Level of Students

The relative standings of a class of students on an NLN achievement test are largely governed by three factors: (1) the potentialities of the students for learning nursing, (2) the objectives of the educational program, and (3) the effectiveness of the curriculum in meeting these objectives. With these three factors in mind, a faculty should be able to estimate what the results of an NLN achievement test will be before the report of these results is received.

For example, the faculty of School A might say: Most of our students, at the time they are admitted to our school, are superior in achievement and ability to the average student who enters programs of the same type as ours. The qualities that most similar schools in the country are trying to help their students develop (and, in addition, some other abilities that we think will be useful to our graduates) are included in the objectives of

our curriculum. Moreover, according to the results of evaluative devices that we have developed and applied, our students are making good progress toward these objectives. Therefore, on all NLN achievement tests, most of our students should score above the 50th percentile for our type of program. As an estimate, we shall say that their scores will extend from the 40th through the 90th percentile and that the median student in our school will achieve a score that falls near the 75th national percentile.

The faculty of School B, on the other hand, might say: The students who enter our school are of a little less than average ability when they are compared with students admitted to all other similar schools of nursing. We believe that we can help them become good nurses who, upon graduation, can assume the responsibilities commonly expected of beginning professional nurses or practical nurses (as the case may be). Therefore, our curriculum objectives are similar to those of other schools preparing such nurses, although our curriculum is slower paced than some, with more time allotted to the development of essential nursing abilities and less to those that, although of value to a nurse, are not essential to safe practice. For these reasons, we think the scores of most of our students will be around the 30th percentile on the national tests, with some of them extending as high as the 60th percentile and some as low as the 20th percentile.

It will be noted that the differences in the students' test performances expected by the faculties of Schools A and B are largely accounted for by differences in the students' *ability and prenursing achievement.* The effect of the *curriculum* on the forecast of test results is illustrated by School C.

The entering students in School C have demonstrated average ability with one exception: their prenursing preparation in the physical and biologic sciences is below average because the high schools from which they come are weak in this respect. Pending the solution of this problem of general education, School C has emphasized the physical and biologic sciences in its curriculum so that the development of its students in this area of the curriculum may be on a par with the ability they have demonstrated in other areas. In predicting the students' performance on the NLN tests, therefore, the faculty will take into account this strengthened curriculum. Instead of being guided solely by the prenursing achievement of the students, which might lead to a forecast of below-average performance, the faculty might expect the scores on the science tests, as well as those on the other tests, to cluster around the 50th percentile.

As an illustration of how the *objectives* of an educational program might affect the results on national achievement tests, consider School D. Until recently, although School D purported to prepare its students for beginning

positions in psychiatric nursing, its objectives in this area were primarily related to preparation for giving custodial care, and patients were considered in terms of categories of diagnoses. Because the NLN achievement test in psychiatric nursing emphasizes more dynamic aspects of psychiatric nursing, the students in School D tended to obtain scores around the 15th or 20th percentile in this test. Recently, however, the faculty of School D revised its objectives in psychiatric nursing and modified the curriculum so that the students are now participating in providing a therapeutic environment for patients. Through teacher-made tests and other evaluative devices, the faculty now has reason to believe that the students are achieving, to a reasonable degree, the new objectives of the school's educational program. Hence, it has revised its estimates of the students' achievement level on the NLN test in psychiatric nursing; against the former prediction of the 15th-20th percentile range, it now estimates that their scores will cluster somewhere in the 40th-60th percentile range. In other words, the school's objectives have influenced radically the faculty's estimates of the results on one of the NLN achievement tests.

From these four examples, it can be seen that the principal factors which govern the estimate of student performance on the NLN achievement tests are the potentiality of the students for developing competence in nursing, the effectiveness of the curriculum (and the human and material resources through which it is provided) in guiding the students toward the objectives set by the school, and the school's inclusion, among its objectives, of a core of objectives shared by a large number of other schools participating in the NLN achievement test service. Schools that believe that their programs are average in these respects should expect average test performance on the part of their students. Deviations above or below the level of programs of typical schools would be reflected in expectations of above-average or below-average scores.

Schools will generally find it most meaningful to compare the achievement of their students with that of students in programs of the same type. Data show that on the NLN achievement tests in professional nursing, students in accredited baccalaureate degree programs give, on the average, correct answers to between 2 and 10 percent more test questions than do students in accredited diploma programs. Since in the middle of the distribution of scores, a single raw score point may be equivalent to several percentile points, faculties in baccalaureate degree programs will probably want to use the "degree percentile" column on the NLN achievement test reports to ascertain whether the test performance of their students is in accordance with their expectations, and, similarly, faculties in diploma or associate degree programs will find the "diploma percentile" column most useful for their purposes.

What of the school whose students do not rank as high as the faculty had predicted? In such an event, it is more than likely that the faculty's predictions were based on a fallacious assumption concerning one or more of the three factors which influence test scores—the potentialities of the students, the strength of the curriculum, or the extent to which the curriculum objectives resemble those of other schools of the same type. The faculty that is confronted with a discrepancy between estimated test performance and actual performance will want to ask itself:

1. Are the students whom we admit to our program really of the caliber we thought they were (of average, above average, or below average capacity when compared with students admitted to other similar programs)?
2. Are the learning experiences we provide for them giving them an opportunity to develop the abilities we expect of our graduates?
3. Are these abilities that we have set as our goals similar to those toward which other similar schools of nursing are aiming?

The NLN achievement test can perform a useful service in raising all three of these questions, but it cannot answer all of them. The answer to the first question is sought through a re-examination of the school's selection policies and practices.[6] In answering the second, the NLN achievement tests may be of assistance to the extent that the curriculum goals are similar to those on which the national tests are based, but also, the faculty will need to develop its own evaluation devices—teacher-made tests, observational techniques, and the like. In answering question 3, the NLN tests are, of course, more useful than faculty-made evaluation tools.

Discovering That There Are Deviations in Objectives

The NLN achievement tests have as one important purpose to provide assistance to faculty groups in evaluating their schools' objectives in terms of those of other schools that prepare beginning professional or practical nurses. They help the school to ascertain whether the objectives of a program are or are not in line with the core of objectives that are common to most other educational programs of the same type. They can provide only general guidance in endeavors to identify the specific nature of such deviation.

This limitation is particularly true for the NLN achievement tests that yield a single raw score. Scores of a group of students on these tests

[6] For assistance in developing an adequate student selection program, the reader is referred to *The Use of Tests in Schools of Nursing. Pamphlet No. 1: The NLN Pre-Nursing and Guidance Examination.* 3d ed. New York, National League for Nursing, 1961.

can indicate that "something is wrong" with the objectives of the area of instruction to which the test pertains, but they cannot identify the exact place where these objectives deviate from those of other schools.

Some diagnostic information is, however, available from tests on which subscores are provided. For example, from the three subscores provided on one of the practical nursing achievement tests, it is possible to identify the existence of weaknesses in particular areas of content, namely, body structure and function, basic nursing procedures, and nutrition and diet therapy. Similarly in the NLN achievement tests for professional nursing, subscores will indicate whether a school is underemphasizing certain aspects in its curriculum; for example, prevention and transmission of disease (a subscore in the Communicable Disease Nursing Test) or biochemistry (a subscore in the Chemistry Test). Even these subscores, however, obviously do not provide information about detailed curriculum objectives. They can suggest areas in which a diagnostic investigation is needed, but the diagnosis must be performed by the faculty of the program.

Identifying Deviations in Objectives

The process of diagnosis—that is, finding how a school's idea of what its product should be deviates from that of other schools—is not an easy one. Comparison of statements of school objectives as published in school announcements or bulletins is not likely to be very helpful, for such objectives are generally couched in very broad terms and are subject to various interpretations. The published findings of curriculum studies may provide hints. Another approach might be through a study of the achievement of a school's graduates based on information obtained from employers and from the graduates themselves.

Although, as previously stated, the NLN achievement tests cannot pinpoint the specific ways in which a curriculum's objectives are weak, they can furnish clues to such weaknesses. By looking over the answer sheets immediately after a test has been given, an instructor will be able to identify those questions with which a large number of students seemed to have difficulty. Also, although the answer sheets should be returned to the NLN within 24 hours, the booklets may be retained for a day or two for review with the class that took the test. This is perfectly permissible as long as none of the students is to take this test in the future and no notes are made on test content. In this review, the students themselves can indicate to the instructor those areas with which they had trouble. The instructor may find that the students had difficulty in some of the areas in which she had thought they were adequately prepared; in such

cases, a reinforcement of certain learning experiences may be in order. In other instances, the questions may test abilities that the school has not been emphasizing in its objectives. The instructor will want to make a note of these abilities (but not the specific questions) for consideration by the entire faculty group.

It is important that the entire faculty, not merely each instructor separately, enter into a study of these unemphasized abilities, regardless of the specific segment of the curriculum in which these deviations have been identified. In the first place, some of these deviations may be curriculum-wide. Although a lack of knowledge about how to share nursing tasks with auxiliary workers may have been spotlighted by a question on the test in psychiatric nursing, any decision to strengthen preparation in this respect will affect the entire curriculum. Secondly, in view of the way in which all parts of the curriculum are interwoven, an unraveled spot in one part of the fabric may have been caused by the dropping of a stitch in another. A question about the effect of digitalis may cause trouble on the medical nursing test, but the origin of the difficulty may lie in the physiology course.

For these reasons, the results of all NLN achievement tests taken by the students of a school, regardless of whether they are administered in the school or in an affiliating agency, should be studied by the faculty as a group in conjunction with others who participate in the educational program. At this time, expected standings may be compared with actual percentiles, and all clues as to differences between them can be discussed in terms of the school's entire program. For example, let us consider the case of School A whose faculty has predicted scores clustering around the 75th percentile on all NLN achievement tests. This prediction has proved correct with one exception: the scores in obstetric nursing tend to group around the 45th percentile. Further investigation may reveal that the quality of instruction in obstetric nursing is below that provided in the rest of the program. On the other hand, the quality of instruction may be excellent, and the difficulty may arise from the fact, hitherto unrecognized, that the objectives of the obstetric nursing unit are not in line with those of the rest of the curriculum. Or it may be that these objectives cannot be achieved in the obstetric nursing unit of instruction alone but require supporting experiences in other segments of the curriculum—experiences that have thus far not been provided. In any event, both the analysis and correction of the situation will entail the joint efforts of all concerned with the educational program, regardless of whether they are faculty members of the school or instructional personnel in an affiliating agency.

Changing Objectives

The further development of curriculum objectives in the light of current practice in other schools is also the responsibility of the faculty of a school. In this connection, it should be emphasized that it is not the function of the NLN achievement test service to dictate what the goals of any school should be. It is within the province of any faculty group to say: "We have discovered that our curriculum objectives differ in certain respects from the group of objectives commonly accepted by most other similar schools of nursing. We realize that our graduates will lack some of the competencies of the graduates of these schools. Nevertheless, we believe that our concept of a nurse is more in line with current and future nursing needs than is theirs. Accordingly, we are continuing toward our unique goals."

In adopting such a course, a faculty will want to be sure of the validity of its reasons. Are they based on the assumption that its graduates will need only those competencies expected of beginning practitioners in the hospital or hospitals in which they receive their clinical learning experiences? Needless to say, this assumption can scarcely be justified in view of the many other doors, both of employment and of further education, that the school's diploma or degree will open to them. Or can the faculty honestly say: "We believe that this ability will not be needed by our graduates in any situation in which the completion of our program, plus the licensing examination, entitles them to practice. In substantiation of this belief, we can offer the following facts: . . . To our minds, therefore, this ability is not a suitable objective for nursing programs of our type."

In other words, any school has the authority and the responsibility to establish its own objectives, provided these objectives are made known to the applicants for admission, to approving or accrediting bodies, to future employers of the graduates, and to other educational institutions that grant credit for the study completed in the school. In the case of a school that purports to prepare students for licensure as practitioners in a health field, however, both the students and their future associates will assume that they are developing a basic core of abilities similar to those of other members of the group. Therefore, such a school is justified in disregarding the objectives that are commonly accepted by other schools preparing for that service only if such deviation is based on a broad overview of all types of activities in which its graduates may engage. The acid test, perhaps, is whether the school is willing to propose such a revision in objectives for all similar educational programs and is able to support such a proposal with data based on the needs of nursing service.

The assumption that schools of a given type have a common group of *curriculum objectives* does not imply a uniformity or even a close similar-

ity in the *curriculums* of these schools. There are frequently numerous ways of achieving the same goals, and schools with identical objectives may move toward them by widely different curriculum paths. In fact, it is highly likely that they will do so, since a curriculum is determined not only by the objectives toward which it is aimed but by the educational needs of the students—needs that will undoubtedly vary from program to program. For this reason, a school's best assurance that its curriculum is a good one will come, not from comparing it with curriculums of other schools, but from comparing the curriculum goals with those of other schools and measuring the extent to which its students meet these goals. Both the NLN achievement tests and the measurement tools developed within the school itself will be useful for such evaluation.

Nor does the assumption that there is a core of goals common to all schools of nursing of a given type in any way limit a school to this core. The school that believes its graduates can utilize abilities other than those that the majority of schools are assisting their students to develop needs no further justification for adding further curriculum objectives to its program, provided, of course, that it has the resources to help its students attain these objectives. In fact, it is through such vanguard experimentation that nursing education has been able to keep abreast of the expanding scope of nursing practice. Frequently, what looks like a radical addition to the preparation of some nurses will, in a few years, be regarded as an essential part of the education of all of them. Curriculum objectives should be as dynamic as nursing itself, and the school that leads the way in forward curriculum movement is performing a service to all who need nursing care.

Limitations of the NLN Achievement Tests

National achievement tests are probably the best single tool that has thus far been devised for assisting a school of nursing to discover whether its objectives are in line with those of other similar programs in nursing. They help to measure the extent to which students meet the goals that are sufficiently accepted nationally to be reflected in national tests. In addition, as has been pointed out, they have certain potentialities for indicating the need for changes in teaching methods and curriculum emphasis. Also, by indicating to a student her achievement in relation to that of students throughout the country, these tests have a limited usefulness in helping her make her plans for the future. By the same token, they are useful as one tool in determining the advanced standing to be given a student who has applied for transfer from one school of nursing to another. Valuable as nationally standardized tests may be in these respects, however, it would be unwise to assume that they are all-purpose tools for measuring student achievement and for use in student guidance.

Since much of the success obtained in using these tests depends on a knowledge of what they cannot be expected to do, the following limitations of national achievement tests should be borne in mind.

First, the NLN achievement tests are subject to the limitations of all paper-and-pencil tests in that they can measure scholastic achievement only. They can tell if a student will know what to do in a given situation, but not whether she will do it. Her alertness in observation, her poise in situations of stress, her conscientiousness and industry, her health, her manual dexterity—all are important in assessing her nursing ability, but they can be measured by other means more effectively than by any present paper-and-pencil tests. Second, the tests are not devised in relation to the specific offerings of any one school and may not test some abilities that a school has emphasized in the preparation of its students. Third, the student's score, and particularly subscores when these are available, will help to indicate general strengths and weaknesses, but the identification of specific "trouble-spots" is accomplished more readily in tests especially designed by the instructor for diagnostic purposes. Finally, even those NLN tests that are administered early in the students' program are usually given at the conclusion of a unit of instruction, when it is too

late to modify the course in the light of the needs of those who took the test. Any counseling that might be based on the test results would necessarily take the sterile approach of "This is what should have been achieved" rather than the constructive one of "This is what is to be accomplished." Primarily, future classes, rather than the current one, will be affected by improvements resulting from the use of national tests.

Because of these limitations, it is evident that national achievement tests are an inadequate base on which to build a program of individual guidance. The same argument would hold for group learning experiences provided for a class of students. National tests can only be minor adjuncts in the improvement of teaching methods and learning experiences; the effectiveness of these can usually be far better assessed through well-constructed teacher-made measuring devices.

The limitations inherent in national tests also make it inappropriate to use them as complete substitutes for course examinations or in lieu of examinations or other measurement devices by which the school evaluates a student's readiness to graduate from its program. The evaluation on which graduation depends is based on the extent to which the student has achieved the goals set by her school—goals that may extend beyond the core of common objectives that are reflected in national tests.

In summary, it might be said that national achievement tests are invaluable tools for finding the answer to an important double-barreled question in the evaluation of student achievement: Are the abilities that we are trying to help students develop in line with those that will be expected of them as graduates of this type of program, and to what extent is each of our students developing these abilities? Finding the answer to this question is one step in the process of evaluating student achievement. There are other questions, pertaining to the students' attainment of objectives other than those common to all schools, or pertaining to the isolation of specific strengths and weaknesses of the program or of the individual student, which are answered by the use of school-made tools rather than national standardized tests.

Improvement of the NLN Achievement Tests

The dynamic quality of curriculum objectives in nursing presupposes the continuing development of the tools used in the study of these objectives. To test the aims of today's schools against the abilities needed by the beginning nurse of even a decade ago would be a practically useless performance. By the same token, today's achievement tests will, in all likelihood, be anachronistic a decade hence. For this reason, new tests are issued by the NLN achievement test service at intervals of approximately five years. The intervals between such issues are utilized for studying new trends in nursing education so that the next tests may reflect any widespread changes in its methods or goals.

It is important that test users participate in this between-test study. Doubtless each school has suggestions for improving the current tests. In fact, in view of the diversity of schools using the tests, it is unlikely that many schools would think that an NLN test plan as reflected in an NLN test was a completely accurate profile of the cognitive abilities needed by a nurse. The school that has taken little stock in the results of one NLN achievement test because it believes less important content has received too much emphasis in the test, the school that thinks there are abilities not sampled in the current tests that are required for practicing nursing, the school that questions the form of the current tests or the way in which they have been subdivided by curriculum areas—all can participate in the improvement of the NLN achievement test service.

Many of the current NLN achievement tests reflect the intermingling of curriculum content to a considerable degree. Schools, however, have indicated their need to have separate tests in a number of subjects in spite of the fact that such subjects may be integrated in their curriculums. For example, although a school may have combined instruction in communicable disease nursing with instruction in medical-surgical nursing, nursing of children, and other clinical areas, it is important for the school to ascertain whether the students are learning the principles of communicable disease nursing or whether such principles have fallen by the wayside in the process of integration. A test in communicable disease nursing, therefore, may be useful to the school even though no course with this title is given. This seems to be equally true of subjects such as pharmacology, nutrition, and diet therapy.

A possible alternative to having a large number of tests is to have a few tests with subscores in specific content areas. This, however, tends to make for relatively long tests that must be given near the end of the student's program because they are so inclusive. The NLN "comprehensive" achievement tests are of this type. Schools have indicated that, in addition, they need the tests with restricted content for administration earlier in the student's program. Many of these tests also are developed to provide subscores in accordance with the school's expressed wishes. The NLN Test Construction Unit endeavors to develop tests that will be of maximum usefulness to the greatest number of each type of basic school of nursing.

The possibility of a need for separate tests for diploma and baccalaureate degree programs in basic professional nursing is frequently considered. Analysis of data indicates that the present tests are useful for both types of program (except for the test in public health nursing, which is used solely in collegiate programs). The use of different norms, however, is desirable. This question is under examination continuously, and experimental studies are under way.

The weighing of the pros and cons of these questions, and of any others that may occur to test users, is one of the responsibilities of all who participate in the NLN achievement test service. Those who use national achievement tests are the best judges of their value; accordingly, they are in the best position to suggest ways for improving the tests' usefulness.

This responsibility for improving all evaluation tools, including the NLN achievement tests, is an important aspect of the responsibility for an integral part of curriculum development. Without techniques for such improving nursing curriculums. The evaluation of student progress is evaluation, it becomes a matter of guesswork as to whether changes in a curriculum are really improvements at all. A faculty member will be poorly equipped for her job of curriculum building if she does not know how to test the effectiveness of the curriculum under construction. Committees concerned with curriculum development will of necessity become involved with the development of tools for curriculum evaluation.

Seen in this perspective, the improvement of devices for measuring the educational achievement of students in nursing is an essential element in the total program of nursing school improvement. By working together on the development of such devices, nurse educators will be accelerating their progress toward their common goal—the preparation of personnel who can give the kind and amount of nursing care needed by the people of this country.

Appendix A

Ability List Used for Coding Test Items

This detailed list is not used for all tests. For example, it might sometimes be desirable to combine categories 13, 14, 15, 16, 17, 26.6, 30, 31, 32, and parts of 29.2 and 51 into a general heading entitled "Psychosocial facts and principles and psychological aspects of care."

(The word "understands" or "knows" should be understood as the first word of each item.)

01. Legal responsibilities
    - 01.1 of the professional nurse
    - 01.2 of the practical nurse
    - 01.3 of other groups or institutions

02. Functions included within, and functions excluded from, the range of responsibility
    - 02.1 of professional nursing
    - 02.2 of practical nursing
    - 02.3 of auxiliary workers (nursing aides, etc.)
    - 02.4 of other disciplines

03. Lines and channels of communication
    - 03.1 legal
    - 03.2 administrative
    - 03.3 organizational

04. Role and characteristics of specific community, state, and national resources relative to nursing and nurses, and to health and welfare problems
    - 04.1 governmental agencies
    - 04.2 nursing organizations
    - 04.3 other nonofficial (or volunteer) organizations and agencies

05. Sources of information which are reliable in the health fields
    - 05.1 agencies and organizations
    - 05.2 publications

06. Basic facts and principles of the physical sciences
    - 06.1 fundamental concepts of matter
    - 06.2 inorganic chemistry
    - 06.3 organic chemistry
    - 06.4 physics

07. Evaluation of the physical environment (If part of a specific nursing procedure, 34 is coded and not 07.)
    - 07.1 how the physical environment may effect well-being in general
    - 07.2 what environmental changes are desirable for persons with specific needs

08. Basic facts and principles of anatomy and physiology
(Related 09 items are included.)
08.1 histology
08.2 biochemistry and cellular physiology
08.3 gross anatomy
08.4 other physiology

09. Signs of physical health and signs and stages of normal physical development
(Related 08 items are coded also.)
09.1 in infancy (including prenatal)
09.2 in childhood
09.3 in adolescence
09.4 in adulthood, or, not specific to an age group
09.5 in pregnancy and puerperium
09.6 • in old age

10. Basic physical (nondietary) needs for health at all ages
10.1 in infancy
Etc.

11. Nutritional principles (other than 12, 18.7, 26.4; if therapeutic, 26.5 is used)
11.1 classes of nutrients
11.2 actions of classes or specific nutrients
11.3 nature and nutrient content of foods
11.4 metabolism of specific foods

12. Basic normal nutritional needs for health at all ages
12.1 in infancy
Etc.

13. Basic facts and principles of the social sciences (other than 14, 15, 16, 17, 30)
13.1 nature of personality and behavior patterns and their development
13.2 principles of teaching and learning
13.3 characteristics of human society
13.4 interaction between individual and society
13.5 nature and function of major social groups and intergroup relationships
13.6 other facts and principles of psychology
13.7 other facts and principles of sociology

14. Signs of emotional health and of normal emotional and intellectual development
14.1 in infancy
Etc.

15. Basic emotional needs at all ages (excluding 32)
15.1 in infancy
Etc.

16. How emotional needs may affect health, attitudes, and behavior; the meaning of behavior in terms of needs
16.1 in infancy
Etc.

17. Probable effects of emotional climates on health, attitudes, and behavior
17.1 in infancy
Etc.

18. Causes of, and/or factors predisposing to, diseases and other abnormal conditions (excluding relationships between drugs and toxic symptoms)
    - 18.1 communicable
    - 18.2 other medical (non-nutritional)
    - 18.3 orthopedic
    - 18.4 surgical (other)
    - 18.5 obstetric
    - 18.6 psychiatric and emotional (other than 17)
    - 18.7 nutritional, water and salt balance (dehydration, etc.)

19. Transfer and transmission of diseases
    - 19.1 communicable
    - 19.2 noncommunicable (genetic)

20. Basic facts and principles of microbiology (other than 18, 19, 21)
    - 20.1 morphology
    - 20.2 growth and cultivation
    - 20.3 destruction
    - 20.4 infection and body resistance (other than 22)
    - 20.5 other microbiologic principles or facts

21. Principles and methods of preventing and/or controlling communicable disease (*not* including specific measures used to control symptoms; 34 is used for these)
    - 21.1 sanitation
    - 21.2 immunity
    - 21.3 surgical asepsis
    - 21.4 medical asepsis
    - 21.5 other prophylaxis

22. Principles and methods of preventing and/or controlling noncommunicable diseases and abnormal conditions (*not* including specific measures used to control temporary symptoms; 34 is used for these)
    - 22.1 physical measures (see also 07)
    - 22.2 other measures (not including 32, etc.)

23. Symptoms, course, and concomitants of specific diseases and other abnormal conditions (other than 24, 25)
    - 23.1 medical communicable
    - Etc.

24. Pathology, and relationships between pathology and disease symptoms and progress
    - 24.1 medical communicable
    - Etc.

25. Prognosis, expected outcomes, complications, and sequelae of diseases and other abnormal conditions
    - 25.1 medical communicable
    - Etc.

26. The plan for medical and nursing care (other than 27, 28)
    - 26.1 purposes and effects of diagnostic measures (physical)
    - 26.2 purposes and effects of diagnostic measures (psychological and psychiatric)

26.3 purposes and effects and significance of physical treatments and physical nursing care (including operations)

26.4 purposes and effects of medications and chemicals (exclusive of vitamins and immunizing agents) including side effects, except those under 27.2

26.5 purposes and effects of diet therapy (see also 33), nutrient principles given as medications, and kinds of diets and meal schedules used for specific conditions

26.6 purposes and effects of psychotherapy, and of selected emotional stimuli (group therapy, social stimuli, etc.)

26.7 purposes and effects of other kinds of therapy (occupational, diversional, etc.)

26.8 purposes and effects of programs and measures for promotion of well-being (other than those above)

27. Dangers or untoward effects of measures used

27.1 dangers of treatments or procedures

27.2 toxic effects and other dangers of administration of drugs

27.3 dangers of immunizing agents

28. Facts and principles of pharmacology (other than 26.4, 27.2)

28.1 drug groups, active principles, composition, etc.

28.2 sites and types of action (not purposes)

28.3 posology

28.4 drug standardization and control

29. Evaluation of needs of patients or others (see also 32, 33, 34, 35; both 29 and one of those are coded if they apply)

29.1 relative urgency or importance of needs of a patient or group of patients

29.2 which one of several different types of approaches will be most helpful (e.g., when more than one *kind* is included—physical measures, dietary, emotional help, information-giving)

29.3 when physician or supervisor should be informed

29.4 when the aid of other disciplines is required

30. What times, methods, and topics are appropriate for teaching patients and others in terms of

30.1 age

30.2 background

30.3 readiness to learn

30.4 special needs

(This heading is *not* intended for items which are purely information-giving, where the alternatives are all factual, and where the item could just as easily have been asked as a straight factual question.)

31. Rights of people to hold their own ideas and beliefs, including religious beliefs

31.1 ritual requirements of specific faiths

31.2 patients' (and others') right to individuality

31.3 importance of patients' spiritual needs

32. Interpersonal responses that are in accordance with needs of patients or others (Sheer information-giving responses are not included. These are coded according to the type of information—the knowledge involved.)
    32.1 in infancy
    Etc.

33. Evaluation or planning of therapeutic diets in terms of special needs (see also 26.5) (If item can be answered without knowing patient's condition, 11 is used.)

34. Selection of specific measures of care in accordance with patient's needs (other than 32 and 35)
    34.1 communicable conditions
    Etc.

35. Evaluation of procedures; differentiation of essentials and nonessentials within a procedure; acceptance or rejection of proposed modifications of procedures in accordance with specific needs.

(All "how to" items relate to steps in a procedure or details of procedure, not to *what* procedure is used. For the latter, see 34.)

36. How to carry out procedures of personal hygiene and supportive measures (physical)
    36.1 equipment needed, and how to prepare it (see 34 also)
    36.2 physical preparation of patient (position, etc.) (for emotional, see 32, etc.)
    36.3 procedure: methods, techniques, steps

37. How to prepare for, carry out, and/or assist with physical therapeutic measures
    37.1 equipment needed, and how to prepare it (see 34 also)
    37.2 physical preparation of patient (position, etc.) (for emotional, see 32, etc.)
    37.3 procedure: methods, techniques, steps

38. How to prepare for, carry out, and/or assist with physical diagnostic measures
    38.1 equipment needed, and how to prepare it (see 34 also)
    38.2 physical preparation of patient (position, etc.) (for emotional, see 32, etc.)
    38.3 procedure: methods, techniques, steps

39. How to purchase, prepare, and serve foods for
    39.1 infants
    39.2 children
    39.3 adults

40. How to prepare and administer medications (other than computations, metric-apothecary equivalents, etc.)
    40.1 oral
    Etc.

41. How to prepare for, carry out, and/or assist with, preventive measures
    - 41.1 medical asepsis
    - 41.2 surgical asepsis
    - 41.3 other (not including postural measures, etc., which are both rehabilitative and preventive)

42. How to handle and care for equipment
    - 42.1 for treatments
    - 42.2 for medications
    - 42.3 for diet (preparing and serving)
    - 42.4 prostheses, etc.

43. How to report and record
    - 43.1 verbally
    - 43.2 graphically
    - 43.3 by other methods

44. Relative seriousness and frequency of specific diseases and health problems
    - 44.1 geographical (used even when geographical limits are not specifically given)
    - 44.2 racial
    - 44.3 by age group
    - 44.4 by sex

45. Interpretation of numerical data relating to health, disease, medical care, etc.
    - 45.1 data in graphs, tables, etc.
    - 45.2 statistical statements

46. Weights and measures, and computation methods
    - 46.1 medications
    - 46.2 nutritional
    - 46.3 other

47. Principles of problem-solving
    - 47.1 psychological and social problems
    - 47.2 problems relating to biologic and physical sciences

48. Historical development (past and current)
    - 48.1 of nursing
    - 48.2 of other health fields

49. Ethical responsibilities

50. Factors important for professional and personal growth (not included in other categories)

51. Principles and methods underlying cooperative action
    - 51.1 administration
    - 51.2 group process

Appendix B

Item Analysis Form

All of the data shown on the following example of an item analysis card are compiled for each question in the experimental form of an NLN test. The data on this card relate to question No. 61, a relatively easy item in a psychiatric nursing test.

TEST	ITEM	KEY
Psychiatric Nursing Degree Program Srs.	61/122	4

M_t	SD_t	N_t	DATE
82.96	10.07	591	2/17/64

Alternative	p	r	m
1	.054	-.30	77
2	.058	-.47	74
3	.036	-.33	76
4	.849	+.51	84
Omit	.003	-.58	65
4	.849	+.51	84

61. A newly admitted psychiatric patient in the dining room sniffs at his food and then refuses to eat. Which conclusion is most justified on the basis of the information given?

1. He is using his refusal of food to show disapproval of the hospital.
2. He is using this food refusal as an attention-getting device.
3. The food is not the type, or is not prepared in the manner, to which he has been accustomed.
4. It will be desirable to obtain further evidence of the ideas the patient has about food.

ITEM ANALYSIS FORM
TEST CONSTRUCTION UNIT

NATIONAL LEAGUE FOR NURSING
10 Columbus Circle New York, N. Y. 10019

Key (4)—the alternative which is the correct response.
M_t (82.96)—mean of the test (the "average" score).
SD_t (10.07)—standard deviation of the test (indicating the "spread" of scores).
N_t (591)—number of examinees, a sample of a larger number.
p—percentage of the examinees who chose each answer.
r—discriminatory power of each alternative (statistical validity).
m—mean on the total test for the group of examinees who chose each alternative.

The data for the correct alternative are repeated on the bottom line for ease in reading. Reading that line across, note that about 85 percent of the examinees chose alternative 4, the correct answer, and that their mean on the total test was 84, higher than the mean of the groups that chose the other alternatives. The discriminating power of the correct answer is .51, which is higher than those of the other alternatives. An item validity of this magnitude is high for a clinical nursing test which measures a number of different kinds of abilities.

Note that about 5 percent of the examinees chose option 1, 6 percent option 2, and 4 percent option 3. All three alternatives, therefore, are "working." Alternatives 1, 2, and 3 have negative validities; this is desirable because they are wrong answers.

VT 005 565
Vambery, Eva
Evaluation of the Municipal Cooperative Education Program--A Report of the 1962-1963 Trainees.

Center for Urban Education, New York, N.Y.
New York City Board of Education, N.Y.
Ford Foundation, New York, N.Y.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 30Oct67 158p.

*GRADUATE SURVEYS; *PROGRAM EVALUATION; *WORK EXPERIENCE PROGRAMS; WORK ENVIRONMENT; *STUDENT ATTITUDES; PROGRAM DESCRIPTIONS; EMPLOYMENT PROGRAMS; PARTICIPANT SATISFACTION; FOLLOWUP STUDIES; CONTROL GROUPS; EXPERIMENTAL GROUPS; QUESTIONNAIRES; INTERVIEWS
*MUNICIPAL COOPERATIVE EDUCATION PROGRAM; NEW YORK CITY

The Municipal Cooperative Education Program (MCEP) was a work-study program for volunteer students who were selected on the basis of inadequate level of academic achievement and financial need. Entry jobs were provided in the City departments in clerical, park or hospital areas. Students who participated worked every other week full time and took special double classes in the general education curriculum for the week they didn't work. A sample of MCEP students (30) and a control group (10) of students who did not participate were interviewed in 1966. Some of the findings were: (1) MCEP made a positive contribution to the curriculum of the general diploma candidate as an opportunity for steady remunerative work experience and association with adults, (2) In the absence of formal vocational training a majority of the cooperative students held unskilled jobs which offered no training opportunity, (3) Immediate benefits from work experience tended to be negated by a lack of basic education, leading students to different avenues of occupations or learning after high school, and (4) Both trainees and control students seemed in great need of counseling while in high school because they did not understand the ramifications of their own actions. One of the recommendations was that the character of the trainee job should be reviewed, since jobs which the student finds degrading, uninstructive, and which he cannot easily leave may be damaging. (MM)

VT 005 565

ED036657

15

EVALUATION OF THE MUNICIPAL COOPERATIVE EDUCATION PROGRAM: A REPORT

by EVA VAMBERY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

October 30, 1967

The Center For Urban Education
33 West 42nd St., New York, N.Y. 10036

VT005565

C E N T E R F O R U R B A N E D U C A T I O N
33 West 42 Street / New York City / 10036

Errata to Evaluation of the Municipal Cooperative Education Program: A Report

1. Title should read:
   Evaluation of the Municipal Cooperative Education Program: A Report of the 1962-1963 Trainees

2. P. 12, paragraph 1, sentence 1 should read:
   In short, the MCEP offered an avenue heretofore nonexistent in New York City schools for potential dropouts to engage in vocational experiences under structured and supervised conditions while continuing secondary education with an increased likelihood of completing it.

3. P. 18, line 2, change received...compensation to read:
   "...received $2,750 per annum, prorated for time worked, and vacation, sick leave, and workmen's compensation..."

4. P. 35, paragraph 2, the following sentence should be added:
   Although trainee salaries were fixed at a uniform rate, some coop students worked in agencies other than City departments and received either higher or lower remuneration than did most trainees.

5. P. 38, paragraph 1, last sentence should be changed to read:
   As a result, they received no promotions and no raises other than mandated salary increments.

INTRODUCTION

The study reported herein was funded by the Ford Foundation and administered by the Department of Personnel (the Department) and the Board of Education (the Board) of the City of New York. The initial Ford Foundation grant led to the establishment in 1962 of the Municipal Cooperative Education Program (MCEP), and to a concurrent evaluation of this demonstration project.[1] One of the basic requirements of the grant was that the effects of the program were to be evaluated in a follow-up study. To meet this requirement, in 1966 the Department employed the services of the Center for Urban Education (the Center). The following report is a summary of a year long evaluation of the population of the 1962-63 study.

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[1] Hamburger, Martin. Report of the Evaluation Study of the Municipal Cooperative Education Program, April 7, 1965.

ACKNOWLEDGMENTS

The findings reported here represent an individual research effort. All cooperating agencies desired and honored the independence of the researcher required for objective work. At the same time, many persons, some not connected with the cooperative program, offered invaluable and much appreciated help in the course of the study. Dr. Robert A. Dentler, Director of the Center, was always available for advice and discussion and offered help at important junctions of planning and execution of the project. Leroy T. Miller, Staff Associate, had useful suggestions for approaching interviews and assisted in the hiring of field workers and interviewers. Dr. Bernard Mackler, Assistant Director, George H. Weinberg, Senior Educational Associate, Richard P. Boardman, and Mary Ellen Warshauer, Staff Associates and Harris Dienstfrey, Center Editor, participated in many helpful discussions.

Dr. Martin Hamburger, director of the 1962-63 evaluation, and his assistants Bruce Bernstein and Dr. Roscoe Brown from New York University, were cooperative at all times and remained interested in the program with which they had previously been involved. Dr. Donald E. Super of Teachers College, aided with counsel and material from his related work.

Mr. Hoberman, City Personnel Director, Mr. Charles Setzer, former Field Supervisor of the Work-Study Programs Division of the Department, Miss Frances Goldberger, Supervising Personnel Examiner, Miss Phyllis Cohen, Personnel Examiner, Mr. Hank Pervslin, Coordinator of the MCE Program, and Miss Estelle Silver, Assistant Coordinator of the program proved

cooperative and helpful throughout the year of study and have been kept informed on its progress.

Miss Grace Brennen, former Director of Cooperative Education of the Board of Education, readily lent her services and acted as liaison between the writer and the principals, counselors and program coordinators of the four high schools which members of the sample attended.

The study represents a team effort in terms of employing the services of 11 field investigators, four of whom also participated as interviewers. Contact with each of these persons, while they and the author gathered data, was intense and continual. Seven coders and assistants were also involved in various phases of the work.

The administrative staff of the Center provided prompt and accurate services in bookkeeping and typing along with a variety of duplicating and other office functions.

Community centers, in residential neighborhoods of the respondents, were made available for group meetings through the willingness of their staff to accommodate the research project. A transcribing service was used for both the individual and the group interviews.

The author acknowledges the many direct and indirect contributions of the above persons and agencies, although full responsibility for all aspects of the study rest with her.

OPPORTUNITY STRUCTURE IN HIGH SCHOOL

In academic high schools of New York City, students can earn one of three kinds of diplomas: academic, commercial, or general. Those students who achieve a high enough grade average in junior high school can start their senior high school careers in the academic track. As required by the State, students in this curriculum must pass Regent examinations in courses such as sciences, languages and mathematics, and must maintain a comparatively high grade average.

If the performance of a student is not high in junior high school, and if he or his parents do not explicitly indicate a desire for an academic diploma, one of two courses of action is open to him.

He can enter the commercial diploma curriculum in which he takes such courses as typing, shorthand and bookkeeping. Because of the course offerings, girls are most likely to be enrolled in this track. The students have certain academic standards to maintain in order to receive a commercial diploma, but these are lower than those for an academic diploma.

If a student received poor grades in junior high school, or if his achievement during high school in one of the two above curricula proved inadequate, or if he was subject to disciplinary action by the school, he could be placed in the general diploma track. In this track he is exposed to an easier version of the academic curriculum, with no Regent examinations, language, or science requirements. Although a grade average lower than is needed in the academic track qualifies him for a general high school diploma, prescribed courses for graduation are still necessary.

If a student lacks a course for an academic or a commercial diploma, and he does not make up that course, he receives a general diploma. If he

lacks a course for a general diploma, and he does not take extra time to complete it, he cannot graduate from high school.[2]

The three types of curricula in academic high schools of the City have distinctly different educational offerings and prestige among students, employers and admitting bodies of educational and training institutions to which a high school student might apply. The decision concerning which curriculum a student is to follow, thus, is very important, one whose effects may well extend over the life span of an individual. Since the academic diploma is geared towards college, an individual in possession of such a degree can, if he meets other entrance requirements, continue his education at an institution for higher learning. If he chooses not to apply to college, or if he lacks the means to continue his education, he can enter any training or apprenticeship program and has a relatively good chance of obtaining employment because of the prestige of the academic diploma.

The owner of a commercial diploma lacks the courses and Regent examinations required by most accredited four year colleges. The student is therefore geared to become a clerical worker upon graduation from high school. The commercial diploma also enables its owner to undertake a course of study in some other field, or to be trained for work quite different from his high school training because this diploma is proof of a certain level of competence. By and large, the commercial diploma graduate is likely

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[2]Vocational high schools apprenticeship programs, adult education and home study programs are not considered here.

to enter the labor market, because entrance to a college is not readily possible for him unless he makes up missing academic subjects.

The general diploma graduate possesses the least valuable and least prestigeous of high school diplomas. He, too, lacks the formal requirements for entrance into an institution for higher learning. In addition, however, he is assumed to have a low ability level and probable attendance and disciplinary problems. He is more likely to be a member of a minority group than are his peers. On the present public education scene, frought with problems of overcrowding, split session attendance, and understaffed schools, he is assumed by the community at large to be undisciplined and barely literate. Like the holder of the commercial diploma, he also has to reengage himself in preparation at the secondary school level to offer evidence of his abilities, before he can compete with his academic graduate peers for entrance into institutions of higher learning. In addition, his chances of succeeding in the labor market are relatively less favorable than those of his peers with either an academic or a commercial diploma. The general track student is, nonetheless, geared to entrance in the labor market rather than to higher education. His diploma is often inadequate evidence of ability or competence needed to obtain meaningful advancement prone positions.

Thus, not only do the three kinds of diplomas differ greatly in educational offerings and prestige, but also in real value on the educational and vocational market place. While specialization of secondary education is defensible in terms of attempting to provide a suitable education to students with varying abilities and needs, there are serious consequences of the separatism of the high school curriculum. The problem arises from the fact that the three curricula are not equal in terms of quality and

that they include different student populations. Furthermore, transition from one to the other is very difficult. Therefore, the system of separate tracks effectively acts as a barrier to equal education.

The average educational attainment of the population of the nation is rising, as is the level of minimum educational attainment of its young people. However, de facto criteria of the adequacy of the educational system are the demands which applicants to industry and institutions for higher learning have to meet. Secondary school preparation must aim for and be a valid index of achievement as defined by the rising demands of these institutions. Specialized high school education is a defensible practice, yet because most secondary education is compulsory, all high school curricula should provide a fair chance of vocational and educational success to their graduates, regardless of specialty. Furthermore, while not all high school students go on to college (and perhaps not all desire to or should), the significant point remains that all high school students should have the opportunity to try to achieve according to their potential. Even more significantly, all students should have the opportunity to modify their plans; they should not be structurally barred from changing curricula, as is the case now due to unequal graduation requirements supported by unequal quality of preparation in the different diploma courses.

As mentioned earlier, if a student does not perform well in the academic course, he becomes a general diploma candidate. Yet, no matter how well a general track student performs his work, he does not become a candidate for an academic diploma because of the great qualitative and quantitative difference between the two curricula. During his post high school years, a youngster who may have taken school lightly, and attended in order to be

with his friends rather than to learn, pays dearly for this error -- the error, in effect, of being young. Chances are that he learns to live with the consequences of his mistakes rather than to try and amend them through repeating part of his secondary education. In this way, social, educational and vocational differentiation occurs at high school so effectively that it is likely to persist in later years.

A very important development on the current educational scene is the advent of community colleges. A general diploma candidate can enter one of these institutions, and if he takes courses credited by four year colleges, he can make up for the deficiencies of his high school preparation. To do this, however, he has to be determined and clear about his goals, and make the right choice of curriculum. If he may still be subject to the same lack of information, the same pressures and biases as he was earlier, he may become a "general track" community college student. That is, he may find himself taking courses in retailing and bookkeeping instead of freshman English and chemistry. If he does, he will not significantly improve his condition through attendance in a community college only as regards his immediate job getting ability, not in terms of extending the scope of his choice making ability to include academic advancement.

In recent years, a majority of students in some New York City academic high schools have received general diplomas. The educational and vocational chances of young adults with such diplomas in an increasingly demanding labor market are poor. Middle aged women and college students are competing at an advantage for the same jobs as high school graduates and dropouts. Since the number of applicants for semi-skilled and unskilled jobs exceeds the number of job openings, it is the more educated and the more stable

employee prospect who is likely to be hired. Since turnover of personnel is one of the customary features of low level jobs, applicants for these positions face the hurdles of the labor market frequently. Those who lack education (proof of ability) and work experience (proof of stability) are likely to encounter difficulties in the form of frequent or prolonged unemployment or employment in unsuitable and unstable positions. The general diploma graduate is a likely candidate for such difficulties. Members of minority groups are likely to be general diploma candidates, and they have an added problem in the form of discrimination.[3]

ATTEMPTS TO IMPROVE OPPORTUNITY FOR THE GENERAL DIPLOMA CANDIDATE

To help the vast numbers of general diploma candidates of New York City high schools in their transition from school to work, a number of educational, counseling, training, and recreation programs have been set up in the City. The programs vary in aim, scope, duration, sponsorship, content and success. They try to provide some of the essential tools for educational, vocational and personal success which these students missed earlier in their lives. Recipients of these services may have been poorly motivated, unrewarded, or uninformed, or may have had problems of discrimination, assimilation or language difficulty, or may have lived under economically adverse conditions, or achieved below their actual abilities during their younger days.

There are many sources of difficulty which programs for the young adult often specialize to counteract; the problems vary from person to

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[3]Youth as a whole is a minority group in the employment process.

person, and the programs are often established to deal with a particular type of individual. In many instances, programs have been able to help adolescents break the cycle of their difficulties and produce positive changes in their lives.

THE MUNICIPAL COOPERATIVE EDUCATION PROGRAM

A Ford Foundation grant in 1961 made it possible to organize the expertise of two departments of New York City in a joint effort to bring educational and vocational improvements to the life chances of the general diploma candidates of selected academic high schools of the city. This project, the MCEP, created a cooperative tie between education and work in the curriculum of the junior and senior years of high school. The program participants were envisioned as those who were likely to enter the labor market upon leaving high school rather than to undertake further education and, therefore, were selected primarily from among general diploma candidates. The significance of selection into academic and nonacademic tracks was discussed earlier. This was perhaps more significant than selection into the cooperative program from a nonacademic course, but the decision concerning it predated the decision concerning program participation.

Through the joint intervention of the Department of Personnel and of the Board of Education, students in the general track were given an opportunity to divide their time between school and job as "cooperative students" in order to acquire skills and work habits which would improve their chances on the labor market. Both the Board and the Department were interested in providing vocational opportunity to those students of academic high schools who did not fully benefit from attending such schools.

In the high schools which participated in the program,[4] notices appeared on the bulletin boards and announcements were made on the public address system to introduce the program to the students. In addition, a teacher in the school became a full-time program coordinator, and he visited the classrooms of juniors and seniors to describe the program to the students and to solicit volunteers for it.

Taking part in the program meant that students worked full-time in a City department every other week; and they attended classes full time during alternate weeks. They could work and go to school, and still expect to graduate with their class, because they took double sessions of the required courses in specially established "cooperative classes." As "trainees" in City employ, they earned salaries comparable to that of civil servants in the same positions.

The program offered a change of pace to the students. Students who were in real need of money for self-support and the support of their families now had access to regular income. Students bored with school, poor achievers, those with attendance and disciplinary problems, or students anxious to leave the confines of secondary education could do so without formally becoming dropouts. The cooperative program allowed students to reduce school time while they could continue working towards a high school diploma.

By their junior year of high school, many work-bound students felt a real curiosity about the world of work and whether they could be successful and satisfied in it. The program afforded these pupils the opportunity to

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[4]Benjamin Franklin High School (BF), Boys High School (B), Morris High School (M), and Seward Park High School (SP).

make a partial entry into the labor market without forgoing education, in order to test themselves and alleviate some of the anxieties about their potential adult roles.

In short, the MCEP offered an avenue heretofore nonexistent in New York City schools for students to engage in vocational experimentation under structured and supervised conditions while continuing secondary education with an increased likelihood of completing it. As a result of a combination of motives, students in the participating high schools volunteered to undertake this facilitated entry into the labor market.

STRUCTURE

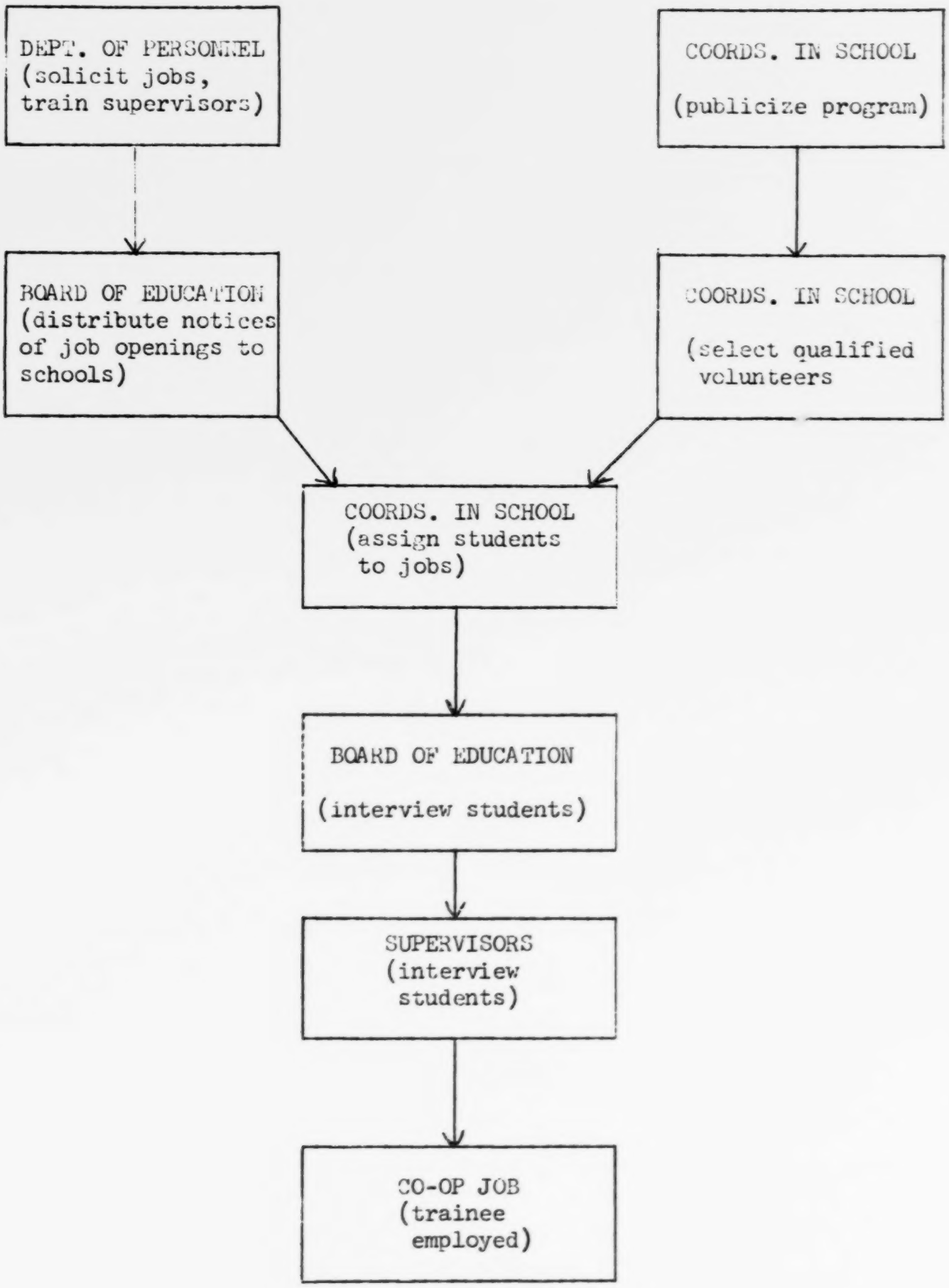
According to the statement of the Ford Foundation, the goal of the Municipal Cooperative Education Program was to provide improved and remedial vocational opportunity to some of those high school students of New York City who would encounter difficulty on the labor market upon leaving high school. The program intended to improve the competitive employment status of its participants, and to facilitate transition into the labor market, through the experience of systematic, long-term employment. At the same time, the program tried to reduce the dropout rate by making secondary education available concurrently with a chance for regular work and earnings. Although educational improvements were also hoped for, the program was basically geared towards occupational success and not higher education.

The joint administrators of the program, the Board and the Department, each had an office dealing with cooperative education. This office in the Department was responsible for soliciting job openings in entry occupations in various City departments. It also conducted a training course for some

supervisors to sensitize them to their special role as overseers of cooperative trainees, and to offer supervisors suggestions on how to deal with young people.

This office of the Board participated as a screening agency. It received notices of job openings from the Department and submitted them, at its discretion, to program coordinators of participating high schools. It also interviewed each potential cooperative student to screen those who seemed suitable to participate in the program, and offered brief instruction to the students on how to handle employment interviews successfully. The students were informed of the program and were placed for particular jobs through the full-time coordinators in each participating school.

The following diagram summarizes the successive steps involved in being employed as a cooperative student.


DEPT. OF PERSONNEL
(solicit jobs,
train supervisors)
COORDS. IN SCHOOL
(publicize program)
BOARD OF EDUCATION
(distribute notices
of job openings to
schools)
COORDS. IN SCHOOL
(select qualified
volunteers
COORDS. IN SCHOOL
(assign students
to jobs)
BOARD OF EDUCATION
(interview students)
SUPERVISORS
(interview
students)
CO-OP JOB
(trainee
employed)

Two factors seemed to determine who became a cooperative student: (1) dissemination of information about the program to the students, and (2) screening of student volunteers.

Induction into the program occurred through volunteering in all cases. The students were reached individually and in groups through the program coordinator, guidance counselors or an interested teacher -- and through public address systems and bulletin boards. Informal channels of communication also existed among students and were functional in introducing the program to them. On the basis of information received through these various channels, the students selected themselves into the program by signing up with the coordinators. Academic standing, financial condition, attitude toward school, family and fraternal opinion undoubtedly affected individual decisions to join the program.

Not all volunteers went on to become cooperative students; they later were selected by others into the program according to two criteria of participation: inadequate level of academic achievement, and financial need. Program coordinators considered school records; volunteering students who achieved below an average of 70 could be selected into the program. In addition, coordinators weighed financial need; while specific income data were not consulted, students who were financially needy could be selected into the program. Although both factors were relevant, both criteria did not always have to be met.

Students were not selected into the program if they were on police probation, but students with police records were not excluded by program-wide policy. The individual school coordinator had the most significant role in creating school-wide policy and practice with respect to behavior problems. He may have decided to try to make the MCEP successful in its first year and so to exclude

problem youth, or he may have desired to extend the opportunity to youth who needed rewarding vocational experiences in spite of the fact that some of these youth were potentially behaviorally disruptive. Once a student entered the program, two factors usually determined his placement in a given job: (a) the total number and the kind of job openings made available to each school at a given time, and (b) the achievement, interests and course background of the students.

(a) The Work-Study Programs Division of the Department solicited jobs in City departments for the program and submitted the list of available positions to the Board for allocation among the schools. According to the personnel of the Field Office of the cooperative program in the Department, student shortages did exist at times in some work categories but by and large, more students volunteered to be in the program than there were job openings for them. At times, the changeable personnel requirements of the City caused delays in placing trainees, even after workers were requested for the program. In some instances, students had to wait in the regular general diploma course up to six months for placement. Though the delay caused some disappointments, it is not known how many students rejected the idea of the program because of procrastination, or changed their minds in the waiting interim and decided not to join the MCEP.

The traineeship made available to the students were in regularly existing "entry jobs." As such, these positions required little or no preparation for adequate performance. There were basically three types of work performed by members of this sample within the frame work of the MCEP: clerical, hospital and park. In clerical positions, the students were typists, filing clerks, messengers and the like. In the parks of the City they were part of

clean-up crews. In hospital jobs they were cafeteria helpers, lunchroom helpers or assistants to nurses.

The office of Cooperative Education in the Board played a significant role in selecting which schools were to fill what kinds of positions. The fact that special traineeships were established in some of the participating schools, and the fact that the participating schools had different reputations for academic quality resulted in a nonrandom work assignment of the pupils by the Board. For example, in M, a special training program for hospital trainees existed through the establishment of cooperation with a local hospital. Students from that school were, therefore, most likely to become hospital trainees than were students from the other schools. SP was generally considered to maintain relatively higher achievement standards than the other participating schools and, therefore, its students were more likely to be placed in office jobs.

The Board conducted an interview with each of those potential cooperative students who were selected in the schools for traineeships. During the interview, the students were screened for poise and appearance, their records were reviewed, and they were given brief instruction on how to maximize their desirability as employees during the employment interview with potential supervisors.

(b) The experiences of students in commercial or other vocational training, and their expressed interests were noted at times but usually were not decisive in placement due to constraints in the number and availability of jobs, and the criteria of screening.

When a student received his work assignment he became a cooperative student. He worked full-time every other week in a City department. On his

assignment he performed the duties of the regularly existing position, and received the salary, vacation and workmen's compensation of a civil servant in that job. That is, since he worked every other week, he received half of the remuneration and benefits of the position. However, his status was that of a trainee. Working at a given job for two years did not qualify him to become a permanent employee of the City. In order to do so he had to observe the steps required of all applicants: to take and to pass the appropriate Civil Service exam, and then to wait to be assigned to a position at the discretion of a central bureau of the Department. However, at the request of his supervisor and depending on approval, a cooperative student could remain in his assignment without any promotions or raises as a "provisional" employee of the City. The maximum period of MCEP participation was two years, although the student had an option with respect to working during the summers.

On alternate weeks the cooperative student attended school full time and another cooperative student worked in that same job; one of the students was a junior, the other a senior in high school. Once a job opening was procured for cooperative students, the City was likely to be able to keep it indefinitely since when one of the students was graduated in any given June, a new junior was then added.

During the weeks he spent in school, the cooperative student attended special classes where he took double sessions of the courses required for graduation with a general diploma: English, history and mathematics. Physical education was also required, but there was not time left during the normal school day for elective courses.

An effort was made to explain the nature and consequences of participation in the program through all media and personnel who had a part in registering, screening and assigning volunteers to the program. Students were told that they were general diploma candidates and that participation in the program would not effect this outcome. They were informed of the courses they would take during their years in the program, and of the special double session classes they would attend. At the same time, they were told that they were in City employment only provisionally and that they would learn skills while earning a salary commensurate with the salary scale of the City for their jobs. They were also informed that in order to remain in the program they would have to observe acceptable standards of study and job performance.

The program was remedial in the sense that it was created in response to special needs of particular young people, and it provided training and work opportunity where these were not ordinarily available. Employment conditions were sheltered to the extent that certain numbers of entry jobs in the City were to be filled by cooperative students only, and that once in the job, satisfactory performance virtually guaranteed that the trainees could remain for a maximum of two years. No such guarantees exist in the open labor market. A special limitation of the program was that it imposed severe restrictions on job transfer -- restrictions beyond those operating on an open labor market. Cooperative employment resembled labor market conditions, however, in characteristics of job duties, criteria for satisfactory performance, and benefits.

THE PRESENT EVALUATION STUDY - PURPOSE

The intent of the present evaluation is to determine what effects, if any, participation in the program had on the general track student, and to comment on these in terms of the intended and expected outcomes of program participation. The respondents in this inquiry had been in the program three years prior to the evaluation, so that the effects of cooperative education within the structure of the MCEP could be observed on a relatively long-term basis, and along several dimensions, in the course of the study.

Students who planned to enter the labor market might, in three years, have looked for and found suitable employment; or they might have floundered from job to job without making progress toward a stable, satisfying position; or they might have persisted in manifestly inadequate and unsatisfactory jobs. The evaluation sought to discover whether the MCEP provided any insight, tools of self-management or work skills to cooperative students to facilitate these early vocational experiences.

Students who seriously contemplated further study, in three years might have become acquainted with information about schools and training centers, and might have undertaken preparation for a degree or certificate. It is also the intent of the present study to reveal whether aspirations and interest in particular fields of work were enhanced by participation in the program.

All respondents have encountered the adult world as well as the world of work in the interim between their high school years and the present evaluation. All respondents could be expected to have developed a sense

of self-esteem or of personal failure as a result of the nature of their encounters in these worlds. Whether the cooperative program was able to make positive contributions to the reward history of the students is another topic which the study sought to explore.

Lastly, a significant area of investigation is that concerning the circumstances under which participants joined the program, their experiences in it, and their opinion of it. They were asked to consider what the program meant during the period when they participated in it, as well as in light of the events brought about by the subsequent years.

The object of the evaluation, then, is to gain knowledge of how the program affected the educational, vocational and personal development of cooperative students in terms of both motivation and performance. In order to distinguish outcomes attributable to the MCEP alone, former program participants were compared to a control group of comparable young adults who did not participate in the program, but who also followed a general diploma curriculum in the same high schools. The emphasis of the inquiry is on the evaluation of the program by the former participants; it focuses on participant views and compares them to views of non-participants.

SUMMARY OF FINDINGS

1. The MCEP made a positive contribution to the curriculum of the general diploma candidate by providing him with an opportunity for steady remunerative work experience and on-going association with adults in the occupational setting. However, programmatic help seemed only to help the students attain this faster and through fewer trials and errors than they might have been able to on their own.

2. In the absence of formal vocational training, the nature of the work assignment was of paramount importance; it determined the real quality and value of the vocational experience made possible by the MCEP. A majority of the former cooperative students held jobs which were unskilled, and offered no learning or training opportunity, only financial rewards and the vicarious rewards of being removed from school.

3. The general diploma candidate, especially since he is likely to have multiple problems and remedial needs, depends heavily on education and a marketable diploma for his future success. In the MCEP, education remained a component equally important with, and as time consuming as, traineeship. Therefore, program administrators have a continued responsibility to educate trainees as part of the program. It was indicated by the evaluation study that most trainees were at a disadvantage by being placed in special classrooms, apart from other students, as well as by being given a minimum and non-flexible version of the general curriculum. The immediate benefits derived from work experience tended to be negated in the long run by the lack of such basic education as would lead the student to any of several occupational and learning avenues after high school (data for this study were collected three years after the respondents finished high school).

4. Trainees as well as control students seemed in great need of counseling at the time of participating in the program, as well as at the time of the study. Although they have observed the motions of joining and staying in the MCEP, and later of finding and holding a job, the students typically did not make choices with full awareness of the circumstances, and did not understand all the ramifications of their own actions.

DESIGN

The population of this study consists of all male MCEP participants from 1962 and 1963. The cooperative and control members of the population finished high school during that period. Since that time they have not been contacted by anyone connected with the MCEP. Therefore, the first step in the followup study was a systematic attempt to reach the members of the population and to gain their interest and cooperation in the present study. Table 1 of Appendix D shows the population distribution by school, and Table 2 shows the distribution of the sample by school.

There is a detailed account included in Appendix D of the design, methods and results of the first phase of the evaluation. This account also includes information on the entire population obtained through correspondence, telephone calls and door-to-door visits. Information generated by interviews, questionnaires, school records or obtained from program personnel and previous research on this population is included in the body of the report. Appendix A includes sample correspondence to the respondents.

No significant differences were found between cooperative and control students in terms of socioeconomic background, racial, national, educational and religious background. At the time the program went into effect and the population for this study was selected, large portions of all the students in all the participating schools received general diplomas, and most students lived in residential areas in the proximity of the high schools.

Members of the sample were considered representative of the whole population because they attended the same schools, lived (at the time of

the followup) in similar residential areas, and seemed as reluctant to be interviewed as those who were not in the sample. Information collected prior to interviewing revealed no significant differences between members of the sample and the population either -- other than with regard to the ownership of or access to a telephone where the respondents could be reached. Although a larger sample may have been desirable, the costly procedure required to obtain it was abandoned because the study aimed at revealing a spectrum of substantive data which those members of the population who had already been reached could provide.

The analysis of the report is based on data collected from 48 cooperative and 21 control students who make up the sample.

The instruments and their uses are described below. A copy of each is included in Appendix B. Appendix C is a statement on all the data used for this report, including such identifying information as graduation status, measured IQ scores, work assignment in the MCEP, and race. This Appendix also includes a tabulation of the number of respondents for whom data was collected via each of the instruments used in this study.

The Group Interview

The group interview[5] proved to be an effective research instrument. It allowed persons with similar experiences to come together and discuss these experiences: the respondents attended the same high school during the same years, many had been in the MCEP together, and they had all been young job entrants on the labor market in recent years. In the group,

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[5]Merton, R. K., Fiske, M. and Kendall, P. L. The Focused Interview, Glencoe, Illinois, 1956.

juxtaposition of statements of several persons was possible without nullifying individual opinions and experiences, and statements could be verified by other speakers. Relevant information could be elicited easily in an atmosphere of spontaneous conversation in which the interviewer acted to direct the course of the discussion and to insure that all respondents would have a chance to answer all questions.

The interviews were held in community centers, YMCA buildings or church rectories in the neighborhoods in which the respondents lived when they were members of the program. These neighborhoods were also near one of the participating schools, and therefore the location of a particular interview usually resulted in an overrepresentation of students from that school. Most meetings took place on Saturdays and were about two hours in duration. Although attendance was poor and unpredictable ("groups" varied in size from one to six), most interviews were very successful as data gathering device. A total of 48 cooperative and 21 control students attended group interviews. Respondents readily evoked their MCEP experiences from a distance of three years, and related their feelings about these experiences willingly. There was considerable discussion among participants and questions seemed to prompt them to further deliberation. To many young people, thinking about their lives and work seemed natural, although to some of them the questions caused a mild shock or seemed irrelevant. Data collected through group interviews received qualitative analysis in the result section.

The Planning Questionnaire

The study was concerned with gauging the effect of the MCEP on the vocational and educational plans of the respondents. For purposes of

increased comparability, the Planning Questionnaire originally administered to the population in 1962-63, was again used in the 1966 evaluation. The questionnaires were administered at the end of the group interview sessions, and data from them were assessed quantitatively. The analysis includes comparisons between cooperative and control students, as well as between questionnaire data of the two evaluation studies, and it is presented in the section on the findings. The complete set of tabulations based on questionnaire data constitute Appendix E.

The Individual Interview

Individual interviews were conducted with 12 cooperative and four control students in order to increase the kind of information not usually revealed in the presence of peers: specific talents and attempts to market them, reference persons during adolescent years, significant personal experiences relevant to the formation of vocational and educational careers, income and family data. Respondents were selected on the basis of being relatively more aware and verbal than others in the sample, and being able to discuss their experiences of transition from school to work.

The respondents were given an interview schedule to complete which became the basis of an intensive individual discussion, allowing for exploration of the topics included in the schedule. Data obtained this way became part of qualitative analysis of the findings.

Individual Interviews from the 1962-63 Study

Individual interviews conducted in 1962-63, with 28 cooperative and five control students, were transcribed in the course of this study, and their qualitative treatment is included in the present paper. This interview series was used for three reasons: it had not received treatment earlier, it increased the comparability of the data generated during either evaluation study, and it introduced a way to measure change over time.

In the course of group interviews, individual interviews and information obtained in a questionnaire, students discussed aspects of the program, how they joined it, what experience they had in it, what they hoped to derive from it, and what they actually attained through participation in it. They discussed the image of the program, its educational component and its role as their first full-time employment experience. All information was analyzed in relation to the outcomes hoped for by the administrators of the MCEP and by the students.

DETAILED DISCUSSION OF THE FINDINGS

Overall Evaluation of the MCEP

The MCEP, as a whole, was well thought of by most participants, and as veterans of the program, they recommended that it be continued. Even though this general approval was usually qualified, it seems that nearly all of the respondents felt that they benefited from the work-study program in some way and that other high school juniors and seniors might also derive benefits from it. Thus, the MCEP seems to have reached its target population: it recruited young adults who were interested in a combination of school and work, and it provided them this opportunity in a way generally held worthwhile by the students. The following quotes from group interview material illustrate the general attitude of the respondents.

"Well, it hit me as a great idea. Make money and go to school. You make money and work for the City you know."

"The program itself is basically a very good program. It teaches you the value of money."

"I think it's something to learn of responsibility while you're young, to make up your mind about what you want, and learning about how to go about getting it."

Reasons for Joining the MCEP

Typically, each student joined the program for two or three reasons rather than in pursuit of a single objective. All students were interested in achieving earning capacity. To many students the program represented a respectable avenue out of school, where they were bored and had difficulties. A considerable portion of the applicants were looking forward to being employed by the City. Only a minority expressed interest in specific areas of work as such, although many looked forward to association with adults and to the mere experience of full-time employment. This is how some of the respondents expressed their reasons for joining the program:

"I wanted experience in the outside, and in employment, that was one of the reasons [for joining] and having cash in my pocket was another."

"You weren't going to school every day, so it changed the monotony. It was better."

"I guess I joined the co-op program because it was the only thing for me to do. At the time I was thinking of quitting school because I was doing bad in certain classes, so I still had some sort of guilty feeling of me quitting, so I felt the alternate thing to do was to join the co-op and in that way I would finish school, helping myself, and filling my duties and go to school. I had to do it as far as my family was concerned. I just couldn't quit."

"Well, I had a part-time job which I didn't really care for and I wanted another job, other than being a messenger, and still continue my studies. So I joined the cooperative program."

Control Respondents and the MCEP

Control respondents usually heard of the existence of the program. The primary reason why they did not show interest in the MCEP was that they felt no keen need to alter their status in school. Many disapproved of the program which they believed to have been designed for minority group youth, and as one without relevance or value to students who are achieving well and have definite post high school plans. The words of some of the respondents from the control group indicate what image the MCEP had in the participating schools.

"One reason why I wouldn't recommend it, [is that] you're not making that much and if you want to graduate from school, it's hard to get back to the system of study after you work a week and you have to go back and pass tests ...classes would become a drag, and money the only thing that would set in your mind."

"I wouldn't drop out of school for that money."

"Well, I had planned to go to college when I finished high school. I still haven't gotten there, but I didn't want to split my term up in half. I knew I'd be missing a lot [if I joined the program] ...time was of the essence. You should get all the education you can get."

"No one approached me to join."

"Most of the people who took part in it [the program] were either Spanish culture, you know, they were Spanish speaking, or Negro, so it is probably a little harder for them to adapt themselves. I believe it was just money that appealed to them, and no education. That's all. There are exceptions. You don't get much experience doing what they do; being a mail clerk or a messenger, what kind of experience is that."

Racial Distribution and Status in the Study

Percentage Distribution of Status
In the Study, by Race

	Race				
Status	Negro	White	Puerto Rican	No Information	Total
Cooperative	63.6	57.1	80.0	71.4	69.6
Control	36.3	42.9	19.2	28.6	30.4
N	22	14	26	7	69

This table indicates that from each of the racial groups there was an average of twice as many cooperative students as control students in the sample.

Adult Contact at Work

One of the most positively valued contributions of the MCEP was that it provided opportunity to associate with non-parental, non-teaching adults. For nearly all students, the MCEP provided their first full-time job. As a result, the nature of personal contacts on the cooperative job was of great significance. Most students sought such contact, because they felt uncertain about being able to succeed in terms of the criteria of the adult world, as well as about being accepted as independent, responsible adults. Co-workers were persons to emulate and to explore as models. Yet they were not as distinctly authoritative with trainees as teachers in school or elders in the home. As a result, the students expected to be on a more equal basis in the work situation, and they were anxious to discover whether the world of work would be a rewarding one.

The individual interviews revealed that students who received fair and courteous treatment while in the program seemed to have acquired a cornerstone for improved motivation and stability during the post-high school years. Nearly all cooperative respondents indicated that they felt at home on the job. Those students who experienced no evidence of their worth or who witnessed contempt and disapproval being expressed towards their supervisors and co-workers, acquired a rather lasting lack of self-confidence and sense of discouragement. The following excerpts will indicate the intensity of respondent feeling concerning their work milieu:

"We had a foreman and he's a real good fellow. I remember him very well, he was like a father to us. He wouldn't be a boss, he'd be one of the boys. He wouldn't bawl us out or anything, but when we got out of hand, he would tell us."

"We were treated very nicely. Consideration was given to us. The think I learned was how to get along with people and how to work with them, and they advised me many times, and I don't forget this."

"There is one thing I think is really important about working. You meet different people and they will always tell you about other jobs and advise you of the other things you can do. That's what helped me a lot. If you don't know something they will really help you along."

"If they had come around to see what type of dirty work we were actually doing there [in the hospital] and the type of people that were working around the hospitals were not the type of people that high school students should be working around. The language ...when I went there, I was astounded. I used to hear conversations about us, the young kids, that if the program was started it should have started by getting us better jobs."

"Complain and get fired! ...The foreman was a nice guy, but the others were there a long time, so he said he would do something about my problem but he never did."

"When I first got there they tried to take advantage of me, but I could see why, because they weren't doing anything themselves. So I didn't care for that too much, till one day I told him [the supervisor] that he [a co-worker] was working me too hard while he wasn't doing anything, so he [the supervisor] talked to him about it."

"Picking up cigarette butts all day, I mean that's embarrassing! But all you ever heard was 'do your job,' or 'you got to do better.' They supposed to be helping you, and he is telling you, 'Hey, you missed a butt there!'"

Work Assignment in the MCEP

Percentage Distribution of Work Assignment of Cooperative Students, by Race

	Race				
Assignment	Negro	White	Puerto Rican	No Information	Total
Clerical	50	25	47.5	60	45.8
Park	21.4	--	23.7	20	18.6
Hospital	28.6	62.5	23.7	--	29.2
No Information	--	12.5	4.8	20	6.3
N	14	8	21	5	48

As this table indicates, work assignment occurred on a racially equitable basis among members of the sample; about half of the Negro and Puerto Rican trainees were in white collar jobs, while the larger portion among white students were in hospital assignments.

Vocational Training in the MCEP

A basic objective of the MCEP was to provide students with an opportunity to acquire marketable skills. Since there were no formal provisions for training classes, the nature of the work assignment determined the nature and the extent of learning possible for each trainee. Only a small proportion of the cooperative students claimed to have learned occupational skills or a trade in the program. It was rather the habit of steady work and responsibility on the job that they seemed to have assimilated. Work environment, namely physical and personal surroundings, were so important in the eyes of the respondents that they often overlooked lack of training in an assignment if the "place was nice." Those trainees who acquired skills were typically in white collar jobs involving the operation of office machines or bookkeeping, or in hospital jobs, for which they received specific instructions in preparing food or handling hospital records.

To a few of these trainees, the work assignment remained a continuous challenge due largely to their initiative to seek exposure to varied tasks. Most trainees did not attempt to seek such exposure, however. All park workers, many hospital workers (especially those with clean-up tasks) and some office workers stated that what learning opportunity their job entailed, they acquired in a week or two, and often that there was nothing to learn. Nonetheless, the trainees seemed to understand the difference between job

orientation and skill learning. When they found nothing to learn in ways of skills, they still often found the operation of a large agency interesting. The quotations below indicate the range of student opinion about vocational training in the MCEP:

"I learned quite a bit out of it, you know, I learned how to work the machines and how to file and I learned how to work the adding machine. I learned how to type. I learned quite a bit there, I wish there were some kind of a way where they could have worked it out where everyone there in the co-op program, working, could stay on, on a permanent basis, but there is no provision for that."

"As far as I am concerned, I think that they didn't teach me anything that I couldn't have picked up if I would have been employed directly by the Department. I find that the program lacked the skill ...they didn't try to give the students special skills to identify himself ...they placed you in jobs, unskilled jobs ...lunchroom attendant, tray cleaner, or whatever...I mean, those are not even skills. I think it's not even training; it doesn't require any training to do that. So I think for a program, that's bad ...I wasn't able to think for myself. I would have been perfectly satisfied by just being there all day, and that's it. But when it came time for me to graduate and go out and get a job, I think it would have been their responsibility to locate this, a certain amount of security and responsibility to me ...but I doubt that that is what they were striving for. And I think it wasn't really up to me to complain because I was satisfied with anything they gave me. I think it was up to them to make sure that I was well trained for something."

"When I started the co-op job, I didn't know nothing. Over there I learned ...not everything but I learned a great deal in the co-op. That's where I got my idea to do the sort of job I've got now. It was experience, and you know, every time you go to get a job they ask for experience ...so I was very happy. I learned there, and to me it was good training."

Salary in the MCEP

Most cooperative students considered their income adequate while in the program, since their families paid for their daily living expenses. Acute financial need was rare, but it is noteworthy that those whose families depended to some extent on income from the traineeship were not always holding the most remunerative cooperative jobs.

Continued earning capacity had positive effects on the program participants -- although the psychological effects of adult contact in the program seemed to have been more lasting. Money was evidence of worthwhile accomplishments; it allowed students to offer financial help to parents, many of whom would not accept it, but encouraged their sons to save their earnings in addition. The money enabled young people to buy clothes of their choice, and to go out on dates, instead of depending on street corners and school events for entertainment. It seems that both of these former activities are important symbols of independence during the adolescent years. Some typical comments follow:

"I found I had to go to work. I had to get a job, to contribute some money to the house and have money for myself. To be able to buy things to go to school. The salary was only __dollars a week in the co-op and I was the lowest paid in my class, but I kept this job for awhile."

"It [the program] teaches you the value of money. You don't do it because you need the money, but because you need money to show your self-reliance."

"Well, to tell you the truth, this was the first time I worked. It was enough for me because I'm still living with my parents. You were a student you know. My mother, she told me, 'You worked for it, it's yours.' So I was satisfied."

"After I had the money, I used to go out to dances, I would go to night clubs, things like that. Before, because I didn't have any money, and my mother wouldn't let me go."

Preparedness to Join and to Leave the Program

The interviews revealed that in spite of general interest in the world of work, anticipation of adult responsibilities, and at least terminological familiarity with the basic features of the MCEP, most cooperative students lacked necessary elements of informed participation, at the time they joined the program. Most trainees seemed to lack detailed and thorough understanding of the conditions and consequences of participation in the program.

For example, at the time of joining the program, by far the most students were unaware of what their own vocational interests and abilities were. Even if program administrators provided opportunity for placement on the basis of student interests, most trainees would have been unprepared to participate in this choice. What they seemed to need rather, was an opportunity to concentrate on and to verbalize what their interests and abilities might be, and to check out these notions with a counselor, and against vocational testing data. Only after an opportunity to consider future vocational choice

and opportunity could a student begin to participate in their implementation. In the absence of a chance to seriously consider qualifications and interests, most students seemed to welcome work in a job, any job, and they expected this one experience to provide an adequate basis for ideas about the work they might enjoy doing in the future. Only a few respondents had plans for the future, and even in these cases the plans were vague, and confused in terms of implementation.

The students did not fully realize, or accept the fact that all participants were selected from among general diploma candidates and that participation in the program would not affect this status. Similarly, many students did not understand that the program assignment, and therefore their Civil Service status, was only temporary. Many expected to remain with the agency and on the job that they held as trainees. In the event that this proved to be unfeasible, the students expected the program administrators to take care of their vocational placement problems. Even students who did not enjoy their MCEP experience were shocked and disappointed to find that seeking placement services was their own responsibility. The respondents stated that only upon finishing high school did they realize that they would have to rely on themselves to contact school and youth placement services and employment agencies.

Employment History

Through an earlier exposure to the world of work, cooperative students began to think about employment sooner than did control students. Neither cooperative nor control students believed that they experienced severe unemployment. In the sample, two cooperative and one control respondent were

chronically unemployed, but the mean period of joblessness was two to three weeks, the range being from a couple of days to six months. Many students in both groups indicated that they did not work nor did they want to work during the first summer after high school. About a dozen cooperative students worked during this period either in their traineeship positions or in another job. Both of these types of students began active search for employment in the fall of the year in which they graduated.

Problems arose not so much from finding employment, especially since a majority of the respondents in both groups still live with their parents and are not under economic pressures toward self-support. Rather it was typically difficult for the students to find suitable employment. Most cooperative students indicated that their first full-time job had no resemblance at all to their cooperative duties. Some respondents stated during interviews that they usually did not refer to the MCEP work experience on resumes and did not ask for references from cooperative supervisors. About a dozen trainees, however, claimed that they learned a trade in the MCEP, that the traineeship was directly beneficial to them during later employment, and they they used reference letters from the program supervisors. A few respondents, who at the time of the study still held their original cooperative positions, were in provisional status; namely, they have been retained as temporary workers without Civil Service status. As a result, they received no raises, promotions, or any other tangible evidence of advancement.

Respondents of both groups typically did not conceive of joining a branch of the Armed Forces right after high school, as an alternative to vocational opportunity. They did not consider the possibility of learning

a trade while in the Service. However, three young men who enlisted shortly after leaving school said that they did so because they were unable to find employment for two or three months.

Control students typically began to think about the world of work much later than their cooperative student peers, although members of both groups became more concerned as the question of satisfactory employment opportunity became salient in their lives. Control students typically underwent more floundering and more frequent job changes than former cooperative students. Some illustrations of employability follow below:

"Three or four months was the longest that I was ever unemployed. The program is benefiting moneywise but killing in education. If you don't have the educational background and don't have the experience, they couldn't give you a job."

"After I graduated and went out to look for a job, and when you get interviewed they ask you for references as to where you work, and all that. You get hired because you have already worked, and finished school, so that's some background."

"Right after I graduated from high school I was given a job through the school as a stock clerk."

"After high school I went down to Mobilization and they found me a job, then I was out for four months and they found me another job. When you go for a job they want experience regardless of schooling."

"I worked for the month of July, then I had to quit because I was attending school."

"I still haven't found anything." [First job.]

"I showed my certificate [of having completed the program] and I got hired the same day."

"Well, I didn't have too much in mind, I guess ... I didn't work that summer, and when I started looking for a job, there wasn't much to get... I had my eyes closed all through high school. And after you get out and you see how it is, they start opening up pretty quick... Oh, we had a guidance counsellor. She'd see that you didn't cut, that's it."

"Me, I went into the Service right after I got out of school. That was just about the only thing I could do."

Otis Intelligence Test, Self-Administered, Gamma, Form EM

According to 1962-63 testing data, the median score for the sample on the Otis Intelligence Test was in the 96-100 interval, the range being from 68 to 122. The arithmetic mean for the sample was 87, the same as for the population. Information on IQ scores was missing for 12 persons in the sample. Since nearly a third of the sample was Spanish speaking, and most of them were only moderately successful in school, it seems probable that the IQ scores would be higher in the absence of language and reading difficulties.

Graduation Status

As the following table indicates, there is no statistically significant difference between the dropout rates of cooperative and control students; in both cooperative and control groups there are about four times as many graduates as dropouts. There seems to be variation in dropout rate by school, however: all control dropouts in this sample are from one school, SP; and a relatively high proportion of the cooperative students from M seem to be dropouts.

Distribution of Graduation Status of Members
Of the Sample, Based on School Records, by
School and Status in the Study

	Status in Study					
	Cooperative		Control		Total	
School	Graduate*	Dropout	Graduate	Dropout	Graduate	Dropout
BF	9	2**	6	0	15	2
B	1	0	1	0	2	0
M	13	5***	3	0	16	5
SP	16	2	7	4	23	6
N	39	9	17	4	56	13

*All graduates received a general high school diploma.

**School records were not available.

***Including three for whom school records were not available.

It is possible that prior to participation in the MCEP, cooperative students were more likely to leave school than after becoming trainees, and that the program, therefore, effectively retains potential dropouts. However, insofar as the program does have retentive ability, and this study found no direct evidence of it, retention is largely coercive: the structure of the program requires that a student remain in school in order to remain working. Furthermore, the interviews revealed that students, even if not officially graduates, did in fact remain in school until the end of their senior year and, therefore, did not literally drop out of school. Rather, excessive absenteeism and previous course failures negated their ability to graduate; they came short of fulfilling the course requirements for a diploma

and sometimes were not so informed until the end of their senior year in high school. Although these problems were likely to have occurred prior to the junior year of high school, as far as this study sample indicates, program participation did not affect their consequences: control students were as likely to graduate with a general diploma as were cooperative students.

It should be noted that most dropouts in the sample stated that they had graduated; that many students in both groups claimed to have commercial or academic diplomas; and that they associated better education with either of the two diplomas which, according to school records, they do not possess. The obvious implication here is that all members of the sample are aware of the importance of a high school diploma as well as the differential value of the three kinds of high school diplomas.

Educational Aspirations, Expectations and Achievements

The evaluation sought to discover whether the MCEP affected the educational planning and involvement of its participants. Therefore, the respondents were asked to indicate their aspirations and expectations for schooling beyond the secondary level.

All respondents in both groups thought that education was a worthy goal, necessary for vocational success in the world today. About a third of the respondents stated during the group interviews that by obtaining a high school diploma they have achieved their educational objectives. About half of the respondents felt that schooling beyond the secondary level is desirable especially since they placed little value in the general diploma they received.

Questionnaire material partially confirms these statements. Expressed in terms of number of years in school, 12 per cent of the respondents indicated in 1962 that they desired only a high school education, and a total of 85 per cent desired to undertake further years of study. Yet, 46 per cent of the students expected to attain no more than secondary schooling, and only 51 per cent expected to undertake higher education or training.

In 1966, only nine per cent of the students seemed to be satisfied with only a high school diploma, yet 35 per cent expected not to attain any more. A total of 90 per cent desired, and a total of 53 per cent expected to be involved in further years of study and training. Eighty-four per cent of the individuals in the sample changed their specific educational expectations over the three year interim between the two evaluation studies. Three years after the MCEP experience, 30 per cent fewer respondents expected to spend time in higher education than in 1962.

The respondents were also asked to indicate what kind of educational institution they would like to attend for further education. Analysis of the questionnaire material indicates that in 1962, 38 per cent of the students (40 per cent of the cooperative and 33 per cent of the control students), and in 1966, 33 per cent of the students (35 per cent of the cooperative and 30 per cent of the control students) desired to attend a university or private business school. Expectations for business school attendance were much lower, however. In 1962, 25 per cent of the respondents (23 per cent of the cooperative and 28 per cent of the control students) thought business education probable; in 1966, six per cent (four per cent of the cooperative and ten per cent of the control students) did. Cooperative and control students do not differ significantly in their plans for a business

education. For the sample as a whole, differences over time were only significant in terms of expectations.

Racial differences were more apparent. White students desired to attend a business school with greater frequency (43 per cent in 1962, 50 per cent in 1966) than did Negro (35 per cent in 1962, 27 per cent in 1966) or Puerto Rican students (33 per cent in 1962, 23 per cent in 1966). Expectations of white students about attending a business school, however, were lower (25 per cent in 1962, and zero per cent in 1966) than those of Negro (25 per cent in 1962, and five per cent in 1966) or Puerto Rican students (19 per cent in 1962 and four per cent in 1966). Interviews revealed that many respondents desired to achieve independence through a business education. They spoke of being their own boss, and of owning a retail store. Business school, as an avenue to follow towards such independence, became much less salient over the three years following MCEP participation. Typically, those few who envisioned working for a large business firm lacked information on what training and entry jobs would lead to their goal, or what differences there are among organizations.

Respondent attitude toward liberal arts college was varied. As a desired educational objective, college became a less favored choice over time, especially among control students and among Negro and Puerto Rican students. In 1962, 15 per cent of the respondents (seven per cent of the cooperative and 33 per cent of the control students) desired to enter college. In 1966, nine per cent of the respondents did (13 per cent of them cooperative, and zero per cent of them control students). In 1962, no white students, 19 per cent of the Puerto Rican students, and 20 per cent of the Negro students indicated

desire to enter college. In 1966, seven per cent of each, white and Puerto Rican respondents, and nine per cent of the Negro respondents, did.

In terms of expectations to enter a liberal arts college, an increased proportion of the cooperative and Puerto Rican students, and a decreased proportion of the control and Negro and white students chose this educational alternative. In 1962, 15 per cent of the respondents (seven per cent of the cooperative and 33 per cent of the control students) chose college. In 1966, 18 per cent of the respondents (17 per cent of the cooperative and 20 per cent of the control students) did. In 1962, ten per cent of the Puerto Rican, 14 per cent of the white, and 25 per cent of the Negro students expected to go to college. In 1966, seven per cent of the white, 19 per cent of the Puerto Rican and 23 per cent of the Negro students expected to do so.

Interest in trade or technical school and teachers or engineering college increased over the years, especially among control students and among Negro and Puerto Rican students. In 1962, 19 per cent of the cooperative and 17 per cent of the control students desired to attend teaching or engineering college; in 1966, 22 per cent and 20 per cent did, respectively. However, no one in the sample expected to attend teachers college or engineering college during either study periods. Different racial groups again showed a more distinct pattern of response. In 1962, 30 per cent of the Negro, 21 per cent of the white and ten per cent of the Puerto Rican students wished to study in a teaching or an engineering college. In 1966, 23 per cent of the Negro, 14 per cent of the white, and 27 per cent of the Puerto Rican students did. Puerto Ricans showed the greatest change over three years. As stated above, no one in the sample actually expected to enter such schools, however.

Cooperative students were more likely to actually engage in training programs and further education than control students. Most of those who did were required to attend adult education classes or summer sessions in order to acquire the academic credits needed for admission to colleges. Three of these students entered community college without additional preparation at the secondary school level, and one student entered a four year college through the SEEK program. Altogether, eight persons, six of them cooperative students, seemed to be seriously involved in college work. Those who have enrolled in a four year college seem to have a good chance of graduating, in terms of achievement level and financial planning. Those who have enrolled in a community college have already transferred to a four year college, or have dropped out.

Only 26 per cent of the individual respondents desired to attend the same kind of educational institution in 1966 as they did in 1962. During the two study periods only 19 per cent of the individual respondents expected to be in the same kind of schools. In terms of number of years, only 16 per cent of the individual respondents expected to spend the same amount of time studying, when asked during the two evaluation studies. Individuals in this sample, then, typically changed their educational plans during the period of their early vocational experiences. It seems that the realities encountered by the students warranted a modification of their expectations and their desires for further learning.

There were many who ponder alternative avenues for more education or training, but have not arrived at definite decisions about it. A larger portion of the respondents seemed unable to indicate what their educational plans were in 1966 than in 1962. These persons often lacked all the

necessary secondary school credits to be admitted to the institution of their choice, lacked realistic financing strategies for their studies, or had no definite commitment to a particular vocation. In terms of making decisions on the basis of adequate information, as brought to focus by the individual interviews, these persons were not in a very different position from that which they experienced three years earlier.

Occupational Planning and Achievement[6]

The respondents were asked to indicate what occupation they would like to enter in the future, for what occupation they consider themselves well suited, and in what occupation they actually expect to be. Through answers to these questions, it was possible to ascertain respondent ambition and planning for future vocational success. Desired occupation indicates not only interest in a particular kind of work, but also degree of ambition. Dissimilarity between desired and expected occupation indicates degree of commitment to attain the desired vocational goal. Change over time in either of these variables indicates, especially at this juncture in the development of the respondents, whether early vocational experiences tended to support or negate the likelihood of attaining a particular vocational goal, both in terms of knowledge about a given career and ability to succeed in the educational and vocational market place.

A. Professional and managerial occupations. According to questionnaire data, members of the sample wanted, expected and believed themselves suited

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[6]For the classification of occupations which the respondents considered desirable, suitable, or probable, job categories were taken, then combined for this analysis, from the 1960 New York State census. Appendix C includes a copy of this list of occupational categories.

for professional and managerial occupations in large proportions, during both study periods and irrespective of work assignment in the MCEP, status in the study or race.

a. The cooperative and control groups. In 1962, 46 per cent of the respondents (47 per cent of the cooperative and 44 per cent of the control students) expressed a desire to become professional or managerial workers. Thirty-three per cent of the sample (35 per cent of the cooperative and 28 per cent of the control students) believed themselves well suited for such work. Eighteen per cent of the sample (21 per cent of the cooperative and 11 per cent of the control students) thought it likely that they would enter these occupations. Thus, in 1962, a much greater proportion of the sample desired to attain high level positions than expected to be able to do so; this difference was greater for members of the control group.

In 1966, the difference between desires and expectations for professional and managerial career increased slightly among members of the cooperative group, decreased among members of the control group. Fifty-five per cent of the sample (54 per cent of the cooperative and 55 per cent of the control group) desired to become professional or managerial workers. Forty-one per cent of the sample (37 per cent of the cooperative and 50 per cent of the control group) believed themselves well suited for such work. Thirty-six per cent of the sample (37 per cent of the cooperative and 36 per cent of the control students) expected to attain high level positions. In 1966, then, cooperative students showed a greater discrepancy between desiring high level positions and considering themselves well suited for the work. And control students showed a greater discrepancy between desiring and expecting to be in

high level positions. An increased proportion of both groups favored professional work in 1966, but the increase was greater in the control group.

b. Work assignment in the MCEP. Almost twice as many hospital workers desired high level positions in 1966, then, as did in 1962. At the same time, respondents in the other two kinds of MCEP assignments showed a slight decrease in proportion desiring high level positions. In terms of work assignment in the program, respondents showed the following differences. In 1962, 60 per cent of the clerical, 42 per cent of the park, and 33 per cent of the hospital workers expressed a desire to be in professional and managerial occupations. In 1966, 63 per cent of the hospital, 57 per cent of the clerical, and 36 percent of the park workers did.

In 1962, 40 per cent of the clerical, 25 per cent of the park, and 17 per cent of the hospital workers believed themselves well suited for professional and managerial work. In 1966, 50 per cent of the hospital, 43 per cent of the clerical, and 21 per cent of the park workers did. Again, the hospital trainees showed the greatest amount of change over time towards considering themselves well suited for professional and managerial occupations.

In 1962, 20 per cent of the clerical and 17 per cent of each of hospital and park workers expected to attain high level positions. In 1966, 63 per cent of the hospital, 38 per cent of the clerical, and 21 per cent of the park workers thought it probable to do so. In terms of expectations, again the hospital workers showed the greatest proportional increase in optimism for high level jobs.

Differences between desires and expectations, as regards professional and managerial occupations, were greatest for clerical workers in 1962 and in 1966, indicating that their initially high ambitions were not accompanied

by confidence and serious constructive activity in the direction of their goals. Hospital workers -- who showed the greatest amount of increase toward choosing high level positions, as discussed above -- also showed the least amount of discrepancy between their desires for, and expectations concerning the attainment of high level occupations.

c. Racial grouping. In terms of the racial composition of the sample, planning for a professional or managerial career showed the following patterns. Fifty per cent of the Negro and of the white students, and 43 per cent of the Puerto Rican students desired professional work in 1962. In 1966, 62 per cent of the Puerto Rican, 55 per cent of the Negro, and 36 per cent of the white respondents desired high level positions. Change over time was greatest among Puerto Ricans in the direction of rising ambitions.

In terms of considering professional work suitable, in 1962, 36 per cent of the white, 33 per cent of the Puerto Rican and 30 per cent of the Negro students indicated confidence in being able to perform such work. In 1966, 50 per cent of the Negro, 35 per cent of the Puerto Rican, and 29 per cent of the white students did. Negro students showed the greatest degree of change over time in the direction of increased confidence.

In terms of the probability of actually attaining high level occupations, in 1962, 36 per cent of the white, 19 per cent of the Puerto Rican, and ten per cent of the Negro students responded affirmatively. In 1966, 41 per cent of the Negro, 39 per cent of the Puerto Rican, and 21 per cent of the white students believed high level positions probable as occupational objectives. Negro students again showed the greatest degree of change over time, in a positive direction; expectations of white students decreased during the three year interim between the two studies.

In 1962, Negro students showed the greatest amount of discrepancy between their desired and expected occupational goals, as well as between the occupations they desired and those for which they believed themselves most suitable. In 1966, Puerto Rican respondents showed the greatest such discrepancy.

d. Interview data. Most respondents seemed to become aware of the importance of only the external symbols associated with high level positions. During the interviews it became evident that the MCEP helped, through exposure to the world of work, to sensitize respondents to different reward and status systems. However, typically, the members of the sample lacked information on internal characteristics of jobs. They interpreted high level positions, for example, in terms of independence, affluence, and a physically and socially desirable environment. They tended to believe that seniority in a low level poistion will lead to enough promotions for them to attain their occupational goals. Few members of the sample knew what further educational qualifications they needed for advancement in the more structured discipline such as accounting or administration. There were several respondents in the sample who aspired for free lancing occupations such as writing or art.

B. Clerical, sales and craft occupations. The second most favored occupational category was clerical-sales-crafts, for members of the sample during both study years, for cooperative and control students, irrespective of MCEP work assignment or of race.

a. The cooperative and the control group. In 1962, 33 per cent of the sample (30 per cent of the cooperative and 39 per cent of the control group) desired to become white collar workers in the future. Thirty-one per cent

of the sample (33 per cent of the cooperative and 28 per cent of the control group) believed themselves well suited for it. Thirty-nine per cent of the sample (40 per cent of the cooperative and 39 per cent of the control group) thought it a probable future field of work. Thus, there was a slightly lower proportion of respondents who desired white collar occupations than there were those who expected to attain it, yet the discrepancies between wished and probable choices were of smaller magnitude than in the case of professional and managerial work.

In 1966, 26 per cent of the sample (24 per cent of the cooperative and 30 per cent of the control group) stated that they desired to become white collar workers. Thirty per cent of the sample (35 per cent of the cooperative and 20 per cent of the control group) believed that they were well suited for such work. Twenty-seven per cent of the sample (26 per cent of the cooperative and 30 per cent of the control group) thought it probable that they would attain white collar jobs. In 1966, too, there was slight difference between desires and expectations towards white collar occupations.

Change over time was in the direction of fewer respondents desiring or expecting to be in clerical, sales and craft occupations in 1966 than in 1962, especially in the control group. The change was slight.

b. Work assignment in the program. Work assignment in the MCEP affected vocational planning in the following manner. In 1962, 50 per cent of the hospital, 35 per cent of the clerical, and 17 per cent of the park workers desired clerical-sales and craft occupations. In 1966, 29 per cent of the clerical and park workers, and 13 per cent of the hospital did. Hospital workers have come to favor white collar occupations to a much lesser

degree during the later study, and park workers have come to favor this occupational goal more in the interim between the two studies.

In 1962, 40 per cent of the clerical and 33 per cent of the hospital and park workers thought themselves well suited for white collar work. In 1966, 43 per cent of the clerical, 36 per cent of the park, and 25 per cent of the hospital workers did. Change over time, in terms of how well suited the respondents considered themselves for clerical occupations, was slight. Hospital workers tended to choose white collar work in smaller proportion in 1966, than while they were still in school.

In 1962, 67 per cent of the hospital, 40 per cent of the clerical and 33 per cent of the park trainees stated that they expected to become white collar workers. In 1966, 36 per cent of the park, 29 per cent of the clerical, and zero per cent of the hospital workers did. Hospital workers, a majority of whom expected to become white collar workers when they were still in school, have come, during three years on the labor market, not to have such expectations at all. Clerical workers themselves have come to favor white collar occupations less with time.

Differences between desires and expectations, with regard to white collar occupations, were greater in 1962, especially among hospital and park workers: a larger proportion of them expected to become clerical, sales and craft workers than expressed a desire to. In 1966, a considerably lower proportion of hospital workers had these expectations than desired to do such work. It seems that the respondents were not interested in white collar work, or did not consider it as prestigeous or rewarding as some other occupations, yet thought it a probable line of work because of its availability in the labor market.

c. Racial grouping. The students responded differencially in terms of racial group membership. In 1962, 48 per cent of the Puerto Rican, 30 per cent of the Negro, and 21 per cent of the white students indicated desire to become white collar workers. In 1966, 43 per cent of the white, 27 per cent of the Negro, and 15 per cent of the Puerto Rican students did. Change over time was great: Puerto Rican respondents tended not to choose white collar work during the later study, while white students tended to favor this choice much more in 1966 than in 1962.

In terms of the suitability of white collar work, responses of the three racial groups were as follows. In 1962, 38 per cent of the Puerto Rican students, 35 per cent of the Negro students, and 21 per cent of the white students thought themselves well suited for white collar work. In 1966, 57 per cent of the white, 27 per cent of the Negro and 19 per cent of the Puerto Rican students did. White students showed the greatest amount of change in the direction of favoring this occupational goal more over the years.

In 1962, 49 per cent of the Puerto Rican, 40 per cent of the Negro, and 21 per cent of the white students stated that it was probable for them to become white collar workers. In 1966, 57 per cent of the white, 19 per cent of the Puerto Rican, and 18 per cent of the Negro students did. In terms of expectations, white students showed a significant change toward favoring white collar work as probable, while the Puerto Rican students showed a significant change away from expecting to become white collar workers.

In 1962, Negro respondents showed the greatest amount of discrepancy between desiring and expecting to become white collar workers. In 1966, white students did.

d. Interview data. Information revealed during the interviews contradicted the findings from the questionnaires to some degree. The respondents expressed a pervasive and unconditional respect for "clean office work" and for the possibility of associating with "nice people." To work in such an environment meant to the students that they have become respected, needed members of their employing organization. Yet, in questionnaires they favored white collar work less in 1966 than in 1962.

C. Operative, service, labor and the Armed Forces as occupational goals. Operative, service, labor occupations and the Armed Forces as a career were not chosen by many respondents in the sample during either study periods, and irrespective of status in the study, race or work assignment in the MCEP. Operative and service jobs were most favored by control students in 1962 (28 per cent), by park trainees in 1962 (33 per cent), and by Puerto Rican respondents in 1966 (23 per cent). This occupational category was least favored by control students in 1966 (five per cent), hospital trainees in 1962 (zero per cent), and white students in 1966 (seven per cent).

Armed Forces careers were favored by 22 per cent of the control group in 1962 and 17 per cent of each of the hospital and park workers in 1962. Although most respondents thought of possibly serving in a branch of the Armed Forces, no one in the sample thought that they could choose and pursue an occupation transferrable to civilian life. Some of the respondents who had completed their tour of duty were able to learn a trade, although unexpectedly so.

Jobs in blue collar occupations were neither desired nor considered probable by most students, even if their early vocational experiences were

exclusively with such work. Operative and service occupations, as well as a career in a branch of the Armed Forces, were more salient choices for the respondents while they were still in school than three years later.

Respondents were also asked to indicate why they named a particular occupation as desirable, or suitable, or probable for themselves. The nature of the question effected the answers which students gave. Most students claimed to possess necessary skills for a given job when they described the motivation for choosing suitable work. Interest in the prestige value and in the non-performance aspects of a job was greatest among the respondents when they described reasons for desiring an occupation.

While they were still in school, the students desired given occupations because of its external rewards. In 1966, they tended to desire a particular occupation because they were interested in it and attracted to a performance related aspect of it. Respondents seemed to have become more realistic and relevant, then, in this respect.

In terms of suitable work, about half of the students indicated during both study periods that they had the necessary skills for it -- especially so in 1966. Uncertainty was evident among a fourth of the respondents, however, who could not answer this question.

The most salient motive for choosing a probable future occupation was interest in the work, for both study years. Here non-response and non-specific response was considerable: a third in 1962 and a fourth in 1966.

Self-Perceived Success of the Respondents

Most respondents considered themselves fairly successful at the time of the study, as compared to their peers and in relation to their own goals in

life. They felt that they had made small advancements in education and in work, and that in the future, with more experience, they could look forward to more substantial gains.

A few respondents, representing the two groups in about equal proportions, have achieved considerable financial success; these individuals are all in free lancing positions such as salesmen or stock market clerks. They are aiming for a middle class style of life, economically speaking, for themselves and for their children. Educational attainment, as such, seemed to be of secondary importance to these persons, and they have no real plans to obtain further diplomas of any kind even if they return to school for a few courses.

Nearly 12 per cent of the sample were well on their way towards a college degree. They felt successful and convinced that four years of college represent a very good investment in the future. In retrospect, they did not express bitterness over having to make up high school courses or having to enter community college before transfer to a four year college. There are no respondents in the sample who have finished a private training school, although many have taken training courses in unions or a private business school. The expense involved in such education, and sometimes the complexity of material, seemed to have discouraged most respondents who have tried it.

A few respondents believed themselves to be failures. They are very withdrawn and upset individuals. Some of them seem to be excessively puritanical, considering a good reputation their strongest asset. Alternatively, some exhibit a great deal of instability in their pursuits, thoughts and mannerisms. In spite of varied ideas and a relatively high degree of flexibility and entrepreneurialship, they seem to lack adequate information,

funds or perseverance in their pursuits to take decisive steps to improve themselves. Both of these types of self-perceived failures are likely to feel cheated by someone, somewhere in the educational system or the MCEP. They feel caught up in a vicious circle and often just wait for a nondescript "break."

These are illustrations of self-assessed success or failure by the respondents:

"I think I've been unsuccessful, because when I started getting these jobs that pay only $50.00, and that wasn't enough for me, and most jobs that you go for they ask you for schooling and training, and seeing whether you have some special training in the job you're applying for, and if you don't, they probably won't hire you. And I was disappointed in that because I had worked two years as a trainee for the _____Department and I thought that was sufficient training for a person."

"I am successful in my present job. They sent me to learn IBM machines, and now I'm working with these machines, so it's very good. It opened a big door for me. And that's a good field if you want to keep at it."

"I should have stayed in school, and I found out too late that I should have stayed. The program is good only for certain people, but it could hamper him from further education."

"Well, I left school three years ago, and I think I have been quite successful so far, I'm progressing very good. I've still got the same kind of work and I enjoy it."

"Right now, as far as being secure and successful, no. Because when I left the co-op, I worked on stock in a department store and this was very

boring and disgusting to me, and now I am working very hard. There aren't too many people who can do what I do."

"I think I have been some sort of success. I am in an Art store, I met a couple of people in the art field, and had a number of small exhibitions myself, as a matter of fact, as part of my plan."

"I thought right off that a man in the nursing co-op could get somewhere, a good position in a hospital, that they would gradually teach you how to be a male nurse and go into this branch and into that hospital. They said dietary aide ...I said okay. But I never knew what it was...then I gradually changed my mind about the whole thing."

"I got a lot of experience on my job, which is to my advantage now that I am out of high school and going towards making a livelihood. I do printing now for a private firm and when I was in the co-op program, I was doing printing...and now the experience helped me."

CONCLUSIONS AND RECOMMENDATIONS

The MCEP did indeed make some positive contributions to the lives of the cooperative students. Most participants seemed to be students who needed an opportunity to engage in activities in addition to, and different from, those the school system usually makes available, and most of them were able to benefit from this chance. Although they were not achieving well in school, most participants were able to perform adequately in the MCEP because they were adequately invested in improving themselves. The target population of the program thus seemed to have been reached.

An advantage of the MCEP is that it operates through a structure built into the curriculum of the school and the schedule of the students. This

circumstance allows for security and permanence in the administration of the program. The participants can also benefit from this structure because in order to take part in the program they need not disrupt the normal course of their lives. Therefore, they do not face the problems of transition back into their preprogram lives. This difficulty is germain to short, intensified programs which require students to be exposed to learning in an environment segregated geographically and socially from activities and pursuits in which they are ordinarily engaged.

1. Concentration on the content of program offerings.

The MCEP is only as good a work-study program as is the quality of its essential components, education and vocational training. By making partial entry into the labor market possible, the schools and the MCEP do not forego the responsibility to provide quality education to the students. A limited version of the general diploma curriculum, especially under segregated conditions, is not an adequate basis for an adolescent on which to build significant advancement. Separate classrooms for the cooperative student increase the stigma of the general diploma rather than counteract it. Since the program exists in order to improve the occupational life chances of its participants, the responsibility to provide quality education is even greater than it would be in the absence of the program. Evidence from the present study indicates that benefits accrued during two years of experience in an entry job do not compensate for lack of quality education and lack of a prestigious diploma. This becomes apparent to cooperative students too, after three years on the labor market.

The character of the trainee jobs should be reviewed carefully. Washing dishes, scrubbing floors and picking up cigarette butts or collecting refuse are legitimately existing tasks in our local economy. This same economy also includes many individuals who, for lack of marketable skills, or for need of money, will accept these positions. However, the MCEP offers a promise of vocational training and imposes a limitation on the ability of the students to change jobs. Therefore, under the guise of help it is irresponsible and damaging to adolescents to assign them to jobs which they find degrading, uninstructive, and which they cannot easily leave. The first contact of young people with the world of work and with the adult world, especially if that contact is entered into in search of an opportunity for self-improvement, is significant. In the opinion of the writer, the MCEP would be considerably improved if instead of increasing the quantity of traineeships, it made only those positions part of the program which provide training for marketable skills in surroundings which are physically, socially and psychologically desirable.

The scope of job offerings could also be widened to include the more advancement-prone and more meaningful assignments to be found in Civil Service. A number of the respondents expressed interest, for example, in attending the police training academy as part of the MCEP, with an option to take the Civil Service examinations upon completion of the program, as is the case at present with other traineeships. Similarly, some respondents were interested in becoming firemen. Most of them preferred white collar positions and perhaps more of these could be made available. Often it is the conditions of work which make an office job attractive rather than its duties. "Nice people" and a "clean office" are important signs of becoming

respected members of society. This desire underlines the disappointment and feeling of shame which trainees feel in park and some hospital appointments.

Furthermore, entry positions filled by the cooperative student have to be conceived of as learning situations. Supervisors, co-workers and the program coordinator can insure that each trainee is exposed to a variety of skills. In two years, there is ample opportunity for this. Perhaps work assignments on a rotating basis -- with a new set of duties every six months -- could be a workable solution and trainees would experience a wider range of duties, institutional settings and people. They could then have increased information on the basis of which to make vocational decisions.

Another avenue for making work in the MCEP more meaningful would be the establishment of a promotion scheme. If possible, within the confines of regulations and limited number of jobs, the program administrators could try to institute ways for deserving trainees to advance to better and higher paying jobs during their second year of program participation.

2. Guidance in the MCEP.

Students seemed to be in intense need of counseling at all phases of program participation. At the time they first heard about the MCEP and decided to join it, they made decisions in some instances on the basis of grossly inadequate and often erroneous information. Typically, the students did not know what their high school diploma status was and whether entry into the program would effect such status. Often students believed that they would automatically continue in Civil Service, although they heard information to the contrary. It is not enough to tell the potential trainees about the program just once; they need to understand their condition thoroughly

and this requires several discussion sessions with them. Individual meetings may not always be required. While the evaluation and discussion of school records is fruitfully achieved through individual discussion sessions, small groups are adequate for disseminating information and for vocational counseling.

Periodical discussion concerning the nature of traineeships and the possibility of job transfers or promotions would be very desirable. The students seemed in intense need of an opportunity to verbalize their feelings about school and work and to have access to an informative, respected person to help them examine the meaning and the import of their experiences in the MCEP. Too many cooperative students have little respect for members of their families or their friends, as sources of information and therefore, have no one to talk to. Under these circumstances they often make inadvisable vocational and educational choices, or use their opportunities poorly.

Again, at the time of leaving the program the students need to reexamine alternative steps to be taken upon becoming independent agents on the labor market. By the end of the senior year, they have a renewed interest in the future. Yet, most of them have no information about institutions for training and learning, do not know how to acquire this information, do not know the costs involved in attending schools, and do not know of financial aid programs. Therefore, they are unlikely to implement their plans for further learning -- even in those instances where such plans are quite realistic and quite specific.

The need for guidance is paramount in most New York City high schools and for most high school students. Even college bound "advantaged" students often make unwise choices due to lack of information and counseling. Yet,

the administrators of the MCEP have assumed responsibility towards the young people they attempt to help and, therefore, they should make every possible effort to include a combination of information disseminating and guidance service in the program. Again, a very important consequence of the absence of such services, or the existence of cursory counseling, is that the co-operative student feels as if he is not important to anyone, and is an "out-cast" (their word). By adding a "guidance-coordinator" to each school as part of the MCEP staff, significant ongoing contributions could be made towards alleviating student problems and towards maximizing the meaning and the benefit which each student receives from the program.

3. Contact between the two agencies administering the MCEP.

It is important for smooth, constructive operation of the program, that the Board and the Department cooperate. The evaluation uncovered no desire on the part of the students to have the content and subject matter of school and of work related. For the following reasons, the writer does not find it to be of value either. On the one hand, education is important in and of itself. Its benefits should be manifold and extend beyond the work experiences made available during the MCEP traineeships. On the other hand, the cooperative jobs themselves are not difficult -- objectively and in the eyes of the students -- and therefore, need no accompanying instruction; this program is not an attempt to supplement vocational high schools. Because the students are likely to go on to work and to study in fields different from their cooperative assignments, they need not receive a complete vocational training course.

What would be of benefit to the student, in addition to improved educational background, is a more versatile and thorough preparation for the period of transition and decision making that he faces immediately after high school. He needs tools for self-management and informed decision-making. The work bound student needs to know with confidence, what field of work he would like to enter, with what kind of employing agency he wants to be associated, what conditions of salary, benefits and advancement possibilities he can expect and how to obtain them. While he is looking for a job, he needs to know how to maximize the use of job related information such as references, resumes and newspaper ads, and how to make use of agencies, vocational counseling and interviews.

Students may decide to undertake further education or training. They should be able to make this choice rather than be circumstantially barred from it. If they would like to go to school, the students should have familiarity with the processes and criteria for selecting a school and a curriculum, procedures for application, with ways to plan and to attain financial support.

These problems and decisions are germain and inevitable in the life of all high school leavers. Because the MCEP was undertaken precisely to try to improve the chances of its participants for educational and vocational survival, perhaps the most important function of the program is to provide the student with means to increase his knowledge and with ability to use information optimally.

The two departments, through which the program is administered, could share the responsibility not only for exposing the student to a variety of work milieu, but also for disseminating and discussing vocational information

and for interpreting information and experience to the student. Part of this could take place on school time, part of it on work time, for a total of perhaps a half a day, every week.

The student can grow in his ability to verbalize and interpret the world of work if he has recurring opportunity to assess it. The Board and the Department could maximize their mutual cooperation along lines of providing an information disseminating and counseling course to the cooperative student, and thus assist each other in the effort to guide the vocational and personal development of the program participants. This "vocational course" could include field visits to work sites, whether or not to agencies associated with the MCEP, it could include small discussion groups about the meaning of school and work experiences, it could include practice testing, interviewing and job application. Most importantly, it could give the student basic information on the spectrum of his opportunities, and a feeling of perspective concerning his present and potential dilemmas and achievements.

APPENDIX A

CORRESPONDENCE WITH RESPONDENTS

February 7, 1966

Dear Mr.

A couple of years ago, when you were still in high school, your school took part in the Municipal Cooperative Education Program. You or some of your friends may have been part of this program in which students worked every other week in a department of New York City.

The City has asked us at the Center for Urban Education to talk to some former high school students and members of the program, to find out how you feel about your experiences and whether you received any benefits from them. The Center is a university-connected, independent research institute.

We hope you can meet with us for about a couple of hours to discuss the program and your job searching activities. Anything you tell us will remain confidential. We are able to pay you $10.00 for your time. We plan to begin in the next six weeks. We will set the appointment at a time and place convenient for you, during the day, evening or on the week-end.

Please be kind enough to return the enclosed stamped post card at your earliest convenience. Please fill in the card completely.

We hope you will take part in this project so that the City can better assist other young people to get jobs and develop skills.

Sincerely,

Eva Vambery

EVA:mab
enc.

P.S. If you have any questions, please call me at 244-0300.

CENTER FOR URBAN EDUCATION 33 WEST 42 STREET, NEW YORK CITY 10036 *212-244-0300*

CENTER FOR URBAN EDUCATION
33 West 42 / New York City / 10036

Tel.: 244-0300

Dear

Thank you for your interest in the Municipal Cooperative Education Program. Many of your former fellow students have also sent their cards back to us already.

Now we work on setting up appointments and we will call you shortly to talk about a time and place convenient for us to meet.

Please feel free to call if you have any questions.

Sincerely,

Eva Vambery

Center for Urban Education
33 W. 42 St.
New York City 10036
Att. Vambery Room 1726

THIS SIDE OF CARD IS FOR ADDRESS

_____ Yes

_____ No

Name:

Address:

Telephone number:

APPENDIX B

RESEARCH INSTRUMENTS

Evaluation of the Municipal Co-
operative Education Program
Eva A. Vambery, Project Director
Spring 1966

Questions on which to base discussion in the group interview.

Why did you take part in the cooperative program?

Why did you not take part in the cooperative program? (control)

Did anyone suggest it to you? Who?

What were you looking for when you joined?

Were you part of a similar program before or since?

Did your family and friends support or oppose you?

Did you know much about it before hand?

Did you have an occupation in mind for yourself when you started?

Did you show preference for some kind of work in the program or did you feel that any job would be good experience?

Did you consider the Armed Forces as an alternative when you finished high school?

Did you have plans for any work or training in the Armed Forces in the event that you went?

Did you belong to any organizations: social, political, hobby, religious? Do you still?

When in the program, what did you do?

Who taught it to you?

Did you get much training? Did you learn different things as time went on?

Did anyone tell you whether you did your job well or poorly?

Were you familiar with ways to make a complaint? Ways to show your talents?

Were you "at home" in the office (or shop)?

Did you ever think that the work was silly?

Did your job give you ideas about work you might do after finishing high school?

Did anyone at school discuss your experiences with you?

Did you feel the need for such discussion? Were your friends any help?

Were you familiar with the promotion schedule of the job you held in the co-op?

Did you have any idea what went on in the rest of the program or pretty much the work you did only?

Would you say that taking part in the program is largely an individual experience or a group experience?

Did you get any guidance service? Did you want any?

Did you learn about tax returns, benefit programs, union membership, associations at work? Where?

Did you learn about ways to get a job? Such as agencies, newspaper ads, counselors, references, resumes?

Did you ever go to a youth placement organization for help? Did they help you?

What was the shortest time period you were unemployed? The longest?

Would you consider yourself being fairly successful or rather unsuccessful since you left high school? Do you think you are getting somewhere, even if slowly? Do you tend to keep jobs longer than before? Do you tend to get more pay?

Did you stay with the program till the end?

Did you work at something you wanted? Did you like what you did - even if not your first choice?

Would you do it over again?

Would you tell a younger brother or friend to take part in the program?

Do you think this program is better suited for boys or girls?

How soon after graduation did you get your first job?

Did it resemble the co-op job you had? In what ways?

Did you get a good recommendation from your program supervisor - for your own purposes?

Did the program change your ideas about your plans for work? Did it point to areas in which you wanted training?

What other work would have been more (or less) of a learning experience?

What about the work (or school) would you change?

Would you abolish the program?

C E N T E R F O R U R B A N E D U C A T I O N
33 West 42 Street / New York City / 10036 244-0300

Dear Mr

You remember that last Spring you took part in a discussion about the Work-Study program together with some of your classmates. This was done so that we can improve on the program for the younger people who are now in it, and who will join it in years to come. You were very helpful by coming to the interview and telling us what the program is really like.

There are several questions which still have to be answered however. I would like you to cooperate again, and I will compensate for your inconvenience by sending you $15.00 after our discussion. Please let me know your present address: _____

_____

Your telephone number: _____

What day and hour of the week you are free for an hour or two:

_____

Please return this letter when you filled it out in the envelope I included. I will call you shortly. If you have any questions feel free to call me at the Center: 244 - 0300, extension 52.

I hope to hear from you soon. Thanks,

Eva Vambery
Eva Vambery

ev:la

PROCEDURE FOR THE GROUP INTERVIEWS
Evaluation of the Municipal Cooperative Education Program
Eva A. Vambery, Project Director
Spring 1966

You are mediating a discussion focused around experiences in the cooperative work-study program, and its value during post high school years. The interview is conducted in the form of a group discussion in order to put the respondents at ease, and to juxtapose a variety of opinions in an attempt to clarify them. You can make all the difference: be mediator of an easy-flowing discussion; this is not a question-answer session.

At the beginning, state clearly what the purpose of the interview is and how the interviewee is to take part in it.

We are trying to discover what it is like to be in the program, so that we can improve on it in the future. If the respondents understand what is expected of them, they are likely to cooperate. Indicate that you represent an independent research organization, that neither schools nor employees will have access to any written or verbal material the respondents give. Indicate also, that their cooperation is particularly valuable and important because only participants of the program or those who had the direct experience of being young adults looking for jobs and applying to schools can tell us what those encounters are like. Outsiders usually hold different views from those who participate.

The opening question is very important. It orients the respondents to the time and place to be discussed. Throughout the interview, try to keep the discussion around the predetermined topics.

Do not let interviewees "get away" with generalized statements or lists; ask them to specify aspects of experience, encourage them to describe their reactions to experiences on all questions. If a respondent poses a question to you, answer it only if it relates to procedure or to the nature of our research. If the question is meant to change the subject, or if the respondent wants your opinion on a topic, do not answer, but redirect the question to him.

Agreement among the members of a group cannot be expected. We anticipate variations of opinion within a group, and from interview to interview. Sometimes we will encounter personality clashes. But we want to hear from everyone.

Your function is dual: you listen, much like the tape-recorder in the room, and you mediate discussion. Interfere only when no one else speaks. Be sure that discussion proceeds smoothly, that all essential points are covered by all respondents, that everyone has a chance to speak, and that any confusing but relevant issues are clarified. Because the respondents are the witnesses in the schools and on the jobs, they are in the best position to tell about these experiences. We are also interested in the outcome of the events, and we want to know their opinions, as well. There are no "right" or "wrong" experiences, only real, or unreal, beneficial or not. Do not correct interviewee statements: they were there, you were not -- they lived with the results and made decisions on the basis of their opinions, you did not. We are to find out, <u>not</u> to give them advice or render a service, at this point.

Emphasis is on reporting, not on judgment of interviewees or their opinions. You are to be interested but detached.

Do not show how you are effected by the accounts you hear. Do not interrupt an interviewee, that would cause loss of spontaneity and would put the respondents on the defensive. The groups meet because we are interested in all views, no matter how varied, not to pass judgment on them, nor to take sides. Do not challenge interviewees to defend their position, only try to make them explain what they mean. Consistency or logic are not the objects of the group interview, effects of respondent experiences, as they see them, are. Choose your language to facilitate and maximize communication in the group and to elicit as much information as possible.

The following questionnaire is part of the study of the Municipal Co-operative Education Program in which many high school students in New York City participate. You have already taken part in a discussion about this program last Spring. There are still some questions I would like you to answer. Please fill out this form now as completely as you can. All your answers will be confidential; none of your employers and no one from school is going to see them. Your cooperation is important because we are trying to make this a better program for the young people who are now in high school. They can benefit from your experiences.

Please answer in detail and accurately. You can write additional comments that you think are important on the margins. I will help you if you have any questions. Thank you for your help.

Examples: Did you go to high school? (check one) Yes_____

No_____

Which high school did you go to? (Answer in your own words)

Name _____

Address: _____

Telephone Number: _____

Age: _____

Date: _____

School: _____

In the Cooperative Program? Yes_____

No_____

How old were you when you got your first job? _____

Did most of your friends have jobs by then? Yes_____

No_____

How old were you when you got the first job you stayed with for more than six months? _____

Why did you get your first job? _____

_____

How did you hear about it? _____

How did you find out whether this was the kind of job you wanted? _____

_____

What else could you have done to size up the job better? _____

_____

How much did you make? Starting salary: _____

Final salary: _____

What were your duties on your first job? _____

_____

What skills did you learn on this job? _____

_____

What did your duties have to do with your education, training or interests?

_____

In what ways was the job different from what you expected? _____

_____

How long did you stay on your first job? _____

Why did you leave? _____

Did other workers on the job talk to you about their own

Problems _____

Advancements _____

Social life _____ (check as many as needed)

What was the best advice they gave you for advancing yourself? _____

_____

Did you follow this advice? Yes_____

No_____

If yes, did you get a better job as a result? _____

did you go back to school as a result? _____

Did you ever have a disagreement with your supervisors on your first job? _____

What: _____

How did you handle it? _____

How would you handle it today? _____

Did you ever have a disagreement with another worker on your first job? _____

What? _____

How did you handle it? _____

How would you handle it today? _____

Was your supervisor "good" in your opinion? Yes____

No____

In what ways? _____

What should he have done to be a better supervisor? _____

_____

Did you ask for:		Did you get:
_____	Promotion	_____
_____	Raise	_____
_____	Recommendation	_____

Did they ask you to stay? Yes____

No____

Did you have sick leave: _____

vacation: _____

union membership: _____

health benefits: _____ (check as many as needed)

Did the job satisfy you in terms of (check as many as possible):

	Yes	No
pay	_____	_____
duties you had	_____	_____
chance to learn skills	_____	_____
people - make friends	_____	_____
promotions - chance to advance	_____	_____

(this question continued on page 5)

	Yes	No
benefits - vacations, medical plan	_____	_____
environment - nice place	_____	_____
use of education and training	_____	_____
responsibility in your work	_____	_____
interest in the work	_____	_____
independence - light supervision	_____	_____
other (specify)	_____	_____

How important was your first job in terms of your future work? _____

_____

When you were in the last year of high school, how important did you think education was for your future? _____

Today, how important is education for your future? _____

What do you consider most important in a job? _____

_____

Are you working now? Yes_____ How long are you on this job? _____

No_____ How long have you been out of work? _____

About the job you now have, or the last job you had when you were working, if if you had it for at least three months:

Why did you get this job? _____

How did you hear about it?_____

How did you find out if this was the kind of job you wanted? _____

_____

What else could you have done to size up the job better? _____

_____

How much did you make when you took the job? _____

How much do you make now (or when you left)? _____

What are your duties? _____

_____

What skills are you learning? _____

_____

What do your duties have to do with your education, training or interest?

_____

In what ways is the job different from what you expected? _____

_____

Do you plan to stay on this job? Yes_____ Why?_____

No_____ Why?_____

Do other workers on the job talk to you about their own (check as many as needed):

problems _____

social life _____

advancements _____

What is the best advice they gave you in order to advance yourself? _____

_____

Did you, or are you planning to follow this advice? Yes_____

No_____

What are your REALISTIC plans for further education or training? _____

_____

Did you every have a disagreement with your supervisor on this job? _____

What? _____

How did you handle it? _____

Did you ever have a disagreement with a co-worker on this job? _____

What? _____

How did you handle it? _____

Is your supervisor "good" in your opinion? Yes____

No____

What should he do to be a better supervisor? _____

_____

Did you ask for:		Did you get:
_____	Promotion	_____
_____	Raise	_____
_____	Recommendation	_____

Do you have sick leave: _____

vacation: _____

union membership: _____

health benefits: _____ (check as many as needed)

Does the job satisfy you in terms of (Check as many as needed):

	Yes	No
pay	_____	_____
duties you have	_____	_____
chance to learn skills	_____	_____
people - make friends	_____	_____
promotions - chance to advance	_____	_____
benefits - vacations, medical plan	_____	_____
environment - nice place	_____	_____
use of education and training	_____	_____
responsibility in your work	_____	_____
interest in work	_____	_____
independence - light supervision	_____	_____
other (specify)	_____	_____

How important is this job in terms of your future work? _____

How many people lived in your home when you were in high school? _____

How many people who lived in your home then graduated from high school? _____

	lived in your home	graduated from high school
friends	_____	_____
father or guardian	_____	_____
mother or guardian	_____	_____
older sisters or brothers	_____	_____
younger sisters or brothers	_____	_____
grandparents	_____	_____
aunts or uncles	_____	_____
other (specify)	_____	_____

(check as many as needed)

Did you talk to them about your plans for the future? Yes____

No____

Whom did you talk to? _____

What did you talk about? _____

Did you talk to them about school? Yes____

No____

Whom did you talk to? _____

What did you talk about? _____

Did you talk to them about jobs? Yes____

No____

Whom did you talk to? _____

What did you talk about? _____

Can you talk about a problem with them? Yes____

No____

Whom can you talk to about a problem? _____

Did they ever influence you in the kind of school you attend? _____

job you got? _____

Who in your family was able to help? _____

Are you married _____

divorced _____

separated _____

bachelor _____

Do you have any children? age _____ sex _____

age _____ sex _____

age _____ sex _____

What work would you do if you were (not) married? _____

a father? _____

How many times did you move in the last 5 years (not including service in the Armed Forces, vacations or institutionalization)? _____

Have you lived away from your parents during the past 5 years?(not including service in the Armed Forces, vacations or institutionalization)?

No_____ Yes_____: with my own family _____

with relatives _____

with friends _____

alone _____

What did your father do 5 years ago? _____

What does he do now? _____

Did your mother work 5 years ago? No_____

Yes_____: part-time _____

full-time _____

Does your mother work now? No_____

Yes_____: part-time _____

full-time _____

How many persons in your household work part-time: _____

full-time: _____

How many people live in your home now? How many graduated from high school?

father or guardian	_____	_____
mother or guardian	_____	_____
older siblings	_____	_____
younger siblings	_____	_____
grandparents	_____	_____
aunts or uncles	_____	_____
friends	_____	_____
wife	_____	_____
children	_____	_____
other (specify)	_____	_____

Who among these persons contributes money to the household? _____

_____

How many jobs have you had all your life? _____

How many jobs did you have for more than 6 months? _____

How many of the jobs you had were an improvement over earlier jobs? _____

_____

How long were you unemployed (if longer than one week): first time _____

second time _____

third time _____

fourth time _____

fifth time _____

sixth time _____

more if necessary

Do you have a car? _____ Does your family have a car? _____

Do you have a TV? _____ Does your family have a TV? _____

Were there any job opportunities for you that you did not take? Yes____No_____

What? _____

Why did you not take these jobs? _____

Were there any jobs you would have liked but could not have? Yes____ No____

What? _____

Why could you not have these jobs? _____

_____

Were there unexpected "lucky breaks" in your life? Yes_____ No_____

How did you take advantage of them?_____

What were they? _____

Did you or do you have special problems that keep you from having equal opportunity? Yes_____ No_____

How did you cope with them? _____

What are these handicaps? _____

Which of these changed your ideas about education or training?

jobs you turned down _____

jobs you could not have _____

"lucky breaks" _____

special problems _____

What new ideas did you get from these events? _____

_____

What work would you be doing if you had no "lucky breaks" and no special problems? _____

Do you think New York City has good opportunities for your kind of work?

_____

Did you ever think of moving? _____ Did you ever move? _____

How would you describe yourself-what is your trade? _____

_____

If you were a supervisor why would you hire yourself? _____

_____

Why would you not hire yourself? _____

_____

Describe in detail the advice you would give a brother 4 years younger than yourself (if you had such a brother) about the kind of education and training he should get:

_____

_____

_____

_____

Who was the most important person in your life? _____

How did this person influence you? by talking with me _____

by showing things to me _____

by his personality _____

by his success _____

(check as many as needed)

Did this person influence your education _____

training _____

way you spend your free time _____

social life _____

work you did _____

friends you have _____

(check as many as needed)

What was the most important experience in your life in terms of (answer all):

friends you have _____

education _____

way you spend your free time _____

training _____

work you did _____

social life _____

How many very close friends do you have? _____

How long have you been friends? _____

Do you talk to them about (check as many as needed):

other friends	_____	money	_____
girls	_____	hobbies	_____
family matters	_____	politics	_____
jobs	_____	sports	_____
school	_____	other	_____

Do you have friends that you live with _____

go to school with _____

work with _____

go out with _____

do athletics with _____

hang out with _____

other (specify) _____

(check as many as needed)

What do you do in your spare time?

movies _____

TV _____

read _____

records _____

radio _____

study _____

sports _____

hang-out _____

dates _____

other (specify) _____

(check as many as needed)

What would you like to do in your spare time that you cannot afford? _____

_____

When do you think you will have enough money for it? _____

Are you satisfied with the way things are going for you? Yes____

No____

Are members of your family satisfied? Yes ____ No ____

Are your friends satisfied? Yes ____ No ____

Is your wife or girl friend satisfied? Yes ____ No ____

What school or training center did you attend for more than 6 months since you left high school? _____

_____

What was your major in those schools? _____

Did you graduate? _____

Why did you go there? _____

Do you think the training was good, average, poor? (circle one)

Did you get a job related to the learning/training you got there? Yes____

No____

Was the training very different from what you expected? Yes____

No____

Could you have changed schools _____

or majors _____ after you enrolled?

How could you have found out more about the school? _____

_____

What did you learn in this course? _____

_____

What new ideas did you get about your job prospects? _____

_____

Were you satisfied with homework _____

grades _____

expenses _____

teachers _____

tests _____

people _____

extracurricular activities _____ (check as many as needed)

What did you family think of the school? _____

friends _____

Would you recommend it to your brother who is 4 years younger than you (if you had such a brother)? _____

Would you now go to that school? _____

Do you think you got a lot out of it? _____

What other training or studying did you think of trying? _____

_____

What other training or learning did you do for a short time? _____

_____

Do you think your future is shaping up _____

partly in good shape _____

mostly unknown yet _____

On your present job can you use your best skills _____

greatest interests _____

personality _____

highest educational qualification _____

Do you think there is a job where you can use them? _____ What? _____

_____

How close are you to getting such a job? _____

What will you do to get such a job? _____

How did you pay for your training after high school? _____

How do you plan to pay for future learning? _____

What field of work would you most like to be in? _____

What specialty of that work would you most like to do? _____

Have you ever had a job you liked very much? Yes_____ No_____

What? _____

Is this a job someone without any training can do? Yes_____ No_____

How much planning have you done for your future? Lot _____

Some _____

Little _____

Would it be any use to do more planning for your future? Yes _____

Why? _____

No _____

Why not? _____

Compared to your friends of the same age, and who do similar work, have you made a lot of progress _____

same amount of progress _____

little progress _____

Do you think you have a choice about work _____

school _____

Do you think you have to take pretty much what comes along in work _____

in school _____

PLANNING QUESTIONNAIRE

MCEP FORM

NAME (Please Print)

_____ GRADE _____ DATE _____

DIRECTIONS: In this questionnaire, you are asked to think about what you would like and also about what you really expect. Sometimes it is hard to think ahead in this way but try to answer each question as best as you can. Read the questions carefully before answering: and if you cannot answer, write the words, "don't know." Do not write "don't know" unless you are sure you cannot answer. Remember, some questions will ask you what you would like and other questions will ask what you really expect.

1. WOULD LIKE. If you had the chance to go into any kind of work you wanted as an adult, say 15 years from now, what occupation would you choose? Think only of what you would like to do, what you would be happy at. Do not think about the abilities required or the training which is necessary to get into this kind of work. Just write down the name of the occupation you would like to be in. If you want more than one, write these down, but put your favorite one first.

_____

_____

Now tell why you would like the kind of work you wrote down above.

_____

_____

2. BEST FITTED. You have given the name of one or more occupations that you would like more than any others. Now think about your skills and abilities and put down the name of the occupation that you think you will be best suited for as an adult.

_____

Why do you think you will be best suited for this occupation?

_____

_____

3. EXPECT. People sometimes think about what they would like to be, although they don't really believe it could come true. They also usually have a fair idea of what they actually will do. Now think about what you will really be as an adult, say 15 years from now. What occupation do you actually expect to be in?

_____

_____

Why do you think you will really be in this occupation?

_____

_____

4. You have just put down the name of the occupation you expect to be employed in as an adult. Do you like this idea?

(Check one) _____Yes _____No

Why? _____

_____

5. WOULD LIKE. If you had the chance to go to work whenever you want to, how old would you like to be when you begin working at a full-time job? Look at all the possibilities, then circle one.

16 17 18 19 20 21 22 23 24 Older

6. EXPECT. Now show in the same way how old you think you really will be when you begin working full-time.

16 17 18 19 20 21 22 23 24 Older

Why do you think so? _____

_____

7. WOULD LIKE. At what age would you like to quit working: that is, retire or do anything else that you please? Put a check in front of the age group that fits your idea. Look at all the answers before you check any.

_____Younger than 35.
_____Between 35 and 40.
_____Between 40 and 45.
_____Between 45 and 50.
_____Between 50 and 55.
_____Between 55 and 60.
_____Between 60 and 65.
_____Between 65 and 70.
_____Between 70 and 75.
_____Older than 75.
_____Don't know.

8. EXPECT. Now show in the same way how old you think you will really be when you will be able to quit working and retire?

_____Younger than 35.
_____Between 35 and 40.
_____Between 40 and 45.
_____Between 45 and 50.
_____Between 50 and 55.
_____Between 55 and 60.
_____Between 60 and 65.
_____Between 65 and 70.
_____Between 70 and 75.
_____Older than 75.
_____Don't know.

Why do you think so? _____

_____

9. WOULD LIKE. If you had the chance and would like to go to school or college after high school, what kind of school would you like to attend? Put the number "1" next to your first choice and a number "2" next to your second choice. Read all choices before answering. If none, check.

_____None
_____Just college
_____Teachers College
_____Engineering College
_____College or University School of Business
_____College or University School of Agriculture
_____Trade School
_____Two-year Technical Institute
_____Two-year Agricultural School
_____Private Business School
_____Some other kind. Write it here:_____

10. EXPECT. Now, put a check in front of the school you actually expect to go to If none, or don't know, write it here: _____

_____Just college
_____Teachers College
_____Engineering College
_____College or University School of Business
_____College or University School of Agriculture
_____Trade School
_____Two-year Technical Institute
_____Two-year Agricultural School
_____Private Business School
_____Some other kind. Write it here: _____

11. WOULD LIKE. Thinking about school and college, if you had the chance to get as much education as you want, how much schooling would you like? Put a check next to the amount of schooling you would like to complete. Read all choices before answering any.

_____11th grade (5th and 6th terms)
_____12th grade (graduation from high school)
_____13 years (one year of college or other training)
_____14 years (two years of college or other training)
_____15 years (three years of college or other training)
_____16 years (graduation from college)
_____17 years (one year after college for additional training)
_____18 years or more (advanced education)

12. EXPECT. Some people would like to go to school or college but don't always get to go as long as they want to. As you look ahead, how many years of schooling do you actually expect to complete? Put a check next to the number of years you expect to attend school.

_____11th grade (5th and 6th terms)
_____12th grade (graduation from high school)
_____13 years (one year of college or other training)
_____14 years (two years of college or other training)
_____15 years (three years of college or other training)
_____16 years (graduation from college)
_____17 years (one year after college for additional training)
_____18 years or more (advanced education)

13. WOULD LIKE. If you plan to go to work full-time after finishing high school, would you like to attend some kind of school at night?

(Check one) _____Yes _____No _____Don't Know

14. EXPECT. After you go to work, do you think you will really go to some kind of night school?

(Check one) _____Yes _____No _____Don't Know

15. Right now, would you rather go to school or work?

(Check one) _____School _____Work _____Both

16. WOULD LIKE. When you get your first full-time job, how much money would you like to make a week? _____

17. EXPECT. How much money do you really expect to make when you get your first full-time job? _____

18. WOULD LIKE. When you are an adult, say 15 years from now, if you could earn as much money as you'd like to have, how much money would you like to make each week? _____

19. EXPECT. Although you have just indicated how much you would like to earn, how much do you really expect to make a week, say in 15 years from now?_____

20. WOULD LIKE. Would you like to enter some kind of military service?

(Check one) _____Yes _____No _____Don't Know

21. EXPECT. Do you actually expect to enter some kind of military service at some time?

(Check one) _____Yes _____No _____Don't Know

_____By draft
_____By enlistment
_____Other

22. As you see it, what would military service do to your plans? Check only one, but read all the possibilities before checking.

_____Help me with my plans.
_____Make no difference in plans.
_____Upset things somewhat.
_____Upset my plans seriously.
_____Would have to wait until after service to make plans.
_____I haven't given it any thought.

Now add anything here that would give a better idea of how military service would affect your plans.

_____

_____

23. WOULD LIKE. If everything could work out the way you'd like it to be, how old would you like to be when you marry? Write the age here. _____

24. EXPECT. Sometimes people don't get married at the age they would like to because of different reasons. How old do you think you will actually be when you get married? _____

INTERVIEW OUTLINE FOR CO-OP

Introductory Statement

I'd like to talk with you this _____ about the cooperative program, what it is like, and how you have found it. We're talking with you because that is the best way to find out how things are going. Everything you tell me will be kept confidential. I am not with the civil service or the Board of Education but with the Manpower Utilization Council, -- they're the ones who arrange for all these jobs. I'd also appreciate it if you kept our conversation confidential because it works out better if we can talk with each student this way -- if he just comes in and talks with us. I'm putting this on tape so I won't have to write everything down while I talk with you (puts on recorder). Are there any questions you'd like to ask me at this point? After opportunity, "Well then, how are things going?"

May be followed by Leads 1, 2, or 3.

Lead 1. Tell me about your job.

Primers:

Tell me about your duties. How did you or do you feel about them?
*What do you like best about the job? like least?
How do you find the amount of work you have (stress, strain, hours, breaks, overtime?)
*What do you think about your boss thinks about your work?
*How do you feel about the way you handle the work?
How well do you feel you were prepared for this kind of work?
*What about the things you've learned at work?
*What about the people you work with? Supervisor, regular workers?
*Where do you think this job could lead? Is this a good opportunity for you?
How do you feel about staying on at this job?
*What do you think of your earnings (pay)? What are some of the things you have bought? How do your earnings affect your life?
*Will you be saving very much? Any plans?

Lead 2. How are things going in school?

Primers:

*What is your favorite subject? (What he likes about it, classroom behavior, etc.)
What subject do you like least? (develop)
Tell me about your other subjects.
What sort of grades are you getting?
Do you think your teachers mark you pretty fairly?
*Do you think you could get higher marks? (attitude toward achievement in school)
*Are you getting the sort of courses you want?
*How do you feel about school in general?
*How do your parents feel about your schooling? Marks?
With whom do you usually discuss your school plans? What do you usually talk about?

*What are the main things you get out of going to school? What program would you take if you could arrange it?
Suppose you were principal, what changes would you make?

There are other things one can do in school besides take subjects.
What are some of the things you do?
What do you think about the sports program? (Clubs, other activities?)
Do you plan to enter any new activities this (next) year?

BRIDGE AS NECESSARY

Lead 3. I'd like to get a better picture of you outside of school or work. Can you tell me about the things you do in your free time? What do you usually do after school (or work) is over? (Get perception of his ability and skill - evidence of continuing interests - role in activity - satisfaction derived from activity (mastery, prestige, belongingness, etc.)

With whom do you spend most of your free time? (develop to find out more about this group and his role in it.)
Do you have much time for dating? (Get relationship with boys, girls)

Primers: (briefly, be selective)
weekends
sports
hobbies
clubs and other organized groups
social activities, dates, etc.
reading, What? Where get books?
any shop or mechanical work?
radio, TV, movies?

*Of all the things you do in your spare time, what do you like the best? Why? What else?

BRIDGE

Introductory statement -- Very often one's family has a lot to do with choosing a career, and so it is of interest to us here. Much of what you learn about jobs is learned from them, and some of your interests also.

Lead 4. Tell me something about your family.

Primers:
Do you discuss school with your parents? What do you usually talk about?
Do you talk over your plans for the future with any of your folks?
Do you think parents should help a boy (girl) choose a career?
What do your parents think of your job choice?
What does your father think of his job?
What does he think is a good job?
Do you think your folks understand young people?
Do you and your parents generally see things the same way or differently?

BRIDGE

Introductory statement: Now I'd like to talk with you about your plans.

Lead 5. Let's suppose you are 30 years old. What would you like to be by the time you are 30?

Primers:

*What would you do as a _____?
Why do you want to be a _____?
How does one go about becoming a _____?
*Your job will only occupy a certain part of your life when you are 30.
What else do you see yourself doing at that time?
What would you like to do when you are 30 that you may <u>not</u> be able to do?

Lead 5 B. Now tell me some more about your future hopes? (Discuss plans as they open, to include further schooling, marriage, residence.)

Now suppose these plans don't work out, what then?

Lead 6. We've talked about your plans somewhat . . .

Primers:

*What are some of the reasons <u>other</u> people work?
*Which of these seem most important to you?
*What would you like to get out of work? (Give choices as opportunity for elaboration - money, respect, usefulness, friends, etc.)
Now I'm wondering about specific situations:
If you had a chance to earn $100 a week next week, would you quit school?
If you had to travel all the time but could earn $200 a week, how would you feel about that compared with a job where you earned $100 a week but could stay home?
Suppose you could have a lot of money, what would you do? (. . . with your time? Why?)

(Use other contingency factors as seem appropriate.)

Lead 6 B. What is the most important reason for living?

Primers:

*How does it look these days?
*Specific opportunities for different ethnic groups.
*Handicaps, limitations?
*<u>Should</u> one plan ahead?

(Then administer Verbal Scale - next page.)

Now I'd like your opinions on a number of different things. I'm going to read you several statements. With each statement some people agree and some people disagree. As I read each statement, will you tell me whether you more or less agree with it, or more or less disagree with it? For example, here is this statement:

1. These days a person doesn't really know whom he can count on. In general, would you agree with that statement, or would you disagree?

2. Most public officials (people in public office) are not really interested in the problems of the average man.

3. Nowadays, a person has to live pretty much for today and let tomorrow take care of itself.

4. In spite of what some people say, the condition of the average man is getting worse, not better.

5. It's hardly fair to bring a child into the world with the way things look for the future.

6. Most people don't really care what happens to the next fellow.

7. You sometimes can't help wondering whether anything is worthwhile anymore.

8. Next to health, money is the most important thing in life.

9. To make money, there are not right and wrong ways any more, only easy ways and hard ways.

10. The way things look for the future, most people would be better off if they were never born.

11. There is not much chance that people will really do anything to make this a better world to live in.

12. Everybody is just out for himself. Nobody really cares about anybody else.

13. The thing to do is to live for today rather than to try to plan for tomorrow.

14. You're a fool if you believe what most people try to tell you.

APPENDIX C

ABOUT THE DATA

The list originally received by the writer included the names of the 210 cooperative and the 133 control students who made up the population of the 1962-63 evaluation and of the present follow-up study. That list also indicated the following information which was made use of in the present evaluation:

1. Addresses last known to the schools: the original list did not have this datum for 21 cooperative and 11 control students, four and one of whom, respectively, became part of the 1966 sample.

2. Ethnicity: for eight cooperative and three control students this information was missing in the original data sheets. Four students in the sample lacked this information. In order to have as complete a set of data as possible for the present evaluation, school records and data on ethnicity gathered in 1966 were also used. Some discrepancies appeared among data from different sources. It may be that Puerto Ricans, for example, were sometimes classified as Negro, sometimes as Putero Rican, sometimes as white. The "other" category was used in 1962-63 for what is possibly Jewish and Italian.

3. Work assignment in the program: for five cooperative students this information was not recorded on the original list. According to 1966 evidence, this datum remained unobtained for three students in the program. There is also a little variance in some cases due, probably, to the fact that some students hald more than one job and some students changed assignments within the departments they were orignially assigned. In 1966, those jobs were recorded which the student held for the longest time while in the program. A couple of students classified as part of the program, dropped out after a day on the job and a couple dropped out

after two weeks. These students were able to return immediately to the non-cooperative classes.

4. According to the original list, tapes of interviews individually held in 1962-63, were missing for 13 cooperative and 16 control students. In actuality, the writer did not receive tapes for 20 cooperative and 16 control students. It is possible that some interviews were not taped or that some of the tapes were misplaced over the years.

5. Scores on the Otis Quick Scoring IQ test were missing for six cooperative and six control students, according to the original list. No intelligence testing was done in 1966.

6. The Life Planning Questionnaires were unavailable for six cooperative and five control students, according to the original list. The writer received all but for five cooperative and three control students. The discrepancy may be due to a recording error, which was evident in several other instances, too.

Number of cooperative and control members of the sample for whom data are collected through instruments used in this report

Type of instrument	Respondent groups: Cooperative	Control	Total
A. Interviews			
1966 - group	48	21	69
1966 - individual	12	4	16
1962-63 - individual	28	5	33
B. Questionnaires			
1966 - LPQ	48	21	69
1962-63 - LPQ	43	18	61

Occupational Categories For Role Workers, 14 Years of Age and Over, in the 1960 NYS Census

THE STATE--TOTAL

MALE, 14 YEARS OLD AND OVER . . . . .

PROFESSIONAL, TECHN'L, & KINDRED WKRS .
ACCOUNTANTS AND AUDITORS. . . . . .
ARCHITECTS. . . . . .
ARTISTS AND ART TEACHERS. . . . . .
AUTHORS, EDITORS, AND REPORTERS . . . . . .
CHEMISTS. . . . . .
CLERGYMEN . . . . . .
COLLEGE PRES., PROF'RS, & INSTR'S (N.E.C.). .
DENTISTS. . . . . .
DESIGNERS AND DRAFTSMEN . . . . . .
ENGINEERS: AERONAUTICAL. . . . . .
CIVIL . . . . . .
ELECTRICAL. . . . . .
MECHANICAL. . . . . .
OTHER TECHNICAL ENGINEERS . . . . . .
LAWYERS AND JUDGES. . . . . .
MUSICIANS AND MUSIC TEACHERS. . . . . .
NATURAL SCIENTISTS (N.E.C.) . . . . . .
PHARMACISTS . . . . . .
PHYSICIANS AND SURGEONS . . . . . .
SOCIAL SCIENTISTS . . . . . .
SOCIAL, WELFARE, AND RECREATION WORKERS . . .
TEACHERS: ELEMENTARY SCHOOL. . . . . .
SECONDARY SCHOOL. . . . . .
TEACHERS (N.E.C.) . . . . . .
TECHNICIANS: MEDICAL AND DENTAL. . . . . .
ELECTRICAL AND ELECTRONIC . . .
OTHER PROFESS'L, TECHN'L, & KINDRED WORKERS .

FARMERS AND FARM MANAGERS . . . . . .

MANAGERS, OFFS., & PROPR'S, EXC. FARM .
OFFICIALS AND INSP'S, STATE AND LOCAL ADMIN .
OTHER SPECIFIED MANAGERS AND OFFICIALS. . . .
MGRS., OFFS., & PROPR'S (N.E.C.)--SALARIED. .
MANUFACTURING . . . . . .
WHOLESALE AND RETAIL TRADE. . . . . .
FINANCE, INSURANCE, AND REAL ESTATE . . . .
OTHER INDUSTRIES (INCL. NOT REPORTED) . . .
MGRS., OFFS., & PROPR'S (N.E.C.)--SELF-EMPL .
CONSTRUCTION. . . . . .
MANUFACTURING . . . . . .
WHOLESALE TRADE . . . . . .
EATING AND DRINKING PLACES. . . . . .
RETAIL TRADE, EXC. EATING & DRINKING PLACES
OTHER INDUSTRIES (INCL. NOT REPORTED) . . .

CLERICAL AND KINDRED WORKERS. . . . . .
BOOKKEEPERS . . . . . .
MAIL CARRIERS . . . . . .
OTHER CLERICAL AND KINDRED WORKERS. . . . . .

SALES WORKERS . . . . . .
INSURANCE AGENTS, BROKERS, AND UNDERWRITERS .
REAL ESTATE AGENTS AND BROKERS. . . . . .
OTHER SPECIFIED SALES WORKERS . . . . . .
SALESMEN AND SALES CLERKS (N.E.C.). . . . . .
MANUFACTURING . . . . . .
WHOLESALE TRADE . . . . . .
RETAIL TRADE. . . . . .
OTHER INDUSTRIES (INCL. NOT REPORTED) . . .

CRAFTSMEN, FOREMEN, AND KINDRED WKRS. .
BAKERS. . . . . .
BLACKSMITHS, FORGEMEN, AND HAMMERMEN. . . . .
BOILERMAKERS. . . . . .
CABINETMAKERS AND PATTERNMAKERS . . . . . .
CARPENTERS. . . . . .
COMPOSITORS AND TYPESETTERS . . . . . .
CRANEMEN, DERRICKMEN, AND HOISTMEN. . . . . .
ELECTRICIANS. . . . . .
FOREMEN (N.E.C.). . . . . .
MANUFACTURING, DURABLE GOODS. . . . . .
MFG. NONDUR. GOODS (INCL. NOT SPEC. MFG.) .
NONMANUFACTURING INDUS. (INCL. NOT RPTD.) .
LINEMEN & SERVICEMEN, TELEGRAPH, TELEPHONE,
AND POWER. . . . . .
LOCOMOTIVE ENGINEERS. . . . . .
LOCOMOTIVE FIREMEN. . . . . .
MACHINISTS AND JOB SETTERS. . . . . .
MASONS, TILE SETTERS, AND STONE CUTTERS . . .
MECHANICS AND REPAIRMEN: AIRPLANE. . . . . .
AUTOMOBILE. . . . .
RADIO AND TV. . . .
OTHER MECHANICS AND REPAIRMEN, & LOOM FIXERS.
MILLWRIGHTS . . . . . .
MOLDERS, METAL. . . . . .
PAINTERS (CONST.), PAPERHANGERS, & GLAZIERS .
PLASTERERS AND CEMENT FINISHERS . . . . . .
PLUMBERS AND PIPE FITTERS . . . . . .
PRINTING CRAFT., EXC. COMPOS. & TYPESETTERS .
SHOEMAKERS AND REPAIRERS, EXCEPT FACTORY. . .
STATIONARY ENGINEERS. . . . . .
STRUCTURAL METAL WORKERS. . . . . .
TAILORS AND FURRIERS. . . . . .
TINSMITHS, COPPERSMITHS, & SHEET METAL WKRS .
TOOLMAKERS, AND DIE MAKERS AND SETTERS. . . .
OTHER CRAFTSMEN AND KINDRED WORKERS . . . . .

THE STATE--TOTAL--CON.

MALE, 14 YEARS OLD AND OVER--CON.
OPERATIVES AND KINDRED WORKERS. . . . .
APPRENTICES . . . . . .
ASSEMBLERS. . . . . .
ATTENDANTS, AUTO SERVICE AND PARKING. . . . .
BRAKEMEN AND SWITCHMEN, RAILROAD. . . . . .
BUS DRIVERS . . . . . .
CHECKERS, EXAMINERS, AND INSPECTORS, MFG. . .
FILERS, GRINDERS, AND POLISHERS, METAL. . . .
FURNACEMEN, SHELTERMEN, AND HEATERS . . . . .
LAUNDRY AND DRY CLEANING OPERATIVES . . . . .
MEAT CUTTERS, EXC. SLAUGHTER & PACKING HOUSE.
MINE OPERATIVES AND LABORERS (N.E.C.) . . . .
PACKERS AND WRAPPERS (N.E.C.) . . . . . .
PAINTERS, EXC. CONSTRUCTION AND MAINTENANCE .
POWER STATION OPERATORS . . . . . .
SAILORS AND DECK HANDS. . . . . .
SAWYERS . . . . . .
SPINNERS AND WEAVERS, TEXTILE . . . . . .
STATIONARY FIREMEN. . . . . .
TAXICAB DRIVERS AND CHAUFFEURS. . . . . .
TRUCK DRIVERS AND DELIVERYMEN . . . . . .
WELDERS AND FLAME-CUTTERS . . . . . .
OTHER SPEC. OPERATIVES AND KINDRED WORKERS. .

OPERATIVES AND KINDRED WORKERS (N.E.C.) . . .
MANUFACTURING . . . . . .
DURABLE GOODS . . . . . .
SAW & PLANING MILLS, & MISC. WOOD PROD.
FURNITURE AND FIXTURES. . . . . .
STONE, CLAY, AND GLASS PRODUCTS . . . .
PRIMARY METAL INDUSTRIES. . . . . .
FABRIC'D METAL IND. (INCL. NOT SPEC.) .
MACHINERY, EXCEPT ELECTRICAL. . . . . .
ELECTRICAL MACH'Y, EQUIP., & SUPPLIES .
MOTOR VEHICLES AND MOTOR VEHICLE EQUIP.
TRANSP. EQUIP., EXC. MOTOR VEHICLE. . .
OTHER DURABLE GOODS . . . . . .
NONDURABLE GOODS. . . . . .
FOOD AND KINDRED PRODUCTS . . . . . .
YARN, THREAD, AND FABRIC MILLS. . . . .
KNITTING, & OTHER TEXT. MILL PRODUCTS .
APPAREL & OTHER FAB'D TEXTILE PRODUCTS.
PAPER AND ALLIED PRODUCTS . . . . . .
CHEMICALS AND ALLIED PRODUCTS . . . . .
OTHER NONDURABLE GOODS. . . . . .
NOT SPECIFIED MANUFACTURING INDUSTRIES. .

NONMANUFACTURING INDUS. (INCL. NOT RPTD.) .
TRANSPORT., COMMUN., & OTHER PUBLIC UTIL.
WHOLESALE AND RETAIL TRADE. . . . . .
OTHER INDUSTRIES (INCL. NOT REPORTED) . .

PRIVATE HOUSEHOLD WORKERS . . . . . .

SERVICE WORKERS, EXC. PRIV. HOUSEHOLD .
BARBERS . . . . . .
CHARWOMEN, JANITORS, AND PORTERS. . . . . .
COOKS, EXCEPT PRIVATE HOUSEHOLD . . . . . .
ELEVATOR OPERATORS. . . . . .
FIREMEN, FIRE PROTECTION. . . . . .
GUARDS AND WATCHMEN . . . . . .
POLICEMEN, SHERIFFS, AND MARSHALS . . . . . .
WAITERS, BARTENDERS, AND COUNTER WORKERS. . .
OTHER SERVICE WORKERS, EXC. PRIV. HOUSEHOLD .

FARM LABORERS AND FOREMEN . . . . . .
FARM LABORERS: UNPAID FAMILY WORKERS . . . .
EXC. UNPAID, & FARM FOREMEN .

LABORERS, EXCEPT FARM AND MINE. . . . .
FISHERMEN AND OYSTERMEN . . . . . .
LONGSHOREMEN AND STEVEDORES . . . . . .
LUMBERMEN, RAFTSMEN, AND WOOD CHOPPERS. . . .
OTHER SPECIFIED LABORERS. . . . . .
LABORERS (N.E.C.) . . . . . .
MANUFACTURING . . . . . .
DURABLE GOODS . . . . . .
FURNITURE, SAW AND PLANING MILLS, AND
MISCELLANEOUS WOOD PRODUCTS. . . . . .
STONE, CLAY, AND GLASS PRODUCTS . . . .
PRIMARY METAL INDUSTRIES. . . . . .
FABRIC'D METAL IND. (INCL. NOT SPEC.) .
MACHINERY, INCLUDING ELECTRICAL . . . .
TRANSPORTATION EQUIPMENT. . . . . .
OTHER DURABLE GOODS . . . . . .
NONDURABLE GOODS. . . . . .
FOOD AND KINDRED PRODUCTS . . . . . .
TEXTILE MILL PRODUCTS AND APPAREL . . .
CHEMICALS AND ALLIED PRODUCTS . . . . .
OTHER NONDURABLE GOODS. . . . . .
NOT SPECIFIED MANUFACTURING INDUSTRIES. .

NONMANUFACTURING INDUS. (INCL. NOT RPTD.) .
CONSTRUCTION. . . . . .
RAILROADS AND RAILWAY EXPRESS SERVICE . .
TRANSPORTATION, EXCEPT RAILROAD . . . . .
COMMUN., & UTIL. & SANITARY SERVICE . . .
WHOLESALE AND RETAIL TRADE. . . . . .
OTHER INDUSTRIES (INCL. NOT REPORTED) . .

OCCUPATION NOT REPORTED . . . . . .

APPENDIX D

REPORT ON REACHING THE RESPONDENTS

Reaching the Respondents

The first task in conducting the follow-up study was a multi-phased attempt to reach the respondents. Respondents attended Benjamin Franklin (BF) H.S. in East Harlem, Boys (B) H.S. in Bedford-Stuyvesant, Morris (M) H.S. in Lower-East Bronx, and Seward Park (SP) H.S. in the Lower-East Side. They had not been contacted by anyone connected with the program since 1962-63. The distribution of the population is given in Table 1.

Table 1. Distribution of the Population of Cooperative and Non-Cooperative Students Who Were Evaluated In 1962-63 and Who Had to be Followed-Up in 1966

School	Co-Op	% of N_1	Control	% of N_2	Total	% of N
BF	35	16.6	32	24.0	67	19.5
B	30	14.2	25	18.8	55	16.0
M	100	47.6	40	30.0	140	40.8
SP	45	21.4	36	27.0	81	23.6
Total	N_1 = 210	99.8	N_2 = 133	99.8	N = 343	99.9

From this population, the sample shown in Table 2 was obtained.

Table 2. Follow-Up Sample for the 1966 Evaluation, Drawn From the Population in Table 1

School	Co-Op	% of original population	% of N_1	Control	% of original population	% of N_2	Total	% of original population	% of N
BF	11	31.4	31.4	6	8.8	28.6	17	25.4	24.6
B	1	3.3	2.0	1	4.0	4.8	2	3.6	2.8
M	18	18.0	37.5	3	7.5	14.2	21	15.0	30.4
SP	18	40.0	37.5	11	30.5	52.4	29	35.8	42.0
Total	N_1 = 48	22.8	99.9	N_2 = 21	15.8	100.0	N = 69	20.1	99.8

A comparison of these two tables indicates a more adequate representation of Manhattan schools in the sample, and an under-representation of the Brooklyn school.

The sample was obtained in the following way: A letter, on Center stationary, including a return postcard (see Appendix A), was mailed to the last known address of each respondent. Through the response to this letter, the dimensions of the problem of reaching the respondents could be quickly and efficiently ascertained. Table 3 shows the results of this attempt.

Table 3. Distribution of Correspondence Returned by the Respondents

Status	First Letter* (2 mailings)		Postcards** 1st mail		Postcards** 2nd mail		Second Letter*** (1 mailing)	
	No.	% of Pop.	No.	% of Pop.	No.	% of Pop.	No.	% of Pop.
Co-op	60	28	29	14	33	16	11	7
Control	39	29	22	16	7	5	6	6
Total	99	28	51	15	40	11	17	7

Total return for postcards at the end of the study: Co-op - 62, Control- 29, Total - 91

Total interviewed among those who returned their postcards: Co-op - 30, Control - 10, Total - 40

*The first letter was mailed to each member of the population. Those whose letters were returned unopened were sent that letter again.

**All letters included a return postcard. All those who sent their cards back received thank you notes.

***The second letter was mailed to the 193 members of the population whose letters were not returned unopened and who did not send their postcards back; they were assumed to have received , but not answered, the first letter. This is what happened with the second letter, although 17 of them came back "address unknown," indicating the unreliability of mail delivery in their residential area.

Fourteen percent of the former cooperative and sixteen percent of the former control students did not receive their letters. These were returned to the sender due to unknown addresses. Many factors could have contributed to this low receiving rate. Mail delivery service in residential areas of the poor tends to be less efficient than elsewhere in the City. In addition, a relatively high rate of residential mobility among the poor, and the failure to leave forwarding addresses make the task more difficult. In the three years intervening between the cooperative program and the follow-up study, many of the respondents could have moved several times. They may also have

joined the Armed Forces, been institutionalized, or have left the Metropolitan area.

Yet, for 58 percent of the cooperative and 55 percent of the control student population, the first letter was not returned to the sender. Nor did these respondents send their postcards back. It seemed likely that although some of the letters may have been lost, the majority were received by the students who treated the letters as circulars and did not respond to them.

Today, circulars are sent to New York City residents in such profusion, promising remuneration--as did this letter--or bargains for minimal effort, that the recipient is likely to throw away such mail without reading it or after glancing at it and discrediting it. It is also likely that students who were not successful in school, were not adequately trained in the program, or have not been successful vocationally and educationally since leaving high school would hesitate to discuss these matters with anyone unless under pressure to do so. Revealing failure in front of peers can be especially embarrassing. Some of the respondents may be withdrawn and may not want to take part in unfamiliar, unexpected encounters. Respondent sentiment may also be negative toward one or more of the agencies mentioned in the letter: the school, the cooperative program, the City, or the Center.

To these individuals, who probably received the first letter but did not respond to it, a second letter was sent (see Appendix A), showing the names of those former classmates who already expressed interest in the study. By revealing the names of persons whom they have remembered or still be friendly with, informal channels of communication were hoped to be set in motion which would reduce the respondents' feeling of being singled out for inquiry. It was hoped that further information and encouragement would induce these persons to cooperate.

The results generated by the second letter bore out two assumptions made earlier, as Table 3 indicates. First, mail delivery service in poor neighborhoods did seem unreliable. Seven percent of the letters which were not returned unopened to the sender the first time were now sent back stamped "address unknown." It is not likely that seven percent of these persons moved in the course of a couple of weeks. Second, a vast majority of these respondents, who probably did receive both correspondences, did not answer either letter, probably because they discarded the letters as circulars.

Those individuals whose first letter was returned unopened received that same letter again in the hope that a few more could be reached.

Correspondences, as a whole, did generate a 15 percent return of filled-out postcards the first time, and an additional 11 percent the second time. There were a few telephone calls to the project director as well, mostly from persons who wanted further information about the study before deciding whether to cooperate. Information ascertained about the respondents from the postcards is summarized in Table 4.

Table 4. Distribution of willingness to cooperate expressed through postcard response

Disposition	Co-op #	Co-op %	Control #	Control %	Total #	Total %
Yes	44	70	20	68	64	70
No* (One was interviewed)	6	10	2	6	8	8
In the Service	12	19	7	24	19	20
Total	$N_1 = 62$	99	$N_2 = 29$	98	N =91	98

*"No" does not include excuses and hesitation. Two said "definitely no" over the telephone.

Not all persons who returned their postcards, even those who expressed their willingness to cooperate, could be expected with certainty to participate in the study, because interviews were scheduled for a future time, and the respondents remained free agents over whom the interviewer had no control. Therefore, another method of reaching respondents was initiated, simultaneously with mailing the second letter, in an effort to increase sample size. By that time, the dimensions of the problem of obtaining a sample, and the patterns of respondent interest seemed clear.

Door-to-door visits were made to the last known address of those members of the population about whom no updated information was available. For purposes of field survey, seven part-time assistants were hired. Four of them also acted as interviewers in a later phase of the study. The three women and four men each lived in one of the neighborhoods where the high schools were located and they all had experience with community work, youth agencies, or with door-to-door outreach of the kind employed in the present study. One of them was a white Puerto Rican, five were Negro, and one was white. They were instructed about the nature and the objectives of the program and of the present evaluation. They knew that the first step was to find, and to gain the cooperation of the respondents by alleviating their suspicions and eliciting their interest in the study. In a couple of group discussions with field investigators, the project director canvassed several different problems that might occur in the field and discussed ways of handling them. The field workers seemed to understand the idea that they were to act as detectives. If a respondent's name did not appear on the mail box or on the list of tenants, for example, then a neighbor, a superintendent, a

local store owner, the housing office or a classmate from the population could be contacted for information on the whereabouts of the respondent. The interviewers were told to record all information ascertainable about the respondents in one or two house visits, and to be certain to obtain telephone numbers wherever possible. There was daily contact between the project director and the interviewers. This made it possible to call each respondent immediately for an interview. Frequent contact was also essential to relay to each person in the field all the information gathered by a colleague, in order to avoid any duplication of effort. Some community agencies, which were alerted about the study, offered cooperation, making their facilities available.

Each field worker was given the following instruments to help him reach the maximum possible number of respondents:

1. A book of street maps of the five boroughs of New York City which showed the block in which a given house number is to be found. The location of each school was marked on each map. Subway and bus routes, as well as an index of streets by borough, were also part of the booklet.
2. Each field worker had a signed, laminated, Center business card for purposes of self-identification, as well as extra business cards to leave with the respondents or their families.
3. A card-size directory which showed street and avenue numbers for Manhattan.
4. A copy of the list of names and addresses for the entire population with updated information wherever available.
5. A list, in several parts, which indicated respondents grouped according to proximity of residence. This made each trip to the field maximally efficient.

The door-to-door visits proved time consuming and, therefore, expensive. At times, and especially in Brooklyn, the interviewers encountered difficulty in some of the slum buildings.* In Brooklyn also, the residential neighborhood of the school sprawled over a large area which made house visits more time consuming. In spite of the difficulties, however, door-to-door visits proved to be a very effective means of contacting respondents in order to increase sample size. Although 30 cooperative and 10 control students interviewed had volunteered to cooperate through their postcards, and they, therefore, could be defined as "easy to reach" respondents, the door-to-door visits also made information available about many respondents who were not interviewed. Data about members of the population who were not interviewed, are summarized in tables 5, 6, 8 and 9 below.

Table 5. Number and Percent of Respondents Who Were Contacted And Those Who Were Unreachable

Status	Directly or indirectly contacted*		Unreachable		Total	
	#	%	#	%	#	%
Co-op	160	76	50	24	210	100
Control	100	75	33	24	133	100
Total	260	76	88	24	343	100

*Including the sample.

*This neighborhood may have been problematic to canvass for some of the same reasons which culminated in the East New York riots that summer.

Table 5 shows that three-fourths of the population was reachable, either directly, or indirectly through correspondence and door-to-door visits. The term "indirect" refers to speaking to members of the family, to neighbors or to friends. Some of the information gathered is hearsay, but an attempt was made to restrict data to factual material. For example, for individuals in the Armed Forces, the branch of the Service or their station and the date of expected leave were recorded wherever possible. For institutionalized persons, the name of the institution and the reason for being there were noted. For those who were married, relocated or working, the name of the employer, the number of children and the new addresses were sought. A fourth of the population was categorized as unreachable at the termination of the study.

The first phase of the study extended from February to June, while other phases were also underway. It is possible that a further extension of the search for two more months, for instance, would have resulted in contact with more respondents. It is also possible that through the use of Social Security numbers or the help of local draft board information, many of these persons could have at least been contacted. Employer-to-employer detection was also a possibility in theory, but quite difficult to trace with so many marginal jobs. A decision was made not to employ these methods, however, for three reasons. First, it was the experience of the writer that even when a respondent expressed interest in taking part in the study, there was a nearly 50 percent chance that he would not come to one of the scheduled interviews. Second, data gathered through the interviews and questionnaires already revealed a spectrum of respondent experiences and characteristics. Since the evaluation sought to discover the substance of respondents' opinions and achievements, it was

achievements, it was felt that the sample already interviewed supplied adequate information, and the expensive and time consuming search for additional respondents could be abandoned. Third, income data and draft status were of general interest only since the evaluation focused on self-determined achievements and satisfaction, not on the reconstruction of successive stages of employment and their evaluation.

A representative sample of cooperative and control students could adequately supply the sought information. This sample may have been skewed in the direction of including mostly the successful and satisfied respondent. Only interviewing the entire population could definitely prove otherwise. Yet there were several facts to indicate that members of the sample were not significantly different from the total population. First, although 58 per cent of those interviewed expressed an early interest in the study through postcards, when they had to prove their commitment and actually come to the interviews these persons seemed no easier to reach than those who were not interviewed. The difference then may have been in accessibility by mail, by telephone and door-to-door visits rather than in relationship to the program. Secondly, on the basis of information gathered from letters, postcards and door-to-door visits, those actually interviewed did not seem significantly different from those not interviewed. Thirdly, soon after interviewing began, it became clear that intense effort would be required to gather a large enough group for each meeting. As time went on, a high level of effort expenditure produced the same rate of result, and reached similar kinds of respondents. Presumably, prolonging the search would have increased sample size; but there was no indication that different kinds of respondents would have been reached.

Table 6. Number and Percentage of School Population for Whom There Were Telephone Numbers Available

School	Co-op		Control		Total	
	#	%	#	%	#	%
Benjamin Franklin	13	37	13	40	26	38
Boys	4	13	3	16	8	14
Morris	26	26	16	40	42	30
Seward Park	20	44	13	36	33	40
Total	63	30	46	34	109	32

Table 7. Number and Percent of Respondents in the Sample For Whom Telephone Numbers Were Available

School	Co-op		Control		Total	
	#	%	#	%	#	%
Benjamin Franklin	9	82	4	66	13	76
Boys	1	100	1	100	2	100
Morris	14	78	3	100	17	80
Seward Park	13	72	8	72	21	72
Total	37	77	16	76	53	76

Tables 6 and 7 reveal the importance of telephone numbers for contacting the respondents. Though it was possible to contact most individuals through letters and house visits, the telephone proved essential for the scheduling interviews, through the repeated reminder calls

that were required for most interviewees to come at the appointed times. While the writer had telephone numbers for only a third of the population, 76 percent of those who were eventually interviewed had telephones. Repeated and immediate contact proved to be important in obtaining real, as opposed to professed, cooperation from the respondents.

Table 8 summarizes available information on the residential status of the population. All of the above mentioned methods were used to arrive at these data.

Table 8. Number and Percentage of School Populations Who Changed Addresses Since 1962-63*

School	Co-op		Control		Total	
	#	%	#	%	#	%
Benjamin Franklin	17	48	11	34	28	42
Boys	15	50	7	28	22	40
Morris	23	23	12	30	35	25
Seward Park	11	24	9	25	20	25
Total	66	32	39	29	105	30

*Those in the Armed Forces or in institutions are not included.

A third of all respondents moved since they left high school, not including those in institutions. A half of the cooperative students from Benjamin Franklin and Boys high schools have relocated.

Table 9 is a summary of the contact status of the population. Cooperative and control students did not seem different in terms of accessibility for interviewing. About two-thirds of the original population

was cooperative, and one-third of it control. These proportions are reflected among those who were not interviewable because of being in the Service or in institutions, or because they moved out of the Metropolitan area. Again, those who were unreachable by the methods used in the study include these proportions of cooperative and control students.

Table 9. Summary of Respondent Availability for the Study

	Interviewed*		In the Service**		Moved out of the metropolitan area		Institutionalized(jail)		Unwilling or unable to be interviewed***		Unreachable		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Co-op	48	14	42	12	8	2	4	1	58	18	50	14	210	61
Control	21	6	30	8	4	1	1	0	45	14	33	10	133	38
Total	69	20	72	20	12	3	5	1	103	32	83	24	343	100

*Those interviewed include 1 co-op and 1 control respondent who were in the Armed Forces at the time of the study.

**Respondents who already completed their tour of duty in the Armed Forces are not included.

***This category includes 1 invalid co-op respondent and 1 former co-op student who is dead.

APPENDIX E

TABULATED DATA FROM LIFE PLANNING QUESTIONNAIRE

Table 1

Percentage Distribution of Desired Amount of Education, by Year

Desired Amount of Education	Year 1962	Year 1966
11-12 years	11.5	9.1
13 years	9.8	1.5
14-15 years	24.6	16.7
16 years	26.2	36.4
17-18 years	24.6	34.9
DK,NA	3.3	1.5
N	61	66

Table 2

Percentage Distribution of Expected Amount of Education, by Year

Expected Amount of Education	Year 1962	Year 1966
11-12 years	45.9	34.9
13 years	11.5	4.5
14-15 years	22.9	16.7
16 years	13.1	16.7
17-18 years	3.3	15.2
DK,NA	3.3	12.1
N	61	66

Table 3

Percentage Distribution of Desired Kind of Education, by Status, by Year

Desired Kind of Education	Status in the Study					
	1962			1966		
	Cooperative	Control	Total	Cooperative	Control	Total
Just college	7.0	33.3	14.8	13.0	--	9.1
Teachers or engineering college	18.6	16.7	18.0	21.7	20.0	21.2
University or private business school	39.5	33.3	37.7	34.8	30.0	33.3
Trade or technical school	14.0	5.6	11.5	17.4	35.0	22.7
None	9.3	5.6	8.2	2.2	--	1.5
DK, NA	11.6	5.6	9.8	10.9	15.0	12.1
N	43	18	61	46	20	66

Table 4

Percentage Distribution of Expected Kind of Education, by Status in Study, by Year

Expected Kind of Education	Status in the Study					
	1962			1966		
	Cooperative	Control	Total	Cooperative	Control	Total
Just College	7.0	33.3	14.8	17.4	20.0	18.2
University or private business school	23.3	27.8	24.6	4.4	10.0	6.1
Trade or Technical School	9.3	--	6.6	4.4	15.0	7.6
None	20.9	16.7	19.7	15.2	20.0	16.7
Don't Know	18.6	11.1	16.4	41.3	15.0	33.3
Presently Attending	--	--	--	6.5	5.0	6.1
DK, NA	20.9	11.1	18.0	10.9	15.0	12.1
N	43	18	61	46	20	66

Table 5

Percentage Distribution of Desired Kind of Education, by Race, by Year

Desired Kind of Education	1962			1966		
	Negro	White	Puerto Rican	Negro	White	Puerto Rican
Just college	20.0	--	19.1	9.1	7.1	7.7
Teachers or engineering college	30.0	21.4	9.5	22.7	14.3	26.9
University or private business school	35.0	42.9	33.3	27.3	50.0	23.1
Trade or technical school	--	14.3	14.3	27.3	14.3	26.9
None	5.0	7.1	14.3	--	--	3.9
DK, NA	10.0	14.3	9.5	13.6	14.3	11.5
N	20	14	21	22	14	26

Table 6

Percentage Distribution of Expected Kind of Education, by Race, by Year

Expected Kind of Education	1962			1966		
	Negro	White	Puerto Rican	Negro	White	Puerto Rican
Just college	25.0	14.3	9.5	22.7	7.1	19.2
University or private business school	25.0	25.6	19.1	4.6	--	3.9
Trade or technical school	10.0	7.1	4.8	9.1	7.1	7.7
Presently attending	--	--	--	4.6	21.4	--
None	10.0	14.3	33.3	13.6	21.4	19.2
DK	20.0	21.4	9.5	27.3	28.6	42.3
NA	10.0	14.3	23.8	18.2	14.3	7.7
N	20	14	21	22	14	26

Table 7

Percentage Distribution of Desired Kind of Education, by Year

1962 Desired Kind of Education	1966 Desired Kind of Education					
	Just College	Teachers or Engineering College	University or Private Business School	Technical or Trade School	None	DK, NA
Just college	16.7	25.0	14.3	7.7	--	--
Teachers or engineering college	16.7	33.3	4.8	15.4	--	50.0
University or private business school	50.0	25.0	57.1	30.8	--	16.7
Technical or trade school	--	16.7	9.5	15.4	--	--
None	16.7	--	4.8	23.1	--	--
DK, NA	--	--	9.5	7.7	100.0	33.3
N	6	12	21	13	1	6

Table 8

Percentage Distribution of Expected Kind of Education, by Year

1962	1966						
Expected Kind of Education	Expected Kind of Education						
	Just College	University or Private Business School	Trade or Technical School	Presently Attending	Don't Know	None	DK, NA
Just college	27.3	50.0	--	25.0	11.1	9.1	--
University or private business school	36.4	--	20.0	50.0	11.1	18.2	50.0
Trade or Technical school	9.1	25.0	20.0	--	--	9.1	16.7
Presently attending	--	--	--	*	--	--	--
Don't know	18.2	--	20.0	25.0	22.2	9.1	16.7
None	9.1	25.0	20.0	--	33.3	27.3	--
DK, NA	--	--	20.0	--	22.2	27.3	16.7
N	11	4	5	4	18	11	6

*There can be no consistency here.

Table 9

Percentage Distribution of Expected Amount of Education, by Year

1962 Expected Amount of Education	1966 Expected Amount of Education					
	11-12 yrs.	13 yrs.	14-15 yrs.	16 yrs.	17-18 yrs.	DK, NA
11-12 yrs.	71.4	75.0	33.3	22.2	40.0	28.6
13 yrs.	9.5	25.0	66.7	33.3	20.0	42.9
14-15 yrs.	9.5	--	--	44.4	20.0	14.3
16 yrs.	4.8	--	--	--	20.0	14.3
17-18 yrs.	--	--	--	--	--	--
DK, NA	4.8	--	--	--	--	--
N	21	3	9	9	10	7

Table 10

Percentage Distribution of Desired Occupation, by Status in the Study, by Year

Desired Occupation	Status in the Study					
	1962			1966		
	Cooperative	Control	Total	Cooperative	Control	Total
Professional-manager	46.5	44.4	45.9	54.3	55.0	54.6
Clerical-sales-crafts	30.2	38.9	32.8	23.9	30.0	25.8
Operative-service	16.3	11.1	14.8	13.0	5.0	10.6
Armed Forces	2.3	5.6	3.3	2.2	5.0	3.0
DK, NA	4.7	--	3.3	6.5	5.0	6.1
N	43	18	61	46	20	66

Table 11

Percentage Distribution of Most Suitable Occupation, by Status in the Study, by Year

Most Suitable Occupation	Status in the Study					
	1962			1966		
	Cooperative	Control	Total	Cooperative	Control	Total
Professional-manager	34.9	27.8	32.8	36.9	50.0	40.9
Clerical-sales-crafts	32.6	27.8	31.1	34.8	20.0	30.3
Operative-service	11.6	11.1	11.5	6.5	5.0	6.1
Armed Forces	2.3	22.2	8.2	2.2	--	1.5
Labor	2.3	--	1.6	--	--	--
DK, NA	16.3	11.1	14.8	19.6	25.0	21.2
N	43	18	61	46	20	66

Table 12

Percentage Distribution of Expected Occupation,
by Status in Study, by Year

Expected Occupation	Status in the Study					
	1962			1966		
	Cooperative	Control	Total	Cooperative	Control	Total
Professional-manager	20.9	11.1	18.0	37.0	35.0	36.4
Clerical-sales-crafts	39.5	38.9	39.3	26.1	30.0	27.3
Operative-service	18.6	27.8	21.3	13.0	10.0	9.1
Armed Forces	9.3	11.1	9.8	2.2	5.0	3.0
DK, NA	11.6	11.1	11.5	21.7	20.0	24.2
N	43	18	61	48	21	66

Table 13

Percentage Distribution of Motives for Choosing Desired Occupation, by Year

Motives	Year 1962	Year 1966
Has skills for it	16.4	19.7
Finds work interesting, attractive	47.5	54.5
Wants rewards, prestige of occupation	27.9	18.2
DK, NA	8.2	7.6
N	61	66

Table 14

Percentage Distribution of Motives for Choosing Most Suitable Occupation, by Year

Motives	Year 1962	Year 1966
Has skills for it	52.5	47.0
Finds work interesting, attractive	14.8	21.2
Wants rewards, prestige of occupation	9.8	6.1
DK, NA	22.9	25.8
N	61	66

Table 15

Percentage Distribution of Motives for Choosing
Expected Occupation, by Year

Motives	Year 1962	Year 1966
Has skills for it	31.1	42.4
Finds work interesting, attractive	21.3	22.7
Wants rewards, prestige of occupation	13.1	10.6
DK, NA	34.4	24.2
N	61	66

Table 16

Percentage Distribution of Desired Occupation by Year, by Work Assignment in the Coop

Desired Occupation	Work Assignment							
	1962				1966			
	Clerical	Hospital	Park	Unknown	Clerical	Hospital	Park	Unknown
Professional-manager	60.0	33.3	41.7	20.0	57.1	62.5	35.7	100.0
Clerical-sales-crafts	35.0	50.0	16.7	20.0	28.6	12.5	28.6	--
Operative-service	5.0	--	33.3	40.0	14.3	12.5	14.3	--
Armed Forces	--	--	--	20.0	--	--	7.1	--
DK, NA	--	16.7	8.3	--	--	12.5	14.3	--
N	20	6	12	5	21	8	14	3

Table 17

Percentage Distribution of Most Suitable Occupation, by Year, by Work Assignment in the Coop

Most Suitable Occupation	Work Assignment							
	1962				1966			
	Clerical	Hospital	Park	Unknown	Clerical	Hospital	Park	Unknown
Professional-manager	40.0	16.7	25.0	60.0	42.9	50.0	21.4	33.3
Clerical-sales-crafts	40.0	33.3	33.3	--	42.9	25.0	35.7	--
Operative-service	5.0	--	25.0	20.0	14.3	--	--	--
Armed Forces	--	--	8.3	--	--	--	7.1	--
Labor	--	--	--	20.0	--	--	--	--
DK, NA	15.0	50.0	8.3	--	--	25.0	35.7	66.6
N	20	6	12	5	21	8	14	3

Table 18

Percentage Distribution of Expected Occupation, by Year, by Work Assignment in the Coop

Expected Occupation	Work Assignment							
	1962				1966			
	Clerical	Hospital	Park	Unknown	Clerical	Hospital	Park	Unknown
Professional-manager	20.0	16.7	16.7	40.0	38.1	62.5	21.4	33.3
Clerical-sales-crafts	40.0	66.7	33.3	20.0	28.6	--	35.7	33.3
Operative-service	20.0	--	25.0	20.0	19.0	12.5	7.1	--
Armed Forces	--	16.7	16.7	20.0	--	--	7.1	--
DK, NA	20.0	--	8.3	--	14.3	25.0	28.6	33.3
N	20	6	12	5	21	8	14	3

Table 19

Percentage Distribution of Desired Occupation,
by Race, by Year

Desired Occupation	Desired Occupation					
	1962			1966		
	Negro	White	Puerto Rican	Negro	White	Puerto Rican
Professional-manager	50.0	50.0	42.9	54.5	35.7	61.5
Clerical-sales-crafts	30.0	21.4	47.6	27.3	42.9	15.4
Operative-service	10.0	21.4	9.5	9.1	7.1	15.4
Armed Forces	5.0	--	--	4.5	--	3.8
DK, NA	5.0	7.1	--	4.5	14.3	3.8
N	20	14	21	22	14	26

Table 20

Percentage Distribution of Most Suitable Occupation, by Race, by Year

Most Suitable Occupation	Most Suitable Occupation					
	1962			1966		
	Negro	White	Puerto Rican	Negro	White	Puerto Rican
Professional-manager	30.0	35.7	33.3	50.0	28.6	34.6
Clerical-sales-crafts	35.0	21.4	38.1	27.3	57.1	19.2
Operative-service	5.0	14.3	14.3	4.5	7.1	7.7
Armed Forces	10.0	7.1	4.8	--	--	3.8
Labor	5.0	--	--	--	--	--
DK, NA	15.0	21.4	9.5	18.2	7.1	34.6
N	20	14	21	22	14	26

Table 21

Percentage Distribution of Expected Occupation, by Race, by Year

Expected Occupation	Expected Occupation					
	1962			1966		
	Negro	White	Puerto Rican	Negro	White	Puerto Rican
Professional-manager	10.0	35.7	19.0	40.9	21.4	38.5
Clerical-sales-crafts	40.0	21.4	47.6	18.2	57.1	19.2
Operative-service	20.0	21.4	14.3	4.5	7.1	23.1
Armed Forces	10.0	7.1	4.8	4.5	--	3.8
Labor	--	--	4.8	--	--	--
DK, NA	20.0	14.3	9.5	31.8	14.3	15.4
N	20	14	21	22	14	26

Table 22

Percentage Distribution of Desired Occupation,
by Most Suitable Occupation, in 1962

Desired Occupation	Most Suitable Occupation					
	Professional-manager	Clerical-Sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	73.7	31.6	25.0	50.0	--	44.4
Clerical-sales-crafts	15.8	52.6	--	25.0	--	44.4
Operative-service	5.3	10.5	75.0	25.0	50.0	--
Armed Forces	5.3	--	--	--	50.0	11.1
Labor	--	--	--	--	--	--
DK, NA	--	5.3	--	--	--	--
N	19	19	8	4	2	9

Table 23

Percentage Distribution of Most Suitable Occupation, by Expected Occupation, in 1962

Most Suitable Occupation	Expected Occupation					
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	66.7	25.0	23.1	--	--	60.0
Clerical-sales-crafts	16.7	58.3	23.1	16.7	--	20.0
Operative-service	8.3	--	30.8	16.7	100.0	--
Armed Forces	--	4.2	23.1	--	--	--
Labor	--	--	--	33.3	--	--
DK, NA	8.3	12.5	--	33.3	--	20.0
N	12	24	13	6	1	5

Table 24

Percentage Distribution of Desired Occupation,
by Expected Occupation, in 1962

Desired Occupation	Expected Occupation					
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	81.8	37.5	50.0	16.7	--	71.4
Clerical-sales-crafts	18.2	54.2	16.7	33.3	--	--
Operative-service	--	4.2	33.3	33.3	100.0	--
Armed Forces	--	--	--	16.7	--	14.3
Labor	--	--	--	--	--	--
DK, NA	--	4.2	--	--	--	14.3
N	11	24	12	6	1	7

Table 25

Percentage Distribution of Desired Occupation,
by Most Suitable Occupation, in 1966

Desired Occupation	Most Suitable Occupation				
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	DK, NA
Professional-manager	96.3	23.8	--	--	33.3
Clerical-sales-crafts	--	61.9	40.0	--	25.0
Operative-service	--	9.5	60.0	--	16.7
Armed Forces	3.7	--	--	100.0	--
DK, NA	--	4.8	--	--	25.0
N	27	21	5	1	12

Table 26

Percentage Distribution of Most Suitable Occupation, by Expected Occupation, in 1966

Most Suitable Occupation	Expected Occupation				
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	DK, NA
Professional-manager	83.3	11.1	--	50.0	25.0
Clerical-sales-crafts	8.3	77.8	33.3	--	12.5
Operative-service	--	--	50.0	--	6.3
Armed Forces	--	--	--	50.0	--
DK, NA	8.3	11.1	16.7	--	56.3
N	24	18	6	2	16

Table 27

Percentage Distribution of Desired Occupation,
by Expected Occupation, in 1966

Desired Occupation	Expected Occupation				
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	DK, NA
Professional-manager	100.0	22.2	37.5	--	35.7
Clerical-sales-crafts	--	66.7	12.5	--	28.6
Operative-service	--	5.6	50.0	--	14.3
Armed Forces	--	--	--	100.0	--
DK, NA	--	5.6	--	--	21.4
N	24	18	8	2	14

Table 28

Percentage Distribution of Desired Occupation, by Year

1962	1966					
Desired Occupation	Desired Occupation					
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	61.3	31.3	42.9	--	--	33.3
Clerical-sales-crafts	22.6	50.0	42.9	100.0	--	--
Operative-service	16.1	12.5	14.3	--	100.0	33.3
Armed Forces	--	--	--	--	--	--
Labor	--	--	--	--	--	--
DK, NA	--	6.3	--	--	--	33.3
N	31	16	7	1	1	3

Table 29

Percentage Distribution of Most Suitable Occupation, by Year

1962	1966					
Most Suitable Occupation	Most Suitable Occupation					
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	36.0	31.6	40.0	--	--	11.1
Clerical-sales-crafts	28.0	26.3	40.0	--	100.0	33.3
Operative-service	8.0	10.5	20.0	--	--	22.2
Armed Forces	--	5.3	--	--	--	--
Labor	--	5.3	--	--	--	11.1
DK, NA	28.0	21.1	--	--	--	22.2
N	25	19	5	0	1	9

Table 30

Percentage Distribution of Expected Occupation, by Year

1962	1966					
Expected Occupation	Expected Occupation					
	Professional-manager	Clerical-sales-crafts	Operative-service	Armed Forces	Labor	DK, NA
Professional-manager	31.6	23.5	--	--	--	6.3
Clerical-sales-crafts	42.1	23.5	66.7	--	--	37.5
Operative-service	--	11.8	16.7	--	--	12.5
Armed Forces	10.5	11.8	--	--	--	6.3
Labor	--	--	--	--	--	12.5
DK, NA	15.8	29.4	16.7	100.0	--	25.0
N	19	7	6	1	0	16

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Highlights of "The Psychiatric Aide in State Mental Hospitals" are presented. See VT 005 564 (ED 023 829) in ARM Spring 1969 which is the complete study. (JK)

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HIGHLIGHTS FROM SURVEY OF PSYCHIATRIC AIDES

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

HIGHLIGHTS FROM SURVEY OF PSYCHIATRIC AIDES

Manpower Studies Unit
Training and Manpower Resources Branch
National Institute of Mental Health
National Institutes of Health

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

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FOREWORD

This report presents summary information on a number of characteristics of the psychiatric aide and his job setting in state and county mental hospitals in the United States. The information covers such topics as aide employment and training patterns, total number employed, annual salaries, job satisfaction, work characteristics and general attitudes of aides and nurses about the job of the psychiatric aide.

The data which are presented in this report are based on tabular material acquired by means of a survey of psychiatric aides which was performed in 1963 by the National Association for Mental Health under contract for the National Institute of Mental Health. Mr. Edward Linzer represented the National Association for Mental Health in carrying out the provisions of the contract and Dr. Howard E. Mitchell was the survey project director.

This summary report was prepared by Dr. Joseph A. Cavanaugh, Chief, Manpower Studies Unit, Training and Manpower Resources Branch, National Institute of Mental Health. Valuable technical assistance in the conduct of the survey was furnished by Mrs. Marie Eldridge, Statistician in the Manpower Studies Unit. A more comprehensive report is in the process of preparation and will be available in the near future.

Eli A. Rubinstein, *Ph.D.*
Chief, Training and Manpower Resources Branch
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HIGHLIGHTS OF SURVEY ON PSYCHIATRIC AIDES

SUMMARY

Psychiatric aides in 282 state and county hospitals in the United States were surveyed in 1963. Information and data were obtained on aides' personal and employment characteristics, training patterns, aides' attitudes about their job as well as characteristics of the job setting in which the aide works.

The total number of psychiatric aides in the hospitals surveyed was 96,200 as of March 1963. By comparing the figures between the number of aides hired and aides leaving during 1962, a 25% yearly turnover was estimated. The greatest concentration of aides (⅓ of the total) worked in hospitals located in the states of New York, California, Pennsylvania, and Ohio.

Almost 90% of the hospitals reporting some information on training (210 out of 237 hospitals) stated that they maintained some type of formal training programs which included classroom work or supervised training on wards. About 25% of the reporting hospitals stated that training materials were unavailable. Almost 70% of all aides reported that they had completed at least one first formal training course.

Almost 40% of all aides tabulated in a sample have completed high school with 21% stating that they possessed a grade school education only. About two-thirds of all aides earned less than $4,000 per annum. Eighty percent were classified as white; 40% of all aides are male. Among the male aides, 52% are under 40 years of age and among females aides 37% are under 40.

Over 90% of the aides tabulated in the sample reported that their duties consist of attending to minor medical care such as taking temperatures and changing dressings, keeping harmony and breaking up fights, protecting the patients' personal belongings, telling the nurse about a patients' physical complaints, encouraging and reassuring the patients, having friendly conversations with patients, and keeping dangerous objects away from patients. Relatively small percentages of aides reported that they spend most of their time in activities associated with pyschotherapeutic aspects of patient care.

When asked to suggest changes in their job setting, a significant number of aides suggested more help, a closer relationship or association between aide and patient, and fewer janitorial or guard-type duties.

A small sample of nurses were queried about the general proficiency and satisfaction of the aides with their job. About one-half of the nurses felt that the aide performs generally very well, but only 14% felt that the aide is very satisfied with his job. Reasons for dissatisfaction of the aide with his job included too many responsibilities, too heavy a work load, and inadequate pay.

Both the nurses and aides expressed the need for more aide training. The nurses agreed that additional training should include instruction on type and causes of mental illness, how to administer medication, instruction on general nursing procedures, elementary psychiatric or psychological training and more orientation in-service training.

The survey was carried out by means of a contract between the Manpower Studies Unit, NIMH and the National Association for Mental Health.

THE SURVEY

The principal objectives of this survey were to determine the characteristics of psychiatric aide employment practices and training programs in state and county mental hospitals in the United States, to acquire personal and employment data on the aides and to obtain additional data on the aides' role in the employment setting. The study was performed to obtain detailed information, on a national basis, on this large and important segment of mental health workers.

The objectives were accomplished by means of a listing of psychiatric aides and various questionnaires. The listing provided data on the number and sex distribution of aides as well as a sampling frame. One questionnaire requesting information on institutional employment and training was administered in each hospital. Another questionnaire requesting personal and employment data on the aides themselves was completed on a 10% systematic sample of aides selected from listings provided by the hospitals. Still another questionnaire on the role of the aide in the work setting was administered to a sample of aides and nurses in a random sample of hospitals. All of these questionnaires were distributed during the first four months of 1963. The data tabulated from these questionnaires provide the basis for this report.

THE RESPONDENTS

A total of 282 state and county hospitals for the mentally ill were included in the survey. Of this number, 266 (94%) hospitals furnished listings of the psychiatric aides employed in their hospital. These hospitals formed the frame from which a sample of aides was selected for the measurement of personal, employment and training characteristics as well as a sample of hospitals for the description of the aide work role in the hospital setting. In addition to the aide listings, 247 (88%) hospitals supplied either complete or partial data on hospital position and payroll characteristics and 257 (91%) hospitals supplied either complete or partial data on other hospital administrative characteristics such as employee benefits, training programs and practices. In the total study, all sizes of hospitals in nearly all states were represented from 87 hospitals employing 157 aides or less to 85 employing 536 aides or more.

Most of the data on personal, employment, and training characteristics were based on a total of 8433 aides who comprised the responding group of the 10% systematic sample of all aides in all hospitals. The data on the aide work role in the hospitals are based on responses from a sub-sample of 1104 aides and a sub-sample of 400 nurses which were selected from a sample of hospitals that were stratified by size.

The reliability of data varies both among the types of questionnaires utilized as well as among the items in each questionnaire. To a great extent, the reliability is a function of the variable response rates. For example, the information on hospital position and payroll characteristics was based on an 88% response rate. This means that 88% of all hospitals included in this survey responded to all or part of this questionnaire. However, on some individual items within the questionnaire the response rate was considerably less. This was especially true for a questionnaire item requesting the number of aide applicants on file. Likewise, the response rates on items in the questionnaires on personal and work role data varied somewhat thus affecting the reliability of individual items. Data reliability in terms of sampling error will be discussed in a subsequent report.

EMPLOYMENT AND TRAINING PATTERNS WITHIN HOSPITALS

Number of Aides

The total estimated number of psychiatric aides in 282 state and county hospitals for the mentally ill surveyed was 96,200 on March 1963. This total estimate is based on the data supplied by 266 hospitals on a name listing form with estimates for the 16 hospitals that did not report. The adjustment for non-response represented about 7% of the total estimated number of aides.

Hospitals were also asked on another questionnaire to supply data on the number of aides on the payroll as of the first and last day of 1962. The estimated total number on the payroll on December 31, 1962, was 93,300. This figure was based on reports from 247 hospitals and estimates for 35 non-reporting hospitals and represents approximately 2.5% more than were on the payroll on January 1, 1962. The 2,900 aide difference between the estimates as of March 1963 and December 31, 1962, may be attributed in part to additional hirings during the first three months of 1963 and in part to the reliability of the estimates.

Positions, Turn-Over and Applicants

An estimated 96,000 positions for aides were assigned in all hospitals at the end of 1962. This represented an increase of about 1½% over the first of that

year. Almost 26,000 aides left their positions during the year and about 28,500 were hired. This would indicate an approximate 25% turn-over in one year. Although a sizable proportion of hospitals (42%) did not report information on applicants, it is estimated that there was a total of almost 46,000 applicants for aide positions on file as of December 31, 1962, and an estimated 60,000 applicants were rejected during 1962[1] (Table 1). Although data are not available on the quality of these applicants, the raw data suggests no shortage of applicants for aide positions.

Employment by State and Concentration in Large Hospitals

Out of the total number of hospitals reporting, the greatest concentration of aides was in hospitals in the States of New York, California, Pennsylvania, and Ohio. These states accounted for slightly over one-third of all aides on hospital payrolls. Other states with a less but high concentration of aides are Massachusetts, New Jersey, Michigan, and Illinois (Table 2).

There is a tendency for a large percentage of all aides to be employed in a relatively small number of large hospitals, (in terms of number of aides). About 40% of all aides tabulated were employed in the largest 42 hospitals reported. Each of these hospitals employed 544 aides or over. States employing relatively large proportions of female aides are: Delaware, Illinois, Arkansas, Nevada, North Dakota and South Carolina.

Employment Benefits and Practices

Labor Unions—From 239 hospitals responding to an item on recognition of labor unions (or similar employee organizations), 44% stated that they recognize a labor union which represents the aides. As hospitals become larger with greater numbers of aides, there is a tendency to have a labor union representing them. Of the 42 responding hospitals each employing more than 544 aides, two-thirds recognize aide labor unions (or other employee organizations), while in smaller hospitals employing 157 aides or less, only one-third recognize them.

Civil Service Employment—Of the 251 responding hospitals, 35% reported that aides are not employed under any type of civil service or merit regulations. From those hospitals employing personnel under a merit system, 58% are employed under state regulations and 7% under county. Where a merit system exists, a greater percentage of the very small hospitals employ under county merit systems while large hospitals tend to employ under state systems. A relatively small percentage of large hospitals (26%) and a large percentage of small hospitals (50%) do not employ aides under any merit system.

[1] The figures in this section and Table 1 are estimates of totals which are based on item estimates for non-reporting hospitals added to figures reported by responding hospitals. The estimates for non-reporting hospitals were computed by multiplying the sum of the known number of non-reporting hospitals in each size class-interval by the average number of aides responding to a given item. This average was obtained from the average number in each size class-interval from the responding hospitals.

Table 1.—Estimated Number of Aide Positions Assigned, Number on Payroll, Aides Hired and Leaving, Applications on File and Rejected; State and County Mental Hospitals* (N=282) 1962

Employment Characteristic	Date		
	January 1, 1962	Actions During 1962	December 31, 1962
Aide Positions Assigned	94,500	1,500	96,000
Aides on Payroll	90,800	2,500	93,300
Aides Hired	.....	28,500	.....
Aides Leaving	.....	26,000	.....
Applications on File	.....	.....	46,000
Applicants Rejected	.....	60,000	.....

* All figures in table adjusted to include estimates of non-reporting hospitals

Utilization of Intelligence Tests—The practice of administering intelligence tests to aides at the time of employment, is applied in 47% of the 249 hospitals responding to an item on intelligence testing. Few small hospitals adhere to this practice while most of the very largest do.

Work Hours and Overtime—A regular full-time work day in the majority of hospitals (95%) is an 8-hour day. A required work week is 5 days in 86% of the hospitals, 5½ days for 5% and 6 days for 4%. When employees are paid for overtime, the great majority of hospitals (70%) pay the regular rate. There is a tendency, however, for medium sized hospitals to pay premium rates.

Room and Meals—A room is provided aides without charge in 6% of the 252 hospitals responding. Of the 15 hospitals reporting a room provided without charge to aides, 27% (4 hospitals) stated that 76%–100% of the aides working receive this benefit. Out of the remaining 15 hospitals, 50% or less of the aides in a given hospital receive this benefit. Meals (i.e., any meals) are provided free for aides in a relatively small number of hospitals (16%) and this practice is confined largely to the smaller hospitals employing less than 287 aides each.

Rotation of Shifts—Shift rotation for aides is utilized by 27% of all reporting hospitals. The extent of this practice is not noticeably related to size of hospital in terms of aides employed.

Retirement—Retirement policies for aides varied considerably among the 220 hospitals responding to this item. Almost 5% have no policy or plan concerning retirement. Twenty-two percent stated that the minimum number of years for retirement with some pay is 10–14 years, and 35% stated that it is 15 years and over. However, the age of retirement with full pay was reported as 60–65 years by 63% of all hospitals responding.

Sick Leave and Annual Vacation—The policy on the number of days for sick leave and annual vacation also varies considerably among hospitals. Forty-two percent allow 12 days sick leave annually with pay while 32% of the 250 hospitals reporting this item, stated that they allow 15 days. Thirty percent allow 10 days paid vacation, 22% allow 12 days, and 24% allow 15 days. Only one percent permit over 15 days vacation with pay. A greater percentage of the larger hospitals allow 15 days vacation than the smaller hospitals.

Training

Almost 90%, (210) of the 237 hospitals reporting some or all information on training indicated that they maintained formal training programs for aides which include classroom work or supervised training

Table 2.—Number of Psychiatric Aides and Percent Male by State of Employment; State and County Hospitals for Mentally Ill, United States, 1963

State of Employment *	Number of Hospitals	Number of Aides		Percent Male
		Total	%	
Total	282	96,166	100.0	40.8
Alabama	2	1,067	1.1	40.4
California	12	7,837	8.1	39.4
Colorado	3	1,319	1.4	37.1
Connecticut	4	1,734	1.8	39.0
Delaware	2	346	0.4	29.7
Florida	4	2,359	2.5	41.9
Idaho	2	219**	0.2	37.5
Illinois	12	4,535**	4.7	27.8
Indiana	9	2,702	2.8	36.0
Iowa	5	961	1.0	24.2
Kansas	3	944	1.0	31.9
Kentucky	4	1,122	1.2	37.1
Louisiana	3	1,272**	1.3	58.8
Maine	2	563	0.6	33.8
Maryland	6	2,034	2.1	37.9
Massachusetts	12	3,950	4.1	38.5
Michigan	10	3,751	3.9	47.8
Minnesota	7	1,425	1.5	49.3
Mississippi	2	1,079	1.1	36.1
Missouri	5	2,667	2.8	38.4
Nebraska	4	1,183	1.2	44.0
New Jersey	11	4,092**	4.3	36.8
New York	20	15,779**	16.3	43.8
North Carolina	4	1,543	1.6	49.4
Ohio	21	5,089**	5.3	37.8
Oklahoma	4	1,305	1.4	43.7
Oregon	3	927	1.0	42.9
Pennsylvania	19	6,226	6.5	44.3
Tennessee	7	1,118	1.2	45.5
Texas	9	2,475	2.6	40.6
Virginia	4	2,175	2.3	44.3
Washington	3	1,342	1.4	42.4
West Virginia	5	704	0.7	58.3
Wisconsin	42	2,202	2.3	47.3
State A	1	13	<0.1	69.2
State B	1	300	0.3	32.3
State C	1	828	0.9	41.0
State D	1	1,488	1.5	44.0
State E	1	1,523**	1.6	.....
State F	1	118	0.1	46.2
State I	1	297	0.3	43.3
State J	1	101	0.1	9.1
State K	1	533	0.6	37.8
State L	1	216	0.2	54.5
State M	1	320	0.3	22.6
State N	1	624	0.6	47.3
State O	1	747	0.8	27.0
State P	1	328	0.3	50.0
State Q	1	295	0.3	37.9
State R	1	275	0.3	50.0
State X	1	114	0.1	.....

* Some states are coded to avoid disclosure of individual hospitals
** Includes an estimate for non-reporting hospitals

on wards. However, only 56% of the 41 responding hospitals with 48 aides or less had training programs of this type. From 27 hospitals which indicated no training programs, the majority (73%) out of 22 responding hospitals indicated that they maintained some type of informal "on the job training." Only six hospitals out of 232 reported no training of any type and these were, for the most part, among the smaller hospitals. The number of hours of classroom work for Course A (presumably the beginning course) varies from 28 hours or less to 120 and over. In about one-half of the 197 institutions reporting course information in formal training programs, the program (Course A) consisted of 48 hours or less of classroom work. In respect to supervised ward training, slightly less than one-half of the total number of hospitals reporting, (66 out of 135) stated that the program consisted of less than 60 hours. A greater percentage of the larger hospitals (544 aides and over) than the smaller hospitals, reported that they administered 160 hours and over of ward training. Rewards for training completion ranged from pay raises (20% of all hospitals) to diplomas, (29%). About 50% of the 200 hospitals reporting this item (viz., type of reward for completion of training) give no recognition in any form.

Training materials were not available in almost 25% of the reporting hospitals where a first formalized training course is given (Course A).

Advanced training programs, i.e., a second training course for aides, is administered in 75% of the hospitals giving formal course work and 35% of this number reported that the number of hours of classroom work varied from 50 to 110 hours. For this second advanced course, 22 percent of the hospitals reported that they have no training materials available. Two-thirds of the hospitals maintaining formalized training programs make available a third training program in which over one-half require 50 hours or more of classroom work. Almost 40% reported that they have no training materials available for this course. Fifty-two hospitals offer a fourth training program which aides can take. For most hospitals, the time devoted to this course consists of under 120 hours.

PERSONAL AND EMPLOYMENT CHARACTERISTICS OF AIDES

Education

From a sample of 8,433 aides, data were tabulated on the highest level of education completed for 7,529 (87%). Out of this number, 21% were reported as having grade school education or less with only 5% not completing the 8th grade, 31% some high school, and almost 40% have completed high school. About 9% had either some or had completed college. A greater proportion of aides in the younger age groups have graduated from high school. A slightly greater proportion of female aides than male aides have attended or completed high school (Table 3).

Previous Relevant Formal Training and Experience

The great majority of aides (92%) had no relevant previous formal training before working as an aide. Among those having no previous training, proportions were similar regardless of the age distribution or educational background of the aide. Out of the number having some formal training about one-third had the equivalent of three weeks or less and the remainder over three weeks.

Approximately 73% of all aides tabulated had no previous experience in work related to the work of a psychiatric aide before employment. Almost 6% had up to a year's experience and almost 9% had four years or over. As would be expected, those aides in the older age groups brought with them, when first employed, a proportionately greater number of months experience than those in the younger age groups. A smaller proportion of female aides than male aides reported no experience. The amount of relevant previous experience is unaffected by marital status or extent of education.

Table 3.—Percent Distribution of Psychiatric Aides by Sex and Education; State and County Hospitals for Mentally Ill, United States 1963

N=96,200 (Estimated)

Educational Level	Sex [1]		
	Both Sexes	Male	Female
Total	100.0	100.0	100.0
Grade 4 or less	.7	1.0	.5
Grade 5–7	4.5	5.5	3.8
Grade 8	15.9	17.0	15.2
High School 1–3 Years	31.2	27.7	33.7
High School Completed	38.8	37.5	39.7
College 1–3 Years	7.9	9.9	6.5
College Completed	1.0	1.5	.6

[1] In some columns, percentages do not add to 100.0% because of rounding.

Present and Beginning Annual Salary (Gross Pay)

Twenty percent earned between $3,500 and $4,000 per annum and about two-thirds earned less than $4,000 (Table 4). Generally, the highest salaries are paid in the State of California. Almost 80% of all aides surveyed who were earning over $5,500 work in California. This state pays this amount to 16% of all their aides. Less than 1% of the aides in California earn less than $3,500. In Alabama, Kentucky, Delaware, Louisiana, Mississippi, Oklahoma, and Tennessee, for example, almost all aides tabulated earn less than $3,500. As might be expected, slightly higher percentages of aides earn over $5,000 as age increases except in the extreme upper age groups. This is evident particularly among male workers. There is a definite tendency for aides to be paid more with increasing years of experience especially in the salary brackets over $4,500. Although sample sizes are small, the tabulations do not indicate any discernable relationship between present salary level and hours of relevant previous training.

For many aides, present salaries are superior to what they earned when first employed. For example, only 30% of the aides earning between $2,500—$3,000 when first employed still presently earn this amount. About 30% of this group now earn between $3,000—$3,500 and the remainder earn more than $3,500 (Table 5).

Table 4.—Percent Distribution of Psychiatric Aides by Sex and Present Annual Salary; State and County Hospitals for Mentally Ill, United States 1963

N=96,200 (Estimated)

Annual Salary	Sex		
	Both Sexes	Male	Female
Total	100.0	100.0	100.0
Under $1000	.3	.3	.3
1001–1500	1.2	.9	1.4
1501–2000	1.4	1.6	1.3
2001–2500	9.6	9.8	9.4
2501–3000	17.8	19.2	16.9
3001–3500	17.8	16.9	18.5
3501–4000	18.8	17.9	19.3
4001–4500	13.4	13.5	13.3
4501–5000	11.5	11.5	11.5
5001–5500	6.4	6.1	6.7
Over 5500	1.9	2.5	1.5

[1] In some columns, percentages do not add to 100.0% because of rounding.

Proportion of Time Spent in Nursing Care

Two thirds of all aides tabulated in the sample spend between 76–100% of their time in nursing care (i.e., direct care of patients as opposed to housekeep-

Table 5.—Percent of Psychiatric Aides by Beginning and Present Annual Salary; State and County Hospitals for Mentally Ill, United States 1963

N=96,200 (Estimated)

Beginning Annual Salary (in dollars)	Total	Present Annual Salary[1] (in dollars)										
		1000 and Under	1001–1500	1501–2000	2001–2500	2501–3000	3001–3500	3501–4000	4001–4500	4501–5000	5001–5500	Over 5500
Under 1000	100.0	6.7	23.6	2.6	7.0	11.5	8.0	7.3	10.2	13.1	8.0	1.9
1001–1500	100.0	.....	4.0	2.6	11.3	24.3	17.8	12.6	8.7	9.5	7.1	2.2
1501–2000	100.0	.....	.1	8.2	18.6	22.1	11.3	17.5	8.6	8.5	3.7	1.4
2001–2500	100.0	.....	.....	.1	24.4	21.6	15.8	15.2	7.5	5.7	6.7	2.9
2501–3000	100.0	.....	.....	.....	.1	29.4	29.4	17.8	9.4	6.4	6.3	1.2
3001–3500	100.0	.....	.2	.....	.1	.3	27.8	30.2	20.1	17.3	3.8	.3
3501–4000	100.0	.....	.....	.....	.....	.....	.....	30.3	29.8	30.4	7.2	2.3
4001–4500	100.0	.....	.....	.....	.....	.....	.7	.7	44.6	27.3	20.1	6.5
4501–5000	100.0	.....	.....	.....	.....	.....	.....	.....	.....	27.3	51.5	21.2
5001–5500	100.0	.....	.....	.....	.....	.....	.....	13.3	.....	.....	66.7	20.0
Over 5500	100.0	.....	.....	.....	.....	.....	.....	.....	.....	33.3	.....	66.7

[1] In some rows, percentages do not add to 100.0% because of rounding.

ing activities and administrative duties) with only 15% spending 50% or less of their time in this work. A somewhat smaller percentage of aides under 21 years of age than in other age groups spend full time in nursing care (i.e., 75–100%). There is no sex differential in respect to full time spent in nursing care. Among all states, California and New York employ a greater percentage of aides who devote between 26–50% (i.e., less than full time) to patient care.

Race

Almost 6,600 (78%) out of the total sample of 8,433 aides were classified by race. The great majority (80%) were reported as white and 18.6% were classified as Negro. The ratio of Negroes to whites is greater in the age groups below 45. The ratio of Negroes to whites employed from 1961 to 1963 is slightly greater than it was in previous years. States employing relatively large proportions of Negro aides (i.e., 40% or more of the total aides employed) are Delaware, New Jersey, South Carolina, Mississippi, and District of Columbia. States employing relatively large proportions of non-white other than Negro are Colorado (15%), Hawaii (100%), and New Mexico (99%).

There is a decreasing proportion of Negro aides employed in the higher salary level classifications.

Age and Sex

About forty percent of all aides are male. If all male aides are classified by age in intervals of 5 years, the greatest percentage (15%) fall into the 25–29 year age category. Fifty-two percent of all male aides are under 40 years of age.

Approximately 60% of all aides are female. The greatest percentage (15%) of the female aides fall into the 45–49 age interval. Thirty-seven percent of the female aides are under 40 years of age (Table 6).

Years Working in Same Hospital

Twenty-seven percent of all aides included in the sample group were reported as having worked 10 years or longer in the same hospital. Approximately the same percentage was reported as having worked two years or less.

Marital Status

The majority (70%) of aides for both sexes are married. About 17% have never been married. The greatest percentage of married aides are in the 35–39 year age interval. A relatively greater proportion of males than females in the older ages, i.e., 50 and over are married. A greater proportion of females than males are widowed in the older age groups.

Table 6.—Sex-Age Distribution of Psychiatric Aides; State and County Hospitals for Mentally Ill, United States 1963

N=96,200 (Estimated)

Age	Sex (%)					
	Both Sexes		Male		Female	
Total	100.0	Cum.	100.0	Cum.	100.0	Cum.
Under 21	2.9	2.9	3.7	3.7	2.4	2.4
21–24	9.5	12.4	13.9	17.6	6.5	8.9
25–29	11.1	23.5	15.1	32.7	8.2	17.1
30–34	9.8	33.3	10.9	43.6	9.0	26.1
35–39	10.1	43.4	8.6	52.2	11.1	37.2
40–44	11.7	55.1	8.3	60.5	14.0	51.2
45–49	13.1	68.2	9.8	70.3	15.5	66.7
50–54	12.7	80.9	10.5	80.8	14.1	80.8
55–59	10.8	91.7	10.2	91.0	11.3	92.1
60–64	6.1	97.8	6.4	97.4	6.0	98.1
Over 65	2.2	100.0	2.6	100.0	1.9	100.0

Training Programs Completed

A total of 7,752 aides (92% of the total sample) responded to a question on training programs completed. Almost 70% reported that they had completed at least one first formal training course; one third had completed a second program and 14% had completed a third. Almost 17% had never participated in any program. As would be expected, a greater proportion of employees in older age groups had completed more training programs. There are small percentage differences between the younger and older employees who have had no training with the exception of employees under 21 years of age. Almost 30% of the latter age group, which represents 3% of the total sample of aides, have not completed a training program.

ROLE OF AIDE IN HOSPITAL SETTING

In the section of the aide study concerning role of the aide in the hospital setting, an attempt was made to measure attributes relating to the actual duties that the aide performs, other work characteristics, general job satisfaction, and factors surrounding the aide's entrance into psychiatric aide work. A number of items concerning these attributes were incorporated

into the questionnaire in order to directly or indirectly elicit meaningful responses. This questionnaire was administered to a sample of 1104 aides.

Duties as Reported by Aides

A knowledge of the actual utilization patterns of psychiatric aide personnel is important when considering improved and more efficient utilization, training programs and employment selection. Aides were requested to state what types of activities they actually perform on the job, what activities they spend most of their time doing, what they enjoy the most and least, and what they think the patients most often want them to do.

The job of the aide involves a myriad of activities which range from giving medicine to patients to helping them dress themselves (Table 7). Over 90% of the aides reported that their duties consist of: attending to minor medical care such as taking temperatures and changing dressings; keeping harmony and breaking up fights; protecting the patients' personal belonging; telling the nurse about a patient's physical complaints; encouraging and reassuring the patients; having friendly conversation with patients; keeping dangerous objects away from patients.

A far lesser percentage of the aides are required to: make reports to the psychiatrists on the patient's condition (56%); tell the psychiatrist about the patient's physical complaints (59%); get to know the patient's history and causes of illness (66%).

Table 7.—Duty Characteristics of Psychiatric Aides by Sex; State and County Hospitals for Mentally Ill, United States 1963

Duties Actually Performed on the Job	Sex (%)		
	Both Sexes	Male	Female
Give medicine to patients	76.0	72.8	77.9
Take temperature, blood pressures, change dressings and other medical care	91.6	88.5	93.6
Write notes in patient's chart	75.8	71.8	78.3
Discuss with other employees how a patient can be helped the most	84.0	82.0	85.2
Play games with patients, supervise or encourage their recreation	79.6	84.2	76.8
Break up fights, arguments, and keep harmony	91.0	92.9	89.8
Help patient dress	90.0	87.8	92.9
Wash walls, windows, floors	72.6	71.2	73.4
See that patients keep appointments	84.5	82.5	85.8
Make reports to the psychiatrists on the patient's mental condition	56.2	57.5	55.3
Point out to patient how his behavior or thinking is wrong	70.7	71.8	70.1
Protect the patient's personal belongings	90.1	90.1	90.1
Encourage patients to mix with each other	87.5	86.6	88.0
Tell the psychiatrist about a patient's physical complaints	58.7	61.8	56.8
Keep track of ward supplies and patients' store orders	78.7	78.6	78.8
Bathe patients or keep untidy ones clean	89.6	87.7	90.8
Report to the nurse on the patients' mental condition	87.6	84.7	89.4
Help a patient discuss his problems	80.3	79.9	80.5
Provide information to the patients about hospital rules, procedures and opportunities	80.7	82.0	79.9
Tell the nurse about a patient's physical complaints	91.9	90.0	93.1
Supervise the patients in their work	86.6	88.5	85.5
Encourage and reassure the patients	91.9	89.3	93.6
Feed bed patients and serve food to others	83.6	80.0	85.8
Put away and distribute laundry and clothes	79.1	77.8	79.8
Take patients from one place to another	86.5	89.0	84.9
Get to know the patients' history and cause of his illness	65.7	66.9	64.9
See that one patient does not take advantage of another	93.7	94.3	93.4
Have friendly conversation with patients	96.7	96.7	96.6
Keep dangerous objects away from patients	95.8	96.9	95.2
Make beds, keep floors and equipment clean	88.6	84.7	91.1
Attend staff meetings, ward conferences or classes	71.2	71.3	71.2
Assist and supervise patients with visitors	76.3	77.7	75.4

From the large list of duties that aides reported as performing, 41% indicated that they spend most of their time dressing and keeping patients clean; 30% giving medicine to patients and 21% spend most of their time feeding and serving food. Relatively small percentages of aides reported that they spend most of their time in activities associated with the psychotherapeutic aspects of the program for patient care. In some activities there was a wide discrepancy between the relative percentages of aides stating what they spend the most time doing and what the patients most often want them to do. This was particularly evident in the case of playing games and supervising patient recreation in which only 17% of the aides stated they spend the most time doing, while 40% stated the patients most often wanted them to perform this activity. Aides spend a relatively small amount of time having friendly conversation with patients even though patients desire it. Generally, greater proportions of aides felt that giving medicine to patients, keeping patients clean and reassuring them were the types of activities that are most important to do well.

There is considerable difference in opinion among the aides as to what activities they enjoy most. Over 30% of the aides indicated that they most enjoyed each of the following activities: playing games with patients, supervising and encouraging their recreation; encouraging and reassuring the patients and having friendly conversations. In contrast, aides least enjoy breaking up fights and keeping harmony; washing windows, walls, and floors, (72% are required to perform this type of duty); putting away, distributing laundry and making beds; keeping floors and equipment clean.

The activities that aides enjoy doing correspond closely to what the aides think the patients most often want them to do. These duties consist of playing games and supervising recreation; having friendly conversations with patients; encouraging and reassuring the patients and helping the patient discuss his problems.

Job Satisfaction

Aides were asked to suggest changes in their job setting (Table 8). Almost 30% had none to suggest while 26% stressed more help; 23% suggested a closer association or relationship between aide and patient; and 21% felt that there should be fewer janitorial or guard-type duties.

The aides would advise any applicant for a job as a psychiatric aide that, to be satisfied with the job, one must like to work with the mentally ill, feel that the work is worthwhile, challenging, and gives a feeling of accomplishment and that one must be interested in helping and serving other people. Few aides would apparently emphasize such pre-employment factors as need for good personality, steady work, financial security and salary or a willingness to further his education for this line of work.

Aides were asked what job is best for a person like himself. Although responses to this question were not entirely definitive, slightly over 50% responded that the job of aide was best. Fifteen percent stated registered nurse. Smaller numbers of responses included cook and gardener but few stated practical nurse.

Since it was assumed that job satisfaction is, in part, dependent on promotion policies, aides were questioned about their job promotion experience. Fifty percent of all aides responding stated they had never been promoted. This percentage decreased only slightly with advanced education. This percentage also decreased only slightly for the group who have been employed six years or under but for those who have been employed over 6 years, the percentage decreased to 34% (Table 9).

Aides were asked if there was any other job they would want to change to. Sixty percent said they would want to change to another job if they were able. Nearly one-half would like to change to the job of registered nurse, 22% to occupational therapist and 25% to practical nurse (Table 9).[2]

Work Characteristics

Supervision: For immediate supervision in the work setting, the great majority of aides (71%) reported a registered nurse as supervisor while about 12% reported a supervisory psychiatric aide. Almost all supervisory aides stated that their immediate supervisor is a registered nurse.

There are some sex differentials in respect to supervision. Eighty percent of all aides report to a female supervisor, but 42% of all male aides are responsible to a male supervisor and 58% to a female. Ninety-three percent of all female aides report to a female supervisor, while only 7% report to a male supervisor.

Work Shifts: Fifty-seven percent of all aides surveyed work a day shift and almost all the remaining work either evening or night. The rotation of shifts is apparently not practiced extensively since only 2%

[2] Differences in response existed when aides were asked what job is best for him and what job he would like to change to. In the case of the former, few stated practical nurse and in the latter 25% stated practical nurse. Assuming that the response was reliable in each case, the differences in the response can apparently be interpreted as meaning that the job of practical nurse is not suited for a person like himself (i.e. the aide), but he would like to change to that job if he were able.

reported working a rotating shift. A greater proportion of supervisory aides than others work the day shift and not a single supervisory aide among the 22 reporting worked the night shift. The age, education, race or number of years employed is not noticeably related to the type of shift worked.

Aides were requested to supply additional information on change of shifts, (i.e., day, evening, night, or rotating). Seventy-seven percent reported that they had had no change of shift in the last six months and 17% had had a change of shift either one or two times in the same time period.

Table 8.—Psychiatric Aide Suggested Job Changes by Sex and Education; State and County Hospitals for Mentally Ill, United States 1963

Suggested Changes in Job of Psychiatric Aide	Sex (%)			Education (%)						
	Both Sexes	Male	Female	Grade 4 or less	Grade 5–7	Grade 8	1–3 yrs. High School	Completed High School	1–3 yrs. Coll.	Completed College
More help	26.1	23.8	27.5	.....	30.1	28.2	27.2	25.1	23.9	27.3
Better pay	9.8	14.9	6.7	8.3	6.8	5.0	6.6	12.2	15.1	18.2
Better working hours	4.4	3.8	4.8	.....	5.8	4.7	3.4	5.3	2.6	18.2
Better communication between aides and staff members; more team work	7.4	7.2	7.6	.....	8.7	5.6	5.8	8.0	9.5	31.8
Better buildings and facilities	5.6	5.2	5.8	8.3	2.9	7.4	5.3	5.5	5.2	9.1
More professional recognition, should be called psychiatric nurses	2.1	1.7	2.3	.....	.....	2.4	1.1	1.5	5.9	4.5
Improve training of aides; provide better or more types of training	5.7	7.8	4.3	.....	.....	6.2	4.8	5.2	9.2	9.1
Provide better or more training in medication	2.3	2.1	2.4	.....	1.0	2.4	.8	3.6	2.3	.....
Provide better or more training in patient care	6.1	5.8	6.3	.....	1.0	1.5	7.1	7.0	8.5	9.1
Provide better or more in-service training	1.7	1.3	1.9	.....	.....	.3	1.8	2.1	2.3	4.5
Provide better or more training in occupational therapy	1.5	1.3	1.6	.....	.....	2.7	1.4	1.5	1.0	.....
Fewer janitorial "housekeeping," or guard duties should be required	20.8	18.0	22.4	41.7	11.7	13.4	22.1	20.8	28.2	22.7
Less record keeping or other clerical tasks should be required	1.4	1.8	1.2	.....	1.0	.6	1.4	1.3	2.0	13.6
Aides should not be permitted to give medication	1.1	1.3	.9	.....	1.9	.6	.5	1.3	2.0	.....
Should be closer association or relationship between aide and patient	23.3	19.7	25.5	16.7	12.6	19.3	23.2	26.5	22.3	36.4
Aides should be given more responsibility in handling and disciplining patients	2.2	2.1	2.2	.....	.....	.9	1.3	2.4	5.6	.....
Set up a seniority system for advancement; should not be at RN's discretion	1.6	2.6	1.0	.....	2.9	.3	1.4	1.3	3.9	.....
Arrange for more frequent reclassification of aides	2.2	2.7	1.9	.....	.....	.6	.8	2.3	7.2	4.5
Eliminate shift work	2.2	2.6	1.9	25.0	1.9	2.1	1.0	2.8	2.6	.....
Distribute work load more fairly, rotate responsibility or schedule in difficult wards etc	5.0	3.8	5.7	.....	1.9	3.3	4.8	5.2	7.5	9.1
Intelligence or aptitude tests should be given to determine aide's qualifications	2.2	3.7	1.2	.....	.....	.....	.8	2.3	6.2	22.7
None	28.0	29.1	27.3	25.0	38.8	40.9	29.6	25.1	17.0	.....
Other	7.9	8.6	7.6	.....	10.6	3.9	6.7	8.3	13.1	4.5
Don't know	.3	.5	.2	.....	.....	.....	.....	.2	1.6	.....

Table 9.—Selected Characteristics on Job Satisfaction of Aides by Sex and Education; State and County Hospitals for Mentally Ill, United States 1963

Characteristic of Job Satisfaction	Sex (%)			Education (%)						
	Both Sexes	Male	Female	Grade 4 or less	Grade 5–7	Grade 8	1–3 yrs. High School	Completed High School	1–3 yrs. Coll.	Completed College
Have you ever been promoted?										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Yes	49.5	48.7	50.0	41.7	52.7	54.3	46.9	46.8	55.7	54.5
No	50.5	51.3	50.0	58.3	47.3	45.7	53.1	53.2	44.3	45.5
Job wish to change to										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cook	1.3	1.9	1.0	.....	3.9	3.8	1.0	.8	.9	.....
Registered nurse	46.1	42.7	47.9	.....	5.9	22.9	43.4	52.7	57.5	73.7
Gardener	.9	2.5	.....	.....	2.0	3.8	.3	.5	.9	.....
Occup. therapist	22.1	31.3	17.0	.....	13.7	23.6	16.7	24.6	26.9	21.1
Practical nurse	24.7	13.7	30.8	42.9	70.6	31.8	35.1	18.2	9.0	5.3
Switchboard operator	2.1	1.9	2.2	.....	3.9	3.8	1.5	1.1	4.7	.....
Watchman	2.1	5.8	.....	57.1	.....	8.3	1.8	1.0	.....	.....
Other	.8	.2	1.1	.....	.....	1.9	.3	1.1	.....	.....

Aides generally like the shift they have been assigned. There is some indication that there is somewhat less satisfaction among those with college training with the shift schedule assigned. In general, night shifts are more unpopular with slightly over one-third indicating that they either didn't like this shift or only liked it moderately well.

Ward Changes: Patterns involving changing from ward to ward vary. For those with two years or less of experience, 52% had been working, at the time of the interview, 6 months or less on their present ward and 19% had been working from one to two years. Among those who had worked at the same hospital from 6–9 years, 24% had been working in the same ward from 2 to 4 years. Sixteen percent of those who had worked 10 years in the same hospital were still working on the same ward.

Reports and Staff Meetings: A large percentage (90%) regularly report in some form to someone on the conditions of the patients. For aides who normally spend over 50% of their time in patient care, the percentage is slightly higher. These reports are usually made to either a nurse or a charge attendent. A relatively small number (13%) report directly to a psychiatrist. The number of reports made vary, but the great majority (90%) made at least five reports or over per week to the required supervisor.

The holding and attendance of aide staff meetings is not a typical practice. Over two-thirds of the aides surveyed indicated that they do not attend any meetings. Even among supervisory aides, less than 50% attend staff meetings.

Pay After Deductions: In terms of actual expendable income, 87% of all aides receive from $1,800 to $3,600 per year ($150–$300 per month) after deductions are made from monthly salaries. A very negligible percentage (2%) receive "take-home" pay amounting to $4,200 or more per year. There is a tendency for the better educated aides to be paid slightly higher amounts of "take-home" pay.

Job Application Characteristics

Data reviewed in an earlier section indicated that mental hospitals have little difficulty in recruiting for aide positions. Even though turn-over is high (25% in 1962), there are more than enough applicants for aide positions at least in terms of numbers. In order to improve recruitment and selection procedures and to employ the best qualified, it is important to know something about characteristics of aide applicants before employment. Accordingly, a number of questions were asked the aides why they preferred a job as a psychiatric aide, what type of work they were doing previously and what influences were interacting to prompt them to apply.

Aides more often hear of job openings from a friend or relative than from other sources and more often from a friend than a relative. Few learned about their job opening through a newspaper or similar media. This pattern holds for those recently employed as well as for those who were first employed a number of years ago. A greater percentage of the older employees, and aide supervisors, both in terms of age and years working in the hospital, learned about an opening which led to their present job from "general knowledge" around the hospital.

A sizable proportion (54%) of the aides did not have a job when they first applied and could be regarded as unemployed at that time. A slightly lower percentage of males were unemployed at the time of application than females. Only 16% had never been employed previously.

Those who were employed previously came principally from work involving operating machines and related work or from service occupations other than private household work (60%). This latter occupational category, i.e., service occupations other than private household work, especially described the female aides. A sizable percentage (11%) of the male aides were formerly employed as craftsmen, foremen and related workers. Among the better educated aides (i.e., those with some college training) previous employment was of a clerical nature (14%) and "other service occupations" (44%) with only 18% as operators of one type or another. Few in this better educated group reported themselves as having previous job experience in the professional or technical areas.

The reported motivations for changing jobs differed among those previously holding a job when first making application for a position as a psychiatric aide. Some (34%) preferred to change because it provided a secure job and a measure of financial security. Others (32%) preferred it because of the satisfaction they got as a result of helping, making people happy and seeing them improve. The good salary attracted others (18%); the relationship between their educational background and capabilities was an attraction for some (16%); the character of the work in respect to educational advancement and the opportunity to learn and achieve self-development attracted still others (10%).

The provision for financial security and a secure job was much more of a determining motivation to change jobs for the males than the female aides. Motivation for the females to change jobs centered around good salary and self-satisfaction in helping others to a greater extent than was the case for males.

Those with less education were less motivated to change jobs by such factors as wanting to help others and by a desire to participate in interesting and educational work and more motivated by such conditions as financial security, good salary, easier work and more convenient work location.

It has been generally supposed by some that family relationships and ties among employees in a hospital influence other relatives to seek employment in mental hospitals. Almost one-half (43%) of the aides interviewed reported that they had relatives working in the same hospital. For the most part, these relatives consisted of either a spouse or other relative not a child or parent. These relatives worked as other aides or as other service workers but not generally as a nurse or professional. Thirty-six percent of all aides indicated that one of these relatives influenced them to apply for a job as a psychiatric aide.

Selected Demographic Characteristics

Marital Status and Dependency—As previously indicated, about 70% of all aides are married and a slightly lesser percentage (65%) were married when they first applied for a job. Of the employed aides reported as married, 78% have one spouse also working. Among the married female aides, almost 90% of their husbands work. About 40% of the aides live in a household containing two or less persons. One-half of all aides live in a household in which there are no persons under the age of 18 living. One-third of all aides have 2 or more persons under the age of 18 living in the household. Generally these persons can be considered dependents. The degree of dependency on aides for children under the age of 18 is not great since only 18% of all aides have 3 or more children living in the household. For less than 2% of all households, the spouse is not present, i.e., not living in the household.

Country of Birth—Less than two percent of all aides tabulated were born outside the United States and of those foreign born a very small percentage have established residence in the United States since 1950. Approximately 16% of the aides' fathers or mothers were born outside the U.S.

Educational Attainment of Aides Compared to Fathers—One-third of all fathers of aides attained an educational level of grade 8 and 17% completed high school.

Among the aides 15% had finished grade school while 37% had completed high school. Very few

fathers of aides (9%) had attended college or university while almost 14% of the aides reported themselves as having attended college.[3] These data indicate a marked tendency for aides to generally surpass their fathers in educational attainment.

Number of Years of Residence—Aides tend to have lived for a considerable length of time in the area of the employing hospital. This is supported by data which indicate that 70% of all aides have lived in the general area for 10 or more years.

In-Service Training

Characteristics of training programs in the hospitals have been previously mentioned in the section entitled "Employment and Training Patterns within Hospitals." In another section entitled "Personal and Employment Characteristics of Aides," data on training programs completed by the aides were presented. It was pointed out in this latter section that almost 70% of all aides reported that they had completed a first formal training course.

In still another part of the survey, aides were further questioned on aspects of training. Of this group, 88% stated that they had attended some classes held in the hospital that were related to their job (but that they did not necessarily complete a formal course). For those with low educational attainment, a much smaller percentage had attended classes.

The great majority of aides (74%) felt that additional training would be beneficial in order to do a better job. Out of those who completed high school, this percentage was higher than 74% and considerably lower for those with a lesser educational attainment.

From those who expressed a need for additional training, slightly over 52% stated that the additional training should include such subjects as nursing procedures—treatment and methods, and licensed practical nursing procedures. Twenty-five percent wanted instruction about the types and causes of mental illness; 30% would like training in administering medication, giving blood transfusions, and related subjects.

NURSES' ATTITUDES TOWARD AIDES

A sample of approximately 400 professional nurses was chosen in order to elicit opinions about various aspects of the work and general job characteristics of the psychiatric aides. Since nurses are closely identified with the work of the aides, it was considered important to compare data on opinions by aides with the perceptions of the nurses on similar subjects.

[3] Sampling variability explains the slight percentage differences between these figures and those previously cited in the section entitled "Personal and Employment Characteristics of Aides."

General Characteristics of Nurses Surveyed

The sample of nurses interviewed consisted of 23% supervisory nurses, 38% head nurses, 40% staff and other types of nurses.

Fifty-five percent of the nurses interviewed were below the age of 40. A substantial percentage of all nurses (34%) were between the ages of 40-55, and 45% of the supervisory nurses were within this age group. Although only about 60% of the nurses have a title that implies a supervisory capacity, almost 90% reported that they have some direct responsibility for supervision of aides and almost all (97%) of the head nurses supervise aides. About 30% of the nurses began their career as psychiatric nurses since 1960 and a sizeable proportion (18%) were first employed by the hospital either in 1962 or 1963.

Duties of Aides as Reported by Nurses

Nurses were requested to respond to a number of questions and items relating to the duties of aides. The questions were similar to those asked of the aides in order to make comparisons between the aides' and nurses' perception of the aides. (Table 10).

At least 98% of the nurses stated that aides have to do each of the following duties in the hospital in which they are employed:

Help patients dress
Break up fights and keep harmony
Bathe patients and keep them clean
Report to the nurse on the patient's condition
Tell a nurse about a patient's physical complaints
Feed bed patients and serve food to others
Have friendly conversation with patients
Keep dangerous objects away from patients
Take patients from one place to another
Encourage and reassure the patient

Somewhat less percentages of nurses stated that an aide had to perform any of the following duties:

Make reports to psychiatrists on the patient's mental condition (67%)
Point out to the patient how his behavior or thinking is "wrong" (60%)
Get to know patient's history and cause of illness (51%)

Almost one-quarter of all nurses interviewed and about 30% of the supervisory nurses felt that aides should be performing other duties which are generally not being performed now. For the most part these other duties fell into the general categories of therapeutic care, information transmittal and physical-custodial duties. Although the total interviewed was

small, the nurses' supervisors and staff nurses especially felt that aides should be encharged with more duties of a therapeutic nature.

Of all the duties that nurses generally stated aides must perform, there was not a great deal of agreement among them as to what three duties were *most important to do well.*[4] Thirty-four percent stated that it is important to administer medicines well and 40% felt the encouraging and reassuring the patient was also important to do well.

About one-half of the nurses felt the psychiatric aides enjoy most playing games with patients and supervising their recreation as well as having friendly conversations with patients. Agreement among nurses concerning other duties aides most enjoy doing was not particularly evident. However, nurses agreed to a great extent that aides least enjoy washing walks, windows and walls and other types of housekeeping duties.

Over fifty percent of the nurses stated that bathing patients and keeping untidy ones clean takes up the most time of the aides, while 37% felt that making beds and keeping floors and equipment clean consume the most time. A very small percentage of the nurses (1%) stated that aides spent most of their time in activities related to patient therapy such as getting to know patient's history and cause of illness and discussing with other employees how a patient can be helped the most (Table 10).

The majority of nurses said that what the patients want aides to do most often is play games and supervise recreation, encourage and reassure them, have friendly conversations and help patients discuss their problems.

Less than 10% of the nurses stated that aides spend most of their time doing any one of these activities.

From the nurses' viewpoint, the aides tend to do the following activities least well:

Write notes in the patients' charts.

Point out to the patient how his behavior or thinking is "wrong."

Help a patient discuss his problems.

Get to know the patient's history and cause of his illness.

Wash walls, windows and floors.

Most of these duties relate to therapeutic activities which many nurses stated they thought aides should be doing. In addition, the aides themselves expressed a desire for in-service training in this area.

[4]A distinction has been made between (1) duties most important for aide to perform and (2) duties most important to do *well*. The figures in Table 10, Col. 2, refer to duties most important to perform. Figures on duties most important to do *well* are not included in Table 10.

In general, among those duties that nurses feel are *most important* for aides to perform, relatively small percentages are of the opinion that aides do them least well. For example, 31% of all nurses surveyed felt that encouraging and reassuring the patient was one of three duties most important for the aide to perform, but only 8% of all nurses felt that aides perform this duty least well; 35% stated that bathing and keeping patients tidy was important but only 5% said that they do this duty least well; 29% said that reporting to the nurse on patient's condition is important but only 10% said they do this least well (Table 10).

Some disagreement apparently exists between the nurses and aides concerning some duties that are *most important to do well.* For example, 26% of the nurses regarded reports to the nurse on a patient's mental condition as one of the three most important duties to do well while only 8% of the aides regard this activity in this way. A similar disagreement exists in respect to the reporting to a nurse about a patient's physical complaints. Forty percent of the nurses felt that encouraging and reassuring the patient is one of three most important duties for the aide to do well, while 27% of the aides felt it important to do well. Generally, greater percentages of aides than nurses felt that it was more important to properly perform well the administration of medicines, take temperatures and give other minor medical care, feed bed patients and serve food to others.

Some disagreement also exists between the aides and nurses as to what duties the aides enjoy most and least. Fifty-two percent of the nurses stated that aides enjoy most playing games and supervising patient recreation. Only one-third of the aides agreed they enjoy this the most. Only 14% of the nurses were of the opinion that the aides enjoyed most the discussing of problems with a patient; 27% of the aides mentioned this activity as one of three that they enjoy most.

A considerably smaller percentage of aides (8%) than nurses (17%) stated that aides enjoy least the writing of notes in a patient's chart; over 50% of the aides said that they enjoy least the breaking up of fights while only 23% of the nurses felt that aides enjoy this duty the least.

Aides' Job Satisfaction

When asked a question about how satisfied the nurses think aides are with their job, 71% felt that aides are moderately satisfied and 14% thought that aides were moderately dissatisfied. Only 14% thought that aides were very satisfied (Table 11). Impressions of satisfaction for those nurses stating

Table 10.—Percent Nurses' Responses on Selected Duty Characteristics of Psychiatric Aides According to Actual Duties Performed and Duties Most Important, Take Most Time and Done Least Well; State and County Hospitals for Mentally, Ill, United States 1963

Duty Characteristic	Duties aides have to do	Three duties nurses think most important for aide to do	Three duties that take most time	Three duties aides do least well
Give medicine to patients	84.2	22.6	25.7	6.0
Take temperatures, blood pressures, change dressings, etc.	96.0	19.6	12.9	10.4
Write notes in patients' charts	82.6	11.2	7.7	36.6
Discuss with other employees how patient can be most helped	92.7	15.0	.9	13.1
Play games with patients, supervise or encourage recreation	93.8	13.2	10.8	7.5
Break up fights, arguments, and keep harmony	98.2	4.5	1.4	1.2
Help patients dress	99.1	4.2	10.7	2.9
Wash walls, windows, and floors	87.8	1.2	18.9	19.3
See that patients keep appointments	94.5	1.8	6.0	2.1
Make report to psychiatrists on patient's mental condition	66.9	6.0	.1	9.7
Point out to patient how his behavior or thinking is wrong	60.2	1.9	.2	22.2
Protect the patient's personal belongings	97.6	3.3	5.9	9.9
Encourage patients to mix with each other	96.5	15.2	2.7	11.1
Tell psychiatrists about patient's physical complaints	71.2	2.3	.1	2.8
Keep track of ward supplies and patients' store orders	93.3	1.3	9.1	10.9
Bathe patients or keep untidy ones clean	99.1	35.1	57.8	4.7
Make report to nurse on patient's mental condition	98.2	28.5	1.4	9.8
Help a patient discuss his problems	84.7	9.0	2.5	20.1
Provide information to patient about hospital rules	95.4	4.1	2.9	11.3
Tell nurse about patient's physical complaints	99.8	25.6	.....	7.7
Supervise the patients in their work	96.0	2.8	14.0	7.4
Encourage and reassure the patient	99.4	30.9	5.9	8.0
Feed bed patients and serve food to others	99.4	14.3	24.2	2.3
Put away and distribute laundry and clothes	95.6	.5	12.7	7.0
Take patients from one place to another	98.6	.6	18.5	1.6
Get to know patient's history and cause of his illness	50.9	3.3	.1	19.5
See that one patient does not take advantage of another	97.6	2.5	1.8	3.1
Have friendly conversation with patients	99.4	10.5	5.0	7.3
Keep dangerous objects away from patients	99.6	2.1	.7	2.0
Make beds, keep floors and equipment clean	97.0	3.9	37.1	7.8
Attend staff meetings, ward conferences or classes	88.2	2.7	1.3	5.5
Assist and supervise patients with visitors	96.0	.....	.1	4.1

aides are satisfied were based on such general observations as good morale, no complaints, and that the aides seem to enjoy the work and are generally happy. For nurses who stated aides are dissatisfied, their reasons for so stating were, in general: aides have too many responsibilities with too heavy a work load; too many housekeeping chores; inadequate pay; lack of initiative and disinterest in training courses; low morale and many "gripes."

About one-half of all nurses surveyed think that the aides will stay working in the hospital until they retire. Among those who think aides may leave before retirement, greater percentages of nurses cited as possible reasons: poor salary; dissatisfaction with this type of work which some think is "depressing and revolting" with the result that they may have difficulty handling patient relationships; better opportunities elsewhere.

Aide Proficiency and Improvement

Nurses gave opinions about the aides' general proficiency on the job as well as comments on needed job changes and improvements. Slightly over 50% stated they thought aides in general do a very good job. The remaining group felt that aides do moderately good (Table 11). Greater percentages of nurses were of the opinion that aides could improve by the acquisition of more job and in-service training, by being

Table 11.—Percent Nurses' Response on Proficiency and Satisfaction of Psychiatric Aides with Their Jobs by Nurses' Job Title; State and County Hospitals for Mentally Ill, United States 1963

Job Title of Nurse	Degree of Aide Proficiency			Satisfaction of Psychiatric Aides with Their Job				
	Total	Very Good	Mod. Good	Total	Very Satisfied	Mod. Satisfied	Mod. Dissatisfied	Very Dissatisfied
Total	100.0	53.2	46.8	100.0	14.3	70.8	13.9	1.0
Supervisor	100.0	56.4	43.6	100.0	12.9	79.5	6.3	1.3
Head nurse	100.0	54.0	46.0	100.0	14.3	70.0	13.9	1.9
Staff nurse	100.0	51.9	48.1	100.0	16.2	60.2	23.6	.....
Instructor	100.0	29.4	70.6	100.0	25.0	58.8	16.2	.....
Administrator	100.0	47.4	52.6	100.0	15.8	63.2	21.1	.....
Other	100.0	57.5	42.6	100.0	8.5	83.7	7.8	.....

more interested in actually doing a good job and in their own self-development (Table 12).

Nurses also suggested needed job characteristic changes to improve general proficiency (Table 13). Greater percentages of nurses suggested that:

Aides should be required to do less janitorial and housekeeping duties (51%);

Conditions should be promoted which lead to closer relationships between aide and patient (48%);

A provision should be made for more or better training (43%).

In order to attract more and better persons to be psychiatric aides, more nurses reported an increase in salary is necessary than any other one item. A large

Table 12.—Percent Nurses' Response on Ways Aides Need to Improve by Job Title of Nurses; State and County Hospitals for Mentally Ill, United States 1963

Characteristic of Improvement	All nurses	Job Title of Nurse					
		Supervisor	Head nurse	Staff nurse	Instructor	Admin.	Other
Job training in patient care, need more in-service training	46.2	45.5	41.5	49.8	67.6	21.1	50.3
More psychiatric training	13.8	11.2	17.3	13.3	7.4	5.3	11.8
Better training to do charting	2.3	.....	3.9	1.9	.....	15.8	1.3
Trained to take better care of equipment	.7	.3	1.7	.....	.....	.....	.....
More training in the use of drugs and other medication	5.3	3.7	5.8	8.7	.....	.....	2.6
Learn to work as a team or group, not as individuals	5.0	6.2	4.1	4.2	1.8	15.8	2.6
More interest in self development and in doing a good job	31.5	40.8	26.3	27.2	23.5	78.9	36.6
More conscientious in observing patients and reporting symptoms	7.2	5.9	7.1	5.2	14.7	.....	11.8
Better understanding of professional ethics or responsibilities	5.8	7.8	6.4	4.2	.....	15.8	3.9
Better type aide would result from administrative improvements related to them (pay, facilities, etc.)	6.0	4.4	7.5	5.2	5.9	21.1	3.9
Higher caliber aide should be employed	9.0	12.1	8.1	4.9	23.5	47.4	2.6
Relationship with nurses and other staff members	3.1	5.0	3.2	2.3	1.5	.....	2.0
No improvement needed	6.3	4.0	5.8	11.7	1.5	.....	4.6
Other	5.8	9.3	5.1	.....	8.8	.....	12.4
Don't know	.2	.....	.....	.....	.....	.....	2.0

percentage of nurses also mentioned that it is necessary to better inform the public as to what is involved in the job of psychiatric aide and to raise the pre-employment educational requirements.

Nurses feel that, at present, economic considerations such as salary and job security attract persons to apply for a job as psychiatric aide. A sizeable percentage of nurses also think that the type of work in terms of helping others and especially the mentally ill, is challenging and motivates persons to apply.

Attitudes on Aide In-Service Training

As indicated elsewhere in this report, the great majority (85%) of all nurses surveyed feel that aides need additional training. An even greater percentage of the nurse supervisors feel that additional aide training is necessary. However, 70% of the staff nurses stated that in their opinion, further training for aides is necessary.

More nurses agreed that the additional training should include instruction on type and causes of mental illness, how to administer medication and other elementary medical attention, instruction on general nursing procedures including LPN training, elementary psychiatric or psychological training and more orientation in-service training.

Relationships of Aides with Other Employees and Patients

In general, the registered nurses reported that aides have either very good or fairly good relationships among themselves. A similar condition applies to relationships with other employees such as cooks, gardeners, etc., as well as with the registered nurses. There is a tendency for a larger proportion of nurses who began nursing before 1940 to report that they think aides have very good relationships with the registered nurses.

Nurses also stated that, in general, aides "get along" either very well or fairly well with both psychiatrists and the patients. A large percentage of nurses surveyed indicated that patients are affected when an aide leaves or quits his job. In some cases, this manifests itself in patient depression, crying and sadness as well as exhibiting a general retarded condition and withdrawal. In other cases resistance is shown to his replacement and patients sometimes exhibit uncooperative attitudes and have difficulty adjusting to new personnel.

Table 13.—Percent Nurses' Response on Needed Changes in Job of Psychiatric Aides by Job Title of Nurses; State and County Hospitals for Mentally Ill, United States 1963

Characteristic of needed job changes	All nurses	Job Title of Nurse					
		Supervisor	Head nurse	Staff nurse	Instructor	Admin.	Other
Need more help	11.8	16.3	8.9	12.9	5.9	21.1	12.0
Better pay	9.1	15.7	7.8	6.1	11.8	.....	6.0
Better communication between aides and staff members; more team work	3.1	5.0	2.5	2.6	.....	.....	4.0
Better working hours	2.2	3.1	.....	.....	8.8	.....	9.3
Better buildings and facilities	.4	.9	.6	.....	.....	.....	.....
More professional recognition	3.7	5.0	4.2	2.9	.....	.....	3.3
Improve training of aides, provide better or more training	7.8	10.7	6.1	4.2	22.1	.....	9.3
Provide better or more orientation training	3.9	2.2	4.0	6.1	7.4	.....	1.3
Provide better or more training in medication	4.2	1.6	4.9	7.1	.....	.....	4.0
Provide better or more training in patient care	14.9	16.9	18.6	10.7	13.2	.....	8.7
Provide better or more in-service training	8.5	7.2	10.2	7.8	23.5	.....	1.3
Provide better or more training in occupational therapy	1.9	.9	2.7	2.3	.....	.....	1.3
Provide better or more training in charting	1.9	1.3	1.5	2.3	4.4	.....	3.3
Aides should have fewer responsibilities	7.0	8.8	4.5	10.7	13.2	.....	2.0
Fewer janitorial "housekeeping" or guard duties should be required of aides	50.8	49.2	59.3	45.6	33.8	100.0	36.7
Less record keeping or other clerical tasks should be required of aides	5.4	8.5	1.9	3.2	7.4	31.6	11.3
Aides should not be permitted to give medication	7.3	7.8	7.4	10.0	4.4	.....	2.0
Should be closer association or relationship between aides and patient	48.3	49.8	52.3	44.7	29.4	84.2	42.7
Aides should be given more responsibility in handling or disciplining patients	1.4	.6	1.1	.....	10.3	.....	3.3
Set up a seniority system for advancement	.3	.....	.8	.....	.....	.....	.....
Arrange for more frequent reclassification of aides	1.7	3.8	1.3	1.0	.....	.....	1.3
Eliminate shift work	.5	.6	.....	1.6	.....	.....	.....
Distribute work load more fairly, rotate responsibility or schedules	1.7	.9	1.7	1.0	.....	.....	6.0
Intelligence or aptitude tests should be given to determine aides' qualifications	4.2	6.3	5.1	1.3	.....	.....	4.7
None	9.1	9.1	8.5	6.5	1.5	.....	21.3
Other	3.9	3.8	4.2	4.2	.....	.....	5.3

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Cmnd. 1892: The Next Step

REPORT OF THE
BACIE CONFERENCE
15 JANUARY 1963

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INDUSTRIAL TRAINING WHOSE RESPONSIBILITY?

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Report of the
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Chairman: SIR WILLIS JACKSON, FRS
Professor of Electrical Engineering and Head of the Department of Electrical Engineering, Imperial College of Science and Technology
President BACIE

Rt Hon John Hare, OBE, MP

Minister of Labour

It is little more than a month since the publication of the Government White Paper* which is to be the subject of your discussions today. I am delighted that you should be considering these proposals so promptly.

One of the our main objects in publishing the White Paper was to promote public discussion. Above all, discussion among people such as yourselves who are actively concerned with industrial training will, I know, be particularly valuable.

Before I get on to the White Paper, some of you will remember that when I spoke to your Conference at Cambridge in the autumn of 1960† and to your spring conference here in London last year,‡ I had a good deal to say about the 'bulge' in the number of school leavers.

This was due to reach its peak in 1962. 1962 has come and gone and the peak of the bulge has passed. How have we done? I have just received the 1962 figures and I would like to give you the apprenticeship figures for boys.

During 1962, 121,500 boys entered jobs involving apprenticeships. This is by far the highest figure ever achieved in one year. It is 6 per cent higher than the figure for 1961 which was itself a record.

Because of the big increase last year in the numbers leaving school the proportion of boys entering apprenticeships was slightly down on 1961. It was 36.2 per cent as against 37.9 per cent. Nevertheless, the proportion is considerably higher than it was in the years before the bulge. The average for the years 1950 to 1958 was 35 per cent as compared with 36.2 per cent last year.

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*See Appendix 'A', p. 68.

†cf *Policy in Perspective*, BACIE Publications, price 7s 6d (10s non-members).

‡cf *Industrial Training—Whose Responsibility?* BACIE Publications, price 5s (6s non-members).

So you can see that during the bulge years so far the number of boys entering apprenticeships has more than kept pace with the increase in the number of boys leaving school.

This is a very creditable achievement—particularly so because in 1962 industry was not having an easy time. Previously since the war the intake into apprenticeship had followed fairly closely the state of the economy at the time. As unemployment had gone up so the number of apprentices taken on had tended to go down. In 1962 this has not happened.

This is a splendid opportunity to thank all those who have contributed to this success—employers, trade unions, educational authorities, the Youth Employment Service and my own Ministry. A particular word of thanks is due to the Industrial Training Council. Some hard things have been said about the Council by certain people outside industry. But I am sure they deserve a major part of the credit for this substantial increase in the number of apprentices.

Background to the White Paper

But gratifying though last year's figures are, they are not good enough. They do not measure up to the need. If this country is to secure a steadier and more rapid rate of economic growth, it is abundantly clear that we need more training and better training. The technological changes that are taking place in industry today—and which must take place on an increasing scale in future—will call for an increasing proportion of trained and technical manpower in the working population.

Whether or not we join the Common Market, we in this country have got to accept the fact that competition in world markets is going to get tougher. This calls for the highest level of resourcefulness and the highest level of efficiency throughout the whole of industry and commerce. We shall get neither of these without an adequate supply of educated and trained men and women.

These then are the main considerations that have led the Government to make the proposals for re-organising industrial training that are to be found in the White Paper. They are the result of a great deal of thought and enquiry that have been taking place over the last two years.

We have looked into the way training is done abroad. We have drawn on the valuable experience which we in the Ministry of

Labour have gained in planning and running the demonstration courses for first-year apprenticeship training in Government Training Centres.

We have drawn on the experience gained by the technical colleges in running integrated courses of first-year apprenticeship training. We have had the benefit also of the knowledge and experience of those who have been active in the field of industrial training over many years, both inside and outside industry.

One name that comes to mind in this connection is that of Lady Williams who will be your second speaker today. Her book, *Recruitment to Skilled Trades*, published in 1957,* made an important contribution to the discussion of industrial training and I am delighted that she should be following this up with a further book—*Apprenticeship in Europe*†—which will be published, I understand, next week. Some of the ideas that are in this book were rehearsed by Lady Williams in her talk‡ at the BACIE Conference last spring and those of you who heard her then will have no difficulty in seeing that these ideas have had an influence on Government thinking.

Time For Progress

In the White Paper we say that we have decided that 'the time has come to strengthen and improve the existing partnership between industry, the Government and education authorities in the provision of industrial training'. I believe that the time is now ripe for real progress for two main reasons.

First, we are now over the hump of the bulge. The bulge continues, but not at its 1962 level. Until we were through 1962 I think it was right to concentrate on the problem of increasing the number of training opportunities to match the increase in the number of school leavers.

It would have been a mistake to have tried to 'swop horses in mid-stream'. But far more important, I believe that general industrial opinion is now willing to accept fundamental changes in training to an extent that it would not have agreed to even one or two years

**Recruitment to Skilled Trades*, GERTRUDE WILLIAMS, Routledge and Kegan Paul, 1957.

†*Apprenticeship in Europe*, GERTRUDE WILLIAMS, Chapman and Hall, 1963.

‡cf Appendix 'B', p. 72.

ago. In any sphere of life, in making changes, the hardest, most time-consuming and yet utterly essential step is to obtain acceptance of the idea that change in fact is necessary.

Our apprenticeship system goes back for many hundreds of years. That it has served us well in the past has perhaps made it more difficult for those most directly concerned with it to accept the idea that change is necessary. But there has been a quite remarkable movement of opinion over the course of the last two years.

Changing Climate of Opinion

When I spoke to you last year I drew attention to this when I said I believed there was a new awareness among enlightened leaders of both sides of industry of the challenge and opportunities presented by the bulge. I referred to a growing recognition in many firms that acceptance of the responsibility for industrial training must be a responsibility for producing results. Since then the movement of opinion has continued and I think that the reception given to the White Paper has shown that we chose the right moment for new proposals.

There have been a variety of factors and agencies which have contributed to bringing about this change of attitude. Undoubtedly BACIE has played an important part as indeed have all those who have written critically about the question of training and have preached the need for improvement.

Obviously, I am not in a position today to go into detail about the proposals themselves. This will have to await the discussions we are to have shortly with the BEC and the TUC and with representatives of educational associations and other interested organisations. We are meeting the BEC on 24 January and the TUC shortly afterwards. We shall, of course, consider all the suggestions we receive most carefully.

The White Paper was intended only to paint a picture in broad outline. Its proposals give practical recognition to the principle that the main responsibility for training should rest with industry. But the role of the State will be increased. It will have a correspondingly greater financial stake in training.

The legislation we propose will enable the cost of industry's contribution to training to be more fairly spread and will provide

for Boards to set standards and lay down conditions. As a result not only the numbers of those trained will be increased but the quality of training as well should rise.

So far the White Paper has been generally welcomed. But as was to be expected, a number of criticisms have been made. Perhaps the main criticism is that the proposals do not go far enough—that they lack teeth. I believe events will show this criticism to be ill-founded. You will have noted, for example, that the Minister of Labour will be empowered to appoint inspectors to ensure that standards of training are good enough. I will only say, at this stage, that the national interest is involved here and it is my intention to see that the national interest is not neglected. Of one thing I can assure you, I certainly do not intend to introduce a Bill into Parliament merely to give legislative sanction to the *status quo*.

The White Paper talks mainly in terms of the training of the young. I think it is right that the Boards should give much of their attention to this, for the training of the young represents by far the biggest contribution to our skilled labour force. But I hope no one will over-look that the powers of the Boards will extend to all forms of training. They will cover the important subject of adult re-training and they will certainly not exclude training for management.

In handling the training of the young the Boards will first need to deal with such issues as the length and type of training, the compiling of syllabuses and the arrangement for tests. I believe some form of testing, either of the trainee himself or of the quality of the training he receives, is essential for ensuring a proper standard of training.

Importance of the First Year

We have suggested, too, that it might be worth the while of Boards in the case of apprentice training to concentrate detailed attention on the first year of training, and perhaps take over complete responsibility for it throughout their industry, using individual firms and other organisations as their agents. I am quite sure that if the first year's training can be got right more than half the battle will have been won. Of course the battle will never be completely won because requirements will constantly be changing and the Boards will have to ensure that their activities change in tune with them.

In the short term I would emphasise that the White Paper is no reason for deferring improvements in present apprenticeship arrangements. Last year I asked the engineering and construction industries to review their training arrangements—to see if the periods of apprenticeship might not be shortened, greater flexibility introduced into the age of entry and the content and quality of training improved.

So far the construction industry has agreed that the period of apprenticeship can be reduced from 5 years to 4 and four Regions have taken advantage of this. But I regret to say that things have moved more slowly in the engineering industry. I certainly do not intend to relax my efforts to make industry as a whole look far more urgently at these matters and I hope we shall not have to wait long for further progress. The Bill must not present an alibi for people to sit back and do nothing.

The White Paper's proposals are both evolutionary and revolutionary. They are evolutionary in that they build on the system we already have. Industrial training will continue to be organised on an industry-by-industry basis, and the composition of the Boards will be a logical development of the partnership which has grown up in this sphere between industry, education and the Government.

The proposals are revolutionary in that they will introduce compulsion where none existed before and spread the cost of training throughout all firms in an industry. They will also give stronger recognition to the interest and responsibility which the central Government has in this field.

The White Paper's proposals, together with the Contracts of Employment Bill and the other measures we are taking to enhance the status and security of workers, will contribute towards the modern and efficient Britain we all wish to create.

What we want people to do now is to consider carefully these proposals and let us have their constructive comments on them.

Chairman: SIR WILLIS JACKSON, FRS

Professor Lady Williams

Professor of Social Economics, Bedford College, University of London

I think all of us here who have concern for industrial training would want to congratulate the Minister and his advisers in the Ministry of Labour for what I consider to be a really courageous act. In this country the belief that industrial training is the sole responsibility of industry itself, of employers and employed, has been for a very long time one of the sacred cows, and if there has ever been any suggestion that anybody should intervene, advise, have a right to be consulted or to criticise, or in any way to lay a finger on it, both sides of industry have immediately said, 'Hands off!' I think it shows both understanding of our twentieth century problems and courage that the Minister has, in this way, stuck his neck out and stated the conviction of the Government that this is a matter in which the whole community has a stake and that it is not something which is a domestic responsibility solely for those who are in industry itself. That seems to me something that we ought to recognise and I am very glad to have this opportunity of doing so.

I wanted to preface my remarks with that, because I hope it will be understood that, if I make some critical comments on the White Paper, they are not made in any carping spirit. They are intended to be constructive and to help to contribute to the discussion—which the Minister says, and I agree with him, is so important—of what I believe might be valuable steps that we ought to take in implementing the proposals that the White Paper has introduced.

I am sure that the Minister himself would be the first to say that a White Paper is not a blue print and is not intended so. A White Paper shows the direction in which the Government is prepared to move, but it gives only the general direction and it leaves to all of us, by our discussion, by our comment, to say how far in that direction we are prepared to go, or whether we also want some side roads, at least, to be explored. I hope, therefore, that the suggestions that I am going to make will be accepted in that spirit

as part of the discussion which the White Paper is intended to initiate.

I am not going to talk at all about details. There are a very large number of details that you, who are close to industry, will feel to be of very great importance. There are questions, for example, of the lines of demarcation between industries. Although I call them details I am not suggesting that they are not of very great importance. They seem to me, however, matters which must of necessity be settled not in public debate but in detailed discussion and negotiation between those concerned and those who are expert in making similar lines of demarcation. What I want to do is to consider the sort of lines, the sort of clauses, that I want to have in the Bill.

When I first read the White Paper, and was so happy that this very important new step had been taken, my first criticism in my own thought was, 'I don't think this is going to do really what I want, because all of its functions are permissive instead of being compulsory.' I am not a parliamentary draftsman and, therefore, I could not possibly consider the words in which such things might be put, but I wondered how it might be phrased so as to make it certain that these things happened, instead of being left as a pious hope that they might be undertaken. I may say that I had some small experience during the war as a temporary civil servant in the Ministry of Labour, and I learned there how very different it is to formulate a policy in the academic cloisters and to phrase it in such a way that it constitutes an instruction to local officers. This experience came to my aid because I tried to think how I would do this, and I came to the conclusion that I was barking up the wrong tree. I do not think now that my criticism is that these functions are permissive. Indeed, if the Boards operated well the fact that they were permissive would really be irrelevant. It would not matter very much ; the job would be done.

Need for a Legislative Framework

I came to the conclusion that they may not be successful because they will be operating in a sort of void. I felt that there must be a firmer framework within which these Boards should carry on their functions. I began to think, therefore, about the kind of framework

Now I know that if I make certain suggestions to you they will seem at first sight fairly odd because, as the Minister said, they

run so counter to our traditional practice. But if you think of the whole of our social legislation, if you think of all the things that we have been doing in the last fifty or sixty years, I think you will see that what I am suggesting is really part of the traditional pattern. We have always had, and I hope we always shall have, a great respect for voluntary action, voluntary negotiation and individual freedom. However, we have had to recognise that, in highly-developed, sophisticated urban communities, it is necessary to have a certain degree of common practice. There has to be, in order that those individual freedoms may be harmonised, a legislative framework within which voluntary negotiation is carried on. If you look at the different facets of our economic life you will find that this is true of the majority of them. What I want to propose is that the Bill should not merely set up Boards with these functions, but that it should set up Boards within a legislative framework, and it is that legislative framework that I want to suggest.

We have been discussing industrial training in this country for twenty years. We have urged that this and that should happen, we have begged employers and trades unions to be less rigid, to be less inflexible, to adjust themselves to the realities of modern life, and we have had to face the fact—it is the cause of the White Paper—that by and large our success has not been very great. The result is that we, in this country, are far behind our Continental competitors in this sphere. We have been extremely fortunate in that we have not had the traumatic experience which the Continental countries had in war and the aftermath of war. Neither our physical assets nor our institutions have suffered the same degree of destruction and disruption. The result is that they were compelled to reorganise on mid-twentieth century lines, and we have not been compelled to do so. As a consequence, we are not years but a decade or two behind them in these developments. It is merely to try and bring us into line with what is being done in other countries that I make these proposals.

I want the Bill to devise the main principles upon which apprenticeship schemes should be developed, leaving it to the Boards to adapt them to their own individual requirements. I am going to stick my neck out very much here in saying that I want it to be part of the Bill that apprenticeship should normally start at the school-leaving age, but it should not be necessary that it should do so. I say 'the school-leaving age' rather than a year because I am one of those who hope that the school-leaving age will be raised in future. But

I hope that there will not be an hiatus between leaving school and starting apprenticeship; there is no technical or educational justification for it. I therefore want apprenticeship, as part of the Bill, to be something that starts at school-leaving age but is not restricted to that minimum age.

Length and Form of Apprenticeship

I want the Bill to contain also the idea that three years is the normal apprenticeship period. That does not mean that there is no particular skill which may not take longer. There are, as we know, some very highly-skilled jobs which might require four years, but the majority do not; the majority, in fact, require less than three, but I think that young people ought to be protected for three years.

The Minister spoke of the discussions he has been having with industry regarding the length of apprenticeship. I do not think that he will be very successful if he tries to persuade them industry by industry. We have to give one of these big revolutionary jolts to the whole of industry. So I hope that the Bill will contain this idea that it should only be three years as a norm with the possibility of a longer period of apprenticeship if the Board can justify it. The onus, however, must be on the Board to justify the longer period; it should not be accepted as something that is customary or something that does not need to be discussed.

Next, I want the Bill to include provision for technical education as a compulsory element in training. Day release has worked marvellously in some industries; it has not worked at all in others. If you take industry as a whole, the proportion of employers who have given day release to their young trainees is a small minority. I believe, with the Minister, that the skill of our labour force is one of the most important assets that we have to develop in the future. We shall certainly fail in our competition with other countries if we do not develop it and, what to me is equally important, we shall be failing in our responsibility to young people if we do not give them an opportunity to develop all the capacities that they have inherent in them. So I should like, in my Bill, a provision for technical education to be an essential, integral, compulsory part of apprenticeship training.

Personally, I should like to go farther. I think we can congratulate the Central Youth Employment Executive and the Industrial Training Council on the magnificent job that has been done in

increasing the number of apprentices. I do not think we can congratulate anybody at all on increasing the general quality of apprenticeship, and it is the quality to which we must now turn our attention. Perhaps I must modify at once what I have said: I think we can offer a little congratulation. We can congratulate the technical colleges and the Government Training Centres which have shown, though on a very tiny scale, what can be done if there is full-time, integrated, careful training in the first year of apprenticeship. I should like my Bill to include that as one of the essentials of apprenticeship. I should like it to be understood that, in the first year, an apprentice is a pupil and not a worker; he is being taught, carefully, methodically and properly, the basic principles of the industry in which he is going to work; the basic principles of the particular craft for which he is going to train; how to use his tools the right way and why he uses them in that way. We have to train young people so that they are not robots copying something that they have seen somebody else do and merely making mechanical gestures irrespective of whether those fit the particular job or not. We want to try and train young people who know, who understand, who are interested, who can think and who, therefore, during their lives will be able to adapt their knowledge to changing technological circumstances. I do not believe you can achieve these ends through the ways in which most apprentices learn their trades at the present time.

When I say, a first year, I am not concerned with who provides that first year of integrated training, provided that it is well done and it is supervised. It could be done in a works school. We are fortunate in having a very large number of firms which have taken their training responsibilities very seriously and have organised induction courses. It could be done in a Government Training Centre. It could be done in a technical college. What matters is that it should be done. So that is the next thing I want in my Bill.

It follows, because I am so concerned with this technical educational aspect, that I believe the Boards will not operate successfully unless they include within them representatives of the employers and the trades unions who are concerned in that industry and also quite a significant number of officers of the Ministry of Labour and the Ministry of Education. They would be there as advisers and consultants and to show clearly the community's stake in industrial training and the community's recognition of its responsibility for seeing that the abilities of young people are not wasted. So I should

like it to be an essential part of the Bill that the Board would have to include a significant proportion of officers from those two Ministries.

I think then I would be prepared to leave the functions mentioned in the White Paper in the way in which they have been phrased, because the framework within which they would be operating would make it necessary for them to take decisions, and it would allow that degree of flexibility which is necessary in adapting any State scheme to the requirements of widely-differing occupations.

Adult Training

I was particularly glad that the Minister called attention to the fact that, while this scheme of industrial training is directed primarily to the young who, of course, are the largest body of people to be considered, it should also be concerned with those who are no longer adolescents. One of the very great failures of this country lies in its lack of provision for what, on the Continent, is called accelerated adult training. We all recognise that the rate of technological change in industry now is fantastic. A very large number of things, a very large number of industries even, that are part of the common experience of my own students at college, were not even known by name to me when I was an undergraduate. I do not understand them now, but I had not even heard the names then!

Things are changing at such a rate that, to think that if we give training to people between the ages of fifteen and eighteen, we shall have done all that is necessary to provide a skilled labour force, is to live in a fool's paradise. Industry changes so quickly that we have to face the fact that people in industry must be prepared to change their occupations, often when they are adult. I should like to assure Mr. Cousins that I feel, I think possibly as strongly as he does, that it would be wrong to demand of people that those changes should be made unless, as a community, we were providing a foundation and a background of security for them. That is one of our communal responsibilities. But I think also that we have to recognise that change is necessary, and we cannot have the higher standard of living for which we all hope unless we are prepared to change our methods, and changing methods often means, for adults, changing occupations. We must, therefore, as part of our training scheme have provision for the re-training of grown-up people who

need to change their jobs or who did not have the opportunity for skilled training at the normal apprenticeship ages.

I realize that what I am proposing is really revolutionary in our training plans. I want, in the few moments that remain to me, to say how very much I am looking forward to hearing Mr. Cousins speak because, in my view, he represents the body which holds our future in its hands. None of these schemes which have been suggested —the Boards in the White Paper with all their functions or the kind of Bill that I am suggesting—can work unless the trade unions are willing to co-operate. It means that this is going to cut across some of their most cherished traditions.

I know that the reason for a great many of those, the reason for the unwilliingness to allow adults to be re-trained fully, for example, although there are some schemes for skilled trades, is the haunting fear of unemployment. It is a fear which is still strong in people's minds though it is a considerable time since we had any serious unemployment. I know that at the moment, in certain areas, the situation is grave, but those of us who lived through the inter-war period know that there is a very big difference between the incidence of unemployment now and what it was in those twenty years. But the memory goes on. It is, however, worthy of note that, in other countries which have to face the same sort of economic problems as we do, those restrictions do not operate. The trade unions in most of the Continental countries are quite prepared to accept the shorter period of apprenticeship. They are quite prepared to accept the idea that those who are capable of doing a job after re-training should be admitted into the ranks of the skilled. However, there is a difference between them and us in this matter. Here the trade unions are perfectly right in saying that they have no guarantee that a man who has been re-trained, a man who has had accelerated training, is really competent to do the job, and that they do not want to have badly trained people within their ranks. Unfortunately, they do not say the same thing about the young trainees. They take no care whether the young trainee is competent to do the job or not. They assume that if he has been called an apprentice for five years he is a skilled man.

I want to end by making the point that nothing that I have proposed in this Bill, nothing that has been proposed in the White Paper, will really mark an advance unless apprenticeship tests become an integral part of industrial training. Everything rests

finally on that. You must be able to show that the training has been properly carried out, that the person has responded to it, and that he is a competent man. If we had end-of-apprenticeship tests, which could be applied similarly to the accelerated training courses, we should be able to know instead of merely giving an opinion whether the men who were adult and had the shorter courses of training were, in fact, competent to do the job or not. At the moment we do not know whether anybody is competent to do the job; we simply assume somebody is because he has been called an apprentice. What I want to urge beyond everything else, beyond all the other things that I have been proposing, is that end-of-apprenticeship tests should be considered an integral and essential part of industrial training and should be so named in the Bill.

Discussion

Apprenticeship Tests

What importance should a theoretical examination be given in an end of apprenticeship test?

LADY WILLIAMS: I think that the test should be mainly practical. I have been looking at many of the European systems, and I was impressed by the fact that in those countries where tests are an integral part of the apprenticeship scheme, it is usually considered that a practical test alone is inadequate and that a theoretical test is also necessary. The result is that, throughout his training, a young man is given instruction in how to express himself and how to put things down on paper. In most of the countries that I visited, the apprentice has to keep a work book which is examined every so often. Sometimes it is examined every month and sometimes over a rather longer period. I was extremely impressed by the work that I saw in those books.

I do not think therefore, that a compulsory theoretical examination would really prove a very great handicap to those who were properly trained. The practical test, of course, is the more important. I was again impressed by the fact that countries were not prepared to have just one small test piece. Tests sometimes went on for days. The idea was not just to see what a youth could do in one three-to-four hour test for which he had been specially prepared but to see whether he could, over a period of time, keep up a certain level of competence. I thought this was very important.

I cannot say much more because it seems to me that tests can be devised only by those who know the industry. They would have to be different, I imagine, for each industry, and I think a function of one of the Boards—with the assistance of the officers of the Ministries of Labour and Education—could be to devise tests.

I should like to say one thing more, as this question has been raised. When I say that an apprenticeship test is essential in a reformed scheme of training I am not saying that employers should not be able to employ a man who has failed the test. That seems to me to be a matter for the employer and the worker to decide between themselves. If the employer is prepared to take on a man who has failed the test, that is his business and he, presumably,

knows his own business best. It does, however, mean that he would be doing it with his eyes open. I am urging the test because I think only an objective assessment at the end of training will ensure that everybody is going to take care to see that the training throughout the three years is being properly carried out.

School Leavers

Should the Boards have responsibilities for school leavers other than those who take up apprenticeships?

LADY WILLIAMS: I hope very much that the Boards will recognise their responsibility for training other people as well as the highly-skilled worker because, if once that principle is accepted, there are likely to be alterations in the other things too. I do not believe that it is the job of the Training Boards—which, after all, would primarily represent the two sides in industry—to deal with what one might call civic education in general. That is the responsibility of the community. We ought to be seeing that adolescents have opportunities for general education and have the chance to develop whatever potentialities they have as men and women. The job of the Training Boards is to deal with that element of education which is training for employment. I hope very much, therefore, that the Training Boards will work out and implement schemes for shorter forms of training than three years.

However, we have to face the fact that a very large number of young people and adults are in occupations which do not require any prolonged period of specific training for the job although they still require educational opportunities as men and women. I do not think that liberal education is really an element in industrial training, which is what we are now considering.

It has been said that only one-third of boys and only about seven per cent of girls go into skilled industry. My own view is that it is unlikely that the proportion of girls will increase very significantly. This is because of early marriage and not because girls have not the ability to train in these skills. Even if apprenticeship lasts only three years and finishes at the age of eighteen we have to remember that a very large proportion of young women are either married or contemplating marriage at that age. It seems unrealistic to expect girls of fifteen or sixteen to be prepared to take on an apprenticeship training which is after all, very rigorous, because of the possibility that they will come back again into employment when they are thirty-five or forty. I know that when I

was fifteen anyone of thirty-five seemed to me to have one foot practically in the grave! I do not think that you can expect girls of fifteen to project themselves so far into the future.

What I do hope, and this is where the proposals which I was outlining will be relevant, is that when women come back into industry—as so large a proportion do now—they can be part of the accelerated adult training and come into skilled industry in this way, as adults having a much shorter period of training.

I also hope the industrial training Boards will take cognisance of the shorter training required for retail distribution, operative and office work. The Ministry of Labour has already been trying to collect information on the shorter forms of training which are not established 'apprenticeships' but are something between that and the untrained unskilled. I think I am right in saying that we have not yet got comprehensive information about these because the majority of them are not the subject of national agreements but are usually more localised and more individual. I hope very much, however, that the training Boards will consider that an essential part of their function is to establish and supervise schemes of training for occupations which are below the full skilled apprenticeship grades.

Ministerial Responsibility

Do you agree that, in order to implement the White Paper proposals officially, a decision of prime importance is whether the Ministry of Labour or the Ministry of Education is to be given governmental authority with overall responsibility for the whole scheme?

LADY WILLIAMS : I could not agree more that responsibility must be fixed to somebody or something. I am not sure that I agree that the choice is between the Ministry of Labour and the Ministry of Education. The Youth Employment Service was, for a long time, completely ineffective because responsibility was divided between areas which wanted to be under the educational authority and those which wanted to be under the Ministry of Labour. I think we are well on the way to getting over that difficulty, if the Boards ensure that the supervisory body is a joint body. I very much hope that we shall not spend endless valuable time in a tussle to decide whether this is an educational or an employment issue. It is, of course, both. These young people are pupils, but they are also workers in industry. They are part of the labour force and they have to be accepted as such. I hope, therefore, that we

shall not spend a great deal of time arguing as to which of the two Ministries is the appropriate one to be the headquarters. I hope that we shall be able to devise a joint organisation.

The important thing is that there must be somebody responsible in Parliament to answer the questions and the criticisms. There must be a body that has the right to inspect and to supervise, to advise and to ensure that the things spoken of in the Bill are, in fact, being done and are not simply remaining as aspirations. In my view it does not matter which of the two Ministries it is. I hope it will be a joint body which will recognise that this has a bearing on both facets of a young person's life. This young person, who is still being educated and for whom the community is responsible, is also a member of the labour force.

The Training Levy

In France, a tax is imposed by the Government on which the Government can allow rebates to those firms which are doing the training. What are the respective merits of the French and British schemes?

LADY WILLIAMS: I do not think that we are going to get over the problem of the firm that dips its hand into the pool of skilled labour but makes no contribution to its replenishment, unless we have a very different method of selecting and indenturing apprentices than we have now. My own scheme is to have apprentices indentured to the Training Board and not to an individual firm, with certain exceptions which I shall mention. The indenture should be to the Board, and that Board should make a levy on every single firm within its scope. From funds raised in that way the Board would pay the wages of the apprentices so that it would be able both to send them to fully integrated courses and to move them about from one firm to another, where necessary, to get fully comprehensive training.

Out of that same fund, but only out of part of it because I think the State ought to contribute the major part, it would be the job of the Training Board to provide courses of instruction for apprentice masters, and its own consultants, and to employ a body of travelling consultants to go round to various firms in order to ensure that the boys placed in the care of firms were getting the kind of training that the Board required.

The exemptions would be firms which could show that they were giving at least as good a training as the Board would provide. If a firm had its own apprenticeship scheme—and a large firm, of

course, would be able to do this—with its own works school, its own trained instructors and so on, *and was open to inspection*, showing that its training was at least as good as the standard on which the Board was insisting, I would allow that firm to be exempt from the levy.

Entry Standards

If we are to have a compulsory programme of technical education and compulsory tests at the end of apprenticeship, does that not presuppose some kind of a compulsory standard of entry? If so, is that either desirable or acceptable to industry?

LADY WILLIAMS: If I believed that we had advanced far enough in our knowledge to be able to say that we could select accurately, I should certainly think so. However, it is my melancholy fate every year to have to interview hundreds of young women trying to get into the university, and I can honestly say that, though I have had untold years of experience, I still do not know how to do it.

Adaptability *v* Specialisation

How can adaptability be balanced against the kind of specialisation practised on the Continent?

LADY WILLIAMS: I think that adaptability is one of the most important objectives. One of the reasons why I am so keen on the integrated full-time first year course is because I think it gives a solid foundation which is the basis of a very large number of different skills. The majority of countries on the Continent have no great degree of specialisation.

One of the valuable practices in many of the Continental schemes is that specialisation takes place only towards the end. Instead of a boy being entered as a trainee for a specific job he is entered simply as a young skilled worker. He learns for the first year with a very large number of other craftsmen and then gradually he begins to specialise. I think that is really the right way to organise training.

This is again one of the problems with which Mr Cousins would have to deal, because at present it would cut across trade union practice, and I think this will be one of the great difficulties. I am, nevertheless, convinced that the adolescent ought to be trained to have an adaptable mind and to have the kind of knowledge and the kind of skill that he can use for other purposes than one particular craft, because flexibility is the keynote of our present needs.

Chairman: SIR WILLIS JACKSON, FRS

Frank Cousins

General Secretary, Transport and General Workers' Union

I know Lady Williams by repute and have read her literature. I assumed, quite obviously incorrectly, that she would be dealing with the aspect of the subject about which she is known to possess tremendous knowledge—European apprenticeships as compared with our own—because it was in the setting of her last talk that I read and understood her comments. I find that we have roamed over practically every subject that I was intending to talk to you about and, by definition, the problems that I thought were contained in the Bill.

The starting point of any discussion must be an understanding of why the White Paper had to be written; otherwise any conclusions we reach may be valueless either to ourselves or the Ministry of Labour.

There was such a conclusion in the letter of invitation that was sent to me; and if I may—and BACIE will forgive me for doing so—I should like to quote from it :

> It is appreciated that until now industrial training has largely been the concern of the craft unions, but we believe that in the future training will increasingly embrace all trades and occupations.

Now this shows, to me at least, that even an organisation such as your own is a little bit apologetic for thinking that anyone from a non-craft organisation might know anything or be interested in industrial training.

Three points ought to be understood by all of us before we get down to an analysis of the paper itself. The first is that every union in this country, of any size and substance, has a number of craft members. It cannot help but have them by its very nature. They are either specialist craft organisations or organisations with industrial membership which have a craft pattern, or organisations which have craft sections within general workers' groupings.

The second thing is that the country needs a high degree of training for non-craft people too, and I found nothing to allay

my fears about this in the talk we had from the Minister, or from the Conference in general, that we are indeed looking at the real problem.

Thirdly, all the unions have collectively participated in productivity discussions with the Ministry of Labour. Many of these are, of course, related to the need for training men and women.

I should like to say again, just in passing, that I thought there was a very significant disregard for the fact that there were more women becoming available for employment in the last quarter than men. Neither the Minister nor Lady Williams gave the emphasis to this that I thought was justified. So that, while we start off by accepting the old saying that we must be thankful for small mercies—and the White Paper is one of these—I think we ought to be critical of it too and say that it has to be put against the criteria of a modern economy. This is a high standard but a very necessary one as the references to the French and some other European training systems have shown.

A little later I will come to some of the comments that have been made by the Minister and some of the questions you have raised. A point to which I think you will have to give very considerable regard is the rather light approach to the definition of what is an industry for the purpose of training. We are going to be asked to do a great deal of analysis which we have never been able to do before. Obviously we can tell what the coal mining industry is, but may I venture to suggest to you that when we talked about having an engineering strike the thirty-nine unions involved found it difficult to define which of the many thousands of employers were engineering employers and which of the members engaged by them were engineering workers.

Need for Flexible Training

First of all, my approach to industrial training is that it needs to be flexible; it needs to have the ability to switch production from time to time, because that is what modern economy demands. There must be a readiness to accept new methods, new machines, new material changes. Anything less than this will not solve the problem which has caused the White Paper to be written. The Minister of Labour made the point to you that it is no part of his purpose to put a Bill in front of the House of Commons to retain the *status quo*. He sees a need for change and industry has not

faced up to it. When I say 'industry' in this sense I mean neither industry nor the trade unions. I mean that the maximum amount of skill has to be added to our import of raw materials or partly finished products before we can transform them into finished commodities and so get the trade upon which we live.

We need good industrial relations; a high level of investment, a great deal of research and development work—and skilled workers. We cannot afford unskilled workers in any way; we cannot afford them even in the unskilled jobs. This is something that it seems to be a little difficult to make people understand.

In the descriptive paragraphs of the Paper itself it says:

The objectives to be achieved can be stated as follows:—

(i) to enable decisions on the scale of training to be better related to economic needs and technological developments;

(*Cmnd* 1892, *para.* 7).

This is a big task. It is a very difficult Bill to write and it will be much more difficult to get through the House of Commons, because there are vested interests at stake on both sides. I do not think that the White Paper provides us with the plan for doing this.

If I may use one phrase which Lady Williams used, the Paper is too permissive and not sufficiently compulsive. We have not seen this work in the past nor do I think we could see it work in future. We do rather tend to fool ourselves that British legislation has been based on the belief that people voluntarily agree to do things. It is not true. What it really means is that the Government has mainly lagged behind the people in thinking that something needs to be done. It is never quite sure whether it is going as fast as the people and, therefore, retains the apparently voluntary aspect of legislation even after it has become understood and accepted by people. There are many illustrations of this. You all have to send your children to school; you all have—more or less—to observe the Traffic Acts; you cannot indulge in incitement and there is not the ability in the public utilities to withdraw labour in the same way that there is in others. These were established by legislation after people took decisions, but it does not obviate the need for compulsion where, in fact, voluntary effort has failed.

Propping Up Motion

I should have thought that the main failing of this White Paper is that it sets out to be little more than a propping up motion for

a failing apprenticeship scheme. It is true that, in the first of its proposals, it does say in relation to training, 'apprenticeship or otherwise', but it leaves so many questions unanswered that one wonders what it will look like after those who have their own interests at heart have finished with it.

No doubt it can, and will, be argued that the trade union approach to the whole question can be criticised, but I happen to be a member of one of the Industrial Councils which tackled this in its own particular industry almost immediately following the war. With the City and Guilds of London Institute we set up the Motor Vehicle Retail and Repairing Trade Apprenticeship and Training Scheme. It was an apprenticeship as well as a training scheme. It embraced testing and included curricula drawn up by the City and Guilds in consultation with industry, and we set out light-heartedly to make a success of it. There were tremendous arguments at first about day release and, as time passed, there were more, because it was obvious that it was not a generally accepted pattern in industry. We got round to the question of who was going to pay for it, which is a very difficult question in an industry with small employers. We had an argument about whether the man or the boy should sacrifice his own time to get his training since it was for his benefit. I thought it was for our benefit, but my counsels did not prevail against those who looked at it from the purely personal and commercial angle. There was a decline of interest eventually because of all these factors and, whilst the scheme is still in existence, the enthusiasm with which we attacked it has been difficult to maintain, notwithstanding that there were many employers in that industry who were willing to sacrifice their own labour for the benefit of training labour for the industry. The net result was that some of them found their people going through their hands much more rapidly after participation in the scheme than they did before. There were one or two notable firms in the London region whose input of apprentices and output of trained men at the end of it was out of all proportion to the number of people they employed, because people waited until their men were certificated or had passed and then they encouraged them to go. It was cheaper to offer more per hour at the end of the job than it was to pay for training to be done. I use this just as an illustration. I was not the representative of a craft union but the secretary of a training council where a number of craft unions were involved. Some unions have quite obviously restricted the number of apprentices that they will

allow to be taken into the industries in which their members are working. If we do not understand the reasons for this we are not likely to be successful in our examination of the White Paper.

Job Protection

The issue is, quite simply, job protection. It can be argued that skilled men are less likely to be unemployed than non-skilled workers. I should like to say in passing that I was a little intrigued to know that we have not faced any real unemployment for a long time, when at the present time we have over a quarter of a million people who have been out of employment for ten weeks or more. I should have thought some of them would think they were facing real unemployment. Moreover the craft unions would tell you, if they were talking to you quietly and not under public survey, that the reason for their people staying in jobs is partly conditioned by the fact that they have restricted entry. Even so, in the north east and north west, in the Liverpool area, in Scotland and in Northern Ireland, there are still many craftsmen at the present moment who are finding it difficult to get employment. There will be resistance to the Bill from the craft people unless there is a change in outlook about employment policies themselves.

Training needs to be much broader than craft training, desirable as that is. Some other industries have recognised this and developed their own training schemes, either collectively or individually. I am going to suggest to this Conference that, for the purpose of our export trade, it is as essential to have a skilled docker, or a skilled freight handler, certainly a skilled operative in the chemical industry or the new industries based on oil derivatives, or skilled miners, or a skilled distributive worker, as it is to have any of the other people.

One fact which always emerges from an examination of this whole principle of training is that the easiest way to break down in a modern civilization is for the sewage disposal workers to be ineffective. They are the basis of modern industry. This fact is not generally recognised or accepted, and explains why some of the European countries, because of their broader based training, have been able to advance beyond us. There are other reasons, of course, for European advancement, but the unions in this country have, in fact, altered and improved their approach—I am quite sure you would all accept this—within the last few years. We have failed in one thing: we have accepted for too long the belief that

was referred to by Lady Williams when she said it was heresy to talk of outside bodies coming in to help industry and the unions to determine issues of this character. There has been a greater readiness in recent years to accept that outside bodies can, and should, play a part.

It would be wrong to underestimate the trade union interest in finding a solution, because their basic existence is related to the answers being found to this kind of problem. We have tried consistently to defend both the young and the old, particularly in developing proper training for people who may have to change their jobs. One of the problems that we are facing now is the fact that people do have to move from job to job much more rapidly than in the past decade. One of the things that the trade unions have consistently opposed is the idea of having young workers played off against older workers.

Implications of Shorter Training

I was again interested this morning to hear the theme being pursued that young people can be trained to be skilled workers in three years. I have not the slightest doubt that this is possible by using the intensive methods which are now available for training and education. You can make a skilled worker, specialising in an industry, if you want him to reach the maximum skill without the maximum experience, in three years of intensive training. In fact, undergraduates become science degree holders in three years—although, of course, they have been given a basic technical and educational background upon which to rest their three years of intensive training. The concept of a basic background is an omission from the White Paper. There is insufficient support for the theme that basic technical training is required to bring boys or girls up to a standard if apprenticeship or training periods are to be appreciably shortened.

I am going to pose a question which was not in my paper, but I pose it to industrialists and to the Minister: If you take a boy at fifteen and give him a three-year training you will have turned him from an apprentice into a skilled craftsman. Are you going to pay him the adult rate at eighteen ? If so, we might as well start off with a basic acceptance of the belief that all workers will need the adult rate at eighteen. I am not opposed to this, of course; I am in favour of it. But you will not be able to divide, in wage rates, the

skilled man, the non-skilled man and the trained man without craft training. If we are going to keep industry contented—and without that we shall not, in fact, get greater productivity which is the basis of the whole exercise—these are some of the facts that had better be understood first.

In view of what Lady Williams said about the role of the TUC I should like to make the point that I am not representing the TUC. I was invited as an individual and I am here as the General Secretary of the Transport and General Workers' Union. However, in the Joint Committee on Education in Industry, 1927, the General Council of the TUC called for appropriate training for all young workers. That was thirty-six years ago. My own Union sponsored a resolution on this in 1945, and we adopted it unanimously. I sat in on the deliberations of the two committees which have considered it since. Lord Williamson and I raised the question of the need for training in industry, as distinct from apprenticeship, when the last report was going through, and we still hold the view that training is very desirable for all workers.

A point was raised this morning about the sacred cow of the trade unions and the employers in saying to anyone, 'This is our responsibility; we will decide how many people we want and we will decide whether we want apprenticeship or not.' As recently as the Carr Report* the trade unions still stood for that point of view. However, we did go on record at that time as believing, as we still do, that this does not mean that the Government itself has no responsibility in this task at all.

There is a difference between the functions of the people on the Industrial Training Boards and the consequential actions needed to make the Bill effective. One of them is the essential element of finance. Many aspects of this ought to be examined very carefully by you in your deliberations. Is the levy on industry to be the only source of income for this training scheme? Because nowhere in the White Paper does it say that there is any other source. It gives financial reasons, but it does not, in fact, say that the Government will put money into it. It says the Boards will have power to borrow, they will have power to institute a levy and to determine the training curriculum. It does not say that they are going to do any of them, and this is the point that Lady Williams was making.

**Training for Skill—Recruitment and Training of Young Workers in Industry*, a report by a Sub-Committee of the National Joint Advisory Council 1958 HMSO

I have seen this kind of Bill. If I may quote one example which is completely irrelevant to the subject, there is a section in the Public Industries Bill which says that people with a knowledge of labour relations shall sit on the Boards, and everybody thought that it meant trade unionists.

Government Financial Assistance

The point I would make there is that, as a matter of principle, I feel that the Government should have clearly defined that it would be putting money in. I hope our parliamentarians will insist that they do and that the Government will be ready to accept that. I have a specific reason for saying this. Experience has shown that when the Government puts money into something it has a department, the Treasury, which is very keen to know that it is spending its money properly. Sir Willis and I have been members of the DSIR together and Government money goes into that. When a worthwhile project comes up we have to prove need for money and when the need is proved the money is available. This means that the Treasury gives an overriding look to the projects and this, if a Government is proposing a Bill, is what ought to be done. I think this would be something that we could all accept.

The fact is that for too long we have gone along this line of thinking of training for craftsmanship as being the sole means of finding a solution. It has been said, of course, that in the past we prospered through this. It can also be said, and was said by a predecessor of our present Minister of Labour, that we suffered from it too in the decline in training. It was Ernest Bevin who said, 'Never again will we get round to the stage where we are so denuded of labour skilled in the modern trends that we are in danger through that source'.

I should have thought that not enough had been done in the way of training itself. The Minister quoted the current figures. Whilst it is well to look at the bulge figures and to see that we have taken 36 per cent into apprenticeship training, those who have not been taken into training number five to one. In ten years' accumulative grouping of those people to the age of twenty-five—and surely we are not saying that at twenty-five we are satisfied for them all to be unskilled workers—there will be another five million untrained workers in this country unless, by voluntary arrangements, industry does something about its own employees.

This is not the kind of figure that we ought to be complacent about. It is true that the Minister did not say that he was complacent. I cannot get away from the fact that 91 per cent of all the girls who enter industry receive no training at all, nor can I accept that we need not bother about this because they are going to be married; the facts show that most married women come back into industry and that most of the manufacturing industries, which are the important group, are relying to a very considerable extent on the young to middle-aged group of women who have no basic training at all until they take them in hand. This is just not good enough.

The problem of training demands, of course, a broader approach to it than we can possess, but I cannot help feeling that the White Paper has over-simplified the problems. Special consideration must be given to the needs of women, both the young and the older groups, to the question of re-training workers to meet redundancy through changing patterns of demand, and to the disabled, who form quite a fair proportion of the people who have either to be carried by us or moved from industry to industry. These points are not put in in order to carp; they are put in so that I can establish the facts.

Omission from White Paper

I think there is a major structural omission from the White Paper itself. Most of the points I have referred to are broad, and so are most of the points to which the Paper refers, but there is a big overall problem: I should like to outline the tasks which ought to be undertaken by a central authority. First of all, the individual training methods would have to be co-ordinated or there would be the old problem of chemical firms training chemists for chemical work, engineers training engineers for engineering work, and so on. There needs to be co-ordination of the training if we are going to get any value out of it at all. There needs to be research and publicity and extra drive to the work of the Boards. It is also as well to recognise that there needs to be some authority which will co-ordinate the effort of this new body with the NEDC, or else it will find itself, and the Minister will find himself, in two places talking about the same problem; training is one of the functions which the NEDC have already accepted as necessary for examination if we are going to have economic development. There is a need for the interaction of industrial training and general education. I do not accept the

idea that that is a part of the civic authorities' responsibility alone. If a body is setting up to make the best use of its labour it has to involve itself in the pre-industrial training. It must lay down standards and set targets for individual Boards and try to keep the work of one in line with that of the others. If we are to achieve the degree of flexibility and variation that we want, the work of one body must be as closely aligned with that of the next as it can possibly be.

I suggest to you that the White Paper, and probably all of us, are underestimating the sort of task that lies ahead. I tried, as I sat here, to work out what was meant by the Government setting up its own training Boards. Let us assume that the figure of 500,000—those are the known entrants into industry—is divided equally between those whom industry is going to train and those we are going to train, by which I mean 'we' collectively. That is a quarter of a million people a year. If you put 250 of them at every training centre that means one thousand training centres. Where are we going to put one thousand training centres? Where are we going to collect material for variable training? Then the vital point which was raised was, where are we going to find tutors? I think these are omissions from the Paper and from the approach to the Paper.

The TUC in its initial reaction to the White Paper, while appreciating its value—and nothing that I am saying should lead you to feel that we are belittling the need for an approach to the problem of industrial training—approached this on the question of the value of statutory Boards and levies. We again said to the Minister that we thought we needed a strong central authority to draw its strength both from its statutory responsibilities and from public money which it would make available in grants for those industries which suitably improved their training arrangements. We said that without a substantial contribution from the Government, and without inspection and strong local supervision, it was possible that the activities of some of the proposed Boards would be a bare minimum and a great opportunity would have been lost. Some of you will recall that when the NJAC was asked to make grants it had no power, no finances, and much of its work went by the wayside. We do not think this should be done now.

Our approach, therefore, has been that there is need for a very considerable degree of authority at the centre, and there is a need for a very considerable degree of finance from national sources.

I will finish this part, if I may, with a comment about the approach of European trade unions. Sweden is often quoted to us as a place

where everything is all right because it is different. There are many things which are different in Sweden. A great deal more attention is paid to training, and there is a great deal more attention given to the need for an understanding of broader subjects than simply using a file on a piece of soft metal, which is the basis of much of the training that is given in our country in its preliminary stages, despite the fact that now we do not very frequently take a piece of metal and replace a part for an engine. I am not, in fact, belittling the need for boys to be given a knowledge of how to use a file, but there are so very few people who ever need to use it when they finish their apprenticeship training that we ought seriously to think about a different approach to this.

In Sweden there are several things that I think we ought to understand. Full employment has been accepted as the responsibility of the employers' organisations, the trade unions and the Government. You can put them in any order; each one of them approaches the problem of industrial mobility in the light of its own interests, the overall purpose being to maintain full employment and a continued export drive. In the educational training of all young industrial workers and trade union members in Sweden part of the curriculum is devoted to a knowledge of economics. Indeed, the requirement of full employment in any community is based on industrial capacity. I think that some of these things want considering when we sit down to examine what the Bill should contain.

Discussion

Nationalised Industries

Why was consultation with the nationalised industries not mentioned by the Minister?

MR F. COUSINS: I should have thought that one of the reasons why little mention was made of the nationalised industries was because their representatives sit with the Minister on the NJAC. He is fully aware that the publicly owned industries have their own comprehensive training schemes and run their own training courses and colleges. It becomes rather superfluous to say in a paper on the need for training 'and there are places where they have it'.

Job Evaluation

Surely it would be very difficult indeed to introduce tests without proper job evaluation and specification, which is done by very few industries in this country?

MR F. COUSINS: It depends what one is thinking of testing. I think Lady Williams answered this, when she referred to the Continental system of using not simply a technical test but one which is, nevertheless, primarily technical.

The principle of job evaluation varies so greatly in industry that an industrial job evaluation could not be used as a basis for a test. It seems to me that training should be on the industrial value of a worker, and it should be fairly simple to devise a test. I have never accepted the principle of one test. I think testing is a necessary part of training.

The Training Levy

(*i*) *Should not firms with their own training facilities receive back from the levy as much as they paid?*

(*ii*) *Would not the quickest and most effective way of imposing a levy be to add the sum to the cost of the employee's contribution to the National Insurance Stamp and pass the resulting credit to whichever Ministry undertakes overall administration of the scheme?*

(*iii*) *As an alternative to imposing a levy might it not prove a much greater incentive to training to allow a tax credit to those firms which are operating approved training schemes?*

MR F. COUSINS:

(i) The answer is quite obviously 'yes'. I do think that firms which are providing adequate training up to a measurable and required standard should be given some means by which they can recover the cost. They should not, however, be excluded from the scheme, because I think exclusion from it is dangerous. I make this point because I am disturbed by the comment in the White Paper that it should be possible to exclude the small firms. Let it be understood that I think there are some very good small firms, but there are also some which are very bad. If you exclude them simply because they are of a size where do you draw the line? How do you distinguish what is small? Is a highly-skilled technical firm, a specialist in one industry, small or a firm that is small by comparison with, say, Rolls Royce Ltd? I think it is dangerous to exclude.

There ought, in fact, to be compulsion upon employers to pay, because the training scheme is not simply designed to give an advantage to employers; it is designed, if it is worth anything at all, to be of advantage to the country. Therefore, I should have thought a compulsory levy was quite sensible.

(ii) I think there are a variety of ways in which a levy could be imposed. It would, in the end, mean some measure of poll tax, but if it is applicable to all employers it simply becomes accepted as part of the cost of training and part of the cost of a better standard of living.

As to which Ministry administers the scheme, I should have thought that if a Bill of this kind is eventually passed, a department would be created. If there are Ministries which have a joint interest the funds will be allocated through that department. There are examples of this already in existence. There are three Ministries involved with the NEDC, there are others involved with the DSIR. I should have thought that the Ministry of Education needed to have a substantial representation, although I was a little appalled at the idea that they should tell industry how it should do its training. I think they should be involved in consultations, but not necessarily act as a guide.

(iii) A tax rebate for people who are providing adequate facilities surely depends on the nature of the contribution and the means by which relief is afforded. It is equally important that it is a very competent body which determines what a standard of training should

be. Employers should not be able to get exemption by saying 'Well, because I work in some little place in the remote hinterland of Wales where there are no technical training facilities readily available, I am putting on someone to look after these boys. Therefore, can I be exempt?' I think that compensation should be given only to those who can put up standards at least equal to that of the training Boards. In passing, there are some firms who are setting up training standards much higher than you would normally expect a Ministry department to provide.

Training for Road Transport

What form of training should be given to a youngster going into road transport?

MR F. COUSINS: I can answer this question from my own industrial background in road transport. We were taught that the elements of mechanical knowledge were essential for a successful driver. We had to know how to make the thing go when it did not want to go at all. I think there is a need for a basic understanding of transmission, drive and other aspects of the internal combustion engine. I think there is also a need for an understanding of company business. But more than ever, I think there is a need for the ability to drive, which is different from being behind the wheel of a motor as it goes from place to place. One of the greatest drawbacks of the current period is that we have not been able to persuade Ministers of Transport since the war to re-institute the driving test for the heavy goods vehicle licence. It was instituted in 1934 in a period which was much less onerous and much less difficult than now. We have spent a lot of time trying to persuade the various Ministers of Transport since the Labour Government's period of office to re-institute this test which should include knowledge of the Traffic Acts, the law and the regulations related to the handling of goods. We felt this would have created a better body of men able to serve industry. If we do not have skilled dockers and skilled freight handlers dealing with the goods that are produced by industry much of the advantage we have created can be lost.

Under the new, shorter apprenticeship schemes boys would apparently be able to get the rate for driving a heavy vehicle at eighteen although they would not, in fact, be able to do so until they were twenty-one. I should be interested to see the reaction of the road haulage employers to this.

Age Bar

Is it agreed that, providing industry faces up to the issue that, regardless of age, a person should be paid for his ability to do the job, there would be no further resistance from anywhere to his so doing that job?

MR F. COUSINS: We have on the Statute Book a Bill regarding education; we are going to raise the school-leaving age, and we ought to have done it a long time ago. I should have thought that the first thing to do was to ensure that no young workers came into industry at the age of fifteen. The technical progress that is possible with machine handling needs to be done by people a little more mature. The first step is to impress on Ministries the need to give effect to one Act before applying the consequences to another. Young people are more likely to be responsive if they start later in industry. Seven-year apprenticeships were the practice when children started work at the age of twelve. They then reached journeyman stature at adult ages. We ought to bring them in later and train them until they are skilled. It is no good our pretending that we can say to young people, 'After three years' training you will get the adult rate', unless we are prepared to say that every child shall have the opportunity to be trained. This means that industry then has to accept the fact that it is not usage of skill, but availability of skill which matters, because you will not persuade the unions to broaden their numbers so that they jeopardise the wage values of people at certain ages. You might compel them to do this but you will never persuade them. The unions will be protective unless there is a different approach to the stature of adults, the time at which adult earnings are reached, the training that is given and the age of recruitment, so that all four go together.

I believe it is the responsibility of people like yourselves as well as the responsibility of trade unions to insist that the Ministry of Education is involved in the creation of a higher school-leaving age when there is talk of the reduction of the period of training in industry.

Use of Existing Buildings

We are failing to make use of the facilities we already have. Surely the wastage of our schools, colleges and certain university departments during long vacations and other periods is appalling?

MR F. COUSINS: I do not think that the technical school buildings as such are fully utilised. The reason is that there are not enough

teachers. That brings us back to the question of where are the tutors coming from? We cannot solve this problem piecemeal. The Ministry has a tremendous job to do in drafting a Bill and piloting it through the House of Commons, because the issues involved come into the political field via various industrial organisations.

I should like to make a comment on the training of people in the use of computers. In modern industrial development, the range of skill that is required for the operators, as well as the creators, of the equipment makes necessary a new group of people in industry. Often they are taken from the non-skilled ranks to be trained to be skilled operators of complex and valuable equipment. As a consequence, they are given higher pay and increased opportunities. This cannot be done without regard for the consequences on the rest of the employable people. If the standard of some people is raised because new equipment is used, the consequences of this must be very broadly shared. I am sure that many industrialists have already seen, sometimes to their cost, that their initial evaluation of equipment has been entirely irrelevant to the end results. I do not think this is a bad thing, but I do think that the Minister—as well as the industrialists—should be aware of it when he talks about the consequences of an industrial training scheme.

Chairman: H. A. L. COCKERELL
Secretary, Chartered Insurance Institute
Chairman of Council, BACIE

D. E. Woodbine Parish

Managing Director, Bovis Holdings Ltd
Member, Industrial Training Council

I shall start by making a disclaimer. I am not here to represent the Industrial Training Council, notwithstanding the fact that I am a member of it and my name appears on the programme with that after it. I have no mandate. I am not reflecting, either directly or otherwise, the official policy of any organisation with which I am connected. I am not reading a paper. All I aim to do is to offer some personal comments on the White Paper.

As far as I can see, the proposals reflect the views of many people in this hall, although I gather that there is dissatisfaction with regard to some aspects of the White Paper. It is perhaps useful if we start off by recognising what industry and commerce are. As I understand industry and commerce, they are two collective nouns. Each word gives a misleading impression of unity, because neither industry nor commerce has any real controlling authority. They have no single definition of purpose, unless making a profit is a single definition of purpose. They certainly have no common point of view. In fact, in each there are diametrically opposed points of view on a number of things. There is a great difference in the size of units and there is a great variation in the profitability of different sectors of the economy. Part of industry is expanding, part of it is diminishing. The degrees of skill and of expertise in the different sections of industry vary considerably. Some have old traditions, some have practically no traditions but many new techniques.

In fact, industry and commerce are both very complex things. The only common denominator that exists is that they both employ people who need training. That fact has been emphasised very strongly at this Conference. Be it agriculture or mining, the chemical or the metal finishing industry, textiles, clothing, construction, distribution or the public utilities, all these sectors of the economy need a large stock of skilled experience, of know-how. It is this stock of know-how, expertise and practical skill that we need to recognise as the one fundamental resource of this country. The expansion of industrial training is basically an economic problem.

Mr Cousins mentioned the interest of the NEDC in this matter, and the White Paper refers, in paragraphs 2 and 3, to just this. I should just like to read them once again

> It will be impossible to secure the objective of a steadier and more rapid rate of economic growth unless skilled manpower is available on a growing scale. This means that the rate of industrial training must be increased.
> (*Cmnd.* 1892; *para.* 2)

The NEDC has set out some targets for the next five years and, if one looks at the general trend, one will recognise that in about twenty years we have to double the output of industry in this country. This will have to be done without any substantial increase in the labour force. Therefore, the productivity of our skilled labour force is a matter of very grave concern. The economic survival of this country depends on economic expansion. Whether or not this can be achieved without some sort of national manpower budget, whether we can optimise the manpower in various industries without some overall controlling activity of Government with employers, with operatives, with the professional institutes and with technical education is a matter which needs to be very carefully considered against the compelling background of economic survival.

As Mr Cousins mentioned, the security of the worker must never be forgotten in raising the total stock of skills. I do not think anybody really needs to be persuaded of the desirability of training, but I think we should all like to have the results of compulsion without having compulsion forced on us. In an imperfect world this is asking for too much.

Sharing the Expenditure

I believe that there is a major shift of opinion, which has been mentioned by both Lady Williams and the Minister, towards our collective responsibility, both as industrialists and as citizens, for the training of young people, and also the re-training, both short-term and, possibly, long-term, of adult workers. I believe the thing that really worries us all is how we can find an equitable load-sharing formula for the expenditure which is involved because, while we talk about industry having to pay for this, that and the other, if we are honest with ourselves we know that the cost of training is passed on to the customer. Therefore, the important thing is to devise a satisfactory and an equitable mechanism so that everybody contributes and the cost is reasonably borne and passed on to the consumer.

There is a tendency in the press and among speakers to suggest that the large firms do the training and the small firms do not. I know that in certain industries this may be so, but it is one of those generalisations which, in point of fact, is not true. Some of the very best training, particularly specialist training, is done in the very small firms.

The White Paper refers to the fact that,

> A serious weakness in our present arrangements is that the amount and quality of industrial training are left to the unco-ordinated decisions of a large number of individual firms.
>
> (*Cmnd.* 1892; *para.* 5)

This brings us back to the question of resources and how we are going to make these resources of greater use to the community in the years that lie ahead. As I see it, this is basically a management problem. The question on the front of our programme asks, 'Whose responsibility?' I should like to ask also, 'On whose authority and to whom accountable?', because the area of responsibility, the area of authority and the area of accountability must be identical.

In industry we have to examine the range of skills that are currently necessary to fulfil the broad needs of the industry, and this is equally true of commerce. There is a need for a high degree of assistance in forecasting the future needs of industry in relation to skills. In the constructional industry the National Joint Council has approached the Department of Scientific and Industrial Research, and a project has been launched to examine what the current needs of the constructional industry are in relation to training needs, and what the foreseeable needs are likely to be in the light of new techniques and the changing pattern of constructional practice. We are in a period of rapid and accelerating change, and the need for re-training is becoming very urgent in certain sections of the community. It is not appropriate to teach people a set of tricks which may be current for a period; we have to do very much more. Both Lady Williams and Mr. Cousins touched on this point and I need only to underline their opinion, that what is needed is the development of the mental and the physical aptitudes of young people.

The next important step—and, the White Paper seems to be leading towards this—is the establishment of a national policy. This is not an easy matter because it will involve the establishment of many policies. I understand that the Boards will number dozens rather than hundreds and I appreciate that the need for defining the

areas of these Boards is going to present some difficulty. But with the establishment of a national policy I think we may make progress. I believe that we find ourselves in the position that we are today in this country due to the absence of such a policy.

There is need for help and guidance in this matter throughout industry and, as you know, BACIE and other interested bodies have been addressing themselves to the problem of establishing a course for training officers. This is a matter which was discussed at the last BACIE conference, and I am hoping that Mr. Sanders, who was the chairman of the committee which drew up the syllabus, will enlarge on this.* I am quite convinced that the lack of adequate training officers is the smallest bottleneck in the whole evolution of industrial training. They are very scarce and rare birds, and I should imagine that most of the leading ones in the country are sitting in this room today. There is a need not for dozens but for literally hundreds of training officers in the years ahead if we are going to get the sort of pattern of training which we have been talking about this morning. Our aims will be defeated unless there is an adequate supply of well-qualified training officers.

In our discussion this morning it was not clear to me whether the Industrial Training Council is to be the central authority, whether it is likely to assume greater responsibility, or whether it is to be eliminated under the new legislation. I think we should like to have some indication from the Ministerial representatives here.†

Relation of Boards to Existing Machinery

The setting up of Boards and the defining of the industries that these Boards are going to represent also needs to be carefully examined. We must not forget that there is already in existence some first-class joint administrative machinery for the training of apprentices and for the overall supervision of apprenticeship schemes. It would be tragic if new Boards were set up without recognising the existence of this machinery which could be made use of and harnessed to any future arrangements. I am hoping that the Boards will not be two-sided. I hope that they will be broadly based and that the professional bodies will be represented on them particularly where the Boards are to be concerned with

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* See p. 48.
† See p. 53.

higher education. I am quite certain that there will be general agreement with this concept of the proposed legislation.

Among employers there is a fear of an elaborate, and perhaps expensive and cumbersome bureaucratic machine being set up. Industry is entitled to be reassured that the White Paper does not envisage an expensive and cumbersome bureaucratic machine.

I should like to make a brief reference to the City and Guilds of London Institute. Its Director-General is here and I do not want to steal his thunder, but we must not forget the contribution which that body, together with the other examining unions, has made for many years and will continue to make in setting the standards of craft and technical education in many technologies and areas of industrial training.

I should like to end by saying that we, in this Conference today, have to recognise that there is a real sense of urgency, and we have to try to infect as many people as possible with this sense of urgency. We have to set a pattern which can be clearly understood. I believe that much of the lack of training arises not so much from indifference as from an inability to get training started. People in the smaller organisations are beset with the daily round and the common task, and they have many facets of their work to consider. It is those people who find training difficult, and I fear that for them it tends to have a somewhat low priority. They have not the time and energy to spend thinking out what is involved and determining and then implementing a policy. We can and must help those firms and sectors of industry who, at the moment, find training difficult to start.

I disagree with one thing that Lady Williams said. She talked about the situation needing to be 'revolutionary' I would prefer to think in terms of 'accelerating evolution'. Revolution, as I understand it, means the overthrow of things. I believe that we cannot afford to throw away much of what we have, because a lot of it is good. What we need to do is to identify the best and then try to raise the overall standards to the level of the best. The best of our training in this country is undoubtedly equal to the best that can be found anywhere in the world.

General Discussion

Compulsory Day Release

In view of the present pressure on technical colleges, why is there such insistence on compulsory day release? Would it not be sufficient to allow boys or girls the right to day release if they desire it?

LADY WILLIAMS: My answer to that is emphatically no. We have found that the voluntary system, whether it is voluntary from the point of view of the employer or of the apprentice, is not adequate. If you leave it to them to have the right to do it you are putting too great a strain on a young person who is, after all, subject to all the pressures of being a very young and green recruit in an organisation in which most people are experienced and adult. I think he would find it very difficult, unless he were in a most congenial atmosphere, to stand upon his rights.

I think also we have to recognise that technical education is not a trimming; it is not an extra added to a training that can be done quite well in the purely practical field. It is an essential and integral part of the preparation for a trade and it must be shown to be so by being made compulsory.

I know that there might be a problem about the amount of space and the number of vacancies available in technical colleges, but I have talked to a number of principals of technical colleges on this theme and I am now quoting them. I have been told that, provided the classes were carefully programmed, a very much larger number of pupils could be accepted in technical colleges with their existing equipment. Often, because of the way in which the classes have to be run, valuable and expensive equipment is unused for quite a considerable part of the week and of the year. I believe, therefore, that we could considerably increase the number of apprentices attending technical colleges without imposing too great a burden on the colleges.

Shorter Apprenticeships and Unemployment

In view of the difficulties likely to arise in reducing the length of apprenticeship in a period of unemployment in certain areas, would it be better to regard this as a long-term aim and to proceed forthwith with the other proposals set out in the White Paper?

LADY WILLIAMS: We are, in a sense, unfortunate in meeting to discuss this problem in what is an unusual set of circumstances. If we had done this a year or so ago such questions would not have been asked because, while it is true that there are certain areas which have always, for reasons which are known to everybody here, had a rather heavier incidence of unemployment than the national average, the total amount of unemployment was really insignificant. It was a very highly localised problem. We have the misfortune that today the problem of unemployment, for the first time for twenty years, is very much in the forefront of our consciousness because there is a very great and sudden increase. However, I should like to remind you that we had something very closely approaching it two or three years ago, but we got over it reasonably well and it did not become a matter of so much, in my view, over-excited discussion. I think that, for political reasons, a great deal of it is being over-emphasised. I hope that very shortly we shall have a total unemployment figure of a more manageable size, though we shall still have the same problem that we have had all along of there being a need for special development in certain areas.

I think, therefore, we should be wrong if we allowed an important development in the training programmes for the whole country to be adversely affected by a situation which is confined to a comparatively small number of localities.

Problems of Selection

(*i*) *Is sufficient accent being put on the problem of selection for apprenticeship training? It is fairly easy to assess academic ability in relation to such things as 'O' level, but it is very difficult to assess aptitude and prognose the degree of future attainment.*

(*ii*) *If the Board becomes responsible for selection and research into selection techniques, will it then select also those firms to which apprentices must not be sent?*

(*iii*) *Can selection be geared to set not only a minimum but also a maximum level so that a boy or girl does not waste time working well inside his or her capability?*

LADY WILLIAMS:

(i) I should like to see selection practised, if we knew how to select. However, any form of selection technique would be an improvement on what happens now when there is practically no selective process at all. I do not believe we yet have sufficient

knowledge, except within very wide limits, to be able to say that we could really carefully select by any sort of either academic or aptitude test. What we can do is to test to find out whether people are completely untrainable for a particular job. I think that is possible. It is quite a different thing if we test to find out just the exact branch for which the capacities of a boy would fit him. I do not think we really know enough about the positive side yet.

It seems to me there is a way out of this difficulty. In one or two countries the first three months of indenture are considered probationary on both sides. That is, the boy may feel that he has chosen wrongly and it is not really the kind of trade that is going to satisfy him for his whole life, or the employer may say that the boy is not shaping up to the job in the right way. Therefore, within three months either side can determine to end the agreement. If they do not end it at that time the period of three months is included as part of the apprenticeship training. It is not a wasted period, neither is it a preliminary; it is part of general apprenticeship training. It does give people a chance to find out on the job whether they are likely to be suited or not.

(ii) One of the advantages of having an end-of-apprenticeship test, is that you can find out the firms which are not training properly. If there is an undue proportion of apprentices failing the test year after year there is at least a case for investigating to try to find out why that firm's apprentices are always failing. I do not mean the results of one year should be the basis for inquiry; any firm can have a bad vintage. But if bad results persist there is a case for investigation. From the findings it may be necessary to say 'this firm will not have any more apprentices', because it is not measuring up to the training needs.

(iii) This seems to me to be part of the general educational framework, rather than relating primarily to apprenticeship. One of the things we have been trying to do in the post-war period is to give people, at different stages in their educational life, an opportunity to show whether they are capable of going still further or whether they have reached the limit of their educational capacity. I think the same thing would have to apply to this. If you found that a trainee was managing an operation that was obviously well within his capacity, it would have to be suggested to him that perhaps he might like to go on to technical studies and continue his education to a further academic level of competence.

MR D. E. WOODBINE PARISH: I should like to add a word because we are back again to the urgent need for the training officer and a greater recognition of the key role that he has to play. In the training course which is shortly to be undertaken, selection for technical education and practical training forms an important part of the syllabus. The study of individual psychology, special aptitudes, personality, intelligence, temperament and self-expression, interviewing techniques, control, evaluation, measurement and appraisal of training, progress records, manpower budgets, training techniques—these are some of the skills, procedures and disciplines, which a training officer must establish within an organisation, company or industry to prevent the kind of problems referred to by the speaker from arising.

The Chairman: At this point I am proposing to ask Mr Dudley Sanders to make a report. He has been chairman of the working party which was set up to establish a full-time course for training officers. I think it will be agreed that once we have scores of training Boards we shall need scores of training officers. The question is, where are they going to come from? Perhaps Mr Sanders would also touch on the International Apprenticeship Competition.

MR D. G. A. SANDERS: It is probably known to many of you that, during the last two years, there have been many who have suggested that BACIE should turn itself into a professional body for training officers. The Executive Council, in discussing suggestions on those lines, came to the conclusion—I think rightly—that it would be a sad mistake to take any step which would alter the fundamental character of BACIE as a forum for the exchange of ideas on subjects such as we have in our minds today. At the same time, the view was expressed that it was not for any Association such as ours to arrogate to itself the status of a professional body. We did feel, however, that something positive could be done to bring about more systematic and formalised training of those who were going into industry and commerce as training officers. We recognised that there were in existence various *ad hoc* short-term courses, but that they fell short, in total, of what was required. Indeed, when we formed a working party to come to grips with this problem we decided that the task was one of compromise between what was educationally desirable, something lasting probably for the duration of a year, and what was practicable. The decision was to start with a course of ten weeks' duration and, at the BACIE Conference at Nottingham, many of you will remember that details of the

syllabus which had been worked out were made available.*

The working party enjoyed the interested support of leading members of other bodies in the training field, and we very much welcome their readiness to collaborate in this respect. The secretary of the working party was our Director, Mr Perry.

At the time when the syllabus proposed by the working party was made known at the Nottingham Conference, there was a suggestion, which came from within the working party, that there might be many benefits if this scheme could be worked out in collaboration with one of the technical teacher training colleges. It was known, of course, that Garnett College would shortly be moving to new accommodation in Roehampton Lane, and so it was proposed that there might be a lot to be gained from working in close collaboration with Garnett College. One of the recommendations of Sir Willis Jackson's Report,† that there should be closer collaboration between the staff of technical colleges and those responsible for training in industry and commerce, could therefore be implemented.

There were, moreover, prospects of being able to stage the proposed course on terms which would be financially more acceptable to many firms if there were to be a contribution from public funds which collaboration of that kind might make possible. We faced a difficulty there because in Nottingham, in September, we announced our proposal to run the first course in May of 1963. We realised that to have proposals such as those affecting Garnett College properly authorised in time would make it rather difficult to bring the course about at the proposed date. In point of fact, we were given reason to suppose last week that it would be in order to publish an advertisement for a Director of Studies, and we are hoping that by next week we shall have in our hands the name of a well-recognised industrial and commercial training officer whose firm will be prepared to release him on the terms set out in the advertisement.‡ This will be, I think, an opportunity to carry out a

*cf 'A New Residential Course for Training Officers', p. 30 to 36, of *The Spectrum of Higher Education*, report of the BACIE Annual Conference, 1962, price 7s 6d (10s non-members).

†*The Supply and Training of Teachers for Technical Colleges*, May, 1957, HMSO. Code No. 27-331. See also *Policy in Perspective*, report of BACIE Annual Conference 1960, pp. 23-33.

‡Mr L. S. Newton, Group Education and Training Officer of Pilkington Brothers Limited has been appointed Director of Studies of the first course which will begin at Garnett College in May, 1963.

very stimulating and far-reaching project which has, as Mr Woodbine Parish pointed out, a very obvious bearing on the problem with which we are dealing today.

The other point I can mention quite briefly is that you will know that the City and Guilds of London Institute has, in recent years, sponsored the formation of the team for the International Apprenticeship Competition. I think there are many of us who, whilst supporting the scheme, have felt that British industry was not worthily represented, in the sense that the team was not drawn from a wide enough section of it. Now you will see that the committee has been re-constituted. My name appears only once, but I have the honour to represent BACIE on it, and that is why I am referring to it now. I know I can speak for Mr Woodbine Parish and the committee when I say that this year, when the competition is in Eire, there will be a worthy entry from British industry in all the categories in the preliminary phases of selecting the competition.

Choice of Boards

How are the Boards to be chosen? I fear they may be composed of people too far up the tree and thus removed from the practical problems.

MR F. C. HAYES (*Council of Ironfoundry Associations*): The White Paper suggests that different Boards are going to be set up for different industries and, of course, attention has been drawn already to the difficulties of the definition of industry. One definition, which was produced at the last conference, I do not think would hold. It was that any body of people who think they are an industry are an industry. I think that would meet with difficulties. The Minister, in fact, said that there should be something of the order of dozens of Boards. The problems in any one individual firm are obviously going to be as complicated as the problems of setting up Boards, because any one firm may, in fact, employ people who would be under the responsibility of several Boards. If the Boards have their own levy-charging arrangements the firm may, in fact, pay different sorts of levy for different kinds of employees in different shops. All these problems would, no doubt, be difficult to sort out, and I should like to make one suggestion. We have had the experience of the City and Guilds of London Institute catering for an enormous variety of industries in a highly flexible manner by having two governing bodies, apart from the Council. They have an Education Policy Committee and an Examinations Board.

Under those two bodies which are co-ordinating policy there are advisory committees, each one responsible for a particular subject. I should have thought that the analogy is not too far fetched. There should also be an overall authority which keeps an eye on activities and sees that the individual industry Boards should not be constituted into watertight compartments but should, in fact, work alongside each other in panels for different crafts or trades. The major sub-sections of industry such as engineering, construction, and so on, would then find their own craft groupings within this framework. There should, in effect, be some common ground from the outset amongst all the various Boards which are going to be set up, and they should work alongside each other.

Constitution of the Boards

Should there be one Board concerned primarily with methods of training?

Who is going to be responsible for inspecting and deciding whether a firm's training is adequate?

Surely there are too many organisations trying to be represented on the Boards which will reduce their effectiveness?

Is it not important that the technical colleges have an intimate connection with the Boards?

Would not the existence of a central body codify all that is happening among the Boards?

How can any Board function properly unless it has done some basic research into training problems and the best methods of publicising the results?

What should be the criteria by which the effectiveness of an industry's existing body—for example, a recruitment and training council—may be judged in order to determine whether it becomes a Board or needs replacing by a new Board?

MR J. G. STEWART, CB, CBE (*Under Secretary, Ministry of Labour*): I should like to begin by saying, of course, that as far as the Government is concerned the White Paper sets out the policy as far as it has reached. It has been said this morning that it is a broad outline; it has to be filled in in the light of all the views that we collect from public industry and from other interested people. This is one of the meetings at which we are very usefully collecting views. Nothing

that I say should be regarded as setting out Government policy. All I can tell you is the kind of thing we have been looking at in the Ministry of Labour and some of the questions we have been looking at which we realise will have to be settled before a Bill can finally be drafted.

I think it would be worthwhile saying, to begin with, that the White Paper does, of course, proceed on the basis that this is an industry-by-industry approach. There are arguments for a different approach. In fact, we in the Ministry did make a very thorough study of the French system and considered whether something like that might be applicable in this country. It does not seem to fit very well, partly because we have no existing tax on to which an apprenticeship tax of the French type could be fitted. The final conclusion was that we should approach this problem on an industry-by-industry basis.

I think some of the suggestions that have been made this afternoon rather run counter to that and, to that extent, are really out of order at the moment. What we have to consider at present is what we can do on this industry-by-industry basis.

The first thing that arises from that is the definition of industry, and this is certainly difficult. The question of the engineering industry which has been mentioned, is perhaps a particularly difficult one. The Minister, at his press conference, referred to the possibility that there might be a number of Boards for different parts of the engineering industry. Another possible approach is one in which there would be a central Board for engineering, but with a series of sub-Boards for particular sections such as machine tools and the foundry industry. That would have the benefit that the central Board could lay down a very broad general policy and the sub-Boards would be able to work it out and apply it in more detail to fit the needs of their particular section.

This, of course, has an incidental effect on the question of the number of Boards which might be required. However, I would point out that the Bill is envisaged as an enabling Bill. As the Minister said this morning, he is not introducing a Bill to preserve the *status quo*. On the other hand, being an enabling Bill, it does mean that we do not need to tackle the whole of industry at once. I should myself imagine that a more likely approach is that we shall start with industries which are of great importance—and from this point of view quite obviously engineering and building stand

out immediately—and work on from there. I think it is very difficult at this stage to say what the ultimate number of Boards might be.

As regards the question of the composition of Boards and whether the members would be too far up the tree to be really practical, of course this is the sort of thing that we have to discuss in some detail with the BEC, TUC and other organised representatives of industry. The White Paper says that, in the first place, the Boards have to have a substantial representation of the two sides of industry. On that it seems to me that at least some of the members would have to be more or less representative people, the sort of people who would be serving on the joint bodies which determine wages and conditions of employment, because unless you have those people on the Boards they will not carry the necessary authority with industry. Their word will not be readily accepted. On the other hand, I think we probably need as well persons from industry who are selected for their special knowledge of industrial training problems. Perhaps that would answer the particular fear which the questioner had in mind. Of course, there also has to be representation of education. I quite see the special claims of the technical colleges, and there may be other bodies with a special claim. We would have in mind, I think, that an effective Board has to be a small body, and I would hope that, to some extent, the special problems of particular sections of an occupation or of an industry or particular aspects of the whole problem, could be solved by the Boards having advisory panels which would advise them on particular problems. I think that is, to some extent, the way that the City and Guilds Institute works, and perhaps we shall be able to get some very helpful advice from them about the way to organise a scheme of this kind.

The question of a central body has been mentioned from various quarters. Obviously there could not be a central Board for methods of training in the sense that the Board is used in the White Paper because the White Paper starts from an industrial basis and each Board would be the authority for one particular industry. We have not made any provision in the White Paper for any central organisation, but it may well be that there is a need for some kind of central body to serve as a store of knowledge and to be available for giving advice on the sort of technical problems of training which are common to many industries. There the Industrial Training Council comes into the picture. I do not think it is for the Government in the first place to say what the future of the

Industrial Training Council should be because, after all, the Industrial Training Council was set up by industry, not by the Government, and it is for the Council in the first place to consider what its future might be in these new situations. It is possible that there may be a need for some kind of central body like that, and there is a strong need for some kind of central advisory technical service on the lines of the Training Advisory Service of the ITC, which I believe is doing an extremely good job, only there just are not nearly enough people to do the job that should be done.

The question of inspection has been raised. As I have said already, this is an industry-by-industry approach. The Board of each industry would have the authority to set up its own inspectorate and, indeed, it would be its duty to do so, and it would be its duty to satisfy itself on the quality of training given by an individual firm before it gave a rebate to that firm on its levy, or before it asked the firm to take responsibility for organising training on its behalf. I can well believe that there is a shortage of well-qualified people to do this sort of job, but as the jobs come to public notice, I hope that more and more people will qualify themselves to do them. We, in the Ministry of Labour, will clearly have a central responsibility, it seems to me, for satisfying ourselves in turn that the Boards are doing a good job, and that would be a necessary condition for the payment of grants from the Government. This is quite clearly envisaged both in the White Paper and in what the Minister said this morning.

Someone mentioned the criteria for judging the efficiency of existing bodies. As I said, the Bill is an enabling Bill. There are some industries which, it is well known, have given special interest to training; the boot and shoe industry is one of them. It is conceivable that the boot and shoe industry is doing such a good job that it is not necessary to set up a statutory Board at all. However, assuming that a statutory Board were needed for the boot and shoe industry, it would clearly not be possible under the Bill to make the existing body in the industry the Board. What the Minister could do would be to appoint to the new Board very largely the people who had been doing a good job in that industry already. They could see that the Board worked on from the position which had already been achieved in the industry. Clearly a new body set up under statute would have to be a new appointment by the Minister, but he would take account of all that had already been achieved.

Finance of the Boards

No reference is made in the White Paper to the capital investment necessary to provide places in which training can be carried out. Nor does it refer to the parallel need to increase the number of places available in technical colleges. In view of the restrictions and the current cut-backs in capital building programmes for education, is there any hope of the White Paper being implemented adequately within thirty years?

There must be a definite and binding assurance of the provision of more money which the Government, in the name of the community, will contribute to supplement the product of the levy, or there will not be sufficient training openings to meet the needs of young people. If craft apprentices and operatives are equally necessary to industry as graduates and diplomates, where is social justice when public money is given to assist the latter but not the former?

What criteria should the Boards use to decide whether to exclude firms below a certain size from paying the levy?

MR J. G. STEWART (*Ministry of Labour*): I do not think I can really be expected to discuss the Government's contribution to technical education; I am not sufficiently familiar with it. That is the responsibility of the Minister of Education, not of the Minister of Labour. However, I must say that as far as I understand it, no educationalist is ever satisfied with the amount of money he gets, but I certainly have the impression that technical education has been rather a favourite son of the Government in the last few years. I do not know whether they have provided enough, but they seem to have been increasing the amount of expenditure on it fairly rapidly.

My Minister did say this morning that it was part of his new conception that the Government would take a greater financial stake in the problem than before. I can assure you that that is definitely part of the thinking behind the White Paper.

On the point about the 'bulge' numbers of young people and whether enough provision will be made for training them, there is one thing worth remembering. Mr Cousins quoted Sweden this morning and said it was accepted by everyone there that full employment was an object of policy, but I must point out that it is also an object of policy in this country. It was laid down by a Government White Paper immediately after the war and has remained the objective of every Government since then. We are having certain difficulties at the present time, but I do not think there should be

any question of planning, except on the basis that full employment is the objective and that, by and large, it will be achieved.

The new arrangements should, of course, be enormously more helpful than present ones in providing for areas of special difficulty and we have said that part of the functions of a Board will be to calculate the needs of its industry for technical labour in the future and to make the necessary provision for training. That includes, I think, the condition that if private firms are not doing enough the Boards themselves will have to take on responsibility. That, incidentally, links up with the point that was made this morning about the connection with the NEDC. I cannot see myself that there is any place for a central national training body which will plan training nationally in consultation with the NEDC. That seems to be just adding an extra turn to the road quite unnecessarily. But it is part of the conception of the White Paper that the Boards would individually be in touch with the NEDC; they would find out, in consultation, what the future plan for the economy appeared to be and the place of their industry. In the light of that they, more than anyone else, should be able to say what skilled labour would be required to achieve that objective. Then it would be their responsibility to see that that objective was reached.

One other point that has been mentioned is the question of the size of firms. When the White Paper said that the levy would be applied to everybody, excluding small firms, it did really mean small, indeed very small, firms. I think it was said this morning that every firm ought to contribute. It did not matter how small it was—somebody would have its address. I agree that morally there is no reason why every firm should not contribute. Every firm in an industry will benefit by the training, and it may be that even the smallest firms are sometimes guilty of poaching. But I think that there is a lower limit beyond which it becomes very doubtful whether it is administratively worth the trouble to pursue the very small firms in order to get a small amount of levy from them. As far as I know, the only department of the Government machine which would have the address of every firm is the Inland Revenue, and I might point out that it is a very long-established principle that the Inland Revenue Department's records are not available to other Government departments, and other Government departments' records are not available to the Inland Revenue Department. There are some quite good reasons for that practice. This is really a question of administration, but it is something

quite small—of the order of five employees—that we meant to leave out. Certainly all the small to medium firms were intended to be within the scope of the scheme. I think it is possible, depending on the way the Bill is drafted, that the size of firms subject to the levy might vary among the different industries. For example, in the case of the steel industry, which consists almost entirely of large firms, it might be that you would have a rather higher limit for exclusion than in the case of, say, the distributive industry where a lot of firms are quite small.

Appropriate Training Schemes

Are there not jobs for which apprenticeships do not exist for which they are needed and vice versa *and could not the Boards make decisions as to what kind of training is required?*

Mr D. E. WOODBINE PARISH: The industry with which I am directly concerned is the construction industry. It embraces a substantial sector of professional designers such as architects, structural engineers and others, who, although they are not integrated within the industry, essentially participate in the industry's activities. The building industry itself has had since 1944 a National Joint Apprenticeship Board which is responsible for the training of apprentices to the National Joint Council for the Building Industry. This Board has representatives from the employers' and operatives' organisations and its advisory committees have, in addition, outside co-opted members. There are ten regional joint committees and over two hundred joint local committees throughout the country. In addition, there is a National Advisory Committee for the Training of General Foremen, which is concerned with the supervisory grades. There is also a Board of Building Education, set up jointly by the Institute of Builders and the National Federation of Building Trades Employers, with a widely based representation, which is concerned with the training of technicians and technologists in the industry. I envisage in the event of a comprehensive board being established for the building industry that these various and several interests, together with others, might very well provide a guinea-pig type of board appropriate to a variety of industries. I believe that there are similar unco-ordinated situations existing for selecting, recruiting, training and qualifying industrial manpower and re-deploying such resources into a more coherent pattern to enable the total problem of industrial training in each industry to be more broadly analysed and appropriate policies adopted.

Functions of the Boards

The Minister stated that the proposals in the White Paper are intended to cover all types of industrial training. Is it considered that Boards for individual industries, and with the representation proposed, are suitable for planning other than apprentice training? For example, are they suitable for planning management training which was specifically mentioned by the Minister?

Properly organised, there is spare training capacity available in existing training schools in the engineering industry. Will the Boards take steps to survey the capacity in their industries before taking steps to set up their own independent training establishments?

What is the present state of thinking at the Ministry of Labour on the relationships between the White Paper and the general questions of manpower planning? Would it really be left to the industrial Boards to decide on the future needs of the several industries by deciding upon the number to be trained for future employment in those industries? How would trade unions, who at present exercise this function, be persuaded to give it up?

Will one function of the Boards be to see that people from overseas get proper training?

The Diploma of Technology scheme will only develop through the recruitment of college-based students. Would the boards be the means of providing training places for these college-based Dip. Tech. students?

Will the Boards be equipped with some information services so that they can initiate, carry out and apply the results of research?

Is the Government going to set up Government Apprentice Training Schools for small firms employing less than one hundred, on the lines of the French Centres d'Apprentissage?

Will the Boards consult professional and similar bodies who may be involved in certain industries?

MR J. G. STEWART (*Ministry of Labour*): I think perhaps I might take that last question first, because it links up also with the first question about, for example, whether the Boards would cover management. The Ministry's present thinking is that the Bill would be drawn in very wide terms and would enable Boards to cover the whole range of training, from operative training right up to management. The White Paper, nevertheless, concentrates more on apprenticeship training, I think just for the reason that, rightly or

wrongly, we feel in the Ministry that that is the area where there is most need for attention and improvement at the present time. For two reasons, first of all because it is the area where we have been perhaps particularly conscious of shortages and of the need to increase the number of skilled workers to help the economy and also, and perhaps this is simply a question of cause and effect, this is the area where training has been most canalised and controlled and limited by all sorts of industrial practices and agreements. I do not think it is possible immediately, to turn the Boards into kinds of dictators, who can alter all the practices of industry with one wave of their hands, and we would certainly like to make it quite clear that there should be no question of the Boards dealing with questions of terms and conditions of employment, but I would hope that, if the Boards establish the right sort of length of training and the kind of ages at which boys should start training, this would be taken into account by the joint bodies in the industry and in due course the situation would be influenced. Something was said which suggested that the numbers of apprentices were largely controlled, and implied that they were restricted, by the trade unions. I think it is only fair to say that that is not really true. It is true in the printing industry, but by and large it is not true in engineering and building. I think I am right in saying that while the unions may have had a conservative influence on the length of training and the age of entry, they have not, in fact, restricted the numbers that employers could take on. In laying this emphasis on apprentice training, there was, as I said, no idea that that would be the sole function of the Boards. On the contrary, we hope that they will devote a lot of attention to operative training, and also to management training and other specialised fields.

Someone asked whether the Boards would make a survey of existing capacity, and take that into account. Well, I hope so. If a Board does not do that I would have grave doubts as to the efficiency of the Ministry in certifying that it deserved any grant from us.

White Paper and manpower planning: I thought I had already answered that in my last intervention. I think there is a need for close contact here between the Boards and NEDC. I think I have already perhaps dealt with the trade union postscript to that question.

Responsibility for trainees from overseas: I must admit I had not really thought of that yet. Speaking off the cuff, I would not

have thought that the Boards would be made responsible for this, but we in the Ministry of Labour, of course, have a lot of contact with the International Labour Office on this question, and I would have said that the establishment of the Boards would make our job easier. We could have a centralised body for the industry, to which we could go and discuss with them how to arrange a programme of training for people from overseas.

The question of small firms was mentioned and I think it is very important that the Boards should do all they can to encourage the development of good group apprenticeship schemes. I do not think it is specifically mentioned as one of their functions in the White Paper, but I think it might well be appropriate to include a specific reference to that in the Bill.

Changing occupations: Yes, I agree. The White Paper says it is the duty of the Board to consider and establish training programmes for the occupations in their industry and it would be one of their jobs to keep under review all the time what the nature of these occupations was, and to change the training as required. The building industry, I think, is giving an excellent example, at the moment, of having a really thorough review of what is actually required in its industry.

Research: I think it would be part of the job of the Boards to do research on training questions for their own industry and to co-operate with the DSIR, and, as has been said earlier, there might well be some question of a central body which would co-ordinate on that particular field.

Small firms: I would not, myself, call a firm with a hundred employees a small firm, and I think a firm with a hundred employees can, if it takes the trouble, do quite good training, but it seems to me that the thing should work out like this. The Boards' first responsibility, I feel, is to establish the amount of training which they think ought to be done in their industry. For we trust that they will take a long term view and not just consider the degree of prosperity at the particular month in which they are examining the question. Having decided that, I think they next have to find out the plans for training firms in the industry. If the firms were not doing enough it would be their responsibility to see that more was done, if necessary by organising training themselves.

The White Paper does also suggest that, regarding first year training, there is a great deal to be said for systematic training in a

centre of some kind where full-time training can be given. The White Paper mentions the Government Training Centres and the technical colleges which provide this sort of training at the moment. It is considered that a Board might take on responsibility for organising first year training for all apprentices in its industry. It might, for this purpose, use the larger firms in the industry which were in a position to provide schools. The Boards might also use technical colleges, Government Training Centres, or they might decide that it was desirable to set up a centre of their own. It would not be for the Ministry to indicate the methods but it is hoped that under the provisions of the Bill, the Boards will take the responsibility of seeing that adequate training of an adequate number of people is provided.

Chairman: H. A. L. COCKERELL

Summing up

Major General C. Lloyd, CB, CBE, TD

Director-General, City and Guilds of London Institute,
Vice-President, BACIE

I am going to start my summing up by expressing my conviction that the Government is perfectly serious in its intent as expressed in the White Paper. I was somewhat disquieted to hear some inferences that perhaps the Government is not serious.

I should like to congratulate the Minister and the Government on the very welcome change of policy which the White Paper signifies, and which you have already endorsed by your overwhelming attendance. I also congratulate the Ministry of Labour —I suspect that it is Mr Stewart this time who is to be congratulated —on being fiendishly clever in what has been omitted from, as well as in what has been included in, this trial balloon. This White Paper is a very welcome start indeed to this change of policy; some very valuable principles have already been enunciated in it, and what we have all got to do now is to try to make the specification complete and to help the Ministry of Labour in framing the legislation that it has in mind.

I have almost a vested interest in this question because, underlying this White Paper, it seems to me, is a difficult and fundamental problem with which I once had to wrestle for five long years. It is the question of what is education and what is training. You will notice that in most books on the subject the writer begs the question by using the term 'education/training' or, 'training/education'. In fact, education and training are one and indivisible and the two separate words, 'education' on the one hand and 'training' on the other, are extremes of the same thing. Training, on the one hand, is mainly concerned with the present, because at any one time the end product of any training course must be a trained man able to take his place and do a thoroughly trained man's job in the technique for which the course has been conceived. Education, the other extreme, is the broad base of knowledge without which training would not be possible, and education provides mainly for the

future, although it does enrich, enliven and explain the present. We cannot do without the one or the other.

I should like to reiterate the main objects of this particular White Paper, because they have not once been quoted in full by anyone.

7. The objectives to be achieved can be stated as follows:—
   (i) To enable decisions on the scale of training to be better related to economic needs and technological developments;
   (ii) To improve the overall quality of industrial training, and to establish minimum standards,
   (iii) To enable the cost to be more fairly spread.
8. So that discussions may take place on a realistic basis the Government has drawn up proposals set out in the following paragraphs after a study of existing practices both in this country and abroad.

Now for once the aims of the economist, the industrialist and the educationalist are identical, because surely skilled manpower is our only real asset in this country and what they are all asking for is the fullest possible realisation of the individual by this process of education and training. First of all this must come by the broadest based education which the man or woman can assimilate and, secondly, by the highest degree of training which it is possible for us to provide for him. This is not just an airy-fairy problem for idealists; it is, for us in this country, a severely practical and urgent issue.

Single Control

It seems to me that there is a general feeling, with which I am in accord, that the scheme must be under single control. Whatever the agency may be—I can envisage that it could be a Government department, it could be a statutory Board, or it could be some other body—it must first of all have the power to make its will known and have it carried out. All of us in this field could give examples of good industrial training, but we could also describe some more gloomy aspects, including those areas where there is no training whatsoever. Without power at the top, this system of Boards will not be effective.

The main agency must be fully representative, but our experience in the Institute is that, although adequate representation is essential, the executive portion of the agency should not be too large. This does not constitute a dichotomy, because it is possible to devise a system with full representation on the main body which has an executive of limited size. There must, it seems to me, be responsibility for research into this field—this is pre-eminently a job for

such a main agency—for example on problems such as methods of instruction and of selection, both of which have been mentioned today but on both of which far too little research has been done.

Again, I believe in the necessity for having this central agency because of my experience with National Service. National Service was a relative failure; I use the word 'relative' advisedly. It could have been a magnificent operation for the good of this country from all points of view. I worked very hard and very intimately with it for practically the whole of its existence and in my opinion it was a failure because no one Government department or other agency was responsible for all aspects of it. The Service departments were allowed to look at it from their particular point of view, the Minister of Labour provided the bodies and so on, but there should have been a very powerful central agency with, if necessary, direct access to the Cabinet which said precisely the way in which a young man was to be dealt with.

Boards Need Comprehensive Responsibility

In this scheme the Boards—I am now moving away from the central agency—must cover all who require training, and not just those whom we now call apprentices. In fact, the apprentices, although a very important component of the total, are a relatively small part of the whole. We have as yet, and again this is something which requires research, no criterion as to what constitutes a satisfactory training scheme for people who are not apprentices, although they total something like 75 per cent of people under training at any one time. That is something which has caused the Industrial Training Council a number of headaches.

The total field covers both the professional and the sub-professional levels; in the latter I include the technician, the craftsman, the operative and the general duty man. With regard to the operative, I use this term in the special sense of the worker who requires a technical training with the smallest significant pabulum of technical knowledge. In my Institute we already have about twenty-five schemes of further education for operatives in existence and we hope very shortly to have a good many more. This field is, in terms of production of courses, at present more active than, say, the field of craftsmen.

Our experience is that a surprisingly high proportion of operative jobs in industry which, at first sight, appear to have a very small technical content, turn out on investigation to have a really sig-

nificant amount. When one exploits this technical content, and when the course is carefully designed to have maximum relevance to the job, the resulting course can have great success in many directions. It creates improved efficiency on the job; more self respect; and a greater interest in the work. It also provides preparation for advancement or promotion. In short it can provide a significant educational and technical achievement.

Some modern forms of industrial training for operatives are devised on analytical lines; where this is so, training can be successfully geared to further education courses. One example of this is the boot and shoe industry where, by collaboration with the industry, we have produced practical tests as well as an educational scheme. One interesting question is, should the City and Guilds be encouraged to devise schemes for trainees to meet the requirements of training Boards in the same way as they have recently done for the boot and shoe industry? Our answer to this is that we will gladly do anything that we are asked to do; but it should be understood that, up to the present time, our field has been very largely that of further education. In other words, we are on the educational side of the education and training spectrum, whereas the practical tests belong to the training side. We do, in fact, already carry out this function for gas fitters and for motor vehicle mechanics, our educational scheme is very closely linked with practical testing by the NJIC. My colleagues and I have worked out that when Mr Cousins was on our Advisory Committee, the entry for motor vehicle mechanics was running at about 700 a year; it is now running at about 3,500 a year.

So far, no one here has mentioned the needs of the technician. There is a great need to analyse precisely what a technician is and for the provision of the special training and special further education required for him. Their numbers are not very large, but their contribution, of course, is out of all proportion in the qualitative sense.

I should like to say one further word about the group that includes the technician, the craftsman and the operative, based on my five years in the War Office and thirteen years with the Institute. I have noticed throughout the whole of those eighteen years the general duty men gradually moving up the scale, first of all into the operative class and then some of the operatives moving up to acquire skills comparable with the craftsmen. I am absolutely certain myself that there is practically no one in industry who

requires no training at all and that we ought to direct our attention to everyone. I would also, from first-hand experience, agree that the first year is most tremendously important and, as Lady Williams said, it should be end-on to school. The reason why I say that is because (as we discovered when we were doing the report for King George's Jubilee Trust)* this transition from school to job can be a catastrophic change for the youngster in all sorts of ways. There is here a gap which has not been satisfactorily bridged except in a very few firms. We now have a first-class opportunity to see that the youngster's induction into industry is made as smooth as possible.

Having said that I very much hope that it will not result in our neglecting all the rest. I personally think that no small firm whatsoever should be excluded from this scheme. I say this, fully aware of what may well be the difficulties of collecting the levy in whatever form it may be, but surely if one adds together the youngsters in all the small firms in the country, the total number will be enormous and on no account should employers be able to opt them out. I can see nothing but disaster ahead if this is allowed. In some trades, the very highest form of training is done in the smaller firms.

Providing for Future Industries

We are faced not only with a vast increase in technology but, even more important, a vast increase in the rate of increase. In other words, the application of technology to industry is rising logarithmically. One of my theme songs over the last five years or so has been that there ought to be some agency—it might well be this central agency that I was talking about—which would do a sort of radar scanning operation over the whole range of industry. As the scanner goes to and fro it ought to pick out the areas which require attention, not only in the remedial sense in which a lot of the White Paper is couched, but also in the positive developmental sense of picking out the fields of industry in which there is practically no activity. There will not be a Board in existence for an industry which does not yet exist, so somebody has to be responsible for saying, as we would have said about fifty years ago, 'Well, plastics is going to be a coming thing. There is no plastics industry at the moment but somebody must get cracking.' It can be done. That is one of the characteristics which makes this decade quite different

**The Transition from School to Work*, LESLIE PAUL, Industrial Welfare Society, 1962.

from any other; it is possible now to look ahead and predict the future quite reasonably, and it is high time that this was done. It could not be done by a Board for industry because the industry would not exist. It must therefore be done by the central agency.

There are, in effect, just three major problems as I see them. They have all been mentioned and I am just trying to pick out the major points. First of all, just as in education we have this gross shortage of teachers, so in this new scheme we shall have, initially at any rate, a great shortage of instructors. Whatever else the Bill contains it must give authority for somebody to deal with that, and also with the shortage of the organisers, the top-level experts on training. These experts are very scarce indeed—as we at the City and Guilds know since we have them serving on our advisory committees. It will be very difficult to get sufficiently knowledgeable people to serve on a Board which is going to prepare a scheme of education and industrial training. The newer the subject obviously the more difficult it will be to get them. There is also the difficulty of the representation from commerce and banking to which reference has been made, and the difficulty of defining an industry. I should just like to say, in this connection, that I foresee that certain key techniques may be left out altogether if we are not very careful. For example, if an industrial Board was set up for each category listed in the standard industrial classification, I do not think that control engineering would find a place. Control engineering is a vital technology; it is not vertical like mechanical engineering, electrical engineering or chemical engineering, it is a horizontal technology relevant to a wide range of industries, yet with comparatively few people in it. It is absolutely vital for this country that control engineering should be practised by the best people we can find. I do not see how we are going to get complete coverage of cases of this kind under the Board-for-industry system. I think probably what will have to be done is to put some technologies under the central agency, establish the Boards on the lines of the standard industrial classification, and have some common panels for certain techniques. To give one example, if a Board is set up for the paper-making industry, only a small percentage of the employees would need training in paper-making. All the rest would be concerned with mechanical engineering, electrical engineering, commerce or some other skill, and presumably would be given training elsewhere. It seems inevitable that we shall need some system of common panels or sub-committees for common techniques and training needs.

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APPENDIX 'A'

Industrial Training: Government Proposals*

Cmnd 1892

(*December*, 1962)

1. The Case for Action

1. Ever since the war industry in this country has been short of skilled labour. This has usually been so even in those parts of the country where the general demand for labour has been relatively small. There is no doubt that shortages of skilled manpower have been an important factor in holding back the rate of economic expansion—not least in those parts of the country where such expansion would have done most to reduce a level of general unemployment higher than the average.

2. It will be impossible to secure the objective of a steadier and more rapid rate of economic growth unless skilled manpower is available on a growing scale. This means that the rate of industrial training must be increased.

3. An increase in the supply of skilled labour will need to be matched by an improvement in quality. Whether or not we decide to join the Common Market our exports will be faced with increasing competition. At its best, the standard of training in this country is high; unfortunately this is by no means universal. Much is barely adequate and some definitely unsatisfactory. Many firms do not make adequate use of the facilities for technical education. Our overseas competitors, particularly in Western European countries, have paid great attention to the need to maintain an adequate supply of well trained skilled labour. We must be quite sure that our own arrangements do not fall behind.

4. At present training for industry in this country is primarily the responsibility of individual firms, though the Government, Local Education Authorities, and other agencies, such as the City and Guilds of London Institute are helping. The Industrial Training Council which was set up in 1958 by the British Employers' Confederation, the Trades Union Congress and the nationalised industries, to provide encouragement and help to industries in dealing with the training of workpeople, has helped to stimulate interest in the question. In recent years many firms have taken advantage of the rise in the number of school leavers by increasing substantially their recruitment of apprentices. In 1961 there was an increase in the number of apprentices recruited of 12,231 (or 10 per cent) over the previous year and in the first ten months of 1962 there was a further increase of 10,989 (or 9 per cent) over the corresponding period of 1961. These increases have been very welcome. Even so, it remains doubtful whether the number of new entrants into skilled occupations will be sufficient to match future needs. Experience in the United States, for example, suggests that technological progress requires an increasing proportion of trained and technical manpower in the working population, with a correspondingly smaller demand for unskilled and semi-skilled labour. The same is true here. The great majority of unfilled vacancies call for some degree of skill, while a high proportion of the adult unemployed are labourers.

*Reprinted by permission of the Controller, HM Stationery Office.

5. A serious weakness in our present arrangements is that the amount and quality of industrial training are left to the unco-ordinated decisions of a large number of individual firms. These may lack the necessary economic incentive to invest in training people who, once trained, may leave them for other jobs. While the benefits of training are shared by all, the cost is borne only by those firms which decide to undertake training themselves.

6. That these weaknesses exist, and must be remedied, is increasingly accepted within industry itself. The Government has therefore decided that the time has come to strengthen and improve the existing partnership between industry, the Government and the education authorities in the provision of industrial training. It has accordingly begun discussions with representatives of employers' and workers' organisations on proposals for improving the present arrangements. Discussions are also being arranged with the appropriate representative bodies in the educational world.

7. The objectives to be achieved can be stated as follows:—

(i) to enable decisions on the scale of training to be better related to economic needs and technological developments;

(ii) to improve the overall quality of industrial training and to establish minimum standards; and

(iii) to enable the cost to be more fairly spread.

8. So that discussions may take place on a realistic basis the Government has drawn up proposals set out in the following paragraphs. They have been drawn up after a study of existing practices both in this country and abroad.

2. The Government's Proposals

A Training Bill

9. The Minister of Labour would be given statutory power to set up Boards which would be responsible for all aspects of training in individual industries. Before setting up a Board the Minister would be required to consult the organisations principally concerned on both sides of the industry.

10. The range of functions which the Boards would be empowered to undertake would be set out in the proposed Bill. These might include:—

(1) Establishing policy for training in the industry, including such questions as admission to training (apprenticeship or otherwise), length of training, registration of trainees, and a provision for appropriate attendance at colleges of further education.

(2) Establishing standards of training and syllabuses for different occupations in the industry, taking into account the associated technical education required.

(3) Providing advice and assistance about training to firms in the industry.

(4) Devising tests to be taken by apprentices and other trainees on completion of training and, if necessary, at intermediate stages—for example, at the end of the first year.

(5) Establishing qualifications and tests for instructors.

(6) Establishing and running training courses in its own training centres.

(7) Paying grants to firms to reimburse them all or part of the costs incurred in the provision of approved training.

(8) Paying allowances to trainees not taken on by firms while being trained in public, or the Board's own, centres.

(9) Collecting money from establishments in the industry by means of a levy.

(10) Borrowing.

11. A levy on firms in the industry is an essential part of the proposals. If a Board undertook the functions set out at (6), (7) and (8) above it would incur considerable expense. The Bill would provide that rebates could be allowed from the levy where firms were providing industrial training of approved quality. Whether or not this should be done would be a matter for decision by the Board. There would have to be power to exclude from the levy firms below a certain size. In addition, the Government would propose that the Bill should empower the Minister of Labour to make loans or grants to the Boards.

12. The Bill would provide that the Minister of Labour, at the request of a Board, could undertake the duty, subject to appeal, of identifying the establishments comprised within the definition of the industry. It would give the necessary powers to obtain information for this purpose, e.g. as to numbers employed and types of work undertaken in establishments.

13. The Boards would be empowered to appoint qualified persons to undertake duties in connection with the promotion of industrial training including making reports on the quality of training provided by firms applying for grants. The Minister of Labour would be empowered to appoint officers to satisfy him that the standards of training adopted by the Board were sufficient to justify payment of grant to the Board by the Minister.

The Kind of Scheme which might be operated by the Boards

14. Legislation on these lines would leave latitude to the Boards in deciding on their activities within the range of functions set out in paragraph 10. It might well be, however, that particularly in dealing with apprenticeship trades some Boards would find that they could best make progress by concentrating their main attention—at any rate at first—on the improvement of first-year training. This view is based on the experience of firms which have their own training schools and on the success achieved by the Ministry of Labour and many education authorities in the last two or three years in training first-year apprentices on a full-time basis both in Government Training Centres and Technical Colleges.

15. Experience has shown clearly that if young people on leaving school are given a systematic course of training in the basic principles of their trade, their progress thereafter to full skill will be more rapid and their adaptability within their trade much greater than if they started out on a narrow range of production work. It is difficult for many employers, particularly in small and medium-sized firms, to make available the machinery and instructors to give the apprentice this systematic grounding. The wider provision of opportunities for systematic training in the first-year of apprenticeship would do much to improve our whole system by remedying it at its weakest point, that is to say, the haphazard and narrow training given all too often at the beginning.

16. If a Board decided to concentrate on first-year training it might find it desirable to provide that the cost, perhaps including wages, of all first year industrial training should be borne by the Board. The actual arrangements would no doubt vary according to the circumstances of the industry and the area. But the powers set out in paragraph 10 above would enable the Board to make any arrangements which might be necessary.

17. Clearly a Board which took over responsibility for first-year training on these lines would also find it necessary to carry out some of the other functions set out in paragraph 10 above, e.g. establishing standards of apprenticeship training.

Definition of Industries

18. The definition of industries for inclusion in the Orders setting up Boards would have to be worked out in detailed discussion with those concerned in the industries affected.

Composition of the Boards

19. The composition of the Board would be a matter for consultation with the industry in each case. How far it would be necessary to lay down a general pattern in the Bill would be for consideration. It would seem clear that the major part of the representation would have to be provided by employers and trade unions; that representation of Government Departments would be necessary; and, in view of the close links between industrial training and education, that there should be appropriate educational representation also.

APPENDIX 'B'

The Economics of Industrial Training*

by

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Ever since the end of the war there has been a serious shortage of skilled labour. This naturally varies from one region to another, from one period to another and from one trade to another; but the differences are a matter of degree only. The exact extent of the shortage is not known. We derive our information from a comparison of the numbers of workers of different types wholly unemployed and the numbers of vacancies notified. It is possible that some employers exaggerate their demands in the hope of getting at least a proportion of what they ask for; but it is also certain that some firms do exactly the opposite and do not bother to notify vacancies they have little hope of filling. On the whole it is thought that the figures compiled by the Ministry of Labour tend to under-estimate rather than over-estimate the shortage.

The most recent figures available (September 1961) show that in engineering and allied occupations there were more than three times as many unfilled vacancies as men seeking work; in building, four-and-half times as many, and in vehicle-building there were four vacancies to every unemployed man. But these overall figures conceal the seriousness of the situation in particular key trades. Amongst turners there were more than thirteen unfilled vacancies to each unemployed man, amongst machine tool setters, fourteen, amongst carpenters and joiners, ten, and amongst draughtsmen, over five. If one analyses by regions instead of trades one finds that the East and West Ridings had ten vacancies to every unemployed man in engineering, twenty-nine for draughtsmen, eleven in the building industry and over twelve in vehicle-building; and the Midlands and other highly industrialised areas were only slightly less strained. It is not too much to say that these acute and continuing shortages constitute one of the most serious obstacles to increased British productivity.

It has sometimes been argued that these shortages are exaggerated by the practice followed by some firms of "hoarding" their skilled workers even when there is no work for them for fear of not being able to attract them quickly enough when their order books are full. According to the recent report of the Working Party on Manpower of the National Joint Advisory Council, such hoarding, whilst it undoubtedly exists occasionally, is only slight in incidence. It is good policy—both from the point of view of production efficiency and from that of industrial relations—to maintain an integrated labour force during periods of temporary recession; and most skilled labour is paid at such a high rate that few firms dare retain many unnecessary workers on their payrolls. There is no doubt that the shortage is as real as the figures suggest.

*Reprinted from *Industrial Training—Whose Responsibility?* BACIE Spring Conference, 10 May, 1962, BACIE Publications, price 5s (6s non-members).

One explanation of this situation sometimes offered is that the slight difference in rates of pay between skilled and semi-skilled no longer provides an adequate incentive to boys to undertake a long apprenticeship. It would be reasonable to expect this but, as a matter of fact, whilst there is often a dearth of applicants in certain areas, by and large the proportion of school-leavers seeking training is sufficient. The real explanation must be sought elsewhere.

The problem stems fundamentally from the fact that our organisation of training has not kept pace with the remarkable changes that have taken place both in the structure of industry and in industrial techniques. We have been content to leave it basically as it was when industry was carried on mainly by small family businesses and when most of the skill needed was that of the craftsman using hand tools. The only concession we have made to the new age is that of expecting employers to release their apprentices for one day a week to attend technical colleges where they can acquire the kind of scientific knowledge they cannot get in the workshop; and even that is not obligatory.

The chief concern of the Carr Report was with the increase of adolescents coming onto the labour market as a result of the bulge in births which began in 1942, and it urged firms to expand their intake to make room for them. But the bulge, whilst it has accentuated the problem, did not create it; and the need to reorganise our methods of recruitment and training would have been just as serious if the birthrate had remained as it was in the thirties. The exhortations on which the Carr Report relied have had and can have little permanent effect. Some few firms, with a strong sense of social responsibility, may be moved by it; but the majority must necessarily be guided by what seems to them to be in their economic interest. It is essential, therefore, first to analyse the elements in the situation which result in this chronic shortage and then to consider ways in which these may be overcome.

The present problem is one both of quantity and quality. Let us take quantity first.

There was a time when the problem was how to keep down the number of apprentices rather than to increase it; but that is long past. Boy labour is no longer cheap. The wages of adolescents have risen by 37 per cent ever since 1956 in comparison with a rise of 30 per cent for adult men in the same period; and between 1948 and 1956 the rises showed the same proportionate differences. In addition the obligation to release those under 18 for a day's attendance at the technical college not only adds to costs but, more important, dislocates the work schedules of the teams to which the apprentices are attached. No figures are available to show the number of apprentices employed by each firm but the present writer's own enquiry, published in 1958*, shows that a very large proportion of the medium-sized and smaller firms (who between them make up the majority of enterprises in almost all industries) take either no apprentices at all or only a very few. This throws the heaviest burden on the large firms who can more easily bear the costs but who, naturally enough, feel resentment that their competitors later drawn on the pool of skill they have done nothing to help create.

With the best will in the world, however, it would be impossible nowadays for a great many firms to give an adequate training. Specialisation has developed so greatly that a large number of firms now concentrate on a narrow range of products or provide ancillary services for larger enterprises. Even if willing to take on more apprentices they have not the facilities to give a really comprehensive training.

There are many other factors in our system which contribute to this shortage.

**Recruitment to Skilled Trades*, GERTRUDE WILLIAMS, Routledge and Kegan Paul, 1957.

1. One of the most serious is the unions' insistence on a five-year apprenticeship, beginning at 16 and ending at 21. Neither technically nor educationally is there any excuse for this. It is nonsense to assume that every skill takes the same time to acquire and that this is so is evidenced by the fact that this lengthy period is not demanded in any other industrial country. In most European countries training begins at the legal school-leaving age and continues for periods varying from one-and-a-half to three-and-a-half years according to the level of skill required.

2. Of a similar nature is the rigidity which assumes that a man is either 'skilled' or not whereas, of course, there are many degrees of skill. In the days of the small family business, such as still exists to-day in certain kinds of work in most countries—what in France and Belgium is called *l'artisanat*, or in Germany, *Handwerksbetrieb*—the owner must, indeed, be able to turn his hand to any job within the scope of the trade. But in modern large-scale industry this is very often not so. Skill *is* required, but it is skill within a much narrower range of operations and the man who has had a long and comprehensive training may never be called upon to exercise the skill he acquired as a youth. In many countries—France, Italy, the Netherlands, etc.—three or four grades of skill are recognised and remunerated at different rates, instead of the *one* in this country.

3. A similar rigidity in lines of demarcation between trades, by reducing mobility of workers from one job to another, wastes the skill that is available. These strict lines of demarcation had some justification when unemployment was always round the corner and each man was constantly afraid that another might take his job. Nowadays no such justification exists, either technically or in the state of the labour market. This is the only European country which maintains these inflexible barriers between trades which often are so closely akin to one another that one needs to be an economic historian to explain where the boundaries one one trade end and another's begin. Consequently, work is held up in one section whilst men fully capable of doing the job remain idle in another.

4. Restrictions on the age of apprenticeship are another example of the rigidity of our system. In theory it is possible for young people who have stayed longer than the prescribed period at school to be accepted for a shortened period of apprenticeship and in a few areas this does, indeed, happen. But the majority of employers are not eager to take boys at a later age than is customary (there is still, alas, a very widespread fear that 'book-learning' unfits a boy for hard manual and practical work), and the trade unions will not permit an age of entry which does not allow apprenticeship to be completed by the age of 21. This restriction is wrong economically and unjust socially. A man who finishes his apprenticeship at the age of 21 has at least 44 years of employment ahead of him. During that time great changes take place in the relative sizes of industries and in the techniques employed within each industry. Hence the demands for different kinds of skill change too. The skill which a man has developed during his adolescence may become a drug on the market by the time he is 40 but, although there are other trades which require the same habits of precision, the same trained observation of detail and the same manipulative dexterity, he is not permitted to train for them because trade union agreements require him to learn any trade he practises before he is 21. What a waste of ability in a country which depends for its high standard of living on the quality of its workmanship !

But apart from the economic waste, this restriction results in grave injustice to the individual. Many young people miss the chance of learning a trade during their teens. Sometimes it is their own fault—they are impatient to 'grow up' and want to be free of the discipline of training. Later, bored with the monotony of semi-skilled work, they would be glad of another chance. Some-

times domestic circumstances are against them—a widowed mother to whose support they must contribute, or an unsympathetic father. Sometimes they begin an apprenticeship, dislike the work and throw it up mid-way, and are then too old to be admitted to another. Our present inflexibility denies a man a second chance, and in so doing throws away a great deal of potential ability. Here again we differ from our European competitors, most of whom have organised excellent systems of accelerated training of adults. In this country, it is true, we have the Government Training Centres which were established in the thirties to deal with the long-term unemployed; but nowadays they are concerned almost exclusively with training the disabled and ex-service men making their re-entry into civilian life.

So much for quantity. What of the quality? The difficulty here is that one cannot make any generalisation that is true. There are many firms whose training is as good as that to be found anywhere in the world. The apprentices are put in the care of somebody whose job it is to see that they progress systematically from one section to another, and that they attend regularly at the technical college. Probably such careful supervision is found more frequently amongst the larger firms, many of which take their training responsibilities very seriously; but it is by no means confined to them, for the same careful attention to the progress and welfare of their apprentices is found in many small firms too. But what proportion of apprentices get this detailed supervision nobody knows nor can even guess. For here again we are in the unenviable position of being unique amongst developed industrial countries in Europe, that absolutely no standard is set. Here there is no other requirement to acceptance as a skilled man other than that the prescribed period has been completed. Whether any skill has, in fact, been mastered in the workshop, whether anything has been learned at the technical college—or even whether any classes have been attended —is not enquired into.

Thus our present system must be condemned both from the point of view of quantity and of quality. As long as we continue to rely, as we do now, on the willingness of firms to take on the number of apprentices they choose, we shall be faced with a chronic shortage of skilled labour and we shall have no guarantee that those available have, in fact, the competence they claim.

What then must be done ?

There are two distinct, though related, problems which must be separately considered. The first, by far the most important, is concerned with the selection and training of young people. The second is concerned with the re-training of those already adult and in employment.

Many people argue that training for skill should now be accepted as the function of the educational system instead of, at present, the responsibility of industry. They point to the success of the *Collèges d'Enseignement Technique* (formerly *Centres d'Apprentissage*) in France and urge that we should follow this example in recognising that those preparing for skilled industrial work are pupils just as much as those in schools and colleges from which they enter employment in clerical or professional occupations. There is a great deal to be said for this point of view but I, myself, do not support it for the following reasons:—

1. A complete reversal of traditional practice is rarely wise unless the arguments in favour of it are incontrovertible. The developments in each country are bound up with its accepted customs and structure and the fact that a particular system is successful in one country does not mean that it will have an equal success in another. The French sustem was organised to deal with an emergency situation. The Liberation saw France in need of a million skilled men and with no immediate resources, because the usual methods of training had been disrupted during the Occupation. Methods of training were welcomed then that might have been resisted in different circumstances.

2. Training in educational institutions introduces its own rigidities. One of the universally accepted features of such bodies is that the staffs have security of tenure; but changes in the relative sizes of industries and techniques demand a more flexible corps of instructors. There is a very real danger that an Apprentices College might continue to train pupils for branches of industry which are declining numerically simply because there are members of the staff who are skilled in such work and, unless the total size of the establishment can be increased, men trained to deal with other trades cannot be taken on. Unfortunately, this danger cannot be overcome by skilful forecasting of future needs for we have not yet much competence in foretelling the future. Industry has no more skill in forecasting the future needs for labour than has educational authority, but it is unlikely to train many young people for whom there is not, at least, an immediate need.

3. The intake of educational institutions cannot easily be expanded when industry requires more skilled workers. The building, staffing and equipping of such bodies are matters of political decision; even if the Government professes to be willing to spend more, there may be other demands on the public purse which have priority. How serious this can be can be seen from the present miserly provision for the Universities despite general agreement on the need for expansion. It is significant that at the moment France is doing all in its power to persuade industry to take on more apprentices to be trained on the job because of the shortage of vacancies in the *Collèges d'Enseignement Technique*. So far this has been unsuccessful because firms have got used to the idea that training is the responsibility of the Government and not of industry.

4. When technological change is rapid it is of the utmost importance that apprentices are trained in up-to-date methods. Though the best college can keep pace with change it is difficult for most of them to do so. Not only do instructors gradually fall behind the times, but most mechanical equipment is so expensive that Public Authorities are unwilling to change as often as they should.

5. Our young people are accustomed to earning high wages. If, say, three years at a college were substituted for five years' training in industry there would be an outcry from the young themselves, thus deprived of spending power, and from their parents, faced with an increased burden of dependency. Even if some maintenance were provided by the State it could not approach the amount of present adolescent earnings.

But these objections do not mean that educational institutions should not play a much bigger part in training than they do at present. Already the Government Training Centres offer an initial year, comprising both theoretical and practical training, with the aim of encouraging smaller firms to increase their intake of apprentices by relieving them of responsibility for the period when apprentices—because of their low productivity—are the heaviest financial burden. And a number of technical colleges have planned similar one-year courses for the apprentices in their locality.

This could, and should, be much extended. The basic preparation for a very large number of trades is much the same and could be given both more satisfactorily and more economically in groups large enough to justify specially trained instructors devoting their whole time to the work. Many large firms already recognise this by keeping their apprentices apart from the productive workshops for a period of time, usually not more than six or nine months. The arguments against relying mainly on the educational system for the complete apprenticeship do not apply to this basic training when the youth is learning the fundamental scientific principles on which most skilled trades are based, the use of tools, accuracy and precision in the carrying out of instructions, and so on. It is a matter worthy of careful consideration whether such a basic training

should not be made an obligatory part of apprenticeship for all those employed by firms that do not organise their own works schools for the purpose.

Apart from this I believe that apprenticeship should still be the responsibility of industry but the method requires radical reorganisation. We must now accept that the time has come when the State must play a bigger part in ensuring that young people are given a better chance of preparation for skilled work. The State now recognises this responsibility in relation to non-manual work, as is evidenced by the expansion of educational facilities and the provision of maintenance for those who gain entrance to Universities and similar institutions of advanced education. It has so far *not* been willing to do the same for the skilled manual worker but it must now be prepared to do so.

Only an outline of a possible scheme can be given here as a basis for discussion.

1. It should be made compulsory for every industry (or possibly group of small trades) to establish an Apprenticeship Authority, composed of representatives of employers, and trade unions and officers nominated by the Ministry of Education and the Ministry of Labour. This body should be responsible for the selection of apprentices, for designing the curriculum of training and for ensuring that this curriculum is followed in the workshops.

2. Apprentices would be indentured to this body and not to an individual firm, unless a firm could show that it provided a training at least as good as that of the Authority.

3. The wages of apprentices would be paid by the Authority out of a fund contributed by all employers in the industry—whether they have apprentices or not—in proportion to their payrolls. Exemption from this contribution would be made in favour of firms providing their own approved training.

4. The Authority would organise courses of training for the instructors of apprentices—both practical and theoretical—and would employ a corps of consultants to travel from firm to firm to advise employers on methods of dealing with apprentices. The whole cost of these courses and of the corps of consultants would be met by a Government subvention, borne partly on the vote of the Ministry of Labour and partly on that of the Ministry of Education.

5. The Authority would have the right to transfer apprentices from one firm to another to ensure a comprehensive training. Only in this way can the difficulty of the specialised firm be overcome.

6. Different periods of training would be set for different grades of skill. As far as possible different trades would share a common training and the point at which specialisation for a particular trade commenced would be postponed to as late a date as possible in the period of training. In this way greater flexibility of the skilled labour force could be obtained and unnecessary lines of demarcation between closely allied jobs be removed.

7. It is absolutely essential that the period of training should culminate in a test—mainly practical but with some theoretical content—on the lines of the tests now made famous by Bemetel. Only in this way is it possible to ensure a minimum standard of competence amongst skilled workers. But such a test acts also as a check on firms which carry out the training. Any firm whose apprentices habitually failed to reach the required standard would be disqualified from undertaking training in the future.

The setting of a test also provides constant opportunity for revision of the curriculum to ensure it keeps up-to-date with technological changes. Such a scheme would help to overcome both the problems of quantity and of quality in relation to apprenticeship, but it would not have any effect on the problem of the adult worker. The corollary of such a reorganised method of training young people is the establishment of special centres for Adult Training. The

excellent system instituted some years ago in France has proved conclusively that, provided selection is carefully made, a man can be trained for skilled work in nine months. Admission to the French Centres is open to all between the ages of 17 and 45, whether already employed or not, for the French, both employers and trade unionists, believe strongly that a man should have an opportunity to better himself if he has the capacity. To prevent waste of resources, candidates are given a simple test to show (a) that they are capable of learning, and (b) the trade in which their aptitudes are likely to be most successfully employed.

The curriculum to be followed, as well as the methods, are carefully laid down by the Ministry of Labour, but the control of the Centres is vested in a non-Governmental body representing employers, trade unions and the Ministry. The tuition given is by specially trained instructors, each of whom is responsible for a small group of trainees—never more than 15—so that individual tuition is possible. At the end of the course the trainees are tested in the same way as those who go through the *Collèges d'Enseignement Technique*, and only those who pass the test are recognised as skilled workers and are accepted as such by the appropriate trade unions.

In this way several hundred thousand adult skilled men have been added to the labour force. A similar system is deperately needed in this country, both to provide the flexibility in skilled manpower without which no highly developed industrial country can hope to maintain its competitive position in the world, and to give to every individual those opportunities to make full use of his abilities on which democratic countries pride themselves.

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*TECHNICAL EDUCATION CURRICULUM WORKSHOP, LOS ALAMOS, NEW MEXICO, AUGUST 7-11, 1967

The purpose of this workshop was to develop essential standards and goals for nine technical education curriculums which represented the major offerings in the states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Panel members and participants examined the technician and his work in order to identify elements of desirable educational programs. A 2 year curriculum and brief course descriptions were developed for eight areas: (1) Mechanical Drafting and Design Technology, (2) Architectural and Structural Drafting and Design Technology, (3) Civil Technology, (4) Electronics Technology, (5) Electrical Technology, (6) Instrumentation Technology, (7) Mechanical Technology, and (8) Data Processing Programing. Construction Technology was examined and will be developed later. Fifty-six educational and industrial representatives attended. (EM)

VT 005 610

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Report of Findings & Results of Technical Education Curriculum Workshop

August 7-11, 1967

Los Alamos, New Mexico

VT005610

ACKNOWLEDGMENT

The curriculum materials that were developed in this workshop can be directly attributed to the many knowledgeable technical educators who participated in the week workshop. However, of additional significance is the fact that only through a U. S. Office of Education regional concept of organization could such a meeting be held.

Through such a regional structure, assistance can be provided in the area of technical education, and through the continuous and encouraging support of Mr. George D. Hann, Regional Assistant Commissioner, Region VII, this workshop was organized. If the necessary assistance for technical education in this region is to be provided, it can only be accomplished through this type of support.

Arthur Lee Hardwick

Overview

The results of the nine curriculum sections at the workshop have been finalized and are enclosed in this report. The basic purpose of the workshop was to develop realistic essential standards and goals of the nine technical education curriculums constituting the majority of diversified technical offerings established in the five states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The participants of the workshop worked toward the objective of providing the necessary guidelines for properly educating technicians to meet the needs of the industry of the Region. The participants concentrated on what the technician needs to know and what he must be able to do; the emphasis was placed on what was required in the educational program to accomplish this goal.

The selected panel members, industrial representatives, and participants at the workshop reflected the accumulated experience and knowledge of many successful programs and educational institutions in the technical field. Various viewpoints were presented regarding the role and scope of the technician; however, this was generally attributed to the individual's experience and relationship with specialized technical fields and could be generally expanded to a more general definition of the technicians' responsibilities. The viewpoints of the group were consolidated to strengthen the philosophical base and to establish a frame of reference in which to work, and from this consolidation the following general definition was developed.

Technician Definitions

Technicians are persons who have the mathematical and scientific knowledge and competencies to perform at a technical level and to support the performance of professional engineering, systems and

scientific personnel in certain recognized branches of technology. They are generally educated in a rigorous two-year post-secondary education program designed to provide them with knowledge, skills, and attitudes required to enable them to perform as highly skilled technicians in a specific field of applied science.

Specific Abilities of Technicians

The panel members, mainly the industrial representatives, discussed in the general session of the workshop what special abilities were generally required by technicians; they generally agreed that the technician must be prepared to perform at the desired level with the specific abilities listed below: (In the order specified).

1. Understanding of the total manufacturing process involved in that industry. A thorough understanding and facility in use of the materials, processes, apparatus, procedures, equipment, methods, and techniques commonly used to perform the work and provide the specialized services required of the technology.

2. English, spelling, and communications skills background that includes the ability to record, analyze, interpret, and transmit facts and ideas with complete objectivity, orally, graphically, or in writing. Students must also have communications ability to master new forms of data and unique information systems necessary and pertinent to their field of specialization.

3. Applied knowledge of science extensively to provide direct technical assistance to professional personnel. Proficiency in the disciplined and objective scientific method in the application of the basic principles, concepts, and laws of the sciences as they comprise the base for the individual's field of specialization.

4. Facility with mathematics, ability to use algebra and trigonometry as tools in the development, definition, or qualifications of scientific phenomena or principles; and when needed, an understanding of, (though not necessarily facility with higher mathematics through analytical geometry, calculus, and differential equations), according to the requirements of the technology.

5. Provide a general "hands on" experience sufficiently extensive as to develop an understanding of the physical and economic restrictions in the manufacturing processes involved in modern industry.

With the general terminology and special abilities required of technicians studied, the nine curriculums were analyzed to formulate the total curriculum for each of the following areas:

1. Mechanical Drafting and Design Technology
2. Architectural and Structural Drafting and Design Technology
3. Civil Technology
4. Construction Technology (to be given further study and finalized at a later date)
5. Electronics Technology
6. Electrical Technology
7. Instrumentation Technology
8. Mechanical Technology
9. Data Processing Programming

The curriculums developed by the panels and participants are as follows:

MECHANICAL DRAFTING & DESIGN TECHNOLOGY

FIRST YEAR

First Semester	Theory	Lab	Credit
Technical Drafting I	2	6	4
Materials of Industry	3	3	4
Engineering Problems	1	3	2
College Algebra & Trigonometry	5	0	5
Communication Skills I	3	0	3
			18

Second Semester			
Technical Drafting II	1	6	3
Descriptive Geometry	1	3	2
Mechanisms	2	0	2
Statics & Mechanics of Materials	4	3	5
Analytics and Calculus	5	0	5
			17

SECOND YEAR

First Semester			
Technical Drafting III	2	9	5
Machine Design I	2	3	3
Physics	3	3	4
Government	3	0	3
Introduction to Computers	3	0	3
			18

Second Semester			
Technical Drafting IV	2	6	4
Machine Design II	2	6	4
Technical Report Writing	3	0	3
Principles of Management	3	0	3
Social Science	3	0	3
			17

COURSE DESCRIPTIONS

Technical Drafting I--This course is designed to aid the student in developing an understanding of the basic principles of orthographic and axonometric projection.

Special care is taken to provide exercises in the care and use of equipment and mechanical and freehand lettering.

The ability to produce accurate and complete detail and assembly working drawings as well as an elementary understanding of design principles, underlining drafting, is essential and exercises are provided to develop skill and understanding in these areas.

The principles of descriptive geometry are applied throughout the course and simplified drafting practices are introduced.

Established standards are stressed, experience is gained in using handbooks and other resource materials, and the interpretation of industrial sketches and prints are introduced when feasible.

Materials of Industry and Manufacturing Processes--Modern industry utilizes a variety of engineering materials with which the student in mechanical drafting and design technology must be familiar. A study is made of the ferrous metals, nonferrous metals, wood products, nonmetallic materials, miscellaneous materials and their application to industrial uses. Special emphasis is given to new materials which have been developed through technological advances.

It is also designed to develop an understanding of present-day manufacturing processes and is of extreme importance to students in this technology. This course is designed to provide a background of knowledge covering the various manufacturing materials and the fundamental types of manufacturing methods as employed in cold working processes. Through lecture, demonstration, and practical applications the student is given the opportunity to become familiar with the various types of machine tools, tooling, measuring, and inspection procedures. Automation is introduced and information is presented to acquaint the student with the modern practices of numerical control for machine tools and the uses of transfer and special machines.

Engineering Problems--This course is a detailed study made of various production activities and the problems associated with them. Problems and cases are solved through the use of available data in texts and engineering handbooks. Discussion of each topic begins with a consideration of the nature of the problem and continues with a presentation of the detailed approach to be employed in its solution. Some problems deal with the analysis of the elements of production scheduling. Others deal with methods of determining production costs in terms of labor, material, and burden. Balancing work stations on production lines by graphic, as well as by mathematical means to achieve constant flow and calculating machine capacities to establish completion dates represent a major portion of the laboratory work. Simulated industrial office atmosphere permits student groups representing various departments and functions of production to work cooperatively to achieve common objectives. Constant use of blueprints throughout the course strengthens the ability of the student to visualize and to interpret them. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Course Descriptions (continued)

College Algebra & Trigonometry--This course assumes the satisfactory completion of a minimum of one-semester of high school algebra and is the first of two mathematics courses designed specifically for mechanical drafting and design technology. An integrated course in college algebraic and trigonometric problems that have direct practical application to the field of specialization will be utilized.

Communication Skills I--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

Technical Drafting II--This course provides additional understanding of drafting problems, skills and techniques that are essential to the work of the draftsman. Introduction is given to several specialized drafting areas that are equally valuable in preparation for design work. The units in the course dealing with parts such as gears, cams, jigs, and fixtures pave the way for greater depth of instruction in the second year design courses.

Descriptive Geometry--This course is the study of the projection of points, lines, and planes with applications to practical problems. The intersections, revolutions, developments, tangencies, and piercing points of lines, planes, and geometric shapes are also studied.

Mechanics--A course dealing with the analysis of the motion characteristics of a mechanism or existing design of a mechanism to provide desired motion characteristics. In the motion study, absolute and relative velocities, accelerations, and the use of instant centers are discussed. Centrodes are studied as they apply to mechanism. The uses of belts and linkages are illustrated by problems. Cam layout is taken up in detail and appropriate problems are solved. Practical problems are used in the study of gearing. Attention is also given to such mechanisms as ratchets, pantographs, valves, clutches, and universal joints.

Statics and Mechanics of Materials--This course is designed to develop a knowledge of the underlying principles of analytical mechanics. The student should understand the basic laws of statics and dynamics. The study of the geometry of motion (kinematics), and the study of the forces required to produce motion (kinetics), must be involved. Study is made of the internal stresses and deformation of elastic bodies resulting from the action of external forces. The application of this principle of strength of materials is considered fundamental in the design of structures and machines. Emphasis is given to the analysis of the simple and combined stresses and properties of materials to meet the functional requirements in design. In this course, strength of such elements as riveted joints, beams, columns, shafts, and keys is determined.

Course Descriptions (continued)

Analytics & Calculus--This course is a study of rectangular coordinates, the straight line and the conic sections, polar coordinates and general equation of the second degree. Introduction is given to analytical geometry of three dimensions. Trigonometry and algebra are continued and expanded to more advanced phases as required in the technology. Calculus is incorporated in a manner emphasizing concept and principle rather than facility in manipulation.

Technical Drafting III--This course helps the student gain knowledge and experience necessary to design tools commonly used in modern manufacturing. The work consists of designing and laying out cutting tools, gauges, simple jigs, fixtures, and dies. Mass production methods are discussed, analysis of manufacturing costs, economic selection of machine equipment, tool economy and economic processing. Processing details such as tool layout and quality control, estimating production costs and the economics of machine and tool replacement are discussed.

Machine Design I--This course provides exercises in advanced drafting room practices where the student applies his knowledge of mathematics, science, and drawing to practical problems in the design of component parts of a machine. He analyses the problems, gathers data, sketches his ideas on paper, does all necessary mathematical calculations, makes working drawings, and finally checks his work. Consideration is given throughout to factors which influence the design such as the methods of manufacture, properties of materials, and conditions of product and manufacturing economy. The machine elements designed will be analyzed in regard to the functional requirements, geometry of design, and cost of manufacture. Attention is given to calculating load factors, deformations, critical accuracies, and the operative dynamics of numerous machine elements.

Physics--This course is designed to develop an understanding of the principles of electricity, electricity circuitry, and equipment with emphasis on the concepts of electrical physics. The treatment of this subject as a mathematics-based science provides a basis for future study for those students who will require a greater depth of understanding in this area.

Government--The course is oriented to the proposition that each technician in a democracy has a responsibility to make a productive contribution toward the perfection and perpetuation of the American way of life; and that, to do so, he must know and understand his responsibilities and obligations to himself, his family, his community, his State and Nation, and the world. The elements of government are reviewed to help the student achieve a good working understanding of his total environment and the forces which interact to form the social setting in which he works and lives.

Introduction to Computers--This course introduces the fundamental principles of digital and analog computers. With the wide applications and implications of computer systems, it is important that the mechanical drafting and design students understand computer principles. As the study proceeds from the simple computer to the complex installations which are becoming parts of control systems, it is necessary to consider the possibilities and the limitations of various types of computers. It is also necessary to become familiar with auxiliary equipment, such as input-output devices, analog-to-digital converters, data storage components, and types of switching and conversion apparatus which have become part of some modern systems.

Course Descriptions (continued)

Technical Drafting IV--This should be a course in electro-mechanical drafting where study is made of automated units, electronically controlled mechanical assembly line equipment, and ADM (automatic discharge machining) units. A study of power distribution systems is included and a study of hydraulically operated, pneumatically operated, and electrically operated units.

Machine Design II--This course will be involved with the initial planning of machines, and fundamental decision making concerning loading, type of kinematic elements to be used, and correct utilization of the properties of engineering materials. Economic considerations (of the design of new machinery) will be studied. Consideration should be given not only to the cost of design, manufacture, sale, and installation, but also to the cost of servicing. The course should also study the safety features of the machine. In general the course will incorporate a rational method of design attempts to take the results of relatively simple and fundamental tests such as tension, compression, torsion, and fatigue and apply them to all the complicated and involved situations encountered in present-day machinery.

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports and specific types of technical papers. Forms and procedures for technical reports are studied, and a pattern is established for all forms to be submitted in this and other courses.

Principles of Management--This course is a study of the basic principles and practices of management. It discusses the relationships of economic factors of industry as they relate to labor and management.

Social Science--A description and analysis of the roles played by labor and management in the economy of the United States is presented. Approximately one-half of the classroom time is devoted to labor-management relations, including the evolution and growth of the American labor movement and the development and structure of American business management. A study is made of the legal framework within which labor-management relations are conducted and the responsibilities of each in a democratic system of government. The second half of the course pertains to labor-economics as applied to the forces affecting labor supply and demand, problems of unemployment reduction and control, and wage determination on the national, plant, and individual levels. Emphasis centers upon current practical aspects of our industrial society with historical references intended only as background material to interpret trends and serve as points of departure.

ARCHITECTURAL AND STRUCTURAL DRAFTING AND DESIGN TECHNOLOGY

FIRST YEAR

First Semester	Theory	Lab	Credit
Architectural Drafting Fundamentals	2	6	4
Construction Materials	3	0	3
Technical Mathematics I	4	0	4
Communication Skills I	3	0	3
History	3	0	3
			17

Second Semester			
Architectural Drafting I	2	6	4
Descriptive Geometry	2	3	3
Technical Mathematics II	4	0	4
Physics	3	3	4
Communication Skills II	3	0	3
			18

SECOND YEAR

First Semester			
Architectural Drafting II	2	6	4
Construction Estimating	3	0	3
Structural Analysis (Statics, Mechanics and Strength of Materials)	5	0	5
Government	3	0	3
Structural Drafting	1	6	3
			18

Second Semester			
Architectural Drafting III	2	6	4
Codes, Specs, and Contracts	3	0	3
Building Equipment (Mechanical)	3	0	3
Architectural Structures	3	3	4
Economics	3	0	3
			17

COURSE DESCRIPTIONS

First Semester--FIRST YEAR

Architectural Drafting Fundamentals--This course is designed to provide fundamental knowledge of the principles of drafting concentrating the examples, illustrations, and assignments to architectural working drawing when feasible. Use of drawing equipment, lettering, freehand sketching, geometric construction, and orthographic instrument drawing of principal views, are stressed.

Construction Materials--This course is designed to study architectural and structural construction methods and materials, their nature and use, and equipment as used in general. The method and type of manufacture will be considered along with cost and feasibility of use.

Technical Mathematics I--This course is designed to study algebraic operations, the rectangular coordinate system as well as trigonometric concepts. The real number system is developed as an extension of natural numbers. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Communication Skills--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

History--This course is a study of the development of American political, social, and economic democracy. The American constitutional system including the Federal Constitution and State Constitutions will be studied including federal and state legislative structure and policy.

Second Semester

Architectural Drafting I--This course is designed to study the development and techniques for the preparation of working drawings. Elements of construction and planning of buildings; methods of representing architectural drawing and plans, elevations and details of light construction are studied.

Descriptive Geometry--This course is the study of the projection of points, lines, and planes with applications to practical problems. The intersections, revolutions, developments, tangencies and piercing points of lines, planes and geometric shapes are also studied.

Technical Mathematics II--This course continues and expands to more advanced phases of trigonometry, analytic geometry, and algebra as the technology requires. Graphical analysis is used wherever possible. Practical problems illustrate the principles involved and the utility of mathematics in technical study. Calculus is introduced in a manner emphasizing concept and principles rather than facility in manipulation.

Course Description (Continued)

Physics--This course deals with the application of scientific principles to technical and industrial use and the structure of matter, mechanics and heat. The scientific principles have direct application to the technical specialty.

Communications Skills II--The nature and dynamics of communications are continued in this course. The fundamental concepts treated here have important implications for organizations of all types--business, industry, government, military, social, public, and civic. This course is devoted to the practical use of the communication process within the industry and, in particular within the architectural field.

First Semester--SECOND YEAR

Architectural Drafting II--This course involves drawing of plans and details for building construction. Reference materials will be used to provide the draftsman with skills and knowledge in locating data and in using handbooks.

Construction Estimating--This course is a study of the preparation of materials and labor quantity surveys, approximate and detailed estimates of cost. The study will include materials take-off, labor take-off, sub-contractor's estimates, overhead costs, and bid and contract procedures.

Structural Analysis--(Statics, Mechanics, & Strength of Materials)--This course is a combination of statics, mechanics, and strength of materials. It combines mechanics using the vector method, stress, strain, and elasticity of materials.

Government--The course is oriented to the proposition that each technician in a democracy has a responsibility to make a productive contribution toward the perfection and perpetuation of the American way of life; and, to do so, he must know and understand his responsibilities and obligations to himself, his family, his community, his State and Nation, and the world. The elements of government are reviewed to help the student achieve a good working understanding of his total environment and the forces which interact to form the social setting in which he works and lives.

Structural Drafting--This course is a study of materials such as beams and columns, etc. Development of structural plans, details and shop drawings of components of buildings to include steel, reinforced concrete, and timber.

Second Semester

Architectural Drafting III--This course involves the preparation of the complete set of working drawings for the architectural structure. Preparation of millwork drawings, cabinets and built-in equipment detail drawings, and door, window and room schedules.

Codes, Specifications, and Contracts--This course is a study of building codes and their effect in relation to specifications and drawings. Specifications will be studied along with their legal and practical application to working drawings.

Course Descriptions (continued)

Building Equipment (Electrical & Mechanical)--This course is a general study of heating, air conditioning and plumbing equipment, materials, and symbols. The study of electrical drawings, symbols, and diagrams is also included. Coordination of electrical requirements with structural architectural and mechanical requirements will be stressed.

Architectural Structures--This course is a study of analytical and graphical analysis of determinate structures.

Economics--This course is a description and analysis of American economic institutions and principles. It is an institutional study of the American economy with special attention given to its control and stability.

CIVIL TECHNOLOGY

FIRST YEAR

First Semester	Theory	Lab	Credit
Technical Drafting I	1	6	3
Materials of Construction & Testing	2	3	3
Orientation	1	0	1
Construction Methods & Equipment	3	0	3
Technical Mathematics I	5	0	5
Communication Skills I	3	0	3
			18

Second Semester			
Surveying & Measurements	1	6	3
Descriptive Geometry	2	3	3
Physics & Engineering Problems	2	6	4
Technical Mathematics II	5	0	5
Introduction to Technical Communications	3	0	3
			18

SECOND YEAR

First Semester			
Highway Design & Construction	2	3	3
Estimating	3	0	3
Surveying & Photogrammetry	2	6	4
Statics, Mechanics & Strength of Materials	5	0	5
Government	3	0	3
			18

Second Semester			
Route Design & Surveys	2	3	3
Contracts, Specifications & Bids	3	0	3
Structural Mechanics	2	3	3
Hydraulics	3	0	3
Economics	3	0	3
Technical Report Writing	3	0	3
			18

COURSE DESCRIPTIONS

Technical Drafting I--This course is an introductory course in engineering drawing and geometry. Use of instruments, orthographic projection, lettering, sectional views and auxiliary projections, and applied engineering geometry are studied to develop drafting and drawing knowledge and skills. Practice in these skills follows in studies of fasteners, dimensioning, and working and assembly drawings. A brief survey of pictorial sketching and drawing and making charts and diagrams is included.

Materials of Construction & Testing--This course is a study of materials used in industry and construction. Sources and methods of manufacture are covered briefly with properties and factors affecting selection emphasized. Standard tests and experimental verification of theory are performed in the laboratory.

Orientation--This course is a study of the interrelationships of the technician, scientist, and the engineer, along with the work, salary, and goals of the engineering technologists.

Construction Method and Equipment--This course is an introductory study of methods to determine quantities of materials, equipment, labor, and money required for construction projects. It includes characteristics and capabilities of work equipment,methods of obtaining unit costs of in-place construction, and field reporting practices and responsibilities of field inspection.

Technical Mathematics I--This course is the first course in a two-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus.

Communication Skills I--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

Surveying & Measurements--This course is an elementary course in surveying, including the fundamentals of plane surveying and the use and care of equipment. Accurate measuring of distance, theory and practice of leveling, angles and bearings, principles and use of the transit, curves, stadia, and topographic and land surveying are studied in coordinated class, laboratory, and field assignments. A brief introduction to the U.S. Public Lands System is included near the conclusion of the course. Special emphasis is placed on note-keeping and computations.

Descriptive Geometry--This course is the study of the projection of points, line and planes with applications to practical problems. The intersections, revolutions, developments, tangencies and piercing points of lines, planes, and geometric shapes are also studied.

Physics & Engineering Problems--This course covers the basic principles of mechanics applied to solid particles and to fluids. It gives the student an introduction to the scientific method. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Course Descriptions (continued)

Technical Mathematics II--Second course in a two-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus.

Introduction to Technical Communication--This course is a natural extension of the course in Communication Skills intended to help the student achieve greater facility in the basic skills previously acquired. The student is introduced to the practical aspects of preparing reports and communicating within groups. The use of graphs, charts, sketches, diagrams, and drawings to present ideas and significant points is an important part of this course.

Highway Design & Construction--This course is concerned with the elements of a transportation roadway and their functions: Roadway foundations; pavement types, characteristics, composition, and structural design; construction procedures; and characteristics of railroad tracks and beds.

Estimating--This course is an introduction to estimating and construction, practice to familiarize the student with the construction process as a whole, the ways in which contractors organize their offices to accomplish a job of construction, the generation of plans and specifications and their use, systems of accounting,and how material quantity "take-off" forms the basis for accounting. Critical-path method of planning and scheduling is studied intensively to teach this increasingly important technique.

Surveying & Photogrammetry--This course is a continuation of the study of surveying. It also devotes time to the obtaining of surveys by means of photography. Specifically the course deals with the process of making maps from standard surveying techniques, photographs, and aerial photographs.

Statics, Mechanics, & Strength of Materials--This course is a combination of statics, mechanics, and strength of materials. It combines mechanics using the vector method, stress, strain, and elasticity of materials.

Government--The course is oriented to the proposition that each technician in a democracy has a responsibility to make a productive contribution toward the perfection and perpetuation of the American way of life; and , to do so, he must know and understand his responsibilities and obligations to himself, his family, his community, his State and Nation, and the world. The elements of government are reviewed to help the student achieve a good working understanding of his total environment and the forces which interact to form the social setting in which he works and lives.

Course Descriptions (continued)

Route Design & Surveys--This course in highway route design is concerned with the effects of traffic and vehicular characteristics on road design, length of highway, curvature and elevation of roadbeds as they affect costs and location, geometric design, field and office practice in route and curve layout, earthwork computations, and the principles of aerial photography applied to highway route design.

Contracts, Specifications, and Bids--This course is an introductory study of legal relations and the economic problems in engineering work, such as specifications, bidding procedures, bonding, letting, awarding of contracts, torts, negligence, trespass to real estate, violation of the right of lateral support, Workman's Compensation, and agency, master-servant, and employee injuries. It covers the law of real property, ownership, easements, licenses, boundaries, and eminent domain.

Structural Mechanics--This course studies analysis and design of simple frames by approximate determinate methods, moment distribution, and slope deflection.

Hydraulics--This course is a study of the basic components of hydraulic systems and how they are combined to build up various circuits.

The emphasis is on the use of hydraulics for power transmission and for control purposes. The hydraulics area is treated as a basic science with emphasis on mathematical analysis and the scientific method.

Economics--This course is a description and analysis of American economic institutions and principles. It is an institutional study of the American economy with special attention given to its control and stability.

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports and specific types of technical papers. Forms and procedures for technical reports are studied and a pattern is established for all forms to be submitted in this and other courses.

ELECTRONICS TECHNOLOGY

FIRST YEAR

First Semester

D. C. Theory & Lab	3	3	4
Electronic Devices	2	3	3
Technical Mathematics I (Algebra and Trig.)	5	0	5
Orientation	1	0	1
Communication Skills	3	0	3
			16

Second Semester

A. C. Theory & Circuit Analysis	3	3	4
Transistors & Vacuum Tubes	3	3	4
Physics	3	3	4
Technical Mathematics II (Applied Analytics)	3	0	3
Technical Report Writing	3	0	3

SECOND YEAR

First Semester

Electronic Test Instruments	3	3	4
Electronic Circuits	3	3	4
Electronic Systems	2	6	4
Technical Mathematics III (Applied Calculus)	3	0	3
History	3	0	3
			18

Second Semester

Advanced Semi-Conductors	3	3	4
Advanced Project Research Report	3	0	3
Government	3	0	3
*Industrial Control Circuits	3	3	4
*Computer Fundamentals & Circuits	3	3	4
			18

*Optional courses for fourth semester of Electronics Technology curriculum. The courses can be selected on the basis of local industrial needs.

1. Servo-Mechanics
2. Micro-Wave
3. Communications
4. Computer Circuits

COURSE DESCRIPTIONS

D. C. Theory & Lab--This course presents an introduction to electrical theory on the basis of direct current with an emphasis on contemporary techniques as a supplement to basic concepts. It covers the principles of electron physics, unidirectional current and factors affecting its magnitude, series circuit analysis, parallel-circuit analysis, series parallel-circuit analysis, complex unidirectional current circuit, and the phenomenon of magnetism.

Electronic Devices--This course is an introduction to electronic hardware and its elementary use. It provides the foundation for later courses in electronic circuits and systems by teaching the operational characteristics of electronic devices and by introducing the basic principles and processes involved in each class of devices. Topics studied include the semi-conductor diode and the junction transistor, vacuum tubes, gas tubes, photo-electric devices, zener diodes, and tunnel diodes. These devices are treated in terms of their static characteristics, the loan line method of analysis is introduced, and incremental input-output relationships are considered.

Technical Mathematics I (Algebra & Trig.)--This course is the first in a three-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus. This first course in mathematics must be designed to insure that the student has the mathematics necessary to understand and work with the principles covered in the technical courses.

Orientation--This course is a study of the interrelationships of the technician, scientist and the engineer--work, salary, and goals of the engineering technologist.

Communication Skills I--This course places emphasis throughout on exercises in writing, speaking, reading and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

A. C. Theory & Circuit Analysis--This course is a continuation of electrical theory on the basis of alternating currents with an emphasis on newer techniques as a supplement to basic concepts. The analysis of the sine wave, series circuit with sine wave input, series resonance, parallel circuits with sine wave inputs, parallel resonance, and the nonresonant and the resonant transformer.

Transistors & Vacuum Tubes--This course is designed as an introduction of vacuum tubes and transistors, fundamentals, construction, and static and dynamic characteristics. A study will be made of multi-section and special purpose tubes. Semi-conductor devices such as diodes, transistors, and photo transistors will be studied.

Physics--The aim of this course is not only to convey a knowledge of facts and fundamental theories but also to provide training in the ability to apply such knowledge to the solution of real problems. Mechanics and basic mechanical systems are emphasized since many modern electrical and electronic devices are electro-mechanical combinations. The mechanics of fluids and the elements of heat are introduced to broaden the base of the student's understanding of physical phenomena he will encounter as an employed electronic technician.

Course Descriptions (continued)

Technical Mathematics II (Applied Analytics)--This course is the second in a three-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus. The student studies analytic geometry which should be closely correlated with electronic courses.

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports and specific types of technical papers. Forms and procedures for technical reports are studied, and a pattern is established for all forms to be submitted in this a d other courses.

Electronic Test Instruments--A study of electrical measurement and instrumentation devices, transducers, and elements and the principles underlying their design, use, and relationships. It begins with the mathematical study of probability and error analysis followed by consideration of the nature and source of errors in measurement and the performance of electrical and electronic instruments. This is followed by a study of specific devices and measuring instruments or classes of measuring devices including basic AC and DC measurement meters, transducers, oscilloscopes, signal generators, tube and transistor testers, and concludes with a study of audio frequency and radio frequency test methods and equipment.

Electronic Circuits--A study of Electronic Circuits leading to the development of amplifiers, oscillators, multivibrators, simple control devices, and types of modulators. Laboratory experiences will emphasize methods of testing and modifying these circuits. Studying output wave shapes resulting from various input signals, and component substitution, will be stressed. Frequency response in all circuits will be considered.

Electronic Systems--A study of electronic circuits combined into a complete electronic system. Signal tracing, schematic diagram interpretation and trouble shooting techniques will be introduced in this course.

Technical Mathematics III (Applied Calculus)--This course is the third in a three-semester sequence of selected topics in algebra, trigonometry, analytical geometry, and calculus. (The student studies both differentiation and integration and applies their usage to technical problems.) The course concludes with an introduction to Fourier analysis as it applies to an electronic problem.

History--This course is designed to provide the student with some historical perspective for understanding the economic, political, and social institutions of modern society. In this context, emphasis will be placed upon U.S. and State history and constitutional development.

Course Descriptions (continued)

Advanced Semi-Conductors--This course is designed as a continuation of the study of semi-conductors. It will be utilized to study the new techniques involved in the development of semi-conductor devices such as photo transistors and solid logic printed circuits.

Advanced Project Research Report--This course involves a supervised research project consisting of design, layout construction and calibrating, and a major electronics project. Students will utilize all tools and equipment available.

Government--The course is oriented to the proposition that each technician in a democracy has a responsibility to make a productive contribution toward the perfection and perpetuation of the American way of life; and to do so, he must know and understand his responsibilities and obligations to himself, his family, his community, his State and Nation, and the world. The elements of government are reviewed to help the student achieve a good working understanding of his total environment and the forces which interact to form the social setting in which he works and lives.

Industrial Control Circuits--This course investigates the various control circuits commonly employed in industry. Principles of sine and data transmission systems with emphasis on fundamentals are presented.

Computer Fundamentals & Circuits--This course introduces the analog and digital computer, covers the operational amplifier, and illustrates how analog computers may be used for the solution of differential equations. Binary arithmetic is covered, and the elements of Boolean algebra are taught as a means of introducing digital computer ideas. Circuits used in digital computers are discussed and, finally, simple systems of circuits capable of performing logic operations are covered. It is imperative that electronic technicians be familiar with the principles of both digital and analog computers and the circuits employed in these devices.

ELECTRICAL TECHNOLOGY

FIRST YEAR

First Semester	Lecture	Lab	Credit
D. C. Theory & Lab	3	3	4
Technical Mathematics I	5	0	5
Orientation	1	0	1
Technical Drafting	2	6	4
Communication Skills	3	0	3
			17

Second Semester			
A. C. Theory & Lab	3	3	4
Power Systems Control & Switching	3	3	4
Technical Mathematics II	3	0	3
Physics	3	3	4
Technical Report Writing	3	0	3
			18

SUMMER SESSION

Studies to meet specific requirements of States and Institutions (Government and History) to be included during the summer.

SECOND YEAR

First Semester			
Electrical Control Systems	3	3	4
Electrical Power Supply & Amplifier	3	3	4
Electrical Machines	3	3	4
National Electrical Codes	3	0	3
Electrical Drafting & Design	2	3	3
			18

Second Semester			
Electrical Power Distribution	3	3	4
Electrical Installation & Planning	3	3	4
Industrial Electronics	3	3	4
Industrial Relations	3	0	3
Operating Problem Analysis	2	3	3
			18

COURSE DESCRIPTIONS

D. C. Theory & Lab--This course presents an introduction to electrical theory on the basis of direct current with an emphasis on contemporary techniques as a supplement to basic concepts. It covers the principles of electron physics, unidirectional current and factors affecting its magnitude, series circuit analysis, parallel-circuit analysis, series parallel-circuit analysis, complex unidirectional current circuit, and the phenomenon of magnetism.

Technical Mathematics I--This course is the first in a two-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, and analytical geometry. This first course in mathematics must be designed to insure that the student has the mathematics necessary to understand and work with the principles covered in the technical courses. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Orientation--This course is a study of the interrelationships of the technician, scientist, and engineer, and the work, salary, and goals of the engineering technologist.

Technical Drafting--An elementary course designed for students having limited drawing experience. Use of templates, including lettering templates; fundamentals of drawing and drafting room practices; electrical circuit drawing, terms, symbols, and standards. All symbols used are those established by the U.S. Bureau of Standards. Students are cautioned that adaptation of standard symbols to special symbols used by future employers may be necessary. Emphasis is placed on construction and interpretation of typical industrial drawings.

Communication Skills--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

A. C. Theory & Circuit Analysis--This course is a continuation of electrical theory on the basis of alternating currents with an emphasis on newer techniques as a supplement to basic concepts. The analysis of the sine wave, series circuit with sine wave input, series resonance, parallel circuits with sine wave inputs, parallel resonance, and the nonresonant and the resonant transformer.

Power Systems Control & Switching--This course is an introduction to the technical concepts of electronic components and circuits. Principles of vacuum tubes and transistors; tuned circuits and basic circuits for power supplies, detectors, amplifiers, and oscillators; radio receivers; cathode-ray oscilloscopes; use of basic test devices and measuring instruments.

Technical Mathematics II--This course is the second and last in a two-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, and analytical geometry. The student studies analytic geometry. This should be closely correlated with electronic courses.

Physics--The aim of this course is not only to convey a knowledge of facts and fundamental theories but also to provide training in the ability to apply such knowledge to the solution of real problems. Mechanics and basic mechanical systems are emphasized since many modern electrical and electronic devices are electro-mechanical combinations. The mechanics of fluids and the elements of

heat are introduced to broaden the base of the student's understanding of physical phenomena he will encounter as an employed electronic technician.

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports and specific types of technical papers. Forms and procedures for technical reports are studied and a pattern is established for all forms to be submitted in this and other courses.

Electrical Control Systems--The principles and applications of electrical controllers are covered in this course, which serves as an introduction to automation. Devices for differentiation, integration, and proportioning are studied in detail. Hardware and circuitry for AC and DC industrial control devices including contactors, starters, speed controllers, time delays, limit switches, and pilot devices are studied. Application in the control of industrial equipment-motors, servo units, and motor-driven actuators are also considered. Laboratory demonstrations and field trips are provided.

Electrical Power Supply & Amplifiers--This course is a study of energy-conversion devices used in the electrical field, AC and DC motors, AC and DC generators, motor starters, switches, circuit breakers, synchros and servo-mechanisms, and poly-phase equipment. Also studied will be the analysis and design of multistage transistor and vacuum tube amplifiers including compensation techniques and feedback principles.

Electrical Machines--The work in this course is confined to a study of mechanical-electrical power devices. Alternators, single-phase motors and three-phase motors, transformers, voltage regulators, generators, as well as the auxiliary control equipment necessary for these devices are studied. Laboratory work consists mainly of running load tests on selected equipment and studying the characteristic behavior of these units under varying operating conditions. Installation and maintenance requirements for alternating current power equipment are given some attention.

National Electrical Codes--This course is designed to examine the National Electric Code, National Safety Code, and laws governing electrical installations.

Electrical Drafting & Design--This course introduces the various types of electrical drafting used in the design and construction of equipment and structures. Study is made of the symbols, conventions, layout procedures, and circuit sequence that comprise an electrical circuit. Preparation of wiring diagrams and schematics using electrical and electronic symbols and component parts lists.a

Electrical Power Distribution--This course is a study of the design, operation and technical details of modern power distribution systems including generating equipment, transmission lines, plant distribution, and protection devices. System loan analysis, rates, and power economics are studied.

Course Descriptions (continued)

Electrical Installation & Planning--This course covers methods and materials used in electrical installations and problems encountered in electrical construction work. Wiring materials include those in the National Electric Code.

Industrial Electronics--This course covers application of electronics to the control of power equipment. The basic circuits, control elements and hardware of controls are used to acquaint the student with circuit applications. The emphasis is on circuit theory and operation, limiting variables, and response characteristics of the typical industrial control equipment.

Industrial Relations--This course is designed to acquaint the student with industrial organizations and practices. It provides detailed information on the technical duties and responsibilities of the various types of technical and supporting manpower. Industrial speakers from various types of organizations will be involved in the course.

Operating Problem Analysis--A study is made of the proper procedures to be used in testing for troubles of electrical systems and their correction. The methods used in setting up and supervising a program of preventive maintenance, troubleshooting, equipment receiving, data recording, and cost accounting are also studied.

INSTRUMENTATION TECHNOLOGY

FIRST YEAR

First Semester	Lecture	Lab	Credit
D. C. Theory and Circuit Analysis	3	3	4
Introduction to Standards	3	3	4
Instrument Shop Practice	0	6	2
Technical Mathematics I	5	0	5
Communication Skills I	3	0	3
			18

Second Semester			
A. C. Theory and Circuit Analysis	3	3	4
Principles of Industrial Measurements	3	3	4
Semi-Conductors & Vacuum Tubes	3	3	4
Physics for Instrumentation I	3	3	4
Technical Mathematics II	3	0	3
			19

SUMMER SESSION

Studies to meet specific requirements of States and Institutions (Government and History) to be included during the summer.

SECOND YEAR

First Semester			
Principles of Automatic Controls	3	3	4
Computer Principles & Controls	3	3	4
Physics for Instrumentation II	3	3	4
Technical Mathematics III	3	0	3
Technical Report Writing	3	0	3
			18

Second Semester			
Analytical Measurements	3	3	4
Advanced Automatic Controls	3	3	4
Electrical Power Supply & Amplifiers	3	3	4
Instrumentation Project	1	3	2
Chemistry for Instrumentation	3	3	4
			18

COURSE DESCRIPTIONS

D. C. Theory & Circuit Analysis--This course presents an introduction to electrical theory on the basis of direct current with an emphasis on contemporary techniques as a supplement to basic concepts. It covers the principles of electron physics, unidirectional current and factors affecting its magnitude, series circuit analysis, parallel-circuit analysis, series parallel-circuit analysis, complex unidirectional current circuit, and the phenomenon of magnetism.

Introduction to Standards--This course is designed to illustrate the philosophy of measurement and control emphasizing the standards and needs for standards in the field of instrumentation. It also stresses the meaning of validity, sensitivity of control devices, units of measurement, and levels of accuracy and traceability.

Instrument Shop Practices--A laboratory course designed to provide practical information on the application of basic theories to commercial instruments; instrument construction, tests, and accepted test procedures; and safety precautions which must be observed when working on instruments.

Technical Mathematics I--This course is the first in a three-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus. This first course in mathematics must be designed to insure that the student has the mathematics necessary to understand and work with the principles covered in the technical courses. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Communication Skills I--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

A. C. Theory & Circuit Analysis--This course is a continuation of electrical theory on the basis of alternating currents with an emphasis on newer techniques as a supplement to basic concepts. The analysis of the sine wave, series circuit with sine wave input, series resonance, parallel circuits with sine wave inputs, parallel resonance, and the nonresonant and the resonant transformer.

Principles of Industrial Measurements--A study of the more common sensing devices and components employed for the measurement of temperature, pressure, flow, and related phenomena. It is designed to coordinate with the material presented in PHYSICS FOR INSTRUMENTATION I.

Semi-Conductors & Vacuum Tubes--This course is designed as an introduction of vacuum tubes and semi-conductors, fundamentals, construction, and static and dynamic characteristics. A study will be made of multi-section and special purpose tubes. Semi-conductor devices such as diodes, transistors, and photo transistors will be studied.

Course Descriptions (continued)

Physics for Instrumentation I--Virtually all theories of measurement and control are based on certain principles of physics, changes of shape or dimension, magnetic variation, resistance modifications, or the effect of adding or removing energy for some set of conditions. Consequently, physics is perhaps the most fundamental of the courses in the curriculum, and the one which is most vital to a successful consideration of instrumentation and control. The subject matter which is included is essentially a study of mechanics and heat, but the presentation of the various subsections emphasizes the conditions which must exist if there are to be interchanges in energy.

Technical Mathematics II--This course is the second in a three-semester sequence of integrated mathematics covering selected topics in algebra, trigonometry, analytical geometry, and calculus. The student studies analytic geometry, and it should closely correlate with electronic courses.

Principles of Automatic Controls--This course is a basic consideration of automatic control theory, elementary control systems, and control problems. Emphasis is given to the concepts of feedback, and the process of the feedback loop.

Computer Principles & Controls--This course is designed to teach the student the principles and theories underlying the design and function of computers and computer systems. Consideration of the various types of computers, computing systems, and their applications is based upon an understanding of the preceding subjects studied. As the study proceeds from the historically simple computer to the complex installations which are becoming parts of control systems, it is necessary to consider the various types of computers and their abilities as well as their limitations. It is also necessary to become familiar with much auxiliary equipment, such as input-output devices, analog-to-digital and digital-to-analog units, data storage components, and the myriad types of switching and conversion apparatus which have become part of some modern systems. The advent of computer control of processes along with the use of numerical control for positioning and machine-tool operations, entirely aside from applications in the field of computation and data handling, imposes an ever greater demand upon the abilities of the instrumentation technician. The emphasis of the course is on process and position control.

Physics for Instrumentation II--This course is a continuation of Physics for Instrumentation I. Emphasis should always be on the principles of sound, light, and nuclear power as they relate to instrumentation. The use of laboratory equipment and experiments to teach applied principles, not individual mechanisms or devices, should also be emphasized.

Technical Mathematics III--This course is the third in a three-semester sequence of selected topics in algebra, trigonometry, analytical geometry, and calculus. The student studies the ideas and principles of both differentiation and integration are developed and applied to technical problems. The course concludes with an introduction to Fourier analysis as it applies to an electronic problem.

Course Descriptions (continued)

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports, and specific types of technical papers. Forms and procedures for technical reports are studied and a pattern is established for all forms to be submitted in this and other courses.

Analytical Measurements--This course is a study of process analysis with emphasis on gas chromotography, pH, viscosity, and some of the other analytical measurements we make in process analysis.

Advanced Automatic Controls--This course is a study of the response of systems to instrumental control based upon consideration of the system components. Negative and positive feedback along with the implications of closed loop control are covered.

Electrical Power Supply & Amplifiers--This course is a study of energy-conversion devices used in the electrical field, AC and DC motors, AC and DC generators, motor starters, switches, circuit breakers, synchros and servo-mechanisms, and poly-phase equipment. Also studied will be the analysis and design of multistage transistor and vacuum tube amplifiers including compensation techniques and feedback principles.

Instrumentation Project--This course provides the time and the opportunity for the student to work on the design, fabrication, assembly, and testing of some instrument, test fixture, or other suitable device of his choice. Its purpose is to promote independent study, initiative, and the assumption of responsibility and work, without specific instruction upon initiation of the project. The student will draw upon all his previous courses of study in order to arrive at satisfactory project completion. It will be necessary for the student to select materials, means of fabrication, sizes and dimensions, tests, and evaluation of performance.

Chemistry for Instrumentation--This course should present the basic and underlying principles of chemistry employed in industrial and commercial applications with particular emphasis on the elementary principles required for instrumental analysis.

MECHANICAL TECHNOLOGY

FIRST YEAR

First Semester	Lecture	Lab	Credit
Manufacturing Materials	2	3	3
Engineering Problems	2	0	2
Physics I	3	3	4
College Algebra & Trigonometry	5	0	5
Communication Skills I	3	0	3
			17

Second Semester			
Manufacturing Processes I	1	6	3
Technical Drafting I	1	6	3
Physics II	3	3	4
Analytic Geometry & Calculus	5	0	5
Technical Writing	3	0	3
			18

SUMMER SESSION

Studies to meet specific requirements of States and Institutions (Government and History) to be included during the summer.

SECOND YEAR

First Semester			
Methods of Quality Control	2	3	3
Methods of Operation Analysis	3	3	4
Manufacturing Processes II	1	6	3
Statics & Mechanics	3	0	3
Mechanics of Materials	3	0	3
			16

Second Semester			
Process Planning	3	3	4
Plant Layout & Materials Handling	3	3	4
Production Problems	2	6	4
Hydraulics & Pneumatics	2	3	3
Industrial Organizations & Institutions	3	0	3
			18

COURSE DESCRIPTIONS

Manufacturing Materials--This course is designed to study modern industry and how it utilizes a variety of engineering materials with which the student in mechanical technology must be familiar. A study is made of the ferrous metals, non-ferrous metals, wood products, nonmetallic materials, miscellaneous materials, and their application to industrial uses. Special emphasis is given to new materials which have been developed through technological advances.

Engineering Problems--This course is a detailed study made of various production activities and the problems associated with them. Problems and cases are solved through the use of available data in texts and engineering handbooks. Discussion of each topic begins with a consideration of the nature of the problem and continues with a presentation of the detailed approach to be employed in its solution. Some problems deal with the analysis of the elements of production scheduling. Others deal with methods of determining production costs in terms of labor, material, and burden. Balancing work stations on production lines by graphic, as well as by mathematical means to achieve constant flow and calculating machine capacities to establish completion dates represents a major portion of the laboratory work. Simulated industrial office atmosphere permits student groups representing various departments and functions of production to work cooperatively to achieve common objectives. Constant use of blueprints throughout the course strengthens the ability of the student to visualize and to interpret them. The basic slide rule operations are introduced early in the course so that the student can use this tool to advantage in other courses.

Physics I--The objectives of this course extend beyond its immediate purpose of developing an understanding of the basic principles of mechanics and heat. Emphasis is placed in both laboratory and lecture upon the scientific method. Heavy reliance is placed upon material from mathematics courses and the use of the slide rule in computation of data in the laboratory.

College Algebra & Trigonometry--This course assumes the satisfactory completion of a minimum of one semester of high school algebra and is the first of two mathematics courses designed specifically for mechanical drafting and design technology. An integrated course in college algebraic and trigonometric problems that have direct practical application to the field of specialization will be utilized.

Communications Skills I--This course places emphasis throughout on exercises in writing, speaking, and listening. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

Manufacturing Processes I--An understanding of present-day manufacturing processes is of extreme importance to students in this technology. This course is designed to provide a background of knowledge covering the various manufacturing materials and the fundamental types of manufacturing methods as employed in cold working processes. Through lecture, demonstration, and practical applications the student is given the opportunity to become familiar with the various types of machine tools, tooling, measuring, and inspection procedures. Automation is introduced and information is presented to acquaint the student with the modern practices of numerical control for machine tools and the uses of transfer and special machines.

Course Descriptions (continued)

Technical Drafting I--This is a beginning course for students who have had little or no previous experience in drafting. The principal objectives are: basic understanding of orthographic projection; skill in orthographic, isometric, and oblique sketching and drawing; ability to produce accurate and complete detail and assembly working drawings; understanding of principles and appropriate applications of descriptive geometry; experience in using handbooks and other resource materials; elementary understanding of design principles in machine parts used as drawing projects; and use of simplified drafting practices in industry. A.S.A. standards are stressed. Interpretation of industrial sketches and prints is introduced when feasible.

Physics II--This is an introduction to electrical circuitry and equipment with emphasis on the concepts of electrical physics. The treatment of this subject as a mathematics-based science provides a basis for further study for those students who will require a greater depth of understanding in this area.

Analytics and Calculus--This course is a study of rectangular coordinates, the straight line and the conic sections, polar coordinates, and general equation of the second degree. It is also an introduction to analytical geometry of three dimensions. Trigonometry and algebra are continued and expanded to more advanced phases as required in the technology. Calculus is incorporated in a manner emphasizing concepts and principles rather than facility in manipulation.

Technical Report Writing--This course emphasis is upon techniques for collecting and presenting scientific data by means of informal and formal reports and specific types of technical papers. Forms and procedures for technical reports are studied and a pattern is established for all forms to be submitted in this and other courses.

Methods of Quality Control--This is an elementary approach to the techniques used in the control of the quality requirements of manufactured articles. The entire course is woven around a core which consists of the application of formulas and control charts. The main activities covered include sampling inspection techniques, use of inspection tools and instruments, construction and interpretation of Showhart control charts for variables, defects, and fraction defective. Concerted effort is put on the relationship of theoretical concepts to practical manufacturing operations and processes so that assignable causes and weaknesses in a process can be readily isolated and recognized.

Methods and Operations Analysis--Understanding of the techniques used in determining the best way of doing a specific piece of work is developed through the systematic study of methods, materials, tools and equipment for the purpose of finding the most economical way of doing the work, standardizing the methods and procedures to be followed, and determining the time required by an average worker to perform the various tasks. Laboratory activities include the analysis of the fundamental physical motions, the construction of various charts, the practice of dividing operations into elements, and time study observations. Additional experience is gained in recognizing and giving value to foreign elements, allowances, and performance rating, and in calculating average cycle time, minimum observations, and standard times.

Course Descriptions (continued)

Manufacturing Processes II--This course is designed to provide a background of knowledge covering the various manufacturing materials and the fundamental types of manufacturing methods as employed in hot working processes. Through lectures, demonstrations, and discussions the student becomes familiar with the various types of welding processes and their applications, with special machining operations such as ultrasonic, electrical discharge, electroarc, and chemical milling, and with bonding practices and the use of adhesives in modern manufacturing. Some emphasis is also given to metallurgical practices and procedures. Practical experience is gained by the student in performing simple arc and oxyacetylene welding operations, in producing simple mods, cores, and castings, and in basic heat treating, inspection, and testing, using both destructive and nondestructive methods.

Statics and Mechanics--This course is designed to develop a knowledge of the underlying principles of analytical mechanics. The student should understand the basic laws of statics and dynamics. The study of the geometry of motion (kinematics) and the study of the forces required to produce motion (kinetics) must be involved.

Mechanics of Materials--Study is made of the internal stresses and deformation of elastic bodies resulting from the action of external forces. The application of this principle of strength of materials is considered fundamental in the design of structures and machines. Emphasis is given to the analysis of the simple and combined stresses and properties of materials to meet the functional requirements in design. In this course, strength of such elements as riveted joints, beams, columns, shafts, and keys is determined.

Process Planning--This is a comprehensive study of the fundamental principles, practices, and methods of process planning. The responsibilities and range of activities normally associated with process planning are surveyed; as is the relationship of process planning to other manufacturing functions. The course is made more meaningful by constant reference to concrete examples--interpretation of charts, operation analysis and routing forms. Student participation is provided through selected case problems having single or multiple solutions. Additional classroom activities include the actual process planning of selected jobs in terms of description and the sequence of operations, tooling determination, setup time estimating, feed and speed calculations, and process and machinery selection.

Plant Layout and Materials Handling--Emphasis is placed upon the relationship between good plant layout and efficient materials handling. Evaluation of the site and planning of the factory building are done with consideration of transportation, shipping and receiving, power, heat, light, and air conditions. Selection and arrangement of production machinery, product and process layout schemes, techniques of making layouts, and balance and flexibility of operations are fully discussed. Study is also made of the basic packaging and materials protection methods along with intensive consideration of the specific types of equipment used in the movement of incoming, in-process, storage, and waste materials. The course centers upon the fundamental principles of materials handling and the factors affecting plant layout. These principles are therefore constantly referred to during laboratory activities which include developing the general overall layout, detailing each area, making scale models and arranging them, and drawing in the flow diagram for final evaluation.

Course Descriptions (continued)

Production Problems--A detailed study is made of various production activities and the problems associated with them. Problems and cases are solved through the use of available data in texts and engineering handbooks. Discussion of each topic begins with a consideration of the nature of the problem and continues with a presentation of the detailed approach to be employed in its solution. Some problems deal with the analysis of the elements of production scheduling. Others deal with methods of determining production costs in terms of labor, materials, and burden. Balancing work stations on production lines by graphic, as well as by mathematical means to achieve constant flow and calculating machine capacities to establish completion dates represents a major portion of the laboratory work. Simulated industrial office atmosphere permits student groups representing various departments and functions of production to work cooperatively to achieve common objectives. Constant use of blueprints throughout the course strengthens the ability of the student to visualize and to interpret them.

Hydraulics and Pneumatics--This is a study of the basic components of hydraulic and pneumatic systems and how they are combined to build up various circuits. The emphasis is on the use of hydraulics and pneumatics for power transmission and for control purposes. Both subject areas are treated as basic sciences with emphasis on mathematical analysis and the scientific method.

Industrial Organizations & Institutions--A description and analysis of the roles played by labor and management in the economy of the United States is presented. Approximately one-half of the classroom time is devoted to labor-management relations, including the evolution and growth of the American labor movement and the development and structure of American business management. A study is made of the legal framework within which labor-management relations are conducted and the responsibilities of each in a democratic system of government. The second half of the course pertains to labor-economics as applied to the forces affecting labor supply and demand, problems of unemployment reduction and control, and wage determination on the national, plant, and individual levels. Emphasis centers upon current practical aspects of our industrial society with historical references intended only as background material to interpret trends and serve as points of departure.

COMPUTER SCIENCE TECHNICIAN
(DATA PROCESSING)

The recent requirements of business, industry, and science have created a great demand for people skilled in the technical field of computer science. Many new industries in engineering, electronics, missiles, and manufacturing require data processing technicians who can work side by side with the engineer or scientist to help analyze the specific problems at hand and devise a way to instruct the computer to achieve the desired results.

FIRST YEAR

First Semester	Theory	Lab	Credit
Introduction to Data Processing	3	0	3
Auxiliary Equipment	3	3	4
Data Processing Math I	3	0	3
Principles of Accounting	3	0	3
Communication Skills I	3	0	3
			16

Second Semester			
Introduction to Programming	3	3	4
Data Processing Math II	3	0	3
Principles of Accounting II	3	0	3
Principles of Management	3	0	3
Communication Skills II	3	0	3
			16

SECOND YEAR

First Semester			
Computer Programming	3	3	4
Systems Development & Design	3	3	4
Data Processing Applications	3	3	4
Statistics	3	0	3
Cost Accounting	3	0	3
			18

Second Semester			
Data Communications	3	0	3
Advanced Programming	3	6	5
Field Experience & Projects	3	3	4
Operating Systems	3	0	3
Political Science	3	0	3
			18

First Semester

COURSE DESCRIPTIONS

Introduction to Data Processing--This course presents a general introduction to the concepts and the basic features of electronic computers. The major emphasis is directed toward general coverage of the field of computers and is not restricted to specific configuration. It describes the evolution of computer systems from manual methods to the stored program. Historical landmarks and development of data processing are studied to see how they have influenced the evolvement of current automatic equipment used in the processing of information.

The following basic functions of the stored program concept are studied: Introduction to problem organization, storage media, fundamentals of input-output operations and elementary programming techniques. Problems are studied to learn how organization helps the solution. Flow charting is studied, in connection with problem solving, as a device to use in the process of segmenting problems into parts for ease of solution. Types of command structures are studied to obtain an understanding of how people instruct a computer. Programming techniques are covered so that the student will be able to apply future knowledge directly to programming ability. This course is to provide a good knowledge of fundamentals on which to build future knowledge into problem solving techniques.

Auxiliary Equipment--Computer loads and expensive time charges dictates the necessity of directing phases of problem solution procedures to the less expensive punched card equipment generally located in computer installations. The programmer for proper applications must be aware of the capabilities of such equipment and understand its relationship to the central processor.

The first idea of a "system" is imparted in this course because several machine (functions) make up a unit record installation capable of combining these parts (functions) into a problem solving process. The course is designed to present fundamental concepts, capabilities and limitations of the peripheral equipment commonly associated with computer systems.

Data Processing Math I--This course presents concepts of rotation, basic algebra, and number systems. It also covers representation of a number with an arbitrary base, fixed and floating point numbers, precision and significance, and linear equations.

Principles of Accounting--This course emphasizes the principles, techniques, and tools of accounting. It provides the necessary background understanding of the mechanics of accounting--collecting, summarizing, analyzing, and reporting information about the business. As the mechanics of accounting become well formulated, it is practical to introduce the use of data processing machines in performing the accounting functions within an organization. Case studies are used to effectively impart these concepts.

Course Descriptions (continued)

Communications Skills I--This course places emphasis throughout on exercises in writing, speaking and listening. A basic language study is made involving grammar, punctuation, and spelling skills with frequent exercises in the development of accurate and precise sentences and paragraphs. Emphasis on composition is given in the area of practical application. Analysis is made of each student's strengths and weaknesses. The pattern of instruction is directed principally to helping students improve skills in areas where common weaknesses are found. The time allotments for the various elements within major divisions will depend upon the backgrounds of the individuals in the class.

Second Semester

Introduction to Programming--This course contains a survey of computer theory to provide a foundation for future detail study of systems. One of the primary objectives is to develop elementary problem solving techniques (Problem Oriented Programming Language may be utilized) that will be reinforced and expanded by the student as he continues to learn other programming languages. The language used as the elementary problem solving technique will serve as the carrier of concepts and programming abilities for the remainder of programming activities in this curriculum. The student will also study the functions and capabilities of a specific data processing machine and will become familiar with some of the tools and raw materials necessary for becoming a programmer.

Data Processing Math II--This course is a study of the functions of acute angles, equivalent functions for any angle, logarithms, use of tables, arithmetic and logarithmic solution of right and oblique triangles and related figures, areas, identities, solution of trigonometric equations, radian measure, graphs of functions, and unit circle.

Principles of Accounting II--This course emphasizes management uses of accounting information. The emphasis is on accounting as a source of data for management control rather than on bookkeeping skills. Accounting services are shown as they contribute to the recognition and solution of a management problem. The concept of performing accounting services on data processing machines is emphasized throughout the course through the use of case studies.

Principles of Management--A basic study is given to the elements necessary for management action and how these elements can be implemented for organizational effectiveness.

The student is introduced to management as a distinct activity. The characteristics and fundamental concepts and the need for a sound management philosophy are examined. Studied in this course are areas such as planning, organizing, directing, and controlling objectives, policies, functions, and procedures; line and staff functions, authority and responsibility, informal organization and structure, human relations, morale, motivation, grievances, and disciplinary action and communication. It is a study of the relationships of economic factors in industry as they relate to labor and management.

Communication Skills II--The nature and dynamics of communication are contingent in this course. The fundamental concepts treated here have important implications for organizations of all types--business, industrial, Government, military, social, public, and civic. This course is devoted to the practical uses of the communication process within the business organization and, in particular, within the data processing department.

First Semester - SECOND YEAR

Computer Programming--This course continues the study of computer programming with special emphasis on multiple tape programs and the fundamentals of random access programming. There is additional study in practice and graphic representation of problem solution - flow charting and block diagram. Computer operated systems utilizing compiler languages are studied. Select programs will be written, compiled, and executed using COBOL (common oriented business language) and/or FORTRAN (formula translation).

Systems Development & Design--The effective use of data processing equipment and management sciences in meeting the information needs of business and industry requires that much skill and knowledge be applied to the development and design of data processing systems. The course is designed to guide the student through the three stages in the evolution of a system: Analysis of present information flow, system specifications and equipment selections, and implementation of the system.

The scope of a system development study will vary from a modest payroll procedure to the total information system of a large and complex organization.

Data Processing Applications--This course is designed to acquaint the student with specific data processing applications. Practical case studies illustrate the use of data processing equipment in various types and sizes of representative companies. The students apply their knowledge and understanding of machine data processing systems.

Statistics--The objective of this course is to present to the student the fundamental concepts of statistics in a manner which will indicate the relationship between statistical procedures and computer solutions. It also presents mathematical and statistical techniques to illustrate how programming can be more logically applied. This enables the student to recognize the immediate application of learned concepts.

Cost Accounting--An understanding of the basic concept of the cost accounting function within a manufacturing organization is the objective of this course. Material costs, labor costs, manufacturing overhead, and marketing costs that enter the cost accounting system are treated in detail. The use of the computer as a tool for performing the cost accounting function through the collection, processing, and interpretation of these data for providing management with pertinent facts about its business is stressed through case studies selected to illustrate the objectives of the cost accounting system, its relationship to the overall accounting system, and its uses to management.

Second Semester

Data Communications--This course is concerned with the basic principles involved in the transmission of data over various media of communications. Such as, teletype, voice grade, broad band, micro-wave, telpack, etc. It discusses the equipment requirements, types of communications media, interfacing equipment and devices, types of systems, physical restrictions in the communication of data, rates and charges for various types of communication media, time-sharing multi-programming-multi-processing, new devices and

Course Descriptions (Continued)

terminals, etc. The students are required to develop the plans for a basic data communications system outlining type of system, equipment, type of communications, costs, etc.

Advanced Programming--The objective of the course is to provide the student with sufficient knowledge of programming systems concepts so that he may easily master any specific system with a minimum of instruction. Furthermore, he will be qualified to analyze, evaluate, and make modifications to such systems. Individual phases of certain selected systems are treated in detail (such as assembler language, machine-oriented language, compiler language, Macro-Generators, Report Generators, File processing, sorts, merges, Simulators, etc.) in order that the student may learn advanced programming and logic decision techniques as applied in sophisticated systems. The course is so designed that the student may gain an insight into the various functions of advanced programming systems and the manner in which they perform their tasks without learning the actual programming language of the various systems.

Field Experiences & Projects--This course is highly personalized in the sense of individual students activity and interest. Assignments are selected on the basis of interest expressed by the student and instructor evaluation of prior academic performance. Emphasis is directed toward the solution of meaningful problems or applications which require command of the total system concepts.

Operating Systems--This course emphasizes monitors supervisory systems and input-output control systems. Discussion of the basic principles of storage sharing, program control, compilers, assemblers, and translators is involved. The general features of information, model, and conditional macro-instructions are examined. Coverage is given to special purpose routines, general purpose routines, dispatching routines and buffering. Additional coverage is given to sequence of operations, error handling, requirements for a tape system and requirements for a random access system.

Political Science--This course is oriented to the proposition that each technician in a democracy has a responsibility to make a productive contribution toward the perfection and perpetuation of the American way of life; and that, to do so, he must know and understand his responsibilities and obligations to himself, his family, his community, his State and Nation, and the world. The elements of government are reviewed to help the student achieve a good working understanding of his total environment and the forces which interact to form the social setting in which he works and lives.

SUMMARY

The material developed and the exchange of ideas in the curriculum sections were highly constructive; however, a very significant development occurred at the workshop that was not expected in the original planning of the workshop. Some of the industrial representatives were discussing the problems of having technical education programs accredited by various accrediting organizations when a group of the participants at the workshop presented the idea of developing a southwestern technical education association to serve the five States in Region VII that would have as one of their official functions an accrediting function. It was felt by the participants that sufficient expertise existed within Region VII to properly evaluate and accredit these technical programs. The technology would be evaluated on standards set for that technology by the association and accredited by the association when these standards had been met. The association would start the evaluation and accrediting procedures only at the written request of the educational institution. The review panel would consist of a specialist in the technical field from each of the five states in the Region, a minimum of three industrial representatives knowledgeable in that technology, the State official in charge of technical education for that State, and Federal personnel representing technical education for the regional office of the U. S. Office of Education.

Through the cooperative efforts of the States, institutions, and organizations involved in an association of this type, many benefits may be developed. It was the hope of the participants at the workshop that this association could be a realistic instrument for the development of technical education as defined earlier in the report.

Based upon the analysis of the special abilities, established by the participants at the workshop, which technicians must have, and the level at which they must exercise them in performing the various activities characteristically required of them. It is clear that technician education must be of college level and intensity. To be administrable, the total learning program must be divided into a series of courses in which all that must be learned may be most advantageously taught. The total series of courses, their sequential arrangement, and the details of the plan for teaching each course, constitute the curriculum.

The development of the technical education curriculums and the material found in this report should be directly attributed to the exceptional contributions made by individuals on the panels which consisted of industrial representatives and technical educators, and the participants in general. The roster of these individuals is enclosed in Attachment "A".

ATTACHMENT "A"

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IN LOS ALAMOS, NEW MEXICO, AUGUST 7-11, 1967

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VT 005 623
Holtrop, Eltog J., And Others
Follow-Up Study of Students Completing Automotive Mechanics Courses in Michigan.

Wayne State Univ., Detroit, Mich. Dept. of Industrial Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct67 57p.

*GRADUATE SURVEYS; *HIGH SCHOOL GRADUATES; *AUTO MECHANICS; *PROGRAM EVALUATION; SUCCESS FACTORS; JOB PLACEMENT; EMPLOYMENT EXPERIENCE; COOPERATIVE EDUCATION; POST SECONDARY EDUCATION; OCCUPATIONAL GUIDANCE; *VOCATIONAL FOLLOWUP; EDUCATIONAL QUALITY; QUESTIONNAIRES; PROGRAM EFFECTIVENESS
MICHIGAN

The Automobile Manufacturers Association in conjunction with the Wayne State University Industrial Teacher Education Department promulgated this study to learn more about the inter-relationships of high school automotive courses and future student employment. Questionnaires were sent to approximately 3,000 graduates of two and three period automotive mechanic courses from 38 high schools. A 9 percent return yielded 269 usable responses. Responses indicated: (1) 90 percent were employed, (2) 52 percent were employed in automotive related occupations, (3) 41 percent were employed in auto related occupations where their training was useful, (4) 62 percent credited high school automotive training as helpful preparation for entry into the world of work, (5) 42 percent thought the high school program lacked adequate practical and related experience, (6) 60 percent obtained their first job through non-school related avenues, (7) 44 percent thought enough time was not devoted to preparing youth for their first job, and (8) 89 percent continued their training beyond high school, but not beyond the 2-year community college level. There appeared to be no occupational guidance in many high schools and school agencies do not accept responsibility for helping employment-bound students find initial employment. (HC)

VT 005 623

ED036657

Follow-Up Study Of Students Completing Automotive Mechanics Courses In Michigan

VT005623

FOLLOW-UP STUDY

OF STUDENTS COMPLETING

AUTOMOTIVE MECHANICS COURSES

IN MICHIGAN

By

Elton J. Holtrop

Leon J. Kurczynski

Robert J. Suda

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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DEPARTMENT OF INDUSTRIAL EDUCATION

WAYNE STATE UNIVERSITY

DETROIT, MICHIGAN

OCTOBER 1967

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We would like to extend our gratitude to a number of people who have assisted in this follow-up study.

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Leon J. Kurczynski

Robert J. Suda

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INTRODUCTION

The face value of technical courses and curricula is often misleading for there are numerous underlying concepts and principles that are not readily available. In the field of automotive mechanics, this problem is of particular importance if the programs are to be effective.

Therefore, the purpose of this study was to determine the significance and value of automotive mechanic courses in public high schools in the State of Michigan. In addition, an attempt was made to determine the relationship between the course taken and success on the job. Also, to answer the question "How effective is the automotive training for immediate use on the job, for further training or for personal use?"

OBJECTIVES OF THE STUDY

The objectives of this study were:

1. To determine the present employment of high school graduates who have completed two or three hour classes in automotive mechanic courses.
2. To determine the relationship between the type of high school course taken (length, content, etc.) and present employment.
3. To determine the present job classification and type of work done by former students who are employed in the automotive industry.
4. To determine present income of former students who are now employed in automotive work.
5. To determine how former students, who are now employed in the automotive industry, secured their first job.
6. To determine the value and use of automotive mechanic courses as related to military occupational service in the Armed Forces.
7. To determine former students' opinions regarding the relative value of shop versus classroom instruction in automotive mechanic courses.

PROCEDURES USED

The procedures used for conducting the study, in chronological order, were:

1. Seclection of Sample (in Michigan)

   All secondary schools which offered two or three period automotive mechanic courses were asked to assist in the follow-up study.

2. Development of Questionnaire

   The development was carried out by educators and industry with a series of trial editions tested in schools.

3. Submitting the Questionnaire

   Approximately 3,000 questionnaires were sent with only 269 responding representing 38 high schools. The years of the study were 1957, 1959 and 1961.

4. Cooperation Required

   The school superintendent of these schools was contacted and requested to cooperate with the Automobile Manufacturers Association, the American Vocational Association and the Michigan Department of Public Instruction.

5. Acknowledgment Letter

After receipt of a willing-to-participate post card from the school superintendents, an acknowledgment letter was sent by the Automobile Manufacturers Association. Along with the letter, a name and address form was sent for those graduates that were to be queried.

6. Materials to Conduct the Study

Questionnaires were then sent by the Automobile Manufacturers Association. The completed questionnaires were then mailed back, with return postage provided, to the AMA for processing.

7. Compilation and Analysis

The 269 returned questionnaires were then individually analyzed. And the data were then programmed and processed at the Wayne State University Computing Center and compared for relationship to individual questions.

8. Preparation of the Report

After completion of the data the report was written and submitted.

FINDINGS

Significant Findings

One of the most disappointing facets of this study was the relatively few questionnaires returned: only 269 from nearly 3,000 questionnaires mailed (about 9% returned). This return is very low for a selected sample since greater returns are generally received from random samples of the population at large. According to Jahoda, Deutsch and Cook:

> In surveys where questionnaires are mailed to a random sample of the population, the proportion of returns is usually low, varying from about 10 to 25 percent. When questionnaires are sent to a special group by a source which has prestige (to alumni by their alumni association, to doctors by the professional association, etc.), the percentage of returns is likely to be much higher.[1]

Thirty eight Michigan high schools were asked, in advance, to cooperate in this joint study by the Automobile Manufacturers Association (AMA) and the Wayne State University Department of

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[1] Marie Jahoda, Morton Deutsch and Stuart W. Cook, Research Methods in Social Relations, Part I (New York: The Dryden Press, 1951), p. 159.

Industrial Education in hopes that a sample selected from the graduates of these cooperating schools would result in a greater return of questionnaires.

The resulting nine percent return was thought to be too low a return for defining trends and to form valid conclusions. Few, if any, knowledgeable people would be willing to accept as typical the information gleaned from such a small sample which was further reduced by the frequency of "no response".

One reason for the low return of completed questionnaires was that parents of young men now serving in the armed forces or now living away from home returned the questionnaires unanswered. The mailing time of these questionnaires and its proximity to the time of high school graduation found many of the young men fulfilling their military obligations. This, coupled with marriages and the normal relocation of families to new areas, could have well accounted for a large portion of the unreturned questionnaires.

The two hundred sixty-nine questionnaires that were returned and studied provide some statistics that, pending further investigation, suggest limitations in the philosphy, structure and scope of present high school programs: namely, (1) the infrequent incorporation of the high school cooperative occupational education program into the automotive curriculum to augment the practical on-the-job aspects of that trade; (2) the minor involvement of school

personnel (counselor, coordinator, instructor, principal and others) in helping students obtain their first job after high school training; and finally, (3) the unknown number of high school graduates that continued their technical training after graduation.

Cooperative Occupational Education

The gradual growing importance of vocational education in Michigan on both the secondary and post-secondary levels seems to indicate that a valuable feature of its structure is practical training of the student in cooperation with industry. This type of experience is especially valuable to the student selecting a career, obtaining practical experience prior to full-time entry into his chosen field, and/or for training in areas beyond the limits of existing school facilities. Yet, in spite of these potential advantages, only thirty eight students (14 percent) (see Table 1) indicated they had the vocational education experience offered through a cooperative program.

TABLE 1

Question No. 7. Did you have a co-op job in auto mechanics while in high school?

Yes	38	14.1%
No	229	85.2%
No Response	2	.7%
Total	269	100.0%

There was, of course, some possibility (this was not directly queried through the questionnaire) that a co-op program did not exist at all of the participating high schools, but it is known that the majority of participating high schools do have a cooperative occupational education program. If this is true, then the fourteen percent of the sample that had cooperative work study experience seemed to indicate that the co-op program was not a significant extension of most high school automotive training programs. This suggests that there may be a reluctance to seek assistance from industry, or that industry is unwilling to cooperate with the public schools, or that education and the automobile are unaware of their common goals. The maintenance of a definite program between industry and the automotive courses in high school via cooperative occupational education would seem to resolve the criticism from the students (42.2%) (see Table 2) that more time was needed for practical and related experience.

TABLE 2

Question No. 30. What specific suggestions do you have to offer for the improvement of automotive mechanics training in high school?

-Excellent or acceptable	18	6.7%
-Need better trained teachers	17	6.3%
-Longer class periods; course duration	27	10.0%
-More fundamentals	16	5.9%
-More practical work	75	27.8%
-More theory; technical background	39	14.4%
-Expand course content	54	20.0%
-Higher performance standards	16	5.9%
-Better student selection	16	5.9%
-Update equipment	23	8.5%

Since 24.2% entered the world of work as gasoline station attendants (see Table 3), the technical requirements would not seem to be prohibitive for expanding such a program from this base.

TABLE 3

Question No. 19. What was your first job in the automotive industry?

-Gasoline station attendant	65	24.2%
-Military	2	.7%
-Factory production	15	5.6%
-Mechanic	14	5.2%
-Skilled trades	6	2.3%
-Parts	7	2.6%
-Body shop	3	1.1%
-New car preparation	4	1.5%
-Used car preparation	2	.7%
-Mechanics helper	5	1.9%
-Body shop helper	4	1.5%
-Design & Engineering	4	1.5%
-Engine rebuilding	4	1.5%
-No response	134	50.0%
Total	269	100.0%

Occupational Guidance and Placement

One startling conclusion from this data was the sizeable group of young people who resort to their own initiative or to that of their family to obtain their first job (see Table 4).

TABLE 4

Question No. 21. How did you get your first job?

-Advertisement	6	2.2%
-Friend or relative	68	25.2%
-Trade teacher	8	3.0%
-School counselor	5	1.9%
-Co-op coordinator	11	4.1%
-Personal effort	90	33.5%
-Public employment office	11	4.1%
-Ford Motor Co. Competition	1	.4%
-Military	5	1.9%
-Owner	1	.4%
-No response	63	23.4%
Total	269	100.0%

This, and the near perfect triad response division to question fifteen (see Table 5) offering the respondent a second chance with hindsight to "do over" his automotive career choice and training, coupled with the low level of participation in the co-op program,seems to indicate that most schools do not provide an adequate occupational choice and guidance program to students moving toward non-professional careers.

TABLE 5

Question No. 15. If you could do it over again, would you choose automotive mechanics as your trade?

Yes	84	31.2%
No	85	31.6%
Undecided	80	29.7%
No Response	20	7.5%
Total	269	100.0%

This apparent trend concurs with a statement by Leon J. Alger who says, "There is little evidence of adequate vocational guidance in Michigan's high schools today." [2] Mr. Alger further points to the seriousness of this inadequacy by saying, "Many trends in our society today emphasize the need for schools to prepare students for the world of work. Never before has the need for our schools to assume this responsibility been more essential and urgent."[3]

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[2]Harold T. Smith and others, Education and Training for the World of Work, Kalamazoo, Michigan; (W.E. Upjohn Institute for Employment Research, 1963), p. 123.

[3]Ibid, p. 121.

Professor Ralph C. Wenrich at the University of Michigan refers to studies made in Michigan and national reports which indicate a lack of understanding, preparation and time spent by counselors in working with employment — bound youth. He has observed that "Counselors are predominantly academically oriented and are much more familiar with the needs of youth who are planning on going on to college than they are with those of employment-bound youth and are more familiar with the requirements of colleges than they are with the requirements of business and industry."[4] Gilbert C. Wrenn further points out, "Vocational counseling is more complex, more difficult to master ... Unfortunately, most counselors, particularly those in suburbia, know little of occupations outside the professions."[5] Today, in the world of increasingly sophisticated technology, a child's intellectual endowment is more critical than ever before; not just to predict his earning power, but because of his likelihood of even securing initial employment.

Post-Secondary Training

Modern industry's demands for a labor force trained in technical and other advanced vocational skills seems to establish and predict each worker's success upon his level of education.

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[4] Ralph C. Wenrich, Employment-Bound Youth Need Guidance Too, (Michigan Journal of Secondary Education, Spring, 1962).

[5] Gilbert C. Wrenn, What Has Happened to Vocational Counseling in Our Schools, (The School Counselor, Vol. 10) p.101-107.

This pressure to acquire advanced skills is evident in our sample because eighty nine percent of them experienced some form of additional training within a short time following their high school graduation (see Table 6).

TABLE 6

Question No. 8. Have you had any college, night school, or technical school training?

4-yr. College	50	18.6%
Jr. College	17	6.3%
Military	26	9.7%
Night School	14	5.2%
Technical	60	22.3%
None	102	37.9%
Total	269	100.0%

Unfortunately, the questionnaire was not specific enough to identify the advanced training in relation to the automotive field. One can only conclude that the additional studies were directed toward advancement within the automotive field or training for entry into a new field. In either event, there is substantial evidence from the data that the vocational training received on the secondary level was merely a prelude to further post-secondary

training. If high school vocational training followed by advanced training is becoming the norm for today's vocational student, then this development would tend to suggest the need for greater coordination of effort between the two levels of training institutions. It would seem with the advancement of our incredibly complex technology and the accompanying prohibitive cost of technical training, that greater cooperation between public schools and industry would be sought for mutual benefit.

Observations and Recommendations for Further Study

There seems to be enough data resulting from this questionnaire to indicate four possible trends.

1. Schools and school agencies do not seem to accept the responsibility or generate much enthusiasm for helping employment-bound students to find initial employment as they do helping college-bound students enter an institution of higher learning.
2. At the time of this study, there appeared to be a complete void of occupational or vocational guidance in many Michigan high schools.
3. There appeared to be a serious lack of coordination between high school automotive classes and on-the-job training through cooperative occupational education programs.
4. Too few educators in secondary education are aware of the many employed graduates who continue their technical

4. training in conjunction with their jobs and the need for coordinating the high school curriculum with these other training institutions.

These observations suggest challenging topics for further study. If accurate, existing vocational guidance and vocational training programs are not meeting the needs of students and are often inflexible to change their status quo of bygone days when secondary vocational education was considered terminal.

A need exists for investigating present placement methods for the purpose of providing some guidelines for implementing more energetic and effective high school participation in helping their graduates get initial employment. Information about successful secondary school placement centers, such as those at the Fitzgerald High School, Warren, Michigan; or the Youth Employment Service (YES) program in Livonia (sponsored by the local newspaper and city hall) should be publicized among persons engaged in secondary vocational education.

Since many high school auto mechanics students continued their technical training on a post-secondary level, it would seem that a study to provide criteria for structuring a continuing cooperative vocational training program from the secondary level to post-secondary level would be of value for improving the present "isolationist" approach existing at each level. School systems

such as Dearborn, whose Henry Ford Community College is a part of the city's educational system, might realize a greater educational yield through the improvement of present secondary post-secondary policies; policies that could minimize the extent that students repeat courses for college credit they had previously on the secondary level. It is not implied that cooperation would exempt students from advanced courses, but rather, that the secondary post-secondary programs could become more complimentary.

American secondary schools traditionally were solely concerned with the preparation of academically talented youth for college. As the number of secondary school students increased and became more representative of our national population, it became obvious that today's secondary schools must serve some exceptionally bright students, a few more plain bright students, many average students and some who are not bright at all. The original function of preparing selected youths for college is now more a function of preparing all students for a responsible position in society. This social transition has occurred, but the secondary school's philosophical position has not changed. The school's reluctance to assume any role apart from their former, more prestigious one of preparing youth for college, is reflected by today's emphasis on the college preparatory curriculum and the inferior level of guidance and counseling extended to employment-bound youth. In view of the reluctance of many schools to offer effective guidance to employment-bound

students, it may be of some value to research the possibility of initiating an autonomous vocational guidance and employment program within the structure of secondary vocational education.

Lastly, our experience with the research vehicle, namely, our questionnaire, left us convinced that more experienced and expert technical assistance was needed to compose an articulate questionnaire structured specifically for machine data processing. Originally, the questionnaire was not designed for machine processing. It was composed and mailed before computer time was feasible. When computer time became available, it was too late to revise the questionnaire for better utilization of the analyzing potential of the machine. Later, the computer was used in hopes that machine tabulation and cross indexing of questionnaire replies could reveal trends not obvious from hand tabulation. For this subsequent computer analysis, many intra-question relationships were selected. Intra-question relationships such as:

4. Did you graduate from high school?
9. Are you now employed?

4. Did you graduate from high school?
17. Check below the type of work you do.

4. Did you graduate from high school?
23. Check the pay bracket that applies to you.

15. If you could do it over again, would you choose automotive mechanics as your trade?

18. What is your present job classification?

Because the questionnaire was not originally designed for machine processing and for this type of cross indexing of information, it was no surprise that the machine scoring ultimately offered no advantage aside from a slight saving in time. Machine scoring did investigate many avenues of our questionnaire that would have been otherwise difficult, but the related findings were insignificant and were mostly discarded.

Other limitations were soon apparent as the computer results were examined. Many questions were found to be vague and too many offered a "blank check" answer space for the respondee to write in whatever he wanted. Answers from these questions varied too widely from individual to individual for anything but a guess as to the true nature of the results. Question eight is an example of this:

> Question No. 8. Have you had any college, night school or technical school training?

The wanted information was whether the individual continued his automotive technical training after high school graduation, but the question was not that specific. Any form of post-secondary education, even in unrelated areas, could invite an affirmative answer.

SUMMARY

Summary of Significant Findings:

1. Eighty nine percent (89%) continued their training beyond high school, but not beyond the two year community college level.

2. Ninety percent (90%) were employed, but only fifty two percent (52%) were employed in automotive related occupations.

3. Sixty two percent (62%) credited high school automotive training as helpful preparation for entry into the world of work.

4. Twenty five percent (25%) began their working career as gasoline station attendants.

5. Eighty six percent (86%) did not extend their practical training through cooperative occupational education programs.

6. Twenty one percent (21%) and nineteen (19%) respectively thought the high school automotive program lacked adequate practical and related experience.

7. Sixty percent (60%) obtained their first job through non-school related avenues.

8. Forty four percent (44%) thought enough time was not devoted to preparing youth for their first job.

9. Forty one percent (41%) were employed in auto related occupations where the automotive courses were useful.

10. Only twelve percent (12%) felt that there was no significant value of the automotive training in high school to their present employment.

11. Sixty four (64%) thought more emphasis should have been placed on practical skill development and technical instruction.

The Automobile Manufacturers Association (AMA), in conjunction with the Wayne University Industrial Teacher Education Department, promulgated this study to learn more about the inter-relationships

of high school automotive courses and future student employment. To find general problems and limitations in present programs was expected; to identify specific problem areas was desired; and to improve the effectiveness of high school auto mechanics courses in attracting and training future automotive personnel was the ultimate goal.

The general problem area, known or suspected by people in the field and the AMA, prompted this study. Possible identification of some specific areas in need of improved techniques or a change in philosphy may have been achieved through this study. Positive verification along with remedial recommendations are left for further study by other educators in hopes that some equitable solutions may be found while the choice for independent school action is still possible.

APPENDIX

TABULATION OF RESPONSES

TO INDIVIDUAL QUESTIONS

IN THE QUESTIONNAIRE

Question No. 4 Did you graduate from high school?

Yes	261	97.1%
No	8	2.9%
No Response	0	0.0%
Total	269	100.0%

Question No. 5 How many semesters of automotive mechanics instruction did you have?

a. One Semester	31	11.5%
b. Two Semesters	92	34.2%
c. Three Semesters	11	4.1%
d. Four Semesters	99	36.8%
e. Five Semesters	3	1.1%
f. Six Semesters	28	10.4%
g. No Response	5	1.9%
Total	269	100.0%

Question No. 7 Did you have a co-op job in automotive mechanics while in high school?

Yes	38	14.1%
No	229	85.2%
No Response	2	.7%
Total	269	100.0%

Question No. 8 Have you had any additional college, night school or technical school training?

College	50	18.6%
Jr. College	17	6.3%
Military	26	9.7%
Night School	14	5.2%
Technical	60	22.3%
None	102	37.9%
Total	269	100.0%

Question No. 9 Are you now employed? (time of survey)

Yes	242	90.0%
No	25	9.3%
No Response	2	.7%
Total	269	100.0%

Question No. 10 Did you attend high school in the same town or city in which you are presently employed?

Yes	141	52.5%
No	111	41.3%
No Response	17	6.2%
Total	269	100.0%

Question No. 13 Check the type of business of present employer.

Automobile and/or truck dealer	25	9.3%
Gasoline station	13	4.8%
Parts supply	4	1.5%
Independent service garage	4	1.5%
Automotive specialty shop	3	1.1%
Student	7	2.6%
Military (mechanics)	7	2.6%
Military (unrelated)	13	4.8%
Automotive manufacturer	35	13.0%
Engineering, skilled & tech.	15	5.6%
Semi-skilled & unskilled	38	14.1%
Unrelated and manual	37	13.7%
Unrelated miscellaneous	36	13.4%
Unemployed	2	.7%
No Response	30	11.1%
Total	269	100.0%

Question No. 14 If your present job is other than that of automotive mechanic, give your chief reason for selecting another occupation.

A.	No job available as an automotive mechanic	23	8.5%
B.	Developed new interest	27	10.0%
C.	Disliked automotive work	3	1.1%
D.	Found better opportunity	42	15.6%
E.	Never intended to follow automotive mechanic work	43	16.0%
F.	This work pays better	30	11.3%
G.	Better future	4	1.5%
H.	Little chance for advancement	1	.4%
I.	No Response	96	36.7%
	Total	269	100.0%

Question No. 15 If you could do it over again, would you choose automotive mechanics as your trade?

Yes	84	31.2%
No	85	31.6%
Undecided	80	29.7%
No Response	20	7.5%
Total	269	100.0%

Question No. 16 Did your automotive mechanics instruction help you in getting a job in the automotive industry?

Very helpful	44	16.4%
Of some help	53	19.7%
Of little help	69	25.6%
Did not help at all	26	9.7%
No Response	77	28.6%
Total	269	100.0%

Question No. 17 Check below the type of work you do:

General mechanic (auto)	50	19.0%
General mechanic (trucks)	23	8.6%
New car preparation	10	3.7%
Used car reconditioning	11	4.1%
Engine tune-up	38	14.1%
Wheel alignment and front end	9	3.3%
Brakes (power & manual)	30	11.1%
Transmission (automatic & manual)	19	7.1%
Steering (power & manual)	13	4.8%
Electrical	28	10.4%
Air conditioning	4	1.5%
Automotive machinist	5	1.9%
Lubrication	31	11.5%
Personal; farm	1	.4%
Adjust valves (factory)	1	.4%
Engine repair & rebuilding	1	.4%
Aircraft engine inspection	1	.4%
Aircraft mechanic	1	.4%

Related Jobs:

Body sheet metal bumping and repair	16	6.0%
Body service - trim and hardware	4	1.5%
Body painter	2	.7%
Parts department	16	6.0%
Office work	5	1.9%
Sales	7	2.6%

Question No. 18 What is your present job classification? (Time of study)

Beginner or trainee	9	3.3%
Helper	9	3.3%
Apprentice	9	3.3%
Mechanic	35	13.0%
Specialist	7	2.6%
Technician	10	3.7%
Salesman	2	.7%
Parts man	7	2.6%
Shop foreman	5	1.9%
Owner	5	1.9%
Factory worker	18	6.7%
Wrecker and sales service	1	.4%
All around man	2	.7%
Production control	2	.7%
Student	3	1.1%
No Response	145	54.0%
Total	269	100.0%

Question No. 19 What was your first job in the automotive industry?

Gas station attendant	65	24.2%
Military	2	.7%
Factory production	15	5.6%
Mechanic	14	5.2%
Skilled trades	6	2.3%
Parts	7	2.6%
Body shop	3	1.1%
New car preparation	4	1.5%
Used car preparation	2	.7%
Mechanic's helper	5	1.9%
Body shop helper	4	1.5%
Design and Engineering	4	1.5%
Engine rebuilding	4	1.5%
No Response	134	50.0%
Total	269	100.0%

Question No. 21 How did you get your first job?

Advertisement	6	2.2%
Friend or relative	68	25.2%
Trade teacher	8	3.0%
School counselor	5	1.9%
Co-op coordinator	11	4.1%
Personal effort	90	33.5%
Public employment office	11	4.1%
Ford Motor Co. competition	1	.4%
Military	5	1.9%
Owner	1	.4%
No Response	63	23.4%
Total	269	100.0%

Question No. 22 How are you paid?

Salary	41	15.3%
Hourly rate	154	67.2%
Flat rate	17	6.3%
No Response	57	21.2%
Total	269	100.0%

Question No. 23 Check the pay bracket that applies to you. (Time of study)

Below $50.00 per week	26	9.7%
$51 to $75 per week	41	15.3%
$76 to $100 per week	51	19.0%
$101 to $125 per week	78	29.0%
$ Other	21	7.7%
No Response	52	19.3%
Total	269	100.0%

Question No. 24 Have you served in the Armed Forces of the United States?

Yes	105	39.0%
No	151	56.2%
No Response	13	4.8%
Total	269	100.0%

Question No. 26 What do you consider to be the chief value of the shop work you received in your automotive mechanics courses?

No special advantage	34	12.6%
It helped me to obtain employment	18	6.7%
It gave me a good foundation for advancing on the job	24	8.9%
It helped me to begin at a higher wage	3	1.1%
It provided a foundation for additional training	87	32.3%
Personal benefit	64	23.8%
Broader interest	1	.4%
Helped in establishing my own business	1	.4%
Hobby	2	.7%
Cut repair costs (farm)	0	
Gave confidence	0	
No Response	35	13.0%
Total	269	100.0%

Question No. 27 For what aspect of automotive mechanics were you least well prepared when you started work?

Experienced no particular difficulty	37	13.7%
Not accustomed to standards of speed	7	2.6%
Found it difficult to get along with other workers	1	.4%
Not accustomed to standards of quality	1	.4%
Lacked necessary practical experience	57	21.2%
Needed additional technical knowledge	53	19.7%
Needed more training in how to apply for a job	5	1.9%
No Response	108	40.0%
Total	269	100.0%

Question No. 28 Looking back on your training and your experience as a worker, do you think your automotive mechanics courses should have:

a. Placed more emphasis on the development of skill?	94	34.9%
b. Placed more emphasis on related technical instruction?	77	28.6%
c. Been about like it was in this respect.	40	14.7%
d. No Response	58	21.8%
Total	269	100.0%

Question No. 29 Was the time spent in high school automotive courses enough to prepare for your first job?

Not enough time	120	44.6%
About right	87	32.3%
Too much time	3	1.1%
No Response	59	22.0%
Total	269	100.0%

Question No. 30 What specific suggestions do you have to offer for the improvement of automotive mechanics training in high school?

Excellent or acceptable	18	6.7%
Need better trained teachers	17	6.3%
Longer class periods; course duration	27	10.0%
More fundamentals	16	5.9%
More practical work	75	27.8%
More theory; technical background	39	14.4%
Expand course content	54	20.0%
Higher performance standards	16	5.9%
Better student selection	16	5.9%
Update equipment	23	8.5%

TABULATION OF RESPONSES

OF QUESTIONS THAT HAVE A

RELATIONSHIP WITH OTHER

QUESTIONS

Question No. 4 Did you graduate from high school?

Question No. 9 Are you now employed?

	Employed		Not Employed		Total
Yes Graduate	235	87.4%	24	8.9%	259
Did not Graduate	7	2.6%	1	.4%	8
No Response					2
					269

Question No. 4 Did you graduate from high school?

Question No. 17 Check below the type of work you do.

Type of Work	Graduated from High School: Yes		Graduated from High School: No		Total
a. General mechanic (auto)	48	17.8%	2	.7%	50
b. General mechanic (trucks)	22	8.2%	1	.4%	23
c. New car preparation	10	3.7%	0		10
d. Used car reconditioning	9	3.4%	2	.7%	11
e. Engine tune-up	37	13.8%	1	.4%	38
f. Wheel alignment; front end	9	3.4%	0		9
g. Brakes (power & manual)	29	10.8%	1	.4%	30
h. Transmissions	18	6.7%	1	.4%	19
i. Steering	12	4.5%	1	.4%	13
j. Electrical	27	10.0%	1	.4%	28
k. Air conditioning	4	1.5%	0		4
l. Automotive machinist	4	1.5%	1	.4%	5
m. Lubrication	30	11.2%	1	.4%	31
n. Personal-farm	1	.4%	1	.4%	2
o. Adjust valves	1	.4%	0		1
p. Engine repair & rebuild	1	.4%	0		1
q. Aircraft engine insp.	1	.4%	0		1
r. Aircraft mechanic	1	.4%	0		1
s. Body bumping & repair	14	5.2%	2	.7%	16
t. Body trim & hardware	4	1.5%	0		4
u. Body painter	1	.4%	1	.4%	2
v. Parts department	16	5.9%	0		16
w. Office work	5	1.9%	0		5
x. Sales	7	2.6%	0		7

Question No. 4 Did you graduate from high school?

Question No. 18 Check your job classification:

Job Classification	Did You Graduate? Yes		No		Total
a. Beginner	9	3.3%	0	0	9
b. Helper	8	2.9%	1	.4%	9
c. Apprentice	8	2.9%	1	.4%	9
d. Mechanic	34	12.6%	1	.4%	35
e. Specialist	7	2.6%	0	0	7
f. Technician	9	3.3%	1	.4%	10
g. Salesman	2	.7%	0	0	2
h. Parts man	6	2.2%	1	.4%	7
i. Service manager	0	0	0	0	0
j. Shop foreman	5	1.9%	0	0	5
k. Sales manager	0	0	0	0	0
l. Owner	15	1.9%	0	0	5
m. Factory worker	17	6.3%	1	.4%	18
n. Wrecker	1	.4%	0	0	1
o. All-around man	2	.7%	0	0	2
p. Product control	2	.7%	0	0	2
q. Aircraft spec.	0	0	0	0	0
r. Student	3	1.1%	0	0	3
s. No Response					145
	128	43.5%	6	.24%	269

Question No. 4 Did you graduate from high school?

Question No. 21 How did you get your first job?

First Job	Did You Graduate?				Total
	Yes		No		
a. Advertisement	5	1.9%	1	.4%	6
b. Friend-relative	64	23.6%	4	1.5%	68
c. Trade teacher	8	2.9%	0	0	8
d. School counselor	5	1.9%	0	0	5
e. Co-op coordinator	11	4.1%	0	0	11
f. Personal effort	87	32.3%	3	1.1%	90
g. Public employment office	11	4.1%	0	0	11
h. Ford Motor Co. competition	1	.4%	0	0	1
i. Military career	5	1.9%	0	0	5
j. Owner	1	.4%	0	0	1
k. No Response					63
	198	74.0%	8	3.0%	269

Question No. 4 Did you graduate from high school?

Question No. 23 Check the pay bracket that applies to you.

Pay Bracket	Did You Graduate? Yes		No		Total
a. $50 or less week	25	9.3%	1	.4%	26
b. $51-$75 week	39	14.4%	2	.7%	41
c. $76-$100 week	50	18.6%	1	.4%	51
d. $101-$125 week	74	27.5%	4	1.5%	78
e. $126 or higher	21	7.8%	0	0.0%	21
f. No Response					52
	209	78%	8	2.0%	269

Question No. 15 If you could do it over again, would you choose automotive mechanics as your trade?

Question No. 18 Check your job classification:

Job Classification	Would You Do It Over? No		Yes		Undec.		No Response		Total
a. Beginner	1	.4%	6	2.2%	1	.4%	1	.4%	9
b. Helper	0	.0%	5	1.9%	4	1.5%	0	0	9
c. Apprentice	3	1.1%	4	1.5%	2	.7%	0	0	9
d. Mechanic	4	1.5%	19	7.1%	10	3.7%	2	.7%	35
e. Specialist	1	.4%	4	1.5%	1	.4%	1	.4%	7
f. Technician	0	0.0%	4	1.5%	6	2.2%	0	0	10
g. Salesman	2	.7%	0	0	0	0	0	0	2
h. Parts man	1	.4%	6	2.2%	0	0	0	0	7
i. Service mgr.	0	0	0	0	0	0	0	0	0
j. Shop foreman	2	2.9%	2	.7%	0	0	1	.4%	5
k. Sales mgr.	0	0	0	0	0	0	0	0	0
l. Owner	0	0	4	1.5%	1	.4%	0	0	5
m. Factory wkr.	6	2.2%	3	1.1%	8	2.9%	1	.4%	18
n. Wrecker	0	0	0	0	1	.4%	0	0	1
o. All around man	0	0	2	.7%	0	0	0	0	2
p. Product control	1	.4%	1	.4%	0	0	0	0	2
q. Aircraft spec.	3	1.1%	0	0	0	0	0	0	3
r. Student	0	0	0	0	0	0	0	0	0
s. No Response									145
	24	11.1%	60	22.3%	34	12.6%	6	2.3%	269

Question No. 15 If you could do it over again, would you choose automotive mechanics as your trade?

Question No. 26 What do you consider to be the chief value of the shop work you received in your automotive mechanics courses?

Value of Shop Work	Would You Choose Auto Mechanics Over Again?						
	No		Yes		Undecided		Total
a. No special advantage	16	5.8%	9	3.3%	6	2.2%	34
b. Helped to obtain job	3	1.1%	10	3.7%	5	1.9%	18
c. Good foundation for advancement	1	.4%	16	5.9%	7	2.6%	24
d. Begin at a higher wage	1	.4%	2	.7%	0	0	3
e. Foundation for adv. training	16	5.9%	38	14.1%	27	10.0%	87
f. Personal benefit	33	12.3%	6	2.2%	21	7.8%	64
g. Broader interest	1	.4%	0	0	0	0	1
h. Helped in own business	0	0	1	.4%	0	0	1
i. Hobby	2	.7%	0	0	0	0	2
j. No Response							35
	73	27.0%	82	30.3%	66	25.0%	269

MICHIGAN
DEPARTMENT OF PUBLIC INSTRUCTION
LANSING

LYNN M. BARTLETT
State Superintendent

TO: SUPERINTENDENTS OF SCHOOLS OFFERING AUTO MECHANICS COURSES

All of you are deeply concerned with the outcomes of our school programs. Your Board of Education, your citizens, your own staff need to have evidence of the values inherent in our way of teaching and school organization.

In our preparation of youth for the world of work, we especially need better studies. We have been presented with an opportunity to have one such study in a specific field conducted with the aid of the Automobile Manufacturers Association and Wayne State University, working with our people in vocational education.

We need a list of names and addresses for those graduates who completed auto mechanics courses in the school years 1957, 1959 and 1961. The study will then ask those graduates for their responses to questions dealing with their current work. There will be no identification of either the students or the schools. You will receive copies of the final report.

We realize that providing this information involves work for you and your staff. But the results should be so worthwhile that I believe you will be pleased to have them and to have helped make them possible.

Sincerely,

Lynn M. Bartlett

Lynn M. Bartlett

SAMPLE — RETURN POST CARD

Dear Dr. Bartlett:

I would _____, would not _____ be willing to participate in the follow-up survey of the graduates of automobile mechanics courses.

Signed _____

School _____

City _____

Dr. Lynn M. Bartlett
Superintendent of Public Instruction
State Capital Building
Lansing 2, Michigan

WASHINGTON
1710 H STREET, N.W.

NEW YO
366 MADISON

AUTOMOBILE MANUFACTURERS ASSOCIATION, INC.

320 NEW CENTER BUILDING DETROIT 2, MICHIGAN TRINITY 2-4311

JOHN F. GORDON, PRESIDENT
HARRY A. WILLIAMS, MANAGING DIRECTOR

TO SUPERINTENDENTS OF SCHOOLS OFFERING AUTO MECHANICS COURSES

All of you are deeply concerned with the outcomes of your school programs. Your Board of Education, your citizens, your own staff need to have evidence frequently of the values inherent in our way of teaching and school organization. One means of presenting this evidence is through carefully conducted follow-up studies.

The Automobile Manufacturers Association, the State Departmen of Public Instruction, and Wayne State University are cooperating to conduct a follow-up study of graduates of Michigan high schools who have completed automotive mechanics courses. This study, approved by Dr. Lynn M. Bartlett and the State Department of Vocational Education, will ask the graduates for their responses to questions concerning their interests, backgrounds, training, and employment as related to automotive mechanics. There will be no identification of either the graduates or the schools.

To make it possible for us to conduct this study, could you please provide us with a list of your 1957, 1959, and 1961 graduate who completed automotive mechanics courses? A form sheet and envel are enclosed for your use.

The responses to the questionnaires will be carefully analyzed and evaluated, and the results will be published in a detailed repo Each participating school will be given a copy of the final report and will benefit, I am sure, from resulting changes that may be sug gested for automotive programs.

A copy of the questionnaire to be used is enclosed for your files. We realize that providing this information involves work fo you and your staff. But the results should be so worthwhile that w believe you will be pleased to have them and to have helped make them possible.

Sincerely,

1961 DEPARTMENT OF PUBLIC INSTRUCTION 1961

AUTOMOBILE MANUFACTURERS ASSOCIATION

HIGH SCHOOL AUTO MECHANICS GRADUATES

(List name and address of each graduate in 1961 who completed one or more auto mechanics course)

NAME (Last)	(First)	ADDRESS No.	Street	City	Father's First Name
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

FOLLOW-UP STUDY OF STUDENTS COMPLETING AUTOMOTIVE MECHANIC COURSES FOR THE YEARS 1957, 1959 and 1961

Instructions: This follow-up study is being sponsored by the Automobile Manufacturers Association and the American Vocational Association to determine the present employment of former students of automotive mechanics in Michigan high schools. Your careful completion of this questionnaire will assist in determining the value of automotive mechanics courses as related to future employment. Please fill in the blanks below and return as soon as possible. Your time and effort will be greatly appreciated.

1. Name (Optional)_____Age_____

2. Address (Optional)_____
(Street & Number) (City) (State)

3. Did you graduate from high school? Yes_____ No_____

4. How many semesters of automotive mechanics instructions did you have? _____

5. Are you now employed? Yes_____ No_____

6. Did you attend high school in the same town or city in which you are presently employed? Yes_____ No_____

7. Your present or last employer (Optional)_____
(Name of person or firm)

8. Your present or last employer's address_____
(City) (State)

9. Check the type of business of your present employer:

_____Automobile and/or truck dealer
_____Gasoline station
_____Parts supply
_____Independent service garage
_____Automotive specialty shop
_____Other (Specify)_____

10. If your present job is other than automotive mechanic, give your chief reason for selecting another occupation. (Check only one)

_____No job available as an automotive mechanic
_____Developed new interest
_____Disliked automotive mechanic work
_____Found better opportunity
_____Never intended to follow automotive mechanic work
_____This work pays better
_____Other reason (Explain)_____

11. If you could do it over again, would you choose automotive mechanics as your trade? (Check only one)

_____Yes
_____No
_____Undecided

12. Did your automotive mechanics instruction help you in getting a job in the automotive industry?

_____Very helpful
_____Of some help
_____Of little help
_____Did not help at all

13. Check below the type of work you do:

Automotive Mechanic

_____General Mechanic (passenger cars)
_____General Mechanic (trucks)
_____New Car Preparation
_____Used Car Reconditioning
_____Engine Tuneup
_____Wheel Alignment and Front End
_____Brakes (Power and Manual)
_____Transmission (Automatic and Manual)
_____Steering (Power and Manual)
_____Electrical
_____Air Conditioning
_____Automotive Machinist
_____Lubrication
_____Other _____
_____

Related Jobs

_____Body Sheet Metal Bumping and Repair
_____Body Service - Trim and Hardware
_____Body Painter
_____Parts Department
_____Office Work
_____Sales
_____Other _____
_____

14. Check your job classification:

Automotive Mechanic

_____Beginner or trainee
_____Helper
_____Apprentice
_____Mechanic
_____Specialist
_____Technician
_____Other (Specify)_____
_____

Other

_____Salesman
_____Parts Man
_____Service Manager
_____Shop Foreman
_____Sales Manager
_____Owner
_____Other (Specify)_____
_____

15. What was your first job in the automotive industry?_____

16. Was it necessary to have a kit of tools in order to obtain your first automotive mechanic job? Yes_____ No_____

17. How did you get your first job? (Check only one)

_____Advertisement
_____Friend or relative
_____Trade teacher
_____Counselor at school
_____Coordinator at school
_____Personal efforts
_____Public Employment office
_____Other means (Explain)_____

18. How are you paid?

_____Salary
_____Hourly rate
_____Flat rate

19. Check the pay bracket that applies to you:

_____Below $50 per week
_____$51 to $75 per week
_____$76 to $100 per week
_____$101 to $125 per week
_____Other (Specify) $_____ per week

20. Have you served in the Armed Forces of the United States?

_____Yes
_____No

21. If your answer to "20" was yes, were you assigned to a job in which your automotive instruction was of value? Yes_____ No_____

22. What do you consider to be the chief value of the shop work you received in your automotive mechanics courses? (Check only one)

_____No special advantage
_____It helped me to obtain employment
_____It gave me a good foundation for advancing on the job
_____It helped me to begin at a higher wage
_____It provided a foundation for additional training
_____Other (Explain)_____

_____

23. For what aspect of automotive mechanics were you least well prepared when you started to work?

_____Experienced no particular difficulty
_____Not accustomed to standards of speed
_____Found it difficult to get along with other workers
_____Not accustomed to standards of quality
_____Lacked necessary practical experience
_____Needed additional technical knowledge
_____Needed more training in how to apply for a job
_____Other (Explain)_____

24. Looking back on your training and your experience as a worker, do you think your automotive mechanics courses should have: (Check only one)

_____Placed more emphasis on the development of skill
_____Placed more emphasis on related technical instruction
_____Been about like it was in this respect

25. Do you think that the time you spent in your high school automotive courses was enough to prepare you to get your first job?

_____Not enough time
_____About right
_____Too much time

26. What specific suggestions do you have to offer for the improvement of automotive mechanics training in high school?

_____

_____

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Ohio Legislation Applicable to Vocational Education with Attorney General's Opinions.

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OHIO

Sections of the Ohio School Law pertaining to vocational education are listed verbatim or in part to assist teachers and administrators to understand the regulations affecting such programs in public schools. In cases where the Ohio Attorney General has ruled upon questions affecting vocational education, reference is made to such opinions. Chapter titles from which the material is taken are: (1) State Board of Education, (2) Cooperation with Federal Vocational Acts, (3) Joint Vocational School Districts, (4) Boards of Education, (5) School Funds, (6) School Foundation Program, (7) School-Superintendent; Teachers; Employees, (8) Transportation: Tuition, (9) School Books, and (10) Age and Schooling Certificates. (HC)

VT 005 637

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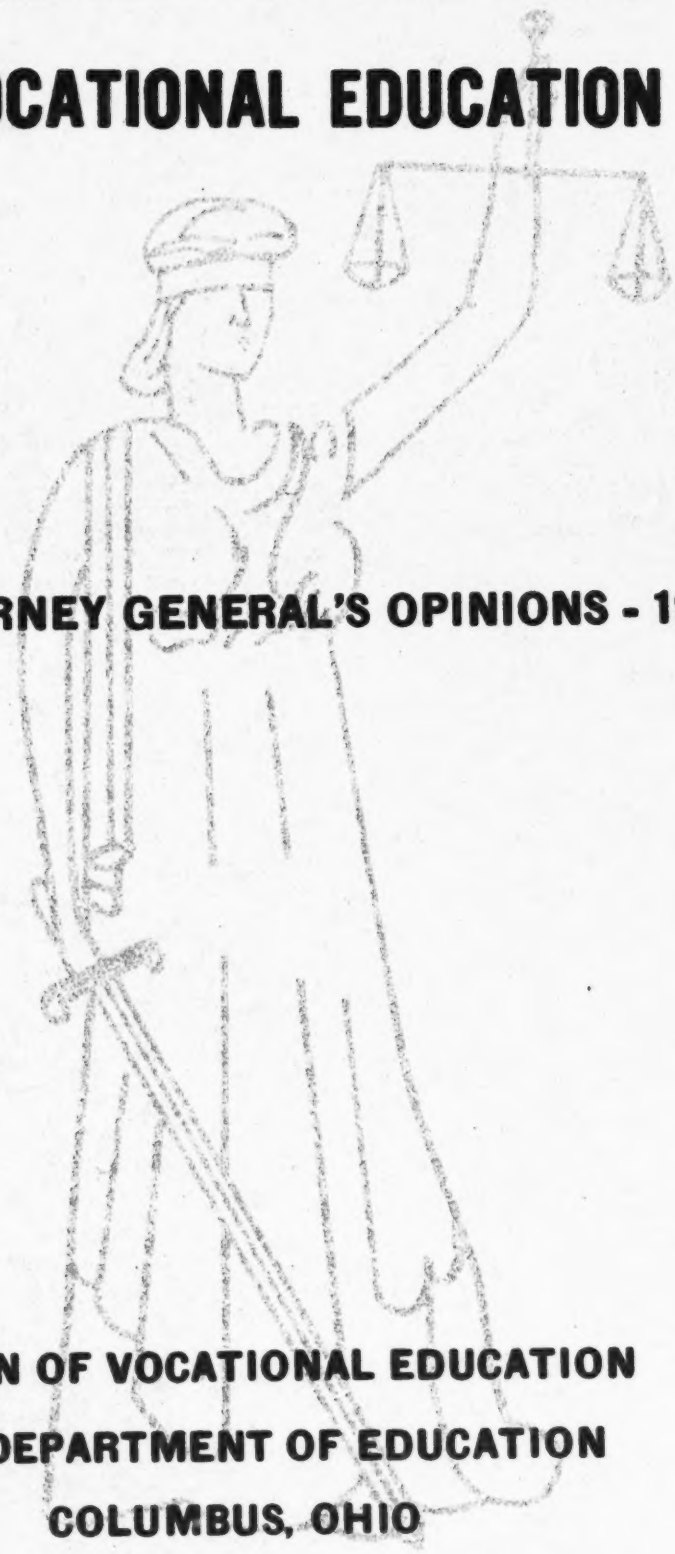
OHIO LEGISLATION APPLICABLE TO VOCATIONAL EDUCATION



WITH ATTORNEY GENERAL'S OPINIONS - 1956

DIVISION OF VOCATIONAL EDUCATION
STATE DEPARTMENT OF EDUCATION
COLUMBUS, OHIO

VT005637

OHIO LEGISLATION APPLICABLE TO VOCATIONAL EDUCATION WITH ATTORNEY GENERAL'S OPINIONS

1956

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

A need for a listing of Ohio Laws pertaining to vocational education has been expressed in discussions with individuals and groups at state-wide meetings of vocational education personnel. The sections of the Code listed in this manual are taken verbatim or in part from the Ohio Code without interpretations or revisions. In cases where the Attorney General has ruled upon questions affecting vocational education, reference has been made to such opinions.

This publication has been kept short intentionally and is meant to serve only as a basic guide. Regular published volumes of Ohio School Law should be referred to when more complete information is desired.

The laws and regulations in the manual should assist teachers and administrators to understand the regulations affecting the programs in the public schools. Laws should be looked upon as a positive force to guide the action of school administrators in organizing effective programs of vocational education for the youth and adults of Ohio. The present code was reviewed, revised and adopted by the 1953 Ohio Legislature. Additional changes in school law are incorporated, which were made by the 1955 Legislature.

This manual was prepared by Robert M. Reese, Director - Trade and Industrial Education Services, College of Education, The Ohio State University, as a service to all vocational education personnel and interested school administrators in the State of Ohio.

Ralph A. Howard, State Director
Vocational Education

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CHAPTER 3301 STATE BOARD OF EDUCATION

SEC. 3301.011. CREATION OF STATE BOARD

There is hereby created the state board of education, to consist of twenty-three members. For the purpose of election of board members, the state of Ohio is hereby divided into twenty-three districts. The boundaries of such districts and the counties composing each district, shall coincide with the boundaries and the counties composing each of the twenty-three congressional districts, as such latter districts were in lawful existence on January 1, 1955, under the provisions of section 3521.01 of the Revised Code.

One member of the state board of education shall be elected from each of the twenty-three districts herein created.

SEC. 3301.04. STATE BOARD MEETINGS

*** The state board of education shall hold regular meetings once every three months and at such times as they may be called as provided in this section. *** The state board of education shall hold its meetings at the office of the superintendent of public instruction.

SEC. 3301.05. RECORD OF STATE BOARD MEETINGS

*** Fifteen members of the board shall constitute a quorum for the transaction of business. Official actions of the board, including the making and adoption of motions and resolutions, shall be transacted only at public meetings open to the public. The superintendent of public instruction, or a subordinate designated by him, shall record all official actions taken at each meeting of the board in a book provided for that purpose, which shall be a public record. The record of the proceedings of each meeting of the board shall be read at its next

succeeding meeting, corrected and approved, which approval shall be noted in the proceedings. The president shall sign the record and the superintendent of public instruction or his subordinate attest it.

SEC. 3301.07. STATE BOARD POWERS AND DUTIES

*** The state board of education shall exercise under the acts of the legislature general supervision of the system of public education in the state of Ohio. In addition to the powers otherwise imposed on the state board under the provisions of law, such board shall have the following powers:

A. It shall exercise policy forming, planning and evaluative functions for the public schools of the state, and for adult education, except as otherwise provided by law.

B. It shall exercise leadership in the improvement of public education in Ohio, and shall administer the educational policies of this state relating to public schools, and relating to instruction and instructional material, building and equipment, transportation of pupils, administrative responsibilities of school officials and personnel, finance, and organization of school districts and territory. Consultative and advisory services in such matters shall be provided by the board to school districts of this state.

C. It shall administer and supervise the allocation and distribution of all state and federal funds for public school education under the provisions of law, and may prescribe such systems of accounting as are necessary and proper to this function. It may require county auditors and treasurers, boards of education, clerks of such boards, teachers, and other school officers and employees, or other public officers or employees, to file with it such reports as it may prescribe relating to such funds, or to the management and condition of such funds.

***

G. It shall cooperate with federal, state and local agencies concerned with the health and welfare of children and youth of the state of Ohio.

***

I. It may adopt such rules and regulations as are necessary for the carrying out of any function imposed on it by law, and may provide such regulations as are necessary for its government and the government of its employees, and may delegate to the superintendent of public instruction the management and administration of any function imposed on it by law.

***

SEC. 3301.08. APPOINTMENT OF STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

The state board of education shall appoint the superintendent of public instruction, who shall serve at the pleasure of the board and at a salary to be determined by the board but not to exceed the salary of the governor.

SEC. 3301.11. STATE SUPERINTENDENT AS EXECUTIVE OFFICER

The superintendent of public instruction shall be the executive and administrative officer of the state board of education in its administration of all educational matters and functions placed under its management and control. He shall execute, under the direction of the state board of education, the educational policies, orders, directives, and administrative functions of the board, and shall direct, under rules and regulations adopted by the board, the work of all persons employed in the state department of education.

SEC. 3301.12. DUTIES OF STATE SUPERINTENDENT

The superintendent of public instruction in addition to the authority otherwise imposed on him, shall perform the following duties:

A. He shall provide technical and professional assistance and advice to all school districts in reference to all aspects of education, including finance, buildings and equipment, administration, organization of school districts, curriculum and instruction, transportation of pupils, personnel problems, and the interpretation of school laws and state regulations.

***

C. He shall conduct such studies and research projects as are necessary or desirable for the improvement of public school education in Ohio, and such as may be assigned to him by the state board of education.

***

SEC. 3301.13. STATE DEPARTMENT OF EDUCATION ORGANIZATION

The department of education hereby created, shall be the administrative unit and organization through which the policies, directives and powers of the state board of education and the duties of the superintendent of public instruction are administered by such superintendent as executive officer of the board.

The department of education shall consist of the state board of education, the superintendent of public instruction, a staff of such professional, clerical and other employees as may be necessary to perform the duties and to exercise the required functions of the department.***

***The superintendent of public instruction shall recommend for approval by the board the organization of the department of education, and the assignment of the work within such department. The appointment, number, and salaries of assistant superintendents, and division heads shall be determined by the state board of education after recommendation of the superintendent of public instruction. Such assistant superintendents and division heads shall serve at the pleasure of the board.

The superintendent of public instruction may appoint, fix the salary, and terminate the employment of other employees of the department, in accordance with the provisions of the state civil service laws, but the appointment, fixing of salaries, and dismissal of all assistant superintendents and division heads shall be with the approval of the state board of education. ***

CHAPTER 3303 COOPERATION WITH FEDERAL VOCATIONAL ACTS

SEC. 3303.02 (154-49a). THE ACT OF CONGRESS FOR VOCATIONAL EDUCATION ACCEPTED

The *** act of congress entitled, "An act to provide for the promotion of vocational education; to provide for cooperation with the states in the promotion of such education in agriculture and the trades and industries; to provide for cooperation with the states in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure," *** is hereby accepted ***.

SEC. 3303.03 (154-49b). SUBJECTS FOR WHICH APPROPRIATED FUNDS ARE ACCEPTED

The benefits of all funds appropriated under *** the act of congress referred to in section 3303.02 of the Revised Code is hereby accepted as to:

*** (A) Appropriations for the salaries of teachers, supervisors, and directors of agricultural subjects ***;

(B) Appropriations for salaries of teachers of trade, home economics, and industrial subjects ***;

(C) Appropriations for the preparation of teachers, supervisors, and directors of agricultural subjects and teachers of trade, *** industrial, and home economics subjects.

SEC. 3303.04. COOPERATION OF STATE BOARD WITH FEDERAL GOVERNMENT

The state board of *** education may co-operate with the office of education of the United States department of health, education and welfare in the administration of the act of congress referred to in section 3303.02 of the Revised Code and of any legislation pursuant thereto enacted by the state, and in the administration of the funds provided by the federal government and by the state under sections 3303.01 to 3303-11, inclusive, of the Revised Code, for the improvement of agricultural, business, distributive, trade and industrial and home economics subject, and vocational guidance. The board may appoint such directors, supervisors, and other assistants as are necessary to carry out such sections, such appointments to be made upon nomination by the superintendent of public instruction. The salaries and traveling expenses of such directors, supervisors, and assistants, and such other expenses as are necessary, shall be paid upon the approval of the board. The board may formulate plans for the promotion of vocational education in such subjects as an essential and integral part of the public school system of education; and provide for the preparation of teachers of such subjects, and expend federal and state funds appropriated under sections 3303.01 to 3303.11, inclusive, of the Revised Code, for any purposes approved by the office of education of the United States department of health, education and welfare. It may make studies and investigations relating to prevocational and vocational education in such subjects; promote and aid in the establishment by local communities of schools, departments, and classes, giving training in such subjects; co-operate with local communities in the maintenance of such schools, departments, and classes; establish standards for the teachers, supervisors, and directors of such subjects; and co-operate in the maintenance of schools, departments, or classes supported and controlled by the public for the preparation of teachers, supervisors, and directors of such subjects.

SEC. 3303.05 (154-49d). APPROVED SCHOOLS RECEIVE STATE MONEY EQUAL IN AMOUNT TO FEDERAL MONEY

Any school, department, or class giving instruction in agricultural, commercial, industrial, trade, and home economics subjects approved by the state board of vocational education and any school or college so approved, training teachers of such subjects, which receives the benefit of federal moneys *** shall be entitled also to receive for the salaries of teachers of said subjects an allotment of state money equal in amount to the amount of federal money which it receives *** for the same year.

SEC. 3303.06 (154-49e). CUSTODIAN OF SCHOOL FUNDS

The treasurer of state is hereby designated as the custodian of all funds received from the United States treasury for vocational education. All money so received or appropriated by the state for the purposes contemplated in the act of congress referred to in sections 3303.01 to 3303.11, inclusive, of the Revised Code, or in acts supplementary thereto, shall be disbursed upon the order of the state board of education.

CHAPTER 3311

JOINT VOCATIONAL SCHOOL DISTRICTS

SEC. 3311.16 (4830-15). JOINT VOCATIONAL SCHOOL DISTRICT; TAX LEVY FOR BUILDING APPROPRIATION

The boards of education of two or more adjoining school districts, by a majority vote of the full membership of each board, may unite

such districts for vocational school purposes, which united district shall be known as a "joint vocational school district." Each board also may submit the question of levying a tax on the property of their respective districts for the purpose of purchasing or erecting a building, and issue bonds, as is provided by *** sections 133.04, 133.17, and 133.18 of the Revised Code in case of erecting or repairing *** schoolhouses. Such question of tax levy must carry in each district before it shall become effective in constituent districts of the proposed joint vocational school district. If the boards of education of the constituent school districts of said joint vocational district have sufficient funds in their respective treasuries to purchase or erect a building, or if there is a suitable building in any one of the constituent districts owned by the board of education of such district that can be used for the conduct of vocational classes, it will not be necessary to submit the proposition to a vote, and the boards may appropriate money from their funds for the purpose of buying or erecting a building and providing for the equipping and operating of a vocational school.

SEC. 3311.17 (4830-16). VOCATIONAL SCHOOL COMMITTEE; MEMBERSHIP; REGULATIONS FOR ADMISSION.

Any vocational school in *** a joint vocational school district shall be under the management of a vocational school committee, consisting of two members of each of the boards of education of the respective constituent districts which created such joint vocational school district, which members shall be elected by a majority vote of each such constituent board. The term of membership on such vocational school committee shall be for the same term as membership on the board which each member represents. Such vocational school shall be free to all youth of school age within the joint vocational school district, subject to the rules and regulations adopted by the vocational school committee in regard to the standards of scholarship requisite to admission, such rules and regulations *** shall be *** uniform in application throughout such joint vocational school district.

SEC. 3311.18 (4830-17). FUNDS FOR MAINTENANCE

The funds for the maintenance and support of *** joint vocational school *** districts shall be provided by appropriations from the general fund of each constituent district which funds must be placed in a separate fund in the treasury of the board of education of the constituent district in which the vocational *** schoolhouse is located, and paid out by action of the vocational school committee for the maintenance of the school.

SEC. 3311.19 (4830-18). REPORTS; FUNDS; FOUNDATION PROGRAM; PARTICIPATION IN STATE SCHOOL FUNDS

In the case of every joint vocational school established and operating under *** sections 3311.16 to 3311.18, inclusive, of the Revised Code, the county superintendent of the county school district in which the constituent district which contains the vocational school is located shall furnish such reports as are required by the superintendent of public instruction and the state board for vocational education, and the superintendent of public instruction shall apportion all funds due for the maintenance and support of such school to the board of education of the constituent district in which such vocational school is located, which funds shall be placed in the separate fund of the joint vocational school district.

The foundation program of the joint vocational school district shall be computed in the same manner and at the same rate that the foundation program of a high school is computed in any school district of the state, except that the schedule of minimum operating costs for each approved vocational school of less than *** seventy-five pupils in average daily attendance shall not be higher than the specific amount per pupil per day allowed for regular high schools of *** seventy-five pupils in average daily attendance.

The joint vocational school district shall participate in distributions of the state public school fund as provided in sections *** 3317.02, 3317.04 and 3317.05 of the Revised Code, the attendance in such schools being regarded as attendance in grades *** nine to twelve, inclusive.

SEC. 3311.20 (4830-19). PROPORTIONATE SHARE OF COST OF MAINTENANCE AND OPERATION; ANNUAL BUDGET

Each board of education of a constituent district of a joint vocational school district shall determine its proportionate share of the cost of maintenance and operation of the joint vocational school, and shall certify such amount in its annual budget, required by sections *** 5705.28 to 5705.30, inclusive, of the Revised Code, to the county auditor of the county in which such constituent district is located for purposes of taxation. All funds derived from levies so made shall be deposited to the credit of the joint vocational school fund as provided in section *** 3311.18 of the Revised Code.

SEC. 3311.21 (4830-20). DISSOLUTION OF DISTRICT

Any joint vocational school district created in accordance with *** sections 3311.16 to 3311.20, inclusive, of the Revised Code, may be dissolved upon passage of resolutions demanding such dissolution by one or more of the boards of education of the constituent school districts, or upon the failure of one or more of such boards of education to pay their proportion of the maintenance and operation of such joint vocational school ***. Until such dissolution is finally consummated, all obligations, financial and otherwise, incurred by the acts of the joint vocational school committee prior to such dissolution shall be binding upon each *** of the constituent school districts. In the event the boards of education of the constituent districts fail to agree upon the terms of the dissolution of the joint vocational school district, or if such boards of education fail within sixty days from the time when dissolution was resolved upon to effect a settlement of property interests and indebtedness involved in the establishment, maintenance, and operation of the joint vocational school, the county board of education of the county in which such joint vocational school is located shall make *** equitable adjustments, and the terms of settlement fixed by such county board of education, shall be binding upon the several constituent districts concerned.

CHAPTER 3313 BOARDS OF EDUCATION

SEC. 3313.36 (4834-9). ACCEPTANCE OF BEQUESTS, GIFTS, OR ENDOWMENTS

By the adoption of a resolution, a board of education may accept any bequest made to it by will or may accept any gift or endowment from any person or corporation upon the conditions and stipulations contained in the will or connected with the gift or endowment. For the purpose of enabling the board to carry out the conditions and limitations upon which a bequest, gift, or endowment is made, it may make all rules and regulations required to fully carry them into effect. No such bequest, gift, or endowment shall be accepted by the board if the conditions thereof *** remove any portion of the public schools from the control of such board.

SEC. 3313.37 (4834-10). CONSTRUCTION AND REPAIR OF SCHOOLHOUSES; PURCHASE OR LEASE OF LAND

The board of education of any school district, except a county school district, may build, enlarge, repair, and furnish the necessary *** schoolhouses *** or rent suitable schoolrooms, either within or without the district, and provide the necessary apparatus and make all other necessary provisions for the schools under its control.

SEC. 3313.47 (4836). MANAGEMENT AND CONTROL OF SCHOOLS VESTED IN BOARD OF EDUCATION

Each city, exempted village, or local board of education shall have the management and control of all of the public schools of whatever name or character in its respective district. ***

SEC. 3313.52 (4836-3). EVENING SCHOOLS

The board of education of a city, exempted village, or local school district may organize evening schools.

Any person more than twenty-one years old may be permitted to attend evening school upon such terms and upon payment of such tuition as the board prescribes.

Attorney General's Opinion, No. 3573, of March 1954.

"It will be noted that this section (3313.52) does not limit attendance to residents of the district, but provides that "any person" more than twenty-one years of age "may be permitted" to attend such evening schools. There is also a provision that persons so attending, are subject to the payment of such tuition as the board of education prescribes.

It might be contended that school boards are without authority to use the funds at their disposal for anything but the education of the youth of school age, and that schools designed to afford education to adults must be self-sustaining. I do not feel that I may go quite that far. It is quite certain that education for adults who have missed the opportunity during their minority, may be quite as important for the welfare of the state as the education of the children. Our Constitution, in Section 2 of Article VI commands the General Assembly to provide a "thorough and efficient system of common schools throughout the state," but establishes no age limit and gives no hint that they should be confined to children under twenty-one years of age. Nor do I find anything in the statutes that expressly or necessarily limits the use of school funds to the education of children of "school age" or forbids their application to the education of adults. It may be added, in this connection, that some of the states, realizing the importance of adult education, have established night high schools for adults, which have grown to very great proportions.

However, in view of the fact that the federal act above referred to, plainly contemplated aid to schools in furnishing vocational instruction to adults as well as minors, and in view of the acceptance of the federal subsidy on the terms offered, I must conclude that the General Assembly contemplated that the facilities which the school system of the state might offer by way of such cooperation might include adult students as well as children of school age.

Accordingly, the provision of Section 3313.52 supra, providing for evening schools for adults "upon payment of such tuition as the board prescribes," should in my opinion be taken as directory rather than mandatory as to a charge for tuition, at least as to the adult pupils of the district. Assuming that a school board has facilities in its night schools or vocational classes, sufficient to accommodate a certain number of non-resident adult students, to whom the board certainly owes nothing by the way of educational service, there would seem to be no reason why it should not admit such non-residents upon payment of a reasonable tuition charge. ***

Your letter raises the question as to whether a tuition rate established for non-resident students in vocational schools must be based upon the actual cost of operating such program. In Section 3313.53 supra, it is expressly provided that the cost of manual training and other vocational courses is to be paid from the public school funds, as other school expenses. As already pointed out, this provision appears to relate to the program for the children of school age. Section 3313.52, however, relating to evening schools, definitely provides that persons over twenty-one years of age may be permitted to attend schools "upon the payment of such tuition as the board of education prescribes." Since I have already concluded that this charge of tuition is not mandatory in so far as it may apply to resident students, taken in connection with the provisions of the federal and state laws above referred to, providing for subsidies for vocational education, from age sixteen upwards,

it would be my opinion that the tuition charge which should be made for non-resident adult pupils admitted to these vocational classes should be sufficient to cover the extra cost to the school district entailed by their admission.

The above discussion and conclusions appear to me to afford a sufficient answer to both of the questions submitted. Accordingly, you are advised that in my opinion:

1. A board of education has authority under the provisions of Sections 3303.04 and 3313.52, Revised Code, to establish courses and classes in manual training and other vocational and industrial arts, and may admit adults to such classes, upon the payment of such tuition as the board prescribes, but the board is not required to make a tuition charge to residents of the district for admission to such classes.

2. A board of education of any district which has established vocational classes pursuant to the provisions of Sections 3303.04 and 3313.52, Revised Code, may permit persons over twenty-one years of age and not residing within the district, to attend such schools upon such terms and upon the payment of such tuition as the board prescribes. Such tuition should be in an amount sufficient to cover the additional cost entailed by the admission of such non-resident students."

Attorney General's Opinion, No. 1227 for 1920 page 539.

"A city board of education may establish and maintain vocational schools to which adults may be admitted and may erect and equip suitable buildings or set apart and use buildings under the control of the board of education for such purposes in the same manner and within the same limitations as it establishes and maintains buildings for other school purposes. However, said schools should not be established for the exclusive use of adult pupils, but rather for all who are eligible to attend."

This opinion quotes the purpose of vocational education for adults from a bulletin issued by the federal board for vocational education as follows:

"According to the provisions of the Smith-Hughes Act, the controlling purpose of evening industrial schools is to fit for useful employment persons over sixteen years of age who have entered upon the work of a trade or industrial pursuit. Generally in evening industrial schools the entrance age of pupils will be considerably higher than the minimum required by law. Average age thus far has, in fact, usually been around 23 or 24. The maturity must be taken into account at every step since the character of instruction, method of organization, and discipline must be such as will attract and hold adult workers."

SEC. 3313.53 (4836-4). SPECIAL INSTRUCTION SCHOOLS

The board of education of any city, exempted village, or local school district may establish and maintain in connection with the public school systems:

(A) Manual training, industrial arts, domestic science, and commercial departments;***

(B) Agricultural, industrial, vocational, and trades schools ***;. ***

Attorney General's Opinion, 1920, Vol. 2, p. 1031.

"The Board of Education may conduct vocational educational classes outside the limits of a school district."

SEC. 3313.56. PART TIME SCHOOLS OR CLASSES

The board of education of any city, exempted village, or local school district may establish and maintain part-time schools or classes for the further education of children who are employed on age and schooling certificates. Such schools and classes shall be conducted not fewer than four hours per week while in session, and for not fewer than one hundred forty-four hours per calendar year between

the hours of seven in the morning and six in the afternoon, excluding Saturday afternoon and Sunday. Such schools and classes shall be conducted under such standards as the state board of education prescribes. Boards of education may provide for the expense of such schools and classes the same as for the expense of ordinary elementary schools.

SEC. 3313.58 (4836-10). SUPERVISION OF SOCIAL AND RECREATIONAL WORK; EMPLOYMENT OF INSTRUCTORS

Board of education of city, exempted village, or local school districts may, upon nomination of the superintendent of schools, employ *** competent persons to deliver lectures, or give instruction on any educational subject, and provide for the further education of adult persons in the community.

SEC. 3313.64 (4838-2). SCHOOL FREE TO RESIDENTS; TUITION

The schools of each city, exempted village, or local school district shall be free to all school residents between six and twenty-one years of age. ****** All youth of school age living apart from their parents or guardians and who work to support themselves by their own labor, shall be entitled to attend school free in the district in which they are employed.

***

The board of education of a city, exempted village, or local school district may admit other persons to the public schools of its respective district upon the payment of tuition within the limitation of law.

Attorney General's Opinion, No. 3914 for 1932.

> "General Code, section 7681, provides that schools of each district shall be free to all resident youth of the district between the ages of six and twenty-one years, no distinction being made as to graduation or other conditions."

SEC. 3313.76 (4839-1). SCHOOLHOUSES AVAILABLE FOR EDUCATION AND RECREATIONAL PURPOSES

Upon application of any responsible organization, or of a group of at least seven citizens, all school grounds and schoolhouses, as well as all other buildings under the supervision and control of the state, or buildings maintained by taxation under the laws of *** this state, shall be available for use as social centers for the entertainment and education of the people including the adult and youthful population, and for the discussion of all topics tending to the development of personal character and of civic welfare, and for religious exercises. Such occupation *** should not seriously infringe upon the original and necessary uses of such properties. The public officials in charge of such buildings shall prescribe such rules and regulations for their occupancy and use as will secure a fair, reasonable, and impartial use of the same.

SEC. 3313.77 (4839-2). USE OF SCHOOLHOUSES AND GROUNDS FOR PUBLIC MEETINGS AND ENTERTAINMENTS

The board of education of any city, exempted village, or local school district shall, upon request and the payment of a reasonable fee, subject to such regulation as *** is adopted by such board, permit the use of any schoolhouse and rooms therein and the grounds and other property under its control, when not in actual use for school purposes, for any of the following purposes:

*** (A) Giving instructions in any branch of education, learning, or the arts. ******

Attorney General's Opinion, No. 3216 for 1941.

"A Board of Education may not lawfully refuse the use of a school building or rooms therein to a local labor union if the union observes rules and regulations prescribed by the board."

SEC. 3313.79 (4839-4). RESPONSIBILITY FOR DAMAGE; PAYMENT OF ACTUAL EXPENSES

Any organization or group of citizens permitted to use the properties specified in section *** 3313.76 of the Revised Code shall be responsible for any damage done them over and above the ordinary wear, and shall, if required, pay the actual expenses incurred for janitor service, light and heat.

CHAPTER 3315 SCHOOL FUNDS

SEC. 3315.07 (4844-2). INSTRUCTIONAL PROGRAM FOR EMPLOYED PERSONNEL; SUPPLIES AND EQUIPMENT FOR LOCAL SCHOOL DISTRICTS

The board of education of each city and exempted village school district may provide an instructional program for the employed personnel of such district. *** Such board *** may provide the necessary bulletins and instructional material in connection therewith and *** pay the cost of meetings held for the purpose of carrying out such a program.

The board of education of each city, exempted village, local, or county school district may provide bulletins or other materials necessary for the effective administration of the schools of such district.

Boards of education of local school districts may authorize their county board of education to purchase or to accept upon donation supplies and equipment for such local school districts and to pay the transportation, handling, and storage charges involved in securing such supplies and equipment for the local school districts. Upon such authorization, the county board of education may make such purchases or accept such donations and pay from the county board of education fund the cost of such supplies and equipment and the transportation, handling, and storage charges involved. The local boards *** shall reimburse in full the county board *** for all such expenditure on their behalf.

CHAPTER 3317 -

SCHOOL FOUNDATION PROGRAM

SEC. 3317.05. CALCULATING TEACHER UNITS

The total number of approved teacher units for each school in city, exempted village, and local school district shall be calculated in the following manner:

(J) The average daily membership of grades nine through twelve, as certified under section 3317.03 of the Revised Code, if more than one hundred forty-nine and less than one hundred seventy-five, shall be divided by twenty-nine;

***(S) On and after December 31, 1959, the average daily membership in each division (C) to (F), inclusive, and (J) to (R), inclusive, of this section as certified under section 3317.03 of the Revised Code, shall be divided by thirty ***

***(U) Each vocational education unit or fraction thereof maintained by such school district and approved annually by the state board of education shall be counted as one approved teacher unit or fraction thereof;

(V) The sum of the approved teacher units *** shall be divided by eight and the quotient thus obtained shall be the number of approved administrative and special instruction teacher units;

SEC. 3317.052. ALLOWANCE FOR EMPLOYMENT BEYOND SCHOOL YEAR

***(F) For each certificated employee whose term of service in any year is extended beyond the terms of service of regular classroom teachers an additional salary allowance proportional to the length of the extended term of service.

(G) For each certificated employee devoting full time to administrative or supervisory duties an additional salary allowance of twenty-five percent of the amount that would otherwise be allowed for such employee under divisions (A) to (F), inclusive, of this section.

SEC. 3317.06. MINIMUM SALARY SCHEDULE

There is hereby established a minimum salary schedule for teaching personnel employed in the public schools as follows: ***

***Such salary schedule shall be considered a minimum pay scale for teachers in this state and boards of education may establish salary schedules in excess of these pay ranges commensurate with local and state tax resources and teaching experience.

SEC. 3317.061. RECORD OF CERTIFICATED EMPLOYEES

The superintendent of each county, city, and exempted village school district shall, on forms prescribed and furnished by the state board of education, certify to the state board of education, on or before the twenty-fifth day of October of each year, the name of each certified employee employed, on an annual salary, in each school under his supervision during the first two full school weeks of said month of October, the number of years of recognized college training such certificated employee has completed, the college degrees from a recognized college earned by such certificated employee, the type of teaching certificate held by such certificated employee, the number of months such certificated employee is employed in the school district, the annual salary of such certificated employee, and such other information as the state board of education may request.***

Pursuant to standards adopted by the state board of education, experience of vocational teachers in trade and industry shall be recognized by such board for the purpose of complying with the requirements of recognized college training provided by sections 3317.06 and 3317.052 of the Revised Code.

SEC. 3317.08. PUPIL ATTENDANCE OUTSIDE DISTRICT OF RESIDENCE

Pursuant to law, a pupil may attend school outside his district of school residence, and his board of education shall pay tuition in an amount not more than that which shall be computed from the total expenditures for conducting the schools of the district attended after deducting the amounts expended for capital outlay; permanent improvements; debt service; transportation; operation of school lunch rooms; tuition to another school district; operation of kindergarten classes; operation of summer schools, part-time schools, and evening schools; and maintenance of playgrounds.***

The amount of tuition, computed as provided in this section, shall be certified by the clerk of the board of education of the district of attendance, to the board of education of the district in which the pupil is a school resident for its approval and to the *** state board of education. The state board, upon ascertaining that such amounts are fairly and correctly determined and that the attendance has been approved by the district of school residence unless otherwise provided by section 3323.10 or 3327.04 of the Revised Code, shall deduct the same amount of state funds, if any, allocated under *** section 3317.02 *** of the Revised Code, to the district of school residence and add the same to the amount allocated to the district attended. The department of education shall send to said district of school residence an itemized statement showing such deductions at the same time of such deduction. If no money is allocable under *** section 3317.02 *** of the Revised Code, to the district of school residence, such district of school residence shall pay to the district of attendance the tuition charge computed in accordance with this section.

CHAPTER 3319 SCHOOL - SUPERINTENDENT; TEACHERS; EMPLOYEES

SEC. 3319.07 (4942-6). EMPLOYMENT OF TEACHERS

The board of education of each city, exempted village, and local school district shall employ the teachers of the public schools of their respective district. In making appointments teachers in the employ of the board shall be considered before new teachers are chosen in their stead. In city and exempted village districts no teacher or principal shall be employed unless such person is nominated *** by the superintendent of schools of such district ***. Such board of education, by a three-fourths vote of its full membership may re-employ any teacher whom the superintendent refuses to appoint.***

SEC. 3319.08 (4842-7). CONTRACTS FOR EMPLOYMENT OF TEACHERS

The board of education of each city, exempted village, and local school district shall enter into contracts for the employment of all teachers and shall fix their salaries which may be increased but not diminished during the term for which the contract is made, except as provided in section *** 3319.12 of the Revised Code. Such boards may include in such contract duties beyond the regular duties and for such additional duties the salary of the teacher may be supplemented. Such boards *** may discontinue at any time the assignments of special duties beyond the regular classroom teaching duties and the supplemental salary allowed for such additional duties shall be discontinued upon relief from such additional duties. In addition to supplemental salary payments as provided in this section, such boards of education may grant salary increases at any time without the imposition of additional duties. Teachers must be paid for all

time lost when the schools in which they are employed are closed owing to an epidemic or other public calamity, and for the time lost due to illness or otherwise for not less than five days annually as authorized by regulations which each board of education shall adopt.

Contracts for the employment of teachers shall be of two types ***, limited contracts and continuing contracts. A limited contract for a superintendent *** is a contract for such term as authorized by section *** 3319.01 of the Revised Code, and for all other teachers *** for a term not to exceed five years. A continuing contract *** is a contract which shall remain in *** effect until the teacher resigns, elects to retire, or is retired pursuant to section *** 3307.37 of the Revised Code, or until it is terminated or suspended *** and shall be granted only to teachers holding professional, permanent, or life certificated.

SEC. 3319.09 (4842-7). DEFINITIONS

*** As used in sections 3319.08 to 3319.18, inclusive, of the Revised Code:

(A) Teacher means all persons certified to teach and who are employed in the public schools of this state as instructors, principals, supervisors, superintendents, or in any other educational position for which the employing board requires certification.

(B) "Year" as applied to term of service *** means actual service of not less than one hundred *** twenty days within a school year; provided *** that any board of education may grant a leave of absence for professional advancement with full credit for service.

(C) "Continuing service status" for a teacher means employment under a continuing contract.

SEC. 3319.10 (4842-7a). EMPLOYMENT AND STATUS OF SUBSTITUTE TEACHERS

Teachers may be employed as substitute teachers for terms not to exceed one year for assignment as services are needed to take the place of regular teachers absent on account of illness or on leaves of

absence or to fill temporarily positions created by emergencies; such assignment to be subject to termination when such services no longer are needed.

A teacher employed as a substitute with an assignment to one specific teaching position shall after sixty days of service be granted sick leave, visiting days, and other local privileges granted to regular teachers including a salary not less than the minimum salary on the current adopted salary schedule.

A teacher employed as a substitute for one hundred twenty days or more during a school year and re-employed for or assigned to a specific teaching position for the succeeding year shall receive a contract as a regular teacher if he meets the local educational requirements for the employment of regular teachers.

Teachers employed as substitutes on a casual or day-to-day basis shall not be entitled to the notice of *** nonre-employment prescribed in section *** 3319.11 of the Revised Code, but boards of education may *** grant such teachers sick leave and other local privileges and cumulate such service in determining seniority.

SEC. 3319.11 (4842-8). CONTINUING SERVICE; QUALIFICATIONS FOR CONTINUING CONTRACTS; LIMITED CONTRACT

Teachers eligible for continuing service status in any school district shall be those teachers, qualified as to certification, who within the last five years have taught for at least three years in the district, and those teachers who, having attained continuing contract status elsewhere, have served two years in the district, but the board of education, upon the *** recommendation of the superintendent of schools, may at the time of employment, or at any time within such two-year period, declare any of the latter teachers eligible.

Upon the recommendation of the superintendent *** that a teacher eligible for continuing service status be re-employed, a continuing contract shall be entered into between *** the board *** and such teacher unless the board by a three-fourths vots of its full membership rejects the *** recommendation of the superintendent. The superintendent may recommend re-employment of such teacher,

if continuing service status has not previously been attained elsewhere, under a limited contract for not to exceed two years, provided that written notice of the intention to make such recommendation has been given to the teacher with reasons therefor on or before the thirtieth day of April, but upon subsequent re-employment only a continuing contract may be entered into.

A limited contract may be entered into by each board *** with each teacher who has not been in the employ of the board for at least three years and shall be entered into, regardless of length of previous employment, with each teacher employed by the board who holds a provisional or temporary certificate.

Any teacher employed under a limited contract *** is, at the expiration of such limited contract, *** deemed re-employed *** at the same salary plus any increment provided by the salary schedule unless the employing board *** gives such teacher written notice of its intention not to re-employ him *** on or before the thirtieth day of April or thirty days prior to the termination of such teacher's school year, whichever date occurs the earlier. Such teacher *** is presumed to have accepted such employment unless he *** notifies the board *** in writing to the contrary on or before the first day of June, and a contract for the succeeding school year shall be executed accordingly.

*** In school districts of under eight hundred pupils, the following contract system shall control:

*** (A) Beginning teachers, who have not previously been employed as a teacher in any school, shall be hired for one year.

*** (B) New teachers, who have had at least one year's experience as teachers in other schools, shall be employed for a period of time commensurate with their past experience at the discretion of the hiring board ***, provided that no such contract shall be more than five years.

*** (C) Upon re-employment after the termination of the first contract, the new contract shall be for not less than two years nor more than five years provided that the teacher's educational qualifications have been fulfilled and the teacher's work has been satisfactory.

*** (D) Upon re-employment after the termination of the second, the teacher's contract shall be for five years and subsequent renewal thereof shall be for five-year periods, or the board *** may at any time grant a continuing contract.

SEC. 3319.12 (4842-9). ANNUAL NOTICE OF SALARY TO BE PAID TEACHERS; TRANSFER TO OTHER POSITIONS

Each board of education shall cause notice to be given annually not later than the first day of July *** to each teacher who holds a contract valid for the succeeding school year, as to the salary to be paid such teacher during such year. Such salary shall not be lower than the salary paid during the preceding school year unless such reduction *** is a part of a uniform plan affecting the entire district. *** This section does not prevent increases of salary after the board's annual notice has been given.

A teacher employed as assistant superintendent, principal, supervisor, or other administrative head may be transferred to a lesser administrative position or to a teaching position upon recommendation of the superintendent of schools and approval of the board ***.

SEC. 3319.13 (4842-10). LEAVE OF ABSENCE; REQUEST

Upon the written request of a teacher, a board of education may grant a leave of absence for a period of not more than two consecutive school years for educational or professional or other purposes, and shall grant such leave where illness or other disability is the reason for the request. Upon subsequent request, such leave may be renewed by the board. Without request, a board *** may grant similar leave of absence and renewals thereof to any teacher because of physical or mental disability, but such teacher *** may have a hearing on such unrequested leave of absence or its renewals in accordance with *** section *** 3319.16 of the Revised Code. Upon the return to service of a teacher at the expiration of a leave of absence, he shall resume the contract status which he held prior to such leave. Any teacher who leaves a teaching position to serve in the armed services or the auxiliaries thereof organized to prosecute *** World War II, upon returning honorably discharged from such service, shall resume the

contract status held prior to entering military service, subject to passing *** a physical examination. Such contract status shall be resumed at the first of the school semester or the beginning of the school year following return from the armed services. *** "Armed services" has the same meaning as defined in section *** 143.22 of the Revised Code.

SEC. 3319.14 (4842-10a). MILITARY LEAVE OF ABSENCE

Any teacher who, subsequent to April 30, 1949, has left, or leaves, a teaching position, by resignation or otherwise, and within *** forty school days thereafter entered, or *** enters, the armed services of the United States or the auxiliaries thereof, or such other services as are specified in section *** 143.22 of the Revised Code, and who has returned, or *** returns, from such service with a discharge other than dishonorable, shall be re-employed by the board of education of the district in which he held such teaching position, under the same type of contract as that which he last held in such district ***, if such teacher shall, within *** ninety days after such discharge, apply to such board of education for re-employment. Upon such application, such teacher shall be re-employed at the first of the next school semester ***, if such application *** is made not less than *** thirty days prior to the first of such next school semester, in which case such teacher shall be re-employed the first of the following school semester, unless the board of education *** waives the requirement for such *** thirty day period.

For the purposes of seniority and placement on the salary schedule, years of absence in the service of the armed services of the United States or the auxiliaries thereof, shall be counted as though teaching service had been performed during such time.

The board of education of the district in which such teacher was employed and is re-employed under this section *** may suspend the contract of the teacher whose services become unnecessary by reason of the return of a teacher from service in the armed services or auxiliaries thereof, in accordance with *** section *** 3319.17 of the Revised Code.

SEC. 3319.15 (4842-11). TERMINATION OF CONTRACT BY TEACHER

No teacher shall *** terminate his contract after the tenth day of July of any school year or during the school year, prior to the termination of the annual session, without the consent of the board of education; and such teacher *** may terminate his contract at any other time by giving five days' written notice to the employing board ***. Upon complaint by the employing board to the State Board of Education and after investigation by it, the certificate of a teacher terminating his contract in any other manner than provided in this section may be suspended for not more than one year.

SEC. 3319.16 (4842-12). TERMINATION OF CONTRACT BY BOARD OF EDUCATION

The contract of a teacher may not be terminated except for gross enefficienty or immorality; for *** willful and persistent violations of reasonable regulations of the board of education; or for other good and just cause. Before terminating any contract, the employing board *** shall furnish the teacher a written notice signed by its clerk of its intention to consider the termination of his contract with full specification of the *** grounds for such consideration. Unless the teacher so notified *** within ten days subsequent to the receipt of such notice, *** demands in writing an opportunity to appear before the board and offer reasons against such termination, the board may proceed with formal action to terminate the contract. If *** said teacher *** , within ten days after receipt of notice from the clerk of the board, *** demands in writing a hearing before said board, the board shall set a time for the hearing within thirty days from the date of said written demand and the clerk of the board shall give the teacher at least fifteen days' notice in writing of the time and place of such hearing ***. No hearing shall be held during the summer vacation without the teacher's consent. Such hearing shall be private unless the teacher requests a public hearing. The hearing shall be conducted by a majority of the members of the board and be confined to the *** grounds given for such termination.

The board *** shall provide for a complete stenographic record of the proceedings, a copy of such record to be furnished to the teacher.

The board *** may suspend a teacher pending final action to terminate his contract if, in its judgment, the character of the charges warrants such action.

Both parties *** may be present at such hearing, *** be represented by counsel, *** require witnesses to be under oath, *** cross-examine witnesses, *** take a record of the proceedings, and *** require the presence of witnesses in their behalf upon subpoena to be issued by the clerk of the board. In case of the failure of any person to comply with a subpoena, a common pleas judge of the county in which the person resides, upon application of any interested party, shall comply attendance of the person by attachment proceedings as for contempt. Any member of the board, *** may administer oaths to witnesses. After hearing, the board by majority vote may enter upon its minutes an order of termination. If the decision of the board, after hearing, is against termination of the contract, the charges and the record of the hearing shall be physically expunged from the minutes and, if the teacher has been suspended, he shall be paid his full salary for the period of such suspension.

Any teacher affected by an order of termination of contract *** may appeal to the court of common pleas of the county in which the school is located within thirty days after receipt of notice of the entry of such order.. Such appeal shall be an original action in said *** court and shall be commenced by the filing of a petition against such board ***, in which petition the facts shall be alleged upon which the teacher relies for a reversal or modification of such order of termination of contract. Upon service or waiver of summons in said appeal, such board *** shall forwith transmit to the clerk of said *** court for filing a transcript of the original papers theretofore filed with said board and a certified transcript of all evidence adduced at the hearing or hearings before such board, whereupon the cause shall be at issue without further pleading and shall be advanced and heard without delay. The *** court shall examine the transcript and record of the hearing before the board *** and shall hold such additional hearings as it *** deems advisable, at which it may consider other evidence in addition to such transcript and record.

Upon final hearing, the *** court shall grant or deny the relief prayed for in the petition as may be proper *** in accordance with the evidence adduced in the hearing. Such an action *** is a special proceeding within the purview of section *** 2505.02 of the Revised Code and either the teacher or the board *** may appeal therefrom.

In any court action the board *** may utilize the services of the prosecuting attorney or city solicitor as authorized by section *** 3313.35 of the Revised Code, or may employ other legal counsel ***.

SEC. 3319.22 (4857-1). GRADES; TYPES OF CERTIFICATES

Teachers' certificates of state-wide validity shall be issued pursuant to sections 3319.22 to 3319.31, inclusive, of the Revised Code, or in accordance with standards, rules, and regulations authorized by law. The grades of certificates shall be designated as "temporary certificates", "provisional certificates", "professional certificates", and "permanent certificates". Each of such grades of certificates may be issued in each or any of the following types:***

***

(I) Vocational, valid for teaching and supervising vocational agriculture, vocational distributive education, vocational home economics, or vocational trades and industries as named in such certificate;***

SEC. 3319.30 (4857-9). NECESSITY FOR CERTIFICATE

No person shall receive any compensation for the performance of duties as teacher in any school supported wholly or in part by the state or by federal funds who has not obtained a certificate of qualification for the position as provided for by *** section 3319.22 of the Revised Code and which certificate shall further certify to the good moral character of the holder thereof. Any teacher so qualified may, at the discretion of the employing board of education, receive compensation for days on which he is excused by such board for the purpose of attending professional meetings, and the board may provide and pay the salary of a substitute teacher for such days.

Attorney General's Opinion, 1919, Vol. 2, page 1348.

> "The board of education having a contract with a person to teach is without authority to pay such person for any time not covered by the proper certificate."

CHAPTER 3327 TRANSPORTATION: TUITION

NEW CODE SEC. 3327.04 (4855-3). CONTRACT FOR ATTENDANCE

The board of education of any city, exempted village, or local school district may contract with the board of another district for the admission or transportation, or both, of pupils into any school in such other district, on terms agreed upon by such boards.

The above section is more liberal in wording and has evolved from Section 7748 of the 1940 annotated school Code which had more specific implications to vocational education and read as follows:

If a pupil attends a Vocational School maintained by a public board of education in another district, upon assignment by the county, city or exempted village superintendent of schools of the district in which he resides, his rights shall be the same as if he were eligible to take high school training outside his own district, provided similar work is not offered in the district of his residence.***

CHAPTER 3329 SCHOOL BOOKS

SEC. 3329.05 (4854-4). PURCHASE OF OTHER BOOKS

*** Sections 3329.01 to 3329.04, inclusive, and section 3329.08 of the Revised Code *** do not apply to the purchase of supplementary reading books, library books, reference books, or any other books except *** the textbooks, required by the board of education. All of such books except *** textbooks required by the *** board, shall be ordered, received, examined, and paid for in the same manner and by the same persons as other supplies and equipment.

SEC. 3329.06 (4854-5). FREE SCHOOLBOOKS FOR PUPILS

The board of education of each city, exempted village, and local school district shall furnish, free of charge, the necessary *** textbooks to the pupils attending the public schools. *** Pupils wholly or in part supplied with necessary *** textbooks shall be supplied only as other or new books are needed. *** A board *** may limit its purchase and ownership of books needed for its schools to six subjects per year, the cost of which shall not exceed twenty-five per cent of the entire cost of adoption. All *** textbooks furnished as *** provided *** in this section shall be the property of the district, and loaned to the pupils on such terms *** as each such board prescribes. In order to carry out *** sections 3329.01 to 3329.10, inclusive, of the Revised Code, each board ***, in preparation of its annual budget, shall include as a separate item the amount which the board finds necessary to *** administer such sections and such amount shall not be subject to transfer to any other fund.

Attorney General's Opinion No. 3545, 1938.

"If a Board of Education determines that the use of both a textbook and workbook thereto offers a more complete textbook, and the pupils can acquire more knowledge and instruction in a particular subject for which the textbook and workbook was prepared, the Board of Education has authority to adopt both the textbook and workbook as the book for a particular graded course of study provided the publisher of such textbook and workbook has filed a copy of both the textbook and workbook in the office of the State Superintendent of Public Instruction."

SEC. 3329.07 (4854-6). DETERMINATION OF TEXTBOOKS REQUIRED; ORDER; PAYMENT; TRANSPORTATION CHARGES

The board of education of each city, exempted village, and local school district shall cause it to be ascertained and at a regular meeting determine which, and the number of each of *** the textbooks the schools under its charge require. The clerk at once shall order the books *** agreed upon ***.

SEC. 3329.08 (4854-7). SELECTION OF TEXTBOOKS BY BOARD; ADOPTION FOR FULL TERM OF FIVE YEARS

At a regular meeting, held between the first Monday in February and the first Monday in August, the board of education of each local school district, from lists adopted by the county board of education and the board of education of city and exempted village school districts shall determine by a majority vote of all members elected which of such textbooks so filed shall be used in the schools under its control. *** No textbooks *** shall be changed, nor any part thereof altered or revised, nor any other textbook *** substituted therefor, within five years after the date of the selection and adoption thereof, as shown by the official records of such boards, except by the consent, at a regular meeting, of *** four fifths of all members elected thereto. Books so substituted shall be adopted for the full term of five years.

CHAPTER 3331

AGE AND SCHOOLING CERTIFICATES

SEC. 3331.01 (4851). ISSUANCE OF CERTIFICATES

An age and schooling certificate may be issued only by the superintendent of schools of the district of residence of the child in whose name such certificate *** is issued and only upon satisfactory proof that the child to whom the certificate is issued is over sixteen years of age and has satisfactorily passed a test for the completion of the work of the seventh grade ***.

Any such age and schooling certificate may be issued only upon satisfactory proof that the employment contemplated by the child is not prohibited by any law regulating the employment of such children; and *** the employer of any minor for whom such age and schooling certificate *** has been issued shall keep such age and schooling certificate on file ***. ***

Every such certificate must be signed in the presence of the officer issuing it by the child in whose name it is issued. Blank certificates shall be furnished by the superintendent *** upon request.

SEC. 3331.02 (4851-1). REQUIREMENTS FOR ISSUANCE OF CERTIFICATE

The superintendent of schools shall not issue *** an age and schooling certificate until he has received, examined, approved, and filed the following papers duly executed:

*** (A) The written pledge or promise of the person, partnership, or corporation to legally employ the child, and to return to the superintendent *** the age and schooling certificate of the child or give notice of the *** nonuse thereof within two days from the date of the

child's withdrawal or dismissal from the service of that person, partnership, or corporation, giving the reasons for such withdrawal or dismissal ***.

(B) The school record of the child, properly filled out and signed by the person in charge of the school which the child last attended; giving the recorded age of the child, his address, standing in studies, rating in conduct, and attendance in days during the school year of his last attendance, and if that was not a full year, during the preceding school year ***;

(C) Evidence of the age of the child as follows:

*** (1) A certified copy of an original certificate of birth or a certification of birth, issued in accordance with section *** 3705.05 of the Revised Code, or by an officer charged with the duty of recording births in another state or country, shall be conclusive evidence of the age of the child ***;

(2) In the absence of such certificate, a passport ***, or duly attested transcript thereof ***, showing the date and place of birth of the child, filed with a register of passports at a port or entry of the United States; or *** an attested transcript of the certificate of birth or baptism or other religious record, showing the date and place of birth of the child, shall be conclusive evidence of the age of the child ***;

(3) In case *** none of the above proofs of age can be produced, other documentary evidence ***, except the affidavit of the parent, guardian, or custodian ***, satisfactory to the superintendent *** may be accepted in lieu thereof ***.

(D) A certificate from the school physician or physician designated by him, showing after a thorough examination that the child is physically fit to be employed in such occupations as are not prohibited by law for a boy or girl, as the case may be, under eighteen years of age ***.

SEC. 3331.10 (4851-9). CERTIFICATE GRANTED TO A GRADUATE

A child who is not sixteen years of age but who has been graduated from the twelfth grade may be granted an age and schooling certificate under the same conditions and regulations as provided for children who are over sixteen years of age ***. Such certificate *** does not entitle the child to be employed in any occupation *** or employment *** forbidden to him by law.

SEC. 3331.11 (4851-10). RECORDS OF AGE AND SCHOOLING CERTIFICATES; CERTIFICATES TO BE COUNTERSIGNED

*** Records shall be kept on file in the office issuing the age and schooling certificate:

(A) Giving all the facts contained in every age and school certificate issued ***;

(B) The names and addresses of the children to whom certificates have been refused, together with the names of the schools and grades which such children should attend and the reasons for the refusal; ***

(C) All certificates returned or no longer used ***, as provided in sections *** 3331.02 and 3331.05 of the Revised Code, with the reasons therefor, and the subsequent assignment of the child to a school ***;

(D) The conditions on which any certificates are issued ***;

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IOWA

For an abstract of a similar study for a March-August 1968 see VT 007 631 in this issue. (EM)

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ECONOMICS
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INDUSTRIAL RELATIONS CENTER

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JOB VACANCIES IN IOWA MANUFACTURING ESTABLISHMENTS

as Reported for the Period

September 1967 through February 1968

Volume II, Number 2

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JOB VACANCIES IN IOWA MANUFACTURING ESTABLISHMENTS

as Reported for the Period

September 1967 through February 1968

Volume II, Number 2

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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This report was prepared by Edward B. Jakubauskas and Neil A. Palomba.
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February 1968

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JOB VACANCIES IN IOWA MANUFACTURING ESTABLISHMENTS

SEPTEMBER 1967-FEBRUARY 1968

Chapter I. Purpose of Survey

Occupational Information Needs for Area Vocational Schools

This survey is the third in a series designed to provide a measure of the nature and extent of job vacancies in Iowa manufacturing establishments. At this writing a fourth survey is being prepared and will cover the six month period March through August 1968. Thus these and subsequent surveys will provide a semi-annual (and perhaps quarterly in the future) report of job vacancies.

One of the primary reasons for this job vacancy series was the development of Iowa's Area Vocational Schools and Community Colleges. To aid the Area Vocational Schools in developing curriculum and training programs this series attempts to provide occupational employment data at a low cost. This data will hopefully answer such questions as:

(1) What specific occupations ought to be considered for training purposes in our Area Vocational Schools?

(2) Is there a substantial demand for workers in occupations and skills under consideration by area schools for training purposes?

(3) Is there likely to develop a glut on the labor

market for certain skills while others continue to be in short supply?

(4) In general, can an on-going procedure be developed for immediate "feedback" of industry's most critical manpower shortages to educators involved in developing curriculum and training programs?

Multi-Purpose Nature of the Job Vacancy Survey Series

It is anticipated that the job vacancy survey series will be of assistance to a wide range of organizations interested in manpower information for planning purposes. Among these organizations are the Iowa State Manpower Development Council's On-The-Job Training Program, institutional training programs under the Manpower Development and Training Act, Vocational Rehabilitation, Employment Security, the Bureau of Labor, the Industrial Commission, and various educational institutions.

Furthermore, this series is intended to supplement long-run forecasts of manpower trends which are related to changes in technology, population distribution, and industrial structure.

Complete information on occupational employment data trends requires both types of approaches. Long-run forecasts,

however, take time to develop and though valid for some future period, are subject to rapid short-run variations. Job vacancy data, though short-run in nature, has an advantage in providing an immediate and highly sensitive measure of employer skill requirements.

Chapter II. Scope of Coverage

Response Rate

The Job Vacancy Questionnaire was mailed to approximately 4,000 manufacturing firms listed with the Center for Industrial Research and Service of Iowa State University. The questionnaire requested job vacancy and starting wage rate data for the six month period September 1967 through February 1968.

A completed questionnaire was received from almost 800 firms representing a response rate of about 20%. The resulting data has been analyzed by occupational groups, industry classification, county and multi-county areas.

Explanation of Classifications

In order to facilitate the utilization of this data, standard classifications were used as much as possible. Thus, the occupational groups used came from the Dictionary of Occupational Titles[1] (D.O.T.) while the industry groups came from the Standard Industrial Classification (S.I.C.) established by the U. S. Bureau of the Budget.[2]

1. U. S. Department of Labor, Bureau of Employment Security, Dictionary of Occupational Titles, Volumes I and II (Washington, D. C. 1965)

2. Executive Office of the President, Bureau of the Budget, Standard Industrial Classification Manual, (Washington, D. C. 1967)

Table I in the Appendix contains each of the occupational groups for which job vacancies were reported in Iowa along with the appropriate D.O.T. number. Table II contains the industry groups in Iowa which reported job vacancies; however, since abbreviations were used in Table II the following table is provided with the abbreviated industry group name and its appropriate S.I.C. number.

Table I: Iowa Industry Groups by Standard Industrial Classification

S.I.C. NUMBER	NAME	S.I.C. NUMBER	NAME
01	Agricultural Production	33	Primary Metal Industry
15	Building Construction	34	Fabricated Metal
19	Ordnance & Acc.	35	Machinery (Except Elec.)
20	Food & Rel.	36	Elec. Machinery
23	Apparel	37	Transportation Equip.
24	Lumber & Wood	38	Control Instru; Photo Goods; Time Instru.
25	Furniture & Fixtures	39	Misc. Mfg.
26	Paper & Rel.	48	Communication
27	Printing, Publishing & Rel.	49	Elec., Gas & Sanitary Serv.
28	Chemicals & Rel.	54	Food Stores
30	Rubber & Plastic	73	Misc. Business Services
31	Leather & Rel.	89	Misc. Services
32	Stone, Clay & Glass		

In addition to the occupational groups, Appendix Table I represents job vacancy data by multi-county sub-areas. These sub-areas were obtained by combining the 99 Iowa counties into 16 groups. Map 1 shows Iowa with the 16 multi-county sub-areas designated. These sub-areas were created to coincide with the 16 Local Coordinating Committee Areas of the Iowa Employment Security

Commission. Thus, it is possible to identify each of the 16 multi-county sub-areas with the name of the city which the Employment Security Commission uses to identify their coordinating areas. Examination of Map 2 (Iowa's Area Community Colleges and Area Vocational Schools) in conjunction with Map 1 will show the close geographical similarity between these Area Schools and the 16 multi-county sub-areas used to analyze the job vacancy data in this publication.

Finally, it should be noted that the wage data reported in Appendix Table III are average hourly wage data. So when a firm reported a monthly wage rate this was converted to an hourly wage rate by assuming a 40 hour week.

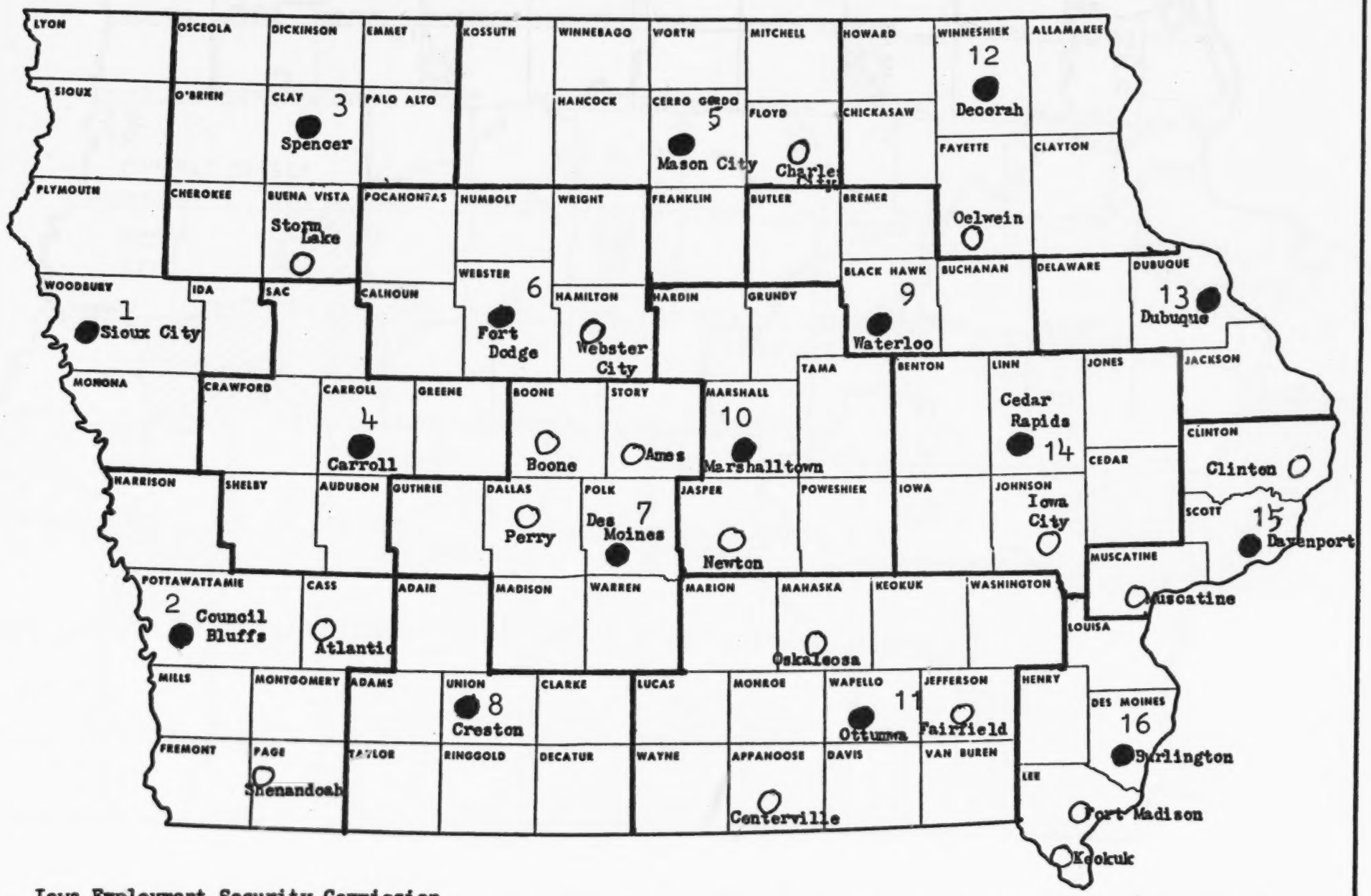
Coding Note

In the course of coding the occupation information uncovered by the job vacancy questionnaire, some assumptions had to be made where little information was given by the answering firm. A list of the assumptions follows:

Vacancies marked as follows but not otherwise specified	Assigned D.O.T. Category
(1.) Clerical or office help	209
(2.) Machinist	600
(3.) Machine operators	609
(4.) Printing pressmen	651
(5.) Sewing machine operators	787
(6.) Welders	812
(7.) Electricians	824
(8.) Printers	973
(9.) Draftsmen	007

IOWA MULTI-COUNTY SUB-AREAS AND LOCAL COORDINATING COMMITTEE AREAS

MAP 1



Iowa Employment Security Commission

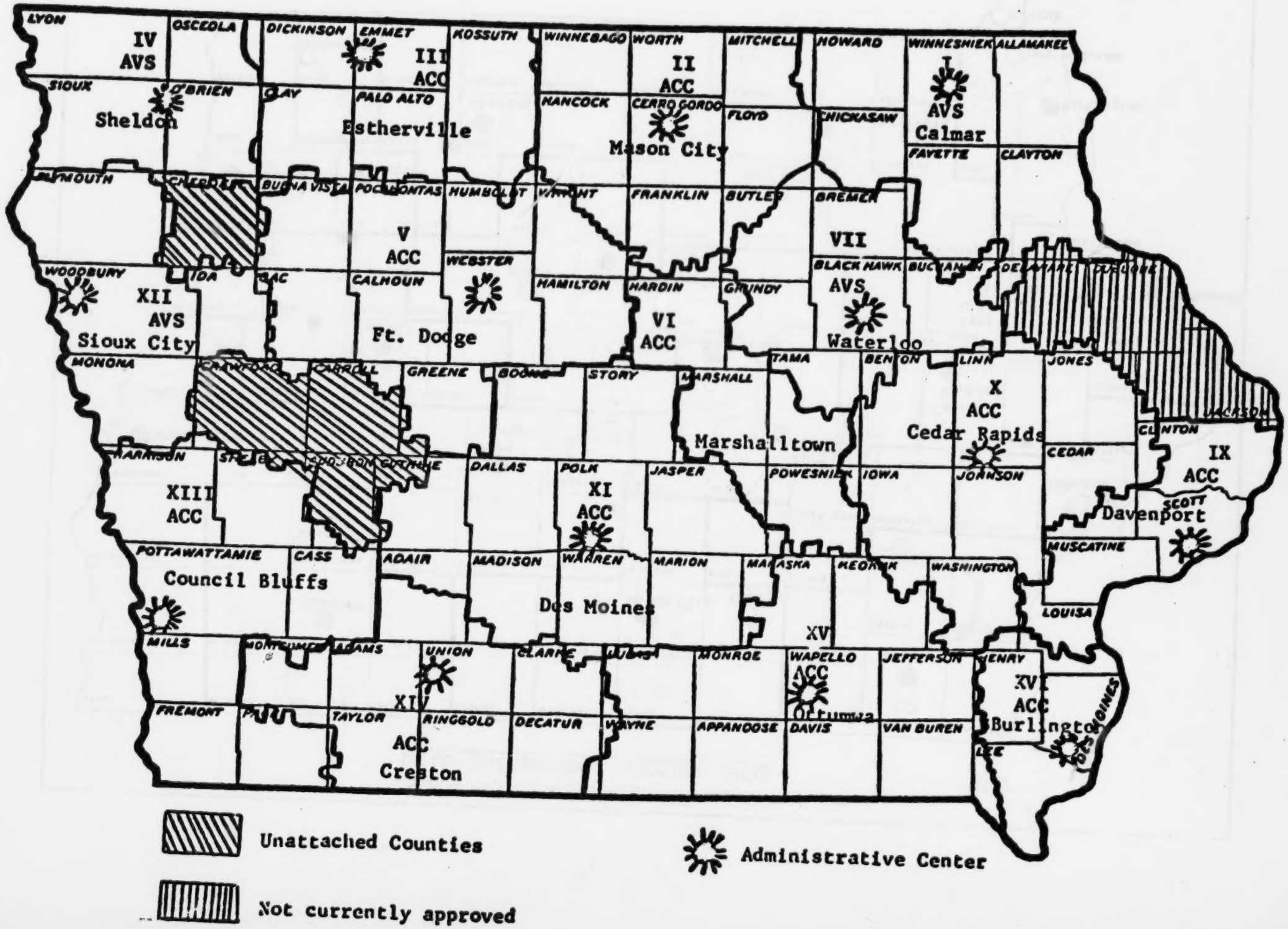
○ Circles indicate Employment Service office -- solid circles indicate coordinating teams ●

ADMINISTRATIVE CENTERS AND MERGED AREAS FOR

AREA COMMUNITY COLLEGES (ACC) AND AREA VOCATIONAL SCHOOLS (AVS)

January 1, 1967

MAP 2-



Chapter III

An Overview: Structure of Job Vacancies in Iowa Manufacturing Demand for Skilled Workers

This job vacancy survey of Iowa manufacturing firms uncovered 11,856 full-time vacancies for the September 1967-February 1968 period. These vacancies range from mechanical engineering to welders to graphic art workers.

As would be expected the Professional, Technical and Managerial Occupations have relatively few vacancies -- 387 of the total vacancies, due to the fact that only manufacturing firms were interviewed. Some of the most active detailed occupational groups (three digit D.O.T. number) within the Professional, Technical and Managerial Occupations uncovered by this survey are mechanical engineering (with 145 vacancies), electrical engineering (40 vacancies), miscellaneous managerial work (34 vacancies), and surveyors (24 vacancies).[1]

The largest number of vacancies are in the Bench Work Occupations. These occupations have 3,167 vacancies which range from the fabrication of ammunition, explosives and related occupations (1,206 vacancies); to assembly and repair of electronic

---

1. The D.O.T. number for each of these occupational titles is given in Appendix Table I of this publication.

components occupations (624 vacancies); to metal unit assembling and adjusting occupations (493 vacancies). Other high-vacancy occupations are fabrication and repair of assorted materials occupations (179 vacancies); fabrication and repair of instruments to measure physical characteristics occupations (113 vacancies); nongarment sewing machine operators (89 vacancies); assembly and repair of electrical equipment occupations (80 vacancies); and fabrication and repair of sporting goods occupation (93 vacancies).

The second largest number of unfilled jobs (2,906 vacancies) are in the Machine Trades Occupations. Over half of these vacancies are in the metal machining occupations (1,750 vacancies). Other high-vacancy occupations are miscellaneous metalworking occupations (254 vacancies); corrugating work occupations (248 vacancies); machinists and related (198 vacancies); miscellaneous machine installation and repair occupations (91 vacancies); toolmakers and related occupations (65 vacancies); printing press work occupations (53 vacancies); and turning occupations (49 vacancies).

The Processing Occupations have 1,710 unfilled jobs or the third largest number of job vacancies. These vacancies are concentrated in the slaughtering, breaking and curing occupations (541 vacancies); the processing, food and related occupations (368 vacancies); the processing, chemical and related occupations

(190 vacancies); the ore refining and foundry work occupations (132 vacancies); the processing, nonmetallic minerals occupations (72 vacancies); the separating, crushing, milling, and chopping occupations (59 vacancies); the molders, coremakers and related occupations (56 vacancies); and the mixing and blending occupations (53 vacancies).

The Structural Work Occupations have 1,370 vacancies with 412 of these vacancies in the welding occupations (arc welders, resistance welders, and combination arc and gas welders). The tinsmiths, coppersmiths and sheet metal occupations have 342 vacancies, while the wire communication, detection and signaling equipment assembly occupations have 164 vacancies. Other high-vacancy occupations are the large household appliance and industrial equipment occupations (78 vacancies); the plumbers, gasfitters, steamfitters and related occupations (70 vacancies); the carpenters and related occupations (68 vacancies); and the fitting, bolting, screwing and related occupations (57 vacancies).

The Miscellaneous Occupations have 714 vacancies with most of them in the three groups packaging; packaging and materials handling; and materials moving and storing occupations (with 332, 103 and 98 vacancies respectively). Moreover, there are 73 vacancies in the truck driving occupations heavy and light truck drivers, and 23 vacancies in the hand compositors, typesetters and related occupations.

Industry and Geographical Profile

A close examination of Table II reveals the industry profile of Iowa manufacturing job vacancies reported in this survey. The Food and Related industry group has the largest number of job vacancies with 2,113 and these are concentrated in the Processing (1,068); Clerical and Sales (407); and Miscellaneous (320) Occupations.

The Machinery (Except Electrical), and the Ordnance and Accessories industry groups are the next two in number of vacancies. The former industry has 1,521 vacancies with almost half of them concentrated in the Machine Trades Occupations (673); while the latter industry group has 1,456 vacancies concentrated almost entirely in the Bench Work Occupations (1,206).

There are 1,353 unfilled jobs in the Fabricated Metal industry group, and 1,179 vacancies in the Electrical Machinery group. The vacancies of the former industry group are concentrated in the Machine Trades (666) and the Structural Work (467) Occupations. The Electrical Machinery's vacancies are concentrated Bench Work (956) Occupations.

The above-mentioned five industry groups (two-digit S.I.C. number) have 7,622 job vacancies, or about 64% of the total full-time vacancies reported by Iowa manufacturing firms for the September 1967-February 1968 time period.

Turning to Table I, a geographical profile of Iowa manufacturing job vacancies can be developed. For example, the slaughtering, breaking and curing occupations' vacancies are concentrated in sub-areas 2 (Council Bluffs), 15 (Davenport), and 16 (Burlington).

The processing, chemical and related occupations' vacancies are concentrated in sub-areas 1 (Sioux City) and 7 (Des Moines); while the machinists' vacancies are concentrated in sub-areas 9 (Waterloo) and 14 (Cedar Rapids). Moreover, sub-areas 9 (Waterloo), 10 (Marshalltown), 15 (Davenport), and 16 (Burlington) have a relatively high demand for the metal machining occupations.

The above can be repeated for other occupations yielding a geographical profile.

Comparison With Previous Surveys

An examination of the results of the first two surveys and the results of this survey shows some similarities and possible emerging trends. Many occupations which had relatively high vacancies in the first two surveys continue to have relatively high vacancies in this survey.

Examples from the Processing Occupations would include the ore refining and foundry work occupations; the processing, food and related occupations; the processing, chemical and related occupations; and the processing, nonmetallic minerals occupations.

Examples from the Machine Trades Occupations would include the machinists and related occupations; the turning occupations; the miscellaneous metalworking occupations; and the corrugating occupations.

High-vacancy trends also seem to be emerging in the Bench Work Occupations among the metal unit assemblers and adjusters occupations; the assembly and repair of electronic components occupations; and nongarment sewing machine operators. In the Structural Work Occupations the fitting, bolting, screwing and related occupations; the welding occupations; and the carpenters and related occupations had relatively high vacancies reported in all three surveys. Moreover, the same was true in the Miscellaneous Occupations for the truck driver occupations; the materials moving and storing occupations; and the hand compositors, typesetters and related occupations.

TABLE I

NUMBER OF JOB VACANCIES
BY MAJOR AND DETAILED OCCUPATIONAL GROUPS
IOWA AND MULTI-COUNTY SUB-AREAS, Sept. 1967-Feb. 1968

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
	(1) Professional Technical & Managerial Occ.																	
001	Architecture															2	1	3
003	Electrical Engineering	2										10			3	18	7	40
005	Civil Engineering							4		1	1			3	2		1	12
006	Ceramic Engineering					1												1
007	Mechanical Engineering	5		1	1	3		1	1	61	1	13		2	7	47	2	145
008	Chemical Engineering															3	1	4
012	Industrial Engineering						1	12				5				2	2	22
017	Draftsmen					2		1				1		1	1		1	7
018	Surveyors									15	3	3			2		1	24
019	Architecture & Engineering									1								1
020	Mathematics	1					2			1						2		6
022	Chemistry								1							7	2	10
029	Mathematics & Physical Sciences					3										2	2	7
040	Agricultural Sciences						1											1
055	Anthropology															1		1
073	Veterinarians							4										4
097	Vocational Education							1										1
132	Writers and Editors, Publications			2	3			2		1					1	1	1	11
141	Commercial Artists									1					1	1		3

DOT NO	DETAILED OCCUPATIONAL GROUP TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
		MULTI-COUNTY SUB-AREAS																
142	Designers						1											1
143	Photography														1			1
149	Art			1														1
160	Accountants and Auditors							2		2						3		7
162	Purchasing Management	1				1	1				1							4
163	Sales & Distribution Management			1	1										1			3
164	Advertising Management	1																1
165	Public Relations Management											1					1	2
166	Personnel & Training Administration						3										1	4
169	Administrative Specialties					1												1
180	Agri., Forestry, & Fishing Ind. Mgrs.		1	1		1	2		1									6
182	Construction Management														1			1
183	Manufacturing Industry Management	7		1				1		3							1	13
185	Wholesale & Retail Trade Management							4										4
189	Misc. Managerial Work	10				5	1	15							2	1		34
195	Social & Welfare Work							1										1
(2)	Clerical and Sales Occupations																	
201	Secretaries						1	4	1	4		1			1	1	2	11
202	Stenographers	1																6
203	Typists	1			1	4	1	19		6	1							33
207	Duplicating Machine Operators														1			1
208	Misc. Office Machine Operators																1	1
209	Stenography, Typing, Filing & Rel.	21	4	12		15	2	109		38	1	4	2	4	7	20	55	294
210	Bookkeepers			3				2	1		1	2		1	3	1		14

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
211	Cashiers	7																7
213	Automatic Data Processing Equip. Oprs.	2				4	1								3	2		12
219	Computing & Accounting-Recording	3					2	1								5		11
221	Production Clerks									4	1					1		6
222	Shipping & Receiving Clerks				1			1							7	1		10
230	Messengers & Rel.							2										2
232	Post Office Clerks									2				1				3
235	Telephone Operators							428									2	430
237	Receptionists & Information Clerks							1										1
239	Information & Message Distribution	5						3						1				9
249	Misc. Clerical Occupations							56										56
258	Salesman, Printing and Advertising	1			1		1	1		2						1	1	8
262	Salesman, Foodstuffs, Beverages, Tobacco	10	4	4	1		4		10	2	3		4		301			343
266	Salesman, Chemicals & Drug Preparations		1	1												1		3
274	Salesman, Housefurnishings							3										3
277	Salesman, Farm & Garden Equip. & Supplies					1						1		2				4
278	Salesman, Hsld. Appl. & Elec. Mach. Eq...										2							2
280	Salesman, Transportation Equipment	1																1
289	Salespersons, Commodities														3			3
290	Sales Clerks	1														1		2
292	Routemen		2	2			1	1			1						2	9
293	Canvassers & Solicitors							11										11
(3)	Service Occupations																	
312	Bartenders													1				1
356	Animal Care Occupations						2											2
363	Pressing Occupations															2		2
365	Shoe & Luggage Repairmen & Rel.							1										1
372	Guards & Rel.											3						3
381	Porters & Cleaners	1	2				20	22			6	1			97	6	6	161

DOT NO	DETAILED OCCUPATIONAL GROUP TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
		MULTI-COUNTY SUB-AREAS																
382	Janitors						2	1										3
(4)	Farming, Fishery, Forestry & Rel. Occ.																	
401	Grain Farming			1		1					39				2		1	44
406	Horticultural Specialty Work						7											7
409	Plant Farming	1					2											3
412	Poultry Farming	1					2	13										16
429	Misc. Farming & Rel.										1	62						63
(5)	Processing Occupations																	
500	Electroplating	1													6	10	4	21
502	Melting, Pouring, Casting & Rel.															1		1
503	Pickling, Cleaning, Degreasing & Rel.							1										1
512	Melting										1							1
518	Molders, Coremakers & Rel.							2		7	32	9		4		2		56
519	Ore Refining & Foundry Work						3	6		53	46			6		3	15	132
520	Mixing, Compndg, Blndg, Kneading, Shaping	2	1					1			3		2		2	20	7	38
521	Separating, Crushing, Milling, Chopping	1	3	1	1	1		1		3	1	1	3			42	1	59
523	Heating, Rendering, Melting, Drying...	1		3		1									6	1	1	13
525	Slaughtering, Breaking, Curing	17	171	7												121	225	541
526	Cooking & Baking	1													24		10	35
529	Processing, Food & Rel.	94	21	36		1	6	21		50	2	120	9	5	3			368
534	Calendering, Sizing, Coating & Rel.														1			1
535	Forming						12											12
539	Processing, Paper & Rel.															2		2
550	Mixing & Blending					2									50	1		53
551	Filtering, Straining & Separating											1			3			4
554	Coating, Calendering, Laminating & Fin.															3		3
555	Grinding & Crushing							3										3

DOT NO	DETAILED OCCUPATIONAL GROUP TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
		MULTI-COUNTY SUB-AREAS																
556	Casting & Molding							2							6	5		13
558	Reacting								1							35		36
559	Processing, Chemical & Rel.	31	18	1			4	110	1	2	2					6	15	190
569	Processing, Wood & Wood Products													15				15
570	Crushing, Grinding & Mixing					5		6		1		2						14
573	Baking, Drying & Heat-treating														1			1
575	Forming					2												2
579	Processing, Nonmetallic Minerals	2		1	1	8	25	35										72
589	Processing, Leather & Textiles															20		20
599	Misc. Processing Occ.										1						2	3
(6)	Machine Trades Occupations																	
600	Machinists & Rel.	3		3	1			17	1	88	10	6	8	1	35	19	6	198
601	Toolmakers & Rel.			2			2	4		33		1		1	8	12	2	65
602	Gear Machining													2				2
603	Abrading	4									2							6
604	Turning	18					6	4		1	3	6			3	8		49
605	Milling & Planing	2					2			1								5
606	Boring	4					4			2						3		13
607	Sawing										2				1	2		5
609	Metal Machining	53	1	14		3	16	25		295	320	70	11	12	350	221	359	1750
610	Hammer Forging														1	1		2
613	Sheet and Bar Rolling															2		2
615	Punching & Shearing	4		2			5	10		2				2				25
616	Fabricating Machine Work										2					9		11
617	Metal Forming			8			2			10						10		30
619	Misc. Metalworking			2	2		1	11		132	17	75			2		12	254
620	Motorized Vehicle & Eng. Equip. Repair															1		1
624	Farm Machinery Repair			1														1

DOT NO	DETAILED OCCUPATIONAL GROUP TITLE	MULTI-COUNTY SUB-AREAS																
		1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
626	Metalworking Machinery Repair															3		3
627	Printing & Publishing Machinery Repair											1						1
629	Special Industry Machinery Repair												1					1
637	Utility Equipment Repair	1	4															5
638	Misc. Machine Installation & Repair			2	1		2	28			4				9	25	20	91
641	Folding, Creasing, Scolding & Gluing							1										1
643	Corrugating Work						10	26		10			1		123	58	20	248
649	Paperworking												2					2
650	Typesetting & Composing	1	1	1	1			1			3	1			2	1	2	14
651	Printing Press Work		2			1	1	4		3	2	1	4	12	6	16	1	53
652	Printing Machine Work														1			1
659	Printing Work							4										4
660	Cabinetmakers					5	2	3							4			14
661	Patternmakers															1		1
662	Sanding			1														1
667	Sawing												2					2
669	Wood Machining							2					4				20	26
690	Plastics, Synthetics, Rubber & Leather W.					3					12					2		17
699	Misc. Machine Trades Occ.							1						1				2
(7)	Bench Work Occupations																	
705	Filing, Grinding, Buffing, Cleaning & Pol	3						1				3				6		13
706	Metal Unit Assembling & Adjusting	5	3	47	7		24	13		18	116	30		2	137	61	30	493
709	Fabrication, Assembly & Rpr. of Metal Pro											4						4
710	Fab. & Rpr. of Instru to Meas. Phys Char.					2	3	100						4	1	3		113
714	Fab. & Rpr. of Photo Equip. & Supplies															3		3
719	Fab. & Rpr. of Scientific Med. Apparatus							5										5
721	Assembly & Rpr. of Motors, Gen. & Rel.							3										3
722	Assembly & Rpr. of Comm. Equip.																2	2

DOT NO	DETAILED OCCUPATIONAL GROUP TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
		MULTI-COUNTY SUB-AREAS																
723	Assembly & Rpr. of Elec. Appl. & Fixtures					4						1						5
725	Assembly of Light Bulbs & Elec. Tubes											3						3
726	Assembly & Repair of Elec. Components	100					58				30	150					286	624
727	Storage Battery Assembly		8															8
729	Assembly & Repair of Elec. Equip.							3									77	80
732	Fab. & Rpr. of Sporting Goods			91						2								93
733	Fab. & Rpr. of Pens, Pencils, & Art. Mat.														2			2
737	Fab. of Amm., Fireworks, Explosives, &Rel	6															1200	1206
739	Fab. & Rpr. of Assorted Materials		9			88		6			60				1	15		179
741	Painters, Spray			3	3		1			3		1				3	6	20
750	Fab. & Rpr. of Tires, Tubes & Rel.							96										96
754	Fab. & Rpr. of Misc. Plastics			2							6							8
759	Fab. & Rpr. of Plastics, Synthetics, Rub.										2							2
762	Assembly of Wood Products					4					3							7
763	Fab. & Rpr. of Furniture							1										1
769	Fab. & Rpr. of Wood Products									2	14				3			19
777	Model, Pattern & Mold Makers							4										4
780	Upholstering, Mattress Fab. & Rpr.							12					8				3	23
781	Laying Out, Marking, Cutting & Punching											3				1		4
784	Fab. & Rpr. of Hats, Gloves & Rel.											25						25
787	Sewing Machine Operators, Nongarment			19	5		3	14			4	20		8		16		89
794	Fabrication of Paper Products			3											30			33
(8)	Structural Work Occupations																	
801	Fitting, Bolting, Screwing & Rel.							3		10					41	3		57
804	Tinsmiths, Coppersmiths & Sheet Metal				15		4	116		21		19			21	70	36	342
806	Transportation Equip. Assembly & Rel.					2									5			7
807	Body Work, Transportation Equipment	1																1
809	Misc. Metal Fabrication							2			30						8	40

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
810	Arc Welders	12						1		10					8	16		47
812	Combination Arc & Gas Welders	23	9	21	10	2	22	41		54	11	10	9		69	1	13	295
813	Resistance Welders															70		70
814	Brazing, Braze-welding & Soldering														20			20
816	Flame & Arc Cutting											1				4		5
819	Welders, Flame Cutters & Rel.							2									5	7
821	Trans. & Distr. Line & Circuit Ass. & Rpr	4						5			4	4			10			27
822	Wire Comm, Detection & Signaling Equip...							164										164
824	Lighting Equip. Building Wiring & Rpr.							1	1		4	3			5	5		19
826	Ind. Apparatus, Ass. Inst. & Rpr.							8										8
827	Large Hsld. Appl. & Com. & Ind. Equip.									1					77			78
828	Elect, & Electr. Prod Fab & Inst. Rpr.														2			2
844	Cement & Concrete Finishing & Rel.	1			3				1									5
852	Concrete Paving				3													3
860	Carpenters & Rel.	3	14			11			1		1	12			14	12		68
861	Brick & Stone Masons & Tile Setters								1									1
862	Plumbers, Gasfitters, Steamfitters & Rel.	1				3		25			40						1	70
863	Asbestos & Insulation Work			2														2
869	Misc. Construction Work							10				3			2			15
899	Misc. Structural Work	1	15		2	1	1	4		10	1				3	17	2	57
(9)	Miscellaneous Occupations																	
900	Concrete-Mixing Truck Drivers	1							2		2			3	1	1		10
905	Truck Drivers, Heavy	4	5	18	1	2	3	3		4	6	4	3		5	2		62
906	Truck Drivers, Light	3						4			1	1			2			11
913	Passenger Transportation		2															2
915	Parking Lot & Rel. Service Work										1							1
919	Misc. Transportation Occ.															1		1
920	Packaging	6		14			8	97	2		13		7		95	70	20	332

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	Iowa Total
921	Hoisting & Conveying		1	2		1	1	1			3					5		14
922	Materials Moving & Storing	20	15				3	16			9	2	5	5	11	1	11	98
929	Packaging & Materials Handling	1					3	25				10		6	17	31	10	103
930	Boring, Drilling, Cutting & Rel (Mineral)					3				2								5
939	Extraction of Minerals																5	5
952	Generation, Trans & Dist of Elec Light...	15													3			18
953	Prod. & Dist. of Gas														3			3
954	Filtration, Purification & Dist of Water														1			1
959	Production & Dist. of Utilities	1																1
970	Art Work, Brush, Spray, or Pen	1																1
971	Photoengraving					3		1							1	2	1	8
973	Hand Compositors, Typesetters & Rel.	1		1	2	2	3	9	1			2			1		1	23
976	Darkroom Occ.														2			2
977	Bookbinding & Rel.																1	1
979	Graphic Art Work							10							2			12
																		11,856

TABLE II

NUMBER OF JOB VACANCIES
BY INDUSTRY AND MAJOR OCCUPATIONAL GROUP,
IOWA, SEPT. 1967-FEB. 1968 (FULL-TIME)

INDUSTRY GROUP	MAJOR OCCUPATIONAL GROUP									
	PROFESSIONAL, TECHNICAL, & MANAGERIAL	CLERICAL & SALES	SERVICE	FARMING, FISHERY FORESTRY & RELATED	PROCESSING	MACHINE TRADES	BENCH WORK	STRUCTURAL WORK	MISCELLANEOUS OCC.	TOTAL
Agricultural Production	1			1						2
Building Construction								12		12
Ordnance & Acc.		50				200	1206			1456
Food & Rel.	52	407	61	130	1068	25	3	47	320	2113
Apparel		1	2			8	73	18		102
Lumber & Wood					15	47	40	35	2	139
Furniture & Fixtures	8	9	3			34	55	16	7	132
Paper & Rel.		1	4		100	267	30	1	6	409
Printing, Publishing & Rel.	18	28	5			118			139	308
Chemicals & Rel.	34	46	5	2	132	141	4	7	36	407
Rubber & Plastic			16		18	60	96		30	220
Leather & Rel.		1			20		4			25
Stone, Clay & Glass	2		2		96	20		11	46	177
Primary Metal Industry					120	1	8	44		173
Fabricated Metal	18	3			28	666	138	467	33	1353
Machinery (except elec.)	96	57	52		57	673	252	311	23	1521
Elec. Machinery	31	6	19		2	45	956	99	21	1179
Transportation Equip.	3	2				69	63	86	1	224
Control Inst; Photo goods; Time Inst.	28	6			1	344	83		5	467
Misc. Mfg.	3		2		50	183	154	10	10	412
Communication		566				2		164		732
Electric, Gas & Sanitary Services	26	87	2		3	3	2	40	26	189
Food Stores									3	3
Misc. Business Services	9	24						2	6	41
Misc. Services	58	2								60
	387	1296	173	133	1710	2906	31[illegible]	1370	714	11856

TABLE III

NUMBER OF JOB VACANCIES AND AVERAGE HOURLY WAGE RATES OFFERED,
BY DETAILED OCCUPATIONAL GROUP,
99 COUNTIES. SEPTEMBER 1967-FEBRUARY 1968 (FULL-TIME)

SUB-AREA 1

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE 1/
Ida	Poultry Farming	1	2.50
	Carpenters & Rel.	3	1.65
Lyon	Salesman, Printing & Advertising	1	2.50
	Plant Farming	1	1.60
	Mixing, Compndg., Blndg., Kneading, & Shaping	1	1.60
	Combination Arc & Gas Welders	2	1.85
	Hand Compositors, Typesetters & Rel.	1	1.50
Monona	Salesman, Transportation Equipment	1	1.50
	Processing, Chemical & Rel.	1	1.50
Plymouth	Processing, Food & Rel.	4	1.90
	Machinists & Rel.	3	1.78
	Metal Machining	2	1.40
	Combination Arc & Gas Welders	4	1.76
Sioux	Typists	1	1.25
	Mixing, Compndg., Blndg., Kneading, Shaping	1	1.65
	Separating, Crushing, Milling & Chopping	1	1.40
	Heating, Rendering, Melting, Drying,.....	1	1.60
	Slaughtering, Breaking, Curing	15	3.03
	Processing, Food & Rel.	26	3.02
	Packaging	1	1.60
	Metal Machining	10	1.83
	Fab. of Ammunition, Fireworks, Explosives & Rel.	6	1.75
	Combination Arc & Gas Welders	1	1.80
	Cement & Concrete Finishing & Rel.	1	1.70
	Concrete-Mixing Truck Drivers	1	1.40
	Truck Drivers, Heavy	1	1.40
Woodbury	Electrical Engineering	2	3.71
	Mechanical Engineering	5	2.97
	Mathematics	1	2.88
	Purchasing Management	1	5.50
	Advertising Management	1	3.17
	Manufacturing Industry Management	7	3.58
	Misc. Managerial Work	10	--
	Stenographers	1	2.23
	Stenography, Typing, Filing, & Rel.	21	1.40

1/ Employers reported beginning wage rate.
Dash indicates wage data not reported.

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Woodbury (cont.)	Cashiers	7	1.40
	Automatic Data Processing Equip. Oprs.	2	1.57
	Computing & Accounting-Recording	3	1.95
	Information & Message Distribution	5	1.95
	Salesman, Foodstuffs, Beverages, Tobacco	10	--
	Sales Clerks	1	1.45
	Porters & Cleaners	1	2.52
	Electroplating	1	3.00
	Slaughtering, Breaking, & Curing	2	3.11
	Cooking & Baking	1	2.65
	Processing, Food & Rel.	64	2.82
	Processing, Chemical & Rel.	30	1.95
	Processing Non-Metallic Minerals	2	1.82
	Abrading	4	3.05
	Turning	18	2.44
	Milling & Planing	2	3.05
	Boring	4	1.80
	Metal Machining	41	1.89
	Punching & Shearing	4	2.00
	Utility Equipment Repair	1	2.63
	Typesetting & Composing	1	3.35
	Filing, Grinding, Buffing, Cleaning & Polishing	3	2.75
	Metal Unit Assembling & Adjusting	5	1.85
	Assembly & Repair of Elec. Components	100	2.09
	Body Work Transportation Equipment	1	2.38
	Arc Welders	12	1.92
	Combination Arc & Gas Welders	16	2.14
	Trans. & Distr. Line & Circuit Ass. Inst.& Rpr.	4	4.06
	Plumbers, Gasfitters, Steamfitters & Rel.	1	1.97
	Misc. Structural Work	1	3.00
	Truck Drivers Heavy	3	2.56
	Truck Drivers Light	3	1.97
	Packaging	5	2.30
	Materials Moving & Storage	20	--
	Packaging & Materials Handling	1	3.36
	Gen., Trans., & Dist. of Elec. Light & Power	15	1.97
	Production & Dist. of Utilities	1	3.55
	Art Work, Brush, Spray, or Pen	1	3.00
	SUB-AREA 2		
Cass	Fabrication & Repair of Assorted Materials	9	1.40
	Combination Arc & Gas Welders	1	2.20
	Passenger Transportation	2	2.23
Harrison	Stenography, Typing Filing & Rel.	2	1.40
	Printing Press Work	1	2.10
	Carpenters & Rel.	4	1.40
	Truck Drivers, Heavy	2	1.40

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Mills	Mixing, Compndg., Blndg., Kneading, Shaping	1	2.00
	Separating, Crushing, Milling, Chopping	2	2.00
Montgomery	Separating, Crushing, Milling, Chopping	1	1.60
	Storage Battery Assembly	6	2.28
	Truck Drivers, Heavy	1	1.60
Page	Agri., Forestry & Fishing Industry Mgrs.	1	--
	Salesmen, Chemical & Drug Preparations	1	3.00
	Routemen	2	1.90
	Porters & Cleaners	2	1.55
	Processing, Chemical & Rel.	16	1.60
	Metal Machining	1	--
	Metal Unit Assembly & Adjusting	3	2.08
	Carpenters & Rel.	10	2.17
	Hoisting & Conveying	1	--
Pottawat-tamie	Stenography, Typing, Filing & Rel.	2	1.70
	Salesman, Foodstuffs, Beverages & Tobacco	4	2.87
	Slaughtering, Breaking, Curing	171	1.49
	Processing, Food & Rel.	21	1.75
	Processing, Chemical & Rel.	2	2.83
	Utility Equipment Repair	4	1.85
	Typesetting & Composing	1	3.40
	Printing Press Work	1	3.40
	Storage Battery Assembly	2	1.60
	Combination Arc & Gas Welders	8	2.01
	Misc. Structural Work	15	2.10
	Truck Drivers, Heavy	2	1.70
	Materials Moving & Storing	15	1.75
	SUB-AREA 3		
Buena Vista	Bookkeepers	1	1.80
	Asbestos & Insulation Work	2	1.75
	Truck Drivers, Heavy	3	1.57
	Hoisting & Conveying	1	1.80
Cherokee	Bookkeepers	1	1.40
	Salesman, Foodstuffs, Beverages, Tobacco	2	--
	Salesman, Chemicals & Drug Preparation	1	--
	Heating, Rendering, Melting, Drying.....	2	1.84
	Slaughtering, Breaking, Curing	2	2.00
	Toolmakers & Rel.	1	3.80
	Combination Arc & Gas Welders	16	1.79
	Truck Drivers, Heavy	6	1.75
	Packaging	4	1.65
Clay	Writers and Editors, Publications	1	2.00
	Sales & Distribution, Management	1	--

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Clay (cont.)	Manufacturing Industry, Management	1	--
	Stenography, Typing, Filing & Rel.	9	--
	Routemen	2	2.40
	Grain Farming	1	1.33
	Separating, Crushing, Milling, Chopping	1	1.80
	Processing, Food & Rel.	12	1.40
	Processing, Chemical & Rel.	1	1.70
	Fabrication & Repair of Sporting Goods	1	1.40
	Sewing Machine Operators, Nongarment	4	1.40
	Truck Drivers, Heavy	4	1.55
	Hand Compositors, Typesetters & Rel.	1	2.50
Dickinson	Mechanical Engineering	1	--
	Art	1	--
	Slaughtering, Breaking & Curing	5	1.65
	Processing, Non-Metalic Minerals	1	1.60
	Machinists & Rel.	3	2.81
	Toolmakers & Rel.	1	3.99
	Metal Machining	10	1.89
	Punching & Shearing	2	2.14
	Metal Forming	8	2.14
	Misc. Metalworking	2	2.32
	Farm Machinery Repair	1	1.50
	Metal Unit Assembly & Adjusting	35	2.03
	Fabrication & Repair of Sporting Goods	90	1.64
	Painters, Spray	3	2.03
	Fabrication & Repair of Misc. Plastics	2	2.14
	Fabrication of Paper Products	3	1.65
	Combination Arc & Gas Welders	5	2.03
	Truck Drivers, Heavy	1	1.60
	Packaging	7	1.64
Emmet	Writers & Editors, Publications	1	2.00
	Stenography, Typing, Filing & Rel.	3	1.75
	Salesmen, Foodstuffs, Beverages & Tobacco	2	3.50
	Heating, Rendering, Melting, Drying.....	1	1.75
	Processing, Food & Rel.	24	2.82
	Sanding	1	1.85
	Truck Drivers, Heavy	4	1.76
	Packaging	3	2.38
	Hoisting & Conveying	1	1.60
O'Brien	Agri., Forestry, & Fishing Industry Mgrs.	1	3.90
	Bookkeepers	1	2.00
	Misc. Machine Installation & Repair	2	2.25
	Typesetting & Composing	1	1.75
	Sewing Machine Operators, Nongarment	15	1.50
Palo Alto	Metal Machining	4	1.40
	Metal Unit Assembling & Adjusting	12	1.40

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
	SUB-AREA 4		
Audubon	Misc. Machine Installation & Repair	1	2.00
	Truck Drivers, Heavy	1	1.60
Carroll	Writers & Editor Publications	1	5.00
	Shipping & Receiving Clerks	1	1.80
	Salesmen, Printing & Advertising	1	3.75
	Misc. Metalworking	2	1.95
	Painters Spray	3	1.80
	Misc. Structural Work	2	2.00
	Hand Compositors, Typesetters & Rel.	1	2.50
Greene	Mechanical Engineering	1	2.00
	Writers & Editors, Publications	2	3.00
	Sales & Distribution Management	1	4.00
	Machinists & Rel.	1	--
	Typesetting and Composing	1	--
	Metal Unit Assembling & Adjusting	4	2.25
	Sewing Machine Operators, Nongarment	5	2.05
	Tinsmiths, Coppersmiths & Sheet Metal	15	2.15
	Combination Arc & Gas Welders	6	2.33
Sac	Salesman, Foodstuff, Beverages, Tobacco	1	2.75
	Separating, Crushing, Milling & Chopping	1	1.65
	Processing Nonmetallic Minerals	1	1.60
	Metal Unit Assembly & Adjusting	3	1.82
	Combination Arc & Gas Welders	3	2.25
Shelby	Typists	1	1.65
	Combination Arc & Gas Welders	1	2.25
	Cement & Concrete Finishing & Rel.	3	2.00
	Concrete Paving	3	2.00
	Hand Compositors, Typesetters & Rel.	1	2.00
	SUB-AREA 5		
Cerro Gordo	Mechanical Engineering	3	5.33
	Draftsmen	2	3.50
	Mathematics & Physical Sciences	3	2.00
	Administrative Specialties	1	2.50
	Misc. Managerial Work	5	--
	Typists	4	--
	Stenography, Typing, Filing & Rel.	15	--
	Automatic Data Processing Equipment Operators	4	--
	Grain Farming	1	1.63
	Crushing, Grinding & Mixing	5	2.65
	Forming	2	2.85
	Processing Nonmetallic Minerals	8	1.98
	Metal Machining	3	1.60

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Cerro Gordo (cont.)	Printing Press Work	1	2.75
	Cabinet Makers	1	2.07
	Carpenters & Rel.	2	1.75
	Misc. Structural Work	1	2.12
	Truck Drivers, Heavy	1	2.00
	Boring, Drilling, Cutting & Rel.	3	1.88
	Photoengraving	3	2.63
Floyd	Mixing & Blending	2	2.25
Franklin	Ceramic Engineering	1	--
	Purchasing Management	1	2.50
	Agri., Forestry & Fishing Industry Management	1	2.00
	Hand Compositors, Typesetting & Rel.	1	--
Hancock	Salesman, Farm & Garden Equip. & Supplies	1	3.00
	Cabinet Makers	4	2.13
	Assembly of Wood Products	4	1.83
	Transportation Equip., Assembly & Repair	2	2.50
	Carpenters & Rel.	8	2.50
	Plumbers, Gasfilters, Steamfilters & Rel.	3	2.50
Kossuth	Fab. & Rpr. of Instru. to Measure .... Physical Char.	2	2.00
	Combination Arc & Gas Welders	2	2.25
Mitchell	Heating, Rendering, Melting, Drying....	1	1.60
Winnebago	Processing, Food & Rel.	1	1.75
	Plastics, Synthetics, Rubber & Leather Working	3	1.50
	Assembly & Repair of Electrical Appl. & Fixtures	4	1.40
	Fabrication & Repair of Assorted Materials	88	1.60
	Carpenters & Rel.	1	1.75
	Truck Drivers, Heavy	1	2.00
Worth	Separating, Crushing, Milling, Chopping	1	1.75
	Hoisting & Conveying	1	1.75
	Hand Compositors, Typesetters & Rel.	1	2.50
	SUB-AREA 6		
Calhoun	Agricultural Sciences	1	3.00
	Secretaries	1	1.25
	Typists	1	1.25
	Processing, Chemical & Rel.	4	1.67
	Hoisting & Conveying	1	1.60
Hamilton	Designers	1	--
	Purchasing Management	1	1.90
	Misc. Managerial Work	1	1.60
	Computing & Accounting-Recording	2	1.87

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Hamilton (cont.)	Horticultural Specialty Work	1	--
	Plant Farming	2	1.75
	Ore Refining & Foundry Work	3	2.00
	Metal Machining	1	--
	Punching & Shearing	3	2.22
	Misc. Metalworking	1	2.25
	Metal Unit Assembling & Adjusting	10	2.15
	Truck Drivers, Heavy	2	1.77
Humbolt	Personnel & Training Administration	3	--
	Agri., Forestry, & Fishing Industry Mgrs.	1	2.00
	Salesman, Foodstuffs, Beverages, Tobacco	4	--
	Routeman	1	1.75
	Poultry Farming	2	1.25
	Processing, Food & Rel.	2	2.80
	Metal Unit Assembling & Adjusting	2	1.85
	Fab. & Rpr. of Instru. to Measure....Physical Char.	3	2.15
	Painters Spray	1	2.08
	Combination, Arc & Gas Welders	4	2.16
Pocahontas	Salesman, Printing & Advertising	1	2.00
	Turning	6	2.03
	Milling & Planing	2	1.80
	Boring	4	1.80
	Punching & Shearing	2	2.50
	Metal Forming	2	2.50
	Misc. Machine Installation & Repair	2	2.62
	Printing Press Work	1	1.75
	Metal Unit Assembling & Adjusting	2	1.80
	Tinsmiths, Coppersmith & Sheet Metal	4	2.25
	Combination Arc & Gas Welders	6	2.27
	Packaging & Materials Handling	3	1.80
	Hand Compositors, Typesetters & Rel.	2	1.80
Webster	Industrial Engineering	1	3.40
	Mathematics	2	--
	Agri., Forestry, & Fishing Industry Mgrs.	1	1.80
	Automatic Data Processing Equipment Operators	1	--
	Animal Care Occupations	2	2.46
	Janitors	2	2.24
	Forming	12	2.39
	Processing, Nonmetallic Minerals	25	1.89
	Toolmakers & Rel.	2	3.06
	Metal Machining	15	2.37
	Corrugating Work	10	2.10
	Metal Unit Assembling & Adjusting	10	2.25
	Assembly & Repair of Elec. Components	58	1.71
	Sewing Machine Operators, Nongarment	3	1.40
	Combination Arc & Gas Welders	10	2.54
	Misc. Structural Work	1	2.16

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Webster (cont.)	Truck Drivers, Heavy	1	1.55
	Materials Moving & Storage	3	2.16
Wright	Stenography, Typing, Filing & Rel.	2	1.50
	Porters & Cleaners	20	2.48
	Horticultural Specialty Work	6	1.50
	Processing, Food & Rel.	4	2.30
	Cabinetmakers	2	2.00
	Combination Arc & Gas Welders	2	2.00
	Packaging	8	2.15
	Hand Compositors, Typesetting & Rel.	1	2.10
	SUB-AREA 7		
Boone	Manufacturing Industry Management	1	5.00
	Porters & Cleaners	2	2.25
	Machinists & Rel.	6	2.90
	Metal Machining	6	2.20
	Metal Unit Assembling & Adjusting	6	2.05
	Tinsmiths, Coppersmiths & Sheet Metal	2	3.00
	Combination Arc & Gas Welders	2	2.80
	Hand Compositors, Typesetters & Rel.	1	3.30
Dallas	Bookkeepers	2	1.82
	Processing Nonmetallic Minerals	14	1.80
	Machinists & Rel.	2	2.33
	Fitting, Bolting, Screwing & Rel.	3	2.25
	Combination Arc & Gas Welders	2	2.17
	Truck Drivers, Heavy	1	1.65
	Hoisting & Conveying	1	1.90
Guthrie	Typesetting & Composing	1	1.90
	Truck Drivers, Heavy	1	1.60
	Hand Compositors, Typesetters & Rel.	3	2.30
Madison	Arc Welders	1	2.10
Polk	Civil Engineering	4	3.00
	Mechanical Engineering	1	4.00
	Draftsmen	1	3.50
	Veterinarians	4	2.50
	Vocational Education	1	2.50
	Writers & Editors, Publications	2	3.50
	Accountants & Auditors	2	2.00
	Wholesale & Retail Trade Management	4	1.56
	Misc. Managerial Work	15	--
	Social & Welfare Work	1	3.60
	Secretaries	4	1.97
	Typists	19	1.75
	Stenography, Typing, Filing & Rel.	109	1.60

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Polk (cont.)	Computing & Accounting-Recording	1	1.75
	Shipping & Receiving Clerks	1	1.70
	Messengers & Rel.	2	1.60
	Telephone Operators	428	--
	Receptionists & Information Clerks	1	1.50
	Information & Message Distribution	3	1.95
	Misc. Clerical Occupations	56	--
	Salesman, Housefurnishings	3	.97
	Canvassers & Solicitors	11	--
	Shoe & Luggage Repairmen & Rel.	1	1.88
	Porters & Cleaners	16	2.14
	Janitors	1	1.88
	Molders, Coremakers & Rel.	2	2.63
	Ore Refining & Foundry Work	6	--
	Processing Food & Rel.	17	2.54
	Grinding & Crushing	3	2.94
	Processing, Chemicals & Rel.	110	1.99
	Crushing, Grinding & Mixing	6	2.71
	Processing, Nonmetallic Minerals	21	2.35
	Machinists & Rel.	8	2.49
	Metal Machining	19	2.35
	Punching & Shearing	10	2.52
	Misc. Metalworking	3	2.68
	Misc. Machine Installation & Repair	28	3.09
	Folding, Creasing, Scolding & Gluing	1	2.30
	Corrugating Work	24	1.80
	Printing Press Work	3	3.80
	Printing Work	4	1.82
	Cabinetmakers	3	2.17
	Wood Machining	2	--
	Misc. Machine Trades Occ.	1	--
	Filing, Grinding, Buffing, Cleaning & Polishing	1	2.40
	Metal Unit Assembly & Adjusting	7	2.63
	Fabrication & Repair of Scientific Medical Apparatus	5	2.50
	Assembly & Repair of Motors, Generators & Rel.	3	--
	Assembly & Repair of Electrical Equipment	3	3.32
	Fabrication & Repair of Assorted Materials	6	1.40
	Fabrication & Repair of Tires, Tubes & Rel.	96	2.75
	Fabrication & Repair of Furniture	1	1.62
	Upholstering, Matress Fabrication & Repair	12	1.58
	Sewing Machine Operators, Nongarment	14	1.49
	Tinsmiths, Coppersmiths & Sheet Metal	114	3.03
	Misc. Metal Fabricating	2	3.20
	Combination Arc & Gas Welders	36	2.89
	Wire Comm. Detection & Signaling Equip. Ass., Inst.	164	--
	Lighting Equip., Building Wiring & Repair	1	--
	Ind. Apparatus, Ass., Inst., & Repair	8	2.65
	Plumbers, Gasfitters, Steamfitters & Rel.	25	5.75
	Misc. Construction Work	10	2.36
	Misc. Structural Work	4	2.04

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Polk (cont.)	Truck Drivers, Light	4	2.32
	Packaging	95	1.86
	Materials Moving & Storing	14	2.45
	Packaging & Materials Handling	24	2.05
	Photoengraving	1	--
	Hand Compositors, Typesetters & Rel.	5	2.50
	Graphic Art Work	10	2.09
Story	Industrial Engineering	12	7.20
	Salesman, Printing & Advertising	1	3.00
	Routeman	1	1.60
	Porters & Cleaners	4	1.93
	Poultry Farming	13	--
	Pickling, Cleaning, Degreasing & Rel.	1	2.30
	Processing, Food & Rel.	4	1.40
	Casting & Molding	2	3.00
	Machinists & Rel.	1	1.75
	Toolmakers & Rel.	4	3.50
	Turning	4	3.00
	Misc. Metalworking	8	2.63
	Corrugating Work	2	1.60
	Printing Press Work	1	2.50
	Fab. & Rpr. of Instru. to Measure....Physical Char.	100	1.49
	Model, Pattern & Mold Makers	4	4.00
	Combination Arc & Gas Welders	1	1.85
	Welders, Flamecutters & Rel.	2	2.20
	Trans. & Distr. Line & Circuit Ass. Inst. & Rpr.	5	3.11
	Truck Drivers, Heavy	1	1.40
	Packaging	1	1.40
	Materials, Moving & Storing	2	1.60
	Packaging & Materials Handling	1	2.36
Warren	Mixing, Compndg., Blndg., Kneading, Shaping	1	2.20
	Separating, Crushing, Milling, Chopping	1	2.20
	Packaging	1	2.00
	SUB-AREA 8		
Adair	Agri., Forestry & Fishing Industry Mgrs.	1	3.50
	Machinists & Rel.	1	2.05
	Cement & Concrete Finishing & Rel.	1	2.15
	Carpenters & Rel.	1	2.15
	Brick & Stone Masons & Tile Setters	1	3.92
	Hand Compositors, Typesetters & Rel.	1	--
Clarke	Concrete Mixing Truck Drivers	2	1.88
Decatur	Processing Chemical & Rel.	1	1.40
Taylor	Salesmen, Foodstuffs, Beverages, Tobacco	10	1.70
	Packaging	2	1.70

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Union	Mechanical Engineering	1	2.10
	Chemistry	1	2.25
	Secretaries	1	1.65
	Bookkeepers	1	2.00
	Reacting	1	2.50
	Lighting Equip., Building Wiring & Repair	1	3.35
	SUB-AREA 9		
Black Hawk	Civil Engineering	1	--
	Mechanical Engineering	61	3.78
	Surveyors	15	2.21
	Architecture & Engineering	1	5.00
	Mathematics	1	3.90
	Commercial Artists	1	--
	Accountants & Auditor	2	3.00
	Manufacturing Industry Management	3	--
	Stenographers	4	2.00
	Production Clerks	4	2.50
	Post Office Clerks	2	--
	Salesman, Printing & Advertising	2	1.50
	Salesman, Foodstuffs, Beverages, Tobacco	2	--
	Molders, Coremakers & Rel.	7	2.75
	Ore Refining & Foundry Work	53	2.26
	Separating, Crushing, Milling, Chopping	3	3.06
	Processing, Food & Rel.	50	3.03
	Crushing, Grinding & Mixing	1	3.20
	Machinists & Rel.	79	2.46
	Toolmakers & Rel.	33	3.95
	Boring	1	1.40
	Metal Machining	292	2.82
	Metal Forming	10	2.38
	Misc. Metalworking	132	2.12
	Corrugating Work	10	2.33
	Printing Press Work	2	1.40
	Metal Unit Assembly & Adjusting	9	2.33
	Painters, Spray	2	2.25
	Fabrication & Repair of Wood Products	2	1.40
	Fitting, Bolting, Screwing & Rel.	10	2.28
	Tinsmiths, Coppersmiths & Sheet Metal	21	2.27
	Arc Welders	10	2.38
	Combination Arc & Gas Welders	37	2.40
	Large Household Appl. & Comm. & Ind. Equip.	1	2.34
	Misc. Structural Work	10	2.82
	Truck Drivers, Heavy	2	2.02
	Boring, Drilling, Cutting & Rel. (Minerals)	2	2.35
	Typists	6	1.90
	Stenography, Typing, Filing & Rel.	38	1.88
Bremer	Machinists & Rel.	9	2.94
	Metal Machining	3	2.27

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Bremer (cont.)	Punching & Shearing	2	2.25
	Metal Unit Assembly & Adjusting	7	2.95
	Painters Spray	1	2.50
	Combination Arc & Gas Welders	17	2.87
Buchanan	Writers & Editors, Publications	1	1.75
	Turning	1	--
	Milling & Planing	1	--
	Boring	1	--
	Printing Press Work	1	1.75
	Metal Unit Assembly & Adjusting	2	--
	Fabrication & Repair of Sporting Goods	2	1.40
	Truck Drivers, Heavy	2	2.00
Butler	Processing, Chemical & Rel.	2	2.05
	SUB-AREA 10		
Grundy	Mechanical Engineering	1	2.13
	Processing, Chemical & Rel.	2	--
	Turning	1	--
	Typesetting & Composing	3	2.85
	Printing Press Work	1	3.00
	Plastics, Synthetics, Rubber & Leather Working	12	1.60
	Trans. & Distr. Line & Circuit Ass. Inst. & Rpr.	1	2.50
	Lighting Equipment, Building Wiring & Repair	1	2.40
Hardin	Stenography, Typing, Filing & Rel.	1	1.40
	Production Clerks	1	2.50
	Salesman, Hsld. Appl. & Elec. Mach, Equip, & Supplies	1	2.75
	Porters & Cleaners	6	1.68
	Grain Farming	37	1.70
	Misc. Farming & Rel.	1	--
	Mixing, Compndg., Blndg., Kneading, Shaping	3	2.04
	Separating, Crushing, Milling, Chopping	1	2.77
	Processing, Food & Rel.	2	2.50
	Turning	2	2.00
	Fab. & Repair of Plastics, Synthetics & Rubber	2	1.60
	Sewing Machine Operators, Nongarment	4	1.40
	Trans. & Distr. Line & Circuit Ass. Inst. & Rpr.	1	1.97
	Lighting Equip., Building Wiring & Repair	1	3.27
	Misc. Structural Work	1	--
	Hoisting & Conveying	3	2.37
Jasper	Salesman, Foodstuffs, Beverages, Tobacco	2	--
	Melting	1	2.37
	Molders, Coremakers & Rel.	6	3.00
	Ore Refining & Foundry Work	15	1.98
	Misc. Processing Occ.	1	3.00
	Printing Press Work	1	2.00
	Truck Drivers, Heavy	1	1.80
	Packaging	3	1.60

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Marshall	Civil Engineering	1	2.00
	Surveyors	3	2.12
	Typists	1	1.65
	Bookkeepers	1	2.00
	Routemen	1	3.75
	Grain Farming	2	1.50
	Molders, Coremakers & Rel.	26	2.29
	Ore Refining & Foundry Work	31	2.37
	Machinists & Rel.	10	2.46
	Abrading	2	2.25
	Metal Machining	320	2.20
	Fabricating Machine Work	2	2.25
	Misc. Metalworking	7	2.54
	Misc. Machine Installation & Repair	4	2.68
	Metal Unit Assembly & Adjusting	116	2.04
	Assembly & Repair of Elec. Components	30	2.28
	Fabrication & Repair of Assorted Materials	60	2.03
	Fabrication & Repair of Wood Products	2	2.05
	Misc. Metal Fabricating	30	2.28
	Combination Arc & Gas Welders	2	2.53
	Trans. & Distr. Line & Circuit Ass., Inst., & Rpr.	2	3.00
	Plumbers, Gasfitters, Steamfitters & Rel.	40	1.88
	Truck Drivers, Light	1	1.75
	Packaging	8	2.05
Poweshiek	Fab. & Repair of Misc. Plastics	6	2.10
	Salesman, Foodstuffs, Beverages, Tobacco	1	3.25
	Salesman, Hsld. Appl. & Elec. Mach. Equip. & Supplies	1	2.88
	Sawing	2	1.90
	Misc. Metalworking	10	2.35
	Fabrication & Repair of Wood Products	12	2.00
	Combination Arc & Gas Welders	9	2.88
	Lighting Equip, Building Wiring & Repair	2	3.58
	Concrete-Mixing Truck Drivers	2	1.90
	Packaging	2	1.75
	Materials Moving & Storing	6	1.98
	Assembly of Wood Products	3	1.90
Tama	Purchasing Management	1	2.20
	Carpenters & Rel.	1	1.90
	Truck Drivers, Heavy	5	1.88
	Parking Lot & Rel. Service Work	1	1.80
	Materials Moving & Storing	3	1.25
	SUB-AREA 11		
Appanoose	Electrical Engineering	1	4.05
	Public Relations Management	1	4.00
	Misc. Metalworking	75	1.75
	Tinsmiths, Coppersmiths, Sheet metal	2	2.20
	Trans. & Distr. Line & Circuit Ass, Inst, & Rpr.	3	3.69
	Carpenters & Rel.	11	--

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Davis	Machinists & Rel.	1	2.50
	Assembly & Repair of Elec. Appl. & Fixtures	1	3.25
	Combination Arc & Gas Welders	2	2.25
	Trans., & Distr. Line & Circuit Ass, Inst, & Rpr.	1	3.25
Jefferson	Mechanical Engineering	12	--
	Industrial Engineering	5	--
	Secretaries	1	2.25
	Stenography, Typing, Filing & Rel.	2	1.60
	Metal Machining	30	2.37
	Fabrication & Repair of Hats, Gloves & Rel.	25	1.95
Keokuk	Bookkeepers	1	1.50
	Porters & Cleaners	1	1.50
	Crushing, Grinding, & Mixing	1	--
	Typesetting & Composing	1	2.50
	Truck Drivers, Heavy	2	1.75
	Packaging & Materials Handling	4	--
Lucas	Machinists	2	--
	Tinsmiths, Coppersmiths & Sheet Metal	5	--
	Combination Arc & Gas Welders	3	--
Mahaska	Draftsmen	1	1.85
	Surveyors	3	1.82
	Metal Machining	4	2.73
	Misc. Construction Work	3	2.00
	Truck Drivers, Light	1	2.00
Marion	Misc. Farming & Rel.	7	1.49
	Metal Machining	30	2.43
	Metal Unit Assembling & Adjusting	30	2.07
	Sewing Machine Operators, Nongarment	5	1.60
	Carpenters & Rel.	1	1.70
	Truck Drivers, Heavy	1	1.70
Monroe	Bookkeepers	1	1.50
	Laying Out, Marking, Cutting & Punching	3	1.40
	Sewing Machine Operators, Nongarment	6	1.40
Van Buren	Filtering, Straining & Separating	1	1.65
	Fabrication Ass. & Repair of Metal Products	4	1.50
Wapello	Electrical Engineering	7	2.25
	Stenography, Typing, Filing & Rel.	2	1.60
	Guards & Rel.	3	1.87
	Molders, Coremaker & Rel.	9	2.35
	Processing, Food & Rel.	120	2.93
	Machinists & Rel.	1	3.30
	Toolmakers & Rel.	1	3.60
	Turning	6	2.55

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Wapello (cont.)	Metal Machining	3	2.53
	Printing Press Work	1	--
	Filing, Grinding, Buffing, Cleaning & Polishing	3	1.65
	Assembly & Repair of Elec. Components	120	1.55
	Painters, Spray	1	1.90
	Combination Arc & Gas Welders	5	2.36
	Flame & Arc Cutting	1	1.90
	Packaging & Materials Handling	6	1.87
	Hand Compositors, Typesetters, & Rel.	2	2.50
Washington	Electrical Engineering	2	--
	Mechanical Engineering	1	--
	Salesman, Farm & Garden Equip. & Supplies	1	2.50
	Misc. Farming & Rel.	55	1.70
	Separating, Crushing, Milling, Chopping	1	1.75
	Crushing, Grinding & Mixing	1	1.80
	Printing & Publishing Machinery Repair	1	1.25
	Assembly of Light Bulbs & Elec. Tubes	3	2.00
	Lighting Equipment, Building Wiring & Repair	3	3.60
	Truck Drivers, Heavy	1	2.50
	Materials Moving & Storing	2	1.75
	Assembly & Repair of Elec. Components	30	1.80
Wayne	Machinists	2	3.00
	Metal Machining	3	2.25
	Sewing Machine Operators, Nongarment	9	1.70
	Tinsmiths, Coppersmiths & Sheet Metal	12	1.87
	SUB-AREA 12		
Allamakee	Salesman, Foodstuffs, Beverages & Tobacco	1	1.75
	Metal Machining	1	1.70
	Printing Press Work	1	2.25
	Truck Drivers, Heavy	3	1.67
Chickasaw	Machinists & Rel.	8	2.77
	Combination Arc & Gas Welders	9	2.77
	Materials Moving & Storing	5	2.28
Clayton	Mixing, Compndg., Blndg., Kneading, Shaping	2	1.70
	Processing, Food & Rel.	1	1.40
	Paperworking	2	1.65
	Printing Press Work	1	2.50
	Sawing	2	2.00
Fayette	Stenography, Typing, Filing & Rel.	2	1.50
	Salesman, Foodstuffs, Beverages & Tobacco	3	2.42
	Processing Food & Rel.	7	1.68
	Printing Press Work	2	1.50
	Packaging	6	2.32

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Howard	Separating, Crushing, Milling, Chopping	3	1.75
	Metal Machining	10	2.00
	Special Industry Machinery Repair	1	1.60
	Packaging	1	1.60
Winneshiek	Processing, Food & Rel.	1	1.37
	Corrugating Work	1	1.60
	Wood Machining	4	1.80
	SUB-AREA 13		
Delware	Post Office Clerks	1	5.00
	Salesman, Farm & Garden Equip. & Supplies	2	1.75
	Molders, Coremakers & Rel.	3	2.48
	Ore Refining & Foundry Work	2	1.87
	Machinists & Rel.	1	1.50
	Concrete-Mixing Truck Drivers	3	2.00
Dubuque	Civil Engineering	3	8.17
	Mechanical Engineering	2	3.00
	Drafting	1	3.50
	Stenography, Typing, Filing & Rel.	4	1.50
	Bookkeepers	1	3.00
	Information & Message Distribution	1	2.48
	Bartenders	1	2.50
	Molders, Coremakers & Rel.	1	2.22
	Ore Refining & Foundry Work	4	2.10
	Processing, Wood & Wood Products	15	1.80
	Toolmakers & Rel.	1	1.50
	Gear Machining	2	2.22
	Metal Machining	12	2.62
	Punching & Shearing	2	2.25
	Printing Press Work	12	2.32
	Metal Unit Assembly & Adjusting	2	2.22
	Fab. & Rpr. of Instru. to Measure....Physical Char.	4	2.10
	Upholstering, Mattress Fabrication & Repair	8	2.35
	Sewing Machine Operators, Nongarment	8	2.05
	Materials Moving & Storage	5	2.01
	Packaging & Materials Handling	6	2.42
Jackson	Processing Food & Rel.	5	2.10
	Misc. Machine Trades Occ.	1	2.00
	SUB-AREA 14		
Benton	Civil Engineering	2	10.00
	Surveyors	1	5.00
	Salesman, Foodstuffs, Beverages & Tobacco	301	1.70
	Porters & Cleaners	6	2.20
	Heating, Rendering, Melting, Drying....	6	1.50

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Benton (cont.)	Baking, Drying & Heat Treating	1	1.50
	Metal Machining	2	2.50
	Hammer Forging	1	--
	Printing Press Work	1	2.20
	Combination Arc & Gas Welders	10	2.55
	Misc. Construction Work	2	3.10
	Misc. Structural Work	3	2.33
	Truck Drivers, Heavy	1	1.70
	Packaging	1	1.70
	Materials Moving & Storing	2	--
	Packaging & Material Handling	1	--
Cedar	Grain Farming	2	2.00
	Carpenters & Rel.	12	2.33
	Truck Drivers, Heavy	1	1.70
	Materials Moving & Storing	1	2.53
	Packaging & Material Handling	1	2.00
Iowa	Processing, Food & Rel.	1	1.50
	Cabinetmakers	4	2.05
	Metal Unit Assembling & Adjusting	100	2.50
Johnson	Mechanical Engineering	5	6.25
	Duplicating Machine Operators	1	2.80
	Mixing & Blending	50	2.40
	Casting & Molding	6	3.25
	Machinists & Rel.	4	2.89
	Toolmakers & Rel.	4	2.89
	Metal Machining	75	2.02
	Misc. Machine Installation & Repair	6	2.92
	Typesetting & Composing	2	3.00
	Printing Machine Work	1	1.50
	Combination Arc & Gas Welders	2	2.75
	Lighting Equip., Building, Wiring & Repair	4	2.89
	Large Household Appliance & Com. & Ind. Equip.	2	2.05
	Carpenters & Rel.	2	2.25
	Truck Drivers, Heavy	3	2.00
	Packaging	3	2.00
Jones	Writers & Editors, Publications	1	3.45
	Photography	1	3.00
	Sales & Distribution Management	1	3.94
	Misc. Managerial Work	1	3.60
	Porters & Cleaners	4	2.00
	Processing, Food & Rel.	2	1.40
	Sawing	1	2.50
	Misc. Metalworking	2	2.20
	Fabrication & Repair of Assorted Materials	1	1.40
	Fabrication & Repair of Wood Products	3	1.75
	Concrete-Mixing Truck Drivers	1	1.60
	Darkroom Occ.	1	3.00
	Graphic Art Work	2	1.60

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Linn	Electrical Engineering	3	3.47
	Mechanical Engineering	2	3.00
	Drafting	1	--
	Surveyors	1	3.25
	Commercial Artists	1	1.75
	Construction Management	1	3.25
	Misc. Managerial Work	1	2.60
	Secretaries	1	2.00
	Stenography, Typing, Filing & Rel.	7	1.68
	Bookkeepers	3	1.80
	Automatic Data Processing Equipment Operators	3	1.60
	Shipping & Receiving Clerks	7	2.70
	Salespersons, Commodities	3	--
	Porters & Cleaners	87	2.63
	Electroplating	6	2.00
	Mixing, Compndg., Blndg., Kneading, Shaping	2	2.61
	Cooking & Baking	24	2.86
	Calendering, Sizing, Coating & Rel.	1	2.65
	Filtering, Straining & Separating	3	2.31
	Machinists & Rel.	31	2.68
	Toolmakers & Rel.	4	3.89
	Turning	3	2.80
	Metal Machining	273	2.81
	Misc. Machine Installation & Repair	3	2.92
	Corrugating Work	123	2.34
	Printing Press Work	5	3.15
	Metal Unit Assembly & Adjusting	37	2.84
	Fab. & Rpr. of Instru. to Measur....Physical Char.	1	2.54
	Fab. & Repair of Pens, Pencils & Artists Mat.	2	1.50
	Fabrication of Paper Products	30	2.54
	Fitting, Bolting, Screwing & Rel.	41	2.91
	Tinsmiths, Coppersmiths, & Sheet Metal	21	3.28
	Transportation Equip. Assembly & Rel.	5	2.79
	Arc Welders	8	3.00
	Combination Arc & Gas Welders	57	3.03
	Brazing, Braze-welding & Soldering	20	2.17
	Trans. & Distr. Line & Circuit Ass, Inst. & Rpr	10	2.43
	Lighting Equipment, Building Wiring & Repair	1	3.13
	Large Household Appliance & Com. & Industrial Equip.	75	2.17
	Elect. & Electronic Prod. Fab., Inst. & Repair	2	3.00
	Truck Drivers, Light	2	2.17
	Packaging	91	2.46
	Materials Moving & Storing	8	2.09
	Packaging & Materials Handling	15	2.69
	Gen., Trans. & Dist. of Electric Light & Power	3	2.43
	Production & Distribution of Gas	3	2.39
	Filtration, Purification & Dist. of Water	1	2.80
	Photoengraving	1	3.25
	Hand Compositors, Typesetters & Rel.	1	--
	Darkroom Occ.	1	2.44

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
	SUB-AREA 15		
Clinton	Mechanical Engineering	18	--
	Chemical Engineering	3	--
	Industrial Engineering	2	--
	Chemistry	7	--
	Mathematics & Physical Sciences	1	3.00
	Accountants & Auditors	3	--
	Stenographers	1	--
	Stenography, Typing, Filing & Rel.	7	--
	Production Clerks	1	--
	Shipping & Receiving Clerks	1	2.77
	Sales Clerks	1	1.50
	Electroplating	10	2.24
	Ore Refining & Foundry Work	3	1.60
	Separating, Crushing, Milling & Chopping	1	1.50
	Heating, Rendering, Melting, Drying	1	1.75
	Slaughtering, Breaking & Crushing	121	1.50
	Processing, Paper & Rel.	2	--
	Reacting	20	3.05
	Turning	5	2.24
	Sawing	2	1.75
	Metal Machining	4	1.75
	Sheet & Bar Rolling	2	2.24
	Misc. Machine Installation & Repair	20	3.05
	Corrugating Work	54	2.17
	Metal Unit Assembling & Adjusting	12	2.00
	Fab. & Rpr. of Instru. to Measur....Physical Char.	3	3.20
	Tinsmiths, Coppersmiths & Sheet Metal	16	2.44
	Resistance Welders	70	1.87
	Misc. Transportation Occ.	1	1.75
	Packaging	40	2.73
	Packaging & Material Handling	15	1.97
Muscatine	Mechanical Engineering	2	2.12
	Writers and Editors, Publications	1	2.75
	Automatic Data Processing Equip. Oprs.	2	1.75
	Salesman, Printing & Advertising	1	2.75
	Porters & Cleaners	6	2.30
	Separating, Crushing, Milling, Chopping	40	2.96
	Coating, Calendering, Laminating & Finishing	3	2.49
	Casting & Molding	5	2.46
	Reacting	15	2.96
	Processing, Leather & Textiles	20	2.50
	Machinists & Rel.	4	2.74
	Metal Machining	5	2.00
	Fabricating Machine Work	9	2.68
	Metal Forming	10	2.50
	Motorized Vehicle & Eng. Equip. Repair	1	2.50
	Misc. Machine Installation & Repair	5	2.96

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Muscatine (cont.)	Printing Press Work	10	2.80
	Plastics, Synthetics, Rubber & Leather Working	2	2.82
	Fabrication & Repair of Assorted Materials	15	2.50
	Painters, Spray	3	2.67
	Tinsmiths, Coppersmiths & Sheetmetal	40	2.14
	Arc Welders	15	2.50
	Lighting Equip., Building Wiring & Repair	4	2.64
	Carpenters & Rel.	2	2.50
	Concrete-Mixing Truck Drivers	1	2.20
	Truck Drivers, Heavy	1	2.00
	Packaging	30	1.96
	Hoisting & Conveying	4	2.30
	Packaging & Material Handling	4	2.50
Scott	Architecture	2	4.12
	Electrical Engineering	18	3.19
	Mechanical Engineering	27	3.15
	Mathematics	2	3.57
	Mathematics & Physical Sciences	1	3.00
	Anthropology	1	2.50
	Commercial Artists	1	2.50
	Misc. Managerial Work	1	3.65
	Secretaries	1	2.00
	Stenography, Typing, Filing & Rel.	13	2.18
	Bookkeepers	1	1.75
	Computing & Accounting-Recording	5	2.82
	Salesman, Chemicals & Drug Preparations	1	3.60
	Pressing Occupations	2	2.50
	Melting, Pouring, Casting & Rel.	1	2.00
	Molders, Coremakers & Rel.	2	2.54
	Mixing, Compndg., Blndg., Kneading, Shaping	20	2.00
	Separating, Crushing, Milling, Chopping	1	3.30
	Mixing & Blending	1	3.00
	Processing, Chemical & Rel.	6	--
	Machinists & Rel.	15	3.83
	Toolmakers & Rel.	12	3.72
	Turning	3	3.57
	Boring	3	3.25
	Metal Machining	212	3.18
	Hammer Forging	1	--
	Metalworking Machinery Repair	3	3.25
	Corrugating Work	4	2.02
	Typesetting & Composing	1	3.50
	Printing Press Work	6	3.28
	Patternmakers	1	5.15
	Filing, Grinding, Buffing, Cleaning & Polishing	6	2.57
	Metal Unit Assembling & Adjusting	49	2.63
	Fab. & Repair of Photo. Equipment & Supplies	3	2.07
	Laying-Out, Marking, Cutting & Punching	1	2.85
	Sewing Machine Operators, Nongarment	16	1.89

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Scott (cont.)	Fitting, Bolting, Screwing & Rel.	3	2.48
	Tinsmiths, Coppersmiths & Sheet Metal	14	2.75
	Arc Welders	1	4.83
	Combination Arc & Gas Welders	1	3.30
	Flame & Arc Cutting	4	2.79
	Lighting Equipment, Building Wiring & Repair	1	3.88
	Carpenters & Rel.	10	3.50
	Misc. Structural Work	17	3.63
	Truck Drivers, Heavy	1	2.85
	Hoisting & Conveying	1	2.10
	Materials Moving & Storage	1	2.00
	Packaging & Materials Handling	12	2.86
	SUB-AREA 16		
Des Moines	Architecture	1	3.75
	Electrical Engineering	3	3.17
	Civil Engineering	1	4.50
	Industrial Engineering	1	--
	Drafting	1	4.00
	Surveyors	1	2.75
	Secretaries	2	2.00
	Misc. Office Machines Operators	1	3.25
	Stenography, Typing, Filing & Rel.	54	2.04
	Salesman, Printing & Advertising	1	2.50
	Routemen	2	3.00
	Porters & Cleaners	6	1.88
	Slaughtering, Breaking & Curing	225	1.82
	Cooking & Baking	10	2.06
	Misc. Processing Occ.	2	2.72
	Machinists & Rel.	5	2.77
	Metal Machining	229	2.72
	Misc. Machine Installation & Repair	10	2.28
	Printing Press Work	1	3.00
	Wood Machining	20	2.24
	Assembly & Repair of Communications Equipment	2	2.00
	Assembly & Repair of Elec. Equipment	77	2.23
	Fab. of Ammunition, Fireworks, Explosives & Rel.	1200	2.29
	Tinsmiths, Coppersmiths, & Sheet Metal	3	2.31
	Combination Arc & Gas Welders	2	2.96
	Welders, Flamecutters & Rel.	5	2.43
	Plumbers, Gasfitters, Steamfitters & Rel.	1	2.30
	Misc. Structural Work	2	2.39
	Truck Drivers, Heavy	1	1.75
	Packaging	20	1.63
	Packaging & Materials Handling	10	2.20
	Extraction of Minerals	5	2.38
	Photoengraving	1	2.75
	Bookbinding & Rel.	1	2.75
	Assembly & Repair of Elec. Components	258	2.74

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Henry	Electrical Engineering	4	2.29
	Industrial Engineering	1	4.35
	Public Relations Management	1	4.50
	Personnel & Training Administration	1	5.00
	Manufacturing Industry Management	1	7.00
	Stenography, Typing, Filing & Rel.	1	1.50
	Telephone Operators	2	--
	Grain Farming	1	2.00
	Separating, Crushing, Milling, Chopping	1	2.50
	Metal Machining	130	2.37
	Misc. Machine Installation & Repair	2	2.35
	Metal Unit Assembling & Adjusting	30	2.05
	Assembly & Repair of Elec. Components	28	1.67
	Painters, Spray	6	2.35
	Combination Arc & Gas Welders	6	2.35
	Truck Drivers, Heavy	1	1.85
	Materials Moving & Storing	9	1.92
Lee	Mechanical Engineering	2	3.00
	Chemical Engineering	1	--
	Chemistry	2	4.05
	Mathematics & Physical Sciences	2	3.00
	Writers and Editors, Publications	1	3.25
	Electroplating	4	1.60
	Ore Refining & Foundry Work	15	2.39
	Mixing, Compndg., Blndg., Kneading, Shaping	6	2.88
	Processing, Chemical & Rel.	15	2.64
	Machinists & Rel.	1	3.00
	Toolmakers & Rel.	2	3.60
	Misc. Metalworking	12	2.10
	Misc. Machine Installation & Repair	8	2.94
	Corrugating Work	20	2.18
	Typesetting & Composing	1	3.05
	Upholstering, Mattress Fabrication & Repair	3	2.67
	Tinsmiths, Coppersmiths & Sheet Metal	33	2.02
	Misc. Metal Fabricating	8	2.65
	Combination Arc & Gas Welders	5	2.60
	Materials Moving & Storage	2	1.90
Louisa	Mixing, Compndg., Blndg., Kneading, Shaping	1	2.30
	Heating, Rendering, Melting, Drying.....	1	1.60
	Typesetting & Composing	1	2.50

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IOWA

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JOB VACANCIES

in

IOWA MANUFACTURING

ESTABLISHMENTS

as Reported for the Period

March through August 1967

Volume II, Number 1

INDUSTRIAL RELATIONS CENTER
Curtiss Hall
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Ames, Iowa
50010

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This report was prepared and issued through the cooperative efforts of Dr. Edward B. Jakubauskas and Dr. Neil A. Palomba of the Industrial Relations Center, Iowa State University. The authors are respectively Professor of Economics & Director of the Industrial Relations Center, and Assistant Professor of Economics & Research Director of the Industrial Relations Center. They wish to express their gratitude to the following research assistants: Mrs. Vienna Taylor, Mr. Harold See, and Mr. Blaine Roberts.

October, 1967

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(1) Professional, Technical & Managerial Occ. 21
(2) Clerical and Sales Occupations. 21
(5) Processing Occupations. 21
(6) Machine Trades. 21
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JOB VACANCIES IN IOWA MANUFACTURING ESTABLISHMENTS

MARCH-AUGUST 1967

Chapter I. Purpose of Survey

Occupational Information Needs for Area Vocational Schools

This survey is the second in a series designed to provide a measure of the nature and extent of job vacancies in Iowa manufacturing establishments. At this writing a third survey is in the mail and will cover the six month period September 1967 through February 1968. Thus these and subsequent surveys will provide a semi-annual (and perhaps quarterly in the future) report of job vacancies.

One of the primary reasons for this job vacancy series was the development of Iowa's Area Vocational Schools and Community Colleges. To aid the Area Vocational Schools in developing curriculum and training programs this series attempts to provide occupational employment data at a low cost. This data will hopefully answer such questions as:

(1) What specific occupations ought to be considered for training purposes in our Area Vocational Schools?

(2) Is there s substantial demand for workers in occupations and skills under consideration by area schools for training purposes?

(3) Is there likely to develop a glut on the labor market for certain skills while others continue to be in short supply?

(4) In general, can an on-going procedure be developed for immediate "feedback" of industry's most critical

manpower shortages to educators involved in developing curriculum and training programs?

Multi-Purpose Nature of the Job Vacancy Survey Series

It is anticipated that the job vacancy survey series will be of assistance to a wide range of organizations interested in manpower information for planning purposes. Among these organizations are the Iowa State Manpower Development Council's On-The-Job Training Program, institutional training programs under the Manpower Development and Training Act, Vocational Rehabilitation, Employment Security, the Bureau of Labor, the Industrial Commission, and various educational institutions.

Furthermore this series is intended to supplement long-run forecasts of manpower trends which are related to changes in technology, population distribution, and industrial structure.

Complete information on occupational employment data trends requires both types of approaches. Long-run forecasts, however, take time to develop and though valid for some future period, are subject to often rapid short-run variations. Job vacancy data, though short-run in nature, has an advantage in providing an immediate and highly sensitive measure of employer skill requirements.

Chapter II. Scope of Coverage

Response Rate

The Job Vacancy Questionnaire was mailed to approximately 4,000 manufacturing firms listed with the Center for Industrial Research and Service of Iowa State University. The questionnaires requested job vacancy and starting wage rate data for the six month period March through August 1967. Two separate mailings were utilized, the second one going out to all nonrespondent firms about three weeks after the first mailing.

Completed questionnaires were received from 1,227 firms representing a response rate of approximately 31%. The resulting data has been analyzed by occupational groups, industry classification, county and multi-county areas.

Explanation of Classifications

In order to facilitate the utilization of this data, standard classifications were used as much as possible. Thus, the occupational groups used came from the Dictionary of Occupational Titles[1] (D.O.T.) while the industry groups came from the Standard Industrial Classification (S.I.C.) established by the U. S. Bureau of the Budget.[2]

1. U. S. Department of Labor, Bureau of Employment Security, Dictionary of Occupational Titles, Volumes I and II (Washington, D. C. 1965)
2. See Iowa Development Commission, Directory of Iowa Manufacturers (Des Moines, 1965)

Table I-A in the Appendix contains each of the occupational groups for which job vacancies were reported in Iowa along with the appropriate D.O.T. number. Table II-A contains the industry groups in Iowa which reported job vacancies; however, since abbreviations were used in Table II-A the following table is provided with the abbreviated industry group name and its appropriate S.I.C. number.

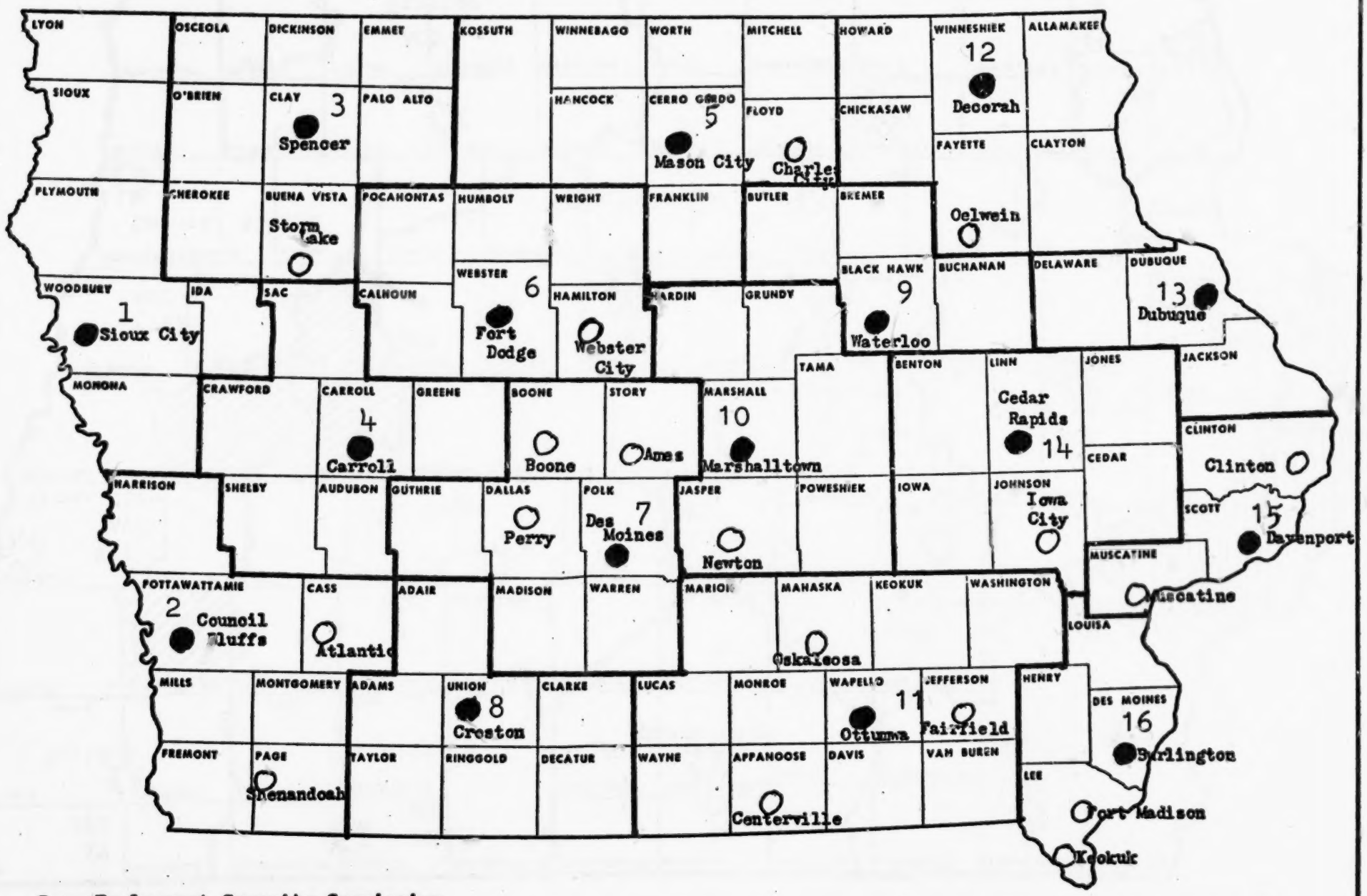
Table I: Iowa Industry Groups by Standard Industrial Classification

S.I.C. Number	Name	S.I.C. Number	Name
19	Ordnance & Acc.	30	Rubber & Plastic
20	Food & Rel.	31	Leather & Rel.
22	Textile Mill Prods.	32	Stone, Clay & Glass
23	Apparel	33	Primary Metal Indus.
24	Lumber & Wood	34	Fabricated Metal
25	Furniture & Fixtures	35	Machinery (Except Elec.)
26	Paper & Rel.	36	Elec. Machinery
27	Printing, publishing & Rel.	37	Transportation Equip.
28	Chemicals & Rel.	38	Control Instru; Photo Goods; Time Instru.
29	Petroleum, Refining & Rel.	39	Misc Mfg.

In addition to the occupational groups, Appendix Table I-A represents job vacancy data by multi-county sub-areas. These sub-areas were obtained by combining the 99 Iowa counties into 16 groups. Map 1 shows Iowa with the 16 multi-county sub-areas designated. These sub-areas were created to coincide with the 16 Local Coordinating Committee Areas of the Iowa Employment Security Commission. Thus, it is possible to identify each of the 16 multi-county sub-areas with the name of the city which the Employment Security Commission uses to identify their coordinating areas. Examination of Map 2 (Iowa's Area Community

IOWA MULTI-COUNTY SUB-AREAS AND LOCAL COORDINATING COMMITTEE AREAS

MAP 1



Iowa Employment Security Commission

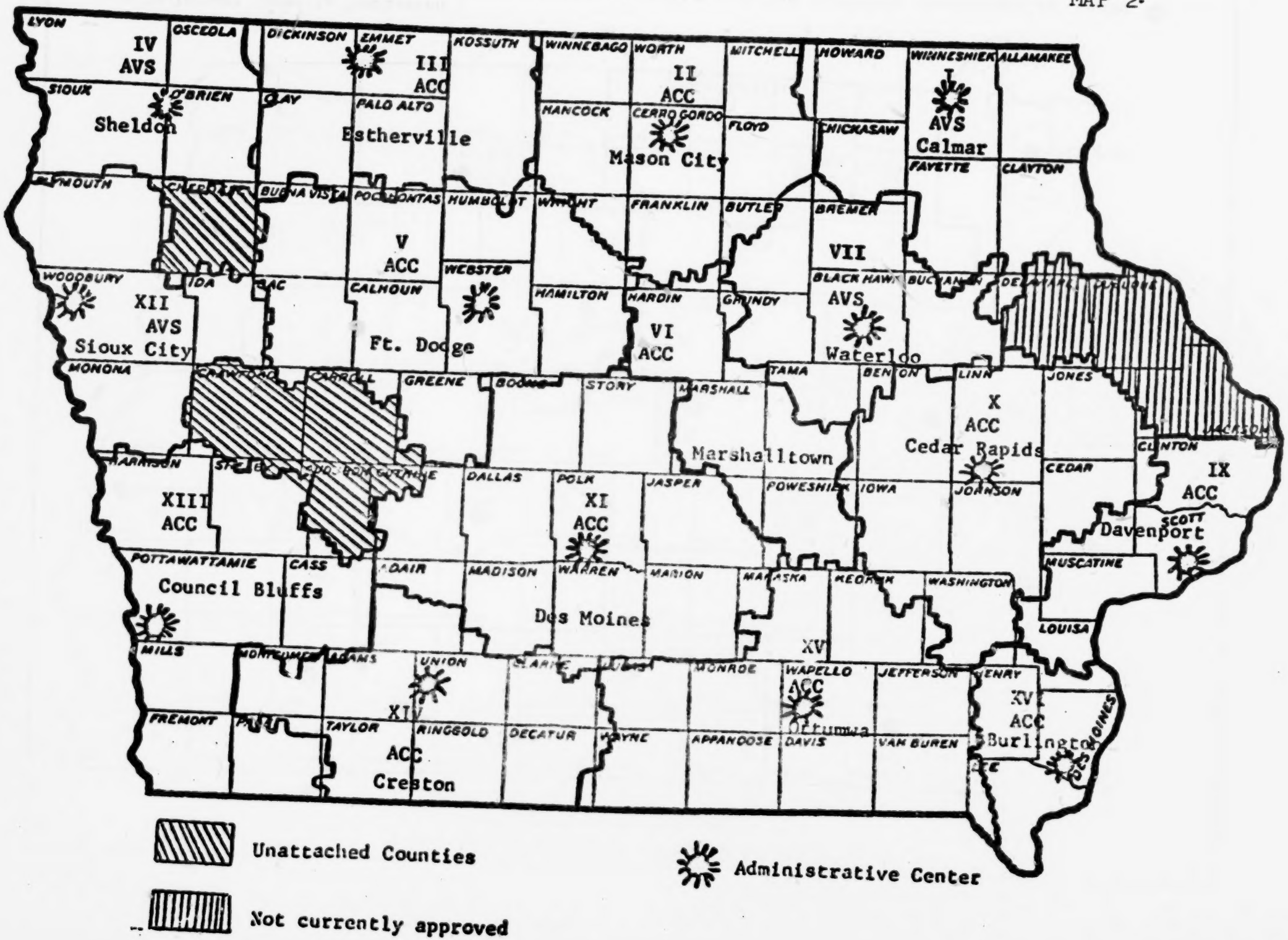
○ Circles indicate Employment Service office -- solid circles indicate coordinating teams ●

ADMINISTRATIVE CENTERS AND MERGED AREAS FOR

AREA COMMUNITY COLLEGES (ACC) AND AREA VOCATIONAL SCHOOLS (AVS)

January 1, 1967

MAP 2.



Colleges and Area Vocational Schools) in conjunction with Map 1 will show the close geographical similarity between these Area Schools and the 16 multi-county sub-areas used to analyze the job vacancy data in this publication.

Finally, two points should be noted here. In the Appendix, the A tables refer to full-time permanent job vacancies, while the B tables refer to part-time and/or temporary job vacancies. Thus for the purpose of training future workers the data in the A tables are the most useful. Moreover, the wage data reported in Appendix Tables III-A and B are average hourly wage data. So when a firm reported a monthly wage rate this was converted to an hourly wage rate by assuming a 40 hour week.

Coding Note

In the course of coding the occupation information uncovered by the job vacancy series some assumptions had to be made where little information was given by the answering firm. The assumptions are as follows:

(1) Vacancies marked "clerical help" but not otherwise specified were put in the 209 D.O.T. category.

(2) Vacancies marked "machinists" but not otherwise specified were put in the 600 category.

(3) Vacancies marked "machine operators" but not otherwise identified were put in the 619 category.

(4) Vacancies marked "printing pressmen" but not otherwise specified were put in the 651 category.

(5) Vacancies marked "sewing machine operators" but not otherwise identified were put in the 787 category.

(6) Vacancies marked "welders" but not otherwise specified were put in the 812 category.

(7) Vacancies marked "electricians" but not otherwise specified were put in the 824 category.

(8) Vacancies marked "printers" but not otherwise specified were put in the 973 category.

Chapter III.

An Overview: Structure of Job Vacancies in Iowa Manufacturing Demand for Skilled Workers

This job vacancy survey of Iowa manufacturing firms uncovered 12,333 full-time vacancies for the March-August 1967 period. These vacancies range from electrical engineering to machinists to graphic art workers.

As would be expected the Professional, Technical and Managerial Occupations has relatively few vacancies - 539 or about 4.3% of the total vacancies, due to the fact that only manufacturing firms were interviewed. Some of the most active detailed occupational groups (three digit D.O.T. number) within the Professional, Technical and Managerial occupations uncovered by this survey are mechanical engineering (with 162 vacancies), electrical engineering (119 vacancies), geology (86 vacancies), manufacturing industry management (29 vacancies) and chemistry (49 vacancies).[1/]

The largest number of vacancies are in the Processing Occupations. These occupations have 3,566 vacancies which range from the culturing, melting, fermenting, distilling and related occupations (1,050 vacancies); to processing, chemicals and related occupations (344 vacancies); to processing, food and related occupations (339 vacancies). Other high-vacancy occupations are forming occupations (267 vacancies); ore refining and foundry work occupations (256 vacancies); pouring and

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1/ The D.O.T. number for each of these occupational titles is given in Table I-A of this publication.

casting occupations (239 vacancies); separating, crushing, milling, chopping and related occupations (228 vacancies); and nonmetallic minerals processing occupations (136 vacancies).

The second largest number of unfilled jobs (3,387 vacancies) are in the Bench Work occupations. Almost one-third of these vacancies are in the assembly and repair of electronic components occupations (1,014 vacancies). Other high-vacancy occupations are metal unit assemblers and adjusters occupations (806 vacancies); nongarment sewing machine operators (287 vacancies); assembly and repair of electrical appliances and fixtures occupations (230 vacancies); fabrication and repair of pens, pencils, office and artists materials occupations (195 vacancies); and fabrication, assembly and repair of jewelry and silverware occupations (145 vacancies).

The Machine Trades Occupations have 2,423 unfilled jobs or the third largest number of job vacancies. These vacancies are concentrated in the miscellaneous metalworking occupations (573 vacancies); the fabricating machine work occupations (445 vacancies; and the corrugating occupations (287 vacancies). High vacancies are also reported in the machinists and related occupations (253 vacancies); the printing press occupations (228 vacancies); the turning occupations (146 vacancies); and the toolmakers and related occupations (90 vacancies).

The Structural Work Occupations have 1,141 vacancies with 438 of these vacancies in the welding occupations (arc welders, gas welders, and combination arc and gas welders). Miscellaneous construction occupations have 137 vacancies, while carpenters and

related occupations have 112 vacancies. The fitting, bolting, screwing and related occupations have 103 job openings in this survey.

The Miscellaneous Occupations have 597 occupations with half of these vacancies (282 vacancies) in the truck driving occupations (concrete-mixing-truck drivers, heavy-truck drivers, light-truck drivers). Moreover, there are 244 vacancies in the materials moving and storing occupations, and 45 vacancies in the hand compositors, typesetters and related occupations.

Industry and Geographical Profile

A close examination of Table II-A reveals the industry profile of Iowa manufacturing job vacancies reported in this survey. The Food and Related industry group has the largest number of full-time job vacancies with 2,516 and these are concentrated in the Processing (1,815); Farming, Fishery, Forestry and Related (229); and Miscellaneous (152) occupations.

The Electrical Machinery, and Machinery (Except Electrical) industry groups are the next two in number of vacancies. The former industry has 1,847 job vacancies almost entirely concentrated in the Bench Work Occupations (1,441); while the latter industry group has 1,617 vacancies concentrated in the Machine Trades (653). Processing (346), and Structural Work (309) occupations.

There are 860 unfilled jobs in the Stone, Clay and Glass industry group, and 782 vacancies in the Fabricated Metal group. The vacancies of the former industry group are concentrated in the Processing (435),

Structural Work (183), and Miscellaneous (173) occupations. The Fabricated Metal Products' vacancies are concentrated in the Bench Work (320), Machine Trades (273), and Structural Work (111) occupations.

The above-mentioned industry groups (two-digit S.I.C. number) have 7,622 job vacancies, or about 62% of the total full-time vacancies reported by Iowa manufacturing firms for the March-August 1967 time period.

Turning to Table I-A, a geographical profile of Iowa manufacturing job vacancies for 1967 emerges. For example, the Professional, Technical and Managerial vacancies are concentrated in multi-county sub-area 15 (Davenport area), 14 (Cedar Rapids), 16 (Burlington), and 7 (Des Moines).

The Processing Occupations vacancies concentrated in eight of the sixteen sub-areas. These are sub-areas 2 (Council Bluffs), 5 (Mason City), 6 (Fort Dodge), 7 (Des Moines), 11 (Ottumwa), 14 (Cedar Rapids), 15 (Davenport), and 16 (Burlington).

Looking at three-digit occupational groups a similar geographical profile can be constructed. The processing, chemicals and related occupations' vacancies are concentrated in sub-areas 14 (Cedar Rapids), 15 (Davenport), and 7 (Des Moines); while the vacancies in the processing food and related occupations are concentrated in sub-areas 2 (Council Bluffs), 5 (Mason City), and 15 (Davenport).

The assembly and repair of electronic components occupations' vacancies are concentrated in sub-areas 11 (Ottumwa), 14 (Cedar Rapids), and 16 (Burlington); while sub-areas 7 (Des Moines), 11 (Ottumwa),

14 (Cedar Rapids), and 15 (Davenport) have a relatively high demand for machinists and related occupations. Moreover, the welding occupations' vacancies cluster in sub-areas 1 (Sioux City), 2 (Council Bluffs), 3 (Spencer), 7 (Des Moines), 11 (Ottumwa), and 15 (Davenport).

Comparison with Previous Survey

An examination of the previous survey results and the results of the current survey will show some similarities and possible emerging trends. Many occupations which had relatively high vacancies in the first survey continue to have relatively high vacancies in this survey.

Examples from the Processing Occupations would include the ore refining and foundry occupations; the processing food and related occupations; the processing chemicals and related occupations; and the processing nonmetallic minerals occupations. Examples from the Machine Trades Occupations would include the machinists and related occupations; the turning occupations; the miscellaneous metalworking occupations; the fabricating machine occupations; and the corrugating occupations.

High-vacancy trends also seem to be emerging in the Bench Work Occupations among the metal unit assemblers and adjusters occupations; the assembly and repair of electrical appliances and fixtures occupations; the assembly and repair of electronic components occupations; and nongarment sewing machine operators. In the Structural Work Occupations the fitting, bolting, screwing and related occupations; the welding occupations; and the carpenters and related occupations

had relatively high vacancies reported in the previous and the current surveys. Moreover, the same was true in the Miscellaneous Occupations for the truck drivers occupations; the materials moving and storing occupations; and the hand compositors, typesetters and related occupations.

Similarities between the two surveys also emerge when the respective industry and geographical profiles are compared. For example, the same three industry groups had the largest number of vacancies in both surveys--and each industry group had a similar occupation profile in both surveys.

TABLE I-A.

NUMBER OF JOB VACANCIES,
BY MAJOR AND DETAILED OCCUPATIONAL GROUP
IOWA AND MULTI-COUNTY SUB-AREAS, MARCH-AUGUST, 1967
(FULL-TIME)

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
(1)	Professional Technical & Managerial Occ.																	
003	Electrical Engineering							1				5			83	26	4	119
006	Ceramic Engineering					1												1
007	Mechanical Engineering		2				5	22	2	3		11		1	41	62	13	162
008	Chemical Engineering															11	22	33
012	Industrial Engineering														1			1
017	Draftsmen									1								1
020	Mathematics						2				1							3
022	Chemistry						2	2								44	1	49
024	Geology														1	85		86
040	Argicultural Sciences					1												1
041	Biological Sciences															1		1
132	Writers & Editors, Publications	1	3	1	4		1	2		3	1		1		3	1		21
139	Writers														4			4
141	Commercial Artists					1		1								1		3
142	Designers						1											1
143	Photography														1			1
160	Accountants & Auditors					1		1						2	2	4	3	13
163	Sales & Distribution Management	1				1						1						3
166	Personnel & Training Administration					1	1									1		3

DOT NO.	DETAILED OCCUPATIONAL GROUP TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
		MULTI-COUNTY SUB-AREAS																
169	Administrative Specialties	1			2	2	3	5	2	1	3	1	1		1			2
183	Manufacturing Industry Management	1						1							8	1		29
189	Misc. Managerial Work																	2
(2)	Clerical & Sales Occupations																	
201	Secretaries		1			1		1				1	2			12		18
202	Stenographers			3				1					4		10	1		19
203	Typists		1					1							1	1		4
207	Duplicating-Machine Operators							2			1	1						4
208	Misc. Office Machine Operators							2		3								5
209	Stenography, Typing, Filing & Related	1	2		1	3	5	4		1	5	1	4	2	16	90	30	165
210	Bookkeepers							1						1		1		3
213	Automatic Data Processing Equip. Oprs.	1									1			2	8			11
215	Bookkeeping Machine Operators		2							2					1		1	5
216	Computing Machine Operators																	2
219	Computing & Account-Recording	4			6			3	1	2		15			15	3		20
222	Shipping & Receiving Clerks						1	6					1		1	1	2	33
223	Stock Clerks & Related							1								2		10
230	Messengers & Related							1				1						1
231	Mail Clerks							2										2
239	Information & Message Distribution		1				1			1			1		2	1	3	10
258	Salesmen, Printing & Advertising		5	2	1	1	4	2	3		5	9	2	1	7	3		45
262	Salesmen, Foodstuffs, Beverages, Tobacco					3		8										11
266	Salesmen, Chemicals & Drug Preparations					2		1										1
282	Salespersons, Medical & Dental Equip.			2		2	1	5		7		2		1		3		8
289	Salespersons, Commodities											5	1		1	6		30
292	Routemen																	

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS															
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
(3)	Service Occupations																	
316	Meatcutters (not slaughtering)												1					1
381	Porters & cleaners							9										9
382	Janitors							7	1		1					8	3	20
(4)	Farming, Fishery, Forestry & Rel. Occ.																	
401	Grain Farming			2	6		8		5		200					10		231
406	Horticultural Specialty Work						1											1
409	Plant Farming			1						2								3
419	Animal Farming					4												4
424	Farm Machinery Operators									1								1
465	Blight & Pest Control & Bindweed Erad.						1											1
(5)	Processing Occupations																	
500	Electroplating	1	2										1					4
501	Dip Plating														3	4		7
502	Melting, Pouring, Casting & Related	2												1				1
503	Pickling, Cleaning, Degreasing & Rel.																	2
509	Metal Processing															9		9
510	Mixing and Related														1			1
512	Melting										1	3						4
514	Pouring & Casting			1				20				4	14	8		192		239
518	Molders, Coremakers & Rel.							5		4	20	24		3	2	13		71
519	Ore Refining & Foundry Work					108	3	5		10	12	29		18	1	6	64	256
520	Mixing, Compndg, Blndg, Kneading, Shaping	4	6	13	6	47	21	11		2	8	17	2		20	1	18	176

DOT NO.	DETAILED OCCUPATIONAL GROUP TITLE	MULTI-COUNTY SUB-AREAS 1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
521	Separating, Crushing, Milling, Chopping	1	2	23		2	2	6	7		8	58	9		3	106	1	228
522	Culturing, Meltg, Fermentg, Dstlg...															1050		1050
523	Heating, Rendering, Mltng, Dryng...	1						4					2					7
525	Slaughtering, Breaking, Curirg												1					1
526	Cooking & Baking	1		1	6		1	6				6	1			12	46	80
529	Processing, Feed & Related	12	210	6	1	25	4	16		6	7	5	11		8	27	1	339
534	Calendering, Sizing, Coating & Related														1			1
539	Processing, Paper & Related						6	2						20		85	20	133
540	Mixing & Blending (Petro. & Rel)							1							3			4
549	Processing, Petroleum and Related															11		11
556	Casting & Molding							1							10	2		13
557	Extruding							44										44
559	Processing, Chemicals & Rel.					13	10	64				7			161	76	13	344
569	Processing, Wood & Wood Products					2		20					2			45		69
570	Crushing, Grinding, & Mixing	2	1	5	2	27	3	1		2	1	3	1		12	2		62
575	Forming	6		16	7	24	75	44		25	23	43		4				267
579	Processing, Nonmetallic Minerals				5	10	17	64		17		20		3				136
589	Processing, Leather & Textiles	1				4		2										7
(6)	Machine Trades Occupations																	
600	Machinists & Related	10	2	2	1	2	8	20	1	16	7	57		1	78	37	11	253
601	Toolmakers & Related		2		1		1	13		7		14	1	7	13	22	9	90
602	Gear Machining														1			1
603	Abrading						1					2		1	1			5
604	Turning						15	4			57	18	1		26	25		146
605	Milling & Planing							2							4			6
606	Boring						1	3		2								6
607	Sawing												1		2	1		4
609	Metal Machining										10							10

DOT NO.	DETAILED OCCUPATIONAL GROUP TITLE	MULTI-COUNTY SUB-AREAS																
		1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
610	Hammer Forging															2		2
612	Forging										7				10	48		65
614	Extruding & Drawing														10			10
615	Punching & Shearing		2	1	1		1	1			1		2		6	5		20
616	Fabricating Machine Work		4	69	8			2		26		1			30	5	300	445
617	Metal Forming	4	3		1	2				5	8		3		3			29
619	Misc. Metalworking	24		35	1		2	64		54	75	33	3	25	79	139	39	573
620	Motorized Vehicle & Eng Equip Repair			1				1		2		4			5	18	5	36
638	Misc. Machine Installation & Repair														8	1		9
639	Mechanics & Machinery Repairmen											1						1
640	Paper Cutting, Winding, & Related							15							1			16
643	Corrugating Work	3				1		41			1	100			139	2		287
649	Paperworking		20					8				10	1		4			43
650	Typesetters & Composing	1			1			1		3	1	1	1		1	2		12
651	Printing Press Work	3	1	1				161		3	2	25		4	18	9	1	228
652	Printing Machine Work							16				1					1	18
653	Bookbinders & Related							75										75
659	Printing Work							5										5
660	Cabinetmakers						6	2							2		6	16
661	Patternmakers									2				1				3
667	Sawing						1								2			3
669	Wood Machining							2										2
699	Misc. Machine Trades Occ.		1					3										4
(7)	Bench Work Occupation																	
700	Fab, Asmbly, Rpr of Jewelry, Silverware							69		5					11		60	145
701	Fab, Asmbly, & Repair of Tools & Rel.						1			20	10				14	17		62
703	Asmbly & Rpr of Sheet Metal Products									75	3							78

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
705	Filing, Grindg, Buffg, Cleang, & Polishing	1								8								9
706	Metal Unit Assemblers & Adjusters	6	10	1			10	25	1	25	28	40	30	13	361	203	53	806
709	Fab, Asmbly, & Repr of Metal Prods		5	10		1										1		17
710	Fab & Rpr of Instru to Meas Phys Char															27		27
712	Fab & Rpr of Surg. Med, & Dent. Instruments									1								1
716	Fab & Rpr of Eng & Scient Instru.													4				4
720	Assembly & Repair of Radio & TV							1				50						51
721	Assembly & Repair of Motors, Generators Rel									20						4		24
722	Assembly & Repair of Communications Equip														5		100	105
723	Assembly & Repair of Elec Appl & Fixtures	5				18						205			2			230
724	Winding & Asmbly of Coils, Magnets, & Rel										1		2					3
726	Assembly & Repair of Elec Components		2				50				23	400	3		180	56	300	1014
729	Assembly & Repair of Elec Equip										16	25				6		47
733	Fab & Rpr of Pens, Pencils, & Artists Mat.																195	195
739	Fab & Rpr of Assorted Materials	3				3	3		3		2				25	5	1	45
741	Painters, Spray				1			1	1	1					1		6	11
750	Fab & Rpr of Tires, Tubes & Rel							80								25		105
752	Fitting, Shaping, Cementing, Finishing										6					1		7
754	Fab & Rpr of Misc Plastics	10			3													13
759	Fab & Rpr of Plastics, Synthetics, Rubber	3						5										8
762	Assembly of Wood Products											25						25
763	Fab & Rpr of Furniture		6															6
772	Glass Blowing, Pressing, Shaping, Rel													2				2
777	Model, Pattern & Mold Makers					2	2	1			2							7
780	Upholstering, Mattress Fab & Rpr							8						10			9	27
781	Laying Out, Marking, Cutting & Punching			1				10	4		2	3		1				21
787	Sewing Machine Operators, Nongarment			28		9		43	20		6	43		24		114		287
789	Fab & Rpr of Textile, Leather & Rel.								5									5

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
(8)	Structural Work Occupations																	
801	Fitting, Bolting, Screwing & Rel.					80		2		1							20	103
804	Tinsmiths, Coppersmiths & Sheet Metal	1		1				2	1			2			64	5		76
806	Transportation Equip Asmbly & Rel.									1				15				16
809	Misc. Metal Fabricating	1			6	10	3	1			4				5	1		31
810	Arc Welders	6	26				6							3		10	3	54
811	Gas Welders				1			1										2
812	Combination Arc & Gas Welders	29	13	37	25	8	8	59	1	27	11	54	4	10	29	55	12	382
813	Resistance Welders															10		10
819	Welders, Flame Cutters & Rel											1					1	2
820	Asmbly, Install, & Rpr of Generators...									5								5
823	Asmbly, Install & Rpr of Elec Communication							2										2
824	Lighting Equip, Building Wiring & Rpr		2			3	14	1				5		1	11	12		49
827	Large Hsld Appl & Coml & Ind Equip							4										4
844	Cement & Concrete Finishing & Rel.	5			7		6									2		20
850	Excavating Grading & Rel										1							1
852	Concrete Paving				4													4
859	Excavating, Grading, Paving & Rel.							1										1
860	Carpenters & Related	32						38		6	2	20			8	6		112
861	Brick & Stone Masons & Tile Setters	5						3							15			23
862	Plumbers, Gasfitters, Steamfitters & Rel.					2		1							1	6	5	15
869	Misc. Construction Work	6		1	40			8	30	10			10		25	7		137
899	Misc. Structural Work	2	6	1		1		6	1	8	8	2	2		4	50	1	92
(9)	Miscellaneous Occupations																	
900	Concrete-Mixing-Truck Drivers	15	5	6	6	19	10	6		19	15	9	2	4	4	10	3	133
905	Truck Drivers, Heavy	2	4	6	15	4	8	6		2	15	10	3		3	5	2	85

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
906	Truck Drivers, Light	11	3		3	7	9		1	1	7	7	3	2	9		1	64
915	Parking Lot & Rel Service Work										1							1
920	Packaging					2												2
921	Hoisting & Conveying					2		3				2						7
922	Materials Moving & Storing	15		2	5		3	8	1	5	18	45	2	12	26	20	82	244
929	Packaging & Materials Handling		1						1									2
939	Extraction of Minerals																5	5
971	Photoengraving															1		1
973	Hand Compositors, Typesetters & Rel.	4	3	1	3	4	5	8	1	2	5	2			5	1	1	45
975	Stereotypers and Rel.		1															1
979	Graphic Art Work							4			2				1			7
																		12,333

TABLE I-B.

NUMBER OF JOB VACANCIES,
BY MAJOR AND DETAILED OCCUPATIONAL GROUP
IOWA AND MULTI-COUNTY SUB-AREAS, MARCH-AUGUST, 1967
(PART-TIME)

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
(1)	Professional, Technical & Managerial Occ.																	
001	Architectural Occ.							3										3
132	Writers & Editors, Publications		1															1
(2)	Clerical & Sales Occ.																	
209	Stenography, Typing, Filing & Rel.																1	1
258	Salesmen, Printing & Advertising																1	1
292	Routemen			1														1
(5)	Processing Occupations																	
523	Heating, Rendering, Mltg, Dryng, Cl.			20														20
525	Slaughtering, Breaking, Curing											2						2
529	Processing, Food & Related												2		2			4
539	Processing, Paper & Related									10								10
559	Processing, Chemicals & Related						1	1		10			1				2	15
(6)	Machine Trades																	
609	Metal Machining							15										15
612	Forging					2												2

DETAILED OCCUPATIONAL GROUP		MULTI-COUNTY SUB-AREAS																
DOT NO.	TITLE	1 Sioux City	2 Council Bluffs	3 Spencer	4 Carroll	5 Mason City	6 Fort Dodge	7 Des Moines	8 Creston	9 Waterloo	10 Marshalltown	11 Ottumwa	12 Decorah	13 Dubuque	14 Cedar Rapids	15 Davenport	16 Burlington	IOWA TOTAL
619	Misc. Metalworking											4						4
659	Printing Work														3			3
(7)	Bench Work Occupations																	
706	Metal Unit Assemblers & Adjusters				5													5
709	Fab, Asmbly, & Rpr of Metal Prods							50										50
726	Asmbly & Rpr of Elec Components										150							150
762	Assembly of Wood Products						6											6
(8)	Structural Work Occ.																	
860	Carpenters & Related													8				8
(9)	Miscellaneous Occupations																	
900	Concrete-Mixing Truck Drivers															5		5
905	Truck Drivers, Heavy				2			3		8								13
964	Theatrical & Entertainment Prdctn									6								6
977	Bookbinders & Related							6										6
																		331

TABLE II-A

NUMBER OF JOB VACANCIES,
BY INDUSTRY AND MAJOR OCCUPATIONAL GROUP,
IOWA, MARCH-AUGUST, 1967. (FULL-TIME)

INDUSTRY GROUP	MAJOR OCCUPATIONAL GROUP									
	Professional, Technical, & Managerial	Clerical & Sales	Service	Farming, Fishery, Forestry & Related	Processing	Machine Trades	Bench Work	Structural Work	Miscellaneous Occ.	TOTAL
Ordnance & Acc.	23	20				300	260			603
Food & Rel.	84	121	11	229	1815	21		83	152	2516
Textile Mill Prods.					3					3
Apparel	2				13		234	2	6	257
Lumber & Wood					24	10	25	38	25	122
Furniture & Fixtures	2	6	1		45	21	67	23	25	190
Paper & Rel.	2	2			131	149		2		286
Printing, Publishing & Rel.	37	53	11		22	471	32	9	54	689
Chemicals & Rel.	119	27	1	11	320	15	2	2	36	533
Petroleum, Refining & Rel.					13				3	16
Rubber & Plastic	3	1			135	84	143	8	5	379
Leather & Rel.		25			1	2	7			35
Stone, Clay & Glass	8	9	4		435	35	13	183	173	860
Primary Metal Indust					166	25	226	22		439
Fabricated Metal	6	4	1		51	273	320	111	16	782
Machinery (Except Elec)	70	43	1		346	653	176	309	19	1617
Elec. Machinery	143	57			10	105	1441	61	30	1847
Transportation Equip	1	1			20	76	58	226	51	433
Control Instru; Photo Goods; Time Instru.	34	30			1	124	104	21		314
Misc. Mfg.	5	10		1	15	59	279	41	2	412
TOTAL	539	409	30	241	3566	2423	3387	1141	597	12,333

TABLE II-B

NUMBER OF JOB VACANCIES,
BY INDUSTRY AND MAJOR OCCUPATIONAL GROUP,
IOWA, MARCH-AUGUST, 1967. (PART-TIME)

INDUSTRY GROUP	MAJOR OCCUPATIONAL GROUP									
	Professional, Technical & Managerial	Clerical & Sales	Service	Farming, Forestry, Fishery & Rel.	Processing	Machine Trades	Bench Work	Structural Work	Miscellaneous Work	TOTAL
Food & Rel.		1			29					30
Lumber & Wood						15	6			21
Furniture & Fixtures								8		8
Paper & Rel.					10					10
Printing, Publishing & Rel.	1	2				5			14	22
Chemicals & Rel.					12					12
Stone, Clay & Glass									16	16
Fabricated Metal						4	50			54
Machinery (Except Elec.)	3						5			8
Control Instru; Photo Goods, Time Instru.							150			150
TOTAL	4	3	0	0	51	24	211	8	30	331

TABLE III-A

NUMBER OF JOB VACANCIES AND AVERAGE HOURLY WAGE RATES OFFERED,
BY DETAILED OCCUPATIONAL GROUP,
99 COUNTIES. MARCH-AUGUST 1967. (FULL-TIME)

SUB-AREA 1

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE 1/
Ida	Separating, Crushing, milling, chopping.	1	2.20
	Metal Forming	1	2.00
	Corrugating Work	3	1.40
	Printing Press Work	1	2.25
	Fabrication & Repair of Assorted Materials	3	1.75
	Fabrication & Repair of Misc. Plastics	10	1.70
	Misc. Metal Fabrication	1	2.00
	Combination Arc & Gas Welders	2	2.00
	Misc. Construction Work	6	1.50
	Materials Moving and Storing	5	1.70
	Hand Compositors, Typesetters & Related	1	2.25
Lyon	Writers & Editors, Publications	1	2.50
	Stenography, Typing, Filing & Related	1	1.40
	Mixing, Compounding, Blending, Kneading, shaping	1	1.40
	Crushing, grinding, and mixing	2	1.50
	Combination Arc & Gas Welders	5	1.57
Monona	Sales & Distribution Management	1	1.95
	Manufacturing Industry Management	1	1.70
	Misc. Managerial Work	1	4.80
	Bookkeeping Machine Operators	1	1.50
	Mixing, compounding, blending, kneading, shaping	2	1.40
	Forming	1	1.50
	Processing, leather & textiles	1	1.40
	Concrete mixing truck drivers	1	1.75
Plymouth	Metal unit assemblers & adjusters	1	--
	Truck drivers, light	9	1.41
	Materials moving & storing	10	1.56
	Hand compositors, typesetters & related	2	2.30
Sioux	Forming	5	1.50
	Machinists & Related	5	2.25
	Metal Forming	3	1.75
	Misc. Metal Working	5	1.50
	Typesetters & composing	1	2.00

1/ Employers reported beginning wage rate.
Dash indicates wage data not reported.

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Sioux (cont.)	Combination Arc & Gas Welder	10	1.80
	Cement & Concrete Finishing & Related	5	2.40
	Carpenters & Related	28	1.95
	Brick & Stone Masons & Tile Setters	5	3.50
	Concrete mixing truck drivers	11	1.47
	Truck drivers, heavy	1	--
Woodbury	Shipping & receiving Clerks	4	1.74
	Electroplating	1	3.00
	Pickling, cleaning, degreasing & related	2	2.05
	Mixing, compounding, blending, kneading, shaping	1	--
	Heating, rendering, melting, drying	1	1.75
	Cooking & baking	1	2.50
	Processing, food & related products	12	2.37
	Machinists & related	5	1.90
	Misc. Metalworking	19	1.84
	Printing Press Work	2	3.10
	Filing, grinding, buffing, cleaning & polishing	1	3.00
	Metal Unit Assemblers & Adjusters	5	1.95
	Assembly & repair of electrical Appl & Fix.	5	2.50
	Fab & repair of plastics, synthetics, rubber	3	2.05
	Tinsmiths, coppersmiths & sheet metal workers	1	1.75
	Arc welders	6	1.95
	Comb. Arc & Gas welders	12	2.07
	Carpenters & related	4	1.50
	Misc. Structural Work	2	2.10
	Concrete mixing truck drivers	3	2.48
	Truck drivers, heavy	1	1.40
	Truck drivers, light	2	1.40
	Hand compositors, typesetters & related	1	--
	SUB-AREA 2		
Cass	Separating, crushing, milling, chopping	2	2.13
	Paperworking	20	1.40
	Comb. Arc & Gas welders	1	1.60
	Truck drivers, light	1	2.12
Fremont	Writers & Editors, publications	1	2.00
	Mixing, compounding, blending, kneading, shaping	1	1.40
	Misc. Machine trades occ.	1	2.25
	Truck drivers, heavy	1	1.50
Harrison	Fabrication & repair of furniture	6	1.40
	Arc welders	1	--
	Hand compositors, typesetters & related	1	1.83
Mills	Secretaries	1	1.50

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Montgomery	Mixing, compounding, blending, kneading, shaping	1	1.50
	Truck drivers, light	1	1.50
Page	Mechanical Engineering	2	--
	Typists	1	1.40
	Salesmen, printing & advertising	1	2.50
	Mixing, compounding, blending, kneading, shaping	1	1.50
	Machinists & related	2	2.00
	Toolmakers & related	2	2.50
	Metal Unit Assemblers & adjusters	10	2.05
	Fab, asmby & repair of metal products	5	--
	Comb. Arc & Gas welders	3	2.00
Pottawattamie	Writers & editors, publications	2	2.00
	Stenography, typing, filing & related	2	1.55
	Computing Machine operators	2	1.75
	Salesmen, foodstuffs, beverages & tobacco	5	--
	Electroplating	2	2.55
	Mixing, compounding, blending, kneading, shaping	3	--
	Processing, food & related	210	1.43
	Crushing, grinding & mixing	1	1.40
	Punching & shearing	2	1.70
	Fabricating machine work	4	1.70
	Metal forming	3	1.80
	Printing press work	1	3.20
	Assmby & repair of electrical products	2	1.70
	Arc welders	25	--
	Comb. Arc & Gas welders	9	1.95
	Lighting equip., building wiring & repair	2	2.00
	Misc. Structural work	6	1.75
	Concrete mixing truck drivers	5	1.56
	Truck drivers, heavy	3	1.40
	Truck drivers, light	1	1.90
	Packaging & materials handling	1	1.40
	Hand compositors, typesetters & related	2	3.52
	Stereotypers & related	1	3.52
	SUB-AREA 3		
Buena Vista	Grain farming	2	1.75
	Punching & shearing	1	1.60
	Fabricating machine work	67	1.40
	Comb. Arc & Gas welders	1	1.60
	Concrete mixing truck drivers	2	2.00
	Materials moving & storing	1	1.50
Cherokee	Routemen	1	2.50
	Mixing, compounding, blending, kneading, shaping	5	1.43
	Cooking & baking	1	2.25
	Processing, food & related	3	1.62

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Cherokee (cont.)	Crushing, grinding & mixing	2	1.60
	Misc. Metalworking	35	1.93
	Fab., asmbly., & repair of metal products	10	1.88
	Comb. Arc & Gas welders	36	1.99
Clay	Routemen	1	3.13
	Separating, crushing, milling & chopping	4	1.32
	Crushing, grinding & mixing	2	1.50
	Layingout, marking, cutting & Punching	1	1.70
	Sewing machine operators, nongarment	8	1.40
	Tinsmiths, coppersmiths & sheet metal workers	1	2.15
	Misc. construction work	1	2.15
	Materials moving & storing	1	--
	Hand compositors, typesetters & related	1	2.50
Dickinson	Pouring & casting	1	1.50
	Mixing, compounding, blending, kneading, shaping	2	1.55
	Forming	4	1.65
	Fabricating Machine work	2	--
	Printing Press work	1	2.50
	Concrete mixing truck drivers	2	1.60
	Truck drivers, heavy	2	1.65
Emmet	Writers & editors, publications	1	2.50
	Stenographers	3	1.70
	Salesmen, foodstuffs, beverages & tobacco	2	--
	Mixing, compounding, blending, kneading, shaping	2	1.50
	Separating, crushing, milling, chopping	19	2.05
	Cooking & baking	3	1.75
	Forming	2	1.95
	Motorized vehicle & engineering equip repair	1	2.50
	Misc. structural work	1	2.[illegible]0
	Concrete mixing truck drivers	2	2.08
	Truck drivers, heavy	4	2.41
O'Brien	Mixing, compounding, blending, kneading, shaping	2	1.40
	Sewing machine operators, nongarment	20	1.40
Osceola	Crushing, grinding & mixing	1	1.50
	Forming	10	1.50
Palo Alto	Plant farming	1	2.00
	Mixing, compounding, blending, kneading, shaping	2	1.75
	Machinists & related	2	2.10
	Metal unit assemblers & adjusters	1	2.00

SUB-AREA 4

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Audubon	Manufacturing industry management	1	3.50
	Comb. Arc & Gas welders	5	2.00
	Materials moving & storing	2	1.87
Carroll	Writers & editors, publications	2	2.25
	Manufacturing industry management	1	2.25
	Stenography, typing, filing & related	1	1.25
	Grain farming	6	1.47
	Processing, food & related	1	1.87
	Crushing, grinding & mixing	1	1.60
	Truck drivers, light	1	1.63
	Hand compositors, typesetters & related	2	2.50
Crawford	Concrete mixing truck drivers	2	1.50
	Hand compositors, typesetters & related	1	2.00
Greene	Writers & editors, publications	2	3.00
	Shipping & receiving clerks	6	2.00
	Salesmen, foodstuffs, beverages & tobacco	1	1.50
	Mixing, compounding, blending, kneading, shaping	3	1.60
	Forming	7	1.69
	Processing, nonmetallic minerals	5	1.70
	Machinists & related	1	2.85
	Toolmakers & related	1	3.00
	Fabricating machine work	8	1.87
	Metal forming	1	2.08
	Misc. metalworking	1	1.90
	Typesetters & composers	1	--
	Painters, spray	1	2.08
	Fab & repair of misc. plastics	3	1.60
	Misc. metal fabricating	6	2.00
	Comb. Arc & Gas welders	18	2.02
	Concrete mixing truck drivers	2	1.70
	Truck drivers, heavy	9	1.89
Sac	Mixing, compounding, blending kneading, shaping	3	1.40
	Cooking & baking	6	1.40
	Misc. construction work	40	1.25
	Concrete mixing truck drivers	2	1.50
	Truck drivers, heavy	6	1.60
	Truck drivers, light	2	1.60
	Materials moving & storing	3	1.75
Shelby	Crushing, grinding & mixing	1	2.15
	Punching & shearing	1	2.00
	Gas welders	1	2.13
	Comb. Arc & Gas welders	2	2.00
	Cement & concrete finishing & related	7	2.05
	Concrete paving	4	2.50

SUB-AREA 5

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Cerro Gordo	Accountants & auditors	1	3.00
	Manufacturing industry management	1	4.00
	Stenography, typing, filing, & related	2	1.50
	Salesmen, chemicals & drug preparations	3	5.00
	Routemen	1	3.75
	Ore refining & foundry work	8	1.70
	Mixing, compounding, blending, kneading, shaping	38	1.38
	Processing, food & related	13	1.93
	Processing, chemicals & related	13	2.31
	Processing, wood & wood products	2	1.50
	Crushing, grinding & mixing	15	2.50
	Forming	24	1.96
	Processing, leather & textiles	4	1.58
	Processing, nonmetallic minerals	10	1.88
	Metal forming	2	2.38
	Corrugating work	1	1.80
	Sewing machine operators, nongarment	2	1.40
	Comb. Arc & Gas welders	3	1.91
	Misc. structural work	1	3.62
	Concrete mixing truck drivers	11	2.21
	Truck drivers, light	2	2.71
	Hoisting & conveying	2	1.92
Floyd	Animal farming	4	2.23
	Ore refining & foundry work	100	2.39
	Mixing, compounding, blending, kneading, shaping	7	2.27
	Crushing, grinding & mixing	12	1.98
	Hand compositors, typesetters & related	1	3.00
Franklin	Ceramic Engineering	1	--
	Hand compositors, typesetters & related	1	1.77
Hancock	Commercial artists	1	1.40
	Manufacturing industry management	1	--
	Secretaries	1	--
	Separating, crushing, milling, chopping	1	1.90
	Processing, food & related	6	1.50
	Machinists & related	2	1.88
	Fab, asmby, & repair of metal products	1	1.40
	Fitting, bolting, screwing & related	80	1.50
	Comb Arc & Gas welders	2	2.00
	Concrete mixing truck drivers	6	1.50
	Truck drivers, light	2	1.85
	Hand compositors, typesetters & related	1	2.27

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Kossuth	Routemen	1	1.40
	Mixing, compounding, blending, kneading, shaping	1	1.40
	Processing, food & related	5	1.69
	Misc. metal fabricating	10	1.85
	Truck drivers, heavy	1	2.10
	Truck drivers, light	3	1.50
Mitchell	Agricultural Sciences	1	3.30
	Sales & Distribution management	1	3.30
	Concrete mixing truck drivers	2	2.00
	Truck drivers, heavy	1	1.70
Winnebago	Personnel & training administration	1	--
	Stenography, typing, filing & related	1	1.40
	Salesmen, foodstuffs, beverages & tobacco	1	--
	Salespersons, commodities	2	2.12
	Asmby & repair of electrical appl & fixtures	18	1.40
	Model, pattern & mold makers	2	2.12
	Sewing machine operators, nongarment	2	1.40
	Comb Arc & Gas welders	3	2.00
	Lighting equip, building wiring & repair	3	2.00
	Plumbers, gasfitters, steamfitters, & related	2	2.13
	Truck drivers, heavy	2	1.60
	Hand compositors, typesetters & related	1	2.25
Worth	Mixing, compounding, blending, kneading, shaping	1	--
	Separating, crushing, milling, chopping	1	--
	Processing, food & related	1	1.60
	Fab & repair of assorted materials	3	1.40
	Sewing machine operators, nongarment	5	1.40
	Packaging	2	1.40
	SUB-AREA 6		
Calhoun	Writers & editors, publications	1	2.75
	Manufacturing industry management	1	1.90
	Mixing, compounding, blending, kneading, shaping	1	1.60
	Processing, food & related	1	1.80
	Cabinetmakers	3	1.85
	Model, pattern & mold makers	2	1.85
	Truck drivers, heavy	1	1.60
Hamilton	Designers	1	1.40
	Horticultural specialty work	1	1.40
	Blight & pest control & bindweed eradication	1	1.75
	Ore refining & foundry work	3	2.50
	Mixing, compounding, blending, kneading, shaping	4	1.75

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Hamilton (cont.)	Separating, crushing, milling, chopping	1	1.45
	Cooking & baking	1	2.40
	Machinists & related	3	--
	Cabinet makers	3	1.75
	Fab & repair of assorted materials	3	1.50
	Truck drivers, heavy	7	1.50
	Truck drivers, light	8	1.85
Humboldt	Grain farming	8	1.45
	Mixing, compounding, blending, kneading, shaping	3	1.50
	Processing, food & related	1	1.60
	Machinists & related	2	--
	Misc. metalworking	2	2.15
	Fab, asmbly & repair of tools & related	1	--
	Metal unit assemblers & adjusters	10	--
	Misc metal fabricating	2	--
	Arc welders	6	--
	Comb Arc & Gas welders	3	--
	Concrete mixing truck drivers	2	1.90
Pocahontas	Mechanical engineering	4	--
	Manufacturing industry management	1	2.20
	Salesmen, printing & advertising	1	2.50
	Abrading	1	1.60
	Turning	15	1.60
	Comb Arc & Gas welders	3	1.60
	Lighting equip, building wiring & repair	4	2.50
	Hand compositors, typesetters & related	1	1.50
Webster	Mechanical engineering	1	3.90
	Mathematics	2	--
	Chemistry	2	2.10
	Personnel & training administration	1	--
	Manufacturing industry management	1	--
	Stenography, typing, filing & related	4	1.70
	Stock clerks & related	1	--
	Salesmen, foodstuffs, beverages & tobacco	4	--
	Mixing, compounding, blending, kneading, shaping	1	2.45
	Processing, paper & related	6	1.88
	Processing, chemicals & related	10	2.15
	Crushing, grinding & mixing	1	3.00
	Forming	75	2.27
	Processing, nonmetallic minerals	17	1.98
	Machinists & related	3	2.47
	Toolmakers & related	1	3.26
	Boring	1	1.65
	Punching & shearing	1	2.75
	Sawing	1	2.25
	Asmby & repair of electrical components	50	1.66

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Webster (cont.)	Misc. metal fabricating	1	1.65
	Comb Arc & Gas welders	2	1.75
	Lighting equip, building wiring & repair	10	2.40
	Cement & concrete finishing & related	6	2.65
	Concrete mixing truck drivers	8	2.50
	Truck drivers, light	1	2.59
	Materials moving & storing	3	2.29
Wright	Stenography, typing, filing & related	1	1.50
	Routemen	1	1.60
	Mixing, compounding, blending, kneading, shaping	12	1.50
	Separating, crushing, milling, chopping	1	1.70
	Processing, food & related	2	1.90
	Crushing, grinding & mixing	2	--
	Hand compositors, typesetters & related	4	2.25
	SUB-AREA 7		
Boone	Mechanical engineering	2	--
	Ore refining & foundry work	4	2.09
	Machinists & related	3	2.09
	Fabricating machine work	2	2.46
	Misc. metalworking	4	2.01
	Printing work	1	2.50
	Fab, asmby & repair of jewelry, silverware	4	1.80
	Metal unit assemblers & adjusters	10	2.01
	Fitting, bolting, screwing & related	2	--
	Tinsmiths, coppersmiths & sheet metal workers	2	2.75
	Misc metal fabricating	1	2.09
	Comb Arc & Gas welders	3	2.75
	Misc. structural work	1	2.73
	Hand compositors, typesetters & related	1	2.50
Dallas	Mixing, compounding. blending, kneading, shaping	6	1.70
	Separating, crushing, milling, chopping	2	1.85
	Forming	11	1.79
	Turning	1	--
	Misc. metalworking	6	2.30
	Comb Arc & Gas welders	5	2.63
	Hoisting & conveying	1	1.80
	Hand compositors, typesetters & related	1	2.50
Guthrie	Writers & editors, publications	2	2.20
	Accountants & Auditors	1	--
	Mixing, compounding, blending, kneading, shaping	2	1.50
	Painters, spray	1	2.50
	Materials moving & storing	1	2.50
	Handcompositors, typesetters & related	3	2.08

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Madison	Comb Arc & Gas welders	1	2.10
Polk	Mechanical engineers	17	2.15
	Chemistry	2	2.00
	Commercial artists	1	2.63
	Manufacturing industry management	3	2.15
	Misc. managerial work	1	4.10
	Secretaries	1	2.00
	Stenographers	1	1.75
	Typists	1	1.50
	Duplicating machine operators	2	2.02
	Misc. office machine operators	2	2.05
	Stenography, typing, filing & related	3	1.30
	Bookkeepers	1	2.25
	Shipping & receiving clerks	3	1.77
	Stock clerks & related	6	1.83
	Messengers & related	1	--
	Mail clerks	1	--
	Information & message distribution	2	1.95
	Salesmen, foodstuffs, beverages & tobacco	2	2.50
	Salesmen, chemicals & drug preparations	8	1.65
	Salesmen, medical & dental equipment	1	--
	Routemen	5	3.00
	Porters & cleaners	9	1.90
	Janitors	7	1.88
	Pouring & casting	20	1.95
	Molders, coremakers & related	2	2.65
	Ore refining & foundry work	1	2.20
	Mixing, compounding, blending, kneading, shaping	1	--
	Separating, crushing, milling, chopping	4	2.80
	Cooking & baking	6	1.64
	Processing, food & related	16	2.42
	Processing, paper & related	2	1.40
	Mixing & blending (petro & related)	1	2.75
	Casting & molding	1	1.70
	Extruding	44	1.95
	Processing, chemicals & related	64	2.05
	Forming	33	2.54
	Processing, wood & wood products	20	--
	Processing, nonmetallic minerals	64	2.05
	Machinists & related	7	1.80
	Toolmakers & related	7	3.10
	Turning	3	2.58
	Milling & planning	2	2.77
	Boring	3	2.50
	Punching & shearing	1	2.67
	Misc metalworking	54	1.95
	Motorized vehicle & engineering equip repair	1	2.50
	Paper cutting, winding & related	15	1.95
	Corrugating work	41	1.74

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Polk (cont.)	Paperworking	8	1.95
	Typesetters & composers	1	3.77
	Printing press work	158	1.79
	Printing machine work	16	1.59
	Bookbinders & related	75	1.40
	Printing work	4	2.09
	Cabinetmakers	2	2.96
	Wood machining	2	2.06
	Misc machine trades	3	2.59
	Fab, asmbly & repair of jewelry & silverware	65	2.17
	Metal unit assemblers & adjusters	15	2.59
	Fab & repair of tires, tubes & related	80	2.68
	Fab & repair of plastics, synthetics & rubber	5	2.80
	Model, pattern & mold makers	1	2.75
	Upholstering, mattress fab & repair	8	2.56
	Laying out, marking, cutting & punching	10	2.80
	Sewing machine operators, nongarment	38	1.79
	Comb Arc & Gas welders	20	2.76
	Lighting equip, building wiring & repair	1	3.58
	Large household appl & com'l & ind'l equip	4	--
	Excavating, grading, paving & related	1	3.58
	Carpenters & related	8	--
	Plumbers, gasfetters, steamfitters & related	1	3.53
	Misc. structural work	4	2.47
	Concrete mixing truck drivers	6	2.38
	Truck drivers, heavy	6	2.00
	Materials moving & storing	7	2.23
	Hand compositors, typesetters & related	2	2.25
	Graphic art work	1	2.80
Story	Electrical engineers	1	2.62
	Mechanical engineers	3	3.00
	Stenography, typing, filing & related	1	1.87
	Molders, coremakers & related	3	3.94
	Heating, rendering, melting, drying	4	1.40
	Crushing, grinding & mixing	1	1.40
	Processing, leather & textiles	2	--
	Machinists & related	10	2.88
	Toolmakers & related	6	3.50
	Printing press work	3	3.08
	Asmby & repair of radio & T.V.	1	2.13
	Sewing machine operators, nongarment	5	1.50
	Gas welders	1	2.10
	Comb Arc & Gas welders	30	2.63
	Asmby, install & repair of elec communication equipment	2	4.25
	Carpenters & related	30	1.63
	Brick & stone masons & tile setters	3	2.53
	Misc construction work	8	2.15
	Misc. structural work	1	6.25
	Hoisting & conveying	2	2.43
	Hand compositors, typesetters & related	1	1.40
	Graphic art work	3	1.50

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Warren	Mixing, compounding, blending, kneading, shaping	2	1.80
	SUB-AREA 8		
Adair	Separating, crushing, milling chopping	2	1.40
	Truck drivers, light	1	1.40
Clarke	Layingout, marking, cutting & punching	4	--
	Sewing machine operators, nongarment	20	--
	Fab & repair of textile, leather & related	5	--
	Hand compositors, typesetters & related	1	1.65
Taylor	Manufacturing industry management	2	3.75
	Salesmen, foodstuffs, beverages & tobacco	2	3.15
	Separating, crushing, milling, chopping	2	1.75
Union	Mechanical engineers	2	1.95
	Shipping & receiving clerks	1	2.08
	Salesmen, foodstuffs, beverages & tobacco	1	2.00
	Janitors	1	1.83
	Separating, crushing, milling, chopping	3	1.50
	Machinists & related	1	2.08
	Metal unit assemblers & adjusters	1	1.60
	Fab & repair of assorted materials	3	2.14
	Painters, spray	1	1.60
	Tinsmiths, coopersmiths & sheet metal workers	1	1.65
	Comb Arc & Gas welders	1	1.70
	Misc construction work	30	2.15
	Misc structural work	1	2.53
	Materials moving & storing	1	1.90
	Packaging & materials handling	1	2.00
	SUB-AREA 9		
Black Hawk	Mechanical engineers	3	2.50
	Draftsmen	1	--
	Writers & editors, publications	3	2.00
	Misc. office machine operators	3	2.00
	Stenography, typing, filing & related	1	1.25
	Bookkeeping machine operators	1	1.50
	Computing & account recording	2	1.80
	Salesmen, printing & advertising	1	1.50
	Routemen	7	2.33
	Molders, coremakers & related	4	2.50
	Ore refining & foundry work	10	2.24
	Process, food & related	4	2.00
	Forming	25	1.89
	Processing, nonmetallic minerals	17	2.25
	Machinists & related	14	2.97

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Black Hawk (cont.)	Toolmakers & related	7	3.60
	Boring	2	2.87
	Fabricating machine work	26	2.31
	Metal forming	5	2.54
	Misc. metalworking	54	2.49
	Motorized vehicle & engineering equip repair	2	1.97
	Typesetters & composers	3	2.91
	Printing press work	3	1.60
	Patternmakers	2	4.80
	Fab, asmby & repair of jewelry & silverware	5	1.94
	Fab, asmby & repair of tools & related	20	2.10
	Asmby & repair of sheet metal products	75	2.38
	Filing, grinding, buffing, cleaning & polishing	8	1.70
	Metal unit assemblers & adjusters	25	2.37
	Fab & repair of surg, med, & dent. instruments	1	3.00
	Asmby & repair of motors, generators & related	20	2.15
	Painters, spray	1	2.50
	Fitting, bolting, screwing & related	1	2.60
	Transportation equip asmby & repair	1	2.39
	Comb arc & gas welders	25	2.50
	Asmby, install & repair of generators	5	2.62
	Carpenters & related	6	1.40
	Misc. construction work	10	3.10
	Misc. structural work	8	2.67
	Concrete mixing truck drivers	19	2.98
	Truck drivers, heavy	1	2.60
	Materials moving & storing	5	1.94
Bremer	Bookkeeping machine operators	1	1.45
	Mixing, compounding, blending, kneading, shaping	2	1.83
	Processing, food & related	1	2.40
	Hand compositors, typesetters & related	1	2.20
Buchanan	Manufacturing industry management	1	3.30
	Machinists & related	2	1.90
	Comb arc & gas welders	2	1.90
	Truck drivers, heavy	1	1.50
	Hand compositors, typesetters & related	1	2.00
Butler	Plant farming	2	1.85
	Farm machinery operators	1	2.00
	Processing, food & related	1	1.40
	Crushing, grinding & mixing	2	1.95
	Truck drivers, light	1	1.70
	SUB-AREA 10		
Grundy	Mixing, compounding, blending, kneading, shaping	5	1.70
	Separating, crushing, milling, chopping	2	--

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Grundy (cont.)	Typesetters & composers	1	2.00
	Comb arc & gas welders	3	--
	Carpenters & related	2	--
	Hand compositors, typesetters & related	1	2.00
Hardin	Manufacturing industry management	2	1.61
	Stenography, typing, filing & related	2	1.57
	Salesmen, foodstuffs, beverages & tobacco	2	1.82
	Mixing, compounding, blending, kneading, shaping	1	--
	Processing, food & related	4	2.65
	Crushing, grinding & mixing	1	1.65
	Forming	1	1.40
	Machinists & related	2	2.58
	Turning	5	2.25
	Forging	7	1.70
	Fab & repair of assorted materials	2	1.40
	Excavating, grading & related	1	2.61
	Concrete mixing truck drivers	1	1.80
	Truck drivers, heavy	3	1.43
	Forming occupations	22	1.75
Jasper	Melting	1	2.35
	Molders, coremakers & related	2	3.25
	Ore refining & foundry work	6	1.98
	Separating, crushing, milling, chopping	1	1.70
	Turning	2	1.62
	Corrugating work	1	1.50
	Printing press work	1	2.00
	Fitting, shaping, cementing, finishing	3	1.58
	Model, pattern & mold makers	2	1.67
	Misc. structural work	2	2.17
	Concrete mixing truck drivers	7	1.71
	Parking lot & related service work	1	1.70
	Graphic art work	2	--
Marshall	Mathematics	1	--
	Writers & editors, publications	1	2.50
	Duplicating machine operators	1	2.96
	Stenography, typing, filing & related	1	--
	Automatic data processing equip operators	1	--
	Salesmen, foodstuffs, beverages & tobacco	1	--
	Janitors	1	1.80
	Grain farming	1	1.50
	Molders, coremakers & related	18	2.40
	Ore refining & foundry work	6	2.42
	Separating, crushing, milling, chopping	1	1.50
	Machinists & related	5	2.30
	Turning	50	2.03
	Metal machining	10	2.03
	Punching & shearing	1	2.28
	Metal forming	8	2.03
	Misc. metalworking	75	1.87

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Marshall (cont.)	Printing press work	1	3.00
	Asmby & repair of sheet metal products	3	1.83
	Metal unit assemblers & adjusters	28	2.02
	Winding & asmby of coils, magnets & related	1	2.60
	Asmby & repair of electrical components	23	1.90
	Asmby & repair of electrical equipment	16	2.14
	Misc. metal fabricating	4	2.28
	Comb arc & gas welders	8	2.12
	Misc. structural work	6	2.08
	Truck drivers, heavy	4	1.92
	Materials moving & storing	16	1.99
	Hand compositors, typesetters & related	4	2.51
Poweshiek	Stenography, typing, filing & related	2	1.40
	Salesmen, foodstuffs, beverages & tobacco	2	3.00
	Grain farming	4	1.40
	Mixing, compounding, blending, kneading, shaping	1	1.50
	Separating, crushing, milling, chopping	4	1.55
	Processing, food & related	3	1.95
	Fab, asmby, & repair of tools & related	10	2.00
	Fitting, shaping, cementing, finishing	3	1.65
	Laying out, marking,cutting & punching	2	2.00
	Sewing machine operators, nongarment	6	1.40
	Concrete mixing truck drivers	2	1.80
	Truck drivers, heavy	8	1.50
	Truck drivers, light	7	1.44
	Materials moving & storing	2	1.80
Tama	Manufacturing industry management	1	2.00
	Mixing, compounding, blending, kneading, shaping	1	1.50
	Concrete mixing truck drivers	5	1.75
	SUB-AREA 11		
Appanoose	Forming	13	1.87
	Processing, nonmetallic minerals	2	1.65
	Toolmakers & related	12	--
	Turning	12	2.50
	Motorized vehicle & engineering equip repair	4	2.25
	Paperworking	10	1.98
	Printing press work	10	2.67
	Asmby & repair of electrical appl & fixtures	200	2.00
	Asmby of wood products	25	1.50
	Concrete mixing truck drivers	2	2.00
	Hand compositors, typesetters & related	1	2.35
Davis	Molders, coremakers & related	4	--
	Ore refining & foundry work	10	1.75
	Machinists & related	1	2.38

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Davis (cont.)	Comb arc & gas welders	3	2.38
	Welders, flame cutters & related	1	1.83
Jefferson	Mechanical engineering	7	2.82
	Duplicating-machine operators	1	1.50
	Shipping & receiving clerks	15	2.15
	Ore refining & foundry work	15	2.54
	Mixing, compounding, blending, kneading, shaping	10	1.90
	Separating, crushing, milling, chopping	2	1.40
	Machinists & related	3	2.47
	Abrading	2	2.36
	Misc. metalworking	11	2.35
	Metal unit assemblers & adjusters	10	2.38
	Asmby & repair of elect. appl & fixtures	5	2.05
	Sewing machine operators, nongarment	30	1.40
	Comb arc & gas welders	8	2.13
	Lighting equip, building wiring & repair	3	2.13
Keokuk	Salesmen, foodstuffs, beverages & tobacco	2	2.85
	Mixing, compounding, blending, kneading, shaping	1	1.50
	Separating, crushing, milling chopping	50	1.60
	Crushing, grinding & mixing	1	1.60
	Truck drivers, heavy	1	1.50
	Truck drivers, light	1	--
	Materials moving & storing	20	1.80
Lucas	Sales & Distribution management	1	--
	Salesmen, commodities	2	--
	Concrete mixing truck drivers	3	--
Mahaska	Mechanical engineering	1	2.63
	Salesmen, foodstuffs, beverages & tobacco	2	2.40
	Melting	3	2.43
	Pouring & casting	4	2.43
	Molders, coremakers & related	20	2.43
	Ore refining & foundry work	4	2.43
	Processing, nonmetallic minerals	10	1.73
	Machininsts & related	3	2.43
	Misc. metalworking	11	2.49
	Comb arc & gas welding	1	2.43
	Lighting equip, building wiring & repair	2	2.43
	Carpenters & related	5	2.00
	Misc. structural work	2	2.43
	Truck drivers, heavy	1	1.50
	Truck drivers, light	1	1.60
	Hoisting & Conveying	2	2.43
	Materials moving & storing	2	2.43

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Marion	Secretaries	1	1.40
	Mail clerks	1	1.40
	Salesmen, foodstuffs, beverages & tobacco	1	2.50
	Machinists & related	1	2.45
	Printing machine work	1	2.00
	Comb arc & gas welders	10	2.03
	Carpenters & related	1	1.80
	Concrete mixing truck drivers	4	1.75
	Truck drivers, light	2	1.82
	Materials moving & storing	1	1.75
	Hand compositors, typesetters & related	1	2.00
Monroe	Metal unit assemblers & adjusters	30	1.40
	Laying out, marking, cutting & punching	3	1.40
	Sewing machine operators, nongarment	8	1.40
Wapello	Electrical engineering	5	2.20
	Mechanical engineering	3	4.00
	Routemen	4	3.13
	Mixing, compounding, blending, kneading, shaping	5	1.57
	Separating, crushing, milling, chopping	2	1.90
	Cooking & baking	6	1.99
	Processing, food & related	3	1.68
	Processing, nonmetallic minerals	8	2.00
	Machinists & related	34	3.17
	Toolmakers & related	2	3.15
	Turning	6	2.59
	Misc metalworking	6	2.54
	Mechanics & machinery repairmen	1	2.00
	Asmby & repair of radio & TV	50	1.63
	Asmby & repair of electrical components	400	1.49
	Asmby & repair of electrical equipment	25	1.57
	Comb arc & gas welders	30	3.51
	Carpenters & related	10	--
	Truck drivers, heavy	2	1.50
	Materials moving & storing	20	1.79
Washington	Manufacturing industry management	1	3.00
	Salesmen, foodstuffs, beverages & tobacco	4	2.00
	Mixing, compounding, blending kneading, shaping	1	1.40
	Separating, crushing, milling, chopping	4	2.03
	Processing, food & related	2	2.25
	Crushing, grinding & mixing	2	2.20
	Forming	30	2.00
	Corrugating work	100	1.73
	Typesetters & composers	1	--
	Printing press work	15	2.17
	Tinsmiths, coppersmiths & sheet metal workers	2	1.75
	Comb arc & gas welders	2	1.75
	Truck drivers, heavy	6	1.83
	Truck drivers, light	3	1.63

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Wayne	Stenography, typing, filing & related	1	1.50
	Routemen	1	1.75
	Processing, chemicals & related	7	1.70
	Machinists & related	15	1.89
	Fabricating machine work	1	1.40
	Misc metalworking	5	1.47
	Sewing machine operators, nongarment	5	2.00
	Carpenters & related	4	--
	Materials moving & storing	2	1.76
	SUB-AREA 12		
Allamakee	Routemen	1	1.40
	Separating, crushing, milling, chopping	3	1.62
	Punching & shearing	2	1.68
	Typesetters & composers	1	2.50
	Truck drivers, heavy	1	1.70
	Truck drivers, light	3	1.60
	Materials moving & storing	2	1.50
Chickasaw	Stenography, typing, filing, & related	1	1.60
	Processing, food & related	2	1.60
	Turning	1	2.27
	Misc. metalworking	3	1.94
	Misc. construction work	10	--
Clayton	Administrative specialties	1	2.75
	Secretaries	1	1.85
	Stock clerks & related	1	2.20
	Electroplating	1	1.50
	Mixing, compounding, blending, kneading, shaping	1	1.50
	Heating, rendering, melting, drying	2	2.00
	Processing, food & related	1	1.60
	Processing, wood & wood products	2	1.80
	Sawing	1	2.50
	Metal forming	3	1.65
	Paperworking	1	1.75
	Winding & asmby of coils, magnets & related	2	1.60
	Asmby & repair of electrical components	3	1.40
	Comb arc & gas welders	4	--
	Concrete mixing truck drivers	2	1.80
	Truck drivers, heavy	2	1.82
Fayette	Stenographers	3	1.80
	Stenography, typing, filing & related	3	1.50
	Salesmen, foodstuffs, beverages & tobacco	2	2.50
	Grain farming	200	--
	Mixing, compounding, blending, kneading, shaping	1	1.40
	Separating, crushing, milling, chopping	6	2.32
	Processing, food & related	3	1.90
	Crushing, grinding & mixing	1	2.00

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Fayette (cont.)	Toolmakers & related	1	3.50
	Misc. structural work	2	1.50
Howard	Meatcutters	1	1.75
	Slaughtering, breaking, curing	1	2.25
	Processing, food & related	3	1.60
Winneshiek	Writers & editors, publications	1	2.50
	Secretaries	1	1.40
	Stenographers	1	1.75
	Salesmen, printing & advertising	1	2.50
	Pouring & casting	14	1.75
	Cooking & baking	1	2.50
	Processing, food & related	2	1.50
	Metal unit assemblers & adjusters	30	1.40
	SUB-AREA 13		
Delaware	Salesmen, foodstuffs, beverages & tobacco	1	4.20
	Melting, pouring, casting & related	1	3.00
	Molders, coremakers & related	2	2.33
	Processing, nonmetallic minerals	2	1.75
	Toolmakers & Related	1	2.00
	Patternmakers	1	1.40
	Glass blowing, pressing, shaping & related	2	2.00
	Comb arc & gas welders	2	2.00
	Concrete mixing truck drivers	4	2.00
	Truck drivers, light	2	1.65
Dubuque	Mechanical engineers	1	4.50
	Accountants & auditors	2	3.15
	Automatic data processing equip operators	2	1.60
	Salesmen, commodities	1	3.00
	Pouring & casting	8	2.02
	Molders, coremakers & related	1	1.96
	Ore refining & foundry work	18	2.27
	Processing, paper & related	20	1.98
	Machinists & related	1	3.02
	Toolmakers & related	6	3.90
	Abrading	1	1.96
	Misc. metalworking	25	2.13
	Metal unit assemblers & adjusters	13	1.92
	Fab & repair of eng & scientific instruments	4	2.14
	Upholstering, mattress fab & repair	10	2.30
	Laying out, marking, cutting & punching	1	1.90
	Sewing machine operator, nongarment	24	1.70
	Transportation equip asmby & repair	15	2.68
	Arc welders	3	1.96
	Comb arc & gas welders	8	2.33
	Lighting equip, building wiring & repair	1	2.97
	Materials moving & storing	12	2.00

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Jackson	Stenographers, typing, filing & related	2	1.60
	Bookkeepers	1	1.70
	Forming	4	2.00
	Processing, nonmetallic minerals	1	3.13
	Printing press work	4	2.18
	SUB-AREA 14		
Benton	Manufacturing industry management	4	2.46
	Typists	1	1.45
	Stenography, typing, filing & related	1	1.45
	Salesmen, foodstuffs, beverages & tobacco	2	3.30
	Mixing, compounding, blending kneading, Shaping	7	1.88
	Crushing, grinding & mixing	1	2.00
	Gear machining	1	1.50
	Abrading	1	1.50
	Printing press work	1	2.50
	Metal unit assemblers & adjusters	1	1.50
	Lighting equip, building wiring & repair	3	3.25
	Carpenters & related	7	1.63
	Brick & stone masons & tile setters	15	2.50
	Truck drivers, heavy	1	1.70
	Truck drivers, light	4	1.90
Iowa	Manufacturing industry management	1	2.38
	Routemen	1	1.50
	Mixing, compounding, blending, kneading, shaping	1	1.45
	Cabinetmakers	2	1.70
	Sawing	2	2.03
	Metal unit assemblers & adjusters	300	2.32
	Fab & repair of assorted materials	2	1.50
Cedar	Manufacturing industry management	3	1.75
	Bookkeeping machine operators	1	1.50
	Salesmen, foodstuffs, beverages & tobacco	4	4.50
	Molders, coremakers & related	2	2.50
	Ore refining & foundry work	1	2.42
	Mixing, compounding, blending, kneading, shaping	8	1.59
	Crushing, grinding, mixing	1	1.75
	Tinsmiths, coppersmiths, & sheet metal workers	1	2.60
	Carpenters & related	1	1.75
	Truck drivers, heavy	1	1.75
	Truck drivers, light	1	2.00
Johnson	Mechanical engineering	3	4.63
	Industrial engineering	1	4.25
	Writers & editors, publications	2	2.65
	Administrative specialties	1	1.50

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Johnson (cont.)	Salesmen, printing & advertising	2	2.87
	Mixing, compounding, blending, kneading, shaping	2	1.70
	Casting & molding	10	1.74
	Processing, chemicals & related	150	1.91
	Toolmakers & related	2	3.90
	Extruding & drawing	10	2.54
	Fabricating machine work	30	1.91
	Misc. metalworking	5	2.75
	Motorized vehicle & engineering equip repair	5	2.33
	Printing press work	10	2.54
	Fab & repair of assorted materials	20	1.74
Jones	Photography	1	3.30
	Mixing & related	1	--
	Separating, crushing, milling, chopping	2	2.25
	Machinists & related	2	--
	Sawing	2	--
	Punching & shearing	6	--
	Metal forming	3	--
	Corrugating work	1	3.00
	Printing press work	2	2.85
	Fab asmby, & repair of jewelry & silverware	11	--
	Comination arc & gas welding	9	--
	Misc. construction work	23	--
	Truck drivers, heavy	1	1.60
Linn	Electrical engineering	83	2.83
	Mechanical engineering	38	2.97
	Geology	1	2.25
	Writers & editors, publications	1	1.62
	Writers	4	2.93
	Accountants & auditors	2	3.75
	Stenographers	10	1.71
	Stenography, typing, filing & related	15	1.53
	Automatic data processing equip operators	8	1.93
	Computing & account recording	15	1.57
	Shipping & receiving clerks	1	2.25
	Salesmen, foodstuff, beverages & tobacco	1	1.85
	Dip plating	3	--
	Mixing, compounding, blending, kneading, shaping	2	2.61
	Separating, crushing, milling, chopping	1	1.70
	Processing, food & related	8	2.36
	Calendering, sizing, coating & related	1	2.60
	Mixing & blending (Petro & related)	3	2.25
	Processing, chemicals & related	11	2.23
	Crushing, grinding, & mixing	10	3.45
	Machinists & related	76	3.03
	Toolmakers & related	11	3.29
	Turning	26	2.77
	Milling & Planning	4	2.74

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Linn (cont.)	Forging	10	2.68
	Misc. metalworking	74	2.54
	Misc. machine installation & repair	8	2.84
	Papercutting, winding & related	1	2.40
	Corrugating work	138	2.26
	Paper working	4	1.50
	Typesetters & composers	1	3.34
	Printing press work	5	3.45
	Fab asmby, and repair of tools & related	14	2.31
	Metal unit assemblers & adjusters	60	2.91
	Asmby & repair of communications equip	5	2.46
	Asmby & repair of electrical appl & fixtures	2	--
	Asmby & repair of electrical components	180	2.18
	Fab & repair of assorted materials	3	1.65
	Painters, spray	1	2.38
	Tinsmiths, coppersmiths, & sheet metal workers	63	2.46
	Misc. metal fabricating	5	3.13
	Comb arc & gas welders	20	2.80
	Lighting equip, building wiring & repair	8	2.98
	Plumbers,gasfitters, steamfitters, & related	1	3.13
	Misc. construction work	2	4.14
	Misc. structural work	4	3.05
	Concrete mixing truck drivers	4	3.06
	Truck drivers, light	4	2.15
	Materials moving & storing	26	2.60
	Hand compositors, typesetters & related	5	2.39
	Graphic art work	1	2.50
	SUB-AREA 15		
Clinton	Mechanical engineers	9	--
	Chemical engineers	8	--
	Chemistry	9	--
	Geology	85	--
	Accountants & auditors	4	--
	Personnel & training administration	1	--
	Stenographers	1	--
	Stenography, typing, filing & related	11	--
	Shipping & receiving clerks	1	--
	Stock clerks & related	1	2.54
	Salesmen printing & advertising	1	2.50
	Routemen	1	2.70
	Grain farming	9	1.70
	Dip plating	4	2.18
	Metal processing	9	1.72
	Molders, coremakers & related	1	2.18
	Processing, food & related	26	2.72
	Processing, paper & related	75	2.16
	Casting & molding	2	--
	Processing, chemicals & related	28	2.83
	Machinists & related	1	3.00
	Turning	5	2.34

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Clinton (cont)	Sawing	1	1.75
	Misc metalworking	11	1.97
	Motorized vehicle & eng equip repair	8	3.00
	Printing press work	3	2.46
	Fab, asmby, & repair of tools & related	15	--
	Fab asmby, & repair of metal products	1	2.18
	Winding & asmby of coils, magnets & related	2	1.91
	Sewing machine operators, nongarment	100	1.55
	Tinsmiths, coppersmiths & sheet metal workers	4	3.36
	Misc. metal fabricating	1	2.05
	Comb arc & gas welders	54	2.99
	Resistance welders	10	1.81
	Lighting equip, building wiring & repair	1	2.65
	Misc. structural work	5	1.60
	Concrete mixing truck drivers	3	2.35
	Truck drivers, heavy	3	1.92
	Materials moving & storing	4	2.45
	Hand compositors, typesetters & related	1	1.75
Muscatine	Mechanical engineers	9	3.05
	Chemical engineers	2	--
	Chemistry	15	2.82
	Biological sciences	1	--
	Writers & editors, publications	1	2.50
	Secretaries	12	2.00
	Stenography, typing, filing & related	31	1.55
	Computing & account recording	1	1.40
	Stock clerks & related	1	1.50
	Salesmen, foodstuffs, beverages & tobacco	1	3.60
	Janitors	1	2.28
	Grain farming	1	2.00
	Separating, crushing, milling, chopping	100	3.00
	Culturing, melting, fermenting, distilling	1050	2.16
	Processing, petroleum & related	11	2.37
	Processing, chemicals & related	48	2.07
	Crushing, grinding & mixing	2	1.80
	Machinists & related	18	2.93
	Turning	2	2.85
	Fabricating machine work	5	1.70
	Misc. metalworking	11	2.98
	Motorized vehicle & eng equip repair	2	3.15
	Misc. machine installation & repair	1	3.19
	Asmby & repair of motors, generators & related	4	2.19
	Fab & Repair of assorted materials	5	2.70
	Fab & repair of tires & tubes & related	25	2.31
	Fitting, shaping, cementing, finishing	1	1.50
	Arc welding	10	2.70
	Misc structural work	23	3.02
	Concrete mixing truck drivers	5	2.12
	Materials moving & storing	4	2.70

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Scott	Electrical engineers	26	4.16
	Mechanical engineers	44	4.41
	Chemical engineers	1	3.00
	Chemistry	20	2.75
	Commercial artists	1	2.50
	Typists	1	--
	Stenography, typing, filing & related	48	2.74
	Bookkeepers	1	1.60
	Computing & account recording	2	--
	Salesmen, foodstuffs, beverages & tobacco	2	2.25
	Salesmen, commodities	3	1.75
	Routemen	5	3.13
	Janitors	7	2.17
	Pouring & casting	192	3.12
	Molders, coremakers & related	12	3.08
	Ore refining & foundry work	6	3.20
	Mixing, compounding, blending, kneading, shaping	1	2.77
	Separating, crushing, milling, chopping	6	2.51
	Cooking & baking	12	2.27
	Processing, food & related	1	3.00
	Processing, paper & related	10	1.40
	Processing, wood & wood products	45	1.98
	Machinists & related	18	2.55
	Toolmakers & related	22	3.70
	Turning	18	2.66
	Hammer forging	2	2.50
	Forging	48	3.61
	Punching & shearing	5	2.53
	Misc metalworking	117	2.94
	Motorized vehicle & eng equip repair	8	3.38
	Corrugating work	2	1.70
	Typesetters & composers	2	3.40
	Printing press work	6	2.52
	Fab, asmby & repair of tools & related	2	2.50
	Metal unit assembling & adjusting	203	2.69
	Fab & repair of instru. to measure phys. char	27	--
	Asmby & repair of electrical components	56	1.63
	Asmby & repair of electrical equip	6	--
	Sewing machine operators, nongarment	14	1.41
	Tinsmiths, coppersmiths & sheet metal workers	1	--
	Comb arc & gas welders	1	2.60
	Lighting equip, building wiring & repair	11	3.61
	Cement & concrete finishing & related	2	4.16
	Carpenters & related	6	4.27
	Plumbers, gasfitters, steamfitters & related	6	3.37
	Misc. construction work	7	2.94
	Misc. structural work	22	2.13
	Concrete mixing truck drivers	2	2.60
	Truck drivers, heavy	2	2.50
	Materials moving & storing	12	2.61
	Photoengraving	1	4.33

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
	SUB-AREA 16		
Des Moines	Mechanical engineers	12	5.81
	Chemical engineers	20	--
	Accounts & auditors	3	--
	Stenography, typing, filing & related	30	2.49
	Bookkeeping, machine operators	1	1.75
	Salesmen, printing & advertising	1	--
	Janitors	3	1.90
	Ore refining & foundry work	5	--
	Mixing, compounding, blending, kneading, shaping	1	1.75
	Cooking & baking	46	2.09
	Processing, food & related	1	1.50
	Processing, chemicals & related	13	2.14
	Machinists & related	10	2.98
	Toolmakers & related	1	3.78
	Fabricating machine work	300	2.70
	Misc. metalworking	39	2.19
	Motorized vehicle & eng equip repair	5	3.48
	Printing press work	1	1.75
	Cabinet makers	5	--
	Fab, asmby, & repair of jewelry & silverware	60	2.49
	Asmby & repair of communications equip	100	2.20
	Asmby & repair of electrical components	300	2.17
	Painters, spray	1	2.15
	Upholstering, mattress fab & repair	9	2.60
	Comb arc & gas welders	4	2.25
	Plumbers, gasfitters, steamfitters & related	5	2.97
	Misc. structural work	1	2.50
	Materials moving & storing	37	2.04
	Extraction of minerals	5	2.30
Henry	Electrical engineering	4	1.82
	Shipping & receiving clerks	2	1.80
	Salesmen, printing & advertising	2	1.75
	Metal unit assemblers & adjusters	53	2.14
	Fab & repair of assorted materials	1	1.80
	Painters, spray	5	2.22
	Arc welders	3	1.80
	Comb arc & gas welders	8	1.95
	Materials moving & storing	45	2.20
	Hand compositors, typesetters & related	1	2.20
Lee	Mechanical engineers	1	3.29
	Chemical engineers	2	--
	Chemistry	1	--
	Ore refining & foundry work	59	2.39
	Mixing, compounding, blending, kneading, shaping	15	2.39
	Separating, crushing, milling & chopping	1	2.25
	Processing, paper & related	20	2.26
	Machinists & related	1	2.75

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
Lee (cont.)	Toolmakers & related	8	3.08
	Printing machine work	1	2.50
	Cabinetmakers	1	--
	Fab & repair of pens, pencils, office & artists mat.	195	1.63
	Fitting, bolting, screwing & related	20	1.74
	Concrete mixing truck drivers	3	2.55
	Truck drivers, heavy	1	2.25
	Truck drivers, light	1	1.75
Louisa	Manufacturing industry management	1	--
	Mixing, compounding, blending, kneading, shaping	2	1.65
	Welders, flame cutter & related	1	1.40
	Truck drivers, heavy	1	--

TABLE III-B

NUMBER OF JOB VACANCIES AND AVERAGE HOURLY WAGE RATES OFFERED,
BY DETAILED OCCUPATIONAL GROUP,
99 COUNTIES. MARCH-AUGUST 1967. (PART-TIME)

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
	SUB-AREA 2		
Page	Writers & editors, publications	1	1.75
	SUB-AREA 3		
Dickinson	Heating, rendering, melting drying	20	1.40
Emmet	Routemen	1	2.00
	SUB-AREA 4		
Audubon	Truck drivers, heavy	2	1.55
Carroll	Metal unit assemblers & adjusters	5	1.85
	SUB-AREA 5		
Cerro Gordo	Forging	2	--
	SUB-AREA 6		
Calhoun	Assembly of wood products	6	1.50
Pocahontas	Processing, chemicals & related	1	1.63
	SUB-AREA 7		
Dallas	Processing, chemicals & related	1	--
Guthrie	Truck drivers, heavy	3	2.25
Polk	Metal machining	15	--
	Fab, asmby, & repair of metal products	50	--
	Bookbinders & related	6	1.50
Story	Architectural occupations	3	2.25
	SUB-AREA 9		
Black Hawk	Processing, paper & related	10	--
	Truck drivers, heavy	8	2.75
	Theatrical & entertainment production	6	0.95
Bremer	Processing, chemicals & related	10	1.60

COUNTY	OCCUPATION	NUMBER OF VACANCIES	WAGE
	SUB-AREA 10		
Marshall	Asmby & repair of electrical components	150	1.84
	SUB-AREA 11		
Mahaska	Slaughtering, breaking, & curing	2	1.50
Van Buren	Misc. metal working	4	--
	SUB-AREA 12		
Allamakee	Processing, food & related	2	1.40
Howard	Processing, chemicals & related	1	1.75
	SUB-AREA 13		
Dubuque	Carpenters & related	8	1.67
	SUB-AREA 14		
Iowa	Processing, food & related	2	1.40
	Printing work	3	--
	SUB-AREA 15		
Clinton	Concrete mixing truck drivers	5	2.30
	SUB-AREA 16		
Des Moines	Stenography, typing, filing & related	1	1.50
	Salesmen, printing & advertising	1	1.80
Lee	Processing, chemicals & related	2	1.55

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The Registered Dental Hygienist, Facts for Counselors. Publication No. 1508.

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*HEALTH OCCUPATIONS EDUCATION; *DENTAL HYGIENISTS; *OCCUPATIONAL INFORMATION; SALARIES; EMPLOYMENT OPPORTUNITIES; CERTIFICATION; *OCCUPATIONAL GUIDANCE; RESOURCE MATERIALS; STAFF ROLE

The booklet is intended as a source of information for counselors and the students they advise. Prefaced by basic descriptions of the roles of the three major groups of dental auxiliaries, hygienists, assistants, and laboratory technicians, it provides detailed information about (1) the history of the occupation, (2) employment including types of opportunities, salaries, and conditions of work, (3) education including types of programs, entrance requirements, and program of study, (4) licensing requirements, and (5) the professional organization. Supplementary information includes a listing of publications available from the American Dental Hygienists' Association, information about a career film, and statistics regarding dental hygienists and dental hygienist schools. (JK)

VT 005 641

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The Registered Dental Hygienist

FACTS FOR COUNSELORS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

VT005641

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
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Preface

This booklet is a source of information for counselors and the students they advise. With the oral health of the Nation receiving increased attention, there probably will be a corresponding increase in the interest of students in preparing for a career in dentistry . . . or for one of the three health occupations allied to dentistry. And although this publication emphasizes the role of the dental hygienist as a member of the dental health team, it seems appropriate to describe briefly the role of each of the three dental auxiliaries on that team.

The dental hygienist is a health teacher as well as a skilled technician. The services which the dental hygienist performs will become increasingly important in the campaign to improve oral health and total physical well-being. The dental hygienist works under the supervision of the dentist and assists both the dentist and the patient by providing dental health information, and by performing preventive dental treatments, such as oral prophylaxis. The dental hygienist is the only one of the three auxiliary members of the dental health team who must be licensed to practice. Formal training programs for dental hygienists have existed longer than for either of the other dental auxiliaries.

The dental assistant performs many functions in the dental office. Her most valuable role is that of the chairside assistant where she serves as the dentist's second pair of hands during dental treatment procedures. The dental assistant may also serve as a secretary-receptionist and in some dental offices will perform certain laboratory procedures. In recent years, formal training programs for dental assistants have been started and the number of such programs is growing rapidly.

The dental laboratory technician makes and/or repairs dental appliances such as partial and full dentures, and makes restorations such as inlays and crowns. The technician works under the direction, or according to the prescription, of a licensed dentist. A few of them are employed full-time by dentists, but the great majority work in commercial laboratories. There are now a few formal training programs and more will be developed in the future. However, most dental laboratory technicians are now trained on-the-job in dental laboratories.

The Registered Dental Hygienist

Background

The dental hygienist has been a recognized auxiliary member of the dental profession since the early 1920s. Until recently, however, only a relatively small number of hygienists have been graduated each year, and there have been no training programs in some sections of the country. These factors have tended to limit the public knowledge and understanding of the role of the dental hygienist in providing dental health education and the preventive dental services designed to promote and protect oral health.

The means for promoting oral health among patients and the general public has concerned members of the dental profession for many years. Techniques of toothbrushing which children and adults could adopt and practice routinely were developed. A systematic procedure for the removal of soft and hard deposits, as well as stains, was developed and designated as an oral prophylactic (preventive) treatment. Both the educational procedures and the techniques of the oral prophylaxis were time-consuming, and the idea of training women to assume these duties occurred to several Eastern dentists at the beginning of the century.

It remained for one dentist, however, to take the initiative for training women to provide these services which would promote oral hygiene—and so the dental hygienist and the profession of dental hygiene were created. For the first twenty-five years, growth of both the number of formal training programs and the number of annual graduates was slow. Beginning in the mid-1940s, growth began to accelerate and in the period between 1950 and 1965, the number of schools and the number of annual graduates trebled.

At the present time, the practice of dental hygiene is essentially the same as when the dental hygienist was first used though modern treatments for the prevention of dental decay are also included in most parts of the country.

Opportunity for Dental Hygienists

It has been estimated that it would take 33,000 dentists, working exclusively on the children of the United States, one year to care for their current dental needs. There are, however, only about 86,000 practicing dentists in the United States to serve both chil-

dren and adults. Because of the limited dental manpower and the accumulating dental needs of the public, the dentist must rely to a greater extent on the use of the dental hygienist. A major responsibility in the expanding field of preventive dentistry will be assumed by the dental hygienist working under the supervision of the dentist.

There are approximately 15,100 dental hygienists now practicing in the United States. There is a demand for many times this number. The dental hygiene student may look forward to a useful and interesting career as a much needed member of the dental health team.

Employment opportunities for qualified registered dental hygienists are varied:

In the private dental office — she may perform oral prophylaxes, apply decay-preventing agents to the surfaces of the teeth, instruct patients in techniques for improving oral health, expose and process dental X-rays and occasionally aid the dentist in oral operations.

In the public schools — she may cooperate with school and health officials in providing instruction for improved student oral health, examine teeth and mouths and record oral conditions, perform oral prophylaxes, provide decay preventive treatments, arrange for dental care for indigent children and present dental health talks to school children and parent groups.

In public health departments — she may provide services similar to those in public schools, serve in clinics and hospitals for indigent children and adults, and cooperate with public health officials and dentists in providing dental health education. The dental hygienist may assume considerable responsibility for the organization and administration of dental health programs such as in-service training programs for teachers and nurses on the county or state level.

In private industry — she may provide preventive dental health services similar to those in private practice in health clinics maintained by industrial organizations for their employees.

In dental hygiene education — she may become a faculty member of a school for dental hygienists, teach and counsel dental hygiene students and serve in administrative capacities.

In special service opportunities — such as the Peace Corps, on the hospital ship "Hope" or, perhaps, in a foreign country.

It is anticipated that the greatest future demand for dental hygienists will continue to be in private dental practice. However, an increasing number of registered dental hygienists are being employed in public health programs sponsored by schools and state and local health departments.

Educational Opportunities

The number of schools of dental hygiene has grown rapidly in recent years and there is every indication that this trend will continue. Current lists of approved schools may be obtained from the Council on Dental Education of the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois, 60611.

There are two types of programs for the education of dental hygienists. About 75% of the schools offer the basic two year curriculum which leads to a Certificate (or Diploma) in Dental Hygiene or to an Associate Degree in Arts or Applied Science. The curricula of all approved two year programs provide the essential basic training and meet the requirements of education for dental hygienists as determined by the Council on Dental Education of the American Dental Association, which is the official accrediting agency for dental hygiene educational programs.

The graduate of the two year program is fully prepared to take the examination for a license to practice dental hygiene in the state of her choice. Employment opportunities in private practice and in some dental public health programs are available to graduates of the two year course.

About 25% of the schools offer a program of study leading to a baccalaureate degree. In some, the degree is granted with a major in dental hygiene, and in others the major area of concentration — in addition to the basic dental hygiene training—is in education, health education or dental public health. Dental hygienists with baccalaureate degrees may qualify for positions as teachers or clinical instructors in schools of dental hygiene, for administrative positions in some dental public health programs, as well as for the employment opportunities available to dental hygienists who are graduates of the two year programs.

For those dental hygienists who hold baccalaureate degrees, and who wish to undertake graduate education, there is an increasing number of opportunities. The master's degree is attainable in public health, and in dental hygiene education and administration. Graduate education is also offered in other specialized areas if the dental hygienist has the academic background required for the area of study.

Entrance Requirements

With few exceptions schools of dental hygiene require each applicant to present evidence of the successful completion of a college preparatory course of study in high school. A minimum of twelve "academic" units of study is usually required. The course most frequently specified is: English — 3 or 4 units; algebra, geometry or trigonometry — 2 or 3 units; chemistry — 1 unit; biology — 1 unit; a foreign language — 2 units in one language; social studies — 2 units (American History is frequently required).

Preference in admissions is usually given to the applicant who has completed the full unit requirement for high school graduation by selecting the remaining subjects from among those considered "academic" in nature. The scholastic achievement record in high school and rank in graduating class are also considered.

Most schools of dental hygiene require an applicant to take the Dental Hygiene Aptitude Test during the senior year in high school. In addition, most schools require an entering student to present scores from a college entrance examination such as the Scholastic Aptitude Test (SAT) or the American College Test (ACT). Some schools also require one or more of the following: personal interview, letters of recommendation, and evidence of good medical and dental health.

Where age is specified, 17 years or 18 years are the minimum age limits for entering students There is seldom an upper age limit.

Program of Study in Dental Hygiene

Subjects in the two year program in dental hygiene may be grouped under four general headings: liberal arts, basic sciences, dental sciences and clinical practice. Under the general headings the following courses are usually included:

- Liberal arts: English, psychology, sociology and speech.
- Basic sciences: anatomy, chemistry, histology, microbiology, nutrition, pathology, physiology and pharmacology.
- Dental sciences: dental anatomy, oral histology and embryology, head and neck anatomy, oral pathology, radiology, dental health education, dental public health, and other courses similarly directed toward the special interests of dental hygienists.
- Clinical practice: laboratory practice and clinical experience in the techniques the dental hygienist uses to aid in the prevention of dental decay and periodontal (gum) disease.

Approximately 20% of the credits earned in a two year program are earned in liberal arts, 30% in basic sciences, 30% in dental sciences and 20% in clinical practice. The proportion of credit given does not reflect the amount of time spent in clinical practice because fewer credits are given for clinical hours. As an example: one credit is given for a lecture course meeting one hour per week per semester, and one credit is given for five hours spent in clinical practice per week per semester.

Entering the Occupation

Schools of dental hygiene are usually able to assist the graduating dental hygiene

8b

student in locating suitable employment. Also, local and state dental hygiene associations frequently sponsor a placement bureau as a service to their members and to the dental profession. State and national dental and dental hygiene journals and newsletters often include classified advertising sections which carry notices of employment opportunities.

Licensing Requirements

Every graduate dental hygienist must be licensed by the State Board of Dental Examiners of the state in which she wishes to practice. The applicant for such a license must successfully complete both a written and practical examination. State board examinations are offered annually (semi-annually in a few states) and usually are held in the early summer. Details of the examination requirements are available from the Secretary of the State Board of Dental Examiners in each state.

In 1962, the American Dental Hygienists' Association in cooperation with the American Dental Association initiated a National Board Examination for Dental Hygienists. This examination may be taken in the spring of the year in which the student will graduate. It is a written examination and it is currently accepted by the State Board of Dental Examiners in all but ten states in lieu of the written portion of the state board examination. The National Board Examination enables the dental hygienist to qualify more easily for a license to practice if she moves from one state to another.

Professional Organization

The graduate dental hygienist who has been licensed to practice may become a member of the American Dental Hygienists' Association. Membership in a state association is prerequisite for membership in the national organization.

Employment Compensations

Salaries: The salary range for a dental hygienist depends upon several factors: geographic location, the amount of experience and the type of employment. Starting salaries for dental hygienists range from $350.00 to $500.00 per month with beginning salaries even higher in some regions of the country.

In Federal Government (U. S. Public Health Service, Armed Services and Veterans Administration) a dental hygienist may start at Civil Service Grade 4 at $4,776 per year and with periodic promotions go as high as Grade 9 at $10,045 per year.

Pensions: There is no organized pension system for dental hygienists. A dental hygienist can obtain coverage under Social Security, or under Civil Service if she is em-

ployed by an agency of the Federal Government. As a member of the American Dental Hygienists' Association, she is eligible to participate in group annuity and insurance programs.

Conditions of Work

The dental hygienist may be employed full-time or part-time. Part-time employment is particularly attractive to the married dental hygienist who has children in school. If employed in private practice, a hygienst may work full-time for one dentist, or part-time for several dentists.

In private practice regular office working hours usually prevail—with some exceptions for patients who cannot meet the regular hours. If employed by a public health department or the Federal Government, the dental hygienist will usually work a 40 hour week, with regular hours.

Arrangements for paid vacations and paid sick leave vary for dental hygienists in private dental practices. In a state or local health department, or in Federal Government employment, there are established policies for vacation days with pay and for paid sick leave. For Federal Government employees, annual leave begins at 13 days per year and reaches 26 days after 15 years of employment. Sick leave is provided on the basis of 4 hours every two weeks of work.

Supplemental Information

Publications

The following publications are available from the

American Dental Hygienists' Association
211 East Chicago Avenue
Suite 1616
Chicago, Illinois 60611

"Careers in Dental Hygiene"—an informational pamphlet for the high school student who is interested in entering a health occupation related to dentistry. Single copies, 10¢.

"Dental Hygiene Aptitude Testing Program"—a pamphlet which explains the aptitude test required by most schools of dental hygiene as a part of selection and admissions procedures. (Available upon request.)

"The Journal of the American Dental Hygienists' Association" — a quarterly publication. Subscription rates: Domestic $4.00, Foreign $5.00 per year. Address inquiries to the Business Manager.

A list of the approved schools of dental hygiene, by state, is available upon request from the

Council on Dental Education
American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

Film

"A Bright Future" is a 28 minute color film produced by the American Dental Hygienists' Association. It is suitable for career day programs and is available for purchase or loan. The film may be purchased from the American Dental Hygienists' Association at a cost of $100.00 per copy or borrowed from the Bureau of Audio-Visual Service of the American Dental Association, 211 East Chicago Avenue, Chicago.

Statistics

Excerpts from Background Data Book prepared for U.S. Department of Labor—U.S. Department of Health, Education, and Welfare Conference on Job Development and Training for Workers in Health Services. Washington, D. C. February, 1966.

"Of the 14,500 active dental hygienists in the United States in 1964, about 6,500 are employed full-time and 8,000 work part-time only. Since 1950, the active supply has been increased by about 7,500, but there are still fewer than 8 hygienists per 100,000 population."

DENTAL HYGIENISTS IN RELATION TO POPULATION: UNITED STATES 1950-1964

Year	Civilian Population in Thousands	Unduplicated Count of Licensed Hygienists	Hygienists per 100,000 Population
1964	189,371	14,500	7.7
1960	178,153	12,500	7.0
1950	150,790	7,000	4.6

SCHOOLS FOR TRAINING DENTAL HYGIENISTS AND NUMBER OF GRADUATES: UNITED STATES, ACADEMIC YEARS 1949-1950 to 1964-1965 *

Academic Year	Schools	Graduates
1964-65	53	1,491
1963-64	49	1,429
1962-63	47	1,257
1961-62	43	1,219
1960-61	37	1,023
1959-60	34	992
1954-55	31	857
1949-50	18	529

* Source: Dental Students' Register, American Dental Association.

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*AGRICULTURAL EDUCATION; *TEACHER EDUCATION; *STUDENT TEACHING; *PROGRAM GUIDES; REFERENCE MATERIALS; TEACHER EVALUATION; TEACHER SUPERVISION; TEACHER ROLE; NONINSTRUCTIONAL RESPONSIBILITY; *STUDENT TEACHERS; RECORDS (FORMS)
VIRGINIA POLYTECHNIC INSTITUTE

This student guide was prepared to assist student teachers in selecting important activities and evaluating progress made toward developing teaching proficiency. The content includes: (1) a list of suggestions for the beginning student teacher, (2) a list of participating experiences for agricultural education student teachers, (3) a student teacher weekly schedule form, (4) a teaching evaluation form, (5) a supervised occupational experience visitation record, and (6) a final evaluation report form. (DM)

VT 005 758

ED036657

C.1

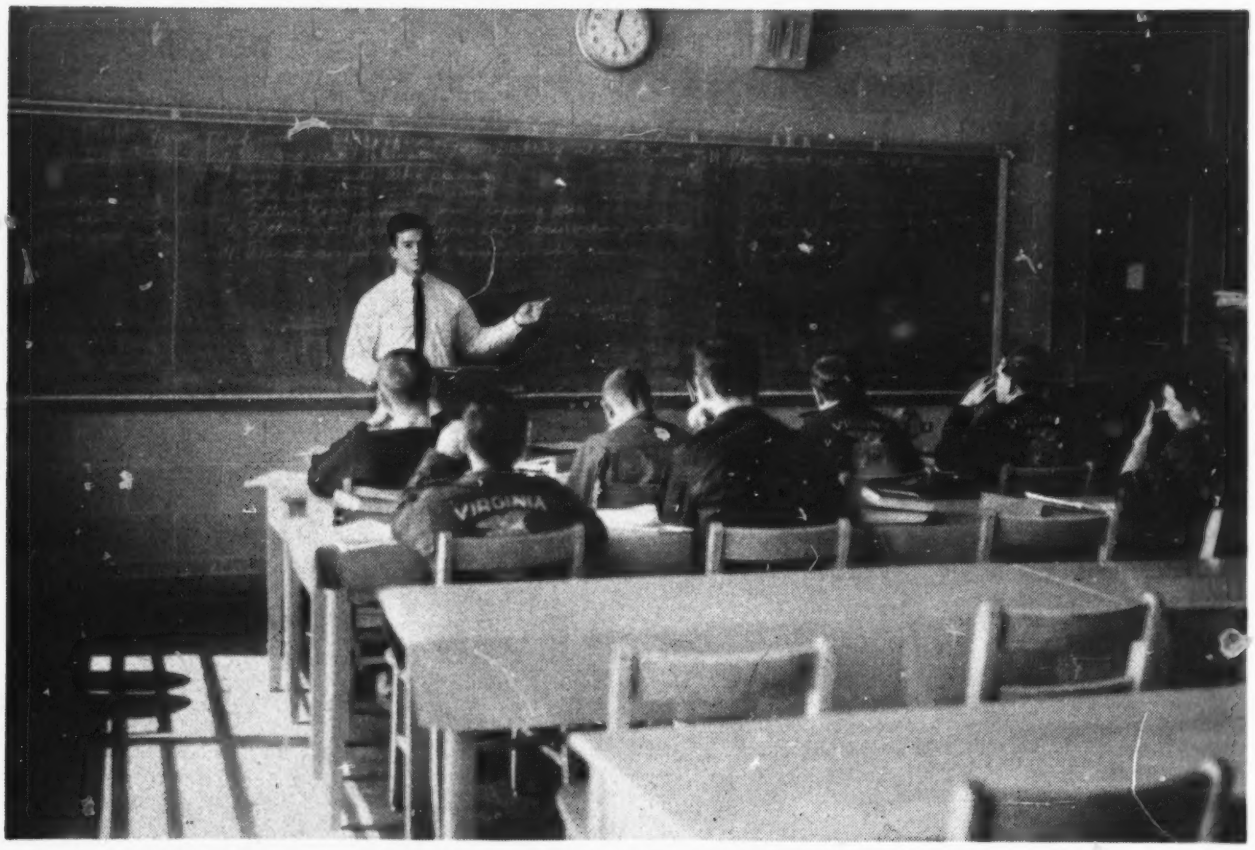
SUPERVISED PARTICIPATING EXPERIENCES

FOR

TEACHER EDUCATION

IN

AGRICULTURAL EDUCATION



Department of Education
Virginia Polytechnic Institute
Blacksburg, Virginia

July 1966

Agricultural Education Bulletin No. 20

VT005758

SUPERVISED PARTICIPATING EXPERIENCES
FOR
TEACHER EDUCATION IN AGRICULTURAL EDUCATION

Student Teacher _____

School _____ Area _____

Address _____

Supervising Teacher _____

Supervising Teacher-Educator _____

Student Teaching Period:

Date started _____ Date ended _____ Year _____

Summer Practice Period:

Date started _____ Date ended _____ Year _____

Report completed: _____
Month Day Year

INTRODUCTION

As a student teacher in agricultural education, you will participate in a wide variety of activities during your supervised teaching experience. These are activities in which you should gain experience and develop proficiency in order to become a teacher of vocational agriculture.

This publication has been prepared to guide you in selecting the activities considered most important and for evaluating progress made toward developing proficiency in them. You should become thoroughly familiar with this material and the use to be made of it before your student teaching period.

You are beginning a new undertaking. It should be an experience of value and interest to you.

The ability to work well with other people and to maintain desirable relationships is one which every beginning teacher should cultivate. Proper and desirable professional procedures are followed by all outstanding successful teachers.

First impressions are important. Be courteous, cooperative, and sincere in your dealings with students, supervising teachers, administrators, other faculty members and school employees and parents.

Be observant of what is done and how it is done in the school to which you are assigned. The student teaching center is your laboratory for practice in teaching.

As any teacher must, you also must follow the policies and procedures of the school in which you do your directed teaching. You should realize that the coming and going of student teachers causes some interruption of the regular school program. The members of the agriculture classes in the high school must adjust to a new personality with the advent of each student teacher.

At the same time, you have the opportunity to make contributions to the school. You are added personnel in the school and as such, you may have additional ideas to present for consideration which can be of value to the educational program.

You will find your supervising teacher, your area supervisor, the school administration, and other local persons in the school community cooperative and helpful.

SUGGESTIONS FOR THE BEGINNING STUDENT TEACHER

Be Observant, Willing, Dependable, Resourceful and Enthusiastic

A. Professional Procedures and Relationships:

1. Report to the supervising teacher before school opens on the morning of the first day of your student teaching period. He will introduce you to the principal and superintendent if you have not already met them.
2. The principal expects you to become one of the teaching staff. Every teacher has certain obligations in the total program and you must be willing to do your share in this respect. At the same time, you are not assigned to the school to do "odd jobs" which are not required or expected of other teachers.
3. Work through your supervising teacher, in your professional relationships. He is your immediate superior officer.
4. Be tactful, fair, understanding and patient in your dealings with others.
5. Be discreet in everything you do. You may not find all situations as perfect as you think desirable -- few of us do. Learn to work out your problems. Watch your conduct. Do not become involved in social affairs with high school girls.
6. Do not criticize one student to another. Do not criticize your class, your supervising teacher, your administrator, or your school to others.
7. Do not hesitate to ask for assistance from the supervising teacher.
8. If you do not know how to do a particular job, be sure to say so. Obtain help in learning to do it but do not place yourself in an embarrassing predicament by claiming to "know all."

9. Do not be afraid to suggest new ideas, but do not be surprised if they are not used. Endeavor to find out why they are not used, however. Experience will indicate to the supervising teacher what may be feasible.

10. Do not wait to be told what to do. After general instructions have been given you, or certain activities planned, proceed to get the job done. Use initiative, but be sure to keep your supervising teacher informed. He will tell you, if you get "off the beam".

11. Maintain friendly relationships with other departments of the school. Do not, however, become a "gossip" or carry tales from one to another.

12. Personal appearance is important. Be neat and clean. Our degree of personal "handsomeness" varies, but we all can present a pleasant appearance.

13. Be willing, even desirous of working "overtime". Agriculture teaching is not a "whistle to whistle" job. You should be able to work as diligently as the supervising teacher for you are learning to do the job.

14. Learn all you can at the training center. An agriculture teacher has a challenging job. Get all the experience possible in all phases of the job -- organization, teaching, field and laboratory work, supervised practice programs, adult and young farmer classes, and FFA activities.

15. Take criticism in the spirit in which it is offered. You are "learning to do", and suggestions will be offered for your professional improvement.

16. First contacts are important. Your supervising teacher will introduce you to each class. Be friendly and sincere, but reserved.

17. Be prepared to start teaching when you feel you are "ready". Watch the supervising teacher. Observe how he handles students and how he directs the learning in the class. The supervising teacher will work with you in planning your first teaching job.

18. Become familiar with each pupil's name and face. Make a copy of the class roll and the seating arrangement. You should know the name of every pupil by the time you teach your first class.

19. Prepare your lesson plan carefully. Always be prepared. Be sure you know what it is you expect to accomplish in each teaching job or unit (objectives), and how you expect to accomplish it.

20. Secure the cooperation of your class, but do not try to do this by being too "easy" or overly friendly. Endeavor to maintain an orderly business-like classroom atmosphere. As you gain experience, you can more easily direct and supervise classwork which allows greater, and more desirable student activity and freedom.

21. Utilize good teaching devices and methods. Make your work interesting and vital to the student. Use visual materials, charts, pictures, demonstrations, and other desirable devices. Build from and on life situations and environment. Make use of your previous learning.

22. Endeavor to improve such things as your use of grammar, your handwriting, your spelling, etc.

23. Be prompt and dependable. Keep your appointments, be on time, do things expected of you on time and in an acceptable fashion. Develop the very desirable habit of handing in records and reports at the time they are due. Planning ahead and the scheduling of your time and activities will help to accomplish these items.

24. Learn from your supervising teacher. How does he handle situations and problems? Keep a record of special "knacks" or devices which you see used. How does he work with people in conducting his program?

B. Instructions:

1. Keep a neat, accurate, and complete record of your experiences. Be sure to keep all required or desirable records such as mileage in your own car, visitation, activities, financial accounts, etc., in a careful and accurate fashion.
2. You are expected to devote your time to work and activities in the agricultural department, and to the regular activities of the faculty and school.
3. You are directly responsible to the supervising teacher and through him to the school administration.
4. Be of assistance and help to the supervising teacher. The local school authorities have granted permission for you to observe and teach in their school. The continuance of this privilege to those who will follow you, depends upon how well you do your work and the manner in which you conduct yourself.
5. Whenever you leave the school for any reason be sure that you have the approval of your supervising teacher and when necessary the school administrator.
6. Learn all that you can about the school and agricultural department organization. This will include such items as:
   a. Department class schedules
   b. Department course outlines
   c. School policies and procedures

d. Department budget

e. Department filing system

f. Sources of supplies and materials

g. Sources and kinds of reference materials

h. Agricultural mechanics organization

i. Future Farmers of America activities

j. Adult farmer classes

k. Young farmer organization

l. Department program of work

7. Participating experiences: (pages 6 to 19).

Each student teacher should become thoroughly familiar with the list of experiences in order that he may obtain the maximum experience during the training period. He should discuss them with the supervising teacher. As each experience is accomplished indicate by placing a check mark (✓) in the column headed "Participated". The column headed "Comments" is for you to indicate the degree of participation, suggestions for improvement, suggestions for additional experiences needed, strong or weak points, and as a guide for consultation. During the last week of the training period, you should make a summary statement indicating how well you feel that you have accomplished the experiences using the space marked "General Evaluation". Then give yourself an evaluation which most nearly describes the degree of accomplishment using one of the following terms: "Excellent", "Very Good", "Good", "Fair", "Unsatisfactory". After doing this turn your participating experience book over to the supervising teacher for his evaluation.

10. The forms in the back of this publication are samples of forms used for evaluation. The weekly schedule sheet is used for listing the time when experiences are to be gained. Copies of these forms are available in the training center.

PARTICIPATING EXPERIENCES FOR STUDENT TEACHERS IN AGRICULTURAL EDUCATION

I. Objective: To Develop Ability to Become Established in the School and Community

Activity	Participated	Comments
1. Become acquainted with:		
a. Principal		
b. Superintendent of Schools		
c. Local school board member		
d. Other faculty members		
e. Dept. Advisory Council		
f. Professional agricultural workers		
g. Local farmers (as many as possible)		
h. Business men and bankers		
i. Local member of Legislature (if in community)		
j. As many civic leaders as possible		
k. Become acquainted with as many parents of pupils as possible		
l. Become acquainted with at least one member of Board of Supervisors		
2. Consult with supervising teacher in selecting room and board		
3. Maintain a sound financial standing in community		
4. Become familiar with the customs of the community		
5. Others		

General evaluation: _____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

II. Objective: To Develop Ability to Maintain Satisfactory School and Personal Relationships

Activity	Participated	Comments
1. Attend faculty meetings		
2. Obtain understanding with the principal regarding school policies and administration		
3. Abide by school regulations, customs and schedule		
4. Assist supervising teacher in making school reports and other administrative and supervisory duties		
5. Consult with supervising teacher on all situations which require a major decision		
6. Become familiar with relationships of:		
a. The teacher of vocational agriculture to the principal		
b. The teacher of vocational agriculture to the superintendent		
c. The teacher of vocational agriculture to the area supervisor		
d. The teacher of vocational agriculture to the state supervisor		
e. The teacher of vocational agriculture to the teacher educators		
f. The teacher of vocational agriculture to the other school personnel		
7. Others		

General Evaluation: _____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

III. Objective: To Develop Ability to Plan the Department Program of Work		
Activity	Participated	Comments
1. Become familiar with the program of work of the department: a. Study and discuss the program with the teacher		
b. Study materials used in preparing program		
c. Discuss with supervising teacher the procedure followed in planning the program		
d. Discuss the place of the advisory council in program planning		
2. Assist supervising teacher in carrying out current phases of the program		
3. Discover individual and community needs by: a. Discussing with supervising teacher		
b. Observing		
c. Talking with farmers, business and professional people, and community leaders		
d. Visiting		
4. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

IV. Objective: To Develop Ability to Plan Lessons for and Teach High School Classes

Activity	Participated	Comments
1. Become familiar with existing class organization		
a. Call rolls and become familiar with seating plan		
b. Observe classroom management and teaching procedures of supervising teacher		
2. Become familiar with the course of study		
3. Visit to become familiar with home farm situations		
4. Prepare and have approved by the supervising teacher a written lesson plan for each unit before taught		
5. To teach classes:		
a. Motivate students		
b. Guide learning activities with participation by all students in class		
c. Provide references and supervise study periods		
d. Provide individual instruction as needed		
e. Prepare and give appropriate demonstrations		
f. Arrange and conduct appropriate field trips		
g. Supervise notebook work		
h. Prepare and use appropriate visual aids for each unit taught and operate projection equipment		
i. Locate and use teaching resources in the community		
6. Measure effectiveness of instruction:		
a. Visit students to check growth in supervised work experience programs		
b. Prepare and use objective tests		
7. Others		

General Evaluation: _____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

V. Objective: To Develop Ability to Organize, Plan Lessons For and Teach Young and Adult Farmer Classes

Activity	Partici-pated	Comments
1. Observe and assist the supervising teacher in contacting prospective members		
2. Visit homes of present and prospective members		
3. Observe planning procedures used by the supervising teacher and examine the planned program of instruction		
4. Observe classes taught by supervising teacher		
5. Assist in preparing instructional materials		
6. Plan and teach classes in the course		
7. Observe and aid the supervising teacher in: a. Assisting with leadership, cooperative and community service activities sponsored by the group		
b. Helping with social and recreational activities		
8. Observe procedure used by the supervising teacher in securing an understanding of and support for continuing education in agriculture for out-of-school persons		
9. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

VI. Objective: To Develop the Ability to Plan and Supervise Occupational Experience Programs

Activity	Participated	Comments
1. Review with the supervising teacher the aims and purposes of supervised programs		
2. Become familiar with program agreements		
3. Assist class members in planning and carrying out supervised programs		
4. Visit supervised programs of students:		
a. Assist in stimulating interests in the supervised programs		
b. Talk with parents of students		
c. Develop new skills and understandings		
d. Aid in starting new management practices		
e. Assist students as needed to write job plans while visiting		
f. Check pupil progress		
g. Check the progress made in record keeping		
h. Assist in summarizing and analyzing records		
5. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

VII. Objective: To Develop Ability to Advise An FFA Chapter

Activity	Partici-pated	Comments
1. Review and become familiar with the current FFA program of work		
2. Discuss with supervising teacher the procedure to follow in setting up the FFA program		
3. Assist the supervising teacher to: a. Help boys plan and execute one or more FFA activities		
b. Aid boys in evaluating the activities planned and conducted		
4. Study budget and chapter accounting system		
5. Assist the supervising teacher in routine contests		
6. Participate in chapter meetings: a. Serve as adviser during a meeting		
b. List strong and weak points of a chapter meeting		
7. Assist in preparing application for Foundation Awards and State Farmer Degree		
8. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

VIII. Objective: To Develop Ability to Select Pupils for Vocational Agriculture Classes and to Provide Guidance, Placement, and Follow-up.

Activity	Participated	Comments
1. Become familiar with the procedure used in selecting and registering students for Vocational Agriculture		
2. Accompany supervising teacher on visits to homes of prospective pupils		
3. Aid the supervising teacher with the following activities: a. Assembly or special program		
b. FFA meeting for prospective students		
c. Newsletter mailed to prospective students		
4. Discuss the school guidance program with school guidance director		
5. Have guidance director explain the testing, guidance, and counseling procedure		
6. Observe the supervising teacher in counseling students		
7. Discuss the Voc. Ag. teacher's role in the school guidance program with the supervising teacher		
8. Observe entries made on permanent records of students		
9. Discuss with supervising teacher his placement program for Vocational Agriculture students		
10. Assist in preparing follow-up records and reports		
11. Others		

General Evaluation: _____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

IX. Objective: To Develop Ability to Procure, Organize, Maintain and Improve Facilities and Equipment

Activity	Participated	Comments
1. Become familiar with the procedure for making inventory of facilities. Check supervising teacher's inventory of facilities		
2. Assist supervising teacher in classifying, filing, and storing teaching materials		
3. Assist the supervising teacher in processing an order for materials		
4. Assist the supervising teacher in collecting and preserving teaching material		
5. Assist in keeping clasroom and shop in order		
6. Maintain and improve present equipment		
7. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

X. Objective: To Develop Ability to Keep Records and Make Reports

Activity	Participated	Comments
1. Secure a working knowledge of department record system. Study and understand all reports made by the teacher of agriculture during the year and assist in making such reports during the practice teaching period		
2. Assist in summarizing and analyzing department records		
3. Keep a record of your own activities on the teacher's regular form entitled: "Quarterly Activities and Travel Report"		
4. Review copies of preliminary and final reports on file for all groups		
5. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

XI. Objective: To Develop Ability to Prepare and Promote a Public Relations Program

Activity	Participated	Comments
1. Become familiar with the department's public relations program		
2. Assist supervising teacher with activities such as: a. Articles to be published		
b. Radio programs		
c. T. V. programs		
d. Educational displays		
e. Taking pictures		
f. Others		
3. Determine place of advisory council in the public relations program		
4. Become acquainted with local newspaper editor, radio and television personnel		
5. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

XII. Objective: To Develop Ability to Improve Professionally

Activity	Participated	Comments
1. Attend professional meetings that occur during the practice teaching period		
2. Examine magazines for articles on the units to be taught		
3. Subscribe to the Agricultural Education Magazine		
4. Discuss problems and experiences with other teachers and technical workers		
5. Visit classes in other departments of the school		
6. Make a list of professional skills in which the trainee feels he is deficient		
7. Become familiar with local, state, and federal regulations governing conduct of the program		
8. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

XIII. Objective: To Develop Ability to Organize and Use an Advisory Council

Activity	Partici-pated	Comments
1. Study and discuss with supervising teacher procedure followed in selecting advisory council members		
2. Secure an understanding as to how an advisory council is organized for effective use: a. Study and discuss organization of advisory council with supervising teacher		
b. Study minutes and other reports of council meetings		
3. Attend all meetings during training period		
4. Discuss with supervising teacher the strong and weak points of each advisory council meeting attended		
5. Visit advisory council members		
6. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

XIV. Objective: To Develop Ability to Administer and Evaluate the Local Program

Activity	Participated	Comments
1. Become familiar with the organization and policies of the division school system		
2. Become familiar with the organization and policies of the school and the vocational agriculture department		
3. Become familiar with the budget, record keeping system and the financial program of the department		
4. Become familiar with procedure used in providing for safety and protection of students and faculty: a. Student insurance		
b. Safety practices		
c. Teacher liability		
d. Other		
5. Become familiar with procedures in organizing the work of the department and coordinating teacher's responsibilities		
6. Study the final summary of year's work report of the department		
7. Become familiar with the system used in evaluating the overall program of the department		
8. Others		

General Evaluation: _____

_____

_____

_____

Student's Evaluation _____

Supervising Teacher's Evaluation _____

STUDENT TEACHER WEEKLY SCHEDULE

DATE:

DAY SCHEDULE	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1st Period						
2nd Period						
3rd Period						
4th Period						
5th Period						
6th Period						
7th Period						
Afternoon Schedule						
Night Schedule						

EVALUATION OF TEACHING

Name of unit taught: _____

Date _____ Teacher _____ Observer _____

Objectives _____

Activity	Evaluation	Comments
I. Preparation:		
A. Lesson plan		
B. Knowledge of subject		
C. Visual materials		
D. Objectives		
II. Presentation:		
A. Methods and techniques used		
B. Developing interest		
C. Using materials (ref., visual aids, etc)		
D. Questioning		
E. Chalkboard management		
F. Explanations and illustrations		
G. Class participation		
III. Teacher:		
A. Appearance		
B. Speech (voice, language, etc.)		
C. Initiative, tact, poise		
D. Clasroom mngt. (heat, lights, etc.)		
E. Controlling class		
F. Mannerisms		
G. Dependability		
IV. Laboratory: (Shop, field trips, etc.)		
A. Preparation and organization		
B. Student participation		
C. Quality of work		
D. Demonstrations		
E. Supervision		

Final Evaluation: _____

SUPERVISED OCCUPATIONAL EXPERIENCE VISITATION RECORD

Name of student _____ Date of visit _____

Talked with: Father _____ Mother _____ Employer _____ Other _____

Purpose(s) of visit: _____

Problems Recognized	Instruction and Recommendations

Evaluation:

1. Records _____ Grade _____
2. Experience program plans _____ Grade _____
   a. Application of plans: _____
   _____ Grade _____
3. Progress made on recommendations of previous visits: _____
   _____
   _____ Grade _____
4. Date next visit should be made _____

Note: Make carbon copy and leave with student.

EVALUATION OF STUDENT TEACHERS

Student teacher _____ School _____

Evaluation made by _____ Date _____

Activity	Excel.	Very Good	Good	Fair	Unsat.
A. Ability as a teacher					
1. Organizing and planning					
2. Classroom teaching - high school					
3. Agriculture mechanics teaching					
4. Young and adult farmer teaching					
5. Maintaining interest					
6. Maintaining discipline					
7. Understanding students					
8. Care of rooms and equipment					
9. Supervising work experience programs					
10. Supervising FFA activities					
11. Supervising young farmer activities					
B. Professional Attributes					
1. Professional attitude and loyalty					
2. General intelligence					
3. Capacity for growth					
4. Willingness to cooperate					
5. Willingness and capacity for work					
6. Acceptance of suggestions and criticism					
7. Ability to express himself					
8. Technical preparation					
9. Mechanical ability					
C. Personality and Personal Characteristics					
1. Leadership					
2. Diplomacy and tact					
3. Enthusiasm					
4. Initiative					
5. Personal appearance and neatness					
6. Dependability and promptness					
7. Poise and self-control					
8. Judgment					
9. Ability to work with people					
10. Public relations					
11. Voice - speech - forcefulness					

D. Comments

_____

_____

Final Evaluation _____
(A-B-C-D-E-F)

FINAL EVALUATION REPORT BY SUPERVISING TEACHER

Strong Points: _____

_____

_____

_____

_____

_____

Suggestions for Improvement: _____

_____

_____

_____

_____

Personal Remarks: _____

_____

_____

_____

_____

_____

Final Evaluation:

Student Teaching _____

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Kent State Univ., Ohio. Coll. of Business Administration
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Pub Date - Jun64 24p.

*BUSINESS EDUCATION; *BIBLIOGRAPHIES; *SLOW LEARNERS; *RESOURCE MATERIALS; MENTALLY HANDICAPPED; EDUCATIONALLY DISADVANTAGED; LOW ABILITY STUDENTS; ATTITUDES; TEACHING PROCEDURES; TEACHING METHODS; STUDENT NEEDS

This selected bibliography includes reference listings of journal articles, books, theses, dissertations and government printing office bulletins relating to the teaching of the slow learner in business education. (MM)

VT 005 821

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ED036657

THE SLOW LEARNER IN BUSINESS EDUCATION
A SELECTED BIBLIOGRAPHY

by

Eleanor B. Brown

BUREAU OF ECONOMIC AND BUSINESS RESEARCH

Bibliography Series No. 1

VT005821

KENT STATE UNIVERSITY KENT, OHIO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE SLOW LEARNER IN BUSINESS EDUCATION / A SELECTED BIBLIOGRAPHY

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Bibliography Series Number 1

Bureau of Economic and Business Research
College of Business Administration
Kent State University
Kent, Ohio

June, 1964

Fifty Cents

THE SLOW LEARNER IN BUSINESS EDUCATION / A SELECTED BIBLIOGRAPHY

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*PROGRAM DESCRIPTIONS; *INDUSTRIAL ARTS; *ELEMENTARY GRADES; DEMONSTRATION PROJECTS; SPEECHES; *EDUCATIONAL STRATEGIES
*TECHNOLOGY FOR CHILDREN PROJECT; NEW JERSEY

The Project began with the 1966 Summer Institute of Technology for Children. This Institute was initiated and funded by the New Jersey Division of Vocational Education with later joint funding with the Ford Foundation. Twenty-two elementary teachers who attended the Institute began implementing the activities which were observed in the Institute. The basic reason for the Project was a conviction that boys and girls should have maximum opportunity to interact with things which are of technology. Four themes of the Institute and of activity development guidelines are "Design," "Properties of Materials," "The Use of Tools to Extend the Human Powers," and "Instrumentation." These themes coupled with a rationale from psychological literature form the base of the Project which utilizes a rich environment plus directed pupil interaction with that environment in the form of activities classed under the four themes. Teachers analyze their anecdotal records of the pupils' encounters during these activities for purposes of evaluation and to learn more about what happened during the learning activities. (EM)

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AMERICAN INDUSTRIAL ARTS ASSOCIATION

ANNUAL CONVENTION

SHERATON HOTEL
PHILADELPHIA, PENNSYLVANIA
March 14 - 17, 1967

Theme: Industrial Arts and Technology - Past, Present and Future

Special Panel Session: 10:45 A.M. - 12:00 Noon
Friday, March 17, 1967

Title: Elementary Industrial Arts - Show Me the Way
"The Institute of Technology for Children"

Panelist: Elizabeth E. Hunt, Director
Technology for Children Project
Division of Vocational Education
New Jersey Department of Education
Trenton 08625

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INSTITUTE OF TECHNOLOGY FOR CHILDREN

Elizabeth E. Hunt

The Technology for Children Project began with the 1966 Summer Institute of Technology for Children held at the Helen L. Beeler School in Marlton, New Jersey.

This Institute was initiated through the Division of Vocational Education of the New Jersey Department of Education and funded by the Department of Education.

The Ford Foundation and the New Jersey Department of Education are jointly funding the Technology for Children Project which is a continuation of the work started in the Summer Institute.

It is continuing in this way: The twenty-two elementary classroom teachers who attended the Summer Institute are now in their own classrooms implementing, with the assistance of a Project staff, the kinds of activities they observed during the summer. These teachers and the Project staff constitute the nucleus of the Technology for Children Project.

The initiation of this Project was born of a deep conviction that every elementary school should provide maximum opportunity for boys and girls to interact with tools and materials, or to put it another way, to interact with those things which are of technology.

Why should every boy and girl have an opportunity to deal with tools and materials?

Three major categories of ideas may help provide an answer to this question. These categories might be entitled:

1) A theoretical base 2) A rationale for a mode of operation and 3) A focus on the output.

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Let us look at some of the ideas which constitute the theoretical base for the Project.

The first idea has to do with motivation. The human organism, according to R. W. White (9, p. 318) is motivated to "interact effectively with his environment." This is motivation which manifests itself in exploratory, manipulative and activity behaviors. The behavior is characterized as intense and persistent. The exploratory behavior manifests itself as a drive to respond to all kinds of stimuli--auditory, tactile, visual, kinesthetic, olfactory and gustatory. . Montessori (7, p. 185) would include the thermic, baric and sterognostic (which is, recognition of objects through feeling with the simultaneous help of the tactile and muscular) senses. This motivation appears to be neurogenic - that is, originating in the nervous system. It is an "unlearned" pattern of response. This theory, supported by research, is far more adequate in explaining some readily observable behaviors of children that could not be explained by the earlier models of motivational theory which attributed all behavior to either painful stimulation, homeostatic needs, sex, or by acquired drives based on these.

J. M. Hunt (7, p. xxvii) proposes "a mechanism for motivation inherent in information processing and action." This mechanism (as explained by J. M. Hunt in several of his more recent writings) provides....
"a basis for continuous cognitive growth with joy. It also justifies the older notions that children have a spontaneous interest in learning."

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The second idea is closely related to the first. As a result of this "spontaneous interest in learning", children show an impressive record of accomplishments before they ever come to school. What are their achievements? The human organism has learned, at the immature end of the growth continuum to roll over, sit alone, crawl, pull itself to a standing position, walk, run, grasp objects, let them go, walk upstairs, eat with utensils, ride a tricycle, and many other motor acts. One outstanding accomplishment is the mastery of the ground rules of a difficult natural language. Professor Omar K. Moore (5, p. 106) of Yale University calls this a "task of almost unbelievable complexity." We have further evidence that if a child happens to live in a multilingual environment he will learn to speak much more quickly and easily than the adults, the languages involved.

The third idea is closely related to the second. Situations which restrict or otherwise deprive children of interaction with the environment (either concrete or abstract interaction) affect the development of intelligence adversely.

This concept recognizes that intelligence is not fixed as it was once assumed. J. M. Hunt (4, p. xxv) says: ".... relevant to the role of early experience in psychological development. During the earliest phases, the longer a developing organism is deprived of a given sort of experience, or to put it another way, the longer an organism is deprived of a given kind of informational interaction with the environment, the more likely is the effect of that deprivation to become permanent."

Glenn Doman (3, p. 37) puts it this way:

"It is during these not-to-be relived years, these years of insatiable curiosity, that the child's whole intellectual being will be established."

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George B. Leonard, (6, p. 24),LOOK Magazine's Senior Editor, synthesizes these ideas so aptly:

"When a child, age five, enters school, he is a learner of awesome speed and staying power. Many of his reactions are quicker, his perceptions finer than yours and mine. He is a tireless explorer, a spontaneous scientist and a recent veteran of our species most impressive feat of learning: the mastery of the spoken tongue. Some experts have called his attention span short, but they are wrong. The young child is learning practically all the time. He becomes impatient only because the traditional school situation is dull, unnatural, adult-centered and child-confining..... Today, a growing number of educators are rediscovering old truths: Education is not the process of filling a child's head with facts while restricting and reducing his activity. On the contrary, the moment of learning is active, intense and often joyful. To find it, you look not at what the teacher is saying and doing but at how the child is responding. Such responses, such moments, are the real stuff of education. Through them, the child develops relationships with the world, not just the ABC's of it but all its tates and textures."

It is interesting to note Maria Montessori demonstrated over and over that intellectual mastery is rewarding; joyful. The excitement of discovering relationships, or discovering the key to control or mastery was evident when her children, ages four to five, without having been taught how to write "burst spontaneously into writing". (7, p. 28). Extrinsic rewards and punishments become superfluous. This ties in with the first idea concerning motivation (9, pp. 317-318). Jerome Bruner (1, p. 89) says:

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"I should like to add to White's general premise that the exercise of competence motives has the effect of strengthening the degree to which they gain control over behavior and thereby reduce the effects of extrinsic rewards or drive gratification".

The foregoing ideas form the theoretical base out of which the design for the 1966 Summer Institute of Technology for Children was evolved, and this theoretical base applies to learning in general.

However, because this theoretical base so aptly describes and so closely resembles the learning situation created for a study of technology, with its ample opportunities to "interact with the environment", we should not be too surprised to find that we have had or will have an enormous influence on all areas of learning including those of the established elementary school curriculum.

One purpose of the 1966 Summer Institute of Technology for Children was to explore the potential of this theoretical base and in addition to try out the rationale we had developed for a mode of operation with the children. This is the rationale: The products of technology are the results of man's ability to think about and deal with, effectively, the physical, material world. It is verily a human endeavor. An attempt therefore would be to help the child develop effective ways of thinking about and dealing with these materials. "Design" is an effective way of thinking about materials. Fundamental to being able to think about materials effectively or to develop a design, one must have some basic acquaintance with the properties of materials, the use of tools to extend the human powers and be able to measure things. These four items, then, Design, Properties of Materials (macroscopic), The Use of Tools to Extend the Human Powers and Instrumentation became the four themes of the Institute and our guidelines for developing

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activities with the children. This meant, for example, that the solutions to such problems as creating a better home for Noel, the hamster, were developed on the spot with the children. In developing the solutions they had to think about a design criteria. In the case of the hamster, he should be able to see out and the children should be able to see in. He should have plenty of fresh air. There should be a convenient way to clean the cage. It should be large enough to contain the hamster with room to move around, hold the water and food. It should be enclosed and strong enough so Noel would not be able to get out. The children would decide on material, size in three dimensions, and how to proceed in putting Noel's house together. I must say, with very limited experience in the use of tools, with properties of materials and measurement, this was a difficult design problem for these children ages four to seven and they needed much help in developing solutions.

Operating on the theoretical assumptions and rationale just outlined above, I opened the 1966 Summer Institute with these remarks to the Institute staff and the 22 observing elementary classroom teachers:

"We have no preconceived notions of what the children will learn here. We feel, however, we know how to enhance the learning environment and guide them in their interaction with the environment. In other words, we have no prepared curriculum, no specific content to be covered, we have named no specific skills or understandings to be developed, have no stated objectives for these children, no plans for motivating them (as if we could). We offer them, instead, a <u>rich environment</u>, and our guidance in interacting with it more effectively. We also reserve the right at all times to <u>initiate</u> ideas for interaction with the environment."

(more)

This is going at the "teaching-learning" process in reverse. That is, the "content" is developed uniquely with each child. His own sensory experiences, his own personal exchange of ideas, and his association with others become his content, to be revised, to be reorganized, to be categorized by him as a part of his developing intellect.

Some terrific studies have been and are now being carried out to identify industrial arts content. The results have been some fascinating conceptualizations of the whole body of knowledge as well as what has been delineated and labeled the content of technology or industrial arts. This is like refining ore and coming up with gold.

However, I believe this "gold" represents a point of arrival for the scholars involved in delineating the content----not the point of departure for teaching children. This is not to say a teacher can do without a map of the body of knowledge as a whole or of his specific field. Such a map is vital. This is "raw" content, however, and not ready for consumption.

During the Institute, when developing the designs for the playhouse, "The General Store", the prairie schooner, etc., the solutions came much more easily. However, not all of the activities were presented as problems to be solved. They made paper, crystal radio sets, telegraph keys, printed by using ABC blocks, real type and the liquid duplicator with which they ran off copies of their own stories with their own illustrations. They explored a cut-away model of a hydraulic braking system, the insides of a camera and clock, lifted each other with a two-pulley system, jet-propelled a piece of wood with a balloon, popped corn, shaped plastics into dishes for the playhouse. They visited a refrigerator manufacturing company, where they saw assembly-line production. They were visited by a man from the telephone company who showed them the equipment used on the job, the inside

(more)

of the telephone, explained the safety precautions he must take on the job, put on the spurs and climbed the pole.

Among other things, these experiences provided the children opportunities to act upon a responsive environment, and/or provided them a tremendous amount of sensory data input about the properties of the materials.

The children liked the Institute very much. They often came an hour before the Institute started and would hang around long after it was officially over for the day. The parents told us how much the children enjoyed it.

When I report this in a presentation, I always have the feeling that there must be some unrelenting academicians in the audience who are thinking to themselves, "Enjoyed it! So what?"

This is the "so what" - a focus on output. (May I say, parenthetically, we are all too prone to invest our energies on the input. The well-analyzed content, the carefully thought-through lesson plan and good presentation - and it ends there.) During the Summer Institute, each observing elementary classroom teacher kept an anecdotal record of one child during his entire stay (22 days 66 hours) in the Institute.

I asked each teacher to choose some facet or area of the curriculum and to analyze his/her record in terms of the child's encounter with this facet or area. Remembering that the focus of the Institute was primarily on "interacting with tools and materials", I submit the following excerpts (4) from the abstracts of the anecdotal records.

The first excerpt was analyzed in terms of vocabulary development from the anecdotal record of a four-year-old.

"Reading, reading, and re-reading Laurie's anecdotal record has been a revelation to me. While she seemed to be ever flitting about on high

(more)

heels or changing shoes, occupying the doll corner, or coloring, it is surprising to see how her vocabulary has expanded.

Here are some pertinent words that I have followed through to show how Laurie has grown:

Handles - Laurie's idea was about handles on pots and pans. Here she made handles for a jump rope, learned where and how it is best to hold the handle of a hammer and a saw, the use of vise handle, the different shape handles on other tools, and the long straight handle of a broom.

Saw - Laurie's father being a carpenter and janitor, she no doubt knew a saw before, but here she learned about other types of saws: hack saw for cutting metal, jig saw for cutting different shapes on wood, and the sabre saw; more important, she used these saws.

Circle - Laurie's concept of a circle was broadened. She knew that an orange and a ball were circles, here she learned to arrange chairs in a circle, that electricity travels in a circle (unbroken line), she traced a circle around a spool and drew a circle, she cut out a circle using a jig saw.

Pulley - This tool seemed to be new to her. At first Laurie just looked at it and seemed content to know its name. Later, she had the opportunity to see it work and then to actually use it herself. A concrete block that she could not lift with her hands, she lifted easily by the pulley.

Electricity, Conductors, Batteries, Dry Cell - These seemed to be new words and new ideas to Laurie. When they were introduced, she seemingly showed little interest: 'Laurie took off her shoes and felt inside. She put her shoe on the floor and wiggled her foot until the shoe was on.'

(more)

Apparently, however, she absorbed more than I realized, for the next time electricity was discussed, Laurie knew the terms and uses of them. She made a lightbulb work.

Sawdust - Laurie did not seem to get the name for the dust made from sawing: Once she brushed some into a neat little pile and said, 'Don't step on that stuff.' Another time she referred to it as snow coming down, saying as she sawed, 'There's snow coming down.' "

This next record was analyzed in terms of the mathematical concepts encountered by an eleven-year-old.

''The children's vocabulary of mathematical terms was enlarged by the use of dimensions in all of their work. Terms like circumference, angles, diagonal, bill of materials, tape, try-square, zig-zag rule, steel square, combination square, center-punch, T-bevel, and protractor were introduced while the children were making a sun-dial. Hydraulic brake, and pressure were discussed as the children studied the automobile brake and saw a spectacular experiment on what liquid pressure can do. Cost reduction, mass production, consolidation and cost versus profit were used at the refrigerator plant visited during a field trip.

Measuring tools were introduced and used when the children were given articles of different shapes and sizes to measure the dimensions. They learned how to count the fractional parts of an inch on a ruler. They learned that the dimensions, length and width, mean with the grain and against the grain in wood. They learned how to use the measuring tape, the zig-zag rule, the steel, try, and combination squares when they measured to build their sun-dials, their prairie schooners, their radios and their telegraphs.

(more)

The children learned about angles, their measurement and their application to the earth as a sphere when they made their sun-dials. They saw that forty degrees north latitude was a forty-degree angle on the earth and could be measured with a protractor and a T-bevel. They computed the fifteen-degree angle between each hour by dividing three-hundred-sixty degrees by the twenty four hours in a day.

Before they started any project, the children made out a bill of materials stating what and how many were needed for the project. They multiplied to find how much and how many were needed for the whole class.

The idea of estimating and design was introduced with the discussions about the prairie schooner. They discussed comparison of the length of the schooner with the height of the mast and the length of the boom. They estimated the area needed for the seat. Joyce refused to let them measure her to see how much room she would need. They discussed the comparative merits of a twin-bed and a double-bed-size sheet for the sail.

They learned about using standard-width materials wherever possible to save time and trouble.

Joyce got to solve the problem of how to take apart a tricycle. She thought about time passing when she realized she had gotten it for her second birthday. She tested various sizes of wrenches to remove a bolt. She organized the parts into 'sets' when she put all of the tricycle parts into one pile and all of Mr. B.'s tools back into the tool box.

The children were introduced to the concept of perpendicular when they had to square-up the cross pieces and the foot rest on the schooner.

They cut the sail on an angle, and Joyce discovered the disadvantage of being left-handed. They measured carefully for the mast pocket.

(more)

The children were exposed to many mathematical ideas during their field trips. The idea of more accurate and standard measurements with factory-made house sections was introduced at the housing development. They also heard about paying people on a contractual basis versus by the hour.

At a refrigerator factory, Joyce was exposed to the large numbers that were prices of many of the machines. She heard about the rising costs of material and the need of better mass production methods as well as material substitution if product cost is going to be kept down. The children came back to class and ran a mass production project, doing all of the mathematics involved in figuring the cost of each item.

They heard about plant consolidation and the loss of profits due to the labor problems.

Joyce understood the idea that products made in the specialty shop by their very nature of being special, had to be much more expensive.

The idea of fractions was discussed with the use of the ruler, changing fourths into eighths, etc., and tearing paper into equal sections. Joyce learned how to use the desk as a straight edge when tearing sandpaper.

The recipe for making paper had to be tripled when larger paper was desired. The children had to decide how much water, how many tissues, and how much starch would be needed for the larger size. Joyce was not too pleased to find out she had to carry six gallons of water instead of two.

Large numbers and relative speeds were introduced during a discussion about light, distance, and sound when the crystal radio was planned. Joyce's remark, 'Wow! I'd hate to be riding on that,' showed she was personally involved in the discussion when she was told that light travels 186,000 miles per second."

(more)

This represents only a small portion of the "content" developed this summer.

Time has not permitted sharing some of the other priceless data collected in these anecdotal records. However, about ten of the abstracts are now being readied for publication.

I should like to close with a poem written by the Primary Group following a field trip:

OUR TRIP

Big banging noises
The bulldozer pushing
Hammering
Steel coming up
Bumping
A motor starting
Dirt being pushed

The smell of smoke
And the smell of the river
Cement and rock falling
Wires falling
A lock falling
The banging of the crane.

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VT 005 853
Manpower Survey Report.

Air-Conditioning and Refrigeration Inst., Arlington, Va.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Feb68 20p.

*OCCUPATIONAL SURVEYS; *EMPLOYMENT PROJECTIONS; *REFRIGERATION; *AIR CONDITIONING; *INDUSTRY; HEATING; EMPLOYMENT TRENDS; MANPOWER NEEDS

The manpower demands of the industry, from 1966 through 1973, were estimated by the Manpower Development Committee of the Air-Conditioning and Refrigeration Institute. Mailed questionnaire responses were collected from 517 firms which represented 12 percent of the industry in terms of total sales in 1966. The requested data pertained to the numbers of employees in relevant occupations and the dollar volume of sales and service from air-conditioning and refrigeration contractors, mechanical contractors, commercial refrigeration firms, and service organizations. In 1966, an estimated 117,600 persons were employed in the industry. If the industry's annual growth rate is 10 percent in real output and 3.3 percent in productivity, a labor force growth rate of 6.5 percent per year is implied. By 1973, an estimated 65,800 additional workers will be needed, about 56 percent more than presently employed. The estimated need is conservative since it does not include new personnel needed to replace losses through the normal process of attrition. Over two-thirds of the projected need will be for air-conditioning, heating, refrigeration, and sheet metal mechanics, one-eighth for helpers, and four percent for graduate engineers. Nine tables are included. (ET)

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AIR-CONDITIONING AND REFRIGERATION INSTITUTE • ARI

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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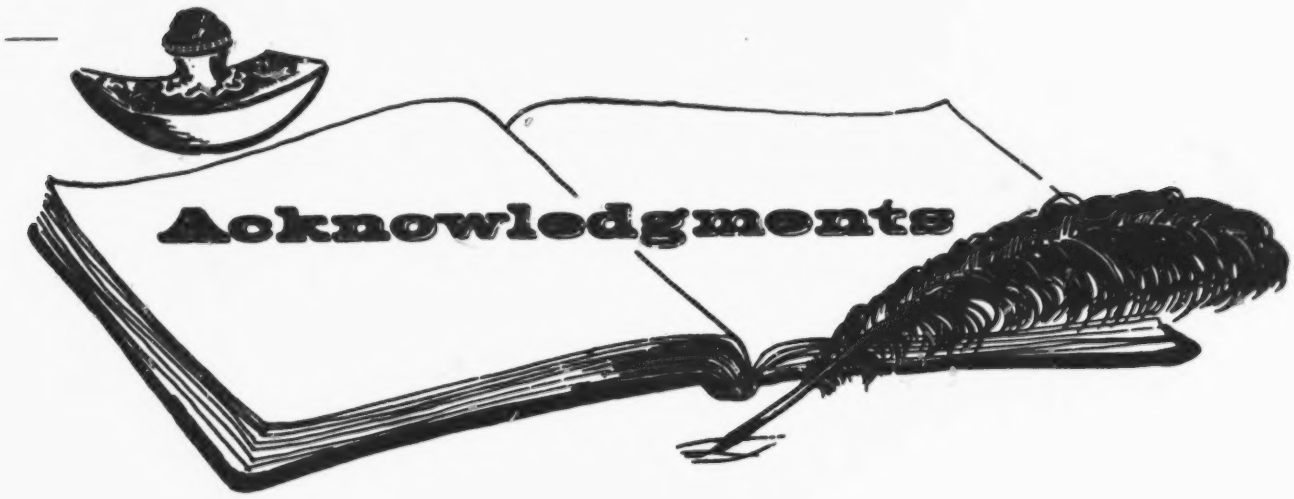
Manpower Survey REPORT

February 1968

VT005853

COMPILED BY: AIR-CONDITIONING AND REFRIGERATION INSTITUTE • 1815 NORTH FORT MYER DRIVE • ARLINGTON, VIRGINIA 22209



The Manpower Development Committee of the Air-Conditioning and Refrigeration Institute wishes to express appreciation to the following organizations: Air Conditioning, Heating and Refrigeration NEWS; Airconditioning and Refrigeration Contractors of America; National Warm Air Heating and Air Conditioning Association; Mechanical Contractors Association of America Inc.; E. I. du Pont de Nemours and Company, "Freon" Products Division; Carrier Air Conditioning Company; to the General Statistics Committee, Air-Conditioning and Refrigeration Institute; to the following persons: Miss Kathleen F. Cole, Marketing Analyst, E. I. du Pont de Nemours and Company; Mr. Lee Gunlogson, Manager, Market Research, Carrier Air Conditioning Company, and to all those firms and individuals who cooperated in this Manpower Survey.

James B. Gray, Chairman
Manpower Development Committee

PURPOSE

Continued rapid growth of the air conditioning industry is partly dependent upon the availability of an adequate supply of trained personnel to sell, install, and service the equipment. This study is intended to provide information on manpower needs in the future and to enable the industry to prepare now for those needs. This study also provides a gauge on which to measure manpower needs - That of sales volume.

METHODOLOGY

The data found in this report are based on a short questionnaire (Appendix "A") which was distributed to air conditioning and refrigeration contractors, mechanical contractors, commercial refrigeration firms, and service organizations. The survey was conducted in early 1967. Data were requested for the years of 1964, 1965, and 1966.

The basis of the study was the responses of 517 firms. To facilitate the tabulation and analysts of the data, several assumptions were made:

1. The data are reliable in that the respondents gave truthful information.
2. The sample reflects the entire industry in composition of business type, size, and location.
3. Based on estimated total industry sales of $3.5 billion, in 1966, the sales of the responding firms represented a 12% sample for that same year.

In the projection of manpower needs, several assumptions were made in relation to general economic trends:

1. Inflationary trends will continue at approximately the same rate in the next five years as it has in the past three years.
2. Productivity of employees in the air conditioning and refrigeration industry will follow the national trends.

3. The rate of industry growth will continue at the same rate as in the given three-year sample.

The Appendix contains a tabulation of the annual dollar sales per employee for each position in each segment of the industry. The 1966 sales per employee served as a basis for the projection to 1973.

SUMMARY

The rapid growth of the air conditioning and refrigeration industry has caused a manpower shortage of an undefined degree. However, this manpower shortage may increase dramatically in the future unless newly created positions are filled with trained men.

From data provided in this study, the manpower demands of the industry are estimated to increase approximately 56% from 1966 to 1973. This too is a conservative estimate, not taking into consideration those positions needing replacements due to retirements, deaths, etc. There will be an estimated 66,000 new jobs to be filled by 1973. Over two-thirds of these positions will be mechanics, both air conditioning, heating, refrigeration and sheet metal. About one-eighth is the position of helpers. Graduate engineers will be required in about 4% of these positions.

While this study provided a base for these projections, a future study may be more thorough in developing information on present manpower shortages and future extent of manpower demands in various segments of the industry.

DETAILED DATA

The firms responding to the questionnaire were asked to classify their business by the four following types:

Air Conditioning Contractor

Mechanical Contractor

Service Organization

Commercial Refrigeration

As many firms perform functions of two or more types of business, an additional category of "Combinations" was added for tabulation purposes.

SAMPLE - BY TYPE OF FIRM AND SALES

Total Sales (000)

	Number Of Firms		1964		1965		1966	
	Number	%	$	%	$	%	$	%
Air Conditioning Contractor	257	50	91,605	32	104,815	31	121,602	29
Mechanical Contractor	124	24	127,942	44	149,697	44	185,949	44
Service Organization	32	6	5,499	2	6,305	2	7,461	2
Commercial Refrigeration	22	4	11,097	4	13,531	4	23,758	5
Combination of Two or More Types	82	16	52,353	18	65,175	19	84,294	20
TOTAL	517	100%	$288,496	100%	$339,523	100%	$423,113	100%

The previous table shows that half the respondents of the survey were air conditioning contractors, but in 1966 they accounted for only 29% of the total sample sales. Those firms performing functions of 2 or more types contributed a significant 20% of sales. The average firm in the sample had annual sales of $558,000, $656,700, $818,400 in 1964, 1965, and 1966, respectively. This is a 17% increase between 1964 and 1965 and a 25% increase between 1965 and 1966.

SAMPLE BY EMPLOYEE POSITION

	1964		1965		1966	
	Number	%	Number	%	Number	%
Graduate Engineers	451	4.3	499	4.2	556	3.9
Technicians, Master Mechanics	876	8.3	986	8.3	1,148	8.2
Mechanics or Servicemen (air conditioning, heating and refrigeration)	4,608	43.9	5,250	43.9	6,049	43.1
Helpers (air conditioning, heating and refrigeration)	800	7.6	933	7.8	1,116	7.9
Mechanics (Sheet Metal)	2,683	25.5	3,061	25.6	3,716	26.5
Helpers (Sheet Metal)	429	4.1	515	4.3	633	4.5
Salesmen	658	6.3	704	5.9	833	5.9
Total	10,505	100.0%	11,948	100.0%	14,051	100.0%

The mix of employee types remains relatively stable over the three-year sample period. The Mechanics in the air conditioning, heating, and refrigeration field encompassed the greatest segment of the employee types in the sample firms. The next greatest segment was the Sheet Metal Mechanics.

THE PROJECTION TO 1973

As the primary purpose of this study was to determine future manpower needs, the assumptions underlying the projections to 1973 are of crucial importance. The survey, encompassing only three years, does not provide an adequate data base for determining trends so supplementary information must be used.

The employment requirements of an industry depend on its volume of output and its productivity or output per worker. Each of these points is discussed below.

Output in this study is measured in terms of sales. However, it is recognized that sales in current dollars reflects the inflation that has taken place so a suitable deflator should be applied to convert sales to constant dollars. It is assumed that inflation will grow at 2% per year through 1973. This is somewhat higher than the GNP deflators[1/] but it is below the rate of increase in the hourly rate of union workers in related trades.

Sales in current dollars of the 517 firms in the sample increased 17.7% in 1965 over 1964 and 24.6% in 1966 over 1965 (see table on page 11 of report). Sales of all air conditioning and refrigeration wholesalers (SIC 5077) as reported in the Wholesale Trade Report of the Bureau of Census increased 13.3% and 13.4% in the corresponding years. However, the survey sample is not strictly comparable with the universe

1/ Survey of Current Business - September 1967, page 52.

defined by SIC 5077. From this limited evidence, it is assumed that sales in current dollars will grow at a rate of 12.2% per year through 1973. After adjusting for inflation, the rate of growth in constant dollar sales is 10% per year.

Productivity changes can be inferred from sales per employee as shown in the appendix. There are wide differences in output per employee from one job classification to the next and from one type of firm to the next for similar job classifications. Obviously, there data can be combined in several ways but the assumption made here is that productivity per average worker will increase 3.3% per year over the projection period.

A growth rate of 10.0% in real output and 3.3% in productivity implies a growth rate of 6.5% per year in the labor force. The various assumptions are summarized below.

	Assumed Growth Rate %/yr	Approximate % Increase 1966 to 1973
1. Sales in current dollars	12.2	124
2. Inflation	2.0	15
3. Sales in constant dollars	10.0	95
4. Productivity	3.3	26
5. Increase in labor requirements	6.5	56

The table headed Estimate Manpower Needs to 1973 shows a 56% increase in manpower which is consistent with the foregoing assumptions.

ESTIMATED MANPOWER NEEDS - 1966 TO 1973

	Air Conditioning Contractor			Mechanical Contractor			Service Organization			Commercial Refrigeration			Combination			Total		
	1966	1973	Number of Add'l. Employees	1966	1973	Number of Add'l. Employees	1966	1973	Number of Add'l. Employees	1966	1973	Number of Add'l. Employees	1966	1973	Number of Add'l. Employees	1966	1973	Number of Add'l. Employees
Graduate Engineer	1,500	2,200	700	1,700	2,400	700	200	300	100	200	400	200	1,000	2,000	1,000	4,600	7,300	2,700
Technicians Master Mechanics	3,700	5,500	1,800	3,600	5,200	1,600	300	600	300	500	1,000	500	1,500	2,700	1,200	9,600	15,000	5,400
Mechanic (A.C., H & R)	16,000	24,000	8,000	21,100	30,300	9,200	2,200	4,500	2,300	3,000	5,300	2,300	8,600	15,500	6,900	50,900	79,600	28,700
Helpers (A.C., H & R)	4,100	6,100	2,000	2,200	3,200	1,000	300	600	300	700	1,400	700	2,000	3,600	1,600	9,300	14,900	5,600
Mechanics (Sheet Metal)	10,800	16,200	5,400	15,000	21,500	6,500	200	400	200	200	300	100	4,800	8,700	3,900	31,000	47,100	16,100
Helpers (Sheet Metal)	3,000	4,500	1,500	1,200	1,700	500	*	*		*	*		1,100	1,900	800	5,300	8,100	2,800
Salesmen	3,200	4,800	1,600	1,100	1,600	500	200	400	200	800	1,700	900	1,600	2,900	1,300	6,900	11,400	4,500
Total	42,300	63,300	21,000	45,900	65,900	20,000	3,400	6,800	3,400	5,400	10,100	4,700	20,600	37,300	16,700	117,600	183,400	65,800

*Numbers too small to be projected

The preceding chart is an estimate of the additional number of persons of various job classifications which will be needed in 1973. In 1966, an estimated 117,600 persons were employed in the industry. In 1973 we estimate an additional 65,800 will be needed or about 56% more than the presently employed.

The air conditioning, heating, and refrigeration mechanics will be most in demand. About 28,700 will be needed above the number presently employed. The sheet metal mechanics are in the next greatest demand. About 52% more will be needed than are presently employed.

In putting the employee mix on the ratio basis, we estimate that for every $1 million in installed value the following employees would be needed:

1 graduate engineer

2 technicians/master mechanics

11 air conditioning, heating, and refrigeration mechanics

2 air conditioning, heating, and refrigeration helpers

7 sheet metal mechanics

1 sheet metal helper

2 salesmen

A word of caution is advisable in interpreting these data. The column of additional employees indicates the estimated number of employees projected to be needed in 1973 <u>above</u> the number of employees actually employed now. The figure does not include those persons filling a position left vacant by retirement, death, etc. This would

indicate, therefore, that a number greater than that shown on the chart would actually have to be trained to fill future positions.

Also to be taken into consideration is the basis of the projection - 1964, 1965, and 1966 data. We are aware of a manpower shortage presently, but the extent is not known. Consequently, the projected figures are based on the same degree of manpower shortage. This too would indicate future needs to be greater than those shown on the chart.

A P P E N D I X

APPENDIX "A"

THE QUESTIONNAIRE

A.R.I.

MANPOWER QUESTIONNAIRE

1. Please check only one of the following classifications which *BEST* describes the type of business which your firm represents:

- ☐ Air Conditioning and/or Heating Dealer-Contractor
- ☐ Mechanical Contractor
- ☐ Service Organization
- ☐ Commercial Refrigeration

Indicate location: City_____State_____

2. Consider only employees in your firm working in air conditioning, heating, and refrigeration.
Please indicate the number of employees in each of the following job classifications for each of the years shown:

1964	1965	1966	
___	___	___	Graduate Engineers (college graduate with degree in engineering).
___	___	___	Technician or Master Mechanic (skilled in designing, layout, and installation of air conditioning, heating, and refrigeration systems).
___	___	___	Mechanics or Servicemen (air conditioning, heating, and refrigeration).
___	___	___	Helpers (air conditioning, heating, and refrigeration).
___	___	___	Mechanics (sheet metal).
___	___	___	Helpers (sheet metal).
___	___	___	Salesmen.

3. For the purpose of classifying your answers, please give an estimate of your company's total sales of *installed* equipment and *service work* in air conditioning, heating, and refrigeration in 1964, 1965, and 1966:

1964	1965	1966	
_____	_____	_____	Total Dollars.
_____	_____	_____	% Installed Equipment
_____	_____	_____	% Service Work.

(FRONT

FIRST CLASS
PERMIT NO. 1084
ARLINGTON, VA.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES
POSTAGE WILL BE PAID BY

AIR CONDITIONING AND REFRIGERATION INSTITUTE
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(BACK)

APPENDIX "B"

AIR CONDITIONING CONTRACTORS

Sales Per Employee by Type of
Business and Job Classification

	1964	1968	% Increase	1966	% Increase
Graduate Engineers	$627,438	$667,611	6.4%	$683,157	8.9%
Technicians/ Master Mechanics	257,317	269,447	4.7	276,998	7.6
Mechanics or Servicemen (air conditioning, heating and refrigeration)	64,556	64,462	-0.2	63,665	-1.3
Helpers (air conditioning, heating and refrigeration)	258,042	253,176	-1.9	250,210	-1.2
Mechanics (sheet metal)	88,679	93,752	5.7	94,119	0.4
Helpers (sheet metal)	330,703	335,945	1.6	336,847	0.3
Salesmen	297,418	318,586	7.1	318,330	-0.1

APPENDIX "C"

MECHANICAL CONTRACTORS

Sales Per Employee by Type of
Business and Job Classification

	1964	1965	% Increase	1966	% Increase
Graduate Engineers	$ 757,053	$ 822,511	8.6%	$ 920,782	11.9%
Technicians/ Master Mechanics	403,602	416,983	3.3	431,549	3.5
Mechanics or Servicemen (air conditioning, heating and refrigeration)	64,682	66,384	2.6	73,546	10.8
Helpers (air conditioning, heating and refrigeration)	659,495	665,320	0.9	696,622	4.7
Mechanics (sheet metal)	105,650	104,903	-0.7	103,389	-1.5
Helpers (sheet metal)	1,541,469	1,439,394	-6.6	1,338,115	-7.0
Salesmen	1,132,230	1,412,236	24.7	1,398,481	-1.0

APPENDIX "D"

COMMERCIAL REFRIGERATION

Sales Per Employee by Type of
Business and Job Classification

	1964	1965	% Increase	1966	% Increase
Graduate Engineers	$ 693,562	$ 676,550	-2.5%	$ 989,917	46.3%
Technicians/ Master Mechanics	292,026	300,689	2.9	395,967	31.7
Mechanics or Servicemen (air conditioning, heating and refrigeration)	48,039	50,301	4.7	76,887	52.8
Helpers (air conditioning, heating and refrigeration)	209,377	193,300	-7.7	286,241	48.0
Mechanics (sheet metal)	554,850	676,550	21.9	1,250,421	84.8
Helpers (sheet metal)	2,774,250	3,382,750	21.9	4,751,600	40.1
Salesmen	129,034	148,692	15.2	235,228	58.2

APPENDIX "E"

SERVICE ORGANIZATIONS

Sales Per Employee by Type of
Business and Job Classification

	1964	1965	% Increase	1966	% Increase
Graduate Engineers	$ 323,471	$ 331,842	2.6%	$ 414,500	24.9%
Technicians/ Master Mechanics	189,620	197,031	3.9	196,342	-0.3
Mechanics or Servicemen (air conditioning, heating and refrigeration)	26,186	27,775	6.0	27,839	0.2
Helpers (air conditioning, heating and refrigeration)	216,857	225,179	-14.0	196,342	-12.8
Mechanics (sheet metal)	392,786	350,278	-10.8	286,961	-18.0
Helpers (sheet metal)	5,499,000	6,305,000	14.6	7,461,000	18.3
Salesmen	423,000	394,062	-8.9	324,391	-17.7

APPENDIX "F"

COMBINATION OF TWO OR MORE TYPES

Sales Per Employee by Type of
Business and Job Classification

	1964	1965	% Increase	1966	% Increase
Graduate Engineers	$508,281	$538,636	6.0%	$629,060	16.8%
Technicians/ Master Mechanics	384,948	404,814	5.2	468,300	15.7
Mechanics or Servicemen (air conditioning, heating and refrigeration)	67,991	72,984	7.3	81,611	11.8
Helpers (air conditioning, heating and refrigeration)	295,780	332,525	12.4	348,322	4.7
Mechanics (sheet metal)	129,587	136,349	5.2	145,334	6.6
Helpers (sheet metal)	818,061	693,351	17.3	663,732	-4.3
Salesmen	379,369	402,315	6.0	434,505	8.0

VT 005 854

A Manual for Supervised Teaching in Arizona Departments of Vocational Agriculture. A Guide for Directed Teaching Activities.

Arizona Univ., Tucson. Dept. of Agricultural Education
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This mimeographed guide for student teaching contains a list of activities that every teacher must do well his first year on the job. It was prepared by teacher educators with assistance from experienced supervising teachers utilizing material from other states and experiences of the authors. The content includes: (1) manual utilization, (2) supervising teacher suggestions, (3) forms and materials, (4) observing and teaching classes, (5) suggestions for student teachers, (6) supervising teaching manual, and (7) a participation summary. The manual contains sections relating to: (1) Understanding Community Resources and Developing Working Relationships, (2) Becoming Familiar with Administrative Policies and Responsibilities, (3) Organizing and Maintaining Facilities, (4) Teaching All-Day Classes and Supervising Occupational Experience Programs, (5) Directing the Activities of the Chapter of the Future Farmers of America, (6) Organizing and Conducting Instruction for Adults, (7) Planning and Evaluating a Departmental Program, and (8) Developing a Philosophy and Standards Toward the Teaching Profession. (DM)

VT 005 854

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A Manual for

SUPERVISED TEACHING

in

ARIZONA DEPARTMENTS OF VOCATIONAL AGRICULTURE

VT005854

Department of Agricultural Education

The University of Arizona Tucson

A Guide for Directed Teaching Activities

A MANUAL FOR SUPERVISED TEACHING

in

ARIZONA DEPARTMENTS

of

VOCATIONAL AGRICULTURE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Guide for

Directed Teaching

Activities

Department of Agricultural Education
The University of Arizona
Tucson

FOREWORD

The few weeks you spend at your supervised teaching center should be the most satisfactory and productive time of your entire professional preparation for teaching vocational agriculture. Your experiences there under the guidance of your supervising teacher will assist you in making the transition from student to teacher as quickly and efficiently as possible. The daily guidance and counsel of your supervising teacher as you perform your student teaching responsibilities will help you to realize your capacities and abilities and to discover your weaknesses and correct them.

The purpose of this manual is to unify the participating experiences and determine standards for their accomplishment, so that your time and the time of your supervising teacher may be used most efficiently. This manual contains a rather complete list of activities that every teacher must do well his first year on the job. The experience you gain performing these activities under the guidance of your supervising teacher should enable you to tackle these same jobs with confidence and perform them successfully during your first year of teaching. An effort has been made to include only those activities that can best be accomplished at the supervised teaching center and which are most vital to the success of a teacher of vocational agriculture.

This manual has been prepared with the help of many experienced supervising teachers and by selecting activities freely from similar manuals prepared for other states. Special recognition should be given for the ideas taken from the manual prepared by the Committee on Teacher Education and Research of the North Atlantic Region entitled, Teacher Education in Agriculture, A Program of Directed Participating Experiences as a Part of the Preparation of Teachers of Vocational Agriculture; the report of the North Central Regional Workshop for Cooperating Vocational Agriculture Teachers entitled, Guiding Student Teachers Toward Competency; and the Summary Report of the Workshop Conference of Vocational Agriculture Supervising Teachers from Seven States of the Pacific Region.

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INTRODUCTION

The purpose of this manual is to serve as a guide for your work and a record of your experiences in student teaching. In order to provide seasonal opportunities for your participation in the duties of a teacher of agriculture, the work is divided into two parts as follows: (1) Agricultural Education 189s -- a two week period of directed experience during August and September preceding the senior year, and (2) Agricultural Education 189 -- six weeks of classroom instruction and related duties during the second semester of the senior year.

Agr. Ed. 189s - Introduction to the Teaching of Vocational Agriculture

The work in this course is planned to include two types of activities as follows: (1) Those jobs which are seasonal or for other reasons can be done with more convenience or efficiency during the summer than during the second semester of the school year. (2) Any other experiences which will aid in developing understanding and appreciation of the total program of the department and the high school. Both types of abilities will serve as background for professional courses for the senior year.

The specific objectives of the course may be stated as follows:

1. To understand the scope and nature of the agriculture teacher's job and the place of the department of vocational agriculture in the total school program.

2. To understand the organization, policies and administration of a program of vocational agriculture in a community high school.

3. To develop, through directed experience in accordance with seasonal demands and situations, the essential abilities needed by a beginning teacher of vocational agriculture.

Agr. Ed. 189 - Supervised Teaching in Vocational Agriculture

The main work in this course is incidental to teaching vocational agriculture in the classroom, field, shop and laboratory, but will also include other activities common to a vocational agriculture teacher, such as working with the local F.F.A. Chapter, supervising occupational experience programs of students; and organizing and maintaining facilities of the department. The first few days of the course will be spent in observing the supervising teacher instruct vocational agriculture classes and helping him perform other duties pertaining to the job. After several days of observation, you will take charge of one of the agriculture classes. Within ten days to two weeks from the beginning of the course, you should be carrying as near a full load of instruction as possible and assuming other regular duties of an agriculture instructor.

USE OF THE MANUAL

The manual is divided into eight main areas of teacher duties and responsibilities, and under each area are lists of experiences or activities common to agriculture teachers. The number of these activities you will perform, the degree of participation, and the course in which the experience will take place (Agr. Ed. 189s or 189) will depend upon your resourcefulness, your supervising teacher, and the facilities and conditions at the training center.

For your guidance the manual has a column entitled "Standards," which is subdivided into a "Minimum" column and an "Optimum" column. Suggested minimum and optimum standards will be discussed in the pre-student teaching conference that is part of the work of Agr. Ed. 189s.

The learning activities listed in the manual will include readings and study of various materials, observation of the work of the supervising teacher, and actual participation in doing certain jobs. The two levels of experience may be further explained as follows:

<u>Doing Level</u> -- Take part in doing the job (in so far as conditions permit) under the direction of the supervising teacher. Keep a record of your results and the extent to which you are able to do the job satisfactorily on your own.

<u>Observing Level</u> -- Observe the supervising teacher doing the activity, or, if that is not possible, study and discuss the activity with the supervising teacher and make notes on the use and results of that activity.

As you complete the activities listed under the eight major headings in the manual, record the type of participation in each of these activities by checking (✓) under the "doing" or "observing" column. If there was no possibility of getting experience in the activity during the student teaching period, place a large N across the two columns.

The column or space labeled "Remarks" is to be used for pertinent remarks by those concerned with this report. Those making any remarks here should identify them by placing their initials near the remark made.

SUGGESTIONS FOR THE SUPERVISING TEACHER

1. Plan and carry out a thorough program of orientation for the student teacher, provide training in all major phases of the agriculture teacher's job. If possible, include all the activities listed in the manual.

2. Remember the student teacher does not know all the details of the department as you do, so explain all pertinent details.

3. Supply copies or help trainee make out forms and records normally made in a department.

4. Take every possible opportunity for the trainee to meet key people and see important agricultural and educational activities in the community.

5. Try to keep all activities within the normal and regular situation. In other words, keep the operation of the department real, as it is every day.

6. REQUIRE THE TRAINEE TO MAKE WRITTEN TEACHING PLANS FOR EACH UNIT TAUGHT, AND CHECK THESE BEFORE THEY ARE USED. Copies should be left for the department file, as well as copies of all study guides and tests.

7. Observe all classes taught by the trainee except when you are visiting other departments.

8. Assign non-class responsibilities to the trainee, such as acting as advisor to F.F.A., supervising occupational experience programs, attending meetings, etc.

9. During the last two weeks allow trainee to take over classes completely.

10. Make sure the students and the student teacher understand that the student teacher is in full charge of classes and other activities assigned to him.

11. Arrange to have student teachers visit other departments in the area.

12. Provide ample filing and teaching material space, at least one file drawer.

13. Make certain that during Ag. Ed. 189s (September experience) the trainee is assigned all units to be prepared and taught during student teaching. It is essential that assigned units complement the on-going instructional program.

14. When identifying units to be taught make certain a minimum of at least one each of the following types of lessons be assigned - informational, operational, managerial.

15. Once units have been assigned to the trainee, take sufficient time to identify what is to be taught in each unit. In other words, help the trainee identify the educational objectives of each unit.

SUPPLEMENTARY FORMS AND MATERIALS

(To be kept in a three-ring notebook)

In addition to recording the activities suggested in the manual of participating experiences, the following forms and material should be filled out or compiled:

1. Weekly Calendar. At the beginning of each course (Agr. Ed. 189s and 189) with the assistance of the supervising teacher, fill out the weekly calendars of events. This form should include overall planning of major activities at the beginning of the course, major activities for each week, and detailed planning of minor activities each day. The check list of activities in the manual should be used as a guide in filling out the weekly calendars.

2. Daily Diary. Since a plan is difficult to carry out completely and exactly, the daily diary will differ in content of the items on the weekly calendar to some extent. The amount of variation will depend on the completeness of the original planning. The daily diary should contain a brief evaluation of the activities which occurred during the day, notable comments made during the daily critique and also other important activities which may have happened during the day.

3. Information for Planning Instruction. You should complete one of these forms for each unit you are assigned to teach. These forms should be filled out as part of the work in 189s.

4. Survey and Other Forms. The following survey and miscellaneous forms should be completed as part of your student teaching activities. (The level and amount of participation in these activities is suggested in the manual.)

   a. Survey of Prospective Pupils.
   b. Schedule of Classes.
   c. Visitation Record of Supervised Occupational Experience Programs.
   d. Check Sheet for Evaluating Student Record Books.

5. Evaluation Forms.

   a. Evaluation of instruction. One form should be filled out for each unit of instruction which you observed taught by the supervising teacher or another trainee. Sit in on every class possible.

   b. Evaluation of a field class. Fill out one form for each field class observed.

   c. Essentials of a demonstration. Fill out one form for each demonstration observed.

6. Department Reports and Forms. Procure or make copies of reports listed below. These copies, properly filled out, will serve as a guide to you when making out reports during your first year of teaching. Study and understand the purpose of each report and the use made of same.

   a. Preliminary and final reports on Supervised Occupational Experience Programs.
   b. Mileage reports.
   c. Preliminary enrollment cards and class schedules.
   d. Plans for summer activities.
   e. Copies of any other reports required of the department during the period of student teaching.

7. Summary of Experiences. This should be written immediately after the end of Course 189s and again after the spring training session, Course 189. The report should include the following:

   a. Major problems encountered.
   b. Significant observations pertaining to your work which cannot be included in the Daily Diary.
   c. Suggestions for improving the program of directed experiences.
   d. Your outlook on the job of teaching agriculture.

SUGGESTIONS FOR OBSERVING AND TEACHING CLASSES

Growing Into the Job

1. Start early to become acquainted with your community.

2. Develop the attitude that the student is the important part of your work.

3. Make a classroom seating chart.

4. Learn early the methods of caring for tardiness, absences and disciplinary cases.

5. Observe all classes with the idea of learning how you can develop or improve your own methods.

6. At first, follow the pattern of your supervising teacher; then work in new ideas of your own.

7. Plan all work well in advance and in as much detail as possible.

8. Get to know the boys and their home life as soon as possible.

9. NEVER BLUFF. Try never to show signs of nervousness or frustration. Don't get in a hurry.

10. Accept responsibility readily without being a "yes" man.

Observing Classes

1. Sit in the class apart from the students with as little disturbance as possible.

2. Use the form "Evaluating Instruction in Vocational Agriculture" to record your observations of your supervising teacher.

3. Note the method of motivation, questioning and handling supervised study used by the supervising teacher.

4. Make notes whenever you don't understand a point, and in conference later on get it cleared up.

5. Observe the use of visual and other teaching aids, noting how they are worked into the lesson development.

6. Observe at least one other class in the school, such as industrial arts, chemistry, biology, etc.

Teaching Classes

1. Take over the class as though you were going to be there from now on.

2. Make use of visual and other teaching aids to the fullest extent. Let these be an aid, not a substitute.

3. Use every trick you have seen to motivate and stimulate interest; then you will have the opportunity to weed out those not fitted to your ability or personality.

4. Be fair, friendly and firm.

5. Use cases from the community as often as possible.

6. Do not sacrifice good discipline for popularity with the students. Be friendly, but always be the teacher.

7. Have everything as well planned as possible. Keep things moving so that interest and discipline will be much more easily maintained.

GENERAL SUGGESTIONS FOR STUDENT TEACHERS

Materials to Take to the Training School

In addition to the Manual, three-ring notebook, textbook, camera, and other previously mentioned materials, the following should be provided:

1. A box or usable file in which to store such materials as:

   a. Extra study guides or teaching units
   b. Teaching aids of all kinds
   c. Extra reference books and bulletins
   d. Copies of reports
   e. Miscellaneous materials

2. Enough clothing to allow proper dress for shopwork, field classes, classwork, and other meetings to be attended in the school and community.

Special Projects in the Training Center

1. While in the department, make definite contributions to facilities that you would like to see used if it were your own department.

2. Spend extra time, if necessary, helping the supervising teacher develop some special technique or method.

Readings and Study Notes

1. From references, study information about the activities you are engaged in from day to day. This is especially important in Course 189s to give background and understanding to the varied responsibilities in the job of a teacher of agriculture.

2. Record any information which you think will have future use, such as sources of materials and supplies, ideas, practices, teaching tricks and devices which will be of help to a beginning teacher.

Professionalism

1. Make appointments promptly and notify people involved if you cannot keep them.

2. Avoid idle gossip, distrust or criticism.

3. Be alert to all happenings in the training center and take part in activities outside the agriculture department as well as inside.

4. Attend regular faculty meetings and other professional meetings while at the center.

5. Learn and follow the rules, policies, and routines of the school to which you are assigned.

6. Have frequent conferences with the supervising teacher (at least one per day). Make sure all points are clearly understood. Remember always that your supervising teacher will criticize and make many suggestions in the spirit of helpfulness. Ask for this criticism, receive it in a friendly and cooperative spirit, and make every attempt to improve.

7. Be courteous to students and others alike.

8. Be self-analytical, and reserve time for considering items of self-improvement.

A MANUAL FOR SUPERVISING TEACHING IN VOCATIONAL AGRICULTURE

I. Understanding Community Resources and Developing Working Relationships

Guiding Principles -- Instruction in vocational agriculture should be in terms of the agricultural and other resources of the community, so that these will be utilized effectively in developing teaching-learning situations. The teacher should accept his responsibilities as a citizen and participate intelligently in the activities of the community. He should develop and maintain close and cordial working relationships with the various segments of the community so that the program will be understood and supported by the public.

Time	Activity	Standards		Level		Remarks
		Min.	Opt.	Do	Obs.	
F	A. Getting acquainted and cooperating with the school. 1. Meet and confer with the administrator concerning: a. School schedule					
F	b. Grading, enrollment procedures					
F	c. Handling discipline problems					
F	d. Contracts and salaries					
F	e. Vacation and retirement					
F	f. Handling field and out-of-town trips					
F	2. Secure a copy of the department budget.					
F	3. Discuss budget procedures with supervising teacher.					
F	B. Getting acquainted in the community. 1. Make a list of community businesses and agencies related to farming (Banks, implement, feed and fertilizer dealers, etc.).					

Note: The Minimum and Optimum figures in the Standards column are to be filled in during the pre-student teaching conferences at the University. The student teacher will indicate the type of participation in each of these activities by checking (✓) in either the Do or Observe column. If there was no possibility of getting experience in the activity during the student teaching period, place a large N across the two columns.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	2. Meet with Farm Bureau and/ or farm organization representatives					
F S	3. Meet key farmers.					
F S	4. Attend meetings of civic clubs and other community organizations.					
F S	5. Meet and confer with newspaper editor.					
F	6. Discuss and make a summary of the types of farming in the area and indicate trends or changes.					
F	7. Study a map of the school district.					

II. Becoming Familiar with Administrative Policies and Responsibilities

Guiding Principles -- Much of the success of a vocational agriculture program is due to the competence of the instructor in accomplishing his administrative responsibilities promptly and effectively. He must interview prospective students and their parents and guide those students into his classes who meet requirements and can profit most from the program. He must be familiar with possible placement opportunities in the community for his former students, and help them to become successfully established on farms or in related agricultural occupations. He must organize and file departmental materials, keep records systematically and prepare accurate reports promptly. He must publicize the work of the department and carry out an effective public relations program.

Time	Activity	Standards Min. Opt.	Level Do Obs.	Remarks
F S	A. Selecting pupils for all-day classes. 1. Visit at least three prospective students and parents with the supervising teacher.			
F	2. Become familiar with guidance or counseling services available for 8th grade students.			
S	3. Examine 8th grade student records to locate qualified vocational agriculture students.			

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
S	4. Work with F.F.A. groups in contacting possible students.					
S	5. Help supervising teacher conduct: a. Program on vocational agriculture for junior high school groups.					
S	b. Open house for prospective pupils and parents.					
S	c. Farming program tour for prospective pupils and parents.					
F S	B. Placement and follow-up of students. 1. Observe methods used to help students find occupational experience opportunities.					
S	2. Assist supervising teacher in locating occupational experience opportunities.					
F S	3. Accompany supervising teacher on visits to students he is helping become established in farming.					
F S	4. Accompany supervising teacher on visits to students he has helped become employed in a related occupation.					
F	5. Examine and discuss with supervising teacher his file of student placement opportunities.					
F	6. Study and discuss with supervising teacher his permanent record file of former students.					
S	7. Assist in developing business agreements and/or familiarize yourself with existing business agreements.					
F	C. Keeping records and making reports. 1. Review copies of reports to State Supervisor as follows: a. Class schedule*					
F	b. Preliminary report*					

*Additional report forms are available from the Department of Agricultural Education, The University of Arizona, Tucson.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
S	c. Final report of occupational experience*					
F S	d. Monthly report of travel and supervision*					
F	2. Procure copies of: a. Department program of work					
F S	b. F.F.A. Chapter program of activities					
F	c. Summer program of work*					
F	3. Prepare or secure copies of reports to the administrator as follows: a. Attendance					
F	b. Teaching calendar					
F	c. Special events					
F S	D. Promoting and publicizing the program. 1. Prepare news articles for publication.					
F S	2. Assist F.F.A. reporter in preparing news items for publication.					
S	3. Assist in planning and presenting a school assembly or other special program to publicize the program.					
F S	4. Assist in preparing and presenting a radio and/or television program.					
F S	5. Take pictures to publicize department activities.					
F S	6. Assist in the planning and preparation of a fair, window or other promotional exhibit.					
F	7. Learn the school policy for clearing publicity with the administrator.					
F	8. Study and discuss with supervising teacher the promotional program for the department.					

*Additional report forms are available from the Department of Agricultural Education, The University of Arizona, Tucson.

III. Organizing and Maintaining Facilities

Guiding Principles -- The vocational agriculture teacher is responsible for the organization and maintenance of a great many teaching facilities and materials. His ability to keep these facilities clean, attractive and in good working order and to maintain an adequate supply of teaching materials, neatly stored when not in use, is one measure of his competence as a teacher that is obvious and easily evaluated by students, administrators and the public.

Time	Activity	Standards		Level		Remarks
		Min.	Opt.	Do	Obs.	
F	A. Help classify, file and store materials and supplies. 1. File bulletins.					
F	2. Make or check the inventory of farm mechanics tools and equipment.					
F	3. Evaluate department library, using state book list as a check sheet.					
F S	4. Collect, prepare and/or preserve visual and real materials for units to be taught.					
F S	5. Collect and/or organize adequate study materials on units to be taught.					
F S	6. Collect and file special articles and pictures for units to be taught.					
S	7. Keep shop clean, neat and attractive.					
S	8. Keep classroom clean, neat and attractive.					
F	9. Examine and understand the standard filing system for the 4 drawer steel file in the department.					
F	B. Order replacement supplies and materials. 1. Discuss with school officials methods used to obtain supplies and teaching materials.					
F S	2. Determine supplies needed for units to be taught and make out requisitions.					
F S	3. Order films for use in units to be taught.					
F	C. Care of physical facilities. 1. Examine shop tools and equipment and sharpen or repair as needed.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F	2. Make and display signs and/ or devices that will contribute to safety in the shop.					
S	3. Make and/or use shop clean-up assignment wheels with shop classes.					
S	4. Make shop improvements that will speed the clean-up period.					
F S	5. Paint major pieces of shop equipment according to the color dynamics specifications.					
F	6. Make improvements in the departmental facilities according to needs.					

IV. Teaching All-Day Classes and Supervising Occupational Experience Programs

Guiding Principles -- The primary responsibility of a vocational agriculture instructor is to teach high school students effectively on the basis of their needs, utilizing group planning, thinking and evaluation process, suitable teaching aids, and purposeful experience, together with appropriate teaching methods and techniques of classroom management. Occupational experience programs are the basis for classroom teaching and provide motivation and learning experiences that will help develop the student and contribute toward his establishment in agriculture. Therefore, every vocational agriculture teacher should be able to encourage and help his students select, develop and conduct an occupational experience program appropriate to their needs.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F	A. Planning a course of study based on needs. 1. Become familiar with department course of study.					
F	2. Obtain a copy of the teaching calendar for the year.					
F	3. Procure a list of all units to be taught in the practice school.					
F	4. Prepare a list of aids and community resources to be used in teaching units assigned.					
F	5. Prepare a list of student references on all units to be taught.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	6. Summarize occupational experience programs in progress with special reference to the units to be taught.					
F	7. List farming enterprises in the school area according to relative importance.					
F S	B. Observe and evaluate instruction of supervising teacher. 1. Complete evaluation form on each unit observed.					
F S	2. Observe the supervising teacher's use of plans and discuss their values.					
F S	3. Evaluate visual aids used by supervising teacher.					
S	C. Prepare and use teaching units, materials and aids. 1. Prepare a statement of each unit to be taught in: a. Agricultural Science					
S	b. Agricultural Mechanics					
S	2. Make and use approved written teaching plans for each unit to be taught.					
S	3. Plan and conduct: a. Field classes					
S	b. Demonstrations(operative)					
S	c. Managerial or problem solving jobs.					
S	d. Discussion groups in classes.					
S	4. Organize shop equipment for effective use with classes to be taught.					
S	5. Prepare and use some visual aids in each unit taught.					
F S	6. Make a seating chart for each class.					
F	7. Make a group picture of each class you will teach.					
F S	D. Develop skills and other abilities needed to teach assigned units.					
F	1. Check teaching skills and abilities needed for teaching assigned units with supervising teacher.					
F S	2. Acquire new skills or abilities for teaching units as needed.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	E. Assist students in planning and developing occupational experience programs. 1. Visit students with the supervising teacher and observe and evaluate his methods.					
S	2. Assist the supervising teacher in planning placement opportunities with cooperating farmers and agricultural businesses.					
F S	3. Accept the responsibility of supervising the occupational experience programs of students.					
F S	4. Help plan improvement projects for the students.					
F S	5. Help plan supplementary practices for the students.					
S	6. Assist the students assigned in keeping records on their occupational experience programs.					
F S	7. Fill out Visitation Record of Supervised Occupational Experience Program for each supervisory visit.					
S	8. Assist the students assigned in summarizing and analyzing their occupational experience program records.					
F	9. Evaluate other record books with check sheets.					
S	10. Observe supervising teacher during a period devoted to student record keeping.					
F S	F. Dress appropriately for all occasions. 1. Classroom instruction					
F S	2. Shop instruction					
F S	3. Field trips					
F S	4. After school functions					

V. Directing the Activities of the Chapter of the Future Farmers of America

Guiding Principles -- The primary purpose of the F.F.A. is to develop students. The F.F.A. is an integral part of the vocational agriculture program. The vocational agriculture teacher should advise the local F.F.A. chapter so that all members will take part in activities that will develop them for useful living in a democratic society. An agriculturist in a democracy respects the dignity of the individual, is a self-directing individual, reaches decisions, and mediates differences based on facts, has faith in cooperative means of carrying out improvements, and possesses abilities in working with groups. F.F.A. awards of various kinds provide incentives, give reward for participation and for excellence in some areas, but should be used as a means toward the end of developing good citizens, and not as an end in themselves.

Time	Activity	Standards		Level		Remarks
		Min.	Opt.	Do	Obs.	
F	A. Help conduct the program of activities. 1. Discuss and evaluate the chapter program of activities with the supervising teacher.					
S	2. Assist with a cooperative project for the chapter.					
F S	3. Assist in organizing and directing the work of committees.					
S	4. Serve as adviser in F.F.A. meetings.					
F S	5. Assist members making application for advance degrees or foundation awards.					
S	6. Guide the chapter in a cooperative project with other school organizations.					
S	7. Assist in planning and carrying out contests.					
F	8. Discuss chapter budget and finances with chapter treasurer.					
F S	9. Plan and carry out one recreational activity with chapter.					
S	10. Help plan and conduct a Parent and Son Banquet.					
F S	11. Take pictures of F.F.A. activities for instruction and promotional use.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F	12. Help plan and participate in an F.F.A. ceremony or initiation.					
F S	13. Be familiar with procedures for ordering F.F.A. materials (jackets, banquet supplies, etc.).					

VI. Organizing and Conducting Instruction for Adults

Guiding Principles -- The business of Agriculture is becoming more complicated each year. Farmers need more technical information and practical skills so that they may cope with their problems more economically and intelligently. Providing learning situations for adults engaged in agriculture is an integral part of the complete program of vocational agriculture instruction. Since he will learn what he practices, the student teacher should have opportunity to gain experience and develop competence and confidence in planning and conducting classes for adults.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	A. Securing support of school authorities for adult program. 1. Discuss with school administrators their philosophy on public school responsibility for adult classes.					
F	2. Discuss with key adults in the community their philosophy on public school responsibility for adult classes.					
F	B. Recruit and organize classes 1. Make informal survey of day school students' fathers to determine: a. Willingness to attend adult classes.					
F	b. Subjects of greatest interest for class.					
F	c. Best time for class.					
F S	2. Discuss with supervising teacher his methods of recruiting classes.					
F S	C. Plan and conduct group instruction. 1. Assist supervising teacher in planning a series of adult classes.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
S	2. Observe supervising teacher teach an adult class.					
S	3. Take charge of the planning and teaching of classes for adults.					
S	4. Accompany supervising teacher on home visits to adult class members.					

VII. Planning and Evaluating a Departmental Program

Guiding Principles -- Vocational agriculture teachers need to plan and develop an educational program that will help meet the agricultural education needs of the community through effective utilization of the resources of the teacher, the school and the community. Increasing demands upon the time and energy of today's teacher of vocational agriculture creates the necessity for careful planning if he is to make the greatest possible contribution to his community while, at the same time, conserving for himself and his family sufficient time for living a satisfactory home life. The program needs to be studied and evaluated regularly in terms of clear objectives and revised as indicated by the evaluation.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	A. Planning the program. 1. Obtain and study a copy of the department's program of work.					
F	2. Discuss and evaluate that program of work with the supervising teacher in terms of department objectives.					
S	3. Make a list of suggestions for improvement on your copy of the department program of work.					
F S	B. Evaluating the effectiveness of the program. 1. Study departmental records showing present occupations of former students.					
F	2. Discuss percentage of former students established in farming and related occupations with supervising teacher.					

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	3. Visit former students and discuss present use of approved practices and skills.					
F S	4. Discuss with supervising teacher evidence of community leadership by former students of the department.					
S	5. Assist supervising teacher and members in evaluating the F.F.A. program of work as it fits the total program.					
S	6. Check the department activities with the program of work.					
F	7. Study and compare the successive annual reports of the department.					
F	8. Discuss with the supervising teacher the methods and frequency of evaluation used in the department.					
F	9. Make a summary of the report on last systematic evaluation.					

VIII. Developing a Philosophy and Standards toward the Teaching Profession

Guiding Principles -- All teachers should develop and maintain high ethical standards and work toward professional growth through graduate studies, membership in professional organizations and such other means as will contribute toward competence and pride in the profession.

Time	Activity	Standards Min.	Standards Opt.	Level Do	Level Obs.	Remarks
F S	A. Attend and contribute to professional meetings. 1. Local classroom teachers.					
F S	2. State teachers' meetings, including A.S.V.A., etc.					
F S	B. Confer with other teachers and specialists in technical and professional fields. 1. Visit other vocational agriculture department.					
F S	2. Visit other classes in the school.					

Time	Activity	Standards		Level		Remarks
		Min.	Opt.	Do	Obs.	
F S	C. Discuss problem areas in the vocational agriculture program with others. 1. Vocational agriculture teachers.					
F S	2. Other teachers.					
F S	3. Administrators.					
F S	4. Patrons of the community.					
F S	D. Discuss and understand the philosophy of the following persons relative to teaching as a profession: 1. Administrator.					
F S	2. The supervising teacher.					
F S	3. Other teachers.					

SUMMARY OF PARTICIPATION IN FALL

Activity	Doing	Observing	N
I. Understanding Community Resources and Developing Working Relationships			
II. Becoming Familiar With Administrative Policies and Responsibilities			
III. Organizing and Maintaining Facilities			
IV. Teaching All-Day Classes and Supervising Occupational Experience Programs			
V. Directing the Activities of the Chapter of the Future Farmers of America			
VI. Organizing and Conducting Instruction for Adults			
VII. Planning and Evaluating a Departmental Program			
VIII. Developing a Philosophy and Standards Toward the Teaching Profession			

SUMMARY OF PARTICIPATION IN FALL AND SPRING

Activity	Doing	Observing	N
I. Understanding Community Resources and Developing Working Relationships			
II. Becoming Familiar With Administrative Policies and Responsibilities			
III. Organizing and Maintaining Facilities			
IV. Teaching All-Day Classes and Supervising Occupational Experience Programs			
V. Directing the Activities of the Chapter of the Future Farmers of America			
VI. Organizing and Conducting Instruction for Adults			
VII. Planning and Evaluating a Departmental Program			
VIII. Developing a Philosophy and Standards Toward the Teaching Profession			

VT 005 855
Farm Business Management Report and Individual Farm Business Analysis Guide, 1967.

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*FARM MANAGEMENT; *FARM ACCOUNTS; FARMERS; *ADULT FARMER EDUCATION; *VOCATIONAL AGRICULTURE; DATA ANALYSIS; STATISTICAL DATA; AGRICULTURAL PRODUCTION; INCOME; OPERATING EXPENSES
MINNESOTA

Financial data representing 282 farms analyzed by 19 instructors in 17 school districts are included in this report. The primary purpose of the program is to assist farm families in their management decisions. Descriptive or tabular treatment of statistical data for Minnesota farms is given for the following: (1) program growth and present status, (2) range of operator-labor earnings, (3) cash statement of expenses, returns, increases, and earnings, (4) dairy herd analysis, (5) feed costs and returns on dairy cattle, beef breeding herds, feeder cattle, sheep, feeder pigs, and market hogs, (6) distribution of work output and livestock production, (7) comparison of crops grown, acre yields, and land uses, (8) 5-year average yields, (9) operation costs for farm power, buildings, and equipment use, (10) measures of farm organization and management efficiency, (11) a 4-year comparison of farm management factors, (12) a thermometer chart of management measures, and (13) a comparison of selected factors of farm management results in the high earnings group and the low earnings group. (DM)

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1967

Farm Business Management Report

and

Individual Farm Business Analysis Guide

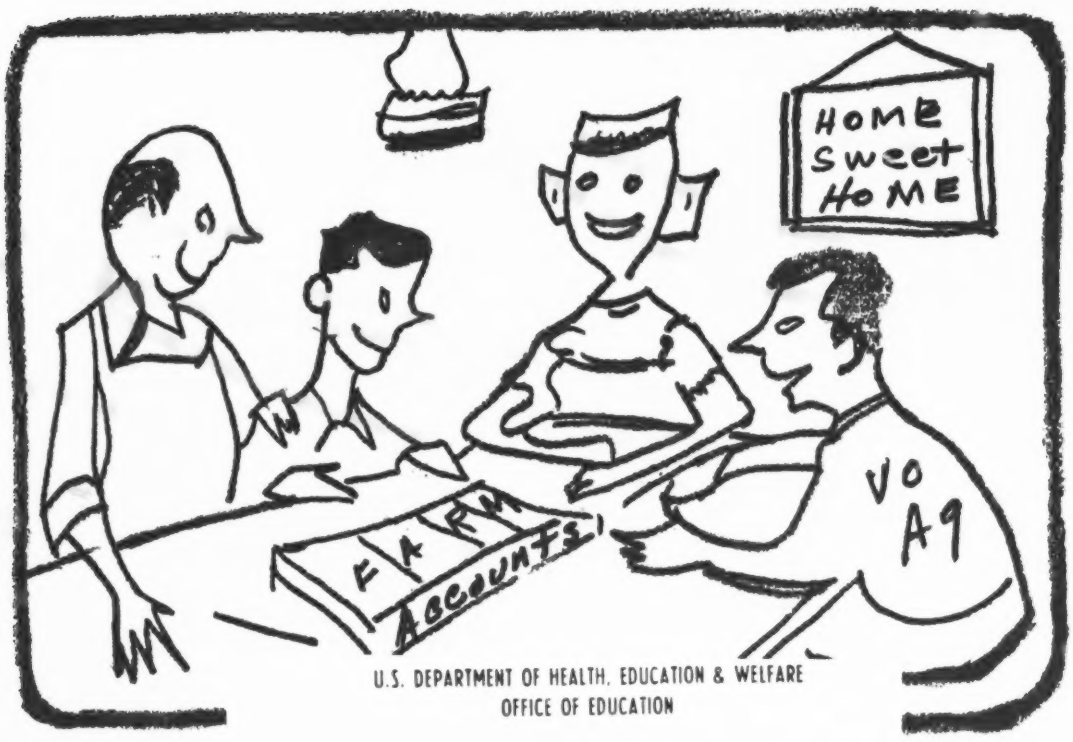
by the

Agriculture Department

St. Cloud Area Vocational - Technical School

Saint Cloud Public Schools

Saint Cloud, Minnesota



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VT005855

Cooperating Agencies

State and County Services of U. S. D. A.

Institute of Agriculture, University of Minnesota

Vocational Division, Minnesota Department of Education

1967 FARM BUSINESS MANAGEMENT REPORT

Agriculture Department, Area Vocational-Technical School
St. Cloud Public Schools, St. Cloud, Minnesota

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INTRODUCTION

The financial data included in the 1967 Farm Business Management Report on 282 farms was prepared from the individual analysis of farm business records kept by individual farmers in a Minnesota Farm Record Book.

The individual farm business analysis was prepared by the local adult teacher with the cooperation and understanding of the farmer. The analysis results on individual farms is confidential information. The report on the analysis of the entire farm business is made as soon as possible at the close of the business year. The enterprise analysis of livestock enterprises may be made on a feed lot basis or at any time the farmer desires. The crop analysis is usually made at the end of the harvest season. The analysis report is a year-end summary. The analysis activity takes place any time that decisions need to be made in planning, organizing or operating the farm business. The record book may be subtotaled periodically, although the accounting isn't directly fitted to cash money circulation. Many farmers separate the farm from the personal checking account so cash may be checked to farm record data.

The individual farm business analysis is a part of the case study made on each farm by the instructor. The case study is basic to the instructional activity of the adult instructor and the managerial activity of the farmer. The actual preparation, understandig, interpretation evaluation and application of the analysis activities and the report are basic to the communication between farmer and instructor. This communication underlies involvement in educational and the decision making processes that background the operational practices carried on daily by the farmer.

Observations and discussions with teachers and farmers indicate that more instructional material for class, group or individual instruction was prepared from case study this year than any previous year. This material was used during the 1967-68 school and farming year. The area summary prepared from copies of the per farm data is not available for use until around May first just before the school year ends and after the farmer has made decisions on operations to take place in the 1968 summer session.

The time comes when the accomplishments mentioned in the above two paragraphs will be achieved on the part of instructors and the farmers as individuals. At that time, the clerical activity necessary to prepare the analysis forms should be performed by someone other than the instructor or the farmer at a service separate from educational costs.

The additional clerical service may be performed by hiring help at the local high school or the area analysis center to prepare the individual as well as the area analysis. At present, the data processing service constitutes calculation of the answers on the individual farm business report and calculation of the averages in the area summary. We have not used the data processing service because our system has been a part of the instructional activity where resource data, calculation procedure and answers have been on the same unified form. The cost has been less, the learning values greater. When the instructional values have been achieved we should use clerk hire and/or electronic data processing resources.

Private enterprises, banks, credit agencies and farm organizations are providing increased opportunity to purchase farm record services. Although the product of these services are more pertinent to the supplier of the service and income tax reporting, it may be possible to integrate and consolidate such service with the educational activity and individual farm counseling offered by area vocational and local high schools. We now have farmers who are willing to pay for the added cost of service but want the materials in a format similar to our present analysis so the farmer can understand, evaluate and apply the data of the past to decisions about the future.

The accounting procedures used in arriving at results in the figures in the analysis are developed on the cash basis, the accrual basis and the enterprise basis. The record book is a single entry system.

The cash statement results in a figure called "net cash farm income". This figure is the result of all income, minus expense, with credit or cash transactions handled on a cash basis. Net cash farm income is the result of circulating cash or credit dollars separate from a consideration of a farm capital or net worth statement. Net cash income is what is left for savings, to pay debts, various taxes, family living and acquire capital control for operation of the business. Total cash farm sales are a measure of the money volume that would be circulated by a farmer at urban trade centers. The ratio of cash expense to cash income indicates the cash expense used to buy a dollar of income and have something left for non-farm expenses.

Accrual accounting differs from cash accounting in that we separate the costs of using fixed capital and change in inventory values from operating costs for the entire business or any part of it.

The debit or input part of accrual accounting is the beginning inventory value plus any additional inventory purchased during the year. The credit or outgo part of accrual accounting is the ending inventory value plus any inventory sold during the year. The difference between the debit and credit total would be a net increase or decrease in the inventory value of farm capital used.

In the case of farm machinery equipment, building and fences, this difference is shown as depreciation on Form 2 of the farm analysis and the accrual statement of expenses in this summary. Depreciation is a fixed cost for use of fixed inventory capital that needs to be replaced as it wears out, becomes obsolete or traded off.

When we add the costs of operating the fixed capital to the net increase or decrease in the value of the capital, we have what may be called accrued costs.

Enterprise analysis requires one to use both cash and accrual accounting to arrive at all costs that apply to the livestock or crop enterprises.

In the case of livestock, the difference between the debit and credit values of the livestock themselves is called net increase or decrease in the value of the livestock. When farmers market beef, pork or lamb, they expect to realize a profit over the feed cost used to get the increased weight of the stock.

When one considers dairy cows, he establishes a net increase or decrease in the value of the herd. When one adds the value of the product to the change in herd inventory value, he has then accrued a total of production, plus or minus the inventory change. From that figure, one subtracts the feed cost to get a return over feed cost for production of milk and maintaining the production units or cows. If we could sort out and total other non-feed costs specific to the cows and milk produced and subtract the total of these costs from the return over feed, we would have extended the allocation of costs to the specific dairy cow enterprise on a complete accrual basis.

At the present time, neither the account book nor the analysis is in a form that may be used for a study of non-feed costs on a summary basis. In many individual cases, farmers and teachers are making detailed accrued cost studies on production of crops, as well as production of meat, milk or poultry.

In enterprise accounting, we separate the calves and young stock into a specific enterprise in order to take a separate look at the financial results on the various ways of handling dairy youngstock. We have also separated the feeder pig production enterprise from the market hog production enterprise.

We were unable to make a poultry enterprise analysis that would provide sound data for comparison study or evaluation of twenty farm poultry flocks. We do not have data on some commercial egg or broiler production units that have been developing in this area.

The "Farm Business Management Report" is a summary of the financial results on 282 farms where 19 teachers working with the farm families carried out an organized program of farm management instruction, farm record keeping and farm business analysis. The scope of the program may be illustrated by the fact that these farmers controlled $14,757,182.82 of farm capital, exclusive other non-farm capital. They had a gross farm sales volume of $6,022,464.22 in 1967. Gross sales are an indication of the money volume that would be circulated at urban trade centers by farmers.

This report also points out that the farm management education program is a result of cooperative effort of (1) the State Department of Education (2) the area vo-ag coordinator at the St. Cloud Area Vocation School (3) the adult teacher in the agriculture department at the high school (4) the farm family in the local farm area and (5) other resources called upon as the need and occasion arises.

No attempt will be made to evaluate the financial results shown in this report. This evaluation takes place in discussion meetings of teachers, farmers, coordinators and others during the year. One may ask the question. "Is there an average farmer?" Some of the variables backgrounding the results are these: (1) the type of farming (2) financial status and control (3) age of the farmer and family (4) attitude toward learning, unlearning and changes (5) the frequency, quality and kind of instruction (6) tenure of enrollment in the program (7) weather (8) organizational and operational abilities of the farmer (9) the decision making ability to use land, labor and capital in the best way to achieve profits. Thus, data from a large number of experiences is desirable for calculation of averages that are meaningful for comparison study in our central farm area.

The area vo-ag program coordinator is employed by the area vocational technical school to work with schools in a geographic area designated by the state supervisor of agriculture education. He developes and coordinates agriculture education activities in the area that cannot be accomplished by the singular effort of a school. His work is with the agriculture instructors of their school administrators rather than with students enrolled in programs. The coordinator may work in cooperation with the state supervisory staff although he is not a supervisor. He may conduct surveys, research or studies and carry on in-service teacher training. He may also develop teaching aids, instructional materials or curriculum guides. The coordinator may also travel for conferences with agriculture teachers or others who work in cooperation with the area and state program in agriculture education.

The cooperative and progressive work done by agriculture instructors during the development of the farm management education program is resulting in increased interest in the program among forty-three high schools in the area. Expansion of the farm management program is limited by (1) a shortage of capable adult farm management instructors and (2) inadequate recognition of the need for and the part that high schools should take in adult education of the younger generation of farmers who are the future resources of our rural communities and reorganized school districts.

The cooperation received from individuals at the University of Minnesota, the Minnesota State Department of Education, the U.S.D.A. agencies, school boards and administrators in most sincerely appreciated by all teachers.

This program is carried on for the purpose of helping farm families. Their cooperation in keeping records, attending class sessions and accepting individual on-farm instruction has been the reason for the growth of the program. Farmers or others who want to enroll in a program, or establish a program in their area, should contact the local vo-ag instructor, the local superintendent of schools, or the area vo-ag program coordinator at St. Cloud.

J. K. Michie, Superintendent J. C. Wakefield, Director

E. J. O'Connell, Area Vo-ag Program Coordinator

Area Vocational-Technical School

St. Cloud, Minnesota

Agriculture Departments in Fourteen Central Minnesota Counties:
Anoka, Benton, Chisago, Hennepin, Isanti, Kanabec, Meeker, Mille Lacs, Morrison, Ramsey, Sherburne, Stearns, Todd and Wright

PROGRAM GROWTH AND PRESENT STATUS

The analysis of farm business records started in 1946 at St. Cloud as a part of the local Veterans Farm Training Program by way of help from the Agriculture Economics Division, University of Minnesota. In 1955, the educational program in farm management, record keeping and business analysis started at St. Cloud with 12 farmers and a new teacher. During 1955-56, the writer began work as a part-time area vo-ag coordinator in a 15 county central Minnesota area. Although the analysis system is used by adult farmers, many teachers use the system in teaching farm accounts and farm management in high school classes. A farmer, accompanied by his wife or partner, may expect to receive a least 30 hours of class instruction, 20 hours individual counseling and about 10 hours of group activity per year.

The number of farm cooperators and schools has grown slowly each year as follows:

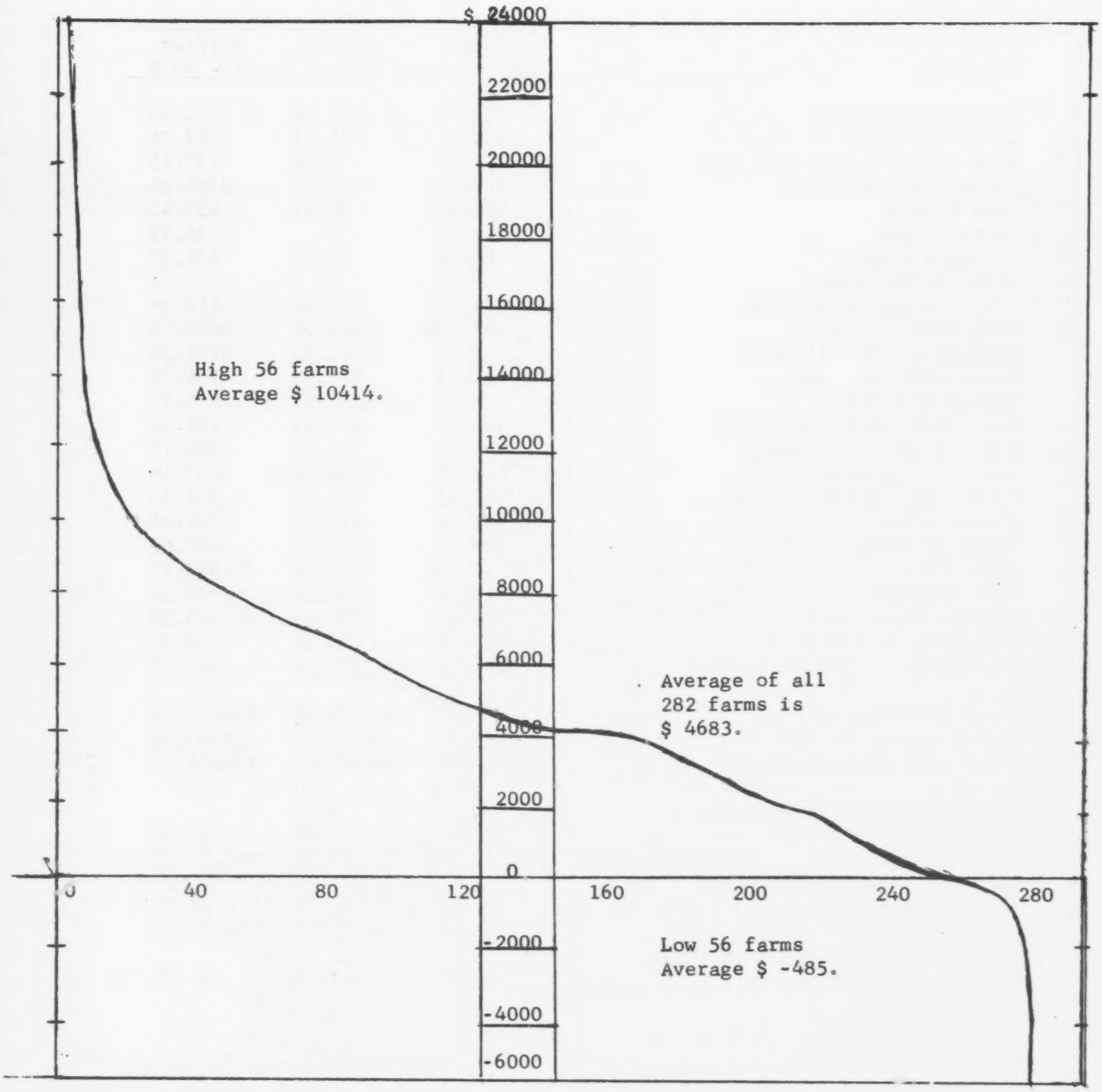
1955 - 12	1958 - 50	1961 - 80	1964 - 132
1956 - 12	1959 - 70	1962 - 70	1965 - 195
1957 - 57	1960 - 77	1963 - 102	1966 - 200
			+ 40 MDTA

The schools and instructors in the 1967 program have submitted records as follows:

School	Instructor	Time Plan	Number of Accounts
Albany	James Kastanek	2	10
Albany	Ronald Novotny	2	11
Cokato	Allan Dalen	A	6
Cosmos	Wayne Albrecht	A	2
Dassel	Charles Davis	1	3
Evansville	Dennis Lehto	3	30
Foley	Lawerence Reiten	3	45
Kimball	Leo Wirth	A	5
Litchfield	Arvid Anderson	2	10
Long Prairie	Robert Johnson	3	36
Milaca	John R. Larson	1	13
North Branch	Wilton Johnson	A	4
Osakis	Norman Bombach	3	7
Ogilvie	Eugene Tolzman	A	1
Paynesville	LeRoy Hillbrand	3	26
Rush City	Douglas Hanson	A	1
Sauk Centre	Kayle Becker	A	5
St. Cloud	Raymond Anderson	3	40
St. Cloud	Robert Underwood	2	27
17 Schools	19 Instructors		282 Farms

Time Plan: 1 - Quarter time adult
2 - Half time adult
3 - Full time adult
A - Adult class only

Range of Operator Labor Earnings
282 Farms - 1967



Cash Statement of Expenses

Farmers grouped on basis of operator labor earnings

Compare to form 1 Analysis of your farm	Your farm	Average 282 farms	Average high 20 %	Average low 20 %
Dairy cows bought	_____	$ 286.73	$ 205.30	$ 511.33
Other dairy cattle bought	_____	188.47	219.23	142.76
Beef breeding cattle bought	_____	71.94	175.53	137.95
Feeder cattle bought	_____	943.97	905.45	2784.24
Hogs bought	_____	232.50	39.43	433.48
Sheep bought	_____	7.31	--	34.72
Chickens bought	_____	84.61	34.71	274.37
Other stock bought	_____	9.59	--	--
Misc. livestock expense	_____	533.57	707.88	416.39
Feed bought - total	_____	2847.96	2942.28	3670.10
Chemicals & fertilizers	_____	914.65	1241.03	1144.20
Other crop expenses	_____	667.19	906.01	704.36
Custom work hired	_____	797.84	1030.54	699.33
Repr.upkp.livestock equip.	_____	148.26	201.63	125.56
Repr. upkp. real estate	_____	243.54	323.71	264.11
Gas, oil, grease bought	_____	869.58	1094.55	857.18
Repr. operate truck/auto	_____	257.35	303.61	244.33
Tractors/machinery	_____	696.07	822.21	754.28
Wages of hired labor	_____	400.45	547.76	487.62
Pers. Prop. R. estate tax	_____	717.32	893.55	657.91
Rent expense	_____	518.48	853.52	638.59
General farm expense	_____	264.35	328.34	243.38
Telephone - farm share	_____	64.25	73.09	58.31
Electricity - farm share	_____	264.14	325.62	261.93
Total operation expenses (1)	_____	$12030.12	$14174.98	$15546.43
Mach'y Equip. R. Est. bought	_____	6054.27	8452.69	6703.14
Total cash farm purchases (2)	_____	$18084.39	$22627.67	$22249.57
Ratio of operation expenses to operating receipts. (1) ÷ (3)	_____	$ .55 to a $1.00	$ .48 to a $1.00	$ .70 to a $1.00
Ratio of total cash purchases to total cash sales. (2) ÷ (4)	_____	$ .82 to a $1.00	$ .74 to a $1.00	$1.01 to a $1.00
Whole farm labor earnings per total farm work units.	_____	$9.71	$17.29	$ .74

Cash Statement of Receipts and Earnings
Farmers grouped on basis of operators labor earnings

Compare to Form 1 Analysis of your farm	Your farm	Average 282 farms	Average high 20%	Average low 20%
Dairy products sold	_____	$11396.13	$15830.06	$ 6729.84
Dairy cows sold	_____	1459.59	2060.72	1175.26
Other dairy cattle sold	_____	1285.93	1407.70	857.17
Beef breeding cattle sold	_____	167.43	353.43	263.17
Feeder cattle sold	_____	1892.55	2035.29	5493.17
Breeding hogs sold	_____	189.02	197.14	341.58
Market hogs sold	_____	1245.76	930.50	2086.46
Feeder pigs sold	_____	601.05	1185.68	679.62
Sheep sold	_____	60.38	50.34	135.91
Wool sold	_____	11.55	--	28.74
Chickens, hens, broilers	_____	16.41	6.77	37.51
Eggs sold	_____	238.47	53.52	692.74
Other stock sold	_____	12.63	--	--
Crops sold (Gov't income)	_____	1706.88	3186.70	1639.54
Gasoline tax refund	_____	110.06	125.95	118.78
Income from work off farm	_____	597.15	1193.46	673.22
Coop patronage refunds	_____	142.09	167.64	92.84
Miscellaneous farm income	_____	178.76	597.54	138.72
Total operation receipts	_____	$21311.84	$29382.44	$21184.27
Mach'y equip. r. est. sold	_____	120.41	117.78	227.70
Total cash farm sales (4)	_____	$21432.25	$29500.22	$21411.97
Total cash farm purchases (2)	_____	$18084.39	$22627.67	$22249.57
Net cash farm income	_____	$ 3347.86	$ 6872.55	$ -837.60
Increase in farm capital	_____	$ 4484.05	$ 7106.24	$ 4344.71
Decrease in farm capital	_____	771.59	338.33	1789.08
Family living off farm	_____	406.50	451.89	373.53
Net farm receipts	_____	$ 7466.82	$14092.35	$ 2091.56
Board of hired labor	_____	67.73	81.30	82.36
Return to capital & family labor	_____	$ 7399.09	$14011.05	$ 2009.20
5% interest on farm capital	_____	$ 2508.81	$ 3339.01	$ 2386.59
Value of unpaid family labor	_____	206.76	257.32	108.34
Labor & mg't earnings-whole farm	_____	$ 4683.52	$10414.72	$ -485.73
Share to other operator/partner	_____	163.67	647.53	7.77
Labor & mg't earnings - operator	_____	$ 4519.85	$ 9767.19	$ -477.96

Accrual Statement of Expenses and Decreases
Farmers grouped on basis of operator labor earnings

Compare to Form 2 Analysis of your farm	Your farm	Average 282 farms	Average high 20%	Average low 20%
1. Beginning inventory		$17472.23	$23047.54	$16965.06
2. Mach., equip. bought		5174.79	7316.79	5507.91
3. Total of 1 + 2		$22647.02	$30364.33	$22472.97
4. Mach'y, equip.,bldgs. sold		$ 98.35	$ 46.35	$ 208.06
5. Ending inventory		20177.61	27054.00	19889.57
6. Total of 4 + 5		$20275.96	$27100.35	$20097.63
7. Depreciation (3 - 6)		$ 2371.06	$ 3263.98	$ 2375.34
8. Custom work hired		$ 797.84	$ 1030.54	$ 699.33
9. Repair & upkeep livestock equip.		148.26	201.63	$ 125.56
10. Repair & upkeep r. est. & bldgs.		243.54	323.71	264.11
11. Gas, oil, grease bought		869.58	1094.55	857.18
12. Repair & upkeep trucks & auto		257.35	303.61	244.33
13. Repair & upkeep power equip./mach.		696.07	822.21	754.28
14. Electricity-farm share(crops or stock)		264.14	325.62	261.93
15. Total operation cost (7 through 14)		$ 5647.84	$ 7365.85	$ 5582.06
16. Income from off farm work (machinery)		$ 236.03	$ 544.38	$ 288.57
17. Gasoline tax refund		110.06	125.95	118.78
18. Net operation cost (15 - (16 & 17)		$ 5301.75	$ 6695.52	$ 5174.71
(See page 24 of report)				
19. Miscellaneous livestock expense		$ 533.57	$ 707.88	$ 416.39
20. Wages of hired labor		400.45	547.76	487.62
21. Personal prop. & real est. tax		717.32	893.55	657.91
22. Value of unpaid family labor		206.76	257.32	108.34
23. Board of hired labor		67.73	81.30	82.36
24. Rent expense		518.48	853.52	638.59
25. General farm expense		264.35	328.34	243.38
26. Telephone - farm share		64.25	73.09	58.31
27. 5% interest on avc. farm capital		2508.81	3339.01	2386.59
28. Total acc. decreases & oper. costs		$10583.47	$13777.29	$10254.20

Change in farm capital on the accrual statement of returns is specific to machinery, equipment and buildings.

Change in farm capital on the accrual statement of returns is specific to the inventory change on each livestock enterprise.

Accrual Statement of Returns, Increases and Earnings
Farmers grouped on basis of operator labor earnings

Compare to Form 3 (Livestock and crops)	Your Farm	Average 282 Farms	Average High 20%	Average Low 20%
1. Ending inventory value	_____	$12017.98	$15753.33	$11706.34
2. Livestock sold	_____	6930.75	8227.57	11069.85
3. Butchered for home use	_____	247.11	276.00	258.05
4. Transferred out of this enterprise	_____	1708.25	2484.60	1179.14
5. Total of 1+2+3+4 (credits)	_____	$20904.09	$26741.50	$24213.38
6. Beginning inventory value	_____	11542.15	14409.45	11937.93
7. Livestock purchased	_____	1825.12	1579.65	4318.85
8. Transferred into this enterprise	_____	1708.25	2484.60	1179.14
9. Total of 6+7+8 (debits)	_____	$15075.52	$18473.70	$17435.92
10. Enterprise-increase/decrease (5-9)	_____	$ 5828.57	$ 8267.80	$ 6777.46
11. Livestock products sold	_____	$11646.15	$15883.58	$ 7451.32
12. Products used in home	_____	136.40	156.60	100.98
13. Products fed to livestock	_____	177.02	239.44	106.43
14. Value: Livestock products 11+12+13	_____	$11959.57	$16279.62	$ 7658.73
15. Products (14)+increase (10)	_____	$17788.14	$24547.42	$14436.19
Dairy cows	_____	$11667.97	$16200.71	$ 6923.17
Other dairy cattle	_____	2989.35	4349.33	1854.93
Breeding beef	_____	218.06	611.23	208.38
Feeder cattle	_____	836.08	1190.91	1969.53
All hogs	_____	1815.84	2083.30	2839.17
Sheep	_____	59.48	47.67	143.33
Others	_____	201.36	64.27	497.68
Total returns all enterprises	_____	$17788.14	$24547.42	$14436.19
16. Total feed cost all enterprises	_____	10292.83	12748.40	10609.65
17. Return over feed cost all enterprises	_____	$ 7495.31	$11799.02	$ 3826.54
18. Crop, feed & seed increase	_____	7089.71	$10978.73	$ 5325.72
19. Income from work of farm-labor	_____	361.12	649.08	384.65
20. Miscellaneous farm income	_____	320.85	765.18	231.56
21. Total accrued returns on crop and livestock enterprise (F3-22)	_____	$15266.99	$24192.01	$ 9768.47
22. Total accrued decreases and operation costs (F2-28)	_____	$10583.47	$13777.29	$10254.20
23. Labor and management earnings on whole farm basis (21-22)	_____	$ 4683.52	$10414.72	$ -485.73
24. Share to other operator/partner	_____	163.67	647.53	7.77
25. Labor and management earnings to the operator (23-24)	_____	$ 4519.85	$ 9767.19	$ -477.96

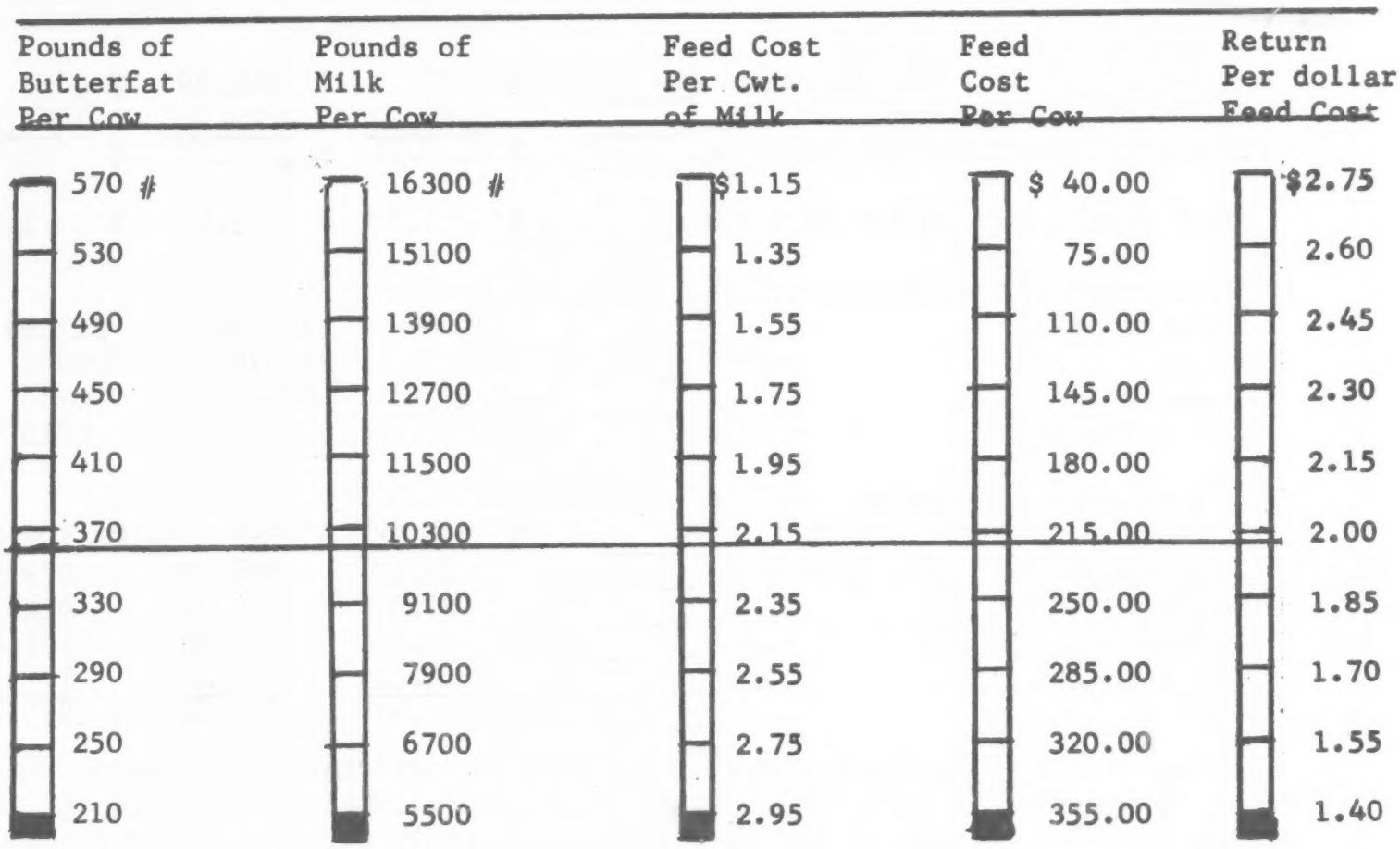
Analysis of Dairy Herd Feed Costs and Returns
Herds grouped on butterfat production per cow

Compare to Form 4 Analysis of your herd	Your farm	Average 244 farms	High 50 farms	Low 50 farms
Per herd data:				
Number of cows kept	_____	30.7	31.6	28.2
Pounds of milk produced	_____	320343#	410502#	213370#
Pounds of butterfat produced	_____	12127#	14803#	7509#
Total return per dollar feed cost	_____	$ 2.02	$ 2.22	$ 1.74
Net increase in herd value	_____	$ -38.04	$ 59.75	$-104.33
Total value of product	_____	$13471.28	$17475.34	$8731.26
Total returns-increase+products	_____	$13433.24	$17535.09	$8626.93
Total feed cost per herd	_____	6762.14	8243.18	5016.70
Return over feed cost per herd	_____	$ 6671.10	$ 9291.91	$3610.23
Per cow data:				
Pounds of butterfat produced	_____	368.2#	470.2#	260.6#
Pounds of milk produced	_____	10299.0#	13000.0#	7406.0#
Net increase in cow value	_____	$ .13	$ 6.17	$ -4.15
Product sold in form of milk	_____	$ 419.11	$ 539.80	$ 288.03
Products used in the home	_____	4.90	4.72	5.53
Products fed to stock	_____	$ 6.76	$ 7.06	$ 7.68
Total value of product	_____	$ 430.77	$ 551.58	$ 301.24
Total returns-increase+produce	_____	$ 430.90	$ 557.75	$ 297.09
Total feed cost per cow	_____	216.88	257.30	176.98
Return over feed cost per cow	_____	$ 214.02	$ 300.45	$ 120.11
Total return per cwt. of milk	_____	$ 4.18	$ 4.30	$ 4.02
Feed cost per cwt. of milk	_____	2.14	1.99	2.43
Net return per cwt. of milk	_____	$ 2.04	$ 2.31	$ 1.59
Work units per herd (10 hr. day)	_____	307	316	282
Net return per work unit	_____	$ 21.40	$ 30.05	$ 12.01

Analysis of Dairy Herd - Continued

Compare to Form 4 Analysis of your farm	Your farm	Average 244 farms	Average high 20%	Average low 20%
Feed consumption per cow				
Concentrates	_____	4473 #	5681 #	3028 #
Silage	_____	12869 #	12953 #	10393 #
Roughage	_____	5634 #	6470 #	6145 #
Feed costs per cow				
Concentrates	_____	$ 105.07	$ 134.23	$ 72.04
Silage	_____	49.20	50.32	43.70
Roughage	_____	57.04	69.10	54.56
Pasture	_____	5.57	3.65	6.68
Total feed cost per cow	_____	$ 216.88	$ 257.30	$ 176.98
Feed cost per cwt. of concentrate	_____	$ 2.43	$ 2.47	$ 2.48
Pounds milk produced per # concentrate	_____	2.5 #	2.4 #	2.7#
Average price per cwt. of milk	_____	$ 4.19	$ 4.27	$ 4.08
Average butterfat test received	_____	3.6%	3.6%	3.6%

Graphic Comparisons on Dairy Management



Feed Costs and Returns on Other Dairy Cattle
Farmers grouped on basis of butterfat production per cow

Compare to Form 6 Analysis of your farm	Your Farm	Average 244 Farms	High 50 Farms	Low 48 Farms
On basis of animal unit:				
Increase in value per a.u.	_____	$ 185.48	$ 185.64	$ 169.03
Feed cost per a.u.	_____	119.95	128.17	115.05
Return over feed cost per a.u.	_____	$ 65.53	$ 57.47	$ 53.98
Number of animal units	_____	20.2	22.2	17.3
Number of work units	_____	70.7	77.8	60.7
Return over feed cost per w.u.	_____	$ 18.55	$ 15.82	$ 15.42
Percent calf crop died	_____	14%	10.9%	16.8%
Feed consumed per a.u.				
Concentrates	_____	1535#	1663#	1221#
Silage	_____	7830	9467	6246
Roughage	_____	3584	3202	4657
Milk products	_____	260	224	358
Feed costs per a.u.				
Concentrates	_____	$ 38.76	$ 43.64	$ 28.53
Silage	_____	31.38	37.85	24.65
Roughage	_____	33.31	33.20	40.82
Pasture	_____	5.74	4.24	14.53
Milk products	_____	10.76	9.24	6.52
Total	_____	$ 119.95	$ 128.17	$ 115.05
On basis of total enterprises:				
Increase in value per enterprise	_____	$ 3477.74	$ 3944.29	$ 2651.89
Feed cost per enterprise	_____	2367.53	2829.54	1855.15
Ret. over feed cost per entprise.	_____	$ 1110.21	$ 1114.75	$ 796.74
Total return per dollar feed cost	_____	$ 1.70	$ 1.53	$ 1.57
Feed consumed per enterprise:				
Concentrates	_____	32008#	35754#	21348#
Silage	_____	167929	225676	109298
Roughage	_____	70853	68953	70786
Milk products	_____	4278	5177	4716
Feed costs per enterprise:				
Concentrates	_____	$ 798.55	$ 948.33	$ 503.86
Silage	_____	670.12	878.39	429.55
Roughage	_____	627.39	716.52	624.24
Pasture	_____	93.06	70.84	101.80
Milk products	_____	178.41	215.46	195.70
Total	_____	$ 2367.53	$ 2829.54	$ 1855.15

The method of handling young stock varies considerably from those who raise better quality herd replacements to those who sell young stock off as market cattle. Because of the variation, we haven't combined young stock with dairy cow figures.

Feed Costs and Returns on Beef Breeding Cattle Herds
Farmers grouped on returns above feed cost per beef cow

Compare to Form 7 Analysis of your farm	Your farm	Average 17 farms	High 7 farms	Low 10 farms
Increase in value of herd	_____	$ 3124.72	$ 6245.94	$ 939.86
Total feed cost for herd	_____	1977.55	3303.40	1049.45
Return over feed cost per herd	_____	$ 1147.17	$ 2942.54	$ -109.59
Return per dollar feed cost	_____	$ 1.61	$ 2.61	$ .92
Total return per beef cow	_____	$ 102.92	$ 165.36	$ 59.20
Feed cost per beef cow	_____	75.50	72.45	77.63
Return over feed cost per beef cow	_____	$ 27.42	$ 92.91	$ -18.43
Feed consumed per beef cow				
Concentrates	_____	447 #	492 #	416 #
Silage	_____	4639 #	4869 #	4478 #
Roughage	_____	4225 #	3817 #	4510 #
Value of feed consumed per beef cow				
Concentrates	_____	$ 10.07	$ 11.93	$ 8.76
Silage	_____	16.87	17.28	16.59
Roughage	_____	40.70	34.41	45.11
Pasture	_____	7.86	8.83	7.17
Total feed cost per cow	_____	$ 75.50	$ 72.45	$ 77.63
Cost per cwt. of concentrate used	_____	$ 2.04	$ 1.95	$ 2.21
Feed consumed per enterprise				
Concentrates	_____	14194 #	28641 #	4080 #
Silage	_____	118000 #	208286 #	54800 #
Roughage	_____	96706 #	145857 #	62300 #
Feed costs per enterprise				
Concentrates	_____	$ 322.81	$ 674.90	$ 76.35
Silage	_____	421.52	727.43	207.38
Roughage	_____	983.48	1455.00	653.42
Pasture	_____	249.74	446.07	112.30
Total feed cost per enterprise	_____	$ 1977.55	$ 3303.40	$ 1049.45
Average number of beef cows per herd	_____	29.2	44.1	18.8
Percent calf crop per beef cow herd	_____	85.0 %	90.9 %	79.8 %
Percent death loss on calves	_____	11.5 %	8.9 %	13.8 %
Number animal units per herd	_____	23.4	35.3	15.0
Number work units per herd	_____	81.9	123.7	52.5
Return over feed cost per w. u.	_____	$ 10.51	$ 34.93	$ -6.59

Feed Costs and Returns on Feeder Cattle
Grouped on return above feed cost per cwt. of beef produced

Compare to Form 7 Analysis of your farm	Your farm	Average 44 farms	Average high 20%	Average low 20%
On basis of cwt.				
Increase in value per cwt.	_____	$ 21.93	$ 25.07	$ 19.37
Feed cost per cwt.	_____	19.98	12.15	32.73
Return over feed cost per cwt.	_____	$ 1.95	$ 12.92	$ -13.36
Total return per dollar feed cost	_____	$ 1.42	$ 2.48	$ .55
Feed consumed per cwt.				
Corn	_____	350 #	151 #	680 #
Grain	_____	72 #	74 #	85 #
Commercial feed	_____	13 #	6 #	18 #
Total concentrates	_____	435 #	231 #	783 #
Silage	_____	1337 #	631 #	1742 #
Roughage	_____	469 #	359 #	827 #
Haylage	_____	75 #	59 #	57 #
Feed costs per cwt.				
Corn	_____	$ 6.56	$ 2.85	$ 13.28
Grain	_____	2.12	1.80	2.89
Commercial feed	_____	.71	.29	1.09
Total concentrates	_____	$ 9.39	$ 4.94	$ 17.26
Silage	_____	4.95	2.73	6.12
Roughage	_____	4.88	3.55	8.69
Pasture	_____	.36	.63	.38
Haylage	_____	.40	.30	.28
Total feed cost	_____	$ 19.98	$ 12.15	$ 32.73
On basis of total enterprise				
Increase in value per enterprise	_____	$ 4744.03	$ 1844.93	$ 3806.36
Feed cost per enterprise	_____	4524.48	1012.11	$ 6226.66
Return over feed cost per enterprise	_____	$ 219.55	$ 832.82	$-2420.30
Number of animal units	_____	51.4	18.8	49.2
Average weight of feeders sold	_____	907.#	770.#	966.#
Average weight of feeders bought	_____	445.#	395.#	534.#
Pounds of beef produced per feeder	_____	462,#	375.#	432.#
Average number of work units	_____	561.4	17.8	50.7
Return above feed cost per w. u.	_____	$ 7.64	$ 50.65	$ -52.91
Cost per cwt. of feeders bought	_____	$ 25.50	$ 25.23	$ 24.76
Selling price per cwt. of feeders	_____	$ 21.84	$ 20.75	$ 22.36

Feed Costs and Returns on Sheep Flocks

Flocks grouped on return over feed cost per ewe

Compare to Form 9 Analysis of your farm	Your farm	Average 11 farms	High 5 farms	Low 6 farms
Total returns per ewe	_____	$ 19.27	$ 21.16	$ 17.70
Total feed cost per ewe	_____	16.55	11.89	20.44
Return over feed cost per ewe	_____	$ 2.72	$ 9.27	$ - 2.74
Total return per dollar feed cost	_____	$ 1.38	$ 2.00	$ .88
Feed consumed per ewe				
Concentrates	_____	209 #	141 #	266 #
Silage	_____	760 #	921 #	625 #
Roughage	_____	828 #	437 #	1155 #
Feed costs per ewe				
Concentrates	_____	$ 3.02	$ 3.18	$ 2.88
Silage	_____	3.01	3.72	2.43
Roughage	_____	8.40	4.51	11.64
Pasture	_____	2.12	.48	3.49
Total feed cost	_____	$ 16.55	$ 11.89	$ 20.44
Value of wool per ewe	_____	$ 6.51	$ 6.43	$ 6.57
Price per pound of wool sold	_____	$ .50		
Number of ewes lambed	_____	59	44	69
Lambs born per ewe	_____	1.4	1.3	1.4
Percent death loss on lambs	_____	21. %	23.4 %	19.8 %
Total returns per flock	_____	$1118.19	$1087.11	$1144.08
Total feed cost per flock	_____	1075.68	701.80	1387.24
Return over feed cost per flock	_____	$ 42.51	$ 385.31	$-243.16
Feed consumed per flock				
Concentrates	_____	10541	10298	10744
Silage	_____	53964	37120	68000
Roughage	_____	48582	25680	67666
Feed costs per flock				
Concentrates	_____	$ 217.16	$ 244.05	$ 194.75
Silage	_____	208.45	152.00	255.50
Roughage	_____	555.52	278.75	786.16
Pasture	_____	94.55	27.00	150.83
Total feed cost	_____	$1075.68	$ 701.80	$1387.24
Animal units per enterprise	_____	12.3	9.8	14.3
Work units per enterprise	_____	18.4	14.7	21.5
Return over feed cost per work unit	_____	$ 11.73	$ 30.47	$ - 3.90

Feed Costs and Returns on Producing Feeder Pigs
Farmers grouped on return per dollar feed cost

Compare to Form 5F Analysis of Your Farm	Your Farm	Average 50 Farms	Average High 20%	Average Low 20%
Number of litters per farm	_____	31.3	24.2	24.1
Number of pigs born per litter	_____	9.3	8.9	8.9
Number of pigs weaned per litter	_____	6.7	6.9	5.9
Percent death loss on pigs	_____	26%	22.4%	34%
Number litters farrowed per sow	_____	1.6	1.5	1.4
Pounds of pork produced				
from sows	_____	5154#	4755#	6953#
from pigs	_____	7684	6255	5009
Total pounds of pork produced	_____	12838#	11010#	11962#
Number of feeder pigs sold	_____	184	144	142
Average weight of feeders sold	_____	36.9#	37#	39#
Price received per feeder pig	_____	$ 15.38	$ 15.30	$ 15.00
Return per dollar feed cost	_____	$ 1.70	$ 2.46	$ .99
Total returns per litter	_____	$ 127.35	$ 138.46	$ 102.05
Total feed cost per litter	_____	79.30	58.96	97.49
Return over feed cost per litter	_____	$ 48.05	$ 79.50	$ 4.56
Total return per weaned pig	_____	$ 19.50	$ 21.21	$ 16.60
Total feed cost per weaned pig	_____	12.62	9.34	17.50
Return over feed cost per weaned pig	_____	$ 6.88	$ 11.87	$ -.90
Sow + pig feed consumed per litter	_____	3031#	2368#	3843#
Sow + pig feed consumed per pig	_____	480	346	693
Pig feed eaten per weaned pig	_____	44	44	32
Number of work units per farm	_____	68	56.3	54
Return over feed cost per work unit	_____	$ 25.33	$ 35.84	$ 6.23
Animal units per enterprise	_____	31	26.7	22.2
Total returns per sow farrowed	_____	$ 200.01	$ 208.27	$ 103.09
Total feed cost per sow	_____	124.42	92.91	97.22
Return over feed cost per sow	_____	$ 75.59	$ 115.36	$ 5.87

Feed Costs and Returns on Market Hogs
Farmers grouped on return over feed cost per cwt.

Compare to Form 5M Analysis of your farm	Your Farm	Average 51 farms	Average High 20%	Average Low 20%
Total pounds of pork produced	_____	29359#	30566#	38433#
Total value of pork produced	_____	$ 5799.09	$ 5874.02	$ 5448.12
Total feed cost of production	_____	4145.53	2671.48	5193.03
Return over feed per enterprise	_____	$ 1653.56	$ 3202.54	$ 255.09
Return per dollar feed cost	_____	$ 1.56	$ 2.53	$ 1.05
Total return per cwt. of pork	_____	$ 17.49	$ 19.64	$ 13.35
Total feed cost per cwt. of pork	_____	11.97	8.66	12.82
Return over feed per cwt. of pork	_____	$ 5.52	$ 10.98	$ .53
Feed consumed per cwt. of pork:				
Corn	_____	370#	396#	357#
Grain	_____	67	35	78
Commercial feed	_____	85	76	84
Total concentrates	_____	522	507	519
Silage, roughage	_____	2	0.5	4
Total pounds	_____	524	507.5	523
Feed costs per cwt. of pork:				
Corn	_____	$ 6.47	$ 4.22	$ 7.30
Grain	_____	1.47	.77	1.64
Commercial feed	_____	3.98	3.48	3.86
Pasture, skim milk, roughage, silage	_____	.05	.19	.02
Total cost	_____	$ 11.97	$ 8.66	$ 12.82
Total number of work units	_____	73.5	62.6	94.4
Return above feed per work unit	_____	$ 26.78	$ 55.91	$ 1.33
Number of farms that farrowed sows	_____	39	10	6
Number of sows farrowed per farm	_____	13.6	14.7	22.8
Numbers of litters farrowed per sow	_____	1.5	1.6	1.3
Number of pigs farrowed per litter	_____	8.7	8.8	7.9
Number of pigs weaned per litter	_____	6.9	7.8	5.4
Percent death loss on pigs	_____	21%	12.9%	34.1%
Number of farmers buying feeders	_____	14	1	5
Weight of feeder pigs bought	_____	37#	30#	39.2#
Cost per head of feeder pigs bought	_____	$ 15.60	$ 15.50	$ 16.51
Average weight of market hogs sold	_____	207#	186#	224#
Average price received per cwt.	_____	$ 18.42	$ 20.85	$ 17.60
Average number of animal units	_____	38	30.7	47.2
Concentrates consumed per cwt. of pork	_____	522#	507#	523#
Concentrate feed cost per cwt. of con.	_____	$ 2.61	$ 2.96	$ 2.57

Summary of Farm Capital, Assets and Liabilities
Farmers grouped on basis of operator labor earnings

Compare to Form 3 Analysis of your farm	Your Farm	Average 282 farms	High 56 farms	Low 56 farms
Farm Capital Summary - End Inventory Value				
Land	_____	$ 14916.41	$ 20592.85	$ 12485.62
Equipment and buildings	_____	20177.61	27054.00	19889.57
Livestock	_____	12017.98	15753.33	11706.25
Crop, seed and feed	_____	5404.66	8007.63	5272.34
Total farm capital	_____	$ 52516.66	$ 71407.81	$ 49353.78

Net Worth Status of the 147 Farms in the Group Reporting the Data

		Average 147 farms	High 25 farms	Low 29 farms
Land	_____	$ 13311.37	$ 17487.92	$ 13125.36
Equipment and buildings	_____	19833.38	24941.13	20246.96
Livestock	_____	11639.53	14615.52	12273.37
Crop, seed and feed	_____	5095.48	7701.55	5225.26
Total farm capital	_____	$ 49879.76	$ 64746.12	$ 50870.95
Farm house	_____	4858.55	6987.48	4325.31
Non-farm assets	_____	4100.99	5089.48	4089.48
Total assets	_____	$ 58839.30	$ 76823.08	$ 59285.74
Liabilities	_____	21975.18	25360.15	26410.00
Net worth	_____	$ 36864.12	$ 51462.93	$ 32875.74

Prices Used in the 1967 Analysis

Prices used in 1967 were based on market sources of information. Grains, forage and silage were inventoried at market value. Home grown feeds were charged to livestock enterprises at market value. Pasture costs varied and were subject to personal judgement. The purchased feeds were charged at actual costs.

Corn	$ 1.05	Alfalfa hay - good	$ 22.00
Soybeans	2.50	Alfalfa brome	20.00
Oats	.65	Wild hay	8.00
Barley	1.05	Other legume	15.00
Rye	1.15	Corn silage	8.00
Flax	3.00	Alfalfa silage	10.00
Wheat	2.00		

Distribution of Work Output and Livestock Production
Farms grouped on basis of operator labor earnings

Compare to Form 8 Analysis of your farm	Your Farm	Average 282 farms	Average High 20%	Average Low 20%
Distribution of work:				
Dairy cows	_____	267.0	327.6	182.2
Other dairy cattle	_____	61.2	74.1	47.2
Beef	_____	6.3	14.6	6.9
Feeders	_____	10.2	14.2	26.1
Hogs	_____	28.0	37.6	43.6
Sheep	_____	.8	.6	2.1
Poultry	_____	13.5	17.0	31.9
Total work units on stock	_____	387.0	485.7	340.0
Total work units on crops	_____	122.4	157.0	136.8
Total work units per farm	_____	509.4	642.7	476.8
Distribution of animal units:				
Dairy cows	_____	26.7	32.8	18.2
Other dairy cattle	_____	17.5	21.2	13.5
Beef	_____	1.8	4.2	2.0
Feeders	_____	8.6	11.8	22.0
Hogs	_____	13.0	15.5	21.3
Sheep	_____	.5	.4	1.0
Poultry	_____	1.4	1.7	3.2
Total animal units per farm	_____	69.5	87.6	81.2
Total tillable acres per farm	_____	194.6	245.7	216.6
Animal units per 100 tillable acre	_____	39.4	39.4	41.0
Average number of workers	_____	1.3	1.5	1.4
Work units per worker	_____	388.6	439.9	357.8

Number of Work Units for Classes of Livestock and Acres of Crops

Livestock	No. of Work Units		Crops	No. of Work Units
Dairy cattle	10.	Per cow	Alfalfa	.6 Per A
Other dairy stock	3.5	Per a.u.	Other Hay	.4 Per A
Beef breeding herd	3.5	Per a.u.	Corn hogged	.4 Per A
Feeder cattle	.25	Per cwt.	Corn shredded	1.5 Per A
Sheep-flock	1.5	Per a.u.	Corn silage	1. Per A
Sheep-feeders	.3	Per cwt.	Grass silage	.4 Per A
Hogs-market	.2	Per cwt.	Corn husked	.7 Per A
Feeder pigs-large	2.	Per litter to 40#	Soybean-grain	.5 Per A
Feeders-from 100#	1.	Per feeder	Small grain	.5 Per A
Hens	10.	Per 50 hens		
Turkeys	.5	Per 100 lbs. or		
	40.	Per 100 hens		

A work unit is based on 10 hours. An animal unit is based on the amount of T.D.N. consumed.

One Animal Unit Equals:			
1	Cow - bull	2½	Sows
2	Other Dairy	5	M hogs
1 1/4	Beef cows	10	Pigs
3 1/3	Other beef cattle	7	Sheep
1	Feeder steer	14	Lambs
1100#	Turkeys	50	Hens

Five Year Average Yields (Base Period 1962-66)
(For use in preparation of farm crops analysis form 8)

County Data	Alf. & Alf. Mix	All Hay(2)	Corn Grain(3)	Soy Beans	Oats	Rye	Barley	Flax	All Wheat
Anoka	2.2	2.2	55	13	39.6	17.0	----	----	22
Benton	2.4	2.2	52	15	37.2	15.2	27.0	----	22
Chisago	2.2	1.9	59	13	45.2	17.2	28.0	----	22
Douglas	2.6	2.4	45	14	45.2	20.0	31.2	11.2	22
Hennepin	2.9	2.1	62	17	53.0	18.0	33.2	----	18
Isanti	2.4	1.9	62	14	46.0	19.4	30.0	----	23
Kanabec	2.7	2.0	55	14	41.6	15.2	29.0	----	22
Meeker	2.7	2.9	64	20	54.0	19.2	34.0	13	24
Milacs	2.6	2.1	50	12	42.0	14.4	26.0	12	23
Morrison	2.5	1.9	49	13	36.0	14.2	27.4	----	20
Ottertail	2.2	1.9	44	17	42.6	19.2	42.0	13	24
Sherburne	2.3	2.1	48	12	33.2	16.2	----	----	20
Stearns	2.5	2.2	48	15	46.4	16.6	29.0	9	19.6
Todd	2.5	2.2	47	14	44.0	18.0	29.4	10	19
Wadena	1.8	1.5	39	13	33.0	18.0	30.0	----	19
Wright	3.1	2.9	60	19	51.0	18.0	32.4	13	22
Minnesota	2.5	2.2	65	21	48.8	19.0	34.0	11.5	25

(1) Data selected from "Minnesota Agricultural Statistics" Crop and Livestock Reporting Service, State Department of Agriculture.
(2) The more the alfalfa, the greater the average yield as shown by alfalfa mix yields.
(3) Approximately 1/7 of the bushel corn yield equals ton of silage.
(4) Approximately 2000 lbs. hay equals 4000 lbs. of haylage equals 6000 lbs. of hay silage equals 8000 lbs. of green chop. Check on moisture content. Try to convert different uses of alfalfa cuttings to a hay equivalent total yield per acre. Check on moisture base for corn yields.

Crop Classification System Used Crop Selection

Class A	Class B	Class C	Class D
Alfalfa hay	Corn silage	Oat silage	Small grains
Alfalfa silage	Sweet corn	Non-legume hay	Wild hay
Alfalfa pasture	Soybeans	Pasture or Silage	
Corn grain			
Government programs			

Work Units Per Crop Acre (U. of Minn.)

Alfalfa silage	1.	Green chop forage	.4
Grass silage	1.	Small grains	.5
Corn silage	1.	Alfalfa hay	.6
Corn husked	.7	Other (non-leg.) hay	.4
Corn hogged	.4	Fallon	.5
Corn shredded	1.5		

The study and the summarizing of crop yields should be made for each farm as a separate study early in November when all crops are harvested and proper adjustments can be made for moisture content to arrive at correct feed supplies with normal weights and volumes. This summary and the index comparisons are made on Form 8 of the individual farm business analysis. Class discussions on crop yields, practices and crop economics may then be prepared from actual farm situations and needs of farmers.

Comparison of Crops Grown, Acre Yields and Land Use
(Refer to County Five Year Average Yield - Page 22)

Compare to Form 8 Analysis of your farm		Average of all farms				Average of high 20 %				Average of low 20 %			
Kinds of crops grown	Your farm	No. of growers	Yield index	Acre yield	Acres grown	No. of growers	Yield index	Acre yield	Acres grown	No. of growers	Yield index	Acre yield	Acres grown
All crops	_____		105.6				120.9				91.6		
Corn silage	_____	270	120.4	8.5	38.4	56	138.8	10.1	43.1	51	105.5	7.2	46.2
Other silage	_____	49	95.1	5.5	18.1	13	112.9	6.7	15.2	8	95.2	5.3	33.3
Corn grain	_____	239	111.5	55.7	41.1	55	120.7	62.3	45.0	39	99.3	48.6	64.9
Soybeans	_____	108	75.2	11.7	53.3	26	86.9	14.8	61.6	24	56.5	8.5	73.3
Oats	_____	241	129.2	57.4	31.7	52	135.1	61.2	36.4	38	118.6	52.9	32.7
Rye	_____	20	113.7	18.2	29.5	3	194.4	30.3	17.3	7	107.4	17.0	45.3
Wheat	_____	44	148.4	32.7	20.2	17	161.0	36.2	23.0	5	160.2	34.8	11.8
Haylage	_____	4	107.3	2.6	50.0	--	--	--	--	1	174.6	4.2	83.0
Alfalfa hay	_____	252	96.6	2.4	41.8	53	108.7	2.8	49.1	48	86.2	2.0	41.6
Other leg. hay	_____	51	91.9	2.0	28.1	11	101.6	2.4	24.6	6	69.3	1.5	26.3
Grass hay	_____	79	75,3	1.7	14.1	11	68.6	1.6	13.6	17	79.7	1.6	16.8
Barley	_____	12	167.9	51.2	31.9	2	245.7	76.5	81.0	--	--	--	--
Flax	_____	9	121.4	13.2	30.4	3	142.0	14.6	33.3	--	--	--	--
Tot. harvested A.	_____				179.4				224.2				199.8
Tot. tillable A.	_____				194.6				245.7				216.6
Tot. Acres on farm	_____				294.6				361.4				318.9
Owned	_____				219.6				265.7				209.0
Rented	_____				75.0				95.7				109.9
% of land in high return crops	_____				62.9 %				64.3 %				63.9 %

Operation Costs for Farm Power, Buildings and Equipment Use
Farmers grouped on basis of operator labor earnings

Compare to Form 2 Analysis of your farm	Your farm	Average 282 farms	Average high 20%	Average low 20%
Power, machinery, equipment and building expenses. (F. 2, L. 18)				
Truck - farm share	_____	$ 761.04	$ 943.76	$ 785.09
Auto - farm share	_____	361.10	402.94	282.83
Power, equip., crop mach'y	_____	2660.43	3197.97	2811.26
Livestock equipment	_____	672.92	938.76	539.28
Building and fences	_____	846.26	1212.09	756.25
Operation expense machinery and equipment. (F. 2, L. 18)	_____	$5301.75	$6695.52	$5174.71

The following calculations on cost relationship were made to introduce considerations on rise of capital, although the allocation of work units may be questioned in terms of present mechanization. All farms were compared to the same standard, thus they are comparable to one another by groups or individually.

Compare to Form 2 Analysis of your farm	Your farm	Average 282 farms	Average high 20%%	Average low 20%
Annual depreciation per work unit	_____	$ 4.79	$ 5.12	$ 5.42
Power equipment and machinery end inventory per tillable acre	_____	37.68	39.39	35.63
Power equipment & machinery operating expense per tillable acre	_____	15.22	14.27	15.09
Power equipment & machinery operating expense per work units on crops	_____	23.75	21.96	24.45
Livestock equipment & building end inventory per animal unit	_____	197.05	211.53	201.23
Livestock equipment & building operating expense per animal unit	_____	25.43	28.60	21.80
Total end inventory of all equipment & buildings per total work units	_____	41.24	42.22	44.98
Total operation costs for all equipment & buildings per total work units	_____	11.37	10.58	11.86

Measures of Farm Organization and Management Efficiency 1967
Farmers grouped on basis of operator labor earnings

Compare to your individual analysis	On form	Your farm	Average 282 farms	High 20 %	Low 20 %
1. Operator labor earnings	1	_____	$ 4683.52	$10414.72	$ -485.73
2. Return to capital and labor	1	_____	$ 7399.09	$14011.05	$ 2009.20
3. Crop yield index based on 5 year county average yields	8	_____	105.6	120.9	91.6
4. Crop selection index or percent of land in high return crops	8	_____	62.9 %	64.3 %	63.9 %
5. Return per dollar of feed cost on all productive livestock	3	_____	$ 1.77	$ 1.98	$ 1.47
6. Productive animal units per 100 tillable acres	8	_____	39.4	39.4	41.0
7. Total work units per farm (a work unit = a 10 hour day)	8	_____	509	643	477
8. Total work units per worker	8	_____	389	440	358
9. Total operation cost for all equip. & buildings per work unit	2	_____	$ 11.37	$ 10.58	$ 11.86
10. Total return over feed cost on all enterprises	3	_____	$ 7495.31	$11799.02	$ 3826.54
11. Crop, seed & feed increase	2	_____	$ 7089.71	$10978.73	$ 5325.72
12. Ratio of operating expenses to operating receipts	1	_____	$ .55	$ .48	$ .70
13. End inventory of farm capital invested	3	_____	$52516.66	$71407.81	$49353.87
14. Value of all livestock and livestock products sold	1	_____	$18576.90	$24111.16	$18521.17

A Four Year Comparison of Farm Management Factors
Farmers grouped on basis of operator labor earnings

Group 1 - Average all farmers	Average 1967	Average 1966	Average 1965	Average 1964
1. Operator labor earnings	$4683.52	$ 5866.43	$ 4382.76	$ 2468.26
Return to capital and labor	$7399.09	$ 8117.13	$ 6666.07	$ 4562.38
2. Crop yield index	105.6	121.2	117.2	80.8
3. Crop selection index	62.9 %	65.1 %	65.0 %	59.9 %
4. Return per dollar feed cost on all livestock	$ 1.77	$ 1.75	$ 1.76	$ 1.58
5. Productive a. u. per 100 acres	39.4	41.0	71.0	43.0
6. Total work units per farm	509.0	460.4	484.0	486.6
7. Work units per worker	389.0	364.7	361.8	369.4
8. Net operating cost per w. u.	$ 11.37	$ 10.03	$ 9.30	$ 8.28
Group 2 - Average high 20 %				
1. Operator labor earnings	$10414.72	$11507.00	$ 9398.56	$ 6833.92
Return to capital and labor	$14011.05	$14460.46	$12265.36	$ 9702.48
2. Crop yield index	120.9	131.0	127.3	108.9
3. Crop selection index	64.3 %	68.7 %	73.6 %	69.6 %
4. Return per dollar feed cost on all livestock	$ 1.98	$ 1.86	$ 1.85	$ 1.75
5. Productive a. u. per 100 acres	39.4	36.0	46.2	37.9
6. Total work units per farm	643.	612.	592.	598.
7. Work units per worker	440.	397.	402.	404.
8. Net operating cost per w. u.	$ 10.58	$ 9.30	$ 9.13	$ 8.01
Group 3 - Average low 20 %				
1. Operator labor earnings	$ -485.73	$ 1128.93	$ 58.68	$-1582.10
Return to capital and labor	$ 2009.20	$ 2987.75	$ 2386.21	$ 544.38
2. Crop yield index	91.6	104.7	114.7	65.9
3. Crop selection index	63.9 %	60.8 %	65.2 %	66.1 %
4. Return per dollar feed cost on all livestock	$ 1.47	$ 1.64	$ 1.56	$ 1.27
5. Productive a. u. per 100 acres	41.0	45.0	43.7	40.5
6. Total work units per farm	477.0	357.3	414.6	473.8
7. Work units per worker	358.0	307.9	321.1	354.6
8. Net operating cost per w. u.	$ 11.86	$ 10.88	$ 11.36	$ 10.07

1967 Thermometer Chart of Management Measures

Using your figures from the analysis, locate your standing with respect to the various measures of farm organization and management efficiency. The averages for all farms included in this summary are located between the lines across the center of this page. Those with loss operations may not register efficiency. Farm management factors are clues to problems in operation and organization.

Labor Earnings	Crop Yield Index	Crop Choice Index	Return Per $100 Feed	Livestock Units Per 100 A	Work Units Per Farm	Work Units Per Worker	Power, Machines, Eqpt., Bldgs., Expense Per Work Unit
22700	165	100	235	51	1160	678	
21200	160	97	230	50	1105	654	
19700	155	94	225	49	1050	630	
18200	150	91	220	48	995	606	
16700	145	88	215	47	940	582	
15200	140	85	210	46	885	558	2.75
13700	135	82	205	45	830	534	4.00
12200	130	79	200	44	775	510	5.25
10700	125	76	195	43	720	486	6.50
9200	120	73	190	42	665	462	7.75
7700	115	70	185	41	610	438	9.00
6200	110	67	180	40	555	414	10.25
4700	105	64	175	39	500	390	11.50
3200	100	61	170	38	445	366	12.75
1700	95	58	165	37	390	342	14.00
200	90	55	160	36	335	318	15.25
-1300	85	52	155	35	280	294	16.50
-2800	80	49	150	34	225	270	17.75
-4300	75	46	145	33	170	246	19.00
-5800	70	43	140	32	115	222	20.25
-7300	65	40	135	31	60		21.50

Comparison of Selected Factors of Farm Management Results
The top 24 farms of the top 56 farms - 1967

Form	1	1	1	2	3	3	3	8	8	8	8	3
Code No.	Operator Labor Earnings	Return to Capital & Family Labor	Ratio of Operating Expense To Income	Costs for All Equip. And Build. Per W. U.	Return per $ Feed Cost On All Stock	Ret. Over Feed Cost On All Stock	Crop Seed Feed Increase	Total W. U. per Farm	Crop Yeild Index	Crop Select. Index	A. U. per 100 Acres	Total Farm Capital
23	$22603.66	$29728.60	$ .44	$ 17.24	$ 2.04	$18925.60	$37291.73	976.1	121.0	68.8 %	12.0	$150143.01
231	19228.82	24780.87	.43	11.08	2.11	25353.06	11175.40	1073.3	127.5	78.1	49.0	116838.08
67	18804.47	23000.11	.50	8.49	2.16	25492.04	9948.59	1050.0	126.9	66.2	52.0	88686.10
119	15382.04	17009.49	.62	8.51	2.62	15368.95	17587,55	642.6	115.2	80.7	22.3	32549.19
197	14552.87	20642.87	.38	9.17	2.51	18895.32	13429.97	960.1	139.0	63.1	25.2	112384.19
36	13919.18	20182.92	.55	.39	.53	-3390.94	22341.80	514.7	146.5	34.3	8.0	105681.83
24	13702.95	19321.44	.22	12.39	1.96	8790.82	17652.80	531.0	106.0	76.5	13.0	113054.85
239	13659.93	19385.28	.40	11.77	2.10	22701.94	11181.70	927.5	115.4	61.2	35.5	112852.51
232	13537.07	17856.67	.43	9.63	1.51	10770.89	14382.74	826.0	135.4	66.4	32.0	90716.26
30	12489.50	20289.50	.34	14.15	1.73	14396.08	19851.51	806.6	140.0	76.1	31.2	136320.80
47	12459.31	16052.46	1.01	5.94	1.86	10244.48	9311.91	704.3	82.3	52.0	66.0	81378.46
198	12263.71	17438.08	.39	12.08	1.91	17825.28	13842.30	919.6	120.7	66.1	44.0	107503.75
199	11445.02	14694.36	.38	10.94	2.56	16017.63	8092.83	638.2	100.6	51.3	23.6	62241.38
120	11370.40	15698.54	.46	14.05	2.19	12494.77	15497.92	511.1	112.6	61.6	25.4	86562.90
300	11193.63	14771.85	.55	7.91	2.03	14873.80	9388.54	769.5	92.8	68.0	33.7	89480.75
180	11086.11	14058.43	.49	9.65	2.22	11723.79	12120.59	606.3	148.1	62.6	25.8	61554.45
200	11040.17	14022.55	.52	8.70	1.99	9257.88	10255.90	424.0	130.0	54.1	35.0	62964.50
70	10749.62	12612.03	.37	6.39	1.68	7284.38	10427.62	597.5	116.2	62.3	22.0	38509.68
37	10504.63	19525.33	.43	13.90	2.03	14932.57	17091.75	685.5	112.0	52.6	20.0	102512.86
233	10436.32	13532.27	.40	16.10	1.45	6879.79	10124.25	564.9	153.1	71.8	24.9	78261.39
113	10311.00	13121.45	.40	10.41	1.85	11690.87	9416.63	571.5	148.1	75.0	50.0	56209.00
11	10107.83	13573.78	.53	12.58	1.82	15903.32	10110.04	825.6	169.0	55.0	81.0	73557.56
38	9687.11	14492.12	.54	15.18	1.63	7887.81	15731.61	491.9	157.4	61.0	30.0	89425.85
222	9570.93	13801.68	.56	7.38	1.69	11520.14	13128.24	889.2	90.0	51.9	33.0	64702.82

Comparison of Selected Factors of Farm Management Results
The top 24 farms of the low 56 farms - 1967

Form	1	1	1	2	3	3	3	8	8	8	8	3
Code No.	Operator Labor Earnings	Return to Capital & Family Labor	Ratio of Operating Expense To Income	Costs for All Equip. And Build. Per W. U.	Return per $ Feed Cost On All Stock	Ret. Over Feed Cost On All Stock	Crop Seed Feed Increase	Total W. U. Per Farm	Crop Yeild Index	Crop Select. Index	A.U. Per 100 Acres	Total Farm Capital
61	$ 1408.42	$ 2719.53	$ 1.16	$ 19.00	$ 1.20	$ 885.36	$ 8859.88	235.3	196.0	40.8 %	31.0	$29987.75
228	1356.21	4990.78	.85	11.48	1.29	5050.70	9939.71	584.0	111.1	77.0	42.0	70425.08
102	1319.70	4677.82	.75	10.55	1.89	12147.15	5057.49	745.1	122.6	75.9	68.0	66020.25
278	1218.01	4659.90	.67	12.43	1.23	5155.48	12786.17	703.7	99.7	68.0	31.0	68837.80
126	1200.65	2183.77	.81	15.92	2.18	7397.31	2356.65	272.6	84.2	70.4	28.7	19662.50
21	1180.89	4257.89	.52	21.00	2.56	10775.44	5661.59	520.3	123.0	52.0	47.0	63215.70
177	1155.04	4639.10	.61	7.97	1.79	6886.16	4445.37	426.5	82.0	69.6	44.0	34145.80
296	1139.34	2842.11	.54	21.58	2.48	5895.56	3206.35	235.9	119.7	85.0	22.4	34055.50
8	1123.50	3000.18	.59	18.78	.85	-596.47	6663.17	149.5	106.9	52.0	92.1	36506.32
262	1097.66	2300.56	.40	8.06	1.12	687.94	4097.05	276.9	86.0	61.1	30.9	22568.64
284	1073.81	4629.81	.75	8.89	1.43	10202.53	9335.95	1099.7	76.0	65.8	37.4	71120.00
160	985.39	3181.35	.66	13.20	1.58	8094.70	4817.16	513.2	101.6	75.8	169.0	41816.36
215	980.55	4592.95	.74	5.49	1.01	59.52	8434.37	508.8	133.0	51.5	63.9	73835.50
216	953.34	3473.38	.65	9.27	1.45	4606.37	6785.27	496.1	101.5	70.0	25.7	53744.00
263	948.42	2950.27	.81	15.15	1.28	504.27	1064.98	210.3	50.9	34.8	18.2	41863.45
217	814.63	2738.41	.67	10.49	1.24	2175.94	6397.59	436.2	82.7	69.5	35.8	38774.15
274	781.94	1500.74	.54	7.56	1.72	3727.39	2357.50	427.7	48.0	51.2	24.3	14376.00
62	700.67	2634.06	.53	12.42	1.79	3195.46	3071.83	226.3	74.3	78.9	28.0	32531.90
264	697.29	3349.64	.38	15.50	2.26	8183.77	2348.24	379.1	75.5	83.3	39.5	65765.12
161	682.11	1365.10	.62	7.72	1.76	2559.10	1475.25	262.2	58.5	46.2	45.5	13095.87
190	669.72	2986.55	.78	8.37	1.50	4388.90	6637.41	478.7	104.0	55.0	42.0	40663.24
178	645.26	2255.14	.86	6.60	1.34	1955.15	2995.61	285.8	108.0	57.9	46.0	24706.24
63	603.12	2728.84	.87	18.59	1.21	1476.57	4719.03	181.5	88.1	88.0	45.0	27640.70
64	559.72	2878.23	.39	10.03	1.34	1697.68	4133.65	194.1	102.1	55.5	37.0	37818.40

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In February 1961 an advisory sub-committee was appointed by the National Advisory Council on Education for Industry and Commerce to examine sandwich courses (alternate periods in college and industry) and to make recommendations for their improvement, particularly of "end-on courses." Written evidence was collected from 35 schools and agencies and oral evidence from 32 persons representing education and industry. Of 374 actual and proposed sandwich courses, 283 were "thin" courses, consisting of 6-month alternative periods of education and work. Some were classed as "thick" courses consisting of 2 years in college, a year working, and a last year in college. Three arrangements of scheduling and enrollment were utilized: (1) The single-entry arrangement provides for all sandwich students to start college at the same time and all move to industry for their third term, (2) The overlap arrangement provides for autumn and spring college enrollment of two groups, and (3) The end-on arrangement extends the school year and accommodates two groups which do not overlap. It was concluded that end-on courses (1) utilized equipment more intensively, (2) limited students extra-curricular activities, (3) are desired by large electrical manufacturers, and (4) are suitable after industry has agreed on the organizational details. (EM)

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MINISTRY OF EDUCATION

National Advisory Council on Education for Industry and Commerce

Report of the Advisory Sub-Committee on Sandwich Courses

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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I. Introduction

1. We were appointed by the N.A.C.E.I.C. in February 1961 "to examine the organisation of sandwich courses with a view to using college staff, equipment and accommodation, and industrial training facilities, to the best advantage; and in particular to consider end-on arrangements". We decided, with the agreement of the Chairman of the Council, that our terms of reference should be construed as relating to all sandwich courses of three years duration and upward over the whole technician/technologist range, and that the term "sandwich course" should be taken to mean any course composed of alternate periods in college and industry in which education and training are intended to form an integrated whole, whatever the spacing of the different periods in any particular course. We debated whether the type of course consisting of one year in industry, three years in college, and a further year in industry should be regarded as a sandwich course for our purposes, but concluded that such courses were not integrated courses of education and training and were therefore outside our terms of reference.

2. We started our enquiry by seeking written evidence on the matters before us from a wide range of organisations representing educational and industrial opinion. We also sought the views of selected guilds of students. For this purpose we devised two documents designed to elicit the fullest possible information about existing end-on courses and to afford an opportunity for the free expression of views on the arrangement in general. The many thoughtful and well-informed replies we received provided us with a body of informed comment on which to base our further investigations and drew our attention to important points which might otherwise have escaped our notice. We are grateful to the organisations

and individuals listed in Appendix A, all of whom submitted written evidence to us, and especially grateful to those listed in Appendix B, who subsequently met us for lengthy discussions on points arising from the written evidence.

II. The Sandwich Form of Education and Training

3. Although sandwich courses of one sort or another were in existence as far back as 80 years ago, it was not until the early 1950s that the system began to be introduced to any notable extent. Even then its growth was not rapid and by 1955 there were only about 100 sandwich courses with upwards of 2,000 students running in England and Wales. Since then, however, there has been a striking development in this form of education and training, as shown in the following table:

Educational Year	No. of Courses	No. of Students					
		Diploma in Technology	Degree	National Certificates and Diplomas	College Diplomas	Others	Total
1955–56	103	—	52	1,373	571	331	2,327
1956–57	148	510	207	2,142	728	392	3,979
1957–58	203	1,391	307	3,240	973	581	6,492
1958–59	261	2,422	369	3,417	1,256	903	8,367
1959–60	331	3,412	366	3,733	1,477	974	9,962
1960–61	301	4,384	343	3,843	1,365	1,177	11,112
1961–62	377	5,662	306	3,962	1,299	1,678	12,907

(N.B. The figures for 1961–62 are of students enrolled with colleges as at 15th November, 1961. They do not therefore include students starting their first college period at the beginning of the Spring term of 1962.)

4. In February 1956 the National Advisory Council produced a "Report on Sandwich Training and Education" which came out whole-heartedly in support of the system at all appropriate levels, and in particular urged its adoption as an important additional method, complementary to the university route, of providing the country with more professional engineers and technologists. These recommendations were endorsed by the Government in the 1956 White Paper on "Technical Education",* which included the Council's Report as an Appendix.

5. The Report laid stress on the importance of satisfactory industrial training as part of the sandwich course, and the need to link it to the college education in the most effective way. In effect, integration of the two was laid down as a basic concept of the sandwich course. But little was said about the detailed problems likely to arise from the form of the course and the attempt to integrate the two parts of it. Problems of this nature have arisen, and the very growth of the system has intensified them, particularly from industry's point of view.

6. The problems to which we refer can be regarded as falling into two broad categories, viz.: the physical problems arising from the need to accommodate increasingly large numbers of students in colleges and in industry; and those arising from the need to ensure not only that the quality of industrial training and college study match one another, but also that the two parts of the course are complementary and mutually motivated.

*Technical Education (Cmd. 9703).

7. We have not attempted in this Report to deal in detail with problems of the second kind mentioned in paragraph 6. These are matters for others more closely concerned, especially college principals and teaching staff and their industrial training counterparts, to keep under constant study with a view to taking whatever measures experience shows to be necessary to raise the quality of training and the degree of integration in general or particular cases.

College and industrial places

8. The 1956 White Paper announced the Government's intention to put in hand a five year programme of expansion of facilities for technical education. This called for new building works to be started in the period 1956–61 to the value of £70m. This building programme has in fact been achieved, and since 1961 plans for further expansion costing some £45m. have been announced and are already under way. The effect of this has been to increase the capacity of courses, especially advanced courses, at technical colleges to the point where on the whole provision for sandwich course students for the moment meets demand, and in certain cases may even exceed it. Now that this capacity has been provided, it should be a prime aim of all concerned with further education to ensure that it is used to its maximum capacity and in the most effective way possible.

9. On the other hand, we were told, the increase in industrial training places (see footnote) has not always kept pace with that of college places, and the stage may soon be reached where further development of sandwich courses is threatened in some cases by the inability of industry to find training places for additional students. We think this broad statement should be treated with some caution. There are many firms which could, but do not, provide training places for sandwich students, and we feel that the broad comparison made about the number of college and industrial places would assume a different complexion if all or most of these firms could be induced to do so.

10. We have nevertheless been told of some firms which have already reached the position in which they cannot recruit an increased number of students for training on a sandwich basis because their training facilities are insufficient to enable them to do so under the existing sandwich course patterns.

11. If such firms are to increase their support for sandwich courses and at the same time give the students training of the required quality, they must either expand their training facilities, or use those they already have more intensively. We quite understand the reluctance of commercial and industrial concerns to adopt the first of these alternatives while there is any possibility of the second being effective. This clearly involves an examination of sandwich course organisation to see whether possibilities exist in this direction.

III. Existing Sandwich Course Organisation

12. At present there are two main types of sandwich course, the so-called "thin" sandwich course in which the college and industrial periods alternate at approximately six-monthly intervals, and the so-called "thick" sandwich course where the first two years of the course are spent in college, the third in industry and the fourth in college. There are other patterns, most of which are partly "thin" and partly "thick", which we set out in paragraphs 21 to 24.

Footnote to Paragraph 9
Industrial Training Places: We have used this as a convenient term throughout this report to describe the provision made by industry for training sandwich course students. Many firms have training sections, particularly for the early stages of training, with a more or less set number of actual places available but some training is carried out in operating departments where there is not necessarily a "training place" as such kept for an apprentice. At the same time, provision must be made for these students in the departments, and the same arguments apply.

The Thin Sandwich Pattern

13. The thin sandwich course is by far the most popular existing pattern. Of 374 actual and proposed sandwich courses shown in the last edition of the Ministry of Education's List 182 (1961) no fewer than 283 conform to it. Most colleges have only one group of students in each year of each course (single-group courses), but in some cases there are two groups in one or more years of a course (double-group courses). The college periods of single- or double-group courses can be arranged in one of three ways:-

(a) *The single-entry arrangement*

Under this arrangement all groups of all sandwich courses start their college period at the same time and remain in college together for two terms, either the autumn and spring terms if the entry date is the start of the academic year, or the spring and summer terms if it is the start of the spring term. This means that for one term out of the three, there are no sandwich students in a college which adopts this arrangement.

(b) *The overlap arrangement*

Under this arrangement some of the groups of sandwich students in the college start their college period at the beginning of the academic year and stay for the autumn and spring terms, while the remaining groups start their college period at the beginning of the spring term and stay for the spring and summer terms. This means that all groups overlap in college for the spring term. (In some colleges the overlap may be less than a complete term, because the first groups begin their college period a little earlier than the start of the normal academic year, or because the second groups end theirs a little later than the end of the normal academic year, or for both reasons).

(c) *The end-on arrangement*

Under this arrangement, the academic year is extended at each end, and if necessary the college period of the courses shortened, to accommodate two intakes of sandwich students consecutively without any overlap. While the arrangement can be adopted for all single-group and double-group courses to provide a balanced sandwich group loading in the college in each of the two periods, it is more usual to find it applied only to double-group courses, with one group from each course allotted to each of the two periods. We deal with this arrangement in detail in paragraphs 25–63 of this report.

14. The single-entry arrangement presupposes that the college has sufficient resources of accommodation, equipment and staff to provide adequately for all its sandwich students together. But in such cases the sandwich students are only in college for two terms, and this raises the question whether the arrangement involves under-use of college accommodation, equipment and staff during the term in which the students are not in college. This is not, prima facie, necessarily so. Whether it will happen will depend upon the proportion of sandwich work in the college. The full-time and most of the part-time work will go on throughout the three terms, and the accommodation and equipment not required by the sandwich students can be used for short full-time and part-time courses specially organised to run during the light term. The duties of the teaching staff in relation to sandwich students do not cease when the students complete a college period, and during the light term they can be fully employed in maintaining contact with their students in industry, in research and consultancy work, and in teaching on full-time and part-time courses. It is also desirable that teachers should from time to time have an opportunity of returning to industry for a period to gain experience of the latest conditions and techniques, and such opportunities are presented by a light teaching term.

15. By the same measures under-use of staff, accommodation and equipment may be avoided in the lighter autumn and summer terms in colleges which operate the overlap arrangement, though this again depends on the proportion of sandwich work.

16. The higher the proportion of sandwich work in a college is, the greater obviously will be the risk that the single-entry or overlap arrangements will lead to under-use of accommodation and equipment. It may become increasingly difficult to find sufficient support for the number of short full-time and

part-time courses needed to fill the gap. It may also be more difficult to find enough full-time and part-time teaching for the staff, although the question whether staff is under-used will depend to a greater extent upon the amount of time they spend in research, consultancy, and extending their industrial experience, and upon the claims which are made by their duties in connection with students in industry.

17. So far we have referred to the effect of the single-entry and overlap arrangements on the use of college facilities. What is their effect on the training facilities or their partners in industry? The case which has been put to us by those who are critical of the present arrangements may be stated as follows. The thin sandwich, whether organised as single-entry, overlap or end-on, is the only sandwich pattern which requires a training place in industry for each academic place provided by the colleges. The risk of under-use of training capacity under the single-entry and overlap arrangements is obvious and it is all the greater because of two factors which are special to industry. Except for the works holiday in the summer, industry expects to make use of the facilities throughout the year. Secondly, it is often more difficult for firms to find alternative uses for the training places taken up by sandwich students than for the colleges to employ staff and facilities during the light terms. In some cases all or some of the places can be used for other trainees. In others, the provision can be turned over to production. But we have been told that it is sometimes very difficult to avoid serious under-use during the college periods of the students.

18. To make matters more difficult, the great majority of sandwich students under the single-entry and overlap arrangements are in industry for practical training over the period July-September, when large numbers of undergraduate students are entering industry to obtain practical experience and training. During these three months, therefore, there is a double pressure on industrial training facilities. On the other hand, during the early part of the year (approximately January-March), there are few thin sandwich students and no undergraduates doing practical training in industry. Apart from considerations of economy this uneveness in demand makes it more difficult to plan a progressive programme of training. It may be impossible to even out the flow of students to industry completely so long as undergraduates and other full-time students continue to go there for vacation training, but it is argued that if the flow of sandwich students could be spread more evenly over the year this would be of the greatest possible help in enabling firms to make the most economical and effective use of their training facilities. Witnesses who have expressed this view have, therefore, argued that there should be a greater use of end-on and perhaps other arrangements which will achieve the object of spreading the load on industrial training facilities over the year. We deal later with the extent of the demand from industry, but we agree in principle that this is highly desirable if it can be done without serious educational and other disadvantages. We consider in the following paragraphs some possible ways of meeting the case which was put to us.

The Thick Sandwich Pattern

19. The second most common pattern is the "thick" sandwich course. This is used for certain Dip. Tech. and degree courses, and as indicated in paragraph 12 above, it usually takes the form of two full academic years in college, then a full year in industry, and finally a further full academic year in college. From the point of view of organisation, this is similar to a full-time course of four years duration, with three out of four students in college for the complete academic session and the fourth full-time in industry in any given year. It does not give rise to any unusual difficulties from the point of view of the economic use of college staff, accommodation and equipment, and, except in so far as they may return for the vacations in the same way as undergraduates, it also ensures an even flow of sandwich students into industry for training.

20. Viewed solely from the organisational point of view, therefore, the thick sandwich pattern has advantages, and for the courses to which it is suited it provides the answer to the problem which has been put to us on behalf of industry. As will be seen, however, it can only be used where it is sufficient

for the student to spend a quarter or little more instead of half his time in industry and where he needs to devote a larger part of his time to academic study, and it may add to the difficulty of integrating academic work and industrial training. It offers no answer where it is considered necessary for the student to spend half (or roughly half) his time in college and half in industry.

Other Sandwich Course Patterns

21. The following other patterns are in operation at certain colleges:-

(i) First three years—six months in college, six months in industry. Fourth year—full-time in college.

(ii) First year—full-time in college. Remaining years, six months in college, six months in industry.

(iii) First two years, six months in college, six months in industry. Last two years, full-time in college.

(iv) First and last years, full-time in college. Two middle years, six months in college, six months in industry.

(v) First year, three months in college, nine months in industry. Second, third and fourth years full-time in college, then a further nine months in industry.

(vi) First and last years full-time in college. Second year first term in industry, last two terms in college. Third year first term in college, last two terms in industry.

22. The first four of these fall somewhere between the thick and thin patterns already described. The feature common to all of them is that the student spends more time in college than in industry. But none of the four ensures that such industrial training facilities as are needed are employed continuously by students, and if on a smaller scale, each involves the same difficulties of uneven flow as the single-entry and overlap arrangements.

23. In the opening paragraph of this report we stated that we took the view that the 1–3–1 type of course was outside our terms of reference. The fifth arrangement outlined in paragraph 21 differs from the 1–3–1 course only in the fact that it has a three-months college period at the start of the first year and a slightly shorter final period in industry. While technically this may qualify the course as a sandwich course, we do not think that from the point of view of using college and industrial training facilities to the best advantage it can be distinguished from a full-time course.

24. Features of the sixth arrangement described in paragraph 21 are that only one industrial training place is required for every three college places; the flow of students to both industry and college is even throughout the course; the student is at no time away from his college studies for longer than nine months at the most including vacations; and it is claimed that the academic periods, being three terms each in length, reduce the time lost over the course as a whole in settling in and preparing for examinations as compared with the thin sandwich course. It was suggested to us that this pattern combines the organisational advantages of the thick sandwich course with the opportunity of better integration of education and practical training claimed for the thin sandwich course. As we see it, it is a variation on the thick sandwich pattern described in paragraph 19, and is only applicable where the student needs to spend three of the four years in college and only one in industry.

IV. The End-on Arrangement

25. We were asked to consider in particular the thin sandwich arrangement known as the "end-on arrangement". This is the arrangement referred to in paragraph 13(c) under which two quite separate groups of students within the same year of a thin sandwich course use the college alternately, one group being in college while the other group is undergoing industrial training, with the two groups interchanging halfway through the college year.

26. We have already stated in paragraphs 14–18 that the single-entry and overlap arrangements may not always make the fullest possible use of accommodation and equipment, both in college and in industry, and that the risk of under-use grows with the proportion of sandwich work. The main claim advanced in favour of the end-on arrangement, so far as the college is concerned, is that it enables fuller use to be made of accommodation and equipment than either full-time courses or other types of sandwich courses. So far as industry is concerned, it is claimed, the flow of students is more even, with about half the students in industry and the other half in college at any one time. This means that industry can train more students with the same number of training places. What is more, it can train them more effectively, because a firm can rely on having a student in a training place all the time, and can thus allot more responsible training tasks.

27. It was argued to the contrary that the advantages of the arrangement would be outweighed by its disadvantages, in that it might be relatively costly to staff; that there would be difficulty in recruiting and retaining staff to operate it; that it would give rise to problems of organisation and accommodation in the colleges; that it would present a threat to educational standards and the corporate life of the students; and that it would introduce a "production line" atmosphere into the colleges.

Present experience

28. In the academic year 1961/62 seven colleges, including one C.A.T., were operating the end-on arrangement for one or more of their sandwich courses, and two had adopted it for all of them. In one of these cases not all the courses had double groups, but all were organised to fit into the end-on pattern. The total number of courses involved in the seven colleges was 21, made up of fourteen Dip. Tech. courses, two degree courses, two college diploma courses and three H.N.D. courses. The subjects covered were Aeronautical, Civil, Electrical, Mechanical, Production and Instrument and Control Engineering; Applied Physics; Physics; Applied Mathematics; Commercial Administration; and Industrial Chemistry. None of the courses had been operating on the end-on arrangement for more than a few years.

29. The amount of actual experience of the arrangement is therefore relatively small, but the colleges concerned submitted to us that in their judgment the claims described in paragraph 26 were justified. They acknowledged that the system brought problems in its train, but gave it as their experience that these could be overcome. None saw any reason to regret its adoption, nor, they told us, did any of the firms associated with the courses. The colleges intend to continue to operate the system, and since we started our enquiry two more C.A.T.s have made arrangements to introduce it for three and four Dip. Tech. courses respectively from the 1962–63 session. A regional college has announced its willingness to introduce the system for an advanced commercial sandwich course if student numbers justify it.

Effect on Industrial Training

30. There seems little doubt that the balanced student loading resulting from the end-on arrangement offers distinct advantages to sections of industry whose training places are under pressure. It spreads the demand for training places, enabling them to be used more fully throughout the whole year, and permits an increase in the number of students without any increase in training facilities. While the pressure for end-on courses has come mainly from large firms, the arrangement might, if introduced on a wider scale, induce smaller firms which have not already done so to sponsor students for sandwich training. A small firm with, say, two students might well be in some difficulty during the period in which they were both in college. The end-on arrangement would enable them to go to college alternately, and the firm would then always have a student to fill its training place.

31. The even spread of demand for places should also, we think, make for better quality training in the long run. If the industrial training in sandwich courses is confined to one part of the year, a firm

may only be able to assign relatively unimportant jobs to its students, since the various departments must obviously be staffed and organised so that they can do without the students if need be. With the more even flow provided by the end-on arrangement, responsible tasks can be more easily assigned to students in the knowledge that there will be no break in continuity. The more even flow may also encourage the introduction of systematic and long-term training schemes where these do not at present exist.

Demand from industry

32. Despite the apparent advantages of the end-on arrangement to industry, we found no clear pattern of demand for its introduction, and it seems that, generally speaking, this is at present relatively small. In this connection we found the results of a survey carried out in 1961 by a joint F.B.I./Technical Colleges committee into "Sandwich Courses and the Placing of Students in Industry" of significance. For the purposes of this survey a number of firms, all of whom have sandwich students among their employees, were asked to say, inter alia, whether they would use the facilities offered by end-on courses if they were made available, and whether such courses would enable them to increase the number of student employees. The survey did not reveal any clear relationship between the size of firms or particular branches of industry on the one hand, and support for the end-on arrangement on the other. Only some 40 per cent of the firms consulted responded to the enquiry, and while a majority of these expressed interest, only a minority said that they would both use the facilities and increase the number of their students if it were adopted. However the minority accounted for over 75 per cent of all Dip. Tech. students employed by the respondent firms, indicating that firms already heavily committed to training sandwich course students would welcome some arrangement designed to relieve pressure on training places.

33. It was pointed out to us that the end-on arrangement was not the only answer to this problem, and that similar relief from pressure would be obtained if adjacent colleges adopted different starting dates for sandwich courses to ensure that the number of students starting their college period in September approximated to those starting in February. However, we were told by one large college that it had offered to operate this very arrangement in collaboration with another, but that there had been no response from industry to the offer.

34. Other evidence confirmed the view that, in general, the absence of end-on arrangements is not at present a great inconvenience to industry. We were told that colleges with a high proportion of advanced sandwich work have had few or no requests from firms for the introduction of end-on working. In one college where the arrangement has been introduced, support for end-on courses had been somewhat disappointing, and it has not in every case been possible to form two groups for each year of the course.

35. Our general conclusion is, therefore, that there is as yet no widespread demand from industry as a whole for the introduction of the arrangement, but one important sector of industry is an exception in this respect. Most existing end-on arrangements have been established at the request and with the co-operation of certain large companies in the electrical manufacturing branch of industry, and it is chiefly from that source that pressure for a wider spread of such courses has come. It has been represented to us that the needs of this branch of industry for trained personnel will soon exceed its training capacity unless existing facilities are put to more intensive use than is possible under the usual forms of thin sandwich courses. Some of these firms have hundreds of students following advanced sandwich courses; a number of them wish to train a good many more. They are greatly concerned at the wastage involved in having their training facilities under-used for about half the year, and reluctant in such circumstances to increase the number of training places to meet their need for greater numbers of technologists and technicians.

Effect of the arrangement on colleges

(*i*) *Length of the college working year*

36. If the two groups of students on an end-on course changed over midway through the normal college year of 36 weeks, each would only be in college for 18 weeks as against the normal college period of some 24–26 weeks provided on most existing thin sandwich courses. Curtailment of a course to this extent is obviously out of the question. However, if both groups were to have the full normal college period without overlapping with one another, the college would have to remain open for up to 52 weeks of the year, and this is impracticable.

37. To meet this situation, colleges operating the end-on arrangement remain open for teaching purposes for longer than the normal 36 weeks, and at the same time provide a somewhat shorter period in college for each of the groups of students. One has adopted a working year of 46 weeks, thereby allowing a period of 23 weeks in college for each of the sandwich groups on end-on courses. In this case the only times when there are no students in the college are at Christmas, Easter, Whitsun and August, and these periods of complete closure for teaching purposes total only six weeks. In the other cases the colleges operate a 44-week working year to allow each end-on sandwich group to have a 22 week period in college. The 44-week year enables the colleges to close for holidays and maintenance for a fortnight at Christmas and Easter, and four weeks in the summer.

(*ii*) *Length of the course*

38. Even if a college remains open for 44 weeks a year, each group of students spends only 22 weeks there, including examination time. This is at least two weeks less than under other thin sandwich arrangements, but it may still be perfectly adequate for certain courses. However, the resulting total nett period of study over a four-year course would be unlikely to satisfy the requirements of the N.C.T.A. for the Dip. Tech. course, and in fact, colleges offering Dip. Tech. courses under the end-on arrangement have had to extend their length in one way or another. The same has to be done with other courses if the same area of work is to be covered to the same standard as under normal arrangements. Colleges which at present run end-on courses have adopted the following methods of meeting this point:-

(a) By increasing the number of hours of study in each week of the college period. (This method has not been adopted for any Dip. Tech. course.);
(b) By extending the college period of each group of students in the last year of the course, so that there is a period of some weeks during the spring term when both groups of final year students are in college together;
(c) By extending the course into a further year.

(*iii*) *Use of accommodation and equipment*

39. The argument that college accommodation and equipment can be used more effectively speaks for itself. Classrooms, laboratories and workshops, with all their equipment, can be used for a longer period of the year. Hostel accommodation, too, can be used more intensively and the opportunity given to more students of a period of residence in college. As against that, some accommodation problems may be created by the system, e.g., adaptation and maintenance work may be more difficult to organise because of the shorter time available for it, and the refectory may have to operate uneconomically outside the normal session when only the end-on students are in college. However, colleges operating the system told us that they had not found these difficulties serious.

(*iv*) *Staffing—Economic Deployment*

40. The staffing arrangements made by colleges running end-on courses vary and depend largely on the volume of end-on work. In the two cases in which all the sandwich work is now organised on an

end-on basis, it has been found necessary approximately to double the staff engaged on sandwich work, as each sandwich period is, in general, separately staffed. In most cases the length of the working year for individual lecturers is no longer than under conventional arrangements. Their major teaching programme is concentrated into the 22 or 23 weeks of one sandwich period, and during the other sandwich period they are engaged on research, laboratory development, visits to industry and to their students in industry, operating correspondence courses for their students in industry, teaching in full time and part-time courses, extending their own industrial experience, and taking the balance of their annual leave.

41. As we said in paragraph 28, no existing end-on course has been in operation for more than a few years, and in fact the staffing arrangements for most of them are still largely experimental. The colleges concerned were unable to offer detailed guidance for use by other colleges on the number of additional staff required to operate the system. In their view there were too many variable factors to be taken into account.

42. The essence of an end-on arrangement is that under it two groups of students should exist in each year of the course where only one existed before. Such a system obviously requires additional staff to operate it. Whether such staff will be used economically depends first on the results of the introduction of the arrangement in terms of student numbers. At the one extreme it would obviously be uneconomical to divide into two smaller groups students who could be taken as one group. At the other, if two full groups are needed, they will make a double demand on staff whether or not the organisation is end-on. But in practice the position is usually much more complicated than this analysis may suggest. It is affected in particular by the volume of full-time and part-time work at the college, and the extent to which the staff engaged on sandwich courses can be fully employed when the students are in industry.

43. As with all courses the basic factor will, therefore, be the number of groups of students for which it is necessary to provide, and as with all sandwich courses the ease with which staff can be economically employed throughout the year will depend upon the scope for making good use of their time during the industrial periods. For example, teachers engaged on sandwich courses for two terms normally spend some time during their third term in teaching full-time and part-time students. The extent to which they do so, varies, depending on their commitments vis-a-vis students in industry, and other factors such as the amount of refresher, research and consultancy work they undertake. But it appears true to say that the teacher engaged with one sandwich group for two terms is usually able to contribute some proportion of his time during the third term to teaching on other courses. If the sandwich work in a college were doubled by the introduction of the end-on system, a doubling of sandwich teaching staff would only be an economic result if the volume of full-time and part-time work also increased to the extent necessary to occupy the additional staff for the proportion of teaching time they had available in the term in which they were not engaged with their sandwich group. Where the other work in a college did not increase to this extent, it might be possible by careful deployment of staff to take twice as many sandwich groups under end-on with something less than double the former number of sandwich teaching staff.

44. It was suggested to us that in certain cases the sandwich staff in a college which introduced the arrangement might have to be more than doubled even where the number of sandwich groups no more than doubled. The reasons put forward were that under the end-on arrangement the students might have to be organised in smaller groups than is normally the case, and that the provision of two separate staffs to cover periods which did not correspond with normal college terms could give rise to exigencies which could only be met by a more generous staffing ratio than usual. It was never clearly explained to us why the groups would have to be smaller (unless because there was insufficient support for two full courses, and if so the situation would be the same whether the additional course was provided end-on or otherwise). Nor do we see why any special difficulties arise which cannot be met by sufficiently flexible

staffing arrangements. We are not convinced that the staff required for end-on working need ever be more than double that for single entry working, and if in fact such a result appeared likely to arise from the introduction of the end-on arrangement in a particular college, it would, unless it was merely transitory, constitute in our view a sound reason against introducing the arrangement unless the advantages in other directions were very great indeed.

45. We have examined various suggested methods of calculating the number of additional teaching staff required to introduce an end-on arrangement, but we are satisfied that because of the many differences between colleges, there is no formula which would apply to all colleges in all circumstances. In principle the position is the same as with other courses, and as a rough working rule the additional staff required can be calculated by dividing the additional number of class contact hours required each year by the average number of class contact hours normally undertaken by staff engaged on sandwich courses.

46. There is no reason, however, why all categories of staff should always have to be doubled. While one college with a large volume of end-on work has found it necessary to engage an additional specialist lecturer for every one employed under single group working, this has not been the general rule. In some cases it has been found possible by careful deployment of his time to use an existing specialist lecturer to cover the needs of both end-on groups without causing him to work a longer year than previously. In other cases where this has not been possible the additional specialist lecturer has been engaged on a part-time basis.

47. We had evidence that the arrangement can place a good deal of extra work on heads of departments, and colleges affected have had to make special arrangements to ensure that they have no more than a reasonable amount of work and adequate opportunity for holidays. This has not necessarily meant the appointment of deputy heads, although this had been done in at least one college. But the colleges have generally had to make some arrangement to distribute among responsible senior staff some of the extra work falling on a department, and where necessary the proportion of additional senior staff engaged on the courses has had to reflect this.

(*v*) *Staffing—Retention and Recruitment*

48. Fears were expressed to us that the end-on system would create difficulties of retention and recruitment of staff for colleges which adopted it. The reasons given for this were that the system would adversely affect the whole pattern of academic life in the college, and that resulting staff conditions would be much less favourable than those in universities or in colleges which adhered to the normal pattern; that the college would resemble an establishment geared to a system of production rather than an educational institution; that it would impair staff mobility, restrict attendance at summer schools, special courses and conferences of learned societies, and make the planning of holidays difficult; that it would in general lower staff morale and create conditions in which retention of existing staff would be difficult and recruitment of new staff impossible.

49. We had no evidence that these fears are well-founded in practice. As we made clear in paragraphs 28 and 29, the amount of practical experience of the end-on arrangement is small, but so far none of the colleges operating it has encountered any special difficulty either in retaining existing staff or in recruiting new staff adequate in quality and quantity. They told us that the misgivings described in paragraph 48 were expressed during the consultations which took place with staff associations before the arrangement was introduced, but that they quickly dissipated with experience of it in operation. The introduction of the end-on arrangement appears to have coincided in some cases with the application of staffing policies which brought benefits to the staff concerned in the shape of lighter teaching loads, better opportunities for individual reading and research, for attendance at courses and conferences and for leave at less conventional times of the year.

50. In our view, not all of these benefits are inherent in the end-on arrangement as such. Most of them are potentially present in other sandwich course arrangements, and indeed in those for other kinds of courses. We have argued previously that end-on courses should not, relatively speaking, be more costly to staff than others, and we do not see how the introduction of the arrangement can of itself lead to lighter teaching loads. We therefore regard the evidence on this point as relating only to the effect of the particular staffing policies being applied by the colleges concerned when they introduced the arrangement.

(*vi*) *Corporate life*

51. It was put to us that while all thin sandwich courses tend to limit the participation of students in extra-curricular activities, the end-on arrangement makes these limitations more pronounced. Those taking this view said that under the single entry or overlap arrangements all the sandwich students were in college together for at least one term in most cases, and there was therefore sufficient contact between them to make them feel that they were members of a single student body, whereas under the end-on arrangement the two groups of students never met except in the rare cases where all or most of them came from nearby firms and could keep up their connection with the Students' Union, sporting activities, etc. during their industrial periods. Even in these cases, it was argued, contacts between the two groups were likely to be few, and where the students were drawn from firms from all parts of the country, little or no contact between the groups was possible. It was also pointed out that the arrangement would almost inevitably limit the activities of one group of students to those of the winter variety and the other to those of summer.

52. Students on existing end-on courses whom we met did not share this view. They were conscious that their participation in extra-curricular activities was less than that of full-time students, but thought that the end-on arrangement gave them as much opportunity for these activities as any other form of thin sandwich course. The main problem they had met under the system was one of continuity between the groups, but by arranging elections of new Union officers sufficiently far in advance and forming liaison committees of officers from each group they had evolved a satisfactory system for overcoming this.

53. In a college devoted wholly or mainly to end-on sandwich working, it may well be desirable to have two complete sets of Union officers each year, one for the August-January period, the other for the February-July period. This in itself is far from being a disadvantage—it enables more students to have this valuable experience than would be the case if they were all full-time students. But the division of the student body into two separate groups seems to us to carry with it the risk of adverse effects on extra-curricular activities unless special efforts are made to ensure that the activities for each group are as numerous and varied as those for a normal full-sized student body, and satisfactory arrangements are made for continuity between the groups.

54. It is, of course, true that most colleges have sufficient full-time students to ensure continuity in extra-curricular activities throughout the session. But in such colleges there is a danger that each end-on group will feel itself to be a body apart from the main stream of student activities, especially as the first end-on group comes to college some weeks before the full-time students arrive, while the second is still there for some weeks after the full-time students have gone.

55. We feel that deliberate efforts by both colleges and employers are needed to encourage sandwich students in general and end-on sandwich students in particular to participate fully in extra-curricular affairs, and to avoid any feeling that they are being prevented from doing so by the nature of their course. Students themselves may be able to assist in this respect by arranging the reservation of places in annual elections and college societies for end-on and other sandwich groups, and employers by

facilitating students' return to college from time to time during their industrial periods for sporting and other extra-curricular activities.

Circumstances relevant to the adoption of the end-on arrangement

56. There are a variety of circumstances in which a college could be faced with the question whether or not to introduce the end-on arrangement. Those which we have heard about are:

(a) The prospect of sandwich student enrolments increasing to the extent that, if other kinds of work are not to be sacrificed, the extra students can only be accommodated in the college by means of the arrangement if major extensions to the college premises are to be avoided;

(b) An approach from industry to adopt the arrangement as a means of making better use of industrial training facilities. This approach may be motivated by a wish on the part of industry to even out the flow of trainees without increasing the number of students, or to increase the number of trainees without corresponding increases in training facilities, or a combination of both reasons;

(c) A desire on the part of the college itself to create circumstances in which industry will be able and willing to train more students with their existing training facilities, particularly the increasing number of college-based students.

Conditions for a successful end-on arrangement

57. If, for one or more of the reasons mentioned in paragraph 56, a college proposed to introduce the end-on arrangement, it should, we think, first ensure that three main conditions are satisfied.

58. Firstly, anticipated student enrolments should be such that it would in any case be necessary to have double groups on the course or courses affected, whether under an end-on arrangement or otherwise. In this the college would of course be guided by the rules in Ministry of Education Administrative Memorandum 545, as each group would at the very least have to attain the appropriate minimum first year numbers laid down therein. But Administrative Memorandum 545 deals with *minimum* numbers and the fact that two groups could be formed which complied literally with the rules should not in itself be regarded as fulfilling this condition.

59. There is another important point to be taken into account by a college assessing the size of first year groups which could reasonably be regarded as justifying an end-on arrangement. In any progressive course of higher education, whatever its form, a fall in student numbers is inevitable as the course progresses from one year to the next. Advanced sandwich courses are no exception in this respect. The incidence of this fall could mean that two groups which were considered reasonable in size for the first year of an end-on course would each have dwindled by the third or fourth year to an uneconomic size. It would be desirable in most such cases to continue with the small separate groups until the course ended, and this could only be done at a disproportionate cost both in staff time and in the use of accommodation and equipment. (This is in contrast to the relative ease and economy with which both groups of a double-group course operated under a single-entry arrangement could be combined in the later stages if necessary.)

60. The second condition is that minimum conditions for the economic deployment of teaching staff should be fulfilled. This means that not only should the sandwich groups be of adequate size, but that the department concerned should have a sufficient volume of work at the appropriate level, whether it be wholly sandwich work, or a combination of full-time, part-time and sandwich work, to ensure that all staff engaged on the courses have a reasonably full teaching load over a year which, while it need not be longer than that worked under a different arrangement, should certainly not be any shorter. If it is felt

necessary to organise separate staffs for each end-on group to avoid the risk of staff being overloaded or for any other reason, care should be taken to ensure that the teachers in each group of staff have sufficient duties to occupy their time during the period they spend in college while their sandwich group is in industry (see footnote).

61. The question of how to staff end-on courses in such a way as to deploy the teaching staff to the best advantage is a most complex one, and in any particular case it can only be resolved by the college concerned. In paragraphs 40 to 47 we have given as much general guidance on the subject as we feel able to on the basis of the evidence we had, and in the preceding paragraphs we have alluded to other matters, such as the possibility of a progressive fall in the size of groups, which have a bearing on it. We hope that what we have said in this connection will be helpful to colleges considering the introduction of the arrangement, because in our view it is of crucial importance that end-on courses should not be more costly in staff in proportion to the student load than other sandwich course arrangements. If it were otherwise, it would be difficult to justify the arrangement on financial grounds. The financial savings inherent in the more intensive use of existing accommodation and equipment by means of end-on courses can only be realised if the cost of staffing them remains in consonance with that of staffing courses following other arrangements after account has been taken of the greater student load. If the cost of staffing end-on courses were higher, economies in other directions might be offset before very long, and in that event the system would in the long term probably be so much more costly that its other benefits, including the advantages it offers to industry, might not be sufficient compensation (see footnote).

62. The third condition is that the arrangement, whatever the college's reason for introducing it, should be based on a close partnership between the college and the industrial firms which employ the works-based students, or accept the college-based students for training, or both. If the arrangement is introduced at the request of particular firms, the college should have some assurance from them that their support will be sufficient to justify the arrangement. In this connection it would not be enough that sufficient numbers of students were available immediately—there should be good prospects of continued support for a reasonable period ahead. If the college introduces the arrangement of its own volition, firm arrangements should be made beforehand with industrial firms for the necessary co-operation in implementing the system in so far as the industrial training periods are concerned, both for works-based and college-based students. In all cases, the college should consider the effect of the end-on arrangement on the length of the courses concerned, and reach prior agreement with the industrial firms should it decide that the best way of compensating for the shorter college periods is to extend all or any of the courses into an extra year.

Need for flexibility

63. During our enquiry reference was made to the question whether any one pattern of sandwich course lends itself better than all the others to the achievement of proper integration of the college and industrial periods. Our witnesses were unanimous that so far no single pattern had shown itself to be best for all technologies in all circumstances, and that the question of which pattern to adopt for a

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Footnote to Paragraphs 60 *and* 61—Note of reservation by Mr. E. R. L. Lewis

"Whilst agreeing with the need to ensure the economic use of staff before end-on courses are introduced, I consider that we have been too rigid in these two paragraphs in refusing to accept the introduction of such a course if it meant *any* increase of staff or reduction of teaching load compared with another system. It is difficult to compare the costs involved but as the number of sandwich course students increases, we may be faced with an urgent problem of finding them industrial training places."

particular course must be left to the college, the industry and any other interests concerned to settle when plans for the course are being formulated. The number of different sandwich patterns at present being operated for courses leading to the same award in the same technology reflects the experimentation now going on. We think that such experimentation is valuable at this stage of the sandwich course's evolution. But the end-on arrangement inevitably reduces the degree of flexibility available to a college for devising and experimenting with new patterns, and it would in our view be undesirable that any college should, at any rate for the time being, adopt the arrangement for such a high proportion of its sandwich work that it removed its freedom to experiment with other sandwich patterns and to benefit from a study of the results achieved by such experiments.

V. Another Aspect of Sandwich Courses

64. During our enquiry we heard evidence on another aspect of sandwich courses which, while perhaps not strictly within our terms of reference, is nevertheless of sufficient importance to be mentioned in this report. This concerns the pressure that may fall on sandwich students.

65. There was a feeling among some who gave evidence to us that the Dip. Tech. course, when organised on a thin sandwich basis, exposes the student to excessive pressure. Views expressed were that 48 weeks of combined academic study and associated training in industry is too long; that the student is continuously occupied with his own technology, and does not have enough time to sit back and think as a student at this level should; that lack of a long vacation gives him little time for reading and self-directed study, and denies him the opportunity of broadening his outlook by foreign travel. It was also alleged in one case that the load of study tended to restrict participation in Students' Union activities.

66. The National Council for Technological Awards, for example, gave it as their impression that Dip. Tech. students are hard pressed during both the college and industrial periods. One member of the Council foresaw a danger that unless the thin sandwich form of course was lengthened, the object of producing technologists who were educated as well as trained might be defeated. Representatives of other organisations representing industry, the colleges and teachers, shared this view.

67. Some engineering students with whom we discussed these matters were not conscious that the pressure on them in college was any greater than that experienced by full-time engineering students. As regards their industrial periods, their evidence was that they had ample time for study. However, they regarded the lack of a long vacation as a decided disadvantage. It deprived them of comparable opportunities for developing and broadening their experience by foreign travel, by taking advantage of N.U.S. vacation programmes, by private reading and in other ways not open to them. On the other hand, they thought that the industrial periods of a sandwich course provided valuable social experience which was not available to full-time students.

68. Not all witnesses referred to pressure on sandwich students, and not all of those who did thought that it was necessarily a bad thing. It was claimed by more than one that many students, including full-time as well as sandwich students, work all the better for a little pressure. Nor did they all think that it would be necessarily advantageous to the sandwich student to have long vacations. Some took the view that while these were traditional for full-time students, it did not follow that they were necessary or used to the best advantage. One opinion put to us was that provided the student's activity in industry was really purposeful, it could be as refreshing and enjoyable to him as a long vacation, besides being more beneficial to his progress. And it was also pointed out that the sandwich student does in fact receive a valuable social education from his industrial periods through the opportunities afforded to him of meeting and working with all classes of people connected with industry.

69. We do not think there is much doubt that, during their college periods, sandwich students are somewhat harder pressed than full-time ones, whether at university or technical college. We are less certain that there is undue pressure on them during their industrial periods. We think it worth mentioning the evidence we had on the point, in case those concerned with the organisation of Dip. Tech. and other degree-level thin sandwich courses should wish to consider the institution of an arrangement whereby the students would get, say, one long vacation during their course. In our view the best way of achieving this would be by agreement between the college and industry (and, in the case of Dip. Tech. courses, the N.C.T.A.) to make an appropriate reduction in the length of one of the industrial periods of the course (see footnote).

VI. General Conclusion

70. We sum up as follows:

We are of opinion that:

(a) It is impossible to generalise about the effect of end-on courses on the staffing of a college but if the enrolments are fully satisfactory the staff required should not be more than double that required for single entry working and may be less. (Paragraphs 40–47).

(b) With end-on courses college accommodation and equipment can be used more intensively. (Paragraph 39).

(c) End-on courses intensify the difficulties that already tend to limit the part played by sandwich course students in the extra-curricular activities of a college. (Paragraphs 51–55).

(d) There is as yet no widespread demand for the introduction of end-on courses except from certain large companies in the electrical manufacturing industry. (Paragraphs 32–35).

(e) End-on courses make an important contribution to the solution of some of the training problems being encountered in certain sections of industry. (Paragraphs 30–31).

(f) As no single pattern of courses has shown itself to be best for all technologies in all circumstances, it is important that colleges should be free to devise and experiment with new patterns. There is a danger that the widespread introduction of end-on courses would reduce the degree of flexibility necessary for this. (Paragraph 63).

(g) Nevertheless, on balance colleges should be encouraged to introduce end-on courses where
- (i) they are justified by the anticipated student enrolments. (Paragraphs 58–59);
- (ii) minimum conditions for the economic deployment of staff exist. (Paragraph 60–61); and
- (iii) the detailed proposals regarding the courses, e.g., those concerning their length, have been agreed with industry. (Paragraph 62).

Footnote to Paragraph 69—Note of reservation by Mr. E. R. L. Lewis

"I agree with the desirability of students having a long vacation during their course but I do not think we are justified in implying that time for this can be taken out of the industrial part of the course. It may be necessary to extend the course in some cases to make this provision."

List of Organisations and Individuals who submitted Written Evidence

Association of Education Committees
Association of Municipal Corporations
Association of Principals of Technical Institutions
Association of Teachers in Technical Institutions
Association of Technical Institutions
County Councils Association
Federation of British Industries
General Electric Company Limited
London County Council
National Association of British Manufacturers
National Council for Technological Awards
Staffordshire Local Education Authority
The Electrical and Electronic Manufacturers Joint Education Board
The Electricity Council
Welsh Joint Education Committee

Principals of

Battersea College of Technology
Bradford Technical College
Bristol College of Science and Technology
Brunel College of Technology
Enfield Technical College
Mid-Essex Technical College and School of Art
Northampton College of Advanced Technology
Northern Polytechnic
Portsmouth College of Technology
Rugby College of Engineering Technology
South-East Essex Technical College
Stafford College of Technology

Students' Unions of

Battersea College of Technology
Bradford Institute of Technology
Chelsea College of Science and Technology
Rugby College of Engineering Technology
Salford Royal College of Advanced Technology
South-East Essex Technical College
Union of Loughborough Colleges
Welsh College of Advanced Technology

List of Persons who gave Oral Evidence

Mr. E. G. Barnard, Chief Education Officer, Portsmouth Dr. D. P. Evans, Principal, Treforest College of Technology Mr. J. H. P. Oxspring, Director of Education, Staffs. Mr. E. Walker	representing the Association of local Authorities and the London County Council
Mr. E. Roberts, Hatfield Technical College Mr. E. E. Robinson, Brunel College of Technology Mr. R. C. Sterling, Northampton College of Advanced Technology Mr. E. L. Britton, General Secretary	representing the Association of Teachers in Technical Institutions
Dr. A. Harvey, Welsh College of Advanced Technology Mr. R. S. Paradise, Principal, Stafford College of Technology Dr. J. E. Richardson, Principal, Regent Street Polytechnic	representing the Association of Technical Institutions/Association of Principals of Technical Institutions Joint Committee
Dr. D. M. A. Leggett, Principal, Battersea College of Advanced Technology Mr. G. H. Moore, Principal, Bristol College of Advanced Technology Dr. J. S. Tait, Principal, Northampton College of Advanced Technology	representing the Committee of Principals of Colleges of Advanced Technology
Mr. G. S. Bosworth, English Electric Co. Ltd. Mr. R. B. Mackay, Standard Telephones and Cables Ltd. Mr. V. H. Warren, Secretary	representing the Electrical and Electronic Manufacturers Association
Miss C. J. Arlidge (F.B.I.) Mr. R. S. Marshall, A.E.I. Ltd. Mr. L. S. Newton, Pilkington Bros. Ltd. Mr. F. H. Perkins, I.C.I. Ltd.	representing the Federation of British Industries
Sir Harold Roxbee Cox, Chairman Sir Walter C. Puckey Sir Willis Jackson Mr. F. R. Hornby, Secretary	representing the National Council for Technological Awards
Dr. G. S. Atkinson, Principal Mr. A. Draper, Vice-Principal	Rugby College of Engineering Technology

Dr. W. Davey, Principal, Portsmouth College of Technology
Dr. J. Topping, Principal, Brunel College of Technology

Mr. D. Gibbs
Mr. J. W. G. White
Mr. R. H. Wood
} representing the Students' Union, Rugby College of Engineering Technology

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1939 and 1947-66

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INDEXES OF OUTPUT PER MAN-HOUR: SELECTED INDUSTRIES, 1939 and 1947-66

Introduction

This bulletin contains updated industry indexes of output per man-hour, output per employee, and unit labor requirements for the industries currently included in the U.S. Government's productivity measurement program. The data cover the years 1939 and 1947 through 1965 or 1966. Indexes for the aluminum rolling and drawing industry are included for the first time.

The selected industries for which output per man-hour indexes are shown are not necessarily a representative cross section of American industry. They should not be combined, therefore, to obtain an overall measure for the entire economy or any sector. Each index is intended to represent only the change in output per man-hour for the designated industry or combination of industries. However, the Bureau of Labor Statistics publishes indexes of output per man-hour and related measures for the total private economy and major sectors--agriculture, nonagriculture, manufacturing, and nonmanufacturing.[1] Those measures show the relationship between gross national product originating in the private economy or major sectors and employment and man-hours.

This bulletin was prepared in the Office of Productivity, Technology and Growth under the general direction of Jerome A. Mark, Assistant Commissioner. Preparation of the statistical measures was supervised by Joseph E. Dragonette and Virgil H. Ketterling in the Division of Industry Productivity Studies, Chester Myslicki, Chief.

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[1] Trends in Output per Man-Hour in the Private Economy, 1909-1958 (BLS Bulletin 1249, 1959), and subsequent releases.

Highlights of Trends in Output Per Man-Hour in Selected Industries

One of the most important aspects of American economic growth is the steady long run advance of productivity in different industries. This feature is highlighted by the data for 27 selected industries covered by this report. All industries recorded increases in output per man-hour over the 1947-65 period. Output per man-hour in some industries declined for short periods, reflecting largely changes in capacity utilization due to fluctuations in output, but the upward trend over the long run was unmistakeable in every case.

Productivity growth took place in industries which differ greatly in technology, markets, organization, and type of labor employed. Consumer good industries such as the hosiery, canning and preserving, candy, and flour industries as well as basic steel, coal railroads, gas and electric utilities, and petroleum refining reported gains.

Impact of Technology

The main source of the long-term advance of productivity is the application of scientific and technical knowledge which is incorporated in new plant and equipment. Major changes in basic processes and equipment are particularly noteworthy in some industries: for example, the introduction of jet aircraft in air transportation; the use of continuous mining machinery in the coal industry; the shift from rail to truck hauling in copper mining; and the beginning of the basic oxygen process in steel. Adoption of these basic changes involved large capital outlays for new equipment and considerable retraining and adaptation of labor and management.

Modifications, involving less extensive changes in equipment and methods of production, also have had a cumulative impact. Improvements in the power, speed, and capacity of conventional machinery and equipment, use of auxiliary machinery for material handling and instrumentation for control, and modifications of plant lay-out, often in combination with major changes, contributed to rises in productivity in many industries. Modifications of existing methods which increase productivity are exemplified by longer cement kilns, larger oil refining units, longer railroad trains, and larger shovels and other types of mining equipment, all of which permit a larger output with the same or less labor.

Differences in Growth Rates

While output per man-hour advanced in all industries over the 1947-65 period, annual rates of growth differed widely among the industries, ranging from about 1 percent to close to 8 percent. Annual rates of increase considerably above the national postwar average of about 3 percent a year

are recorded for the gas and electric utilities, petroleum refining, coal, cigar, air transportation, and primary aluminum industries. Rates of increase significantly below the national average include glass containers, cigarette, footwear, nonferrous smelting, and steel industries. Moderate growth rates are found in copper mining, iron mining, and the beet sugar, candy, canning, cement, concrete, flour, manmade fibers, malt liquor, paper, and tire industries.

Indexes of output per production worker man-hour for most of the selected industries covered in the report increased at a faster rate than those based on all employee man-hours. This difference reflects the long term growth in proportions of nonproduction workers, i.e., administrative, technical, sales, and clerical employees. In recent years, however, as the ratio of nonproduction workers to all employees has tended to stablize in many industries, relative changes in the two indexes have been about the same.

Output per man-hour generally tended to increase at a slightly faster rate over the 1957 to 1965 period than over the longer period since 1947. In 20 of the 25 industries for which comparable data are available, the rate for the recent period exceeded that for the entire period, largely reflecting effects of higher levels of investment in new plant and equipment, particularly since 1963.

Productivity and Output

Rapid rates of increase in productivity in some industries are related closely to substantial advances in output. Such an increase was particularly noticeable in the gas and electric utilities, air transportation, and primary aluminum industries where postwar demand has stimulated rapid expansion. Expanding output either through enlargement of existing plants or the building of new plants provides opportunities for installing the latest equipment. Continued growth encourages firms to spend capital funds more readily for investment and research. Also, larger markets make possible longer runs, standardization of products, and other mass production techniques which have a substantial effect on productivity.

Output per man-hour also advanced rapidly in several industries despite moderate or little growth in output over the 1947-65 period. For example, gains in the coal, petroleum refining, and cigar industries reflected, in part, concentration of production in larger, more efficient plants, and a reduction in the total number of establishments.

Industries with low rates of productivity growth tended to be characterized by low rates of output. For example, glass containers, cigarettes, and steel industries, in which growth in output per man-hour averaged less

than 2 percent a year, recorded relatively small output increases. In the iron and copper mining industries, the deterioration of the quality of natural resources, as less accessible ore beds are exploited, shows up in the lower rates of advance in output per man-hour, measured in terms of recoverable or useable ores, compared with measures based on crude ore.

Productivity and Employment

The relationship between productivity advances and employment changes is by no means simple and direct. Changes in output must be taken into account in assessing the impact. Thus, in industries where output growth exceeds gains in productivity, and there is no change in the work-week, employment rises. This situation developed in air transportation, primary aluminum, and gas and electric utilities where output per man-hour rose sharply between 1947 and 1965, but output increased slightly faster. Employment also increased in glass containers and cigarette industries, where less-than-average gains in output per man-hour and output were registered, and in concrete products and paper industries, where output gains substantially exceeded average rates of productivity growth.

Productivity gains in excess of the rise in output which are not accompanied by change in average weekly hours result in employment reductions. Thus, employment was lower in 1965 than in 1947 in 16 of the 25 industries for which data are available, despite increased output. The decline in employment since 1947 was particularly sharp in bituminous coal mining and railroads, where output declined while productivity was advancing.

Outlook

The growth of productivity is likely to continue over the next few years as a result of the cumulative effects of large investments in new plant and equipment, the application of new knowledge of production processes coming from extensive research and development programs, and the steady improvement in the quality of labor and management through education and training.

Technological advances which may serve to stimulate productivity growth over the next few years will include further use of versatile machines such as the electronic computer. In many industries application already has been made in routine data processing, production planning, and engineering. Computers are used to keep account of the location of railroad freight cars, to control seat inventory of airlines, and to make out bills in

gas and electric utilities. In processing industries such as steel, petroleum refining, paper, cement, and electric utilities, computers are being introduced to link instrumentation and control devices for more automatic control of processing.

New manufacturing processes such as continuous casting in the steel and in the aluminum industries and continuous processing in the malt liquor industry may have important effects on productivity. One of the most significant recent developments in railroad and airline transportation is the trend toward greater integration of services through piggy-back and containerization. The footwear and tire and tube industries will probably be affected by the further use of manmade materials. Others such as concrete and glass containers may see marked improvements in the quality of output.

Methods and Data

The productivity measures presented reflect the relationship between output in physical terms and related labor time. They show the changes from year to year in the amount of labor time required to produce a unit of output. Although the measures relate output to employment and man-hours, they do not measure the specific contributions of labor, capital, or any other factor of production. Rather, they reflect the joint effect of a number of interrelated influences such as changes in technology, capital investment per worker, changes in the levels of output, utilization of capacity, layout and flow of material, managerial skill, and skills and effort of the work force.

The indexes of output per man-hour are computed by dividing an output index by an index of aggregate man-hours. Corresponding measures also are computed relating output to the number of employees. Thus, the industry indexes presented here measure changes in the relationship between output and employment or man-hours. Although, traditionally, output per man-hour has been the measurement most frequently used, in some instances studies of physical output per man-hour are simplified if made in terms of the reciprocal: man-hour requirements per unit of output (unit man-hours). Therefore, unit labor requirements indexes are shown for all industries covered in this report.

The output indexes are based primarily on the physical output of the products of the industry combined with fixed period weights. Man-hour weights are used whenever possible. For most industries, however, unit value weights which are assumed to be proportional to unit man-hour weights, are used as substitute weights. Indexes for 1947-58 are based on 1947 weights, for 1958-63, 1958 weights, and for 1963-66, 1963 weights. For three industries--railroads, iron mining, and copper mining--two alternative output measures, representing different concepts of industry output, are presented.

Employment and man-hours indexes are developed from basic data compiled by the Bureau of the Census or the Bureau of Labor Statistics. In concept, indexes based on man-hours data from the Bureau of the Census relate to plant hours only. Man-hours data from the Bureau of Labor Statistics include not only hours at work but also payroll hours such as vacations, holidays, and

sick leave paid by the establishment directly to the employee.[2] In general, because of increases in paid leave during the period, output per man-hour worked would tend to show a somewhat higher rate of gain than output per man-hour paid. However, actual differences also may result from statistical limitations in the data as well as from differences in concept.

This report includes indexes of output per man-hour and output per employee. In most cases, the indexes are shown for all employees, production workers, and nonproduction workers.[3] Although both the Bureau of the Census and the Bureau of Labor Statistics provide data on production worker man-hours, neither source provides annual data by industry on nonproduction worker or all employee man-hours. Therefore, the nonproduction worker man-hours are estimated.

The estimates of aggregate nonproduction worker man-hours for the manufacturing industries are derived from published employment data and from estimates of average annual hours worked or paid per nonproduction worker. The estimates of average annual hours paid are calculated by multiplying the number of workweeks in the year times the scheduled weekly hours. Estimated hours for vacations, holidays, disability, and personal time off are subtracted from average annual hours paid, to obtain an estimate of average annual hours worked. Vacation and holiday trends are based on studies by the U.S. Department of Health, Education, and Welfare, and on data from BLS surveys. Personal time off has been estimated as a constant on the basis of data obtained from various sources.

All employee man-hour estimates for manufacturing industries are derived by summing the aggregate man-hours for production workers and the estimated aggregate man-hours for nonproduction workers.[4]

Indexes involving nonproduction worker man-hours are subject to a wider margin of error than are the indexes involving only production worker man-hours because it was necessary to estimate the average man-hours of nonproduction workers. Any likely errors in these estimates, however, would have a relatively insignificant effect on the indexes of man-hours for all employees.

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[2] Indexes for the railroad transportation industry are based on data from the Interstate Commerce Commission (ICC), and relate primarily to hours at work.

[3] The term "production workers" has been used for many years to cover manufacturing and mining employees who work at the plant or mine and who are generally in nonsupervisory occupations. The remaining employees, professional, technical, clerical, supervisory, etc., have been identified as "nonproduction workers."

[4] The ICC publishes all employee man-hours for the railroad transportation industry.

The output indexes and man-hours components of the industry productivity indexes are based on data from various sources which are identified in the accompanying tables.

The indexes refer to the standard reference base (1957-59=100) and conform to the 1957 Standard Industrial Classification (SIC) system.

All average annual rates of change are based on the linear least squares trends of the logarithms of the index numbers. Average annual rates of change for any time periods shown in this report are available upon request from the Bureau of Labor Statistics.

More detailed information on the methods, limitations, and data sources is contained in the BLS Handbook of Methods for Surveys and Studies, Bulletin 1458, 1966, Chapter 23, and in a number of individual industry reports. These publications, as well as additional information, are available upon request from the Bureau of Labor Statistics.

Selected Industries: SIC Codes, 1965 Employment, and Average Annual Rates of Change in Output Per Man-Hour, 1947-65 and 1957-65

SIC Code	Industry title	1965 employment (thousands)[1]			Output per man-hour: Average annual rate of change (percent)[2]					
					1947-65			1957-65		
		All employees	Production workers	Nonproduction workers	All employees	Production workers	Nonproduction workers*	All employees	Production workers	Nonproduction workers*
	Nonmanufacturing									
451	Air transportation[3]	197	(4)	(4)	[5] 7.8	(4)	(4)	[5] 7.6	(4)	(4)
12	Bituminous coal and lignite mining[3]	132	115	17	(4)	6.4	(4)	(4)	6.3	(4)
11, 12	Coal mining[3]	141	124	18	(4)	6.3	(4)	(4)	6.2	(4)
102	Copper mining, crude ore[3]	30	25	5	(4)	4.7	(4)	(4)	4.0	(4)
102	Copper mining, recoverable metal[3]	30	25	5	(4)	3.2	(4)	(4)	3.2	(4)
491, 492, 493	Gas and electric utilities	583	[6] 507	[7] 76	7.3	[6] 7.9	(4)	6.8	[6] 7.2	(4)
101	Iron mining, crude ore[3]	26	22	4	(4)	5.3	(4)	(4)	8.1	(4)
101	Iron mining, usable ore[3]	26	22	4	(4)	1.8	(4)	(4)	3.8	(4)
401, Class I	Railroads--revenue traffic[3]	667	598	69	4.9	5.2	2.1	6.3	6.5	4.4
401, Class I	Railroads--car-miles[3]	667	598	69	4.2	4.5	1.4	4.1	4.3	2.2
	Manufacturing									
3352	Aluminum rolling and drawing	58	46	12	(4)	(4)	(4)	[8] 8.1	[8] 8.1	[8] 8.1
2063	Beet sugar	12	11	1	4.6	4.3	(6.6)	[8] 3.8	[8] 3.7	[8] (5.5)
2071	Candy and other confectionery products	65	55	11	3.4	3.4	(3.2)	3.5	2.9	(6.3)
203	Canning and preserving	261	220	40	3.7	4.0	(1.5)	3.5	3.5	(3.8)
3241	Cement, hydraulic	34	28	7	4.8	5.2	(2.2)	5.2	5.9	(1.2)
3271, 3272	Concrete products	81	61	20	3.2	3.7	(.7)	2.1	2.3	(1.6)
2041	Flour and other grain-mill products	21	15	5	4.1	4.3	(3.2)	4.7	4.3	(6.0)
3141, 3142	Footwear	217	197	20	2.0	2.1	(1.7)	1.4	1.2	(2.7)
3221	Glass containers	61	55	7	1.2	1.3	(.6)	2.2	2.2	(2.4)
2251, 2252	Hosiery	96	88	8	4.6	4.7	(3.9)	6.4	6.4	(6.7)
2082	Malt liquors	60	41	20	4.1	4.3	(3.8)	6.0	5.6	(6.8)
2823, 2824	Man-made fibers	85	63	22	(4)	(4)	(4)	4.3	4.4	(4.2)
261, 262, 263, 266	Paper, paperboard, and pulp mills	222	180	42	3.7	4.1	(1.2)	4.7	5.0	(3.4)
2911	Petroleum refining	110	79	31	5.8	6.3	(4.1)	7.3	7.6	(6.6)
3334	Primary aluminum	21	17	4	5.4	5.7	(3.8)	6.0	5.8	(7.3)
3331, 3332, 3333	Primary smelting and refining of copper, lead, and zinc	26	22	4	2.7	2.9	(.9)	3.7	3.5	(5.1)
331	Steel[3]	657	538	119	1.6	2.1	(-0.9)	2.7	2.6	(3.4)
3011	Tires and inner tubes	89	68	20	4.2	4.5	(3.0)	6.6	6.6	(6.4)
211, 212, 213	Tobacco products, total	61	55	6	3.7	3.9	(1.4)	4.5	4.8	(1.6)
212	Tobacco: cigars	21	19	2	6.7	6.9	(4.0)	8.5	8.6	(7.4)
211, 213	Tobacco: cigarettes, chewing and smoking tobacco, and snuff	40	36	5	1.3	1.5	(.0)	2.0	2.4	(-1.2)

[1] Because of rounding, the sum of production workers and nonproduction workers does not always equal all employees.
[2] Based on the linear least squares trends of the logarithms of the index numbers.
[3] Rates of change through 1966 are shown on industry tables.
[4] Not available.
[5] Output per employee.
[6] Nonsupervisory workers.
[7] Supervisory personnel and force account construction workers.
[8] Average annual rate of change is for 1959-65.

* Note: Rates of change for nonproduction workers (in parentheses) are subject to a wider margin of error than other rates shown because of the method for estimating nonproduction worker man-hours.

TABLE 1. AIR TRANSPORTATION

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT	ALL EMPLOYEES
1947.....	37.4	267.4	22.7	60.7
1948.....	41.6	240.4	23.5	56.5
1949.....	47.8	209.1	26.4	55.2
1950.....	55.7	179.6	31.4	56.4
1951.....	64.0	156.3	39.8	62.2
1952.....	66.5	150.4	46.4	69.8
1953.....	71.8	139.3	53.5	74.5
1954.....	79.5	125.8	60.4	76.0
1955.....	89.5	111.7	71.9	80.3
1956.....	92.0	108.7	83.1	90.3
1957.....	95.1	105.2	94.1	99.0
1958.....	98.5	101.6	95.6	97.1
1959.....	106.2	94.2	110.3	103.9
1960.....	107.1	93.4	117.3	109.5
1961.....	113.4	88.2	124.1	109.4
1962.....	126.2	79.2	140.2	111.1
1963.....	139.4	71.7	158.8	113.9
1964.....	153.4	65.2	185.0	120.6
1965.....	172.0	58.1	224.6	130.6
1966[1]	194.4	51.4	277.8	142.9
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66....	7.9	-7.4	13.5	5.1
1957-66....	8.3	-7.6	12.4	3.9

[1] Preliminary.

Source: Based on Civil Aeronautics Board data.

TABLE 2. BITUMINOUS COAL AND LIGNITE MINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT	ALL EMPLOYEES
1939.....	44.2	226.1	88.8	200.8
1947.....	66.1	151.2	141.8	214.4
1948.....	61.6	162.5	134.8	219.0
1949.....	50.0	200.0	98.4	196.8
1950.....	63.3	158.1	116.1	183.5
1951.....	64.9	154.1	120.0	184.9
1952.....	64.6	154.8	104.9	162.4
1953.....	72.0	138.9	102.7	142.7
1954.....	78.3	127.7	88.0	112.4
1955.....	97.0	103.1	104.9	108.1
1956.....	100.1	99.9	113.5	113.4
1957.....	98.0	102.1	112.1	114.4
1958.....	97.2	102.9	93.8	96.5
1959.....	105.5	94.8	94.1	89.2
1960.....	112.5	88.9	94.7	84.2
1961.....	124.8	80.2	91.7	73.5
1962.....	137.3	72.8	96.0	69.9
1963.....	151.5	66.0	104.2	68.8
1964.....	162.6	61.5	110.6	68.0
1965.....	176.7	56.6	116.3	65.8
1966[1].....	186.7	53.5	121.2	64.9
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	6.6	-6.2	-0.7	-6.9
1957-66	8.3	-7.7	2.0	-5.8

[1] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 3. BITUMINOUS COAL AND LIGNITE MINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	40.9	47.3	244.4	211.3	88.8	217.0	187.6
1947.....	61.8	53.9	161.8	185.5	141.8	229.5	263.1
1948.....	57.7	53.7	173.4	186.1	134.8	233.8	250.8
1949.....	47.1	56.6	212.2	176.8	98.4	208.8	174.0
1950.....	59.7	61.9	167.5	161.5	116.1	194.5	187.5
1951.....	61.1	61.5	163.7	162.5	120.0	196.4	195.0
1952.....	61.3	65.2	163.2	153.5	104.9	171.2	161.0
1953.....	68.4	70.5	146.2	141.8	102.7	150.1	145.6
1954.....	75.3	81.9	132.8	122.0	88.0	116.9	107.4
1955.....	93.6	88.2	106.9	113.3	104.9	112.1	118.9
1956.....	97.3	91.2	102.8	109.7	113.5	116.7	124.5
1957.....	96.3	93.3	103.8	107.2	112.1	116.4	120.2
1958.....	98.0	103.5	102.0	96.6	93.8	95.7	90.6
1959.....	107.1	105.5	93.4	94.8	94.1	87.9	89.2
1960.....	114.1	111.9	87.6	89.3	94.7	83.0	84.6
1961.....	126.3	123.6	79.2	80.9	91.7	72.6	74.2
1962.....	137.5	130.8	72.7	76.5	96.0	69.8	73.4
1963.....	150.1	135.7	66.6	73.7	104.2	69.4	76.8
1964.....	161.5	144.4	61.9	69.3	110.6	68.5	76.6
1965.....	176.5	154.2	56.7	64.8	116.3	65.9	75.4
1966[2]	188.2	162.9	53.1	61.4	121.2	64.4	74.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66	7.1	6.4	-6.7	-6.0	-0.7	-7.3	-6.7
1957-66	8.3	6.3	-7.6	-5.9	2.0	-5.7	-4.0

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 4. BITUMINOUS COAL AND LIGNITE MINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION WORKERS	RELATED DATA	
			OUTPUT[1]	NON-PRODUCTION WORKERS
1939.....	106.2	94.1	88.8	83.6
1947.....	134.4	74.4	141.8	105.5
1948.....	121.1	82.6	134.8	111.3
1949.....	89.4	111.9	98.4	110.1
1950.....	111.8	89.4	116.1	103.8
1951.....	117.5	85.1	120.0	102.1
1952.....	106.3	94.1	104.9	98.7
1953.....	115.8	86.4	102.7	88.7
1954.....	109.6	91.3	88.0	80.3
1955.....	132.8	75.3	104.9	79.0
1956.....	127.4	78.5	113.5	89.1
1957.....	112.6	88.8	112.1	99.6
1958.....	92.2	108.4	93.8	101.7
1959.....	95.7	104.5	94.1	98.3
1960.....	102.9	97.1	94.7	92.0
1961.....	115.5	86.6	91.7	79.4
1962.....	135.2	74.0	96.0	71.0
1963.....	162.1	61.7	104.2	64.3
1964.....	173.1	57.8	110.6	63.9
1965.....	178.6	56.0	116.3	65.1
1966[2].....	178.0	56.2	121.2	68.1
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	2.0	-2.0	-0.7	-2.6
1957-66	8.3	-7.7	2.0	-5.8

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 5. COAL MINING[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT	ALL EMPLOYEES
1939.....	45.1	221.9	98.9	219.5
1947.....	66.9	149.4	151.3	226.1
1948.....	62.9	159.1	144.7	230.2
1949.....	50.8	196.8	106.3	209.2
1950.....	63.1	158.4	123.9	196.2
1951.....	64.6	154.8	125.8	194.7
1952.....	64.9	154.1	111.7	172.1
1953.....	70.5	141.9	105.9	150.3
1954.....	78.1	128.0	91.7	117.4
1955.....	96.2	104.0	105.8	110.0
1956.....	100.5	99.5	114.8	114.2
1957.....	97.6	102.5	112.2	115.0
1958.....	97.4	102.7	93.9	96.4
1959.....	106.0	94.4	93.9	88.6
1960.....	115.8	86.4	96.2	83.1
1961.....	125.5	79.7	90.2	71.9
1962.....	138.8	72.1	93.8	67.6
1963.....	152.5	65.6	101.7	66.7
1964.....	163.1	61.3	106.8	65.5
1965.....	176.0	56.8	110.7	62.9
1966[2].....	186.5	53.6	114.3	61.3
	AVERAGE ANNUAL RATES (PERCENT			
1947-66	6.6	-6.2	-1.4	-7.5
1957-66	3.2	-7.6	1.3	-6.4

[1] Includes industries 11 and 12 in the Standard Industrial Classification.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 6. COAL MINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA.

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	41.9	48.6	238.9	205.9	98.9	236.3	203.6
1947.....	62.7	54.5	159.5	183.3	151.3	241.3	277.4
1948.....	58.9	54.5	169.7	183.4	144.7	245.5	265.4
1949.....	48.0	57.2	208.5	175.0	106.3	221.6	186.0
1950.....	59.7	61.6	167.6	162.2	123.9	207.7	201.0
1951.....	60.9	61.8	164.1	161.7	125.8	206.4	203.4
1952.....	61.6	65.2	162.2	153.4	111.7	181.2	171.3
1953.....	67.1	70.1	149.0	142.6	105.9	157.8	151.0
1954.....	75.7	81.9	132.1	122.0	91.7	121.1	111.9
1955.....	93.1	87.7	107.4	114.0	105.8	113.6	120.6
1956.....	97.9	91.9	102.2	108.8	114.8	117.3	124.9
1957.....	95.8	93.2	104.4	107.3	112.2	117.1	120.4
1958.....	98.3	103.4	101.7	96.7	93.9	95.5	90.8
1959.....	107.4	105.7	93.1	94.6	93.9	87.4	88.8
1960.....	117.6	114.9	85.0	87.0	96.2	81.8	83.7
1961.....	127.0	123.2	78.7	81.2	90.2	71.0	73.2
1962.....	139.2	130.8	71.9	76.4	93.8	67.4	71.7
1963.....	151.6	135.6	66.0	73.7	101.7	67.1	75.0
1964.....	161.8	144.1	61.8	69.4	106.8	66.0	74.1
1965.....	176.0	152.9	56.8	65.4	110.7	62.9	72.4
1966[3].....	187.7	161.7	53.3	61.9	114.3	60.9	70.7
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66.....	7.1	6.3	-6.6	-5.9	-1.4	-7.9	-7.2
1957-66.....	8.2	6.1	-7.6	-5.8	1.3	-6.4	-4.5

[1] Includes industries 11 and 12 in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 7. COAL MINING[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION WORKERS	RELATED DATA	
			OUTPUT[2]	NON-PRODUCTION WORKERS
1939.....	102.8	97.3	98.9	96.2
1947.....	131.8	75.9	151.3	114.8
1948.....	122.8	81.4	144.7	117.8
1949.....	90.2	110.8	106.3	117.8
1950.....	110.5	90.5	123.9	112.1
1951.....	115.3	86.7	125.8	109.1
1952.....	106.1	94.3	111.7	105.3
1953.....	110.9	90.2	105.9	95.5
1954.....	102.6	97.5	91.7	89.4
1955.....	126.4	79.1	105.8	83.7
1956.....	125.7	79.5	114.8	91.3
1957.....	112.7	88.8	112.2	99.6
1958.....	91.8	108.9	93.9	102.3
1959.....	96.1	104.0	93.9	97.7
1960.....	104.6	95.6	96.2	92.0
1961.....	115.6	86.5	90.2	78.0
1962.....	136.1	73.5	93.8	68.9
1963.....	159.9	62.5	101.7	63.6
1964.....	173.1	57.8	106.8	61.7
1965.....	178.3	56.1	110.7	62.1
1966[3].....	177.5	56.3	114.3	64.4
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	2.1	-2.0	-1.4	-3.4
1957-66	8.3	-7.6	1.3	-6.4

[1] Includes industries 11 and 12 in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 8. COPPER MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT[1]	ALL EMPLOYEES
1939.....	(2)	(2)	46.1	(2)
1947.....	74.9	133.5	74.4	99.3
1948.....	72.9	137.1	71.9	98.6
1949.....	69.2	144.5	64.7	93.5
1950.....	86.6	115.5	80.6	93.1
1951.....	87.2	114.7	81.5	93.5
1952.....	89.3	111.9	85.5	95.7
1953.....	83.8	119.3	86.6	103.3
1954.....	79.8	125.2	80.4	100.7
1955.....	92.7	107.9	96.7	104.3
1956.....	94.3	106.1	113.4	120.3
1957.....	95.7	104.5	111.7	116.7
1958.....	98.9	101.1	98.9	100.0
1959.....	106.8	93.6	89.4	83.7
1960.....	116.2	86.1	117.0	100.7
1961.....	121.5	82.3	124.2	102.2
1962.....	131.6	76.0	131.1	99.6
1963.....	133.6	74.8	128.3	96.0
1964.....	145.0	69.0	136.0	93.8
1965.....	146.0	68.5	151.8	104.0
1966[3].....	149.2	67.0	163.8	109.8
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	4.1	-3.9	4.3	0.2
1957-66	5.4	-5.2	5.5	0.1

[1] Represents output in terms of copper ore (including old tailings) sold or treated.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 9. COPPER MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	40.5	39.3	247.1	254.4	46.1	113.9	117.3
1947.....	68.2	61.8	146.6	161.7	74.4	109.1	120.3
1948.....	66.2	59.5	151.0	168.2	71.9	108.6	120.9
1949.....	63.5	61.0	157.5	163.8	64.7	101.9	106.0
1950.....	80.6	72.9	124.1	137.2	80.6	100.0	110.6
1951.....	82.3	72.5	121.5	137.9	81.5	99.0	112.4
1952.....	85.5	76.1	117.0	131.3	85.5	100.0	112.3
1953.....	81.2	72.0	123.2	138.9	86.6	106.7	120.3
1954.....	78.1	74.7	128.0	134.0	80.4	102.9	107.7
1955.....	91.1	84.0	109.8	119.0	96.7	106.2	115.1
1956.....	91.5	85.4	109.3	117.1	113.4	123.9	132.8
1957.....	94.1	93.6	106.3	106.9	111.7	118.7	119.4
1958.....	98.9	103.3	101.1	96.8	98.9	100.0	95.7
1959.....	109.3	105.3	91.5	95.0	89.4	81.8	84.9
1960.....	116.4	107.9	85.9	92.6	117.0	100.5	108.4
1961.....	116.9	110.4	85.5	90.6	124.2	106.2	112.5
1962.....	125.1	120.3	79.9	83.1	131.1	104.8	109.0
1963.....	125.3	119.7	79.8	83.6	128.3	102.4	107.2
1964.....	136.7	131.1	73.2	76.3	136.0	99.5	103.7
1965.....	136.1	129.1	73.5	77.5	151.8	111.5	117.6
1966[2].....	139.2	131.7	71.9	75.9	163.8	117.7	124.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66.....	4.2	4.6	-4.0	-4.4	4.3	0.1	-0.3
1957-66.....	4.4	3.8	-4.2	-3.6	5.5	1.0	1.7

[1] Represents output in terms of copper ore (including old tailings) sold or treated. The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 10. COPPER MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION	RELATED DATA	
			OUTPUT[1]	NON-PRODUCTION WORKERS
1939.....	(2)	(2)	46.1	(2)
1947.....	108.3	92.3	74.4	68.7
1948.....	107.0	93.5	71.9	67.2
1949.....	96.3	103.9	64.7	67.2
1950.....	112.6	88.8	80.6	71.6
1951.....	107.1	93.4	81.5	76.1
1952.....	104.1	96.0	85.5	82.1
1953.....	93.6	106.8	86.6	92.5
1954.....	84.2	118.8	80.4	95.5
1955.....	98.2	101.9	96.7	98.5
1956.....	104.0	96.1	113.4	109.0
1957.....	101.2	98.8	111.7	110.4
1958.....	98.9	101.1	98.9	100.0
1959.....	99.8	100.2	89.4	89.6
1960.....	115.3	86.8	117.0	101.5
1961.....	138.6	72.1	124.2	89.6
1962.....	156.8	63.8	131.1	83.6
1963.....	168.6	59.3	128.3	76.1
1964.....	178.7	56.0	136.0	76.1
1965.....	186.3	53.1	151.8	80.6
1966[3].....	192.5	52.0	163.8	85.1
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	3.4	-3.3	4.3	0.9
1957-66	9.2	-8.4	5.5	-3.3

[1] Represents output in terms of copper ore (including old tailings) sold or treated. The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 11. COPPER MINING, RECOVERABLE METAL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT[1]	ALL EMPLOYEES
1939.....	(2)	(2)	74.1	(2)
1947.....	87.9	113.7	87.3	99.3
1948.....	87.1	114.8	85.9	98.6
1949.....	82.1	121.7	76.8	93.5
1950.....	100.1	99.9	93.2	93.1
1951.....	101.6	98.4	95.0	93.5
1952.....	99.4	100.6	95.1	95.7
1953.....	92.6	107.9	95.7	103.3
1954.....	85.7	116.7	86.3	100.7
1955.....	99.3	100.7	103.6	104.3
1956.....	95.3	105.0	114.6	120.3
1957.....	96.4	103.7	112.5	116.7
1958.....	101.8	98.2	101.8	100.0
1959.....	102.3	97.8	85.6	83.7
1960.....	111.5	89.7	112.3	100.7
1961.....	118.6	84.3	121.2	102.2
1962.....	128.2	78.0	127.7	99.6
1963.....	131.3	76.2	126.0	96.0
1964.....	138.4	72.3	129.8	93.8
1965.....	135.3	73.9	140.7	104.0
1966[3].....	135.6	73.7	148.9	109.8
	AVERAGE ANNUAL RATES (PERCENT			
1947-66	2.5	-2.5	2.8	0.2
1957-66	4.4	-4.2	4.5	0.1

[1] Represents output in terms of copper recovered from copper ore, old tailings, and precipitates.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 12. COPPER MINING, RECOVERABLE METAL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	65.1	63.2	153.7	158.3	74.1	113.9	117.3
1947.....	80.0	72.6	125.0	137.8	87.3	109.1	120.3
1948.....	79.1	71.1	126.4	140.7	85.9	108.6	120.9
1949.....	75.4	72.5	132.7	138.0	76.8	101.9	106.0
1950.....	93.2	84.3	107.3	118.7	93.2	100.0	110.6
1951.....	96.0	84.5	104.2	118.3	95.0	99.0	112.4
1952.....	95.1	84.7	105.2	118.1	95.1	100.0	112.3
1953.....	89.7	79.6	111.5	125.7	95.7	106.7	120.3
1954.....	83.9	80.1	119.2	124.8	86.3	102.9	107.7
1955.....	97.6	90.0	102.5	111.1	103.6	106.2	115.1
1956.....	92.5	86.3	108.1	115.9	114.6	123.9	132.8
1957.....	94.8	94.2	105.5	106.1	112.5	118.7	119.4
1958.....	101.8	106.4	98.2	94.0	101.8	100.0	95.7
1959.....	104.6	100.8	95.6	99.2	85.6	81.8	84.9
1960.....	111.7	103.6	89.5	96.5	112.3	100.5	108.4
1961.....	114.1	107.7	87.6	92.8	121.2	106.2	112.5
1962.....	121.9	117.2	82.1	85.4	127.7	104.8	109.0
1963.....	123.0	117.5	81.3	85.1	126.0	102.4	107.2
1964.....	130.5	125.2	76.7	79.9	129.8	99.5	103.7
1965.....	126.2	119.6	79.2	83.6	140.7	111.5	117.6
1966[2]	126.5	119.7	79.0	83.5	148.9	117.7	124.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66.....	2.7	3.1	-2.6	-3.0	2.8	0.1	-0.3
1957-66.....	3.4	2.8	-3.3	-2.7	4.5	1.0	1.7

[1] Represents output in terms of copper recovered from copper ore, old tailings, and precipitates. The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 13. COPPER MINING, RECOVERABLE METAL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION WORKERS	RELATED DATA	
			OUTPUT[1]	NON-PRODUCTION WORKERS
1939.....	(2)	(2)	74.1	(2)
1947.....	127.1	78.7	87.3	68.7
1948.....	127.8	78.2	85.9	67.2
1949.....	114.3	87.5	76.8	67.2
1950.....	130.2	76.8	93.2	71.6
1951.....	124.8	30.1	95.0	76.1
1952.....	115.8	86.3	95.1	82.1
1953.....	103.5	96.7	95.7	92.5
1954.....	90.4	110.7	86.3	95.5
1955.....	105.2	95.1	103.6	98.5
1956.....	105.1	95.1	114.6	109.0
1957.....	101.9	98.1	112.5	110.4
1958.....	101.8	98.2	101.8	100.0
1959.....	95.5	104.7	85.6	89.6
1960.....	110.6	90.4	112.3	101.5
1961.....	135.3	73.9	121.2	89.6
1962.....	152.8	65.5	127.7	83.6
1963.....	165.6	60.4	126.0	76.1
1964.....	170.6	58.6	129.8	76.1
1965.....	174.6	57.3	140.7	80.6
1966[3]	175.0	57.2	148.9	85.1
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66	1.9	-1.8	2.8	0.9
1957-66	8.1	-7.5	4.5	-3.3

[1] Represents output in terms of copper recovered from copper ore, old tailings, and precipitates. The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 14. GAS AND ELECTRIC UTILITIES[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	26.7	27.6	374.5	362.2	19.6	73.4	71.0
1947.....	46.8	45.8	213.5	218.5	37.8	80.7	82.6
1948.....	49.1	48.1	203.8	208.1	42.0	85.6	87.4
1949.....	49.8	49.2	200.7	203.4	44.1	88.5	89.7
1950.....	55.6	54.6	179.7	183.1	50.3	90.4	92.1
1951.....	62.2	60.6	160.9	164.9	57.0	91.7	94.0
1952.....	65.8	64.7	151.9	154.6	61.5	93.4	95.1
1953.....	70.3	69.3	142.2	144.3	66.8	95.0	96.4
1954.....	74.7	74.0	133.8	135.2	71.6	95.8	96.8
1955.....	83.4	82.5	119.9	121.2	80.6	96.6	97.7
1956.....	90.3	89.4	110.7	111.8	88.7	98.2	99.2
1957.....	94.1	93.7	106.3	106.7	94.1	100.0	100.4
1958.....	98.2	98.6	101.8	101.4	98.2	100.0	99.6
1959.....	107.7	107.6	92.9	92.9	107.7	100.0	100.1
1960.....	114.8	114.7	87.1	87.2	114.9	100.1	100.2
1961.....	121.2	121.4	82.5	82.4	120.7	99.6	99.4
1962.....	131.3	130.8	76.2	76.5	129.6	98.7	99.1
1963.....	139.9	139.0	71.5	71.9	137.9	98.6	99.2
1964.....	149.8	149.1	66.7	67.1	148.5	99.1	99.6
1965[2].....	157.7	156.0	63.4	64.1	158.0	100.2	101.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	7.2	7.3	-6.7	-6.8	8.2	0.9	0.8
1957-65....	6.9	6.8	-6.4	-6.3	6.8	-0.1	0.0

[1] Includes industries 491, 492, and 493 in the Standard Industrial Classification.
[2] Preliminary.

Source: Output based on data from the American Gas Association, Federal Power Commission, Rural Electrification Administration of U.S. Department of Agriculture, and Bureau of Labor Statistics, U.S. Department of Labor. Employment and hours based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 15. GAS AND ELECTRIC UTILITIES[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS[2]	OUTPUT[3]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS[2]
1939.....	(4)	(4)	(4)	(4)	19.6	(4)	(4)
1947.....	44.1	43.1	227.0	232.0	37.8	85.8	87.7
1948.....	46.4	45.5	215.5	219.8	42.0	90.5	92.3
1949.....	47.4	46.8	211.1	213.8	44.1	93.1	94.3
1950.....	53.2	52.3	187.9	191.3	50.3	94.5	96.2
1951.....	59.6	58.1	167.7	172.1	57.0	95.6	98.1
1952.....	63.3	62.2	158.0	160.8	61.5	97.2	98.9
1953.....	68.2	67.2	146.6	148.8	66.8	97.9	99.4
1954.....	73.2	72.5	136.6	138.0	71.6	97.8	98.8
1955.....	82.2	81.3	121.7	123.0	80.6	98.1	99.1
1956.....	89.5	88.5	111.7	113.0	88.7	99.1	100.2
1957.....	93.6	93.3	106.8	107.2	94.1	100.5	100.9
1958.....	98.2	98.6	101.8	101.4	98.2	100.0	99.6
1959.....	108.2	108.1	92.4	92.5	107.7	99.5	99.6
1960.....	115.8	115.7	86.3	86.4	114.9	99.2	99.3
1961.....	122.8	123.0	81.4	81.3	120.7	98.3	98.1
1962.....	133.6	133.1	74.8	75.2	129.6	97.0	97.4
1963.....	143.2	142.5	69.8	70.2	137.9	96.3	96.8
1964.....	154.0	153.3	64.9	65.3	148.5	96.4	96.9
1965[5].....	162.2	160.4	61.6	62.3	158.0	97.4	98.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	7.8	7.9	-7.2	-7.3	8.2	0.4	0.3
1957-65....	7.3	7.2	-6.8	-6.7	6.8	-0.5	-0.4

[1] Includes industries 491, 492, and 493 in the Standard Industrial Classification.
[2] Represents nonsupervisory workers.
[3] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[4] Not available.
[5] Preliminary.

Source: Output based on data from the American Gas Association, Federal Power Commission, Rural Electrification Administration of U.S. Department of Agriculture, and Bureau of Labor Statistics, U.S. Department of Labor. Employment and hours based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 16. IRON MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT	ALL EMPLOYEES
1939.....	(1)	(1)	48.7	(1)
1947.....	88.3	113.3	93.9	106.4
1948.....	91.4	109.5	103.6	113.4
1949.....	82.0	121.9	85.7	104.5
1950.....	92.9	107.6	102.4	110.2
1951.....	105.5	94.8	123.3	116.9
1952.....	99.8	100.2	103.6	103.8
1953.....	101.4	98.7	126.0	124.3
1954.....	80.1	124.8	87.6	109.3
1955.....	108.3	92.4	114.1	105.4
1956.....	108.9	91.8	117.3	107.7
1957.....	107.8	92.8	129.1	119.8
1958.....	91.7	109.1	88.2	96.2
1959.....	98.3	101.7	82.6	84.0
1960.....	123.9	80.7	125.1	101.0
1961.....	135.2	74.0	110.6	81.8
1962.....	151.2	66.2	116.4	77.0
1963.....	168.6	59.3	124.4	73.8
1964.....	187.5	53.3	141.4	75.4
1965.....	183.0	54.7	144.9	79.2
1966[2].....	184.5	54.2	148.5	80.5
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66....	4.2	-4.0	1.8	-2.3
1957-66....	8.8	-8.1	4.6	-3.9

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 17. IRON MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	56.8	60.2	176.0	166.1	48.7	85.7	80.9
1947.....	74.8	70.4	133.8	142.0	93.9	125.6	133.3
1948.....	78.0	71.5	128.2	139.8	103.6	132.8	144.8
1949.....	71.6	68.3	139.7	146.4	85.7	119.7	125.5
1950.....	81.5	75.5	122.7	132.5	102.4	125.6	135.7
1951.....	92.8	82.9	107.7	120.6	123.3	132.8	148.7
1952.....	90.3	78.1	110.7	128.1	103.6	114.7	132.7
1953.....	91.4	81.7	109.4	122.5	126.0	137.8	154.3
1954.....	73.9	74.1	135.3	134.9	87.6	118.5	118.2
1955.....	101.3	95.5	98.7	104.7	114.1	112.6	119.5
1956.....	104.5	99.5	95.7	100.5	117.3	112.2	117.9
1957.....	104.5	100.5	95.7	99.5	129.1	123.5	128.5
1958.....	93.3	98.0	107.1	102.0	88.2	94.5	90.0
1959.....	100.9	101.3	99.2	98.7	82.6	81.9	81.5
1960.....	121.0	114.6	82.7	87.3	125.1	103.4	109.2
1961.....	135.7	132.5	73.7	75.5	110.6	81.5	83.5
1962.....	150.6	142.3	66.4	70.3	116.4	77.3	81.8
1963.....	163.5	157.3	61.2	63.6	124.4	76.1	79.1
1964.....	180.8	169.1	55.3	59.1	141.4	78.2	83.6
1965.....	176.9	162.6	56.5	61.5	144.9	81.9	89.1
1966[2].....	180.2	161.1	55.5	62.1	148.5	82.4	92.2
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	5.1	5.2	-4.8	-5.0	1.8	-3.1	-3.3
1957-66....	8.4	7.1	-7.7	-6.7	4.6	-3.5	-2.3

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 18. IRON MINING, CRUDE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION WORKERS	RELATED DATA: OUTPUT[1]	RELATED DATA: NON-PRODUCTION WORKERS
1939.....	(2)	(2)	48.7	(2)
1947.....	207.3	48.2	93.9	45.3
1948.....	199.2	50.2	103.6	52.0
1949.....	153.0	65.3	85.7	56.0
1950.....	167.0	59.9	102.4	61.3
1951.....	184.9	54.1	123.3	66.7
1952.....	149.5	66.9	103.6	69.3
1953.....	155.0	64.5	126.0	81.3
1954.....	109.5	91.3	87.6	80.0
1955.....	138.0	72.5	114.1	82.7
1956.....	125.7	79.5	117.3	93.3
1957.....	119.5	83.7	129.1	108.0
1958.....	87.1	114.9	88.2	101.3
1959.....	91.1	109.8	82.6	90.7
1960.....	134.1	74.6	125.1	93.3
1961.....	133.7	74.8	110.6	82.7
1962.....	153.2	65.3	116.4	76.0
1963.....	186.5	53.6	124.4	66.7
1964.....	212.0	47.2	141.4	66.7
1965.....	205.0	48.8	144.9	70.7
1966[3].....	198.8	50.3	148.5	74.7
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66....	0.0	0.0	1.8	1.8
1957-66....	10.1	-9.2	4.6	-5.0

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 19. IRON MINING, USABLE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER ALL EMPLOYEE	UNIT LABOR REQUIREMENTS IN TERMS OF ALL EMPLOYEES	RELATED DATA	
			OUTPUT	ALL EMPLOYEES
1939.....	(1)	(1)	66.7	(1)
1947.....	113.1	88.4	120.3	106.4
1948.....	115.3	86.7	130.8	113.4
1949.....	105.2	95.1	109.9	104.5
1950.....	115.2	86.8	127.0	110.2
1951.....	129.3	77.3	151.2	116.9
1952.....	122.4	81.7	127.1	103.8
1953.....	123.4	81.0	153.4	124.3
1954.....	92.5	108.1	101.1	109.3
1955.....	126.2	79.2	133.0	105.4
1956.....	116.8	85.6	125.8	107.7
1957.....	113.9	87.8	136.5	119.8
1958.....	89.9	111.2	86.5	96.2
1959.....	91.7	109.1	77.0	84.0
1960.....	113.2	88.4	114.3	101.0
1961.....	112.5	88.9	92.0	81.8
1962.....	120.8	82.8	93.0	77.0
1963.....	129.3	77.4	95.4	73.8
1964.....	145.5	68.7	109.7	75.4
1965.....	143.8	69.5	113.9	79.2
1966[2].....	146.3	68.3	117.8	80.5
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66....	0.9	-0.9	-1.4	-2.3
1957-66....	5.2	-4.9	1.1	-3.9

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 20. IRON MINING, USABLE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	77.8	82.4	128.5	121.3	66.7	85.7	80.9
1947.....	95.8	90.2	104.4	110.8	120.3	125.6	133.3
1948.....	98.5	90.3	101.5	110.7	130.8	132.8	144.8
1949.....	91.8	87.6	108.9	114.2	109.9	119.7	125.5
1950.....	101.1	93.6	98.9	106.9	127.0	125.6	135.7
1951.....	113.9	101.7	87.8	98.3	151.2	132.8	148.7
1952.....	110.8	95.8	90.2	104.4	127.1	114.7	132.7
1953.....	111.3	99.4	89.8	100.6	153.4	137.8	154.3
1954.....	85.3	85.5	117.2	116.9	101.1	118.5	118.2
1955.....	118.1	111.3	84.7	89.8	133.0	112.6	119.5
1956.....	112.1	106.7	89.2	93.7	125.8	112.2	117.9
1957.....	110.5	106.2	90.5	94.1	136.5	123.5	128.5
1958.....	91.5	96.1	109.2	104.0	86.5	94.5	90.0
1959.....	94.0	94.5	106.4	105.8	77.0	81.9	81.5
1960.....	110.5	104.7	90.5	95.5	114.3	103.4	109.2
1961.....	112.9	110.2	88.6	90.8	92.0	81.5	83.5
1962.....	120.3	113.7	83.1	88.0	93.0	77.3	81.8
1963.....	125.4	120.6	79.8	82.9	95.4	76.1	79.1
1964.....	140.3	131.2	71.3	76.2	109.7	78.2	83.6
1965.....	139.1	127.8	71.9	78.2	113.9	81.9	89.1
1966[2].....	143.0	127.8	69.9	78.3	117.8	82.4	92.2
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	1.7	1.9	-1.7	-1.8	-1.4	-3.1	-3.3
1957-66....	4.8	3.6	-4.6	-3.4	1.1	-3.5	-2.3

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 21. IRON MINING, USABLE ORE

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER NON-PRODUCTION WORKER	UNIT LABOR REQUIREMENTS IN TERMS OF NON-PRODUCTION WORKERS	RELATED DATA	
			OUTPUT[1]	NON-PRODUCTION WORKERS
1939.....	(2)	(2)	66.7	(2)
1947.....	265.6	37.7	120.3	45.3
1948.....	251.5	39.8	130.8	52.0
1949.....	196.3	51.0	109.9	56.0
1950.....	207.2	48.3	127.0	61.3
1951.....	226.7	44.1	151.2	66.7
1952.....	183.4	54.5	127.1	69.3
1953.....	188.7	53.0	153.4	81.3
1954.....	126.4	79.1	101.1	80.0
1955.....	160.8	62.2	133.0	82.7
1956.....	134.8	74.2	125.8	93.3
1957.....	126.4	79.1	136.5	108.0
1958.....	85.4	117.1	86.5	101.3
1959.....	84.9	117.8	77.0	90.7
1960.....	122.5	81.6	114.3	93.3
1961.....	111.2	89.9	92.0	82.7
1962.....	122.4	81.7	93.0	76.0
1963.....	143.0	69.9	95.4	66.7
1964.....	164.5	60.8	109.7	66.7
1965.....	161.1	62.1	113.9	70.7
1966[3].....	157.7	63.4	117.8	74.7
	AVERAGE ANNUAL RATES (PERCENT)			
1947-66....	-3.2	3.3	-1.4	1.8
1957-66....	6.4	-6.1	1.1	-5.0

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 22. RAILROAD TRANSPORTATION - TOTAL REVENUE TRAFFIC[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	54.5	48.4	183.3	206.7	60.0	110.0	124.0
1947.....	78.3	66.4	127.6	150.6	118.3	151.0	178.2
1948.....	77.0	65.3	129.9	153.2	114.2	148.3	174.9
1949.....	70.8	63.7	141.2	157.0	94.6	133.6	148.5
1950.....	75.5	72.8	132.4	137.4	103.5	137.0	142.2
1951.....	79.3	77.1	126.1	129.8	113.6	143.3	147.4
1952.....	78.5	77.2	127.4	129.5	108.3	138.0	140.2
1953.....	78.2	77.7	127.9	128.7	106.2	135.8	136.7
1954.....	80.4	80.9	124.4	123.6	96.5	120.0	119.3
1955.....	90.6	89.4	110.4	111.8	108.1	119.3	120.9
1956.....	94.7	93.7	105.6	106.7	111.8	118.1	119.3
1957.....	95.1	95.1	105.2	105.2	106.5	112.0	112.0
1958.....	99.7	99.9	100.3	100.1	95.1	95.4	95.2
1959.....	106.4	106.1	94.0	94.2	98.5	92.6	92.8
1960.....	110.1	110.4	90.8	90.6	97.7	88.7	88.5
1961.....	117.8	118.2	84.9	84.6	96.0	81.5	81.2
1962.....	126.5	125.9	79.0	79.4	100.6	79.5	79.9
1963.....	135.6	133.9	73.7	74.7	104.7	77.2	78.2
1964.....	146.4	142.5	68.3	70.2	110.4	75.4	77.5
1965.....	161.2	157.5	62.0	63.5	116.2	72.1	73.8
1966[2]	172.8	169.2	57.9	59.1	122.5	70.9	72.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	4.5	5.1	-4.3	-4.9	0.1	-4.3	-4.8
1957-66....	6.9	6.6	-6.5	-6.2	2.1	-4.5	-4.2

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 23. RAILROAD TRANSPORTATION - TOTAL REVENUE TRAFFIC[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	54.1	47.8	185.0	209.2	60.0	111.0	125.5
1947.....	76.6	64.4	130.6	155.3	118.3	154.5	183.7
1948.....	75.3	63.4	132.7	157.6	114.2	151.6	180.0
1949.....	69.7	62.4	143.4	160.3	94.6	135.7	151.6
1950.....	74.2	71.1	134.7	140.7	103.5	139.4	145.6
1951.....	77.6	75.1	128.8	133.1	113.6	146.3	151.2
1952.....	77.1	75.5	129.7	132.4	108.3	140.5	143.4
1953.....	76.9	76.1	130.0	131.5	106.2	138.1	139.6
1954.....	79.7	79.9	125.5	125.2	96.5	121.1	120.8
1955.....	89.7	88.3	111.5	113.2	108.1	120.5	122.4
1956.....	93.8	92.7	106.6	107.9	111.8	119.2	120.6
1957.....	94.5	94.4	105.8	105.9	106.5	112.7	112.8
1958.....	100.0	100.2	100.0	99.8	95.1	95.1	94.9
1959.....	106.8	106.6	93.6	93.8	98.5	92.2	92.4
1960.....	110.8	111.1	90.3	90.0	97.7	88.2	87.9
1961.....	119.0	119.7	84.1	83.5	96.0	80.7	80.2
1962.....	128.0	127.2	78.1	78.6	100.6	78.6	79.1
1963.....	137.2	135.3	72.9	73.9	104.7	76.3	77.4
1964.....	148.2	143.9	67.5	69.5	110.4	74.5	76.7
1965.....	163.7	159.8	61.1	62.6	116.2	71.0	72.7
1966[3].....	176.0	171.6	56.8	58.3	122.5	69.6	71.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	4.8	5.4	-4.6	-5.1	0.1	-4.6	-5.1
1957-66....	7.2	6.8	-6.7	-6.3	2.1	-4.7	-4.3

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 24. RAILROAD TRANSPORTATION - TOTAL REVENUE TRAFFIC[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS
1939.....	60.4	54.4	165.7	183.8	60.0	99.4	110.3
1947.....	102.8	92.9	97.3	107.6	118.3	115.1	127.3
1948.....	99.2	89.5	100.8	111.7	114.2	115.1	127.6
1949.....	83.6	79.0	119.6	126.5	94.6	113.1	119.7
1950.....	91.8	93.7	109.0	106.8	103.5	112.8	110.5
1951.....	100.4	101.8	99.6	98.2	113.6	113.2	111.6
1952.....	96.1	97.8	104.1	102.2	108.3	112.7	110.7
1953.....	94.6	96.4	105.7	103.8	106.2	112.3	110.2
1954.....	88.2	91.1	113.4	109.7	96.5	109.4	105.9
1955.....	100.8	100.9	99.2	99.1	108.1	107.2	107.1
1956.....	104.3	104.1	95.9	96.1	111.8	107.2	107.4
1957.....	101.5	101.5	98.5	98.5	106.5	104.9	104.9
1958.....	96.3	96.3	103.9	103.9	95.1	98.8	98.8
1959.....	102.4	102.3	97.7	97.8	98.5	96.2	96.3
1960.....	103.5	103.7	96.6	96.4	97.7	94.4	94.2
1961.....	106.2	106.8	94.2	93.6	96.0	90.4	89.9
1962.....	114.3	114.7	87.5	87.2	100.6	88.0	87.7
1963.....	121.5	122.0	82.3	81.9	104.7	86.2	85.8
1964.....	130.0	129.6	76.9	77.2	110.4	84.9	85.2
1965.....	139.0	138.8	71.9	72.0	116.2	83.6	83.7
1966[3].....	146.7	150.3	68.2	66.5	122.5	83.5	81.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	2.0	2.3	-2.0	-2.3	0.1	-2.0	-2.3
1957-66....	4.7	4.9	-4.5	-4.6	2.1	-2.5	-2.6

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 25. RAILROAD TRANSPORTATION - TOTAL CAR-MILES[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	71.5	63.4	139.9	157.8	78.6	110.0	124.0
1947.....	75.7	64.1	132.1	155.9	114.3	151.0	178.2
1948.....	75.4	63.9	132.6	156.4	111.8	148.3	174.9
1949.....	74.9	67.4	133.5	148.4	100.1	133.6	148.5
1950.....	76.9	74.1	130.1	135.0	105.3	137.0	142.2
1951.....	76.7	74.6	130.4	134.1	109.9	143.3	147.4
1952.....	78.1	76.9	128.0	130.1	107.8	138.0	140.2
1953.....	79.6	79.1	125.6	126.5	108.1	135.8	136.7
1954.....	84.2	84.7	118.8	118.1	101.0	120.0	119.3
1955.....	90.7	89.5	110.3	111.7	108.2	119.3	120.9
1956.....	92.5	91.5	108.2	109.2	109.2	118.1	119.3
1957.....	94.3	94.3	106.1	106.1	105.6	112.0	112.0
1958.....	101.2	101.4	98.9	98.7	96.5	95.4	95.2
1959.....	105.6	105.4	94.7	94.9	97.8	92.6	92.8
1960.....	108.2	108.5	92.4	92.2	96.0	88.7	88.5
1961.....	113.6	114.0	88.0	87.7	92.6	81.5	81.2
1962.....	118.5	117.9	84.4	84.8	94.2	79.5	79.9
1963.....	123.3	121.7	81.1	82.1	95.2	77.2	78.2
1964.....	129.2	125.7	77.4	79.6	97.4	75.4	77.5
1965.....	136.5	133.3	73.3	75.0	98.4	72.1	73.8
1966[2].....	142.9	139.9	70.0	71.5	101.3	70.9	72.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	3.7	4.3	-3.6	-4.1	-0.8	-4.3	-4.8
1957-66....	4.5	4.2	-4.3	-4.0	-0.2	-4.5	-4.2

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 26. RAILROAD TRANSPORTATION - TOTAL CAR-MILES[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	70.8	62.6	141.2	159.7	78.6	111.0	125.5
1947.....	74.0	62.2	135.2	160.7	114.3	154.5	183.7
1948.....	73.7	62.1	135.6	161.0	111.8	151.6	180.0
1949.....	73.8	66.0	135.6	151.4	100.1	135.7	151.6
1950.....	75.5	72.3	132.4	138.3	105.3	139.4	145.6
1951.....	75.1	72.7	133.1	137.6	109.9	146.3	151.2
1952.....	76.7	75.2	130.3	133.0	107.8	140.5	143.4
1953.....	78.3	77.4	127.8	129.1	108.1	138.1	139.6
1954.....	83.4	83.6	119.9	119.6	101.0	121.1	120.8
1955.....	89.8	88.4	111.4	113.1	108.2	120.5	122.4
1956.....	91.6	90.5	109.2	110.4	109.2	119.2	120.6
1957.....	93.7	93.6	106.7	106.8	105.6	112.7	112.8
1958.....	101.5	101.7	98.5	98.3	96.5	95.1	94.9
1959.....	106.1	105.8	94.3	94.5	97.8	92.2	92.4
1960.....	108.8	109.2	91.9	91.6	96.0	88.2	87.9
1961.....	114.7	115.5	87.1	86.6	92.6	80.7	80.2
1962.....	119.8	119.1	83.4	84.0	94.2	78.6	79.1
1963.....	124.8	123.0	80.1	81.3	95.2	76.3	77.4
1964.....	130.7	127.0	76.5	78.7	97.4	74.5	76.7
1965.....	138.6	135.4	72.2	73.9	98.4	71.0	72.7
1966[3]	145.5	141.9	68.7	70.5	101.3	69.6	71.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	3.9	4.5	-3.8	-4.3	-0.8	-4.6	-5.1
1957-66....	4.7	4.4	-4.5	-4.2	-0.2	-4.7	-4.3

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 27. RAILROAD TRANSPORTATION - TOTAL CAR-MILES[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS
1939.....	79.1	71.3	126.5	140.3	78.6	99.4	110.3
1947.....	99.3	89.8	100.7	111.4	114.3	115.1	127.3
1948.....	97.1	87.6	103.0	114.1	111.8	115.1	127.6
1949.....	88.5	83.6	113.0	119.6	100.1	113.1	119.7
1950.....	93.4	95.3	107.1	104.9	105.3	112.8	110.5
1951.....	97.1	98.5	103.0	101.5	109.9	113.2	111.6
1952.....	95.7	97.4	104.5	102.7	107.8	112.7	110.7
1953.....	96.3	98.1	103.9	101.9	108.1	112.3	110.2
1954.....	92.3	95.4	108.3	104.9	101.0	109.4	105.9
1955.....	100.9	101.0	99.1	99.0	108.2	107.2	107.1
1956.....	101.9	101.7	98.2	98.4	109.2	107.2	107.4
1957.....	100.7	100.7	99.3	99.3	105.6	104.9	104.9
1958.....	97.7	97.7	102.4	102.4	96.5	98.8	98.8
1959.....	101.7	101.6	98.4	98.5	97.8	96.2	96.3
1960.....	101.7	101.9	98.3	98.1	96.0	94.4	94.2
1961.....	102.4	103.0	97.6	97.1	92.6	90.4	89.9
1962.....	107.0	107.4	93.4	93.1	94.2	88.0	87.7
1963.....	110.4	111.0	90.5	90.1	95.2	86.2	85.8
1964.....	114.7	114.3	87.2	87.5	97.4	84.9	85.2
1965.....	117.7	117.6	85.0	85.1	98.4	83.6	83.7
1966[3].....	121.3	124.3	82.4	80.5	101.3	83.5	81.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	1.2	1.5	-1.2	-1.5	-0.8	-2.0	-2.3
1957-66....	2.4	2.5	-2.3	-2.4	-0.2	-2.5	-2.6

[1] Class I railroads and Class I switching and terminal companies. Includes industry 401, Class I in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Based on Interstate Commerce Commission data.

TABLE 28. ALUMINUM ROLLING AND DRAWING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, ALL EMPLOYEES, 1958-65

(INDEXES, 1958 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1958.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1959.....	110.2	107.9	90.7	92.7	130.2	118.1	120.7
1960.....	103.8	102.3	96.3	97.8	116.6	112.3	114.0
1961.....	114.7	112.4	87.2	88.9	127.4	111.1	113.3
1962.....	123.6	122.0	80.9	82.0	143.5	116.1	117.6
1963.....	137.4	135.4	72.8	73.9	159.1	115.8	117.5
1964.....	150.0	147.0	66.6	68.0	179.6	119.7	122.2
1965[1].....	170.9	164.9	58.5	60.6	210.4	123.1	127.6
	AVERAGE ANNUAL RATES (PERCENT)						
1959-65	8.3	8.1	-7.7	-7.5	9.4	1.1	1.2

[1] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and man-hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 29. ALUMINUM ROLLING AND DRAWING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1958-65

(INDEXES, 1958 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1958.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1959.....	107.0	104.4	93.5	95.8	130.2	121.7	124.7
1960.....	103.9	102.0	96.2	98.0	116.6	112.2	114.3
1961.....	114.0	111.3	87.8	89.9	127.4	111.8	114.5
1962.....	122.2	120.6	81.8	82.9	143.5	117.4	119.0
1963.....	135.6	133.4	73.7	75.0	159.1	117.3	119.3
1964.....	147.9	144.6	67.6	69.2	179.6	121.4	124.2
1965[2].....	163.1	161.1	59.5	62.1	210.4	125.2	130.6
	AVERAGE ANNUAL RATES (PERCENT)						
1959-65	8.3	8.1	-7.7	-7.5	9.4	1.0	1.2

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Preliminary.

Source: Output, employment, and man-hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 30. ALUMINUM ROLLING AND DRAWING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1958-65

(INDEXES, 1958 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1958.....	100.0	(100.0)	100.0	(100.0)	100.0	100.0	(100.0)
1959.....	123.2	(123.3)	81.2	(81.1)	130.2	105.7	(105.6)
1960.....	103.6	(103.6)	96.6	(96.6)	116.6	112.6	(112.6)
1961.....	116.9	(117.1)	85.6	(85.4)	127.4	109.0	(108.8)
1962.....	128.7	(128.2)	77.7	(78.0)	143.5	111.5	(111.9)
1963.....	144.2	(143.7)	69.3	(69.6)	159.1	110.3	(110.7)
1964.....	157.8	(156.7)	63.4	(63.8)	179.6	113.8	(114.6)
1965[3].....	181.8	(181.2)	55.0	(55.2)	210.4	115.7	(116.1)
	AVERAGE ANNUAL RATES (PERCENT)						
1959-65	8.3	(8.1)	-7.6	(-7.5)	9.4	1.1	(1.2)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method of estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and man-hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 31. BEET SUGAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	72.6	(1)	(1)
1947.....	59.3	60.2	168.7	166.1	77.2	130.2	128.2
1948.....	(1)	(1)	(1)	(1)	57.5	(1)	(1)
1949.....	60.4	66.9	165.4	149.5	65.1	107.7	97.3
1950.....	67.1	73.7	149.0	135.6	82.3	122.6	111.6
1951.....	57.8	63.5	172.9	157.5	65.0	112.4	102.4
1952.....	60.7	65.9	164.7	151.8	62.3	102.6	94.6
1953.....	69.0	72.7	145.0	137.5	75.1	108.9	103.3
1954.....	76.4	81.6	131.0	122.5	81.7	107.0	100.1
1955.....	(1)	(1)	(1)	(1)	74.6	(1)	(1)
1956.....	(1)	(1)	(1)	(1)	85.1	(1)	(1)
1957.....	(1)	(1)	(1)	(1)	95.0	(1)	(1)
1958.....	99.9	98.1	100.1	101.9	100.1	100.2	102.0
1959.....	102.5	103.7	97.5	96.5	104.9	102.3	101.2
1960.....	109.7	109.1	91.2	91.7	109.0	99.4	99.9
1961.....	101.6	105.0	98.4	95.2	109.0	107.3	103.8
1962.....	108.2	113.6	92.4	88.0	114.9	106.2	101.1
1963.....	122.0	130.0	82.0	76.9	133.8	109.7	102.9
1964.....	122.8	126.9	81.4	78.8	143.8	117.1	113.3
1965[2].....	111.2	124.1	89.9	80.6	132.7	119.3	106.9
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.8	4.6	-4.5	-4.4	4.6	-0.3	-0.2
1957-65	(1)	(1)	(1)	(1)	5.1	(1)	(1)

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Commodity Stabilization Service, U.S. Department of Agriculture, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 32. BEET SUGAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	64.1	65.8	155.9	152.1	72.6	113.2	110.4
1947.....	60.0	61.2	166.6	163.5	77.2	128.6	126.2
1948.....	(2)	(2)	(2)	(2)	57.5	(2)	(2)
1949.....	60.3	67.7	165.9	147.6	65.1	108.0	96.1
1950.....	67.7	75.4	147.6	132.7	82.3	121.5	109.2
1951.....	58.8	65.3	170.0	153.2	65.0	110.5	99.6
1952.....	63.8	69.8	156.7	143.2	62.3	97.6	89.2
1953.....	70.6	74.8	141.7	133.7	75.1	106.4	100.4
1954.....	78.4	84.3	127.5	118.6	81.7	104.2	96.9
1955.....	(2)	(2)	(2)	(2)	74.6	(2)	(2)
1956.....	(2)	(2)	(2)	(2)	85.1	(2)	(2)
1957.....	(2)	(2)	(2)	(2)	95.0	(2)	(2)
1958.....	100.2	98.1	99.8	101.9	100.1	99.9	102.0
1959.....	102.6	103.9	97.4	96.3	104.9	102.2	101.0
1960.....	109.3	108.7	91.5	92.0	109.0	99.7	100.3
1961.....	101.4	105.0	98.6	95.2	109.0	107.5	103.8
1962.....	107.3	113.1	93.2	88.4	114.9	107.1	101.6
1963.....	120.0	128.7	83.3	77.7	133.8	111.5	104.0
1964.....	121.0	125.5	82.6	79.7	143.8	118.8	114.6
1965[3].....	109.5	123.4	91.3	81.0	132.7	121.2	107.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	4.6	4.3	-4.4	-4.2	4.6	-0.1	0.1
1957-65....	(2)	(2)	(2)	(2)	5.1	(2)	(2)

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Commodity Stabilization Service, U.S. Department of Agriculture, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 33. BEET SUGAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	72.6	(3)	(3)
1947.....	54.4	(53.3)	183.7	(187.6)	77.2	141.8	(144.8)
1948.....	(3)	(3)	(3)	(3)	57.5	(3)	(3)
1949.....	61.5	(60.7)	162.5	(164.7)	65.1	105.8	(107.2)
1950.....	62.9	(62.3)	158.9	(160.5)	82.3	130.8	(132.1)
1951.....	51.8	(51.1)	193.2	(195.5)	65.0	125.6	(127.1)
1952.....	44.9	(44.3)	222.8	(225.8)	62.3	138.8	(140.7)
1953.....	59.1	(58.8)	169.1	(170.2)	75.1	127.0	(127.8)
1954.....	64.5	(64.2)	155.0	(155.7)	81.7	126.6	(127.2)
1955.....	(3)	(3)	(3)	(3)	74.6	(3)	(3)
1956.....	(3)	(3)	(3)	(3)	85.1	(3)	(3)
1957.....	(3)	(3)	(3)	(3)	95.0	(3)	(3)
1958.....	97.5	(97.5)	102.6	(102.6)	100.1	102.7	(102.7)
1959.....	101.5	(101.5)	98.5	(98.5)	104.9	103.3	(103.3)
1960.....	111.9	(113.1)	89.4	(88.4)	109.0	97.4	(96.4)
1961.....	102.8	(105.4)	97.2	(94.9)	109.0	106.0	(103.4)
1962.....	115.0	(118.7)	86.9	(84.2)	114.9	99.9	(96.8)
1963.....	138.8	(143.3)	72.0	(69.8)	133.8	96.4	(93.4)
1964.....	136.8	(140.7)	73.1	(71.1)	143.8	105.1	(102.2)
1965[4].....	126.0	(130.2)	79.4	(76.8)	132.7	105.3	(101.9)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	6.3	(6.6)	-5.9	(-6.2)	4.6	-1.8	(-2.1)
1957-65....	(3)	(3)	(3)	(3)	5.1	(3)	(3)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Commodity Stabilization Service, U.S. Department of Agriculture, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 34. CANDY AND OTHER CONFECTIONERY PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	58.0	(1)	(1)
1947.....	77.5	75.1	129.0	133.2	88.6	114.3	118.0
1948.....	(1)	(1)	(1)	(1)	88.6	(1)	(1)
1949.....	73.7	71.9	135.6	139.0	85.3	115.7	118.6
1950.....	71.8	70.6	139.3	141.7	88.5	123.3	125.4
1951.....	84.2	81.3	118.8	123.0	85.8	101.9	105.5
1952.....	84.1	80.3	118.9	124.5	88.5	105.2	110.2
1953.....	86.1	85.1	116.2	117.5	88.9	103.3	104.5
1954.....	85.3	85.1	117.2	117.5	86.7	101.6	101.9
1955.....	87.6	87.9	114.1	113.9	90.8	103.6	103.4
1956.....	89.4	89.6	111.8	112.8	93.7	104.8	105.7
1957.....	96.0	96.3	104.2	103.9	97.6	101.7	101.4
1958.....	99.9	100.7	100.1	99.3	100.4	100.5	99.7
1959.....	104.3	103.1	95.9	97.0	102.0	97.8	98.9
1960.....	109.0	107.9	91.7	92.7	106.3	97.5	98.5
1961.....	108.6	107.4	92.1	93.1	107.4	98.9	100.0
1962.....	110.6	109.3	90.4	91.5	109.8	99.3	100.5
1963.....	119.6	120.8	83.6	82.8	115.1	96.2	95.3
1964.....	121.6	123.2	82.2	81.2	120.5	99.1	97.8
1965[2].....	127.0	128.0	78.8	78.1	125.2	98.6	97.8
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.2	3.4	-3.1	-3.3	2.1	-1.0	-1.2
1957-65	3.4	3.5	-3.3	-3.4	3.1	-0.3	-0.4

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Business and Defense Services Administration and the Bureau of the Census, both of the U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 35. CANDY AND OTHER CONFECTIONERY PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	61.9	62.7	161.6	159.5	58.0	93.7	92.5
1947.....	72.5	70.1	137.9	142.7	88.6	122.2	126.4
1948.....	(2)	(2)	(2)	(2)	88.6	(2)	(2)
1949.....	71.9	70.0	139.0	142.8	85.3	118.6	121.8
1950.....	73.0	71.7	136.9	139.5	88.5	121.2	123.5
1951.....	82.9	79.7	120.6	125.5	85.8	103.5	107.7
1952.....	84.4	79.9	118.5	125.2	88.5	104.9	110.8
1953.....	83.2	82.2	120.1	121.7	88.9	106.8	108.2
1954.....	83.4	83.0	120.0	120.4	86.7	104.0	104.4
1955.....	87.8	88.0	113.9	113.7	90.8	103.4	103.2
1956.....	91.1	90.3	109.7	110.8	93.7	102.8	103.8
1957.....	97.3	97.7	102.8	102.4	97.6	100.3	99.9
1958.....	98.7	99.7	101.3	100.3	100.4	101.7	100.7
1959.....	104.1	102.6	96.1	97.5	102.0	98.0	99.4
1960.....	109.2	107.6	91.5	92.9	106.3	97.3	98.8
1961.....	108.5	106.4	92.2	93.9	107.4	99.0	100.9
1962.....	110.8	108.4	90.3	92.3	109.8	99.1	101.3
1963.....	116.6	117.1	85.8	85.4	115.1	98.7	98.3
1964.....	113.1	119.3	84.6	83.8	120.5	102.0	101.0
1965[3].....	122.4	122.9	81.7	81.4	125.2	102.3	101.9
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.2	3.4	-3.1	-3.3	2.1	-1.0	-1.2
1957-65	2.9	2.9	-2.8	-2.8	3.1	0.2	0.2

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Business and Defense Services Administration and the Bureau of the Census, both of the U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 36. CANDY AND OTHER CONFECTIONERY PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	58.0	(3)	(3)
1947.....	109.4	(107.0)	91.4	(93.5)	88.6	81.0	(82.8)
1948.....	(3)	(3)	(3)	(3)	88.6	(3)	(3)
1949.....	82 2	(81.1)	121.7	(123.3)	85.3	103.8	(105.2)
1950.....	66.9	(66.2)	149.4	(151.0)	88.5	132.2	(133.6)
1951.....	90.5	(89.4)	110.5	(111.9)	85.8	94.8	(96.0)
1952.....	83.2	(82.0)	120.2	(121.9)	88.5	106.4	(107.9)
1953.....	100.5	(99.8)	99.6	(100.2)	88.9	88.5	(89.1)
1954.....	95.0	(94.7)	105.3	(105.7)	86.7	91.3	(91.6)
1955.....	87.1	(87.2)	114.8	(114.6)	90.8	104.2	(104.1)
1956.....	82.6	(82.4)	121.0	(121.3)	93.7	113.4	(113.7)
1957.....	90.6	(90.5)	110.3	(110.5)	97.6	107.7	(107.8)
1958.....	105.1	(105.1)	95.1	(95.1)	100.4	95.5	(95.5)
1959.....	105.3	(105.4)	95.0	(94.9)	102.0	96.9	(96.8)
1960.....	107.9	(109.1)	92.7	(91.6)	106.3	98.5	(97.4)
1961.....	108.9	(111.8)	91.8	(89.5)	107.4	98.6	(96.1)
1962.....	109.7	(113.3)	91.2	(88.3)	109.8	100.1	(96.9)
1963.....	134.5	(139.2)	74.4	(71.9)	115.1	85.6	(82.7)
1964.....	138.5	(142.8)	72.2	(70.0)	120.5	87.0	(84.4)
1965[4]	150.3	(155.5)	66.5	(64.3)	125.2	83.3	(80.5)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	2.9	(3.2)	-2.8	(-3.1)	2.1	-0.7	(-1.0)
1957-65	5.8	(6.3)	-5.4	(-5.9)	3.1	-2.5	(-3.1)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

TABLE 37. CANNING AND PRESERVING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	43.9	(1)	(1)
1947.....	66.3	65.3	150.9	153.1	70.1	105.8	107.3
1948.....	65.2	66.3	153.4	150.8	69.3	106.3	104.5
1949.....	70.8	71.5	141.3	139.8	71.6	101.2	100.1
1950.....	78.7	78.8	127.0	126.9	76.6	97.3	97.2
1951.....	83.7	82.0	119.5	122.0	87.0	104.0	106.1
1952.....	82.2	81.5	121.7	122.7	83.6	101.7	102.6
1953.....	82.6	82.7	121.1	121.0	87.7	106.2	106.1
1954.....	88.1	88.9	113.5	112.5	88.6	100.6	99.7
1955.....	91.0	92.2	109.8	108.4	92.5	101.6	100.3
1956.....	99.2	98.3	100.8	101.7	103.4	104.2	105.2
1957.....	99.5	99.7	100.5	100.3	99.1	99.6	99.4
1958.....	98.9	98.1	101.1	101.9	97.6	98.7	99.5
1959.....	101.7	102.3	98.4	97.8	103.4	101.7	101.1
1960.....	108.1	108.3	92.5	92.3	109.6	101.4	101.2
1961.....	114.0	115.7	87.7	86.4	117.2	102.8	101.3
1962.....	117.0	116.8	85.4	85.6	122.9	105.0	105.2
1963.....	117.3	117.2	85.2	85.3	121.2	103.3	103.4
1964.....	124.7	123.8	80.2	80.8	129.6	103.9	104.7
1965[2].....	131.0	129.1	76.3	77.5	139.8	106.7	108.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.7	3.7	-3.6	-3.6	3.8	0.0	0.1
1957-65	3.7	3.5	-3.5	-3.4	4.5	0.8	1.0

[1] Not available.
[2] Preliminary.

Source: Output based on data from National Canners Association, U.S. Department of the Interior, U.S. Department of Agriculture, and U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 38. CANNING AND PRESERVING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	52.8	55.8	189.3	179.3	43.9	83.1	78.7
1947.....	62.9	61.9	158.9	161.6	70.1	111.4	113.3
1948.....	62.4	63.5	160.3	157.4	69.3	111.1	109.1
1949.....	68.3	68.9	146.5	145.1	71.6	104.9	103.9
1950.....	76.2	76.1	131.2	131.3	76.6	100.5	100.6
1951.....	80.6	78.6	124.1	127.2	87.0	108.0	110.7
1952.....	79.6	78.8	125.6	126.9	83.6	105.0	106.1
1953.....	80.1	79.9	124.9	125.1	87.7	109.5	109.7
1954.....	85.5	86.4	116.9	115.8	88.6	103.6	102.6
1955.....	88.9	90.0	112.5	111.1	92.5	104.1	102.8
1956.....	96.8	95.7	103.3	104.5	103.4	106.8	108.1
1957.....	98.6	98.7	101.4	101.3	99.1	100.5	100.4
1958.....	99.4	98.5	100.6	101.5	97.6	98.2	99.1
1959.....	102.1	102.8	98.0	97.3	103.4	101.3	100.6
1960.....	108.4	108.5	92.2	92.2	109.6	101.1	101.0
1961.....	114.7	116.3	87.2	86.0	117.2	102.2	100.8
1962.....	117.6	116.2	85.0	86.1	122.9	104.5	105.8
1963.....	117.8	117.0	84.9	85.5	121.2	102.9	103.6
1964.....	124.9	123.3	80.1	81.1	129.6	103.8	105.1
1965[2].....	131.5	128.6	76.0	77.8	139.8	106.3	108.7
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.1	4.0	-3.9	-3.9	3.8	-0.3	-0.2
1957-65	3.7	3.5	-3.6	-3.4	4.5	0.8	1.0

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Preliminary.

Source: Output based on data from National Canners Association, U.S. Department of the Interior, U.S. Department of Agriculture, and U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 39. CANNING AND PRESERVING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	43.9	(3)	(3)
1947.....	102.0	(96.8)	98.0	(103.3)	70.1	68.7	(72.4)
1948.....	93.1	(88.8)	107.4	(112.6)	69.3	74.4	(78.0)
1949.....	94.0	(91.2)	106.4	(109.6)	71.6	76.2	(78.5)
1950.....	101.3	(98.8)	98.7	(101.2)	76.6	75.6	(77.5)
1951.....	113.1	(109.4)	88.4	(91.4)	87.0	76.9	(79.5)
1952.....	104.9	(101.8)	95.3	(98.2)	83.6	79.7	(82.1)
1953.....	105.0	(102.5)	95.2	(97.6)	87.7	83.5	(85.6)
1954.....	109.7	(107.4)	91.2	(93.1)	88.6	80.8	(82.5)
1955.....	109.3	(107.9)	91.5	(92.6)	92.5	84.6	(85.7)
1956.....	119.4	(117.4)	83.8	(85.2)	103.4	86.6	(88.1)
1957.....	106.0	(105.4)	94.3	(94.9)	99.1	93.5	(94.0)
1958.....	95.4	(95.7)	104.8	(104.5)	97.6	102.3	(102.0)
1959.....	99.2	(99.4)	100.8	(100.6)	103.4	104.2	(104.0)
1960.....	105.9	(107.3)	94.4	(93.2)	109.6	103.5	(102.1)
1961.....	109.9	(113.0)	91.0	(88.5)	117.2	106.6	(103.7)
1962.....	113.7	(117.7)	88.0	(84.9)	122.9	108.1	(104.4)
1963.....	114.6	(118.7)	87.3	(84.2)	121.2	105.8	(102.1)
1964.....	123.4	(127.3)	81.0	(78.5)	129.6	105.0	(101.8)
1965[4].....	127.9	(132.5)	78.2	(75.5)	139.8	109.3	(105.5)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.0	(1.5)	-1.0	(-1.5)	3.8	2.7	(2.2)
1957-65	3.2	(3.8)	-3.1	(-3.6)	4.5	1.3	(0.7)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from National Canners Association, U.S. Department of the Interior, U.S. Department of Agriculture, and U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 40.CEMENT, HYDRAULIC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS,AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	62.8	(1)	159.2	(1)	43.1	68.6	(1)
1947.....	65.2	60.4	153.4	165.5	63.7	97.7	105.4
1948.....	(1)	(1)	(1)	(1)	69.8	(1)	(1)
1949.....	72.2	68.5	138.5	145.9	70.1	97.1	102.3
1950.....	72.6	69.2	137.7	144.5	75.5	104.0	109.1
1951.....	74.5	71.3	134.2	140.2	80.3	107.8	112.6
1952.....	76.0	72.2	131.6	138.5	81.1	106.7	112.3
1953.....	84.0	79.6	119.0	125.7	85.7	102.0	107.7
1954.....	91.9	88.6	108.8	112.9	88.6	96.4	100.0
1955.....	97.4	93.5	102.7	107.0	96.2	98.8	102.9
1956.....	101.0	98.4	99.0	101.7	101.4	100.4	103.1
1957.....	93.9	95.5	106.4	104.8	94.6	100.7	99.1
1958.....	98.7	98.6	101.3	101.4	98.3	99.6	99.7
1959.....	107.4	105.8	93.1	94.5	107.1	99.7	101.2
1960.....	105.1	104.7	95.1	95.5	100.3	95.4	95.8
1961.....	115.0	115.9	87.0	86.3	101.4	88.2	87.5
1962.....	122.3	122.9	81.8	81.4	105.3	86.1	85.7
1963.....	130.2	130.0	76.8	76.9	110.0	84.5	84.6
1964.....	136.5	134.6	73.2	74.3	114.7	84.0	85.2
1965[2].....	139.6	139.8	71.6	71.6	116.0	83.1	83.0
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	4.3	4.8	-4.1	-4.5	3.1	-1.2	-1.6
1957-65....	5.3	5.2	-5.0	-4.9	2.3	-2.8	-2.7

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 41. CEMENT, HYDRAULIC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	63.5	64.3	157.5	155.5	43.1	67.9	67.0
1947.....	63.5	58.5	157.5	170.8	63.7	100.3	108.8
1948.....	(2)	(2)	(2)	(2)	69.8	(2)	(2)
1949.....	71.0	67.1	140.8	149.1	70.1	98.7	104.5
1950.....	71.2	67.5	140.5	148.1	75.5	106.1	111.8
1951.....	73.5	70.2	136.0	142.5	80.3	109.2	114.4
1952.....	75.1	71.0	133.2	140.8	81.1	108.0	114.2
1953.....	83.6	78.6	119.6	127.3	85.7	102.5	109.1
1954.....	91.7	87.9	109.0	113.8	88.6	96.6	100.8
1955.....	96.5	92.1	103.6	108.5	96.2	99.7	104.4
1956.....	99.8	96.8	100.2	103.4	101.4	101.6	104.8
1957.....	92.9	94.8	107.6	105.5	94.6	101.8	99.8
1958.....	99.6	99.5	100.4	100.5	98.3	98.7	98.8
1959.....	107.6	105.7	92.9	94.6	107.1	99.5	101.3
1960.....	106.3	105.7	94.1	94.6	100.3	94.4	94.9
1961.....	117.0	117.8	85.5	84.9	101.4	86.7	86.1
1962.....	124.9	125.4	80.1	79.8	105.3	84.3	84.0
1963.....	135.0	134.3	74.1	74.5	110.0	81.5	81.9
1964.....	144.5	141.4	69.2	70.7	114.7	79.4	81.1
1965[3]	147.2	146.8	67.9	68.1	116.0	78.8	79.0
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	4.7	5.2	-4.5	-4.9	3.1	-1.6	-2.0
1957-65....	6.1	5.9	-5.8	-5.6	2.3	-3.6	-3.4

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 42.CEMENT, HYDRAULIC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS,AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	59.3	(3)	168.7	(3)	43.1	72.7	(3)
1947.....	76.7	(74.9)	130.5	(133.4)	63.7	83.1	(85.0)
1948.....	(3)	(3)	(3)	(3)	69.8	(3)	(3)
1949.....	80.2	(79.0)	124.7	(126.5)	70.1	87.4	(88.7)
1950.....	82.5	(81.6)	121.2	(122.5)	75.5	91.5	(92.5)
1951.....	80.4	(79.3)	124.4	(126.0)	80.3	99.9	(101.2)
1952.....	81.6	(80.5)	122.6	(124.3)	81.1	99.4	(100.8)
1953.....	86.6	(86.0)	115.5	(116.3)	85.7	99.0	(99.7)
1954.....	93.5	(93.0)	107.0	(107.6)	88.6	94.8	(95.3)
1955.....	102.9	(103.0)	97.2	(97.1)	96.2	93.5	(93.4)
1956.....	109.0	(108.8)	91.7	(91.9)	101.4	93.0	(93.2)
1957.....	100.4	(100.3)	99.6	(99.7)	94.6	94.2	(94.3)
1958.....	93.6	(93.6)	106.8	(106.8)	98.3	105.0	(105.0)
1959.....	106.3	(106.4)	94.1	(94.0)	107.1	100.8	(100.7)
1960.....	99.3	(99.4)	100.7	(100.6)	100.3	101.0	(100.9)
1961.....	104.6	(105.3)	95.6	(95.0)	101.4	96.9	(96.3)
1962.....	109.3	(109.7)	91.5	(91.2)	105.3	96.3	(96.0)
1963.....	108.1	(108.7)	92.5	(92.0)	110.0	101.8	(101.2)
1964.....	104.0	(103.9)	96.2	(96.3)	114.7	110.3	(110.4)
1965[4]	107.4	(107.8)	93.1	(92.8)	116.0	108.0	(107.6)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	2.1	(2.2)	-2.0	(-2.1)	3.1	1.0	(0.8)
1957-65....	1.2	(1.2)	-1.2	(-1.2)	2.3	1.1	(1.1)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 43. CONCRETE PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	61.0	58.3	163.8	171.4	40.9	67.0	70.1
1948.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1949.....	68.7	66.4	145.6	150.7	52.9	77.0	79.7
1950.....	77.3	74.8	129.4	133.7	67.3	87.1	90.0
1951.....	83.9	78.5	119.2	127.4	78.2	93.2	99.6
1952.....	88.7	84.5	112.7	118.4	84.4	95.1	99.9
1953.....	88.0	86.6	113.7	115.4	74.5	84.7	86.0
1954.....	88.9	88.7	112.5	112.7	76.9	86.5	86.7
1955.....	93.6	94.0	106.9	106.4	88.8	94.9	94.5
1956.....	104.0	102.6	96.2	97.5	104.2	100.2	101.6
1957.....	100.6	100.4	99.4	99.6	100.6	100.0	100.2
1958.....	97.2	98.9	102.9	101.1	96.0	98.8	97.1
1959.....	102.1	100.5	98.0	99.5	103.3	101.2	102.8
1960.....	100.7	96.2	99.3	103.9	104.5	103.8	108.6
1961.....	102.9	98.2	97.1	101.8	104.8	101.8	106.7
1962.....	105.8	100.2	94.6	99.8	108.4	102.5	108.2
1963.....	110.9	108.4	90.1	92.2	120.8	108.9	111.4
1964.....	115.7	112.6	86.4	88.8	129.0	111.5	114.6
1965[2].....	119.4	118.7	83.8	84.2	138.1	115.7	116.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.1	3.2	-3.0	-3.1	5.4	2.3	2.2
1957-65	2.4	2.1	-2.3	-2.1	4.3	1.8	2.1

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 44. CONCRETE PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	53.1	51.2	188.3	195.4	40.9	77.0	79.9
1948.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1949.....	64.4	62.2	155.4	160.7	52.9	82.2	85.0
1950.....	74.5	72.1	134.2	138.8	67.3	90.3	93.4
1951.....	81.5	75.6	122.6	132.4	78.2	95.9	103.5
1952.....	85.0	80.6	117.7	124.1	84.4	99.3	104.7
1953.....	84.2	83.1	118.8	120.4	74.5	88.5	89.7
1954.....	88.9	88.6	112.5	112.9	76.9	86.5	86.8
1955.....	92.6	93.2	108.0	107.3	88.8	95.9	95.3
1956.....	103.6	101.9	96.5	98.2	104.2	100.6	102.3
1957.....	101.1	100.8	98.9	99.2	100.6	99.5	99.8
1958.....	98.3	100.4	101.8	99.6	96.0	97.7	95.6
1959.....	100.5	98.7	99.5	101.4	103.3	102.8	104.7
1960.....	99.5	94.1	100.5	106.2	104.5	105.0	111.0
1961.....	102.6	96.6	97.4	103.5	104.8	102.1	108.5
1962.....	105.1	98.2	95.1	101.8	108.4	103.1	110.4
1963.....	112.7	109.1	88.7	91.6	120.8	107.2	110.7
1964.....	118.5	114.1	84.4	87.7	129.0	108.9	113.1
1965[3].....	121.7	120.4	82.2	83.1	138.1	113.5	114.7
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.7	3.7	-3.5	-3.5	5.4	1.7	1.7
1957-65 . ..	2.7	2.3	-2.6	-2.2	4.3	1.5	2.0

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 45. CONCRETE PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	123.6	(120.6)	80.9	(82.9)	40.9	33.1	(33.9)
1948.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)
1949.....	88.9	(87.7)	112.5	(114.0)	52.9	59.5	(60.3)
1950.....	87.7	(86.8)	114.0	(115.2)	67.3	76.7	(77.5)
1951.....	92.9	(91.7)	107.7	(109.1)	78.2	84.2	(85.3)
1952.....	104.2	(102.8)	96.0	(97.3)	84.4	81.0	(82.1)
1953.....	103.6	(102.9)	96.5	(97.2)	74.5	71.9	(72.4)
1954.....	89.2	(88.8)	112.1	(112.6)	76.9	86.2	(86.6)
1955.....	97.0	(97.2)	103.0	(102.9)	88.8	91.5	(91.4)
1956.....	105.6	(105.4)	94.7	(94.9)	104.2	98.7	(98.9)
1957.....	99.1	(98.9)	100.9	(101.1)	100.6	101.5	(101.7)
1958.....	93.5	(93.4)	107.0	(107.1)	96.0	102.7	(102.8)
1959.....	107.8	(107.9)	92.7	(92.6)	103.3	95.8	(95.7)
1960.....	104.5	(104.7)	95.7	(95.5)	104.5	100.0	(99.8)
1961.....	103.8	(104.4)	96.4	(95.8)	104.8	101.0	(100.4)
1962.....	107.9	(108.2)	92.7	(92.4)	108.4	100.5	(100.2)
1963.....	105.5	(106.0)	94.8	(94.4)	120.8	114.5	(114.0)
1964.....	107.3	(107.3)	93.2	(93.2)	129.0	120.2	(120.2)
1965[4].....	112.3	(112.8)	89.1	(88.6)	138.1	123.0	(122.4)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	0.6	(0.7)	-0.6	(-0.7)	5.4	4.8	(4.7)
1957-65	1.5	(1.6)	-1.5	(-1.6)	4.3	2.7	(2.6)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 46. FLOUR AND OTHER GRAIN-MILL PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	88.7	(1)	(1)
1947.....	83.9	76.7	119.3	130.4	118.9	141.8	155.1
1948.....	(1)	(1)	(1)	(1)	108.5	(1)	(1)
1949.....	72.1	70.8	138.7	141.3	92.5	128.3	130.7
1950.....	72.2	72.4	138.6	138.1	89.2	123.6	123.2
1951.....	73.5	72.0	136.1	138.9	91.5	124.5	127.1
1952.....	73.3	70.4	136.5	142.0	91.2	124.5	129.5
1953.....	78.9	76.0	126.7	131.5	88.5	112.1	116.4
1954.....	85.2	84.0	117.3	119.1	88.4	103.7	105.3
1955.....	88.0	87.5	113.7	114.3	90.8	103.2	103.8
1956.....	92.2	91.9	108.4	108.8	92.4	100.2	100.5
1957.....	100.0	99.8	100.0	100.2	97.0	97.0	97.2
1958.....	100.1	101.7	99.9	98.3	101.1	101.0	99.4
1959.....	99.9	98.5	100.1	101.5	101.9	102.0	103.4
1960.....	107.5	104.5	93.0	95.7	104.8	97.5	100.3
1961.....	112.5	109.5	88.9	91.3	107.0	95.1	97.7
1962.....	117.5	113.4	85.1	88.2	108.1	92.0	95.3
1963.....	134.0	128.6	74.6	77.8	107.5	80.2	83.6
1964.....	137.9	133.5	72.5	74.9	108.0	76.3	80.9
1965[2].....	139.0	138.6	71.9	72.1	103.0	74.1	74.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.0	4.1	-3.8	-3.9	0.5	-3.1	-3.2
1957-65	5.1	4.7	-4.8	-4.5	1.0	-3.9	-3.6

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 47. FLOUR AND OTHER GRAIN-MILL PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	74.4	78.0	134.5	128.2	88.7	119.3	113.7
1947.....	78.7	71.3	127.0	140.2	118.9	151.0	166.7
1948.....	(2)	(2)	(2)	(2)	108.5	(2)	(2)
1949.....	68.6	67.7	145.7	147.8	92.5	134.8	136.7
1950.....	68.9	69.7	145.2	143.5	89.2	129.5	128.0
1951.....	70.2	69.0	142.5	144.9	91.5	130.4	132.6
1952.....	71.0	68.1	140.8	146.8	91.2	128.4	133.9
1953.....	75.3	72.3	132.8	138.3	88.5	117.5	122.4
1954.....	84.2	82.7	118.8	120.9	88.4	105.0	106.9
1955.....	87.6	86.8	114.2	115.2	90.8	103.7	104.6
1956.....	91.3	91.1	109.5	109.7	92.4	101.2	101.4
1957.....	99.4	99.2	100.6	100.8	97.0	97.6	97.8
1958.....	100.6	102.7	99.4	97.3	101.1	100.5	98.4
1959.....	100.0	98.2	100.0	101.9	101.9	101.9	103.8
1960.....	109.5	104.8	91.3	95.4	104.8	95.7	100.0
1961.....	112.9	108.0	88.6	92.6	107.0	94.8	99.1
1962.....	116.9	110.6	85.6	90.4	108.1	92.5	97.7
1963.....	133.5	125.4	74.9	79.7	107.5	80.5	85.7
1964.....	138.1	131.2	72.4	76.2	108.0	78.2	82.3
1965[3].....	136.6	135.0	73.2	74.1	103.0	75.4	76.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.3	4.3	-4.1	-4.1	0.5	-3.4	-3.4
1957-65	4.9	4.3	-4.7	-4.1	1.0	-3.7	-3.2

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output, employment, and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 48. FLOUR AND OTHER GRAIN-MILL PRODUCTS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	88.7	(3)	(3)
1947.....	101.9	(99.7)	98.1	(100.3)	118.9	116.7	(119.2)
1948.....	(3)	(3)	(3)	(3)	108.5	(3)	(3)
1949.....	83.6	(82.6)	119.6	(121.1)	92.5	110.6	(112.0)
1950.....	83.1	(82.3)	120.4	(121.5)	89.2	107.4	(108.4)
1951.....	84.4	(83.3)	118.5	(120.0)	91.5	108.4	(109.8)
1952.....	79.9	(78.8)	125.1	(126.9)	91.2	114.1	(115.7)
1953.....	91.0	(90.3)	109.9	(110.7)	88.5	97.3	(98.0)
1954.....	88.4	(88.0)	113.1	(113.7)	88.4	100.0	(100.5)
1955.....	89.3	(89.4)	112.0	(111.9)	90.8	101.7	(101.6)
1956.....	94.8	(94.6)	105.5	(105.7)	92.4	97.5	(97.7)
1957.....	102.0	(101.9)	98.0	(98.1)	97.0	95.1	(95.2)
1958.....	98.7	(98.7)	101.3	(101.3)	101.1	102.4	(102.4)
1959.....	99.4	(99.5)	100.6	(100.5)	101.9	102.5	(102.4)
1960.....	102.5	(103.7)	97.5	(96.5)	104.8	102.2	(101.1)
1961.....	111.7	(114.6)	89.5	(87.3)	107.0	95.8	(93.4)
1962.....	119.3	(123.3)	83.8	(81.1)	108.1	90.6	(87.7)
1963.....	135.4	(139.8)	73.9	(71.5)	107.5	79.4	(76.9)
1964.....	137.2	(141.2)	72.9	(70.8)	108.0	78.7	(76.5)
1965[4].....	146.3	(151.2)	68.3	(66.1)	103.0	70.4	(68.1)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	2.9	(3.2)	-2.8	(-3.1)	0.5	-2.1	(-2.4)
1957-65	5.5	(6.0)	-5.2	(-5.7)	1.0	-4.3	(-4.8)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 49. FOOTWEAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	78.2	74.8	127.8	133.7	81.3	103.9	108.7
1948.....	(1)	(1)	(1)	(1)	80.3	(1)	(1)
1949.....	75.6	78.7	132.4	127.1	78.5	103.9	99.8
1950.....	83.1	85.0	120.3	117.7	86.6	104.2	101.9
1951.....	83.7	87.1	119.5	114.8	80.9	96.7	92.9
1952.....	89.1	89.0	112.2	112.4	89.0	99.9	100.0
1953.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1954.....	87.9	89.3	113.7	112.0	87.5	99.5	98.0
1955.....	95.2	93.4	105.0	107.1	96.2	101.0	103.0
1956.....	95.6	95.0	104.6	105.2	97.5	10[illegible].0	102.6
1957.....	96.5	96.8	103.7	103.3	98.0	101.6	101.2
1958.....	98.1	99.0	102.0	101.0	9[illegible].2	98.1	97.2
1959.....	105.4	104.1	94.9	96.0	105.8	100.4	101.6
1960.....	102.5	103.0	97.5	97.1	100.9	98.4	98.0
1961.....	102.5	103.4	97.5	96.7	101.3	98.8	98.0
1962.....	104.9	104.6	95.3	95.6	103.2	98.4	98.7
1963.....	109.0	108.4	91.7	92.2	100.3	92.0	92.5
1964.....	110.7	107.9	90.3	92.7	102.2	92.3	94.7
1965[3].....	110.5	108.4	90.5	92.3	103.8	93.9	95.8
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	2.1	2.0	-2.1	-2.0	1.6	-0.5	-0.4
1957-65	1.7	1.4	-1.7	-1.3	0.5	-1.1	-0.8

[1] Not available.
[2] Indexes for 1953 are not shown since Census data for that year may not be fully comparable with data for other years, possibly due to sampling error.
[3] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 50. FOOTWEAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	77.0	73.3	129.9	136.4	81.3	105.6	110.9
1948.....	(2)	(2)	(2)	(2)	80.3	(2)	(2)
1949.....	74.6	78.0	134.0	128.2	78.5	105.2	100.6
1950.....	82.3	84.4	121.5	118.5	86.6	105.2	102.6
1951.....	83.5	87.3	119.8	114.6	80.9	96.9	92.7
1952.....	88.9	88.9	112.5	112.5	89.0	100.1	100.1
1953.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)
1954.....	87.2	88.7	114.6	112.8	87.5	100.3	98.7
1955.....	94.8	92.7	105.5	107.9	96.2	101.5	103.8
1956.....	95.3	94.7	104.9	105.6	97.5	102.3	103.0
1957.....	96.5	96.8	103.7	103.3	98.0	101.6	101.2
1958.....	98.3	99.3	101.8	100.7	96.2	97.9	96.9
1959.....	105.3	103.8	95.0	96.3	105.8	100.5	101.9
1960.....	102.7	103.2	97.3	96.9	100.9	98.2	97.8
1961.....	102.7	103.5	97.3	96.6	101.3	98.6	97.9
1962.....	104.7	104.1	95.5	96.0	103.2	98.6	99.1
1963.....	108.7	107.7	92.0	92.8	100.3	92.3	93.1
1964.....	110.2	106.9	90.7	93.5	102.2	92.7	95.6
1965[4].....	110.2	107.5	90.8	93.1	103.8	94.2	96.6
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	2.2	2.0	-2.2	-2.0	1.6	-0.6	-0.4
1957-65	1.6	1.2	-1.6	-1.2	0.5	-1.0	-0.7

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Indexes for 1953 are not shown since Census data for that year may not be fully comparable with data for other years, possibly due to sampling error.

[4] Preliminary.

Source: Output, employment, and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 51. FOOTWEAR

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	92.9	(91.5)	107.6	(109.3)	81.3	87.5	(88.9)
1948.....	(3)	(3)	(3)	(3)	80.3	(3)	(3)
1949.....	86.0	(85.2)	116.3	(117.3)	78.5	91.3	(92.1)
1950.....	91.0	(90.4)	109.9	(110.6)	86.6	95.2	(95.8)
1951.....	85.6	(84.9)	116.8	(117.8)	80.9	94.5	(95.3)
1952.....	90.5	(89.5)	110.4	(111.7)	89.0	98.3	(99.4)
1953.....	(4)	(4)	(4)	(4)	(4)	(4)	(4)
1954.....	95.1	(94.9)	105.1	(105.4)	87.5	92.0	(92.2)
1955.....	99.3	(99.6)	100.7	(100.4)	96.2	96.9	(96.6)
1956.....	98.6	(98.5)	101.4	(101.5)	97.5	98.9	(99.0)
1957.....	96.6	(96.6)	103.6	(103.6)	98.0	101.5	(101.5)
1958.....	96.7	(96.7)	103.4	(103.4)	96.2	99.5	(99.5)
1959.....	106.9	(106.9)	93.6	(93.6)	105.8	99.0	(99.0)
1960.....	100.2	(100.8)	99.8	(99.2)	100.9	100.7	(100.1)
1961.....	100.4	(102.0)	99.6	(98.0)	101.3	100.9	(99.3)
1962.....	106.6	(108.5)	93.8	(92.2)	103.2	96.8	(95.1)
1963.....	112.8	(114.9)	88.6	(87.0)	100.3	88.9	(87.3)
1964.....	115.6	(117.2)	86.5	(85.3)	102.2	88.4	(87.2)
1965[5].....	114.7	(116.8)	87.2	(85.6)	103.8	90.5	(88.9)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.5	(1.7)	-1.5	(-1.7)	1.6	0.1	(-0.1)
1957-65	2.4	(2.6)	-2.3	(-2.6)	0.5	-1.8	(-2.0)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Indexes for 1953 are not shown since Census data for that year may not be fully comparable with data for other years, possibly due to sampling error.

[5] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 52. GLASS CONTAINERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	69.2	(1)	144.6	(1)	36.8	53.2	(1)
1947.....	99.2	95.2	100.8	105.1	84.8	85.5	89.1
1948.....	(1)	(1)	(1)	(1)	71.4	(1)	(1)
1949.....	88.8	86.8	112.6	115.3	64.9	73.1	74.8
1950.....	98.2	96.7	101.9	103.5	75.3	76.7	77.9
1951.....	93.7	93.0	106.7	107.6	81.8	87.3	88.0
1952.....	93.0	92.0	107.5	108.7	80.3	86.3	87.3
1953.....	96.9	97.5	103.1	102.6	89.0	91.8	91.3
1954.....	96.1	96.3	104.1	103.8	86.1	89.6	89.4
1955.....	101.2	100.4	98.8	99.6	93.8	92.7	93.4
1956.....	102.4	100.6	97.6	99.4	96.2	93.9	95.6
1957.....	100.9	100.2	99.1	99.8	99.3	98.4	99.1
1958.....	97.4	96.9	102.7	103.2	97.0	99.6	100.1
1959.....	101.8	102.9	98.3	97.2	103.8	102.0	100.9
1960.....	100.8	100.4	99.3	99.6	106.9	106.1	106.5
1961.....	101.7	102.3	98.3	97.7	111.0	109.1	108.5
1962.....	106.5	106.2	93.9	94.1	116.0	108.9	109.2
1963.....	110.2	110.0	90.7	90.9	119.9	108.8	109.0
1964.....	113.5	112.2	88.1	89.1	124.4	109.6	110.9
1965[2].....	118.2	118.6	84.6	84.3	131.8	111.5	111.1
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.1	1.2	-1.1	-1.2	3.3	2.2	2.1
1957-65	2.2	2.2	-2.2	-2.2	3.8	1.6	1.6

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 53. GLASS CONTAINERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	70.1	73.3	142.7	136.4	36.8	52.5	50.2
1947.....	99.2	94.9	100.8	105.4	84.8	85.5	89.4
1948.....	(2)	(2)	(2)	(2)	71.4	(2)	(2)
1949.....	87.8	85.7	113.9	116.6	64.9	73.9	75.7
1950.....	96.7	95.1	103.5	105.2	75.3	77.9	79.2
1951.....	92.2	91.6	108.4	109.2	81.8	88.7	89.3
1952.....	91.8	90.7	109.0	110.2	80.3	87.5	88.5
1953.....	96.4	97.1	103.7	103.0	89.0	92.3	91.7
1954.....	95.9	96.2	104.3	103.9	86.1	89.8	89.5
1955.....	100.5	99.7	99.5	100.3	93.8	93.3	94.1
1956.....	102.0	100.0	98.0	100.0	96.2	94.3	96.2
1957.....	100.6	99.8	99.4	100.2	99.3	98.7	99.5
1958.....	97.9	97.3	102.2	102.8	97.0	99.1	99.7
1959.....	101.7	102.9	98.4	97.2	103.8	102.1	100.9
1960.....	100.8	100.4	99.2	99.6	106.9	106.0	106.5
1961.....	101.5	102.0	98.6	98.0	111.0	109.4	108.8
1962.....	106.7	106.2	93.7	94.1	116.0	108.7	109.2
1963.....	110.0	109.7	90.9	91.2	119.9	109.0	109.3
1964.....	113.5	112.0	88.1	89.3	124.4	109.6	111.1
1965[3].....	118.0	118.4	84.7	84.4	131.8	111.7	111.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.2	1.3	-1.1	-1.3	3.3	2.1	2.0
1957-65	2.2	2.2	-2.1	-2.1	3.8	1.6	1.6

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output, employment, and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 54. GLASS CONTAINERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	62.1	(3)	161.1	(3)	36.8	59.3	(3)
1947.....	99.4	(97.1)	100.6	(102.9)	84.8	85.3	(87.3)
1948.....	(3)	(3)	(3)	(3)	71.4	(3)	(3)
1949.....	97.2	(95.9)	102.9	(104.3)	64.9	66.8	(67.7)
1950.....	113.2	(112.1)	88.3	(89.2)	75.3	66.5	(67.2)
1951.....	107.6	(106.4)	92.9	(94.0)	81.8	76.0	(76.9)
1952.....	105.4	(104.0)	94.9	(96.1)	80.3	76.2	(77.2)
1953.....	102.1	(101.4)	98.0	(98.7)	89.0	87.2	(87.8)
1954.....	98.2	(97.7)	101.9	(102.3)	86.1	87.7	(88.1)
1955.....	106.2	(106.3)	94.1	(94.0)	93.8	88.3	(88.2)
1956.....	106.4	(106.2)	94.0	(94.2)	96.2	90.4	(90.6)
1957.....	104.0	(103.9)	96.2	(96.3)	99.3	95.5	(95.6)
1958.....	93.5	(93.5)	106.9	(106.9)	97.0	103.7	(103.7)
1959.....	103.0	(103.1)	97.1	(97.0)	103.8	100.8	(100.7)
1960.....	99.9	(100.1)	100.1	(99.9)	106.9	107.0	(106.8)
1961.....	103.8	(104.5)	96.3	(95.7)	111.0	106.9	(106.2)
1962.....	105.5	(105.8)	94.8	(94.5)	116.0	110.0	(109.6)
1963.....	112.0	(112.5)	89.3	(88.9)	119.9	107.1	(106.6)
1964.....	113.8	(113.8)	87.9	(87.9)	124.4	109.3	(109.3)
1965[4].....	119.7	(120.3)	83.5	(83.2)	131.8	110.1	(109.6)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	0.5	(0.6)	-0.5	(-0.6)	3.3	2.8	(2.7)
1957-65	2.3	(2.4)	-2.3	(-2.3)	3.8	1.5	(1.4)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 55. HOSIERY

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	70.2	67.3	142.4	148.6	87.3	124.3	129.7
1948.....	(1)	(1)	(1)	(1)	87.5	(1)	(1)
1949.....	71.4	70.1	140.0	142.7	86.9	121.7	124.0
1950.....	75.7	74.0	132.1	135.2	97.1	128.3	131.3
1951.....	77.4	77.6	129.1	128.8	95.1	122.8	122.5
1952.....	85.9	83.7	116.4	119.5	100.7	117.2	120.3
1953.....	82.1	81.2	121.8	123.1	99.5	121.2	122.5
1954.....	85.1	85.2	117.6	117.4	96.8	113.8	113.6
1955.....	84.1	83.9	118.9	119.2	98.1	116.6	116.9
1956.....	85.7	85.7	116.7	116.7	95.9	111.9	111.9
1957.....	89.5	89.7	111.7	111.5	95.9	107.1	106.9
1958.....	104.5	106.0	95.7	94.4	99.4	95.1	93.8
1959.....	107.0	105.3	93.5	94.9	104.6	97.8	99.3
1960.....	109.2	108.1	91.6	92.5	104.3	95.5	96.5
1961.....	120.0	118.1	83.4	84.7	114.2	95.2	96.7
1962.....	124.4	122.4	80.4	81.7	117.3	94.3	95.8
1963.....	138.9	138.3	72.0	72.3	121.4	87.4	87.8
1964.....	152.4	148.0	65.6	67.6	129.2	84.8	87.3
1965[2].....	153.7	150.1	65.1	66.6	136.0	88.5	90.6
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.6	4.6	-4.4	-4.4	2.1	-2.4	-2.4
1957-65	6.8	6.4	-6.4	-6.0	4.4	-2.2	-1.9

[1] Not available.
[2] Preliminary.

Source: Output based on data from the National Association of Hosiery Manufacturers, Inc., and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 56. HOSIERY

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	68.8	65.7	145.4	152.1	87.3	126.9	132.8
1948.....	(2)	(2)	(2)	(2)	87.5	(2)	(2)
1949.....	71.3	69.9	140.3	143.0	86.9	121.9	124.3
1950.....	74.8	72.9	133.7	137.2	97.1	129.8	133.2
1951.....	77.7	78.0	128.7	128.3	95.1	122.4	122.0
1952.....	86.7	84.5	115.3	118.4	100.7	116.1	119.2
1953.....	82.2	81.3	121.7	123.0	99.5	121.1	122.4
1954.....	84.2	84.3	118.8	118.6	96.8	115.0	114.8
1955.....	83.6	83.3	119.7	120.1	98.1	117.4	117.8
1956.....	85.2	85.2	117.4	117.4	95.9	112.6	112.6
1957.....	89.4	89.5	111.9	111.7	95.9	107.3	107.1
1958.....	104.9	106.4	95.4	94.0	99.4	94.8	93.4
1959.....	107.0	105.1	93.5	95.1	104.6	97.8	99.5
1960.....	109.0	107.7	91.8	92.8	104.3	95.7	96.8
1961.....	120.5	118.5	83.0	84.4	114.2	94.8	96.4
1962.....	125.1	123.0	80.0	81.3	117.3	93.8	95.4
1963.....	138.9	138.1	72.0	72.4	121.4	87.4	87.9
1964.....	152.4	147.5	65.6	67.8	129.2	84.8	87.6
1965[3].....	153.5	149.6	65.1	66.8	136.0	88.6	90.9
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.7	4.7	-4.5	-4.5	2.1	-2.5	-2.5
1957-65	6.8	6.4	-6.4	-6.0	4.4	-2.2	-1.8

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the National Association of Hosiery Manufacturers, Inc., and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 57. HOSIERY

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	92.1	(90.4)	108.6	(110.7)	87.3	94.8	(96.6)
1948.....	(3)	(3)	(3)	(3)	87.5	(3)	(3)
1949.....	72.7	(71.9)	137.6	(139.1)	86.9	119.6	(120.9)
1950.....	87.6	(87.0)	114.1	(114.9)	97.1	110.8	(111.6)
1951.....	74.9	(74.2)	133.4	(134.7)	95.1	126.9	(128.1)
1952.....	77.6	(76.8)	128.8	(130.2)	100.7	129.7	(131.1)
1953.....	80.8	(80.5)	123.7	(124.2)	99.5	123.1	(123.6)
1954.....	96.7	(96.5)	103.4	(103.6)	96.8	100.1	(100.3)
1955.....	91.1	(91.3)	109.8	(109.6)	98.1	107.7	(107.5)
1956.....	91.8	(91.7)	109.0	(109.1)	95.9	104.5	(104.6)
1957.....	91.5	(91.5)	109.3	(109.3)	95.9	104.8	(104.8)
1958.....	101.7	(101.7)	98.3	(98.3)	99.4	97.7	(97.7)
1959.....	107.3	(107.4)	93.2	(93.1)	104.6	97.5	(97.4)
1960.....	111.7	(111.4)	89.5	(89.7)	104.3	93.4	(93.6)
1961.....	113.5	(114.0)	88.1	(87.7)	114.2	100.6	(100.2)
1962.....	116.9	(117.2)	85.5	(85.3)	117.3	100.3	(100.1)
1963.....	139.4	(139.7)	71.7	(71.6)	121.4	87.1	(86.9)
1964.....	152.7	(152.4)	65.5	(65.6)	129.2	84.6	(84.8)
1965[4].....	155.3	(155.6)	64.4	(64.3)	136.0	87.6	(87.4)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.8	(3.9)	-3.7	(-3.8)	2.1	-1.7	(-1.7)
1957-65	6.7	(6.7)	-6.3	(-6.3)	4.4	-2.1	(-2.2)

[1] The figures shown in parentheses are subject to a wider margin of error than other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the National Association of Hosiery Manufacturers, Inc., and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 58. MALT LIQUORS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	50.8	(1)	(1)
1947.....	80.2	71.5	124.7	139.8	90.4	112.7	126.4
1948.....	(1)	(1)	(1)	(1)	87.9	(1)	(1)
1949.....	83.3	78.9	120.1	126.8	89.5	107.5	113.5
1950.....	81.4	78.2	122.8	127.8	90.3	110.9	115.4
1951.....	83.1	79.4	120.3	125.9	93.1	112.0	117.2
1952.....	85.6	82.5	116.9	121.3	94.9	110.9	115.1
1953.....	84.6	81.9	118.3	122.0	98.0	115.9	119.6
1954.....	85.8	84.1	116.6	118.9	95.3	111.1	113.3
1955.....	88.8	87.7	112.6	114.0	97.6	109.9	111.3
1956.....	90.7	89.3	110.3	112.0	98.4	108.5	110.2
1957.....	92.8	92.2	107.7	108.5	98.1	105.7	106.4
1958.....	101.5	102.0	98.5	98.1	99.2	97.7	97.3
1959.....	106.4	106.7	94.0	93.7	102.8	96.6	96.3
1960.....	109.3	110.9	91.5	90.2	103.9	95.1	93.7
1961.....	114.3	116.3	87.5	86.0	106.1	92.8	91.2
1962.....	120.9	122.3	82.7	81.8	108.7	89.9	88.9
1963.....	132.9	134.4	75.2	74.4	113.4	85.3	84.4
1964.....	141.8	143.1	70.5	69.9	119.5	84.3	83.5
1965[2].....	148.7	149.5	67.2	66.9	122.4	82.3	81.9
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.6	4.1	-3.5	-4.0	1.6	-1.9	-2.4
1957-65	5.9	6.0	-5.6	-5.7	2.8	-2.9	-3.0

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 59. MALT LIQUORS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	57.0	55.3	175.4	180.7	50.8	89.1	91.8
1947.....	75.1	64.7	133.1	154.5	90.4	120.3	139.7
1948.....	(2)	(2)	(2)	(2)	87.9	(2)	(2)
1949.....	81.8	76.1	122.2	131.4	89.5	109.4	117.6
1950.....	82.3	77.8	121.5	128.5	90.3	109.7	116.0
1951.....	82.9	78.0	120.6	128.1	93.1	112.3	119.3
1952.....	84.7	80.7	118.1	123.9	94.9	112.1	117.6
1953.....	84.3	80.7	118.7	123.9	98.0	116.3	121.4
1954.....	87.0	84.6	115.0	118.2	95.3	109.6	112.6
1955.....	89.1	87.2	112.3	114.7	97.6	109.6	111.9
1956.....	91.5	89.5	109.2	111.7	98.4	107.5	109.9
1957.....	93.9	93.1	106.5	107.4	98.1	104.5	105.4
1958.....	101.4	102.1	98.6	98.0	99.2	97.8	97.2
1959.....	105.2	105.5	95.0	94.7	102.8	97.7	97.4
1960.....	107.0	108.9	93.5	91.8	103.9	97.1	95.4
1961.....	112.8	114.3	88.7	87.5	106.1	94.1	92.8
1962.....	119.2	119.3	83.9	83.8	108.7	91.2	91.1
1963.....	130.5	130.6	76.6	76.5	113.4	86.9	86.8
1964.....	139.6	139.8	71.6	71.5	119.5	85.6	85.5
1965[3].....	148.2	146.8	67.5	68.1	122.4	82.6	83.4
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.6	4.3	-3.5	-4.1	1.6	-1.9	-2.5
1957-65	5.7	5.6	-5.4	-5.3	2.8	-2.7	-2.6

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 60. MALT LIQUORS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	50.8	(3)	(3)
1947.....	92.8	(90.9)	107.7	(110.1)	90.4	97.4	(99.5)
1948.....	(3)	(3)	(3)	(3)	87.9	(3)	(3)
1949.....	86.3	(85.2)	115.9	(117.3)	89.5	103.7	(105.0)
1950.....	79.8	(79.0)	125.4	(126.6)	90.3	113.2	(114.3)
1951.....	83.5	(82.5)	119.8	(121.3)	93.1	111.5	(112.9)
1952.....	87.5	(86.4)	114.2	(115.8)	94.9	108.4	(109.9)
1953.....	85.1	(84.6)	117.4	(118.2)	98.0	115.1	(115.8)
1954.....	83.5	(83.2)	119.8	(120.3)	95.3	114.2	(114.6)
1955.....	88.5	(88.6)	113.0	(112.9)	97.6	110.3	(110.2)
1956.....	89.0	(88.9)	112.3	(112.5)	98.4	110.5	(110.7)
1957.....	90.6	(90.5)	110.4	(110.5)	98.1	108.3	(108.4)
1958.....	101.7	(101.8)	98.3	(98.2)	99.2	97.5	(97.4)
1959.....	109.0	(109.1)	91.7	(91.6)	102.8	94.3	(94.2)
1960.....	114.1	(115.3)	87.7	(86.7)	103.9	91.1	(90.1)
1961.....	117.5	(120.4)	85.1	(83.0)	106.1	90.3	(88.1)
1962.....	124.7	(128.6)	80.2	(77.7)	108.7	87.2	(84.5)
1963.....	138.1	(142.6)	72.4	(70.1)	113.4	82.1	(79.5)
1964.....	146.3	(150.3)	68.4	(66.5)	119.5	81.7	(79.5)
1965[4].....	150.0	(154.9)	66.7	(64.5)	122.4	81.6	(79.0)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.5	(3.8)	-3.4	(-3.6)	1.6	-1.8	(-2.1)
1957-65	6.3	(6.8)	-5.9	(-6.4)	2.8	-3.3	(-3.7)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 61.MAN-MADE FIBERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS,AND RELATED DATA,

ALL EMPLOYEES, 1957-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1957.....	97.3	98.0	102.8	102.0	99.9	102.7	101.9
1958.....	94.2	94.0	106.1	106.4	91.2	96.8	97.0
1959.....	108.4	107.7	92.3	92.8	108.9	100.5	101.1
1960.....	101.9	103.0	98.1	97.1	102.5	100.6	99.5
1961.....	110.1	110.7	90.8	90.4	107.8	97.9	97.4
1962.....	121.8	121.5	82.1	82.3	128.7	105.7	105.9
1963.....	121.9	120.6	82.0	82.9	137.6	112.9	114.1
1964.....	131.1	128.3	76.3	77.9	157.7	120.3	122.9
1965[1].....	134.8	133.2	74.2	75.1	180.6	134.0	135.6
	AVERAGE ANNUAL RATES (PERCENT)						
1957-65	4.6	4.3	-4.4	-4.2	8.2	3.4	3.7

[1] Preliminary.

Source: Output based on data from the Textile Economics Bureau, Inc. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 62. MAN-MADE FIBERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1957-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1957.....	96.1	97.1	104.1	103.0	99.9	104.0	102.9
1958.....	97.0	96.5	103.1	103.6	91.2	94.0	94.5
1959.....	106.8	106.1	93.7	94.2	108.9	102.0	102.6
1960.....	102.0	103.4	98.0	96.7	102.5	100.5	99.1
1961.....	111.4	111.8	89.8	89.4	107.8	96.8	96.4
1962.....	121.0	120.3	82.7	83.1	128.7	106.4	107.0
1963.....	124.8	122.3	80.2	81.8	137.6	110.3	112.5
1964.....	133.3	129.3	75.0	77.4	157.7	118.3	122.0
1965[2].....	135.7	133.1	73.7	75.1	180.6	133.1	135.7
	AVERAGE ANNUAL RATES (PERCENT)						
1957-65....	4.8	4.4	-4.6	-4.2	8.2	3.2	3.6

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the Textile Economics Bureau, Inc. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 63. MAN-MADE FIBERS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1957-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1957.....	101.2	(101.0)	98.8	(99.0)	99.9	98.7	(98.9)
1958.....	86.8	(86.8)	115.2	(115.2)	91.2	105.1	(105.1)
1959.....	113.2	(113.3)	88.3	(88.2)	108.9	96.2	(96.1)
1960.....	101.4	(101.8)	98.6	(98.2)	102.5	101.1	(100.7)
1961.....	106.2	(107.3)	94.2	(93.2)	107.8	101.5	(100.5)
1962.....	124.6	(125.8)	80.3	(79.5)	128.7	103.3	(102.3)
1963.....	114.0	(115.1)	87.7	(86.8)	137.6	120.7	(119.5)
1964.....	124.8	(125.5)	80.2	(79.7)	157.7	126.4	(125.7)
1965[3]	132.2	(133.6)	75.6	(74.9)	180.6	136.6	(135.2)
	AVERAGE ANNUAL RATES (PERCENT						
1957-65....	4.0	(4.2)	-3.9	(-4.0)	8.2	4.0	(3.8)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the Textile Economics Bureau, Inc. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 64. PAPER, PAPERBOARD AND PULP MILLS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	41.0	(1)	(1)
1947.....	72.8	69.3	137.4	144.3	63.6	87.4	91.8
1948.....	(1)	(1)	(1)	(1)	66.2	(1)	(1)
1949.....	72.7	72.4	137.5	138.1	61.6	84.7	85.1
1950.....	84.5	81.5	118.3	122.7	73.6	87.1	90.3
1951.....	87.8	85.0	113.8	117.7	80.2	91.3	94.4
1952.....	84.7	83.3	118.1	120.1	76.3	90.1	91.6
1953.....	84.9	83.2	117.8	120.1	81.4	95.9	97.8
1954.....	86.8	86.3	115.2	115.9	82.9	95.5	96.1
1955.....	94.9	92.4	105.4	108.3	93.0	98.0	100.7
1956.....	98.5	96.5	101.5	103.6	98.7	100.2	102.3
1957.....	96.1	96.4	104.1	103.7	96.1	100.0	99.7
1958.....	97.9	98.8	102.2	101.2	96.5	98.6	97.7
1959.....	105.9	104.6	94.4	95.6	107.4	101.4	102.7
1960.....	108.2	108.2	92.4	92.4	109.9	101.6	101.6
1961.....	115.4	115.6	86.7	86.5	113.9	98.7	98.5
1962.....	118.9	118.9	84.1	84.1	118.5	99.7	99.7
1963.....	126.0	125.8	79.3	79.5	124.9	99.1	99.3
1964.....	133.9	132.5	74.7	75.5	133.0	99.3	100.4
1965[2].....	140.6	138.1	71.1	72.4	140.6	100.0	101.8
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.5	3.7	-3.4	-3.6	4.5	0.9	0.7
1957-65	5.0	4.7	-4.7	-4.5	4.9	-0.1	0.1

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 65. PAPER, PAPERBOARD AND PULP MILLS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	68.4	71.8	146.1	139.3	41.0	59.9	57.1
1947.....	68.7	65.8	145.6	152.0	63.6	92.6	96.7
1948.....	(2)	(2)	(2)	(2)	66.2	(2)	(2)
1949.....	69.9	70.2	143.0	142.5	61.6	88.1	87.8
1950.....	81.1	78.4	123.4	127.6	73.6	90.8	93.9
1951.....	85.0	82.3	117.7	121.4	80.2	94.4	97.4
1952.....	82.5	81.3	121.2	122.9	76.3	92.5	93.8
1953.....	82.9	81.3	120.6	123.0	81.4	98.2	100.1
1954.....	85.2	84.9	117.4	117.9	82.9	97.3	97.7
1955.....	93.0	90.4	107.5	110.6	93.0	100.0	102.9
1956.....	97.5	95.3	102.5	105.0	98.7	101.2	103.6
1957.....	95.7	96.1	104.5	104.1	96.1	100.4	100.0
1958.....	97.7	98.8	102.4	101.2	96.5	98.8	97.7
1959.....	106.5	104.9	93.9	95.3	107.4	100.8	102.4
1960.....	109.7	109.5	91.2	91.4	109.9	100.2	100.4
1961.....	117.7	117.5	85.0	85.1	113.9	96.8	96.9
1962.....	120.9	120.5	82.7	83.0	118.5	98.0	98.3
1963.....	128.5	127.7	77.8	78.3	124.9	97.2	97.8
1964.....	136.4	134.3	73.3	74.4	133.0	97.5	99.0
1965[3].....	144.1	140.3	69.4	71.3	140.6	97.6	100.2
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.0	4.1	-3.9	-4.0	4.5	0.4	0.3
1957-65	5.3	5.0	-5.1	-4.8	4.9	-0.4	-0.1

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output, employment, and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 66. PAPER, PAPERBOARD AND PULP MILLS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)
1947.....	102.4	(100.2)	97.6	(99.8)	63.6	62.1	(63.5)
1948.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)
1949.....	90.1	(88.9)	111.0	(112.5)	61.6	68.4	(69.3)
1950.....	107.1	(106.1)	93.3	(94.3)	73.6	68.7	(69.4)
1951.....	105.7	(104.3)	94.6	(95.9)	80.2	75.9	(76.9)
1952.....	97.9	(96.7)	102.1	(103.4)	76.3	77.9	(78.9)
1953.....	96.2	(95.5)	103.9	(104.7)	81.4	84.6	(85.2)
1954.....	95.7	(95.3)	104.5	(104.9)	82.9	86.6	(87.0)
1955.....	105.6	(105.7)	94.7	(94.6)	93.0	88.1	(88.0)
1956.....	103.9	(103.8)	96.3	(96.4)	98.7	95.0	(95.1)
1957.....	98.1	(98.0)	102.0	(102.1)	96.1	98.0	(98.1)
1958.....	98.8	(98.8)	101.2	(101.2)	96.5	97.7	(97.7)
1959.....	103.0	(103.1)	97.1	(97.0)	107.4	104.3	(104.2)
1960.....	101.3	(101.4)	98.7	(98.6)	109.9	108.5	(108.4)
1961.....	105.7	(106.2)	94.6	(94.2)	113.9	107.8	(107.3)
1962.....	109.9	(110.0)	91.0	(90.9)	118.5	107.8	(107.7)
1963.....	115.3	(115.5)	86.7	(86.5)	124.9	108.3	(108.1)
1964.....	123.4	(123.0)	81.1	(81.3)	133.0	107.8	(108.1)
1965[4].....	126.0	(126.3)	79.4	(79.2)	140.6	111.6	(111.3)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.1	(1.2)	-1.1	(-1.2)	4.5	3.4	(3.2)
1957-65	3.4	(3.4)	-3.2	(-3.3)	4.9	1.5	(1.5)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 67. PETROLEUM REFINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	60.4	(1)	165.5	(1)	42.0	69.5	(1)
1947.....	60.8	57.5	164.4	174.1	60.9	100.1	106.0
1948.....	(1)	(1)	(1)	(1)	66.9	(1)	(1)
1949.....	65.7	63.8	152.2	156.8	65.0	98.9	101.9
1950.....	73.9	71.4	135.3	140.1	70.6	95.5	98.9
1951.....	77.0	74.5	129.9	134.3	80.0	103.9	107.4
1952.....	77.8	76.4	128.5	130.9	81.8	105.1	107.1
1953.....	78.4	77.9	127.5	128.3	85.9	109.5	110.2
1954.....	81.9	81.8	122.1	122.3	86.1	105.1	105.3
1955.....	90.0	89.3	111.2	111.9	93.1	103.5	104.2
1956.....	93.9	93.2	106.5	107.3	99.2	105.6	106.4
1957.....	94.1	93.4	106.2	107.0	99.4	105.6	106.4
1958.....	97.4	98.0	102.7	102.0	97.6	100.2	99.6
1959.....	110.1	110.1	90.8	90.8	103.6	94.1	94.1
1960.....	115.4	114.8	86.6	87.1	106.9	92.6	93.1
1961.....	123.9	123.5	80.7	81.0	109.4	88.3	88.6
1962.....	135.2	134.6	74.0	74.3	114.1	84.4	84.8
1963.....	142.9	144.3	70.0	69.3	117.0	81.9	81.1
1964.....	153.4	151.8	65.2	65.9	119.8	78.1	78.9
1965[2].....	163.0	163.6	61.4	61.1	122.9	75.4	75.1
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	5.5	5.8	-5.2	-5.4	3.8	-1.6	-1.8
1957-65	7.3	7.3	-6.8	-6.8	3.0	-4.0	-4.1

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 68. PETROLEUM REFINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	55.0	55.9	181.7	178.8	42.0	76.3	75.1
1947.....	57.0	53.5	175.5	186.9	60.9	106.9	113.8
1948.....	(2)	(2)	(2)	(2)	66.9	(2)	(2)
1949.....	60.9	59.1	164.3	169.1	65.0	106.8	109.9
1950.....	71.2	68.3	140.5	146.3	70.6	99.2	103.3
1951.....	74.6	71.8	134.1	139.3	80.0	107.3	111.4
1952.....	76.0	74.6	131.7	134.1	81.8	107.7	109.7
1953.....	76.8	76.4	130.3	130.8	85.9	111.9	112.4
1954.....	80.5	80.5	124.2	124.2	86.1	106.9	106.9
1955.....	88.5	87.8	113.0	113.9	93.1	105.2	106.0
1956.....	92.5	91.7	108.2	109.1	99.2	107.3	108.2
1957.....	94.0	93.2	106.3	107.2	99.4	105.7	106.6
1958.....	97.2	98.1	102.9	101.9	97.6	100.4	99.5
1959.....	110.2	110.3	90.7	90.6	103.6	94.0	93.9
1960.....	117.1	115.9	85.4	86.2	106.9	91.3	92.2
1961.....	126.2	125.3	79.3	79.8	109.4	86.7	87.3
1962.....	138.5	137.3	72.2	72.8	114.1	82.4	83.1
1963.....	145.0	146.8	69.0	68.1	117.0	80.7	79.7
1964.....	156.4	154.2	63.9	64.9	119.8	76.6	77.7
1965[3].....	165.9	166.5	60.3	60.0	122.9	74.1	73.8
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	6.0	6.3	-5.7	-5.9	3.8	-2.1	-2.3
1957-65	7.6	7.6	-7.1	-7.1	3.0	-4.3	-4.3

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 69. PETROLEUM REFINING

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	82.4	(3)	121.4	(3)	42.0	51.0	(3)
1947.....	74.7	(73.0)	133.8	(136.9)	60.9	81.5	(83.4)
1948.....	(3)	(3)	(3)	(3)	66.9	(3)	(3)
1949.....	83.7	(82.6)	119.5	(121.1)	65.0	77.7	(78.7)
1950.....	82.6	(81.7)	121.1	(122.4)	70.6	85.5	(86.4)
1951.....	84.5	(83.3)	118.4	(120.0)	80.0	94.7	(96.0)
1952.....	83.3	(82.1)	120.0	(121.8)	81.8	98.2	(99.6)
1953.....	83.3	(82.8)	120.0	(120.8)	85.9	103.1	(103.8)
1954.....	86.0	(85.6)	116.3	(116.8)	86.1	100.1	(100.6)
1955.....	94.1	(94.3)	106.2	(106.0)	93.1	98.9	(98.7)
1956.....	98.3	(98.1)	101.7	(101.9)	99.2	100.9	(101.1)
1957.....	94.1	(94.0)	106.2	(106.3)	99.4	105.6	(105.7)
1958.....	97.8	(97.8)	102.3	(102.3)	97.6	99.8	(99.8)
1959.....	109.5	(109.6)	91.3	(91.2)	103.6	94.6	(94.5)
1960.....	111.5	(111.6)	89.7	(89.6)	106.9	95.9	(95.8)
1961.....	118.0	(118.7)	84.7	(84.3)	109.4	92.7	(92.2)
1962.....	127.2	(127.3)	78.6	(78.5)	114.1	89.7	(89.6)
1963.....	137.5	(137.6)	72.7	(72.6)	117.0	85.1	(85.0)
1964.....	146.1	(145.7)	68.4	(68.6)	119.8	82.0	(82.2)
1965[4].....	155.8	(156.0)	64.2	(64.1)	122.9	78.9	(78.8)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.0	(4.1)	-3.8	(-3.9)	3.8	-0.1	(-0.3)
1957-65	6.5	(6.6)	-6.1	(-6.1)	3.0	-3.3	(-3.3)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 70. PRIMARY ALUMINUM

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	68.1	64.6	146.9	154.9	32.6	47.9	50.5
1948.....	(1)	(1)	(1)	(1)	35.7	(1)	(1)
1949.....	72.4	66.1	138.0	151.3	34.7	47.9	52.5
1950.....	72.6	72.4	137.8	138.1	41.5	57.2	57.3
1951.....	74.3	70.8	134.6	141.2	48.5	65.3	68.5
1952.....	71.3	69.3	140.3	144.3	54.6	76.6	78.8
1953.....	69.6	69.8	143.6	143.2	73.2	105.1	104.8
1954.....	77.4	76.7	129.2	130.5	85.7	110.7	111.8
1955.....	85.2	85.0	117.4	117.7	91.6	107.5	107.8
1956.....	86.4	87.3	115.7	114.6	98.0	113.4	112.3
1957.....	87.1	87.7	114.8	114.0	95.9	110.1	109.3
1958.....	97.3	97.5	102.8	102.5	90.8	93.3	93.1
1959.....	117.3	116.1	85.3	86.1	113.3	96.6	97.6
1960.....	121.3	121.4	82.4	82.4	116.2	95.8	95.7
1961.....	125.7	126.2	79.5	79.3	109.4	87.0	86.7
1962.....	131.1	132.4	76.3	75.5	121.3	92.5	91.6
1963.....	135.5	136.9	73.8	73.0	132.0	97.4	96.4
1964.....	133.4	141.3	74.9	70.8	145.7	109.2	103.1
1965[2].....	140.9	144.4	71.0	69.3	157.2	111.6	108.9
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.9	5.4	-4.7	-5.1	9.1	3.9	3.4
1957-65	5.5	6.0	-5.3	-5.7	6.4	0.8	0.4

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 71. PRIMARY ALUMINUM

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	65.3	61.9	153.1	161.7	32.6	49.9	52.7
1948.....	(2)	(2)	(2)	(2)	35.7	(2)	(2)
1949.....	69.8	62.9	143.2	159.1	34.7	49.7	55.2
1950.....	68.8	69.3	145.3	144.3	41.5	60.3	59.9
1951.....	70.4	67.1	142.1	149.1	48.5	68.9	72.3
1952.....	68.4	66.6	146.2	150.2	54.6	79.8	82.0
1953.....	64.4	65.1	155.3	153.7	73.2	113.7	112.5
1954.....	74.2	73.7	134.8	135.7	85.7	115.5	116.3
1955.....	82.2	82.2	121.6	121.7	91.6	111.4	111.5
1956.....	84.6	85.7	118.3	116.6	98.0	115.9	114.3
1957.....	86.4	87.2	115.7	114.7	95.9	111.0	110.0
1958.....	99.5	99.5	100.6	100.6	90.8	91.3	91.3
1959.....	116.0	114.7	86.2	87.2	113.3	97.7	98.8
1960.....	121.0	121.3	82.6	82.4	116.2	96.0	95.8
1961.....	127.2	127.5	78.6	78.4	109.4	86.0	85.8
1962.....	130.4	132.0	76.7	75.8	121.3	93.0	91.9
1963.....	134.3	136.1	74.5	73.5	132.0	98.3	97.0
1964.....	128.3	138.2	78.0	72.3	145.7	113.6	105.4
1965[3]	137.2	141.6	72.9	70.6	157.2	114.6	111.0
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	5.2	5.7	-4.9	-5.4	9.1	3.6	3.0
1957-65	5.1	5.8	-4.8	-5.4	6.4	1.3	0.6

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 72. PRIMARY ALUMINUM

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	80.7	(78.9)	123.9	(126.7)	32.6	40.4	(41.3)
1948.....	(3)	(3)	(3)	(3)	35.7	(3)	(3)
1949.....	84.2	(83.2)	118.7	(120.2)	34.7	41.2	(41.7)
1950.....	90.6	(89.8)	110.4	(111.3)	41.5	45.8	(46.2)
1951.....	93.6	(92.6)	106.8	(108.0)	48.5	51.8	(52.4)
1952.....	84.4	(83.2)	118.5	(120.1)	54.6	64.7	(65.6)
1953.....	101.0	(100.3)	99.0	(99.7)	73.2	72.5	(73.0)
1954.....	92.2	(91.9)	108.5	(108.9)	85.7	93.0	(93.3)
1955.....	98.7	(98.9)	101.3	(101.1)	91.6	92.8	(92.6)
1956.....	94.3	(94.1)	106.0	(106.2)	98.0	103.9	(104.1)
1957.....	90.0	(90.0)	111.1	(111.2)	95.9	106.5	(106.6)
1958.....	90.1	(90.1)	111.0	(111.0)	90.8	100.8	(100.8)
1959.....	122.2	(122.4)	81.8	(81.7)	113.3	92.7	(92.6)
1960.....	122.2	(122.2)	81.8	(81.8)	116.2	95.1	(95.1)
1961.....	120.8	(121.0)	82.8	(82.6)	109.4	90.6	(90.4)
1962.....	134.2	(133.7)	74.5	(74.8)	121.3	90.4	(90.7)
1963.....	140.9	(140.4)	71.0	(71.2)	132.0	93.7	(94.0)
1964.....	157.3	(156.2)	63.6	(64.0)	145.7	92.6	(93.3)
1965[4].....	156.9	(156.4)	63.7	(63.9)	157.2	100.2	(100.5)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.7	(3.8)	-3.6	(-3.7)	9.1	5.1	(5.0)
1957-65	7.4	(7.3)	-6.9	(-6.8)	6.4	-0.9	(-0.8)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of the Census, U.S. Department of Commerce and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 73. PRIMARY SMELTING AND REFINING OF COPPER, LEAD, AND ZINC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	(1)	(1)	(1)	(1)	74.7	(1)	(1)
1947.....	82.4	76.2	121.3	131.2	95.7	116.1	125.6
1948.....	(1)	(1)	(1)	(1)	93.6	(1)	(1)
1949.....	83.1	79.9	120.4	125.1	91.2	109.8	114.1
1950.....	92.8	88.5	107.7	113.0	102.2	110.1	115.5
1951.....	95.5	90.0	104.7	111.2	101.3	106.1	112.6
1952.....	97.7	91.8	102.3	108.9	103.0	105.4	112.2
1953.....	97.2	91.4	102.9	109.4	104.7	107.7	114.5
1954.....	90.2	90.6	110.9	110.4	96.4	106.9	106.4
1955.....	103.3	101.0	96.8	99.0	109.7	106.2	108.6
1956.....	106.1	102.5	94.3	97.6	119.0	112.2	116.1
1957.....	104.5	103.0	95.7	97.1	116.2	111.2	112.8
1958.....	100.9	101.0	99.1	99.0	100.5	99.6	99.5
1959.....	93.4	95.0	107.1	105.3	83.3	89.2	87.7
1960.....	107.7	106.0	92.9	94.4	108.2	100.5	102.1
1961.....	113.4	110.8	88.2	90.3	109.8	96.8	99.1
1962.....	120.2	117.7	83.2	85.0	115.3	95.9	98.0
1963.....	121.8	120.4	82.1	83.1	114.1	93.7	94.8
1964.....	125.3	125.1	79.8	80.0	119.8	95.6	95.8
1965[2].....	131.6	131.5	76.0	76.1	126.6	96.2	96.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	2.3	2.7	-2.2	-2.6	1.2	-1.1	-1.5
1957-65....	3.8	3.7	-3.6	-3.6	2.6	-1.1	-1.0

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 74. PRIMARY SMELTING AND REFINING OF COPPER, LEAD, AND ZINC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	69.9	68.7	143.0	145.6	74.7	106.8	108.8
1947.....	76.6	70.6	130.6	141.7	95.7	125.0	135.6
1948.....	(2)	(2)	(2)	(2)	93.6	(2)	(2)
1949.....	80.4	77.2	124.5	129.6	91.2	113.5	118.2
1950.....	88.9	84.5	112.4	118.4	102.2	114.9	121.0
1951.....	92.9	86.9	107.7	115.1	101.3	109.1	116.6
1952.....	94.9	88.6	105.3	112.9	103.0	108.5	116.3
1953.....	93.6	87.5	106.8	114.2	104.7	111.8	119.6
1954.....	89.3	89.8	112.0	111.3	96.4	108.0	107.3
1955.....	101.3	98.7	98.7	101.4	109.7	108.3	111.2
1956.....	103.1	99.2	97.0	100.8	119.0	115.4	119.9
1957.....	102.6	101.0	97.5	99.0	116.2	113.3	115.0
1958.....	101.8	101.8	98.2	98.2	100.5	98.7	98.7
1959.....	94.7	96.5	105.6	103.6	83.3	88.0	86.3
1960.....	107.1	105.2	93.3	95.1	108.2	101.0	102.9
1961.....	113.4	110.2	88.2	90.7	109.8	96.8	99.6
1962.....	119.6	116.7	83.6	85.7	115.3	96.4	98.8
1963.....	120.1	118.5	83.3	84.4	114.1	95.0	96.3
1964.....	122.6	122.6	81.6	81.6	119.8	97.7	97.7
1965[3]	128.7	128.8	77.7	77.6	126.6	98.4	98.3
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	2.5	2.9	-2.5	-2.9	1.2	-1.3	-1.7
1957-65....	3.5	3.5	-3.4	-3.3	2.6	-0.8	-0.8

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 75. PRIMARY SMELTING AND REFINING OF COPPER, LEAD, AND ZINC

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	(3)	(3)	(3)	(3)	74.7	(3)	(3)
1947.....	129.1	(126.3)	77.4	(79.2)	95.7	74.1	(75.8)
1948.....	(3)	(3)	(3)	(3)	93.6	(3)	(3)
1949.....	98.4	(97.3)	101.6	(102.7)	91.2	92.7	(93.7)
1950.....	117.1	(115.9)	85.4	(86.3)	102.2	87.3	(88.2)
1951.....	110.5	(109.0)	90.5	(91.7)	101.3	91.7	(92.9)
1952.....	113.3	(111.8)	88.3	(89.4)	103.0	90.9	(92.1)
1953.....	118.3	(117.5)	84.5	(85.1)	104.7	88.5	(89.1)
1954.....	95.0	(94.5)	105.3	(105.8)	96.4	101.5	(102.0)
1955.....	114.0	(114.3)	87.7	(87.5)	109.7	96.2	(96.0)
1956.....	122.6	(122.4)	81.6	(81.7)	119.0	97.1	(97.2)
1957.....	114.1	(114.0)	87.6	(87.7)	116.2	101.8	(101.9)
1958.....	97.1	(97.1)	103.0	(103.0)	100.5	103.5	(103.5)
1959.....	88.0	(88.1)	113.7	(113.6)	83.3	94.7	(94.6)
1960.....	110.2	(110.2)	90.8	(90.8)	108.2	98.2	(98.2)
1961.....	113.5	(113.8)	88.1	(87.9)	109.8	96.7	(96.5)
1962.....	123.2	(122.8)	81.2	(81.4)	115.3	93.6	(93.9)
1963.....	130.4	(130.1)	76.7	(76.9)	114.1	87.5	(87.7)
1964.....	139.6	(138.7)	71.6	(72.1)	119.8	85.8	(86.4)
1965[4].....	147.2	(146.7)	67.9	(68.2)	126.6	86.0	(86.3)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65....	0.8	(0.9)	-0.8	(-0.9)	1.2	0.3	(0.2)
1957-65....	5.1	(5.1)	-4.9	(-4.8)	2.6	-2.4	(-2.3)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 76. STEEL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	84.4	84.3	118.5	118.6	87.0	103.1	103.2
1948.....	85.8	84.8	116.5	117.9	91.6	106.7	108.0
1949.....	83.9	85.3	119.1	117.3	80.5	95.9	94.4
1950.....	95.9	93.9	104.2	106.5	101.7	106.0	108.3
1951.....	98.5	94.4	101.5	106.0	110.6	112.3	117.2
1952.....	97.2	95.0	102.9	105.2	97.5	100.3	102.6
1953.....	100.4	97.0	99.7	103.1	114.5	114.1	118.0
1954.....	90.3	92.6	110.7	108.0	91.7	101.5	99.0
1955.....	108.8	105.2	91.9	95.0	120.9	111.1	114.9
1956.....	107.1	103.7	93.4	96.5	119.0	111.1	114.8
1957.....	101.4	101.1	98.6	99.0	114.8	113.2	113.6
1958.....	90.8	93.5	110.1	107.0	85.8	94.5	91.8
1959.....	107.6	105.0	93.0	95.3	99.3	92.3	94.6
1960.....	97.2	98.6	102.9	101.4	99.5	102.4	100.9
1961.....	101.7	101.7	98.3	98.3	95.2	93.6	93.6
1962.....	107.5	106.9	93.0	93.5	100.2	93.2	93.7
1963.....	114.7	111.8	87.2	89.5	106.3	92.7	95.1
1964.....	122.0	116.6	81.9	85.7	120.7	98.9	103.5
1965.....	127.1	121.3	78.7	82.4	131.3	103.3	108.2
1966[1].....	129.0	123.7	77.5	80.8	132.1	102.4	106.8
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	1.8	1.7	-1.8	-1.7	1.3	-0.5	-0.4
1957-66....	3.5	2.8	-3.4	-2.7	3.4	-0.1	0.5

[1] Preliminary.

Source: Output based on data from the American Iron and Steel Institute and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 77. STEEL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA.

PRODUCTION WORKERS, 1947-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	78.6	78.4	127.2	127.6	87.0	110.7	111.0
1948.....	80.1	78.8	124.9	126.9	91.6	114.4	116.2
1949.....	79.3	80.8	126.1	123.7	80.5	101.5	99.6
1950.....	90.0	87.7	111.1	114.0	101.7	113.0	115.9
1951.....	92.6	88.1	108.0	113.6	110.6	119.5	125.6
1952.....	93.5	90.9	107.0	110.1	97.5	104.3	107.3
1953.....	95.8	92.0	104.4	108.6	114.5	119.5	124.4
1954.....	87.2	89.7	114.7	111.5	91.7	105.2	102.2
1955.....	103.9	99.8	96.3	100.2	120.9	116.4	121.2
1956.....	103.7	99.7	96.4	100.3	119.0	114.7	119.4
1957.....	99.3	98.8	100.7	101.2	114.8	115.6	116.2
1958.....	91.6	95.0	109.2	105.2	85.8	93.7	90.3
1959.....	109.5	106.2	91.3	94.2	99.3	90.7	93.5
1960.....	97.7	99.6	102.3	100.4	99.5	101.8	99.9
1961.....	103.4	103.3	96.7	96.8	95.2	92.1	92.2
1962.....	109.3	108.4	91.5	92.2	100.2	91.7	92.4
1963.....	115.2	111.5	86.8	89.7	106.3	92.3	95.3
1964.....	121.6	114.7	82.3	87.2	120.7	99.3	105.2
1965.....	126.6	119.6	79.0	83.6	131.3	103.7	109.8
1966[2].....	129.3	122.7	77.4	81.5	132.1	102.2	107.7
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	2.3	2.2	-2.3	-2.1	1.3	-0.9	-0.8
1957-66....	3.5	2.7	-3.4	-2.6	3.4	-0.1	0.7

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[2] Preliminary.

Source: Output based on data from the American Iron and Steel Institute and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 78. STEEL

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-66

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	125.9	(124.8)	79.4	(80.1)	87.0	69.1	(69.7)
1948.....	126.3	(125.5)	79.1	(79.7)	91.6	72.5	(73.0)
1949.....	112.9	(112.3)	88.6	(89.1)	80.5	71.3	(71.7)
1950.....	135.8	(135.1)	73.6	(74.0)	101.7	74.9	(75.3)
1951.....	137.2	(136.7)	72.9	(73.1)	110.6	80.6	(80.9)
1952.....	118.2	(117.9)	84.6	(84.8)	97.5	82.5	(82.7)
1953.....	126.7	(126.5)	79.0	(79.0)	114.5	90.4	(90.5)
1954.....	107.9	(107.9)	92.7	(92.7)	91.7	85.0	(85.0)
1955.....	138.0	(138.0)	72.5	(72.5)	120.9	87.6	(87.6)
1956.....	125.1	(125.1)	79.9	(79.9)	119.0	95.1	(95.1)
1957.....	112.0	(112.0)	89.3	(89.3)	114.8	102.5	(102.5)
1958.....	87.6	(87.6)	114.2	(114.2)	85.8	98.0	(98.0)
1959.....	99.8	(99.8)	100.2	(100.2)	99.3	99.5	(99.5)
1960.....	94.6	(94.8)	105.7	(105.5)	99.5	105.2	(105.0)
1961.....	95.0	(95.5)	105.3	(104.7)	95.2	100.2	(99.7)
1962.....	100.5	(101.2)	99.5	(98.8)	100.2	99.7	(99.0)
1963.....	112.1	(112.8)	89.2	(88.6)	106.3	94.8	(94.2)
1964.....	124.2	(125.1)	80.5	(80.0)	120.7	97.2	(96.5)
1965.....	129.1	(130.0)	77.5	(76.9)	131.3	101.7	(101.0)
1966[3].....	127.8	(128.6)	78.3	(77.7)	132.1	103.4	(102.7)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-66....	-0.7	(-0.6)	0.7	(0.7)	1.3	2.1	(2.0)
1957-66....	3.4	(3.5)	-3.3	(-3.4)	3.4	-0.1	(-0.2)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the American Iron and Steel Institute and the Bureau of Mines, U.S. Department of the Interior. Employment and hours based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 79. TIRES AND INNER TUBES

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1947.....	71.2	69.7	140.4	143.5	89.4	125.5	128.3
1948.....	(1)	(1)	(1)	(1)	77.6	(1)	(1)
1949.....	73.8	76.8	135.6	130.3	69.7	94.5	90.8
1950.....	88.5	86.5	113.0	115.6	85.9	97.1	99.3
1951.....	86.0	83.3	116.3	120.0	86.1	100.1	103.3
1952.....	82.0	80.2	121.9	124.7	87.1	106.2	108.6
1953.....	85.4	84.3	117.1	118.6	89.9	105.3	106.6
1954.....	81.6	83.8	122.5	119.4	82.1	100.6	98.0
1955.....	95.6	89.2	104.6	112.1	102.4	107.1	114.8
1956.....	88.8	89.2	112.6	112.1	94.7	106.6	106.2
1957.....	94.3	93.9	106.1	106.5	99.1	105.1	105.5
1958.....	96.6	97.8	103.5	102.3	91.5	94.7	93.6
1959.....	109.2	108.4	91.6	92.2	109.4	100.2	100.9
1960.....	111.3	111.1	89.9	90.0	108.4	97.4	97.6
1961.....	114.9	114.6	87.0	87.2	104.9	91.3	91.5
1962.....	131.0	126.3	76.4	79.2	119.7	91.4	94.8
1963.....	137.9	135.6	72.5	73.7	124.5	90.3	91.8
1964.....	156.0	149.3	64.1	67.0	141.8	90.9	95.0
1965[2].....	161.8	153.9	61.8	65.0	151.9	93.9	98.7
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.3	4.2	-4.2	-4.0	3.3	-1.0	-0.9
1957-65	7.3	6.6	-6.8	-6.2	5.8	-1.4	-0.7

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Rubber Manufacturers Association, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 80. TIRES AND INNER TUBES

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1947.....	69.3	67.8	144.3	147.5	89.4	129.0	131.9
1948.....	(2)	(2)	(2)	(2)	77.6	(2)	(2)
1949.....	71.5	75.4	139.9	132.7	69.7	97.5	92.5
1950.....	84.6	82.7	118.2	121.0	85.9	101.5	103.9
1951.....	82.8	79.9	120.8	125.1	86.1	104.0	107.7
1952.....	79.3	77.6	126.1	128.9	87.1	109.8	112.3
1953.....	82.6	81.7	121.0	122.5	89.9	108.8	110.1
1954.....	80.8	83.7	123.8	119.5	82.1	101.6	98.1
1955.....	93.9	86.2	106.5	116.0	102.4	109.1	118.8
1956.....	88.2	88.7	113.4	112.8	94.7	107.4	106.8
1957.....	94.1	93.8	106.3	106.7	99.1	105.3	105.7
1958.....	97.5	99.0	102.5	101.0	91.5	93.8	92.4
1959.....	108.4	107.4	92.2	93.1	109.4	100.9	101.9
1960.....	112.1	111.5	89.2	89.7	108.4	96.7	97.2
1961.....	118.0	116.9	84.7	85.5	104.9	88.9	89.7
1962.....	132.1	125.5	75.7	79.7	119.7	90.6	95.4
1963.....	140.2	136.4	71.3	73.3	124.5	88.8	91.3
1964.....	159.3	149.7	62.8	66.8	141.8	89.0	94.7
1965[3].....	166.2	154.8	60.2	64.6	151.9	91.4	98.1
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.8	4.5	-4.5	-4.3	3.3	-1.4	-1.2
1957-65	7.7	6.6	-7.1	-6.2	5.8	-1.7	-0.8

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Not available.

[3] Preliminary.

Source: Output based on data from the Rubber Manufacturers Association, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 81. TIRES AND INNER TUBES

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1947-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1947.....	79.6	(77.9)	125.6	(128.4)	89.4	112.3	(114.8)
1948.....	(3)	(3)	(3)	(3)	77.6	(3)	(3)
1949.....	84.1	(83.0)	118.9	(120.5)	69.7	82.9	(84.0)
1950.....	106.4	(105.3)	93.9	(95.0)	85.9	80.7	(81.6)
1951.....	100.9	(99.8)	99.1	(100.2)	86.1	85.3	(86.3)
1952.....	93.8	(92.5)	106.7	(108.2)	87.1	92.9	(94.2)
1953.....	97.5	(96.9)	102.6	(103.2)	89.9	92.2	(92.8)
1954.....	84.6	(84.3)	118.1	(118.6)	82.1	97.0	(97.4)
1955.....	103.0	(103.2)	97.1	(96.9)	102.4	99.4	(99.2)
1956.....	91.3	(91.1)	109.5	(109.7)	94.7	103.7	(103.9)
1957.....	94.7	(94.7)	105.5	(105.7)	99.1	104.6	(104.7)
1958.....	93.3	(93.3)	107.2	(107.2)	91.5	98.1	(98.1)
1959.....	112.4	(112.6)	88.9	(88.8)	109.4	97.3	(97.2)
1960.....	108.3	(109.2)	92.3	(91.6)	108.4	100.1	(99.3)
1961.....	104.6	(106.7)	95.6	(93.7)	104.9	100.3	(98.3)
1962.....	126.5	(129.1)	79.0	(77.4)	119.7	94.6	(92.7)
1963.....	130.0	(132.7)	76.9	(75.3)	124.5	95.8	(93.8)
1964.....	144.5	(147.1)	69.2	(68.0)	141.8	98.1	(96.4)
1965[4].....	146.9	(150.1)	68.1	(66.6)	151.9	103.4	(101.2)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	2.7	(3.0)	-2.7	(-2.9)	3.3	0.5	(0.3)
1957-65	6.0	(6.4)	-5.7	(-6.0)	5.8	-0.2	(-0.5)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Rubber Manufacturers Association, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 82. TOBACCO PRODUCTS-TOTAL[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	49.7	(2)	201.0	(2)	68.0	136.7	(2)
1947.....	68.6	67.7	145.8	147.6	83.8	122.2	123.7
1948.....	72.8	73.3	137.4	136.4	86.9	119.4	118.5
1949.....	73.2	75.2	136.7	133.1	85.3	116.6	113.5
1950.....	78.2	81.2	127.9	123.1	85.7	109.6	105.5
1951.....	81.6	84.0	122.5	119.0	89.4	109.5	106.4
1952.....	84.5	86.2	118.4	116.0	92.9	110.0	107.8
1953.....	82.6	83.9	121.1	119.1	92.5	112.0	110.2
1954.....	83.3	84.4	120.1	118.4	90.1	108.2	106.7
1955.....	83.5	84.2	119.7	118.8	90.9	108.8	108.0
1956.....	88.4	89.4	113.1	111.8	91.5	103.5	102.3
1957.....	92.7	93.7	107.8	106.8	94.4	101.8	100.8
1958.....	100.9	100.7	99.1	99.3	99.8	98.9	99.1
1959.....	106.4	105.7	93.9	94.6	105.7	99.3	100.0
1960.....	113.2	112.9	88.4	88.6	108.3	95.7	95.9
1961.....	118.0	116.8	84.8	85.6	107.7	91.3	92.2
1962.....	121.8	120.3	82.1	83.1	107.9	88.6	89.7
1963.....	128.4	126.9	77.9	78.8	110.3	85.9	86.9
1964.....	133.4	129.5	75.0	77.2	119.4	89.5	92.2
1965[3].....	132.5	134.1	75.5	74.5	115.5	87.2	86.1
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	3.9	3.7	-3.7	-3.5	1.9	-1.9	-1.7
1957-65	4.6	4.5	-4.4	-4.3	2.4	-2.1	-2.0

[1] Includes industries 211, 212, and 213 in the Standard Industrial Classification.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 83. TOBACCO PRODUCTS-TOTAL[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA, PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	49.8	53.3	200.7	187.5	68.0	136.5	127.5
1947.....	67.3	66.6	148.6	150.1	83.8	124.5	125.8
1948.....	71.5	72.2	139.9	138.6	86.9	121.6	120.4
1949.....	71.9	74.1	139.2	134.9	85.3	118.7	115.1
1950.....	77.0	80.4	129.9	124.4	85.7	111.3	106.6
1951.....	80.8	83.5	123.8	119.8	89.4	110.7	107.1
1952.....	83.5	85.5	119.8	117.0	92.9	111.3	108.7
1953.....	82.0	83.5	121.9	119.8	92.5	112.8	110.8
1954.....	82.3	83.5	121.5	119.8	90.1	109.5	107.9
1955.....	82.6	83.2	121.1	120.1	90.9	110.1	109.2
1956.....	87.4	88.6	114.4	112.9	91.5	104.7	103.3
1957.....	91.9	92.8	108.8	107.7	94.4	102.7	101.7
1958.....	100.9	100.7	99.1	99.3	99.8	98.9	99.1
1959.....	107.4	106.6	93.1	93.9	105.7	98.4	99.2
1960.....	114.4	114.0	87.4	87.7	108.3	94.7	95.0
1961.....	120.1	118.9	83.3	84.1	107.7	89.7	90.6
1962.....	124.7	123.2	80.2	81.2	107.9	86.5	87.6
1963.....	130.8	129.3	76.4	77.3	110.3	84.3	85.3
1964.....	134.9	130.8	74.1	76.5	119.4	88.5	91.3
1965[3].....	134.6	136.7	74.3	73.2	115.5	85.8	84.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.1	3.9	-4.0	-3.8	1.9	-2.1	-1.9
1957-65	4.9	4.8	-4.7	-4.6	2.4	-2.4	-2.3

[1] Includes industries 211, 212, and 213 in the Standard Industrial Classification.
[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.
[3] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 84. TOBACCO PRODUCTS-TOTAL[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[2]	OUTPUT[3]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[2]
1939.....	49.2	(4)	203.4	(4)	68.0	138.3	(4)
1947.....	84.6	(82.7)	118.1	(120.9)	83.8	99.0	(101.3)
1948.....	89.6	(87.5)	111.6	(114.3)	86.9	97.0	(99.3)
1949.....	89.7	(88.5)	111.5	(113.0)	85.3	95.1	(96.4)
1950.....	92.6	(91.8)	107.9	(109.0)	85.7	92.5	(93.4)
1951.....	91.5	(90.4)	109.3	(110.6)	89.4	97.7	(98.9)
1952.....	96.3	(94.9)	103.9	(105.4)	92.9	96.5	(97.9)
1953.....	89.6	(89.0)	111.6	(112.3)	92.5	103.2	(103.9)
1954.....	95.5	(95.1)	104.7	(105.1)	90.1	94.3	(94.7)
1955.....	95.2	(95.2)	105.1	(105.1)	90.9	95.5	(95.5)
1956.....	100.4	(100.2)	99.6	(99.8)	91.5	91.1	(91.3)
1957.....	103.1	(102.9)	97.0	(97.1)	94.4	91.6	(91.7)
1958.....	100.2	(100.2)	99.8	(99.8)	99.8	99.6	(99.6)
1959.....	97.1	(97.2)	103.0	(102.9)	105.7	108.9	(108.8)
1960.....	102.8	(102.6)	97.3	(97.5)	108.3	105.4	(105.6)
1961.....	99.3	(99.2)	100.7	(100.8)	107.7	108.5	(108.6)
1962.....	97.4	(96.6)	102.7	(103.5)	107.9	110.8	(111.7)
1963.....	107.3	(106.5)	93.2	(93.9)	110.3	102.8	(103.6)
1964.....	119.8	(118.3)	83.5	(84.5)	119.4	99.7	(100.9)
1965[5].....	113.3	(112.6)	88.2	(88.8)	115.5	101.9	(102.6)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.3	(1.4)	-1.3	(-1.4)	1.9	0.6	(0.5)
1957-65	1.8	(1.6)	-1.8	(-1.6)	2.4	0.6	(0.7)

[1] Includes industries 211, 212, and 213 in the Standard Industrial Classification.

[2] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[3] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[4] Not available.

[5] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 85. TOBACCO-CIGARS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	46.1	(1)	217.1	(1)	82.6	179.3	(1)
1947.....	55.3	53.8	180.9	185.8	86.0	155.6	159.8
1948.....	59.1	58.6	169.2	170.5	88.9	150.4	151.6
1949.....	59.4	60.0	168.4	166.6	86.2	145.2	143.6
1950.....	63.7	67.0	157.1	149.2	85.5	134.3	127.6
1951.....	66.4	68.7	150.6	145.5	89.3	134.5	129.9
1952.....	70.4	71.8	142.1	139.2	93.4	132.7	130.0
1953.....	70.9	70.9	141.1	141.1	95.1	134.2	134.2
1954.....	73.7	74.3	135.6	134.6	93.8	127.2	126.3
1955.....	73.7	74.9	135.6	133.6	93.2	126.4	124.5
1956.....	80.7	82.6	123.9	121.1	92.8	115.0	112.4
1957.....	86.8	88.2	115.2	113.4	94.8	109.2	107.5
1958.....	102.7	102.3	97.4	97.8	99.6	97.0	97.4
1959.....	112.6	111.0	88.8	90.1	105.6	93.8	95.1
1960.....	123.8	122.7	80.8	81.5	107.7	87.0	87.8
1961.....	132.2	130.0	75.7	76.9	102.3	77.4	78.7
1962.....	140.6	139.2	71.1	71.8	102.9	73.2	73.9
1963.....	151.1	149.8	66.2	66.8	103.5	68.5	69.1
1964.....	177.1	166.6	56.5	60.0	134.6	76.0	80.8
1965[2].....	175.9	173.4	56.9	57.7	121.7	69.2	70.2
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	7.0	6.7	-6.5	-6.3	1.9	-4.8	-4.6
1957-65	9.0	8.5	-8.3	-7.8	3.1	-5.4	-5.0

[1] Not available.
[2] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 86. TOBACCO-CIGARS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[1]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	45.4	48.0	220.3	208.4	82.6	182.0	172.1
1947.....	54.0	52.6	185.1	190.2	86.0	159.2	163.6
1948.....	57.9	57.4	172.8	174.1	88.9	153.6	154.8
1949.....	58.2	59.0	171.8	169.6	86.2	148.1	146.2
1950.....	62.5	66.0	160.1	151.6	85.5	136.9	129.6
1951.....	65.2	67.7	153.4	147.8	89.3	137.0	132.0
1952.....	68.8	70.4	145.4	142.1	93.4	135.8	132.7
1953.....	70.2	70.3	142.4	142.3	95.1	135.4	135.3
1954.....	72.7	73.3	137.5	136.5	93.8	129.0	128.0
1955.....	72.9	74.0	137.2	135.1	93.2	127.9	125.9
1956.....	79.9	81.8	125.1	122.2	92.8	116.1	113.4
1957.....	86.0	87.5	116.2	114.2	94.8	110.2	108.3
1958.....	103.0	102.5	97.1	97.6	99.6	96.7	97.2
1959.....	113.4	111.7	88.2	89.5	105.6	93.1	94.5
1960.....	124.4	123.4	80.4	81.1	107.7	86.6	87.3
1961.....	134.3	132.2	74.5	75.7	102.3	76.2	77.4
1962.....	142.7	141.7	70.1	70.6	102.9	72.1	72.6
1963.....	152.7	151.5	65.5	66.0	103.5	67.8	68.3
1964.....	175.9	165.0	56.8	60.6	134.6	76.5	81.6
1965[2].....	176.9	174.9	[illegible].5	57.2	121.7	68.8	69.6
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	7.2	6.9	-6.7	-6.5	1.9	-5.0	-4.8
1957-65	9.1	8.6	-8.3	-7.9	3.1	-5.5	-5.1

[1] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[2] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 87. TOBACCO-CIGARS

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[1]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]	OUTPUT[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[1]
1939.....	56.3	(3)	177.6	(3)	82.6	146.7	(3)
1947.....	77.2	(75.5)	129.5	(132.4)	86.0	111.4	(113.9)
1948.....	80.3	(78.4)	124.5	(127.6)	88.9	110.7	(113.4)
1949.....	78.4	(77.4)	127.5	(129.1)	86.2	109.9	(111.3)
1950.....	83.7	(82.8)	119.5	(120.7)	85.5	102.2	(103.2)
1951.....	86.0	(85.0)	116.2	(117.7)	89.3	103.8	(105.1)
1952.....	97.9	(96.5)	102.1	(103.6)	93.4	95.4	(96.8)
1953.....	79.4	(78.9)	125.9	(126.8)	95.1	119.7	(120.6)
1954.....	89.0	(88.7)	112.4	(112.8)	93.8	105.4	(105.8)
1955.....	86.4	(86.5)	115.8	(115.6)	93.2	107.9	(107.7)
1956.....	91.9	(91.7)	108.8	(109.1)	92.8	101.0	(101.2)
1957.....	97.3	(97.2)	102.7	(102.8)	94.8	97.4	(97.5)
1958.....	99.2	(99.2)	100.8	(100.8)	99.6	100.4	(100.4)
1959.....	103.3	(103.4)	96.8	(96.7)	105.6	102.2	(102.1)
1960.....	116.8	(115.6)	85.6	(86.5)	107.7	92.2	(93.2)
1961.....	111.0	(108.9)	90.1	(91.8)	102.3	92.2	(93.9)
1962.....	118.8	(114.7)	84.2	(87.2)	102.9	86.6	(89.7)
1963.....	134.8	(130.4)	74.2	(76.7)	103.5	76.8	(79.4)
1964.....	194.8	(187.5)	51.3	(53.3)	134.6	69.1	(71.8)
1965[4].....	162.9	(157.4)	61.4	(63.5)	121.7	74.7	(77.3)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	4.1	(4.0)	-3.9	(-3.8)	1.9	-2.1	(-2.0)
1957-65	8.0	(7.4)	-7.4	(-6.9)	3.1	-4.6	(-4.0)

[1] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Not available.

[4] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 88. TOBACCO--CIGARETTES, CHEWING AND SMOKING TOBACCO, AND SNUFF[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

ALL EMPLOYEES, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	ALL EMPLOYEE	ALL EMPLOYEE MAN-HOUR	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS	OUTPUT	ALL EMPLOYEES	ALL EMPLOYEE MAN-HOURS
1939.....	53.0	(2)	188.8	(2)	55.3	104.4	(2)
1947.....	84.7	94.1	118.0	118.9	82.2	97.0	97.7
1948.....	89.1	90.2	112.3	110.9	85.5	96.0	94.8
1949.....	89.6	92.6	111.6	108.0	85.1	95.0	91.9
1950.....	94.9	96.4	105.3	103.7	86.4	91.0	89.6
1951.....	99.9	101.0	100.1	99.0	90.5	90.6	89.6
1952.....	100.5	101.5	99.5	98.5	93.2	92.7	91.8
1953.....	95.3	97.4	105.0	102.6	90.6	95.1	93.0
1954.....	92.9	94.0	107.7	106.4	87.1	93.8	92.7
1955.....	93.4	92.9	107.1	107.6	89.3	95.6	96.1
1956.....	95.8	95.6	104.4	104.6	90.8	94.8	95.0
1957.....	98.1	98.2	101.9	101.8	94.3	96.1	96.0
1958.....	99.6	99.6	100.4	100.4	100.0	100.4	100.4
1959.....	102.2	102.0	97.8	98.0	105.7	103.4	103.6
1960.....	106.0	106.5	94.4	93.9	108.4	102.3	101.8
1961.....	108.6	108.6	92.1	92.1	110.7	101.9	101.9
1962.....	110.2	109.2	90.8	91.6	110.4	100.2	101.1
1963.....	114.8	114.0	87.1	87.7	113.7	99.0	99.7
1964.....	111.4	110.8	89.7	90.3	111.1	99.7	100.3
1965[3].....	110.8	114.5	90.3	87.3	111.8	100.9	97.6
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.4	1.3	-1.4	-1.3	1.9	0.5	0.6
1957-65	1.8	2.0	-1.8	-1.9	2.0	0.1	0.0

[1] Includes industries 211 and 213 in the Standard Industrial Classification.
[2] Not available.
[3] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 89. TOBACCO--CIGARETTES, CHEWING AND SMOKING TOBACCO, AND SNUFF[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

PRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	PRODUCTION WORKER	PRODUCTION WORKER MAN-HOUR	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS	OUTPUT[2]	PRODUCTION WORKERS	PRODUCTION WORKER MAN-HOURS
1939.....	54.6	58.3	183.2	171.4	55.3	101.3	94.8
1947.....	84.2	83.8	118.7	119.3	82.2	97.6	98.1
1948.....	88.3	89.8	113.2	111.3	85.5	96.8	95.2
1949.....	88.7	92.1	112.7	108.6	85.1	95.9	92.4
1950.....	94.5	96.2	105.8	103.9	86.4	91.4	89.8
1951.....	100.2	101.7	99.8	98.3	90.5	90.3	89.0
1952.....	101.0	102.3	99.0	97.7	93.2	92.3	91.1
1953.....	95.1	97.5	105.2	102.5	90.6	95.3	92.9
1954.....	92.3	93.5	108.4	107.0	87.1	94.4	93.2
1955.....	92.6	92.2	108.0	108.5	89.3	96.4	96.9
1956.....	94.8	94.6	105.5	105.7	90.8	95.8	96.0
1957.....	97.2	97.3	102.9	102.8	94.3	97.0	96.9
1958.....	99.4	99.5	100.6	100.5	100.0	100.6	100.5
1959.....	103.2	103.0	96.9	97.1	105.7	102.4	102.6
1960.....	107.2	107.8	93.3	92.8	108.4	101.1	100.6
1961.....	110.6	110.5	90.4	90.5	110.7	100.1	100.2
1962.....	113.2	112.0	88.3	89.3	110.4	97.5	98.6
1963.....	117.2	116.3	85.3	86.0	113.7	97.0	97.8
1964.....	113.6	112.8	88.0	88.7	111.1	97.8	98.5
1965[3].....	112.9	117.1	88.6	85.4	111.8	99.0	95.5
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	1.6	1.5	-1.5	-1.5	1.9	0.3	0.4
1957-65	2.2	2.4	-2.2	-2.3	2.0	-0.2	-0.4

[1] Includes industries 211 and 213 in the Standard Industrial Classification.

[2] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[3] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce.

TABLE 90. TOBACCO--CIGARETTES, CHEWING AND SMOKING TOBACCO, AND SNUFF[1]

OUTPUT PER MAN-HOUR, UNIT LABOR REQUIREMENTS, AND RELATED DATA,

NONPRODUCTION WORKERS, 1939-65

(INDEXES, 1957-59 = 100)

YEAR	OUTPUT PER--		UNIT LABOR REQUIREMENTS IN TERMS OF--		RELATED DATA		
	NON-PRODUCTION WORKER	NON-PRODUCTION WORKER MAN-HOUR[2]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[2]	OUTPUT[3]	NON-PRODUCTION WORKERS	NON-PRODUCTION WORKER MAN-HOURS[2]
1939.....	41.5	(4)	241.0	(4)	55.3	133.3	(4)
1947.....	89.7	(87.8)	111.4	(113.9)	82.2	91.6	(93.6)
1948.....	96.3	(94.0)	103.9	(106.4)	85.5	88.8	(91.0)
1949.....	98.6	(97.4)	101.4	(102.7)	85.1	86.3	(87.4)
1950.....	99.7	(98.5)	100.3	(101.5)	86.4	86.7	(87.7)
1951.....	96.3	(95.1)	103.9	(105.2)	90.5	94.0	(95.2)
1952.....	95.9	(94.5)	104.3	(105.8)	93.2	97.2	(98.6)
1953.....	97.0	(96.3)	103.1	(103.9)	90.6	93.4	(94.1)
1954.....	99.3	(98.9)	100.7	(101.1)	87.1	87.7	(88.1)
1955.....	101.2	(101.4)	98.8	(98.7)	89.3	88.2	(88.1)
1956.....	106.4	(106.2)	93.9	(94.2)	90.8	85.3	(85.5)
1957.....	107.0	(106.9)	93.4	(93.5)	94.3	88.1	(88.2)
1958.....	100.9	(100.9)	99.1	(99.1)	100.0	99.1	(99.1)
1959.....	93.7	(93.8)	106.7	(106.6)	105.7	112.8	(112.7)
1960.....	95.7	(95.8)	104.5	(104.4)	108.4	113.3	(113.2)
1961.....	93.7	(94.1)	106.7	(106.2)	110.7	118.1	(117.6)
1962.....	88.2	(88.2)	113.3	(113.3)	110.4	125.1	(125.1)
1963.....	96.3	(96.4)	103.9	(103.8)	113.7	118.1	(118.0)
1964.....	94.2	(94.0)	106.1	(106.4)	111.1	117.9	(118.2)
1965[5].....	94.7	(94.8)	105.5	(105.5)	111.8	118.0	(117.9)
	AVERAGE ANNUAL RATES (PERCENT)						
1947-65	-0.1	(0.0)	0.1	(0.0)	1.9	2.0	(1.9)
1957-65	-1.2	(-1.2)	1.2	(1.2)	2.0	3.2	(3.2)

[1] Includes industries 211 and 213 in the Standard Industrial Classification.

[2] The figures shown in parentheses are subject to a wider margin of error than are other measures for this industry because of the method for estimating nonproduction worker man-hours.

[3] The measures of output used in this table represent the total production of the industry resulting from all employees and do not represent the specific output of any single group of employees.

[4] Not available.

[5] Preliminary.

Source: Output based on data from the Internal Revenue Service, U.S. Department of the Treasury, and the Bureau of the Census, U.S. Department of Commerce. Employment and hours based on data from the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Labor Statistics, U.S. Department of Labor.

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PENNSYLVANIA

The information in this directory provides facts concerning educational opportunities in Pennsylvania's private schools. It is not to be considered as an endorsement or recommendation of any particular school. Part I includes such general information as the advantages, needs for evaluation, and conditions appropriate to the training opportunities presented. Part II is a directory and reference index which lists the schools by number which offer specific courses in various fields of training. (MM)

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A GUIDE TO LICENSED AND APPROVED PRIVATE BUSINESS, CORRESPONDENCE, AND TRADE SCHOOLS IN PENNSYLVANIA, 1967-68

VT005953

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC INSTRUCTION
1968

A Guide to Licensed and Approved Private Business, Correspondence and Trade Schools in Pennsylvania, 1967-68

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

Dorothy M. Warner

BUREAU OF GUIDANCE SERVICES
DEPARTMENT OF PUBLIC INSTRUCTION
HARRISBURG, PENNSYLVANIA 17126
1968

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FOREWORD

Some form of education or training is essential for almost every field of work in the present day world. This need is being met, in part by private business, correspondence, and trade schools. The course offerings of these schools are designed to prepare young adults for employment.

The purpose of this brochure is to provide information about private business, correspondence, and trade schools licensed or approved by the Commonwealth which, if carefully selected, may provide training for an effective, economical means of entry into a variety of business, trade, and industrial careers and occupations.

This publication was prepared by the Bureau of Guidance Services with the cooperation of the Office of Evaluation Department of Public Instruction for the use of guidance counselors, pupils, and parents. Through this information, students and their parents will be assisted in finding the applicable school and program offering further education to develop specialized skills suited to the students' interests and abilities.

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INTRODUCTION

A great many career choices are available for college oriented young people through community colleges, junior colleges, colleges and universities. Less well known, but of comparable importance, are the many career choices available for non-college bound young people through private business, correspondence, and trade schools.

The information in this brochure provides facts concerning educational opportunities in the private school areas. It is not to be considered as an endorsement or recommendation of any particular school.

Each school must be considered on its own merits and should furnish, upon request, a catalog which includes specific information concerning:

1. Outline of each course showing total number of hours of instruction.
2. Admission requirements for each course.
3. Tuition and other charges and payment plans.
4. Refund policy in the event an enrollee fails to enter or discontinue a course.
5. Description of school facilities and equipment.
6. School policies relative to:
   a. Attendance
   b. Grading and progress
   c. Credit for previous training
   d. Certificates of completion or diplomas
   e. Placement practices

Part I, of this document includes such general information as the advantages, needs for evaluation, and conditions appropriate to the training opportunities presented here.

Part II, the Directory and Reference Index, lists the schools by number which offer specific courses in various fields of training.

The listings of schools change annually and will be revised accordingly.

ACKNOWLEDGMENTS

The Department appreciates the work involved in the compilation and organization of these materials by Dorothy M. Warner, guidance consultant.

Acknowledgment for direction and contributions to the preparation of this manuscript is extended to Edwin L. Herr, director of Bureau of Guidance Services, Arthur L. Glenn, coordinator of guidance and counseling, and other staff members who assisted in the reviews.

Special thanks are due to the following staff members of the Office of Evaluation: Aurora W. Pucillo, supervisor, Private Trade Schools; Maurice Ozer, supervisor, Private Business Schools; and John D. Adams, supervisor, Private Correspondence Schools, for listings of schools, interpretations of programs in schools, and many helpful suggestions.

PART I

GENERAL INFORMATION

Part I of this Handbook contains general information concerning evaluative criteria and guides in selection procedures as follows:

1. Legal Authority
2. Accreditation
3. Advantages offered by Private Schools
4. Evaluating the School and Course
5. Cautions to Students

Every student should read the provided information critically.

LEGAL AUTHORITY

REQUIREMENTS FOR LICENSURE

Private schools considered in this brochure are licensed and regulated under the following Acts of the General Assembly:

Private Business Schools—Act of July 8, 1947, as amended.
Administered by the State Board of Private Correspondence Schools.

Private Correspondence Schools—Act of July 8, 1947, as amended.
Administered by the State Board of Private Correspondence Schools.

Private Trade Schools—Act of May 2, 1945, as amended.
Administered by the State Board of Private Trade Schools.

The Secretary of each Board is an employee of the Department of Public Instruction and may be contacted relative to these schools by a letter addressed to the Department of Public Instruction—Box 911, Harrisburg, Pennsylvania or by telephone:

Supervisor, Private Business Schools—717-787-3075
Supervisor, Private Correspondence Schools—717-787-7609
Supervisor, Private Trade Schools—717-787-6496

Prior to licensure, a private school is visited and must show evidence that it meets standards established by the applicable Law, Rules and Regulations relative to ownership structure, financial responsibility, curricula, administrative and instructional staff, equipment, facilities, enrollment, teacher-student ratio, schedules of operation, advertising, solicitation of students, refund policies. A new school is required to file with its Board a Surety Company Bond conditioned to protect the contractural rights of students.

Once issued, a license may be renewed annually if standards are maintained. The annual license year begins July 1, each year at which time revisions and changes are made on listings of these schools. A license may be suspended or revoked for violations of the Law, Rules, Regulations. It is recommended that prospective students be sure that the school holds a currently valid license. A license must be displayed.

Under the provisions of the Private School Licensing Acts, out-of-state private business, correspondence and trade schools may apply and be approved for the licensure of agents to solicit students in this Commonwealth if information is supplied to the applicable Board reflecting comparable standards to licensed in-state schools.

A licensed school within this Commonwealth may also employ agents to solicit enrollees for its school.

New schools may be licensed or approved at any time. If a school is not listed in this directory, contact the appropriate State Supervisor for information.

The holding of a license by a school means that the school has met the requirements of the Law and the Rules and Regulations of the respective State Board.

A diploma's worth is a reflection of the value of the school's training in the opinion of the evaluator, for example, a prospective employer. The worth of a diploma is directly in proportion to the reputation which the issuing school enjoys.

ACCREDITATION

LICENSED — APPROVED — ACCREDITED
MEMBERSHIP AFFILIATIONS

All schools listed in this brochure are licensed (In-State) or approved (Out-of-State) by a State Licensing Board within this Commonwealth. Some schools are accredited by recognized independent agencies which have established standards for certain school areas and grant accreditation only after thorough evaluation of all aspects of a school's operation. The following agencies accredit private schools:

The Accrediting Commission for Business Schools
Schools Center Building
5057 Woodward Avenue
Detroit, Michigan 48202

The Accrediting Commission—National Home Study Council
1601 Eighteenth Street, N. W.
Washington, D. C. 20009

The National Council of Technical Schools
1507 M. Street, N. W.
Washington, D. C. 20005

Engineers' Council for Professional Development
345 East 47th Street
New York, New York 10017

Accrediting Commission of American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

Accrediting Commission of Trade and Technical Schools
1601 18th Street, N. W.
Washington, D. C. 20009

Membership Affiliations:

United Business School Association
President—Richard Fulton
Suite 505
1101 17th Street, N. W.
Washington, D. C. 20036

Pennsylvania Association of Private Business Schools
President—James A. Watson
Du Bois Business College
11 West Long Avenue
Du Bois, Pennsylvania 15801

Pennsylvania Association of Private School Administrators
President—Louis A. Dimasi
Penn Technical Institute
5440 Penn Avenue
Pittsburgh, Pennsylvania 15206

Better Business Bureau—Local Branch
Chamber of Commerce—Local Branch

Many of the schools listed are eligible to enroll students for training referred by the following agencies:

Bureau of Vocational Rehabilitation—for training the handicapped.

Manpower Development and Training Agency—for training and retraining of the unemployed.

Social Security Administration—for training of dependents.

Veterans Administration—for veterans and war orphans training.

United States Department of Justice, Bureau of Immigration—for immigrant students.

Schools and courses which meet the following established criteria, may be approved under the State Scholarship Program:

1. The school shall have been licensed and in good standing for two years.
2. The courses shall provide a minimum of 1800 hours of instruction.
3. The admission requirements for the course shall be a high school diploma or Commonwealth Secondary School Diploma.

ADVANTAGES OFFERED BY PRIVATE SCHOOLS

1. Specialized training in specific fields for useful, productive employment.
2. Advanced training for greater responsibility and superior opportunity.
3. Retraining when occupational adjustments must be made because of technological or economic changes.
4. Variety and flexibility of programs.
5. Wide range of training from most basic to high technical skills.
6. Operation on a year-round basis with frequent starting dates for entrance of new students.
7. Elasticity of schedules for full or part-time attendance.
8. Emphasis on attention to individual student needs.
9. Provision for a student's progressing in accordance with his own ability and industry.
10. Assistance to graduates in obtaining employment through contacts with business and industry.
11. Private ownership and administration can provide rapid response to new developments and new techniques.

CAUTIONS TO STUDENTS

CONSIDER — COMPARE — CONSULT

Seniors are advised to consider carefully the following items before making a decision on the selection of a school or a program of training:

1. Talk over your interests and goals with your guidance counselor. His training, experience, and extensive knowledge about educational opportunities and institutions is available to you in helping you to make a career selection.
2. An investment in further education costs money and time. Gather all information concerning the schools and courses in the field of your interest.
3. Be sure not only of your interest but also your aptitude for the type of training. Review the school's catalog and note the questions you would like to have answered.
4. Take time to thoroughly investigate before you enroll in a school. The Better Business Bureau, Chamber of Commerce and the Department of Education can give you help.
5. Visit the schools of your choice and examine all facilities.
   a. Are classrooms, shops and labs well lighted, ventilated and equipped?
   b. Is there evidence of demonstration and teaching aids?
   c. Is the course thoroughly explained, including books, tools and/or equipment you will be required to purchase?
6. Check tuition costs with the costs offered by other schools for a similar course. In comparing costs among schools, it is important to know whether such items as costs of tools, equipment, supplies, special fees are included in the costs indicated by the schools being considered.
7. Check living arrangements. Do students live in dormitories or seek their own rooming or apartment facilities? Where do they take their meals?
8. Check the admission requirements for entrance to the school. Is a high school diploma or its equivalent required?
9. If you completed some business, vocational or technical courses in high school, inquire about the school's policy of allowing credit or advanced standing for this training.
10. Do not be rushed into enrolling for a training program by persuasive talk. Frequently, statements such as "this is a last chance to get in before class enrollment is closed", or "this course is the best of its type in the country" are only partially accurate. A reputable school wants you to take time to decide on the school and the course of your choice.
11. Consider the employment outlook for people trained in the field of your interest. Are there plenty of opportunities or is this field over-populated? What are the lines of transfer from this occupation to related occupations? In what related occupations can the training being considered be applied?
12. *The Occupational Outlook Handbook* published by the United States Department of Labor, Bureau of Labor Statistics, is an outstanding reference source for the answers to these questions.
13. A reputable school will not make exaggerated claims. It will show you placement records of graduates and the companies with whom they were placed with their starting salaries. These records are an indication of the school's reputation among prospective employers.
14. Do not sign an enrollment contract without reading it carefully, especially the fine print. Never sign a blank contract. Check with a qualified person if you do not fully understand the terms of the contract. Be sure to get a copy of the contract. Do not accept an oral promise.
15. Any pressure exerted toward signing an enrollment agreement immediately should warn you to hold off.

16. Is the enrollment fee, tuition charge and payment plan clearly outlined?

17. Are refund privileges shown on the enrollment agreements? They should be or you may find that you have obligated yourself unwisely.

18. Are the school's policies on refund of prepaid fees discussed or must inquiry be made about them? This is important in the event you enroll and for some reason cannot attend school or must discontinue your course before completion.

19. Airlines select, employ, and train hostesses and stewardesses in their own schools. The requirements are rigid. Find out about these training opportunities by contacting the airline companies directly.

20. Consult your guidance counselor about the merits of a correspondence course as a preparation for taking a civil service examination.

Part II

DIRECTORY AND REFERENCE INDEX

The Directory includes the listing of schools licensed and approved by August 3, 1967. They are classified by each of the following descriptions:

1. Licensed Private Business Schools
2. Out-of-State Private Business Schools
3. Licensed Private Correspondence Schools
4. Out-of-State Private Correspondence Schools
5. Licensed Private Trade Schools
6. Out-of-State Private Trade Schools
7. Licensed Private Schools of Special Education

On each separate listing, the schools are numbered consecutively beginning with 1.

The Reference Index provides a cross-reference to courses available by occupational area and by school designation. In each column of the Index, the numbering of schools corresponds to the numbering system of the lists found in the Directory.

LICENSED PRIVATE BUSINESS SCHOOLS

In accordance with the provisions of the Act of July 8, 1947, P. L. 1428, as amended by the Act of May 9, 1949, P. L. 990, the following private business schools and classes have been licensed for the year beginning July 1, 1967 and ending June 30, 1968, by the State Board of Private Business Schools:

1. ACADEMY OF ADVANCED TRAFFIC, 1 East Penn Square, Philadelphia, Pennsylvania 19107
   Transportation and Traffic Management I, II, III, IV; Interstate Commerce Law and Practice; Export-Import Traffic; Air Freight; Motor Carrier Regulation; Loss and Damage; Transport Economics; Principles of Business; Fundamentals of Traffic Management; Advanced Traffic Management

2. ADAMS SCHOOL OF BUSINESS, Wynnewood House—Suite 200, 300 East Lancaster Avenue, Wynnewood, Pennsylvania 19096
   Stenographic; Stenographic-Secretarial Course; Secretarial; General Business; Executive Secretarial; IBM Keypunch; Legal Secretarial; Medical Secretarial; Higher Accounting & Business Administration

3. ADELPHIA BUSINESS SCHOOL, 1211 Chestnut Street, Philadelphia, Pennsylvania 19107
   Business Administration; Accounting; Higher Accounting; Secretarial; Stenographic

4. ALLENTOWN BUSINESS SCHOOL, 803 Hamilton Street, Allentown, Pennsylvania 18104
   Accounting: Stenographic; Business Administration; Executive Secretarial; Receptionist; IBM Keypunch; Medical Secretarial; Speedwriting; Gregg Speedbuilding; Computer Programming

5. THE ALTOONA SCHOOL OF COMMERCE & ZETH SCHOOL, INC., 1110-1112 Thirteenth Street, Altoona, Pennsylvania 16601
   Higher Accounting & Business Administration; Medical Stenographic; Stenographic-Secretarial; IBM Keypunch; Clerk-General Office; Secretarial; Junior Accounting

6. ANTHRACITE BUSINESS SCHOOL, 346 Adams Avenue, Scranton, Pennsylvania 18503
   Stenographic Secretarial; Junior Accounting; Stenographic

7. AUTOMATION INSTITUTE OF PHILADELPHIA, INC., 1622 Chestnut Street, Philadelphia, Pennsylvania 19103
   Office Automation; Computer Programming; Key Punch

8. BEREAN MANUAL TRAINING & INDUSTRIAL SCHOOL, 1926 South College Avenue, Philadelphia, Pennsylvania 19121
   Accounting; Executive Secretarial; General Clerical; Secretarial; Stenographic; and component subjects offered in isolation

9. BETHLEHEM BUSINESS SCHOOL, INC., 523 Second Avenue, Bethlehem, Pennsylvania 18018
   Stenographic; Secretarial; Executive Secretarial; Salesmanship; Business; Accounting Finance; Higher Accounting & Business Administration

10. H & R BLOCK, INC., 3916 Jonestown Road, Harrisburg, Pennsylvania 17109
    Basic Income Tax

11. H & R BLOCK, INC., 6329 North Broad Street, Philadelphia, Pennsylvania 19141
    Basic Income Tax

12. H & R BLOCK, INC., 131 North Main Avenue, Scranton, Pennsylvania 18504
    Basic Income Tax

13. BUSINESS MACHINE SCHOOL, 1405 Locust Street, Philadelphia, Pennsylvania 19102
    IBM Keypunch; IBM System/360; Computer Programming; Data Processing; Data Processing & Business Procedures; Computer Programming & Business Procedures

14. BUSINESS TECHNICAL INSTITUTE, INC., 415 Smithfield Street, Pittsburgh, Pennsylvania 15222
    Comprehensive Data Processing/Computer Programming Systems & Procedures; Comprehensive Data Processing/Computer Programming Systems & Procedures including IBM/360; Computer Programming (Basic, Advanced & Combination); Data Processing, Computer Programming, Systems & Procedures

15. CADES C.P.A. SCHOOL, 18 North Fourth Street, Harrisburg, Pennsylvania 17101
    C.P.A. Coaching

16. CAMBRIA-ROWE BUSINESS COLLEGE, 221 Central Avenue, Johnstown, Pennsylvania 15902
    Higher Accounting & Business Administration; Stenographic Finishing; IBM Keypunch; Stenographic; Secretarial Science; Medical Stenographic; Executive Secretarial; Accounting; Clerk-Stenographic; Data Processing Management; Business Automation (Tab. & Wiring)

17. CARLISLE COMMERCIAL COLLEGE, 46 West High Street, Carlisle, Pennsylvania 17013
    Secretarial; Stenographic; Junior Accounting; Higher Accounting & Business Administration; Executive Secretarial; Legal Secretarial

18. CASHIER TRAINING INSTITUTE OF PHILADELPHIA, INC., 1612 Market Street, Philadelphia, Pennsylvania 19103
    PBX Training; Cashier Training; IBM Key Punch

19. CASHIER TRAINING INSTITUTE OF PITTSBURGH, 313 Sixth Avenue, Pittsburgh, Pennsylvania 15230
Cashier Training; PBX Training; Bank Teller; Stenoscript ABC Shorthand; IBM Keypunch; Production Typing; IBM Machine Transcription

20. CENTRAL PENNSYLVANIA BUSINESS SCHOOL, 323 Market Street, Harrisburg, Pennsylvania 17101
Secretarial; Accounting; Business Administration; Stenographic; Clerical Practice; Medical Secretarial; Legal Secretarial; Clerk Typist; Keypunch; Executive Secretarial

21. CHURCHMAN BUSINESS COLLEGE, 355 Spring Garden Street, Easton, Pennsylvania 18042
Business Administration; Junior Accounting; Advanced Accounting; Executive Secretarial; Business; Stenographic

22. COMPTOMETER SCHOOL, 24 South Eighth Street, Allentown, Pennsylvania
Comptometer; IBM Keypunch; Ten Key Machine

23. COMPTOMETER SCHOOL, 121 North Broad Street, Philadelphia, Pennsylvania 19107
Comptometer; IBM Keypunch; Ten Key Machine Course

24. COMPTOMETER SCHOOL, 429 Forbes Avenue, 601 Allegheny Building, Pittsburgh, Pennsylvania 15219
Comptometer; IBM Keypunch

25. COMPTOMETER SCHOOL, 123 North Washington Avenue, Scranton, Pennsylvania 18503
Comptometer; IBM Keypunch; Ten Key Machine Course

26. COMPUTER CAREERS INSTITUTE, INC., 2800 Bristol Pike, Cornwells Heights, Pennsylvania 19020
Computer Programming

27. COMPUTER EDUCATIONAL INSTITUTE, 1200 Walnut Street, Philadelphia, Pennsylvania 19107
IBM Computer Programming & Data Processing; IBM Computer Programming, IBM 1360 Programming

28. COMPUTER PROGRAMMING INSTITUTE OF DELAWARE-ALLENTOWN CORPORATION, 27 N. 7th Street, Allentown, Pennsylvania 18101
Computer Programming

29. COMPUTER PROGRAMMING INSTITUTE OF DELAWARE-VALLEY FORGE DIVISION, Logan Square Shopping Center, 1800 Markley Street, Norristown, Pennsylvania 19401
Computer Programming

30. COMPUTER PROGRAMMING INSTITUTE OF YORK, INC., 110 South Queen Street, York, Pennsylvania 17403
1401 Computer Programming; Card Punch

31. COMPUTER SCIENCE INSTITUTE, Oak & Pawnee Streets, Scranton, Pennsylvania 18515
Fundamental Computer Systems, Concepts & Principles; IBM System 360 Programming RPG Language; IBM System 360 Programming Assembler Language

32. COMPUTER SYSTEMS INSTITUTE, 300 Sixth Avenue, Pittsburgh, Pennsylvania 15222
RCA 301 Programming; Fortran; Cobol; Algol; Computer Programming for Visually Handicapped; Business & Electronic Systems Techniques; Business Mathematics; Systems Organization & Computer Programming II; Computer Programming; Automation Systems & Data Preparation; Computer Programming; Systems Organization & Computer Programming I; Data Processing Orientation-Steno. Skills

33. COMPUTER TRAINING CENTRE OF READING, 126 North Fifth Street, Reading, Pennsylvania 19601
Computer Concepts & Programming; Introduction to Electronic Data Processing; Programming Technician

34. DATA PROCESSING INSTITUTE, INC., 2914 State Street, Erie, Pennsylvania 16508
Computer Programming; Keypunch; Machine Accounting; Typing; Typing II with Modern Office Practice; Accounting Principles; Business Mathematics

35. DOUGLAS BUSINESS SCHOOL, 520 Wainut Street, McKeesport, Pennsylvania 15132
Executive Secretarial; Secretarial; Stenographic; Business Administration; Accounting

36. DOUGLAS SCHOOL OF BUSINESS, 469 Donner Avenue, Monessen, Pennsylvania 15062
Secretarial Finishing; Stenographic-Secretarial; Intensive Business Training; Accounting; Secretarial; Business Administration; Higher Accounting; Executive Secretarial; Management

37. DUBOIS BUSINESS COLLEGE, 11 West Long Avenue, DuBois, Pennsylvania 15801
Stenographic; Secretarial; Accounting; Higher Accounting & Business Administration; Keypunch

38. DUFF'S BUSINESS INSTITUTE, Clark Building, 717 Liberty Avenue, Pittsburgh, Pennsylvania 15222
Stenographic; Secretarial; Executive Secretarial; Stenographic Finishing; Junior Accounting; Executive Sales & Management; Business Administration; Fundamental Accounting; Clerical; Automated Machine Accounting; Speedwriting; Speedwriting and Typing (DAY)
Stenographic with Gregg; Stenographic Brush-up; Business Accounting; General Business; Automated Machine Accounting; Speedwriting; Speedwriting with Typing; Comptometer and Calculator (EVENING)

39. DURBIN'S SECRETARIAL SCHOOL, Country Club Road, Connellsville, Pennsylvania 15425
Business Management; Medical Secretarial; Legal Secretarial; IBM Keypunch; Stenographic Secretarial; Secretarial & Keypunch & Accounting

40. E.U.R. EDUCATION CENTER, 65 North Fifth Street, Lemoyne, Pennsylvania 17043
Basic Machines; Basic Computer Programming

41. EDUCATIONAL INSTITUTE OF PITTSBURGH, INC., 212 Ninth Street, Pittsburgh, Pennsylvania 15222
Advanced Stenographic; Executive Secretarial; Legal Secretarial; Engineering Secretarial; Estate Planning; Federal Taxation; Insurance

42. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF LEHIGH, 715 Whitehall Mall, 7th Street Pike, Fullerton, Pennsylvania 18052
Data Processing & Computer Programming; Computer Programming 1401

43. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF CENTRAL PENNSYLVANIA, INC., 49 North Progress Avenue, Harrisburg, Pennsylvania 17109
907 Data Processing Computer Programming; 907B Computer Programming; 725 Introduction to Systems/360 and Cobol; 726 Systems/360 Cobol

44. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF PHILADELPHIA, 1612 Market Street, Philadelphia, Pennsylvania 19103
IBM Unit Record Equipment; IBM Computer Programming; IBM Data Processing and Computer Programming; IBM System 360 Programming

45. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF PITTSBURGH, 429 Forbes Avenue, Pittsburgh, Pennsylvania 15219
907 IBM Data Processing & Computer Programming; 907A IBM Data Processing; 907B Computer Programming; 908, 908F IBM Data Processing & Computer Programming 360 Cobol; 725 IBM/360 Cobol

46. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF SCRANTON-WILKES-BARRE, INC., 235 Spring Street, Wilkes-Barre, Pennsylvania 18702
907 IBM Computer Programming & Data Processing; 907B IBM Computer Programming

47. ERIE BUSINESS CENTER, 220 West Ninth Street, Erie, Pennsylvania 16501
Business Administration; Business Management Systems; Automation Accountancy; Executive Secretarial; Medical Secretarial; Card Punch and Verifier; Speedwriting; Automation Machines; 407 Accounting Machines; 604 Electronic Calculating Punch; Accounting

48. ERIE COMMERCIAL SCHOOL, 913 State Street, Erie, Pennsylvania 16501
Executive Secretarial; Accounting & Finance; Secretarial Science; Accounting; Shorthand; Typing; Clerk-Typist; Advanced Clerical

49. FAYETTE INSTITUTE OF COMMERCE & TECHNOLOGY, INC., 45 West Kerr Street, Uniontown, Pennsylvania 15401
Constructive Accounting; Stenographic-Secretarial; Clerical Accounting; Intensive Stenographic; IBM Keypunch

50. FORD SCHOOL OF BUSINESS, Mauch Chunk & Hamilton Streets, Pottsville, Pennsylvania 17901
Stenographic; Accounting; Business Administration; Medical Secretarial

51. FRANKLIN SCHOOL OF SCIENCE & ARTS, 251 South 22nd Street, Philadelphia, Pennsylvania 19103
Medical Secretarial (Non-technical); Technical Medical Secretarial; Accelerated Medical Secretarial

52. GARFIELD BUSINESS INSTITUTE, Reeves Building, Beaver Falls, Pennsylvania 15010
Accounting; Secretarial Finishing; Executive Secretarial; Higher Accounting and Business Administration; Secretarial; Speedwriting

53. GERMANTOWN BUSINESS COLLEGE, 49 East Walnut Lane, Philadelphia, Pennsylvania 19144
Stenographic; Typewriting; Business English, Spelling; Filing

54. GOODWIN SCHOOL, 141 South Highland Avenue, Pittsburgh, Pennsylvania 15206
Advanced Stenographic; Shorthand & Transcription Refresher; Stenoscript ABC Shorthand; Dictaphone & Transcription; Clerical (6 mos.); Clerical (12 mos.)

55. THE GROSS C.P.A. COURSE, 1420 Walnut Street, Philadelphia, Pennsylvania 19102
C.P.A. Coaching Course

56. HARRISBURG INSTITUTE OF MEDICAL ARTS, 307 South Front Street, Harrisburg, Pennsylvania 17104
Medical Secretary

57. E. A. HENRY SCHOOL OF BUSINESS, 725 Wood Street, Pittsburgh, Pennsylvania 15221
Stenographic; Secretarial; Accounting; Stenographic-Secretarial; Clerical

58. INSTITUTE OF COMPUTER MANAGEMENT, INC., 2204 Walnut Street, Philadelphia, Pennsylvania 19103
Computer Management; Computer Programming; Computer Programming Basic, Computer Programming (Eve.); Data Processing Librarian; Typewriting & Correspondence; Office Practice; Keypunch

59. INSTITUTE OF COMPUTER MANAGEMENT, 542 Penn Avenue, Pittsburgh, Pennsylvania 15222
Applied Computer Programming Systems & Processing for Business; Fundamentals of Data Processing; Fortran Programming; Computer Management; Data Processing Assistant; Keypunch; Keypunch-Librarian; 360 Programming; Letter Writing at the Typewriter

60. INTEGRATED MACHINE BUREAU, INC., 345 Wyoming Avenue, Scranton, Pennsylvania 18503
Automatic Data Processing; 1401 Computer Programming; Electronic Data Processing; Alphanumeric Keypunch & Verifier

61. INTEGRATED MACHINE BUREAU, INC., 309 Miners National Bank Building, Wilkes-Barre, Pennsylvania
Alpha-numeric Keypunch and Verifier Operations

62. INTERNATIONAL DATA PROCESSING INSTITUTE, INC., 219 North Broad Street, Philadelphia, Pennsylvania 19107
Keypunch Operator Training; Basic Machine Operation and Technical Wiring Training; Computer Programming

63. INTERNATIONAL TABULATING INSTITUTE, 1714 J. F. Kennedy Boulevard, Philadelphia, Pennsylvania 19103
Keypunch; Machine Accounting; Machine Operation; Machine Control Panel Wiring; Computer Programming 202; Computer Programming 203; Computer Programming 204; Computer Programming 205; Keypunch & Typing

64. KEYSTONE SECRETARIAL & BUSINESS ADMINISTRATION SCHOOL, Baltimore Pike & Lincoln Avenue, Swarthmore, Pennsylvania 19081
Business Administration; Executive Secretarial; Medical Secretarial; Standard Secretarial; Stenographic; Shorthand & Typing

65. LANCASTER BUSINESS SCHOOL, 48 North Queen Street, Lancaster, Pennsylvania 17603
Secretarial; Stenographic; Business Administration; Accounting; Executive Secretarial; Higher Accounting

66. LANSDALE SCHOOL OF BUSINESS, Sixth & Broad Streets, Lansdale, Pennsylvania 19446
Business Administration; Executive Secretarial; Junior Accounting; Secretarial; Stenographic-Secretarial; General Business; Stenographic

67. L.D.P. COMPUTER TRAINING SCHOOL, 90 North Wyoming Street, Hazleton, Pennsylvania 18201
Keypunch & Verifier; Programming

68. LEADERSHIP INSTITUTE, 1411 Walnut Street, Philadelphia, Pennsylvania 19102
Dale Carnegie Sales Course

69. LEADERSHIP TRAINING INSTITUTE, Penn Sheraton Hotel, Pittsburgh, Pennsylvania 15230
Dale Carnegie Sales Course

70. THE LEVITAN SCHOOL, INC., 1516 Spruce Street, Philadelphia, Pennsylvania 19102
Stenographic; Stenographic-Secretarial; Secretarial; Executive Secretarial; General Business; Business Administration; Junior Accounting; Higher Accounting & Business Administration; Clerical & Receptionist; Bookkeeping Clerical

71. M.T.I. SCHOOL, 535 Fifth Avenue, Pittsburgh, Pennsylvania 15219
I.B.M. Keypunch; PBX Receptionist; Typing; Self-Service Cashiering; ABC Stenoscript Shorthand

72. MACHINE ACCOUNTING SCHOOL, 2204 Walnut Street, Philadelphia, Pennsylvania 19103
Keypunch; Office Practice; English; Typewriting; Shorthand

73. GRACE MARTIN SCHOOL OF SECRETARIAL ARTS, INC., 717 Liberty Avenue, Pittsburgh, Pennsylvania 15222
Secretarial Touch Shorthand, No. 120, Day; Legal Secretarial Touch Shorthand No. 121, Day; Court, Free Lance and Convention Reporting, No. 122, Day; Touch Shorthand, No. 220, Evening; Court, Free Lance and Convention Reporting, No. 222, Evening

74. MARYLAND MEDICAL SECRETARIAL SCHOOL COOPERATIVE TRAINING PROGRAM WITH HARRISBURG POLYCLINIC HOSPITAL, Third & Polyclinic Avenue, Harrisburg, Pennsylvania 17110
Technical Medical Stenographic Affiliation Program; Medical Secretarial Affiliation Program

75. MARYLAND MEDICAL SECRETARIAL SCHOOL COOPERATIVE TRAINING PROGRAM WITH HERSHEY HOSPITAL, Hershey, Pennsylvania 17033
Technical Medical Stenographic; Medical Secretarial

76. MARYLAND MEDICAL SECRETARIAL SCHOOL COOPERATIVE TRAINING PROGRAM WITH MUNCY VALLEY HOSPITAL, Muncy, Pennsylvania 17756
Medical Secretarial; Technical Medical Stenographic

77. MARYMOUNT INSTITUTE, 1135 Schuylkill Avenue, Reading, Pennsylvania 19601
Stenographic-Secretarial

78. McCANN SCHOOL OF BUSINESS, Traders Bank Building, Hazleton, Pennsylvania 18201
Accounting; Stenographic

79. McCANN SCHOOL OF BUSINESS, Main & Pine Streets, Mahanoy City, Pennsylvania 17948
Accounting; Higher Accounting & Business Administration; Stenographic; Secretarial; Executive-Secretarial; Court and Convention Reporting

80. McCANN SCHOOL OF BUSINESS, 132-134 South Fifth Street, Reading, Pennsylvania 19602
Stenographic; Clerk-Typist; Secretarial; Legal Secretary; Medical Secretary; Executive Secretary; Junior Accounting; Accounting, Finance & Business Administration; Keypunch; Data Processing; Data Processing/Computer Programming; Computer Programming; Computer Console Operations; Junior Accounting/Data Processing; Junior Accounting/Data Processing-Computer Programming; AFBA Data Processing; AFBA/Data Processing Computer; Keypunch/Secretarial; Keypunch/Clerk Typist

81. MODERN CAREER PBX & RECEPTIONIST SCHOOL, 121 South Broad Street, Philadelphia, Pennsylvania 19107
Typing, PBX & Receptionist; PBX Receptionist

82. NEW CASTLE BUSINESS COLLEGE, 316 Rhodes Place, New Castle, Pennsylvania 16101
Executive Secretarial; Higher Accounting & Business Administration

83. NEW KENSINGTON COMMERCIAL SCHOOL, 156 McCargo Street, New Kensington, Pennsylvania 15068
Higher Accounting & Business Administration; Executive Secretarial; Secretarial; Accounting; Stenographic; Clerical; Keypunch; Typing; Data Processing & Machine Accounting; Federal Income Tax; Real Estate; Computer Programming; Data Processing Secretarial; Economic Engineering

84. NEW YORK SCHOOL OF COMPUTER TECHNOLOGY, INC., 112 South 9th Street, Philadelphia, Pennsylvania 19102
Computer Programming 1400, 360, Univac 418 Spectra 70 NCR 315

85. NORTHEAST BUSINESS MACHINE SCHOOL, 1548 Pratt Street, Philadelphia, Pennsylvania 19124
IBM Keypunch and Typing

86. OIL CITY BUSINESS SCHOOL, 25 Seneca Building, Oil City, Pennsylvania 16301
Stenographic Course; Stenographic-Secretarial; Secretarial; Executive Secretarial; Accounting Course; Business Administration

87. PALMER SCHOOL, INC., 112 South Ninth Street, Philadelphia, Pennsylvania 19107
Stenography; Secretarial; Executive Secretarial; Administrative Secretarial; Business Administration; General Business; Junior Accounting; Higher Accounting; Office Machines

88. PENN COMMERCIAL COLLEGE, 82 South Main Street, Washington, Pennsylvania 15301
Accounting; Stenographic Secretarial; Office Machines; Business Administration; Executive Secretarial; Private Secretarial; Earl Wheeler Sales

89. PENNSYLVANIA ACADEMY OF BUSINESS, INC., 411 - 7th Avenue, Pittsburgh, Pennsylvania 15219
Stenographic; Receptionist; Typing; Mechanized Accounting; Systems for Industry; Keypunch Tabulation & Wiring; Integrated Computer Systems; 1401 Programming and System Design

90. PENNSYLVANIA BUSINESS SCHOOL, 1717 Walnut Street, Philadelphia, Pennsylvania 19103
Stenographic-Secretarial; Component Subjects in Isolation

91. PENNSYLVANIA INSTITUTE, 2840-2850 Glenmore Avenue, Pittsburgh, Pennsylvania 15216
Typing; Shorthand; Bookkeeping

92. PENNSYLVANIA SCHOOL OF AUCTIONEERING, INC., 112 Market Street, Harrisburg, Pennsylvania 17101
Auctioneer; Apprentice Auctioneer; Cashier-Clerk

93. PHILADELPHIA MODELING & CAREER SCHOOL, 105 South 18th Street, Philadelphia, Pennsylvania 19103
Stenographic; Comprehensive Fashion Career; Air Career; Executive-Secretarial

94. PHILADELPHIA SCHOOL OF OFFICE TRAINING, 1724 Chestnut Street, Philadelphia, Pennsylvania 19103
Accounting; Accounting & Business; Stenographic; Higher Accounting & Finance; Speedwriting; General Business; Secretarial; Stenographic-Secretarial

95. PHILADELPHIA SUBURBAN BUSINESS SCHOOL, 417-421 DeKalb Street, Bridgeport, Pennsylvania 19405
Accounting; Junior Accounting; Higher Accounting & Business Administration; Salesmanship & Merchandising; General Clerical; Business Machines; Stenographic; Secretarial; Executive Secretarial; Keypunch; Stenoscript

96. PHILADELPHIA SUBURBAN BUSINESS SCHOOL, 1528 Chestnut Street, Philadelphia, Pennsylvania 19107
Junior Accounting/Computer Programming & Business Mathematics; Accounting; Junior Accounting; Higher Accounting & Business Administration; Salesmanship & Merchandising; General Clerical; Business Machines; Stenographic; Secretarial; Executive Secretarial; Travel Agents Training

97. PHILADELPHIA SUBURBAN BUSINESS SCHOOL, Wernersville State Hospital, Wernersville, Pennsylvania 19565
General Clerical; Stenographic; Accounting

98. PHILCO TECHNICAL INSTITUTE, 219 North Broad Street, Philadelphia, Pennsylvania 19107
Programming 1401 Computer; Fortran Programming

99. PIONEER BUSINESS & INDUSTRIAL INSTITUTE, INC., 625 South Broad Street, Philadelphia, Pennsylvania 19147
Accounting & Finance; Executive Secretarial; Higher Accounting & Business Administration; Salesmanship, Administrative Secretarial; Legal Secretarial; Medical Secretarial; General Business Training; Secretarial-Sr.; Stenographic-Secretarial; Stenographic; IBM Key Punch & Business Machines; Clerk-Typist, English & Machines (2)

100. PITTSBURGH AUTOMATION INSTITUTE, 610 Clark Building, 717 Liberty Avenue, Pittsburgh, Pennsylvania 15222
Computer Programming & Systems; Advanced Computer Programming; Advanced Computer Programming & Systems; Total Data Processing; Total Key Punch

101. JOHN ROBERT POWERS SCHOOL OF PITTSBURGH, 211 Oliver Avenue, Pittsburgh, Pennsylvania 15222
Receptionist Plus; Model Secretary; Teenage Typing; Executive Secretary; Individual Subjects in Isolation

102. CHARLES MORRIS PRICE SCHOOL, 1319 Locust Street, Philadelphia, Pennsylvania 19107
Accelerated One Year Advertising; Advertising-Certificate (Evening Course); Journalism Certificate (Evening Course)

103. PROSPECTVILLE BUSINESS SCHOOL, 1158 Limekiln Pike, Prospectville, Pennsylvania 19077
Shorthand and Typing

104. READING BUSINESS INSTITUTE, INC., Tenth & Penn Streets, Reading, Pennsylvania 19601
Higher Accounting; Business Administration; Executive Secretarial; Accounting; Stenographic; Secretarial; Medical Secretarial

105. SALES DEVELOPMENT INSTITUTE, 3338 Chippendale Avenue, Philadelphia, Pennsylvania 19136
Sales Training

106. SCHOOL OF PRACTICAL BOOKKEEPING, Empire Building, N.E. Corner 13th & Walnut Streets, Philadelphia, Pennsylvania
Practical Bookkeeping

107. FREDERICK A. SCHWARZ SCHOOL, 28 West Broad Street, Hazleton, Pennsylvania 18201
C. P. A. Preparation

108. SHENANGO VALLEY COMMERCIAL INSTITUTE, INC., 40 Vine Avenue, Sharon, Pennsylvania 16146
Complete Accounting; Junior Accounting; Executive Secretarial; Secretarial; IBM Clerical; Stenographic; IBM Keypunch & Punch & Verifier; Shorthand & Typing

109. SLEEPER'S BUSINESS COLLEGE, 2800 Edgmont Avenue, Parkside, Chester, Pennsylvania 19015
Secretarial; Executive Secretarial; Higher Accounting & Business Administration; Keypunch

110. STENOTYPE INSTITUTE OF PHILADELPHIA, INC., 1227-29 Walnut Street, Philadelphia, Pennsylvania 19107
Standard Stenotype; Court and Convention Reporting

111. TALUS C. P. A. SCHOOL, Americus Hotel, 6th & Hamilton Streets, Allentown, Pennsylvania
C. P. A. Coaching

112. TALUS C. P. A. SCHOOL, Sylvania Hotel, Juniper & Locust Streets, Philadelphia, Pennsylvania
Exec. Offices 1445 City Line Avenue, Philadelphia, Pennsylvania 19107
C. P. A. Coaching

113. TAYLOR SCHOOL OF BUSINESS, 1405 Locust Street, Philadelphia, Pennsylvania 19102
Business Administration; Secretarial; Medical Secretarial; Higher Accounting; Stenographic; Executive Secretarial; Administrative Secretarial; General Business; Accounting with Automation; Typing; IBM Keypunch; IBM System/360; Computer Programming; Data Processing; Data Processing & Business Procedures; Computer Programming and Business Procedures

114. DOROTHY E. THOMAS SCHOOL OF RETAILING, 2027 Chestnut Street, Philadelphia, Pennsylvania 19103
Retailing

115. THOMPSON COLLEGE, 1251-1259 West Market Street, York, Pennsylvania 17404
Accounting Finance; Business Administration; Accounting; Executive Secretarial; Secretarial; Medical Secretarial; Legal Secretarial; Stenographic; General Business; Speedwriting; Salesmanship

116. THOMPSON INSTITUTE, 18 North Fourth Street, Harrisburg, Pennsylvania 17101
Accounting Finance; Accounting; Business Administration; Medical Secretarial; Executive Secretarial; Stenographic; Card Punch; Programming I; Programming II; Speedwriting; Data Processing Management; Salesmanship; Private Secretarial; Executive Data Processing

117. VARITYPER SCHOOL, 17th and Vine Streets, Philadelphia, Pennsylvania 19103
Varityping

118. WAYNE COMMERCIAL SCHOOL, 942 Main Street, Honesdale, Pennsylvania 18431
Stenographic-Secretarial

119. WAYNESBORO BUSINESS SCHOOL, 24-26 East Main Street, Waynesboro, Pennsylvania 17268
General Business; Stenographic-Secretarial; Secretarial; Executive Secretarial; Medical Stenographic; Stenographic; Medical Secretarial; Spanish Secretarial; Accounting; Business Administration; IBM Keypunch; Advanced Automation

120. WESTINGHOUSE TECHNICAL NIGHT SCHOOL, 240 Braddock Avenue, Turtle Creek, Pennsylvania 15145
Stenographic and Office Machines

121. WESTMORELAND BUSINESS SCHOOL, INC., 104 West Otterman Street, Greensburg, Pennsylvania 15681
Secretarial; Stenographic; Accounting; Business Administration

122. EARL WHEELER SUCCESS SCHOOLS, Penn Sheraton Hotel, Pittsburgh, Pennsylvania 15219
Merchandising Retailing; Executive Secretarial

123. WILKES-BARRE BUSINESS COLLEGE, INC., 69 Public Square, IBE Building, Wilkes-Barre, Pennsylvania 18701
Stenographic; Accounting; Secretarial; 17-Month Business Administration; 21-Month Business Administration; Introduction to Business Data Processing

124. WILLIAMSPORT SCHOOL OF COMMERCE, 430 High Street, Williamsport, Pennsylvania 17701
Stenographic; Secretarial; Legal Secretarial; Medical Secretarial; Executive Secretarial; Junior Accounting; Business Administration; Clerk-Stenographer; General Business

OUT-OF-STATE PRIVATE BUSINESS SCHOOLS

The following private business schools have been approved for the year beginning July 1, 1967 and ending June 30, 1968, in accordance with the Act of July 8, 1947, P. L. 1428, as amended by the Act of May 9, 1949, P. L. 990, and with the Rules and Regulations of the State Board of Private Business Schools for the licensure of agents to solicit students in this Commonwealth:

1. ATLANTIC SCHOOL, INC., 2020 Grand Avenue, Kansas City, Missouri 64108
Airline Personnel Training

2. AUTOMATION TRAINING, INC., 5701 Waterman Avenue, St. Louis, Missouri 63112
Keypunch; Tabulation & Wiring; Computer Programming with Total Data Processing

3. BALTIMORE INSTITUTE, 10 West Chase Street, Baltimore, Maryland 21202
Secretarial Career & Finishing; Medical Secretary & Finishing; Stenotype Secretarial & Court Reporting; Office Training; Secretarial & Business Training; IBM Automation; Pace Accounting & Business Administration; Pace Accounting with IBM Automation; Business Administration with IBM Automation

4. BERKELEY SCHOOL, 22 Prospect Street, East Orange, New Jersey 07017
Professional Secretarial; Special Secretarial Program for College Women

5. BRANDYWINE JUNIOR COLLEGE, P. O. Box 7139, Concord Pike, Wilmington, Delaware 19803
Accounting and Finance; Business Administration; Food Service Management; Executive Secretarial; Medical Secretarial; Legal Secretarial; Stenographic Secretarial; General Business

6. BRYANT & STRATTON BUSINESS INSTITUTE, INC., 1028 Main Street, Buffalo, New York 14202
Business Administration—Accounting; Marketing or Automation Major; Business Administration and Office Automation; Secretarial Science; Advanced Secretarial Science; Administrative Secretarial; Advanced Administrative Secretarial; Technical Secretarial; Advanced Technical Secretarial; Office Training

7. CATHERMAN'S BUSINESS SCHOOL, 123 South Centre Street, Cumberland, Maryland 21502
Executive Secretarial; Medical Secretarial; Secretarial; Accounting; Clerical & Business Machines; Stenographic; IBM Keypunch

8. COMPUTER PROGRAMMING INSTITUTE OF DELAWARE, Independence Mall, Suite 47, 1601 Concord Pike, Wilmington, Delaware 19803
Computer Programming

9. COMPUTER TRAINING, 5151 Wisconsin Avenue, N.W., Washington, D. C. 20016
Card Punch; Computer Programming

10. ELECTRONIC COMPUTER PROGRAMMING INSTITUTE OF TRENTON, 2465 Broad Street—Independence Mall, Trenton, New Jersey 08610
IBM Data Processing & Computer Programming; Computer Programming

11. GOLDEY BEACOM JUNIOR COLLEGE, Tenth & Jefferson Streets, Wilmington, Delaware 19899
Accounting & Business Administration; Junior Business Administration; Business Machines; General Secretarial; Stenographic; Executive Secretarial; Medical Secretarial

12. HAGERSTOWN BUSINESS COLLEGE, INC., 441 North Potomac Street, Hagerstown, Maryland 21740
Junior Secretarial; Executive Secretarial; Stenographic; Junior Accounting; Higher Accounting & Business Administration; Court & Conference Reporting

13. HARTFORD AIRLINE PERSONNEL SCHOOL, 99 Pratt Street, Hartford, Connecticut 06103
Airline Personnel Training

14. HUMBOLDT INSTITUTE, INC., 2201 Blaisdell Avenue, South, Minneapolis, Minnesota 55404
International Travel & Secretarial Training; Transportation & Traffic Management

15. INTERNATIONAL ACADEMY, INC., 4010 Volta Avenue, Brentwood, Maryland 20722
Computer Programming; Computer Operation; Executive Seminar; Key Punch

16. MARYLAND MEDICAL SECRETARIAL SCHOOL, 441 North Potomac Street, Hagerstown, Maryland 21740
Medical Secretarial; Technical Medical Stenographic

17. MORGANTOWN BUSINESS COLLEGE, 354 High Street, Morgantown, West Virginia 26505
Secretarial Course; Medical Secretarial Course; Stenographic Course; Complete Business Course; Junior Accounting Course

18. STRAYER COLLEGE, 600 Equitable Building, Calvert & Fayette Streets, Baltimore, Maryland 21202
Executive Secretarial; Executive Medical; Executive Legal; Medical Stenographic; Legal Secretarial; Junior Accounting; Private Secretarial; Machine Transcription

19. STRAYER JUNIOR COLLEGE, 601 - 13th Street, Washington, D. C. 20005
Data Processing Management; Business Administration; Automated Accounting; CPA with Automation; Executive Secretarial (Legal, Medical, Private); Stenographic (Legal, Medical, Private); General Business

LICENSED PRIVATE CORRESPONDENCE SCHOOLS

The following private correspondence schools have been licensed for the year beginning July 1, 1967, and ending June 30, 1968, in accordance with the Act of July 8, 1947, P. L. 1433, as amended, and with the Rules and Regulations of the State Board of Private Correspondence Schools:

1. CENTRAL CAREER SCHOOLS, R. R. 3, Fayetteville, Pennsylvania 17222
Medical Receptionist; Motel Management

2. COMMERCIAL INSTITUTE, INC., 107 Sixth Street, Pittsburgh, Pennsylvania 15215
Drafting I & II

3. EAGLE TRAINING SERVICE, INC., R. D. No. 1, Dover, Pennsylvania 17315
Basic Preparatory Civil Service—Non-Technical

4. EASTERN CAREER SCHOOLS, INC., Chestnut Ridge Road, Upper Black Eddy, Pennsylvania 18972
Motel Management; Medical Receptionist; Dental Receptionist; I.B.M. Data Processing

5. EDUCATIONAL GUIDANCE INSTITUTE, 2000 North 61st Street, Philadelphia, Pennsylvania 19151
Preparation for Basic Civil Service Examinations—Non-Technical

6. EDUCATIONAL INSTITUTE OF PITTSBURGH, INC., 212 Ninth Street, Pittsburgh, Pennsylvania 15222
Mathematics; Blueprint Reading, English

7. INTERNATIONAL CORRESPONDENCE SCHOOLS, Oak and Pawnee Streets, Scranton, Pennsylvania
Courses listed in I.C.S. Vocational Guidance Manual—1967 Edition and Policy Manual

8. McCARRIE SCHOOL OF MECHANICAL DENTISTRY, INC., 37 South 20th Street, Philadelphia, Pennsylvania 19103
Mechanical Dentistry

9. NATIONAL DRAFTING INSTITUTE, 1820 Sanderson Avenue, Scranton, Pennsylvania
Architectural and Construction Drafting; Machine Drafting and Related Technology

10. PHILCO TECHNICAL INSTITUTE, 219 North Broad Street, Philadelphia, Pennsylvania 19107
Transistor Principles and Practices; Digital Computer Fundamentals; Programming for Digital Computers

11. PRICE SCHOOL, 2710 Laurel Lane, North Hills, Pennsylvania 19038
Gregg Shorthand (Beginner); Gregg Shorthand (Refresher); Transistors

12. SECRA HOME STUDY & EXTENSION COURSES, 430 High Street, Williamsport, Pennsylvania 17702
Gregg Shorthand Beginning; Gregg Shorthand Advanced; Typewriting Complete; Salesmanship; Business Law; Bookkeeping; Higher Accounting

OUT-OF-STATE PRIVATE CORRESPONDENCE SCHOOLS

The following private correspondence schools have been approved for the year beginning July 1, 1967, and ending June 30, 1968, in accordance with the Act of July 8, 1947, P. L. 1433, as amended, and with the Rules and Regulations of the State Board of Private Correspondence Schools for the licensure of agents to solicit students in this Commonwealth:

1. ACADEMY FOR HOME STUDY, DIVISION OF LaSALLE EXTENSION UNIVERSITY, 6355 North Broadway, Chicago, Illinois
   College Preparatory; Business; General Vocational

2. ADVANCED TRADES SCHOOL, 5944 North Newark Avenue, Chicago, Illinois
   Electrical Service; Mobile Engine Course; Refrigeration-Air Conditioning; Bookkeeping & Elementary Accounting Course

3. AIRLINE PERSONNEL TRAINING BY HUMBOLDT, INC., 2201 Blaisdell Avenue South, Minneapolis, Minnesota
   Airline Personnel Training

4. ALLIED INSTITUTE OF TECHNOLOGY, 1338-42 South Michigan Avenue, Chicago, Illinois
   Industrial Tool Engineering; Air Conditioning, Heating & Refrigeration; Mechanical Drafting & Tool & Die Design; Machine Shop Practice & Blueprint Reading; Auto Mechanics

5. ALPHA SCHOOLS, 20 N. E. 29th Street, Miami, Florida
   Civil Service Examination Preparation—Non-Technical; Heavy Equipment Operators Course

6. AMERICAN MOTEL SCHOOL, INC., 103 West Campbell Avenue, Roanoke, Virginia
   Motel Management

7. AMERICAN MOTELS, INC., 906 East Carson, Las Vegas, Nevada
   Motel Management Training

8. AMERICAN SCHOOL, Drexel Avenue at 58th Street, Chicago, Illinois
   Courses as outlined in Bulletin dated June—1967, Series 58, No. 4

9. AMERICAN TECHNICAL SOCIETY, 850 East 58th Street, Chicago, Illinois
   As outlined in Bulletin: Faculty Graded Courses dated April 1, 1966

10. ART INSTRUCTION SCHOOLS—PALMER WRITERS SCHOOL, 500 South Fourth Street, Minneapolis, Minnesota
    Non-Fiction Writing; Advertising Art; Illustrating; Cartooning; Painting; Fiction Writing

11. ASSOCIATED SCHOOLS, INC., 9999 N. E. 2nd Avenue, Miami, Florida
    Heavy Equipment Operations

12. ATLANTIC SCHOOL, INC., 2020 Grand Avenue, Kansas City, Missouri
    Airline Station Agent Training; Airline Career Training; Transportation and Travel Training; Air Career Training

13. AUTOMATION TRAINING, INC., 5701 Waterman Avenue, St. Louis, Missouri
    Computer Programming

14. CAMBRIDGE INSTITUTE FOR MANAGEMENT EDUCATION, INC., 2464 Massachusetts Avenue, Cambridge, Massachusetts
    Managerial Economics; Business Finance; Management of Operations and Marketing Management

15. CAREER ACADEMY, INC., 825 North Jefferson Street, Milwaukee, Wisconsin
    Medical Assistant; Radio and Television Broadcaster

16. CENTRAL TECHNICAL INSTITUTE, 1644 Wyandotte, Kansas City, Missouri
Electronic Technology; Radio Operator Course; Airline Agent Course; Business Automation Training; Air Transportation Training

17. CHICAGO TECHNICAL COLLEGE, 2000 South Michigan Avenue, Chicago, Illinois
Architectural Drafting and Design; Machine Drafting and Design; Electrical Drafting and Design; Structural Drafting and Design; Building Construction

18. CLEVELAND INSTITUTE OF ELECTRONICS, 1776 East 17th Street, Cleveland, Ohio
Electronic Technology; Electronic Communications; Broadcast Engineering; First Class FCC License; Industrial Elec. & Auto.; Adv. Communications Engr.

19. COMMERCIAL TRADES INSTITUTE, INC., 1400 West Greenleaf Avenue, Chicago, Illinois
Television Electronics; Refrigeration & Air Conditioning Service; Auto Mechanics; Building Construction

20. COUNTY SCHOOLS, 3787 Main Street, Bridgeport, Connecticut
Hotel-Motel Training

21. DeVRY INSTITUTE OF TECHNOLOGY, INC., 4141 West Belmont Avenue, Chicago, Illinois
Electronic Training

22. ELECTRONIC COMPUTER PROGRAMMING TRAINING CENTER, 350 5th Avenue, New York, New York
Data Processing and Computer Programming

23. EMPIRE TRAINING SERVICE, 418 South Main Street, Elmira, New York
Civil Service Preparation—Non-technical

24. EXETER HOME STUDY SCHOOL, 2109 Kuhio Street, Honolulu, Hawaii
Non-Technical Civil Service Preparation—Clerical-Postal and Law Enforcement

25. FAMOUS ARTISTS SCHOOLS, INC., Wilton Road, Westport, Connecticut
Commerical Art & Illustrations; Painting (Fine Arts); Professional Cartooning; Creative Painting

26. FAMOUS PHOTOGRAPHERS SCHOOL, INC., Wilton Road, Westport, Connecticut
Photography

27. FAMOUS WRITERS SCHOOLS, INC., Wilton Road, Westport, Connecticut
Fiction Writing; Non-Fiction Writing; Advertising Writing; Business Writing

28. GALE INSTITUTE, INC., 3006 Hennepin Avenue, Minneapolis, Minnesota
Airline Ticket and Reservation Personnel; Engineering Drawing; IBM Machine Accounting; Computer Training; Finance Securities; Insurance

29. GENERAL TRAINING SERVICE, INC., 733 Summer Street, Stamford, Connecticut
Civil Service Preparatory Courses—Non-Technical

30. GREER TECHNICAL INSTITUTE, INC., 2230 South Michigan Avenue, Chicago, Illinois
Automotive; Diesel Engines; Heavy Equipment Operation; Refrigeration and Air Conditioning; Truck Driving; Welding

31. ALEXANDER HAMILTON INSTITUTE INCORPORATED, 235 East 42nd Street, New York, New York
Modern Business Program

32. INSURANCE ADJUSTERS SCHOOLS, INC., 1872 N. W. 7th Street, Miami, Florida
Insurance Adjusting

33. INTERNATIONAL ACCOUNTANTS SOCIETY, INC., 209 West Jackson Boulevard, Chicago, Illinois
Basic Accounting; Business Profit Control Course; Higher Accounting; C.P.A. Coaching; Management Training Course; Programming for Business Computers

34. INTERNATIONAL TRAINING SYSTEMS INCORPORATED, 3725 South Ocean Drive, Hollywood, Florida
Motel/Hotel Management

35. JETMA TECHNICAL INSTITUTE, 103 South Airport Boulevard, South San Francisco, California
Gas Turbine and Technical Illustration

36. KEY TRAINING SERVICE, INC., 407 Lincoln Road, Miami Beach, Florida
Basic Civil Service Preparation—Non-Technical and Federal Service Examination Preparation

37. LaSALLE EXTENSION UNIVERSITY, 417 South Dearborn Street, Chicago, Illinois
Accounting and C.P.A.; American Law and Procedures; Business Management; Traffic and Transportation; Stenotype Training; Sales Training; Foremanship and Production; High School; Dental Assistant; Secretarial Training; Technical Training High School; Interior Decorating; Real Estate; Drafting

38. LINCOLN EXTENSION INSTITUTE, INC., 1401 West 75th Street, Cleveland, Ohio
Industrial Management

39. LINCOLN SERVICE, INC., 2211 Broadway, Pekin, Illinois
Preparation for General Civil Service Examinations—Non-Technical

40. MASSEY TECHNICAL INSTITUTE, INC., 147 East 7th Street, Jacksonville, Florida
Radio; Television; Electronics; Bookkeeping and Accounting

41. MOTEL MANAGERS TRAINING SCHOOL, INC., 612 So. Serrano, Los Angeles, California
Motel Management

42. NATIONAL INSTITUTE OF MEAT PACKING, INC., 188 West Randolph Street, Chicago, Illinois
Principles of American Meat Packing

43. NATIONAL TRAINING SERVICE, INC., 34 East Putnam Avenue, Greenwich, Connecticut
Civil Service Test Preparation; Commercial Art

44. SHEPPERD SCHOOL, P.O. Box 602, Willingboro, New Jersey 08046
"Shepperd Coaching Course in Contest Winning"; "Word Magic" (Non-Fiction Writing)

45. UNITED ELECTRONICS INSTITUTE, 3947 Park Drive, Louisville, Kentucky
Electronics Technology

46. UNIVERSAL MOTEL SCHOOLS, INC., 1872 N. W. 7th Street, Miami, Florida
Motel Training

47. WEAVER AIRLINE PERSONNEL SCHOOLS, INC., 3521 Broadway, Kansas City, Missouri
Air Line Personnel Training

LICENSED PRIVATE TRADE SCHOOLS

The following schools have been licensed by the State Board of Private Trade Schools for the period ending June 30, 1968 in accordance with the provisions of the Act of May 2, 1945, P. L. 401, as amended:

The schools should be contacted directly for the school catalog and specific information on courses.

1. ACADEMY OF VOCAL ARTS, 1920 Spruce Street, Philadelphia 19103
Voice

2. A.G.B. ASSOCIATES, INC., TRAINING SCHOOL, 900 Market Street, Lemoyne 17043
Telephone Line and Cable Construction; Telephone Cable Splicing

3. AMERICAN CHICK SEXING SCHOOL, Prospect and Line Streets, Lansdale 19446
Chick Sexing

4. AMERICAN INSTITUTE OF DRAFTING, INC., OF DELAWARE VALLEY, 4441 Frankford Avenue, Philadelphia 19124
Electro-Mechanical Drafting; Architectural Drafting; Blueprint Reading

5. AMERICAN INSTITUTE OF SCIENCE & TECHNOLOGY, INC., 512 Walnut Street, Philadelphia 19126
Medical Technology; Technical Writing & Editing; Medical Assistant

6. AMERICAN SEWING TRADE SCHOOL, INC., 39 N. 10th Street, Philadelphia 19107
Single Needle Power Sewing Machine Operator (Basic); Merrow Machine Operator; Bartack Operator; Blind Stitch Operator; Double Needle Operator; Ziz Zag Operator; Drafting and Pattern Making for Men's Clothing; Buttonhole Operator; Button Sewing Operator

7. ANTONELLI SCHOOL OF PHOTOGRAPHY, 209 North Broad Street, Philadelphia 19107
Photography; Camera Repair; Airbrush; Portrait Retouching; Hand Coloring; Photo Lithography

8. APEX TECHNICAL SCHOOL, 1320-22 Vine Street, Philadelphia 19107
Air Conditioning and Refrigeration

9. ART INSTITUTE OF PITTSBURGH, INC., 635 Smithfield Street, Pittsburgh 15222
Commercial Art-College Oriented; Commercial Art (Advertising Art); Fashion Illustration; Show Card Writing; Airbrush Techniques; Advertising; Life Drawing and Figure Drawing; Advanced Illustration; Negative Retouching and Photo Coloring

10. ARTIE SINGER VOCAL STUDIOS, 250 South Broad Street, Philadelphia 19102
Voice

11. A.T.E.S. TECHNICAL SCHOOL, 2823 W. 26th Street, Erie 16506
Electronic Engineering Technology; Electronic Technology; Radio and Television Receiver Servicing; Color Television; Digital Computer; Machine Design; Electro-Mechanical Design

12. AUTOMOTIVE TRAINING CENTER, DIVISION OF SPRING GARDEN INSTITUTE, 2815 N. 17th Street, Philadelphia 19132
Automotive Service Technology; Automotive Maintenance; Collision Reconditioning; Diesel Technology; Service Station Mechanic; Automobile Service Station Attendant-Mechanic; Automotive Air Conditioning and Truck Refrigeration

13. BEREAN MANUAL TRAINING & INDUSTRIAL SCHOOL, 1926 S. College Avenue, Philadelphia 19121
Tailoring; Advanced Tailoring; Dressmaking & Design; Advanced Dressmaking & Design; Millinery; Home Management and Child Care; Basic Electronics; Advanced Electronics; Commercial Art

14. BOWMAN TECHNICAL SCHOOL, Duke & Chestnut Streets, Lancaster 17602
Jewelry Store Technician; Watchmaking and Repairing; Engraving; Jewelry Repairing; Clockmaking and Repairing

15. BREEDEN SCHOOL OF WELDING, Central Avenue, Genesee 16923
Welding; General Shop Welding; Special Shop Welding; Inert Gas Arc Welding

16. BUILDING MAINTENANCE SCHOOL, 417-21 DeKalb Pike, Bridgeport 19405
Building Maintenance

17. CLARISSA SCHOOL, THE, 105 Sixth Street, Fulton Building, Pittsburgh 15222
Costume Design; Color, Line, Fabric; Dressmaking-Tailoring; Self Design Dressmaking-Drafting; Pattern Making; Millinery; Personal Improvement; Chair Covering; Drapery Making; Men's Garment Design and Grading; Men's Tailoring

18. CRAFT SCHOOL OF TAILORING, INC., 1042 Ridge Avenue, Philadelphia 19123
Tailoring; Advanced Tailoring; Special Sewing Machines

19. EARL WHEELER SUCCESS SCHOOLS, Penn Sheraton Hotel, First Floor, Pittsburgh 15219
Modeling; Teacher Training for Models; Advanced Charm and Modeling; Charm and Finishing; Airline Hostess Training; Advanced Finishing; Drama; Television Modeling and Commercials

20. EDUCATIONAL INSTITUTE OF PITTSBURGH, INC., 212 Ninth Street, Pittsburgh 15222
Industrial Management Technology; Metallurgical Technology; Design and Engineering; Business and Management Administration; Plastics Technology; Applied Design Technology

21. ELECTRONIC INSTITUTES, INC., 1678 South Cameron Street, Harrisburg 17104
Electronic Technology; Communications Technician; Industrial Electronic Mechanic; Electronic Technician (Resident-Home Study)

22. ELECTRONIC INSTITUTES, INC., 1402 Penn Avenue, Pittsburgh 15222
Electronic Technology; Communications Technician; Industrial Electronic Mechanic; Electronic Technician (Resident-Home Study) Pre-Technology; Drafting and Design Technology; Electro-Mechanical Drafting.

23. ELECTRONIC TECHNICAL INSTITUTE, INC., 1300 Arch Street, Philadelphia 19107
Electronic and Computer Technology; Television Service and Repair; Color Television; Electronic Assembly

24. ELECTRONICS TRAINING CENTER, D Street South of Erie Avenue, Philadelphia 19134
Electronics Servicing; Electronics Technology; Electronics Communications Technician-Resident Home Study (2nd Class FCC License Preparation) Electronics Communications (FCC Preparation)

25. ELECTRONICS TRAINING CENTER, DIVISION OF RADIO TELEVISION TECHNICAL SCHOOLS, INC., 4575 Tilghman Street, Allentown 18104
Electronics Technology; Electronics Technician—Resident-Home Study; Electronics Communications (FCC License Preparation); Radio & Television Servicing

26. ENGINEERING INSTITUTE OF AMERICA, INC., 2236 East Street, Pittsburgh 15212
Bricklaying; Plumbing; Plastering; Maintenance Electricity; Automotive Mechanic and Collision Work; Welding; Arc, Oxyacetylene, Pipe, Inert Gas; Fitter; Layout; Cement Finishing; Stone Masonry; Drafting; Mechanical, Structural, Architectural; Estimation for the Building Trades; Commercial Art

Annex: 107 Sixth Street, Fulton Building, Pittsburgh
Mechanical Drafting; Structural Drafting, Architectural Drafting for the Building Trades; Estimating for the Building Trades; Commercial Art

27. FASHION ACADEMY OF PITTSBURGH, 336 Fourth Avenue, Pittsburgh 15222
Dress Design and Clothing Construction; Millinery; Fashion Illustration

28. FAYETTE INSTITUTE OF COMMERCE & TECHNOLOGY, INC., 45 W. Kerr Street, Uniontown 15401
House Wiring; Commercial & Industrial Wiring; Motor Repair; Maintenance Electricity; Architectural Drafting; Mechanical Drafting; Structural Drafting; Arc & Oxyacetylene Welding; Inert-Gas Shielded Arc Welding

29. FRANKLIN SCHOOL OF SCIENCE & ARTS, INC., 251 S. 22nd Street, Philadelphia 19103
Medical Technology; X-Ray Technology; Medical Secretary-Technical; Medical Secretary—Non-Technical; Combined Medical Secretary & Medical Technology; Combined Medical Secretarial & Medical Technology and X-Ray Technology; Combined Medical Secretarial & X-Ray Technology; Combined Medical & X-Ray Technology

30. GATEWAY TECHNICAL INSTITUTE, INC., 100 Seventh Street, Pittsburgh 15222
Electronics; Air Conditioning and Refrigeration Technology; Practical Refrigeration and Air Conditioning; Technical Drafting; Structural Drafting; Architectural Drafting; Machine Design; Jig, Tool and Die Design

31. GRANOFF SCHOOL OF MUSIC, 2118 Spruce Street, Philadelphia 19103
Music: Voice Major, Piano Major, Instrument Major

32. GRAPHIC ARTS EDUCATION CENTER, 1900 Cherry Street, Philadelphia 19103
Introduction to Graphic Arts; Graphic Arts Production Planning; Advanced Printing Production; Paper & Papermaking; Professional Proofreading; Workshop in Printing in Cost Management; Sales Persuasion; Techniques of Plant Supervision; Lithographic Estimating for Volume and Profit; Typographic Layout and Design; Printing Technology; Today and Tomorrow; Industrial Relations; Sales Management & Marketing; Designer Form of the Printing Industry

33. GREENSBURG INSTITUTE OF TECHNOLOGY, 302 W. Otterman Street, Greensburg 15601
Mechanical Drawing Technology; Architectural Drafting Technology; Structural Drafting Technology; Electrical Technology; Mechanical Design Technology; Blueprint Reading for the Machine Trades I & II; Basic Electronics; Bricklaying; Plastering

34. GYSEGEM'S SCHOOL FOR BAKERS AND CATERERS, 412 Fallowfield Avenue, Charleroi 15022
General Baking; Cake and Pastry Decoration; Catering; Candy Making

35. HOUSE OF CHARM, THE, 133 North 8th Street, Allentown 18101
Modeling and Finishing

36. HUSSIAN SCHOOL OF ART, INC., 34 South 17th Street, Philadelphia 19103
Fine Arts; Commercial Arts

37. INDIANA SCHOOL OF TECHNOLOGY, 1675 Saltsburg Road, Indiana 15701
Mechanical Technology; Mechanical Technician; Drafting II

38. INDUSTRIAL MANAGEMENT INSTITUTE, Y.M.C.A. Building, 631 Washington Street, Reading 19601
Industrial Management; Drafting: Basic, Mechanical, Architectural, Electrical and Electronic; A.I.D.D. Program; Industrial Drafting Illustrator; Tool Design; Die Design

39. INSTITUTE OF COMPUTER MANAGEMENT OF PHILADELPHIA, INC., 2204 Walnut Street, Phila. 19103
Data Processing Machine Repair

40. INTERNATIONAL ACADEMY OF BROADCASTING, 201 Ewing Avenue, Pittsburgh 15205
Broadcast Announcer

41. IVY SCHOOL OF PROFESSIONAL ART, 201-07 Market Street, Pittsburgh 15222
Commercial Art: Majors in Advertising Design & Art Direction; Story and Advertising Illustration; Retail Art: Film and TV Arts; Cartooning; Interior Design and Decoration; Fine Arts

42. JOHN ROBERT POWERS CHARM & FINISHING SCHOOL, 1425 Chestnut Street, Philadelphia 19102
Personalized Grooming; Basic Personalized Grooming; Advanced Modeling

43. JOHN ROBERT POWERS SCHOOL OF PITTSBURGH, INC., 211 Oliver Avenue, Pittsburgh 15222
Introductory Finishing; Basic; Complete; Pre-Airlines Interview Training; Telecasting and Broadcasting Techniques; Modeling (Fashion, TV, Photo); Basic

44. JOHN WANAMAKER CHARM & MODELING SCHOOL, 13th and Market Streets, Philadelphia 19101
Charm & Modeling—Pre-Teen, Charm & Modeling—Young Junior

45. KALIX TRADE SCHOOL, INC., 439-43 North 11th Street, Philadelphia 19123
Electric Arc Welding, Oxy-Acetylene Welding; Combination Electric Arc & Oxy-Acetylene Welding

46. KEYSTONE SEWING MACHINE REPAIR INSTITUTE, 807 Carpenter Street, Philadelphia 19147
Sewing Machine Mechanic; Home Sewing Machine Repair and Attachments

47. LINCOLN TECHNICAL INSTITUTE, 4201 Wissahickon Avenue, Philadelphia 19129
Automatic Transmissions; Engine Tune-Up; Automotive Mechanics; Automotive Mechanics (Resident-Home Study) Master Automotive Mechanics; Automotive Air Conditioning

48. MAYNARD RESEARCH COUNCIL, INC., The Maynard Building, 718 Wallace Avenue, Pittsburgh 15221
Time Study, Methods Engineering, Methods and Time Measurements, Objective Decision Making

49. McCARRIE SCHOOL OF MECHANICAL DENTISTRY, INC., 37 S. 20th Street, Philadelphia 19103
Mechanical Dentistry; Dental Nurse Technician; Dental Laboratory Business Management

50. MEDIAN SCHOOL, 121 South Highland Avenue, Pittsburgh 15206
Dental Assistant; Nursing Assistant

51. MONOTYPE SCHOOL, LANSTON MONOTYPE COMPANY, 3620 G Street, Philadelphia 19134
Monotype Keyboard Operation; Monotype Casting Machine Operation; Giant Caster; Type and Rule; Material Making Machine; Monotype Thompson Caster

52. NATIONAL SCHOOLS, INC., 1600 Sansom Street, Philadelphia 19103
Nursing Assistant; Child Care; Specialized Nursing

53. NEW CASTLE SCHOOL OF TRADES, INC., R. D. #1, Pulaski 16143
Auto Body & Fender Repair; Service Station Attendant; Automotive Assistant; Automotive Technician; Automotive Repair; Basic Electricity-Prerequisite; Interior & Industrial Wiring; Electric Motor Winding and Repair; Appliance Repair; Welding; Electric Arc, Acetylene, Heliarc and Welders Assistant; Building Maintenance; Radio and TV Repair; Institutional Aide; Bricklaying and Stone Masonry

54. PENN TECHNICAL INSTITUTE, 5440 Penn Avenue, Pittsburgh 15206
Electronics Technology; Practical Electronics for Engineers and Scientists; Transistors; Pulse and Digital Techniques

55. PENNSYLVANIA GUNSMITH SCHOOL, 812 Ohio River Boulevard, Avalon, Pittsburgh 15202
Master Gunsmithing

56. PENNSYLVANIA INSTITUTE, 2840 Glenmore Avenue, Pittsburgh 15216
Estimating for Business and Construction Trades; Blueprint Reading

57. PENNSYLVANIA INSTITUTE OF TECHNOLOGY, 414 Sansom Street, Upper Darby, 19082
Aerospace Engineering Technology; Architectural Engineering Technology; Industrial Electronic Engineering Technology; Industrial Electronics Design Technology; Industrial Structural Engineering Technology; Mechanical Engineering Technology; Tool Design Technology; Drafting Design Technology

58. PENNSYLVANIA MEAT CUTTING TRAINING CENTER, INC., 5948 Larchwood Avenue, Philadelphia 19143
Meat Cutting, Boning and Processing

59. PHILADELPHIA DRAMA WORKSHOP STUDIO, 105 S. 18th Street, Philadelphia 19103
Dramatic Art (Cycle I, II, III, IV) Children's Drama; Dramatic Art

60. PHILADELPHIA INSTITUTE OF VOCATIONAL TRAINING, INC., Met Building, Broad & Poplar Streets, Philadelphia 19130
Painting; Paperhanging & Decorating; Linoleum & Tile Installation

61. PHILADELPHIA MODELING & CAREER SCHOOL, 105 South 18th Street, Philadelphia 19103
Professional Modeling; Finishing; Basic Modeling

62. PHILADELPHIA MULTILITHING & OFFSET SCHOOL, 1541 Sansom Street, Philadelphia 19102
Multilith Offset Printing; Multilith Offset Printing (Short Course) Camera and Negative Making; Multilith Offset Printing

63. PHILADELPHIA SUBURBAN SCHOOL OF TYPEWRITER AND OFFICE MACHINE REPAIR, 135-45 South 13th Street, Philadelphia 19107
Typewriter Repair; Office Machine Repair

64. PHILADELPHIA TECHNICAL INSTITUTE, SCHOOL OF TRADES, INC., 231 N. Broad Street, Philadelphia 19107
Aeronautical Drafting; Architectural Drafting; Mechanical Drafting; Air Conditioning & Refrigeration Engineering; Advertising Art; Cartooning; Show Card Writing and Sign Painting; Photographic Silk Screen Printing; Blueprint Reading; Electricity

65. PHILADELPHIA WIRELESS TECHNICAL INSTITUTE, 1533 Pine Street, Philadelphia 19102
Practical Radio Engineering; Radar & Microwave Techniques; Radar Fundamentals and Maintenance; Practical Radio Engineering (Combination of Courses 1 & 2D); Analogue & Digital Computer Theory; Air Conditioning & Refrigeration; Oil Burner Service; Microwave Techniques; Navigation; Basic Electronics; Advanced Oil Burner Servicing; Oil Heating, Air Conditioning & Refrigeration; Transistors & Transistor Circuits; Pulse and Digital Techniques

66. PHILCO TECHNICAL INSTITUTE, 219 North Broad Street, Philadelphia 19107
Electronic Engineering Technology; Electronic Technician; Computer Fundamentals, Programming, Maintenance; Radio & TV Maintenance; Related Electronics Courses; Automatic Merchandising Machine Mechanics; Electro-Mechanical Engineering Graphics; Automotive Technician
Annex: 810-830 E. Cayuga Street, Philadelphia 19124
Automotive Technician; Advanced Automatic Transmissions (Ford, Chrysler, General Motors); Front Suspension, Steering, Alignment, Balance; Advanced Carburetion & Fuel Systems; Advanced Automotive Electricity; Engine Tune-Up & Diagnosis; Engine Analysis & Rebuilding

67. PITTSBURGH INSTITUTE OF AERONAUTICS, Allegheny County Municipal Airport, West Mifflin, Box 10897, Pittsburgh 15236
Master Airframe & Power Plane Mechanic; Master Airframe Mechanic; Master Powerplant Mechanic; Airframe and Power Plant Mechanic; Airframe Mechanic; Powerplant Mechanic; Enrollment Prerequisite Phase, Aeronautical Maintenance Technician

68. PITTSBURGH INSTITUTE OF MORTUARY SCIENCE, INC., 3337 Forbes Street, Pittsburgh 15233
Embalming & Funeral Direction

69. PITTSBURGH PLAYHOUSE SCHOOL OF THE THEATER, 222 Craft Avenue, Pittsburgh 15213
Acting Techniques and Stage Mounting I; Acting Techniques and Stage Mounting II; Threatrical Design and Stage Mounting I

70. QUAKER CITY SCHOOL OF AERONAUTICS, INC., 2563-69 Grays Ferry Avenue, Philadelphia 19146
Airframe Mechanics; Powerplant Mechanics; Mechanics; Airframe & Powerplant Mechanics

71. R.E.T.S. ELECTRONIC SCHOOLS, 214 S. 69th Street, Upper Darby 19082
Electronic Technician; Practical Industrial Electronics (Resident-Home Study)

72. ROSEDALE TECHNICAL INSTITUTE, 4935 Verona Road, Verona 15147
Automotive Mechanics; Auto Body and Fender Repair; Advanced Automatic Transmissions

73. SCHOOL OF ART AND DESIGN, INC., 1306 Arch Street, Philadelphia 19107
Professional Art and Design

74. SCHOOL OF THE FRANKFORD WELDING COMPANY, NWC Paul & Torresdale Avenue, Philadelphia 19124
Electric Welding; Acetylene Welding

75. STERLING INSTITUTE, INC., 704-06 Fox Building, 16th and Market Streets, Phila. 19101
Waiter and Waitress Service; Bar Management

76. STUDIO SCHOOL OF ART & DESIGN, 1424 Spruce Street, Philadelphia 19102
Illustration and Advertising Art; Technical Illustration

77. TECHNICAL TRADE SCHOOL OF ALTOONA, 221 Seventh Avenue, Altoona 16601
Watchmaking; Master Course in General Shoe Repairing; Orthopedic Corrections and Custom Shoemaking; Sewing Machine Repairing Rebuilding; Service Station Attendant

78. THOMPSON INSTITUTE, 18 North Fourth Street, Harrisburg 17101
Industrial Management; Nancy Taylor Finishing and Modeling; Basic Engineering Drawing

79. TRACEY-WARNER SCHOOL OF FASHION DESIGN, 665 N. Broad Street, Philadelphia 19123
Pattern Drafting; Pattern Grading; Fashion Design, & Fashion Illustration; Men's Designing, Pattern Making & Grading; Millinery; Dressmaking; Fashion Technology II; Fashion Technology I; Costume History; Draping Design; Tailoring

80. TRAINING SERVICES INSTITUTE, R. D. #1, Jermyn 18433
Heavy Equipment Operation

81. TRIANGLE SCHOOL OF DRAFTING, 4 Smithfield Street, Pittsburgh 15222
Mechanical Drafting & Design; Architectural Drafting & Construction; Structural Drafting; Blueprint Reading for Machine Trades; One-Point & Two-Point Perspective Drawing; Time Study and Cost Estimation; Advanced Piping Drafting; Advanced Machine Design Drafting; Advanced Industrial Design Drafting

82. UNIVERSAL ART ACADEMY, INC., 313 Sixth Avenue, Pittsburgh 15222
Commercial Art: Sign Painting & Silk Screen Process; Interior Design; Drawing and Painting; Airbrush; Fashion & Merchandise Illustration; Interior Decoration; Professional Cartooning; Practical Home Decorating

83. VALE TECHNICAL INSTITUTE, INC., 35 N. Liberty Street, Blairsville 15717
Automotive Mechanics; Body and Fender Repair; Automotive Technics and Management; Estimatics; Estimatics (Refresher Course)
Annex: 147 West Market Street, Blairsville
Automotive Frame & Front End Alignment; Automotive Technics & Management; Estimatics

84. VICTORIA MODELING SCHOOL, 415 Smithfield Street, Pittsburgh
Fashion and Photographic Modeling; Self-Improvement

85. WASHINGTON SCHOOL OF DRAFTING, 90 East Beau Street, Washington 15301
Engineering Drafting; Practical Drafting

86. WESTERN PENNSYLVANIA INSTITUTE OF TECHNOLOGY, INC., 339 Boulevard of the Allies, Pittsburgh 15222
Tool & Die Designing; Draftsman-Detail; Architectural Drafting; Mechanical, Structural Drafting; Electrical Drafting & Technology; Blue Print Reading; Appliance Repair; Electricity (House Wiring Major); (Industrial Electricity Major); Motor Repairing; Heavy Appliance Repair

87. WESTINGHOUSE TECHNICAL NIGHT SCHOOL, Penn Avenue School Building, Turtle Creek 15145
Electronics; Mechanical Drawing; Preparatory Course; Engineering Fundamentals

88. YORK ACADEMY OF ARTS, 205 S. George Street, York 17405
Commercial Art; Fine Art

OUT-OF-STATE PRIVATE TRADE SCHOOLS

The following out-of-state schools have been accepted by the State Board of Private Trade Schools for the licensure of agents to solicit students in the Commonwealth of Pennsylvania in accordance with the provisions of the Act of May 2, 1945, P. L. 401, as amended for the period ending June 30, 1968:

The schools should be contacted directly for the school catalog and specific information on courses.

1. CAREER ACADEMY, INC.
825 North Jefferson Street, Milwaukee, Wisconsin 53202
203 North Wabash Avenue, Chicago, Illinois 60601
2233 Wisconsin Avenue, N. W., Washington, D. C. 20007
2045 Peachtree Road, N. E., Atlanta, Georgia 30309
8 W. 40th Street, New York 10018
Medical Assisting; Dental Assisting; Dental Technology; Radio Broadcasting

2. CENTRAL TECHNICAL INSTITUTE, 1644 Wyandotte Street, Kansas City, Missouri 64108
Electronic Engineering Technology; Commercial Broadcast Technology; Electronic Technician Course

3. CLEVELAND JUNIOR COLLEGE, 2350 Euclid Avenue, Cleveland, Ohio 44115
Medical Assistant; Medical Secretary; Medical Assistant-Secretary & X-Ray; Medical Technologist; Medical Technologist and X-Ray

4. DEVRY TECHNICAL INSTITUTE, INC., 4141 Belmont Avenue, Chicago, Illinois 60641
Electronics Engineering Technology; Electronics Technician

5. GALE INSTITUTE, INC., 3006 Hennepin Avenue, Minneapolis, Minnesota 55408
Engineering Drawing

6. GREER TECHNICAL INSTITUTE, INC., 2230 S. Michigan Avenue, Chicago, Illinois 60616
Automotive Mechanics; Automotive Transmissions; Body and Fender Repair; Welding; Diesel Mechanics; Machine Shop; Refrigeration & Air Conditioning

GREER TECHNICAL INSTITUTE, INC.
BRANCH SCHOOL: Box 368, Braidwood, Illinois
Operation and Preventive Maintenance of Trucks, Bulldozers, End Loaders; Operation and Preventive Maintenance of Motor Graders; Operation and Preventive Maintenance of Trucks, Bulldozers, End Loaders, Scrapers, Motor Graders; Operation and Preventive Maintenance of Back Hoe, Dragline, Shovel and Clam (Cranes); Operation and Preventive Maintenance of Back Hoe, Dragline and (Cranes); Construction Equipment Mechanic; Combination of Course; Truck Driver Training

7. NASHVILLE AUTO DIESEL COLLEGE, 226 Seventh Avenue, North, Nashville 3, Tennessee
Automobile Mechanics; Automotive and Diesel Merchanics; Arc and Acetylene Welding; Auto Body and Fender Repair; Combination Body Repair and Welding; Combination Auto-Diesel, and Welding

8. RADIO ELECTRONIC TELEVISION SCHOOLS, INC., 107 Market Place, Baltimore, Maryland 21202
Industrial Electronics & Communication Engineering Technology; Electronic Computer Field Service Engineering Technology; Specialized Course in Electronic Technology for Practical Electronic Technician, Resident-Home Study

LICENSED SCHOOLS OF SPECIAL EDUCATION

The following schools have been licensed by the State Board of Private Trade Schools for the period ending June 30, 1968 in accordance with the provisions of the Act of May 2, 1945, P. L. 401, as amended:

CLAVER SCHOOL FOR GIRLS, 5301 Chew Street, Philadelphia 19138
Nursing Assistant; Home Dressmaking

ELWYN INSTITUTE, 111 Elwyn Road, Elwyn 19063
Baker Assistant; Cook Assistant; Dental Assistant; Hospital Aide, Kitchen Helper; Laundry Worker; Printing; Tailor Assistant; Cement Finisher and Brick Layer Helper; Electrician's Helper; Painter's Helper; Plasterer's Assistant; Custodial Worker; Carpenter's Helper; Plumber's Helper; Stock Clerk

JASON SCHOOL, INC., THE, SEC Broad & Spring Streets, Philadelphia 19123
Male Institutional Aide

MARYMOUNT INSTITUTE, 1135 Schuylkill Avenue, Reading 19601
Professional Sewing; Food Preparation and Service; Institutional Laundry Service

PHILADELPHIA INSTITUTE OF VOCATIONAL TRAINING, INC., Broad and Poplar Streets, Philadelphia 19107
Painting; Paperhanging and Decorating; Linoleum and Tile Installation

RICHFIELD SCHOOL, THE, 227 North Broad Street, Philadelphia 19107
Service and Repair of Lawn Mowers, Snow Blowers and Small Gas Engines

SEDGWICK SCHOOL, THE, 1346 North Broad Street, Philadelphia 19121
Institutional Aide

REFERENCE INDEX

A number has been placed to the left of the school titles in each separate list of licensed and approved private business, correspondence and trade schools.

The occupational titles listed under FIELD OF TRAINING are followed by the school numbers where training for the specific field may be secured. To facilitate use of the index, a number of allied or related training courses have been grouped into a single broad title. For example under "Accounting" or "Electronics-Radio-Television" a variety of skills in these fields are included in the school references.

The Reference Index will be subject to revision each fiscal year beginning July 1. Additional information regarding schools which may be licensed or approved after July 1 may be obtained from the Supervisors of the private business, correspondence and trade schools (Please see page 1) (Legal Authority).

Schools which refer to their catalogs for course offerings rather than listing their specific courses should be contacted directly. Their school numbers will not appear in the Reference Index.

REFERENCE INDEX

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
ACCOUNTING	2, 3, 4, 5, 6, 8, 9, 16, 17, 20, 21, 34, 35, 36, 37, 38, 39, 47, 48, 49, 50, 52, 57, 65, 66, 70, 78, 79, 80, 82, 83, 86, 87, 88, 94, 95, 96, 97, 99, 104, 108, 109, 113, 115, 116, 119, 121, 123, 124	3, 5, 6, 7, 11 12, 17, 18, 19	12	2, 28, 33, 37, 40		
AIR CONDITIONING OIL HEATING REFRIGERATION				2, 4, 19, 30	8, 12, 30, 47 64, 65	6
ART Includes: Advertising, Commercial, Fashion Illustration, Fine, Illustration, Interior Design, Sketching	102			10, 25, 37, 43	9, 13, 26, 27, 36, 41, 64, 73, 76, 79, 82, 88	
AUTOMOTIVE SERVICES Includes: Automatic Transmissions, Body and Fender Repair, Collision Work, Diesel Mechanics, Mechanics, Salesman, Service Station Attendant, Tune-up				4, 19, 30	12, 26, 47, 53, 66, 72, 83	6, 7
BUILDING TRADES				17, 19	26, 28, 33, 53, 56, 86	

REFERENCE INDEX — continued

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
BUSINESS Administration, General	1, 2, 3, 4, 5, 9, 16, 17, 20, 21, 35, 36, 37, 38, 47, 50, 52, 64, 65, 66, 70, 79, 80, 82, 83, 86, 87, 88, 94, 95, 96, 99, 104, 109, 113, 115, 116, 119, 121, 123, 124	3, 5, 6, 11, 12, 17, 19	12	1, 14, 31, 33	20, 40	
CLERICAL–BOOKKEEPING	5, 8, 18, 19, 20, 38, 48, 53, 54, 57, 70, 80, 83, 91, 92, 95, 96, 97, 106		12	2, 40		
CLOTHING–SEWING Includes: Design Drapery Dressmaking Fashion Machine Operation Millinery Pattern-Making Slip Covers Tailoring Upholstering					6, 13, 17, 18, 27, 79	
CPA PREPARATION	15, 55, 107, 111, 112			37		
DRAFTING–DESIGN *BLUE PRINT READING*			2, 6	4, 17, 28, 37	4, 9, 13, 20, 22, 26, 28, 30, 33, 37, 38, 56, 57, 64, 78, 81, 85, 86, 87	5
ELECTRONICS–RADIO–TELEVISION Includes: Electricity Engineering			10, 11	2, 4, 16, 17, 18, 19, 21, 40, 45	11, 13, 21, 22, 23, 24, 25, 28, 30, 33, 38, 48, 53, 54, 57, 64, 65, 66, 71, 81, 86, 87	2, 4, 8

REFERENCE INDEX — continued

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
FOOD SERVICES				42	34, 58, 75	
HEALTH SERVICES Includes: Dental Medical Nursing Technology			1, 4, 8	15, 37	5, 29, 49, 50, 52	1, 3
HEAVY EQUIPMENT–MACHINE OPERATION				5, 11, 30	80	6
JEWELRY–WATCHMAKING					14, 77	
MACHINES Includes: Automatic Operation Business Computers Data Processing	2, 4, 5, 7, 13, 14, 16, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 49, 54, 58, 59, 60, 61, 62, 63, 67, 71, 72, 80, 83, 84, 85, 87, 88, 89, 95, 96, 98, 99, 100, 108, 113, 116, 119, 120, 123	2, 3, 6, 7, 10, 11, 15, 18, 19	4, 10	16, 22, 28		
MAINTENANCE–BUILDING–MECHANICAL					16, 26, 53, 65, 66, 67	
MANAGEMENT Includes: Business Home Hotel-Motel Industrial Shop Supervision Traffic	1, 36, 38, 39, 47, 59, 116	3, 14, 19	1, 4	6, 7, 14, 20, 33, 34, 37, 38, 41, 46	13, 20, 32, 38, 48, 49, 75, 78, 83	
MECHANICS–MACHINE SHOP				4	37, 46, 67, 70, 72	6, 7
MERCHANDISING–RETAILING	95, 96, 114, 122					

REFERENCE INDEX — continued

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
PERFORMANCE Includes: Acting Broadcasting Dramatic Art Finishing-Modeling Music and Voice Television				15, 18	1, 10, 19, 31, 35, 40, 42, 43, 44, 59, 61, 69, 78, 84	1, 2
PHOTOGRAPHY–PHOTO-LITHOGRAPHY				26	7, 9, 62	
PRINTING					32, 51, 62, 64	
PROGRAMMING	4, 7, 13, 14, 27, 28, 29, 30, 31, 32, 33, 34, 40, 42, 43, 44, 45, 46, 58, 59, 60, 62, 63, 67, 80, 83, 89, 96, 98, 100, 113, 116	2, 8, 9, 10, 15	10	13, 22, 33	66	
SALESMANSHIP	9, 38, 68, 69, 88, 92, 95, 96, 99, 105, 115, 116		12	37	32	
SECRETARIAL With Specialties	2, 3, 4, 5, 6, 8, 9, 16, 17, 20, 21, 35, 36, 37, 38, 39, 41, 47, 48, 49, 50, 51, 52, 56, 57, 64, 65, 66, 70, 74, 75, 76, 77, 79, 80, 82, 83, 86, 87, 88, 90, 93, 94, 95, 96, 99, 101, 104, 108, 109, 113, 115, 116, 118, 119, 121, 122, 123, 124	3, 4, 5, 6, 7, 11, 12, 14, 16, 17, 18, 19		37	29	

REFERENCE INDEX — continued

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
SERVICE AND REPAIR Includes: Camera Clock and Watch Data Processing Electrical Jewelry Motor Oil Burner					7, 14, 23, 25, 28, 39, 46, 53, 63, 65, 77, 86	
STENOGRAPHIC OFFICE TRAINING Includes: Office Machines Receptionist Shorthand Switchboard Typing	2, 3, 4, 5, 6, 8, 9, 16, 17, 18, 19, 20, 21, 32, 34, 35, 36, 37, 38, 39, 41, 47, 48, 49, 50, 52, 53, 54, 57, 58, 59, 64, 65, 66, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 96, 97, 99, 101, 103, 104, 108, 109, 110, 113, 115, 116, 117, 118, 119, 120, 121, 123, 124	3, 5, 6, 7, 11, 12, 16, 17, 18, 19	1, 4, 11, 12	37		
TAXES	10, 11, 12, 41, 83					
TRANSPORTATION-TRAFFIC Includes: Air Commercial Navigation Personnel Training Travel Agents	1, 93, 96	1, 13, 14		3, 12, 16, 28, 30, 37, 47	65	
WELDING				30	15, 26, 28, 45, 53, 74	6, 7

REFERENCE INDEX — concluded

FIELD OF TRAINING	PRIVATE BUSINESS SCHOOLS		PRIVATE CORRESPONDENCE SCHOOLS		PRIVATE TRADE SCHOOLS	
	Licensed	Approved	Licensed	Approved	Licensed	Approved
MISCELLANEOUS						
Academic and Vocational Courses	32, 34, 53, 90, 101		6	1, 37	87	1
Home Study and Extension					21, 22, 24, 25, 47, 48, 71	8
Airframe-Power Plant Mechanics					67, 70	
American Law and Procedure				37		
Bank Teller	19					
Chick Sexer					3	
Civil and Federal Service Preparation				24		
Clerical Postal Law Enforcement			3, 5	23, 24, 29, 33, 36, 37, 40, 43		
Court and Convention Reporting	73, 79, 110	3, 12				
Economic Engineering					68	
Embalming and Funeral Direction	83					
Estate Planning	41					
Fashion Career	93					
Finance Securities				28		
Gunsmithing					55	
Institutional Aide					53	
Insurance	41			28, 32		
Jet Engines				35		
Journalism-Writing	102			5, 10, 27, 44	5	
Metallurgical Technology					20	
Plastics Technology					20	
Real Estate	83			37		
Shoe Repairing–Orthopedic Corrections					77	
Telephone Line and Cable Construction					2	

VT 006 347
Bishop, Rowland; Coughenour, C. Milton
Discontinuance of Farm Innovations. Dept. Series A.E. 361.

Ohio State Univ., Columbus. Dept. of Agricultural Economics and Rural Sociology
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Pub Date - Apr64 8p.

*REJECTION; *FARMERS; *INNOVATION; *CHANGING ATTITUDES; *FARM MANAGEMENT; BEHAVIOR CHANGE; TECHNOLOGICAL ADVANCEMENT; DIFFUSION
OHIO

The practice of discontinuing farming methods which have been adopted and approved was investigated to determine characteristics of farmers discontinuing practices and when in the course of technological change the discontinuance occurred. The 79 farmers in the sample were classified according to the relative speed with which they adopt new ideas as: innovators, early adopters, early majority, late majority, and laggards. Some findings were: (1) The 39 farmers who had discontinued some practice had a slightly higher social status, more education, higher gross farm income, and were a few years younger than farmers who had not discontinued practices, (2) The tendency to discontinue improved practices was more than twice as great for laggards as for innovators and early adopters, (3) Laggards discontinued innovations for reasons other their economic value, (4) The five practices highest in discontinuance had been in use for ten years or more, (5) A variety of conditions led to the disuse of one practice in any one year, (6) Should conditions change, the farmers might use the practice again, (7) Discontinuance was more likely with practices requiring multiple decisions and when adoption of a practice was affected by complex relationships to other farming operations. (DM)

VT 006 347

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DISCONTINUANCE OF FARM INNOVATIONS

by

Rowland Bishop

and

C. Milton Coughenour

Departmental Series
A.E. 361

Department of Agricultural Economics and Rural Sociology

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April, 1964

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DISCONTINUANCE OF FARM INNOVATIONS

by

Rowland Bishop
and
C. Milton Coughenour*

"There is nothing so sure as death and taxes" is an old saw which needs to be amended. In our modern times nothing is so sure as change. Changes in technology have created problems, albiet a better life, for all of us.

In striving for improvement, we adopt new methods and new products as we become aware of them and are convinced of their usefulness. But, some persons stop using an innovation after making it work for a period of time. Ideas that are rejected after having been adopted are called discontinuances.

Discontinuances

In farming, the discontinuance of approved practices occurs at a surprisingly high level. One often thinks of discontinuance as a natural accompaniment of obsolescence. But, this accounts for only a small part of all discontinuances that occur. Farmers are continually changing their operations, e.g., from hogs to dairying, with the result that the practices for hogs and related crops are dropped. In other instances, the innovation may not seem to have brought the promised return, or one less valuable than its cost. Some farmers discover that use of a new idea is more troublesome than they had anticipated, or requires more advance planning than they habitually engage in.

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Discontinuance, if accompanied by adoption of a practice better-suited to the farmer's farming operation, is desirable. Costly and inefficient farm operations result, however, if he rejects a practice because he can not adapt to the planning demands of the new practice or is unwilling to make the necessary adjustments in his farm enterprise.

A recent Wisconsin study by rural sociologists indicates that discontinuances occur at about the same rate as the adoption of innovations. In a Kentucky county, over a ten-year period 18 percent of the approved practices were discontinued. In Ohio, about 50 percent of a state-wide sample of 79 farmers discontinued at least one improved practice in the six year period between 1957 and 1963.

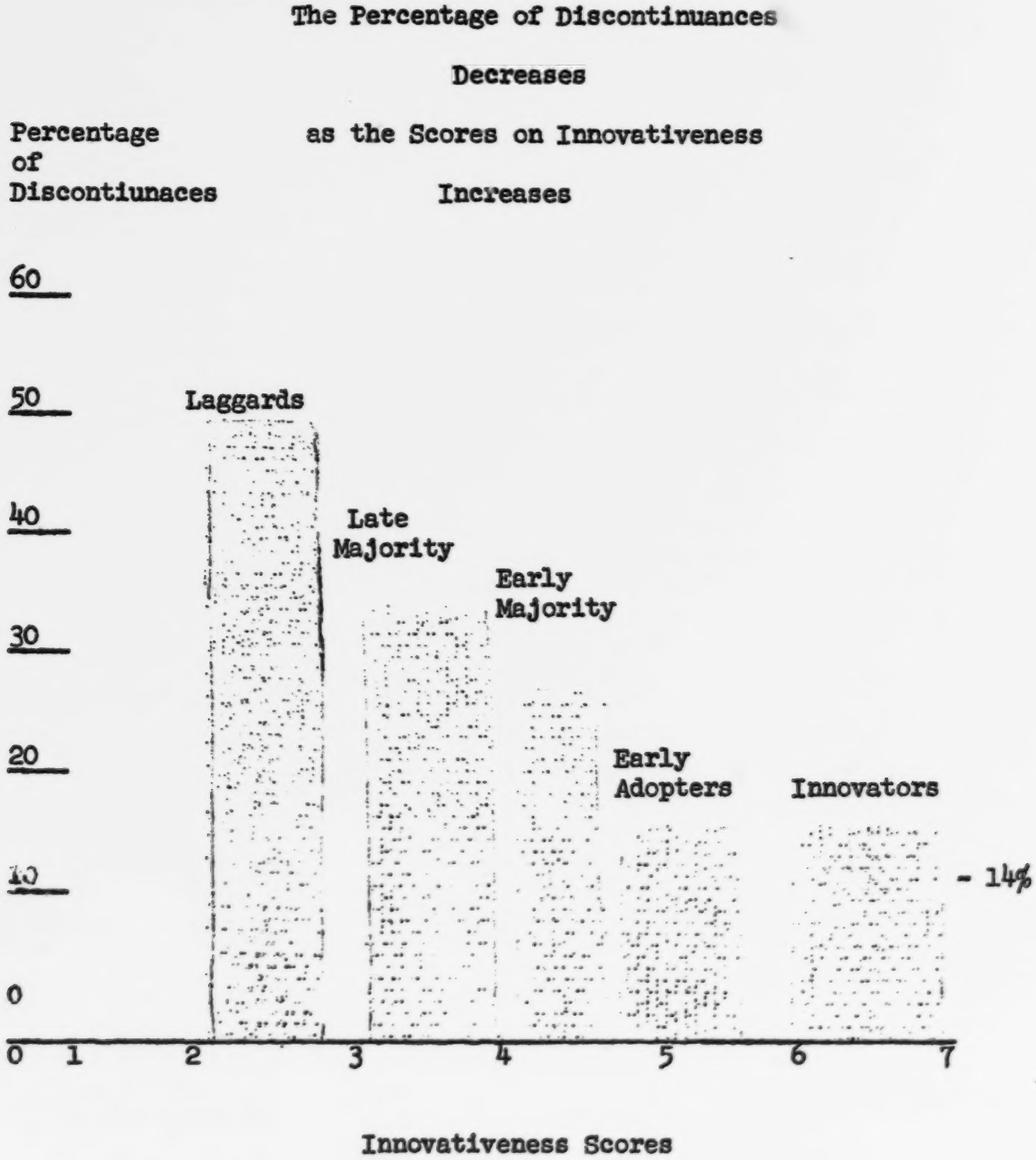
While these figures indicate that improved farming practices have relatively short life-expectancies, it is not the overall rates which are important for improvement in farming. Instead, it is the question: who has discontinued the practice and when in the course of change in technology has the discontinuance occurred? A partial answer is provided by information from Ohio farmers.

Farmers Who Discontinue Practices

Farmers have been classified as to the relative speed with which they adopt new ideas: Innovators, Early Adopters, Early Majority, Late Majority, and Laggards. Innovators are the first farmers to adopt new ideas, and Laggards are the last.

The more new ideas a person adopts, the greater the chance that in the course of time someone of them will be found wanting and will be discontinued. In six years about seven out of ten Innovators and Early Adopters who had adopted the most practices, had discontinued at least one improved practice. By contrast, only half of the Laggards had discontinued an innovation during the same period of time.

Figure 1. Total Discontinuances compared to total innovations.



The 39 farmers who discontinued some practice (out of the total sample of 79) had a slightly higher social status; more education, and more gross farm income; and were a few years younger than farmers who had not discontinued practices.

However, when we consider the rate of discontinuance, instead of the number of discontinued, a different pattern emerges. The proportion of practices discontinued to total adopted declines directly with the total number adopted. This can be seen by comparing Early Adopters and Laggards as to the percentages of practices discontinued (Figure 1). The tendency to discontinue improved practices is more than twice as great, proportionately, for Laggards as for Innovators and Early Adopters. It seems apparent that Laggards discontinue many innovations for reasons other than their economic value. This conclusion is strengthened by consideration of the actual practices discontinued.

Practices Discontinued

The thirteen practices studied represent some of the many ideas recently adopted by farmers in Ohio and other parts of the country. Some practices, such as soil testing, commercial fertilizer top dressing for pastures, and soil conservation farm plans, have been available for use for two decades or more, while others are relatively newer.

Table 1 shows the total number of adoptions and discnntinuances for each practice. The discontinuances counted in the table do not include cases in which the farmer had abandoned the enterprise and, thereby, the practices that go with it. If a farmer had stopped raising hogs, for example, hog mange control no longer applies to him and was not counted as a discontinuance.

Table I. - Discontinuance of Thirteen Farm Practices by Ohio Farmers

Practice	Number of Farmers Who Have Adopted	Number of Farmers Who Have Discontinued	Percentage of Farmers Who Have Discontinued
Stibesterol in Beef Cattle Feeding	11	6	55
Nitrogen-Side-Dressing of Corn Crop	26	9	35
Commercial Fertilizer Top Dressing of Pastures & Meadows	40	11	28
Clintland Oats	55	11	20
Soil Testing for Fertilizer Application	61	10	16
2-4-D for Weed Control in Corn	65	6	9
Atrazine for Weed Control in Corn	11	1	9
Soil Conservation Service Farm Plan	30	2	7
Warfarin-Decon for Rat Control	65	3	5
Self-Unloading Wagon For Corn	46	1	2
Wheel-track Planting-corn	3	0	---
Auger Feeding for Livestock	13	0	---
Lindance or Benzine Hexachloride for Hog Mange Control	33	0	---
Total	449	60	13

Soil testing for fertilizer application, commercial fertilizer for pastures, and nitrogen-side-dressing of corn are among the five practices having the highest rates of discontinuance in Ohio. Of these three related soil practices, soil testing has the highest adoption but the lowest discontinuance. On the other hand, nitrogen-side-dressing of corn has the lowest adoption and the highest rate of discontinuance. This does not reflect a general relationship between the extent of adoption and discontinuance, but rather certain differences between the practices themselves. As a practice, soil testing depends on decisions with respect to a variety of crops and soil conditions, whereas fertilization depends only on decisons relating to specific crops. In its application soil testing thus is a more general practice than is the fertilization of specific crops.

The five practices that were highest in discontinuance also have certain characteristics in common compared to the remaining practices. All five have been in use for ten years or more, which increases the mathematical chance for farmers to stop using them. Moreover, a number of variable factors, such as the availability of liquid funds, credit, land on which the crop will be planted, size of acreage to be planted, etc., affect decisons to use the practices or some, for example soil testing, require relatively greater advance planning, which must be done each year. A variety of conditions, therefore, may lead to the disuse of one of these practices in any one year. If the conditions change, the farmer may use the practice again. The relatively high rates of discontinuance for these five practices thus quite probably reflect more the periodic nature of their application, especially by Laggards and Late Adopters, than that they have been completely rejected.

Ideas with lower percentages of discontinunace, such as a soil conservation farm plan, have been more completely integrated into long-range farm plans. In some cases, the ideas are relatively new and have had, as yet, a smaller chance to be discontinued. Or, there is less opportunity for frequent decisions as to their use.

Summary

Discontinued eventually occurs for all practices and among all farmers. Probably many discontinuances are justified. However, to avoid premature discontinuance the value of many innovations needs to be explained and integrated more fully into the farming programs of those who adopt them. This is especially true for farmers who are slow to adopt in the first place. Discontinuance is more likely where practices require multiple decisions and when adoption of a practice is affected by complex relationships to other farming operations.

Farmers will continue to take up new ideas and lay aside the out-moded and uneconomical practices. But if losses in effort, time and money because of unwise discontinuances are to be avoided, a more complete information and education program must accompany each innovation.

VT 006 421

Dental Hygienists Licensed in Alabama, Arizona, Arkansas, Delaware, Florida, Idaho, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Missouri, New Hampshire, New Jersey, New Mexico, Rhode Island, South Dakota, Vermont, Virginia, and Wisconsin. Handbook of Statistics, 1966.

American Association of Dental Examiners, Albany, N.Y.
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*DENTAL HYGIENISTS; *EMPLOYMENT STATISTICS; LABOR FORCE NONPARTICIPANTS; INDIVIDUAL CHARACTERISTICS; TABLES (DATA); *OCCUPATIONAL SURVEYS; EMPLOYMENT EXPERIENCE; EMPLOYMENT PATTERNS

In a national endeavor coordinated by the American Association of Dental Examiners, the various state boards of dental examiners, in 1966, conducted mail surveys of all dental hygienists licensed to practice in the respective states. Included are separate reports for Alabama, Arizona, Arkansas, Delaware, Florida, Idaho, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, New Jersey, New Hampshire, New Mexico, Rhode Island, South Dakota, Vermont, Virginia and Wisconsin. The general topics of tables are as follows: (1) licensed hygien hygienists--selected characteristics of instate and out-of-state licenses, (2) inactive and active hygienists--current professional status, location and age, education, professional activity, family characteristics, and membership in the professional association, (3) instate practicing hygienists--time worked, activities performed, employing dentists, and compensation, (4) instate inactive hygienists--reasons for not practicing, future professional plans, professional activity in the last year, and (5) out-of-state hygienists--location and current status, school attended for hygiene training, past professional activity in the state and reasons inactive hygienists are not practicing. (JK)

VT 006 421

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

ALABAMA

1966

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A Cooperative Project of the

Board of Dental Examiners of Alabama

and the American Association of Dental Examiners

This project was supported under contract with the
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, Division of Dental Health
Resource Analysis Branch

October 1968

INTRODUCTION

In July 1966, the Board of Dental Examiners of Alabama conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Alabama, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Alabama survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	641	100	621	97
In Alabama	544	85	527	97
In other states	94	15	91	97
In foreign countries	3	-	3	100

Table A-2 -- Selected Characteristics of Hygienists Licensed in Alabama, by Location

Characteristics	Licensed hygienists	In Alabama	In other states
Total Respondents	618	527	91
Current status			
Active	407	380	27
Inactive	211	147	64
Age in 1966			
Under 25	61	53	8
25 - 29	136	104	32
30 - 34	135	115	20
35 & over	282	252	30
Dental hygiene school			
University of Alabama	49	29	20
All other schools	33	20	13
No formal training	536	478	58
Professional activity in Alabama			
Ever Active in Alabama	605	527	78
Never Active in Alabama	9	7	2

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	527
Active	380
Employed	364 1/
Private dental office	328
Dental hygiene school or other auxiliary program	4
Elementary or secondary school (public or private)	1
City or county health agency	6
State health agency	4
Other local government agency	2
Other state government agency	5
Army, navy, airforce	15
Other federal agency	6
Private agency	4
Not reported	1
Unemployed (seeking work as dental hygienist)	16
Inactive	147

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	544	527	380	249	147
Autauga	6	6	4	3	2
*Baldwin	5	4	4	2	-
Barbour	1	1	1	1	-
Blount	4	4	3	3	1
Calhoun	20	20	17	14	3
Chambers	2	2	2	1	-
Cherokee	1	1	1	-	-
Choctaw	1	1	1	1	-
Clay	1	1	1	-	-
Coffee	4	4	2	1	2
Colbert	2	2	2	2	-
Covington	4	4	4	4	-
Crenshaw	1	1	1	1	-
Cullman	11	11	7	6	4
Dale	5	5	4	2	1
Dallas	10	10	10	7	-
De Kalb	6	6	4	4	2
*Elmore	5	5	3	2	2
Escambia	1	1	1	1	-
*Etowah	15	15	11	4	4
Franklin	1	1	1	1	-
Hale	1	1	1	1	-
Henry	2	2	1	1	1
Houston	15	15	11	7	4
Jackson	11	10	7	5	3
*Jefferson	150	146	105	69	41
Lauderdale	9	9	8	3	1
Lawrence	3	3	1	1	2
Lee	8	5	5	4	-
*Limestone	12	12	10	8	2

(continued)

Table B-2a -- County Location (cont'd)

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Lowndes	1	1	-	-	1
Macon	1	-	-	-	-
*Madison	43	43	25	16	18
Marion	1	1	1	1	-
Marshall	14	14	8	6	6
*Mobile	44	44	34	16	10
Monroe	1	1	1	1	-
*Montgomery	51	48	34	19	14
Morgan	16	14	10	8	4
Pickens	2	2	1	1	1
Pike	7	7	3	2	4
Randolph	1	1	1	1	-
*Russell	3	3	3	2	-
St. Clair	1	1	-	-	1
*Shelby	2	1	1	1	-
Talladega	9	9	6	3	3
Tallapoosa	3	3	3	3	-
*Tuscaloosa	21	20	12	9	8
*Walker	4	4	2	1	2
Washington	1	1	1	-	-
Winston	1	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/There were apparently no licensed hygienists in 16 of the 67 Alabama counties; none of the 16 counties with no hygienists are defined as metropolitan counties.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	527	380	249	147
20 - 24 years	53	47	35	6
25 - 29 years	104	80	52	24
30 - 34 years	115	73	41	42
35 - 39 years	93	59	32	34
40 - 44 years	63	49	30	14
45 - 49 years	44	34	26	10
50 - 54 years	29	20	18	9
55 - 59 years	17	12	9	5
60 years & over	6	3	3	3
Not reported	3	3	3	-
Median age	34.6	34.2	34.4	35.2

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Alabama and Selected Areas 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	527	53	104	115	252	3
Active	380	47	80	73	177	3
Employed in private dental office	328	41	69	66	149	3
Other active	52	6	11	7	28	-
Inactive	147	6	24	42	75	-
Birmingham metropolitan area 2/	151	17	28	28	78	-
Active	108	15	24	15	54	-
Employed in private dental office	92	13	21	12	46	-
Other active	16	2	3	3	8	-
Inactive	43	2	4	13	24	-
Gadsden metropolitan area 3/	15	-	1	5	9	-
Active	11	-	-	4	7	-
Employed in private dental office	11	-	-	4	7	-
Other active	-	-	-	-	-	-
Inactive	4	-	1	1	2	-
Huntsville metropolitan area 4/	55	8	14	15	17	1
Active	35	7	9	6	12	1
Employed in private dental office	31	7	9	6	8	1
Other active	4	-	-	-	4	-
Inactive	20	1	5	9	5	-
Mobile metropolitan area 5/	48	2	6	14	26	-
Active	38	2	3	12	21	-
Employed in private dental office	35	2	3	12	18	-
Other active	3	-	-	-	3	-
Inactive	10	-	3	2	5	-

(continued)

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Alabama and Selected Areas 1/ (cont'd.)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Montgomery metropolitan area 6/	53	9	10	13	21	-
Active	37	9	7	11	10	-
Employed in private dental office	32	9	5	10	8	-
Other active	5	-	2	1	2	-
Inactive	16	-	3	2	11	-
Tuscaloosa metropolitan area 7/	20	5	2	2	11	-
Active	12	3	1	2	6	-
Employed in private dental office	8	1	-	2	5	-
Other active	4	2	1	-	1	-
Inactive	8	2	1	-	5	-
Calhoun County	21	1	5	2	12	1
Active	18	1	5	2	9	1
Employed in private dental office	12	-	3	2	6	1
Other active	6	1	2	-	3	-
Inactive	3	-	-	-	3	-
Houston County	15	-	3	3	9	-
Active	11	-	3	1	7	-
Employed in private dental office	8	-	2	1	5	-
Other active	3	-	1	-	2	-
Inactive	4	-	-	2	2	-
All other Counties	149	11	35	33	69	1
Active	110	10	28	20	51	1
Employed in private dental office	99	9	26	17	46	1
Other active	11	1	2	3	5	-
Inactive	39	1	7	13	18	-

1/ Individual data are presented for metropolitan areas and nonmetropolitan counties with 15 or more responding hygienists.
2/ Birmingham metropolitan area includes Jefferson, Shelby and Walker counties.
3/ Gadsden metropolitan area includes Etowah county.
4/ Huntsville metropolitan area includes Limestone and Madison counties.
5/ Mobile metropolitan area includes Baldwin and Mobile counties.
6/ Montgomery metropolitan area includes Elmore and Montgomery counties.
7/ Tuscaloosa metropolitan area includes Tuscaloosa county.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	527	380	147
With formal academic training	49	23	26
University of Alabama	29	15	14
University of Tennessee	6	1	5
Northwestern University	4	2	2
Forsyth School for Dental Hygienists	3	2	1
Fairleigh Dickinson University	1	1	-
Monroe Community College 1/	1	-	1
Ohio State University	1	-	1
Robin Adair School of Oral Hygiene 2/	1	1	-
University of Louisville	1	1	-
University of Minnesota	1	-	1
West Liberty State College	1	-	1
School not reported	-	-	-
With no formal academic training	478	357	121

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates of Atlanta School of Oral Hygiene.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received

Year	All schools			University of Alabama		
	Total	Active	Inactive	Total	Active	Inactive
Hygienists with formal academic training	49	23	26	29	15	14
1959-1965	5	3	2	-	-	-
1958	10	7	3	10	7	3
1957	4	2	2	4	2	2
1956	8	2	6	6	2	4
1955	7	3	4	5	3	2
1954	4	1	3	4	1	3
Before 1954	11	5	6	-	-	-
Not reported	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		University of Alabama		All other schools	
	Total	Active	Total	Active	Total	Active
Total	49	23	29	15	20	8
Autauga	1	-	1	-	-	-
Coffee	1	1	1	1	-	-
Cullman	1	1	1	1	-	-
*Elmore	1	-	-	-	1	-
*Etowah	3	3	1	1	2	2
Houston	1	1	1	1	-	-
*Jefferson	16	9	13	7	3	2
Lauderdale	1	-	1	-	-	-
Lawrence	1	-	1	-	-	-
*Madison	13	2	4	1	9	1
Marshall	1	-	-	-	1	-
*Mobile	5	3	4	2	1	1
*Montgomery	3	2	1	1	2	1
*Russell	1	1	-	-	1	1

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	527	380	147
Dental hygiene certificate only	31	14	17
Additional college, but no degree	32	16	16
Less than 1 year	1	1	-
1 year but less than 2 years	6	2	4
2 years but less than 3 years	9	5	4
3 years but less than 4 years	4	2	2
4 or more years	3	1	2
Number of years not reported	9	5	4
Bachelor's degree	-	-	-
Master's degree	2	2	-
Doctoral degree	-	-	-
Level of college training not reported	2	1	1
No college training	460	347	113

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	527	380	147
Have seriously considered returning	137	101	36
Now enrolled	9	3	6
Definitely planning to enroll	5	3	2
Still considering enrollment	98	73	25
Definitely decided not to enroll	17	16	1
Current plans not reported	8	6	2
Have never considered returning	299	223	76
Plans to continue education not reported	91	56	35

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	112	79	33
Goal reported 2/	75	56	19
Instructor in a school of dental hygiene	16	14	2
Director of a school of dental hygiene	2	2	-
Dentist	8	5	3
Public health dental hygienist 3/	34	26	8
Hygienist in elementary or high school 3/	4	4	-
Other goal in dental hygiene specified	18	12	6
Goal outside dental hygiene specified	2	1	1
Goal not reported	37	23	14

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	120	5	98	17
Obstacles reported 2/	111	5	94	12
Lack of course offerings in a nearby school	40	2	35	3
Lack of sufficient funds	35	2	30	3
Family obligations	69	4	59	6
Lack of specific information on opportunities available	10	8	1	1
Age 3/	1	-	-	1
Lack of time 3/	1	-	-	1
Other obstacle specified	1	-	-	1
Obstacles not reported	9	-	4	5

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	527	380	147
Have taken courses 1/	72	66	6
School of dental hygiene	6	5	1
State or local dental hygiene association	11	10	1
Dental school	27	25	2
State or local dental association	36	34	2
Other sponsor	-	-	-
Sponsor not reported	10	8	2
Have not taken courses	407	288	119
If courses taken not reported	48	26	22

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	380	277	59	44
2 years or less	88	69	12	7
3 - 5	99	87	8	4
6 - 10	88	62	15	11
11 years or more	99	57	22	20
Years not reported	6	2	2	2
Inactive hygienists, by last year active in this State	147	67	27	53
1964 or later	48	26	10	12
1961 - 1963	29	17	3	9
1956 - 1960	37	14	6	17
Before 1956	19	6	5	8
Never active	6	3	2	1
Year not reported	8	1	1	6

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	527	-	519	-	-	-	380	-	-	-
Year reported	520	4,705	512	505	3,477.5	4,570	376	373	2,816	3,166
1965	48	48	47	47	47.5	47	43	43	44	43
1964	40	80	40	40	79.0	80	36	36	71	72
1963	44	132	44	44	124.0	132	38	38	112	114
1962	33	132	33	31	112.5	124	26	25	94	104
1961	45	225	44	44	191.0	220	34	34	160	170
1960	33	198	32	32	168.0	192	24	24	137	144
1959	14	98	14	14	84.0	98	10	10	66	70
1958	34	272	34	34	201.0	272	24	24	177	192
1957	23	207	23	23	139.0	207	11	11	86	99
1956	18	180	18	17	119.5	170	10	9	73	100
1955	24	264	22	21	171.0	231	14	14	145	154
1954	17	204	15	15	120.0	180	6	6	65	72
1953	18	234	18	18	167.0	234	11	11	126	143
1952	14	196	14	13	90.0	182	6	5	39	84
1951	13	195	13	12	124.0	180	7	7	92	105
1950	13	208	13	13	131.0	208	9	9	108	144
1945-1949	59	1,087	58	58	869.0	1,068	46	46	771	846
1940-1944	23	528	23	23	397.0	528	18	18	363	416
1935-1939	5	141	5	5	112.0	141	2	2	56	56
Before 1935	2	76	2	1	31.0	76	1	1	31	38
Year not reported	7	-	7	-	-	-	4	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	8.8	6.7	76
1963 - 1965	25	2.0	1.9	95
1960 - 1962	21	4.8	4.2	88
1957 - 1959	14	8.1	6.0	74
1954 - 1956	11	9.8	7.0	71
1951 - 1953	9	13.2	8.5	64
Before 1951	20	19.8	15.1	76

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	527	-	-	-	-	-
Have been active in other states 1/	24	5	3	6	12	4
Colorado	1	1	-	-	-	-
Florida	8	1	1	3	2	1
Georgia	5	1	1	-	3	-
Louisiana	1	-	-	1	-	-
Massachusetts	3	1	-	-	1	1
Minnesota	1	-	-	-	1	-
Mississippi	2	-	-	1	1	-
New Hampshire	1	-	-	-	-	1
Ohio	1	-	-	-	1	-
Tennessee	5	-	1	1	2	1
Virginia	1	1	-	-	-	-
Wisconsin	1	-	-	-	1	-
Have not been active in other states	503	-	-	-	-	-
If active in other states not reported	-	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	527	380	249	147
Single	51	47	42	4
Ever married	476	333	207	143
Now married	415	283	165	132
Other status	61	50	42	11
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	476	333	207	143
With no children	130	103	83	27
With children	313	205	102	108
1	117	86	47	31
2	112	71	40	41
3	59	32	10	27
4	21	12	3	9
5 or more	4	4	2	-
Number of children not reported	33	25	22	8

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	313	205	108
School status			
None in school	75	45	30
Some in school 1/	224	148	76
In grades 1 - 8	185	119	66
In grades 9 - 12	61	42	19
In college or business school	24	17	7
School status not reported	14	12	2
Age of children			
With children under 15 years 1/	274	174	100
1 year or less	45	24	21
2 - 3 years	71	39	32
4 - 5 years	85	44	41
6 - 7 - 8 years	101	55	46
9 - 10 - 11 years	96	64	32
12 - 13 - 14 years	67	50	17
With children 15 and over only	25	19	6
Age not reported	14	12	2

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	527	380	147
A member	89	73	16
Not a member, but a member at one time	145	90	55
Not a member, past membership not reported	-	-	-
Never a member	281	209	72
Current and past membership not reported	12	8	4

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	328	-
Time reported 1/	312	11,313
Less than 8	5	22
8	5	40
9 - 15	7	94
16	9	144
17 - 23	7	144
24	8	192
25 - 31	16	456
32	9	288
33 - 34	5	168
35	3	105
36 - 39	34	1,238
40	154	6,160
41 or more	50	2,262
Time not reported	16	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	328	-
Time reported 1/	312	14,978
4 or less	-	-
5 - 8	4	30
9 - 12	6	68
13 - 16	4	60
17 - 20	3	52
21 - 24	2	42
25 - 28	4	105
29 - 32	5	158
33 - 36	2	68
37 - 40	11	437
41 - 44	5	217
45 - 47	4	184
48 - 49	8	385
50 - 52	254	13,172
Time not reported	16	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	328	-	-
Time reported	312	11,313	14,978
Full time	241	9,765	11,887
Year round	215	8,707	11,139
Less than year round	26	1,058	748
Part time	71	1,548	3,091
Year round	47	1,101	2,418
Less than year round	24	447	673
Time not reported	16	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	328	-	-
Activities reported	328	-	-
Oral prophylaxis	324	208	4,667
Other clinical services 1/	253	165	697
Patient dental health education 2/	174	113	354
Management of dental office 3/	222	142	973
Dental assisting tasks 4/	182	118	1,062
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	328	303	13	6	2	4
Dentists reported	316	301	10	3	2	-
1	274	271	2	1	-	-
2	32	24	7	-	1	-
3	7	4	1	2	-	-
4 or more	3	2	-	-	1	-
Number of dentists not reported	12	2	3	3	-	4

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	328
Worked for general practitioner only	297
Worked for dental specialist 1/	17
Endodontist	2
Oral surgeon	1
Orthodontist	5
Pedodontist	5
Periodontist	4
Prosthodontist	-
Type not reported	14

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	328	215	26	47	24	16
Reporting type(s) of compensation	324	215	26	46	22	15
Salary only	197	145	16	20	9	7
Commission only	37	9	5	13	7	3
Both salary and commission only	81	56	4	12	6	3
Salary only, commission only 2/	-	-	-	-	-	-
Salary only, both salary and commission 2/	5	4	-	-	-	1
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	4	1	1	1	-	1
Type of compensation not reported	4	-	-	1	2	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	328	215	26	47	24	16
Earnings reported	265	185	21	36	14	9
$1,000 or less	14	3	4	-	4	3
1,000 - 1,999	18	5	3	2	6	2
2,000 - 2,999	40	17	7	13	3	-
3,000 - 3,999	68	58	3	5	1	1
4,000 - 4,999	78	65	2	9	-	2
5,000 - 5,999	26	20	1	5	-	-
6,000 - 6,999	10	10	-	-	-	-
7,000 - 7,999	4	4	-	-	-	-
8,000 - 8,999	3	2	-	1	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	4	1	1	1	-	1
Earnings not reported	63	30	5	11	10	7

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	147
Reasons reported 1/	141
Full-time family obligations	93
Employment in another occupation	35
Attending school	5
Beyond age to practice	-
Poor health	3
Loss of skill to practice	1
Unable to find suitable position as hygienist	6
She prefers not to work	19
Husband does not want her to work	28
Another reason specified	1
Reasons not reported	6

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	147	11	38	57	41
Degree reported	124	11	38	53	22
Very definite	25	11	4	1	9
Fairly definite	46	-	33	6	7
Not at all definite	53	-	1	46	6
Degree not reported	23	-	-	4	19

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	71	11	37	7	16
Time until return reported	64	11	36	5	12
Within the next year	13	4	6	-	3
Within the next 5 years	29	5	16	2	6
Within the next 10 years	8	1	5	1	1
Within the next 15 years	2	-	2	-	-
More than 15 years from now	1	-	-	1	-
Never	11	1	7	1	2
Time not reported	7	-	1	2	4

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	39	10	21	6	2	-
Preferred time reported	39	10	21	6	2	-
8 hours a day	25	9	13	2	1	-
5 days a week	14	6	6	1	1	-
Less than 5 days a week	11	3	7	1	-	-
Less than 8 hours a day	14	1	8	4	1	-
5 days a week	9	1	5	3	-	-
Less than 5 days a week	5	-	3	1	1	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	147
Conditions reported 1/	110
When youngest child starts elementary school	42
When youngest child starts high school	18
When youngest child starts college	8
When a position is available in her community	20
When husband needs her in his practice, if he is a dentist	9
After completion of refresher training, if such training were available in a nearby community college or university	14
After completion of additional college training which would qualify her for a more advanced position as a hygienist	11
Because of illness, disability or death of husband 2/	15
Another condition specified	7
Condition not reported	37

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	147
Reasons reported 1/	120
For self satisfaction	84
To add to the family income for children's education	53
For other financial reasons	16
To keep in practice 2/	-
Another reason specified	-
Reasons not reported	27

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	147
Situations reported 1/	68
Lack of opportunities for hygienist in her community	34
Feels she might be too old to practice again	6
Feels she might have lost her skill to practice	18
Has too great an investment in another occupation	15
Satisfactory working hours not available 2/	1
Unsatisfactory wages 2/	5
Another situation specified	-
No situation was reported	79

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total 3/	147	-	-	-	-
Employed in					
Private dental office	28	13	9	5	1
City or county health agency	1	-	1	-	-
Type of employer not reported	1	-	-	-	-
Not employed	118	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	94	91	27	18	9	64
Northeast	3	3	1	1	-	2
Connecticut	-	-	-	-	-	-
Maine	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-
New Jersey	1	1	-	-	-	1
New York	1	1	1	1	-	-
Pennsylvania	1	1	-	-	-	1
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	71	68	23	14	9	45
Alabama 1/	3	3	3	1	2	-
Arkansas	-	-	-	-	-	-
Delaware	1	1	-	-	-	1
District of Columbia	1	1	1	-	1	-
Florida	24	23	10	9	1	13
Georgia	13	12	2	2	-	10
Kentucky	-	-	-	-	-	-
Louisiana	3	3	-	-	-	3
Maryland	3	3	2	1	1	1
Mississippi	7	7	1	-	1	6
North Carolina	2	2	1	-	1	1
Oklahoma	1	1	-	-	-	1
South Carolina	1	1	-	-	-	1
Tennessee	6	5	2	1	1	3
Texas	6	6	1	-	1	5
Virginia	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	12	12	2	2	-	10
Illinois	2	2	1	1	-	1
Indiana	2	2	-	-	-	2
Iowa	-	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	2	2	-	-	-	2
Minnesota	-	-	-	-	-	-
Missouri	3	3	1	1	-	2
Nebraska	-	-	-	-	-	-
North Dakota	1	1	-	-	-	1
Ohio	2	2	-	-	-	2
South Dakota	-	-	-	-	-	-
Wisconsin	-	-	-	-	-	-
West	8	8	1	1	-	7
Alaska	1	1	1	1	-	-
Arizona	1	1	-	-	-	1
California	5	5	-	-	-	5
Colorado	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-
Nevada	-	-	-	-	-	-
Oregon	1	1	-	-	-	1
Utah	-	-	-	-	-	-
Washington	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-

1/ Three responding hygienists who were residents of Alabama indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	91	27	64
With formal academic training	33	19	14
University of Alabama	20	11	9
1958	7	4	3
1957	6	4	2
1956	5	2	3
1955	1	-	1
1954	1	1	-
All other schools	13	8	5
After 1958	7	4	3
1954-1958	2	2	-
Before 1954	4	2	2
Year not reported	-	-	-
With no formal academic training	58	8	50

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	91	-	78	-	-	-	13	-
Year reported	88	814	75	74	715	242.0	13	-
1965	5	5	3	3	3	2.5	2	-
1964	2	4	1	1	2	0.5	1	-
1963	7	21	7	7	21	11.0	-	-
1962	8	32	8	7	28	22.0	-	-
1961	3	15	3	3	15	10.0	-	-
1960	4	24	3	3	18	9.0	1	-
1959	5	35	5	5	35	15.0	-	-
1958	8	64	6	6	48	16.0	2	-
1957	9	81	4	4	36	8.0	5	-
1956	8	80	7	7	70	23.0	1	-
1955	3	33	3	3	33	10.0	-	-
1954	4	44	4	4	48	22.0	-	-
1953	1	13	1	1	13	4.0	-	-
1952	5	70	4	4	52	9.0	1	-
1951	-	-	-	-	-	-	-	-
1950	3	48	3	3	48	15.0	-	-
Before 1950	13	245	13	13	245	65.0	-	-
Not reported	3	-	3	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this state.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	64
Reasons reported 1/	63
Full-time family obligations	33
Employment in another occupation	8
Attending school	2
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	3
She prefers not to work	5
Husband does not want her to work	9
Not licensed in state where she currently resides	45
Another reason specified	1
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In May 1966, the Arizona State Dental Board conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Arizona, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Arizona survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

August, 1968

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3 Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state).

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	202	100	162	80
In Arizona	103	51	82	80
In other states	98	49	79	81
In foreign countries	1	-	1	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Arizona, By Location

Characteristics	Licensed hygienists	In Arizona	In other states
Total respondents	161	82	79
Current status			
Active	124	68	56
Inactive	37	14	23
Age in 1966			
Under 25	43	16	27
25 - 29	39	18	21
30 - 34	31	18	13
35 & over	48	30	18
Year hygiene training completed			
After 1960	62	24	38
1960 - 1955	50	24	26
1954 & earlier	49	34	15
Professional activity in Arizona			
Ever Active in Arizona	99	75	24
Never Active in Arizona	61	7	54

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, By Place of Employment

Status and place of employment	Instate hygienists
Total	82
Active	68
Employed	66 1/
Private dental office	62
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	2
City or county health agency	1
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	-
Private agency	-
Unemployed (seeking work as dental hygienist)	2
Inactive	14

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	103	82	68	14	14
Coconino	4	4	3	-	1
Gila	2	1	1	-	-
Greenlee	1	1	1	-	-
* Maricopa	62	48	41	9	7
* Pima	30	25	20	5	5
Pinal	2	2	2	-	-
Yavapai	1	1	-	-	1
Yuma	1	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in the following 6 counties: Apache, Cochise, Graham, Mohave, Navajo, and Santa Cruz.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	82	68	14	14
20 - 24 years	16	16	2	-
25 - 29 years	18	14	3	4
30 - 34 years	18	12	3	6
35 - 39 years	12	9	2	3
40 - 44 years	8	7	1	1
45 - 49 years	6	6	3	-
50 - 54 years	2	2	-	-
55 - 59 years	1	1	-	-
60 years & over	1	1	-	-
Not reported	-	-	-	-
Median age	31.9	31.7	*	*

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Arizona and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	82	16	18	18	30	-
Active	68	16	14	12	26	-
Employed in private dental office	62	16	13	11	22	-
Other active	6	-	1	1	4	-
Inactive	14	-	4	6	4	-
Maricopa County	48	9	12	10	17	-
Active	41	9	9	8	15	-
Employed in private dental office	39	9	9	7	14	-
Other active	2	-	-	1	1	-
Inactive	7	-	3	2	2	-
Pima County	25	4	5	6	10	-
Active	20	4	4	3	9	-
Employed in private dental office	17	4	4	3	6	-
Other active	3	-	-	-	3	-
Inactive	5	-	1	3	1	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	82	68	14
With formal academic training	82	68	14
Northwestern University	9	9	-
Baylor University	7	7	-
University of Minnesota	7	6	1
University of Ohio	7	4	3
Marquette University	6	5	1
Monroe Community College 1/	6	6	-
University of Iowa	6	5	1
University of Michigan	6	2	4
Temple University	5	3	2
Forsyth School for Dental Hygienists	4	4	-
University of Missouri at Kansas City 2/	4	2	2
University of Tennessee	3	3	-
West Liberty State College	3	3	-
New York City Community College 3/	2	2	-
Broome Technical Community College	1	1	-
Columbia University	1	1	-
Erie County Technical Institute 4/	1	1	-
State University of New York at Farmingdale 5/	1	1	-
University of California	1	1	-
University of Southern California	1	1	-
University of Washington	1	1	-
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates of Kansas City - Western Dental College.

3/ Includes any graduates of Brooklyn Community College, New York State Institute of Applied Arts and Sciences - Brooklyn.

4/ Includes any graduates of New York State Institute of Applied Arts and Sciences - Buffalo.

5/ Includes any graduates of Long Island Agricultural and Technical Institute.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received

Year	Total	Active	Inactive
Hygienists with formal training	82	68	14
1965	4	4	-
1964	9	9	-
1963	4	4	-
1962	3	2	1
1961	4	4	-
1960	4	3	1
1959	4	2	2
1958	5	5	-
1957	3	1	2
1956	3	3	-
1955	5	2	3
1954 and earlier	34	29	5
Not reported	-	-	-

Table B-3c -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	82	68	14
Dental hygiene certificate only	41	34	7
Additional college, but no degree	27	24	3
Less than 1 year	6	6	-
1 year but less than 2 years	14	11	3
2 years but less than 3 years	6	6	-
3 years but less than 4 years	-	-	-
4 or more years	-	-	-
Number of years not reported	1	1	-
Bachelor's degree	14	10	4
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3d -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	82	68	14
Have seriously considered returning	44	37	7
Now enrolled	5	5	-
Definitely planning to enroll	8	6	2
Still considering enrollment	28	23	5
Definitely decided not to enroll	3	3	-
Current plans not reported	-	-	-
Have never considered returning	30	25	5
Plans to continue education not reported	8	6	2

Table B-3e -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	41	34	7
Goal reported 2/	29	24	5
Instructor in a school of dental hygiene	15	13	2
Director of a school of dental hygiene	2	2	-
Dentist	-	-	-
Public health dental hygienist 3/	11	7	4
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	5	4	1
Goal outside dental hygiene specified	11	9	2
Goal not reported	12	10	2

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3f -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	39	8	28	3
Obstacles reported 2/	36	6	27	3
Lack of course offerings in a nearby school	7	2	5	-
Lack of sufficient funds	7	1	6	-
Family obligations	27	4	20	3
Lack of specific information on opportunities available	2	-	2	-
Age 3/	-	-	-	-
Lack of time 3/	1	-	-	1
Other obstacle specified	1	-	1	-
Obstacles not reported	3	2	1	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3g -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	82	68	14
Have taken courses 1/	17	15	2
School of dental hygiene	1	1	-
State or local dental hygiene association	8	8	-
Dental school	-	-	-
State or local dental association	10	9	1
Other sponsor	-	-	-
Sponsor not reported	1	-	1
Have not taken courses	61	50	11
If courses taken not reported	4	3	1

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3h -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	68	51	10	7
2 years or less	26	21	3	2
3 - 5	16	13	2	1
6 - 10	16	11	2	3
11 years or more	9	6	3	-
Years not reported	1	-	-	1
Inactive hygienists, by last year active in this State	14	7	3	4
1964 or later	5	3	-	2
1961 - 1963	3	1	2	-
1956 - 1960	-	-	-	-
Before 1956	1	1	-	-
Never active	5	2	1	2
Year not reported	-	-	-	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	82	-	75	-	-	-	68 2/	-	-	-
Year reported	81	486	74	72	440	360.0	67	66	367	330.0
1965	13	13	11	11	11	10.5	12	12	12	10.5
1964	13	26	13	12	24	22.5	11	11	22	20.5
1963	6	18	6	6	18	16.0	6	6	18	16.0
1962	3	12	3	3	12	8.0	2	2	8	6.0
1961	8	40	7	7	35	33.0	7	7	35	33.0
1960	8	48	6	6	36	33.0	7	7	42	33.0
1959	3	21	3	3	21	15.0	2	2	14	12.0
1958	9	72	7	7	56	51.0	7	7	56	51.0
1957	3	27	3	2	18	18.0	3	2	18	18.0
1956	1	10	1	1	10	10.0	1	1	10	10.0
1955	4	44	4	4	44	18.0	1	1	11	11.0
1954	1	12	1	1	12	12.0	1	1	12	12.0
1953	1	13	1	1	13	6.0	1	1	13	6.0
1952	-	-	-	-	-	-	-	-	-	-
1951	1	15	1	1	15	16.0	1	1	15	16.0
1950	5	80	5	5	80	71.0	4	4	64	58.0
Before 1950	2	35	2	2	35	20.0	1	1	17	17.0
Year not reported	1	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.
2/ For 1965 and 1960, data include hygienists who had never been active in the State but reported they were seeking employment (See Table B-1).

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	6.1	5.0	82
1963 - 1965	40	1.8	1.7	94
1960 - 1962	22	5.2	4.6	88
1957 - 1959	17	7.9	7.0	89
1954 - 1956	8	11.0	6.7	61
1951 - 1953	3	14.0	11.0	79
Before 1951	10	16.4	13.0	79

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964-1966	1961-1963	1958-1960	Before 1958	Not reported
Total	82	-	-	-	-	-
Have been active in other states	57 1/	13	19	11	27	1
Arkansas	1	-	-	-	1	-
California	6	1	1	1	3	-
Colorado	3	1	1	-	1	-
Florida	2	2	-	-	-	-
Georgia	1	-	1	-	-	-
Illinois	6	-	2	1	3	-
Indiana	2	-	-	-	2	-
Iowa	3	-	2	-	1	-
Kansas	3	1	1	1	-	-
Massachusetts	4	-	1	1	1	1
Michigan	7	1	2	1	3	-
Minnesota	1	-	-	-	1	-
Missouri	2	1	-	1	-	-
Montana	1	-	-	1	-	-
Nebraska	1	1	-	-	-	-
New Mexico	1	1	-	-	-	-
New York	6	1	1	1	3	-
North Carolina	1	-	-	-	1	-
Ohio	3	1	1	-	1	-
Oregon	1	-	-	-	1	-
Pennsylvania	5	1	1	1	2	-
Rhode Island	1	-	1	-	-	-
Tennessee	2	1	-	-	1	-
Texas	2	-	1	1	-	-
Virginia	1	-	1	-	-	-
Washington	1	-	1	-	-	-
West Virginia	2	-	-	1	1	-
Wisconsin	2	-	1	-	1	-
Have not been active in other states	24	-	-	-	-	-
If active in other states not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	82	68	14	14
Single	12	12	3	-
Ever married	70	56	11	14
Now married	62	48	9	14
Other status	8	8	2	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	70	56	11	14
With no children	14	14	6	-
With children	54	40	5	14
1	10	8	1	2
2	21	15	1	6
3	18	12	2	6
4	2	2	1	-
5 or more	3	3	-	-
Number of children not reported	2	2	-	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	54	40	14
School status			
None in school	15	11	4
Some in school 1/	37	29	8
In grades 1 - 8	35	27	8
In grades 9 - 12	8	6	2
In college or business school	1	1	-
School status not reported	2	-	2
Age of children			
With children under 15 years 1/	50	38	12
1 year or less	11	6	5
2 - 3 years	23	17	6
4 - 5 years	18	15	3
6 - 7 - 8 years	27	21	6
9 - 10 - 11 years	13	10	3
12 - 13 - 14 years	12	10	2
With children 15 and over only	2	2	-
Age not reported	2	-	2

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	82	68	14
A member	42	40	2
Not a member, but a member at one time	35	25	10
Not a member, past membership not reported	-	-	-
Never a member	5	3	2
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	62	-
Time reported 1/	56	1639
Less than 8	-	-
8	2	16
9 - 15	2	30
16	7	112
17 - 23	8	155
24	4	96
25 - 31	5	132
32	1	32
33 - 34	-	-
35	3	105
36 - 39	5	184
40	15	600
41 or more	4	177
Time not reported	6	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	62	-
Time reported 1/	56	2451
4 or less	1	2
5 - 8	1	6
9 - 12	-	-
13 - 16	1	14
17 - 20	2	37
21 - 24	1	24
25 - 28	1	25
29 - 32	1	30
33 - 36	2	70
37 - 40	4	159
41 - 44	2	88
45 - 47	5	231
48 - 49	10	483
50 - 52	25	1282
Time not reported	6	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	62	-	-
Time reported	56	1639	2451
Full time	27	1066	1211
Year round	14	551	712
Less than year round	13	515	499
Part time	29	573	1240
Year round	21	442	1053
Less than year round	8	131	187
Time not reported	6	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	62	-	-
Activities reported	61	-	-
Oral prophylaxis	61	34	753
Other clinical services 1/	54	28	79
Patient dental health education 2/	46	26	93
Management of dental office 3/	19	13	32
Dental assisting tasks 4/	1	-	-
Activities not reported	1	1	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	62	38	14	7	2	1
Dentists reported	61	38	14	7	2	-
1	32	32	-	-	-	-
2	15	5	10	-	-	-
3	10	1	4	5	-	-
4 or more	4	-	-	2	2	-
Number of dentists not reported	1	-	-	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	62
Worked for general practitioner only	56
Worked for dental specialist 1/	5
Endodontist	-
Oral surgeon	-
Orthodontist	-
Pedodontist	1
Periodontist	4
Prosthodontist	-
Type not reported	1

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	62	14	13	21	8	6
Reporting type(s) of compensation						
Salary only	7	3	3	-	1	-
Commission only	50	11	9	18	7	5
Both salary and commission only	1	-	-	1	-	-
Salary only, commission only 2/	1	-	1	-	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	-	-	-	-	-	-
Type of compensation not reported	3	-	-	2	-	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist—husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	62	14	13	21	8	6
Earnings reported	48	11	11	17	7	2
$1,000 or less	1	-	-	-	1	-
1,000 - 1,999	3	-	1	-	2	-
2,000 - 2,999	2	-	-	1	1	-
3,000 - 3,999	9	-	2	5	2	-
4,000 - 4,999	8	1	1	4	1	1
5,000 - 5,999	7	1	3	3	-	-
6,000 - 6,999	6	2	1	2	-	1
7,000 - 7,999	5	3	1	1	-	-
8,000 - 8,999	2	1	-	1	-	-
9,000 - 9,999	4	3	1	-	-	-
10,000 & over	1	-	1	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	14	3	2	4	1	4

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	14
Reasons reported 1/	14
Full-time family obligations	12
Employment in another occupation	-
Attending school	-
Beyond age to practice	-
Poor health	1
Loss of skill to practice	1
Unable to find suitable position as hygienist	-
She prefers not to work	3
Husband does not want her to work	5
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	14	1	5	5	3
Degree reported	13	1	5	5	2
Very definite	4	-	3	-	1
Fairly definite	5	-	2	2	1
Not at all definite	4	1	-	3	-
Degree not reported	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	9	-	5	2	2
Time until return reported	9	-	5	2	2
Within the next year	1	-	1	-	-
Within the next 5 years	2	-	1	1	-
Within the next 10 years	2	-	1	1	-
Within the next 15 years	1	-	1	-	-
More than 15 years from now	-	-	-	-	-
Never	3	-	1	-	2
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	14
Conditions reported 1/	13
When youngest child starts elementary school	4
When youngest child starts high school	2
When youngest child starts college	3
When a position is available in her community	1
When husband needs her in his practice, if he is a dentist	2
After completion of refresher training, if such training were available in a nearby community college or university	2
After completion of additional college training which would qualify her for a more advanced position as a hygienist	1
Because of illness, disability or death of husband 2/	2
Another condition specified	2
Condition not reported	1

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2d -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	14
Reasons reported 1/	
For self satisfaction	14
To add to the family income for children's education	12
For other financial reasons	7
To keep in practice 2/	3
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	14
Situations reported 1/	
Lack of opportunities for hygienist in her community	3
Feels she might be too old to practice again	-
Feels she might have lost her skill to practice	-
Has too great an investment in another occupation	2
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	-
No situation was reported	1
	11

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	98	79	56	51	5	23
Northeast	3	3	1	1	-	2
Connecticut	-	-	-	-	-	-
Maine	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-
New York	3	3	1	1	-	2
Pennsylvania	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	11	9	5	5	-	4
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	3	3	2	2	-	1
Georgia	-	-	-	-	-	-
Kentucky	1	1	-	-	-	1
Louisiana	-	-	-	-	-	-
Maryland	1	1	1	1	-	-
Mississippi	-	-	-	-	-	-
North Carolina	1	1	-	-	-	1
Oklahoma	1	-	-	-	-	-
South Carolina	-	-	-	-	-	-
Tennessee	1	-	-	-	-	-
Texas	3	3	2	2	-	1
Virginia	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	24	22	15	12	3	7
Illinois	3	3	3	3	-	-
Indiana	2	2	1	1	-	1
Iowa	1	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	3	3	2	1	1	1
Minnesota	4	4	2	1	1	2
Missouri	-	-	-	-	-	-
Nebraska	2	1	-	-	-	1
North Dakota	-	-	-	-	-	-
Ohio	3	3	1	-	1	2
South Dakota	-	-	-	-	-	-
Wisconsin	6	6	6	6	-	-
West	60	45	35	33	2	10
Alaska	1	1	1	1	-	-
Arizona			Not applicable			
California	42	33	27	26	1	6
Colorado	3	3	3	2	1	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	1	1	-	-	-	1
New Mexico	5	4	3	3	-	1
Nevada	-	-	-	-	-	-
Oregon	2	1	1	1	-	-
Utah	1	1	-	-	-	1
Washington	3	-	-	-	-	-
Wyoming	2	1	-	-	-	1

Table E-2 -- Year Certificate or Degree Was Received, By Current Professional Status

Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	79	56	23
1965	11	11	-
1964	11	10	1
1963	9	7	2
1962	4	2	2
1961	3	3	-
1960	7	5	2
1959	4	3	1
1958	5	3	2
1957	4	1	3
1956	3	2	1
1955	3	3	-
Before 1955	15	6	9
Not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	79	-	24	-	-	-	54	1
Year reported	76	400	24	24	142	47.0	52	-
1965	21	21	7	7	7	4.5	14	-
1964	9	18	1	1	2	1.0	8	-
1963	4	12	3	3	9	4.0	1	-
1962	3	12	1	1	4	2.0	2	-
1961	2	10	-	-	-	-	2	-
1960	10	60	1	1	6	1.0	9	-
1959	8	56	2	2	14	7.0	6	-
1958	2	16	-	-	-	-	2	-
1957	4	36	1	1	9	2.0	3	-
1956	5	50	3	3	30	4.0	2	-
1955	2	22	2	2	22	7.5	-	-
1954	1	12	1	1	12	7.0	-	-
1953	1	13	1	1	13	1.0	-	-
1952	2	28	1	1	14	6.0	1	-
1951	1	15	-	-	-	-	1	-
1950	-	-	-	-	-	-	-	-
Before 1950	1	19	-	-	-	-	1	-
Year not reported	3	-	-	-	-	-	2	1

1/ Hygienists reporting both years licensed and years ever active in Arizona.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	23
Reasons reported 1/	22
Full-time family obligations	17
Employment in another occupation	2
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	3
Husband does not want her to work	2
Not licensed in state where she currently resides	5
Another reason specified	3
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

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DENTAL HYGIENISTS

LICENSED IN

ARKANSAS

1966

A

Cooperative Project of the

Arkansas State Board of Dental Examiners

and the American Association of Dental Examiners

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

In November 1966, the Arkansas State Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Arkansas, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Arkansas survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	84	100	73	87
In Arkansas	38	45	34	89
In other states	43	51	37	86
In foreign countries	3	4	2	67

Table A-2 -- Selected Characteristics of Hygienists Licensed in Arkansas, by Location

Characteristics	Licensed hygienists	In Arkansas	In other states
Total respondents	71	34	37
Current status			
Active	48	23	25
Inactive	23	11	12
Age in 1966			
Under 25	19	9	10
25 - 29	16	8	8
30 - 34	14	6	8
35 & over	22	11	11
Year hygiene training completed			
1962 - 1966	22	11	11
1957 - 1961	20	8	12
1952 - 1956	10	5	5
Before 1952	18	9	9
Professional activity in Arkansas			
Ever active in Arkansas	50	29	21
Never active in Arkansas	20	4	16

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	34
Active	23
Employed	23 1/
Private dental office	22
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	-
City or county health agency	-
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	-
Private agency	1
Not reported	1
Unemployed (seeking work as dental hygienist)	-
Inactive	11

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	38	34	23	7	11
Benton	1	1	1	-	-
Boone	1	1	1	1	-
Clark	1	1	1	-	-
Craighead	1	1	-	-	1
Garland	3	2	2	-	-
*Jefferson	3	2	1	1	1
Mississippi	2	2	1	1	1
Poinsett	2	2	1	-	1
Pope	1	1	-	-	1
*Pulaski	18	17	12	4	5
*Saline	1	1	1	-	-
*Sebastian	3	2	1	-	1
Other locations 2/	1	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 63 of the 75 counties in Arkansas; one of the 63 counties is defined as a metropolitan county.

2/ Responding hygienist employed in Arkansas but residing in a neighboring state.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	34	23	7	11
20 - 24 years	9	7	2	2
25 - 29 years	8	5	3	3
30 - 34 years	6	4	-	2
35 - 39 years	3	2	-	1
40 - 44 years	3	2	1	1
45 - 49 years	3	3	1	-
50 - 54 years	1	-	-	1
55 - 59 years	1	-	-	1
60 years & over	-	-	-	-
Not reported	-	-	-	-
Median age	30.0	*	*	*

* Number of hygienists too small to compute median.

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Arkansas, and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	34	9	8	6	11	-
Active	23	7	5	4	7	-
Employed in private dental office	22	7	5	4	6	-
Other active	1	-	-	-	1	-
Inactive	11	2	3	2	4	-
*Pulaski County	17	6	4	1	6	-
Active	12	4	3	-	5	-
Employed in private dental office	11	4	3	-	4	-
Other active	1	-	-	-	1	-
Inactive	5	2	1	1	1	-
All other counties 1/	17	3	4	5	5	-
Active	11	3	2	4	2	-
Employed in private dental office	11	3	2	4	2	-
Other active	-	-	-	-	-	-
Inactive	6	-	2	1	3	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Includes one hygienist employed in Arkansas but residing in a neighboring state.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	34	23	11
With formal academic training	34	23	11
University of Tennessee	18	11	7
Baylor University	4	3	1
Monroe Community College 1/	3	3	-
University of Texas Dental Branch	2	2	-
University of Missouri at Kansas City 2/	2	-	2
Northwestern University	1	-	1
Westbrook Junior College	1	1	-
University of Michigan	1	1	-
University of Minnesota	1	1	-
Meharry Medical College	1	1	-
With no formal academic training	-	-	-

1/ Includes any graduates from Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates at Kansas City-Western Dental College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools		University of Tennessee		All other schools	
	Total	Active	Total	Active	Total	Active
Instate hygienists	34	23	18	11	16	12
1966	3	3	3	3	-	-
1965	2	2	-	-	2	2
1964	-	-	-	-	-	-
1963	2	1	2	1	-	-
1962	4	3	2	1	2	2
1961	1	1	-	-	1	1
1960	3	1	1	-	2	1
1959	-	-	-	-	-	-
1958	3	2	2	2	1	-
1957	1	1	1	1	-	-
1956	-	-	-	-	-	-
1955	1	-	1	-	-	-
1954	-	-	-	-	-	-
1953	2	2	2	2	-	-
1952	2	1	2	1	-	-
1951	-	-	-	-	-	-
1950	-	-	-	-	-	-
1945 - 1949	5	4	-	-	5	4
1940 - 1944	1	1	-	-	1	1
1935 - 1939	3	1	1	-	2	1
Not reported	1	-	1	-	-	-

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		University of Tennessee		All other schools	
	Total	Active	Total	Active	Total	Active
Total	34	23	18	11	16	12
Benton	1	1	-	-	1	1
Boone	1	1	-	-	1	1
Clark	1	1	1	1	-	-
Craighead	1	-	1	-	-	-
Garland	2	2	2	2	-	-
*Jefferson	2	1	1	-	1	1
Mississippi	2	1	1	-	1	1
Poinsett	2	1	2	1	-	-
Pope	1	-	-	-	1	-
*Pulaski	17	12	8	5	9	7
*Saline	1	1	1	1	-	-
*Sebastian	2	1	-	-	2	1
Other location 2/	1	1	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Responding hygienist employed in Arkansas but residing in a neighboring state.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	34	23	11
Dental hygiene certificate only	20	14	6
Additional college, but no degree	13	8	5
Less than 1 year	-	-	-
1 year but less than 2 years	4	2	2
2 years but less than 3 years	5	3	2
3 years but less than 4 years	3	3	-
4 or more years	1	-	1
Number of years not reported	-	-	-
Bachelor's degree	1	1	-
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	34	23	11
Have seriously considered returning	15	13	2
Now enrolled	-	-	-
Definitely planning to enroll	1	1	-
Still considering enrollment	12	11	1
Definitely decided not to enroll	1	1	-
Current plans not reported	1	-	1
Have never considered returning	15	7	8
Plans to continue education not reported	4	3	1

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	13	12	1
Goal reported 2/	10	10	-
Instructor in a school of dental hygiene	6	6	-
Director of a school of dental hygiene	2	2	-
Dentist	-	-	-
Public health dental hygienist 3/	2	2	-
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	1	1	-
Goal outside dental hygiene specified	2	2	-
Goal not reported	3	2	1

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	14	1	12	1
Obstacles reported 2/	13	1	11	1
Lack of course offerings in a nearby school	6	1	5	-
Lack of sufficient funds	3	-	3	-
Family obligations	7	-	7	-
Lack of specific information on opportunities available	1	-	1	-
Age 3/	-	-	-	-
Lack of time 3/	-	-	-	-
Other obstacle specified	2	1	-	1
Obstacles not reported	1	-	1	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	34	23	11
Have taken courses 1/	6	6	-
School of dental hygiene	3	3	-
State or local dental hygiene association	1	1	-
Dental school	2	2	-
State or local dental association	2	2	-
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	26	15	11
If courses taken not reported	2	2	-

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	23	17	4	2
2 years or less	7	2	3	2
3 - 5	5	5	-	-
6 - 10	4	4	-	-
11 years or more	6	5	1	-
Years not reported	1	1	-	-
Inactive hygienists, by last year active in this State	11	3	4	4
1964 or later	3	1	-	2
1961 - 1963	-	-	-	-
1956 - 1960	1	-	1	-
Before 1956	2	-	2	-
Never active	4	2	-	2
Year not reported	1	-	1	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	34	-	29	-	-	-	23	-	-	-
Year reported	33	280	29	23	242	176.0	23	17	157	142.0
1966	6	-	5	-	-	-	5	-	-	-
1965	1	1	1	1	1	2.0	1	1	1	2.0
1964	1	2	1	1	2	3.0	1	1	2	3.0
1963	2	6	1	1	3	4.0	1	1	3	4.0
1962	3	12	3	3	12	12.0	2	2	8	8.0
1961	2	10	2	2	10	3.0	1	1	5	2.0
1960	3	18	2	2	12	10.0	1	1	6	6.0
1959	-	-	-	-	-	-	-	-	-	-
1958	2	16	2	2	16	13.0	2	2	16	13.0
1957	1	9	1	1	9	8.0	1	1	9	8.0
1956	-	-	-	-	-	-	-	-	-	-
1955	2	22	2	1	11	5.0	1	-	-	-
1954	-	-	-	-	-	-	-	-	-	-
1953	2	26	2	2	26	25.0	2	2	26	25.0
1952	1	14	1	1	14	6.0	1	1	14	6.0
1951	1	15	1	1	15	13.0	1	1	15	13.0
1950	-	-	-	-	-	-	-	-	-	-
1949	2	34	2	2	34	34.0	2	2	34	34.0
1948	2	36	1	1	18	18.0	1	1	18	18.0
1938	1	28	1	1	28	5.0	-	-	-	-
1935	1	31	1	1	31	15.0	-	-	-	-
Year not reported	1	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	34	-	-	-	-	-
Have been active in other States[1/]	12	2	3	2	7	-
Connecticut	1	1	-	-	-	-
Georgia	1	-	-	-	1	-
Michigan	1	-	-	-	1	-
Missouri	1	-	-	1	-	-
New York	1	-	-	-	1	-
Oklahoma	2	-	1	-	1	-
Pennsylvania	1	-	-	-	1	-
Tennessee	4	1	-	1	2	-
Texas	2	-	2	-	-	-
Have not been active in other States	21	-	-	-	-	-
If active in other states not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	34	23	7	11
Single	5	5	3	-
Ever married	29	18	4	11
Now married	29	18	4	11
Other status	-	-	-	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	29	18	4	11
With no children	11	9	3	2
With children	17	9	1	8
1	8	4	1	4
2	2	2	-	-
3	4	1	-	3
4	2	1	-	1
5 or more	1	1	-	-
Number of children not reported	1	-	-	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	17	9	8
School status			
None in school	9	4	5
Some in school 1/	8	5	3
In grades 1 - 8	8	5	3
In grades 9 - 12	2	2	-
In college or business school	1	1	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	17	9	8
1 year or less	7	2	5
2 - 3 years	6	4	2
4 - 5 years	6	2	4
6 - 7 - 8 years	2	1	1
9 - 10 - 11 years	5	4	1
12 - 13 - 14 years	5	3	2
With children 15 and over only	-	-	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	34	23	11
A member	19	14	5
Not a member, but a member at one time	7	6	1
Not a member, past membership not reported	2	1	1
Never a member	6	2	4
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	22	-
Time reported 1/	20	534
Less than 8	1	7
8	1	8
9 - 15	4	43
16	2	32
17 - 23	1	20
24	-	-
25 - 31	1	30
32	1	32
33 - 34	1	34
35	-	-
36 - 39	2	76
40	3	120
41 or more	3	132
Time not reported	2	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	22	-
Time reported 1/	20	838
4 or less	-	-
5 - 8	1	5
9 - 12	-	-
13 - 16	-	-
17 - 20	-	-
21 - 24	2	46
25 - 28	1	26
29 - 32	-	-
33 - 36	1	36
37 - 40	2	77
41 - 44	1	41
45 - 47	1	47
48 - 49	2	96
50 - 52	9	464
Time not reported	2	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	22	-	-
Time reported	20	534	838
Full time	8	328	345
Year round	5	206	258
Less than year round	3	122	87
Part time	12	206	493
Year round	6	112	302
Less than year round	6	94	191
Time not reported	2	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	22	-	-
Activities reported	22	-	-
Oral prophylaxis	22	15	286
Other clinical services 1/	19	13	57
Patient dental health education 2/	19	13	58
Management of dental office 3/	7	6	23
Dental assisting tasks 4/	3	2	2
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	22	20	1	-	-	1
Dentists reported	18	18	-	-	-	-
1	16	16	-	-	-	-
2	2	2	-	-	-	-
3	-	-	-	-	-	-
4 or more	-	-	-	-	-	-
Number of dentists not reported	4	2	1	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	22
Worked for general practitioner only	15
Worked for dental specialist 1/	3
Endodontist	-
Oral surgeon	1
Orthodontist	1
Pedodontist	1
Periodontist	-
Prosthodontist	-
Type not reported	4

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	22	5	3	6	6	2
Reporting type(s) of compensation	21	5	3	5	6	2
Salary only	3	2	-	1	-	-
Commission only	13	2	1	3	5	2
Both salary and commission only	4	1	1	1	1	-
Salary only, commission only 2/	1	-	1	-	-	-
Type of compensation not reported	1	-	-	1	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	22	5	3	6	6	2
Earnings reported	17	5	3	3	5	1
$1,000 or less	3	-	1	-	2	-
1,000 - 1,999	2	-	-	2	-	-
2,000 - 2,999	2	1	-	-	1	-
3,000 - 3,999	2	-	1	-	1	-
4,000 - 4,999	-	-	-	-	-	-
5,000 - 5,999	1	-	-	-	1	-
6,000 - 6,999	-	-	-	-	-	-
7,000 - 7,999	2	-	-	1	-	1
8,000 - 8,999	4	4	-	-	-	-
9,000 - 9,999	1	-	1	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	5	-	-	3	1	1

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	11
Reasons reported 1/	11
Full-time family obligations	8
Employment in another occupation	-
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	-
She prefers not to work	1
Husband does not want her to work	5
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	11	1	3	2	5
Degree reported	10	1	3	2	4
Very definite	2	1	-	1	-
Fairly definite	7	-	3	-	4
Not at all definite	1	-	-	1	-
Degree not reported	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	9	1	3	1	4
Time until return reported	8	1	3	1	3
Within the next year	3	1	-	-	2
Within the next 5 years	1	-	1	-	-
Within the next 10 years	-	-	-	-	-
Within the next 15 years	1	-	1	-	-
More than 15 years from now	-	-	-	-	-
Never	3	-	1	1	1
Time not reported	1	-	-	-	1

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	3	1	1	-	1	-
Preferred time reported						
8 hours a day	3	1	1	-	1	-
5 days a week	1	-	-	-	1	-
Less than 5 days a week	-	-	-	-	-	-
Less than 8 hours a day	1	-	-	-	1	-
5 days a week	2	1	1	-	-	-
Less than 5 days a week	1	1	-	-	-	-
Time preferred not reported	1	-	1	-	-	-
	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	11
Conditions reported 1/	8
When youngest child starts elementary school	2
When youngest child starts high school	2
When youngest child starts college	1
When a position is available in her community	1
When husband needs her in his practice, if he is a dentist	2
After completion of refresher training, if such training were available in a nearby community college or university	2
After completion of additional college training which would qualify her for a more advanced position as a hygienist	-
Because of illness, disability or death of husband 2/	2
Another condition specified	-
Condition not reported	3

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	11
Reasons reported 1/	9
For self satisfaction	7
To add to the family income for children's education	1
For other financial reasons	1
To keep in practice 2/	-
Another reason specified	2
Reasons not reported	2

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	11
Situations reported 1/	5
Lack of opportunities for hygienist in her community	2
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	1
Has too great an investment in another occupation	-
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	2
No situation was reported	6

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table E-1 -- Location and Current Professional Status

Region and State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	43	37	25	23	2	12
Northeast	1	-	-	-	-	-
Pennsylvania	1	-	-	-	-	-
North Central	5	5	3	3	-	2
Indiana	1	1	1	1	-	-
Kansas	2	2	1	1	-	1
Missouri	1	1	-	-	-	1
South Dakota	1	1	1	1	-	-
West	-	-	-	-	-	-
South	37	32	22	20	2	10
Alabama	-	-	-	-	-	-
Arkansas 1/	1	1	1	-	1	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	4	3	3	3	-	-
Georgia	-	-	-	-	-	-
Kentucky	-	-	-	-	-	-
Louisiana	3	2	2	2	-	-
Maryland	1	1	-	-	-	1
Mississippi	1	1	1	1	-	-
North Carolina	1	1	1	1	-	-
Oklahoma	2	2	1	1	-	1
South Carolina	-	-	-	-	-	-
Tennessee	15	12	8	7	1	4
Texas	8	8	5	5	-	3
Virginia	1	1	-	-	-	1
West Virginia	-	-	-	-	-	-

1/ One responding hygienist who was a resident of Arkansas indicated that she was employed in a neighboring state.

Table E-2 -- Year Certificate or Degree Was Received, by Current Professional Status

Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	37	25	12
1962 - 1966	11	9	2
1957 - 1961	12	9	3
1952 - 1956	5	4	1
Before 1952	9	3	6
Not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	37	-	21	-	-	-	16	-
Year reported	37	340	21	19	211	43.0	16	-
1966	4	-	2	-	-	-	2	-
1965	4	4	2	2	2	2.0	2	-
1964	2	4	1	1	2	0.5	1	-
1963	2	6	1	1	3	0.5	1	-
1962	1	4	-	-	-	-	1	-
1961	3	15	2	2	10	3.0	1	-
1960	-	-	-	-	-	-	-	-
1959	-	-	-	-	-	-	-	-
1958	2	16	-	-	-	-	2	-
1957	6	54	3	3	27	8.5	3	-
1956	2	20	2	2	20	12.0	-	-
1955	2	22	2	2	22	1.5	-	-
1950-1954	1	13	1	1	13	1.0	-	-
1945-1949	4	77	3	3	59	7.0	1	-
1940-1944	2	49	1	1	24	1.0	1	-
1935-1939	2	56	1	1	29	6.0	1	-
Before 1935	-	-	-	-	-	-	-	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	12
Reasons reported 1/	12
Full-time family obligations	9
Employment in another occupation	1
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	-
She prefers not to work	2
Husband does not want her to work	2
Not licensed in state where she currently resides	-
Another reason specified	3
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

DELAWARE

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Cooperative Project of the

Delaware State Board of Dental Examiners

and the American Association of Dental Examiners

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, Division of Dental Health
Resource Analysis Branch

September 1968

INTRODUCTION

In April 1966, the Delaware State Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the state. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Delaware, the data exclude an unknown number of inactive hygienists who reside in the state but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the state either for the federal government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Delaware survey is part of a national endeavor: Dental examining boards in virtually all of the states are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective states. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this national survey program to assist states in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4 Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicin hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	139	100	126	90
In Delaware	98	71	88	90
In other states	40	29	37	92
In foreign countries	1	-	1	100

Table A-2 -- Selected Characteristics of Hygienists licensed in Delaware, by Location

Characteristics	Licensed hygienists	In Delaware	In other States
Total respondents	126	88	37
Current status			
Active	79	62	17
Inactive	46	26	20
Age in 1966			
Under 25	27	16	11
25 - 29	25	19	6
30 - 34	24	15	9
35 & over	49	38	11
Year hygiene training completed			
1961 - 1965	37	23	14
1956 - 1960	23	17	6
1951 - 1955	20	13	7
Before 1951	45	35	10
Professional activity in Delaware			
Ever active in Delaware	115	88	27
Never Active in Delaware	10	-	10

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	88
Active	62
Employed	60 1/
Private dental office	57
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	2
City or county health agency	-
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	-
Private agency	-
Unemployed (seeking work as dental hygienist)	2
Inactive	26

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	98	88	62	17	26
Kent	7	5	5	2	-
* New Castle	82	75	51	12	24
Sussex	4	3	1	-	2
Other locations 1/	5	5	5	3	-
County not reported	-	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Hygienists employed in Delaware but residing in Maryland and Pennsylvania.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	88	62	17	26
20 - 24 years	16	14	3	2
25 - 29 years	19	15	3	4
30 - 34 years	15	7	4	8
35 - 39 years	12	7	1	5
40 - 44 years	7	5	2	2
45 - 49 years	5	5	-	-
50 - 54 years	9	5	2	4
55 - 59 years	2	1	-	1
60 years and over	3	3	2	-
Not reported	-	-	-	-
Median age	33.0	31.4	*	34.4

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status, For Delaware and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	88	16	19	15	38	-
Active	62	14	15	7	26	-
Employed in private dental office	57	14	13	7	23	-
Other active	5	-	2	-	3	-
Inactive	26	2	4	8	12	-
New Castle County	76	16	16	14	30	-
Active	52	14	12	6	20	-
Employed in private dental office	48	14	10	6	18	-
Other active	4	-	2	-	2	-
Inactive	24	2	4	8	10	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	88	62	26
With formal academic training	88	62	26
Temple University	46	29	17
University of Pennsylvania	38	29	9
Fairleigh Dickinson University	1	1	-
Northwestern University	1	1	-
Ohio State University	1	1	-
University of Detroit	1	1	-
School not reported	-	-	-
With no formal academic training	-	-	-

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, for Selected Schools

Year	All schools		University of Pennsylvania		Temple University	
	Total	Active	Total	Active	Total	Active
Hygienists with formal training	88	62	38	29	46	29
1961 - 1965	23	20	12	10	9	8
1956 - 1960	17	11	5	2	12	9
1951 - 1955	13	7	1	1	11	5
1946 - 1950	9	6	3	2	5	3
Before 1946	26	18	17	14	9	4
Not reported	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County	All Schools		Temple University		University of Pennsylvania		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active
Total	88	62	46	29	38	29	4	4
Kent	5	5	2	2	2	2	1	1
* New Castle	75	51	41	26	31	22	3	3
Sussex	3	1	3	1	-	-	-	-
Other locations 1/	5	5	-	-	5	5	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Hygienist employed in Delaware but residing in Maryland and Pennsylvania.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	88	62	26
Dental hygiene certificate only	69	51	18
Additional college, but no degree	13	6	7
Less than 1 year	-	-	-
1 year but less than 2 years	5	3	2
2 years but less than 3 years	7	3	4
3 years but less than 4 years	1	-	1
4 or more years	-	-	-
Number of years not reported	-	-	-
Bachelor's degree	2	2	-
Master's degree	1	1	-
Doctoral degree	-	-	-
Level of college training not reported	3	2	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	88	62	26
Have seriously considered returning	24	17	7
Now enrolled	2	1	1
Definitely planning to enroll	1	1	-
Still considering enrollment	13	7	6
Definitely decided not to enroll	8	8	-
Current plans not reported	-	-	-
Have never considered returning	53	38	15
Plans to continue education not reported	11	7	4

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	16	9	7
Goal reported 2/	7	3	4
Instructor in a school of dental hygiene	1	-	1
Director of a school of dental hygiene	-	-	-
Dentist	-	-	-
Public health dental hygienist 3/	2	-	2
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	2	2	-
Goal outside dental hygiene specified	2	1	1
Goal not reported	9	6	3

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	22	1	13	8
Obstacles reported 2/	19	-	13	6
Lack of course offerings in a nearby school	5	-	3	2
Lack of sufficient funds	3	-	2	1
Family obligations	15	-	10	5
Lack of specific information on opportunities available	-	-	-	-
Age 3/	-	-	-	-
Lack of time 3/	1	-	1	-
Other obstacle specified	-	-	-	-
Obstacles not reported	3	1	-	2

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e)
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	88	62	26
Have taken courses 1/	15	13	2
School of dental hygiene	4	3	1
State or local dental hygiene association	3	3	-
Dental school	4	4	-
State or local dental association	6	5	1
Other sponsor	-	-	-
Sponsor not reported	2	2	-
Have not taken courses	66	44	22
If courses taken not reported	7	5	2

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	62	38	16	8
2 years or less	11	6	4	1
3 - 5	18	8	6	4
6 - 10	15	12	3	-
11 years or more	16	11	2	3
Years not reported	2	1	1	-
Inactive hygienists, by last year active in this State	26	15	8	3
1964 or later	8	3	4	1
1961 - 1963	3	2	1	-
1956 - 1960	4	2	2	-
Before 1956	9	7	-	2
Never active	-	-	-	-
Year not reported	2	1	1	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	88	-	88	-	-	-	62	-	-	-
Year reported	87	1,086	87	84	1,045	661	61	60	660	502
1965	6	6	6	6	6	6	6	6	6	6
1964	2	4	2	2	4	4	2	2	4	4
1963	7	21	7	7	21	21	7	7	21	21
1962	7	28	7	7	28	26	5	5	20	20
1961	4	20	4	4	20	17	3	3	15	14
1960	3	18	3	3	18	14	3	3	18	14
1959	4	28	4	4	28	15	2	2	14	7
1958	10	80	10	10	80	64	8	8	64	52
1957	2	18	2	-	-	-	-	-	-	-
1956	-	-	-	-	-	-	-	-	-	-
1955	4	44	4	4	44	33	3	3	33	29
1954	4	48	4	4	48	23	1	1	12	6
1953	3	39	3	3	39	40	3	3	39	40
1952	3	42	3	3	42	27	2	2	28	24
1951	1	15	1	1	15	4	-	-	-	-
1950	1	16	1	1	16	2	-	-	-	-
1945 - 1949	9	172	9	9	172	76	4	4	78	41
1940 - 1944	7	171	7	6	148	77	6	5	123	74
1935 - 1939	5	144	5	5	144	103	3	3	84	84
Before 1935	5	172	5	5	172	109	3	3	101	66
Year not reported	1	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	12.4	7.9	64
1963 - 1965	18	2.1	2.1	100
1960 - 1962	17	4.7	4.1	87
1957 - 1959	17	7.7	5.6	73
1954 - 1956	9	11.5	7.0	61
1951 - 1953	8	13.7	10.1	74
Before 1951	31	25.1	14.1	56

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	88	-	-	-	-	-
Have been active in other states 1/	29	2	4	4	17	7
Connecticut	1	-	-	-	-	1
District of Columbia	1	-	-	-	-	1
Florida	3	-	1	-	1	1
Maryland	1	-	-	1	-	-
Massachusetts	1	-	-	-	1	-
Michigan	1	-	-	1	-	-
New Jersey	1	1	-	-	-	-
Pennsylvania	24	1	3	2	15	3
West Virginia	1	-	-	-	-	1
Have not been active in other states	59	-	-	-	-	-
If active in other states not reported	-	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	88	62	17	26
Single	16	16	5	-
Ever married	72	46	12	26
Now married	62	38	6	24
Other status	10	8	6	2
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	72	46	12	26
With no children	17	15	7	2
With children	53	30	5	23
1	13	8	4	5
2	22	13	1	9
3	9	5	-	4
4	7	3	-	4
5 or more	2	1	-	1
Number of children not reported	2	1	-	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	53	30	23
School status			
None in school	16	9	7
Some in school 1/	37	21	16
In grades 1 - 8	27	14	13
In grades 9 - 12	13	10	3
In college or business school	8	5	3
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	45	25	20
1 year or less	9	4	5
2 - 3 years	17	8	9
4 - 5 years	18	7	11
6 - 7 - 8 years	14	5	9
9 - 10 - 11 years	16	9	7
12 - 13 - 14 years	14	10	4
With children 15 and over only	8	5	3
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	88	62	26
A member	41	37	4
Not a member, but a member at one time	37	18	19
Not a member, past membership not reported	-	-	-
Never a member	10	7	3
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	57	-
Time reported 1/	49	1,486
Less than 8	1	3
8	4	32
9 - 15	2	29
16	-	-
17 - 23	4	80
24	3	72
25 - 31	8	226
32	3	96
33 - 34	1	34
35	1	35
36 - 39	6	222
40	13	520
41 or more	3	137
Time not reported	8	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	57	-
Time reported 1/	49	2,280
4 or less	-	-
5 - 8	-	-
9 - 12	-	-
13 - 16	1	13
17 - 20	1	20
21 - 24	1	22
25 - 28	1	28
29 - 32	-	-
33 - 36	3	105
37 - 40	4	157
41 - 44	-	-
45 - 47	3	138
48 - 49	3	145
50 - 52	32	1,652
Time not reported	8	

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	57	-	-
Time reported	49	1,486	2,280
Full time	23	914	1,063
Year round	16	645	823
Less than year round	7	269	240
Part time	26	572	1,217
Year round	19	463	974
Less than year round	7	109	243
Time not reported	8	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	57	-	-
Activities reported	57	-	-
Oral prophylaxis	57	19	414
Other clinical services 1/	55	18	82
Patient dental health education 2/	37	12	32
Management of dental office 3/	22	6	13
Dental assisting tasks 4/	9	1	2
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	57	45	7	1	1	3
Dentists reported						
1	38	38	-	-	-	-
2	13	7	6	-	-	-
3	-	-	-	-	-	-
4 or more	3	-	1	1	1	-
Number of dentists not reported	3	-	-	-	-	3

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	57
Worked for general practitioner only	47
Worked for dental specialist 1/	
Endodontist	4
Oral surgeon	-
Orthodontist	-
Pedodontist	-
Periodontist	3
Prosthodontist	1
	-
Type not reported	6

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	57	16	7	19	7	8
Reporting type(s) of compensation	51	15	7	18	7	4
Salary only	36	8	6	13	5	4
Commission only	6	3	-	2	1	-
Both salary and commission only	8	4	1	2	1	-
Salary only, commission only 2/	1	-	-	1	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	-	-	-	-	-	-
Type of compensation not reported	6	1	-	1	-	4

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	57	16	7	19	7	8
Earnings reported	34	7	6	14	5	2
$1,000 or less	2	-	-	-	2	-
1,000 - 1,999	2	-	-	-	2	-
2,000 - 2,999	2	-	2	-	-	-
3,000 - 3,999	6	-	2	3	-	1
4,000 - 4,999	8	-	-	7	-	1
5,000 - 5,999	4	1	1	1	1	-
6,000 - 6,999	6	4	1	1	-	-
7,000 - 7,999	2	1	-	1	-	-
8,000 - 8,999	2	1	-	1	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	23	9	1	5	2	6

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	26
Reasons reported 1/	26
Full-time family obligations	21
Employment in another occupation	2
Attending school	-
Beyond age to practice	-
Poor health	1
Loss of skill to practice	1
Unable to find suitable position as hygienist	3
She prefers not to work	7
Husband does not want her to work	7
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	26	3	8	13	2
Degree reported	25	3	8	13	1
Very definite	5	3	2	-	-
Fairly definite	8	-	6	1	1
Not at all definite	12	-	-	12	-
Degree not reported	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	13	3	8	1	1
Time until return reported	13	3	8	1	1
Within the next year	1	-	1	-	-
Within the next 5 years	7	2	3	1	1
Within the next 10 years	3	-	3	-	-
Within the next 15 years	-	-	-	-	-
More than 15 years from now	-	-	-	-	-
Never	2	1	1	-	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	9	1	5	3	-	-
Preferred time reported						
8 hours a day	9	1	5	3	-	-
5 days a week	3	-	3	-	-	-
Less than 5 days a week	1	-	1	-	-	-
	2	-	2	-	-	-
Less than 8 hours a day						
5 days a week	6	1	2	3	-	-
Less than 5 days a week	1	-	1	-	-	-
	5	1	1	3	-	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	26
Conditions reported 1/	21
When youngest child starts elementary school	12
When youngest child starts high school	3
When youngest child starts college	-
When a position is available in her community	-
When husband needs her in his practice, if he is a dentist	4
After completion of refresher training, if such training were available in a nearby community college or university	7
After completion of additional college training which would qualify her for a more advanced position as a hygienist	1
Because of illness, disability or death of husband 2/	2
Another condition specified	-
Condition not reported	5

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	26
Reasons reported 1/	22
For self satisfaction	15
To add to the family income for children's education	15
For other financial reasons	5
To keep in practice 2/	-
Another reason specified	-
Reasons not reported	4

1/ Figures will add to more than total if hygienists reported more than one reasons.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	26
Situations reported 1/	7
Lack of opportunities for hygienist in her community	2
Feels she might be too old to practice again	2
Feels she might have lost her skill to practice	2
Has too great an investment in another occupation	2
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	-
No situation was reported	19

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	26	-	-	-	-
Employed in private dental office	4	2	2	-	-
Not employed	22	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	40	37	17	14	3	20
Northeast						
Connecticut	28	26	11	9	2	15
Maine	-	-	-	-	-	-
Massachusetts	1	1	1	-	1	-
New Hampshire	-	-	-	-	-	-
	-	-	-	-	-	-
New Jersey	2	1	1	1	-	-
New York	8	7	1	1	-	6
Pennsylvania	16	16	8	7	1	8
Rhode Island	-	-	-	-	-	-
Vermont	1	1	-	-	-	1
South						
Alabama	8	7	4	4	-	3
Arkansas	-	-	-	-	-	-
Delaware 1/	-	-	-	-	-	-
District of Columbia	2	2	2	2	-	-
	-	-	-	-	-	-
Florida	-	-	-	-	-	-
Georgia	-	-	-	-	-	-
Kentucky	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-
Maryland	2	2	1	1	-	1
Mississippi	-	-	-	-	-	-
North Carolina	1	1	-	-	-	1
Oklahoma	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-
Tennessee	1	1	-	-	-	1
Texas	-	-	-	-	-	-
Virginia	2	1	1	1	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	3	3	1	-	1	2
Illinois	-	-	-	-	-	-
Indiana	-	-	-	-	-	-
Iowa	-	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	1	1	-	-	-	1
Minnesota	-	-	-	-	-	-
Missouri	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	2	2	1	-	1	1
South Dakota	-	-	-	-	-	-
Wisconsin	-	-	-	-	-	-
West	1	1	1	1	-	-
Alaska	-	-	-	-	-	-
Arizona	-	-	-	-	-	-
California	-	-	-	-	-	-
Colorado	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-
Nevada	-	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	1	1	1	1	-	-
Washington	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-

1/ There are 2 hygienists residing in Delaware and working in neighboring States.

Table E-2 -- Year Certificate or Degree Was Received, By Current Professional Status

Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	37	17	20
All schools	37	17	20
1961 - 1965	14	9	5
1956 - 1960	6	-	6
1951 - 1955	7	-	7
1946 - 1950	1	1	-
Before 1946	9	7	2
Year not reported	-	-	-
School not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	37	-	27	-	-	80.0	10	-
Year reported	37	403	27	27	355	80.0	10	-
1965	4	4	1	1	1	0.5	3	-
1964	4	8	2	2	4	3.0	2	-
1963	1	3	1	1	3	0.5	-	-
1962	3	12	2	2	8	1.5	1	-
1961	2	10	1	1	5	4.0	1	-
1960	2	12	2	2	12	7.0	-	-
1959	-	-	-	-	-	-	-	-
1958	1	8	1	1	8	1.0	-	-
1957	1	9	1	1	9	1.0	-	-
1956	3	30	2	2	20	4.0	1	-
1955	6	66	4	4	44	7.5	2	-
1950-1954	1	14	1	1	14	2.0	-	-
1945-1949	3	59	3	3	59	5.0	-	-
1940-1944	3	77	3	3	77	32.0	-	-
1935-1939	2	57	2	2	57	4.0	-	-
Before 1935	1	34	1	1	34	7.0	-	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in Delaware.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	20
Reasons reported 1/	20
Full-time family obligations	19
Employment in another occupation	-
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	1
Unable to find suitable position as hygienist	-
She prefers not to work	5
Husband does not want her to work	7
Not licensed in state where she currently resides	7
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS..

DENTAL HYGIENISTS

LICENSED IN

FLORIDA

1966

A Cooperative Project of the

Florida State Board of Dentistry

and the American Association of Dental Examiners

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, Division of Dental Health
Resource Analysis Branch

November 1968

INTRODUCTION

In September 1966, the Florida State Board of Dentistry conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Florida, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Florida survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	1,166	100	1,127	97
In Florida	738	63	722	98
In other States	417	36	394	94
In foreign countries	11	1	11	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Florida, by Location

Characteristics	Licensed hygienists	In Florida	In other states
Total respondents	1,116	722	394
Current status			
Active	776	547	229
Inactive	340	175	165
Age in 1966			
Under 25	350	249	101
25 - 29	254	142	112
30 - 34	233	135	98
35 & over	278	196	82
Dental hygiene school 1/			
Palm Beach Junior College	92	82	10
Pensacola Junior College	66	52	14
St. Petersburg Junior College	28	25	3
All other schools	913	547	366
Year hygiene training completed			
After 1960	499	336	163
1955 - 1960	261	144	117
Before 1955	340	229	111
Professional activity in Florida			
Ever active in Florida	896	683	213
Never active in Florida	212	35	177

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

1/ Twelve instate hygienists reported no formal training in dental hygiene.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	722
Active	547
Employed	509 1/
Private dental office	491
Dental hygiene school or other auxiliary program	8
Elementary or secondary school (public or private)	-
City or county health agency	1
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	6
Other federal agency	2
Private agency	3
Not reported	5
Unemployed (seeking work as dental hygienist)	38
Inactive	175

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	738	722	547	199	175
Alachua	20	20	18	5	2
Bay	6	6	6	2	-
Brevard	26	25	20	5	5
*Broward	68	68	53	20	15
Calhoun	1	1	1	-	-
Citrus	2	2	2	1	-
Clay	2	2	-	-	2
Collier	1	1	1	-	-
Columbia	1	1	1	-	-
*Dade	153	148	106	34	42
*Duval	98	96	74	27	22
*Escambia	24	24	18	5	6
Gadsden	2	2	2	1	-
Highlands	1	1	-	-	1
*Hillsborough	50	48	33	16	15
Indian River	1	1	1	1	-
Jackson	1	1	-	-	1
Lake	5	5	3	2	2
Lee	5	5	2	1	3
*Leon	14	14	13	5	1
Levy	1	1	1	-	-
Madison	1	1	1	1	-
Manatee	6	6	6	2	-
Marion	3	3	2	-	1
Martin	3	3	1	1	2
Okaloosa	6	5	5	2	-
*Orange	51	49	34	12	15
*Palm Beach	47	46	33	10	13
Pasco	4	4	3	1	1
*Pinellas	68	68	55	28	13
Polk	20	19	17	4	2
Putman	1	1	1	-	-

Table B-2a -- County Location (cont'd.)

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
St. Johns	4	4	3	1	1
St. Lucie	4	4	3	1	1
*Santa Rosa	2	2	1	-	1
Sarasota	14	13	10	6	3
*Seminole	6	6	4	1	2
Suwannee	1	1	1	1	-
Union	1	1	-	-	1
Volusia	12	12	10	3	2
Walton	1	1	1	-	-
Other location 2/	1	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There are apparently no licensed hygienists in 26 of the 67 counties in Florida; none of the 26 counties are defined as metropolitan counties.

2/ Hygienist employed in Florida but residing in Georgia.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	722	547	199	175
Under 20	3	3	-	-
20 - 24 years	246	226	87	20
25 - 29 years	142	96	33	46
30 - 34 years	135	84	19	51
35 - 39 years	66	47	23	19
40 - 44 years	38	27	10	11
45 - 49 years	41	22	6	19
50 - 54 years	19	15	11	4
55 - 59 years	18	16	8	2
60 years & over	14	11	2	3
Not reported	-	-	-	-
Median age	28.9	27.3	26.9	32.1

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Florida, and Selected Counties 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	722	249	142	135	196	-
Active	547	229	96	84	138	-
Employed in private dental office	491	208	86	76	121	-
Other active	56	21	10	8	17	-
Inactive	175	20	46	51	58	-
Alachua	20	10	7	2	1	-
Active	18	10	5	2	1	-
Employed in private dental office	16	10	4	1	1	-
Other active	2	-	1	1	-	-
Inactive	2	-	2	-	-	-
Brevard	25	6	9	4	6	-
Active	20	6	7	2	5	-
Employed in private dental office	19	5	7	2	5	-
Other active	1	1	-	-	-	-
Inactive	5	-	2	2	1	-
*Broward	68	17	11	15	25	-
Active	53	17	7	9	20	-
Employed in private dental office	51	17	7	8	19	-
Other active	2	-	-	1	1	-
Inactive	15	-	4	6	5	-
*Dade	148	39	25	26	58	-
Active	106	33	13	17	43	-
Employed in private dental office	91	29	11	15	36	-
Other active	15	4	2	2	7	-
Inactive	42	6	12	9	15	-
*Duval	96	39	19	17	21	
Active	74	38	14	8	14	-
Employed in private dental office	68	36	14	8	10	-
Other active	6	2	-	-	4	-
Inactive	22	1	5	9	7	-

cont'd.

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Florida, and Selected Counties 1/ (cont'd.)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Escambia	24	14	3	2	5	-
Active	18	11	2	2	3	-
Employed in private dental office	12	8	-	2	2	-
Other active	6	3	2	-	1	-
Inactive	6	3	1	-	2	-
*Hillsborough	48	14	5	16	13	-
Active	33	13	4	9	7	-
Employed in private dental office	30	11	4	9	6	-
Other active	3	2	-	-	1	-
Inactive	15	1	1	7	6	-
*Leon	14	8	2	3	1	-
Active	13	8	2	3	-	-
Employed in private dental office	12	8	2	2	-	-
Other active	1	-	-	1	-	-
Inactive	1	-	-	-	1	-
*Orange	49	16	11	9	13	-
Active	34	14	6	3	11	-
Employed in private dental office	33	14	6	2	11	-
Other active	1	-	-	1	-	-
Inactive	15	2	5	6	2	-
*Palm Beach	46	23	10	8	5	-
Active	33	22	6	4	1	-
Employed in private dental office	30	20	6	3	1	-
Other active	3	2	-	1	-	-
Inactive	13	1	4	4	4	-
*Pinellas	68	22	14	9	23	-
Active	55	20	11	7	17	-
Employed in private dental office	49	20	7	6	16	-
Other active	6	-	4	1	1	-
Inactive	13	2	3	2	6	-

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Florida, and Selected Counties 1/ (cont'd.)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Polk	19	3	2	6	8	-
Active	17	3	2	5	7	-
Employed in private dental office	12	1	1	5	5	-
Other active	5	2	1	-	2	-
Inactive	2	-	-	1	1	-
Sarasota	13	4	5	2	2	-
Active	10	4	3	2	1	-
Employed in private dental office	10	4	3	2	1	-
Other active	-	-	-	-	-	-
Inactive	3	-	2	-	1	-
Volusia	12	7	-	2	3	-
Active	10	7	-	1	2	-
Employed in private dental office	8	5	-	1	2	-
Other active	2	2	-	-	-	-
Inactive	2	-	-	1	1	-
All other counties 2/	72	27	19	14	12	-
Active	53	23	14	10	6	-
Employed in private dental office	50	20	14	10	6	-
Other active	3	3	-	-	-	-
Inactive	19	4	5	4	6	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

2/ Includes one hygienist employed in Florida but residing in Georgia.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	722	547	175
With formal academic training	710	537	173
Palm Beach Junior College	82	77	5
Pensacola Junior College	52	48	4
St. Petersburg Junior College	25	25	-
West Liberty State College	64	47	17
Temple University	58	36	22
University of Tennessee	54	41	13
Northwestern University	48	32	16
University of Pennsylvania	43	28	15
University of Alabama	38	27	11
Monroe Community College 1/	30	22	8
Columbia University	23	13	10
Ohio State University	23	18	5
University of Louisville	18	9	9
Forsyth School for Dental Hygienists	16	13	3
University of Michigan	15	9	6
Loyola University of New Orleans	13	10	3
Marquette University	13	11	2
Baylor University	10	9	1
Fairleigh Dickinson University	8	6	2
State University of New York at Farmingdale	7	6	1
University of Minnesota	6	3	3
Erie County Technical Institute 2/	6	5	1
New York City Community College 3/	6	3	3
University of Bridgeport 4/	5	5	-
Broome Technical Community College	5	4	1
Guggenheim School for Dental Hygienists	5	4	1
Meharry Medical College	5	4	1
Robin Adair School of Oral Hygiene 5/	4	3	1
State University of Iowa	4	2	2
University of North Carolina	4	2	2
Indiana University	3	1	2
University of Southern California	2	1	1
Howard University	2	2	-

cont'd.

Table B-3a -- School Attended for Dental Hygiene Training
(cont'd.)

School	Instate hygienists	Active	Inactive
University of Missouri at Kansas City 6/	2	1	1
Hudson Valley Community College	2	1	1
Georgetown University	1	1	-
University of Detroit	1	1	-
Onondaga Community College	1	1	-
University of Rhode Island	1	1	-
University of Vermont	1	1	-
School not reported	4	4	-
With no formal academic training	12	10	2

1/ Includes any graduates from Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates of New York State Institute of Applied Arts and Science - Buffalo.

3/ Includes any graduates of Brooklyn Community College and New York State Institute of Applied Arts and Science - Brooklyn.

4/ Includes any graduates of Fones School of Dental Hygiene.

5/ Includes any graduates of Atlanta School of Oral Hygiene.

6/ Includes any graduates of Kansas City-Western Dental College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, for Selected Schools

	Instate hygienists with formal training	1966	1965	1964	1961-1963	1958-1960	1955-1957	1952-1954	Before 1952	Not reported
All schools	710	82	75	60	89	84	90	72	157	1
Active	537	78	70	55	68	59	56	44	106	1
Palm Beach Junior College	82	30	25	27	-	-	-	-	-	-
Active	77	30	22	25	-	-	-	-	-	-
Pensacola Junior College	52	21	22	9	-	-	-	-	-	-
Active	48	19	21	8	-	-	-	-	-	-
St. Petersburg Junior College	25	11	14	-	-	-	-	-	-	-
Active	25	11	14	-	-	-	-	-	-	-
West Liberty State College	64	1	2	4	14	14	10	12	7	-
Active	47	1	2	3	14	10	6	4	7	-
Temple University	58	-	1	3	3	6	8	7	30	-
Active	36	-	1	3	2	5	1	3	21	-
University of Tennessee	54	2	1	-	10	15	8	12	6	-
Active	41	2	1	-	9	12	5	9	3	-
Northwestern University	48	3	1	-	10	3	3	3	25	-
Active	32	3	1	-	9	3	1	3	12	-
University of Pennsylvania	43	1	1	1	9	4	5	3	19	-
Active	28	1	1	1	5	2	2	2	14	-
University of Alabama	38	-	-	-	-	7	25	6	-	-
Active	27	-	-	-	-	5	19	3	-	-
Monroe Community College	30	-	-	-	1	5	3	6	15	-
Active	22	-	-	-	1	3	2	5	11	-
Columbia University	23	3	-	1	2	1	2	1	13	-
Active	13	3	-	-	1	-	1	1	7	-
Ohio State University	23	-	-	-	2	2	3	11	5	-
Active	18	-	-	-	2	2	2	8	4	
All other schools	170	10	8	15	38	27	23	11	37	1
Active	123	8	7	15	25	17	17	6	27	1

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienist	Total with formal training	Palm Beach Junior College	Pensacola Junior College	St. Petersburg Junior College	West Liberty State College	Temple University	University of Tennessee	Northwestern University	University of Pennsylvania	University of Alabama	Monroe Community College 2/	Columbia University	Ohio State University	All other schools	No formal academic training
Total	722	710	82	52	25	64	58	54	48	43	38	30	23	23	170	12
Active	547	537	77	48	25	47	36	41	32	28	27	22	13	18	123	10
Alachua	20	20	5	1	-	4	2	2	-	-	1	1	-	-	4	-
Active	18	18	5	1	-	3	2	1	-	-	1	1	-	-	4	-
Bay	6	6	-	4	-	1	-	-	-	-	-	-	-	-	1	-
Active	6	6	-	4	-	1	-	-	-	-	-	-	-	-	1	-
Brevard	25	25	2	-	-	2	1	1	2	1	1	2	-	2	11	-
Active	20	20	2	-	-	1	-	1	1	1	1	2	-	1	10	-
*Broward	68	68	6	-	2	4	8	5	3	2	1	3	4	6	24	-
Active	53	53	6	-	2	3	6	4	3	-	-	2	3	5	19	-
Calhoun	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Citrus	2	2	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Active	2	2	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Clay	2	2	-	-	-	1	-	-	-	-	-	-	-	-	1	-
Active	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collier	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Columbia	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-

cont'd.

Table B-3c -- County Location, by Selected Schools (cont'd.)

County 1/	Instate hygienist	Total with formal training	Palm Beach Junior College	Pensacola Junior College	St. Petersburg Junior College	West Liberty State College	Temple University	University of Tennessee	Northwestern University	University of Pennsylvania	University of Alabama	Monroe Community College 2/	Columbia University	Ohio State University	All other schools	No formal academic training
*Dade	148	142	14	3	-	9	17	7	19	14	6	3	4	6	40	6
Active	106	102	11	3	-	5	11	4	13	9	5	1	2	6	32	4
*Duval	96	94	19	7	3	9	11	3	4	9	9	6	3	1	10	2
Active	74	72	19	7	3	8	6	3	3	6	5	4	3	-	5	2
*Escambia	24	23	-	17	1	1	1	1	1	-	1	-	-	-	-	1
Active	18	17	-	13	1	1	-	-	1	-	1	-	-	-	-	1
Gadsden	2	2	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Active	2	2	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Highlands	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Active	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*Hillsborough	48	48	3	2	3	3	3	6	5	2	7	2	1	1	10	-
Active	33	33	3	2	3	2	-	4	3	2	5	2	-	1	6	-
Indian River	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Active	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Jackson	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Active	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake	5	5	-	-	1	-	1	1	-	-	-	-	-	-	2	-
Active	3	3	-	-	1	-	-	1	-	-	-	-	-	-	1	-
Lee	5	5	-	-	-	-	-	-	-	-	-	2	-	-	3	-
Active	2	2	-	-	-	-	-	-	-	-	-	1	-	-	1	-

cont'd.

Table B-3c -- County Location, by Selected Schools (cont'd.)

County 1/	Instate hygienist	Total with formal training	Palm Beach Junior College	Pensacola Junior College	St. Petersburg Junior College	West Liberty State College	Temple University	University of Tennessee	Northwestern University	University of Pennsylvania	University of Alabama	Monroe Community College 2/	Columbia University	Ohio State University	All other schools	No formal academic training
*Leon	14	14	2	2	1	2	-	2	1	-	2	-	1	-	1	-
Active	13	13	2	2	1	2	-	2	1	-	2	-	-	-	1	-
Levy	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Madison	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Manatee	6	6	1	-	2	1	-	1	-	-	-	-	-	1	-	-
Active	6	6	1	-	2	1	-	1	-	-	-	-	-	1	-	-
Marion	3	3	1	-	-	-	-	-	-	-	2	-	-	-	-	-
Active	2	2	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Martin	3	3	1	-	-	-	-	-	-	-	-	1	-	1	-	-
Active	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Okaloosa	5	5	-	1	-	2	1	-	-	-	1	-	-	-	-	-
Active	5	5	-	1	-	2	1	-	-	-	1	-	-	-	-	-
*Orange	49	49	7	2	-	5	2	6	3	2	2	3	3	2	12	-
Active	34	34	7	2	-	4	2	3	1	1	1	3	1	2	7	-
*Palm Beach	46	46	19	-	-	3	1	3	2	-	-	1	3	3	11	-
Active	33	33	18	-	-	1	-	3	2	-	-	1	-	2	6	-
Pasco	4	4	-	2	-	-	-	1	-	-	-	-	-	-	1	-
Active	3	3	-	2	-	-	-	1	-	-	-	-	-	-	-	-

cont'd.

Table B-3c -- County Location, by Selected Schools (cont'd.)

County 1/	Instate hygienist	Total with formal training	Palm Beach Junior College	Pensacola Junior College	St. Petersburg Junior College	West Liberty State College	Temple University	University of Tennessee	Northwestern University	University of Pennsylvania	University of Alabama	Monroe Community College 2/	Columbia University	Ohio State University	All other schools	No formal academic training
*Pinellas	68	67	1	4	8	9	4	3	3	5	2	4	2	-	22	1
Active	55	54	1	4	8	6	2	2	1	5	2	3	2	-	18	1
Polk	19	18	-	1	-	3	2	3	-	2	-	2	2	-	3	1
Active	17	16	-	1	-	3	2	2	-	1	-	2	2	-	3	1
Putnam	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Active	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
St. Johns	4	4	-	-	-	-	-	2	1	1	-	-	-	-	-	-
Active	3	3	-	-	-	-	-	2	-	1	-	-	-	-	-	-
St. Lucie	4	4	-	-	-	1	1	1	-	-	-	-	-	-	1	-
Active	3	3	-	-	-	1	1	1	-	-	-	-	-	-	-	-
*Santa Rosa	2	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-
Active	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Sarasota	13	13	-	2	1	-	-	2	1	2	1	-	-	-	4	-
Active	10	10	-	2	1	-	-	2	1	-	1	-	-	-	3	-
*Seminole	6	6	-	-	-	1	-	-	1	1	-	-	-	-	3	-
Active	4	4	-	-	-	1	-	-	1	1	-	-	-	-	1	-
Suwannee	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Active	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Union	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Active	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

cont'd.

Table B-3c -- County Location, by Selected Schools (cont'd.)

County 1/	Instate hygienist	Total with formal training	Palm Beach Junior College	Pensacola Junior College	St. Petersburg Junior College	West Liberty State College	Temple University	University of Tennessee	Northwestern University	University of Pennsylvania	University of Alabama	Monroe Community College 2/	Columbia University	Ohio State University	All other schools	No formal academic training
Volusia	12	11	1	-	2	2	1	-	2	1	-	-	-	-	2	1
Active	10	9	1	-	2	1	1	-	1	1	-	-	-	-	2	-
Walton	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Active	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Other location 3/	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Active	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

3/ Responding hygienist employed in Florida but residing in Georgia.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	722	547	175
Dental hygiene certificate only	445	357	88
Additional college, but no degree	188	134	54
Less than 1 year	11	10	1
1 year but less than 2 years	97	78	19
2 years but less than 3 years	57	31	26
3 years but less than 4 years	12	6	6
4 or more years	-	-	-
Number of years not reported	11	9	2
Bachelor's degree	68	41	27
Master's degree	6	3	3
Doctoral degree	-	-	-
Level of college training not reported	3	2	1
No college training	12	10	2

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	722	547	175
Have seriously considered returning	343	276	67
Now enrolled	32	23	9
Definitely planning to enroll	45	39	6
Still considering enrollment	232	188	44
Definitely decided not to enroll	28	22	6
Current plans not reported	6	4	2
Have never considered returning	343	245	98
Plans to continue education not reported	36	26	10

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	309	250	59
Goal reported 2/	275	222	53
Instructor in a school of dental hygiene	115	99	16
Director of a school of dental hygiene	21	17	4
Dentist	5	5	-
Public health dental hygienist 3/	47	39	8
Hygienist in elementary or high school 3/	28	12	16
Other goal in dental hygiene specified	37	29	8
Goal outside dental hygiene specified	68	54	14
Goal not reported	34	28	6

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	305	45	232	28
Obstacles reported 2/	288	41	223	24
Lack of course offerings in a nearby school	119	16	97	6
Lack of sufficient funds	81	11	63	7
Family obligations	155	23	117	15
Lack of specific information on opportunities available	42	8	31	3
Age 3/	1	-	-	1
Lack of time 3/	8	-	8	-
Other obstacle specified	6	2	3	1
Obstacles not reported	17	4	9	4

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	722	547	175
Have taken courses 1/	168	154	14
School of dental hygiene	45	40	5
State or local dental hygiene association	54	50	4
Dental school	3	3	-
State or local dental association	101	95	6
Other sponsor	2	2	-
Sponsor not reported	2	1	1
Have not taken courses	515	363	152
If courses taken not reported	39	30	9

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	547	411	97	39
2 years or less 1/	237	176	45	16
3 - 5	103	79	20	4
6 - 10	90	73	13	4
11 years or more	94	70	13	11
Years not reported	23	13	6	4
Inactive hygienists, by last year active in this State	175	85	59	31
1964 or later	70	36	26	8
1961 - 1963	31	15	11	5
1956 - 1960	23	10	8	5
Before 1956	21	11	6	4
Never active	21	11	5	5
Year not reported	9	2	3	4

1/ Includes 14 hygienists who were seeking work in Florida as a dental hygienist but had never been active in the State.

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	722	-	683	-	-	-	547	-	-	-
Year reported	706	5,586	671	579	5,231	3,638.0	536	436	3,555	2,847.5
1966	97	-	80 2/	-	-	-	89	-	-	-
1965	87	87	85	83	83	82.5	81	79	79	78.0
1964	58	116	57	57	114	98.5	53	53	106	94.0
1963	45	135	43	42	126	110.5	37	36	108	96.5
1962	29	116	27	27	108	86.5	20	20	80	74.0
1961	33	165	31	31	155	121.0	24	24	120	108.0
1960	31	186	31	31	186	133.5	22	22	132	104.5
1959	32	224	31	31	217	173.5	22	22	154	129.5
1958	27	216	27	27	216	172.5	20	20	160	143.0
1957	39	351	38	37	333	213.0	20	19	171	136.0
1956	26	260	25	24	240	157.0	20	19	190	130.0
1955	23	253	22	21	231	157.0	12	12	132	123.0
1954	29	348	29	28	336	212.0	14	13	156	126.0
1953	14	182	14	14	182	134.0	9	9	117	110.0
1952	12	168	12	12	168	121.0	10	10	140	106.0
1951	12	180	10	10	150	125.0	10	10	150	125.0
1950	10	160	10	10	160	78.0	7	7	112	63.0
1945-1949	51	964	50	48	905	701.0	36	34	646	569.0
1940-1944	17	391	17	17	391	227.5	9	9	204	138.0
1935-1939	18	503	16	15	421	215.0	8	7	197	105.0
Before 1935	16	581	16	14	509	319.0	13	11	401	289.0
Year not reported	16	-	12	-	-	-	11	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

2/ Does not include 9 hygienists who were seeking work in Florida as a dental hygienist but had never been active in the State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	9.0	6.3	70
1963-1965	31	1.8	1.6	89
1960-1962	15	5.0	3.8	76
1957-1959	17	8.1	5.9	73
1954-1956	13	11.1	7.2	65
1951-1953	6	13.9	10.6	76
1948-1950	5	17.2	12.1	70
1945-1947	5	19.7	15.0	76
1942-1944	2	22.5	14.3	64
1939-1941	2	26.4	9.9	38
Before 1939	4	33.0	19.7	62

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	722	-	-	-	-	-
Have been active in other States 1/	244	53	54	55	108	14
Alabama	8	1	-	1	6	-
Arkansas	3	-	2	-	1	-
California	9	5	2	-	2	-
Colorado	2	-	1	1	-	-
Connecticut	12	-	1	3	7	1
Delaware	5	-	1	1	2	1
District of Columbia	2	-	-	1	1	-
Georgia	18	5	4	4	5	-
Illinois	10	3	2	3	2	-
Indiana	4	1	1	-	2	-
Iowa	4	1	1	-	2	-
Kansas	1	-	-	-	-	1
Kentucky	6	3	2	1	-	-
Louisiana	4	-	-	3	1	-
Maine	3	-	1	-	2	-
Maryland	2	-	-	1	1	-
Massachusetts	16	5	-	3	6	2
Michigan	10	1	4	4	1	-
Minnesota	4	-	-	1	3	-
Missouri	3	-	1	1	-	1
New Jersey	5	2	1	1	1	-
New York	50	7	10	7	22	4
North Carolina	2	-	-	2	-	-
Ohio	25	2	4	7	9	3
Oklahoma	2	-	1	-	1	-
Pennsylvania	31	6	5	3	16	1
South Carolina	2	1	-	-	1	-
South Dakota	1	1	-	-	-	-
Tennessee	14	3	3	2	6	-
Vermont	1	-	1	-	-	-

cont'd.

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State (cont'd.)

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Virginia	3	-	1	-	2	-
Washington	2	-	1	1	-	-
West Virginia	9	-	3	4	2	-
Wisconsin	6	4	-	-	2	-
Alaska	3	1	-	-	2	-
Hawaii	2	1	1	-	-	-
Have not been active in other States	473	-	-	-	-	-
If active in other States not reported	5	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	722	547	199	175
Single	191	182	85	9
Ever married	531	365	114	166
Now married	468	309	84	159
Other status	63	56	30	7
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	531	365	114	166
With no children	150	135	66	15
With children	350	209	39	141
1	110	73	13	37
2	146	84	16	62
3	63	32	8	31
4	19	12	1	7
5 or more	12	8	1	4
Number of children not reported	31	21	9	10

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	350	209	141
School status			
None in school	141	79	62
Some in school 1/	210	131	79
In grades 1 - 8	170	106	64
In grades 9 - 12	51	33	18
In college or business school	35	18	17
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	320	190	130
1 year or less	94	44	50
2 - 3 years	134	73	61
4 - 5 years	99	57	42
6 - 7 - 8 years	112	65	47
9 - 10 - 11 years	85	55	30
12 - 13 - 14 years	42	28	14
With children 15 and over only	30	19	11
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	722	547	175
A member	390	350	40
Not a member, but a member at one time	244	141	103
Not a member, past membership not reported	10	5	5
Never a member	76	49	27
Current and past membership not reported	2	2	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	491	-
Time reported 1/	457	14,731
Less than 8	7	37
8	19	152
9 - 15	21	273
16	33	528
17 - 23	27	537
24	18	432
25 - 31	33	943
32	26	832
33 - 34	6	203
35	19	665
36 - 39	51	1,872
40	126	5,040
41 or more	71	3,217
Time not reported	34	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	491	-
Time reported 1/	457	19,017
4 or less	28	93
5 - 8	29	191
9 - 12	7	75
13 - 16	6	89
17 - 20	6	114
21 - 24	6	137
25 - 28	5	132
29 - 32	9	283
33 - 36	6	216
37 - 40	12	472
41 - 44	16	696
45 - 47	25	1,151
48 - 49	55	2,656
50 - 52	247	12,712
Time not reported	34	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	491	-	-
Time reported	457	14,731	19,017
Full time	267	10,794	11,346
Year round	191	7,766	9,729
Less than year round	76	3,028	1,617
Part time	190	3,937	7,671
Year round	111	2,459	5,639
Less than year round	79	1,478	2,032
Time not reported	34	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	491	-	-
Activities reported	491	-	-
Oral prophylaxis	491	324	7,845
Other clinical services 1/	433	265	1,069
Patient dental health education 2/	367	230	845
Management of dental office 3/	223	144	465
Dental assisting tasks 4/	61	40	230
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	491	341	113	28	3	6
Dentists reported	477	334	111	28	3	1
1	286	284	2	-	-	-
2	123	39	83	-	-	1
3	39	3	19	17	-	-
4 or more	29	8	7	11	3	-
Number of dentists not reported	14	7	2	-	-	5

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	491
Worked for general practitioner only	432
Worked for dental specialist 1/	42
Endodontist	1
Oral surgeon	2
Orthodontist	5
Pedodontist	5
Periodontist	25
Prosthodontist	4
Type not reported	17

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	491	191	76	111	79	34
Reporting type(s) of compensation	483	189	76	107	77	34
Salary only	159	58	41	26	18	16
Commission only	252	99	20	69	50	14
Both salary and commission only	39	17	11	5	5	1
Salary only, commission only 2/	16	9	2	3	2	-
Salary only, both salary and commission 2/	2	-	1	-	-	1
Commission only, both salary and commission 2/	5	3	1	1	-	-
Salary only, commission only, both salary and commission 2/	1	1	-	-	-	-
Did not receive compensation 3/	9	2	-	3	2	2
Type of compensation not reported	8	2	-	4	2	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist—husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	491	191	76	111	79	34
Earnings reported	387	166	57	95	62	7
$1,000 or less	48	1	25	1	21	-
1,000 - 1,999	23	-	4	5	13	1
2,000 - 2,999	26	-	2	14	9	1
3,000 - 3,999	28	5	3	14	6	-
4,000 - 4,999	32	10	5	10	6	1
5,000 - 5,999	57	30	5	17	4	1
6,000 - 6,999	75	49	6	18	1	1
7,000 - 7,999	50	37	4	9	-	-
8,000 - 8,999	16	15	1	-	-	-
9,000 - 9,999	16	13	1	2	-	-
10,000 & over	7	4	1	2	-	-
None 3/	9	2	-	3	2	2
Earnings not reported	104	25	19	16	17	27

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	175
Reasons reported 1/	172
Full-time family obligations	136
Employment in another occupation	12
Attending school	8
Beyond age to practice	1
Poor health	4
Loss of skill to practice	5
Unable to find suitable position as hygienist	5
She prefers not to work	32
Husband does not want her to work	34
Another reason specified	12
Reasons not reported	3

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	175	24	52	74	25
Degree reported	167	23	52	73	19
Very definite	48	22	13	4	9
Fairly definite	59	1	36	16	6
Not at all definite	60	-	3	53	4
Degree not reported	8	1	-	1	6

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	107	23	49	20	15
Time until return reported	103	23	47	19	14
Within the next year	24	9	9	2	4
Within the next 5 years	43	5	27	9	2
Within the next 10 years	9	1	6	2	-
Within the next 15 years	4	1	-	2	1
More than 15 years from now	-	-	-	-	-
Never	23	7	5	4	7
Time not reported	4	-	2	1	1

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	58	18	32	7	1	-
Preferred time reported	57	18	31	7	1	-
8 hours a day	30	11	16	3	-	-
5 days a week	6	6	-	-	-	-
Less than 5 days a week	24	5	16	3	-	-
Less than 8 hours a day	27	7	15	4	1	-
5 days a week	7	2	3	2	-	-
Less than 5 days a week	20	5	12	2	1	-
Time preferred not reported	1	-	1	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	175
Conditions reported 1/	144
When youngest child starts elementary school	67
When youngest child starts high school	13
When youngest child starts college	18
When a position is available in her community	20
When husband needs her in his practice, if he is a dentist	25
After completion of refresher training, if such training were available in a nearby community college or university	18
After completion of additional college training which would qualify her for a more advanced position as a hygienist	15
Because of illness, disability or death of husband 2/	11
Another condition specified	19
Condition not reported	31

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	175
Reasons reported 1/	
For self satisfaction	159
To add to the family income for children's education	120
For other financial reasons	52
To keep in practice 2/	39
Another reason specified	-
Reasons not reported	6
	16

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	175
Situations reported 1/	
Lack of opportunities for hygienist in her community	81
Feels she might be too old to practice again	36
Feels she might have lost her skill to practice	14
Has too great an investment in another occupation	26
Satisfactory working hours not available 2/	9
Unsatisfactory wages 2/	-
Another situation specified	2
No situation was reported	13
	94

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	175	-	-	-	-
Employed in 3/					
Private dental office	36	7	24	4	1
Dental hygiene school or other dental auxiliary program	1	-	1	-	-
Elementary or secondary school	-	-	-	-	-
City or county health agency	-	-	-	-	-
State health agency	-	-	-	-	-
Other local government agency	1	1	-	-	-
Other state government agency	-	-	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	2	1	1	-	-
Private organization	-	-	-	-	-
Type of employer not reported	-	-	-	-	-
Not employed	135	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	417	394	229	180	49	165
Northeast						
Connecticut	112	109	56	38	18	53
Maine	10	10	7	4	3	3
Massachusetts	1	1	1	-	1	-
New Hampshire	16	15	6	5	1	9
New Jersey	3	3	2	1	1	1
New York	23	23	12	10	2	11
Pennsylvania	38	37	18	11	7	19
Rhode Island	17	16	8	5	3	8
Vermont	4	4	2	2	-	2
	-	-	-	-	-	-
South						
Alabama	194	187	108	87	21	79
Arkansas	23	23	8	4	4	15
Delaware	1	1	-	-	-	1
District of Columbia	2	2	1	1	-	1
Florida 1/	4	4	3	2	1	1
Georgia	1	1	1	1	-	-
Kentucky	44	43	26	20	6	17
Louisiana	12	11	5	5	-	6
Maryland	9	9	7	7	-	2
Mississippi	10	10	4	4	-	6
North Carolina	4	4	3	2	1	1
Oklahoma	19	15	12	10	2	3
South Carolina	4	4	2	2	-	2
Tennessee	4	4	2	1	1	2
Texas	16	15	10	9	1	5
Virginia	15	15	10	6	4	5
West Virginia	19	19	10	9	1	9
	7	7	4	4	-	3

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	68	61	38	30	8	23
Illinois	11	10	4	4	-	6
Indiana	11	8	3	3	-	5
Iowa	4	4	3	1	2	1
Kansas	1	1	1	1	-	-
Michigan	10	10	6	4	2	4
Minnesota	-	-	-	-	-	-
Missouri	4	4	4	4	-	-
Nebraska	1	1	-	-	-	1
North Dakota	-	-	-	-	-	-
Ohio	22	19	13	10	3	6
South Dakota	1	1	1	1	-	-
Wisconsin	3	3	3	2	1	-
West	43	37	27	25	2	10
Alaska	1	1	1	1	-	-
Arizona	3	3	3	3	-	-
California	27	25	16	15	1	9
Colorado	4	4	4	4	-	-
Hawaii	2	1	1	-	1	-
Idaho	1	1	1	1	-	-
Montana	-	-	-	-	-	-
New Mexico	1	-	-	-	-	-
Nevada	1	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	2	2	1	1	-	1
Wyoming	1	-	-	-	-	-

1/ One responding hygienist was a resident of Florida but was employed in Georgia.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

	Out-of-State hygienists	Active	Inactive
Total	394	229	165
Palm Beach Junior College	10	9	1
1966	4	4	-
1965	2	2	-
1964	4	3	1
Pensacola Junior College	14	12	2
1966	2	2	-
1965	6	5	1
1964	6	5	1
St. Petersburg Junior College	3	3	-
1966	1	1	-
1965	2	2	-
All other schools	366	204	162
1964-1966	45	34	11
1961-1963	74	49	25
1958-1960	65	44	21
1955-1957	69	28	41
1952-1954	46	17	29
Before 1952	65	30	35
Year not reported	2	2	-
School not reported	1	1	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	394	-	213	-	-	-	177	4
Year reported	390	3,091	211	205	1,962	568.5	176	3
1966	25	-	-	-	-	-	24	1
1965	30	30	11	11	11	10.5	19	-
1964	36	72	21	20	40	27.0	15	-
1963	20	60	9	9	27	16.5	11	-
1962	25	100	13	13	52	20.0	12	-
1961	25	125	15	14	70	28.5	10	-
1960	26	156	16	14	84	25.5	9	1
1959	21	147	10	10	70	34.5	11	-
1958	28	224	17	17	136	49.0	11	-
1957	31	279	18	17	153	42.0	13	-
1956	22	220	14	14	140	58.5	8	-
1955	14	154	5	5	55	21.0	8	1
1954	13	156	10	10	120	21.0	3	-
1953	10	130	1	1	13	1.0	9	-
1952	10	140	8	8	112	16.0	2	-
1951	8	120	7	7	105	47.0	1	-
1950	2	32	1	1	16	10.0	1	-
1945-1949	29	554	21	20	391	86.5	8	-
1940-1944	7	162	6	6	137	15.0	1	-
1935-1939	7	195	7	7	195	33.0	-	-
Before 1935	1	35	1	1	35	6.0	-	-
Year not reported	4	-	2	-	-	-	1	1

1/ Hygienists reporting both years licensed and years ever active in Florida.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	165
Reasons reported 1/	164
Full-time family obligations	118
Employment in another occupation	12
Attending school	5
Beyond age to practice	-
Poor health	3
Loss of skill to practice	2
Unable to find suitable position as hygienist	9
She prefers not to work	21
Husband does not want her to work	26
Not licensed in state where she currently resides	63
Another reason specified	7
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

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DENTAL HYGIENISTS

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Idaho State Board of Dentistry

and the American Association of Dental Examiners

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

In October 1966, the Idaho State Board of Dentistry conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Idaho, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Idaho survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out of state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3. Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3. Employing dentists
- *4. Compensation
  (Type and amount)

D Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	53	100	47	89
In Idaho	27	51	24	89
In other states	26	49	23	88
In foreign countries	-	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Idaho, by Location

Characteristics	Licensed hygienists	In Idaho	In other states
Total	47	24	23
Current status			
Active	35	21	14
Inactive	12	3	9
Age in 1966			
Under 25	22	12	10
25 - 29	11	4	7
30 - 34	6	3	3
35 & over	6	3	3
Dental hygiene school			
Idaho State University	22	12	10
All other schools	25	12	13
Year hygiene training completed			
1963 - 1966	24	13	11
1959 - 1962	11	5	6
Before 1959	12	6	6
Professional activity in Idaho			
Ever active in Idaho	37	24	13
Never active in Idaho	10	-	10

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	24
Active	21
Employed	21 1/
Private dental office	15
Dental hygiene school or other auxiliary program	2
Elementary or secondary school (public or private)	3
City or county health agency	2
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	-
Private agency	-
Not reported	1
Unemployed (seeking work as dental hygienist)	-
Inactive	3

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	27	24	21	1	3
*Ada	6	5	3	-	2
Bannock	7	7	6	1	1
Bingham	1	-	-	-	-
Blaine	1	1	1	-	-
Bonner	1	-	-	-	-
Bonneville	2	2	2	-	-
Canyon	2	2	2	-	-
Fremont	1	1	1	-	-
Latah	2	2	2	-	-
Minidoka	1	1	1	-	-
Owyhee	1	1	1	-	-
Twin Falls	1	1	1	-	-
Other locations 2/	1	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 32 of the 44 Idaho counties.

2/ One responding hygienist employed in Idaho but residing in a neighboring state.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	24	21	1	3
20 - 24 years	12	11	1	1
25 - 29 years	4	4	-	-
30 - 34 years	3	2	-	1
35 - 39 years	1	1	-	-
40 - 44 years	1	1	-	-
45 - 49 years	1	-	-	1
Not reported	2	2	-	-

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Idaho and Selected Counties 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	24	12	4	3	3	2
Active	21	11	4	2	2	2
Employed in private dental office	15	10	3	2	-	-
Other active	6	1	1	-	2	2
Inactive	3	1	-	1	1	-
*Ada County	5	1	-	2	2	-
Active	3	-	-	1	2	-
Employed in private dental office	1	-	-	1	-	-
Other active	2	-	-	-	2	-
Inactive	2	1	-	1	-	-
Bannock County	7	4	1	-	1	1
Active	6	4	1	-	-	1
Employed in private dental office	3	3	-	-	-	-
Other active	3	1	1	-	-	1
Inactive	1	-	-	-	1	-
All other counties	12	7	3	1	-	1
Active	12	7	3	1	-	1
Employed in private dental office	11	7	3	1	-	-
Other active	1	-	-	-	-	1
Inactive	-	-	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 5 or more responding hygienists.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	24	21	3
With formal academic training	24	21	3
Idaho State University	12	11	1
University of California	1	1	-
University of Southern California	3	2	1
Northwestern University	2	2	-
University of Oregon 1/	1	1	-
University of Vermont	2	1	1
University of Washington	3	3	-
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes any graduates of North Pacific College of Oregon.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools			Idaho State University		
	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	24	21	3	12	11	1
1966	3	3	-	3	3	-
1965	5	5	-	4	4	-
1964	2	1	1	2	1	1
1963	3	3	-	3	3	-
1962	1	1	-	-	-	-
1961	1	1	-	-	-	-
1960	2	2	-	-	-	-
1955 - 1959	1	1	-	-	-	-
1950 - 1954	2	1	1	-	-	-
Before 1950	4	3	1	-	-	-
Not reported	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		Idaho State University		All other schools	
	Total	Active	Total	Active	Total	Active
Total	24	21	12	11	12	10
*Ada	5	3	1	-	4	3
Bannock	7	6	4	4	3	2
Blaine	1	1	-	-	1	1
Bonneville	2	2	-	-	2	2
Canyon	2	2	2	2	-	-
Fremont	1	1	1	1	-	-
Latah	2	2	2	2	-	-
Minidoka	1	1	1	1	-	-
Owyhee	1	1	1	1	-	-
Twin Falls	1	1	-	-	1	1
Other locations 2/	1	1	-	-	1	1

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ One responding hygienist employed in Idaho but residing in a neighboring state.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	24	21	3
Dental hygiene certificate only	9	7	2
Additional college, but no degree	7	7	-
Less than 1 year	-	-	-
1 year but less than 2 years	3	3	-
2 years but less than 3 years	1	1	-
3 years but less than 4 years	1	1	-
4 or more years	1	1	-
Number of years not reported	1	1	-
Bachelor's degree	7	6	1
Master's degree	1	1	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	24	21	3
Have seriously considered returning	13	12	1
Now enrolled	4	4	-
Definitely planning to enroll	2	2	-
Still considering enrollment	7	6	1
Definitely decided not to enroll	-	-	-
Current plans not reported	-	-	-
Have never considered returning	9	7	2
Plans to continue education not reported	2	2	-

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	13	12	1
Goal reported 2/	11	10	1
Instructor in a school of dental hygiene	3	3	-
Director of a school of dental hygiene	4	4	-
Dentist	-	-	-
Public health dental hygienist 3/	1	-	1
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	4	4	-
Goal outside dental hygiene specified	1	1	-
Goal not reported	2	2	-

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	9	2	7	-
Obstacles reported 2/	8	2	6	-
Lack of course offerings in a nearby school	2	-	2	-
Lack of sufficient funds	2	1	1	-
Family obligations	5	2	3	-
Lack of specific information on opportunities available	-	-	-	-
Age 3/	-	-	-	-
Lack of time 3/	-	-	-	-
Other obstacle specified	-	-	-	-
Obstacles not reported	1	-	1	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	24	21	3
Have taken courses 1/	7	5	2
School of dental hygiene	4	2	2
State or local dental hygiene association	3	2	1
Dental school	-	-	-
State or local dental association	2	2	-
Other sponsor	1	-	1
Sponsor not reported	-	-	-
Have not taken courses	17	16	1
If courses taken not reported	-	-	-

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	21	18	1	2
2 years or less	13	13	-	-
3 - 5	5	3	1	1
6 - 10	2	1	-	1
11 years or more	1	1	-	-
Years not reported	-	-	-	-
Inactive hygienists, by last year active in this State	3	2	1	-
1964 or later	2	1	1	-
1961 - 1963	-	-	-	-
1956 - 1960	1	1	-	-
Before 1956	-	-	-	-
Never active	-	-	-	-
Year not reported	-	-	-	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	24	-	24	-	-	-	21	-	-	-
Year reported	24	88	24	19	88	69.0	21	16	69	59.0
1966	5	-	5	-	-	-	5	-	-	-
1965	6	6	6	6	6	9.0	6	6	6	9.0
1964	2	4	2	2	4	4.0	1	1	2	2.0
1963	4	12	4	4	12	12.0	4	4	12	12.0
1962	-	-	-	-	-	-	-	-	-	-
1961	1	5	1	1	5	5.0	1	1	5	5.0
1960	2	12	2	2	12	10.0	1	1	6	6.0
1959	-	-	-	-	-	-	-	-	-	-
1958	-	-	-	-	-	-	-	-	-	-
1957	-	-	-	-	-	-	-	-	-	-
1956	1	10	1	1	10	5.0	1	1	10	5.0
1955	1	11	1	1	11	4.0	-	-	-	-
1954	1	12	1	1	12	12.0	1	1	12	12.0
1953	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-	-	-
1950	1	16	1	1	16	8.0	1	1	16	8.0
Year not reported	-	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	24	-	-	-	-	-
Have been active in other states 1/	11	7	2	-	6	-
California	5	3	1	-	1	-
Colorado	1	1	-	-	-	-
Connecticut	1	-	-	-	1	-
Delaware	1	1	-	-	-	-
Florida	1	-	-	-	1	-
Oregon	1	1	-	-	-	-
Vermont	1	-	-	-	1	-
Washington	4	1	1	-	2	-
Have not been active in other states	13	-	-	-	-	-
If active in other states not reported	-	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	24	21	1	3
Single	5	5	-	-
Ever married	18	15	1	3
Now married	18	15	1	3
Other status	-	-	-	-
Status not reported	1	1	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	18	15	1	3
With no children	7	6	1	1
With children	9	7	-	2
1	2	2	-	-
2	3	3	-	-
3	3	2	-	1
4	1	-	-	1
5 or more	-	-	-	-
Number of children not reported	2	2	-	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	9	7	2
School status			
None in school	4	4	-
Some in school 1/	5	3	2
In grades 1 - 8	3	2	1
In grades 9 - 12	2	1	1
In college or business school	2	1	1
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	7	6	1
1 year or more	4	4	-
2 - 3 years	1	1	-
4 - 5 years	3	2	1
6 - 7 - 8 years	3	2	1
9 - 10 - 11 years	1	1	-
12 - 13 - 14 years	-	-	-
With children 15 and over only	2	1	1
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	24	21	3
A member	18	16	2
Not a member, but a member at one time	5	4	1
Not a member, past membership not reported	-	-	-
Never a member	1	1	-
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	15	-
Time reported 1/	14	343
Less than 8	1	5
8	2	16
9 - 15	1	14
16	2	32
17 - 23	-	-
24	-	-
25 - 31	2	53
32	2	64
33 - 34	-	-
35	-	-
36 - 39	1	37
40	2	80
41 or more	1	42
Time not reported	1	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	15	-
Time reported 1/	14	442
4 or less	1	4
5 - 8	1	8
9 - 12	1	12
13 - 16	-	-
17 - 20	-	-
21 - 24	1	24
25 - 28	1	28
29 - 32	2	64
33 - 36	-	-
37 - 40	3	114
41 - 44	2	88
45 - 47	-	-
48 - 49	-	-
50 - 52	2	100
Time not reported	1	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	15	-	-
Time reported	14	343	442
Full time	4	159	80
Year round	-	-	-
Less than year round	4	159	80
Part time	10	184	362
Year round	2	33	100
Less than year round	8	151	262
Time not reported	1	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	15	-	-
Activities reported	15	-	-
Oral prophylaxis	15	11	169
Other clinical services 1/	15	11	49
Patient dental health education 2/	14	11	27
Management of dental office 3/	7	6	15
Dental assisting tasks 4/	4	4	12
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	15	9	3	3	-	-
Dentists reported	15	9	3	3	-	-
1	9	9	-	-	-	-
2	3	-	3	-	-	-
3	2	-	-	2	-	-
4 or more	1	-	-	1	-	-
Number of dentists not reported	-	-	-	-	-	-

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	15
Worked for general practitioner only	15
Worked for dental specialist	-

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	15	-	4	2	8	1
Salary only	11	-	3	1	6	1
Commission only	4	-	1	1	2	-
Both salary and commission	-	-	-	-	-	-

1/ See Table C-1c for definitions of time worked.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	15	-	4	2	8	1
Earnings reported	11	-	2	1	8	-
$1,000 or less	2	-	1	-	1	-
1,000 - 1,999	1	-	1	-	-	-
2,000 - 2,999	2	-	-	-	2	-
3,000 - 3,999	1	-	-	-	1	-
4,000 - 4,999	4	-	-	1	3	-
5,000 - 5,999	1	-	-	-	1	-
6,000 - 6,999	-	-	-	-	-	-
7,000 - 7,999	-	-	-	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	4	-	2	1	-	1

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Location and Current Professional Status

Region and State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	26	23	14	14	-	9
Northeast	-	-	-	-	-	-
North Central	2	2	-	-	-	2
Michigan	1	1	-	-	-	1
Nebraska	1	1	-	-	-	1
South	2	2	-	-	-	2
Texas	2	2	-	-	-	2
West	22	19	14	14	-	5
Alaska	-	-	-	-	-	-
Arizona	-	-	-	-	-	-
California	5	5	4	4	-	1
Colorado	2	2	1	1	-	1
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	2	2	2	2	-	-
New Mexico	-	-	-	-	-	-
Nevada	1	1	1	1	-	-
Oregon	2	2	1	1	-	1
Utah	5	3	2	2	-	1
Washington	5	4	3	3	-	1
Wyoming	-	-	-	-	-	-

Table D-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	23	14	9
Idaho State University	10	8	2
1965	1	1	-
1964	6	4	2
1963	3	3	-
All other schools	13	6	7
1961 - 1963	5	2	3
1958 - 1960	3	1	2
1955 - 1957	3	1	2
Before 1955	2	2	-
School not reported	-	-	-

Table D-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	23	-	13	-	-	-	10	-
Year reported	23	105	13	13	66	20.0	10	-
1965	1	2	-	-	-	-	1	-
1964	8	16	6	6	12	10.0	2	-
1963	3	9	-	-	-	-	3	-
1962	2	8	1	1	4	2.0	1	-
1961	2	10	1	1	5	2.0	1	-
1960	-	-	-	-	-	-	-	-
1959	2	14	1	1	7	1.0	1	-
1958	2	16	1	1	8	0.5	1	-
1957	1	9	1	1	9	2.0	-	-
1956	1	10	1	1	10	0.5	-	-
1955	1	11	1	1	11	2.0	-	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table D-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	9
Reasons reported 1/	9
Full-time family obligations	8
Employment in another occupation	-
Attending school	-
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	3
Husband does not want her to work	1
Not licensed in state where she currently resides	3
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

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HANDBOOK OF STATISTICS

OF

DENTAL HYGIENISTS LICENSED IN IOWA

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

In May 1966, the Iowa Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the state. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Iowa, the data exclude an unknown number of inactive hygienists who reside in the state but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the state either for the federal government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Iowa survey is part of a national endeavor: Dental examining boards in virtually all of the states are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective states. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this national survey program to assist states in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

October 1967

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in Iowa
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state).

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	363	100	332	91
In Iowa	154	42	140	91
In other states	206	57	189	92
In foreign countries	3	1	3	100

Table A-2 -- Instate and Out-of-State Licensees, By Selected Characteristics

Characteristics	Licensed hygienists	In Iowa	In other states
Total	329	140	189
Current status			
Active	186	78	108
Inactive	143	62	81
Age in 1966			
Under 25	69	31	38
25 - 29	140	53	87
30 - 34	70	30	40
35 & over	48	25	23
Dental hygiene school			
State University of Iowa	263	105	158
All other schools	65	35	30
Year hygiene training completed			
After 1960	143	61	82
1960 - 1955	135	53	82
1954 & earlier	47	25	22
Professional activity in Iowa			
Ever practiced in Iowa	221	128	93
Never practiced in Iowa	107	11	96

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status

Current Status	Instate hygienists
Total	140
Active	78
Employed	78 1/
Private dental office	67
Dental hygiene school or other auxiliary program	6
Elementary or secondary school (public or private)	3
City or county health agency	-
State health agency	1
Other local government agency	-
Other state government agency	2
Army, navy, airforce	-
Other federal agency	2
Private agency	-
Unemployed (seeking work as dental hygienist)	-
Inactive	62

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County	Licensed instate hygienists	Respondents		
		Total	Active	Inactive
Total	154	140	78	62
Appanoose	1	1	1	-
*Black Hawk	3	3	2	1
Boone	1	-	-	-
Bremer	1	1	1	-
Calhoun	1	1	-	1
Cass	1	1	-	1
Cedar	1	-	-	-
Cerro Gordo	5	4	1	3
Clinton	4	4	3	1
Dallas	1	1	-	1
Des Moines	2	2	1	1
*Dubuque	2	-	-	-
Emmet	1	1	-	1
Greene	1	1	-	1
Guthrie	1	-	-	-
Howard	1	1	1	-
Humboldt	2	2	1	1
Iowa	1	1	1	-
Jackson	1	1	-	1
Jasper	1	1	-	1
Jefferson	3	3	1	2
Johnson	30	28	18	10
Kossuth	1	-	-	-
Lee	1	1	1	-
*Linn	17	16	7	9
Lyon	1	-	-	-
Mahaska	1	1	1	-
Marion	2	2	1	1
Marshall	3	3	1	2
Muscatine	1	1	-	1
O'Brien	4	3	1	2
Page	1	1	1	-
*Polk	29	28	17	11
*Pottawattamie	2	2	1	1
Poweshiek	1	1	1	-
*Scott	13	13	8	5

Table B-2a -- County Location (cont'd.)

County	Licensed instate hygienists	Respondents		
		Total	Active	Inactive
Story	4	4	2	2
Warren	2	1	1	-
Webster	2	2	2	-
Winneshiek	1	1	1	-
*Woodbury	1	1	-	1
Worth	1	1	-	1
County not reported	1	1	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

Table B-2b -- Age Distribution In 1966

Age group	Instate hygienists	Active	Inactive
Total	140	78	62
20 - 24	31	24	7
25 - 29	53	29	24
30 - 34	30	8	22
35 - 39	6	2	4
40 - 44	5	4	1
45 - 49	3	3	-
50 - 54	6	5	1
55 - 64	3	1	2
65 & over	2	1	1
Not reported	1	1	-

Table B-2c -- Age Distribution in 1966, By Current Professional Status, For Iowa and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	140	31	53	30	25	1
Active	78	24	29	8	16	1
Employed in private dental office	67	21	27	7	12	-
Other active	11	3	2	1	4	1
Inactive	62	7	24	22	8	-
Polk County	28	3	13	6	6	-
Active	17	3	7	3	4	-
Employed in private dental office	15	2	7	3	3	-
Other active	2	1	-	-	1	-
Inactive	11	-	6	3	2	-
Johnson County	28	14	7	4	2	1
Active	18	10	3	2	2	1
Employed in private dental office	10	8	1	1	-	-
Other active	8	2	2	1	2	1
Inactive	10	4	4	2	-	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	140	78	62
With formal academic training	140	78	62
State University of Iowa	105	58	47
University of Minnesota	10	6	4
Northwestern University	9	5	4
Marquette University	5	3	2
Monroe Community College (N.Y.) 1/	3	1	2
Forsyth School for Dental Hygienists	1	1	-
University of Michigan	1	1	-
University of Missouri at Kansas City 2/	1	1	-
Temple University	1	1	-
University of Washington	1	1	-
University of Southern California	1	-	1
Indiana University	1	-	1
University of Pennsylvania	1	-	1
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes graduates of Kansas City - Western Dental College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received

Year	All schools			State University of Iowa		
	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	140	78	62	105	58	47
1965	12	10	2	12	10	2
1964	13	10	3	10	7	3
1963	10	8	2	10	8	2
1962	12	9	3	11	8	3
1961	14	6	8	13	5	8
1960	10	4	6	9	4	5
1959	9	5	4	9	5	4
1958	9	4	5	8	4	4
1957	11	2	9	9	2	7
1956	7	2	5	6	2	4
1955	7	2	5	7	2	5
1954 and earlier	25	15	10	-	-	-
Not reported	1	1	-	1	1	-

Table B-3c -- Year Degree or Certificate Was Received, By Highest Level of Hygiene Training

Year	Instate hygienists	By level of hygiene training		
		Bachelor degree	Associate degree	Certificate or diploma
Total	140	43	3	94
After 1960	61	29	1	31
1955 - 1960	53	13	1	39
Before 1955	25	1	1	23
Not reported	1	-	-	1
Active	78	26	1	51
After 1960	43	20	1	22
1955-1960	19	5	-	14
Before 1955	15	1	-	14
Not reported	1	-	-	1
Inactive	62	17	2	43
After 1960	18	9	-	9
1955 - 1960	34	8	1	25
Before 1955	10	-	1	9

Table B-3d -- College Training in Addition to Hygiene Training

Additional college training	Instate hygienists	Active	Inactive
Total	140	78	62
With additional college	44	21	23
Less than 1 year	2	1	1
1 but less than 2	17	7	10
2 but less than 3	11	3	8
3 but less than 4	1	1	-
4 or more	3	1	2
Years not reported	10	8	2
With no additional college	96	57	39

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	140	78	62
Have seriously considered returning	53	31	22
Now enrolled	5	1	4
Definitely planning to enroll	4	4	-
Still considering enrollment	35	20	15
Definitely decided not to enroll	7	5	2
Current plans not reported	2	1	1
Have never considered returning	84	45	39
Plans to continue education not reported	3	2	1

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	44	25	19
Goal reported	37	23	14
Instructor in a school of dental hygiene	14	11	3
Director of a school of dental hygiene	6	3	3
Dentist	-	-	-
Public health dental hygienist 2/	12	7	5
Hygienist in elementary or high school 2/	3	1	2
Other goal in dental hygiene specified	4	4	-
Goal outside dental hygiene specified	9	4	5
Goal not reported	7	2	5

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college		
		Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	46	4	35	7
Obstacles reported	44	4	34	6
Lack of course offerings in a nearby school	7	-	6	1
Lack of sufficient funds	18	3	13	2
Family obligations	33	3	25	5
Lack of specific information on opportunities available	-	-	-	-
Age	-	-	-	-
Lack of time	-	-	-	-
Other obstacle specified	3	1	2	-
Obstacles not reported	2	-	1	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	140	78	62
Have taken courses	8 1/	7	1
School of dental hygiene	1	1	-
State or local dental hygiene association	4	4	1
Dental school	-	-	-
State or local dental association	4	4	-
Other sponsor	-	-	-
Sponsor not reported	-	-	-
Have not taken courses	129	69	60
If courses taken not reported	3	2	1

1/ Figures will add to more than total if hygienists reported taking more than one course

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available In a Nearby School

Current status by past activity in Iowa	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in Iowa	78	66	9	3
2 or less	29	24	5	-
3 - 5	24	21	2	1
6 - 10	13	11	1	1
11 or more	11	9	1	1
Years not reported	1	1	-	-
Inactive hygienists, by last year active in Iowa	62	41	16	5
1964 or later	17	8	6	3
1963 - 1961	14	12	1	1
1960 - 1956	15	10	5	-
1955 or earlier	2	1	1	-
Never active	11	7	3	1
Years not reported	3	3	-	-

Table B-4a -- Professional Activity in Iowa Since Licensure

Year first licensed in Iowa	Instate hygienists	Ever active in Iowa			Currently active		
		Total	Years active		Total	Years active	
			Number reporting years 1/	Aggregate years reported		Number reporting years 1/	Aggregate years reported
Total	140	128	123	637	78	76	434
Year reported	140	128	123	637	78	76	434
1965	15	15	14	14	13	12	12
1964	14	13	13	26	11	11	22
1963	12	11	10	25	9	8	22
1962	12	11	10	33	8	8	29
1961	13	11	11	31	5	5	19
1960	11	10	9	34	4	4	22
1959	9	9	9	36	5	5	28
1958	8	7	7	29	4	4	19
1957	10	9	8	30	2	2	17
1956	7	7	7	59	3	3	30
1955	7	5	5	36	2	2	22
1950-1954	7	5	5	38	3	3	25
1945-1949	6	6	6	73	3	3	47
1940-1944	2	2	2	33	2	2	33
1935-1939	3	3	3	72	2	2	54
Before 1935	4	4	4	68	2	2	33
Year not reported		-	-	-	-	-	-

1/ Excludes hygienists who reported they were active for less than six months.

Table B-4b -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice			
		1964 or later	1961-1963	1960 or earlier	Not reported
Total	140	-	-	-	-
Have been active in other states 1/	36	14	13	11	2
Arizona	1	-	1	-	-
California	3	2	1	-	-
Colorado	3	1	2	-	-
Florida	2	-	1	-	1
Illinois	4	-	3	1	-
Indiana	2	-	2	-	-
Kansas	2	1	-	1	-
Maryland	2	1	1	-	-
Massachusetts	1	1	-	-	-
Michigan	1	1	-	-	-
Minnesota	4	-	-	4	-
Missouri	1	1	-	-	-
Nebraska	6	3	2	1	-
New York	1	-	-	1	-
Pennsylvania	1	1	-	-	-
South Dakota	1	-	-	1	-
Washington	1	-	-	1	-
West Virginia	1	-	-	-	1
Wisconsin	3	2	-	1	-
Have not been active in other states	103	-	-	-	-
If active in other states not reported	1	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active	Inactive
Total	140	78	62
Single	18	16	2
Ever married	122	62	60
Now married	116	57	59
Other status	6	5	1
Status not reported	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active	Inactive
Total	122	62	60
With no children	32	24	8
With children	87	37	50
1	29	22	7
2	33	9	24
3	17	6	11
4	6	-	6
5	2	-	2
Number of children not reported	3	1	2

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	87	37	50
School status			
None in school	50	24	26
Some in school	36 1/	12	24
In grades 1 - 8	31	8	23
In grades 9 - 12	8	6	2
In college or business school	4	2	2
School status not reported	1	1	-
Age of children			
With children under 15 years	82 1/	33	49
1 year or under	37	14	23
2 - 3 years	39	13	26
4 - 5 years	28	5	23
6 - 7 - 8 years	24	5	19
9 - 10 - 11 years	10	5	5
12 - 13 - 14 years	10	4	6
With children 15 and over only	4	3	1
Age not reported	1	1	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	140	78	62
A member	77	58	19
Not a member, but a member at one time	52	17	35
Not a member, past membership not reported	-	-	-
Never a member	11	3	8
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	67	-
Time reported 1/	64	1,833
Less than 8	1	4
8	5	40
9 - 15	3	36
16	7	112
17 - 23	3	62
24	7	168
25 - 31	7	200
32	3	96
33 - 34	-	-
35	2	70
36 - 39	8	291
40	12	480
41 or more	6	274
Time not reported	3	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	67	-
Time reported 1/	64	2,780
4 or less	-	-
5 - 8	1	8
9 - 12	1	12
13 - 16	-	-
17 - 20	1	20
21 - 24	3	72
25 - 28	2	54
29 - 32	3	94
33 - 36	3	105
37 - 40	6	240
41 - 44	6	254
45 - 47	2	91
48 - 49	7	338
50 - 52	29	1,492
Time not reported	3	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	67	-	-
Time reported	64	1,833	2,780
Full time	28	1,115	1,406
Year round	24	957	1,231
Less than year round	4	158	175
Part time	36	718	1,374
Year round	12	218	599
Less than year round	24	500	775
Time not reported	3	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	67	-	-
Activities reported	66	-	-
Oral prophylaxis	66	49	1,050
Other clinical services 1/	61	45	134
Patient dental health education 2/	55	40	116
Management of dental office 3/	35	25	84
Dental assisting tasks 4/	13	9	37
Activities not reported	1	-	-

1/ Radiographs, fluoride applications, etc.

2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.

3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.

4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	67	49	13	2	-	3
Dentists reported	63	49	13	1	-	-
1	41	41	-	-	-	-
2	16	6	10	-	-	-
3	5	2	2	1	-	-
4 or more dentists	1	-	1	-	-	-
Number of dentists not reported	4	-	-	1	-	3

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	67
Worked for general practitioner	60
Worked for dental specialist	1
Endodontist	-
Oral surgeon	-
Orthodontist	-
Pedodontist	1
Periodontist	-
Prosthodontist	-
Type not reported	6

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	67	24	4	12	24	3
Reporting type(s) of compensation	63	22	4	12	23	2
Salary only	22	7	2	5	7	1
Commission only	23	3	1	7	12	-
Both salary and commission only	13	10	-	-	2	1
Salary only, commission only 2/	2	-	1	-	1	-
Salary only, both salary and commission 2/	2	2	-	-	-	-
Commission only, both salary and commission 2/	1	-	-	-	1	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	-	-	-	-	-	-
Type of compensation not reported	4	2	-	-	1	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than Year round	
Total	67	24	4	12	24	3
Earnings reported	60	21	2	12	24	1
$1,000 or less	4	-	-	2	2	-
1,000 - 1,999	6	-	-	2	4	-
2,000 - 2,999	10	-	-	3	7	-
3,000 - 3,999	8	-	-	2	6	-
4,000 - 4,999	3	-	-	2	1	-
5,000 - 5,999	14	9	2	1	1	1
6,000 - 6,999	11	8	-	-	3	-
7,000 - 7,999	3	3	-	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	1	1	-	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	7	3	2	-	-	2

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	62
Reasons reported	62 1/
Full-time family obligations	51
Employment in another occupation	5
Attending school	2
Beyond age to practice	-
Poor health	-
Loss of skill to practice	2
Unable to find suitable position as hygienist	6
She prefers not to work	13
Husband does not want her to work	10
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	62	10	22	26	4
Degree reported	61	10	22	26	3
Very definite	13	9	2	1	1
Fairly definite	24	1	18	4	1
Not at all definite	24	-	2	21	1
Degree not reported	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	37	10	20	5	2
Time until return reported	37	10	20	5	2
Within the next year	6	2	4	-	-
Within the next 5 years	13	4	7	2	-
Within the next 10 years	9	2	6	1	-
Within the next 15 years	2	-	-	2	-
More than 15 years from now	-	-	-	-	-
Never	7	2	3	-	2
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice: Within the next year	5 years	10 years	15 years	More than 15 years from now
Total	30	6	13	9	2	-
Preferred time reported	30	6	13	9	2	-
8 hours a day						
5 days a week	2	1	-	1	-	-
Less than 5 days a week	11	5	4	2	-	-
Less than 8 hours a day						
5 days a week	5	-	3	2	-	-
Less than 5 days a week	12	-	6	4	2	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	62
Conditions reported	57 1/
When youngest child starts elementary school	27
When youngest child starts high school	9
When youngest child starts to college	5
When a position is available in her community	14
When husband needs her in his practice, if he is a dentist	9
After completion of refresher training, if such training was available in a nearby community college or university	15
After completion of additional college training which would qualify her for a more advanced position as a hygienist	9
Because of illness, disability or death of husband 2/	1
Another condition specified	5
Condition not reported	5

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	62
Reasons reported	60 1/
For self satisfaction	51
To add to the family income for children's education	24
For other financial reasons	11
To keep in practice 2/	2
Another reason specified	-
Reasons not reported	2

1/ Figures will add to more than total if hygienists reported more than one situation.
2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienist From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	62
Situations reported	44 1/
Lack of opportunities for hygienist in her community	24
Feels she might be too old to practice again	2
Feels she might have lost her skill to practice	16
Has too great an investment in another occupation	4
Satisfactory working hours not available 2/	1
Unsatisfactory wages 2/	2
Another situation specified	3
No situation was reported	18

1/ Figures will add to more than total if hygienists reported more than one situation.
2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	62	5	10	1	-
Employed in	15 3/	5	10	1	-
Private dental office	12	3	8	1	-
Dental hygiene school or other dental auxiliary program	-	-	-	-	-
Elementary or secondary school	2	-	2	-	-
City or county health agency	-	-	-	-	-
State health agency	-	-	-	-	-
Other local government agency	-	-	-	-	-
Other state government agency	2	2	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	-	-	-	-	-
Private organization	-	-	-	-	-
Type of employer not reported	-	-	-	-	-
Not employed	47	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "Full time" and "Part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	206	189	108	89	19	81
Northeast	14	11	3	1	2	8
Connecticut	2	1	1	1	-	-
Maine	-	-	-	-	-	-
Massachusetts	1	1	-	-	-	1
New Hampshire	1	1	-	-	-	1
New Jersey	1	1	-	-	-	1
New York	6	6	2	-	2	4
Pennsylvania	1	1	-	-	-	1
Rhode Island	2	-	-	-	-	-
Vermont	-	-	-	-	-	-
North Central	97	92	51	46	5	41
Illinois	44	41	22	21	1	19
Indiana	1	1	1	1	-	-
Iowa			Not applicable			
Kansas	1	1	-	-	-	1
Michigan	5	5	3	3	-	2
Minnesota	11	10	3	3	-	7
Missouri	10	9	5	5	-	4
Nebraska	11	11	10	8	2	1
North Dakota	-	-	-	-	-	-
Ohio	4	4	2	1	1	2
South Dakota	1	1	-	-	-	1
Wisconsin	9	9	5	4	1	4
South	28	26	12	6	6	1[illegible]
Alabama	2	2	1	-	1	1
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	1	1	1	1	-	-
Florida	7	6	2	1	1	4
Georgia	2	1	-	-	-	1
Kentucky	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-
Maryland	3	3	1	-	1	2
Mississippi	-	-	-	-	-	-
North Carolina	1	1	-	-	-	1
Oklahoma	3	3	2	2	-	1
South Carolina	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-
Texas	6	6	2	1	1	4
Virginia	2	2	2	1	1	-
West Virginia	1	1	1	-	1	-

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
West	67	60	42	36	6	18
Alaska	-	-	-	-	-	-
Arizona	7	5	3	3	-	2
California	28	25	16	16	-	9
Colorado	24	22	19	14	5	3
Hawaii	1	1	-	-	-	1
Idaho	-	-	-	-	-	-
Montana	1	1	-	-	-	1
New Mexico	-	-	-	-	-	-
Nevada	-	-	-	-	-	-
Oregon	2	2	1	1	-	1
Utah	2	2	2	1	1	-
Washington	1	1	1	1	-	-
Wyoming	1	1	-	-	-	1

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	189	108	81
State University of Iowa	158	96	62
1965	21	18	3
1964	18	18	-
1963	14	10	4
1962	10	5	5
1961	16	9	7
1960	13	8	5
1959	15	3	12
1958	14	6	8
1957	17	8	9
1956	10	6	4
1955	7	2	5
Year not reported	3	3	-
All other schools	30	12	18
After 1960	2	2	-
1955-1960	6	2	4
Before 1955	22	8	14
Year not reported	-	-	-
School not reported	1	-	1

Table E-3 -- Year First Licensed in Iowa, By Past Professional Activity in Iowa

Year first licensed in Iowa	Out-of-state hygienists	Past professional activity in Iowa				
		Ever active			Never active	Activity not reported
		Total	Years active in Iowa			
			Number reporting years 1/	Aggregate years reported		
Total	189	93	77	201	96	-
Year reported	188	93	77	201	95	-
1965	22	3	-	-	19	-
1964	17	4	3	4	13	-
1963	15	4	4	5	11	-
1962	11	5	2	2	6	-
1961	18	9	9	16	9	-
1960	14	7	5	13	7	-
1959	14	9	8	16	5	-
1958	17	10	8	20	7	-
1957	19	12	11	27	7	-
1956	11	7	6	12	4	-
1955	10	5	5	15	5	-
1950-1954	9	8	8	24	1	-
1945-1949	3	3	2	12	-	-
1940-1944	2	2	2	11	-	-
1935-1939	2	2	2	17	-	-
Before 1935	4	3	2	7	1	-
Year not reported	1	-	-	-	1	-

1/ Excludes hygienists who reported they were active for less than six months.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	81
Reasons reported	80 1/
Full-time family obligations	60
Employment in another occupation	5
Attending school	1
Beyond age to practice	-
Poor health	1
Loss of skill to practice	2
Unable to find suitable position as hygienist	4
She prefers not to work	23
Husband does not want her to work	16
Not licensed in state where she currently resides	35
Another reason specified	2
Reason not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

KANSAS

1966

A

Cooperative Project of the

Kansas Dental Board

and the American Association of Dental Examiners

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, National Institutes of Health
Division of Dental Health
Resource Analysis Branch

April, 1969

INTRODUCTION

In October 1966, the Kansas Dental Board conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual re-registration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Kansas, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Kansas survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

Kansas Dental Board

THE _____ STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF _____ THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____
LAST FIRST MIDDLE MAIDEN (if ever married)

Present Home Address: _____
STREET CITY COUNTY STATE ZIP CODE

License Number: _____ Social Security Number: _____

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ Single (1) ☐ Married (2) ☐ Widowed (3) ☐ Divorced (4) ☐ Separated (5)
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ Grades 1-8 _____ Grades 9-12 _____ College or business school
5. Number of children under 15 years: _____ 1 yr. or under _____ 2-3 yrs. _____ 4-5 yrs. _____ 6-7-8 yrs. _____ 9-10-11 yrs. _____ 12-13-14 yrs.

B. TRAINING AND EDUCATION ☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ Bachelor degree (1) ☐ Associate degree (2) ☐ Certificate or diploma (3)
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ Bachelor degree (1) ☐ Master degree (2) ☐ Other Degree (*specify* _____)

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
B.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
C.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
D.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ Yes (1) ☐ No (2)
    IF NO, have you ever been a member? ☐ Yes (1) ☐ No (2)

A-1
B-2a, 2c,
B-3c
E-1

A-2
B-2b, 2c
B-5a, 5b,
5c

A-2
B-3a, 3b,
3c, 3d
E-2

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

A-2

B-1

B-1

B-2c

C-1a,1c

E-1

C-2

D. CURRENT PROFESSIONAL ACTIVITY

15. Current professional status *(check one)*
   1☐ At work as a dental hygienist
   2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
   3☐ Seeking work as a dental hygienist
   4☐ Not working or seeking work as a dental hygienist
   } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where? _____
   In what county do you primarily work? _____

17. In a typical week how many hours do you work for your current employers? _____ hours
   (use last week if it was typical, otherwise select the most recent week which was typical)

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify* _____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization* _____ ..... _____

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify* _____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
   1☐ Yes
   2☐ No

■ **If you currently work in a private dental office complete items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1 _____ Office 2 _____ Office 3 _____ Office 4 _____ Other Offices _____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists? _____ Specify type(s) _____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months? _____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)* _____

26. How many weeks, if any, were you employed in this State? _____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify* _____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $ _____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify* _____*)*
6☐ Other goal outside dental hygiene *(specify* _____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐1 No ☐2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify_____)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	275	100	246	89
In Kansas	109	40	96	88
In other states	162	59	146	90
In foreign countries	4	1	4	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Kansas, by Location

Characteristics	Licensed hygienists	In Kansas	In other states
Total Respondents	242	96	146
Current status			
Active	153	62	91
Inactive	89	34	55
Age in 1966			
Under 25	66	25	41
25 - 29	93	33	60
30 - 34	38	11	27
35 & over	42	24	18
Dental hygiene school			
University of Missouri at Kansas City	191	65	126
All other schools	37	20	17
No formal training	11	9	2
Year hygiene training completed			
1962 - 1966	94	36	58
1958 - 1961	69	18	51
1954 - 1957	48	21	27
Before 1954	16	9	7
Professional activity in Kansas			
Ever active in Kansas	156	89	67
Never active in Kansas	85	6	79

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	96
Active	62
Employed	62 1/
Private dental office	58
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	1
City or county health agency	-
State health agency	-
Other local government agency	-
Other state government agency	-
Army, navy, air force	1
Other federal agency	1
Private agency	-
Not reported	1
Unemployed (seeking work as dental hygienist)	-
Inactive	34

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	109	96	62	33	34
Allen	1	1	-	-	1
Barton	2	1	1	-	-
*Butler	1	-	-	-	-
Cherokee	1	1	-	-	1
Clark	1	1	-	-	1
Crawford	1	1	1	-	-
Dickinson	3	3	1	-	2
Douglas	7	7	5	2	2
Ford	1	1	1	1	-
Franklin	1	1	1	-	-
Graham	1	1	1	-	-
Greenwood	1	1	-	-	1
Harvey	1	1	-	-	1
Jackson	1	-	-	-	-
*Johnson	17	14	7	3	7
Labette	1	1	-	-	1
Leavenworth	1	1	1	1	-
Logan	1	1	-	-	1
Neosho	1	1	-	-	1
Reno	4	4	2	2	2
Riley	3	3	2	-	1
*Sedgwick	34	29	21	12	8
*Shawnee	11	10	9	7	1
Stanton	1	1	-	-	1
Sumner	1	1	1	1	-
Wichita	1	1	-	-	1
*Wyandotte	7	6	5	3	1
Other locations 2/	3	3	3	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There are apparently no licensed hygienists in 98 of the 125 counties in Kansas.

2/ Hygienists employed in Kansas but residing in neighboring states.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	96	62	33	34
20 - 24 years	25	19	12	6
25 - 29 years	33	19	8	14
30 - 34 years	11	4	1	7
35 - 39 years	8	6	2	2
40 - 44 years	1	-	-	1
45 - 49 years	2	2	2	-
50 - 54 years	2	2	2	-
55 - 59 years	8	7	4	1
60 years & over	3	1	1	2
Not reported	3	2	1	1
Median age	28.3	27.9	27.5	28.8

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Kansas, and Selected Counties 1/

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	96	25	33	11	24	3
Active	62	19	19	4	18	2
Employed in private dental office	58	19	19	4	14	2
Other active	4	-	-	-	4	-
Inactive	34	6	14	7	6	1
*Johnson	14	2	7	2	3	-
Active	7	2	3	-	2	-
Employed in private dental office	7	2	3	-	2	-
Other active	-	-	-	-	-	-
Inactive	7	-	4	2	1	-
*Sedgwick	29	11	8	3	5	2
Active	21	8	5	2	4	2
Employed in private dental office	21	8	5	2	4	2
Other active	-	-	-	-	-	-
Inactive	8	3	3	1	1	-
*Shawnee	10	1	5	-	4	-
Active	9	1	4	-	4	-
Employed in private dental office	7	1	4	-	2	-
Other active	2	-	-	-	2	-
Inactive	1	-	1	-	-	-
All other counties 2/	43	11	13	6	12	1
Active	25	8	7	2	8	-
Employed in private dental office	23	8	7	2	6	-
Other active	2	-	-	-	2	-
Inactive	18	3	6	4	4	1

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

2/ Includes 3 hygienists employed in Kansas but residing in neighboring States.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	96	62	34
With formal academic training	87	56	31
University of Missouri at Kansas City 1/	65	40	25
Northwestern University	3	2	1
Marquette University	3	1	2
University of Minnesota	2	2	-
Ohio State University	2	2	-
Rangely College 2/	1	1	-
Palm Beach Junior College	1	1	-
Loyola University of New Orleans	1	1	-
Columbia University	1	-	1
Monroe Community College 3/	1	1	-
State University of New York at Farmingdale 4/	1	1	-
Temple University	1	-	1
University of Pennsylvania	1	-	1
University of Tennessee	1	1	-
Baylor University	1	1	-
School not reported	2	2	-
With no formal academic training	9	6	3

1/ Includes any graduates of Kansas City - Western Dental College.
2/ Includes any graduates from Mesa Junior College.
3/ Includes any graduates from Eastman Dental Dispensary and Rochester Dental Dispensary.
4/ Includes any graduates from Long Island Agriculture and Technical Institute.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools		University of Missouri at Kansas City		All other schools	
	Total	Active	Total	Active	Total	Active
Instate hygienists	87 1/	56	65	40	22	16
1966	4	3	1	-	3	3
1965	11	10	9	8	2	2
1964	10	7	8	5	2	2
1963	4	3	4	3	-	-
1962	7	4	7	4	-	-
1961	10	7	8	7	2	-
1960	2	1	2	1	-	-
1959	2	-	2	-	-	-
1958	4	3	4	3	-	-
1957	10	5	7	3	3	2
1956	1	1	1	1	-	-
1955	4	-	4	-	-	-
1954	6	3	5	2	1	1
Before 1954	9	7	3	3	6	4
Not reported	3	2	-	-	3	2

1/ Excludes 9 responding hygienists with no formal academic training.

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		University of Missouri at Kansas City		All other schools		No formal training	
	Total	Active	Total	Active	Total	Active	Total	Active
Total	96	62	65	40	22	16	9	6
Allen	1	-	-	-	1	-	-	-
Barton	1	1	1	1	-	-	-	-
Cherokee	1	-	1	-	-	-	-	-
Clark	1	-	-	-	1	-	-	-
Crawford	1	1	-	-	-	-	1	1
Dickinson	3	1	1	-	2	1	-	-
Douglas	7	5	6	4	1	1	-	-
Ford	1	1	1	1	-	-	-	-
Franklin	1	1	-	-	1	1	-	-
Graham	1	1	-	-	1	1	-	-
Greenwood	1	-	1	-	-	-	-	-
Harvey	1	-	-	-	1	-	-	-
*Johnson	14	7	12	5	2	2	-	-
Labette	1	-	1	-	-	-	-	-
Leavenworth	1	1	1	1	-	-	-	-
Logan	1	-	-	-	1	-	-	-
Neosho	1	-	1	-	-	-	-	-
Reno	4	2	2	1	1	-	1	1
Riley	3	2	-	-	2	2	1	-
*Sedgwick	29	21	21	14	5	5	3	2
*Shawnee	10	9	6	5	2	2	2	2
Stanton	1	-	1	-	-	-	-	-
Sumner	1	1	1	1	-	-	-	-
Wichita	1	-	1	-	-	-	-	-
*Wyandotte	6	5	4	4	1	1	1	-
Other location 2/	3	3	3	3	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Responding hygienists employed in Kansas but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	96	62	34
Dental hygiene certificate only	36	19	17
Additional college, but no degree	26	20	6
Less than 1 year	-	-	-
1 year but less than 2 years	13	10	3
2 years but less than 3 years	9	7	2
3 years but less than 4 years	1	1	-
4 or more years	-	-	-
Number of years not reported	3	2	1
Bachelor's degree	25	17	8
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	9	6	3

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	96	62	34
Have seriously considered returning	37	30	7
Now enrolled	3	1	2
Definitely planning to enroll	2	-	2
Still considering enrollment	27	25	2
Definitely decided not to enroll	3	3	-
Current plans not reported	2	1	1
Have never considered returning	48	28	20
Plans to continue education not reported	11	4	7

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	32	26	6
Goal reported 2/	28	23	5
Instructor in a school of dental hygiene	6	5	1
Director of a school of dental hygiene	4	4	-
Dentist	-	-	-
Public health dental hygienist 3/	5	4	1
Hygienist in elementary or high school 3/	4	3	1
Other goal in dental hygiene specified	8	8	-
Goal outside dental hygiene specified	9	5	4
Goal not reported	4	3	1

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	32	2	27	3
Obstacles reported 2/	29	2	25	2
Lack of course offerings in a nearby school	10	-	9	1
Lack of sufficient funds	8	-	8	-
Family obligations	19	2	14	3
Lack of specific information on opportunities available	2	-	1	1
Age 3/	-	-	-	-
Lack of time 3/	1	-	1	-
Other obstacle specified	1	-	1	-
Obstacles not reported	3	-	2	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	96	62	34
Have taken courses 1/	8	8	-
School of dental hygiene	2	2	-
State or local dental hygiene association	3	3	-
Dental school	-	-	-
State or local dental association	5	5	-
Other sponsor	-	-	-
Sponsor not reported	-	-	-
Have not taken courses	83	52	31
If courses taken not reported	5	2	3

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	62	45	11	6
2 years or less	25	20	3	2
3 - 5	11	7	3	1
6 - 10	11	8	1	2
11 years or more	13	9	4	-
Years not reported	2	1	-	1
Inactive hygienists, by last year active in this State	34	16	10	8
1964 or later	13	5	4	4
1961 - 1963	8	2	5	1
1956 - 1960	4	4	-	-
Before 1956	2	1	-	1
Never active	6	4	1	1
Year not reported	1	-	-	1

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	96	-	89	-	-	-	62	-	-	-
Year reported	95	788	89	80	721	502.0	62	55	475	395.0
1966	8	-	8	-	-	-	6	-	-	-
1965	12	12	11	11	11	19.5	11	11	11	19.5
1964	8	16	8	8	16	17.0	5	5	10	11.0
1963	7	21	6	6	18	16.0	5	5	15	14.0
1962	7	28	6	6	24	15.5	4	4	16	14.0
1961	9	45	9	9	45	34.5	7	7	35	26.5
1960	2	12	2	2	12	9.0	1	1	6	6.0
1959	2	14	2	2	14	6.0	-	-	-	-
1958	4	32	3	3	24	25.0	3	3	24	25.0
1957	8	72	7	7	63	30.5	3	3	27	21.0
1956	1	10	1	1	10	11.0	1	1	10	11.0
1955	4	44	4	4	44	16.0	-	-	-	-
1954	6	72	5	5	60	33.0	3	3	36	24.0
1953	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-
1951	2	30	2	2	30	30.0	2	2	30	30.0
1950	1	16	1	1	16	12.0	1	1	16	12.0
1945 - 1949	4	73	4	4	73	66.0	2	2	38	38.0
1940 - 1944	1	22	1	1	22	20.0	1	1	22	20.0
1935 - 1939	9	269	9	8	239	141.0	7	6	179	123.0
Year not reported	1	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	9.0	6.3	70
1963 - 1965	31	1.8	1.8	100
1960 - 1962	21	4.8	3.5	73
1957 - 1959	15	8.4	5.1	61
1954 - 1956	13	11.4	6.0	53
1951 - 1953	3	15.0	15.0	100
1948 - 1950	5	17.2	14.5	84
1945 - 1947	1	20.0	20.0	100
1942 - 1944	1	22.0	20.0	91
Before 1942	10	29.9	17.6	59

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	96	-	-	-	-	-
Have been active in other States 1/	41	17	14	8	7	-
Arkansas	1	-	-	-	1	-
California	1	-	-	1	-	-
Colorado	3	1	-	2	-	-
Maryland	1	-	1	-	-	-
Minnesota	1	-	-	-	1	-
Missouri	29	12	9	5	3	-
Nevada	1	1	-	-	-	-
New York	1	-	1	-	-	-
Ohio	2	2	-	-	-	-
Oklahoma	1	-	-	-	1	-
Tennessee	2	1	-	-	1	-
Utah	1	-	1	-	-	-
Wisconsin	2	-	2	-	-	-
Have not been active in other States	53	-	-	-	-	-
If active in other States not reported	2	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	96	62	33	34
Single	18	16	12	2
Ever married	78	46	21	32
Now married	67	37	16	30
Other status	11	9	5	2
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	78	46	21	32
With no children	28	22	12	6
With children	43	18	5	25
1	16	10	4	6
2	16	4	-	12
3	8	3	-	5
4	2	-	-	2
5 or more	1	1	1	-
Number of children not reported	7	6	4	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	43	18	25
School status			
None in school	26	10	16
Some in school 1/	17	8	9
In grades 1 - 8	16	7	9
In grades 9 - 12	1	1	-
In college or business school	1	1	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	42	17	25
1 year or less	20	6	14
2 - 3 years	19	6	13
4 - 5 years	11	4	7
6 - 7 - 8 years	15	6	9
9 - 10 - 11 years	6	4	2
12 - 13 - 14 years	2	2	-
With children 15 and over only	1	1	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	96	62	34
A member	60	46	14
Not a member, but a member at one time	29	13	16
Not a member, past membership not reported	-	-	-
Never a member	6	3	3
Current and past membership not reported	1	-	1

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	58	-
Time reported 1/	55	1,869
Less than 8	3	17
8	-	-
9 - 15	2	26
16	-	-
17 - 23	2	43
24	2	48
25 - 31	8	223
32	2	64
33 - 34	1	34
35	3	105
36 - 39	7	259
40	16	640
41 or more	9	410
Time not reported	3	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	58	-
Time reported 1/	55	2,390
4 or less	1	2
5 - 8	1	6
9 - 12	3	33
13 - 16	1	13
17 - 20	2	38
21 - 24	-	-
25 - 28	-	-
29 - 32	2	62
33 - 36	1	36
37 - 40	3	118
41 - 44	-	-
45 - 47	4	185
48 - 49	4	194
50 - 52	33	1,703
Time not reported	3	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	58	-	-
Time reported	55	1,869	2,390
Full time	35	1,414	1,634
Year round	29	1,176	1,483
Less than year round	6	238	151
Part time	20	455	756
Year round	8	209	414
Less than year round	12	246	342
Time not reported	3	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	58	-	-
Activities reported	58	-	-
Oral prophylaxis	58	29	670
Other clinical services 1/	52	23	124
Patient dental health education 2/	45	22	111
Management of dental office 3/	17	12	33
Dental assisting tasks 4/	7	2	5
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	58	41	13	3	1	-
Dentists reported	58	41	13	3	1	-
1	41	40	-	1	-	-
2	12	1	11	-	-	-
3	3	-	2	1	-	-
4 or more	2	-	-	1	1	-
Number of dentists not reported	-	-	-	-	-	-

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	58
Worked for general practitioner only	58
Worked for dental specialist	-
Type not reported	-

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	58	29	6	8	12	3
Reporting type(s) of compensation	58	29	6	8	12	3
Salary only	18	6	4	2	5	1
Commission only	28	15	1	5	7	-
Both salary and commission	9	7	1	-	-	1
Did not receive compensation 2/	3	1	-	1	-	1
Types of compensation not reported	-	-	-	-	-	-

1/ See Table C-1c for definitions of time worked.
2/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	58	29	6	8	12	3
Earnings reported	43	23	4	5	8	3
$1,000 or less	3	-	-	-	3	-
1,000 - 1,999	1	-	1	-	-	-
2,000 - 2,999	5	1	2	-	2	-
3,000 - 3,999	3	1	-	1	1	-
4,000 - 4,999	5	1	-	2	2	-
5,000 - 5,999	4	2	1	-	-	1
6,000 - 6,999	10	8	-	1	-	1
7,000 - 7,999	6	6	-	-	-	-
8,000 - 8,999	2	2	-	-	-	-
9,000 - 9,999	1	1	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	3	1	-	1	-	1
Earnings not reported	15	6	2	3	4	-

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	34
Reasons reported 1/	34
Full-time family obligations	30
Employment in another occupation	5
Attending school	1
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	3
She prefers not to work	1
Husband does not want her to work	6
Another reason specified	2
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	34	1	13	17	3
Degree reported	31	1	12	17	1
Very definite	4	1	3	-	-
Fairly definite	12	-	9	2	1
Not at all definite	15	-	-	15	-
Degree not reported	3	-	1	-	2

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	16	1	12	2	1
Time until return reported	16	1	12	2	1
Within the next year	5	1	4	-	-
Within the next 5 years	1	-	1	-	-
Within the next 10 years	6	-	4	2	-
Within the next 15 years	3	-	2	-	1
More than 15 years from now	1	-	1	-	-
Never	-	-	-	-	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	13	5	1	4	2	1
Preferred time reported	13	5	1	4	2	1
8 hours a day	6	2	-	3	-	1
5 days a week	1	1	-	-	-	-
Less than 5 days a week	5	1	-	3	-	1
Less than 8 hours a day	7	3	1	1	2	-
5 days a week	2	-	1	-	1	-
Less than 5 days a week	5	3	-	1	1	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	34
Conditions reported 1/	27
When youngest child starts elementary school	11
When youngest child starts high school	8
When youngest child starts college	1
When a position is available in her community	5
When husband needs her in his practice, if he is a dentist	6
After completion of refresher training, if such training were available in a nearby community college or university	4
After completion of additional college training which would qualify her for a more advanced position as a hygienist	3
Because of illness, disability or death of husband 2/	-
Another condition specified	2
Condition not reported	7

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	34
Reasons reported 1/	30
For self satisfaction	28
To add to the family income for children's education	10
For other financial reasons	2
To keep in practice 2/	-
Another reason specified	4
Reasons not reported	4

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	34
Situations reported 1/	19
Lack of opportunities for hygienist in her community	8
Feels she might be too old to practice again	2
Feels she might have lost her skill to practice	6
Has too great an investment in another occupation	2
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	3
No situation was reported	15

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	34	-	-	-	-
Employed in private dental office	9	3	2	2	2
Not employed	25	-	-	-	-

1/ Includes activity in any state.
2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	162	146	91	81	10	55
Northeast	4	4	3	1	2	1
Connecticut	1	1	-	-	-	1
Maine	1	1	1	1	-	-
Massachusetts	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-
New York	-	-	-	-	-	-
Pennsylvania	1	1	1	-	1	-
Rhode Island	1	1	1	-	1	-
Vermont	-	-	-	-	-	-
South	36	30	18	16	2	12
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	1	1	-	-	-	1
District of Columbia	-	-	-	-	-	-
Florida	2	2	1	1	-	1
Georgia	2	2	-	-	-	2
Kentucky	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-
Maryland	1	1	1	1	-	-
Mississippi	-	-	-	-	-	-
North Carolina	1	1	1	-	1	-
Oklahoma	16	13	8	8	-	5
South Carolina	1	1	1	1	-	-
Tennessee	2	1	1	-	1	-
Texas	7	5	2	2	-	3
Virginia	3	3	3	3	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	75	73	47	44	3	26
Illinois	5	5	2	2	-	3
Indiana	3	3	3	3	-	-
Iowa	3	2	1	1	-	1
Kansas 1/	9	9	9	7	2	-
Michigan	-	-	-	-	-	-
Minnesota	1	1	1	1	-	-
Missouri	49	48	31	30	1	17
Nebraska	2	2	-	-	-	2
North Dakota	-	-	-	-	-	-
Ohio	1	1	-	-	-	1
South Dakota	-	-	-	-	-	-
Wisconsin	2	2	-	-	-	2
West	47	39	23	20	3	16
Alaska	-	-	-	-	-	-
Arizona	6	3	2	2	-	1
California	15	13	8	8	-	5
Colorado	14	13	8	6	2	5
Hawaii	1	1	1	1	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	4	4	2	2	-	2
Nevada	-	-	-	-	-	-
Oregon	1	1	1	-	1	-
Utah	1	1	-	-	-	1
Washington	3	1	-	-	-	1
Wyoming	2	2	1	1	-	1

1/ Nine responding hygienists who were residents of Kansas indicated that they were employed in Missouri.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	146	91	55
With formal academic training	144	91	53
University of Missouri at Kansas City	126	76	50
1966	17	15	2
1965	9	5	4
1964	10	6	4
1963	7	6	1
1962	7	5	2
1961	11	7	4
1960	12	6	6
1959	15	10	5
1958	10	6	4
1957	6	2	4
1956	8	2	6
1955	9	2	7
1954	2	1	1
1935-1939	3	3	-
All other schools	17	15	2
1962-1966	8	7	1
1958-1961	3	2	1
1954-1957	2	2	-
Before 1954	4	4	-
School not reported	1	-	1
No formal academic training	2	-	2

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists				Never active	Activity not reported
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active		
Total	146	-	67	-	-	-	79	-
Year reported	144	859	66	62	437	123.0	78	-
1966	17	-	4	-	-	-	13	-
1965	13	13	8	8	8	10.0	5	-
1964	14	28	8	8	16	10.5	6	-
1963	10	30	9	9	27	15.5	1	-
1962	7	28	4	4	16	6.0	3	-
1961	10	50	4	4	20	12.0	6	-
1960	12	72	2	2	12	1.5	10	-
1959	17	119	6	6	42	13.0	11	-
1958	11	88	3	3	24	5.0	8	-
1957	6	54	2	2	18	9.0	4	-
1956	9	90	2	2	20	3.0	7	-
1955	8	88	5	5	55	7.0	3	-
1950-1954	3	36	3	3	36	2.5	-	-
1945-1949	4	76	3	3	56	13.0	1	-
1940-1944	-	-	-	-	-	-	-	-
1935-1939	2	55	2	2	55	11.0	-	-
Before 1935	1	32	1	1	32	4.0	-	-
Year not reported	2	-	1	-	-	-	1	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	55
Reasons reported 1/	55
Full-time family obligations	38
Employment in another occupation	4
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	4
Unable to find suitable position as hygienist	6
She prefers not to work	14
Husband does not want her to work	9
Not licensed in state where she currently resides	18
Another reason specified	6
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

KENTUCKY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Resource Analysis Branch

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INTRODUCTION

In December 1966, the Kentucky State Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Kentucky, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Kentucky survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	212	100	198	93
In Kentucky	131	62	124	95
In other states	79	37	72	91
In foreign countries	2	1	2	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Kentucky, by Location

Characteristics	Licensed hygienists	In Kentucky	In other states
Total respondents	196	124	72
Current status			
Active	135	95	40
Inactive	61	29	32
Age in 1966			
Under 25	78	49	29
25 - 29	59	40	19
30 - 34	33	19	14
35 & over	25	16	9
Dental hygiene school			
University of Louisville	144	95	49
All other schools	48	26	22
Year hygiene training completed			
1962 - 1966	69	60	9
1958 - 1961	35	32	3
1954 - 1957	25	22	3
Before 1954	15	8	7
Professional activity in Kentucky			
Ever active in Kentucky	165	123	42
Never active in Kentucky	31	1	30

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	124
Active	95
Employed	90 1/
Private dental office	76
Dental hygiene school or other auxiliary program	2
Elementary or secondary school (public or private)	1
City or county health agency	7
State health agency	6
Other local government agency	-
Other state government agency	3
Army, navy, airforce	-
Other federal agency	2
Private agency	1
Not reported	3
Unemployed (seeking work as dental hygienist)	5
Inactive	29

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	131	124	95	25	29
Allen	1	1	-	-	1
Barren	1	1	-	-	1
*Boone	1	1	1	-	-
Bourbon	1	1	-	-	1
*Boyd	2	2	-	-	2
Boyle	2	2	1	-	1
Butler	1	1	1	-	-
Calloway	2	2	1	-	1
Christian	1	1	1	-	-
Daviess	3	3	3	-	-
*Fayette	10	7	7	2	-
Franklin	3	3	3	-	-
Garrard	1	1	-	-	1
Hardin	2	2	1	-	1
Harrison	1	1	-	-	1
Hopkins	1	1	1	1	-
*Jefferson	71	67	52	16	15
Jessamine	1	1	1	-	-
*Kenton	3	3	2	1	1
McCracken	4	4	2	-	2
McLean	1	1	1	-	-
Monroe	1	1	1	-	-
Nelson	3	3	3	1	-
Pulaski	1	1	1	-	-
Shelby	1	1	1	-	-
Simpson	2	2	1	-	1
Warren	4	4	4	2	-
Whitley	1	1	1	-	-
Woodford	1	1	1	1	-
Other locations 2/	4	4	4	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no hygienists in 91 of the 120 counties in Kentucky; 2 of the 91 counties with no hygienists are defined as metropolitan counties.

2/ Responding hygienists employed in Kentucky but residing in neighboring states.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	124	95	25	29
Under 20	1	1	-	-
20 - 24 years	48	40	15	8
25 - 29 years	40	32	6	8
30 - 34 years	19	11	3	8
35 - 39 years	8	4	1	4
40 - 44 years	2	1	-	1
45 - 49 years	1	1	-	-
50 - 54 years	1	1	-	-
55 - 59 years	2	2	-	-
60 years & over	2	2	-	-
Not reported	-	-	-	-
Median age	26.6	25.9	24.2	29.1

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Kentucky and Selected Counties 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	124	49	40	19	16	-
Active	95	41	32	11	11	-
Employed in private dental office	76	37	27	7	5	-
Other active	19	4	5	4	6	-
Inactive	29	8	8	8	5	-
*Jefferson County	67	35	24	5	3	-
Active	52	31	19	1	1	-
Employed in private dental office	42	27	15	-	-	-
Other active	10	4	4	1	1	-
Inactive	15	4	5	4	2	-
*Fayette County	7	3	3	1	-	-
Active	7	3	3	1	-	-
Employed in private dental office	5	3	2	-	-	-
Other active	2	-	1	1	-	-
Inactive	-	-	-	-	-	-
All other counties 2/	50	11	13	13	13	-
Active	36	7	10	9	10	-
Employed in private dental office	29	7	10	7	5	-
Other active	7	-	-	2	5	-
Inactive	14	4	3	4	3	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 5 or more responding hygienists.

2/ Includes 4 hygienists employed in Kentucky but residing in another state.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	124	95	29
With formal academic training	124	95	29
University of Louisville	95	72	23
Indiana University	5	4	1
West Liberty State College	3	1	2
Forsyth School for Dental Hygienists	2	1	1
Monroe Community College 1/	2	2	-
Northwestern University	2	2	-
State University of New York at Farmingdale 2/	2	1	1
West Virginia University	2	2	-
Marquette University	1	1	-
University of Michigan	1	1	-
University of Minnesota	1	-	1
University of North Carolina	1	1	-
University of Oregon 3/	1	1	-
Southern Illinois University	1	1	-
University of Tennessee	1	1	-
University of Texas Dental Branch	1	1	-
School not reported	3	3	-
With no formal academic training	-	-	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.
2/ Includes any graduates of Long Island Agricultural and Technical Institute.
3/ Includes any graduates of North Pacific College of Oregon.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All Schools			University of Louisville		
	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	124	95	29	95	72	23
1966	15	13	2	12	10	2
1965	11	11	-	6	6	-
1964	15	13	2	14	13	1
1963	9	6	3	9	6	3
1962	10	8	2	9	7	2
1961	6	5	1	6	5	1
1960	8	7	1	5	4	1
1959	11	9	2	9	7	2
1958	7	4	3	6	3	3
1957	5	2	3	4	2	2
1956	6	2	4	5	2	3
1955	4	3	1	4	3	1
1954	7	5	2	6	4	2
Before 1954	8	5	3	-	-	-
Not reported	2	2	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		University of Louisville		All other schools	
	Total	Active	Total	Active	Total	Active
Total	124	95	95	72	29	23
Allen	1	-	1	-	-	-
Barren	1	-	1	-	-	-
*Boone	1	1	1	1	-	-
Bourbon	1	-	1	-	-	-
*Boyd	2	-	-	-	2	-
Boyle	2	1	1	1	1	-
Butler	1	1	1	1	-	-
Calloway	2	1	-	-	2	1
Christian	1	1	-	-	1	1
Daviess	3	3	1	1	2	2
*Fayette	7	7	3	3	4	4
Franklin	3	3	1	1	2	2
Garrard	1	-	-	-	1	-
Hardin	2	1	1	-	1	1
Harrison	1	-	1	-	-	-
Hopkins	1	1	1	1	-	-
*Jefferson	67	52	63	49	4	3
Jessamine	1	1	-	-	1	1
*Kenton	3	2	3	2	-	-
McCracken	4	2	2	-	2	2
McLean	1	1	1	1	-	-
Monroe	1	1	1	1	-	-
Nelson	3	3	3	3	-	-
Pulaski	1	1	-	-	1	1
Shelby	1	1	1	1	-	-
Simpson	2	1	2	1	-	-
Warren	4	4	2	2	2	2
Whitley	1	1	1	1	-	-
Woodford	1	1	1	1	-	-
Other locations 2/	4	4	1	1	3	3

* Counties included in the latest 1967 definition of Standard Metropolitan Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Responding hygienists employed in Kentucky but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	124	95	29
Dental hygiene certificate only	68	52	16
Additional college, but no degree	44	34	10
Less than 1 year	2	2	-
1 year but less than 2 years	28	20	8
2 years but less than 3 years	9	8	1
3 years but less than 4 years	2	1	1
4 or more years	-	-	-
Number of years not reported	3	3	-
Bachelor's degree	10	7	3
Master's degree	1	1	-
Doctoral degree	1	1	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	124	95	29
Have seriously considered returning	66	52	14
Now enrolled	10	7	3
Definitely planning to enroll	8	8	-
Still considering enrollment	40	32	8
Definitely decided not to enroll	5	3	2
Current plans not reported	3	2	1
Have never considered returning	57	42	15
Plans to continue education not reported	1	1	-

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	58	47	11
Goal reported 2/	44	37	7
Instructor in a school of dental hygiene	21	19	2
Director of a school of dental hygiene	4	3	1
Dentist	1	1	-
Public health dental hygienist 3/	5	4	1
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	8	6	2
Goal outside dental hygiene specified	12	9	3
Goal not reported	14	10	4

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	53	8	40	5
Obstacles reported 2/	47	7	35	5
Lack of course offerings in a nearby school	13	-	13	-
Lack of sufficient funds	15	2	11	2
Family obligations	30	4	21	5
Lack of specific information on opportunities available	1	-	1	-
Age 3/	-	-	-	-
Lack of time 3/	4	1	3	-
Other obstacle specified	1	1	-	-
Obstacles not reported	6	1	5	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	124	95	29
Have taken courses 1/	30	27	3
School of dental hygiene	12	11	1
State or local dental hygiene association	6	5	1
Dental school	18	17	1
State or local dental association	2	1	1
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	88	62	26
If courses taken not reported	6	6	-

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	95	73	18	4
2 years or less	46	35	10	1
3 - 5	23	20	2	1
6 - 10	13	11	1	1
11 years or more	8	4	4	-
Years not reported	5	3	1	1
Inactive hygienists, by last year active in this State	29	13	15	1
1964 or later	14	8	6	-
1961 - 1963	3	1	2	-
1956 - 1960	8	2	5	1
Before 1956	2	1	1	-
Never active	1	-	1	-
Year not reported	1	1	-	-

Table B-4a -- Professional Activity in Kentucky Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	124	-	123	-	-	-	95	-	-	-
Year reported	124	606	123	97	564	410.5	95	73	382	331.5
1966	20	-	20	-	-	-	18	-	-	-
1965	11	11	11	11	11	18.0	11	11	11	18.0
1964	17	34	17	14	28	25.0	15	12	24	23.0
1963	10	30	10	10	30	30.0	7	7	21	23.0
1962	11	44	11	11	44	36.5	9	9	36	29.5
1961	7	35	7	7	35	33.0	6	6	30	31.0
1960	5	30	5	5	30	24.0	4	4	24	22.0
1959	10	70	10	10	70	45.0	7	7	49	39.0
1958	7	56	7	5	40	20.0	3	3	24	16.0
1957	5	45	5	4	36	18.0	2	1	9	9.0
1956	5	50	5	5	50	40.0	2	2	20	21.0
1955	4	44	3	3	33	19.0	3	3	33	19.0
1954	8	96	8	8	96	58.0	6	6	72	53.0
1953	1	13	1	1	13	12.0	1	1	13	12.0
1952	-	-	-	-	-	-	-	-	-	-
1951	1	15	1	1	15	12.0	-	-	-	-
1950	1	16	1	1	16	16.0	1	1	16	16.0
1949	1	17	1	1	17	4.0	-	-	-	-
Year not reported	-	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	5.4	3.9	72
1963 - 1965	37	1.8	1.8	100
1960 - 1962	22	4.7	4.1	87
1957 - 1959	21	6.6	3.8	58
1954 - 1956	16	10.5	6.9	66
1951 - 1953	2	14.0	12.0	86
1948 - 1950	2	16.5	10.0	71

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	124	-	-	-	-	-
Have been active in other States 1/	27	16	6	4	3	1
Colorado	1	-	-	1	-	-
Florida	1	-	1	-	-	-
Illinois	2	2	-	-	-	-
Indiana	8	4	2	1	1	-
Maryland	1	1	-	-	-	-
Michigan	2	1	-	1	-	-
New Jersey	3	3	-	-	-	-
New Mexico	1	-	1	-	-	-
New York	3	1	1	-	1	-
North Carolina	1	1	-	-	-	-
Ohio	1	1	-	-	-	-
Tennessee	2	1	-	-	-	1
Texas	1	1	-	-	-	-
Virginia	2	-	1	1	-	-
West Virginia	1	-	-	-	1	-
Have not been active in other states	96	-	-	-	-	-
If active in states not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	124	95	25	29
Single	24	21	10	3
Ever married	100	74	15	26
Now married	94	68	13	26
Other status	6	6	2	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	100	74	15	26
With no children	34	32	11	2
With children	58	34	2	24
1	19	9	2	10
2	21	17	-	4
3	11	7	-	4
4	4	1	-	3
5 or more	3	-	-	3
Number of children not reported	8	8	2	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	58	34	24
School status			
None in school	32	22	10
Some in school 1/	25	12	13
In grades 1 - 8	24	11	13
In grades 9 - 12	2	2	-
In college or business school	1	1	-
School status not reported	1	-	1
Age of children			
With children under 15 years 1/	56	33	23
1 year or less	21	13	8
2 - 3 years	28	16	12
4 - 5 years	21	12	9
6 - 7 - 8 years	22	10	12
9 - 10 - 11 years	5	1	4
12 - 13 - 14 years	2	1	1
With children 15 and over only	-	-	-
Age not reported	2	1	1

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	124	95	29
A member	58	55	3
Not a member, but a member at one time	50	29	21
Not a member, past membership not reported	-	-	-
Never a member	12	7	5
Current and past membership not reported	4	4	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	76	-
Time reported 1/	70	2,077
Less than 8	3	18
8	2	16
9 - 15	4	44
16	5	80
17 - 23	7	144
24	5	120
25 - 31	6	169
32	1	32
33 - 34	-	-
35	6	210
36 - 39	8	289
40	15	600
41 or more	8	355
Time not reported	6	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	76	-
Time reported 1/	70	2,719
4 or less	2	6
5 - 8	2	13
9 - 12	1	10
13 - 16	4	60
17 - 20	2	38
21 - 24	4	93
25 - 28	9	233
29 - 32	1	30
33 - 36	1	36
37 - 40	-	-
41 - 44	3	128
45 - 47	4	185
48 - 49	6	289
50 - 52	31	1,598
Time not reported	6	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	76	-	-
Time reported	70	2,077	2,719
Full time	37	1,454	1,588
Year round	23	918	1,174
Less than year round	14	536	414
Part time	33	623	1,131
Year round	14	289	713
Less than year round	19	334	418
Time not reported	6	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	76	-	-
Activities reported	76	-	-
Oral prophylaxis	76	52	1,104
Other clinical services 1/	69	45	139
Patient dental health education 2/	65	44	99
Management of dental office 3/	36	27	86
Dental assisting tasks 4/	17	11	55
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	76	58	12	4	-	2
Dentists reported	68	53	12	3	-	-
1	43	43	-	-	-	-
2	19	8	11	-	-	-
3	2	-	-	2	-	-
4 or more	4	2	1	1	-	-
Number of dentists not reported	8	5	-	1	-	2

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	76
Worked for general practitioner only	66
Worked for dental specialist 1/	7
Endodontist	-
Oral surgeon	-
Orthodontist	-
Pedodontist	3
Periodontist	4
Prosthodontist	-
Type not reported	3

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	76	23	14	14	19	6
Reporting type(s) of compensation	74	22	13	14	19	6
Salary only	12	7	1	1	3	-
Commission only	44	9	10	9	12	4
Both salary and commission only	16	6	1	3	4	2
Salary only, commission only 2/	1	-	1	-	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	1	-	-	1	-	-
Type of compensation not reported	2	1	1	-	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	76	23	14	14	19	6
Earnings reported	66	23	11	13	17	2
$1,000 or less	7	-	1	-	6	-
1,000 - 1,999	3	-	1	1	1	-
2,000 - 2,999	12	1	2	3	6	-
3,000 - 3,999	10	-	3	2	3	2
4,000 - 4,999	8	5	-	3	-	-
5,000 - 5,999	15	10	3	2	-	-
6,000 - 6,999	6	4	-	1	1	-
7,000 - 7,999	4	3	1	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	1	-	-
Earnings not reported	10	-	3	1	2	4

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	29
Reasons reported 1/	29
Full-time family obligations	23
Employment in another occupation	1
Attending school	2
Beyond age to practice	-
Poor health	-
Loss of skill to practice	1
Unable to find suitable position as hygienist	2
She prefers not to work	6
Husband does not want her to work	2
Another reason specified	2
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return: Very definite	Fairly definite	Not at all definite	Not reported
Total	29	7	10	8	4
Degree reported	29	7	10	8	4
Very definite	9	6	1	-	2
Fairly definite	11	1	7	1	2
Not at all definite	9	-	2	7	-
Degree not reported	-	-	-	-	-

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return: Very definite	Fairly definite	Not at all definite	Not reported
Total	20	7	8	1	4
Time until return reported	20	7	8	1	4
Within the next year	5	3	2	-	-
Within the next 5 years	6	2	3	1	-
Within the next 10 years	1	1	-	-	-
Within the next 15 years	1	-	1	-	-
More than 15 years from now	-	-	-	-	-
Never	7	1	2	-	4
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	12	5	5	1	1	-
Preferred time reported	12	5	5	1	1	-
8 hours a day	5	5	-	-	-	-
5 days a week	2	2	-	-	-	-
Less than 5 days a week	3	3	-	-	-	-
Less than 8 hours a day	7	-	5	1	1	-
5 days a week	3	-	3	-	-	-
Less than 5 days a week	4	-	2	1	1	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	29
Conditions reported 1/	24
When youngest child starts elementary school	11
When youngest child starts high school	1
When youngest child starts college	3
When a position is available in her community	3
When husband needs her in his practice, if he is a dentist	6
After completion of refresher training, if such training were available in a nearby community college or university	6
After completion of additional college training which would qualify her for a more advanced position as a hygienist	2
Because of illness, disability or death of husband 2/	1
Another condition specified	-
Condition not reported	5

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	29
Reasons reported 1/	24
For self satisfaction	20
To add to the family income for children's education	6
For other financial reasons	11
To keep in practice 2/	1
Another reason specified	-
Reasons not reported	5

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	29
Situations reported 1/	14
Lack of opportunities for hygienist in her community	7
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	5
Has too great an investment in another occupation	3
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	-
No situation was reported	15

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	29	1	5	2	-
Employed in 3/					
Private dental office	6	-	4	2	-
City or county health agency	1	-	1	-	-
State health agency	1	1	-	-	-
Not employed	22	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	79	72	40	32	8	32
Northeast	7	6	1	1	-	5
Connecticut	1	1	-	-	-	1
Maine	-	-	-	-	-	-
Massachusetts	1	1	-	-	-	1
New Hampshire	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-
New York	2	2	-	-	-	2
Pennsylvania	3	2	1	1	-	1
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	38	35	19	14	5	16
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	13	12	5	4	1	7
Georgia	1	1	1	1	-	-
Kentucky 1/	3	3	3	2	1	-
Louisiana	-	-	-	-	-	-
Maryland	2	2	2	2	-	-
Mississippi	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-
South Carolina	5	5	3	2	1	2
Tennessee	10	8	3	2	1	5
Texas	3	3	1	-	1	2
Virginia	-	-	-	-	-	-
West Virginia	1	1	1	1	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	31	29	19	16	3	10
Illinois	3	3	3	3	-	-
Indiana	15	14	10	8	2	4
Iowa	-	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	1	1	-	-	-	1
Minnesota	1	1	-	-	-	1
Missouri	1	1	1	1	-	-
Nebraska	1	1	-	-	-	1
North Dakota	-	-	-	-	-	-
Ohio	9	8	5	4	1	3
South Dakota	-	-	-	-	-	-
Wisconsin	-	-	-	-	-	-
West	3	2	1	1	-	1
Alaska	-	-	-	-	-	-
Arizona	1	1	1	1	-	-
California	1	-	-	-	-	-
Colorado	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	1	1	-	-	-	1
Nevada	-	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-

1/ Three responding hygienists who were residents of Kentucky indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	72	40	32
University of Louisville	49	27	22
1966	5	5	-
1965	8	6	2
1964	3	2	1
1963	5	2	3
1962	4	3	1
1961	5	3	2
1960	2	1	1
1959	1	1	-
1958	4	2	2
1957	3	1	2
1956	3	1	2
1955	5	-	5
Year not reported	1	-	1
All other schools	22	12	10
1962 - 1966	9	7	2
1958 - 1961	3	1	2
1954 - 1957	3	-	3
Before 1954	7	4	3
School not reported	1	1	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists				Never active	Activity not reported
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active		
Total	72	-	42	-	-	-	30	-
Year reported	71	368	41	35	249	93.0	30	-
1966	12	-	4	-	-	-	8	-
1965	12	12	5	4	4	4.0	7	-
1964	3	6	-	-	-	-	3	-
1963	6	18	4	4	12	5.0	2	-
1962	4	16	3	3	12	10.0	1	-
1961	6	30	3	3	15	4.0	3	-
1960	4	24	4	4	24	6.0	-	-
1959	2	14	2	2	14	2.0	-	-
1958	4	32	2	2	16	10.0	2	-
1957	3	27	3	3	27	16.0	-	-
1956	3	30	2	2	20	9.0	1	-
1955	5	55	4	3	33	7.0	1	-
1954	1	12	1	1	12	1.0	-	-
1953	1	13	1	1	13	6.0	-	-
1952	1	14	1	1	14	1.0	-	-
1951	1	15	-	-	-	-	1	-
1950	1	16	1	1	16	10.0	-	-
1949	2	34	1	1	17	2.0	1	-
Year not reported	1	-	1	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	32
Reasons reported 1/	32
Full-time family obligations	22
Employment in another occupation	1
Attending school	2
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	3
Husband does not want her to work	6
Not licensed in state where she currently resides	12
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

MAINE

1966

A

Cooperative Project of the

Board of Dental Examiners of the State of Maine

and the American Association of Dental Examiners

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Division of Dental Health
Resource Analysis Branch

March 1969

INTRODUCTION

In November 1966, the Board of Dental Examiners of the State of Maine conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Maine, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Maine survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

Board of Dental Examiners

OF THE
STATE OF MAINE

THE ——— STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF ——— THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____
LAST FIRST MIDDLE MAIDEN (If ever married)

Present Home Address: _____
STREET CITY COUNTY STATE ZIP CODE

License Number: _____ Social Security Number: _____

A-1
B-2a, 2c,
B-3c
E-1

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ Single (1) ☐ Married (2) ☐ Widowed (3) ☐ Divorced (4) ☐ Separated (5)
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ Grades 1-8 _____ Grades 9-12 _____ College or business school
5. Number of children under 15 years: _____ 1 yr. or under _____ 2-3 yrs. _____ 4-5 yrs. _____ 6-7-8 yrs. _____ 9-10-11 yrs. _____ 12-13-14 yrs.

A-2
B-2b, 2c
B-5a, 5b,
5c

B. TRAINING AND EDUCATION

☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ Bachelor degree (1) ☐ Associate degree (2) ☐ Certificate or diploma (3)
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ Bachelor degree (1) ☐ Master degree (2) ☐ Other Degree (3) *(specify* _____)

A-2
B-3a, 3b,
3c, 3d
E-2

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19___	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19___	☐ (1)	☐ (2)
B.	_____	19___	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19___	☐ (1)	☐ (2)
C.	_____	19___	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19___	☐ (1)	☐ (2)
D.	_____	19___	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19___	☐ (1)	☐ (2)

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ Yes (1) ☐ No (2)
    IF NO, have you ever been a member? ☐ Yes (1) ☐ No (2)

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

A-2

B-1

D. CURRENT PROFESSIONAL ACTIVITY

15. Current professional status *(check one)*
   1☐ At work as a dental hygienist
   2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
   3☐ Seeking work as a dental hygienist
   4☐ Not working or seeking work as a dental hygienist
   } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where?_____
   In what county do you primarily work?_____

17. In a typical week how many hours do you work for your current employers? _____hours
   (use last week if it was typical, otherwise select the most recent week which was typical)

B-1

B-2c

C-1a,1c

E-1

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization*_____ ..... _____

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

C-2

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify*_____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
   1☐ Yes
   2☐ No

■ **If you currently work in a private dental office complete Items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1_____ Office 2_____ Office 3_____ Office 4_____ Other Offices_____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists?_____ Specify type(s)_____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months?_____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)*_____

26. How many weeks, if any, were you employed in this State?_____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify*_____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify*_____*)*
6☐ Other goal outside dental hygiene *(specify*_____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐1 No ☐2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify_____)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	159	100	144	91
In Maine	111	70	100	90
In other states	47	30	43	91
In foreign countries	1	-	1	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Maine, by Location

Characteristics	Licensed hygienists	In Maine	In other states
Total respondents	143	100	43
Current status			
Active	86	62	24
Inactive	57	38	19
Age in 1966			
Under 25	46	28	18
25 - 29	19	13	6
30 - 34	15	12	3
35 & over	62	46	16
Dental hygiene school			
Westbrook Junior College	27	17	10
All other schools	116	83	33
Year hygiene training completed			
1963 - 1966	40	25	15
1959 - 1962	23	13	10
1955 - 1958	10	9	1
1951 - 1954	17	14	3
Before 1951	53	39	14
Professional activity in Maine			
Ever active in Maine	127	97	30
Never active in Maine	16	3	13

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	100
Active	62
Employed	59 1/
Private dental office	49
Dental hygiene school or other auxiliary program	1
Elementary or secondary school (public or private)	-
City or county health agency	1
State health agency	2
Other local government agency	1
Other state government agency	-
Army, Navy, Air Force	1
Other federal agency	1
Private agency	-
Not reported	2
Unemployed (seeking work as dental hygienist)	3
Inactive	38

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	111	100	62	13	38
*Androscoggin	11	11	7	2	4
Aroostook	2	2	1	1	1
*Cumberland	42	35	25	4	10
Franklin	1	1	-	-	1
Hancock	1	1	1	-	-
Kennebec	18	18	11	4	7
Knox	2	2	2	-	-
Lincoln	3	3	3	-	-
Oxford	8	7	2	1	5
Penobscot	11	9	6	1	3
Piscataquis	1	1	-	-	1
Sagadahoc	3	3	2	-	1
Somerset	-	-	-	-	-
Waldo	1	1	-	-	1
Washington	1	1	1	-	-
York	6	5	1	-	4

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U. S. Bureau of the Budget, Office of Statistical Standards.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	100	62	13	38
20 - 24 years	28	21	6	7
25 - 29 years	13	5	1	8
30 - 34 years	12	7	1	5
35 - 39 years	14	6	-	8
40 - 44 years	11	6	1	5
45 - 49 years	9	8	2	1
50 - 54 years	5	4	1	1
55 - 59 years	2	2	-	-
60 years & over	5	3	1	2
Not reported	1	-	-	1
Median age	33.5	33.6	*	33.5

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Maine and Selected Counties 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	100	28	13	12	46	1
Active	62	21	5	7	29	-
Employed in private dental office	49	18	3	4	24	-
Other active	13	3	2	3	5	-
Inactive	38	7	8	5	17	1
*Androscoggin County	11	2	1	3	5	-
Active	7	1	1	1	4	-
Employed in private dental office	6	1	1	1	3	-
Other active	1	-	-	-	1	-
Inactive	4	1	-	2	1	-
*Cumberland County	35	13	3	3	15	1
Active	25	10	2	3	10	-
Employed in private dental office	19	9	1	1	8	-
Other active	6	1	1	2	2	-
Inactive	10	3	1	-	5	1
Kennebec County	18	4	2	2	10	-
Active	11	3	-	1	7	-
Employed in private dental office	7	1	-	1	5	-
Other active	4	2	-	-	2	-
Inactive	7	1	2	1	3	-
All other counties	36	9	7	4	16	-
Active	19	7	2	2	8	-
Employed in private dental office	17	7	1	1	8	-
Other active	2	-	1	1	-	-
Inactive	17	2	5	2	8	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	100	62	38
With formal academic training	100	62	38
Westbrook Junior College	17	11	6
Forsyth School for Dental Hygienists	56	32	24
University of Pennsylvania	6	2	4
Temple University	5	3	2
Monroe Community College 1/	5	4	1
State University of New York at Farmingdale 2/	3	3	-
University of Vermont	3	3	-
Columbia University	2	2	-
University of Bridgeport 3/	1	1	-
Fairleigh Dickinson University	1	-	1
West Liberty State College	1	1	-
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates of Long Island Agricultural and Technical Institute.

3/ Includes any graduates of Fones School of Dental Hygiene.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools			Westbrook Junior College			Forsyth School for Dental Hygienists			All other schools		
	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	100	62	38	17	11	6	56	32	24	27	19	8
1966	7	7	-	4	4	-	2	2	-	1	1	-
1965	4	3	1	2	1	1	-	-	-	2	2	-
1964	6	3	3	4	2	2	1	-	1	1	1	-
1963	8	5	3	7	4	3	1	1	-	-	-	-
1959 - 1962	13	7	6	-	-	-	8	4	4	5	3	2
1955 - 1958	9	5	4	-	-	-	5	1	4	4	4	-
1951 - 1954	14	7	7	-	-	-	10	5	5	4	2	2
1947 - 1950	9	4	5	-	-	-	6	3	3	3	1	2
1943 - 1946	8	3	5	-	-	-	6	2	4	2	1	1
1939 - 1942	9	8	1	-	-	-	6	6	-	3	2	1
Before 1939	13	10	3	-	-	-	11	8	3	2	2	-
Not reported	-	-	-	-	-	-	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County	All schools			Westbrook Junior College			Forsyth School for Dental Hygienists			All other schools		
	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive
Total	100	62	38	17	11	6	56	32	24	27	19	8
*Androscoggin	11	7	4	1	-	1	7	5	2	3	2	1
Aroostook	2	1	1	-	-	-	-	-	-	2	1	1
*Cumberland	35	25	10	10	7	3	20	13	7	5	5	-
Franklin	1	-	1	-	-	-	1	-	1	-	-	-
Hancock	1	1	-	-	-	-	-	-	-	1	1	-
Kennebec	18	11	7	2	1	1	9	6	3	7	4	3
Knox	2	2	-	-	-	-	1	1	-	1	1	-
Lincoln	3	3	-	-	-	-	2	2	-	1	1	-
Oxford	7	2	5	1	1	-	4	1	3	2	-	2
Penobscot	9	6	3	1	1	-	5	2	3	3	3	-
Piscataquis	1	-	1	-	-	-	-	-	-	1	-	1
Sagadahoc	3	2	1	1	1	-	2	1	1	-	-	-
Sommerset	-	-	-	-	-	-	-	-	-	-	-	-
Waldo	1	-	1	-	-	-	1	-	1	-	-	-
Washington	1	1	-	-	-	-	1	1	-	-	-	-
York	5	1	4	1	-	1	3	-	3	1	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	100	62	38
Dental hygiene certificate only	76	49	27
Additional college, but no degree	18	11	7
Less than 1 year	1	-	1
1 year but less than 2 years	5	2	3
2 years but less than 3 years	11	8	3
3 years but less than 4 years	1	1	-
4 or more years	-	-	-
Number of years not reported	-	-	-
Bachelor's degree	4	1	3
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	2	1	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	100	62	38
Have seriously considered returning	38	25	13
Now enrolled	6	2	4
Definitely planning to enroll	2	2	-
Still considering enrollment	19	12	7
Definitely decided not to enroll	9	8	1
Current plans not reported	2	1	1
Have never considered returning	55	33	22
Plans to continue education not reported	7	4	3

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	27	16	11
Goal reported 2/	21	11	10
Instructor in a school of dental hygiene	10	7	3
Director of a school of dental hygiene	1	-	1
Dentist	-	-	-
Public health dental hygienist 3/	4	1	3
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	3	1	2
Goal outside dental hygiene specified	8	4	4
Goal not reported	6	5	1

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	30	2	19	9
Obstacles reported 2/	29	2	19	8
Lack of course offerings in a nearby school	6	-	5	1
Lack of sufficient funds	9	1	6	2
Family obligations	18	2	10	6
Lack of specific information on opportunities available	4	-	4	-
Age 3/	1	-	-	1
Lack of time 3/	1	-	1	-
Other obstacle specified	2	-	2	-
Obstacles not reported	1	-	-	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	100	62	38
Have taken courses 1/	8	7	1
School of dental hygiene	4	3	1
State or local dental hygiene association	2	2	-
Dental school	-	-	-
State or local dental association	1	1	-
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	86	50	36
If courses taken not reported	6	5	1

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	62	41	16	5
2 years or less	20	14	5	1
3 - 5	7	5	2	-
6 - 10	11	7	2	2
11 years or more	22	14	6	2
Years not reported	2	1	1	-
Inactive hygienists, by last year active in this State	38	22	10	6
1964 or later	12	10	1	1
1961 - 1963	6	3	2	1
1956 - 1960	7	1	3	3
Before 1956	8	6	2	-
Never active	3	1	1	1
Year not reported	2	1	1	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	100	-	97	-	-	-	62	-	-	-
Year reported	100	1,244	97	80	1,161	731.0	62	47	712	570.0
1966	14	-	14	-	-	-	13	-	-	-
1965	3	3	3	3	3	2.5	2	2	2	2.0
1964	7	14	6	6	12	10.0	3	3	6	6.0
1963	6	18	6	6	18	19.0	3	3	9	10.0
1962	3	12	3	3	12	8.0	3	3	12	8.0
1961	3	15	3	3	15	11.0	1	1	5	6.0
1960	3	18	3	3	18	10.5	2	2	12	10.0
1959	5	35	4	4	28	16.0	2	2	14	10.0
1958	1	8	1	1	8	2.0	-	-	-	-
1957	3	27	3	3	27	26.0	3	3	27	26.0
1956	-	-	-	-	-	-	-	-	-	-
1955	2	22	2	2	22	17.0	1	1	11	11.0
1954	2	24	2	2	24	13.0	1	1	12	12.0
1953	4	52	4	3	39	20.0	2	1	13	13.0
1952	5	70	5	5	70	51.0	3	3	42	34.0
1951	4	60	4	4	60	38.0	2	2	30	30.0
1950	3	48	3	3	48	17.0	2	2	32	16.0
1945 - 1949	15	287	14	13	250	137.0	6	6	112	89.0
1940 - 1944	7	173	7	6	149	94.0	6	5	125	90.0
1935 - 1939	3	87	3	3	87	24.0	2	2	56	20.0
Before 1935	7	271	7	7	271	215.0	5	5	192	172.0
Year not reported	-	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	14.5	9.1	63
1963 - 1965	19	2.2	2.1	95
1960 - 1962	11	5.0	3.3	66
1957 - 1959	10	7.9	5.5	70
1954 - 1956	5	11.5	7.5	65
1951 - 1953	15	14.1	9.1	65
1948 - 1950	9	16.9	9.1	54
1945 - 1947	11	20.0	10.0	50
1942 - 1944	3	24.0	4.5	19
1939 - 1941	6	25.6	19.4	76
Before 1939	11	36.8	25.2	68

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	100	-	-	-	-	-
Have been active in other states 1/	41	14	5	9	22	4
Connecticut	5	3	-	2	-	-
Florida	2	-	-	-	1	1
Kansas	1	-	1	-	-	-
Louisiana	1	-	-	-	-	1
Maryland	2	-	1	-	1	-
Massachusetts	27	6	1	4	15	1
New Hampshire	1	-	-	-	1	-
New Jersey	1	-	1	-	-	-
New York	1	1	-	-	-	-
Ohio	2	1	-	-	1	-
Oklahoma	1	1	-	-	-	-
Pennsylvania	3	-	-	2	-	1
Rhode Island	2	-	1	-	1	-
Texas	1	1	-	-	-	-
Vermont	3	-	-	1	2	-
Virginia	1	1	-	-	-	-
Have not been active in other states	58	-	-	-	-	-
If active in other states not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	100	62	13	38
Single	18	14	5	4
Ever married	81	47	8	34
Now married	74	40	5	34
Other status	7	7	3	-
Status not reported	1	1	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	81	47	8	34
With no children	17	13	4	4
With children	63	34	8	29
1	18	12	2	6
2	24	13	1	11
3	11	7	1	4
4	5	2	-	3
5 or more	5	-	-	5
Number of children not reported	1	-	-	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	63	34	29
School status			
None in school	17	7	10
Some in school 1/	46	27	19
In grades 1 - 8	40	22	18
In grades 9 - 12	12	7	5
In college or business school	8	4	4
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	55	27	28
1 year or less	18	8	10
2 - 3 years	18	5	13
4 - 5 years	18	7	11
6 - 7 - 8 years	20	9	11
9 - 10 - 11 years	15	6	9
12 - 13 - 14 years	15	11	4
With children 15 and over only	5	4	1
Age not reported	3	3	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	100	62	38
A member	30	28	2
Not a member, but a member at one time	52	22	30
Not a member, past membership not reported	2	1	1
Never a member	16	11	5
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	49	-
Time reported 1/	43	1,239
Less than 8	2	11
8	1	8
9 - 15	4	47
16	3	48
17 - 23	4	76
24	-	-
25 - 31	6	166
32	1	32
33 - 34	3	102
35	4	140
36 - 39	3	111
40	9	360
41 or more	3	138
Time not reported	6	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	49	-
Time reported 1/	43	1,679
4 or less	-	-
5 - 8	1	8
9 - 12	3	29
13 - 16	1	15
17 - 20	3	57
21 - 24	3	71
25 - 28	2	54
29 - 32	-	-
33 - 36	3	108
37 - 40	1	37
41 - 44	2	87
45 - 47	2	91
48 - 49	4	195
50 - 52	18	927
Time not reported	6	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	49	-	-
Time reported	43	1,239	1,679
Full time	19	749	751
Year round	9	341	460
Less than year round	10	408	291
Part time	24	490	928
Year round	13	295	662
Less than year round	11	195	266
Time not reported	-	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	49	-	-
Activities reported	49	-	-
Oral prophylaxis	49	23	514
Other clinical services 1/	47	19	50
Patient dental health education 2/	28	12	30
Management of dental office 3/	24	15	45
Dental assisting tasks 4/	13	6	30
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	49	42	6	-	-	1
Dentists reported	43	38	5	-	-	-
1	34	34	-	-	-	-
2	8	4	4	-	-	-
3	-	-	-	-	-	-
4 or more	1	-	1	-	-	-
Number of dentists not reported	6	4	1	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	49
Worked for general practitioner only	43
Worked for dental specialist 1/	3
Endodontist	-
Oral surgeon	1
Orthodontist	2
Pedodontist	-
Periodontist	-
Prosthodontist	-
Type not reported	3

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	49	9	10	13	11	6
Reporting type(s) of compensation	49	9	10	13	11	6
Salary only	29	5	7	9	6	2
Commission only	13	3	1	3	4	2
Both salary and commission only	5	1	2	-	1	1
Salary only, commission only 2/	1	-	-	-	-	1
Did not receive compensation 3/	1	-	-	1	-	-
Type of compensation not reported	-	-	-	-	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	49	9	10	13	11	6
Earnings reported	37	8	10	11	7	1
$1,000 or less	4	-	-	-	4	-
1,000 - 1,999	8	-	6	1	1	-
2,000 - 2,999	7	-	1	4	1	1
3,000 - 3,999	4	-	2	1	1	-
4,000 - 4,999	4	3	-	1	-	-
5,000 - 5,999	7	3	1	3	-	-
6,000 - 6,999	1	1	-	-	-	-
7,000 - 7,999	1	1	-	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	1	-	-
Earnings not reported	12	1	-	2	4	5

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	38
Reasons reported 1/	37
Full-time family obligations	29
Employment in another occupation	3
Attending school	1
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	3
She prefers not to work	5
Husband does not want her to work	7
Another reason specified	3
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	38	6	10	14	8
Degree reported	37	6	10	14	7
Very definite	15	6	5	1	3
Fairly definite	7	-	5	1	1
Not at all definite	15	-	-	12	3
Degree not reported	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	22	6	10	2	4
Time until return reported	22	6	10	2	4
Within the next year	5	2	2	1	-
Within the next 5 years	9	3	4	-	2
Within the next 10 years	1	-	1	-	-
Within the next 15 years	1	-	-	1	-
More than 15 years from now	1	-	1	-	-
Never	5	1	2	-	2
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	13	4	7	1	-	1
Preferred time reported	13	4	7	1	-	1
8 hours a day	3	1	2	-	-	-
5 days a week	1	1	-	-	-	-
Less than 5 days a week	2	-	2	-	-	-
Less than 8 hours a day	10	3	5	1	-	1
5 days a week	6	1	4	-	-	1
Less than 5 days a week	4	2	1	1	-	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	38
Conditions reported 1/	33
When youngest child starts elementary school	16
When youngest child starts high school	4
When youngest child starts college	3
When a position is available in her community	5
When husband needs her in his practice, if he is a dentist	1
After completion of refresher training, if such training were available in a nearby community college or university	2
After completion of additional college training which would qualify her for a more advanced position as a hygienist	4
Because of illness, disability or death of husband 2/	-
Another condition specified	8
Condition not reported	5

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	38
Reasons reported 1/	35
For self satisfaction	20
To add to the family income for children's education	15
For other financial reasons	11
To keep in practice 2/	-
Another reason specified	8
Reasons not reported	3

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	38
Situations reported 1/	23
Lack of opportunities for hygienist in her community	9
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	7
Has too great an investment in another occupation	2
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	7
No situation was reported	15

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	38	-	-	-	-
Employed in					
Private dental office	7	1	3	2	1
State government agency	1	1	-	-	-
Not employed	30	-	-	-	-

1/ Includes activity in any state.
2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	47	43	24	18	6	19
Northeast	34	31	21	16	5	10
Connecticut	3	3	2	2	-	1
Maine 1/	2	2	2	2	-	-
Massachusetts	10	8	5	5	-	3
New Hampshire	5	5	4	2	2	1
New Jersey	3	3	2	2	-	1
New York	6	5	3	1	2	2
Pennsylvania	3	3	2	1	1	1
Rhode Island	1	1	-	-	-	1
Vermont	1	1	1	1	-	-
North Central	4	4	-	-	-	4
Illinois	1	1	-	-	-	1
Michigan	1	1	-	-	-	1
Ohio	2	2	-	-	-	2
South	4	3	-	-	-	3
Florida	3	3	-	-	-	3
Virginia	1	-	-	-	-	-
West	5	5	3	2	1	2
California	2	2	1	-	1	1
Hawaii	1	1	-	-	-	1
New Mexico	1	1	1	1	-	-
Nevada	1	1	1	1	-	-

1/ Two responding hygienists who were residents of Maine indicated that they were employed in a neighboring state.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	43	24	19
Westbrook Junior College	10	6	4
1966	5	4	1
1965	1	1	-
1964	3	1	2
1963	1	-	1
All other schools	33	18	15
1963 - 1966	5	4	1
1959 - 1962	10	5	5
1955 - 1958	1	1	-
1951 - 1954	3	1	2
Before 1951	14	7	7
School not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	43	-	30	-	-	-	13	-
Year reported	41	369	29	25	270	90.0	13	-
1966	6	-	2	-	-	-	4	-
1965	3	3	1	1	1	0.5	2	-
1964	3	6	3	3	6	4.0	-	-
1963	4	12	4	4	12	7.0	-	-
1962	3	12	3	2	8	3.0	-	-
1961	3	15	2	2	10	2.5	1	-
1960	3	18	2	2	12	5.0	1	-
1959	-	-	-	-	-	-	-	-
1958	-	-	-	-	-	-	-	-
1957	-	-	-	-	-	-	-	-
1956	1	10	-	-	-	-	1	-
1955	1	11	-	-	-	-	1	-
1950 - 1954	3	40	3	3	40	20.0	-	-
1945 - 1949	5	92	3	3	54	24.0	2	-
1940 - 1944	4	93	4	3	70	10.0	-	-
1935 - 1939	2	57	2	2	57	14.0	-	-
Before 1935	-	-	-	-	-	-	-	-
Year not reported	2	-	1	-	-	-	1	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	19
Reasons reported 1/	19
Full-time family obligations	11
Employment in another occupation	1
Attending school	1
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	-
Husband does not want her to work	1
Not licensed in state where she currently resides	8
Another reason specified	3
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

MARYLAND

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A

Cooperative Project of the

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and the American Association of Dental Examiners

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Division of Dental Health
Resource Analysis Branch

June 1969

INTRODUCTION

In December 1966, the Maryland State Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Maryland, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Maryland survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist the States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

MARYLAND STATE BOARD OF DENTAL EXAMINERS

THE ——— STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF ——— THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____ (LAST / FIRST / MIDDLE / MAIDEN (if ever married))

Present Home Address: _____ (STREET / CITY / COUNTY / STATE / ZIP CODE)

License Number: _____ Social Security Number: _____

A-1
B-2a, 2c,
B-3c
E-1

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ 1 Single ☐ 2 Married ☐ 3 Widowed ☐ 4 Divorced ☐ 5 Separated
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ (Grades 1-8) _____ (Grades 9-12) _____ (College or business school)
5. Number of children under 15 years: _____ (1 yr. or under) _____ (2-3 yrs.) _____ (4-5 yrs.) _____ (6-7-8 yrs.) _____ (9-10-11 yrs.) _____ (12-13-14 yrs.)

A-2
B-2b, 2c
B-5a, 5b,
5c

B. TRAINING AND EDUCATION

☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ 1 Bachelor degree ☐ 2 Associate degree ☐ 3 Certificate or diploma
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ 1 Bachelor degree ☐ 2 Master degree ☐ 3 Other Degree (specify _____)

A-2
B-3a, 3b,
3c, 3d
E-2

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19___	☐ 1	☐ 2	☐ 1	☐ 2	_____	19___	☐ 1	☐ 2
B.	_____	19___	☐ 1	☐ 2	☐ 1	☐ 2	_____	19___	☐ 1	☐ 2
C.	_____	19___	☐ 1	☐ 2	☐ 1	☐ 2	_____	19___	☐ 1	☐ 2
D.	_____	19___	☐ 1	☐ 2	☐ 1	☐ 2	_____	19___	☐ 1	☐ 2

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ 1 Yes ☐ 2 No
    IF NO, have you ever been a member? ☐ 1 Yes ☐ 2 No

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

D. CURRENT PROFESSIONAL ACTIVITY

A-2
B-1

15. Current professional status *(check one)*
   1☐ At work as a dental hygienist
   2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
   3☐ Seeking work as a dental hygienist
   4☐ Not working or seeking work as a dental hygienist
   } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where? _____
   In what county do you primarily work? _____

17. In a typical week how many hours do you work for your current employers? _____ hours
   (use last week if it was typical, otherwise select the most recent week which was typical)

B-1
B-2c
C-1a,1c
E-1

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify* _____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization* _____ ..... _____

C-2

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify* _____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
   1☐ Yes
   2☐ No

■ **If you currently work in a private dental office complete Items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1_____ Office 2_____ Office 3_____ Office 4_____ Other Offices_____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists?_____ Specify type(s)_____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months?_____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)*_____

26. How many weeks, if any, were you employed in this State?_____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify*_____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify*_____*)*
6☐ Other goal outside dental hygiene *(specify*_____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐1 No ☐2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify_____)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state).

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	355	100	339	95
In Maryland	216	61	207	96
In other states	138	39	131	95
In foreign countries	1	-	1	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Maryland, by Location

Characteristics	Licensed hygienists	In Maryland	In other states
Total respondents	338	207	131
Current status			
Active	246	158	88
Inactive	92	49	43
Age in 1966			
Under 25	156	100	56
25 - 29	80	47	33
30 - 34	42	19	23
35 & over	56	38	18
Year hygiene training completed			
1962 - 1966	174	110	64
1957 - 1961	75	47	28
1952 - 1956	41	19	22
Before 1952	45	29	16
Professional activity in Maryland			
Ever active in Maryland	264	195	69
Never active in Maryland	73	11	62

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	207
Active	158
Employed	147 1/
Private dental office	134
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	2
City or county health agency	4
State health agency	-
Other local government agency	-
Other state government agency	1
Army, navy, air force	4
Other federal agency	3
Private agency	2
Not reported	3
Unemployed (seeking work as dental hygienist)	11
Inactive	49

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	216	207	158	42	49
Allegany	2	2	2	-	-
*Anne Arundel	13	13	12	2	1
*Baltimore	25	24	18	6	6
*Baltimore City	17	17	13	-	4
Dorchester	1	1	-	-	1
Garrett	1	1	-	-	1
*Harford	7	7	6	-	1
*Howard	1	1	-	-	1
*Montgomery	85	80	57	15	23
*Prince Georges	47	44	33	9	11
St. Marys	1	1	1	-	-
Talbot	1	1	1	-	-
Washington	1	1	1	1	-
Wicomico	2	2	2	1	-
Other locations 2/	12	12	12	8	-

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There are apparently no licensed hygienists in 10 of the 23 counties in Maryland; one of the 10 counties is defined as a metropolitan county.

2/ Responding hygienists employed in Maryland but residing in neighboring states.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	207	158	42	49
Under 20	2	1	-	1
20 - 24 years	98	84	27	14
25 - 29 years	47	29	4	18
30 - 34 years	19	9	2	10
35 - 39 years	14	11	2	3
40 - 44 years	6	4	1	2
45 - 49 years	5	4	-	1
50 - 54 years	4	4	1	-
55 - 59 years	6	6	4	-
60 years & over	3	3	-	-
Not reported	3	3	1	-
Median age	25.2	24.6	23.8	27.6

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Maryland, and Selected Counties [1]

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	207	100	47	19	38	3
Active	158	85	29	9	32	3
Employed in private dental office	134	73	25	5	29	2
Other active	24	12	4	4	3	1
Inactive	49	15	18	10	6	-
*Anne Arundel	13	5	3	2	3	-
Active	12	5	3	1	3	-
Employed in private dental office	11	5	3	-	3	-
Other active	1	-	-	1	-	-
Inactive	1	-	-	1	-	-
*Baltimore	24	12	5	2	4	1
Active	18	10	3	-	4	1
Employed in private dental office	15	8	2	-	4	1
Other active	3	2	1	-	-	-
Inactive	6	2	2	2	-	-
*Baltimore City	17	6	2	4	5	-
Active	13	5	2	1	5	-
Employed in private dental office	10	4	2	-	4	-
Other active	3	1	-	1	1	-
Inactive	4	1	-	3	-	-
*Montgomery	80	33	18	8	19	2
Active	57	27	10	5	13	2
Employed in private dental office	51	25	9	4	12	1
Other active	6	2	1	1	1	1
Inactive	23	6	8	3	6	-
*Prince Georges	44	28	13	2	1	-
Active	33	25	5	2	1	-
Employed in private dental office	27	22	3	1	1	-
Other active	6	3	2	1	-	-
Inactive	11	3	8	-	-	-

(continued)

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Maryland, and Selected Counties 1/ (continued)

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
All other counties 2/	29	16	6	1	6	-
Active	25	13	6	-	6	-
Employed in private dental office	20	9	6	-	5	-
Other active	5	4	-	-	1	-
Inactive	4	3	-	1	-	-

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

2/ Includes 12 hygienists employed in Maryland but residing in neighboring states.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	207	158	49
With formal academic training	207	158	49
Temple University	49	34	15
Howard University	43	35	8
University of Pennsylvania	36	23	13
West Liberty State University	13	11	2
University of Bridgeport 1/	7	6	1
Forsyth School for Dental Hygienists	7	5	2
Fairleigh Dickinson University	6	5	1
Monroe Community College 2/	6	5	1
Loma Linda University	3	2	1
Northwestern University	3	2	1
New York City Community College 3/	3	1	2
Ohio State University	3	2	1
Georgetown University	2	2	-
Southern Illinois University	2	2	-
Indiana University	2	2	-
University of Minnesota	2	2	-
Columbia University	2	2	-
Baylor University	2	2	-
West Virginia University	2	2	-
University of Alabama	1	1	-
State University of Iowa	1	-	1
University of Louisville	1	1	-
Loyola University of New Orleans	1	1	-
Westbrook Junior College	1	1	-
University of Michigan	1	1	-
Broome Technical Community College	1	1	-
Erie County Technical Institute 4/	1	1	-
Hudson Valley Community College	1	1	-
State University of New York at Farmingdale 5/	1	1	-
Guggenheim School for Dental Hygienists	1	1	-

(continued)

Table B-3a -- School Attended for Dental Hygiene Training
(continued)

School	Instate hygienists	Active	Inactive
University of North Carolina	1	1	-
University of Rhode Island	1	1	-
University of Vermont	1	1	-
With no formal academic training	-	-	-

1/ Includes any graduates of Fones School of Dental Hygiene.
2/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.
3/ Includes any graduates of Brooklyn Community College and New York State Institute of Applied Arts and Science - Brooklyn.
4/ Includes any graduates of New York State Institute of Applied Arts and Science - Buffalo.
5/ Includes any graduates of Long Island Agricultural and Technical Institute.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools		Temple University		Howard University		University of Pennsylvania		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Instate hygienists	207	158	49	34	43	35	36	23	79	66
1966	29	26	4	4	5	4	6	5	14	13
1965	25	24	5	5	8	8	4	4	8	7
1964	22	22	5	5	7	7	2	2	8	8
1963	18	12	5	3	6	4	2	1	5	4
1962	16	10	2	1	2	1	3	-	9	8
1961	11	8	4	4	-	-	3	1	4	3
1960	10	5	5	2	2	1	2	1	1	1
1959	7	6	3	2	-	-	3	3	1	1
1958	11	5	3	-	3	3	2	-	3	2
1957	8	4	2	-	2	2	-	-	4	2
1956	8	3	2	1	2	1	2	-	2	1
1955	2	2	1	1	1	1	-	-	-	-
1954	3	2	-	-	1	1	-	-	2	1
1953	3	2	1	1	1	1	1	-	-	-
1952	3	1	-	-	1	-	-	-	2	1
1951	1	1	-	-	1	1	-	-	-	-
1950	6	4	2	1	-	-	-	-	4	3
1940 - 1949	12	9	2	1	1	-	4	4	5	4
1930 - 1939	7	7	2	2	-	-	1	1	4	4
Before 1930	3	3	1	1	-	-	1	1	1	1
Not reported	2	2	-	-	-	-	-	-	2	2

Table B-3c -- County Location, by Selected Schools

County	All schools		Temple University		Howard University		University of Pennsylvania		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Total	207	158	49	34	43	35	36	23	79	66
Allegany	2	2	-	-	-	-	1	1	1	1
*Anne Arundel	13	12	4	4	1	1	4	3	4	4
*Baltimore	24	18	6	3	1	-	6	5	11	10
*Baltimore City	17	13	4	4	4	3	4	2	5	4
Dorchester	1	-	-	-	-	-	1	-	-	-
Garrett	1	-	-	-	-	-	-	-	1	-
*Harford	7	6	4	3	-	-	-	-	3	3
*Howard	1	-	-	-	-	-	1	-	-	-
*Montgomery	80	57	14	8	18	14	12	7	36	28
*Prince Georges	44	33	12	7	14	12	6	4	12	10
St Marys	1	1	-	-	-	-	-	-	1	1
Talbot	1	1	1	1	-	-	-	-	-	-
Washington	1	1	-	-	-	-	-	-	1	1
Wicomico	2	2	1	1	-	-	-	-	1	1
Other locations 1/	12	12	3	3	5	5	1	1	3	3

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Responding hygienists employed in Maryland but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	207	158	49
Dental hygiene certificate only	137	107	30
Additional college, but no degree	44	34	10
Less than 1 year	4	3	1
1 year but less than 2 years	16	11	5
2 years but less than 3 years	17	15	2
3 years but less than 4 years	1	1	-
4 or more years	2	1	1
Number of years not reported	4	3	1
Bachelor's degree	22	14	8
Master's degree	1	-	1
Doctoral degree	2	2	-
Level of college training not reported	1	1	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	207	158	49
Have seriously considered returning	110	88	22
Now enrolled	12	9	3
Definitely planning to enroll	9	8	1
Still considering enrollment	74	58	16
Definitely decided not to enroll	12	10	2
Current plans not reported	3	3	-
Have never considered returning	86	61	25
Plans to continue education not reported	11	9	2

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	95	75	20
Goal reported 2/	83	66	17
Instructor in a school of dental hygiene	30	21	9
Director of a school of dental hygiene	5	5	-
Dentist	2	2	-
Public health dental hygienist 3/	12	11	1
Hygienist in elementary or high school 3/	17	15	2
Other goal in dental hygiene specified	3	3	-
Goal outside dental hygiene specified	31	26	5
Goal not reported	12	9	3

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	95	9	74	12
Obstacles reported 2/	89	9	71	9
Lack of course offerings in a nearby school	30	3	24	3
Lack of sufficient funds	24	4	19	1
Family obligations	62	3	53	6
Lack of specific information on opportunities available	13	-	11	2
Age 3/	1	-	1	-
Lack of time 3/	1	1	-	-
Other obstacle specified	5	1	3	1
Obstacles not reported	6	-	3	3

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	207	158	49
Have taken courses 1/	15	15	-
School of dental hygiene	6	6	-
State or local dental hygiene association	4	4	-
Dental school	1	1	-
State or local dental association	7	7	-
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	184	138	46
If courses taken not reported	8	5	3

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	158	100	47	11
2 years or less	98	65	28	5
3 - 5	21	13	6	2
6 - 10	23	16	5	2
11 years or more	12	6	5	1
Years not reported	4	-	3	1
Inactive hygienists, by last year active in this State	49	21	23	5
1964 or later	18	8	8	2
1961 - 1963	14	7	6	1
1956 - 1960	4	3	1	-
Before 1956	3	1	1	1
Never active	9	1	7	1
Year not reported	1	1	-	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	207	-	196	-	-	-	158	-	-	-
Year reported	206	901	195	149	843	649.0	157	115	587	527.0
1966	44	-	40	-	-	-	40	-	-	-
1965	42	42	40	39	39	65.0	39	38	38	63.0
1964	18	36	18	17	34	37.0	17	16	32	35.0
1963	16	48	14	13	39	40.0	8	8	24	29.0
1962	13	52	12	11	44	35.0	8	8	32	26.0
1961	10	50	10	10	50	44.0	7	7	35	36.0
1960	6	36	5	5	30	22.0	4	4	24	18.0
1959	6	42	6	6	42	39.0	3	3	21	23.0
1958	13	104	13	12	96	64.0	7	7	56	44.0
1957	9	81	8	8	72	58.0	5	5	45	40.0
1956	5	50	5	5	50	18.0	1	1	10	8.0
1955	2	22	2	2	22	22.0	2	2	22	22.0
1954	4	48	4	4	48	28.0	3	3	36	27.0
1953	7	91	7	6	78	70.0	6	6	78	70.0
1952	3	42	3	3	42	33.0	2	2	28	29.0
1951	1	15	1	1	15	10.0	1	1	15	10.0
1950	2	32	2	2	32	7.0	1	1	16	1.0
Before 1950	5	110	5	5	110	57.0	3	3	75	46.0
Year not reported	1	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	5.7	4.4	77
1963 - 1965	46	1.6	1.6	100
1960 - 1962	17	4.8	3.9	81
1957 - 1959	17	8.1	6.2	77
1954 - 1956	8	10.9	6.2	57
1951 - 1953	7	13.5	11.3	84
1948 - 1950	3	17.0	5.0	29
1945 - 1947	1	19.0	18.0	95
Before 1945	1	38.0	21.0	55

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	207	-	-	-	-	-
Have been active in other States 1/	129	73	29	13	31	5
Alabama	1	-	-	1	-	-
Connecticut	4	-	3	-	1	-
Delaware	1	1	-	-	-	-
District of Columbia	65	39	11	4	8	3
Florida	5	2	1	1	1	-
Georgia	1	-	-	-	1	-
Hawaii	1	-	1	-	-	-
Illinois	3	2	-	1	-	-
Indiana	1	-	1	-	-	-
Iowa	1	-	1	-	-	-
Kansas	1	-	-	1	-	-
Maine	1	-	-	-	1	-
Massachusetts	7	1	1	2	3	-
Michigan	2	2	-	-	-	-
Minnesota	2	-	1	-	-	1
Missouri	1	1	-	-	-	-
New Jersey	2	1	1	-	-	-
New York	15	5	2	-	8	-
North Carolina	1	-	-	-	-	1
Ohio	6	2	2	-	2	-
Pennsylvania	21	10	4	3	4	-
Texas	1	1	-	-	-	-
Virginia	6	5	-	-	1	-
Washington	1	1	-	-	-	-
West Virginia	1	-	-	-	1	-
Have not been active in other States	76	-	-	-	-	-
If active in other States not reported	2	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	207	158	42	49
Single	47	43	18	4
Ever married	160	115	24	45
Now married	150	105	20	45
Other status	10	10	4	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	160	115	24	45
With no children	48	44	12	4
With children	103	62	11	41
1	43	27	8	16
2	41	22	2	19
3	18	13	1	5
4	-	-	-	-
5 or more	1	-	-	1
Number of children not reported	9	9	1	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	103	62	41
School status			
None in school	59	31	28
Some in school 1/	44	31	13
In grades 1 - 8	29	16	13
In grades 9 - 12	10	9	1
In college or business school	13	13	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	89	48	41
1 year or less	39	20	19
2 - 3 years	35	16	19
4 - 5 years	25	13	12
6 - 7 - 8 years	18	9	9
9 - 10 - 11 years	18	10	8
12 - 13 - 14 years	11	9	2
With children 15 and over only	14	14	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	207	158	49
A member	108	96	12
Not a member, but a member at one time	59	37	22
Not a member, past membership not reported	-	-	-
Never a member	38	24	14
Current and past membership not reported	2	1	1

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	134	-
Time reported 1/	120	3,505
Less than 8	6	32
8	8	64
9 - 15	2	27
16	10	160
17 - 23	8	162
24	4	96
25 - 31	13	362
32	12	384
33 - 34	1	34
35	9	315
36 - 39	17	625
40	20	800
41 or more	10	444
Time not reported	14	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	134	-
Time reported 1/	120	4,862
4 or less	1	2
5 - 8	2	13
9 - 12	1	12
13 - 16	9	138
17 - 20	6	117
21 - 24	6	138
25 - 28	8	211
29 - 32	5	160
33 - 36	2	69
37 - 40	2	79
41 - 44	1	42
45 - 47	10	461
48 - 49	10	483
50 - 52	57	2,937
Time not reported	14	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	134	-	-
Time reported	120	3,505	4,862
Full time	56	2,184	2,337
Year round	34	1,313	1,748
Less than year round	22	871	589
Part time	64	1,321	2,525
Year round	33	680	1,672
Less than year round	31	641	853
Time not reported	14	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	134	-	-
Activities reported	134	-	-
Oral prophylaxis	134	86	1,991
Other clinical services 1/	122	75	242
Patient dental health education 2/	107	69	223
Management of dental office 3/	60	35	119
Dental assisting tasks 4/	23	11	28
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	134	79	40	10	2	3
Dentists reported	131	79	40	10	2	-
1	63	63	-	-	-	-
2	42	9	33	-	-	-
3	14	4	3	7	-	-
4 or more	12	3	4	3	2	-
Number of dentists not reported	3	-	-	-	-	3

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	134
Worked for general practitioner only	119
Worked for dental specialist 1/	11
Endodontist	1
Oral surgeon	1
Orthodontist	9
Pedodontist	1
Periodontist	2
Prosthodontist	-
Type not reported	4

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	134	34	22	33	31	14
Reporting type(s) of compensation	131	33	22	32	30	14
Salary only	40	9	9	7	7	8
Commission only	45	11	5	13	13	3
Both salary and commission only	23	6	2	7	7	1
Salary only, commission only 2/	13	5	2	3	3	-
Salary only, both salary and commission 2/	4	1	3	-	-	-
Commission only, both salary and commission 2/	4	-	1	2	-	1
Salary only, commission only, both salary and commission 2/	2	1	-	-	-	1
Did not receive compensation 3/	-	-	-	-	-	-
Type of compensation not reported	3	1	-	1	1	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	134	34	22	33	31	14
Earnings reported	111	31	18	30	28	4
$1,000 or less	7	-	-	3	4	-
1,000 - 1,999	10	1	2	1	4	2
2,000 - 2,999	15	-	4	4	7	-
3,000 - 3,999	13	-	5	4	4	-
4,000 - 4,999	10	1	2	4	2	1
5,000 - 5,999	9	-	1	4	4	-
6,000 - 6,999	12	6	2	4	-	-
7,000 - 7,999	13	7	2	3	-	1
8,000 - 8,999	14	9	-	3	2	-
9,000 - 9,999	5	4	-	-	1	-
10,000 & over	3	3	-	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	23	3	4	3	3	10

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	49
Reasons reported 1/	48
Full-time family obligations	39
Employment in another occupation	3
Attending school	3
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	10
Husband does not want her to work	9
Another reason specified	2
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return: Very definite	Fairly definite	Not at all definite	Not reported
Total	49	7	20	19	3
Degree reported	49	7	20	19	3
Very definite	15	6	6	1	2
Fairly definite	21	1	14	5	1
Not at all definite	13	-	-	13	-
Degree not reported	-	-	-	-	-

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return: Very definite	Fairly definite	Not at all definite	Not reported
Total	36	7	20	6	3
Time until return reported	35	7	20	5	3
Within the next year	7	1	5	-	1
Within the next 5 years	16	5	8	2	1
Within the next 10 years	6	-	4	2	-
Within the next 15 years	1	-	-	1	-
More than 15 years from now	1	1	-	-	-
Never	4	-	3	-	1
Time not reported	1	-	-	1	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	24	6	13	4	-	1
Preferred time reported	24	6	13	4	-	1
8 hours a day	14	4	8	2	-	-
5 days a week	1	-	1	-	-	-
Less than 5 days a week	13	4	7	2	-	-
Less than 8 hours a day	10	2	5	2	-	1
5 days a week	1	-	1	-	-	-
Less than 5 days a week	9	2	4	2	-	1
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	49
Conditions reported 1/	46
When youngest child starts elementary school	32
When youngest child starts high school	4
When youngest child starts college	2
When a position is available in her community	8
When husband needs her in his practice, if he is a dentist	4
After completion of refresher training, if such training were available in a nearby community college or university	5
After completion of additional college training which would qualify her for a more advanced position as a hygienist	6
Because of illness, disability or death of husband 2/	2
Another condition specified	3
Condition not reported	3

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	49
Reasons reported 1/	45
For self satisfaction	35
To add to the family income for children's education	20
For other financial reasons	15
To keep in practice 2/	-
Another reason specified	-
Reasons not reported	4

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	49
Situations reported 1/	27
Lack of opportunities for hygienist in her community	16
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	7
Has too great an investment in another occupation	1
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	4
No situation was reported	22

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	49	-	-	-	-
Employed in 3/					
Private dental office	15	6	7	2	-
Dental hygiene school or other dental auxiliary program	1	1	-	-	-
Elementary or secondary school	1	-	1	-	-
City or county health agency	1	-	-	-	1
State health agency	-	-	-	-	-
Other local government agency	-	-	-	-	-
Other state government agency	-	-	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	1	1	-	-	-
Private organization	-	-	-	-	-
Type of employer not reported	-	-	-	-	-
Not employed	33	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental office	Other active	
Total	138	131	88	76	12	43
Northeast	38	34	17	16	1	17
Connecticut	3	2	1	1	-	1
Maine	-	-	-	-	-	-
Massachusetts	6	6	2	2	-	4
New Hampshire	1	1	-	-	-	1
New Jersey	6	4	1	1	-	3
New York	10	9	6	6	-	3
Pennsylvania	10	10	5	4	1	5
Rhode Island	2	2	2	2	-	-
Vermont	-	-	-	-	-	-
North Central	14	11	7	5	2	4
Illinois	-	-	-	-	-	-
Indiana	1	1	1	1	-	-
Iowa	2	2	-	-	-	2
Kansas	1	-	-	-	-	-
Michigan	2	1	1	1	-	-
Minnesota	1	-	-	-	-	-
Missouri	-	-	-	-	-	-
Nebraska	1	1	1	-	1	-
North Dakota	1	1	1	-	1	-
Ohio	4	4	3	3	-	1
South Dakota	-	-	-	-	-	-
Wisconsin	1	1	-	-	-	1
South	77	77	59	51	8	18
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	2	2	2	2	-	-
District of Columbia	17	17	16	12	4	1
Florida	5	5	1	-	1	4
Georgia	2	2	2	2	-	-

(continued)

Table E-1 -- Location and Current Professional Status (continued)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
South (con't.)						
Kentucky	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-
Maryland	28 1/	28	28	25	3	-
Mississippi	-	-	-	-	-	-
North Carolina	2	2	-	-	-	2
Oklahoma	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-
Texas	2	2	-	-	-	2
Virginia	14	14	8	8	-	6
West Virginia	5	5	2	2	-	3
West	9	9	5	4	1	4
California	8	8	4	3	1	4
Colorado	1	1	1	1	-	-

1/ Twenty-eight responding hygienists who were residents of Maryland indicated that they were employed in neighboring states.

Table E-2 -- Year Certificate or Degree Was Received, by Current Professional Status

Year certificate or degree was received	Out-of-State hygienists	Active	Inactive
Total	131	88	43
With formal academic training	131	88	43
1966	15	14	1
1965	14	13	1
1964	12	8	4
1963	14	10	4
1962	9	7	2
1961	6	4	2
1960	8	4	4
1959	6	4	2
1958	6	1	5
1957	2	1	1
1956	5	1	4
1955	3	3	-
1954	7	1	6
1953	6	4	2
1952	1	-	1
1951	6	6	-
1950	1	-	1
Before 1950	9	6	3
Not reported	1	1	-
With no formal academic training	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	131	-	69	-	-	-	62	-
Year reported	131	626	69	61	349	139.5	62	-
1966	20	-	6	-	-	-	14	-
1965	20	20	7	7	7	6.0	13	-
1964	12	24	7	7	14	12.0	5	-
1963	14	42	11	10	30	20.5	3	-
1962	11	44	8	7	28	10.0	3	-
1961	8	40	6	6	30	13.0	2	-
1960	8	48	6	6	36	13.5	2	-
1959	9	63	2	2	14	9.0	7	-
1958	3	24	2	2	16	1.5	1	-
1957	3	27	2	2	18	8.5	1	-
1956	4	40	2	2	20	3.5	2	-
1955	1	11	-	-	-	-	1	-
1954	7	84	2	2	24	4.0	5	-
1953	4	52	3	3	39	8.0	1	-
1952	3	42	3	3	42	20.0	-	-
1951	2	30	1	1	15	1.0	1	-
1950	1	16	1	1	16	9.0	-	-
1949	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-
1947	1	19	-	-	-	-	1	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	43
Reasons reported 1/	43
Full-time family obligations	33
Employment in another occupation	5
Attending school	3
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	10
Husband does not want her to work	3
Not licensed in state where she currently resides	16
Another reason specified	2
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In May 1966, the Michigan State Board of Dentistry conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Michigan, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Michigan survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	1376	100	1240	90
In Michigan	1012	73	926	92
In other states	355	26	306	86
In foreign countries	9	1	8	89

Table A-2 -- Selected Characteristics of Hygienists Licensed in Michigan, by Location

Characteristics	Licensed hygienists	In Michigan	In other states
Total respondents	1232	926	306
Current status			
Active	745	594	151
Inactive	487	332	155
Age in 1966			
Under 25	247	207	40
25 - 29	329	250	79
30 - 34	282	197	85
35 & over	366	265	101
Dental hygiene school			
University of Michigan	698	510	188
University of Detroit	367	314	53
All other schools	167	102	65
Year hygiene training completed			
1961 - 1965	382	309	73
1956 - 1960	324	240	84
1951 - 1955	260	176	84
Before 1951	260	198	62
Professional activity in Michigan			
Ever active in Michigan	1141	915	226
Never active in Michigan	84	8	76

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	926
Active	594
Employed	576 1/
Private dental office	507
Dental hygiene school or other auxiliary program	13
Elementary or secondary school (public or private)	38
City or county health agency	36
State health agency	5
Other local government agency	-
Other state government agency	1
Army, navy, airforce	-
Other federal agency	1
Private agency	5
Not reported	2
Unemployed (seeking work as dental hygienist)	18
Inactive	332

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	1012	926	594	185	332
Alpena	4	4	2	1	2
Barry	4	4	1	-	3
* Bay	5	5	4	-	1
Berrien	6	6	4	-	2
Branch	2	2	1	-	1
Calhoun	20	20	17	3	3
Cass	1	1	1	-	-
Chippewa	1	1	-	-	1
* Clinton	3	3	2	-	1
Dickinson	5	4	1	-	3
* Eaton	1	1	1	-	-
Emmet	1	1	1	-	-
* Genesee	47	43	36	8	7
Grand Traverse	10	10	4	1	6
Gratiot	7	7	2	-	5
Huron	2	2	2	1	-
* Ingham	52	49	31	12	18
Ionia	3	2	-	-	2
Isabella	2	2	1	-	1
* Jackson	10	9	6	2	3
* Kalamazoo	20	19	12	5	7
* Kent	50	45	33	11	12
* Lapeer	2	2	1	-	1
Lenawee	8	7	4	2	3
Livingston	3	2	1	-	1
Mackinac	1	1	1	-	-
* Macomb	66	62	39	16	23
Manistee	1	1	-	-	1
Mason	1	1	1	-	-
Mecosta	6	5	4	1	1
Midland	11	11	6	2	5
Monroe	10	9	9	3	-

(continued)

Table B-2a -- County Location (cont'd.)

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Montcalm	2	2	-	-	2
* Muskegon	10	8	6	1	2
Newaygo	1	1	1	-	-
* Oakland	193	175	105	27	70
Oceana	1	1	-	-	1
Osceola	1	1	-	-	1
* Ottawa	3	3	1	-	2
* Saginaw	31	26	19	3	7
St. Clair	9	9	6	1	3
St. Joseph	2	2	-	-	2
Sanilac	1	1	-	-	1
Shiawassee	4	4	3	-	1
Washtenaw	75	67	41	17	26
Wayne	313	285	184	68	101
Wexford	1	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There are apparently no hygienists in 36 of the counties in Michigan.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	926	594	185	332
20 - 24 years	207	184	109	23
25 - 29 years	250	143	38	107
30 - 34 years	197	94	8	103
35 - 39 years	102	48	9	54
40 - 44 years	40	24	3	16
45 - 49 years	36	27	8	9
50 - 54 years	40	35	4	5
55 - 59 years	26	21	3	5
60 years & over	21	14	2	7
Not reported	7	4	1	3
Median age	30.2	29.0	24.2	31.8

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Michigan and Selected Areas 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	926	207	250	197	265	7
Active	594	184	143	94	169	4
Employed in private dental office	507	172	127	76	128	4
Other active	87	12	16	18	41	-
Inactive	332	23	107	103	96	3
Detroit metropolitan area 2/	522	117	146	120	135	4
Active	328	104	79	56	87	2
Employed in private dental office	276	99	68	45	62	2
Other active	52	5	11	11	25	-
Inactive	194	13	67	64	48	2
Ann Arbor metropolitan area 3/	67	20	22	5	17	3
Active	41	17	12	3	7	2
Employed in private dental office	36	16	11	2	7	-
Other active	5	1	1	1	-	2
Inactive	26	3	10	2	10	1
Lansing metropolitan area 4/	53	18	11	6	17	1
Active	34	14	7	2	10	1
Employed in private dental office	28	12	6	1	8	1
Other active	6	2	1	1	2	-
Inactive	19	4	4	4	7	-
Grand Rapids metropolitan area 5/	48	6	11	12	19	-
Active	34	6	9	5	14	-
Employed in private dental office	30	6	9	4	11	-
Other active	4	-	-	1	3	-
Inactive	14	-	2	7	5	-

(continued)

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Michigan and Selected Areas (cont'd.) 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Flint metropolitan area 6/	45	16	8	11	10	-
Active	37	15	6	8	8	-
Employed in private dental office	33	13	5	7	8	-
Other active	4	2	1	1	-	-
Inactive	8	1	2	3	2	-
Saginaw metropolitan area 7/	26	5	7	6	8	-
Active	19	5	5	3	6	-
Employed in private dental office	16	4	4	3	5	-
Other active	3	1	1	-	1	-
Inactive	7	-	2	3	2	-
Kalamazoo metropolitan area 8/	19	4	5	3	7	-
Active	12	4	4	1	3	-
Employed in private dental office	10	4	4	1	1	-
Other active	2	-	-	-	2	-
Inactive	7	-	1	2	4	-
Calhoun County	20	2	5	6	7	-
Active	17	2	4	4	7	-
Employed in private dental office	14	2	4	3	5	-
Other active	3	-	-	1	2	-
Inactive	3	-	1	2	-	-
All other counties	126	19	35	28	42	2
Active	72	17	17	12	25	1
Employed in private dental office	64	16	16	10	21	1
Other active	8	1	1	2	4	-
Inactive	54	2	18	16	17	1

(See next page for footnotes)

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Michigan and Selected Areas (cont'd.) 1/

Footnotes:

1/ Individual data are presented for metropolitan areas and nonmetropolitan counties with 19 or more responding hygienists.
2/ Detroit metropolitan area includes Macomb, Oakland, and Wayne Counties.
3/ Ann Arbor metropolitan area includes Washtenaw County.
4/ Lansing metropolitan area includes Clinton, Eaton, and Ingham Counties
5/ Grand Rapids metropolitan area includes Kent, and Ottawa Counties.
6/ Flint metropolitan area includes Genesee, and Lapeer Counties.
7/ Saginaw metropolitan area includes Saginaw County.
8/ Kalamazoo metropolitan area includes Kalamazoo County.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	926	594	332
With formal academic training	926	594	332
University of Michigan	510	314	196
University of Detroit	314	197	117
Marquette University	23	14	9
Monroe Community College 1/	11	9	2
Ohio State University	11	9	2
Northwestern University	10	9	1
Forsyth School for Dental Hygienists	6	5	1
West Liberty State College	5	5	-
Meharry Medical College	4	4	-
Temple University	4	3	1
Erie County Technical Institute 2/	3	3	-
State University of Iowa	3	3	-
University of Minnesota	3	3	-
Guggenheim School for Dental Hygiene	2	2	-
Indiana University	2	1	1
Southern Illinois University	2	2	-
University of California	2	2	-
University of Pennsylvania	2	2	-
Columbia University	1	-	1
New York City Community College 3/	1	1	-
State University of New York at Farmingdale 4/	1	1	-
University of Alabama	1	1	-
University of Bridgeport 5/	1	1	-
University of Missouri at Kansas City 6/	1	1	-
University of North Carolina	1	1	-
University of Tennessee	1	-	1
University of Vermont	1	1	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

2/ Includes any graduates of New York State Institute of Applied Arts and Science - Buffalo.

3/ Includes any graduates of Brooklyn Community College, New York State Institute of Applied Arts and Science - Brooklyn.

4/ Includes any graduates of Long Island Agricultural and Technical Institute.

5/ Includes any graduates of Fones School of Dental Hygiene.

6/ Includes any graduates of Kansas City - Western Dental College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, for Selected Schools

Year	All schools			University of Michigan			University of Detroit		
	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	926	594	332	510	314	196	314	197	117
1965	71	69	2	31	30	1	29	28	1
1964	74	63	11	33	30	3	28	23	5
1963	59	47	12	27	20	7	30	25	5
1962	52	44	8	20	17	3	24	19	5
1961	53	27	26	23	10	13	26	14	12
1960	61	35	26	23	12	11	31	17	14
1959	49	24	25	24	13	11	21	8	13
1958	49	28	21	21	11	10	26	17	9
1957	37	19	18	16	7	9	21	12	9
1956	44	16	28	22	8	14	18	7	11
1955	53	25	28	29	16	13	23	9	14
Before 1955	321	194	127	239	138	101	36	17	19
Not reported	3	3	-	2	2	-	1	1	-

B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		University of Michigan		University of Detroit		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active
Total	926	594	510	314	314	197	102	83
Alpena	4	2	3	1	1	1	-	-
Barry	4	1	3	1	-	-	1	-
*Bay	5	4	4	3	-	-	1	1
Berrien	6	4	2	-	1	1	3	3
Branch	2	1	2	1	-	-	-	-
Calhoun	20	17	14	11	1	1	5	5
Cass	1	1	1	1	-	-	-	-
Chippewa	1	-	1	-	-	-	-	-
*Clinton	3	2	1	1	2	1	-	-
Dickinson	4	1	1	-	-	-	3	1
*Eaton	1	1	1	1	-	-	-	-
Emmet	1	1	-	-	-	-	1	1
*Genesee	43	36	29	23	5	5	9	8
Grand Traverse	10	4	8	3	2	1	-	-
Gratiot	7	2	7	2	-	-	-	-
Huron	2	2	2	2	-	-	-	-
*Ingham	49	31	28	17	8	4	13	10
Ionia	2	-	2	-	-	-	-	-
Isabella	2	1	1	1	1	-	-	-
*Jackson	9	6	6	5	1	-	2	1
*Kalamazoo	19	12	17	10	-	-	2	2
*Kent	45	33	40	29	2	1	3	3
*Lapeer	2	1	1	-	1	1	-	-
Lenawee	7	4	5	3	1	-	1	1

(Continued)

B-3c -- County Location, by Selected Schools (Continued)

County 1/	Instate hygienists		University of Michigan		University of Detroit		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active
Livingston	2	1	2	1	-	-	-	-
Mackinac	1	1	-	-	-	-	1	1
*Macomb	62	39	14	9	45	27	3	3
Manistee	1	-	1	-	-	-	-	-
Mason	1	1	1	1	-	-	-	-
Mecosta	5	4	4	3	1	1	-	-
Midland	11	6	7	4	-	-	4	2
Monroe	9	9	5	5	3	3	1	1
Montcalm	2	-	2	-	-	-	-	-
*Muskegon	8	6	7	5	-	-	1	1
Newaygo	1	1	-	-	-	-	1	1
*Oakland	175	105	91	50	66	40	18	15
Oceana	1	-	1	-	-	-	-	-
Osceola	1	-	1	-	-	-	-	-
Ottawa	3	1	2	-	1	1	-	-
*Saginaw	26	19	20	16	3	1	3	2
St. Clair	9	6	6	4	3	2	-	-
St. Joseph	2	-	1	-	1	-	-	-
Sanilac	1	-	1	-	-	-	-	-
Shiawssee	4	3	2	1	2	2	-	-
*Washtenaw	67	41	58	35	5	2	4	4
*Wayne	285	184	105	65	158	102	22	17

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/Counties with responding hygienists.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	926	594	332
Dental hygiene certificate only	480	312	168
Additional college, but no degree	216	149	67
Less than 1 year	20	16	4
1 year but less than 2 years	135	88	47
2 years but less than 3 years	50	38	12
3 years but less than 4 years	8	6	2
4 or more years	1	1	-
Number of years not reported	2	-	2
Bachelor's degree	217	126	91
Master's degree	6	5	1
Doctoral degree	2	1	1
Level of college training not reported	5	1	4
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	926	594	332
Have seriously considered returning	395	274	121
Now enrolled	40	27	13
Definitely planning to enroll	50	39	11
Still considering enrollment	264	179	85
Definitely decided not to enroll	27	21	6
Current plans not reported	14	8	6
Have never considered returning	491	295	196
Plans to continue education not reported	40	25	15

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	354	245	109
Goal reported 2/	228	167	61
Instructor in a school of dental hygiene	79	61	18
Director of a school of dental hygiene	19	11	8
Dentist	3	2	1
Public health dental hygienist 3/	43	32	11
Hygienist in elementary or high school 3/	2	2	-
Other goal in dental hygiene specified	41	32	9
Goal outside dental hygiene specified	92	64	28
Goal not reported	126	78	48

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	341	50	264	27
Obstacles reported 2/	297	35	240	22
Lack of course offerings in a nearby school	51	8	38	5
Lack of sufficient funds	62	10	48	4
Family obligations	208	20	169	19
Lack of specific information on opportunities available	37	5	30	2
Age 3/	1	-	-	1
Lack of time 3/	17	5	12	-
Other obstacle specified	17	1	16	-
Obstacles not reported	44	15	24	5

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	926	594	332
Have taken courses 1/	108	99	9
School of dental hygiene	44	41	3
State or local dental hygiene association	17	16	1
Dental school	57	52	5
State or local dental association	21	19	2
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	781	471	310
If courses taken not reported	37	24	13

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	594	383	162	49
2 years or less	167	112	52	3
3 - 5	136	92	36	8
6 - 10	157	104	44	9
11 years or more	129	73	29	27
Years not reported	5	2	1	2
Inactive hygienists, by last year active in this State	332	182	41	109
1964 or later	134	69	13	52
1961 - 1963	67	41	7	19
1956 - 1960	76	43	9	24
Before 1956	42	22	8	12
Never active	7	4	1	2
Year not reported	6	3	3	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	926	-	915	-	-	-	594	-	-	-
Year reported	917	9611	908	904	9432	6070.0	588	585	5741	4465.5
1965	79	79	79	79	79	76.5	76	76	76	74.0
1964	79	158	79	79	158	156.5	69	69	138	143.0
1963	65	195	65	65	195	176.5	52	52	156	149.0
1962	48	192	47	47	188	158.5	38	38	152	129.5
1961	52	260	49	49	245	180.5	27	27	135	118.0
1960	59	354	59	59	354	268.5	34	34	204	181.0
1959	47	329	46	46	322	235.0	24	24	168	155.0
1958	51	408	51	51	408	277.0	29	29	232	196.0
1957	43	387	43	43	387	256.0	24	24	216	165.0
1956	46	460	45	45	450	255.0	19	19	190	142.0
1955	55	605	55	55	605	368.0	28	28	308	249.0
1954	35	420	35	35	420	253.0	16	16	192	151.0
1953	35	455	34	34	442	279.5	17	17	221	194.0
1952	25	350	25	24	336	203.0	14	13	182	153.0
1951	20	300	20	19	285	129.0	6	6	90	68.0
1950	15	240	15	14	224	113.0	8	7	112	81.0
1945 - 1949	54	991	54	54	991	540.5	28	28	511	374.0
1940 - 1944	29	687	27	27	640	429.0	19	19	454	340.0
1935 - 1939	27	793	27	27	793	524.0	23	23	677	463.0
Before 1935	53	1948	53	52	1910	1191.0	37	36	1327	940.0
Year not reported	9	-	7	-	-	-	6	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	10.4	6.7	64
1963 - 1965	25	1.9	1.8	95
1960 - 1962	17	5.1	3.9	76
1957 - 1959	16	8.0	5.5	69
1954 - 1956	15	10.9	6.5	60
1951 - 1953	8	13.8	7.9	57
1948 - 1950	5	17.0	9.4	55
1945 - 1947	2	19.6	10.1	52
1942 - 1944	2	22.9	14.5	63
1939 - 1941	1	25.8	20.1	78
1936 - 1938	2	28.9	18.2	63
Before 1936	7	35.5	22.4	63

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	926	-	-	-	-	-
Have been active in other states 1/	120	29	32	16	47	6
Arizona	2	-	1	-	1	-
California	13	5	4	2	2	-
Colorado	3	-	3	-	-	-
Connecticut	1	-	1	-	-	-
District of Columbia	5	1	1	-	3	-
Florida	8	1	3	3	1	-
Georgia	1	1	-	-	-	-
Illinois	12	5	1	2	3	1
Indiana	6	1	3	1	1	-
Iowa	1	-	-	-	1	-
Kansas	1	-	1	-	-	-
Louisiana	1	-	-	-	1	-
Maine	1	-	1	-	-	-
Maryland	1	1	-	-	-	-
Massachusetts	7	1	2	1	3	-
Minnesota	1	1	-	-	-	-
Missouri	2	-	-	-	2	-
Nebraska	1	-	-	1	-	-
New Mexico	1	-	1	-	-	-
New York	13	4	2	1	6	-
North Carolina	2	1	-	-	1	-
Ohio	17	2	4	1	8	2
Oklahoma	2	1	-	-	1	-
Oregon	3	-	1	-	2	-
Pennsylvania	8	-	1	-	6	1
South Dakota	1	-	-	-	1	-
Texas	4	1	1	-	2	-
Vermont	2	-	-	1	1	-

(continued)

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State (cont'd.)

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Washington	2	-	-	1	-	1
West Virginia	1	1	-	-	-	-
Wisconsin	6	2	1	1	1	1
Alaska	1	-	-	1	-	-
Have not been active in other states	799	-	-	-	-	-
If active in other states not reported	7	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	926	594	185	332
Single	157	149	99	8
Ever married	768	444	86	324
Now married	729	409	74	320
Other status	39	35	12	4
Status not reported	1	1	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	768	444	86	324
With no children	167	148	58	19
With children	576	275	22	301
1	143	77	9	66
2	198	106	7	92
3	127	56	6	71
4	73	29	-	44
5 or more	35	7	-	28
Number of children not reported	25	21	6	4

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	576	275	301
School status			
None in school	242	103	139
Some in school 1/	333	172	161
In grades 1 - 8	289	141	148
In grades 9 - 12	63	41	22
In college or business school	45	31	14
School status not reported	1	-	1
Age of children			
With children under 15 years 1/	536	248	288
1 year or less	204	74	130
2 - 3 years	252	105	147
4 - 5 years	234	98	136
6 - 7 - 8 years	208	86	122
9 - 10 - 11 years	136	59	77
12 - 13 - 14 years	79	44	35
With children 15 and over only	38	26	12
Age not reported	2	1	1

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	926	594	332
A member	384	325	59
Not a member, but a member at one time	403	196	207
Not a member, past membership not reported	5	1	4
Never a member	126	67	59
Current and past membership not reported	8	5	3

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	507	-
Time reported 1/	455	12,402
Less than 8	22	116
8	29	232
9 - 15	41	508
16	37	592
17 - 23	42	842
24	23	552
25 - 31	39	1,072
32	23	736
33 - 34	11	371
35	21	735
36 - 39	61	2,249
40	79	3,160
41 or more	27	1,237
Time not reported	52	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	507	-
Time reported 1/	455	20,071
4 or less	8	26
5 - 8	11	68
9 - 12	12	128
13 - 16	9	136
17 - 20	7	135
21 - 24	6	140
25 - 28	5	136
29 - 32	5	156
33 - 36	18	639
37 - 40	23	913
41 - 44	22	944
45 - 47	27	1,247
48 - 49	43	2,083
50 - 52	259	13,320
Time not reported	52	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	507	-	-
Time reported	455	12,402	20,071
Full time	188	7,381	9,313
Year round	161	6,320	8,248
Less than year round	27	1,061	1,065
Part time	267	5,021	10,758
Year round	141	3,019	7,155
Less than year round	126	2,002	3,603
Time not reported	52	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	507	-	-
Activities reported	502	-	-
Oral prophylaxis	500	279	5674
Other clinical services 1/	471	260	871
Patient dental health education 2/	418	239	722
Management of dental office 3/	246	138	398
Dental assisting tasks 4/	102	57	167
Activities not reported	5	5	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	507	397	73	19	3	15
Dentists reported	486	393	71	18	3	1
1	309	309	-	-	-	-
2	125	66	59	-	-	-
3	33	11	9	13	-	-
4 or more	19	7	3	5	3	1
Number of dentists not reported	21	4	2	1	-	14

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	507
Worked for general practitioner only	425
Worked for dental specialist 1/	48
Endodontist	-
Oral surgeon	1
Orthodontist	5
Pedodontist	17
Periodontist	23
Prosthodontist	2
Type not reported	34

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	507	161	27	141	126	52
Reporting type(s) of compensation	486	158	27	137	125	39
Salary only	277	106	14	66	66	25
Commission only	116	21	7	44	38	6
Both salary and commission only	45	15	4	16	8	2
Salary only, commission only 2/	14	7	-	-	5	2
Salary only, both salary and commission 2/	7	5	-	-	2	-
Commission only, both salary and commission 2/	5	3	1	1	-	-
Salary only, commission only, both salary and commission 2/	1	1	-	-	-	-
Did not receive compensation 3/	21	-	1	10	6	4
Type of compensation not reported	21	3	-	4	1	13

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	507	161	27	141	126	52
Earnings reported	417	141	23	123	99	31
$1,000 or less	24	-	-	-	22	2
1,000 - 1,999	36	-	1	10	22	3
2,000 - 2,999	33	-	-	17	14	2
3,000 - 3,999	41	2	-	20	16	3
4,000 - 4,999	36	5	4	16	8	3
5,000 - 5,999	68	35	7	19	4	3
6,000 - 6,999	73	47	3	14	3	6
7,000 - 7,999	57	37	4	10	2	4
8,000 - 8,999	18	9	1	7	1	-
9,000 - 9,999	10	5	2	1	1	1
10,000 & over	1	1	-	-	-	-
None 3/	20	-	1	9	6	4
Earnings not reported	90	20	4	18	27	21

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	332
Reasons reported 1/	329
Full-time family obligations	298
Employment in another occupation	10
Attending school	5
Beyond age to practice	2
Poor health	9
Loss of skill to practice	3
Unable to find suitable position as hygienist	10
She prefers not to work	71
Husband does not want her to work	76
Another reason specified	2
Reasons not reported	3

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	332	33	141	128	30
Degree reported	318	32	140	126	20
Very definite	67	27	31	6	3
Fairly definite	135	4	103	19	9
Not at all definite	116	1	6	101	8
Degree not reported	14	1	1	2	10

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	202	31	134	25	12
Time until return reported	201	31	134	24	12
Within the next year	32	8	21	2	1
Within the next 5 years	100	12	72	9	7
Within the next 10 years	30	3	19	8	-
Within the next 15 years	7	-	6	1	-
More than 15 years from now	6	1	4	1	-
Never	26	7	12	3	4
Time not reported	1	-	-	1	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	146	29	84	22	6	5
Preferred time reported	144	28	83	22	6	5
8 hours a day	64	19	37	5	2	1
5 days a week	1	-	1	-	-	-
Less than 5 days a week	63	19	36	5	2	1
Less than 8 hours a day	80	9	46	17	4	4
5 days a week	15	-	8	4	2	1
Less than 5 days a week	65	9	38	13	2	3
Time preferred not reported	2	1	1	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	332
Conditions reported 1/	304
When youngest child starts elementary school	180
When youngest child starts high school	40
When youngest child starts college	26
When a position is available in her community	28
When husband needs her in his practice, if he is a dentist	51
After completion of refresher training, if such training were available in a nearby community college or university	43
After completion of additional college training which would qualify her for a more advanced position as a hygienist	19
Because of illness, disability or death of husband 2/	23
Another condition specified	17
Condition not reported	28

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	332
Reasons reported 1/	301
For self satisfaction	251
To add to the family income for children's education	104
For other financial reasons	57
To keep in practice 2/	-
Another reason specified	8
Reasons not reported	31

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	332
Situations reported 1/	144
Lack of opportunities for hygienist in her community	41
Feels she might be too old to practice again	16
Feels she might have lost her skill to practice	81
Has too great an investment in another occupation	11
Satisfactory working hours not available 2/	4
Unsatisfactory wages 2/	3
Another situation specified	18
No situation was reported	188

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	332	-	-	-	-
Employed in					
Private dental office	65	10	44	10	1
Dental hygiene school or other dental auxiliary program	4	1	3	-	-
Elementary or secondary school	7	3	3	1	-
City or county health agency	5	2	3	-	-
State health agency	-	-	-	-	-
Other local government agency	-	-	-	-	-
Other state government agency	1	-	1	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	1	-	1	-	-
Private organization	3	-	2	1	-
Type of employer not reported	1	-	-	-	-
Not employed	254	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "Full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	355	306	151	126	25	155
Northeast	47	37	14	9	5	23
Connecticut	5	5	1	1	-	4
Maine	-	-	-	-	-	-
Massachusetts	5	4	4	2	2	-
New Hampshire	1	1	1	-	1	-
New Jersey	5	4	2	2	-	2
New York	22	16	4	2	2	12
Pennsylvania	6	4	2	2	-	2
Rhode Island	2	2	-	-	-	2
Vermont	1	1	-	-	-	1
South	72	64	33	25	8	31
Alabama	2	2	1	-	1	1
Arkansas	-	-	-	-	-	-
Delaware	2	2	1	1	-	1
District of Columbia	2	2	1	1	-	1
Florida	26	23	11	11	-	12
Georgia	2	2	-	-	-	2
Kentucky	3	3	2	1	1	1
Louisiana	2	2	2	2	-	-
Maryland	4	4	2	1	1	2
Mississippi	1	1	1	-	1	-
North Carolina	1	-	-	-	-	-
Oklahoma	3	1	-	-	-	1
South Carolina	1	1	1	-	1	-
Tennessee	4	4	2	1	1	2
Texas	9	9	4	3	1	5
Virginia	8	7	4	4	-	3
West Virginia	2	1	1	-	1	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	116	105	45	37	8	60
Illinois	29	26	8	8	-	18
Indiana	15	14	5	4	1	9
Iowa	2	2	1	-	1	1
Kansas	1	1	1	1	-	-
Michigan 1/	2	2	2	2	-	-
Minnesota	2	2	2	2	-	-
Missouri	2	2	2	2	-	-
Nebraska	5	5	1	-	1	4
North Dakota	-	-	-	-	-	-
Ohio	39	33	15	14	1	18
South Dakota	2	2	-	-	-	2
Wisconsin	17	16	8	4	4	8
West	120	100	59	55	4	41
Alaska	1	1	-	-	-	1
Arizona	12	9	1	1	-	8
California	81	70	45	43	2	25
Colorado	13	12	10	10	-	2
Hawaii	2	2	1	-	1	1
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	2	1	1	-	1	-
Nevada	2	1	1	1	-	-
Oregon	-	-	-	-	-	-
Utah	1	1	-	-	-	1
Washington	4	1	-	-	-	1
Wyoming	2	2	-	-	-	2

1/ Two responding hygienists who were residents of Michigan indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	306	151	155
University of Michigan	188	82	106
1963-1965	15	11	4
1960-1962	27	14	13
1957-1959	30	15	15
1954-1956	36	10	26
1951-1953	31	16	15
Before 1951	48	15	33
Year not reported	1	1	-
University of Detroit	53	33	20
1963-1965	6	3	3
1960-1962	12	7	5
1957-1959	14	10	4
1954-1956	16	10	6
1952-1953	4	2	2
Year not reported	1	1	-
All other schools	65	36	29
1963-1965	9	6	3
1960-1962	17	12	5
1957-1959	11	4	7
1954-1956	9	4	5
Before 1954	18	9	9
Year not reported	1	1	-
School not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	306	-	226	-	-	-	76	4
Year reported	301	3246	225	224	2482	782.5	75	1
1965	12	12	6	6	6	5.5	6	-
1964	15	30	9	9	18	12.0	6	-
1963	11	33	8	8	24	10.5	3	-
1962	21	84	17	17	68	40.0	4	-
1961	22	110	16	16	80	36.0	6	-
1960	13	78	9	9	54	23.0	4	-
1959	22	154	14	14	98	30.0	8	-
1958	13	104	11	11	88	35.0	2	-
1957	20	180	16	16	144	57.0	4	-
1956	16	160	13	13	130	45.5	3	-
1955	17	187	14	14	154	45.5	3	-
1950-1954	67	909	50	50	672	210.5	17	-
1945-1949	29	534	24	23	423	89.0	4	1
1940-1944	10	239	7	7	166	33.0	3	-
1935-1939	6	176	6	6	176	52.0	-	-
Before 1935	7	256	5	5	181	58.0	2	-
Year not reported	5	-	1	-	-	-	1	3

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	155
Reasons reported 1/	152
Full-time family obligations	120
Employment in another occupation	5
Attending school	2
Beyond age to practice	1
Poor health	3
Loss of skill to practice	12
Unable to find suitable position as hygienist	5
She prefers not to work	20
Husband does not want her to work	25
Not licensed in state where she currently resides	79
Another reason specified	5
Reasons not reported	3

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In May 1966, the Missouri Dental Board conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Missouri, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Missouri survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

August, 1968

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state).

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	293	100	261	89
In Missouri	120	41	115	96
In other states	172	59	145	84
In foreign countries	1	-	1	100

Table A-2 -- Selected Characteristics of Hygienists Licensed in Missouri by Location

Characteristics	Licensed hygienists	In Missouri	In other states
Total respondents	260	115	145
Current status			
Active	178	84	94
Inactive	82	31	51
Age in 1966			
Under 25	67	40	27
25 - 29	106	42	64
30 - 34	60	23	37
35 & over	26	10	16
Dental hygiene school			
University of Missouri-Kansas City	181	71	110
All other schools	78	44	34
Year hygiene training completed			
1962 - 1966	108	54	54
1958 - 1961	89	40	49
1954 - 1957	56	19	37
Before 1954	6	2	4
Professional activity in Missouri			
Ever active in Missouri	192	109	83
Never active in Missouri	67	6	61

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	115
Active	84
Employed	84 1/
Private dental office	79
Dental hygiene school or other auxiliary program	5
Elementary or secondary school (public or private)	-
City or county health agency	1
State health agency	1
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	1
Private agency	1
Unemployed (seeking work as dental hygienist)	-
Inactive	31

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	120	115	84	34	31
Benton	1	-	-	-	-
Boone	1	1	1	-	-
* Buchanan	4	4	3	2	1
Butler	1	1	1	-	-
Cape Girardeau	2	2	-	-	2
Cedar	1	1	-	-	1
* Clay	3	3	3	2	-
Cole	1	1	1	-	-
Dunklin	1	1	1	-	-
* Jackson	48	46	34	14	12
Jasper	2	2	1	-	1
Johnson	1	1	1	-	-
Livingston	1	1	1	1	-
Newton	1	1	-	-	1
Pemiscot	1	1	-	-	1
Pike	1	1	-	-	1
Pulaski	2	1	1	-	-
Putnam	1	1	-	-	1
* St. Louis	25	24	18	6	6
* St. Louis City	16	16	12	8	4
Other locations 2/	6	6	6	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 95 of the 115 Missouri counties; 6 of the 95 counties with no hygienists are defined as metropolitan counties.

2/ Hygienists employed in Missouri but residing in Kansas.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	115	84	34	31
20 - 24 years	40	30	10	10
25 - 29 years	42	28	11	14
30 - 34 years	23	17	9	6
35 - 39 years	4	3	-	1
40 - 44 years	2	2	-	-
45 - 49 years	3	3	3	-
50 - 54 years	-	-	-	-
55 - 59 years	1	1	1	-
60 years & over	-	-	-	-
Not reported	-	-	-	-
Median age	27.1	27.1	28.2	27.0

Table B-2c -- Age Distribution in 1966, By Current Professional Status For Missouri and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	115	40	42	23	10	-
Active	84	30	28	17	9	-
Employed in private dental office	79	29	27	15	8	-
Other active	5	1	1	2	1	-
Inactive	31	10	14	6	1	-
Jackson County	46	22	11	8	5	-
Active	34	17	5	7	5	-
Employed in private dental office	32	16	4	7	5	-
Other active	2	1	1	-	-	-
Inactive	12	5	6	1	-	-
St. Louis County	24	8	10	4	2	-
Active	18	5	7	4	2	-
Employed in private dental office	18	5	7	4	2	-
Other active	-	-	-	-	-	-
Inactive	6	3	3	-	-	-
St. Louis City	16	6	6	3	1	-
Active	12	5	4	3	-	-
Employed in private dental office	10	5	4	1	-	-
Other active	2	-	-	2	-	-
Inactive	4	1	2	-	1	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	115	84	31
With formal academic training	115	84	31
University of Missouri at Kansas City 1/	71	53	18
University of Iowa	9	6	3
Southern Illinois University	7	5	2
University of Tennessee	5	4	1
Meharry Medical College	4	4	-
Marquette University	3	2	1
Ohio State University	3	2	1
Forsyth School for Dental Hygienists	2	2	-
Northwestern University	2	1	1
University of California	2	1	1
University of Michigan	2	2	-
Baylor University	1	-	1
Erie County Technical Institute 2/	1	1	-
Fairleigh Dickinson University	1	-	1
Loyola University - New Orleans	1	1	-
West Liberty State College	1	-	1
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes graduates of Kansas City - Western Dental College.
2/ Includes graduates of New York State Institute of Applied Arts and Sciences at Buffalo.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received

Year	All schools			University of Missouri-Kansas City		
	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	115	84	31	71	53	18
1966	13	13	-	13	13	-
1965	13	9	4	11	7	4
1964	13	9	4	5	4	1
1963	9	8	1	5	4	1
1962	6	3	3	3	2	1
1961	13	9	4	7	5	2
1960	6	4	2	4	2	2
1959	8	6	2	6	4	2
1958	13	8	5	6	4	2
1957	4	3	1	1	1	-
1956	9	5	4	5	3	2
1955	3	2	1	2	1	1
1954	3	3	-	3	3	-
Before 1954	2	2	-	-	-	-
Not reported	-	-	-	-	-	-

Table B-3c -- County Location, By Selected Schools

County 1/	Instate hygienists		University of Missouri		All other schools	
	Total	Active	Total	Active	Total	Active
Total	115	84	71	53	44	31
Boone	1	1	1	1	-	-
*Buchanan	4	3	1	1	3	2
Butler	1	1	1	1	-	-
Cape Girardeau	2	-	2	-	-	-
Cedar	1	-	1	-	-	-
*Clay	3	3	2	2	1	1
Cole	1	1	1	1	-	-
Dunklin	1	1	-	-	1	1
*Jackson	46	34	40	30	6	4
Jaspar	2	1	2	1	-	-
Johnson	1	1	1	1	-	-
Livingston	1	1	1	1	-	-
Newton	1	-	-	-	1	-
Pemiscot	1	-	-	-	1	-
Pike	1	-	-	-	1	-
Pulaski	1	1	-	-	1	1
Putnam	1	-	1	-	-	-
*St. Louis	24	18	8	7	16	11
*St. Louis City	16	12	4	2	12	10
Other locations 2/	6	6	5	5	1	1

* Counties included in the latest 1967 definition of Standard Metropolitan Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Responding hygienists employed in Missouri but residing in Kansas.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	115	84	31
Dental hygiene certificate only	40	24	16
Additional college, but no degree	39	33	6
Less than 1 year	1	1	-
1 year but less than 2 years	29	24	5
2 years but less than 3 years	7	6	1
3 years but less than 4 years	1	1	-
4 or more years	-	-	-
Number of years not reported	1	1	-
Bachelor's degree	34	26	8
Master's degree	2	1	1
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	115	84	31
Have seriously considered returning	65	49	16
Now enrolled	9	6	3
Definitely planning to enroll	5	5	-
Still considering enrollment	39	30	9
Definitely decided not to enroll	8	5	3
Current plans not reported	4	3	1
Have never considered returning	47	33	14
Plans to continue education not reported	3	2	1

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	53	41	12
Goal reported 2/	44	35	9
Instructor in a school of dental hygiene	16	12	4
Director of a school of dental hygiene	9	8	1
Dentist	1	1	-
Public health dental hygienist 3/	10	9	1
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	12	9	3
Goal outside dental hygiene specified	6	4	2
Goal not reported	9	6	3

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	52	5	39	8
Obstacles reported 2/	45	3	35	7
Lack of course offerings in a nearby school	10	1	6	3
Lack of sufficient funds	23	2	18	3
Family obligations	29	-	24	5
Lack of specific information on opportunities available	6	2	3	1
Age 3/	-	-	-	-
Lack of time 3/	1	-	1	-
Other obstacle specified	3	-	3	-
Obstacles not reported	7	2	4	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	115	84	31
Have taken courses 1/	17	14	3
School of dental hygiene	3	3	-
State or local dental hygiene association	3	3	-
Dental school	1	1	-
State or local dental association	9	8	1
Other sponsor	-	-	-
Sponsor not reported	4	2	2
Have not taken courses	90	64	26
If courses taken not reported	8	6	2

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	84	63	14	7
2 years or less	43	30	9	4
3 - 5	22	19	1	2
6 - 10	18	14	3	1
11 years or more	1	-	1	-
Years not reported	-	-	-	-
Inactive hygienists, by last year active in this State	31	21	8	2
1964 or later	15	9	6	-
1961 - 1963	6	5	-	1
1956 - 1960	5	4	1	-
Before 1956	-	-	-	-
Never active	5	3	1	1
Year not reported	-	-	-	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	115	-	109	-	-	-	84	-	-	-
Year reported	115	504	109	95	488	329.0	84	70	341	264.5
1966	14	-	14	-	-	-	14	-	-	-
1965	18	18	16	16	16	14.0	13	13	13	11.0
1964	13	26	12	12	24	19.0	8	8	16	14.0
1963	15	45	13	13	39	30.5	12	12	36	26.5
1962	4	16	4	4	16	13.0	2	2	8	8.0
1961	9	45	9	9	45	34.5	7	7	35	33.0
1960	9	54	8	8	48	38.0	6	6	36	34.0
1959	9	63	9	9	63	37.0	7	7	49	35.0
1958	8	64	8	8	64	37.0	5	5	40	28.0
1957	2	18	2	2	18	6.0	1	1	9	4.0
1956	6	60	6	6	60	48.0	3	3	30	28.0
1955	4	44	4	4	44	17.0	3	3	33	15.0
1954	3	36	3	3	36	28.0	3	3	36	28.0
1953	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-
1951	1	15	1	1	15	7.0	-	-	-	-
Year not reported	-	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active instate.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	5.1	3.5	67
1963-1965	43	1.9	1.5	80
1960-1962	22	5.2	4.1	78
1957-1959	20	7.6	4.2	55
1954-1956	14	10.8	7.2	66
1951-1953	1	15.0	7.0	47
Before 1951	-	-	-	-

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	115	-	-	-	-	-
Have been active in other states 1/	48	26	14	11	-	1
Alabama	1	1	-	-	-	-
California	3	1	2	-	-	-
Colorado	2	1	1	-	-	-
Florida	1	-	1	-	-	-
Illinois	3	2	1	-	-	-
Indiana	1	-	1	-	-	-
Iowa	2	-	1	1	-	-
Kansas	18	12	1	4	-	1
Kentucky	1	1	-	-	-	-
Louisiana	1	1	-	-	-	-
Maine	1	1	-	-	-	-
Maryland	1	1	-	-	-	-
Massachusetts	1	-	-	1	-	-
Michigan	3	1	-	2	-	-
Nebraska	2	1	1	-	-	-
New Jersey	1	-	1	-	-	-
New Mexico	1	-	1	-	-	-
New York	1	-	-	1	-	-
Ohio	2	1	-	1	-	-
Oklahoma	1	-	1	-	-	-
Pennsylvania	1	1	-	-	-	-
Tennessee	2	-	1	1	-	-
Virginia	1	-	1	-	-	-
Wisconsin	1	1	-	-	-	-
Have not been active in other states	67	-	-	-	-	-
If active in other states not reported	-	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	115	84	34	31
Single	29	27	12	2
Ever married	86	57	22	29
Now married	77	49	18	28
Other status	9	8	4	1
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	86	57	22	29
With no children	37	32	17	5
With children	47	23	4	24
1	20	9	3	11
2	21	9	1	12
3	5	4	-	1
4	1	1	-	-
5 or more	-	-	-	-
Number of children not reported	2	2	1	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	47	23	24
School status			
None in school	33	14	19
Some in school 1/	14	9	5
In grades 1 - 8	14	9	5
In grades 9 - 12	-	-	-
In college or business school	-	-	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	47	23	24
1 year or less	18	2	16
2 - 3 years	23	15	8
4 - 5 years	15	9	6
6 - 7 - 8 years	14	8	6
9 - 10 - 11 years	3	3	-
12 - 13 - 14 years	1	1	-
With children 15 and over only	-	-	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	115	84	31
A member	72	59	13
Not a member, but a member at one time	27	12	15
Not a member, past membership not reported	-	-	-
Never a member	16	13	3
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	79	-
Time reported 1/	70	2297
Less than 8	3	14
8	2	16
9 - 15	6	77
16	1	16
17 - 23	5	103
24	1	24
25 - 31	2	59
32	4	128
33 - 34	3	101
35	1	35
36 - 39	7	264
40	22	880
41 or more	13	580
Time not reported	9	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	79	-
Time reported 1/	70	2656
4 or less	4	12
5 - 8	3	18
9 - 12	7	75
13 - 16	1	16
17 - 20	2	39
21 - 24	1	24
25 - 28	2	53
29 - 32	2	64
33 - 36	2	72
37 - 40	3	120
41 - 44	3	128
45 - 47	1	47
48 - 49	6	291
50 - 52	33	1697
Time not reported	9	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	79	-	-
Time reported	70	2297	2656
Full time	43	1759	1665
Year round	26	1080	1328
Less than year round	17	679	337
Part time	27	538	991
Year round	13	286	660
Less than year round	14	252	331
Time not reported	9	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	79	-	-
Activities reported	78	-	-
Oral prophylaxis	78	49	1107
Other clinical services 1/	78	49	215
Patient dental health education 2/	70	44	187
Management of dental office 3/	51	30	108
Dental assisting tasks 4/	22	15	53
Activities not reported	1	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	79	62	11	6	-	-
Dentists reported	77	62	10	5	-	-
1	50	50	-	-	-	-
2	20	11	9	-	-	-
3	7	1	1	5	-	-
4 or more	-	-	-	-	-	-
Number of dentists not reported	2	-	1	1	-	-

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	79
Worked for general practitioner only	69
Worked for dental specialist 1/	7
Endodontist	-
Oral surgeon	-
Orthodontist	1
Pedodontist	2
Periodontist	4
Prosthodontist	-
Type not reported	3

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	79	26	17	13	14	9
Reporting type(s) of compensation	78	25	17	13	14	9
Salary only	31	13	8	4	4	2
Commission only	34	7	5	7	9	6
Both salary and commission only	9	5	2	1	-	1
Salary only, commission only 2/	2	-	2	-	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	2	-	-	1	1	-
Type of compensation not reported	1	1	-	-	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist—husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	79	26	17	13	14	9
Earnings reported	57	22	13	8	11	3
$1,000 or less	8	-	4	-	4	-
1,000 - 1,999	7	-	3	-	3	1
2,000 - 2,999	2	1	1	-	-	-
3,000 - 3,999	3	1	-	1	1	-
4,000 - 4,999	6	3	2	1	-	-
5,000 - 5,999	7	3	-	3	1	-
6,000 - 6,999	7	2	2	1	-	2
7,000 - 7,999	12	9	1	1	1	-
8,000 - 8,999	2	1	-	-	1	-
9,000 - 9,999	2	2	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	1	-	-
Earnings not reported	22	4	4	5	3	6

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	31
Reasons reported 1/	31
Full-time family obligations	26
Employment in another occupation	1
Attending school	1
Beyond age to practice	-
Poor health	1
Loss of skill to practice	1
Unable to find suitable position as hygienist	2
She prefers not to work	5
Husband does not want her to work	6
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	31	3	11	14	3
Degree reported	31	3	11	14	3
Very definite	5	3	-	1	1
Fairly definite	16	-	9	5	2
Not at all definite	10	-	2	8	-
Degree not reported	-	-	-	-	-

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	21	3	9	6	3
Time until return reported	20	3	9	5	3
Within the next year	5	2	2	-	1
Within the next 5 years	7	1	5	1	-
Within the next 10 years	4	-	1	3	-
Within the next 15 years	-	-	-	-	-
More than 15 years from now	1	-	1	-	-
Never	3	-	-	1	2
Time not reported	1	-	-	1	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	12	4	6	1	-	1
Preferred time reported	11	4	5	1	-	1
8 hours a day	6	3	2	-	-	1
5 days a week	-	-	-	-	-	-
Less than 5 days a week	6	3	2	-	-	1
Less than 8 hours a day	5	1	3	1	-	-
5 days a week	3	1	1	1	-	-
Less than 5 days a week	2	-	2	-	-	-
Time preferred not reported	1	-	1	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	31
Conditions reported 1/	28
When youngest child starts elementary school	14
When youngest child starts high school	1
When youngest child starts college	2
When a position is available in her community	4
When husband needs her in his practice, if he is a dentist	7
After completion of refresher training, if such training were available in a nearby community college or university	4
After completion of additional college training which would qualify her for a more advanced position as a hygienist	3
Because of illness, disability or death of husband 2/	2
Another condition specified	2
Condition not reported	3

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	31
Reasons reported 1/	29
For self satisfaction	19
To add to the family income for children's education	7
For other financial reasons	11
To keep in practice 2/	1
Another reason specified	-
Reasons not reported	2

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	31
Situations reported 1/	12
Lack of opportunities for hygienist in her community	3
Feels she might be too old to practice again	-
Feels she might have lost her skill to practice	6
Has too great an investment in another occupation	2
Satisfactory working hours not available 2/	3
Unsatisfactory wages 2/	-
Another situation specified	1
No situation was reported	19

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total 3/	31	8	3	1	-
Employed in					
Private dental office	11	7	3	1	-
Dental hygiene school or other dental auxiliary program	1	1	-	-	-
Elementary or secondary school	-	-	-	-	-
City or county health agency	-	-	-	-	-
State health agency	-	-	-	-	-
Other local government agency	-	-	-	-	-
Other state government agency	-	-	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	-	-	-	-	-
Private organization	-	-	-	-	-
Type of employer not reported	-	-	-	-	-
Not employed	20	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "Full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	172	145	94	77	17	51
Northeast	3	3	2	1	1	1
Connecticut	-	-	-	-	-	-
Maine	1	1	-	-	-	1
Massachusetts	-	-	-	-	-	-
New Hampshire	1	1	1	1	-	-
New Jersey	-	-	-	-	-	-
New York	1	1	1	-	1	-
Pennsylvania	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	40	34	20	11	9	14
Alabama	-	-	-	-	-	-
Arkansas	2	1	-	-	-	1
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	4	4	2	1	1	2
Georgia	2	2	-	-	-	2
Kentucky	-	-	-	-	-	-
Louisiana	1	1	1	1	-	-
Maryland	1	1	-	-	-	1
Mississippi	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-
Oklahoma	14	10	7	5	2	3
South Carolina	1	1	-	-	-	1
Tennessee	4	3	2	-	2	1
Texas	7	7	4	2	2	3
Virginia	4	4	4	2	2	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	87	74	51	47	4	23
Illinois	11	9	8	7	1	1
Indiana	3	3	2	2	-	1
Iowa	3	3	-	-	-	3
Kansas	48	40	26	25	1	14
Michigan	5	4	3	2	1	1
Minnesota	1	1	1	1	-	-
Missouri 1/	8	8	8	8	-	-
Nebraska	3	1	1	1	-	-
North Dakota	1	1	1	1	-	-
Ohio	2	2	1	-	1	1
South Dakota	-	-	-	-	-	-
Wisconsin	2	2	-	-	-	2
West	42	34	21	18	3	13
Alaska	-	-	-	-	-	-
Arizona	5	4	3	3	-	1
California	13	10	7	7	-	3
Colorado	14	13	6	5	1	7
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	1	1	1	1	-	-
New Mexico	3	1	1	1	-	-
Nevada	-	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	3	2	1	-	1	1
Wyoming	3	3	2	1	1	1

1/ Eight responding hygienists who were residents of Missouri indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	145	94	50
University of Missouri-Kansas City	110	73	37
1966	4	4	-
1965	7	6	1
1964	10	9	1
1963	8	7	1
1962	14	10	4
1961	11	8	3
1960	9	4	5
1959	7	7	-
1958	11	8	3
1957	6	3	3
1956	7	2	5
1955	11	3	8
1954	4	1	3
All other schools	34	21	13
1962 - 1966 1/	11	9	2
1958 - 1961	11	9	2
1954 - 1957	8	1	7
Before 1954	3	1	2
Year not reported	1	1	-
School not reported	1	-	1

1/ There were no respondents who reported graduating from other schools in 1966.

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	145	-	83	-	-	-	61	1
Year reported	144	841	83	81	518	164.5	61	-
1966	3	-	1	-	-	-	2	-
1965	11	11	4	4	4	3.5	7	-
1964	18	36	8	8	16	9.0	10	-
1963	11	33	6	6	18	6.0	5	-
1962	15	60	7	7	28	8.5	8	-
1961	14	70	8	8	40	18.0	6	-
1960	14	84	11	10	60	17.0	3	-
1959	11	77	9	9	63	25.5	2	-
1958	12	96	8	8	64	11.5	4	-
1957	8	72	5	5	45	12.0	3	-
1956	7	70	3	3	30	7.0	4	-
1955	13	143	8	8	88	22.5	5	-
1954	5	60	4	4	48	11.0	1	-
1953	-	-	-	-	-	-	-	-
1952	1	14	1	1	14	13.0	-	-
1951	1	15	-	-	-	-	1	-
Year not reported	1	-	-	-	-	-	-	1

1/ Excludes hygienists who reported they were active for less than six months.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	51
Reasons reported 1/	51
Full-time family obligations	42
Employment in another occupation	1
Attending school	1
Beyond age to practice	-
Poor health	-
Loss of skill to practice	1
Unable to find suitable position as hygienist	1
She prefers not to work	11
Husband does not want her to work	9
Not licensed in state where she currently resides	14
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

NEW HAMPSHIRE

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A

Cooperative Project of the

State of New Hampshire Dental Board

and the American Association of Dental Examiners

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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Division of Dental Health
Resource Analysis Branch

March 1969

INTRODUCTION

In October 1966, the State of New Hampshire Dental Board conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in New Hampshire, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The New Hampshire survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

STATE OF NEW HAMPSHIRE
DENTAL BOARD

THE ____ STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF ____ THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____
LAST FIRST MIDDLE MAIDEN (if ever married)

Present Home Address: _____
STREET CITY COUNTY STATE ZIP CODE

License Number: _____ Social Security Number: _____

A-1
B-2a, 2c,
B-3c
E-1

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ 1 Single ☐ 2 Married ☐ 3 Widowed ☐ 4 Divorced ☐ 5 Separated
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ Grades 1-8 _____ Grades 9-12 _____ College or business school
5. Number of children under 15 years: _____ 1 yr. or under _____ 2-3 yrs. _____ 4-5 yrs. _____ 6-7-8 yrs. _____ 9-10-11 yrs. _____ 12-13-14 yrs.

A-2
B-2b, 2c
B-5a, 5b,
5c

B. TRAINING AND EDUCATION

☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ 1 Bachelor degree ☐ 2 Associate degree ☐ 3 Certificate or diploma
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ 1 Bachelor degree ☐ 2 Master degree ☐ 3 Other Degree (specify _____)

A-2
B-3a, 3b,
3c, 3d
E-2

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
B.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
C.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
D.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ 1 Yes ☐ 2 No
    IF NO, have you ever been a member? ☐ 1 Yes ☐ 2 No

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

A-2

B-1

B-1

B-2c

C-1a,1c

E-1

C-2

D. CURRENT PROFESSIONAL ACTIVITY

15. Current professional status *(check one)*
    1☐ At work as a dental hygienist
    2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
    3☐ Seeking work as a dental hygienist
    4☐ Not working or seeking work as a dental hygienist
    } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where?_____
    In what county do you primarily work?_____

17. In a typical week how many hours do you work for your current employers? _____hours
    (use last week if it was typical, otherwise select the most recent week which was typical)

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization*_____ ..... _____

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify*_____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
    1☐ Yes
    2☐ No

■ **If you currently work in a private dental office complete Items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1_____ Office 2_____ Office 3_____ Office 4_____ Other Offices_____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists?_____ Specify type(s)_____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months?_____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)*_____

26. How many weeks, if any, were you employed in this State?_____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months: 27b. Indicate whether you worked: 27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*

	Full-time only	Part-time only	Combination of full-time and part-time	27c
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify*_____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify*_____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify*_____*)*
6☐ Other goal outside dental hygiene *(specify*_____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐ 1 No ☐ 2 IF YES, in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify_____)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	184	100	171	93
In New Hampshire	123	67	110	89
In other states	61	33	61	100
In foreign countries	-	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in New Hampshire, by Location

Characteristics	Licensed hygienists	In New Hampshire	In other states
Total respondents	171	110	61
Current status			
Active	109	79	30
Inactive	62	31	31
Age in 1966			
Under 25	36	30	6
25 - 29	32	19	13
30 - 34	22	12	10
35 & over	80	49	31
Year hygiene training completed			
1957 - 1966	70	49	21
1947 - 1956	47	27	20
1937 - 1946	32	19	13
Before 1937	20	13	7
Professional activity in New Hampshire			
Ever active in New Hampshire	153	107	46
Never active in New Hampshire	16	2	14

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	110
Active	79
Employed	79 1/
Private dental office	63
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	7
City or county health agency	-
State health agency	4
Other local government agency	-
Other state government agency	-
Army, navy, air force	-
Other federal agency	-
Private agency	-
Not reported	7
Unemployed (seeking work as dental hygienist)	-
Inactive	31

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	123	110	79	21	31
Belknap	11	9	5	-	4
Cheshire	10	8	6	3	2
Grafton	6	4	4	1	-
*Hillsboro	33	32	24	7	8
*Merrimack	30	24	14	2	10
*Rockingham	14	14	13	5	1
Strafford	12	12	6	1	6
Sullivan	3	3	3	-	-
Other location 2/	4	4	4	2	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 2 of the 10 New Hampshire counties.

2/ Responding hygienists employed in New Hampshire but residing in a neighboring state.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	110	79	21	31
20 - 24 years	30	27	13	3
25 - 29 years	19	11	1	8
30 - 34 years	12	6	-	6
35 - 39 years	14	9	1	5
40 - 44 years	14	11	3	3
45 - 49 years	5	4	-	1
50 - 54 years	8	8	3	-
55 - 59 years	3	1	-	2
60 years & over	5	2	-	3
Not reported	-	-	-	-
Median age	32.5	31.2	*	33.8

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status for New Hampshire and Selected Counties 1/

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	110	30	19	12	49	-
Active	79	27	11	6	35	-
Employed in private dental office	63	23	11	5	24	-
Other active	16	4	-	1	11	-
Inactive	31	3	8	6	14	-
*Hillsboro County	32	10	4	1	17	-
Active	24	9	2	1	12	-
Employed in private dental office	19	7	2	1	9	-
Other active	5	2	-	-	3	-
Inactive	8	1	2	-	5	-
*Merrimack County	24	5	6	3	10	-
Active	14	5	4	1	4	-
Employed in private dental office	11	4	4	-	3	-
Other active	3	1	-	1	1	-
Inactive	10	-	2	2	6	-
*Rockingham County	14	4	3	1	6	-
Active	13	4	3	-	6	-
Employed in private dental office	10	4	3	-	3	-
Other active	3	-	-	-	3	-
Inactive	1	-	-	1	-	-
Strafford County	12	3	1	3	5	-
Active	6	1	-	1	4	-
Employed in private dental office	5	1	-	1	3	-
Other active	1	-	-	-	1	-
Inactive	6	2	1	2	1	-
All other counties	28	8	5	4	11	-
Active	22	8	2	3	9	-
Employed in private dental office	18	7	2	3	6	-
Other active	4	1	-	-	3	-
Inactive	6	-	3	1	2	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	110	79	31
With formal academic training	109	79	30
Forsyth School for Dental Hygienists	76	50	26
Westbrook Junior College	8	8	-
University of Vermont	7	5	2
Temple University	5	3	2
Monroe Community College 1/	4	4	-
University of Bridgeport 2/	2	2	-
University of Pennsylvania	2	2	-
University of Rhode Island	2	2	-
New York City Community College 3/	1	1	-
Baylor University	1	1	-
University of Washington	1	1	-
With no formal academic training	1	-	1

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.
2/ Includes any graduates of Fones School of Dental Hygiene.
3/ Includes any graduates of Brooklyn Community College, New York State Institute of Applied Arts and Science, Brooklyn.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools			Forsyth School for Dental Hygienists			All other schools		
	Total	Active	Inactive	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	110	79	31	76	50	26	34	29	5
With formal academic training	109	79	30	76	50	26	33	29	4
1962 - 1966	31	28	3	10	8	2	21	20	1
1957 - 1961	18	10	8	14	8	6	4	2	2
1952 - 1956	13	7	6	10	5	5	3	2	1
1947 - 1951	14	9	5	13	8	5	1	1	-
1942 - 1946	11	9	2	9	7	2	2	2	-
1937 - 1941	8	6	2	7	5	2	1	1	-
Before 1937	13	9	4	13	9	4	-	-	-
Year not reported	1	1	-	-	-	-	1	1	-
With no formal academic training	1	-	1	-	-	-	1	-	1

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		Forsyth School for Dental Hygienists		All other schools	
	Total	Active	Total	Active	Total	Active
Total	109	79	76	50	33	29
Belknap	9	5	9	5	-	-
Cheshire	8	6	6	4	2	2
Grafton	4	4	1	1	3	3
*Hillsboro	32	24	21	15	11	9
*Merrimack	23	14	14	7	9	7
*Rockingham	14	13	11	10	3	3
Strafford	12	6	11	5	1	1
Sullivan	3	3	2	2	1	1
Other locations 2/	4	4	1	1	3	3

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Responding hygienists employed in New Hampshire but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	110	79	31
Dental hygiene certificate only	88	65	23
Additional college, but no degree	18	11	7
Less than 1 year	4	2	2
1 year but less than 2 years	8	6	2
2 years but less than 3 years	5	2	3
3 years but less than 4 years	-	-	-
4 or more years	-	-	-
Number of years not reported	1	1	-
Bachelor's degree	3	3	-
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	1	-	1

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	110	79	31
Have seriously considered returning	42	34	8
Now enrolled	1	1	-
Definitely planning to enroll	2	1	1
Still considering enrollment	27	22	5
Definitely decided not to enroll	11	9	2
Current plans not reported	1	1	-
Have never considered returning	63	44	19
Plans to continue education not reported	5	1	4

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	30	24	6
Goal reported 2/	22	19	3
Instructor in a school of dental hygiene	8	8	-
Director of a school of dental hygiene	-	-	-
Dentist	-	-	-
Public health dental hygienist 3/	9	8	1
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	4	4	-
Goal outside dental hygiene specified	6	3	3
Goal not reported	8	5	3

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	40	2	27	11
Obstacles reported 2/	39	2	27	10
Lack of course offerings in a nearby school	19	-	16	3
Lack of sufficient funds	11	2	5	4
Family obligations	20	1	12	7
Lack of specific information on opportunities available	3	-	2	1
Age 3/	1	-	-	1
Lack of time 3/	-	-	-	-
Other obstacle specified	3	-	3	-
Obstacles not reported	1	-	-	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	110	79	31
Have taken courses 1/	30	27	3
School of dental hygiene	5	5	-
State or local dental hygiene association	12	12	-
Dental school	1	1	-
State or local dental association	16	13	3
Other sponsor	1	1	-
Sponsor not reported	-	-	-
Have not taken courses	71	46	25
If courses taken not reported	9	6	3

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	79	59	11	9
2 years or less	31	25	4	2
3 - 5	11	7	3	1
6 - 10	18	11	2	5
11 years or more	16	14	1	1
Years not reported	3	2	1	-
Inactive hygienists, by last year active in this State	31	12	7	12
1964 or later	13	5	2	6
1961 - 1963	4	3	-	1
1956 - 1960	7	2	3	2
Before 1956	1	-	-	1
Never active	2	1	1	-
Year not reported	4	1	1	2

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	110	-	107	-	-	-	79	-	-	-
Year reported	109	1,112	107	86	1,017	718.5	79	60	659	486.0
1966	16	-	16	-	-	-	16	-	-	-
1965	9	9	9	9	9	13.0	9	9	9	13.0
1964	8	16	7	7	14	15.0	6	6	12	13.0
1963	9	27	9	9	27	27.0	8	8	24	26.0
1962	3	12	3	2	8	8.0	2	1	4	4.0
1961	1	5	1	1	5	1.0	-	-	-	-
1960	5	30	5	5	30	15.5	1	1	6	6.0
1959	5	35	5	4	28	26.0	4	4	28	26.0
1958	6	48	5	4	32	17.0	4	3	24	14.0
1957	1	9	1	1	9	1.0	-	-	-	-
1956	2	20	2	2	20	15.0	1	1	10	11.0
1955	1	11	1	1	11	10.0	1	1	11	10.0
1954	2	24	2	2	24	17.0	1	1	12	12.0
1953	2	26	2	2	26	20.0	-	-	-	-
1952	3	42	3	3	42	24.0	2	2	28	19.0
1951	3	45	3	3	45	31.0	1	1	15	8.0
1950	2	32	2	2	32	30.0	1	1	16	16.0
1945 - 1949	18	337	18	17	318	223.0	15	14	266	197.0
1940 - 1944	7	170	7	7	170	115.0	4	4	100	69.0
1935 - 1939	2	55	2	2	55	52.0	1	1	27	23.0
Before 1935	4	159	4	3	112	58.0	2	2	67	19.0
Year not reported	1	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in state.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	11.8	8.4	71
1963 - 1965	29	2.0	2.0	100
1960 - 1962	9	5.4	3.1	57
1957 - 1959	10	7.7	5.0	65
1954 - 1956	6	11.0	8.4	76
1951 - 1953	9	14.1	9.4	67
1948 - 1950	14	17.2	11.6	67
1945 - 1947	8	20.4	16.3	80
1942 - 1944	4	23.0	17.3	75
1939 - 1941	6	25.6	17.2	67
Before 1939	5	35.0	21.8	62

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	110	-	-	-	-	-
Have been active in other States1/	53	15	12	5	32	3
Connecticut	4	1	-	1	2	-
Delaware	1	-	-	-	1	-
Florida	1	-	1	-	-	-
Georgia	1	-	1	-	-	-
Maine	7	4	1	-	2	-
Maryland	1	1	-	-	-	-
Massachusetts	34	5	7	1	20	1
Minnesota	4	-	-	-	3	1
New Jersey	1	-	1	-	-	-
New York	3	1	-	2	-	-
Pennsylvania	2	2	-	-	-	-
Rhode Island	2	-	-	-	2	-
Tennessee	1	-	-	-	1	-
Vermont	4	-	1	1	1	1
Washington	1	1	-	-	-	-
Have not been active in other States	56	-	-	-	-	-
If active in other States not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	110	79	21	31
Single	22	20	8	2
Ever married	88	59	13	29
Now married	80	53	11	27
Other status	8	6	2	2
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	88	59	13	29
With no children	22	19	8	3
With children	61	37	3	24
1	16	11	1	5
2	23	13	1	10
3	10	5	1	5
4	11	7	-	4
5 or more	1	1	-	-
Number of children not reported	5	3	2	2

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	61	37	24
School status			
None in school	17	7	10
Some in school 1/	44	30	14
In grades 1 - 8	35	23	12
In grades 9 - 12	16	14	2
In college or business school	8	7	1
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	55	33	22
1 year or less	15	4	11
2 - 3 years	22	10	12
4 - 5 years	14	3	11
6 - 7 - 8 years	23	14	9
9 - 10 - 11 years	19	15	4
12 - 13 - 14 years	12	10	2
With children 15 and over only	6	4	2
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	110	79	31
A member	35	31	4
Not a member, but a member at one time	48	33	15
Not a member, past membership not reported	-	-	-
Never a member	26	15	11
Current and past membership not reported	1	-	1

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	63	-
Time reported 1/	61	1,711
Less than 8	1	6
8	2	16
9 - 15	11	140
16	3	48
17 - 23	6	121
24	3	72
25 - 31	5	141
32	1	32
33 - 34	1	34
35	3	105
36 - 39	5	184
40	16	640
41 or more	4	172
Time not reported	2	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	63	-
Time reported 1/	61	2,447
4 or less	-	-
5 - 8	-	-
9 - 12	9	103
13 - 16	1	13
17 - 20	1	20
21 - 24	-	-
25 - 28	2	54
29 - 32	2	62
33 - 36	5	176
37 - 40	4	156
41 - 44	2	88
45 - 47	2	92
48 - 49	5	241
50 - 52	28	1,442
Time not reported	2	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	63	-	-
Time reported	61	1,711	2,447
Full time	28	1,101	1,142
Year round	19	745	973
Less than year round	9	356	169
Part time	33	610	1,305
Year round	14	304	710
Less than year round	19	306	595
Time not reported	2	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	63	-	-
Activities reported	63	-	-
Oral prophylaxis	63	39	874
Other clinical services 1/	59	35	116
Patient dental health education 2/	38	25	81
Management of dental office 3/	29	19	76
Dental assisting tasks 4/	14	8	46
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	63	53	8	1	-	1
Dentists reported	57	49	7	1	-	-
1	42	42	-	-	-	-
2	14	7	7	-	-	-
3	1	-	-	1	-	-
4 or more	-	-	-	-	-	-
Number of dentists not reported	6	4	1	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	63
Worked for general practitioner only	59
Worked for oral surgeon	1
Type not reported	3

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	63	19	9	14	19	2
Reporting type(s) of compensation	62	19	9	14	18	2
Salary only	39	17	8	4	9	1
Commission only	19	1	1	8	8	1
Both salary and commission	3	1	-	2	-	-
Did not receive compensation 2/	1	-	-	-	1	-
Type of compensation not reported	1	-	-	-	1	-

1/ See Table C-1c for definitions of time worked.
2/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	63	19	9	14	19	2
Earnings reported	53	19	8	10	15	1
$1,000 or less	8	-	1	-	7	-
1,000 - 1,999	7	-	4	1	2	-
2,000 - 2,999	6	-	1	3	2	-
3,000 - 3,999	8	2	1	3	2	-
4,000 - 4,999	9	6	1	1	1	-
5,000 - 5,999	9	8	-	1	-	-
6,000 - 6,999	2	2	-	-	-	-
7,000 - 7,999	3	1	-	1	-	1
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	-	1	-
Earnings not reported	10	-	1	4	4	1

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	31
Reasons reported 1/	30
Full-time family obligations	21
Employment in another occupation	3
Attending school	-
Beyond age to practice	-
Poor health	3
Loss of skill to practice	-
Unable to find suitable position as hygienist	-
She prefers not to work	15
Husband does not want her to work	7
Another reason specified	1
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	31	3	7	15	6
Degree reported	24	3	6	15	-
Very definite	4	2	2	-	-
Fairly definite	6	1	4	1	-
Not at all definite	14	-	-	14	-
Degree not reported	7	-	1	-	6

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	10	3	6	1	-
Time until return reported	10	3	6	1	-
Within the next year	3	2	1	-	-
Within the next 5 years	3	-	3	-	-
Within the next 10 years	4	1	2	1	-
Within the next 15 years	-	-	-	-	-
More than 15 years from now	-	-	-	-	-
Never	-	-	-	-	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	9	3	3	3	-	-
Preferred time reported	8	2	3	3	-	-
8 hours a day	-	-	-	-	-	-
5 days a week	-	-	-	-	-	-
Less than 5 days a week	-	-	-	-	-	-
Less than 8 hours a day	8	2	3	3	-	-
5 days a week	-	-	-	-	-	-
Less than 5 days a week	8	2	3	3	-	-
Time preferred not reported	1	1	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	31
Conditions reported 1/	23
When youngest child starts elementary school	18
When youngest child starts high school	1
When youngest child starts college	2
When a position is available in her community	7
When husband needs her in his practice, if he is a dentist	1
After completion of refresher training, if such training were available in a nearby community college or university	1
After completion of additional college training which would qualify her for a more advanced position as a hygienist	-
Because of illness, disability or death of husband 2/	-
Another condition specified	2
Condition not reported	8

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	31
Reasons reported 1/	29
For self satisfaction	25
To add to the family income for children's education	12
For other financial reasons	7
To keep in practice 2/	-
Another reason specified	2
Reasons not reported	2

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	31
Situations reported 1/	15
Lack of opportunities for hygienist in her community	6
Feels she might be too old to practice again	4
Feels she might have lost her skill to practice	3
Has too great an investment in another occupation	-
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	2
Another situation specified	3
No situation was reported	16

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	31	-	-	-	-
Employed in 3/					
Private dental office	7	1	5	1	-
Dental hygiene school or other dental auxiliary program	-	-	-	-	-
Elementary or secondary school	1	-	1	-	-
City or county health agency	-	-	-	-	-
State health agency	1	-	1	-	-
Other local government agency	-	-	-	-	-
Other state government agency	-	-	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	1	1	-	-	-
Private organization	1	-	1	-	-
Type of employer not reported	-	-	-	-	-
Not employed	22	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	61	61	30	16	14	31
Northeast	44	44	23	12	11	21
Connecticut	9	9	5	-	5	4
Maine	1	1	-	-	-	1
Massachusetts	18	18	10	8	2	8
New Hampshire 1/	3	3	3	1	2	-
New Jersey	2	2	1	-	1	1
New York	3	3	1	1	-	2
Pennsylvania	4	4	1	1	-	3
Rhode Island	1	1	-	-	-	1
Vermont	3	3	2	1	1	1
North Central	5	5	-	-	-	5
Illinois	1	1	-	-	-	1
Kansas	1	1	-	-	-	1
Michigan	1	1	-	-	-	1
Nebraska	1	1	-	-	-	1
Ohio	1	1	-	-	-	1
South	6	6	3	2	1	3
District of Columbia	1	1	1	1	-	-
Florida	3	3	1	-	1	2
Maryland	1	1	-	-	-	1
North Carolina	1	1	1	1	-	-
West	6	6	4	2	2	2
California	6	6	4	2	2	2

1/ Three responding hygienists who were residents of New Hampshire indicated that they were employed in neighboring states.

Table E-2 -- Year Certificate or Degree Was Received, by Current Professional Status

Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	61	30	31
1957 - 1966	21	7	14
1947 - 1956	20	11	9
1937 - 1946	13	6	7
Before 1937	7	6	1

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	61	-	46	-	-	-	14	1
Year reported	58	811	45	41	551	180.5	13	-
1966	1	-	1	-	-	-	-	-
1965	2	2	1	1	1	1.0	1	-
1964	4	8	4	4	8	6.0	-	-
1963	-	-	-	-	-	-	-	-
1962	1	4	-	-	-	-	1	-
1961	3	15	3	3	15	3.5	-	-
1960	4	24	4	4	24	14.5	-	-
1959	4	28	4	4	28	6.5	-	-
1958	4	32	4	3	24	5.0	-	-
1957	3	27	3	2	18	9.0	-	-
1956	1	10	-	-	-	-	1	-
1955	1	11	1	1	11	11.0	-	-
1954	3	36	2	2	24	12.0	1	-
1953	1	13	1	1	13	3.0	-	-
1952	1	14	1	1	14	5.0	-	-
1951	-	-	-	-	-	-	-	-
1950	4	64	1	1	16	5.0	3	-
1945 - 1949	7	130	2	2	37	14.0	5	-
1940 - 1944	7	167	7	7	167	47.0	-	-
1935 - 1939	4	113	4	4	113	13.0	-	-
Before 1935	3	113	2	1	38	25.0	1	-
Year not reported	3	-	1	-	-	-	1	1

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	31
Reasons reported 1/	31
Full-time family obligations	19
Employment in another occupation	3
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	2
Unable to find suitable position as nygienist	-
She prefers not to work	4
Husband does not want her to work	1
Not licensed in state where she currently resides	15
Another reason specified	3
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

NEW JERSEY

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Cooperative Project of the

New Jersey State Board of Dentistry

and the American Association of Dental Examiners

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, Division of Dental Health
Resource Analysis Branch

December 1968

INTRODUCTION

In November 1966, the New Jersey State Board of Dentistry conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in New Jersey, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The New Jersey survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health. U. S. Public Health Service, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out of state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	822	100	743	90
In New Jersey	508	62	464	91
In other States	313	38	279	89
In foreign countries	1	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in New Jersey by Location

Characteristics	Licensed hygienists	In New Jersey	In other States
Total respondents	743	464	279
Current status			
Active	416	275	141
Inactive	327	189	138
Age in 1966			
Under 25	241	158	83
25 - 29	217	123	94
30 - 34	147	95	52
35 & over	133	85	48
Dental hygiene school			
Fairleigh Dickinson University	228	151	77
All other schools	511	311	200
Year hygiene training completed			
1962-1966	258	166	92
1957-1961	212	118	94
1952-1956	154	104	50
Before 1952	110	71	39
Professional activity in New Jersey			
Ever active in New Jersey	564	425	139
Never active in New Jersey	172	37	135

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	464
Active	275
Employed	260 1/
Private dental office	250
Dental hygiene school or other auxiliary program	5
Elementary or secondary school (public or private)	2
City or county health agency	1
State health agency	-
Other local government agency	-
Other state government agency	-
Army, navy, airforce	1
Other federal agency	1
Private agency	1
Not reported	2
Unemployed (seeking work as dental hygienist)	15
Inactive	189

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	508	464	275	60	189
*Atlantic	17	14	4	2	10
*Bergen	98	89	55	12	34
*Burlington	24	23	12	2	11
*Camden	32	29	17	7	12
Cape May	6	6	3	2	3
Cumberland	9	8	5	2	3
*Essex	61	56	35	5	21
*Gloucester	8	8	4	2	4
*Hudson	7	7	5	1	2
Hunterdon	7	7	6	-	1
*Mercer	18	17	8	-	9
Middlesex	29	27	14	3	13
Monmouth	33	27	18	5	9
*Morris	36	33	13	3	20
Ocean	13	12	8	1	4
*Passaic	22	21	14	4	7
*Salem	3	3	1	-	2
Somerset	16	15	12	2	3
Sussex	4	4	3	1	1
*Union	59	53	34	5	19
*Warren	2	1	-	-	1
Other locations 1/	4	4	4	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Hygienists employed in New Jersey but residing in Pennsylvania.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	464	275	60	189
Under 20	6	6	-	-
20 - 24 years	152	125	41	27
25 - 29 years	123	61	10	62
30 - 34 years	95	30	3	65
35 - 39 years	36	17	3	19
40 - 44 years	18	12	2	6
45 - 49 years	17	13	1	4
50 - 54 years	11	8	-	3
55 - 59 years	2	1	-	1
60 years & over	1	1	-	-
Not reported	3	1	-	2
Median age	28.0	25.5	23.7	30.4

Table B-2c -- Age Distribution in 1966, By Current Professional Status for New Jersey and Selected Counties [1/]

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	464	158	123	95	85	3
Active	275	131	61	30	52	1
Employed in private dental office	250	125	57	25	42	1
Other active	25	6	4	5	10	-
Inactive	189	27	62	65	33	2
*Atlantic County	14	3	3	5	3	-
Active	4	1	-	1	2	-
Employed in private dental office	4	1	-	1	2	-
Other active	-	-	-	-	-	-
Inactive	10	2	3	4	1	-
*Bergen County	89	38	29	11	11	-
Active	55	32	12	3	8	-
Employed in private dental office	52	30	12	3	7	-
Other active	3	2	-	-	1	-
Inactive	34	6	17	8	3	-
*Burlington County	23	5	6	5	7	-
Active	12	5	4	2	1	-
Employed in private dental office	11	4	4	2	1	-
Other active	1	1	-	-	-	-
Inactive	11	-	2	3	6	-
*Camden County	29	5	7	9	7	1
Active	17	3	5	4	4	1
Employed in private dental office	16	3	4	4	4	1
Other active	1	-	1	-	-	-
Inactive	12	2	2	5	3	-
*Essex County	56	19	13	11	13	-
Active	35	18	6	4	7	-
Employed in private dental office	30	17	6	1	6	-
Other active	5	1	-	3	1	-
Inactive	21	1	7	7	6	-

cont'd.

Table B-2c -- Age Distribution in 1966, By Current Professional Status (cont'd.)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Mercer County	17	5	3	6	2	1
Active	8	4	1	1	2	-
Employed in private dental office	6	4	1	1	-	-
Other active	2	-	-	-	2	-
Inactive	9	1	2	5	-	1
Middlesex County	27	11	8	7	1	-
Active	14	9	3	2	-	-
Employed in private dental office	14	9	3	2	-	-
Other active	-	-	-	-	-	-
Inactive	13	2	5	5	1	-
Monmouth County	27	13	3	7	4	-
Active	18	10	2	2	4	-
Employed in private dental office	17	10	2	1	4	-
Other active	1	-	-	1	-	-
Inactive	9	3	1	5	-	-
*Morris County	33	9	11	9	3	1
Active	13	6	6	-	1	-
Employed in private dental office	13	6	6	-	1	-
Other active	-	-	-	-	-	-
Inactive	20	3	5	9	2	1
*Passaic County	21	10	3	3	5	-
Active	14	10	-	1	3	-
Employed in private dental office	13	9	-	1	3	-
Other active	1	1	-	-	-	-
Inactive	7	-	3	2	2	-
Somerset County	15	6	3	2	4	-
Active	12	6	1	1	4	-
Employed in private dental office	12	6	1	1	4	-
Other active	-	-	-	-	-	-
Inactive	3	-	2	1	-	-

cont'd.

Table B-2c -- Age Distribution in 1966, By Current Professional Status (cont'd.)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Union County	53	17	17	11	8	-
Active	34	12	10	5	7	-
Employed in private dental office	28	12	8	5	3	-
Other active	6	-	2	-	4	-
Inactive	19	5	7	6	1	-
All other counties	60	17	17	9	17	-
Active	39	15	11	4	9	-
Employed in private dental office	34	14	10	3	7	-
Other active	5	1	1	1	2	-
Inactive	21	2	6	5	8	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties reporting 14 or more responding hygienists.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	464	275	189
With formal academic training	464	275	189
Fairleigh Dickinson University	151	98	53
University of Pennsylvania	93	45	48
Temple University	84	43	41
Columbia University	26	15	11
University of Bridgeport 1/	20	11	9
New York City Community College 2/	16	8	8
Forsyth School for Dental Hygienists	9	7	2
Guggenheim School for Dental Hygienists	8	8	-
Monroe Community College 3/	7	4	3
State University of New York at Farmingdale 4/	7	6	1
Erie County Technical Institute 5/	5	5	-
Howard University	4	3	1
University of Vermont	4	2	2
West Liberty State College	4	1	3
Marquette University	4	3	1
Northwestern University	3	-	3
Westbrook Junior College	3	3	-
University of Michigan	2	1	1
Broome Technical Community College	2	2	-
University of Alabama	1	1	-
Baylor University	1	1	-
University of Louisville	1	1	-
Meharry Medical College	1	1	-
University of Minnesota	1	1	-
Ohio State University	1	1	-

cont'd.

Table B-3a -- School Attended for Dental Hygiene Training (cont'd.)

School	Instate hygienists	Active	Inactive
With formal academic training (cont'd.)			
Onondaga Community College	1	1	-
Palm Beach Junior College	1	-	1
University of Rhode Island	1	1	-
University of Southern California	1	1	-
School not reported	2	1	1
With no formal academic training	-	-	-

1/ Includes any graduates of Fones School of Dental Hygiene.

2/ Includes any graduates of Brooklyn Community College, New York State Institute of Applied Arts and Science - Brooklyn.

3/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.

4/ Includes any graduates of Long Island Agricultural and Technical Institute.

5/ Includes any graduates of New York State Institute of Applied Arts and Science - Buffalo.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, for Selected Schools

Year	All schools		Fairleigh Dickinson		University of Pennsylvania		Temple University		Schools in New York		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Instate hygienists	464	275	151	98	93	45	84	43	72	49	64	40
1966	38	36	18	18	7	6	2	2	4	4	7	6
1965	34	31	12	12	3	3	4	3	5	4	10	9
1964	26	20	10	7	2	1	6	5	3	3	5	4
1963	32	25	14	11	5	4	7	6	3	2	3	2
1962	36	24	13	10	7	5	8	4	6	4	2	1
1961	27	13	11	7	6	2	4	1	-	-	6	3
1960	20	6	6	3	4	1	2	1	5	1	3	-
1959	25	13	9	5	4	2	5	2	4	3	3	1
1958	19	8	7	3	4	2	5	1	2	1	1	1
1957	27	14	7	4	9	4	5	3	2	1	4	2
1956	37	14	15	5	6	2	7	3	4	2	5	2
1955	29	6	11	5	4	-	10	1	3	-	1	-
1954	7	4	4	2	-	-	-	-	2	1	1	1
1953	14	7	5	2	3	2	3	2	1	1	2	-
1952	17	5	5	1	4	-	3	2	4	2	1	-
1951	10	5	-	-	4	1	2	1	2	1	2	2
1950	5	4	-	-	-	-	1	1	3	2	1	1
1945-1949	19	8	-	-	9	3	6	3	-	-	4	2
1940-1944	17	15	-	-	5	5	3	2	7	6	2	2
Before 1940	20	13	-	-	7	2	1	-	12	11	-	-
Not reported	5	4	4	3	-	-	-	-	-	-	1	1

Table B-3c -- County Location, by Selected Schools

County	All schools		Fairleigh Dickinson		University of Pennsylvania		Temple University		Schools in New York		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Total	464	275	151	98	93	45	84	43	72	49	64	40
*Atlantic	14	4	1	1	6	2	4	1	1	-	2	-
*Bergen	89	55	55	40	4	1	9	1	13	9	8	4
*Burlington	23	12	2	1	6	1	8	6	4	2	3	2
*Camden	29	17	1	1	10	5	15	9	-	-	3	2
Cape May	6	3	1	1	2	-	2	1	-	-	1	1
Cumberland	8	5	1	1	3	2	2	-	-	-	2	2
*Essex	56	35	15	10	13	8	4	3	13	9	11	5
*Gloucester	8	4	1	-	5	4	-	-	-	-	2	-
*Hudson	7	5	2	2	2	1	-	-	2	2	1	-
Hunterdon	7	6	4	4	1	-	1	1	-	-	1	1
*Mercer	17	8	2	-	5	3	8	3	1	1	1	1
Middlesex	27	14	8	3	2	-	5	3	8	6	4	2
Monmouth	27	18	8	5	7	4	3	1	5	4	4	4
*Morris	33	13	16	4	5	1	3	1	5	4	4	3
Ocean	12	8	5	3	4	2	1	1	1	1	1	1
*Passaic	21	14	9	7	1	-	4	2	4	2	3	3
*Salem	3	1	-	-	1	-	1	1	-	-	1	-
Somerset	15	12	4	4	5	4	2	1	3	2	1	1
Sussex	4	3	-	-	-	-	-	-	4	3	-	-
*Union	53	34	16	11	10	7	10	6	8	4	9	6
*Warren	1	-	-	-	1	-	-	-	-	-	-	-
Other location 1/	4	4	-	-	-	-	2	2	-	-	2	2

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Responding hygienists employed in New Jersey, but residing in Pennsylvania.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	464	275	189
Dental hygiene certificate only	324	202	122
Additional college, but no degree	88	49	39
Less than 1 year	8	7	1
1 year but less than 2 years	43	22	21
2 years but less than 3 years	26	13	13
3 years but less than 4 years	1	-	1
4 or more years	1	-	1
Number of years not reported	9	7	2
Bachelor's degree	45	19	26
Master's degree	3	2	1
Doctoral degree	1	1	-
Level of college training not reported	3	2	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	464	275	189
Have seriously considered returning	213	138	75
Now enrolled	21	14	7
Definitely planning to enroll	22	19	3
Still considering enrollment	141	87	54
Definitely decided not to enroll	22	15	7
Current plans not reported	7	3	4
Have never considered returning	221	120	101
Plans to continue education not reported	30	17	13

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	184	120	64
Goal reported 2/	154	99	55
Instructor in a school of dental hygiene	57	45	12
Director of a school of dental hygiene	13	11	2
Dentist	6	2	4
Public health dental hygienist 3/	30	16	14
Hygienist in elementary or high school 3/	15	11	4
Other goal in dental hygiene specified	15	8	7
Goal outside dental hygiene specified	53	30	23
Goal not reported	30	21	9

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	185	22	141	22
Obstacles reported 2/	171	19	134	18
Lack of course offerings in a nearby school	42	4	32	6
Lack of sufficient funds	41	8	31	2
Family obligations	123	9	101	13
Lack of specific information on opportunities available	29	-	26	3
Age 3/	-	-	-	-
Lack of time 3/	10	2	7	1
Other obstacle specified	6	1	5	-
Obstacles not reported	14	3	7	4

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	464	275	189
Have taken courses 1/	27	24	3
School of dental hygiene	13	11	2
State or local dental hygiene association	2	2	-
Dental school	2	2	-
State or local dental association	13	13	-
Other sponsor	-	-	-
Sponsor not reported	1	-	1
Have not taken courses	407	231	176
If courses taken not reported	30	20	10

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	275	151	90	34
2 years or less 1/	136	76	43	17
3 - 5	59	32	22	5
6 - 10	48	25	18	5
11 years or more	20	12	5	3
Years not reported	12	6	2	4
Inactive hygienists, by last year active in this State	189	110	49	30
1964 or later	69	44	15	10
1961 - 1963	32	16	10	6
1956 - 1960	40	23	10	7
Before 1956	12	7	4	1
Never active	28	15	9	4
Year not reported	8	5	1	2

1/ Includes 8 hygienists seeking work as a dental hygienist who had never been active in the State.

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	464	-	425	-	-	-	275	-	-	-
Year reported	454	2,964	417	368	2,608	1,535.5	268	219	1,288	1,020.5
1966	48	-	39 2/	-	-	-	44	-	-	-
1965	44	44	43	43	43	70.0	38	39	38	65.0
1964	36	72	36	36	72	63.0	29	29	58	51.0
1963	37	111	36	36	108	92.0	29	29	87	78.5
1962	30	120	27	27	108	91.0	21	21	84	75.0
1961	30	150	28	27	135	95.0	14	13	65	53.0
1960	24	144	22	19	114	70.0	10	8	48	36.0
1959	26	182	24	23	161	101.0	13	12	84	64.0
1958	17	136	15	15	120	63.0	5	5	40	27.0
1957	25	225	23	22	198	112.5	12	11	99	82.0
1956	38	380	33	33	330	180.5	12	12	120	97.0
1955	25	275	24	23	253	128.0	8	7	77	61.0
1954	9	108	8	8	96	68.0	7	7	84	66.0
1953	13	169	13	11	143	102.0	6	6	78	66.0
1952	17	238	16	16	224	95.5	4	4	56	48.0
1951	7	105	7	7	105	35.0	3	3	45	24.0
1950	7	112	7	7	112	50.0	5	5	80	34.0
1945-1949	20	360	15	14	253	118.0	8	8	145	93.0
1940-1944	-	-	-	-	-	-	-	-	-	-
1935-1939	-	-	-	-	-	-	-	-	-	-
Before 1935	1	33	1	1	33	1.0	-	-	-	-
Year not reported	10	-	8	-	-	-	7	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

2/ Does not include 5 dental hygienists seeking work as a dental hygienist in New Jersey who had never been active in the State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	7.1	4.2	59
1963 - 1965	31	1.9	1.9	100
1960 - 1962	20	4.9	3.5	71
1957 - 1959	16	8.0	4.6	58
1954 - 1956	17	10.6	5.9	56
1951 - 1953	9	13.9	6.8	49
1948 - 1950	6	17.2	7.5	44
Before 1948	1	27.0	9.5	35

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	464	-	-	-	-	-
Have been active in other States 1/	187	54	35	35	84	9
California	2	1	1	-	-	-
Connecticut	14	1	2	4	7	-
Delaware	4	-	1	-	3	-
District of Columbia	4	1	1	-	2	-
Florida	12	4	3	-	4	1
Georgia	1	-	-	1	-	-
Illinois	2	-	1	1	-	-
Indiana	2	-	1	-	-	1
Maine	4	1	-	1	1	1
Maryland	2	2	-	-	-	-
Massachusetts	13	4	3	3	3	-
Michigan	4	1	-	-	2	1
Minnesota	1	-	-	-	1	-
New Hampshire	2	1	-	1	-	-
New York	70	18	8	10	31	3
Ohio	3	-	2	-	1	-
Pennsylvania	68	18	10	11	27	2
Tennessee	2	1	-	-	1	-
Vermont	1	-	-	1	-	-
Virginia	2	1	-	-	1	-
West Virginia	1	-	-	1	-	-
Wisconsin	2	-	2	-	-	-
Hawaii	1	-	-	1	-	-
Have not been active in other States	270	-	-	-	-	-
If active in other States not reported	7	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	464	275	60	189
Single	88	83	29	5
Ever married	376	192	31	184
Now married	363	181	27	182
Other status	13	11	4	2
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	376	192	31	184
With no children	70	60	21	10
With children	288	115	5	173
1	79	38	5	41
2	126	51	-	75
3	59	16	-	43
4	19	7	-	12
5 or more	5	3	-	2
Number of children not reported	18	17	5	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	288	115	173
School status			
None in school	116	38	78
Some in school 1/	171	76	95
In grades 1 - 8	149	60	89
In grades 9 - 12	38	24	14
In college or business school	14	10	4
School status not reported	1	1	-
Age of children			
With children under 15 years 1/	270	103	167
1 year or less	96	23	73
2 - 3 years	103	35	68
4 - 5 years	110	32	78
6 - 7 - 8 years	108	47	61
9 - 10 - 11 years	54	20	34
12 - 13 - 14 years	36	19	17
With children 15 and over only	14	11	3
Age not reported	1	1	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	464	275	189
A member	155	125	30
Not a member, but a member at one time	197	94	103
Not a member, past membership not reported	3	-	3
Never a member	109	56	53
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	250	-
Time reported 1/	236	6,329
Less than 8	13	64
8	9	72
9 - 15	22	248
16	18	288
17 - 23	28	558
24	5	120
25 - 31	27	759
32	16	512
33 - 34	6	203
35	17	595
36 - 39	39	1,438
40	27	1,080
41 or more	9	392
Time not reported	14	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	250	-
Time reported 1/	236	9,370
4 or less	6	7
5 - 8	6	40
9 - 12	6	66
13 - 16	13	193
17 - 20	16	301
21 - 24	5	118
25 - 28	5	131
29 - 32	11	336
33 - 36	8	285
37 - 40	19	746
41 - 44	6	257
45 - 47	4	186
48 - 49	18	869
50 - 52	113	5,835
Time not reported	14	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	250	-	-
Time reported	236	6,329	9,370
Full time	92	3,505	3,711
Year round	59	2,238	3,032
Less than year round	33	1,267	679
Part time	144	2,824	5,659
Year round	72	1,651	3,672
Less than year round	72	1,173	1,987
Time not reported	14	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	250	-	-
Activities reported	249	-	-
Oral prophylaxis	248	126	2,243
Other clinical services 1/	228	112	465
Patient dental health education 2/	189	96	323
Management of dental office 3/	109	53	167
Dental assisting tasks 4/	69	31	150
Activities not reported	1	1	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	250	192	48	7	2	1
Dentists reported	245	189	47	7	2	-
1	150	148	2	-	-	-
2	58	25	33	-	-	-
3	26	11	10	5	-	-
4 or more	11	5	2	2	2	-
Number of dentists not reported	5	3	1	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	250
Worked for general practitioner only	214
Worked for dental specialist 1/	33
Endodontist	-
Oral surgeon	-
Orthodontist	11
Pedodontist	3
Periodontist	18
Prosthodontist	1
Type not reported	3

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	250	59	33	72	72	14
Reporting type(s) of compensation	246	57	33	70	72	14
Salary only	183	49	27	47	49	11
Commission only	38	4	3	17	12	2
Both salary and commission only	16	3	1	4	8	-
Salary only, commission only 2/	2	-	1	-	-	1
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	7	1	1	2	3	-
Type of compensation not reported	4	2	-	2	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	250	59	33	72	72	14
Earnings reported	203	52	25	60	62	4
$1,000 or less	28	-	3	2	21	2
1,000 - 1,999	24	-	6	4	14	-
2,000 - 2,999	22	-	7	4	11	-
3,000 - 3,999	20	1	1	13	5	-
4,000 - 4,999	11	1	1	7	1	1
5,000 - 5,999	38	19	3	13	3	-
6,000 - 6,999	29	16	1	10	1	1
7,000 - 7,999	15	9	2	1	3	-
8,000 - 8,999	6	2	-	4	-	-
9,000 - 9,999	2	2	-	-	-	-
10,000 & over	1	1	-	-	-	-
None 3/	7	1	1	2	3	-
Earnings not reported	47	7	8	12	10	10

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	189
Reasons reported 1/	189
Full-time family obligations	165
Employment in another occupation	16
Attending school	7
Beyond age to practice	-
Poor health	4
Loss of skill to practice	3
Unable to find suitable position as hygienist	7
She prefers not to work	28
Husband does not want her to work	18
Another reason specified	3
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	189	25	70	73	21
Degree reported	184	25	70	73	16
Very definite	32	21	6	1	4
Fairly definite	80	2	51	10	7
Not at all definite	72	2	3	62	5
Degree not reported	5	-	-	-	5

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	112	23	67	11	11
Time until return reported	110	23	67	11	9
Within the next year	16	7	7	2	-
Within the next 5 years	47	11	26	5	5
Within the next 10 years	23	1	19	2	1
Within the next 15 years	7	-	5	2	-
More than 15 years from now	4	2	2	-	-
Never	13	2	8	-	3
Time not reported	2	-	-	-	2

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	80	14	37	20	5	4
Preferred time reported	80	14	37	20	5	4
8 hours a day	26	6	14	4	1	1
5 days a week	3	2	1	-	-	-
Less than 5 days a week	23	4	13	4	1	1
Less than 8 hours a day	54	8	23	16	4	3
5 days a week	12	2	4	4	1	1
Less than 5 days a week	42	6	19	12	3	2
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	189
Conditions reported 1/	171
When youngest child starts elementary school	100
When youngest child starts high school	24
When youngest child starts college	20
When a position is available in her community	26
When husband needs her in his practice, if he is a dentist	25
After completion of refresher training, if such training were available in a nearby community college or university	37
After completion of additional college training which would qualify her for a more advanced position as a hygienist	13
Because of illness, disability or death of husband 2/	3
Another condition specified	8
Condition not reported	18

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	189
Reasons reported 1/	174
For self satisfaction	146
To add to the family income for children's education	61
For other financial reasons	32
To keep in practice 2/	-
Another reason specified	6
Reasons not reported	15

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	189
Situations reported 1/	101
Lack of opportunities for hygienist in her community	42
Feels she might be too old to practice again	7
Feels she might have lost her skill to practice	44
Has too great an investment in another occupation	11
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	1
Another situation specified	7
No situation was reported	88

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	189	-	-	-	-
Employed in 3/					
Private dental office	30	7	17	4	2
Private organization	4	1	3	-	-
Type of employer not reported	2	-	-	-	2
Not employed	157	-	-	-	-

1/ Includes activity in any State.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	313	279	141	103	38	138
Northeast	184	163	87	62	25	76
Connecticut	14	13	6	2	4	7
Maine	2	1	1	-	1	-
Massachusetts	21	20	11	10	1	9
New Hampshire	2	2	-	-	-	2
New Jersey[1/]	4	4	4	3	1	-
New York	75	64	32	23	9	32
Pennsylvania	65	58	32	23	9	26
Rhode Island	-	-	-	-	-	-
Vermont	1	1	1	1	-	-
South	73	66	32	24	8	34
Alabama	2	2	1	1	-	1
Arkansas	-	-	-	-	-	-
Delaware	4	4	3	3	-	1
District of Columbia	2	2	2	2	-	-
Florida	16	13	9	6	3	4
Georgia	2	2	1	1	-	1
Kentucky	1	1	1	-	1	-
Louisiana	-	-	-	-	-	-
Maryland	13	11	3	3	-	8
Mississippi	2	2	1	-	1	1
North Carolina	2	1	-	-	-	1
Oklahoma	2	2	-	-	-	2
South Carolina	1	1	1	1	-	-
Tennessee	2	2	1	1	-	1
Texas	7	6	1	-	1	5
Virginia	14	14	6	5	1	8
West Virginia	3	3	2	1	1	1

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	27	25	10	9	1	15
Illinois	7	7	4	4	-	3
Indiana	2	1	-	-	-	1
Iowa	-	-	-	-	-	-
Kansas	1	1	-	-	-	1
Michigan	3	3	1	-	1	2
Minnesota	-	-	-	-	-	-
Missouri	1	1	-	-	-	1
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	10	10	4	4	-	6
South Dakota	-	-	-	-	-	-
Wisconsin	3	2	1	1	-	1
West	29	25	12	8	4	13
Alaska	1	1	1	1	-	-
Arizona	-	-	-	-	-	-
California	24	21	8	6	2	13
Colorado	1	-	-	-	-	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-
Nevada	-	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	1	1	1	-	1	-
Washington	1	1	1	1	-	-
Wyoming	1	1	1	-	1	-

1/ Four responding hygienists who were residents of New Jersey indicated that they were employed in neighboring States.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-State hygienists	Active	Inactive
Total	279	141	138
Fairleigh Dickinson University	77	39	38
1966	4	3	1
1965	3	3	-
1964	8	6	2
1963	12	7	5
1962	7	4	3
1961	8	4	5
1960	5	1	4
1959	7	1	6
1958	4	1	3
1957	6	4	2
1956	3	1	2
1955	5	2	3
1954	-	-	-
1953	2	1	1
1952	2	-	2
Year not reported	1	1	-
All other schools	200	101	99
1962-1966	58	46	12
1957-1961	64	22	42
1952-1956	38	17	21
Before 1952	39	16	23
Year not reported	1	-	1
School not reported	2	1	1

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	279	-	139	-	-	-	135	6
Year reported	273	2,000	139	139	1,118	307.0	-	-
1966	15	-	1	1	-	-	14	-
1965	16	16	9	9	9	10.5	8	-
1964	23	46	8	8	16	12.0	15	-
1963	25	75	13	13	39	25.5	12	-
1962	19	76	9	9	36	12.0	10	-
1961	18	90	8	8	40	8.5	10	-
1960	17	102	10	10	60	23.5	7	-
1959	20	140	10	10	70	26.0	10	-
1958	16	128	13	13	104	31.5	3	-
1957	22	198	10	10	90	16.5	12	-
1956	9	90	3	3	30	4.0	6	-
1955	15	165	11	11	121	22.0	4	-
1954	5	60	3	3	36	5.0	2	-
1953	13	169	9	9	117	21.0	4	-
1952	9	126	7	7	98	17.0	2	-
1951	5	75	2	2	30	10.0	3	-
1950	5	80	4	4	64	27.0	1	-
1949	15	255	5	5	85	13.0	10	-
1948	5	90	3	3	54	17.0	2	-
1947	1	19	1	1	19	5.0	-	-
Year not reported	6	-	-	-	-	-	-	6

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	138
Reasons reported 1/	138
Full-time family obligations	111
Employment in another occupation	9
Attending school	2
Beyond age to practice	1
Poor health	2
Loss of skill to practice	4
Unable to find suitable position as hygienist	4
She prefers not to work	24
Husband does not want her to work	21
Not licensed in state where she currently resides	43
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In June 1966, the New Mexico Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in New Mexico, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The New Mexico survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

August, 1968

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4 Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	101	100	70	69
In New Mexico	67	66	46	69
In other states	34	34	24	71
In foreign countries	-	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in New Mexico, by Location

Characteristics	Licensed hygienists	In New Mexico	In other states
Total	70	46	24
Current status			
Active	52	37	15
Inactive	18	9	9
Age in 1966			
Under 25	23	19	4
25 - 29	21	13	8
30 - 34	8	3	5
35 & over	18	11	7
Dental hygiene school			
University of New Mexico	24	20	4
All other schools	46	26	20
Year hygiene training completed			
1961 - 1965	42	29	13
1956 - 1960	13	7	6
1951 - 1955	4	2	2
1950 or earlier	11	8	3
Professional activity in New Mexico			
Ever Active in New Mexico	60	44	16
Never Active in New Mexico	10	2	8

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	46
Active	37
Employed	34 1/
Private dental office	28
Dental hygiene school or other auxiliary program	2
Elementary or secondary school (public or private)	-
City or county health agency	-
State health agency	-
Other local government agency	-
Other state government agency	-
Army, navy, airforce	2
Other federal agency	2
Private agency	-
Unemployed (seeking work as dental hygienist)	3
Inactive	9

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time year round	
Total	67	46	37	15	9
* Bernalillo	43	29	24	9	5
Chaves	2	1	-	-	1
Curry	6	4	3	3	1
Dona Ana	2	2	2	1	-
Los Alamos	3	2	1	-	1
Luna	1	-	-	-	-
Otero	1	1	1	1	-
Rio Arriba	1	1	1	-	-
Sandoval	2	2	1	-	1
San Juan	1	1	1	-	-
Sante Fe	2	1	1	-	-
Valencia	2	1	1	-	-
Other locations 2/	1	1	1	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 20 of the counties.

2/ Hygienists employed in New Mexico but residing in Texas.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	46	37	15	9
20 - 24 years	19	16	5	3
25 - 29 years	13	10	4	3
30 - 34 years	3	3	2	-
35 - 39 years	1	-	-	1
40 - 44 years	2	2	1	-
45 - 49 years	3	1	-	2
50 - 54 years	-	-	-	-
55 - 59 years	3	3	2	-
60 years & over	2	2	1	-
Not reported	-	-	-	-
Median age	26.5	26.2	28.1	*

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status, For New Mexico and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	46	19	13	3	11	-
Active	37	16	10	3	8	-
Employed in private dental office	28	13	9	2	4	-
Other active	9	3	1	1	4	-
Inactive	9	3	3	-	3	-
Bernalillo County	29	12	8	3	6	-
Active	24	11	6	3	4	-
Employed in private dental office	17	8	6	2	1	-
Other active	7	3	-	1	3	-
Inactive	5	1	2	-	2	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	46	37	9
With formal academic training	46	37	9
University of New Mexico	20	17	3
Caruth School of Dental Hygiene, Baylor University	6	5	1
University of Missouri at Kansas City 1/	6	4	2
Marquette University	3	2	1
Forsyth School of Dental Hygiene	2	2	-
Northwestern University	2	2	-
University of Pennsylvania	2	1	1
Erie County Technical Institute 2/	1	-	1
University of Detroit	1	1	-
University of Minnesota	1	1	-
University of Texas, Dental Branch	1	1	-
University of Vermont	1	1	-
School not reported	-	-	-
With no formal academic training	-	-	-

1/ Includes any graduates of Kansas City - Western Dental College.
2/ Includes any graduates of New York State Institute of Applied Arts and Science - Buffalo.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, for a Selected School

Year	All schools			University of New Mexico		
	Total	Active	Inactive	Total	Active	Inactive
Instate hygienists	46	37	9	20	17	3
1965	7	7	-	7	7	-
1964	7	6	1	6	5	1
1963	10	7	3	7	5	2
1958 - 1962	12	9	3	-	-	-
Before 1958	10	8	2	-	-	-
Not reported	-	-	-	-	-	-

Table B-3c -- County Location by Selected Schools

County 1/	Instate hygienists		University of New Mexico		All other schools	
	Total	Active	Total	Active	Total	Active
Total	46	37	20	17	26	20
Bernalillo	29	24	14	12	15	12
Chaves	1	-	-	-	1	-
Curry	4	3	2	2	2	1
Dona Ana	2	2	-	-	2	2
Los Alamos	2	1	-	-	2	1
Otero	1	1	-	-	1	1
Rio Arriba	1	1	1	1	-	-
Sandoval	2	1	2	1	-	-
San Juan	1	1	-	-	1	1
Santa Fe	1	1	-	-	1	1
Valencia	1	1	1	1	-	-
Other locations 2/	1	1	-	-	1	1

1/ Counties with responding hygienists.
2/ Responding hygienists employed in New Mexico but residing in Texas.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	46	37	9
Dental hygiene certificate only	24	20	4
Additional college, but no degree	16	13	3
Less than 1 year	1	1	-
1 year but less than 2 years	6	5	1
2 years but less than 3 years	8	7	1
3 years but less than 4 years	1	-	1
4 or more years	-	-	-
Number of years not reported	-	-	-
Bachelor's degree	6	4	2
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	46	37	9
Have seriously considered returning	25	21	4
Now enrolled	6	5	1
Definitely planning to enroll	4	3	1
Still considering enrollment	14	12	2
Definitely decided not to enroll	1	1	-
Current plans not reported	-	-	-
Have never considered returning	17	14	3
Plans to continue education not reported	4	2	2

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	24	20	4
Goal reported 2/	22	18	4
Instructor in a school of dental hygiene	12	9	3
Director of a school of dental hygiene	4	3	1
Dentist	2	2	-
Public health dental hygienist 3/	3	3	-
Hygienist in elementary or high school 3/	3	2	1
Other goal in dental hygiene specified	5	4	1
Goal outside dental hygiene specified	5	3	2
Goal not reported	2	2	-

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	19	4	14	1
Obstacles reported 2/	18	4	13	1
Lack of course offerings in a nearby school	7	2	5	-
Lack of sufficient funds	3	-	2	1
Family obligations	12	3	8	1
Lack of specific information on opportunities available	1	-	1	-
Age 3/	-	-	-	-
Lack of time 3/	-	-	-	-
Other obstacle specified	-	-	-	-
Obstacles not reported	1	-	1	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e)
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	46	37	9
Have taken courses 1/	24	19	5
School of dental hygiene	15	11	4
State or local dental hygiene association	13	11	2
Dental school	1	-	1
State or local dental association	5	3	2
Other sponsor	2	2	-
Sponsor not reported	1	-	1
Have not taken courses	20	17	3
If courses taken not reported	2	1	1

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	37	30	4	3
2 years or less	20	16	3	1
3 - 5	11	10	-	1
6 - 10	4	3	-	1
11 years or more	2	1	1	-
Years not reported	-	-	-	-
Inactive hygienists, by last year active in this State	9	5	1	3
1964 or later	6	4	-	2
1961 - 1963	1	-	1	-
1956 - 1960	-	-	-	-
Before 1956	-	-	-	-
Never active	2	1	-	1
Year not reported	-	-	-	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	46	-	44	-	-	-	37	-	-	-
Year reported	46	177	44	44	171	136.5	37	37	139	117.5
1965	10	10	9	9	9	8.0	9	9	9	8.0
1964	8	16	8	8	16	15.0	7	7	14	14.0
1963	12	36	12	12	36	31.5	9	9	27	25.5
1962	2	8	2	2	8	8.0	2	2	8	8.0
1961	3	15	2	2	10	2.0	2	2	10	2.0
1960	2	12	2	2	12	5.0	1	1	6	1.0
1959	3	21	3	3	21	18.0	2	2	14	14.0
1958	3	24	3	3	24	17.0	2	2	16	13.0
1957	1	9	1	1	9	6.0	1	1	9	6.0
1956	-	-	-	-	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-
1954	1	12	1	1	12	12.0	1	1	12	12.0
1953	-	-	-	-	-	-	-	-	-	-
1952	1	14	1	1	14	14.0	1	1	14	14.0
Year not reported	-	-	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	3.9	3.1	79
1963 - 1965	66	2.1	1.9	90
1960 - 1962	14	5.0	2.5	50
1957 - 1959	16	7.7	5.9	77
1954 - 1956	2	12.0	12.0	100
1951 - 1953	2	14.0	14.0	100
1950 or earlier	-	-	-	-

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964-1966	1961-1963	1958-1960	1957 or earlier	Not reported
Total	46	-	-	-	-	-
Have been active in other states 1/	22	8	4	3	10	1
Alabama	1	-	1	-	-	-
Arizona	2	1	1	-	-	-
California	1	-	1	-	-	-
Colorado	1	1	-	-	-	-
Connecticut	1	-	-	-	-	1
Iowa	1	-	-	-	1	-
Kansas	1	1	-	-	-	-
Maine	1	-	-	-	1	-
Michigan	1	-	-	-	1	-
Minnesota	1	-	-	-	1	-
Missouri	4	2	-	2	-	-
Nebraska	1	-	-	-	1	-
Oklahoma	1	-	-	1	-	-
Pennsylvania	2	-	-	-	2	-
Texas	2	2	-	-	-	-
Vermont	1	-	1	-	-	-
Washington	1	1	-	-	-	-
Wisconsin	2	-	-	-	2	-
Wyoming	1	-	-	-	1	-
Have not been active in other states	23	-	-	-	-	-
If active in other states not reported	1	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	46	37	15	9
Single	7	6	3	1
Ever married				
Now married	39	31	12	8
Other status	33	25	8	8
	6	6	4	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	39	31	12	8
With no children	17	15	8	2
With children	22	16	4	6
1	12	9	3	3
2	6	4	-	2
3	3	2	1	1
4	1	1	-	-
5 or more	-	-	-	-
Number of children not reported	-	-	-	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	22	16	6
School status			
None in school	14	9	5
Some in school 1/	8	7	1
In grades 1 - 8	5	4	1
In grades 9 - 12	2	2	-
In college or business school	1	1	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	20	14	6
1 year or less	8	5	3
2 - 3 years	6	4	2
4 - 5 years	5	3	2
6 - 7 - 8 years	4	3	1
9 - 10 - 11 years	4	3	1
12 - 13 - 14 years	3	3	-
With children 15 and over only	2	2	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	46	37	9
A member	33	27	6
Not a member, but a member at one time	11	8	3
Not a member, past membership not reported	-	-	-
Never a member	1	1	-
Current and past membership not reported	1	1	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	28	-
Time reported 1/	25	776
Less than 8	-	-
8	-	-
9 - 15	-	-
16	3	48
17 - 23	2	37
24	3	72
25 - 31	3	81
32	-	-
33 - 34	-	-
35	1	35
36 - 39	5	183
40	8	320
41 or more	-	-
Time not reported	3	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	28	-
Time reported 1/	25	1142
4 or less	-	-
5 - 8	1	8
9 - 12	-	-
13 - 16	-	-
17 - 20	1	20
21 - 24	-	-
25 - 28	1	28
29 - 32	-	-
33 - 36	2	71
37 - 40	-	-
41 - 44	-	-
45 - 47	5	242
48 - 49	-	-
50 - 52	15	773
Time not reported	3	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	28	-	-
Time reported	25	776	1142
Full time	14	538	677
Year round	12	458	613
Less than year round	2	80	64
Part time	11	238	465
Year round	8	177	402
Less than year round	3	61	63
Time not reported	3	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	28	-	-
Activities reported	28	-	-
Oral prophylaxis	28	15	335
Other clinical services 1/	26	15	64
Patient dental health education 2/	25	15	65
Management of dental office 3/	19	12	22
Dental assisting tasks 4/	13	8	12
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	28	22	5	-	-	1
Dentists reported						
1	17	17	-	-	-	-
2	8	4	4	-	-	-
3	2	1	1	-	-	-
4 or more	-	-	-	-	-	-
Number of dentists not reported	1	-	-	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	28
Worked for general practitioner only	24
Worked for dental specialist 1/	3
Endodontist	-
Oral surgeon	-
Orthodontist	-
Pedodontist	1
Periodontist	2
Prosthodontist	-
Type not reported	1

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	28	12	2	8	3	3
Reporting type(s) of compensation						
Salary only	8	5	1	1	1	-
Commission only	12	4	-	7	1	-
Both salary and commission only	6	3	1	-	-	2
Salary only, commission only 2/	-	-	-	-	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	1	-	-	-	1	-
Type of compensation not reported	1	-	-	-	-	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	28	12	2	8	3	3
Earnings reported						
$1,000 or less	-	-	-	-	-	-
1,000 - 1,999	1	-	-	-	1	-
2,000 - 2,999	2	-	1	1	-	-
3,000 - 3,999	1	-	-	1	-	-
4,000 - 4,999	4	1	1	2	-	-
5,000 - 5,999	3	2	-	1	-	-
6,000 - 6,999	6	5	-	1	-	-
7,000 - 7,999	1	1	-	-	-	-
8,000 - 8,999	1	1	-	-	-	-
9,000 - 9,999	1	1	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	-	1	-
Earnings not reported	7	1	-	2	1	3

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	9
Reasons reported 1/	8
Full-time family obligations	6
Employment in another occupation	-
Attending school	1
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	1
She prefers not to work	1
Husband does not want her to work	3
Another reason specified	-
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	9	1	2	4	2
Degree reported					
Very definite	8	1	2	4	1
Fairly definite	3	1	2	-	-
Not at all definite	2	-	-	1	1
Degree not reported	3	-	-	3	-
	1	-	-	-	1

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	5	1	2	1	1
Time until return reported					
Within the next year	5	1	2	1	1
Within the next 5 years	1	-	-	-	1
Within the next 10 years	3	1	1	1	-
Within the next 15 years	-	-	-	-	-
More than 15 years from now	1	-	1	-	-
Never	-	-	-	-	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	9
Conditions reported 1/	7
When youngest child starts elementary school	4
When youngest child starts high school	1
When youngest child starts college	-
When a position is available in her community	1
When husband needs her in his practice, if he is a dentist	1
After completion of refresher training, if such training were available in a nearby community college or university	1
After completion of additional college training which would qualify her for a more advanced position as a hygienist	2
Because of illness, disability or death of husband 2/	1
Another condition specified	1
Condition not reported	2

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2d -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	9
Reasons reported 1/	8
For self satisfaction	7
To add to the family income for children's education	4
For other financial reasons	2
To keep in practice 2/	-
Another reason specified	-
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	9
Situations reported 1/	5
Lack of opportunities for hygienist in her community	4
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	1
Has too great an investment in another occupation	-
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	1
Another situation specified	1
No situation was reported	4

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	34	24	15	13	2	9
Northeast	1	1	1	1	-	-
Connecticut	-	-	-	-	-	-
Maine	1	1	1	1	-	-
Massachusetts	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-
New York	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	5	3	3	3	-	-
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	1	1	1	1	-	-
Georgia	-	-	-	-	-	-
Kentucky	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-
Maryland	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-
Texas	3	2	2	2	-	-
Virginia	1	-	-	-	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	7	5	2	2	-	3
Illinois	-	-	-	-	-	-
Indiana	-	-	-	-	-	-
Iowa	-	-	-	-	-	-
Kansas	2	-	-	-	-	-
Michigan	2	2	-	-	-	2
Minnesota	-	-	-	-	-	-
Missouri	1	1	1	1	-	-
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	1	1	-	-	-	1
South Dakota	-	-	-	-	-	-
Wisconsin	1	1	1	1	-	-
West	21	15	9	7	2	6
Alaska	-	-	-	-	-	-
Arizona	2	-	-	-	-	-
California	8	7	3	3	-	4
Colorado	10	7	6	4	2	1
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	not applicable					
Nevada	1	1	-	-	-	1
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	24	15	9
University of New Mexico	4	4	-
1965	-	-	-
1964	2	2	-
1963	2	2	-
Year not reported	-	-	-
All other schools	20	11	9
1961 - 1965	9	7	2
1956 - 1960	6	1	5
1951 - 1955	2	1	1
1950 or earlier	3	2	1
Year not reported	-	-	-
School not reported	-	-	-

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	24	-	16	-	-	-	8	-
Year reported	24	119	16	16	95	43.0	8	-
1965	1	1	-	-	-	-	1	-
1964	5	10	3	3	6	2.5	2	-
1963	3	9	2	2	6	1.5	1	-
1962	6	24	2	2	8	4.0	4	-
1961	2	10	2	2	10	6.0	-	-
1960	-	-	-	-	-	-	-	-
1959	2	14	2	2	14	9.0	-	-
1958	2	16	2	2	16	6.0	-	-
1957	1	9	1	1	9	5.0	-	-
1956	1	10	1	1	10	6.0	-	-
1955	-	-	-	-	-	-	-	-
1954	-	-	-	-	-	-	-	-
1953	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-
1950	1	16	1	1	16	3.0	-	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in New Mexico.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	9
Reasons reported 1/	9
Full-time family obligations	5
Employment in another occupation	1
Attending school	-
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	-
She prefers not to work	-
Husband does not want her to work	-
Not licensed in state where she currently resides	2
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

RHODE ISLAND

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A

Cooperative Project of the

Rhode Island Board of Examiners in Dentistry

and the American Association of Dental Examiners

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, National Institutes of Health
Division of Dental Health
Resource Analysis Branch

May 1969

INTRODUCTION

In November 1966, the Rhode Island Board of Examiners in Dentistry conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Rhode Island, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Rhode Island survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF HEALTH

STATE OFFICE BUILDING, PROVIDENCE

THE ——— STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF ——— THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____ LAST _____ FIRST _____ MIDDLE _____ MAIDEN (if ever married)

Present Home Address: _____ STREET _____ CITY _____ COUNTY _____ STATE _____ ZIP CODE

License Number: _____ Social Security Number: _____

A. PERSONAL CHARACTERISTICS

A-1
B-2a, 2c,
B-3c
E-1

1. Year of birth: _____ 2. Marital status: ☐ Single (1) ☐ Married (2) ☐ Widowed (3) ☐ Divorced (4) ☐ Separated (5)
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ Grades 1-8 _____ Grades 9-12 _____ College or business school
5. Number of children under 15 years: _____ 1 yr. or under _____ 2-3 yrs. _____ 4-5 yrs. _____ 6-7-8 yrs. _____ 9-10-11 yrs. _____ 12-13-14 yrs.

A-2
B-2b, 2c
B-5a, 5b,
5c

B. TRAINING AND EDUCATION ☐ Check here if no formal academic training in dental hygiene and skip to Section C

A-2
B-3a, 3b,
3c, 3d
E-2

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ Bachelor degree (1) ☐ Associate degree (2) ☐ Certificate or diploma (3)
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ Bachelor degree (1) ☐ Master degree (2) ☐ Other Degree (3) *(specify* _____*)*

C. PROFESSIONAL HISTORY

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
B.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
C.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
D.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ Yes (1) ☐ No (2)
    IF NO, have you ever been a member? ☐ Yes (1) ☐ No (2)

D. CURRENT PROFESSIONAL ACTIVITY

A-2

B-1

15. Current professional status *(check one)*
    1☐ At work as a dental hygienist
    2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
    3☐ Seeking work as a dental hygienist
    4☐ Not working or seeking work as a dental hygienist
    } **If you checked one of these boxes, skip to Section E**

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where?_____
    In what county do you primarily work? _____

17. In a typical week how many hours do you work for your current employers? _____hours
    (use last week if it was typical, otherwise select the most recent week which was typical)

B-1

B-2c

C-1a,1c

E-1

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization*_____ ..... _____

C-2

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify*_____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
    1☐ Yes
    2☐ No

■ **If you currently work in a private dental office complete items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1 _____ Office 2 _____ Office 3 _____ Office 4 _____ Other Offices _____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists? _____ Specify type(s) _____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months? _____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)* _____

26. How many weeks, if any, were you employed in this State? _____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify* _____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify* _____*)*
6☐ Other goal outside dental hygiene *(specify* _____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐ 1 No ☐ 2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

6. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1
E-4

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify_____)*

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A Licensed hygienists
- 1. Survey response
- 2. Selected characteristics of instate and out-of-state licensees

B Instate active and inactive hygienists
- 1. Current professional status
- *2. Location and age
- *3 Education
  (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
- *4. Professional activity since licensure
- *5. Family characteristics
  (Marital status and dependent children)
- 6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
(Hygienists employed in private dental offices)
- *1. Time worked
- 2. Activities performed
- *3 Employing dentists
- *4. Compensation
  (Type and amount)

D. Instate inactive hygienists
- 1. Reasons for not practicing
- *2. Future professional plans
- 3. Professional activity in last year

E Out-of-state hygienists
- 1. Location and current status
- 2. School attended for hygiene training
- 3. Past professional activity in this state
- 4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	173	100	159	92
In Rhode Island	120	69	110	92
In other states	48	28	44	92
In foreign countries	5	3	5	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Rhode Island, by Location

Characteristics	Licensed hygienists	In Rhode Island	In other states
Total respondents	154	110	44
Current status			
Active	89	70	19
Inactive	65	40	25
Age in 1966			
Under 25	50	39	11
25 - 29	20	14	6
30 - 34	22	12	10
35 & over	62	45	17
Dental hygiene school			
University of Rhode Island	39	30	9
All other schools	112	79	33
Year hygiene training completed			
1962 - 1966	52	39	13
1957 - 1961	17	13	4
1952 - 1956	25	13	12
Before 1952	58	45	13
Professional activity in Rhode Island			
Ever active in Rhode Island	134	102	32
Never active in Rhode Island	19	7	12

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	110
Active	70
Employed	68 1/
Private dental office	55
Dental hygiene school or other auxiliary program	3
Elementary or secondary school (public or private)	3
City or county health agency	-
State health agency	1
Other local government agency	1
Other state government agency	2
Army, navy, air force	3
Other federal agency	-
Private agency	3
Not reported	2
Unemployed (seeking work as dental hygienist)	2
Inactive	40

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	120	110	70	19	40
*Bristol	7	7	5	2	2
*Kent	26	25	16	3	9
*Newport	17	15	7	1	8
*Providence	53	46	29	8	17
*Washington	14	14	10	4	4
Other locations 1/	3	3	3	1	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U. S. Bureau of the Budget, Office of Statistical Standards.

1/ Responding hygienists employed in Rhode Island but residing in neighboring states.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	110	70	19	40
Under 20 years	2	2	-	-
20 - 24 years	37	29	10	8
25 - 29 years	14	6	1	8
30 - 34 years	12	5	-	7
35 - 39 years	16	8	1	8
40 - 44 years	11	8	1	3
45 - 49 years	9	7	4	2
50 - 54 years	5	2	-	3
55 - 59 years	3	2	1	1
60 years & over	1	1	1	-
Not reported	-	-	-	-
Median age	30.8	28.3	*	32.9

* Number of hygienists too small to compute median.

Table B-2c -- Age Distribution in 1966, by County and Current Professional Status

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	110	39	14	12	45	-
Active	70	31	6	5	28	-
Employed in private dental office	55	25	5	5	20	-
Other active	15	6	1	-	8	-
Inactive	40	8	8	7	17	-
*Bristol County	7	1	1	1	4	-
Active	5	1	-	1	3	-
Employed in private dental office	5	1	-	1	3	-
Other active	-	-	-	-	-	-
Inactive	2	-	1	-	1	-
*Kent County	25	7	2	4	12	-
Active	16	7	-	2	7	-
Employed in private dental office	12	5	-	2	5	-
Other active	4	2	-	-	2	-
Inactive	9	-	2	2	5	-
*Newport County	15	8	2	-	5	-
Active	7	3	1	-	3	-
Employed in private dental office	5	2	1	-	2	-
Other active	2	1	-	-	1	-
Inactive	8	5	1	-	2	-
*Providence County	46	12	7	7	20	-
Active	29	11	3	2	13	-
Employed in private dental office	24	10	3	2	9	-
Other active	5	1	-	-	4	-
Inactive	17	1	4	5	7	-

(continued)

Table B-2c -- Age Distribution in 1966, by County and Current Professional Status (continued)

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Washington County	14	9	1	-	4	-
Active	10	7	1	-	2	-
Employed in private dental office	7	5	1	-	1	-
Other active	3	2	-	-	1	-
Inactive	4	2	-	-	2	-
Other locations 1/	3	2	1	-	-	-
Active	3	2	1	-	-	-
Employed in private dental office	2	2	-	-	-	-
Other active	1	-	1	-	-	-
Inactive	-	-	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Three responding hygienists employed in Rhode Island but residing in neighboring states.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	110	70	40
With formal academic training	110	70	40
University of Rhode Island	30	25	5
Forsyth School for Dental Hygienists	49	30	19
Monroe Community College 1/	8	4	4
University of Bridgeport 2/	3	2	1
Columbia University	3	-	3
University of Pennsylvania	3	3	-
Guggenheim School for Dental Hygienists	2	-	2
Temple University	2	2	-
Marquette University	2	1	1
Pensacola Junior College	1	-	1
Northwestern University	1	1	-
State University of Iowa	1	1	-
University of Minnesota	1	-	1
University of Missouri at Kansas City 3/	1	1	-
State University of New York at Farmingdale 4/	1	-	1
University of Vermont	1	-	1
School not reported	1	-	1
With no formal academic training	-	-	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.
2/ Includes any graduates of Fones School of Dental Hygiene.
3/ Includes any graduates of Kansas City - Western Dental College.
4/ Includes any graduates of Long Island Agricultural and Technical Institute.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All Schools		University of Rhode Island		Forsyth School for Dental Hygienists		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active
Instate hygienists	110	70	30	25	49	30	31	15
1966	6	6	5	5	-	-	1	1
1965	9	8	7	7	-	-	2	1
1964	7	5	4	3	-	-	3	2
1963	8	6	7	6	-	-	1	-
1962	9	4	7	4	1	-	1	-
1961	4	4	-	-	4	4	-	-
1960	4	2	-	-	2	-	2	2
1955-1959	13	3	-	-	8	2	5	1
1950-1954	8	5	-	-	7	4	1	1
1945-1949	20	12	-	-	12	8	8	4
1940-1944	10	8	-	-	6	6	4	2
1935-1939	8	4	-	-	6	3	2	1
Before 1935	4	3	-	-	3	3	1	-
Not reported	-	-	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County	All schools		University of Rhode Island		Forsyth School for Dental Hygienists		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active
Total	110	70	30	25	49	30	31	15
*Bristol	7	5	1	1	6	4	-	-
*Kent	25	16	5	5	11	7	9	4
*Newport	15	7	3	1	7	4	5	2
*Providence	46	29	11	9	23	14	12	6
*Washington	14	10	8	7	2	1	4	2
Other locations 1/	3	3	2	2	-	-	1	1

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Three responding hygienists employed in Rhode Island but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	110	70	40
Dental hygiene certificate only	83	53	30
Additional college, but no degree	13	7	6
Less than 1 year	3	3	-
1 year but less than 2 years	4	2	2
2 years but less than 3 years	5	1	4
3 years but less than 4 years	1	1	-
4 or more years	-	-	-
Number of years not reported	-	-	-
Bachelor's degree	6	4	2
Master's degree	2	1	1
Doctoral degree	1	1	-
Level of college training not reported	5	4	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	110	70	40
Have seriously considered returning	53	41	12
Now enrolled	11	9	2
Definitely planning to enroll	3	2	1
Still considering enrollment	29	22	7
Definitely decided not to enroll	8	6	2
Current plans not reported	2	2	-
Have never considered returning	49	24	25
Plans to continue education not reported	8	5	3

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	43	33	10
Goal reported 2/	37	27	10
Instructor in a school of dental hygiene	14	11	3
Director of a school of dental hygiene	2	2	-
Dentist	1	1	-
Public health dental hygienist 3/	16	11	5
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	2	-	2
Goal outside dental hygiene specified	6	4	2
Goal not reported	6	6	-

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	40	3	29	8
Obstacles reported 2/	37	3	28	6
Lack of course offerings in a nearby school	10	1	8	1
Lack of sufficient funds	9	-	6	3
Family obligations	28	2	21	5
Lack of specific information on opportunities available	5	-	5	-
Age 3/	-	-	-	-
Lack of time 3/	-	-	-	-
Other obstacle specified	1	-	1	-
Obstacles not reported	3	-	1	2

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	110	70	40
Have taken courses 1/	14	12	2
School of dental hygiene	10	8	2
State or local dental hygiene association	4	3	1
Dental school	1	1	-
State or local dental association	2	2	-
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	87	54	33
If courses taken not reported	9	4	5

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	70	42	15	13
2 years or less	25	13	8	4
3 - 5	13	8	3	2
6 - 10	13	5	3	5
11 years or more	13	11	1	1
Years not reported	6	5	-	1
Inactive hygienists, by last year active in this State	40	17	15	8
1964 or later	15	7	6	2
1961 - 1963	7	3	1	3
1956 - 1960	3	2	1	-
Before 1956	7	3	2	2
Never active	6	1	4	1
Year not reported	2	1	1	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	110	-	102	-	-	-	70	-	-	-
Year reported	109	1,149	101	83	964	572.5	69	53	595	420.5
1966	15	-	12	-	-	-	11	-	-	-
1965	8	8	8	8	8	14.0	7	7	7	13.0
1964	4	8	4	4	8	7.0	3	3	6	6.0
1963	8	24	8	8	24	23.0	6	6	18	20.0
1962	9	36	9	9	36	25.0	4	4	16	12.0
1961	4	20	4	4	20	13.5	4	4	20	13.5
1960	4	24	4	4	24	15.0	2	2	12	8.0
1959	2	14	2	2	14	13.0	1	1	7	7.0
1958	1	8	1	1	8	7.0	1	1	8	7.0
1957	2	18	1	1	9	10.0	1	1	9	10.0
1956	8	80	5	5	50	34.0	2	2	20	15.0
1955	2	22	2	1	11	2.0	1	-	-	-
1954	2	24	2	2	24	13.0	1	1	12	8.0
1953	-	-	-	-	-	-	-	-	-	-
1952	2	28	2	2	28	18.0	2	2	28	18.0
1951	1	15	1	1	15	10.0	-	-	-	-
1950	1	16	1	1	16	3.0	-	-	-	-
1945-1949	19	357	19	16	303	171.0	11	9	172	126.0
1940-1944	9	212	8	8	190	133.0	7	6	142	109.0
1935-1939	6	171	6	4	112	30.0	3	2	54	17.0
Before 1935	2	64	2	2	64	31.0	2	2	64	31.0
Year not reported	1	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	12.2	6.1	50
1963 - 1965	22	2.0	2.0	100
1960 - 1962	18	4.7	3.1	66
1957 - 1959	5	8.0	6.0	75
1954 - 1956	13	10.5	4.1	39
1951 - 1953	3	14.3	9.3	65
1948 - 1950	11	17.3	4.7	27
1945 - 1947	11	20.0	12.7	64
1942 - 1944	6	22.7	14.7	65
1939 - 1941	5	26.0	12.4	48
Before 1939	6	30.2	7.3	24

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	110	-	-	-	-	-
Have been active in other States 1/	48	19	6	8	19	2
Connecticut	7	4	1	-	2	-
Florida	1	-	-	1	-	-
Kentucky	1	1	-	-	-	-
Maine	3	-	-	1	2	-
Maryland	2	2	-	-	-	-
Massachusetts	28	6	5	5	10	2
Minnesota	1	1	-	-	-	-
Missouri	1	1	-	-	-	-
New York	6	2	-	1	3	-
Oklahoma	1	-	-	-	1	-
Pennsylvania	1	-	-	-	1	-
Wisconsin	2	2	-	-	-	-
Have not been active in other States	59	-	-	-	-	-
If active in other States not reported	3	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	110	70	19	40
Single	20	16	7	4
Ever married	90	54	12	36
Now married	87	52	10	35
Other status	3	2	2	-
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	90	54	12	36
With no children	18	14	5	4
With children	69	37	4	32
1	24	9	2	15
2	20	12	1	8
3	15	9	-	6
4	8	5	1	3
5 or more	2	2	-	-
Number of children not reported	3	3	3	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	69	37	32
School status			
None in school	26	11	15
Some in school 1/	43	26	17
In grades 1 - 8	32	20	12
In grades 9 - 12	19	13	6
In college or business school	11	7	4
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	60	32	28
1 year or less	23	10	13
2 - 3 years	22	12	10
4 - 5 years	18	10	8
6 - 7 - 8 years	18	11	7
9 - 10 - 11 years	18	13	5
12 - 13 - 14 years	17	12	5
With children 15 and over only	9	5	4
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	110	70	40
A member	48	39	9
Not a member, but a member at one time	49	25	24
Not a member, past membership not reported	-	-	-
Never a member	12	5	7
Current and past membership not reported	1	1	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	55	-
Time reported 1/	49	1,156
Less than 8	6	28
8	8	64
9 - 15	3	28
16	1	16
17 - 23	5	102
24	3	72
25 - 31	1	31
32	4	128
33 - 34	1	34
35	4	140
36 - 39	5	183
40	6	240
41 or more	2	90
Time not reported	6	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	55	-
Time reported 1/	49	1,848
4 or less	3	8
5 - 8	2	15
9 - 12	1	12
13 - 16	-	-
17 - 20	3	60
21 - 24	4	94
25 - 28	4	106
29 - 32	1	32
33 - 36	3	107
37 - 40	1	39
41 - 44	1	44
45 - 47	1	47
48 - 49	2	96
50 - 52	23	1,188
Time not reported	6	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	55	-	-
Time reported	49	1,156	1,848
Full time	17	653	733
Year round	12	463	620
Less than year round	5	190	113
Part time	32	503	1,115
Year round	13	315	664
Less than year round	19	188	451
Time not reported	6	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	55	-	-
Activities reported	55	-	-
Oral prophylaxis	55	18	319
Other clinical services 1/	54	18	48
Patient dental health education 2/	40	13	30
Management of dental office 3/	33	12	38
Dental assisting tasks 4/	18	8	44
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	55	51	3	-	-	1
Dentists reported	49	46	3	-	-	-
1	36	36	-	-	-	-
2	10	7	3	-	-	-
3	2	2	-	-	-	-
4 or more	1	1	-	-	-	-
Number of dentists not reported	6	5	-	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	55
Worked for general practitioner only	44
Worked for dental specialist 1/	4
Endodontist	-
Oral surgeon	1
Orthodontist	2
Pedodontist	-
Periodontist	1
Prosthodontist	-
Type not reported	7

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	55	12	5	13	19	6
Reporting type(s) of compensation	52	11	4	13	18	6
Salary only	45	11	3	9	16	6
Commission only	5	-	1	2	2	-
Both salary and commission	1	-	-	1	-	-
Did not receive compensation 2/	1	-	-	1	-	-
Type of compensation not reported	3	1	1	-	1	-

1/ See Table C-1c for definitions of time worked.
2/ Generally reported by hygienists who indicated they were working for their dentist - husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	55	12	5	13	19	6
Earnings reported	40	10	4	11	13	2
$1,000 or less	11	-	1	-	10	-
1,000 - 1,999	4	-	1	1	2	-
2,000 - 2,999	1	-	1	-	-	-
3,000 - 3,999	3	-	-	2	1	-
4,000 - 4,999	7	5	-	2	-	-
5,000 - 5,999	9	3	-	5	-	1
6,000 - 6,999	3	2	-	-	-	1
7,000 - 7,999	1	-	1	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	1	-	-
Earnings not reported	15	2	1	2	6	4

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	40
Reasons reported 1/	39
Full-time family obligations	27
Employment in another occupation	4
Attending school	1
Beyond age to practice	-
Poor health	1
Loss of skill to practice	3
Unable to find suitable position as hygienist	-
She prefers not to work	6
Husband does not want her to work	5
Another reason specified	4
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	40	-	13	18	9
Degree reported	35	-	13	18	4
Very definite	5	-	3	-	2
Fairly definite	12	-	10	2	-
Not at all definite	18	-	-	16	2
Degree not reported	5	-	-	-	5

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	17	-	13	2	2
Time until return reported	17	-	13	2	2
Within the next year	4	-	4	-	-
Within the next 5 years	6	-	6	-	-
Within the next 10 years	3	-	1	1	1
Within the next 15 years	-	-	-	-	-
More than 15 years from now	-	-	-	-	-
Never	4	-	2	1	1
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	11	4	6	1	-	-
Preferred time reported	11	4	6	1	-	-
8 hours a day	5	3	2	-	-	-
5 days a week	-	-	-	-	-	-
Less than 5 days a week	5	3	2	-	-	-
Less than 8 hours a day	6	1	4	1	-	-
5 days a week	-	-	-	-	-	-
Less than 5 days a week	6	1	4	1	-	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	40
Conditions reported 1/	33
When youngest child starts elementary school	14
When youngest child starts high school	3
When youngest child starts college	6
When a position is available in her community	4
When husband needs her in his practice, if he is a dentist	3
After completion of refresher training, if such training were available in a nearby community college or university	6
After completion of additional college training which would qualify her for a more advanced position as a hygienist	4
Because of illness, disability or death of husband 2/	-
Another condition specified	4
Condition not reported	7

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	40
Reasons reported 1/	36
For self satisfaction	23
To add to the family income for children's education	14
For other financial reasons	8
To keep in practice 2/	-
Another reason specified	5
Reasons not reported	4

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	40
Situations reported 1/	24
Lack of opportunities for hygienist in her community	11
Feels she might be too old to practice again	5
Feels she might have lost her skill to practice	9
Has too great an investment in another occupation	4
Satisfactory working hours not available 2/	1
Unsatisfactory wages 2/	1
Another situation specified	2
No situation was reported	16

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	40	-	-	-	-
Employed in 3/					
Private dental office	9	2	5	2	-
Army, navy, air force	1	1	-	-	-
Not employed	31	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	48	44	19	16	3	25
Northeast	28	26	14	12	2	12
Connecticut	8	7	3	3	-	4
Maine	-	-	-	-	-	-
Massachusetts	10	10	5	5	-	5
New Hampshire	2	2	1	-	1	1
New Jersey	1	1	-	-	-	1
New York	3	2	1	1	-	1
Pennsylvania	1	1	1	1	-	-
Rhode Island 1/	3	3	3	2	1	-
Vermont	-	-	-	-	-	-
North Central	7	6	2	2	-	4
Illinois	1	-	-	-	-	-
Indiana	1	1	-	-	-	1
Kansas	2	2	1	1	-	1
Ohio	3	3	1	1	-	2
South	9	9	3	2	1	6
Maryland	4	4	-	-	-	4
North Carolina	2	2	1	-	1	1
Texas	1	1	1	1	-	-
Virginia	2	2	1	1	-	1
West	4	3	-	-	-	3
California	1	1	-	-	-	1
Montana	1	-	-	-	-	-
Oregon	1	1	-	-	-	1
Washington	1	1	-	-	-	1

1/ Three responding hygienists who were residents of Rhode Island indicated that they were employed in a neighboring state.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, by Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	44	19	25
With formal academic training	43	19	24
University of Rhode Island	9	8	1
1966	2	2	-
1965	3	3	-
1964	1	1	-
1963	-	-	-
1962	3	2	1
Forsyth School for Dental Hygienists	17	4	13
1966	-	-	-
1965	-	-	-
1964	1	1	-
1963	-	-	-
1962	1	-	1
1957 - 1961	3	2	1
1952 - 1956	5	-	5
Before 1952	7	1	6
All other schools	16	7	9
1962 - 1966	2	1	1
1957 - 1961	1	-	1
1952 - 1956	7	4	3
Before 1952	6	2	4
School not reported	1	-	1
With no formal academic training	1	-	1

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	44	-	32	-	-	-	12	-
Year reported	44	463	32	31	356	115.0	12	-
1966	2	-	-	-	-	-	2	-
1965	5	5	1	1	1	1.0	4	-
1964	2	4	2	2	4	4.0	-	-
1963	-	-	-	-	-	-	-	-
1962	5	20	5	5	20	10.0	-	-
1961	-	-	-	-	-	-	-	-
1960	1	6	1	1	6	2.0	-	-
1959	2	14	2	2	14	2.0	-	-
1958	1	8	1	1	8	1.0	-	-
1957	2	18	1	1	9	2.0	1	-
1956	1	10	1	1	10	2.0	-	-
1955	1	11	1	1	11	2.0	-	-
1954	1	12	1	-	-	-	-	-
1953	2	26	2	2	26	14.0	-	-
1952	6	84	5	5	70	12.0	1	-
1951	3	45	2	2	30	16.0	1	-
1950	2	32	1	1	16	2.0	1	-
1945 - 1949	6	110	4	4	73	41.0	2	-
1940 - 1944	1	23	1	1	23	1.0	-	-
1931	1	35	1	1	35	3.0	-	-
Year not reported	-	-	-	-	-	-	-	-

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	25
Reasons reported 1/	25
Full-time family obligations	18
Employment in another occupation	3
Attending school	1
Beyond age to practice	-
Poor health	-
Loss of skill to practice	1
Unable to find suitable position as hygienist	-
She prefers not to work	8
Husband does not want her to work	4
Not licensed in state where she currently resides	13
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In May 1966, the South Dakota Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in South Dakota, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The South Dakota survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

August, 1968

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans

E. Out-of-state hygienists
   1. Location and current status
   2. Past professional activity in South Dakota
   3. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	55	100	47	85
In South Dakota	29	53	23	79
In other states	26	47	24	92
In foreign countries	-	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in South Dakota, by Location

Characteristics	Licensed hygienists	In South Dakota	In other states
Total	47	23	24
Current status			
Active	25	12	13
Inactive	22	11	11
Age in 1966			
Under 25	7	5	2
25 - 29	11	3	8
30 - 34	8	2	6
35 & over	21	13	8
Professional activity in South Dakota			
Ever active in South Dakota	37	19	18
Never active in South Dakota	8	3	5

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	23
Active	12
Employed	11 1/
Private dental office	10
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	-
City or county health agency	-
State health agency	-
Other local government agency	-
Other state government agency	-
Army, navy, airforce	-
Other federal agency	1
Private agency	-
Unemployed (seeking work as dental hygienist)	1
Inactive	11

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	29	23	12	3	11
Beadle	2	2	1	-	1
Bon Homme	1	1	-	-	1
Brookings	2	2	1	1	1
Codington	1	1	1	-	-
Davison	3	3	2	1	1
Hughes	1	1	-	-	1
Kingsbury	1	1	1	-	-
Lawrence	2	1	-	-	1
Mc Cook	1	-	-	-	-
Meade	2	2	-	-	2
*Minnehaha	6	5	3	1	2
Pennington	6	4	3	-	1
Walworth	1	-	-	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 54 of 67 counties in South Dakota.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	23	12	3	11
20 - 24 years	5	5	2	-
25 - 29 years	3	-	-	3
30 - 34 years	2	1	-	1
35 - 39 years	1	-	-	1
40 - 44 years	-	-	-	-
45 - 49 years	4	1	-	3
50 - 54 years	2	1	1	1
55 - 59 years	2	1	-	1
60 years & over	3	2	-	1
Not reported	1	1	-	-
Median age	45.6	*	*	*

*Number of hygienists too small to compute median.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	23	12	11
With formal academic training	13	7	6
University of Minnesota	6	3	3
Marquette University	2	1	1
Northwestern University	1	1	-
Rangely College 1/	1	1	-
University of Michigan	1	-	1
University of Pennsylvania	1	-	1
University of Tennessee	1	1	-
School not reported	-	-	-
With no formal academic training	10	5	5

1/ Includes any graduates from Mesa Junior College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received

Year	Instate hygienists	Active	Inactive
Total with formal academic training	13	7	6
1961 - 1965	5	4	1
1956 - 1960	3	1	2
1951 - 1955	2	-	2
Before 1951	2	1	1
Year not reported	1	1	-

Table B-3c -- County Location
by Type of Dental Hygiene Training

County 1/	Instate hygienists	With formal academic training		With no formal academic training
		University of Minnesota	All other schools	
Total	23	6	7	10
Beadle	2	-	-	2
Bon Homme	1	-	-	1
Brookings	2	2	-	-
Codington	1	-	1	-
Davison	3	1	-	2
Hughes	1	-	1	-
Kingsbury	1	-	-	1
Lawrence	1	-	-	1
Meade	2	-	1	1
*Minnehaha	5	2	2	1
Pennington	4	1	2	1

* Counties included in tha latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	23	12	11
Dental hygiene certificate only	4	3	1
Additional college, but no degree	7	4	3
Less than 1 year	-	-	-
1 year but less than 2 years	4	2	2
2 years but less than 3 years	2	1	1
3 years but less than 4 years	-	-	-
4 or more years	-	-	-
Number of years not reported	1	1	-
Bachelor's degree	2	-	2
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	-	-	-
No college training	10	5	5

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	23	12	11
Have seriously considered returning	7	5	2
Now enrolled	1	1	-
Definitely planning to enroll	-	-	-
Still considering enrollment	6	4	2
Definitely decided not to enroll	-	-	-
Current plans not reported	-	-	-
Have never considered returning	10	4	6
Plans to continue education not reported	6	3	3

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	7	5	2
Goal reported 2/	6	4	2
Instructor in a school of dental hygiene	4	3	1
Director of a school of dental hygiene	-	-	-
Dentist	-	-	-
Public health dental hygienist 3/	-	-	-
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	2	1	1
Goal outside dental hygiene specified	1	-	1
Goal not reported	1	1	-

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	6	-	6	-
Obstacles reported 2/	6	-	6	-
Lack of course offerings in a nearby school	1	-	1	-
Lack of sufficient funds	2	-	2	-
Family obligations	4	-	4	-
Lack of specific information on opportunities available	-	-	-	-
Age 3/	-	-	-	-
Lack of time 3/	-	-	-	-
Other obstacle specified	1	-	1	-
Obstacles not reported	-	-	-	-

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	23	12	11
Have taken courses 1/	-	-	-
Have not taken courses	20	10	10
If courses taken not reported	3	2	1

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in South Dakota	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in South Dakota	12	7	4	1
2 years or less	5	3	2	-
3 - 5	1	1	-	-
6 - 10	-	-	-	-
11 or more	5	3	2	-
Years not reported	1	-	-	1
Inactive hygienists, by last year active in South Dakota	11	6	1	4
1964 or later	2	2	-	-
1961 - 1963	2	1	-	1
1956 - 1960	2	1	-	1
Before 1956	1	-	1	-
Never active	3	2	-	1
Year not reported	1	-	-	1

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygien-ists	Aggregate years licensed	Total hygien-ists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygien-ists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	23	-	19	-	-	-	12	-	-	-
Year reported	21	283	18	18	243	192	11	11	140	132
1965	2	2	2	2	2	2	2	2	2	2
1964	3	6	2	2	4	2	2	2	4	2
1963	1	3	1	1	3	3	1	1	3	3
1962	1	4	1	1	4	2	1	1	4	2
1961	1	5	1	1	5	2	-	-	-	-
1960	1	6	1	1	6	3	-	-	-	-
1955-1959	1	10	1	1	10	4	-	-	-	-
1950-1954	2	31	1	1	16	7	-	-	-	-
1945-1949	1	21	1	1	21	14	-	-	-	-
1940-1944	6	140	5	5	117	103	3	3	72	73
1935-1939	2	55	2	2	55	50	2	2	55	50
Before 1935	-	-	-	-	-	-	-	-	-	-
Year not reported	2	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.

Table B-4b -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	23	-	-	-	-	-
Have been active in other states 1/	8	5	1	1	4	-
Alabama	1	-	-	-	1	-
Arkansas	1	1	-	-	-	-
Colorado	1	-	1	-	-	-
Florida	1	1	-	-	-	-
Illinois	1	1	-	-	-	-
Massachusetts	1	1	-	-	-	-
Michigan	1	-	-	-	1	-
Minnesota	2	-	-	-	2	-
Texas	1	1	-	-	-	-
Wisconsin	1	-	-	1	-	-
Have not been active in other states	13	-	-	-	-	-
If active in other states not reported	2	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	23	12	3	11
Single	3	2	2	1
Ever married	20	10	1	10
Now married	19	10	1	9
Other status	1	-	-	1
Status not reported	-	-	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	20	10	1	10
With no children	12	8	1	4
With children	6	1	-	5
1	2	-	-	2
2	1	1	-	-
3	2	-	-	2
4	1	-	-	1
5 or more	-	-	-	-
Number of children not reported	2	1	-	1

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	6	1	5
School status			
None in school	2	-	2
Some in school 1/	4	1	3
In grades 1 - 8	4	1	3
In grades 9 - 12	1	1	-
In college or business school	-	-	-
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	6	1	5
1 year or less	2	-	2
2 - 3 years	-	-	-
4 - 5 years	1	-	1
6 - 7 - 8 years	4	1	3
9 - 10 - 11 years	3	-	3
12 - 13 - 14 years	1	-	1
With children 15 and over only	-	-	-
Age not reported	-	-	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	23	12	11
A member	7	5	2
Not a member, but a member at one time	9	4	5
Not a member, past membership not reported	-	-	-
Never a member	5	3	2
Current and past membership not reported	2	-	2

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	10	-
Time reported 1/	8	286
Less than 8	-	-
8	-	-
9 - 15	-	-
16	-	-
17 - 23	1	20
24	-	-
25 - 31	1	27
32	-	-
33 - 34	-	-
35	1	35
36 - 39	1	36
40	2	80
41 or more	2	88
Time not reported	2	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	10	-
Time reported 1/	8	381
4 or less	-	-
5 - 8	-	-
9 - 12	-	-
13 - 16	-	-
17 - 20	-	-
21 - 24	-	-
25 - 28	-	-
29 - 32	-	-
33 - 36	-	-
37 - 40	-	-
41 - 44	2	85
45 - 47	2	92
48 - 49	1	48
50 - 52	3	156
Time not reported	2	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	10	-	-
Time reported	8	286	381
Full time	6	239	289
Year round	3	116	156
Less than year round	3	123	133
Part time	2	47	92
Year round	1	20	44
Less than year round	1	27	48
Time not reported	2	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	11	-	-
Activities reported	10	-	-
Oral prophylaxis	8	3	83
Other clinical services 1/	8	3	13
Patient dental health education 2/	7	2	6
Management of dental office 3/	6	2	17
Dental assisting tasks 4/	4	2	27
Activities not reported	1	1	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	10	6	1	1	1	1
Dentists reported						
1	5	5	-	-	-	-
2	-	-	-	-	-	-
3	3	1	1	1	-	-
4 or more	1	-	-	-	1	-
Number of dentists not reported	1	-	-	-	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	10
Worked for general practitioner only	5
Worked for dental specialist 1/	3
Endodontist	-
Oral surgeon	-
Orthodontist	1
Pedodontist	1
Periodontist	1
Prosthodontist	-
Type not reported	2

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	10	3	3	1	1	2
Reporting type(s) of compensation	9	3	3	1	1	1
Salary only	3	1	2	-	-	-
Commission only	3	-	-	1	1	1
Both salary and commission only	1	1	-	-	-	-
Salary only, commission only 2/	1	1	-	-	-	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	1	-	1	-	-	-
Type of compensation not reported	1	-	-	-	-	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	10	3	3	1	1	2
Earnings reported	8	3	3	-	1	1
$1,000 or less	-	-	-	-	-	
1,000 - 1,999	-	-	-	-	-	-
2,000 - 2,999	1	-	1	-	-	-
3,000 - 3,999	1	-	-	-	1	-
4,000 - 4,999	1	1	-	-	-	-
5,000 - 5,999	2	-	1	-	-	1
6,000 - 6,999	2	2	-	-	-	-
7,000 - 7,999	-	-	-	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	1	-	-	-
Earnings not reported	2	-	-	1	-	1

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	11
Reasons reported 1/	10
Full-time family obligations	5
Employment in another occupation	5
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	1
Unable to find suitable position as hygienist	-
She prefers not to work	3
Husband does not want her to work	1
Another reason specified	-
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	11	1	4	3	3
Degree reported	9	1	4	3	1
Very definite	1	1	-	-	-
Fairly definite	6	-	4	1	1
Not at all definite	2	-	-	2	-
Degree not reported	2	-	-	-	2

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	7	1	4	1	1
Time until return reported	7	1	4	1	1
Within the next year	2	1	1	-	-
Within the next 5 years	2	-	1	1	-
Within the next 10 years	-	-	-	-	-
Within the next 15 years	-	-	-	-	-
More than 15 years from now	-	-	-	-	-
Never	3	-	2	-	1
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	11
Conditions reported 1/	8
When youngest child starts elementary school	3
When youngest child starts high school	-
When youngest child starts college	-
When a position is available in her community	-
When husband needs her in his practice, if he is a dentist	4
After completion of refresher training, if such training were available in a nearby community college or university	2
After completion of additional college training which would qualify her for a more advanced position as a hygienist	1
Because of illness, disability or death of husband 2/	-
Another condition specified	2
Condition not reported	3

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2d -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	11
Reasons reported 1/	9
For self satisfaction	7
To add to the family income for children's education	1
For other financial reasons	3
To keep in practice 2/	-
Another reason specified	-
Reasons not reported	2

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	11
Situations reported 1/	7
Lack of opportunities for hygienist in her community	1
Feels she might be too old to practice again	-
Feels she might have lost her skill to practice	2
Has too great an investment in another occupation	4
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	-
Another situation specified	2
No situation was reported	4

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	26	24	13	7	6	11
Northeast	3	3	3	1	2	-
Connecticut	-	-	-	-	-	-
Maine	-	-	-	-	-	-
Massachusetts	1	1	1	-	1	-
New Hampshire	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-
New York	1	1	1	-	1	-
Pennsylvania	1	1	1	1	-	-
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	7	6	3	2	1	3
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	1	1	-	-	-	1
Georgia	1	1	-	-	-	1
Kentucky	-	-	-	-	-	-
Louisiana	2	1	1	1	-	-
Maryland	1	1	-	-	-	1
Mississippi	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-
Texas	2	2	2	1	1	-
Virginia	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	8	7	3	1	2	4
Illinois	1	1	1	1	-	-
Indiana	1	1	-	-	-	1
Iowa	2	2	2	-	2	-
Kansas	-	-	-	-	-	-
Michigan	-	-	-	-	-	-
Minnesota	2	2	-	-	-	2
Missouri	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	-	-	-	-	-	-
South Dakota			not applicable			
Wisconsin	2	1	-	-	-	1
West	8	8	4	3	1	4
Alaska	-	-	-	-	-	-
Arizona	-	-	-	-	-	-
California	4	4	3	3	-	1
Colorado	2	2	-	-	-	2
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-
Nevada	1	1	1	-	1	-
Oregon	1	1	-	-	-	1
Utah	-	-	-	-	-	-
Washington	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-

Table E-2 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists				Never active	Activity not reported
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active		
Total	24	-	18	17	-	-	5	1
Year reported	23	289	18	17	221	52.5	5	-
1965	-	-	-	-	-	-	-	-
1964	2	4	2	2	4	2.5	-	-
1963	-	-	-	-	-	-	-	-
1962	2	8	1	1	4	2.0	1	-
1961	1	5	-	-	-	-	1	-
1960	2	12	1	1	6	2.0	1	-
1959	3	21	3	3	21	7.0	-	-
1958	1	8	1	1	8	2.0	-	-
1957	1	9	-	-	-	-	1	-
1956	-	-	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-
1950-1954	5	68	4	4	52	11.0	1	-
1945-1949	-	-	-	-	-	-	-	-
1940-1944	4	98	4	4	98	25.0	-	-
Before 1940	2	56	2	1	28	1.0	-	-
Year not reported	1	-	-	-	-	-	-	1

1/ Hygienists reporting both years licensed and years ever active in South Dakota

Table E-3 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	11
Reasons reported 1/	11
Full-time family obligations	7
Employment in another occupation	-
Attending school	2
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	-
She prefers not to work	2
Husband does not want her to work	1
Not licensed in state where she currently resides	5
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

INTRODUCTION

In April 1966, the Vermont Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Vermont, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some other employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Vermont survey is part of a National endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire, printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health, U.S. Public Health Service, is coordinating this National survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

August, 1968

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3 Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3 Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state).

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed.

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist.

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	194	100	184	95
In Vermont	125	64	119	95
In other states	69	36	65	94
In foreign countries	0	-	-	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Vermont, by Location

Characteristics	Licensed hygienists	In Vermont	In other states
Total respondents	184	119	65
Current status			
Active	100	72	28
Inactive	84	47	37
Age in 1966			
Under 25	42	29	13
25 - 29	39	21	18
30 - 34	45	30	15
35 & over	57	38	19
Dental hygiene school			
The University of Vermont	109	73	36
All other schools	73	44	29
Year hygiene training completed			
1961-1965	54	35	19
1956-1960	43	24	19
1951-1955	39	28	11
1950 or earlier	47	31	16
Professional activity in Vermont			
Ever active in Vermont	166	115	51
Never active in Vermont	15	2	13

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	119
Active	72
Employed	68 1/
Private dental office	45
Dental hygiene school or other auxiliary program	2
Elementary or secondary school (public or private)	16
City or county health agency	--
State health agency	4
Other local government agency	--
Other state government agency	1
Army, navy, airforce	--
Other federal agency	--
Private agency	1
Unemployed (seeking work as dental hygienist)	4
Inactive	47

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	125	119	72	20	47
Addison	7	6	3	-	3
Bennington	6	6	4	1	2
Caledonia	9	9	3	1	6
Chittenden	42	39	24	7	15
Franklin	2	2	1	1	1
Grand Isle	1	1	-	-	1
Lamoille	5	5	2	1	3
Orange	3	3	1	-	2
Orleans	4	4	3	-	1
Rutland	11	11	7	5	4
Washington	17	16	13	2	3
Windham	9	8	5	1	3
Windsor	7	7	4	-	3
Other locations 2/	2	2	2	1	-

1/ There were apparently no licensed hygienists in Essex County.

2/ Responding hygienists employed in Vermont but residing in another state.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	119	72	20	47
20 - 24 years	29	24	11	5
25 - 29 years	21	8	3	13
30 - 34 years	30	13	-	17
35 - 39 years	10	7	-	3
40 - 44 years	5	4	-	1
45 - 49 years	12	10	3	2
50 - 54 years	4	1	-	3
55 - 59 years	2	2	1	-
60 years and over	5	3	2	2
Not reported	1	-	-	1
Median age	31.5	31.6	*	31.6

* Number of hygienists too small to compute median age.

Table B-2c -- Age Distribution in 1966, By Current Professional Status, for Vermont and Selected Counties

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	119	29	21	30	38	1
Active	72	24	8	13	27	-
Employed in private dental office	45	21	4	6	14	-
Other active	27	3	4	7	13	-
Inactive	47	5	13	17	11	1
Chittenden County	39	14	7	9	9	-
Active	24	12	1	3	8	-
Employed in private dental office	15	10	-	3	2	-
Other active	9	2	1	-	6	-
Inactive	15	2	6	6	1	-
Washington County	16	5	2	4	5	-
Active	13	4	2	2	5	-
Employed in private dental office	10	4	1	1	4	-
Other active	3	-	1	1	1	-
Inactive	3	1	-	2	-	-

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	119	72	47
With formal academic training	119	72	47
The University of Vermont	73	41	32
Forsyth School of Dental Hygienists	16	11	5
Monroe Community College 1/	16	12	4
University of Bridgeport 2/	3	-	3
Hudson Valley Community College	3	3	-
Columiba University	2	2	-
Erie County Technical Institute 3/	2	1	1
University of Missouri at Kansas City 4/	1	1	-
Temple University	1	-	1
School not reported	2	1	1
With no formal academic training	-	-	-

1/ Includes any graduates of Eastman Dental Dispensary and Rochester Dental Dispensary.
2/ Includes any graduates of Fones School of Dental Hygiene.
3/ Includes any graduates of New York State Institute of Applied Arts and Sciences at Buffalo.
4/ Includes any graduates of Kansas City - Western Dental College.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, For Selected Schools

Year	All schools		The University of Vermont		Schools in New York State		Forsyth School	
	Total	Active	Total	Active	Total	Active	Total	Active
Hygienists with formal training	119	72	73	41	23	18	16	11
1965	11	10	10	9	1	1	-	-
1964	7	5	6	5	-	-	-	-
1963	6	6	4	4	2	2	-	-
1962	8	6	7	5	1	1	-	-
1961	3	1	2	1	-	-	1	-
1960	5	1	4	1	1	-	-	-
1959	6	2	5	2	-	-	1	-
1958	5	2	4	1	-	-	1	1
1957	4	2	4	2	-	-	-	-
1956	4	2	3	2	-	-	-	-
1955	9	5	6	3	1	1	1	1
1954	8	4	8	4	-	-	-	-
1953	3	1	2	-	1	1	-	-
1952	6	1	6	1	-	-	-	-
1951	2	1	2	1	-	-	-	-
1950 or earlier	31	23	-	-	16	12	12	9
Not reported	1	-	-	-	-	-	-	-

Table B-3c -- County Location, by Selected Schools

County 1/	Instate hygienists		The University of Vermont		All other schools	
	Total	Active	Total	Active	Total	Active
Total	119	72	73	41	46	31
Addison	6	3	5	2	1	1
Bennington	6	4	1	-	5	4
Caledonia	9	3	7	2	2	1
Chittenden	39	24	30	18	9	6
Franklin	2	1	2	1	-	-
Grand Isle	1	-	1	-	-	-
Lamoille	5	2	1	-	4	2
Orange	3	1	-	-	3	1
Orleans	4	3	2	2	2	1
Rutland	11	7	5	3	6	4
Washington	16	13	10	8	6	5
Windham	8	5	5	3	3	2
Windsor	7	4	4	2	3	2
Other locations 2/	2	2	-	-	2	2

1/ Counties with responding hygienists.
2/ Responding hygienists employed in Vermont but residing in another state.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	119	72	47
Dental hygiene certificate only	91	55	36
Additional college, but no degree	25	15	10
Less than 1 year	1	1	-
1 year but less than 2 years	14	8	6
2 years but less than 3 years	7	3	4
3 years but less than 4 years	2	2	-
4 or more years	1	1	-
Number of years not reported	-	-	-
Bachelor's degree	2	2	-
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	1	-	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	119	72	47
Have seriously considered returning	41	23	18
Now enrolled	6	3	3
Definitely planning to enroll	4	3	1
Still considering enrollment	26	15	11
Definitely decided not to enroll	3	2	1
Current plans not reported	2	-	2
Have never considered returning	72	48	24
Plans to continue education not reported	6	1	5

Table B-3f -- Goal for Advancement if College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	36	21	15
Goal reported 2/	28	15	13
Instructor in a school of dental hygiene	13	7	6
Director of a school of dental hygiene	1	1	-
Dentist	-	-	-
Public health dental hygienist 3/	13	6	7
Hygienist in elementary or high school 3/	2	2	-
Other goal in dental hygiene specified	-	-	-
Goal outside dental hygiene specified	7	4	3
Goal not reported	8	6	2

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college		
		Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	33	4	26	3
Obstacles reported 2/	30	2	26	2
Lack of course offerings in a nearby school	10	1	8	1
Lack of sufficient funds	12	-	11	1
Family obligations	18	1	16	1
Lack of specific information on opportunities available	3	1	2	-
Age	-	-	-	-
Lack of time	-	-	-	-
Other obstacle specified	1	-	1	-
Obstacles not reported	3	2	-	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one obstacle.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	119	72	47
Have taken courses 1/	39	32	7
School of dental hygiene	27	23	4
State or local dental hygiene association	9	4	5
Dental school	1	-	1
State or local dental association	8	7	1
Other sponsor	2	1	1
Sponsor not reported	1	1	-
Have not taken courses	70	36	34
If courses taken not reported	10	4	6

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available In a Nearby School

Current status by past activity in Vermont	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in Vermont	72	55	10	7
2 or less	26	19	5	2
3 - 5	17	13	2	2
6 - 10	15	13	2	-
11 or more	14	10	1	3
Years not reported	-	-	-	-
Inactive hygienists, by last year active in Vermont	47	35	6	6
1964 or later	18	16	1	1
1963 - 1961	13	11	1	1
1960 - 1956	7	6	1	-
1955 or earlier	3	-	2	1
Never active	2	2	-	-
Year not reported	4	-	1	3

Table B-4a -- Professional Activity in Vermont Since Licensure

Year first licensed in Vermont	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	119	-	115	-	-	-	72	-	-	-
Year reported	116	1,205	113	112	1,158	655.5	71	71	720	471.0
1965	15	15	13	13	13	13.0	11	11	11	11.0
1964	7	14	7	7	14	12.0	5	5	10	10.0
1963	7	21	7	7	21	17.0	7	7	21	17.0
1962	7	28	7	7	28	26.0	5	5	20	20.0
1961	4	20	4	4	20	11.5	2	2	10	9.0
1960	5	30	5	5	30	23.0	1	1	6	6.0
1959	6	42	6	6	42	19.0	3	3	21	15.0
1958	5	40	5	5	40	16.0	2	2	16	3.0
1957	4	36	4	4	36	22.0	2	2	18	14.0
1956	7	70	6	6	60	38.0	5	5	50	35.0
1955	7	77	7	7	77	42.0	4	4	44	27.0
1954	8	96	8	8	96	44.0	4	4	48	19.0
1953	3	39	3	3	39	20.0	1	1	13	6.0
1952	6	84	6	6	84	29.0	1	1	14	9.0
1951	2	30	2	2	30	5.0	1	1	15	2.0
1950	4	64	4	4	64	54.0	3	3	48	38.0
1945-1949	6	115	6	6	115	68.0	5	5	95	64.0
1940-1944	6	147	6	6	147	95.0	4	4	97	75.0
1935-1939	3	84	3	3	84	44.0	3	3	84	44.0
Before 1935	4	153	4	3	118	57.0	2	2	79	47.0
Year not reported	3	-	2	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active in state.

Table B-4b -- Past Professional
Activity in Vermont by Hygienists
Ever Active in the State

Year first licensed in Vermont	Percent of ever active hygienists	Average years in Vermont		Percent of licensed years active
		Licensed	Active	
Total	100	10.3	5.9	57
1963-1965	24	1.8	1.6	89
1960-1962	14	4.9	3.8	78
1957-1959	13	7.9	3.8	48
1954-1956	19	11.1	5.9	53
1951-1953	10	13.9	4.9	35
1950 or earlier	20	24.0	14.5	60

Table B-4c -- Other States In Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1962-1966	1957-1961	1952-1956	1951 or earlier	Not reported
Total	119	-	-	-	-	-
Have been active in other states	42 1/	11	10	14	15	3
Alabama	1	-	-	-	1	-
California	1	1	-	-	-	-
Colorado	3	1	-	1	1	-
Connecticut	3	2	-	-	1	-
Delaware	1	-	-	1	-	-
District of Columbia	1	-	-	-	-	1
Iowa	1	-	-	-	1	-
Maine	1	-	1	-	-	-
Massachusetts	18	2	7	2	6	1
Michigan	1	-	-	-	1	-
New Hampshire	7	1	1	4	-	1
New York	12	4	1	3	4	-
Pennsylvania	1	-	-	1	-	-
Tennessee	1	-	-	1	-	-
Virginia	1	-	-	1	-	-
Have not been active in other states	77	-	-	-	-	-
If active in other states not reported	0	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other state.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	119	72	20	47
Single	27	25	12	2
Ever married	91	46	7	45
Now married	86	43	5	43
Other status	5	3	2	2
Status not reported	1	1	1	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	91	46	7	45
With no children	18	13	4	5
With children	72	32	2	40
1	16	4	1	12
2	24	13	-	11
3	12	6	-	6
4	11	6	-	5
5 or more	9	3	1	6
Number of children not reported	1	1	1	-

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	72	32	40
School status			
None in school	26	5	21
Some in school 1/	45	27	18
In grades 1 - 8	39	23	16
In grades 9 - 12	12	7	5
In college or business school	5	4	1
School status not reported	1	-	1
Age of children			
With children under 15 years 1/	66	29	37
1 year or less	18	3	15
2 - 3 years	33	10	23
4 - 5 years	31	13	18
6 - 7 - 8 years	32	17	15
9 - 10 - 11 years	23	14	9
12 - 13 - 14 years	14	9	5
With children 15 and over only	5	3	2
Age not reported	1	-	1

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	119	72	47
A member	43	36	7
Not a member, but a member at one time	52	20	32
Not a member, past membership not reported	-	-	-
Never a member	23	15	8
Current and past membership not reported	1	1	-

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	45	-
Time reported 1/	42	1,285
Less than 8	2	12
8	1	8
9 - 15	5	59
16	1	16
17 - 23	1	20
24	3	72
25 - 31	4	118
32	2	64
33 - 34	1	34
35	2	70
36 - 39	3	113
40	13	520
41 or more	4	179
Time not reported	3	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	45	-
Time reported 1/	42	1,823
4 or less	-	-
5 - 8	2	13
9 - 12	-	-
13 - 16	-	-
17 - 20	-	-
21 - 24	-	-
25 - 28	3	81
29 - 32	1	32
33 - 36	2	71
37 - 40	5	191
41 - 44	3	125
45 - 47	1	46
48 - 49	7	336
50 - 52	18	928
Time not reported	3	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	45	-	-
Time reported	42	1,285	1,823
Full time	22	882	962
Year round	13	523	665
Less than year round	9	359	297
Part time	20	403	861
Year round	12	227	599
Less than year round	8	176	262
Time not reported	3	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	45	-	-
Activities reported	45	-	-
Oral prophylaxis	44	24	554
Other clinical services 1/	41	23	81
Patient dental health education 2/	30	17	37
Management of dental office 3/	33	19	69
Dental assisting tasks 4/	22	11	56
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	45	42	1	-	-	2
Dentists reported	43	42	1	-	-	-
1	38	38	-	-	-	-
2	4	3	1	-	-	-
3	1	1	-	-	-	-
4 or more	-	-	-	-	-	-
Number of dentists not reported	2	-	-	-	-	2

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	45
Worked for general practitioner only	37
Worked for dental specialist 1/	4
Endodontist	-
Oral surgeon	-
Orthodontist	2
Pedodontist	1
Periodontist	1
Prosthodontist	-
Type not reported	4

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	45	13	9	12	8	4
Reporting type(s) of compensation	43	13	9	11	8	3
Salary only	34	12	9	7	4	3
Commission only	3	-	-	1	2	-
Both salary and commission only	3	1	-	2	-	-
Salary only, commission only 2/	1	-	-	-	1	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	2	-	-	1	-	1
Type of compensation not reported	2	-	-	1	-	1

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than Year round	
Total	45	13	9	12	8	3
Earnings reported	40	13	6	12	7	2
$1,000 or less	7	-	1	3	3	-
1,000 - 1,999	5	-	1	3	1	-
2,000 - 2,999	5	-	3	-	2	-
3,000 - 3,999	7	2	1	2	1	1
4,000 - 4,999	9	7	-	2	-	-
5,000 - 5,999	3	3	-	-	-	-
6,000 - 6,999	3	1	-	1	-	1
7,000 - 7,999	-	-	-	-	-	-
8,000 - 8,999	-	-	-	-	-	-
9,000 - 9,999	-	-	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	1	-	-	1	-	-
Earnings not reported	5	-	3	-	1	1

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.
2/ See Table C-1c for definitions of time worked.
3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	47
Reasons reported	46 1/
Full-time family obligations	37
Employment in another occupation	3
Attending school	3
Beyond age to practice	-
Poor health	1
Loss of skill to practice	-
Unable to find suitable position as hygienist	3
She prefers not to work	5
Husband does not want her to work	9
Another reason specified	1
Reasons not reported	1

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	47	5	9	25	8
Degree reported	44	5	9	25	5
Very definite	10	3	4	-	3
Fairly definite	12	1	5	5	1
Not at all definite	22	1	-	20	1
Degree not reported	3	-	-	-	3

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	22	4	9	5	4
Time until return reported	22	4	9	5	4
Within the next year	6	-	3	-	3
Within the next 5 years	11	4	5	1	1
Within the next 10 years	1	-	-	1	-
Within the next 15 years	3	-	1	2	-
More than 15 years from now	-	-	-	-	-
Never	1	-	-	1	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	13	3	9	-	1	-
Preferred time reported	13	3	9	-	1	-
8 hours a day	5	-	5	-	-	-
5 days a week	2	-	2	-	-	-
Less than 5 days a week	3	-	3	-	-	-
Less than 8 hours a day	8	3	4	-	1	-
5 days a week	2	1	1	-	-	-
Less than 5 days a week	6	2	3	-	1	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	47
Conditions reported	44 1/
When youngest child starts elementary school	26
When youngest child starts high school	9
When youngest child starts college	4
When a position is available in her community	10
When husband needs her in his practice, if he is a dentist	3
After completion of refresher training, if such training was available in a nearby community college or university	4
After completion of additional college training which would qualify her for a more advanced position as a hygienist	4
Because of illness, disability or death of husband 2/	2
Another condition specified	3
Condition not reported	3

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	47
Reasons reported	44 1/
For self satisfaction	32
To add to the family income for children's education	20
For other financial reasons	12
To keep in practice 2/	-
Another reason specified	1
Reasons not reported	3

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	47
Situations reported	28 1/
Lack of opportunities for hygienist in her community	14
Feels she might be too old to practice again	3
Feels she might have lost her skill to practice	8
Has too great an investment in another occupation	-
Satisfactory working hours not available 2/	1
Unsatisfactory wages 2/	1
Another situation specified	2
No situation was reported	19

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total 3/	47	-	-	-	-
Employed in					
Private dental office	7	5	1	1	-
Dental hygiene school or other dental auxiliary program	-	-	-	-	-
Elementary or secondary school	4	-	4	-	-
City or county health agency	-	-	-	-	-
State health agency	-	-	-	-	-
Other local government agency	1	-	1	-	-
Other state government agency	-	-	-	-	-
Army, navy, air force	-	-	-	-	-
Other federal agency	1	1	-	-	-
Private organization	-	-	-	-	-
Type of employer not reported	-	-	-	-	-
Not employed	35	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "Full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	69	65	28	19	9	37
Northeast	42	41	18	13	5	23
Connecticut	8	8	3	3	-	5
Maine	1	1	1	1	-	-
Massachusetts	9	9	4	3	1	5
New Hampshire	3	3	2	2	-	1
New Jersey	-	-	-	-	-	-
New York	17	16	5	2	3	11
Pennsylvania	1	1	-	-	-	1
Rhode Island	-	-	-	-	-	-
Vermont [1/]	3	3	3	2	1	-
South	11	11	5	3	2	6
Alabama	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	3	3	2	2	-	1
Georgia	-	-	-	-	-	-
Kentucky	2	2	1	-	1	1
Louisiana	-	-	-	-	-	-
Maryland	1	1	1	-	1	-
Mississippi	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-
South Carolina	2	2	-	-	-	2
Tennessee	2	2	-	-	-	2
Texas	-	-	-	-	-	-
Virginia	1	1	1	1	-	-
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	5	5	-	-	-	5
Illinois	1	1	-	-	-	1
Indiana	1	1	-	-	-	1
Iowa	-	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-
Missouri	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	1	1	-	-	-	1
South Dakota	-	-	-	-	-	-
Wisconsin	2	2	-	-	-	2
West	11	8	5	3	2	3
Alaska	-	-	-	-	-	-
Arizona	-	-	-	-	-	-
California	3	2	1	1	-	1
Colorado	2	2	2	1	1	-
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	1	-	-	-	-	-
New Mexico	2	2	2	1	1	-
Nevada	1	1	-	-	-	1
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	2	1	-	-	-	1
Wyoming	-	-	-	-	-	-

1/ Three responding hygienists who were residents of Vermont indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and Year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	65	28	37
The University of Vermont	36	16	20
1965	1	-	1
1964	2	2	-
1963	3	3	-
1962	2	1	1
1961	6	4	2
1960	1	-	1
1959	3	-	3
1958	3	2	1
1957	1	-	1
1956	4	-	4
1955	4	3	1
1954	1	-	1
1953	2	1	1
1952	1	-	1
1951	2	-	2
Year not reported	-	-	-
All other schools	29	12	17
1959-1965	6	3	3
1951-1958	7	2	5
Before 1951	16	7	9
Year not reported	-	-	-
School not reported	-	-	-

Table E-3 -- Year First Licensed in Vermont, By Past Professional Activity in Vermont

Year first licensed in Vermont	Out-of-state hygienists		Past professional activity in Vermont					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in Vermont	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	65	-	51	-	-	-	13	1
Year reported	64	731	51	50	503	159.0	12	1
1965	5	5	4	4	4	2.5	1	-
1964	3	6	3	3	6	4.0	-	-
1963	3	9	3	3	9	6.0	-	-
1962	2	8	2	2	8	3.0	-	-
1961	6	30	6	6	30	12.0	-	-
1960	3	18	2	2	12	3.0	1	-
1959	5	35	2	2	14	6.0	3	-
1958	5	40	4	4	32	10.0	1	-
1957	2	18	1	1	9	3.0	1	-
1956	4	40	4	4	40	10.5	-	-
1955	4	44	4	4	44	8.0	-	-
1950-1954	10	141	9	8	115	22.0	1	-
1945-1949	3	54	3	3	54	11.0	-	-
1940-1944	1	26	-	-	-	-	1	-
1935-1939	4	119	2	2	60	10.0	1	1
Before 1935	4	138	2	2	66	48.0	2	-
Year not reported	1	-	-	-	-	-	1	-

1/ Hygienists reporting both years licensed and years ever active in Vermont.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	37
Reasons reported	37 1/
Full-time family obligations	31
Employment in another occupation	-
Attending school	1
Beyond age to practice	1
Poor health	-
Loss of skill to practice	3
Unable to find suitable position as hygienist	-
She prefers not to work	3
Husband does not want her to work	7
Not licensed in state where she currently resides	17
Another reason specified	-
Reasons not reported	-

1/ Figures will add to more than total if hygienists reported more than one reason.

....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....HANDBOOK OF STATISTICS....

DENTAL HYGIENISTS

LICENSED IN

VIRGINIA

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A

Cooperative Project of the

Virginia State Board of Dental Examiners

and the American Association of Dental Examiners

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Public Health Service, National Institutes of Health
Division of Dental Health
Resource Analysis Branch

June 1969

INTRODUCTION

In November 1966, the Virginia State Board of Dental Examiners conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Virginia, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Virginia survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

COMMONWEALTH OF VIRGINIA

VIRGINIA STATE BOARD OF DENTAL EXAMINERS

THE _____ STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF _____ THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____ (LAST) _____ (FIRST) _____ (MIDDLE) _____ (MAIDEN (if ever married))

Present Home Address: _____ (STREET) _____ (CITY) _____ (COUNTY) _____ (STATE) _____ (ZIP CODE)

License Number: _____ Social Security Number: _____

A-1
B-2a, 2c,
B-3c
E-1

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ Single (1) ☐ Married (2) ☐ Widowed (3) ☐ Divorced (4) ☐ Separated (5)
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____; Number in school: _____ (Grades 1-8) _____ (Grades 9-12) _____ (College or business school)
5. Number of children under 15 years: _____ (1 yr. or under) _____ (2-3 yrs.) _____ (4-5 yrs.) _____ (6-7-8 yrs.) _____ (9-10-11 yrs.) _____ (12-13-14 yrs.)

A-2
B-2b, 2c
B-5a, 5b,
5c

B. TRAINING AND EDUCATION

☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ Bachelor degree (1) ☐ Associate degree (2) ☐ Certificate or diploma (3)
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ Bachelor degree (1) ☐ Master degree (2) ☐ Other Degree (3) *(specify* _____)

A-2
B-3a, 3b,
3c, 3d
E-2

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work Full-time	Did you primarily work Part-time
A.	This State	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
B.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
C.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)
D.	_____	19____	☐ (1)	☐ (2)	☐ (1)	☐ (2)	_____	19____	☐ (1)	☐ (2)

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ Yes (1) ☐ No (2)
    IF NO, have you ever been a member? ☐ Yes (1) ☐ No (2)

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

A-2

B-1

D. CURRENT PROFESSIONAL ACTIVITY

15. Current professional status *(check one)*
   1☐ At work as a dental hygienist
   2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
   3☐ Seeking work as a dental hygienist
   4☐ Not working or seeking work as a dental hygienist
   } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where?_____
   In what county do you primarily work?_____

17. In a typical week how many hours do you work for your current employers? _____hours
   (use last week if it was typical, otherwise select the most recent week which was typical)

B-1

B-2c

C-1a,1c

E-1

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization*_____ ..... _____

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

C-2

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify*_____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
   1☐ Yes
   2☐ No

■ **If you currently work in a private dental office complete Items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1 _____ Office 2 _____ Office 3 _____ Office 4 _____ Other Offices _____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists? _____ Specify type(s) _____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months? _____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)* _____

26. How many weeks, if any, were you employed in this State? _____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify* _____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify* _____*)*
6☐ Other goal outside dental hygiene *(specify* _____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify*_____*)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐1 No ☐2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify*_____*)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify*_____*)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
x☐ Other reason *(specify*_____*)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify*_____*)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify*_____*)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify*_____*)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1 Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2 Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4 Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1 Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in Iowa
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1 Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2 Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3 Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene)

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	285	100	262	92
In Virginia	165	58	151	92
In other states	118	41	109	92
In foreign countries	2	1	2	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Virginia, by Location

Characteristics	Licensed hygienists	In Virginia	In other states
Total respondents	260	151	109
Current status			
Active	186	118	68
Inactive	74	33	41
Age in 1966			
Under 25	92	54	38
25 - 29	67	44	23
30 - 34	46	19	27
35 & over	55	34	21
Year hygiene training completed			
1962 - 1966	105	61	44
1957 - 1961	65	37	28
1952 - 1956	46	20	26
Before 1952	40	29	11
Professional activity in Virginia			
Ever active in Virginia	202	140	62
Never active in Virginia	56	10	46

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	151
Active	118
Employed	113 1/
Private dental office	105
Dental hygiene school or other auxiliary program	-
Elementary or secondary school (public or private)	-
City or county health agency	1
State health agency	-
Other local government agency	-
Other state government agency	-
Army, navy, air force	1
Other federal agency	1
Private agency	1
Not reported	4
Unemployed (seeking work as dental hygienist)	5
Inactive	33

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	105	-	-
Activities reported	105	-	-
Oral prophylaxis	105	73	1,824
Other clinical services 1/	88	61	217
Patient dental health education 2/	82	53	155
Management of dental office 3/	29	17	57
Dental assisting tasks 4/	11	5	25
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	105	70	24	9	1	1
Dentists reported	96	64	23	8	1	-
1	53	53	-	-	-	-
2	32	11	21	-	-	-
3	8	-	1	7	-	-
4 or more	3	-	1	1	1	-
Number of dentists not reported	9	6	1	1	-	1

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	105
Worked for general practitioner only	95
Worked for dental specialist 1/	8
Endodontist	-
Oral surgeon	-
Orthodontist	-
Pedodontist	5
Periodontist	2
Prosthodontist	1
Type not reported	2

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	105	-
Time reported 1/	98	2,989
Less than 8	1	6
8	2	16
9 - 15	5	66
16	8	128
17 - 23	8	150
24	9	216
25 - 31	9	264
32	10	320
33 - 34	3	101
35	5	175
36 - 39	6	218
40	21	840
41 or more	11	489
Time not reported	7	-

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	105	-
Time reported 1/	98	3,880
4 or less	-	-
5 - 8	-	-
9 - 12	4	48
13 - 16	3	45
17 - 20	11	205
21 - 24	5	114
25 - 28	7	179
29 - 32	3	94
33 - 36	-	-
37 - 40	3	120
41 - 44	6	259
45 - 47	6	275
48 - 49	12	580
50 - 52	38	1,961
Time not reported	7	-

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	105	-	-
Time reported	98	2,989	3,880
Full time	43	1,722	1,711
Year round	23	920	1,175
Less than year round	20	802	536
Part time	55	1,267	2,169
Year round	27	706	1,366
Less than year round	28	561	803
Time not reported	-	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	68	42	26
School status			
None in school	31	13	18
Some in school 1/	37	29	8
In grades 1 - 8	28	21	7
In grades 9 - 12	12	11	1
In college or business school	9	8	1
School status not reported	-	-	-
Age of children			
With children under 15 years 1/	59	34	25
1 year or less	23	8	15
2 - 3 years	20	9	11
4 - 5 years	15	9	6
6 - 7 - 8 years	19	15	4
9 - 10 - 11 years	11	8	3
12 - 13 - 14 years	11	8	3
With children 15 and over only	8	7	1
Age not reported	1	1	-

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	151	118	33
A member	91	81	10
Not a member, but a member at one time	49	31	18
Not a member, past membership not reported	1	1	-
Never a member	10	5	5
Current and past membership not reported	-	-	-

1/ Excludes junior memberships.

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	151	-	-	-	-	-
Have been active in other States 1/	87	40	22	10	40	5
Alabama	3	1	1	-	1	-
Alaska	1	-	-	-	1	-
California	3	1	-	1	1	-
Colorado	2	-	1	1	-	-
Connecticut	7	2	1	-	4	-
Delaware	2	-	-	-	2	-
District of Columbia	15	5	3	1	4	2
Florida	5	1	-	2	2	-
Georgia	1	-	-	-	1	-
Hawaii	3	2	1	-	-	-
Illinois	2	-	-	-	2	-
Iowa	1	1	-	-	-	-
Kansas	1	-	-	1	-	-
Maine	1	1	-	-	-	-
Maryland	1	1	-	-	-	-
Massachusetts	6	1	2	-	3	-
Michigan	3	1	1	-	1	-
Minnesota	3	-	-	-	2	1
Mississippi	1	-	-	-	1	-
Missouri	2	-	1	1	-	-
New Jersey	6	2	2	1	1	-
New Mexico	1	-	-	-	1	-
New York	11	4	2	1	4	-
North Carolina	2	1	-	-	1	-
Ohio	6	2	1	-	2	1
Oregon	1	-	-	-	1	-
Pennsylvania	11	6	2	-	3	-
Rhode Island	2	-	1	-	-	1
Tennessee	3	2	1	-	-	-
Texas	4	4	-	-	-	-
Washington	1	-	-	-	1	-
West Virginia	5	2	2	1	-	-
Wisconsin	1	-	-	-	1	-
Have not been active in other States	64	-	-	-	-	-
If active in other States not reported	-	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	151	118	46	33
Single	34	33	22	1
Ever married	116	84	24	32
Now married	112	80	23	32
Other status	4	4	1	-
Status not reported	1	1	-	-

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	116	84	24	32
With no children	46	40	21	6
With children	68	42	2	26
1	20	12	1	8
2	35	20	1	15
3	8	5	-	3
4	4	4	-	-
5 or more	1	1	-	-
Number of children not reported	2	2	1	-

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	151	-	140	-	-	-	118	-	-	-
Year reported	149	702	139	102	604	521	117	84	467	443
1966	33	-	32	-	-	-	30	-	-	-
1965	20	20	19	17	17	25	17	15	15	23
1964	11	22	11	10	20	20	9	9	18	19
1963	12	36	11	11	33	32	9	9	27	29
1962	10	40	9	9	36	31	8	8	32	27
1961	8	40	8	8	40	36	7	7	35	34
1960	10	60	10	10	60	40	7	7	42	33
1959	6	42	5	5	35	33	5	5	35	33
1958	6	48	5	5	40	41	5	5	40	41
1957	5	45	4	4	36	27	3	3	27	22
1956	5	50	3	3	30	27	2	2	20	19
1955	6	66	6	6	66	68	5	5	55	65
1954	2	24	2	2	24	22	2	2	24	22
1953	7	91	6	6	78	60	4	4	52	39
1952	2	28	2	1	14	8	-	-	-	-
1951	6	90	6	5	75	51	4	3	45	37
Year not reported	2	-	1	-	-	-	1	-	-	-

1/ Hygienists reporting both years licensed and years ever active.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	5.2	4.5	87
1963 - 1965	27	1.6	1.6	100
1960 - 1962	24	4.9	3.8	78
1957 - 1959	15	6.5	5.9	91
1954 - 1956	11	9.2	9.0	98
1951 - 1953	13	11.1	7.9	71

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	65	5	51	9
Obstacles reported 2/	60	5	47	8
Lack of course offerings in a nearby school	19	1	14	4
Lack of sufficient funds	18	1	16	1
Family obligations	37	3	29	5
Lack of specific information on opportunities available	6	-	6	-
Age 3/	1	-	1	-
Lack of time 3/	1	1	-	-
Other obstacle specified	5	-	3	2
Obstacles not reported	5	-	4	1

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	151	118	33
Have taken courses 1/	8	6	2
School of dental hygiene	3	2	1
State or local dental hygiene association	1	1	-
Dental school	-	-	-
State or local dental association	3	2	1
Other sponsor	-	-	-
Sponsor not reported	3	2	1
Have not taken courses	140	110	30
If courses taken not reported	3	2	1

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	118	85	23	10
2 years or less	56	41	12	3
3 - 5	25	19	4	2
6 - 10	24	16	5	3
11 years or more	9	6	1	2
Years not reported	4	3	1	-
Inactive hygienists, by last year active in this State	33	24	4	5
1964 or later	13	10	2	1
1961 - 1963	6	3	1	2
1956 - 1960	2	-	-	2
Before 1956	1	1	-	-
Never active	10	9	1	-
Year not reported	1	1	-	-

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	151	118	33
Dental hygiene certificate only	92	70	22
Additional college, but no degree	40	34	6
Less than 1 year	1	1	-
1 year but less than 2 years	23	21	2
2 years but less than 3 years	10	6	4
3 years but less than 4 years	3	3	-
4 or more years	-	-	-
Number of years not reported	3	3	-
Bachelor's degree	18	14	4
Master's degree	-	-	-
Doctoral degree	-	-	-
Level of college training not reported	1	-	1
No college training	-	-	-

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	151	118	33
Have seriously considered returning	70	59	11
Now enrolled	3	3	-
Definitely planning to enroll	5	4	1
Still considering enrollment	51	42	9
Definitely decided not to enroll	9	8	1
Current plans not reported	2	2	-
Have never considered returning	75	53	22
Plans to continue education not reported	6	6	-

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	59	49	10
Goal reported 2/	44	35	9
Instructor in a school of dental hygiene	23	18	5
Director of a school of dental hygiene	4	4	-
Dentist	1	1	-
Public health dental hygienist 3/	9	5	4
Hygienist in elementary or high school 3/	1	1	-
Other goal in dental hygiene specified	6	6	-
Goal outside dental hygiene specified	12	10	2
Goal not reported	15	14	1

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3c -- Location of Instate Hygienists, by Selected Schools

Location	Instate hygienists		West Liberty State College		University of Pennsylvania		Temple University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Total	151	118	29	22	29	24	13	9	80	63
Counties										
Albemarle	6	5	3	2	-	-	-	-	3	3
*Arlington	18	15	3	2	10	9	-	-	5	4
Augusta	1	-	-		-	-	-	-	1	-
*Chesterfield	6	6	-	-	1	1	-	-	5	5
*Fairfax	32	24	9	5	2	2	2	1	19	16
Fauquier	3	2	1	1	-	-	-	-	2	1
Gloucester	1	1	-	-	1	1	-	-	-	-
Grayson	1	1	1	1	-	-	-	-	-	-
Halifax	1	-	-	-	-	-	-	-	1	-
*Hanover	1	1	-	-	-	-	-	-	1	1
*Henrico	4	2	1	1	1	-	1	-	1	1
Henry	1	-	-	-	-	-	-	-	1	-
Montgomery	1	1	1	1	-	-	-	-	-	-
Patrick	1	-	-	-	-	-	-	-	1	-
*Prince William	3	1	1	-	-	-	-	-	2	1
Stafford	1	1	-	-	-	-	-	-	1	1
Washington	1	-	-	-	1	-	-	-	-	-
Westmoreland	1	1	-	-	1	1	-	-	-	-
Independent cities										
*Alexandria	12	11	1	1	3	3	-	-	8	7
Charlotteville	1	1	1	1	-	-	-	-	-	-

(continued)

Table B-3c -- Location of Instate Hygienists, by Selected Schools (continued)

Location	Instate hygienists		West Liberty State College		University of Pennsylvania		Temple University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
*Chesapeake	1	-	-	-	-	-	-	-	1	-
Danville	1	1	-	-	-	-	-	-	1	1
*Fairfax	4	2	1	1	1	-	1	-	1	1
*Falls Church	3	3	1	1	-	-	1	1	1	1
Fredericksburg	1	-	-	-	-	-	-	-	1	-
*Hampton	1	-	-	-	-	-	-	-	1	-
*Lynchburg	3	3	2	2	-	-	-	-	1	1
*Newport News	4	2	-	-	2	1	1	-	1	1
*Norfolk	10	10	2	2	2	2	1	1	5	5
*Portsmouth	1	1	-	-	-	-	1	1	-	-
*Richmond	11	8	-	-	1	1	2	2	8	5
*Roanoke	3	3	-	-	2	2	-	-	1	1
*Virginia Beach	9	9	-	-	1	1	3	3	5	5
Winchester	1	1	1	1	-	-	-	-	-	-
Other locations 1/	2	2	-	-	-	-	-	-	2	2

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Responding hygienists employed in Virginia but residing in a neighboring state.

Table B-3a -- School Attended for Dental Hygiene Training (continued)

School	Instate hygienists	Active	Inactive
Guggenheim School for Dental Hygienists	1	-	1
Baylor University	1	-	1
University of Texas Dental Branch	1	-	1
University of Hawaii	1	1	-
School not reported	2	-	2
With no formal academic training	-	-	-

1/ Includes any graduates from Eastman Dental Dispensary and Rochester Dental Dispensary.
2/ Includes any graduates from Fones School of Dental Hygiene.
3/ Includes any graduates from Kansas City - Western Dental College.
4/ Includes any graduates from New York State Institute of Applied Arts and Science -- Buffalo.
5/ Includes any graduates from Long Island Agriculture and Technical Institute.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools		West Liberty State College		University of Pennsylvania		Temple University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Instate hygienists	151	118	29	22	29	24	13	9	80	63
1966	17	17	2	2	4	4	2	2	9	9
1965	8	8	1	1	2	2	-	-	5	5
1964	13	10	-	-	5	5	3	3	5	2
1963	11	9	3	3	1	-	-	-	7	6
1962	12	7	1	1	5	3	1	1	5	2
1961	10	7	5	5	1	1	2	1	2	-
1960	8	7	2	2	1	1	-	-	5	4
1959	4	3	1	-	-	-	-	-	3	3
1958	10	8	4	2	-	-	1	1	5	5
1957	5	3	1	-	1	1	-	-	3	2
1956	3	1	1	-	-	-	1	1	1	-
1955	6	6	2	2	1	1	-	-	3	3
1954	4	3	1	1	1	1	1	-	1	1
1953	4	2	3	2	-	-	1	-	-	-
1952	3	2	-	-	-	-	-	-	3	2
1947-1951	10	8	1	1	3	2	1	-	5	5
Before 1947	19	15	-	-	3	2	-	-	16	13
Year not reported	4	2	1	-	1	1	-	-	2	1

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Virginia and Selected Areas 1/ (continued)

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Virginia Beach City	9	2	5	2	-	-
Active	9	2	5	2	-	-
Employed in private dental office	8	2	4	2	-	-
Other active	1	-	1	-	-	-
Inactive	-	-	-	-	-	-
All other areas 2/	59	20	19	8	12	-
Active	41	13	14	5	9	-
Employed in private dental office	34	11	13	4	6	-
Other active	7	2	1	1	3	-
Inactive	18	7	5	3	3	-

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties and independent cities with 9 or more responding hygienists.

2/ Includes two responding hygienists employed in Virginia but residing in a neighboring state.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	151	118	33
With formal academic training	151	118	33
West Liberty State College	29	22	7
University of Pennsylvania	29	24	5
Temple University	13	9	4
Howard University	7	7	-
Monroe Community College 1/	6	5	1
University of Tennessee	6	4	2
University of North Carolina	5	3	2
Ohio State University	5	5	-
University of Bridgeport 2/	4	3	1
Georgetown University	3	3	-
Northwestern University	3	3	-
Westbrook Junior College	3	3	-
Forsyth School for Dental Hygienists	3	2	1
University of Michigan	3	3	-
University of Missouri at Kansas City 3/	3	3	-
Fairleigh Dickinson University	3	2	1
State University of Iowa	2	2	-
University of Minnesota	2	2	-
Columbia University	2	2	-
Erie County Technical Institute 4/	2	1	1
State University of New York at Farmingdale 5/	2	2	-
Marquette University	2	2	-
University of Alabama	1	-	1
University of California	1	-	1
Palm Beach Junior College	1	1	-
Loyola University at New Orleans	1	-	1
University of Louisville	1	1	-
Broome Technical Institute	1	1	-
Hudson Valley Community College	1	1	-
Onondage Community College	1	1	-

(continued)

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	151	118	46	33
Under 20	3	2	1	1
20 - 24 years	51	43	27	8
25 - 29 years	44	32	11	12
30 - 34 years	19	14	3	5
35 - 39 years	7	6	-	1
40 - 44 years	8	7	1	1
45 - 49 years	6	4	-	2
50 - 54 years	9	8	1	1
55 - 59 years	4	2	2	2
60 years & over	-	-	-	-
Not reported	-	-	-	-
Median age	27.4	27.2	24.1	28.1

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Virginia and Selected Areas 1/

Area and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
Total	151	54	44	19	34	-
Active	118	45	32	14	27	-
Employed in private dental office	105	42	29	13	21	-
Other active	13	3	3	1	6	-
Inactive	33	9	12	5	7	-
*Arlington County	18	12	-	3	3	-
Active	15	12	-	2	1	-
Employed in private dental office	15	12	-	2	1	-
Other active	-	-	-	-	-	-
Inactive	3	-	-	1	2	-
*Fairfax County	32	8	10	2	12	-
Active	24	6	5	1	12	-
Employed in private dental office	21	5	5	1	10	-
Other active	3	1	-	-	2	-
Inactive	8	2	5	1	-	-
*Alexandria City	12	4	2	2	4	-
Active	11	4	2	2	3	-
Employed in private dental office	10	4	2	2	2	-
Other active	1	-	-	-	1	-
Inactive	1	-	-	-	1	-
*Norfolk City	10	4	3	1	2	-
Active	10	4	3	1	2	-
Employed in private dental office	10	4	3	1	2	-
Other active	-	-	-	-	-	-
Inactive	-	-	-	-	-	-
*Richmond City	11	4	5	1	1	-
Active	8	4	3	1	-	-
Employed in private dental office	7	4	2	1	-	-
Other active	1	-	1	-	-	-
Inactive	3	-	2	-	1	-

(continued)

Table B-2a -- Location, by County and Independent City

Location 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	165	151	118	46	33
Counties					
Albermarle	6	6	5	3	1
*Arlington	20	18	15	8	3
Augusta	1	1	-	-	1
*Chesterfield	6	6	6	1	-
*Fairfax	34	32	24	4	8
Fauquier	3	3	2	-	1
Gloucester	1	1	1	-	-
Grayson	1	1	1	1	-
Halifax	1	1	-	-	1
*Hanover	1	1	1	-	-
*Henrico	4	4	2	-	2
Henry	1	1	-	-	1
Montgomery	1	1	1	-	-
Patrick	1	1	-	-	1
*Prince William	3	3	1	-	2
Stafford	1	1	1	-	-
Washington	1	1	-	-	1
Westmoreland	1	1	1	-	-
Independent cities					
*Alexandria	15	12	11	4	1
Charlotteville	1	1	1	1	-
*Chesapeake	1	1	-	-	1
Danville	2	1	1	-	-
*Fairfax	5	4	2	-	2
*Falls Church	5	3	3	2	-
Fredericksburg	1	1	-	-	1
*Hampton	1	1	-	-	1
*Lynchburg	3	3	3	1	-
*Newport News	6	4	2	1	2
*Norfolk	10	10	10	4	-
*Portsmouth	1	1	1	-	-

(continued)

Table B-2a -- Location, by County and Independent City (continued)

Location 1/	Inactive instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
*Richmond	11	11	8	6	3
*Roanoke	3	3	3	3	-
*Virginia Beach	10	9	9	4	-
Winchester	1	1	1	1	-
Other locations 2/	2	2	2	1	-

* Counties and independent cities included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no hygienists in 78 of the 96 counties and 18 of the 37 independent cities in Virginia; 5 of the 78 counties with no hygienists are defined as Metropolitan counties. None of the 18 independent cities with no hygienists are defined as Metropolitan Areas.

2/ Responding hygienists employed in Virginia but residing in a neighboring state.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	105	23	20	27	28	7
Reporting type(s) of compensation	103	22	19	27	28	7
Salary only	23	3	5	7	4	4
Commission only	62	13	14	16	17	2
Both salary and commission only	13	4	-	2	6	1
Salary only, commission only 2/	2	1	-	1	-	-
Salary only, both salary and commission 2/	1	1	-	-	-	-
Commission only, both salary and commission 2/	2	-	-	1	1	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	-	-	-	-	-	-
Type of compensation not reported	2	1	1	-	-	-

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	105	23	20	27	28	7
Earnings reported	87	21	18	24	22	2
$1,000 or less	6	-	1	-	5	-
1,000 - 1,999	7	-	1	-	5	1
2,000 - 2,999	8	-	3	1	4	-
3,000 - 3,999	10	-	4	4	2	-
4,000 - 4,999	17	2	3	6	6	-
5,000 - 5,999	6	-	2	4	-	-
6,000 - 6,999	10	5	1	3	-	1
7,000 - 7,999	6	4	-	2	-	-
8,000 - 8,999	11	5	2	4	-	-
9,000 - 9,999	3	3	-	-	-	-
10,000 & over	3	2	1	-	-	-
None 3/	-	-	-	-	-	-
Earnings not reported	18	2	2	3	6	5

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	33
Reasons reported 1/	33
Full-time family obligations	28
Employment in another occupation	1
Attending school	-
Beyond age to practice	-
Poor health	-
Loss of skill to practice	-
Unable to find suitable position as hygienist	3
She prefers not to work	4
Husband does not want her to work	2
Another reason specified	1
Reasons not reported	-

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	33	4	9	18	2
Degree reported	33	4	9	18	2
Very definite	9	4	3	2	-
Fairly definite	11	-	6	3	2
Not at all definite	13	-	-	13	-
Degree not reported	-	-	-	-	-

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	20	4	9	5	2
Time until return reported	20	4	9	5	2
Within the next year	2	1	-	1	-
Within the next 5 years	11	2	5	2	2
Within the next 10 years	5	-	4	1	-
Within the next 15 years	1	-	-	1	-
More than 15 years from now	-	-	-	-	-
Never	1	1	-	-	-
Time not reported	-	-	-	-	-

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	12	1	7	4	-	-
Preferred time reported	12	1	7	4	-	-
8 hours a day	5	1	2	2	-	-
5 days a week	-	-	-	-	-	-
Less than 5 days a week	5	1	2	2	-	-
Less than 8 hours a day	7	-	5	2	-	-
5 days a week	1	-	-	1	-	-
Less than 5 days a week	6	-	5	1	-	-
Time preferred not reported	-	-	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	33
Conditions reported 1/	29
When youngest child starts elementary school	17
When youngest child starts high school	2
When youngest child starts college	-
When a position is available in her community	7
When husband needs her in his practice, if he is a dentist	6
After completion of refresher training, if such training were available in a nearby community college or university	2
After completion of additional college training which would qualify her for a more advanced position as a hygienist	-
Because of illness, disability or death of husband 2/	1
Another condition specified	-
Condition not reported	4

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	33
Reasons reported 1/	32
For self satisfaction	27
To add to the family income for children's education	10
For other financial reasons	5
To keep in practice 2/	2
Another reason specified	1
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	33
Situations reported 1/	14
Lack of opportunities for hygienist in her community	7
Feels she might be too old to practice again	1
Feels she might have lost her skill to practice	4
Has too great an investment in another occupation	1
Satisfactory working hours not available 2/	1
Unsatisfactory wages 2/	-
Another situation specified	-
No situation was reported	19

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, by Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	33	-	-	-	-
Employed in					
Private dental office	9	1	7	1	-
Army, navy, air force	1	1	-	-	-
Not employed	23	-	-	-	-

1/ Includes activity in any state.
2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	118	109	68	56	12	41
Northeast	23	19	11	8	3	8
Connecticut	2	2	1	1	-	1
Maine	1	1	-	-	-	1
Massachusetts	4	4	1	-	1	3
New Hampshire	-	-	-	-	-	-
New Jersey	5	3	1	1	-	2
New York	3	3	3	3	-	-
Pennsylvania	8	6	5	3	2	1
Rhode Island	-	-	-	-	-	-
Vermont	-	-	-	-	-	-
South	69	66	40	34	6	26
Alabama	1	1	1	1	-	-
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	2	1	-	-	-	1
Florida	6	6	2	2	-	4
Georgia	1	1	-	-	-	1
Kentucky	2	2	1	-	1	1
Louisiana	-	-	-	-	-	-
Maryland	20	19	12	11	1	7
Mississippi	-	-	-	-	-	-
North Carolina	16	16	12	8	4	4
Oklahoma	1	1	-	-	-	1
South Carolina	3	3	-	-	-	3
Tennessee	-	-	-	-	-	-
Texas	3	3	1	1	-	2
Virginia 1/	6	6	6	6	-	-
West Virginia	8	7	5	5	-	2

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	10	8	6	6	-	2
Illinois	1	1	1	1	-	-
Indiana	2	2	1	1	-	1
Iowa	1	-	-	-	-	-
Kansas	-	-	-	-	-	-
Michigan	1	1	1	1	-	-
Minnesota	1	1	1	1	-	-
Missouri	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-
Ohio	2	2	1	1	-	1
South Dakota	-	-	-	-	-	-
Wisconsin	2	1	1	1	-	-
West	16	16	11	8	3	5
Alaska	1	1	1	-	1	-
Arizona	-	-	-	-	-	-
California	10	10	7	6	1	3
Colorado	2	2	1	1	-	1
Hawaii	-	-	-	-	-	-
Idaho	-	-	-	-	-	-
Montana	1	1	1	1	-	-
New Mexico	-	-	-	-	-	-
Nevada	-	-	-	-	-	-
Oregon	-	-	-	-	-	-
Utah	-	-	-	-	-	-
Washington	2	2	1	-	1	1
Wyoming	-	-	-	-	-	-

1/ Six responding hygienists who were residents of Virginia indicated that they were employed in a neighboring state.

Table E-2 -- Year Certificate or Degree Was Received, by Current Professional Status

Year certificate or degree was received	Out-of-State hygienists	Active	Inactive
Total	109	68	41
1962 - 1966	44	39	5
1957 - 1961	28	12	16
1952 - 1956	26	8	18
Before 1952	11	9	2

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	109	-	62	-	-	-	46	1
Year reported	107	577	62	55	342	133.5	45	-
1966	16	-	5	-	-	-	11	-
1965	15	15	7	6	6	5.0	8	-
1964	11	22	10	10	20	12.0	1	-
1963	5	15	3	3	9	7.0	2	-
1962	9	36	6	6	24	10.0	3	-
1961	5	25	4	4	20	6.0	1	-
1960	7	42	4	4	24	12.0	3	-
1959	2	14	2	2	14	3.5	-	-
1958	9	72	5	5	40	22.0	4	-
1957	3	27	1	1	9	5.0	2	-
1956	5	50	4	3	30	12.0	1	-
1955	4	44	3	3	33	8.0	1	-
1954	5	60	1	1	12	2.0	4	-
1953	5	65	3	3	39	9.0	2	-
1952	2	28	-	-	-	-	2	-
1951	3	45	3	3	45	15.0	-	-
1950	-	-	-	-	-	-	-	-
1949	1	17	1	1	17	5.0	-	-
Year not reported	2	-	-	-	-	-	1	1

1/ Hygienists reporting both years licensed and years ever active in this State.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	41
Reasons reported 1/	40
Full-time family obligations	31
Employment in another occupation	1
Attending school	1
Beyond age to practice	-
Poor health	1
Loss of skill to practice	2
Unable to find suitable position as hygienist	1
She prefers not to work	8
Husband does not want her to work	6
Not licensed in state where she currently resides	16
Another reason specified	1
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

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DENTAL HYGIENISTS

LICENSED IN

WISCONSIN

1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A

Cooperative Project of the

Wisconsin Dentistry Examining Board

and the American Association of Dental Examiners

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, National Institutes of Health
Division of Dental Health
Resource Analysis Branch

May 1969

INTRODUCTION

In July 1966, the Wisconsin Dentistry Examining Board conducted a mail survey of all dental hygienists licensed to practice in the State. This survey was conducted concurrently with the hygienists' annual reregistration with the Board.

Statistics presented in this Handbook were tabulated from the information furnished by the dental hygienists who completed and returned their questionnaires. The location of each nonrespondent was obtained from the Board records.

This statistical presentation has been designed to provide most of the basic facts which were collected in the survey. Pertinent cross-tabulations of data have been presented when the number of hygienists in the specific population group was large enough to provide meaningful data.

Since this was a survey of hygienists licensed in Wisconsin, the data exclude an unknown number of inactive hygienists who reside in the State but are not licensed to practice there. Also excluded may be a few nonlicensed hygienists who are working in the State either for the Federal Government or for some employer in an administrative or other nonclinical position in which licensure is not a prerequisite for employment.

The Wisconsin survey is part of a national endeavor: Dental examining boards in virtually all of the States are utilizing the same questionnaire printed under their own letterheads, to survey dental hygienists licensed in their respective States. The American Association of Dental Examiners, under a contract with the Division of Dental Health of the National Institutes of Health, USPHS, is coordinating this national survey program to assist States in developing comparable information about their dental manpower resources. The preparation of this Handbook has been made possible through the cooperation of the American Association of Dental Examiners and the Division of Dental Health, Resource Analysis Branch.

FROM SURVEY QUESTIONNAIRE TO STATISTICAL TABLES

Information gathered by survey questionnaires is compiled into statistical tables which present a profile of the professional activities of dental hygienists licensed in this State. To see the uses made of data gathered by this questionnaire, turn to the tables listed on the right, which have been prepared from replies to questions on the left.....

The State of Wisconsin

BOARD OF DENTAL EXAMINERS
819 North Sixth Street
Milwaukee, Wisconsin 53203

THE ____ STATE BOARD OF DENTAL EXAMINERS HAS UNDERTAKEN A COOPERATIVE PROJECT WITH THE AMERICAN ASSOCIATION OF DENTAL EXAMINERS AND THE PUBLIC HEALTH SERVICE TO DEVEVLOP AN ANALYSIS OF THE DISTRIBUTION AND AVAILABILITY OF DENTAL HEALTH SERVICES IN THE STATE OF ____ THE INFORMATION PROVIDED WILL BE USED FOR STATISTICAL PURPOSES ONLY.

Name: _____
LAST FIRST MIDDLE MAIDEN (if ever married)

Present Home Address: _____
STREET CITY COUNTY STATE ZIP CODE

License Number: _____ Social Security Number: _____

A. PERSONAL CHARACTERISTICS

1. Year of birth: _____ 2. Marital status: ☐ Single (1) ☐ Married (2) ☐ Widowed (3) ☐ Divorced (4) ☐ Separated (5)
3. If ever married, number of years in your current marital status: _____
4. Total number of dependent children: _____ Number in school: _____ Grades 1-8 _____ Grades 9-12 _____ College or business school
5. Number of children under 15 years: _____ 1 yr. or under _____ 2-3 yrs. _____ 4-5 yrs. _____ 6-7-8 yrs. _____ 9-10-11 yrs. _____ 12-13-14 yrs.

B. TRAINING AND EDUCATION ☐ Check here if no formal academic training in dental hygiene and skip to Section C

6. Name of dental hygiene school: _____
7. Type of certificate or degree in dental hygiene received:
   ☐ Bachelor degree (1) ☐ Associate degree (2) ☐ Certificate or diploma (3)
8. What was your Name at the time you completed your training? _____
9. Year granted: _____
10. Number of years of **additional** college training completed, if any: _____
    Degrees earned, if any: ☐ Bachelor degree (1) ☐ Master degree (2) ☐ Other Degree (specify _____)

C. PROFESSIONAL HISTORY

11. Complete a line for each state in which you have **ever been** licensed to practice:

	Name of State	Year first licensed	Are you licensed today? Yes	Are you licensed today? No	Have you ever practiced in this State? Yes	Have you ever practiced in this State? No	Number of years in practice	Last year in practice	Did you primarily work: Full-time	Did you primarily work: Part-time
A.	This State	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
B.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
C.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2
D.	_____	19____	☐ 1	☐ 2	☐ 1	☐ 2	_____	19____	☐ 1	☐ 2

12. Total number of years you have been licensed to practice: _____ years
13. Total number of years you have practiced: _____ years
14. Are you now a member of the American Dental Hygienists' Association? ☐ Yes (1) ☐ No (2)
    IF NO, have you ever been a member? ☐ Yes (1) ☐ No (2)

A-1
B-2a, 2c,
B-3c
E-1

A-2
B-2b, 2c
B-5a, 5b,
5c

A-2
B-3a, 3b,
3c, 3d
E-2

A-2
B-3i
B-4a, 4b,
4c
B-6
E-3

D. CURRENT PROFESSIONAL ACTIVITY

A-2

B-1

15. Current professional status *(check one)*
   1☐ At work as a dental hygienist
   2☐ Employed as a dental hygienist, but temporarily absent from work *(because of vacation, sickness, school recess, etc.)*
   3☐ Seeking work as a dental hygienist
   4☐ Not working or seeking work as a dental hygienist
   } If you checked one of these boxes, skip to Section E

16. Are you currently employed in this state? 1☐ Yes 2☐ No If in another state, where?_____
   In what county do you primarily work?_____

17. In a typical week how many hours do you work for your current employers? _____hours
   (use last week if it was typical, otherwise select the most recent week which was typical)

B-1

B-2c

C-1a,1c

E-1

18a. Check all places where you currently work:

18b. How many hours do you work in a typical week? *(complete only if 2 or more boxes are checked in Item 18a; hours should equal those in Item 17)*

- ☐ PRIVATE DENTAL OFFICE(S) ..... _____
- ☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM ..... _____
- ☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)* ..... _____
- ☐ CITY OR COUNTY HEALTH AGENCY ..... _____
- ☐ STATE HEALTH AGENCY ..... _____
- ☐ OTHER LOCAL GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ OTHER STATE GOVERNMENT AGENCY *specify*_____ ..... _____
- ☐ ARMY, NAVY, AIR FORCE ..... _____
- ☐ OTHER FEDERAL AGENCY ..... _____
- ☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify organization*_____ ..... _____

C-2

19a. Check all types of activity you currently perform:

19b. How many hours do you spend at this activity in a typical week? *(complete only if 2 or more boxes are checked in Item 19a; hours should equal those in Item 17)*

- ☐ ORAL PROPHYLAXIS ..... _____
- ☐ OTHER CLINICAL SERVICE *(radiographs, fluoride applications, etc.)* ..... _____
- ☐ PATIENT DENTAL HEALTH EDUCATION *(time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.)* ..... _____
- ☐ MANAGEMENT OF DENTAL OFFICE OR DENTAL CLINIC *(recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.)* ..... _____
- ☐ DENTAL ASSISTING *(preparing tray set-ups, passing instruments, pouring models, etc.)* ..... _____
- ☐ GROUP DENTAL HEALTH EDUCATION *(classroom instruction of students in elementary schools, talks before civic groups, etc.)* ..... _____
- ☐ INSTRUCTION OF DENTAL HYGIENE STUDENTS OR OTHER DENTAL AUXILIARY STUDENTS ..... _____
- ☐ ADMINISTRATION *(Director of school of dental hygiene, coordinator of dental program in a school or local health dept., etc.)* ..... _____
- ☐ DENTAL RESEARCH *(basic science, clinical, behavioral, etc.)* ..... _____
- ☐ OTHER ACTIVITY *specify*_____ ..... _____

20. If you work in a private dental office and some place else, were the hours spent in these activities all devoted to your private dental practice?
   1☐ Yes
   2☐ No

■ **If you currently work in a private dental office complete items 21-24; otherwise skip to Section E**

21. Number of different dental offices where you currently work _____

22. Number of dentists whose patients you care for in each dental office:
Office 1 _____ Office 2 _____ Office 3 _____ Office 4 _____ Other Offices _____

23. Are all of these dentists general practitioners? 1☐ Yes 2☐ No
IF NO, how many are specialists? _____ Specify type(s) _____

24. Which type of compensation do you receive? *(If type varies among offices check all that apply)*
1☐ Salary only 2☐ Commission (or percentage) only 3☐ Both salary (or guarantee) and commission

E. PROFESSIONAL ACTIVITY DURING LAST TWELVE MONTHS

☐ Check here if you were not employed as a dental hygienist and skip to Section F

25. How many weeks were you employed during the last 12 months? _____ How many of these weeks were you employed and paid but not at work? *(vacation, sick leave, school recess, etc.)* _____

26. How many weeks, if any, were you employed in this State? _____
How many weeks, if any, were you employed in another State(s)? _____ Name the State(s) _____

27a. Check all places where you worked during the last 12 months:	27b. Indicate whether you worked: Full-time only	Part-time only	Combination of full-time and part-time	27c How many weeks were you employed in the last 12 months? *(complete only if 2 or more boxes are checked in Item 27a.)*
☐ PRIVATE DENTAL OFFICE(S)	1☐	2☐	3☐	_____
☐ DENTAL HYGIENE SCHOOL OR OTHER DENTAL AUXILIARY PROGRAM	1☐	2☐	3☐	_____
☐ ELEMENTARY OR SECONDARY SCHOOL *(public or private)*	1☐	2☐	3☐	_____
☐ CITY OR COUNTY HEALTH AGENCY	1☐	2☐	3☐	_____
☐ STATE HEALTH AGENCY	1☐	2☐	3☐	_____
☐ OTHER LOCAL GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ OTHER STATE GOVERNMENT AGENCY *specify* _____	1☐	2☐	3☐	_____
☐ ARMY, NAVY, AIR FORCE	1☐	2☐	3☐	_____
☐ OTHER FEDERAL AGENCY	1☐	2☐	3☐	_____
☐ PRIVATE ORGANIZATION *(voluntary agency, prepaid dental plan, etc.)* *specify* _____	1☐	2☐	3☐	_____

28. What were your gross earnings *(before deductions)* from dental hygiene practice during last 12 months? $_____
(If exact figure is not available, give best estimate to the nearest $500)

F. CONTINUING EDUCATION

29. Have you taken any short-term courses in dental hygiene or related subjects in the last 12 months? 1☐ Yes 2☐ No
IF YES, who sponsored the course(s)? *(check all that apply)*
1☐ School of dental hygiene
2☐ State or local dental hygiene association
3☐ Dental school
4☐ State or local dental association

30. Have you seriously considered returning to college to continue your education? 1☐ Yes 2☐ No
IF YES, what is your current situation? *(check one)*
1☐ Now enrolled in college
2☐ Definitely planning to enroll
3☐ Still considering enrollment
4☐ Definitely decided not to enroll

31. What would be your goal for advancement if you did continue your education?
1☐ Instructor in a school of dental hygiene
2☐ Director of a school of dental hygiene
3☐ Dentist
4☐ Public health dental hygienist
5☐ Other goal in dental hygiene *(specify* _____*)*
6☐ Other goal outside dental hygiene *(specify* _____*)*

C-3a
C-3b
C-4a
C-1b
C-1c
D-3
C-4
B-3h
B-3e, 3g
B-3f

B-3g

32. If you would like to return to college, what is likely to keep you from doing so? *(check all that apply)*

1☐ Lack of course offerings in a nearby school
2☐ Lack of sufficient funds
3☐ Family obligations
4☐ Lack of specific information on opportunities available
5☐ Other reason *(please specify_____)*

B-3i

33. Would you be interested in taking refresher training in dental hygiene, if such training were available to you in a nearby school?
Yes ☐1 No ☐2 **IF YES,** in what areas do you feel you need refresher training? *(check all that apply)*

1☐ Theory of dental hygiene practice
2☐ Prophylaxis
3☐ X-ray techniques
4☐ Other clinical skills *(specify_____)*

■ **If you are currently working as a hygienist you have completed the questionnaire after answering Item 33**

G. STATUS OF CURRENTLY INACTIVE HYGIENISTS

D-1

34. Which of the following best describe why you are not in practice today? *(check all that apply)*

1☐ Full-time family obligations
2☐ Employment in another occupation *(specify_____)*
3☐ Attending school
4☐ Beyond age to practice
5☐ Poor health
6☐ Loss of skill to practice
7☐ Unable to find suitable position as hygienist
8☐ You prefer not to work
9☐ Husband does not want you to work
0☐ Not licensed in state where you currently reside
X☐ Other reason *(specify_____)*

E-4

D-2b, 2c

35. Approximately when do you think you will return to practice, according to your present plans for the future? *(check one which most nearly approximates your present plans)*

1☐ Within the next year
2☐ Within the next 5 years
3☐ Within the next 10 years
4☐ Within the next 15 years
5☐ More than 15 years from now
6☐ Never

D-2a, 2b

36. How definite are your present plans
a. About ever returning to practice? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite
b. About the time, if ever, when you will return? 1☐ Very definite 2☐ Fairly definite 3☐ Not at all definite

D-2c

37. If you do return to practice, would you prefer to work: *(check one)*

1☐ 8 hours a day, 5 days a week
2☐ 8 hours a day, less than 5 days a week
3☐ Less than 8 hours a day, 5 days a week
4☐ Less than 8 hours a day, less than 5 days a week

D-2e

38. What would be your reason for returning to practice? *(check all that might apply)*

1☐ For self satisfaction
2☐ To add to the family income for the education of your children
3☐ For other financial reasons
4☐ Other *(specify_____)*

D-2d

39. Under what conditions would you be likely to return to practice? *(check all that might apply)*

1☐ When your youngest child starts to elementary school
2☐ When your youngest child starts to high school
3☐ When your youngest child starts to college
4☐ When you obtain a license to practice in the state where you now live
5☐ When a position is available in your community
6☐ When your husband needs you in his practice, if he is a dentist
7☐ After completion of refresher training, if such training were available to you in a nearby community college or university
8☐ After completion of additional college training which would qualify you for a more advanced position as a hygienist
9☐ Other *(specify_____)*

D-2f

40. If you would like to practice again, what might keep you from seeking a position as a hygienist? *(check all that might apply)*

1☐ Difficulty in securing a license
2☐ Lack of opportunities for hygienists in your community
3☐ You feel you might be too old to practice again
4☐ You feel you might have lost your skill to practice
5☐ You have too great an investment in another occupation
6☐ Other *(specify_____)*

STATISTICAL TABLES

The general topic of each table, or series of tables, is listed below. An * before a topic heading indicates a series of tables.

A. Licensed hygienists
   1. Survey response
   2. Selected characteristics of instate and out-of-state licensees

B. Instate active and inactive hygienists
   1. Current professional status
   *2. Location and age
   *3. Education
      (Dental hygiene and other college training, interest in returning to college and in taking refresher training)
   *4. Professional activity since licensure
   *5. Family characteristics
      (Marital status and dependent children)
   6. Membership in American Dental Hygienists' Association

C. Instate practicing hygienists
   (Hygienists employed in private dental offices)
   *1. Time worked
   2. Activities performed
   *3. Employing dentists
   *4. Compensation
      (Type and amount)

D. Instate inactive hygienists
   1. Reasons for not practicing
   *2. Future professional plans
   3. Professional activity in last year

E. Out-of-state hygienists
   1. Location and current status
   2. School attended for hygiene training
   3. Past professional activity in this state
   4. Reasons inactive hygienists are not practicing

EXPLANATION OF SELECTED TERMS USED IN STATISTICAL TABLES

Licensed dental hygienists are divided into three groups according to their location at the time of the survey:

1. Instate hygienists include respondents who were professionally active in the survey state, as well as inactive respondents and all nonrespondents who resided in the survey state. (Excludes survey state residents who were active in another state)

2. Out-of-state hygienists include respondents who were professionally active in one of the other 49 states or the District of Columbia, as well as inactive respondents and all nonrespondents who resided in another state.

3. Hygienists in foreign countries include all other hygienists surveyed

Respondents include hygienists who completed and returned their questionnaire and provided sufficient information to determine their current professional status. Nonrespondents include all other hygienists surveyed.

The current professional status of hygienists was determined according to their reported activity in dental hygiene at the time of the survey:

1. Active hygienists include those who were employed as a dental hygienist in any position which required the special training of a dental hygienist, as well as unemployed hygienists who reported they were seeking employment as a dental hygienist

2. Inactive hygienists include those who were not professionally active. (Includes hygienists who were employed in any occupation other than dental hygiene).

In the presentation of current employment statistics the term practicing hygienists relates specifically to those who were working in a private dental office. However, in statistical presentations relating to inactive hygienists or to trends in professional activity the terms "practicing" or "in practice" are used in a broader connotation referring to all professionally active hygienists.

Table A-1 -- Survey Response

Location	Licensed hygienists		Respondents	Response rate
	Number	Percent		
Total	1,050	100	961	92
In Wisconsin	679	65	632	93
In other states	364	34	323	89
In foreign countries	7	1	6	-

Table A-2 -- Selected Characteristics of Hygienists Licensed in Wisconsin, by Location

Characteristics	Licensed hygienists	In Wisconsin	In other states
Total respondents	955	632	323
Current status			
Active	519	358	161
Inactive	436	274	162
Age in 1966			
Under 25	204	127	77
25 - 29	215	139	76
30 - 34	135	87	48
35 & over	398	276	122
Dental hygiene school			
Marquette University	830	567	263
All other schools	120	62	58
Year hygiene training completed			
1957 - 1966	436	273	163
1947 - 1956	271	185	86
1937 - 1946	142	101	41
Before 1937	98	68	30
Professional activity in Wisconsin			
Ever active in Wisconsin	809	604	205
Never active in Wisconsin	134	23	111

NOTE: Figures within a grouping will not add to the total if some hygienists did not report information for that particular item on the questionnaire.

Table B-1 -- Current Professional Status, by Place of Employment

Status and place of employment	Instate hygienists
Total	632
Active	358 1/
Employed	338
Private dental office	288
Dental hygiene school or other auxiliary program	14
Elementary or secondary school (public or private)	12
City or county health agency	10
State health agency	2
Other local government agency	1
Other state government agency	2
Army, navy, airforce	1
Other federal agency	3
Private agency	5
Not reported	16
Unemployed (seeking work as dental hygienist)	20
Inactive	274

1/ Figures will add to more than total if hygienists reported more than one type of employer.

Table B-2a -- County Location

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Total	679	632	358	87	274
Barron	2	1	-	-	1
*Brown	26	25	12	3	13
Buffalo	1	1	-	-	1
Calumet	2	1	1	1	-
Chippewa	4	4	2	-	2
Columbia	2	1	1	1	-
*Dane	60	58	43	13	15
Dodge	9	9	4	2	5
Door	1	1	1	-	-
*Douglas	1	1	1	-	-
Dunn	1	1	1	1	-
Eau Claire	9	9	5	-	4
Fond Du Lac	9	9	3	-	6
Grant	1	1	1	-	-
Green	1	1	1	-	-
Iowa	1	1	-	-	1
Jefferson	6	6	2	-	4
Juneau	1	1	-	-	1
*Kenosha	11	10	3	2	7
Kewaunee	2	2	1	-	1
La Crosse	8	8	6	2	2
Lincoln	2	1	-	-	1
Manitowoc	10	10	5	1	5
Marathon	14	14	9	1	5
Marinette	1	1	1	-	-
*Milwaukee	248	226	130	30	96
Monroe	4	3	-	-	3
Oconto	1	1	-	-	1
Oneida	6	6	3	-	3
Outagamie	27	25	16	8	9
*Ozaukee	16	13	7	1	6
Pepin	1	1	1	-	-
Portage	4	4	3	1	1
*Racine	17	16	11	4	5
Richland	1	-	-	-	-

(continued)

Table B-2a -- County Location (continued)

County 1/	Licensed instate hygienists	Respondents			
		Total	Active		Inactive
			Total	Employed full time, year round	
Rock	14	14	8	3	6
Rusk	1	1	-	-	1
St. Croix	1	1	1	1	-
Sauk	7	7	3	-	4
Shawano	4	4	1	-	3
Sheboygan	18	17	7	2	10
Trempealeau	1	1	-	-	1
Vernon	2	2	1	-	1
Vilas	4	2	1	-	1
Walworth	6	5	4	-	1
*Washington	10	10	6	-	4
*Waukesha	60	55	29	6	26
Waupaca	2	2	1	-	1
Waushara	1	1	1	-	-
Winnebago	24	24	13	4	11
Wood	8	8	2	-	6
Other locations 2/	6	6	6	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ There were apparently no licensed hygienists in 21 of the 72 counties in Wisconsin; none of the 21 counties are defined as metropolitan counties.

2/ Responding hygienists employed in Wisconsin but residing in neighboring states.

Table B-2b -- Age Distribution in 1966

Age	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total, all ages	632	358	87	274
20 - 24 years	127	113	44	14
25 - 29 years	139	68	8	71
30 - 34 years	87	36	4	51
35 - 39 years	89	38	5	51
40 - 44 years	64	32	6	32
45 - 49 years	53	28	5	25
50 - 54 years	33	21	7	12
55 - 59 years	27	16	7	11
60 years & over	10	4	1	6
Not reported	3	2	-	1
Median age	32.8	29.8	24.9	35.0

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Wisconsin, and Selected Counties 1/

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
State total	632	127	139	87	276	3
Active	358	113	68	36	139	2
Employed in private dental office	288	100	60	28	98	2
Other active	70	13	8	8	41	-
Inactive	274	14	71	51	137	1
*Brown	25	3	8	3	11	-
Active	12	3	3	2	4	-
Employed in private dental office	10	3	3	1	3	-
Other active	2	-	-	1	1	-
Inactive	13	-	5	1	7	-
*Dane	58	18	9	8	23	-
Active	43	18	7	4	14	-
Employed in private dental office	38	17	7	3	11	-
Other active	5	1	-	1	3	-
Inactive	15	-	2	4	9	-
*Kenosha	10	3	2	-	5	-
Active	3	2	-	-	1	-
Employed in private dental office	3	2	-	-	1	-
Other active	-	-	-	-	-	-
Inactive	7	1	2	-	4	-
Manitowoc	10	3	3	1	3	-
Active	5	3	-	-	2	-
Employed in private dental office	4	3	-	-	1	-
Other active	1	-	-	-	1	-
Inactive	5	-	3	1	1	-
Marathon	14	3	1	3	7	-
Active	9	2	1	1	5	-
Employed in private dental office	6	2	1	-	3	-
Other active	3	-	-	1	2	-
Inactive	5	1	-	2	2	-

(continued)

Table B-2c -- Age Distribution in 1966, by Current Professional Status for Wisconsin, and Selected Counties 1/ (continued)

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Milwaukee	226	41	59	28	96	2
Active	130	36	31	8	54	1
Employed in private dental office	105	33	26	7	38	1
Other active	25	3	5	1	16	-
Inactive	96	5	28	20	42	1
Outagamie	25	7	1	5	12	-
Active	16	6	1	3	6	-
Employed in private dental office	13	6	1	2	4	-
Other active	3	-	-	1	2	-
Inactive	9	1	-	2	6	-
*Ozaukee	13	2	2	4	5	-
Active	7	1	-	2	4	-
Employed in private dental office	7	1	-	2	4	-
Other active	-	-	-	-	-	-
Inactive	6	1	2	2	1	-
*Racine	16	2	1	3	10	-
Active	11	2	1	3	5	-
Employed in private dental office	8	2	1	2	3	-
Other active	3	-	-	1	2	-
Inactive	5	-	-	-	5	-
Rock	14	2	3	4	5	-
Active	8	2	1	2	3	-
Employed in private dental office	6	2	1	2	1	-
Other active	2	-	-	-	2	-
Inactive	6	-	2	2	2	-
Sheboygan	17	4	4	3	6	-
Active	7	4	2	1	-	-
Employed in private dental office	7	4	2	1	-	-
Other active	-	-	-	-	-	-
Inactive	10	-	2	2	6	-

(continued)

Table B-2c -- Age Distribution in 1966, By Current Professional Status for Wisconsin, and Selected Counties 1/ (continued)

County and status	Instate hygienists	By age in 1966				
		Under 25	25-29	30-34	35 & over	Not reported
*Washington	10	1	1	3	5	-
Active	6	1	1	2	2	-
Employed in private dental office	5	1	1	1	2	-
Other active	1	-	-	1	-	-
Inactive	4	-	-	1	3	-
*Waukesha	55	10	15	5	25	-
Active	29	9	7	-	13	-
Employed in private dental office	23	6	6	-	11	-
Other active	6	3	1	-	2	-
Inactive	26	1	8	5	12	-
Winnebago	24	3	5	2	13	1
Active	13	3	2	-	7	1
Employed in private dental office	8	3	2	-	2	1
Other active	5	-	-	-	5	-
Inactive	11	-	3	2	6	-
All other counties 2/	115	25	25	15	50	-
Active	59	21	11	8	19	-
Employed in private dental office	45	15	9	7	14	-
Other active	14	6	2	1	5	-
Inactive	56	4	14	7	31	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Individual data are presented for counties with 10 or more responding hygienists.

2/ Includes 6 responding hygienists employed in Wisconsin but residing in neighboring states.

Table B-3a -- School Attended for Dental Hygiene Training

School	Instate hygienists	Active	Inactive
Total	632	358	274
With formal academic training	631	358	273
Marquette University	567	319	248
University of Minnesota	22	11	11
Northwestern University	17	6	11
West Liberty State College	6	6	-
State University of Iowa	4	4	-
University of Michigan	4	3	1
University of Southern California	1	1	-
Pensacola Junior College	1	1	-
Southern Illinois University	1	1	-
University of Missouri at Kansas City 1/	1	-	1
Monroe Community College 2/	1	-	1
Ohio State University	1	1	-
Temple University	1	1	-
Baylor University	1	1	-
University of Toronto	1	1	-
School not reported	2	2	-
With no formal academic training	1	-	1

1/ Includes any graduates of Kansas City - Western Dental College.
2/ Includes any graduates from Eastman Dental Dispensary and Rochester Dental Dispensary.

Table B-3b -- Year Dental Hygiene Certificate or Degree Was Received, by Selected Schools

Year	All schools		Marquette University		University of Minnesota		Northwestern University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Instate hygienists	631 1/	358	567	319	22	11	17	6	25	22
1966	37	35	33	32	1	-	1	1	2	2
1965	27	26	26	25	1	1	-	-	-	-
1964	32	27	29	25	1	-	-	-	2	2
1963	26	20	21	15	2	2	-	-	3	3
1962	23	17	20	15	-	-	1	-	2	2
1961	28	17	25	14	1	1	-	-	2	2
1960	25	13	25	13	-	-	-	-	-	-
1959	23	12	19	10	1	-	2	1	1	1
1958	25	8	21	6	2	-	-	-	2	2
1957	27	11	24	10	1	1	1	-	1	-
1956	22	9	19	9	2	-	1	-	-	-
1955	16	9	15	9	1	-	-	-	-	-
1954	22	8	20	6	-	-	1	1	1	1
1953	19	9	15	7	-	-	2	1	2	1
1952	15	5	14	5	1	-	-	-	-	-
1951	18	8	17	7	-	-	-	-	1	1
1950	20	6	19	6	-	-	1	-	-	-
1949	19	4	17	4	1	-	1	-	-	-
1948	19	12	19	12	-	-	-	-	-	-
1947	15	7	14	7	1	-	-	-	-	-
1946	11	6	9	4	-	-	-	-	2	2
1945	17	9	15	9	-	-	2	-	-	-
Before 1945	141	79	128	69	5	5	4	2	4	3
Not reported	4	1	3	-	1	1	-	-	-	-

1/ Excludes one responding hygienist with no formal academic training.

Table B-3c -- County Location, by Selected Schools

County 1/	All schools		Marquette University		University of Minnesota		Northwestern University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Total	631 2/	358	567	319	22	11	17	6	25	22
Barron	1	-	1	-	-	-	-	-	-	-
*Brown	25	12	24	12	-	-	1	-	-	-
Buffalo	1	-	-	-	1	-	-	-	-	-
Calumet	1	1	1	1	-	-	-	-	-	-
Chippewa	4	2	3	1	1	1	-	-	-	-
Columbia	1	1	1	1	-	-	-	-	-	-
*Dane	58	43	47	34	2	2	2	1	7	6
Dodge	9	4	9	4	-	-	-	-	-	-
Door	1	1	1	1	-	-	-	-	-	-
*Douglas	1	1	-	-	1	1	-	-	-	-
Dunn	1	1	-	-	1	1	-	-	-	-
Eau Claire	9	5	5	2	4	3	-	-	-	-
Fond du Lac	9	3	8	2	-	-	-	-	1	1
Grant	1	1	1	1	-	-	-	-	-	-
Green	1	1	1	1	-	-	-	-	-	-
Iowa	1	-	1	-	-	-	-	-	-	-
Jefferson	6	2	5	1	-	-	-	-	1	1
Juneau	1	-	1	-	-	-	-	-	-	-
*Kenosha	10	3	9	2	-	-	-	-	1	1
Kewaunee	2	1	1	1	-	-	1	-	-	-
La Crosse	8	6	7	6	1	-	-	-	-	-
Lincoln	1	-	1	-	-	-	-	-	-	-
Manitowoc	10	5	10	5	-	-	-	-	-	-
Marathon	14	9	13	8	-	-	-	-	1	1
Marinette	1	1	1	1	-	-	-	-	-	-
*Milwaukee	226	130	216	123	2	1	2	-	6	6
Monroe	3	-	2	-	1	-	-	-	-	-
Oconto	1	-	-	-	1	-	-	-	-	-
Oneida	6	3	4	2	-	-	-	-	2	1
Outagamie	25	16	24	15	-	-	1	1	-	-
*Ozaukee	13	7	12	7	1	-	-	-	-	-
Pepin	1	1	1	1	-	-	-	-	-	-
Portage	4	3	3	2	-	-	-	-	1	1
*Racine	16	11	16	11	-	-	-	-	-	-
Rock	13	8	9	7	2	-	2	1	-	-
Rusk	1	-	1	-	-	-	-	-	-	-
St. Croix	1	1	-	-	1	1	-	-	-	-
Sauk	7	3	3	1	2	-	1	1	1	1
Shawano	4	1	3	-	-	-	-	-	1	1
Sheboygan	17	7	16	7	-	-	1	-	-	-

(continued)

Table B-3c -- County Location, by Selected Schools (continued)

County1/	All schools		Marquette University		University of Minnesota		Northwestern University		All other schools	
	Total	Active	Total	Active	Total	Active	Total	Active	Total	Active
Trempealeau	1	-	1	-	-	-	-	-	-	-
Vernon	2	1	2	1	-	-	-	-	-	-
Vilas	2	1	2	1	-	-	-	-	-	-
Walworth	5	4	2	2	-	-	2	1	1	1
*Washington	10	6	9	6	-	-	1	-	-	-
*Waukesha	55	29	52	28	1	1	2	-	-	-
Waupaca	2	1	2	1	-	-	-	-	-	-
Waushara	1	1	1	1	-	-	-	-	-	-
Winnebago	24	13	22	12	-	-	-	-	2	1
Wood	8	2	8	2	-	-	-	-	-	-
Other locations3/	6	6	5	5	-	-	1	1	-	-

* Counties included in the latest 1967 definition of Standard Metropolitan Statistical Areas, established by the U.S. Bureau of the Budget, Office of Statistical Standards.

1/ Counties with responding hygienists.

2/ Excludes one responding hygienist with no formal academic training.

3/ Responding hygienists employed in Wisconsin but residing in neighboring states.

Table B-3d -- Highest Level of College Training Attained

Highest level attained	Instate hygienists	Active	Inactive
Total	632	358	274
Dental hygiene certificate only	486	271	215
Additional college, but no degree	103	60	43
Less than 1 year	13	9	4
1 year but less than 2 years	62	36	26
2 years but less than 3 years	23	11	12
3 years but less than 4 years	2	2	-
4 or more years	1	1	-
Number of years not reported	2	1	1
Bachelor's degree	36	21	15
Master's degree	5	5	-
Doctoral degree	1	1	-
Level of college training not reported	-	-	-
No college training	1	-	1

Table B-3e -- Current Plans for Returning to College

Current plans	Instate hygienists	Active	Inactive
Total	632	358	274
Have seriously considered returning	202	138	64
Now enrolled	14	10	4
Definitely planning to enroll	17	16	1
Still considering enrollment	137	95	42
Definitely decided not to enroll	24	12	12
Current plans not reported	10	5	5
Have never considered returning	390	204	186
Plans to continue education not reported	40	16	24

Table B-3f -- Goal for Advancement If College Education Were Continued

Goal for advancement	Selected instate hygienists 1/	Active	Inactive
Total	168	121	47
Goal reported 2/	118	85	33
Instructor in a school of dental hygiene	36	28	8
Director of a school of dental hygiene	4	4	-
Dentist	1	1	-
Public health dental hygienist 3/	46	33	13
Hygienist in elementary or high school 3/	-	-	-
Other goal in dental hygiene specified	24	19	5
Goal outside dental hygiene specified	31	20	11
Goal not reported	50	36	14

1/ Hygienists who reported they were enrolled, definitely planning to enroll, or still considering enrollment (see Table B-3e).

2/ Items will add to more than total if hygienists reported more than one goal.

3/ Some hygienists who are interested in working in the schools are probably included in the public health category.

Table B-3g -- Obstacles to Returning to College, by Current Plans for Returning

Obstacles	Selected instate hygienists 1/	By current plans for returning to college: Definitely planning to enroll	Still considering enrollment	Definitely decided not to enroll
Total	178	17	137	24
Obstacles reported 2/	159	12	126	21
Lack of course offerings in a nearby school	29	5	23	1
Lack of sufficient funds	55	5	43	7
Family obligations	108	5	83	20
Lack of specific information on opportunities available	8	1	7	-
Age 3/	1	-	1	-
Lack of time 3/	6	2	4	-
Other obstacle specified	9	1	7	1
Obstacles not reported	19	5	11	3

1/ Includes all hygienists who have seriously considered returning to college and who reported their current plans, except those now enrolled (see Table B-3e).
2/ Items will add to more than total if hygienists reported more than one obstacle.
3/ These obstacles were not included on the printed questionnaire, but were written in by the specified number of respondents.

Table B-3h -- Sponsors of Short-term Courses Taken in Dental Hygiene or Related Subjects in Last 12 Months

Sponsors	Instate hygienists	Active	Inactive
Total	632	358	274
Have taken courses 1/	78	69	9
School of dental hygiene	58	54	4
State or local dental hygiene association	10	8	2
Dental school	16	13	3
State or local dental association	8	8	-
Other sponsor	-	-	-
Sponsor not reported	1	1	-
Have not taken courses	515	266	249
If courses taken not reported	39	23	16

1/ Items will add to more than total if hygienists reported taking more than one course.

Table B-3i -- Interest in Taking Refresher Training in Dental Hygiene If Such Training Were Available in a Nearby School

Current status by past activity in this State	Instate hygienists	By interest in taking refresher training		
		Interested	Not interested	Not reported
Active hygienists, by total years active in this State	358	230	101	27
2 years or less 1/	107	67	35	5
3 - 5	68	44	19	5
6 - 10	65	46	17	2
11 years or more	100	62	26	12
Years not reported	18	11	4	3
Inactive hygienists, by last year active in this State	274	129	96	49
1964 or later	62	28	29	5
1961 - 1963	36	16	15	5
1956 - 1960	46	25	18	3
Before 1956	96	45	25	26
Never active	19	10	6	3
Year not reported	15	5	3	7

1/ Includes four hygienists seeking work as a dental hygienist who had never been active in the State.

Table B-4a -- Professional Activity in This State Since Licensure

Year first licensed in this State	Instate hygienists		Ever active hygienists				Currently active hygienists			
	Total hygienists	Aggregate years licensed	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active
Total	632	-	604	-	-	-	358	-	-	-
Year reported	618	8,427	593	549	8,063	4,105.5	349	307	4,182	2,946.5
1966	39	-	33 2/	-	-	-	36	-	-	-
1965	30	30	29	29	29	29.0	29	29	29	29.0
1964	34	68	32	32	64	58.0	28	28	56	52.0
1963	24	72	24	24	72	59.0	18	18	54	48.0
1962	20	80	20	19	76	64.0	14	13	52	52.0
1961	28	140	27	26	130	91.5	17	16	80	60.5
1960	23	138	23	23	138	98.0	13	13	78	67.0
1959	21	147	20	20	140	84.0	9	9	63	45.0
1958	24	192	22	22	176	106.0	7	7	56	43.0
1957	29	261	27	25	225	143.0	13	12	108	91.0
1956	23	230	19	19	190	103.0	9	9	90	70.0
1955	16	176	15	15	165	112.0	10	10	110	81.0
1954	23	276	23	23	276	112.5	8	8	96	63.0
1953	18	234	17	16	208	100.0	8	7	91	62.0
1952	15	210	15	15	210	102.0	5	5	70	56.0
1951	18	270	17	17	255	107.0	6	6	90	48.0
1950	18	288	16	16	256	75.0	5	5	80	38.0
1945 - 1949	78	1,469	78	74	1,397	590.5	37	36	684	413.0
1940 - 1944	39	952	39	38	928	439.0	23	22	542	349.0
1935 - 1939	45	1,285	44	44	1,258	658.0	24	24	692	506.0
Before 1935	53	1,909	53	52	1,870	974.0	30	30	1,061	773.0
Year not reported	14	-	11	-	-	-	9	-	-	-

1/ Hygienists reporting both years licensed and years ever active in State.
2/ Does not include 3 dental hygienists seeking work as a dental hygienist in Wisconsin who had never been active in the State.

Table B-4b -- Past Professional Activity in State by Hygienists Ever Active in the State

Year first licensed in State	Percent of ever active hygienists	Average years in State		Percent of licensed years active
		Licensed	Active	
Total	100	14.7	7.5	51
1963 - 1965	16	1.9	1.7	89
1960 - 1962	12	5.1	3.7	73
1957 - 1959	12	8.1	5.0	62
1954 - 1956	10	11.1	5.7	51
1951 - 1953	9	14.0	6.4	46
1948 - 1950	9	17.1	7.2	42
1945 - 1947	7	20.1	7.6	38
1942 - 1944	4	22.9	8.0	35
1939 - 1941	6	26.4	14.2	54
Before 1939	15	33.5	17.6	53

Table B-4c -- Other States in Which Previously Active, By Last Year in Practice in the Other State

State	Instate hygienists	By last year in practice				
		1964 or later	1961-1963	1958-1960	Before 1958	Not reported
Total	632	-	-	-	-	-
Have been active in other States 1/	93	31	23	17	32	5
Arizona	3	1	-	-	1	1
California	6	2	2	-	2	-
Colorado	7	3	2	1	-	1
District of Columbia	2	1	-	-	1	-
Florida	2	-	1	1	-	-
Georgia	1	-	-	-	1	-
Idaho	1	-	-	1	-	-
Illinois	24	5	6	5	7	1
Indiana	4	1	-	1	2	-
Iowa	7	2	1	-	4	-
Louisiana	1	-	-	-	1	-
Maryland	1	1	-	-	-	-
Michigan	8	2	1	2	3	-
Minnesota	11	5	-	2	4	-
Missouri	2	-	-	1	1	-
Montana	2	1	1	-	-	-
Nebraska	3	1	1	-	1	-
New Jersey	1	1	-	-	-	-
New Mexico	1	1	-	-	-	-
New York	2	1	-	-	1	-
Ohio	2	1	1	-	-	-
Oklahoma	1	-	1	-	-	-
Pennsylvania	2	-	1	-	1	-
South Carolina	1	-	1	-	-	-
Tennessee	2	1	-	-	1	-
Texas	1	1	-	-	-	-
Virginia	2	-	-	1	-	1
Washington	4	-	4	-	-	-
West Virginia	1	-	-	1	-	-
Hawaii	3	-	-	1	1	1
Have not been active in other States	527	-	-	-	-	-
If active in other States not reported	12	-	-	-	-	-

1/ Figures will add to more than total if hygienists reported practicing in more than one other State.

Table B-5a -- Marital Status

Marital status	Instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	632	358	87	274
Single	118	107	48	11
Ever married	512	250	38	262
Now married	486	232	33	254
Other status	26	18	5	8
Status not reported	2	1	1	1

Table B-5b -- Presence of Dependent Children

Number of dependent children	Ever married instate hygienists	Active		Inactive
		Total	Employed full time, year round	
Total	512	250	38	262
With no children	85	66	24	19
With children	412	179	11	233
1	77	41	5	36
2	135	73	4	62
3	97	34	1	63
4	55	20	1	35
5 or more	48	11	-	37
Number of children not reported	15	5	3	10

Table B-5c -- School Status and Age of Dependent Children

School status and age of children	Ever married instate hygienists	Active	Inactive
Total with children	412	179	233
School status			
None in school	125	60	65
Some in school 1/	282	117	165
In grades 1 - 8	238	93	145
In grades 9 - 12	86	43	43
In college or business school	60	29	31
School status not reported	5	2	3
Age of children			
With children under 15 years 1/	370	158	212
1 year or less	122	43	79
2 - 3 years	157	67	90
4 - 5 years	145	57	88
6 - 7 - 8 years	165	53	112
9 - 10 - 11 years	123	47	76
12 - 13 - 14 years	94	45	49
With children 15 and over only	35	19	16
Age not reported	7	2	5

1/ Figures will add to more than total if hygienists reported children in more than one group.

Table B-6 -- Membership in American Dental Hygienists' Association 1/

Current membership status	Instate hygienists	Active	Inactive
Total	632	358	274
A member	190	167	23
Not a member, but a member at one time	313	138	175
Not a member, past membership not reported	7	1	6
Never a member	117	48	69
Current and past membership not reported	5	4	1

1/ Excludes junior memberships.

Table C-1a -- Hours Worked in a Typical Week In Private Dental Offices

Hours	Practicing hygienists	Aggregate hours reported
Total	288	-
Time reported 1/	257	6,644
Less than 8	18	92
8	17	136
9 - 15	37	461
16	22	352
17 - 23	20	394
24	7	168
25 - 31	18	495
32	13	416
33 - 34	7	236
35	8	280
36 - 39	25	936
40	53	2,120
41 or more	12	558
Time not reported	31	830

Table C-1b -- Weeks Worked in Private Dental Offices During 12 Months Preceding Survey

Weeks	Practicing hygienists	Aggregate weeks reported
Total	288	-
Time reported 1/	257	10,721
4 or less	9	30
5 - 8	19	122
9 - 12	6	64
13 - 16	1	16
17 - 20	3	60
21 - 24	5	114
25 - 28	4	107
29 - 32	6	189
33 - 36	7	245
37 - 40	13	512
41 - 44	9	390
45 - 47	19	874
48 - 49	22	1,063
50 - 52	134	6,935
Time not reported	31	50

1/ Hygienists who reported both hours and weeks.

Table C-1c -- Summary of Time Worked in Private Dental Offices

Time worked 1/	Practicing hygienists	Aggregate hours reported	Aggregate weeks reported
Total	288	-	-
Time reported	257	6,644	10,721
Full time	98	3,894	4,096
Year round	67	2,671	3,449
Less than year round	31	1,223	647
Part time	159	2,750	6,625
Year round	89	1,752	4,549
Less than year round	70	998	2,076
Time not reported	31	-	-

1/ Definitions of time worked:

Full time -- 35 hours or more in a typical week
Part time -- less than 35 hours
Year round -- 48 weeks or more in the 12 months preceding the survey
Less than year round -- less than 48 weeks

Table C-2 -- Activities Performed in Private Dental Offices By Time Spent At Each Activity in A Typical Week

Activity	Practicing hygienists	Time spent at activity: Hygienists reporting hours	Time spent at activity: Aggregate hours reported
Total	288	-	-
Activities reported	288	-	-
Oral prophylaxis	285	209	4,065
Other clinical services 1/	246	168	540
Patient dental health education 2/	197	148	428
Management of dental office 3/	137	95	292
Dental assisting tasks 4/	66	39	126
Activities not reported	-	-	-

1/ Radiographs, fluoride applications, etc.
2/ Time devoted exclusively to instruction of individual patients in oral hygiene, diet, etc.
3/ Recalls, pulling charts, answering telephone, receptionist duties, bookkeeping, etc.
4/ Preparing tray set-ups, passing instruments, pouring models, etc.

Table C-3a -- Employing Dentists, By Number of Dental Offices

Number of employing dentists 1/	Practicing hygienists	Number of dental offices in which employed				
		1	2	3	4 or more	Not reported
Total	288	227	43	5	3	10
Dentists reported	257	209	43	3	2	-
1	157	157	-	-	-	-
2	76	38	38	-	-	-
3	15	8	4	3	-	-
4 or more	9	6	1	-	2	-
Number of dentists not reported	31	18	-	2	1	10

1/ Includes only those dentists whose patients the hygienist cared for.

Table C-3b -- Type of Practice of Employing Dentists

Type of practice of employing dentists	Practicing hygienists
Total	288
Worked for general practitioner only	252
Worked for dental specialist 1/	24
Endodontist	-
Oral surgeon	5
Orthodontist	7
Pedodontist	10
Periodontist	7
Prosthodontist	3
Type not reported	12

1/ Figures will add to more than total if hygienists reported working for more than one type of specialist.

Table C-4a -- Type(s) of Compensation Received for Time Worked in Private Dental Office(s)

Type(s) of compensation	Practicing hygienists	By time worked in private dental offices 1/				
		Full time		Part time		Time not reported
		Year round	Less than year round	Year round	Less than year round	
Total	288	67	31	89	70	31
Reporting type(s) of compensation	280	67	30	86	69	28
Salary only	184	49	22	59	34	20
Commission only	54	3	4	17	26	4
Both salary and commission only	25	13	3	5	3	-
Salary only, commission only 2/	7	1	1	2	3	-
Salary only, both salary and commission 2/	-	-	-	-	-	-
Commission only, both salary and commission 2/	-	-	-	-	-	-
Salary only, commission only, both salary and commission 2/	-	-	-	-	-	-
Did not receive compensation 3/	10	1	-	3	3	3
Type of compensation not reported	8	-	1	3	1	3

1/ See Table C-1c for definitions of time worked.
2/ A hygienist working in more than one dental office may report more than one type of compensation.
3/ Generally reported by hygienists who indicated they were working for their dentist--husbands.

Table C-4b -- Gross Earnings From Dental Hygiene Practice During 12 Months Preceding Survey

Gross earnings 1/	Practicing hygienists	By time spent in private dental office 2/				
		Full time		Part time		Not reported
		Year round	Less than year round	Year round	Less than year round	
Total	288	67	31	89	70	31
Earnings reported	228	59	22	76	61	10
$1,000 or less	43	-	11	7	23	2
1,000 - 1,999	27	-	2	12	11	2
2,000 - 2,999	32	-	-	19	12	1
3,000 - 3,999	17	1	-	14	1	1
4,000 - 4,999	21	6	4	8	3	-
5,000 - 5,999	42	28	4	7	3	-
6,000 - 6,999	27	16	-	6	4	1
7,000 - 7,999	3	1	1	-	1	-
8,000 - 8,999	5	5	-	-	-	-
9,000 - 9,999	1	1	-	-	-	-
10,000 & over	-	-	-	-	-	-
None 3/	10	1	-	3	3	3
Earnings not reported	60	8	9	13	9	21

1/ If exact figure for gross earnings (before deductions) was not available, respondent was requested to give best estimate to the nearest $500.

2/ See Table C-1c for definitions of time worked.

3/ Generally reported by hygienists who indicated they were working for their dentist-husbands.

Table D-1 -- Reason Why Inactive Hygienists Were Not Professionally Active

Reason	Inactive hygienists
Total	274
Reasons reported 1/	265
Full-time family obligations	230
Employment in another occupation	20
Attending school	4
Beyond age to practice	5
Poor health	4
Loss of skill to practice	10
Unable to find suitable position as hygienist	7
She prefers not to work	43
Husband does not want her to work	41
Another reason specified	11
Reasons not reported	9

1/ Figures will add to more than total if some hygienists reported more than one reason.

Table D-2a -- Degrees of Definiteness About Ever Returning to Practice and About Time of Return

Degree of definiteness about ever returning	Inactive hygienists	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	274	20	75	121	58
Degree reported	253	20	74	119	40
Very definite	56	20	19	4	13
Fairly definite	73	-	52	10	11
Not at all definite	124	-	3	105	16
Degree not reported	21	-	1	2	18

Table D-2b -- Approximate Length of Time Until Return to Practice, By Degree of Definiteness About Time of Return

Approximate time until return	Selected inactive hygienists 1/	By degree of definiteness about time of return			
		Very definite	Fairly definite	Not at all definite	Not reported
Total	129	20	71	14	24
Time until return reported	125	20	70	13	22
Within the next year	17	7	6	2	2
Within the next 5 years	49	9	33	3	4
Within the next 10 years	21	1	14	5	1
Within the next 15 years	5	1	1	2	1
More than 15 years from now	1	-	1	-	-
Never	32	2	15	1	14
Time not reported	4	-	1	1	2

1/ Includes only those inactive hygienists who reported that their present plans about ever returning to practice were very definite or fairly definite (see Table D-2a).

Table D-2c -- Time Preferred to Work If Hygienists Returned to Practice, By Approximate Length of Time Until Return

Time preferred to work	Selected inactive hygienists 1/	By length of time until return to practice				
		Within the next				More than 15 years from now
		Year	5 years	10 years	15 years	
Total	73	13	42	15	2	1
Preferred time reported	71	11	42	15	2	1
8 hours a day	27	7	12	7	1	-
5 days a week	6	2	2	1	1	-
Less than 5 days a week	21	5	10	6	-	-
Less than 8 hours a day	44	4	30	8	1	1
5 days a week	12	-	11	-	1	-
Less than 5 days a week	32	4	19	8	-	1
Time preferred not reported	2	2	-	-	-	-

1/ Includes only those inactive hygienists who reported length of time until return, and who were at least fairly definite both about ever returning and the time of return (see Table D-2b).

Table D-2d -- Conditions Under Which Likely to Return to Practice

Conditions	Inactive hygienists
Total	274
Conditions reported 1/	222
When youngest child starts elementary school	95
When youngest child starts high school	34
When youngest child starts college	25
When a position is available in her community	32
When husband needs her in his practice, if he is a dentist	30
After completion of refresher training, if such training were available in a nearby community college or university	59
After completion of additional college training which would qualify her for a more advanced position as a hygienist	14
Because of illness, disability or death of husband 2/	24
Another condition specified	13
Condition not reported	52

1/ Figures will add to more than total if hygienists reported more than one condition.

2/ This condition was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2e -- Reasons for Returning to Practice

Reasons	Inactive hygienists
Total	274
Reasons reported 1/	236
For self satisfaction	174
To add to the family income for children's education	101
For other financial reasons	61
To keep in practice 2/	8
Another reason specified	5
Reasons not reported	38

1/ Figures will add to more than total if hygienists reported more than one reason.

2/ This reason was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-2f -- Situations Which Might Keep Hygienists From Seeking A Position, If She Would Like to Practice Again

Situations	Inactive hygienists
Total	274
Situations reported 1/	141
Lack of opportunities for hygienist in her community	41
Feels she might be too old to practice again	29
Feels she might have lost her skill to practice	83
Has too great an investment in another occupation	14
Satisfactory working hours not available 2/	-
Unsatisfactory wages 2/	1
Another situation specified	9
No situation was reported	133

1/ Figures will add to more than total if hygienists reported more than one situation.

2/ This situation was not listed on the printed questionnaire, but was written in by the specified number of respondents.

Table D-3 -- Professional Activity During 12 Months Preceding Survey, By Time Worked

Professional activity during 12 months preceding survey 1/	Inactive hygienists	By time worked 2/			
		Full time	Part time	Combination of full time & part time	Not reported
Total	274	-	-	-	-
Employed in 3/					
Private dental office	31	4	25	1	1
City or county health agency	3	3	-	-	-
State health agency	1	1	-	-	-
Private organization	1	1	-	-	-
Type of employer not reported	1	-	-	-	1
Not employed	238	-	-	-	-

1/ Includes activity in any state.

2/ Respondents were asked to check boxes labeled "full time" and "part time." Therefore, these data are not comparable to "time worked" data presented in other tables.

3/ Figures will add to more than total if hygienists reported more than one type of employer.

Table E-1 -- Location and Current Professional Status

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
Total	364	323	161	131	30	162
Northeast	26	24	10	7	3	14
Connecticut	2	2	-	-	-	2
Maine	-	-	-	-	-	-
Massachusetts	5	4	3	3	-	1
New Hampshire	-	-	-	-	-	-
New Jersey	6	5	3	2	1	2
New York	8	8	2	1	1	6
Pennsylvania	4	4	1	1	-	3
Rhode Island	1	1	1	-	1	-
Vermont	-	-	-	-	-	-
South	51	46	22	16	6	24
Alabama	4	4	2	1	1	2
Arkansas	-	-	-	-	-	-
Delaware	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-
Florida	17	13	7	5	2	6
Georgia	6	6	3	2	1	3
Kentucky	1	1	-	-	-	1
Louisiana	2	2	-	-	-	2
Maryland	2	2	-	-	-	2
Mississippi	1	1	1	-	1	-
North Carolina	-	-	-	-	-	-
Oklahoma	2	2	2	2	-	-
South Carolina	-	-	-	-	-	-
Tennessee	2	2	-	-	-	2
Texas	10	9	6	5	1	3
Virginia	4	4	1	1	-	3
West Virginia	-	-	-	-	-	-

(continued)

Table E-1 -- Location and Current Professional Status (cont'd.)

State	Out of state hygienists	Respondents				
		Total	Active			Inactive
			Total	In private dental offices	Other active	
North Central	177	154	66	53	13	88
Illinois	75	62	31	25	6	31
Indiana	10	7	3	3	-	4
Iowa	8	8	4	3	1	4
Kansas	5	4	1	1	-	3
Michigan	25	22	9	7	2	13
Minnesota	20	20	6	5	1	14
Missouri	5	5	-	-	-	5
Nebraska	6	6	2	1	1	4
North Dakota	3	2	1	-	1	1
Ohio	14	12	3	3	-	9
South Dakota	2	2	2	1	1	-
Wisconsin 1/	4	4	4	4	-	-
West	110	99	63	55	8	36
Alaska	-	-	-	-	-	-
Arizona	8	7	3	3	-	4
California	54	49	29	24	5	20
Colorado	23	22	17	16	1	5
Hawaii	4	4	3	1	2	1
Idaho	-	-	-	-	-	-
Montana	4	4	3	3	-	1
New Mexico	1	-	-	-	-	-
Nevada	4	2	1	1	-	1
Oregon	2	2	1	1	-	1
Utah	-	-	-	-	-	-
Washington	9	8	5	5	-	3
Wyoming	1	1	1	1	-	-

1/ Four responding hygienists who were residents of Wisconsin indicated that they were employed in neighboring states.

Table E-2 -- School Attended for Dental Hygiene Training and Year Certificate or Degree Was Received, By Current Professional Status

School and year certificate or degree was received	Out-of-state hygienists	Active	Inactive
Total	323	161	162
Marquette University	263	136	127
1966	13	12	1
1965	13	13	-
1964	19	13	6
1963	16	9	7
1962	14	11	3
1961	12	8	4
1960	13	8	5
1959	13	4	9
1958	15	11	4
1957	9	5	4
1956	7	3	4
1955	7	1	6
1954	6	4	2
1953	11	4	7
1952	9	2	7
1951	7	3	4
1950	10	2	8
1949	10	5	5
1948	1	-	1
1947	6	1	5
1942 - 1946	15	5	10
1937 - 1941	15	8	7
1932 - 1936	12	2	10
Before 1932	10	2	8
Year not reported	-	-	-
All other schools	58	25	33
1957 - 1966	26	15	11
1947 - 1956	12	3	9
1937 - 1946	11	4	7
Before 1937	8	3	5
Year not reported	1	-	1
School not reported	2	-	2

Table E-3 -- Year First Licensed in This State, By Past Professional Activity in This State

Year first licensed in this State	Out-of-State hygienists		Past professional activity in this State					
			Ever active hygienists					
	Total hygienists	Aggregate years licensed in this State	Total hygienists	Hygienists reporting years of activity 1/	Aggregate years licensed	Aggregate years ever active	Never active	Activity not reported
Total	323	-	205	-	-	-	111	7
Year reported	313	3,822	203	196	2,808	705.5	109	1
1966	14	-	-	-	-	-	14	-
1965	15	15	6	5	5	5.0	9	-
1964	20	40	9	9	18	9.5	11	-
1963	19	57	17	17	51	27.5	2	-
1962	17	68	10	10	40	22.0	7	-
1961	16	80	10	10	50	21.5	6	-
1960	18	108	11	11	66	27.5	7	-
1959	13	91	6	5	35	11.0	7	-
1958	18	144	7	7	56	12.0	11	-
1957	12	108	5	4	36	11.0	7	-
1956	9	90	8	8	80	17.0	1	-
1955	10	110	4	4	44	7.0	6	-
1954	7	84	4	4	48	14.0	3	-
1953	12	156	10	10	130	23.0	2	-
1952	11	154	9	9	126	24.5	2	-
1951	7	105	5	5	75	14.0	2	-
1950	10	160	9	9	144	40.0	1	-
1945 - 1949	29	548	27	24	454	95.0	2	-
1940 - 1944	16	388	14	14	342	43.0	2	-
1935 - 1939	20	572	16	16	456	99.0	3	1
Before 1935	20	744	16	15	552	182.0	4	-
Year not reported	10	-	2	-	-	-	2	6

1/ Hygienists reporting both years licensed and years ever active in Wisconsin.

Table E-4 -- Reasons Why Inactive Hygienists Were Not Professionally Active

Reasons	Inactive out-of-state hygienists
Total	162
Reasons reported 1/	161
Full-time family obligations	116
Employment in another occupation	12
Attending school	1
Beyond age to practice	1
Poor health	3
Loss of skill to practice	10
Unable to find suitable position as hygienist	5
She prefers not to work	33
Husband does not want her to work	24
Not licensed in state where she currently resides	75
Another reason specified	2
Reasons not reported	1

1/ Figures will add to more than total if hygienists reported more than one reason.

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Turner, Robert E.
Manpower in Oklahoma, North-East Region.

Oklahoma State Employment Service, Oklahoma City. Research and Planning Div.
Oklahoma State Dept. of Vocational-Technical Education, Oklahoma City
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*MANPOWER NEEDS; *OCCUPATIONAL SURVEYS; *EMPLOYMENT TRENDS; EMPLOYMENT PROJECTIONS; EMPLOYMENT STATISTICS; OCCUPATIONAL CLUSTERS; *LABOR FORCE; ECONOMIC FACTORS
OKLAHOMA

A state-wide study was undertaken to determine current and future manpower needs by industry division, major occupational group and selected occupations to provide information for use in curriculum development for new area vocational schools and for use in industry. Nonfarm wage and salary employment in the region is expected to reach 39,280 by 1972, a 13 percent advance for a 5-year period. Construction should have the greatest proportional gain (22.8 percent) and the largest growth for major occupational groups for the period is expected in clerical occupations. A significant amount of the new employment will be in white collar occupations, that is, professional-technical-managerial, clerical and sales. The figures presented are thought to be conservative as they fail to provide for new firms, but do reflect scheduled cutbacks in existing plants. (MM)

VT 006 623

ED0 36657

Manpower in Oklahoma

NORTH-EAST REGION

OKLAHOMA EMPLOYMENT SECURITY COMMISSION
OKLAHOMA STATE EMPLOYMENT SERVICE
RESEARCH AND PLANNING DIVISION
WILL ROGERS MEMORIAL OFFICE BUILDING
OKLAHOMA CITY, OKLAHOMA

EDO 36623

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Manpower in Oklahoma

NORTH-EAST REGION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

JUNE 1968

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This study was prepared under the supervision of Robert E. Turner in the Labor Market Information Section, Research and Planning Division. Bill Hunter, Grover Webb and James Hood were primarily responsible for this project, while Maribelle Richardson did the final typing. Statistical data were compiled and tabulated by the Benefit Records Section, C. L. Gandy, Supervisor. Credit is also due the Business Management Division, headed by Wayne Edge, for their work in varityping and printing.

OKLAHOMA EMPLOYMENT SECURITY COMMISSION.
OKLAHOMA STATE EMPLOYMENT SERVICE
RESEARCH AND PLANNING DIVISION
W. J. BOWMAN, CHIEF

PREFACE

The most important resource of an area is its people. Therefore, information and data concerning composition of that part of the population in the labor force is of vital importance. This study was conducted by the Oklahoma Employment Security Commission under a grant from the State Department of Vocational-Technical Education. The project was designed to determine current and future manpower needs by industry division, major occupational group and selected occupations.

The State Department of Vocational-Technical Education was particularly concerned with the compilation of such information for use in curriculum development for new area vocational schools as prescribed under the Vocational Education Act of 1963. Prospective employers, existing business establishments and educational institutions, as well as numerous agencies and other organizations, are also interested in the skills and overall characteristics of the labor force. This is especially true in Oklahoma, a state which has experienced accelerated growth in the past few years and where manifold opportunities for further development exist.

Through an effort to provide information to local leaders, data were compiled for the metropolitan areas of Oklahoma City and Tulsa, as well as nine other geographic regions. This detailed release, pertaining to the Northeast Oklahoma Region, is the second of a series being prepared from the survey.

We are indebted to employers for their consideration and cooperation in supplying the necessary information. In addition, various private and governmental agencies and organizations, such as chambers of commerce, provided assistance. Finally, we wish to express our gratitude to Dr. Francis Tuttle, Director of the State Department of Vocational-Technical Education and to members of his staff for their assistance and suggestions throughout the course of the study.

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HIGHLIGHTS

Nonfarm wage and salary employment in Northeast Oklahoma is expected to reach 37,030 by June 1969, a gain of 6.5 percent from June 1967. By 1972, the count should be 39,280, a 13.0 percent advance for the five-year period. Numerically speaking, this represents a growth of 2,270 job opportunities over a two-year span and 4,520 for five years. The figures are thought to be conservative as they fail to provide for the various new firms that may be established in the region over the next five years, but do reflect scheduled cutbacks in some existing plants.

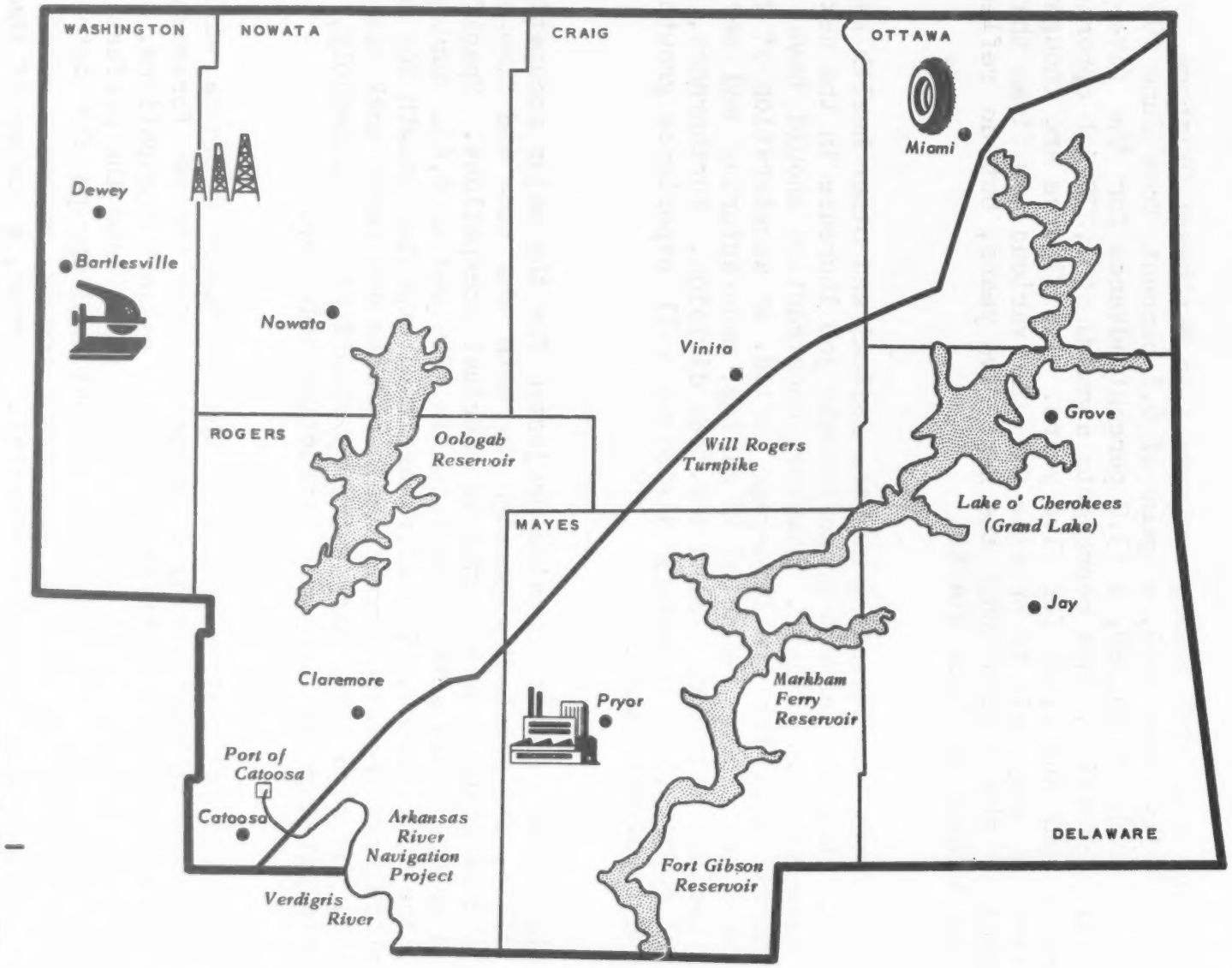
This study has indicated that the medical and other health services category will show the largest proportionate job increase in the next two years, an advance of 13.6 percent. However, construction should have the greatest proportional gain for the five-year period, an acceleration of 22.8 percent. Large advances should be noted in mining, manufacturing and service as well as the medical and other health services division. Furthermore, based on employers' reports, all industry divisions will experience growth in both the two- and five-year spans.

Significant growth is also projected for the major occupational groups. Numerically, the greatest expansion in both the two- and five-year forecast periods is expected to be recorded in clerical occupations. Specifically, jobs in this group should advance to 6,151 in 1969 and to 6,634 during 1972, from 5,844, the 1967 figure. The aforementioned expected growth for manufacturing is particularly prominent among machine trades and bench work occupations. In addition, the structural work category should rise considerably, in line with the anticipated growth in the construction industry.

This study's findings indicate that Northeast Oklahoma will need additional workers in most surveyed occupations for the two forecast periods. A number of these jobs will be in the "white collar" occupations. For example, a significant amount of the new employment falls into the professional-technical-managerial, clerical and sales occupational groups for both the forecast periods. Paralleling national and state trends, manpower needs for persons in service jobs will also be substantial. Moreso, a number of the smaller occupational groups should record large proportional needs in 1969 and 1972. For complete information, Table 6 in the Appendix lists the net additional needs of all occupations surveyed in Northeast Oklahoma.

FIGURE I

THE NORTHEAST REGION



ECONOMIC CHARACTERISTICS OF THE NORTHEAST REGION

The Northeast Region of Oklahoma, encompassing 4,336 square miles, is bordered by the state of Kansas to the north and the states of Missouri and Arkansas to the east. The region includes Craig, Delaware, Mayes, Nowata, Ottawa, Rogers and Washington Counties. Osage and Tulsa Counties lie to the west and Adair, Cherokee and Wagoner Counties are to the south. Bartlesville, Claremore, Miami, Pryor and Vinita are the largest cities within the region, Bartlesville having by far the greatest number of inhabitants.

The Northeast Region has a temperate climate which is favorable to agriculture. The winters range from cold to moderate, with many warm days. Snow seldom remains on the ground more than three or four days. In the spring, when the weather is more variable, the largest amount of rainfall occurs. The summers are hot, although nights are usually cool. Fall produces long periods of pleasant days interspersed with spells of moderate-to-heavy rains. Total annual precipitation is usually from 30 to 42 inches, generally increasing gradually in amount from west to east.

The average temperature of the region varies from 37.5°F. in January to 82.0°F. in July. Rainfall is favorably distributed throughout the growing season and is adequate for the crops of the region. Winds prevail from the south, generally, but in mid-winter, northerly winds predominate. In Washington County, the western extreme of the region, there are 225 consecutive frost-free days, whereas in Ottawa County on the eastern fringe, this span drops to 190 days.

The topography of the Northeast Region varies between the east and west counties. Small foothills of the Ozark Mountains of southwestern Missouri and northwestern Arkansas extend well into the region, where they blend into the rolling hills and ultimate flatlands of Western Oklahoma and Kansas. The eastern part of the region, an extension of the Ozark Plateau, is generally rolling to steep, and is comprised of wooded, hilly sections with smooth areas on the ridgetops. Trees, mostly oak and hickory, cover this section, with some meadows and grasslands interspersed. There were once large numbers of trees, but the passing of time has eliminated many of them due to cutting and destructive fires. The western part, commonly known as the Flint Hills, is a dissected plain, mostly gently rolling, but with some broad, nearly level, areas in the uplands. Tall prairie grasses cover much of the region with trees growing along the streams. Although there are numerous streams, the region is drained principally by the Grand, Verdigris and Caney Rivers, which are tributaries of the Arkansas River that lies to the south.

Natural resources dominate the economic history of the Northeast Region. Forests, grasslands, wildlife, mineral, stone and metal deposits are found in varying quantities throughout the area. A once semi-navigable river, the Grand flows through the eastern section, providing a natural transportation outlet.

Most of the region was originally part of the Cherokee Indian Nation. During the middle years of the 19th century many traders entered the area to profit from the Indian population. Somewhat later, cattlemen from Texas were attracted by the abundant grass and water in the prairies of the western section. As they grazed cattle for the Eastern U.S. market, trade centers developed to supplement and eventually replace the traveling traders. The eastern section of the region developed as discovery of lead and zinc in Ottawa County produced a "boom" area. During 1897, Oklahoma's first commercial oil well was brought into production in Washington County. By the turn of the century, the entire region was well developed commercially.

Throughout the first half of the 20th century, petroleum, lead, zinc, and cattle ranching, with attendant trade, government and service, continued as the main contributors to the region's development. During much of this period, Ottawa County was the nation's leading producer of lead and zinc. While peak production was reached in 1925, the economic downturn, nationally, affected the total output adversely until World War II. Wartime demands accelerated mineral output and mining so once again the industry was the major employer in Ottawa County. Later, because of wartime depletion and a depressed worldwide market condition, mining declined except for brief intervals, dipping to a low level of activity in recent years.

The mining industry, including the extraction of metal and ores as well as oil and gas, was by far the largest source of industrial development during the period. Commercial development of petroleum resources in the region led to the world's largest shallow oil field in Nowata County and other smaller fields throughout these seven counties. Oil field discoveries in Nowata and Osage Counties resulted in the location of two of the nation's largest oil company headquarters and operations in adjoining Washington County. These home industries expanded and merged into extremely successful corporate giants. This oil development led to establishment of large research facilities including the U.S. Bureau of Mines Research Laboratory in Bartlesville. Throughout, cattle ranching continued as the major contributor to the agricultural base but followed the national and State trend toward larger unit sizes and less employment.

During the same period, other counties in the region, such as Craig, Delaware, Mayes and Rogers, developed in a rural pattern with some basically related nonfarm industries. Somewhat later, Mayes County began to develop a more diversified industrial base as two factors produced changes. First, the Oklahoma Ordnance Works located a huge operation near Pryor during World War II; secondly, Pensacola Dam was constructed on the Neosho (Grand) River. The Oklahoma Ordnance Works facility was abandoned after the war, leaving a huge area adaptable for industrial development. Shortly thereafter, the Grand River Dam Authority, the state agency controlling the power of Pensacola Dam, purchased the steam plant at the Ordnance Works and offered industries inexpensive power, water and process steam.

Vinita, in Craig County, attracted smaller industries and that, along with Eastern State Hospital, a mental institution, provided the basic employment for the county. Rogers County, with a long history of ranching, and famous

as the birthplace of Will Rogers, Oklahoma's contribution to humor, received additional population in the latter portion of the first fifty years from the growth of the adjoining Tulsa metropolitan area.

Delaware, as well as Ottawa County, was also enhanced by the Pensacola Dam as it created many miles of shoreline on the Grand Lake o' Cherokees in both counties. Recreation industries expanded to meet demand as water sports increased in popularity.

Since the 1950's, there has been a period of economic transformation. Changes which had their inception in the depression years began to polarize in the entire region. The outcome led to efforts to bring in industry. As a part of this, local industrial foundations were formed to attract industry and promote development. Ottawa County, faced with the lasting decline of lead and zinc mining, moved to end the county's economic decline by promoting new industry. Their industrial foundation was rewarded for its energy and efforts by the establishment of plants which produce over twenty different manufactured products. Mayes County sought to capitalize on the former Oklahoma Ordnance Works area. Coordinating development with the Grand River Dam Authority and a major railroad, a local industrial foundation purchased the bulk of the area. Improvements and other benefits of this giant industrial park have attracted several large industries, including a chemical fertilizer plant, a carbide plant and two paper plants.

Chief among the region's assets are the water resources developments of the last decade. Several large reservoirs, Fort Gibson, Oologah and Markham Ferry, now complement Grand Lake and add to the potential of the region. In addition, Catoosa, on the Verdigris River in Rogers County, has been selected as the site of the Tulsa Port Authority's facilities. When the Arkansas River becomes navigable this port will be the terminus of the project which will open water transportation to the vast Eastern U.S. markets. The Northeast Region will benefit greatly in terms of industry attraction when this project is completed in 1970.

Other transportation means of the region include the Will Rogers Turnpike which stretches diagonally through Craig, Mayes, Ottawa and Rogers Counties paralleling U.S. Highway 66, the nation's main year-round west coast route. A long-established, well-maintained network of roads and highways connects all cities, towns and counties within the region and other areas of the State and nation. Major railways serve every county in the region with the exception of Delaware.

The population of the Northeast Region was estimated at 159,600 in 1967 as compared with 151,684 in 1960. The two largest cities, Bartlesville and Miami, ranked eighth and twenty-first among the State's cities. 1/ This region of Oklahoma has a moderate population density. Indians and Negroes are the region's minority groups. Delaware and Mayes Counties have significant Indian

1/ Oklahoma Population Estimates, Oklahoma Employment Security Commission. (Oklahoma City, 1967)

FIGURE II

LABOR FORCE AND EMPLOYMENT BY INDUSTRY DIVISION – NORTHEAST REGION JUNE 1967

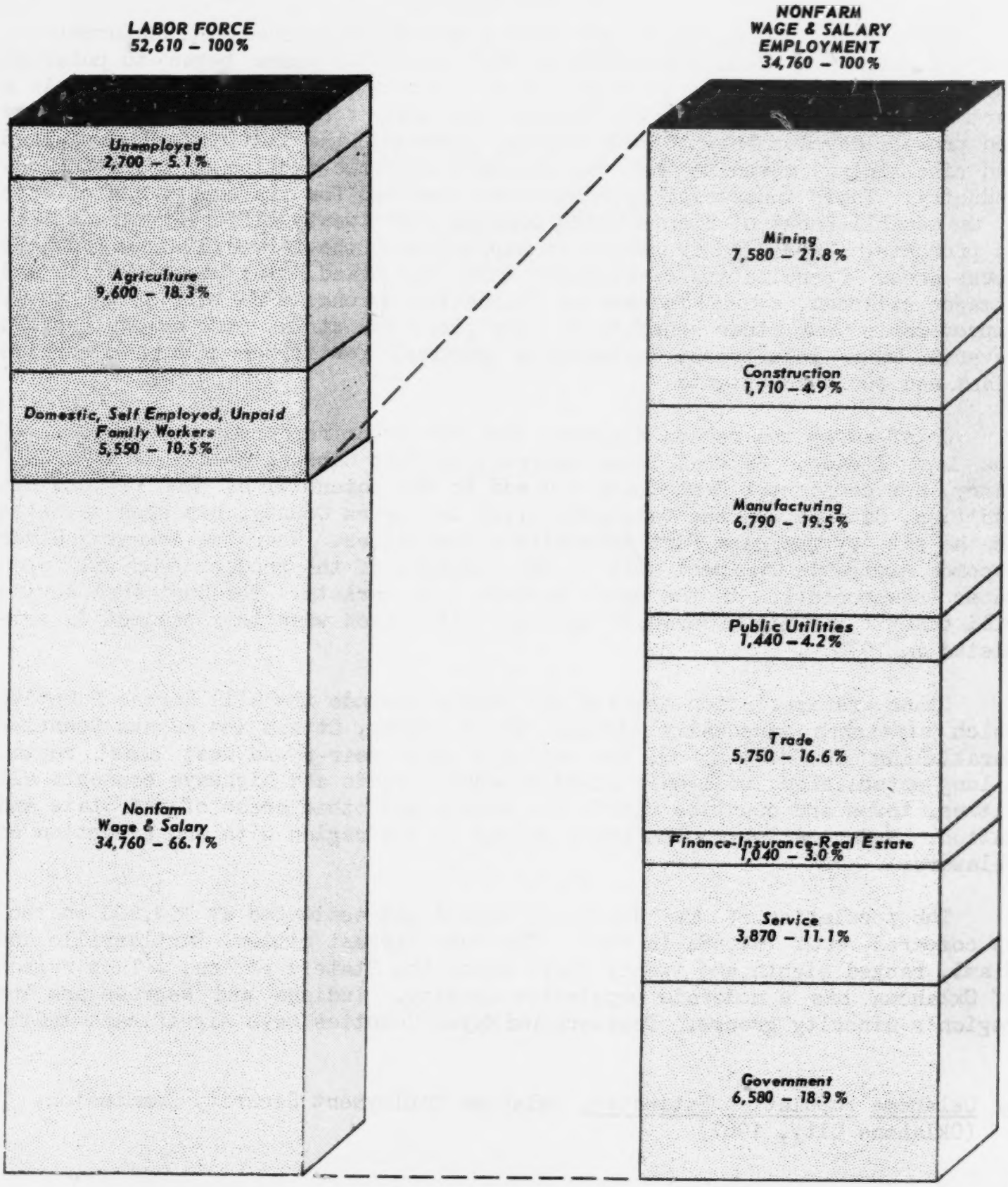


TABLE I

REGIONAL POPULATION BY COUNTY

COUNTY	POPULATION July 1967 1/	POPULATION April 1960 2/	PERCENT CHANGE April 1960 to July 1967	PERCENT DISTRIBUTION July 1967
Total	159,600	151,684	5.2	100.0
Craig	16,600	16,303	1.8	10.4
Delaware	14,200	13,198	7.6	8.9
Mayes	21,000	20,073	4.6	13.2
Nowata	10,300	10,848	– 5.1	6.4
Ottawa	28,700	28,301	1.4	18.0
Rogers	23,000	20,614	11.6	14.4
Washington	45,800	42,347	8.2	28.7

1/ *Oklaboma Population Estimates, Oklaboma Employment Security Commission, November 1967.*
2/ *U. S. Census of Population 1960, Oklaboma PC (1) - 38A.*

populations, with the former containing 15.9 percent Indians. These persons are descendants of the early population of the Indian Nations who controlled the region prior to Statehood. Only Nowata County has a Negro population of more than five percent of the total.

The labor force in Northeast Oklahoma was estimated at 52,610 in June 1967. Unemployment during the same period included 2,700 persons, a rate of 5.1 percent. Individually, the rate of joblessness varied from a low of 2.9 percent in Washington County to 7.7 percent in Mayes County. Total employment, therefore, reached a level of 49,910 of which 9,600, or 19.2 percent, were agricultural jobholders. Among the two remaining major components of employment, the domestic service-self employed-unpaid family worker group accounted for 5,550 jobs. Concurrently, nonfarm wage and salary workers numbered 34,760 with substantial employment in manufacturing, mining, trade and government. Projections made in this study include only nonfarm wage and salary workers. The following section will give more details on specific industries.

All considered, the Northeast Region has enormous potential. Rich in human and natural resources, with a tradition of aggressive economic growth, the region has begun to move toward goals of industrial development, which in turn will increase employment throughout the seven counties. Opportunities in employment will continue to expand as new and existing industries change the region's economic assets. The basis of this growth was laid in the fifties and early sixties as the vast artificial lakes, miles of super-highways, and industrial facilities were built and expanded.

CURRENT EMPLOYMENT AND FORECAST FOR MAJOR INDUSTRY DIVISIONS

Nonfarm wage and salary employment in Northeast Oklahoma should reach 37,030 by June 1969, an increase of 2,270, or 6.5 percent from the June 1967 figure. Furthermore, such employment can be expected to climb by 4,520 jobs, or 13.0 percent, to 39,280 five years from the date of the study. All industry divisions should experience growth in both the two- and five-year spans. These figures are thought to be conservative as they fail to provide for employment of new firms that might be established in the region over the next five years. However, information was gathered from firms which, at the time of the survey, had announced plans to establish new businesses but had not initiated operations. The projections do reflect reported scheduled cutbacks.

Mining

The mining industry, which includes the extraction of all types of minerals, solids and liquids, is projected to experience substantial growth in the next five years. Individually, this division ranked first in employment among the various nonfarm wage and salary industry divisions and should maintain this position in both forecast periods. Specifically, the mining job total should reach 7,960 by June 1969 from 7,580 at the time of the survey, a 5.0 percent increase. By June 1972, an advance of 12.4 percent is expected as a level of 8,520 jobs is reached. Within the region, mining activities are concentrated in Nowata, Washington and Ottawa Counties. Petroleum production and exploration will most likely experience little growth while lead and zinc mining, after a period of standstill, may advance slightly due to recent developments in processing techniques which allow recovery and economical marketing of low-grade ores. Limestone, coal and other minerals represent only a nominal portion of the region's mining employment.

Construction

Employment in the construction industry, traditionally considered an indicator of economic conditions, has increased steadily in the Northeast Region during recent years. Indications from surveyed firms point to a continuation of this growth and development. More specifically, the number of construction workers should reach 1,870 by June 1969, a 9.4 percent increase from the 1,710 in June 1967. At the same time, growth of 22.8 percent was indicated by 1972, to 2,100 jobs. This rate of expansion over the five-year period is the highest forecast for any Northeast Region industry division.

Highways and multi-purpose reservoir projects have contributed greatly to Northeast Oklahoma construction jobs in recent years. The erection of the Tulsa Port Authority facilities at Catoosa in Rogers County continues and is scheduled for completion in late 1970. The employment on highway projects should remain constant due to maintenance and repair needs. New starts on residential building and industrial facilities will increase toward the latter part of the forecast periods. This private construction should, for the most part, reflect the completion of the port at Catoosa. Other areas within the region should experience normal construction growth.

Manufacturing

Originally, most manufacturing in the Northeast Region was developed around agriculture and mining. This trend continued into the forties. Subsequently, manufacturing in the region has been expanding into rubber, machinery, apparel, chemicals, plastics, fabricated metals and other products. The changing structure of the major manufacturing subdivisions is apparent -- a decrease in reliance on primary types of manufacturing and a movement into technologically-centered products.

Manufacturing employment has become increasingly important in Northeast Oklahoma in the last quarter-century. Such employment amounted to 6,790 in June 1967, surpassed only by mining. Results of the survey indicate factory jobs will advance to 7,300 in June 1969 and 7,630 by June 1972, gains of 7.5 and 12.4 percent, respectively, over the 1967 level.

Indications are, due to the Northeast Region's natural resources, manufacturing will continue to grow with existing firms expanding and new plants entering the area. Therefore, Northeast Oklahoma should also maintain some prominence in this category compared to the State as a whole.

Public Utilities

Public utilities employment, including transportation, is projected to increase steadily over the survey period. Forecasts of new jobs arose primarily from population growth and anticipation of overall industrial expansion. During June 1967, there were 1,440 public utilities jobs in this region. That figure should increase to 1,520 in June 1969 and 1,600 five years from the survey date. Most of the additions are expected within communications, electrical and gas utilities. Rails, motor, air and water transportation are expected to remain fairly constant in employment, although the latter may expand rapidly upon completion of the water navigation potential of the region in 1970.

Wholesale-Retail Trade

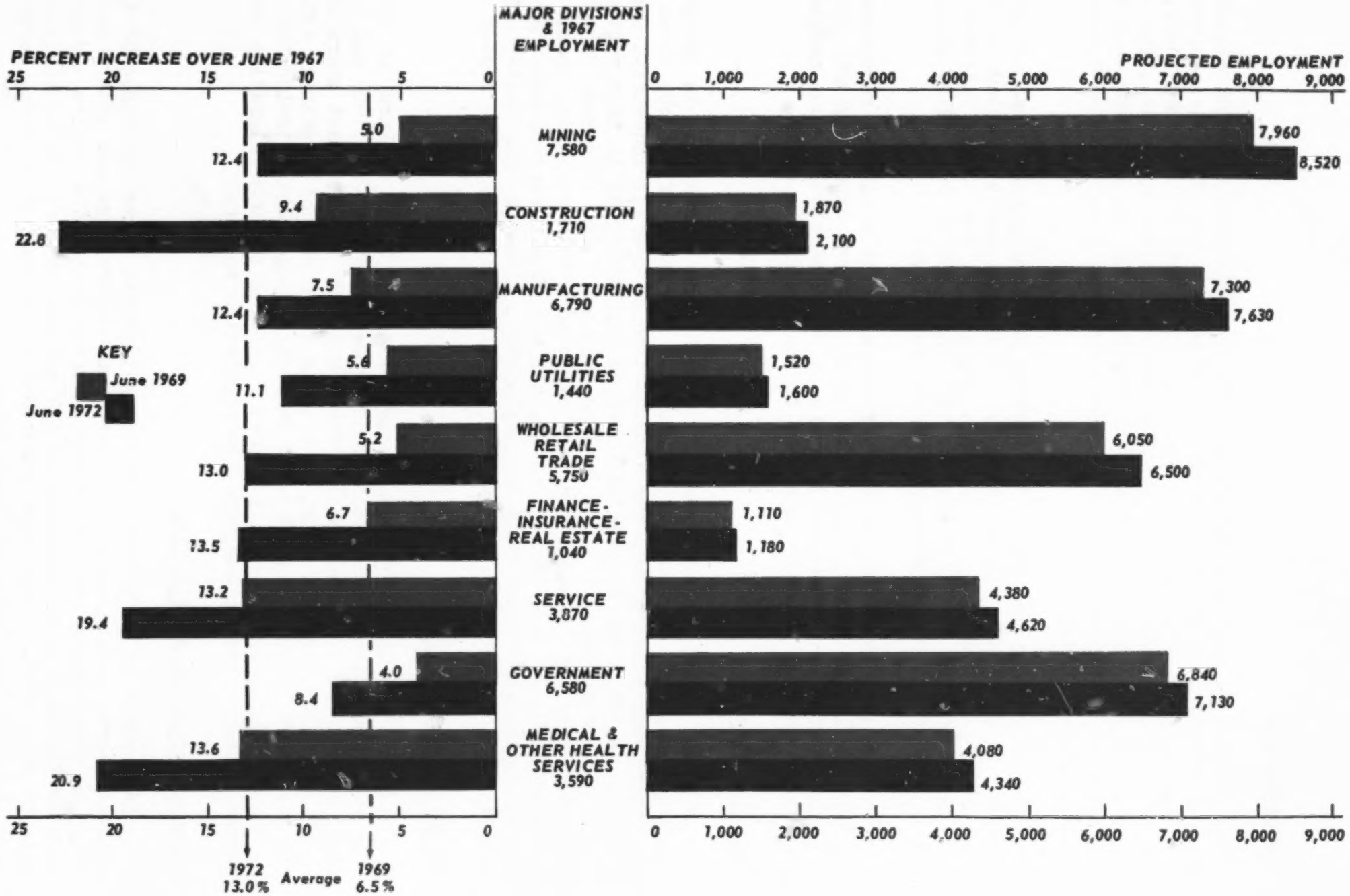
Firms in this division employed a total of 5,750 workers in June 1967. Such employment is expected to advance 5.2 percent by June 1969 and 13.0 percent by June 1972. Numerically, the count for the forecast years should be 6,050 and 6,500, respectively. Wholesale trade is not a primary activity in the Northeast Region, since a major wholesale trade center is located in nearby Tulsa. Furthermore, retail trade, following the urban migration trend, has become concentrated in the region's population centers.

Finance-Insurance-Real Estate

Employment of finance-insurance-real estate firms is expected to expand somewhat more, percentage-wise, than total nonfarm wage and salary employment. This is a dependent industry group in large part. The entire industry division is forecasting an increase of 6.7 percent by June 1969 and a 13.5 percent gain by June 1972. These are additions of 70 and 140 workers, respectively, over the June 1967 total of 1,040 jobs.

FIGURE III

EMPLOYMENT GROWTH BY NONFARM WAGE AND SALARY INDUSTRY DIVISION
NORTHEAST REGION



Service

Service is the second most rapidly growing of the nonfarm wage and salary divisions. The forecasts show an increase of 13.2 percent in June 1969 over June 1967 to an employment total of 4,380 from 3,870. By June 1972, employment of 4,620 is projected, an advance of 19.4 percent. This industry group includes personal, business and private medical services.

The fast but steady growth in services over the last decade promises to continue in the region. Northeast Oklahoma has a substantial recreation industry due to the large lakes of the area. This, combined with interstate travel on the Will Rogers Turnpike and U.S. 66, supports many motels, hotels, and restaurants. As elsewhere, private medical facilities constitute a notable portion of the new service industry jobs.

Government

Employment in government will increase at the lowest rate for all major categories treated individually in the survey; however, it will remain in a third ranked position among the nonfarm wage and salary divisions. Education is expected to increase at a higher rate of growth than other governmental units. In Northeast Oklahoma, total employment in government is expected to advance from a June 1967 level of 6,580 to 6,840 by June 1969 and to 7,130 by June 1972. Education facilities and a large mental hospital together with The Bureau of Mines Research Center in Washington County constitute over 60 percent of government employment.

Even though the rate of growth is not as high as the regional average, government employment will continue to constitute a large economic stabilizing

TABLE II

EMPLOYMENT BY NONFARM WAGE AND SALARY INDUSTRY DIVISION

INDUSTRY DIVISION	EMPLOYMENT			ABSOLUTE CHANGE		PERCENT CHANGE	
	June 1967	June 1969	June 1972	From June 1967 to – June 1969	June 1972	From June 1967 to – June 1969	June 1972
Total Wage & Salary Employment	34,760	37,030	39,280	2,270	4,520	6.5	13.0
Mining	7,580	7,960	8,520	380	940	5.0	12.4
Construction	1,710	1,870	2,100	160	390	9.4	22.8
Manufacturing	6,790	7,300	7,630	510	840	7.5	12.4
Public Utilities	1,440	1,520	1,600	80	160	5.6	11.1
Wholesale-Retail Trade	5,750	6,050	6,500	300	750	5.2	13.0
Finance-Insurance-Real Estate	1,040	1,110	1,180	70	140	6.7	13.5
Service	3,870	4,380	4,620	510	750	13.2	19.4
Government	6,580	6,840	7,130	260	550	4.0	8.4
Medical & Other Health Services*	3,590	4,080	4,340	490	750	13.6	20.9

* *Data shown as Medical and other Health Services are also included in the overall categories of Service and Government.*

factor in the region. Other governmental services, such as police, streets, sanitary work and fire protection in municipalities, will expand with population growth.

Medical and other Health Services

The medical and other health services component is not a generally recognizable industry division as it covers segments of employment reported in both service and government. Specifically, all private and religious-related medical facilities are included in the service division, and all public health institutions are a part of government. In addition to their standard inclusion, these services have been extracted and grouped in this study because of their employment size and vital importance to an expanding economy.

During June 1967, there were 3,590 persons employed in the medical and other health services group in Northeast Oklahoma. This figure amounted to slightly over 10 percent of the nonfarm wage and salary total. A growth rate of 13.6 percent is forecast to June 1969 as an increase of 490 employees will push the estimate to 4,080. By June 1972, the rate will level somewhat as anticipated employment should reach 4,340 persons. Thus, a 20.9 percent advance should occur over the five-year span. The rates of growth over both of the projected periods are considerably greater than that of the overall wage and salary total.

The expansion of employment levels in this component stem primarily from needs of a growing and more aged population. There will be significant demand for more highly skilled personnel, particularly in the professional-technical-managerial, clerical, and service occupational groups.

MANPOWER NEEDS FOR SELECTED OCCUPATIONS

The following discussion of industry divisions and major occupational groups is limited to anticipated employment growth. Total demand, however, consists not only of expansion but also includes replacement needs for persons who will leave the labor force for various reasons, such as retirement, disability or death. In addition, many women will leave the labor market to assume the role of housewife and mother. For the individual occupations, replacements available, or supply, are subtracted from the total demand in order to reveal net needs. Supply figures utilized in this study include unemployed persons, in-plant trainees as reported by surveyed employers, and school output.

Professional-Technical-Managerial

When this study was conducted, June 1967, the professional-technical-managerial occupational group accounted for over 25 percent of total nonfarm wage and salary employment in Northeast Oklahoma. This group includes persons concerned primarily with the theoretical and practical aspects of such fields as art, science, engineering, education, medicine, law, business relations, and administrative, managerial and technical work. Most of these occupations require substantial educational preparation, usually at the university, junior college or technical institute, post-high school level. Persons employed in this group are found in every industry division; however, mining, government, and service contain 75 percent of the Northeast Region's professional-technical-managerial total.

The significance of this occupational group within the region can be traced primarily to Washington County, where the location of mining, petroleum research and oil company corporate administration is concentrated. Craig County has a higher proportion of professional and technical personnel due specifically to Eastern State Hospital.

During the two years to June 1969, the professional-technical-managerial group should increase by an estimated 7.1 percent, providing 715 additional jobs. Over the five-year span, the advance should be 14.0 percent, accounting for 1,417 new professional-technical-managerial positions. Both rates of growth exceed that of the nonfarm wage and salary total.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Professional, Technical and Managerial	10,113	10,828	11,530	715	1,417	7.1	14.0

Individual occupations which have significant demand throughout the forecast periods are mechanical and chemical engineer, chemist, laboratory technician (tester), registered nurse, college faculty member, secondary and elementary teacher and accountant. Demand for these occupations has been a trend

for many years and will continue in the future. Recruiting for several of these occupations will not be confined to the Northeast Region and should result in immigration from other areas of Oklahoma as well as the nation.

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Mechanical, Engineer	197	24	4	20	63	10	53
Chemical, Engineer	197	22	2	20	59	5	54
Chemist	536	71	10	61	165	25	140
Laboratory Technician (Tester)	319	39	1	38	98	1	97
Nurse, Head or Supervisor	111	31	0	31	58	0	58
Nurse, General Duty or Office	111	114	13	101	152	31	121
Nurse, Licensed Practical	333	150	4	146	245	4	241
Faculty Member, College or University	89	20	6	14	40	15	25
Teacher, Secondary	911	118	21	97	295	33	262
Teacher, Elementary	977	149	46	103	373	96	277
Accountant	325	41	23	18	98	52	46
Draftsman, Architectural	28	9	1	8	16	1	15
Draftsman, Mechanical	100	15	6	9	33	15	18
Quality Control Technician	54	5	1	4	10	1	9
Medical Laboratory Assistant	17	10	3	7	17	3	14
Surgical Technician	15	8	2	6	13	2	11

Clerical

This was the second largest occupational group in Northeast Oklahoma, accounting for an estimated 16.8 percent of June 1967 nonfarm wage and salary employment. Workers in this category were found in every industry division; however, mining and wholesale-retail trade utilized over 50 percent of the total.

Over the next two years, the clerical group is expected to increase by an estimated 5.3 percent, with an addition of 307 new jobs. During the five-year span, such employment should climb to 6,634 from 5,844 in June 1967, or a 13.5 percent gain.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Clerical	5,844	6,151	6,634	307	790	5.3	13.5

Several individual occupations show significant demand for both 1969 and 1972. For example, jobs for secretaries will likely increase by 53 during the next two years and 197 over the five-year period. Also, there should be a net need for 36 and 116 stenographers by 1969 and 1972, respectively. In addition, opportunities will be available for 61 more accounting clerks in the two-year

period and 174 by 1972. For general office clerks, it is estimated there will be a net demand of 62 and 187 in the two- and five-year periods. Finally, there are several other clerical occupations listed below which display notable gains during the two forecast dates.

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Secretary	606	109	56	53	322	125	197
Stenographer	390	72	36	36	179	63	116
Clerk-Typist	247	50	42	8	104	78	26
Key-Punch Operator	168	42	16	26	87	40	47
Bookkeeping Machine Operator	126	27	7	20	53	15	38
Accounting Clerk	456	66	5	61	179	5	174
Clerk, General Office	688	123	61	62	288	101	187
Cashier	129	16	21	-5	54	21	33
Teller, Bank	99	16	4	12	39	4	35
Detail Programmer	11	6	0	6	9	0	9
Parts Clerk, Automotive	30	3	2	1	7	2	5
Medical Record Clerk	38	16	0	16	29	0	29

Sales

Jobholders in sales occupations numbered 2,195 in June 1967, equivalent to 6.3 percent of the Northeast Region's nonfarm wage and salary total. Wholesale-retail trade accounted for better than 85 percent of all sales personnel. As a group, sales occupations are expected to rise 7.3 percent by June 1969 and 13.0 percent by 1972. Numerically, that amounts to additions of 160 and 285, respectively.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Sales	2,195	2,355	2,480	160	285	7.3	13.0

There should be significant unmet demand for most jobs in the sales category for both forecast periods. For example, salesmen of services will need 17 net additional workers by 1969 and 31 over the next five years. Sales clerks had the highest employment in the group in 1967, and it is estimated that 171

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Salesman, Services	63	17	0	17	31	0	31
Sales Clerk	1,186	204	33	171	410	33	377
Salesman and Salesperson, Commodities	648	112	57	55	260	57	203
Routeman	202	12	9	3	30	9	21

and 377 more such workers will be needed by the two forecast dates. Salesmen of commodities are expected to show a substantial increase in both the two- and five-year periods, 55 and 203, respectively. By 1969, net additional demand for routemen should stand at 3 and then by 1972, 21 net workers will be needed

Service

The service occupational group accounted for 15.9 percent of the region's nonfarm wage and salary employment in June 1967, with 5,541 jobholders. Over the next two years, positions in this category should increase to 5,765 and by 1972, rise to 5,974 jobs. These gains represent a 4.0 and 7.8 percent advance for the two forecast dates.

This occupational group includes persons concerned primarily with the performance of personal services requiring either contact or close association, such as: jobholders involved with the cleaning and upkeep of building interiors; workers who prepare and serve food or drink; those who provide lodging and travel accomodations to patrons; persons who operate or tend amusement facilities. Also included are workers associated with routine attendance to hospital or nursing home patients.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Service	5,541	5,765	5,974	224	433	4.0	7.8

Selected occupations of particular significance in the services group are waitress or waiter, cook (including institutional cook), nurse aide or orderly, psychiatric aide, policeman or detective and grounds keeper. There is expected to be a need for an additional 35 waitresses or waiters in 1969 and 182 by the 1972 forecast date. In June 1967, there were 983 cooks, including institutional cooks, employed in this region. By 1969, an extra 113 are expected to be required and by 1972, an additional 283 cooks should be utilized. Nurse aide-orderly was the largest of all Northeast Region occupations surveyed during June 1967. This field of endeavor is expected to provide opportunities for 78 more workers in 1969 and 322 five years from the survey date. There will be an estimated 65 people needed in two years to fill openings for psychiatric aides. By 1972, the net demand in that occupation should reach 155. Growth in necessary municipal services will make way for an additional 16 and

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Waitress or Waiter	689	105	80	35	262	80	182
Cook (and institutional cook)	983	140	27	113	330	47	283
Nurse Aide-Orderly	1,405	136	58	78	380	58	322
Psychiatric Aide	147	105	40	65	245	90	155
Policeman or Dectective	116	16	0	16	33	0	33
Grounds Keeper	176	19	1	18	38	1	37

33 workers during the two forecast dates. Finally, net additional needs for grounds keepers should stand at 18 in 1969 and increase to 37 in the five-year period.

Processing

Processing occupations include persons concerned primarily with refining, mixing, compounding, chemically treating, heat treating, or similarly working materials and products. During June 1967, some 2,019 persons in Northeast Oklahoma held jobs in this category. This represented 5.8 percent of total nonfarm wage and salary positions in the region. Manufacturing firms accounted for approximately 83 percent of the processing jobs.

Over the next two years, employment in processing jobs should increase to 2,165, a 7.2 percent gain from the 1967 count. Also, by 1972, a 7.8 percent increase is expected with an employment total of 2,177 for the occupational group.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Processing	2,019	2,165	2,177	146	158	7.2	7.8

Major occupations within processing are bakers, stillmen (petroleum refining) and grinding mill operators. These three categories are expected to show moderate requirements in the two- and five-year forecast periods.

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Grinding Mill Operator	20	3	0	3	11	0	11
Baker	45	4	1	3	10	1	9
Stillman (Petroleum Ref.)	34	10	6	4	21	11	10

Machine Trades

Machine trades occupations comprised 3.4 percent of June 1967 total nonfarm wage and salary employment. Over three-fourths of these persons were working in the manufacturing and trade industry divisions. Machine trades occupations are concerned primarily with the setting up, operating, tending, feeding, and controlling machines that cut, bore, mill, print and similarly work with such materials as metal, wood and stone.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Machine Trades	1,190	1,346	1,575	156	385	13.1	32.4

Employment of this group should expand 156 and 385 by June 1969 and June 1972, respectively. As a result, the job count for this group is expected to stand at 1,346 by 1969 and 1,575 in 1972.

Most machine trades occupations should have significant unmet worker demand in both the two- and five-year periods. For example, metal fabricators (structural fitters) are expected to require 21 and 35 net additional workers by 1969 and 1972, respectively. Also, 11 maintenance mechanics should be needed by 1969 while the figure is expected to rise to 25 by 1972. Other occupations which will likely have unmet demands are machinist (all around), machine tool operators (production), punch-press operators, automobile mechanics, linotype operators and offset-press men.

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Machinist (all around)	56	6	3	3	19	3	16
Machine Tool Operator, Production	32	12	6	6	34	15	19
Punch-Press Operator	38	4	4	0	10	4	6
Metal Fabricator (Structural Fitter)	75	21	0	21	35	0	35
Mechanic, Automobile	243	17	12	5	38	30	8
Mechanic, Maintenance	204	24	13	11	48	23	25
Linotype Operator	32	10	0	10	13	0	13
Offset-Press Man	40	16	1	15	24	1	23

Bench Work

The bench work category includes occupations concerned with the use of handtools and bench machines to carve, paint, sew, assemble and similarly work relatively small objects and materials. These occupations are expected to increase from a June 1967 total of 2,174 jobs to 2,352 in two years and 2,455 within five years. The June 1967 employment figure represents 6.3 percent of all nonfarm wage and salary workers in the Northeast Region. Approximately 97 percent of these jobs are in the manufacturing industry.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Bench Work	2,174	2,352	2,455	178	281	8.2	12.9

Three bench work occupations which are expected to have unmet requirements in the two- and five-year periods are sewing-machine operator, product assembler and hand or machine cutter. There is expected to be a need for an additional 176 sewing-machine operators by 1969. Later, 1972, this net demand should rise to 427. The occupation of product assembler should utilize 14 more workers by 1969 and 38 by 1972. The classification of hand or machine cutter,

with 69 employed at the survey date, should reflect need for an additional 7 in two years and 20 in the five-year period.

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Sewing Machine Operator	911	242	66	176	493	66	427
Assembler, Product	160	15	1	14	39	1	38
Cutter, Hand or Machine	69	8	1	7	21	1	20

Structural Work

The structural work occupational group represented 7.6 percent of June 1967 total nonfarm wage and salary employment in the Northeast Region. Primarily, such occupations are found in construction; however, a large number were reported in government and manufacturing. Specifically, construction had over 46 percent of the total in this occupational group, while government and manufacturing recorded approximately 18 and 14 percent, respectively. Structural work occupations are concerned primarily with fabricating, erecting, installing, paving and similarly working structures or structural parts, such as bridges, buildings and roads.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Structural Work	2,650	2,864	3,174	214	524	8.1	19.8

Several structural work occupations in this region will show significant net demand in both the two- and five-year forecast periods. For example, 26 additional building maintenance men will be needed in 1969 and 65 by 1972. Also, linemen should have additional requirements for 24 in two years and 100 in five years. Similarly, the demand for welders, one of the larger occupations in this group, may exceed supply by 46 in 1969 and 161 by 1972. Finally,

SELECTED OCCUPATIONS

OCCUPATION	Employment June 1967	JUNE 1969			JUNE 1972		
		Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
Automobile Body Repairman	90	7	4	3	18	11	7
Heavy Equipment Operator	109	14	9	5	25	9	16
Maintenance Man Building	284	32	6	26	71	6	65
Lineman	194	27	3	24	103	3	100
Electrician	135	13	7	6	30	14	16
Welder	401	88	42	46	203	42	161
Welding Machine Operator	59	19	0	19	39	0	39

requirements for the other surveyed occupations in this group are expected to advance moderately in both the two- and five-year periods.

Miscellaneous

The miscellaneous occupational group includes employees who are concerned primarily with transportation services; packaging and warehousing; technical production of amusement services, such as radio and motion pictures; and various miscellaneous activities.

A total of 3,034 workers were in the miscellaneous classification during June 1967. This figure is expected to rise to 3,204 by 1969, a 5.6 percent increase, and advance by 8.1 percent to 3,281 by June 1972.

OCCUPATIONAL GROUP	EMPLOYMENT			ABSOLUTE CHANGE June 1967 to –		PERCENT CHANGE June 1967 to –	
	June 1967	June 1969	June 1972	June 1969	June 1972	June 1969	June 1972
Miscellaneous	3,034	3,204	3,281	170	247	5.6	8.1

The mining and manufacturing industry divisions accounted for approximately 65 percent of employment in this classification during June 1967. Also, trade and government had about 28 percent of the total. The balance was reported in public utilities, finance-insurance-real estate and service divisions.

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SCOPE AND METHODOLOGY

This study was initiated in cooperation with the State Department of Vocational-Technical Education in an effort to develop current and future occupational data. Such information is needed to assist in curriculum development for the State's area vocational-technical schools. Furthermore, the material should be an invaluable counseling tool for high schools, colleges and the employment service. Finally, this type of data is often useful to private industry, government agencies and civic organizations in planning for the future.

The specific occupations in the survey were selected by a joint committee of personnel from the Department of Vocational-Technical Education and the Oklahoma State Employment Service. The final list consisted of some 299 occupations with either numerical or specific industrial significance within the area. Following this, the occupations were defined according to the U.S. Department of Labor's "Dictionary of Occupational Titles", Third Edition, 1965.

Firms included in the study were drawn from a list of concerns covered by unemployment insurance laws and augmented by a register of the larger non-covered establishments such as government agencies, hospitals and other nonprofit organizations. These firms were listed by industry division in descending order by employment size. Establishments comprising the upper 50 percent of the area's employment total as shown on the register were included in the survey. Next, twenty-percent and four-percent samples were selected from the third and fourth quartiles, respectively.

During the second week of June 1967, questionnaires, job descriptions and instructions were mailed to approximately two-thirds of the surveyed firms. Over the next several weeks personal visits were made to the area's larger employers to solicit their cooperation. An analysis of the response from surveyed employers in this region is shown in Table 1.

As returned, the forms were checked for accuracy and completeness. Following this, the information for each sample size group was tabulated and inflated to represent the universe. Thereupon, an adjustment was made so the data would agree with published industry employment totals. These adjustment factors, in turn, were applied to data for each occupation in the survey. Expansion needs were then determined from these figures while replacement requirements were computed by use of factors and methodology provided by the Bureau of Employment Security, U.S. Department of Labor.

Training conducted by employers in their plants was determined by the survey questionnaire. However, the total supply of workers was derived from three sources: school output, in-plant training, and the unemployed. Graduates from the area's high schools, technical-vocational schools, business schools, and colleges, both public and private, were surveyed to obtain the supply of workers expected to enter the labor force. The unemployed count was derived from the active files of the local employment service offices in the area.

Estimates of supply are difficult to obtain on a regional basis, especially for some occupations such as those in the professional classifications. For example, students from all over Oklahoma as well as other states may be attending a college or university located within the region. Upon graduation, however, many such persons will return to their native areas or accept jobs in more industrialized locations outside of Oklahoma. Therefore, shortages may appear in some occupations in spite of extensive training programs in Oklahoma.

Finally, it should be noted that the estimates of future employment are based on the intentions of surveyed employers and do not include the requirements for new firms which may be established within the forecast period. The figures are presented in precise form to establish the size of the training need; however, they should be regarded as an indication of magnitude rather than as a refined estimate.

In an effort to conserve space, facsimiles of the questionnaires, employer letters, along with detailed descriptions of the major occupational groups and jobs surveyed have been omitted from this report. Copies of these materials may be obtained by writing the Research and Planning Division of the Oklahoma State Employment Service.

TABLE 1
RESPONSE ANALYSIS
SAMPLE SIZE, NUMBER RESPONDING AND PERCENT RETURN

Industry Division	ESTABLISHMENT DATA			EMPLOYMENT DATA		
	Number of Firms In Sample	Number Responding	Percent Return	Total Employment of Sample	Employment of Responding Firms	Percent Return
TOTAL	116	87	75.0	18,692	16,309	87.3
Mining	7	6	85.7	6,147	5,980	97.3
Construction	6	4	66.7	60	26	43.3
Manufacturing	23	17	73.9	4,932	3,346	67.8
Public Utilities	5	5	100.0	388	388	100.0
Wholesale-Retail Trade	26	13	50.0	551	235	42.6
Finance-Insurance-Real Estate	6	4	66.7	160	121	75.6
Service	17	14	82.4	776	720	92.8
Government	26	24	92.3	5,678	5,493	96.7

TABLE 2
REGIONAL LABOR FORCE DISTRIBUTION
PRELIMINARY ESTIMATES FOR JUNE 1967

County	Total Civilian Labor Force	UNEMPLOYMENT		EMPLOYMENT				Wage & Salary as Percent of Total Employment
		Number	Rate	Total	Agri-culture	Dom. Ser. Self-Emp. Unpaid Family Workers	Wage & Salary	
TOTAL	52,610	2,700	5.1	49,910	9,600	5,550	34,760	69.6
Craig	5,430	200	3.7	5,230	1,780	700	2,750	52.6
Delaware	3,550	230	6.5	3,320	1,660	270	1,390	41.9
Mayes	6,630	510	7.7	6,120	1,680	690	3,750	61.3
Nowata	2,630	190	7.2	2,440	880	190	1,370	56.1
Ottawa	10,840	750	6.9	10,090	1,280	1,150	7,660	75.9
Rogers	5,380	290	5.4	5,090	1,430	510	3,150	61.9
Washington	18,150	530	2.9	17,620	890	2,040	14,690	83.4

TABLE 3
DISTRIBUTION OF EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP WITHIN INDUSTRY DIVISION
JUNE 1967 AND FORECAST PERIODS

Industry	Total	Prof. Tech. Mgr.	Clerical	Sales	Service	Processing	Machine Trades	Bench Work	Struct. Work	Misc.
1967										
Total	34,760	10,113	5,844	2,195	5,541	2,019	1,190	2,174	2,650	3,034
Mining	7,580	3,658	1,983	97	148	314	96	40	123	1,121
Construction	1,710	274	137	--	--	--	68	--	1,231	--
Manufacturing	6,790	601	281	130	131	1,683	630	2,111	366	857
Public Utilities	1,440	379	436	61	11	--	35	--	340	178
Wholesale-Retail Trade	5,750	765	1,220	1,878	986	--	273	23	23	582
Finance-Insurance-Real Estate	1,040	459	562	--	5	--	--	--	9	5
Service	3,870	873	477	29	2,333	14	47	--	75	22
Government	6,580	3,104	748	--	1,927	8	41	--	483	269
Medical & Other Health Services *	3,590	859	278	--	2,309	6	4	--	101	33
1969										
Total	37,030	10,828	6,151	2,355	5,765	2,165	1,346	2,352	2,864	3,204
Mining	7,960	3,896	2,078	102	155	302	100	41	128	1,158
Construction	1,870	298	155	--	--	--	75	--	1,342	--
Manufacturing	7,300	617	301	132	134	1,840	691	2,288	392	905
Public Utilities	1,520	382	446	74	16	--	35	--	389	178
Wholesale-Retail Trade	6,050	765	1,220	2,018	998	--	342	23	23	661
Finance-Insurance-Real Estate	1,110	470	621	--	5	--	--	--	9	5
Service	4,380	1,127	557	29	2,484	14	61	--	84	24
Government	6,840	3,273	773	--	1,973	9	42	--	497	273
Medical & Other Health Services *	4,080	1,141	354	--	2,428	7	3	--	112	35
1972										
Total	39,280	11,530	6,634	2,480	5,974	2,177	1,575	2,455	3,174	3,281
Mining	8,520	4,167	2,293	107	166	283	105	43	135	1,221
Construction	2,100	340	160	--	--	--	90	--	1,510	--
Manufacturing	7,630	635	317	145	138	1,871	764	2,389	433	938
Public Utilities	1,600	398	451	84	16	--	35	--	463	153
Wholesale-Retail Trade	6,500	777	1,425	2,115	998	--	478	23	23	661
Finance-Insurance-Real Estate	1,180	536	621	--	5	--	--	--	9	9
Service	4,620	1,205	569	29	2,628	14	61	--	90	24
Government	7,130	3,472	798	--	2,023	9	42	--	511	275
Medical & Other Health Services*	4,340	1,220	367	--	2,588	7	2	--	121	35

* Data shown as Medical and Other Health Services are also included in the overall categories of Service and Government.

TABLE 4
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
PROFESSIONAL, TECHNICAL AND MANAGERIAL						
Draftsman, Architectural	28	--	35	40	25.0	42.9
Electrical Engineer	8	--	8	8	0.0	0.0
Electronic Engineer	12	--	12	13	0.0	8.3
Electronic Technician	7	--	7	10	0.0	42.9
Civil Engineer	39	--	45	45	15.4	15.4
Mechanical Engineer	197	--	209	231	6.1	17.3
Mechanical Engineering Technician	40	--	46	52	15.0	30.0
Draftsman, Mechanical	100	1	109	118	9.0	18.0
Chemical Engineer	197	--	207	227	5.1	15.2
Petroleum Engineer	56	--	59	62	5.4	10.7
Industrial Engineer	5	--	5	5	0.0	0.0
Industrial Engineering Technician	11	--	13	14	18.2	27.3
Draftsman, Map	36	--	38	41	5.6	13.9
Surveyor	5	--	5	5	0.0	0.0
Quality-Control Technician	54	--	56	56	3.7	3.7
Mathematician	21	5	24	25	14.3	19.0
Programmer, Business	69	12	75	81	8.7	17.4
Programmer, Engineering and Scientific	45	--	46	47	2.2	4.4
Chemist	536	13	574	620	7.1	15.7
Physicist	8	--	8	10	0.0	25.0
Geologist	86	--	89	95	3.5	10.5
Laboratory Technician (Tester)	319	62	335	360	5.0	12.9
Agronomist	9	--	9	9	0.0	0.0
Economist	6	--	6	6	0.0	0.0
Director, Nursing Service	18	18	19	19	5.6	5.6
Nurse, Head or Supervisor	111	110	129	135	16.2	21.6
Nurse, General Duty or Office	111	111	211	229	90.1	106.3
Nurse, Industrial Staff (Occup.)	5	5	6	6	20.0	20.0
Dietitian	10	10	12	12	20.0	20.0
Medical Technologist, Chief	17	15	18	18	5.9	5.9
Medical Technologist or Biochemistry Technologist	20	20	30	36	50.0	80.0

TABLE 4 - Continued
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Electrocardiograph Technician and Electroencephlograph Technician	9	9	11	11	22.2	22.2
Radiologic Technologist	18	10	19	19	5.6	5.6
Medical Laboratory Assistant	17	14	25	30	47.1	76.5
Occupational Therapy Aide	7	5	13	24	85.7	*
Nurse, Licensed Practical	332	329	443	477	33.0	43.2
Physical Therapist	10	7	11	18	10.0	80.0
Surgical Technician	15	15	21	23	40.0	53.3
Faculty Member, College or University	89	17	103	113	15.7	27.0
Teacher, Secondary School	911	439	947	1,002	4.0	10.0
Teacher, Elementary School	977	845	1,015	1,073	3.9	9.8
Librarian	9	8	13	13	44.4	44.4
Medical-Record Librarian	12	12	14	14	16.7	16.7
Abstractor	14	--	14	14	0.0	0.0
Reporter	24	8	24	24	0.0	0.0
Copy Reader	16	8	16	16	0.0	0.0
Accountant	325	49	343	367	5.5	12.9
Cost Estimator	10	--	10	10	0.0	0.0
Buyer	25	25	25	25	0.0	0.0
Purchasing Agent	58	4	59	60	1.7	3.4
Public-Relations Man	18	--	20	23	11.1	27.8
Manager, Credit and Collection	43	8	45	45	4.7	4.7
Manager, Traffic	19	--	20	20	5.3	5.3
Manager, Parts	38	--	38	38	0.0	0.0
Bank Cashier	19	--	19	19	0.0	0.0
Loan Officer	191	--	196	196	2.6	2.6
Superintendent, Hospital (Administrator)	25	14	26	26	4.0	4.0
Business Broker	9	--	9	9	0.0	0.0

TABLE 4 - Continued
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Leaseman	9	--	9	9	0.0	0.0
Social Worker or Case Worker	71	52	74	81	4.2	14.1
Radiographer (Industrial X-Ray Operator)	5	--	10	10	100.0	100.0
CLERICAL						
Secretary	606	606	641	743	5.8	22.6
Stenographer	390	390	414	450	6.2	15.4
Personnel Clerk	73	62	78	83	6.8	13.7
Clerk-typist	247	242	267	276	8.1	11.7
Statement Clerk	5	5	5	5	0.0	0.0
Bookkeeper (Hand)	318	269	311	319	- 2.2	0.3
Cashier	129	115	130	146	0.8	13.2
Teller, Bank	99	94	104	108	5.1	9.1
Digital-Computer Operator	19	7	25	25	31.6	31.6
Key-Punch Operator	168	168	190	204	13.1	21.4
Tabulating-Machine Operator	42	18	44	47	4.8	11.9
Bookkeeping-Machine Operator	126	120	138	141	9.5	11.9
Pay-Roll Clerk	70	67	61	62	-12.9	-11.4
Transit Clerk	24	24	19	14	-20.8	-41.7
Clerk, General Office	688	621	731	776	6.3	12.8
Ward Clerk	34	34	42	45	23.5	32.4
Interest Clerk	9	9	9	9	0.0	0.0
Programmer, Detail	11	4	17	18	54.5	63.6
Accounting Clerk	456	422	468	501	2.6	9.9
Parts Clerk, Automotive	30	--	31	33	3.3	10.0
Post Office Clerk	106	75	106	106	0.0	0.0
Mail Carrier	61	1	61	61	0.0	0.0
Telephone Operator (PBX Operator)	324	324	329	332	1.5	2.5
Room Clerk	41	34	41	41	0.0	0.0
New Account Clerk	56	32	56	56	0.0	0.0
Medical Record Clerk	38	38	49	55	28.9	44.7

TABLE 4 - Continued
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
SALES						
Salesman, Services	63	8	76	84	20.6	33.3
Salesman and Salesperson, Commodities	648	92	716	798	10.5	23.1
Sales Clerk	1,186	840	1,266	1,289	6.7	8.7
Routeman	202	--	202	202	0.0	0.0
Manager, Department (Retail)	37	--	37	37	0.0	0.0
SERVICE						
Waitress or Waiter	689	619	714	752	3.6	9.1
Chef	14	--	14	14	0.0	0.0
Cook (and Institutional Cook)	983	804	1,014	1,042	3.2	6.0
Meat Cutter or Butcher	72	35	72	72	0.0	0.0
Food Service Supervisor	19	19	20	20	5.3	5.3
Housekeeper	395	355	403	420	2.0	6.3
Nurse Aide-Orderly	1,405	1,201	1,382	1,388	- 1.6	- 1.2
Psychiatric Aide	147	84	238	357	61.9	142.9
Silk Finisher	59	59	59	59	0.0	0.0
Wool Presser	29	--	29	29	0.0	0.0
Fireman (Fire Department)	85	--	94	94	10.6	10.6
Policeman or Detective	116	3	125	131	7.8	12.9
Sheriff or Baliff	17	1	17	17	0.0	0.0
Grounds Keeper	176	4	185	188	5.1	6.8
PROCESSING						
Plater (Electroplating)	6	--	6	6	0.0	0.0
Grinding Mill Operator	20	--	22	28	10.0	40.0
Feed Mixer	29	--	29	29	0.0	0.0
Grinder Operator (Grain & Feed)	19	--	19	19	0.0	0.0
Baker	45	--	46	48	2.2	6.7
Stillman (Petroleum Refining)	34	--	42	50	23.5	47.1

TABLE 4 - Continued
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
MACHINE TRADES						
Machinist (All Around)	56	--	59	67	5.4	19.6
Lay-Out Man (Machine Shop)	8	--	8	8	0.0	0.0
Machine Tool Operator, Production	32	--	42	61	31.3	90.6
Die Setter (Forging)	6	--	6	6	0.0	0.0
Shear Operator, Power	6	--	6	6	0.0	0.0
Punch-Press Operator	38	--	40	42	5.3	10.5
Press Operator (Heavy Duty)	5	--	5	5	0.0	0.0
Brake Operator, Power	6	--	6	6	0.0	0.0
Metal Fabricator (Structural Fitter)	75	--	91	99	21.3	32.0
Mechanic, Air Conditioning (Auto)	28	--	28	28	0.0	0.0
Mechanic, Automobile	243	--	245	245	0.8	0.8
Mechanic, Diesel	36	--	37	39	2.8	8.3
Mechanic, Maintenance	204	--	216	222	5.9	8.8
Millwright	8	--	10	12	25.0	50.0
Linotype Operator	32	--	40	40	25.0	25.0
Cylinder-Press Man	24	--	32	32	33.3	33.3
Offset-Press Man	40	--	54	58	35.0	45.0
BENCH WORK						
Assembler, Product	160	--	165	175	3.1	9.4
Radio and Television Repairman	32	--	32	32	0.0	0.0
Painter, Spray	30	--	32	34	6.7	13.3
Cutter, Hand or Machine	69	40	70	74	1.4	7.2
Seamstress	12	12	12	12	0.0	0.0
Sewing Machine Operator	911	911	1,042	1,126	14.4	23.6
STRUCTURAL						
Structural Steel Worker	68	--	68	68	0.0	0.0
Sheet Metal Worker	18	--	19	22	5.6	22.2
Automobile Body Repairman	90	--	92	95	2.2	5.6
Lay-Out Man (Structural)	39	--	42	57	7.7	46.2
Welding Machine Operator	59	--	74	89	25.4	50.9

TABLE 4 - Continued
EMPLOYMENT IN SURVEYED OCCUPATIONS

Occupation	June 1967 Employment Total	June 1967 Employment Female	Projected Employment June 1969	Projected Employment June 1972	Percent Change June 67 to- June 1969	Percent Change June 67 to- June 1972
STRUCTURAL (Continued)						
Welder	401	--	465	545	16.0	35.9
Flame Cutting Machine Operator	8	--	8	8	0.0	0.0
Flame Cutter, Hand	21	--	21	21	0.0	0.0
Lineman	194	--	209	268	7.7	38.1
Electrician	135	--	140	145	3.7	7.4
Appliance Repairman, Household	23	--	23	23	0.0	0.0
Electronics Mechanic	21	--	24	24	14.3	14.3
Cement Mason or Concrete Finisher	35	--	35	35	0.0	0.0
Painter, Automobile	32	--	32	33	0.0	3.1
Heavy Equipment Operator	109	--	116	118	6.4	8.3
Carpenter	168	--	168	168	0.0	0.0
Bricklayer	60	--	60	60	0.0	0.0
Plumber or Pipefitter	110	--	112	118	1.8	7.3
Glazier	12	--	12	12	0.0	0.0
Maintenance Man	64	--	64	67	0.0	4.7
Maintenance Man, Building	284	29	297	308	4.6	8.5
MISCELLANEOUS						
Stationary Engineer	92	--	92	93	0.0	1.1
Power Plant Operator	30	--	30	30	0.0	0.0

* Over 200 percent.

TABLE 5
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Total Requirements	June 1969 Expansion	June 1969 Replacements	June 1972 Total Requirements	June 1972 Expansion	June 1972 Replacements
PROFESSIONAL, TECHNICAL AND MANAGERIAL						
Draftsman, Architectural	9	7	2	16	12	4
Electrical Engineer	0	0	0	1	0	1
Electronic Engineer	1	0	1	3	1	2
Electronic Technician	0	0	0	4	3	1
Civil Engineer	8	6	2	12	6	6
Mechanical Engineer	24	12	12	63	34	29
Mechanical Engineering Technician	8	6	2	18	12	6
Draftsman, Mechanical	15	9	6	33	18	15
Chemical Engineer	22	10	12	59	30	29
Petroleum Engineer	6	3	3	14	6	8
Industrial Engineer	0	0	0	1	0	1
Industrial Engineering Technician	3	2	1	5	3	2
Draftsman, Map	4	2	2	10	5	5
Surveyor	0	0	0	1	0	1
Quality-Control Technician	5	2	3	10	2	8
Mathematician	5	3	2	8	4	4
Programmer, Business	10	6	4	24	12	12
Programmer, Engineering and Scientific	4	1	3	9	2	7
Chemist	71	38	33	165	84	81
Physicist	0	0	0	3	2	1
Geologist	8	3	5	22	9	13
Laboratory Technician (Tester)	39	16	23	98	41	57
Agronomist	1	0	1	1	0	1
Economist	0	0	0	1	0	1

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Total Requirements	June 1969 Expansion	June 1969 Replacements	June 1972 Total Requirements	June 1972 Expansion	June 1972 Replacements
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Director, Nursing Service	3	1	2	6	1	5
Nurse, Head or Supervisor	31	18	13	58	24	34
Nurse, General Duty or Office	114	100	14	152	118	34
Nurse, Industrial Staff (Occupational)	2	1	1	3	1	2
Dietitian	3	2	1	5	2	3
Medical Technologist, Chief	3	1	2	6	1	5
Medical Technologist or Biochemistry Technologist	12	10	2	22	16	6
Electrocardiograph Technician and Electroencephalograph Technician	3	2	1	5	2	3
Radiologic Technologist	2	1	1	5	1	4
Medical Laboratory Assistant	10	8	2	17	13	4
Occupational Therapy Aide	7	6	1	19	17	2
Nurse, Licensed Practical	150	110	40	245	144	101
Physical Therapist	2	1	1	10	8	2
Surgical Technician	8	6	2	13	8	5
Faculty Member, College or University	20	14	6	40	24	16
Teacher, Secondary School	118	36	82	295	91	204
Teacher, Elementary School	149	38	111	373	96	277
Librarian	5	4	1	6	4	2
Medical-Record Librarian	3	2	1	6	2	4
Abstractor	1	0	1	2	0	2
Reporter	2	0	2	4	0	4

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Total Requirements	June 1969 Expansion	June 1969 Replacements	June 1972 Total Requirements	June 1972 Expansion	June 1972 Replacements
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Copy Reader	1	0	1	3	0	3
Accountant	41	18	23	98	42	56
Cost Estimator	1	0	1	1	0	1
Buyer	3	0	3	8	0	8
Purchasing Agent	4	1	3	11	2	9
Public-Relations Man	3	2	1	8	5	3
Manager, Credit and Collection	5	2	3	9	2	7
Manager, Traffic	2	1	1	4	1	3
Manager, Parts	2	0	2	6	0	6
Bank Cashier	1	0	1	3	0	3
Loan Officer	16	5	11	33	5	28
Superintendent, Hospital (Administrator)	4	1	3	6	1	5
Business Broker	1	0	1	1	0	1
Leaseman	1	0	1	1	0	1
Social Worker or Case Worker	10	3	7	29	10	19
Radiographer (Industrial X-Ray Operator)	5	5	0	6	5	1
CLERICAL						
Secretary	109	35	74	322	137	185
Stenographer	72	24	48	179	60	119
Personnel Clerk	14	5	9	31	10	21
Clerk-Typist	50	20	30	104	29	75
Statement Clerk	1	0	1	2	0	2

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Total Requirements	June 1969 Expansion	June 1969 Replacements	June 1972 Total Requirements	June 1972 Expansion	June 1972 Replacements
CLERICAL (Continued)						
Bookkeeper (Hand)	29	- 7	36	90	1	89
Cashier	16	1	15	54	17	37
Teller, Bank	16	5	11	39	9	30
Digital-Computer Operator	8	6	2	10	6	4
Key-Punch Operator	42	22	20	87	36	51
Tabulating-Machine Operator	5	2	3	14	5	9
Bookkeeping-Machine Operator	27	12	15	53	15	38
Pay-Roll Clerk	- 1	- 9	8	12	- 8	20
Transit Clerk	- 2	- 5	3	- 3	-10	7
Clerk, General Office	123	43	80	288	88	200
Ward Clerk	12	8	4	21	11	10
Interest Clerk	1	0	1	3	0	3
Programmer, Detail	6	6	0	9	7	2
Accounting Clerk	66	12	54	179	45	134
Parts Clerk, Automotive	3	1	2	7	3	4
Post Office Clerk	11	0	11	28	0	28
Mail Carrier	4	0	4	9	0	9
Telephone Operator (PBX Operator)	45	5	40	107	8	99
Room Clerk	4	0	4	11	0	11
New Account Clerk	5	0	5	14	0	14
Medical-Record Clerk	16	11	5	29	17	12

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Total Requirements	June 1969 Expansion	June 1969 Replacements	June 1972 Total Requirements	June 1972 Expansion	June 1972 Replacements
SALES						
Salesman, Service	17	13	4	31	21	10
Salesman and Salesperson, Commodities	112	68	44	260	150	110
Sales Clerk	204	80	124	410	103	307
Routeman	12	0	12	30	0	30
Manager, Department (Retail)	2	0	2	5	0	5
SERVICE						
Waitress or Waiter	105	25	80	262	63	199
Chef	1	0	1	2	0	2
Cook (and Institutional Cook)	140	31	109	330	59	271
Meat Cutter or Butcher	6	0	6	16	0	16
Food Service Supervisor	3	1	2	7	1	6
Housekeeper	53	8	45	139	25	114
Nurse Aide - Orderly	136	-23	159	380	-17	397
Psychiatric Aide	105	91	14	245	210	35
Silk Finisher	7	0	7	18	0	18
Wool Presser	2	0	2	4	0	4
Fireman (Fire Department)	14	9	5	22	9	13
Policeman or Detective	16	9	7	33	15	18
Sheriff or Baliff	1	0	1	2	0	2
Grounds Keeper	19	9	10	38	12	26

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Total Requirements	Expansion	Replacements	Total Requirements	Expansion	Replacements
PROCESSING						
Plater (Electroplating)	0	0	0	1	0	1
Grinding Mill Operator	3	2	1	11	8	3
Feed Mixer	2	0	2	4	0	4
Grinder Operator (Grain & Feed Mill)	1	0	1	3	0	3
Baker	4	1	3	10	3	7
Stillman (Petroleum Refining)	10	8	2	21	16	5
MACHINE TRADES						
Machinist (All Around)	6	3	3	19	11	8
Lay-Out Man (Machine Shop)	0	0	0	1	0	1
Machine Tool Operator, Production	12	10	2	34	29	5
Die Setter (Forging)	0	0	0	1	0	1
Shear Operator, Power	0	0	0	1	0	1
Punch-Press Operator	4	2	2	10	4	6
Press Operator (Heavy Duty)	0	0	0	1	0	1
Brake Operator, Power	0	0	0	1	0	1
Metal Fabricator (Structural Fitter)	21	16	5	35	24	11
Mechanic, Air Conditioning (Automobile)	2	0	2	4	0	4
Mechanic, Automobile	17	2	15	38	2	36
Mechanic, Diesel	3	1	2	8	3	5
Mechanic, Maintenance	24	12	12	48	18	30
Millwright	2	2	0	5	4	1
Linotype Operator	10	8	2	13	8	5

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Total Requirements	Expansion	Replacements	Total Requirements	Expansion	Replacements
MACHINE TRADES (Continued)						
Cylinder-Press Man	9	8	1	12	8	4
Offset-Press Man	16	14	2	24	18	6
BENCH WORK						
Assembler, Product	15	5	10	39	15	24
Radio and Television Repairman	2	0	2	5	0	5
Painter, Spray	4	2	2	8	4	4
Cutter, Hand or Machine	8	1	7	21	5	16
Seamstress	1	0	1	4	0	4
Sewing-Machine Operator	242	131	111	493	215	278
STRUCTURAL						
Structural Steel Worker	4	0	4	10	0	10
Sheet Metal Worker	2	1	1	7	4	3
Automobile Body Repairman	7	2	5	18	5	13
Lay-Out Man (Structural)	5	3	2	24	18	6
Welding Machine Operator	19	15	4	39	30	9
Welder	88	64	24	203	144	59
Flame Cutting Machine Operator	0	0	0	1	0	1
Flame Cutter, Hand	1	0	1	3	0	3
Lineman	27	15	12	103	74	29
Electrician	13	5	8	30	10	20

TABLE 5 - Continued
ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Total Requirements	Expansion	Replacements	Total Requirements	Expansion	Replacements
STRUCTURAL (Continued)						
Appliance Repairman, Household	1	0	1	3	0	3
Electronics Mechanic	4	3	1	6	3	3
Cement Mason or Concrete Finisher	2	0	2	5	0	5
Painter, Automobile	2	0	2	6	1	5
Heavy Equipment Operator	14	7	7	25	9	16
Carpenter	10	0	10	25	0	25
Bricklayer	4	0	4	9	0	9
Plumber or Pipefitter	9	2	7	24	8	16
Glazier	1	0	1	2	0	2
Maintenance Man	4	0	4	12	3	9
Maintenance Man, Building	32	13	19	71	24	47
MISCELLANEOUS						
Stationary Engineer	6	0	6	15	1	14
Power Plant Operator	2	0	2	4	0	4

TABLE 6
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
PROFESSIONAL, TECHNICAL AND MANAGERIAL						
Draftsman, Architectural	9	1	8	16	1	15
Electrical Engineer	0	0	0	1	0	1
Electronic Engineer	1	0	1	3	0	3
Electronic Technician	0	0	0	4	0	4
Civil Engineer	8	3	5	12	7	5
Mechanical Engineer	24	4	20	63	10	53
Mechanical Engineering Technician	8	1	7	18	2	16
Draftsman, Mechanical	15	6	9	33	15	18
Chemical Engineer	22	2	20	59	5	54
Petroleum Engineer	6	2	4	14	6	8
Industrial Engineer	0	0	0	1	0	1
Industrial Engineering Technician	3	0	3	5	0	5
Draftsman, Map	4	1	3	10	2	8
Surveyor	0	0	0	1	0	1
Quality Control Technician	5	1	4	10	1	9
Mathematician	5	2	3	8	5	3
Programmer, Business	10	6	4	24	12	12
Programmer, Engineering & Scientific	4	0	4	9	0	9
Chemist	71	10	61	165	25	140
Physicist	0	0	0	3	0	3

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Additional Requirements	June 1969 Replacements Available	June 1969 Net Additional Needs	June 1972 Additional Requirements	June 1972 Replacements Available	June 1972 Net Additional Needs
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Geologist	8	2	6	22	5	17
Laboratory Technician (Tester)	39	1	38	98	1	97
Agronomist	1	0	1	1	0	1
Economist	0	0	0	1	0	1
Director, Nursing Service	3	0	3	6	0	6
Nurse, Head or Supervisor	31	0	31	58	0	58
Nurse, General Duty or Office	114	13	101	152	31	121
Nurse, Industrial Staff (Occupational)	2	0	2	3	0	3
Dietitian	3	0	3	5	0	5
Medical Technologist, Chief	3	0	3	6	0	6
Medical Technologist or Biochemistry Technologist	12	2	10	22	5	17
Electrocardiograph Technician and Electroencephalograph Technician	3	0	3	5	0	5
Radiologic Technologist	2	0	2	5	0	5
Medical Laboratory Assistant	10	3	7	17	3	14
Occupational Therapy Aide	7	0	7	19	0	19
Nurse, Licensed Practical	150	4	146	245	4	241
Physical Therapist	2	0	2	10	0	10
Surgical Technician	8	2	6	13	2	11
Faculty Member, College or University	20	6	14	40	15	25
Teacher, Secondary School	118	21	97	295	33	262

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Additional Requirements	June 1969 Replacements Available	June 1969 Net Additional Needs	June 1972 Additional Requirements	June 1972 Replacements Available	June 1972 Net Additional Needs
PROFESSIONAL, TECHNICAL AND MANAGERIAL (Continued)						
Teacher, Elementary School	149	46	103	373	96	277
Librarian	5	1	4	6	1	5
Medical-Record Librarian	3	0	3	6	0	6
Abstractor	1	0	1	2	0	2
Reporter	2	0	2	4	0	4
Copy Reader	1	0	1	3	0	3
Accountant	41	23	18	98	52	46
Cost Estimator	1	0	1	1	0	1
Buyer	3	1	2	8	1	7
Purchasing Agent	4	2	2	11	2	9
Public-Relations Man	3	0	3	8	0	8
Manager, Credit and Collection	5	0	5	9	0	9
Manager, Traffic	2	0	2	4	0	4
Manager, Parts	2	0	2	6	0	6
Bank Cashier	1	1	0	3	1	2
Loan Officer	16	0	16	33	0	33
Superintendent, Hospital (Administrator)	4	1	3	6	1	5
Business Broker	1	0	1	1	0	1
Leaseman	1	0	1	1	0	1
Social Worker or Case Worker	10	2	8	29	5	24
Radiographer (Industrial X-Ray Operator)	5	0	5	6	0	6

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Additional Requirements	June 1969 Replacements Available	June 1969 Net Additional Needs	June 1972 Additional Requirements	June 1972 Replacements Available	June 1972 Net Additional Needs
CLERICAL						
Secretary	109	56	53	322	125	197
Stenographer	72	36	36	179	63	116
Personnel Clerk	14	1	13	31	1	30
Clerk-Typist	50	42	8	104	78	26
Statement Clerk	1	0	1	2	0	2
Bookkeeper (Hand)	29	33	- 4	90	46	44
Cashier	16	21	- 5	54	21	33
Teller, Bank	16	4	12	39	4	35
Digital-Computer Operator	8	1	7	10	1	9
Key-Punch Operator	42	16	26	87	40	47
Tabulating-Machine Operator	5	2	3	14	5	9
Bookkeeping-Machine Operator	27	7	20	53	15	38
Pay-Roll Clerk	- 1	4	- 5	12	4	8
Transit Clerk	- 2	0	- 2	- 3	0	- 3
Clerk, General Office	123	61	62	288	101	187
Ward Clerk	12	0	12	21	0	21
Interest Clerk	1	0	1	3	0	3
Programmer, Detail	6	0	6	9	0	9
Accounting Clerk	66	5	61	179	5	174
Parts Clerk, Automotive	3	2	1	7	2	5
Post Office Clerk	11	2	9	28	2	26
Mail Carrier	4	0	4	9	0	9
Telephone Operator (PBX Operator)	45	16	29	107	16	91

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
CLERICAL (Continued)						
Room Clerk	4	1	3	11	1	10
New Account Clerk	5	1	4	14	1	13
Medical Record Clerk	16	0	16	29	0	29
SALES						
Salesman, Service	17	0	17	31	0	31
Salesman and Salesperson, Commodities	112	57	55	260	57	203
Sales Clerk	204	33	171	410	33	377
Routeman	12	9	3	30	9	21
Manager, Department (Retail)	2	1	1	5	1	4
SERVICE						
Waitress or Waiter	105	80	35	262	80	182
Chef	1	0	1	2	0	2
Cook (and Institutional Cook)	140	27	113	330	47	283
Meat Cutter or Butcher	6	1	5	16	1	15
Food Service Supervisor	3	0	3	7	0	7
Housekeeper	53	0	53	139	0	139
Nurse Aide-Orderly	136	58	78	380	58	322
Psychiatric Aide	105	40	65	245	90	155
Silk Finisher	7	0	7	18	0	18
Wool Presser	2	0	2	4	0	4

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969 Additional Requirements	June 1969 Replacements Available	June 1969 Net Additional Needs	June 1972 Additional Requirements	June 1972 Replacements Available	June 1972 Net Additional Needs
SERVICE (Continued)						
Fireman (Fire Department)	14	0	14	22	0	22
Policeman or Detective	16	0	16	33	0	33
Sheriff or Bailiff	1	0	1	2	0	2
Grounds Keeper	19	1	18	38	1	37
PROCESSING						
Plater (Electroplating)	0	0	0	1	0	1
Grinding Mill Operator	3	0	3	11	0	11
Feed Mixer	2	0	2	4	0	4
Grinder Operator (Grain and Feed Mill)	1	0	1	3	0	3
Baker	4	1	3	10	1	9
Stillman (Petroleum Refining)	10	6	4	21	11	10
MACHINE TRADES						
Machinist (All Around)	6	3	3	19	3	16
Lay-Out Man (Machine Shop)	0	0	0	1	0	1
Machine Tool Operator, Production	12	6	6	34	15	19
Die Setter (Forging)	0	0	0	1	0	1
Shear Operator, Power	0	0	0	1	0	1
Punch-Press Operator	4	4	0	10	4	6
Press Operator (Heavy Duty)	0	0	0	1	0	1

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
MACHINE TRADES (Continued)						
Brake Operator, Power	0	0	0	1	0	1
Metal Fabricator (Structural Fitter)	21	0	21	35	0	35
Mechanic, Air Conditioning (Auto)	2	0	2	4	0	4
Mechanic, Automobile	17	12	5	38	30	8
Mechanic, Diesel	3	0	3	8	0	8
Mechanic, Maintenance	24	13	11	48	23	25
Millwright	2	0	2	5	0	5
Linotype Operator	10	0	10	13	0	13
Cylinder-Press Man	9	0	9	12	0	12
Offset-Press Man	16	1	15	24	1	23
BENCH WORK						
Assembler, Product	15	1	14	39	1	38
Radio and Television Repairman	2	0	2	5	0	5
Painter, Spray	4	7	- 3	8	7	1
Cutter, Hand or Machine	8	1	7	21	1	20
Seamstress	1	1	0	4	1	3
Sewing Machine Operator	242	66	176	493	66	427

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
STRUCTURAL						
Structural Steel Worker	4	5	- 1	10	5	5
Sheet Metal Worker	2	6	- 4	7	6	1
Automobile Body Repairman	7	4	3	18	11	7
Lay-Out Man (Structural)	5	2	3	24	2	22
Welding Machine Operator	19	0	19	39	0	39
Welder	88	42	46	203	42	161
Flame Cutting Machine Operator	0	0	0	1	0	1
Flame Cutter, Hand	1	0	1	3	0	3
Lineman	27	3	24	103	3	100
Electrician	13	7	6	30	14	16
Appliance Repairman, Household	1	0	1	3	0	3
Electronics Mechanic	4	2	2	6	2	4
Cement Mason or Concrete Finisher	2	3	- 1	5	3	2
Painter, Automobile	2	0	2	6	0	6
Heavy Equipment Operator	14	9	5	25	9	16
Carpenter	10	15	- 5	25	15	10
Bricklayer	4	7	- 3	9	7	2
Plumber or Pipefitter	9	14	- 5	24	14	10
Glazier	1	0	1	2	0	2
Maintenance Man	4	6	- 2	12	6	6
Maintenance Man, Building	32	6	26	71	6	65

TABLE 6 - Continued
NET ADDITIONAL MANPOWER REQUIREMENTS

Occupation	June 1969			June 1972		
	Additional Requirements	Replacements Available	Net Additional Needs	Additional Requirements	Replacements Available	Net Additional Needs
MISCELLANEOUS						
Stationary Engineer	6	1	5	15	1	14
Power Plant Operator	2	0	2	4	0	4

VT 006 749
Barker, Richard L.
Summary of a Survey of Medical Doctors to Determine Curriculum Emphasis for a Medical Assistants Educational Program in New Hampshire.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 68 7p.

*SURVEYS; *PHYSICIANS; *MEDICAL ASSISTANTS; JOB ANALYSIS; *CURRICULUM DEVELOPMENT; HEALTH OCCUPATIONS EDUCATION; QUESTIONNAIRES

Members of the New Hampshire Medical Society were surveyed by mail in an effort to determine the curriculum emphasis for a medical assistant educational program to be initiated at the New Hampshire Vocational Institute. Two hundred and sixty-four, or 34.7 percent of the society membership, representing single-doctor and multi-doctor businesses, responded. Two hundred and thirty-four questionnaires were usable. Replies which are tabulated, but not analyzed, include (1) machines or equipment a medical assistant would be expected to operate effectively, (2) duties and procedures he would be expected to perform effectively, (3) type of training and typical salary respondent would expect to fill a vacancy, and (4) projected needs by 1975 of various types of personnel. Respondents also were asked to rate the importance of 16 activities for a medical assistant. (JK)

VT 006 749

ED0 36657

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SUMMARY

of a

SURVEY OF MEDICAL DOCTORS TO DETERMINE CURRICULUM EMPHASIS FOR A MEDICAL ASSISTANTS EDUCATIONAL PROGRAM IN NEW HAMPSHIRE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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This Research Study
Conducted by

Dr. Richard L. Barker, Director
NEW HAMPSHIRE RESEARCH COORDINATING UNIT

Division of Vocational-Technical Education
State Department of Education
Concord, New Hampshire 03301

1968

VT006749

SUMMARY

of a

SURVEY OF MEDICAL DOCTORS TO DETERMINE CURRICULUM EMPHASIS FOR A MEDICAL ASSISTANTS EDUCATIONAL PROGRAM IN NEW HAMPSHIRE

The basic purpose of this study was to determine the curriculum emphasis for a medical assistant educational program that would best meet the needs of the medical profession. The new one-year program will be initiated in the fall of 1968 at the New Hampshire Vocational Institute, Claremont, New Hampshire.

The data presented in this summary was compiled from a mail survey instrument. The original mailing was sent on March 8, 1968 to all members of the New Hampshire Medical Society under the endorsement of their president, Dr. J. Dunbar Shields, Jr. A second instrument with cover letter was mailed to non-residents in late March. By the termination date of April 16, 1968, 264 (34.7 %) of the Society members had returned the survey instrument. Of this number, 234 (88.6 %) were usable.

Doctors responding with usable instruments were of the following specialty area.

	%
G. P.	29
Surgery	12
Internal Medicine	9
Pediatrics	7
Psychiatry	6
Ophthamology	5
ENT	3
Other	13
Not stated	16

The remaining data is presented as compiled for each question of the survey instrument. Little alteration of the original form has been made to facilitate tabulation of the findings.

Acknowledgment is given to H. Irene Peters, Consultant for Health Occupations, and to Donald H. Peterson, Consultant for Business Education, State Department of Education, Division of Vocational and Technical Education, for their guidance and assistance throughout the entire study. They were especially helpful in developing the survey instrument. The health occupations advisory committee for the Institute is also credited for extending many worthy suggestions.

1. Is your office complex operated as:

%

68 - A single-doctor (self only) business?
32 - A multi-doctor business?

2. Are your patient financial records kept:

%

89 - Within your office complex by you?
3 - By an outside agency?
8 - Other?

3. What employees do you now have available within your office complex? (N=230)

%

3 - None
52 - RN
48 - Secretary
46 - Medical Secretary
26 - Bookkeeper
19 - Housekeeper
15 - Custodian
11 - LPN
6 - Nurse Aide
25 - Other

4. Assuming that you now have medical assistants, to what extent do you involve them in the following? (N=217)

ITEM	Percent Response				
	All	Much	Little	None	No Response
	%	%	%	%	%
Patient health insurance forms	57	29	6	4	4
Patient medical records	46	33	12	6	3
Laboratory procedures	12	19	25	28	16
Electrocardiogram equipment	17	9	3	44	27
Therapeutic procedures	2	24	26	25	23

Question Number 4 Continued

ITEM	Percent Response				
	All	Much	Little	None	No Response
	%	%	%	%	%
Physical examinations	5	15	26	38	16
Physiotherapy (as diathermy)	8	4	9	52	27
X-ray equipment operation	8	4	4	57	27

5. Of the items of equipment listed below, please check those which you (1) now have within your office complex, and (2) would expect a medical assistant to operate effectively. (N=228)

ITEM	(1) Have in Office %	(2) Expect Med. Asst. to Operate %
Sterilizing equipment	73	69
Adding machine	71	64
Microscope	59	30
Electric typewriter	54	52
Copying machine	50	49
Transcription	50	48
Centrifuge	42	36
Electrocardiograph	30	30
Physical therapy equipment	22	21
X-ray	20	16
Automatic analyzer	1	1

6. Which of the following procedures would you expect a medical assistant to perform effectively? (N=198)

%	
86	Instrument sterilization
81	Assist with the collection of specimens
76	Diabetic urine analysis
76	Sp. Gr.
74	Intradermal injections
64	Test for occult blood
60	Subcutaneous injection
57	Intramuscular injections
56	Centrifuging
37	Smears
36	Hematological examination
32	Culture preparation
29	PKU
24	Reagents

7. Which of the following duties would you expect a medical assistant to perform effectively? (N=228)

%	
94	Receptionist
93	Receive, record, and/or dispatch telephone and radio messages
88	Office bookkeeping
86	Correspondence
86	Maintenance and care of equipment
85	Maintenance and ordering of supplies
83	Maintain medical records
82	Responsibility for appearance and setup of office complex (housekeeping)
82	Responsibility for health insurance forms
64	Examination room techniques
49	Laboratory techniques

8. Assuming that you had vacancies and an available supply existed, please indicate the order in which you would prefer to employ those listed below and the typical beginning salary range which each could expect in your county. (Compute on a full-time basis). (N=120)

Rank Order		Time Full %	Time Part %	Annual Salary in 000 to 3 %	3-4 %	4-5 %	5-6 %
1.8	Medical secretary	81	19	11	39	43	7
1.8	RN	80	20	11	10	47	32
2.2	Medical assistant (N.H. Voc. Inst. graduate)	89	11	14	49	36	1
3.0	LPN	78	22	12	66	20	2
4.0	Junior college graduate(Business major)	65	35	11	65	19	5
4.1	Business college graduate	64	36	18	36	33	13
4.2	High school graduate (Business major)	61	39	40	29	31	0

9. What are your total projected needs by 1975 of the following individuals? (N=164)

TITLE	NUMBER	Time Full Number	Time Part Number
RN	154	139	15
Medical secretary	143	134	9
Medical assistant (N.H. Voc. Inst. graduate)	87	84	3
LPN	49	44	5
High school graduate (Business major)	48	42	6
Business college graduate	19	16	3
Junior college graduate (Business major)	14	12	2
Other	31	6	25

10. Please rate the importance of the following activities for a medical assistant: (N=230)

ACTIVITY	Scale of Importance					
	Very Much	Much	Some	Little	None	No Response
Use telephone adequately and courteously	219	7	2	1		1
Receive patients properly	199	26	2	1	1	1
Demonstrate professional attitudes and ethics	195	31	1			3
Make, cancel or re-schedule appointments	189	35	2	2	2	
Recognize and meet emergencies that require immediate attention of physician	155	39	17	4	6	9
Know scope and limitations of practice	131	64	29	1	2	3
Apply secretarial practices to correspondence, record-keeping, and informational retrieval	129	59	21	5	4	12
Complete various types of insurance forms	124	55	39	5	4	3
Know the legal implications for the medical practice	121	60	40	4	3	2
Apply bookkeeping principles to medical office practice	117	64	28	7	7	7
Know terms and names of equipment used in basic medical procedures and tests	103	60	35	11	9	12
Maintain and order office supplies	100	66	46	6	6	10
Know narcotics security practices	94	33	34	21	26	22
Maintain office equipment	88	67	36	16	14	9
Prepare medical reports	81	49	52	30	15	3
Maintain and re-stock physician's bag	41	26	45	29	68	21

VT 006 807
Louisiana Manpower Training Programs.

Louisiana State Dept. of Commerce and Industry, Baton Rouge
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 1Jan68 19p.

*VOCATIONAL SCHOOLS; *STATE SCHOOLS; *INDUSTRIAL TRAINING; *VOCATIONAL EDUCATION; *MANPOWER DEVELOPMENT; VOCATIONAL TRAINING CENTERS; ON THE JOB TRAINING; STATE FEDERAL SUPPORT; PROGRAM DESCRIPTIONS; EDUCATIONAL OPPORTUNITIES
*LOUISIANA

This document describes the general manpower training in 32 state-supported vocational-technical schools operated in Louisiana the year round on an annual budget of some $6.4 million. The primary function of these schools is to meet the demands generated by normal turnover of personnel in industry and business. Each school is directed by a trained industrial educator who, in establishing the curriculum for his school, confers with area industry to determine critical manpower needs and then establishes courses to satisfy these needs. As new manpower needs are identified, new courses are established, with the result that practically every skill required in the state is being taught in one or more of the state-operated trade schools. The document discusses state and federally supported manpower programs and includes sample copies of a training agreement and a training project contract. (CH)

VT 006 807

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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LOUISIANA

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LOUISIANA MANPOWER TRAINING PROGRAMS

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MANPOWER TRAINING IN LOUISIANA

The availability of trained and trainable labor is a basic consideration in plant site selection. Recognizing this, Louisiana has attempted to put together a comprehensive manpower program capable of (1) rendering real assistance to the manufacturer starting up a new facility in the state or expanding an existing plant, and (2) satisfying continuing manpower needs.

There are basically two methods of approach. One is through state-financed programs and the other is through state-administered federal Manpower Development Training Act programs. The state is prepared to assist manufacturers in selecting the applicable program and in piloting applications through governmental channels.

STATE TRAINING PROGRAMS

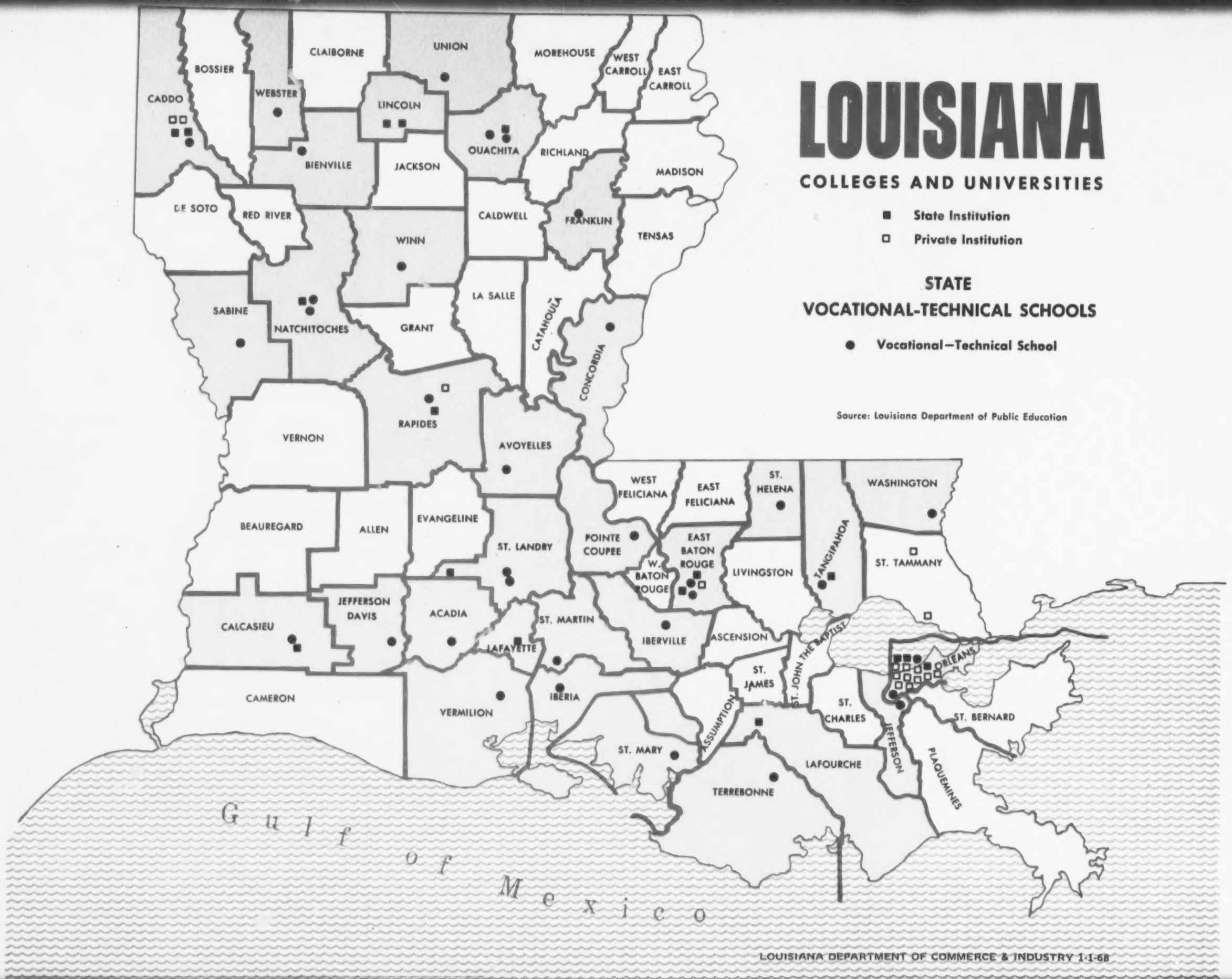
Louisiana utilizes three separate manpower training programs. The first is a general training program conducted through state vocational-technical schools and designed to supply a continuing supply of workers trained in the skills most in demand in the area in which the school is located. The second is an institutional program designed to train workers in specific skills for a specific purpose. The third provides for on-the-job training on an actual production line. The institutional and on-the-job programs can be tailored to fit a particular manufacturer's needs. They are designed to assist new or rapidly expanding industry in training large numbers of workers.

GENERAL TRAINING IN VOCATIONAL-TECHNICAL SCHOOLS

Thirty-two state supported vocational-technical schools operate in Louisiana the year around on an annual budget of some $6.4 million. Their primary function is to meet the demands generated by normal turnover of personnel in industry and business. Each school is directed by a trained industrial educator who, in establishing the curricula for his school, confers with area industry to determine critical manpower needs and then establishes courses to satisfy these needs. Practically every skill required in the state is now being taught in one or more of these state operated trade schools and, as requirements change, new courses are added. An example of a new course established to satisfy a presently limited demand is a course in tool and die making at one of the Shreveport area schools.

A sample selection of the industrial skills currently being taught in these vocational-technical schools includes:

- air condition and refrigeration mechanics
- auto mechanics
- building trades
- civil engineering technology
- construction technology
- diesel mechanics
- electronic technology
- industrial engines mechanics
- machine operation
- marine diesel mechanics
- printing
- sheet metal work
- watchmaking
- welding


LOUISIANA
COLLEGES AND UNIVERSITIES
State Institution
Private Institution
STATE
VOCATIONAL-TECHNICAL SCHOOLS
Vocational—Technical School
Source: Louisiana Department of Public Education
CADDO
BOSSIER
WEBSTER
CLAIBORNE
UNION
MOREHOUSE
WEST CARROLL
EAST CARROLL
LINCOLN
BIENVILLE
JACKSON
OUACHITA
RICHLAND
MADISON
DE SOTO
RED RIVER
CALDWELL
FRANKLIN
TENSAS
WINN
LA SALLE
CATAHOULA
CONCORDIA
SABINE
NATCHITOCHES
GRANT
RAPIDES
VERNON
AVOYELLES
WEST FELICIANA
EAST FELICIANA
ST. HELENA
WASHINGTON
BEAUREGARD
ALLEN
EVANGELINE
ST. LANDRY
POINTE COUPEE
EAST BATON ROUGE
W. BATON ROUGE
LIVINGSTON
TANGIPAHOA
ST. TAMMANY
CALCASIEU
JEFFERSON DAVIS
ACADIA
ST. MARTIN
LAFAYETTE
IBERVILLE
ASCENSION
ST. JOHN THE BAPTIST
ORLEANS
CAMERON
VERMILION
IBERIA
ST. JAMES
ASSUMPTION
ST. CHARLES
JEFFERSON
ST. BERNARD
ST. MARY
LAFOURCHE
PLAQUEMINES
TERREBONNE
Gulf of Mexico
LOUISIANA DEPARTMENT OF COMMERCE & INDUSTRY 1-1-68

Trade schools are strategically located throughout the state to insure proximity to industries requiring trained workers. The schools and their locations are as follows:

Alexandria Trade School.....Alexandria

Avoyelles Parish Trade School.....Cottonport*

Baton Rouge Vocational -
Technical School.....Baton Rouge

Bienville Trades School.....Ringgold

Capitol Area Vocational
School.....Baton Rouge

Central Area Trade School.....Natchitoches

Concordia Parish Trade School.....Ferriday

Delta Area Vocational
School.....Monroe

Evangeline Area Tri-Parish
Vocational-Technical School.....St. Martinville

Florida Parishes Vocational
School.....Greensburg

Gulf Area Vocational -
Technical School.....Abbeville

Hammond Area Vocational
School.....Hammond

T. H. Harris Vocational -
Technical School.....Opelousas

Jefferson Davis Vocational -
Technical School.....Jennings

*A branch of the Alexandria Trade School

Jefferson Parish Vocational -
Technical School.....Metairie

Huey P. Long Memorial Trade
School.....Winnfield

Memorial Area Vocational
School.....New Roads

Natchitoches Trade School.....Natchitoches

North Central Area Vocational -
Technical School.....Farmerville

Northeast Louisiana Vocational
School.....Winnsboro

Northwest Louisiana Vocational -
Technical School.....Minden

Opelousas Area Vocational
School.....Opelousas

Orleans Area Vocational -
Technical School.....New Orleans

Ouachita Valley Technical
Institute.....West Monroe

Sabine Valley Vocational -
Technical School.....Many

Shreveport-Bossier Vocational -
Technical Center.....Shreveport

South Louisiana Trade School.....Houma

Southwest Louisiana Vocational -
Technical School.....Crowley

Sowela Technical Institute.....Lake Charles

Sullivan Vocational -
Technical Institute.....Bogalusa

Teche Area Vocational -
Technical School.....New Iberia

Tri-Parish Area Trade
School.....Plaquemine

Young Memorial Vocational -
Technical School.....Morgan City

STATE INSTITUTIONAL TRAINING (VOC-ED) PROGRAM

This program is funded through a special revolving account under the control of the Governor and the executive director of the Louisiana Department of Commerce and Industry. Actual operation of the program is under the supervision of the Division of Vocational Education of the state Department of Education and Commerce and Industry. The program can be tailored to specific needs with the curriculum and length of training determined by mutual agreement of the manufacturer and the two state agencies.

A sample training agreement executed between an industry and the Division of Vocational Education is set forth on pages 11 through 14.

Basically an institutional training program, the Voc-Ed plan requires that courses be conducted either out-of-plant or, if in-plant, in an area segregated from the production area. The state pays the rental and utilities when the training is conducted in a separate building. If instruction is given in separate quarters in-plant, the state pays a mutually agreed upon pro-rata of the rental and utilities. In either case, the state pays the cost of all instructional materials, and the salaries of a qualified instructor (or instructors) and a mechanic to maintain the machines used in training. A company employee

who meets the standards set by the Division of Vocational Education may be employed as an instructor and the state will pay the instructor's salary at a level set by the state Civil Service Commission.

All items produced by trainees under the Voc-Ed plan become the property of the state and cannot be sold. Trainees receive no pay during the training period unless industry elects to pay them.

STATE ON-THE-JOB (C&I) TRAINING PROGRAM

This program is funded through the same special revolving account set up for institutional training and can also be tailored to the needs of a specific manufacturer.

Essentially "on-the-job" training, instruction under the C&I plan takes place in-plant and, if the company desires, on the actual production line. A contract for the program is effected between the company and a non-profit corporation formed by local citizens. The local corporation administers the program and enters into a separate contract with the Louisiana Division of Administration, the state agency which actually disburses the monies involved. As in the Voc-Ed plan, the state pays a mutually agreed upon pro-rata of the plant rental and utilities. The state also pays the salary of an instructor (or instructors) which, again, can be and usually is, a company employee who qualifies as an instructor. The state does not pay the cost of instructional material, but items produced by the trainees under this program can be sold by the company. Under the C&I plan, trainees are actually employees of the company.

A sample training contract executed between an industry and the local non-profit development corporation and between the local corporation and the Division of Administration, State of Louisiana, is set forth on pages 15 through 18.

FEDERAL MANPOWER DEVELOPMENT TRAINING PROGRAMS

The federal MDTA program in Louisiana is administered by the State Commissioner of Labor and the Department of Education. Its primary purpose is to provide job skills for the unemployed, the under-employed, and workers whose jobs are endangered by changing technology. The MDTA program, like Louisiana's special plans, provides both on-the-job and institutional training. The federal government contributes the bulk of the funds for the programs and the amount available for any given project is determined by the federal government after studying the manufacturer's application.

ON-THE-JOB TRAINING UNDER MDTA

Funds for MDTA "on-the-job" training are available to a manufacturer if it can be shown that there is a lack of - and a need for - qualified labor in the area. When the Division of Apprenticeship and Training of the Louisiana Department of Labor receives such a declaration from a manufacturer a representative of the Division is assigned to assist in preparing the necessary forms for OJT funds. As in the state program, MDTA - OJT gives trainees the opportunity to actually perform work duties under the supervision and guidance of an instructor or trained worker.

Once a manufacturer's application for OJT is approved, the federal government will:

(1) reimburse job instructor fees

(2) pay for certain materials used in training

(3) pay for instructional supplies

(4) provide consultation and advice on training programs

(5) assist in developing training program

(6) recruit job applicants

(7) arrange for group training for small shops

(8) arrange for area-wide training programs

INSTITUTIONAL PROGRAMS UNDER MDTA

Although an institutional (or preparatory) program cannot be established under MDTA for one particular manufacturer, if unemployment exists in the area and the manpower needs of a manufacturer are sufficiently great, local need for an institutional program may be established and an application may be filed with the local office of the Division of Employment Security, Louisiana Department of Labor, for MDTA training. The program itself is prepared and conducted by the Louisiana Department of Education with the federal government furnishing 90 percent of the funds and the state paying the remainder.

In an institutional course, trainees are taught the principles of a skill and also receive basic education to increase their level of understanding.

In some courses, a manufacturer may loan to the school certain items of equipment with which the trainees are expected to become familiar, and on which they receive instruction on operation and/or maintenance.

Each trainee under the MDTA institutional program receives a weekly training allowance from the federal government in an amount determined principally by the number of his dependents. Training courses may extend as long as 104 weeks, depending upon the skill being taught and the amount of basic education required to perform the job properly.

Institutional training is designed to bring the trainee to a basic level of proficiency in a given skill, rather than to train an employee for a particular job assignment for a given manufacturer.

COUPLED TRAINING PROGRAMS

A coupled training program, which utilizes the major features of both the institutional and OJT programs of either MDTA or the state's special training plans, may be arranged. This coupled program is often used by manufacturers who need a large number of skilled employees for immediate plant start-up.

OTHER LOUISIANA MANPOWER TRAINING AIDS

Louisiana offers several additional manpower related services to industry including:

LABOR SURVEYS - Labor surveys are conducted upon request and without charge. The firm requesting

the survey is, of course, not identified and is under no obligation. All tabulations are sent directly to the company for examination and evaluation.

EMPLOYEE SCREENING - In addition to labor surveys the state will also conduct for the manufacturer an employee recruiting and screening program. The criteria used in these programs are determined by the manufacturer and the records of all applicants meeting the qualifications set forth by the company are forwarded to the corporate personnel officer. There is no obligation on the part of the manufacturer to employ any person regardless of the results of the screening program, the whole purpose of which is to facilitate the hiring process by screening out those applicants who obviously do not meet the manufacturer's work force standards.

Adult education extension courses are conducted in centers across the state. Both correspondence courses and adult education meetings (often within industrial plants) are available. The program is open to all adults 19 years old and older who have not completed high school. Special classes lead to high school certification.

SAMPLE
TRAINING AGREEMENT

Following are the terms and conditions agreed upon by all parties for the establishment of an employee training program at _____, Louisiana: Parties to contract shall be _____, and Louisiana Division of Vocational Education, Louisiana Department of Education.

1. The training program will be established in ____, Louisiana.

2. The monies for this program will be provided from the special vocational training budget established by the 1967 Legislature.

3. The sum to be allocated shall not exceed $_____.

4. The program will be established on or before ____, 196__.

5. The monies allocated for this program shall be administered by the Trade School in _____, Louisiana, (hereinafter referred to as Trade School) and shall only be expended for the following:

   A. Rental of Training Space. If program is established in separate building, rental allowed shall be the monthly rental of the building. Lease for rental of space must be approved by Louisiana Division of Administration and be inspected by appropriate agencies such as Fire Marshal's office, etc.

   If program is established in-plant, then rental shall be determined by dividing total square footage of plant by square footage of training area and applying the resultant ratio expressed in per cent to the Company's monthly rental for the entire facility.

   B. Utilities. All utility costs billed to location are allowed if program is operated in separate building.

   If program is conducted in-plant, the ratio determined in "A" above shall be applied to the Company's monthly utility costs to determine the share to be allocated to training and paid by training monies.

Telephone cost shall be limited to the monthly charge for a single line business phone for local purposes only.

C. Payment of Instructors salaries.

D. Purchase of instructional materials.

E. Salary of mechanics.

6. The training program will be conducted as long as necessary and until such time as one of the following occurs:

   A. _____ qualified employees have been trained, or,
   B. The maximum monies allocated ($_____) have been expended.

7. The training program shall be conducted by the Trade School for the purpose of training persons for the specific jobs of (<u>description of jobs to be listed here</u>).

8. The instructor(s) for the class will be employed by the Trade School. The instructor(s) must qualify according to the standards of the Louisiana State Board of Education. Personnel presently employed by the industry who qualify according to the foregoing may be employed as instructors.

9. The instructor will be paid in accordance with the salary schedule used by the Louisiana State Operated Trade School as follows:

   A. College graduate plus a minimum of 6 years experience in the occupation - $6,465 per year.

   B. High school graduate plus a minimum of 6 years experience in the occupation - $5,865 per year.

10. The company may supplement the salary of the instructor. The instructor will however be under the supervision of the Trade School.

11. The instructor will devote 100% of his or her time to the training program and will be subject to the Trade School's rules of employment with regard to work week, hours of operation, holidays, etc.

12. More than one instructor may be employed with the understanding that the number of instructors employed will be limited to one instructor per 20 trainees.

13. The selection of the students will be a cooperative effort between the Trade School, the Louisiana State Employment Service, and the industry, which may at its own expense administer its own aptitude tests to prospective students.

14. The students, while in class, will be under the complete supervision of the Trade School.

15. In the event industry decides to pay the trainees, the trainees (students) will remain under the complete supervision of the Trade School during the training period.

16. Industry agrees to offer full-time employment to all students who successfully complete the training course.

17. Equipment for training purposes will be supplied and set up by the company in the training area at ____, Louisiana. This equipment will remain the property of the company.

18. Trade School may provide or employ a mechanic acceptable to manufacturer to maintain the machines being used for training purposes. Salary shall not exceed $100 per 40 hour work week. Employment of the mechanic may be on a full or part-time basis as required. Manufacturer may supplement the salary of the mechanic. The mechanic however will be under the supervision of the Trade School and subject to the Trade School's rules of employment with regard to work week, holidays, etc.

19. All instructional materials will either be supplied free of charge by the company or bought by the Trade School from the lowest bidder as per state regulations. Industry has the right to prepare the specifications for the instructional materials and bid on supplying these materials.

20. No finished products or partially finished products used in the training program will be placed in either state or interstate commerce.

21. All used instructional material will remain the property of the Trade School.

22. Industry agrees to the formulation of a complete course of training prior to the beginning of instruction. In order to accomplish this, the instructor(s) will be made available at

least 2 weeks prior to the first day's instruction. This course will be developed in conference by representatives of the State Department of Education, the Trade School and industry.

SAMPLE

TRAINING PROJECT CONTRACT

Following are the terms and conditions agreed upon by all parties for the establishment of an employee training program at ____, Louisiana.

This agreement made and entered into this _____, 196_, by and between:

_____ Industrial Development Corporation, a non-profit corporation duly organized under the laws of Louisiana, with its present address at _____, ____, Louisiana, and represented herein by _____, President and duly authorized agent thereof by virtue of a resolution passed by the Board of Directors of said Corporation dated _____, 196_, a certified copy of which is attached hereto and made a part hereof,

hereinafter sometimes referred to as CORPORATION; and

the Division of Administration, State of Louisiana, represented herein by _____, Commissioner of Administration

sometimes hereinafter referred to as ADMINISTRATION.

ARTICLE I. LOCATION OF TRAINING PROJECT

The training project will be established in ____, Louisiana.

ARTICLE II. LENGTH OF TRAINING PROJECT

Training project will last until one of the following occurs:

A. Industry is employing ___ persons, each of whom has received at least (_____ weeks) of training, or

B. The monies allocated for the overall training project ($_____) have been expended.

ARTICLE III. RENTALS

If program is established in separate building, rental allowed shall be the monthly rental of the building. Lease for rental of space must be approved by the Louisiana Division of Administration and be inspected by appropriate agencies such as Fire Marshal's office, etc.

If program is established in-plant, then rental shall be determined by dividing total square footage of plant by square footage of training area and applying the resultant ratio expressed in per cent to the Company's monthly rental for the entire facility.

ARTICLE IV. UTILITIES

All utility costs billed to location are allowed if program is operated in separate building.

If program is conducted in-plant, the ratio determined in article above shall be applied to the Company's monthly utility costs to determine the share to be allocated to training and paid by training monies.

Telephone cost shall be limited to the monthly charge for a single line business telephone for local purposes only.

ARTICLE V. TRAINING EQUIPMENT

MANUFACTURER will furnish all machines and necessary accessory equipment to be used in the training project. Machines shall remain the property of MANUFACTURER.

ARTICLE VI. MAINTENANCE OF TRAINING EQUIPMENT

CORPORATION may employ a qualified mechanic acceptable to MANUFACTURER to maintain the machines being used for training purposes whose salary shall not exceed $100.00 per 40 hour week. Employment of the mechanic may be on a full or part-time basis as required. MANUFACTURER may supplement the salary of the mechanic. The mechanic however will be under the supervision of CORPORATION and subject to CORPORATION'S rules of employment with regards to work week, hours of work, holidays, etc.

ARTICLE VII. INSTRUCTIONAL MATERIALS

MANUFACTURER will furnish all instructional materials, and such materials will remain the property of MANUFACTURER for disposal on whatever basis is desired by MANUFACTURER in either original or altered form.

ARTICLE VIII. INSTRUCTORS

A. CORPORATION will employ instructors, not to exceed one (1) per twenty (20) employees.

B. Each instructor must qualify according to the standards of the Louisiana State Board of Education. Personnel presently employed by MANUFACTURER who qualify according to the foregoing may be employed as instructors.

C. Each instructor will be paid in accordance with the salary schedule used by the Louisiana State Operated Trade Schools as follows:

(1) College graduate plus a minimum of 6 years experience in the occupation - $6,465.00 per year.

(2) High school graduate plus a minimum of 6 years experience in the occupation - $5,865.00 per year.

D. MANUFACTURER may supplement the salary of the instructor. The instructor will however be under the supervision of CORPORATION, devoting 100% of his or her time to the training project and will be subject to the CORPORATION'S rules of employment with regard to work week, hours of operation, holidays, etc.

ARTICLE IX. TRAINEES

A. The selection of trainees will be a cooperative effort between CORPORATION, the Louisiana State Employment Service, and MANUFACTURER which may at its own expense administer its own aptitude tests to prospective trainees.

B. The trainees, while in training, will be under the complete supervision of the instructors of CORPORATION.

C. Each trainee will be employed by MANUFACTURER at no less than the minimum wage required by the U. S. Government. MANUFACTURER has the right and privilege to obtain learners permits for each trainee if desired.

ARTICLE X. TRAINING OF TRAINEES

Immediately upon hiring by company, trainee will (description of training process). Trainee will remain under cognizance of CORPORATION'S instructor receiving increased and advanced training until the trainee is (a) deemed qualified to become a regular production worker, (b) receives training for a period of _____ weeks, whichever occurs first or (c) terminated due to inability to perform.

ARTICLE XI. MONIES FOR PROJECT AND CONTRACT

Monies for this project and contract will be provided from the special fund for employee training established by the 1967 Louisiana Legislature in the budget of the Division of Vocational Education, Louisiana Department of Education.

ARTICLE XII. PAYMENTS TO CORPORATION

Corporation will forward invoices to ADMINISTRATION which shall disburse the monies under this contract. CORPORATION, on a monthly basis, will invoice ADMINISTRATION, submitting a separate invoice for each expense item allowed under this contract. All invoices must first be approved by the Executive Director, Louisiana Department of Commerce and Industry, whose approval will follow a monthly inspection of the training facilities by the Community Development Specialist serving the _____, Louisiana, area, which inspection will verify that the training project is being operated in accordance with the terms and conditions of this contract.

ARTICLE XIII. COST OF TRAINING PROJECT

The cost of the training project is estimated to be $_____, and accordingly, the maximum monies allowed for this contract will be $_____.

Shown below, for informational purposes only, is an itemization of the estimated cost of the project:

EXPENSE ITEM	TEMPORARY QUARTERS	NEW MANUFACTURING BUILDING	TOTAL
Renovation	$--------	$-------	$---------
Rental	--------	-------	---------
Utilities	--------	-------	---------
Professional Services			
Instructors			---------
Mechanic			---------
			$_____

ARTICLE XIV. IN WITNESS WHEREOF the parties hereto have caused this contract and agreement to be signed.

_____	_____
Division of Administration State of Louisiana	Industrial Development Corporation

VT 006 924
The Nurse Practitioner as a Teacher in Nursing Service, Instructional Outline.

Pennsylvania State Univ., University Park. Dept. of Nursing
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 68 18p.

*COURSE DESCRIPTIONS; *HEALTH OCCUPATIONS EDUCATION; *NURSING; *TEACHER EDUCATION; NURSES; PATIENTS (PERSONS); STUDENT CHARACTERISTICS; *TEACHING METHODS

The course which was offered in two full-time 1-week sessions in 1968 was intended to assist key nursing personnel to function as teachers of patients and employees. A program for each of the two course components lists topics and suggests content. Topics include: (1) the needs of learners of varied preparation, ability and background, (2) the dynamics of the learning situation, (3) factors influencing learning, (4) the 4-step method of teaching, (5) use of the nursing care plan in patient and employee teaching, (6) the case method of teaching and the critical incident, (7) dynamics of the one-to-one teaching relationship, (8) problem-solving and decision-making, (9) the impact of labor relations in the hospital situation, (10) goal directed instruction, (11) incidental teaching, (12) sources of and use of audiovisual instructional aids, (13) teaching the patient in connection with adjustment to the hospital, nursing care, and body dysfunction, (14) applications of learning and instruction to the clinical and team conferences, and (15) interview techniques in teaching. Related films are listed and instructional methods and activities are suggested. (JK)

VT 006 924

ED036657

18 P

INSTRUCTIONAL OUTLINE

"THE NURSE PRACTITIONER AS A TEACHER IN NURSING SERVICE"

Reading, Berks Center - Wyomissing

PART I: April 1-5, 1968
PART II: May 6-10, 1968

Meadville - Holiday Inn

PART I: April 29-May 3, 1968

PART II: June 3-7, 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE PENNSYLVANIA STATE UNIVERSITY

COLLEGE OF HUMAN DEVELOPMENT

DEPARTMENT OF NURSING

CONTINUING EDUCATION

1967-68

VT006924

THE NURSE PRACTITIONER AS A TEACHER IN NURSING SERVICE

I. GENERAL INFORMATION

A. Purpose

To assist key nursing personnel to function in their roles as teachers of patients and employees.

B. Course Objectives

To enable the nurse to:

(1) Perceive her role as a teacher-trainer with patients and their families, professional ancillary, and interdisciplinary personnel, and members of the community.

(2) Assess principles, methods, and techniques of teaching, and further develop her teaching ability through use of appropriate materials.

(3) Develop awareness of on-the-job opportunities for formal and incidental teaching.

(4) Identify and appreciate changes of behavior which result from the learning-teaching proces.

(5) Know and appreciate that her expanded teaching role has long- and short-term effects, both on the quality of patient care and the productivity and competence of the staff.

C. Course Development

(1) This course incorporates two courses previously comtemplated--"Selected Teaching Methods in Staff Development" and "The Patient Teaching Program." As work progressed on both courses, it was found that the course content relating to general principles, concepts, and methodology was parallel in each. The only departure was the application of teaching principles to the specific groups, i.e., employees and patients and even there

some duplication was necessary. It was then decided to incorporate these two courses for two reasons: the concept of the teaching role expanded in so many directions that it was impossible to eliminate duplication or to say that this stopped at a certain point, and secondly those concerned with staff development must also be in the position to teach their employees to do patient teaching. Another guiding force was the belief that there was responsibility upon our part to see that those in nursing service undertaking to update their skills in teaching, have an opportunity to gain skill in both areas--patient and personnel--within a prescribed period of time to minimize or control those factors preventing complete training.

(2) Priority will be given to those who took the course "Staff Development: Part I, Motivation and Stimulation of Employees" in 1965-66. That course, while not essential to this teaching course, will be recommended to those not familiar with behavioral concepts relating to motivation and change which therefore can be considered a related course supplementing the teaching role.

(3) This course is concerned with two aspects of the nurse's teaching role: staff and patient education. Both areas were encompassed in one course because the nurse leader <u>must know what to teach before she can teach others to teach</u>.

(4) Principles, concepts, and methodologies applicable to both staff and patients are covered. Selected practical and effective teaching methods or techniques especially applicable to each group are in turn covered.

(5) This course includes the revisions that resulted from an intense and continuous evaluation (by the instructional staff) of three courses given in 1965-66.

II. COURSE CONTENT

In the topics that follow, each instructor is responsbile for determining the exact nature (task) of related group or action sessions immediately following his lecture or discussion. In some instances, group tasks have been stated, but these are only in the way of a suggestion.

SESSION I -- DAY 1 (5 days)
8:30 - 4:15

a.m. Registration (8:30 - 9:00)

Orientation, Introduction, Greetings (9:00 - 9:30)

"The Nurse as a Teacher--Developing Teaching Effectiveness With Learners of Varied Preparation, Ability and Background" (9:30 - 10:15)

(Who will our pupils be? Patients, professional personnel, ancillary employees, interdisciplinary personnel, patients' families, and community members--volunteers, etc.)

"The Dynamics of the Learning-Teaching Situation" (10:30 - 12:30)

(The nature of groups; the role of group participants; role of teacher and learner; characteristics of a productive learning situation; "group task" versus "maintenance functions.")

Lunch - (12:30 - 1:30)

p.m. "Factors Influencing Learning" (1:30 - 2:30)

(What motivates people to learn and results in changed behavior; psychological principles; the learning process in a hospital climate; the teaching-learning process; and techniques of teaching.)

PLEASE NOTE: The faculty believe principles of one school of thought should be used here and subsequent presentations

for consistency and uniformity. Participants should be given these in a passout with the instructor discussing these--explanation and with special application to hospital climate: employee development and patient care.

Group Work (2:45 - 4:15)

SESSION I - DAY 2
9:00 - 4:15

a.m Introductions (9:00 - 9:15)

"Factors Influencing Learning: Adaptations to Employee Development" (9:15 - 10:15)

(Specific application to employee teaching; special considerations and conditions affecting learning process.)

"Factors Influencing Learning: Adaptations to Patient Teaching" (10:30 - 11:30)

"On-the-Job Teaching: The Four Step Method" (11:30 - 12:30)

Lunch (12:30 - 1:30)

p.m. "On-the-Job Teaching: The Four Step Method" (Continued) (1:30 - 2:45)

(Including lesson planning)

Group Work (2:45 - 4:00)

Assignment of group project for demonstrations of a teaching plan incorporating the four step method.)

SESSION I - DAY 3
9:00 - 4:15

a.m. Introductions (9:00 - 9:15)

"The Nursing Care Plan" (9:00 - 10:15)

Its application for patient and employee teaching.

Each participarnt will be instructed to bring a completed nursing care plan.

"Directed Practice in Use of Nursing Care Plans" (10:30 - 11:30)

(Preparation, development, and use in relation to medical therapy and nursing care needs.)

At this point, participants should be guided in mechanics of preparing a plan that can pinpoint teaching as well as care needs for patients and further need for employee teaching.

Group Work on Nursing Care Plans (11:30 - 12:30)

(or)

Discussion on Pre-Workshops Readings

Lunch (12:30 - 1:30)

p.m. "On-the-Job Teaching Methods: The Case Method and Critical Incident" (1:30 - 4:15)

Group Work (Writing a Case Study?)

Adjournment

In-Between Session Project--Identification of Teaching Problem

Will be used as basis for a.m. session, Day 2, Session II.

SESSION I - DAY 4
9:00 - 4:15 and 6:00 - 8:30

Introductions (9:00 - 8:30)

"The Dynamics of the 1:1 Teaching Relationship" (9:15 - 10:30)

(Aids and blocks to good interpersonal behavior; the tutorial approach)

Group Work - Application to Patient Teaching (10:45 - 12:30)

Demonstrations of teaching using role playing or "patient-nurse relationship records" available at Pennsylvania State University with analysis of the same.

Lunch - (12:30 - 1:30)

p.m. "The Nurse-Teacher Learns Problem-Solving" (1:30 - 4:15)

1. "The Scientific Approach to Problem-Solving and Decision Making:
2. "Definition of Problem through Meaningful Observation and Recording" (Problem solving aspects of teaching-learning; problem as a guide to planning patient care; importance of meaningful observation for the nursing care plan.)
   NOTE: Team approach for this topic: Nurse and non-nurse faculty.

6:00 - 8:30 Speaking program following social hour and dinner.
"Impact of Labor Relations Within the Hospital Situation"
(tentative title)

SESSION I - DAY 5
9:00 - 4:15

a.m. Introductions (9:00 - 9:15)

Goal Directed Instruction" (9:15 - 10:15)

(Establishment of standards; determination and statement of objectives; determination of desired outcomes; planning for step-by-step methodology; planning for interim and terminal evaluation) Focus primarily upon standards and evaluation since lesson planning covers this a little.

Group Work on planning and writing objectives (10:30 - 12:30)

Lunch - (12:30 - 1:30)

p.m. "Recapitulation of Principles of Learning and Teaching"

(in lieu of Principles of Learning scheduled p.m., second day)

A faculty panel adding, re-emphasizing, or reinforcing, etc., key points of learning principles so participants are clear on these.

Basis for discussion: Special notes taken by the instructors during various workshop sessions. Participants should be given an opportunity to question panel.

SESSION II - DAY 1 (5 Days)
8:30 - 4:15

a.m. Introductions, Greetings, Orientation--Outcomes of Learning in Session I (8:30 - 9:30)

"Incidental Teaching" (9:30 - 12:30)

(Discussion of the many opportunities presenting themselves for informal and spontaneous teaching during rounds, shift reports, patient question, and individual interviews and the techniques applicable.)

Group Work - Set scene for teaching--have them work out opportunities for teaching who, what, how, when, where, etc. (10:30 - 11:15)

"Sources of Prepared Teaching Materials Available to the Nurse-Teacher" (11:30 - 12:30)

(Available source material - journals, pamphlets, printed materials, films--from nursing, medical, commercial, and governmental organizations)

Lunch - (12:30 - 1:30)

p.m. "Principles of Visualization and Audio-Visual Instructional Aids"

(Various Audio-Visual means including projectorals and equipment) (1:30 - 2:45)

Group Work - Some aspect of audio-visual aids from a situation to be illustrated graphically. (3:00 - 4:15)

SESSION II - DAY 2
9:00 - 4:15

a.m. Introductions (9:00 - 9:30)

Work on Individual Teaching Problems of the Participants (9:30 - 12:30)

This will have to be organized so groups can be set up with same problem. Polling entire group to classify or a general session for determining problem commonalities and rephrasing of problems before group work.

Lunch - (12:30 - 1:30)

p.m. "Teaching the Patient to Adjust to Hospitalization" (1:30 - 2:30)

(Feelings and information; teaching him to cope with fear, loss of family and community, hospital personnel, etc.)

Group Work (2:45 - 4:15)

"Patient-Nurse Relationship Records" available at Pennsylvania State University can be used effectively here.

SESSION II - DAY 3
9:00 - 4:15

a.m. Introductions (9:00 - 9:15)

"Teaching the Patient to Understand His Individual Care" (9:15 - 10:30)

(What is being done for him, and what nursing care can he expect--information; teaching patient to understand his own illness and reactions)

"Applications of Learning and Instruction to the Clinical Conference and Team Conference" (10:45 - 12:30)

(Group dynamics aspects, objective, planning for the conference instructional techniques, teach conference members how to prepare plans to instruct the team and individual patients.)

Lunch - (12:30 - 1:30)

p.m. "Interview Techniques in the Teaching Situation" (1:30 - 4:15)

SESSION II - DAY 4
9:00 - 4:15

a.m. Introductions (9:00 - 9:15)

"Group Demonstration of Assigned Teaching Projects" (9:15 - 12:30)

Lunch - (12:30 - 1:30)

p.m. "Teaching the Patient to Understand Body Dysfunction" (1:30 - 2:30)

Group Work (2:45 - 4:15)

SESSION II - DAY 5
9:00 - 4:15

a.m. Introductions (9:00 - 9:15)

"Rehabilitative Aspects of Nursing and Pre-Discharge Planning"
(9:15 - 10:30)

Group Work - Identification of general and special Rehabilitative Care Needs and Care Plan (10:45 - 12:30)

Lunch - (12:30 - 1:30)

p.m. "Developing Plans for Simple Rehabilitative Teaching" (1:30 - 2:30)
(Patient and family)

Group Work (2:30 - 3:45)

Closing Exercises (4:00)

NOTE: The faculty is alerted to cover in their individual topics one that could not be included on the program. This is "on-the-job learning opportunities" e.g., inservice education, change, and professional meetings.

III. FILMS

These have been suggested as specially applicable for this course.

Please order from District Administrator in charge of workshop.

These are available at the Management Development film libraries:

"Of Pups and Puzzles"
"Instruction Versus Obstruction"
"Pattern for Instruction"
"Instructing the Worker on the Job"
"Problem Solving in Groups"
"Using the Scientific Method" 161-1

These are available at the Pennsylvania State University Campus Audio-Visual Aids Library:

"Role Playing Human Relation" 301.1-2
"Meeting in Session" 301.15-7
"Learning, Part I" 150-5
"Learning, Part II" 150-6
"Learning, Part III" 150-7

IV. INSTRUCTIONAL METHODS

1. Since course objectives call for the maximum involvement of the learner, the combination of lecture-discussion and group work or action following this seems to be the best instructional format for the nursing workshops.

2. Attached is a list of some instructional activities that have been used effectively in previous workshops.

   Other effective things are audio-visual aids--that can be very simple or very elaborate--, special reference materials for pass-outs to reinforce or supplement lecture-discussion, special bibliographies, and duplication of lecturer's talk.

3. <u>Notebook</u> - One containing general reference material, bibliography, special reprints, and note paper are given to each participant.

FILM LIST

The following are films that could be used in the various workshops in 1967-68. Those with asterisks preceding the title will be on hand for that particular course. Any other films should be ordered directly from the District Administrator concerned.

"The Nurse Practitioner as a Teacher in Nursing Service"

The following are available through the Management Development film depositories: (for Session I)

*"Of Pups and Puzzles"
*"Instruction Versus Obstruction"
"Pattern for Instruction"
"Instructing the Worker on the Job"
*"Problem Solving in Groups"
*"Using the Scientific Method" 161-1

The following films are available at the Pennsylvania State University Campus Library: (for Session I)

"Role Playing Human Relations" 301.1-2
"Meeting in Session" 301.15-7
*"Learning, Part I" 150-5
*"Learning, Part II" 150-6
*"Learning, Part III" 150-7 (also for Session II)

For Session II:

*"Role of the Counselor in Improving Interviews"

"The Management of Nursing Functions"

The following films are available through the Management Development film depositories:

*"More Than Words"
*"Decision Phobia"
"Manager Wanted"
"Executive Interview"
"Changing Attitudes Through Communication"
*"Styles of Leadership"

This film is available at the Pennsylvania State University Campus Library:

*"Developing Cooperation" 658.3-18

This film is available at the University of Pittsburgh, School of Nursing, Continuing Education:

*"The Case of the Verbal Order: Leadership Styles on Trial"

"Staff Development: Motivation and Stimulation of Employees"

The following films are available at the Management Development Film depositories:

*"Of Pups and Puzzles"
"Inner Man Steps Out"
"More Than Words"
*"The Task of the Listener"

These are available at the Department of Mental Health, Harrisburg:

*"Mr. Finley's Feelings"
"Anger at Work"

The following are available at the Pennsylvania State University Campus Library:

*"Role of the Counselor in Improving the Interview"
"Supervisory Conferences" 658.2-22
"Supervising Women Workers" 658.1-13
"Discipline - Reprimanding" 658.3-19
"Lets Be Human" 658.3-28
"Feelings of Hostility" 131-3
*"The Grievance" 331.88-4
*"The Hidden Grievance" 658.3-46

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LEARNER ACTIVITIES PURSUED IN WORKSHOPS

1. Readings Pre-Workshop - Helpful to enrollees.

2. Readings and Reports During Workshop - Liked by some - completed by everyone. Not enough time for verbal reports, so written summary of all anecdotal impractical.

3. Introduction to Conference and Group Work - Written materials sent beforehand, with success in some instances. Most of the time the materials have been placed in notebook with orientation by faculty.

4. Case Studies/Critical Incident - Very successful in demonstrating the total situation and use of problem solving.

5. In-Between Session Assignments - In some instances have been too complicated for faculty to evaluate adequately during workshop session. If problem centered, too many in number to pursue in time alloted. Identification of problems, calls for careful problem-solving which enrollees often cannot do by themselves--yet they need practice in this to avoid superficial approach in solving problems - Faculty involvement imperative. The dilemma--faculty guidance without monopolizing the situation.

6. Quizzes - Tests - Effective in provoking discussion of the pros and cons of behavioral factors, etc.

7. Role Playing - Most enrollees like this after getting used to it. Excellent for demonstrating the "other person's view point or different reactions" to a situation.

8. Films - Good for highlighting or reinforcing teaching. Has not been over used. Enrollees like these. Post film discussion or feedback has been spotty as far as enrollee participation.

9. Brainstorming - Effective for getting enrollee participation to evaluate the knowledge that enrollees possess on a subject; to identify many solutions to a problem; or to stimulate thinking for ideas on a particular subject or topic.

10. Panel Discussion - Effective for discussion of practical problems - permits audience involvement. Could be used for presentation of some broad topics for a specific presentation by each panel member. Lend itself to using enrollees as panel members too.

11. Demonstrations - (Student) Effective for skill learning when this is called for. Example: teaching, interviewing.

12. Practice - (Student) Has been used effectively for instruction in preparing nursing care plans, teaching plans.

13. Nursing In-Basket Case - Used in 1964-65. A series of problem situations calling for decisions which each enrollee worked on at start of workshop and then as a member of the group in work sessions.

14. Buzz Groups - To get group consensus, ideas, or thinking in a short period of time. Used effectively for review of previous workshop learning.

VT 007 189
Burt, Samuel M.
Relationships with Business and Industry.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug68 16p.; Speech presented to the Invitational Conference on Leadership in the Administration of Vocational and Technical Education, The University of Michigan, Ann Arbor, August 5-6, 1968.

*VOCATIONAL EDUCATION; *ADVISORY COMMITTEES; *SCHOOL INDUSTRY RELATIONSHIP; *COMMUNICATION PROBLEMS; SPEECHES; *EVALUATION
*INVITATIONAL CONFERENCE ON LEADERSHIP IN THE ADMINISTRATION OF VOCATIONAL AND TECHNICAL EDUCATION, ANN ARBOR, MICHIGAN, AUGUST 5-6, 1968

The inherent values and benefits of the involvement of industry, business, labor, and professional people in vocational and technical education have been taken as a matter of course for over 50 years by both educators and representatives of the private sector of our economy. After so long a period of cooperation, it would appear that little new could possibly be said on this subject. As a matter of fact, that is the trouble--little new has been said for almost 50 years. While occasional questions have been asked over the years as to the gap between the practice of industry-education cooperation and the high flown phrases about its desirability, little open discussion of these questions was reported prior to 1962. In that year, at a meeting sponsored by the U.S. Office of Education, a panel was asked to consider the topic "Industry-Education Cooperation--Fact or Myth." Cooperation per se was and is a fact--primarily through the medium of informal relationships between instructors and company foremen, supervisors, personnel directors, etc. However, the recognized vehicle for achieving such cooperation--the advisory committee--was found to be the myth. This is still true today in many schools and school systems throughout the country. (CH)

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RELATIONSHIPS WITH BUSINESS AND INDUSTRY

by

Samuel M. Burt

The W. E. Upjohn Institute For Employment Research

Presented to the Invitational Conference On Leadership in the Administration of Vocational and Technical Education, The University of Michigan, Ann Arbor, August, 5-6, 1968.

The views expressed by the author do not necessarily reflect policies or positions of the W. E. Upjohn Institute for Employment Research.

VT007189

The inherent values and benefits of the involvement of industry, business, labor, and professional people[1] in vocational and technical education has been taken as a matter of course for over 50 years by both educators and representatives of the private sector of our economy. After so long a period of cooperation, it would appear that little new could possibly be said on this subject. As a matter of fact, that is the trouble -- little new has been said for almost 50 years!

While occasional questions have been asked over the years as to the gap between the practice of industry-education cooperation and the high-flown phrases about its desirability, little open discussion of these questions was reported prior to 1962. In that year, at a meeting sponsored by the U. S. Office of Education, a panel was asked to consider the topic, "Industry-Education Cooperation -- Fact or Myth." Cooperation per se was and is a fact -- primarily through the medium of informal relationships between instructors and company foremen, supervisors, personnel directors, etc. However, the recognized vehicle for achieving such cooperation -- the advisory committee -- was found to be the myth! This is still true today in many schools and school systems throughout the country.

Yet the advisory committee, as the formal means for achieving and channeling industry interest and support of vocational-technical education can be highly effective and has proven to be so when properly organized, staffed and guided by responsible educators. Herein is the root of the problem -- most educators

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[1] The word "industry" will be used, for convenience, to include business, labor, industry, and others in the private sector of our economy.

have exhibited an abysmal ignorance of how to properly organize industry-education advisory committees, what is required to properly guide such committees in the performance of their responsibilities, and the need for providing staff to assure optimum results from the effort, time and money expended by the committees. As a result, the more committees formed over the years, the larger the number of industry people who have become dissatisfied and disaffected with vocational education! I have no hesitation in blaming much of the poor image of vocational education among many industry people on the fact of their poor experience as members of vocational education advisory committees!! We have literally created our own Frankenstein. How then do we take a good idea -- a right idea -- and make it work?

As I indicated a moment ago, there is a body of successful experience on which we can build strategies, tactics, and procedures for achieving continuing and effective formal, as well as informal, industry-education cooperation. My book[2] on this subject documents some of these experiences. Some of the more important operating principles which could be identified by analyzing these case studies are contained in the paper I presented to your last year's Leadership Development Group.[3] In that paper I suggested that vocational educators imagine themselves as industry members of an advisory committee, and while in that imaginary state, determine what they would want from the school people who organized the committee. Then I asked them to revert to their role as schoolmen, and to "do what you

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[2] Samuel M. Burt, Industry and Vocational-Technical Education (New York: McGraw Hill Book Co., 1967).

[3] Samuel M. Burt, "If I were a Member of an Advisory Committee," University of Michigan Leadership Development Seminar, Ann Arbor, August 15, 1967.

would have others do unto you!" Since I want to explore with you some new directions this evening, I will only repeat from last year's paper two basic points you must take into account if you are really serious about involving industry people in vocational-technical education programs:

1. a full-time staff member must be assigned this responsibility;
2. Industry-education advisory committees is a misnomer -- what you really want are cooperating committees.

For the next few moments, I will discuss some new tactics which I have been recommending to vocational educators in assuring effective functioning of industry-education cooperative committees -- if you will indulge me in my insistence on using this phrase -- recognizing the word "cooperation" as including the responsibility for providing advice. With respect to this matter of "advice," I have frequently found that it comes as a complete surprise to many educators that industry people must first be provided advice concerning school programs and problems before they can be put in a position to offer advice on what the schools should and can do! Most industry people haven't been in a high school building since they graduated!! Few of them were even enrolled in a vocational course. Unless they have been involved as educators, personnel managers or industry trainers during some part of their adult life, they cannot be expected to provide advice on a subject so complex as vocational-technical education! Even professional educators don't have the answers -- if they did they wouldn't be seeking advice from industry people!!

The first order of business, then, should certainly be to provide the committee members with a continuing flow of information concerning the programs and problems of occupational education generally, with specific reference to the particular school system, school and occupational programs the committee has been organized to serve. Once they have acquired this background, any advice the committee might offer could be expected to be well taken; any support the educators might want from the committee can be expected to be forthcoming. Incidentally, or not so incidentally, I have found that a committee organized on this conceptual basis will want to meet more than once a year, its members will find time to attend meetings, and they will work at continuing their memberships beyond the usual one-year term.

A strategy to assure the formation of a really interested and involved cooperating committee is rarely used by educators. Their usual procedure for organizing a committee is to appoint the committee members, and then, at the first meeting, elect a chairman. I strongly urge a reversal of this procedure. First, appoint the man you want as chairman, and then, with his advice, select the remainder of the committee. If you have appointed the right man as chairman, he will know the right men in his industry who will do the most good for the school. Not only that, he will pick the people who will work with him harmoniously. Since it is the chairman of a committee who sets its tone and who does most of the work anyway, he should have a major voice in who should serve on his committee. Moreover, by sharing in the selection of his committee members, he becomes jointly responsible for the success or failure of the committee!

One more point I want to present concerning the pragmatism of involving committee members deals with providing them some visible recognition of appreciation of their services. Some of you have heard me rant on this subject and have been influenced accordingly. Ralph Wenrich credits me for the fact that when he was appointed a member of the board of trustees to a new junior college, he insisted that the college catalog carry the names of the members of all the advisory committees. When he showed me the catalog, he said he would have resigned from the board rather than face my wrath if the committee members hadn't been listed! There are still too few schoolmen who appreciate the benefits which can accrue to their schools by providing such public recognition to their cooperating committee members. One school I recently visited does understand. In each shop of this school there is a special bulletin board containing 8 x 10 color photographs of every member of the committee for that particular program. I recommend this action for your consideration. Seeing your name in print is very nice. Seeing your name and picture is even better.

But there is possibly an even more important reason for vocational educators to publicize their cooperative relationships with industry. A recent study[4/] of the decisions by industrialists to locate their plants in a particular community,

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[4/] Earnest H. Dean, Implication of Vocational Education for Plant Site Location, May 31, 1967, U. S. Office of Education Grant No. 4-7-068498-0408.

found that those companies which did consider the existence of vocational and technical schools were also interested in the attitudes of the community toward the schools. These industrialists also examined the literature and brochures from the schools. How better to demonstrate the cooperative community relationship existing between schools and industry to prospective new companies than for these companies to see the names and company affiliations of advisory committees in the school brochures. Here is a direct tie-in between vocational education in an area and that area's economic development efforts.

Appreciation of this relationship by vocational educators is still a very much "sometime thing," even in Michigan. In examining 28 reports of studies of vocational education needs conducted by commissions appointed for as many regional areas in Michigan, I found that 11 of the commissions did not include industry representatives, one commission had one industry member, and there was a presumption that two commissions did have industry representatives. The remaining 14 commissions did include industry people on either their policy, executive or working committees. How educators can rationalize an in-depth study of an area's manpower and vocational-technical education needs without advice and guidance from industry and business people is beyond me!! The interesting thing about these regional commission studies is that each one recommended the establishment of improved vocational education programs with the guidance and assistance of industry advisory committees.

Industry people want to be involved -- more so today, in my opinion, than ever before. As a matter of fact, they will be

insisting on involvement because they are currently going through the traumatic experience of learning what happens to their businesses when schools do a poor job of preparing young people for the world of work. Not only are they suffering from a shortage of skilled manpower -- they are also having to take on the burden of remedial education and training of large numbers of individuals whom the schools failed to properly educate and train. The manpower program of our nation is cajoling, persuading, subsidizing, and bludgeoning employers to turn their offices and plants into educational institutions and social service agencies to provide services for adults which they should have, but did not obtain, during their school years. Whatever the justifiable reasons for the failure of the schools, employers have recognized that if they are ever to get out from under running remedial and compensatory education and training programs for their employees, they must make certain that the schools do the job they are supposed to do before individuals become "disadvantaged" and "hard-core unemployables."

Another movement of recent years, enforcing the determination of employers to become involved in school programs, has been the widespread utilization of industry advisory committees for war-on-poverty projects such as Job Corps Centers, MDTA training programs, CEP, and the like. The utilization of industry advisory committees has been mandatory for most of these programs. How well these committees were, and are being used, is another story; but the fact remains that many thousands of employers have recently been brought into the education and training programs of our nation for the first time.

At the very least, they have learned something about the difficulties of the poor and the uneducated and the unskilled segments of our population and the social costs involved to themselves, their communities and our nation. Through their experiences as members of manpower development advisory committees they have come to realize the need for their involvement in not only vocational education, but the entire gamut of educational programs. Many employers are quite ready and willing to assist vocational and technical educators in particular, and are even taking the initiative in involving themselves in school programs and problems.

The extent to which companies will participate in school affairs is documented in a current report of the National Industrial Conference Board.[5/] Of 1,033 companies questioned the following number (in percentages) expressed willingness to initiate action on:

a. Improvement and expansion of local school facilities	55.6%
b. Improvement of local school curriculum	48.5%
c. Problems associated with school dropouts	53.9%

While we can be pleased that approximately 50% are willing to become involved, it is obvious that schoolmen should be doing something about the other 50%. The most important first step, of course, is to properly involve those companies already willing to participate.

5/ The Role of Business in Public Affairs, National Industrial Conference Board, New York, Studies in Public Affairs Research Report No. 2, 1968.

I am currently serving as a consultant to the Arkansas State Department of Education in a project I consider a model for meaningful involvement and participation in education by industry. Employers in Arkansas, like employers everywhere else in the U.S., are concerned with the problems of improving and expanding educational opportunities for youth and adults. They are also concerned with the economic well-being and growth of their communities, regions and the state. Taking into account these two concerns, which, of course, have a direct impact on the profitability and growth of their businesses, we have organized employers, government agency officials, educators, and economic planners into eight Regional Manpower Advisory Councils for Economic Development. The activities of these Regional Councils are directed and coordinated by a State Manpower Advisory Council for Economic Development. Under the aegis of these Councils, the State Department of Education, and the Industrial Research and Extension Center of the University of Arkansas are conducting a number of studies concerning manpower availability in terms of economic development needs. One of the major phases of the project deals with an assessment of existing occupational education programs in the secondary and post-secondary schools. This assessment will be made by the Regional Council members -- not by professional educators. The first step has been for each industry member of the Councils to "adopt" a school in his community in order to become thoroughly familiar with its programs and problems. The second step will be an in-depth evaluation of all occupational education programs offered by the school. The third step will be an evalu-

ation of how well these schools are utilizing industry-advisory committees.

This past week, over 40 Council members visited vocational-technical schools in states surrounding Arkansas, so that they will have a basis for comparing what they find in Arkansas. Combining their first-hand observations with the special reports and background papers they will be provided by educators and economists, the Regional Councils will make their recommendations for any changes they may decide as being necessary, and submit them to the State Department of Education, the Governor's office and the legislature. Since these recommendations will be the "creature" of the Councils themselves, it is expected they will take the necessary action to assure implementation of their recommendations, including publicity, political pressure, etc. It is also expected they will continue functioning, not only to improve school programs, but to also improve the entire manpower development program of the state. Whether or not this will happen, our initial thesis is being proved correct, namely, that given proper guidance, industry people will involve themselves in educational matters. This "proper guidance" is being provided the Council members by means of specially prepared guideline checklists for each phase of the project. For example, in the matter of "adopting" a school, we have provided each industry person a series of questions which he is to discuss with the school principal on his first visit to the school. Another guideline checklist has been prepared for conducting the evaluation of a school occupational program. As an example of a background paper, we have prepared one titled,

"A Look at Occupational Education in the High Schools in Arkansas," and will do a follow-up paper going into detail about several high schools in each Region. This latter series of papers will include detailed information concerning costs of operation, along the lines of a balance sheet and "profit and loss" statement. It's one thing to know, e.g., that "X" million dollars is being spent on education in a state, but it's something else to learn that it takes a million dollars a year to "operate that crummy school four blocks down the street." The dollar figures for a familiar situation should have a much greater impact than astronomical figures for unfamiliar situations!

But all of this effort in which we are engaged in Arkansas will be for naught if no provision is made for continuing the Regional Councils and their involvement in school and manpower problems. To assure the Councils as a continuing body, permanent staff must be assigned. Staff can be made available from several possible sources. One possibility is for industry itself to provide the needed money for staff, as is being done by Industry-Education Councils in California, Arizona and a few other states. Another possibility is to use a member of the State Department of Education or the Vocational Education Research Coordinating Unit whose salaries are funded in part or whole under the Vocational Education Act of 1963.

Staffing of advisory councils in the field of vocational and technical education has come to be recognized as a basic necessity for assuring any degree of effectiveness for these councils. Amendments to the VEA of 1963 have recognized

this fact by making provision for staffing of the National Advisory Council and State Advisory Councils. Of particular interest to us who are concerned with industry involvement in vocational education is the fact that for the first time in the history of federal legislation for vocational education, the responsibilities and functions of state advisory councils are set forth in considerable detail! Our government has legislated "cooperation of volunteers," the volunteers in this case being industry people. I can't think of a finer commentary on our way of life than this recognition and acknowledgement by Congress that industry does indeed have a social conscience!!

On the other hand, we as vocational educators cannot take too much heart from this legislation because Congress has said, in so many words, that we have not demonstrated any great deal of sophistication, imagination or administrative ability in utilizing and directing the social conscience of industry in helping achieve the overall goals of vocational education. I must agree. It is for that reason I have devoted so much of my presentation to the "nitty-gritty" of working with local advisory committees in order to develop their full potential as cooperating committees. And now that the State Advisory Council is to become a very real force in the development and evaluation of vocational and technical education, I want to suggest some "nitty-gritty" for State Councils.

Few, if any states, to the best of my knowledge, have made any effective use of the combined interests and knowledge of their local <u>and</u> state advisory councils. There has been little, if any, communication between the local groups and the

state group. Furthermore, there is no provision for such communication in the current legislation. Yet, how can the State Council develop meaningful plans and programs without taking into account the needs of local communities and metropolitan areas of the state? This oversight can be easily corrected by having the State Council arrange for a formal communications system with local school system advisory committees, or better yet, along the lines of the Regional Manpower Advisory Councils established in Arkansas. Another possibility is for the State Council to establish a series of sub-committees for each of the major economic and industrial facets of the state. Membership on these industry sub-committees could consist primarily of local advisory committee members from the particular industry. For example, if the printing industry is a major industry in the state, there will undoubtedly be several vocational schools teaching printing, and each school would have a printing industry-education advisory committee. The chairman of each of these committees could be asked to serve on the State Advisory Council's Printing Industry Sub-Committee. In this way, both the interests of the industry and the schools, at the local and state level, would be represented in the deliberations of the State Council. Furthermore, the interest, knowledge and involvement in school matters of local industry people would be enhanced by their participation in the work of the State Council.

While I have discussed several imperatives for vocational educators to facilitate industry participation and involvement in school programs, let me make clear the most urgent imperative

of all -- the job and career placement of vocational education program graduates in the occupations and occupational fields for which they have prepared themselves. The report of a nationwide study published just a few month ago found:

> ...a strong relationship between the use of such (advisory) committees and the placement of vocational graduates into their field. Schools with such committees did substantially better in placing their graduates than those without such committees....Other benefits were also cited that were clearly to the good of vocational education. 6/

The study recommended the expansion of advisory committees under the leadership of State Offices of Education, and pointed out that few local schools and school systems were utilizing advisory committees. Only 35 percent of the schools reported use of a general vocational program advisory committee, and only 33.6 percent of the trade and industrial courses offered by 100 schools surveyed reported occupational advisory committees. These low percentages are indeed remarkable because they simply make no sense when you consider the exhortation of both industry and school people over the last 50 years as to the need for and benefits to be derived from the utilization of advisory committees.

If vocational educators are to take seriously the message of the recent report of the National Advisory Council on Vocational Education, calling for a "bridge between school and the world of work," they will devote much energy and time to organizing effective industry-education advisory committes.

6/ M. U. Enninger, The Process of Product of T and I High School Level Vocational Education in the United States (Pittsburgh: Educational Systems Research Institute, April 1968).

These committees can be that much sought after bridge! The American Vocational Association is planning to publish a new guideline booklet on this subject, and there already exists an excellent booklet on advisory committees recently published by the American Association of Junior Colleges.[7]

My message this evening can be summed up by three simple statements addressed to educators and school administrators:

1. If you don't want to bother with involving industry in your vocational and technical education programs, don't bother to offer such programs in the first place. Without industry involvement, these programs will be frauds on the students, their parents, the employers, and the communities.
2. If you do establish vocational and technical education programs, you can obtain the greatest benefit from industry participation through the vehicle of industry-education cooperating committees, and you should organize such committees, recognizing, of course, the need for continuing informal relationships between industry representatives and instructors, and providing for such relationships.
3. In order to make certain these committees will function properly and effectively, you must assign staff who will devote their full-time and energy to developing industry-education cooperation.

Everything else I have said is but commentary.

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[7] Albert J. Riendeau, The Role of the Advisory Committee in Occupational Education in the Junior College (Washington, D. C.: American Association of Junior Colleges, 1967).

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The Vocational Opportunity for Educationally Disadvantaged Students (VOFEDS) program was established to acquaint students who had no previous vocational training with the working knowledge of those experiences, and to give them insights into the role of the individual in all phases of industry in our technologically oriented society. The project, conducted for 6 weeks and consisting of 126 class hours, was conducted in the vocational shop by exposure to tools of the trade and by instruction in the proper use of these tools in projects selected by the instructors in ascending order of difficulty. Related subjects of school mathematics, types and sources of materials, and modern advances in technology of industrial production were discussed. Through a series of field trips, students had an opportunity to see for themselves the working conditions, the equipment and materials, the job operations, and some of the problems of plant management in a variety of industries. (CH)

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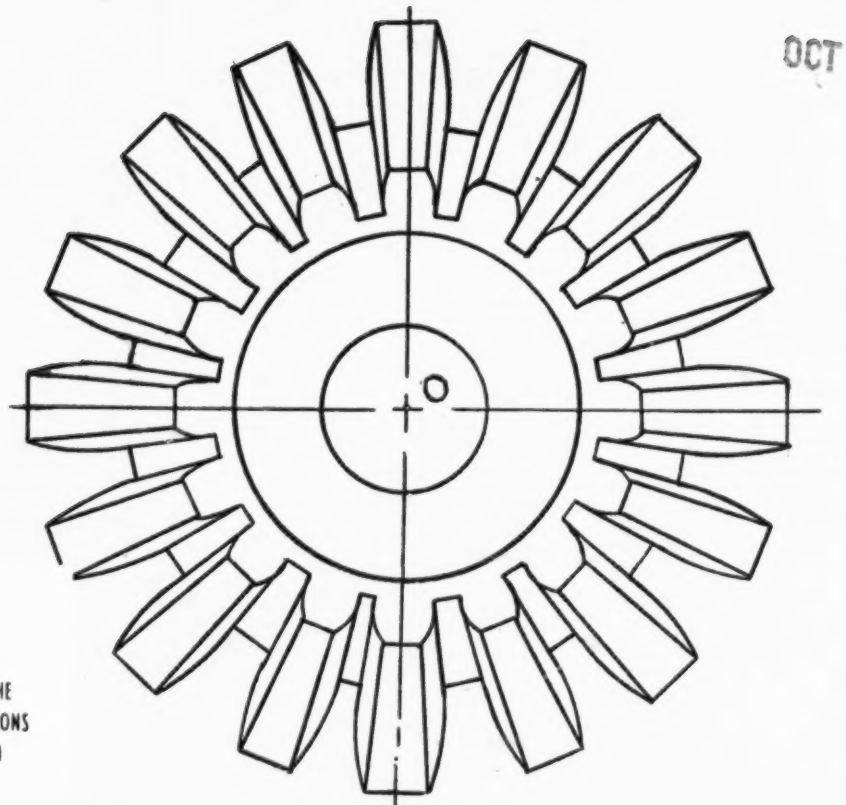

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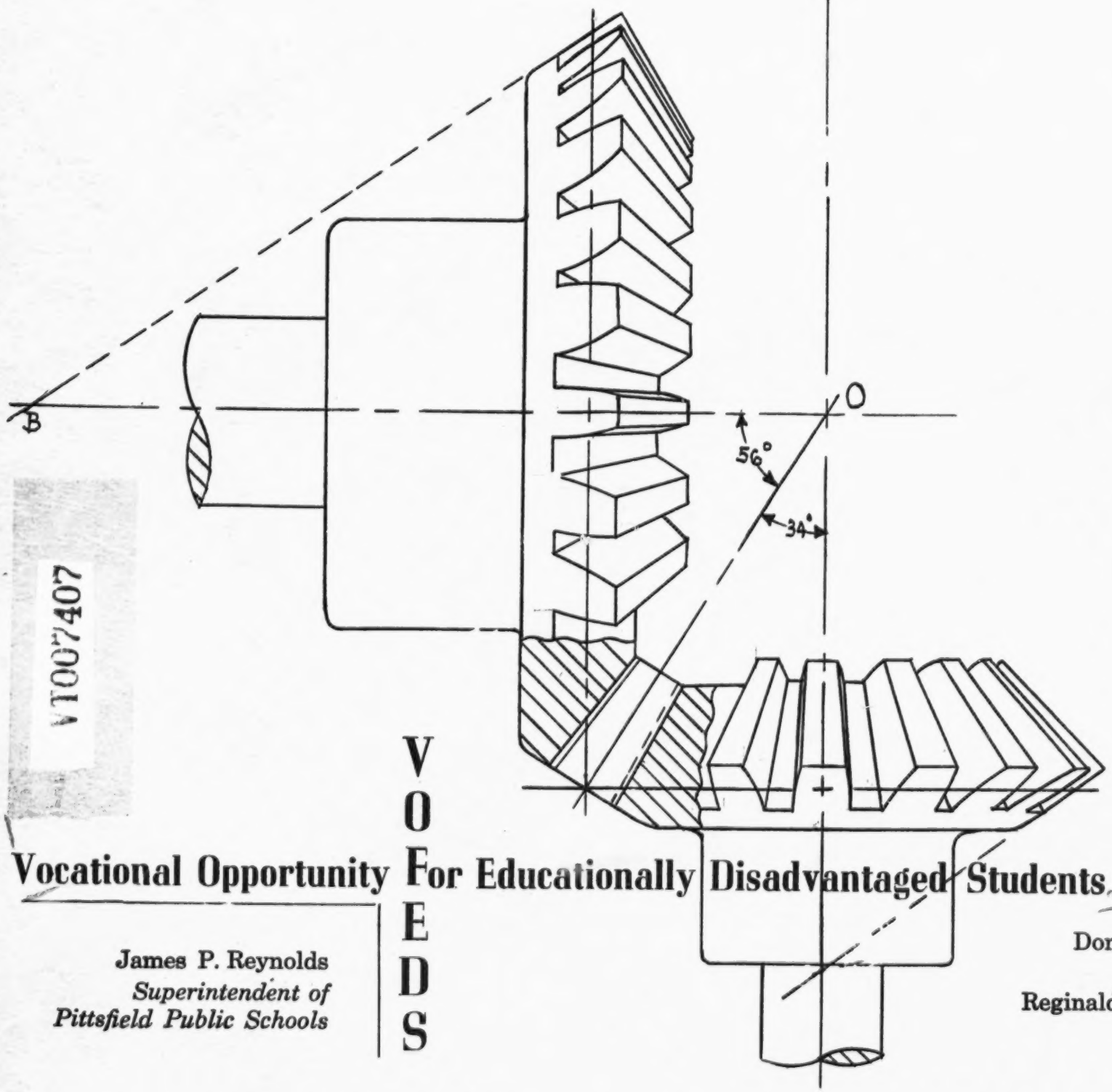


VT007407

VOEDS

Vocational Opportunity For Educationally Disadvantaged Students

James P. Reynolds
Superintendent of Pittsfield Public Schools

Donald T. Kasuba
Director

Reginald B. Thompson
Principal

The content of this brochure has been compiled and arranged by Reginald B. Thompson, Principal of the VOFEDS Summer program. It is possible that someone has been overlooked or that a name has been misspelled. If you happen to be the one, my apologies.

Those who have contributed to this brochure are as follows:

Donald Kasuba - Director
Ralph Gionet - Guidance
Louis Green - Photography
All shop instructors

Ann Fischer - Secretary

The Offset printing was done by Donald Clark, Printing Instructor, Pittsfield Vocational High School.

THE DIRECTOR'S COMMENTARY

The effectiveness of an educational program probably depends in no small measure on the successful functioning of three constituents: the instructor, the student and the proper equipment with which to work.

The instructor must retain and constantly utilize a sincere desire to teach any student under his charge. He must ever nurture a pertinacity and an ingenuity in the dissemination of trade knowledge without which the student would be unable to grasp basic trade skills.

On the other hand, a negativeness of any kind demonstrated by a student would most assuredly hinder, if not destroy, any learning situation. Therefore, the responsibility to be ever tenacious in seeking his ultimate goal of cultivated trade success irrevocably rests with him.

No instructor can effectively teach and no student can learn if the learning situation does not contain the equipment, tools and supplies which are so essential to the learning process. To give a lengthy discourse on operating a lathe would be non-sensical without the presence of the machine itself so that the teacher could utilize the demonstration teaching technique as he lectures to the students. It definitely would be considered a rapid regression in the educational field should a teacher not have the proper printed material to which the student might refer.

Fortunately, as a result of the government passing the Elementary and Secondary Education Act of 1965, Title I, the necessary funds to formulate a worthwhile program whereby the above mentioned constituents could be enmeshed was realized through the project Vocational Opportunity for Educationally Disadvantaged Students (VOFEDS).

It is noteworthy that a large percentage of students demonstrated, at first, a negative attitude when they heard the project title. This negativism was occasioned by the word "Disadvantaged". In this title the term erroneously carried the implication that this was a project developed for incapacious students. Rather, being conceived as a tool in assisting basically non-vocational students and students from low income families, the program assists students of almost any mental capacity in comprehending involvements pertaining to various trades and extends valuable insights into the world of work. The student is afforded the opportunity to learn the fundamentals of a trade irrespective of his plans for the future--that is, go to college or become involved in a field not akin to the trade in which he enrolled for the summer. Therefore, the only manner in which the student is "Disadvantaged" is that he was never given the opportunity, for one reason or another, to see and learn first hand about trades.

The project was conducted for six weeks and consisted of 126 hours duration, from 9:00 A.M. to 12:00 noon, Monday through Friday and from 12:00 P.M. to 3:00 P.M. on Tuesday and Thursday. From 9:00 A.M. to approximately 10:00 A.M. the students were instructed on specific procedures related to shop time, which was conducted from 10:00 A.M. to 12 noon. From 1:00 P.M. to 3:00 P.M. students were taken on field trips to further enrich their learning experience. In terms of educational enhancement and effective informativeness regarding the trades, conducting the many field trips was one of the highlights of the program.

Allowance was made for the delivery of one hundred box lunches which were distributed to the students on the days that field trips were conducted. The one hundred was a pre-established figure derived in conjunction with another federally financed project in the Pittsfield School System. From these lunches the students received ample food and in some instances a quantity of food remained allowing some to partake of another lunch. Needless to say, in a substantial amount of these cases the students definitely could use the second lunch.

Because of the complexities involved and the manner of conduct in some of the trades, only a few trades are so presented which would allow the students to retain items that they built. Carpentry students fabricated large tool boxes and meat cutting boards, while in Sheet Metal and Machine Shop the students made mail boxes, waste-paper containers, and chipping hammers. These are but a few of the items constructed by the students.

I would picture as the culminating features of the entire project, the vast trade knowledge gained and the finished individual student projects which were constructed after long hours of pupil study. In essence, this is truly a demonstration of the project's worth. There is nothing as satisfying as a complacent expression on the students' countenances as a result of creativity, a complacency which could lift the students above and beyond their greatest expectations in the sphere of work.

To consider this project a gratifying and successful experience for the teachers and students would be stating a fact conservatively. Conversely I feel that not only would a continuation of the VOFEDS project be praiseworthy and essential, but an expansion of the project should be desirable in terms of additional trades offered, as well as an obligatory depth presentation in the previously taught trades.

The allowed enrollment of a female student in drafting should not be deemed as enigmatic or detrimental to the project, but rather a stimulus for other girls to pursue enlightenment relative to vocational education.

Certainly we are aware that a large percentage of disadvantaged students consider finding their niche in society a trying ordeal, to say the least. Yet through this federally subsidized project conducted this summer, all students enrolled in the program are now cognizant of some of the existing trades and many of the facets directly or indirectly associated with them. But to consider such a cognizance an intrinsically successful entity is a wholly erroneous conception, for it would be unfeasible to conceive that a young student can totally grasp and comprehend all the involved technology of the trades in the brevity of a six weeks course. To attain perfection, or near perfection, in the trades would dictate years of relatively extensive training.

Therefore, a two level continuance of the project would be appropriate, advisable, and paramount. The first level or stage would consist of maintaining the presentation of the respective trade fundamentals, while a second, or advanced level, would be established for those who have acquired knowledge and training through previous shop experience in this year's summer project. Only through a munificent vocational program does a non-vocational student obtain a welcomed democratic education.

Respectfully submitted,

Donald T Kasuba

Director

A MESSAGE FROM THE PRINCIPAL

The VOFEDS program was established to acquaint students, who had no previous vocational training, with a working knowledge of those experiences and insights into the role of the individual in all phases of industry in our technological oriented society.

The experience necessary was accomplished in the Vocational Shop through the exposure to the tools of the trade and by instruction in the proper use of these tools in projects selected by the instructors in an ascending order of difficulty. In the short period of six weeks each student has progressed through a series of projects or type jobs in the trade he has selected and shown an interest in.

Class time was not devoted exclusively to the manipulation of tools. The related subjects of shop mathematics, types and sources of materials and modern advances in the technology of industrial production were discussed. The source of much of our related material was in the form of pamphlets and brochures supplied by manufacturing companies.

So that the students may actually witness the inner workings of industry and not just rely on vicarious experiences, we have taken a series of field trips to the many differing types of industrial plants in our area. We have endeavored to show, in particular, the type of work each individual shop class might be interested in. In doing so our students have had an opportunity to see for themselves the working conditions, the tools and equipment and materials, the job operations and some of the problems of plant management in these various industries.

That this program has been successful, for the most part, is witnessed by the high voluntary attendance by our students. We find that their motivation and attitudes are superior. Both administrators and instructors are gratified with the students' accomplishments.

I am pleased to say that the preparation of this program was well planned and served as a guide to those of us who had the pleasure of administering it. As Principal of the VOFEDS summer school, I feel that the objectives of this program have been accomplished and recommend its continuance on a permanent basis.

Respectfully submitted,

Reginald B. Thompson
Principal

VOFEDS PERSONNEL

Donald T. Kasuba, Director
Reginald B. Thompson, Principal
Ralph J. Gionet, Guidance
Ann S. Fischer, Secretary
Francis Belisle, Auto Body
Howard G. Kraay, Auto Mechanics
James O. Driscoll, Carpentry
Louis Green, Carpentry
Francis N. Bresnehan, Drafting
Asel W. Harvey, Drafting
Richard E. O'Donnell, Machine Shop
James J. Ferris, Machine Shop
Donald C. Clark, Printing
Richard DiOrio, Printing
Myles J. Burke, Sheet Metal
Stephen D. Miller, Welding

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

THE AUTO BODY TRADE

During this six week summer course in auto body repair, the students will learn to become acquainted with the job of reconditioning a car that has been damaged in a traffic accident. Related knowledge will be taught as the cost of repairs and how the accident occurred. Modern equipment will be used for instruction purposes which will teach the students the techniques used in industry at the present time.

Course of Study Phase 1 90 hours

Orientation:

This course will teach the student the basic principles of the following job operations:

(1) Braze welding
(2) Frame straightening
(3) Re-aligning
(4) Spray painting
(5) Care and use of tools and equipment
(6) Safety precaution
(7) Reaction of sheet metal to hammering
(8) Reaction of sheet metal to heat
(9) Different sections of automobiles

Equipment to be used:

(1) Floor jacks
(2) Auto body jacks
(3) Portable grinder
(4) Portable polisher
(5) Portable sander
(6) Spray gun
(7) Acetylene & oxygen torch

Tools used:

(1) Body hammer
(2) Body dollies
(3) Steel file
(4) Plastic file

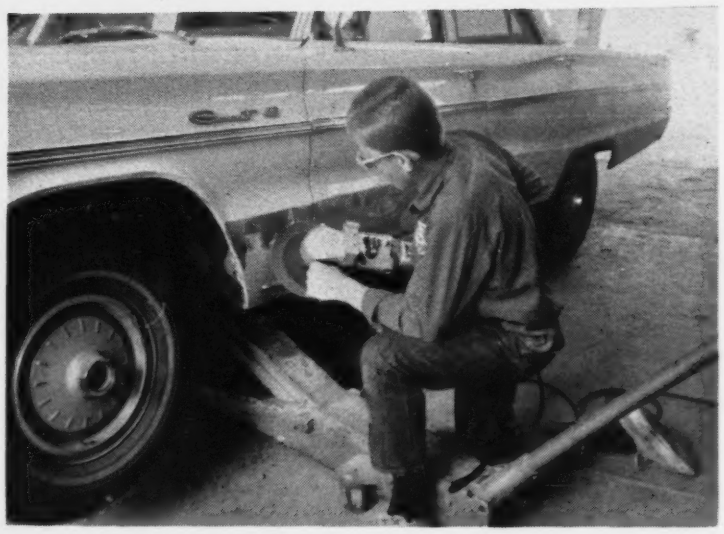
UNIT 1

Acetylene Welding

A. Body Welding
(1) How to install gauges
(2) Connecting hoses
(3) Instruction in torch control
(4) Set up of oxygen and acetylene equipment
(5) Care and use of equipment
(6) Shrinking flat metals with heat

Francis L. Belisle, instructor in Auto Body, supervising Bruce Reynolds and James Londergan in the filing and picking operation of the low spots on the damaged hood of an automobile.

Ronald Kelly and Sam Ditore doing metal filing on front fenders of automobiles.



Sam Ditore using grinder to remove paint from damaged fender and door.

James Londergan and Bruce Reynolds using roughing-out hammer on damaged trunk lid to achieve re-alignment to original contour of metal.

B. Materials and uses
   (1) Bronze rod welding
   (2) Flat brazing

UNIT 2

Sheet Metal

A. Align and Straightening Metals
   (1) Safety precaution
   (2) Use of hand tools
   (3) Use of grinders
   (4) Align and rough out metals
   (5) Shape and file flat metal

B. Fillers
   (1) Use of plastic fillers
   (2) Shape and file plastic fillers

UNIT 3

Refinishing

A. Preparation of job
   (1) Auto body surfaces
   (2) Feathering paint surface
   (3) Cleaning painted surface
   (4) Masking

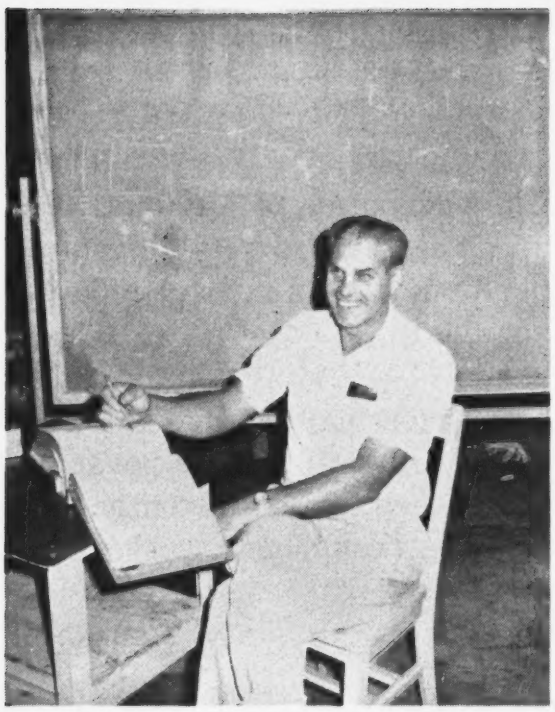
B. Spraying
   (1) Spraying primer surfacer
   (2) Spraying lacquer and lucite

C. Compounds
   (1) Compound fresh paint
   (2) Use of polisher
   (3) Use of thinners
   (4) Safety precautions

D. Spray Gun
   (1) Adjustment of gun
   (2) Control of air
   (3) Control of paint
   (4) Cleaning of gun

Francis Belisle
Related Instructor,
Auto Body Department
Pittsfield Vocational High School

Howard G. Kraay
Auto Mechanics Instructor
Pittsfield Vocational High School



Total Class Enrollment - 12

Terry Andrus
Frank Blefari
Daniel Card
Chris Dockey
Louis DeSantis
Ray Kavey
Mike Layden
Dick Marcoux
Jim Reed
Mike Roberts
Frank Walker
Andrew Casella

Auto Mechanics group looks on as Frank Walker services a brake drum.

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

THE AUTOMOTIVE TRADE

The occupation of Automotive service has become important in the national economy as a result of society's great dependence upon automobiles for transportation. To perform satisfactorily, today's highly developed automobiles must be serviced regularly.

Industries that service automobiles have encountered vexing problems in their efforts to recruit well trained personnel to maintain vehicles for the American public. The acute need for competently trained persons has created a demand for the expansion of training resources.

Course of Study Phase 1 90 hours

Orientation:

This course of study can be used in developing untrained personnel or it may be used to upgrade or retrain workers in the automotive field. The sequence of the units of instruction may be changed to meet the needs of the individuals being served.

The student will perform simple repair and part replacement jobs under certain conditions. Care was exercised in the selection of subject matter to include only that which is essential in preparing persons to qualify for simple maintenance jobs.

Tools Used:

1. Student Hand Tool Kit
2. Instructor Hand Tool Kit
3. Exhaust System Service Tool Kit
4. Brake Service Tool Kit
5. Alignment Service Tool Kit

Equipment Used:

1. Snap on Master Analyzer
2. Sun Electronic Engine Tester
3. Amco Brake Shop
4. Amp-ohm & Volt meter
5. Battery Chargers

UNIT 1

General Servicing

1. Job Orientation
2. Shop Safety Procedures
3. Shop Orientation
4. Introduction to the Automobiles
5. Wheel Bearing and Seal Service
6. Cooling System Service
7. Spark Plug Service
8. Exhaust System Service
9. Battery Service
10. Lighting Circuit Service
11. Automotive Transmission Minor Service
12. Tire Service
13. Minor Brake Adjustment Procedures
14. Automobile Cleaning Service
15. Lubrication and Preventive Maintenance Procedure

Andrew Casella and Frank Walker learn the fundamentals of the Sun Engine Tester.

The Auto Mechanics boys prepare for a major brake overhaul.

Momemt of precision as Louis DeSantis, Chris Dockey and Richard Marcoux operate the brake drum lathe.

UNIT 2

Electrical and Fuel Service

A. Engine Tune-up
   (1) Introduction to the Automobile Electrical System
   (2) Introduction to Basic Instruments
   (3) Storage Batteries
   (4) Ignition Circuit
   (5) A.C. Generators
   (6) A.C. Charging Circuit Controls
   (7) D. C. Generators
   (8) D. C. Charging Circuit Controls
   (9) Starters and Starter Drives

B. Tune-up Procedure
   (1) The Testing Procedure
   (2) Customer Relations
   (3) Engine Mechanical Indications and Conditions
   (4) Starting Circuit Testing
   (5) Distributor Testing
   (6) Primary Ignition Circuit Testing
   (7) Secondary Ignition Circuit Testing
   (8) Charging Circuit Testing
   (9) Fuel System Testing
   (10) Carburetion

UNIT 3

Suspension and Brake Service

A. Introduction to Wheel Alignment
   (1) Suspension Systems
   (2) Alignment Factors
   (3) Alignment Specifications and Adjustments
   (4) Standard Steering Gears
   (5) Wheel Balancing

B. Alignment Procedure
   (1) Diagnose Suspension System Problems
   (2) Service Suspension System
   (3) Measure Alignment Factors
   (4) Adjust Suspension System

C. Automotive Brakes
   (1) Brake Systems
   (2) The Hydraulic Brake

D. Brake Service Procedure
   (1) Diagnose Brake Problems
   (2) Service Brake System

Howard Kraay
Instructor

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

DRAFTING

The objective of the VOFEDS summer course in drafting is to enlighten the student in the basic graphical forms of representation which are used in the industrial and engineering fields, and to give the student an opportunity to acquire the principles of the multi-view projection and pictorial drawings. With this basic knowledge he will be better qualified to communicate and expand ideas by the graphical method which is so necessary in our fast moving technical and space age advancements. In addition to this enrichment program the student will be better qualified to make a decision in this field of endeavor as one's life work.

Course of Study Phase 1 90 hours

Orientation:

The student will be given comprehensive instruction in the multi-view projection method of viewing an object. Drawings of the pictorial type will be dealt with so that the student can supplement and amplify multi-view drawings. Cutaway views of an object will be studied both of a single object and the assembly of several parts.

After many of the student drawings have been completed, copies of them will be reproduced on the Ozalid printer so that the student can see the weak points in his drawing. This is to emphasize the importance of neatness and line contrast which is a requisite of a student in drafting.

This method of communicating thoughts and ideas from one person to another by means of this graphic language is a necessary part of our education and it's these basic methods of representation that are a part of this enrichment course.

Equipment

Instruments
(1) Drafting set
(2) Scale
(3) Triangles
(4) Lettering guide
(5) Pencil
(6) Protractor

Machines
(1) Ozalid printer
(2) Photocopies
(3) Overhead projector

Teaching Material
(1) Technical drawing text book
(2) Transparent slides
(3) Project drawings

UNIT 1

Drawing Techniques

A. Alphabet of lines
(1) Width
(2) Darkness
(3) Convention lines
(4) Symbols

B. Pencil Points
   (1) Grade
   (2) Correct end to sharpen
   (3) Type of point
   (4) Use of file or pointer
   (5) Rotate pencil

C. Reading Scale
   (1) Accuracy of measurements
   (2) Method of marking measurements
   (3) Graduations
   (4) Sizes (full, half, etc.)
   (5) Architects
   (6) Engineers

UNIT 2

Orthographic Projection

A. Models
   (1) Positioning of model
   (2) Observers' position in relation to object
   (3) Names of views
   (4) Scaling of object
   (5) Accuracy
   (6) Use of triangles
   (7) Line technique
   (8) Placement of dimensions
   (9) Line contrast
   (10) Figures and arrow head

B. Partial Views
   (1) Same as above under Models
   (2) Projection of lines
   (3) Constructive imagination
   (4) Similarity of views
   (5) Relation of views
   (6) Projection and alignment of views

C. Drawing from Isometric Sketches
   (1) Same as A-1 and A-2

UNIT 3

Pictorial Representation

A. Isometric Projection
   (1) Lines of projection
   (2) Advantages
   (3) Method of projection and angles

(4) Forming of ellipse on an isometric cube surface
(5) Placement of dimensions
(6) Non-isometric lines
(7) Angles in isometric

B. Oblique Projection
(1) Oblique axis
(2) Selection of surface for principal face
(3) Cavalier projection
(4) Cabinet projection
(5) General projection
(6) Advantages

UNIT 4

Section Views

A. Full Sections
(1) Imaginary cutting plane
(2) Type of line to indicate location
(3) Code symbols for materials
(4) Advantages

B. Half Sections
(1) Advantages
(2) Line of separations of section from the unsectioned

C. Offset Section
(1) Time element

D. Revolved Section
(1) Maintaining true shape

UNIT 5

Auxiliary Views

A. Primary Auxiliary View
(1) Angle of projection
(2) Time saving element
(3) Elimination of principal views

B. Partial Auxiliary View
(1) Same as 5 -A

Instruction on proper way to start their layout of views.

Overhead projector problem being discussed with pupils by instructor.

Class busy at a 3rd angle projection problem.

UNIT 6

Assembly Drawings

A. Detail of separate parts
   (1) View required
   (2) Number of sheets required
   (3) Material lists
   (4) Parts list
   (5) Part numbers

UNIT 7

Reproduction of Drawings

A. Drazzo--Dry Prints
   (1) Coating on one side of paper
   (2) Exposing of paper
   (3) Exposure to ammonia vapors
   (4) Importance of line quality of tracing
   (5) Cloth and acetate originals
   (6) Translucent materials

Francis Bresnehan
Asel W. Harvey
Instructors

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

THE MACHINE SHOP

The object of the Pittsfield Vocational Summer Course in Machine Shop Practice is to acquaint beginning students, having no previous experience, with a basic understanding of the uses of machines and hand tools along with the work conditions and standards set forth by industry.

Course of Study Phase 1 90 hours

Orientation:

The six weeks machine course will consist of the study of hand tools, materials and machines as listed, also related instruction pertaining to these items:

Hand Tools	Materials	Equipment
1. Scale Rule	1. Machining Metals	1. Drill Press
2. Bench Hammers	2. Oils	2. Lathe
3. Scraper	3. Cutting tools	3. Surface Grinder
4. Files	4. Abrasives	4. Shaper
5. Scriber		5. Milling Machine
6. Calipers		6. Power Hack Saw
7. Micrometer		
8. Hack Saws		
9. Grinder		

UNIT 1
Bench Work

A. Layout
   (1) Names of layout tools
   (2) Safety and care of tools
   (3) Reasons for laying out work
   (4) Reading of drawing
   (5) Use of marking materials
   (6) Technique of laying out
   (7) Methods of testing

B. Filing
   (1) Types of files
   (2) Safety and care of files
   (3) Reason for filing
   (4) Parts of a file
   (5) Material that can be filed

Richard O'Donnell
Machine Shop Instructor
Pittsfield Vocational High School

James Ferris
Related Machine Shop Instructor
Pittsfield Vocational High School

(6) The proper holding of file
(7) Speed of stroke
(8) Cleaning of file

C. Hacksawing
(1) Types of saw blades
(2) Safety and care of saw blades
(3) Selection of blade
(4) Direction of cutting teeth
(5) Starting out on work
(6) Care when finishing cut
(7) Speed of cutting

UNIT 2

Lathe Work

A. Centering
(1) Reason for centering
(2) Different methods of centering
(3) Proper size of center drill
(4) Proper speeds and feeds
(5) Lubrication
(6) Methods of holding work
(7) Proper depth of center hole
(8) Testing accuracy

B. Grinding lathe tools
(1) Safety when using grinding wheel
(2) Care of grinding wheel
(3) Grinding wheel use
(4) Inspection of tool bit
(5) Reason for cutting angles and clearances and makes of tool bits
(6) Kind of coolant used
(7) Proper stance for grinding
(8) Technique of grinding of tool bits
(9) Hazards of over heating
(10) Methods of storing tool bit
(11) Inspection of cutting angles

C. Plain Turning
(1) Reading of drawing
(2) Safety involved
(3) Method of driving work
(4) Measuring tools to be used
(5) Cutting tools to be used

(6) Setting up of cutting tool
(7) Speeds and feeds
(8) Testing of sizes

D. Using Compound rest
(1) Reading of drawing
(2) Speed
(3) Safety involved
(4) Angles to set compound
(5) Technique of setting compound
(6) Cutting tools used
(7) Proper installation of work
(8) Setting up of cutting tools
(9) Technique of cutting angle
(10) Method of testing angle

UNIT 3

Shop Work

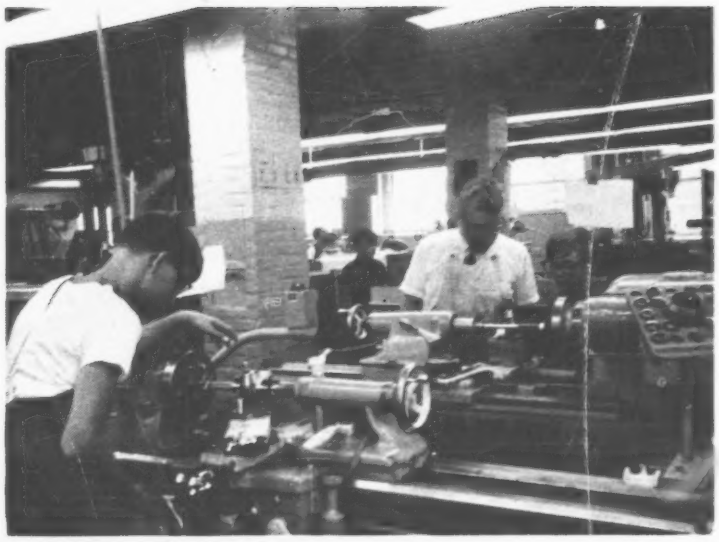
A. Grinding shaper tools
(1) Safety when using grinding wheel
(2) Reason for cutting angles and clearances and rakes
(3) Proper stance for grinding
(4) Inspection of tool bits
(5) Technique of grinding tool bits
(6) Method of storing tool bits
(7) Inspection of cutting angles and clearances

B. Using Vise
(1) Reading of drawing
(2) Indicate vise jaw
(3) Proper setting of clapper box
(4) Proper setting of shaper stroke
(5) Selection of tools
(6) Speeds and feeds

UNIT 4

Milling Work

A. Surface Mill
(1) Reading of drawing
(2) Safety
(3) Speed of cutter
(4) Mounting of vise on table
(5) Mounting of work in vise



Edward Clapper performing job operation of straight turning for chipping hammer.

Steve Flood performing shaping operation on chipping hammer while Dan Martin and Kevin Smith observe.

Pat VanBramer checking work with micrometer for chipping hammer.

(6) Selection of milling cutter
(7) Technique of mounting cutter on arbor
(8) Proper rotation of cutter
(9) Technique of milling

UNIT 5

Drill Press Work

A. Grinding drill by hand
   (1) Inspection of drill for dullness
   (2) Reason of proper angles and clearances
   (3) Proper angles of drill
   (4) Technique of grinding drill
   (5) Method of checking angles

B. Using Vise
   (1) Reading of drawing
   (2) Safety
   (3) Check accuracy of vise
   (4) Method of holding work in vise
   (5) Method of holding vise on drill table
   (6) Technique of mounting drill
   (7) Technique of drilling

UNIT 6

Surface Grinder Work

A. Wheel dressing
   (1) Safety
   (2) Reason for dressing wheel
   (3) Types of wheel dresses
   (4) Proper method of holding wheel dresser
   (5) Check wheel for tightness and safety guards
   (6) Amount to be removed by dresser
   (7) Technique of turning wheel
   (8) Visual check of wheel condition

B. Using Magnetic Check
   (1) Reading of drawing
   (2) Selection of winding wheel
   (3) Check wheel for tightness
   (4) Check wheel for speed
   (5) Check work for tightness on chuck

(6) Set stops and speeds for table
(7) Set correct feed for table and work
(8) Technique of surface grinding
(9) Check finish and dimension to drawing

Mill Carpentry Shop

James O. Driscoll
Mill Carpentry Instructor
Pittsfield Vocational High School

Louis M. Green
Dept. Head, Industrial Arts
South Junior High School

Class Members:

Joseph Boulais
Richard Davis
Richard Elms
Richard Knight
Michael LaRosa
Alan McBurney
Dom Pizzonia
Charles Scholz
Angelo Tornicelli
Charles Trzcinka
Chris Van der Honert
Lawrence Hulland
Edward Maloney
Thomas Polidoro
James Polidoro
Peter Wilson

Students assemble first project (carpenters tool box). Here he learns the proper use of adhesives, wood fasteners, holding tools and driving tools

Mr. Driscoll instructs on the operation of the 24" planer. This machine is used to surface lumber to dimensions.

Laminating lumber for second project (cutting boards). Boys learn proper method of surfacing, gluing and clamping.

Mr. Green instructs the assembly of carpenters' tool box.

Pupils operate the 16" jointer in preparation for lamination of wood.

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

MILL CARPENTRY TRADE

In this course we are endeavoring to teach the student, in the short span of six weeks, specifically how to plan woodworking jobs from simple drawings and blueprints. We will acquaint the students with the types of materials and tools that are available to him and the advantages and disadvantages of each for specific purposes. We shall teach him the proper and safe use of both hand tools and power tools in the production of his project, and familiarize him with the wood fasteners and bonding agents that can be used. He shall become cognizant of how wood is finished and the finishing products available to him. In addition to this we shall try to impress upon him the importance of wood products in our everyday life, as well as the aesthetic beauty that may be achieved by the use of wood rather than some other product.

Course of Study Phase 1 90 hours

Orientation:

Our first project will be a tool box that each student can take home at the end of the course. This particular project was chosen because it affords us the opportunity of teaching those manipulative tools, skills and basic knowledges in progressively more difficult stages.

The rest of the six weeks shall be devoted to the manufacture of packaging crates for the specific tools of this course. We believe that planning and analyzing of various tool operations in the construction of these storage containers, as well as their actual construction, will be an insight into the manufacturing of the ever growing mill carpentry industry. Practical and Related instruction will pertain to items as listed:

Hand Tools	Supplies	Power Machines	Portable Power Equipment
1. Ruler	1. Lumber	1. Power Saws	1. Sanders
2. Hand Saws	2. Hardware	2. Cut off saw	2. Drill
3. Planes	3. Adhesives	3. Band Saw	
4. Square	4. Paints	4. Jointer	
5. Miter box		5. Planer	
6. Bit and Brace			
7. Hand Drill			
8. Hammer			
9. Screw Driver			
10. Chisels			
11. Clamps			

UNIT 1

Study of Lumber

A. Woods
   (1) Various Woods available
   (2) Types of wood
   (3) The advantages and disadvantages of each
   (4) How lumber is produced from logs
   (5) Lumber for cabinets and interior work
   (6) Lumber for building purposes
   (7) How lumber is measured and graded
   (8) How veneers and plywood are produced
   (9) Uses of veneers and plywoods

UNIT 2

Plans, Blueprints and Estimating

A. Plans and Sketches
   (1) Interpretations of blueprints and sketches
   (2) Estimating materials needed for the job
   (3) Size and type of lumber needed for each finished piece
   (4) Tools needed to produce finished products
   (5) Wood fasteners needed by size and type (nails, screws, dowels, etc.)
   (6) Glues and other bonding agents needed
   (7) Types and amounts of finish required
   (8) Estimating cost of materials
   (9) Recording of labor costs

UNIT 3

Use of Hand Tools

A. Driving Tools
   (1) Hammer
   (2) Mallets
   (3) Screw Drivers

B. Cutting Tools
   (1) Saws
   (2) Chisels
   (3) Planes

C. Boring Tools
   (1) Braces and bits
   (2) Drills
   (3) Awls and gimlets

D. Holding Tools
   (1) Vises
   (2) Clamps

E. Measuring Tools
   (1) Rules
   (2) Squares
   (3) T-Bevels

UNIT 4

Power Driven Hand Tools

A. Portable Hand Tools
   (1) Power hand saw
   (2) Electric hand drill
   (3) Router shaper
   (4) Belt sander
   (5) Oscillating hand sander
   (6) Saber or jig saw
   (7) Electric hand plane

UNIT 5

Use of Woodworking Machines

A. Stationary Power Tools
   (1) Jointer
   (2) Planer or surfacer
   (3) Table saw
   (4) Radial arm saw
   (5) Band saw
   (6) Jig saw
   (7) Belt sander
   (8) Drum sander
   (9) Disc sander
   (10) Drill press
   (11) Wood lathe

UNIT 6

Wood Finishing

A. Surface Finishing
   (1) Preparation
   (2) Sanding
   (3) Filling holes

B. Wood Stains
   (1) Types (advantages and disadvantages)
   (2) Oil stains
   (3) Penetrating oil stains
   (4) Analine stains
   (5) Wax stains

C. Wood Fillers
   (1) Specific uses of each
   (2) Methods of applications of each

D. Surface Finishes
   (1) Linseed oils
   (2) Shellac
   (3) Wax
   (4) Varnishes
   (5) Interior and exterior paints
   (6) Lacquer and other synthetic finishes
   (7) Urine finishes
   (8) Acrilic finishes
   (9) Latex finishes

James O. Driscoll
Louis M. Green
Instructors

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

THE PRINTING TRADE

The Pittsfield Vocational Summer Program in Printing was established to acquaint students, between the ages of 13 and 18 years of age, with the skills required in the Printing Industry and to give each student a practical experience in performing the elementary phases of this trade.

Course of Study Phase 1 90 hours

Orientation:

Four basic printing processes:

(a) Letterpress, relief printing from type or engravings
(b) Offset, plane printing, image and non-image controlled by water and ink
(c) Gravure, intaglio image etched-out by engraving
(d) Silkscreen, laying of paint on materials by squeezing through stencil mounted on silk

Equipment to be used:

10 x 15 Job press	Line-up table
12 x 18 Job press	Plate maker
10 x 15 Heidelberg	Monotype keyboard and Caster
12 x 18 Cylinder press	ATF Photo comp
10 x 15 Offset	Foundry Alleys
14 x 20 Offset	30 1/2 Power paper cutter
20 Copy Camera	Stitcher, drill and plastic binder

UNIT 1

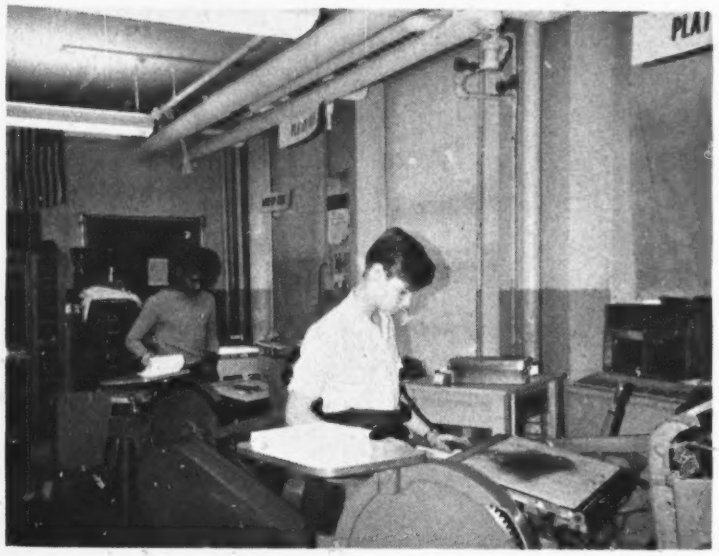
Letter Press

A. Composition
   (1) Hand foundry type for art of type style selection and printers point system
   (2) Setting of stationery, business card and tickets
   (3) Monotype, machine composition for setting text matter
   (4) Keyboarding of perforated tape to operate hot metal caster

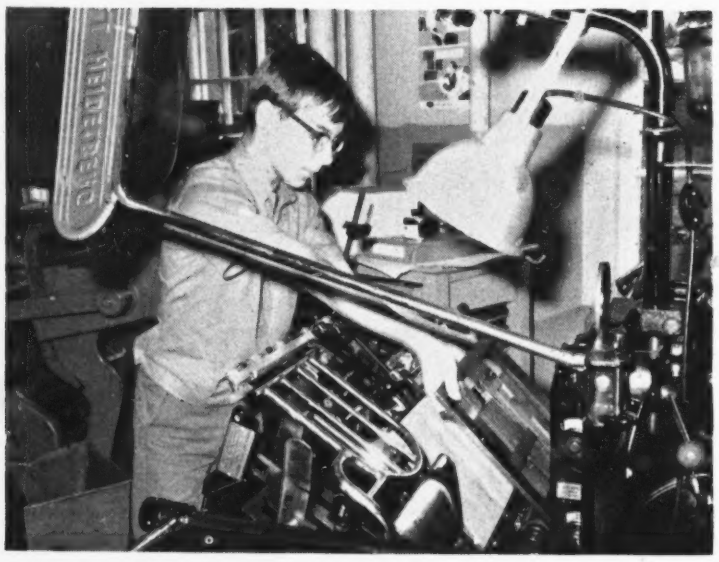
B. Imposition
   (1) Locking of type for hand job press
   (2) Locking of forms for pre-register press

Donald Clark (on right) printing instructor, Pittsfield Vocational High School and Richard DiOrio, Graphic Arts teacher at Crosby Jr. High share six-week summer program in instructing the technical fundamentals of printing.

Milton Sheltry - Donald LeFebvre
Through hand composition become familiar with setting type and printing point system.



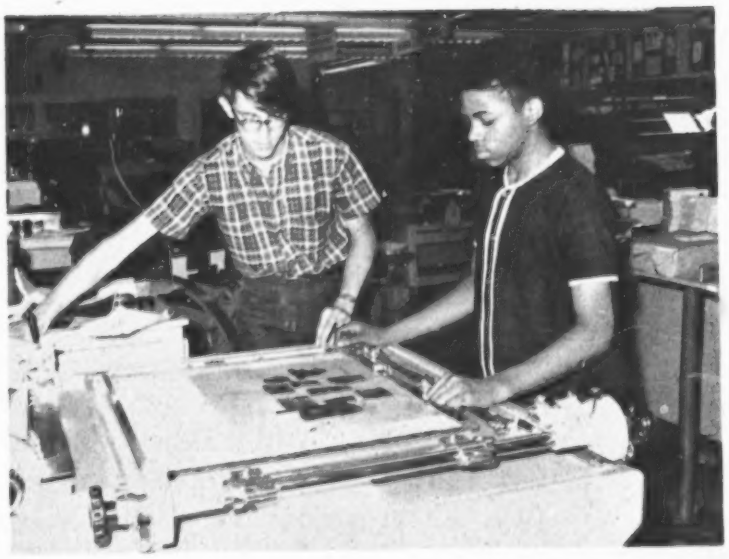
Jeff Johnson - William Morrison
Learn register, makeready and basic press fundamentals on C & P job presses.



With skill learned from hand press, Howard Pepperman sets up modern automatic platen press.

Howard Pepperman - Kevin Grady -Robert Sullivan

Place copy in camera to be reproduced for the offset printing process.



Kevin Grady - Jeff Johnson

Lay out combination flat in preparation to burning offset plate.

Marshall Eagan - Kevin Grady - Gaetano Noto

See the offset printing process first hand and appreciate the craftsmanship required in every step to accomplish quality results.

C. Presswork
   (1) Pre-press maintenance
   (2) Register
      (a) Positioning image on sheet by use of hand gauge pins
      (b) Setting of guides and feeder table for automatics
   (3) Makeready
      (a) Bringing all components of form to print evenly on sheet with proper impression to set ink on sheet
   (4) Color
      (a) Setting of ink fountain to feed constant supply for even color, setting of rollers for distribution.

UNIT 2

Offset

A. Copy Preparation
   (1) Hand art work prepared for camera as well as direct image plates.
   (2) Paste up for camera
   (3) Study of balance and margins for display and text matter
   (4) Knowledge of copy camera, as to what the capabilities are
   (5) ATF photo composition, perforated tape to operate photo unit for text matter.

B. Camera
   (1) Scaling and setting of camera for line work
   (2) Shooting and processing half tones.
   (3) Knowledge of processing film
   (4) Making contact prints and positives

C. Stripping
   (1) Laying out flats for making offset plates
   (2) Combination flats of line and half tones
   (3) Double burns and step and repeat flats

D. Plates
   (1) Direct image plates
   (2) Photographic paper masters
   (3) Presensitized metal offset plates

E. Press
   (1) Setting of cylinder and roller impressions
   (2) Aligning of feeder and delivery adjustments
   (3) Preparing ink and dampening systems
   (4) Mounting blankets and plates
   (5) Positioning and controlling register and color of job
   (6) Preventive maintenance and trouble shooting on offset press

UNIT 3

Bindery

A. Paper cutter
   (1) Trimming stock for padding
   (2) Four sided cut from mill stock to press sheets
   (3) Finish trim to customer's specifications
   (4) Figuring paper cut for most press sheets
   (5) Related knowledge of paper making as to grain and felt side

B. Stitcher
   (1) Flat stitch and saddle stitch for book work

C. Plastic binder
   (1) Dye punch and spreader for mounting plastic binder

D. Paper drill
   (1) Standard five hole punch for loose-leaf binder
   (2) Coding of score sheets for testing

D. Packaging of completed work for shipment
   (1) Collating and gathering sheets or signatures into completed books
   (2) Folding signatures for gathering

Donald Clark
Richard DiOrio
Instructors

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

SHEET METAL TRADE

The objective of this course is to teach students in this short span of time how to layout, fabricate, solder and assemble all types of sheet metal jobs. The type jobs will run the gamut from simple layouts to complete lavouts, such as one piece pans to "Y" joints and squares to rounds.

Course of Study Phase 1 90 hours

Orientation:

The first project is to be a drip pan. The first job was chosen because of the variety of simple operations. The rest of the six weeks will be devoted to such projects as Layout of Patterns, fabrication of tees, waste containers (both round and square), pipes, ducts, post lamps, mail boxes and signs.

Hand Tools

(1) Rules
(2) Hammers
(3) Screw drivers
(4) Vise grips
(5) Snips
(6) Hack saw
(7) Rivet sets
(8) Pliers
(9) Mallets
(10) C. Clamp
(11) Wrench
(12) Compass
(13) Punches
(14) Mallet
(15) Chisels
(16) Hand grover

Supplies

(1) Black iron
(2) Band iron
(3) Galv. steel
(4) Solder
(5) Rivets
(6) Rods
(7) Fluxes
(8) Wire
(9) Metal screws
(10) Tin plate
(11) Soldering copper
(12) Bench stakes

Power Machines

(1) Drill press
(2) 10' power shear
(3) 4' power shear
(4) Lock former
(5) Grinder
(6) Band saw

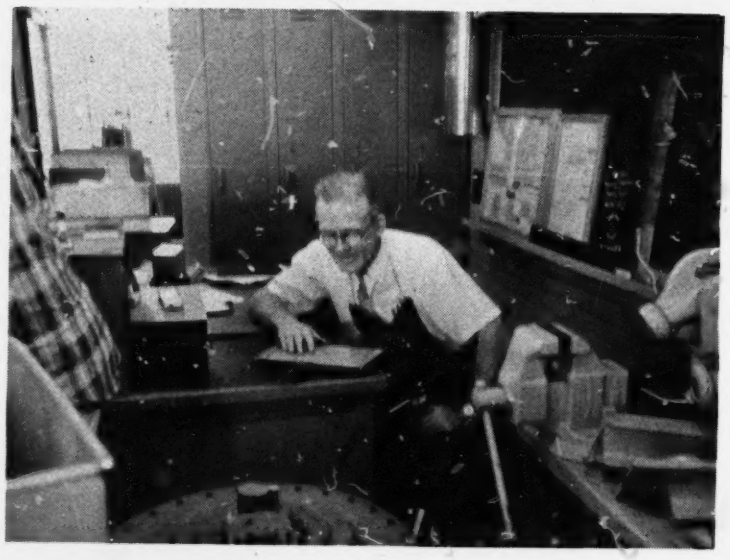
Portable Power Equipment

(1) Hand drill
(2) Sabre saw
(3) Electric hand shear
(4) Hack saw

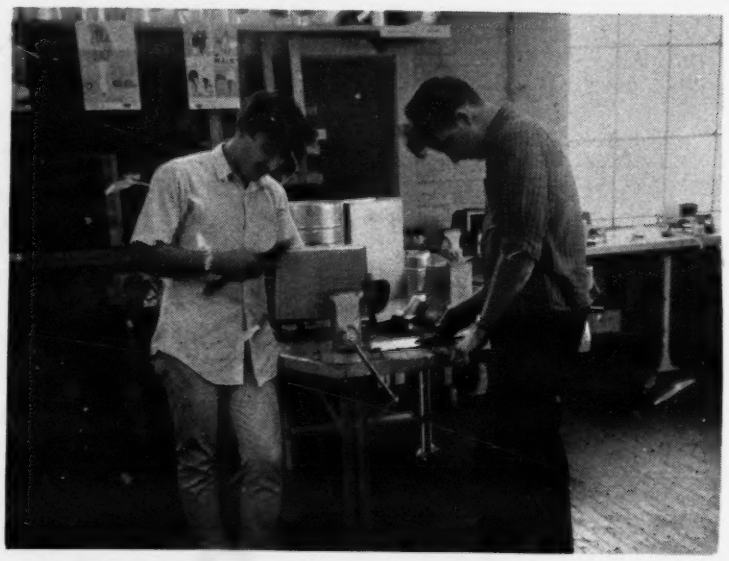
Bench and Floor Machines

(1) Ring and circular shear
(2) Forming roll
(3) Burring, beading crimping machines
(4) Easy edger
(5) Whitney bender
(6) Di-Arco bender
(7) Whitney throatless shear
(8) Vises
(9) Brake
(10) Beverly and slitting shears

A final inspection is being made of a dust pan which has just been completed by a student.



Myles Burke, Instructor of Sheet Metal, Pittsfield Vocational High School.



Edward Speranzo and Stanley Heaton. These students are filing corners and putting finishing touches on project just completed.

Earle Locke is drilling hole in handle of dust pan. He has learned to select proper drill for the job and how to fasten holding devises.

Anthony Farina is making a pattern for Y joint. The process of making patterns requires the use of drafting equipment, which the student has learned how to use.

James Favre is being taught how to construct a square waste basket. Wire is being inserted in metal to form top of container.

UNIT 1

Study of materials

A. Material
- (1) Types of metals
- (2) Size of sheets
- (3) Gauges of materials
- (4) Size and type rivets
- (5) Grades of solder
- (6) Fluxes

UNIT 2

Machines

Bench Machines

A. Hand Turning Machines
- (1) Turning machine
- (2) Burring machine
- (3) Crimper and beader
- (4) Forming machine
- (5) Grooving machine
- (6) Bar folder — Instruction in operations

B. Stationary Machine; Manual Operated
- (1) Brake
- (2) Shear — Instruction in operations

C. Stationary Machine (Power Operated)
- (1) Power shear 10 feet
- (2) Lock former
- (3) Grinder
- (4) Drill Press — Instruction in operations

UNIT 3

Soldering

A. Types of Metal
- (1) Galvanized iron
- (2) Tin and terne plate
- (3) Copper and brass

B. Soldering Seams
- (1) Flat seams
- (2) Upright seams

C. Tinning Copper
   (1) Filing
   (2) Forging
   (3) Cleaning
   (4) Tinning
   (5) Dipping

D. Sweating
   (1) Heat required
   (2) Cleaning
   (3) Flow of solder
   (4) Acid used - also fluxes

E. Fluxes
   (1) Raw muriatic acid
   (2) Zinc chloride
   (3) Muriatic acid
   (4) Rosin
   (5) Paste

F. Soldering Coppers
   (1) Sizes
   (2) Types

UNIT 4

Pattern Development

A. Basic Principles
   (1) Drawing equipment needed
   (2) Lines
   (3) Plane surfaces
   (4) Solid geometrical figures--stretch-out

B. Pattern Drafting
   (1) Bisecting
   (2) Dividing a line
   (3) Step off method
   (4) Dividing circle
   (5) Layout

C. Developments
   (1) Development of angles
   (2) Types of polyons
   (3) Types of cones and pyramids
   (4) Parallel line development
   (5) Triangulation
   (6) Radial line

UNIT 5

Bench Stakes

A. Description and Use of Bench Stakes
- (1) Hollow mandrel
- (2) Needlecase
- (3) Beakorn
- (4) Blowhorn
- (5) Double seaming
- (6) Bevel edge
- (7) Square
- (8) Hatchet
- (9) Conductor
- (10) Bottom
- (11) Bench plate

Instruction in how to use stakes in forming metals

UNIT 6

Seaming

A. Types of seams
- (1) Grooved seams
- (2) Pittsburgh seams
- (3) Lap seam
- (4) Bottom seam
- (5) Double seam
- (6) Dovetail seam
- (7) Slip joint seam
- (8) Lock seam

How to construct seams by use of hand tools and bench machines

Myles Burke
Instructor

VOCATIONAL OPPORTUNITY FOR EDUCATIONALLY DISADVANTAGED STUDENTS

THE WELDING TRADE

The objective of the six weeks summer program in Welding is to teach the student to become acquainted with the theory and knowledge of the welding industry and help him to select the type of work he is adapted to by exposing the student to welding practices and the uses of this equipment. A six weeks course should enable him to do simple work in industry.

Course of Study Phase 1 90 hours

Orientation:

This course in welding will instruct the student in the following job objectives:

(1) Electric arc welding
(2) Flat seam welding
(3) Tack welding
(4) Vertical welding
(5) Vertical padding
(6) Acetylene welding
(7) Brazing

Equipment to be used:

Hand Tools

(1) Hammer
(2) Chisel
(3) Pliers
(4) Wire brush
(5) Tape or ruler
(6) Square
(7) Markers
(8) Files

Portable Electric Hand Tools

(1) Portable grinder
(2) Radio graph burning machine

Stationary Machines

(1) Grinder
(2) A.C. Transformer arc welder
(3) D.C. Generator arc welder
(4) Heliarc welder
(5) Bending machine
(6) Drill press
(7) Forge

Materials to be used:

(1) Mild steel
(2) Brazing rod
(3) Stainless rod
(4) Aluminum rod
(5) Mild steel rod

UNIT 1

Welding

A. Gas Welding
   (1) Assemble gages
   (2) Check hoses
   (3) Assemble two tanks
   (4) Adjust gages
   (5) Assemble torch
   (6) Adjust to proper pressure
   (7) How to hold and light torch
   (8) Adjust the flame
   (9) Performance

UNIT 2

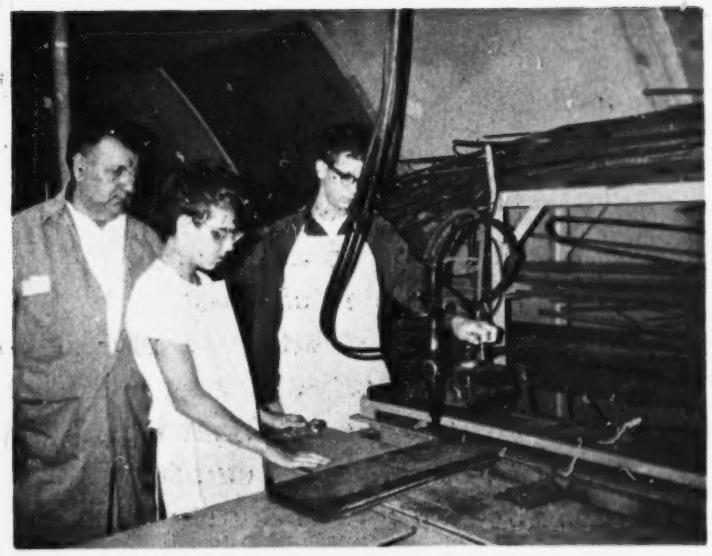
Arc Welding

A. Arc Welding
   (1) Equipment needed
   (2) Safety instruction
   (3) Proper amperage
   (4) Angle of rod
   (5) Size of rod
   (6) Speed of travel

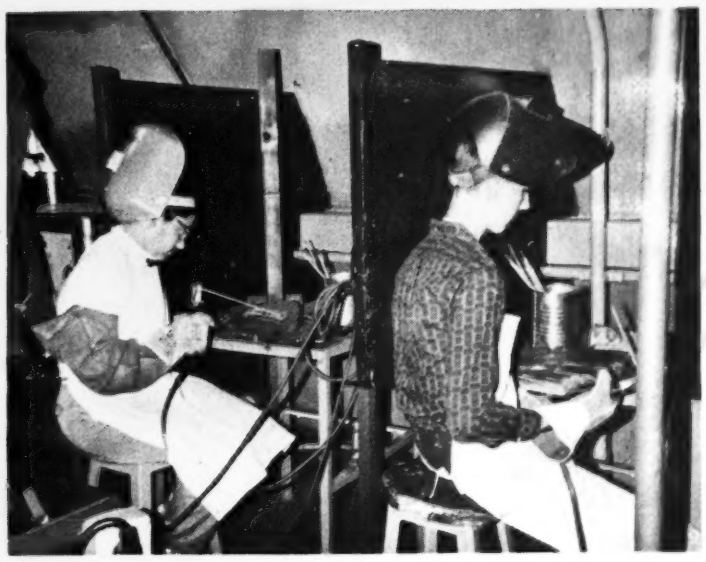
UNIT 3

Radio Graph Cutting

A. Steel Cutting
   (1) Setting gage
   (2) Proper pressure of line
   (3) Acetylene pressure cutting torch
   (4) Marking out stock
   (5) Adjusting machine to edge of stock
   (6) Lighting of acetylene torch
   (7) Valve control
   (8) Proper speed of machine
   (9) Performance



James Higgins and Gary Mierzejewski are operating a radiograph machine to cut 1/2" steel plate and preparing metal for welding projects.



George Collins and Kenneth LeClair are arc welding and building up test plates for machining.

George Collins is welding beads to be used for welding tests.

UNIT 4

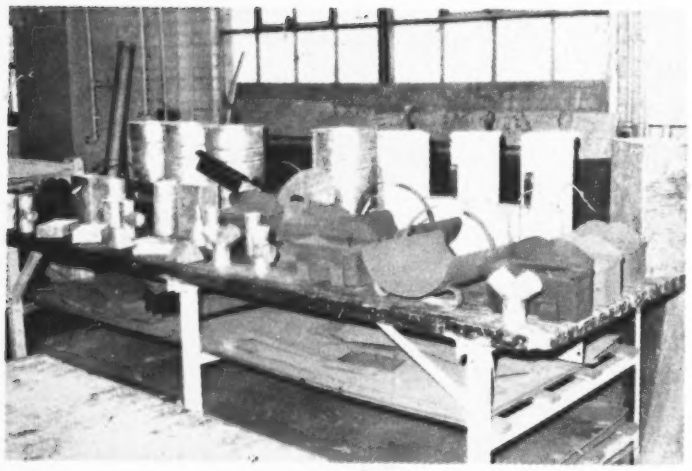
Heliarc Welding

A. Heliarc Welding
   (1) Equipment needed
   (2) Hook up argon gas
   (3) Gage adjustment
   (4) Engage water supply for cooling electrodes
   (5) Proper adjustment on pressure gage
   (6) Correct heat setting
   (7) Angle of electrode holder
   (8) Safety precaution

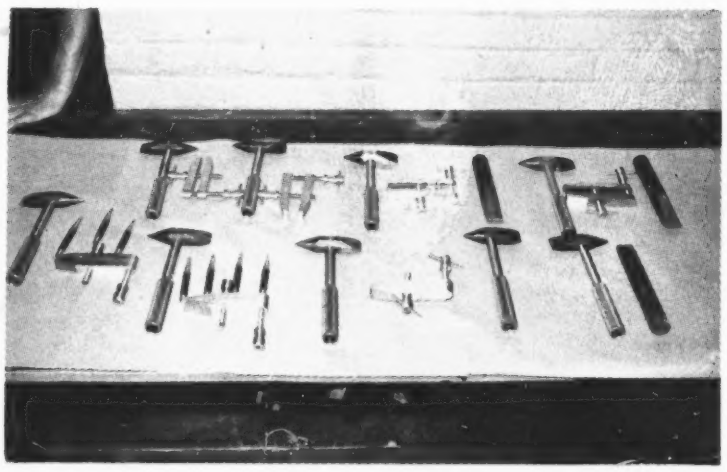
Stephen Miller
Instructor

The carpentry students are pictured with their projects: checker boards, tool boxes, meat cutting boards, ladder brackets, knickknack shelves. Not shown are a record cabinet and storage boxes.

The printing students, with the assistance of several teachers, are utilizing their knowledge gained in printing by collating the project evaluation.



Dexterity can certainly be seen in the Sheel Metal students' projects: log or magazine carriers, square and round wastepaper containers, mail boxes, various types of angle pipes and trays.



This picture exhibits the work done in Machine Shop: chisels, chipping hammers, clamps and peeners.

Mr. Stephen Miller poses with his students as they proudly exhibit some of their projects. The items pictured are car stands, a clothes pole, chair frame, coffee table, and a fireplace grate. Sawhorses and a picnic table were also constructed.

Guidance Counselor and Field Trip Director Ralph Gionet discusses the program with student Tom Polidoro.

FIELD TRIPS

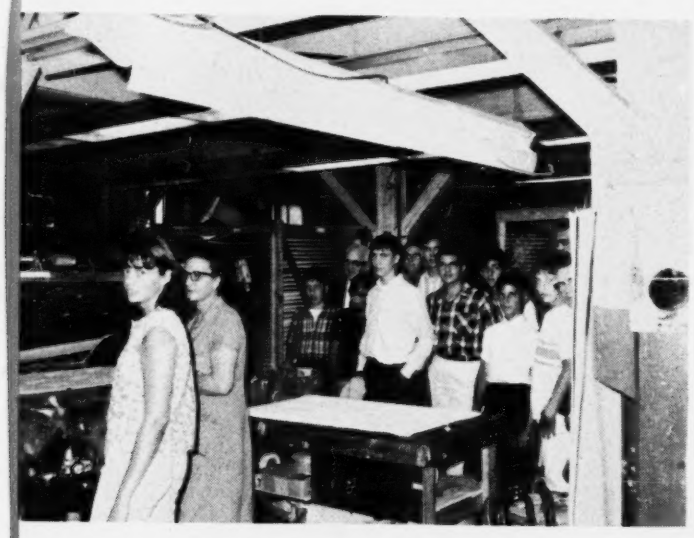
As it was felt that occupational orientation should be included in the VOFEDS Program along with instruction and project work, a schedule of plant visits was planned for Tuesday and Thursday afternoons.

The plants visited were selected with the thought in mind of exposing the students to as many different occupational families as possible. In addition, an attempt was made to visit firms which might serve as potential employers for our students upon termination of their formal education. Some limitations were imposed upon the program and visits to two of the larger local industries were not made because of the disruption caused by plant repairs and construction. In some cases where only small groups could be accommodated only the shop relating to that particular industry visited the plant. A summary of the plant tours follows:

YANKEE ATOMIC ELECTRIC COMPANY

Two busloads of students made the trip to Yankee Atomic at Rowe, Mass., a distance of approximately forty-five miles. The busses stopped along the roadside about five miles from the destination and the students enjoyed a box lunch. Upon arrival at the plant Mr. Harry Hurd, the director of the observatory, pointed out some interesting facts about the facility which produces about 185,000 kilowatt hours of electricity daily for consumption in Western Massachusetts. The students spent some time viewing models of the uniquely designed power plant and a sectionalized fuel cell, then viewed a color film and 35mm. slides on the construction of the plant and the principles of operation. A question and answer period followed with Mr. Hurd explaining some of the finer details of the plant operation. The students were given brochures explaining the history of Yankee Atomic and the processes involved in changing atomic energy into steam and thence into electric power.

We learn how atomic energy is changed into electric power.



Watching a silk screen press in operation.

Some greeting card.

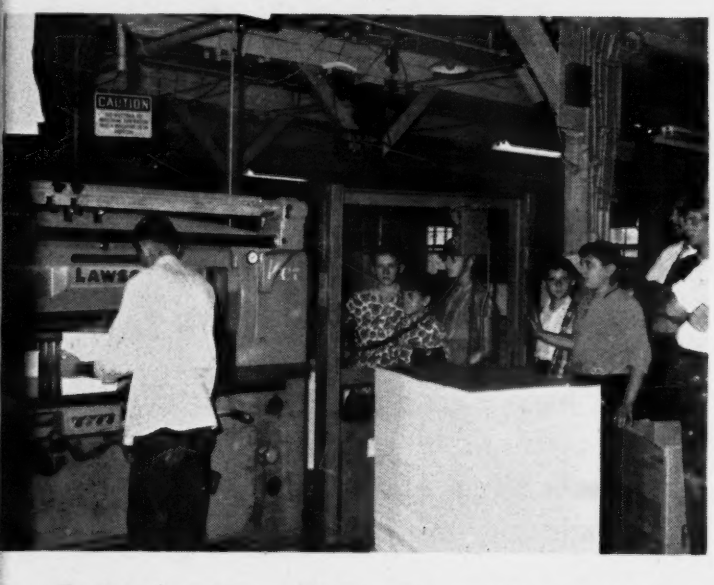
EDITIONS LIMITED MANUFACTURING CORP.

Editions Limited is a firm engaged in the manufacture of quality, highly individualized greeting cards. The cards are printed by the silk-screen process in which ink is forced through a design on a fine mesh screen onto the surface of the paper. The students observed the entire operation from color separation and the making of photographic positives to the printing and packaging of the cards. Of particular interest was the Dollygram department where the dolls used in the Western Union greeting novelty are packaged.

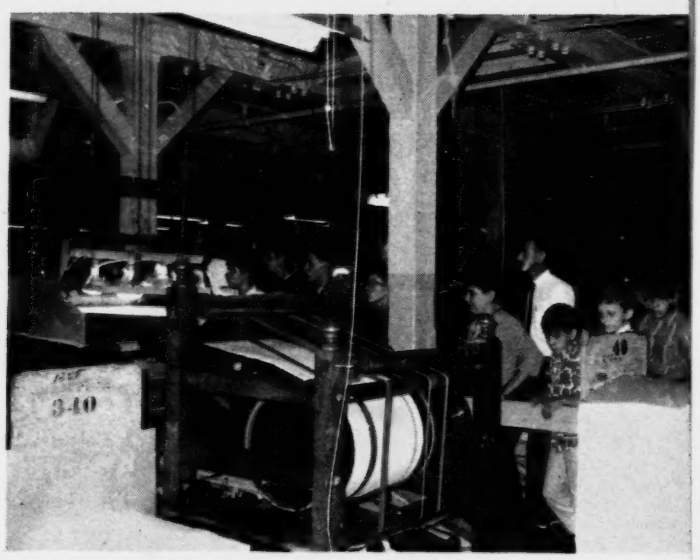
EATON PAPER CO.

The manufacture of fine stationery came in for some close scrutiny by our student body as it was conducted through the various operations of engraving, printing, box making, and packaging at the Eaton Paper Co. This multi-storied plant employs mostly women who perform the many operations involved in either box making, envelope making, or packaging. The printing presses which demand a high degree of skill and training and the paper cutting machines are operated mainly by men. The students appeared fascinated by the envelope-making machines which fed die-cut sheets through an operation consisting of folding, glueing, and banding for final packaging by the operation.

Mr. Edward Biron (right) and Mr. William Shea (to the left) are conducting students through the printing plant at Eaton Paper Co. Mr. Biron, Plant Engineer has been with Eaton Paper Co. many years and has a detailed knowledge of plant maintenance and manufacturing. Mr. Shea, formerly a Machine Related Instructor at Pittsfield Vocational High School, assists Mr. Biron in plant maintenance giving much attention to the improvement of machine production.



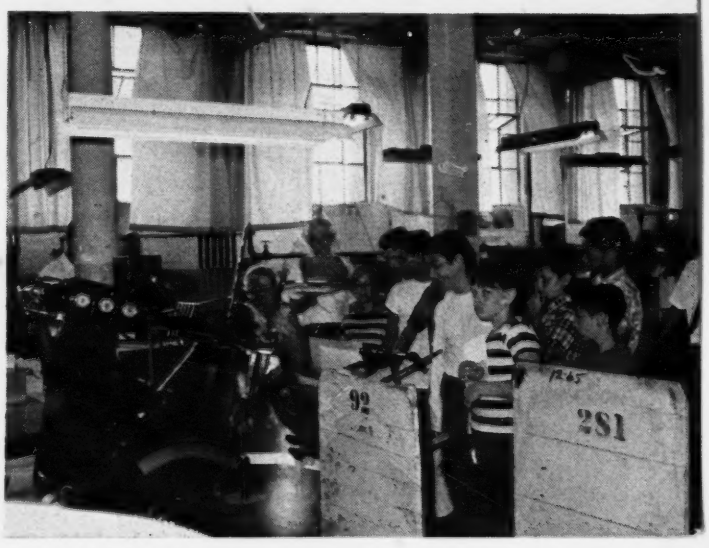
Latest automatic paper cutter being demonstrated.



Students observing Ruling Machine in operation.

Die Stamping Press in operation.

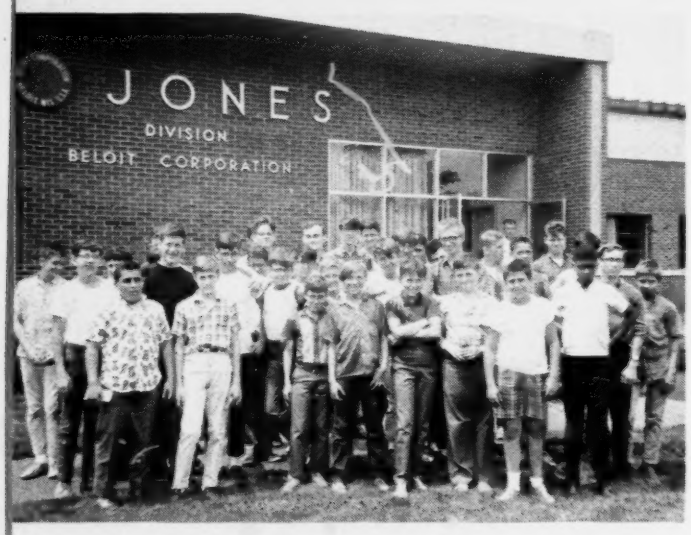
Students observing Heidelburg Press in operation.



We see a cabinet drawer put together in less than one minute.

C. M. GOODRICH WOODWORKING

A three plant tour of wood industries including millwork, cabinetmaking and retail sale was scheduled for all students. One of the industries visited was the Goodrich Cabinetmaking Shop where the construction of custom made kitchen cabinets as well as mass produced cabinets for a new high school was in process. Of particular interest to the students was a molding cutting machine capable of taking a squared piece of lumber and molding all four sides to different shapes before ejecting the piece at the further end of the machine. The guide also demonstrated a new drawer cutting machine which notches and grooves the sides of a drawer making it ready for assembly in less than one minute. The students seemed curious about some of the jigs and fixtures which were set up to duplicate and speed up certain operations.



Ready for a tour of the paper machinery plant at E. D. Jones.

That's some lathe.

E. D. JONES CO., DIVISION OF BELOIT CORP.

Of particular interest to machine shop, sheet metal, and drafting students was the trip to the E. D. Jones plant in Dalton. The entire student population made the trip and the group was broken up into four sections which were conducted through the huge, sprawling plant which manufactures paper-making machinery. The fledgling machinists were obviously impressed with the size of some of the lathes and milling machines. The drafting students were conducted on a side tour of the drafting department. The physical layout of this plant enabled the students to visualize the manufacturing of large heavy machinery and the working conditions which are unique to such a large operation. The students also learned a valuable lesson as regards safety precautions which were apparent every step of the way.

O. W. LANDERGREN INC. METAL SPINNING

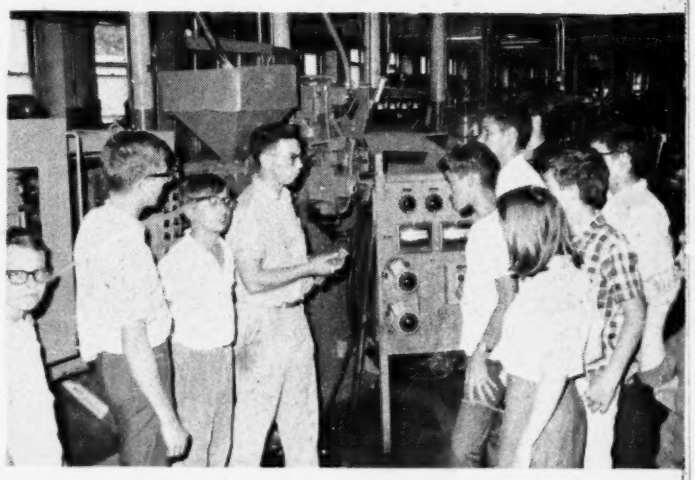
Metal spinning on a lathe is a craft not too familiar to the journeyman machinist. It was therefore with particular interest that our machine shop and sheet metal students observed the metal spinning process of O. W. Landergren Co. They saw flat, circular pieces of metal spun into hemispheres, cones, and doughnut shapes. They also observed the high degree of accuracy that could be obtained by performing a hand-shaping operation. Some of the boys commented on the dexterity and co-ordination displayed by the lathe operators.

Spinning a tail cone for a missile.

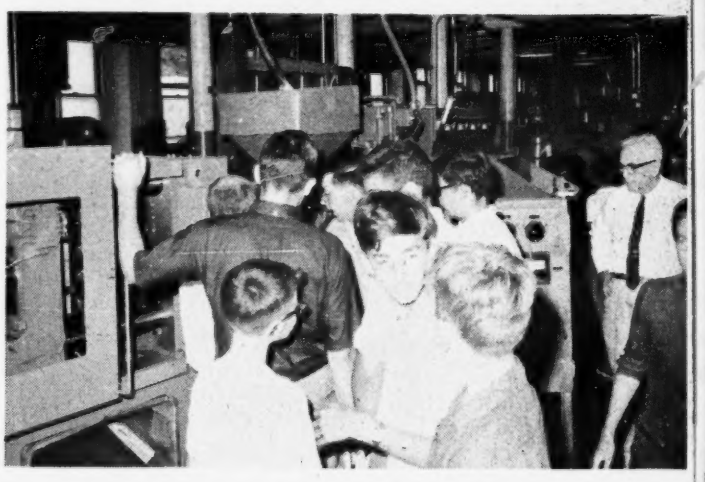
A welder at work.

GREYLOCK PLASTICS, INC.

The tour of Greylock Plastics was tied in with a visit to Marland Mold which makes the dies for the extrusion molding done at Greylock. The students observed machine operators removing the still hot plastic parts from the molding machines, cutting the pieces apart, and packaging for shipment. They also observed the hot stamping of a metallic trim or numerals on some of the pieces being manufactured. The group then visited the products showroom where they saw many familiar plastic products such as ball point pens, radio cabinets, and television dial knobs.



Our guide shows us a sample of plastics extrusion.



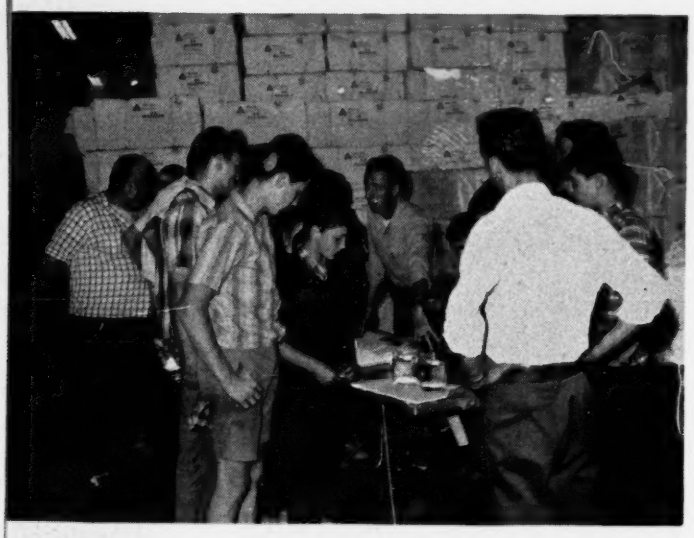
A plastics extrusion machine in operation.

We tour a paper mill.

PETER J. SCHWEITZER DIVISION, KIMBERLY-CLARK CORP.

One of the interesting operations of the Peter Schweitzer Columbia Mill is the manufacture of fine bible papers. This paper is extremely thin but sufficiently opaque to allow it to be used in the printing of high quality bibles. Condenser paper is also manufactured for use as insulators in electronic parts. The students viewed the papermaking operation from pulp to finished sheet.

The settling tanks, where impurities are removed from the river water.



Mr. Bradbury shows us samples of the finished product.

HURLBUT PAPER CO.

The Laurel Mill of the Hurlbut Paper Co., a division of the Mead Corporation, is engaged in the manufacture of paper laminates used in the fabrication of counter-top material. Mr. Bradbury, who served as guide for the tour, showed the group through the papermaking process from the stored baled of wood pulp and untreated river water to the finished sheet of paper. The students visited the water treatment plant where water from the Housatonic River is treated to make it suitable for use in the manufacture of paper. The guide commented that after purification the water was purer than that which the citizens of Lee drank. He also added that the water is returned to the river as clean or cleaner than it was when it was drawn into the plant. The students were conducted through the papermaking process starting with the beater operation, continuing along the web through the drying process and the finishing and shipping of the completed roll.

KELLY HARDWOOD CORP.

The Kelly Hardwood Corporation is engaged in the operation of cutting and milling native lumber for the purpose of retail sale and fabrication of pallets. Mr. Don Casey, yard foreman, explained to the students how logs are graded and cut, how the footage of lumber from a log can be computed, and the problems encountered in cutting and transporting logs to the mill. He also showed how every part of the log was made use of including the bark. The students were taken on a tour of the sawmill, the pallet shop, and the re-processing station where the by-products are loaded for transportation to the reprocessing mills.

Watching logs being cut into planks.

Looking over some freshly sawed lumber.

ARNOLD LUMBER CO.

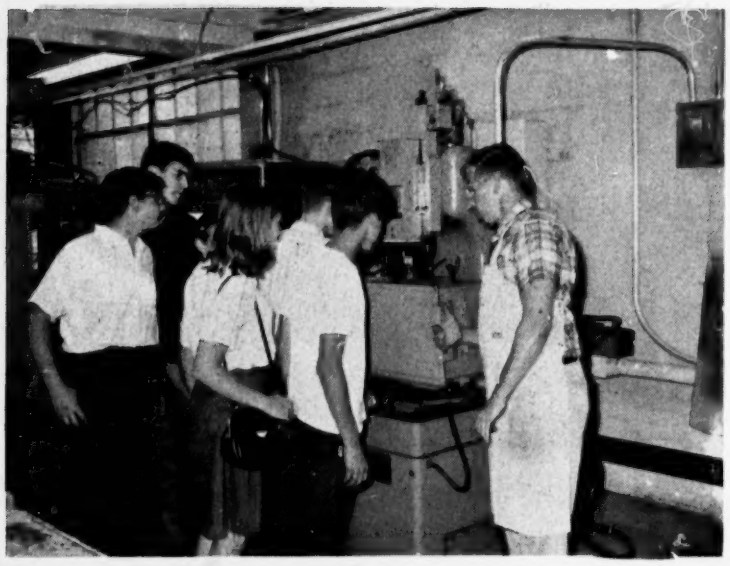
In order to learn the facts about grading of lumber for retail sale and gain information about the variety and grades of building materials on the market a trip was made to the Arnold Lumber Company. The students were shown construction and finishing lumber, flooring and roofing materials, plywoods and particle board, and paint and hardware. The guide, Mr. James Duffy, explained the methods of identifying different kinds of plywood and grades of lumber and the uses of each. He showed the students various kinds of moldings used in finish work and explained the proper use of nails. Of importance to the students as potential consumers was an explanation of the method in which lumber is priced and sold, and the limitation in piece buying.

Looking over the entrance to a retail lumber yard.

Learning a few things about buying lumber.

MARLAND MOLD

The trip to Marland Mold allowed the students to see the products of machine work and design put into production. Marland Mold makes the dies used for plastic extrusion by Greylock Plastics. The students observed all phases of the opertion beginning with the laying out and roughing of stock to the hand polishing necessary for some of the finished dies. The group appeared impressed with the patience and skill shown by the craftsmen in shaping the many fine details that go in the dies.



Watching a tape-operating milling machine.

Getting a close look at some intricate machine work.

PRENTICE BRADLEY ARCHITECT

The drafting class visited the offices of architect Prentice Bradley where all facets of the architects' profession were viewed and studied. The students found particularly interesting a book of plans on the construction of a new elementary school. In addition to the usual prints of floor plans with which all are familiar, the students saw and had explained to them topographical maps necessary for design and foundation planning.

We find out what an architect's office looks like.

BERKSHIRE AUTO CO., INC.

The auto mechanic and auto body classes were conducted on a tour of the Berkshire Auto Company. The tour started in the automobile showroom where the students learned how new automobiles are conditioned and prepared for sale. The boys then observed the operation of the service department including used car conditioning and repair, parts selection and inventory, and customer relations.

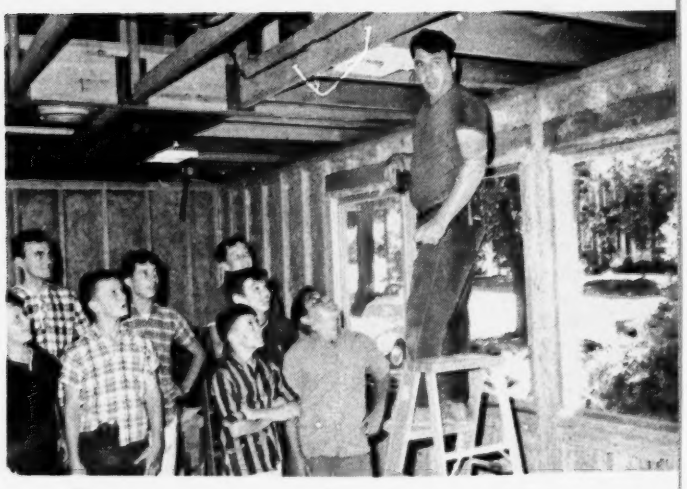
I don't think I'm in the market for a new car right now.

Seeing what goes on under the hood.

MARSHALL ERDMAN CONSTRUCTION COMPANY

The mill carpentry and sheet metal students had the opportunity to visit a building in the preliminary stages of construction. Mr. Richard Brown, foreman for the Marshall Erdman Construction Company of Princeton, New Jersey, conducted the students on a tour of the new medical building being erected on South St. The boys saw carpenters putting up wall studding, electricians doing rough wiring, sheet metal workers installing heating and air conditioning ducts, plumbers fitting water pipes and drains, and carpenters putting up insulation. The students were also given an idea of what modular construction is all about as the Marshall Erdman Company specializes in medical buildings and makes use of some phases of modular construction in the erection of these structures.

We see some framing being done.

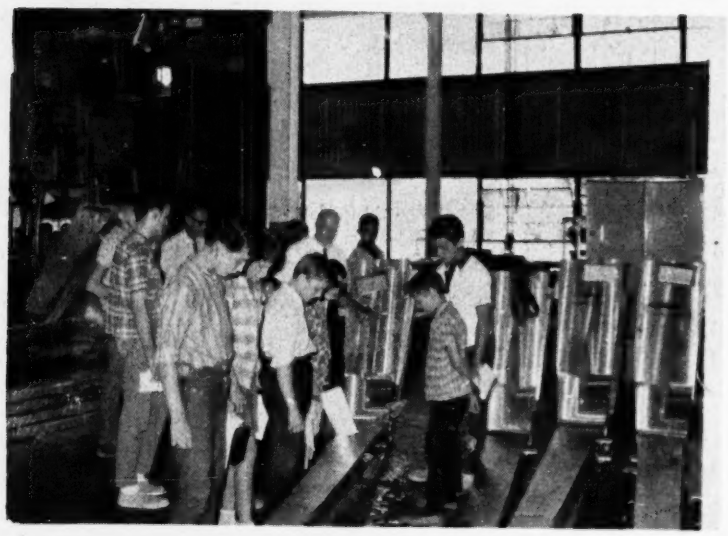


So this is how an electrician does it.

CLARK-AIKEN COMPANY

Avisit to the Clark-Aiken Co. allowed the students the opportunity to see profiling done on a large scale. One of the manufacturing operations performed at this plant is the profiling (milling and shaping) of airplane spars. The sheer size of the machine used for this operation left the machine shop students with mouths agape. Other machine operations also came in for close scrutiny by the group.

Holy Handlebars! Look at that airplane spar.



We give the finished spar the once over.

BERKSHIRE EAGLE

One of the highlights of the plant visits made by the printing students was the trip made to the Berkshire Eagle Newspaper. The tour was timed to allow the students the opportunity to see the newspaper come out on the press. The tour started in the news room and covered the assimilation of news material local and national, and the use and placements of advertising matter. The group then watched tape-operated and manually operated linotype machines compose the type for set up in chases. In the composing room the students saw news and advertising matter assembled into page form and impressions made for plates. After seeing the platemaking operations the fledgeling printers watched as the plates were locked onto the huge press and the first edition started to roll out.

Operating a linotype machine.

Girl preparing tape for automatic composition.

In the evaluation of the VOFEDS program many factors were considered. One essential of the evaluation was the attitudes that students themselves formed about the program. Particular attention was paid to any changes which occurred in the attitudes of the students between the time of enrollment and the termination of the program. Another facet of the evaluation was the teachers' assessment of the student attitudes as shown in classroom activity. Teacher evaluation of students was effected by group and individual conversations and by prepared evaluation forms. Added to the teachers' evaluation was an administrators' objective overview of the student participation in the classroom. A questionnaire concerning student attitudes and knowledge of industry formed another area of the evaluation. Enrollment figures, attendance rates and dropouts substantiate the students' attitudes. Additional information was gathered by personal interview, questionnaire, psychometric devices and spontaneous discussions.

Based on the above evaluation procedures, and personal observations, the following conclusions were reached:

ATTENDANCE

Initial enrollment was marked at 100 students allowing a teacher-pupil ratio of 1-8. Last minute changes resulting from students going on vacations and accepting summertime employment dropped the enrollment figure to 90. This allowed the director to accept additional students into the program and six more were added making the beginning enrollment figure 96. After two weeks of school had been completed nine dropped out of the program for various reasons and the enrollment figure stood at 87. This figure remained static after the remainder of the six-week session.

Daily attendance was excellent considering the voluntary nature of the program. Poore attendance was generally recorded on Tuesdays and Thursdays when field trips were scheduled. There were various reasons and excuses for not wanting to go on the field trips, the most realistic reason considering the students' ages was probably the length of time involved (two hours in the afternoon) which dipped into prime recreational time.

Tardiness was seldom in evidence. Many students would be waiting at the shop door when the instructor arrived in the morning. The great majority were faithful in bringing in excuses for planned absences and some wanted to know if they could work overtime on the projects.

DISCIPLINE

One of the dropouts was a student who was released from the program because of disciplinary measures. This student had a history of maladjustment and discipline problems in previous school situations. It was felt that the low teacher-student ratio might allow for closer supervision of the student and give him an opportunity to cultivate a closer relationship with teachers and classmates. The student became involved in two incidents, the latter occurring after he had discussed the first incident with the director and the guidance counselor. Two factors were instrumental in the decision to release the boy from the program. Perhaps the most important was the feeling by the student's instructors that the boy was presenting a safety hazard in the shop, largely by his indiscriminate handling of tools. The other factor was the student's involvement in an altercation with a boy taking part in another summer school program. The boy insisted vehemently that he had done no wrong in either situation.

It might be noted here that two other boys who were labeled "troublesome" in previous school situations completed the course with only minor incidents interrupting their attendance. Although neither of these two boys was recommended for conventional vocational training because of safety factors, both undoubtedly gained a better insight into industry and industrial training through participation in the program.

The great majority of students presented no discipline problems other than might be expected of normally boisterous teenagers.

TEACHER EVALUATION OF STUDENT ATTITUDES AND ABILITIES

The teachers were given an evaluation sheet on which they were to rate each student on the following factors: attendance, attentiveness, knowledge of and use of tools, materials, contribution to the group, initiative, ability, originality, thoroughness in a task. The evaluation sheet was scaled into five different categories; namely, excellent, above average, average, below average and poor. It is interesting to note that only 18% of the students were rated below average or poor in the above categories; while 38% were rated excellent and 82% were rated average or better.

Of the eleven students rated poor four were in the drafting class and three were in the mill carpentry class. This seeming disproportion can probably be explained by noting that of the three students rated poor in the mill carpentry class, two were the aforementioned discipline problems, while the four students rated low in the drafting class were low in ability and initiative and had difficulty staying with the class. Several drafting students suggested in fact that a two tract program in drafting be considered for next year to allow students to advance at their own rate without impeding the progress of others in the class.

For the most part instructors found the students amenable to instruction and alert to learning some of the unique and specialized skills common to the tradesman. Several instructors commented on the ability exhibited by the students in their shop albeit they bemoaned the fact that some were already enrolled in college preparatory courses. All the instructors were gratified with the results achieved in the short six week span of time spent in the shop.

STUDENTS ATTITUDES ABOUT WORK

The questionnaire administered to the students attempted to probe at their general knowledge of industry and their attitudes about the world of work. Approximately 75% of the students had visited an industry previously, one third of the students visiting plants where their parents were employed. However, some knew little about their father's work or general conditions of employment in industry. Twenty-five percent of the students answering the question did not know how long their fathers had been working for their present employer. About half the group said they knew what their fathers' weekly salary was. On the subject of wages, half of the group did not know the minimum hourly wage within fifty cents and of that half 50% did not have any idea of the minimum hourly wage. One third of the respondents did not know if their parent belonged to a labor union or a professional society.

We may surmise from the foregoing information that shop talk may not be a topic of conversation in many of the students homes.

Most students did have definite ideas about what they liked and disliked about their fathers' jobs. Predictably, a majority of students indicated that the thing they liked best about dad's work was the pay, although the questionnaire did not allow them to indicate whether or not they thought the pay adequate. It is interesting to note that other than wages the thing that students liked best about their father's job was the kind of work he did. If we could discount the parents' occupation as a fantasy choice to the student we might conclude that the student felt that he liked dad's job because dad enjoyed his work. Only one student indicated that he liked the hours his father worked.

On the other hand a majority of students indicated that long hours were what they disliked most about father's work. A few mentioned drudgery as a reason for disliking their parents' occupation. For what ever reason they chose, 75% indicated that they would not enjoy earning their living at their parents' occupation.

On the subject of where to look for full-time employment better than half the students gave as their answer the Massachusetts Division of Employment Security although not necessarily in those exact words. About 40% indicated that they would go to a specific industry to seek work. Very few mentioned newspaper ads as a source of information about work. The number of answers indicating the selection of the D. E. S. as the first place to look for a job strengthens our choice of the district manager of the local D. E. S. as the speaker for our first assembly.

Taking into account the information gathered about students' attitudes about industry, we might conclude that a program of plant visitations or field trips would serve to enlighten the student body about occupations available locally, conditions of employment, working conditions, and apparent job satisfaction of workers. Any benefits derived from such visits will have to be determined at a later date in terms of future enrollment in the VOFEDS program.

FIELD TRIPS

Eighteen industries were visited during the course of the program. Some industries were visited only by students engaged in the course related to the industry visited. Most field trips lasted somewhere from forty-five minutes to one hour and fifteen minutes. Transportation time consumed the remainder of the time allotment of two hours. In some instances the trips were completed in less than two hours, others took up to three hours time.

About 60% of the students claimed they enjoyed the field trips and made no comment or criticism about them. Of the twenty-six students who made comments about the trips, thirteen thought that the trips should have been scheduled in the students' selected trade, six complained about the busses, two didn't think that they should have been made to go on field trips if they didn't want to go, and one student thought some of the tour guides were not prepared.

If any justification is needed for the scheduling of trips to a variety of industries it should be noted that the VOFEDS program is intended to be exploratory in nature and as such should provide a variety of experiences for the student.

In the questionnaire only half of the students indicated that they would like to earn their living at the trade that they selected for the summer program, so the question of homogeniety of plant visit selection would appear to be academic. Moreover, about half of the students interviewed indicated that they would like to attend college after graduating from high school.

STUDENT EVALUATION OF PROGRAM

An indication of the relative success of a program would appear to be the number of people who would be willing to give it another try. Should this be true we would have to agree that the VOFEDS program was a success in the eyes of the students. Of the students enrolled 90% said that they would enroll again. This is in spite of the fact that only 50% were enrolled in the program of their first choice. We could say facetiously that the other 50% wanted to enroll in the auto mechanics course and we could be close to correct. Many students apparently look forward to the day when they can have a car for their very own and want to be prepared for the inevitable brake jobs, spark plug changes, and stick shift options which occupy the minds and time of many sixteen year olds. Surprisingly enough though, 75% of those students who did not get their first choice said that they would enroll again, of that group 75% said that they would enroll in the same course. 25% wanted to try another course. We may conclude from this that although many students evidenced particular interest in one program they did not lose interest when they were enrolled in a course which was not their first choice.

SOCIAL ADAPTABILITY

The students were questioned as to whom their best friend was and with whom they would like to share a task. The purpose of the question was to discover how each student selected friends and fellow workers in the shop. Primary and secondary selections were noted for each student, and clusters of student selections were examined to determine the extent of social interchange existing in each classroom.

The results showed that the most heterogeneous groups existed in the print shop, sheet metal shop, auto mechanics shop, and welding shop. In each of these no definite pattern of selection existed, and the students did not appear to be clannish in their selections. It is possible that the sheet metal and welding shops evidenced this kind of grouping because of small numbers. We can surmise that the printing and auto mechanics shops grouped this way because of the variety of operations indulged in by the students and the attendant need for asking help from other students.

The other four shops appeared to break the students into sub groups. We have already discussed the probable reason for the split in the drafting program; that is the students' proposed ability grouping. The drafting class did in fact break up into two groups according to ability, as evidenced by the sociogram. The auto body class probably separated according to the group tasks which are assigned to the students as would be the case in mill carpentry and machine shop. There were some isolates in all the classes but time precluded their identification and absorption into normal group patterns.

SUMMARY

The degree of success achieved by the VOFEDS program was due to many factors most of which are noted in this book. There are those who would say that the ingredients for success were self-evident, just put a group of youngsters in a shop with a set of tools and let them go to it. Although we would have to agree that a shop situation presents a high motivation factor for students, we should consider the fact that other activities encroach upon the student's time in the summer months and present attractive alternates. Add to this the fact that the student has just completed ten months of continuous schooling, and we could conclude that like most adults he is ready for a vacation. The fa ct that one hundred students did enroll in the program, 90% did remain to the end, that daily attendance was excellent, that students took home well made projects, and that most of them would like to enroll again next summer fortifies our belief that the program was a worthwhile exercise in industrial orientation and group activity.

Finally, we would like to take this opportunity to thank those industries which gave generously of their time to help make the program a success.

Respectfully submitted,

Ralph J. Gionet

Ralph J. Gionet
Guidance Counselor

A WORD FROM THE CONSULTANT

To my way of thinking, the VOFEDS program has fulfilled its main objective in providing students with the opportunity to discover interests and aptitudes through exploratory opportunities in the various trade courses offered in our summer program. We sincerely believe that the program has served as a challenge and an inspiration to students who find joy in making objects with their own hands. Those in the automotive field undoubtedly experienced this same joy when through their efforts and manipulations they made something "work again". By combining manipulative work and related reflective thinking certain lifelasting insights and appreciations were acquired.

The field trips to business and industrial concerns have done much to contribute to industrial and business intelligence and understanding through information, observation and study of the working conditions in representative occupations.

The local school department and the Pittsfield Public School Committee must be commended for their insights and nod of approval for inaugurating this program. To the VOFEDS administrative staff, its guidance personnel and its craftsmen teachers, we offer but the highest words of praise. Only time will precisely unfold the fruits of their efforts.

Daniel J. Donoghue
Consultant

Mrs. Ann Fischer, Secretary. We have been fortunate in having Mrs. Ann Fischer serving as secretary to the VOFEDS program. She has efficiently served and performed all the functions required of her, giving much attention to the various needs of the different departments.

VT 007 590
Holmes, Carl M.
An Evaluation of the Aircraft Training Programs Conducted Between September 1966 and June 1967 in the State of Utah.

Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 68 34p.

*AEROSPACE INDUSTRY; AVIATION MECHANICS; *TRADE AND INDUSTRIAL EDUCATION; INSTRUMENTATION TECHNICIANS; *ADULT VOCATIONAL EDUCATION; SHEET METAL WORKERS; *GRADUATE SURVEYS; VOCATIONAL FOLLOWUP; *PROGRAM EVALUATION; STUDENT ATTITUDES; EMPLOYER ATTITUDES; QUESTIONNAIRES
UTAH

The purpose of this study is to ascertain the effectiveness of W-7 training programs which were designed to prepare aviation sheetmetal repairmen, mechanics, and instrument repairmen for employment at Hill Air Force Base. Data were collected from 354 graduates of three programs and 95 supervisors. Findings included: (1) Additional training had been undertaken by one-third of the respondents, (2) A majority indicated plans for further training, (3) 86 percent indicated that W-7 training was sufficient for civil service advancement, (4) 70 percent considered the training "good" or "excellent," (5) Program changes were considered necessary, and (6) Supervisors considered W-7 graduates more competent in technical areas than employees without it and about equal to employees without it on work attitudes. Some recommendations were: (1) Tasks analysis should precede future training programs, (2) Utilization of skilled workers and supervisors from industry would improve some informational topics, (3) Changes should be made in supervised study, and (4) Improved coordination of classroom and on-the-job training is needed. (EM)

VT 007 590

ED036657

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AN EVALUATION OF THE AIRCRAFT TRAINING PROGRAMS CONDUCTED BETWEEN SEPTEMBER 1966 AND JUNE 1967 IN THE STATE OF UTAH

OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

Produced by the Utah Research Coordinating Unit
for Vocational and Technical Education

1968

VT007590

AN EVALUATION OF THE AIRCRAFT TRAINING PROGRAMS CONDUCTED BETWEEN SEPTEMBER 1966 AND JUNE 1967 IN THE STATE OF UTAH

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

Produced by the Utah Research Coordinating Unit
for Vocational and Technical Education

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Utah State University

Principal Investigator--Mr. Carl M. Holmes
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Industrial & Technical Education
Utah State University

1968

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SUMMARY AND RECOMMENDATIONS

Summary

This report presents the findings of a study to ascertain the effectiveness of the aircraft training programs as they have been operated at specific training locations in the state of Utah.

The data reported in this study were obtained from 354 or 63.8 per cent of the graduates from the training programs and from 95 first and second line supervisors of the graduates in three categories: Aircraft Sheet Metal, Aircraft Repair and Instrument Repair.

The following generalizations were drawn from the findings in this study:

Graduates

1. Approximately one-third of the graduates of this program have taken additional training since graduation. Two-thirds of those who have taken additional training took the training at Hill Field.

2. A large majority of the graduates indicated that they plan to take additional training.

3. The majority (86 per cent) of the graduates indicated that the training received during the W-7 training program had provided them with sufficient training to enable them to advance up the civil service advancement program.

4. Seventy per cent of the graduates indicated they considered their W-7 training as good or excellent.

5. The graduates of the instrument repair program stated that more emphasis should have been placed on electronic theory and lab, instrument theory and lab, high reliability soldering and how to use technical order

manuals. This group also stated that less emphasis should be given in physics, drafting and supervised study.

6. The graduates of the sheet metal program stated that more emphasis should have been placed on blueprint reading, sheet metal lab and how to use technical order manuals, with less emphasis being placed on mathematics, sheet metal theory and supervised study.

7. The graduates of the aircraft repair program indicated that more emphasis should have been placed on aircraft system theory and laboratory work and how to use technical order manuals, with less emphasis on drafting, precision measurement, aircraft structure repair theory and laboratory, and supervised study.

Supervisors

1. The majority of the supervisors of the W-7 instrument repairmen rated these graduates superior to others employed without the W-7 training with respect to their technical knowledge, ability to break in on the job and preparation for advancement in grade.

Twenty-four per cent of the supervisors rated this group of graduates as inferior in the general attitude toward work.

2. The majority of the supervisors of the W-7 aircraft repairmen rated these graduates superior to others employed without the W-7 training with respect to their technical knowledge, skill in the use of tools and ability to break in on the job.

The majority rated these graduates as equal or superior in their general attitude toward work, safety habits and preparation for advancement.

3. The majority of the supervisors of the W-7 sheet metal graduates rated them superior to others employed without the W-7 training in their skill in the use of tools and equipment, technical knowledge, preparation

for advancement and ability to break in on the job. This group was also rated high on their safety habits and general attitude towards work.

4. The supervisors in the areas of instrument repair and aircraft engine repair were in agreement with the W-7 graduates in the areas of training that should be emphasized more and those areas that should receive less emphasis. A high per cent of the supervisors in the sheet metal area stated that more emphasis should be placed on blueprint reading and using technical order manuals.

5. The comments from the supervisors and graduates indicated that more practical realistic training should be included in the training programs.

Recommendations

1. In developing future training programs a careful analysis should be made by someone trained in the analysis technique to ascertain the manipulation skills that need to be taught and the informational topics that need to be taught. Upon completion of the analysis, the supervisors of the workers and the instructors from the educational institutions who will be involved in the training of the workers be brought together and mutually decide which skills and information can best be taught at the training institutions and which can be best taught on the job and which might be best taught by a joint effort.

2. The educational institutions should give consideration to utilizing supervisors or highly skilled workers from the industry to teach some of the skills and presenting some of the informational topics during the training period.

3. More effort should be placed on teaching the use of technical order manuals.

4. The supervised study part of the curriculum needs to be evaluated as to its function, and value to the program.

5. It is recommended that a study similar to this be conducted in 1969 using the graduates from the aircraft training programs since June of 1967 and a comparison be made of the two groups. It is also recommended that studies such as this be continued periodically so that through evaluation we may keep our programs up to date by making the necessary changes.

AN EVALUATION OF THE AIRCRAFT TRAINING PROGRAMS CONDUCTED BETWEEN SEPTEMBER 1966 AND JUNE 1967 IN THE STATE OF UTAH

Origin and Nature of the Problem

During recent years, millions of dollars have been spent by federal and state governments for the promotion of various types of training programs. On many occasions money that is invested in these programs is not used to full advantage because of the inadequacies of the training programs. Often it is difficult to ascertain the effectiveness of these programs until they have been completed. A follow-up study will be too late to aid a program that has been completed, but may be of great value in the planning and initiating of similar programs in the future. When ongoing programs are involved, immediate follow-up and feedback are essential.

During the past three years the State Board for Vocational Education has invested monies from state funds in a number of training programs designed to prepare people for employment at Hill Air Force Base, Utah. Some of the programs are ongoing, and feedback concerning the effectiveness of these programs is important both to the personnel of the State Board for Vocational Education and also the educational institutions involved.

Statement of the Problem

The purpose of this study is to ascertain the effectiveness of the aircraft training programs as they have been operated at specific training locations in the state of Utah. The effectiveness will be

ascertained by measuring the success that the trainees have had since taking jobs for which they were trained. The State Board for Vocational Education and the cooperating educational institutions can then decide what steps to take to improve such programs in the future, if improvement is deemed necessary.

Objectives

The specific objectives of this study are:

1. To ascertain how effective the aircraft training programs have been in preparing the graduate for his particular job.

2. To ascertain how effective the aircraft training programs have been in preparing the graduate for possible job advancement.

3. To ascertain how the graduates and supervisors evaluate the aircraft training programs.

Procedure or Methodology

Contact was made with each of the educational institutions involved to obtain a list of all the graduates between September 1966 and June 1967. All students who were presently employed and available at Hill Air Force Base were asked to fill out a questionnaire. All first line supervisors working with these people were also surveyed by the use of the questionnaire method. The Hill Field Personnel Department assisted in dissemination and collection of the questionnaires. The data tabulated from the questionnaires was descriptive in nature and no statistical analysis was used.

Methods of Procedure

The procedure of this study was essentially carried out in five

general steps, they were: (1) the formulation of the problem; (2) the review of the literature; (3) the development of the questionnaire; (4) the dissemination and collection of the questionnaires; and (5) the tabulation and analysis of the data.

Step number one was completed as a result of the writer's experience of working with the aircraft training program at Weber State College in Ogden, Utah. From that experience it was realized that this type of program had imperfections that are not easily identified by the instructors or administrators. The effort to more objectively identify some of these problems served as the basis for the formulation of this study.

The review of literature was conducted through the facilities of Utah State University Library and the Industrial and Technical Education Department at Utah State University.

A tentative draft of the questionnaire was drawn up and presented to the Utah State Board for Vocational Education and Hill Air Force Base for recommendations they might have. Based on these recommendations, revisions were made in the questionnaire before it was put into final form.

The dissemination and collection of the questionnaire was carried out with full cooperation of the personnel department at Hill Field. Through the cooperation of the director of training programs at Hill Field and his staff, it was possible to send the questionnaires to both the graduates and supervisors with great efficiency. The director of training was provided an alphabetical listing of all those who graduated from the aircraft training programs at Weber State College, Utah Technical College at Provo and Utah State University, between September 1966 and June 1967. He was also provided an adequate supply of questionnaires

for both the graduates and supervisors. By making use of the military installation chain of command, a questionnaire was received from all graduates who were still employed by Hill Field and were available on the Base at the time of the survey.

The final process of the study consisted of tabulation and analysis of the data. Upon return, the questionnaires were tabulated and placed in table form. The tables indicated the results as to the number and per cent of the various responses. At the request of the State Board for Vocational Education the tables were strictly a descriptive presentation of the data with no statistical analysis.

Delimitations

1. It was decided that this study would be limited to only graduates with at least one year of experience since completion of the program.

2. It was also limited only to those graduates who were still employed at Hill Field.

3. Graduates who may still be employed at Hill Field but were not available because of temporary duty assignments off-base or extended leave were not considered.

Review of Literature

Studies have been conducted dealing with the evaluation and/or follow-up of various types of programs. In a review of these studies, it was found that there are various methods of evaluation being utilized. One such method was a questionnaire sent to the graduates of the program, another method used was that of sending a questionnaire to faculty

and/or staff. The opinionnaire was also used to gather data, and in other instances combinations of the questionnaire and opinionnaire were used to obtain the desired information.

The findings of the studies reviewed were quite irrelevant to this study but valuable information was found, such as: help in questionnaire writing and justification for evaluation studies. This review of literature will not be a comparison of this study to others, but will bring out the value and importance of evaluation and follow-up of all vocational programs. The need for evaluation of vocational programs has been recognized on the national level. Evidence of this fact is found in the recently released recommendations of the Advisory Council on Vocational Education wherein they state:

> It is recommended that the Act require each state to conduct a periodic statewide review and evaluation of its vocational education program.
>
> This evaluation should be conducted no later than the year previous to the required evaluation, and results should be submitted to the Advisory Council on Vocational Education responsible for the national evaluation.
>
> The paucity of hard data for our evaluation was great but even worse was the paucity of sound value judgements about vocational education. Required state evaluations preceding the national evaluation should provide better hard data and better value judgements. (2, p. 40)

Further evidence of national concern is found in the fact that research is being conducted to develop an instrument that can be used to evaluate all state programs in terms of the national programs.

> The Ohio Center for Vocational and Technical Education is currently involved in a major thrust to develop and field test an evaluation system which may be used by states to assess their total program of vocational and technical education.
>
> The project is concerned with the development of instruments and procedures for self-initiated evaluation which will assess the state effort in terms of national and state interests, student benefits, and manpower requirements. Self-initiated evaluation, as interpreted in this project, implies the implementation of a comprehensive evaluation effort by the state vocational education authority with assistance from appropriate outside agencies, organizations, and disciplines. (4, p. 13)

In the 1967 ASCD yearbook the curriculum leaders in the United States indicated their views on the importance of evaluation. Fred T. Wilhelms in writing the preface to the yearbook stated the problem this way:

> In a more fundamental way, the committee stands solidly unified. It shares a deep conviction that the purpose of evaluation is to provide feedback and guidance to the whole educational process at every level. It believes that the going system of evaluation, which has largely drifted into the service of marking and grading and crediting, must be replaced by a system dedicated to the fundamental needs of the learner and teacher as well as those of the curriculum designer and policy maker. (1, p. IV)

Many evaluation studies have been done throughout the state and many at Utah State University. The review of these studies was valuable in terms of the program they evaluated and each lent ideas in terms of form content and questionnaires. A study by Edward L. France in 1960 gave support to the need for continual evaluation concerning effectiveness of educational programs when he said:

> Confronted then with the all important challenge of supplying more and adequate technical manpower, particularly technicians, our educational institutions, in addition to establishing new programs and modifying others to meet this challenge, have had to determine continually the effectiveness of their training in order to be current in the light of our demanding and changing society. (3, p. 2)

Presentation of Data

Sample

The material presented in this section is the result of the questionnaires sent to both the graduates and the supervisors.

Between June 1966 and June 1967 there were 555 graduates from the three institutions considered in this study. Of those 555 graduates, 354 or 63.8 per cent returned completed questionnaires that were usable in this study. The 36.2 per cent of the graduates who did not answer

the questionnaire fell into five categories.

1. Those on T.D.Y., 14 or 2.5 per cent.

2. Those on Military leave, 27 or 4.9 per cent.

3. Those on vacation at the time the questionnaire was circulated, 5 or .9 per cent.

4. Those who have terminated employment at Hill Air Force Base, 129 or 23.2 per cent.

5. Those who graduated and did not become employed at Hill Air Force Base, 2 or .4 per cent.

A total of 95 questionnaires were received from supervisors; 37 from supervisors of instrument repair graduates, 35 from supervisors of sheet metal graduates and 23 from supervisors of aircraft engine repair graduates.

Graduates

Table 1, 2 and 3 were compiled from the results of questions on the graduate's questionnaire dealing with training taken by the graduates since graduating from the W-7 program or their further training plans. The questions sought to determine three things: (1) how many have taken further training; (2) if they had taken further training, where was that training received; and (3) how many intended to take further training? Table 1 shows that 38.5 per cent of the graduates have taken additional training. Table 2 shows that 60 per cent of the training was received at Hill Air Force Base and 24.5 per cent was received at either Weber State College or the University of Utah.

Table 3 shows the results of a question which asked the graduate whether or not he intended to take further training. The results showed that 91 per cent anticipated taking further training.

Table 1. Shows how many of the W-7 trainees have taken additional training since graduation from the W-7 training program

Response	Number and per cent each group							
	Sheet Metal		Aircraft Repairman		Instrument Repairman		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Yes	19	31.0	18	47.5	100	39.0	137	38.5
No	42	69.0	20	52.5	155	61.0	217	61.5
Total	61	100.0	38	100.0	255	100.0	354	100.0

Table 2. Indicates where additional training was taken

	Number	Per cent
At Hill Air Force Base	82	60.0
Temporary Duty Off-Base	15	11.0
Correspondence Courses	6	4.5
College Classes	34	24.5
Total	137	100.0

Table 3. Shows how many of the W-7 trainees indicated that they intend to take further training

Response	Number and per cent each group							
	Sheet Metal		Aircraft Repairman		Instrument Repairman		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Yes	48	79.0	34	89.5	241	94.5	323	91.0
No	13	21.0	4	10.5	14	5.5	31	9.0
Total	61	100.0	38	100.0	255	100.0	354	100.0

Another question asked the graduates if they thought that their job advancement had been curtailed by lack of sufficient training. Table 4 shows that only 14 per cent felt that the lack of sufficient training had curtailed job advancement while 86 per cent indicated the training they received enabled them to advance up the civil service advancement program.

Table 4. Shows whether the W-7 trainees thought that job advancement had or had not been curtailed by lack of sufficient training

Response	Number and per cent each group							
	Sheet Metal		Aircraft Repairman		Instrument Repairman		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Yes	7	11.5	8	21.0	34	13.5	49	14.0
No	54	88.5	30	79.0	221	86.5	305	86.0
Total	51	100.0	38	100.0	255	100.0	354	100.0

The graduates were asked to give their present civil service rating. Table 5 shows the civil service ratings as reported by the graduates. It may be noted that there are a few very radical advancements; these are due to prior civil service experience.

The graduates were also asked to evaluate the training they received as to whether it was in their opinion excellent, good, average, below average, or poor. Table 6 shows that 52 per cent rated the training as good and 18 per cent rated it as excellent, or a total of 70 per cent thought that the training was above average. Only four per cent indicated they thought the training was below average.

Table 5. Shows civil service rating of trainees as of June, 1968

Civil Service Rating	Number and per cent each group											
	Instrument Repair Two Years Experience		Instrument Repair One Year Experience		Aircraft Repair Two Years Experience		Aircraft Repair One Year Experience		Sheet Metal Two Years Experience		Sheet Metal One Year Experience	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
WB - 7/1	5	3.5	29	34.0	1	5.5	4	31.0			2	22.0
WB - 7/2	17	11.0	42	49.5			7	54.0	3	6.0	3	33.5
WB - 7/3	1	.5										
WB - 8/1	48	31.5	6	7.5			2	15.0	2	4.0		
WB - 8/2	2	1.5	3	3.5								
WB - 8/3	55	36.0	4	4.5					1	2.0		
WB - 9/1	11	7.5			15	79.0			23	46.0	3	33.5
WB - 9/2	11	7.5	1	1.0	3	15.5			18	36.0	1	11.0
WB - 9/3												
WB -10/1	1	.5							2	4.0		
WB -10/2												
WB -10/3	1	.5					1	2.0	1	2.0		
TOTAL	152	100.0	85	100.0	19	100.0	13	100.0	50	100.0	9	100.0

Table 6. Shows the W-7 trainees' evaluation of the training programs

Response	Number and per cent each group							
	Sheet Metal		Aircraft Repairman		Instrument Repairman		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Excellent	5	28.0	4	10.5	54	21.0	63	18.0
Good	29	47.5	17	44.5	139	54.5	185	52.0
Average	25	41.0	11	29.0	56	22.0	92	26.0
Below Average	2	3.5	5	13.0	4	1.5	11	3.0
Poor	0	0	1	3.0	2	1.0	3	1.0
Total	61	100.0	38	100.0	255	100.0	354	100.0

The graduates were asked to evaluate the classes which they took in their training program. The curriculum for each program was different and each curriculum is presented separately in Table 7.

As shown in Table 7, 59 per cent of the aircraft instrument repair graduates indicated that more emphasis should be placed on electronic theory and 75 per cent indicated more emphasis be placed on the electronics lab. Approximately 44 per cent indicated that more emphasis should be placed on high reliability soldering and using technical order manuals, instrument theory and instrument lab.

Table 7 indicates that approximately 24 per cent of aircraft instrument repair graduates would recommend that less emphasis be placed on mathematics and 38 per cent and 17 per cent would recommend less emphasis on drafting and supervised study respectively.

Table 7. Shows how the W-7 trainees rated the importance of each course that he was given during training

SUBJECT	Per cent of each response			
	More emphasis	Same emphasis	Less emphasis	Omit
AIRCRAFT INSTRUMENT REPAIR				
Mathematics	17.0	68.5	11.5	2.5
Physics	10.0	65.0	22.0	2.5
Drafting	10.0	51.0	30.0	8.5
Electronics Theory	59.0	38.0	2.0	1.0
Electronics Lab	75.0	23.0	1.0	1.0
Instrument Theory	44.0	49.0	5.5	1.5
Instrument Lab	55.0	41.0	1.5	2.5
High Reliability Soldering	45.0	50.5	4.0	0.5
Supervised Study	18.0	64.5	13.5	4.0
Technical Order Manuals	44.5	48.5	6.0	1.0
AIRCRAFT SHEET METAL				
Mathematics	21.5	62.5	14.5	1.5
Drafting	16.0	70.5	10.0	3.0
Blueprint Reading	82.0	16.0	1.5	0.0
Sheet Metal Theory	37.5	46.0	16.0	0.0
Sheet Metal Lab	55.0	41.0	3.5	0.0
Technical Order Manuals	65.0	28.0	6.5	0.0
Supervised Study	29.0	56.0	10.0	5.0
AIRCRAFT REPAIRMAN				
Mathematics	19.5	64.0	11.0	5.5
Basic Electronics	44.0	39.0	8.5	8.5
Drafting	11.0	44.5	33.5	11.0
Technical Order Manuals	69.5	25.0	0.0	5.5
Precision Measurements	8.5	69.0	14.0	8.5
Power Plants Theory	16.5	75.0	8.5	0.0
Power Plants Lab	33.5	58.0	8.5	0.0
Aircraft Structure & Repair Theory	5.5	66.5	25.0	3.0
Aircraft Structure & Repair Lab	14.0	58.0	28.0	0.0
Aircraft Systems Theory	66.5	30.5	3.0	0.0
Aircraft Systems Lab	58.0	42.0	0.0	0.0
Jet Engines Theory	33.5	58.0	8.5	0.0
Supervised Study	22.5	55.5	16.5	5.5

As seen in Table 7, 69.5 per cent of the aircraft repairmen indicated that more emphasis should be placed on using technical order manuals. Approximately 66 per cent indicated more emphasis should be placed on aircraft systems theory and 58 per cent indicated more emphasis on aircraft systems lab.

Those areas of training where 20 per cent or more of the aircraft repairmen indicated less emphasis should be placed were: Drafting, precision measurements, aircraft structure and repair theory, aircraft structure and repair lab, and supervised study.

As shown in Table 7, 82 per cent of the graduates from the sheet metal training programs indicated that more emphasis should be placed on blueprint reading. Sixty-five per cent indicated a need for more emphasis in how to use technical order manuals and 55 per cent indicated a need for more emphasis in sheet metal lab.

There were only three areas of instruction where approximately 15 per cent of the sheet metal graduates indicated there should be less emphasis. However, there was a higher percentage of the aircraft sheet metal graduates that indicated more emphasis should be placed on those same three areas.

A common area of instruction that graduates of all three programs indicated more emphasis should be placed on was that dealing with technical order manuals.

Two common areas of instruction that graduates of all three programs indicated less emphasis should be placed on were drafting and supervised study.

The final question was an open ended question asking the graduate to give suggestions for improvement of the respective training programs. Of the aircraft instrument repair graduates, 161 or 63 per cent of them

responded to this question. There was a variety of suggestions given by the graduates but those most frequently mentioned are listed below with a quote from at least one student questionnaire.

1. Fifty-four graduates suggested that more lab work be provided.

   Quote: More practical application of theory needed in lab work, in connection with circuits, components and test equipment.

2. Forty-five graduates suggested more practical experience in the use of schematical diagrams.

   Quote: Spend more time on learning to read schematics and make application of the theory learned.

3. Thirty-six graduates suggested more time be spent in theory of instruments and electronics but 17 suggested that less time be spent in those areas.

   Quote: Actual application in electronics and instrument lab should be expanded and less theory on these subjects.

   Quote: My present job could use more knowledge of instrument and electronics theory.

4. Twenty-eight graduates suggested more experience in trouble shooting.

   Quote: The first one would be, and the most important, a trouble shooting class.

Other areas that were suggested with less frequency are listed below:

5. More training on test equipment - 17.

6. Training was too broad - 16.

7. Better teachers - 13.

8. More training in technical order manuals - 8.

9. A class on orientation to civil service procedures and policies - 7.

There were 28 of the sheet metal graduates who responded to question

number 10. This was 46 per cent of the total. The suggestions which were most frequently given are listed below with a quote from a graduate questionnaire.

1. Thirteen graduates suggested a better course in blueprint reading.

   Quote: Much more emphasis on blueprint reading.

2. Ten graduates suggested more lab experience.

   Quote: Shop work should be strengthened about 50 per cent more.

3. Six graduates suggested more emphasis on technical order manuals.

   Quote: Much more emphasis on general use of technical order manuals.

Other areas suggested less frequently:

4. A need for better teachers - 4.
5. Strengthen aircraft structure class - 3.
6. The training program was too long - 2.
7. More emphasis on precision measurements - 2.

Out of 38 aircraft repairmen, 20 or 53 per cent responded to question number 10. Listed below are the areas they suggested could be strengthened. Each of the most frequently suggested areas is followed by a quote by one of the graduates.

1. Ten graduates suggested that more lab work be included.

   Quote: More practical application rather than class lectures.

2. Six graduates suggested that more blueprint reading be included.

   Quote: More blueprint reading.

3. Five graduates suggested that more emphasis be put on the rigging of modern aircraft.

   Quote: More fundamentals on rigging of modern aircraft.

Supervisors

Table 8 shows the responses from the question which asked the supervisors to evaluate certain characteristics of the graduates as to whether they were superior, equal, or inferior to those same characteristics of other workers employed with W-7 training.

More than 50 per cent of the supervisors thought that the instrument repairmen were superior in the characteristics of technical subject matter knowledge, preparation for advancement in grade and ability to break in on the job. More than 50 per cent of the supervisors rated the instrument repairmen equal or superior in their skill in the use of tools and equipment and safety habits. Twenty-four per cent of the supervisors rated these graduates as inferior to people hired without W-7 training in their general attitude toward work.

More than 50 per cent of the supervisors rated the aircraft repairmen superior in the characteristics of skill in the use of tools and equipment, technical subject matter knowledge and ability to break in on the job. More than 50 per cent of the supervisors rated the aircraft repairmen equal or superior in preparation for advancement in grade, general attitude toward his work and safety habits, compared to workers hired without W-7 training.

More than 50 per cent of the supervisors rated the sheet metal workers as superior in the characteristics of skill in the use of tools and equipment, technical subject matter knowledge, preparation for advancement in grade and ability to break in on the job. More than 50 per cent of the supervisors rated him as equal in general attitude toward his work and safety habits, compared to workers hired without W-7 training.

Table 8. Shows the supervisors' evaluations of the graduates as compared to other junior mechanics employed without W-7 training

CHARACTERISTICS	Percentage				
	Far superior	Superior	Equal	Inferior	Greatly inferior
INSTRUMENT REPAIRMEN					
Skill in the use of tools & equipment	2.5	35.5	59.5	2.5	0.0
Technical subject matter knowledge	0.0	65.0	29.5	5.5	0.0
Preparation for advancement in grade	2.5	51.5	43.5	2.5	0.0
General attitude toward his work	5.5	27.0	43.0	24.5	0.0
Safety habits	0.0	19.0	67.5	13.5	0.0
Ability to break-in on the job	2.7	70.3	24.3	2.7	0.0
AIRCRAFT REPAIRMEN					
Skill in the use of tools & equipment	4.0	48.0	48.0	0.0	0.0
Technical subject matter knowledge	4.5	56.5	39.0	0.0	0.0
Preparation for advancement in grade	4.5	43.5	52.0	0.0	0.0
General attitude toward his work	4.0	26.0	70.0	0.0	0.0
Safety habits	22.0	17.0	61.0	0.0	0.0
Ability to break-in on the job	13.0	48.0	39.0	0.0	0.0
SHEET METAL					
Skill in the use of tools & equipment	0.0	74.0	26.0	0.0	0.0
Technical subject matter knowledge	3.0	63.0	31.0	3.0	0.0
Preparation for advancement in grade	8.5	65.5	26.0	0.0	0.0
General attitude toward his work	11.0	31.5	54.0	3.0	0.0
Safety habits	0.0	43.0	57.0	0.0	0.0
Ability to break-in on the job	3.0	71.0	17.0	8.5	0.0

Table 9 summarizes the data collected from the question which asked the supervisor to evaluate the courses taken by the graduates whom they supervise. The courses were rated as to whether the supervisors thought they should have had more emphasis, the same emphasis, less emphasis, or should have been omitted from the program. More than 50 per cent of the supervisors in the area of aircraft instrument repair indicated that more emphasis should be put on the following courses.

Electronics Theory

Electronics Lab

Instrument Theory

Instrument Lab

High Reliability Soldering

Technical Order Manuals

Less emphasis was suggested in mathematics by 21.5 per cent of the supervisors and 40.5 per cent said less emphasis in drafting with 21.5 per cent saying to omit drafting.

More than 50 per cent of the supervisors in the area of sheet metal suggested more emphasis in the following courses.

Blueprint Reading

Technical Order Manuals

With more than 40 per cent suggesting more emphasis in the following courses:

Mathematics

Sheet Metal Theory

None of the sheet metal courses seem to have received a significant number of suggestions for less emphasis to be mentioned.

More than 50 per cent of the supervisors in the area of aircraft repair suggested more emphasis in the following courses:

Technical Order Manuals

Aircraft Systems Theory

Aircraft Systems Lab

Only two courses were suggested by more than 20 per cent of the sheet metal supervisors as needing less emphasis; they are listed below:

Drafting

Aircraft Structure Repair Lab

Table 9. Shows how the supervisors rated the importance of each course that the W-7 trainees had completed

SUBJECT	Percentage			
	More emphasis	Same emphasis	Less emphasis	Omit
AIRCRAFT INSTRUMENT REPAIR				
Mathematics	5.5	73.0	21.5	0.0
Physics	24.0	62.0	11.0	3.0
Drafting	3.0	35.0	40.5	21.5
Electronics Theory	62.0	32.5	5.5	0.0
Electronics Lab	70.0	22.0	8.0	0.0
Instrument Theory	58.5	32.5	5.5	3.5
Instrument Lab	59.0	30.0	8.0	3.0
High Reliability Soldering	70.0	27.0	3.0	0.0
Supervised Study	16.0	81.0	3.0	0.0
Technical Order Manuals	65.0	30.0	5.0	0.0
AIRCRAFT SHEET METAL				
Mathematics	44.0	47.0	9.0	0.0
Drafting	17.5	70.5	9.0	3.0
Blueprint Reading	94.0	3.0	0.0	3.0
Sheet Metal Theory	47.0	53.0	0.0	0.0
Sheet Metal Lab	20.0	65.0	9.0	6.0
Technical Order Manuals	97.0	3.0	10.0	0.0
Supervised Study	26.5	61.5	12.0	0.0
AIRCRAFT MECHANIC				
Mathematics	8.7	73.9	8.7	8.7
Basic Electronics	17.4	65.2	4.4	13.0
Drafting	8.7	69.6	13.0	8.7
Technical Order Manuals	74.0	26.0	0.0	0.0
Precision Measurements	39.0	54.0	4.5	4.5
Power Plants Theory	8.7	91.3	0.0	0.7
Power Plants Lab	4.3	87.0	8.7	0.0
Aircraft Structure & Repair Theory	30.5	56.5	13.0	0.0
Aircraft Structure & Repair Lab	22.0	52.0	26.0	0.0
Aircraft Systems Theory	78.0	22.0	0.0	0.0
Aircraft Systems Lab	52.0	48.0	0.0	0.0
Jet Engines Theory	17.3	74.0	8.7	0.0
Supervised Study	8.7	78.3	13.0	0.0

Question number 10 for the supervisors was similar to number 10 for the graduates wherein it asked for suggestions for improvement of the training program. Many of these suggestions were very good and are quoted below under the heading of the area in which they supervise.

Aircraft Instrument Repair

"Air Force regulations governing discipline place extreme emphasis on accomplishing the task at hand, instead of so much on personal benefits, etc. Assign trainee into his work area 90 days prior to completion of course for on-the-job training and evaluation."

"A. Suggest the present drafting course be replaced with a basic electronic drafting course.
B. More emphasis should be placed on solid state electronics."

"1. De-emphasize fundamental drafting and deal more with electronic drafting, schematic drawing and reading.
2-3. Instrument theory and lab are superflorus for those people who go into photo equipment electronics or electronics. It would help to specialize students in the field that they will enter.
4. Included in the study should be personnel from Hill Air Force Base lecturing on selected subjects to improve the orientation of students prior to graduation."

Aircraft Sheet Metal

"1. Suggest more emphasis be placed on blueprint reading and technical order familiarization.
2. I would recommend trainees be given more opportunity to work on various condemned aircraft components in the classroom, thus enabling them to gain more insight on what will be expected of them after being placed on full-time employment."

"Basic and advanced blueprint reading. Technical order manuals with more emphasis on structural manuals."

"More shop work to determine if the individual is capable of A/C S/M work."

Aircraft Repairman

"Receive training in trouble shooting modern day aircraft hydraulic systems. Rigging of the flight controls and flight controls trouble shooting. Also trouble shooting of modern day aircraft auxiliary systems."

"More training on inspection of parts, components, etc., and technical order manuals."

"More practical experience on jet type aircraft."

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3. France, Edward L. "An appraisal of technical education at Utah State University through a follow-up study of the industrial technology graduates from 1948 through 1958." Master's thesis, Utah State University, 1960 (2).

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A P P E N D I X

QUESTIONNAIRE FOR TRAINEE

This questionnaire is being used to evaluate the program in which you received your W-7 training.

Because of the importance of this study as a guide in the administration of future training programs, your immediate and accurate response to this questionnaire will be greatly appreciated.

Name_____

1. Received your W-7 training at:
   _____Utah State University
   _____Weber State College
   _____Utah Technical College at Provo

2. Received training in the area of:
   _____Aircraft Sheet Metal
   _____Aircraft Repairman
   _____Aircraft Instrument Repair

3. Date of graduation from W-7 training was:

   _____Month _____Year

4. The training you received for this job would rate generally as:
   _____Excellent
   _____Good
   _____Average
   _____Below Average
   _____Poor

5. Have you taken additional training since completion of the above program?

   _____Yes
   _____No

   If "Yes", where?_____ and what was the nature of training?

6. Do you intend to take further training?

   _____Yes
   _____No

7. Has advancement in your job beencurtailed by lack of sufficient training?

   _____Yes
   _____No

8. Present civil service rating:_____

9. Based on the work experience you have had since your W-7 training, select the area in which you were trained and check (✓) one column only indicating the emphasis you would have placed on each subject. (Check every subject in your area)

SUBJECT	More emphasis	Same emphasis	Less emphasis	Omit
AIRCRAFT INSTRUMENT REPAIR AREA				
Mathematics				
Physics				
Drafting				
Electronics Theory				
Electronics Lab				
Instrument Theory				
Instrument Lab				
High Reliability Soldering				
Supervised Study				
Technical Order Manuals				
AIRCRAFT SHEET METAL AREA				
Mathematics				
Drafting				
Blueprint Reading				
Sheet Metal Theory				
Sheet Metal Lab				
Technical Order Manuals				
Supervised Study				
AIRCRAFT ENGINE MECHANIC AREA				
Mathematics				
Basic Electronics				
Drafting				
Technical Order Manuals				
Precision Measurements				
Power Plants Theory				
Power Plants Lab				
Aircraft Structure & Repair Theory				
Aircraft Structure & Repair Lab				
Aircraft Systems Theory				
Aircraft Systems Lab				
Jet Engines Theory				
Supervised Study				

10. Would you give suggestions of subjects, courses, etc., that should be added or strengthened that would better prepare you to perform your job.

QUESTIONNAIRE FOR SUPERVISORS

The following questionnaire has been developed to evaluate the programs used to train the W-7 Trainees who were employed prior to July of 1967.

Because of the importance of this study as a guide in the administration of future training programs, your immediate and accurate response to this questionnaire will be greatly appreciated.

1. Your work is at which of the following levels of supervision:

_____(1) 1st line
_____(2) 2nd line
_____(3) 3rd line
_____(4) 4th line

2. Your supervisory job is over students who were trained in:

_____(1) Sheet Metal
_____(2) Instrumentation
_____(3) Engine Repair

Compare the W-7 trainee with other junior mechanics employed without W-7 training. Make comparison of characteristics listed below as to whether you think the W-7 trainee is far superior, superior, the same, inferior, or greatly inferior to the other junior mechanics employed without W-7 training. Place a check (✓) under your response to each characteristic.

CHARACTERISTICS	Far superior	Superior	Equal	Inferior	Greatly inferior
3. Skill in the use of tools & equipment					
4. Technical subject matter knowledge					
5. Preparation for advancement in grade					
6. General attitude toward his work					
7. Safety habits					
8. Ability to break-in on the job					

9. Based on your supervising experience and association with the W-7 trainee select the area in which you supervise and check (✓) one column only indicating the emphasis you would have placed on each subject. (Check every subject in your area)

SUBJECT	More emphasis	Same emphasis	Less emphasis	Omit
AIRCRAFT INSTRUMENT REPAIR AREA				
Mathematics				
Physics				
Drafting				
Electronics Theory				
Electronics Lab				
Instrument Theory				
Instrument Lab				
High Reliability Soldering				
Supervised Study				
Technical Order Manuals				
AIRCRAFT SHEET METAL AREA				
Mathematics				
Drafting				
Blueprint Reading				
Sheet Metal Theory				
Sheet Metal Lab				
Technical Order Manuals				
Supervised Study				
AIRCRAFT ENGINE MECHANIC AREA				
Mathematics				
Basic Electronics				
Drafting				
Technical Order Manuals				
Precision Measurements				
Power Plants Theory				
Power Plants Lab				
Aircraft Structure & Repair Theory				
Aircraft Structure & Repair Lab				
Aircraft Systems Theory				
Aircraft Systems Lab				
Jet Engines Theory				
Supervised Study				

10. Would you give suggestions of subjects, courses, etc., that should be added or strengthened that would better prepare the trainee to perform his job.

VT 007 778
Olien, C.; Donohue, G.A.
Occupational and Educational Attainment of Women as Related to High School Occupational Expectations and Background Factors.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - nd 15p.

EDUCATIONAL SOCIOLOGY; STUDENT CHARACTERISTICS; *LONGITUDINAL STUDIES; *WOMENS EDUCATION; EDUCATIONAL RESEARCH; EDUCATIONAL INTEREST; ACADEMIC ACHIEVEMENT; OCCUPATIONAL ASPIRATION; *OCCUPATIONS; *FEMALES; RURAL URBAN DIFFERENCES; *SOCIOECONOMIC BACKGROUND; EDUCATIONAL MOBILITY; OCCUPATIONAL MOBILITY

The effects of sociocultural stimuli on the occupational and educational expectations and attainments of women were studied. Data from a 1956 study of 1,780 graduating seniors from 20 Minnesota high schools were collated with data from a 1963 followup of 87 percent of the original sample to allow for longitudinal analysis. The data indicated that: (1) occupational expectations were significantly related to occupational attainment, (2) occupational expectations do not differ significantly by residence, (farm, open country, town), but occupational attainment does, (3) daughters of white-collar workers realize higher levels of occupational attainment than daughters of blue-collar workers, (4) the relationship of educational attainment to educational expectations was high, (5) educational attainment by residence differs significantly, with the lowest percentage of college attendance among farm girls, and (6) the educational attainment of girls is significantly related to the education of both parents. It was concluded that the factors which contribute to differential levels of occupational and educational attainment of males are basically the same for females. Statistical tables are included in the document. (FP)

VT 007 778

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OCCUPATIONAL AND EDUCATIONAL ATTAINMENT OF WOMEN AS RELATED TO HIGH SCHOOL OCCUPATIONAL EXPECTATIONS AND BACKGROUND FACTORS

C. Olien and G. A. Donohue [1/]

Women are playing an increasingly important role in the occupational structure of the nation. By 1970, it is estimated there will be 30 million in the labor force, about seven million more than in 1960. This would be a 31.1 percent increase compared to a 17.2 percent increase in male workers. Of women between 20 and 65 years of age, two out of five will be in the labor force, or looking at it from a different perspective, one worker out of every three will be a woman. More than half the women in the 45-54 year age group were in paid employment in 1963 and over 60 percent of all women working are married.[2/]

Questions arise as to whether the occupational attainments of women in the labor force coincide with their occupational expectations upon graduation from high school, what they expect from their jobs, and whether they are satisfied with them. Also, how important are certain background factors such as father's occupation, parents' educational levels, residence, and type of area in influencing their educational and occupational attainments.

While women are employed in all occupational classifications, in "Manpower" reports they are represented proportionately three times more than men in the

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1/ Department of Sociology, University of Minnesota.

2/ American Women, Report of the President's Commission of the Status of Women, 1963. Women's Bureau of the Department of Labor or Superintendent of Documents, United States Government Printing Office, Washington, D. C.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT007778

service occupations and over four times more in clerical and kindred occupations.[3/] While only a slightly higher proportion of women than men are in the professions as a whole, they are represented four times more than men in the teaching profession below the college level.

Traditionally women have remained in school longer than men at the high school level and have had a median level of education above men in our society in both rural and urban areas. This differential appears to be disappearing, while the proportion of higher education degrees granted women at the B.A., M.A., and Ph.D. levels has decreased sharply since the 1930's.[4/]

Gross points out that current trends for women in the labor force are dynamic with increased labor saving devices in the home and in the plant creating time and employment opportunities. Women are increasingly considering their employment as permanent and identifying with their work.[5/]

Most of the research on occupational choice has been focused upon males with occasional secondary analyses for women. The growing proportion of women in the labor force and their gradual emancipation from restricted employment opportunities appears to warrant increased attention since the sociological implications for social organization and behavior may rest in part with working women.

Present Research

Assuming that women as well as men are subjected to socio-cultural stimuli consisting of such factors as attitudes and status of parental family, peer groups,

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3/ Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training by the United States Department of Labor, March 1964. Superintendent of Documents, United States Government Printing Office, Washington, D. C.

4/ American Women, op. cit., pp. 10-11

5/ Gross, Edward, Industry and Social Life, William C. Brown Co., Iowa, 1965, pp. 28-35.

and other reference groups, they may be expected to develop occupational expectations in accordance with these stimuli and their frequency and intensity of association with them.

Sewell and Orenstein indicate that the definition of the employment situation for women is a restricted one, especially in rural areas, compared to that for men and forces rural girls to consider essentially the same occupations as urban girls.[6/] One may ask whether or not the limited occupational structure of the rural community might not also have the same effect on males, practicularly when modern means of communication expose individuals, regardless of sex, to a wider range of opporutnities in society at large.

It would appear that women, while influenced by factors associated with the female subculture, would have occupational and educational attainment limited or enhanced by community, family, and other socio-cultural factors which they share with males.

The immediate concern of this paper is with occupational and educational attainment as they relate to expectations, residence, father's occupation, and parents' education.

Method

This paper draws upon data collected from twenty Minnesota high schools in 1956. Questionnaires were administered to 1,780 graduating seniors during April and May. Information was gathered on occupational and educational plans as well as plans for migration. Analysis of the 1956 data are available in

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6/ Sewell, William H., and Orenstein, Alan M., "Community of Residence and Occupational Choice," American Journal of Sociology, Vol. LXX, March 1965, p. 563.

a number of earlier reports.[7/] A follow-up study of males was conducted in 1958.[8/]

In 1963, data were gathered by means of a mailed questionnaire. Of the 1956 female graduates, current addresses of 87 percent were obtained. Of those for whom addresses were available, 91 percent completed and returned questionnaires. This represents 77.5 percent of the seniors who participated in the 1956 study.

Data from the 1956 study were collated with data from the 1963 study to allow for longitudinal analysis.

The dependent variable of occupational attainment included in this paper is measured by present occupation or last job held as classified by the Alba Edwards Scale. Educational Attainment, the second dependent variable, was measured by years and type of education reported by respondents.

Chi square and contingency coefficients were used in analysis of the data.

Occupational Expectations

Immediately prior to graduation it appears that a reality assessment tempers earlier aspirations.[9/] On the other hand, the general lay adult notion

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7/ Carroll, Thomas E., "A Comparative Study of the Attitudes Towards Social Institutions of a Group of Farm Operators and a Group of Urban Proprietors," unpublished Master's thesis, University of Minnesota, 1958; Khan, B.M. Abdul Majeed, "Occupational Aspirations of Northeastern Minnesota Farm Boys, 1956," unpublished Master's thesis, University of Minnesota, October, 1957; Nelson, Lowry, The Minnesota Community: Country and Town in Transition, the University of Minnesota Press, Minneapolis, 1960, pp. 130-44; Olien, Clarice, "Factors Associated with the Occupational Expectations of High School Senior Girls from Selected Schools in Minnesota," unpublished Master's thesis, University of Minnesota, May, 1962; Taves, Marvin J., Mobility Among High School Graduates, Sociology of Rural Life Scientific Series No. 4281, University of Minnesota Agricultural Experiment Station, St. Paul, Minnesota, November, 1959.

8/ Coller, Richard Walter, "Geographic Mobility of Selected Rural Minnesota Male High School Graduates," unpublished Ph.D. thesis, University of Minnesota, March, 1959; Khan, B.M. Abdul Majeed, "Occupational Aspirations and Social Mobility of Selected Rural Minnesota Male High School Graduates," unpublished Ph.D. thesis, University of Minnesota, January, 1959; Taves, Marvin J., and Coller, Richard W., In Search of Opportunity: A Study of Post High School Migration in Minnesota, University of Minnesota Agricultural Experiment Station Technical Bulletin No. 247, St. Paul, Minnesota, 1964.

9/ Ginsberg, Eli, et.al., Occupational Choice: An Approach to a General Theory, New York: Columbia University Press, 1951.

holds that at the time of graduation most youth do not know what they might expect.

The data indicate that occupational expectations were significantly related to occupational attainment ($p < .001$, $\bar{c} = .69$). Those with clerical expectations attain such occupational status in 84 percent of the cases compared with 48 percent of those with professional expectations and 56 percent of those with expectations in the skilled, semi-skilled and unskilled or "blue collar" occupations.

The divergence from expectations is greatest for the professional category and least for the clerical. The results indicate a relatively high reality assessment among the respondents.

Residence

Analysis of occupational expectations by residence upon graduation from high school (farm, open country, town) indicates that expectations do not differ significantly, which would support Sewell's and Haller's findings.[10/] Professional expectations are manifested by 55 percent of the town, 44 percent of the open country, and 45 percent of the farm girls.

The data on occupational attainment by residence do differ significantly ($p < .001$, $\bar{c} = .24$) with 30 percent of the town residents attaining professional occupations compared to 21 percent of the open country and 15 percent of the farm residents.

About one-third of the farm females with professional occupational expectations realized them compared to 55 percent of the town women and 50 percent of the open country women.

10/ Haller, Archie O., and Sewell, William H., "Farm Residence and Levels of Educational and Occupational Aspiration," American Journal of Sociology, Vol. LXII, January, 1957, pp. 407-411.

On the basis of this preliminary analysis, without controls, these data would indicate that residence, particularly farm residence, becomes a factor in occupational attainment for females as well as for males.

Father's Occupation

Classifying father's occupation by the Alba Edwards occupational scale, occupational attainment differs significantly ($p < .001$, $\bar{c} = .37$). Daughters of professionals realized professional, managerial or official positions in 69 percent of the cases compared to 17 percent of the daughters of farmers. About equal proportions of the farm, unskilled and semi-skilled groups were in the three occupational attainment groups (professional, managerial, proprietors and officials; clerks and kindred workers; semi-skilled and unskilled). The data indicate that daughters of "white collar" workers realize higher levels of attainment than "blue collar" workers, with farmers' daughters having the lowest level of attainment.

Since most of the farm women would have attended schools in which there were open country and town girls among the students, it would appear that the farm family situation must be characterized by stimuli which have an impact upon attainment similar to that found in the "blue collar" occupations. The general contention that the farm family provides a setting in which ambition, initiative and self-realization are cultivated are not borne out by these data. While the knowledge of job opportunities and their availability may result in no significant difference among expectations, it does not result in high occupational attainment for farm girls.

According to Lipset[11/] the level of expectation is a product of environmental stimuli and knowledge of alternatives which in turn results in higher levels of

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11/ Lipset, S. Martin, "Social Mobility and Urbanization," Rural Sociology, September-December, 1955, pp. 220-228.

achievement. Assuming Sewell is correct in explaining the universality of knowledge of female job opportunities and assuming Lipset is correct, one would hypothesize higher levels of occupational attainment among farm girls. On the basis of these data, this notion must be rejected.

Educational Attainment

Educational Expectations

While the relationship between occupational attainment and occupational expectations was high for girls, the relationship of educational attainment to educational expectations was even higher ($p < .001$, $\bar{c} = .81$). Of those who expected to attend college, 76 percent did go to college, 10 percent to vocational school and 14 percent failed to attend. Educational expectations and attainment coincided in 84 percent of the cases for those who planned no further education. Half of those who planned to go to a vocational school did not obtain any further schooling. It appears that among girls, the commitment to go to college or not continue beyond high school is a stronger commitment than attendance at vocational school. In most instances, the commitment to college is understandable since college entrance applications and examinations are completed during the latter part of the senior year. In the case of vocational schools such commitments are seldom required.

Of those who went to college, 43 percent completed four year degrees, 8 percent completed three year degree programs, and 5 percent completed two year degree programs. The remainder did not complete degree programs but attended from one to four years. Forty-eight percent of the women took no education beyond high school.

Residence

Educational attainment by residence differs significantly ($p < .01$, $\bar{c} = .21$) with the lowest percentage of college attendance among farm girls. About equal proportions of open country and farm girls (57 and 56 percent) did not go beyond high school, but of those who did go beyond, in the open country group a larger percentage went to college than was the case for the farm group. Town girls went to college in 42 percent of the cases compared to 33 percent of the open country and 26 percent of the farm girls. Farm and town girls reported more attendance at vocational schools than did open country girls.

The differences in attendance at the college level among farm girls compared to both open country and town girls may be the factor which accounts for their low occupational attainment in the higher status occupations for which college is an entrance requirement.

Farm girls, while having the same occupational expectations as town and open country girls, do not share their educational expectations, consequently they do not equal their educational or occupational attainments. Perhaps the rural farm subculture still clings to a notion concerning the value of education as being nominal for the female and not necessary in her expected role as housewife or for nonprofessional type occupations in which most rural women work.

Parents' Education

The educational attainment of girls is significantly related to the education of both parents. Daughters of fathers with college degrees went to college in 88 percent of the cases compared to 26 percent of those whose fathers had less than eight years of education.

A higher percentage (81) of daughters whose mothers had some college went on than did those whose mothers had completed college (68 percent).

The data on education of parents indicates quite clearly that the daughter of parents who have gone to college goes beyond high school in her education. The majority of those whose parents had ten years or less of education did not go beyond high school.

The lower educational attainment of farm residents compared to urban residents may contribute to a restrictive factor for farm girls of greater significance than any of the traditional discriminatory factors against women in the labor force.

Summary

The foregoing is a preliminary analysis of several factors. Further data processing is underway using partial analysis of these and other factors.

There is an indication, however, that the factors which contribute to differential levels of occupational and educational attainment of males are basically the same for females. It appears that failure to place emphasis upon educational attainment for farm girls and daughters of "blue collar" workers establishes a barrier to occupational attainment and a failure to realize shared expectations.

Occupational Attainment by Occupational Expectations

Occupational Attainment	Occupational Expectations: Professional, proprietors, managers and officials (N=268)	Clerks and kindred workers (N=225)	Skilled, semi-skilled, unskilled (N=36)
		Percentages	
Professional, proprietors, managers, and officials	48	3	8
Clerks and kindred workers	41	84	36
Skilled, semi-skilled, unskilled	11	13	56
Totals	100	100	100

$p < .001$

$\bar{c} = .69$

Occupational Expectations by High School Residence

Occupational Expectations	High School Residence: Town (N=361)	Open Country (N=64)	Farm (N=123)
		Percentages	
Professional, proprietors, managers, and officials	55	44	45
Clerks and kindred workers	38	50	49
Skilled, semi-skilled, unskilled	7	6	6
Totals	100	100	100

$p < .20$
NS

Occupational Attainment by High School Residence

Occupational Attainment	High School Residence: Town (N=384)	Open Country (N=71)	Farm (N=143)
		Percentages	
Professional, proprietors, managers, and officials	30	21	15
Clerks and kindred workers	56	58	59
Skilled, semi-skilled, unskilled	14	21	26
Totals	100	100	100

$p < .001$

$\bar{c} = .24$

Occupational Attainment by Father's Occupation

Occupational Attainment	Father's Occupation						
	Professional (N=32)	Proprietors, managers, and officials (N=119)	Clerks and kindred workers (N=39)	Skilled (N=117)	Semi-skilled (N=103)	Unskilled (N=42)	Farmers (N=103)
	Percentages						
Professional, proprietors, managers, and officials	69	36	36	20	19	17	17
Clerks and kindred workers	25	51	51	65	56	59	58
Skilled, semi-skilled, unskilled	6	13	13	15	25	24	25
Totals	100	100	100	100	100	100	100

$p < .001$

$\bar{c} = .37$

Educational Attainment by Educational Expectations

Educational Attainment	Educational Expectations: College (N=257)	Vocational and other (N=163)	No further education (N=173)
		Percentages	
College	76	18	5
Vocational and other	10	32	8
No further education	14	50	87
Totals	100	100	100

$p < .001$

$\bar{c} = .81$

Educational Expectations by High School Residence

Educational Expectations	High School Residence		
	Town (N=380	Open Country (N=66)	Farm (N=139)
		Percentages	
College	48	37	33
Vocational and other	27	27	27
No further education	25	36	40
Totals	100	100	100

$p < .01$

$\bar{c} = .23$

Educational Attainment by High School Residence

Educational Attainment	High School Residence		
	Town (N=409)	Open Country (N=73)	Farm (N=152)
		Percentages	
College	42	33	26
Vocational and other	15	10	18
No further education	43	57	56
Totals	100	100	100

$p < .01$

$\bar{c} = .21$

Educational Attainment by Father's Education

Educational Attainment	Father's Education					
	College graduate (N=48)	Some college (N=46)	High school graduate (N=113)	11 years (N=44)	9-10 years (N=89)	8 years or less (N=246)
	Percentages					
College	88	57	40	46	34	26
Vocational or other	8	15	20	11	12	18
No further education	4	28	40	43	54	56
Totals	100	100	100	100	100	100

$p < .001$

$\bar{c} = .42$

Educational Attainment by Mother's Education

Educational Attainment	Mother's Education					
	College graduate (N=75)	Some college (N=69)	High school graduate (N=134)	11 years (N=65)	9-10 years (N=84)	8 years or less (N=176)
	Percentages					
College	68	81	34	29	27	20
Vocational or other	12	4	22	23	11	16
No further education	20	15	44	48	62	64
Totals	100	100	100	100	100	100

$p < .001$

$\bar{c} = .50$

VT 007 855
Nichols, David Carter
A Comparative Study of the Performance of Foothill College School of Nursing Graduates Versus Diploma and Baccalaureate Graduates Working at El Camino Hospital.

DOCUMENT NOT AVAILABLE FROM EDRS.
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The performance of 23 graduates of the 2-year nursing program of Foothill College (study group) was compared with that of 22 nurses from 3-, 4-, and 5-year programs (control group). Nurses in both groups had been initially employed by El Camino Hospital between September 1, 1963 and February 2, 1966 and an effort was exerted to equate previous experience as a registered nurse in the selection of control group members. All members of the study group were from the county in which the hospital was located; one-fourth of the control group was from out of state. The study group was older and more members were married. Factors utilized as indicators of performance were employment placement within the hospital organization by the nursing service administration, retention rates, turnover rates, employee accident rates, absentee rates, sickness absenteeism rates, medication errors, employee evaluation, and advancement. Significant differences were evidenced in retention and advancement rates, both of which were higher for the control group. There were no other significant differences. (JK)

VT 007855

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A COMPARATIVE STUDY OF THE PERFORMANCE OF FOOT-HILL COLLEGE SCHOOL OF NURSING GRADUATES .....

David C. Nichols, 1966

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A COMPARATIVE STUDY OF THE PERFORMANCE OF FOOTHILL COLLEGE SCHOOL OF NURSING GRADUATES VERSUS DIPLOMA AND BACCALAUREATE GRADUATES WORKING AT EL CAMINO HOSPITAL

by

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I. INTRODUCTION

A. BACKGROUND

"Nursing, within the framework of higher education, has been influenced by the dislocations following World War II, by the need to reevaluate its educational patterns, by the rapidly increasing accumulation of knowledge, by the need and demand of more people for more education, by the increasing life span and demands for many services including health services."[1/] To offset these influences, educational institutions are becoming increasingly important and continually having to revive and change their approach to nursing education, as only the school exists primarily for education and has primary responsibility to the student. One of the most exciting and profoundly important of these developments has been that of the initiation and successful trials of associate degree nursing programs in the two-year junior colleges. "Representing a major breakthrough in the health education field, the two-year nursing programs contribute literally to the very health and vigor of the American people."[2/]

As the demand for nursing service continues to rise, due to both the increase in population and to the social changes, there is a greater demand for the services nurses render. The national demand for an occupational education program that would prepare men and women as registered nurses following two years of study and training

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1/ Virginia Barham, "Some Thoughts on Nursing Education" (San Francisco, 1965, mimeographed).

2/ Bernice E. Anderson, Nursing Education in Community Junior Colleges (Philadelphia: J. B. Lippencott Company, 1966) p. VII.

experience, reached a peak in the 1950s.[3]

In 1957, when the California Legislature approved the basic two-year course of professional nursing education, it adopted the following declaration of intention:

> "The Legislature finds that there is a serious shortage of professional nurses prepared to do bedside nursing. It is the intent of the Legislature to establish pilot programs by authorizing the Board of Nurse Examiners, for a provisional period, to accredit and maintain a continuing evaluation of not less than two-year courses in professional nursing education."[4]

This "continuing evaluation" and approval of the two-year courses reached the point where in September, 1965, California had 32 associate degree programs in community junior colleges.

The term, bedside nursing, as used above, has frequently been referred to as the kind of nursing that is taught by these new programs. Bedside nurse is intended to imply certain limitations of activity that differentiate the role of this nurse and that of the nurse with broader professional preparation.[5] The "professional nurse", on the other hand. performs complex functions which include directing the nursing team. The preparation of this nurse would

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[3] Ibid.

[4] Board of Nursing Education and Nurse Registration. Laws and Regulations Relating to Nursing Education - Licensure - Practice. (Sacramento, California, January, 1963) p. 23.

[5] Mildred L. Montag, Community College Education for Nursing (New-York, McGraw-Hill, 1959) p. 2.

legitimately be carried on within the university or college and lead to a baccalaureate degree.[6]

Finally, the technical, or "bedside nurse" and the "professional nurse" are joined by the diploma school graduate who at the time of her graduation has had considerable experience as a worker. Nurses with such experience have had many opportunities to practice nursing skills, procedures and techniques. At graduation, most diploma program graduates are considered fully prepared practioners in the hospital in which they received their training. To a degree, then, their training resembles that of the two-year graduates. In fact, the trend and feeling today is that the associate degree and diploma schools have the same purpose and serve the same function - to produce "bedside nurses".[7]

B. SCOPE OF THE STUDY

"The ultimate criterion for the success or failure of the project is the nursing performance of the graduates."[8] In a sense, each new associate degree program in nursing is a project. Each program reflects the unique aspect of the individual setting in which it evolved. This factor contributes to its growth and success.

The major obstacle to evaluating the nursing performance of graduates of the two-year programs, or any nursing program, is the

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[6] Ibid, p. 135.

[7] Opinion expressed by F. Marian Roberts, Director of the Foothill College Nursing Program, April, 1966.

[8] Montag, op. cit., p. 132.

absence of a yardstick that can be used to measure the quality of that nursing performance. "We do not yet have a nationally usable instrument with norm at different levels of experience which can be used to describe performance of either students or graduates in behavioral terms."[9] Performance, however, can be evaluated in relative terms. In other words, the objective can be to compare the nursing performance of graduates of the two-year programs with graduates of other types of programs, under similar circumstances. This study will compare graduates of one two-year program - Foothill College - with graduates of "other" nursing programs, under a similar circumstance.

C. ROLE OF EL CAMINO HOSPITAL

At approximately the same time, the residents of Northern Santa Clara County felt the need for a community college and for a hospital to serve their area. In 1957, the Foothill Junior College District was formed by a Citizens Committee in the State Department of Education. That same year, following the formation of the El Camino Hospital District, the same residents voted in a bond election for $7,300,000 to construct an acute general hospital. El Camino Hospital opened September 1, 1961 with a total capacity of 307 beds and 60 bassinets. Today, in 1966, it has grown to 448 beds and serves the fast-growing communities of Los Altos, Los Altos Hills, Mountain View, Sunnyvale, and some unincorporated areas.

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[9] Ibid., p. 137.

In its continual role of serving the community the Hospital supported, from the beginning, the nursing program begun at Foothill College in 1961. Working closely with the College, El Camino Hospital provides clinical experience for the nursing students, who divide their work-training experience between El Camino and Palo Alto-Stanford Hospital in Palo Alto. Twenty-three of the fifty-three nurses who have graduated from the Foothill Program since 1963, and who became licensed registered nurses, have either worked or are now working at El Camino Hospital.

Although these RNs have the "benefit" of not having to adjust to a totally new environment when they come to work at El Camino Hospital, this factor should not be weighed heavily as an advantage to potential performance as a nurse at this Hospital. First of all, as a general acute hospital in this country today[10/]), most of the other RNs come from roughly the same organizational and structural environment. Furthermore, any advantage the Foothill graduate has in adjusting to this environment is further negated when one remembers that they are under close surveillance as students, that they usually go on to a night shift when they start work with the Hospital, that they are usually working with much larger groups while in school, and that they are generally "on their own" for the first time when coming to El Camino Hospital.

"Our culture has provided a team approach to nursing care because of the technological advances, and the vast body of knowledge

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[10/] Statement by F. Marian Roberts, personal interview, April, 1966.

which has resulted in fields of specialization, as well as the growing number of patients and varieties of settings in which nursing care is given."[11] As mentioned, this approach is currently used at El Camino Hospital. During the summer of 1963, the same year the first nurses were graduating from Foothill, a new director of nursing was employed by the Hospital. The practice of team nursing was not being utilized by the Nursing Department prior to her arrival.

D. SETTING UP THE SAMPLE

1. Study Group

From September 1, 1963, when the first class graduated from the Foothill College School of Nursing, through February 28, 1966, twenty-four (24) graduates from this program were employed by El Camino Hospital. One graduate nurse from this group failed to pass the State Nursing Board Examination. She will not, therefore, be part of the sample, as qualifying on State Boards represents a "minimum knowledge of the profession",[12] and it is a basic assumption of this study that all members of the sample have reached this minimum level and are licensed registered nurses.

These twenty-three (23) two-year graduates will, by definition, be known, hereafter, as the Study Group.

2. Control Group

Technically, this sample should be picked at random from

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[11] Barham, op. cit.

[12] Statement by Virginia Barham, State Nursing Education Consultant, personal interview, March 7, 1966.

the total of those nurses meeting the basic requirements for the comparison, namely, any registered nurse working at El Camino, or having worked in the past at El Camino, who is a graduate of a diploma school program or a bachelor's degree program. However, to provide a situation in which the two groups could be compared on a relatively equal basis, save educational background, which is the real intent of the study, certain conditions or qualifications had to be met by members of this Control Group.

In the first place, the RN had to be initially hired by the Hospital during the September 1, 1963 to February 2, 1966 period. At approximately the same time Foothill College was graduating its first nursing school class, El Camino was hiring a new director of nursing and, with her, new philosophies and ideas on nursing, some of which have been discussed already, such as team nursing. It is obviously essential to evaluate the performances of staff nurses who have been subjected to the same nursing organization and hierarchy.

A second criteria incorporated into the sample was that the RNs from these "other" programs bring with them the same amount of previous experience working as an RN as the nurses from the Foothill program had when they began work here. By equating this "experience factor", it is obvious that many unknown influences that might effect the RNs' performance while at El Camino are eliminated.[13/]

In all cases but one, nurses from the two-year program were experiencing their first job as an RN when they began working at

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[13/] Montag, op. cit., p. 396.

this Hospital. Twenty-two (22) nurses from the "other" programs with the same amount of experience, or lack of experience, did not exist. But it was surprisingly close. The following represent the least experienced RNs hired during this 30-month period, exclusive of any two-year graduates hired; and becomes the Control Group. As can be seen, nine nurses in this group had previous experience, although minimal, compared with one RN from the Foothill program.

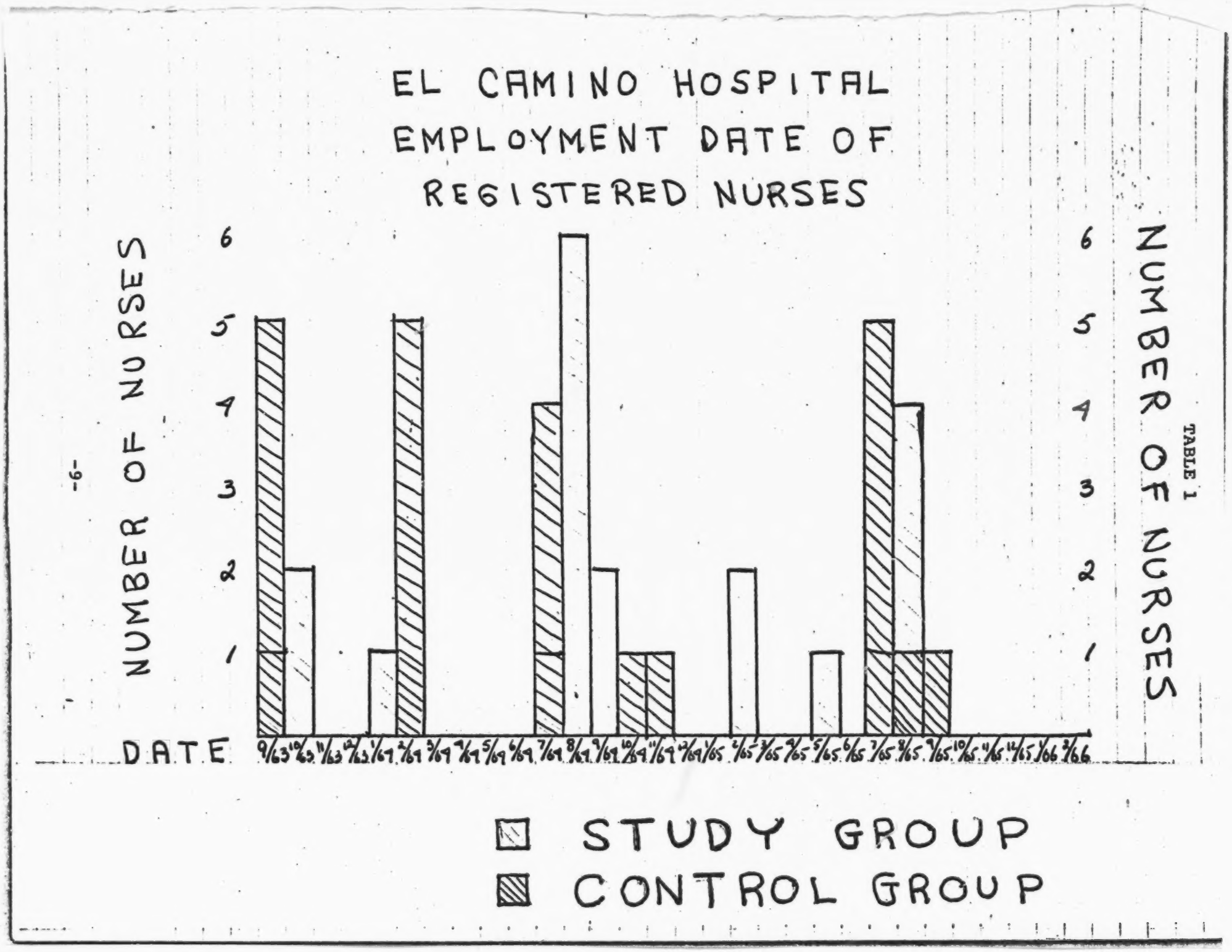
Control Group

No. of RNs Hired	Months of Previous Experience
14	0
1	1
3	2
5	3

When both samples were completed it was surprising to note that the dates of employment were distributed fairly evenly. That is, approximately the same number of RNs from the Study Group were hired as from the Control Group during 1963; 1964; and 1965. This distribution is illustrated in Table 1.

The first factor to be examined, placement, was chosen no because it reflects the past performance of the nurse or nurses being hired, which was impossible, as in only a few exceptions had any of these RNs had any previous work experience, but rather because placement reflects, to a degree, the attitudes and current policies of the Nursing Department toward graduates of the various programs. These attitudes and policies are shaped by past performances of and previous experiences with other graduates of these programs.

TABLE 1


EL CAMINO HOSPITAL
EMPLOYMENT DATE OF
REGISTERED NURSES
NUMBER OF NURSES
1
2
3
4
5
6
DATE
9/63 10/63 11/63 12/63 1/64 2/64 3/64 4/64 5/64 6/64 7/64 8/64 9/64 10/64 11/64 12/64 1/65 2/65 3/65 4/65 5/65 6/65 7/65 8/65 9/65 10/65 11/65 12/65 1/66 2/66
STUDY GROUP
CONTROL GROUP

II. INDICATORS OF PERFORMANCE

A. PLACEMENT

1. Hospital Policy

A recent graduate of a nursing program will usually have strong ideas about where she would like to put her training into practice. She will, therefore, nearly always designate a particular area or areas in a hospital she wishes to work in when applying for a job. It is felt that RNs with experience in hospital nursing are more flexible about what services they will work in.[14/]

An RN applying for a job at El Camino has "available" to her all major acute general hospital services (medical, surgical, orthopedic, pediatric, labor and delivery, OB-GYN, nursery, emergency and operating-recovery rooms), in addition to psychiatric, intensive care, and coronary care units.[15/]

In this study 33 of the 46 recent graduates indicated a desire for one or more of these particular sections of the Hospital (see Table No. 2). Twelve stated they would work in any area of the Hospital and one requested on-call assignments.

Nursing Service at El Camino prefers placing any staff nurse who is a new graduate into an area of the Hospital that will expose her to as wide a variety of duties and responsibilities as possible, such as a medical, surgical, or orthopedic floor. This policy does not prove inconsistent with the background and training registered

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14/ Opinion stated by Assistant Director of Nursing, El Camino Hospital, April, 1966.

15/ Coronary Care Unit opened November, 1965.

nurses receive today in nearly all of the programs. Foothill College's nursing program emphasizes these same clinical areas as do most of the "other programs", only of course, Foothill's is over a shorter period of time.[16] They offer extensive exposure to medical, surgical, obstetrical, pediatric, and psychiatric services, at both El Camino Hospital and Palo Alto-Stanford Hospital, along with some exposure to the delivery rooms and intensive care unit. An orientation is the extent of their rotation through the operating and recovery rooms, however.

In nearly all cases, placement, whether of the nurse's choice or not, depends entirely on what is available at the time. Exceptions in staffing a unit to meet an individual's need or request are not made at this hospital if the desired position is not open. Staffing patterns are based on a unit's need and not on the individual's desire, and for this reason it is not practical to use staff-mix ratio as a tool for evaluating placement or performance of a nurse or group of nurses.

2. How Nurses Were Placed

Table 2 shows that 17 nurses (74%) from the Study Group were placed in areas they had requested. An RN not specifying here a particular section of the hospital was given an "any service" classification. Thus, any assignment was considered a "positive" selection for her. Twenty-one, or 91%, of all nurses from the Control Group were given their first choice. The difference between

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[16] Statement by Director, Foothill College School of Nursing, April, 1966.

TABLE 2

PREFERRED SERVICE AND ACTUAL SERVICE
OF REGISTERED NURSES

Study Group				Control Group			
Service Requested By Nurse	Shift	Service Requested By Nurse	Shift	Service Requested By Nurse	Shift	Service Requested By Nurse	Shift
Medical	3-11	Medical	3-11	Medical	11-7	Medical	11-7
Med-Surg	7-3	Surgical	7-3	Medical	7-3	Medical	3-11
Med-Surg	3-11	Medical	3-11	Medical	7-3	Medical	11-7
Med-Surg	7-3	Surgical	7-3	Med-Surg	7-3	Surgical	3-11
Med-Surg	7-3	Medical	7-3	Med-Surg	7-3	Orthoped	11-7
Med-Surg	3-11	Medical	3-11	Med-Surg	7-3	Surgical	7-3
Surgical	3-11	Surgical	3-11	Med-Surg	7-3	Medical	7-3
Surg, OB	7-3	Surgical	3-11	Med-Surg	7-3	Medical	7-3
Ortho-Del	7-3	Intens Care	11-7	Med-Surg	7-3	Medical	7-3
Peds	7-3	Peds	7-3	Med-Surg	7-3	Surgical	11-7
Peds	7-3	Rec Room	7-3	Peds	7-3	Peds	7-3
Ped-Nurs	3-11	Emergency	3-11	Peds	7-3	Medical	3-11
Nursery	3-11	Peds	3-11	OB-Nurs	7-3	OB-GYN	7-3
Nurs-Mat	3-11	Peds	7-3	Nursery	7-3	Nursery	3-11
Labor & Del	7-3	Intens Care	7-3	Psych	11-7	Psych	11-7
Labor & Del	7-3	Labor & Del	7-3	Any Service	7-3	Medical	11-7
Emergency	7-3	Emergency	7-3	Any Service	3-11	Medical	3-11
Intens Care	3-11	Intens Care	3-11	Any Service	11-7	Medical	11-7
Any Service	7-3	Medical	7-3	Any Service	3-11	Medical	3-11
Any Service	11-7	Medical	11-7	Any Service	7-3	Medical	7-3
Any Service	7-3	Medical	7-3	Any Service	11-7	Intens Care	11-7
Any Service	7-3	Orthoped	3-11	Any Service	11-7	Medical	11-7
On-Call	7-3	On-Call	7-3	Any Service	7-3	Peds	7-3

SOURCE: "Record of Interview" with Directors of Nursing.

the two groups might very well be in the fact that graduates of the three, four and five-year programs appear to be more flexible in accepting work assignments and thus more are found in the category, "any service".

Whether this fact or any other fact influences the placement of nurses to any great extent, is pure conjecture at this point, as again, the overriding factor that decides where to place a new RN is availability. For this reason, small weight must, of necessity, be given to this data as a means for evaluating past performance, and ideed, current policy and procedures in the nursing office.

Perhaps more significant in the information presented in Table 2 is the apparent willingness on the part of nursing service to place two-year graduates in special units of the Hospital, such as ICU or the delivery room. The Foothill graduate, whether of choice or not, has not been restricted as to where she might begin her responsibilities at El Camino Hospital.

It is well known that a majority of nurses prefer working the "convenient" hours of the day shift, in spite of the salary shift differential. The experience at this Hospital has been no different.[17/] El Camino, unlike many hospitals, does not have rotating shifts. As a result, job openings on the 7-3 shift are normally more in demand and thus much harder to get than those available on the evening and night shifts. Nurses often wait months to be "promoted" to the day shift. Many will sacrifice the area they wish to work in just to get on this shift.

[17/] Statement by Assistant Director of Nursing, El Camino Hospital, April, 1966.

It is no wonder then, that well over half (30) of all nurses in the sample requested daytime employment. Eighty percent (11 out of 14) from the Study Group had their requests filled. Fifty percent (8 out of 16) from the Control Group were assigned to the day shift. Over-all, 83% of the two-year graduates (19) began work on the shift of their choice. Only 15 (63%) of the staff nurses in the Control Group were placed on the shift they requested. Various related factors such as age and responsibilities, undoubtedly affect the time of day a person wishes to work. These relationships will be explored in some depth at a later point in the paper.

B. RETENTION RATE

A significant difference was found in the average lengths of stay of the two groups. The Study Group had twenty-eight (28) separate employments. The five additional hirings represented a second period of employment in all cases. No RN, in either group, has worked at El Camino Hospital on more than two occasions.

The average length of stay for a Foothill graduate was 256.1 days, or approximately thirty-seven (37) weeks. The employments ran in length from twelve (12) days to 572 days, or one year, seven months. A total of nine (9) RNs remained at the Hospital for longer than a year. At the end of the period under study (2/28/66) fifteen (15) nurses from this group were still employed.

Roughly the same number (10) from the Control Group remained at the Hospital longer than twelve (12) months. For their twenty-five (25) separate employments, however, this sample's average length of

stay was considerably longer - 402.3 days, or roughly fifty-seven (57) weeks. This represents a 54% higher retention rate than the Foothill group. Lengths of employment here ranged from a low of seventy-six (76) days to a high of 883 days, or just one week short of the entire 30-month period. In comparing short stays of employment it was found that nine (9) two-year graduates remained at the Hospital less than three months (90 days), compared to only one from the "other" programs. Fifteen (15) RNs from this group also remain at El Camino.

When working with small samples, like these two groups, a very high or a very low figure can greatly affect any average for the whole group. This was not the case, however, here with the retention rate. Eliminating the highest and lowest lengths of stay in both groups resulted in only a slight drop in the retention rates: from 402 to 396 in the Control Group, and from 256 to 253 in the Study Group.

Testing the difference of the two means (retention rates) provides one indicator for determining whether this difference of sample means is large enough to justify any belief that hiring RNs from the 3, 4, or 5-year programs is more "beneficial" to El Camino than would be taking nurses from the Foothill program. I.e., RNs from the former group will stay at the Hospital longer.

The null hypothesis will assume that there is no difference between the means. Then, "if the sample does reject the hypothesis, one can claim with justification that a real difference in population means exists."[18/]

18/ Paul G. Hoel, Elementary Statistics (New York, John Wiley and Sons, Inc., 1960), p. 114.

Therefore;

$$H_0: \bar{x}_1 = \bar{x}_2 \text{ (NULL)}$$
$$H_a: \bar{x}_1 \neq \bar{x}_2 \text{ (ALTERNATE)}$$

Due to the small sample size, the appropriate student t-test will be used. "For testing, the difference of two means, the theory of students t distribution requires one to assume that the two basic variables x_1, and x_2 (lengths of stay) possess independent normal distributions with equal standard deviations.[19]

Using these assumptions, the variable may then be treated,

$$t = \frac{\bar{x}_1 - \bar{x}_2 - (u_1 - u_2)}{\sqrt{(n_1-1)S_1^2 + (n_2-1)S_2^2}} \sqrt{\frac{n_1 n_2 (n_1 + n_2 - 2)}{n_1 + n_2}} = t$$

as a student t variable with $V = n_1 + n_2 - 2$ degrees of freedom.

First, the standard deviations for the sample must be computed, using the small sample formula:

$$S = \sqrt{\frac{1}{n-1} \sum_{i=1}^{n} (x_1 - \bar{x})^2 f_1}$$

S_1 = Study Group

$n_1 = 28$

$\bar{x}_1 = 256$

$S_1 = \sqrt{\frac{1}{27} \cdot 1{,}118{,}848}$

$S_1 = \sqrt{41{,}437}$

$S_1 = \underline{204}$

S_2 = Control Group

$n_2 = 25$

$\bar{x}_2 = 402$

$S_2 = \sqrt{\frac{1}{24} \cdot 1{,}661{,}616}$

$S_2 = \sqrt{69{,}234}$

$S_2 = \underline{263}$

19/ Ibid, p. 116.

Plugging into the formula, with

$$t = \frac{256 - 402}{\sqrt{(27)(204)^2 + (24)(263)^2}} \sqrt{\frac{(28)(25)(51)}{53}}$$

then;

$$t = \frac{-146}{\sqrt{2,780,415}} \sqrt{673.31}$$

$$t = (-.1)(26)$$

$$t = \underline{-2.6}$$

From the table of student's t-distribution, it is found that the 5 percent $(\alpha = .05)$ critical value of t corresponding to 51 degrees of freedom is 2.01. Since the value - 2.6 falls outside the noncritical interval which extends from -2.01 to +2.01 the null hypothesis is rejected and the alternative accepted.

C. TURNOVER RATE

From September, 1963 through February, 1966, there were thirteen (13) terminations from the Study Group and ten (10) from the Control Group. Based on the American Hospital Associations's classification

of separations,[20] all terminations were voluntary on the part of the employee as follows:

Study Group	Control Group
8 - Acceptance of job elsewhere	5 - Acceptance of job elsewhere
1 - Return to school	0 - Return to school
1 - Ill health	1 - Ill health
1 - Marriage	3 - Marriage
1 - Maternity	1 - Maternity
1 - Dissatisfaction	0 - Dissatisfaction

"From the standpoint of maintaining or increasing the employee's work force, primary interest centers on the separation rate with particular reference to quits."[21] As there were no involuntary separations, it was not necessary to develop separate rates for "quits" and for "total separations". The number of separations during the month divided by the total number of RNs on the payroll in the pay period ending nearest the fifteenth of the month, and the result multiplied by 100, gives the turnover, or separation rate.[22]

$$\text{Separation Rate} = T = \frac{S}{M}\left(\frac{\text{NUMBER OF SEPARATIONS}}{\text{MIDMONTH EMPLOYMENT OF RNS}}\right) \times 100$$

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[20] Separations are further classified according to type: quits (voluntary separations) and discharges, layoffs, and miscellaneous separations (collectively called involuntary separations). American Hospital Association, Personnel Administration in Hospitals and Related Health Care Facilities (Chicago, AHA, 1964), p. 97.

[21] Ibid, p. 99.

[22] Ibid, p. 100.

Here, the denominator is the total number of RNs on the payroll, from the group whose rate is being computed, at the middle of the month. The numerator represents the nurses from that group who terminated during the month.

Here, the problem of converting all positions into full-time equivalents (F.T.E.) had to be considered. A part-time nurse, regardless of her work week, was counted at 1/2 an F.T.E. On-call nurses were considered 1/4 an F.T.E. This formula is used by El Camino's Personnel Department and is recommended by the American Hospital Association.

The average monthly turnover rate for the Study Group was 4.1% and for the Control Group, 2.7%. During the two and a half year period, this amounted to a rate of 32% for the former group and 23% for the latter. The student's t-test is used again to measure the significance of the difference between the two means. The null hypothesis assumes that there is no difference between the means. Then, again, if the sample rejects this hypothesis, a real difference in population means exists.

$$H_0: \bar{x}_1 = \bar{x}_2 \quad \text{(NULL)}$$

$$H_a: \bar{x}_1 \neq \bar{x}_2 \quad \text{(ALTERNATE)}$$

$$t = \frac{\bar{x}_1 - \bar{x}_2 - (u_1 - u_2)}{\sqrt{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}} \sqrt{\frac{n_1 n_2 (n_1 + n_2 - 2)}{n_1 + n_2}}$$

$$S = \sqrt{\frac{1}{n-1} \sum_{i=1}^{n} (x_1 - \bar{x})^2 t_1}$$

Sample size (n) in this case is the number of monthly turnover rates for each group (30). Standard deviations are found:

Study

$n_1 = 30$

$\bar{x}_1 = 4.1$

$S_1 = \sqrt{\frac{1}{29} \cdot 1{,}702}$

$S_1 = \sqrt{58.2}$

$S_1 = 7.6$

Control

$n_2 = 30$

$\bar{x}_2 = 2.7$

$S_2 = \sqrt{\frac{1}{29} \cdot 720}$

$S_2 = \sqrt{24.24}$

$S_2 = 4.9$

Plugging into the formula:

$$t = \frac{4.1 - 2.7}{\sqrt{29\,(7.6)^2 + 29(4.9)^2}} \sqrt{\frac{30 \cdot 30 \cdot 58}{30 + 30}}$$

$$t = \frac{1.4}{\sqrt{2378}} \sqrt{870}$$

$$t = .85$$

The table shows that for a 5 percent level of significance ($\alpha = .05$) the critical value of t corresponding to 58 degrees of freedom ($n_1 + n_2 - 2$) is 2.00. Since the value .85 falls inside the noncritical interval which extends from -2.00 to +2.00 the null hypothesis is accepted and the alternative rejected.

Frequently, in computing turnover rates, the number of accessions in a given period is used for the numerator instead of the number of separations or quits. It is felt this provides a better reflection of stability when the number of job positions in an organization is fairly constant. (Separations may reflect unauthorized positions.) El Camino, however, is not a static organization. Since its opening in 1961, new beds and new services, such as a Coronary

Care Unit, have been added at a rapid rate. In September of 1963, 162 full-time RN positions were authorized. Thirty months later that number had risen to 203. Accession rate, therefore, will not be computed.

D. ACCIDENT RATE

Most employers are aware of the problems that employee accidents or injuries create for their organization. At El Camino this concern was recently expressed in the creation of a new department - Health Service. A function of this new area is to "achieve greater operational efficiency and improve patient care and employee morale."[23/] To accomplish this, the number of on-the-job accidents and injuries must be reduced as much as possible. This, in turn, will lower absenteeism, labor turnover, and compensation insurance costs.

As a useful tool for evaluating performance, the accident rate, which is the ratio of incidents to a given period of time, is hindered by, what I feel to be, a small sample size. The total number of accidents reported by both groups during the 30-month period was only 16 (9 from the Foothill sample, 7 from the "others"). This amounted to one injury for every 26 months of work in the Study Group, and a lower rate of once every 47 months, almost four years, for the Control Group. Although a large difference in rates is shown, the small sample size does not merit a statistical test for significant difference.

23/ "The Program and Policies of the El Camino Hospital Health Service" (January, 1966) (mimeographed), p. 2.

It is interesting to note that not one of these occurrences resulted in time lost from the job, other than the amount needed to attend the cut or wound. These figures do not include, by the way, those accidents that do not reflect carelessness on the part of the nurse, such as exposures to meningitis, tuberculosis, acid-fast wounds, and other "noncontrollable" incidents. These types of incidents usually amount to half of the thirty reported that the Hospital averages each month.

E. ABSENTEE RATES

Like most acute general hospitals, El Camino's patient census fluctuates widely from day to day. In order to cut the staff and cut the costs during low periods, the Nursing Service Department has developed a policy of granting periods of "time off", usually a day or two, to a nurse or nurses who are working in areas where the census is low. An "excused" absence, as it is called, may be requested by the nurse herself, or it may be offered by the Nursing office to the nurse. Such absences, naturally, do not go against the nurse on her record. In this respect, they are similar to the granting of a day or two for an important engagement or appointment, provided the Nursing Office knows of it in advance. They are not similar, however, to a Leave of Absence (LOA), which normally represents an extended period of time off (up to 90 days) and can only be requested by a nurse who has been with the Hospital for at least twelve months. An LOA does not guarantee a nurse her job back upon return.

An excused absence, therefore, does not represent a "workday lost", as it was never anticipated to be a workday, once the nurse was granted time off. In evaluating the dependency of a nurse to her

job, then, it is never used to compute the so-called absentee rate. It has the same value as a Holiday or a vacation day, but of course, is of a nonpay nature.

To compute the absentee rate, the following formula is used.

$$\frac{\text{Total number man days lost}}{\text{Total man days scheduled}} \times 100$$ [24]

The numerator represents the total of unexcused absences and sick days, both pay and nonpay (during the first six months of employment no sick leave is paid) for each group. "Total man days scheduled" is computed using days employed by the Hospital, less days of the week off, vacation, leave of absence, holidays and unexcused absences. This is the same as days worked plus days lost equals "man days scheduled".

It was found that for every 100 days scheduled in the Study Group 3.6 were "lost" days. Slightly fewer than this, 2.19, were found in the Control Group. Using, again, the student's t-test for the difference between two means, it is found that t has a value of .09, well within the critical range of +2.02 to -2.02, with a .05 level of significance and 44 degrees of freedom $(n_1 + n_2 - 2)$.

n_1 = number of RNs in Study Group

n_2 = number of RNs in Control Group

There is not a significant difference between the two rates.

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[24] Dale Yoder et al., Handbook of Personnel Management and Labor Relations (New York, McGraw-Hill Company, 1958), p. 1437.

F. SICK RATE

Absenteeism is a usual concomitant of an industry or business. Rates for sickness absenteeism, however, should be computed separately, since these may represent a health rather than a morale problem.[25] It was found that in the Study and Control Groups, 95% and 80% respectively, of all days lost were reported as sick days. Such a high percentage of sick days in the total days absent[26] for both groups raises the possibility of there either being a health problem among these employees or that sick days are not representative of real illness and serve as a catch-all for reasons given for absence by the employee.

Another interesting comparison was made between the absentee rates for these two groups and the results found for other organizations in nationwide surveys. A 2 to 3% absentee rate represents the low extreme for most organizations reporting such rates, with some going as high as 20%. This low rate is more impressive when you add the fact that absentee rates for females in the work force usually run twice as high as for males.[27] (One male is included in the group of 46 RNs.)

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[25] John F. Mee, Personnel Handbook (New York, Ronald Press Company, 1958), p. 484.

[26] Yoder, op. cit., p. 1434.

[27] Mee, op. cit., p. 484.

G. MEDICATION ERRORS

1. Reasons for Error

In the words of the Director of the Nursing Program at Foothill College, "The subject of medication errors is handled in a fairly relaxed atmosphere. The girls aren't threatened but neither is it condoned to make errors. The big thing is follow-up; why it happened and what to do to keep it from happening again."[28/]

This "nonthreatening" attitude also prevails at El Camino Hospital. The new nurse is warned of the dangers of medication errors, told she or her head nurse must report all such errors detected, and instructed in the general procedures of giving medications, such as "the nurse who prepares a medication must be the one to administer it,"[29/] but never openly threatened with loss of her job, or the like. The main deterent to repeated error, at the Hospital, as in the program, is follow-up. One nurse, who had committed several drug errors in a short span of time, was required to take a "refresher course" in the dispensing of medications. She has not repeated an error since, and she is still on the payroll.

The control of medication errors in any hospital is dependent on the ability of that hospital to detect such errors. If errors are not reported, they cannot be known, and there are many reasons why they are not reported. Perhaps the most common, and the most

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28/ Statement by Director of the Foothill College School of Nursing, April, 1966.

29/ "Nursing Procedure Manual" (El Camino Hospital, 1966).

startling reason for a failure to file an incident report of a medication error is that nobody - including the nurse and the patient - realizes that an error has been committed. Furthermore, many nurses fail to report their errors - or anything unusual that happened in the nursing division, for that matter, because they forget about it, they are afraid of what the doctor might say, or they remember their student days when they were outwardly threatened with expulsion from nursing school for committing an error. Most of all, when an error is detected by the nurse, the loss or decline of professional prestige is the most powerful deterent to the reporting of that error.[30]

One study on this problem reported that errors were occurring at a rate that at least every sixth dose administered was in error.[31] This particular project conducted at a large teaching hospital went on to report that their most important find was noting that the vast majority (over 99%) of medication errors are probably unknown to anyone - including the person committing the error.

One out of six medications given in error may be a misleading ratio, however, due to the study's method of reporting what an error to be. It does, nevertheless, serve to point up the large discrepancy between errors actually reported, whether in incident form or otherwise, and errors actually committed.

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[30] William Barry Ferlong, "The Truth About Medication Errors in Hospitals," Hospital Forum (September, 1961), p. 76.

[31] Kenneth Barker, et al., "The Medication Error Problem in Hospitals" (Fayettville, Arkansas, University of Arkansas), 1965.

2. Results of Comparison

From September, 1963 through February, 1966, 29 incident reports for medication errors were filed by the 46 nurses evaluated in this study. Thirteen were from nurses in the Study Group, 16 from the Control Group. Here, the medication error rate, whose basic unit of data (common denominator) is the "opportunity for error" (total "opportunities for error" is the sum of the total number of doses ordered plus unordered doses given), and whose numerator is the number of errors committed, more closely resembles the estimates of 1955 that one medication error in 17,000 medications given was about average.[32/]

Whatever the actual percentage of medications given in error, and the truth more than likely lies somewhere in between these figures, the quantity of incident reports filed for this number of nurses during this period of time is so minuscule that any weight placed on these rates as an indicator of performance would be highly questionable.

An exact medication error rate was impossible to compute as "opportunities for error" are not known and could not be determined except by reviewing the medical records. This, of course, was unfeasible in the time available.

"Repeaters", nurses committing two or more errors, were more common in the Study Group than in the Control Group. Five Foothill graduates were responsible for all medication errors committed in

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[32/] Ferlong, op. cit., p. 76.

their group during the 30-month period, whereas, 13 members of the Control Group were responsible for their 16 errors. Three of the nurses from the former group were working on medical-surgical floors at the time, one in I.C.U., and one in pediatrics. With the exception of one nurse, all medication errors committed by the Control Group were done on medical-surgical floors.

The types of errors were as follows:

	Study	Control
Omission	1	1
Wrong Dose	5	7
Extra Dose	0	2
Unordered Drug	2	0
Wrong Dosage Form	4	6
Wrong Time	1	0

It is an interesting paradox that a high medication error rate for a nurse, if it were possible to determine accurately, might, in fact, indicate a nurse with a high level of training and skills, as recognition, which requires a high level of nursing skills, seems to be the most important criterion for reporting medication errors.

H. EMPLOYEE EVALUATIONS

Performance appraisal serves two purposes at El Camino Hospital. First, on the basis of careful, periodic appraisal, supervisor and employee can diagnose weaknesses in performance and lay the groundwork for improvement and/or identify employees whose potential outstrips the assignments they have been given and who might profitably

be transferred to other jobs. Secondly, it serves as a basis for deciding whether to advance an employee's pay.[33]

Decisions concerning advancement in pay, based on the employee evaluation, will not be considered here. Advance was never held up for anyone in either group, making a comparison impossible, although this fact by itself may be significant.

The premise that the more systematic and objective an appraisal system is, the more useful it is to the supervisor, or other persons evaluating the reports, led to the development of a "word scale" that would reflect the appraisals numerically. A copy of the Hospital's employee evaluation report appears in Appendix A. From this, answers to the first five qualities (job knowledge, accuracy, quantity of work, cooperation, and attendance and tardiness) were converted to the numerical scale.

In the conversion process, only adjectives were used, being given a value from 1 to 4 depending on whether they described a poor, average, good or excellent performance. For example, a nurse who possessed excellent job knowledge (4), had average accuracy (2), put out a good quantity of work (3), had excellent attendance and tardiness (4), and was good in cooperating with others (3) was given an over-all rating of 3.2.

The limitations of this "yardstick of performance" are many: first, as in any "fitness" or performance report, biased and insensitiveness are written into the results. These "distortions" are as

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33/ Personnel Administration in Hospitals and Related Health Care Facilities, op. cit., p. 57.

many as there are persons responsible for filling them out. Occasionally two or more people will concur on one evaluation when, for one reason or another, a consensus is needed or desired. The practice has been to have the head nurse or charge nurse complete the evaluation and she in turn is evaluated by one of the supervisors on her shift. Thus, having different levels of supervision completing the reports, adds further confusion to the interpretations.

The "word scale" is further limited by its sole use of adjectives to convert subjective matter into numbers. It was impossible to be objective in interpreting what was meant by the clauses, phrases, and many verbs. Many valued judgments were, of course, necessary in classifying the adjectives. Following is a partial list of those words that were scored their corresponding point value whenever they appeared in the evaluation report.

Excellent - Excellent, outstanding, exceptional, brilliant...

Good - Good, favorable, desirable, strong...

Average - Fair, average, satisfactory, adequate...

Poor - Poor, inadequate, inferior...

All employees are given their first performance evaluation six months after they begin work, and thereafter on an annual basis. This meant for some RNs in the study, there was more than one evaluation available and for others, none. The average rate for all reports completed in the Study Group (25) was 2.8. This was insignificantly different from the rate found in the Control Group - 3.0. This included 31 evaluations. The ranges of the rates were exactly the same for both groups, from a low of 1.8 to a perfect 4.0.

I. ADVANCEMENT

1. Hospital Policy

A registered nurse, when hired by El Camino Hospital, is always placed in the position of staff nurse, regardless of her training and/or background. She must always begin at this first level. Exceptions are not made to this Hospital policy of "promoting from within", except in highly unusual situations or in the case of the director of nursing. The opportunities for advancement, once hired, lie in two directions. If a nurse stays with the organization long enough, she becomes eligible for a merit increase after six months, and annually thereafter. The other means of advancement represents a salary increase that comes from a change in position. Those position changes available in the nursing structure at present are diagramed in Appendix B. (One other type advancement was implied earlier in the study; that of changing to a different shift. Attitudes vary so much on this point, however, that it would be impossible to measure this type of "promotion" and is therefore excluded from this discussion.)

Advancement Rate itself is the average number of days on the payroll it took a nurse to reach the various levels in the nursing heirarchy. These rates are presented in the table below. The average number of days in each case has been adjusted to reflect full time equivalent, so that a nurse only working a half week, for example, would be credited with half the length of time it actually took her to reach the new level.

Study			Control		
Position in Nursing Organization	No. of RNs Attaining This Level	Length of Time (days) to Reach This Level	Position in Nursing Organization	No. of RNs Attaining This Level	Length of Time (days) to Reach This Level
Team Leader	5	250*	Team Leader	9	173
Charge Nurse	3	268	Charge Nurse	5	211
Ass't Head Nurse	1	915	Ass't Head Nurse	3	423
Head Nurse	0		Head Nurse	2	476
Ass't Supervisor	0		Ass't Supervisor	1	252

*Length of time in each case was computed from the date of employment.

2. Results and Their Implications

The results above show that RNs from the three, four, and five-year programs attain "supervisory" positions on all levels at a faster rate, and in greater numbers, than those from the Study Group. There are, in fact, positions in the organization that Foothill graduates have never been in, that graduates from the other programs are currently in. Although these differences appear significant, there are several important qualifications that need be made in order to place these rates in their proper perspective. In the first place, we need only to look back at several of the rates computed earlier in this study to see why these figures may be misleading.

Retention rate, the length of time the nurse stayed at El Camino Hospital, was found to be significantly different between the two groups. It is quite natural to assume that if one person remains with an organization twice as long as another person, he

stands a better chance of receiving a promotion during that time than the other person. He is around longer waiting for it.

The point is argued that this may, in part, explain why twice as many nurses from the Control Group advanced to higher levels in the organization than did the Foothill nurses, but it does not explain why nurses from the diploma and baccalaureate programs took less time to reach each level.

Here the key may be in the first factor looked at in the study - placement. The opportunity to advance varies with the number of supervisory positions available on a unit in relation to the number of RNs working on that nursing station.

Table 3 provides a run-down, by shift, of registered nurse positions for each type of nursing station. By glancing at this, one can see that placement in some cases does make a substantial difference in how long a nurse may have to wait before she can move up to charge nurse, team leader, or head nurse. It is these differences in opportunity that make it difficult for solid comparisons in this area of performance.

Actually, the placement of RNs from the two groups were fairly similar with regard to shift and type of service, as shown earlier; a summary of these placements follows on page 35.

As mentioned earlier, in discussing turnover, the number of registered nurse positions available at El Camino Has risen rapidly in the last few years, to keep pace with the growth of the Hospital. This condition would, naturally, not affect the <u>relative</u> rate of advancement between these two groups, both working within the Hospital. However, it more than likely has influenced the opportunities

TABLE 3

REGISTERED NURSE UNIT MIX (BY SHIFT)

Type of Service	RN Positions (7-3)	RN Positions (3-11)	RN Positions (11-7)
Medical-Surgical	1-Head Nurse (HN) 1-Ass't Head 2-Team Leaders 1-Staff Nurse	1-Charge Nurse 2-Staff Nurses	1-Charge Nurse 1-Staff Nurse
Orthopedic	1-HN 1-Ass't HN 3-Team 3-Staff	1-Charge 3-Staff	1-Charge 2-Staff
Pediatric	1-HN 1-Ass't HN 2-Team 2-Staff	1-Charge 2-Staff	1-Charge 1-Staff
Intensive Care	1-HN 2-Staff	1-Charge 2-Staff	1-Charge 2-Staff
Cardiac Care	1-HN 2-Ass't HN 1-Team	1-Charge 1-Staff	1-Charge 1-Staff
Emergency	1-HN 1-Team 1-Staff	1-Charge 2-Staff	1-Staff
Psychiatric	1-HN 1-Ass't HN 2-Team	1-Charge 1-Staff	1-Staff
OB-GYN	1-HN 1-Ass't HN 1-Charge 2-Team 3-Staff	1-Charge 2-Staff	1-Charge 1-Staff
Delivery	1-HN 1-Ass't HN 2-Team	1-Charge 2-Staff	1-Charge 2-Staff
Nursery	1-HN 1-Ass't HN 1-Team	1-Charge 1-Staff	1-Charge 1-Staff

Placement By Shift, Service	Study 7-3	Control 7-3	Study 3-11	Control 3-11	Study 11-7	Control 11-7	Totals
Pediatric	2		1				3
		2					2
Intensive Care	1		1		1		3
						1	1
Emergency Room	1		1				2
							0
Psychiatric							0
						1	1
Orthopedic			1				1
						1	1
OB-GYN							0
		1					1
Delivery	1						1
							0
Nursery							0
				1			1
Medical-Surgical	5		5		1		11
		5		5		6	16
Other (Recovery, On-Call)	2						2
TOTALS	12	8	9	6	2	9	46

NOTE: Two RNs from the Control Group were transferred from medical floors to Coronary Care Unit on November , 1965.

a nurse working in this organization would have for supervisory positions as compared with a nurse working under a similar nursing hierarchy at another hospital of comparable size. As an example, when the Cardiac Care Unit opened last fall, eight RN positions were created, only two of which were on the staff, or minimum level.

The opportunities at present for a nurse to move up rapidly in the organizational structure at this Hospital appear to be quite lucrative. To the Foothill graduate, and to the Foothill College School of Nursing, however, this condition may not be the most desirable in the long run. The American Nurses Association states that "Minimum preparation for beginning technical nursing practice at the present time should be an Associate Degree Education in Nursing."[34/] Technical nursing, as implied by the ANA's first position paper, is "bedside nursing". In comparison to this, professional nursing, as taught in the baccalaureate degree programs, implies more than "just" the cure aspect of promoting health and healing. It includes sharing the responsibility for the health and welfare of all those in the community; coordinating and synchronizing medical and other professional and technical services as these affect patients; supervising, teaching and directing all those who give nursing care; plus many other practices that require knowledge and skill of high order and are theory oriented rather than technique oriented. It requires education which can only be obtained through a rigorous course of study in colleges and universities.[35/]

[34/] "American Nursing Associations First Position Paper on Education for Nursing", American Journal of Nursing (December, 1965), p. 107.

[35/] Ibid.

This technical nursing, as taught at Foothill and other Junior Colleges, has as its primary purpose and function, according to the nursing program's director, to, as the ANA states, turn out "bedside nurses".[36/] We can assume that those persons desirous of completing such a program have as a prime motive to their education, the hope to become such a nurse. Now we have just seen that reward for performance as a "bedside nurse" at El Camino means promotion to team leader, charge nurse, and other "elevated" positions which, as pointed out in the introductory remarks, bring with them increased time spent in managerial responsibilities and decreased time spent in caring for patients.

It is for this reason that to a graduate of a two-year program, advancement and promotion means to face the paradox, and ultimate dissatisfaction, that increased success in her profession brings increased removal from that same profession. This area of concern is certainly not unique to this Hospital or to this area of the country, but it does point up what could become an irritating problem for the associate degree programs in the near future. Hospitals and the nursing schools will have to find alternatives to reward many of these people for a "job well done" if they hope to maintain and increase the quality and quantity of these programs.

36/ From a personal interview, April, 1966.

III. DEMOGRAPHIC CHARACTERISTICS OF NURSES

"Of all the programs, none was considered typical. The one hallmark they all shared was the characteristic of individual. They had developed in a particular college and served a particular community, with differing resources, faculty skills, and administrative philosophies."[37/]

This quotation from the recent book by Dr. Bernice Anderson on Nursing Education in Community Junior Colleges points up the desirability of looking at some of these "particulars" she mentions, and trying to relate them to results of the performance appraisals of the Junior College graduates in this study.

As the El Camino Hospital District was formed in 1956 to meet the health needs of the residents of Northern Santa Clara County, the Foothill Junior College District was formed the following year to meet the educational needs of youth and adults beyond high school age residing in this geographical area. Thus, all members of the Study sample were from Northern Santa Clara County. On the other hand, slightly better than half (12) of the nurses in the Control Group, claimed their residence before coming to El Camino Hospital as outside this region. Clearly one-fourth of the nurses (6) from this latter group were from out of state.

Wilma Hiatt, writing on Junior College nursing programs in California, claims that one of the aims of the two-year nursing

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37/ Anderson, op. cit., p. 90.

programs was to prepare older women for nursing who could demonstrate maturity in their work.[38] The trend, however, in the past several years has been in the opposite direction. There seems to be an "evening out" so that now there is no preference given to any age groups.[39] In this study the average age of a nurse from the Foothill sample was just over 24 years (24.3), with an age range from 19 to 44. This compared with an average age of 21.1 years for RNs in the Control Group. Their range was from 20 to 23.

Because of their younger age it was not surprising to find that fewer nurses from the three, four, and five-year programs were married than from the two-year college. Three were married and all were childless. On the other hand, twelve Foothill graduates had taken the vows and were raising a total of fifteen children.

Comparing the ages, residences and marital statuses of these groups, one would expect more job stability from the Foothill graduates and thus, predict a longer retention rate for this group. With families to care for and more being from this area, it would seem logical that a nurse from this group would be less compelled to pick up and leave her job suddenly than an RN from the Control Group. This logic is heightened when it is remembered that an essential difference in training received in the associate degree program and the "other" programs is the lack, in the two-year program, of an orientation to phases of nursing other than general

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38/ "Associate Degree Nursing Programs in California", American Journal of Nursing (October, 1961), pp. 93-95.

39/ Statement by Virginia Barham, in a personal interview, March, 1966.

staff nursing. The three, four and five-year graduates are exposed to public health nursing, research and other "allied" areas of nursing that the two-year graduate is not, and thus has more roads open to her if she is dissatisfied in the Hospital.

As shown earlier, the reverse of this logic was actually the case. Foothill nurses had higher turnover and a "significantly" lower retention rate. The question then is raised, "Do not the conditions mentioned (age, marital status) create their own reasons for leaving a job, notably to take care of one's family, or pregnancy?" The latter offered no support for this as both groups gave maternity as a cause for termination in only one case. The former was not mentioned in either group as a cause for termination.

IV. CONCLUDING REMARKS

"The amount and type of direct nursing care given by the general duty nurse are dependent on a variety of factors - the function of the general duty nurse is associated with variation in (a) the general structure of the nursing service of the hospital, type of control, and similar variables; (b) the place of the nurse in this structure in terms of nursing service, shift, number of patients for which she is responsible, and of auxiliary nursing personnel as assistants; (c) individual differences in the nurses such as those associated with age, motivation, and similar matters."[40/]

Throughout this paper the writer has tried to demonstrate how these "factors" play an important role and influence attempts to arrive at conclusions about performance. Although comments can be made about individual parts of the study, the over-all conclusion must, of necessity, be close to "no conclusion".

It is significant, perhaps, that a "significant difference" could be evidenced in the comparison of only a couple of the rates. Retention and advancement, both key factors, were nevertheless the only two areas which showed a distinct advantage to one group over the other - in both cases to the three, four, and five year graduates over the Foothill nurses - although the latter rate, again, can be argued either good or bad to both the nurse and the Hospital.

40/ Donald D. Stewart, The General Duty Nurse (Fayettville, Arkansas, University of Arkansas, 1955), p. 101.

Aside from these rates, and the accident rate, which had an unusually small sample size, all other comparisons proved to be either "insignificant" or were so limited by their qualifications, or "factors", that their value as a comparative tool was "lost".

With regard to hiring policy, it was mentioned earlier that attitudes and policies are shaped to a large extent by past performances and previous experience working with other graduates of these programs.

The attitudes and policies at this Hospital appear consistent, regardless of the type of program the RN graduated from. Starting salary, assignments and duties are not dependent on the nurse's educational background and/or work experience.

Although graduates of associate degree schools of nursing are prepared to be members of the nursing team, and not its leaders, the feeling of this Hospital's nursing administration is that through supervision the Foothill graduate can develop into a competent practitioner, and expect to take her place in the supervisory ranks. Once hired, however, the role of the registered nurse and her role in this Hospital's nursing organization, depends exclusively on her performance as a nurse and on other leadership qualities she might display.

APPENDIX A

EL CAMINO HOSPITAL

EMPLOYEE EVALUATION REPORT

Name_____ Dept._____ P. No._____

Position_____ Period Covered_____ (MO - YR) to _____ (MO - YR) Date_____

JOB KNOWLEDGE: How well does employee know job? Consider instruction and supervision required.	
ACCURACY: Is employee accurate? Consider quality of work.	
QUANTITY OF WORK: Consider volume of work produced. Consult any records available. Compare with other employees on the same job.	
COOPERATION: Consider relation to patient, to employees. Attitude toward hospital and supervision. Consider willingness to work with and for others.	
ATTENDANCE AND TARDINESS: Is employee dependable? Is he on time? Consider the employee's absentee record: the reasons for absences.	
PERSONALITY: Consider general culture, individuality, temperament, disposition, courtesy and appearance.	

Are you satisfied with employee's progress to date?_____

In what phase should employee tend to improve himself?_____

What have you done to assist the employee?_____

Would this employee be suited to a different position? If YES, which one or type?_____

This report was discussed with employee on_____, 19____

This report was not discussed with employee because_____

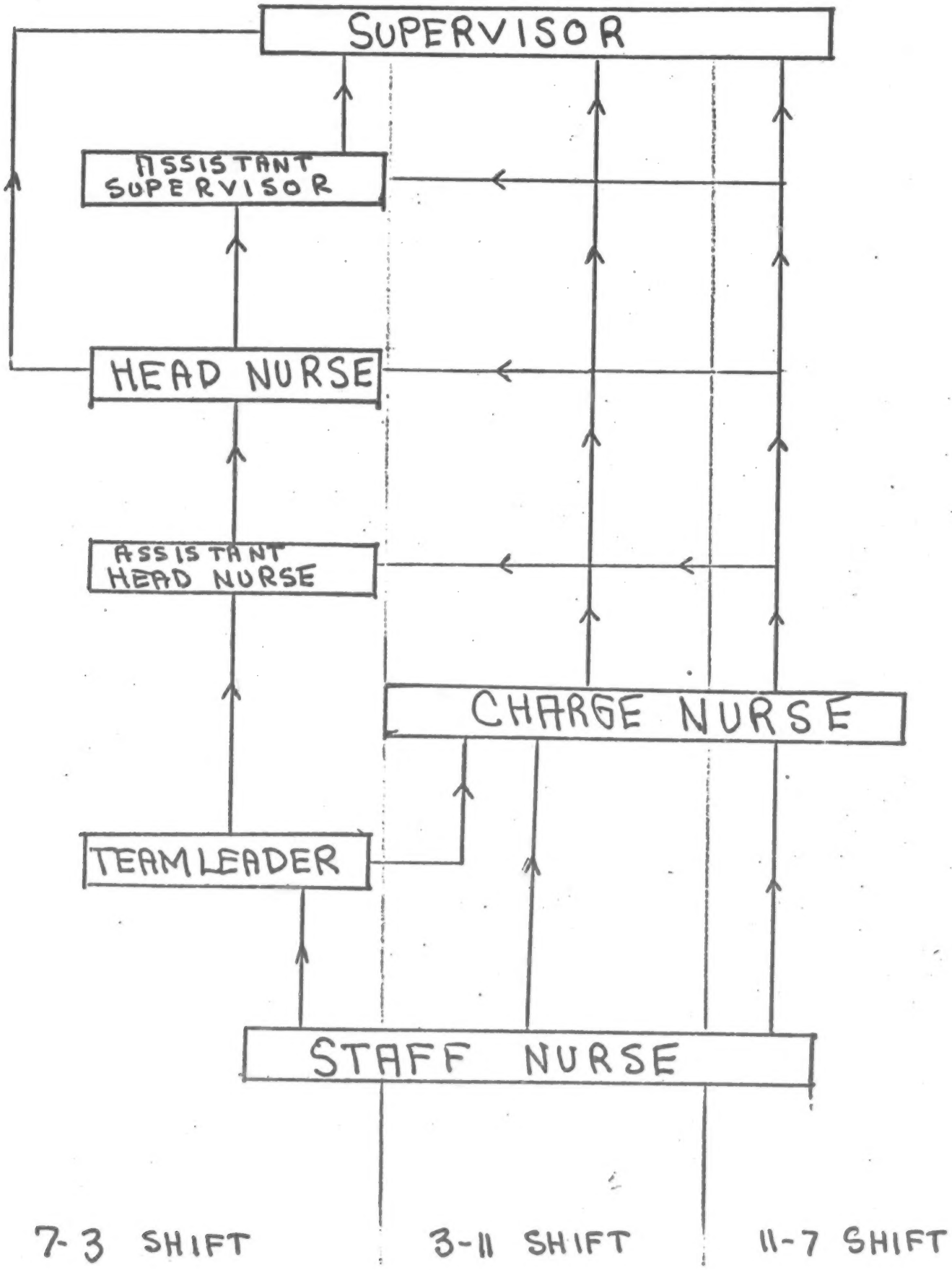
Evaluator's comments and/or recommendations_____

Signatures_____ (EVALUATOR) Date_____ Approved_____ (DEPT. HEAD) Date_____

Form No. 312

APPENDIX B

EL CAMINO HOSPITAL NURSING SERVICE ORGANIZATION



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The purpose of this study was to develop guidelines for writing state industrial arts publications. It involved a word count documentary analysis of 78 state publications and a survey of the opinions of 104 leaders in the industrial arts field. Those items published prior to 1962 were contrasted with later publications, and various topics were compared to the leaders' opinions. Some conclusions were: (1) Few significant changes in these publications occurred in 20 years, (2) General crafts, public relations, pupil personnel systems, the project method, progress charts, and bibliographies and lists currently receive less emphasis, (3) Leaders favor more comprehensive guidebooks than presently exist, (4) Publications of few states reflect contemporary thinking, (5) Many leaders believe the publications are out-of-date when published, and (6) There is no consensus on whether these publications should be general guidebooks or detailed courses of study. Eighteen recommendations are given for the preparation of state industrial arts publications. This is a summary of a doctoral thesis by the same name (VT 007 880 in ARM Winter 1969) which was submitted to the University of Arkansas. (EM)

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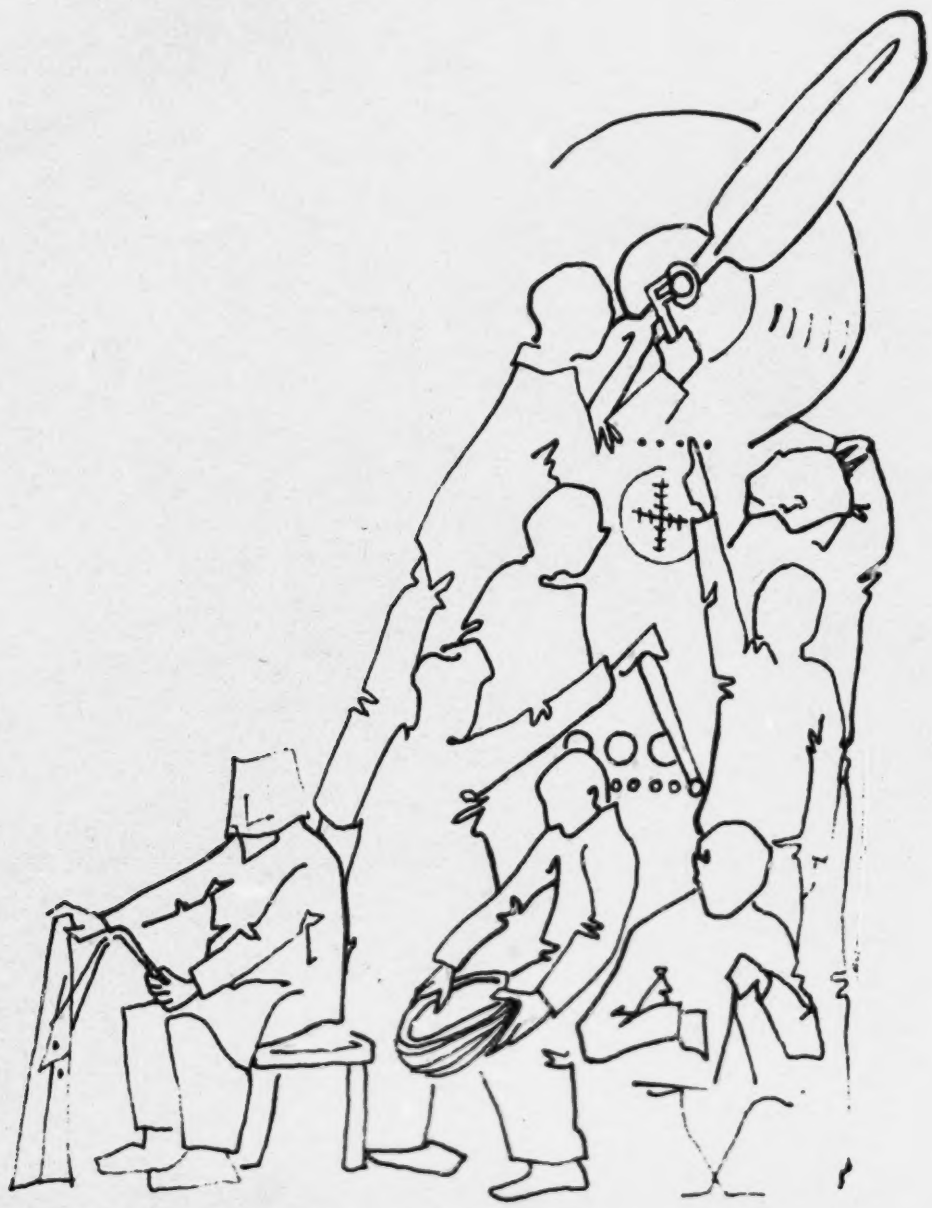
STATE HANDBOOKS FOR INDUSTRIAL ARTS

A COMPARISON OF CONTENT WITH JUDGMENTS OF LEADERS AND AN EXAMINATION OF TRENDS REFLECTED IN THESE PUBLICATIONS



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Doctoral Series 8 January 1969

STATE HANDBOOKS FOR INDUSTRIAL ARTS:

A COMPARISON OF CONTENT WITH JUDGMENTS OF LEADERS AND AN EXAMINATION OF TRENDS REFLECTED IN THESE PUBLICATIONS

A summary report of a dissertation by the same title submitted in partial fulfillment of the requirements for the degree of Doctor of Education

By

Delton Lee Johnson, M.S.
Kansas State Teachers College, 1958

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

This study has evolved from a need to incorporate some of the newer instructional concepts of industrial arts into local programs. A vast number of changes have been recommended for industrial arts, but research has shown that many innovations which have long been advocated by leaders are all too infrequently made a part of local programs. Inasmuch as a commonly stated purpose for state curriculum materials involves helping local teachers to up-grade and up-date their programs, and since research by eminent leaders has demonstrated that local programs are not up-to-date, a close look at these state publications seemed appropriate.

The purpose of this study was to develop guidelines for writing state publications which would bring about changes in local industrial arts programs implied by research studies and advocated by leaders of the profession. It is hoped that the results of the study can furnish a portion of the impetus necessary to effect these essential changes in local programs.

This publication is only a summary report of the doctoral dissertation by the same title. For this reason, it contains only a cursory treatment of the study. Research workers and other interested persons may obtain copies of the original dissertation through University Microfilms, Ann Arbor, Michigan.

While the supply lasts, additional copies of this report may be obtained without charge. Requests for additional copies, comments and inquiries regarding the study should be addressed to Mr. Johnson at 1044 South Rialto Street, Oxnard, California 93030.

Marion E. Maddox
Professor of
Industrial Education

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The assistance rendered by the members of the writer's doctoral committee in the preparation of this dissertation is gratefully acknowledged. This committee was composed of professors William S. Bonner, J. Roger Howe, Edwin L. Love, Marion E. Maddox and Billy Ray Van Zandt. The writer would like to express special appreciation for the guidance provided by his major professor, Dr. Maddox, and for the frequently solicited assistance of Dr. Love. The professional cooperation of the 104 leaders who made up the jury for this study is also acknowledged. Statistical assistance was provided by Dr. Edward J. Furst. Finally, recognition is extended to the author's wife, Margaret, for her encouragement.

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THE PROBLEM AND METHODS OF PROCEDURE

It has long been common practice for state departments of education to issue "guides" or "handbooks" designed to stimulate improvement in local programs of industrial arts. Some of these handbooks relate to specific elements of industrial arts such as planning of school shops, safety, program organization or instructional content; other handbooks combine these elements into one publication. Such publications seldom mandate what procedures shall be followed or specify what concepts shall be taught; rather, they serve to guide the implementation of improvements in local programs.

There is widespread concern among the people of this nation relative to improving all phases of education. Such concern is reflected in the "new curricula" being advocated for mathematics, science, social studies and other instructional areas. Concern has also been voiced by many industrial arts educators who realize that the traditional hand-crafted project is not successful in carrying out accepted objectives. Never before in history has there been a greater need to develop meaningful understandings of technology; today, the amount of scientific and technological information doubles every thirteen to fifteen years (21:18). Yet, in spite of the need to adapt to the demands of a technological age, observation reveals that frequently "industrial arts, in practice as well as in the public image, is still manual training, handicrafts, furniture-making, and the like" (17:25). These may well have been the dominant elements of American industry in the past, but they are not in keeping with the needs of youth in modern America. Although countless leaders have urged change, this emphasis on hand-crafted projects has been retained as part of many local industrial arts programs in conformance with the following principle:

> Once created and systematized, any program of educational thought and practice takes on professional and institutional stereotypes, and tends to outlast even profound changes in the society in which it assumed its original shape (29:5).

There has been extensive discussion in the journals regarding the need to change from traditional patterns of industrial arts education and incorporate new approaches which leaders consider essential. One commonly suggested change involves an increasing interest in organizing instructional content around various "functions of industry" which include manufacturing, communications, construction, power and transportation, rather than around traditional subject areas such as woodworking and metalworking (36:8). But in spite of this discussion, such changes are seldom incorporated into local programs. Dr. Irving W. Herrick, Supervisor of Industrial Arts for the Maryland State Department of Education, has written that:

> Industrial arts supervisors readily recognize the imperative changes that must constantly be made in the instructional program to keep abreast of the dynamic and dominant characteristics of the culture which the field represents in the educational system. These changes are talked about at conventions and are discussed at length in the professional literature. BUT, changes are all too infrequently transferred into the classroom or laboratory, because definite, energetic steps are not taken . . . to foster change and to guide teachers through periods of transition (18:37).

This failure to implement desirable change suggests a breakdown in communication between leaders and practitioners. The situation is not especially surprising when one realizes that relatively few teachers are able to attend conventions and that many do not subscribe to professional journals. Hostetler has pointed out that current, carefully-prepared state curriculum materials can provide a sound basis for up-dating and improving industrial arts in local schools (22:349). The gap between the type of program advocated in the literature and the type of program which often exists in practice would therefore seem to suggest the need for a critical examination of these publications.

THE PROBLEM

The purpose of this study was threefold: (1) to determine the extent to which state industrial arts publications reflect the thinking of contemporary leaders, (2) to identify curricular trends in state publications, and (3) to provide a set of guidelines for preparing state handbooks for industrial arts. Specifically an attempt was made to answer the following questions:

1. Is there a significant difference between the proportional degree of emphasis assigned to each of the topics included in Appendix I by a jury of leaders and the proportional degree of emphasis placed on these topics in current state curriculum publications?
2. With regard to the degree of emphasis placed upon each of the topics listed in Appendix I, is there a significant difference between those guides published prior to 1962 and those published during and after 1962?
3. With regard to the tendency to organize instruction around "functions of industry", is there a significant difference between those guides published prior to 1962 and those published during and after 1962?
4. What is the over-all relationship between the degree of emphasis placed on various topics included in current state curriculum materials for industrial arts and the degree of emphasis placed on these topics by a jury of leaders?

DEFINITION OF TERMS

Industrial arts is a study of the tools, materials, processes, products and occupations of industry.

State handbook (guidebook) for industrial arts refers to a state publication designed to serve as a guide for improving industrial arts programs in local schools by suggesting appropriate patterns for organizing, administering and teaching the subject.

A course of study is a detailed plan for organizing and teaching a specific course.

A general curriculum guidebook is a comprehensive publication designed to cover a wide range of topics concerned with the organization, administration and teaching of industrial arts.

Guidelines refer to a set of recommendations concerning the content of state publications for industrial arts.

Course outline refers to a topical summary of the major elements of a plan for a particular course.

Current handbooks are those published during and since 1962.

Older handbooks are those published prior to 1962.

Degree of emphasis means the extent to which various topics relating to industrial arts instruction are emphasized by leaders and state curriculum publications. The degree of emphasis placed on various instructional topics by the group of selected leaders was measured by a rating scale. The degree of emphasis on particular topics contained in the publications was determined by a documentary analysis procedure. A more detailed explanation of the documentary analysis procedure is contained in Appendix II.

Program organization. Industrial arts courses have traditionally been organized around experience areas such as metalworking, drafting, electricity, woodworking, and crafts. The project method and exercise method have generally been used to teach basic skills. A variety of new patterns of program organization have been recommended; one of these new patterns has been called the "functions of industry" approach (17:25).

Functions of industry. This term refers to the organization of instructional content around functional tasks performed by industry. These commonly include manufacturing, construction, communications and transportation (36:8).

SOURCES OF DATA AND PROCEDURES

Data for this study were obtained through a documentary analysis of state industrial arts curriculum guides and a survey of the opinions of a national jury of leaders. A letter was mailed to the state department of education in each of the fifty states outlining the purpose of this study and requesting copies of state publications pertaining to industrial arts. Forty-nine state departments of education replied to this request, and seventy handbooks from thirty states were obtained in this manner. An additional eight industrial arts handbooks from an additional two states were obtained from the University of Arkansas Library. These seventy-eight publications from thirty-two states were then examined by a documentary analysis procedure which utilized a word count technique. Appendix III contains a list of the industrial arts handbooks which were analyzed for this study.

Publication dates of the state handbooks ranged over a twenty year period from 1948 to 1967 inclusive. The distribution of publication dates is shown in Table I. An examination of this table reveals that two-thirds of the handbooks were published during the last six years, and that the mean date of publication was 1962. The fifty-two handbooks published during and after this year were considered current material, and the twenty-six handbooks published prior to this date were considered older material.

A review of previous research and other literature was used to suggest a tentative list of topics which could be used to classify the material contained in the publications. This list was revised as necessary during the course of the analysis. The degree of emphasis placed upon various topics in current state handbooks was then statistically compared with the degree of emphasis placed upon the same topics by a jury of leaders. A statistical comparison was also made between the degree of emphasis placed upon the topics in current and older publications.

A group of industrial arts teacher educators and supervisors were asked to serve as a jury of leaders to provide expert opinion regarding the content which should be included in state publications for industrial arts. The twenty-five persons designated as state directors or supervisors

TABLE I

DISTRIBUTION OF PUBLICATION DATES
FOR THE 78 STATE GUIDEBOOKS

Date	Age in years	Number
1948	20	1
1949	19	4
1950	18	1
1951	17	0
1952	16	1
1953	15	1
1954	14	0
1955	13	4
1956	12	2
1957	11	0
1958	10	4
1959	9	7
1960	8	1
1961	7	0
1962*	6	1
1963	5	4
1964	4	9
1965	3	6
1966	2	19
1967	1	13
Total		78

*Mean date of publication

of industrial arts in the **Education Directory** (12) were asked to serve. Responses to the letter mailed to state departments of education revealed that four states had recently employed state supervisors who were not listed in the **Education Directory**; these persons were also selected for the jury, making a total of twenty-nine state supervisors of industrial arts who were asked to serve. Using a table of random numbers (20:326-327), fifty additional jury members were selected from the membership roster of the American Council of Industrial Arts Supervisors (25) and fifty more were selected from the membership roster of the American Council of Industrial Arts Teacher Educators (26). In all, one hundred twenty-nine leaders were asked to serve on the jury.

After the material contained in the publications had been classified, those topics discovered to be included in these publications and a group of other topics appearing in contemporary literature were incorporated into an opinionnaire (Appendix I). This instrument was mailed to the 129 jurors. A total of 104 opinionnaires, or 80.7 per cent were returned prior to the established terminal date. The number and per cent of opinionnaires returned by the three groups of leaders which comprised the jury is shown in Table II. Completed opinionnaires were returned by leaders from forty-four states and the District of Columbia. Appendix IV contains a list of participating jurors.

STATISTICAL PROCEDURES

Chi square tests for significance of the difference between independent samples were applied to the various null hypotheses listed in this report. Two-by-two contingency tables with one degree of freedom were utilized. Null hypotheses were rejected in cases where chi square equaled or exceeded the 5 per cent level of significance. Yate's correction for continuity was applied to the data in cases where cell frequencies appearing in the contingency tables were less than five.

The chi square procedure used in this study compares the proportional emphasis above a fixed value, in this case the mean, with the proportional emphasis below this value. Degree of emphasis devoted to a particular topic in the guidebooks was measured in words, while

TABLE II

COMPOSITION OF JURY AND RESPONSE TO OPINIONNAIRE REGARDING STATE PUBLICATIONS FOR INDUSTRIAL ARTS

	Number sent	Number returned	Per cent returned
State Supervisors of Industrial Arts	29	25	86.2
American Council of Industrial Arts Supervisors	50	41	82.0
American Council of Industrial Arts Teacher Educators	50	38	76.0
Total	129	104	80.7

the degree of emphasis assigned to particular topics by the jury was measured by a rating scale. In order to utilize a common scale of measurement, jury ratings were converted to word equivalency values.

A scatter diagram and product moment correlation coefficient were used to examine the over-all relationship between jury ratings and the content of the guidebooks.

The complete report of this dissertation contains a detailed explanation of these statistical procedures.

ASSUMPTIONS

It is assumed that the review of contemporary literature, the documentary analysis procedure and the survey of leaders has provided a sufficiently adequate basis to compare the content of these materials with the opinions of leaders, identify curricular trends and suggest guidelines for preparing future state publications. It is further assumed that the number of words devoted to a particular topic in a state guidebook is indicative of the writer's intent to emphasize a topic.

REPORT OF FINDINGS

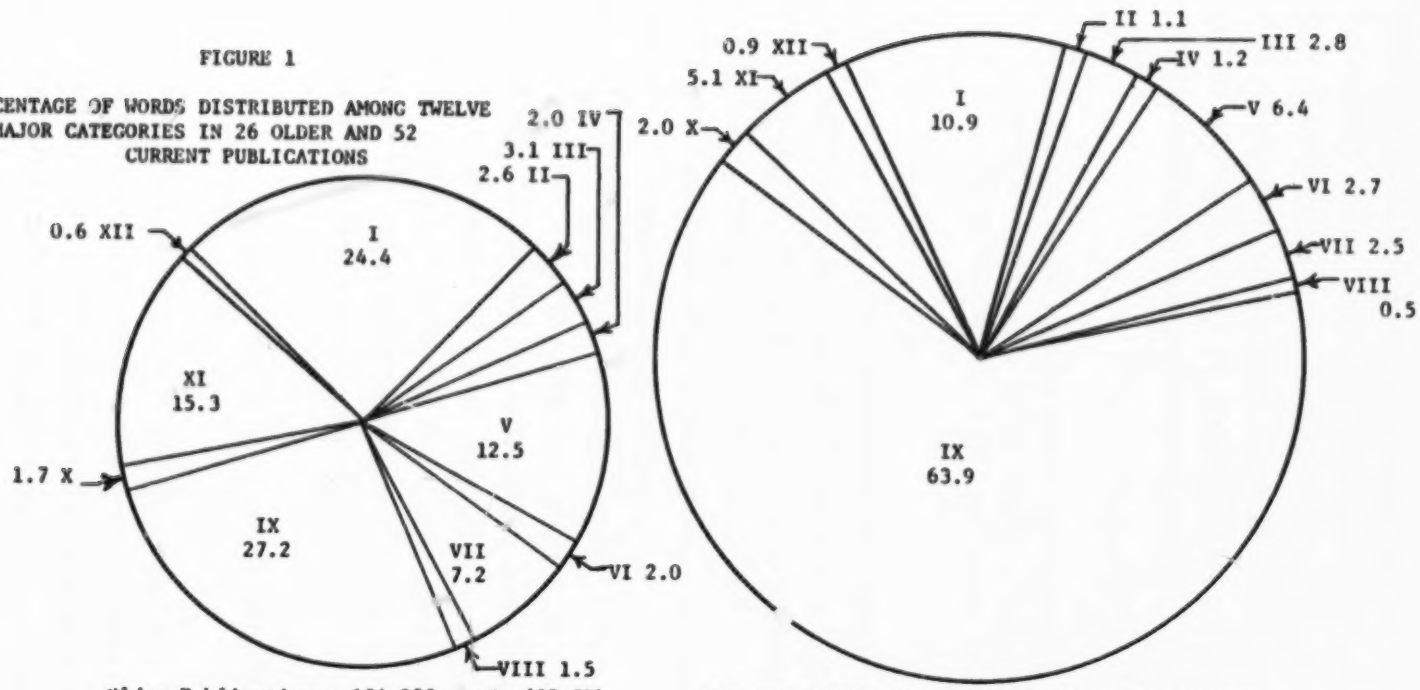
The report of findings for this study is organized into four major sections which deal sequentially with (1) the degree of emphasis placed upon various topics in the state publications, (2) the degree of emphasis placed upon these same topics by the jury of leaders, (3) a comparison of the degree of emphasis placed upon the various topics in current publications with the degree of emphasis placed upon these topics by the jury of leaders, and (4) a report of findings concerned with the preparation of state industrial arts publications.

DEGREE OF EMPHASIS PLACED UPON VARIOUS TOPICS IN THE PUBLICATIONS

Topics contained in the state industrial arts publications were separated into twelve major categories by the documentary analysis. The distribution of words by percentage among these twelve categories for both the older and current publications is shown in Figure 1. Examination of this figure reveals that the twenty-six guides from eleven states which were published prior to 1962 contained 37.7 per cent of the total words, and that the fifty-two guides from twenty-seven states published during and after 1962 contained 62.3 per cent of the total. A greater percentage of the words contained in the older material was expended on the category of topics pertaining to the teaching of specific industrial arts courses than was expended on any other group of topics, and this percentage increased markedly after 1962. The increase in percentage of words expended on this category resulted because a number of states have recently issued publications concerned only with the teaching of specific courses. This figure also reveals that the newer material devoted a smaller percentage of words to topics pertaining to the organization and administration of programs, class management, the selection and use of teaching materials, and the planning and equipping of shop facilities. Relatively little change in the other nine major categories was discerned.

FIGURE 1

PERCENTAGE OF WORDS DISTRIBUTED AMONG TWELVE MAJOR CATEGORIES IN 26 OLDER AND 52 CURRENT PUBLICATIONS



Older Publications--684,952 words (37.7%)

Current Publications--1,133,629 words (62.3%)

I. Organization and administration
II. Objectives
III. Historical perspective and philosophy
IV. Selection of subject matter
V. Class management
VI. Teaching methods and techniques
VII. Selection and use of teaching materials
VIII. Measurement of student achievement
IX. Teaching of specific industrial arts courses
X. Industrial arts staff
XI. Planning and equipping shops
XII. Miscellaneous topics

Emphasis within each of the twelve categories was assigned to specific topics as described in Appendix II. The mean degree of emphasis placed on each topic in all publications was calculated, and the number of states which emphasize the topic above and below this mean value was determined for both periods. A chi square test for the significance of the difference between independent samples was applied to the null hypothesis that:

> With regard to the degree of emphasis placed on each of the topics listed in Appendix I, there is no difference between those guides published prior to 1962 and those published during and after 1962.

For most topics, this hypothesis was accepted; the degree of emphasis placed on the various topics was found to be significantly different in relatively few cases. However, for some topics this null hypothesis was rejected because findings of the statistical tests revealed a significant change in emphasis during the periods under consideration. The older material was found to place a significantly greater degree of emphasis upon topics concerned with: public relations for industrial arts, the organization and operation of a pupil personnel system, the traditional project method, lists of books and periodicals for instructional purposes, lists of sources for audio-visual materials, use of a progress chart, lists of tool and supply companies and the teaching of general crafts. Current publications were found to place a significantly greater degree of emphasis on the teaching of electricity-electronics and metalworking.

FINDINGS OF THE SURVEY OF LEADERS

After the material contained in the state publications had been classified into various topics, these topics were incorporated into an opinionnaire which was mailed to a jury of leaders. These leaders were asked to rate each of the topics according to the degree of emphasis which they believed it should receive in modern state guidebooks for industrial arts. For most topics, the degree of emphasis assigned by individual jurors ranged from None to Extensive. However, mean

ratings indicated that the jury perceived each of the topics as worthy of Moderate or Much emphasis in state publications.

A number of jurors commented on the relative importance of various topics; juror comments suggested that future state publications place greater emphasis on activities directed toward the particular needs and interests of girls, programs for educationally handicapped students, the preparation of proposals for projects utilizing federal funds, elementary school industrial arts, defining objectives in terms of expected behavior changes, the relationship of industrial arts to vocational education, the preparation of local courses of study and daily lesson plans, equipment management, coordination of industrial arts with other subjects, using textbooks, multi-media techniques applicable to industrial arts, more "national continuity" for industrial arts curriculum, utilization of a standardized testing program, opportunities for in-service teacher education, procedures for working cooperatively with architects, utilizing teacher aids in industrial arts, and new developments in industrial arts education. Jurors also suggested that future state publications list fewer objectives, and emphasize those which involve the unique contributions of industrial arts.

A COMPARISON OF THE DEGREE OF EMPHASIS PLACED ON VARIOUS TOPICS IN STATE PUBLICATIONS WITH THE DEGREE OF EMPHASIS ASSIGNED TO THESE TOPICS BY THE JURY

A chi square test for significance of the difference between independent samples was applied to the null hypothesis that:

> There is no difference between the proportional degree of emphasis assigned to the various topics included in Appendix I by the jury of leaders and the proportional degree of emphasis placed on these topics in current state industrial arts publications.

For most topics, this hypothesis was rejected. While some topics received little or no emphasis in the state guides, other topics were emphasized extensively. Mean jury ratings, on the other hand, indicated that all

the topics were worthy of Moderate or Much emphasis. Most topics were emphasized to a significantly greater degree by the jury; other topics were emphasized to a significantly greater degree by the guidebooks; and for some topics, no significant difference in emphasis was discerned.

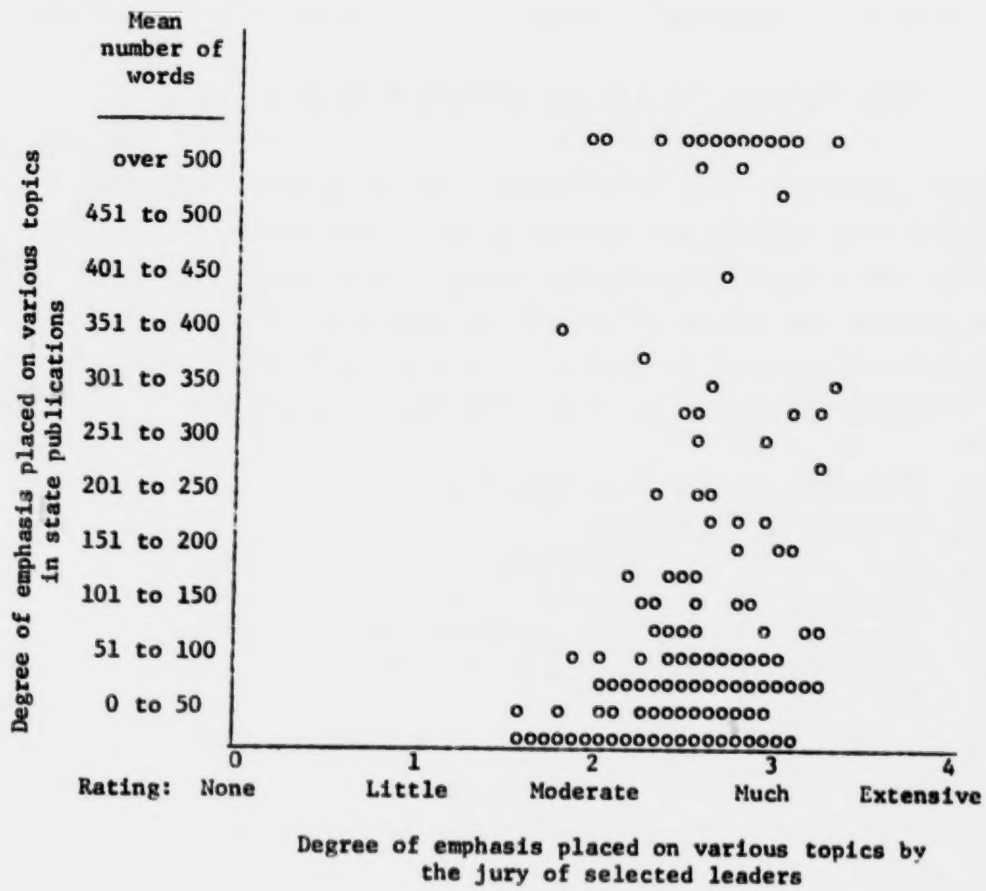
Topics which were emphasized to a significantly greater degree by the guidebooks concerned safety, shop planning, and the teaching of the following industrial arts courses: technical drawing, electricity-electronics, metalworking, woodworking, graphic arts, power mechanics, industrial plastics, and general crafts. Although jury ratings indicated that contemporary leaders attach considerable importance to these topics, results of the statistical tests reveal that the jurors would emphasize these topics to a lesser degree than they are currently emphasized in state publications.

In the case of a number of topics, the null hypothesis was accepted; no significant differences were discovered with regard to the degree of emphasis which the guidebooks and jury placed upon: the integration of industrial arts instruction with mathematics, science and other subject areas; recommended sequential patterns of courses for various grade levels; general statements of objectives for industrial arts; historical perspective for industrial arts; the philosophy of industrial arts and its relation to general education; the use of information sheets, assignment sheets, job sheets, operation sheets and plan sheets; the selection and purchasing of tools and equipment; and the listing of tool and supply companies.

No significant over-all relationship was found to exist between the degree of emphasis placed on various topics in current industrial arts publications and the degree of emphasis assigned to these same topics by members of the jury. This is shown by the scatter diagram in Figure 2 which compares the mean number of words devoted to 117 topics in state publications with the mean jury ratings assigned to these topics. Intuitive inspection of this scatter diagram leads to the conclusion that no systematic relationship exists between these variables. This was further confirmed by computation of a product moment correlation coefficient which yielded a value of .017.

FIGURE 2

A SCATTER DIAGRAM SHOWING THE RELATIONSHIP BETWEEN DEGREE OF EMPHASIS PLACED ON VARIOUS TOPICS IN CURRENT STATE INDUSTRIAL ARTS PUBLICATIONS AND THE DEGREE OF EMPHASIS PLACED ON THESE TOPICS BY THE JURY OF LEADERS



r = .017

Inspection of the scatter diagram also provides a graphic illustration of the jury's interest in broad comprehensive guidebooks which include a wide variety of topics. This may be observed by noting that mean jury ratings generally indicate that the topics are worthy of Moderate to Much emphasis, while the guidebooks placed little or no emphasis on some topics and emphasized other topics quite extensively.

THE PREPARATION OF STATE PUBLICATIONS

State industrial arts publications are frequently prepared by committees of industrial arts educators. Mean jury ratings were used to determine the relative importance which these leaders assigned to various persons and groups of persons for service on such a committee. The importance assigned to various persons for service on such a committee is shown in descending order in the following list:

1. The state supervisor of industrial arts.
2. Industrial arts teachers.
3. City, county and district supervisors of industrial arts.
4. Industrial arts teacher educators.
5. Representatives of state industrial arts associations.
6. The state supervisor of trade and industrial education.

Comments made by members of the jury indicate that, in addition to the persons listed, it is highly desirable to obtain the services of recognized consultants from various fields of industrial arts and from the disciplines of philosophy, psychology, sociology, general education, school administration and industrial management.

While they were aware of practical budgetary limitations, members of the jury recommended more-frequent revision of state industrial arts publications. The jurors felt that, on the average, such publications should be revised about every three and one-half years.

Juror comments revealed that additional funds are needed to employ consultants and pay the travel expenses and salaries for other persons engaged in the preparation of state industrial arts publications. The use of federal funds for this purpose was proposed.

State publications for industrial arts vary considerably. Some states issue detailed courses of study for specific subject areas; other states issue only general curriculum guidebooks; and still other states issue both detailed courses of study and general curriculum guidebooks. Relatively few of the jurors participating in this study favored the issuance of only detailed courses of study; in fact, a number of these leaders expressed opposition to issuing courses of study on the grounds that such publications may discourage innovation. Approximately one-half of the jurors believed that the states should issue only general curriculum guides, but nearly this many believed that the states should issue both detailed courses of study and general curriculum guidebooks. While many jurors were not opposed to the issuance of state courses of study pertaining only to specific industrial arts experience areas, a vast majority felt that some provision should be made to cover a wide variety of topics. This was demonstrated by the mean jury ratings which indicate that these leaders would place at least a moderate degree of emphasis on each topic in Appendix I.

Jurors were asked to indicate their opinion regarding whether future state publications should continue to organize instructional experiences around traditional subject areas, or whether future publications should emphasize the organization of instructional experiences around broader areas such as manufacturing, communications, power and transportation. The group of leaders which made up the jury for this study indicated an overwhelming preference for change; approximately three-fourths of the 104 jurors indicated that future publications should utilize the broader approach. The seventy-eight publications analyzed for this study were examined to determine whether or not they utilize this form of program organization. A chi square test was applied to the null hypothesis that:

> With regard to the tendency to organize instruction around the functions of industry, there is no difference between those guides published prior to 1962 and those published during and after 1962.

This hypothesis was accepted. No significant change was discovered regarding the tendency to organize instruction in this manner during the periods under consideration.

Several jurors commented that they believed organizing instructional programs in this manner was especially desirable at the elementary and junior high school levels, but less practical for high school programs.

Many jurors commented on the critical role of the state supervisor of industrial arts in guiding the preparation of state publications. Jurors also commented on the need for increasing both the quantity and quality of state supervisory services. An institute to train state supervisors and study the role of state industrial arts publications was suggested. The establishment of a national industrial arts curriculum study group was also proposed.

CONCLUSIONS

1. The past twenty years have witnessed few significant changes in the degree of emphasis placed on various topics in state industrial arts publication.
2. Current guidebooks place greater emphasis on topics pertaining to the teaching of specific industrial arts courses than was placed on these topics in guidebooks issued prior to 1962.
3. Current publications place significantly greater emphasis on the teaching of electricity-electronics and metalworking; they place significantly less emphasis on the teaching of general crafts, public relations for industrial arts, the organization and operation of a pupil personnel system, the traditional project method, the use of a progress chart, lists of books and periodicals, lists of audio-visual materials, and lists of tool and supply companies.
4. As a group, the leaders who made up the jury for this study favor more comprehensive state guidebooks than those currently being issued; they favor placing moderate to much emphasis on a wide variety of topics rather than placing extensive emphasis on a few topics and little or no emphasis on other topics.
5. There is need to improve both the quantity and quality of state publications. Few states have up-to-date comprehensive publications which are in keeping with the thinking of contemporary leaders.
6. There is marked dissatisfaction among contemporary leaders with regard to many state publications for industrial arts. Many leaders not only consider these publications out-of-date, but believe that they were out-of-date when they were issued.
7. On the average, leaders in the field believe that state industrial arts publications should be revised every three and one-half years.

8. There is little agreement between the degree of emphasis currently placed on various topics in state industrial arts publications and the degree of emphasis which contemporary leaders believe should be placed on these topics in state publications.

9. A large majority of contemporary leaders favor a fundamental change in the way industrial arts instructional experiences are organized. Nearly three-fourths of the jurors believed that, as future state publications are prepared, they should emphasize the organization of instructional experiences around broad areas such as manufacturing, communications, power and transportation rather than around traditional subject areas such as drawing, woodworking and metalworking. But in spite of leadership opinion, current state publications are no more likely to organize instruction in this manner than were older publications.

10. Contemporary leaders do not agree regarding the type of industrial arts publications which the states should issue. Very few leaders favor issuing only detailed courses of study for specific subject areas. Approximately one-half of the leaders participating in this study favored the issuance of only general curriculum guidebooks, but nearly this many leaders favored issuing both general guides and detailed courses of study.

RECOMMENDATIONS AND GUIDELINES FOR PREPARING FUTURE PUBLICATIONS

1. The topics listed in Appendix I should be used as guidelines when preparing future state publications. The usefulness of these topics has been validated in that all were considered worthy of at least a moderate degree of emphasis by the jury of leaders.
2. Priority should be given to the preparation of comprehensive general curriculum guidebooks for industrial arts. It is recommended that each state prepare at least one such comprehensive publication before it undertakes the preparation of courses of study which relate only to specific experience areas.
3. The practice of preparing separate publications applicable to various grade levels is highly desirable and should be expanded. It is also highly desirable to issue separate bulletins concerning special topics such as safety, program evaluation, administration of industrial arts and shop planning.
4. Persons preparing future state publications -- especially for elementary and junior high schools -- should arrange the organization of instructional experiences around broad areas such as manufacturing, communications, power and transportation rather than around traditional subjects such as woodworking and drawing.
5. The evaluation and revision of state industrial arts publications should be a continuous process under the direction of the state supervisor of industrial arts. The state supervisor needs a special staff member to coordinate committees of teachers supervisors, teacher educators and consultants engaged in the preparation and revision of publications.
6. In most states, it would be advisable to divide the work involved in preparing and revising industrial arts publications among a number of committees in different regions of the state. This would provide for broader professional participation without increasing travel expenditures. It would seem logical for such committees to meet on the campuses of state colleges and universities in order to utilize the library facilities and other services available at these institutions.

7. An adequate budget is essential to the preparation of quality state industrial arts publications. This budget should include travel expenses and salaries for all personnel, as well as funds for printing and distributing the materials. It is recommended that persons responsible for the preparation of future publications explore all possible sources of additional funds for this purpose. Particular attention should be directed toward the possibilities of financing the preparation of industrial arts publications under provisions of Titles III and XI of the National Defense Education Act and Title V of the Elementary and Secondary Education Act.

8. It is recommended that future industrial arts publications place increased emphasis on the following topics:

    a. The preparation of proposals utilizing federal funds.
    b. Evaluation of teachers and programs.
    c. Implications of recent research.
    d. Industrial arts programs for elementary schools.
    e. Industrial arts activities of special interest to girls.
    f. Special programs for the academically talented, slow learner and handicapped students.
    g. Services available to local districts through the state consultant for industrial arts and the industrial arts departments of colleges and universities.
    h. Objectives which involve the unique contributions of industrial arts.
    i. Teaching industrial arts through mass production and similar methods of modern industry.
    j. Problem-solving, research and experimentation as industrial arts teaching methods.
    k. Team teaching in industrial arts.
    l. Homework, home projects and similar out-of-class activities.
    m. Application of programmed learning techniques to industrial arts.

n. Providing for individual differences.
o. Utilizing resource speakers, field trips and other community resources.
p. Student reports and special investigations.
q. The contract method in industrial arts.
r. Suggestions for preparing tests in industrial arts.
s. Utilizing standardized tests in industrial arts.
t. The philosophy of pupil evaluation.
u. Membership information and services offered by various professional organizations.
v. Opportunities for in-service education.
w. Evaluation of physical facilities.
x. Recruiting future teachers for the industrial arts teaching profession.
y. Industrial arts clubs.

9. The practice of including long lists of books, periodicals, tools, supplies and companies marketing these materials should be discontinued in order to allow more space for discussion of current, substantive issues.

10. The practice of copying long lists of objectives and similar material from existing publications should likewise be avoided; persons responsible for the preparation of future state publications should emphasize the creative development of new approaches to industrial arts curriculum.

11. Whenever possible, state industrial arts publications should be issued in printed form. Quality paper and good illustrations add interest.

12. Those responsible for the preparation and revision of state guidebooks should keep in mind that the ultimate test of the usefulness of a publication is the extent to which it is used by practitioners in the field.

13. A few state departments of education regularly issue an industrial arts newsletter or similar periodical for the purpose of keeping teachers up-to-date on current issues, providing information about opportunities for in-service education, and making other announcements. This practice is highly desirable and should be expanded. When necessary, it would seem desirable for state

organizations of industrial arts educators to underwrite the publication and distribution of such newsletters.

14. Many leaders favor increased national continuity for industrial arts curriculum. The formation of a national industrial arts curriculum study group is recommended. This curriculum study group should be composed of recognized leaders; they should study the feasibility of increased continuity and periodically issue reports and recommendations.

15. Systematic study of contemporary approaches to industrial arts education by persons charged with the responsibility of preparing state publications is recommended. It is further recommended that a summer institute for state supervisors be held for this purpose. It might be possible for a college or university to obtain funds for such an institute under Title XI of the National Defense Education Act.

16. Professional organizations of industrial arts educators should take an active interest in the preparation and revision of publications for use in the field. Professional organizations can demonstrate their interest by passing resolutions urging needed action and by assisting in the preparation and distribution of needed publications.

17. It is recommended that persons engaged in the preparation of industrial arts publications utilize the findings of recent research in the field; new approaches such as the American Industry Project underway at Stout State University and the Industrial Arts Curriculum Project at Ohio State University are providing new concepts which are worthy of consideration.

18. Some system to assure regular distribution of industrial arts publications to the practitioners who need them should be developed in each state. The practice of distributing such publications "on request" is unsatisfactory because those who most need the publications may not take the initiative to order them; indeed, they may not realize that the publications exist. Some universities issue copies of their state's guidebooks to graduating industrial arts majors; this practice is desirable and should be expanded.

RECOMMENDATIONS FOR FURTHER STUDY

A few states issue publications which have been partially prepared by graduate classes in state universities. Further exploration and evaluation of this practice might suggest a possible solution to the problem of preparing industrial arts publications in those states which do not have adequate industrial arts supervisory staffs.

Results of this study demonstrate considerable interest in organizing instructional experiences around broad areas such as manufacturing, communications, power and transportation. In order to develop a meaningful curricular guide using this approach, it will be necessary to identify specific content for each of the broad areas of study. Organizational and administrative patterns would also differ from present programs. A study should be made to determine content and organizational patterns applicable to this approach.

Although it was not a part of this study, some change in the number and type of objectives included in the older and current state publications seemed evident. Many of the older state guides seem to have adopted the list of objectives contained in the 1953 American Vocational Association publication entitled, **Guide to Improving Instruction in Industrial Arts** (16); some of the newer guides list fewer objectives and confine their statements of objectives to the more unique contributions of industrial arts. A study should be made of evolving patterns of objectives for industrial arts.

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APPENDIX I

A SURVEY OF OPINION REGARDING STATE PUBLICATIONS FOR INDUSTRIAL ARTS

Rate each of the following topics according to the degree of emphasis you believe it should receive in modern state guidebooks for industrial arts by placing an X in the appropriate column. Please mark all items. You may add additional topics in the blank spaces provided at the bottom of each group. The first item has been completed as an example.

Explanation of the rating scale:

Extensive - This topic should be considered essential.

Much - This topic should receive a high degree of emphasis.

Moderate - This topic is significantly important.

Little - This topic is of only slight importance.

None - This topic should not be included.

	Extensive	Much	Moderate	Little	None
I. TOPICS PERTAINING TO THE ORGANIZATION AND ADMINISTRATION OF PROGRAMS.					
0. (Example) Criteria for selecting industrial arts teachers.	X				
1. Recommendations concerning class size and teacher load.					
2. Time allotment and scheduling procedures.					
3. Preparing proposals for projects utilizing federal funds.					
4. Budgetary practices, collecting and managing funds.					
5. Evaluating industrial arts teachers and programs.					
6. Implications of recent research.					
7. Concepts of shop organization (general shops, general unit shops and unit shops).					
8. Special problems related to the operation of a general shop.					
9. Industrial arts programs for elementary schools.					
10. Industrial arts programs for junior high schools.					
11. Industrial arts programs for high schools.					
12. Industrial arts teacher education programs at the college level.					
13. Industrial technology programs at the college level.					
14. Industrial arts programs for adults (non-college).					
15. Industrial arts for girls.					
16. Adapting programs to local needs.					
17. Administration and supervision of industrial arts.					
18. Inaugurating a new industrial arts program.					
19. Integrating industrial arts with mathematics, science and other subject areas.					
20. Recommended sequential pattern of courses for various levels.					
21. Industrial arts programs for the academically talented.					
22. Industrial arts programs for the slow learner.					
23. Industrial arts programs for the "educationally handicapped."					
24. Industrial arts programs for the physically handicapped (including the blind.)					
25. Services provided to local districts by the state consultant for industrial arts.					
26. Public relations for industrial arts.					
27. Industrial arts summer school programs.					
28. Guidance responsibilities of the industrial arts teacher.					
29. Services available to local school districts through the industrial arts departments of state colleges and universities.					
30. _____					
II. TOPICS PERTAINING TO OBJECTIVES.					
1. Objectives of general education.					
2. General statements of objectives for industrial arts.					
3. Objectives for industrial arts in the elementary school.					
4. Objectives for industrial arts in the junior high school.					
5. Objectives for industrial arts in the senior high school.					
6. Course objectives.					

Extensive	Much	Moderate	Little	None

7. Suggestions for attaining objectives.
8. _____

III. TOPICS PERTAINING TO HISTORICAL PERSPECTIVE AND PHILOSOPHY.

1. Historical perspective.
2. Present status and trends in industrial arts education.
3. Philosophy of general education.
4. Philosophy of industrial arts and its relationship to general education.
5. Relationship of industrial arts to vocational education.
6. _____

IV. TOPICS PERTAINING TO THE SELECTION AND ORGANIZATION OF SUBJECT MATTER.

1. Recommendations concerning the teaching of related subject matter.
2. Preparing local courses of study.
3. Preparing lesson plans for industrial arts.
4. Criteria for selecting instructional content.
5. _____

V. TOPICS PERTAINING TO CLASS MANAGEMENT.

1. Features of a pupil personnel organization.
2. Beginning and ending the school year.
3. Tool, supply, equipment and facility management.
4. Holding student interest and maintaining discipline.
5. Safety (including the administration of safety tests).
6. Record keeping.
7. Non-instructional use of the industrial arts facilities and staff for maintenance and similar purposes.
8. _____

VI. TOPICS PERTAINING TO TEACHING METHODS AND TECHNIQUES.

1. Teaching industrial arts through the traditional project method.
2. Teaching industrial arts through the exercise method.
3. Teaching industrial arts through mass production and similar methods of modern industry.
4. Problem solving, research and experimentation as industrial arts teaching methods.
5. The demonstration method.
6. Team teaching in industrial arts.
7. Homework, home projects and similar out-of-class activities.
8. Programmed learning for industrial arts.
9. Providing for individual differences.
10. Utilizing resource speakers, field trips and other community resources.
11. Class discussions, lectures, student reports, special investigations.
12. The contract method in industrial arts (a formal written agreement between the student and teacher specifying in detail the amount, kind and quality of work to be performed in a specified time).
13. _____

VII. TOPICS PERTAINING TO THE SELECTION AND USE OF TEACHING MATERIALS.

1. Lists of books and periodicals for instructional purposes.
2. Sources of audio-visual and other teaching materials.
3. Information sheets, assignment sheets, job sheets, operation sheets, plan sheets.
4. Criteria for selecting teaching materials.
5. Suggestions for using audio-visual materials in industrial arts.
6. Organizing and managing a shop library.

Extensive	Much	Moderate	Little	None

3. Arranging shop equipment.
4. Lists of tool and supply companies.
5. Evaluating physical facilities.

Extensive	Much	Moderate	Little	None

6. Remodeling existing facilities.
7. Care and maintenance of equipment.
8. _____

XII. MISCELLANEOUS TOPICS.

1. Basic definitions.
2. Instructions for substitute teachers.
3. Recruiting future teachers for the industrial arts teaching profession.
4. Industrial arts clubs.
5. Purpose and directions for using state publications for industrial arts.
6. Mobile shops for industrial arts.

XIII. QUESTIONS PERTAINING TO THE PREPARATION OF STATE PUBLICATIONS.

1. State publications for industrial arts are often prepared by committees of industrial arts educators. Indicate the importance you attach to each of the following persons or groups of persons with regard to service on such committee. (Mark an X in the appropriate column for each item below.)

a. Industrial arts teachers.
b. The state supervisor of industrial arts.
c. The state supervisor of trade and industrial education.
d. City, county and district supervisors of industrial arts.
e. Industrial arts teacher educators from colleges and universities in the state.
f. Representatives of state industrial arts associations.
g. _____

2. Ideally, how often do you believe state publications for industrial arts should be evaluated and revised? (Check one of the blanks below.)

_____ a. Every year. _____ c. Every three years _____ e. Every ten years.
_____ b. Every two years. _____ d. Every five years _____ f. _____

3. State publications for industrial arts vary considerably. Some states issue detailed courses of study for specific subject areas; other states issue only general curriculum guides; and other states issue both detailed courses of study and general curriculum guides. Please indicate the type of publication which you consider best by checking one of the blanks below.

_____ a. Detailed courses of study for specific subject areas.
_____ b. General curriculum guidebooks.
_____ c. Both detailed courses of study and general curriculum guidebooks.

4. A recent survey of industrial arts programs in the United States revealed that some programs are being organized around broad subject areas concerned with manufacturing, communications, power and transportation instead of the traditional courses such as drawing, woodworking and metalworking. Indicate your opinion with regard to this matter by checking one of the blanks below.

_____ a. As future state publications for industrial arts are prepared, I believe they should continue to organize instructional experiences around traditional subject areas such as drawing, woodworking and metalworking.

_____ b. As future state publications for industrial arts are prepared, I believe they should emphasize the organization of instructional experiences around broader subject areas such as manufacturing, communications, power and transportation.

5. What steps would you suggest to improve state publications in the field of industrial arts education? (Attach additional sheet if needed).

_____
_____
_____
_____

6. I would like to have a copy of the abstract of this study mailed to me.

Name: _____ Address: _____

Extensive	Much	Moderate	Little	None

7. Sources of project ideas.
8. Producing and using cut-aways, mock-ups, models and similar aids.
9. Using textbooks in industrial arts.
10. _____

VIII. TOPICS PERTAINING TO THE MEASUREMENT OF STUDENT ACHIEVEMENT.

1. Progress chart.
2. Determining student grades.
3. Suggestions for preparing tests in industrial arts.
4. Sources of standardized tests for industrial arts.
5. Philosophy of evaluation.
6. _____

IX. TOPICS PERTAINING TO THE TEACHING OF SPECIFIC INDUSTRIAL ARTS COURSES (COURSE OUTLINES, COURSES OF STUDY, RECOMMENDATIONS CONCERNING CONTENT AND LISTS OF MATERIALS NEEDED FOR TEACHING SPECIFIC COURSES).

1. Technical drawing.
2. Electricity/electronics.
3. Metalworking.
4. Woodworking.
5. Graphic arts.
6. Power mechanics.
7. Industrial plastics.
8. Materials testing.
9. Household mechanics.
10. Design
11. General crafts (including wood carving, metal tooling, lapidary, plastic crafts, leather work, ceramics and similar activities.).
12. Construction.
13. Manufacturing.
14. Transportation and power.
15. Communications.
16. Exploratory study of American industry.
17. Photography.
18. Automation and numerical control.
19. _____

X. TOPICS PERTAINING TO THE INDUSTRIAL ARTS STAFF.

1. List of names, addresses, membership information and services offered by the various professional organizations.
2. Certification requirements.
3. Lists of professional books and periodicals.
4. Opportunities for in-service education.
5. Methods of conducting classroom research to solve day-to-day problems.
6. Check list for self-evaluation.
7. Personal and professional qualifications of teachers.
8. Directory of teachers, teacher educators and supervisors.
9. _____

XI. TOPICS PERTAINING TO PLANNING AND EQUIPPING SHOPS.

1. Principles of shop planning and shop specifications.
2. Selecting and purchasing tools and equipment.

APPENDIX II

THE WORD COUNT TECHNIQUE AS A METHOD OF DOCUMENTARY ANALYSIS

This procedure is a recognized method of descriptive research. Cook has pointed out that it provides a rather precise quantitative measure of the relative emphasis on a variety of generalizations which have appeared in different books (9:85).

A review of previous research and current literature was used to suggest a tentative list of topics which could be used in classifying the material contained in state industrial arts publications. This list was revised as necessary during the analysis.

Degree of emphasis for textual material was measured by the total number of words devoted to particular topics as estimated by a line count. Degree of emphasis for non-textual material such as maps, charts, pictures and so forth was recorded in square inches, and the number of square inches devoted to each topic was converted into words displaced. The estimated number of words displaced by non-textual material and the estimated number of words devoted to textual material were added together to obtain an estimated total word value for each topic.

The title page, foreword, table of contents, acknowledgements, summary, bibliography and index were excluded from the evaluation. Chapter titles, paragraph headings and similar headings were likewise excluded.

Some state curricular materials consist of several publications which may devote space to the same topic in more than one pamphlet. For purposes of determining total degree of emphasis on the various topics by each state, all current materials from individual states were considered as one block. When seeking to discover curricular trends reflected in the material, the handbooks were divided into two groups—those published prior to 1962 and those published during and after 1962.

Most topics in the guides examined during the analysis seemed to divide rather well into the list of mutually exclusive categories. In a few cases, the publications contained portions of material which overlapped the categorical topics. When this occurred, an estimate was made of the degree of emphasis placed on each of the overlapping topics, and the corresponding proportional emphasis was recorded for each topic.

APPENDIX III

INDUSTRIAL ARTS GUIDEBOOKS ANALYZED FOR THIS STUDY

Alabama	(None available)
Alaska	**A Suggested Guide for Industrial Arts.** Juneau: State Department of Education, 1966.
Arizona	**Electricity-Electronics, Arizona Industrial Arts Curriculum Guide.** Phoenix: State Department of Public Instruction, 1967.
Arkansas	**Industrial Arts: General Shop.** Little Rock: State Department of Education, 1952.
California	**Industrial Arts Education.** Sacramento: State Department of Education, 1952.
	Safety Instruction in Industrial Arts Education. State Department of Education, 1955.
	Industrial Arts and Science. Sacramento: State Department of Education, 1965.
	Industrial Arts Safety Instruction. Sacramento: State Department of Education, 1966.
	Industrial Arts Education in California. Sacramento: State Department of Education, 1958.
	Suggested Course of Instruction in Industrial Arts for the Senior High School Level. Sacramento: State Department of Education, 1955.
	Industrial Arts Course Outlines, Grades Seven, Eight and Nine. Sacramento: State Department of Education, 1965.
	Planning and Equipping Industrial Arts Shops in California Schools. Sacramento: State Department of Education, 1956.
	Mathematics and Industrial Arts Education. Sacramento: State Department of Education, 1960.

Colorado	**Industrial Arts: A Guide for Colorado Schools.** Denver: State Department of Education, 1966.
Connecticut	**A Safety Check List for School Shops.** Hartford: State Department of Education, 1955.
	The Pyramid Approach to Industrial Arts Education. (mimeographed) Hartford: State Department of Education, 1955.
Delaware	(None available)
Florida	**A Guide: Industrial Arts in Florida Schools.** Tallahassee: State Department of Education, 1958.
	Industrial Arts Education. Tallahassee: State Department of Education, 1958.
	Elementary School Industrial Arts. Tallahassee: State Department of Education, 1967.
	County Course of Study: Industrial Arts. Tallahassee: State Department of Education, 1966.
	The Philosophy of Industrial Technology (Industrial Arts), Scope and Sequence of the Program. (mimeographed) Tallahassee: State Department of Education, 1967.
	Guide to the New Technology in Industrial Arts. Tallahassee: State Department of Education, 1948.
	Personnel Directory for Industrial Arts Education. Tallahassee: State Department of Education, 1967.
Georgia	**Industrial Arts for Georgia Schools.** Atlanta: State Department of Education, 1958.
	Industrial Arts for the Middle Grades. Atlanta: State Department of Education, 1967.
Hawaii	**Instructional Guide for Industrial Crafts (Industrial Arts).** Honolulu: State Department of Education, 1967.

Idaho	**Industrial Arts Curriculum Planning Guide.** Boise: State Department of Education, 1964.
Illinois	**Guidelines for Industrial Arts Instruction.** Springfield: Office of the Superintendent of Public Instruction, 1964.
	Industrial Arts for the Modern School, Its Functions and Organization. Springfield: Office of the Superintendent of Public Instruction, 1949.
	Industrial Arts in Grades Seven, Eight and Nine. Springfield: Office of the Superintendent of Public Instruction, 1953.
	Industrial Arts General Shop – A Program for the Small School. Springfield: Office of the Superintendent of Public Instruction, 1950.
Indiana	**A Guide for Teaching Electricity and Electronics in Industrial Arts in Indiana.** Indianapolis: State Department of Public Instruction, 1965.
	A Guide for Teaching Power Mechanics in Industrial Arts in Indiana. Indianapolis: State Department of Public Instruction, 1964.
Iowa	(None available)
Kansas	**Industrial Arts.** Topeka: State Department of Public Instruction, 1949.
Kentucky	**The Program of Industrial Arts Education in Kentucky.** Frankfort: State Department of Education, 1962.
Louisiana	**Industrial Arts for Louisiana Schools.** Baton Rouge: State Department of Education, 1958.
Maine	(None available)

Maryland	(None available)
Massachusetts	(None available)
Michigan	**Industrial Arts Programing for the High School.** Lansing: State Department of Education, 1965.
	Industrial Education Facilities. Lansing: State Department of Education, 1964.
	Industrial Arts in the Junior High School. Lansing: State Department of Education, 1964.
Minnesota	**A Guide for Instruction in Industrial Arts.** St. Paul: State Department of Education, 1967.
Mississippi	**Industrial Arts for Mississippi Schools.** Jackson: State Department of Education, 1966.
	Industrial Arts for Mississippi High Schools. Jackson: State Department of Education, 1959.
Missouri	(None available)
Montana	(None available)
Nebraska	**Industrial Education Curriculum Guide.** Lincoln: State Department of Education, 1966;
	Administrative Guidelines for Industrial Education. Lincoln: State Department of Education, 1966.
Nevada	(None available)
New Hampshire	(None available)
New Jersey	(None available)
New Mexico	**Industrial Arts: New Mexico State Planning Guide.** Santa Fe: State Department of Education, 1963.
New York	**Printing for the Comprehensive General Shop.** Albany: State Education Department, 1959.

	Ceramics for the Comprehensive General Shop. Albany: State Education Department, 1959.
	Woodworking for the Comprehensive General Shop. Albany: State Education Department, 1959.
	Electricity for the Comprehensive General Shop. Albany: State Education Department, 1959.
	General Woodwork Syllabus. Albany: State Education Department, 1956.
	Industrial Arts Syllabus in Comprehensive General Shop (Grades Seven, Eight and Nine). Albany: State Education Department, 1949.
	Plastics for Industrial Arts. Albany: State Education Department, 1966.
North Carolina	(None available)
North Dakota	**Industrial Arts Education in North Dakota.** Bismarck: State Department of Public Instruction, 1963.
Ohio	**A Guide for Industrial Arts in Ohio Schools.** Columbus: State Department of Education, 1963.
	Organization and Administration for Industrial Arts Education. Columbus: State Department of Education, 1959.
	Industrial Arts Curriculum Guide for Drafting in Ohio Schools. Columbus: State Department of Education, 1967.
	Industrial Arts Curriculum Guide for Electricity in Ohio Schools. Columbus: State Department of Education, 1965.
	Industrial Arts Curriculum Guide for Industrial Crafts in Ohio Schools. Columbus: State Department of Education, 1966.

	Industrial Arts Curriculum Guide for Woodworking in Ohio Schools. Columbus: State Department of Education, 1966.
	Industrial Arts Curriculum Guide for Metals in Ohio Schools. Columbus: State Department of Education, 1967.
Oklahoma	**A Guide to Improvement of Industrial Arts in Oklahoma Schools.** Oklahoma City: State Department of Education, 1965.
Oregon	(None available)
Pennsylvania	**Industrial Arts: Industrial Testing.** Harrisburg: State Department of Education, 1967.
	Industrial Arts: Philosophy and Objectives. Harrisburg: State Department of Education, 1964.
	Industrial Arts: Guide for School Administrators. Harrisburg: State Department of Education, 1964.
	Industrial Arts. (Working draft for rewriting bulletin 331) Harrisburg: State Department of Education, 1967.
Rhode Island	(None available)
South Carolina	**Guide for Industrial Arts Education.** Columbia: State Department of Education, 1963.
South Dakota	**Industrial Arts Education.** Pierre: State Department of Public Instruction, 1967.
Tennessee	(None available)
Texas	**Industrial Arts, Electricity-Electronics.** Austin: Texas Education Agency, 1966.
	Industrial Arts, Drafting. Austin: Texas Education Agency, 1964.
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Virginia	**Administration and Organization Manual for Industrial Arts Education.** Richmond: State Board of Education, 1966.
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West Virginia	(None available)
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CONNECTICUT; 1967

Data were collected from 118 schools and colleges concerning 8,512 students who had been graduated from full-time preparatory courses in one of the seven vocational education program fields. Of these, 7,349 were high school graduates and 1,163 were post-secondary school graduates. Major findings included: (1) 25.9 percent continued full-time education, (2) 6.1 percent entered military service, (3) 83.1 percent were employed in the occupation for which they were trained or one which was related, (4) 2.0 percent were unemployed, (5) 4.0 percent were unaccounted for, and (6) the mean hourly wage was $1.89. Frequency data are reported in nine tables by sex, program field, school, and subject area. (EM)

VT 007 901

Connecticut State Department of Education
Division of Vocational Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GRADUATE FOLLOW-UP
1967

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FOREWORD

Each fall the Research Coordinating Unit of the Division of Vocational Education conducts a statewide survey of the status of vocational education graduates. The results of this survey which are published herein are used on state and local levels as one of the measures of the success of vocational programs in preparing youth for the world of work.

This booklet has been prepared to make readily available a comprehensive summary of placement data by vocational program area and on an individual school basis. Graduates of both secondary and post-secondary programs are reported.

We hope that this report will continue to be useful to vocational educators and others throughout Connecticut.

Joseph F. Murphy
Director
Division of Vocational Education

CONNECTICUT STATE DEPARTMENT OF EDUCATION
Hartford

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INTRODUCTION

One hundred and eighteen schools and colleges reported a total of 8,512 students, representing the seven program fields in vocational education in Connecticut, graduating from full-time preparatory courses.

A total of 7,349 graduates completed secondary level programs while the remaining 1,163 graduates came from post-secondary programs offered in state, community, and technical colleges and vocational-technical schools.

It should be noted that 83 percent of those graduates who were available for placement were employed in occupations for which they were trained or in related occupations. The average hourly wage for this group was 1.89 per hour. Fifteen percent of the available graduates were employed in non-related occupations.

Graduates continuing their education on a fulltime basis represented 26 percent of the total. Also worthy of note is the fact that only 106 graduates or 1.24 percent were unemployed. The unemployment rate for all of Connecticut for 1967 was 3.4 percent.

Of the total number of graduates, 339 or approximately four percent were unaccounted for.

HIGHLIGHTS

	NUMBER	PERCENT
Total Number of Vocational Graduates	8512	
Not Available for Placement		
Continued Full-time School	2201	25.9
Entered Armed Services	519	6.1
Status Unknown	339	4.0
Other Reasons	206	2.4
Available for Placement	5247	
Employed in Occupation Trained or Related	4360	83.1
Employed in Occupation Unrelated to Training	781	14.9
Unemployed	106	2.0
Mean Hourly Wage	$1.89	

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VOCATIONAL PROGRAMS

PLACEMENT SUMMARY

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
VOCATIONAL AGRICULTURE											
MALE	168	72	29	0	1	66	51	77	2.09	14	1
FEMALE	21	11	0	1	0	9	3	33	1.68	6	0
TOTAL	189	83	29	1	1	75	54	72	2.04	20	1
DISTRIBUTIVE EDUCATION											
MALE	423	139	83	1	22	178	132	74	1.92	35	11
FEMALE	373	74	2	7	29	261	211	80	1.69	44	6
TOTAL	796	213	85	8	51	439	343	78	1.80	79	17
HEALTH EDUCATION											
MALE	5	0	0	0	0	5	4	80	2.32	1	0
FEMALE	653	18	1	16	41	577	522	90	2.09	48	7
TOTAL	658	18	1	16	41	582	526	90	2.12	49	7

VOCATIONAL PROGRAMS PLACEMENT SUMMARY	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
HOME ECONOMICS FOR GAINFUL EMPLOYMENT											
MALE	60	21	10	1	5	23	7	30	1.67	16	0
FEMALE	52	7	0	3	2	40	26	65	1.65	13	1
TOTAL	112	28	10	4	7	63	33	52	1.66	29	1
BUSINESS AND OFFICE EDUCATION											
MALE	701	360	93	4	21	223	125	56	1.91	96	2
FEMALE	3787	1015	7	139	157	2469	2074	84	1.72	338	57
TOTAL	4488	1375	100	143	178	2692	2199	81	1.76	434	59
TECHNICAL EDUCATION											
MALE	402	121	30	0	26	225	221	98	3.14	4	0
FEMALE	13	0	0	0	0	13	13	100	2.77	0	0
TOTAL	415	121	30	0	26	238	234	98	3.06	4	0

VOCATIONAL PROGRAMS

PLACEMENT SUMMARY

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
TRADE AND INDUSTRIAL EDUCATION											
MALE	1633	342	264	26	25	976	822	84	2.23	139	15
FEMALE	221	21	0	8	10	182	149	81	1.72	27	6
TOTAL	1854	363	264	34	35	1158	971	83	2.18	166	21
GRAND TOTAL ALL VOCATIONAL PROGRAMS											
MALE	3392	1055	509	32	100	1696	1362	80	2.19	305	29
FEMALE	5120	1146	10	174	239	3551	2998	84	1.76	476	77
TOTAL	8512	2201	519	206	339	5247	4360	83	1.89	781	106

VOCATIONAL AGRICULTURE

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY											
Housatonic Valley Reg. (Canaan)	9	3	1	1	0	4	4	100	1.86	0	0
Glastonbury High School	10	3	4	0	0	3	2	66	1.85	1	0
Killingly High School	8	3	0	0	0	5	3	60	2.32	2	0
Lyman Memorial High (Lebanon)	3	2	0	0	0	1	1	100	1.50	0	0
Wamogo Regional (Litchfield)	15	5	5	0	0	5	5	100	1.59	0	0
Woodrow Wilson (Middletown)	18	11	2	0	0	5	2	40	2.00	3	0
Nathan Hale-Ray (Moodus)	9	5	1	0	0	3	1	33	3.05	2	0
New Milford High School	6	1	1	0	0	4	4	100	2.50	0	0
Norwalk (Center Voc. Arts)	2	0	0	0	0	2	1	50	2.10	1	0
Norwich Free Academy	2	0	1	0	0	1	1	100	2.00	0	0
Rockville High School	10	8	0	0	0	2	2	100	——	0	0
Southington High School	24	9	7	0	0	8	1	12	3.00	7	0
E.O. Smith (Storrs)	11	7	1	0	0	3	3	100	1.67	0	0
Suffield High School	11	5	0	0	1	5	3	60	2.00	1	1
Lyman Hall High (Wallingford)	28	14	3	0	0	11	9	81	2.26	2	0
Woodbury High School	18	5	2	0	0	11	11	100	1.98	0	0
Woodstock Free Academy	5	2	1	0	0	2	1	50	2.00	1	0
GRAND TOTAL	189	83	29	1	1	75	54	72	2.04	20	1

DISTRIBUTIVE EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY											
Branford High School	17	6	3	0	0	8	8	100	1.87	0	0
Cromwell High School	22	11	2	1	0	8	3	37	1.80	5	0
Danbury High School	15	2	0	0	3	10	8	80	1.50	2	0
East Hartford High School	10	2	0	0	0	8	6	75	1.70	2	0
Penney High School (E. Hartford)	42	13	4	1	1	23	17	73	1.87	5	1
East Haven High School	19	4	1	0	6	8	0	——	——	2	6
Greenwich High School	20	10	1	0	0	9	5	55	1.72	4	0
Fitch High School (Groton)	53	9	4	2	4	34	18	52	1.81	12	4
Bulkeley High School (Hartford)	11	2	2	0	0	7	2	28	1.50	5	0
Hartford Public High School	41	10	5	0	0	26	25	96	1.61	1	0
Weaver High School (Hartford)	23	7	1	0	11	4	1	25	1.60	3	0
Manchester High School	14	6	1	0	0	7	5	71	1.80	2	0
Middletown High School	5	1	1	0	1	2	1	50	2.00	1	0
Milford High School	41	20	8	1	0	12	12	100	2.01	0	0
Jonathan Law High (Milford)	111	15	20	0	24	52	40	76	1.75	12	0
Naugatuck High School	26	4	4	0	0	18	15	83	1.60	3	[illegible]

DISTRIBUTIVE EDUCATION (1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY (Cont'd)											
Wilbur Cross High (New Haven)	15	0	2	0	0	13	10	76	1.60	3	0
Hillhouse High (New Haven)	23	6	1	0	0	16	16	100	1.65	0	0
North Branford High School	21	10	2	0	0	9	9	100	1.50	0	0
Norwalk (Center Voc. Arts)	7	2	1	0	0	4	4	100	2.82	0	0
Norwalk High School	7	2	1	0	0	4	3	75	2.12	1	0
Shelton High School	16	4	0	0	0	12	6	50	1.72	2	4
Stamford High School	24	9	0	0	0	15	13	86	1.72	2	0
Rippowam High School (Stamford)	12	5	1	0	0	6	6	100	1.76	0	0
Thomaston High School	13	2	1	0	0	10	3	30	1.50	5	2
Torrington High School	13	2	0	0	0	11	11	100	1.70	0	0
Trumbull High School	16	1	2	0	0	13	13	100	1.70	0	0
Lyman Hall High (Wallingford)	11	3	2	0	0	6	6	100	2.32	0	0
Crosby High School (Waterbury)	19	2	1	0	0	16	16	100	1.61	0	0
Kennedy High School (Waterbury)	18	9	1	0	0	8	8	100	1.60	0	0
Wilby High School (Waterbury)	26	7	2	2	0	15	15	100	1.60	0	0
West Haven High School	15	0	5	0	1	9	6	66	1.87	3	0

DISTRIBUTIVE EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SECONDARY (Cont'd)											
Wethersfield High School	26	12	2	0	0	12	11	91	2.06	1	0
Windham High School	10	3	1	1	0	5	5	100	1.88	0	0
Wolcott High School	22	5	2	0	0	15	14	93	1.70	1	0
TOTAL — SECONDARY	784	206	84	8	51	435	341	78	1.80	77	17
POST-SECONDARY											
Central Conn. State College	4	2	0	0	0	2	0	—	—	2	0
Manchester Community College	4	2	0	0	0	2	2	100	3.00	0	0
Norwalk Community College	4	3	1	0	0	0	0	—	—	0	0
TOTAL — POST-SECONDARY	12	7	1	0	0	4	2	100	3.00	2	0
GRAND TOTAL	796	213	85	8	51	439	343	78	1.80	79	17

HEALTH EDUCATION

(1)	(2) TOTAL NUMBER OF GRADUATES	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) STATUS UNKNOWN	(7) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (8) NUMBER	(9) PERCENT	(10) MEAN HOURLY WAGE	(11) EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	(12) UNEMPLOYED
SECONDARY											
NURSES AIDE	92	13	1	8	6	64	43	67	1.84	19	2
Voc Opportunity Center (Bpt)	42	8	0	3	6	25	20	80	1.89	3	2
Danbury High School	22	2	0	1	0	19	10	52	1.50	9	0
Fitch High School (Groton)	12	1	0	4	0	7	6	85	2.17	1	0
Wamogo Regional (Litchfield)	5	1	0	0	0	4	2	50	1.45	2	0
Norwalk (Center Voc Arts)	2	1	1	0	0	0	0	—	—	0	0
Southington High School	9	0	0	0	0	9	5	55	1.88	4	0
TOTAL — SECONDARY	92	13	1	8	6	64	43	67	1.84	19	2
POST-SECONDARY											
PRACTICAL NURSING	508	3	0	8	32	465	436	93	2.26	25	4
Bullard-Havens Tech School	70	0	0	1	0	69	69	100	2.30	0	0
Henry Abbott Tech School	18	0	0	5	0	13	13	100	2.26	0	0
Eli Whitney Tech School	82	0	0	2	3	77	76	98	2.25	0	1
A.I. Prince Tech School	71	1	0	0	0	70	70	100	2.21	0	0

HEALTH EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
POST-SECONDARY (Cont'd)											
Vinal Tech School	24	0	0	0	0	24	18	75	2.25	6	0
E.C. Goodwin Tech School	122	2	0	0	0	120	109	90	2.38	11	0
J.M. Wright Tech School	37	0	0	0	0	37	37	100	2.40	0	0
W.F. Kaynor Tech School	37	0	0	0	26	11	11	100	2.23	0	0
Windham Tech School	47	0	0	0	3	44	33	75	2.19	8	3
DENTAL ASSISTANT	55	2	0	0	3	50	44	88	1.96	5	1
Eli Whitney Tech School	27	1	0	0	2	24	21	87	1.80	2	1
A.I. Prince Tech School	18	1	0	0	0	17	14	82	1.80	3	0
J.M. Wright Tech School	10	0	0	0	1	9	9	100	2.28	0	0
MED. SEC. AND LAB.	3	0	0	0	0	3	3	100	2.50	0	0
Manchester Community College	3	0	0	0	0	3	3	100	2.50	0	0
TOTAL — POST-SECONDARY	566	5	0	8	35	518	483	93	2.23	30	5
GRAND TOTAL	658	18	1	16	41	582	526	90	2.12	49	7

HOME ECONOMICS FOR GAINFUL EMPLOYMENT

(1)	(2) TOTAL NUMBER OF GRADUATES	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) STATUS UNKNOWN	(7) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (8) NUMBER	(9) PERCENT	(10) MEAN HOURLY WAGE	(11) EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	(12) UNEMPLOYED
SECONDARY											
VOCATIONAL HOMEMAKING	15	1	0	0	1	13	12	92	1.57	1	0
Bullard-Havens Tech School	6	0	0	0	0	6	5	83	1.50	1	0
J.M. Wright Tech School	9	1	0	0	1	7	7	100	1.61	0	0
FOOD SERVICES	95	27	10	4	6	48	19	40	1.69	28	1
Hamden High School	14	6	0	1	0	7	2	28	2.00	4	1
Hartford Public High School	16	1	4	1	2	8	3	37	1.55	5	0
Manchester High School	12	5	1	0	0	6	2	33	1.78	4	0
Lyman Hall High (Wallingford)	20	6	1	0	4	9	4	44	1.75	5	0
Windham High School	11	4	1	2	0	4	2	50	1.60	2	0
Norwalk Center for Voc. Arts	7	1	1	0	0	5	2	40	1.62	3	0
Windsor High School	9	4	2	0	0	3	0	—	—	3	0
Rham Regional (Hebron)	6	0	0	0	0	6	4	66	1.50	2	0
HOUSEKEEPING AIDE	2	0	0	0	0	2	2	100	1.75	0	0
Bethel High School	2	0	0	0	0	2	2	100	1.75	0	0
GRAND TOTAL	112	28	10	4	7	63	33	52	1.66	29	1

BUSINESS AND OFFICE EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY											
General Clerk-Typist	2135	616	47	70	88	1314	1045	79	1.70	233	36
Stenographer	1074	310	1	29	50	684	621	90	1.78	47	16
Bookkeeper	798	312	33	24	21	408	330	80	1.71	71	7
Data Processing	390	103	11	17	13	246	168	68	1.78	78	0
TOTAL — SECONDARY	4397	1341	92	140	172	2652	2164	81	1.73	429	59
POST-SECONDARY											
Business Administration	41	24	5	0	3	9	7	77	2.80	2	0
Accounting	20	10	2	1	1	6	4	66	2.95	2	0
Secretarial	30	0	1	2	2	25	24	96	2.28	1	0
TOTAL — POST-SECONDARY	91	34	8	3	6	40	35	87	2.69	5	0

BUSINESS AND OFFICE EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY SCHOOLS											
Bethel High School	21	9	1	0	0	11	11	100	2.02	0	0
Bloomfield High School	50	8	4	5	0	33	28	84	1.80	5	0
Bolton High School	26	10	1	0	1	14	14	100	1.86	0	0
Branford High School	48	26	3	0	0	19	11	57	1.82	6	2
Bassick High School (Bridgeport)	47	10	2	0	5	30	27	90	1.59	3	0
Central High School (Bridgeport)	130	28	2	4	1	95	77	81	1.58	16	2
Harding High School (Bridgeport)	100	19	3	3	4	71	43	60	1.57	22	6
Brookfield High School	32	7	0	2	10	13	8	61	1.65	4	1
Canton High School	15	5	1	2	0	7	6	85	1.65	1	0
Cheshire High School	88	32	1	6	4	45	34	75	——	10	1
Bacon Academy (Colchester)	9	1	0	0	1	7	7	100	1.47	0	0
Cromwell High School	26	11	2	1	0	12	10	83	1.80	1	1
Danbury High School	128	23	0	6	3	96	76	79	1.50	20	0
Derby High School	75	31	0	0	0	44	42	95	1.82	2	0
Durham High School	12	4	0	0	0	8	6	75	1.45	2	0
East Hampton High School	67	24	4	0	4	35	34	97	1.68	1	0

BUSINESS AND OFFICE EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SECONDARY (Cont'd)											
Roger Ludlowe H.S. (Fairfield)	86	24	2	0	2	58	55	94	1.65	2	1
Andrew Warde H.S. (Fairfield)	85	26	3	3	2	51	45	88	1.65	6	0
Farmington High School	35	17	0	0	1	17	15	88	1.82	2	0
Greenwich High School	46	4	1	2	27	12	11	91	2.02	1	0
Fitch High School (Groton)	66	13	0	4	5	44	29	65	1.68	14	1
Hamden High School	96	23	3	1	8	61	54	88	1.71	4	3
Bulkeley High School (Hartford)	102	18	2	0	0	82	65	79	1.72	11	6
Hartford Public High School	139	16	2	3	0	118	89	75	1.71	23	6
Weaver High School (Hartford)	49	12	0	0	19	18	17	94	1.76	0	1
Litchfield High School	15	1	0	1	0	13	13	100	1.74	0	0
Daniel Hand High School (Madison)	28	16	1	0	0	11	9	81	——	1	1
Manchester High School	99	32	1	1	4	61	54	88	2.15	7	0
Francis Maloney High (Meriden)	78	16	2	6	0	54	49	90	1.73	5	0
Orville Platt High (Meriden)	93	19	2	8	5	59	49	83	1.78	6	4
Masuk High School (Monroe)	34	12	0	4	0	18	16	88	1.75	2	0
Naugatuck High School	95	38	0	0	0	57	46	80	1.57	11	0

BUSINESS AND OFFICE EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SECONDARY (Cont'd)											
New Britain Senior High School	124	17	2	7	5	93	92	98	1.75	1	0
Pulaski High School (New Britain)	35	6	0	2	2	25	24	96	1.75	1	0
New Milford High School	30	8	0	2	0	20	12	60	1.57	7	1
Norwalk High School	65	6	0	1	3	55	55	100	1.75	0	0
Norwalk (Center Voc. Arts)	10	3	2	0	0	5	4	80	1.90	1	0
Old Saybrook High School	19	14	0	0	0	5	4	80	2.05	1	0
Terryville High (Plymouth)	11	4	0	0	0	7	5	71	1.60	1	1
Portland High School	73	25	2	4	1	41	23	56	1.72	17	1
Ridgefield High School	34	26	2	1	0	5	3	60	2.22	2	0
Rocky Hill High School	49	29	2	0	0	18	13	72	1.99	5	0
Shelton High School	41	12	0	0	0	29	16	55	1.63	8	5
Henry James Mem. High (Simsbury)	23	10	0	0	3	10	8	80	1.90	1	1
Southbury High School	46	28	0	2	10	6	5	83	1.68	0	1
Southington High School	68	23	1	6	0	38	38	100	1.56	0	0
Stafford High School	32	5	0	3	0	24	20	83	1.72	4	0
Stamford High School	280	158	4	6	3	109	96	88	1.75	13	0

BUSINESS AND OFFICE EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY (Cont'd)											
Rippowam High School (Stamford)	187	107	0	0	0	80	68	85	1.83	12	0
Stratford High School	152	29	1	3	7	112	66	58	1.75	46	0
F.Scott Bunnell High (Stratford)	125	35	3	5	0	82	61	74	1.71	20	1
Thomaston High School	25	7	0	0	0	18	10	55	1.57	8	0
Trumbull High School	96	52	2	2	1	39	32	82	1.68	7	0
Rockville High School	68	23	4	2	2	37	34	91	1.87	2	1
Lyman Hall High (Wallingford)	88	18	2	5	1	62	50	80	1.62	8	4
Washington High School	8	0	0	0	0	8	8	100	1.50	0	0
Watertown High School	38	5	2	1	0	30	21	70	1.29	9	0
West Haven High School	180	27	6	7	16	124	111	89	2.00	8	5
Wethersfield High School	21	8	0	1	0	12	12	100	2.00	0	0
Wilton High School	19	3	0	0	3	13	6	46	1.85	7	0
Windham High School	143	31	3	10	2	97	87	89	1.79	10	0
Windsor Locks High School	68	15	6	1	0	46	36	78	1.79	10	0
Wolcott High School	32	7	0	0	1	24	9	37	1.68	14	1
Amity Regional (Bethany)	81	39	2	0	5	35	35	100	1.68	0	0

BUSINESS AND OFFICE EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SECONDARY (Cont'd)											
Valley Regional (Deep River)	26	9	2	2	0	13	12	92	1.62	1	0
Rham Regional High School (Hebron)	25	8	0	0	1	16	10	62	1.50	5	1
Wamogo Regional High (Litchfield)	38	5	3	3	0	27	16	59	1.73	11	0
Lewis S. Mills Regional (Torrington)	17	4	0	0	0	13	12	92	1.62	1	0
TOTAL — SECONDARY	4397	1341	92	140	172	2652	2164	81	1.73	429	59
POST-SECONDARY											
Central Conn. State College	19	1	0	0	1	17	16	94	——	1	0
Manchester Community College	15	5	2	0	3	5	5	100	2.75	0	0
Norwalk Community College	44	19	4	3	2	16	12	75	2.96	4	0
Northwestern Community College	13	9	2	0	0	2	2	100	2.25	0	0
TOTAL — POST-SECONDARY	91	34	8	3	6	40	35	87	2.69	5	0
GRAND TOTAL	4488	1375	100	143	178	2692	2199	81	1.76	434	59

TECHNICAL EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
POST-SECONDARY											
STATE TECHNICAL COLLEGES											
CHEMICAL TECHNOLOGY	34	10	1	0	5	18	18	100	3.08	0	0
Norwalk	13	4	0	0	5	4	4	100	3.39	0	0
Thames Valley	11	4	0	0	0	7	7	100	2.99	0	0
Waterbury	10	2	1	0	0	7	7	100	3.18	0	0
DATA PROCESSING TECHNOLOGY	74	18	6	0	8	42	40	95	3.08	2	0
Hartford	18	7	4	0	0	7	7	100	3.23	0	0
Norwalk	33	3	1	0	8	21	19	90	2.95	2	0
Thames Valley	9	3	1	0	0	5	5	100	3.50	0	0
Waterbury	14	5	0	0	0	9	9	100	2.95	0	0

TECHNICAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
POST-SECONDARY (Cont'd)											
ELECTRICAL	110	36	7	0	8	59	58	98	3.14	1	0
Hartford	24	6	0	0	0	18	18	100	3.14	0	0
Norwalk	46	14	1	0	8	23	22	95	3.04	1	0
Thames Valley	11	5	3	0	0	3	3	100	3.37	0	0
Waterbury	29	11	3	0	0	15	15	100	3.04	0	0
MECHANICAL TECHNOLOGY	95	39	5	0	0	51	51	100	3.03	0	0
Hartford	21	11	0	0	0	10	10	100	3.05	0	0
Norwalk	40	14	3	0	0	23	23	100	3.04	0	0
Thames Valley	13	3	0	0	0	10	10	100	2.89	0	0
Waterbury	21	11	2	0	0	8	8	100	3.15	0	0
CIVIL TECHNOLOGY	21	6	4	0	0	11	11	100	3.05	0	0
Hartford	21	6	4	0	0	11	11	100	3.05	0	0

TECHNICAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
POST-SECONDARY (Cont'd)											
TOOL TECHNOLOGY	59	7	6	0	3	43	42	97	3.04	1	0
Hartford	9	1	0	0	0	8	8	100	3.00	0	0
Norwalk	19	3	1	0	3	12	12	100	2.97	0	0
Thames Valley	17	2	3	0	0	12	11	92	3.07	1	0
Waterbury	14	1	2	0	0	11	11	100	3.12	0	0
ELECTRO-MECH. TECHNOLOGY	13	3	0	0	0	10	10	100	3.13	0	0
Norwalk	13	3	0	0	0	10	10	100	3.13	0	0
METALLURGICAL TECHNOLOGY	9	2	1	0	2	4	4	100	3.18	0	0
Norwalk	9	2	1	0	2	4	4	100	3.18	0	0
GRAND TOTAL	415	121	30	0	26	238	234	98	3.06	4	0

TRADE AND INDUSTRIAL EDUCATION

(1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
SECONDARY											
VOCATIONAL-TECHNICAL SCHOOLS											
AUTOMOBILE BODY REPAIR	6	1	0	0	0	5	5	100	2.68	0	0
W. F. Kaynor	6	1	0	0	0	5	5	100	2.68	0	0
AUTOMOTIVE MECHANICS	158	13	24	4	3	114	98	85	2.01	15	1
Bullard-Havens	13	0	1	0	0	12	12	100	1.90	0	0
Henry Abbott	11	1	1	0	0	9	7	77	2.13	2	0
H. H. Ellis	10	1	3	1	0	5	2	40	2.20	3	0
Eli Whitney	19	3	1	1	2	12	11	91	2.02	0	1
A. I. Prince	19	4	3	0	0	12	12	100	2.50	0	0
Howell Cheney	8	0	2	0	0	6	3	50	1.70	3	0
H. C. Wilcox	8	0	4	0	0	4	3	75	1.80	1	0
Vinal	13	0	1	0	0	12	11	91	2.00	1	0
E. C. Goodwin	10	0	2	1	1	6	4	66	2.25	2	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
AUTOMOTIVE MECHANICS (Cont'd)											
Norwich	9	0	3	0	0	6	5	83	2.25	1	0
J. M. Wright	16	2	2	0	0	12	12	100	2.31	0	0
Oliver Wolcott	11	1	0	0	0	10	10	100	1.75	0	0
W. F. Kaynor	6	1	0	1	0	4	3	75	1.53	1	0
Windham	5	0	1	0	0	4	3	75	1.78	1	0
AVIATION MECHANICS	9	1	4	0	0	4	4	100	3.53	0	0
H. H. Ellis	9	1	4	0	0	4	4	100	3.53	0	0
BAKING	7	1	1	0	0	5	5	100	1.99	0	0
Bullard-Havens	5	1	1	0	0	3	3	100	2.10	0	0
E. C. Goodwin	2	0	0	0	0	2	2	100	1.83	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
BEAUTY CULTURE	74	6	0	0	2	66	60	90	1.58	6	0
Bullard-Havens	8	2	0	0	0	6	6	100	1.55	0	0
H. H. Ellis	3	0	0	0	0	3	3	100	1.50	0	0
Eli Whitney	10	0	0	0	0	10	10	100	1.55	0	0
A. I. Prince	11	0	0	0	0	11	10	90	1.60	1	0
H. C. Wilcox	10	0	0	0	0	10	7	70	1.40	3	0
E. C. Goodwin	9	1	0	0	0	8	6	75	1.70	2	0
J. M. Wright	16	3	0	0	1	12	12	100	1.80	0	0
W. F. Kaynor	7	0	0	0	1	6	6	100	1.50	0	0
BUILDING CONSTRUCTION	6	0	1	0	0	5	3	60	2.25	2	0
H. H. Ellis	6	0	1	0	0	5	3	60	2.25	2	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
CARPENTRY	143	8	37	3	0	95	77	81	2.31	16	2
Bullard-Havens	24	0	6	0	0	18	17	94	2.50	1	0
Henry Abbott	8	0	3	2	0	3	2	66	2.25	1	0
Eli Whitney	19	2	9	0	0	8	7	87	2.33	0	1
A. I. Prince	13	0	2	1	0	10	10	100	2.80	0	0
Howell Cheney	11	2	2	0	0	7	4	57	1.75	2	1
H. C. Wilcox	9	1	2	0	0	6	4	66	2.20	2	0
Vinal	4	0	0	0	0	4	3	75	3.00	1	0
E. C. Goodwin	12	1	3	0	0	8	6	75	2.70	2	0
Norwich	11	1	3	0	0	7	5	71	2.50	2	0
J. M. Wright	9	0	2	0	0	7	7	100	2.26	0	0
Oliver Wolcott	9	1	0	0	0	8	5	62	2.50	3	0
W. F. Kaynor	6	0	2	0	0	4	4	100	3.00	0	0
Windham	8	0	3	0	0	5	3	60	2.59	2	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
CHEMISTRY INDUSTRIAL	13	5	0	0	2	6	5	83	1.92	1	0
J. M. Wright	13	5	0	0	2	6	5	83	1.92	1	0
DRAFTING, AERONAUTICAL	1	0	0	0	0	1	1	100	2.95	0	0
H. H. Ellis	1	0	0	0	0	1	1	100	2.95	0	0
DRAFTING ARCHITECTURAL	33	9	9	0	0	15	12	80	2.18	3	0
Bullard-Havens	11	1	3	0	0	7	5	71	2.15	2	0
H. H. Ellis	10	3	3	0	0	4	4	100	2.14	0	0
Eli Whitney	5	4	1	0	0	0	0	——	——	0	0
Windham	7	1	2	0	0	4	3	75	2.27	1	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
DRAFTING, MACHINE	129	42	21	0	1	65	52	80	2.32	10	3
Bulliard-Havens	7	2	2	0	0	3	3	100	1.90	0	0
Henry Abbott	5	2	1	0	0	2	2	100	2.57	0	0
H. H. Ellis	5	0	1	0	0	4	4	100	2.52	0	0
Eli Whitney	14	5	3	0	0	6	3	50	2.75	2	1
A. I. Prince	11	3	1	0	0	7	6	85	2.25	1	0
Howell Cheney	7	4	2	0	0	1	1	100	2.50	0	0
H. C. Wilcox	12	6	0	0	0	6	6	100	2.05	0	0
Vinal	3	2	0	0	0	1	1	100	2.50	0	0
E. C. Goodwin	16	5	4	0	1	6	6	100	2.66	0	0
Norwich	13	5	3	0	0	5	3	60	2.15	2	0
J. M. Wright	11	1	0	0	0	10	10	100	2.40	0	0
Oliver Wolcott	11	1	1	0	0	9	4	44	2.00	3	2
W. F. Kaynor	10	6	2	0	0	2	1	50	1.90	1	0
Windham	4	0	1	0	0	3	2	66	2.37	1	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
ELECTRICAL	163	44	31	3	1	84	70	83	2.31	13	1
Bullard-Havens	11	2	1	1	0	7	7	100	2.00	0	0
Henry Abbott	13	3	3	0	0	7	6	85	2.19	1	0
H. H. Ellis	8	0	5	0	0	3	2	66	2.78	1	0
Eli Whitney	16	3	5	0	0	8	6	75	2.43	2	0
A. I. Prince	10	1	2	1	0	6	6	100	1.90	0	0
Howell Cheney	9	2	4	0	0	3	3	100	2.70	0	0
H. C. Wilcox	11	3	3	0	0	5	5	100	2.50	0	0
Vinal	11	3	2	0	0	6	4	66	2.25	2	0
E. C. Goodwin	14	2	1	0	1	10	9	90	2.20	1	0
Norwich	21	6	1	1	0	13	9	69	2.50	4	0
J. M. Wright	18	8	3	0	0	7	7	100	2.09	0	0
Oliver Wolcott	6	1	0	0	0	5	2	40	2.50	2	1
W. F. Kaynor	11	9	0	0	0	2	2	100	1.78	0	0
Windham	4	1	1	0	0	2	2	100	2.50	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
ELECTRONICS, INDUSTRIAL	168	83	24	1	0	60	51	85	2.26	9	0
Bullard-Havens	32	21	4	0	0	7	7	100	2.00	0	0
Henry Abbott	14	10	0	0	0	4	4	100	2.00	0	0
H. H. Ellis	1	0	0	0	0	1	1	100	2.00	0	0
Eli Whitney	12	8	1	0	0	3	2	66	2.38	1	0
A. I. Prince	27	12	3	0	0	12	12	100	2.50	0	0
Howell Cheney	3	1	0	1	0	1	1	100	2.25	0	0
H. C. Wilcox	15	6	3	0	0	6	5	83	2.50	1	0
Vinal	11	7	3	0	0	1	1	100	2.90	0	0
E. C. Goodwin	16	11	0	0	0	5	3	60	2.25	2	0
J. M. Wright	17	2	0	0	0	15	15	100	1.85	0	0
Oliver Wolcott	10	2	7	0	0	1	0	—	—	1	0
Windham	10	3	3	0	0	4	0	—	—	4	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
FASHION DESIGN	48	5	0	0	1	42	29	69	1.58	11	2
Bullard-Havens	18	1	0	0	1	16	10	62	1.70	4	2
Eli Whitney	8	1	0	0	0	7	6	85	1.65	1	0
A. I. Prince	8	1	0	0	0	7	7	100	1.50	0	0
E. C. Goodwin	7	2	0	0	0	5	2	40	1.60	3	0
W. F. Kaynor	7	0	0	0	0	7	4	57	1.45	3	0
FOOD TRADES	14	4	1	1	2	6	6	100	1.03	0	0
E. C. Goodwin	10	3	0	1	2	4	4	100	3.50	0	0
J. M. Wright	4	1	1	0	0	2	2	100	1.68	0	0
INSTRUMENT MAKING	7	2	1	1	0	3	3	100	2.20	0	0
W. F. Kaynor	7	2	1	1	0	3	3	100	2.20	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
MACHINE	165	17	30	2	1	115	104	90	2.28	10	1
Bullard-Havens	20	3	5	0	0	12	10	83	2.30	2	0
Henry Abbott	11	2	2	0	0	7	7	100	2.04	0	0
H. H. Ellis	8	1	4	0	0	3	3	100	2.47	0	0
Eli Whitney	11	1	3	0	0	7	6	85	2.35	1	0
A. I. Prince	6	0	0	0	0	6	5	83	2.50	1	0
Howell Cheney	2	0	1	0	0	1	1	100	2.25	0	0
H. C. Wilcox	15	3	1	0	0	11	10	90	2.15	1	0
Vinal	8	0	1	0	0	7	7	100	2.25	0	0
E. C. Goodwin	13	0	3	0	1	9	7	77	2.57	1	1
Norwich	19	2	6	2	0	9	9	100	2.65	0	0
J. M. Wright	7	4	0	0	0	3	3	100	2.25	0	0
Oliver Wolcott	14	0	0	0	0	14	13	92	1.95	1	0
W. F. Kaynor	23	1	1	0	0	21	21	100	2.13	0	0
Windham	8	0	3	0	0	5	2	40	2.05	3	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
MASONRY	17	0	7	0	0	10	8	80	2.31	2	0
Bullard-Havens	10	0	3	0	0	7	5	71	2.50	2	0
A. I. Prince	7	0	4	0	0	3	3	100	2.45	0	0
PAINTING AND DECORATING	4	1	0	0	0	3	3	100	2.50	0	0
Bullard-Havens	4	1	0	0	0	3	3	100	2.50	0	0
PRINTING	51	7	12	2	0	30	29	96	1.79	0	1
Bullard-Havens	13	4	3	1	0	5	5	100	1.90	0	0
Eli Whitney	12	0	6	1	0	5	5	100	1.80	0	0
A. I. Prince	5	0	1	0	0	4	4	100	1.75	0	0
H. C. Wilcox	8	2	1	0	0	5	5	100	2.00	0	0
E. C. Goodwin	8	1	1	0	0	6	5	83	1.82	0	1
J. M. Wright	5	0	0	0	0	5	5	100	1.46	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
LITHOGRAPHY	4	2	1	0	0	1	1	100	2.00	0	0
Eli Whitney	4	2	1	0	0	1	1	100	2.00	0	0
PLUMBING	43	3	5	0	3	32	29	90	2.48	3	0
Bullard-Havens	4	0	1	0	0	3	3	100	2.50	0	0
Eli Whitney	4	0	1	0	0	3	2	66	2.02	1	0
A. I. Prince	8	0	1	0	0	7	7	100	2.50	0	0
E. C. Goodwin	12	2	2	0	3	5	4	80	2.31	1	0
Norwich	8	1	0	0	0	7	6	85	2.25	1	0
J. M. Wright	7	0	0	0	0	7	7	100	3.31	0	0
SCREW MACHINE OPERATION	6	1	0	0	0	5	5	100	2.07	0	0
E. C. Goodwin	6	1	0	0	0	5	5	100	2.07	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
SHEET METAL	12	0	5	0	0	7	6	85	2.43	1	0
H. C. Wilcox	4	0	1	0	0	3	3	100	2.30	0	0
Norwich	8	0	4	0	0	4	3	75	2.55	1	0
TOOL AND DIE	79	20	8	0	2	49	48	97	2.36	0	1
Bullard-Havens	14	7	2	0	0	5	5	100	2.40	0	0
H. H. Ellis	5	0	0	0	0	5	5	100	2.55	0	0
Eli Whitney	8	1	1	0	0	6	6	100	2.34	0	0
Howell Cheney	7	2	2	0	0	3	3	100	2.50	0	0
H. C. Wilcox	10	5	1	0	0	4	4	100	2.10	0	0
Vinal	15	1	2	0	0	12	12	100	2.50	0	0
E. C. Goodwin	15	4	0	0	2	9	8	88	2.30	0	1
J. M. Wright	5	0	0	0	0	5	5	100	2.19	0	0
TOTAL — V. T. S. (Secondary)	1360	275	222	17	18	828	714	86	2.21	102	12

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SECONDARY											
LOCAL HIGH SCHOOLS											
APPLIANCE REPAIR	5	1	1	0	1	2	1	50	1.75	1	0
New London High School	5	1	1	0	1	2	1	50	1.75	1	0
AUTOMOTIVE SERVICING	60	7	9	4	3	37	20	54	1.96	17	0
Danbury High School	25	6	3	0	3	13	7	53	1.85	6	0
Weaver High School (Hartford)	12	0	2	4	0	6	2	33	2.00	4	0
New London High School	16	1	3	0	0	12	7	58	1.75	5	0
Norwalk (Center Voc. Arts)	3	0	0	0	0	3	2	66	2.25	1	0
Washington High School	4	0	1	0	0	3	2	66	——	1	0
COOK, SHORT ORDER	37	10	1	2	2	22	18	81	1.72	4	0
Voc. Opportunity Center (Bpt)	37	10	1	2	2	22	18	81	1.72	4	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
DRAFTSMAN, LEARNER	9	4	2	0	0	3	2	66	1.75	1	0
New London High School	9	4	2	0	0	3	2	66	1.75	1	0
ELECTRICAL ASSEMBLER	77	12	1	9	4	51	36	70	2.14	8	7
Voc. Opportunity Center (Bpt)	72	11	1	8	4	48	35	72	2.16	6	7
Manchester High School	5	1	0	1	0	3	1	33	1.82	2	0
ELECTRICAL INSPECTOR	9	2	2	0	0	5	4	80	1.90	1	0
Danbury High School	9	2	2	0	0	5	4	80	1.90	1	0
MACHINE OPERATOR	40	6	7	0	0	27	17	62	2.08	10	0
Avon High School	5	0	0	0	0	5	4	80	1.80	1	0
Danbury High School	14	4	2	0	0	8	6	75	2.14	2	0
Manchester High School	10	0	1	0	0	9	4	44	2.44	5	0
New London High School	11	2	4	0	0	5	3	60	1.75	2	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
MAINTENANCE	34	11	3	0	1	19	18	94	1.88	1	0
Voc. Opportunity Center (Bpt)	19	8	0	0	1	10	9	90	1.60	1	0
Norwalk (Center Voc. Arts)	5	0	1	0	0	4	4	100	2.00	0	0
Watertown High School	10	3	2	0	0	5	5	100	2.16	0	0
MECHANICAL ASSEMBLER	6	1	0	0	0	5	5	100	2.50	0	0
Manchester High School	6	1	0	0	0	5	5	100	2.50	0	0
WELDER, LEARNER	53	12	3	2	3	33	24	72	2.75	7	2
Voc. Opportunity Center (Bpt)	53	12	3	2	3	33	24	72	2.75	7	2

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
DIVERSIFIED WORK EXPERIENCE	85	19	5	0	0	61	56	91	1.70	5	0
Bethel High School	19	3	0	0	0	16	15	93	1.84	1	0
Bloomfield High School	53	12	4	0	0	37	34	91	1.54	3	0
Windsor High School	13	4	1	0	0	8	7	87	1.87	1	0
TOTAL — LOCAL HIGH SCHOOLS	415	85	34	17	14	265	201	75	1.94	55	9
POST-SECONDARY											
VOCATIONAL-TECHNICAL SCHOOLS											
BARBERING	30	0	1	0	0	29	29	100	1.97	0	0
Bullard-Havens	17	0	0	0	0	17	17	100	1.70	0	0
A.I. Prince	13	0	1	0	0	12	12	100	2.25	0	0

TRADE AND INDUSTRIAL EDUCATION	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS (Cont'd)											
DRAFTING, CONSTRUCTION DESIGN	10	2	0	0	0	8	3	37	2.00	5	0
A.I. Prince	10	2	0	0	0	8	3	37	2.00	5	0
DRAFTING, MACHINE	13	1	1	0	2	9	6	66	2.52	3	0
W.F. Kaynor	13	1	1	0	2	9	6	66	2.52	3	0
PRECISION MACHINE	7	0	0	0	1	6	6	100	2.20	0	0
W.F. Kaynor	7	0	0	0	1	6	6	100	2.20	0	0
WELDING	19	0	6	0	0	13	12	92	2.25	1	0
A.I. Prince	19	0	6	0	0	13	12	92	2.25	1	0
TOTAL — V.T.S. (POST-SECONDARY)	79	3	8	0	3	65	56	86	2.62	9	0
GRAND TOTAL	1854	363	264	34	35	1158	971	83	2.18	166	21

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VOCATIONAL-TECHNICAL SCHOOLS											
Bullard-Havens (Bridgeport)	287	45	32	3	1	206	192	93	2.07	12	2
Henry Abbott (Danbury)	80	18	10	7	0	45	41	91	2.20	4	0
H.H. Ellis (Danielson)	66	6	21	1	0	38	32	84	2.44	6	0
Eli Whitney (Hamden)	251	31	32	4	7	177	162	91	2.16	10	5
A.I. Prince (Hartford)	256	25	24	2	0	205	193	94	2.18	12	0
Howell Cheney (Manchester)	47	11	13	1	0	22	16	72	2.23	5	1
H.C. Wilcox (Meriden)	102	26	16	0	0	60	52	86	2.09	8	0
Vinal (Middletown)	89	13	9	0	0	67	57	85	2.45	10	0
E.C. Goodwin (New Britain)	272	35	16	2	11	208	180	86	2.27	25	3
Norwich (Norwich)	89	15	20	3	0	51	40	78	2.37	11	0
J.M. Wright (Stamford)	184	27	8	0	5	144	143	99	2.12	1	0
Oliver Wolcott (Torrington)	61	6	8	0	0	47	34	72	2.14	10	3
W.F. Kaynor (Waterbury)	140	21	7	2	30	80	72	90	2.09	8	0
Windham (Willimantic)	93	5	14	0	3	71	48	67	2.15	20	3
TOTALS	2017	284	230	25	57	1421	1262	88	2.20	142	17

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS											
Avon	5	0	0	0	0	5	4	80	1.80	1	0
Bethel	42	12	1	0	0	29	28	96	1.93	1	0
Bloomfield	103	20	8	5	0	70	62	88	1.72	8	0
Bolton	26	10	1	0	1	14	14	100	1.86	0	0
Branford	65	32	6	0	0	27	19	70	1.84	6	2
Bridgeport (Bassick H.S.)	47	10	2	0	5	30	27	90	1.59	3	0
Bridgeport (Central H.S.)	130	28	2	4	1	95	77	81	1.58	16	2
Bridgeport (Harding H.S.)	100	19	3	3	4	71	43	60	1.57	22	6
Bridgeport (Voc. Opp. Ctr.)	223	49	5	15	16	138	106	76	2.00	21	11
Brookfield	32	7	0	2	10	13	8	61	1.65	4	1
Canton	15	5	1	2	0	7	6	85	1.65	1	0
Cheshire	88	32	1	6	4	45	34	75	——	10	1
Colchester (Bacon Academy)	9	1	0	0	1	7	7	100	1.47	0	0
Cromwell	48	22	4	2	0	20	13	65	1.80	6	1
Danbury	213	39	7	7	9	151	111	73	1.63	40	0
Derby	75	31	0	0	0	44	42	95	1.82	2	0

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
Durham	12	4	0	0	0	8	6	75	1.45	2	0
East Haddam (Nathan Hale-Ray H.S.)	9	5	1	0	0	3	1	33	3.05	2	0
East Hampton	67	24	4	0	4	35	34	97	1.68	1	0
East Hartford (E.H.H.S.)	10	2	0	0	0	8	6	75	1.70	2	0
East Hartford (Penney)	42	13	4	1	1	23	17	73	1.87	5	1
East Haven	19	4	1	0	6	8	0	—	—	2	6
Fairfield (Roger Ludlowe H.S.)	86	24	2	0	2	58	55	94	1.65	2	1
Fairfield (Andrew Warde H.S.)	85	26	3	3	2	51	45	88	1.65	6	0
Farmington	35	17	0	0	1	17	15	88	1.82	2	0
Glastonbury	10	3	4	0	0	3	2	66	1.85	1	0
Greenwich	66	14	2	2	27	21	16	76	1.90	5	0
Groton (Fitch Sr. H.S.)	131	23	4	10	9	85	53	62	1.83	27	5
Hamden	110	29	3	2	8	68	56	82	1.76	8	4
Hartford (Bulkeley)	113	20	4	0	0	89	67	75	1.68	16	6
Hartford (Public)	196	27	11	4	2	152	117	76	1.65	29	6
Hartford (Weaver)	84	19	3	4	30	28	20	71	1.75	7	1

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
Killingly High School (Danielson)	8	3	0	0	0	5	3	60	2.32	2	0
Lebanon (Lyman Memorial)	3	2	0	0	0	1	1	100	1.50	0	0
Litchfield	15	1	0	1	0	13	13	100	1.74	0	0
Madison (Daniel Hand H.S.)	28	16	1	0	0	11	9	81	——	1	1
Manchester	146	45	4	2	4	91	71	78	2.07	20	0
Meriden (Francis Maloney H.S.)	78	16	2	6	0	54	49	90	1.73	5	0
Meriden (Orville Platt H.S.)	93	19	2	8	5	59	49	83	1.78	6	4
Middletown (M.H.S.)	5	1	1	0	1	2	1	50	2.00	1	0
Middletown (Woodrow Wilson H.S.)	18	11	2	0	0	5	2	40	2.00	3	0
Milford (M.H.S.)	41	20	8	1	0	12	12	100	2.01	0	0
Milford (Jonathan Law H.S.)	111	15	20	0	24	52	40	76	1.75	12	0
Monroe (Masuk H.S.)	34	12	0	4	0	18	16	88	1.75	2	0
Naugatuck	121	42	4	0	0	75	61	81	1.58	14	0
New Britain (N.B.H.S.)	124	17	2	7	5	93	92	98	1.75	1	0
New Britain (Pulaski H.S.)	35	6	0	2	2	25	24	96	1.75	1	0
New Haven (Wilbur Cross H.S.)	15	0	2	0	0	13	10	76	1.60	3	0

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
New Haven (James Hillhouse H.S.)	23	6	1	0	0	16	16	100	1.65	0	0
New London	41	8	10	0	1	22	13	59	1.75	9	0
New Milford	36	9	1	2	0	24	16	66	1.88	7	1
North Branford	21	10	2	0	0	9	9	100	1.50	0	0
Norwalk (N.H.S.)	72	8	1	1	3	59	58	98	1.87	1	0
Norwalk (Center Voc. Arts)	36	7	4	2	0	23	17	73	2.04	6	0
Norwich Free Academy	2	0	1	0	0	1	1	100	2.00	0	0
Old Saybrook	19	14	0	0	0	5	4	80	2.05	1	0
Plymouth (Terryville H.S.)	11	4	0	0	0	7	5	71	1.60	1	1
Portland	73	25	2	4	1	41	23	56	1.72	17	1
Ridgefield	34	26	2	1	0	5	3	60	2.22	2	0
Rocky Hill	49	29	2	0	0	18	13	72	1.99	5	0
Shelton	57	16	0	0	0	41	22	53	1.66	10	9
Simsbury (Henry James H.S.)	23	10	0	0	3	10	8	80	1.90	1	1
Southbury	46	28	0	2	10	6	5	83	1.68	0	1
Southington	101	32	8	6	0	55	44	80	2.00	11	0

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION		MEAN HOURLY WAGE	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
Stafford	32	5	0	3	0	24	20	83	1.72	4	0
Stamford (Rippowam)	199	112	1	0	0	86	74	86	1.81	12	0
Stamford (S.H.S.)	304	167	4	6	3	124	109	87	1.74	15	0
Stratford (S.H.S.)	152	29	1	3	7	112	66	58	1.75	46	0
Stratford (Bunnell H.S.)	125	35	3	5	0	82	61	74	1.71	20	1
Suffield	11	5	0	0	1	5	3	60	2.00	1	1
Thomaston	38	9	1	0	0	28	13	46	1.55	13	2
Torrington	13	2	0	0	0	11	11	100	1.70	0	0
Trumbull	112	53	4	2	1	52	45	86	1.68	7	0
Vernon (Rockville H.S.)	78	31	4	2	2	39	36	92	1.87	2	1
Wallingford (Lyman Hall H.S.)	147	41	8	5	5	88	69	78	1.90	15	4
Washington	12	0	1	0	0	11	10	90	1.50	1	0
Waterbury (Crosby H.S.)	19	2	1	0	0	16	16	100	1.61	0	0
Waterbury (John Kennedy H.S.)	18	9	1	0	0	8	8	100	1.60	0	0
Waterbury (Wilby H.S.)	26	7	2	2	0	15	15	100	1.60	0	0
Watertown	48	8	4	1	0	35	26	74	1.43	9	0

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LOCAL HIGH SCHOOLS (Cont'd)											
West Haven	195	27	11	7	17	133	117	87	1.96	11	5
Wethersfield	47	20	2	1	0	24	23	95	2.03	1	0
Wilton	19	3	0	0	3	13	6	46	1.85	7	0
Windham	164	38	5	13	2	106	94	88	1.78	12	0
Windsor	22	8	3	0	0	11	7	63	1.87	4	0
Windsor Locks	68	15	6	1	0	46	36	78	1.79	10	0
Wolcott	54	12	2	0	1	39	23	58	1.69	15	1
Woodbury	18	5	2	0	0	11	11	100	1.98	0	0
Woodstock Free Academy	5	2	1	0	0	2	1	50	2.00	1	0
REGIONAL HIGH SCHOOLS											
Housatonic Valley (Reg. Dist. No. 1)	9	3	1	1	0	4	4	100	1.86	0	0
Valley (Reg. Dist. No. 4)	26	9	2	2	0	13	12	92	1.62	1	0
Amity (Reg. Dist. No. 5)	81	39	2	0	5	35	35	100	1.68	0	0
Wamogo (Reg. Dist. No. 6)	58	11	8	3	0	36	23	63	1.64	13	0
Rham (Reg. Dist. No. 8)	31	8	0	0	1	22	14	63	1.50	7	1
Lewis S. Mills (Reg. Dist. No. 10)	17	4	0	0	0	13	12	92	1.62	1	0

SCHOOL TOTALS	TOTAL NUMBER OF GRADUATES	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	STATUS UNKNOWN	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING	UNEMPLOYED
							NUMBER	PERCENT	MEAN HOURLY WAGE		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
UNIVERSITY HIGH SCHOOL											
E.O. Smith (Storrs)	11	7	1	0	0	3	3	100	1.67	0	0
TOTAL (HIGH SCHOOLS)	5974	1755	250	178	250	3541	2824	79	1.78	628	89
STATE TECHNICAL COLLEGES											
Hartford	93	31	8	0	0	54	54	100	2.95	0	0
Norwalk	173	43	7	0	26	97	94	96	3.07	3	0
Thames Valley (Norwich)	61	17	7	0	0	37	36	97	3.17	1	0
Waterbury	88	30	8	0	0	50	50	100	3.06	0	0
TOTAL	415	121	30	0	26	238	234	98	3.06	4	0
COMMUNITY COLLEGES											
Manchester	22	7	2	0	3	10	10	100	2.75	0	0
Northwestern	13	9	2	0	0	2	2	100	2.25	0	0
Norwalk	48	22	5	3	2	16	12	75	2.96	4	0
TOTAL	83	38	9	3	5	28	24	86	2.81	4	0

SCHOOL TOTALS (1)	TOTAL NUMBER OF GRADUATES (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	STATUS UNKNOWN (6)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11 and 12) (7)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (8)	PERCENT (9)	MEAN HOURLY WAGE (10)	EMPLOYED IN OCCUPATION NOT RELATED TO TRAINING (11)	UNEMPLOYED (12)
STATE COLLEGES											
Central Conn. State College	23	3	0	0	1	19	16	84	——	3	0
TOTAL	23	3	0	0	1	19	16	84	——	3	0
GRAND TOTAL	8512	2201	519	206	339	5247	4360	83	1.89	781	106

VT 007 911

Agricultural Education Survey of Korea. Follow-Up Study of Vocational Agriculture High School and College Graduates of an Examination of Schools to Determine the Extent of Their Long-Term Contribution to Agricultural Production.

Central Education Research Inst., Seoul (Korea)
DOCUMENT NOT AVAILABLE FROM EDRS.
Central Education Research Institute, 8 Eichang-Dong, Seoul, Korea ($7.50).
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*AGRICULTURAL EDUCATION; *VOCATIONAL HIGH SCHOOLS; *AGRICULTURAL COLLEGES; NATIONAL SURVEYS; *PROGRAM EVALUATION; PROGRAM PLANNING; *GRADUATE SURVEYS; JOB SATISFACTION; JOB SKILLS; PROGRAM DESCRIPTIONS; TEACHER ATTITUDES; COMMUNITY ATTITUDES; ADMINISTRATOR ATTITUDES; MANPOWER NEEDS; MANPOWER UTILIZATION; OCCUPATIONAL INFORMATION; VOCATIONAL FOLLOWUP; STATISTICAL DATA; RELEVANCE (EDUCATION); FOREIGN COUNTRIES
KOREA

In a follow-up study designed to develop recommendations for the improvement of agricultural education and agricultural policies in Korea, responses were obtained from 408 of 1,002 community organizations, 195 of 592 teachers and professors, and 3,260 of 13,700 graduates of 13 agricultural colleges and 113 agricultural high schools. Some major recommendations were: (1) that the objectives of agricultural education be reaffirmed, (2) that more agricultural high school graduates engage in the technical agricultural occupations, (3) that assistance be provided to help agricultural college graduates find employment, (4) that funds generated from the sale of farm produce in agricultural high schools be used to cover working scholarships and the cost of practical farm training, (5) that demonstration farmers be appointed from among agricultural education graduates, (6) that vocational guidance be included in the educational program, (7) that the most capable agricultural school graduates be utilized in teaching and as resource personnel, (8) that administrators of agricultural high schools be appointed from among agricultural teachers, and (9) that educational administrative authorities set up standards for school facilities and equipment. (DM)

VT 007911

December, 1964

To: Minister, The Economic Planning Board
Minister, Ministry of Education
Director, The United States Operations Mission to Korea

I would like to take it my privilege to submit the report of "Follow-up Study of Vocational Agriculture High School and College Graduates and an Examination of Schools to Determine the Extent of Their Long-term Contribution to Agricultural Production."

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Follow-up Study of Vocational Agriculture High School and College Graduates and an Examination of Schools to Determine the Extent of Their Long-term Contribution to Agricultural Production

-Agricultural Education Survey of Korea-

1964

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Central Education Research Institute

Seoul, Korea

FOLLOW-UP STUDY OF VOCATIONAL AGRICULTURE HIGH SCHOOL AND COLLEGE GRADUATES AND AN EXAMINATION OF SCHOOLS TO DETERMINE THE EXTENT OF THEIR LONG-TERM CONTRIBUTION TO AGRICULTURAL PRODUCTION

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FOREWORD

It may be said in all fairness that emphasis has been placed on physiocracy since the establishment of this Republic. Physiocracy has been reflected in all educational policies under which a number of agricultural high schools were established with the goal of setting up one agricultural high school in each county throughout the country. However, various problems arising from the establishment of a number of agricultural high schools resulted from the fact that their foundation was merely based on ideals rather than on justifiable plans for the supply and demand of manpower.

It may be enough to verify this fact that the increase rate of national agricultural production has been lower than that of industries other than agriculture and that this decrease in national agricultural producation came despite continued efforts for nearly twenty years with emphasis on physiocracy and agricultural education. In this connection, we feel the necessity to re-examine the present agricultural education of Korea so as to be able to make the assertion that any increase in agricultural production in Korea is indebted to the improvement of skills through agricultural education.

On the other hand, there are agricultural high schools and colleges which have been in difficulties due to a shortage of students. Moreover, it is a sad reality that graduates of agricultural schools have been absorbed in finding easy work with a good salary instead of devoting themselves to increasing agricultural production.

Furthermore, there has been much criticism that agricultural education has been biased toward the theoretical and that it lacks close relations with the agricultural community. Accordingly, it may be said that these factors are relevant to hindering agriculture in its development and to keeping national agricultural production from increasing as it should.

There are various stages and models upon which economic development is attained. Of course, it goes without saying that national plans for economic development must not be established by industrial field but as overall and long-term estimates. However, in order to effect overall and long-term plans, it is necessary to carry out a preliminary, fundamental examination by industrial field. The main difficulties to establishing long-term policy in the Korea of today is the lack of statistical data and scientific analysis, in the qualitative aspect, rather than immature theories and lack of experience.

It is a general trend for one to think industrialization is most appropriate for economic development together with the modernization of industry and an increase in the national income. Of course, there is no objection to the fact that the final results are up to an increase in industrial production. However, we must be aware of the fact that what is most essential to industrial production here in Korea is a huge amount of capital in order to take advantage of potential skill. Nevertheless, the improvement of skills is an important factor in an increase of income by means of increasing agricultural production. Here we may say that there is

potentiality for an increase in income in Korea where people are destitute of capital and of resources and are anxious about overpopulation. The matter of skill is closely connected with the matter of the development of manpower and there is abundant potential manpower resources usable for the development of Korea.

Education can be conducive to economic growth solely by means of the supply of capable human resources. Provided there have been no such desirable results in the field of education despite the investment of huge amounts in educational funds, there will be a great waste of both educational investment and manpower. Wastage also occurs to produce incapable youngsters who are unable to meet the challenges of our society as well as to produce capable youngsters who are unable to get employment. Therefore, we must cultivate capable youngsters who will be facilitated by the opportunity in which they can work, especially in the field of agriculture.

The demand for technical manpower is closely related to the gross national product. Taking this the other way round, however, we can see that the supply of a proper number of capable persons may bring about an increase in income by industrial field. Thus, There is a correlation between the qualifications of manpower and the gross national product. Considering the fact that the qualifications of manpower depends, more or less, upon the quality of education, we may say that an improvement in the contents and methods of education is conducive to sound economic growth. So will agricultural education soundly planned bring about the economic growth of this nation? This is the very esseential point on which this study is based.

This study was conducted from June through December 1964 by the Central Education Research Institute at the request of the Economic Planning Board and of the United States Operations Mission to Korea and with assistance from the Ministry of Education. This study, based on concise and factual data, suggests a rather high incidence of agricultural education as related to the solution of its problems and the forecast of manpower requirements for Korean agriculture for the years to come.

In view of the length and detail of our report, we feel complled to attempt a summarization of our major findings and recommendations in the first part and the methods and contends of the entire study in the second part for the covenience of readers of this report. This study involves the results of the follow-up survey with a sampling of graduates from 1953 to 1962. Ie add that some of the recommendations concerning sub-recommendations 1 to 4, included in Recommendation 1 of the first part, Findings and Recommendations have been considered and that action has been taken since 1963.

In submitting this report, I would like to express my deep appreciation to Mr. Chon Sang Kun, Director of the Technical Development Bureau, to Mr. Lee Ung Sun, Chief of the Technical Survey and Information Section, to Mr. Rim Kuk Jai and Mr. Um Ki Sup of the Technical Survey and Information Section, all of the Economic Planning Board, to Mr. Landers, Chief of the Public Service Department of USOM and to Dr. Williams, formerly Chief of the Education Branch of USOM and currently Chief of the Education Division, USOM in Manila, for their cooperation given to this study. In addition, special thanks is due to Mr. Shin Nung Soon, Chief of the Office of the Planning Coordinator, Ministry of Education, to Mr. Kim Dong Wook, Supervisor of the Ministry of Education, to Mr. Pemer, Mr. Coyne and Dr. Paki Dai Hyun, all of Agricultural Education Advisor of USOM and to Mr. Jai Hyung Song, the present, the Agricultural Education Research Association of Korea for extending technical

assistance to this study.

From the view point that this survey is indebted to the cooperation given by the Ministry of Agriculture and Forestry, and to agricultural high schools and colleges throughtout the nation, I would like also to extend my gratitude to those working in the Ministry of Agriculture and Foresty, to agricultural high schools and colleges and to the graduates of these schools for the their wonderful cooperation.

Lastly, I wish to express my thanks to Mr. Oh Chong Hoon, Mr, Lee Chun Kwang, Mr. Kim Yong Boo, and Mr. Park Young Soo for their enthusiastic efforts in the treatment of data and to Mr. Casey, Mr. Cheon Joong Cheul, Mr. Lee Dong Hee, Miss. Paik In Sook, Miss. Hong Myung Soon, Mr. Hong Jin Pyo and Hong In Gee who devoted themselves to the translation into English, proofreading and publication of this report.

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PART I

FINDINGS AND RECOMMENDATIONS

RECOMMENDATION 1

It is recommended that a reaffirmation be made of the objectives of education in agricultural high schools, for this is connected with the training of leading farmers, and that emphasis be placed on the specific cultivation of crops bringing in good profits in accordance with the characteristics of a community by means of steadfast marketing policies. Moreover, it is recommended that school programs be established and carried out so that a termination education may be fully offered in compliance with the objectives of agricultural education.

It is recommended that reaffirmation be made of the objectives of education in agricultural colleges which are concerned with training agricultural professional technicians and that educational programs be established and carried out aimed at training agricultural leaders who will add to the development of agriculture in Korea.

1. **It is recommended that a policy for marketing the higher priced products of each area be established and agricultural high schools and colleges offer agricultural education centering around fostering skills relevant to specific cultivation so that students may acquire the ability to cultivate profitable crops even on a small area of cultivated land.**

2. **It is recommended, even though we reduce the number of subject matters in agricultural high schools, that the number of school hours for major courses and for practical training be increased. At least two hours per week should be allocated to and used for major courses.**

3. **It is recommended that the curriculum for major courses be reorganized from the subdivided system stressing on scholastic theories into technical education centered on practical application.**

4. **It is recommended that in agricultural high schools and colleges the number of school hours be equally allocated theories and practical training in major courses so that fundamental and professional theories may be taught in parallel with systematic practical training.**

5. **It may be admitted that standard of allocation of hours spent on vocational subjects revised in 1963 and being carried into effect and core subjects on agricultural subjects are suitable enough. Accordingly, it is recommended that the system be positively carried out.**

6. **It is recommended that agricultural high schools and colleges be alert to changing agricultural skills and instruct developed skills so that agricultural school graduates may add to the improvement of traditional farming methods.**

7. **It is recommended that agricultural subjects be reorganized and that teaching methods be improved so that students may easily understand farming improvement programs in developed countries. In addition, it is desirable that audio-visual instruction be adopted for effective instruction.**

8. It is recommended that agricultural education be offered by middle schools attached to agricultural high schools, if possible, as a means of strengthening agricultural education. If so, the period for agricultural education will become six years, including three years middle school and another three years high school.

It goes without saying that agricultural high schools and colleges are supposed to offer an education based on the individual objectives of education in accordance with the principal objectives of such establishments. It is natural that the education of school can be evaluated by means of evaluating the social activities of its graduates and by an evaluation of its graduates on the education they received. This will add much to the improvement of agricultural education.

Analyzing the evaluation made by graduates during the ten years from 1953 to 1962 on the education they received, it was found that agricultural high school graduates who criticized the education they received as being biased toward theory constitute 41 percent and that agricultural college gradates who made the same criticism, 59 percent. Here, we can see that about half of all agricultural school graduates had this criticism. Some graduates criticized the education they received as hardly helpful, both in the phase of theory and in that of practice, in application to the realities of rural communities. In other words, this means that there is no remarkable difference between the agricultural skills they acquired at school and the traditional farming methods used by farmers.

However, 79 percent of all agricultural high school graduates and 90 percent of all agricultural college graduates indicated that the education they received was of some help to them in finding employment. Most of them are engaged in occupations related to agriculturen Nearly 90 percent of those engaged in occupations related to agriculture indicated that the education they received was helpful to them in finding employment and nearly 80 percent of those engaged in farming indicated that the education they received is helpful. Analyzing the reasons for such helpfulness, some indicated that it was helpful to them in making a success of employment tests and others indicated that the knowledge and skills acquired from major courses or from required subjects have close connection with their present profession. On the contrary, analyzing the reasons for such helplessness, some indicated that the education they received was biased toward fundamental theories and that subject contents were not well organized. Others indicated that the major course they took has no relation to their present occupation.

Subject matters helpful to agricultural high school graduates have something in common with those helpful to agricultural college graduates. Likewise, subject matters helpful to those engaged in farming also have something in common with these for those engaged in occupations related to agriculture. Particularly, subjects in major course indicated to be helpful are fertilizer, the outline of agriculture, crop yield, gardening, stock breeding and agricultural chemicals for harmful insects. Analyzing the factors due to which these subject matters were indicated to be helpful, first, the improvement of farming methods; second, technical solutions to problems arising in farming; third, enlightenment of farmers without an agricultural education and giving the advice; fourth, an increase in agricultural production; and fifth, improvement of rural community life. In addition, those engaged in occupations related to agriculture also indicated that they were helpful to them in performing their duties in the organizations for which they work.

Analyzing the subjects these graduates desire to learn further in order to help raise their occupational efficiency, the following were indicated: Fertilizer, gardening, crop yield, introduction to stock farming and agricultural chemicals for harmful insects. Here, we can see that these subjects are similar to the subject indicated as helpful to in finding employment. Therefore, it is necessary to place greater emphasis

on these subjects in organizing the curriculum.

Most of those engaged as orchardists and in vegetable and specific crop cultivation have made a success in agricultural society. From this viewpoint, it is necessary that top priority be given to limited agricultural skills relevant to specific crop cultivation and gardening for the cultivation of products with good profits from a limited area of cultivated land according to the characteristics of a community.

Analyzing the contents of subjects and the teaching methods desired or recommended by agricultural school graduates for their juniors, the most outstanding is that education should be offered with equal emphasis given to theoretical and practical training with careful and systematic planning. Another is that the new skills and techniques of developed countries should be introduced, that education should be centered on major courses and that the subjects in major courses should be organized more satisfactorily. Others recommended that professional knowledge and skills be taught in a satisfactory manner by lengthening the educational period by one or two years by means of reorganizing the school system. Especially, those engaged in occupations related to agriculture recommend that the contents of major subjects and required subjects be revamped so as to instruct new skills by keeping pace with changing society.

Analyzing the class records kept by agricultural high school during the period from 1953 to 1962 in order to identify the yearly total of school hours spent, it was found that from 74 to 84 percent of the standard school hours set by the authorities were spent. Moreover, it was found that 85 percent of school hours allocated to major courses were spent and that 29 percent of hours spent were for practical training. It was also found that the major subjects of agricultural high schools total 57 and that a major course involves a maximum of 14 subjects. From this we can see that scholastic and professional education at the high level, which is supposed to be offered by colleges, is being offered in some major courses of agricultural high schools. The average time spent on major courses per week is no more than one hour. According to the standards for the allocation of school hours set up by the Ministry of Education, there is only one subject matter to which a minimum of one hour is allocated per week. In this connection, it is recommended that sufficient school hours be allocated to major courses.

Improvements have been made by the Ministry of Education since 1963 on problems derived from graduates' opinions concerning the contents and methods of teaching and from routine records of classes and consequently school practice today is in the process of betterment. According to the revised curriculum, hours spent on vocational subjects must be more than 50 percent of total hours and such subjects as soil and fertilizer, general crops, horticulture, forestry management, livestock breeding, poultry farming, farm management, sericulture and farm shop craft must be offered. Core subjects are offered as compulsory subjects to all courses. Besides, special training with emphasis on a given subject or practical training is offered according to the educational goals of individual schools.

RECOMMENDATION 2

Agricultural high school graduates should be provided with the opportunity to engage in the technical activities of medium or small farming and of occupations related to agriculture. Particularly, it is required they own farmland larger than the minimum standard per farm household in order to increase agricultural productivity and income. In order to meet this demand it is necessary to set up proper policy so that agricultural high school graduates may work on farms of minimum standard area which are expected to increase in number year by year. However, it is not necessary to place greater emphasis on the quantitative improvement of education in agricultural high schools in short-term planning. In case those unemployed since 1958 up to now are not taken into consideration, it is required that the number of students admitted to agricultural high schools be increased to at least 10,000 every year.

1. **It is recommended that a proper policy be set up so that at least one to 1.5 chongbo of farmland may be secured for one farm household and so that the total number of farm households be decreased in order to promote agricultural productivity and to relatively increase agricultural income.**

2. **It is recommended that a proper policy be set up by the authorities concerned so that at least one agricultural high school graduate may work on one standard area of cultivated land, taking into consideration the fact that the key to promoting agricultural productivity and to securing appropriate distribution of cultivated land according to agricultural skill is up to the improvement of agricultural skills.**

3. **It is not necessary to plan a quantitative improvement of agricultural high school education, if it is evident that the current status in the employment of agricultural high school graduates in farming remain in the fature as it is now.**

4. **It is not necessary to plan the quantitative improvement of agricultural high schooling if a policy is set up for the assignment of one agricultural high school graduate to one farm household which owns a standard area of cultivated land and which can be expected to increase in the future. In case the unemployed are not taken into consideration, it is required that agricultural schools send 10,000 graduates (in case the minimum standard area of cultivated land is set at 1.5 chongbo) or 40,000 graduates (in case the minimum standard area of cultivated land is set at 1.0 chongbo) every year.**

5. **It is recommended that greater emphasis be placed on providing opportunities in which the unemployed among agricultural high school graduates of the past can find employment as well as providing opportunities in which agricultural high school graduates of the future can find employment.**

6. **It is felt that the assignment of one agricultural high school graduate to one farm house-**

hold which owns a standard area of cultivated land is the ideal, not the reality. However, it is recommended that long-term educational planning (20 to 30 years ahead) involve plans for the assignment of one agricultural high school graduate to one farm household.

7. **In the case of increasing classes and of constructing school buildings along with the increase in the number of students to be admitted, balance should be maintained in every community as far as possible.**

8. **The building of additional classrooms or new school buildings in cities should be discontinued.**

The most important factor in increasing the overall national income of Korea today is to increase agricultural income and productivity. In order to increase agricultural income, it is recommended that one agricultural technician (agricultural high school or college graduate) be assigned to one farm household which owns a minimum standard area of cultivated land (1.0 to 1.5 chongbo).

It is the general tendency that the number of farm households is increasing every year. Accordingly, it is estimated from this study that the total number of farm households will be 2,619,000 in 1965 and 3,157,000 in 1970. Here, we can see that the annual increase in the number of farm households is approximately 90,000 (See page 162).

Analyzing the increase in the number of farm households by area of cultivated land, it is estimated from this study that the increase in the number of farm households owning more than the standard area (1.0 chongbo) of land will be 688,000 in 1965 and 829,000 in 1970. Here we can see that the annual increase in the number of farm households tends to be approximately 20,000. At the same time, we estimate that the increase in the number of farm households owning more than 1.5 chongbo of land will be 314,000 in 1965 and 379,000 in 1970. Here we can see that the annual increase in the number of farm households tends to be approximately 10,000 (See page 163).

As shown in the table 1, the number of agricultural high school graduates has tended to gradually decrease since 1958 and to increase since 1963.

Estimating the number of agricultural high school graduates in the future, we estimate that there will be 11,000 to 13,000 graduates every year provided that the number of students admitted in 1964, 15,500, be kept forward (See page 150).

Analyzing the employment of agricultural school graduates since 1952 we can see that those who found employment ten years and six months or longer after graduation show the highest ratio, 94.35 percent. As to agricultural high school graduates, those of 1953 who took up farming and its related occupations constitute 55.84 percent, whereas those of 1962 who took up the same occupations constitute 63.81 percent. Here we can see that the number of agricultural high school graduates engaged in farming and its related fields tends to increase. If such an increase is maintained we can estimate that 64.08 to 65.46 percent of the total number of the graduates employed after 1965 will go into farming and its related occupations (See page 151 and 154).

An increase in agricultural income can be expected from an increase in the number of farm households which own the standard area of cultivated land and from the assignment of agricultural tecnnicians (college graduates) to farm households. Currently the assignment of agricultural high school graduates to farm households in Korea constitutes 4.22 percent. From this fact we can hardly expect an increase in the number of agricultural high school graduates to be assigned to farm households unless effective steps are taken by the authorities cocerned to encourage agricultural high school graduates to engage in farming. In this case, we can estimate that the number of agricultural high school graduates is approximately

3,400 to 5,300 every year and consequently that 8,000 to 9,000 of the total number of graduates are engaged in fields other than agricultural or are unemployed.

However, if effective steps are taken by the authorities concerned to encourage one agricultural high school graduate to work on one farm of a standard area of cultivated land, the number of such farms is expected to increase year by year, there will be a demand for 20,000 to 25,000 agricultural high school graduates in case the minimum standard area of cultivated land is set at 1.5chongbo and for 43,000 to 55,000 graduates in case the minimum standard area of cultivated land is set at one chongbo. Accordingly, the demand for agricultural high school graduates is estimated to be greater than the supply. However, in establishing plans for the supply and demand of manpower, it is necessary to take the unemployed into consideration. If the government maintains its current agricultural education policies we can estimate that the unemployed since 1958 liable to remain unemployed even after 1965 will number 39,000 to 67,000. We can also estimate that the number available every year will be 52,000 to 80,000 and that the number will surpass the demand.

《**Table-1**》 Number of agricultural high school graduates by year

Year	Number of graduates
1958	17 127
1959	15 673
1960	13 479
1961	9 215
1962	6 558
1963	7 225
1964	8 493

《**Table-2**》 Trends in the employment of agricultural high school graduates

Year	Ratio of employment as of 1964	Ratio of agricultural high school graduates employed in farming and its related occupations
1953	86.78	55.84
1954	94.35	58.81
1955	93.13	60.20
1956	88.82	61.11
1957	88.30	61.79
1958	79.35	62.33
1959	61.18	62.78
1960	39.82	63.17
1961	23.66	63.51
1962	37.48	63.81
1963	—	64.08
1964	—	64.33

《**Table-3**》 Estimated number of demand for agricultural high school graduates

Year	Related occupation to agriculture (A)	In case ratio of agricultural high school graduates assigned to farm household as of 1964 is kept on (B)	In case one agricultural high school graduate is assigned to farm household which owns standard area of cultivated land which is expected to be increased year by year (within 30 years)		A+B	A+C	A+D
			1.5 chongbo(C)	1.0 chongbo(D)			
1965	559	3 409	19 846	43 416	3 968	20 405	43 975
1966	465	4 290	20 927	45 778	4 755	21 392	46 243
1967	376	4 159	22 007	48 142	4 535	22 383	48 518
1968	291	4 549	23 088	50 505	4 840	23 379	50 796
1969	226	4 929	24 169	52 869	5 155	24 395	53 095
1970	167	5 308	25 250	55 231	5 475	25 417	55 398

《**Table-4**》 Estimated number of supply of agricultural high school gradutaes

Year	Number of graduates in a given year (A)	Number of graduates unemployed up to a given year after 1958 (B)	Number of graduates employed in fields other than agriculture of the total number estimated to be employed up to a given year after 1958 (C)	A+B	A+B+C
1965	13 580	38 814	3 102	52 394	55 496
1966	12 650	43 761	3 128	56 411	59 539
1967	11 340	47 291	3 347	58 631	61 978
1968	13 000	48 808	3 538	61 808	65 346
1969	13 000	51 682	3 621	64 682	68 303
1970	13 000	67 380	3 658	80 380	84 038

RECOMMENDATION 3

There has been no apparent change in the employment status of agricultural college graduates during the past ten years. Therefore, it is not considered necessary to establish short-term plans for an increase in the number of students to be admitted to agricultural colleges unless there are no remarkable changes in the demand for and supply of manpower in the agricultural field. In particular, it is recommended that a proper policy be set up to give opportunities to unemployed agricultural college graduates to find employment.

1. **It is recommended that the number of students admitted to agricultural college be kept at the current level.**

2. **It is recommended that in case an increase in the number of students is impossible to counter, from the standpoint of policy increases should be made in specific fields which are so far underdeveloped or have future prospects with emphasis on training those to be engaged in farming.**

3. **It is recommended that a proper policy be set up so that 3,000 to 5,000 unemployed agricultural college graduates may find employment every year.**

4. **It is recommended that the best possible steps be taken so that 19.84 to 32.88 percent of all agricultural college graduates employed every year in fields other than agriculture may find employment in the field of agriculture.**

The number of agricultural college graduates has increased since 1961.

Analyzing the employment of agricultural college graduates since 1953, those who found employment five years and six months or later after graduation constitute the highest ratio, 97.30 percent. Agricultural college graduates engaged in farming and its related occupations in 1953 constitute 58.95 percent, whereas those in 1962 constitute 72.18 percent. Here we can see that the number of agricultural college graduates engaging in farming or its related occupations increases. If this tendency continues we can estimate that 65.99 to 66.28 percent of all agricultural college graduates after 1965 will be employed. (see 151 and 154)

《Table-5》 Number of agricultural college graduates by year

Year	Number of graduates
1961	952
1962	1 122
1963	2 251
1964	2 690

We estimate that the number of agricultural

《Table-6》 Trends in the employment of agricultural college graduates

	Ratio of employment as of 1964	Ratio of agricultural college graduates employed in farming and its related occupations
1953	90.48	63.21
1954	87.03	64.16
1955	90.37	64.60
1956	94.11	64.89
1957	97.30	65.11
1958	95.18	65.28
1959	89.69	65.42
1960	92.41	65.55
1961	83.30	65.66
1962	73.39	65.75
1963	—	65.84
1964	—	65.92

college graduates to be employed between 1965 and 1970 at approximately 9,660. Among them, 12.57 to 13.86 percent, it is estimated, will be employed in farming and 65.99 to 66.28 percent in occupations related to agriculture. Meantime, an estimated 21.44 to 28.00 percent will be employed in fields other than agriculture. In order to effectuate the professional education of agricultural college, it is necessary to decrease the number of unemployed agricultural college graduates or of those employed in fields other than agriculture. The following table shows the estimated number of agricultural college graduates to be employed and the fields in which they will be employed.

《**Table-7**》 Estimated Number of agricultural college graduates to be employed

Year	Number of graduates in a given year	Number of rgaduates estimated to be employed up to a given year after 1961	Number of graduates employed in farming and its related occupations of the total number estimated to be employed up to a given year after 1961	Number of graduates employed in fields other than agriculture of the total number estimated to be employed up to a given year after 1961	Number of graduates unemployed up to a given year after 1961
1965	1 770	1 593	1 051	542	4 003
1966	1 830	1 698	1 120	578	4 238
1967	2 080	1 895	1 252	643	4 620
1968	1 990	1 892	1 250	642	4 716
1969	1 990	1 907	1 263	644	4 815
1970	1 990	1 909	1 265	644	4 919

RECOMMENDATION 4

One of the real strengths underlying practical farm training is the operation cost and consumable supplies needed in demonstration and training. Agricultural high schools have a source of revenue generated from the sale of farm produce. It should be taken to make this fund available for granting of working scholarships and to cover the cost of practical farm training.

1. **Expenses for practical training in agricultural high schools as set by the authorities concerned should be in excess of the total amount of school fees and the returns from the sale of agricultural products.**

2. **A portion of the returns from the sale of agricultural products should be reserved by schools for the granting of scholarships for students who are superior in scholastic achievement but who are unable to go to school due to poverty. However, those who have received scholarship grants from schools must engage in agriculture for a certain period after graduation.**

The duty of school farm supervision in agricultural high schools should be partially imposed on students. This will help the students much who are in the difficulties with respect to educational expenses and also help them acquire practical experience in agriculture.

The criticism made by agricultural high school graduates on the education they received as identified in this survey is that the education they received was biased toward theory, while school authorities and teachers make the excuse that practical training could hardly be offered in a satisfactory manner because of lack of funds for practical training, the lack of laboratories and the lack of school farms. It is natural that the school which offers practical training in a satisfactory manner is equipped with a good laboratory or a large school farm. Anyhow, it is said that a considerable amount of money is obtained by selling various agricultural products produced by school farms as a result of practical training. At present, the money obtained by selling agricultural products is paid as taxes to local educational administrative agencies and only a small amount paid as taxes is returned to schools to cover expenses for practical training. Provided that most amount of the money paid in taxes is returned to schools, they can establish effective educational programs making this money funds for operating such school programs.

It is most important to make use of the money returned to schools for the granting of scholarship and for use to pay expenses of practical training. Thus, schools can afford to furnish students financial support and moreover to carry out more effective agricultural education. It is recommended that the total budget for practical training in agricultural high schools set by local educational administrative agencies be higher than all expenses for practical training paid by students and that excess budget be replaced by the sale of agricultural products grown by schools at their expense. If a part of the return from selling agricultural products is used for scholarships, this will help direct more students with superior scholastic achievements into agricultural high schools.

If agricultural high schools provide financial aid to students who are superior but economically poor by means of having them supervise school farms this will help them make a success in farming after graduation instead of entering a college. In other words, they will be able to make more effective use of the skills they acquired through the management of school farms.

RECOMMENDATION 5 It is recommended that a legal system be established concerning the appointment of demonstration farmers from among those who have received an agricultural education and the qualifications of agricultural officials of the government and of public organizations be legalized so that they will be appointed among those who have received an agricultural education so as to open up wider job opportunities for agricultural high school and college graduates. Moreover, it is recommended that demonstration farmers be treated on an equal basis with instructors with the Office of Rural Development and that preferential rights be given to demonstration farmers for short-term military service if possible. Thus, it is recommended that a positive administrative steps be taken in order to improve agricultural skills.

1. **It is recommended that plans for the assignment of graduates with superior scholastic achievements as a demonstration farmers be established on a year-by-year basis by agricultural high schools and colleges. If possible, it would be more effective if the Office of Rural Development takes charge of supervising the activities of demonstration farmers.**

2. **It is recommended that agricultural high school graduates with superior scholastic achievements be selected to enter agricultural Colleges and after graduaion that they are assigned instructors in agricultural techniques to guide farmers.**

3. **It is recommended that the preferential right of short-term military service be given to agricultural high school graduates with superior scholastic achievements who are appointed demonstration farmers. This will help gain more capable agricultural technicians for farming.**

4. **It is recommended that the qualifications of agricultural officials of the government and public organizations be legalized so that they will be appointed from among those who have received an agricultural education.**

Many more entered agricultural schools with inferior scholastic achievements than those with superior scholastic achievements. This phenomenon has mainly resulted from the fact that the general public thinks that there is no bright future after graduation from agricultural schools and especially that agricultural high school graduates are unfavorably considered for entering college. (Generally, the agricultural school graduate thinks that the real job for him is to find employment in any organization, not to engage in farming). If satisfactory agricultural education is offered, it is natural that agricultural school graduates will make a success in the field of agriculture, but actually this is not true. Accordingly, it may be inferred that their failure in the field of agriculture has resulted from inadequate education which is essentially neither agricultural nor academic.

However, provided that agricultural school graduates receive preferential treatment from society, it can be admitted that they will do their utmost to study their major courses during their school days and they will decide to select their job in the field of agriculture.

Analyzing the employment trends of agricultural school graduates during the ten years from 1953 to 1962, those with superior scholastic achievements could find employment more easily (more than 50 percent) of those with superior scholastic achievements were successful in finding a job and most of them tended to find employment in fields other than agriculture. Analyzing the trends of all graduates, agricultural high school graduates who took up farming were found to constitute 31 percent and those who took up ooccupations related to agriculture, eight percent, so 39 percent entered the field of agriculture. Agricultural college graduates who took up farming were found to constitute nine percent and those took up eccupations related to agriculture, 48 percent, which means 57 percent went into the agricultural field.

Analyzing employees of local administrative organizations, the Office of the Rural Development and the Agricultural Cooperative Association, by education, those who received an agricultural education constitute 33 percent of the total number of employees. Employees in occupations related to agriculture with an agricultural education were found to constitute 54 percent and those in non-agricultural occupations with an agricultural education, 13 percent. If employees in non-agricultural fields with anagricultural education replace those in occupations related to agriculture who have no agricultural education, those with an agricultural education who are required for occupations related to agriculature constitute 33 percent.

It is a need of society that opportunities be given to enable those who failed to find a job with local administrative organizations to work on farms so that they may make an effective use of the agricultural education they received. As one means, it is desired that preferential rights to short-term military service be given to those with superior scholastic achievements and that they work as demonstration farmers to assist in the development of rural communities.

RECOMMENDATION 6

It is recommended that justifiable concepts regarding the seeking of employment be fostered in agricultural high school and college graduates. In addition, it is also recommended that vocational guidance as to the future occupation of graduates be included in the educational program of each school. Moreover, it is necessary to have students get rid of the conecpt regarding employment merely for the sake of employment and to have them become aware of the fact that farming is also an important job. It is recommended that agricultural education be offered strictly in accordance with definite goals so that students can make a decision on their future as early as possible.

1. **It is necessary to have agricultural high school and college graduates become aware of the fact that not only is working in an office is a job, working on the farm is also an important job. Furthermore, it is necessary to conduct a national drive for enlightenment on the importance and benefit of agriculture to society as a whole. For effective results from such a national drive, the joint efforts of local administrative organizations and agencies concerned with agriculture, under the auspice of the Ministry of Public Information, are required.**

2. **In order to remove the social evil of respect for the government official only and of contempt for the farmer, government organizations must improve their traditional attitude toward farmers. They are not commissioned to control farmers but to be at the service of farmers.**

3. **The various organizations and agencies concerned with agriculture should make allout efforts so that farmers may raise agricultural productivity by having the latter to adopt the attitude of accepting new agricultural skills in order to increase agricultural profits.**

4. **It is recommended that agricultural high schools and colleges offer vocational guidance by means of furnishing information concerning future occupations and the knowledge necessary for finding an appropriate an appropriate occupation so as to help students make a decision as to their future during school days.**

5. **It is recommended that agricultural high schools and colleges students the illustration of former graduates who reaped success in agriculture.**

In Korean society, there has been a concept on respect for govenment official and contempt for civilians from olden times and this concept is still prevalent. Above all, agriculture seems to be regarded with contempt by society. In olden times, the evaluation of an occupation fell in the following order: civil servant, agriculture, industry and commerce. Thus, agriculture was regarded as a noble occupation. However, the evaluation of an occupation today falls in the following order: civil servant, commerce, industry and agriculture, with agriculture regarded with deepest contempt.

Thus, agriculture is regarded with contempt not only by society but by farmers themselves and so they are likely to be ashamed of working in agriculture and are not aware of the value of labor devoted to agriculture.

On the other hand, farmers usually reproach government officials for their lack of a sense of service. In other words, farmers indicate that government officials refrain sometimes from taking care of urgent matters concerning farming such as the supply of fertilizer, agricultural chemicals, taxation and others. This fact brings about the distrust of farmers in government officials and further in the government itself.

Moreover, this also causes those engaged in the field of agriculture not to want to have their sons engage in the same field and adolescents in rural communities not to want to remain on the farms.

As to students, it is a general trend that those with superior scholastic achievements are unwilling to go on to upper level agricultural schools and also to take up agricultural employment. It is also a general trend that the scholastic achievements of studnts are not in parallel with their finding employment. This trend results in the concept of contempt for agriculture in Korean society.

Even though agriculture has been regarded with contempt by society and even though farmers, livelihood has met with difficulties, there are agricultural school graduates who are making efforts to remove the concept of contempt for agriculture by means of voluntary devotion to the cause of society.

Agricultural high school and college graduates engaged in the field of agriculture are making good profits by means of cultivating, with the new skills and techniques learned in school, fruit trees, vegetables and various specific crops. As for agricultural high school graduates, their annual income, excluding living expenses, totals up to 101,776 Won, and agricultural college graduates up to 207,182 Won, on the average. Of course, these graduates cultivate more than the minimum standard area of land (the average area of cultivated land, including rice paddy, dry field and orchard, owned by an agricultural high school graduate is 5,499 pyong and that owned by an agricultural college graduate is 7,130 pyong). The main factor behind their making good profits is that in their cultivation they use systematic and creative methods. If the creative farming methods used by these graduates are diffused to farmers in general, farmers also will make more income and improve their living standards.

However, it is a general trend that those who enter agricultural schools do not seem to give much consideration to making a decision on their future.

To make a decision on one's future is a big factor in effective agricultural education and, moreover, it is of help to the graduate in raising his working efficiency after graduation. It was found that those who are satisfied with their present occupations are mostly those engaged in agriculture while those engaged in occupations other than agricultural seem to be dissatisfied. Therefore, it is necessary to encourage as many agricultural high school graduates as possible to engage in agriculture for the benefit of both individuals and the nation. Those who made a decision as to their future before entering school are found among those now engaged in farming rather than among those engaegd in cccupations other than agricultural (those engaged in agriculture constitute 11%, those in occupations related to agriculture, 4%, and those engaged in occupations other than agricultural, 2 %). At the same time, those who made the same decision during their school days found to be engaged in agriculture rather than in occupations other than agricultural. (Those engaged in agriculture constitute 15%, in occupations related to agriculture, 11%, and in occupations other than agriculture, 9 %). Most agricultural high school graduates did not make a decision as to their future during school days or before entering school. Those who made a decision on their future during school days constitute 21%, those who idncated that they made the same decision after graduation, 48%, and those who indicated that they made a decision long after graduation, the rest.

This means that most agricultural high school graduates did not make a decision as to their future and thus they did not take subjects into consideration on the basis of their future occupation for the sake of

satisfaction in their work. In this connection, it is recommended that vocational guidance be effectively offered so that students may make a decision as to their future during school days.

We can see similar trends in the case of agricultural college graduates. Those who indicated that they decided on their future after graduation were found to constitute 54 percent, and those who indicated that they made the same decision either before entering school or during school days, 34 percent. Accordingly, it is recommended that effective education be offered so that agricultural school students may make a decision on their future as early as possible and, moreover, that vocational guidance be offered so that they may make the best use after graduation of the knowledge and skills acquired at school.

RECOMMENDATION 7

It is recommended that farms owned by parents be divided up, with the permission of the parents, so that students may be responsible for cultivating a certain area in order to make it possible for students to find employment in farming. It is also recommended that teachers make continued efforts to guide students and to make parents understand the prospects of agricultural productivity so that parents and students may cooperate in their mutual tasks.

1. **It is recommended that a small plot of land owned by parents be given to students upon their enrollment in agricultural high schools for their own management and that schools render them the best possible cooperation in the management of practical farming so that they may work satisfactorily with their parents in farming after graduation.**

2. **It is recommended that agricultural schools carry out activities to have rural people become aware of new agricultural skills and especially to have farmers, who have sons attending agricultural schools or who have graduated from these schools, appreciate the new agricultural skills their sons have learned or are learning.**

No matter how excellent school education is, it will be of no use if it is not socially accepted. This phenomenon can frequently be seen in rural communities. The opinion that agricutural high school graduates present with one accord is that they do not really have good opportunities to display their ability because of conflicts regarding farm techniques with their parents. When conflicts between new farming techniques and traditional methods arise, parents do not recognize the ability of their sons. This may be due to traditional parental misunderstanding, although it cannot be wholely blamed on partental distrust for unused farming techniques. One way to solve this conflict is to give students a patch of land, small though it may be, as soon as they enter school to do actual farming according to new techniques acquired throughout their high school days. Finally, parents will come to approve such techniques the efficacy of which is proved by good yields. In other words, a measure to get rid of the reality in which inexperienced graduates cannot even attempt to apply their knowledge and ability to actual farming because of traditional refusal is required. Thus, some compromise between new farm techniques and the old must be attempted. This plan was developed by the F. F. A. (Future Farmers of America) and it has achieved good results even in Japan, the Philippines and China. If this plan is developed in Korea, it could be called F.F.K. (Future Farmers of Korea).

This farming plan can contribute a great deal to agricultural high schooling that cannot provide enough practical training for students and it can be a good way to diffuse new farm techniques in rural communities with the cooperative efforts of parents.

RECOMMENDATION 8

It is recommended that the most capable of agricultural school graduates, by rural community, work at instructing in practical training so that they may conduct practical instructions on farming after school or during vacations. Moreover, it is recommended that follow-up guidance be offered by schools, mainly to those students selected as instructors.

1. **It is recommended that agricultural high schools select students who intend to be farmers from among those with superior scholastic achievements and appoint them as practical training instructors in each rural community. It is desirable that schools be afforded the means to pay them some remuneration.**

2. **It is desirable that practical training instructors give actual training in farming after school hours or during vacations.**

3. **It is recommended that practical training instructors take part in the follow-up guidance of graduates in farming knowledge and skills and that these graduates take the lead in the improvement of farming methods in rural communities.**

The main reason most agricultural school graduates refrain from taking up farming is that they cannot expect good return and that they are regarded with contempt by others. It is natural that schools are somewhat responsible for this. Moreover, this fact has resulted from the fact that satisfactory agricultural education is not being offered by agricultural high schools. If agricultural education is offered with equal emphasis on both theoretical and practical training, by introducing new knowledge and skills from developed countries so that students may succeed in farming after graduation, agricultural high schools can invite more students who will contribute to the development of rural communities after graduation.

However, such an assumption is of no use unless it is put into practice. In this connection, school authorities make the excuse that failure to put such into practice is due to lack of teacher qualifications, lack of facilities and lack of funds for practical training. As mentioned in the foregoing, it is serious factor which hinders Korean agriculture from achieving its desirable development that those with superior scholastic achievements are not willing to take up farming. Moreover, it is also a factor that there are still a considerable number of graduates who stick to traditional agricultural skills instead of using the new skills acquired at school. These factors require urgent improvement. In addition, the following problems, such as inconsistency between new skills acquired at school and actual application, inconsistency in farming methods between parents and students, the inadequacy of theoretical education to actual farming and the suspicion rural people hold for a graduate's farming skills are due to the unsatisfactory education offered by agricultural high schools.

However, there are many who have achieved success in society. Some are taking the lead in instructing agricultural skills in rural communities. It is desired that schools select those graduates and let them help students in their work on school farms for effective practical training. In other words, practical training for students should be extended to rural communities from the schools.

It is desired that agricultural school graduates participate in vocational guidance and in the practical training of students and that graduates cooperate in the diffusion of new agricultural methods and skills.

RECOMMENDATION 9

It is recommended that principals and vice-principals of agricultural high schools be appointed from among agriculture teachers or from among those concerned with agriculture as far as possible. It is also recommended that priority be given to agricultural high school graduates, with a farming background and a good scholastic record, when applying for admittance to the Teacher Training Department at the College of Agriculture. In case the recommendation above seems discriminatory, we urge that questions and demonstrations showing proficiency in vocational agriculture subjects be part of the entrance examination. This will tend to return young teachers to the schools with some practical background.

1. **Agricultural teacher, should be the most able farmer. Nevertheless, the phase in which the present agricultural teachers lack capability is pratical training guidance. Accordingly, more than 50 percent of all school hours in major courses should be given to practical training so that agricultural teachers may be capable of satisfactory practical training.**

2. **Agricultural subjects (major courses) should be required for in the entrance examination for agricultural education courses. Moreover, in scoring greater weight should be given to agricultural subjects and to the examination of practice for the advantage of those who receive an agricultural education.**

3. **The number of vocational teachers at agricultural high schools should be increased and those who have received a professional or teachnical education should be assigned to their own subject field. Thus, it is recommended that capable agricultural teachers be retained and that teachers salaries be increased.**

4. **The principals of agricultural high schools should be appointed from among those who are graduates of agricultural schools or those who have long experience in teaching at agricultural schools and who have good administrative capability.**

5. **Pratical training, including agricultural practice and student-teacher trainining involved in the curriculum of agricultural teachers' training institutes, should be offered for six months at least.**

6. **The agricultural education courses at agricultural teacher-training institutions should be enlarged, both in quality and in quantity, to the extent of meeting the demand for agricultural teachers.**

It is wrong to say that the teaching profession requires only knowledge of the subject field. The teaching profession requires a conviction concerning education and the enthusiasm and ability to foster young students as capable citizens who will contribute to the development of society in conformity with the needs of a changing society. Particularly, vocational teachers of agricultural high schools are required to

be equipped with fundamenatal theoretical knowledge and practical agricultural skills and techniques so as to master developing trends in agriculture and so as to be of assistance in sloving various agricultural problems.

It is normal that agricultural teachers are inclined to be biased toward the theoretical knowledge acquired in agricultural colleges and that they lack practical training in skills and techniques. Agricultural teachers themselves admit that they lack the substantial basis on which to offer effective technical education aimed at fostering capable agricultural technicians who will engage in the field of agriculture. Accordingly, some agricultural high school graduates are inferior from the aspect of skills and techniques compared to farmers who have received no agricultural education. It is said that two or three years are required for agricultural high school graduates to apply agricultural education to effectively practice.

Agricultural high school teachers are likely to fail to encourage students to acquire a conviction concerning agriculture because they lack the conviction on agricultural education which aims at training leading agricultural technicians. On the other hand, most agricultural high school students enter school with no convictions and aims. In this connection, agricultural high school teachers must encourage them in the aims of agricultural education and in a conviction on that they may contribute to the development of rural communities after their graduation.

The failure of agricultural high school teachers to encourage students in a conviction regarding agriculture results from the fact that they did not receive effective preparatory education to be agricultural teacher but received an education centered on training professional agricultural technicians at higher educational institution. Of course, teaching subjects are offered by higher educational institution, but school hours allocated to teaching subjects are very limited and, moreover, hours are not spent in the most effective manner because students do not devote themselves to their subjects because of trying to find employment after graduation. In this connection, the teacher-training department system of agricultural colleges is considered highly effective.

Agricultural high school teacher's lack of practical skills and conviction brings about inefficiencies in teaching and failure to play a leading role in their graduates, activities to help farmers and those engaged in the field of agriculture.

However, some teachers are playing a leading role in instructing agricultural skills in rural communities with a firm conviction, excellent practical skills and profound knowledge. It is desirable that principals and fellow teachers appreciate the meritorious deeds of these teachers, in and out of school, and give them encouragement.

RECOMMENDATION 10

It is recommended that agricultural teacher-training institutes study ways to improve and strengthen in-service education and put them into practice for the purpose of elevating the qualification of agricultural teachers.

1. **Agricultural teacher training courses should be offered at least for three months with emphasis on experimentation and practical training.**

2. **Agricultural teacher training courses should be centered around agricultural subjects and the training of agricultural subjects, teaching subjects and cultural subjects should be allocated at a ratio of 60, 20 and 20.**

3. **In-service education should be offered on an equal basis so that all agricultural teachers may undergo it at least once every three years to get current new skills according to development in agriculture and the authorities concerned should establish plans for in-service education available for from 200 to 300 agricultural teachers every year.**

4. **It would be better if in-service education institutes are set up within agricultural college and if the professors of agricultural colleges give lectures on in-service education.**

5. **It is recommended that effective methods of instruction be acquired by means of observation and practical training on farm and that new knowledge and theories be directly acquired through in-service education.**

It is required that in order to carry out his teaching profession in a satisfactory manner a teacher must acquire teaching skills in conformity with changing society and have a good understanding of adolescents. Provided that a teacher remain as a teacher merely with the knowledge and skills acquired in preparatory education, it is clear that he will be unable to make success of his teaching. Particularly, vocational teachers in Korea used to receive an education not at teacher training institutes aimed at training agricultural teachers, but at higher professional educational institutes such as agricultural colleges by means of receiving more than 16 credits in teaching professional subjects. Accordingly agricultural teachers in the past received an education limited to a specific field of agriculture and thus they received insufficient teacher preparatory education. Therefore, they are likely to lack teacher training and preparatory experience in practical training. Moreover, agricultural matters are flexible and have a specific nature. This means that the application of principles is a very important factor in agriculture. Nevertheless, agricultural teachers lack the capability to train students in the application of principles. From this fact, in-service education for agricultural teachers is urgently required.

It was found that only 52 percent of all agricultural high school teachers indicated that they had received in-service education. Most of them were found to be senior teachers. Those who indicated that they had received in-service education only once were found to constitute 56 percent, which is the highest ratio, and those who indicated that had not receive it even once during five years were found to constitute 35 percent. From this fact, we can see that in-service education has been offered on a basis unequal of opportunity.

Those who desire to receive in-service education once every three years were found to constitute 35 percent, the highestiratio, and those who desire to receive education once every five years, 27 percent. As of 1964, the total number of agricultural teachers throughout the nation was 618. Accordingly, it is necessary that the authorities concerned establish plans for in-service education so that 206 agricultural teachers may receive in-service education once every three years, and 124 agricultural teachers, once every five years.

Those who desire that in-service education institutions be established within agricultural college were found to constitute 46 percent, the highest ratio. Most agricultural teachers wanted to organize curriculum in such a way that teaching subjects, cultural subjects and agricultural subjects are in the proportion of 60, 20 and 20 percent.

About half of all agricultural teachers indicated that the in-service education they received was helpful to their agricultural education and to their teaching methods. The main aspects they indicated in which in-service education is helpful are as follows : 1) In acquiring new knowledge of and advanced skills in agriculture, 2) In finding a new foundation for agriculture, 3) In acquiring skill to apply teaching mater rials and practical training and 4) In acquiring skill in teaching, guidance and counseling. Most agricultural teachers desire to receive in-service education for three or four weeks and to have in-srvice education centering on practical training, Morover, most of them want to invite professors of agricultural colleges as lectures in agricultural subjects and professors of colleges of education as lecturers in teaching subjects.

RECOMMENDATION 11

It is recommended that educational administrative authorities set up standards for school facilities and equipment according to major courses so as to secure efficiency in carrying out the curriculum and that school facilities and equipments be eqally provided to each major course according to these standards. It is also recommended that agricultural schools established plans for utilizing the facilities as well as equipments provided for each course so as to make the best use of them.

1. **It is recommended that educational administrative authorities set up standards for the facilities and equipment of agricultural schools.**

2. **It is recommended that facilities as well as equipments be prvided on the basis of the standards set up by educational administrative authorities and that differences among agricultural schools according to area be removed as far as possible.**

3. **It is recommended that facilities as well as equipment provided to agricultural schools be utilized to the full.**

4. **It is recommended that damaged facilities and equipments be repaired if possible.**

5. **It is recommended that agricultural schools themselves make normal facilities or equipments in so far as possible in cooperation with their students. Such schools as have farm shop should do this.**

School facilities occupy a really important position in the promotion of education. With poor school facilitities, no sound educational activities can be conducted nor can deep learning be expected.

According to the survey results on the actual situation of school farmland and on the laboratories of agricultural high schools surveyed, the average number of kinds per school is five ranging from two kinds to a maximum of eight kinds, and that for laboratories is ten kinds, ranging from six to 18 per school. The kinds of school farmland are mainly rice paddy, dry field and fishpond, orchards, nurseries, and market gardens. The kind of laboratories are mainly pig houses, hen houses, green houses, rabbit coops and cowshed. And others are in the order of farm storage, farm management rooms, silkworn rooms, silos, sheep sheds, hatching rooms and vinyl houses.

Of school farmland and dry fields for agriculture, the average area of rice paddy per school is 7,128 pyong (23,522m²), ranging from 600 pyong(1,980m²) to a maximum of 13,669 pyong(45,107m²), and that of dry field is 5,000 pyong (16,500m²), ranging from 1,062 pyong (3,505m²) to 19,423 pyong (64,096m²).

The kinds and numbers of facilities, machinery and instruments, and of animals and plants for practical training differ a great deal in each school. Some schools are provided with sufficient facilities but some schools are not. Even in the same school, facilities are provided for specific courses. For instance, for some agricultural courses of agricultural high schools are provided with school farmland, a laboratory and an average of 25 kinds of facilities, while famland for other courses is so poor that it is almost of no use and facilities for practical study number ten kinds on the average. This fact implies that facility plans up to

now are so poor that decisions have been made extemporaneously.

On the other hand, agricultural high schools so lack plans for the effective utilization of facilities already provided that such facilities are not used. Moreover, leaving those facilities unused allows then to deteriorate so agricultural high schools tend to try to buy new ones, and tend not to effectively utilize those facilities already estiblished.

PART II

FULL REPORT

I Study Outline

A. Justification

Although the modernization of an industrial structure tends to lower, relatively speaking, the position held by agriculture in a national economy, the absolute position of agricultural production must, nevertheless, be elevated. Particularly, in an underdeveloped country in which agricultural production holds a key position in the economy, top priority should be given to agriculture for the sake of the economic development of that nation. Moreover, the fact that 60 percent of the korean people are farmers and that their farming methods are still far from modern necessitates agricultural improvement. This is one of the most urgent problems confronting the Korean people in the elevation of their economy from its underdeveloped state.

Since the liberation from Japanese rule, in light of the importance of and urgent need for agricultural rehabilitation, the Korean government has made concerted attempts to promote agriculture. in 19 47, the Agricultural Improvement Institute was founded by the American Military Government in Korea, and in 1948 this was reorganized into the Central Agricultural Technical Institute when the Republic of Korea Government was established. Following that, in 1955, the Agricultural Institute was formed with assistance from I. C. A. Two years later, with the Community Development Sub-committee organized by the American-Korean Joint Economic Board, a model community campaign was initiated throughout the country. After the military Revolution of 1961, all the rural community services mentioned above were integrated into one organization known as the Office of Rural Development.

A positive attempt is now being made by means of education to modernize the Korean agricultural structure in a scientific manner. There are currently 113 agricultural high schools and 13 agricultural colleges throughout the country, and graduates from agricultural high schools number approximately 7,000 each year and from agricultural colleges approximately 1,500. A large number of these graduates are expected to make a considerable contribution to the development of rural communities in Korea. However, there has been no scientific study of the soundness of their training with which they must meet the agricultural needs of this country, on the effectiveness of their education by which they must be helpful to Korean society, especially to the agricultural community, and on the current status in which they are making their contribution to the nation as a whole.

A study entitled "Rebuilding Secondary Education in the Republic of Korea"[1], which was conducted by the Central Education Research Institute, included agricultural education in part. However, there has so far been no study concentrated on that particular subject in order to seek desirable results. In this connection, an intensive study of agricultural education is urgently required.

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[1] The Central Education Research Institute and others, *Rebuilding Secondary Education in the Republic of Korea*, (Seoul : Central Education Research Institute, 1962.)

Since the urgent need for a study of this kind has been a subject of discussion by the authorities concerned, the Central Education Research Institute on june 15, 1964 started, "The Follow-up Study of Vocational Agriculture High School and Agriculture College Graduates and an Examination of Schools to Determine Their Long-Term Contribution to Agricultural Production" as part of overall technical development programs made under the Joint Auspices of the Economic Planning Board, the United States Operations Mission to Korea and the Ministry of Education.

The follow-up study covered the period from June to November, 1964 and was designed, as its title indicates, to draw up recommendations helpful to the development of agricultural education and to the improvement of agricultural policies by means of collecting basic data reflecting agricultural practices in the past as well as to be useful in looking to the future of Korean agriculture. we shall now itemize the objectives of this study.

B. Study Objectives

By means of follow-up studies of agricultural high school and college graduates :

① To discover the occupations now pursued by agricultural high school and college graduates ;

② To determine the role of agricultural high schools and colleges and their graduates in relation to agricultural production ;

③ To determine to what extent, if at all, agricultural high schools and colleges should participate in the training of youth and adult farmers in their communities ;

④ As a corollary, to study basic information useful for policy-making in the field of agricultural education ;

⑤ To provide guidance for the training of agricultural teachers in future ;

⑥ To develop leads for the improvement of the curriculum of agricultural high schools and colleges ; and

⑦ To provide basic data for the establishment of future plans for the supply and demand of manpower in the field of agriculture.

C. Study Contents

The problems to be solved upon conclusion of this study are summarized as follows :

1. Projection technical manpower required in the field of agriculture

The demand for technical manpower in Korean agriculture depends on the transformation of farming methods, on the industrial composition and on the estimated population increase. This projection will help the government in its establishment of agricultural programs in their quantitative aspects and to draw up long-term plans for the supply and demand of tcchnical manpower in the field of agriculture.

2. The identification of the occupational distribution of agricultural high school and college graduates.

This identification will help determine what jobs are being held by those who received an agricultural education so as to estimate how many of them are engaged in agriculture and its related industries and to clarify in what manner the distribution of their occupations has changed. Such identification will also help find ways to improve the quality of agricultural education and offer basic data for the establishment of long-term plans for the supply and demand of manpower in the field of agriculture.

3. The identification of the role played by vocational agriculture high schools and colleges and by their graduates in farming and in agricultural production

In the first place, what work vocational agriculture high school and college graduates actually do in rural communities was identified. Secondly, what differences were identified in respect to agricultural productivity and to clerical efficiency in agriucltural matters between agricultural high school and college graduates and those who received no agricultural education were pinpointed.

The validity and effectiveness of education in vocational agriculture high schools and colleges could thus be evaluated.

4. The principle behind the teacher-training program for vocational agriculture high schools.

Basic data helpful for drawing up pre-service and in-service education programs for agricultural teachers were collected by means of surveying the qualifications of teachers who lecture in vocational subjects at agricultural high sehools.

5. An examination of the contents of the curriculum, teaching methods and educational facilities of agricultural high schools and colleges.

This examination was carried out for the purpose of bettering education in agricultural high schools and colleges.

D. Survey Method and Objects

The method applied in this study was five-fold, namely, interviews (individual and group), questionnaires, documentary analyses, the collection of professional opinions and statistical reference to plans for the supply and demand of technical manpower. The survey was conducted by covering communities, schools and graduates.

1. Survsy object

a. Community survey

The community survey was designed to ascertain the opinions of people in the communities and what agricultural high school and college graduates think of their work conditions, the professional efficiency they show, the contributions they make to the community, the degree in which they are satisfied with their present jobs, the views farmers and the graduates have on the value of agriculture and the evaluation graduates make of the agricultural education they have received. In carrying out this survey, the method of conducting interviews was mostly used, while visitations and record analyses were employed to a limited degree. This survey was carried out by seven survey teams, each of which had three experts in the field, for 13 days during the period July 27 through August 8, 1964.

b. School survey

The school survey was designed to collect the basic data needed to ascertain and analyze the conditions under which vocational agriculture high school and college graduates work, their professional efficiency, the correlation between their contributions to the community and their scholastic achievments, the degree by which they are satisfied with their present jobs, the views farmers and they have on the value of agriculture, their evaluation of the agricultural education they received and problems facing the training of vocational teachers. This survey was carried out by a professional group and by CERI personnel using record analysis, observations, interviews, and questionnaires as their methods. This survey was conducted by CERI personnel, with emphasis on record analysis, during the period july 15 through August 1, 1964 and by a community survey team consisting of CERI personnel and professionals during the period July 27 through august 8, 1964.

c. Graduate survey

This survey was designed to obtain sound facts by collecting vocational agriculture high school and college graduates' opinions on the items described in the foregoing. This survey was carried out by means of a questionnaire mailed to approximately 13,700 persons who graduated from agricultural high schools and colleges during the ten years from 1953 to 1962.

2. Data collection methods

a. Interviews

1) Interviews

In view of the fact that the successful accomplishment of a survey requires highly qualified interviewers, this survey was conducted by CERI personnel and other qualified persons selected by CERI.

a) CERI personnel

Six CERI personnel were assigned to conduct the survey, four professional staff members, one chief researcher and one research associate.

b) Survey personnel other than from CERI

Since the subject of the interviews was the broad field of agricultural education itself and of the agricultural profession and agricultural economics, survey personnel included experts in the fields of agriculture, economics and social survey and research.

2) The subjects of interviews

The subjects of interviews were selected from among agricultural high school teachers and agricultural college professors, agricultural high school and college graduates, farmers and the community leaders of seven communities selected as most representative for the community survey. Besides, vocational agricultural high school and college professors who had been subject to the school survey were also selected as subjects for interview.

3) Interview methods

Survey personnel, professionals in various fields, made individual visits to farms, schools and community organizations. They also interviewed with residents of the communities surveyed.

b. Questionnaire method

The questionnarie methode was a significant method adopted for this survey.

1) Principle behind the drawing-up of the questionnaire

The questionnaire was drawn up following preliminary surveys and interviews, which used both the direct question and projective methods. The closed-end questionnaire was generally used, but the open-end questionnaire was also used according to sections and items which did not permit options. The questionnaire was sent to and returned by each individual by mail.

2) Type of questions and to whom mailed

The questionnaire was classified into three types according to the purpose of the survey.

a) Questionnaire for graduates

This qustionnaire was sent to 13,700 persons who graduated from agricultural high schools and colleges during the ten years from 1953 to 1962.

b) Questionnaire for teachers and professors

This questionnaire was sent to 437 agricultural high school teachers and college professors.

c) Questionnaire for various organizations

This questionnaire was mailed to the representatives of the various organizations and government agencies in rural communities concerned with agriculture. It included such items as requestions regarding a break down of saff by educational attainment and agricultural high school and college graduates, occupational competence.

c. Documentary analysis

Survey personnel from CERI vesited agricultural high schools and colleges to analyze various official and school documents (graduation grades and graduates' present addresses).

d. Collection of professional opinions

Opinions were widely collected from professionals in various fields such as agriculture, economics, education and social affairs so as to give solid backing to the results of this survey and to present sound recommendations. Visits were made to the experts in those fields by CERI personnel. The planning committee also assisted in this work.

e. Statistical estimates for the planning of the supply and demand of manpower

The most accurate possible estimates concerning the demand for technical manpower in the field of agriculture is very important for the establishment of national policies. Therefore, estimates, both ideal and factual, were reached as a result of this survey. In drawing up the estimates, a model case was first studied by means of statistical estimates based on data concerning past and current conditions.

3. Study procedures

This study was conducted, according to the following procedures, for six months starting from June 1964.

a. Drawing up plans b. Selection of items for survey c. Preparation of the preliminary survey	June 1964
d. Determination of the survey contents and methods e. Printing of survey forms f. Training of survey personnel	June~ July
g. Conducting the main survey	August
h. Data treatment i. Statistical analysis j. Documentary adjustment	September~ November
k. Drafting of report l. Writing of report(Korean) m. Writing of report (English)	November~ end of November
n. Publication of Report in Korean o. Publication of Report in English	end of December 1964

E. Sampling

Sampling varied with survey field such as the comunity survey, the school survey and the survey of graduates, all of which have different objectives and methods.

1. Community sampling

a. Sampling principles

Primarily, the community survey was designed to show not merely quantitative data but to ascertain problems underlying the qualitative aspects of agricultural education and agricultural policies in an area sampled. In sampling a community, therefore, its agricultural pattern and the characteristics of its school were taken into account within the limits of survey possibilities, while communities with varied characteristics were sampled. Thus, the principles behind the sampling are as follows.

1) The natural and geographic conditions of the community was taken into account.

The natural and geographic conditions were involved in both low land and high country communities.

2) Types of farming were taken into account.

According to the type of farming, areas were classified under such headings as rice, barley vegetable, fruit, etc. production.

3) Sampling was equally distributed over each province.

4) The educational background in a given community was taken into account.

First, the history of the agricultural high school in a given community was traced. Communities which had an agricultural high school established either before or after the liberation from Japanese rule (1945) were sampled on an equal footing.

Second, communities which have both an agricultural high school and an agricultural college, and those which have an agricultural high school only were sampled as equals.

Third, communities which have both an agricultural high school and an academic high school and that which has only a vocational agriculture high school were sampled on the same basis.

b. Communities sampled

According to the sampling principles described above, the following seven communities were sampled:

Kyonggi Province·····Yoju district
Kangwon Province·····Pyongchang district
North Chungchong Province·····Poun district
South Chungchong Province·····Kongju district
North Cholla Province·····Mocoju district
South Cholla Province·····Sunhon city and Sungju district
South Kyongsang Province·····Chinju city and Chinyang district

2. Schools sampled

Schools sampled should make possible the conducting of various activities such as the analysis of school documents, and the surveying of school facilities, teacher opinion and graduates' follow-up studies. Qualitative study and quantitative treatment should be conducted side by side. Particularly, quantitative treatment should be followed by incidental generalizations and compared with the results of past studies.

Meantime, the agricultural high schools sampled in the survey for "Rebuilding Secondary Education in the Republic of Korea", carried out in 1961 by the Central Education Research Institute, were selected for school sampling in this study. However, one of the schools sampled had closed down in the meantime and so it was replaced by the Kangneung (Kangwon Province) vocational agriculture high school. Agricultural colleges were sampled according to the year of their foundation and according to whether their foundation was public or private.

The schools sampled and their locations are listed as follows.

Vocational Agriculture High Schools

Kyonggi Province	Suwon agricultural high school
	Ansong agricultural high school
Kangwon Province	Kangnung agricultural high school
	Keundock agricultural high school
	Chunchon agricultural high school
North Chungchong Province	Poun agricultural high school
South Chungchong Province	Kongju agricultural high school
	Chusan agricultural high School
	Taechon vocational high school
North Cholla Province	Pusan agricultural high school
South Cholla Province	Kwangju agricultural high school
North Kyongsang Province	Ankeh agricultural high school
	Yechon agricultural high school
	Chinyang agricultural high school
	Chain agricultural high school
South Kyongsang Province	Kimhae agricultural high school
	Chinyong agricultural high school
	Namhae agricultural high school
	Kochang agricultural high school

Agricultural Colleges

Seoul	Seoul Agricultural College
Kyonggi Province	College of Agriculture Seoul National University
Kangwon Province	Chunchon Agricultural College
South Cholla Province	College of Agriculture, Chonnam (South Cholla) University
South Kyongsang Province	Chinju Agricultural College

3. Sampling of graduates

Ten vocational agriculture high schools and five agricultural colleges were sampled throughout the country and then 15,000 persons who graduated from these schools and colleges during the ten years from 1952 to 1962 were sampled by mailed questionnaires. The mailing list was compiled by referring to the directory of graduates.

Graduates' questionnaires sent out and the status of the treatment of valid data are shown by Table 8. Valid data was compiled from only 3,260 of the 13,700 mailed questionnaires or 23.79 percent of the total.

《**Table-8**》 Questionnaires for graduates and the valid data treated

Graduates	Number of question-naires sent (A)	Number of responses(B)		Valid data (C)	
		N	B/A×100	N	C/A×100
Agricultural High schools	9 700	2 286	23.57	2 178	22.45
Agricultural colleges	4 000	1 117	27.93	1 082	27.05
Total	13 700	3 403	24.84	3 260	23.79

4. Sampling of teachers and professors

A total of 597 persons, including all teachers assigned to teach agricultural subjects in nineteen agricultural high schools and all teachers taking in-service training for agriculture teachers at Suwon and Kwangju as of August 1964, together with lecturers were sampled for this survey. Valid data treated was collected from 196 answers, or 32.82 percent of the total.

《**Table-9**》

Questionnaires for teachers and professors and the valid data treated

Graduates	Number of quastionnaires sent (A)	Number of responeses (B)		Valid data (C)	
		N	B/A×100	N	C/A×100
Agricultural high school teachers	517	184	35.74	184	35.74
Agricultural college professors	80	12	15.00	12	15.00
Total	597	196	32.83	196	32.83

5. Sampling of community organizations

A total of 1,002 community organizations, including 446 local administrative organizations such as City, County, Town and District Offices, 417 Offices of Rural Development and 139 Agricultural Cooperative Associations were sampled in this survey. The questionnaires were mailed to and returned by these organizations. Valid data treated came from 408, or 40.72 percent, of the questionnaires mailed.

《**Table-10**》

Questionnaires for community organizations and the valid data treated

Samples	Number of questionnaires sent (A)	Number of responses (B)		Valid data (C)	
		N	B/A×100	N	C/A×100
Local administrative organizations (city, county town and district offices)	446	262	58.74	262	58.74
Offices of Rural Development	417	109	26.14	109	26.14
Agricultural Cooperative Associations	139	37	26.62	37	26.62
Total	1 002	408	40.72	408	40.72

F. Study Control

1. The Economic Planning Board and the United States Operations Mission to Korea rendered joint support for this study which was also assisted by the Ministry of Education, the Korean Society for Agricultural Education and by local boards of education.

This study was planned and carried out by the Central Education Research Institute with support from the above organizations.

2. In order to carry out this study successfully, the Central Education Research Institute set up a Steering Committee as well an Advisory and Planning Committe.

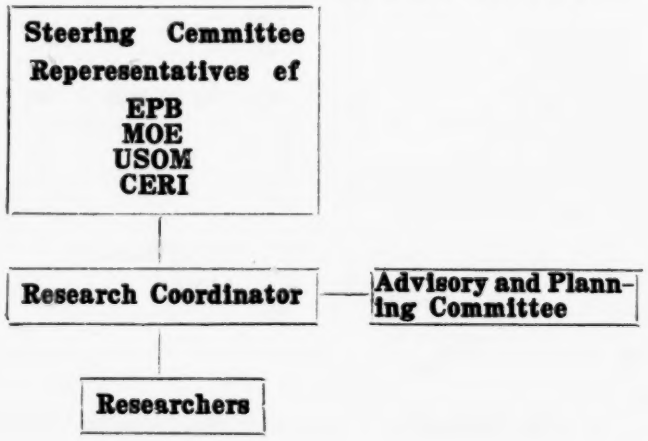
The Steering Committee was composed of four members representing the Economic Planning Board, the Ministry of Education, the United States Operations Mission to Korea and the Central Education Research Institute. The Steering Committee was the supreme executive body in the conduct of the study.

3. The Planning and Advisory Committee furnished professional advice and made proposals for the successful conduct of this study.

The Advisory Committee was composed of specialists in the fields of education, sociology, agriculture and economics, and of government officials concerned with economics, agriculture and education. The Chief Researcher of the Central Education Research Institute was chairman of this committee.

The Research coordinator and researchers received technical advice from the members of Advisory Committee who from time to time formed small working committees.

Organization for the study was as follows :



G. Data Treatment

At first, all data obtained through this study was treated so that overall trends throughout the country could be estimated.

1. Community survey

With respect to the treatment of the results of the community survey, the results obtained from various community studies were interpreted not in terms of statistical conclusions derived from quantitative treatment but in terms of a case study based on the judgement of professional research personnel.

2. School survey

The results of the school survey were interpreted by way of statistical generalizations through quantitative treatment and then treated so that general trends representing the whole nation might be shown. In other words, the results of the school survey were analyzed and presented according to two dimensions, current status and comparison with data obtained in the past.

3. Questionnaire survey of graduates

Responses to every item on the gratuates' questionnaire were interpreted as representing position throughout the nation and then final conclusions were reached through the following analyses:

a. Differences according to present occupations;

b. Difference according to occupational background;

c. Differences according to the graduates' ages and years of graduation;

d. Differences according to education level; and

e. Relations with scholastic achievement.

4. Questionnaire survey of teachers & professors

The results obtained from the questionnaire survey of teachers and professors were interpreted as common opinion throughout the nation and then conclusions were reached by means of an analysis by their position and experience and the subject matters assigned to them to teach.

5. Survey of community organizations

Offices of Rural Development, Agricultural Cooperative Associations and local administrative organizations were included in this survey and the distribution of agricultural high school and college graduates employed by these organizations and a comparison of their occupational competency with graduates of other schools was conducted. Then, together with these orgaizations, an analysis of agricultural high school and college graduates' activities was conducted so as to identify such activities throughout the nation.

II. Occupational Competence of Agricultual High School and College Graduates and Their Contribution to Society.

The main fields of occupation in which agricultural high school and college graduates are expected to engage are enterprises and public services related to agriculture. However, many graduates happen to be engaged in occupational fields other than agriculture and its related industries. In such cases, occupational success depends on the efficiency of general education rather than on that of agricultural education.

As a means ef evaluating education received in agricultural high schools and colleges this section measures the extent to which graduates have made a success in agricultural fields and in other aspects of community life in which such graduates take the lead in community development and in which they take part in the works of various social organizations they participate in.

Althogh the Education Law contains no clear definition of the objectives of education as given by agricultural high schools, we may presume that it lies in the aim of higher general and teahcnical education based on the education received in middle schools, as is inferred in Article 104 of the Education Law. In the broader sense, it may be admitted that the objectives of education in agriculture high schools lies in the attaiment of a high level of technical education related to agriculture and which fosters in those who are competent the desire to achieve comprehensive agricultural management skills with scientific techniques and practical ability, and to train them so that they may carry out their later duties in specific fields of agricultural production thus to contribute to the development of both their community and their nation.

Likewise, the Education Law contains no clear definition of the objectives of education in agricultural colleges. Article 108 prescribes that the general objecctives of education in agricultural colleges lies in fostering leaders by means of the study of profound scholastic theories and precise methods of application necessary for the development of society and the nation. In short, it can be summarized that education in agricultural colleges aims at fostering leadership especially in the field of agriculture by means of professional education related to agriculture.

It may be presumed that agricultural high school and college graduates engaging in agriculture and its realted fields do better in the work assigned to them than those who received no techncial or professional training, provided that the objectives of education in both agricultural high schools and colleges are fully realized.

A. Correlations between the scholastic achievement and the occupational competence of graduates.

1. Correlations between the scholastic

achievement and occupational competence.

Some teachers say that those who are superior in liberal subjects were also superior in agricultural courses. But what teachers mean by superiority in agricultural subjects is superiority in examinations and not in the comprehension of practical techniques. Some high school students studying agriculture are very enthusiastic about practical farming but fail in general subject matters. Thus, those who are superior in liberal subjects can earn overall superior marks and so most superior agricultural high school students apply upon gradution for entrance to liberal colleges than agricultural institutions. Especially, this trend is most pronounced in those who are most superior in scholastic achievement. It was found as a result of this survey that more than 50 percent of all students attending colleges were found to be agricultural high school students who grauduated during the period 1958 to 1962 and who earned superior marks, over 68 percentile, in all subjects. Among them, those who earned average marks, between 34 and 67 percentile, totaled 26 percent and those who earned lower marks, below 33 percentile, 17 percent. Thus, there are many agricultural high school graduates who were superior at the time of their graduation who went on to colleges.

《Table-11》 Correlations between the scholastic achievements of agricultural high school graduates and their entrance to college

Achievement	Percentage of those entering college by scholastic achievement	
	All courses	vocational courses
Superior	61.79	51.11
Average	23.17	29.26
Below-average	15.04	19.63
Total	100.00	100.00
(Number of graduates)	(246)	(270)

① **Achievement level.** **Superior : above 68 percentile**
Average : 34~67 percentile
Below-average : below 33 percentile

② **The percentages over those who graduated agricultural high schools during the five years from 1958 to 1962 and, who entered colleges.**

Otherwise, those who returned to the land or took a job were unable to enter an agricultural college because of academic backwardness or economic difficulties. Since the assessment of achievements in school was not correctly deduced, there seems to be no real corelation between achievement and practical competence. The success story is often told of students who have shown earnestness in practice rather than of those who were superior in subject matters. Competence seems to depend more upon the interest, intention and efforts of students. If achievement in the agricultural courses is fairly evaluated, those who are superior in respect to achievement in agricultural courses reap more success in agricultural theory and practice.

However, under the present system of evaluating education, scholastic achievement is related to the percentage of success in examinations for job placement rather than to accomplishment in agricultural technology. Such a trend is readily found with respect to the graduates of general high schools. This is no doubt due to the fact that such shools place more emphasis on knowledge in their evaluation of student achievement.

2. Correlation between graduation achievement records and employment.

The correlations between scholastic achievement and finding employment and achieving success in one's occupation is one method of evaluating the appropriateness and quality of agricultural education. It is merely a hope or an assumption to consider that most agricultural high school graduates who were superior in scholastic achievement during their school days tend to find their way into agricultural or farming fields. Accordingly, it is important to ascertain the correlations between the scholastic achievements of agricultural high school graduates during their school days and the occupational fields in which these graduates took employment.

The investigation of the correlations between scholastic achievement and the fields of occupation which graduates entered should precede the clarifica-

tion of the occupational competence of graduates. If it is true that agricultural high school and college graduates who were superior in respect to scholastic achievements during school days found work in fields with no connection with agriculture, it may be assumed that the field of agriculture absorbed only those graduates who were inferior and so the occupational competence of agricultural hihg school and college graduates can hardly be assessed on the basis of this assumption. In consideration of the fact that the effectiveness of agricultural education can be assessed only by means of a consideration of graduates' occupational competence in the field of agriculture, the correlations between the scholastic achievements of graduates during their school days and the field of occupation they entered is of great value. From this point of view, an analysis of the correlations between academic achievements and the fields of occupation into which graduates entered preceded an examination of the occupational competence of graduates.

a. Correlations between the scholastic achievements of agricultural high school graduates and their present employment.

1) General view on scholastic achievement records.

By means of a survey which sampled 4,607 persons who graduated agricultural high schools during the ten years from 1953 to 1962 who found employment, it was deduced that those who were superior in academic achievements during school days could find work. It was also revealed through this survey that those with superior achievements totaled 38.94 percent of all sampled, that those with average achievements totaled 35.82 percent and that those with below-average achievements numbered 25.24 percent.

Comparing scholastic achievements with fields of occupation, it was found that their relations are in opposition ($x^2=22.10$, $p<.01$). Few of the group with superior scholastic achievements found work in the agricultural field.

《Table-12》 Occupational fields of agricultural high school graduates by scholastic achievement

Occupational fields	Below average		Average		Superior		Total	
	N	%	N	%	N	%	N	%
Fields related to agriculture	573	12.44	766	16.63	734	15.93	2 073	45.00
Non-agricultural fields	590	12.80	884	19.19	1 060	23.01	2 534	55 00
Total	1 163	25.24	1 650	35.82	1 794	38.94	4 607	100.00

① **Achievement level, Below average : below 33 percentile**
Average : 34-67 percentile
Superior : above 68 percentile

② $x^2=22.10$, $p<.01$

According to the overall distribution of the fields of occupation which agriculture high school graduates entered during the period from 1953 to 1962, those with superior scholastic achievements totaled 40.92 percent, those with average achievements 46.42 percent and those with below-average achievements 49.27 percent. The group with superior scholastic achievements was found to have the tendency not to find its way into agriculture and its related fields and the groups with average or below-average achievements were found to have the tendency to take up agricultural occupations. The field of occupation, besides agriculture and its related industries, into which the greater number of agricultural high school graduates entered was found to be the service sector, including government organizations, and this phenomenon is generally common regardless of the degree of academic achievement reached.

Analyzed by year of graduation, in 1957 agricultural high school graduates with superior achievements who engaged in agriculture and its related fields were found to be 49.74 percent of the total which shows the highest ratio of any year. It was found that superior graduates in later years have tended to find work elsewhere than in the agricultural field while 1962 graduates showed an increase in the tendency to find employment in the agricultural field. In fields other than agriculture and its related industries was found a trend contrary to that in agriculture and its related fields. As to the average and below-average groups in respect to scholastic achievement, the trend was found to be almost the same as that of the superior group. As to

《Table-13》 Correlations between the scholastic record of agricultural high school graduates and the fields of work which they are engaged in

Field of work		1953			1954			1955			1956		
		Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior
Agriculture, Forestry Hunting and Fisheries		26.32	23.86	19.47	45.03	37.38	32.56	50.51	46.19	34.03	47.06	45.93	30.26
Mining and Quarrying		—	1.71	—	—	—	—	1.02	0.40	1.25	—	1.16	—
Manufacturing	Agricultural	—	0.57	—	—	—	—	—	—	—	—	0.58	—
	Others	1.75	2.27	—	1.33	2.91	1.16	1.53	1.21	0.83	1.96	1.75	1.03
Heavy construction		—	—	—	0.66	—	—	—	0.40	—	—	—	—
Electric, gas, water and health services		—	—	—	0.66	0.49	—	—	—	—	—	—	0.51
Commerce	Agricultural	—	1.14	—	—	—	—	0.51	0.40	0.41	—	—	0.51
	Others	5.26	5.68	0.89	7.29	8 25	7.56	5.10	4.42	4.56	7.19	6.40	3.59
Transportation, warehousing & communication		—	1.70	—	3.31	1.94	1.16	1.53	1.20	0.41	1.31	1.16	0.51
Service	Agricultural	7.02	6.25	11.50	3.31	6.31	6.40	3.57	6.02	6.64	2.61	1.16	7.69
	Others	59.65	56.82	68.14	38.41	42.72	51.16	36.23	39.76	51.87	39.87	41.86	55.90
Grand total	**Agriculture and related**	**33.34**	**31.82**	**30.97**	**48.34**	**43.69**	**38.96**	**54.59**	**52.61**	**41 08**	**49.67**	**47.67**	**38.46**
	Industrial fields	**66.66**	**68.18**	**69.03**	**51.66**	**56 31**	**61.04**	**54.41**	**47.39**	**58.92**	**50.33**	**52.33**	**61.54**
	Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Field of work		1957			1958			1959			1960		
		Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior
Agriculture, Forestry Hunting and Fisheries		65.97	59.78	47.36	63.24	56.60	42.56	61.04	56.82	47.65	25.97	44.64	38.20
Mining and Quarrying		—	0.36	0.26	—	1.89	1.35	1.30	1.51	—	1.30	—	0.69
Manufacturing	Agricultural	—	—	—	—	—	0.68	—	—	—	—	—	—
	Others	2.10	1.07	0.53	5.88	2.83	3.38	—	—	1.34	—	—	—
Heavy construction		—	—	0.26	—	0.94	0.68	—	—	—	—	0.89	—
Electric, gas, water and health services		—	—	—	—	—	—	—	—	0.67	—	0.89	1.39
Commerce	Agricultural	—	0.36	0.26	—	—	—	—	—	—	—	—	—
	Others	5.88	7.12	5.03	5.88	7.55	5.40	2.60	4.54	5.37	6.49	1.79	2.08
Transportation, warehousing & communication		0.42	1.42	1.06	—	0.94	0.68	1.30	0.76	—	1.30	0.89	—
Service	Agricultural	—	0.71	2.12	1 47	—	0.68	—	0.76	—	—	1.79	—
	Others	25.63	29.18	43.12	23.53	29.25	44.59	33.76	35.61	44.97	64.94	49.11	56.95
Grand total	**Agriculture and related**	**65.97**	**60.85**	**49.74**	**64.71**	**56.60**	**43.92**	**61.04**	**57.58**	**47.65**	**25.97**	**46.43**	**38.20**
	Industrial fields	**34.03**	**39.15**	**50.26**	**35.29**	**43.40**	**56 08**	**38.96**	**42.42**	**52.35**	**74.03**	**53.57**	**61.80**
	Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Field of work		1961			1962			**Total**		
		Below average	Average	Suoerrio	Below average	Average	Superior	**Below average**	**Average**	**Superior**
Agriculture, Forestry Hunting and Fisheries		11.69	18.87	20.51	30.43	25.45	39.42	47.38	43.27	37.07
Mining and Quarrying		—	—	—	—	—	0.73	0.34	0.67	0.45
Manufacturing	Agricultural	—	—	—	—	—	—	—	0.12	0.06
	Others	—	0.94	1.71	—	0.91	0.73	1.55	1.46	1.06
Heavy construction		—	—	—	—	—	—	0.09	0.18	0.11
Electrices gas, water and health services		—	—	—	—	—	—	0.09	0.12	0.22
Commerce	Agricultural	—	—	—	—	—	—	0.09	0.24	0.17
	Others	6.49	3.77	2.56	1.45	8.18	0.73	5.67	5.94	4.12
Transportation, warehousing & communication		—	—	—	—	0.91	—	1.12	1.21	0.50
Service	Agricultural	—	—	0.86	—	—	—	1.80	2.79	3.62
	Others	81.82	76.42	74.36	68.12	64.55	58.39	41.87	44.00	52.62

Grand total	Agriculture and related	11.69	18.87	21.37	30.43	25.45	39.42	49.27	46.42	40.92
	Industrial fields	88.31	81.13	78.63	69.57	74.55	60.58	50.73	53.58	59.08
	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100 00

① This is the employment distribution by scholastic achievement record of 4,607 persons who graduated agricultural high school during the 10-year period from 1953 to 1962 and who are known to have been employed as of September, 1964. Those whose achievement record was not was not available were excluded.
②Achievement level, Superior: over 68 percentile, Average: 34~67 percentile, Below Average: Under 33 percentile

agricultural high school graduates in 1957, those who engaged in agriculture and its related fields constituted the highest ratio yet: of those with average scholastic achievements 60.85 percent took employment in the agricultural field while of those with below-average academic achievements 65.97 percent did so. Such trends tended to decrease with the years following but seemed to improve slightly in case of graduates in 1962.

2) Scholastic achievements in agricultural Subjects

According to the survey on the correlations between scholastic achievement in agricultural subjects and finding employment, a sample of 5,464 agricultural high school graduates during the period from 1953 to 1962 who found employment showed that achievement in agricultural subjects had no significant effect upon the employment ratio whereas there were close relations between achievement and the field of occupation these graduates entered. (X^2 =18.62, $P<.01$) Analyzing the ratio according to achievement of those who found employment in the agriculture field to the total number of graduates employed, the group with superior scholastic achievements seemed to low whereas the below-average group seemed to be rather higher. It is a strange phenomenon that in agriculture and its related fields there is a greater number of agricultural high school graduates with below-average academic achievements than those with superior achievements, despite the fact that it should be the opposite.

《**Table-14**》 Fields of occupation in which agricultural high school graduates are engaged by scholastic achievement in agricultural courses

Fields of occupation	Below average		Average		Superior		**Total**	
	N	%	N	%	N	%	N	%
Fields related to agriculture	905	16.56	818	14.97	803	14.69	2 526	46.22
Non-agricultural fields	935	17.11	916	16.77	1 087	19.90	2 938	53.78
Total	1 840	33.67	1 734	31.74	1 890	34.59	5 464	100.00

① Achievement level, Below average: below 33 percentile, Average: 34~67 percentile, Superior: above 68 percentile
② X^2=18.62, $P<.01$

According to the correlations between graduation achievements in agricultural subjects and the employment ratio in agriculture and its related fields by year, 1958 graduates who were superior in academic achievements in agricultural subjects showed the highest ratio with respect to finding employment in agriculture and its related fields. Graduates of the years up to 1958 who were superior in scholastic achievements showed an increasing ratio in respect to finding employment in agriculture and its related fields, whereas graduates of years following 1959 showed a decreasing ratio and 1961 graduates showed a sudden decreasing this ratio, to 15.08 percent of the total number employed. However, 1962 graduates showed a sudden increasing this ratio and those with superior scholastic achievements who found employment in agriculture and its related fields were found to be 42.48 percent of the total number employed. As to the averege and below-average groups with respect to scholastic achievement in agricultural subjects, the trend to find employment in agriculture and its related fields seemed to be almost the same as that for the group with superior achievements. In 1958 agricultural high school graduates with average scholastic achievements in agricultural subjects who found emplyment in agriculture and its related fields were found to constitute 59.26

percent of the total and group with below-average acheivemnts 63. 28 percent. Thus, agricultural high school graduates in 1958 showed the highest ratio with respect to finding employment in agiculture and its related fields during the ten years from 1953 to 1962. As to graduates in 1961, the employment ratio for agriculture and its related fields showed a sudden decrease. The group with average achievements was found to costitute 23. 37 percent and that with below-average achievements 23. 94 percent of the total number employed. On the other hand, as to graduats in 1962, the employment ratio in agriculture and its related fields showed an increase. The group with average achievements was found to be 40 percent and the group with below-average achievements to be 40. 82 percent of the total number employed. As a whole, the number of graduates employed in occupations other than agriculture and its related fields is much higher than that of those employed in agriculture. Above all, the largest number of graduates found employment in the service field.

《**Table-15**》 Correlations between the scholastic achievement in agricultural courses of agricultural high school graduates and the fields of work which they are engaged in

Field of work	1953			1954			1955			1956		
	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior
Agriculture, Forestry, Hunting and Fishery	20.20	24.24	19.84	40.32	36.54	29.03	46.61	48.21	35.12	47.93	41.85	34.17
Mining and Quarrying	2.02	0.76	—	—	—	—	—	1.34	1.24	0.53	0.54	—
Manufacturing {Agricultural	—	0.76	—	—	—	—	—	—	—	—	0.54	—
Manufacturing {Others	1.01	—	1.59	0.54	1.44	1.84	0.90	1.79	1.24	1.73	1.09	2.01
Heavy construction	—	—	—	—	0.48	—	0.45	—	—	—	—	—
Electric, gas, water and health services	—	—	—	0.54	—	0.46	—	—	—	—	—	—
Commerce Agricultural	2.02	—	—	—	—	—	0.90	0.45	—	—	0.54	—
Commerce Others	9.09	1.51	2.38	8.60	8.17	6.91	4.98	5.80	3.72	8.67	5.93	4.02
Transportation, warehousing & communication	2.02	0.76	—	2.15	1.44	1.84	1.36	0.89	0.83	2.31	—	0.50
Service {Agricultural	6.06	0.76	12.70	4.84	9.62	8.30	3.17	5.36	6.61	2.89	2.72	5.03
Service {Others	57.58	71.21	63.49	43.01	42.31	51.61	41.63	36.16	51.24	35.84	46.74	54.27
Grand total {Agriculture and related industrial fields	27.28	25.76	32.54	45.16	46.16	37.33	50.68	54.02	41.73	50.87	45.65	39.20
Grand total {Others	71.72	74.24	67.46	54.84	53.84	62.66	49.32	45.98	58.27	49.13	54.35	60.80
Grand total {Total	100.00	100.00	100.00	100.00	100.00	99.99	100.00	100.00	100.00	100.00	100.00	100.00

Field of Work	1957			1958			1959			1960		
	Beolw aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior
Agriculture, Forestry, Hunting and Fishery	60.68	56.25	50.50	62.55	59.26	52.67	59.41	53.10	50.00	35.50	40.54	36.18
Mining and Quarrying	0.34	0.35	—	0.36	—	1.15	0.59	1.38	—	—	—	1.32
Manufacturing {Agricultural	—	—	—	—	—	0.38	—	—	—	—	—	—
Manufacturing {Others	2.03	1.04	0.66	2.91	1.59	0.76	—	—	1.31	—	0.68	—
Heavy construction	—	0.35	—	0.36	0.53	—	—	—	—	—	0.68	—
Electric, gas, water and health services	—	—	—	—	—	—	—	—	0.66	—	—	—
Commerce {Agricultural	—	0.35	—	—	—	—	—	—	—	—	—	—
Commerce {Others	4.75	8.68	4.32	2.91	7.41	4.58	5.29	4.83	4.61	3.55	4.05	2.63
Transportation, warehousing & communication	1.69	0.69	0.33	0.36	—	1.15	0.59	—	0.06	1.18	0.68	0.66
Service {Agricultural	0.34	0.35	2.33	0.73	—	1.52	—	—	0.66	—	1.35	0.66
Service {Others	30.17	31.94	41.86	29.82	31.21	37.79	34.12	40.69	42.10	59.76	52.03	58.55
Grand total {Agriculture & related industrial fields	61.02	56.95	52.83	63.28	59.26	54.57	59.41	53.10	50.66	35.50	41.89	36.84
Grand total {Others	38.98	43.05	47.17	36.72	40.74	45.43	40.59	46.90	49.34	64.49	58.12	63.16
Grand total {Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.99	100.01	100.00

Filed of Work	1961			1962			Total		
	Below average	Average	Superow	Below average	Average	Superior	**Below average**	**Average**	**Superior**
Agriculture, Forestry, Hunting and Fishery	23.94	22.88	15.08	40.00	40.82	42.48	47.34	44.46	38.57
Mining and Quarrying	—	—	—	—	—	0.88	0.33	0.46	0.48
Manufacturing {Agricultural	—	—	—	—	—	—	—	0.12	0.05
Manufacturing {Others	0.70	—	1.59	0.91	—	0.88	1.25	0.92	1.16
Heavy construction	—	—	—	—	—	—	0 11	0 23	—
Electric, gas, water and health services	—	—	—	—	—	—	0.05	—	0.11
Agricultural {Commerce	—	—	—	—	—	—	0.22	0.17	—
Agricultural {Others	7.04	1.69	3.17	5.45	4.08	2.66	5.65	5.83	4.13
Transportation, warehousing & communication	—	—	0.79	0.91	—	—	1.25	0.52	0.74
Service {Agricultural	—	0.85	—	—	—	—	1.63	2.42	3.86
Service {Others	68.31	74.58	79.37	52.73	55.10	53.10	42.17	44.87	50 90
Grand total {Agriculture & related industrial fields	23.94	23.73	15.08	40.00	40.82	42.48	49.19	47.17	42.48
Grand total {Others	76.05	76.27	84.92	60.00	59.18	57.52	50.81	52.83	57.52
Grand total {Total	99 99	100.00	100.00	100.00	100.00	100 00	100.00	100. 00	100. 00

① This is the employment distribution by scholastic record of 5, 464 persons who graduated agricultural high school during the 10 years from 1953 to 1962, who are known to have been employed as of September, 1964. Those whose achievement records are not available have been excluded

② Achievement level, Below-Average : under 33 percentile Average : 34~67 percentile superior : over 68 percentile

b. Correlations between the scholastic achievement record of agricultural college graduates and their present occupation.

1) General view of scholastic achievement records.

Nine hundred and four of the total number of agricultural college graduates during the the ten years from 1953 to 1962 were sampled for this survey to deduce the correlations between their scholastic achievement records and their fields of occupation. As a result of the survey, it was found that those who were superior in scholastic achievement were employed more readily. It was found that there were no relations between scholastic achievement and the fields of occupation these graduates entered ($x^2=3.92$ $.10<P<.20$). In other words, whether scholastic achievements were superior or otherwise it did not make any difference when it came to finding the graduate's present occupations. However, taking into consideration the fact that those who were superior in scholastic achievement were employed more readily, those who were superior in respect to scholastic achievements than those with average achievements engaged in agriculture and its related fields. Futhermore, it was found that regardless of achievement, superior of otherwise, the employment ratio of these graduates in agriculture and its related fields was much higher than in other fields. Those engaged in agri culture and its related fields who have superior scholastic achievement were found to total 52.22 percent of the number employed, those with average achievements 59. 44 percent, and those with below achievements 53.28 percent.

《**Table-16**》 Occupational fields of agricultural college graduates by scholastic achievement record

Occupational field	Below Average		Average		Superior		**Total**	
	N	%	N	%	N	%	**N**	**%**
Agriclture & related fields	130	14.38	192	21.24	176	19.47	498	55.09
Non-agricultural fields	114	12.61	131	14.49	161	17.81	406	44.91
Total	224	26.99	323	35.73	337	37.28	904	100.00

① Achievement level, Below-average : under 33 percentile, Average : 34~67 percentile, Superior : over 68 percentile

② $x^2=3,92$, $.10<P<.20$

Analyzing this by year, the number of graduates with superior scholastic achievements who took employment in agriculture and its related field was inclined to gradually increase year by year except for 1961. According to the employment ratio of graduates in agriculture and its related fields, among the group with superior scholastic achievements 1962 graduates showed the highest ratio 82.35 percent. However, more than half of the 82.35 percent were found to be employed in the service field, including government organizations related with agriculture, rather than to be directly employed in farming. Typification of these are professional agricultural organizations and other agencies related with agriculture such as the Office of Rural Development, the Agicultural Cooperatives Association and other agricultural administrative organizations. As to the group with average and below-average scholastic achievements, although the employment ratio of graduates was found to be less than that of graduates with superior achievements, their tendency in finding an employment is quite similar to that of superior graduates. The only difference between the group with superior scholastic achievements and the other group is that more of the latter than of the farmer took up farming than took employment in services related to agriculture.

《**Table-17**》 Correlations between the academic achievement of agriculture college graduates and the fields of work which they are engaged in

Field of work	1953			1954			1955			1956		
	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior
Agriculture, Forestry. Hunting and Fishery	28.57	15.79	17.07	40.00	28.57	18.18	22.73	26.09	21.74	31.92	36.36	22.08
Mining and Quarrying	—	—	—	—	—	—	—	—	—	—	—	1.30
Manufacturing {Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Manufacturing {Others	—	2.63	—	—	—	—	—	—	8.70	—	—	2.60
Heavy construction	—	—	2.44	—	—	—	—	—	—	—	—	—
Electric, gas, water and health services	7.14	2.63	—	—	—	—	4.55	—	—	—	—	—
Commerce {Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Commerce {Others	—	2.63	—	20.00	—	—	4.55	8.70	8.70	14.89	7.58	5.19
Transportation, warehousing & communication	—	—	—	—	—	9.09	4.55	4.35	4.35	8.51	—	—
Service {Agricultural	21.43	34.21	14.64	20.00	14.29	18.18	31.81	39.13	13.04	10.64	21.21	31.17
Service {Others	42.86	42.11	65.85	20.00	57.14	54.55	31.81	21.73	43.47	34.04	34.85	37.66
Grand total {Agriculture & related industrial fields	**50.00**	**50.00**	**31.71**	**60.00**	**42.86**	**36.36**	**54.54**	**65.22**	**34.78**	**42.56**	**57.67**	**53.25**
Grand total {Others	**50.00**	**50.00**	**68.29**	**40.00**	**57.14**	**63.64**	**45.46**	**34.78**	**65.22**	**57.44**	**42.43**	**46.75**
Grand total {Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Field of work	1957			1958			1959			1960		
	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior
Agriculture, Forestry. Hunting and Fishery	36.20	36.36	25.75	33.33	45.46	47.83	25.00	25.00	22.22	44.12	25.00	31.43
Mining and Quarrying	1.72	—	—	—	—	—	—	—	—	—	—	—
Manufacturing {Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Manufacturing {Others	3.45	1.52	6.06	—	—	—	—	—	—	—	2.78	—
Heavy construction	—	1.52	1.52	—	—	—	—	—	—	—	—	2.86
Electric, gas, water and health services	—	—	—	—	—	—	—	8.33	11.11	—	—	—
Commerce {Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Commerce {Others	3.45	—	4.55	8.33	—	—	—	—	—	2.94	5.56	—
Transportion, warehousing & communication	3.45	—	1.52	—	—	—	—	—	—	—	—	—
Service {Agricultural	12.07	13.64	10.60	8.33	13.63	17.39	62.50	58.33	55.56	17.65	44.44	48.57

	Others	39.66	46.96	50.00	50.00	40.91	34.78	12.50	8.33	11.11	35.29	22.22	17.14
Grand total	**Agriculture & related industrial fields**	48.27	50.00	36.35	41.66	59.09	65.22	87.50	83.33	77.78	61.77	69.44	80.00
	Others	51.73	50.00	63.65	58.33	40.91	34.78	12.50	16.66	22.22	38.23	30.56	20.00
	Total	100.00	100.00	100.00	99.99	100.00	100.00	100.00	99.99	100.00	100.00	100.00	100.00

Field of work	1961			1962			**Total**		
	Below average	Average	Superior	Below average	Average	Superior	**Below average**	**Average**	**Superior**
Agriculture, Forestry, Hunting and Fishery	36.36	38.24	28.57	18.18	31.58	23.53	33.61	31.89	25.52
Mining and Quarrying	—	—	—	—	—	—	0.41	—	0.30
Manufacturing {Agricultural	—	—	—	—	—	—	—	—	—
Manufacturing {Others	—	—	—	—	—	—	0.82	0.93	2.37
Heavy construction	—	—	—	—	—	—	—	0.31	0.89
Electric, gas, water and health services	—	—	—	—	—	—	0.82	0.62	0.30
Commerce {Agricultural	—	—	—	—	—	—	—	—	—
Commerce {Others	3.03	—	2.85	—	5.26	—	5.74	3.41	2.97
Transportation, warehousing & communication	—	—	—	—	—	—	2.87	0.31	0.89
Service {Agricultural	21.21	26.47	34.29	54.55	42.11	58.82	19.67	27.55	26.70
Service {Others	39.39	35.29	34.29	27.27	21.05	17.65	36.06	34.98	40.06
Grand Total {**Agriculture & related industrial fields**	57.57	64.71	62.86	72.73	73.69	82.35	53.28	59.44	52.22
Grand Total {**Others**	42.42	35.29	37.14	27.27	26.31	17.65	46.72	40.56	47.78
Grand Total {**Total**	99.99	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

① This is the distribution of the fields of work of 904 persons who graduated agricultural colleges during the ten years from 1953 to 1962 and who are known to have been employed as of September, 1964.

② Achievement level, Below-average : under 33 percentile, Average : 34~67 percentile, Superior : over 68 percentile

2) Scholastic achievements in major courses (professional fields in agriculture)

For the survey on the correlations between scholastic achievements in major courses (agricultural courses) and the occupations graduates selected, 1,630 agriculture college graduates during the ten years from 1953 to 1962, were sampled and it was found that those with superior scholastic achievements in major courses have a higher ratio in the successful finding of employment. Comparing scholastic achievements in major courses with the occupational fields graduates selected, significant relations are seen between them($x^2=8.75, p<.05$). A greater number of graduates with superior scholastic achievements in major courses tended to find work in the agricultural field whereas the opposite is true for those with below-average achievements. However, more graduates with average of achievements than those with superior achievements took up an agricultural occupation. Those with average achievements who engaged in agricultural work show the highest ratio, 66.43 percent, those with superior achievements 62.76 percent or slightly lower than the former, and those with below-average achievements 58.08 percent. Thus, it may be concluded that agricultural college graduates

《Table-18》 Fields of occupation in which agricultural college graduates are engaged by scholastic achievements in major courses

Fields of occupation	Below Average		Average		Superior		**Total**	
	N	%	N	%	N	%	**N**	**%**
Agricultural & related fields	298	18.28	362	22.21	359	22.03	1 019	62.52
Non-agricultural fields	215	13.19	183	11.23	213	13.06	611	37.48
Total	513	31.47	545	33.44	572	35.09	1 630	100.00

① Achievement levels, Below average: under 33 percentile, Average: 34~67 percentile, Superior: above 68 percentile

② $x^2=8.75$, $p<.05$

with superior scholastic achievements in major courses find work more readily and that those with superior and average achievements in major courses also find work in agriculture and its related fields more easily than those with below-average achievements.

Analyzing this by graduation year, 1958 graduates with superior scholastic achievements in their major fields show the highest ratio, 82.14 percent, in finding employment in agricultural fields. Then the employment ratio of graduates tends to decrease year by year till 1962 graduates show an employment ratio of 51.22 percent. It was found that there was no clear annual trend in respect to the employment ratio of graduates with the average achievements in agriculture and its related fields. Thus, 1962 graduates show 58.73 percent employmcent while those of 1959 show 76.66 percent. As to the group with below-average achievements in major courses, the employment ratio of graduates in agriculture and its related fields also could hardly be deduced because of the absence of normal annual trends. 1959 graduates showed the highest.

《Table-19》 Correlations between the achievement of agriculture college graduates in major courses and the fields of work which they are engaged in

Field of work	1953			1954			1955		
	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior
Agriculture, Forestry, Hunting & Fishery	8.89	11.66	17.86	11.91	8.89	10.87	30.77	16.28	15.00
Mining and Quarrying	—	—	—	—	—	—	—	—	—
Manufacturing { Agricultural	—	—	—	—	—	—	—	—	—
Manufacturing { Others	—	3.33	—	—	2.22	—	2.56	—	—
Heavy construction	—	—	—	—	—	—	—	—	—
Electric, gas, water and health services	2.22	1.67	—	—	—	—	2.56	—	—
Commerce { Agricultural	—	—	—	—	—	—	—	—	—
Commerce { Others	—	1.67	—	2.38	2.22	6.52	7.69	2.33	5.00
Transportation, warehonsing & communication	—	—	—	—	2.22	—	—	—	—
Service { Agricultural	40.00	46.67	37.50	33.33	53.33	52.17	33.33	58.13	50.00
Service { Others	48.89	35.00	44.64	52.38	31.11	30.44	23.08	23.26	30.00
Grand total { Agriculture & related industrial fields	48.89	58.33	55.36	45.24	62.22	63.04	64.10	74.41	65.00
Grand total { Others	51.11	41.67	44.64	54.76	37.77	36.96	35.89	25.59	35.00
Total	100.00	100.00	100.00	100.00	99.99	100.00	99.99	100.00	100.00

Field of work	1956			1957			1958			1959		
	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior	Below aver-age	Aver-age	Supe-rior
Agriculture, Forestry Hunting & Fishery	24.29	29.85	31.94	43.48	41.07	26.31	17.39	34.78	32.14	44.45	43.33	37.93
Mining and Quarrying	—	—	—	2.17	—	—	—	—	—	3.70	—	—
Manufacturing { Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Manufacturing { Others	2.86	1.49	1.39	2.17	1.79	—	—	—	—	3.70	—	—
Heavy construction	—	—	—	—	—	—	—	—	—	—	—	—
Electric, gas, water and health services	—	—	—	—	—	—	—	—	—	—	—	6.90
Cemmerce { Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Cemmerce { Others	4.29	4.48	2.78	—	—	—	8.70	—	—	—	—	3.45
Transportation, warehousing & communication	1.43	—	—	—	—	—	—	—	—	—	—	—
Service { Agricultural	31.43	44.78	37.50	13.04	25.00	35.09	30.43	30.44	50.00	29.63	33.33	34.48
Service { Others	35.70	19.40	26.39	39.13	32.14	38.60	43.48	34.78	17.86	18.52	23.33	17.24
Grand total { Agriculture & related industrial fields	55.72	74.63	69.44	56.52	66.07	61.40	47.82	65.22	82.14	74.08	76.66	72.41
Grand total { Others	44.28	25.37	30.56	43.47	33.93	38.60	52.18	34.78	17.86	25.92	23.33	27.59
Grand total { Total	100.00	100.00	100.00	99.99	100.00	100.00	100.00	100.00	100.00	100.00	99.99	100.00

Field of work	1960			1961			1962			Total		
	Below average	Average	Superior	Below average	Average	Superior	Below average	Average	Superior	**Below average**	**Average**	**Superior**
Agriculture, Forestry, Hunting and Fishery	40.00	41.76	29.34	31.75	34.33	34.29	39.74	34.92	26.83	30.60	30.28	26.57
Mining and Quarrying	—	—	—	—	—	—	—	—	—	0.39	—	—
Manufact uring {Agricultural	—	—	1.09	—	—	—	1.28	—	1.22	0.19	—	0.35
Manufact uring {Others	2.50	3.30	1.09	—	—	—	1.28	—	3.66	1.56	1.47	0.87
Heavy construction	—	—	1.09	—	1.49	—	—	—	—	—	0.18	0.18
Electric, gas, water and health services	—	—	—	—	—	—	1.28	—	—	0.59	0.18	0.35
Commerce {Agricultural	—	—	—	—	—	—	—	—	—	—	—	—
Commerce {Others	—	2.20	2.17	—	2.99	—	2.56	3.17	1.22	2.14	2.20	1.92
Transportation, warehousing & communication	—	—	—	—	—	—	—	—	—	0.20	0.18	—
Service {Agricultural	23.75	29.67	33.70	22.22	25.37	27.14	24.36	23.81	23.17	27.29	36.15	35.84
Service {Others	33.75	23.07	31.52	46.03	35.82	38.57	29.49	38.10	43.90	37.04	29.36	33.92
Grand total {Agriculture & related Industrial fields	63.75	71.43	64.13	53.97	59.70	61.43	65.38	58.73	51.22	58.08	66.43	62.76
Grand total {Others	36.25	28.57	35.87	46.03	40.30	38.57	34.61	41.27	48.78	41.92	33.57	37.24
Grand total {Total	100.00	100.00	100.00	100.00	100.00	100.00	99.99	100.00	100.00	100.00	100.00	100.00

(1) This is the distribution of fields of work by academic achievement in major courses of 1 135 persons who graduated agricultural college during the ten years from 1953 to 1962, who are known to have been employed as of September, 1964. Those academic achievement record was not available are excluded.

(2) Achievement level, Below-average: under 33 percentile, Average: 34~65 percentile, Superior: over 68 percentile

c. Summary

The correlations between scholastic achievements in all courses and present occupation was so identified by taking into consideration facts concerning to the 7,094 persons sampled who graduated 5,511 agricultural high schools and colleges from 1953 to 1962. It may be concluded that agricultural high school graduates with superior scholastic achievements in all courses tend to find work easily and that their number is less than that of those with below-average achievements who found occupation in agriculture and its related fields. It may be also concluded that agricultural college graduates with superior scholastic achievements, especially in major courses, tend to find employment easily and that more of them than those with below-average achievements in all courses find work in agriculture and its related fields.

《Table-20》 Relations between the scholastic achievements of agricultural school graduates and employment

Fields of work	Below average		Average		Superior		**Total**	
	N	%	N	%	N	%	**N**	**%**
Agriculture & related fields	703	12.76	958	17.38	910	16.51	2 571	46.65
Non-agricultural fields	704	12.77	1 015	18.42	1 221	22.16	2 940	53.35
Total	1 407	25.53	1 973	35.80	2 131	38.67	5 511	100.00

(1) Achievement level, Below-average: under 33 pencentile Average: 34~67 percentile Superior : over [illegible] percentile

(2) $x^2=21.52$, $p<.01$

Analyzing the correlations between achievements in all courses and present occupations for both agricultural high school and college graduates, those with superior achievements tend to find work easily. Those with superior achievements in all courses show an employment ratio which is 38.67 percent of all persons employed, those with average achievements in all courses 35.80 percent and those with below-average achievements less than 25.53 percent. It was also found that relations between employment in agriculture and its related fields and achievements were just the reverse($x^2=21.52$, $p<.01$). Considering agricultural high school and college graduates together, those with superior scholastic achievements tend to avoid finding employment in agriculture and its related fields.

It was also found that there are no relations between achievements in major courses and the employment ratio. The relations between achievements in major courses and the fields of occupation graduates entered are in reverse as was the case in relations with achievements as a whole($x^2=11.70$, $p<.01$). This means that those with superior achievements in agricultural subjects tend to avoid finding work in the agriculture field.

《**Table-21**》 Relations between the scholastic achievements of agricultural school graduates in major courses (agricultural courses) and employment

Fields of work	Below average		Average		Superior		**Total**	
	N	%	N	%	N	%	N	%
Agriculture & its related fields	1 203	16.96	1 180	16.63	1 162	16.38	3 545	49.97
Non-agricultural fields	1 150	16.21	1 099	15.49	1 300	18.33	3 549	50.03
Total	2 353	33.17	2 279	32.12	2 462	34.71	7 094	100.00

(1) Achievement level. Below-average: under 33 percentile Average 34-67 percentile Superior: over 68 percentile
(2) $x^2=11.70$, $p<.01$

B. Occupational efficiency of agricultural high school and college graduates

1. Comparison of agricultural high school and college graduates with others in respect to agriculutral skills.

Person who graduated from agricultural high schools during the ten years from 1953 to 1962 and who are now employed in the agricultural field constitute 39 percent of the total number, while agricultural college graduates constitute 57 percent. Agricultural high school graduates engaged in actual farming constitute 31 percent of those engaged in the agricultural field and agricultural college graduates engaged in farming constitute 9 percent. A comparison of agricultural high school and college graduates with others in respet to agricultural skills and efficiency is as follows.

By means of interviews with rural people it was found that the number of agricultural high school graduates who have taken up farming has inclined to increase recent years but the number of agricultural college graduates taking up farming were very few in the past, and this is still true. In particular, the reason why the number of agricultural high school graduates taking up farming is increasing is that they find it very difficult to get employment because of the increasing number of agricultural college graduates and so they are compelled to go into farming. In other words, the only field open to them is farming, but only those who are born to farmers owning land are accepted in the farming community.

As described in the foregoing chapter, those who take work in the agriculture field and in actual farming are seldom superior in scholastic achievement. Thus, the qualifications of those engaged in agriculture and farming are not high. Therefore, the comparison of these graduates with others in respect to agricultural skills can hardly be authentic enough to evaluate the effectiveness of agricultural education. Accordingly, in interpreting these factors should be taken into consideration as a premise or as a limitation. Meantime, it is necessary to state that the recommendations made from this comparison were derived from a survey conducted by means of interviews the observation and a questionnaire put to graduates concerned.

a. Farming methods and income from agriculture

Analyzing the practice of farming methods by

agricultural school graduates engaged in actual farming, agricultural high school graduates who responded that they had used new farming constituted 67 percent and agricultural college graduates who responded that they had also done so 63 percent. From this it may be inferred that more than half of the agricultural school graduates in this category are using new farming methods and that they are making efforts to apply new agricultural skills to farming, in which traditional methods have long been used. The new farming methods these graduates stated they had used, in order of priority, were deep plowing, hothouse cultivation and forced cultivation.

《Table1-22》

Farming technique used by agricultural school graduates

Farming techniques	Agricultural high school graduates (N=1 200)	Agricultural college graduates (N= 290)
Mechanization	4. 58	8. 97
Deep plowing	34. 75	33. 10
Hothouse cultivation	34 58	28. 28
Forced cultivation	21. 92	23. 79
Others	4. 17	5. 86
Total	100. 00	100. 00

Analyzing the farming methods used by agricultural school graduates, those who worker their own farms constitute 38. 9 percent, those who work on farms with others, 58. 7 percent and those who work on farms with parents, 65. 9 percent.

《Table-23》 Farm management by agricultural school graduates

Farm management	Agricultural high school graduates			Agricultural college graduates			**Grand Total**
	as main occupation (N=1 137)	as a sideline (N=99)	**Total (N=1. 236)**	as main occupation (N=155)	as a sideline (N=85)	**Total (N=240)**	**(N=1476)**
Alone	40. 37	33. 33	39. 81	37. 42	28. 24	34. 17	38. 89
In conjunction with other(s)	58. 14	58. 59	58. 17	61, 29	61. 18	61. 25	58. 67
Others	1. 49	8. 08	2. 02	1. 29	10. 58	4. 58	2. 44

One of the problems they face in farming, however, is the conflict between generations: parents insist on traditional farming methods, while sons, who received an agricultural education, attempt to apply new techniques disregarding traditional but non-productive methods. It is difficult to pursuade conservative parents, but those who succeed despite reproached increase yields, especially of fruit, vegetables and speciality crops, but not rice. They finally take over farm from their parents and become independent. There was a certain 27-years-old agricultural high school graduate who received a farming loan of 25, 000 Won ($1-Won 255) from the government. He purchased 1, 200 pyong of land and cultivated fruit trees, grape vines and tomatoes, which seemed to him to be the most profitable crops. His average monthly income is now 15, 000 Won and he now has 1, 500 pyong of land under cultivation. There was another example, this one of a young man who graduated from the department of horticulture of an agricultural high school three years ago. He helped his parents, who are orchardists, and gathered a greater harvest than anyone else. The technical superiority and excellence of high school graduates are to be found especially in fruit growing vegetable cultivation and forced cultivation.

《Table-24》

Agricultural school graduates' co-farmers

Co-farmers	Agriculture high school graduates (N=815)	Agriculture college graduates (N=165)	**Total (N=980)**
Parents	66. 87	61. 21	65. 92
Brothers	28. 59	30. 91	28. 98
Others	4. 54	7. 88	5. 10

Turning to graduates of agricultural colleges, not one considered in this survey was actually engaged in farming. However, the scope of this survey was somewhat limited. Some are working in fields related especially with the regional branches of the Office of Rural Development. Those who are in a position to assist farmers in technical matters are very superior in practical affairs as well as on the theoretical side in rendering professional services to farmers. But this is a special case.

According to the questionnaire survey, it was found that the annual average revenue obtained from the farming activities of agricultural high school graduates for whom farming is their primary occupation is 103, 488 Won, after household expenses

are deducted, and the annual average revenue from farming for those for whom farming is a sideline is 83,562 Won. The annual revenue obtained by agricultural high school graduates engaged in farming was found to be a minimum of 5,000 Won to a maximum of 450,000 Won. Thus, the average annual revenue obtained by them is 101,766 Won.

The annual revenue obtained from farming conducted by agricultural college graduates is a minimum of 5,000 Won to a maximum of 450,000 Won and annual average revenue obtained by those who farm as their primary occupation is 112,454 Won and that obtained by those who took up farming as a sideline, 97,193 Won. Accordingly, the total annual average revenue obtained by agricultural college graduates is 107,182 Won, 5,400 Won in excess of that obtained by agricultural high school graduates. 38.7 percent of the 1.380 agricultural high school graduates sampled and 48.8 percent of the 322 agricultural college graduates sampled responded on this item. It is noteworthy that the annual revenue obtained by the graduates identified through this survey is well over 90,545 Won, the average revenue for a farming household calculated from a survey conducted in 1963 by the Ministry of Agriculture[1].

Agricultural revenueas identified by the Ministry of Agriculture and Forestry includes the estimated spendings of a farm household. However, the total annual revenue for agricultural school gpaduates, as identified by this survey, did not cover spendings for a farm household. Despite this, the total annual revenue of farming agricultural school graduates was identified as much higher than the annual agricultural revenue for an average farm household.

The following table shows the average annual revenue made by agricultural school graduates engaged in farming.

Agricultural high school graduates who have taken up farming as their occupation and who make an annual revenue ranging from 50,000 Won to 60,000 Won or from 100,000Won to 150,000 Won constitute 11 to 12 percent, those who have taken

《**Table-25**》 Agricultural high school graduates' average annual income from farming

Won	Graduates engaged in full-time farming		Graduates engaged in farming as a sideline		**Total**	
	N	%	N	%	N	%
Under 5,000	23	2.95	4	5.48	27	3.17
5,000~ 9,999	20	2.57	2	2.74	22	2.58
10,000~ 19,999	67	8.60	7	9.59	74	8.69
20,000~ 29,999	57	7.32	7	9.59	64	7.51
30,000~ 39,999	78	10.01	9	12.33	87	10.21
40,000~ 49,999	53	6.80	4	5.48	57	6.69
50,000~ 59,999	90	11.55	11	15.07	101	11.85
60,000~ 69,999	44	5.65	3	4.11	47	5.52
70,000~ 79,999	33	4.24	3	4.11	36	4.23
80,000~ 89,999	28	3.59	2	2.74	30	3.52
90,000~ 99,999	15	1.93	2	2.74	17	2.00
100,000~149,999	88	11.30	7	9.59	95	11.15
150,000~199,999	55	7.06	8	10.96	63	7.39
200,000~249,999	49	6.29	—	—	49	5.75
250,000~299,999	18	2.31	1	1.37	19	2.23
300,000~349,999	22	2.82	1	1.37	23	2.70
350,000~399,999	4	0.51	—	—	4	0.47
400,000~449,999	10	1.28	—	—	10	1.17
Over 450,000	18	2.31	2	2.74	20	2.35
Deficit	7	0.90	—	—	7	0.82
Total	779	99.99	73	100.01	852	100.00

《**Table-26**》 Agricultural college graduates' average annual income from farming

Won	Graduates engaged in fulltime farming		Graduates engaged in farning as a sideline		**Total**	
	N	%	N	%	N	%
Under 5,000	2	1.82	—	—	2	1.20
5,000~ 9,999	4	3.64	2	3.51	6	3.59
10,000~ 19,999	11	10.00	7	12.28	18	10.78
20,000~ 29,999	5	4.54	7	12.28	12	7.19
30,000~ 39,999	7	6.36	7	12.28	14	8.38
40,000~ 49,999	5	4.54	3	5.26	8	4.79
50,000~ 59,999	16	14.55	3	5.26	19	11.38
60,000~ 69,999	6	5.45	1	1.75	7	4.19
70,000~ 79,999	6	5.45	3	5.26	9	5.39
80,000~ 89,999	3	2.73	2	3.51	5	2.99
90,000~ 99,999	—	—	2	3.51	2	1.20
100,000~149,999	16	14.55	9	15.79	25	14.97
150,000~199,999	11	10.00	3	5.26	14	8.38
200.000~249,999	4	3.64	4	7.02	8	4.79
250,000~299,999	2	1.82	2	3.51	4	2.40
300,000~399,999	4	3.64	—	—	4	2.40
350,000~399,999	—	—	—	—	—	—
400,000~449,999	3	2.73	—	—	3	1.80
Over 450,000	3	2.73	2	3.51	5	2.99
Deficit	2	1.82	—	—	2	1.20
Total	110	100.01	57	99.99	167	100.01

[1] Ministry of Agriculture and Forestry, *Report on the Results of Farm Household Economy Survey and Production Cost Survey of Agricultural Products* (1960)(Seoul : M.O.A.F. 1964), p. 46.

up farming as a sideline and who make an annual revenue ranging from 50,000 Won to 60,000 Won constitute 15.1 percent and those making from 30,000 Won to 40,000 Won 12.3 percent. Analyzing the annual revenue for both full-time and sideline farmers, those who make an annual revenue ranging from 50,000 Won to 60,000 Won consititute 11.8 percent and those who make one ranging from 100,000 Won to 150,000 Won 11.2 percent.

Agricultural college graduates who have taken up farming as their only occupation and who make an annual revenue ranging from 50,000 Won to 60,000 Won and from 100,000 Won to 150,000 Won constitute 14.6 percent respectively. Those who have taken up farming as a sideline and who make an annual revenue ranging from 100,000 Won to 150,000 Won constitute 15.8 percent. Analyzing the annual revenue of both full-time and part-time farmers, those who make an annual revenue ranging from 100,000 Won to 150,000 Won constitute 15 percent and those who make one ranging from 50,000 Won to 60,000 Won 11.4 percent. However, not all agricultural school graduates make money at farming. Agricultural high school graduates who make a profit from farming constitute 38.7 percent and agricultural college graduates 48.8 percent. From this it is assumed that the effectiveness of agricultural education is shown only in specific cases.

b. Degree of farming by agricultural school graduates

1) Total size of farmland cultivated by agricultural school graduates.

Analyzing the size of farmland including rice paddy, dry field and orchard cultivated by agricultural high school and college graduates, the average is 5,499 pyong is for an agricultural high school graduate and 7,130 pyong for an agriculture college graduate. Figuring this by area worked, agricultural high school graduates who own 3,000 pyong constitute 22 percent and 4,500 pyong, 22.6 percent, while those who own 6,000 pyong constitute 20.6 percent and 9,000 pyong, 18.6 percent. Land possessed by agricultural college graduates can be analyzed in the same way.

《**Table-27**》 Area of cultivated land (paddy, dry field and orchard) owned by agricultural school graduates (1 pyong = 3.3m²)

Pyong	Agricultural high school graduates		Agricultural college graduates	
	N	%	N	%
More than 30,000	5	0.40	3	0.94
15,000~29,999	24	1.94	18	5.66
9,000~14,999	127	10.27	45	14.15
6,000~ 8,999	254	20.55	59	18.55
4.500~ 5,999	213	17.23	51	16.04
3,000~ 4,499	272	22.00	72	22.64
2.700~ 2,999	34	2.75	6	1.89
2.400~ 2,699	56	4.53	14	4.40
2.100~ 2,399	49	3.97	9	2.83
1,800~ 2,099	60	4.86	6	1.89
1,500~ 1,799	48	3.88	9	2.83
1,200~ 1,499	34	2.75	8	2.52
900~ 1,199	28	2.27	5	1.57
600~ 899	18	1.46	7	2.20
300~ 599	11	0.89	6	1.89
Less than 300	3	0.24	—	—
Total	1 236	99.99	318	100.00
Mean	5 499		7 130	

Analyzing the average size possessed by the kind of farmland, rice paddy available for cultivation by agricultural high school graduates is 4,806 pyong but that for most graduates is 3,000 to 4,500 pyong, which constitutes 26.6 percent. The average size of dry field available for cultivation by agricultural high school graduates is 2,076pyong and the area of field owned by the majority is 900 to 1,200 pyong (13.8%), 1,500 to 1,800 pyong (13.7%) and 3,000 to 4,500 pyong (13.3%). The average size for orchard available for the cultivation by graduates is 2,931 pyong and those who own 3,000 to 4,500 pyong constitute 11.6 percent and those who own 900 to 1,200 pyong, 11.1 percent, which is the highest ratio. And the average size of forest land owned by graduates is 11,050 pyong and the area owned by most is 900 to 15,000 pyong (24.4%) and 3,000 to 4,500 pyong (21.5%).

Analyzing the area, by kind of farmland, available for cultivation by agricultural college graduates, the average for rice paddy is 3,611 and those who own 3,000 to 4,500 pyong constitute 26.8 percent, the highest ratio. The average area for dry field is 2,215 pyong and those who own 900 to 1,200 pyong constitute 13.1 percent, and 300 to

《**Table-28**》 Area of arable land cultivated by agricultural high school graduates by kinds of field

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	2	0.15	56	4.40	29	15.26	9	1.52	11	13.58
300~ 599	34	2.57	121	9.51	30	15.79	8	1.35	22	27.16
600~ 899	55	4.16	128	10.06	14	7.37	11	1.86	16	19.75
900~ 1,199	81	6.13	175	13.76	21	11.05	26	4.40	15	18.52
1,200~ 1,499	75	5.68	103	8.10	9	4.74	6	1.02	4	4.94
1,500~ 1,799	101	7.65	174	13.68	13	6.84	19	3.21	2	2.47
1,800~ 2,099	159	12.04	149	11.71	10	5.26	30	5.08	4	4.94
2,100~ 2,399	55	4.16	46	3.62	4	2.11	5	0.85	—	—
2,400~ 2,699	62	4.69	43	3.38	2	1.05	9	1.52	2	2.47
2,700~ 2,999	28	2.12	33	2.59	1	0.53	2	0.34	—	—
3,000~ 4,499	351	26.57	169	13.29	22	11.58	127	21.49	2	2.47
4,500~ 5,999	121	9.16	31	2.44	12	6.31	51	8.63	—	—
6,000~ 8,999	138	10.45	26	2.04	10	5.26	60	10.15	1	1.23
9,000~14,999	52	3.93	14	1.10	8	4 21	144	24.36	2	2.47
15,000~29,999	7	0.53	2	0.16	4	2.11	30	5.08	—	—
More than 30,000	—	—	2	0.16	1	0.53	54	9.14	—	—
Total	1 321	100.00	1 272	100.00	190	100.00	591	100.00	81	100.00
Mean	4 806		2 076		2 931		11 050		1 232	

600 pyong 13.3 percent. The average area of orchard worked is 3,863 pyong with most owning less than 300 pyong (22.9%) and 4,500 to 6,000 pyong. And the average area for forests is 24,902 pyong and those who own more than 15,000 pyong constitute 42.6 percent.

《**Table-29**》 Area of arable land cultivated by agricultural college graduates by kinds of field.

(1 pyong=3.3m²))

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	4	1.67	12	4.98	11	22.92	2	1.42	8	36.36
300~ 599	6	2.51	32	13.28	3	6.25	2	1.42	5	22.72
600~ 899	13	5.44	26	10.79	2	4.17	1	0.71	1	4.55
900~ 1,199	13	5.44	33	13.69	2	4.17	1	0.71	2	9.09
1,200~ 1,499	14	5.86	14	5.81	2	4.17	1	0.71	—	—
1,500~ 1,799	17	7.11	24	9.96	1	2.08	3	2.13	—	—
1,800~ 2,099	25	10.46	28	11.62	1	2.08	5	3.55	2	9.09
2,100~ 2,399	8	3.35	7	2.91	—	—	1	0.71	—	—
2,400~ 2,699	16	6.69	9	3.73	—	—	1	0.71	1	4.55
2,700~ 2,999	5	2.09	3	1.24	—	—	—	—	—	—
3,000~ 4,499	64	26.78	30	12.45	2	4.17	10	7.09	2	9.09
4,500~ 5,999	24	10.04	8	3.32	10	20.83	6	4.25	—	—
6,000~ 8,999	20	8.37	11	4.56	6	12.50	22	15.60	—	—
9,000~14,999	7	2.93	3	1.24	6	12.50	26	18.43	—	—
15,000~29,999	3	1.26	—	—	1	2.08	29	20.57	—	—
More than 30000	—	—	1	0.41	1	2.03	31	21.99	1	4.55
Total	239	100.00	241	99.99	48	100.00	141	100.00	22	100.00
Mean	3 611		2 215		3 863		24 902		7 739	

2) Area of cultivated land owned by individuals who graduated agricultural schools.

Analyzing the area of cultivated land owned individually by agricultural school graduates, the average for rice paddy owned by agricultural high school graduates is 4,768 pyong and those who own 3,000 to 4,500 pyong constitute 24.4 percent, a considerably higher ratio. The avaerage area of field owned is 1,525 pyong and those who own 300 to 600 pyong constitute 15.7 percent, 900 to 1,200 pyong, 13.9 percent and 600 to 900 pyong, 13.7

percent. The average area of orchard owned by them is 1,903 pyong and those who own less than 300 pyong constitute 25.3 percent, the highest ratio. The average area of forest is 9,833 pyong and those who own 3,000 to 4,500 pyong constitute 23.7 percent, the highest ratio.

《**Table-30**》 Area of arable land owned by agricultural high school graduates

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	10	1.36	61	8.46	25	25.25	11	3.67	5	16.13
300~ 599	48	6.54	113	15.67	17	17.17	4	1.33	11	35.48
600~ 899	70	9.54	99	13.73	6	6.06	9	3.00	1	3.23
900~ 1,199	64	8.72	100	13.87	13	13.13	17	5.67	5	16.13
1,200~ 1,499	52	7.08	46	6.38	4	4.04	4	1.33	1	3.23
1,500~ 1,799	52	7.08	78	10.82	4	4.04	10	3.33	1	3.23
1,800~ 2,099	82	11.17	84	11.65	5	5.05	13	4.33	1	3.23
2,100~ 2,399	20	2.73	17	2.36	1	1.01	6	2.00	—	—
2,400~ 2,699	37	5.04	23	3.19	2	2.02	4	1.33	2	6.45
2,700~ 2,999	9	1.23	6	0.83	—	—	2	0.67	—	—
3,000~ 4,499	179	24.39	69	9.57	9	9.09	71	23.67	—	—
4,500~ 5,999	48	6.54	16	2.22	4	4.04	23	7.67	—	—
6,000~ 8,999	49	6.67	6	0.83	5	5.05	59	19.67	—	—
9,000~14,999	13	1.77	1	0.14	3	3.03	22	7.33	1	3.23
15,000~29,999	1	0.14	1	0.14	1	1.01	24	8.00	3	9.68
More than 30,000	—	—	1	0.14	—	—	21	7.00	—	—
Total	734	100.00	721	100.00	99	99.99	300	100.00	31	100.02
Mean	4 768		1 525		1 903		9 833		3 266	

The average area of rice paddy owned by agricultural college graduates is 2,810 pyong and those who own 3,000 to 4,500 pyong constitute 8 percent The average area of field owned by them is 1,938 pyong and those who own 900 to 1,200 pyong constitute 17.8 percent and 3,000 to 4,500 pyong, 16.3 percent. The average area of orchard owned by them is 4,116 pyong and those who own 4,500 to 6,000 pyong constitute 28 percent. The average area of forest owned by them is 21,180 pyong and those who own more than 15,000 pyong constitute 30.5 percent, the highest ratio.

《**Table-31**》 Area of arable land owned by agricultural college graduates

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	1	0.70	8	6.20	4	16.00	1	1.27	5	33.33
300~ 599	9	6.34	16	12.40	4	16.00	1	1.27	3	20.00
600~ 899	10	7.04	13	10.08	2	8.00	1	1.27	—	—
900~ 1,199	11	7.75	23	17.83	—	—	3	3.79	3	20.00
1,200~ 1,499	11	7.75	6	4.65	—	—	—	—	—	—
1,500~ 1,799	13	9.15	11	8.53	—	—	2	2.53	—	—
1,800~ 2,099	20	14.08	13	10.08	—	—	4	5.06	2	13.33
2,100~ 2,399	3	2.11	4	3.10	—	—	—	—	—	—
2,400~ 2,699	10	7.04	5	3.88	—	—	—	—	1	6.67
2,700~ 2,999	2	1.41	3	2.32	—	—	—	—	—	—
3,000~ 4,499	31	21.83	21	16.28	3	12.00	5	6.33	—	—
4,500~ 5,999	11	7.75	3	2.32	7	28.00	3	3.79	—	—
6,000~ 8,999	7	4.93	2	1.55	2	8.00	12	15.19	—	—
9,000~14,999	3	2.11	1	0.78	3	12.00	15	18.99	—	—
1,500~29,999	—	—	—	—	—	—	21	26.58	—	—
More than 30,000	—	—	—	—	—	--	11	13.92	1	6.67
Total	142	99.99	129	100.00	25	100.00	79	99.99	15	100.00
Mean	2 810		1 938		4 116		21 180		10 780	

3) Area of cultivated land jointly owned by agricultural school graduates with parents and brothers.

Among agricultural school graduates engaged in farming, there are those who jointly work with their parents farms owned by their parents. Analyzing the area of cultivated land owned by parents on which agricultural school graduates work in conjunction with parents, the average area of cultivated land owned by parents on which they work in conjunction with parents is 3,311 pyong and those who own 3,000 to 4,500 pyong constitute 26.1 percent. The average area of field owned by parents on which these graduates work is 1,826 pyong and those who own 900 to 1,200 pyong constitute 13.9 percent, to 1,500 pyong, 13.9 percent and to 1,800 pyong, 12.8 percent. The average area of orchard owned by parents on which they work in conjunction with parents is 518 pyong and those who own 900 to 1,200 pyong constitute 12.4 percent. The average area of forest owned by parents on which those graduates work in conjunction with their parents is 10,418 pyong and those who own 6,000 to 9,000 pyong constitute 22.3 percent.

《**Table-32**》 Area of arable landowned by agricultural high school graduates in common with parents and brothers

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	5	0.62	48	5.90	8	7.62	10	2.89	6	18.75
300~ 599	23	2.85	97	11.94	18	17.14	10	2.89	7	21.88
600~ 899	35	4.33	80	9.84	8	7.62	4	1.16	8	25.00
900~ 1,199	60	7.43	113	13.90	13	12.38	11	3.18	2	6.25
1,200~ 1,499	46	5.69	72	8.86	5	4.76	5	1.45	1	3.12
1,500~ 1,799	66	8.17	104	12.79	9	8.57	7	2.02	1	3.12
1,800~ 2,099	102	12.62	97	11.94	6	5.72	20	5.78	2	6.25
2,100~ 2,399	37	4.58	28	3.44	1	0.95	4	1.16	1	3.12
2,400~ 2,699	33	4.08	30	3.69	1	0.95	3	0.87	—	—
2,700~ 2,999	23	2.85	19	2.34	2	1.90	3	0.87	1	3.12
3,000~ 4,499	211	26.11	86	10.58	10	9.52	58	16.76	1	3.12
4,500~ 5,999	70	8.66	21	2.58	9	8.57	37	10.69	—	—
6,000~ 8,999	85	10.52	14	1.72	8	7.62	77	22.25	1	3.12
9,000~14,999	9	1.11	3	0.37	4	3.81	43	12.43	1	3.12
15,000~29,999	3	0.37	—	—	1	0.95	26	7.51	—	—
More than 30,000	—	—	1	0.12	2	1.90	28	8.09	—	—
Total	808	99.99	813	100.01	105	99.98	346	100.00	32	99.97
Mean	3 311	—	1 826		518		10 418		1 481	

The average area of rice paddy owned by parents on which graduates work is 3,626 pyong and those who own 3,000 to 4,500 pyong constitute 38.5 percent. The average area of field owned by parents on which graduates work is 2,179 pyong and those who own 900 to 1,200 pyong and 1,800 to 2,100 pyong constitute 13.8 percent respectively. The average area of orchard owned by parents on which graduates work is 5,461 pyong and those who own less than 300 pyong constitute 18.5 percent, who own 4,500 to 6,000 pyong (14.8%) and who own 6,000 to 9,000 pyong (14.8%). Lastly, the average area of forest owned by parents on which graduates work is 27,897 pyong and those who own 9,000 to 15,000 pyong and 15,000 to 30,000 pyong constitute 20.8 percent respectively.

4) Area of cultivated land rented by agricultural school graduates

Some agricultural school graduates even work on land rented from others, besides those who work on the land owned by themselves or by their parents.

Analyzing the area of cultivated land rented by agricultural school graduates, the average area for rice paddy rented by agricultural high school gra-

《**Table-33**》 Area of arable land owned by agricultural college graduates in common with their parents and brothers.

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	2	1.71	5	4.31	5	18.52	—	—	4	36.36
300~ 599	2	1.71	14	12.07	2	7.41	—	—	3	27.27
600~ 899	1	0.85	14	12.07	—	—	—	—	1	9.09
900~ 1,199	10	8.55	16	13.79	3	11.11	3	4.17	—	—
1,200~ 1,499	6	5.13	10	8.62	2	7.41	1	1.39	—	—
1,500~ 1,799	9	7.69	8	6.90	—	—	1	1.39	—	—
1,800~ 2,099	9	7.69	16	13.79	1	3.70	2	2.78	1	9.09
2,100~ 2,399	3	2.57	3	2.59	—	—	—	—	—	—
2,400~ 2,699	7	5.98	5	4.31	—	—	1	1.39	—	—
2,700~ 2,999	4	3.42	—	—	—	—	—	—	—	—
3,000~ 4,499	45	38.46	14	12.07	2	7.41	8	11.11	2	18.18
4,500~ 5,999	6	5.13	6	5.17	4	14.81	3	4.17	—	—
6,000~ 8,999	7	5.98	3	2.59	4	14.81	10	13.89	—	—
9,000~14,999	5	4.27	1	0.86	2	7.41	15	20.83	—	—
15,000~29,999	1	0.85	—	—	1	3.70	15	20.83	—	—
More than 30,000	—	—	1	0.86	1	3.70	13	18.05	—	—
Total	117	99.99	116	100.00	27	99.99	72	100.00	11	99.99
Mean	3 626		2 179		5 461		27 897		1,105	

duates is 1,344 pyong and those who rent 300 to 600 pyong constitute 21.4 percent and 600 to 900 pyong, 20.4 percent. The average area of field rented by them is 1,142 pyong and those who rent 300 to 600 pyong constitute 39.6 percent. The average area of orchard rented by them is 2,143 pyong and those who rent 3,000 to 4,500 pyong constitute 28.6 percent. The average area of forest rented by them is 8,454 pyong although very few rent forest, and those who rent 3,000 to 4,500 pyong constitute 35.9 percent.

《**Table-34**》 Area of land cultivated under tennancy or lease by agricultural high school graduates

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	7	7.14	17	18.68	3	21.43	2	5.13	2	50.00
300~ 599	21	21.43	36	39.56	2	14.28	—	—	—	—
600~ 899	20	20.41	13	14.28	2	14.28	2	5.13	—	—
900~ 1,199	13	13.27	11	12.09	—	—	2	5.13	2	50.00
1,200~ 1,499	10	10.20	2	2.20	—	—	1	2.56	—	—
1,500~ 1,799	4	4.08	3	3.30	1	7.14	1	2.56	—	—
1,800~ 2,099	9	9.18	1	1.10	—	—	1	2.56	—	—
2,100~ 2,399	2	2.04	1	1.10	—	—	—	—	—	—
2,400~ 2,699	3	3.06	1	1.10	—	—	—	—	—	—
2,700~ 2,999	—	—	—	—	—	—	1	2.56	—	—
3,000~ 4,499	6	6.12	4	4.39	4	28.57	14	35.90	—	—
4,500~ 5,999	1	1.02	—	—	2	14.28	—	—	—	—
6,000~ 8,999	2	2.04	—	—	—	—	5	12.82	—	—
9,000~14,999	—	—	1	1.10	—	—	4	10.26	—	—
15,000~29,999	—	—	1	1.10	—	—	4	10.26	—	—
More than 30,000	—	—	—	—	—	—	2	5.13	—	—
Total	98	99.99	91	100.00	14	99.98	39	100.00	4	100.00
Mean	1 344		1 142		2 143		8 454		600	

It is very rare that agricultural college graduates engaged in farming rent cultivated lands from others. The average area of rice paddy rented by agricultural college graduates is 1,500 pyong, field 1,025 pyong, orchard 150 pyong and forest 13,833 pyong.

《**Table-35**》 Area of cultivated land by agricultural college graduates as tennants or leases

(1 pyong=3.3m²)

Pyong	Paddy		Dry field		Orchard		Forest		Others	
	N	%	N	%	N	%	N	%	N	%
Less than 300	—	—	1	8.33	2	100.00	—	—	—	—
300~ 599	2	16 67	4	33.33	—	—	—	—	—	—
600~ 899	4	33.33	2	16.67	—	—	—	—	—	—
900~ 1,199	1	8.33	1	8.33	—	—	—	—	—	—
1,200~ 1,499	1	8.33	—	—	—	—	—	—	—	—
1,500~ 1,799	—	—	1	8.33	—	—	—	—	—	—
1,800~ 2,099	1	8.33	2	16.67	—	—	—	—	—	—
2,100~ 2,399	1	8.33	1	8.33	—	—	—	—	—	—
2,400~ 2,699	—	—	—	—	—	—	—	—	—	—
2,700~ 2,999	—	—	—	—	—	—	—	—	—	—
3,000~ 4,499	2	16.67	—	—	—	—	—	—	—	—
4,500~ 5,999	—	—	—	—	—	—	—	—	—	—
6,000~ 8,999	—	—	—	—	—	—	—	—	—	—
9,000~14,999	—	—	—	—	—	—	—	—	—	—
15,000~29,999	—	—	—	—	—	—	2	66.67	—	—
More than 30,000	—	—	—	—	—	—	1	33.33	—	—
Total	12	99.99	12	99.99	2	100.00	3	100.00	—	—
Mean										

c. Types of farming carried out by agricultural school graduates and conditions leading to an increase or decrease in the size of arable land and in the number of domestic animals.

The agricultural products produced by agricultural school graduates are as follows:

In the case of agricultural high school graduates grains grown by many are rice, barley, beans, wheat and millet; vegetables cultivated are red pepper, Chinese cabbage, radish, tomato, melon and watermelon; fruits grown are peach, apple, persimmon, nut and grape; and special crops cultivated are tobacco, peanut, cotton, medical herbs, loofah, sweet potato and white potato.

In the case of agricultural college graduates, grains grown are rice, barley, bean, wheat and millet; vegetables are Chinese cabbage, radish, red pepper, onion and tomato; fruits are nut and grape; and special crops are sesame, tobacco, peanut, medical herbs, sweet potato and white potato.

《**Table-36**》 Crops cultivated by agricultural high school graduates

Order cultivated	Grains	Potatoes	Fruits	Vegetables	Special crops
1	rice	sweet potato	peach	red pepper	tobacco
2	baley	potato	apple	Chinese cabbage	peanut
3	bean		persimmon	radish	cotton
4	wheat		nut	tomato	medicinal herbs
5	millet		grape	melon	loofah
6	red bean		plum	watermelon	sesame
7	corn		pear	onion	hemp
8	milo		walnut	cabbage	boxthorn
9	green bean		cherry	spinach	ginseng
10	buckwheat		orange	egg-plant	rush
11				straw-berry	
12				cucumber	
13				lettuce	
14				garlic	
15				pumpkin	
16				ginger	
17				rape	

《Table-37》 Crops cultivated by agricultural college graduates

Order cultivated	Grains	Potatoes	Fruits	Vegetables	Special crops
1	rice	sweet potato	nut	Chinese cabbage	sesame
2	barley	potato	grape	radish	tobacco
3	bean			red-pepper	peanut
4	wheat			onion	medicinal herbs
5	millet			tomato	
6	milo			cabbage	
7	red bean			garlic	
8	corn			cucumber	
9	green bean			watermelon	
10				rape	
11					

Domestic animals, in order of priority, raised by agricultural highg school graduates are in the following order: cattle, poultry, swin, rabbit and goat. The average number of fowl per graduate is 36 and the maximum kep by one person, 900. The average number of cattle raised is two and the maximum number by one person, 80. The average number of pigs raised by graduates is three with the maximum number by one person, 40. The average number of rabbit kept is 11 and the maximum number by one man, 153. The average number of sheep raised is three with the maximum by one person, 15.

《Table-38》 Domestic animals raised by agricultural school graduates

Order raised	Agricultural high school graduates	Agricultural college graduates
1	fowl	cattle
2	swine	fowl
3	cattle	swine
4	rabbit	rabbit
5	sheep	goat
6	honey bee	sheep
7	goat	honey bee
8	milking cow	duck
9	goose	goose
10	duck	horse
11	silk worm	
12	pigeon	

Domestic animals, in order of priority, kept by agricultural college graduates is as follows: poultry, swine, cattle, rabbit and sheep. The average number of poultry kept is 45 and maximun number by one person, 1,000 The average number of swine raised by graduates in three and the maximum number by one man, 52. The average number of cattle kept by them is two and the maximum number by one man, 10. The average number of rabbits kept is four with the maximum number by one person, 55. And the average number of sheep raised is three and the maximum number by one man, eight.

The reveneu from cultivating various agricultural products and breeding various domestic animals is mostly used for keeping the home. If there is some money to spare, it is saved additional arable land or domestic animals are bought with it. On the contrary, if the revenue from these activities is insufficient for home life, farmers are compelled to selle some arable land or a few domestic animals. Farming sometimes results in an increase in the size of a farmer's arable land or in number of his domestic animals and sometimes it is the reverse. Therefore, it is necessary to identify the increase or decrease in the size of arable land and in number of domestic animals and the causes for this increase or decrease.

In the first place, comparing the increase with the decrease in the size of arable land, as shown in the following table, the increase in the area of arable land such as rice paddy, dry field and orchard from farming engaged in by agricultural high school gaduates is generally found to be greater than the decrease. Above all, tho covered by orchards shows an annual average increase of 223 pyong (1 pyong=3.3m^2), the greatest increase. The area of dry field shows an annual average increase of 57 pyong and that of rice paddy an annual average of 30 pyong. Only agricultural high school graduates engaged in farming achieve an increase in the size of their arable land. Most agricultural college graduates responded that they

achieve an increase mainly in orchards. The area covered by orchards shows an annual average increase of 691 pyong and the area of rice paddy shows an annual average increase of 158 pyong. On the contrary, the area of dry field shows an annual average decrease of 65 pyong. Analyzing this, considering agricultural high school and college graduates together, it is a general trend that those with orchards achieve the greatest increase in the area of land but those who grow rice also achieve some increase. On the contrary, those who cultivate dry fields fail to achieve any increase possibly due to the fact that they can hardly make a profit and also due to the fact that agricultural college graduates are not as enthusiastic as agricultural high school graduates about working dry fields because they are preoccupied with seeking opportunities to change their occupation.

《Table-39》 Annual increase and decrease in the area of arable land by agricultural school graduates' efforts

Arable land	Agricultural high school graduates			Agricultural college graduates			Total		
	Increase (A)	Decrease (B)	(A)-(B)	Increase (C)	Decrease (D)	(C)-(D)	Increase (E)	Decrease (F)	(E)-(F)
Paddy	414	384	30	432	274	158	846	658	188
Dry field	304	247	57	255	320	-65	559	567	-8
Orchard	556	333	223	691	—	691	1 247	333	914
Total	1 274	964	310	1 378	594	784	2 652	1 558	1 094

Causes of increases and decreases in the size of arable land are summarized asfollows.

1) Causes of increases

① Larger yield due to use of improved farming methods
② Scrub land, river flats and wateland brought under caltivation
③ Economizing to the maximum on household spending
④ Wages saved by hiring less labor
⑤ Additional arable land purchased with money saved
⑥ Help of relatives
⑦ Good yields due to a favorable year for agriculture

2) Cause of decreases

① Sold some arable land to settle debts
② Compelled to sell some arable land due to illness in the family
③ Compelled to sell some arable land for educational fees for oneself or one's children
④ Decrease in returns from crops along with an increase in wages
⑤ Parental failure in business
⑥ Lack of farming experience
⑦ Poor arable land
⑧ Separated from the family
⑨ Decrease in the area of arable land due to land reform

As seen in the following table, by comparing the annual average increase with the decrease in the number of domestic animals, increase was found to be generally larger than the decrease. Particularly, agricultural high school and college graduates responded that the largest decrease in the number of domestic animals was sheep.

《Table-40》 Annual increase and decrease in the number of domestic animals agricultural school graduates are breeding

Domestic animais	Agricultural high school graduates			Agricultural college graduates			Total		
	Increase (A)	Decrease (B)	(A)-(B)	Increase (C)	Decrease (D)	(C)-(D)	Increase (E)	Decrease (F)	(E)-(F)
Cattle	133	46	87	31	15	16	164	61	103
Swine	78	80	—2	25	13	12	103	93	10
Fowl	60	44	16	18	9	9	78	53	25
Rabbit	36	25	11	6	3	3	42	28	14
Sheep	8	4	4	11	2	9	19	6	13
Goat	13	2	11	—	1	—1	13	3	10
Total	323	201	127	91	43	48	419	244	175

The main causes for the increase or decrease in the number of domestic animals are summarized as follows

1) Causes of an increase

① Economization of household expenses
② Good featility
③ Use of professional knowledge
④ Precautions against domestic animials diseases
⑤ An abundance of feed
⑥ A wider market and good selling prices
⑦ Careful breeding
⑧ Government encouragement of livestock raising
⑨ Additional domestic animals purchased

2) Causes of a decrease

① Compelled to sell some domestic animals due to illness in the family
② Compelled to sell some domestic animals to settle debts
③ Increase in the cost of feed along with its shortage
④ Parental failure in business
⑤ Desease in domestic animals
⑥ Compelled to sell some of domestic animals to raise educational fees for oneself or one's children
⑦ Sold some of domestic animals to purchase arable land
⑧ Used domestic animals for food
⑨ Death of animals

d. Graduate's farming activities and their attitude toward farming

Generally speaking, few cases were reported concerning good effects on farming due to the agricultural education of college graduates. Except for the few, most graduates of agricultural high schools and colleges do not attempt to apply the agricultural techniques they learned at school to practical farming; rather, they seek opportunities in other fields. Among those actually engaged in farming few are able to apply new techniques to practical farming. In other words, they do not want to return to the land after graduation, and even though many return they cannot display their abilities and learning because of the conservatism of their parents.

Following is a summary of the opinions expressed during direct interviews with farmers, graduates of agricultural high schools and agricultural high school teachers concerning the reasons why graduates of agricultural high schools do not wish to return to the land and why most cannot succeed in farming.

① The school curriculum placed more emphasis on theoretical rather than on practical farming

② The school curriculum put more emphasis on academic subjects as the result of respect for the liberal sciences

③ Agricultural subjects were disregarded because of preparatory education for entrance examinations to higher schools

④ Parents do not wish that their children become farmers. Graduates envy those who live in the large cities and are inclined to despies those who work on farms

⑤ Graduates do not have enough land to cultivate along with their fathers

⑥ Their fathers do not trust new farming methods

⑦ They have the feeling that farming is despised in society

⑧ Farming is not considered profitable

Here we can see that socio-economic factors, to say nothing of educational factors, play a key role in keeping graduates away from the farms and in the fact that agricultural techniques are not being improved. That is, some of the factors mentioned above are not entirely the responsibility of education but of the fundamental problems of Korean society. However, many of them result from misdirected education and so they could be resolved by improving education itself.

Graduates of rural origin are comparatively superior to those of non-rural origin in the understanding of and attitude toward farming techniques, but we have to take many other factors into consideration before concluding that this is the result of agricultural education. The knowledge possessed and attitude taken by graduates do not go beyond the ordinary knowledge and habits of rural families and they have no modern, scientific

knowledge learned in school to apply to practical farming.

Considering all the facts above, however, it was found that agricultural school graduates are superior as a whole to those without an agriculture education. At any rate, an agricultural education is a sound investment for the government, and one of the most direct effects of such investment should be found in the fact that graduates return to the land after graduation and become leading agricultural technicians. At the present stage, not having collected the necessary quantitative data, we cannot draw definite conclusions, but we can infer from the above data that up to now agricultural education has not been as effective as it should be in consideration of the large investment the government has made in it.

As to graduates of agricultural colleges, comparatively many are now school teachers or are working with the Office of Rural Development or its regional branches.

The superiority of agricultural high school graduates is seen in the use of fertilizers and agricultural chemicals and in the utilization of farmland, speciality in farming, fruit growing and forced cultivation. However, this superiority is not found in recently-graduated students but in graduates who have succeeded at farming after many years of practical experience. Many graduates are reported have said that they cannot apply agricultural theories to practical farming. Although they desire to do so, they are unable because of the strong protests of their parents. A graduate who wins paternal permission to apply new techniques said that for two or three years he experienced a series of failures but in the long run he achieved yields far larger than those of other farmers.

Generally speaking, agricultural education has not been effective, in comparion with the huge investments of the government, in respect to increases in yields and improved agricultural methods.

2. Comparison of agricultural high school and college graduates with the graduates of other schools respect to official efficiency.

The occupational efficiency of the graduates of agricultural high schools and colleges was compared with that of graduates of other schools. Three organizational units the Office of Rural Development, the Agricultural Cooperatives Association and the administrative offices of cities, counties, towns and districts were sampled in order to make this comparison. Valid data was collected from 262 local administrative organizations, including 27 city, 73 county, and 162 town and district offices, from the 109 Offices of Rural Development, including 91 at the county level and 18 at the town and district level, and from 37 Agricultural Cooperatives Associations.

Three criteria, namely, working achievements, ability to perform one's duties and attitude in the performance of one's duties, were adapted according to the Evaluation Criteria for Government Officials' Performance of Duties[2] to evalute the occupational competence of graduates. These criteria were further sub-divided into twelve items for the comparative evaluation of agricultural high school graduates and the graduates of other schools. The evaluation was conducted by means of sending a questionnaire to the chiefs of organizations concerned.

Some data was found from which a double evaluation could be made, one favorable one unfavorable, in evaluating one item. Such data was possibly acquired because of the fact that the same item could be evaluated twice to be favorable in the field of agriculture and unfavorable in other fields. The evaluation data made in such a way was classified on an equal basis into two overall categories. favorable and unfavorable so as to illustrate the ratio of responses in relation to all sampled.

The ratio of responses to all organizations sampled by each evaluation item was investigated by means of an analysis of the evaluation data collected from various organization which were

[2] The Evaluation Criteria for Government Officials' Performance of Duties : Presidential Ordinance No. 1, 636, February 10, 1964.

roughly classified into three classes, namely, local administrative organizations, the Office of Rural Development and the Agricultural Cooperative Association. According to this analysis, the graduates of agricultural high schools and colleges were found to be doing better work in fields connected with agriculture than were graduates of other schools. Also, it was found that the efficiency of agricultural high school and college graduates in their work tends to increase in relation to the degree of technical requirement. On the contrary, agricultural high school and college graduates tend to do inferior work in fields not concerned with agriculture. However, it is unusual for agricultural high school and college graduates to fail in carrying out better clerical work even though the opposite would be expected. Efficiency in the clerical work of local government agencies and in special organizations depends on common sense rather than on the type of education received because clerical work requires a lower degree of professional knowledge or technical ability.

A comparison of the official efficiency of agricultural school graduates with that of graduates of other schools by type of organizations is shown in the following.

a. Local administrative organizations

Regarding local administrative organizations such as those of cities, counties, towns and districts, agricultural school graduates are found to excel the graduates of other schools in respect to ability to perform one's duties, especially in the professional knowledge and skills pertinent to agriculture. Particularly, agricultural high school graduates are found, throughout the local administrative organizations sampled, to distinguish themselves in every aspect of their duties which 73.66 percent of the organizations sampled stated that agricultural college graduates do superior work.

Besides, the points in which agricultural high school graduates are said to be superior by the majority of the organizations surveyed are courtesy and fairness (36.26%), physical strength and health (29.77%), positiveness (29.01%) and sense of responsibility (26.72%).

《Table-41》 Comparison of the official efficiency of agricultural school graduates working at local public administrative organizations with that of non-agricultural school graduates[1]

Evaluation criteria	Agricultural high school graduates as compared with non-agricultural high school graduates			Agricultural college graduates as compared with non-agricultural college graduates		
	Superior (A)	Inferior (B)	(A)—(B)	Superior (C)	Inferior (D)	(C)—(D)
Working achievements						
Quality of work [2]	18.70	45.80	-27.10★★	11.07	29.01	-17.94★★
Quantity of work [2]	21.76	11.07	10.69★★	16.03	11.45	4.58
Ability to perform one's duties						
Knowledge and skill [2]	100.00	14.50	85.50★★	73.66	9.54	64.12★★
Understanding and judgement [2]	36.64	36.26	0.38	25.19	24.81	0.38
Planning	10.31	35.11	-24.80★★	6.87	19.85	-12.98★★
Creativity	0.38	2.67	- 2.29	1.53	1.53	—
Physical strength and health	29.77	1.91	27.86★★	16.03	2.67	13.36★★
Attitude in performance of one's duties						
Sense of responsibility	26.72	13.36	13.36★★	18.32	9.92	8.40★★
Positiveness	29.01	14.50	14.51★★	20.61	6.87	13.74★★
Courtesy and fairness	36.26	18.70	17.56★★	20.61	12.98	7.63★
Cooperation	23.28	21.76	1.52	12.98	-14.89	-1.91
Faithful in-observance of regulations	37.02	34.73	2.29	22.14	22.14	—

[1] **The percentages in this table are drawn from the responses of 262 local puplic administrative organizations : 27 city, 73 connty and 62 town and district offices.**

[2] **"Superior" is mainly concerned with agricultural phases and "Inferior" with general administrative phases. The ratings in these items were done in both "Superior" and "Inferior" columns, and then they were also counted and analyzed in a duplicated manner.**

★ denotes 5% level of significance and ★★ 1% level of significance.

Moreover, responses indicated that agricultural college graduates excel the graduates of other colleges in positiveness (20.61%), courtesy and fairness (20.61%), physical strength and health (16.03%) and sense of responsibility (18.32%).

On the contrary, indications are that agricultural high school graduates are inferior to graduates of other schools in respect to quality of work, (by 45.80 percent of the organizations sampled) and that the same applies to agricultural college graduates (29.01%). Responses also indicated that agricultural high school graduates are inferior in planning (35.11%). The same is true for agricultural college graduates (19.85%). In this connection, it is inferred that the agricultural school graduates are inferior to all phases of planning.

b. The Office of Rural Development

Regarding the Office of Rural Development, which has close connections with agriculture, agricultural school graduates employed by the Office are found to excel graduates of other schools in respect to professional knowledge and technical ability, Agricultural high school graduates are said to excel graduates of other schools in 79.82 percent of the 109 of county and district offices which agricultural college graduates are reportedly superior in all the offices sampled.

《**Table-42**》 Comparison of the official efficiency of agricultural school graduates working with the Office of Rural Development with that of non-agricultural school graduates[1]

Evaluation criteria	Agricultural high school graduates as compared with non-agricultural high school graduates			Agricultural college graduates as compared with non-agricultural college graduates		
	Superior (A)	Inferior (B)	(A)—(B)	Superior (C)	Inferior (D)	(C)—(D)
Working achievements						
Quality of work[2]	22.02	8.26	13.76★★	20.18	36.70	-16.52★★
Quantity of work[2]	16.51	31.19	-14.68★★	10.09	8.26	1.83
Ability to perform one's duties						
Knowledge and skill[2]	79.82	22.94	56.88★★	100.00	24.77	75.23★★
Understanding and judgement[2]	31.19	29.36	1.83	23.85	36.70	-12.85★
Planning	9.17	36.70	-27.53★★	12.84	39.45	-26.61★★
Creativity	0.92	2.75	- 1.83	0.92	9.17	- 8.25★★
Physical strength and health	31.19	2.75	28.44★★	21.10	5.50	15.60★★
Attitude in performance of one's duties						
Sense of responsibility	38.53	8.26	30.27★★	38.53	11.01	27.52★★
Positiveness	21.10	23.85	- 2.75	25.69	31.19	- 5.50
Courtesy and fairness	44.04	10.09	33.95★★	60.55	15.60	44.95★★
Cooperation	26.61	12.84	13.77★★	22.02	16.51	5.51
Faithfulness and observance of regulations	67.89	16.51	51.38★★	65.14	32.11	33.03★★

[1] **The percentages in this table are drawn from the response of 109 offices of the Office of Rural Development namely, 91 country offices of Rural Development. and 18 town and district Offices of Rural Development.**

[2] **"Superior" is mainly concerned with agricultural phases and "Inferior" with general public administrative phases. The ratings in these items were done in both "Superior" and "Inferior" columns and then they were also counted and analyzed in a duplicated manner**

★ denotes 5% level of significance and ★★ 1% level of significance.

Besides, the points in which agricultural school graduates are reported to be superior by more organizations than those which responded to the opposite effect are faithfulness and observance of regulations (67.89%), courtesy and fairness(44.04%), sense of responsibility (38.53%), physical strength and health (31.19%), cooperation (26.61%) and quality of work (22.02%) for agricultural high school graduates and faithfulness and obsrevance of regulations (65.14%), courtesy and fairness (60.55%), sense of responsibility (38.53%) and physical strength and health (21.10%) for agricultural college graduates.

The points in which agricultural school gradu-

ates are reportedly inferior to graduates of other schools in respect to efficiency in clerical works were planning (36.70%) and quantity of work (31.19%) for agricultural high school graduates and planning (39.45%), quality of work (36.70%), understanding and judgement (36.70%) and creativity (9.17%) for agriculture college graduates.

c. Agriculture Cooperative Associations

Agricultural school graduates employed by the Association are reported by most of the Associations sampled to xecel graduates of other schools in respect to professional knowledge and technical ability. This is reported of agricultural high school-graduates by 91.89 percent of all the Associations sampled and agricultural college graduates are said to be so by 83.78 percent. Besides, the points in which agricultural high school graduates are reported to be superior to graduates of other schools by the majority of the organizations sampled are faithfulness and observance of regulations (78.38%), physical strength and health (56.76%), positiveness (54.05%) and cooperation (43.24%). As for agricultural college graduates, superior points are physical strength and health (40.54%), courtesy and fairness (37.84%) and cooperation (37.84%).

《**Table-43**》 Comparison of the official efficiency of the agricultural school graduates working with the Agricultural Cooperative Association with that of non-agricultural school graduates [1]

Evaluation criteria	Agricultural high school graduates as compared with non-agricultural high school graduates			Agricultural college graduates as compared with non-agricultural college graduates		
	Superior (A)	Inferior (B)	(A)--(B)	Superior (C)	Inferior (D)	(C)—(D)
Working achievements						
Quality of work [2]	70.27	59.46	10.81	48.65	35.14	13.51
Quantity of work [2]	5.41	13.51	- 8.10	5.41	16.22	-10.81
Ability to perform one's duties						
Knowledge and skill [2]	91.89	56.76	35.13★★	83.78	29.73	54.05★★
Understanding and judgement [2]	24.32	64.86	-40.54★★	10.81	51.35	-40.54★★
Planning	8.11	51.35	-43.24★★	24.32	45.95	-21.63★★
Creativity	—	2.70	- 2.70	2.70	5.41	- 2.71
Physical strength and health	56.76	—	56.76★★	40.54	—	40.54★★
Attitude in performance ofone's duties						
Sense of responsibility	29.73	16.22	13.51	18.92	18.92	—
Positiveness	54.05	21.62	32.43★★	21.62	18.92	2.70
Kindness and fairness	43.24	43.24	—	37.84	—	37.84★★
Cooperativeness	43.24	5.41	37.84★★	37.84	2.70	35.14★★
Faithfulness and observance of regulation	78.38	35.14	43.24★★	56.76	37.84	18.92

[1] **The percentages in this table are drawn from the responses of 37 Agricultural Cooperative Associations**

[2] **"Superior" is mainly concerned with agricultural phases and "Inferior" with general public administrative phases. The ratings in these items were done in both of "Superior" and "Inferior" columns and then they were also counted and analyzed in a duplicated manner.**

★ denotes 5% level of significance and ★★ 1% level of significance.

On the contrary, the points in which agricultural school graduates are reported to be inferior to graduates of other schools by the greater majority of organizations are understanding and judgement in fields not concerned with agricultural (64.86%) and planning (51.35%) for agricultural high school graduates, and understanding and judgement in fields not concerned with agriculture (51.35%) and planning (45.95%) for agricultural college graduates.

d. Summary

According to the comparison of the official effi-

ciency of agricultural high school and college graduates with that of graduates of other schools in public organizations, it may be safely inferred that agricultural school graduates usually excel others in work efficiency in light of the fact that the three organizations sampled are located in rural communities and that the work assinged to them have close connections with agriculture and farming. They are trained to the understanding of farmers and to help farmers in the solution of rural problems and thus they are capable of working effectively for the good of farmers. In other words. those who have received an agricultural education are equipped with the professional knowledge and skill required in the field of agriculture.

As referred to the foregoing comparison, it is clear that agricultural school graduates excel the graduates of other schools in respect to professional knowledge and skills in the field of agriculture and that they are eligible to carry out their duties in the spirit of the observance of regulations and with faithfulness, courtesy and fairness, a sense of responsibility, positiveness and cooperation. However, it must not be forgotten that agricultural school graduates employed by organizations that have no close connections with agriculure are inferior to the graduates of others schools in respect to work efficiency because of their lack of training in planning, understanding and judgement.

《Table-44》 Comparison of the official efficiency of agricultural school graduates working with community organizations with that of non-agricultural school graduates [1]

Evaluation criteria	Agricultural high school graduates as compared with non-agricultural high school graduates			Agricultural college graduates as compared with non-agricultural college graduates		
	Superior (A)	Inferior (B)	(A)-(B)	Superior (C)	Inferior (D)	(C)-(D)
Working achievements						
Quality of work [2]	24.26	37.01	-12.75★★	16.91	31.63	-14.71★★
Quantity of work [2]	18.87	16.67	2.20	13.48	11.03	2.45
Ability to perform one's duties						
Knowledge and skill [2]	93.87	20.59	73.28★★	81.62	15.44	66.18★★
Understanding and judement [2]	34.07	37.01	- 2.94	23.53	30.39	- 6.86
Planning	9.80	37.01	-27.21★★	10.05	27.45	-17.40★★
Creativity	0.49	2.70	- 2.21	1.47	3.92	- 2.45★★
Physical strength and health	32.60	1.96	30.64★★	19.61	3.19	16.42★★
Attitude in performance of one's duties						
Sense of responsibility	30.15	12.25	17.90★★	23.77	11.03	12.74★★
Positiveness	29.17	17.65	11.52★★	22.06	32.84	-10.78★★
Kindness and fairness	38.97	18.63	20.34★★	32.84	12.50	20.34★★
Cooperation	25.98	17.89	8.09★★	17.65	14.22	3.43
Faithfulness and observance of regulations	49.02	29.90	19.12★★	36.76	26.23	10.53★★

[1] The percentages in this table are drawn from the responses of 408 community organizations; 262 general local public administrative organizations. 109 county, town and district offices of Rural Development and 37 county agriculture Cooperative Associations

[2] "Superior" is mainly concerned with agricultural phases and "Inferior" with general public administrative phases. The ratings in these items were done in both of "Superior" and "Inferior" columns and then they were also counted and analyzed in a duplicated manner.

★ denotes 5% level of significance and ★★ 1% level of significance.

Of the organizations concerned with agriculture, the Office of Rural Development employs the largest number of agricultural school graduates, including 36.13 percent agricultural high school graduates and 40.80 percent agricultural college graduates, a total of 76.93 percent of all its employees. This indicates that agricultural school graduates are recognized are eligible to work better in both the technical and clerical phases of agricultural affairs. On the other hand, it is a paradox to infer that the clerical efficiency of agricultural high school graduates is the result of the education they received which was essentially based on an academic education. Anyhow, such

a paradoxical inference will be resolved later.

In short, it may be said that official efficiency depends on individual differences, not on the type of school the individual graduated from. However, it is true that those who received an agricultural education do better work in those fields concerned with agriculture and at the same time maintain good relations with farmers.

C. Agricultural high school and college graduates leadership in the community

1. Agricultural high school and college graduates' leadership in farming.

It was found from interviews with the community leaders that there are only a few graduates taking the lead in the development of farming skills, while there are a few agricultural college graduates who have excelled qualitatively in respect to leadership in farming compared with agricultural high school graduates. It was also found that both agricultural high school and college graduates employed as agriculture advisors by the Office of Rural Development are taking the lead in farming but they have failed in demonstration farming and in direct positive help to farmers because they lack their own farms as also does the Office.

In some areas, agricultural high school and college graduates organized groups through which they are taking the lead in agricultural production and development activities. Graduates are also playing a leading role in some societies for young people in the rural community. The achievements of agricultural high school and college graduates in efforts to improve farming skills and in rural enlightenment varies from community to community, but they won acknowledgment to some extent for their achievements from community people.

The major reasons why agricultural high school and college graduates fail in the main to take the lead in farming are as follows:

① Social contempt for farming
② Personal dissatisfaction with farming
③ Differences in views on farming methods due to ignorance of family members and the community
④ Lack of agricultural high school and college graduates' experience
⑤ Far less employment of agricultural high school and college graduates in proportion to the total number of farming households.

More details concerning reasons 1 to 4 are described in other parts of this report. The proportion of farmers who have received an agricultural education to the total number of rural households is no more than 4.39 percent. It is noticeable that the number of farmers who received an agricultural education and ⑤who own more than 1.5 chungbo[3] of land, which requires one skilled farmer at least for one household, is no more than 7.78 percent of the total number of farm household with this area of land.

《**Table-45**》 Agricultural education of farmres by size of arable land

Size of arable land Unit=chungbo	Number of farmers with agricultural education(A)	Number of farm households(B)	A/B×100
Less than0.5	10	306	3.27
0.5~1.0	13(1)	429	3.03
1.0~1.5	13	223	5.83
1.5~2.0	7	96	7.29
More than 2.0	7(1)	84	8.33
Total	50(2)	1 138	4.39

① The numbers in parentheses represent those who received a junior or senior agricultural college education
② 1 chungbo=9,917.36 sq. meters
③ Source: Data from Survey and Statistics Section, Ministry of Agriculture and Forestry

2. Agricultural high school and college graduates leadership in various community organizations.

The organizations which have, in view of the nature of their work, close connections with

[3] chungbo= 9,917.36 sq. meters

rural community are local administrative organizations, the Office of Rural Development and the Agricultural Cooperatives Association.

A total of two hundred and sixty two community adminstrative organizations, including twenty-seven city, seventy-three county and one hundred and nine Office of Rural Development and thirty-seven Agricultural Cooperative Associatins were sampled to indentify the educational background of personnel employed.

《**Table-46**》 Educational background of employees of various community organizations.

Field and position	Number sampled (A)	Number of employees who received agricultural education(B)	Percentage B/A ×100
Agricultural			
Position higher than sub-section chief	1 568	675	43.05
Sub-section member	4 523	2 626	58.06
Non-agricultural			
Position higher than sub-section chief	2 482	270	10.88
Sub-section member	4 008	563	14.05
Total	12 581	4 134	32.81

As shown in Table 47, the percentage of staff personnel with such organizations as city, county, town and district offices by educational background is: agricultural high school graduates constitute 15.57 percent and agricultural college graduates, including professional school and junior college graduates, constitute 5.71 percent, while graduates from other high schools constitute 39.83 percent, middle school graduates 19.20 percent and primary school graduats 19.15 percent.

Agricultural high school graduates holding positions hihger than chiefs in administrative offices

《**Table-47**》 Percentage of employees of local public admnistrtive organizations by educational levels.

Field and Position	Primary school graduates	Middle school graduates	High school graduates		Professional junior college graduates		College graduates		College drop-outs		Unknown	**Total**
			Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural		
Agricultural	5.01	4.53	8.21	4.44	0.39 (0.05)	0.63 (0.17)	3.78 (0.71)	2.81 (0.98)	0.01	0.06	0.12	29.99
Position higher than sub-section chief	2.43	1.81	2.81	0.88	0.13 (0.03)	0.12 (0.04)	0.59 (0.07)	0.41 (0.16)	0.01	—	0.09	9.28
Sub-section member	2.58	2.72	5.40	3.56	0.26 (0.02)	0.51 (0.13)	3.19 (0.64)	2.40 (0.82)	—	0.06	0.03	20.71
Non-agricultural	14.14	14.67	7.36	20.24	0.24 (0.01)	3.45 (0.25)	1.30 (0.15)	8.26 (1.28)	—	0.09	0.26	70.01
Position higher than sub-section chief	7.26	6.87	2.52	6.15	0.08	1.06 (0.04)	0.38 (0.06)	3.04 (0.39)	—	0.02	0.09	27.47
Sub-section member	6.88	7.80	4.84	14.09	0.16 (0.01)	2.39 (0.21)	0.92 (0.09)	5.22 (0.89)	—	0.07	0.17	42.54
Total	19.15	19.20	15.57	24.68	0.63 (0.06)	4.08 (0.42)	5.08 (0.86)	11.07 (2.26)	0.01	0.15	0.38	100.00

① The numbers in parentheses represent the percentages of agricultural high school graduates.

② This table represents the present state of 262 general local public administrative organizations (27 city, 73 county and 162 town and district offices) as of September, 1964.

《**Table-48**》 The percentage of staff members in the position up to sub-section at general local public adminstrative organization (by educational level)

Field	Primary school graduates	Middle school graduates	High school graduates		Professional & junior college graduates		College graduates		College drop-outs		Unknown	**Total**
			Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural		
Agricultural	26.14	19.40	30.24	9.52	1.45 (0.36)	1.33 (0.48)	6.38 (0.72)	4.46 (1.69)	0.12	—	0.96	100.00
Non-agricultural	26.41	25.03	9.16	22.39	0.28	3.87 (0.16)	1.38 (0.20)	11.07 (1.42)	—	0.08	0.33	100.00
Total	26.35	23.61	14.48	19.13	0.58 (0.09)	3.22 (0.24)	2.65 (0.33)	9.40 (1.49)	0.33	0.06	0.49	100.00

① The numbers in the parentheses constitute the percentages of agricultural high school graduates.

② This is the current status of 262 general local public administrative organizations (27 city, 73 county and town and district offices) as of September, 1964.

concerning agriculture constitute 30. 24 percent and agricultural college graduates, including junior college graduates, 7. 83 percent, while agricultural high school graduates holding positions as sub-section chiefs in fields other than agriculture constitute 9. 16 percent and agricultural college graduates 1. 66 percent. Considering the agricultural and non-agricultural fields together, those who are in positions higher than that of sub-section chief and who received an agricultural edcation total 17.74 percent, those with a middle school education 49. 96 persent and those with more than a high school education (non-agricultural) 30. 08 percent.

Considering the educational background of employees of the Office of Rural Development, which has the closest relations with agriculture, agricultural high school graduates constitute 36. 13 percent, agricultural professional and junior college graduates 2. 44 percent and agricultural college graduates 38. 36 percent. Thus, a total of 76. 93 percent of the employees of the Office received an agricultural education suited to this professional organization. Of the rest of the employees of the Office, high school graduates other than in agricultue constitute 4. 64 percent, professional and jounior college graduates 13. 92 percent. Those with less than a middle school education constitute 1. 49 percent.

《**Table-49**》 Percentage of the employees with the offices of Rural Development by educational level.

Field	Primary school graduates	Middle school graduates	High school graduates		Professional & junior college graduates		College graduates		College drop-outs		Unknown	**Total**
			Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural		
Agricultural	0. 33	0. 83	35. 63	2. 03	2. 11	1. 66 (0. 83)	38. 15	13. 09 (4. 85)	0. 04	—	0. 25	94. 12 (5. 68)
Position higher than sub-section chief		0. 08	5. 06	0. 08	0. 25	0. 29	6. 13	5. 59 (1. 66)	—	—	—	17. 48 (1. 66)
Sub-section member	0. 33	0. 75	30. 57	1. 95	1. 86	1. 37 (0. 83)	32. 02	7. 50 (3. 19)	0. 04	—	0. 25	76. 64 (4. 02)
Non-agricultural	0. 21	0. 12	0. 50	2. 61	0. 33	1. 07	0. 21	0. 83 (0. 12)	—	—	—	5. 88 (0. 12)
Position higher than sub-section chief	0. 13	0. 04	—	0. 04	—	—	—	0. 04 (0. 04)	—	—	—	0. 25 (0. 04)
Sub-section member	0. 08	0. 08	0. 50	2. 57	0. 33	1. 07	0. 21	0. 79 (0. 08)	—	—	—	5. 63 (0. 08)
Total	0. 54	0. 95	36. 13	4. 64	2. 44	2. 73 (0. 83)	38. 36	13. 92 (4. 97)	0. 04	—	0. 25	100.00 (5. 80)

① The numbers in parentheses constitute the percentages of agricultural high school graduates.
② This is the present status of 91 county and 18 town and district offices of the Office of Rural Development as of September, 1964.

Considering the educational backround of employeess holding positions up to the sub-section chief level, agricultural college graduates constitute 35. 98 percent and agricultural high school graduates 28. 50 percent. Thus, the percentage shows that agricultural school graduates occupy the most important position.

Lastly, considering the percentage of the constitution of the staff membership of the Agricultural Cooperative Association by educational background, agricultural high school graduates constitute 24. 28

《**Table-50**》 The percentage of staff members in positions higher than that of sub-section chief at the offices of rural development by educational level

Primary school graduates	Middle school gradutaes	High school graduates		Professional & junior college graduates		College graduates		**Total**
		Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural	
0. 70	0. 70	28. 50	0. 70	1. 40	1. 64	34. 58 (9. 81)	31. 78	100. 00

① The nembers in parentheses represent the percentage of agriculture high school graduates.
② This is the current status of 91 county and 18 town and district offices of the office of Rural Development.

percent and agricultural college graduates, including professional and junior college graduates, 6.30 percent, while now agricultural high school graduates constitute 31.40 percent (the highest of all) and non-agricultural college graduates 11.04 percent, which is almost twice the percentage for agricultural college graduates. As a whole, employees who have received an agricultural edudation constitute 31.07 percent with those who received no agricultural education the rest.

《Table-51》 The percentage of employees with the agricultural cooperative association by education level

Field and Position	Primary school graduates	Middle school graduates	High school graduates		Professional & junior college graduates		College graduates		Unknown	**Total**
			Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural		
Agricultural	9.32	10.21	24.14	29.85	1.31	3.27 (0.41)	4.99	10.63 (1.39)	0.25	92.97 (1.80)
Position higher than chief of sub-section	3.76	3.76	5.89	8.34	0.17	0.65	0.65	2.45 (0.08)	0.17	25.84 (0.08)
Sub-section member	5.56	6.45	17.25	21.51	1.14	2.62 (0.41)	4.34	8.18 (1.31)	0.08	67.13 (1.72)
Non-agricultural	1.80	2.05	1.14	1.55	—	0.08	—	0.41	—	7.03
Position higher than chief of sub-section	0.41	0.41	0.32	0.41	—	—	—	—	—	1.55
Sub-section member	1.39	1.64	0.82	1.14	—	0.08	—	0.41	—	5.48
Total	11.12	12.26	24.28	31.40	1.31	3.35 (0.41)	4.99	11.04 (1.39)	0.25	100.00 (1.80)

① The numbers in parentheses represent the percentages of agricultural high school graduates.
② This is the current status of 37 county agricultural cooperative associations as of September, 1964.

As shown in Table 52 the constitution of staff membership in positions up to that of sub-section chief who received an agricultural education is as follows, agricultural high school graduates constitute 22.69 percent and agricultural college graduates, including professional and junior college graduates, 2.99 percent, while non agricultural high school graduates constitute 31.94 percent and those with a higher education than junior college 11.34 percent. Primary school graduates and middle school graduates constitute 15.22 percent respectively or a total of 30.44 percent.

《Table-52》 The percentage of staff members in positions higher than that of sub-section chief with Agricultural Cooperative Associations by educational level

Primary school graduates	Middle school graduates	High school graduates		Professional & junior college graduates		College graduates		Unknown	**Total**
		Agricultural	Non-agricultural	Agricultural	Non-agricultural	Agricultural	Non-agricultural		
15.22	15.22	22.69	31.94	0.60	2.39	2.39	8.95 (0.29)	0.60	100.00

① The number in parentheses represents the percentage of agricultural high school graduates.
② This is the current status of 37 agricultural cooperative associations as of September, 1964.

According to investigations made into the constitution of staff membership by educational background and into the positions in three organizations held by graduates who received an agricultural education, the employment of graduates of agricultural schools in these three organizations is summarized as follows: As to the Office of Rural Development, graduates of agricultural schools constitute 64.48 percent of all employees who hold a senior position. Of the graduates of agricultural schools 64.48 percent of those employed, agricultural college graduates constitute 34.58 percent and agricultural high school graduates 28.50 percent. As to the Agriculture Cooperative Association, graduates of agricultural schools were constitute 25.97 percent, of which agricultural

high school graduates constitute 22.69 percent and graduates of junior colleges 2.99 percent. Of employees in senior positions with such administrative organizations as city, county, town and district offices, which have little or no connection with agricultural, graduates of agricultural schools constitute 17.86 percent, of which the graduates of agricultural high schools constitute 14.48 percent and graduates of junior college 3.23 percent.

Therefore, it is deduced that there are a greater number of graduates of agricultural high schools and colleges holding leading positions with those organizations which have close connections with agriculture rather than with those that have no connection with agricultural.

III Degree of Graduates' Satisfaction with their Present Occupation

It is natural that the founder of an agricultural high shool has an objective for his institute and this objective generally lies in fostering agricultural technicians equipped with the qualifications to become leading citizens with agricultural skill. In other words, lies in the desire to contribute to the development of agriculture by fostering, by means of investment in agricultural education, capable technicians to work in the field of agriculture. The amount of money invested in a vocational agricultural high school is actually greater than that invested in an academic high school. If agricultural high school graduates fail take up agricltural work, a great loss to such an investment results. The educational law prescribes that more than 30 percent of the courses taught in agricultural high school must be technical agricultural subjects. However, agricultural high school graduates are not necessarily required to take up an agricultural occupation. It is merely hoped that they will voluntarily find their way into the agricutural field.

Particularly, the degree of satisfaction with their present occupation held by these graduates is a factor in the raising of agricultural efficiency, in making the best use of the agricultural education they received and in establishing a fundamental policy conducive to inviting greater numbers of vocational agricultural high school graduates into agricultural occupations. In other words, the survey into the views of these graduates concerning the value of their present occupations and of agriculture in general will help in the collection of basic data for plans to secure sufficient manpower for the agricultural field and give effect to investment in agricultural education.

A. Degree of personal satisfaction with one's present occupation

Most agricultural high school and collelge graduates find their way into agricutural occupations while a considerable number of graduates find their way into occupations other than agriculture. Thus, the types of occupation these graduates select vary. It is closely connected with the degree of personal satisfaction that greater numbers of graduates are abstracted to agricultural and related occupations and that they make good in the works assigned them. Therefore, the degree of personal satisfaction can be helpful in evaluating the effectiveness of an agriculture education.

The following points were queried in this survey so as to identify the degree of graduates' personal satisfaction with their present occupations:

① Did agricultural high school and college graduates select their occupations as they pleased?

② Are agricultural high school and college graduates satisfied with their present employment in the field of agriculture?

③ Do agricultural high school and college gradu-

ates want to keep working in the occupation they selected?

④ Do agricultural high school and college graduates wish to pass the occupation they selected on to their sons or not?

⑤ What is the main reason why agricultural high school and college graduates are satisfied with their present occupation?

The types of occupation into which agricultural high school and college graduates find their way are generally classified into the following:

① Those who work on farms or at stock raising or forestry,

② Those who work in occupations related to agriculture, including farm leadership, agricultural research, agricultural teaching, agricultural technology, agricultural administration and veterinary science.

③ Those who work in occupations not related to agriculture, for example,police, medical doctors, government officials, writers, artists, retailers, etc.

Those who are not employed are excepted.

The degree of the satisfactions of these graduates with their present occupations and their problems were investigated according to the types of occupation they selected because feelings and ideas graduates have about their present occupations vary according to type of work. In addition, such points as the location of agricultural high schools and colleges, graduates' birthplaces and their year of graduation were taken into consideration in this investigation.

1. The time the decision was made to select one's present occupation.

The time when the decision was made to select one's present occupation is a factor that has close connections with finding out the degree of gradutes' satisfaction with their present occupation. Vocational guidance, as part of vocational education, play an important role in the agricultural high school and college. Satisfactory vocational guidance for students during their school days is most helpful for their making a success of the occupation they take up in the future. This chapter includes an analysis of the time the decision was made by both agricultural high school and college graduates selecting their present occupation by types of work involved.

a. Agricultural high school graduates

As seen in table, most respondents answered that the decision to select their present occupation was made after graduation from agricultural high school, roughly half (43.6%) of all the respondents, and only 13.4 percent answered that the decision to select their present occupation was made during school days. The insignificant 13.4 percent is enough to show that vocational guidance in agriculture high schools is not satisfactory. Particularly, those who replied that the decision to select their present occupation prior to enrolling in an agricultural high school was less than 8.18 percent. Therefore, student guidance starting from enrollment is necessary to make a success of agricultural education.

Analyzing this by occupational type, most respondents tended to answer in the same way, that the decision to select their present occupation was made after graduation (46.19 % of those who work on farms, 35.48 % of those who work in fields related to agriculture and 41.10 % of those who work in other fields).

Those who made their decision to take up farming during their school days constituted 15.23 percent and those who made this decision prior to enrolling in an agricultural high school 11.34 percent. Those who made their decision to take up an occupation related to agriculture during their agricultural high schopl days constituted 11.29 percent and those who made the decision to go into other occupations during their school days 9.36 percent.

Those who are now working in farming fields following graduation from agricultural high school seem to have made an earlier decision to select their occupation during school days, while those who are working in other fields seem to have made their decision either after graduation from agricultural high school or during college days and/or after graduation from college.

Thus, it is the general trend that those who are

《Table-53》 The time of the decision to choose one's present occupation

Time of decision	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Before entering high school	137	11.34	10	4.03	8	1.83	155	8.18
2. During high scqool	184	15.23	28	11.29	41	9.36	253	13.36
3. After graduation from high school	558	46.19	88	35.48	180	41.10	826	43.61
4. During college	77	6.37	40	16.13	58	13.24	175	9.24
5. After gradration from college	92	7.62	54	21.78	76	17.35	222	11.72
6. After discharge from military service	83	6.87	16	6.45	38	8.68	137	7.23
7. Transferred	6	0.51	—	—	6	1.37	12	0.64
8. Others	37	3.06	5	2.02	15	3.42	57	3.01
9. No response	34	2.81	7	2.82	16	3.65	57	3.01
Total	1 208	100.00	248	100.00	438	100.00	1 894	100.00

engaged in farming since graduation from agricultural high school made their decision earlier in comparison to those who are engaged in other occupations. In this connection, agricultural high schools must administer careful entrance examinations and give appropriate vocational guidance in the training of capable human resources for future occupation in both agriculture and farming.

b. Agricultural college graduates

Concerning the question of the period of time to reach a decision with regard to one's present occupation, 53.8 percent of the graduates responded that their decision was reached after graduation. This indicates that approximately half of all aricultural college graduates decided to take up the occupations they are now engaged in after finishing their entire college work. Comparing this figure with that for agriculture high school graduates (43.61%), more college graduates decided on their present occupation after graduation than did high school graduates. That is, in selecting what occupation should they take up, college graduates are more apt to make their decision after graduation than are high school graduates. Many college graduates decided on their present occupation during while were at agricultural college, but those who did so constitute only 23.49 percent for agricultural college graduates which is approximately half of the overall number of graduates who decided on their occupation after graduation. This implies that most graduates selected their present occupation after they enrolled in college, while only a few made their decision from their high school days. This survey shows that only 5.85 percent of all agricultural college graduates did so.

《Table-54》 Time of decision to choose present occupations

Time of decision	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Before entering high school	21	11.35	14	2.19	1	0.50	36	3.51
2. In high school	21	11.35	32	5.00	7	3.48	60	5.85
3. After graduation from high school	6	3.24	32	5.00	3	1.49	41	3.99
4. In college	31	16.76	171	26.72	39	19.40	241	23.49
5. After graduation from college	79	42.70	344	53.75	129	64.18	552	53.80
6. After discharge from military service	12	6.49	25	3.91	11	5.47	48	4.68
7. Transferred from other occupations	10	5.41	11	1.72	4	1.99	25	2.44
8. Others	4	2.16	4	0.62	4	1.99	12	1.77
9. No response	1	0.54	7	1 09	3	1.49	11	1.07
Total	185	100.00	640	100 00	201	100.00	1 026	100.00

According to the results of ananalysis by occupational distribution, the period in which a decision as to occupation was made is different for those in agricultural cocupations compared with other occupations. More agricultural college graduates actually engaged in agricultural occupations are involved

here.

More graduates who decided on an agricultural occupation before entering agricultural high school and during their high school days are engaged in agricultural occupations than in any other group of occupations (agricultural occupation, 22.70 %; occupations related to agriculture 7.19 %; other occupations, 3.98 %). On the other hand, more graduates who decided on their persent occupation during or after college are in occupations related to agriculture or other occupations than those engaged directly in agricultural occupations (agricultural occupations, 59.46 %; occupations related to agriculture, 80.47 %; other occupations, 83.58 %). This implies that graduates engaged in agricultural occupations decided to have their present occupation early rather than making haste in selecting their occupation during college days, but agricultural college graduates in other than agricultural occupations selected their occupations during college days. Especially, graduates who decided on their present occupations after completing college are seen in occupations that have nothing to do with agriculture (agricultural occupations, 42.70 %; occupations related to agriculture, 53.75 %; other occupations, 64.18 %). According to these findings, it can be said that in order to secure more agricultural gradutes for agriculture occupations, it is necessary to have students make a decision on their future much earlier.

One thing worthy of note is that many graduates working in managerial or clerical jobs related to agriculture decided on their occupation during college days (agricultural occupations, 16.76 %; occupations related to agriculture, 26.72 %; other occupations, 19.40 %). College days are proper for the final decision on the selection of a future occupation and so sound guidance on the selection of employment must be deeply considered.

2. Motive behind selecting one's present occupation

Agricultural high school and college graduates' views on the value of their present occupation have close connections with the degree of personal satisfaction in their present work and are also most helpful in establishing future educational plans. The following points were selected as standards for identifying the motives agriculture high school and college graduates had when they selected their present occupation.

① Due to ability and interst
② Due to the possibility of displaying creativity
③ Due to more revenue than from other occupations
④ Due to the feasability of finding a job in other fields
⑤ Due to a promising future
⑥ Due to the advantage of giving help to others
⑦ Due to the impossibility of finding a job in

《**Table-55**》 The chief motive behind agricultural high school graduates' choosing their present occupation

Motives	Agriculture		Occupations related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Padapted to ability and interests	193.5	16.02	53	21.37	68	15.53	314.5	16.60
2. Able to display creativity and originality	174	14.40	27	10.89	27	6.16	228	12.04
3. Better income than from other occupations	38	3.14	1	0.40	10	2.28	49	2.59
4. Easier to get a job than in other occupation	85.5	7.08	9	3.63	33	7.53	127.5	6.73
5. Occupation having good prospects	159.5	13.20	25	10.80	19	4.34	203.5	10.74
6. To be able to help others	117	9.69	71	28.63	61	13.93	249	13.15
7. Obliged to choose this field	341	28.23	48	19.35	193	44.06	582	30.73
8. Others	64.5	5.34	11	4.44	19	4.34	94.5	4.99
9. No respones	35	2.90	3	1.21	8	1.83	46	2.43
Total	1 208	100.00	248	100.00	438	100.00	1 894	100.00

other fields

a. Agricultural high school graduates

A popular answar was that 30.7 percent of agricultural high school graduates were compelled to select their present occupation against their will because they failed to find the job they wanted. This phenomenon is due to unstable social conditions in which finding a job is very difficult.

Such a fact is common to all occupations into which agricultural high school graduates enter. Above all else, those who answered thus constituted 44.06 percent of those engaged in occupations other than agricultural while it was 19.35 percent for those engaged in fields related to agriculture.

Generally speaking, responses to the question concering the motive agricultural high school graduates had in selecting their present occupation are conformity to ability and interests (16.60%), the advantage of being able to help others (13.15%) and the possibility of displaying creativity(12.04%) besides the impossibility of finding a job in other fields, which occupied the greatest percentage. But no reason constituted more than 20 percent of the total.

The motives behind selecting one's present occupation, except for about half of those who were compelled to select their present occupation against their will, seem to be some what varied by types of occupation. Conformity to ability and interest was taken as the first reason for selecting one's present occupation by those agricultural high school graduates who are engaged in farming (16.02%) and the possibility of displaying creativity and originality was taken as the second reason (14.40%). It may be inferred that the second reason was derived from the fact that the knowledge they acquired in agricultural high school was helpful to their present occupation.

This phenomenon was reflected in interviews with farmers. As a result of the survey by means of interviews with rural people, it was deduced that agricultural high school graduates engaged in farming are not so many but they are making a good contribution using the technical knowledge and skills acquired through education to the development of the rural community.

It is extraordinary that agricultural high school graduates employed by the Office of Rural Development and engaged in work related to agriculture indicated that the main motive behind their selection of their present occupation is the possibility of helping others (farmers) (28.63%) in contrast to the indication of those engaged in other occupations that their main motive was difficulty in finding the job they wanted. They inidcated that their second motive was conformity with their abilities and interests (21.37%). It is a fact that a greater number of agricultural high school graduates who took up an agricultural or farmig occupation and do better work than other graduates is closely related with the motive why selected their present occupation.

The most popular response to the question concerning the main motive behind agriculturac high school graduates engaging in occupations other than agriculture is that they were compelled to select their present occupation against their will, the second motive as indicated to be conformity to ability and interest (15.53%) and the third motive was indicated to be the advantage of giving help to others (13.93%).

Since the role of the agricultural high school is to concentrate technical education specifically on agriculture, it is recommended that continued efforts be made by both school and government authorities so that graduates can find a job easily.

Nearly half of the agricultural high school graduates engaged in occupations other than agriculture indicated that they were were compelled to select their present occupation against their will. This fact shows that if more opportunities for work are available to them they may have selected work are available to them they may have selected work in the field of agriculture.

b. Agricultral college graduates

As the main motive behind agricultural college graduates' choice of their present occupation, those who gave conformiy to ability and interests as their reson constituted 22.08 percent and those who gave failure to find an other occupation 23.49 percent, the highest ratio. This latter reson agricultural college graduates gave is almost the same

as this given by agricultural high school graduates (23.49 percent for agricultural college graduates and 30.7 percent for agricultural high school graduates). However, the number of agricultural college graduates who gave this reason is naturally less than that of agricultuarl high school graduates who gave the same reason, for, we must admit that more job opportunities are available to agricultural college graduates than to agricultural high school graduates and also the degree of college graduates satisfaction in their present occupation is much higher than that of high school graduates. However, the difficulty in finding employment in Korean society is no exception even for agricultural college graduates.

Analyzing the motives behind agricultural college graduates' choice of their present occupation and those of agricultural high school graduates, different reasons were found. Most of those engaged in work related to agriculture gave the conformity to ability and interests to their present occupation as the first reason for their choice of their present occupation. The number of those engaged in fields related to agriculture who gave this as their first reason were found to be many more than those engaged in other types of occupation. Those engaged in agriculture who gave such conformity as their first reason constituted 12.97 percent, the third reason, those engaged in other types of occupation who gave the same reason constituted 15.42 percent, the first reason, and those engaged in work related to agriculture who took the same reason constituted 26.80 percent, the first reason. From this it may be inferred that agricultural college graduates conform better in work related to agriculture than to non-agriculture.

《Table-56》 Main motives behind agricultural college graduates' choice of their present occupation

motives	Agriculture		Occupation related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Present occupation comforms to ability and interest	24	12.97	171.5	26.80	31	15.42	226.5	22.08
2. Chances to display creativity	26	14.05	90	14.06	16	7.96	132	12.87
3. Better income than from other occupations	4	2.16	7	1.09	3	1.49	14	1.36
4. Easier to get a job	9	4.86	38	5.94	11	5.47	58	5.65
5. Present occupation has good prospects	22	11.89	51.5	8.05	19.5	9.70	93	9.07
6. Chances to help others	31	16.76	121	18.89	39.5	19.65	191.5	18.66
7. Obliged to choose present occupation	52	28.11	120	18.75	69	34.33	241	23.49
8. Others	8	4.32	36	5.63	8	3.98	52	5.07
9. No response	9	4.87	5	0.78	4	1.99	18	1.75
Total	185	99.99	640	99,99	201	99.99	1 026	100.00

It was found that most agricultural college graduates, whatever employmet they may have found, gave chances to help others as one of the reasons for their choice of present occupation. Those engaged in agriculture who gave this as one of the reasons for their choice of present occupation constituted 16.76 percent, those engaged in work related to agriculture, 18.89 percent, and those engaged in other types of occupation, 19.65 percent. From this we may conclude that agricultural college graduates are equipped with views of value by which they feel responsible for making a contribution to the development of society by means of their services. Also it may inferred that regardless of types of occupation agricultural college graduates are keen to conform to others due to their conviction of their leadership obligations.

Many who believe that their ability and interests conform to their present occupation were found among those engaged in work related to agriculture. This belief originated from the conviction that they could make best use of their knowledge and skills in this field. The type of occupation to which agricultural college graduates conform with respect to the display of creativity and originality is that related to agriculture. Those engaged in agriculture

who stated that work related to agriculture is most suitable for them to display their creativity and originality constituted 14.05 percent, those engaged in work related to agriculture who stated the same, 14.06 percent, and those engaged in other occupations who made the same statement, 7.96 percent. Thus, we may conclude that the work that conforms best to agricultural college graduates is that related to agriculture.

3. The inclination of vocational agriculture school graduates to continue in their present occupations and why

The continuity of vocational agricultural school graduates' present occupation can be considered as another barometer for the measurement of the degree of their in the satisfaction present jobs. No doubt, if it is only the effective use of investment in agricultural education, it is clear that employed graduates are expected to continue in their present occupation and make it a life-long career and it is also expected to those who are not engaged in the agricultural field will sometime return. Using such an inference, the reason why vocational agricultural school graduates are inclined to continue in their present occupation was analyzed.

a. The case of agricultural high school graduates

1) Continuity of present occupation

Among agricultural high school graduates, what ever field they are engaged in, half desire to continue in their present occupation and the other half want to change their present job. As seen in Table above, 48.05 percent of those employed want to continue in their present job and 48.15 percent want a change.

According to occupational classification(industrial types) of the work they are engaged in, the related agricultural group shows a strong sense of continuity in their present occupation, 56.05 percent. And 50.16 percent of those employed in the agricultural field want to continue in their jobs. But of those engaged in other fields only 37.67 percent want to keep their jobs. Thus, this overall picture shows that graduates are not fully satisfied with their present occupation.

《Table-57》 Attitude of the agricultural high school graduates toward their present occupation

Attitute	Occupational type						Total	
	Agriculture		Occupations related to agriculture		Other occupations			
	N	%	N	%	N	%	N	%
1. I want to continue my present occupation	606	50.16	139	56.05	165	37.67	910	48.05
2. I want to change my present occupation	556	46.03	104	41.93	252	57.54	912	48.15
3. Others	24	1.99	2	0.81	11	2.51	37	1.95
4. No response	22	1.82	3	1.21	10	2.28	35	1.85
Total	1 208	100.00	248	100.00	438	100.00	1 894	100.00
Critical region of percentage difference between option 1 and 2	4.13★★		14.12★★		20.13★★			

★★denotes 1 percent level of significance

About 50 percent of the group employed in agriculture want to continue in their jobs and 46 percet want a change; 56 percent of those employed in industries related to agriculture want to continue and 42 percent want a change. These statistical figures have little meaning when compared. About a half each of the agriculturally employed and of those employed in industries related to agriculture use what they learned in agricultural schools. However, they are still maladjusted to their jobs and want a change to other fields. It is an important phenomenon. It is really a serious problem even

for ther sake of rationalizing agriculture as an industry in Korea and for elevating agricultural productivity by improving agricultural skills and techniques. Therefore, the reasons for and factors behind dissatisfaction with work and occupational maladjustment should be analyzed critically. Also 57.54 percent of agricultural school graduates employed in other fields want a change. This is another example of misplacement. They graduated from agricultural high schools and now are working at something which is totally unrelated to the major field of their studies. This underlines the importance of vocational guidance in agricultural high schools.

2) Reasons for keeping present employment

The determination of the reasons why agricultural high school graduates wish to keep or change their present employment will help in policy making aimed at the stabilization of employment and also help in bettering vcational guidance. The following are factors behind the reasons agricultural high school graduates wish to keep or change their present employment:

① Ability and interest
② Creativity
③ Income
④ Feasibility of finding new employment
⑤ Prospects
⑥ Contribution to others
⑦ Impossibility of changing employment

The main reason why agricultural high school graduates presently employed wish to keep their present job was found to be adaptability to their ability and interests (25.66 percent of the total number employed). Thus, the factor of ability and interest receives emphasis. The next reason was found to be creativity(19.50%) and the advantage of being able to help others (14.39%). Prospects were also taken into consideration as a factor. Those who took ability and interest as the main reason were found to be employees in occupations other than agriculture constituted 34.54 percent. On the contrary, compared with employees in fields other than agriculture employes in the agricultural field who took ability and interest as the main reason for keeping their present job constituted 22.19 percent, the lowest ratio.

《**Table-58**》 Reasons agricultural high school graduates desire to keep their present employment

Reasons	Agriculture		Occupations related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Present occupation is adapted to ability and interest	134.5	22.19	42	30.21	57	34.54	233.5	25.66
2. Able to display creativity and originality	133	21.95	18.5	13.31	26	15.76	177.5	19.50
3. Better income than from other occupations	33.5	5.53	5.5	3.96	6	3.64	45	4.95
4. Difficult to get other work	35	5.78	7	5.04	15	9.09	57	6.26
5. Present occupation has good prospects	112	18.48	9	6.47	10	6.06	131	14.39
6. Able to help others	102	16.83	46	33.09	32	19.39	180	19.78
7. Obliged to keep going	13	2.15	2	1.44	5	3.03	20	2.20
8. Others	20	3.30	4	2.88	6	3.64	30	3.30
9. No response	23	3.79	5	3.60	8	4.85	36	3.96
Total	606	100.00	139	100.00	165	100.00	910	100.00

From this viewpoint, it is recommended that entrance examinations be administered carefully and that education in agricultural high schools be improved so as to make satisfied employees in agriculture and its related fields. The main reason farmers took for keeping their present employment is adaptability to their ability and interests and the possibility of displaying creativity. Such a reason for keeping present employment was common to all in all occupational fields. However, it was found that many more employees in agricultural organizations took the possibility of displaying creativity as the main reason for keeping their present occupation than those in other occupations

did. Those engaged in agriculture constituted 21.95 percent, those engaged in fields related with agriculture 13.31 percent and those engaged in other occupations 15.76 percent. This means that the preparatory aspects of education undoubtedly have a great effect upon finding employment. In this connection, it is correct to deduce that education in agriculture high schools which is centered on fostering students who will be capable of displaying creativity after their graduation will play a big role in the stabilization and effect of agricultural pursuits.

The main reason those who are employed in agricultural organizations took for keeping their present positions was the advantage of giving a hand to others (33.09%). This is much higher than the figure for the same item by those who are engaged in farming (16.83%) or by those who are engaged in other occupations. From the view that those who took adaptability to their ability and interests as the main reason for keeping present jobs included those working at the Office of Rural Development, the Agricultural Cooperative Association and local administrative organizations, it is inferred that the nature of their work, a service, is the main factor.

3) The reason for changing one's present occupation

About 48.15 percent of high school graduates employed in agriculture want to change their present occupation. This survey attempted to find the reaons for this according to the factors (6 or 7 factors) used in the former section. Main reasons indicated are as follows: first, lack of ability and interest (22.53%); second, no prospects (22.26%); third, no opportunity to display creativity (16.72%).

Among those employed in the agricultural field,

《Table-59》 Reasons agricultural high school graduates want to change their present occupations

Reasons	Agriculture		Occupations related to agricultue		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Present occupation not adapted for ability and interest	127	22.84	19.5	18.75	59	23.41	205.5	22.53
2. Unable to display creativity	83.5	15.02	17.5	16.83	51.5	20.44	152.5	16.72
3. Less income than from other occupations	85.5	15.38	14	13.46	27	10.71	126.5	13.87
4. Present occupation has no future	94.5	16.99	29	27.88	79.5	31.55	203	22.26
5. Unable to help others	74	13.31	4	3.85	7	2.78	85	9.32
6. Others	67.5	12.14	16	15.38	19	7.54	102.5	11.24
7. No response	24	4.32	4	3.85	9	3.57	37	4.06
Total	556	100.00	104	100.00	252	100.00	912	100.00

22.84 percent would like to change their occupation. Their main reason is lack of ability and interest. This is not only their problem, it is also a problem for educational institutions that so many graduates find their present occupation is not suited to their ability and interest, even though they are engaged in a field related to their major educational course. Educational institutions must consider this point very deeply. The reason that their persent occupation has no prospects comes next. This may be, more or less, related to the reason of lack of ability and interest. Those who responded that they must change their occupation because it has no prospects constituted 16.99 percent. And 15.38 percent responded that they would like a change because of the low income from their present work. One remarkable fact is that those who responded that their occupation does not enable them to help others number more (13.31%)among those engaged in agriculture than among those in occupations related to agriculture (3.85%) or those in other occupations (2.78%). We assume here that they have a sort of inferiority complex about their occupation in that agricultural employment has no meaning of service to others and is only a means of living.

Among those employed in industries related to agricultural, the reasons why they wish to change

their jobs are as follows. The first is no prospects (27.88%): the second, lack of interest and ability (18.75%) and the third, no opportunity to develop originality and creativity(16.83%). One thing should be noted here. The community development program demands originality and creativity from its leadership. Then the agricultural(and its related) government agencies could use those leaders engaged in occupations related to agriculture so that they devlop their originality and creativity as part of their service.

Among those who are engaged in other fields, the reasons for wishing to change jobs are: first, no prospects (31.55%): second, no opportunity to develop originality and creativity(23.41%) and third, lack of ability and interest (20.44%). These three main reasons are much more concentrated in other fields than in the agricultural group and in the group with occupations related to agriculture. This group is even more maladjusted than the other two groups. The reason could be that they are not doing the work they should be doing.

b. Agricultural college graduate

1) Whether to keep present occupation

It was found that many more agricultural college graduates wanted to keep present occupation than those who wanted to change present occupa tion to other occupation. Such a trend is similar to that of agricultural high school graduate. Agricultural college graduates who wanted to keep present occupation constitutes 54.87 percent of total number of the graduates, whereas those who wanted to change present occupation to others constitutes 41.72 percent.

Those who wanted to keep present occupation were mostly found out among those enagaged in the field of agriculture, which showed 60.62 percent. Those engaged in the field of agriculture and the related field to agriculture who wanted to keep present occupation constitute respectively 46.49 percent and 44.27 percent, which showed almost equivalent ratio. ($t=.36$, $p>.05$)

There is no remarkable difference between those wanted to change present occupation to others among those engaged in the field of agriculture and in the field other than agriculture. In other words, those engaged in the field of agriculture who wanted to change present occupation to others constitute 47.03 percent, those engaged in the field other than agriculture who wanted to do so constitute 53.73 percent. Here, we can see that the significant difference between them is 6.70 percent. At the same time, we can see that there is no significant difference as a result of T test ($t=1.3$, $p>.05$).

As seen in the foregoing, there is an authentic reason for the fact that agricultural college graduates who are satisfied with the present occupation are mostly found among those engaged in the related occupation to agriculture than those engaged in the field other than agriculture. The details for reason is described in another chapter. However, the reason to be cited here is that agricultural school graduates can be afforded satisfiable treatment from society and they can devote themselves to their professional field.

《**Table-60**》 Agricultural college graduate's satisfaction with present occupation

Reasons	Agriculture		The related occupation to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Wish to keep present occupation	86	46.49	388	60.62	89	44.27	563	54.87
2. Wish to change present occupation	87	47.03	233	36.41	108	53.73	428	41.72
3. Others	4	2.16	8	1.25	2	1.00	14	1.36
4. No response	8	4.32	11	1.72	2	1.00	21	2.05
Total	185	100.00	640	100.00	201	100.00	1 026	100.00

2) Reasons given for keeping one's present occupation

Analyzing the reasons for continuing in one's present occupation held by agricultural college graduates engaged in agricultural and other occuptions,

it was found that many more desire to keep their present occupation than those who do not. Those who want to keep their present occupation are mostly found in work related to agriculture. Here we need to identify the reasons behind this desire.

The main reasons for wanting to keep present occupations were found to be the conformity to ability and interests, the chance of helping others and the possibility of displaying creativity and originality. Those who gave as their reason conformity to ability and interests constituted 28.51 percent, those who gave the chance to help others constituted 23.09 percent and those who gave chances to display creativity and originality constituted 22.11 percent.

Most of those who gave conformity to ability and interests as their reason were mostly found among graduates engaged in work related agriculture and other types of occupation (the former, 30.80 %, the later, 28.09 %). On the contrary, a few engaged in farming gave conformity to ability and interests (18.60%). Those who gave chances to display creativity and originality were mostly found among graduates engaged in farming and in work related to agriculture (the former, 24.42 %, the later, 23.32 %). A few among those engaged in other types of occupation gave chances to display creativity and originality (14.61 %). No differences were found by types of occupation for the reason of chances to help others.

《**Table-61**》 Reasons agricultural college graduates desire to keep their present occupation

Reasons	Agriculture		Occupations related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Conformity to ability and interest	16	18.60	119.5	30.80	25	28.09	160.5	28.51
2. Chances to display creativity	21	24.42	90.5	23.32	13	14.61	124.5	22.11
3. Better income than from other work	2	2.33	5	1.29	1	1.12	8	1.42
4. Difficult to get other work	6	6.98	21	5.41	7	7.87	34	6.04
5. Present occupation has a good prospect	11	12.79	37.5	9.66	12.5	14.04	61	10.83
6. Chances to help others	20	23.26	88.5	22.81	21.5	24.16	130	23.09
7. Obliged to keep on	4	4.65	7	1.80	3	3.37	14	2.49
8. Others	2	2.33	4	1.03	1	1.12	7	1.24
9. No response	4	4.65	15	3.87	5	5.62	24	4.26
Total	86	100.00	388	99.99	89	100.00	563	99.99

3) Reasons for the desire to change one's present occupation.

Most of those who desire to change their present occupation are found among agricultural college graduates engaged in various occupations outside the field to agriculture. It was discovered that there are many more agricultural college graduates now engaged in work other than agriculture who are not qualified to fulfil their present duties than those who are engaged in occupations related to agriculture but are not adapted to their work. The reasons they were not adapted to their present work are as follows :

《**Table-62**》 Reasons why agricultural college graduates want to change their present employment

Reasons	Agriculture		Occupations related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Present occupation is not adapted to ability and interest	14	16.09	30.5	13.09	22	20.37	66.5	15.54
2. Unable to display creativity	24	27.58	37	15.88	25	23.15	86	20.08
3. Low income	15	17.24	48	20.60	12	11.11	75	17.53
4. Present occupation does not have good prospects	18	20.69	90.5	38.84	39	36.11	147.5	34.46
5. Unable to help others	5	5.75	5	2.15	2	1.85	12	2.80
6. Others	7	8.05	12	5.15	4	3.70	23	5.37
7. No response	4	4.60	10	4.29	4	3.70	18	4.21
Total	87	100.00	233	100.00	108	99.99	428	99.99

Generally speaking, the main reason agricultural college graduates want to change their present occupation is that it offers none or few prospects for the future. Those who gave this reason constitute 34.46 percent. The reason agricultural college graduates gave for wishing to change their present occupation is in contrast to that of high school graduates, namely, lack of the conformity of their present occupation to their ability and interests.

Those who gave lack of chances to display their creativity and originality as the second reason for wishing to change their present occupation constituted 20.09 percent. The third reason given was small income and the fourth reason the non-conformity of their work to their ability and interests.

From this analysis, we can see that there are differences in the reasens given by those engaged in agriculture, by those engaged in occupation related to agriculture and by those in other occupations. Those engaged in work related to agriculture who gave absence of future prospects as the reason for their desire to change their present occupation constituted 38.84 percent and those who gave small income as the reason 20.26 percent. And those who gave the lack of conformity of their work to their ability and interests as their reason constituted 13.09 percent while those who gave lack of opportunity to display creativity and originality 15.88 percent. Some of those engaged in agriculture and in other types of work gave no prospects for the future as their reason.

Those engaged in agriculture who gave lack of opportunities to display creativity and originality constituted 27.59 percent while those engaged in other types of occupation who gave the sam reason constituted 23.15 percent. Those engaged in agriculture who gave absence of conformity to their ability and interests constituted 16.09 percent while those engaged in other types of occupation 20.37 percent. As to agricultural college graduates, it seems that those engaged in work related to agriculture are able to display creativity being using what they acquired from their education. Meantime, agricultural college graduates engaged in work related to agriculture seem to be more deeply concerned with the problem of income rather than with the display of creativity. In the case of those graduates who took up other types of occupation, they are unable to display creativity and originality and their ability and interests are not adaptable to their work. This is an important factor in their dissatisfaction with their present work. It was also found that many of those engaged in agriculture and other occupations worry about their future, but many of those engaged in other occupations worry rather about the absence of chances to display creativity. From this fact it may be concluded that the occupations in which agricultural college graduates are most satisfied are those related to agriculture in which they are easily adaptable and in which they can use their professional skills and ability to the full.

4. Occupatinos desired

a. Agricultural high school graduates

As already discussed, almost half (48.15%) of the agricultural high school graduates now employed wish to change their present jobs. Then next problem is what kinds of new employment do they wish to have. The following table 《Table-63》 will tell you about it.

Among those engaged in the agricultural field 40.91 percent hope to have employment related to agriculture; 39.64 percent wish to have an entirely

《**Table-63**》 Desired occupations by agricultural high school graduates who desire to change their present occupations

Occupation desired	Farming		Occupations related to agriculture		Other occupations		Without occupation		**Total**	
	N	%	N	%	N	%	N	%	N	%
1. Farming	107	19.45	29	35.36	75	35.55	6	26.09	217	25.06
2. Occupations related to agriculture	225	40.91	30	36.59	59	27.96	9	39.13	323	37.30
3. Other occupations	218	39.64	23	28.05	77	36.49	8	34.78	326	37.64
Total	550	100.00	82	100.00	211	100.00	23	100.00	866	100.00

different occupation; and 19.45 percent wish to remain in their present field but to have a different post.

Among those who are engaged in employment related to the agricultural field, 39.59 percent wish to have other jobs within that field; 35.36 percent want emolyment closer to the agricultural field; and 28.05 percent wish to have employment in another field.

Among those who are engaged in other fields 35.55 percent wish to have an agricultural occupation, and 36.49 percent want employment in another field.

b. Agricultural college graduates

a comparison of agricultural college graduates with agricultural high school graduates shows few differences. Almost half (49.55%) of those who are engaged in an agricultural occupation wants to change their present job to a field related with agriculture. 26.13 percent wish to have an other job within their present agriculture occupation.

Of those who are working with the rural community development program and related agricultural programs 45.86 percent wish to have an other job within the same field and 32.33 percent want a strictly agricultural occupation. 45.86 percent of those who are engaged in other fields hope to have a job either with the rural community guidance program or in an organization related to the agricultural field.

《**Table-64**》 Desired occupations by agricultural college graduates who want to change their present occupations

Occupation desired	Farming		Occupations related to agriculture		Other occupations		Without occupation		**Total**	
	N	%	N	%	N	%	N	%	N	%
1. Farming	29	26.13	92	36.51	43	32.33	1	12.50	165	32.74
2. Occupations related to agriculture	55	49.55	106	42.06	61	45.86	5	62.50	227	45.04
3. Other occupations	27	24.32	54	21.43	29	21.81	2	25.00	112	22.22
Total	111	100.00	253	100.00	133	100.00	8	100.00	504	100.00

5. Reason for and attitude behind the graduates recommendation of his occupation to his sons.

It is only natural if one is satisfied with his present occupation that he will recommend it to his son or want his son to follow it. Therefore, the identification of the attitude toward recommending a present occupation to a son can be one of the methods of evaluating the degree of satisfaction with employment.

a. Agricultural high school graduates

1) Graduates' attitude in recommending their present occupation to their sons.

It is a general trend that agricultural high school graduates are not willing to recommend their present occupation to their sons. Those who were not willing to recommend their present occupation to their sons constitute 53.27 percent of all agricultural high school graduates with those who were willing to do so 32.52 percent.

Analyzing this trend by occupation, it was found that whatever their occupation those willing to recommend their present job to their sons are far fewer than those who are willing. Many more graduates were found who are not willing to recommend their present occupation to their sons in occupations other than agriculture (76.71%). It was also found that those engaged in agricultural occupations and not willing to recommend their present occupation to their sons are rather fewer (44.29%).

But among those engaged in agricultural pursuits fewer graduates were found who showed the attitude of not recommending their present occu-

pation to their sons. Thus, it is a general trend that unwillingness to recommend one's present occupation to one's sons is common to all agricultural high school graduates.

《**Table-65**》 Attitude of agricultural high school graduates toward recommending their present occupation to their sons

Attitude	Agriculture		Occupation related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. I would recommend my present occupation to my sons	492	40.72	83	33.47	41	9.36	616	32.52
2. I would have my sons choose an occupation other than my present occupation	535	44.29	138	55.65	336	76.71	1 009	53.27
3. I would have my sons choose an occupation according to their aptitude and ability	67	5.55	10	4.03	21	4.79	98	5.18
4. Others	67	5.55	9	3.63	21	4.79	97	5.12
5. No response	47	3.89	8	3.22	19	4.34	74	3.91
Total	1 208	100.00	248	100.00	438	99.99	1 894	100.00

2) Reason to be or not to be willing to recommend one's present occupation to one's sons.

The reason for both willingness and unwillingness to recommend one's present occupation to one's sons was surveyed. It was found that the key to these graduates' attitude in recommending their present occupation to their sons was future prospects. Generally, roughly thirty precent of those who were willing to recommend their present occupation to their sons took the future prospects of that occupation as the main reason. It was also found that roughly 39 percent of those who were not willing to recommend their present occupation took the lack of future prospects in that occupation as the main reason. Generally speaking, the chance to display originality and creativity was taken as the first reason for being willing to recommend one's present occupation to one's sons and income was taken as the second reason for being so willing. However, income was not taken as a reason for being willing to recommend one's present occupation to one's sons. The possibility of giving a hand to others was taken as a reason for being willing to recommend one's present occupation to one's sons. Future prospects were taken by agricultural high school graduates who are employed as the first reason for being satisfied with one's present occupation, the possibility of

《**Table-66**》 Reasons why agricultural high school graduates recommend their present occupation to their sons

Reasons	Agriculture		Occupations related to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	N	%
1. Adaptability to ability and interests	28	5.69	7	8.44	3	7.32	38	6.17
2. Able to display creativity and originality	120	24.39	12	14.46	9	21.95	141	22.89
3. Better income than from other occupations	45.5	9.25	3	3.61	1	2.44	49.5	8.03
4. Easier to get a job than in other occupations	41	8.33	3	3.61	2	4.88	46	7.47
5. My present occupation has good prospects	153	31.10	18	21.69	12	29.27	183	29.71
6. Able to help others	61.5	12.50	31	37.35	8	19.51	100.5	16.31
7. Obligations	6	1.22	—	—	1	2.44	7	1.14
8. Others	27	5.49	6	7.23	5	12.19	38	6.17
9. No response	10	2.03	3	3.61	—	—	13	2.11
Total	492	100.00	83	100.00	41	100.00	616	100.00

displaying creativity and originality the second reason and chances to contribute to others as the third reason. Likewise, future prospects were taken by agricultural high school graduates engaged in farming as the first reason for being satisfied with one's present occupation, the possibility of displaying creativity and originality as the second reason and chances to give a hand to others as the third reason. Chances to give a hand to others were taken by agricultural high school graduates engaged occupations related to agriculture as the first reason for beings stisfied with one's present occupation with both future prospects and the possibility of displaying creativity and originality as the second reason. As to agricultural high school graduates engaged in other occupations, the reasons for being satisfied with one's present occupation come in the same order as reasons given by those engaged in farming: future prospects stand as the first reason, the possibility of displaying creativity and originality the second and chances to contribute to others the third.

Analyzing the reasons why agricultural high school graduates engaged in an occupation are unsatisfied with their present employment, no future prospects are the first reason and both a small income and few possibilities to display creativity and originality are the second reason. The reasons held by those engaged in agriculture and its related fields for this dissatisfaction are the same. However, the lack of opportunity to display creativity and originality was taken by those engaged in occupations other than agriculture and its related fields as the second reason and small incom as the third.

Generally, roughly 30 percent of employed graduates who are willing to recommend their present occupation to their sons took future prospects as the main reason and as well roughly 39 percent who recommend other occupations took it as the main reason. Also, lack of opportunity to display creativity and originality was taken by the former as the main reason and income was taken by the latter as the second reason, while income was taken by almost no one in the former group.

《**Table-67**》 Reasons agricultural high school graduates recommend occupations other than their present occupations to their sons

Reasons	Agriculture		Occupations releatd to agriculture		Other occupations		**Total**	
	N	%	N	%	N	%	**N**	**%**
1. Not adapted to ability and aptitude	60	11.21	8	5.80	22	6.55	90	8.92
2. Unable to display creatibity and originality	62.5	11.68	17	12.32	70	20.83	149.5	14.81
3. Less income than from other occupations	106	19.81	27.5	19.93	38	11.31	171.5	17.00
4. Present occupation has no future	182	34.02	54.5	39.49	155	46.13	391.5	38.80
5. Unable to help others	47.5	8.88	6	4.35	18	5.36	71.5	7.09
6. Others	53	9.91	19	13.76	20	5.95	92	9.12
7. No response	42	4.49	6	4.35	13	3.87	43	4.26
Total	**535**	**100.00**	**138**	**100.00**	**336**	**100.00**	**1 009**	**100.00**

b. Agricultural graduates

1) Alternatives to the recommendation of one's present occupation to his sons.

Although there are many agricultural college graduates currently engaged in agriculture, there are many more who are engaged in the fields related to agriculture, in clerical work related to agriculture and in professional work related to agriculture. Besides there are quite a number of agricultural school graduates engaged in various other types of occupation. Therefore, the types of occupation graduates take up vary according to individuals. Here, we need to identify their degree of satisfaction with their present occupations and the alternatives to their present occupation they recommend for their sons.

Analyzing the general trends of agricultural

《**Table-68**》 Attitude of agricultural college graduates toward recommending their present occupation to their sons

Attitude	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. I would recommend my present occupation to my son	71	38.38	119	18.59	28	13.93	218	21.25
2. I would not to do so	90	48.65	453	70.78	151	75.12	694	67.64
3. I would have them choose for themselves	9	4.87	35	5.47	6	2.99	50	4.87
4. Others	9	4.86	24	3.75	12	5.97	45	4.39
5. No response	6	3.24	9	1.41	4	1,99	19	1.85
Total	185	100.00	640	100.00	201	100.00	1 026	100.00

college graduates in this respect, those who would recommend their present occupation to their sons constitute 21.25 percent, while those who would not, 67.64 percent. Here, we can see a remarkable difference. The reason such graduates do not want to recommend thus is described in detail in another chapter. Anyhow, it is of real significance that there are a great number of agricultural college graduates who do not want to recommend their present occupation to their sons. From this we can infer that they are not satisfied enough with their present occupation to recommend it to their sons.

Besides, there are some graduates who reveal that the choice of one's future job should be left to the individual himself or should be made based on circumstances on at time of graduation. Graduates who responded in this manner constituted 4.87 percent.

Quite a number of the graduates expressed the intention to recommend other types of occupation to their sons simply because they desire their sons to take up employment different to their own.

Many more graduates engaged in agriculture want to recommend their present occupation to their sons than do those engaged in other occupations.

Many more graduates who are engaged in fields related to agriculture and in other types of occupation do not intend to recommend their present occupation to their sons than do those who are engaed in agriculture. Many more graduates who are engaged in agriculture intent to recommend their present occupation to their sons (38.38%). Many more graduates who are engaged in fields related to agriculture do not intend to recommend their present occupation to their sons(70.78%)than do those who desire to do so (18.59%). Graduates engaged in other types of occupation showed a more remarkable difference in respect to their alternate recommendation. Many more graduates who are engaged in other types of occupation do not intend to recommend thus than those engaged in fields related to agriculture do. Those who intend to their recommend their occupation to their sons constitute 13.93 percent and those who do not, 75.12 percent.

From this analysis, it may be inferred that many more agricultural college graduates engaged in occupations with no connections with agriculture are not satisfied with their present occupation than are those employed in the agricultural field. However, this inference is inconsistent with the foregoing chapter. In the foregoing chapter, it was found that the most desirable occupation for agricultural college graduates is one related to agriculture. Nevertheless, here we found that many more graduates engaged in fields related to agriculture do not want to recommend their present occupation to their sons in comparison to those in other fields. Moreover, as to those engaged in farming there is a remarkable difference between those who intend to recommend thus and those who do not.

2) The reason behind recommending their present occupation to their own children.

The reasons agricultural college graduates who responded recommended their present occupation to their own children are as follows: The most frequent reason is their occupation helps other people (approximately 30 %), the next reason is their occupation allows them to display creativity (27.29%), and the third reason is their occupation has good prospects (19.27%).

《Table-69》 Reasons agricultural College their present occupation to their sons

Reasons	Agriculture		Occupations related to agriculture		Other occapations		Total	
	N	%	N	%	N	%	N	%
1. Adapted to ability and interest	2	2.82	8	6.72	2	7.14	12	5.50
2. Able to display creativity and originality	18	25.35	32.5	27.31	9	32.14	59.5	27.29
3. Better income than from other occupations	7	9.86	3	2.52	2	7.14	12	5.50
4. Easire to get a job than in other occupation	7	9.86	2	1.68	—	—	9	4.13
5. My present occupations has good prospects	15	21.13	22	18.49	5	17.86	42	19.27
6. Able to help others	15	21.13	44.5	37.38	6	21.43	65.5	30.05
7. Obliged to recommend thus	1	1.41	—	—	—	—	1	0.46
8. Others	4	5.63	4	3.36	2	7.14	10	4.59
9. No response	2	2.81	3	2.53	2	7.14	7	3.21
Total	71	100.00	119	99.99	28	99.99	218	100.00

This tendency can be seen more in graduates now in occupations related to agriculture than in any other occupational group, and they state that their present occupation helps other people so that if their own children have the same occupation they will be of service to others also, the proportion being 37.38 percent. The second reason is chances to display creativity, 27.38 percent, while 18.49 percent of the responders indicated good prospects as third reason. But, other occupational groups, directly engaged in agricultural occupations and in occupations that have nothing to do with agriculture, put the reason of helping other people next to the chance of displaying creativity and put good prospects as the third reason.

Although the reason for recommending their present occupation their children has revealed little difference according to occupational group, the main reasons seem to be based on help to other people, chances to display creativity and good prospects.

3) The reason recommending an occupation other than their own to their children.

This survey showed that most agricultural college graduates of any occupation (67.64%) do not want to recommend their present occupation to their children. The reasons are as follows :

《Table-70》 Reasons agricultural college graduates want to recommend occupations other than their present occupation to their sons

Reasons	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Not adapted to ability and aptitute	11	12.22	26	5.74	12	7.95	49	7.06
2. Unable to display creativity and originality	9	10.00	58	12.80	33	21.85	100	14.41
3. Less income than from other occupations	20	22.22	105.5	23.30	21	13.91	146.5	21.11
4. My present occupation has no future	38	42.22	208.5	46.03	65	43.05	311.5	44.89
5. Unable to help others	3	3.33	8	1.76	7	4.63	18	2.59
6. Others	7	7.78	43	9.49	9	5.96	59	8.50
7. No response	2	2.22	4	0.88	4	2.65	10	1.44
Total	90	99.99	453	100.00	151	100.00	694	100.00

The most common reason is that one's present occupation has no prospects. Graduates who do not want to recommend their present occupation for this reason constituted 44.89 percent of all who

responded. The second reason is discontent due to a small income, 21.11 percent. The third reason is that one's present occupation offers no chance to display creativity and originality, 14.41 percent.

There is no difference by occupation in the opinion that lack of good prospects is the top reason (agricultural occupations, 42.22 %; occupations related to agriculture, 46.02 %; other occupations, 43.05 %), although there is some group differences in the second reason, discontent with a small income. Graduates who work in agriculture and its related fields put low income as the second reason for not recommending their present occupation(agricultural occupations, 22.22 %; occupations related to agriculture, 23.30 %), while graduates now in other occupations put the lack of chances to display creativity and originality as their second reason. This implies that graduates now in occupations other than agricultural are more anxious for chances to display originality by applying the knowledge which they have attained from college work rather than worrying about a low income.

Generally, the reasons why agricultural college graduates do not prefer to recommend their present occupation to the next generation seems to be centered around whether there are good prospects for further development, the income and whether there is any chance to display creativity and originality.

B. Attitude of the community people toward agriculture

It is a general trend that agriculture is despised even by farmers themselves as well as by others. Government officials say that farmers themselves despise agriculture more than they do. In fact, it is undeniable that the average farmer's livelihood is maintained with extreme difficulty. Most farmers believe that it is quite hopeless to expect a better life. The cost of agricultural products is much lower than that of other products. Prosperity and wealth connot be expected through agriculture. A farmer is not a man of power and so he is likely to be oppressed by government authority in most cases. The degree of esteem for occupation which has been handed down to him is civil service, agriculture, industry and commerce, has changed to civil service, commerce, industry and agriculture. Thus, agriculture has dropped to the lowest rank. Due to this it is only natural that farmers do their utmost not to have their sons and theirs engage in agriculture.

Agricultural college graduates who desire to send their sons to an agricultural high school constitute 35.06 percent, while those who do not want to send their sons to such a school constitute 55.51 percent (refer to page of this report). The main reason they give for desiring not to send their sons to an agricultural high school is the fact that they do not want to have their sons engage in agriculture in the future (refer to page of this report). This reflects the fact that rural people are trying their best not to have their sons engage in agriculture. From interviews with farmers, it was found that they do not wish to give their sons a life of problems allowing them to take up an agricultural occupation and that they want to have their sons become government officials. Thus, farmers work hard in order to earn money enough to send their sons to a city to find employment there. Such a trend is reflected in the rich parent or in the student of superior scholastic achievement.

On the other hand, there are farmers who have opposite ideas. They think that an agricultural occupation is relatively secure and reliable in this world of confusion and economic difficulties. The belief has been prevailing of late that young, able men engaged in an agricultural occupation are now making good.

Recently, farmers have been making better profits, profits which cannot be expected from rice and barley cultivation, by means of early sowing and of the cultivation of specific products. Such a belief, that better profits can be expected from improved farming methods, is a key factor in the hope held out for agriculture.

Despite the inclination of some to esteem agri-

culture, however, the traditional concept of contempt for agriculture does not seem to have changed radically. The example of some (very few) farmers making good in agriculture is not effective enough to wipe out such a traditional concept in rural communities in which respect for government authority still predominates. Accordingly, farmers do not want their sons to become farmers as they themselves are, and they do not want their sons to be despised as they themselves are.

IV Problems facing Farming and Popular Opinion of an Agricultural Occupation

There has been a specific concept of value in Korean society concerning occupation from older times. This concept still remains in the minds of the Korean people. It is true that politicians and scholars held agriculture in high regard, but it was actually despised by the general public. Such contempt for agriculture increased during the days of Japanese control over Korea whatever physiocratic or agricultural educational policy has been set up since has not been able to correct such a concept. The effect of views as to the value of agriculture should be considered first because it has great influence on agricultural education.

This chapter includes a general analysis of the problems facing rural communities in Korea, concepts about agriculture and the rural community that prevail in Korean society and the problems in agricultural education arising from the former points. This analysis was made for the purpose of clarifying farmer's opinions of the government's agricultural policies.

A. Characteristics of problems facing farming in the rural communities sampled

Various characteristics were found in such rural towns as Yoju, Pyongchang, Poun, Kongju, Mooju, Sunchon and Chinju, all of which were sampled for the community survey. Problems common to all were detected in respect to farming funds, fertilizer, farming techniques, etc. These problems have a great effect on farming and especially on the activities of agricultural high school and college graduates in rural communities. In this connection, the characteristics of each rural community should be analyzed, first then the improvement of farming should be promoted by making agricultural education effective, and finally, synthetic universal development methods should be studied.

1. Yoju district

The main product of this district is rice. Despite the fact that the economic growth of this district depends on the quantity of rice grown, rice is still produced here by conventional farming methods. Farmers, however, seem to be making efforts to improve farming techniques, and there are favorable conditions which will make earlier harvests possible. Transportation difficuties seem to hinder this district's development. Few crops except rice were found here. If transportation is facilitated, this community will flourish with the cultivation of vegetables for nearby Seoul.

There is only one agricultural high school in this district with a few of its graduates engaged in farming.

At present, the cultivation of the mulberry tree is most popular here but it seems to find new ma-

rkets for cocoons.

Many farmers are reduced to poverty and have great difficulty in purchasing fertilizer and agricultural chemicals.

2. Pyongchang district

The Pyongchang district is sorrounded by hills and so has communication difficulties. Moreover, this district finds it difficult to open new markets for its vegetables which would earn much for farmers. Under such circumstances, it is recommended that the following problems be improved for the development of Pyongchang district.

a. Effective utilization of hillsides

It is recommended that livestock farming be promoted by using hillside and river pastures. Particularly, this district situated near the Taekwanryong Livestock Farm and the Pyongchang Species Cultivation Farm.

b. Cultivation of crops available for finding a new market and for better earning.

This district was found to be fitted to tobacco farming. There is no difficulty in finding a market for tobacco and the income from tobacco farming is many times as high as that from ordinary grains. Technical difficulty in cultivation will be overcome if assisted by agricultural students.

c. Encouragement of consumption by farmers in the community district.

Farmers should be awakened for their eating life for effective self-consumption.

3. Poun district

Two-crop farming has stopped in this district due to profit speculation, and primitive methods of farming still remain. Therefore, farmers are overworked due to primitive implements. Because they faced an unusual shortage of food in 1963, farmers here are determined to grow good crops of rice even though some disadvantageous conditions may prevail in respect to the market prices of rice.

Farmers who possess less than one Chongbo of land constitute over 90 percent. This indicates that most farmers lead a wretched life and that latent unemployment is a very serious problem. A specific product here is the jujube plum, but trees are almost totally destroyed due to insects. This necessitates intensive study of means to control harmful insects. The government should give due consideration to the economic decay of this district. This community has the conditions for setting up small industries to process the various agricultural products of the area because the unemployed there could thus be put to productive work.

4. Kongju district

Most rural families in this district are engaged in simple farming, mainly rice cultivation. The technique of forcing cultivation is used in some areas but it is still in the early stages on the whole traditional farming methods dominate. Farmers in this district do not show any interest in initiating the cultivation of special farm products. The Office of Rural Development is currently undertaking an inspection of management in certain demonstration (pilot) villages, but most farmers are not aware of the meaning and value of management improvement and of agricultural techniques.

Proper measures for the development of agriculture are possible due to the natural and geographical conditions of the district, and specialty farming suitable to this district should be encouraged.

The service activities of the Agricultural Cooperative Association in this district have not won the trust of the people. The proper state of mind and deep reflection is urgently needed so as to regain popular trust.

5. Mooju district

This district is characterized by wretched farms on hillsides and the high cost of farmland. The richest farmers possess only 5 Tanbo of rice paddy and farm roads are less developed than those in plain areas. Farmers are so thoughtless that they reclaim elevated wasteland. They manage to live by rice and barley cultivation, and also engage in growing ginseng and tobacco. This district is suited to bee-keeping but few efforts to develop this are made.

Despite the nearby Kum River, irrigation still depends on conventional methods which are almost a waste of time and labor. Roads are poor and shallow topsoil prevents any increase in production. Farmers are trying to cultivate fruit and mulberry trees by making use of the hillsides. Assistance from the government is necessary for the construction of irrigation facilities and for enlightenment in agricultural techniques.

6. Suncheon district

This community is located in the southern part of the peninsula. Its weather is suited to vegetable cultivation. Moreover, the fact that it is directly connected with Seoul, Kwangju and Yosu by rail facilitates the shipment of agricultural products and which leads to better market gardening. Farming has recently become very active, especially in respect to the cultivation of vegetables and the use of vinyl houses. Particularly, it is noted that agricultural high school graduates engage in farming here with enthusiasm. Since too much emphasis has been placed on the cultivation of quality vegetables, the reclamation of scrub land and wasteland has been neglected. The lack of development in respect to the reclamation of scrub land and wasteland is also due to the non-completion of river embankments which is closely connected with irrigation. This, in turn, hinders the cultivation of more quality vegetables and the development of livestock. Forestation and the harnessing of water for irrigation purposes is urgently required and livestock farming should be further developed in this district.

7. Chinju district

Farming methods and kinds of crops vary with towns and villages. Market gardening prevails near the towns, whereas the cultivation of rice and barley is predominant in village areas. Farmers around rural towns are interested in increases in the number of market gardening products and the scientific use of agricultural chemicals, whereas those in rural village areas are interested in the production of rice and barley for food. Farmers in rural town areas need enlightenment in agricultural techniques for the improvement of crop species and the scientific use of agricultural chemicals, whereas farmers in rural village areas need to make the effort to produce compost for a greater yield from their main crops.

The following various problems facing the various communities are presented for solution:

1) Problems arising from the aspect of production;
2) Problems concerning the extermination of harmful insects;
3) Problems arising in the sale of agricultural products;
4) Problems in the fields of finance and taxation;
5) Problems concerning the supply of agricultural implements required by farmers; and
6) Other various problems

a. Matters concerning production

The most important thing in the aspect of production is an increase in yield. It is necessary to discover the problems hindering greater agricultural production and then to present methods to solve such problems. The following represent the opinions of farmers concerning problems which are regarded as the most common and the most important.

1) It is necessary to revitalize the soil by means of analyses of soil contents as soon as possible.

No analysis of soil composition has been conducted in Korea and so quality of the soil by community is not known. Accordingly, farmers fail to use fertilizer and cultivate agricultural crops effectively according to the composition of the soil. Moreover, it is recommended that farmland throughout the country which are becoming oxidized be made fertile again and that crops be cultivated in compliance with the composition of the soil so as to achieve increases in yield by unit area. By so doing, farmland can be expected to remain fertile and yields will increase by way of cultivating agricultural crops in compliance with the composition of soil.

2) Scientific application of fertilizer

It is said that farmland in Korea is becoming oxidized year by year and that such oxidization of farmland has close connections with the lack of the scientific use of fertilizer. Soil can be expected to remain fertile if the techniques for applying fertilizer and of using chemical compost are improved, and at the same time increases in yields will result. Accordingly, advanced knowledge in the effective use of fertilizer is very important. Moreover, it is recommend that the enlightenment of farmers on the use of fertilizer and that policies regarding the supply and demand of fertilizer be positively conducted by one representative organization.

3) Realignment of arable land

Arable land in Korea must be realigned into regular squares at an early date and farm roads and waterways must also be readjusted. Particularly, it is necessary to redirect waterways in Korea so the areas suffering from drought may be well irrigated.

4) Extension of irrigation facilities

The extension of irrigation facilities is a most urgent requirement in Korea in areas where drought results in grave losses.

b. The extermination of harmful insects

The annual damage to agricultural crops by harmful insect is very great in Korea. In order to exterminate such insects the following policies must be positively enforced by the government:

1) To simplify procedures for the purchase of agricultural chemicals.

It is recommend that agricultuarl chemicals be released in a timely manner by one organization so that the individual farmer may purchase them as and when he has the need.

2) To lower the prices of agricultural chemicals.

It is saided that agricultural crops are inevitably damaged by harmful insects because farmers fail to purchase necessary agricultural chemicals due to their high cost. Therefore, it is recommended that the price of agricultural chemicals be lowered to a level at which farmers can buy them.

3) To provide means for distributing agricultural chemicals.

It is also said that agricultural crops are inevitably damaged by insects because of the lack of means to distribute them even though they are available. Therefore, it is urgently required that the means be provided to distribute sufficient agricultural chemicals, which are already available, in order to exterminate insects.

4) Enlightenment on distribution methods for agricultural chemicals and on the ways to distinguish harmful insects.

Most farmers lack the knowledge to distinguish harmful insects and so they are liable to lose chances for spreading agricultural chemicals. Therefore, it is recommended that the Office of Rural Development provide farmers with guidance in the distinguishing of harmful insects so that they may apply agricultural chemicals at the right times thus to eliminate the damage caused by harmful insects.

5) Conducting group application of chemicals

Damage from harmful insects affects large areas and so even though agricultural chemicals are applied in one area a neighbouring area is most liable

to be infected. Therefore, it is recommended that chemicals be applied over large areas.

c. The sale of agricultural products

1) It is recommended that the prices of agricultural products be set at reasonable levels for the benefit of farmers.

The cost of agricultural products is sometimes set without consideration being given to production costs. In such cases farmers are liable to weary of working for increased agricultural production.

2) Proper steps to find markets for agricultural products.

It is said that farmers are obliged to sell their agricultural products far below the market prices. This means that normally the only channel for farmers to sell their agricultural products is the broker. Therefore, it is recommended that public marketing centers be provided within such organizations as the Agricultural Cooperative Association in order to bypass brokers. Thus, proper steps must be taken to enable farmers to sell their agricultural products at prices equivalent to market prices by adjusting production cost to selling price.

Moreover, it is recommended that markets for specific agricultural products be opened and that the prices of agricultural products be set by the government only with the benefit of farmers in mind. And, it is also recommended that the government do away with the unreasonable adjustment of prices and its pegging of prices.

d. Finances and taxation

1) It is recommended that written notice of the payment of taxes be issued on the basis of production per Pyong.

In the matter of the payment of taxes it seems that the tax standards currently applicable to farmers are not disadvantageous. It is desired a written notice of the payment of taxes be issued on the basis of a fair estimate production per Pyong and it is also hoped that taxation officers visit any areas damaged by floods in order to observe the wretched state of farmers in such areas in order to impose fair taxes. Unreasonable land taxes are sometimes imposed on farmers and natural losses to farmers sometimes are not taken into consideration in the imposition of their taxes. Accordingly, it is recommended that such a vicious form of administration be rectified.

2) Cash payment of taxes more desirable than taxes in goods.

Most farmers desire the payment of taxes in cash than in products.

e. Agricultural implements

1) Improvement of agricultural implements and the popularization of mechanical implements.

Today most farmers still utilize primitive implements which are very small size and require motive power out of all proportions. Therefore, it is recommended that the agricultural implements currently utilized by farmers be improved to make them more practical.

The improvement of agricultural implements will improve overall farming methods, provide favorable conditions in which an increase of agricultural production can be expected and save on the labor farmers must expend. From this viewpoint, it is recommended that the government take proper steps to improve agricultural implements.

2) The distribution of sufficient agricultural implements is most desirable.

Modern agricultural implements are now being used by farmers in some areas. However, only a restricted number of farmers have the use of such implements due to the short age of modern agricultural implements. Therefore, it is urgently required that proper steps be taken so that all farmers may use modern agricultural implements.

3) Mechanizing agriculture

It is recommended that agriculture be mechanized wherever possible.

f. Other problems

There are other problems concerning fertilizer, the elevation of the qualifications of instructors in rural communities and the improvement of the cultural life of rural communities.

1) Problems of fertilizer

Fertilizer is an important factor in increased agricultural production. Farmers want the government to release fertilizer in due time. If the release of fertilizer is delayed farmers can hardly make effective use of it.

Many farmers lack knowledge of the effective use of fertilizer and so it is necessary to enlighten them along this line.

In the case of purchasing fertilizer farmers are liable to pay high prices and they are often accordingly deprived of any profit by brokers. Therefore, it is recommended that proper channels be established for farmers to purchase fertilizer at reasonable prices whenever they need it.

2) Problems concerning the elevation of the qualifications of personnel engaged in rural development projects.

Personnel engaged in the rural development projects of such organizations as the Office of Rural Development and District Offices are doing their utmost to enlighten farmers. One thing, however, is desirable, that enlightenment projects be conducted in due time for real effect in farming. Also, the methods used must be improved so as to provide practical training and demonstrations.

3) Problems pertaining to the improvement of the cultural life of farmers.

Needless to say, the advancement of techniques in agriculture is an important factor in the improvement of agricultural production. However, the cultural life of farmers is also closely connected with the improvement of agricultural production. Therefore, it is recommended that the authorities concerned draw up agricultural policies by taking this fact into consideration.

B. Evaluation by others of graduates occupations

There is no distinction in occupation, noble or ignoble, in a society. Hower, it is social evil that some occupations are regarded with contempt. Therefore, it is natural that people are inclined to find an occupation which is regarded as noble by society.

In this connection, if one's occupation is regarded as noble by others he is likely to be satisfied with it compared to another whose job is regarded as ignoble. Accordingly, it may be safely admitted that he who is satisfied with his occupations, which is regarded as noble, can do better work with more effect. Of course, the efficiency of or satisfaction in one's occupation depends largely on one's aptitude and philosophy concerning work, but these factors are influencedby the social evaluation on that occupation. Moreover, social evaluation has a great effect upon occupations as a whole. For this reason, the identification of general trends in agricultural school graduates' choice of occupation and of the social evaluation of that occupation held by these graduates is most helpful in identifying their efficiency in a certain occupation.

Analyzing trends in agricultural high school and college graduates' choice of occupation, those who find jobs in the agriculture sector constitute 25 percent, those who found jobs in fields related to agriculture three percent, those who found in various occupations outside the field of agriculture 30 percent with the remaining 42 percent unknown, jobless or those who did not make a choice.

Therefore, the following factors were helpful in identifying agricultural high school and college graduates' attitude toward their occupation. First, what evaluation do these graduates draw concerning what others make of their occupations? Second, what evaluation do those who are engaged in agriculture and work related to rural development make concerning what others think of their occupations? Third, what evaluation do those engaged

in other occupations feel others make of their occupations? In identifying agricultural high school and college graduates' attitude toward their occupation, those who are engaged in agriculture are most worthy of sincere attention.

In the first place, the traditional concept of respect for government officials and contempt for civilians must be taken into consideration in order to identify the evaluation made by others of the agricultural occupation. Such a traditional concept still prevails throughout the rural community and is a major factor in the contempt for agriculture. Agricultural high school and college graduates now engaged in agriculture reveal that they found it hard to get along from the time of their school enrollment with other fellows enrolled in ordinary schools and that they were obliged to cover their school mark not to reveal any sign of agricultural high school before these fellows. This kind of thing is caused by an inferiority complex related to the concept of contempt for agriculture. Thus, an inferiority complex originated from the time of their enrollment. In many cases, contempt for agriculture results in a peculiar feeling of indignation and justice. In the survey by questionnaire and interviews, it was found that the Korean people do not usually feel good about agriculture and fail to realize its importance. For this reason, some graduates were rather drawn to engage in agriculture for the development of the rural community. This kind of phenomenon reflects the fact that Korean society regards agriculture with extreme contempt and that the government lacks faith in drawing up positive policies on agriculture.

Along with the concept of contempt for agriculture, the concept that agriculture is open to any fool is also prevalent in Korean society. In other word, people are apt to think that farming is very easy work, that it requires no knowledge and that only those in the lower classes take up agriculture. Accordingly, some agricultural high school graduates now engaged in agricultural expressed the views that such concept must be removed. Meantime, those engaged in farming who want to remain in their present occupation because of adaptability to ability and interest and the availability of chances to display creativity and originality constitute 44.14 percent, equivalent, to approximately half of the total. From this fact, it may be interpreted that knowledge and skills acquired through agricultural education can be fully applied to farming and that the conventional way of thinking that whoever does physical labor is adapted to work on farms is no longer meaningful.

It is the bitter resentment of those who are engaged in farming that however one may try to remove the distinction in occupations, the concept of contempt for agriculture can hardly be removed. Some of those who are engaged in farming are indignant at the fact that farmers always have a hard time laboring and that they keep aloof from government officials. However, people are inclined to admit that agricultural high school and college graduates who are engaged in the agricultural field and in farming are getting to secure a rather better economic position compared with others. Making a comparison with salaried workers, those who are engaged in agriculture and farming earn a better income by applying the techniques and skills they acquired through their agricultural education such as the cultivation of specific crops and earlier cultivation and they seem not to care about the social evil of contempt or agriculture. The problem of income does not seem to make any difference for those engaged in agriculture and farming who desire to change their present occupation. In rural communities today, there are many farmers who feel envy for agricultural high school and college graduates who are making more profits by means of cultivating specific crops.

Most agriculture high school and college graduates who want to continue their jobs in agriculture and farming take future prospects as the first reason for it and it seems they are attracted by the bright economic future of agriculture and farming.

Those who are engaged in the work of rural development or of agriculture seem to boast of the fact that people respect them for the contributions they are making to the guidance of farmers, the improvement of farming skills and the development of rural communities. They take chances to give a hand to others as the first reason for keeping their present occupation. This is the hidden meaning in

the facts described above. However, they seem not to feel superior to others in view of economic status for most of them are living on a salary. Therefore, it was found that some of them want to change their present occupation. Particularly, they seem to feel hopeless in thir present work. This kind of feeling seems contrary to the evaluation made by others of their present occupation.

On the contrary, some agriculture high school and college graduates who are living on a salary or who are engaged in commerce in an unstable society seem to want to change their present occupation to agriculture or farming in order to stabilize their living. Among those who want to change their present occupation to agriculture or farming most were found to be blessed with good farming conditions such as land or the funds to earn a better income and among those who have farming conditions, there were found many who want to change their agricultural or farming occupation to some other work because they have an inferiority complex concerning their present occupation.

C. Motivation behind entering agricultural schools

In our society, understanding of an agricultural occupation is somewhat lacking and insufficient. Therefore, very few really want to engage in agriculture and so few students go to agricultural schools in order to prepare for a life-long career in agriculture. If this is true, it is very unfortunate for agricultural schools which aim to train capable persons who will contribute to the agriculture of this society. It make it very hard to educate prospective agricultural prosonnel effectively. So difficulties with respect to opportunities for a career are anticipated.

No doubt, in finding the causes of the above-mentioned phenomena resulting in a lack of understanding of and of recongnition for an agricultural occupation, the motivations behind entering an agricultural college can be reliable criteria. In other words, "What is the motivation behind entering an agricultural school for agricultural school graduates?" "How many of them have the specific goal of engaging in an agricultural occupations?" "Do they want their sons to enroll in an agricultural school?" If so what are the reasons? The answers of these questions will give the general trend in their understanding of agriculture.

1. Motivation behind entering agricultural schools

The following eight criteria are used to find the movitation for entering agricultural schools :

① Interest in and willingness to be employed in the agricultural field.
② No other schools except an agricultural school in the neighborhood.
③ Easy to enter an agricultural school
④ Recommendation of parents and relatives
⑤ Recommendations of middle school and high school teachers
⑥ Recommendation of friends
⑦ Recommendation of elders
⑧ Sons of farmers

a. Agricultural high school graduates

Agricultural high school graduates were questioned concerning their reason for entering an agricultural high school instead of another high school. One third (33.67%) said that their reason for entering an agricultural high school was to take up employment in the agricultural field as a life-long career. Other reasons are : 25.69 percent said their pareats are farmers while about 20 percent said there were no high schools in their district except an agricultural high school. This 20 percent is not really interested in agriculture. In fact they had no choice. They just went to an agricultural high school to get a high school diploma. Only one third of all agricultural high school graduates went to an agricultural high school with the interest in and willingness in to take up an agricultural job. Another fact is that 16.72 percent of those employed in an agricultural occupation say that their motivation for entering an agricultural high

school was that there were "no other schools in the neighborhood except an agricultural high school": 18.95 percent of those in occupations related to agricultural and 30.59 percent of those in other occupations said the same.

A remarkable point is that 8.31 percent of all graduates chose an agricultural high school because of parental recommendation.

Only 1.90 percent chose an agricultural high school due to a teacher's guidance. Of graduates who hold a agricultural employment at present, 35.84 percent say that they went to an agricultural high school with interest and the willingness to make agriculture a career, the highest proportion of all occupational groups. Among the group in occupations related to agricultural 31.45 percent, and the group in other occupations 29.00 percent stated likewise. This shows that motivation at the time of entry to agricultural high school was effective still after graduation and employment. In other words, most students who had the will to engage in the agricultural field consequently work in that field. Most students who did not have an interest in and willingness to remain on and to work in that field go to another occupation.

Among agricultural high school graduates, most now engaged in agriculture are from farming families. In the agricultural occupation group, 28.02 percent are from the farming families; in the group in related agricultural occupations, 25.40 percent; of in other occupational groups, 19.41 percent.

Also among graduates, especially those who are engaged in agriculture at present, the motivation for entering an agricultural high school is, relatively, less effective due to the recommendation of others such as parents, relatives, teachers, friends and elders. Among the group in agricultural occupations, 12.21 percent were motivated by recommendation from others; of the group in occupations related to agriculture, 14.92 percent; and other occupational groups, 12.78 percent.

Thus we can say that those who had a real interest in and willingness to take up an agricultural occupation are prospective agricultural technicians. And it is important to promote the recognition and understanding of an agricultural occupation and interest in its worth.

《Table-7》 Major motives behind agricultural high school graduates' having entered agricultural high schools

Motives	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
1. Interest in and the desire to engage in agriculture	433	35.84	78	31.45	127	29.00	638	33.69
2. No other high school except an agricultural high school	202	16.72	47	18.95	134	30.59	383	20.22
3. Easy to enter	13	1.08	5	2.02	7	1.60	25	1.32
4. Due to the recommendation of parent or relatives	100.5	8.32	25	10.08	32	7.31	157.5	8.31
5. Due to the recommendation of middle or high school teachers	16	1.33	8	3.23	12	2.74	36	1.90
6. Due to the recommendation of friends	8	0.66	3	1.21	3	0.68	14	0.74
7. Due to the recommendation of elders	23	1.90	1	0.40	9	2.05	33	1.74
8. Mine is an agricultural family	338.5	28.02	63	25.40	85	19.41	486.5	25.69
9. Others	33	2.73	7	2.82	12	2.74	52	2.75
10. No response	41	3.40	11	4.44	17	3.88	69	3.64
Total	1 208	100.00	248	100.00	438	100.00	1 894	100.00

b. Agricultural college graduates

Concerning agricultural college graduates' motivation in entering an agricultural college, 40.81 percent responded that they had genuine interest in agriculture and the goal to make a career in that field.

《Table-72》 Main motives behind agriculture college graduates' entering agricultural college

Motives	Agriculture		Occupations related to agriculture		Student		Soldier		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. I was interested and wanted to engage in agriculture	88	47.57	266	41.56	—	—	3	37.59	69	34.33	7	29.17	433	40.81
2. I had no other college except agricultural college in my district	12	6.49	77	12.03	—	—	—	—	35	17.41	1	4.17	125	11.78
3. Easier to enter	1	0.54	6	0.94	—	—	—	—	4	1.99	1	4.17	12	1.13
4. Due to the recommendation of parents or relatives	7	3.78	52	8.13	—	—	1	12.50	18	8.96	2	8.33	80	7.54
5. Due to the recommendation of middle or high school teachers	9	4.87	50	7.81	—	—	—	—	14	6.96	3	12.50	76	7.16
6. Due to the recommendation of friends	2	1.08	4	0.63	2	66.67	—	—	5	2.49	—	—	13	1.23
7. Due to the recommendation of elders	8	4.32	31	4.84	1	33.33	—	—	12	5.97	—	—	52	4.90
8. Mine is an agricultural family	42	22.70	96	15.00	—	—	3	37.50	30	14.93	8	33.33	179	16.87
9. Others	14	7.57	51	7.97	—	—	1	12.50	11	5.47	2	8.33	79	7.45
10. No response	2	1.08	7	1.09	—	—	—	—	3	1.49	—	—	12	1.13
Total	185	100.00	640	100.00	3	100.00	8	100.00	201	100.00	24	100.00	1 061	100.00

Needless to say, whoever wants to complete college work should have the will to attain the professional knowledge and skills of their major field. If this is taken for gra ted, 40.81 precent is rather a low proportion. Anyway, it is sure that some 41 percent have a special life goal. In other words, the rest seem to have no special goal for their college education in the agricultural field. Of the rest, 16.87 percent say that they went to an agricultural college because their livelihood is agriculture; 11.78 percent say that their nearest college was an agricultural college; 7.54 percent say that an agriculture college is the easiest of which to pass the entrance examination; and 7.16 percent say their parents so wished.

Forty-seven precent of those employed in agricultural occupations say that the motive of their entry to an agricultural college was their genuine interest in agriculture as life's goal. Of the group in occupations related to agriculture, 41.56 percent say that their motive was interest in agriculture. Of the other occupational groups, 34.33 percent say that their motive was interest in agriculture.

As the above indicate, we assume that graduates who have strong motives are inclined to engage in an agricultural occupation or in an occupation related to agriculture. We also assume that graduates who are not sincerely motivated, are inclined to engage in other occupations. As seen in Table 66, among other occupational groups 17.41 percent says that they went to an agricultural college because it was near to their home. In the agricultural occupation group only 6.49 percent say this.

All we can say here is that the desired expectations placed in agricutural graduates depend upon the motives for entering an agriculture college instead of entering other colleges.

2. Motives behind selection of courses upon entering agricultural school

It is not unusual that what schools one enters or what courses one takes determines his future life, and so sound guidance on the selection of courses is emphasized for the sake of occupational adjustment. Although the selection of courses in higher education should be based on such factors as ability, interests, future, income and special individual conditions, it seems that it is Korean reality that what school one should enter is the dominant problem rather than what courses one

should take. The desire to enter so-called first-class schools is dominant not what course should be majored in or what occupation should be prepared for.

A student who has pursued the proper courses can work for the development of his nation, while an able student who takes courses not according to his capabilities will deteriorate capable manpower resources which can result in unexpected detriment to national economic development.

In Korea, agricultural high schools provide 10 courses and agricultural colleges 17 courses. The courses of agricultural high schools are aimed at fostering skilled craftsmen and technicians for the agricultural field, and those that of agricultural colleges are aimed at fostering agricultural engineers. Therefore, it is quite natural that the courses and contents of subjects should have close relations with the demand for manpower in the fields concerned. It seems to be another reality of Korea that no authentic estimation of the demand for manpower has been prepared although the planning of technical manpower demands is now underway. At any rate, the courses of both agricultural high schools and colleges which have up to now been provided piecemeal and without plan should be reorganized on the basis of long-term manpower demand estimates.

《**Table-73**》 Number of students of agricultural high schools by courses

Course	Number of schools	1st year grade	2nd year grade	3rd year grade	**Total**	Graduates of 1964
Agriculture	103	8 119	8 191	7 285	23 595	4 966
Agricultural food processing	1	31	25	—	56	—
Rural home economics	4	109	62	64	235	13
Animal husbandary	56	3 451	3 441	3 083	3 975	1 976
Forestry	29	1 757	1 718	1 519	4 994	943
Agricultural engineering	11	647	526	478	1 651	196
Sericulture	7	367	256	200	823	41
Agricultural cooperatives	4	203	108	52	363	24
Gardening	16	767	796	736	2 599	334
Veterinary	1	121	175	166	462	—
Total	232	15 572	15 298	13 583	44 453	8 493

*** Students taking commercial and general courses are excluded.**

《**Table-74**》 Number of students of agricultural junior colleges by department

Course	Number of schools	Number of students			**Total**	Graduates of 1964
		1st year grade	2nd year grade	3rd year grade		
Agriculture	2	159	101	—	260	60
Gardening	6	222	146	—	368	66
Forestry	2	67	33	—	100	24
Agricultural civil engineering	1	40	24	—	64	12
Farm management	1	40	26	—	66	11
Animal husbandary	4	124	118	—	242	69
Silk-textile	1	40	30	—	70	33
Agricultural cooperatives	1	104	84	—	188	—
Food processing	3	108	37	—	145	30
Agricultural economics	1	32	31	—	63	—
Rural development	1	34	9	—	43	—
Rural home economics	1	3	13	—	16	30
Agricultural engineering	1	40	40	—	80	—
Total	25	1 013	692	—	1 705	335

《Table-75》 Number of students in agricultural colleges

Course	Number of schools	Freshman	Sophomore	Junior	Senior	Total	Graduates of 1964
Agriculture	14	415	486	506	765	2, 172	680
Forestry	8	258	250	285	395	1, 188	258
Agricultural chemistry	8	191	136	173	259	759	185
Farm management	2	98	92	97	481	435	113
Gardening	7	256	153	128	237	774	120
Animal husbandary	10	287	253	239	367	1, 146	302
Veterinary Science	7	186	203	186	396	971	491
Agricultural economics	5	117	76	62	84	339	114
Agricultural food processing	3	81	62	70	121	334	12
Agricultural engineerng	5	88	60	80	75	330	86
Agricultural biology	1	22	22	25	32	101	43
Silk-extile	2	31	17	23	16	87	106
Rural home economics	2	40	33	23	37	133	31
Diary farming	1	30	19	—	—	49	—
Agricultural civil engineering	1	20	20	11	93	144	41
Rural development	1	96	102	32	—	230	—
Agricultural education	1	30	27	—	—	57	—
Total	78	2 246	2 011	1 940	3 025	9 222	2 672

《Table-76》 Number of graduate school students by courses

Course	Number of departments	Number of students			Degree holders	
		For Master's degree	For Doctor's degree	Non-degree status	Master's degree	Doctor's degree
Veterinary science	5	15	2	4	3	1
Agriculture	8	39	1	1	9	—
Forestry	5	10	—	—	4	1
Animal husbandary	1	9	1	—	3	—
Agricultural chemistry	3	14	—	—	6	4
Gardening	1	4	—	2	—	1
Agricultural civil engineering	1	1	—	—	—	—
Agricultural economics	2	7	—	—	3	—
Silk-textile	1	3	—	—	1	1
Agricultural engineering	1	2	—	—	2	—
Agricultural biology	1	7	—	—	—	—
Agricultural food processing	1	1	—	—	—	—
Total	30	112	4	7	31	8

a. Agricultural high school graduates

One of the reasons agricultural high school graduates give for taking their major course is that they were very interested in that course when they selected it and wanted to engage in the corresponding occupation. Another reason is that the course chosen seemed to have good prospects in relation to local community conditions. In other words, the basis of selecting a course is good prospects and personal interests. That the courses chosen seemed to have good prospects in relation to local community conditions when the graduates selected them is the most frequent response among other motives behind the selection of courses, 42.53 per cent. The second motive is their course which prepares for an occupation that interests them, 31.60 percent. These two motives constitute 74.13 percent of all responses. There seemed to be no differences by occupational group.

Although the selection of courses is based on the above-mentioned motives, there have been many changes during school days. The reasons for such are: ability did not keep pace with interests; in reality, the courses did not seem to have really good prospects; and other occupations were more easy to get. At any rate, the fact that motives held

upon entering agricultural high school change during high school days to finally have students take up occupations other than agricultural is a loss of investment in agricultural education. As a result vocational guidance for graduates is most urgent.

《Table-77》 The main motives behind agricultural high school graduates' choice of major courses at the time of entrance to agricultural high school

Motive	Agriculture		Occupation related to agriculture		Other occupatiosns		Total	
	N	%	N	%	N	%	N	%
1. I was interested and wanted to engage in that field after graduation	391.5	32.41	80	32.26	127	29.00	598.5	31.60
2. The field seemed to be promising in light of geographical conditions	554.5	45.90	90	36.29	161	36.76	805.5	42.53
3. Due to the recommendation of parents or relatives	57	4.72	15	6.05	15	3.42	87	4.59
4. Due to the recommendation of teachers	31	2.57	8	3.22	22	5.02	61	3.22
5. Due to the recommendation of seniors	25	2.07	14	5.65	14	3.20	53	2.80
6. Easy to enter	11	0.91	1	0.40	10	2.28	22	1.16
7. Others	77	6.37	24	9.68	59	13.47	160	8.45
8. No response	61	5.05	16	6.45	30	6.85	107	5.65
Total	1 208	100.00	248	100.00	438	100.00	1 894	100.00

b Agricultural college graduates

Agricultural college graduates showed some difference in opinions on the selection of courses at the time they entered college. Agricultural high school graduates rather declined to select courses with such practical motivations as to contribute to the community or because of the good prospects of the course, while agricultural college graduates

《Table-78》 The main motive behind agricultural college graduates' choice of major courses at the time of entrance to agricultural college

Motive	Agriculture		Occupations related to agriculture		Student		Soldier		Other Occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. I was interested and wanted to engage in the corresponding field after graduation	82	44.33	332	51.88	1	33.33	3	37.50	91	45.27	11	45.83	520	49.01
2. The field seemed to be promising in the light of geographical conditions	70	37.84	200	31.25	—	—	5	62.50	66	32.83	7	29.17	348	32.80
3. Due to the recommendation of parents' or relatives	4	2.16	23.5	3.67	—	—	—	—	10	4.97	2	8.33	39.5	3.72
4. Due to the recommendation of teachers	7	3.79	20	3.13	—	—	—	—	9	4.48	1	4.17	37	3.49
5. Due to the recommendation of seniors	5	2.70	24	3.75	2	66.67	—	—	6	2.99	—	—	37	3.49
6. Easy to enter	5	2.70	11.5	1.80	—	—	—	—	6	2.99	2	8.33	24.5	2.31
7. Others	8	4.32	25	3.90	—	—	—	—	9	4.48	1	4.17	43	4.05
8. No response	4	2.16	4	0.62	—	—	—	—	4	1.99	—	—	12	1.13
Total	185	100.00	640	100.00	3	100.00	8	100.00	201	100.00	24	100.00	1 061	100.00

show the tendency to select a course with emphasis on their own interests. Graduates who responded that their selection was made in consideration of personal interests constitute 49.01 percent and graduates who gave good prospects, 32.80 percent.

As in the case of agricultural high school graduates, there seemed to be no group differences in such tendencies. Responses are concentrated on the reasons of personal interest and to engaging in corresponding work (in agricultural occupation: 44.33 % ; in occupations related to agriculture: 51.88 %, on other occupations: 45.27 %), of having good prospects and also becaouse one can be of help to the community (agricultural occupations, 37.84 % ; occupations related to agriculture, 31.25 % ; other occupations, 32.83 %). The tendency to change original motive after having entered college seems similar to that of agricultural high school graduates and this is one serious problem needing careful analysis.

3. Whether to send one's children to an agricultural schools and reason behind it.

To analyze the system of value by which graduates estimate the efficiency of work in agriculture and its related fields and the effects of an agricultural education, the projective method of asking graduates whether they intent to recommend their children enter agricultural schools can be considered. From the question of whether or not to have their children receive the same agriculture education as they did, such social factors as the evaluation of the degree of satisfaction in one's work and the system of value agricultural school graduates use concerning their present agricultural occupations can be analyzed.

a. Agricultural high school graduates

1) Whether to send one's children to an agricultural school

The results of putting the question to agricultural high school graduates concering whether or not they intent to send their children to the same kind of high school is shown in Table. 79. Generally, the majority wish to send their children to agricultural high school (for: 53.43%, against: 29.75). Quite a number of graduates responded that such a selection is up to the child himself depending on his interests and bent rather than on parental opinion (6.73%).

By analysis according to present occupational group, more graduates want to send their children to an agricultural high school than those who do not.

Especially, many employed in an agricultural occupation and many in military service want to send their children to an agricultural high school, at a rate of 61.67 percent and 61.66 percent respectively. Students presently attending an agricultural high school showed the lowest rate, 46.15 percent.

Concering the opinion of agricultural high school graduates as to whether or not they wish to send their children to an agricultural college, the results of this survey showed that more wish to do so than those who do not wish to do so (for: 59.42%, against: 26.60%). The results are in Table 80. Analyzing the response, it is found that most graduates wish one of their children to attend an agricultural college. Adding such graduates, the number of graduates who want to send their children to an agriculture college will increase.

There is some group difference in the tendency of the majority of graduates who want to send their children to an agricultural college. The most enthusiastic groups are of those actually engaged in agriculture and who are in military service (agricultural occupations : 62.42% ; military : 65.00%). This is the same result as in the case of agricultural high school graduates. Just one difference is that the group with the lowest ratio in the case of agricultural high schools is the student group but in the case of agricultural college the group with the lowest ratio is that related to agricultural occupations (51.83 percent of those engaged in occupations related to agriculture).

These facts indicate that, in general, it is the tendency among graduates of agricultural high schools want to send their children to the same kind of school they attended.

《Table-79》 Attitude of agricultural high school graduates toward sending their sons to an agricultural high school

Attitude	Agriculture		Occupations related to agriculture		Student		Soldier		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. I want to send my sons to an agricuatural high school	745	61.67	136	54.84	36	46.15	37	61.66	237	54.11	50	54.35	1 241	58.43
2. I do not want to send my sons to an agricultural high school	338	27.98	86	34.68	23	29.49	12	20.00	153	34.93	20	21.74	632	29.75
3. I would have my sons choose a school according to their aptitude and ability	67	5.55	16	6.45	14	17.95	7	11.67	31	7.08	8	8.70	143	6.73
4. Other	30	2.48	6	2.42	2	2.56	1	1.67	12	2.74	5	5.43	56	2.64
5. No response	28	2.32	4	1.61	3	3.85	3	5.00	5	1.14	9	9.78	52	2.45
Total	1 208	100.00	248	100.00	78	100.00	60	100.00	438	100.00	92	100.00	2 124	100.00

《Table-80》 Attitude of agricultural high school graduates toward sending their sons to an agricultural college

Attitude	Agriculture		Occupations related to agriculture		Student		Soldier		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. I want to send my sons to an agricultural college	754	62.42	143	57.66	44	56.41	39	65.00	227	51.83	55	59.78	1 262	59.42
2. Ido not want to send my sons to an agricultural college	309	25.58	75	30.24	16	20.51	10	16.66	140	31.96	15	16.31	565	26.60
3. I would have my sons choose a school according to their aptitude and ability	46	3.81	6	2.42	8	10.26	4	6.67	24	5.48	5	5.43	93	4.38
4. Others	17	1.40	4	1.61	4	5.13	1	1.67	10	2.28	5	5.43	41	1.93
5. No response	82	6.79	20	8.07	6	7.69	6	10.00	37	8.45	12	13.05	163	7.67
Total	1,208	100.00	248	100.00	78	100.00	60	100.00	438	100.00	92	100.00	2,124	100.00

2) The reason behind a graduate's recommendation of agricultural schools to his sons

Graduates who wish to send their children to agricultural high schools constitute over 58 percent of all agricultural high school graduates, and the most frequent reason they give is that they want to have their children engage in agricultural occupations. Respondents totaled approximately 71 percent. The other reasons given are to improve agriculture (7.66%) and to have sons become good rural leaders (2.74%). These graduates indicated a definite intention to have their children engage in agricultural occupations. In total, graduates desiring to send their children to agricultural high schools for the purpose of having them engage in agricultural occupations is 81.47 percent.

Though there is some difference in number, the tendency mentioned above is common to each occupational group. The order by occupational group with most respondents is as follows: occupations related to agriculture (76.47%), unemployed (74.00%), agricultural occupations (71.67%), military servicemen (70.27%), other occupations (67.09%) and students (61.11%).

A considerable number of graduates responded that they wish to send their children to agricult-

ural high schools but that they have no definite purpose only the desire their children receive a high school education or higher, 9.43 percent of all. One of the reasons graduates of agricultural high school desert agriculture is that parents send children to agricultural high school with such a motivation. Taking this fact into account, urgent steps must be taken to help students acquire a sound vision of their future for the sake of the normalization of agricultural education.

Another remarkable fact is that a considerable number of graduates selected agricultural high schools because it is rather easier to enter such schools.

《**Table-81**》 Reasons why agricultural high school graduates want to have their sons enter agricultural high schools

Reason	Agriculture		Occupations related to agriculture		Student		Soldier		Other occupation		Unemployed		**Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	**N**	**%**
1. In order to have them engaged in agriculture in the future	534	71.67	104	76.47	22	61.11	26	70.27	159	67.09	37	74.00	**882**	71.07
2. No other school except an agricultural high school in the district	11	1.48	2	1.47	1	2.78	1	2.70	9	3.80	—	—	**24**	1.93
3. It is comparatively easy to enter an agricultural high school	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. No definite purpose, but any high school education will do	73	9.80	9	6.62	3	8.33	4	10.81	25	10.55	3	6.00	**117**	9.43
5. For agricultural improvement	66	8.86	8	5.88	3	8.33	2	5.41	10	4.22	4	8.00	**93**	7.66
6. In order to train them as agricultural leaders	20	2.69	3	2.21	3	8.33	—	—	8	3.37	—	—	**34**	2.74
7. Others	27	3.62	6	4.41	2	5.56	3	8.11	19	8.02	4	8.00	**61**	4.75
8. No response	14	1.88	4	2.94	2	5.56	1	2.70	7	2.95	2	4.00	**30**	2.42
Total	745	100.00	136	100.00	36	100.00	37	100.00	237	100.00	50	100.00	**1,241**	100.00

Agricultural high school graduates who desire to send their sons to agricultural college constitute 60 percent of the total number of graduates. The main reason they hold for sending their sons to agricultural college is to have their sons become agricultural professionals (44.33%) and the second reason is to have their sons become community leaders in the field of agriculture (34.55%). And those who took the reason that they want to improve farming methods on their farm constitute a mere 16.25 percent. In the meantime, a few took other reasons and no one took the reason that it is relatively easeir to enter an agricultural school.

Analyzing this by the occupation of graduates, although there is a difference in number, the tendency mentioned above is common to each occupational group. Compared with those engaged in other occupational fields, many engaged in agricultural occupations took the first reason, to have their sons become agricultural professionals (56.64%). The reason to have them become community leaders in the agricultural field was mostly taken by such occupational groups as students (43.18%), soldier (41.03%). and unemployed (40.00%). Compared with those engaged in other occupational fields, the main reason taken by those engaged in agriculture is to improve farming methods on the family farm (18.77%).

《Table-82》 Reasons agricultural high school graduates want to send their sons to agricultural college

Reason	Agriculture		Occupations related to agriculture		Student		Soldier		Other Occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. To have them become agricultural specialists	314.5	41.71	81	56.64	15	34.09	18	46.15	103	45.37	28	50.91	559.5	44.33
2. No other college except an agricultural college in the district	3	0.40	1	0.70	—	—	—	—	1	0.44	—	—	5	0.40
3. It is comparatively easy to enter an agricultural college	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Any higher education will do regardless of the type of school	6	0.80	1	0.70	—	—	—	—	2.5	1.10	—	—	9.5	0.75
5. To imprve our family's farming-techniques	141.5	18.77	17	11.89	8	18.18	3	7.69	30.5	13.44	5	9.09	205	16.25
6. To have agricultural leaders in our community	259	34.35	39	27.27	19	43.18	16	41.03	81	35.68	22	40.00	436	34.55
7. Others	21	2.78	3	2.10	2	4.55	—	—	8	3.53	—	—	34	2.69
8. No response	9	1.19	1	0.70	—	—	2	5.13	1	0.44	—	—	13	1.03
Total	754	100.00	143	100.00	44	100.00	39	100.00	227	100.00	55	100.00	1 262	100.00

3) The reason graduates do not wish their childern to enter agricultural schools.

The ratio of agricultural high school graduates who do not wish to send their children to an agricultural high school is 29.75 percent and that of graduates who so not wish to send their children to an agriculture college, 26.60 percent. The most common reason is they do not want their children to have an agricultural occupation. This reason-ooccupies 52.74 percent of all in opposition, but there is a great deal of group difference in this tendency. The group that revealed the highest rate for this reason is that of military service-men (66.67%), and the least that of students (13.04%).

Graduates who responded in other way constitute an approximate 13 percent. Their main reason is that the agricultural high school has any handicaps to advancing to college, even in the case of sending children to agricultural college the academic high school is more favorable than the agricultural high school so it is silly to enter an agricultural high school. Another reason a considerable number of graduates present is that the education offerd by agricultural high schools is not a sound general education nor is it a sound technical education. Though it is in the majority, a remarkable reason is that everybody despises an agricultural occupation, 9.41 percent of all reasons. Graduates who responded with this reason are in agricultural jobs and occupations related to agriculture. This could be proof of the feeling of graduates that an agricultural occupation is socially inferior in many respects.

The main reason agricultural high school graduates oppose sending their children to agricultural college (26.60%) is that they do not want their children to have an agricultural occupation (52.74 %) and another important reason is that they are not economically able to send their children to college(11.15%). The group that revealed the highest rate in this reason is that of military service-men (70.00%), and the lowest is that of students (25.00%).

A considerable number of graduates (8.32%) expressed the opinion that it is unnecessary to go an agricultural college in order to take up farming because the basic knowledge concerning agriculture attained through an agricultural high school education is sufficient.

《Table-83》 Reasons Agricultural high school graduates do not want to send their sons to agricultural high schools

Reason	Agriculture		Occupations related to agriculture		Student		Soldeir		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Not to have them engage in agriculture	183	54.14	37	43.02	3	13.04	8	66.67	62	40.52	9	45.00	302	47.79
2. Agricultural high school students are not considered bright	16	4.73	9	10.46	2	8.70	1	8.33	10	6.54	—	—	38	6.01
3. Everyone looks down upon those engaged in agriculture	34	10.06	11.5	13.37	1	4.34	1	8.33	10	6.54	2	10.00	59.5	9.41
4. Agricultural high schools are not as good as other high schools	5	1.48	6	6.98	2	8.70	—	—	11	7.19	—	—	24	3.80
5. Few things to learn at agricultural high schools	10	2.96	2	2.33	2	8.70	1	8.33	11	7.19	2	10.00	28	4.43
6. Unable to give financial support	20	5.92	3.5	4.07	2	8.70	—	—	5	3.27	—	—	30.5	4.83
7. Agricultural high schools do not offer satisfactory preparatory education for college entrance examinations	32	9.47	9	10.46	3	13.04	—	—	34	22.22	—	—	78	12.34
8. Others	27	7.99	4	4.65	6	26.09	1	8.33	7	4.58	5	25.00	50	7.91
9. No response	11	3.25	4	4.65	2	8.70	—	—	3	1.96	2	10.00	22	3.48
Total	338	100.00	86	99.99	23	100.01	12	99.99	153	100.01	20	100.00	632	100.00

《Table-84》 Reasons agricultural high school graduates do not want to send their sons to agricultural college

Reason	Agriculture		Occupations related so agriculture		Student		Soldier		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Not to have them engage in agriculture	169	54.69	39	52.00	4	25.00	7	70.00	71	50.71	8	53.33	298	52.74
2. Agricultural college students are not con idered bright	14	4.53	7	9.33	2	12.50	2	20.00	8	5.71	—	—	33	5.84
3. Everyone looks down upon those engaged in agriculture	28	9.06	7	9.33	2	12.50	1	10.00	8	5.71	1	6.67	47	8.32
4. Few things to leans at agricultural college	4	1.30	—	—	1	6.25	—	—	4	2.86	—	—	9	1.59
5. Unable to give financial support	41	13.27	6	8.00	1	6.25	—	—	13	9.29	2	13.33	63	11.15
6. Agricultural high schools education is sufficient	25	8.09	9	12.00	—	—	—	—	13	9.29	—	—	47	8.32
7. Other	12	3.88	4	5.33	3	18.75	—	—	4	2.86	3	20.00	26	4.60
8. No response	16	5.18	3	4.00	3	18.75	—	—	19	13.57	1	6.67	42	7.43
Total	309	100.00	75	99.99	16	100.00	10	100.00	140	100.00	15	100.00	565	99.99

b. Agricultural college graduates

1) Opinions regarding the desire to send sons to an agricultural college

Agricultural college graduates received a questionnaire regarding their opinions concerning the recommendation of sending sons to an agricultural high school. Those who wish to send their children to an agricultural high school are fewer than those who do not wish to do so. 35.06 percent of all graduates want to send their sons to an agricultural high school while 55.51 percent do not.

This is quite the oppsoite to the opinion of agricultural high school graduates : a relatively high proportion of agricultural high school graduates wish to send their children to an agricultural high school. This situation indicates that the degree of education results in the attitude.

Such an attitude, among agricultural college graduates, is common to other occupational groups except military servicemen. However, there is some difference. 48.11 percent in the agricultural occupation group say that they are not going to send their sons to an agricultural high school and 50.00 percent of military servicemen group says the same.

As for agricultural college graduates, the opinion regarding sending their sons to an agricultural college are : 41.75 precent wishes to send them and 44.02 percent do not.

《**Table-85**》 Attitude of agricultural college graduates toward sending their sons to an agricultural high school

Attitude	Agriculture		Occupations related to agriculture		Students		Soldiers		Other occupations		Without occupation		**Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	**N**	**%**
1. I would like to send my sons to an agricultural high school	89	48.11	209	32.66	1	33.33	4	50.00	61	30.35	8	33.33	**372**	**35.06**
2. I do not want to send my sons to an agricultural high school	79	42.70	374	58.44	2	66.67	3	37.50	117	58.21	14	58.33	**589**	**55.51**
3. I would have my sons choose a school according to their aptitude and ability	7	3.78	29	4.53	—	—	—	—	12	5.97	1	4.17	**49**	**4.62**
4. Others	7	3.78	22	3.44	—	—	1	12.50	7	3.48	1	4.17	**38**	**3.58**
5. No response	3	1.62	6	0.94	—	—	—	—	4	1.99	—	—	**13**	**1.23**
Total	185	99.99	640	100.01	3	100.00	8	100.00	201	100.00	24	100.00	**1 061**	**100.00**

There is no significant difference between the two group of opinion ($t = .73$). In other words, these two opinion groups are similar. But still there is some difference in attitude according to present occupational groups. The agricultural occupation group and the military service group have a relatively positive attitude toward sending their sons to an agricultural college. In the group in related agricultural occupations among students, among those in other occupations and among the unemployed the attitude is relatively more negative.

As mentioned above, agricultural high school graduates have quite a positive attitude about sending their sons to an agricultural high school or to an agricultural college while agricultural college graduates have a rather negative attitude. Therefore, the attitude of agricultural high school and the agricultural college graduates is quite the opposite. Again, we can state here that the difference in the degree of education makes the difference of their attitude. Of course, there is many reasons involved. First, the higher their education the more higher socio-economic position they seek. So, they will not have their children take up an agricultural occupation. Secondly, the more education they have the more they are inclined to let their children select their own career. The follo-

《Table-86》 Attitude of agricultural college graduates toward sending their sons to an agricultural college

Attitude	Agriculture		Occupations related to agriculture		Students		Soldiers		Other occupations		Without occupation		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. I would like to send my sons to an agricultural college	101	54.59	251	39.22	3	100.00	4	50.00	75	37.31	9	37.50	443	41.75
2. I do not want to send my sons to an agricultural college	62	33.51	296	46.25	—	—	2	25.00	96	47.76	11	45.83	467	44.02
3. I would have my sons to choose a school according to their aptitude and ability	6	3.24	38	5.94	—	—	—	—	9	4.48	1	4.17	54	5.09
4. Others	7	3.78	27	4.22	—	—	1	12.50	11	5.47	—	—	46	4.34
5. No response	9	4.86	28	4.38	—	—	1	12.50	10	4.98	3	12.50	51	4.81
Total	185	99.98	640	100.01	3	100.00	8	100.00	201	100.00	24	100.00	1 061	100.01

wing is an analysis of their responses on reasons as given in the questionnaire:

2) The reason graduates wish their children to enter agricultural schools.

Agricultural college graduates who wish their children to enroll in an agricultural high school constitute approximately 35 percent of all respondents. The main reason they presented is that they wish to have their children take upon agricultural occupation and they constitute 73.12 percent of all graduates who wish to send their children to an agricultural high school. This is common to agricultural high school graduates as approximately 71 percent of them percent the same reason.

To have their children become able rural leaders is the second reason and this group hopes their children will engage in agriculture or occupations related to agriculture.

Among agricultural college graduates, 41.75 percent wish to send their children to an agricultural

《Table-87》 The reasons agricultural college graduates want to have their sons enter an agricultural high school

Reason	Agriculture		Occupations related to agriculture		Student		Soldier		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. To have them engage in agriculture in the future.	70	78.65	154	73.68	—	—	4	100.00	39	63.93	5	62.50	272	73.12
2. No high school except an agricultural high school	—	—	3	1.44	—	—	—	—	1	1.64	—	—	4	1.08
3. Comparatively easy to enter an agricultural high school	—	—	2	0.96	—	—	—	—	—	—	—	—	2	0.54
4. No definite purpose, or any type of hgih school education will do	6	6.74	16	7.66	—	—	—	—	6	9.84	—	—	28	7.53
5. To train them as agricultural leaders	7	7.87	20	9.57	—	—	—	—	7	11.48	—	—	34	9.14
6. Others	6	6.74	9	4.31	1	100.00	—	—	7	11.48	3	37.50	26	6.99
7. No response	—	—	5	2.39	—	—	—	—	1	1.64	—	—	6	1.61
Total	89	100.00	209	100.01	1	100.00	4	100.00	61	100.00	8	100.00	372	100.01

college. The main reason is that they hope their children will be agricultural specialists and rural community leaders, with ratios of 54.74 and 31.60 percent, respectively. Most respondents who hope their children will be specialists in agriculture are involved in occupations related to agriculture and in other occupations (occupations related to agriculture, 59.76 % : other occupations, 62.67 %). The major group that wishes their children to be rural community leaders is in the agricultural occupations, with a rate of 41.58 percent. That is, agricultural college graduates in other than agriculture occupations indicate as reasons for sending their children to agricultural college as, first, their wish for their children to be agricultural specialists and second, their wish for them to be rural community leaders. For graduates of agricultural colleges, order of emphasis in reasons given is the reverse, that first they wish their children to become rural community leaders and next to be agricultural specialists.

《**Table-88**》 Reasons the agricultural college graduates want to send their sons to agricultural college

Reason	Agriculture		Occupations related to agriculture		Students		Soldiers		Other occupation		Unemployed		**Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. To make agricultural specialist	38.5	38.12	150	59.76	1	33.33	2	50.00	47	62.67	4	44.44	242.5	54.74
2. We have no other college except agricultural college in our district	—	—	2	0.80	—	—	—	—	—	—	—	—	2	0.45
3. It is comparatively easy to enter	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Any higher education will do regardless of the type of school	1	0.99	2	0.80	—	—	—	—	—	—	—	—	3	0.68
5. To improve our family's farming techniques	15.5	15.35	22	8.76	1	33.33	1	25.00	2	2.67	1	11.11	42.5	9.59
6. To make agricultural leader in our community	42	41.58	68	27.09	—	—	1	25.00	25	33.33	4	44.44	140	31.60
7. Other	3	2.97	5	1.99	—	—	—	—	—	—	—	—	8	1.81
8. No response	1	0.99	2	0.80	1	33.33	—	—	1	1.33	—	—	5	1.13
Total	101	100.00	251	100.00	3	99.99	4	100.00	75	100.00	9	99.99	443	100.00

3) The reasons graduates do not wish their children to enter agricultural schools.

Agricultural college graduates who do not wish to have their children enter agricultural high schools (55.51%) are far more in number than those who do so. The main reason they present is that they do not want their children to have an agriculture occupation, and they constitute 44,31 percent. The second reason is that there are many handicaps in an agricultural high school for those wish to advance to higher education (10.87%). The reason graduates do not want to have their children in agricultural occupations indicates one aspect of their system of value and thir outlook. Handicaps to higher education, however, point out the weak point of agricultural high schools. This opinion stands against the opinion that to enter an agricultural high school is to get into college easier.

The present Korean school system, of course, is a single system. Under the principle of the single system, academic and vocational high schools have been set up and the opportunity to advance to all kinds of higher education have been secured for vocational high school graduates. In principle, however, the vocational high school is aimed at fostering skilled workers or technicians rather than being a preparatory organization for those who intend to advance to a professional education. In

《**Table-89**》 Reasons agricultural college graduates do not want to send their sons to agricultural high schools

Reason	Agriculture		Occupations related to agriculture		Students		Soldiers		Other occupations		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Not to have them engaged in agriculture	30	37.97	169	45.19	—	—	—	—	56	47.86	6	42.86	261	44.31
2. Agricultural high school students are not considered bright	6	7.60	25	6.68	—	—	—	—	5	4.27	2	14.29	38	6.45
3. Everyone looks down upon those engaged in agriculture	9	11.39	20	5.35	—	—	1	33.33	2	6.71	3	21.43	35	5.94
4. Agricultural high schools are not as good as other high schools	4	5.06	22	5.88	2	100.00	—	—	4	3.42	—	—	32	5.43
5. Few things to learn at agricultural high schools	4	5.06	24	6.42	—	—	—	—	8	6.84	—	—	36	6.11
6. Unable to give financial support	—	—	12	3.21	—	—	—	—	8	6.84	1	7.14	21	3.57
7. Agricultural high school education does not offer satisfactory preparatory education for college entrance examinations	4	5.06	40	10.70	—	—	—	—	20	17.09	—	—	64	10.87
8. Not adapted to ability and aptitude	6	6.33	22	5.88	—	—	—	—	4	3.42	—	—	32	5.43
9. Oters	9	11.39	28	7.49	—	—	2	66.67	7	5.98	1	7.14	47	7.81
10. No response	8	10.13	12	3.21	—	—	—	—	3	2.56	1	7.14	24	4.07
Total	79	99.99	374	100.00	2	100.00	3	100.00	117	100.00	14	100.00	589	99.99

《**Table-90**》 Reasons agricultural college graduates do not want to send their sons to agricultural college

Reason	Agricutlure		Occupations related to agriculture		Student		Soldier		Other occupation		Unemployed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Not to have them engaged in agriculture	31	50.00	197	66.55	—	—	—	—	54	56.25	6	54.55	288	61.67
2. Agricultural colldge students are not considered bright	6	9.68	21	7.09	—	—	—	—	5	5.21	—	—	32	6.85
3. Everyone looks down upon those engaged in agriculture	6	9.68	19	6.42	—	—	1	50.00	4	4.17	2	18.18	32	6.85
4. Few things to learn at agricultural colleges.	—	—	3	1.01	—	—	—	—	4	4.17	—	—	7	1.50
5. Unable to give financial support	3	4.84	17	5.74	—	—	—	—	6	6.25	2	18.18	28	6.00
6. An agriculture high school education is sufficient	6	9.68	17	5.74	—	—	—	—	10	10.42	—	—	33	7.06
7. Others	7	11.29	20	6.76	—	—	1	50.00	9	9.37	1	9.09	38	8.14
8. No response	3	4.84	2	0.68	—	—	—	—	4	4.17	—	—	9	1.93
Total	62	100.01	296	99.99	—	—	2	100.00	96	100.01	11	100.00	467	100.00

this respect, the preparatory school for an agricultural college is the academic high school rather than the agricultural high school. This practical problem of the education system and the misunderstanding of parents who consider an agricultural high school the easy way to enter an agricultural college brings such serious conflicts for both parents and students when selecting a higher education. Of course, the normalization of agricultural high school education means that the misunderstanding that agricultural high schools be preparatory schools for higher education be not followed but that such schools foster skilled workers or technicians for agriculture. This normalization of agricultural high school education cannot be achieved by maintaining the education system alone. The better understanding of parents is the most essential factor. The authorities concerned, therefore, should take proper actions to abolish this parental misunderstanding and, at the same time, other proper action should be taken to help students who are victims of such misnundersting.

The main reason agricultural college graduates do not want to send their children to agricultural college is, also, that they do not want them to have an agricultural occupation (61.67%). As to reasons why graduates do not want their children to have agriculture occupation are they present the facts that generally agricuultural occupations are despised socially, that the government does not assure stability in agricultural occupations, and that it is not easy to find a job after graduation from such colleges. Therefore, they prefer to send their children to an engineering college, if possible. Those graduates who gave the reason that agricultural college students are not socially respected and that agricultural occupations are socially despised constitute 6.85 percent.

The occupational group that reveals the highest rate in this reason is that related to agriculture, with 66.55 percent.

4. Motives behind parents having their sons enter agricultural schools.

It is natural that most parents desire that their sons find employment which is not regarded with the traditional contempt prevalent in Korean society. Likewise, most parents do not want their sons to enter an agricultural school which is generally regarded as of low standard. By means of interviews with rural people, the following facts were discovered, even though it is true that most parents do not want to have their sons to enter an agricultural school. Most parents want to have their sons enter an agricultural high school simply because they are not rich enough to send them to college.

There are many rural communities in which there are agricultural high schools only. Rural people in such communities cannot afford to send their sons to other types of school in other communities and so they are more or less compelled to send their sons to agricultural high schools. Therefore, most rural parents have no any definite motives behind their sending of their sons to school and a given circumstance makes them decide the school.

Nevertheless, there are many parents who send their sons to agricultural schools intentionally so as to have them become leaders in the field of agriculture in which the movement toward agricultural improvement is actively carried out for the purpose of increasing crop yields by means of cultivating specific crops. Likewise, some of those who own large farms, orchards or pastures desire to send their sons to agricultural school. However, the majority of parents oppose sons who intend to enter agricultural schools to learn to be good farmers. But, too often, parents force their children to change their minds. Others and their sons to agricultural high school or college, but their intention is not to have their sons acquire professional knowledge and skill but to keep them from hardship in the future. In one way or another most parents have the common desire not to have their sons engage in agriculture which considered humble and unprofitable.

V Evaluation of the Education Graduates Received

A. Contents and methods of education

After Korea's liberation from Japanese rule in 1945, the government reformed the conventional school system and established the new 6-3-3-4 unified school system. Agricultural high schools come under the three-year secondary education course.

According to the Educational Law, the characteristics of the agricultural high school do not differ fundamentally from those of the academic high school, while it is merely up to a student's choice subject as to what high school he attends, academic or vocational. In other words, the characteristics of the agricultural high school depend on differences in the subject matters a student takes[1]. Ordinance No. 67 of the Ministry of Education prescribes the range of vocational subject matters and the selective subject matters students must complete at high school.

The Korean educational law prescribes the objectives and goals of high school education as follows:

① To foster the character and ability required for the mainstay of the nation by extending and strengthening middle school education.

② To foster proper understanding and sound criticism of society and nation.

③ To meet physical growth with consciousness of one's mission to the nation.

④ To have one decide a future in accordance with one's character and to elevate general education as well as professional shill.

The objectives and goals of high school education in Korea can be summarized under two headings —the elevation of the qualities required for a good democratic citizen and cultivation and training in professional ability and skill. Thus, the vocational high school is characterized by placing greater emphasis on the latter. The agricultural high school is particularly characterized by being responsible for training in agricultural skills.

Needless to say, a well-organized curriculum is essential for the attainment of the objectives and goals of agricultural high schools which are the elevation of the qualities required in a good democratic citizen and training in professional skill. Yet a sound law and a well-established institution cannot be expected to produce satisfactory results without effective operation. Thus, the effective administration of a well-organized curriculum is an important factor affecting agricultural education. At the same time, various supporting conditions such as finances, facilities, teachers, etc. are vital conditions for producing better effects from education in practice.

[1] Article 155 and 156 of the Educational Law prescribes that academic high schools offer more than 15 percent of vocational subject matter and that vocational high schools offer more than 30 percent vocational subjects.

1. Contents and methods of vocational agriculture high school education.

In Korea, the agricultural high school is characterized both as an intermediary and as a terminal school. Above all, the agricultural high school has more distinct characteristics as a terminal school. Moreover, the agricultural high school is supposed to place equal emphasis on required, selective and technical subject matters for the attainment of the general objectives and goals of high school education described above.

According to "The Standard Table for the Allocation of School Hours in Agricultural High Schools and other High Schools in which Vocational Subject Matters are Majored", designated by Article No. 156 of the Education Law and Ordinance No. 35 of the Ministry of Education, required general subject matters should cover 36.1 percent of school hours, required professional subject matters over 30 percent and selective subject matters 16.6 percent. This means that the total of 1,190~1,360 school hours, equivalent to 34~39 weeks, should be spent in schooling each year.

However, in actual practice the school curriuclum is expected to go far behind the total number of school hours required for a year. One of the important problems not only faced by vocational agricultural high schools but also by most of secondary schools throughout the nation is the fact that the curriculum, even though it is well organized, can hardly be practiced in compliance with the objectives of education and thus he carried out in the most effective way. The National Survey of Secondary Education in Korea (*Rebuilding Secondary Education of the Republic of Korea*) conducted by the Central Education Research Institute in 1961 describes the critical problems faced by middle schools and vocational and academic high schools in metropolitan areas, cities and rural towns throughout the country along with specific emphasis on the problems faced by vocational high schools. This chapter is concerned with the examination of the actual execution of the curriculum of agricultural high schools, finding out whether or not a sound education had been given in accordance with the two major objectives of agricultural high schooling, general education and technical training.

Routine records kept by school classes are most helpful in determining how school hours are spent. Therefore, this survey was conducted entirely by means of a random sampling of routine records kept for one year by one class in each of 19 agricultural high schools and the data collected was later analyzed by survey personnel of the Central Education Research Institute.

A consideration of the functions of secondary education and the guarantee of maximum learning efficiency are prerequisites to an examination of how many school hours are spent on the curriculum. The following points are enumerated in relation to this survey.

① The number of subjects should be set to the extent that the student may integrate his learning experience continuously. Artificial divisions in education constitute a conventional type of education which is the evil of schooling today.

② Weekly school hours should be set lest students be overworked.

③ No Subject matters except those which are indispensable to a sound general education should be set against student interests, ability, future planning and social needs.

④ Subject matters indispensable to a sound general education should not be overlooked due to undue emphasis on other subject matters. Moreover, emotional and physical education should not be ignored due to greater emphasis on academic subjects to the advantage of study for entrance to a higher school.

⑤ Professional vocational subjects are to important to be completed within the minimum standard set for school hours required for preparation for the future.

⑥ Minimum school-hour standards should be strictly enforced. The non-completion of

《**Table-91**》 Minimum standard school hours for each high school subject.

Subject matters	1st year Grade	2nd year Grade	3rd year Grade
Compulsory courses			
Korean language (I)	140(4)	140(4)	105(3)
Social studies			
Social ethics	105(3)	105(3)	35(1)
Morals	35(1)	35(1)	35(1)
Korean history	—		105(3)
Mathematics	140(4)	—	—
General science	140(4)	—	—
Physical education	35(1)	35(1)	35(1)
Music, Fine arts		140(4)	
Vocational education, Home economics	105(3)	105(3)	105(3)
Sub total	**770(22)**	**490(14)**	**420(12)**
Elective courses : general education courses			
Korean language (II)	105(3)	105(3)	105(3)
Social studies			
World history	—		105(3)
Geography		105(3)	—
Mathematics			
Analytical mathematics	—	105-210(3-6)	
Geometry	—	70-140(2-4)	
Natural science			
Physics		140(4)	
Chemistry		140(4)	
Biology		140(4)	
Geology		140(4)	
Military training	140(4)	140(4)	140(4)
Introduction to philosophy			210(6)
Physical education, Music, Fine arts	—	0-210(0-6)	
Foreign languages			
English, German, French, Chinese	0-175(0-5)	0-175(0-5)	0-420(0-5)
Specialized courses			
Industrial or other specialized courses	0-420(0-12)	0-700(0-22)	0-770(0-22)
Extra-curricular activity	70(2)	70(2)	70(2)
Total	1 190~1 360(34-39) **(hours)**	1 190~1 360(34-39) **(hours)**	1 190~1 365(34-39) **(hours)**

***Numbers in parentheses indicate average weekly school hours.**

minimum school hours means that the curriculum set up by the Ministry of Education has been inadequately taught.

a. The agricultural high school curriculum

According to Article 19 of Ministry of Education Ordinance No. 35, the curriculum for vocational high schools is divided into required and selective subjects while vocational subjects[2] are offered on the basis of the standards for the allocation of school in vocational high schools and others schools concerned with technical education as prescribed in Article 22 of Ministry of Education Ordinance No. 35.

This ordinance prescribes that 770 school hours (22)* shall be devoted to required subjects in the case of the first grade, 490 school hours(14)* in the second grade and 420 school hours(12)* in the third grade. It also prescribes that 420~590 school hours(12~17)* be devoted to selective subjects in the first grade, 700~870 school hours (20~25)* in the second grade and 770~940 school hours (22~27) school hours in the third grade.

According to Article 156 of the Educational Law, technical subjects are to constitute more than 30 percent of all vocational subjects. As seen in the following table, school hours to be devoted to vocational subjects range from a minimum of 35 hours to a maximum of 280 hours.

[2] In this Ministry of Education Ordinance, vocational subjects are considered technical subjects. The numbers in parentheses denote average school hours per week.

《Table-92》 Standard school hours allocated for each agricultural subject at agricultural high schools

Courses	Total school hours
Soil and fertilizers	35-105(1-3)
Cereal crops	175-280(5-8)
Zootechny	105-175(3-5)
Lab work and practice	315-944(9-27)
Gardening	175-280(5-8)
Agricultural food processing	70-245(2-7)
Harmful insects and agricultural chemicals	70-140(2-4)
Breeding of species	70-140(2-4)
Forestry	70-140(2-4)
Sericulture	70-245(2-7)
Meteorology	70-105(2-3)
Agricultural engineering	70-140(2-4)
Farm management	70-105(2-5)
Afforestation	210-315(6-9)
Outline of agriculture	70-280(2-8)
Forest management	140-245(4-7)
Forest engineering	175-280(5-8)
Forest product's processing	70-105(2-3)
Forest laws	70-105(2-3)
Outline of zootechny	140-210(4-6)
Special zootechny	140-210(4-6)
Sanitation and physiology of domestic animals	70-140(2-4)
Forage crops	70-105(2-3)
Livestock breeding	140-210(4-6)
Livestock processing	140-210(4-6)
Introduction to veterinary science	70-140(2-4)
Anatomy of domestic animals	70-140(2-4)
Vegetables	140-245(4-7)
Fruits	140-245(4-7)
Flower-pot	70-105(2-3)
Flower-pot gardening	70-104(2-3)
Horticulture	70-105(2-3)
Mulberry-trees	70-105(2-3)
Silkworms and genetics	70-140(2-4)
Anatomy and physiology of silk-worms	105-175(3-5)
Pathology of silk-worms	70-140(2-4)
Silk-reeling and weaving	70-140(2-4)
Sericultural laws	70-105(2-3)
Surveying	105-175(3-5)
Agricultural irrigation	70-140(2-4)
Applied dynamics	105-175(3-5)
Irrigation	70-140(2-4)
Agricultural structure	140-210(4-6)
Material operation	70-140(2-4)
Forest arrangement	70-140(2-4)
Drawing	70-140(2-4)
Steel reinforcement	70-105(2-3)
Geology	70-105(2-3)
Land reclamation	70-105(2-3)
Farm equipment	70-105(2-3)
Medication	70-140(2-4)
Clinics	210-420(6-12)
Bacteriology and immunity	101-175(3-5)
Pathology	70-140(2-4)
Bio-chemistry	175-280(5-8)
Bacteriology	140-280(4-8)
Introduction to zootechny	140-210(4-6)
Zymology	70-140(2-4)

***Total school hours means total school hours throughout one school year, and the numbers in parentheses indicate weekly school hours allocated.**

1) Total number of school hoursper year

The non-completion of the minimum school hours required means that a school's curriculum obligation as designated by the Ministry of Education has not been fully performed. The following table shows the total number of school hours actually spent in a year. This is the result of a routine check of records held by students.

《Table-93》 Total number of school hours actually spent in a year in an agricultural high school

Classification	Total number of school hours spent in a year in an agricultural high school	Average number of school hours spent each month in an agricultural high school (1961)
Number of classrooms sampled	19 classes×35 weeks	104 classes×4 weeks
Average number of school hours spent each year	1 001 hours	118.8 hours
Limit to number of school hours spent each year	804~1202 hours	70.5~162.6 hours
Ratio of number of school hours completed to minimum school hours required	84.3%	87.4%
Ratio of number of school hours spent to maximum school hours required	73.6%	76.2%
Limit to ratio of number of school hours spent	67.6~101.0%	—
Average number of school hours spent each week		
Minimum standard (A)	34 hours	34 hours
Average number of school hours spent (B)	28.6 hours	29.7 hours
Percentage (B/A×100)	84.1%	87.3%

The above table shows that 1,001 school hours are spent each year and 26.5 each month in agricultural high schools. Comparing the former with the minimum standard number of 1,190 school hours suggested by the Ministry of Education, 190 school hours are not used. Comparing this with the maximum standard number

of 1,360 school hours, approximately 360 school hours are not used. This is equivalent to 74~84 percent of the standard number of school hours, leaving 26~16 percent of the required hours unused. The least number of school hours spent each year is 804 which is 386 hours less than the minimum standard number required and which is equivalent to 67.6 percent of the minimum standard number. The greatest number of school hours spent each year is 1,202 hours which is one percent more than the minimum standard.

According to the 1961 survey, the average number of school hours spent each year constitutes under 87.4 percent of the minimum standard number of school hours. Comparing the results of this survey with those of 1961, no significant differences were found. Therefore, it can be said that from quantitative point of view no changes have been made in the number of school hours spent by agricultural schools.

Meantime, 28.6 school hours are actually spent each week dispite the fact the educational law prescribes the standard number of weekly school hours at 34. 28.6 school hours is equivalent to 84.1 percent of the minimum standard number of school hours and so it can be said that five to six hours are not actually spent each week.

2) Failure to spend the minimum standard number of school hours.

The non-accomplishment of the minimum standard number of school hours in professional subjects and others is a general phenomenon throughout the country. Only two out of nineteen schools sampled were found to have satisfied the minimun standard number of school hours prescribed by the Ministry of Education. Four schools out of the seventeen others spent 25 percent less than the minimum standard number of school hours.

The non-accomplishment of the minimum standard number of school hours was found in vocational technical subjects. Fourteen schools spent hours less than the minimum standard on vocational tecnical subjects, where as only five accomplished more hours than the minimum standard. Moreover, six schools spent 25 percent less than the minimum standard.

The status of schools which did not accomplished the minimum standard in hours is as follows:

《Table-94》 Classes not accomplishing the minimum standard number of school hours

Sampled	19(classes)
Total number of school hours accomplished Percentage of the minimum standard	84.3%
Schools spending less than the minimum standard	17 classes (schools)
Schools spending 25 percent less than the minimum standard	4 classes
Vocational technical subjects Percentage of the minimum standard	85.2%
Schools spending less than the minimum standard	14 classes (schools)
Schools spending 25 percent less than the minimum standard	6 classes (schools)

3) Major technical subjects

According to the school hour allocation prescribed by the Ministry of Education (M.O.E. Ordinance No. 67), more than 315 school hours should be allocated each year to vocational and technical subjects in the first grade and over 385 school hours in the second and third grades. These school hours are equivalent to 30 percent of the total number of school hours allocated to all subjects. It also suggests that over nine school hours should

《Table-95》 Status of accomplishment of school hours each near in vocational and technical subjects

Sampled	19 classes
Total number of subjects	57 classes
Average number of subjects per class	9.2 subject matters
Maximun number of subjects per class	14 subject matters
Minimum number of subjects per class	5 subject matters
Average number of school hours spent each year (A)	325.1(class hours)
Average number of school hours spent each year per subject matter	35.5(class hours)
Number of subjects for which less than 10 school hours are spent each year (average per class)	2.1 subject matters (22.8% percent of total number of subject matters)
Percentage of school hours spent to the minimum standard	85.2%
Average number of school hours spent in practical training (B)	95.3 hours
Percentage of school hours spent in practical training (B/A×100)	29.3%

be allocated each week to vocational and technical subjects in the first grade and over eleven school hours in the second and third grades. Therefore, the average number of school hours allocated to each grade is approximately 10.3 school hours a week or 41.2 school hours a month. The status of the accomplishment of school hours in vocational and technical subjects is shown on the following table.

The table above shows that all nineteen schools sampled are teaching 57 vocational and technical subjects. The maximum number of vocational and technical subjects taught each year in a class is fourteen, the minimum five, and the average 9.2.

The yearly average of school hours spent on vocational and technical subjects is 325.1 which is no more than 85.2 percent of the minimum standard. This means that the actual number of hours spent is 14.8 percent less than the minimum standard. The yearly average of school hours spent per class in practical agricultural training is 95.3 which is no more than 29.3 percent of the yearly average of school hours required for all vocational and technical subjects (325.1 hours).

The average vocational and technical subjects per class is 9.2 and the yearly average of school hours per class is 325.1. Therefore, the yearly average number of school hours per vocational and technical subject is 35.5 hours. This means that approximately one school hour is spent on one vocational and technical subject per week.

Especially, less than ten school hours are spent each year on one major vocational and technical subject. So few hours makes it almost impossible to cover the required subject matter. The average vocational and professional subjects per class on which less than ten school hours are spent each year is 2.1 hours which is roughly 22.8 percent of the total number of vocational and technical subjects required.

4) Compulsory and elective subjects

The table below shows the status of the accomplishment of compulsory and elective subjects. According to the table, school hours are not allocated to each subject on a sound basis. The unsound allocation of school hours must be rectified for a sound education in citizenship.

《Table-96》 Status of school hours spent each year for compulsory and elective subjects

Sampled	19 classes
Average number of school hours spend each year	676.3 hours
Percentage of shool hours spend to the minimum standard	81.6%

As referred to the table above, the average number of school hours spent each year for compulsory and elective subjects is 676.3 which is no more than 81.6 percent of the minimum standard required.

The number of school hours spent on each compulsory and elective subject is below the minimum standard number of school hours required. Particularly, hours spent on the national language, music and fine arts are far below requirements. Even though at least one school hour is needed each week for music and the fine arts in the first and second grades, time actually spent is only 0.52 hours. Especially, many more hours were found to have been spent on English and mathematics than on the national language.

《Table-97》 Status of the accomplishment of weekly allocated school hours by compulsory and elective subject

Subject matter	Findings	Standard number of school hours required
National language	2.78	3.70
Mathematics	3.20	4.00
Social studies	3.66	1.60
Science	3.10	1.33(average for three years)
Physical education	1.57	1.00
Music and fine arts for the 1st and 2nd grade only	0.52	2.00 1.33(average for three years)
English	3.30	0.25

*Four weeks a month and thirty-five weeks a year

2. Effects of the education currently employed graduates received at agricultural schools.

a. Varieties of agricultural education offered by agricultural schools.

Major courses in the agricultural field offered by agricultural high schools and colleges, as described in the foregoing, must be of assistance to the future activities of graduates. If the major courses in the agricultural field offered by agricultural high schools and colleges do not prove of help in the future occupational activities of graduates, those subjects which are of practical help must be given more emphasis. To identify how major courses in the agricultural field are offered by the agricultural school and to what extent they help graduates in their occupational activities will be of great assistance in making suggestions for the improvement of agricultural education.

The following table shows how major courses in the agricultural field are offered by agricultural schools.

《**Table-98**》 Evaluation of the agricultural education given by agricultural high schools

Type of agricultural education	1953		1954		1955		1956		1957		1958	
	N	%	N	%	N	%	N	%	N	%	N	%
Too theoretical	37	42.05	46	46.00	61	48.80	47	35.61	95	48.97	56	37.33
Well-balanced between theory and practice	31	35.23	36	36.00	43	34.40	55	41.67	58	29.90	66	44.00
More practice-centered than theory-centered	9	10.23	7	7.00	8	6.40	8	6.06	18	9.28	8	5.33
No practice at all	7	7.95	5	5.00	4	3.20	10	7.58	7	3.61	3	2.00
Others	2	2.27	3	3.00	6	4.80	6	4.54	12	6.19	13	8.67
No response	2	2.27	3	3.00	3	2.40	6	4.54	4	2.06	4	2.67
Total	88	100.00	100	100.00	125	100.00	132	100.00	194	100.00	150	100.00
	7.24		8.23		10.29		10.86		15.97		12.35	

Types of agricultural education	1959		1960		1961		1962		**Total**	
	N	%	N	%	N	%	N	%	N	%
Too theoretical	47	37.60	44	35.77	37	38.54	27	32.93	497	40.91
Well-balanced between theory and practice	57	45.60	56	45.53	37	38.54	31	37.80	470	38.68
More practicecentered than theory-centered	8	6.40	9	7.32	9	9.38	14	17.07	98	8.06
No practice at all	6	4.80	3	2.44	3	3.13	1	1.22	49	4.03
Others	5	4.00	8	6.50	8	8.33	6	7.32	69	5.68
No response	2	1.60	3	2.44	2	2.08	3	3.66	32	2.63
Total	125	100.00	123	100.00	96	100.00	82	100.00	1 215	99.99
	10.29		10.12		7.90		6.75		100.00	

i) Agricultural high school graduates

Most persons who graduated from agricultural high schools during the past ten years from 1953 to 1962 responded that most of the agricultural education they received was biased with respect to theory or it was offered on an equal footing with theory and practice. Those who replied that the agricultural education they received was biased toward theory constitute 40.91 percent and the others 38.68 percent. Thus, no significant difference between them was found (t=.70).

Those who replied that the agricultural education they received was biased toward theory were found to number many among graduates before 1957 and those who said this was not so were found to number many among graduates after 1957. Those who responded that the agricultural education they received was biased toward theory ranged from 42 to 49 percent of all graduates up to 1957, except those of 1956, while those who replied that this was not so were found to range from

37 to 39 percent of the total number of graduates after 1958. And those who responded in the same way were found to be 32.93 percent of the total number of 1962 graduates.

Those who responded that agricultural education was offered them with equality for theory and practice were found to increase gradually year by year but graduates after 1961 who held the same view were found to have an inclination to decrease in number.

In particular, those graduates who responded that the agricultural education they received was biased toward practice were found to increase after the 1961 class and to be many especially among graduates for 1962. Those who responded thus were found to be 17.07 percent of the total number of the graduates in 1962.

Particularly, the number of graduates who replied that no practice was offered was found to be the largest among graduates of in 1953, 7.95 percent. However, the ratio of graduates who responded thus was found to decrease year by year and of graduates for 1962 they constituted 1.22 percent of the total number of graduates.

In view of such facts, it may be concluded that agricultural education tends to place more emphasis on practice than on theory. Such a trend is very much due to the continous efforts of education supervisors and of agricultural high school teachers to improve the methods of agricultural education. However, from the fact that those who replied that the agricultural education they received was biased toward theory constituted 32.93 percent of all graduates even in 1962, it may be inferred that many factors for improvemet still remain in agricultural education.

《Table-99》 Evaluation of the specialized education of agricultural colleges

Method of agricultural education	1953		1954		1955		1956		1957		1958	
	N	%	N	%	N	%	N	%	N	%	N	%
Too theoretical	14	58.33	12	66.67	20	50.00	31	54.39	36	70.59	29	52.73
Well-balanced between theory and practice	5	20.83	4	22.22	10	25.00	13	22.81	6	11.76	18	32.73
More practice-centered than theory centered	—	—	—	—	1	2.50	2	3.51	1	1.96	1	1.82
No practice at all	5	20.83	—	—	9	22.50	9	15.79	6	11.76	3	5.45
Others	—	—	1	5.56	—	—	1	1.75	2	3.92	3	5.45
No response	—	—	1	5.56	—	—	1	1.75	—	—	1	1.82
Total	24	99.99	18	100.01	40	100.00	57	100.00	51	99.99	55	100.00

Method of agricultural education	1959		1960		1961		1962		Total	
	N	%	N	%	N	%	N	%	N	%
Too theoretical	26	60.46	53	69.73	45	62.50	28	43.75	294	58.80
Well-balanced between theory and practice	13	30.23	17	22.37	24	33.33	31	48.44	141	28.20
More practice-centered than theory centered	—	—	1	1.32	1	1.39	1	1.56	8	1.60
No practice at all	4	9.30	4	5.26	2	2.78	1	1.56	43	8.60
Others	—	—	1	1.32	—	—	2	3.13	10	2.00
No response	—	—	—	—	—	—	1	1.56	4	0.80
Total	43	99.99	76	100.00	72	100.00	64	100.00	500	100.00

2) Agricultural college graduates

Agricultural college graduates who responed by saying that the agricultural education they received was biased toward theory constituted 58.80 percent, while those who replied that it was equ-

ally theoretical and practical constituted 28.20 percent. From this fact, it may be inferred that the agricultural education offered by agriculture colleges has been generally biased toward theory. However, analyzed by year of graduation, the ratio of the graduates who responed that agricultural education was equally theoretical and practical was found to increase as the years passed and thus trend has continued to the present.

Therefore, it may be inferred that agricultural education in agricultural colleges is gradually inclining toward greater emphasis on practice.

The ratio of agricultural college graduates during the ten years between 1953 and 1962, except those of 1962, who responded that the agricultural education they received was biased toward theory or that it offered nothing practical at all was found to range from 60 to 80 percent of the total number of graduates.

However, the ratio of those who responed that agricultural education was equally theoretical and practical was found to gradually increase as the years passed until the present. In other words, those who responded that agricultural education was equally theoretical and practical, who constituted no more than 22.83 percent in 1953, were found to total 48.44 percent of all graduates of 1962.

3) Summary

Remarkable changes have been made in agricultural education starting from around 1957 or 1958. Agricultural education, which had been biased toward the theoretical gradually, came to place equal emphasis on both theory and practice and in recent years it has change to place greater emphasis on practice rather than on theory. The agricultural educational offered by agricultural college, which also was formerly biased toward the theoretical, gradually came to place more emphasis on the practical. Such a trend has become more remarkable as the years passed and up to date. In conclusion, it may be held that remarkable changes have been brought about in the agricultural education offered by agricultural schools.

b. Degree of assistance education offered by agricultural schools gives to agricultural school graduates in finding employment.

Analyzing the degree of assistance education offered by agricultural schools gives to graduates in finding employment, some agricultural school graduates responded that it was of some help. However, most agricultural college graduates responded that it was a great help. Both agricultural high school and college graduates who responded that the agricultural education they received was of some help constituted a higher ratio than that of those who maintained the opposite.

1) Agricultural high school graduates

Agricultural high school graduates who responded that the agricultural education they received was of great help constituted 35.73 percent and those who responded that it was of some help 42.94 percent, to give a total of 78.67 percent for this opinion. Those who responded that it was of considerable help constitued 6.09 percent and those who responded that it was of little help, including those who responded that it was of no help at all, 11.82 percent. Thus, most employed agricultural high school graduates responded that the agricultural education they received was of assistance to them in finding an occupation.

Most agricultural high school graduates who responded that the agricultural education they received was of great help are engaged in the agricultural field and in farming and very few of those who thus responded are engaged in occupations other than agriculture and farming. The agricultural graduates now responded that the agricultural education they received was either of great help or that it was of some help constitued 80.55 percent. Agricultural high school graduates engaged in fields related to agriculture who responded that it was of great help constituted 50.35 percent the highest ratio of all when compared with those in other occupations. And 87.23 percent of agricultural high school graduates engaged in fields related to agriculture responded that agricultural education they received was either of great help or that it was of some help to them in finding employment. Those engaged in occupations other than agriculture and farming who responded that the

agricultural education they received was of help to them in finding employment censtitued a lower ratio as compared with that for those employed in agriculture and farming. Anyhow, 68.77 percent of all agricultural high school graduates responded that the agricultural education they recived was of help to them in finding employment. From this fact, it may be concluded that the agricultural education offered by agricultural high schools is of some assistance to graduates in finding employment whatever the occupation they selected.

《**Table-100**》 Degree of assistance agricultural high school education gave to graduates in finding their first job after graduation

Occupation / Assistance	Agriculture		Occupations related to agricultural		Other occupations		Total	
	N	%	N	%	N	%	N	%
Very great	236	34.25	71	50.35	80	31.62	387	35.73
Great	319	46.30	52	36.88	94	37.15	465	42.94
Considerable	36	5.22	6	4.26	24	9.49	66	6.09
Some	39	5.66	6	4.26	25	9.88	70	6.46
Absolutely none	30	4.35	4	2.84	24	9.49	58	5.36
No response	29	4.21	2	1.42	6	2.37	37	3.42
Total	689	99.99	141	100.01	253	100.00	1 083	100.00

2) Agriculture college graduates

The great majority of agricultural college graduates responded that the agricultural education they received was of assistance to them in finding employment in much the same way as agricultural high school graduates replied. However, the ratio of agricultural college graduates who responded thus was found to be higher than that for agricultural high school graduates. Employed agricultural college graduates who responded that the agricultural education they received was of great help constituted 56.58 percent and those who replied that it was of some help, 32.92 percent. Accordingly, agricultural college graduates who responded either way were found to total 89.50 percent. Thus, about 90 percent of all employed agricultural college graduates responded that the agricultural education they received was of help to them in finding employment.

Most of those who responded that the agricultural education they received was most helpful to them in finding employment were found to be engaged in agriculture and its related fields, the highest ratio among those engaged in farming and the lowest among those engaged in other occupations. Agricultural college graduates engaged in farming who responded either way, that the agricultural education they received was of great help or that it was of some help, were found to total 83.96 percent. Those engaged in fields related to agriculture who responded that it was of great help constituted 64.19 percent, the highest ratio when compared with those employed in other fields. And 95.27 percent of the agricultural college graduates engaged in fields related to agriculture responded either way. Those engaged in occupations other than agricultural who responded that the agricultural education they received was of help to them in finding employment constituted a lower ratio compared with that for those in the agricultural and farming field. Anyhow, 76.19 percent of all agricultural college graduates responded that the agricultural education they received was either of great help or of some help.

From the fact that most agricultural school graduates responded that the agricultural education they received was in someway helpful to them in their finding of employment, it may be concluded that the agricultural education offered by the agricultural schools has been effective. Particularly, the types of employment for the finding of which agricultural education proved most helpful to graduates was found to be in occupations related to

《**Table-101**》 Degree of assistance agricultural college education was to graduates in finding their firts job after graduation

Occupation / Assistance	Agriculture		Occupations related to agriculture		Other occupations		Total	
	N	%	N	%	N	%	N	%
Very great	50	47.17	190	64.19	35	41.67	275	56.58
Great	39	36.79	92	31.08	29	34.52	160	32.92
Some	6	5.66	8	2.70	5	5.95	19	3.91
Little	4	3.77	5	1.69	8	9.53	17	3.50
None at all	2	1.89	1	0.34	7	8.33	10	2.06
No response	5	4.72	—	—	—	—	5	1.03
Total	106	100.00	296	100.00	84	100.00	486	100.00

agriculture. Agricultural college graduates were much more affirmative in their opinion that agricultural education was helpful to them in finding employment, regardless of type of employment, than agricultural high school gradates were.

c. The reason agricultural education was of assistance in finding employment.

Thus, an analysis was made to identify the degree of assistance education offered by agricultural schools to graduates in thier finding of employment. Next, it is essential to identify the phases of agricultural education which were helpful and the the phases which were of no help to graduates in finding employment in order to establish effective educational policies.

Analyzing the phases of agricultural education which were helpful to employed agricultural school graduates in finding a job, most responded that the theoretical and fundamental knowlege acquired through agricultural education was helpful in employment examination. A few replied that the contents of major subjects and most compulsory subjects were helpful to them in finding specific employment.

Some responded that the agricultural education they received was of no help in finding employment because the subject matters taught in school were not well organized and because greater emphasis was placed on theoretical and fundamental knowlege. Another reason was that the employment they wanted had no close connections with the major coures of their studies.

3. Correlation between the contents of agricultural education and the present occupation of graduates.

School education, especially vocational education, is of value only if it can be applied to the ocupational activities of graduates. Considering this the other way round, the currculum for vocational schools must be drawn up and taught in such a way that the graduates will be able to apply what they learn in their future employment.

Most agricutural high school and college graduates stated that the agricultural education they recieved hase close connections with occupational efficiency. Particularly, they expressed the fact that the main courses of study (agricultural subject matters) are much more helpful to occupational efficiency than general compulsory subjects (liberal courses).

a. General trends

Agricultural high school graduates who expressed the opinion that general compulsory subjects have a connection with their present occupation constituted 68.89 persent, while those who expressed the opinion that agricultural subjects have a connection with their present occupation constituted 85.68 percent. Agricultural college graduates who expressed the opinion that general compulsory subjects have a connection with their present occupation constituted 71.35 percent, while those who expressed the opinion agricultural subjects have a connection with their present occupation constituted 81.58 percent.

《**Table-102**》 Importance of courses in the performance of present occupational duties

Courses	Agricultural high schools		Agricultural colleges	
	Important	Not important	Important	Not important
General compulsory courses	68.89	31.11	71.35	28.65
Major courses (agriculture)	85.68	14.32	81.58	18.42

b. Subject matters which have close connections with occupational efficiency.

Table shows the order of priority in the importance agricultural high school and college graduates gave to sbujects by types of occupation. As for those engaged in other occupations, agricultural subjects were excepted. The subjects which these graduates suggested important were found to range from 70 percent to 90 percent all subjects-taught. Accordingly, an analysis was made solely on the subjects considered important.

1) Major ceurse of study(agricultural subjects)

The priority which graduates engaged in farm-

ing opined has connectson with occupational efficiency comes in the following order : soil and fertilizers, cereal crops, zootechny, lab work and practice, harmful insects and agricultural chemicals, horticulture, agricultural processing, introduction to agriculture, pathology and the introduction to zootechny, all of which are connected with practical techniques and skills. The priority for subjects which graduates opine has no connection with occupational efficiency come in the following order : forestry, forestry civil engineering, zootechny, afforestation and the physiology of domestic animals.

The subject which those who were engaged in occupations related to agriculture suggested have most important connections with their present occupation was lab work and practice. The priority for subjects which these graduates opined have connections with their present occupation come in the following order : cereal crops, soil and fertilizers, zootechny, introduction to agriculture, harmful insects and agricultural chemicals, horticulture, forestry, pathology the study of micro-organisms and breeding. The priority for subjects which graduates suggested have no connections with their present occupation come in the following order : the study of micro-organisms, surveying, pathology, introduction to zootechny and flower growing.

《**Table-103**》 Importance of agricultural high school courses in performance of occupational duties

Order	Graduates engaged in agriculture	
	Not important	Important
1	Forestry	Soil and fertilizers
2	Forestry civil engineering	Cereal crops
3	Zootechny	Zootechny
4	Afforestation	Lab work and practice
5	Physiology of domestic	Harmful insects and agricultural chemicals
6	Sericulture	Horticulture
7	Agricultural engineering	Agricultural processing
8	Forestry laws	Introduction to agriculture
9	Breeding of species	Pathology
10	Processing of forestry products	Introduction to zootechny
11	Fruit	Fruit
12	Livestock food processing	Livestock breeding
13	Agricultural processing	Forestry
14	Horticulture	Breeding
15	Medicinal herbs	Forage crops

Order	Graduates engaged in occupations related to agriculture	
	Not important	Important
1	Micro-organisms	Lab work and practice
2	Surveying	Cereal crops
3	Pathology	Soil and fertilizers
4	Introduction to zootechny	Zootchny
5	Flower growing	Introduction to agriculture
6	Silk reeling and weaving	Harmful insects and agricultural chemicals
7	Steel reinforcement	Horticulture
8	Anatomy and pathology of silkworms	Forestry
9	Flower-pot gardening	Pathology
10	Sericulture	Micro-organisms
11	Mulberry cultivation	Breeding of species
12	Agricultural irrigation	Farm management
13	Applied dynamics	Introduction to zootechny
14	Zymology	Livestock freeding
15	Agricultural processing	Forage crops
16	Forestry laws	Fruit
17	Silkworms and genetics	
18	Material operation	

According to calculations by means of the Spearman formula, the correlation between the the order of priority for the importance of subjects was 0.82. Acoordingly, it may be inferred that those engaged in farming and its related fields gave priority in importance to similar subject matters.

The following table shows the contents of subjects which agricultural college graduates opined have connection with their present occupation.

The priority which graduates engaged in farming suggested have important connections with occupational efficiency comes in the following order: soil and fertilizers, lab work and practice, cereal crops, zootechny, livestock breeding, introduction to agriculture, harmful insects and agricultural chemicals, forage crops horticulture, and the study of micro-organism.

Priority in subjects which these graduates suggested as not important in their connections with occupational efficiency come in the following order: the study of micro-organisms, flower growing surveying, forestry civil engineering, agricultural civil engineering, flower-pot gardening and the processing of forestry products.

The priority for subjects which graduates engaged in occupations related to agriculture suggested have important connections with occupational

《**Table-104**》 Importance of agricultural college courses in performance of occupational duties

Order	Graduates engaged in agriculture		Graduates engaged in occupations related to agriculture	
	No timportant	Improtant	Not important	Important
1	Micro-organisms	Soil and fertilizers	Surveying	Lab work and practice
2	Flower growing	Lab work and practice	Micro-organisms	Soil and fertilizers
3	Surveying	Cereal crops	Flower growing	Cereal crops
4	Forestry civil engineering	Zootechny	Processing of forestry products	Micro-organisms
5	Agricultural civil engineering	Livestock breeding	Sericulture laws	Introduction to agriculture
6	Flower-pot gardening	Introduction to agriculture	Zootechny	Zootechny
7	Processing of forestry products	Harmful insects and agricultural chemicals	Flower-pot gardening	Harmful insects and agricultural chemicals
8	Forestry	Forage crops	Forestry	Ereeding
9	Breeding of species	Horticulture	Agricultural civil engineering	Forage crops
10	Sericulture	Micro-organisms	Forestry civil engineering	Farm management
11	Introduction to agriculture	Farm management	Forest laws	Biochemistry
12	Biochemistry	Introduction to zootechny	Introduction to zootechny	Meteorology
13	Pathology of silk worms	Breeding of species	Farm equipments	Horticulture
14	Silk reeling and weaving	Meteorology	Agricultural processing	Introduction to zootechny
15	Sericulture laws	Fruits	Sericulture	Livestock breeding
16	Agricultural processing		Fruit	
17	Afforestation		Steel-reinforcement	
18	Anatomy of domestic animals		Silk-reeling and weaving	
19	Mulberry cultivation			
20	Silkworms and genetics			

efficiency comes in the following order: lab work and practice, soil and fertilizers, cereal crops, the study of micro-organisms, introduction to agriculture, zootechny, harmful insects and agricultural chemicals, breeding, forage crops and farm management. The priority for subjects which graduates suggested have no imprant connections with occupational efficency comes in the following order: surveying, the study of micro-organisms, flower-growing the processing of forestry products, sericulture laws and zootechny.

According to calculations by the Spearman formula, the correlation between the order of priority concerning the importance of subjects as given by graduates who were engaged in occupations related to agriculture is 0.78. Accordingly, it may be inferred that those engaged in occupations related to agriculture give priority of importance to similar subjects.

2) General liberal, compulsory subjects

The following table shows the degree of the importance of general, liberal, compulsory subjects in relation to occupational efficiency.

《**Table-105**》 Importance of general, compulsory courses in the performance of occupational duties

Order	Agricultural high school		Agricultural college	
	Not important	Important	Not important	Impor[t]ant
1	Music	Natural science	Physical education	English
2	Fine arts	Korean language	Music	Natural science
3	2nd foreign language	Mathematics	Fine arts	Statistics
4	Physical education	Social studies	2nd foreign language	Korean language
5	Natural science	English	Social studies	Mathematics
6	English	Physical education	Mathematics	Social studies
7	Mathematics	Statistics	Korean language	Physical education
8	Social studies	2nd foreign language	English	2nd foreign language
9	Korean language	Music	Statistics	Music
10	Statistics	Fine arts	Natural science	Fine arts

As seen on the above table, priority in subjects which agricultural high school graduates suggested to have important connections with occupational efficiency come in the following order: natural science, Korean language, mathematics and social studies. Priority in subjects which graduates suggested do not have important connections with occupational efficiency come in the following order: music and fine arts. Priority in subjects which agricultural college graduates suggested have important connectios with occupational efficiency come in the following order: English, natural science statistics and Korean language. And priority in subjects with graduates suggested do not have important connections with occupational efficiency come in the following order: physical education, music, and fine arts.

It is natural, in view of the types of occupation held by graduates, that they are generally inclined to indicate that such subjects as music, fine arts and physical education are not important. It is noteworthy that agricultural college graduates give top priority to English and statistics which were not held to be important by agricultural high school graduates. This results from the fact that such subjects as English and statistics have a very important place in the professional success of college graduates.

c. Contents of subjects most conducive toward occupational efficiency

1) Subjects conducive to occupational efficiency

The following table shows those subjects agricultural school graduates indicate to be most conducive to occupational efficiency.

◎Agricultural high school graduates

Analyzing the subjects taught at agricultural high schools which graduates of such schools indicated are most conducive to occupational efficiency by types of occupation, priority with respect to helpfulness given by those engaged in farming comes in the following order: soil and fertilizers. cereal crops, introduction to agriculture, introduction to zootechny, horticulture, harmful insects and agricultural chemicals and farm management

《Table-106》 Courses considered by agricultural high school graduates to be helpful in the performance of their present occupational duties

Order	Graduates engaged in agriculture	Graduates engaged in occupations related to agriculture
1	Soil and fertilizers	Soil and fertilizers
2	Cereal crops	Cereal crops
3	Introduction to agriculture	Introduction to agriculture
4	Introduction to zootechny	Harmful insects and agricultural chemicals
5	Horticulture	Farm management
6	Harmful insects and agricultural chemicals	Introduction to zootechny chemicals
7	Farm management	Horticulture
8	Livestock breeding	Afforestation
9	Laboratory work and practice	Introduction to Veterinary science
10	Forestry	Forestry
11	Breeding of species	Laws and ordinances concerning forestry
12	Forestry civil engineering	Clinics
13	Sanitation of domestic animals	Surveying
14	Sericulture	Sericulture
15	Pathology	Livestock breeding

《Table-107》 Courses considered by agricultural college graduates to be helpful in the performance of their present occupational duties

Order	Graduates engaged in agriculture	Graduates engaged in occupations related to agriculture
1	Soil and fertilizers	Cereal crops
2	Cereal crops	Soil and fertilizers
3	Zootechny	Zootechny
4	Horticulture	Agricultural chemicals
5	Agricultural chemicals	Farm management
6	Cultivation	Surveying
7	Farm management	Sericulture
8	Livestock breeding	Horticulture
9	Fruit	Cereal crops and breeding of species
10	Afforestation	Physiology of domestic animals
11	Veterinary science and medication	Veterinary science and medication
12	Surveying	Pathology of domestic animals
13	Forage crops	Mathematics for engineering
14	Forestry	Introduction to veterinary science
15	Physiology of domestic animals	Agricultural economics
16	Cereal crops and breeding of species	Introduction to of veterinary surgery
17	Flower-pot gardening	

The priority given by those engaged in occupations related to agriculture comes in the following

order: soil and fertilizers, cereal crops, introduction to agriculture, harmful insects and agricultural chemicals, farm management, introduction to zootechny, horticulture, afforestation and introduction to veterinary science.

◎Agricultural college graduates

Priority in subjects, as indicated by agricultural college graduates engaged in farming, to be conducive to occupational efficiency come in the following order: soil and fertilizers, cereal crops, zootechny, horticulture, agricultural chemicals, cultivation, farm management and livestock breeding. Priority in subjects which graduates engaged in occupations related to agriculture indicate as conducive to efficiency come in the following order: cereal crops, soil and fertilizers, zootechny, agricultural chemicals, farm management, surveying and sericulture.

According to an analysis of the foregoing, it can be concluded that the subjects which agricultural high school graduates indicated as conducive to occupational cefficincy heave much in common with those which agricultural college graduates indicated to be so. Likewise, the subjects which those engaged in farming indicated to be conducive to occupational efficiency had much in common with those thus described by those engaged in occupations related to agriculture. Thus, such sujects as soil and fertilizers, introduction to agriculture, cereal crops, horticulture, zootechny and harmuful insects agricultural chemicals were indicated to be conducive to efficiency in all occupations held by these graduates irrespective of whether they graduated from college or high school.

The following table shows the general liberal compulsory subjects graduates indicated are conducive to occupational efficiency.

《**Table-108**》 General compulsory courses considered by graduates to be conducive to occupational efficiency

Order	Agricultural high schools graduates	Agricultural college graduates
1	Korean language	English
2	Mathematics	Korean language
3	Social studies	Biology. natural science
4	English	Mathematics
5	Biology, natural science	Social studies
6		Second foreign languages

The priority in general liberal compulsory subjects as indicated by agricultural high school graduates to be conducive to occupational eficiency comes in the following order: Korean language, mathematics, social studies, English and Biology. And the priority in general liberal compulsory subjects agricultural college graduates indicated thus comes falls in the following order: English, Korean language, Biology and a second foreign language. Thus, the general liberal compulsory subjects which agricultural high school graduates indicated as conducive to occupational efficiency had little in common with those thus indicated by agricultural college graduates. Agriculture college graduates gave top priority to English.

2) Reasons behind helpful nature of subjects

Analyzing the phases of occupational efficiency in which subject matters offered by agricultural schools were helpful, priority in the reasons agricultural high school graduates engaged in farming took is as follows: actual improvement of farming through the farming methods they acquired at school the improvement of rural commuinties and an increasing in agricultural production. Priority for those engaged in occupations related to agriculture are the increase in agricultural production, the improvement of farming methods and office work efficiency.

Priority in the reasons agricultural college graduates engaged in farming took for such helpfulness comes in the following order: the improvement of farming methods and their application, enlightenment in the principles and methods of farming for farmers and agricultural workers and giving advice on the improvement of farm management and of agricultural production.

Priority in the reasons those engaged in occupations related to agriculture took for such helpfulness comes in the followings order: fundamental knowledge concerned with occupational efficiency, helping farmers and others engaged in agriculture by enlightening them and giving advice on the solution to their farming problems, increasing agricultural production, applying fundamental knowl-

edge to the solution of agricultural problems in general and the extermination of harmful insects.

Thus, the major reason for the helpfulness of the subjects both agricultural high schools and college graduates took were the improvement of farming methods and their application, the enlightenment of farmers and assistance to farmers in the solution of their various problems and the giving of advice to farmers on matters concering farming.

d. Contents of subjects and teaching methods desirable for better occupational efficiency.

Priority in the matter of subjects agricultural high school graduates engaged in farming desire to learn more about with the aim of better occupational efficiency comes in the following order: soil and fertilizers, horticulture, harmful insects and agricultural chemicals, introduction to zootechny, cereal crops and introduction to agriculture.

Priority for subjects those engaged in occupations related to agriculture desire to study further comes in the following order: soil and fertilizers, cereal crops, farm management, harmful insects and agricultural chemicals and introduction to agriculture.

Subjects agricultural college graduates desire to study further are as follows.

Priority of subjects agricultural college graduates engaged in farming desire to learn more about comes in the following order: soil and fertilizers, cultivation of agricultural products, study of agricultural chemicals, farm management, cereal crops and breeding of species, and fruit tree gardening.

《**Table-109**》 Subjects matters agricultural high school graduates want to learn more about in order to improve their efficiency in the performance of their present occupational duties

Rank	Graduates engaged in agriculture	Greaduates engaged in occupations related to agriculture
1	Soil and fertilizers	Soil and fertilizers
2	Horticulture	Cereal crops
3	Harmful insects and agricultural chemicals	Farm management
4	Introduction to zootechny	Harmful insects and agricultural chemicals
5	Cereal crops	Introduction to agriculture
6	Introduction to agriculture	Horticulture
7	Farm management	Introduction to zootechny
8	Breeding of species	Pathology
9	Livestock breeding	Beekeeping
10	Pathology	Breeding of species
11	Sericulture	Afforestation
12	Agricultural processing	Agricultural statistics
13	Sanitation of domestic animals	Agricultural processing
14	Outline of veterinary science	Laws and ordenances concerning forestry
15	Methorology	Introduction to veterinary science

Priority in subjects agricultural college graduates engaged in occupations related to agriculture desire to study further are in the follewing order: farm management, soil and fertilizers, statistics, cereal crops, and veterinary anatomy of domestic animals.

Thus, it may be deduced that the subjects agricultural school graduates consider important for occupational efficiency are soil and fertilizers, horticulture cereal crops, introduction to zootechny and harmful insects and agricultural chemicals. And it may also be held that these subjects are key factors in the effective carrying out and improvement of agriculture.

From the viewpoint of teaching methods, the contents of education and other characteristics, the education desired by agricultural school graduates for the benefit of those who will take up similar occupations these graduates now have was identified as follows:

The teaching method desired above all others by

《Table-110》 Subjects agricultural college graduates desire to learn more about in order to improve their efficiency in the performance of their present occupational duties

Rank	Graduates engaged in agriculture	Graduates engaged in related occupations to agriculture
1	Soil and fertilizers	Farm management
2	Cultivation	Soil and fertilizers
3	Agricultural chemicals	Statistics
4	Farm management	Cereal crops
5	Cereal crops and breeding of species	Veterinary and anatomy of demestic animals
6	Fruits	Cereal crops and breeding of species
7	Laboratory work and practice	Agricultural chemicals
8	Livestock breeding	Livestock breeding
9	Introduction to agriculture	Veterinary science and pathology of domestic animals
10	Physiology of cereal crops	Agricultural irrigation
11	Agricultural processing	Fruits
12	Zootechny	Cultivation
13	Farm equipment	Agricultural processing
14	Horticulture	Agricultural economics
15	Micro-organism	Horticulture
16		Veterinary science and medication

agricultural high school graduates engaged in farming, its related occupations and occupations other than agriculture is fundamental theory accompanied by carefully prepared practical training activities. In the second place they desire the extension of school facilities for students' to private study and the introduction of the agricultural techniques and skills of advanced countries.

The type of education desired first of all by graduates is emphasis on professional knowledge and skills with particular stress on major courses along with the cultivation of character by means of the study of general liberal subjects and general learning. Other points desired by graduates is the provision of vocational guidance so as to help students find employment and the giving of opportunities to students to observe farming in operations.

The teaching method desired in the first place by agricultural college graduates engaged in farming is the teaching of fundamental theory accompanied by carefully prepared practical training, as is the case with agricultural high school graduates. The contents of education desired by college graduates is concentration on professional knowledge and skills with special emphasis given to the major course of study so as to foster agricultural professionals. Other points desired is a reorganization of the education system and an extention to the period of college education so as to offer a satisfactory professional agricultural education together with sound theory and necessary techniques.

The teaching method desired with first priority by those engaged in occupations related to agriculture is concentration on the promotion of professional skills by means of the study of the theory accompanied by practical training. The contents of education desired by these graduates is the development of new scientific skills for actual application in one's future employment by means of the study of general liberal subjects.

As shown by table 117, it is true that to date agricultural school graduates have received an agricultural education that was biased toward theory and that vocational guidance has not been offered despite the fact that most students have long seen its need and have desired to receive it. Accordingly, it is recommended that the number of hours spent on agricultural subjects and on practical training be increased to meet the need to foster capable professionals who will contribute much to the development of agriculture, that the curriculum be re-organized to meet the actual needs of rural communities and that general liberal subjects and general education courses be offered in order to cultivate a sound character.

4. Vocational guidance in agricultural high school

Sound vocational guidance is the key to the occupational stability of school graduates, and so effective vocational guidance activities in such vocational schools as agricultural high schools is of significant assistance to graduates in finding employment and also in increasing occupational efficiency. Guidance is most important at the present time when agricultural productivity must be increased in Korea, and for this human resources with qualifications than numerical strength must be secured for the field of agriculture. Accordingly, effective vocational guidance activities are part and parcel of education that is aimed at elevating the qualifications of technical manpower.

This chapter is concerned with the status of vocational guidance activities in agricultural high schools, an evaluation of which was made by means of an analysis of the motives behind graduates. choice of their present varied occupations in an attempt to make recommendations concerning future vocational guidance activities so as to make them effective in securing technical manpower for the field of agriculture and in elevating the qualifications of graduates.

Regardless of occupational type, most employed graduates revealed that they were compelled to choose their present occupations. Therefore, vocational guidance is certainly a necessity, and it is also badly required in order to assist graduates to find suitable employment.

According to the survey conducted by the Central Education Research Institute in 1962, agricultural high schools with plans to conduct vocational guidance constituted 31.6 percent of the total number of agricultural high schools and those which were actually conducting vocational guidance constituted 15.3 percent.[3] Teachers attached to the Departments of Student Affairs in those schools were concerned with vocational guidance.[4] However, vocational guidance activities in agricultural high schools have not been very effective and so graduates desire that vocational guidance be carried out in an effective manner, particularly in such a way as to help them find employment. Moreover, the recommendation was made in the survey that vocational guidance be carried out in a systematic and positive manner. Graduates require agricultural high schools to offer systematic and well-intentioned vocational guidance and to establish follow-up guidance plans to guarantee continued guidance so that they can make a success in their work after graduation.

[3] C. E. R. I., and others, *Rebuilding Secondary Education of Korea*,
[4] *op. cit.*, p. 177.

B. School facilities

School facilities constitute one of the most important supporting conditions for the effectiveness of education. Inadequate school facilities result inadequate school activities. This is particularly true of agricultural schools. Well-equipped school farms and laboratories and various experimental equipment are the key to technical education in agriculture.

The need for special facilities and equipment in school education, especially in agricultural schools, is so pressing that it is no exaggeration to say that without them an agricultural high school is a mere high school.

For this survey, 19 agricultural high schools were sampled to investigate what facilities and equipment they have. Included in the investigation were school farms and laboratories, experimental equipment and tools for agricultural practice.

The National Survey on Secondary Education of Korea adopted the following six items as criteria in the evaluation of school facilities:

① School facilities must be suited to the fulfilment of the curriculum.
② School facilities must be adequate from the viewpoint of safety and health.
③ School facilities must be improved in view of mutual functional coordination.
④ School facilities must be flexible.
⑤ School facilities must be economical.
⑥ School facilities must be clean and well-cared-for.

The following concerns the current status surveyed on the basis of the points described above.

1. Current status of school farms and the laboratories of agricultural high schools.

The present status of school farms and laboratories possessed by agricultural high schools sampled falls into the following categories: One school has a practice farm for five projects on the average, while laboratory equipments possessed by a school are ten types. As to practice farms, eight types is the most and two the least. The number of laboratories ranges from six to 18 on the average.

《**Table-111**》 Possession of farming fields and paddies and agricultural laboratories per school

Classification	Average	Maximum	Minimum
School farm land	4.89	8	2
Laboratories	9.68	18	6

***Surveyed in 19 agricultnral high schools sampled.**

Broken down into more detail, the types of school farms possessed by sampled agriculture high schools are twelve, including paddy and field. possessed by all without exception. Included in these twelve are fish farms, orchards, nurseries and truck farms which are second to paddies and fieds in number and possessed by about half of the sampled schools.

《**Table-112**》 Number of schools possessing various kinds of school farms

Type	Number of schools possessing	Type	Number of schools possessing
Paddy	19	Fish-pond	11
Field	19	Compost storage	4
Orchard	8	Reservior	3
Nursery	8	Threshing site	1
Market		Mulberry field	5
Garden	1	Bamboo forest	1
Forest	8		

***Number of schools sampled : 19**

《**Table-113**》 Area of practice paddy and field per school

Type	Average	Maximum	Minimum
Paddy	23 522 m	45 108 m	1 980 m
Dry field	16 500 m	64 096 m	3 505 m

The kinds of laboratories now serving various practices in agriculture at Korean agricultural schools are many, as shown in the table below. Only few agricultural schools are fortunate enough to have all of these. Possessed by most schools are pigsties, henhouses, greenhouses and rabbit-coops, etc.

《**Table-114**》 Types of laboratories and annex buildings possessed by the schools sampled

Type	Number of the schools possessing	Type	Number of the schools possessing
Silkworm room	8	Natural-bed	1
Cowshed	15	Hot-bed	3
Pig house	18	Home economics room	1
Hen-house	18	Warehouse	8
Sheep shed	7	Experimentation room	1
Farm management room	9	Meteorological observation post	3
Farm storage	10	Harvest store	1
Hatching room	6	Rice-cleaning shed	1
Rice storage	4	Livestock management room	1
Greenhouse	16	Feed storage	3
Dormitory (boarding house)	2	Veterinary clinic	1
Vinyl house	6	Compost burn	2
Rabbit coop	15	Farm shop	3
Chlorella	1	Human manure storage	1
Silo	7	Fertilizer storage	2
Sheepfold	3	Motor room	1
Farm employees house	2	Agricultural science hall	1
Food processing room	4		

*** Number of schools sampled : 19**

2. Current status of equipment, machinery plants and domestic animals for experimental use.

For the convenience of the survey, domestic animals were classified into two kinds, big and small, plants into two kinds, fruit and non-fruit and equipment and machinery into size and purpose. The following table shows the average, maximum and minimum number of those possessed by the agricultural high schools sampled.

《**Table-115**》 Number of equipments, machinery, plants and domestic animals in each school sampled

Type	Average	Maximum	Minimum	Number of school not possessing
Big animals for experimental use	4.05	7	2	—
Small animals use	5.05	7	1	—
Fruit trees use	1.63	6	0	4
Non-fruit trees use	1.42	6	0	5
Large farm implements	5.10	9	2	—
Small use	6.63	19	2	—
Ordinary farm implements	14.6	21	11	—
V.H. implmeents	2.36	8	0	7
Bee-keeping equipment	3.26	8	1	—
Survey instruments	10.10	18	0	1
Veterinary instru-ments	2.42	13	0	3
Mulberry cultivation implements	1.78	4	0	6
Greenhouse implem-ents	2.78	4	0	1
Farm shop implements	9.57	70	0	6

For further details of each refer to the following:

① Big animals for experimental use

The most common animals kept by the schools sampled are pigs, sheep and cows.

② Small animals

The least is one kind, while seven is the most. As to the kinds possessed, chickens, ducks and rabbit are universal in all schools.

③ Fuit trees

According to the table, some schools have no fruit trees. Grape vines and apple trees are most common.

④ Non-fruit trees

It is noted that the average is only 1.42 and that the number ef schools not possessing same is five.

⑤ Large agricultural implements

Implements in this category include various kinds of machinery and even vehicles for outdoor experimental use.

The most common kinds used by schools were found to be plowing tools, and the like. Few shools use rice-cleaning machinery and incubators.

⑥ Small agricultural implements

Some schools have no more than two. What most sclools have are scales, standard measures and sieves.

⑦ Small farm implement

Possessed most by the agriculture schools are sprayer, sickle, shovel, hoe, straw-cutter, hook, ang pruning shears.

⑧ Hot houses

Only eleven schools of the nineteen use the V. H. The most commonly used materials are the mainpost, window posts, vinyl windows, etc.

⑨ Bee-keeping implements

Bee-keeping instruments available to most school are beehives and bee masks.

⑩ Survey instruments

The most varied kinds of surveying implements used by the sampled schools are 18 whereas the least are four. Therefore, it can be deduced that each school sampled uses ten kinds of surveying implements on the average. Drawing instruments, T measures, triangular measures, magnetic needles rain gauges, etc. are most commonly used by agricultural schools.

⑪ Veterinary instruments

Most of the schools sampled use two to three kinds of veterinary instruments and eight sampled school use such veterinary instruments as the thermometer.

⑫ Green house implements

All nineteen schools sampled use such facilities as flower pots, seed flats and benches,

⑬ Farm shop implements

The farm shop implement is mainly used in the farm shop where things necessary for farming and farm life are made.

Twelve schools use some farm shop implements available in farm shops and 58 kinds are used by each school on the average.

C. Agricultural high school teachers

1. Qualifications of teachers

Resulting from the misunderstanding of its pro-

fessional character, that the teaching profession is a kind of profession, it is the opinion that everybody is qualified if he or she has knowledge of the subject matter concerned.

To be a teacher is like being a medical doctor, lawyer or engineer. A teacher must be equipped with professional knowledge and qualifications and a good teacher must cultivate himself on a long-term basis. Moreover, a teacher is not an all-rounder in the field of education. The teaching profession requires steady conviction about education rather than professional cultivation and those who are engaged in the teaching profession must stimulate students to become the mainstay of a changing society.

Particularly, the agricultural teacher must be equipped with fundamental knowledge relevent to practical skill covering every phase of agriculture. Moreover, he must keep up with advances in knowledge and techniques with which he should help solve various problems in agricultural practice in the community.

Therefore, the education of agriculture teachers is very important in order to elevate their qualifications. Agricultural teachers now in service frankly state that the college education they received was biassed toward theoretical knowledge in neglect of practical skill. They also admit that college education lacks essential preparation for a satisfactory technical education helpful in fostering those who are capable of full contribution to the development of the community after graduation. Some agricultural high school graduates are inferior, therefore, to farmers who have no school education, in the practical phases of agriculture.

Most students enter agricultural high schools with no desire to take up an agricultural occupation. As described in Chapter III, the motive behind their choice is that they depend on parental and teacher advice and recommendation and they were compelled to enter such schools so as to help their parents on the farm or there is only an agricultural high school in their community. Agricultural high schools are responsible for having their students comprehend the objectives of an agricultural education and bear a steady conviction in their chosen field. However, current educational practices in agricultural high schools are not so. The lack of vocational teachers' skill in practical training and their attitude toward agriculture are factors which bring about such a failure. On the other hand, the incompetence of vocational teachers results from their college education which placed emphasis on professional technical training rather than on practical agricultural teacher training. Of course, many pursue educational courses at college. However, the hours allocated to this subject are insufficient and most students take the course not in preparation for teaching itself, but for finding a job.

Consequently, the lack of teacher qualifications and convictions brings about inefficiency in teaching and this also cannot be helpful for teachers themselves in guiding graduates to work for the good of the community. On the contrary, some teachers have a steady conviction, practical skill and profound theory, and make great efforts as leaders in the community. Such teachers are a good influence on their colleagues, and cooperation and good human relations among them help elevate teacher qualifications.

2. In-service education for agricultural high school teachers

In order to be successful teachers, for teaching is a professional occupation, it is necessary to acquire new educational techniques and a good understanding of students in a changing society.

Needless to say, if teachers remain in teaching with only the knowledge and skills acquired through their own preparatory education they will be backward in respect to good teaching. Those teachers alone who make continued efforts to teach better and to cultivate their teaching profession can be expected to make a success of teaching. Therefore, in-service education is emphasized in light of the fact that the effective elevation of the qualifications of teachers can be expected only by means of in-service education. Thus, in-service education should be carried out under systematic

planning and with definite goals.

As described in the foregoing, Korea agricultural teachers have been chiefly trained in agricultural colleges, and agricultural professional institutes in which more than sixteen credits in teaching subjects are required[5]. Therefore most active agricultural teachers are agricultural college graduates. Meantime, it may be that agricultural teachers have not received the preparatory education necessary for agricultural teachers because education in agricultural colleges is centered on fostering agricultural professionals. Of course, it is true that they obtained more than sixteen credits in teachings subjects[6] during college days, but the teacher education they received was indeed meager.

Therefore, most active agricultural teachers are found to lack practical training in prepration for teaching due to insufficient teacher education and limited education in a specific field of agriculture during the short period of two to four years in colleg. It was found that such teachers concentrated on mere principles and fundamentals in their teaching. (see Table 98)

It is considered that more emphasis should be placed on the practical training of techniques and skills rather than on teaching fundamental principles in the vocational education of agricultural high schools.

Since the purpose of the vocational education of agricultural high schools lies in the training agricultural technicians, teacher training for prospective agricultural teachers must be accompanied by a broad range of positive, practical training in tecgniques and skills. Particularly, matters connected with the field of agriculture are flexible and each has its own particular phase. Such a particularity in agricultural matters means newly developed phases of agriculture. Accordingly, agricultural high school graduates are required to adapt themselves to new situations or development in agriculture they have never faced nor read about during school days. In order to do so, the application of principle is most important in agricultural education. At the same time, skills in the application of a principle should be fostered by means of teacher training for prospective teachers who will teach in agricultural high schools. Added to this, skill in the application of principles should also be fostered by means of in-service education for active teachers.

In-service education aims at the advancement of the professional techniques of the individual teacher. In short, in-service education is a kind of service for the benefit of the individual teacher. In case in-service education is not carried out properly active teachers will refuse to receive it. It goes without saying that in-service education should be carried out in accordance with the desires of teachers.

In order to gain effect from in-service education, the opportunity to receive in-service education should be equally given to all teachers, and in-service education itself should be carried out on the basis of the needs of society, the teachers wishes and the newly developed philosophy of education.

In this item, the data obtained by means of a questionnaire sent to agricultural high school teachers were analyzed so as to identify the current status of in-service education for agricultural high sccool teachers and to clarify the best ways to carry out in-service education most effectively.

a. status of in-service education

The status of in-service education given to agricltural high school teacher accorting to the position held by each is as follows :

《Table-116》 Attendance at in-service classes related to agriculture(by position)

Attendance	Principals & vice principals		Head teachers		Teachers		**Total**	
	N	%	N	%	N	%	N	%
Attended	5	45.45	27	84.37	64	45.39	96	52.17
Not attended	5	45.45	4	12.50	65	46.10	74	40.22
No response	1	9.10	1	3.13	12	8.51	14	7.61
Total	11	100.00	32	100.00	141	100.00	184	100.00

[5] For the purpose of training agricultural teachers, the Department of Agricultural Education was set up within the College of Agriculture, Seoul National University, in 1964.

[6] The number of credits required for teaching subjects was raised to 24 from 1964.

As seen in the above table, agricultural high school teachers who replied that they recieved in-service education constitute 52 percent of the total number of active agricultural high school teachers and those who responded in the negative constitute 40 percent. Among those who received in service education, head techers constitute 84 percent, while the proportion of principals, vice principals and teachers who received in-service education with those who did not attend to in-service classes was found to be almost equal. Nearly half of 184 teachers responded that they did not receive in-service education. The status of in-service education attended by agricultural high school teachers by subjects matters assigned to them is as follows :

《**Table-117**》 Attendance at in-service classes related to agriculture (by courses in taught)

Attendance	Teachers of agriculture		Teachers of liberal science		**Total**	
	N	%	N	%	N	%
Attended	92	70.23	4	7.55	96	52.17
Not attended	35	26.72	39	73.58	74	40.22
No response	4	3.05	10	18.87	14	7.01
Total	131	100.00	53	100.00	184	100.00

It was found that agricultural high school teachers in charge of agricultural subjects who received in-service education related to agriculture constitute nearly 70 percent of the total number of agricultural teachers, while those who did not receive in-service education related to agriculture constitute nearly 27 percent. It was also found that agricultural high school teachers in charge of liberal subjects who did not receive in-service education related to agriculture constitute nearly 74 percent, while those who received in-service education related to agriculture constitute merely 8 percent.

《**Table-118**》 Frequency of attendance at in-service education classes related to agriculture by length of teaching experience and courses taught

Time attended		Once		Twice		More than three times		**Total**	
		N	%	N	%	N	%	N	%
Length of teaching experience	Less than $5\frac{1}{2}$ yrs	20	20.83	4	4.17	4	4.17	28	29.17
	More than $5\frac{1}{2}$ yrs	34	35.42	14	14.58	20	20.83	68	70.83
	Total	54	56.25	18	18.75	24	25.00	96	100.00
Courses taught	Agriculture	52	54.17	17	17.71	23	23.96	92	95.83
	Liberal sciences	2	2.08	1	1.04	1	1.04	4	4.17
	Total	54	56.25	18	18.75	24	25.00	96	100.00

《**Table-119**》 Frequency of attendance at in-service education classes related to agriculture by length of teacqing experience

Time attended	Once		Twice		More than three times		**Total**	
	N	%	N	%	N	%	N	%
Less than $2\frac{1}{2}$ yrs	8	8.34	2	2.08	1	1.04	11	11.46
$2\frac{1}{2}$yrs~$5\frac{1}{2}$ yrs	12	12.51	2	2.08	3	3.12	17	17.71
$5\frac{1}{2}$yrs~$9\frac{1}{2}$ yrs	22	22.92	7	7.29	7	7.29	36	37.50
More than $9\frac{1}{2}$ yrs	12	12.50	7	7.29	13	13.59	32	33.33
Total	54	56.27	18	18.74	24	24.99	96	100.00

The following table shows the frequency of attendance at in-service education classes by agricultural high school teachers.

It was found that those who attended in-service

education classes only once constitute 56 percent of the total number of teachers who received in-service education. Those who attended in-service education classes only once during their first five years as a teacher constitute 21 percent and those who attended only once after five years' teaching experience 35 percent of the total number of teachers who received in-service education.

Those teachers with more than five year's teaching experience who received in-service education more than three times constitute nearly 20 percent of the total number of teachers. This means that those with more xperience received in-service education more often.

According to the results of the survey conducted in 1961 by the Central Education Research Institute those who have received in-servics education during the past five years constitute 55.1 percent of the total number of secondary school teachers throughout the country. Particularly, those with more than five years' experience who have not received in-service education even once during the past five years constitute 26.0 percent. As the result of this survey, it was recommended in the survey report that education plans be set up so that in-service education may be offered to all teachers at least once during five years.[7]

b. Frequency of in-service education

The following table shows the frequency of in-service education desirable for agricultural high school teachers:

《**Table-120**》 Frequency of in-service education desired by teachers (by positions)

Frequency desired	Professor		Principal & vice principal		Head teacher		Teacher		**Total**	
	N	%	N	%	N	%	N	%	**N**	**%**
Once a year	1	8.33	—	—	5	15.62	17	12.06	23	11.73
Once in two years	—	—	3	27.27	2	6.25	12	8.51	17	8.67
Once in three years	5	41.67	4	36.37	13	40.62	47	33.33	69	35.21
Once in four years	3	25.00	1	9.09	1	3.13	1	0.71	6	3.06
Once in five years or more	3	25.00	3	27.27	8	25.00	39	27.66	53	27.04
No response	—	—	—	—	3	9.38	25	17.73	28	14.29
Total	12	100.00	11	100.00	32	100.00	141	100.00	196	100.00

《**Table-121**》 Frequency of in-service education desired by teachers (according to length of their teaching experience)

Frequency desired	Less than $2\frac{1}{2}$yrs		$2\frac{1}{2}$yrs–$5\frac{1}{2}$yrs		$5\frac{1}{2}$yrs–$9\frac{1}{2}$yrs		Over $9\frac{1}{2}$yrs		Unknown		**Total**	
	N	%	N	%	N	%	N	%	N	%	**N**	**%**
Once each year	4	12.5	7	14.58	6	10.71	5	10.64	—	—	22	11.96
Once in two years	3	9.38	4	8.33	4	7.14	6	12.76	—	—	17	9.24
Once in three years	15	46.87	14	29.17	21	37.50	14	29.79	—	—	64	34.78
Once in four years	1	3.13	—	—	—	—	2	4.26	—	—	3	1.63
Once in five years or more	7	21.87	9	18.75	20	35.72	14	29.79	—	—	50	27.17
No response	2	6.25	14	29.17	5	8.93	6	12.76	1	100.00	28	15.22
Total	32	100.00	48	100.00	56	100.00	47	100.00	1	100.00	184	100.00

***College professors excluded.**

Those who desire in-service education once every three years constitute 35 percent, the highest ratio, of the total number of teachers, and those who desire to receive in-service education once in five years 27 percent. In addition, lecturers (professors) who desire to receive in-service education once every three years constitute 41 percent. The following table shows the frequency of in-service education desirable for agricultural high school teachers according to years of experience:

[7] Central Education Research Institute, *Rebuilding Secondary Education of the Republic of Korea*, pp. 233.

Those with more than five years' experience who desire to receive in-service education once every three years or once every five years constitute 37 percent and 30 percent respectively, the highest ratios, while those with less than five years' experience who so desire constitute 46 percent and 29 percent respectively.

Thus, it may be inferred that most teachers desire to receive in-service education once every three years. If in-service education is offered as desired by teachers, plans should be established so that approximately 206 agricultural high school teachers may receive in-service education each year. If in-service education is offered once in every five years, plans should be established so that approximately 124 agricultural high school teachers may receive in-service education each year.

《**Table-122**》 The number of agricultural teachers who should receive in-service education each year

Frequency of in-service education	Total No. of agricultural teachers in 1964*	No. of agricultural teachers who should receive in-service education each year
3 years	618	206
5 years	618	124

***Data from the** *Annual Statistics of the Ministry of education, 1964.*

c. Curriculum for and length of in-sevice education

There are no definite principles for drawing up the curriculum for in-service education, especially for teacher refresher courses. In Korea it has been normal trend that the curriculum for in-service education includes general and specialized education.[8] The following table shows the various curricula for in-service education currently offered to agricultural high school teachers in Korea.

As seen in the table, those who receive in-service education for the senior grade certificate for agriculture teachers constitute the highest ratio

[8] Min, Yoon-Gee and Lee, Dong-Won *A Study of the Effects of Teacher In-Service Education* (Seoul CERI, 1963), p 21

《**Table-123**》 Attendance by Varieties of in-service education

In-service education for	Precentage of attendance
Senior grade certificate, general	5.51
Senior grade cretificate for agricultural teachers	52.57
Educational administration	2.21
Principals or vice-principals	0.37
General education (Non-certificate)	0.74
No response	38.60
Total	100.00(%)

* N (184)

with the next highest found to be constituted by those who received training for the general senior grade certificate, 5.51 percent and those who underwent the non-certificated general education course, 0.74 percent.

1) Establishment of institutions for in-service education

The following table shows the establishment of institutions for in-service education as desired by agricultural high school teachers :

As seen in the following table, those who desire that in-service education institutions be set up within agricultural colleges constitute 46 percent of the total number of teachers, while those who desire such institutions be set up within agricultural research institutes constitute 26 percent. Particularly, professors who desire in-servic education institutions be set up within agricultural colleges constitute 91.67 percent of the total number of professors, while no one desired such be set up within educational administrative organization, such as Board of Education.

2) Curriculum for in-service education

The contents of in-service education as desired by the teachers were found to be agricultural subjects, general education and professional teaching education and the proportion for these areas was found to be 60 percent, 20 percent and 20 percent respectively. Thus, agricultural subjects (major course) constitute the highest proportion.

Detailed subjects matters desired by teachers for in-service education are as follows :

《Table-124》 Organizations to which teachers desire in-service training institutions be attached

Organizations	Professor		Principal & vice principal		Head Teacher		Teacher		Total	
	N	%	N	%	N	%	N	%	N	%
Agricultural college	11	91.67	5	45.45	12	37.50	63	44.68	91	46.43
Agricultural high school	1	8.33	—	—	6	18.75	11	7.80	18	9.18
Administrative organizations (Boards of Education)	—	—	—	—	—	—	—	—	—	—
Agricultural research institutes	—	—	5	45.45	10	31.24	37	26.24	51	26.53
Educational research institutes	—	—	1	9.10	1	3.13	1	0.71	3	1.53
Colleges of Education and other colleges	—	—	—	—	—	—	1	0.71	1	0.51
Others	—	—	—	—	1	3.13	3	2.13	4	2.04
No response		—	—	—	2	6.25	25	17.73	27	13.78
Total	12	100.00	11	100.00	32	100.00	141	100.00	196	100.00

***Professors are lecturers for in-service education.**

In the first place, analyzing subject matters in the area of agricultural subjects desired by the majority of agricultural teachers, priority in subject matters falls in following order : cereal crops, soil and fertilzers, experiments and practical training within and without the classroom, gardening, agricultural food processing, farm management, breeding, farm shop, introduction to zootechny, statistics, agricultural biology and agricultural meteorology.

The priority for subject matters desired by teachers in forestry subjects comes in the following order : forestation, cereal crops, gardening, foresty processing, introduction to forestry, forestry management, forestry civil engineering, soil and fertilzers general agriculture and experiments and practical training.

Priority in subject matters desired by teachers of zootechny subjects falls in the following order: special zootechny, sanitation in domestic animals, livestock breeding, introduction to agriculture, farm management, gardening, livestock products, dairy farming, feeding of domestic animals, poultry raising and forestry.

《Table-125》 Percentages desired by teachers in the curriculum for in-service education

Percent	Agricultural courses (specialized courses)		Professional teaching courses		General education courses	
	N	%	N	%	N	%
0~24%	1	0.54	101	54.89	110	59.78
25~49%	16	8.70	46	25.00	36	19.56
50~74%	113	61.41	2	1.09	3	1.63
75~100%	19	10.33	—	—	—	—
No response%	35	19.02	35	19.02	35	19.03
Total	184	100.00	184	100.00	184	100.00
Mean	60.72%		20.36%		19.05%	

Priority in courses desired by teachers in the sericultural field falls in the following order : sericulture, cereal crops, gardening, forestry and introduction to agriculture.

Pritority in course desired by teachers of agricultural civil engineering comes in the following order : farm-shop, introduction to agriculture, gardening, agricultural meteorology, agricultural food processing, land reclamation, farm management, cereal crops and introduction to zootechny.

Priority in subject matters desired by teachers of horticulture falls in the following order : vagetable gardening, cereal crops, breeding experiment and practical training agricultural engineering, farm management, agricultural chemicals for harmful insects, plant physiology and cultivation.

Priority in subject matters desired by teachers of liberal subjects in agricultural high schools comes in the following order : farm shop gardening, farm management, agricultural chemicals for harmful insects, introduction to agriculture, cereal crops, soil and fertilzers agricultural food processing, outline of zootechny, forestry, breeding, agricultural meteorology and laboratory work and practice.

Thus, the subject matters desired by agricultural high school teachers in common were found to be cereal crops, soil and fertilzers, gardening, farm management, farm shop laboratory work and

practice, breeding and agricultural chemicals for harmful insects. According to an analysis of the foregoing, it is a general trend that agricultural high school teachers desire to have subject matters according to those they teach.

Next, priority in subject matters in the professional teaching education area as desired by the majority of teachers comes in the following order: introduction to educational psyshology, introduction to education, educational evaluation, psychology, curriculum, teaching methods and guidance and counseling.

According to a survey conducted by the Central Education Research Institute in 1963, those who desire to have educational psychology included in the professional teaching education area constitute 50.1 percent and those who desire to have the introduction to education 47.0 percent. Thus, the results of the survey conducted by the Central Education Research Institute indicate what of this survey shows[9].

In the third place, detailed subject matters in the general education area desired by teachers of agricultural subjects for in-service education relevant to agriculture are as follows: Priority in subject matters desired by these teachers falls in the following order: English, Korean history, mathematics, social studies, Korean language, biology and chemistry. Besides, such subject matters as public administration, ethics, current topics, economics and statistics were also desired by these teachers. Priority in subject matters desired by teachers of liberal subjects comes in the following order: Korean language, English, mathematics, natural science, cultural history, social studies, economics, history, biology and law. Besides, such subject matters as public administration, music, psychology and commerce were also desired by these teachers.

《**Table-126**》 Influence of in-service education on agricultural education

Influence of in-service education	Teachers of agricultural courses		Teachers of nonagricultural courses		Total	
	N	%	N	%	N	%
Most helpful	37	28.25	3	5.66	40	21.74
Some help	59	45.04	1	1.89	60	32.61
Not help at all	1	0.76	—	—	1	0.54
Don't know	3	2.29	1	1.89	4	2.17
No response	31	23.66	48	90.56	79	42.94
Total	131	100.00	53	100.00	184	100.00

***College professors excluded.**

[9] *Ibid.*, p. 22.

3) Degree of effect of in-service education on class teaching

The table below shows that in-service education is found to be of some help in every phase of teaching agricultural subjects.

Those who indicated that the curriculum for the in-service education they received was helpful to some extent in teaching agricultural subjects constituted 73 percent of the total number of agricultural high school teachers directing agricultural courses, while those who indicated the opposited, 76 percent. Therefore, it may be deduced that in-service education was quite helpful in the teaching of agricultural subjects in class. Those who indicated that the curriculum for in-service education was helpful to some extent in the teaching of agricultural subjects constituted 32 percent of the total number of teachers, while those who indicated the opposite or made no response together constituted 2.71 percent. And those who made no response constituted 90 percent of the total number of teachers in charge of non-agricultural subject matters. This was of hardly no help in identifying the degree of helpfulness of in-service education to teaching in class.

The following table shows the degree of helpfulness of in-service education in teaching methods:

《**Table-127**》 Influence of in-service education on teaching methods

Influence of in-service education	Teachers of agricultural courses		Teachers of nonagricultural courses		Total	
	N	%	N	%	N	%
Most helpful	25	19.08	1	1.89	26	14.13
Some help	62	47.33	3	5.66	65	35.33
Not help at all	5	3.82	—	—	5	2.72
Don't know	6	4.58	1	1.89	7	3.82
No response	33	25.19	48	90.56	81	44.02
Total	131	100.00	53	100.00	184	100.00

Those who indicated that the curriculum for the in-service education they received was helpful to some extent in teaching methods constitute 35.

percent of the total number of teachers, the highest ratio, and those who indicated that it was most helpful 14 percent. Those who indicated that it was no help at all in teaching methods constitute 2.7 percent of the total number of teachers and those who made no response constitute 3.82 percent. Accorgingly, it may be deduced that the curriculum for in-service education is actually helpful.

The degree of helpfulness of in-service education was so identified. Furthermore, analyzing the phases in which in-service education is most helpful, most teachers indicated that it is most helpful in acquiring new knowledge and advance techniques and skills in the field of agricultural progress. Some teachers indicated that it is helpful in understanding the new goals toward which agricultural education is developing and to finding out study methods and to solving the problems facing the field of agricultural by means of laboratory research, farm pactice and observation as a part of in-service education. Some indicated that it is also helpful in understanding the current status of agriculture in developed countries which in turn contributes to the development of agriculture in the rural communities of Korea.

Analyzing the teaching methods to which in-service education is helpful, most teachers indicated that it is helpful in the practical application of teaching materials Some teachers indicated that it is also helpful in farming practice, teaching methods and guidance and counseling. Others indicated that it is also helpful in understanding what students think and what they worry about.

4) Length of in-service education

The following table shows how agricultural high school teachers feel about the length of in-service education (3weeks~4week=120hrs~150hrs) set up in accordance with the Education Law.

《**Table-128**》 Desired length of in-servies education

Position	2 weeks	3~4 weeks	5~6 weeks	7~8 weeks	9~12 weeks	13~24 weeks	25~48 weeks	49 and more weeks	No response	**Total**
Professors	—	8.33	—	50.00	25.00	8.33	8.33	—	—	99.99
Principals and vice principals	18.18	36.37	—	9.09	18.18	9.09	9.09	—	—	100.00
Head teachers	6.25	34.37	—	9.38	12.50	12.50	6.25	—	18.75	100.00
Teachers	1.42	21.28	1.42	13.48	15.60	14.18	7.09	0.71	24.82	100.00
Total	3.06	23.47	1.02	14.79	15.82	13.27	7.14	0.51	20.92	100.00

Those who desire to receive in-service education for three to four weeks constitute 23.47 percent of the total number of teachers, the highest ratio, and those who desire to receive it for less than two weeks constitute 3.06 percent. It was found that most teachers desire to receive in-service education for three to four weeks.

As to teachers in-service, those who desire to receive in-service education for three to four weeks constitute 21.28 percent and those who desire to receive it for less than two weeks constitute 1.42 percent. It is the general trend that most teachers disire in-service education for three to four weeks.

《**Table-129**》 Training methods desired by teachers

Training methods	Number of response	Agricultural teacher		Non-agricultural teacher	
		Mean order	Rank	Mean order	Rank
Lecture	134	4.86	(5)	5.1	(7)
Discussion	129	5.7	(7)	4.7	(4)
Laboratory work	137	2.8	(2)	3.8	(2)
Field observation	139	3.4	(3)	4.9	(6)
Practice	140	2.6	(1)	3.4	(1)
Group research	133	5.6	(6)	4.8	(5)
Audio-visual	135	4.6	(4)	5.6	(8)
Workshop	128	6.5	(8)	4.6	(3)
Individual research and report writing	129	8.6	(9)	7.4	(9)
Evaluation	120	9.6	(10)	9.1	(10)

*** The numbers in parentheses are the mean order**
*** College professors excluded.**

5) Training methods in in-service education

The above table 129 shows the training methods

in in-service education which the majority of teachers felt would meet the goals of in-service education.

This item includes the order of priority in teaching methods for in-service education teachers felt most appropriate and shows the average, by the questionnaire, acoording to order of priority.

According tc the above table, teachers of agricultural courses at agricultural high schools place top priority on practice (including farm practice) as the best teaching method to reap the best effects of in-service education and second priority on laboratory work.

Such methods as lectures and discussions fall under fifth priority. In addition, teachers of non-agricultural courses also place top priority on practice as the best teaching method. It was found that the methods of individual research and report writing and evaluation are not considered good teaching methods.

Teachers of agricultural courses placed eighth priority on the discussion method and those teaching non-agricultural courses place third priority on the same. They also place the lowest priority on the methods of individual research and report writing and methods of evaluation.

Other methods teachers feel to be good are combinations of individual methods. For example, they indicated practice accompanied with discussion.

According to the 26th volume of the Research and Survey Bulletin prepared in 1963 by the Central Education Research Institute, the lecture style of teaching was indicated as the best by 27.9 percent, teaching by means of formal practice was placed second at 27.2 percent and teaching with practice was placed third with 15.6 percent[10].

The table 130 shows the priority given by teachers according to their position:

All teachers placed top priority on formal practice as the best teaching method and second priority on practice (laboratory work) except professors. And all teachers placed the lowest priority on the methods of individual research and report writing and method of evaluation.

[10] Min and Lee, *Ibid*, p. 50

《**Table-130**》 Effective training methods desired by teachers (**Mean order**)

Training Method	Number of responses	Professors	Principals and vice-principals	Head teachers	Teachers
Lecture	146	3.5	3.6	4.6	5.1
Discussion	141	4.4	6.2	5.8	5.4
Laboratory work	149	1.6	3.0	2.9	3.0
Field observation	151	4.8	4.5	3.2	3.8
Practice	150	4.0	2.9	4.2	2.8
Group research	143	6.3	5.1	2.6	5.2
Audio-visual	147	5.0	5.3	4.2	5.0
Workshop	138	7.6	5.5	6.6	6.3
Individual research and report writing	141	7.9	8.3	8.6	8.3
Evaluation	130	8.9	10.0	9.5	9.5

6) Lecturers participating in the teaching of in-service education.

The table 131 shows the types of lecturers desired by agricultural high school teachers to teach in-service education.

a) Lectures in agricultural subject matters

《**Table-131**》 Persons teachers desire to have as lecturers for agricultural courses of in-service education (**Mean order**)

Desired lecturers	Number of responses	Professors	Principals & vice-principals	Head teachers	Teachers
College (agricultural) professors	137	1.2	1.2	1.9	1.9
Agricultural high school principals or vice-principals	110	5.3	5.3	5.3	5.3
Educational administrators	111	6.8	5.3	6.3	6.1
Research workers or specialists in agriculture	139	2.0	2.11	1.8	1.9
Supervisors of agricultural education	111	5.3	4.8	5.5	5.1
Competent teachers	114	3.1	5.8	4.2	4.1
Agricultural technicians	134	3.6	3.7	3.0	3.3

***Professors are lecturers for in-service education at the time of research**

According to the above table, professors and teachers alike place top priority on agricultural

college professors as desirable teachers of agricutural courses in in-service education and they placed second priority on agricultural researchers and agricultural professionals. Besides, they placed the lowest priority on educational administrators.

b) Lecturers for teaching professional courses

According to the following table, professors and teachers alike place top priority on professors of colleges of education as desirable to teach professional courses relevant to teaching in in-service education and they placed second priority on educational researchers and educational professionals. Besides, they place top priority on invited foreign professors and outstanding teachers with long experience.

《**Table-132**》 Persons teachers want to have as lecturers for teaching professional courses of in-service education

(Mean order)

Desired lecturers	Number of responses	Professors*	Principals & vice principals	Head teachers	Teachers
College professors of education	124	1.1	1.6	1.5	1.4
Supervisors	108	3.3	3.0	3.1	3.3
Competent teachers	105	3.0	3.8	3.5	3.2
Research werkers or specialists in education	135	2.4	1.8	1.8	1.8
Others	100	5.0	5.0	4.9	5.0

***Professors are lecturers of in-service education at the time of research**

VI PRESENT OCCUPATIONAL COMPOSITION AND FUTURE EMPLOYMENT PROSPECTS OF AGRICULTURAL SCHOOL GRADUATES

A. Present occupational composition of agricultural high school and college graduates

An analysis was made of the occupational distribution of agricultural high school and college graduates so as to identify what occupations they hold, how many graduates are engaged in agriculture and its related fields and what changes and occuring in graduates' findng of an occupation. Such an analysis will be very helpful in finding out ways to improve the quality of agricultural education and in establishing long-term plans for the supply and demand of technical and professional manpower in the field of agriculture.

However, a Follow-up Study of the Employment Status of Agricultural High School and College Graduates has rarely been carried out. The Central Education Research Institute attempted such a study through the Secondary Education Survey of Korea [1] conducted in 1961 and through Educational Statistics of Korea, 1962 and Educational Statistics of Korea, 1963 [2]. However, these studies were confined to the sampling of graduates of given years only. Accordingly, there is no data available for an historical review.

This survey was carried out by sampling persons who graduated agricultural high schools and college during the ten years from 1953 to 1962. These graduates were identified by means of investigating the Alumni Information Director. Nine thousand one hundred and fifty agricultural high school graduates of a total of 12,317 graduates from 19 schools and 4,176 agricultural college graduates of a total of 5,710 graduates from five agricultural colleges were sampled in this survey.

The present occupational composition of these graduates was analyzed by the industrial area and by occupational types. The industrial classification for use in the Census 1960 [3] was used as the standard for the analysis of the industrial area. Though there are many different standards that can be used for an analysis by occupational type, but the analysis used in this survey was the Korean Standard of Occupational Classification [4] According to the Korean Standard of Occupational Classification, a soldier is covered in I, Service occupation the ninth major occupational group which is differenciated by the first digit of the code number, while he is covered in the eleventh major group (x.) according to the Standard of Occupational Classification prepared by the International Labor Organization. In this survey,

[1] C. E. R. I. *Rebuilding Secondary Education of the Republic of Korea*, p. 181.

[2] C. E. R. I., *Annual Statistics of Education(1962)*, (Seoul: Ministry of Education, 1962), pp. 129~180

[3] Ministry of Home Affairs, *The Industrial Classification for the Use of Census*, (Seoul: Ministry of Home Affairs. 1960)

[4] Bureau of Survey and Statistics, *The Korean Standard of Occupations*, (Seoul: Economic Planning Board, 1964.)

the number of those covered in the major group of Service occupation became greater because a soldier are also covered in this field. However, from the viewpoint that the service given by most soldiers is obligatory, the soldier was set apart from others in other service occupations.

Thus, the employment status found by graduates, which was analyzed by industrial area and by occupational types was further analyzed by graduation year in order to identify annual trends.

1. Employment distribution by industrial type

Analyzing the employment distribution from a sampling of 12,317 persons who graduated agricultural high school graduates and 5,701 who graduated college during the ten years from 1953 to 1962, 9,150 agricultural high school graduates and 4,176 college graduates were found to have found employment.

71.02 percent of the 9,150 agricultural high school graduates identified as having found employment are permanently employed. Of the rest, 28.98 percent, 6.44 percent are students, 4.62 percent are not employed and the rest, 17.92 percent, are soldiers. The field in which 36.53 percent of those identified as permanently employed are engaged in agricultural and that engaged in by 26.75 percent is service occupations except military service.

This trend in the employment distribution does not seem to change for graduates of any year. However, a large number of 1957 graduates approximately 50 percent of the total number, found employment in the agricultural field. The ratio then showed a slight decrease year after year and those of 1961 showed a remarkable decrease, down to 16.7 percent. Nevertheless, those of 1962 showed a large increase, up to 30.4 percent. Most graduates of 1953 that 64.5 percent, found employment in service occupations, 64.5 percent, but the ratio showed a gradual decrease year after year, as the table 133 shows, from 1959. Here, we can infer that increase in the ratio is due to the fact that 60 to 94 percent of those engaged in the service occupation are military service personnel. Thus, we can see that most agricultural school graduates during the past years found employment in government administrative organization and in work related to agriculture. Such a decrease results from the difficulty in finding a job in the service field. Accordingly, they were compelled to take up an agricultural occupation or to enlist in the army.

Analyzing the employment distribution of agricultural college graduates by industrial type, most, 55.5 percent, are engaged in service occupations except military service and 28.9 percent in the agricultural field. Those in military service constitute 7.2 percent.

Analyzing this by year of graduation, 36.4 percent of 1960 graduates are engaged in the agricultural field. The employment distribution of graduates in the field of agriculture shows a gradual increase year after year, and 1953 graduates show the highest ratio, 81 percent of the total number of graduates in the same year, found employment in the service fields and as the years passed there is a gradual decrease in the number of those engaging in service occupations. Thus, there was a gradual increase in the number of those who engaged in agricultural occupations year after year and also that there was a decrease in the number of those in military service from 1961.

2. Employment distribution by occupational type

Analyzing the employment distribution of agricultural high school graduates by year and by type of occupation, those engaged in farming and kindred occupations showed the largest proportion, 32 percent of the total number of graduates, those engaged in service occupations, 20.6 percent, those engaged in clerical work, 14.8 percent and those engaged in professional and technical work 14.0 percent. Most graduates then found employment in farming and its related occupations, secondly in service occupations and thirdly in professional and technical work and in clerical work with administrative organizations or organization related

《Table-133》 Distribution of agricultural high school graduates by year and by industry

Industry		1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	Total
Agriculture, Forestry, Hunting and Fishery	N	133	256	360	376	649	613	355	221	140	239	3 342
	%	21.98	30.12	39.87	41.23	49.96	46.55	42.01	27.94	16.65	30.37	36.53
Mining and quarrying	N	—	—	7	5	3	5	3	2	—	1	29
	%	0.50	—	0.77	0.55	0.23	0.38	0.36	0.25	—	0.13	0.32
Manufacturing	N	12	16	15	18	17	24	9	1	5	3	120
	%	1.98	1.88	1.66	1.97	1.31	1.82	1.07	0.13	0.59	0.38	1.31
Heavy construction	N	1	4	2	—	1	4	5	1	—	—	18
	%	0.17	0.47	0.22	—	0.08	0.30	0.59	0.13	—	—	0.19
Electric, gas, water and health service	N	2	2	—	1	—	1	2	—	—	—	8
	%	0.33	0.24	—	0.11	—	0.88	0.24	—	—	—	0.08
Commerce	N	46	65	50	55	81	71	25	26	26	21	466
	%	7.60	7.65	5.54	6.03	6.24	5.39	2.96	3.27	3.09	2.66	5.09
Transportation, Warehousing and communication	N	5	6	13	6	13	9	7	4	2	5	70
	%	0.83	0.70	1.44	0.66	1.00	0.68	0.83	0.51	0.24	0.63	0.77
Service	N	390	484	441	398	461	447	301	387	436	340	4 085
	%	64.46	56.94	48.84	43.64	35.49	33.94	35.62	48.92	51.84	43.21	44.64
Students	N	—	2	1	10	20	67	93	90	172	134	589
	%	—	0.24	0.11	1.10	1.54	5.08	11.00	11.38	20.45	17.03	6.44
Unemployed	N	13	15	14	43	54	76	45	59	60	44	423
	%	2.15	1.76	1.55	4.71	4.15	5.77	5.32	7.46	7.14	5.59	4.62
Total	N	605	850	903	912	1 299	1 319	845	791	841	787	9 150
	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

※ The percentage exclude 3, 167 graduates concerning whom definite information is lacking

《Table-134》 Distribution of agricultural college graduates by year and by industry

Industay		1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	Total
Agriculture, forestry, hunting and fishery	N	33	24	72	178	194	142	85	187	157	135	1 207
	%	15.71	12.97	19.25	25.58	32.97	27.36	32.44	36.38	35.93	34.88	28.90
Mining and quarrying	N	—	—	—	2	1	—	1	—	—	—	4
	%	—	—	—	0.29	0.17	—	0.38	—	—	—	0.10
Manufacturing	N	1	2	5	10	19	13	11	12	2	15	90
	%	0.48	1.08	1.34	1.43	3.21	2.50	4.20	2.33	0.46	3.88	2.16
Heavy construction	N	1	—	—	2	2	7	1	5	4	—	22
	%	0.48	—	—	0.29	0.34	1.35	0.38	0.97	0.92	—	0.53
Electric, gas, water and health service	N	1	—	2	—	1	1	2	—	—	1	8
	%	0.48	—	0.53	—	0.17	0.19	0.76	—	—	0.26	0.19
Commerce	N	2	5	18	30	19	8	2	8	6	7	105
	%	0.95	2.70	4.81	4.31	3.21	1.54	0.76	1.56	1.37	1.81	2.51
Transportation, warehousing and communication	N	—	3	3	7	5	1	—	1	—	—	20
	%	—	1.62	0.80	1.00	0.84	0.19	—	0.19	—	—	0.48
Service	N	170	146	271	457	343	334	143	283	248	218	2 615
	%	80.95	78.92	72.46	65.67	58.27	64.36	54.58	55.00	56.75	56.33	62.62
Students	N	—	—	1	—	3	2	1	4	5	7	23
	%	—	—	0.27	—	0.51	0.39	0.38	0.78	5.14	1.81	0.55
Unemployed	N	2	5	2	10	3	11	16	14	15	4	82
	%	0.95	2.70	0.53	1.43	0.51	2.12	6.11	2.72	3.43	1.03	1.96
Total	N	210	185	374	696	592	519	262	514	437	387	4 176
	%	100.00	99.99	99.99	100.00	99.99	99.99	99.99	99.99	100.00	100.00	100.00

* The percentages are those of graduates about whom there is definite information (1, 525 of 5, 701 sampled graduates excluded) as of August, 1964.

《Table-135》 Percentages for those enlisted in the army among agricultural high school and college graduates engaged in-service occupations

Agricultural school	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	Total
High school	16.92	6.20	10.43	12.31	16.92	28.64	63.12	84.24	94.04	92.35	40.07
College	10.59	13.01	12.18	6.78	2.90	3.59	6.99	7.42	21.37	42.20	11.43

* The percentages are those of agricultural high school and college graduates enlisted in the army among all graduates engaged in service occupations.

to agriculture. Particularly, of the 20.55 percent for those engaged in evice occupations, those in military service constitute 17.92 percent. Therefore, those strictly engaged in the service field total 2.63 percent.

Analyzing this by year of graduation, it was in 1957 and 1958 that a larger number found employment in farming and its related occupations (43.5% each year) and as the years passed there was a gradual decrease in the number of those engaged in farming while the number of those in 1962 showed a slight increase. It was among the graduates of 1953 that most found employment in the professional and technical fields (35.5%) while as the years passed there was a gradual decrease in the number of those engaged in these fields and in recent year few find employment in such occupations. Those engaged in clerical work show an increase in number as the years go back and a decrease as the years. On the contrary, those in military service, which can be regarded as no occupation at all, show a gradual increase in number as the years pass. Therefore, the normal employment distribution can be analyzed by including military personnel after their discharge.

Analyzing the employment distribution of agricultural college graduates by type of occupation, those engaged in professional and technical work show the largest proportion, 52.6 percent, those engaged in clerical work, 20 percent, and those engaged in agriculture and its related fields, 9.7 percent. Thus most graduates find employment in the professional and technical fields or take up clerical work with various community organizations while those engaged in farming are very few. In recent years, those enlisting in the army show an increase in number compared to the past. An occupations of those in military service is unknown. Therefore, the employment distribution may be evaluated after military service personnel are discharged.

Besides, it was found that as the years passed those engaged in professional and technical work showed a decrease in number, while those engaged in agriculture, occupations related to agriculture, fisheries, forestry and in agricultural clerical work showed an increase in number. Such trends result from the fact that graduates of recent years have not had enough time to stabilize their social position.

《Table-136》 Distribution of agricultural high school graduates by year and by occupation

Occupation		1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	**Total**
Professional & technical	N	215	282	211	173	183	117	41	32	11	8	1 283
	%	35.54	33.18	24.47	18.97	14.09	8.88	4.85	4.05	1.31	1.02	14.02
Managerial	N	13	17	10	18	9	23	8	3	3	3	107
	%	2.15	2.00	1.11	1.97	0.69	1.75	0.95	0.38	0.36	0.38	1.17
Clerical	N	143	213	217	193	237	204	82	30	17	22	1 358
	%	23.64	25.06	24.03	21.16	18.24	15.49	9.70	3.79	2.02	2.80	14.84
Sales	N	40	60	49	51	76	65	25	28	26	22	442
	%	6.61	7.06	5.43	5.59	5.85	4.94	2.96	3.54	3.09	2.80	4.83
Agricultural, Fishery Forestry and Kindred	N	92	186	302	310	565	573	329	204	134	229	2 924
	%	15.21	21.88	33.44	33.99	43.49	43.51	38.93	25.79	15.93	29.09	31.95
Mining and Quarrying	N	1	—	2	3	2	4	3	2	—	1	18
	%	0.17	—	0.22	0.33	0.15	0.30	0.36	0.25	—	0.13	0.20
Transportation and Communication	N	5	6	11	14	14	12	8	4	2	5	81
	%	0.82	0.70	1.22	1.54	1.08	0.91	0.95	0.51	0.24	0.63	0.88
Skilled work and Processing in manufacturing laborers	N	3	10	3	3	9	6	5	—	3	3	45
	%	0.49	1.18	0.33	0.33	0.69	0.46	0.59	—	0.36	0.38	0.49
Service	N	80	59	73	94	130	170	206	339	413	316	1 880
	%	13.22	6.94	8.08	10.31	10.01	12.91	24.38	42.85	49.11	40.15	20.55
Students	N	—	2	1	10	20	67	93	90	172	134	589
	%	—	0.24	0.11	1.10	1.54	5.08	11.00	11.38	20.45	17.03	6.44
Umemployed	N	13	15	14	43	54	76	45	59	60	44	423
	%	2.15	1.76	1.55	4.71	4.16	5.77	5.33	7.46	7.13	5.59	4.62
Total	N	605	850	903	912	1 299	1 317	845	791	841	787	9 150
	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*** The percentages are those of graduates about whom there is definite information (3 167 of the 12 317 Sampled graduates excluded) as of August, 1964.**

《Table-137》 Distribution of agricultural college graduates by year and by occupation

Occupation		1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	Total
Professional & technical	N	131	107	197	399	305	278	149	296	208	126	2 196
	%	62.38	57.84	52.67	57.34	51.52	53.56	56.87	57.59	47.60	32.56	52.59
Managerial	N	22	9	20	27	26	15	8	8	5	3	143
	%	10.48	4.86	5.35	3.88	4.39	2.89	3.05	1.56	1.14	0.77	3.42
Clerical	N	22	24	71	113	130	134	52	102	90	96	834
	%	10.48	12.97	18.99	16.24	21.96	25.82	19.85	19.84	20.60	24.81	19.97
Sales	N	2	4	14	31	14	11	5	6	6	14	107
	%	0.95	2.16	3.74	4.45	2.36	2.12	1.90	1.17	1.37	3.62	2.56
Agricultural, Fishery Forestry and Kindred	N	11	14	27	68	71	45	19	55	49	45	404
	%	5.24	7.57	7.22	9.77	11.99	8.67	7.25	10.70	11.21	11.63	9.68
Mining and Quarrying	N	—	—	—	—	—	—	—	—	—	—	—
	%	—	—	—	—	—	—	—	—	—	—	—
Transportation and Communication	N	—	2	2	8	4	1	—	2	—	—	19
	%	—	1.08	0.53	1.15	0.67	0.19	—	0.39	—	—	0.46
Skilled work and processing in manufacturing laborers	N	1	—	2	4	2	5	2	2	2	—	20
	%	0.47	—	0.53	0.57	0.34	0.96	0.76	0.39	0.46	—	0.48
Service	N	19	20	38	36	34	17	10	25	57	92	348
	%	9.05	10.82	10.16	5.17	5.74	3.28	3.82	4.86	13.04	23.77	8.33
Students	N	—	—	1	—	3	2	1	4	5	7	23
	%	—	—	0.27	—	0.51	0.39	0.38	0.78	1.14	1.81	0.55
Umemployed	N	2	5	2	10	3	11	16	14	15	4	82
	%	0.95	2.70	0.53	1.43	0.51	2.12	6.11	2.72	3.43	1.03	1.96
Total	N	210	185	374	696	592	519	262	514	437	387	4 176
	%	100.00	100.00	99.99	100.00	99.99	100.00	100.00	100.00	99.99	100.00	99.99

*** The percentages exclude 1 525 of the 5 701 Sampled due to insufficient information. As of August, 1964.**

3. Employment distribution by industrial and occupational type

In the foregoing separate analysis were made on the employment distribution of agricultural school graduates by type of industry and by type of occupation. It is felt necessary now to analyze this comprehensively.

Illustrating some of the occupations most agricultural high school graduates found, those engaged in farming and its related fields in agriculture and forestry constituted 31.4 percent, the highest ratio. Secondly, those in military service constitute 18 percent and those engaged in service occupations and in professional and technical work 12.4 percent and 0.10 percent respectively.

Illustrating some of the occupations most agricultural college graduates found, those engaged in professional and technical work in the service field constitute 36.7 percent, the highest ratio. Those engaged in professional and technical work in the field of agriculture and forestry, 15 percent. Those engaged in clerical work in the service field 14.5 percent, and those engaged in farming a mere 9 percent.

4. Summary

Up to now, the distribution of 13,326 persons who graduated agricultural school from 1953 to 1962 by industry and by occupation has been analyzed, and so the discussion can be summarized as follow:

Most agricultural high school graduates are in an agricultural occupation or in a related industry to agriculture (31.4%), the second largest group is of servicemen (18%) and the third largest group is of clerical workers in the service industry while a few are in professional and technical occupations (12.4% and 10% respectively). That is, most agricultural high school graduates are engaged in actual farming and the second largest group of graduates is engaged in occupations related to agriculture or works in community organizations. since military service is compulsory, it is excluded. However, graduates of agricultural high schools during the last few years are mostly drafted into armed forces or engaged in farming.

In the case of agricultural college graduates,

《**Table-138**》 Distribution of agricultural high school graduates by occupation and industry

Industry		A	B	C	D	E	F	G	H	I I_1	I I_2	J	K	Total
Agriculture, Forestry, and Fishery	N	308	14	144	7	2 869	—	—	—	—	—	—	—	3, 342
	%	3. 37	0. 15	1. 57	0. 08	31. 36	—	—	—	—	—	—	—	36. 53
Mining and Quanying	N	1	4	5	—	—	18	—	1	—	—	—	—	29
	%	0. 01	0. 04	0. 05	—	—	0. 20	—	0. 01	—	—	—	—	0. 32
Manufacturing	N	42 (1)	20	24 (2)	9	2 (2)	—	—	23	—	—	—	—	120 (5)
	%	0. 46 (0. 01)	0. 22	0. 26 (0. 02)	0. 10	0. 02 (0. 02)	—	—	0. 25	—	—	—	—	1. 35 (0. 05)
Heavy construction	N	10	1	2	—	—	—	—	5	—	—	—	—	18
	%	0. 11	0. 01	0. 02	—	—	—	—	0. 05	—	—	—	—	0. 19
Electric, gas, water and health service	N	2	—	5	—	—	—	—	1	—	—	—	—	8
	%	0. 02	—	0. 05	—	—	—	—	0. 01	—	—	—	—	0. 08
Commerce	N	—	3	39	420 (6)	3 (3)	—	—	1	—	—	—	—	466 (9)
	%	—	0. 03	0. 43	4. 59 (0. 07)	0. 03 (0. 03)	—	—	0. 01	—	—	—	—	5. 09 (0. 09)
Transportation, warehousing and communication	N	1	8	7	—	—	—	53	—	—	1	—	—	70
	%	0. 01	0. 09	0. 08	—	—	—	0. 58	—	—	0. 01	—	—	0. 77
Service Soldier	N	—	—	—	—	—	—	—	—	1 642 (3)	—	—	—	1 642 (3)
	%	—	—	—	—	—	—	—	—	1 795 (0. 03)	—	—	—	1 795 (0. 03)
Others	N	919 (140)	57 (1)	1 132 (59)	6 (1)	50 (50)	—	28	14	—	237 (1)	—	—	2 443 (252)
	%	10. 04 (1. 53)	0. 62 (0. 01)	12. 37 (0. 64)	0. 07 (0. 01)	0. 55 (0. 55)	—	0. 30	0. 15	—	2. 59 (0. 01)	—	—	26. 70 (2. 75)
Students	N	—	—	—	—	—	—	—	—	—	—	589	—	589
	%	—	—	—	—	—	—	—	—	—	—	6. 44	—	6. 44
Unemployed	N	—	—	—	—	—	—	—	—	—	—	—	423	423
	%	—	—	—	—	—	—	—	—	—	—	—	4. 62	4. 62
Total	N	1 283	107	1 358	442	2 924	18	81	45	1 642	238	589	423	9 150
	%	14. 02	1. 17	14. 84	4. 83	31. 96	0. 20	0. 88	0. 49	17. 95	2. 60	6. 44	4. 62	100. 00

《**Table-139**》 Distribution of agricultural college graduates by occupation and industry

		A	B	C	D	E	F	G	H	I I_1	I I_2	J	K	Total
Agriculture, Forestry and Fishery	N	625	25	164	16	377	—	—	—	—	—	—	—	1 207
	%	14. 97	0. 06	3. 93	0. 38	9. 03	—	—	—	—	—	—	—	28. 90
Mining and Quarrying	N	1	—	3	—	—	—	—	—	—	—	—	—	4
	%	0. 02	—	0. 07	—	—	—	—	—	—	—	—	—	0. 10
Manufacturing	N	20 (3)	27 (2)	36 (7)	—	1 (1)	—	—	6	—	—	—	—	90 (13)
	%	0. 48 (0. 07)	0. 65 (0. 05)	0. 86 (0. 17)	—	0. 02 (0. 02)	—	—	0. 14	—	—	—	—	2. 16 (0. 31)
Heavy construction	N	14	2	—	—	—	—	—	6	—	—	—	—	22
	%	0. 34	0. 05	—	—	—	—	—	0. 14	—	—	—	—	0. 53
Electric, gas, Water and health service	N	3 (2)	—	4	—	—	—	—	1	—	—	—	—	8 (2)
	%	0. 07 (0. 05)	—	0. 10	—	—	—	—	0. 02	—	—	—	—	0. 19 (0. 05)
Commerce	N	—	4	18	83 (3)	—	—	—	—	—	—	—	—	105 (3)
	%	—	0. 10	0. 43	1. 99 (0. 07)	—	—	—	—	—	—	—	—	2. 51 (0. 07)
Transportation, Warehousing and Communication	N	—	3	2	—	—	—	14	1	—	—	—	—	20
	%	—	0. 07	0. 05	—	—	—	0. 34	0. 02	—	—	—	—	0. 48
Service Soldier	N	—	—	—	—	—	—	—	—	299 (12)	—	—	—	299 (12)
	%	—	—	—	—	—	—	—	—	7. 16 (0. 29)	—	—	—	7. 16 (0. 29)
Others	N	1 533 (932)	82 (26)	607 (183)	8 (4)	26 (26)	—	5 (1)	6 (1)	—	49	—	—	2 316 (1 173)
	%	36. 71 (22. 32)	1. 96 (0. 63)	14. 53 (4. 38)	0. 19 (0. 10)	0. 63 (0. 63)	—	0. 12 (0. 02)	0. 14 (0. 02)	—	1. 17	—	—	55. 46 (28. 11)
Students	N	—	—	—	—	—	—	—	—	—	—	23	—	23
	%	—	—	—	—	—	—	—	—	—	—	0. 55	—	0. 55
Unemployed	N	—	—	—	—	—	—	—	—	—	—	—	82	82
	%	—	—	—	—	—	—	—	—	—	—	—	1. 96	1. 96
Total	N	2 196	143	834	107	404	—	19	20	299	49	23	82	4 176
	%	52. 59	3. 43	19. 97	2. 56	9. 68	—	0. 46	0. 48	7. 16	1. 17	0. 55	1. 96	100. 00

*** The number in parentheses are for graduates engaged in occupations related to agriculture besides agriculture, Forestry and Fishery.**

**** The percentages are those of graduates about whom there is definite information as of August 1964; 3 167 of the 12 317 high school sampled graduates sampled and 1 525 of the 5 701 college graduates sampled are excluded respectively.**

A : Professional and technical occupation B : Managerial C : Clerical D : Sales E : Agricultural fishery, forestry and kindered
F : Mining, quarrying and kindered G : Transportation and communication H : Skilled occupation and process occupation in manufacturting and other laborers I : Service occupations I_1 : Soldiers I_2 : Others J : Students K : Unemployed

most are engaged to professional and technical occupations (36.7%) while many are in the service industry and in agricultural, forestry and fishery industry, and quite a few are in clerical occupations, One noteworthy tendency in recent years is that agricultural college graduates engaged in actual farming tend to be on the increase.

Concerning the distribution of agricultural school graduates by industry and occupation, distribution by occupation in agriculture and its related fields and in other industry is summarized in the following tables. In the case of agricultural high school graduates, 31.4 percent are engaged in actual farming and 8.1 percent are engaged in occupations related to agriculture. 39.4 percent of all graduates are engaged in agriculture and its related fields.

《**Table-140**》 Distribution of agricultural high school graduates by industry and occupation(Summary)

Industry			A	B	C	D	E	F	G	H	I I_1	I I_2	Total
Agriculture and its related industries	Agriculture, forestry, and fishery	N	308	14	144	7	2 869	—	—	—	—	—	3 342
		%	3.37	0.15	1.57	0.08	31.36	—	—	—	—	—	36.53
	Industries related to agriculture	N	141	1	61	7	55	—	—	—	—	1	266
		%	1.54	0.01	0.57	0.08	0.60	—	—	—	—	0.01	2.91
	Sub-total	N	449	15	205	14	2 924	—	—	—	—	1	3 608
		%	4.91	0.16	2.24	0.15	31.96	—	—	—	—	0.01	39.44
Other industries		N	834	92	1 153	428	—	18	81	45	—	237	2 888
		%	9.11	1.00	12.60	4.68	—	0.20	0.89	0.49	—	2.59	31.56

*** The percentages are those for 9 150 persons who graduated agricultural high schools during the ten years from 1953 to 1962.**

The percentages for students and the unemployed are excluded from this table.

《**Table-141**》 Distribution of agricultural college graduates by industry and occupation(Summary)

Industry			A	B	C	D	E	F	G	H	I I_1	I I_2	Total
Agriculture and its related industries	Agriculture, forestry, and fishery	N	625	25	164	16	377	—	—	—	—	—	1 207
		%	14.97	0.60	3.93	0.38	9.03	—	—	—	—	—	28.90
	Industries related to agriculture	N	937	28	190	7	27	—	1	1	—	—	1 191
		%	22.44	0.67	4.55	0.17	0.65	—	0.02	0.02	—	—	28.52
	Sub-total	N	1 562	53	354	23	404	—	1	1	—	—	2 398
		%	37.40	1.27	8.48	0.55	9.67	—	0.02	0.02	—	—	57.42
Other industries		N	634	90	480	84	—	—	18	19	—	49	1 374
		%	15.18	2.16	11.49	2.01	—	—	0.43	0.45	—	1.17	32.90

*** The percentages are those for 4 176 persons who graduated agricultural colleges during the ten years from 1953 to 1962.**

*** The percentages for students and the unemployed are excluded from this table.**

A :Professional and technical B :Managerial C :Clerical D :Sales E :Agriculture, fishery, forestry and kindred F :Mining, quarrying and kindred G :Transportation and communication H :Skilled occupations and processing occupations in manufacturing, other simpled laborers I :Service occupations I_1:Soldiers I_2:Others

Agricultural college graduates actually engaged in farming constitute only nine percent and those engaged in the occupations related to agriculture 48.4 percent, so the total of graduates engaged in agriculture and its related fields is 57.4 percent.

The overall distribution of persons who graduated agricultural high schools and colleges during the last ten years, by industry and by occupation, is summarized in the Table 142. The major group is of those engaged in actual farming, 24.4 percent, second largest group is of those engaged in professional and technical occupations in service industry, 18.4 percent, while a considerable number of graduates is engaged in the clerical work of the service industry (13.1%).

In respect to distribution by industry only, graduates are mainly involved in the service industry and in the agricultural industry, 35.7 percent and 34.1 percent respectively (in the service industry, those in the armed forces are excluded).

In respect to distribuition by occupation only, the majority of graduates are engaged in professional and technical occupation, 26.1 percent, the second largest group is of those engaged in agricultural occupations, 25 percent, while those engaged in clerical occupations constitute 16.5 percent. Those in the armed forces constitute 14.6 percent of all agricultural school graduates.

《Table-142》 Distribution of agricultural school graduates by industry and occupation

Industry		A	B	C	D	E	F	G	H	I	J	K	Total
Agriculture, forestry, Livestock and fisery	N	933	39	308	23	3,246	—	—	1	—	—	—	4,549
	%	7.00	0.29	2.31	0.17	24.36	—	—	0.01	—	—	—	34.14
Mining and quarrying	N	2	4	8	—	—	18	—	1	—	—	—	33
	%	0.02	0.03	0.06	—	—	0.14	—	0.01	—	—	—	0.25
Manufacturing	N	62	47	60	9	3	—	—	29	—	—	—	210
	%	0.46	0.35	0.45	0.08	0.02	—	—	0.22	—	—	—	1.58
Heavy construction	N	24	3	2	—	—	—	—	11	—	—	—	40
	%	0.18	0.02	0.02	—	—	—	—	0.08	—	—	—	0.30
Electric, gas, water and health service	N	5	—	9	—	—	—	—	2	—	—	—	16
	%	0.04	—	0.08	—	—	—	—	0.02	—	—	—	0.12
Commerce	N	—	7	57	503	3	—	—	1	—	—	—	571
	%	—	0.05	0.43	3.77	0.02	—	—	0.01	—	—	—	4.28
Transportation warehousing and communcation	N	1	11	9	—	—	—	67	1	1	—	—	90
	%	0.02	0.08	0.08	—	—	—	0.50	0.01	0.01	—	—	0.67
Service	N	2,452	139	1.739	14	76	—	33	20	2,227 (1,941)	—	—	6.700 (1,941)
	%	18.40	1.04	13.05	0.10	0.57	—	0.25	0.15	16.71 (14.57)	—	—	50.28 (14.57)
Student	N	—	—	—	—	—	—	—	—	—	612	—	612
	%	—	—	—	—	—	—	—	—	—	4.59	—	4.59
Unemployed	N	—	—	—	—	—	—	—	—	—	—	505	505
	%	—	—	—	—	—	—	—	—	—	—	3.79	3.79
Total	N	3,479	250	2,192	549	3,328	18	100	65	2,228 (1,941)	612	505	13,326
	%	16.11	1.87	16.45	4.12	24.97	0.14	0.75	0.49	16.72 (14.57)	4.59	3.79	100.00

*** Distribution of 13,326 persons who graduated agricultural high schools and colleges during the past 10 years by occupational type and industry**

: The number in the parenthesis is the number of soldiers included

A : Professional and technical B : Managerial C : Clerical D : Sales E : Agricultural fishery, forestry and kindred F : Mining and quarrying and kindred G : Transportation and Communication H : Skilled occupation and proccessing occupations in manufacturing, other laborers I : Service occupation J : Student K : Unemployed

B. Future employment prospects for agricultural school graduates

It is true that agricultural high school graduate can hadly find employment due to an excessive number of graduates. The same is true of agricultural college graduates. Regardless of type of school, educational investment is aimed at the improvement of productivity and the future supply and demand of manpower for a given field in so far as agricultural school education is not compulsory. Provided that the majority of graduates fail to find employment, a great loss of investment and manpower will result. On the contrary, provided that the demand for manpower trained in agricultural school is in surplus the limitation of supply and produdctivity in a country will result in deterioration. Recently, attention is being paid to the term "plans for manpower supply and demand" in this society. This illustrates that the value of manopower as a factor in productivity is increasing. Needless to say proper manpower supply and demand plans are essential to economic development plans.

In establishing manpower supply and demand plans, a projection of the demand is first required and then the supply number is to be estimated. However, there are close connections between the supply and demand of manpower and national economics such as an increase of income, employment distribution, an added value by industrial type and other factors. In other words, the supply and demand of manpower can be figured out by means of function applied with the variable of such factors.

Manpower supply and demand can be represented as a functional relation applied to an independent variable of various factors adjustable artificially

or politically. This means that number in the supply and demand of manpower can be adjusted by policy. In other words, under a social system that is highly developed scientifically, the total supply and demand of manpower can be increased or decreased to some extent by government policy. Here, we can see that there is further significance in policy making with respect to the establishment of plans for the supply and demand of manpower.

Plans of supply are indispensable for the establishment of manpower supply and demand plans. Plans of supply are closely connected with plans for training new manpower, and this is a problem for the educational system. In planning the supply of technical manpower, college educational plans must be taken into consideration. In planning the supply of skilled labor, junior college education must be taken into consideration and in planning the supply of craftsmen high school education must be taken into consideration. Here, education has close connections with economic growth. Thus, education is most significant in economic growth.

Regardless of the field to which manpower is supplied, there are great difficulties in the process of establishing plans for the supply of technical manpower. These difficulties are illustrated as follows:

① Is a certain model applied for the projection?
② Is the model fitted to long-term projection?
③ Is the model suitable for a short-term projection?
④ Are there sudden changes in socio-economic factors?
⑤ How can correct data be obtained for the projection?
⑥ What is the extent of an error in the projection?
⑦ What are the factors having an influence on the demand for manpower?
⑧ Do the factors have something in common with one another? or Are there no other factors except those taken into consideration?
⑨ Is the philosophy and policy, on which the projection is based, lasting?

Such difficulties seen in the foregoing are particularly remarkable in the establishment of the plans for the supply and demand of manpower in the field of agriculture in light of the situation in Korea. We lack accurate data on historical statistics. Of course, it cannot be denied that various organizations have prepared such data, but this data is not reliable because of immaturity with respect to system and skills. Particularly, historical data is badly needed for a long-term projection. Nevertheless, the older the data, the less reliable it is.

The following procedures were adopted in the future projection of employment trends among agricultural school graduates in this survey:

First, the estimated number of future graduates, the supply, was figured out.

Second, the estimated number of agricultural high school and college graduates to be employed was figured out.

Third, the estimated technical manpower demand for the field of agriculture was figured out.

Fourth, the difference between the supply and the demand was identified.

In the projection of each item described in the foregoing, 1964 was set as the base period and the six years from 1965 to 1970 were set as the projection period. Such standards that agricultural high school graduates are skilled manpower and that agricultural college graduates are technical manpower were set for the projection. And, a regression equation using the least square method was applied to this projection. Taking the past into consideration, the equation, which closely approaches the curve having no errors, was applied and the projection was interpreted in two ways, as a long-term projection model and as a short-term projection model.

1. Future projection of the technical manpower supply in the field of agriculture.

Manpower to be supplied to the field of agriculture covers new agricultural school graduates, graduate of past years without employment and the estimated number of those engaged in an occupation other than agriculture and in occupations

related to agriculture who want to change their employment to agriculture and its related fields. Above all, it is very difficult to estimate the number of the unemployed and of those engaged in an occupation other than agriculture and its related fields. Of course, the unemployed can be considered as a manpower supply. However, it is almost impossible to estimate the number of those employed in occupations other than agricultural and its related fields because there are too many factors to hinder, such an estimation. Accordingly, in this survey, the projection was confined to the estimated number of graduates and of those unemployed who can be expected to find employment.

a. Future prospects for graduates

There are certain approaches to the identification of an increase and decrease in the number of agricultural high school and college graduates in the future :

First, the approach based on future population changes.

Second, the approach based on trends toward an increase in the educational population over the total population.

The first approach is available on the premise that an increase in the number of graduates has close connections with an increase in the total population. In other words, the estimated number of future graduates can be figured out by means of showing functional relations taking future population figures as the independent variable. In the first place, data for the future population projection by age is necessary for this kind of projection. Moreover, the identification of correct changes in the total population as well as in the number of graduate in the past is also necessary for this projection. In this case, an equation of the projection model is as follows.

$y_i = f(x_i)$

y_i : the number of the graduate in a given year

x_i : the population of the school age group in a given year

The following points must be investigated in the application of this equation. First, whether or not the function is linear or non-linear? Second, in case the change is made in the non-linear, what functional curve is shown? However, it is almost impossible to apply this method for the time being because of the lack of valid data.

The second approach is based on the assumption that an increase in the number of graduates has close connections with an increase in the total population and the number of student per school age population shows the change by year. In other words, this approach can be made by means ef interpreting functional relations taking the future population and the projection year as independent variables. However, as a result, we may see in using this approach a similar projection equation to that used in the first approach. It is also almost impossible to apply this approach because of the lack of valid data from the past.

Besides, there is another approach which presents a model available for the case in which past data on population is not correct while changes in the number of students is correct. However, this approach is also invalid because of inaccuracies concerning the number of agricultural school graduates in the past.

Lastly. there is another approach which is based on the assumption that agricultural schools will always graduate as many as they do at present. Of course, in this approach there is a difficulty in the correct estimation of future changes. But, this difficulty may be taken as a rather good point.

A projection of the technical manpower supply must be made by means of a sound model. And recommendations made from the projection must be reflected in polcy making. If the future projection of the manpower supply is influenced by political factors, it will bring about errors. In other words, the projection will be of no help in the establishment of a desirable foundation for policy to nar row the gap between demand the supply to the minimum. Provided that the manpower supply keeps on as it is, necessary to identify the gap betweem the demand and the supply to occur in the future and to establish an effective policy to help remove the gap.

From this point of view, the last approach was

applied to this survey for the projection of future graduates. The assumption was intentionally made that if school enrollments are kept at their present levels in the future there will be a gap between the demand and the supply.

The general model in this approach is shown as follow :

$S_t : E_{t-3} \cdot r$ ·····high school

S_t : the number of graduates in the projection year

$E_{t\ 3}$: graduate enrollment in the projection year

r : survival ratio of graduates at the time of enrollment in an upper level school

$S'_t : E'_{t-4} \cdot r'$ ·····college

$r : \sqrt[n]{\pi\ \bar{r}_s}$

r : survival rate of graduate at the time of enrollment in an upper level school

n : the year of the projection

$\bar{r}_s$: geometrical average of the survival rate by grade

The following table shows the number of students by grade in 1963 and 1964, which is available and the most reliable of past data. In the table, the survival rate for high school students is by year · 8353. Multiplying r with future enrollment the number of agricutural high school graduates in 1965 will be 13, 580, 12, 650 in 1966, 1, 130 in 1967, 12, 780 in 1968 and 13, 000 from 1969. The number of agricultural college graduates will be 1, 700 in 1965, 1, 830 in 1966, 2, 080 in 1967 and 1, 790 from 1968.

《Table-143》 Estimated number of agricultural high school and college graduates

Year	Agricultural high school	Agricultural colleges
1965	13, 580	1, 770
1966	12, 650	1, 830
1967	11, 340	2, 080
1968	12, 780	1, 990
1969	13, 000	1, 990
1970	13, 000	1, 990

2. Future projection of employment of agricultural school graduates

There are many approaches to estimating the ratio of employment of future agricultural school graduates. Typical is to make an average of the changing employment trends for agricultural school graduates and the another is to identify the regression equation in the employment trends for agricultural school graduates.

The projection of employment trends for agricultural school graduates is based on the following basis. The projection of employment trends for future agricultural school graduates is based on trends of change in agricultural school graduate's finding employment in the past.

However, it is very difficult to foretell exactly the trends of agricultural school graduate's finding employment in the future. In the projection of the number of those to be engaged in an occupation in the future, it is necessary to identify first the number of those engaged in an occupation at present. In doing this, social, cultural and economic factors must be taken into consideration.

We are lacking reliable statistic on the employment of agricultural school graduates. Therefore, in this survey 19 agricultural high schools and five agricultural colleges were sampled for the identification of the trends in these graduate's finding employment during the ten years from 1953 to 1962. In the first place, as the means for the projection, an analysis with number of those employed in the past and trends in change as the years passed and then the determination of the best possible function form was made. In oder to apply the methods suitably for the projection according to the standard of trends of change in those graduate's finding employment, the regression projection methods was applied to this survey.

In applying this kind of projection method, the following assumptions are necessary. First, this projection methods is based on increase trends and the ratio of an increase in the number of those to be employed is not flexible. In applying this method, the following conditions were taken into consideration: no statistics concerning the ratio of the number of those employed are available, and changes in employment in the past had a fixed trends.

a. Employment percentage among total number of future graduates

1) Change in the employment ratio in accumulation in the past

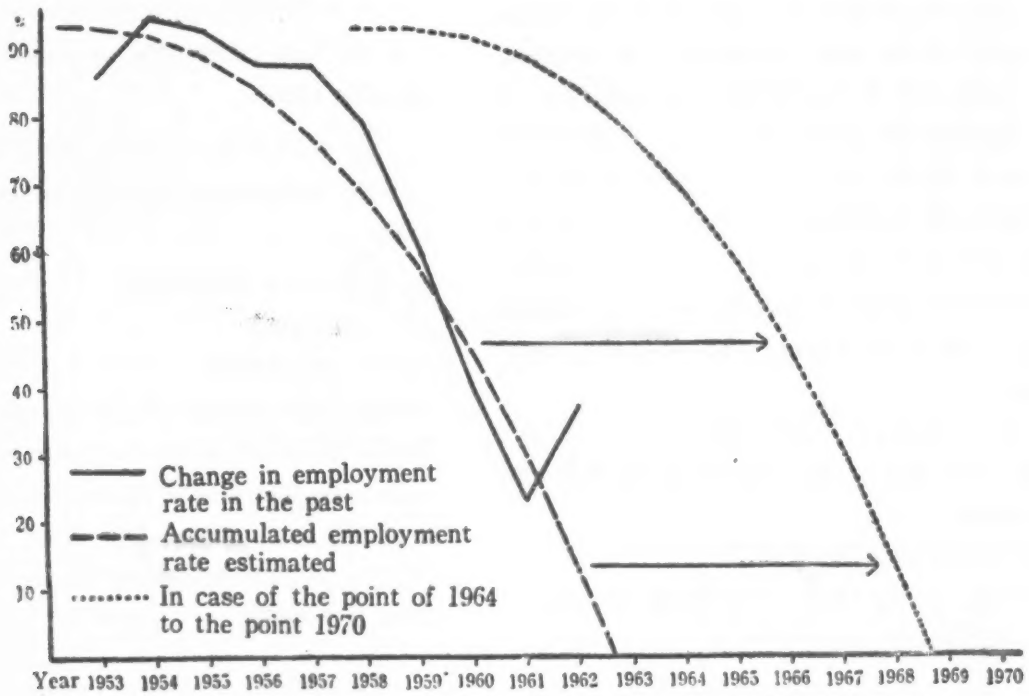
Analyzing employment trends during the ten years from 1953 to 1962, it was found that the ratio of those employed in the past is higher than that of those employed in recent years.

2) Determination of functional form

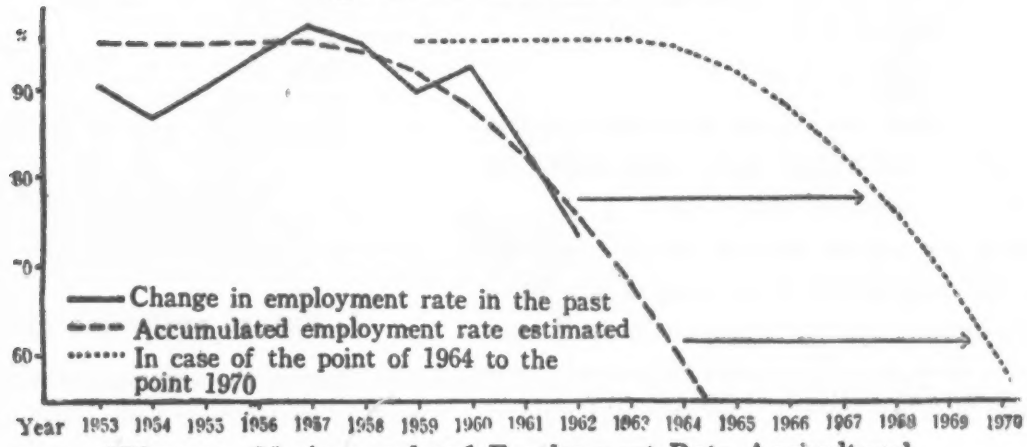
As seen in table 144, the trends of change in the

《Table-144》 Employment percentage of agricultural school and college graduates as of September, 1964

Year	Agricultural high schools	Agricultural colleges
1953	86.78	90.48
1954	94.35	87.03
1955	93.13	90.37
1956	88.82	94.11
1957	88.30	97.30
1958	79.35	95.18
1959	61.18	89.69
1960	39.82	92.41
1961	73.66	83.30
1962	37.48	73.39
1963	—	—
1964	—	—



《Figure - 1》 Accumulated Employment Rate Agricultural High School Graduates



《Figure - 2》 Accumulated Employment Rate Agricultural College Graduates

ratio of employment generally take the form of a curve. According to the trends shown here, assuming that the ratio of employment accumulates year by year, we present the following two graphs:

Setting the accumulated ratio of employment at Y pole and the number of years since graduation at X pole, a second function to the one in the grade above is shown. The model of the second function was used for application to a general equation in this survey.

$R=a+bX+cX^2$

R=employment ratio

X=graduation year−1953+0.5

The reason why X is figured by (graduation year−1953)+0.5 is that a year after graduation is actually 0.5 year, from the standpoint of the time this survey was initiated, which was in September. Accordingly, in figuring the accumulated ratio of graduates in a certain year, X+0.5 must be applied.

As a result of applying the regression equation by using data from the past in order to identify the accumulated ratio of employment for agricultural high school graduates, the following were identified:

$a=92.29$ $b=1.41$ $c=-1.03$

Then, $a, b,$ and c were applied to the following equation:

$Rn=92.29+1.41X-1.03X^2$

Then, if the first differential calculus is applied to the above:

$\frac{dR}{dX}=1.41-2.06X=R'$

If R'=0, X is shown 0.6844

If the second differential calculus is applied to R',

$\frac{d^2R}{dX^2}=-2.06$

Here, we can see that functional R is the second curve with 0.6844 of the maximum.

Therefore, we can see that the year in which the ratio for the employment of agricultural high school graduates becomes highest is nine or ten years after graduation. However, the maximum may not come about so early. Therefore, the accumulated ratio of employment of graduates before nine year is replaced to the maximum. In this case, the standard error of the regressional function is 8,467.

Figuring accumulated ratio of employment of agricultural high school graduate

n=10	ΣY=69 287
ΣX=45	ΣXY=2 469.46
ΣX^2=285	ΣX^2Y=13 366.58
ΣX^3=2 025	a=92.29
ΣX^4=15 333	b=1.41
	c=1.03

$Y=92.29+1.41X-1.03X^2$

σ=8 467

Applying the regression equation on the basis of data from the past so to identify the accumlated ratio of employment of agricultural college graduates:

$a=53.6553$ $b=10.67892$ $c=-0.68265$

Accordingly, the following equation is proved:

$Rc=53.6553+10.67892X-0.68265X^2$

If the first differential calculus is applied to the equation above:

$\frac{dR}{dX}=10.67892-0.68265X=R'C$

If the differential calculus is applied a second time:

$\frac{d^2R}{dX^2}=-0.68265=R''C$

If R'c=0

X=7.7956

Here, this function shows the second curve with X=7.7956 which is the maximum and the maximum ratio of employment of agricultural college graduates is shown to be about eight years after graduation (7.7956+0.5=8.3956). In this case, the standard error is 2.80766.

Figuring accumulated ratio of employment of agricultural college graduates

n=10	ΣY=893.26
ΣX=45	ΣXY=411.22
ΣX^2=281	ΣX^2Y=25930.42
ΣX^3=2 025	a=53.6553
ΣX^4=15 333	b=10.67892
	c=-0.68625

$Y=53.6553+10.67892X-0.68625X^2$

σ=2.8076

3) Future projection of employment

In figuring the accumulated ratio of the employment of agricultural high school and college graduates, December 1970 is set at X pole instead of December 1964. Figuring the number of graduates to be employed by March 1966 (one year after

graduation in 1965)[5] and the number of graduates to be employed by March 1971 (one year after graduation in 1970) to identify the accumulative ratio of employment, the real number of graduates to be employed as shown as follows:

《**Table-145**》 Projection of percentages on future employment and number of graduates to be employed

Year	Agricultural high schools		Agricultural colleges	
	Percentage of employment	Estimated number of graduates to be employed	Percentage of employment	Estimated number of graduates to be employed
1957	93.65	—	—	—
1958	93.65	—	—	—
1959	93.65	—	—	—
1960	92.09	2 180	—	—
1961	89.38	4 929	95.42	560
1962	84.61	6 892	95.42	749
1963	77.78	8 072	95.42	1 505
1964	68.89	8 359	94.23	1 944
1965	57 94	8 425	91.74	1 593
1966	44.93	8 544	87.89	1 698
1967	29.86	9 220	82.67	1 895
1968	12.73	9 827	76.09	1 892
1960	—	10 131	68.14	1 907
1960	—	10 312	58.82	1 909

b. Projection of the number of graduates engaged in farming and occupations related to agriculture.

1) Changes in the employment ratio in the past

Table-146 shows the changes in the employment ratio during the ten years from 1953 to 1962:

It was found that the number of graduates employed in farming and occupations related to agriculture tends to increase year by year. Since it is a constitutional ratio, the maximum value of Y cannot exceed 100.00.

2) Determination of functional form

Analyzing the trends in changes in the employment ratio according to the table-146 the ratio is inclined to increase gradually. Therefore, we can also see that an algebraic function is applied here. On the assumption that the ratio of the number of graduates engaged in farming and occupations related to agriculture changes year by year, the following formula is adopted for the projection:

《**Table-146**》 Percentage of graduates engaged in farming or related fields to the total number of graduates employed

Year	Agricultural high schools	Agricultural colleges
1953	34.09	58.95
1954	39.40	62 11
1955	48.63	58.88
1956	48.40	57 71
1957	58.41	58.33
1958	64.40	63.77
1959	69.83	69.36
1960	71.75	72.21
1961	70.85	67.86
1962	81.70	72.18

$A_R = a + b \log X$

A_R : the employment ratio

X : year

We have seen that in figuring the employment ratio of agricultural high school graduates, $a=57.7159$ and $b=6.231$. If a and b are applied to a general formula, the following function is formed:

$Y = 57.7159 + 6.231 \log X$

The standard error of the projection is 8.11.

In figuring the employment ratio of agricultural college graduates, a is 63.8067, and b is 1.989. If a and b are applied to a general formula ($Y = a + b \log X$), the following projection function is determined:

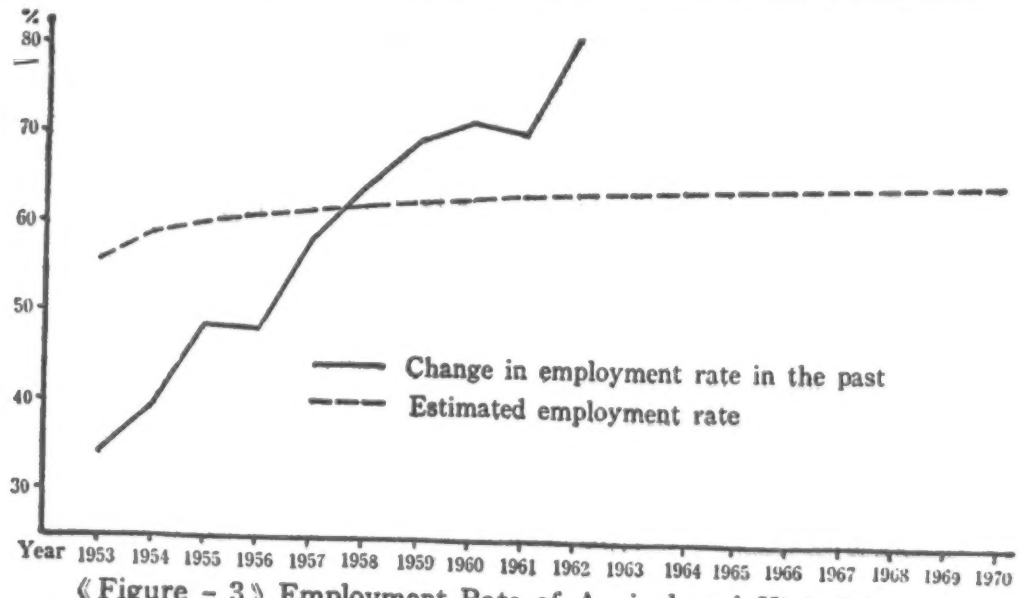
$Y = 63.8067 + 1.9894 X$

In this case, the standard error of the projection is 5.11.

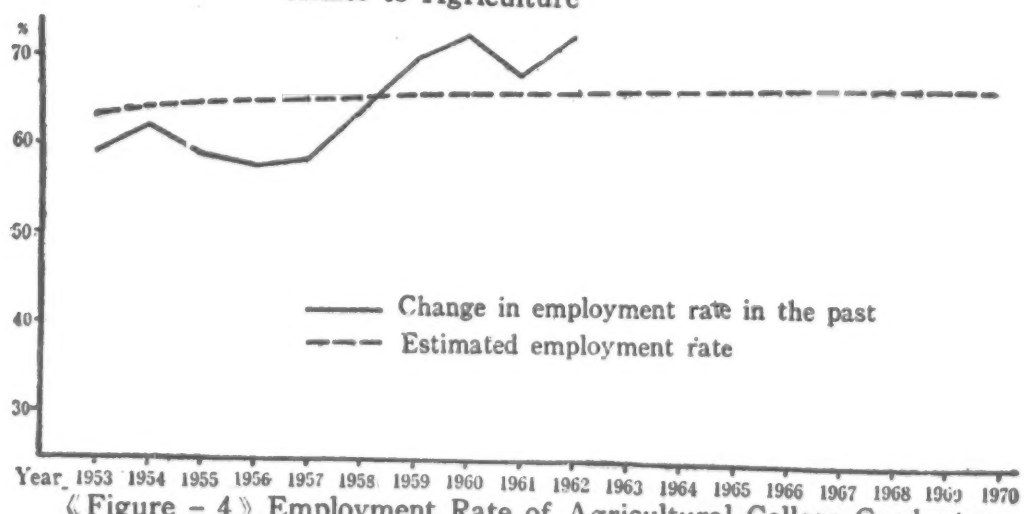
3) Projection of the number of graduates employed in agriculture and occupations related to agriculture.

This projection was made in order to identify the number of graduates to be engaged in agriculture and in occupations related to agriculture by means of multiplying the ratio of those engaged in agriculture and its related occupations by year with the annual error of the accumulated employment ratio

[5] According to the current school system, the school term begins in March and ends in February. However, the school term sampled for this survey is from April to March.



《Figure - 3》 Employment Rate of Agricultural High School Graduates in Farming and Other Occupations Relate to Agriculture



《Figure - 4》 Employment Rate of Agricultural College Graduates in Farming and Other Occupations Related to Agriculture

of graduates as identified in the foregoing.

《Table-147》 Projection of percentage of future employment in farming and related fields to the total number of estimated graduates to be employed

	Agricultural high schools		Agricultural colleges	
Year	Percentage of employment	Estimated number of graduates to be employed	Percentage of employment	Estimated number of graduates to be employed
1953	55.84	—	63.21	—
1954	58.81	—	64.16	—
1955	60.20	—	64.60	—
1956	61.11	—	64.89	—
1957	61.79	—	65.11	—
1958	62.33	—	65.28	—
1959	62.78	—	65.42	—
1960	63.17	1 359	65.55	—
1961	63.51	3 081	65.66	368
1962	63.81	4 378	65.75	492
1963	64.08	5 076	65.84	991
1964	64.33	5 268	65,92	1 281
1965	64.55	5 323	65.99	1 051
1966	64.76	5 416	66.06	1 120
1967	64.95	5 873	66.12	1 252
1968	65.13	6 289	66.17	1 250
1969	65.30	6 510	66.23	1 263
1970	65.46	6 654	66.28	1 265

c. Projection of employment in farming

1) Channges in the employment ratio in the past

It was found that the employment ratio for agricultural high school and college graduates in farming tends to increase year by year and that the

《Table-148》 Percentage of graduates engaged in farming to the total number of graduates employed

Year	Agricultural high schools	Agricultural colleges
1953	16.54	5.73
1954	22.28	7.83
1955	35.20	7.94
1956	35.99	10.23
1957	46.54	11.40
1958	47.99	8.32
1959	58.36	6.77
1960	54.01	10.84
1961	51.74	12.14
1962	67.55	11.81

number of agricultural high school graduates engaged in is greater than that of agricultural college graduates.

2) Determination of functional form

According to trends in changes in the employment ratio as seen in《Table-148》 a second function is applied here. In other words, on the assumption that the employment ratio for graduates engaged in farming increases year by year, the functional form is determined as follows:

$Fr : a+bX+cX^2$

Fr : employment ratio

X : year

Applying a coalition equation in order to identify a, b and c of a general formula($Y=a+bX+cX^2$), it was identified that a is 16.5949, b is 8.3517 and c is 0.3704 for agricultural high school graduates. If a, b and c are applied to a general formula:

$R=16.5949+8.3517X-0.3704\ X^2$

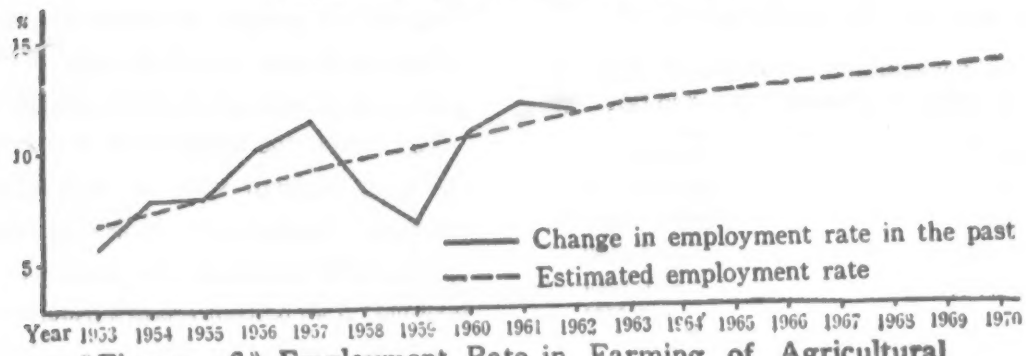
If the first differential calculus is applied to the above:

$$\frac{dR}{dX}=8.3517-.7408\ X$$

If R′ is 0, X is 11.27389

If the second differential calculus is applied to the above:

《Figure - 5》 Employment Rate in Farming of Agricultural High School Graduates Employed



《Figure - 6》 Employment Rate in Farming of Agricultural College Graduates Employed

$$\frac{d^2R}{dX^2} = -0.7408$$

Here, we can see functional R is the second curve with a maximum of 11.27. Accordingly, the maximum employment ratio for agricultural high school graduates is 11 or 12 years after graduation. However, the maximum will not be realized so early. The standard error in this functional is 3.95.

Figuring the accumulated employment ratio for agricultural high school graduates engaged in farming

$n=10$	$\Sigma Y=436.20$
$\Sigma X=45$	$\Sigma XY=2\ 376.86$
$\Sigma X^2=285$	$\Sigma X^2Y=15\ 961.74$
$\Sigma X^3=2\ 025$	$a=16.5949$
$\Sigma X^4=15\ 333$	$b=8.3517$
	$c=0.3704$

$$Y = 16.5949 + 8.3517\ 0.3704\ X^2$$
$$\sigma = 3.95$$

Applying the coalition equation of the second function in order to identify a, b and c for agricultural college graduates, a is 6.7993, b is 0.6394 and c is -0.0131. If a, b and c are applied to a general formula:

$$F_R = 6.7993 + 0.6394X - 0.0131X^2$$

If the first differential calculus is applied to the above:

$$\frac{dR}{dX} = 0.6394 - 0.0262X = R'$$

If R′ is 0, value of X is 24.44.

If the second differential calculus is applied to the above:

$$\frac{d^2R}{dX^2} = -0.0524$$

Here, the functional R is the second function with a maximum of 0.0524. Accordingly, the maximum employment ratio for agricultural college graduates is ten years after graduation. In this case, the standard error for this functional is 1.54.

Figuring the accumulated employment ratio of agricultural college graduates engaged in farming

$n=10$	$\Sigma Y=93.01$
$\Sigma X=45$	$\Sigma XY=461.51$
$\Sigma X^2=285$	$\Sigma X^2Y=3\ 030.51$
$\Sigma X^3=2\ 025$	$a=6.7993$
$\Sigma X^4=15\ 333$	$b=0.6394$
	$c=0.0131$

$$Y = 6.7993 + 0.6394\ X - 0.0131\ X^2$$
$$\sigma = 1.54$$

3) Projection of the future employment ratio and the estimated number of graduates to be employed.

The number of graduates to be employed in farming is estimated by making use of the projection functional, determined in the foregoing, is shown as follows:

《**Table-149**》 Projection of employment in farming for agricultural school graduates

	Agricultural high schools		Agricultural colleges	
Year	Percentage of employment	Estimated number of graduates to be employed	Percentage of employment	Estimated number of graduates to be employed
1964	63.67	4 624	12.24	157
1965	63.67	4 764	12.57	130
1966	63.67	4 951	12.89	142
1967	63.67	5 497	13.17	161
1968	63.67	5 998	13.43	164
1969	63.67	6 824	13.66	168
1970	63.67	6 487	13.86	172

d. Agriculture Occupations(farmers)

1) In the case of maintaining the 1964 proportion of farmers who received an agricultural education to total rural households.

According to statistics compiled by the Ministry of Agriculture, the proportion of farmers who received an agriculture education to the nationwide total of farm household is as shown in the following Table 150:

At present, persons who are receiving or have received a high school education or higher constitute only 15.21 percent of all farm households. The proportions are: agricultural high school graduates, 4.22 percent, non-agricultural high school graduates, 919.14 percent. Farmers who are agricultural college graduates constitute only 0.18 percent and graduates of non-agricultural colleges 1.67 percent.

The larger the arable land to a farm household, the more farmers with an agricultural education involved. Among farm households possessing over 1.0 chongbo farmland, the smallest for practical farming, 5.46 percent retain agricultural high school graduates, and the rate for agricultural college graduates is 0.25 percent. The rate for agricultural

《Table-150》 Status of farm households having agricultural technicians

	High School				College							
	Agricultural		Non-agricultural		Agricultural		Non-agricultural					
Chongbo	Student	Graduate	Student	Graduate	Student	Graduate	Student	Graduate	Total	Others	Population	Number of farm households
below 0.5	4	10	11	29	—	—	—	2	56	1 621	1 677	306
0.5—1.0	26	12	9	32	—	1	—	8	88	2 510	2 598	429
1.0—1.5	19	13	13	21	—	—	1	5	72	1 534	1 606	223
1.5—2.0	9	7	6	6	—	—	1	3	32	719	751	96
over 2.0	6	6	7	16	—	1	1	1	38	605	643	84
Total	**64**	**48**	**46**	**104**	—	**2**	**3**	**19**	**286**	**6 989**	**7 275**	**1 138**
%	5.62	4.22	4.04	9.14	—	0.18	0.26	1.67	25.16	—	—	—
over 1.0	30	22	20	61	—	1	1	9	144	—	—	403
%	7.44	5.46	4.96	15.13	—	0.25	0.25	2.23	35.73	—	—	—
over 1.5	15	13	13	22	—	1	3	4	70	—	—	180
%	8.3[illegible]	7.22	7.22	12.22	—	0.55	1.66	2.22	38.89	—	—	—

(1) Source from Survey and Statistics Department, Ministry of Agriculture and Forestry.
(2) The percentages are those to the total number of farm households.

high school graduates among those who possess over 1.5 chongbo of farmland is 7.22 percent while that for agricultural college graduates is 0.55 percent. If this proportion of agriculturaly educated persons to farm households persists agriculturally educated persons retained by farm households can be estimated according to the following formula:

$G_t : H_t \cdot r$

G_t : employment of the agriculturally educated in the year

H_t : farm households in the year

r : the proportion of agriculturally educated persons to all farm households

Probable employment for each year in the future is estimated according to the model as follows:

《Table-151》 Estimated number of future farm households having agricultural high school graduates

Year	Total number of farm households	Estimated number of future farm households having agricultural high school graduates
1965	2 618 944	110 519
1966	2 708 741	114 309
1967	2 807 538	118 478
1968	2 915 333	123 027
1969	3 032 127	127 956
1970	3 157 921	133 264

This estimation is conducted on the assumption that factors effecting the employment of the agriculturally educated persist as in past. Therefore, if the government takes active action for their employment of them this employment tendency will change.

《Table-152》 Estimated number of future farm households having agricultural high school graduates by area of arable land (1 chongbo=9,917.36 sq. meters)

Year	Over 1.0 chongbo	
	Number of farm households	Estimated number of farm households having agricultural high school graduates
1965	687 735	37 550
1966	711 315	38 838
1967	737 259	40 254
1968	765 566	41 800
1969	796 237	43 475
1970	829 270	45 278
Year	**Over 1.5 chongbo**	
1965	314 535	22 709
1966	325 320	23 488
1967	337 185	24 345
1968	350 131	25 279
1969	364 158	26 292
1970	379 266	27 383

At any rate, an increase of from 5,000 to 6,000 farm households retaining agricultural high school graduates each year is expected. That is, 5,000 to 6,000 agricultural high school graduates are expected to engage in agriculture occupations annually. The farm households possessing more than one chongbo of farmland retaining agricultural high school graduates is expected to increase from 1,500 to 1,800 each year, and those farm households possessing more than 1.5 chongbo of farmland are expected to increase from 800 to 1,000 per year.

e. Future projection for farm households

There are many factors which have an influence on future demand for teachnical manpower. A change in the number of farm households has close connections with the changes influencing farmers. Likewise, a change in the national income has an in fluence on changes in the population to be employed. Moreover, the weight of agriculture in the overall industrial organization, that is, the weight of agricultural production in overall national production is a factor relevant to the number of those to be engaged in farming. Besides, there are other factors such as population increase and a change in farm households which has a direct connection with the demand for technical manpower. In other words, the following points are necessary for the projection of the technical manpower demand in the field of agriculture: first, the identification of changes in future farm households or changes in farming populations; second, estimates on changes in the national income and the position held by agriculture in the overall industry; and third, the projection of the size of farms and the number of farm households. Above all, as described in the following, there are difficulties in the identification of the influence of changes in the national income on the population to be engaged in agriculture. In this survey, the projection was confined to changes in the future number of farm households and size of farms.

1) Projection of the number of farm households in the future

Factors relevant to an increase in the number of farm households can be considered a national income, an increase in the population, industrial organization, etc. Besides, there is another methods based on the assumption that a change will take place in the future in the way that changes came about in the past without taking the factors that had an effect upon change in the past.

It is clear that among three methods described above there are many difficulties in the assumption that the number of farm households will increase along with the increase in the population. First of all, an attempt is made in determining if population can be solely variable in the case of the projection of the change in the number of farm households by means of analyzing the correlations of an increase in the population with an increase in overall national production. We can see that there are three correlations between an increase in the population and an increase in the national income. One of them is that the total national production is unchangeable regardless of any increase in population; the second is that an increase in the population is in proportion to an increase in total national production; and the third is that the ratio in an increase of total national production is higher than that of an increase in population. In case an increase of total national production is lower than that of the population, it is natural that employment will decrease or that an individual income will decrease. In case the ratio of the increase in population remains in proportion to the ratio of an increase in total national production, it can be imagined that employment should be increased in a certain way but the ratio of employment per total population is fixed. Lastly, exactly in case a ratio of the increase in total national production is higher than that of an increase in the population, it may be inferred that employment will be increased or that individual's income be increased. Prior to taking an increase to the population, it is necessary to take the national income first into consideration.

Trends in the increase of income by the field of agriculture in relation to the increase in the overall national income should be first taken into consideration so as to identify the correlations between an increase in the national income and the ratio of employment in the field of agriculture or a change in the number of farm households. Here, we can take three cases. First, the ratio of the increase in income in the field of agriculture is lower than that of the increase in the national income. Second, the ratio of the increase in income in the field of agriculture is equivalent to that of an increase in the national income. Third, the ratio of an increase in income in the field of agriculture is higher than that of an increase in

the national income. Based on this assumption, we can infer various possibilities as we saw in the correlations between population and national income. It is normal that income in the field of agriculture increases every year. If the ratio of an increase in the income of the field of agriculture is lower than that of an increase in the national income, it is difficult to assume that the population to be engaged in agriculture will increase. In other words, as the ratio of an increase in income in other fields of industry increases, the population to be engaged in those other fields of industry increases. Accordingly, the number of households in the field of agriculture decreases because of an increase in individual income and the balance of individual income may be kept in each type of industry. However, in case the ratio of an increase in income in the field of agriculture is higher than that of an increase in the overall national income it is not wrong to assume that the ratio of the population to be engaged in the field of agriculture also will increase. In case the ratio of an increase in the total national income is equivalent to that of an increase in income in the field of agriculture an increase in employment comes to have close connections with an increase in the population or with an increase in overall employment.

Considering the three methods described above, it can be said that the method that takes the ratio of a fure increase farm households figured out based on the ratio of an increase in the national income is the principal method. However, in order to make it effective, the future increase in the national income should be correctly estimated.

Thoroughly considering these various methods, in no case can it be asserted that an increase in farm households is not always kept in parallel with an increase in the population to be engaged in agriculture. Particularly, in case of the second method it is more reasonable to interprete that available manpower in the field of agriculture increases rather than that the number of farm households increases more than the number of households engaged in fields other than agriculture.

Here, we can select a general model in relation to the projection of the number of farm households:

$H = f(X)$

H : denotes the number of farm households.

f(x) : denotes the function using X which shows the income in the field of agriculture

Nevertheless, this model says in other ways that the ratio of an increase in income in the field of agriculture depends on an increase in the number of farm households. In other words, if the government makes efforts to drastically increase income in the field of agriculture as well as income in other fields, the number of farm households can be expected to increase remarkably. However, such an assumption is somewhat inconsistent. The number of farm households sometimes represents the agricultural population. Accordingly, a decrease in X means a decrease in the number of farm households which means an increase in the number of unemployed, while a sudden increase in X means a decrease in H which shows an increase in the total population. However, the increase in farm households along with an increase in income is very flexible. According to the ratio of an increase in the national income that is 3 percent, 6 percent or 8.5 percent, we may estimate an error in the increase in the number of farm households. However, with respect to the number of farm household no huge error has arisen due to the slight difference in the ratio of an increase in income. In other words, the number of farm households is rather stable because of advantageous factors such as ownership of farmland and the close relations of agricultural society.

The Korean Agricultural Economic Research Institute has prepared an effective model for the projection of the number of farm households. The Institute achieved the projection of the number of persons to be engaged in agriculture and the relative ratio between the number of future farm households and the ratio of the population to be engaged in agriculture by means of a linear equation based on data from 1956 to 1962.

As the result of the study conducted by the Institute[6], it was found that the number of future farm households can be shown by the following

[6] Korean Agricultural Economic Reserch Institute, *The Problems on the Improvement of Agricultural Organisms in Korea*, (*Seoul K. A. E. R. I.*, *1963*), *PP 149-162*

relative formula:

$N = 1,256 + 66,271\ Y$

N : denotes the population to be employed

Y : denotes national income

$\frac{Na}{N} = 84.8 - .0098\ Y$

N : population to be employed

Na : population to be engaged in agriculture

Y : national income

$Ha = 1.516 + .1154\ Na$

Ha : number of farm households

Na : population to be engaged in agriculture

$L = 1.995 + 10.5\ t$

L : total area of arable land

t : order of a year

《**Table-153**》 Future trend of farm households based on the growth ratio of national income estimated by the KAERI.

Year	Future trend of farm households based on the growth ratio of national income		Remaks
	Growth ratio of national income : 3%	Growth ratio of national income : 5%	
1956	2 200 000	2 200 000	actual number
1962	2 469 000	2 469 000	actual number
1972	2 660 000	2 861 000	estimated
1977	2 814 000	3 121 000	estimated

data from : KAERI., *Ibid.*, **pp. 163~164**

The methods described above are very useful models. However, in applying these models, the following basic conditions should be provided. First, policy should be stabilized. Second, a policy once established should be steadily enforced. Third, there should be no sudden changes in the industrial constitution. Fourth, skills should not be imported. Fifth, relatively long-term and accurate statistics from the past on such as the national income, the income from agriculture, the number of persons employed, the number of persons engaged in agriculture and the area of cultivated land should be furnished. However, in Korean society economic changes are extraordinary due to political instability and various domestic and outside factors. Therefore, we lack correct statistics on the population to be employed. This fact makes it difficult to use this model.

There is the last method. It is the methods of projection on the premise that a change will be made in the future as it was made in the past regardless of any assumption or factors. This method is very simple, but it may be a valuable methods in the case where basic data is insufficient and political changes remarkable. Particularly, this method is most helpful to a short-term projection.

$H = f\ (X)$

H : number of farm households in X year

X : order of year

In this case, of course, f (X) is sometimes linear and sometimes non-linear.

In this survey, taking consideration of the above facts, the model illustrated last was adopted with emphasis on short-term projection.

a) Projection of total number of farm households

There arose the problem that by what functional relation can the change in the number of farm households in the past be shown, provided that changes in farm households are made in the future as in the past. However this projection may be based on changes in the number of farm households in the past, but the positive influece of the government cannot be ignored. If the government tries to increase the agricultural population by enforcing positive policies, a model of function will be shown in logarithm function. In other words, the model in this case can be $H = a + b \log X$. If the government enforces a positive policy encouraging urban people to engage in agriculture, the model will be $H = aX^b$.

However, excepting these factors it is possible to use a model such as $H = a + bX + cX$ or $H = a + bX$. Particularly, assuming that there will be no error in the projection if there is no pressure from the government, a model such as $H = a + bX$ or $H = a + bX + cX$ will be very useful as a general formula for the short-term projection.

Analyzing the trends in changes in the number of farm households since 1953, we can see that it is one of increase. The 2,249,132 farm households in 1952 increased to 2,415,593 in 1963.[7] However, the annual increase in farm households is not linear. There was a decrease from 1953 to 1956 and there was an increase from 1957. There was a slight

[7] *Annual Repost of Economic Statistics, 1963* Section of statistics of Annual Report made by the Bank of Korea.

《**Table-154**》 Number of farm households during the past ten years by size of arable land.

Year	Below 0.3 Chongbo	0.3—0.5 Chongbo	0.5—1.0 Chongbo	1—2 Chongbo	2—3 Chongbo	Over 3 Chongbo	Total number of farm households
1953	—	—	—	—	—	—	2 249 132
1954	991 951	—	771 762	374 465	92 709	3 571	2 234 458
1955	420 402	534 414	689 745	445 632	122 441	5 551	2 218 185
1956	419 660	522 530	676 108	448 981	125 113	8 157	2 200 549
1957	421 936	523 298	672 328	455 855	129 574	7 923	2 210 914
1958	421 408	515 313	673 900	463 323	137 900	6 479	2 218 323
1959	430 132	528 038	688 303	474 247	139 810	6 889	2 267 419
1960	463 415	545 209	706 689	485 933	141 371	9 889	2 349 506
1961	440 328	506 361	740 999	490 688	142 680	6 060	2 327 016
1962	490 349	522 986	803 162	505 093	140 598	7 265	2 469 453
1963	489 653	519 585	761 015	497 398	138 999	8 943	2 415 593

1) **Source :** *The Bank of Korea: Economic statistics Yearbook 1964* (**Seoul : Research Department, The Bank of Korea**
2) **1 Chongbo=9,917.36 sq. meter.**

decrease in 1962 and in 1963 compared to previous years. In other words, we can see a quadratic were if the regression function suitable for changes in the number of farm households in the past is applied.

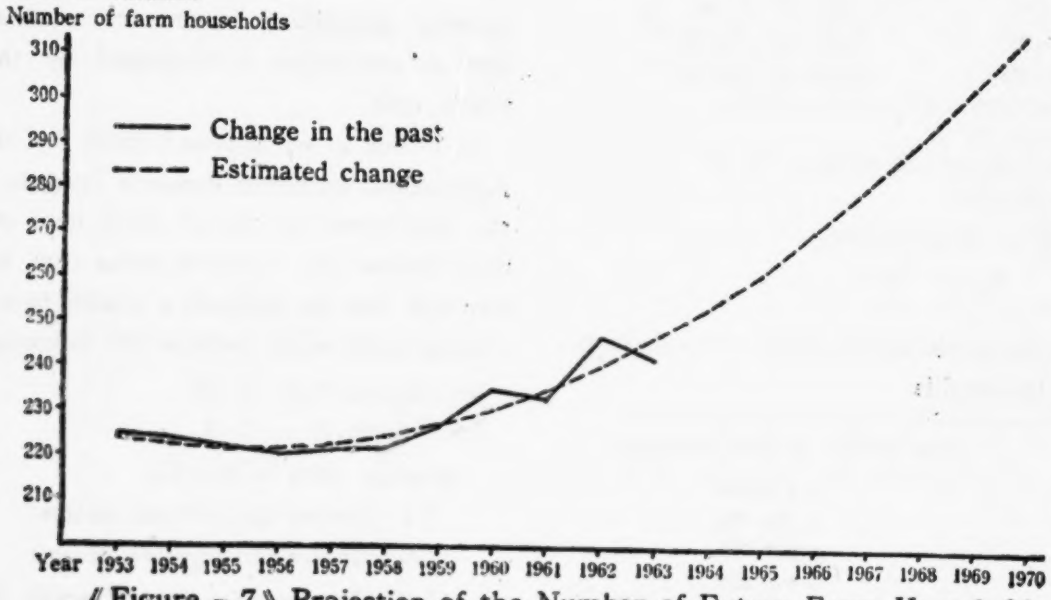
If the least square method is applied using data from the past as *a.*, *b.* and *c.* which is adaptable to the second model, it is figured out that *a* is 2,243,302, *b* is 22,691 and *c.* is 4,499. If *a.*, *b.* and *c.* is applied to a general formula, the following projection equation is shown:

$$H = 2,243,302 - 22,691X + 4,499\ X^2$$

H : denotes number of farm households

X : denotes year

If the differential calculus is applied to H of the projection equation which is figured out, there will be an equation such as $\frac{dR}{dX} = -22.691 + 8998\ X$



《**Figure - 7**》 Projection of the Number of Future Farm Households

Analyzing the change of the number of farm household in the past, we can see that in future projection non-linear second function model or methods of harmonic analysis is adaptable. However, in this survey the second model was applied on the premise that there will be no error if non-linear projection according to the second function because the projection attempted in this survey for the one of short-term.

If second differential calculus is applied, the following formula is shown.

$$\frac{d^2R}{dX^2} = +8998$$

The value of X in case of $\frac{dR}{dX} = 0$ is 2,5217

Therefore, we can see that H of the projection equation is the second function with the minimum mark. In other words, in the projection of the change in farm households of Korea the minimum number is shown from 1955 to 1956 and an increase is made after 1957.

The standard error between H^1 and H which denotes the number of farm household in the past by year identified by using the projection equation obtained in the foregoing is estimated by means of applying the following formula.

$$\sigma_E = \sqrt{\frac{\Sigma_i (H - H^1)^2}{\mu}}$$

σE : standard errer of the projection

H : number of farm household in the past by year

H′ : number of farm household in the past by year modified by the application of the projection equation

N : number of year estimated

The table below shows the value of the projection of the number of future farm households derived from the methods described in the foregoing.

Summary of the procedure for making a non-lineal regression equation for the projection of the number of farm households in the future

$n=11$	$XH=25\ 160\ 648$
$\Sigma X=55$	$\Sigma XH=128\ 256\ 737$
$\Sigma X^2=358$	$\Sigma X^2H=909\ 018\ 133$
$\Sigma X^3=3\ 025$	$\Sigma(H-H')^2=249\ 996$
$\Sigma X^4=25\ 333$	

$$H=2\ 243\ 302-22\ 691\ X+4\ 999\ X^2$$

$$\sigma=30\ 953.6$$

$$\frac{dH}{dX}=-22\ 691+8\ 998X$$

$$X_{min.}=2.5217$$

《**Table-155**》 Estimated total number of future farm households

Year	Total number of farm households
1965	2 618 900
1966	2 708 700
1967	2 807 500
1968	2 915 300
1969	3 032 100
1970	3 157 900

f. Minimum size of arable land and projection of the number of farm households.

Since the objective of agricultural education lies in fostering agricultural technicians, the most appropriate job for an agricultural school graduate is either agricultural or farming. However, it is common sense that those who are engaged in agriculture or farming can hardly make huge profits. In order that agriculture may be an enterprise, it is necessary to bring about the improvement of agricultural production and sufficient profit. At least, one professional technician is required per one farmer who owns a certain size of land available to make a profit. Accordingly, agricultural high school graduates are able to make a profit on farms of the proper size to cultivate. It can be expected to show a profit by assigning one agricultural technician to farmers who own the proper size of farm to make a profit.

There has been argument about the proper minimum size for arable land. It is said that the proper size of arable land is one to two chongbo. Especially, the approach made by Korean Agricultural Economic Research Institute and by Mr. Kim Ung Joon of the Ministry of Agriculture and Forestry on a proper size of arable land is most valuable. According to that approach, the relation between agricultural income and standard living costs in agriculture is illustrated by the size of arable land.

According to the approach made by the Korean Agricultural Economic Research Institute, an average was drawn by size of arable land on agricultural income and standard living cost in agriculture and then the methods available to seek or the average point which satisfies the following model.

Yd=68, 600 Won+27. 9X

CD=72, 800 Won+5. 6X

Average point is Yd=CD

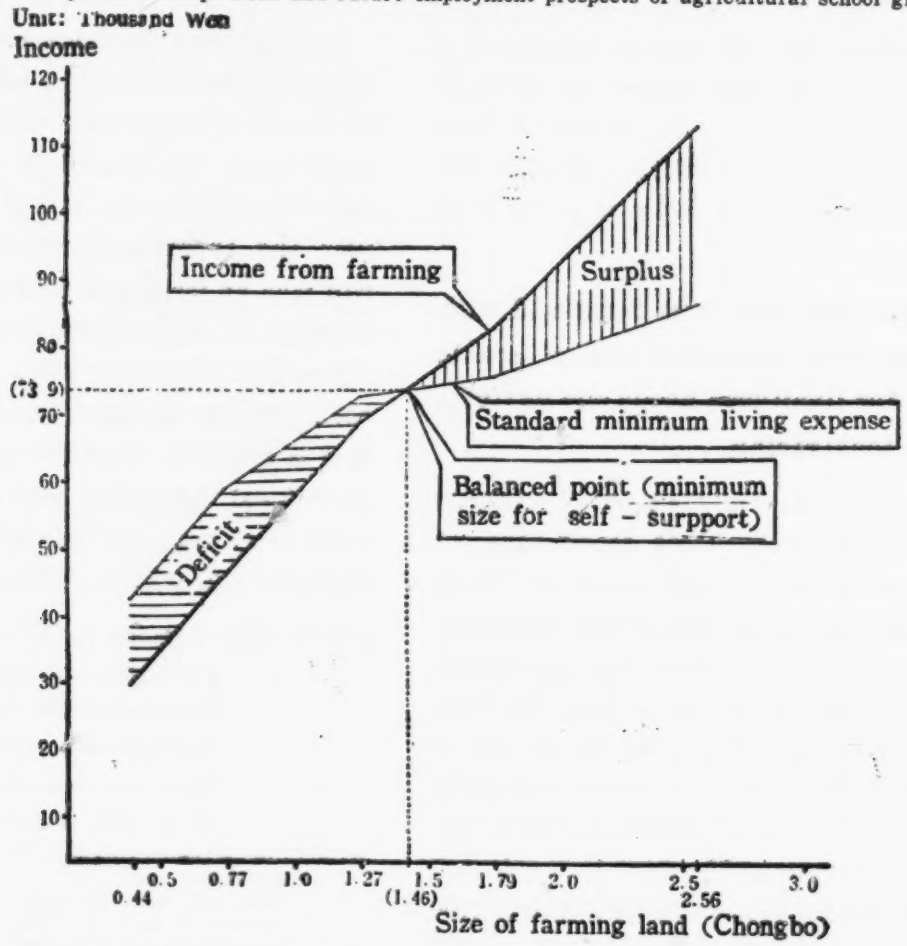
Yd : denotes agricultural income

CD : denotes comparative income

1. 27 chongbo+X=areas of arable land

Here, the minimum size of arable land is set at 1. 46 chongbo.

The method applied by Mr. Kim Ung Joon of the Ministry of Agriculture and Forestry is similar to that applied by the Korean Agricultural Economic Research Institute. However, Mr. Kim did not show agricultural income and standard living costs in agriculture by size of arable land by Won, but he took the crossing point shown on regression line of a ratio of agricultural income and standard



《Figure - 8》 Balanced Point of Income for Farming and Comparative Income

Footnote: **Korean Agriculture Economic Research Institute,** *ob. cit* n. 229

living costs in agriculture by using the linear equation as an average point.

According to this method, the minimum size of arable land is 1, 08 chongbo.

As seen in the foregoing, there is a remarkable difference between two methods, but they can be of value. In determining the minimum size of arable land, it does not make any difference if we set it at 1, 08 chongbo or 1. 46 chongbo. It would be rather better to determine the size ranging from 1. 00 chongbo to 1. 50 chongbo. In this survey, these two methods was adopted together and took the minimum size of arable land as 1. 00 chongbo and 1. 50 chongbo.

The projection of the number of farm households by size of future arable land is shown as follows on the basis of the criteria described above.

The table 147 shows an arithmetical average of the ratio of the increase by years during ten years in the past in the projection of the number of farm households which own more than 1. 0 chongbo and the ratio of the average increase is show to be 26. 76 percent.

《**Table-156**》 Estimated number of future farm households by size of arable land (1. 0 Chongbo)

(1 Chongbo=9, 917. 36 sq. meter)

Year	Total Number of farm households	Below 1. 0 Chongbo	Over 1. 0 Chongbo
1965	2 618 944	1 931 209	687 735
1966	2 708 741	1 997 426	711 315
1967	2 807 538	2 070 279	737 259
1968	2 915 333	2 149 767	765 566
1969	3 032 127	2 235 890	796 237
1970	3 157 921	2 328 651	829 270

《**Table-157**》 Estimated number of tuture farm households by size of arable land (1. 5 Chongbo)

(1 Chongbo=9, 917. 36 sq. meters)

Year	Total number of farm households	Below 1. 5 Chongbo	Over 1. 5 Chongbo
1964	2 538 148	2 333 315	304 831
1965	2 618 944	2 304 409	314 535
1966	2 708 741	2 383 421	325 320
1967	2 807 538	2 470 353	337 185
1968	2 915 333	2 565 202	350 131
1969	3 032 127	2 667 969	364 158
1970	3 157 921	2 778 655	379 266

Table 157 shows the arithmetical average of a ratio of the increase by year during ten years in the past in the projection of the number of farm households which own more than 1.5 chongbo and the ratio of average increase is shown to be 12.01 percent.

1) In the case one farm household with the standard minimum area of arable land for livelihood needs one agricultural techinician.

Each farm household with the standard minimum area of arable land for livelihood should have one agricultural technician. In this section we would like to investigate how many agricultural high school graduates are needed to provide one agricultural high school graduate to each such farm household Here two cases are considered : one is the case of a farmer who is supposed to work an average 25 years, and the other is the case of a farmer supposed to work an average 30 years. It is quite natural that the annual demand for agricultural technicians will vary to whether we take the former case or the latter. And the annual demand for agricultural technicians will also vary from the case of supplying agricultural technicians with an agricultural education during one generation and the case of supplying agricultural technicians for the annual demand without overcoming the present shortage. And it will also vary if we take either one chongbo or 1.5 chongbo as the standard minimum area of arable land necassary for the livelihood of a farm household.

a) In case the standard minimum area of arable land is considered to be one chongbo.

Taking the standard minimum area of arable Land as one chongbo, the number of farm households with the standard minimum area of arable land is estimated to be 687,735, and 829,270 in 1967 and the increase in the number of farm households over the six years from 1964 to 1970 is estimated to be 162,753. If agricultural technicians are supplied to supplement the increase in after 1965, 21,000~33,000 graduates will take up farming every year.

Provided that the shortage of agricultural technicians for farm households with the standard minimum area of arable land will be overcome within thirty years, the demand for agricultural technicians will increase at a rate of 2,000 graduates each year and approximately 41,000~55,000 graduates will take up farming every year. Provided that the shortage of agricultural technicians (agricultural high school graduates) as of 1964 for form households with the standard mimimum area of arable land is overcome within 25 years, the demand for agricultural technicians will increase at a rate of 2,500 every year and approximately 40,000~55,000 graduates will take up farming every year.

《Table-158》 Demand for manpower in case of supplying an agricultural technician to each farm household with arable land above the standard minimum area for livelihood (In case the manpower shortage as of 1964 is not supplied)

Year	Estimated number of farm households having arable land above 1.0 chongbo	In case the manpower shortage as of 1964 is not supplied	In case the manpower as of 1964 is supplied in one generation	
			25 years	30 years
1964	666 517	18 840	45 477	41 038
1965	687 735	21 218	47 855	43 416
1966	711 315	23 580	50 217	45 778
1967	737 259	25 944	52 581	48 142
1968	765 566	28 307	54 944	50 505
1969	796 237	30 671	57 308	52 869
1970	829 270	33 033	59 670	55 231

***Total number of farm household which has an agricultural high school graduates as of 1964=36,392**

b) In case the minimum standard area of arable land is taken as 1.5 chongbo.

Provided that the shortage of agricultural technicians (agricultural high school graduates) for farm households with a minimum standard area of arable land as of 1964 is overcome within 30 years, the demand for agricultural technicians will increase at a rate of 1,000 each year and 600~1,000 graduates will take up farming every. Provided that the shortage of agricultural technicians (agricultural high school graduates) for farm households as of 1964 is overcome within 25 years, the demand for agricultural technicians will increase at rate of 1,000 each year and approximately 1,000 graduates will take up farming every year.

《Table-159》 Demand for manpnwer in case of supplying one agricultural technician (agricultural high school graduate) to each farm household which has arable land over the standard minimum size of arable land

Year	Estimated number of farm households having arable land above 1.5 chongbo	In case the shortage of manpower as of 1964 is not supplied	In case the shortage of manpower as of 1964 is supplied in one generation	
			25 years	30 years
1964	304 831	8 617	20 787	18 759
1965	314 535	9 704	21 874	19 846
1966	325 320	10 785	22 955	20 927
1967	337 185	11 865	24 035	22 007
1968	350 131	12 946	25 116	23 088
1969	364 158	14 027	26 197	24 169
1970	379 266	15 108	27 278	25 250

***Total number of farm household which has an agricultural high school graduates as of 1964=22 009**

3. Projection of the supply and demand for manpower in the field of agriculture sumary.

It is estimated that agridultural colleges will graduate 1,700~2,000 graduates every year in the future. Accordingly, it is estimated that 900~1,000 of these graduates will take up an occupation related to agriculture. Occupations reated to agriculture are the fields most of graduates will enter. The next field graduates are expect to enter is occupational fields other than agriculture and approximately 600 graduates are expected to go into this field every year. It is a general trend that the number of graduates engaged in farming is increasing and 200 graduates are expected to take up farming every year (See table 142). And the number of agriculture college graduates unemployed will be increased 100~400 every year. Accordingly, if an increase of 5~14 percent in the present demand for agricultural technicians in a year is realized in the future, it is estimated that it will be unnecessary to establish a plan for supply. Those who are estimated to be engaged in agriculture and its related fields are no more 65.99~66.28 percent. Therefore, it is necessary to establish a policy to enable those unemployed to engage in agriculture and its related fields in order to effectuate educational investment.

Analyzing the educational background of agricultural college graduates working with organization related to agriculture, those who received an agricultural college education constitute 11.46 percent, which is higher than the total percentage for those unemployed and working in occupations other than agriculture. Here, we can say that if those who are unemployed and engaged in fields other than agricultre could have been absorbed in fields related to agriculture, taking into consideration the professional characteristics of the organization, there will be a greater demand for agricultural college graduates. It is desired that the qualifications of those to be engaged in professional field be limited to those who received a professional agricultural education. In this connection, it is recommended that the government establish a policy to effectuate investment in professional agricultural education.

《Table-160》 Estimated number of agricultural college graduates to be employed

Year	A	B	C	D	E
1065	1 770	1 593	1 051	542	4 003
1966	1 830	1 698	1 120	578	4 238
1967	2 080	1 895	1 252	643	4 620
1968	1 990	1 892	1 250	642	4 716
1969	1 990	1 907	1 263	644	1 815
1970	1 990	1 909	1 265	644	4 919

A : Number of graduates up to a given year
B : Number of graduates estimated to be employed up to a given year after 1961
C : Number of graduates employed in farming and its related occupations of the total number estimated to be employed up to a given year after 1961
D : Number of graduates employed in fields other than agriculture of the total number estimated to be employed up to a given year after 1961
E : Number of graduates unemployed up to a given year 1961

On the assumption that policy is consistent and there are no remarkable changes in socio-economic factors, agricultural high school graduates who are expected to engage in occupations related to agriculture will number about 200~600 every year, which constitutes 1.54~4.42 percent, with those expected to engage in farming 5,000~6,500, every year, those expected to engage in an occupation other than agriculture 3,000~3,600 every year and agricultural

high school graduates after 1958 who have not been unemployed up to now 2,900~4,000 every year.

Of those engaged in fields related to agriculture, those who graduated from agricultural high schools does not go above 48.63 percent. Here, it may be estimated that if the remaining 51.37 percent is substituted with agricultural high school graduates, 9.69 percent of the total number of agricultural high school graduates will be engaged in fields related to agriculture. Consequently, this means that 5.48 percent of the total number of the graduates come to be engaged in agriculture and fields related to agriculture.

At present, only 4.22 percent of all farm households have agricultural high school graduates. If the rate of employment for agricultural high school graduates keeps going on as it is today, there will be 23,235 farmers throughout the country from 1965 to 1970 and there will be 4,000~5,000 graduates who take up farming every year. This number of graduates will coincide exactly with the estimated number of graduates to be engaged in farming.

Taking the minimum standard area of arable land as one chongbo, farm households with more than one chongbo of arable land will be 162,753 from 1965 to 1970. If agricultural high school graduates can find employment in parallel with such an increase of farm household each year, the number of agricultural high school graduates expected to be employed in the agricultural fields and in fields related to agriculture from 1965 to 1970 will be 162,753. In other will be a shortage of 162,753 graduates for the demand from the field of agriculture and the field related to agriculture and there will be an average shortage of 27,125 graduates every year.

Taking the minimum standard size of arable land as 1.5 chongbo farm household keeping more than 1.5 chongbo of arable land will be 74,435 from 1965 to 1970. If agriculture high school graduates can find an employment in parallel with such an increase of farm household every year, the number of agricultural high school graduates to be employed in the field of agriculture and the field related to agriculture from 1965 to 1970 will be 74,435. In other words, there will be a shortage of 74,435 graduates for the demand from the field of agriculture and the field related to agriculture and there will be an average shortage of 12,406 graduates every year.

《Table-161》 Estimated number of demand for agricultural high school graduates

Year	Related occupation to agriculture (A)	In case ratio of agricultural high school graduates assigned to farm household as of 1964 is kept on (B)	In case one agricultural high school graduate is assigned to farm household which owns standard area of arable land which is expected to be increased year by year (within 30 years)		A+B	A+C	A+D
			1.5 chongbo (C)	1.0 chongbo (D)			
1965	559	3 409	19 846	43 416	3 968	20 405	43 975
1966	465	4 290	20 927	45 778	4 755	21 392	46 243
1967	376	4 159	22 007	48 142	4 535	22 383	48 518
1968	291	4 549	23 088	50 502	4 840	23 379	50 793
1969	226	4 929	24 169	52 869	5 155	24 395	53 095
1970	167	5 308	25 250	55 231	5 475	25 417	55 398

《Table-162》 Estimated number of supply of agricultural high school graduates

Year	Number of graduates in a given year (A)	Number of graduates unemployed up to a given year after 1958 (B)	Number of graduates employed in fields other than agriculture of the total number estimated to be employed up to a given year after 1958 (C)	A+B	A+B+C
1965	13 580	38 814	3 102	52 394	55 496
1966	12 650	43 761	3 128	56 411	59 539
1967	11 340	47 291	4 347	58 631	61 978
1968	13 000	48 808	3 538	61 808	65 346
1969	13 000	51 682	3 621	64 682	68 303
1970	13 000	67 380	3 658	80 380	84 038

It is one of the important problems in view of political point to find out the best ways to enable agricultural high school graduates find an employment in farm household keeping the minimum standard size of arable land for the improvement of agricultural skills. If one is satisfied with what it is today and with maintaining present status without taking consideration of new development in skills the problems of improving agricultural education and of supply and demand for manpower may not be so an urgent problem. Particularly, it may be true in the case of short-term plan. However, if the problem of improving agricultural skills is considered in policy making, the matter of supply of agricultural high school graduates must be also taken into consideration and a constructive policy should be developed.

APPENDIX

1. List of Advisory and Planning Committee

Byung Jin Kwak	E. P. B.	Moon Sick Kim	Prof., College of Agriculture, S. N. U.
Chong Suh Kim	Prof., College of Education, Ewha Womans' University	Nyun Soo Chon	Research Associate, C. E. R. I.
Dae Hyun Paik	Department of Education, USOM	Ran Soo Kim	Prof., College of Liberal Arts, Yonsei University
Dong Hak Moon	Chief of Vocational Education Section, M. O. E.	Suk Kyun Joo	Director, Korean Agriculture Research Institute
Hae Kyun Song	Prof., College of Agriculture, S. N. U.	Sung Chick Hong	Prof., College of Liberal Arts, Korea University
In Soo Yu	Office of Rural Development	Tong Wook Kim	Supervisor, M. O. E.
Jae Hyong Song	President, Korean Association of Agriculture Education	Ung Joon Kim	Ministry of Agriculture and Forestry
Jae Un Kim	Vice Academic Dean, Ewha Womans' University	L. B. Pember	Department of Education, USOM
Jong Gon Hwang	Chief Researcher, C. E. R. I.	L. W. Coyne	Department of Education, USOM
Ki Sop Eom	E. P. B.	Williard Kaiser	Ruarl Development Division, USOM
Kuk Jae Lim	E. P. B.		

2. List of Survey Team

Area	Surveyor	Major Field
Gyonggi Province Yoju District	Ung Joon Kim, MOAF	Agriculture
	Kyong Soo Kim, EPB	Economics
	Yoon Tai Kim, CERI	Education
Kangwon Province Pyongchang District	Yong Kun Sim, College of Agriculture, S. N. U.	Agriculture
	Hae Sool Jin, EPB	Economics
	Seock Ho Cho, CERI	Education
North Chung chong Province Poun District	Foo Kap Suh, Seoul Agriculture College	Agriculture
	Ki Sop Eom, EPB	Economics
	Seock Ho Cho, CERI	Education
South Chung chong Province Kongju District	Dong Wook Kim, MOE	Agriculture
	Sung Chick Hong, Korea University.	Sociology
	Ke Hi Oh, CERI	Education
North Cholla Province Mooju District	Hae Kyun Song, College of Agriculture, S. N. U.	Agriculture
	Nyun Soo Chon, CERI	Educational Sociology
	Ke Hi Oh, CERI	Education
	Dae Hyun Paik, USOM	Agriculture
South Cholla Province Sunchon District	Chong Suh Kim, Ewha Womans' University	Educational Research
	Ke Hi Oh, CERI	Education
South Kyongsang Province Chinju District	Kon Yul Chang, Chinju Agriculture College	Agriculture
	Kuk Jae Lim, EPB	Economics
	Yoon Gee Min, CERI	Education

3. Percentage of employment of agricultural high school graduates

Year	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Accumulated percentage of employment
1957	—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	4.77	2.71	1.56	—	—	93.65
1958		—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	4.77	2.71	1.56	—	93.65
1959			—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	4.77	2.71	1.56	93.65
1960				—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	4.77	2.71	92.09
1961					—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	4.77	89.38
1962						—	12.73	17.13	15.07	13.01	10.95	8.89	6.83	84.61
1963							—	12.73	17.13	15.07	13.01	10.95	8.89	77.78
1964								—	12.73	17.13	15.07	13.01	10.95	68.89
1965									—	12.73	17.13	15.07	13.01	57.94
1966										—	12.73	17.13	15.07	44.93
1967											—	12.73	17.13	29.86
1968												—	12.73	12.73
1969													—	—
1970														—

4. Estimated number of graduates to be employed among the total agricultural high school graduates

Year	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1957	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1958		—	—	2 180	2 934	2 581	2 228	1 875	1 523	1 170	817	464	267	—	16 039
1959			—	—	1 995	2 685	2 362	2 039	1 716	1 393	1 070	748	425	244	14 677
1960				—	—	1 716	2 309	2 031	1 754	1 476	1 198	921	643	365	12 413
1961					—	—	1 173	1 579	1 389	1 198	1 009	819	629	440	8 236
1962						—	—	835	1 123	988	853	718	583	448	5 548
1963							—	—	920	1 238	1 089	940	791	642	5 620
1964								—	—	1 081	1 455	1 280	1 105	930	5 851
1965									—	—	1 729	2 327	2 047	1 767	7 870
1966										—	—	1 610	2 197	1 906	5 713
1967											—	—	1 444	1 944	3 388
1968												—	—	1 626	1 626
1969													—	—	—
1970														—	—
Accumulated number of estimated employment		—	—	2 180	4 929	6 982	8 072	8 359	8 425	8 544	9 220	9 827	10 131	10 312	86 981

5. Estimated number of graduates to be engaged in farming and occupations related to agriculture among the total agricultural high school graduates employed

Year	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1958	—	—	1 359	1 829	1 609	1 389	1 169	949	729	509	289	166	—	9 997
1959		—	—	1 252	1 685	1 483	1 280	1 077	875	672	470	267	153	9 214
1960			—	—	1 084	1 459	1 283	1 108	932	757	582	406	230	7 841
1961				—	—	745	1 003	882	761	641	520	399	279	5 230
1962					—	—	533	717	630	544	458	372	286	3 540
1963						—	—	590	793	698	602	507	411	3 601
1964							—	—	696	936	823	711	598	3 764
1965								—	—	1 116	1 502	1 321	1 141	5 080
1966									—	—	1 043	1 423	1 234	3 700
1967										—	—	938	1 263	2 201
1968											—	—	1 059	1 059
1969												—	—	—
1970													—	—
Accumulated number of estimated employment		—	—	1 359	3 081	4 378	5 076	5 268	5 323	5 416	5 873	6 289	6 510	6 654	55 227

6. Estimated number of graduates to be engaged in the occupations related to agriculture among the total agricultural high school graduates employed

Year	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1957	—	—	—	—	—	—	—	—	—	—	—	—	—
1958	—	289	389	342	295	248	201	155	108	61	35	—	2 123
1959	—	—	187	252	222	192	161	132	101	71	40	23	1 381
1960		—	—	108	145	127	110	92	75	58	40	22	777
1961			—	—	45	60	53	46	39	31	23	16	313
1962				—	—	17	24	20	17	15	12	9	114
1963					—	—	10	12	11	9	8	6	56
1964						—	—	8	10	8	7	6	39
1965							—	—	15	20	18	16	69
1966								—	—	18	24	20	62
1967									—	—	18	25	44
1968										—	—	24	24
1969											—	—	—
1970												—	—
Accumulated number of estimated employment	289	576	702	707	644	559	465	376	291	226	167		5 002

7. Estimated number of graduates to be engaged in farming among the agricultural high school graduates employed

Year	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1958	—	1 070	1 440	1 267	1 094	921	748	574	401	228	131	—	7 874
1959	—	—	1 065	1 433	1 261	1 088	916	743	571	399	227	130	7 833
1960		—	—	976	1 314	1 156	998	840	682	524	366	208	7 064
1961			—	—	700	943	829	715	602	489	376	263	4 917
1962				—	—	516	693	610	527	443	360	277	3 426
1963					—	—	580	781	687	593	499	405	3 545
1964						—	—	688	926	815	704	592	3 725
1965							—	—	1 101	1 482	1 303	1 125	5 011
1966								—	—	1 025	1 399	1 214	3 638
1967									—	—	919	1 238	2 157
1968										—	—	1 035	1 035
1969											—	—	—
1970												—	—
Accumulated number of estimated employment	—	1 070	2 505	3 676	4 369	4 624	4 764	4 951	5 497	5 998	6 284	6 487	50 225

8. Estimated number of graduates to be engaged in occupations other than agriculture among the total agricultural high school graduates employed

Year	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of empleyment
1958	—	—	821	1 105	972	839	706	574	441	308	175	101	—	6 042
1959		—	—	743	1 000	879	759	639	518	398	278	158	91	5 463
1960			—	—	632	850	748	646	544	441	339	237	135	4 572
1961				—	—	428	576	507	437	368	299	230	161	3 006
1962					—	—	302	406	358	309	260	211	162	2 008
1963						—	—	330	445	391	338	284	231	2 019
1964							—	—	385	519	457	394	332	2 087
1965								—	—	613	825	726	626	2 790
1966									—	—	567	774	672	2 013
1667										—	—	506	681	1 187
1968											—	—	567	567
1969												—	—	—
1970													—	—
Accumulated number of Estimated employment	—	—	821	1 848	2 604	2 996	3 091	3 102	3 128	3 347	3 538	3 621	3 658	31 754

9. Estimated number of the unemployed among the total agricultural high school graduates

Year	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of graduates
1958	17 127	14 947	12 013	9 432	7 204	5 329	3 806	2 636	1 819	1 355	1 088	1 088	17 127
1959		15 673	13 678	10 993	8 631	6 592	4 876	3 482	2 414	1 665	1 240	996	15 673
1960			13 479	11 763	9 454	7 423	5 669	4 193	2 995	2 074	1 431	1 066	13 479
1961				9 206	8 033	6 454	5 065	3 876	2 867	2 048	1 419	979	9 206
1962					6 558	5 723	4 600	3 512	2 759	2 041	1 458	1 010	6 558
1963						7 225	6 305	5 067	3 978	3 038	2 247	1 605	7 225
1964							8 493	7 412	5 957	4 677	3 572	2 642	8 493
1965								13 583	11 854	9 527	7 480	5 713	13 583
1966									12 648	11 038	8 841	6 935	12 648
1967										11 345	9 901	7 957	11 345
1968											13 005	11 379	13 005
1969												13 005	13 005
1970												13 005	13 005
Accumulated number of estimated unemployment	17 127	30 620	39 170	41 394	39 880	38 746	38 814	43 761	47 291	48 808	51 682	67 380	504 673

10. Percantage of employment of agricultural college graduates

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Accumulated percentage of employment
1960	58.82	9.32	7.95	6.58	5.22	3.85	2.49	1.19	—	—	—	95.42
1961		58.82	9.32	7.95	6.58	5.22	3.85	2.49	1.19	—	—	95.42
1962			58.82	9.32	7.95	6.58	5.22	3.85	2.49	1.19	—	95.42
1963				58.82	9.32	7.95	6.58	5.22	3.85	2.49	1.19	95.42
1964					58.82	9.32	7.95	6.58	5.22	3.85	2.49	94.23
1965						58.82	9.32	7.95	6.58	5.22	3.85	91.74
1966							58.82	9.32	7.95	6.58	5.22	87.89
1967								58.82	9.32	7.95	6.58	82.67
1968									58.82	9.32	7.95	76.09
1969										58.82	9.32	68.14
1970											58.82	58.62

11. Estimated number of graduates to be employed among the total agricultural college graduates

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1960	—	—	—	—	—	—	—	—	—	—	—	—
1961		560	89	76	63	50	37	24	11	—	—	910
1962			660	105	89	74	59	43	28	13	—	1 071
1963				1 324	210	179	148	118	87	56	27	2 149
1964					1 582	251	214	177	140	104	67	2 535
1965						1 039	165	140	116	92	68	1 620
1966							1 075	170	145	120	95	1 605
1967								1 223	194	165	137	1 719
1968									1 171	186	158	1 515
1969										1 171	186	1 357
1970											1 171	1 171
Accumulated number of estimated employment	—	560	749	1 505	1 944	1 593	1 698	1 895	1 892	1 907	1 909	15 652

12. Estimated number of graduates to be engaged in farming and occupations related to agriculture among the total agricultural college graduates employed

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1960	—	—	—	—	—	—	—	—	—	—	—	—
1961		368	58	50	41	33	24	16	7	—	—	597
1962			434	69	59	49	39	28	18	9	—	705
1963				872	138	118	97	78	57	37	18	1 415
1964					1 043	165	141	117	92	69	41	1 671
1965						686	109	92	77	61	45	1 070
1966							710	112	96	79	63	1 060
1967								809	128	109	91	1 037
1968									775	123	105	1 003
1969										776	123	899
1970											776	776
Accumulated number of estimated employment		368	492	991	1 281	1 051	1 120	1 252	1 250	1 263	1 265	10 333

13. Estimated number of graduates to be engaged in occupations related to agriculture among the total agricultural college graduates employed

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1960	—	—	—	—	—	—	—	—	—	—	—	—
1961		327	52	44	36	29	21	14	6	—	—	529
1962			384	61	52	43	35	25	16	8	—	624
1963				766	121	104	85	69	50	33	16	1 244
1964					915	145	124	103	81	61	39	1 468
1965						600	95	80	67	53	39	934
1966							618	98	84	69	55	924
1967								702	111	95	79	987
1968									671	106	91	868
1969										670	106	776
1970											668	668
Accumulated number of estimated employment		327	436	871	1 124	921	978	1 091	1 086	1 095	1 093	9 022

14. Estimated number of graduates to be engaged in farming among the total agricultural college graduates employed

Year	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Estimated number of employment
1961	41	6	6	5	4	3	2	1	—	—	68
1962		50	8	7	6	4	3	2	1	—	81
1963			106	17	14	12	9	7	4	2	171
1964				128	20	17	14	11	8	5	203
1965					86	14	12	10	8	6	136
1966						92	14	12	10	8	136
1967							107	17	14	12	150
1968								104	17	14	135
1969									106	17	123
1970										108	108
Accumulated number of estimated employment	41	56	120	157	130	142	161	164	168	172	1 311

15. Estimated number of graduates to be engaged in occupations other than agriculture among the total agricultural college graduates employed

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	**Estimated number of employment**
1960	—	—	—	—	—	—	—	—	—	—	—	—
1961		192	31	26	22	17	13	8	4	—	—	313
1962			226	36	30	25	20	15	10	4	—	366
1963				452	72	61	51	40	30	19	9	734
1964					539	86	73	60	48	35	23	864
1965						353	56	48	39	31	23	550
1966							365	58	49	41	32	545
1967								414	66	56	46	582
1968									396	63	53	512
1969										395	63	458
1970											395	395
Accumulated number of estimated employment		192	257	514	663	542	578	643	642	644	644	5 319

16. Estimated number of the unemployed among the total agricultural college graduates

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	**Estimated number of graduates**
1960	—	—	—	—	—	—	—	—	—	—	—	—
1961		952	392	303	227	164	114	77	53	42	42	952
1962			1 122	462	357	268	194	135	92	64	51	1 122
1963				2 261	937	717	538	390	272	185	129	2 261
1964					2 670	1 088	837	623	446	306	222	2 670
1965						1 766	727	562	422	306	214	1 766
1966							1 828	753	583	438	318	1 828
1967								2 080	857	663	498	2 080
1968									1 991	820	634	1 991
1969										1 991	820	1 991
1970											1 991	1 991
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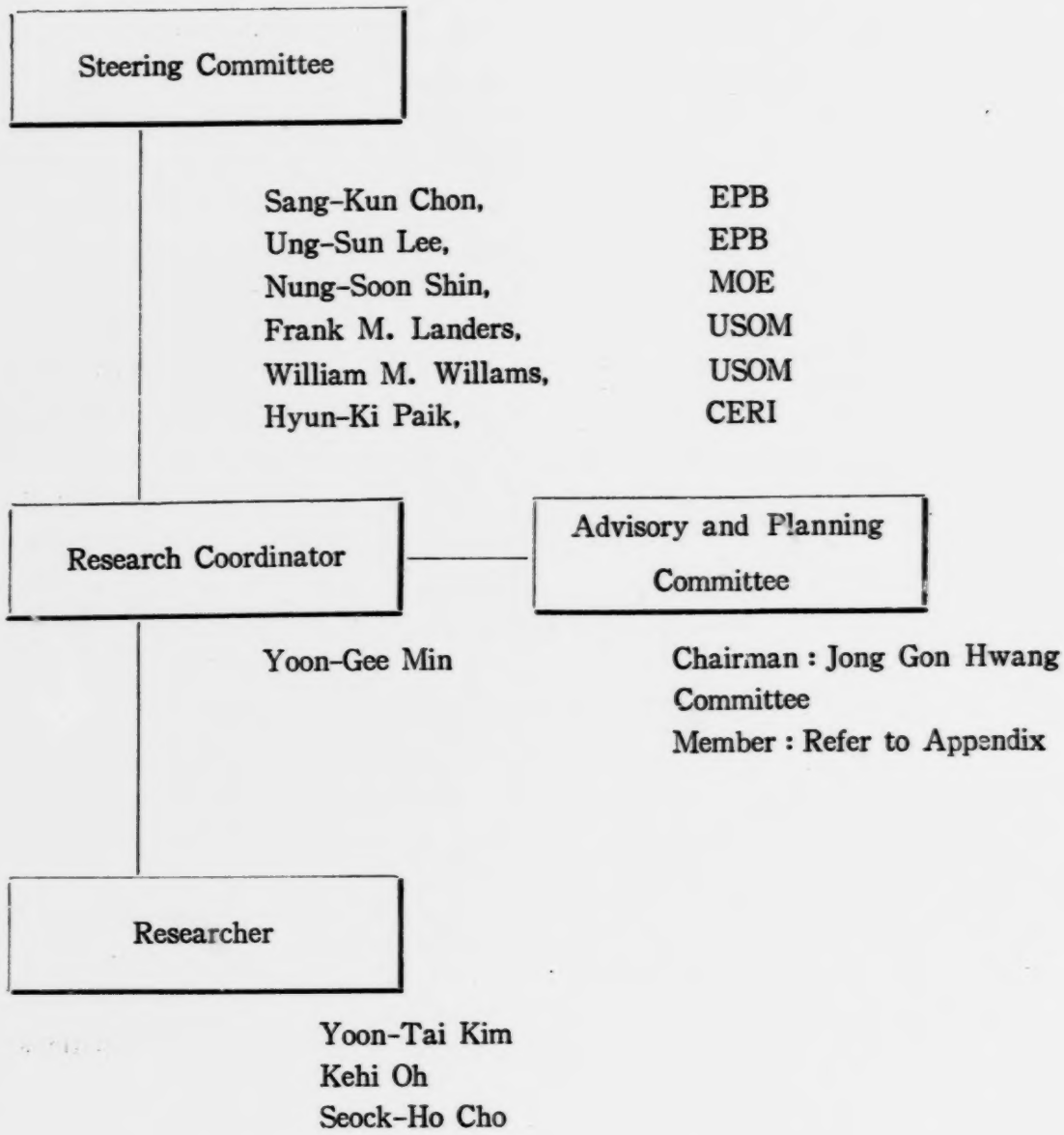

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The purpose of this report is to help medium-sized manufacturing firms, which use job shop production methods in processing lightweight materials, to establish guidelines for computer use. Data were collected by mailed questionnaire from 91 firms in a national sample and 31 firms in a midwest sample. From another 28 in the midwest sample data were collected by phone in addition to the questionnaire. Of this total, 83 used computers. Findings included: (1) There was no correlation between company size and computer use, (2) 70 percent of the companies reporting over $7 million in sales had electronic data processing while only 40 percent under $7 million had data processing, (3) Two companies had discontinued computer use after initial installation, (4) Few companies used computers for production scheduling, engineering, and market studies, and (5) Practically all firms planned computer use within 5 years. Other findings are reported under estimated benefits, problem areas, personnel matters, and costs and benefits. The questionnaire and extensive data are included. (EM)

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A STUDY of COMPUTER USE in MEDIUM-SIZED MANUFACTURING FIRMS

MANPOWER REPORT 68-3

1 AUGUST 1968

OFFICE OF MANPOWER STUDIES
SCHOOL OF TECHNOLOGY
PURDUE UNIVERSITY
LAFAYETTE, INDIANA 47907

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A STUDY of COMPUTER USE

in

MEDIUM-SIZED MANUFACTURING FIRMS

The purpose of this report is to help medium-sized manufacturing firms, which use job shop production methods in processing light-weight materials, to establish guidelines for computer use. Computer utilization, effectiveness, management involvement, profitable applications, problem areas, manpower and salary data are included.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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* * * * *

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* * * * *

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A STUDY OF COMPUTER USE IN MEDIUM-SIZED MANUFACTURING CONCERNS

1. PURPOSE OF THE STUDY

The purpose of this study is to establish guidelines for computer use by medium-sized manufacturers which use job shop production methods in processing lightweight materials. Measures of computer effectiveness were selected by appraising studies of usage already established within larger industries using computers which might be applicable to the medium-sized industry segment.

Directed to companies which ranged in size from 200 to 1200 and sales from $5 million to $15 million a year, this study surveyed in depth the computer experience of a representative sample of this medium-sized industry segment. It was limited to manufacturers with job shop operations because documented knowledge of computer applications to this type of medium-sized industry is almost non-existent while computer applications to process type industries, such as chemicals manufacturing or petroleum refining, have been generally recognized.

The medium-sized job shop type of industry represents a stage of development which gives a preview of future industry expansion. Every company that today has achieved greatness at one time passed through this medium-sized stage of development. Most companies in beginning manufacturing operations do so on a "job shop" basis, producing to specific customer order. Each order may be different and call for a different machine set up or different process operation. As the company develops through a process of simplification, standardization, and specialization, it expands and moves towards an automated, continuous process operation. Accompanying this transition to mass production are large increases in sales volume.

Most of today's larger companies reached the mass production stage before the advent of the computer. Today, however, industries expecting to achieve this stage of development have available to them the use of the computer as a management planning and control tool, and it may be the deciding factor which will not only determine whether or not a company can achieve greatness, but even if it can survive. [1] This medium-sized "job shop" segment of industry may very well have its future at stake in appraising the potential effects of the computer upon its growth.

1. Refers to reference number in Bibliography on page 49

2. THE EXPERIENCE OF OTHERS

At the time of the survey which was the basis of this study, there were almost 40,000 computers in existence.# Details of the applications of these computers and objective evaluations of their relative effectiveness however, have been difficult to obtain. In the early stages of computer applications to business the most comprehensive body of knowledge is originating with surveys of consultants, academic researchers and others.

Surveys of large companies providing fundamental standards for computer use have been reported by McKinsey and Company,[2] Booz, Allen and Hamilton,[3,4] and Diebold, Inc.,[5] all management consulting firms, and by McGraw-Hill Corporation.[6] Texts by Byron Carter of National Cash Register, Co.,[7] Dr. Richard Sanders[8] of Memphis State University and Blanton- Traut and Associates,[9] consultants, provide details on computer applications in small business.

These surveys provide the guidelines for establishing the standards of computer use by the medium-sized firms which are the subject of the present study. Some of these standards should be directly applicable, regardless of the size or type of organization. For example, top management involvement, with emphasis upon the functions of planning, organizing, and controlling, has been found to be a requisite for successful computer utilization in larger companies.[2] Would this not also be true for the medium-sized company? There are standards of appraisal, however, which might yield varying results. For example, total cost of the computer installation should vary directly with the size of the organization. When appraised in terms of cost per unit of sales or employment, however, or when analyzed by type of organization, other facets of the computer cost factor should be revealed.

Factors Revealed in Studies of Large Companies

The larger companies surveyed were predominantly giant corporations, usually exceeding $100 millions in annual sales. Most had been involved with computers since their development in the fifties and usually the computer installation had evolved from basic unit record equipment. Because of this early experience with electronic data processing, objectives of computer applications and performance would be expected to be more specifically defined in these very large companies. A summary of such factors defined and conclusions drawn in the studies of computer use in these companies is reported below.

Degree of Computer Utilization

In order to justify the cost of a computer in large companies it must be usually applied beyond the conventional clerical and accounting functions. It can and should provide basic information for complex business decisions, and major emphasis should be placed upon using computers for planning and scheduling both production and marketing functions. The surveys of large company computer use indicated that the degree of utilization or "sophistication"* defines a major difference between companies returning a satisfactory profit from their computers and those companies receiving only a marginal return or who report losses on the computer.[2,3,4]

*"Sophisticated" functions (over and above accounting and clerical functions) include production scheduling, process control, business forecasting, market analysis, and engineering studies and design.

Based upon an interpolation of annual surveys conducted by Business Automation magazine. Survey made in summer of 1967.

The various functions can be more appropriately handled when programed together rather than independently. Though a "total concept" approach is ultimately desirable it should be reached gradually.[8] Only very large companies were able to justify the computer processing of a single function, for example. a 20,000 employee company using a computer for payroll purposes alone. It has been surmised, however, that in smaller companies, where payroll computerization alone would be unprofitable, its extension to other functions would yield a return from the computer as profitable as that of a large competitor.[10]

The computer as an aid to top management calls for the extension of its applications to sophisticated levels well beyond conventional accounting and clerical functions. It is recognized however that the basic accounting and clerical functions are a good training medium for the people who eventually will manage the computer at more sophisticated levels.[2]

Computer Cost Standards

The successful use of a computer requires an appropriate investment in technical manpower and equipment, and these call for large monetary expenditures. Computer cost as a ratio to sales in large companies surveyed ranged from $1.25 to $30 per $1,000 sales. The average in the very large firms was around $6 per $1,000 sales.[2,3,4]

The successful larger companies have been increasing their computer expenditures after initial installation at the rate of about 20% a year. This is after a first year investment which averaged an expenditure of about $3 for every $1000 annual sales. Companies which have not made this type of financial commitment are lagging behind their competitors in profitable computer operations.

The successful large companies are now moving into their third generation of computer usage with more "sophisticated" applications. They are spending more money to do so, but are realizing a greater return which has justified the increased cost. As a general rule, large companies spend approximately 30-40% of total EDP costs on equipment, 40-50% on operations, including salaries and maintenance, and approximately 20% on outside services, including outside programming.[4]

Profit on Computer Expenditures

Companies adequately utilizing their computers did so only after establishing clear-cut quantifiable objectives. Those companies who planned their computer applications to yield an estimated dollar and cents return which could justify the cost by return-on-investment principles were those most likely to subsequently realize a favorable return.[2] The more successful computer users of the large companies not only can effectively measure their computer's contribution but are also reporting a 30% return on computer dollars spent.[2]

Companies not able or willing to explicitly plan and measure their computer contribution were not realizing a satisfactory return and/or expressed disappointment in their computers' performance. The investigations of both the large and small firms revealed that many such companies are not able to report rate of return because they have not isolated factors by which computer performance can be objectively appraised. Some companies could not even be sure whether the computer yielded a profit or a loss. An obvious conclusion therefore is that the management discipline of planning and control is an absolute requisite for successful computer applications.[11]

Computer Management and Personnel Requirements

A high degree of top management involvement is a requisite for successful computer use. Firms successfully using computers are usually those whose top managements take active interest in specific computer applications and whose key departments participate in the overall computer program. In many companies where the computer is organizationally placed under the finance function, at a level below the controller, it is often being used as an accounting machine and making only a minimal contribution. In companies where the computer is under the direction of a high level management executive, supported by operating managers with active interest in its operation, it is making more significant contributions and realizing a greater return.[2] Large companies most successfully using computers have them under the jurisdiction of top level executives, and many of these managers came from operating departments.

The surveys of large companies reveal little information concerning present EDP personnel requirements, other than expected continued growth at the rate of approximately 20% per year in computer facilities and personnel.[4]

The Studies of Small Businesses

Most small companies (under $5 million annual sales) were using service bureaus and time sharing. Of those with less than 200 employees, only a few had "in-house" computers. This reflects a major consideration by small companies of the cost of the equipment.[8] (As this cost becomes lower with developing computer technology, the smaller companies should be more likely to invest in their own computers). Though employment and sales volume receive major attention as guidelines for computer involvement, the number of actual transactions to be processed also is a key factor. If the number of transactions is such that a computer can reduce data processing costs over and above those incurred with conventional methods, then the computer can be justified.[9] One investigator suggests that small companies, though limited in resources, have greater flexibility and can ultimately justify the use of the computer as a management tool. They may eventually use it to a greater advantage than can their larger competitors.[10]

The investigations of small users of computers affirmed studies made of large corporations which indicated that sound management planning and involvement was the key to successful computer use. Feasibility studies were strongly recommended for small companies as being necessary to a

successful computer program. It is only by such studies the computer can be appraised and its contribution measured.[8]

In analyzing in total the studies of both large and small firms the most significant general conclusion this investigator drew is that computer investment will represent a larger and larger share of the resources of successful users but that this greater investment will yield an even greater return. These studies also seem to suggest that the larger and more successful companies are widening the competitive gap between themselves and the smaller users.

The effective use of a computer by a very small company will usually be limited to time sharing or use of a service bureau, or in some instances by extensive application to many functions a small "in house" computer might be feasible. In the latter case, however, technical manpower deficiencies and inadequate software would be constant problems.

Implications for the Present Study

From these studies of both large and small companies there emerges several quantifiable factors which can become standards for both relative and absolute appraisals. As outlined below, they become the basis of the questionnaire used to quantify and appraise computer use by the medium-sized job shop production companies surveyed.

What is the percentage of the medium-sized job shop production companies with EDP facilities, to what uses are they applying them, and what are such companies' plans for the future?

What contribution to company profits are computers making in this segment of industry?

What are the major problems medium-sized companies faced in the original installation and subsequent use of the computer?

To which level in the organization is the top EDP responsibility assigned?

What are present EDP manpower complements in these companies and what are their estimated manpower needs for the future; are there ratios of EDP employment that can be used for manpower planning purposes?

How much does the computer cost the medium-sized company and how does this compare with the cost incurred by larger and smaller competitors?

Answers to these questions hopefully will fill a void in the information available to the segment of our industry upon which the long-term future of our economy to a great extent rests.

3. SURVEY METHODOLOGY AND RATIONALE

An analysis of Dun and Bradstreet's Million Dollar Directory indicates there are approximately 5,000 manufacturing concerns in the U.S., ranging in size from 200 to 1,200 employees and from $5 to $15 million in annual sales. This range may be defined as a "medium-sized" segment between "large" companies and "small" companies. A wide continuum of production applications are represented within this group, from: (a) continuous process industries with long lead time and high item cost to (b) job shop production at high speed with short lead time and small item cost. This latter group (b) was identified by analyzing Standard Industrial Code designations reported in the Million Dollar Directory. It was decided to appraise computer use within this industry population using survey and interview techniques.

The Survey Samples

The survey population of medium-sized job shop production companies was 1,085. Company size ranged from 200 to 1,200 employees and sales volume from $5 million to $15 million annually. This company population represents a total U.S. employment of approximately 500,000 workers, all in manufacturing, or approximately two-tenths (2.) of 1% of total U.S. Manufacturing employment.[12]

This population was separated into two geographical subpopulations, (1) a five state midwestern area including Indiana, Ohio, Kentucky, Illinois, and Michigan, and (2) the rest of the U.S. Random samples of approximately 33% for each subpopulation were drawn from a file of 1,085 identifier cards.* A third sample of 10% was drawn from the midwestern population to be used to make a special telephone estimate of the bias of the other 2 samples generally characterized with mail response. It was believed that many companies in the U.S. mail survey (US-M) and in the midwest mail survey (MW-M) would not return their questionnaires, with those not responding probably being less inclined to computer use than those responding.

Companies in the midwest telephone survey (MW-T) were phoned after they received the survey package. This assured that each company in this special sample would give some response. Of questionnaires mailed to the US-M sample 37% were returned and 34% of the MW-M sample were returned. Table I provides details of the survey returns, classified by sales volume.

Characteristics of Survey Companies

Companies in all 3 survey samples combined were evenly distributed over the standard industrial classifications (SIC) representative of job shop types of operation. These were identified by the SIC codes used in the Dun and Bradstreet market identifier cards. The industry represented by the largest number of companies in all 3 samples combined was fabricated metal products. A total of 90 companies out of a grand total of 230 were from this industry. Characteristics of survey respondents and non-respondents are detailed in Tables II and III.

*see appendix III, p. 48

TABLE I

Analysis of Returns: Mail and Telephone Surveys

Sample	Number Distributed	Number Responding	Not Returned	Percentage Returned
US-M* Questionnaires				
$10MM Sales & Up	76	26	50	
Under $10MM Sales	193	65	128	
TOTAL	269	91	178	34%
MW-M** Questionnaires				
$10MM Sales & Up	32	12	20	
Under $10MM Sales	51	19	32	
TOTAL	83	31	52	37%
MW-T*** - Companies Phoned				
$10MM Sales & Up	10			
Under $10MM Sales	18			
TOTAL	28	28		100%

* Sample (33%) selected from population of companies in all states of continental U.S. other than five-state midwestern area. Questionnaire directed and returned by mail.

** Sample (33%) selected from midwestern company population (Indiana, Illinois, Ohio, Michigan, Kentucky) to which the questionnaire was directed by mail, and from which the return was by mail.

*** Sample (10%) selected from 5 state midwestern company population to which the questionnaire was directed by mail, but with instructions to hold for telephone follow-up.

TABLE II

Respondents and Non-respondents
by Industry Classification

	Computer-Yes	Computer-No	No Reply
Fabricated Textile products, except clothing	1	3	3
Clothing	1	2	19
Wood Products, except furniture	9	10	12
Furniture	13	9	31
Converted Paper Products	7	4	20
Printed Cards and Forms	3	1	6
Fabricated Rubber and Plastic Products	12	4	19
Leather Products	2	8	29
Glass and Abrasive Products	1	2	2
Fabricated Metal Products, including containers	20	17	53
Misc. Machinery & Equipment	5	3	15
Photographic Equipment	3	0	6
Toys	6	1	10
Not elsewhere classified	--	3	5
Totals	83	67	230

TABLE III

Respondents and Non-Respondents
by Industry Values
MEANS

	Sales Volume	Net Worth	Year* Started	Employed Total	Credit** Rating
Questionnaires Returned (150)	8.37	3.15	35.	444.	1.60
Have Computers (83)	8.97	3.33	35.	467.	1.60
US-M (46)	8.52	3.54	34.	477.	1.52
MW-M (20)	9.70	2.60	35.	474.	1.70
MW-T (17)	9.31	3.59	37.	430.	1.71
Do Not Have (67)	7.64	2.94	34.	417.	1.60
Questionnaires not Ret'd (230)	8.11	2.85	41.	501.	1.76

* "Average" year after 1900 than companies in group started operations

** 1=AAA, 2=less than AAA, 3=non-rated

The responses to the survey questions were tabulated, after being coded and punched on IBM cards. Each company in the survey was identified individually; and in addition to questionnaire responses, appropriate information from the Dun and Bradstreet identifier cards (sales volume, employment, etc.) were included in the tabulation.

Characteristics of EDP Users and Non-Users

and Their Plans for the Future

1. Does your company now use computers or electronic data processing equipment of any sort or has it ever used such equipment?

   -Yes, now in operation

   -No, never have used

   -Yes, used at one time, but discontinued (Please explain)_____

2. If now using, in what form are these services?

   -Own EDP equipment? Make, model and size _____

   -Lease

   -Utilize commercial EDP or computer services? Using since _____ (date)

   -Time sharing

   -Other _____

3. If you are not now using computer or EDP services, what plans do you have for the future?

   -None

   -Expect to install or lease within one year

   -Expect to install or lease within 2-5 years

   -Will be at least 5 years or longer before we use computers

   -Other _____

17. Comments: _____

4. SURVEY RESULTS

After they were tabulated, responses to questions were combined, compared and grouped into appropriate categories for the most lucid presentation to the reader. These categories of findings were not appropriate to the original chronological listing of items on the questionnaire; therefore, references to these questions on pages facing section headings though indicating the original item number, will not be in sequence. The basic findings are presented under the following headings:

(1) Characteristics of EDP Users and Non-users and Their Plans for the Future
(2) Computer Applications and Utilization
(3) Contribution of the Computer to Profits
(4) Problems Encountered Since Installation
(5) Obtaining and Training EDP Personnel
(6) Current and Future EDP Manpower Requirements
(7) EDP Salaries and Other Computer Costs
(8) Extent of Top Management Involvement with the Computer

Characteristics of EDP Users and Non-users and Their Plans for the Future (Questions 1,2,3 and 17)

The first group of questions seeks to inventory the use of EDP equipment by the medium-sized manufacturers defined by the study. A summary of their responses will reveal benchmarks of past, current, and planned future involvement in computers with which comparisons may be made with other industry groups and from which interpolations and projections may be made.

Though there was no material degree of correlation between company size and computer use, by inspection of the data it was determined that a dividing line which separated high and low percentages of computer users in terms of annual sales fell within the $7 to $10 million range. Above $7 million in sales, 70% of the companies had computers, whereas only 40% below $7 million had computers. At approximately 400 employees there was a similar line dividing high and low percentages of users. The typical company in this study which reported EDP equipment averaged an annual sales of $9.3 million and employment of 467. Table IV reports details of computer use and its relationship to sales volume, employment and credit rating.

TABLE IV

Computer Use and Employment, Sales and Credit Rating

	Number of Firms		Number of Firms	Total
Use EDP Equipment	80*	Do Not Use	62**	142***
$10MM Sales & Up	35	$10MM Sales & Up	10	45
Below $10MM	45	Below $10MM	52	97
$7MM Sales & Up	54	$7MM & Up	24	78
Below $7MM	26	Below $7MM	38	64
AAA-1 Rating	44	AAA-1 Rating	33	77
Less than AAA-1	36	Less than AAA-1	29	65
400 Employees & Up	46	400 Employees & Up	20	166
Under 400 Employees	34	Under 400 Employees	42	76
300 Employees & Up	66	300 Employees & Up	41	107
Under 300 Employees	14	Under 300 Employees	21	35

* Excludes 3 companies for which this information was not available
** Excludes 5 companies for which this information was not available
*** Excludes 8 companies for which this information was not available

Type of Computer Use and Plans for the Future

Approximately 55% of the 150 companies responding to the questionnaire are currently using EDP equipment. Most companies lease their computers with approximately 15% using service bureaus, and 20% with unit record equipment only. Those with unit record equipment were contemplating full computer use in the near future. From the sample returns it may be estimated that in the 1,085 company population there are approximately 250 computers of the medium-sized type represented by the IBM 360 (model 20-30) or NCR 315 (10 CRAM).

A summary of types of EDP usage by respondents is reported in Table V. The typical companies responding to the survey had been using EDP equipment less than 5 years. This relative inexperience is reflected in the degree of computer utilization later reported by respondents. An analysis of the questionnaires reveals that companies in this study are using their computers predominantly for basic accounting and clerical functions. Such use is regarded by computer authorities as being at an early or "unsophisticated" stage of computer utilization.[3,4]

In five years it is estimated that total EDP use by this medium-sized industry group surveyed will increase from 55% to 80%. Of 67 companies in the 3 samples combined not using EDP equipment 53 (80%) expected at some time in the future to install a computer or use a service bureau. 37 (55%) of these non-users expected to be users within the near future (up to 5 years) and 27 (40%) of the non-users expected to be using EDP equipment within one year. The highest percentage of installations planned for the future were reported by the US-M group which currently lags behind the MW-M group in computer usage. If companies in this group install as planned within the 5 year period they will have caught up with the MW-M group.

Several companies which had at one time used a computer but discontinued it reported that they had done so because they could not justify the expenditure or because of problems such as "poor planning of the initial installation". The number of companies using but subsequently discontinuing, however, were at a minimum. Only two discontinued completely. Several others had discontinued leasing their own equipment and had contracted with service bureaus.

Comments from many of the respondents without computers implied that though they were "thinking" about computers, few were formulating specific plans for their installation. There were also some vague comments, reflecting an apparent attitude of uncertainty, indecisiveness, and a general lack of knowledge of computer applications practical for their companies.

TABLE V

Summary of EDP Usage

	US-M	MW-M	MW-T	Total
Use EDP Equipment				
Own or Lease	33	14	12	59
Service Bureau or Time Sharing	9	6	5	20
No Answer	4	0	---	4
Total	46	20	17	83
% of Total Sampled	51%	64%	61%	55%
Do Not Use				
Expect to within 1 year	20	3	4	27
Withing 2-5 years	4	3	3	10
5 years or longer	12	2	2	16
No plans	4	1	1	6
Other	5	2	1	8
Total	45	11	11	67
Total Sampled	91	31	28	150

Computer Utilization

5. Please identify according to relative importance the various functions for which your company utilizes a computer or other EDP equipment. Use 1 for prime importance, 2 for secondary importance, 0 for not at all.

-Payroll
-Accounts receivable
-Materials inventory
-Work Standards
-Personnel records
-Productions scheduling
-Rail and Truck loading and scheduling
-Engineering
-Price estimating
-Sales analysis
-Marketing studies
-Other

Contribution of the Computers to Profits

6. What credit can you give to your computer in terms of improved efficiency in overall operations, considering both administrative and manufacturing costs?

-0%
-1-5%
-11-25%
-6-10%
over 25%

If you are willing to translate this to annual dollars cost savings, please indicate in this blank. $_____.

7. What is the estimated annual dollar return which you can credit to your computer for each dollar spent annually in operating your computer installation? Include both amortization and direct operating costs. "Guesstimate" if necessary, please.

-Under $1.00
-$1.00-$1.04
-$1.05-$1.14
-$1.15 or over
Other

9. What do you expect your estimated dollar annual return per dollar invested in computers to be in 1972?_____ 1977?_____

Computer Utilization (Question 5)

A characteristic of the job shop type of operation which accentuates potential computer contribution is the large number of different items produced. A large number of sales transactions and production operations are prevalent with a wide, variable mix. Each order requires a separate pricing, billing and production notation, and the number of transactions which some authorities feel best indicate the degree of computer feasibility.[9] This factor relates at least indirectly to the different uses to which a computer is put.

Answers to survey question 5 revealed that the medium-sized manufacturers responding are relatively "unsophisticated" in their uses of computers, as measured by the number and degree of applications revealed in the surveys of the larger corporations. The level of sophistication has been defined by whether the computer is being used only for basic clerical and accounting operations or whether it is being used in the more complex operating and planning functions such as production control and market analysis and forecasting.

Table VI reporting the use to which computers were put by the surveyed companies, indicates a predominance of clerical applications; major use was in payroll, accounts receivable, sales analysis, and inventory control. Only a small percentage of the companies surveyed use computers for the more sophisticated functions of production scheduling, engineering and marketing studies.

This is especially significant because experiences of the larger corporations reveal that the computer does not pay for itself until its use is extended to these more sophisticated areas. At this point in time therefore, medium-sized job shop manufacturers represented by this survey are not realizing a significant return on their computer investment.

Contribution of the Computer to Profits (Questions 6,7 and 9.)

Many respondents were willing to estimate subjectively a percentage efficiency improvement due to the computer (question 6). In the three survey samples combined this averaged approximately 10.5% overall improvement. Respondents were much more reluctant to estimate a dollars and cents return for each $1.00 spent on the computer (questions 7 and 9). Though many respondents noted in their individual comments that their computer return could not be adequately measured or allocated, the experience of larger companies indicates that it can. Companies in the medium-sized survey group are revealing a weakness when admitting that they had not or could not make such estimates.

Of those willing to estimate a specific monetary return only the MW-M sample could show a return of any significance; namely $1.09 per $1.00 spent. This does not meet the minimum return on investment standards of $1.15 accepted by many companies. Both US-M and the MW-T samples were deficient in this area, with the MW-T companies actually averaging a penny loss for every dollar spent. The US-M group estimated a 3% average return on computer investment. Details of computer contribution to profits are presented in Table VII.

TABLE VI

Functions for Which Computer is Utilized

Function	Number Times Mentioned	Number Times noted "prime importance"	Significance Ratio*
Payroll	67	43	.642
Accounts Receivable	43	25	.581
Materials Inventory	50	32	.640
Work Standards	24	12	.500
Personnel Records	14	0	.000
Production Scheduling	38	23	.605
Rail & Truck loading and scheduling	6	3	.500
Engineering	8	3	.375
Price Estimating	14	10	.710
Sales Analysis	66	43	.651
Marketing Studies	26	10	.386
Internal Control Reports	28	20	.710
Other	22	8	.363

* Ratio of times noted as being of prime importance to number of times mentioned.

TABLE VII

Estimated Efficiency and Financial Return

Credit to computer for overall increase in efficiency			U.S.; Mail US-M Number	U.S.; Mail US-M Total	Midwest; Mail (excluding MW-M) Number	Midwest; Mail (excluding MW-M) Total	Midwest; Telephone MW-T Number	Midwest; Telephone MW-T Total
(1)	-%	(0)*	2	0	1	0	1	0
(2)	1-5%	(3)	11	33	4	12	2	6
(3)	6-10%	(8)	6	48	5	40	1	8
(4)	11-25%	(18)	8	144	3	54	4	72
(5)	Over 25%	(30)	3	90	1	30	2	60
	Total		30	315	14	136	10	146
	Average (%)			10.5%		9.7%		14.6%
Average $ Return								
Present (1)	Under $1.00	(.95)*	13	12.35	2	1.90	4	3.80
Present (2)	$1.00-$1.04	(1.03)	4	4.12	7	7.21	4	4.12
Present (3)	$1.05-$1.14	(1.10)	4	4.40	1	1.10		
Present (4)	$1.15 & Up	(1.20)	5	6.00	6	7.20		
	Total		26	26,87	16	17.41	8	7.92
	Average (Present)			1.033		1.09		.99
1972 (1)	Below $1.15	(1.10)*	7	7.70	2	2.20	1	1.10
1972 (2)	$1.15-$1.25	(1.20)	2	2.40	4	4.80	4	4.80
1972 (3)	Over $1.25	(1.30)	4	5.20	3	3.90	1	1.30
	Total		13	15.30	9	10.90	6	7.20
	Average (1972)			1.18		1.21		1.20
1977 (1)	Below $1.15	(1.10)*	3	3.30	1	1.10	1	1.10
1977 (2)	$1.15-$1.25	(1.20)	4	4.80	3	3.60	1	1.20
1977 (3)	Over $1.25	(1.30)	3	3.90	5	6.50	3	3.90
	Total		10	12.00	9	11.20	5	6.20
	Average (1977)			1.20		1.25		1.25

*Median

Problems Encountered

8. <u>If your answer to Question 7 above is under $1.00, please check what you consider to be the most important reason.</u>

-Need more time to adapt computer to plant problems

-Am afraid that we are not large enough to take full advantage of the computer.

-We haven't yet learned to use it adequately and problems of employee education and selection of skilled computer personnel have held us back.

-Computer not adaptable to this type of operation.

-Other.

14. <u>Below are listed problem areas which probably all companies experience when first installing a computer. Would you please indicate by number 3,2,1, and 0 those problems you had with your initial installation, with the numbers indicating the relative significance of the problem. (3-Major, 2-Moderate, 1-Minimal, 0-None)</u>

-Inadequate knowledge of our industry by the computer service people making the installation.

-Technical weaknesses in our own computer personnel

-Inadequate systems engineering support by the computer

-Inadequate training of office and operating personnel in the use of the computer at its initial installation.

-Inadequate attention by top management in directing and influencing the acceptance of the computer on a total concept basis.

-Difficulty in translating variables to be processed to consistent symbols adaptable to the computer

-Technical problems in the installation and maintenance of equipment during its early use.

Respondents were more optimistic about expected return in 1972. In the 3 samples combined the average return predicted was $1.20 per $1.00 spent. The estimate for 1977 increased to $1.21 per $1.00 spent.

The midwest seemed to fare better in its computer experience than the rest of the U.S. companies in this geographical sample reported a greater return on their computer investment, paid higher salaries and used their computers more extensively.

Though companies in general were conservative in their estimates of return and many reported losses, several gave glowing reports of computer contribution. The highest benefit reported was a $2.50 return for every dollar spent. This respondent added that the return "could have been higher if they had been better prepared to use time sharing and outside programing to handle peak loads."

Problems Encountered (Questions 8 and 14.)

Companies which spent more money on the computer than was returned noted as a predominant reason that they "needed more time" to adapt the computer to plant problems. They also noted frequently that they had not learned to use it adequately, and had problems obtaining and educating qualified personnel. Though no company acknowledged that it was not large enough to take full advantage of the computer, several respondents individually made supplementary statements that this was in fact a major problem. The contradiction may lead one to believe that some respondents were not sure of themselves.

The problems of employee selection and training were also contributory factors in companies not realizing a satisfactory return on computer investment at the initial installation of the computer. This problem was identified by question 14 as technical weaknesses in the company's personnel concerning both original aptitude and abilities and in subsequent training of office and operating personnel in using the computer properly. Other problem areas centered on programming weaknesses or other "software" problems specifically reflecting the difficulty of the computer technicians and company specialists.

Individual comments on these problem areas indicated that communications between computer suppliers and plant personnel were a major cause. Errors in the transmission of information had disillusioned some users. Resistance of personnel to the computer deterred others and comments in general pointed out weaknesses in educating employees to accept the benefits of the computer.

TABLE VIII

Why Companies Have Not Shown A Profit
On Their Computer Expenditure

	US-M	MW-M	MW-T	Total
Need more time to adapt computer to plant problems	7	2	3	12
Not large enough to take full advantage of computer	0	0	0	0
Have not learned to use it. Held back by problems of employee selection and education.	7	0	1	8
Computer not adaptable to this type of operation	1	0	0	1
Other	2	0	0	2

TABLE IX

Significant Problem Areas at Initial Computer Installation

PROBLEM AREA	Times Mentioned (Major)	Times Mentioned (Moderate)	Times Mentioned (Minimal)	Total Times Mentioned
(1) Inadequate knowledge of our industry.	9	9	10	28
(2) Technical weaknesses in our own computer personnel.	6	18	16	40
(3) Inadequate training of office and operating personnel.	10	9	18	37
(4) Inadequate systems engineering support. . .	7	6	15	28
(5) Inadequate attention by top management. . .	7	6	11	24
(6) Difficulty in translating variables. . .	7	12	14	33
(7) Technical problems in the installation. . .	3	12	13	28

Obtaining and Training EDP Personnel

13. Please appraise the quality and source of training your people received at the original installation of your EDP equipment.

-W ell planned formal program, directed by the computer supplier

-Strictly informal training applied within our company by company personnel

-Very weak and inadequate under the direction of the computer supplier

-No training at all; this was one of our biggest mistakes

-Other _____

15. What difficulty have you had in obtaining qualified computer personnel from outside sources?

-Extremely difficult, available qualified personnel almost non-existent

-Have no difficulty obtaining qualified personnel

-Have not relied on outside sources, but have been training my own computer technicians

-Have literally had to steal computer technicians from other companies by bidding up salaries

-Other _____

Current and Future EDP Manpower Requirements

11. In addition to your EDP manager, how many other people in classifications below are assigned directly to this function?

Analysts _____ Coding Clerk _____

Programers _____ Key Punch or Data typist ____

Tab or sorting mach. oper. _____

Computer oper. _____ Other (Please name) ____

_____

12. Approximately how many additional people do you expect to have in your computer installation over and above that number specified above in 1972? _____ 1977? _____

Obtaining and Training EDP Personnel (Questions 13 and 15.)

Generally the respondents commented favorably upon the computer supplier's training assistance (question 13), but as expected, respondents were having difficulty acquiring properly qualified people from outside sources (question 15). Few would acknowledge, however, that they had resorted to the extreme of "stealing" computer technologists from other companies. The most typical answer was that it was "extremely difficult to obtain qualified personnel". Many companies indicated that they did not rely on outside sources but had been training their own computer technicians.

A large minority indicated that they had no difficulty acquiring qualified personnel. One company in the telephone survey which had no difficulty indicated it was because of geographical location, with area schools providing good talent and with few industries to absorb it. In all samples combined companies located outside major metropolitan areas were having less difficulty in securing EDP personnel than those located within metropolitan areas. To one company, however, being in a small town was a disadvantage, because the rural area "did not provide the technical skills and training facilities appropriate to computer technology."

Current and Future EDP Manpower Requirements (Questions 11 and 12.)

Computer sources nationwide are predicting phenomenal increases in EDP personnel in industry over the next decade. One of the purposes of this study was to estimate the needs of the medium-sized job shop industry group for a comparable period.

Present EDP complements of respondents was inventoried (question 11), and future requirements estimated (question 12). Respondents in all 3 samples to survey question 12 as a group expected better than a 30% increase in computer personnel. Only one company, with sales of $14 million and employing 800, expected to have fewer people in its computer installation in 1972. Another company in projecting no increase in personnel commented, "We have realized such profitable return from outside computer services we will continue to use them as opposed to developing our own installation."

Current EDP employment in respondent companies is reported in Table X. Estimates of new computer installations over the next five years may be made from Table V, which outlines current EDP usage and future plans. The increases in personnel expected by present users can be projected and combined with estimates of new computer installations from Table V, using average EDP employment to estimate the employment by new users.

Of the companies reporting EDP installations, the average EDP employment is 7.0 employees. Over the next 5 years these companies expected to increase their EDP employment by 30%, to an average of 9. Fifty-five percent of the companies presently without a computer (37) will have their own computer installations and will average 8 EDP people per installation in 5 years. In combining these two projections it may be predicted there will be more than a 50% increase in EDP employees over the next 5 years.

TABLE X--Summary Data

Relating Sales, EDP Employment and EDP Cost

CO #	Annual Sales ($MM)	Total Employed	Total EDP Emp.	Annual EDP cost	EDP Cost Per $M Sales	EDP emp. per 100
1	10.0	475	4.	50,000	05.00	0.8
2	06.0	760	5.	173,750	28.96	0.7
3	13.5	725	14.5	205,500	15.22	2.0
4	10.0	550	10.	114,500	11.45	1.8
5	08.0	405	7.	163,125	20.39	1.7
6	05.0	350	1.	25,000	05.00	0.3
7	08.0	400	4.	64,375	08.05	1.0
8	10.0	915	16.5	253,750	25.38	1.8
9	08.0	500	12.	483,750	60.46	2.4
10	____	300	7.	52,000	____	2.3
11	12.0	600	3.	70,000	05.83	0.5
12	08,6	440	5.	167,500	19.48	1.1
13	06.0	325	9.	351,250	58.54	2.7
14	10.0	475	13.	205,100	20.51	2.7
15	06.0	415	6.5	79,500	13.25	1.6
16	05.0	200	5.	143,750	28.75	2.5
17	11.7	657	10.	126,875	10.84	1.5
18	10.0	300	2.	191,900	19.19	0.6
19	15.0	400	7.	97,500	06.50	1.7
20	11.0	375	6.	94,375	08.58	1.6
21	05.0	220	5.	70,500	14.10	2.2
22	08.8	450	6.	98,800	11.23	1.3
23	05.0	275	6.	108,500	21.70	2.2
24	07.5	300	7.	87,500	11.67	2.3
25	05.0	320	5.	83,750	16.75	1.6
26	14.6	510	10.5	146,000	10.00	2.1
27	11.8	800	2.5	23,750	02.01	0.3
28	10.0	600	9.	190,000	19.00	1.5
29	6.0	300	12.	231,250	38.54	4.0
30	10.1	225	13.5	268,125	26.72	6.0
31	11.0	300	4.	72,500	06.60	1.3
32	5.0	425	1.	10,800	02.16	0.2
33	06.8	600	9.	95,400	14.03	1.5
34	07.5	500	5.	111,060	14.81	1.0

(cont'd.)

TABLE X (continued)

CO #	Annual Sales ($MM)	Total Employed	Total EDP Emp.	Annual EDP Cost	EDP Cost Per $M Sales	EDP emp. per 100
35	12.0	600	5.	95,833	07.99	0.8
36	10.0	400	4.	59,375	05.94	1.0
37	15.0	700	5.	78,000	05.20	0.7
38	15.0	600	7.	91,000	06.07	1.2
39	10.0	600	4.	80,000	08.00	0.7
40	15.0	800	6.5	89,000	05.93	0.8
41	11.0	600	13.	211,500	19.23	2.2
42	07.6	300	5.	30,150	03.97	1.7
43	11.8	550	3.	78,300	06.64	0.5
44	15.0	750	25.	530,620	35.37	3.3
45	12.0	210	6.	96,250	08.02	2.9
46	10.0	650	6.	89,375	08.94	0.9
47	05.5	300	5.	96,250	17.50	1.7
48	05.0	215	1.	21,125	04.23	0.5
49	14.0	750	3.	68,750	04.91	0.4
50	07.0	280	4.	53,125	07.59	1.4
51	10.0	600	5.	83,750	08.38	0.8
52	05.0	250	2.	19,000	03.80	0.8
53	06.5	140	5.	125,000	19.23	3.5
54	08.0	505	3.	53,750	06.72	0.6
55	10.1	625	2.	25,000	02.47	0.3
56	08.4	275	10.	114,000	13.57	3.6
57	14.0	300	17.	261.000	18.64	2.1
58	07.0	300	6.	104,625	14.95	2.
59	12.5	466	13.5	165,500	13.24	3.
60	07.0	400	5.	81,250	11.61	1.2
61	08.8	490	8.	109,375	12.43	1.6
62	15.0	200	8.	271,250	18.08	4.0
63	05.0	300	4.	39,000	07.80	1.3
64	15.0	900	16.	193,000	12.87	1.8
65	05.5	300	2.	78,750	14.32	0.7
66	10.0	500	8.	52,500	05.25	1.6
67	05.0	350	5.	98,750	18.75	1.4
Weighted Average	09.3	467	7.0	131,352	14.08	1.45

Since the non-respondents in the original sample probably have fewer computers than respondents,* a greater percentage increase in computer personnel for this group may be expected. One might project from these estimates that EDP personnel requirements of companies of this size and type will increase between 75% and 100% during the next 5 years.

A parallel estimate may be made that of the 1085 companies in the defined population of medium-sized job shop companies slightly less than one half presently have EDP installations or personnel assigned to EDP functions. The average company in this population employs approximately 500 with a ratio of one and a half EDP employees for 100 other workers, or a total of 7.5 EDP employees per company. The 50%+ which now have EDP installations expect to increase their complements by 30% over the next 5 years, raising the average EDP employment to 10 per company. In addition, of those which do not have computers, 2/3 will have computers within five years, with approximately 8 people in each installation. This increase plus the increase generated within those companies now having computers yields a total estimated increase of close to 100% in EDP personnel over the next 5 years.

Ratios of EDP Employment to Total Employment

None of the surveys of large and small firms discussed earlier in this paper provide information on ratios of EDP employees to total employees. The ratio approach for estimating employment needs and making comparisons is used by many researchers in making manpower projections. Recent studies by Purdue University's Office of Manpower Studies have used this guideline, determined from EDP manpower surveys of industries with and without computers in the Indiana metropolitan areas of Indianapolis, Ft. Wayne, Calumet, and Kokomo.[13]

The present study revealed that of the 67 companies reporting EDP installations there was an average of 7 EDP employees per company, with company employment averaging 467. The percentage of EDP employees to total employment therefore was 1.45% (Table X). From the table are excluded 16 companies which had reported EDP equipment, but had not given adequate supporting information to have been included in Table X. When the total employment of these 16 companies plus a minimum estimate of one EDP employees for each company excluded are added to the totals, the percentage drops to 1.24%. Finally, when adding the employment of respondent companies without EDP equipment to the results of the present study the percent of EDP jobs to total employees drops to .72%. The tabulation of the EDP employment ratios determined in the manpower studies compared is presented in Table XI.

*Based upon market research investigations which reveal that non-respondents are more likely to be dificient in the attribute surveyed.

Comparison of EDP Ratios Determined by Previous Office of Manpower Studies and the Present Study

Metropolitan Area	Total No. Employed in Industries responding	No. of EDP jobs reported	% of EDP Jobs to Total # employees
Indianapolis	85,508	2,124	2.48%
Fort Wayne	47,882	747	1.560
Calumet	94,501	1,158	1.227
Kokomo	22,772	178	.783
	250,663	4,207	1.687%

Companies with Computers	Total No. Employed by respondents	No. of EDP Jobs Reported	% of EDP Jobs to Total # employees
MW-M	9,490	120	1.26%
MW-T	7,315	77	1.05
US-M	21,985	283	1.29
Total with Computers	38,790	480	1.24%
Total without Computers	27,959	0	0
Grand Totals & Averages	66,749	480	.72%

The .72 ratio in the medium-sized industry group surveyed was less than one-half the average of the four major Indiana metropolitan areas (1.69) surveyed by the Office of Manpower Studies. A possible reason for this discrepancy is that a wide variety of both manufacturing and non-manufacturing companies were included in the Office of Manpower Studies surveys and probably were weighted heavier in companies more amendable to computer use. There is a high incidence of computerization, for example, in finance and other office occupations. Also, large firms were included in the Office of Manpower Studies survey by design, while certain sizes and types of institutions were excluded.

The 67 companies in the present study with computers who adequately completed the questionnaire had an EDP employment ratio of 1.45 EDP employees per 100 total employees. This ratio ranged between .2 and 6.0, with wide differences between industries. Companies with labor costs as a high proportion of total costs will generally have a lower ratio of EDP employees to total employees. In a highly automated company with considerable machinery and equipment and where labor is only a small percent of the total cost, the ratio should be much higher. In any community the distribution of industries along this labor - capital contimuum will yield a difference in the resulting EDP ratios.

EDP Salaries and Other Computer Costs (Questions 10,11, and 16.)

Salaries paid to EDP personnel by respondent companies in the summer of 1967 averaged about the same as the nationwide averages reported by Business Automation Magazine in June 1967 in companies comparable in equipment, rental ranges, and geographical location. This comparison is reported in Table XII, below.

TABLE XII

Average Yearly Salary

	Business Automation Survey (1967)		Purdue Survey (1967)		
	US Total	US $3000-6000 Mo. Rental	US-M Survey Sample	MW-M Survey Sample	MW-T Survey Sample
EDP Manager	$13,936	$11,752	$11,405	$12,404	$9900
Senior Programer	8,788	8,060	-	-	-
Programmer	-	-	7,940	8,972	7500
Junior Programer	7,072	6,448	-	-	-
Senior Computer Operater	6,552	5,928	-	-	-
Computer Operator	-	-	6,273	7,000	6333
Junior Computer Operator	5,460	4,992	-	-	-
Senior Tab and Sort Op.	5,512	5,772	-	-	-
Tab and Sort Operator	-	-	5,337	5,066	4327
Junior Tab and Sort Op.	4,732	4,992	-	-	-

The midwest paid the highest salaries, averaging approximately $1000 per year more in most classifications. EDP managers, for example, averaged $12,404 in the midwest, while they averaged $11,405 in the rest of the U.S. The total salary survey of the medium-sized job shop group is presented in Table XIII.

EDP Salaries and Other Computer Costs

16. Please indicate the general salary range for each of your computer job classifications listed below.

Manager of EDP	Computer Operators
-$7,500-$10,000	-Under $6,000
-$10,000-$11,999	-$6,000-$7,999
-$12,000-$15,000	-$8,000-$10,000
-Above $15,000	-Above $10,000

Systems Analysts	Peripheral Equip, Oper.
-Under $7,500	-Under $5,000
-$7,500-$9,999	-$5,000-$7,499
-$10,000-$12,000	-$7,500-$9,000
-Above $12,000	-Above $9,000

Programmers	Tab, and Sorting Oper.
-Under $6,500	-Under $4,000
-$6,500-$8,999	-$4,000-$5,999
-$8,000-$12,000	-$6,000-$8,000
-Above $12,000	-Above $8,000

11. In addition to your EDP manager, how many other people in classifications below are assigned directly to this function?

Analysts_____ Coding Clerks_____

Programmers_____ Key Punch or Data Typist____

Computer Oper._____ Other (please name)_____

Tab. or sorting mach. Oper._____

10. What percent of each dollar cost to operate your computer is spent for direct EDP labor (including the EDP manager's salary)? Exclude maintenance charges.

-Under 25% -36-50% -Other

-25%-35% -Over 50%

TABLE XIII

EDP Salaries

	US-M Number	Total	MW-M Number	Total	MW-T Number	Total
A. Manager of EDP						
(1) $7500-10,000 (8,750)*	11	96,250	1	8,750	6	52,500
(2) 10,000-11,999 (11,000)	7	77,000	5	55,000	3	33,000
(3) 12,000-15,000 (13,500)	8	108,000	6	81,000	1	13,500
(4) Above 15,000 (16,500)	3	49,500	1	16,500	0	0
Total	29	330,750	13	161,250	10	99,000
Average		$11,405		$12,404		$9,900
B. Systems Analysts						
(1) Under 7500 (6,500)*	0	0	0	0	0	0
(2) 7500-9,999 (8,750)	7	61,250	1	8,750	0	0
(3) 10,000-12,000(11,000)	2	22,000	4	44,000	1	11,000
(4) Above 12,000 (13,500)	0	0	1	13,500	0	0
Total	9	83,250	6	66,250	1	11,000
Average		$9,250		$11,042		
C. Programmers						
(1) Under 6500 (6,000)*	4	24,000	0	0	1	60,000
(2) 6500-8999 (7,750)	13	100,750	5	38,750	6	46,500
(3) 9000-12000 (10,500)	4	42,000	4	42,000	0	0
(4) Above 12,000 (13,000)	0	0	0	0	0	0
Total	21	166,750	9	80,750	7	52,500
Average		$7,940		$8,972		$7,500
D. Computer Operators						
(1) Under 6,000 (5,000)*	10	50,000	2	10,000	2	10,000
(2) 6,000-7 999 (7,000)	10	70,000	9	63,000	4	28,000
(3) 8,000-10,000 (9,000)	2	18,000	2	18,000	0	0
(4) Above 10,000 (11,000)	0	0	0	0	0	0
Total	22	138,000	13	91,000	6	38,000
Average		$6,272		$7,000		$6,333
E. Peripheral Equip. Op.						
(1) Under 5000 (4,500)*	10	45,000	5	22,500	2	9,000
(2) 5,000-7499 (6250)	6	37,500	5	31,250	1	6,250
(3) 7,500-9000 (8250)	0	0	0	0	0	0
(4) Above 9,000 (10,000)	0	0	0	0	0	0
Total	16	82,500	10	53,750	3	15,250
Average		$5,156		$5,375		$5,050
F. Tab. & Sorting Op.						
(1) Under 4000 (3800)*	3	11,400	1	3,800	2	7,600
(2) 4000-5999 (5000)	12	60,000	10	50,000	9	40,000
(3) 6000-8000 (7000)	3	21,000	1	7,000	0	0
(4) Above 8000 (9000)	1	9,000	0	0	0	0
Total	19	101,400	12	60,000	11	47,600
Average		5,337		$5,066		$4,327

Estimated total EDP costs, based upon labor costs, were computed for each respondent company with EDP equipment. Questions 10,11, and 16 provided the basis for these estimates. Relating these total costs to annual sales volume revealed that in the 3 samples combined, companies were spending approximately $14 per $1000 sales. Compared with the median expenditure by larger companies of $5.60 per $1000, this is very high. The job-shop or fabrication subclassification identified in the second Booz, Allen and Hamilton survey reported a $9 expenditure per $1000 sales, and the Blanton-Traut study of smaller companies revealed a $11 per $1000 sales expenditure. In this light, therefore, the $14 per $1000 sales figure is not unreasonable.

The medium-sized manufacturers surveyed in the present study are planning to expand by 100% the number of EDP employees over the next 5 years, and relative to the investment by their larger competitors, are making a strong effort to "catch up". But will this commitment be enough? The Diebold Research Group survey results indicates that it might not be.

Comparing the EDP cost of $14 per $1000 sales of medium-sized companies to the much more favorable median of under $10 per $1000 sales reported by most larger companies vividly illustrates the problem of the medium-sized manufacturer. It must make a higher expenditure per $1000 sales than does its larger competitor, who is already moving into third generation computers. All indications are that medium-sized and smaller companies are falling farther and farther behind their larger competitors. It will take an especially heavy investment merely to keep up with competition, much less to move ahead of it.

It is difficult to see how a medium-sized company can computerize its operations for less than $100,000 a year and achieve an appropriate return. The medium-sized computer designed for this type of operation (comparable to the IBM 360 or the NCR 315) will cost $40,000 a year rental. If adequate EDP personnel are provided, an additional $40,000 will be needed for salaries. The larger companies are spending approximately 20% of their total EDP money on outside programming and other software services. If this percentage is applied to the medium-sized companies this adds an additional $20,000 a year, yielding a total of $100,000 annual computer expenditures. The average sales volume of companies in the medium-sized industry group is under $10 million. This means that the average expenditure per $1000 sales exceeds $10.

The medium-sized company contemplating an EDP program must therefore be prepared to commit a higher percentage of its resources for the computer. Though the temptation might be to defer such an expenditure, a company which defers usually finds that the time lost is costly. If it waits a year or two until it is in a better position to afford the computer or until costs are reduced, it will have fallen that much farther behind its competitors.

Extent of Top Management Involvement (Question 4 and Comments)

One of the objectives of this study was to identify the organizational level to which EDP managers reported (question 4). Based upon earlier studies, this would give an indication of management involvement in the computer. In all three samples combined, 19 EDP managers reported to the chief executive, 47 reported to the top divisional head, and 9 reported to the middle management level. This compared favorably with the reporting levels identified in the surveys of larger companies. It would be expected, however, that medium-sized and smaller companies with fewer levels will have the EDP responsibility at a high level.

The questionnaires of respondents who had computers were usually filled out and signed by someone other than the chief executive officer. Twenty-four chief executives and 34 major divisional heads of this group signed. In companies without computers, 25 chief executive officers and 12 divisional vice presidents signed the questionnaires. Companies with EDP equipment seem to be delegating the EDP responsibility to the level of management next below the chief executive, while in companies without a computer the chief executive is the key man in the future planning. It is possible that the typical chief executive maintains his interest long enough to see the EDP facility materialize, then he eventually relinquishes control to a divisional head. A decreased involvement on the part of the chief executive could mean a less effective EDP installation than desired.

Relationships between the Survey Factors

There were 14 factors identified in this study from the questionnaires which conceivably could relate to each other or to external factors. These relationships might be helpful in planning future EDP actions. Correlation coefficients obtained (table XIV) were not particularly high and not adequate for prediction purposes.

The greatest number of correlations was between the EDP manager's salary and (a) number of EDP employees per 100 total, (b) extent of computer use, (c) total EDP cost, (d) sales volume, (e) EDP employees added in 1972, and (f) financial return expected in 1972 and 1977. These correlations possibly could be indicative of the EDP managers' involvement, professional interest, determination to achieve company objectives, etc; or perhaps, since it was often the EDP manager who completed the questionnaire, it could reflect his subjectivity. Also, since the EDP manager's salary represents a significant part of the total cost, it would naturally correlate to some degree with the cost factors appraised.

A disappointing relationship was found between computer expenditures per $1000 sales and other variables. The highest correlation was found with extent of use (r=.33); but one of the lowest was with return on computer investment, a correlation of .03.

Extent of Top Management Involvement

4. At what level is your EDP manager and to whom does he report?

-Top management level reporting to chief executive officer

-Middle management level reporting to _____

-Subordinate to accounting in finance department reporting to _____

-Other _____

17. Comments: _____

_____

Signed:

_____

Name and Title

The Telephone Survey

Chief executive officers interviewed by phone were not particularly knowledgeable of computer applications. This was especially true in situations where computers had been installed for some time.

Several interesting explanations why some companies were not using computers were obtained in the telephone survey. The controller of one company, a manufacturer of exclusive men's clothing, asserted that hand skills and specialized labor were so important to his custom type operation and individual items were few and cost were high such that the computer would not be particularly helpful. He concluded that there "were not enough variables to require computer processing."

The results of the telephone survey did not statistically confirm the bias expected in the mail survey. This was primarily because the samples were not large enough. Also, obtaining information by phone from a busy chief executive or top divisional head was somewhat difficult. Though the questionnaire form was supposed to have been filled out in advance, usually this was not the case, and answers were hurried and incomplete. When respondents were able to complete the questionnaires in leisure and secure the assistance of others before returning it by mail, a more comprehensive response was obtained.

There were some notable differences between the Midwest Telephone and Midwest Mail surveys, which suggest that the telephone survey was less biased than the mail survey. All differences noted in factors related to computer use, with the exception of net worth, were less positive in the MW-T survey than in the MW-M survey. In other words, measures that positively related to computer utilization and investment were lower (by 10%-33%) for the Midwest Telephone sample than for the Midwest Mail sample, which represented only 34% of the total companies in the population initially contacted.

Though the data obtained using this telephone approach is not statistically reliable, the experience revealed enough to indicate it should be tried again. A larger sample, surveyed by phone and subsequently followed up by personal interviews when information was incomplete, should yield more reliable results.

TABLE XIV

Intercorrelations* of Relevant Respondent Variables

	Sales Volume	Net Worth	Year Started	Credit Rating	Reporting Level	Extent of Use	Percent Improvement	Present $ Return	$ Return in 1972	$ Return in 1977	Additional Emp. in 1972	EDP Managers Salary	EDP Emp. Per 100 Employees	EDP Cost Per $M Sales
Sales Volume	1.0000	.40	-.18	.05	.09	.17	-.09	.04	.12	.07	.04	.38	.16	.07
Net Worth		1.00	-.17	.28	.02	-.06	-.11	.05	.03	.13	.10	.14	-.07	.02
Year Started			1.00	.18	-.02	-.06	.34	.12	.03	.09	.03	-.18	.17	.12
Credit Rating				1.00	.11	.07	-.02	.09	.16	.25	.06	-.09	.10	.04
Rep. Level					1.00	.05	.05	.12	.07	.10	-.03	.13	-.00	-.06
Ext. of Use						1.00	.19	.32	.24	.22	.13	.47	.41	.33
$ Impr.							1.00	.43	.35	.26	.12	.11	.30	.11
$ Return								1.00	.32	.24	.15	.19	.16	.03
$ Ret. '72									1.00	.83	.22	.24	.28	.19
$ Ret. '77										1.00	.21	.24	.28	.18
'72 Addit. Emp.											1.00	.34	.32	.40
EDP Mgr. Sal.												1.00	.54	.41
Emp./100													1.00	.62
EDP Cost														1.00

*Pearson product--moment r

5. SUMMARY OF THE FINDINGS

Background

Research studies and other information concerning computer use by very large organizations is readily available--but, there is very little literature which concerns the utilization of computers by medium-sized manufacturers engaged in job shop production. This type of manufacturer has probably been regarded as too small to be a fruitful market target by the computer suppliers. Until recently they have concentrated their efforts on t e larger establishments, especially those whose operations tended towards continuous operations. These medium-sized manufacturers themselves have had doubts as to the feasibility of computer applications, and it is such doubts which inspired this study.

The medium-sized job shop production company generally is in a state of transition to becoming a larger organization while gradually approaching continuous operation. This is a necessary step in the growth of most small companies; often, whether or not they achieve such growth or even continue to exist, depends upon decisions made in this intermediate stage of development. Computer applications are providing such revolutionary changes in industry today that the medium-sized job shop segment of industry may have its future at stake in the decisions it makes regarding computers.

A preliminary review of previous studies of computer utilization in large companies revealed several pertinent findings. These are presented below followed by the major conclusions drawn from the present study. The details of the survey returns and related tables and other attachments are contained in the body of the report.

Review of Pertinent Findings from Previous Studies

The large companies which have been successful in computer applications have been able to define the objectives sought in computerization in providing a measure of the profit or return generated by the computer.

The large companies felt that many functions could be more appropriately handled when programed together rather than independently, though it was possible that a single function (such as payroll) might be feasible for computerization in a very large company.

Until applications were extended beyond conventional accounting and clerical functions to what may be called "sophisticated" levels of use, the computer seldom showed a profitable return. Though the companies concluded that the conventional accounting and clerical functions alone would not justify a computer, these functional areas were recommended as an effective training medium for computer managers.

Companies which were willing to make a commitment for computer operations of $6 to $9 per $1000 annual sales were reporting a much greater return than those who were not willing to make this financial commitment.

The more successful larger companies were reporting a 30% profit on computer dollars spent.

After an initial average computer cost of $3 per $1000 annual sales, the large companies surveyed in the previous studies were increasing their computer expenditures at the rate of 20% a year.

Larger companies were spending their computer dollar as follows: approximately 30-40% on equipment; 40-50% on operations, including salaries and maintenance; and approximately 20% on outside service such as programing.

Conclusions from this Study

A major purpose of this study was to fill a void in information available to medium-sized manufacturing concerns, particularly those engaged in job shop production. Though there are many studies reporting computer applications in larger companies and a few in small business, there have been none devoted exclusively to this type of industry.

The total survey sample used in this study was composed of 3 subsamples directed by mail to (a) 269 companies in the U.S. excluding a five-state midwestern area, (US-M) (b) 83 companies in a five-state midwestern area, (MW-M) and (c) 28 companies also in the five-state midwestern area interviewed by telephone, (MW-T). Of those initially contacted, 91 companies in the U.S. mail survey responded, 31 companies in the midwest mail survey responded and all 28 companies surveyed by telephone responded. Total respondents of all 3 samples therefore totaled 150 out of 380 contacted.

There were five major areas from which pertinent conclusions were drawn and data developed, as presented below:

1. Computer Use in Medium-Sized Job Shop Companies

   Though there was no mathematical correlation between company size and computer use, subjective inspection suggested that there were distinct groupings in sales volume as related to computer use. The first grouping was between $5 and $7 million annual sales, the second between $7 million and $10 million, and the third, over $10 million. Some of the survey returns, therefore, are tabulated in these categories. Of the companies reporting over $7 million in sales, 70% had EDP installations while 40% with $7 million sales and below reported them.

   Very few companies surveyed in this study reported they discontinued use of computers after having them installed. Only two discontinued completely while several others discontinued use of their own equipment and contracted with service bureaus.

The medium-sized manufacturing groups responding to the questionnaire were relatively unsophisticated in the use of computers, with applications confined predominantly to clerical functions such as payroll, accounts receivable, sales analysis and inventory control. Only a small percentage of the companies surveyed used computers for the more sophisticated functions of production scheduling, engineering, and market studies.

Of the 150 companies responding to the questionnaire, 55% were using EDP equipment of some kind. Of these EDP users, 15% used service bureaus and 20% owned or leased unit record equipment only. Other responses to the questionnaire indicated that practically all of those companies with unit record equipment or using service bureaus planned to have their own computers within 5 years. Also, over one-half of the current non-users indicated that in 5 years they expected to install their own computers.

2. Estimated Benefits of the Computer

A subjective estimate of the contribution of the computer to efficiency revealed an average of 10.5% overall improvement. Many companies however, were reluctant to estimate a monetary measure of contribution by the computer. The larger companies have shown that such measures can be obtained, and the inability of a company's not being able to do so indicates a significant weakness.

Of those companies which did estimate a specific monetary return, the average was only $.03 per $1.00 spent. The MW-M sample reported the highest estimated return at $1.09 per $1.00 spent. Even this is below the return usually expected of $1.15 for each dollar spent. The highest benefit reported by a respondent was a $2.50 return for every $1.00 spent on the computer.

The monetary returns that respondents estimated for the future were more optimistic. In all the responses received, respondents expected $1.20 return per $1.00 spent by 1972 and $1.21 per $1.00 spent by 1977.

The midwest seemed to fare better in return on computer expenditures than did the rest of the U.S. Respondents in this area also paid higher salaries and used their computers more extensively.

3. Problem Areas

A major reason why a satisfactory return on the computer was not achieved by the medium-sized job shop production company was reported to be technical weaknesses in computer personnel, especially at the time of initial installation of the computer. Other problem areas included programing or "software" problems. Comments in general pointed out a weakness of respondents in educating employees to accept the computer.

Another obvious weakness was demonstrated by the inability of many medium-sized companies to report objectively whether or not they were even realizing a return from their computers.

In general, the responses to the questions concerning problem areas indicated that communications difficulties were at the root of most problems. Such problems encompassed plant operating people, office staff, and technicians manning the EDP installations. The telephone survey affirmed that communications was a major problem, with respondents suggesting special employee orientation in proper reporting and recording of information to be processed by the computer.

No respondent said that computer suppliers' training assistance at installation was not satisfactory, but most indicated they were having difficulty acquiring properly qualified people from outside sources. A few companies indicated they were training their own computer technicians rather than relying upon outside sources.

Companies located outside major metropolitan areas were having less difficulty in acquiring EDP personnel then those located in large cities. One company, however, noted that location in a rural area was a disadvantage because it did not provide the necessary technical skills or training facilities.

4. Manpower, Salary and Management Matters

Respondents in all three samples combined expected a better than 30% increase in computer personnel by 1972. Only one company of the total surveyed expected to have fewer people in its computer installation by this date. When considering the large percentage of present non-users who expect to be users by 1972, the number of EDP personnel employed in the medium-sized job shop production segment should increase almost 100% during the next five years.

It was determined that in the medium-sized industry group surveyed there was a ratio of .72 EDP employees per 100 total employees. This compares with a 1.69 ratio reported in earlier surveys by the Purdue University Office of Manpower Studies. This discrepancy exists probably because the manpower surveys included a high percentage of large financial, business and other non-manufacturing institutions which have more extensive computer operations, as well as large manufacturing firms.

A low ratio of EDP employees to total employees is a reflection of the type of industry represented in the present study. Labor costs in a job shop production organization will ordinarily represent a high proportion of total costs, suggesting a lower investment in automated machinery and equipment. Labor would be a smaller percentage of the total cost, and the EDP employee ratio would be much higher, in a highly automated company.

Salaries paid EDP personnel in companies surveyed averaged about the same as salaries reported by a nationwide survey in June 1967 as shown below:

Occupation	Nationwide survey by Business Automation Magazine (June 1967) U.S. Companies paying $3000-$6000 monthly in rental charges	Salary survey from this study (July-August 1967) U.S. Companies averaging $9 million annual sales
EDP Manager	$11,752	$11,405
Programer	6448-8060	7,940
Computer Operator	5,928	6,273
Tab and Sort Oper.	4992-5772	5,337

The highest salaries reported were in the midwest, averaging approximately $1000 per year more in each classification reported for the U.S. in this study. The tab and sort operator was an exception in that the salaries were consistent nationwide.

The reporting relationship of EDP managers indicated a high degree of top management involvement, with most reporting either to the chief executive or to top divisional heads. In the medium-sized company with fewer levels, however, it would be expected that the EDP responsibility would report to a higher level.

The interest of the chief executive officer as measured by the organizational position of the person completing, signing, and returning the questionnaire indicated that once a computer is installed the chief executive delegates the responsibility to the next level of management. This suggests that the typical chief executive maintains his interest in the computer only until the EDP facility materializes. This decreased involvement on the part of the chief executive reflected in the recent Diebold survey[5] suggests, contrary to the earlier studies, that top management now is taking a lesser interest in computer applications.

5. Relationships Between Company Sales and Computer Costs and Returns

The extent of operations of the medium-sized companies, as indicated by sales volume and number of employees, and the present cost of computer installations require a minimum beginning expenditure of $10 per $1000 sales. This compares with a nationwide median of $9.00 for larger fabrication production companies reported by the most recent Booz, Allen and Hamilton Survey.[4] This means the medium-sized company contemplating an EDP program must be prepared to commit a higher percentage of it's resources to the computer than does its larger competitors. The temptation might be to defer such expenditures, but the company which defers finds that the time lost is costly, and if it waits until it is in a better position to afford a computer it probably will have fallen further behind its larger competitors.

There was little mathematical relationship found between the various factors defined in the survey. Contrary to the results reported in the surveys of the larger companies, there was little or no relationship between sales volume, computer expenditures, and computer contribution to profits. There was an interesting exception in this regard. In classifying respondents by sales volume from the data presented in Table X, some relationship between sales volume and computer profit was suggested.

All three samples combined reported an average percentage overall efficiency improvement of about 10.5%. In estimating dollar return, however, respondents between $7 and $10 million sales were only breaking even or less. At the two extremes, under $7 million sales and above $10 million sales, they were estimating a return of $1.09 for every $1.00 spent on the computer. Those with over $10 million in sales were also rated higher in the degree of utilization of their computers. The table which follows illustrates these differences.

Sales	Average # Employ.	Av. % Return	Av. $ Return	Av. utilization 0 = minimum 1 = moderate 2 = extensive
$7 million & under	330	10.5%	1.09	.71
Over $7 million through $10 million	473	10.5%	1.00	.74
Over $10 million	553	10.5%	1.09	.84

One could surmise from the above data that an expecially critical period of growth for the company contemplating a computer installation is in the range of $7 million to $10 million in annual sales.

Survey research with its emphasis upon subjective appraisal was used in the studies of the larger companies as well as the present study. It is conceivable that the expressions by the larger companies which have made greater expenditures may be somewhat exaggerated. Many of the expressions of the medium-sized companies represented in the present study are based upon inadequate or incomplete information. In any case, the reliability of the data obtained in all such studies is subject to question. Though standards used seemed logical, it will take much more experience and better quantitative measures to provide accurate objective appraisals of computer efficiency.

Survey Technique to Measure Bias

A telephone survey made of a small sample from the midwestern population did not confirm the bias expected in the mail survey returns. Results from the midwest telephone survey were similar to those obtained in the midwest mail survey. It had been expected that the results of the mail survey would show more positive results than the telephone survey, because of the greater tendency of people with nothing significant to report not to return the questionnaire. Though no statistically significant differences were revealed in the comparison of mail and telephone surveys made in the present study, the technique seems feasible and should be tried again, using a larger sample, possibly followed up by personal interviews.

The Question

The respondents to the study questionnaires affirm that they are presently making a greater expenditure per $1000 sales than do their larger competitors, yet indications are that they are falling further behind in computer sophistication. The most significant question, therefore, facing the medium-sized job shop manufacturer in the use of the computer is whether he will be willing to make the substantial investment in management and monetary resources necessary to meet the standards suggested.

These standards call for a high degree of involvement especially during the initial period of computerization when losses will almost surely occur, and until the company learns to use its computer in the more sophisticated areas.

The experiences of others, as reported in the data of this study, not only define the problem but also present evidence that some medium-sized job shop manufacturers are resolving it. These experiences also prepare the new computer user for many of the problems he will face, the solutions to which in large measure, center upon his ability to obtain people with adequate computer skills and understandings.

PURDUE UNIVERSITY
SCHOOL OF TECHNOLOGY
LAFAYETTE, INDIANA 47907

OFFICE OF MANPOWER STUDIES

June 22, 1967

As the chief executive officer of a medium sized independent manufacturer, you will be making many business decisions these next few years which will determine the course your organization will take. We would like to know what part you expect the computer (or other EDP equipment) to play in your company's future.

This will help us not only in planning our computer technology curricula, but your opinion along with the opinions of other leaders of comparable manufacturing organizations could very well establish a guideline for medium sized industry in general.

The total industrial group we are surveying nationwide is composed of 1200 companies engaged in the manufacture and/or fabrication of light weight materials, usually on a job shop basis at high volume and variable mix production. Company size has been restricted to an employment of 200 to 1200 and an annual sales volume of $5,000,000 to $20,000,000.

Computer applications to such high production, variable mix operations are now beginning to show significant results. Though computers in recent years have made their greatest contributions to large, multi-plant corporations, many authorities are predicting a much wider use by smaller, independent, single location manufacturers.

1816-1966

We would like to know your ideas on this. Perhaps you have already installed a computer or are leasing services from a centralized computer organization. If not, perhaps you are planning such use in the near future.

Attached to this letter is a brief questionnaire, covering certain topics concerning your use of or ideas about a computer. Please fill this out as completely and as accurately as possible. It is important that the opinions and impressions of the chief executive officer of companies surveyed be reflected in this questionnaire. Therefore, please complete it yourself if at all possible. Experience indicates that subordinate's opinions of computer applications may differ from those of the chief executive but since it is usually the opinion of the chief executive that prevail, to assure accuracy we need your comments.

The purpose of our survey is to analyze the use of computers in your type of operation over the next 10 years, and identify potential problems for the benefit of those who may be still considering their use. The consolidated opinions expressed should reflect the measures of expected use of computers by medium sized independent manufacturers and also will provide a reasonable objective index of their applications to date. We hope to define not only subjective opinions of actual and potential computer benefits, but in those instances where it is available, we hope to compile objective monetary estimates of savings actually and potentially generated by computer use.

Thank you for your cooperation. You will receive a summary of the results of the survey when it is completed.

Yours very truly,

J. P. Lisack

J. P. Lisack
Director and Associate Professor

P.S. You may return the questionnaire in the enclosed reply envelope. In the event you are not using a computer and do not contemplate any such use, please mark the questionnaire appropriately and return unsigned if you prefer.

(2nd Page; Letter to Telephone Respondents)

We would like to know your ideas on this. Perhaps you have already installed a computer or are leasing services from a centralized computer organization. If not, perhaps you are planning such use within the near future. Within the next two weeks Mr. William Warren of our office will telephone you to ask you a few brief questions about your experience with computers. This telephone survey will take about 20 minutes of your time. Attached is a sample questionnaire illustrating the questions that Mr. Warren will discuss with you.

Assuming you are completely up to date on your company's computer applications he would prefer talking to you directly; however, if you feel someone else in your organization would more appropriately answer his questions will you please have the call referred to him? It is most important in any case that the complete opinion of the chief executive be reflected in this survey. Sometimes the chief executive's opinion differs from that of subordinate managers. Please do not refer the call to someone else if you think this may be the case in your company.

The purpose of our survey is to analyze the use of computers in your type of operation over the next 10 years, and identify potential problems for the benefit of those who may be still considering their use. The consolidated opinions expressed should reflect the measures of expected use of computers by medium sized independent manufacturers and also will provide a reasonable objective index of their applications to date. We hope to define not only subjective opinions of actual and potential computer benefits, but in those instances where it is available, we hope to compile objective monetary estimates of savings actually and potentially generated by computer use.

Thank you for your cooperation. You will receive a summary of the results of the survey when it is completed.

Yours very truly,

J. P. Lisack

J. P. Lisack
Director and Associate Professor

P.S. In the event you are not using a computer and do not contemplate any such use within the next five years you may so indicate on the questionnaire and return in the enclosed reply envelope, in which case no further contact will be made.

Appendix I--Survey Package (continued)

(Survey Questionnaire, Page 1)

PURDUE UNIVERSITY - OFFICE OF MANPOWER STUDIES
QUESTIONNAIRE ON COMPUTER UTILIZATION

Please check (✓) or answer where indicated. This information will be kept confidential, and no company will be individually identified in the summary of the results.

1. Does your company now use computers or electronic data processing equipment of any sort or has it ever used such equipment?
   ( ) Yes, now in operation
   ( ) No, never have used
   ( ) Yes, used at one time, but discontinued (Please explain)_____

2. If now using, in what form are these services?
   ( ) Own EDP equipment Make, Model, and Size_____
   ( ) Lease
   ( ) Utilize commercial EDP or computer services Using since_____ (Date)
   ( ) Time sharing
   ( ) Other_____

3. If you are not now using computer or EDP services, what plans do you have for the future?
   ( ) None
   ( ) Expect to install or lease within one year
   ( ) Expect to install or lease within 2 to 5 years
   ( ) Will be at least 5 years or longer before we use computers
   ( ) Other_____

4. At what level is your EDP manager and to whom does he report?
   ( ) Top management level reporting to chief executive officer
   ( ) Middle management level reporting to_____
   ( ) Subordinate to accounting in finance department reporting to_____
   ( ) Other_____

5. Please identify according to relative importance the various functions for which your company utilizes a computer or other EDP equipment. Use 1 for prime importance, 2 for secondary importance, 0 for not at all.

( )	Payroll	( )	Rail and truck loading & scheduling
( )	Accounts receivable	( )	Engineering
( )	Materials inventory	( )	Price estimating
( )	Work standards	( )	Sales analysis
( )	Personnel records	( )	Marketing studies
( )	Production scheduling	( )	Other_____

6. What credit can you give to your computer in terms of <u>improved efficiency in overall operations,</u> considering both administrative and manufacturing costs?
   ( ) 0% ( ) 6-10% ( ) Over 25%
   ( ) 1-5% ( ) 11-25%

   If you are willing to translate this to annual dollars cost savings, please indicate in this blank. $_____

7. What is the estimated annual dollar return which you can credit to your computer for each dollar spent annually in operating your computer installation? Include both amortization and direct operating costs. "<u>Guesstimate</u>" if necessary, please.
   ( ) Under $1.00 ( ) $1.05-$1.14 ( ) Other_____
   ( ) $1.00-$1.04 ( ) $1.15 or over

8. If your answer to Question 7 above is Under $1.00 please check what you consider to be the most important reason.
   ( ) Need more time to adapt computer to plant problems
   ( ) Am afraid that we are not large enough to take full advantage of the computer
   ( ) We haven't yet learned to use it adequately and problems of employee education and selection of skilled computer personnel have held us back
   ( ) Computer not adaptable to this type of operation
   ( ) Other_____

9. What do you expect your estimated dollar annual return per dollar invested in computers to be in 1972?_____ 1977?_____

10. What percent of each dollar cost to operate your computer is spent for <u>direct</u> EDP labor (Including the EDP manager's salary)? Exclude maintenance charges.
    ( ) Under 25% ( ) 36-50% ( ) Other_____
    ( ) 25-35% ( ) Over 50%

Appendix I--Survey Package (continued)

(Survey Questionnaire, Page 2)

11. In addition to your EDP manager, how many other people in classifications below are assigned directly to this function?

Analysts_____ Coding Clerk_____
Programmers_____ Key Punch or Data Typist_____
Computer Operations_____ Other (Please name)_____
Tab or Sorting Mach. Oper._____ _____

12. Approximately how many additional people do you expect to have in your computer installation over and above that number specified above in 1972?_____ and in 1977?_____

13. Please appraise the quality and source of training your people received at the original installation of your EDP equipment.

( ) Well planned formal program, directed by the computer supplier
( ) Strictly informal training applied within our company by company personnel
( ) Very weak and inadequate under the direction of the computer supplier
( ) No training at all; this was one of our biggest mistakes
( ) Other_____

14. Below are listed problem areas which probably all companies experience when first installing a computer. Would you please indicate by number 3,2,1, and 0 those problems you had with your initial installation with the numbers indicating the relative significance of the problem (3-Major 2-Moderate 1-Minimal 0-None)

( ) Inadequate knowledge of our industry by the computer service people making the installation
( ) Technical weaknesses in our own computer personnel
( ) Inadequate training of office and operating personnel in the use of the computer at its initial installation
( ) Inadequate systems engineering support by the computer supplier
( ) Inadequate attention by top management in directing and influencing the acceptance of the computer on a total concept basis
( ) Difficulty in translating variables to be processed to consistent symbols adaptable to the computer
( ) Technical problems in the installation and maintenance of equipment during its early use
( ) Other_____

15. What difficulty have you had in obtaining qualified computer personnel from outside sources?

( ) Extremely difficult, available qualified personnel almost non-existent
( ) Have no difficulty obtaining qualified personnel
( ) Have not relied on outside sources, but have been training my own computer technicians
( ) Have literally had to steal computer technicians from other companies by bidding up salaries
( ) Other_____

16. Please indicate the general salary range for each of your computer job classifications listed below.

A. Manager of EDP
( ) $7,500-$10,000
( ) $10,000-$11,999
( ) $12,000-$15,000
( ) Above $15,000

B. Systems analysts
( ) Under $7,500
( ) $7,500-$9,999
( ) $10,000-$12,000
( ) Above $12,000

C. Programmers
( ) Under $6,500
( ) $6,500-$6,999
( ) $9,000-$12,000
( ) Above $12,000

D. Computer Operators
( ) Under $6,000
( ) $6,000-$7,999
( ) $8,000-$10,000
( ) Above $10,000

E. Peripheral Equipment Operators
( ) Under $5,000
( ) $5,000-$7,499
( ) $7,500-$9,000
( ) Above $9,000

F. Tabulating and sorting operators
( ) Under $4,000
( ) $4,000-$5,999
( ) $6,000-$8,000
( ) Above $8,000

17. Comments:_____

_____

Signed:

_____
Name and Title

_____
Company

Please return this questionnaire in the envelope provided. Even if you have no plans for using computers, please answer questions 1 and 3 as appropriate and return.

6/67

Appendix II
SURVEY POPULATION

Dun & Bradstreet SIC Codes

SIC	DESCRIPTION	NO. of ESTABLISH-MENTS	NO. of ESTABLISHMENTS IN SURVEY POP.
22 71	Woven Carpets and Rugs	165	1
22 72	Tufted carpets and rugs	199	1
22 79	Carpets, rugs, and mats, n.e.c.*	85	1
23 11	Men's, Youths' and Boys' Suits, Coats, and Overcoats	1,193	19
23 91	Curtains and draperies	1,322	
23 92	Housefurnishings, except curtains and draperies	1,264	1
23 93	Textile bags	247	1
23 94	Canvas products	1,415	
23 99	Fabricated textile products, n.e.c.	1,025	3
24 21			1
24 31	Millwork plants	4,381	6
24 32	Veneer and plywood plants	674	11
24 33	Prefabricated wooden buildings and structural members	805	3
24 41	Nailed and lock corner wooden boxes and shook	657	1
24 42	Wirebound boxes and crates	234	1
24 43	Veneer and plywood containers, except boxes and crates	122	
24 45	Cooperage	172	
24 99	Wood Products, n.e.c.	3,414	3
25 11	Wood household furniture, except upholstered	4,308	19
25 12	Wood household furniture, upholstered	2,451	13
25 14	Metal household furniture	710	5
25 15	Mattresses and bedsprings	1,516	6
25 19	Household furniture, n.e.c.	165	
25 21	Wood office furniture	290	1
25 22	Metal office furniture	305	3
			102

*not elsewhere classified

Appendix II - Dun & Bradstreet SIC Codes (continued)

Page 2

		NO. OF ESTABLISHMENTS	NO. OF ESTABLISHMENTS IN SURVEY POP.
25 31	Public Building and Related Furniture	483	1
25 41	Wood partitions, shelving, lockers, and office and store fixtures	1,608	
25 42	Metal partitions, shelving, lockers, and office and store fixtures	631	
25 91	Venetian blinds and shades	1,295	
25 99	Furniture and fixtures, n.e.c.	695	1
26 41	Paper coating and glazing	431	1
26 42	Envelopes	263	1
26 43	Bags, except textile bags	580	5
26 44	Wallpaper	110	
26 45	Die cut paper and paperboard; and cardboard	409	1
26 46	Pressed and molded pulp goods	54	
26 49	Coverted paper and paperboard products, n.e.c.	788	2
26 51	Folding paperboard boxes	747	6
26 52	Set-up paperboard boxes	447	2
26 53	Corrugated and solid fiber boxes	920	7
26 54	Sanitary food containers	222	2
26 55	Fiber cans, tubes, drums, and similar products	239	1
26 61	Building Paper and Building Board Mills	203	1
27 53	Engraving and plate printing	820	
27 61	Manifold Business Forms Manufacturing	483	2
27 71	Greeting Card Manufacturing	291	2
27 82	Blankbooks, loose leaf binders and devices	484	1
27 89	Bookbinding, and miscellaneous related work	858	1
			35

Appendix II Dun & Bradstreet SIC Codes (continued)
Page 3

		NO. OF ESTABLISHMENTS	NO. OF ESTABLISHMENTS IN SURVEY POP.
27 99	Service industries for the printing trades, n.e.c.	145	
30 69	Fabricated Rubber Products	1,544	14
30 79	Miscellaneous Plastics Products	5,017	14
31 11	Leather Tanning and Finishing	547	4
31 41	Footwear, except house slippers and rubber footwear	1,108	30
31 61	Luggage	349	1
31 71	Women's handbags and purses	562	1
31 72	Personal leather goods, except handbags and purses	512	2
31 99	Leather Goods, n.e.c.	625	
32 21	Glass containers	146	
32 29	Pressed and blown glass and glassware, n.e.c.	419	
32 31	Glass Products, Made of Purchased Glass	942	3
32 91	Abrasive products	380	1
32 92	Asbestos products	182	
32 93	Steam and other packing, and pipe and boiler covering	355	1
32 99	Nonmetallic mineral products, n.e.c.	358	
34 11	Metal Cans	307	1
34 21	Cutlery	194	
34 23	Hand and edge tools, except machine tools and hand saws	964	3
34 25	Hand saws and saw blades	162	2
34 29	Hardware, n.e.c.	1,532	11
34 31	Ennameled iron and metal sanitary ware	251	3
34 33	Heating equipment, except electric	820	10
			101

Appendix II - Dun & Bradstreet SIC Codes (continued)
Page 4

		NO. OF ESTABLISHMENTS	NO. OF ESTABLISHMENTS IN SURVEY POP.
34 41	Fabricated structural steel	2,369	13
34 42	Metal doors, sash, frames molding and trim	2,776	12
34 44	Sheet metal work	2,739	3
34 79	Coating, engraving, and allied services, n.e.c.	1,201	2
34 81	Miscellaneous Fabricated Wire Products	1,627	5
34 91	Metal shipping barrels, drums, kegs, and pails	218	3
34 97	Metal foil and leaf	38	
34 99	Fabricated metal products, n.e.c.	3,097	9
36 52	Phonograph records	364	
38 61	Photographic equipment and Supplies	747	
39 41	Games and toys, except dolls and childrens' vehicles	859	7
39 49	Sporting and athletic goods, n.e.c.	1,837	2
39 53	Marking devices	738	
39 55	Carbon Paper and inked ribbons	125	1
39 82	Linoleum, asphalted felt-base and other hard surface floof coverings, n.e.c.	35	
39 87	Lamp shades	289	
29 93	Signs and advertising displays	3,523	2
39 99	Manufacturing industries, n.e.c.	3,752	59
		TOTAL	297 *

* These represented SIC code and product indicated as primary product manufactured. Companies which reported a light weight fabricated product as a second product (83 total) are not included here.

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4. Computer Management in Manufacturing Companies; by Booz, Allen, and Hamilton, Inc., 1967, Chicago, Illinois. Also reported as The Computer Comes of Age; by Neal J. Dean in January-February 1968 issue of Harvard Business Review, published by the Graduate School of Business Administration, Harvard University, Boston, Massachusetts.

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8. Introducing Computers to Small Business; by Donald Sanders, published in 1966 by the Data Processing Management Association, Park Ridge, Illinois.

9. Computer Uses by Small Manufacturers; by B.M. Blanton and Joseph Traut, published 1967 by Computer Research and Publications Associates, New York, New York.

10. Computers and Economic Concentration; by Walter W. Fisk in December, 1965 issue of Computers and Automation.

11. The Payout on Computers; by John Garrity and V.L. Barnes in December, 1964 issue of Management Review.

12. U.S. Department of Labor, Bureau of Labor Statistics, Employment in Manufacturing, 1967.

13. Computer and Electronic Data Processing Manpower Requirements in Kokomo, Indiana, Manpower Report 68-1; March 1, 1968, School of Technology, Purdue University.

14. 1967 Report - EDP Jobs and Salaries; in June 1967 issue of Business Automation, pages 40-49.

School of Technology, SCC-A
Purdue University
Lafayette, Indiana 47907

Office of Manpower Studies
Director, Professor
J. P. Lisack

Manpower Report — Title

65-3 - Technician-Level Educational Planning for the Chemical Technology in Indiana, 20 Oct, 1965. Examines industries related to the Chemical technology. Presents scientists, engineers, and technicians as a percent of total employment in major industries. Explains methods of computing technician requirements by industry and locale. Includes related occupational titles and sample chemical technology curriculum.

66-1 - Technician-Level Educational Planning in the Greater Lafayette, Indiana Area, Concerning the Electrical/Electronic Technology, January, 1966. Determines numbers of technicians needed annually in industries employing electrical/electronic type technicians. Examines ten year trends in local employment and projects requirements into future. Discusses occupations concerned, orientation of educational programs, curricula, and collateral items.

66-2 - Employment Trends in Five Indiana Counties, 1 February 1966. Presents population and employment trend data for significant industries to facilitate technical education and facilities planning. Compares county and state data.

66-3 - Occupations, Qualifications, and Areas of Work in Architectural, Construction and Related Fields for Jobs Above the Skilled Craftsman Level, 10 March 66. Describes selected occupations to assist faculty concerned with determining requirements for and objectives of related educational programs. Occupational titles, definitions and qualifications are shown with required education, vocational preparation, and aptitudes.

66-4 - Foundry Technicians and the Foundry Industry in Indiana, 30 March, 1966. Examines the foundry industry, manpower requirements, and the kind of educational program needed - for foundry technicians. National manpower factors are corroborated in a survey of 125 Indiana foundries: survey respondents' opinions of educational needs (by subjects and courses) are included.

66-5 - Employment Trends and Technician Needs in Wayne County, Indiana, "The Richmond Study", 4 April, 1966. Determines an approximation of the kinds and numbers of technicians needed for preliminary educational program planning. Presents economic, manpower and employment trends data as well as listings by location and description of products of the more important industries. Describes methods used.

66-6 - Methods and Rationale for Determining Technician-Level Manpower Requirements by Locale - and for a Specific Industry, 20 July, 1966. A general review of sources of manpower data, ratios, factors, and methodology related to computation of estimates of technicians for industries or for a given locale.

66-7 - Selected Technical Education Needs in Howard County, Indiana, "The Kokomo Study", 1 August, 1966. Examines manpower, industry and economic factors to identify kinds and levels of post-high school technical educational programs that may be needed. Presents results of survey wherein the needs for these identified programs are verified. Describes methods and instruments used.

66-8 - Selected Manpower and Employment Data for Delaware County, Indiana and Six Contiguous Counties, 15 August, 1966. Compiled to assist in broad initial planning for establishing regional educational and training programs. State and regional population; employment, wage and industry data; and manpower factors are included.

Manpower Report — Title

66-9 - Region One Manpower Study. (N.W. Sector of Indiana) 18 October, 1966. This report is a projection - ten years into the future - for seven counties. It includes estimated changes in employment by industry and changes within occupational groups. Has special notes on needs for initial and continuing education, and on rising hiring standards.

66-10 - Manpower and Training Needs in Fluid Power, 30 November, 1966. Contains (1) Specific manpower requirements at five occupational levels in fluid power technology - with factors applicable to various major industry groups; (2) Types of educational courses needed; (3) The depth of understandings required at each occupational level in fluid power courses, and supporting technical and other courses; (4) Comments of representatives from Indiana industries. Includes methods and questionnaire used.

67-1 (Indianapolis); 67-3 (Calumet); and 67-4 (Fort Wayne) - Manpower Requirements for Industrial Illustrators and Draftsmen, (thru August, 1967). A series of reports for metropolitan areas indicated containing: (1) Background data re needs, employment, and salaries of technicians and draftsmen; (2) Occupational descriptions, qualifications, education and training; (3) Results of surveys to determine current and future needs and training program information; (4) Discussion of the impact of future technological changes on the drafting processes - and their effects on draftsmen qualifications. The hypothesis is made - and proven - that greater work complexity and advances in technology affecting the drafting processes, have made the utilization of Tracers less profitable; Job entry level is moving to the higher level of Detailer with better educational preparation.

67-2 (Indianapolis); 67-5 (Calumet); 67-6 (Fort Wayne); 68-1 (Kokomo) - Computer and Electronic Data Processing Manpower Requirements, (thru March, 1968). Reports results of research and surveys for metropolitan areas indicated concerning: (1) Background info re computers; (2) Job descriptions and qualifications of 23 computer and EDP occupations; (3) Numbers of people employed, current job vacancies and projected requirements; (4) types of equipments and nature of computer applied functions; (5) Training and educational programs; and (6) Ratios of computer jobs to total employment and job categories.

67-7 - Requirements for Personnel Staff Members and Supervisors, 28 December, 1967. Report contains factors - or ratios - of personnel staff members to total employees in each industry group. The past, present, and projected ratios and trends are developed for first-line supervisors (viz. foremen):

e.g. In 1952, there were 22 employees for each supervisor,
in the early 60's there were 20 employees per supervisor,
in 1967, there were 18 employees per supervisor, and
by 1972, there may be only 15 employees per supervisor.

The annual recurring losses, growth factors, and educational ramifications are described. Factors are applied to industries in the Northeast Region of Indiana.

68-2 - Indiana's Need for Assistants in Veterinary Medical Practice, 15 May, 1968. Study points out the needs for, identification of, description, education and control of auxiliaries to the professional veterinarian. Results of a survey of all practicing veterinarians in Indiana are presented. Report includes: (1) Titles, descriptions, duties and qualifications of animal technicians, small animal hospital attendants, livestock health attendants, and others; (2) The numbers of these auxiliaries now employed, current job vacancies, and future requirements; (3) Salary and training matters; (4) The need for licensure or or registration, and methods to be used, (5) Comments of veterinarians; and (6) Related Conclusions and Recommendations.

NOTE: Copies of these reports are available for $1.50 per copy (Indiana Government and Educational Offices exempted). Please make check payable to Purdue University.

VT 007 996
Potential Supply and Replacement of Rural Males of Labor Force Age, 1960-70.

Economic Research Service (DOA), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct66 153p.

*RURAL POPULATION; *MIGRATION PATTERNS; LABOR FORCE; AGE GROUPS; EMPLOYMENT TRENDS; POPULATION TRENDS; INCOME; CHARTS; LABOR ECONOMICS; LABOR SUPPLY; *LABOR TURNOVER; *ECONOMIC RESEARCH; EMPLOYMENT STATISTICS; ETHNIC DISTRIBUTION; DEMOGRAPHY; TABLES (DATA); *NATIONAL SURVEYS; MANPOWER NEEDS; MALES

This study of potential replacement of the male population of working age extends analysis to the entire rural population, allowing for comparison between the potential labor supply and replacement of two rather different populations--males living on farms and males living in rural-nonfarm areas. Measures are provided which indicate: (1) the relationships between the numbers entering and leaving the working ages, and (2) the change in the working age population implied by the number of entrants and departures from these age groups. Findings of the study include: (1) The number of men aged 20-64 in the rural population in 1960 was about 13.5 million, (2) Replacement ratios and rates are considerably higher among nonwhites than among white males, and (3) Of the four major regions of the United States, the South consistently had the highest replacement ratios and rates. (CH)

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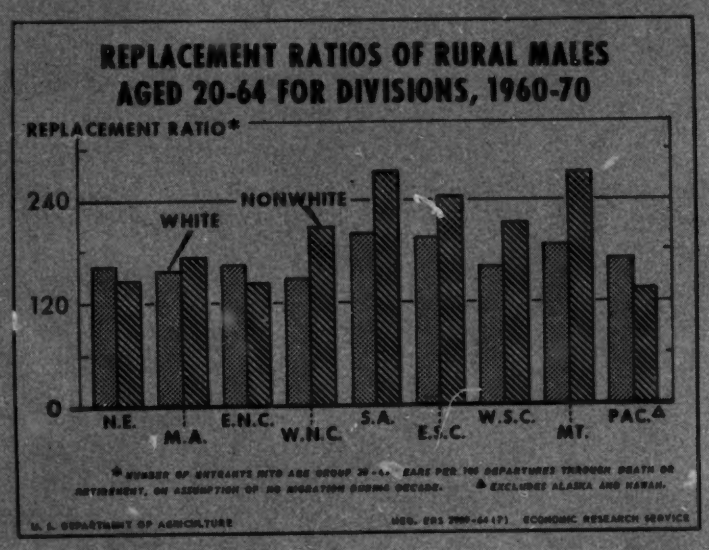
POTENTIAL SUPPLY and REPLACEMENT of RURAL MALES of LABOR FORCE AGE

1960-70



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U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

PREFACE

This is the third in a series of USDA studies of potential replacement of male population of working age, and extends the analysis to the entire rural population instead of limiting it to the rural-farm population as was done in the earlier reports. Conrad Taeuber, now Assistant Director of the Bureau of the Census, developed the methodology for the original study of potential replacement of rural-farm males of working age, which is followed, with some modifications, in the present research.

The replacement measures for the 1960-70 decade in this report were computed from data on the electronic computer tapes basic to the Series C Bulletins of the 1960 Census of Population, General Social and Economic Characteristics. Computations were made along with other tabulations of census data done by J. Allan Beegle and Dale Hathaway of Michigan State University for their monograph "Rural America." Programming and machine work were completed under the direction of W. Keith Bryant of the same University; the machine work was carried out at Armour Research Foundation of Illinois Institute of Technology in Chicago. Appreciation is expressed to Beegle, Hathaway, Bryant, and others on the staffs of Michigan State University and Armour Research Foundation who did the computations with a minimum of direction from the Human Resources Branch, Economic Development Division, Economic Research Service.

Acknowledgment is made to Vera J. Banks of the Human Resources Branch for her assistance in all stages of the research and particularly for development of survival ratios of the population groups included.

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Taeuber, Conrad. 1944. Replacement Rates for Rural-Farm Males Aged 25-69 Years, by Counties, 1940-50. U.S. Dept. Agr., Bur. Agr. Econ. 30 p., Washington, D.C.

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Washington, D.C. October 1966

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HIGHLIGHTS

Comparisons are made in this report between the number of young men expected to attain the working age of 20 and the number of men in the working ages 20-64 in 1960 who are expected to die or reach retirement age (65 years) within the decade 1960-70, for the rural population of the United States. Two measures are employed in making these comparisons: (1) Replacement ratios, the number of expected entrants per 100 expected departures from the working ages, and (2) replacement rates, the expected percentage increase in the number of males of working age. These measures indicate changes in the rural working-age population that would occur if there were no migration to or from the rural population between 1960 and 1970. Some major findings of the report follow:

(1) For the entire United States, the number of men aged 20-64 in the rural population in 1960 was about 13.5 million. It is expected that during the 1960-70 decade about 3.0 million of these men will die or reach retirement age, and about 5.3 million young men will reach working age to replace them. This yields a replacement ratio of about 177 men for every 100 who die or reach retirement age. Therefore, if there were no net migration to or from the rural population between 1960 and 1970, and if the number of job opportunities were to remain approximately the same as in 1960, only about 56 percent of the young men reaching working age would find economic opportunities by replacing the older men in the rural population (100÷177). In other words, about 44 percent of the young men in rural areas now reaching working age would find work only through an increase in rural job opportunities or by moving to urban places. In the absence of migration, the rural working-age group would be increased by 2.3 million men at a replacement rate of 17.1 percent of the group for the decade.

(2) About 1.5 million (28 percent) of the young men expected to enter the rural working-age group were living on farms in 1960; the remaining 3.8 million (72 percent) lived in rural towns and villages or in the open country but not on farms. The expected departures from the working ages comprised about 900,000 (31 percent) farm men and 2.1 million (69 percent) nonfarm men. The replacement ratios for the farm and nonfarm groups in the rural population were 160 and 184, respectively. The replacement rates for these residence categories were 16.7 and 17.3, respectively.

(3) Replacement ratios and rates are considerably higher among nonwhite than among white males mainly because of higher birth rates of the nonwhites. Assuming no migration between 1960 and 1970, the replacement ratios were 171 and 237, respectively, for white and nonwhite rural males. The replacement rates were 15.6 for rural white males and 32.6 for rural nonwhite males. Thus the rate of potential growth of the nonwhite rural labor force was double that of the white. Among whites, the replacement ratio for rural nonfarm males was higher than that for farm males, but the reverse was true among nonwhite males.

(4) Among the four major regions of the United States, the South consistently had the highest replacement ratios and rates. Within the South, the South Atlantic Division had higher ratios and rates than the East and West South Central Divisions, probably because of a larger proportion of high-fertility nonwhites. The lowest rural ratios occurred in the North Central Region, particularly in the West North Central Division. In the rural-nonfarm working-age male population, the South Atlantic and East South Central Divisions were equally high in replacement potential, but the South Atlantic had the highest farm ratios and rates.

(5) The highest State rural replacement ratio (284 entrants for every 100 expected departures from the working ages) was that of Alaska, although South Carolina, which had the second highest rural replacement ratio, ranked first in both the farm and rural-nonfarm segments of the rural population. This irregularity is due to the relative proportions of the rural population that were farm and nonfarm in these two States. However, South Carolina consistently had the highest replacement rates among the States. The rural population of Nebraska had the lowest replacement ratio

(137), and Nevada had the lowest rural replacement rate (9.1 percent).

(6) Among the economic subregions of the United States, the rural population of the Pee Dee and Lumber River Subregion, located in eastern North and South Carolina, had the highest replacement ratio (326), as well as the highest replacement rate (37.9 percent). Other subregions with very high ratios were the South Carolina-Georgia Fall Line and Sand Hills Subregion, the South Carolina-Georgia-Atlantic Flatwoods Subregion, the North Carolina Tidewater Subregion, and the South Carolina-Georgia Upper Coastal Plain Subregion, all of which had replacement ratios of 275 or more. The Kansas-Missouri Corn Belt Border Subregion had the lowest ratio (117) and the lowest replacement rate (5 percent).

(7) For the five Southwestern States of Arizona, California, Colorado, New Mexico, and Texas replacement measures for white rural males of Spanish surnames were about 1.8 times as high as those for other white males. The highest Spanish-surname replacement ratio (484) occurred among farm males in Arizona. The corresponding ratio for Anglo-Americans was 168.

(8) As groups, counties with lowest levels of farm family median income had highest replacement ratios and rates among farm males. The group of counties with farm family median income of under $1,000 in 1959 had a farm male replacement ratio of 242, compared with a ratio of only 144 for the class in which median income was $6,000 or more.

POTENTIAL SUPPLY AND REPLACEMENT OF RURAL MALES OF LABOR FORCE AGE, 1960-70

by

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INTRODUCTION

This is the third study of potential replacement of the male population of working age published by the Department of Agriculture alone or in cooperation with another agency since 1944 (2) (4).[2] In the previous studies data were presented only for the farm population. The present report extends the analysis to the entire rural population. Thus, comparisons can be made between the potential labor supply and replacement of two rather different populations--males living on farms and males living in rural-nonfarm areas.

Estimates are presented of the numbers of men expected to be entering and leaving the working-age groups in the rural population of the United States during the 1960-70 decade. Measures are provided which indicate (1) the relationships between the numbers entering and leaving the working ages, and (2) the change in the working-age population implied by the number of entrants and departures from these age groups. These measures, termed replacement ratios and replacement rates, are indicative of potential labor supply and replacement during a decade.

Replacement ratios and rates, as used in this report, are based on the projected survival and retirement from 1960 to 1970 of persons in the working ages at the beginning of the decade and the projected survival of persons who would become of working age during the decade. The measures are thus based on the assumption that certain mortality experience will obtain during the decade, and that there will be no migration into or out of the specified rural age groups. The assumption of no migration is made in order to illustrate potential rural labor supply.

Detailed information on the method of computing the number of men entering and leaving working-age groups and the replacement ratios and rates, including statements on the basic population data and survival ratios used, is presented in appendix A.

For the 1960-70 decade, measures are shown for the rural population and its component residence categories, farm and nonfarm, and for the total, white, and nonwhite population of these residence categories for the United States, regions, geographic divisions, States, economic subregions, State economic areas, and counties. Most of the data are presented for the age group 20-64, but some additional information is shown in appendix B for the age group 18-64. The latter age group provides a more realistic indication of labor supply and potential replacement since most persons begin working at about age 18, and because many persons have already migrated from the rural population by age 20. However, replacement measures using the age group 18-64 could not be computed for all areas by residence and color because of the unavailability of necessary age data.

Throughout the report, ratios and rates are shown only if the data used were based on a departing population deemed large enough to yield reliable results. Ratios and rates are omitted in all cases where the number of projected departures from the working ages was less than 100. In addition,

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[1] Benjamin S. Bradshaw is now with the Department of Sociology, Brown University.

[2] Underlined figures in parenthesis refer to references cited on page 21.

in table 13 counties are identified which included such a large military or other essentially institutional element in the rural-nonfarm population that resulting replacement measures might be misleading.

WHAT REPLACEMENT MEASURES INDICATE, AND THEIR USEFULNESS IN DEMOGRAPHIC AND OTHER ANALYSES

Replacement ratios and rates are a means of indicating the degree to which a population group is replacing itself over time. For the working-age population of a given area, a replacement ratio of more than 100 shows that the number of men of working age would increase if none of the men reaching this age should migrate from the area. A ratio of less than 100 implies that if the number of men of working age is to be maintained, migration into the area must occur. Replacement rates indicate the percentages by which the working-age population would increase or decrease during the succeeding decade if no net inmigration or outmigration occurred.

In the absence of development of new economic resources or further development of existing resources, areas of high replacement ratios and rates are those most likely to experience heavy outmigration in the current decade. However, an area with a high replacement ratio may be a labor-deficit area if it is experiencing unusually rapid economic expansion. Furthermore, there may be deficits of particular types of labor--for example, professional or skilled workers--in areas of only modest economic growth while the local supply of other labor categories is in substantial surplus.

On the other hand, an area with a moderate ratio may be an area of larger-than-indicated surplus if its economic opportunities are declining. The ratios for the farm population understate the replacement potential in this regard in most areas. Numbers of farming opportunities continue to decline as technology advances, the size of farms increases, and fewer young men are able to enter farming because of large capital requirements or because they are unwilling to farm at only a subsistence or slightly higher level of income. It has been estimated that the number of men dying or retiring from commercial farms that sold $5,000 or more of farm products in 1959 would be about one-sixth as numerous as the total of farm boys aged 10-19 in 1960 who will become 20-29 in the current decade. Men dying or retiring from commercial farm operations that sold $10,000 or more of farm products in 1959--typically the minimum output needed for an adequate income from farming alone--would be only about one-twelfth as numerous as the young farm men reaching age 20.[3]

Despite the fact that replacement ratios and rates alone do not contain sufficient information to allow an evaluation of economic trends in an area, they are useful indicators of areas of potential oversupply or undersupply of labor. The implied numbers above replacement are, in effect, the approximate number of rural men for whom additional jobs will have to be found somewhere in the U.S. economy in the present decade, either within or outside the area of residence category in which they were located in 1960.

Programs relating to utilization of manpower, location of industry, recruitment for the Armed Forces, and to interrelationships of rural resources and population may make use of such measures. Table 13 indicates counties designated as eligible for redevelopment assistance by the Area Redevelopment Administration as of February 1963, so that comparison of such areas with noneligible counties may be made.[4]

REPLACEMENT RATIOS AND RATES FOR RURAL MALES, 1960-70

[Refer to tables 1-13, chart on cover, and charts 1-8]

For the entire United States, the number of men aged 20 to 64 in the rural population was about 13.5 million in 1960. During the 1960-70 decade, it is expected that about 700,000 of those aged 20 to 54 in 1960 will die, and that the 2.3 million aged 55 to 64 will either die or reach the average retirement age of 65, for a total of 3.0 million departures. If there were no migration to or from the rural working-age population, there would be about 5.3 million rural young men reaching working age 20 to replace the 3.0 million older men dying or

[3] Shoemaker, Karl, "Impact of Economic Changes on the Farm Community and on Opportunities for Farm Youth." Paper presented at the Thirty-Ninth Annual Agricultural Outlook Conference, U.S. Department of Agriculture, Washington, D.C. Nov. 1961.

[4] For an explanation of redevelopment categories see (9).

retiring, or about 177 entrants for every 100 departures from the working-age group. Therefore, if the number of job opportunities accessible to rural men without migrating from rural areas should remain approximately the same as in 1960, only about 56 percent (or 3 million) of the young men reaching working age would find economic opportunity by replacing the older rural men of 1960 who may be expected to die or retire. Unless economic opportunities become sufficient to absorb them, the remaining 44 percent (or 2.3 million) of the rural young men reaching working age in this decade would be surplus to the rural labor force and could be spared from the rural population without reducing the number of men in the working ages 20 to 64. Without migration, the rural male working-age population could be expected to increase beyond replacement level at a rate of 17.1 percent during the present decade.

There were substantial variations in replacement ratios and rates among the several regions, geographic divisions, States, and other subdivisions of the United States. The highest ratios and rates for rural males occurred in the South, with a ratio of 199 and a rate of 21.7 percent followed by the West (177 and 16.2), and the Northeast (158 and 12.6). Among the regions, the North Central had the lowest replacement ratio (157), but the Northeast had the lowest replacement rate.

The West North Central Division had the lowest rural replacement measures of any of the geographic divisions. Its replacement ratio was 146 and its replacement rate was 11.9 percent. This division has sustained a large outmigration for a number of years, particularly from marginal grain-producing areas.

The ratios for the white and nonwhite rural population differed both within and among the regions. In general, a high ratio for white persons appears to be accompanied by a high ratio for nonwhites, both among the regions and among the smaller subdivisions, but there were very large differences between the areas and between the two groups within the areas.

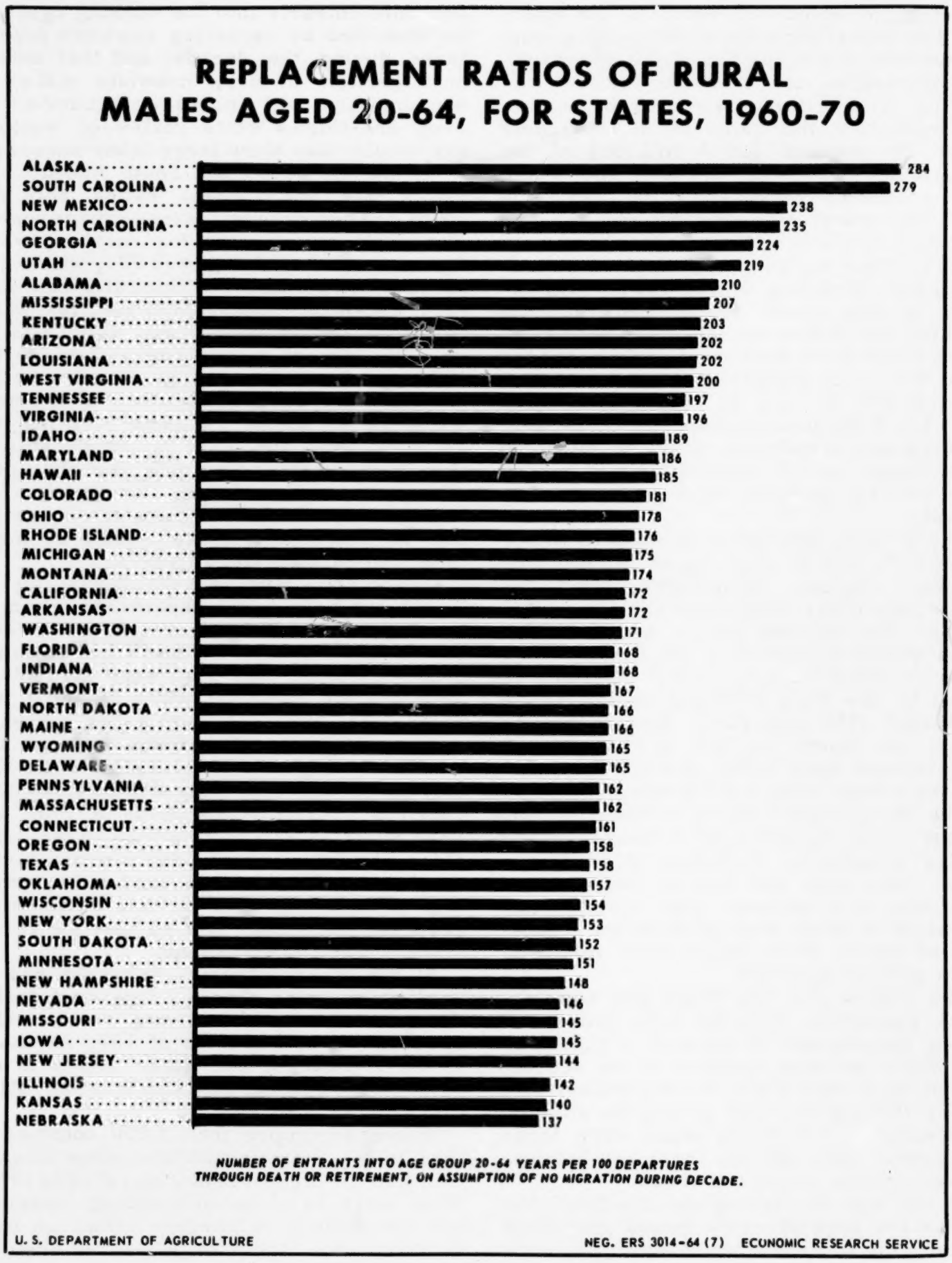
Of the four major regions, the South had by far the highest replacement measures for both the white and nonwhite populations; the ratio for rural white males being 187 and nonwhite males, 250; the replacement rates for the two groups were 18.7 and 36.5, respectively. These measures imply that only about 40 percent of the expected nonwhite entrants into the working ages can be absorbed by replacing nonwhite departures during the decade, and that unless outmigration occurs, nonwhite males of working age will increase in number by over one-third. White males of working age would also show large labor excesses.

Within the South, the South Atlantic Division had the highest ratios both for white and nonwhite males (cover page chart). The replacement ratio for rural nonwhite males in this division was 271, with a replacement rate of 37.3. This ratio was more than one-third higher than that for white males in the division (200), which was itself the highest among rural white males. If there should be no migration during the decade, only about 37 percent of the nonwhite rural males reaching working age between 1960 and 1970 would be able to find work by replacing older nonwhite men who die or retire during the decade. The nonwhite rural male population of working age in this division would grow by more than one-third in just 10 years.

On the State level, Alaska had 14,700 entrants but only 5,200 departures, giving it the highest rural replacement ratio (284) of any State (chart 1). The rural ratio for South Carolina was also very high (279). Although the ratio for white males in this State was high (242), that for nonwhite males (346) was two-fifths larger. The extremely high ratio of 346 implies that only 29 percent of the nonwhite rural males reaching working age between 1960 and 1970 would be able to find work by replacing older nonwhite men who die or retire during the decade. The nonwhite rural male population of working ages in this State would grow by more than half in just 10 years, if there were no migration.

At the other extreme, Nebraska had an implied increase of only 9.7 percent during the current decade among rural males aged 20-64, and a ratio of 137. As shown earlier, most of the other States in the West North Central Division also had rather low ratios and rates.

Among the more than 3,000 counties in the United States, Chattahoochee County, Ga., had the highest replacement ratio (995). This ratio is very misleading, however, for the county is largely taken up by a military base. About 94 percent of all rural males in the county over 14 years of age were in the Armed Forces in 1960. Among counties with a more normal population composition, Georgetown County, S.C., had the highest ratio. The ratio for rural males


REPLACEMENT RATIOS OF RURAL MALES AGED 20-64, FOR STATES, 1960-70
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SOUTH CAROLINA 279
NEW MEXICO 238
NORTH CAROLINA 235
GEORGIA 224
UTAH 219
ALABAMA 210
MISSISSIPPI 207
KENTUCKY 203
ARIZONA 202
LOUISIANA 202
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OREGON 158
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NEW YORK 153
SOUTH DAKOTA 152
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NEVADA 146
MISSOURI 145
IOWA 145
NEW JERSEY 144
ILLINOIS 142
KANSAS 140
NEBRASKA 137
NUMBER OF ENTRANTS INTO AGE GROUP 20-64 YEARS PER 100 DEPARTURES THROUGH DEATH OR RETIREMENT, ON ASSUMPTION OF NO MIGRATION DURING DECADE.
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 3014-64 (7) ECONOMIC RESEARCH SERVICE

CHART 1

aged 20-64 in this county was 388, and the replacement rate 51.5 percent. The replacement ratio for rural nonwhite males was 463, and their replacement rate was 71.9. Replacement measures for white males in this county were also very high; about 301 rural white men will enter the working-age group for every 100 who will leave it during the 1960's.

Other counties with extremely high replacement ratios were Leslie County, Ky., located in the Eastern Kentucky Coal Fields; Wyoming County, W. Va., in the southern coal fields of that State; and Minidoka County, Idaho, an agricultural county in the reclamation area along the Snake River.

Llano County, Tex., in the eastern part of Edwards Plateau, had the lowest replacement ratio (59) for rural males. The replacement rate for this county implies a 15 percent decline in the male population of working age during the present decade. Llano County is a small county that is losing young people, but has become a growing rural retirement area. About 18 percent of the rural male population of Llano County was 65 years old or over in 1960, compared with a little over 9 percent for the United States as a whole. Charlotte County, Fla., Sierra County, N. Mex., and San Juan County, Wash., are other retirement areas with replacement ratios of less than 90. In such areas, some retired men enter who are less than 65 years old and thus add to the calculated future departures from working age.

Among nonretirement counties that have low replacement ratios and rates, are Nye County, Nev., an older mining area (79) and Saline County, Nebr., a Corn-Belt farming county (82). Chart 2 shows the variation among counties in rural replacement ratios.

Rural Farm Areas.--Replacement ratios and rates for the farm male population of working age were in general somewhat lower than those for total rural and rural nonfarm males. In most instances this is largely the result of protracted migration from farming areas which has occurred because of changing agricultural techniques, market conditions, desire for urban opportunities, and other reasons. The farm population of many areas is characterized by a bimodal age distribution in which there are large numbers of late-middle-aged persons and school-age children, but relatively small numbers of very young children and young adults. An age distribution of this type is particularly characteristic of the white farm population; the nonwhite farm population typically had a much larger proportion of young children.

It is estimated that, in the absence of migration, about 1.5 million young farm males aged 10-19 in 1960 will reach working age in the United States during the current decade, and that over 900,000 older farm males will leave the working ages through death or retirement. The replacement ratio for this population is 160; the replacement rate is expected to be 16.7.

Among the four regions of the United States, the South had the highest farm ratio (176) and rate (21.3), primarily because of the presence of a large, nonwhite population of high fertility. Replacement measures for white farm males in the South were not out of line with those of white males in other regions. Ratios for the other three regions lay between 146 in the North Central Region, and 156 in the West.

On the divisional level, farm males aged 20-64 in New England had the lowest replacement ratio (142), in contrast to the South Atlantic Division, where there were almost twice as many entrants as departures. In the South Atlantic Division, South Carolina had the highest farm replacement ratio (255) and rate (38.5), which were greater than those for any other State (chart 3).

The U.S. replacement ratio for nonwhite farm males (266) was three-fourths higher than that for white males (150), and the replacement rate for nonwhite males was over three times that for white males. Variation in replacement ratios and rates for white males in different sections of the United States was in general less radical than that of nonwhite replacement measures (chart 4). There were no economic subregions where white farm males had replacement ratios of less than 100 nor more than 240.

As stated earlier, high white replacement measures usually accompanied high nonwhite measures. For example, white farm males in the Southern Coastal Plain had mostly above average ratios and rates, the highest being in the Pee Dee and Lumber River Subregion in North and South Carolina, where the replacement ratio was 234 and the rate 30.4. White farm replacement measures were also high in Southern Appalachian areas, such as the coal-mining areas of eastern Kentucky, western Virginia, and southern West Virginia, the mountainous areas of eastern Tennessee and western North Carolina, and the Tennessee Valley.

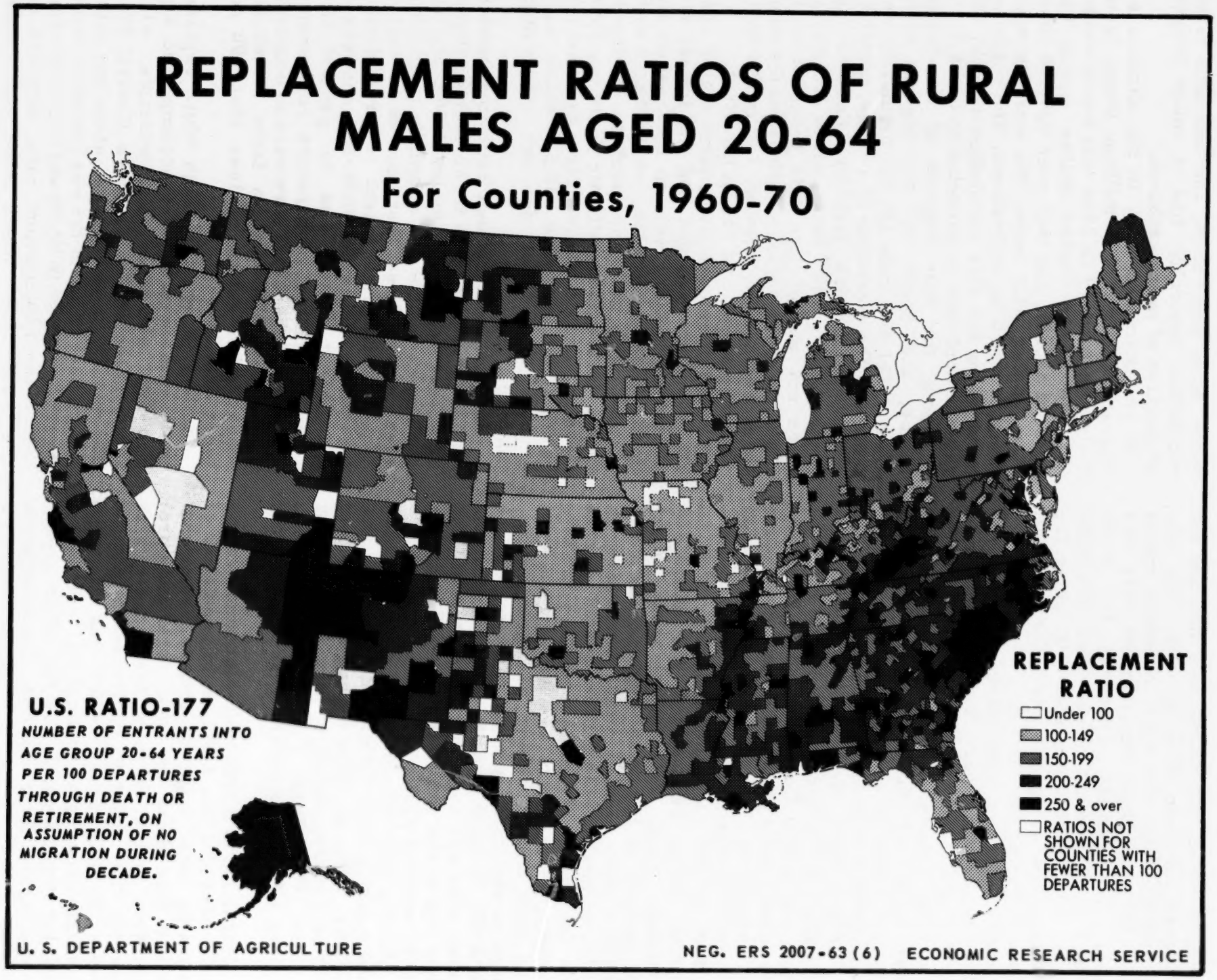
REPLACEMENT RATIOS OF RURAL MALES AGED 20-64
For Counties, 1960-70
U.S. RATIO-177
NUMBER OF ENTRANTS INTO AGE GROUP 20-64 YEARS PER 100 DEPARTURES THROUGH DEATH OR RETIREMENT, ON ASSUMPTION OF NO MIGRATION DURING DECADE.
REPLACEMENT RATIO
Under 100
100-149
150-199
200-249
250 & over
RATIOS NOT SHOWN FOR COUNTIES WITH FEWER THAN 100 DEPARTURES
U. S. DEPARTMENT OF AGRICULTURE
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CHART 2

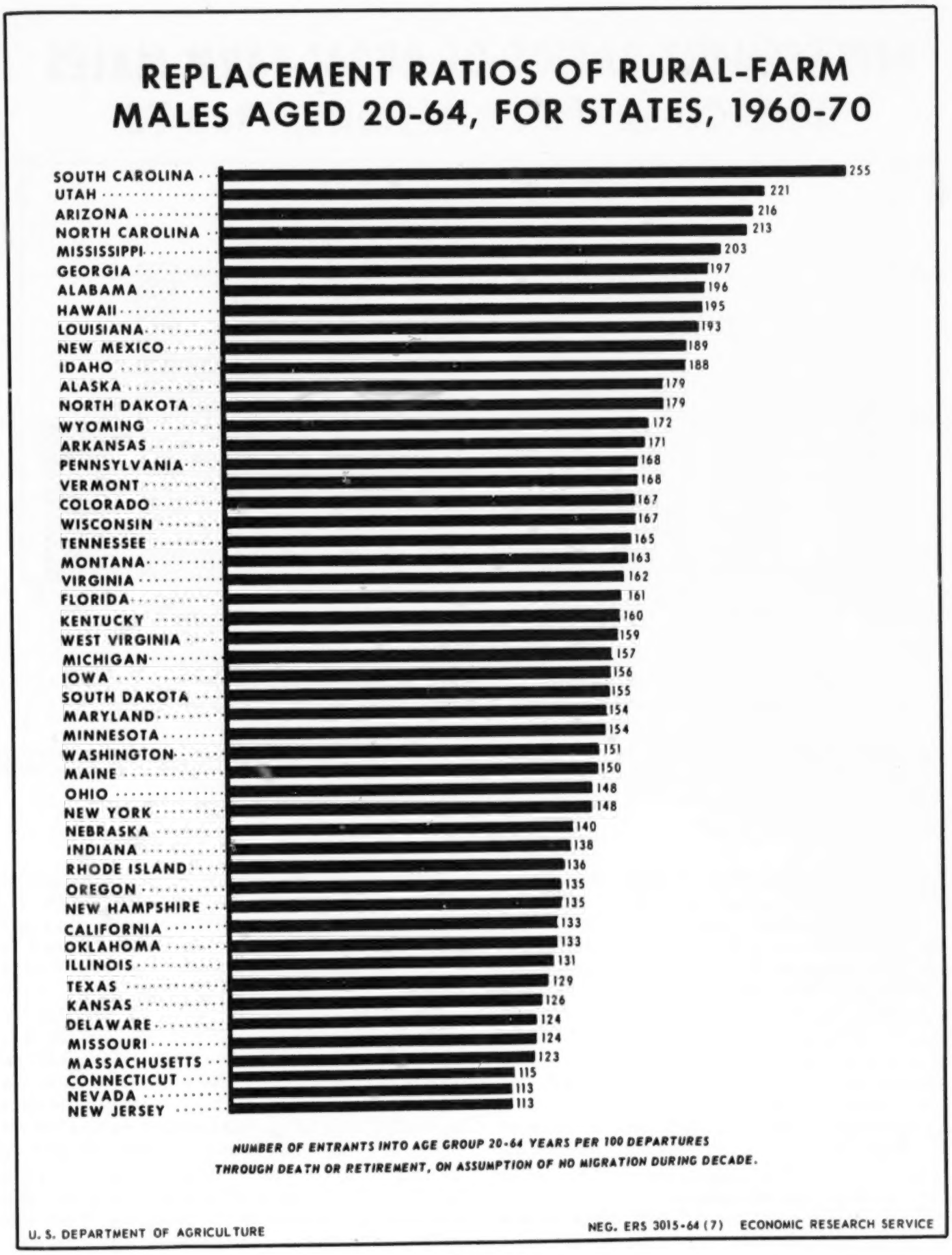

REPLACEMENT RATIOS OF RURAL-FARM MALES AGED 20-64, FOR STATES, 1960-70
SOUTH CAROLINA 255
UTAH 221
ARIZONA 216
NORTH CAROLINA 213
MISSISSIPPI 203
GEORGIA 197
ALABAMA 196
HAWAII 195
LOUISIANA 193
NEW MEXICO 189
IDAHO 188
ALASKA 179
NORTH DAKOTA 179
WYOMING 172
ARKANSAS 171
PENNSYLVANIA 168
VERMONT 168
COLORADO 167
WISCONSIN 167
TENNESSEE 165
MONTANA 163
VIRGINIA 162
FLORIDA 161
KENTUCKY 160
WEST VIRGINIA 159
MICHIGAN 157
IOWA 156
SOUTH DAKOTA 155
MARYLAND 154
MINNESOTA 154
WASHINGTON 151
MAINE 150
OHIO 148
NEW YORK 148
NEBRASKA 140
INDIANA 138
RHODE ISLAND 136
OREGON 135
NEW HAMPSHIRE 135
CALIFORNIA 133
OKLAHOMA 133
ILLINOIS 131
TEXAS 129
KANSAS 126
DELAWARE 124
MISSOURI 124
MASSACHUSETTS 123
CONNECTICUT 115
NEVADA 113
NEW JERSEY 113
NUMBER OF ENTRANTS INTO AGE GROUP 20-64 YEARS PER 100 DEPARTURES
THROUGH DEATH OR RETIREMENT, ON ASSUMPTION OF NO MIGRATION DURING DECADE.
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 3015-64 (7) ECONOMIC RESEARCH SERVICE

CHART 3

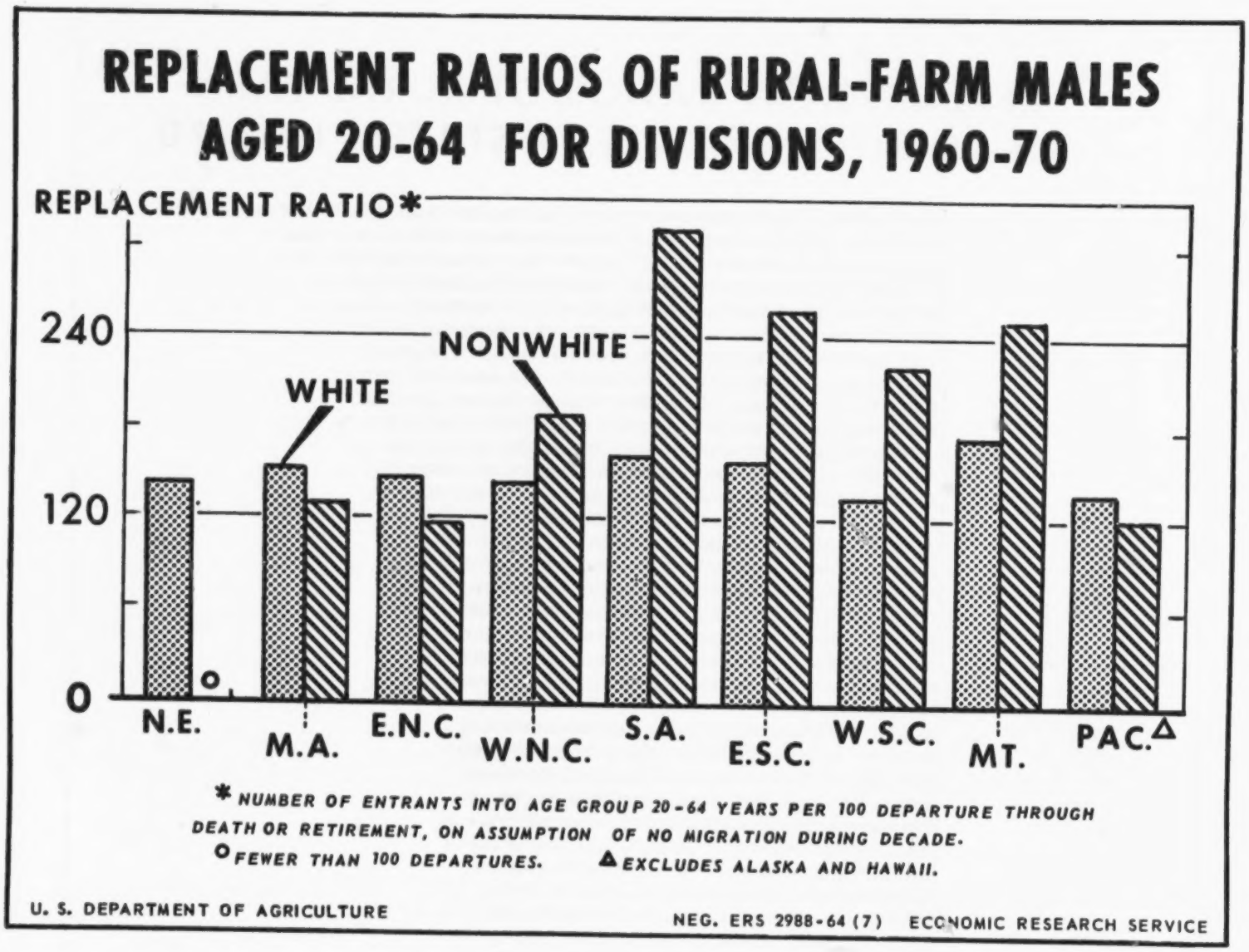


CHART 4

The Middle Tennessee Valley and Sand Mountain Subregion of Alabama had the highest replacement rate for white farm males (26.3) of any subregion in this latter group. The ratio of this subregion was 202.

The Mississippi Delta was also a zone of relatively high white replacement ratios, with all subregions exceeding 185, and rates of 22 and above. The Crowley's Ridge and Arkansas Prairies Subregion had the highest replacement measures in the Delta Area, having a ratio of 210 and a rate of 27.6. This subregion is distinguished by large-scale rice production, mixed with smaller cotton operations.

Two other areas have very high white farm replacement ratios. The Southwest North Dakota and Northern Montana Plains Subregion, an area of spring wheat and cattle grazing, has long been an area of high population fertility, despite long-term outmigration from the rural population. The replacement rate for this subregion implied a 21 percent increase for the white farm male population of working ages during the present decade. Another area of high fertility is the Snake River Valley, Wasatch Front, and Utah Valley Subregion, with a large number of persons of the Mormon faith whose families are traditionally large.

At the other extreme, in 27 of the 121 economic subregions, white farm males were characterized by virtually stable working-age groups with replacement ratios between 100 and 129 and rates below 10 percent. These areas of stability or moderate potential increase present a peculiar cross section of subregions, ranging from those with extremely prosperous agriculture to those with only mediocre farm opportunities. Areas such as southern and western California, the Florida Penninsula, and the northeastern Atlantic Metropolitan Belt have many intensive and profitable farming

operations, whereas many areas of Missouri, central Texas, Arkansas, and elsewhere have large numbers of marginal farms which have been giving up migrants to urban areas for many years.

The nonwhite farm population contrasts sharply with the white farm population in replacement measures, just as it does in size of farms, land tenure, amount of sales, and farm products.

The nonwhite farm population is located primarily in two large regions with quite different ethnic composition. One of these is in the South, which includes almost 93 percent of the nonwhite farm population and where nonwhites are almost entirely Negro. There is an unbroken belt of economic subregions, each with a nonwhite farm male replacement ratio of at least 200 that extends from southern Maryland south and west to the eastern Gulf Coast of Texas. Replacement rates in this zone ranged between 30 and 68 percent for nonwhites, with most of the subregions having rates above 50 percent. This concentration is further divided into three major strips: (1) The coastal plain of the South Atlantic States, extending from southern Virginia southward into eastern Alabama, (2) the Piedmont region of southern Virginia, central North Carolina, western South Carolina, and north-central Georgia, and (3) the Mississippi River Delta Area, extending from southeastern Missouri southward to the mouth of the Mississippi River. In the Coastal Plain Area, which is characterized by heavy tobacco and peanut farming, plus cotton, all economic subregions have replacement ratios of over 300 and rates over 45 percent for the nonwhite farm population. The Piedmont Area, immediately to the north and west of the Coastal Plain, constitutes a parallel strip of more diversified agriculture. Cotton formerly was dominant in most sections of the Piedmont, but has given way to livestock, poultry, forestry, and off-farm work. The ratio for the nonwhite farm population of this area is less than that of the Coastal Plain, but still over 250, with replacement rates mostly exceeding 35 percent. The Mississippi Delta Area and adjacent territory in Mississippi also have ratios between 250 and 300. This is the heart of the cotton plantation country.

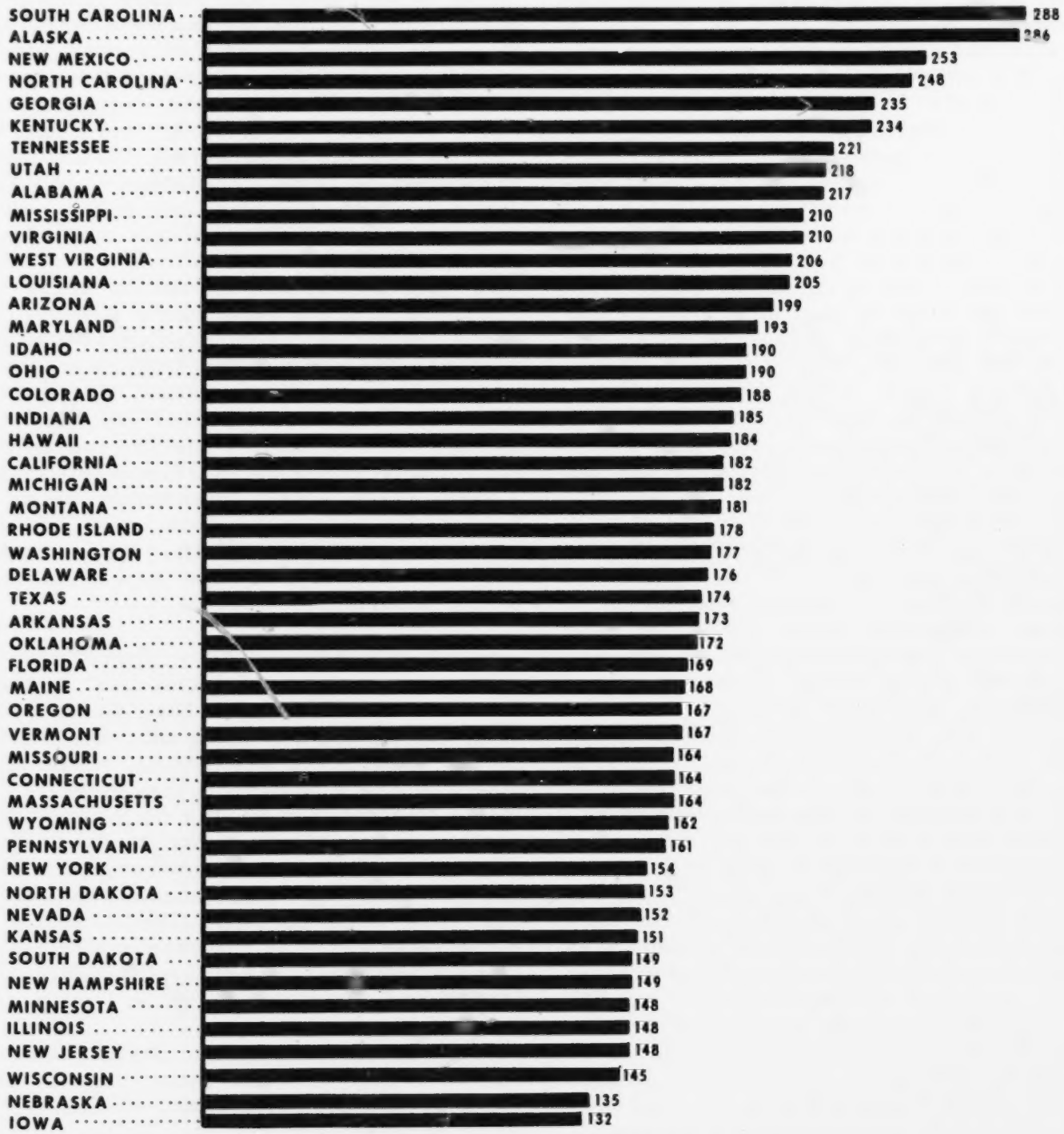
The second major region of extremely high nonwhite farm replacement ratios covers most of the central part of the West. The nonwhite rural population in this area is sparsely distributed, comprised largely of American Indians and a smaller number of Japanese. Much of this territory had replacement ratios of over 300, and almost all of it had ratios of at least 250. In contrast to the South, the absolute number of nonwhite farm people in these Western subregions is rather small, and replacement rates were generally below the United States average rate for nonwhite farm males (45.3), ranging between 20 and 45 percent.

There were five subregions where replacement ratios for the nonwhite farm male population aged 20-64 were less than 100. In two of these areas, in California, the nonwhite rural population is mostly of Japanese and Filipino extraction, with a large number of older, single men who are survivors of pre-World War II immigration. The other three areas, located in the West North Central and East North Central Divisions, have small, scattered, and decreasing nonwhite farm populations which are mostly Negro. Among these areas, the Southern Iowa-Northern Missouri-West Central Illinois Subregion had the lowest nonwhite farm replacement ratio (37) and rate (-30.9). These replacement measures were the lowest for any subregion, regardless of color or residence, but they were based on only 164 departures, and represent only a small population.

Rural-Nonfarm Areas.--There was less regional variation in replacement measures for the rural-nonfarm than for the farm area male population. Except in the Southern States east of the Mississippi River and in much of the grain-producing areas of the North Central Region, the major part of the conterminous United States had rural-nonfarm replacement ratios ranging between 150 and 225, with replacement rates between 10.0 and 25.0 percent. The ratio for the Nation was 184, and the rate was 17.3; South Carolina had the highest rural-nonfarm ratio (288), and Iowa the lowest ratio (132) (chart 5).

The eastern Southern States, extreme southern and western Texas, eastern New Mexico, southern Colorado, the Snake River Area of Idaho, and the Utah Valley had many areas with rural-nonfarm replacement ratios well above 200 (chart 5). Of these areas, much of the southeastern Coastal Plain and Piedmont, the coal-mining areas of Kentucky and West Virginia, and extreme West Texas had replacement ratios exceeding 250. Replacement rates for these areas ranged as high as 33.5 in the Pee Dee and Lumber River Area of North and South Carolina. In some of these latter areas, the

REPLACEMENT RATIOS OF RURAL-NONFARM MALES AGED 20-64, FOR STATES, 1960-70



NUMBER OF ENTRANTS INTO AGE GROUP 20-64 YEARS PER 100 DEPARTURES THROUGH DEATH OR RETIREMENT, ON ASSUMPTION OF NO MIGRATION DURING DECADE.

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CHART 5

ratio was affected by large military concentrations.

In contrast to sections with medium and high rural-nonfarm replacement measures, much of the North Central grain-producing country, the Hudson River Valley, the rural environs of New York City, the Lehigh Valley and anthracite areas of Pennsylvania, and the Florida Peninsula had rural-nonfarm replacement ratios ranging between 100 and 149. Replacement rates generally were slightly under 10 percent in these areas.

There were regional variations in the rural-nonfarm replacement measures for white and nonwhite males generally similar to those in the farm population (charts 4 and 6). It is of interest, however, that while in most geographic divisions the nonwhite rural-nonfarm replacement measures are somewhat higher than those for white males, in a few cases they are substantially lower. For example, in New England the rural-nonfarm white rate was 13.3, while that for nonwhites was only 7.0; in the Pacific Division, the respective rates were 15.8 and 7.5. Replacement rates of rural-nonfarm nonwhites were also lower than those of whites in the East North Central Division. Each of these cases illustrates not so much a large number of nonwhite departures from the working ages as the effect of a large population within the working ages 20-54. The replacement ratios accompanying these rates are fairly low, but they are higher than might be expected from such low rates. The large concentration of males in the age group 20 to 54 has the effect of reducing the proportion of departures and thus also the replacement rate, while the relatively small number of departures in turn inflates the replacement ratio.

There are few obvious or consistent differences in replacement measures among rural-nonfarm males in metropolitan areas

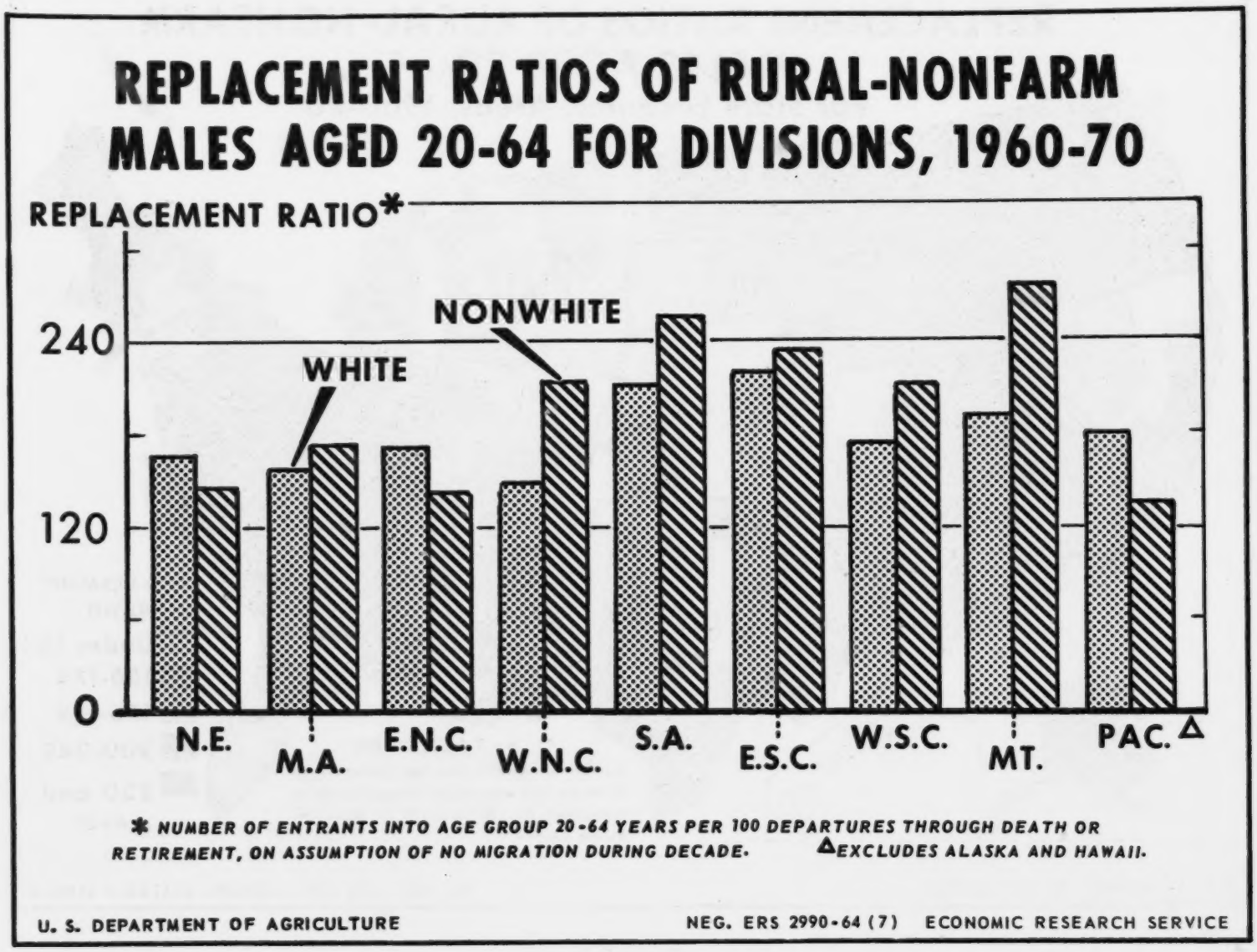

CHART 6

as compared with nonmetropolitan areas.[5] As a result of large concentrations of young rural-nonfarm males, the overall replacement ratio in metropolitan areas (192) is somewhat higher than that for nonmetropolitan areas (182); however, the metropolitan rate of replacement (16.9) is about the same as the nonmetropolitan rate (17.4). Charts 7 and 8 show the variation in rural-nonfarm total and nonwhite male replacement ratios for State economic areas.

[5] Metropolitan and nonmetropolitan rural-nonfarm replacement measures were obtained by summation of rural-nonfarm working-age populations, entrants, and departures for all metropolitan and nonmetropolitan State economic areas as identified in the 1960 Census of Population. Metropolitan areas are identified by alphabetic codes, nonmetropolitan areas are identified by numeric codes (see tables 10, 11, and 12).

TRENDS IN REPLACEMENT MEASURES FOR THE RURAL-FARM POPULATION FOR THREE DECADES

[Refer to tables 4, 6, and 7 and charts 9-12.]

Replacement ratios and rates for the 1960-70 decade are presented for the total, the white, and the nonwhite male farm population of working age 20-64 for all States and other areas for which the number of departures was as great as 100. Numbers of persons in the working-age group and the numbers of entrants and departures are not dealt with here because the changes in definitions and procedures for classifying the farm population have been sufficiently great to prevent comparison of absolute numbers. As explained in the appendix, however, it is felt that although ratios and

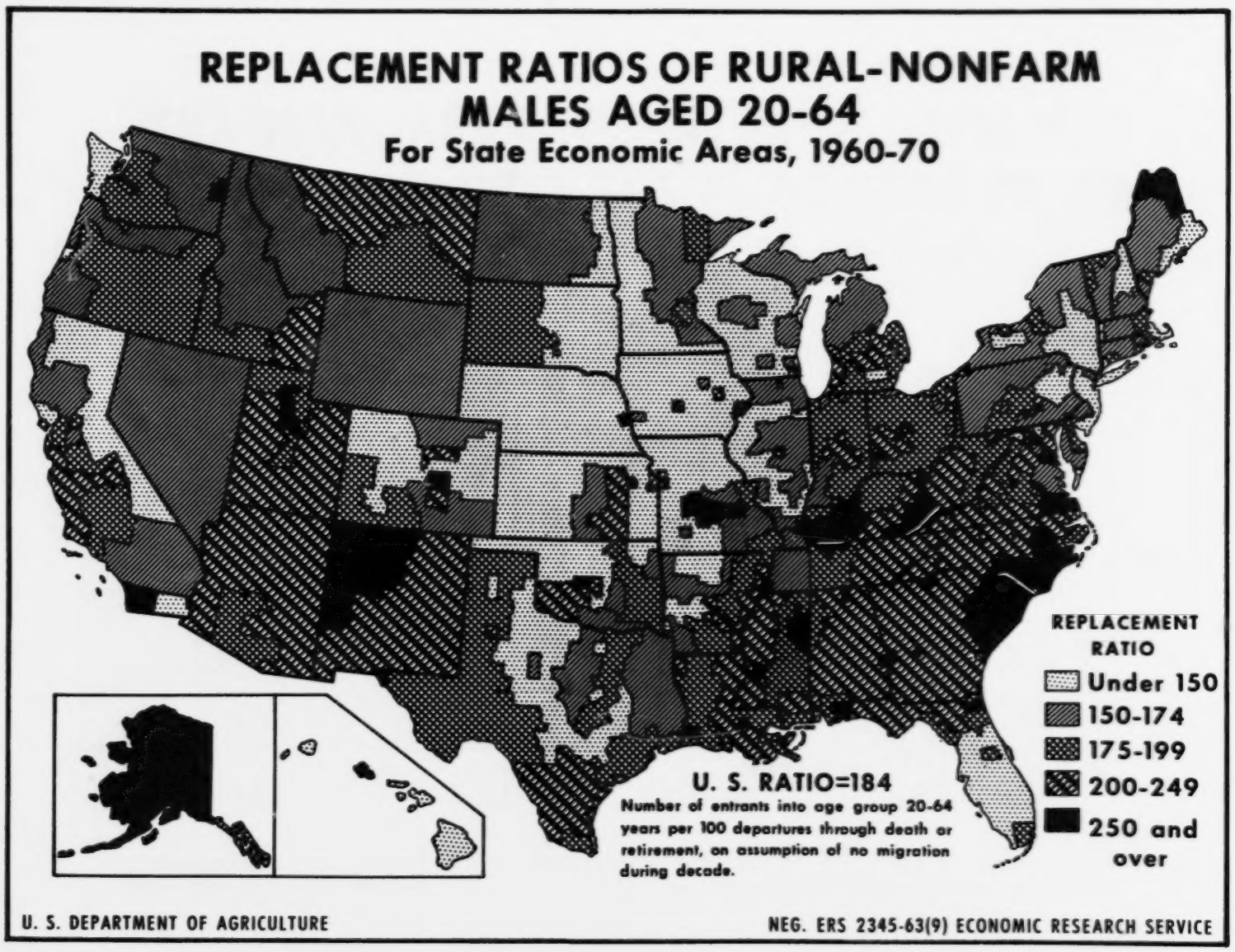

CHART 7

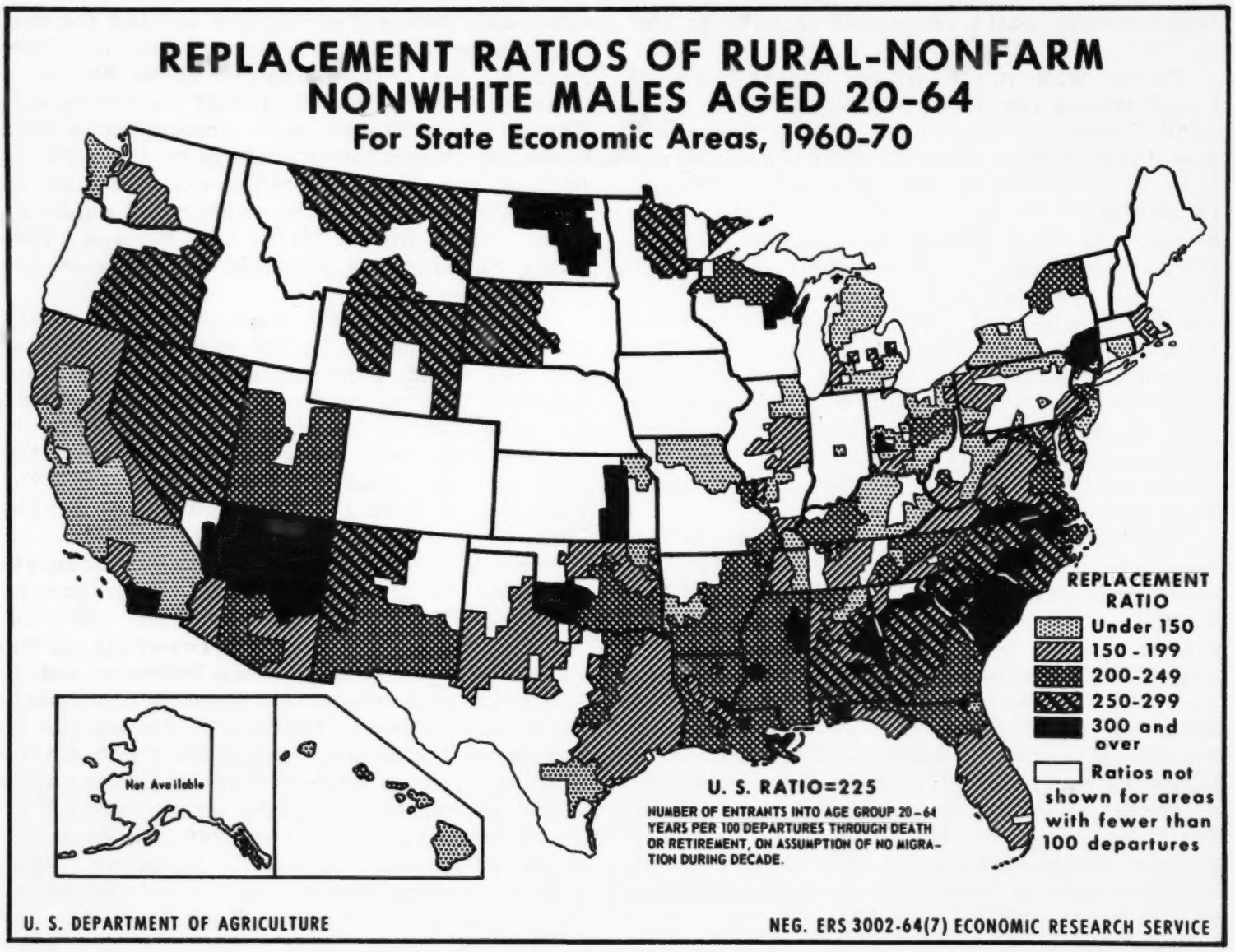

CHART 8

rates are also somewhat affected by these changes, some valid analyses of the trends over the three decades, 1940-70, can be made.

Between the 1940-50 and 1960-70 decades there were modest decreases in the potential national replacement of farm men who die or retire by young men entering the working ages. The replacement ratios were 179, 168, and 160 for the three decades. The replacement ratio for farm males, therefore, has declined only 11 percent since 1940, although the farm population during the same period decreased about 50 percent.

This illustrates the fact that although heavy outmigration greatly reduces the amount of the existing and oncoming labor force living on farms, it does not necessarily alter radically the proportion of farm youths who are in excess of the number of jobs vacated by deaths or retirements. In the long run, only changes in the rate of childbearing or in the length of working life are likely to do this. Despite the economic pressures in agriculture that have forced many farms to be consolidated or abandoned, birth rates among farm families have remained fairly high and in some areas have even increased, thus serving to sustain the replacement ratios.

In the shorter run, selective outmigration of younger people can lower replacement ratios where not fully offset by increased birth rates. Workers of middle age are not nearly as likely to move--either physically or occupationally--as are young people. The result is that in a declining occupational or residential group, the number of potential deaths and retirements is not initially reduced as much as is the number of young families of child-rearing age. This factor undoubtedly explains much of the observed reduction in the U.S. farm

replacement ratio from 179 in 1940 to 160 in 1960.

There was much more consistency of trend among the States between the 1940 and 1950 Censuses than there was between 1950 and 1960. From 1940 to 1950, the lowered U.S. farm replacement ratio was reflected in declines in the ratios of 33 States. The exceptions were scattered among all States. By contrast, only 18 of the former 48 States followed the national trend from 1950 to 1960 by showing declining farm ratios. Despite the prevalence of increases, a national decline was produced (1) because the average change in States having declines was greater than in the States showing increases, and (2) because the declines occurred predominantly in States with large farm populations.

The decline in U.S. replacement ratios between 1950-60 and 1960-70 results almost entirely from large decreases in the Southern States, primarily among white males in the South. All the Northeastern and North Central States, except Missouri, and all the Western States (except New Mexico) had either the same or higher ratios in 1960-70 than in 1950-60. To a large extent, the decline in the South was a consequence of a decline in population fertility, and to earlier migration of young people from farms in the South. Many young people in both color groups migrated before they reached age 20.

Variations in replacement ratios among States and other areas are a result of long-term developments. Patterns of population fertility, mortality, and migration, which determine the age structure of a population at the beginning of a period for which replacement measures are being computed, affect the level of potential replacement over time and in various parts of the country. During the 1940's and 1950's, patterns of variation in replacement among the geographic areas were about the same. Areas that had high replacement ratios in 1940-50 were to a large extent, areas which had high replacement ratios in 1950-60. The same is true for areas of low ratios. In the 1950-60 decade, South Carolina, North Carolina, Georgia, West Virginia, Alabama, Mississippi, Louisiana, New Mexico, and Utah all had ratios of more than 200 (twice the number needed for full replacement), while Connecticut and New Jersey had ratios around 90 to 95, or a possibility of less than full replacement. These same States were among those with the highest and lowest ratios in 1940-50. In fact, a correlation coefficient (rho) of .94 is obtained between the ranking of replacement ratios for 48 States in 1940 and 1950, using Spearman's formula for rank-order correlation.

Between 1950-60 and 1960-70, more changes occurred in the ranking of States; the resulting rank-correlation coefficient between States on the replacement ratios for these decades was only .82, due largely to the rearrangement of States below the highest 10. Charts 9 and 10 portray the patterns of farm replacement ratios for the 1950-60 and 1960-70 decades.

Some striking changes in the replacement patterns of the two major color groups occurred between 1940-50 and 1950-60. Most noteworthy was the reversal of the relationship which existed between ratios for white and nonwhite segments of the male farm population in the South. Among the 16 States of the South, except for South Carolina and Texas, replacement ratios for ages 20-64 for white farm men were higher than those for the nonwhites in 1940-50. Replacement ratios for 1950-60, however, were higher among nonwhites in all Southern States except Kentucky, West Virginia, and Delaware; States with relatively few nonwhites in the farm population. This reversal of the pattern resulted mainly from a comparatively heavier outmigration of nonwhites in the middle-age groups, which left a smaller nonwhite base population from which the departures were computed (1). In contrast, there is greater concentration of white rural migrants among the young, with less outmigration of middle-aged persons than is true of nonwhites.

In the 1960-70 decade, New York, Ohio, Illinois, Michigan, Kentucky, Idaho, Washington, and California all showed higher replacement ratios for whites than for nonwhites. Data are not available to examine the trends between whites and nonwhites between 1950-60 and 1960-70, except in the South, but as indicated above, only Kentucky in the South had a higher white than nonwhite ratio.

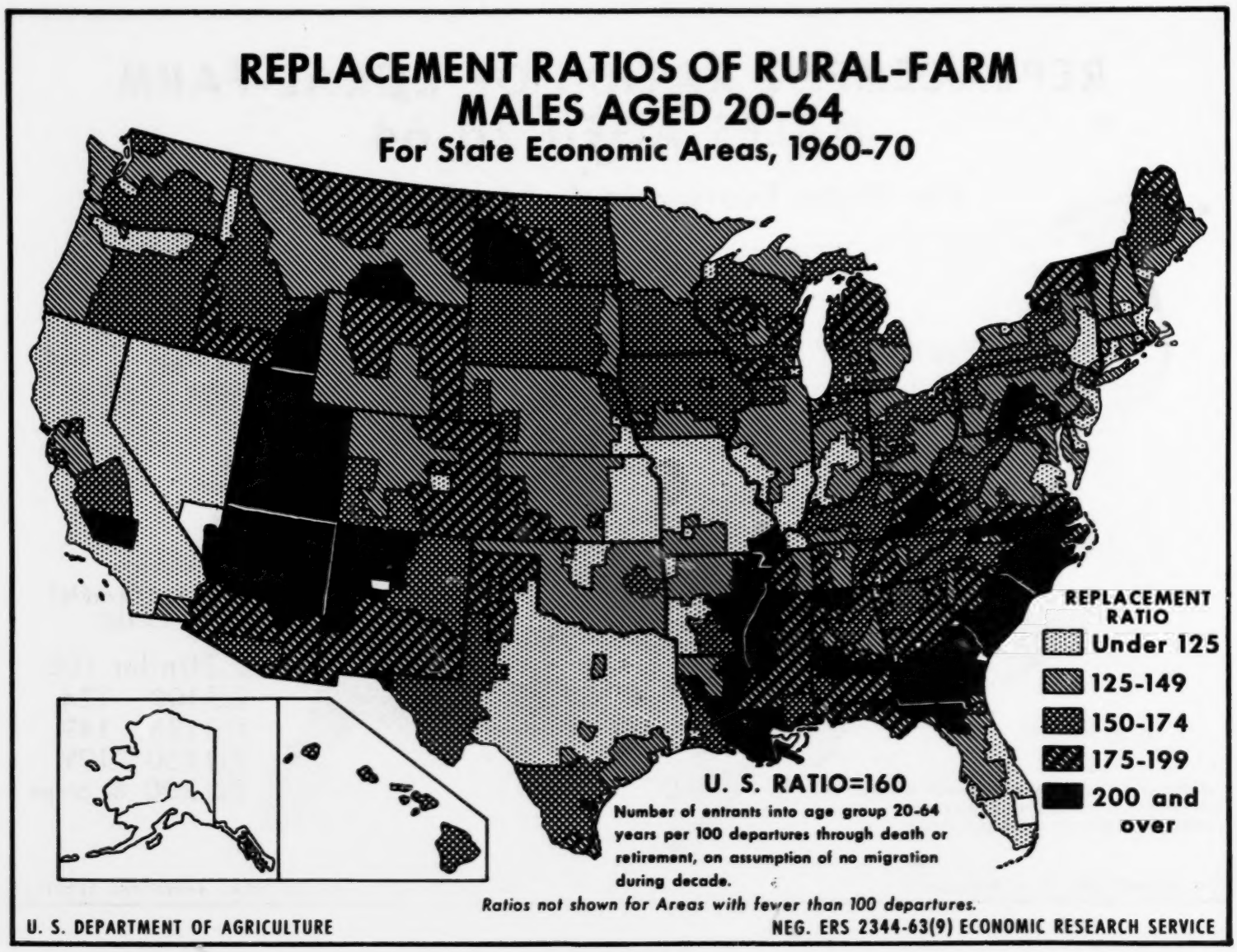

CHART 9

On a subregional basis, percent differences in 1950-60 and 1960-70 replacement ratios demonstrate even more clearly the regional bifurcation in trends. Not a single economic subregion which lay entirely in the South showed an increase in replacement ratio for the male farm population aged 20-64 between 1950-60 and 1960-70. The ratio for the South Jersey Coast, Delmarva, and Virginia Peninsulas Subregion, which lies in both the Northeast and the South, increased slightly between the two decades. On the other hand, outside the South, the replacement ratios for almost every subregion either increased between the two decades or remained virtually stable (change of plus-or-minus 5 percent). The exceptional cases are of some interest. The Ohio River Valley, which borders the Southern States, showed declines in replacement ratios throughout its length, including that portion which extends into the coal and iron area around Pittsburgh, Pennsylvania. Except in the Wabash River Valley, which is really a part of the Corn Belt, most of this area has been utilized for a great many years for small commercial farms, which produce modest crops of grains, soybeans, tobacco, and some peaches, and for subsistence residential farms. A decrease in the replacement ratio also occurred in the Pennsylvania Anthracite Subregion, where many farms are primarily residential in character, although poultry, dairying, and specialty farming are of some importance.

There were several areas which showed marked increases in replacement ratios between 1950-60 and 1960-70. Among these

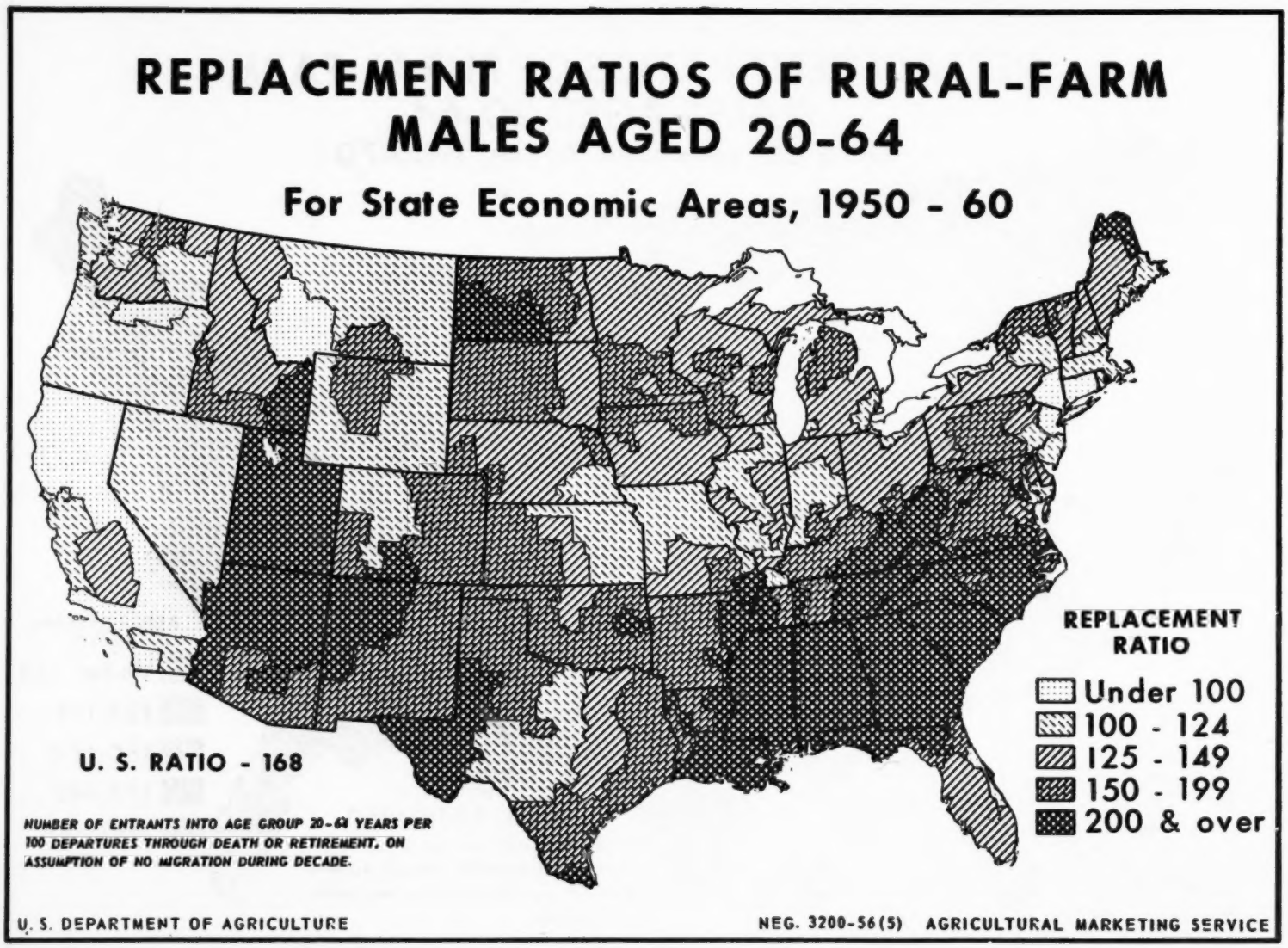

CHART 10

were subregions lying along the shores of the Great Lakes from northern New York to Green Bay, Wisconsin. This belt is typically an area of rural population growth associated with commuting to off-farm jobs. Most of this area had increases in ratios of over 15 percent, and the area around Syracuse, Utica, and Troy, as well as the western edge of Michigan had increases of 25 percent or more.

Other Northern economic subregions which experienced substantial increases in farm replacement ratios were the New York City and Environs Subregion, with its small but extremely intensive and productive specialized agriculture; and the Southern New England Subregion, which has very prosperous truck gardening and tobacco farming, specializing in tobacco for cigar wrappers.

In the Western part of the country, two economic subregions showed increases in farm replacement ratios of more than 25 percent between 1950-60 and 1960-70. One of these was the Palouse-Columbia River Basin Subregion, which in recent years has experienced an increase and diversification in agriculture through irrigation from the Grand Coulee Dam reservoir. This subregion is one of very few in which virgin land is being turned to agricultural production. The other subregion showing a high increase in farm replacement ratios was the Southwest North Dakota and Northern Montana Plains Subregion. This spring wheat, barley, and livestock grazing area has had a long history of high population fertility and had an extension of grain farming in the 1950's. Its replacement ratio is slightly over 200 in the 1960-70 decade.

Trends in replacement ratios by color for the farm population between the 1950 and 1960 decades can be determined only for the South. While every economic subregion in the South exhibited either an overall decrease or stability in ratios between decades, the trends in the white and nonwhite color groups were mixed. Only one subregion, the Edwards Plateau Subregion of Texas, showed an increase in replacement ratios for white males--from 107 to 108. Ratios for white males declined in every other subregion, some by very large amounts. Ratios for nonwhite males, on the other hand, increased in several areas, such as the Southeastern Coastal Plain, the Northern end of the Piedmont, the Florida Peninsula, the Mississippi Delta, and the Gulf Coast of Texas and Louisiana. Nonwhite replacement ratios in most of the rest of the South declined.

Charts 11 and 12 show the similarity of patterns of potential replacement of nonwhites among the State economic areas in the 1950-60 and 1960-70 decades.

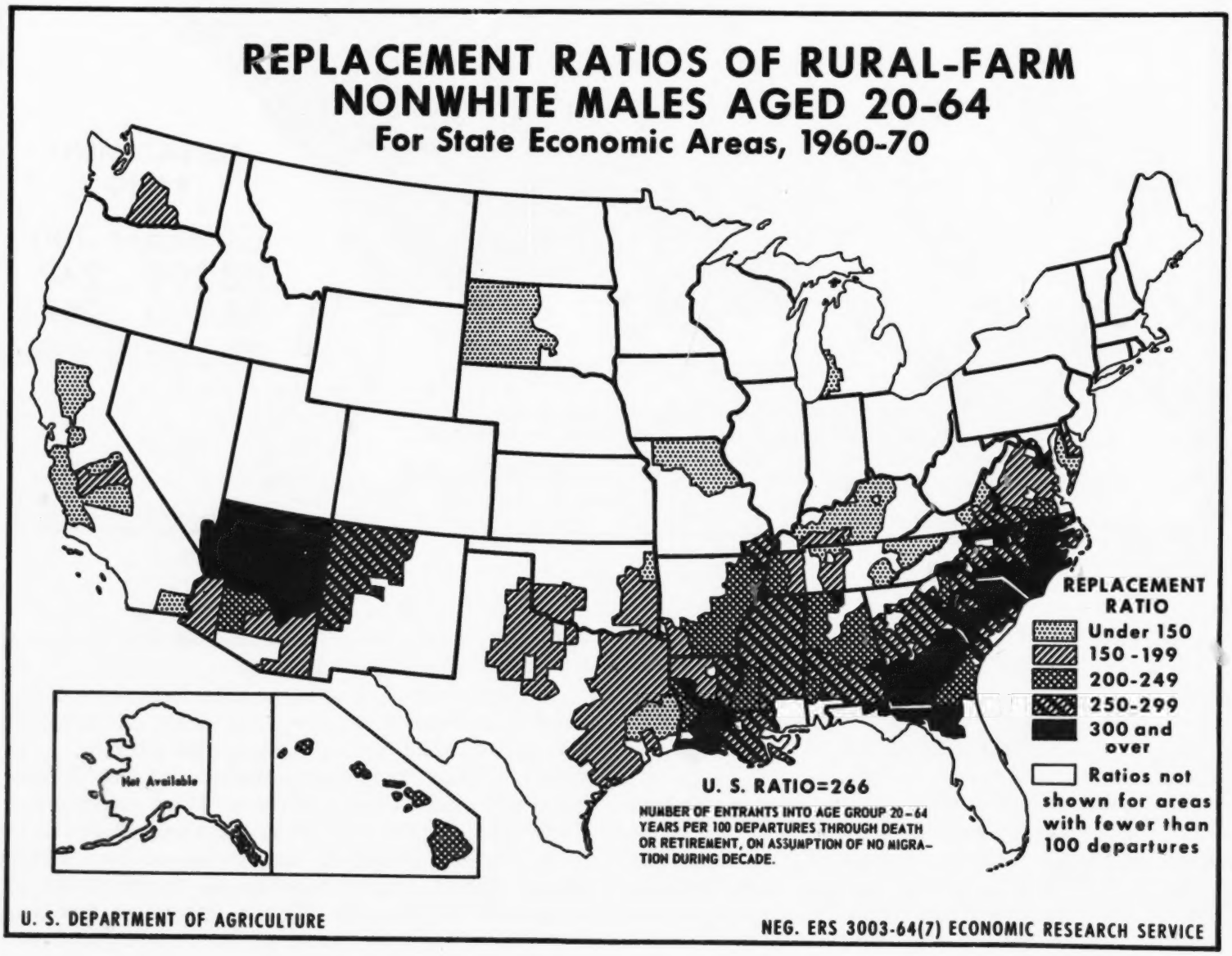

CHART 11

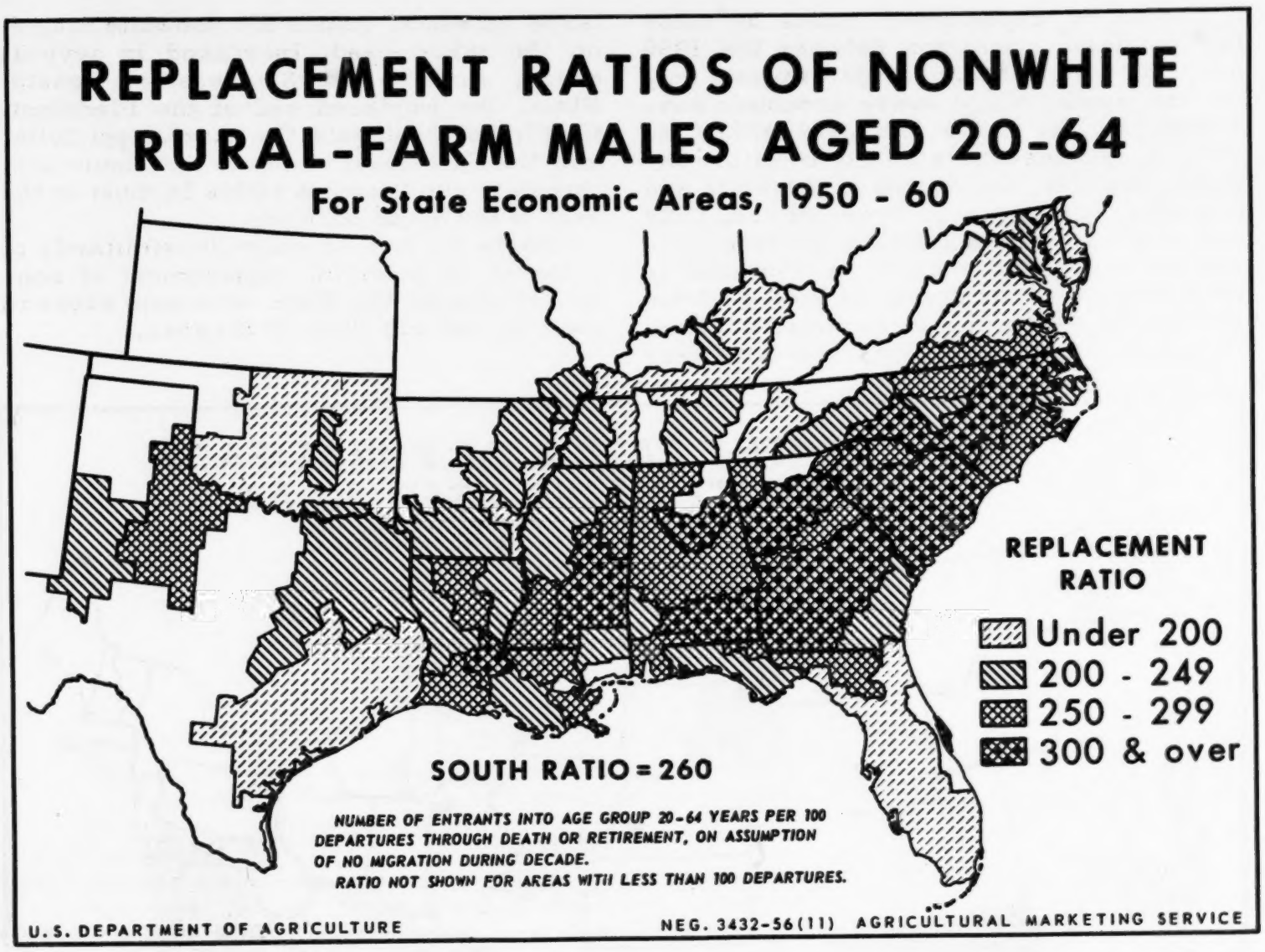

CHART 12

REPLACEMENT MEASURES FOR WHITE PERSONS OF SPANISH SURNAME AND ANGLO-AMERICANS

[Refer to table 14.]

Because persons of Spanish-American and Mexican-American descent form a large and distinctive ethnic group of considerable importance in Arizona, California, Colorado, New Mexico, and Texas, separate replacement measures were computed for this group, operationally defined as white persons of Spanish surname, in these five States.[6] In addition, measures have been computed for white persons not of Spanish surname--here termed the "Anglo-American" population--by subtracting data for the Spanish-surname population from the total white population.

Although they have become rapidly urbanized in recent years, persons of Spanish surname still comprise an important segment of the rural population of the Southwestern States, where they numbered 724,000 in 1960. Traditionally, they have made up a sizable minority of the rural labor force, particularly as farmhands or migrant laborers. Their average income has been low. Because of their occupational concentration, as well as their unusual age structure and fertility, the Spanish-surname population tends to be characterized by replacement measures that are significantly different from those of the general population.

There are two primary characteristics of the white population of Spanish surname that strongly affect their replacement ratios, namely, the high fertility of

[6] The Bureau of the Census in 1960, as in 1950, identified white persons of Spanish surname in these States. For sources of data for this Section see (8).

the group and the comparatively large proportion of foreign-born persons, especially in rural areas. The fertility of the group tends to produce an age distribution characteristic of populations in underdeveloped Nations. That is, despite declining mortality in recent years, the Spanish-surname population is a "young" population with a large proportion of children and youth. In 1960, 49 percent of the rural male population of Spanish surname were under 20 years of age, compared with 39 percent of rural Anglo-American males. This implies that a relatively much larger number of entrants into the working ages can be expected among the Spanish-surname males during the succeeding decade than among the Anglos. In addition, there are comparatively few Spanish-Americans of late middle age who would contribute to the number of departures from the working ages.

In 1960, 28 percent of the farm and 14 percent of the rural-nonfarm Spanish-surname males were foreign-born, almost entirely from Mexico. These persons were concentrated in the age group 20 to 34. Thus, they do not materially affect the number of entrants to the working ages, and because of their low mortality add only a small number to the departures. However, their presence in the base population has the effect of lowering the replacement rate below that normally implied by replacement ratios of the size of those found among the Spanish-Americans.

The Anglo-American rural male population, on the other hand, has different age characteristics from those of the Spanish-surname population. Its age distribution is more nearly like that of the white rural population of the total United States, with sizable numbers of children under age 15, but a relative deficit of young males aged 20-34, and a high concentration of persons in the older age groups. Furthermore, the comparatively few foreign-born persons are mostly in the older age groups, rather than in the age group 20-34, as in the Spanish-surname population.

The methods used in computing replacement measures for rural white males of Spanish surname and Anglo males were identical to those used for the general population. Replacement ratios and rates for these groups are presented in table 14 by residence, 1960-70, for Arizona, California, Colorado, New Mexico, and Texas. On inspection of these figures, the strong influence of the Spanish-surname age distribution on replacement measures for total white males becomes quickly apparent, especially in areas where Spanish-surname persons comprise a large proportion of the population. For the five Southwestern States as a whole, replacement measures for Spanish-surname males were about twice as high as those for Anglo-American males. Replacement measures for nonwhite males in most States generally lay between those for Spanish and Anglo males.

In the 5 States as a group, about 82,000 rural Spanish-surname males of 1960 will be reaching working age during the 1960's, compared with 29,000 expected departures through death or retirement. The replacement ratio is 282. The comparable ratio for the Anglo whites was 157, or little more than half as high. For the Spanish men, the overall difference in replacement ratios between the farm and nonfarm rural population was negligible (269 vs. 286). By contrast, the nonfarm ratio of the Anglos (172) considerably exceeded the ratio for farm men (123).

During the current decade, the Spanish rural population will generate about 29 net additional male workers for each 100 of working age in 1960. The comparable replacement rate for Anglo whites is just 13. Therefore, the need for creation of employment outlets for rural Spanish-Americans is much greater in relation to jobs now held by them than is true of the Anglo population.

Among the five Southwestern States, the variation in total rural replacement ratios for the Spanish population was minor, except for California. In the latter State, the rural ratio was 224, whereas in the others it ranged from 301 to 328. The highest Spanish ratio observed was 484 in the farm population of Arizona. In this State, there are few Spanish farm residents above the age of 55, but there are a fair number of young men aged 10-19, resulting in a very high ratio.

In Texas, the State with the largest number of rural Spanish-American men and youth, the differences in the ratios and rates of growth of Anglo and Spanish working-age populations were exceptionally wide. The Anglo rural replacement ratio in Texas of 139 indicates a 39 percent excess of entrants over departures, whereas the Spanish ratio of 313 shows 213 percent more entrants than departures. Among Anglo whites in Texas, net new entrants were only 10 percent as numerous as the existing rural working-age population, but among the Spanish, net entrants were 35 percent as numerous as those already of working age.

In the Southwest as a whole, the differences between the replacement ratios and rates of the Spanish white males and other white males are greater than the differences between whites and nonwhites in the Southern States. Such differences would not be particularly significant if the Spanish population had a normal level of education and were distributed proportionately among the various occupations. But problems resulting from the disproportionate concentration of the rural Spanish-surname workers in manual jobs, for which there is declining or only slowly increasing demand, together with their frequently poor education, are greatly aggravated by high ratios and rates of additional entrants into the labor force. The Anglo-white rural population is quite a distinct population from the Spanish in its demographic structure. Anglo-white replacement ratios and rates are lower than those of the Nation as a whole, especially in the farm sector.

Unfortunately, Spanish-surname data are not readily available for urban and rural parts of areas smaller than States, such as counties and economic subregions. If separate replacement measures could be computed for these areas, it is very probable that the relatively high ratios and rates shown for total white males in many areas of the Southwest in this report could be traced to the demographic effect of the Spanish-surname population. This would especially be true for subregions lying along the Mexican border, where a large proportion of the rural Spanish-surname population resides.

REPLACEMENT MEASURES FOR COUNTIES GROUPED BY MEDIAN INCOME

[Refer to table 15.]

Table 15 shows the variation in farm replacement ratios and rates for counties grouped according to median farm family income in 1959. In general, counties with low median income had considerably higher rates and ratios than counties with high income. The lowest income class of counties, those with median income of under $1,000 in 1959 had a replacement ratio of 242, compared with a ratio of only 144 for the group of counties in which median income was $6,000 or more. Replacement rates ranged from 42.3 percent in the lowest to 11.1 percent in the highest income class. Most of the difference among the income classes is accounted for by the variation in nonwhite ratios and rates. In classes of counties with median income less than $3,000, most ratios for nonwhite farm males were a hundred or more points higher than those for whites, whereas in the higher income classes ($4,000 and over), which have relatively few nonwhites, there was little difference in the ratios of the two color groups. The replacement rates indicate that, in the absence of migration, the nonwhite farm male population of working age would increase by about 50 percent in the two lowest income classes of counties (under $2,000) whereas the corresponding white population would increase by something less than 20 percent.

REPLACEMENT MEASURES FOR COUNTIES GROUPED BY ARA DESIGNATION

[Refer to table 16.]

Counties were also classified into groups based on Area Redevelopment Act eligibility criteria: (1) Section 5(a) areas--those large labor-market areas in which nontemporary unemployment was 6 percent or over, (2) Section 5(b) areas--predominantly rural areas of low total or farm income, and small labor-market counties characterized by substantial and persistent unemployment, and (3) the noneligible counties, which have better economic conditions and are not eligible for Federal assistance under the Act (9).

At the U.S. level, there is not a great deal of difference in the ratios for rural males in the three groups of counties--ARA-5(b), 184; ARA-5(a), 179; and noneligible, 174. The differences that occur are largely due to variation among the three groups in the ratios for nonwhites. The ratios for nonwhite rural males were 261, 202, and 224. for ARA-5(b), ARA-5(a), and the noneligible counties, respectively. Ratios for the three classes of counties for rural-nonfarm males were about the same level, ranging from 183 to 189, but among farm males the ratio for the 5(b) areas (174) was a little higher than for the 5(a) and noneligible counties (about 155). Replacement ratios and rates for the residence classes in the three groups of counties for the United States, regions, and divisions are shown in table 16.

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Table 1.--Rural males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 20-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	13,481.4	12,310.1	1,171.3	5,305.0	4,644.4	660.5	2,997.6	2,718.9	278.7
Northeast	2,265.7	2,221.4	44.3	777.0	761.2	15.8	490.6	481.3	9.3
North Central	4,019.7	3,957.8	61.9	1,494.5	1,471.0	23.5	950.4	936.4	14.0
South	5,511.2	4,571.8	939.5	2,409.0	1,837.6	571.5	1,208.5	980.6	227.9
West 4/	1,590.9	1,502.6	88.2	592.6	558.0	34.6	333.6	315.5	18.1
New England	631.8	624.0	7.8	216.8	215.1	1.8	133.5	132.3	1.2
Middle Atlantic	1,633.9	1,597.4	36.5	560.2	546.2	14.0	357.1	349.0	8.1
East North Central	2,436.6	2,398.8	37.8	904.2	892.2	12.0	548.5	540.0	8.5
West North Central	1,583.1	1,559.1	24.0	590.3	578.8	11.4	401.9	396.4	5.5
South Atlantic	2,733.0	2,219.3	513.6	1,177.1	873.2	303.9	548.3	436.5	111.8
East South Central	1,450.1	1,217.3	232.8	672.7	520.3	152.4	329.4	267.0	62.5
West South Central	1,328.2	1,135.1	193.0	559.2	444.0	115.2	330.7	277.1	53.6
Mountain	569.7	530.0	39.6	225.4	205.1	20.3	117.1	109.6	7.5
Pacific 4/	1,021.2	972.6	48.6	367.2	352.9	14.3	216.6	205.9	10.6
New England									
Maine	116.2	115.2	1.0	44.0	43.7	.3	26.4	26.3	.1
New Hampshire	64.0	63.6	.4	21.9	21.9	5/	14.8	14.8	5/
Vermont	58.5	58.3	.2	23.2	23.2	5/	13.8	13.8	5/
Massachusetts	219.0	215.4	3.6	71.5	70.6	.9	44.1	43.5	.6
Rhode Island	30.8	30.3	.5	10.5	10.4	.1	6.0	5.9	5/
Connecticut	143.3	141.1	2.1	45.8	45.3	.5	28.4	28.1	.4
Middle Atlantic									
New York	624.3	610.1	14.1	214.6	209.7	4.9	139.8	137.1	2.7
New Jersey	183.6	172.4	11.1	57.5	53.0	4.5	39.8	37.2	2.6
Pennsylvania	826.1	814.8	11.3	288.0	283.4	4.6	177.5	174.7	2.8
East North Central									
Ohio	639.5	628.6	10.9	242.5	238.7	3.8	135.6	133.1	2.5
Indiana	437.2	433.7	3.5	163.0	162.2	.9	96.8	96.1	.7
Illinois	495.4	486.4	8.9	168.7	166.4	2.4	118.0	116.1	2.0
Michigan	515.4	503.4	12.1	195.8	192.3	3.5	111.3	108.7	2.7
Wisconsin	349.1	346.7	2.4	134.2	132.7	1.5	86.8	86.1	.7
West North Central									
Minnesota	315.9	313.4	2.5	122.4	121.1	1.3	80.8	80.2	.6
Iowa	317.6	317.2	.4	118.2	118.1	.1	81.2	81.0	.2
Missouri	363.2	355.0	8.2	135.8	131.5	4.3	93.4	91.3	2.1
North Dakota	102.5	100.4	2.2	40.9	39.5	1.3	24.5	24.1	.4
South Dakota	102.3	97.9	4.4	39.0	36.4	2.7	25.6	24.6	1.0
Nebraska	162.3	160.6	1.7	57.6	57.0	.6	41.8	41.5	.4
Kansas	219.1	214.6	4.6	76.4	75.3	1.1	54.5	53.7	.8
South Atlantic									
Delaware	41.1	35.0	6.1	13.0	10.8	2.2	7.9	6.6	1.3
Maryland	227.8	195.8	32.0	83.0	68.9	14.1	44.5	37.5	7.0
Virginia	441.5	353.8	87.7	177.9	135.5	42.4	90.6	71.3	19.3
West Virginia	269.4	259.9	9.5	124.0	118.6	5.3	61.9	58.6	3.3
North Carolina	674.1	535.6	138.5	302.8	215.2	87.6	128.4	99.3	29.1
South Carolina	322.1	223.6	98.5	167.0	94.6	72.4	59.9	39.0	20.9
Georgia	424.2	333.9	90.3	192.4	133.9	58.5	85.9	65.4	20.4
Florida	332.8	281.8	50.9	116.9	95.7	21.3	69.2	58.7	10.5
East South Central									
Kentucky	409.0	392.8	16.2	182.3	176.2	6.1	89.5	85.5	4.1
Tennessee	415.5	381.0	34.5	180.3	162.0	18.2	91.4	82.4	9.0
Alabama	337.0	261.1	75.9	159.2	108.3	50.9	75.7	56.1	19.5
Mississippi	288.5	182.4	106.2	150.9	73.8	77.2	72.8	43.0	29.8
West South Central									
Arkansas	233.8	195.6	38.2	107.9	82.5	25.4	62.4	50.7	11.7
Louisiana	273.3	198.5	74.8	124.9	78.1	46.8	61.7	42.4	19.4
Oklahoma	214.9	198.2	16.7	89.8	79.6	10.1	56.9	51.9	4.9
Texas	606.1	542.8	63.3	236.6	203.8	32.8	149.7	132.1	17.5
Mountain									
Montana	84.8	80.8	4.0	31.8	29.6	2.2	18.2	17.4	.8
Idaho	86.5	84.9	1.5	35.8	35.2	.6	18.9	18.5	.3
Wyoming	37.8	36.8	1.0	13.6	13.1	.5	8.2	8.0	.2
Colorado	116.4	114.4	2.0	45.7	45.0	.7	25.2	24.9	.3
New Mexico	79.3	68.8	10.5	34.7	29.2	5.5	14.5	12.6	1.9
Arizona	87.1	70.0	17.1	32.7	23.3	9.4	16.2	12.8	3.3
Utah	51.7	50.2	1.6	23.5	22.9	.6	10.8	10.5	.3
Nevada	26.2	24.2	1.9	7.6	6.7	.8	5.2	4.8	.4
Pacific									
Washington	241.9	234.0	8.0	88.4	85.8	2.5	51.6	50.2	1.4
Oregon	170.7	168.6	2.1	64.9	63.9	1.0	40.8	40.4	.5
California	608.5	570.0	38.5	213.9	203.2	10.7	124.1	115.4	8.8
Alaska	47.4	37.4	10.0	14.7	9.9	4.8	5.2	3.7	1.5
Hawaii	46.5	19.1	27.4	17.1	6.7	10.4	9.3	1.5	7.8

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 2.--Rural-nonfarm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 20-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	10,145.2	9,268.7	876.5	3,824.9	3,378.5	446.4	2,074.7	1,876.5	198.2
Northeast	2,031.6	1,989.1	42.5	681.6	666.5	15.1	427.9	419.0	8.8
North Central	2,635.2	2,580.0	55.2	934.3	914.3	19.9	567.6	555.8	11.8
South	4,107.8	3,437.5	670.3	1,715.0	1,345.3	369.7	814.5	660.0	154.5
West 4/	1,280.0	1,206.4	73.6	463.6	435.9	27.7	251.1	236.8	14.3
New England	585.6	577.9	7.7	198.3	196.6	1.7	120.5	119.3	1.2
Middle Atlantic	1,446.0	1,411.3	34.7	483.3	469.9	13.4	307.3	299.7	7.6
East North Central	1,790.7	1,755.1	35.6	637.4	626.5	11.0	368.2	360.6	7.7
West North Central	844.5	824.9	19.6	296.8	287.9	8.9	199.4	195.2	4.2
South Atlantic	2,193.0	1,812.4	380.6	897.3	694.1	203.1	405.7	326.2	79.6
East South Central	996.2	824.4	141.8	426.9	344.4	82.5	192.6	157.2	35.4
West South Central	948.5	800.7	147.9	390.9	306.8	84.0	216.2	176.7	39.5
Mountain	425.8	393.7	32.1	162.8	146.7	16.1	82.3	76.5	5.8
Pacific 4/	854.2	812.7	41.5	300.8	289.2	11.6	168.8	160.3	8.5
New England									
Maine	104.3	103.3	1.0	38.7	38.4	.3	22.9	22.8	.1
New Hampshire	59.3	58.9	.4	20.0	20.0	5/	13.4	13.3	5/
Vermont	46.0	45.8	.2	17.8	17.8	5/	10.6	10.6	5/
Massachusetts	209.6	206.1	3.5	68.2	67.4	.9	41.5	40.9	.6
Rhode Island	29.8	29.2	.5	10.1	10.0	.1	5.7	5.6	5/
Connecticut	136.6	134.5	2.1	43.6	43.1	.5	26.5	26.2	.4
Middle Atlantic									
New York	540.7	527.3	13.4	181.2	176.5	4.7	117.3	114.7	2.6
New Jersey	169.3	159.0	10.3	52.8	48.6	4.2	35.7	33.3	2.3
Pennsylvania	736.1	725.1	11.0	249.3	244.8	4.5	154.4	151.7	2.7
East North Central									
Ohio	511.5	501.2	10.3	189.0	185.5	3.5	99.5	97.2	2.3
Indiana	316.7	313.5	3.3	114.0	113.2	.8	61.4	60.7	.7
Illinois	348.3	339.8	8.6	114.3	112.0	2.2	76.7	74.9	1.8
Michigan	405.7	394.5	11.2	147.7	144.6	3.1	80.8	78.4	2.3
Wisconsin	208.5	206.2	2.2	72.4	71.2	1.3	49.9	49.3	.6
West North Central									
Minnesota	163.9	161.5	2.4	58.2	57.1	1.2	39.3	[illegible]	.6
Iowa	146.2	145.9	.3	49.1	49.0	.1	37.0	36.9	.1
Missouri	222.2	216.6	5.6	80.9	78.2	2.7	49.2	47.9	1.3
North Dakota	48.8	47.0	1.8	18.2	17.2	1.0	11.9	11.6	.3
South Dakota	48.3	44.5	3.8	17.8	15.4	2.4	11.9	11.1	.8
Nebraska	80.1	78.6	1.4	27.3	26.8	.6	20.2	20.0	.3
Kansas	135.1	130.7	4.3	45.2	44.2	1.0	29.8	29.1	.7
South Atlantic									
Delaware	35.4	29.7	5.7	10.9	8.9	2.0	6.2	5.0	1.2
Maryland	199.4	170.8	28.5	71.2	59.0	12.2	36.9	30.8	6.1
Virginia	344.0	275.9	68.0	134.1	103.5	30.6	63.7	49.5	14.2
West Virginia	239.5	230.1	9.4	110.3	105.0	5.3	53.3	50.0	3.3
North Carolina	488.3	400.7	87.7	203.6	154.0	49.6	81.9	64.5	17.5
South Carolina	248.6	182.1	66.5	120.5	75.6	44.9	41.7	28.3	13.5
Georgia	330.9	263.8	67.0	141.8	102.3	39.4	60.2	46.0	14.2
Florida	306.9	259.2	47.7	104.9	85.8	19.0	61.8	52.1	9.7
East South Central									
Kentucky	273.1	260.7	12.4	121.7	117.1	4.6	51.9	49.0	2.8
Tennessee	271.5	252.4	19.1	114.3	105.7	8.6	51.6	47.0	4.7
Alabama	245.5	191.0	54.5	108.5	75.1	33.4	49.9	36.7	13.2
Mississippi	176.2	120.3	55.9	82.4	46.4	36.0	39.2	24.5	14.7
West South Central									
Arkansas	156.0	130.5	25.6	68.1	52.1	16.1	39.2	31.5	7.7
Louisiana	220.1	162.1	58.0	95.8	61.6	34.2	46.7	31.9	14.8
Oklahoma	146.4	132.9	13.5	61.2	52.9	8.4	35.5	31.8	3.8
Texas	426.1	375.2	50.8	165.7	140.3	25.4	94.8	81.5	13.3
Mountain									
Montana	56.5	53.3	3.3	20.8	19.0	1.8	11.5	10.8	.6
Idaho	53.9	52.9	1.0	20.6	20.1	.4	10.8	10.6	.2
Wyoming	26.2	25.5	.7	9.0	8.7	.4	5.6	5.4	.1
Colorado	83.3	81.6	1.6	31.9	31.4	.5	17.0	16.8	.2
New Mexico	64.8	56.1	8.7	28.4	23.9	4.5	11.2	9.6	1.6
Arizona	75.9	62.0	13.9	27.4	20.0	7.4	13.7	11.1	2.6
Utah	42.0	40.8	1.2	18.1	17.7	.4	8.3	8.1	.2
Nevada	23.2	21.6	1.6	6.6	5.9	.7	4.4	4.1	.3
Pacific									
Washington	199.3	192.3	7.0	70.0	67.9	2.1	39.5	36.5	1.1
Oregon	135.0	133.3	1.7	50.4	49.6	.8	30.2	29.8	.4
California	519.9	487.1	32.8	180.4	171.6	8.8	99.1	92.0	7.0
Alaska	46.8	36.9	9.9	14.6	9.8	4.7	5.1	3.6	1.5
Hawaii	43.9	18.8	25.1	15.8	6.6	9.2	8.6	1.4	7.2

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 3.--Rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 20-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	3,336.2	3,041.4	294.7	1,480.1	1,265.9	214.2	922.9	842.3	80.6
Northeast	234.1	232.2	1.9	95.4	94.7	.6	62.7	62.2	.5
North Central	1,384.5	1,377.9	6.7	560.2	556.7	3.5	382.8	380.6	2.2
South	1,403.5	1,134.3	269.2	694.0	492.2	201.8	394.0	320.6	73.4
West 4/	310.9	296.2	14.7	128.9	122.1	6.9	82.6	78.7	3.8
New England	46.2	46.1	5/	18.5	18.5	5/	13.0	13.0	5/
Middle Atlantic	187.9	186.1	1.8	76.9	76.3	.6	49.7	49.3	.5
East North Central	645.9	643.7	2.2	266.7	265.7	1.0	180.3	179.5	.9
West North Central	738.6	734.2	4.4	293.5	291.0	2.5	202.5	201.2	1.3
South Atlantic	540.0	406.9	133.1	279.9	179.1	100.8	142.6	110.3	32.3
East South Central	483.9	392.9	91.0	245.8	176.0	69.9	136.9	109.8	27.1
West South Central	379.6	334.4	45.2	168.3	137.2	31.2	114.5	100.5	14.1
Mountain	143.8	136.3	7.5	62.6	58.4	4.3	34.7	33.0	1.7
Pacific 4/	167.1	159.9	7.2	66.3	63.7	2.6	47.8	45.7	2.1
New England									
Maine	11.9	11.9	5/	5.3	5.3	5/	3.5	3.5	5/
New Hampshire	4.8	4.8	5/	1.9	1.9	5/	1.4	1.4	5/
Vermont	12.5	12.5	5/	5.4	5.4	5/	3.2	3.2	5/
Massachusetts	9.4	9.3	5/	3.2	3.2	5/	2.6	2.6	5/
Rhode Island	1.0	1.0	5/	.4	.4	5/	.3	.3	5/
Connecticut	6.6	6.6	5/	2.2	2.2	5/	1.9	1.9	5/
Middle Atlantic									
New York	83.6	82.9	.7	33.4	33.2	.2	22.6	22.4	.2
New Jersey	14.3	13.4	.8	4.7	4.4	.3	4.1	3.9	.2
Pennsylvania	90.0	89.8	.3	38.8	38.7	.1	23.1	23.0	5/
East North Central									
Ohio	128.0	127.4	.6	53.5	53.2	.2	36.1	35.9	.2
Indiana	120.5	120.2	.2	49.0	49.0	5/	35.4	35.3	5/
Illinois	147.0	146.7	.3	54.4	54.3	.1	41.3	41.2	.1
Michigan	109.8	108.9	.9	48.1	47.6	.4	30.6	30.2	.3
Wisconsin	140.6	140.4	.2	61.7	61.5	.2	36.9	36.8	5/
West North Central									
Minnesota	152.0	151.8	.1	64.2	64.1	.1	41.6	41.5	5/
Iowa	171.4	171.4	5/	69.1	69.0	5/	44.2	44.1	5/
Missouri	141.0	138.4	2.6	54.9	53.2	1.6	44.2	43.4	.8
North Dakota	53.8	53.4	.4	22.6	22.3	.3	12.6	12.5	5/
South Dakota	54.1	53.4	.7	21.2	20.9	.3	13.7	13.5	.2
Nebraska	82.3	82.0	.3	30.3	30.2	5/	21.6	21.5	5/
Kansas	84.1	83.9	.2	31.2	31.1	5/	24.7	24.6	5/
South Atlantic									
Delaware	5.7	5.3	.4	2.1	1.9	.2	1.7	1.6	.1
Maryland	28.4	25.0	3.4	11.8	9.9	1.9	7.6	6.7	.9
Virginia	97.6	77.9	19.6	43.8	32.0	11.8	26.9	21.9	5.0
West Virginia	29.9	29.7	.1	13.7	13.6	5/	8.6	8.5	5/
North Carolina	185.8	134.9	50.9	99.2	61.2	38.0	46.5	34.8	11.6
South Carolina	73.4	41.5	32.0	46.5	19.0	27.5	18.2	10.8	7.4
Georgia	93.4	70.0	23.3	50.7	31.6	19.1	25.6	19.4	6.2
Florida	25.8	22.6	3.2	12.1	9.8	2.2	7.5	6.6	.8
East South Central									
Kentucky	135.9	132.1	3.8	60.6	59.1	1.5	37.7	36.5	1.2
Tennessee	144.0	128.6	15.4	66.0	56.3	9.7	39.8	35.4	4.4
Alabama	91.5	70.1	21.4	50.7	33.2	17.5	25.8	19.4	6.4
Mississippi	112.4	62.1	50.3	68.5	27.4	41.2	33.6	18.5	15.1
West South Central									
Arkansas	77.8	65.2	12.6	39.8	30.5	9.3	23.2	19.1	4.1
Louisiana	53.3	36.4	16.9	29.1	16.5	12.6	15.1	10.5	4.6
Oklahoma	68.6	65.3	3.2	28.5	26.7	1.8	21.4	20.2	1.2
Texas	180.0	167.5	12.5	70.9	63.5	7.4	54.9	50.6	4.3
Mountain									
Montana	28.3	27.6	.7	11.0	10.6	.4	6.7	6.6	.2
Idaho	32.6	32.0	.5	15.2	15.1	.2	8.1	8.0	.1
Wyoming	11.6	11.3	.2	4.6	4.4	.1	2.6	2.6	5/
Colorado	33.1	32.8	.3	13.7	13.6	.2	8.2	8.1	5/
New Mexico	14.4	12.6	1.8	6.3	5.3	1.0	3.4	3.0	.4
Arizona	11.2	8.0	3.2	5.4	3.3	2.1	2.5	1.7	.8
Utah	9.7	9.3	.4	5.4	5.2	.2	2.5	2.4	5/
Nevada	3.0	2.6	.3	.9	.8	.1	.8	.7	5/
Pacific									
Washington	42.7	41.7	1.0	18.3	17.9	.4	12.1	11.8	.3
Oregon	35.7	35.3	.4	14.5	14.2	.2	10.7	10.6	5/
California	88.7	82.9	5.7	33.5	31.5	2.0	25.1	23.3	1.8
Alaska	.6	.5	5/	.2	.1	.1	5/	5/	5/
Hawaii	2.6	.3	2.3	1.4	5/	1.3	.7	5/	.6

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 4.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for conterminous United States and regions, 1960-70 and 1950-60

Residence and area	1960-70			1950-60		
	Total	White	Nonwhite	Total	White	Nonwhite
RURAL						
Replacement ratios 1/						
United States	176	170	239	159	153	221
Northeast	158	158	169	126	126	154
North Central	157	157	167	132	131	152
South	199	187	250	200	192	230
West	177	176	190	144	143	168
Replacement rates 2/						
United States	17.1	15.6	33.1	12.5	11.1	26.4
Northeast	12.6	12.6	14.6	5.7	5.6	11.4
North Central	13.5	13.5	15.2	7.3	7.2	12.1
South	21.7	18.7	36.5	19.8	17.7	28.6
West	16.2	16.1	18.6	9.3	9.0	13.8
RURAL NONFARM						
Replacement ratios 1/						
United States	184	179	228	151	148	185
Northeast	159	159	171	124	123	157
North Central	164	164	168	125	124	148
South	210	203	239	192	193	190
West	184	184	193	150	148	191
Replacement rates 2/						
United States	17.2	16.1	28.8	10.0	9.3	17.1
Northeast	3.4	3.1	17.1	4.9	4.8	11.7
North Central	13.9	13.8	14.6	5.4	5.3	10.4
South	21.9	19.9	32.1	15.9	15.4	18.0
West	16.6	16.5	18.2	9.6	9.3	16.8
RURAL FARM						
Replacement ratios 1/						
United States	160	150	266	168	158	251
Northeast	152	152	134	134	134	138
North Central	146	146	160	137	137	162
South	176	153	274	206	190	260
West	156	155	180	135	134	140
Replacement rates 2/						
United States	16.6	13.9	45.4	16.2	13.8	35.7
Northeast	13.9	13.9	8.7	8.4	8.4	9.1
North Central	12.8	12.7	19.9	9.2	9.2	17.7
South	21.3	15.1	47.6	24.2	20.4	37.7
West	14.9	14.6	20.9	8.7	8.7	9.1

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

2/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

Table 5.--Rural and rural-nonfarm males, 20-64: Replacement ratios and rates, by color, for United States, regions, divisions, and States, 1960-70

(Ratios and rates not shown for areas with fewer than 100 departures)

Area	Rural						Rural nonfarm					
	Replacement ratios 1/			Replacement rates 2/			Replacements ratios 1/			Replacement rates 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
United States 3/	177	171	237	17.1	15.6	32.6	184	180	225	17.3	16.2	28.3
Northeast	158	158	169	12.6	12.6	14.6	159	159	171	12.4	12.4	14.8
North Central	157	157	167	13.5	13.5	15.2	164	164	168	13.9	13.8	14.6
South	199	187	250	21.7	18.7	36.5	210	203	239	21.9	19.9	32.1
West 4/	177	176	190	16.2	16.1	18.6	184	184	193	16.6	16.5	18.2
New England	162	162	146	13.1	13.2	7.2	164	164	145	13.2	13.3	7.0
Middle Atlantic	156	156	172	12.4	12.3	16.1	157	156	175	12.1	12.0	16.5
East North Central	164	165	140	14.5	14.6	9.1	173	173	143	15.0	15.1	9.3
West North Central	146	146	208	11.9	11.7	24.7	148	147	214	11.5	11.2	24.3
South Atlantic	214	200	271	23.0	19.6	37.3	221	212	255	22.4	20.3	32.4
East South Central	204	194	243	23.6	20.8	38.6	221	219	233	24.2	22.7	33.2
West South Central	169	160	214	17.2	14.7	31.9	180	173	212	18.4	16.2	30.1
Mountain	192	187	271	19.0	18.0	32.4	197	191	277	18.9	17.8	32.0
Pacific 4/	169	171	134	14.7	15.1	7.4	178	180	136	15.4	15.8	7.5
New England												
Maine	166	165	239	15.0	15.0	15.5	168	168	233	15.1	15.1	14.9
New Hampshire	148	148	---	11.1	11.1	---	149	149	---	11.1	11.2	---
Vermont	167	168	---	16.0	16.1	---	167	168	---	15.6	15.7	---
Massachusetts	162	162	154	12.5	12.5	8.5	164	164	154	12.7	12.8	8.4
Rhode Island	176	176	---	14.7	14.8	---	178	178	---	14.8	14.9	---
Connecticut	161	161	124	12.1	12.2	4.1	164	164	124	12.4	12.6	4.1
Middle Atlantic												
New York	153	152	179	11.9	11.8	15.3	154	153	182	11.8	11.7	15.7
New Jersey	144	142	175	9.6	9.1	17.3	148	145	180	10.1	9.6	18.2
Pennsylvania	162	162	164	13.3	13.3	16.0	161	161	164	12.8	12.8	16.0
East North Central												
Ohio	178	179	151	16.7	16.7	11.6	190	190	156	17.5	17.6	12.3
Indiana	168	168	115	15.1	15.2	3.4	185	186	127	16.6	16.7	5.5
Illinois	142	143	119	10.2	10.3	4.3	148	149	121	10.7	10.9	4.6
Michigan	175	176	132	16.3	16.6	7.2	182	184	132	16.5	16.7	6.8
Wisconsin	154	154	225	13.5	13.4	33.9	145	144	226	10.8	10.5	31.8
West North Central												
Minnesota	151	151	200	13.1	13.0	25.1	148	147	208	11.5	11.3	24.8
Iowa	145	145	65	11.6	11.6	-18.2	132	132	71	8.2	8.3	-14.1
Missouri	145	143	206	11.6	11.3	27.3	164	163	201	14.2	13.9	24.2
North Dakota	166	164	310	15.9	15.4	41.1	153	148	315	12.9	11.9	39.5
South Dakota	152	147	277	13.1	12.0	38.5	149	138	297	12.2	9.6	42.0
Nebraska	137	137	177	9.7	9.6	16.2	135	134	205	8.8	8.6	20.7
Kansas	140	140	132	9.9	10.0	5.6	151	151	137	11.3	11.5	6.2
South Atlantic												
Delaware	165	164	169	12.4	12.0	14.8	176	178	170	13.3	13.1	14.5
Maryland	186	183	201	16.8	16.0	22.2	193	191	201	17.2	16.4	21.6
Virginia	196	189	219	19.7	18.1	26.3	210	209	214	20.4	19.5	24.0
West Virginia	200	202	160	23.0	23.1	21.2	206	209	162	23.7	23.8	21.5
North Carolina	235	216	301	25.8	21.6	42.2	248	238	284	24.9	22.3	36.6
South Carolina	279	242	346	33.2	24.8	52.3	288	267	333	31.6	26.0	47.2
Georgia	224	204	286	25.1	20.5	42.1	235	222	277	24.6	21.3	37.6
Florida	168	162	202	14.3	13.1	21.0	169	164	196	14.0	13.0	19.6
East South Central												
Kentucky	203	206	150	22.6	23.0	12.7	234	238	160	25.5	26.1	13.9
Tennessee	197	196	201	21.3	20.9	26.6	221	225	184	23.0	23.2	20.5
Alabama	210	193	260	24.7	19.9	41.3	217	204	253	23.8	20.1	37.1
Mississippi	207	171	258	27.0	16.8	44.5	210	189	244	24.5	18.2	38.0
West South Central												
Arkansas	172	162	216	19.4	16.2	35.8	173	165	209	18.5	15.7	32.8
Louisiana	202	184	241	23.1	18.0	36.7	205	193	231	22.3	18.3	33.5
Oklahoma	157	153	205	15.3	13.9	31.1	172	166	222	17.5	15.8	34.0
Texas	158	154	186	14.3	13.1	24.0	174	172	190	16.6	15.6	23.7
Mountain												
Montana	174	170	272	15.9	15.0	34.2	181	175	286	16.4	15.2	35.5
Idaho	189	190	179	19.6	19.6	17.4	190	190	201	18.1	18.1	21.4
Wyoming	165	164	229	14.2	13.9	27.5	162	160	248	13.2	12.8	29.0
Colorado	181	180	282	17.6	17.5	23.7	188	187	279	18.0	17.9	21.2
New Mexico	238	231	286	25.4	24.1	34.1	253	248	287	26.5	25.4	33.5
Arizona	202	181	281	18.9	14.9	35.3	199	179	285	17.9	14.3	34.3
Utah	219	218	226	24.7	24.7	22.9	218	218	211	23.3	23.4	18.9
Nevada	146	139	230	9.1	7.8	24.1	152	145	245	9.7	8.6	25.4
Pacific												
Washington	171	170	181	15.1	15.2	14.0	177	176	192	15.2	15.3	14.5
Oregon	158	158	220	14.0	13.9	25.7	167	166	203	14.9	14.8	23.0
California	172	176	122	14.7	15.4	5.0	182	186	124	15.6	16.3	5.2
Alaska	284	271	315	20.2	16.8	32.8	286	274	314	20.2	16.9	32.6
Hawaii	185	457	133	16.9	27.4	9.6	184	476	127	16.3	27.7	7.9

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade. 2/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii.

Table 6.--Rural-farm males, 20-64: Replacement ratios, by color, for the United States, regions, divisions, and States, 1960-70, 1950-60, and 1940-50 1/

(Ratios not shown for areas with fewer than 100 departures)

Area	1960-70			1950-60 2/			1940-50 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
United States 3/	160	150	266	168	158	251	179	175	4/200
Northeast	152	152	134	134			138		
North Central	146	146	160	137			154		
South	176	153	274	206	190	260	214	217	205
West 5/	156	155	180	135			137		
New England	142	142	---	128			133		
Middle Atlantic	154	154	130	135			139		
East North Central	147	148	116	133			146		
West North Central	144	144	188	141			163		
South Atlantic	196	162	312	223	199	292	219	210	217
East South Central	179	160	258	215	204	253	219	227	198
West South Central	147	136	221	176	167	216	204	207	191
Mountain	180	176	251	166			163		
Pacific 5/	138	139	123	115			118		
New England									
Maine	150	150	---	150			144		
New Hampshire	135	134	---	116			111		
Vermont	168	168	---	160			146		
Massachusetts	123	123	---	111			132		
Rhode Island	136	136	---	119			129		
Connecticut	115	115	---	90			117		
Middle Atlantic									
New York	148	148	137	124			119		
New Jersey	113	113	118	94			121		
Pennsylvania	168	168	---	154			162		
East North Central									
Ohio	148	148	96	135			143		
Indiana	138	138	---	128			144		
Illinois	131	131	91	125			144		
Michigan	157	157	134	134			144		
Wisconsin	167	167	---	146			153		
West North Central									
Minnesota	154	154	---	149			167		
Iowa	156	156	---	148			159		
Missouri	124	122	216	133			161		
North Dakota	179	178	---	174			179		
South Dakota	155	155	178	146			173		
Nebraska	140	140	---	136			166		
Kansas	126	126	---	124			149		
South Atlantic									
Delaware	124	120	167	125	126	115	140	143	124
Maryland	154	147	200	155	148	194	157	157	156
Virginia	162	146	233	188	179	218	198	203	186
West Virginia	159	160	---	214	215	153	217	217	174
North Carolina	213	175	326	243	217	313	239	242	233
South Carolina	255	176	370	267	212	333	246	240	252
Georgia	197	162	307	236	207	307	221	229	209
Florida	161	148	262	178	165	230	186	192	170
East South Central									
Kentucky	160	161	127	198	200	163	220	223	147
Tennessee	165	159	220	198	197	211	210	215	182
Alabama	196	171	274	241	223	283	235	247	216
Mississippi	203	147	272	227	202	253	211	233	195
West South Central									
Arkansas	171	159	230	192	190	200	207	223	171
Louisiana	193	157	275	219	198	253	214	230	196
Oklahoma	133	132	153	172	171	187	209	210	195
Texas	129	125	174	154	147	204	196	194	203
Mountain									
Montana	163	161	219	119			119		
Idaho	188	189	140	170			158		
Wyoming	172	171	---	133			139		
Colorado	167	166	---	167			154		
New Mexico	189	177	283	215			217		
Arizona	216	194	266	183			207		
Utah	221	220	---	214			228		
Nevada	113	107	---	103			94		
Pacific									
Washington	151	152	136	128			123		
Oregon	135	134	---	117			119		
California	133	135	113	109			115		
Alaska	179	---	---						
Hawaii	195	---	202						

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade. 2/ Excludes Alaska and Hawaii. White and nonwhite ratios were computed for the United States and South only. 3/ Includes Alaska and Hawaii. 4/ Revised. 5/ Excludes Alaska and Hawaii.

Table 7.--Rural-farm males, 20-64: Replacement rates, by color, for United States, regions, divisions, and States, 1960-70 and 1950-60

(Rates not shown for areas with fewer than 100 departures 1/)

Area	1960-70			1950-60 2/		
	Total	White	Nonwhite	Total	White	Nonwhite
United States 3/	16.7	13.9	45.3	16.2	13.8	35.7
Northeast	13.9	13.9	8.7	8.4		
North Central	12.8	12.7	19.9	9.2		
South	21.3	15.1	47.6	24.2	20.4	37.7
West 4/	14.9	14.6	20.9	8.7		
New England	11.9	11.8	---	7.2		
Middle Atlantic	14.4	14.4	7.8	8.7		
East North Central	13.3	13.4	6.5	8.6		
West North Central	12.3	12.2	26.7	9.8		
South Atlantic	25.4	16.9	51.4	27.0	21.9	41.6
East South Central	22.5	16.8	47.0	26.0	22.9	37.0
West South Central	14.1	10.9	37.8	18.3	15.8	30.6
Mountain	19.3	18.5	34.1	14.9		
Pacific 4/	11.0	11.2	7.0	4.0		
New England						
Maine	14.9	14.9	---	13.0		
New Hampshire	10.5	10.3	---	4.4		
Vermont	17.4	17.5	---	14.1		
Massachusetts	6.6	6.6	---	2.9		
Rhode Island	10.6	10.6	---	4.6		
Connecticut	4.5	4.5	---	-2.6		
Middle Atlantic						
New York	12.9	13.0	8.1	6.2		
New Jersey	3.9	3.9	5.0	-1.4		
Pennsylvania	17.4	17.4	---	12.6		
East North Central						
Ohio	13.5	13.6	-1.2	9.2		
Indiana	11.2	11.3	---	7.5		
Illinois	8.9	8.9	-3.3	6.2		
Michigan	15.9	15.9	12.6	9.1		
Wisconsin	17.6	17.6	---	10.8		
West North Central						
Minnesota	14.8	14.8	---	11.3		
Iowa	14.5	14.5	---	10.6		
Missouri	7.5	7.0	34.0	8.9		
North Dakota	18.6	18.4	---	14.5		
South Dakota	13.9	13.9	18.6	10.0		
Nebraska	10.5	10.6	---	8.2		
Kansas	7.6	7.7	---	6.3		
South Atlantic						
Delaware	7.1	6.2	17.7	6.3	6.7	3.9
Maryland	14.5	12.7	27.3	13.0	11.4	21.9
Virginia	17.2	12.9	34.3	20.7	18.3	29.2
West Virginia	17.1	17.2	---	26.4	26.4	15.3
North Carolina	28.3	19.5	51.8	29.5	24.5	42.4
South Carolina	38.5	19.7	62.8	35.2	23.7	48.9
Georgia	26.8	17.4	55.1	29.5	22.9	46.4
Florida	17.8	14.3	42.4	18.6	15.9	28.5
East South Central						
Kentucky	16.8	17.1	8.7	22.6	22.8	17.0
Tennessee	18.1	16.2	34.2	21.9	21.3	27.1
Alabama	27.2	19.7	51.9	31.3	26.0	45.6
Mississippi	31.0	14.2	51.8	28.8	22.1	36.1
West South Central						
Arkansas	21.3	17.3	41.9	21.8	20.4	26.7
Louisiana	26.3	16.5	47.6	27.0	21.4	37.2
Oklahoma	10.4	10.0	19.1	17.5	16.9	24.0
Texas	8.8	7.6	25.4	13.4	11.4	29.0
Mountain						
Montana	15.0	14.7	27.9	4.8		
Idaho	21.9	22.1	9.4	15.8		
Wyoming	16.5	16.4	---	7.7		
Colorado	16.7	16.5	---	14.7		
New Mexico	20.7	18.4	37.0	25.1		
Arizona	25.7	20.1	39.6	17.4		
Utah	30.7	30.6	---	25.6		
Nevada	3.7	2.1	---	.9		
Pacific						
Washington	14.6	14.7	10.5	7.2		
Oregon	10.6	10.3	---	4.7		
California	9.5	9.8	4.0	2.4		
Alaska	14.6	---	---			
Hawaii	25.9	---	28.3			

1/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade. 2/ Excludes Alaska and Hawaii. White and nonwhite rates were computed for the United States and South only. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii.

Table 8.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for economic subregions, 1960-70 1/

(Ratios not shown for subregions with fewer than 100 departures)

	Economic subregion	Rural			Rural nonfarm			Rural farm		
		Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
1	Northern New England	161	161	192	163	163	195	152	152	---
2	New England Secondary Industrial	153	153	---	156	157	---	127	126	---
3	Eastern Massachusetts-Rhode Island	167	167	149	169	170	149	119	119	---
4	Southern New England	163	163	151	166	166	152	122	122	---
5	New York City and Environs	143	142	168	145	144	169	115	114	---
6	Hudson Valley	136	133	300	138	134	309	122	122	---
7	St. Lawrence-Champlain	178	178	180	175	175	199	185	186	---
8	Eastern Lake Plains-Mohawk-Adirondack	163	163	128	163	164	120	159	159	---
9	Western Lake Plains-Ontario Shore	156	157	134	162	162	135	134	134	---
10	Pennsylvania-New York Border	160	160	88	160	161	82	157	157	---
11	Pennsylvania Anthracite	126	125	---	124	124	---	139	139	---
12	Lehigh Valley	140	140	---	139	139	---	152	151	---
13	Philadelphia (Part in Pennsylvania)	165	164	188	167	166	189	146	146	---
14	Philadelphia (Part in New Jersey)	161	158	184	163	160	187	143	143	---
15	South Jersey Coast, Delmarva, and Virginia Peninsulas	157	150	182	164	157	186	123	117	152
16	Southeastern Pennsylvania-Northern Maryland	178	177	214	175	174	223	191	192	128
17	Northern Allegheny Mountains	170	171	143	168	168	144	185	185	---
18	Shenandoah Valley-Blue Ridge	169	170	150	176	176	166	149	152	---
19	Northern Piedmont	203	203	203	212	216	198	157	143	237
20	Central Virginia Piedmont	175	167	193	189	189	189	142	119	207
21	Virginia-North Carolina Coastal Plain	240	179	299	245	202	284	234	147	321
22	North Carolina Tidewater	275	272	283	299	311	273	227	198	307
23	Pee Dee and Lumber River	326	291	377	341	335	350	309	234	404
24	North Carolina Upper Coastal Plain	247	218	300	257	243	283	239	197	316
25	Old Belt Brightleaf Tobacco	210	188	286	221	206	281	196	161	292
26	Central Appalachian Ridge and Valley	191	192	167	204	207	166	154	154	---
27	Pittsburgh Steel and Bituminous Fuel	169	169	142	172	172	144	144	144	---
28	Northeastern Ohio-Northwestern Pennsylvania	178	178	138	181	182	140	162	162	---
29	East Central Ohio-Northwestern West Virginia	170	170	188	178	177	200	142	143	---
30	Central Allegheny Plateau	189	189	131	199	200	144	154	154	---
31	Southern Appalachian Coal Mining	243	247	173	252	257	173	198	199	---
32	Southern Appalachian Ridge and Valley	206	206	179	225	227	184	170	171	147
33	Southern Blue Ridge Mountains	206	206	206	224	224	213	164	164	156
34	Central Piedmont	217	205	283	231	222	281	171	147	291
35	South Carolina-Georgia Fall Line Sand Hills	325	329	316	350	372	310	227	163	340
36	South Carolina-Georgia Upper Coastal Plain	277	201	363	277	227	340	276	164	388
37	South Carolina-Georgia Atlantic Flatwoods	306	293	325	327	323	333	219	188	284
38	Georgia-Florida Lower Coastal Plain	214	196	258	214	203	237	213	185	315
39	Florida Peninsula	138	135	167	139	136	166	127	123	193
40	Florida Flatwoods	229	232	206	235	240	209	169	170	---
41	Georgia-Alabama Central Coastal Plain	220	181	294	234	205	283	203	156	311
42	Southern Piedmont	209	184	299	222	199	306	171	136	280
43	Georgia-Alabama Appalachian Ridge and Valley	205	203	221	212	211	220	173	169	229
44	Eastern and Western Highland Rim	185	186	154	206	207	184	169	170	108

See footnote at end of table.

Table 8.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for economic subregions, 1960-70 1/ - Continued

(Ratios not shown for subregions with fewer than 100 departures)

Economic subregion	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
45 Kentucky Bluegrass	166	169	122	182	188	130	152	155	106
46 Ohio-Indiana Flatlands	175	176	135	194	195	136	132	132	---
47 West Central Ohio-Central Indiana	181	181	175	204	205	181	133	133	---
48 Michigan-Ohio-Indiana Tri-State	171	172	97	184	185	97	152	152	97
49 Southeastern Michigan	181	182	124	191	193	122	155	155	---
50 Western Michigan Lake Shore	182	183	149	191	192	164	160	162	105
51 Lower Wabash and Ohio Valley	150	150	139	162	162	149	130	130	---
52 South Central Indiana and West Central Kentucky Hills	193	194	184	225	227	199	150	150	107
53 Pennyroyal and Jackson Purchase	177	176	180	224	227	205	134	132	148
54 Nashville Basin	162	164	147	184	193	135	139	136	166
55 Middle Tennessee Valley and Sand Mountain	216	215	229	225	228	210	207	202	259
56 Alabama Upper Coastal Plain	191	182	216	195	192	203	181	161	244
57 Alabama-Mississippi Black Prairie	240	178	290	256	216	295	221	127	285
58 Central Gulf Coast	198	189	225	200	192	222	188	176	248
59 Mississippi-Alabama Piney Woods and Southern Brown Loam	198	161	258	208	182	248	184	131	274
60 Tennessee-Mississippi Fall Line Slopes and Pine Hills	165	158	222	171	170	180	160	148	263
61 Tennessee-Mississippi River Hills	219	199	246	231	237	219	209	160	262
62 Southern Illinois	134	134	153	147	146	163	115	115	---
63 East Central Illinois	141	142	93	143	145	92	135	135	---
64 Southern Lake Michigan Industrial Conurbation	169	169	146	175	176	146	145	145	---
65 Eastern Wisconsin	159	159	215	153	152	227	170	170	---
66 Northern Woods	153	152	207	151	149	199	160	159	---
67 Central Wisconsin	161	161	---	149	149	---	173	173	---
68 Upper Mississippi River Hill Lands	155	155	---	148	148	---	162	162	---
69 Corn Belt-Dairy Transition	153	153	---	139	139	---	166	166	---
70 Eastern Iowa-Western Illinois	147	147	86	142	142	90	152	152	---
71 Southern Iowa-Northern Missouri-West Central Illinois	120	120	85	123	124	105	116	117	37
72 Missouri-Illinois Ozark-Corn Belt Transition	143	143	142	156	156	142	118	118	---
73 Ozark Plateau	157	156	315	180	179	355	125	126	---
74 Middle Arkansas Valley and Ozark Slopes	160	156	205	168	164	209	143	141	191
75 Crowley's Ridge and Arkansas Prairies	200	194	239	186	177	241	214	210	237
76 Mississippi Delta	217	195	247	209	197	227	228	192	271
77 Louisiana Sugarcane	232	224	246	236	231	245	206	187	261
78 Louisiana-Texas Coast Prairies	181	178	200	192	191	197	150	142	213
79 Texas-Louisiana Timbered	157	149	183	162	155	185	133	124	170
80 Arkansas-Louisiana-Texas Coastal Plain	149	132	193	161	145	199	119	103	174
81 Ouachita Mountains	149	146	178	156	154	182	127	126	155
82 Springfield Upland	139	136	210	151	146	247	123	123	120
83 Flint Hills and Cherokee Plains	153	152	183	173	172	191	121	121	145
84 Kansas-Missouri Corn Belt Border	117	117	137	132	132	132	106	106	---

See footnote at end of table.

Table 8.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for economic subregions, 1960-70 1/ - Continued

(Ratios not shown for subregions with fewer than 100 departures)

Economic subregion	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
85 Central Missouri River Valley	144	144	155	150	150	164	138	138	89
86 North Central Iowa-Southwestern Minnesota	148	148	---	137	138	---	156	156	---
87 Minnesota-South Dakota Corn Belt Margin	137	137	---	117	117	---	152	152	---
88 Minnesota Forest Margin	144	144	191	143	141	206	146	146	---
89 Red River Valley	141	141	---	142	141	---	140	140	---
90 North Dakota Central Plateau	167	164	327	158	151	356	176	176	---
91 Black Prairies (Southern part)	145	144	---	128	127	---	159	159	---
92 Nebraska-South Dakota Corn Belt Margin	142	141	351	134	130	389	149	149	---
93 Kansas-Nebraska Corn Belt-Winter Wheat Transition	120	120	---	109	109	---	129	129	---
94 Wichita Prairies	143	142	185	163	162	231	121	122	---
95 Central Oklahoma	156	150	191	164	158	199	140	137	166
96 Grand Prairie and West Cross Timbers	144	140	246	164	159	268	113	112	154
97 Texas Blackland	145	138	193	172	167	199	111	104	179
98 Corpus Christi-San Antonio	200	203	110	225	227	125	157	159	---
99 Lower Rio Grande Valley	246	246	---	281	282	---	189	188	---
100 Edwards Plateau	134	135	92	152	154	84	108	108	---
101 Texas-Oklahoma Rolling Plains	151	147	234	174	169	259	124	123	175
102 Southern High Plains	191	190	218	191	192	182	191	188	281
103 South Central Plains	162	161	245	165	164	249	158	157	236
104 Western South Dakota, Northwest Nebraska, and Southeast Montana	160	152	263	169	154	284	150	150	152
105 Southwest North Dakota and Northern Montana Plains	195	192	255	189	184	242	202	200	---
106 Upper Platte River, Yellowstone Valley, and Big Horn Basin	173	172	227	167	165	231	183	183	218
107 Southeast Colorado and Northwest New Mexico	196	196	---	210	210	---	171	172	---
108 Trans Pecos and Southern New Mexico	243	242	268	260	260	273	187	187	---
109 Rocky Mountain	181	174	286	188	181	292	159	153	269
110 Palouse-Columbia River Basin	169	168	243	179	177	290	148	149	---
111 Yakima Valley-Okanogan Highlands	174	174	179	184	184	191	155	155	159
112 Snake River Valley, Wasatch Front, and Utah Valley	214	215	162	220	221	176	206	207	148
113 Western Desert, Semi-Desert, and Mountain	161	148	294	162	150	290	156	138	308
114 Southern Arizona	194	193	202	195	192	215	191	197	166
115 Southern California	185	188	141	197	200	150	109	111	82
116 California Central Valley	177	186	98	188	200	89	153	155	128
117 Central Pacific Coast and San Francisco Bay	174	177	127	187	190	139	113	115	90
118 Northern Pacific Coast and Northern Puget Sound	152	152	170	155	154	165	138	137	---
119 Southern Puget Sound-Willamette Valley	171	171	164	182	182	169	134	133	145
120 Alaska (Entire State)	284	271	315	286	274	314	179	---	---
121 Hawaii (Entire State)	185	457	133	184	476	127	195	---	202

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

Table 9.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for economic subregions, 1960-70 1/

(Rates not shown for subregions with fewer than 100 departures)

	Economic subregion	Rural			Rural nonfarm			Rural farm		
		Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
1	Northern New England	14.5	14.5	11.6	14.5	14.5	11.5	14.8	14.8	—
2	New England Secondary Industrial	12.1	12.1	—	12.4	12.5	—	8.2	8.0	—
3	Eastern Massachusetts-Rhode Island	12.9	13.1	7.4	13.2	13.3	7.5	5.6	5.6	—
4	Southern New England	12.6	12.7	8.8	13.0	13.0	9.1	6.2	6.3	—
5	New York City and Environs	9.4	9.2	14.2	9.7	9.5	14.6	4.2	4.2	—
6	Hudson Valley	8.4	7.7	32.5	8.6	7.8	33.7	6.2	6.2	—
7	St. Lawrence-Champlain	17.3	17.3	14.8	16.2	16.2	16.4	21.1	21.2	—
8	Eastern Lake Plains-Mohawk-Adirondack	14.1	14.2	7.8	13.9	14.0	5.6	15.3	15.3	—
9	Western Lake Plains-Ontario Shore	12.2	12.4	6.6	12.7	12.9	6.8	9.5	9.5	—
10	Pennsylvania-New York Border	14.0	14.2	-3.2	13.6	13.8	-4.7	15.5	15.5	—
11	Pennsylvania Anthracite	6.3	6.2	—	5.9	5.8	—	10.1	10.1	—
12	Lehigh Valley	8.7	8.7	—	8.2	8.2	—	12.8	12.6	—
13	Philadelphia (Part in Pennsylvania)	12.7	12.5	15.8	12.8	12.6	15.7	11.9	11.8	—
14	Philadelphia (Part in New Jersey)	11.8	11.3	17.8	11.9	11.3	18.3	10.7	10.8	—
15	South Jersey Coast, Delmarva, and Virginia Peninsulas	12.5	10.8	18.9	13.4	11.7	19.3	7.0	5.3	15.4
16	Southeastern Pennsylvania-Northern Maryland	15.8	15.5	25.1	14.6	14.3	26.4	22.1	22.3	8.5
17	Northern Allegheny Mountains	14.9	15.0	4.7	13.9	14.0	4.8	21.1	21.1	—
18	Shenandoah Valley-Blue Ridge	14.7	14.8	12.4	15.2	15.2	15.0	12.9	13.4	—
19	Northern Piedmont	18.3	17.7	21.2	18.6	18.4	19.6	15.9	12.1	34.6
20	Central Virginia Piedmont	16.3	14.0	22.2	17.2	16.0	20.2	12.8	6.2	30.1
21	Virginia-North Carolina Coastal Plain	28.4	15.3	41.7	26.0	16.8	36.1	32.9	12.1	51.2
22	North Carolina Tidewater	29.5	26.9	38.0	29.6	28.0	34.9	29.5	23.3	46.2
23	Pee Dee and Lumber River	37.9	28.8	55.4	33.5	28.2	47.1	46.1	30.4	64.6
24	North Carolina Upper Coastal Plain	29.1	22.3	43.5	26.3	21.8	36.6	32.7	22.9	51.2
25	Old Belt Brightleaf Tobacco	21.8	17.0	39.0	20.5	17.3	35.5	24.4	16.4	43.3
26	Central Appalachian Ridge and Valley	20.0	20.1	18.0	21.2	21.4	17.4	15.3	15.2	—
27	Pittsburgh Steel and Bituminous Fuel	15.2	15.2	16.2	15.4	15.4	16.7	12.7	12.8	—
28	Northeastern Ohio-Northwestern Pennsylvania	16.1	16.2	10.0	16.0	16.1	10.4	16.8	16.8	—
29	East Central Ohio-Northwestern West Virginia	15.9	15.8	29.2	16.6	16.4	31.9	12.3	12.4	—
30	Central Allegheny Plateau	20.8	20.9	9.1	21.9	22.1	12.2	15.7	15.9	—
31	Southern Appalachian Coal Mining	31.8	32.1	25.5	32.5	32.8	25.6	27.4	27.4	—
32	Southern Appalachian Ridge and Valley	21.9	21.9	19.0	23.1	23.2	19.2	18.8	18.8	16.5
33	Southern Blue Ridge Mountains	22.6	22.5	24.6	23.7	23.6	25.6	18.6	18.6	16.3
34	Central Piedmont	22.6	19.8	38.8	23.2	21.0	36.5	19.7	13.3	47.9
35	South Carolina-Georgia Fall Line Sand Hills	33.0	29.8	42.0	32.9	31.1	38.3	33.9	17.5	60.4
36	South Carolina-Georgia Upper Coastal Plain	36.6	19.5	59.0	32.4	20.7	51.8	43.6	16.9	67.7
37	South Carolina-Georgia Atlantic Flatwoods	37.4	31.5	49.0	38.3	32.8	48.7	31.9	23.3	50.5
38	Georgia-Florida Lower Coastal Plain	25.0	20.6	36.9	23.1	19.8	30.9	29.3	22.2	55.3
39	Florida Peninsula	8.6	8.0	12.4	8.7	8.1	12.1	8.3	7.2	21.9
40	Florida Flatwoods	21.6	21.3	24.4	21.7	21.3	24.7	20.4	20.7	—
41	Georgia-Alabama Central Coastal Plain	27.5	17.7	49.4	27.0	19.1	45.2	28.3	15.5	56.0
42	Southern Piedmont	23.1	17.5	43.4	23.5	18.8	41.1	21.6	11.1	52.1
43	Georgia-Alabama Appalachian Ridge and Valley	21.6	20.7	31.2	21.9	20.9	30.5	20.1	18.8	37.8
44	Eastern and Western Highland Rim	20.1	20.2	15.8	21.5	21.4	22.0	18.6	18.9	2.8

See footnote at end of table.

Table 9.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for economic subregions, 1960-70 1/ -Continued

(Rates not shown for subregions with fewer than 100 departures)

Economic subregion	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
45 Kentucky Bluegrass	15.1	15.7	6.0	16.0	16.7	7.3	14.1	14.5	2.4
46 Ohio-Indiana Flatlands	16.2	16.3	8.9	17.8	18.0	8.6	10.0	9.9	—
47 West Central Ohio-Central Indiana	16.5	16.6	12.0	18.6	18.7	12.6	9.7	9.7	—
48 Michigan-Ohio-Indiana Tri-State	15.8	16.0	-.6	16.4	16.7	-.6	14.5	14.5	-1.1
49 Southeastern Michigan	16.8	17.2	4.5	17.2	17.7	4.1	15.3	15.3	—
50 Western Michigan Lake Shore	17.8	17.8	15.5	18.0	18.0	19.8	16.9	17.3	1.7
51 Lower Wabash and Ohio Valley	12.5	12.5	10.1	13.8	13.9	11.0	9.3	9.3	—
52 South Central Indiana and West Central Kentucky Hills	19.3	19.4	14.9	21.3	21.5	16.7	14.5	14.7	1.8
53 Pennyroyal and Jackson Purchase	16.8	16.6	18.4	21.3	21.4	20.6	9.8	9.4	14.3
54 Nashville Basin	14.0	14.1	13.0	15.8	16.6	9.1	11.1	10.1	20.0
55 Middle Tennessee Valley and Sand Mountain	24.5	23.8	31.7	22.4	22.0	26.8	27.3	26.3	40.2
56 Alabama Upper Coastal Plain	21.9	19.0	31.2	20.9	19.4	25.9	24.6	18.0	47.2
57 Alabama-Mississippi Black Prairie	32.8	15.8	51.2	30.7	18.7	48.1	36.5	8.3	54.7
58 Central Gulf Coast	21.0	18.4	30.1	20.4	17.9	28.7	24.8	21.1	43.6
59 Mississippi-Alabama Piney Woods and Southern Brown Loam	25.3	15.2	43.8	24.7	17.8	37.9	26.5	9.8	54.4
60 Tennessee-Mississippi Fall Line Slopes and Pine Hills	16.9	15.0	33.9	16.2	15.6	22.2	17.7	14.4	45.3
61 Tennessee-Mississippi River Hills	29.3	22.6	40.1	27.6	26.4	30.8	31.1	16.9	46.2
62 Southern Illinois	9.5	9.3	19.6	11.9	11.5	23.2	5.0	5.0	—
63 East Central Illinois	9.7	9.9	-1.9	9.7	10.0	-2.0	9.6	9.6	—
64 Southern Lake Michigan Industrial Conurbation	14.1	14.2	6.3	14.4	14.6	6.3	12.4	12.4	—
65 Eastern Wisconsin	14.2	14.1	33.2	12.0	11.7	33.7	18.0	17.9	—
66 Northern Woods	13.4	13.2	27.2	12.3	12.0	24.8	17.5	17.2	—
67 Central Wisconsin	15.2	15.1	—	11.7	11.6	—	19.3	19.2	—
68 Upper Mississippi River Hill Lands	13.7	13.7	—	11.2	11.2	—	16.6	16.6	—
69 Corn Belt-Dairy Transition	13.1	13.0	—	9.5	9.4	—	16.5	16.5	—
70 Eastern Iowa-Western Illinois	11.5	11.5	-6.9	9.8	9.8	-5.3	13.4	13.5	—
71 Southern Iowa-Northern Missouri-West Central Illinois	5.8	5.9	-5.6	6.3	6.4	1.8	5.2	5.4	-30.9
72 Missouri-Illinois Ozark-Corn Belt Transition	10.0	10.0	7.5	11.4	11.5	7.2	5.7	5.7	—
73 Ozark Plateau	14.2	14.1	24.5	17.1	17.0	25.4	8.4	8.4	—
74 Middle Arkansas Valley and Ozark Slopes	15.9	14.9	32.6	16.6	15.5	32.5	13.9	13.1	33.1
75 Crowley's Ridge and Arkansas Prairies	24.9	22.8	41.1	20.8	18.1	39.9	29.1	27.6	42.6
76 Mississippi Delta	28.7	21.1	41.9	25.0	19.7	36.1	35.0	24.1	49.2
77 Louisiana Sugarcane	26.3	22.5	34.7	26.3	22.6	34.6	26.1	22.1	35.9
78 Louisiana-Texas Coast Prairies	17.4	16.4	23.2	18.1	17.4	21.5	14.5	12.2	34.0
79 Texas-Louisiana Timbered	15.8	13.3	24.9	16.5	14.2	24.9	11.4	8.3	24.8
80 Arkansas-Louisiana-Texas Coastal Plain	14.3	9.2	29.8	16.4	11.7	29.9	7.2	1.3	29.4
81 Ouachita Mountains	13.9	13.1	25.7	15.4	14.5	26.1	9.1	8.6	22.3
82 Springfield Upland	11.4	10.5	32.2	13.8	12.4	39.3	7.6	7.6	7.6
83 Flint Hills and Cherokee Plains	13.1	12.8	19.1	15.8	15.7	19.3	6.7	6.5	17.4
84 Kansas-Missouri Corn Belt Border	5.0	5.0	7.4	7.9	7.9	6.3	2.1	2.1	—

See footnote at end of table.

Table 9.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for economic subregions, 1960-70 1/ - Continued

(Rates not shown for subregions with fewer than 100 departures)

	Economic subregion	Rural			Rural nonfarm			Rural farm		
		Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
85	Central Missouri River Valley	10.9	10.9	11.3	11.2	11.1	12.5	10.5	10.6	-3.4
86	North Central Iowa-Southwestern Minnesota	12.1	12.1	---	9.5	9.6	---	14.2	14.2	---
87	Minnesota-South Dakota Corn Belt Margin	10.1	10.2	---	4.9	5.0	---	13.8	13.8	---
88	Minnesota Forest Margin	12.6	12.5	20.2	11.0	10.7	20.7	13.9	13.9	---
89	Red River Valley	10.9	10.9	---	10.3	10.2	---	11.5	11.5	---
90	North Dakota Central Plateau	16.0	15.2	45.6	14.0	12.4	46.5	17.9	17.7	---
91	Black Prairies (Southern part)	11.9	11.7	---	8.0	7.7	---	15.0	14.9	---
92	Nebraska-South Dakota Corn Belt Margin	11.4	10.9	63.9	9.4	8.3	70.8	12.9	12.8	---
93	Kansas-Nebraska Corn Belt-Winter Wheat Transition	5.7	5.8	---	2.7	2.9	---	8.2	8.3	---
94	Wichita Prairies	10.8	10.7	18.1	13.8	13.6	22.2	6.5	6.6	---
95	Central Oklahoma	16.1	14.3	30.6	17.5	15.4	32.2	13.0	12.1	24.4
96	Grand Prairie and West Cross Timbers	12.1	11.1	39.1	15.8	14.5	43.0	4.3	4.1	18.0
97	Texas Blackland	12.0	10.0	25.6	16.2	14.7	25.5	3.8	1.7	25.7
98	Corpus Christi-San Antonio	21.2	21.6	2.7	23.4	23.8	5.8	15.7	16.1	---
99	Lower Rio Grande Valley	26.6	26.5	---	28.9	28.9	---	21.1	20.9	---
100	Edwards Plateau	9.1	9.3	-2.3	12.6	13.0	-5.0	2.6	2.5	---
101	Texas-Oklahoma Rolling Plains	12.8	11.9	28.1	15.8	14.8	29.9	7.6	7.2	21.5
102	Southern High Plains	17.9	17.5	26.0	16.9	16.8	18.5	19.1	18.4	38.1
103	South Central Plains	14.2	14.0	23.2	14.2	14.0	22.9	14.2	14.0	24.1
104	Western South Dakota, Northwest Nebraska, and Southeast Montana	14.0	12.2	33.4	15.9	12.6	36.8	11.7	11.7	12.1
105	Southwest North Dakota and Northern Montana Plains	19.4	18.7	29.7	17.7	16.7	28.1	21.5	21.1	---
106	Upper Platte River, Yellowstone Valley, and Big Horn Basin	16.3	16.0	27.8	14.6	14.2	28.0	18.9	18.7	27.2
107	Southeast Colorado and Northwest New Mexico	22.0	22.1	---	23.5	23.6	---	18.5	18.7	---
108	Trans Pecos and Southern New Mexico	20.2	20.5	15.3	20.7	21.0	15.3	17.8	17.8	---
109	Rocky Mountain	17.7	16.3	35.5	18.2	16.9	35.3	15.5	14.1	36.4
110	Palouse-Columbia River Basin	14.7	14.5	22.2	15.5	15.2	27.3	12.6	12.8	---
111	Yakima Valley-Okanogan Highlands	17.3	17.2	20.0	18.1	18.0	21.3	15.3	15.3	17.4
112	Snake River Valley, Wasatch Front, and Utah Valley	24.0	24.2	14.0	22.9	23.0	15.7	25.8	26.1	11.7
113	Western Desert, Semi-Desert, and Mountain	14.0	11.1	37.9	13.8	11.2	36.3	15.1	10.6	45.0
114	Southern Arizona	16.4	15.9	20.6	15.8	15.2	21.3	20.4	20.9	17.6
115	Southern California	15.4	16.0	7.4	16.5	17.0	8.4	3.0	3.5	-6.7
116	California Central Valley	16.4	17.7	-.4	17.2	18.8	-2.9	14.1	14.5	7.8
117	Central Pacific Coast and San Francisco Bay	14.9	15.6	5.5	16.3	16.9	7.0	4.1	4.8	-3.5
118	Northern Pacific Coast and Northern Puget Sound	12.2	12.1	16.0	12.3	12.2	14.5	11.6	11.3	---
119	Southern Puget Sound-Willamette Valley	15.4	15.6	10.3	16.3	16.5	10.1	10.7	10.7	12.4
120	Alaska (Entire State)	20.2	16.8	32.9	20.2	16.9	32.6	14.6	---	---
121	Hawaii (Entire State)	16.9	27.4	9.6	16.3	27.7	7.9	25.9	---	28.3

1/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Maine									
1 Aroostook	16.5	6.9	2.9	13.8	5.5	2.1	2.7	1.4	0.8
2 Maine Woods	33.2	13.2	7.7	29.6	11.5	6.6	3.6	1.7	1.1
3 Northeast Maine Coast	26.4	9.1	6.8	23.9	8.2	6.1	2.5	.9	.7
4 Southern Maine Coast	25.7	9.2	6.1	23.3	8.1	5.3	2.3	1.0	.8
A Portland Metro Area	14.4	5.5	3.0	13.6	5.3	2.7	.8	.3	.2
New Hampshire									
1 White Mountains-Northern New Hampshire	22.1	8.0	5.5	20.0	7.1	4.9	2.1	.9	.6
2 Southern New Hampshire	31.8	10.4	6.9	29.9	9.6	6.3	2.0	.8	.6
A Manchester Metro Area	10.1	3.6	2.4	9.4	3.3	2.2	.7	.2	.2
Vermont									
1 Champlain Valley-Northern Vermont	18.8	7.9	4.2	13.1	5.3	2.9	5.7	2.6	1.3
2 Green Mountains-Southern Vermont	39.7	15.3	9.6	32.9	12.5	7.7	6.8	2.8	1.9
Massachusetts									
1 Berkshire-Monadnock	7.8	2.7	1.7	6.9	2.5	1.5	.9	.3	.2
2 Cape Cod	17.1	4.7	3.5	17.0	4.6	3.4	.2	3/	3/
A Springfield-Chicopee-Holyoke Metro Area	23.2	7.8	4.7	21.7	7.3	4.3	1.5	.5	.4
B Worcester Metro Area	41.1	14.2	9.0	39.3	13.4	8.5	1.9	.8	.6
C Boston-Lowell-Lawrence-Haverhill Metro Area	79.1	25.3	13.9	76.6	24.5	13.2	2.4	.8	.7
D Brockton Metro Area	25.4	8.5	5.7	24.6	8.2	5.5	.8	.3	.2
E Fall River-New Bedford Metro Area	16.0	5.4	3.4	15.0	5.1	3.2	1.0	.3	.3
F Pittsfield Metro Area	9.3	2.9	2.1	8.6	2.7	1.9	.7	.2	.2
Rhode Island									
1 Lower Narragansett Bay	16.4	5.7	2.8	15.9	5.5	2.6	.5	.2	.1
A Providence-Pawtucket Metro Area	14.4	4.7	3.2	13.9	4.6	3.0	.5	.2	.2
Connecticut									
1 Western Connecticut	13.5	4.6	3.0	12.5	4.3	2.8	1.0	.3	.3
2 Eastern Connecticut	54.6	17.7	10.9	51.3	16.5	10.0	3.3	1.2	.9
A Bridgeport-Stamford-Norwalk Metro Area	22.6	7.1	4.9	22.3	7.0	4.8	.3	.1	.1
B New Haven-Waterbury-Meriden Metro Area	21.7	7.4	4.2	21.0	7.2	4.0	.7	.2	.2
C Hartford-New Britain Metro Area	30.9	9.0	5.4	29.5	8.7	5.0	1.3	.4	.4
New York									
1 Niagara-Ontario Shore	16.5	5.6	3.7	12.6	4.2	2.6	4.0	1.5	1.1
2 Genesee-Finger Lakes	41.4	13.5	9.5	32.8	10.1	7.2	8.6	3.4	2.3
3 Southern Tier	73.4	27.3	16,8	60.3	21.6	13.3	13.1	5.7	3.5
4 Eastern Lake Plains-Plateau Fringe	13.5	5.3	3.1	10.1	3.8	2.2	3.4	1.5	.8
5 Mohawk-Adirondack	12.0	4.0	3.0	10.1	3.3	2.5	1.9	.7	.5
6 Upper Susquehanna-Delaware	30.3	11.3	7.7	21.8	7.9	5.3	8.5	3.5	2.4
7 St. Lawrence-Champlain Valley-Adirondack Fringe	56.5	21.9	12.5	45.2	16.7	9.6	11.3	5.2	2.9
8 Upper Hudson Valley	13.3	4.9	3.1	11.4	4.2	2.6	1.9	.7	.5
9 Mid-Hudson Valley-Catskill	105.8	32.0	24.4	97.5	29.2	22.0	8.3	2.8	2.4
A Buffalo SMSA	50.3	17.2	10.6	45.4	15.4	9.3	4.9	1.7	1.4
B Rochester SMSA	19.5	7.0	3.8	17.4	6.3	3.2	2.1	.7	.6
C Syracuse SMSA	38.9	14.6	8.4	33.5	12.3	6.9	5.4	2.3	1.5
D Utica-Rome SMSA	24.6	8.9	5.5	20.6	7.2	4.5	4.0	1.6	1.0
E Binghamton SMSA	13.3	5.2	2.6	12.0	4.6	2.3	1.3	.6	.4
F Albany-Schenectady-Troy SMSA	41.4	13.5	9.3	38.0	12.3	8.4	3.4	1.2	1.0
G New York City SMSA	73.6	22.7	15.7	71.9	22.1	15.3	1.8	.5	.4
New Jersey									
1 Northern New Jersey	65.9	20.5	14.5	60.2	18.7	12.9	5.6	1.8	1.7
2 Southern New Jersey	31.2	9.9	7.4	29.7	9.4	6.9	1.5	.5	.5
A Allentown-Bethlehem-Easton SMSA	8.0	2.5	1.7	7.0	2.2	1.5	1.0	.3	.2
B Newark SMSA	18.7	5.8	3.9	18.3	5.6	3.8	.4	.2	.1
C Trenton SMSA	8.0	2.2	1.7	7.4	2.0	1.6	.6	.1	.2
D Philadelphia SMSA	33.8	10.6	6.6	30.9	9.5	5.8	2.9	1.1	.7
E Atlantic City SMSA	6.7	2.2	1.7	6.0	2.0	1.4	.8	.2	.3
F Wilmington SMSA	8.1	2.9	1.6	6.7	2.5	1.2	1.4	.4	.4
G Paterson-Clifton-Passaic SMSA	3.2	1.0	.6	3.1	.9	.6	3/	3/	3/
H Jersey City SMSA	No rural population								
Pennsylvania									
1 Northwestern Pennsylvania	99.7	36.2	21.7	89.5	31.7	19.0	10.2	4.6	2.7
2 Northern Tier	36.9	13.8	8.8	27.6	9.9	6.4	9.2	3.9	2.4
3 North Central Pennsylvania	25.2	8.6	5.5	22.7	7.6	4.8	2.5	1.0	.7
4 Bituminous Coal	80.5	30.6	19.0	73.4	27.7	16.8	7.1	2.9	2.1
5 South Central Pennsylvania Ridge and Valley	60.6	22.2	12.3	51.2	17.8	10.1	9.4	4.4	2.2
6 Pennsylvania Anthracite	56.7	17.1	13.5	51.2	15.1	12.1	5.4	2.0	1.4
7 Southeast Pennsylvania	36.5	12.6	7.6	31.0	10.1	6.2	5.5	2.4	1.4

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Pennsylvania -Continued									
A Erie SMSA	14.0	5.4	2.8	12.0	4.6	2.3	2.1	.8	.5
B Philadelphia SMSA	87.5	28.1	17.0	80.4	25.5	15.2	7.0	2.6	1.8
C Scranton SMSA	6.3	1.8	1.6	5.5	1.5	1.4	.8	.3	.2
D Pittsburgh SMSA	114.0	38.5	23.2	108.6	36.4	21.7	5.4	2.1	1.5
E Johnstown SMSA	34.4	13.7	7.3	31.3	12.3	6.4	3.1	1.5	.9
F Altoona SMSA	10.9	3.9	2.5	10.1	3.5	2.3	.8	.4	.2
G Wilkes-Barre-Hazleton SMSA	18.0	5.8	4.4	17.0	5.5	4.1	1.0	.4	.3
H Harrisburg SMSA	26.3	10.5	5.0	23.1	9.2	4.3	3.1	1.4	.8
J York SMSA	28.2	9.8	6.2	24.1	7.9	5.1	4.1	1.8	1.1
K Lancaster SMSA	34.0	12.4	6.9	26.9	8.4	5.6	7.2	4.1	1.4
L Reading SMSA	26.8	8.1	5.8	23.5	6.8	5.0	3.3	1.3	.9
M Allentown-Bethlehem-Easton SMSA	29.5	8.8	6.2	26.8	7.7	5.6	2.7	1.0	.6
Ohio									
1 Maumee	54.3	20.2	12.0	35.9	13.0	7.1	17.5	7.3	4.9
2 Northwest Central Ohio	48.4	18.4	10.6	31.3	11.2	6.0	17.1	7.2	4.6
3 Miami Valley and Central Scioto	60.2	22.8	12.3	42.8	15.5	7.6	17.4	7.3	4.7
4 North Central Ohio	51.2	19.4	10.5	39.0	13.9	7.2	12.1	5.5	3.2
5 Northeastern Ohio	46.0	17.4	9.2	40.1	14.8	7.6	6.0	2.6	1.6
6 East Central Ohio	82.2	31.8	18.6	67.0	25.4	14.3	15.2	6.4	4.3
7 Ohio Flatlands-Chillicothe	42.2	15.3	9.0	32.8	11.5	6.0	9.4	3.8	3.0
8 Southeast Ohio Hills	52.4	21.8	12.5	41.4	17.1	9.3	11.0	4.7	3.2
A Toledo SMSA	8.2	3.1	1.9	7.3	2.8	1.6	.9	.4	.3
B Columbus SMSA	15.4	5.0	2.6	14.0	4.4	2.2	1.4	.5	.4
C Dayton SMSA	29.1	11.2	5.8	23.8	9.2	4.2	5.3	2.0	1.6
D Hamilton-Middletown SMSA	11.5	5.2	2.2	9.9	4.6	1.7	1.6	.6	.5
E Cleveland SMSA	9.3	3.1	1.8	8.7	3.0	1.6	.6	.1	.2
F Akron SMSA	17.5	6.3	3.7	16.8	6.0	3.6	.6	.3	.2
G Canton SMSA	24.4	8.7	5.3	22.2	7.7	4.7	2.2	.9	.6
H Youngstown-Warren SMSA	29.2	10.8	5.6	26.6	9.7	4.8	2.6	1.0	.7
J Wheeling SMSA	10.1	3.8	2.3	8.9	3.4	1.9	1.3	.4	.3
K Cincinnati SMSA	11.7	4.1	2.3	11.1	3.9	2.1	.6	.2	.2
L Huntington-Ashland SMSA	7.4	3.1	1.6	6.5	2.7	1.3	.9	.4	.3
M Lorain-Elyria SMSA	11.3	4.3	2.0	10.0	3.7	1.6	1.4	.6	.4
N Springfield SMSA	9.4	3.5	2.0	8.0	3.0	1.6	1.4	.5	.4
O Lima SMSA	9.1	3.1	1.8	7.3	2.4	1.3	1.8	.6	.6
Indiana									
1 Northwestern Indiana	21.9	8.0	4.6	17.9	6.0	3.4	4.0	2.0	1.1
2 Kankakee, Tippecanoe, and Iroquois River	28.6	11.7	6.6	18.5	7.4	3.8	10.0	4.3	2.8
3 Northeast Indiana	35.3	13.9	8.3	20.1	7.2	4.1	15.2	6.7	4.2
4 Richmond-Marion-Kokomo	49.6	17.6	10.1	38.8	13.2	6.9	10.8	4.4	3.3
5 Central Indiana	52.4	19.3	11.1	37.0	13.6	6.5	15.4	5.7	4.6
6 Lower Wabash Valley-Indiana Side	48.2	17.7	12.2	33.5	12.1	7.6	14.6	5.6	4.5
7 South Central Indiana	34.8	13.5	8.2	24.5	9.0	5.1	10.3	4.5	3.1
8 Indiana Flats and Breaks	27.7	10.8	6.7	17.7	6.7	3.6	10.1	4.2	3.1
9 Middle Wabash River	53.9	20.1	11.7	37.4	13.8	7.0	16.5	6.3	4.6
A Gary-Hammond-East Chicago SMSA	15.4	5.6	3.1	13.0	4.7	2.5	2.4	.9	.7
B South Bend SMSA	10.1	3.7	2.2	8.4	3.0	1.7	1.7	.6	.5
C Fort Wayne SMSA	13.0	4.7	2.6	10.1	3.4	1.8	2.9	1.3	.8
D Indianapolis SMSA	16.6	5.7	3.0	15.7	5.4	2.7	.9	.3	.3
E Evansville SMSA	5.6	1.9	1.2	4.8	1.6	.9	.8	.3	.2
F Louisville SMSA	8.3	3.2	1.9	6.4	2.3	1.3	1.9	.8	.6
G Terre Haute SMSA	7.4	2.5	1.6	6.2	2.1	1.2	1.2	.4	.4
H Muncie SMSA	8.5	3.0	1.8	6.8	2.5	1.2	1.7	.6	.6
Illinois									
1 Northwest Illinois	34.4	12.5	7.8	20.1	6.8	4.3	14.3	5.7	3.5
2 Northwestern Chicago Environs	2.3	.8	.5	1.2	.4	.2	1.0	.4	.3
3 West North Central Illinois	45.5	16.3	11.4	26.2	9.1	6.3	19.3	7.2	5.1
4 Southwestern Central Illinois	36.7	12.6	10.2	21.8	7.2	5.7	15.0	5.4	4.5
5 Upper Illinois River-Kankakee	29.3	8.7	7.5	21.8	5.9	5.4	7.4	2.8	2.1
6 East Central Illinois	87.5	30.1	20.7	56.1	18.7	12.4	31.4	11.4	8.3
7 West South Central Illinois	28.2	8.5	7.0	18.5	4.8	4.1	9.7	3.7	2.9
8 Southern Illinois Gray Lands-Northern	18.6	7.1	5.2	9.7	3.6	2.3	8.9	3.5	2.9
9 Lower Wabash Valley-Illinois Side	17.3	6.3	4.8	11.5	4.2	2.9	5.9	2.1	1.8
10 Southern Illinois Gray Lands-Coal Fields	19.8	6.9	5.5	14.6	5.1	3.8	5.2	1.8	1.7
11 Illinois Ozark Border	18.2	7.0	4.9	13.3	5.2	3.3	4.9	1.8	1.6
A Davenport-Rock Island-Moline SMSA	6.2	2.2	1.3	4.8	1.6	.9	1.4	.5	.4
B Rockford SMSA	8.6	2.9	1.8	7.0	2.4	1.4	1.6	.6	.4
C Chicago SMSA	81.0	26.7	16.2	71.2	23.0	13.5	9.8	3.6	2.6
D Peoria SMSA	16.5	5.4	3.5	13.2	4.1	2.6	3.3	1.2	.8
E Springfield SMSA	8.8	3.0	2.2	6.7	2.2	1.6	2.1	.8	.6

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Illinois -Continued									
F St. Louis SMSA	29.5	9.1	6.3	25.8	7.7	4.9	4.4	1.4	1.4
G Decatur SMSA	7.0	2.6	1.4	5.5	2.1	1.0	1.4	.5	.4
Michigan									
1 Upper Peninsula-Western	24.7	8.9	5.5	22.5	8.1	4.9	2.2	.9	.6
2 Upper Peninsula-Eastern	15.8	6.0	3.8	12.7	4.7	2.9	3.0	1.3	.9
3 Western Michigan Lake Shore-Northern	17.2	6.9	4.3	12.9	4.8	3.0	4.2	2.1	1.3
4 Lower Peninsula-Northern	51.7	20.8	13.2	39.6	14.7	9.8	12.1	6.1	3.4
5 East Central Michigan	45.5	18.6	10.1	27.7	10.6	5.4	17.8	8.0	4.7
6 Western Michigan Lake Shore	62.2	24.5	12.8	49.1	18.9	9.3	13.0	5.6	3.6
7 Central Michigan	32.1	12.5	6.9	23.5	8.8	4.4	8.6	3.6	2.5
8 Southeast Michigan	30.8	11.8	6.7	25.6	9.5	5.1	5.2	2.3	1.6
9 Southern Michigan	57.3	21.4	12.5	42.3	15.1	8.4	15.0	6.3	4.1
A Saginaw SMSA	14.0	5.5	2.8	10.5	4.1	1.8	3.5	1.5	1.0
B Grand Rapids SMSA	16.1	6.1	3.4	13.3	4.8	2.6	2.8	1.4	.8
C Bay City SMSA	8.2	3.1	1.5	5.8	2.0	.9	2.5	1.1	.6
D Flint SMSA	20.3	8.1	3.9	18.0	7.1	3.3	2.3	1.0	.7
E Lansing SMSA	23.4	9.3	4.9	16.1	6.0	2.9	7.3	3.2	2.0
F Detroit SMSA	51.5	19.1	10.3	47.7	17.6	9.3	3.8	1.5	1.1
G Kalamazoo SMSA	12.6	4.4	2.5	10.8	3.8	2.0	1.8	.6	.5
H Jackson SMSA	17.9	4.6	3.2	15.7	3.7	2.6	2.2	.9	.6
J Ann Arbor SMSA	14.1	4.4	3.0	11.8	3.4	2.3	2.3	.9	.7
Wisconsin									
1 Northern Wisconsin Woods	31.1	12.0	8.8	21.5	7.6	6.1	9.5	4.4	2.7
2 West Central Wisconsin	62.7	23.9	16.9	31.9	10.7	8.4	30.8	13.3	8.5
3 Southwest Wisconsin	22.6	8.8	5.6	10.5	3.6	2.8	12.1	5.3	2.8
4 Eau Claire-Wausau	40.2	16.6	9.4	21.3	7.6	4.7	18.9	9.0	4.7
5 Central Wisconsin-Southern Sandy	18.2	6.8	5.1	10.3	3.6	2.7	7.9	3.2	2.4
6 Eastern Wisconsin-Northern	28.1	11.3	7.6	14.6	5.6	4.0	13.5	5.7	3.6
7 Eastern Wisconsin-Central	48.8	19.1	11.3	29.7	9.9	6.5	19.1	9.2	4.8
8 Eastern Wisconsin-Southern	51.0	18.5	12.1	32.2	10.8	7.2	18.7	7.7	4.9
A Duluth-Superior SMSA	2.7	1.0	.8	2.1	.8	.6	.6	.2	.2
B Madison SMSA	13.4	4.9	2.9	8.3	2.9	1.7	5.1	2.0	1.2
C Milwaukee SMSA (Except Waukesha part)	No rural population								
D Racine SMSA	9.7	3.4	1.9	8.0	2.8	1.4	1.6	.6	.5
E Milwaukee SMSA (Waukesha part)	13.8	5.1	3.0	12.2	4.5	2.5	1.6	.6	.5
F Kenosha SMSA	7.0	2.6	1.5	5.9	2.1	1.2	1.1	.4	.3
Minnesota									
1 Red River Valley-Minnesota	24.7	9.4	6.9	10.0	3.5	2.6	14.7	5.8	4.3
2 Northern Minnesota Woods	35.9	14.6	9.6	26.0	9.9	6.5	9.9	4.7	3.1
3 Minnesota Forest Margin-Western	25.1	10.0	7.2	9.7	3.5	2.6	15.3	6.5	4.5
4 Minnesota Forest Margin-Eastern	24.6	10.3	6.8	12.3	4.6	3.0	12.2	5.6	3.8
5 West Central Minnesota	36.5	13.7	9.9	15.9	5.2	4.5	20.6	8.4	5.4
6 Southeast Central Minnesota	61.3	24.1	14.9	31.0	11.0	7.2	30.2	13.1	7.7
7 Southeast Minnesota	38.7	14.5	9.8	16.7	5.6	4.1	22.0	8.9	5.7
8 Southwest Minnesota	33.4	12.9	8.4	13.2	4.8	3.4	20.2	8.1	5.0
A Duluth-Superior SMSA	15.2	5.4	3.1	13.6	4.7	2.7	1.6	.7	.4
B Minneapolis-St. Paul SMSA	20.6	7.7	4.2	15.4	5.4	2.7	5.3	2.3	1.5
Iowa									
1 Western Iowa	56.1	21.5	14.8	23.2	7.8	6.5	32.9	13.7	8.3
2 West Central Iowa	60.2	22.0	15.4	27.7	9.2	7.2	32.5	12.7	8.2
3 South Central Iowa	42.5	15.8	11.8	18.5	6.6	4.8	24.0	9.2	7.0
4 Northeast Iowa	50.7	19.4	13.1	21.0	6.9	5.7	29.7	12.5	7.4
5 East Central Iowa	39.7	14.0	10.1	18.3	5.9	4.7	21.4	8.1	5.3
6 Eastern Iowa	36.4	13.3	8.8	18.7	6.0	4.3	17.7	7.3	4.5
A Sioux City SMSA	4.3	1.7	1.1	1.9	.7	.5	2.4	1.0	.6
B Omaha SMSA	5.6	2.1	1.4	2.8	1.2	.7	2.7	.9	.7
C Des Moines SMSA	5.5	2.2	1.2	3.7	1.5	.7	1.7	.7	.5
D Davenport-Rock Island-Moline SMSA	4.5	1.7	.9	2.8	.9	.5	1.7	.8	.4
E Cedar Rapids SMSA	4.8	1.0	1.1	2.8	1.0	.6	2.0	.9	.5
F Waterloo SMSA	7.2	2.6	1.5	4.6	1.5	.8	2.6	1.1	.7
Missouri									
1 Northwest Missouri	33.2	11.2	8.8	18.3	6.1	4.2	14.9	5.1	4.6
2 Northern Missouri	69.8	23.2	21.0	33.0	10.5	9.0	36.7	12.7	12.0
3 West Central Missouri	31.5	10.4	8.6	16.1	5.1	3.6	15.3	5.3	5.0
4 Southwest Missouri	21.5	8.2	6.1	13.4	5.0	3.5	8.1	3.2	2.5
5 Ozark Plateau-Northern	44.5	17.2	8.1	35.1	13.6	5.0	9.4	3.7	3.1
6 Northeast Ozark Border	27.7	10.3	7.5	15.8	5.8	3.7	11.9	4.6	3.8
7 Ozark Plateau-Western	30.5	11.9	8.8	15.6	5.9	4.1	14.9	6.0	4.7
8 Ozark Plateau-Eastern	20.4	8.3	5.9	14.8	6.0	4.0	5.6	2.3	2.0

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Missouri -Continued									
9 Mississippi Delta-Missouri Section	32.5	17.0	7.8	16.0	7.7	4.0	16.4	9.2	3.9
A Kansas City SMSA	11.8	4.4	2.6	9.3	3.6	1.8	2.5	.8	.9
B St. Louis SMSA	32.6	11.0	6.4	29.4	9.9	5.3	3.1	1.1	1.0
C Springfield SMSA	7.3	2.5	1.8	5.2	1.8	1.1	2.1	.7	.7
North Dakota									
1 Missouri Slope	17.7	7.6	3.8	7.9	3.1	1.9	9.8	4.6	1.9
2 West Central North Dakota-Missouri River Coteau	20.8	8.2	4.5	10.5	4.0	2.4	10.2	4.2	2.1
3 East Central North Dakota	38.2	15.2	9.4	17.6	6.7	4.4	20.5	8.5	5.1
4 Red River Valley-North Dakota	17.0	6.3	4.2	8.8	3.0	2.0	8.2	3.3	2.2
5 Southeast North Dakota	8.9	3.5	2.5	3.9	1.4	1.2	5.0	2.0	1.3
South Dakota									
1 Black Hills and West-River Range	24.6	9.4	5.2	15.7	6.0	3.1	8.9	3.4	2.1
2 North Central South Dakota	23.3	8.9	6.0	10.4	3.8	2.9	12.9	5.1	3.2
3 South Central South Dakota	21.8	8.8	5.6	8.7	3.4	2.4	13.1	5.4	3.3
4 Northeast South Dakota	13.3	5.0	3.7	4.8	1.7	1.4	8.5	3.3	2.3
5 Southeast South Dakota	19.4	6.9	5.0	8.7	2.9	2.2	10.7	4.0	2.8
Nebraska									
1 Nebraska Sand Hills	14.1	4.8	3.6	5.7	2.0	1.7	8.3	2.7	1.9
2 North Platte River	13.3	4.9	3.2	6.9	2.4	1.7	6.4	2.5	1.5
3 Central Nebraska	42.0	15.6	11.4	18.6	6.6	5.1	23.5	9.0	6.3
4 Republican River	15.2	5.3	4.2	7.0	2.4	2.0	8.2	2.9	2.2
5 South Central Nebraska	22.3	7.6	6.3	10.8	3.5	3.1	11.5	4.1	3.1
6 Central Missouri Valley-Northeast Nebraska	19.4	7.2	5.2	8.5	2.9	2.3	10.9	4.3	2.8
7 Central Missouri Valley-Southeast Nebraska	19.1	6.5	5.1	8.9	3.0	2.3	10.1	3.5	2.8
A Lincoln SMSA	6.6	1.8	1.3	4.8	1.2	.8	1.8	.6	.5
B Omaha SMSA	10.4	4.0	1.6	8.8	3.4	1.2	1.5	.6	.4
Kansas									
1 Southwest Kansas	15.7	5.6	3.7	9.9	3.4	2.5	5.7	2.2	1.3
2 West Central Kansas	34.9	12.2	9.1	19.0	6.2	4.9	15.9	5.9	4.2
3 Central Kansas	35.2	12.7	9.0	20.4	7.1	4.6	14.8	5.7	4.4
4 North Central Kansas	13.3	4.6	4.0	5.7	1.7	1.8	7.6	2.8	2.2
5 Kansas Flint Hills	32.5	11.5	7.0	22.3	7.8	3.8	10.2	3.7	3.1
6 Central Missouri Valley-Kansas Part	27.4	8.3	6.7	17.8	4.9	3.8	9.6	3.4	2.9
7 East Central Kansas	18.7	6.5	5.8	9.2	3.1	2.6	9.4	3.4	3.2
8 Southeast Kansas	16.4	6.0	4.9	9.7	3.6	2.6	6.7	2.4	2.2
A Wichita SMSA	7.9	3.1	1.5	6.2	2.3	1.1	1.7	.8	.4
B Kansas City SMSA	10.9	3.7	1.9	9.5	3.2	1.4	1.4	.5	.5
C Topeka SMSA	6.4	2.2	1.0	5.3	1.8	.7	1.2	.4	.4
Delaware									
1 Southern Delaware	30.5	9.3	5.6	25.7	7.5	4.2	4.8	1.7	1.4
A Wilmington SMSA	10.6	3.7	2.3	9.7	3.4	2.0	.9	.4	.3
Maryland									
1 Western Maryland	14.4	5.6	3.3	12.7	4.8	2.8	1.7	.8	.5
2 Maryland Piedmont	41.3	15.5	7.4	35.6	13.1	6.0	5.7	2.4	1.4
3 Southern Maryland	19.8	9.0	3.4	16.2	7.2	2.6	3.6	1.8	.9
4 Maryland Eastern Shore	49.2	17.2	11.6	40.8	14.1	9.2	8.4	3.1	2.4
A Baltimore SMSA (Except Carroll-Howard part)	54.5	18.6	9.1	51.3	17.4	8.2	3.2	1.2	.9
B Washington, D. C. SMSA	28.0	10.7	5.2	25.1	9.4	4.5	2.9	1.3	.8
C Baltimore SMSA (Carroll-Howard part)	20.6	6.4	4.5	17.7	5.3	3.6	3.0	1.2	.8
Virginia									
1 Southwest Virginia Coal Fields	33.9	18.3	7.1	29.6	16.0	5.9	4.3	2.3	1.2
2 Valley of Virginia-Southwest	41.6	17.8	9.0	26.7	11.0	5.1	14.9	6.7	3.9
3 Valley of Virginia-Lower	31.4	13.4	6.4	24.8	10.7	4.5	6.6	2.7	1.9
4 Shenandoah Valley-Blue Ridge	37.9	14.0	7.8	29.1	10.7	5.5	8.8	3.3	2.3
5 Northern Virginia Piedmont	49.3	17.4	9.1	40.9	13.8	6.7	8.4	3.5	2.4
6 Central Virginia Piedmont	38.5	15.2	9.3	27.5	10.4	5.9	11.0	4.8	3.4
7 Southern Virginia Piedmont	56.6	25.3	11.6	34.1	14.1	5.9	22.5	11.3	5.7
8 Virginia Peninsulas	37.5	13.6	8.6	31.0	11.2	6.7	6.5	2.4	1.9
9 Virginia Eastern Shore	11.6	4.0	3.1	9.7	3.4	2.5	1.8	.7	.6
10 Southside Virginia Coastal Plain	29.3	12.5	5.3	22.1	9.1	3.5	7.2	3.4	1.8
A Roanoke SMSA	8.8	3.0	1.8	8.2	2.7	1.6	.6	.3	.2
B Washington, D. C. SMSA	14.5	4.3	2.6	14.0	4.1	2.5	.5	.2	.2
C Richmond SMSA	18.6	6.5	3.3	17.7	6.1	3.1	.9	.4	.3
D Norfolk-Portsmouth SMSA	15.6	6.5	2.5	14.5	5.9	2.1	1.1	.6	.3
E Newport News-Hampton SMSA	4.4	1.4	.6	4.2	1.3	.6	.1	3/	3/
F Lynchburg SMSA	12.1	4.6	2.3	9.6	3.5	1.6	2.5	1.1	.7

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
West Virginia									
1 Upper Ohio and Little Kanawha Valley	18.2	7.1	3.9	16.4	6.4	3.4	1.8	.7	.6
2 West Virginia Hills	48.7	22.6	11.6	39.0	18.0	8.7	9.7	4.6	2.9
3 Monongahela Valley and North Central West Virginia	36.9	15.8	8.8	33.2	14.3	7.6	3.7	1.5	1.2
4 West Virginia Southern Coal Fields	80.0	42.7	18.4	77.8	41.5	17.8	2.2	1.2	.6
5 Allegheny Mountains-Greenbrier Valley	34.4	14.9	8.1	26.4	11.2	5.9	8.0	3.6	2.2
6 Eastern Panhandle	11.3	3.7	2.6	9.8	3.0	2.3	1.5	.7	.4
A Wheeling SMSA	6.7	2.3	1.5	5.7	1.9	1.2	1.0	.4	.3
B Huntington-Ashland SMSA	13.2	5.9	2.9	11.8	5.3	2.6	1.3	.6	.3
C Charleston SMSA	19.9	8.9	4.0	19.5	8.7	3.9	.5	.2	.1
North Carolina									
1 North Carolina Blue Ridge	57.2	25.4	12.9	39.9	17.2	8.0	17.3	8.2	4.9
2 Blue Ridge Slopes	38.8	16.4	7.3	33.9	14.0	5.9	4.8	2.3	1.4
3 North Carolina Old Belt Tobacco	69.4	29.6	13.6	43.9	16.4	7.3	25.6	13.2	6.2
4 Central North Carolina	81.5	32.9	15.4	66.9	26.4	11.5	14.5	6.5	4.0
5 South Central North Carolina	49.9	22.4	10.0	39.5	17.0	7.1	10.4	5.4	2.9
6 North Carolina Upper Coastal Plain-Northern	43.7	21.6	9.3	22.3	10.0	4.1	21.4	11.6	5.2
7 Lower Roanoke Coastal Plain	34.6	18.5	7.6	19.8	9.3	4.0	14.8	9.2	3.6
8 North Carolina Central Coastal Plain	54.8	28.0	10.4	30.0	13.4	4.8	24.8	14.6	5.6
9 North Carolina Upper Coastal Plain-Lumber River	59.4	30.4	9.1	45.2	21.1	5.8	14.2	9.3	3.3
10 Currituck-Albermarle-Pamlico	15.5	6.8	3.5	11.5	4.8	2.5	4.0	2.0	1.1
11 Neuse-Cape Fear	85.0	39.9	13.4	64.9	29.2	8.9	20.1	10.7	4.5
A Asheville SMSA	15.5	6.1	3.3	12.9	4.9	2.6	2.5	1.2	.8
B Winston-Salem SMSA	15.4	5.0	2.7	13.7	4.3	2.2	1.7	.6	.6
C Greensboro-High Point SMSA	15.4	5.6	2.9	12.3	4.4	2.0	3.1	1.2	.9
D Charlotte SMSA	15.2	5.5	2.8	14.1	5.0	2.5	1.1	.5	.3
E Raleigh SMSA	15.5	6.2	2.9	11.4	4.0	1.8	4.1	2.2	1.1
F Durham SMSA	7.2	2.6	1.4	6.1	2.2	1.1	1.1	.4	.3
South Carolina									
1 South Carolina Blue Ridge-Piedmont Transition	17.4	8.0	3.0	15.2	6.8	2.4	2.2	1.2	.6
2 Northwestern South Carolina Piedmont	49.0	20.3	9.8	41.9	17.2	7.8	7.1	3.1	2.1
3 North Central South Carolina Piedmont	28.5	13.1	5.9	23.4	10.6	4.5	5.1	2.5	1.4
4 South Carolina Lower Piedmont	18.7	9.4	4.1	13.7	6.7	2.7	4.9	2.8	1.4
5 South Carolina Sand Hills	12.2	6.4	2.3	8.7	4.2	1.5	3.5	2.2	.9
6 South Carolina Upper Coastal Plain	53.9	31.7	10.4	34.0	17.2	5.7	19.9	14.5	4.7
7 Pee Dee River	38.4	23.2	7.3	18.3	9.0	3.0	20.2	14.2	4.3
8 South Carolina Coast	30.9	20.9	5.5	26.0	17.9	4.2	4.9	3.0	1.3
A Columbia SMSA	27.9	14.7	3.7	25.9	13.7	3.2	2.0	1.0	.5
B Augusta SMSA	12.0	5.3	2.2	10.5	4.3	1.8	1.5	1.0	.4
C Charleston SMSA	12.8	6.5	2.0	12.4	6.2	1.9	.4	.3	.1
D Greenville SMSA	20.4	7.5	3.5	18.7	6.8	3.0	1.7	.8	.5
Georgia									
1 Northwest Georgia Ridge and Valley	38.6	15.7	7.5	32.4	12.8	5.9	6.2	2.9	1.6
2 Georgia Blue Ridge	19.2	9.3	4.2	15.6	7.6	3.1	3.6	1.7	1.1
3 Georgia Upper Piedmont	47.4	19.9	10.1	38.0	15.6	7.3	9.4	4.4	2.8
4 Georgia Lower Piedmont	73.0	35.1	16.4	58.3	26.8	12.0	14.8	8.3	4.4
5 Georgia Sand Hills	11.4	5.7	2.7	8.6	4.1	1.9	2.9	1.6	.9
6 Georgia Upper Coastal Plain	24.2	13.1	5.7	15.0	7.7	3.3	9.2	5.4	2.5
7 Georgia Central Coastal Plain	48.6	25.3	11.1	28.2	13.5	5.8	20.3	11.8	5.3
8 Tifton Plain	45.3	21.0	10.1	26.7	10.8	5.3	18.6	10.2	4.7
9 Georgia Coast	25.0	11.8	4.9	20.8	9.4	3.8	4.3	2.4	1.1
A Chattanooga SMSA	6.6	2.5	1.3	6.0	2.2	1.1	.7	.3	.2
B Atlanta SMSA	44.9	17.1	7.7	42.7	15.9	7.0	2.2	1.1	.6
C Columbus SMSA	16.4	5.9	1.0	16.3	5.8	10.0	.1	3/	3/
D Augusta SMSA	9.7	4.6	.7	9.5	4.5	.7	.1	3/	3/
E Savannah SMSA	4.8	1.7	.9	4.7	1.6	.9	3/	3/	3/
F Macon SMSA (Except Houston part)	5.3	2.2	.9	4.9	1.9	.8	.4	.2	3/
G Macon SMSA (Houston part)	3.7	1.6	.5	3.2	1.3	.4	.5	.3	.1
Florida									
1 Western Florida Coast	25.1	9.5	4.2	23.3	8.5	3.6	1.8	1.0	.5
2 Florida Flatwoods	21.1	8.5	4.8	19.4	7.8	4.3	1.6	.7	.5
3 North and West Central Florida	44.7	21.2	9.6	35.8	16.2	7.2	8.9	5.0	2.4
4 Florida Indian River	33.1	9.3	7.3	31.8	8.9	6.8	1.3	.4	.5
5 Central Florida Citrus	56.1	19.4	13.6	50.7	17.2	11.9	5.4	2.2	1.7
6 Everglades and South Florida Resorts	33.2	10.0	9.3	31.9	9.5	9.0	1.3	.4	.4
A Jacksonville SMSA	19.7	6.7	2.7	19.3	6.5	2.6	.4	.2	.1
B Tampa-St. Petersburg SMSA	29.5	9.3	6.5	27.2	8.4	5.8	2.3	1.0	.7
C Miami SMSA	12.5	3.4	1.9	12.0	3.3	1.8	.5	.2	.1
D Pensacola SMSA	19.4	8.1	2.7	18.4	7.6	2.4	1.1	.5	.3
E Orlando SMSA	23.2	7.4	4.0	22.4	7.1	3.8	.8	.3	.2

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Florida- Continued									
F West Palm Beach SMSA	12.2	3.3	2.2	11.9	3.2	2.1	.3	.2	3/
G Ft. Lauderdale-Hollywood SMSA	3.1	.7	.5	3.0	.7	.5	.1	3/	3/
Kentucky									
1 Jackson Purchase	24.2	8.7	6.0	15.8	5.6	3.3	8.4	3.1	2.7
2 Lower Ohio Valley	13.5	5.8	3.1	9.1	3.6	1.9	4.4	2.2	1.3
3 Western Kentucky Coal Fields and Knobs	75.5	30.4	14.4	52.6	20.6	8.0	22.9	9.9	6.5
4 Kentucky Pennyroyal	31.2	12.0	6.4	17.0	6.4	2.5	14.2	5.6	3.8
5 South Central Kentucky Highland	35.6	16.1	8.7	15.1	6.6	3.1	20.5	9.6	5.6
6 Outer Bluegrass	61.6	23.8	14.1	32.9	11.7	6.5	28.7	12.1	7.6
7 Inner Bluegrass	15.2	5.9	3.7	6.8	2.8	1.4	8.5	3.1	2.3
8 Eastern Kentucky Hills	43.4	22.1	10.0	26.2	12.9	5.4	17.2	9.2	4.6
9 Eastern Kentucky Coal Fields	69.8	42.2	15.5	63.9	38.5	13.8	5.9	3.7	1.7
A Louisville SMSA	17.6	6.8	3.2	16.5	6.4	2.9	1.1	.4	.4
B Cincinnati SMSA	8.2	3.3	1.8	7.0	2.8	1.4	1.1	.5	.4
C Huntington-Ashland SMSA	3.0	1.7	.5	2.6	1.6	.4	.4	.2	3/
D Evansville SMSA	4.1	1.5	.9	2.9	1.1	.6	1.2	.5	.3
E Lexington SMSA	6.3	1.8	1.1	4.7	1.2	.7	1.5	.6	.4
Tennessee									
1 Tennessee Bluff Hills and Jackson Plain	47.0	22.2	12.1	20.9	8.0	4.8	26.1	14.2	7.3
2 Tennessee Fall Line Slopes	29.1	11.3	7.6	16.0	6.0	3.7	13.1	5.3	4.0
3 Western Highland Rim	21.8	9.3	5.0	13.9	5.7	2.9	7.9	3.6	2.1
4 Tennessee Pennyroyal and Northern Highland Rim	23.0	9.5	4.6	14.7	6.2	2.3	8.2	3.2	2.4
5 Tennessee Central Basin	42.1	15.5	9.9	22.3	7.7	4.3	19.8	7.8	5.6
6 Eastern Highland Rim	35.2	15.0	8.1	19.0	7.7	3.7	16.2	7.2	4.4
7 Tennessee Cumberland Plateau	23.7	12.1	5.2	19.0	9.8	3.9	4.7	2.4	1.3
8 Valley of Eastern Tennessee	115.0	50.1	23.5	76.2	32.4	13.5	38.8	17.7	10.0
A Memphis SMSA	18.3	11.3	3.1	15.5	9.6	2.3	2.8	1.7	.8
B Nashville SMSA	12.9	4.5	2.5	11.6	4.0	2.0	1.4	.5	.4
C Chattanooga SMSA	12.4	4.8	2.4	11.5	4.5	2.1	.8	.3	.3
D Knoxville SMSA	35.1	14.5	7.4	30.9	12.6	6.1	4.2	1.9	1.3
Alabama									
1 Middle Tennessee Valley	29.7	14.1	6.1	19.1	8.2	3.6	10.6	5.8	2.5
2 Sand Mountain	34.6	15.8	7.9	17.4	7.0	3.3	17.2	8.9	4.6
3 Alabama Ridge and Valley	49.6	21.7	10.5	42.2	18.2	8.4	7.4	3.6	2.1
4 Alabama Piedmont	24.2	10.7	5.6	19.3	8.5	3.9	5.0	2.2	1.7
5 Alabama Upper Coastal Plain	41.5	19.3	10.2	29.8	12.8	6.8	11.8	6.5	3.5
6 Alabama Black Prairie	26.9	17.3	6.9	16.5	9.4	3.8	10.5	7.9	3.1
7 Alabama Wire Grass	10.8	5.8	2.6	8.7	4.5	1.9	2.1	1.2	.7
8 Alabama Gulf Coast	12.6	5.6	2.9	10.2	4.5	2.3	2.3	1.2	.6
9 Alabama Central Coastal Plain	44.0	21.6	10.4	27.8	13.1	5.7	16.2	8.6	4.6
A Birmingham SMSA	23.8	9.9	5.0	23.1	9.5	4.7	.7	.3	.2
B Columbus, Georgia SMSA	3.6	2.2	.8	2.7	1.5	.6	.9	.7	.2
C Montgomery SMSA	6.5	3.1	1.3	5.0	2.1	.9	1.5	1.0	.4
D Mobile SMSA	10.6	4.4	2.1	9.8	4.0	1.9	.9	.4	.2
E Tuscaloosa SMSA	7.5	3.3	1.6	6.3	2.7	1.1	1.2	.6	.4
F Huntsville SMSA	11.0	4.4	1.8	7.6	2.6	.9	3.4	1.8	.9
Mississippi									
1 Mississippi Delta-Yazoo	46.8	28.7	12.4	25.6	13.5	6.3	21.2	15.2	6.1
2 Mississippi Delta Fringe and Bluff Hills	36.4	21.4	9.8	16.6	8.2	4.0	19.8	13.2	5.8
3 Southwest Mississippi	29.6	15.7	7.9	22.7	11.5	5.5	6.9	4.3	2.4
4 Mississippi Pine Hills	29.7	13.9	7.6	14.6	5.9	3.3	15.1	8.0	4.3
5 Mississippi Black Prairie	27.5	13.9	6.1	16.8	7.7	2.9	10.7	6.1	3.2
6 Mississippi Piney Woods	79.8	39.1	20.5	47.9	21.2	10.8	31.9	17.9	9.7
7 Mississippi Lower Coastal Plains	17.4	8.5	4.0	13.5	6.5	2.9	3.9	2.0	1.2
8 Mississippi Gulf Coast	14.2	5.3	2.8	13.4	4.9	2.6	.8	.4	.2
A Jackson SMSA	7.1	4.5	1.8	5.0	3.0	1.1	2.1	1.5	.7
Arkansas									
1 Northwest Arkansas	11.6	4.5	3.4	6.7	2.6	1.7	4.9	1.9	1.7
2 Arkansas River Valley-Boston Mountains Slopes	19.6	8.1	5.5	14.2	5.7	3.7	5.4	2.4	1.8
3 Arkansas River Valley-Southeastern Ozark Slopes	18.7	8.1	5.2	11.7	5.0	3.0	7.0	3.2	2.2
4 Ouachita Mountains-Eastern	22.2	8.2	6.1	18.4	6.9	4.8	3.8	1.4	1.3
5 Southwest Arkansas	15.4	7.0	4.6	11.4	5.4	3.2	4.0	1.7	1.4
6 South Central Arkansas	26.2	12.3	7.1	21.3	9.8	5.4	4.8	2.5	1.6
7 Crowley's Ridge and Arkansas Prairies	44.6	22.2	11.1	22.9	10.3	5.5	21.7	11.9	5.5
8 Mississippi Delta-Arkansas Section	42.4	23.7	10.5	26.7	13.8	6.2	15.7	10.0	4.3
9 Ozark Plateau-Arkansas	23.0	9.3	6.8	13.4	5.0	3.7	9.6	4.4	3.0
A Little Rock-North Little Rock SMSA	10.2	4.3	2.1	9.3	3.8	1.9	.9	.5	.3

See footnotes at end of table.

Table 10.—Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Louisiana									
1 Mississippi Delta-Lower Red River	19.7	8.7	4.5	16.9	7.1	3.8	2.8	1.6	.8
2 Mississippi Delta-Northeast Louisiana	24.6	13.7	6.4	13.0	6.6	3.1	11.6	7.1	3.4
3 Mississippi Delta-Central Louisiana	35.6	16.9	7.9	23.1	9.8	4.6	12.5	7.1	3.3
4 North Central Louisiana	28.8	13.6	7.8	24.9	11.5	6.4	3.9	2.1	1.4
5 Southeast Louisiana	43.1	18.0	9.7	36.9	14.5	7.9	6.3	3.5	1.8
6 Louisiana Sugarcane	46.9	21.7	9.3	42.2	19.3	8.1	4.8	2.4	1.2
7 Southwest Louisiana Coast Prairies	18.4	7.9	4.2	12.7	5.4	2.7	5.8	2.5	1.5
8 West Central Louisiana	13.2	6.4	3.6	10.7	5.1	2.8	2.4	1.3	.8
A Shreveport SMSA	14.0	6.2	3.3	12.5	5.5	2.7	1.5	.7	.5
B New Orleans SMSA	5.7	2.0	.9	5.6	2.0	.9	3/	3/	3/
C Baton Rouge SMSA	8.0	3.5	1.4	7.5	3.3	1.2	.5	.2	.1
D Lake Charles SMSA	10.3	3.8	1.6	9.8	3.6	1.4	.5	.2	.2
E Monroe SMSA	5.0	2.4	1.0	4.4	2.1	.9	.5	.3	.1
Oklahoma									
1 Oklahoma Panhandle	15.9	5.7	4.2	8.8	2.8	2.2	7.1	2.9	2.0
2 North Central Oklahoma	19.0	6.5	5.3	10.1	3.5	2.4	8.9	3.0	2.9
3 Northeast Oklahoma	16.8	6.6	4.5	11.5	4.4	2.9	5.4	2.2	1.5
4 Southwest Oklahoma	37.6	14.7	7.5	26.0	10.0	4.0	11.5	4.7	3.5
5 Central Oklahoma-Western	20.1	8.2	5.5	12.7	5.2	3.5	7.4	3.1	2.4
6 Central Oklahoma-Eastern	11.1	5.2	3.5	7.7	3.6	2.3	3.4	1.6	1.2
7 South Central Oklahoma	20.5	8.7	6.0	14.9	6.4	4.2	5.6	2.3	1.8
8 Eastern Oklahoma- Arkansas River	18.7	9.1	5.2	13.6	6.3	3.6	5.5	2.8	1.7
9 Ouachita Mountains-Western	19.1	9.3	5.6	13.6	6.7	3.8	5.6	2.5	1.8
10 Oklahoma Ozark	8.6	4.1	2.6	5.7	2.8	1.6	2.9	1.3	1.0
A Tulsa SMSA (Except Creek part)	14.4	6.0	3.3	12.3	5.1	2.7	2.1	.9	.6
B Oklahoma City SMSA (Except Canadian part)	6.0	2.6	1.5	4.7	2.1	1.1	1.3	.5	.4
C Tulsa SMSA (Creek part)	4.0	1.9	1.0	3.3	1.5	.8	.7	.4	.3
D Oklahoma City SMSA (Canadian part)	3.1	1.3	.6	1.9	.9	.2	1.3	.4	.4
Texas									
1 Trans Pecos	8.1	2.9	1.5	6.4	2.4	1.2	1.7	.5	.3
2 Edwards Plateau-Eastern	19.2	6.8	5.7	11.5	4.1	3.2	7.7	2.7	2.5
3 Southwest Rio Grande Plain	13.2	5.5	2.8	10.1	4.2	1.9	3.1	1.3	.9
4 Texas Northern High Plains (Panhandle)	27.5	10.9	5.7	15.9	6.5	3.5	11.6	4.4	2.2
5 Texas Southern High Plains	28.5	10.7	5.7	16.0	5.7	3.1	12.5	5.0	2.6
6 Texas Rolling Plains	34.7	12.8	10.2	19.0	6.8	5.3	15.7	6.0	4.9
7 North Central Texas	36.1	14.0	10.0	22.5	9.2	5.3	13.6	4.9	4.7
8 Northern Blackland	56.4	22.5	14.9	36.9	15.0	8.3	19.5	7.5	6.7
9 Post Oak	17.6	7.3	5.6	10.3	4.2	3.0	7.3	3.1	2.6
10 Southern Blackland	18.3	6.9	5.6	9.1	3.4	2.5	9.2	3.4	3.2
11 Northeast Rio Grande Plain	25.0	11.1	5.8	15.9	7.3	3.3	9.0	3.8	2.5
12 Northeast Texas Sandy Lands	83.1	34.0	24.5	64.1	26.2	17.3	19.1	7.8	7.2
13 Southeast Texas Sandy Lands	33.3	13.8	9.3	29.1	12.0	7.7	4.3	1.8	1.5
14 Texas Coast Prairie	47.9	18.2	10.5	36.6	13.2	7.2	11.3	5.0	3.4
15 Lower Rio Grande Valley	23.1	10.3	4.2	16.2	7.3	2.6	6.8	3.0	1.6
16 Edwards Plateau-Western	11.2	4.0	2.3	8.2	3.1	1.6	3.0	.8	.7
A El Paso SMSA	13.3	3.8	.8	12.5	3.4	.6	.8	.4	.1
B Fort Worth SMSA	12.3	4.6	2.9	9.6	3.6	2.1	2.7	1.0	.8
C Dallas SMSA (Except Denton part)	17.3	6.6	4.2	12.4	4.8	2.6	4.9	1.7	1.6
D Waco SMSA	7.2	2.6	2.0	5.2	1.9	1.3	2.0	.8	.7
E Austin SMSA	7.6	2.4	1.4	6.3	1.9	1.0	1.3	.5	.4
F San Antonio SMSA	11.6	4.4	2.1	9.9	3.7	1.6	1.7	.7	.5
G Houston SMSA	17.4	6.5	3.7	15.7	5.9	3.3	1.7	.7	.5
H Beaumont-Port Arthur SMSA	7.8	3.1	1.6	7.4	2.9	1.5	.3	.1	.1
J Amarillo SMSA	1.5	.5	.3	.8	.2	.2	.7	.3	.2
K Wichita Falls SMSA	3.2	1.0	.9	2.5	.7	.7	.7	.2	.2
L Lubbock SMSA	5.3	1.9	.9	2.7	.9	.4	2.6	1.1	.6
M Galveston-Texas City SMSA	3.8	1.4	.8	3.6	1.3	.8	.2	3/	3/
N Corpus Christi SMSA	5.9	2.6	1.1	4.3	1.8	.8	1.6	.8	.4
O Dallas SMSA (Denton part)	4.3	1.6	1.2	2.8	1.0	.7	1.5	.6	.5
P Abilene SMSA	4.2	1.6	1.2	2.3	.9	.6	1.9	.7	.6
Montana									
1 Montana Mountains	35.7	12.6	8.1	27.3	9.4	5.8	8.4	3.2	2.3
2 North Central Montana Plains-Highline and Lower Yellowstone	33.7	12.7	6.6	20.5	7.6	3.7	13.2	5.2	2.9
3 Upper Yellowstone and Big Horn	8.4	3.6	1.8	5.1	2.1	1.0	3.3	1.5	.7
4 Central and Southeast Montana	7.0	2.8	1.7	3.7	1.7	.9	3.4	1.1	.8
Idaho									
1 Idaho Mountains- Central	23.3	8.3	4.9	18.5	6.2	3.7	4.7	2.1	1.2
2 Lewiston-Pend Oreille	10.3	3.9	2.5	7.6	3.0	1.7	2.8	1.0	.8

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Idaho -Continued									
3 Southwest Idaho	32.9	13.8	7.3	16.8	6.5	3.3	16.1	7.3	4.0
4 Upper Snake River	20.0	9.8	4.2	11.0	4.9	2.1	8.9	4.9	2.1
Wyoming									
1 Wyoming Mountains-Western	11.8	3.9	2.6	9.3	3.1	2.0	2.5	.9	.6
2 Northern and Eastern Wyoming	26.0	9.7	5.6	16.9	6.0	3.6	9.1	3.7	2.1
Colorado									
1 Colorado Mountains-Continental Divide	15.3	5.1	3.5	12.4	4.1	2.8	2.9	1.0	.8
2 Colorado Mountains	24.7	10.6	5.9	17.2	7.2	3.9	7.4	3.3	2.0
3 Northern Colorado-Irrigated	21.6	8.7	4.8	12.4	4.8	2.8	9.2	3.9	2.0
4 East Central Colorado Plains	11.4	4.2	2.8	6.7	2.2	1.7	4.7	1.9	1.1
5 Southeast Colorado	12.7	5.3	3.1	8.5	3.5	2.0	4.2	1.9	1.1
A Denver SMSA (Except Boulder part)	11.4	4.3	2.3	9.3	3.6	1.7	2.1	.7	.6
B Colorado Springs SMSA	11.1	4.3	1.0	10.4	4.1	.8	.7	.2	.2
C Pueblo SMSA	3.5	1.6	.7	2.7	1.2	.5	.8	.4	.2
D Denver SMSA (Boulder part)	4.6	1.6	1.0	3.7	1.2	.7	1.0	.4	.3
New Mexico									
1 Northwest New Mexico	28.4	14.5	5.4	24.6	12.5	4.6	3.8	1.9	.8
2 Northeast New Mexico	14.6	6.9	3.2	10.2	4.9	2.0	4.5	2.0	1.2
3 Southern New Mexico	30.5	11.1	5.0	24.6	8.8	3.8	5.9	2.3	1.2
A Albuquerque SMSA	5.8	2.2	.9	5.5	2.1	.8	.3	.1	3/
Arizona									
1 Northern Arizona	22.8	11.0	5.0	20.0	9.2	4.4	2.8	1.8	.6
2 Southern Arizona	29.9	10.4	5.0	26.0	8.8	4.2	3.9	1.7	.9
A Phoenix SMSA	25.9	8.2	4.4	22.1	6.5	3.5	3.8	1.6	.9
B Tucson SMSA	8.4	3.1	1.7	7.7	2.8	1.6	.7	.3	.1
Utah									
1 Wasatch Mountains and Northern Utah	13.0	6.2	3.1	10.0	4.5	2.4	3.0	1.7	.7
2 Central Utah Valleys	7.0	3.3	1.3	5.4	2.4	.8	1.6	.9	.5
3 Utah Basin and Plateau	19.7	9.0	4.4	16.5	7.2	3.5	3.2	1.8	.8
A Salt Lake City SMSA	8.7	3.5	1.3	7.6	2.8	1.1	1.1	.6	.2
B Ogden SMSA	3.3	1.6	.7	2.6	1.2	.5	.7	.4	.2
Nevada									
1 Nevada	18.8	5.8	4.1	16.2	5.0	3.4	2.6	.8	.7
A Las Vegas SMSA	7.3	1.7	1.1	7.0	1.6	1.0	.3	.1	3/
Washington									
1 Olympic Peninsula and Washington Coast	18.5	6.5	4.8	16.3	5.6	4.1	2.2	.9	.7
2 Northern Puget Sound	21.0	7.4	4.8	16.5	5.4	3.5	4.5	2.1	1.2
3 Central Puget Sound-Kitsap County	11.5	4.5	2.8	10.9	[illegible]	2.6	.6	.2	.2
4 Southern Puget Sound and Interior Coastal Valley	20.8	8.7	5.0	17.5	7.0	3.9	3.3	1.7	1.1
5 Okanogan Highlands and Eastern Slopes of Cascades	10.9	4.1	2.7	7.9	3.0	1.9	2.9	1.2	.8
6 Yakima Valley and Eastern Slopes of Cascades	28.9	12.0	6.5	19.6	7.9	4.0	9.3	4.1	2.5
7 Eastern Washington	26.6	9.5	5.6	18.4	6.1	3.7	8.2	3.3	1.9
8 Northeastern Washington-Columbia River Watershed	6.2	2.5	1.6	4.2	1.6	1.0	2.0	.9	.6
A Seattle SMSA (Except Snohomish part)	25.0	8.8	5.1	23.2	8.1	4.6	1.8	.7	.5
B Tacoma SMSA	31.6	8.9	4.4	30.0	8.2	3.9	1.6	.6	.5
C Portland SMSA	9.5	3.8	2.4	7.6	2.9	1.7	2.0	.9	.7
D Spokane SMSA	12.1	4.4	2.0	9.7	3.4	1.4	2.4	.9	.7
E Seattle SMSA (Snohomish part)	19.4	7.2	3.9	17.4	6.4	3.4	2.0	.8	.6
Oregon									
1 Western Oregon	54.4	19.8	13.3	47.6	16.9	11.2	6.8	2.9	2.1
2 Willamette Valley	36.2	14.8	8.6	26.3	10.7	5.6	10.0	4.2	3.0
3 Columbia Basin-Central	10.9	3.8	2.6	7.9	2.8	1.8	2.9	1.0	.8
4 Eastern Oregon Plateau and Blue Mountain	25.8	9.8	5.9	17.9	6.6	3.8	7.9	3.2	2.1
A Portland SMSA	27.3	10.4	6.8	21.3	8.0	4.8	6.1	2.5	2.0
B Eugene SMSA	16.1	6.2	3.5	14.0	5.4	2.9	2.1	.8	.6
California									
1 Northern California Coast	31.3	10.5	6.9	28.5	9.5	6.0	2.8	1.0	.9
2 North Central California Coast	31.4	10.8	8.6	26.9	9.3	7.0	4.5	1.5	1.5
3 South Central California Coast	53.2	19.8	9.5	47.9	18.1	7.9	5.2	1.7	1.5
4 Sacramento Valley	33.7	12.1	7.8	25.6	9.2	5.4	8.1	2.9	2.4
5 Lower (Northern) San Joaquin Valley	34.0	12.9	7.2	24.4	9.2	4.7	9.6	3.8	2.5
6 Upper (Southern) San Joaquin Valley and Tulare Basin	36.1	15.6	8.3	24.8	10.8	5.4	11.3	4.9	2.9
7 Southern California Coast	22.2	6.6	3.9	20.3	5.9	3.3	1.9	.7	.6

See footnotes at end of table.

Table 10.--Rural, rural-nonfarm, and rural-farm males, 20-64: Number in working-age group in 1960, and entrants and departures during 1960-70, for State economic areas - Continued

(Figures rounded to thousands without adjusting to group totals)

State economic area	Rural			Rural nonfarm			Rural farm		
	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/	Males 20-64, 1960	En-trants, 1960-70 1/	Depar-tures, 1960-70 2/
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
California -Continued									
8 Southern California Desert-Irrigated	9.7	2.3	1.9	8.2	1.7	1.5	1.5	.6	.4
9 Eastern and Northern California Mountain and Valley	57.3	18.6	14.2	51.6	16.8	12.5	5.7	1.8	1.7
A San Francisco-Oakland SMSA	44.0	14.0	7.7	40.4	12.7	6.6	3.5	1.3	1.0
B San Jose SMSA	7.4	3.0	1.6	5.3	2.2	1.0	2.1	.8	.6
C Sacramento SMSA	22.9	6.6	3.6	20.9	5.7	3.1	2.0	.9	.5
D Stockton SMSA	20.9	7.5	4.8	15.5	5.5	3.2	5.3	2.0	1.6
E Fresno SMSA	30.1	12.6	6.4	18.4	7.9	3.7	11.7	4.7	2.8
F Los Angeles-Long Beach SMSA	31.5	10.3	6.3	29.4	9.6	5.6	2.1	.7	.6
G San Diego SMSA	35.8	17.2	5.1	33.2	16.3	4.2	2.6	.9	.9
H San Bernardino-Riverside-Ontario SMSA	65.2	19.4	13.0	61.0	17.9	11.6	4.3	1.5	1.4
J Bakersfield SMSA	25.7	9.3	4.9	22.7	7.8	4.2	3.0	1.5	.7
K Santa Barbara SMSA	16.2	4.9	2.5	14.8	4.4	2.1	1.4	.5	.4
Alaska									
1 Southeastern Alaska Panhandle	5.3	1.9	1.0						
2 South Central Alaska, Alaska Peninsula, and Aleutian Chain	22.7	6.9	2.3						
3 Inland and Northern Alaska	19.4	5.9	1.9						
Hawaii									
1 Hawaii-Maui-Kauai	22.9	8.4	6.9	20.8	7.2	6.4	2.1	1.1	.6
A Honolulu SMSA	23.7	8.8	2.3	23.1	8.5	2.2	.5	.3	.1

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Less than 100.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Maine									
1 Aroostook	240	239	---	260	259	---	184	184	---
2 Maine Woods	171	171	---	173	173	---	158	157	---
3 Northeast Maine Coast	134	134	---	134	134	---	133	133	---
4 Southern Maine Coast	150	150	---	153	153	---	130	130	---
A Portland Metro Area	185	185	---	191	191	---	119	119	---
New Hampshire									
1 White Mountains-Northern New Hampshire	146	146	---	145	145	---	147	147	---
2 Southern New Hampshire	149	149	---	150	151	---	133	133	---
A Manchester Metro Area	149	148	---	153	153	---	108	103	---
Vermont									
1 Champlain Valley-Northern Vermont	189	189	---	182	182	---	204	204	---
2 Green Mountains-Southern Vermont	158	159	---	162	163	---	143	144	---
Massachusetts									
1 Berkshire-Monadnock	157	157	---	162	161	---	127	127	---
2 Cape Cod	134	134	---	135	135	---	---	---	---
A Springfield-Chicopee-Holyoke Metro Area	166	165	---	169	169	---	125	125	---
B Worcester Metro Area	157	157	---	158	158	---	139	139	---
C Boston-Lowell-Lawrence-Haverhill Metro Area	181	181	186	185	185	190	113	113	---
D Brockton Metro Area	149	149	150	149	149	150	134	133	---
E Fall River-New Bedford Metro Area	157	158	---	160	161	---	118	118	---
F Pittsfield Metro Area	136	137	---	137	138	---	128	125	---
Rhode Island									
1 Lower Narragansett Bay	208	210	---	209	211	---	179	179	---
A Providence-Pawtucket Metro Area	148	148	---	150	150	---	104	104	---
Connecticut									
1 Western Connecticut	151	153	---	153	154	---	132	132	---
2 Eastern Connecticut	161	161	125	164	165	127	127	127	---
A Bridgeport-Stamford-Norwalk Metro Area	146	147	---	147	148	---	88	85	---
B New Haven-Waterbury-Meriden Metro Area	174	172	---	179	177	---	90	90	---
C Hartford-New Britain Metro Area	168	169	91	173	175	92	98	98	---
New York									
1 Niagara-Ontario Shore	153	154	109	162	164	123	130	132	---
2 Genesee-Finger Lakes	141	142	92	140	142	88	143	143	---
3 Southern Tier	162	162	99	162	163	98	161	162	---
4 Eastern Lake Plains-Plateau Fringe	170	171	---	169	169	---	174	174	---
5 Mohawk-Adirondack	132	133	---	130	131	---	143	143	---
6 Upper Susquehanna-Delaware	147	147	---	147	147	---	148	147	---
7 St. Lawrence-Champlain Valley-Adirondack Fringe	174	174	187	173	173	212	177	178	---
8 Upper Hudson Valley	158	153	---	160	154	---	149	149	---
9 Mid-Hudson Valley-Catskill	131	126	299	132	127	311	116	116	---
A Buffalo SMSA	161	161	144	166	166	140	128	127	---
B Rochester SMSA	184	181	---	198	194	---	116	115	---
C Syracuse SMSA	172	172	171	177	177	---	152	152	---
D Utica-Rome SMSA	160	161	---	159	160	---	163	164	---
E Binghamton SMSA	196	198	---	203	204	---	155	155	---
F Albany-Schenectady-Troy SMSA	144	144	---	147	147	---	122	121	---
G New York City SMSA	144	144	132	144	144	131	136	135	---
New Jersey									
1 Northern New Jersey	141	136	235	145	140	244	106	106	---
2 Southern New Jersey	132	131	152	134	133	144	107	93	---
A Allentown-Bethlehem-Easton SMSA	143	143	---	147	147	---	120	119	---
B Newark SMSA	150	150	---	149	149	---	171	171	---
C Trenton SMSA	127	127	129	131	131	133	90	91	---
D Philadelphia SMSA	161	158	184	163	160	187	143	143	---
E Atlantic City SMSA	131	133	118	136	139	123	99	103	---
F Wilmington SMSA	180	185	154	213	215	196	94	100	---
G Paterson-Clifton-Passaic SMSA	151	152	---	151	151	---	152	152	---
H Jersey City SMSA	No rural population								
Pennsylvania									
1 Northwestern Pennsylvania	166	166	174	166	166	175	168	168	---
2 Northern Tier	156	157	59	154	156	55	162	161	---
3 North Central Pennsylvania	155	156	---	159	159	---	134	134	---
4 Bituminous Coal	161	161	155	164	164	157	134	134	---
5 South Central Pennsylvania Ridge and Valley	180	180	---	176	176	---	200	200	---
6 Pennsylvania Anthracite	126	126	---	124	124	---	143	143	---
7 Southeast Pennsylvania	164	166	43	163	166	43	169	169	---
A Erie SMSA	193	193	---	203	204	---	149	150	---
B Philadelphia SMSA	165	164	188	167	166	189	146	146	---

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Pennsylvania -Continued									
C Scranton SMSA	107	107	---	104	104	---	127	127	---
D Pittsburgh SMSA	166	167	134	167	168	135	144	144	---
E Johnstown SMSA	187	188	---	190	191	---	170	169	---
F Altoona SMSA	155	155	---	151	151	---	201	201	---
G Wilkes-Barre-Hazleton SMSA	132	130	---	133	131	---	127	127	---
H Harrisburg SMSA	209	201	---	215	205	---	178	178	---
J York SMSA	157	157	---	156	156	---	163	162	---
K Lancaster SMSA	179	180	---	150	151	---	299	301	---
L Reading SMSA	139	139	---	137	137	---	148	148	---
M Allentown-Bethlehem-Easton SMSA	141	141	---	138	138	---	170	168	---
Ohio									
1 Maumee	168	168	---	182	182	---	148	148	---
2 Northwest Central Ohio	174	175	---	186	187	---	158	158	---
3 Miami Valley and Central Scioto	184	185	126	203	205	125	154	154	---
4 North Central Ohio	185	187	115	192	195	118	169	170	---
5 Northeastern Ohio	189	190	126	194	195	134	166	167	---
6 East Central Ohio	170	170	208	177	176	221	147	147	---
7 Ohio Flatlands-Chillicothe	170	170	147	190	191	154	128	128	---
8 Southeast Ohio Hills	174	175	124	184	185	140	145	146	---
A Toledo SMSA	168	168	158	173	175	152	135	131	---
B Columbus SMSA	187	189	---	198	201	---	128	127	---
C Dayton SMSA	193	189	365	219	213	378	125	125	---
D Hamilton-Middletown SMSA	234	235	---	270	272	---	116	116	---
E Cleveland SMSA	170	171	---	182	182	---	68	70	---
F Akron SMSA	167	167	---	168	168	---	155	150	---
G Canton SMSA	164	166	95	165	167	91	157	156	---
H Youngstown-Warren SMSA	193	194	167	201	202	166	142	142	---
J Wheeling SMSA	168	170	---	174	176	---	133	135	---
K Cincinnati SMSA	183	183	---	186	187	---	140	140	---
L Huntington-Ashland SMSA	193	191	---	202	200	---	146	146	---
M Lorain-Elyria SMSA	212	215	---	227	231	---	151	151	---
N Springfield SMSA	176	178	---	190	193	---	120	119	---
O Lima SMSA	166	172	---	189	200	---	113	113	---
Indiana									
1 Northwestern Indiana	175	175	---	173	173	---	181	181	---
2 Kankakee, Tippecanoe, and Iroquois River	177	178	---	193	195	---	154	155	---
3 Northeast Indiana	167	167	---	176	177	---	157	157	---
4 Richmond-Marion-Kokomo	173	174	---	192	194	---	134	134	---
5 Central Indiana	174	173	---	209	208	---	124	124	---
6 Lower Wabash Valley-Indiana Side	145	145	---	157	158	---	124	125	---
7 South Central Indiana	164	164	---	176	176	---	144	144	---
8 Indiana Flats and Breaks	163	163	---	185	186	---	136	136	---
9 Middle Wabash River	172	172	---	197	196	---	135	136	---
A Gary-Hammond-East Chicago SMSA	179	180	---	188	190	---	143	143	---
B South Bend SMSA	169	168	---	182	182	---	124	124	---
C Fort Wayne SMSA	179	181	---	186	189	---	163	163	---
D Indianapolis SMSA	188	192	99	201	206	101	88	88	---
E Evansville SMSA	166	167	---	171	171	---	147	148	---
F Louisville SMSA	163	166	---	176	181	---	134	134	---
G Terre Haute SMSA	158	159	---	176	177	---	107	108	---
H Muncie SMSA	165	166	---	199	200	---	95	95	---
Illinois									
1 Northwest Illinois	159	159	---	157	157	---	162	162	---
2 Northwestern Chicago Environs	161	160	---	180	179	---	143	143	---
3 West North Central Illinois	143	143	---	145	145	---	141	141	---
4 Southwestern Central Illinois	123	123	---	125	126	---	120	120	---
5 Upper Illinois River-Kankakee	115	118	78	109	113	77	130	131	---
6 East Central Illinois	145	145	170	151	151	177	137	137	---
7 West South Central Illinois	121	124	18	117	121	18	128	128	---
8 Southern Illinois Gray Lands-Northern	136	137	---	156	157	---	120	120	---
9 Lower Wabash Valley-Illinois Side	132	132	---	142	142	---	115	115	---
10 Southern Illinois Gray Lands-Coal Fields	125	126	---	132	133	---	110	110	---
11 Illinois Ozark Border	143	140	175	158	154	187	111	112	---
A Davenport-Rock Island-Moline SMSA	171	171	---	181	180	---	147	148	---
B Rockford SMSA	165	162	---	174	170	---	136	136	---
C Chicago SMSA	164	165	142	169	170	143	138	138	---
D Peoria SMSA	153	153	---	156	156	---	143	143	---
E Springfield SMSA	136	138	---	140	142	---	127	127	---
F St. Louis SMSA	144	143	160	157	157	162	98	98	---
G Decatur SMSA	185	185	---	207	207	---	130	130	---
Michigan									
1 Upper Peninsula-Western	162	162	---	164	164	---	143	142	---
2 Upper Peninsula-Eastern	159	159	---	161	162	---	152	151	---

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Michigan -Continued									
3 Western Michigan Lake Shore-Northern	161	161	---	161	161	---	161	160	---
4 Lower Peninsula-Northern	156	156	152	150	150	139	175	174	---
5 East Central Michigan	184	184	---	196	196	---	169	169	---
6 Western Michigan Lake Shore	191	193	148	203	205	164	158	160	97
7 Central Michigan	181	180	237	201	199	257	146	146	---
8 Southeast Michigan	175	174	180	185	185	---	141	140	---
9 Southern Michigan	171	172	127	181	182	123	152	152	---
A Saginaw SMSA	200	202	---	228	232	---	149	149	---
B Grand Rapids SMSA	178	178	---	181	181	---	169	170	---
C Bay City SMSA	205	205	---	217	217	---	186	186	---
D Flint SMSA	203	204	---	216	216	---	141	142	---
E Lansing SMSA	190	190	---	207	208	---	165	165	---
F Detroit SMSA	184	186	136	190	192	138	135	135	---
G Kalmazoo SMSA	175	175	---	192	192	---	111	111	---
H Jackson SMSA	144	157	18	144	160	18	142	142	---
J Ann Arbor SMSA	145	148	96	146	151	94	141	141	---
Wisconsin									
1 Northern Wisconsin Woods	136	134	259	125	121	243	163	162	---
2 West Central Wisconsin	141	141	---	126	126	---	156	156	---
3 Southwest Wisconsin	158	158	---	130	130	---	186	186	---
4 Eau Claire-Wausau	176	176	---	161	160	---	192	192	---
5 Central Wisconsin-Southern Sandy	132	132	---	130	129	---	135	134	---
6 Eastern Wisconsin-Northern	148	145	298	139	132	307	158	158	---
7 Eastern Wisconsin-Central	169	169	167	151	150	---	193	194	---
8 Eastern Wisconsin-Southern	153	153	---	149	150	---	158	158	---
A Duluth-Superior SMSA	135	135	---	141	143	---	118	116	---
B Madison SMSA	171	171	---	168	168	---	176	176	---
C Milwaukee SMSA (Except Waukesha part)	No rural population								
D Racine SMSA	181	181	---	202	201	---	124	125	---
E Milwaukee SMSA (Waukesha part)	170	170	---	178	177	---	129	129	---
F Kenosha SMSA	167	167	---	174	174	---	141	139	---
Minnesota									
1 Red River Valley-Minnesota	135	135	---	137	137	---	134	134	---
2 Northern Minnesota Woods	151	148	249	152	147	257	149	148	---
3 Minnesota Forest Margin-Western	139	137	247	131	126	---	143	144	---
4 Minnesota Forest Margin-Eastern	150	151	---	153	154	---	148	148	---
5 West Central Minnesota	137	137	---	116	116	---	154	154	---
6 Southeast Central Minnesota	162	162	---	153	153	---	170	170	---
7 Southeast Minnesota	147	147	---	136	136	---	155	156	---
8 Southwest Minnesota	152	152	---	139	140	---	161	161	---
A Duluth-Superior SMSA	172	173	---	176	176	---	151	151	---
B Minneapolis-St. Paul SMSA	184	184	---	199	200	---	156	156	---
Iowa									
1 Western Iowa	145	145	---	119	119	---	165	166	---
2 West Central Iowa	143	143	---	128	128	---	155	155	---
3 South Central Iowa	133	134	---	136	136	---	132	132	---
4 Northeast Iowa	148	148	---	121	121	---	169	169	---
5 East Central Iowa	138	139	---	124	125	---	151	151	---
6 Eastern Iowa	151	150	---	138	138	---	162	162	---
A Sioux City SMSA	149	150	---	142	144	---	154	154	---
B Omaha SMSA	147	147	---	167	167	---	128	128	---
C Des Moines SMSA	181	182	---	227	230	---	123	123	---
D Davenport-Rock Island-Moline SMSA	179	178	---	166	164	---	197	197	---
E Cedar Rapids SMSA	174	173	---	165	165	---	185	184	---
F Waterloo SMSA	168	170	---	178	180	---	157	157	---
Missouri									
1 Northwest Missouri	127	127	145	145	144	---	111	111	---
2 Northern Missouri	110	111	86	116	116	108	106	107	36
3 West Central Missouri	120	120	---	140	140	---	105	105	---
4 Southwest Missouri	135	136	---	140	142	---	127	127	---
5 Ozark Plateau-Northern	211	208	496	270	265	---	117	117	---
6 Northeast Ozark Border	137	136	---	155	153	---	120	119	---
7 Ozark Plateau-Western	135	135	---	144	145	---	127	127	---
8 Ozark Plateau-Eastern	140	141	---	151	152	---	119	119	---
9 Mississippi Delta-Missouri Section	216	210	259	195	191	226	238	230	288
A Kansas City SMSA	167	167	---	204	203	---	94	95	---
B St. Louis SMSA	173	172	225	185	184	233	111	111	---
C Springfield SMSA	142	142	---	173	174	---	96	96	---
North Dakota									
1 Missouri Slope	198	197	267	160	158	---	237	233	---
2 West Central North Dakota-Missouri River Coteau	180	179	---	165	162	---	198	198	---

See footnote at end of table.

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Table 11.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
North Dakota -Continued									
3 East Central North Dakota	161	156	351	154	144	368	167	166	—
4 Red River Valley-North Dakota	150	150	—	148	147	—	152	153	—
5 Southeast North Dakota	139	139	—	121	121	—	156	156	—
South Dakota									
1 Black Hills and West-River Range	178	167	253	191	171	275	160	161	143
2 North Central South Dakota	147	146	—	131	130	—	161	160	—
3 South Central South Dakota	156	151	383	144	134	—	165	164	—
4 Northeast South Dakota	136	136	—	120	121	—	145	146	—
5 Southeast South Dakota	139	135	—	136	127	—	141	141	—
Nebraska									
1 Nebraska Sand Hills	131	130	—	120	119	—	140	140	—
2 North Platte River	154	156	—	138	140	—	174	176	—
3 Central Nebraska	136	135	—	130	128	—	141	141	—
4 Republican River	125	126	—	117	118	—	133	134	—
5 South Central Nebraska	120	120	—	110	111	—	129	130	—
6 Central Missouri Valley-Northeast Nebraska	140	138	216	124	120	—	152	153	—
7 Central Missouri Valley-Southeast Nebraska	127	127	—	131	131	—	124	124	—
A Lincoln SMSA	140	140	—	149	149	—	127	127	—
B Omaha SMSA	255	249	—	288	281	—	155	155	—
Kansas									
1 Southwest Kansas	151	152	—	139	139	—	175	176	—
2 West Central Kansas	133	133	—	126	126	—	140	141	—
3 Central Kansas	141	141	—	152	151	—	129	129	—
4 North Central Kansas	113	113	—	97	98	—	125	125	—
5 Kansas Flint Hills	165	162	346	204	199	393	117	118	—
6 Central Missouri Valley-Kansas Part	124	128	60	127	133	57	120	120	—
7 East Central Kansas	113	113	—	120	121	—	107	107	—
8 Southeast Kansas	122	123	—	136	137	—	105	106	—
A Wichita SMSA	204	204	—	212	214	—	182	181	—
B Kansas City SMSA	197	203	100	227	236	—	105	105	—
C Topeka SMSA	213	208	—	271	263	—	112	112	—
Delaware									
1 Southern Delaware	165	162	177	179	180	177	122	117	180
A Wilmington SMSA	165	169	136	170	174	139	134	137	—
Maryland									
1 Western Maryland	168	166	—	168	166	—	165	165	—
2 Maryland Piedmont	208	205	271	217	212	294	171	174	—
3 Southern Maryland	260	250	284	279	281	273	206	166	328
4 Maryland Eastern Shore	148	143	164	153	148	169	128	128	133
A Baltimore SMSA (Except Carroll-Howard part)	205	207	189	212	217	186	137	127	—
B Washington, D. C. SMSA	203	199	214	209	207	216	166	154	203
C Baltimore SMSA (Carroll-Howard part)	144	145	129	145	147	127	140	139	—
Virginia									
1 Southwest Virginia Coal Fields	259	261	161	272	275	166	194	195	—
2 Valley of Virginia-Southwest	197	198	161	217	218	168	171	172	—
3 Valley of Virginia-Lower	208	210	177	238	243	180	140	139	—
4 Shenandoah Valley-Blue Ridge	178	179	155	193	194	172	143	145	—
5 Northern Virginia Piedmont	190	189	193	205	209	193	146	140	193
6 Central Virginia Piedmont	163	148	187	176	171	183	140	118	198
7 Southern Virginia Piedmont	217	183	296	236	208	309	198	154	285
8 Virginia Peninsulas	158	133	205	168	140	214	124	113	157
9 Virginia Eastern Shore	129	103	170	134	109	169	111	82	178
10 Southside Virginia Coastal Plain	234	209	257	258	251	264	189	136	244
A Roanoke SMSA	164	159	219	165	161	208	153	143	—
B Washington, D. C. SMSA	166	187	64	168	191	63	128	129	—
C Richmond SMSA	194	192	202	200	197	211	128	139	—
D Norfolk-Portsmouth SMSA	263	269	249	277	286	255	174	170	—
E Newport News-Hampton SMSA	215	220	202	218	224	205	—	—	—
F Lynchburg SMSA	197	187	228	216	222	200	153	119	316
West Virginia									
1 Upper Ohio and Little Kanawha Valley	180	180	—	189	190	—	126	126	—
2 West Virginia Hills	194	195	—	205	207	—	160	160	—
3 Monongahela Valley and North Central West Virginia	180	181	132	187	188	135	133	133	—
4 West Virginia Southern Coal Fields	232	241	167	233	243	167	189	190	—
5 Allegheny Mountains-Greenbrier Valley	183	185	131	189	192	128	167	167	—
6 Eastern Panhandle	141	141	141	133	132	156	188	197	—
A Wheeling SMSA	151	150	—	159	158	—	121	123	—
B Huntington-Ashland SMSA	203	204	—	206	206	—	185	185	—
C Charleston SMSA	223	223	234	224	224	234	194	194	—

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1 - Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
North Carolina									
1 North Carolina Blue Ridge	197	197	171	216	218	170	165	165	---
2 Blue Ridge Slopes	225	225	219	238	239	233	169	170	---
3 North Carolina Old Belt Tobacco	218	197	289	223	210	273	212	181	305
4 Central North Carolina	213	204	277	230	224	272	163	149	298
5 South Central North Carolina	224	208	307	238	227	291	189	159	347
6 North Carolina Upper Coastal Plain-Northern	233	211	281	246	221	300	222	203	267
7 Lower Roanoke Coastal Plain	245	158	329	233	162	302	258	152	358
8 North Carolina Central Coastal Plain	270	234	321	278	278	278	262	199	363
9 North Carolina Upper Coastal Plain-Lumber River	335	319	358	364	375	347	283	202	374
10 Currituck-Albemarle-Pamlico	193	167	250	195	166	247	189	169	265
11 Neuse-Cape Fear	297	299	292	328	348	281	235	206	315
A Asheville SMSA	183	184	---	190	192	---	158	158	---
B Winston-Salem SMSA	181	177	237	198	195	250	114	110	---
C Greensboro-High Point SMSA	191	185	222	213	214	207	139	125	---
D Charlotte SMSA	198	185	273	202	191	263	166	135	---
E Raleigh SMSA	215	194	259	226	212	259	196	162	258
F Durham SMSA	185	163	263	193	174	267	151	119	---
South Carolina									
1 South Carolina Blue Ridge-Piedmont Transition	264	262	283	284	283	300	187	183	---
2 Northwestern South Carolina Piedmont	206	191	266	221	207	281	149	129	219
3 North Central South Carolina Piedmont	224	197	289	236	218	285	183	126	299
4 South Carolina Lower Piedmont	227	172	308	243	196	307	197	129	308
5 South Carolina Sand Hills	274	218	398	288	237	405	251	185	387
6 South Carolina Upper Coastal Plain	303	217	383	301	248	360	306	170	405
7 Pee Dee River	315	257	400	296	259	355	329	256	429
8 South Carolina Coast	380	407	355	430	493	374	223	159	290
A Columbia SMSA	393	456	288	426	516	290	187	163	268
B Augusta SMSA	236	213	298	232	223	258	257	157	421
C Charleston SMSA	325	267	396	329	273	401	250	---	---
D Greenville SMSA	215	205	281	222	215	273	169	132	---
Georgia									
1 Northwest Georgia Ridge and Valley	208	209	193	217	219	190	175	173	---
2 Georgia Blue Ridge	222	219	---	244	240	---	157	158	---
3 Georgia Upper Piedmont	197	187	322	212	202	333	157	147	293
4 Georgia Lower Piedmont	213	172	296	223	186	299	186	133	287
5 Georgia Sand Hills	208	153	282	215	158	286	192	144	270
6 Georgia Upper Coastal Plain	228	178	313	234	194	298	219	158	334
7 Georgia Central Coastal Plain	227	181	292	234	202	272	220	162	318
8 Tifton Plain	208	191	257	202	195	217	215	188	322
9 Georgia Coast	239	237	245	248	249	244	212	208	246
A Chattanooga SMSA	193	188	---	211	205	---	116	110	---
B Atlanta SMSA	222	217	277	226	222	269	174	162	---
C Columbus SMSA	599	739	339	608	752	342	---	---	---
D Augusta SMSA	615	688	342	656	746	335	---	---	---
E Savannah SMSA	185	188	177	186	187	182	---	---	---
F Macon SMSA (Except Houston part)	240	217	343	235	215	329	---	---	---
G Macon SMSA (Houston part)	315	291	373	343	323	400	228	---	---
Florida									
1 Western Florida Coast	227	230	194	232	237	192	189	187	---
2 Florida Flatwoods	178	170	207	182	174	209	144	142	---
3 North and West Central Florida	220	202	259	224	210	249	209	180	302
4 Florida Indian River	128	125	157	131	127	164	82	85	---
5 Central Florida Citrus	143	138	170	144	140	167	131	125	---
6 Everglades and South Florida Resorts	106	100	176	106	100	178	123	121	---
A Jacksonville SMSA	248	263	133	252	268	131	170	168	---
B Tampa-St. Petersburg SMSA	144	142	191	145	143	180	135	130	---
C Miami SMSA	177	180	156	182	185	156	115	109	---
D Pensacola SMSA	304	306	288	319	323	300	178	187	---
E Orlando SMSA	183	187	168	187	192	167	124	116	---
F West Palm Beach SMSA	152	147	164	149	142	166	---	---	---
G Ft. Lauderdale-Hollywood SMSA	137	155	---	130	148	---	---	---	---
Kentucky									
1 Jackson Purchase	144	144	133	167	171	112	114	112	---
2 Lower Ohio Valley	183	185	131	191	193	---	172	174	---
3 Western Kentucky Coal Fields and Knobs	210	211	189	258	261	205	152	153	108
4 Kentucky Pennyroyal	188	190	179	253	265	200	145	145	152
5 South Central Kentucky Highland	185	187	114	210	213	146	170	173	81
6 Outer Bluegrass	168	170	136	180	183	141	158	159	127
7 Inner Bluegrass	159	165	94	199	215	109	135	139	68
8 Eastern Kentucky Hills	221	221	---	240	240	---	199	199	---
9 Eastern Kentucky Coal Fields	271	274	129	278	282	131	217	218	---
A Louisville SMSA	210	215	138	221	227	135	123	119	---

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Kentucky -Continued									
B Cincinnati SMSA	187	188	---	204	205	---	125	125	---
C Huntington-Ashland SMSA	330	319	---	359	346	---	---	---	---
D Evansville SMSA	172	167	---	191	188	---	141	132	---
E Lexington SMSA	165	174	104	176	187	114	146	153	---
Tennessee									
1 Tennessee Bluff Hills and Jackson Plain	183	165	224	165	161	177	195	168	245
2 Tennessee Fall Line Slopes	148	148	146	163	167	129	134	132	175
3 Western Highland Rim	187	186	236	197	194	---	175	175	---
4 Tennessee Pennyroyal and Northern Highland Rim	205	205	202	276	277	266	137	137	135
5 Tennessee Central Basin	157	156	162	179	183	158	140	137	167
6 Eastern Highland Rim	184	185	151	209	212	167	163	164	---
7 Tennessee Cumberland Plateau	231	229	---	249	246	---	178	178	---
8 Valley of Eastern Tennessee	213	214	190	240	241	210	177	177	132
A Memphis SMSA	359	442	241	407	520	223	215	142	284
B Nashville SMSA	182	196	82	196	215	77	119	117	---
C Chattanooga SMSA	203	203	200	215	216	196	109	106	---
D Knoxville SMSA	195	197	110	206	208	104	145	144	---
Alabama									
1 Middle Tennessee Valley	229	229	226	227	227	224	232	232	230
2 Sand Mountain	199	200	159	209	212	135	192	192	---
3 Alabama Ridge and Valley	207	200	257	215	208	261	172	166	235
4 Alabama Piedmont	191	158	299	215	177	343	134	110	205
5 Alabama Upper Coastal Plain	187	179	211	188	185	196	186	167	247
6 Alabama Black Prairie	250	159	290	249	177	286	252	130	294
7 Alabama Wire Grass	219	196	249	238	221	257	171	139	224
8 Alabama Gulf Coast	195	189	212	195	189	208	194	188	---
9 Alabama Central Coastal Plain	208	176	294	227	199	292	184	150	297
A Birmingham SMSA	199	201	187	200	204	186	162	157	---
B Columbus, Georgia SMSA	285	195	350	275	207	343	311	---	360
C Montgomery SMSA	241	148	315	245	146	335	231	151	282
D Mobile SMSA	204	224	157	207	233	154	175	168	---
E Tuscaloosa SMSA	212	200	248	240	233	260	143	113	222
F Huntsville SMSA	246	241	264	279	298	213	212	179	311
Mississippi									
1 Mississippi Delta-Yazoo	231	190	250	215	184	231	248	197	267
2 Mississippi Delta Fringe and Bluff Hills	218	159	262	207	173	243	226	144	271
3 Southwest Mississippi	199	164	235	209	182	235	177	123	237
4 Mississippi Pine Hills	183	169	270	181	174	228	184	165	299
5 Mississippi Black Prairie	227	193	282	270	256	301	189	123	270
6 Mississippi Piney Woods	190	154	269	195	174	243	184	131	296
7 Mississippi Lower Coastal Plains	210	208	220	226	225	229	171	171	---
8 Mississippi Gulf Coast	189	186	227	188	185	224	196	192	---
A Jackson SMSA	254	202	292	279	222	334	214	151	243
Arkansas									
1 Northwest Arkansas	134	134	---	154	155	---	114	113	---
2 Arkansas River Valley-Boston Mountains Slopes	145	145	---	152	152	---	131	130	---
3 Arkansas River Valley-Southeastern Ozark Slopes	157	153	218	165	160	231	146	144	---
4 Ouachita Mountains-Eastern	134	135	114	142	144	112	106	106	---
5 Southwest Arkansas	152	131	195	167	150	200	117	94	179
6 South Central Arkansas	173	158	210	179	165	211	154	136	205
7 Crowley's Ridge and Arkansas Prairies	200	194	239	186	177	241	214	210	237
8 Mississippi Delta-Arkansas Section	225	223	227	222	229	213	229	212	244
9 Ozark Plateau-Arkansas	137	138	---	133	133	---	144	144	---
A Little Rock-North Little Rock SMSA	205	206	203	205	206	203	207	209	---
Louisiana									
1 Mississippi Delta-Lower Red River	191	185	204	187	189	181	211	167	302
2 Mississippi Delta-Northeast Louisiana	213	187	250	215	202	233	211	174	268
3 Mississippi Delta-Central Louisiana	214	171	311	212	189	264	217	145	375
4 North Central Louisiana	173	160	201	179	166	205	145	130	181
5 Southeast Louisiana	185	168	223	182	167	213	200	170	274
6 Louisiana Sugarcane	232	224	246	236	231	245	206	187	261
7 Southwest Louisiana Coast Prairies	186	176	263	199	191	245	164	151	321
8 West Central Louisiana	178	168	208	183	173	209	162	148	205
A Shreveport SMSA	190	172	214	201	181	231	135	91	160
B New Orleans SMSA	216	205	300	220	208	300	---	---	---
C Baton Rouge SMSA	257	212	366	266	210	397	183	---	---
D Lake Charles SMSA	237	239	227	251	255	230	110	111	---
E Monroe SMSA	227	218	271	233	225	271	195	169	---
Oklahoma									
1 Oklahoma Panhandle	136	135	---	126	125	---	148	147	---
2 North Central Oklahoma	122	121	147	144	143	173	103	103	---

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Oklahoma -Continued									
3 Northeast Oklahoma	148	147	153	149	149	146	145	143	---
4 Southwest Oklahoma	195	188	292	248	239	341	134	133	156
5 Central Oklahoma-Western	138	135	189	146	140	213	127	127	---
6 Central Oklahoma-Eastern	145	133	222	154	139	229	128	122	---
7 South Central Oklahoma	144	139	208	150	143	228	129	129	---
8 Eastern Oklahoma-Arkansas River	174	175	171	176	178	170	169	168	175
9 Ouachita Mountains-Western	165	159	213	175	168	227	143	142	158
10 Oklahoma Ozark	157	141	236	174	149	288	129	130	122
A Tulsa SMSA (Except Creek part)	182	184	162	192	194	164	140	139	---
B Oklahoma City SMSA (Except Canadian part)	168	158	281	181	168	---	130	133	---
C Tulsa SMSA (Creek part)	182	183	170	196	202	157	140	131	---
D Oklahoma City SMSA (Canadian part)	198	186	---	347	318	---	100	102	---
Texas									
1 Trans Pecos	189	188	---	199	198	---	150	150	---
2 Edwards Plateau-Eastern	120	121	54	130	132	---	107	108	---
3 Southwest Rio Grande Plain	199	200	---	220	221	---	153	153	---
4 Texas Northern High Plains (Panhandle)	189	188	257	184	184	---	197	194	---
5 Texas Southern High Plains	189	189	189	186	188	157	192	190	---
6 Texas Rolling Plains	124	123	167	128	127	158	120	119	187
7 North Central Texas	140	136	526	173	166	---	103	104	---
8 Northern Blackland	150	142	205	182	176	212	112	104	189
9 Post Oak	129	112	166	140	121	170	117	103	158
10 Southern Blackland	121	112	185	138	126	186	108	102	183
11 Northeast Rio Grande Plain	190	194	100	221	225	123	150	153	---
12 Northeast Texas Sandy Lands	138	123	191	151	136	198	107	94	168
13 Southeast Texas Sandy Lands	148	142	171	155	149	175	117	112	142
14 Texas Coast Prairie	172	168	188	183	182	187	149	142	193
15 Lower Rio Grande Valley	246	246	---	281	282	---	189	188	---
16 Edwards Plateau-Western	169	169	---	196	198	---	111	109	---
A El Paso SMSA	482	498	---	524	549	---	296	298	---
B Fort Worth SMSA	161	160	198	172	173	159	131	124	---
C Dallas SMSA (Except Denton part)	156	151	192	188	184	206	106	101	156
D Waco SMSA	129	124	160	138	132	165	112	111	---
E Austin SMSA	175	176	169	190	192	176	138	135	---
F San Antonio SMSA	211	213	---	233	236	---	142	141	---
G Houston SMSA	176	175	187	181	179	188	144	144	---
H Beaumont-Fort Arthur SMSA	192	195	150	199	202	155	105	109	---
J Amarillo SMSA	151	151	---	145	145	---	156	156	---
K Wichita Falls SMSA	104	105	---	105	106	---	102	102	---
L Lubbock SMSA	208	199	---	234	224	---	190	182	---
M Galveston-Texas City SMSA	168	168	---	173	173	---	108	108	---
N Corpus Christi SMSA	233	234	---	233	234	---	234	234	---
O Dallas SMSA (Denton part)	132	133	---	149	151	---	110	112	---
P Abilene SMSA	136	135	---	161	163	---	111	108	---
Montana									
1 Montana Mountains	155	153	247	162	159	---	136	137	---
2 North Central Montana Plains-Highline and Lower Yellowstone	193	189	252	204	199	254	179	177	---
3 Upper Yellowstone and Big Horn	198	190	293	196	187	275	200	193	---
4 Central and Southeast Montana	167	159	---	185	170	---	146	146	---
Idaho									
1 Idaho Mountains-Central	167	166	---	166	166	---	170	169	---
2 Lewiston-Pend Oreille	155	154	---	171	168	---	121	123	---
3 Southwest Idaho	190	191	---	198	200	---	184	184	---
4 Upper Snake River	235	236	186	237	238	---	233	235	---
Wyoming									
1 Wyoming Mountains-Western	151	152	---	153	154	---	145	146	---
2 Northern and Eastern Wyoming	172	169	247	167	163	269	179	179	---
Colorado									
1 Colorado Mountains-Continental Divide	145	144	---	148	148	---	131	132	---
2 Colorado Mountains	179	178	---	186	186	---	165	162	---
3 Northern Colorado-Irrigated	182	182	---	174	175	---	193	193	---
4 East Central Colorado Plains	149	149	---	130	130	---	179	179	---
5 Southeast Colorado	173	174	---	171	172	---	177	177	---
A Denver SMSA (Except Boulder part)	185	182	---	206	203	---	125	122	---
B Colorado Springs SMSA	408	405	---	490	492	---	86	86	---
C Pueblo SMSA	223	222	---	240	238	---	185	185	---
D Denver SMSA (Boulder part)	158	156	---	162	162	---	145	140	---
New Mexico									
1 Northwest New Mexico	269	258	292	275	268	290	235	191	299
2 Northeast New Mexico	212	212	---	241	240	---	164	165	---

See footnote at end of table.

Table 11.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios, by color, for State economic areas, 1960-70 1/ -Continued

(Ratios not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
New Mexico -Continued									
3 Southern New Mexico	222	222	231	235	235	234	184	184	---
A Albuquerque SMSA	246	243	---	252	247	---	---	---	---
Arizona									
1 Northern Arizona	219	143	334	208	142	330	296	169	348
2 Southern Arizona	206	209	188	209	211	199	187	197	150
A Phoenix SMSA	186	183	230	184	180	242	195	193	208
B Tucson SMSA	181	175	209	179	171	227	195	---	---
Utah									
1 Wasatch Mountains and Northern Utah	198	197	---	189	188	---	230	229	---
2 Central Utah Valleys	255	258	---	284	285	---	201	207	---
3 Utah Basin and Plateau	205	203	250	203	203	214	214	205	---
A Salt Lake City SMSA	262	266	---	260	263	---	271	276	---
B Ogden SMSA	245	244	---	258	259	---	213	209	---
Nevada									
1 Nevada	142	134	245	150	141	268	106	100	---
A Las Vegas SMSA	159	160	---	157	158	---	---	---	---
Washington									
1 Olympic Peninsula and Washington Coast	136	136	129	137	137	129	129	128	---
2 Northern Puget Sound	155	154	---	152	151	---	165	165	---
3 Central Puget Sound-Kitsap County	157	159	127	161	161	---	105	112	---
4 Southern Puget Sound and Interior Coastal Valley	176	175	---	182	182	---	154	154	---
5 Okanogan Highlands and Eastern Slopes of Cascades	151	149	---	157	153	---	137	140	---
6 Yakima Valley and Eastern Slopes of Cascades	183	184	170	197	199	158	162	160	190
7 Eastern Washington	169	170	---	167	168	---	174	174	---
8 Northeastern Washington-Columbia River Watershed	158	151	---	168	158	---	142	141	---
A Seattle SMSA (Except Snohomish part)	174	175	154	177	178	157	145	145	---
B Tacoma SMSA	199	200	185	211	212	195	113	115	---
C Portland SMSA	163	163	---	172	171	---	140	141	---
D Spokane SMSA	213	212	---	251	250	---	138	138	---
E Seattle SMSA (Snohomish part)	182	181	---	188	187	---	143	142	---
Oregon									
1 Western Oregon	148	148	---	150	150	---	137	135	---
2 Willamette Valley	172	173	94	191	193	---	137	137	---
3 Columbia Basin-Central	145	141	---	155	148	---	124	123	---
4 Eastern Oregon Plateau and Blue Mountain	166	163	277	175	172	262	151	149	---
A Portland SMSA	152	152	---	165	165	---	123	120	---
B Eugene SMSA	174	174	---	185	185	---	128	128	---
California									
1 Northern California Coast	152	151	164	159	158	168	109	108	---
2 North Central California Coast	125	125	142	131	131	134	98	97	---
3 South Central California Coast	209	217	133	228	236	148	108	113	81
4 Sacramento Valley	154	157	100	169	172	107	120	122	87
5 Lower (Northern) San Joaquin Valley	180	183	124	197	202	118	148	148	---
6 Upper (Southern) San Joaquin Valley and Tulare Basin	187	198	97	197	214	88	167	170	129
7 Southern California Coast	168	171	102	177	181	100	115	115	---
8 Southern California Desert-Irrigated	120	127	68	113	116	90	143	179	41
9 Eastern and Northern California Mountain and Valley	130	128	193	134	132	199	105	102	---
A San Francisco-Oakland SMSA	182	186	117	190	194	126	129	134	---
B San Jose SMSA	190	201	109	224	233	---	135	144	98
C Sacramento SMSA	182	196	82	183	199	71	174	180	---
D Stockton SMSA	157	174	71	170	199	63	128	130	106
E Fresno SMSA	196	202	142	216	226	132	168	170	157
F Los Angeles-Long Beach SMSA	163	163	170	170	171	169	103	100	---
G San Diego SMSA	338	339	306	391	392	372	97	98	---
H San Bernardino-Riverside-Ontario SMSA	148	151	118	153	156	115	107	105	---
J Bakersfield SMSA	188	198	80	184	195	78	211	220	---
K Santa Barbara SMSA	197	203	114	214	219	135	111	119	---
Alaska									
1 Southeastern Alaska Panhandle	194	137	356						
2 South Central Alaska, Alaska Peninsula, and Aleutian Chain	298	309	255						
3 Inland and Northern Alaska	313	296	335						
Hawaii									
1 Hawaii-Maui-Kauai	120	164	114	113	164	106	198	---	202
A Honolulu SMSA	375	845	201	387	870	201	183	---	203

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Maine									
1 Aroostook	24.5	24.8	---	24.6	25.0	---	23.7	23.7	---
2 Maine Woods	16.6	16.6	---	16.5	16.5	---	17.5	17.4	---
3 Northeast Maine Coast	8.8	8.8	---	8.8	8.7	---	9.2	9.2	---
4 Southern Maine Coast	11.9	11.9	---	12.1	12.1	---	10.0	10.0	---
A Portland Metro Area	17.8	17.8	---	18.5	18.4	---	5.7	5.7	---
New Hampshire									
1 White Mountains-Northern New Hampshire	11.3	11.3	---	11.1	11.1	---	13.3	13.3	---
2 Southern New Hampshire	10.7	10.8	---	10.8	10.9	---	10.3	10.3	---
A Manchester Metro Area	11.6	11.5	---	12.3	12.3	---	2.6	1.0	---
Vermont									
1 Champlain Valley-Northern Vermont	19.8	19.9	---	18.2	18.3	---	23.5	23.5	---
2 Green Mountains-Southern Vermont	14.2	14.3	---	14.6	14.7	---	12.4	12.5	---
Massachusetts									
1 Berkshire-Monadnock	12.8	12.8	---	13.7	13.6	---	6.4	6.4	---
2 Cape Cod	6.9	7.0	---	7.1	7.2	---	---	---	---
A Springfield-Chicopee-Holyoke Metro Area	13.3	13.2	---	13.8	13.7	---	6.2	6.2	---
B Worcester Metro Area	12.5	12.5	---	12.5	12.5	---	11.9	11.9	---
C Boston-Lowell-Lawrence-Haverhill Metro Area	14.4	14.5	7.6	14.7	14.8	7.7	3.9	4.0	---
D Brockton Metro Area	10.9	10.8	13.8	11.0	10.9	13.8	9.3	9.1	---
E Fall River-New Bedford Metro Area	12.3	12.4	---	12.7	12.9	---	5.2	5.2	---
F Pittsfield Metro Area	8.4	8.5	---	8.6	8.7	---	7.1	6.6	---
Rhode Island									
1 Lower Narragansett Bay	18.2	18.6	---	18.1	18.5	---	21.3	21.3	---
A Providence-Pawtucket Metro Area	10.6	10.6	---	11.0	11.0	---	1.4	1.4	---
Connecticut									
1 Western Connecticut	11.6	11.8	---	11.9	12.1	---	8.5	8.5	---
2 Eastern Connecticut	12.2	12.3	6.4	12.5	12.6	6.9	7.6	7.7	---
A Bridgeport-Stamford-Norwalk Metro Area	10.0	10.2	---	10.2	10.4	---	-4.2	-5.5	---
B New Haven-Waterbury-Meriden Metro Area	14.4	14.1	---	15.0	14.7	---	-3.1	-3.1	---
C Hartford-New Britain Metro Area	11.8	12.2	-1.1	12.4	12.8	-1.0	-.4	-.4	---
New York									
1 Niagara-Ontario Shore	11.7	12.3	1.5	12.7	13.3	3.6	8.7	9.[illegible]	---
2 Genesee-Finger Lakes	9.5	9.9	-1.3	8.9	9.4	-2.1	11.9	11.9	---
3 Southern Tier	14.2	14.3	-.2	13.7	13.8	-.5	16.5	16.6	---
4 Eastern Lake Plains-Plateau Fringe	16.1	16.1	---	15.4	15.4	---	18.2	18.2	---
5 Mohawk-Adirondack	8.2	8.2	---	7.7	7.7	---	10.8	10.8	---
6 Upper Susquehanna-Delaware	12.0	12.0	---	11.6	11.6	---	13.3	13.2	---
7 St. Lawrence-Champlain Valley-Adirondack Fringe	16.5	16.5	16.2	15.6	15.6	18.6	19.9	20.0	---
8 Upper Hudson Valley	13.7	12.8	---	13.8	12.8	---	13.0	13.0	---
9 Mid-Hudson Valley-Catskill	7.[illegible]	6.1	32.6	7.3	6.2	34.2	4.7	4.7	---
A Buffalo SMSA	12.[illegible]	13.0	10.5	13.5	13.6	9.7	7.8	7.5	---
B Rochester SMSA	16.4	15.9	---	17.8	17.2	---	4.8	4.8	---
C Syracuse SMSA	15.7	15.7	18.6	15.9	15.9	---	14.6	14.4	---
D Utica-Rome SMSA	13.5	13.7	---	13.0	13.2	---	16.0	16.1	---
E Binghamton SMSA	19.1	19.2	---	19.5	19.7	---	15.0	15.0	---
F Albany-Schenectady-Troy SMSA	10.0	10.0	---	10.3	10.4	---	6.2	6.1	---
G New York City SMSA	9.4	9.5	6.6	9.4	9.5	6.4	8.3	8.1	---
New Jersey									
1 Northern New Jersey	9.0	8.1	29.4	9.7	8.6	31.3	2.0	2.0	---
2 Southern New Jersey	7.8	7.4	12.5	8.1	7.8	10.8	2.3	-2.2	---
A Allentown-Bethlehem-Easton SMSA	9.5	9.3	---	10.1	10.0	---	4.8	4.4	---
B Newark SMSA	10.3	10.4	---	10.1	10.2	---	20.8	20.8	---
C Trenton SMSA	5.9	5.8	6.2	6.5	6.5	7.1	-2.7	-2.5	---
D Philadelphia SMSA	11.8	11.3	17.8	11.9	11.3	18.3	10.7	10.8	---
E Atlantic City SMSA	7.8	8.0	6.2	8.8	8.9	7.7	-.3	1.1	---
F Wilmington SMSA	15.9	16.7	11.2	19.7	20.1	16.9	-1.8	.1	---
G Paterson-Clifton-Passaic SMSA	10.2	10.1	---	10.0	9.9	---	15.3	15.3	---
H Jersey City SMSA	No rural population								
Pennsylvania									
1 Northwestern Pennsylvania	14.5	14.5	21.1	14.1	14.0	22.0	18.1	18.2	---
2 Northern Tier	13.5	13.7	-11.1	13.6	13.0	-12.5	16.1	16.1	---
3 North Central Pennsylvania	12.2	12.3	---	12.4	12.5	---	10.1	10.1	---
4 Bituminous Coal	14.4	14.3	21.0	14.8	14.7	21.5	10.3	10.4	---
5 South Central Pennsylvania Ridge and Valley	16.3	16.5	---	15.0	15.2	---	23.4	23.4	---
6 Pennsylvania Anthracite	6.3	6.3	---	5.8	5.8	---	11.0	11.0	---
7 Southeast Pennsylvania	13.5	13.9	-18.2	12.7	13.1	-18.4	18.1	18.1	---
A Erie SMSA	18.6	18.7	---	19.6	19.7	---	13.0	13.1	---
B Philadelphia SMSA	12.7	12.5	15.8	12.8	12.6	15.7	11.9	11.8	---
C Scranton SMSA	1.9	1.9	---	1.2	1.2	---	7.2	7.2	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ -Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Pennsylvania -Continued									
D Pittsburgh SMSA	13.4	13.4	12.6	13.5	13.5	13.1	11.8	12.0	---
E Johnstown SMSA	18.6	18.7	---	18.5	18.7	---	19.2	19.1	---
F Altoona SMSA	12.8	12.7	---	11.6	11.5	---	27.1	27.1	---
G Wilkes-Barre-Hazleton SMSA	7.9	7.5	---	7.9	7.5	---	7.7	7.7	---
H Harrisburg SMSA	20.9	19.4	---	21.2	19.4	---	19.0	19.0	---
J York SMSA	12.6	12.6	---	11.8	11.8	---	17.1	16.9	---
K Lancaster SMSA	16.2	16.3	---	10.4	10.5	---	37.7	37.8	---
L Reading SMSA	8.5	8.5	---	7.9	7.9	---	12.8	12.8	---
M Allentown-Bethlehem-Easton SMSA	8.7	8.6	---	7.9	8.0	---	15.7	15.3	---
Ohio									
1 Maumee	15.4	15.4	---	16.3	16.3	---	13.5	13.6	---
2 Northwest Central Ohio	16.2	16.4	---	16.6	16.9	---	15.5	15.6	---
3 Miami Valley and Central Scioto	17.3	17.6	4.2	18.4	18.8	3.9	14.7	14.7	---
4 North Central Ohio	17.5	17.7	3.5	17.1	17.4	4.2	18.6	18.7	---
5 Northeastern Ohio	17.8	18.0	7.2	17.9	18.0	9.4	17.6	18.0	---
6 East Central Ohio	16.0	15.8	33.9	16.6	16.3	36.4	13.4	13.5	---
7 Ohio Flatlands-Chillicothe	14.9	15.1	9.5	16.6	16.8	9.8	9.1	9.1	---
8 Southeast Ohio Hills	17.7	17.8	7.3	18.9	19.0	11.4	13.2	13.6	---
A Toledo SMSA	15.5	15.3	19.0	16.2	16.1	17.1	10.1	9.0	---
B Columbus SMSA	15.0	15.6	---	15.6	16.2	---	8.8	8.7	---
C Dayton SMSA	18.6	17.8	38.6	21.0	20.2	39.2	7.5	7.5	---
D Hamilton-Middletown SMSA	25.7	26.0	---	29.1	29.4	---	5.2	5.2	---
E Cleveland SMSA	13.8	13.9	---	15.4	15.4	---	-9.9	-9.2	---
F Akron SMSA	14.4	14.3	---	14.3	14.3	---	16.5	15.0	---
G Canton SMSA	13.9	14.1	-1.4	13.7	14.0	-2.9	15.9	15.7	---
H Youngstown-Warren SMSA	17.7	17.7	18.3	18.3	18.3	18.1	12.0	11.9	---
J Wheeling SMSA	15.4	15.6	---	16.4	16.5	---	8.8	9.3	---
K Cincinnati SMSA	15.9	15.9	---	16.1	16.1	---	12.2	12.3	---
L Huntington-Ashland SMSA	20.3	19.9	---	21.1	20.6	---	14.2	14.2	---
M Lorain-Elyria SMSA	20.1	20.4	---	20.9	21.3	---	14.2	14.2	---
N Springfield SMSA	16.2	16.5	---	18.0	18.3	---	6.0	5.9	---
O Lima SMSA	13.4	14.7	---	15.7	17.3	---	4.3	4.3	---
Indiana									
1 Northwestern Indiana	15.7	15.8	---	14.2	14.3	---	22.3	22.3	---
2 Kankakee, Tippecanoe, and Iroquois River	17.7	17.9	---	19.2	19.4	---	15.1	15.3	---
3 Northeast Indiana	15.7	15.8	---	15.5	15.6	---	16.0	16.1	---
4 Richmond-Marion-Kokomo	15.0	15.3	---	16.3	16.7	---	10.3	10.3	---
5 Central Indiana	15.7	15.5	---	19.2	19.0	---	7.1	7.2	---
6 Lower Wabash Valley-Indiana Side	11.4	11.5	---	13.1	13.1	---	7.6	7.7	---
7 South Central Indiana	15.2	15.2	---	15.8	15.9	---	13.6	13.6	---
8 Indiana Flats and Breaks	15.1	15.1	---	17.5	17.4	---	11.0	11.0	---
9 Middle Wabash River	15.7	15.7	---	18.2	18.2	---	10.0	10.1	---
A Gary-Hammond-East Chicago SMSA	16.1	16.3	---	16.9	17.2	---	12.0	12.0	---
B South Bend SMSA	14.9	14.8	---	16.3	16.3	---	7.5	7.5	---
C Fort Wayne SMSA	16.1	16.3	---	15.7	15.9	---	17.4	17.6	---
D Indianapolis SMSA	16.0	16.4	-.3	17.2	17.7	.5	-4.4	-4.1	---
E Evansville SMSA	13.9	14.0	---	13.7	13.9	---	14.8	15.0	---
F Louisville SMSA	14.7	15.1	---	15.9	16.4	---	10.8	10.8	---
G Terre Haute SMSA	12.6	13.1	---	14.6	15.2	---	2.3	2.8	---
H Muncie SMSA	14.1	14.2	---	18.1	18.2	---	-1.8	-1.8	---
Illinois									
1 Northwest Illinois	13.6	13.5	---	12.3	12.3	---	15.3	15.3	---
2 Northwestern Chicago Environs	13.6	13.6	---	15.5	15.4	---	11.5	11.5	---
3 West North Central Illinois	10.8	10.9	---	10.8	10.9	---	10.8	10.8	---
4 Southwestern Central Illinois	6.5	6.6	---	6.7	6.8	---	6.2	6.3	---
5 Upper Illinois River-Kankakee	4.0	4.6	-7.8	2.4	3.1	-7.9	8.7	8.7	---
6 East Central Illinois	10.7	10.8	8.9	11.3	11.3	9.3	9.8	9.8	---
7 West South Central Illinois	5.4	6.1	-10.5	3.8	4.9	-10.2	8.3	8.3	---
8 Southern Illinois Gray Lands-Northern	10.2	10.3	---	13.5	13.6	---	6.6	6.6	---
9 Lower Wabash Valley-Illinois Side	8.9	8.8	---	10.9	10.8	---	4.9	4.9	---
10 Southern Illinois Gray Lands-Coal Fields	7.1	7.3	---	8.4	8.7	---	3.4	3.4	---
11 Illinois Ozark Border	11.5	10.5	26.3	14.4	13.0	30.5	3.7	3.8	---
A Davenport-Rock Island-Moline SMSA	14.4	14.3	---	15.0	14.8	---	12.4	12.6	---
B Rockford SMSA	13.5	12.9	---	14.3	13.6	---	9.6	9.6	---
C Chicago SMSA	12.9	13.1	5.4	13.2	13.5	5.5	10.3	10.3	---
D Peoria SMSA	11.2	11.2	---	11.3	11.4	---	10.8	10.8	---
E Springfield SMSA	9.2	9.5	---	9.6	10.0	---	7.8	7.8	---
F St. Louis SMSA	9.4	9.4	10.9	11.2	11.2	10.9	-.4	-.5	---
G Decatur SMSA	17.0	17.0	---	19.3	19.2	---	8.1	8.2	---
Michigan									
1 Upper Peninsula-Western	13.8	13.8	---	14.0	14.1	---	12.0	11.8	---
2 Upper Peninsula-Eastern	14.2	14.3	---	14.0	14.2	---	14.9	14.7	---
3 Western Michigan Lake Shore-Northern	15.2	15.1	---	14.1	14.1	---	18.3	18.2	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ -Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Michigan -Continued									
4 Lower Peninsula-Northern	14.5	14.4	15.7	12.3	12.3	12.1	21.5	21.2	---
5 East Central Michigan	18.6	18.6	---	18.7	18.7	---	18.4	18.4	---
6 Western Michigan Lake Shore	18.8	18.9	15.1	19.5	19.5	19.9	15.9	16.4	-.8
7 Central Michigan	17.4	17.3	19.6	18.8	18.8	20.3	13.4	13.4	---
8 Southeast Michigan	16.3	16.3	21.3	17.1	17.1	---	12.8	12.3	---
9 Southern Michigan	15.5	15.7	7.2	15.9	16.2	5.5	14.4	14.3	---
A Saginaw SMSA	19.6	19.8	---	21.6	21.9	---	13.8	13.8	---
B Grand Rapids SMSA	16.7	16.7	---	16.0	16.0	---	19.7	19.9	---
C Bay City SMSA	19.3	19.3	---	18.7	18.7	---	20.7	20.7	---
D Flint SMSA	20.2	20.2	---	21.2	21.2	---	12.2	12.3	---
E Lansing SMSA	18.8	18.8	---	19.5	19.5	---	17.5	17.4	---
F Detroit SMSA	16.9	17.2	8.1	17.4	17.8	8.6	9.9	10.2	---
G Kalamazoo SMSA	14.9	14.9	---	16.9	16.8	---	3.2	3.3	---
H Jackson SMSA	7.8	10.7	-9.8	7.3	10.5	-9.8	11.8	11.8	---
J Ann Arbor SMSA	9.6	10.4	-.7	9.1	10.1	-1.1	11.7	11.6	---
Wisconsin									
1 Northern Wisconsin Woods	10.4	9.6	41.1	7.0	6.0	36.7	17.9	17.5	---
2 West Central Wisconsin	11.2	11.1	---	7.0	6.9	---	15.5	15.5	---
3 Southwest Wisconsin	14.4	14.4	---	7.9	7.9	---	20.0	20.0	---
4 Eau Claire-Wausau	17.9	17.9	---	13.5	13.4	---	23.0	22.9	---
5 Central Wisconsin-Southern Sandy	9.1	9.0	---	8.0	7.9	---	10.5	10.4	---
6 Eastern Wisconsin-Northern	13.0	12.1	53.5	10.7	9.0	52.3	15.6	15.4	---
7 Eastern Wisconsin-Central	16.0	16.0	20.6	11.3	11.2	---	23.4	23.4	---
8 Eastern Wisconsin-Southern	12.6	12.6	---	11.1	11.2	---	15.1	15.1	---
A Duluth-Superior SMSA	9.8	9.9	---	11.1	11.5	---	5.9	5.1	---
B Madison SMSA	15.2	15.3	---	14.0	14.0	---	17.3	17.3	---
C Milwaukee SMSA (Except Waukesha part)	No rural population								
D Racine SMSA	15.8	15.8	---	17.6	17.5	---	7.2	7.4	---
E Milwaukee SMSA (Waukesha part)	15.4	15.3	---	16.3	16.2	---	8.7	8.8	---
F Kenosha SMSA	14.8	14.8	---	15.5	15.5	---	11.1	10.7	---
Minnesota									
1 Red River Valley-Minnesota	9.9	9.9	---	9.5	9.5	---	10.2	10.1	---
2 Northern Minnesota Woods	13.7	12.9	35.9	13.1	12.0	35.3	15.5	15.3	---
3 Minnesota Forest Margin-Western	11.2	10.7	37.4	8.5	7.1	---	12.9	12.9	---
4 Minnesota Forest Margin-Eastern	14.0	14.2	---	13.0	13.4	---	15.1	15.0	---
5 West Central Minnesota	10.2	10.2	---	4.6	4.6	---	14.5	14.4	---
6 Southeast Central Minnesota	15.1	15.1	---	12.4	12.4	---	17.9	17.9	---
7 Southeast Minnesota	12.1	12.1	---	8.9	8.8	---	14.5	14.5	---
8 Southwest Minnesota	13.2	13.2	---	10.3	10.4	---	15.1	15.1	---
A Duluth-Superior SMSA	14.8	14.9	---	14.9	15.0	---	14.0	14.0	---
B Minneapolis-St. Paul SMSA	17.0	17.1	---	17.4	17.5	---	15.8	15.9	---
Iowa									
1 Western Iowa	11.9	12.0	---	5.5	5.5	---	16.5	16.5	---
2 West Central Iowa	10.9	11.0	---	7.4	7.4	---	14.0	14.0	---
3 South Central Iowa	9.4	9.4	---	9.4	9.4	---	9.4	9.4	---
4 Northeast Iowa	12.5	12.5	---	5.9	5.9	---	17.2	17.3	---
5 East Central Iowa	9.8	9.9	---	6.2	6.4	---	12.8	12.9	---
6 Eastern Iowa	12.3	12.3	---	8.9	8.8	---	16.0	16.0	---
A Sioux City SMSA	12.9	13.2	---	10.7	11.2	---	14.7	14.7	---
B Omaha SMSA	12.3	12.3	---	16.6	16.6	---	7.7	7.7	---
C Des Moines SMSA	18.1	18.3	---	23.0	23.4	---	7.3	7.3	---
D Davenport-Rock Island-Moline SMSA	16.4	16.2	---	12.3	12.0	---	23.3	23.3	---
E Cedar Rapids SMSA	16.3	16.2	---	13.5	13.5	---	20.1	19.9	---
F Waterloo SMSA	14.7	14.9	---	14.4	14.7	---	15.3	15.3	---
Missouri									
1 Northwest Missouri	7.2	7.1	12.1	10.2	10.1	---	3.5	3.6	---
2 Northern Missouri	3.2	3.3	-4.9	4.4	4.4	2.7	2.1	2.4	-31.1
3 West Central Missouri	5.5	5.5	---	9.0	9.0	---	1.9	1.9	---
4 Southwest Missouri	9.9	10.1	---	10.7	11.0	---	8.5	8.6	---
5 Ozark Plateau-Northern	20.4	20.1	29.9	24.3	24.1	---	5.8	5.7	---
6 Northeast Ozark Border	10.2	9.8	---	13.0	12.5	---	6.4	6.2	---
7 Ozark Plateau-Western	10.1	10.2	---	11.6	11.6	---	8.6	8.7	---
8 Ozark Plateau-Eastern	11.8	11.8	---	13.8	13.8	---	6.6	6.6	---
9 Mississippi Delta-Missouri Section	28.1	26.2	43.4	23.5	22.0	37.5	32.6	30.4	48.1
A Kansas City SMSA	15.1	14.9	---	19.7	19.4	---	-1.9	-1.8	---
B St. Louis SMSA	14.3	14.1	31.7	15.5	15.2	34.4	3.6	3.7	---
C Springfield SMSA	10.3	10.3	---	15.0	15.1	---	-1.2	-1.2	---
North Dakota									
1 Missouri Slope	21.4	21.1	33.3	14.6	14.2	---	26.9	26.3	---
2 West Central North Dakota-Missouri River Coteau	17.6	17.4	---	14.9	14.5	---	20.3	20.3	---
3 East Central North Dakota	15.2	14.1	50.1	13.4	11.1	50.0	16.7	16.5	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ -Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
North Dakota -Continued									
4 Red River Valley-North Dakota	12.4	12.4	---	11.1	10.9	---	13.8	14.0	---
5 Southeast North Dakota	11.0	11.0	---	6.3	6.3	---	14.6	14.6	---
South Dakota									
1 Black Hills and West-River Range	16.8	14.3	31.5	18.2	14.2	34.8	14.3	14.5	10.7
2 North Central South Dakota	12.2	12.0	---	8.6	8.3	---	15.1	15.0	---
3 South Central South Dakota	14.5	13.3	68.8	12.1	9.3	---	16.2	15.9	---
4 Northeast South Dakota	9.9	10.1	---	5.9	6.0	---	12.3	12.4	---
5 Southeast South Dakota	10.1	9.1	---	9.1	6.8	---	10.9	10.8	---
Nebraska									
1 Nebraska Sand Hills	8.1	7.9	---	6.1	5.8	---	9.5	9.4	---
2 North Platte River	13.0	13.5	---	9.4	9.9	---	16.9	17.4	---
3 Central Nebraska	9.8	9.7	---	8.2	7.9	---	11.1	11.1	---
4 Republican River	7.1	7.3	---	5.0	5.3	---	8.9	8.9	---
5 South Central Nebraska	5.7	5.8	---	3.0	3.2	---	8.2	8.2	---
6 Central Missouri Valley-Northeast Nebraska	10.6	10.2	35.3	6.7	5.4	---	13.7	13.8	---
7 Central Missouri Valley-Southeast Nebraska	7.3	7.3	---	8.0	7.9	---	6.7	6.7	---
A Lincoln SMSA	8.0	8.3	---	8.2	8.7	---	7.5	7.5	---
B Omaha SMSA	23.3	22.8	---	24.9	24.4	---	14.1	14.1	---
Kansas									
1 Southwest Kansas	12.2	12.2	---	9.7	9.8	---	16.4	16.5	---
2 West Central Kansas	8.7	8.7	---	6.9	6.9	---	10.8	10.9	---
3 Central Kansas	10.5	10.5	---	11.9	11.8	---	8.7	8.7	---
4 North Central Kansas	4.1	4.1	---	-.7	-.6	---	7.6	7.6	---
5 Kansas Flint Hills	14.0	13.6	21.2	17.8	17.5	22.7	5.4	5.5	---
6 Central Missouri Valley-Kansas Part	5.9	6.9	-7.4	5.8	7.3	-8.0	6.1	6.1	---
7 East Central Kansas	4.1	4.1	---	5.8	5.9	---	2.5	2.4	---
8 Southeast Kansas	6.7	6.8	---	10.0	10.1	---	1.9	2.0	---
A Wichita SMSA	19.7	19.9	---	19.6	19.8	---	20.5	20.3	---
B Kansas City SMSA	16.7	17.3	.3	19.0	19.7	---	1.6	1.8	---
C Topeka SMSA	18.2	17.7	---	21.3	20.8	---	3.9	4.1	---
Delaware									
1 Southern Delaware	11.9	11.2	15.4	13.0	12.5	15.0	6.5	5.2	21.3
A Wilmington SMSA	13.9	14.2	10.5	14.3	14.5	11.6	10.3	11.3	---
Maryland									
1 Western Maryland	15.7	15.3	---	15.3	14.9	---	18.8	18.8	---
2 Maryland Piedmont	19.5	18.8	31.2	19.8	18.9	33.9	17.6	18.2	---
3 Southern Maryland	27.9	23.8	40.8	28.4	25.2	38.8	26.0	17.0	47.5
4 Maryland Eastern Shore	11.4	10.2	15.7	12.0	10.7	16.3	8.2	7.7	10.9
A Baltimore SMSA (Except Carroll-Howard part)	17.4	17.6	16.5	17.9	18.2	15.8	10.3	7.7	---
B Washington, D. C. SMSA	19.3	17.9	25.3	19.5	18.2	24.7	17.9	14.5	29.6
C Baltimore SMSA (Carroll-Howard part)	9.5	9.7	7.0	9.2	9.5	6.3	11.3	11.0	---
Virginia									
1 Southwest Virginia Coal Fields	33.1	33.4	18.1	34.1	34.3	18.9	26.6	26.7	---
2 Valley of Virginia-Southwest	21.0	21.3	12.3	22.3	22.6	12.3	18.9	18.9	---
3 Valley of Virginia-Lower	22.2	22.4	18.0	25.0	25.4	18.4	11.6	11.6	---
4 Shenandoah Valley-Blue Ridge	16.3	16.4	13.5	17.7	17.8	16.3	11.5	11.8	---
5 Northern Virginia Piedmont	16.7	15.8	21.4	17.4	16.8	20.6	13.3	11.5	26.3
6 Central Virginia Piedmont	15.3	11.7	21.3	16.3	14.5	19.1	12.5	5.6	28.7
7 Southern Virginia Piedmont	24.1	17.0	41.1	23.7	18.4	39.4	24.8	14.6	42.9
8 Virginia Peninsulas	13.3	7.7	23.4	14.6	8.6	24.4	7.3	4.0	16.8
9 Virginia Eastern Shore	7.9	1.0	18.2	8.8	2.5	17.7	3.7	-6.0	21.9
10 Southside Virginia Coastal Plain	24.5	17.6	32.6	25.1	20.0	31.5	22.6	9.3	35.7
A Roanoke SMSA	13.3	12.1	36.0	13.0	11.9	33.1	17.3	14.2	---
B Washington, D. C. SMSA	11.9	16.6	-5.0	12.0	16.9	-5.2	9.2	9.8	---
C Richmond SMSA	16.9	15.8	23.7	17.2	16.0	25.6	9.1	12.8	---
D Norfolk-Portsmouth SMSA	25.9	25.0	28.8	26.2	25.3	29.0	22.1	21.1	---
E Newport News-Hampton SMSA	17.1	16.3	20.2	17.2	16.2	20.6	---	---	---
F Lynchburg SMSA	18.7	16.6	26.5	19.6	19.4	20.3	15.5	5.9	47.1
West Virginia									
1 Upper Ohio and Little Kanawha Valley	17.3	17.3	---	18.4	18.3	---	8.2	8.2	---
2 West Virginia Hills	22.4	22.7	---	23.6	23.9	---	17.8	17.9	---
3 Monongahela Valley and North Central West Virginia	19.0	19.1	14.1	20.0	20.1	14.9	10.3	10.4	---
4 West Virginia Southern Coal Fields	30.4	30.8	24.6	30.5	31.0	24.7	25.5	25.8	---
5 Allegheny Mountains-Greenbrier Valley	19.7	19.9	9.7	20.1	20.5	8.7	18.2	18.2	---
6 Eastern Panhandle	9.6	9.6	10.3	7.8	7.5	12.4	21.5	22.7	---
A Wheeling SMSA	11.7	11.4	---	12.5	12.1	---	7.1	7.5	---
B Huntington-Ashland SMSA	22.8	22.9	---	22.9	23.0	---	22.0	22.0	---
C Charleston SMSA	24.7	24.2	44.0	24.7	24.2	44.0	25.4	25.4	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ -Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
North Carolina									
1 North Carolina Blue Ridge	21.9	22.0	17.5	23.2	23.4	16.5	18.7	18.7	---
2 Blue Ridge Slopes	23.5	23.4	26.0	24.0	23.8	27.8	19.8	20.2	---
3 North Carolina Old Belt Tobacco	23.1	18.8	39.3	20.6	17.7	34.3	27.3	20.8	44.5
4 Central North Carolina	21.4	19.5	36.7	22.2	20.9	33.4	17.3	13.4	54.5
5 South Central North Carolina	24.8	21.4	43.6	24.9	22.6	38.9	24.4	16.8	57.5
6 North Carolina Upper Coastal Plain-Northern	28.1	22.6	42.6	26.5	21.3	40.1	29.8	24.0	45.2
7 Lower Roanoke Coastal Plain	31.6	13.1	48.5	26.9	12.7	40.7	37.9	13.6	58.2
8 North Carolina Central Coastal Plain	32.1	24.0	45.7	28.6	24.7	35.9	36.4	23.0	55.6
9 North Carolina Upper Coastal Plain-Lumber River	35.9	28.9	50.6	33.9	29.9	45.2	42.1	24.7	59.8
10 Currituck-Albemarle-Pamlico	21.2	14.9	36.2	20.3	13.5	34.1	23.8	18.3	46.7
11 Neuse-Cape Fear	31.1	28.9	38.4	31.2	30.2	35.1	30.6	24.4	46.1
A Asheville SMSA	17.9	18.1	---	18.0	18.3	---	17.3	17.4	---
B Winston-Salem SMSA	14.4	13.5	31.9	15.6	14.8	33.1	4.7	3.5	---
C Greensboro-High Point SMSA	17.3	16.1	25.1	18.8	18.4	21.5	11.3	7.3	---
D Charlotte SMSA	17.8	15.0	37.5	17.8	15.4	35.4	17.6	9.9	---
E Raleigh SMSA	21.3	16.2	35.2	19.8	16.2	30.9	25.7	16.4	43.6
F Durham SMSA	16.6	12.0	35.4	17.1	13.0	35.5	14.1	5.7	---
South Carolina									
1 South Carolina Blue Ridge-Piedmont Transition	28.6	28.0	36.2	29.1	28.6	36.1	25.1	23.9	---
2 Northwestern South Carolina Piedmont	21.3	18.3	34.7	22.5	19.7	36.0	14.3	8.9	29.8
3 North Central South Carolina Piedmont	25.5	19.2	43.8	26.1	21.4	41.7	22.7	7.4	49.9
4 South Carolina Lower Piedmont	28.3	16.1	46.1	28.5	18.8	42.5	27.5	8.7	56.1
5 South Carolina Sand Hills	33.6	22.1	60.9	31.7	22.0	58.0	38.3	22.5	66.5
6 South Carolina Upper Coastal Plain	39.3	20.4	60.8	33.7	21.4	53.3	48.9	17.8	68.9
7 Pee Dee River	41.2	28.7	61.6	32.6	23.8	51.1	49.0	34.0	68.5
8 South Carolina Coast	49.8	44.7	56.8	52.8	49.4	57.8	33.6	16.1	51.9
A Columbia SMSA	39.2	40.0	37.0	40.5	42.0	36.5	22.2	15.7	45.6
B Augusta SMSA	25.6	19.8	45.2	23.3	20.2	35.6	42.2	16.5	78.2
C Charleston SMSA	35.1	22.9	55.9	34.9	23.0	55.6	41.7	---	---
D Greenville SMSA	19.7	17.7	34.5	19.8	18.4	30.8	18.9	8.9	---
Georgia									
1 Northwest Georgia Ridge and Valley	21.0	20.9	24.1	21.2	21.1	23.6	20.0	19.6	---
2 Georgia Blue Ridge	26.5	25.8	---	28.8	27.9	---	17.0	17.1	---
3 Georgia Upper Piedmont	20.7	18.6	46.3	21.6	19.8	44.4	16.8	13.9	54.2
4 Georgia Lower Piedmont	25.5	16.3	43.9	25.4	17.7	41.1	25.9	10.4	54.3
5 Georgia Sand Hills	26.0	13.4	40.9	25.4	13.3	39.1	27.5	13.9	47.5
6 Georgia Upper Coastal Plain	30.4	17.9	53.7	29.3	19.4	48.1	32.1	15.6	63.0
7 Georgia Central Coastal Plain	29.2	17.5	48.4	27.4	18.2	43.0	31.6	16.6	55.6
8 Tifton Plain	24.0	20.2	36.0	20.3	18.5	25.5	29.3	22.5	55.8
9 Georgia Coast	27.5	25.6	33.3	27.1	24.9	33.0	29.3	28.2	38.5
A Chattanooga SMSA	18.3	17.4	---	19.7	18.8	---	5.8	3.8	---
B Atlanta SMSA	20.9	19.9	32.7	20.8	19.9	31.3	21.9	18.8	---
C Columbus SMSA	29.9	30.8	26.0	29.9	30.8	26.0	---	---	---
D Augusta SMSA	39.8	41.0	31.7	40.3	31.7	30.4	---	---	---
E Savannah SMSA	16.1	16.0	16.1	16.0	15.8	16.6	---	---	---
F Macon SMSA (Except Houston part)	23.9	19.2	49.5	22.5	18.7	44.0	---	---	---
G Macon SMSA (Houston part)	30.1	24.1	50.7	30.0	24.9	53.4	30.2	---	---
Florida									
1 Western Florida Coast	21.0	20.9	22.8	20.6	20.5	22.1	26.3	25.7	---
2 Florida Flatwoods	17.6	15.6	26.7	18.0	15.8	27.1	13.5	13.2	---
3 North and West Central Florida	25.9	21.0	37.5	25.1	20.9	34.4	29.2	21.4	54.4
4 Florida Indian River	6.1	5.5	12.1	6.6	5.9	13.4	-6.4	-5.3	---
5 Central Florida Citrus	10.4	9.5	14.3	10.4	9.7	13.5	9.8	7.8	---
6 Everglades and South Florida Resorts	1.8	.2	15.9	1.7	0	16.1	6.4	6.0	---
A Jacksonville SMSA	20.4	21.4	7.2	20.4	21.4	7.0	21.1	20.8	---
B Tampa-St. Petersburg SMSA	9.7	9.4	15.5	9.6	9.4	13.6	11.0	9.5	---
C Miami SMSA	11.9	12.5	8.1	12.3	12.9	7.9	4.1	2.7	---
D Pensacola SMSA	27.9	27.3	34.1	28.3	27.5	35.3	21.3	23.0	---
E Orlando SMSA	14.5	15.0	12.5	14.8	15.4	12.2	6.7	4.6	---
F West Palm Beach SMSA	9.3	9.9	8.4	8.7	8.8	8.5	---	---	---
G Ft. Lauderdale-Hollywood SMSA	6.6	9.0	---	5.3	7.9	---	--	---	---
Kentucky									
1 Jackson Purchase	11.0	11.0	10.4	14.3	14.6	4.2	4.7	4.1	---
2 Lower Ohio Valley	19.4	19.7	10.4	18.7	18.8	---	21.0	21.5	---
3 Western Kentucky Coal Fields and Knobs	21.2	21.5	15.4	23.9	24.3	17.4	14.9	15.1	2.1
4 Kentucky Pennyroyal	18.1	18.1	17.6	22.9	23.7	18.6	12.3	12.0	15.5
5 South Central Kentucky Highland	20.8	21.2	4.6	22.8	23.2	12.7	19.3	19.7	-7.6
6 Outer Bluegrass	15.7	16.0	10.2	15.8	16.2	10.7	15.5	15.7	9.2
7 Inner Bluegrass	14.3	15.4	-2.1	20.2	22.0	2.9	9.6	10.5	-12.5
8 Eastern Kentucky Hills	28.0	27.9	---	28.7	28.7	---	26.8	26.7	---
9 Eastern Kentucky Coal Fields	38.1	38.4	12.6	38.5	38.8	13.4	34.2	34.4	---
A Louisville SMSA	20.3	20.8	10.3	21.2	21.7	9.2	7.4	6.4	---
B Cincinnati SMSA	18.8	19.0	---	20.5	20.7	---	8.2	8.2	---
C Huntington-Ashland SMSA	40.8	39.1	---	44.5	42.5	---	---	---	---
D Evansville SMSA	15.7	14.6	---	17.2	16.7	---	11.8	9.3	---
E Lexington SMSA	11.3	13.1	.7	11.2	13.1	2.0	11.8	13.1	---
Tennessee									
1 Tennessee Bluff Hills and Jackson Plain	21.5	16.4	33.6	15.2	13.8	20.1	26.5	19.0	40.0
2 Tennessee Fall Line Slopes	12.7	12.5	14.2	14.4	14.9	9.0	10.5	9.7	22.1
3 Western Highland Rim	20.0	19.7	30.9	20.2	19.7	---	19.7	19.6	---
4 Tennessee Pennyroyal and Northern Highland Rim	21.1	21.0	22.0	26.9	26.7	28.1	10.7	10.7	10.5
5 Tennessee Central Basin	13.4	13.0	16.9	15.2	15.3	14.4	11.4	10.4	20.4

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ - Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Tennessee -Continued									
6 Eastern Highland Rim	19.5	19.6	15.4	21.3	21.4	20.1	17.3	17.5	---
7 Tennessee Cumberland Plateau	29.0	28.8	---	30.7	30.4	---	22.1	22.3	---
8 Valley of Eastern Tennessee	23.2	23.2	23.4	24.9	24.8	26.6	19.8	19.9	11.0
A Memphis SMSA	44.3	48.1	34.9	46.7	52.6	28.6	31.7	11.5	52.1
B Nashville SMSA	15.8	17.6	-5.3	16.9	19.0	-6.7	6.2	5.8	---
C Chattanooga SMSA	19.8	19.7	22.3	21.0	21.0	21.4	3.0	2.1	---
D Knoxville SMSA	20.1	20.4	3.2	20.9	21.3	1.3	14.2	14.1	---
Alabama									
1 Middle Tennessee Valley	26.7	25.5	34.7	24.1	22.7	33.7	31.3	30.5	36.6
2 Sand Mountain	22.8	23.0	13.2	21.0	21.4	8.0	24.7	24.6	---
3 Alabama Ridge and Valley	22.6	20.9	36.8	23.0	21.4	36.0	20.3	18.2	43.7
4 Alabama Piedmont	21.1	13.7	42.3	23.5	16.3	44.5	11.6	3.6	34.0
5 Alabama Upper Coastal Plain	21.7	18.9	30.2	20.1	18.7	24.3	25.6	19.4	47.3
6 Alabama Black Prairie	38.5	12.9	52.7	34.1	14.3	48.5	45.6	9.1	57.9
7 Alabama Wire Grass	29.0	21.6	40.4	30.2	23.9	39.8	23.9	12.9	43.1
8 Alabama Gulf Coast	21.9	20.2	26.9	21.3	19.5	25.8	24.5	22.8	---
9 Alabama Central Coastal Plain	25.5	17.3	51.1	26.3	19.1	47.7	24.2	14.4	57.6
A Birmingham SMSA	20.6	19.8	26.2	20.7	19.9	25.9	18.4	16.8	---
B Columbus, Georgia SMSA	39.6	21.4	51.9	35.7	23.2	47.2	51.4	---	60.8
C Montgomery SMSA	28.5	8.0	52.1	25.4	6.7	49.9	38.9	13.6	57.8
D Mobile SMSA	20.9	23.2	14.0	21.0	23.7	13.3	19.8	18.3	---
E Tuscaloosa SMSA	23.4	19.7	38.2	25.0	22.5	35.9	15.5	4.5	46.8
F Huntsville SMSA	23.7	21.5	33.3	21.5	21.5	21.1	28.9	21.6	47.5
Mississippi									
1 Mississippi Delta-Yazoo	34.8	19.4	44.4	28.2	16.2	37.7	42.8	24.9	50.9
2 Mississippi Delta Fringe and Bluff Hills	31.8	14.7	46.0	25.6	16.0	38.6	37.1	13.0	50.1
3 Southwest Mississippi	26.5	15.7	39.7	26.3	17.9	36.8	27.1	7.9	49.0
4 Mississippi Pine Hills	21.1	17.6	44.4	18.2	16.4	31.8	24.0	18.8	54.0
5 Mississippi Black Prairie	28.2	18.7	47.9	28.9	23.7	46.2	27.2	7.3	49.2
6 Mississippi Piney Woods	23.3	15.8	45.2	21.6	16.3	35.2	25.8	9.7	17.8
7 Mississippi Lower Coastal Plains	25.5	24.1	33.6	26.8	25.1	34.7	21.1	20.9	---
8 Mississippi Gulf Coast	17.7	16.7	32.6	17.2	16.1	32.1	25.7	25.1	---
A Jackson SMSA	38.1	22.1	52.8	38.3	23.4	56.2	37.7	16.5	47.3
Arkansas									
1 Northwest Arkansas	9.9	10.0	---	13.8	13.9	---	4.7	4.7	---
2 Arkansas River Valley-Boston Mountains Slopes	12.9	12.7	---	13.8	13.7	---	10.6	10.3	---
3 Arkansas River Valley-Southeastern Ozark Slopes	15.8	14.7	34.9	16.7	15.4	36.1	14.3	13.7	---
4 Ouachita Mountains-Eastern	9.5	9.8	4.4	11.0	11.4	3.9	2.3	2.1	---
5 Southwest Arkansas	15.7	8.8	33.4	19.0	12.9	33.5	6.1	-1.9	32.9
6 South Central Arkansas	19.9	14.9	34.0	20.2	15.6	32.7	18.5	11.8	40.5
7 Crowley's Ridge and Arkansas Prairies	24.9	22.8	41.1	20.8	18.1	39.9	29.1	27.6	42.6
8 Mississippi Delta-Arkansas Section	31.0	25.9	38.0	28.2	24.7	33.8	35.9	28.2	43.6
9 Ozark Plateau-Arkansas	11.1	11.2	---	9.2	9.3	---	13.8	13.8	---
A Little Rock-North Little Rock SMSA	21.8	19.9	31.9	20.9	19.1	31.4	31.1	29.9	---
Louisiana									
1 Mississippi Delta-Lower Red River	21.0	18.4	28.9	19.5	18.3	23.7	29.6	19.2	47.4
2 Mississippi Delta-Northeast Louisiana	29.6	21.1	44.6	27.3	20.8	40.1	32.2	21.5	49.1
3 Mississippi Delta-Central Louisiana	25.4	15.6	48.4	22.5	16.8	39.3	30.6	12.9	59.7
4 North Central Louisiana	19.9	15.3	31.7	20.5	16.1	31.5	16.4	10.2	33.1
5 Southeast Louisiana	19.2	14.9	28.9	17.7	14.1	25.6	28.3	19.7	49.5
6 Louisiana Sugarcane	26.3	22.5	34.7	26.3	22.6	34.6	26.1	22.1	35.9
7 Southwest Louisiana Coast Prairies	19.9	17.5	37.7	21.2	19.1	34.7	17.2	14.0	46.5
8 West Central Louisiana	21.4	17.8	32.9	21.7	18.4	31.7	20.0	15.0	39.2
A Shreveport SMSA	21.2	14.3	34.8	22.3	15.4	38.1	12.3	-3.0	21.7
B New Orleans SMSA	19.3	17.4	34.0	19.6	17.7	34.0	---	---	---
C Baton Rouge SMSA	26.7	17.0	62.6	26.9	16.1	66.1	23.8	---	---
D Lake Charles SMSA	21.5	21.0	25.7	22.4	22.0	26.1	3.4	3.7	---
E Monroe SMSA	26.6	24.1	40.1	26.7	24.4	41.3	26.3	21.1	---
Oklahoma									
1 Oklahoma Panhandle	9.6	9.4	---	6.6	6.2	---	13.4	13.3	---
2 North Central Oklahoma	6.3	6.0	12.4	10.7	10.4	16.3	1.2	1.2	---
3 Northeast Oklahoma	12.8	12.4	18.3	12.6	12.4	16.2	13.0	12.5	---
4 Southwest Oklahoma	19.1	17.9	32.7	23.0	21.6	35.5	10.3	10.0	17.1
5 Central Oklahoma-Western	11.4	10.2	30.2	12.9	11.1	35.8	8.7	8.8	---
6 Central Oklahoma-Eastern	14.5	10.7	36.6	16.3	11.9	37.7	10.3	8.2	---
7 South Central Oklahoma	13.0	11.5	36.9	14.2	12.2	43.2	9.6	9.4	---
8 Eastern Oklahoma-Arkansas River	20.7	19.8	25.3	20.6	19.7	24.8	21.0	20.1	27.2
9 Ouachita Mountains-Western	19.1	17.2	38.3	21.3	18.9	41.6	13.7	13.2	22.9
10 Oklahoma Ozark	17.2	12.8	37.1	21.1	14.5	45.6	9.7	9.9	8.2
A Tulsa SMSA (Except Creek part)	18.7	18.6	20.2	19.8	19.9	19.1	11.9	11.2	---
B Oklahoma City SMSA (Except Canadian part)	17.3	14.8	52.7	19.5	16.1	---	9.5	10.3	---
C Tulsa SMSA (Creek part)	20.9	20.5	24.4	22.5	22.7	20.5	14.0	10.9	---
D Oklahoma City SMSA (Canadian part)	19.8	17.8	---	33.0	30.5	---	.2	.6	---
Texas									
1 Trans Pecos	16.6	16.4	---	18.5	18.3	---	9.3	9.3	---
2 Edwards Plateau-Eastern	6.0	6.3	-17.6	8.4	8.9	---	2.5	2.6	---
3 Southwest Rio Grande Plain	20.8	21.1	---	22.6	22.9	---	15.0	15.0	---
4 Texas Northern High Plains (Panhandle)	18.7	18.9	26.7	18.6	18.6	---	18.8	18.4	---
5 Texas Southern High Plains	17.7	17.5	21.4	16.6	16.7	13.9	19.1	18.6	---
6 Texas Rolling Plains	7.3	6.8	18.8	7.9	7.5	16.6	6.5	6.0	23.1
7 North Central Texas	11.2	10.2	61.3	17.2	15.6	---	1.3	1.4	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ -Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Texas -Continued									
8 Northern Blackland	13.4	11.3	27.3	18.3	16.8	27.1	4.1	1.6	27.8
9 Post Oak	9.5	3.6	23.6	11.8	5.7	23.3	6.3	1.1	24.1
10 Southern Blackland	6.6	3.6	28.6	10.2	6.8	28.1	2.9	.8	29.6
11 Northeast Rio Grande Plain	21.2	21.7	.0	25.2	25.6	7.6	14.2	14.9	---
12 Northeast Texas Sandy Lands	11.4	6.7	28.3	13.9	9.5	28.8	3.0	-2.1	26.1
13 Southeast Texas Sandy Lands	13.5	11.7	21.1	14.6	12.7	21.9	6.3	4.6	14.6
14 Texas Coast Prairie	15.9	14.8	20.4	16.3	15.7	18.5	14.7	12.3	32.0
15 Lower Rio Grande Valley	26.6	26.5	---	28.9	28.9	---	21.1	20.9	---
16 Edwards Plateau-Western	14.5	14.4	---	18.7	18.9	---	3.0	2.4	---
A El Paso SMSA	22.6	23.7	---	21.8	22.8	---	36.9	37.2	---
B Fort Worth SMSA	14.3	13.8	25.3	15.7	15.7	16.7	9.0	7.2	---
C Dallas SMSA (Except Denton part)	13.6	12.4	21.9	18.2	17.4	22.9	2.1	.4	17.8
D Waco SMSA	8.3	6.6	18.8	10.0	7.9	20.3	4.0	3.7	---
E Austin SMSA	13.6	13.1	19.3	14.1	13.7	18.5	11.6	10.3	---
F San Antonio SMSA	19.8	20.1	---	21.1	21.6	---	12.0	11.8	---
G Houston SMSA	16.3	15.7	20.9	16.8	16.2	21.6	11.9	12.0	---
H Beaumont-Port Arthur SMSA	18.9	19.1	14.7	19.7	19.9	16.3	1.7	3.1	---
J Amarillo SMSA	12.0	12.0	---	9.0	9.0	---	15.5	15.5	---
K Wichita Falls SMSA	1.4	1.5	---	1.6	1.7	---	.6	.6	---
L Lubbock SMSA	19.0	17.5	---	18.6	17.3	---	19.2	17.7	---
M Galveston-Texas City SMSA	15.2	15.1	---	15.9	15.8	---	2.7	2.7	---
N Corpus Christi SMSA	25.1	25.4	---	23.6	23.8	---	29.4	29.6	---
O Dallas SMSA (Denton part)	9.1	9.5	---	12.2	12.5	---	3.8	4.5	---
P Abilene SMSA	10.1	10.0	---	15.3	15.7	---	3.7	2.7	---
Montana									
1 Montana Mountains	12.5	12.1	34.4	13.2	12.7	---	10.1	10.3	---
2 North Central Montana Plains-Highline and Lower Yellowstone	18.3	17.4	28.9	18.8	17.6	29.4	17.4	17.1	---
3 Upper Yellowstone and Big Horn	21.0	19.3	40.5	19.9	18.2	34.5	22.6	20.8	---
4 Central and Southeast Montana	16.2	14.3	---	21.4	17.9	---	10.5	10.5	---
Idaho									
1 Idaho Mountains-Central	14.3	14.2	---	13.3	13.2	---	18.3	18.0	---
2 Lewiston-Pend Oreille	13.5	13.2	---	16.3	15.6	---	6.1	6.6	---
3 Southwest Idaho	19.9	20.2	---	19.2	19.5	---	20.7	20.9	---
4 Upper Snake River	28.2	28.4	21.0	25.9	25.9	---	31.0	31.5	---
Wyoming									
1 Wyoming Mountains-Western	11.3	11.5	---	11.4	11.6	---	11.0	11.2	---
2 Northern and Eastern Wyoming	15.5	15.0	31.5	14.2	12.4	33.7	18.0	17.8	---
Colorado									
1 Colorado Mountains-Continental Divide	10.4	10.3	---	10.9	10.8	---	8.1	8.3	---
2 Colorado Mountains	18.9	18.8	---	19.4	19.6	---	17.6	16.9	---
3 Northern Colorado-Irrigated	18.2	18.3	---	16.6	16.6	---	20.4	20.5	---
4 East Central Colorado Plains	12.1	12.1	---	7.7	7.7	---	18.3	18.3	---
5 Southeast Colorado	17.7	17.9	---	17.0	17.1	---	19.2	19.3	---
A Denver SMSA (Except Boulder part)	17.3	16.8	---	19.7	19.1	---	7.2	6.2	---
B Colorado Springs SMSA	29.0	29.6	---	31.3	32.1	---	-4.0	-4.0	---
C Pueblo SMSA	25.2	24.9	---	26.2	25.9	---	21.9	21.9	---
D Denver SMSA (Boulder part)	12.5	12.2	---	12.5	12.5	---	12.5	11.2	---
New Mexico									
1 Northwest New Mexico	32.0	29.6	37.2	32.4	30.6	36.8	29.3	21.2	39.1
2 Northeast New Mexico	24.9	25.1	---	28.2	28.5	---	17.3	17.6	---
3 Southern New Mexico	20.1	20.2	16.3	20.7	20.9	16.1	17.7	17.7	---
A Albuquerque SMSA	22.8	22.2	---	22.8	22.1	---	---	---	---
Arizona									
1 Northern Arizona	26.2	10.6	44.9	24.0	10.3	42.7	42.2	14.2	54.6
2 Southern Arizona	17.9	17.8	18.2	17.6	17.4	18.7	19.7	20.6	15.0
A Phoenix SMSA	14.6	13.9	23.4	13.5	12.9	22.7	21.0	20.3	25.6
B Tucson SMSA	16.6	15.3	23.5	16.2	14.6	26.9	20.2	---	---
Utah									
1 Wasatch Mountains and Northern Utah	23.7	23.5	---	21.2	21.0	---	31.7	31.7	---
2 Central Utah Valleys	28.4	28.9	---	28.5	28.9	---	28.1	29.0	---
3 Utah Basin and Plateau	23.3	23.2	25.4	22.2	22.3	19.9	29.5	28.1	---
A Salt Lake City SMSA	24.6	24.9	---	23.0	23.3	---	34.9	35.6	---
B Ogden SMSA	29.2	29.2	---	28.4	28.7	---	32.0	31.2	---
Nevada									
1 Nevada	9.2	7.4	29.8	10.4	8.5	32.7	1.8	.2	---
A Las Vegas SMSA	8.7	8.9	---	8.2	8.5	---	---	---	---
Washington									
1 Olympic Peninsula and Washington Coast	9.3	9.3	7.1	9.3	9.4	6.7	8.9	8.7	---
2 Northern Puget Sound	12.6	12.4	---	11.1	10.9	---	18.1	17.9	---
3 Central Puget Sound-Kitsap County	14.2	14.4	8.3	14.8	14.8	---	1.9	4.2	---
4 Southern Puget Sound and Interior Coastal Valley	18.1	18.0	---	18.2	18.0	---	18.1	18.1	---
5 Okanogan Highlands and Eastern Slopes of Cascades	12.9	12.5	---	13.6	12.8	---	10.8	11.7	---
6 Yakima Valley and Eastern Slopes of Cascades	18.9	18.9	19.2	19.9	20.1	15.5	16.8	16.4	25.7
7 Eastern Washington	14.6	14.8	---	13.4	13.6	---	17.4	17.6	---
8 Northeastern Washington-Columbia River Watershed	14.8	13.5	---	15.6	13.8	---	13.2	12.8	---

See footnote at end of table.

Table 12.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement rates, by color, for State economic areas, 1960-70 1/ - Continued

(Rates not shown for State economic areas with fewer than 100 departures)

State economic area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Washington -Continued									
A Seattle SMSA (Except Snohomish part)	15.1	15.0	18.2	15.2	15.2	19.1	12.8	12.6	---
B Tacoma SMSA	13.9	14.6	7.8	14.4	15.1	8.2	4.6	5.1	---
C Portland SMSA	15.6	15.5	---	16.1	16.0	---	13.7	13.8	---
D Spokane SMSA	19.2	19.2	---	21.1	21.1	---	11.2	11.3	---
E Seattle SMSA (Snohomish part)	16.7	16.5	---	17.2	17.0	---	12.1	12.0	---
Oregon									
1 Western Oregon	11.8	11.8	---	11.9	11.9	---	11.5	11.1	---
2 Willamette Valley	17.1	17.4	-1.5	19.4	19.7	---	11.3	11.2	---
3 Columbia Basin-Central	11.0	9.9	---	12.6	11.1	---	6.5	6.4	---
4 Eastern Oregon Plateau and Blue Mountain	15.1	14.6	31.0	15.8	15.2	30.2	13.6	13.1	---
A Portland SMSA	13.2	13.0	---	14.7	14.7	---	7.6	6.8	---
B Eugene SMSA	16.4	16.4	---	17.6	17.6	---	8.5	8.6	---
California									
1 Northern California Coast	11.5	11.4	15.7	12.4	12.3	15.5	2.9	2.5	---
2 North Central California Coast	7.0	6.9	9.3	8.3	8.3	8.0	-.4	-1.0	---
3 South Central California Coast	19.4	20.6	6.9	21.2	22.4	8.9	2.6	3.8	-7.5
4 Sacramento Valley	12.6	13.2	0	14.6	15.2	1.6	6.1	6.7	-3.8
5 Lower (Northern) San Joaquin Valley	16.8	17.4	5.5	18.5	19.3	4.1	12.7	12.7	---
6 Upper (Southern) San Joaquin Valley and Tulare Basin	20.2	21.8	-1.1	21.4	23.6	-4.4	17.4	18.0	8.6
7 Southern California Coast	12.0	12.4	.5	12.7	13.2	.1	4.6	4.6	---
8 Southern California Desert-Irrigated	3.9	5.1	-12.1	2.5	2.8	-3.2	12.2	19.5	-27.5
9 Eastern and Northern California Mountain and Valley	7.6	7.1	23.7	8.2	7.7	25.1	1.7	.8	---
A San Francisco-Oakland SMSA	14.3	15.2	2.8	14.8	15.6	3.8	8.7	9.9	---
B San Jose SMSA	19.2	20.8	2.7	22.7	23.8	---	10.3	12.5	-.6
C Sacramento SMSA	12.9	14.7	-3.8	12.3	14.1	-5.8	18.9	20.4	---
D Stockton SMSA	13.0	15.9	-10.3	14.6	18.4	-13.4	8.2	8.8	2.1
E Fresno SMSA	20.5	21.3	10.9	23.1	24.3	9.0	16.3	16.6	13.5
F Los Angeles-Long Beach SMSA	12.7	12.9	10.4	13.6	13.9	10.0	.9	.2	---
G San Diego SMSA	33.7	34.3	25.1	36.5	37.1	27.5	-1.1	-.7	---
H San Bernardino-Riverside-Ontario SMSA	9.7	10.2	3.4	10.2	10.8	2.8	2.3	1.6	---
J Bakersfield SMSA	16.9	18.4	-5.0	15.7	17.3	-5.2	25.6	26.8	---
K Santa Barbara SMSA	14.8	15.7	2.2	15.9	16.7	5.0	3.5	5.6	---
Alaska									
1 Southeastern Alaska Panhandle	17.3	6.6	51.7						
2 South Central Alaska, Alaska Peninsula, and Aleutian Chain	20.3	19.8	23.9						
3 Inland and Northern Alaska	20.8	15.5	33.4						
Hawaii									
1 Hawaii-Maui-Kauai	6.2	13.2	4.7	4.1	13.1	2.1	27.0	---	29.2
A Honolulu SMSA	27.2	31.2	20.2	27.3	31.4	19.9	21.6	---	25.2

1/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Maine									
Androscoggin		4	2	173	176	160	15.8	15.9	15.2
Aroostook 5/	5b	1	1	240	260	184	24.5	24.6	23.7
Cumberland 5/		A	2	185	191	119	17.8	18.5	5.7
Franklin		2	1	149	163	83	11.7	14.1	-6.1
Hancock	5b	3	1	123	125	89	6.4	7.0	-3.7
Kennebec		4	2	141	141	140	10.0	9.5	13.5
Knox	5b	3	1	124	124	129	6.3	6.0	9.2
Lincoln	5b	3	1	121	124	93	6.0	6.7	-1.9
Oxford		2	1	163	168	129	16.1	16.8	9.7
Penobscot	5b	2	1	195	199	164	19.5	19.5	19.5
Piscataquis	5b	2	1	144	142	---	11.3	10.6	---
Sagadahoc 5/		4	2	164	164	---	15.3	15.1	---
Somerset		2	1	179	---	227	18.7	---	31.6
Waldo		3	1	173	171	180	16.8	16.0	19.2
Washington	5b	3	1	143	143	---	10.2	10.3	---
York	5a	4	2	146	152	93	11.1	12.0	-2.5
New Hampshire									
Belknap		1	1	153	154	---	12.8	12.6	---
Carroll		1	1	118	119	---	5.1	5.4	---
Cheshire		2	2	141	143	120	9.9	10.1	6.6
Coos		1	1	158	154	190	14.0	12.8	23.1
Grafton	5b	1	1	152	155	132	12.5	12.9	8.8
Hillsborough		A	2	149	153	108	11.6	12.3	2.6
Merrimack		2	2	133	133	133	8.3	8.2	9.6
Rockingham 5/		2	2	160	162	132	11.8	11.9	10.8
Strafford		2	2	168	168	170	13.5	13.2	17.7
Sullivan		1	1	142	140	165	10.6	10.0	15.9
Vermont									
Addison		1	7	188	178	208	21.3	20.2	23.1
Bennington		2	1	135	138	111	9.2	9.9	3.0
Caledonia	5b	2	1	157	158	154	13.5	13.0	15.2
Chittenden		1	7	227	236	199	23.5	23.5	23.5
Essex	5b	2	1	148	148	---	13.2	13.1	---
Franklin		1	7	178	160	217	18.9	14.5	27.5
Grand Isle		1	7	109	96	---	2.5	-1.0	---
Lamoille		2	1	153	143	184	12.6	9.9	21.3
Orange		2	1	160	174	131	15.4	17.6	9.7
Orleans	5b	1	7	175	161	200	17.4	14.8	21.4
Rutland		2	1	168	172	146	16.1	16.9	12.0
Washington		2	1	190	195	174	19.0	19.0	18.8
Windham		2	1	164	166	154	15.9	16.0	15.4
Windsor		2	1	145	153	111	11.4	12.7	3.7
Massachusetts									
Barnstable 5/	5b	2	3	136	137	---	7.2	7.3	---
Berkshire	5a	F	2	136	137	128	8.4	8.6	7.1
Bristol	5a	E	3	157	160	118	12.3	12.7	5.2
Dukes	5b	2	3	112	117	---	3.3	4.6	---
Essex	5a	C	3	166	168	115	14.1	14.5	4.3
Franklin	5a	1	2	157	162	127	12.8	13.7	6.4
Hampden		A	4	165	168	104	13.2	13.8	1.1
Hampshire		A	4	167	171	140	13.4	13.8	9.6
Middlesex 5/	5a	C	3	195	197	135	15.4	15.5	10.3
Nantucket 5/		2	3	---	---	---	---	---	---
Norfolk	5a	C	3	163	170	88	11.9	12.7	-3.7
Plymouth	5a	D	3	149	149	134	10.9	11.0	9.3
White				149	149	133	10.8	10.9	9.1
Nonwhite				150	150	---	13.8	13.8	---
Suffolk		C	3	No rural population					
Worchester	5a	B	4	157	158	139	12.5	12.5	11.9
Rhode Island									
Bristol	5a	A	3	---	---	---	---	---	---
Kent 5/	5a	A	3	171	180	---	14.7	16.0	---
Newport 5/	5a	1	3	194	196	---	17.4	17.2	---
Providence	5a	A	3	144	146	103	9.8	10.1	.9
Washington 5/	5a	1	3	218	218	---	18.7	18.7	---
Connecticut									
Fairfield		A	5	146	147	88	10.0	10.2	-4.2
Hartford	5a	C	4	168	173	98	11.8	12.4	-.4
White				169	175	98	12.2	12.8	-.4
Nonwhite				91	92	---	-1.1	-1.0	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Connecticut—Continued									
Litchfield	5a	1	5	151	153	132	11.6	11.9	8.5
Middlesex		2	4	141	142	—	8.8	8.9	—
New Haven	5a	B	4	174	179	90	14.4	15.0	-3.1
New London 5/		2	4	173	177	125	13.7	14.1	7.0
Tolland		2	4	176	183	113	14.1	14.7	4.2
Windham	5a	2	4	147	148	139	10.9	10.9	11.1
New York									
Albany		F	6	137	138	125	8.4	8.6	6.8
Allegany		3	10	171	173	168	17.4	16.9	19.0
Bronx		G	5	No rural population					
Broome		E	10	196	203	155	19.1	19.5	15.0
Cattaraugus		3	10	161	163	155	14.6	14.5	15.2
Cayuga	5a	4	8	170	169	172	16.4	15.7	18.6
Chautauqua	5a	3	10	150	152	143	11.7	11.6	12.2
Chemung		3	10	171	179	128	15.1	16.1	8.1
Chenango		6	10	179	187	160	17.4	18.1	15.6
Clinton 5/	5a	7	7	195	198	185	16.6	15.5	23.5
Columbia		9	6	126	126	129	7.0	6.8	8.0
Cortland		4	8	172	170	177	15.4	14.7	17.3
Delaware		6	10	142	133	162	10.9	8.7	16.1
Dutchess		9	6	113	113	115	2.9	2.9	4.0
White				114	114	112	3.1	3.1	3.2
Nonwhite				103	98	—	.4	-.3	—
Erie		A	9	153	157	124	11.7	12.1	6.9
White				155	158	124	11.9	12.4	6.8
Nonwhite				103	101	—	.9	.5	—
Essex	5b	7	7	145	147	130	11.6	11.8	9.2
Franklin	5a	7	7	175	168	199	18.8	17.4	23.5
White				173	164	203	18.2	16.4	24.0
Nonwhite				201	—	—	28.3	—	—
Fulton	5a	5	8	142	137	187	10.4	9.5	16.9
Genesee		2	9	172	182	144	14.6	15.3	11.9
Greene	5b	9	6	130	133	114	8.6	9.2	4.2
Hamilton		5	8	91	92	—	-2.7	-2.3	—
Herkimer		D	8	160	155	176	13.9	12.4	19.5
Jefferson		7	7	157	156	162	13.7	12.9	16.6
Kings		G	5	No rural population					
Lewis		7	7	196	185	220	21.4	18.4	27.9
Livingston		2	9	138	141	128	9.2	9.5	8.1
Madison		C	8	186	187	182	19.0	18.0	22.0
Monroe		B	9	184	198	116	16.4	17.8	4.8
Montgomery	5a	5	8	134	136	130	8.5	8.4	8.4
Nassau		G	5	171	169	—	15.7	15.4	—
New York		G	5	No rural population					
Niagara		A	9	179	188	133	15.6	16.5	8.9
Oneida		D	8	160	161	156	13.3	13.2	14.0
Onondaga		C	8	175	179	145	15.2	15.6	12.3
Ontario		2	9	135	138	127	8.4	8.5	7.9
Orange 5/		9	6	154	156	133	11.7	12.0	9.0
White				145	146	134	9.8	9.9	9.5
Nonwhite				433	455	—	73.7	79.5	—
Orleans	5b	1	9	149	163	120	11.2	13.1	5.8
Oswego		C	8	161	167	132	14.5	15.3	9.6
Otsego		6	10	144	143	146	11.8	11.2	13.4
Putnam		9	6	121	120	—	5.2	5.1	—
Queens		G	5	No rural population					
Rensselaer		F	6	135	137	115	8.5	8.8	5.0
Richmond		G	5	No rural population					
Rockland		G	5	176	179	—	14.7	15.1	—
St. Lawrence	5a	7	7	182	187	168	18.2	18.4	17.6
Saratoga		F	6	164	171	113	13.5	14.5	3.6
Schenectady	5a	F	6	142	140	—	9.5	9.0	—
Schoharie	5b	6	10	120	122	115	5.5	5.7	5.0
Schuyler		3	10	178	174	192	18.7	17.3	22.9
Seneca		2	9	113	104	156	3.4	1.2	13.5
Steuben		3	10	144	133	199	11.3	8.6	24.3
Suffolk		G	5	140	139	144	8.3	8.3	9.5
White				142	142	146	8.8	8.7	10.1
Nonwhite				105	105	—	1.1	1.1	—
Sullivan		9	6	132	132	126	8.3	8.4	7.3
Tioga		3	10	184	204	128	16.8	18.6	8.3
Tompkins		3	10	182	180	193	15.4	14.5	21.2
Ulster		9	6	132	139	82	7.3	8.4	-5.7

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
New York--Continued									
Warren		8	6	149	149	—	12.5	12.4	—
Washington		8	6	166	172	150	14.5	15.0	12.7
Wayne		1	9	154	162	136	12.0	12.5	10.2
Westchester		G	5	138	138	—	9.3	9.3	—
Wyoming		2	9	142	138	155	9.0	7.4	14.6
Yates		2	9	147	133	174	12.4	8.5	20.3
New Jersey									
Atlantic	5a	E	15	131	136	99	7.8	8.8	-.3
White				133	139	103	8.0	8.9	1.1
Nonwhite				118	123	—	6.2	7.7	—
Bergen 5/		G	5	167	163	—	12.4	11.1	—
Burlington 5/		D	14	181	183	169	13.6	13.3	17.3
White				175	176	[illegible]	12.8	12.4	17.5
Nonwhite				330	340	—	27.5	28.0	—
Camden		D	14	120	124	—	5.1	5.8	—
White				120	123	—	4.9	5.6	—
Nonwhite				123	127	—	6.1	7.0	—
Cape May	5a	2	15	112	113	—	3.3	3.6	—
Cumberland	5a	2	15	145	143	158	10.5	9.9	14.8
White				140	142	127	9.5	9.7	7.4
Nonwhite				160	146	—	13.6	1.5	—
Essex		B	5	104	104	—	.9	.9	—
Gloucester		D	14	156	159	135	11.9	12.5	8.2
White				155	159	134	11.4	12.0	7.8
Nonwhite				159	161	—	15.7	16.0	—
Hudson		H	5	No rural population					
Hunterdon		1	5	153	159	122	12 9	13.9	6.4
Mercer		C	5	127	131	90	5.9	6.5	-2.7
White				127	131	91	5.8	6.5	-2.5
Nonwhite				129	133	—	6.2	7.1	—
Middlesex		1	5	216	234	85	18.1	19.6	-4.4
White				198	214	82	15.1	16.4	-5.3
Nonwhite				490	—	—	72.4	—	—
Monmouth	5a	1	5	124	128	90	5.8	6.5	-3.0
White				121	125	90	5.1	5.8	-3.1
Nonwhite				156	161	—	13.2	14.3	—
Morris		B	5	152	151	171	10.8	10.5	20.8
Ocean 5/	5a	2	15	134	138	65	8.0	8.6	-14.4
White				135	138	67	8.1	8.7	-13.6
Nonwhite				111	118	—	3.6	5.8	—
Passaic	5a	G	5	144	146	—	9.0	9.4	—
Salem 5/		F	15	180	213	94	15.9	19.7	-1.8
White				185	215	100	16.7	20.1	.1
Nonwhite				154	196	—	11.2	16.9	—
Somerset		1	5	120	121	113	4.4	4.5	3.8
White				122	122	114	4.8	4.9	4.2
Nonwhite				69	70	—	-6.1	-5.9	—
Sussex		1	5	137	140	121	8.5	8.9	5.6
Union		B	5	No rural population					
Warren		A	12	143	147	120	9.5	10.1	4.8
Pennsylvania									
Adams		7	16	175	185	144	16.5	17.3	13.0
Allegheny	5a	D	27	157	157	175	12.0	11.8	21.2
White				159	158	181	12.1	11.9	22.6
Nonwhite				126	128	—	9.8	10.7	—
Armstrong	5a	1	28	166	171	119	14.5	15.2	5.6
Beaver	5a	D	27	181	188	107	15.4	16.1	2.6
Bedford	5b	5	17	179	170	216	16.6	14.6	25.5
Berks		L	12	139	137	148	8.5	7.9	12.8
Blair	5a	F	17	155	151	201	12.8	11.6	27.1
Bradford	5a	2	10	175	166	195	17.3	15.3	22.0
Bucks		B	13	161	162	148	12.4	12.4	12.1
Butler	5a	1	28	174	177	148	15.1	15.3	13.1
Cambria	5a	E	27	205	205	203	21.3	20.9	28.8
Cameron	5a	3	17	170	171	—	16.6	17.0	—
Carbon	5a	6	11	127	129	—	6.3	6.9	—
Centre	5a	5	17	194	190	227	16.0	14.8	27.3
Chester		B	13	173	177	152	13.9	14.0	13.1
White				171	174	151	13.3	13.4	12.8
Nonwhite				206	206	—	21.3	21.1	—
Clarion	5b	4	27	155	164	120	13.2	14.3	6.8
Clearfield	5a	4	27	170	171	152	16.0	16.2	14.0

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Pennsylvania --Continued									
Clinton	5b	3	17	167	174	115	13.5	14.2	5.0
Columbia	5a	6	11	152	154	147	12.1	11.9	12.7
Crawford	5a	1	28	169	166	180	15.6	14.3	20.6
Cumberland		H	16	260	280	178	27.7	29.2	19.1
Dauphin		H	16	169	168	178	14.5	14.0	18.8
Delaware		B	13	190	192	---	18.8	19.1	---
Elk	5a	3	17	188	193	---	16.4	17.1	---
Erie	5a	A	28	193	203	149	18.6	19.6	13.0
Fayette	5a	4	27	159	159	149	13.7	13.8	12.4
White				159	159	151	13.4	13.5	12.8
Nonwhite				157	159	---	21.5	22.1	---
Forest	5b	3	17	125	128	---	7.2	7.6	---
Franklin		7	16	165	163	169	13.9	13.0	18.5
White				169	169	170	14.6	13.8	18.6
Nonwhite				44	44	---	-20.9	-20.8	---
Fulton	5b	5	17	183	199	151	18.6	20.2	14.2
Greene	5b	4	27	150	154	133	13.2	13.5	11.3
Huntingdon	5b	5	17	174	171	189	16.8	15.7	23.1
Indiana	5a	4	27	170	178	131	16.1	17.0	9.4
Jefferson	5b	4	27	154	160	130	13.1	13.7	9.5
Juniata	5a	5	17	164	166	158	14.3	14.2	15.0
Lackawanna	5a	C	11	107	104	127	1.9	1.2	7.2
Lancaster		K	16	179	150	299	16.2	10.4	37.7
Lawrence	5a	1	28	165	161	197	13.3	12.5	22.2
Lebanon		7	16	155	147	204	10.9	9.2	23.2
Lehigh		M	12	140	137	163	8.5	7.8	15.1
Luzerne	5a	G	11	132	133	127	7.9	7.9	7.7
Lycoming	5b	3	17	144	146	132	9.9	10.0	9.2
McKean	5b	1	28	135	130	---	8.9	7.8	---
Mercer	5a	1	28	202	209	170	20.1	20.2	19.5
Mifflin	5a	5	17	173	163	253	15.2	13.2	30.3
Monroe	5b	6	11	124	124	127	5.5	5.4	8.0
Montgomery		B	13	154	156	137	10.4	10.4	9.9
White				158	160	138	11.1	11.2	10.3
Nonwhite				69	71	---	-4.4	-4.1	---
Montour	5a	6	11	97	69	---	-.7	-7.9	---
Northampton		M	12	142	139	177	8.8	8.1	16.3
Northumberland	5a	6	11	139	137	151	9.3	8.7	13.1
Perry	5b	5	17	181	168	234	18.0	14.9	31.3
Philadelphia		B	13	No rural population					
Pike	5b	6	11	80	83	---	-6.1	-5.2	---
Potter	5b	2	10	150	143	177	12.7	10.9	19.4
Schuylkill	5a	6	11	122	122	127	5.4	5.3	6.4
Snyder	5a	5	17	198	207	170	20.2	21.1	16.8
Somerset	5a	E	27	167	170	154	15.2	15.3	14.6
Sullivan	5b	3	17	143	126	194	11.5	6.9	27.6
Susquehanna	5b	2	10	161	176	128	14.0	16.4	7.6
Tioga	5b	2	10	172	170	176	16.4	15.1	20.7
Union	5a	5	17	170	166	193	12.6	11.4	21.8
Venango	5b	1	28	161	163	150	14.6	14.7	13.6
Warren	5b	1	28	135	127	211	8.4	6.6	28.6
Washington	5a	D	27	169	170	154	14.3	14.5	12.5
White				170	172	154	14.3	14.5	12.5
Nonwhite				137	137	---	13.9	13.9	---
Wayne	5b	2	10	108	93	146	2.1	-1.8	13.7
Westmoreland	5a	D	27	163	165	142	12.8	12.9	11.9
White				164	166	142	12.8	12.8	11.9
Nonwhite				139	139	---	14.3	14.3	---
Wyoming	5b	2	10	173	182	135	18.2	20.2	9.0
York		J	16	157	156	163	12.6	11.8	17.1
Ohio									
Adams	5a	7	46	136	150	124	10.1	11.1	8.6
Allen		0	48	166	189	113	13.4	15.7	4.3
Ashland		4	28	163	198	118	14.7	19.2	5.7
Ashtabula	5a	5	28	157	159	152	12.9	12.6	14.2
Athens	5a	8	30	145	148	130	12.4	12.9	9.2
Auglaize		2	48	173	192	150	17.0	18.0	15.0
Belmont	5a	J	29	168	174	133	15.4	16.4	8.8
Brown	5a	7	46	151	189	118	12.7	17.4	5.9
Butler		D	47	234	270	116	25.7	29.1	5.2
Carroll		6	29	198	223	150	21.6	24.1	14.5
Champaign		3	47	190	195	182	19.2	18.7	20.2
Clark		N	47	176	190	120	16.2	18.0	6.0

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Ohio--Continued									
Clermont	5a	7	46	206	223	125	19.2	20.4	7.8
Clinton		3	47	174	203	134	16.4	19.4	10.1
Columbiana		5	28	179	183	160	16.6	16.6	16.8
Coshocton		6	29	154	172	122	12.9	14.8	7.4
Crawford		2	48	190	194	185	18.2	16.8	20.3
Cuyahoga		E	28	153	164	—	12.1	14.1	—
Darke		3	47	171	180	161	15.9	15.7	16.2
Defiance		1	48	174	220	144	17.2	21.1	12.9
Delaware		3	47	158	172	133	13.3	14.8	9.8
Erie		4	28	181	203	112	14.9	17.2	3.2
Fairfield		6	29	230	261	157	28.7	32.2	16.7
Fayette		3	47	167	181	150	15.5	17.7	12.4
Franklin 5/		B	47	187	198	128	15.0	15.6	8.8
Fulton		1	48	166	168	162	15.5	14.2	18.0
Gallia	5a	8	30	176	181	168	19.1	18.6	19.8
Geauga		5	28	224	224	224	21.5	20.7	29.1
Greene		C	47	232	265	147	23.1	25.7	12.4
White				219	250	148	21.2	23.6	12.4
Nonwhite				373	389	—	40.3	41.0	—
Guernsey	5a	6	29	127	127	125	7.2	7.1	7.7
Hamilton		K	46	183	186	140	15.9	16.1	12.2
Hancock		2	48	175	191	158	16.4	17.5	14.9
Hardin		2	48	181	209	153	17.9	21.3	13.4
Harrison		6	29	134	145	99	9.3	11.5	-.4
Henry		1	48	161	185	138	14.2	17.4	10.2
Highland	5b	7	46	137	143	131	10.4	11.0	9.7
Hocking	5a	8	30	183	204	99	19.7	23.8	-.2
Holmes		4	28	200	173	222	22.5	14.9	30.3
Huron		4	28	185	188	181	18.2	16.9	21.1
Jackson	5a	8	30	212	230	153	25.7	27.9	15.7
Jefferson		6	29	169	168	178	14.9	14.6	20.4
Knox		6	29	173	179	156	16.7	17.0	15.6
Lake		E	28	175	187	77	14.2	15.7	-6.9
Lawrence	5a	L	30	193	202	146	20.3	21.1	14.2
Licking		6	29	184	196	151	16.6	17.4	13.3
Logan		2	48	160	157	169	14.4	13.2	17.8
Lorain		M	28	212	227	151	20.1	20.9	14.2
Lucas		A	49	168	173	135	15.5	16.2	10.1
White				168	175	131	15.3	16.1	9.0
Nonwhite				158	152	—	19.0	17.1	—
Madison		3	47	163	140	202	10.9	6.1	24.1
Mahoning		H	28	173	183	116	14.7	15.8	4.8
Marion		2	48	170	179	145	12.9	13.3	11.2
Medina		4	28	177	195	123	15.7	17.6	6.9
Meigs	5a	8	30	175	200	132	18.5	21.7	10.3
Mercer		2	48	165	163	167	15.0	12.9	17.7
Miami		C	47	186	219	124	18.4	22.0	7.4
Monroe	5a	8	30	138	162	107	9.4	13.8	2.1
Montgomery		C	47	179	197	112	15.9	17.9	3.7
Morgan	5b	8	30	142	138	152	11.0	8.9	16.1
Morrow		6	29	207	233	179	22.7	24.1	20.7
Muskingum		6	29	154	169	98	12.4	14.6	-.4
Noble	5a	8	30	130	142	111	7.6	9.6	3.5
Ottawa		1	48	151	158	129	11.6	12.3	8.6
Paulding		1	48	179	207	140	15.5	18.4	9.7
Perry	5b	6	29	157	157	156	14.2	14.0	14.9
Pickaway		3	47	190	227	120	17.9	21.7	5.9
Pike	5a	8	30	217	227	185	23.8	24.1	22.7
Portage	5a	5	28	207	217	156	20.3	21.1	15.3
Preble		3	47	213	240	170	22.7	24.1	18.9
Putnam		1	48	188	183	193	19.6	16.3	24.8
Richland		4	28	184	183	188	16.3	15.2	22.8
White				190	191	185	17.2	16.4	22.3
Nonwhite				115	109	—	3.5	2.1	—
Ross	5a	7	46	171	175	155	13.6	13.3	15.5
White				172	177	153	14.0	13.8	14.8
Nonwhite				155	—	—	8.2	—	—
Sandusky		1	48	198	208	179	19.6	19.4	19.9
Scioto	5a	8	30	195	196	190	21.4	21.0	25.2
Seneca		2	48	196	215	172	19.9	20.5	18.8
Shelby		3	47	168	178	157	15.9	16.2	15.5
Stark		G	28	164	165	157	13.9	13.7	15.9
White				166	167	156	14.1	14.0	15.7
Nonwhite				95	91	—	-1.4	-2.9	—

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Ohio--Continued									
Summit		F	28	167	168	155	14.4	14.3	16.5
Trumbull		H	28	208	215	164	19.9	20.0	17.9
White				209	216	164	19.8	20.0	17.8
Nonwhite				188	186	—	23.1	22.9	—
Tuscarawas		6	29	163	156	197	14.8	12.8	26.4
Union		2	48	169	210	124	16.7	22.5	7.2
Van Wert		1	48	154	203	113	13.4	20.5	4.1
Vinton	5a	8	30	214	230	147	28.5	30.8	15.6
Warren		3	47	223	248	137	20.8	22.3	10.9
Washington	5b	8	30	164	169	150	14.3	14.3	14.5
Wayne		4	28	199	200	197	20.1	18.7	24.3
Williams		1	48	151	166	135	12.4	13.6	10.5
Wood		1	48	163	177	132	14.4	15.8	9.6
Wyandot		2	48	163	170	157	14.3	12.6	16.6
Indiana									
Adams		3	48	198	246	177	21.2	22.6	20.1
Allen		C	48	179	186	163	16.1	15.7	17.4
Bartholomew		5	47	204	245	120	18.4	21.1	6.4
Benton		9	47	158	155	162	14.3	13.0	16.3
Blackford		3	48	207	241	172	21.7	23.6	18.5
Boone		5	47	154	193	113	12.9	18.2	4.1
Brown		7	52	188	175	224	23.5	19.0	39.2
Carroll		9	47	137	151	121	9.4	11.3	6.3
Cass		9	47	136	140	131	8.4	8.1	9.1
Clark	5b	F	46	164	175	144	15.2	15.6	14.0
Clay	5b	6	51	121	128	108	6.0	7.3	2.6
Clinton		9	47	157	177	131	13.9	16.5	9.2
Crawford	5b	7	52	169	171	167	17.0	16.0	18.9
Daviess		6	51	179	177	181	19.0	17.8	20.6
Dearborn	5b	8	46	157	174	129	12.9	14.9	8.3
Decatur		5	47	163	233	107	15.2	25.2	2.2
De Kalb		3	48	162	170	152	15.6	15.6	15.5
Delaware		H	47	165	199	95	14.1	18.1	-1.8
Dubois		7	52	151	154	148	11.7	10.7	13.3
Elkhart		1	64	190	182	214	18.2	15.4	30.2
Fayette		4	47	177	211	144	18.3	21.6	13.3
Floyd		F	46	162	179	114	14.1	16.3	4.4
Fountain		9	47	145	179	110	10.1	14.7	3.0
Franklin		8	46	201	239	171	22.1	23.5	20.3
Fulton		2	48	140	155	126	10.4	12.9	7.7
Gibson		6	51	143	150	131	10.6	11.0	9.6
Grant		4	47	189	210	148	18.2	19.4	14.1
Greene	5b	6	51	121	124	115	6.0	6.5	4.8
Hamilton		5	47	167	184	129	13.8	15.3	8.4
Hancock		5	47	180	212	134	16.5	19.2	9.8
Harrison	5b	7	52	184	192	178	20.9	19.6	22.6
Hendricks		5	47	205	260	111	21.3	27.1	3.4
Henry	5a	4	47	169	193	122	15.5	17.9	7.3
Howard		4	47	201	230	145	18.0	19.6	12.6
Huntington		3	48	149	168	127	11.9	14.6	7.9
Jackson		8	46	158	187	110	13.4	17.6	3.0
Jasper	5b	2	48	300	414	183	35.5	47.6	17.9
Jay		3	48	165	168	163	15.3	12.7	18.3
Jefferson		8	46	141	141	140	10.7	9.3	13.2
Jennings	5b	8	46	186	218	144	20.9	23.8	14.8
Johnson		5	47	199	236	141	17.8	19.8	11.8
Knox		6	51	145	152	134	12.2	12.7	11.0
Kosciusko		2	48	178	188	159	17.2	17.7	15.8
Lagrange		3	48	197	154	257	21.5	12.0	34.2
Lake		A	64	181	187	154	16.4	16.7	14.8
La Porte		1	64	158	164	140	12.7	12.9	11.7
Lawrence	5b	7	52	161	172	133	13.9	15.2	9.7
Madison		4	47	173	193	109	13.2	14.6	3.5
Marion 5/		D	47	188	201	88	16.0	17.2	-4.4
White				192	206	88	16.4	17.7	-4.1
Nonwhite				99	101	—	-.3	.5	—
Marshall		2	48	167	188	144	16.7	17.7	14.4
Martin	5b	7	52	176	195	144	18.6	20.4	13.9
Miami 5/		9	47	222	255	165	18.8	19.5	16.4
Monroe	5b	7	52	169	189	96	14.2	16.3	-1.3
Montgomery		9	47	134	134	134	8.4	7.8	9.6
Morgan	5b	6	51	195	228	122	19.7	23.0	7.1
Newton		2	48	146	128	178	12.0	7.2	21.5

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Indiana--Continued									
Noble		3	48	143	162	124	11.0	13.3	7.6
Ohio	5b	8	46	126	121	132	7.1	5.3	10.6
Orange	5b	7	52	138	134	146	9.8	8.1	14.6
Owen		6	51	131	149	110	9.0	13.1	3.5
Parke		9	47	124	118	133	6.9	5.2	9.6
Perry	5b	7	52	160	180	129	15.2	18.6	8.3
Pike	5b	6	51	115	132	85	4.3	8.2	-5.2
Porter		A	64	176	190	133	15.8	17.2	9.4
Posey		6	51	128	154	93	7.3	12.1	-2.1
Pulaski	5b	2	48	165	146	190	15.1	10.2	21.9
Putnam		5	47	125	123	128	5.9	4.9	8.4
Randolph		4	47	166	196	139	16.2	19.5	11.7
Ripley	5b	8	46	162	190	133	15.8	19.2	10.5
Rush		5	47	182	256	128	19.8	30.3	8.4
St. Joseph		B	64	169	182	124	14.9	16.3	7.5
Scott	5b	8	46	179	214	142	17.6	21.5	11.5
Shelby		5	47	167	193	129	14.5	17.5	8.1
Spencer	5b	6	51	162	188	126	14.0	16.8	8.1
Starke	5b	2	48	166	196	123	16.2	20.2	7.4
Steuben		3	48	147	165	123	12.3	15.0	7.4
Sullivan	5b	6	51	127	129	123	7.4	7.6	7.1
Switzerland	5b	8	46	141	184	120	10.8	17.8	6.0
Tippecanoe		9	47	330	424	136	32.8	37.3	10.1
Tipton		5	47	158	183	131	13.7	16.8	8.9
Union		4	47	187	184	---	19.2	19.0	---
Vanderburgh	5a	E	51	166	171	147	13.9	13.7	14.8
Vermillion	5b	9	47	127	134	105	7.4	8.9	1.8
Vigo		G	51	158	176	107	12.6	14.6	2.3
Wabash		9	47	192	240	150	19.4	24.5	12.8
Warren		9	47	142	138	151	11.0	9.5	14.1
Warrick		6	51	171	180	147	15.7	16.3	13.6
Washington	5b	7	52	157	215	125	15.4	22.2	8.7
Wayne		4	47	148	152	137	10.7	10.8	10.3
Wells		3	48	170	182	163	16.0	14.6	17.4
White		9	47	141	149	130	10.4	11.6	8.4
Whitley		3	48	171	194	148	16.1	18.1	13.2
Illinois									
Adams		4	71	120	112	133	5.7	3.4	9.4
Alexander	5a	11	62	128	132	118	8.3	9.3	5.6
White				124	127	118	6.2	6.6	5.2
Nonwhite				140	144	---	16.6	18.1	---
Bond	5a	7	72	124	121	126	6.1	4.7	7.9
Boone		2	64	161	180	143	13.6	15.5	11.5
Brown		4	71	108	104	111	2.5	1.3	3.6
Bureau		3	70	139	132	152	9.8	7.7	13.2
Calhoun	5b	4	71	108	78	132	2.3	-5.6	10.6
Carroll	5b	1	69	151	126	204	12.4	6.9	21.4
Cass		6	63	145	143	146	11.3	10.5	12.6
Champaign		6	63	158	164	148	11.8	11.5	12.3
Christian	5a	6	63	147	146	148	11.1	10.6	12.0
Clark		9	51	107	113	101	2.3	3.8	.5
Clay		8	62	137	133	141	10.0	8.0	12.6
Clinton	5a	7	72	147	148	146	11.2	10.4	13.1
Coles	5a	6	63	132	169	95	8.0	14.2	-1.4
Cook		C	64	158	171	88	12.1	13.9	-3.9
Crawford		9	51	117	128	98	4.8	7.4	-.5
Cumberland	5a	8	62	118	135	104	5.1	7.9	1.5
De Kalb		1	69	162	171	151	14.1	14.7	13.1
De Witt		6	63	139	131	150	9.5	7.2	12.8
Douglas		6	63	155	160	144	11.7	12.0	10.8
Du Page		C	64	180	182	159	14.7	14.6	16.5
Edgar		6	63	125	151	100	6.5	12.4	0
Edwards	5b	9	51	141	159	110	10.8	14.5	3.1
Effingham		7	72	157	156	158	13.9	11.9	16.8
Fayette		7	72	132	129	135	7.8	6.1	10.8
Ford		6	63	141	120	156	10.0	5.0	14.0
Franklin	5a	10	62	121	117	136	6.5	5.3	11.3
Fulton		3	70	145	145	145	11.6	11.3	12.2
Gallatin	5a	9	51	178	191	152	20.5	22.5	15.7
Greene		4	71	135	166	103	9.0	15.1	.9
Grundy		5	63	150	153	145	11.5	11.7	11.3
Hamilton	5a	8	62	127	106	144	8.0	2.2	12.0
Hancock		3	70	134	143	123	8.8	10.3	6.7

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Illinois--Continued									
Hardin	5a	11	62	169	176	—	17.1	17.1	—
Henderson		3	70	144	162	122	10.6	15.0	5.1
Henry		3	70	159	152	167	13.7	12.3	15.2
Iroquois		6	63	139	144	131	9.6	10.9	8.1
Jackson	5a	11	62	202	239	129	21.6	25.9	8.5
Jasper		8	62	149	190	132	13.4	20.3	9.7
Jefferson	5a	10	62	123	139	106	6.2	8.9	2.0
Jersey	5b	4	71	189	259	112	20.7	31.1	3.6
Jo Daviess		1	69	145	125	167	11.8	6.6	17.4
Johnson	5a	11	62	133	140	122	10.1	11.6	7.1
Kane		C	64	178	187	150	17.3	18.5	12.7
Kankakee		5	63	78	69	125	-6.4	-8.8	7.7
White				83	73	125	-4.8	-7.4	7.8
Nonwhite				50	49	—	-18.1	-18.2	—
Kendall		5	63	178	184	169	15.2	13.8	18.4
Knox		3	70	146	146	145	11.4	10.7	12.3
Lake		C	64	166	170	122	13.9	14.5	5.6
La Salle		5	63	147	167	118	11.3	14.5	5.2
Lawrence		9	51	132	144	107	9.0	11.3	2.5
Lee		1	69	163	172	154	14.9	15.2	14.5
Livingston		6	63	177	195	158	15.5	15.9	14.8
Logan		6	63	142	152	123	9.3	10.9	5.7
McDonough		3	70	134	159	116	9.4	14.0	5.0
McHenry		C	64	158	152	184	12.6	11.2	19.0
McLean		6	63	148	152	143	11.7	11.8	11.6
Macon		8	63	185	207	130	17.0	19.3	8.1
Macoupin	5a	4	71	120	117	125	5.6	4.6	7.5
Madison		F	72	138	150	95	8.8	10.6	-1.6
Marion	5a	8	62	134	154	102	9.3	13.0	.9
Marshall	5b	3	70	146	138	159	10.6	8.2	15.9
Mason		6	63	132	143	118	8.3	10.4	5.1
Massac	5a	11	62	166	199	111	16.2	22.0	3.5
Menard		6	63	123	126	116	6.5	7.3	4.9
Mercer	5b	3	70	151	141	163	13.1	10.7	16.1
Monroe	5b	7	72	128	136	120	8.0	9.4	6.0
Montgomery	5a	4	71	118	106	136	4.9	1.7	9.7
Morgan		4	71	125	144	104	7.0	10.3	1.6
Moultrie	5b	6	63	144	132	160	10.8	7.4	16.5
Ogle		1	69	157	187	127	12.9	17.3	7.2
Peoria		D	63	156	160	139	11.7	12.0	10.2
Perry	5a	10	62	116	122	109	4.6	5.8	3.0
Piatt		6	63	181	178	187	17.4	17.7	17.1
Pike		4	71	115	109	123	4.3	2.5	6.8
Pope	5a	11	62	120	159	68	6.2	16.3	-11.4
Pulaski	5a	11	62	136	150	97	10.9	13.9	-1.2
White				107	115	90	2.1	3.8	-3.8
Nonwhite				198	212	—	35.2	39.9	—
Putnam		3	70	127	136	110	7.1	8.5	3.2
Randolph	5b	7	72	89	81	110	-2.4	-3.8	3.2
White				95	89	110	-1.0	-2.3	3.2
Nonwhite				13	13	—	-12.3	-12.3	—
Richland	5b	8	62	143	181	121	12.3	19.3	6.8
Rock Island		A	70	171	181	147	14.4	15.0	12.4
St. Clair 5/		F	72	153	169	104	10.3	11.9	1.2
Saline	5a	10	62	124	129	104	6.6	7.9	1.3
Sangamon		E	63	136	140	127	9.2	9.6	7.8
Schuyler		4	71	114	120	111	4.6	6.6	3.7
Scott		4	71	125	139	109	7.5	10.0	3.4
Shelby	5b	6	63	140	151	127	10.4	12.7	7.6
Stark		3	70	153	158	146	12.7	14.0	10.8
Stephenson		1	69	153	133	177	11.8	7.3	17.1
Tazewell		D	63	150	151	146	10.7	10.5	11.4
Union	5a	11	62	93	91	98	-2.1	-2.7	-.[illegible]
Vermilion		6	63	128	129	125	7.2	6.9	8.0
Wabash		9	51	124	103	151	7.3	1.0	16.6
Warren		3	70	130	154	110	7.8	13.2	2.7
Washington		7	72	92	87	97	-2.3	-3.8	-.9
Wayne	5a	8	62	146	220	113	13.7	24.8	4.9
White	5a	9	51	144	156	124	11.5	13.4	7.5
Whiteside		1	69	175	171	181	15.6	13.5	19.1
Will		C	64	154	159	133	9.2	9.1	9.3
White				164	174	133	11.6	12.0	9.3
Nonwhite				25	25	—	-7.9	-7.9	—
Williamson	5a	10	62	139	152	97	10.2	12.8	-.8

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Illinois--Continued									
Winnebago		B	69	165	174	136	13.5	14.3	9.6
Woodford		6	63	162	166	154	14.6	15.0	13.7
Michigan									
Alcona		4	66	138	133	150	12.0	10.6	15.4
Alger	5b	2	66	214	186	---	25.0	20.9	---
Allegan		6	50	186	201	161	18.5	19.4	16.5
Alpena	5b	4	66	189	183	199	17.8	15.1	25.5
Antrim	5b	4	66	142	130	193	11.8	8.4	24.4
Arenac	5b	4	66	180	168	211	17.9	15.2	24.5
Baraga	5b	1	66	153	154	---	13.2	13.5	---
Barry		9	48	168	184	136	15.2	16.9	10.4
Bay	5a	C	49	205	217	186	19.3	18.7	20.7
Benzie	5b	3	50	145	150	125	12.7	13.0	10.3
Berrien		6	50	181	196	139	16.4	17.8	10.9
White				183	198	142	16.6	17.8	11.6
Nonwhite				140	165	---	11.4	18.0	---
Branch		9	48	205	219	179	21.8	22.5	20.0
Calhoun		9	48	165	168	155	13.0	12.6	14.7
Cass		9	48	158	161	148	14.0	13.8	14.6
White				165	171	150	15.1	15.4	14.4
Nonwhite				109	97	---	3.4	-.8	---
Charlevoix	5b	4	66	169	161	187	19.0	16.4	26.1
Cheboygan	5b	4	66	127	120	142	8.6	6.2	16.6
Chippewa 5/	5b	2	66	182	192	156	14.7	14.5	15.5
Clare	5b	4	66	138	131	169	9.6	7.9	17.9
Clinton		E	49	197	211	179	19.4	19.1	19.8
Crawford	5b	4	66	130	132	---	6.8	7.2	---
Delta	5a	2	66	176	176	178	18.5	18.0	20.7
Dickinson	5b	1	66	160	166	---	14.7	15.7	---
Eaton		E	49	184	205	159	18.3	19.4	16.4
Emmet	5b	4	66	147	139	173	12.5	10.0	21.5
Genesee		D	49	203	216	141	20.2	21.2	12.2
Gladwin		4	66	173	170	179	18.8	17.0	22.6
Gogebic	5b	1	66	178	175	---	19.5	18.9	---
Grand Traverse	5a	3	50	174	185	145	16.5	17.5	12.7
Gratiot	5b	5	49	179	196	167	18.0	18.5	17.4
Hillsdale	5b	9	48	164	177	150	15.4	16.0	14.4
Houghton	5b	1	66	164	177	88	15.3	17.4	-4.2
Huron	5b	5	49	186	188	184	19.5	18.8	20.4
Ingham		E	49	190	207	156	18.9	19.8	16.0
Ionia		7	49	181	194	160	17.0	16.6	18.2
White				176	187	161	16.9	16.2	18.4
Nonwhite				246	---	---	18.4	---	---
Iosco 5/		4	66	145	159	76	9.3	11.2	-8.4
Iron	5b	1	66	147	135	---	11.5	8.7	---
Isabella		5	49	195	193	197	21.2	17.6	27.0
Jackson		H	49	144	144	142	7.8	7.3	11.8
White				157	160	142	10.7	10.5	11.8
Nonwhite				18	18	---	-9.8	-9.8	---
Kalamazoo		G	48	175	192	111	14.9	16.9	3.2
Kalkaska	5a	4	66	139	139	---	10.7	10.8	---
Kent		B	50	178	181	169	16.7	16.0	19.7
Keweenaw 5/	5b	1	66	121	121	---	5.0	5.1	---
Lake	5b	4	66	135	135	---	11.4	12.0	---
White				144	148	---	12.8	14.3	---
Nonwhite				111	108	---	5.6	4.3	---
Lapeer	5b	7	49	190	224	141	18.7	22.0	11.3
Leelanau	5a	3	50	165	166	163	16.2	14.7	19.8
Lenawee	5a	9	48	195	222	155	19.6	21.8	14.7
Livingston	5b	7	49	164	179	120	14.7	16.6	6.3
Luce	5b	2	66	117	115	---	5.0	4.4	---
Mackinac	5b	2	66	135	130	---	8.7	7.4	---
Macomb 5/	5a	F	49	169	173	150	13.6	13.6	13.2
Manistee	5b	3	50	151	143	185	12.7	10.5	22.1
Marquette 5/	5a	1	66	189	192	---	15.1	15.2	---
Mason		3	50	147	159	130	12.4	13.5	10.1
Mecosta	5b	4	66	171	156	190	18.0	12.7	27.1
Menominee	5b	2	66	148	166	118	13.7	17.3	6.4
Midland		5	49	217	226	196	22.9	21.9	26.9
Missaukee	5b	4	66	169	192	147	19.0	21.4	15.8
Monroe	5a	8	49	186	200	140	17.4	18.4	12.0
Montcalm		5	49	176	184	165	17.0	16.3	18.4
Montmorency	5b	4	66	167	129	---	18.4	9.1	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Michigan--Continued									
Muskegon		6	50	232	237	188	24.7	25.0	21.4
Newaygo		4	66	177	170	192	19.2	16.7	26.0
Oakland	5a	F	49	188	194	129	18.0	18.7	8.9
Oceana	5b	3	50	174	159	205	18.5	14.3	28.7
Ogemaw		4	66	189	182	208	22.2	20.2	27.4
Ontonagon	5b	1	66	143	139	160	9.4	8.7	13.1
Osceola	5b	4	66	176	194	147	18.6	19.9	15.3
Oscoda		4	66	125	110	—	7.8	3.2	—
Otsego	5b	4	66	131	125	—	8.8	7.2	—
Ottawa		6	50	207	215	187	21.0	20.4	23.4
Presque Isle	5b	4	66	176	169	188	19.4	17.6	23.0
Roscommon	5b	4	66	100	98	—	0	-.4	—
Saginaw		A	49	200	228	149	19.6	21.6	13.8
St. Clair	5a	8	49	161	167	142	14.9	15.2	13.6
St. Joseph		9	48	143	144	139	10.1	10.0	10.4
Sanilac	5b	5	49	142	147	138	11.1	11.3	11.0
Schoolcraft	5a	2	66	134	146	—	9.7	12.7	—
Shiawassee		7	49	191	215	157	19.1	20.6	15.8
Tuscola	5b	5	49	212	243	174	22.0	24.3	18.1
Van Buren	5b	6	50	156	162	146	13.6	13.7	13.4
White				158	163	147	13.7	13.6	13.8
Nonwhite				140	146	—	12.6	14.8	--
Washtenaw		J	49	145	146	141	9.6	9.1	11.7
White				148	151	141	10.4	10.1	11.6
Nonwhite				96	94	—	-.7	-1.1	—
Wayne	5a	F	49	189	195	115	18.1	18.7	4.5
White				193	200	116	18.5	19.3	4.7
Nonwhite				152	153	—	12.7	12.9	—
Wexford	5b	4	66	155	141	—	14.3	11.0	—
Wisconsin									
Adams		5	67	105	112	95	1.6	3.1	-1.4
Ashland	5b	1	66	125	99	189	7.3	-.1	26.8
Barron		2	68	137	124	151	10.3	6.7	14.4
Bayfield	5b	1	66	138	128	162	11.0	8.5	16.4
Brown		7	65	195	170	227	20.7	14.6	30.0
Buffalo		2	68	132	95	171	9.0	-1.3	19.3
Burnett	5b	1	66	138	155	120	11.7	14.6	7.5
Calumet		7	65	198	179	220	20.7	15.0	28.7
Chippewa		4	67	171	159	186	16.8	13.1	22.2
Clark		4	67	157	101	198	14.9	.5	24.3
Columbia		8	65	133	119	154	9.1	5.2	14.6
Crawford		3	69	167	140	183	18.5	10.4	23.8
Dane		B	65	171	168	176	15.2	14.0	17.3
Dodge		8	65	148	140	155	11.1	8.9	13.7
Door	5b	6	65	140	136	143	11.7	10.3	13.1
Douglas	5a	A	66	135	141	118	9.8	11.1	5.9
Dunn		2	68	158	145	165	15.5	11.9	17.6
Eau Claire		4	67	167	178	152	16.2	16.9	14.9
Florence	5b	1	66	126	129	—	7.6	9.2	—
Fond du Lac		7	65	159	139	183	14.2	9.0	20.2
Forest	5b	1	66	165	159	—	17.4	16.0	—
Grant		3	69	166	147	180	15.1	10.9	18.5
Green		3	69	158	136	181	14.2	9.4	18.9
Green Lake		8	65	112	99	136	3.2	-.2	8.5
Iowa		3	69	153	117	196	14.0	5.1	21.8
Iron	5b	1	66	125	117	—	5.9	4.3	—
Jackson		5	67	128	134	123	8.7	10.1	7.6
Jefferson		8	65	159	142	179	14.5	10.1	20.4
Juneau	5b	5	67	133	128	139	9.9	8.4	12.0
Kenosha		F	64	167	174	141	14.8	15.5	11.1
Kewaunee		6	65	156	156	156	13.2	13.3	13.2
La Crosse	5a	2	68	160	163	156	14.0	13.3	15.5
Lafayette		3	69	145	111	194	11.2	3.4	19.2
Langlade	5b	1	66	155	155	155	14.6	14.2	15.0
Lincoln	5b	1	66	158	137	175	15.5	8.7	22.2
Manitowoc		7	65	172	150	196	17.1	11.8	23.1
Marathon		4	67	184	169	197	19.0	14.6	23.4
Marinette	5b	6	65	139	128	161	11.3	8.1	17.3
Marquette		5	67	117	104	133	5.4	1.3	10.8
Menominee	5b			New county formed after 1960					
Milwaukee		C	64	No rural population					
Monroe		2	68	139	90	194	10.9	-2.7	25.1
Oconto		6	65	161	154	166	16.6	13.8	19.4

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Wisconsin--Continued									
Oneida	5b	1	66	141	143	---	10.7	10.9	---
Outagamie		7	65	211	185	244	23.6	16.5	35.3
Ozaukee		8	65	188	208	158	18.2	18.8	16.8
Pepin		2	68	124	93	181	7.2	-2.3	20.9
Pierce		2	68	145	145	146	12.1	11.3	13.0
Polk	5b	2	68	133	151	117	9.5	13.1	5.6
Portage		5	67	164	151	178	15.1	10.7	20.4
Price	5b	1	66	131	107	174	9.5	2.2	20.7
Racine		D	64	181	202	124	15.8	17.6	7.2
Richland		2	68	156	122	177	14.9	6.2	19.8
Rock		8	65	171	180	159	15.9	16.0	15.4
Rusk	5b	1	66	163	129	192	16.8	8.4	23.1
St. Croix		2	68	150	134	164	13.1	8.5	17.6
Sauk		2	68	144	128	164	11.9	7.5	17.0
Sawyer	5b	1	66	110	100	139	3.2	[illegible]	12.1
Shawano		6	65	150	151	149	13.3	13.9	12.6
White				136	125	149	9.8	7.0	12.6
Nonwhite				347	357	---	57.3	58.0	---
Sheboygan		7	65	141	137	146	10.6	9.1	13.1
Taylor	5b	4	67	215	154	251	26.2	13.9	32.4
Trempealeau		2	68	129	113	149	8.0	3.8	13.1
Vernon		2	68	132	118	141	8.8	5.1	11.2
Vilas	5b	1	66	102	101	---	.7	.5	---
Walworth		8	65	143	140	149	10.9	9.9	13.4
Washburn	5b	1	66	134	117	174	9.8	5.1	19.9
Washington		8	65	168	174	158	14.7	14.3	15.7
Waukesha		E	65	170	178	129	15.4	16.3	8.7
Waupaca		6	65	144	121	173	11.7	6.2	17.7
Waushara		5	67	122	135	109	6.7	9.8	3.0
Winnebago		7	65	135	127	154	8.4	6.2	14.1
Wood		4	67	182	192	168	17.7	17.8	17.6
Minnesota									
Aitkin	5a	2	66	147	121	177	13.2	6.0	21.5
Anoka		B	68	171	167	180	16.9	15.3	20.8
Becker	5b	3	88	136	122	148	10.5	6.4	13.8
Beltrami	5b	2	66	156	171	139	15.9	18.1	12.8
Benton		4	88	192	213	182	22.1	22.7	21.7
Big Stone		5	87	154	118	178	14.8	5.2	20.6
Blue Earth		7	69	153	159	148	12.9	13.2	12.7
Brown		7	69	163	87	189	15.0	-3.4	20.2
Carlton	5b	2	66	163	156	181	14.1	11.9	20.7
Carver		6	68	132	139	123	8.2	9.8	5.8
Cass	5a	2	66	143	140	149	13.6	12.2	16.7
Chippewa		5	87	161	132	179	14.0	7.6	18.0
Chisago		4	88	120	140	104	6.1	9.9	1.4
Clay		1	89	144	172	123	11.6	17.6	6.6
Clearwater	5b	2	66	143	125	158	13.1	7.2	18.1
Cook	5b	2	66	129	126	---	7.5	6.6	---
Cottonwood		8	86	132	96	161	8.8	-1.1	16.0
Crow Wing	5a	2	66	137	139	131	10.9	10.8	11.3
Dakota		B	68	207	236	163	19.9	20.8	17.5
Dodge		6	68	152	153	152	14.3	13.4	15.2
Douglas	5b	3	88	132	133	131	9.3	8.8	9.7
Faribault		8	86	142	149	137	11.0	12.7	9.7
Fillmore		7	69	128	127	129	7.9	7.4	8.2
Freeborn		7	69	172	200	155	16.9	19.5	14.8
Goodhue		6	68	119	101	140	5.4	.3	11.0
Grant		5	87	143	146	141	11.8	11.7	11.9
Hennepin		B	68	180	185	174	17.5	16.7	19.1
Houston		7	69	139	104	165	10.8	1.3	17.7
Hubbard	5b	2	66	137	114	167	11.7	4.2	23.6
Isanti		4	88	173	262	123	20.0	31.3	8.3
Itasca	5a	2	66	164	171	136	16.2	17.0	11.2
Jackson		8	86	132	129	133	8.7	8.3	8.8
Kanabec	5b	4	88	132	143	126	9.5	10.5	8.8
Kandiyohi		5	87	119	81	167	5.3	-5.5	17.2
Kittson		1	89	129	129	130	8.3	7.5	9.3
Koochiching	5b	2	66	173	191	126	18.5	21.0	8.9
Lac qui Parle		5	87	118	106	129	5.3	1.8	8.1
Lake	5b	2	66	131	136	---	6.8	7.8	---
Lake of the Woods	5b	2	66	132	173	102	8.7	14.4	.8
Le Sueur		7	69	120	106	132	5.7	1.6	9.3
Lincoln		8	86	145	115	169	11.6	4.2	16.9

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Minnesota--Continued									
Lyon		8	86	161	143	174	15.1	11.3	17.9
McLeod		6	68	138	142	136	10.2	10.8	9.9
Mahnomen	5b	3	88	184	160	203	22.1	15.7	27.3
Marshall		1	89	124	129	121	7.3	8.1	6.7
Martin		8	86	160	164	157	15.3	16.6	14.4
Meeker		6	68	140	148	137	11.0	11.7	10.7
Mille Lacs		4	88	145	141	149	13.2	11.4	15.5
Morrison		4	88	172	117	202	19.4	4.7	27.2
Mower		7	69	169	179	161	16.2	15.7	16.7
Murray		8	86	167	168	166	16.0	14.9	16.9
Nicollet		7	69	172	82	207	17.3	-4.4	25.1
Nobles		8	86	177	164	186	17.8	16.0	18.7
Norman		1	89	132	111	146	9.0	3.1	13.2
Olmsted		6	68	187	192	182	17.2	15.6	20.0
Otter Tail		3	88	131	125	133	8.8	7.0	9.7
Pennington	5b	1	89	122	---	132	6.5	---	9.8
Pine	5b	4	88	129	135	123	8.4	8.6	8.1
Pipestone		8	86	156	135	167	14.8	9.8	17.4
Polk		1	89	130	111	142	8.5	2.9	12.2
Pope		5	87	128	113	136	8.5	4.3	10.4
Ramsey		B	68	218	224	---	19.4	18.9	---
Red Lake		1	89	166	201	151	17.1	21.1	14.6
Redwood		5	87	160	151	166	14.8	12.3	16.7
Renville		5	87	136	121	149	10.0	6.3	13.3
Rice		6	68	178	145	194	18.3	10.5	22.4
Rock		8	86	183	144	202	19.3	11.3	22.5
Roseau	5b	1	89	151	187	133	14.1	19.5	10.3
St. Louis	5a	A	66	172	176	151	14.8	14.9	14.0
Scott		6	68	165	164	167	15.6	14.5	17.2
Sherburne		4	88	163	150	185	15.8	12.7	21.8
Sibley		7	69	132	113	148	8.4	3.7	12.2
Stearns		6	68	214	186	253	24.7	18.4	33.3
Steele		6	68	151	142	156	12.7	9.5	14.5
Stevens		5	87	171	94	207	16.8	-1.5	24.1
Swift		5	87	158	133	178	16.7	10.0	21.8
Todd		3	88	143	138	145	12.6	10.2	13.9
Traverse		5	87	119	99	144	5.8	-.4	11.9
Wabasha		6	68	163	122	194	16.2	6.2	23.4
Wadena		3	88	153	138	161	15.4	9.1	19.7
Waseca		7	69	146	126	161	11.2	7.1	13.6
Washington		B	68	167	188	120	13.7	15.4	6.6
Watonwan		8	86	132	113	147	8.0	3.2	11.9
Wilkin		1	89	134	125	138	9.4	7.4	10.3
Winona		6	68	154	156	151	12.5	12.1	12.9
Wright		6	68	160	150	170	15.6	12.7	18.7
Yellow Medicine		5	87	121	126	117	6.1	7.5	5.1
Iowa									
Adair		3	71	128	108	146	7.8	2.5	11.9
Adams		3	71	106	117	98	1.9	5.0	-.5
Allamakee		4	69	158	115	187	15.0	4.2	21.6
Appanoose	5b	3	71	136	158	122	10.2	14.1	7.0
Audubon		1	85	133	97	147	9.0	-.8	12.7
Benton		5	70	146	135	155	11.5	9.4	12.9
Black Hawk		E	69	174	165	185	16.3	13.5	20.1
Boone		2	86	151	179	125	11.4	15.0	6.7
Bremer		4	69	148	115	179	11.2	3.5	18.5
Buchanan		4	69	150	104	195	13.6	1.1	25.1
Buena Vista		1	85	119	119	119	5.6	5.1	5.9
Butler		4	69	137	119	155	10.0	5.3	14.7
Calhoun		2	86	124	102	157	6.6	.8	13.4
Carroll		1	85	160	114	211	14.5	4.1	22.8
Cass		1	85	141	111	162	10.9	3.0	16.5
Cedar		6	70	133	116	151	8.9	4.5	12.6
Cerro Gordo		4	69	145	146	143	11.1	11.4	10.8
Cherokee		1	85	157	123	175	13.7	6.1	17.3
Chickasaw		4	69	154	120	174	14.7	5.8	19.4
Clarke		3	71	113	83	125	3.9	-6.1	7.0
Clay		2	86	152	107	178	13.7	1.8	20.2
Clayton		4	69	138	112	171	10.3	3.5	17.3
Clinton		6	70	137	114	159	9.4	3.7	14.3
Crawford		1	85	146	104	173	12.7	1.4	18.9
Dallas		2	86	118	116	119	5.0	4.1	6.3
Davis		3	71	127	---	130	7.6	---	8.8
Decatur		3	71	161	172	149	18.5	20.0	16.4

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Iowa--Continued									
Delaware		4	69	162	114	192	15.1	3.8	21.2
Des Moines		6	70	152	184	129	12.9	17.5	8.5
Dickinson		2	86	133	127	141	8.9	7.8	10.6
Dubuque		6	70	204	177	228	20.4	13.5	28.3
Emmet		2	86	171	204	152	17.3	26.9	12.3
Fayette		4	69	160	155	163	14.5	13.7	15.1
Floyd		4	69	191	160	213	21.1	14.4	25.5
Franklin		2	86	167	124	193	14.9	6.8	18.4
Fremont		1	85	127	143	108	7.6	11.5	2.5
Greene		2	86	158	182	148	13.8	17.2	12.1
Grundy		5	70	136	128	144	8.6	6.8	10.4
Guthrie		3	71	141	127	153	10.8	6.9	14.4
Hamilton		2	86	139	133	142	10.6	8.6	11.8
Hancock		2	86	145	117	171	11.3	4.3	18.1
Hardin		2	86	126	99	153	6.7	-.2	12.0
Harrison		1	85	130	120	140	9.1	6.3	11.7
Henry		5	70	145	148	144	12.1	11.9	12.2
Howard		4	69	160	117	180	15.3	5.0	19.3
Humboldt		2	86	140	111	159	10.5	3.0	15.2
Ida		1	85	132	81	197	8.9	-6.2	22.5
Iowa		5	70	125	101	155	6.2	.2	12.8
Jackson		6	70	159	155	163	14.2	12.7	15.6
Jasper		5	70	148	142	155	12.0	10.4	14.0
Jefferson		3	71	158	225	130	14.6	23.9	8.8
Johnson		6	70	137	123	154	8.1	4.5	13.8
Jones		6	70	175	136	200	17.8	8.7	23.5
Keokuk		5	70	131	123	139	8.7	6.5	11.1
Kossuth		2	86	168	150	180	16.5	12.8	18.9
Lee		6	70	150	169	137	13.4	15.5	11.4
Linn		F	70	168	178	157	14.7	14.4	15.3
Louisa		6	70	132	130	134	8.6	7.7	9.9
Lucas		3	71	114	149	99	4.1	13.8	-.2
Lyon		1	85	156	100	199	14.8	0	22.6
Madison		3	71	127	173	113	7.8	14.9	4.4
Mahaska		5	70	141	141	141	10.8	10.1	11.2
Marion		3	71	162	150	171	14.6	11.1	17.9
Marshall		5	70	151	136	164	12.2	8.5	15.5
Mills		1	85	177	200	162	19.4	21.9	17.2
Mitchell		4	69	166	148	178	17.9	13.9	20.2
Monona		1	85	141	110	168	11.8	3.5	17.7
Monroe	5b	3	71	129	130	129	9.3	8.5	9.8
Montgomery		1	85	121	85	144	5.9	-4.0	12.3
Muscatine		6	70	136	127	150	9.9	7.5	13.4
O'Brien		1	85	131	101	165	8.6	.5	16.1
Osceola		2	86	128	87	151	7.9	-4.5	12.5
Page		1	85	128	114	134	8.1	4.1	9.9
Palo Alto		2	86	143	115	163	12.5	4.9	17.4
Plymouth		1	85	162	162	162	15.3	16.3	14.8
Pocahontas		2	86	122	116	128	[illegible]	5.1	7.6
Polk		C	86	181	227	123	[illegible]	23.0	7.3
Pottawattamie		B	85	147	167	128	12.3	16.6	7.7
Poweshiek		5	70	133	116	144	8.5	4.2	11.3
Ringgold		3	71	108	114	104	2.6	4.5	1.6
Sac		1	85	138	100	190	9.9	0	19.2
Scott		D	70	179	166	197	16.4	12.3	23.3
Shelby		1	85	160	168	156	14.5	15.9	14.0
Sioux		1	85	183	142	221	19.6	10.6	27.1
Story		2	86	144	133	159	10.8	7.6	15.6
Tama		5	70	111	81	137	3.1	-6.2	9.1
Taylor		3	71	119	101	132	5.3	.4	9.3
Union		3	71	114	92	126	4.6	-2.6	7.9
Van Buren		3	71	122	98	148	6.9	-.4	14.3
Wapello		3	71	137	133	142	10.0	8.3	12.1
Warren		3	71	197	243	166	20.3	23.8	16.7
Washington		5	70	165	133	191	15.6	8.0	21.8
Wayne		3	71	107	109	106	2.1	2.6	1.8
Webster		2	86	146	143	151	11.3	9.6	13.3
Winnebago		4	69	153	166	145	13.0	14.1	12.1
Winneshiek		4	69	121	87	140	6.1	-4.2	10.3
Woodbury		A	85	149	142	154	12.9	10.7	14.7
Worth		4	69	116	94	134	4.5	-1.7	9.1
Wright		2	86	178	156	185	17.5	14.4	18.4

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Missouri									
Adair		2	71	128	199	108	8.3	18.4	2.9
Andrew		1	85	128	165	104	7.8	14.1	1.3
Atchison		1	85	137	143	129	9.4	10.5	7.9
Audrain		2	71	134	199	104	9.5	20.0	1.4
Barry		4	82	133	126	141	9.6	7.6	11.4
Barton		3	84	112	135	96	4.1	11.0	-1.3
Bates		3	84	105	105	106	1.8	1.7	2.0
Benton		5	73	94	83	104	-1.7	-5.2	1.5
Bollinger	5b	6	72	148	163	136	14.0	16.5	11.6
Boone		2	71	126	155	100	6.6	10.9	0
Buchanan		1	85	120	133	104	5.6	8.3	1.3
Butler		9	76	180	187	173	22.1	22.2	22.0
Caldwell		2	71	98	106	89	-.5	1.8	-3.5
Callaway		2	71	137	158	119	10.1	13.3	6.2
Camden		5	73	116	128	88	5.2	8.9	-4.4
Cape Girardeau		6	72	121	148	101	6.1	12.0	.6
Carroll		1	85	101	120	90	.3	5.7	-3.4
Carter	5b	8	73	95	100	87	-1.6	.1	-4.8
Cass 5/		3	84	163	228	113	12.2	16.7	4.1
Cedar		3	84	102	131	88	.8	9.0	-3.8
Chariton		2	71	113	121	107	4.2	6.1	2.4
Christian		7	73	116	142	93	4.5	10.5	-1.8
Clark		2	71	119	151	96	5.7	12.7	-1.3
Clay		A	85	138	170	102	10.2	16.1	.7
Clinton		1	85	143	145	141	11.4	10.9	12.0
Cole		6	72	177	221	121	18.1	23.5	6.7
Cooper		3	84	128	182	96	7.7	19.7	-1.0
Crawford		5	73	140	153	115	11.9	14.2	5.6
Dade		3	84	89	85	93	-3.5	-4.7	-2.3
Dallas	5b	7	73	106	112	102	2.1	3.4	1.0
Daviess		2	71	104	101	106	1.3	.4	2.1
De Kalb		2	71	95	88	98	-1.6	-3.1	-.4
Dent	5b	8	73	131	193	96	10.1	21.3	-1.3
Douglas	5b	7	73	156	151	159	15.5	13.4	16.9
Dunklin		9	76	217	209	226	26.4	23.9	29.0
Franklin	5a	6	72	131	151	104	8.4	12.0	1.4
Gasconade		6	72	117	129	100	4.9	7.7	.2
Gentry		2	71	91	77	105	-2.8	-7.5	1.7
Greene		C	73	142	173	96	10.3	15.0	-1.2
Grundy	5b	2	71	102	99	104	.8	-.2	1.5
Harrison		2	71	96	96	97	-1.1	-1.3	-1.0
Henry		3	84	109	128	100	3.1	7.0	.3
Hickory	5b	5	73	114	129	104	4.6	8.4	1.5
Holt		1	85	106	94	118	1.9	-1.7	5.9
Howard		2	71	108	117	102	2.9	5.2	.8
Howell	5b	7	73	161	178	139	17.4	20.8	12.4
Iron	5a	8	73	188	202	142	21.8	24.1	12.9
Jackson		A	85	180	214	89	16.8	20.5	-4.0
Jasper		4	82	149	158	130	12.9	14.3	9.4
Jefferson		B	72	184	189	145	15.8	16.0	13.1
Johnson 5/		3	84	169	257	111	13.4	18.2	3.9
Knox		2	71	103	112	98	1.2	3.5	-.4
Laclede	5b	5	73	139	168	116	10.9	16.9	4.9
Lafayette	5b	1	85	126	144	110	7.3	11.0	3.1
Lawrence		4	82	102	97	107	.6	-.7	2.5
Lewis		2	71	123	145	105	6.7	11.0	1.9
Lincoln		2	71	120	130	108	5.7	7.4	2.8
Linn		2	71	102	103	101	.7	1.0	.5
Livingston		2	71	115	112	116	4.4	2.9	5.2
McDonald		4	82	129	122	140	9.4	6.9	12.8
Macon		2	71	99	84	110	-.2	-4.8	3.6
Madison	5a	8	73	---	---	---	---	---	---
Maries		5	73	152	193	121	14.1	20.8	6.8
Marion		2	71	108	119	102	2.3	5.2	.7
Mercer	5b	2	71	87	78	92	-4.3	-7.2	-2.5
Miller		5	73	146	164	132	13.6	15.9	11.1
Mississippi		9	76	228	180	268	31.7	21.4	39.2
White				211	164	248	27.0	17.2	33.6
Nonwhite				230	---	---	47.1	---	---
Moniteau		6	72	117	132	107	5.2	7.8	2.6
Monroe		2	71	121	130	114	6.3	8.1	4.5
Montgomery		2	71	108	97	122	2.5	-.7	6.7
Morgan		5	73	115	113	116	4.5	3.7	5.5

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Missouri--Continued									
New Madrid		9	76	251	210	299	33.9	28.0	39.2
White				256	213	310	33.4	27.9	38.7
Nonwhite				233	192	264	36.4	28.5	41.2
Newton		4	82	156	178	125	15.0	18.6	8.2
Nodaway		1	85	132	157	121	8.9	13.1	6.4
Oregon	5b	8	73	151	177	125	14.5	20.0	8.0
Osage		6	72	139	136	141	10.1	8.6	11.6
Ozark	5b	7	73	146	132	156	13.4	9.0	16.5
Pemiscot		9	76	240	206	271	34.5	27.8	40.1
White				233	185	274	31.0	21.0	38.6
Nonwhite				258	255	261	46.9	47.6	46.2
Perry		6	72	163	156	168	16.0	12.8	18.3
Pettis		3	84	136	162	123	9.9	13.9	7.0
Phelps		5	73	149	158	123	13.3	14.9	7.5
Pike		2	71	145	148	142	12.4	12.2	12.5
Platte		1	85	155	173	106	11.3	13.5	1.9
Polk		7	73	110	114	108	3.4	4.4	2.9
Pulaski 5/		5	73	648	725	158	31.7	32.0	18.0
Putnam		2	71	104	101	105	1.2	.5	1.7
Ralls		2	71	116	148	88	4.8	11.8	-4.1
Randolph		2	71	101	86	117	.4	-4.4	5.4
Ray		1	85	134	162	115	9.2	12.9	5.3
Reynolds	5b	8	73	153	156	148	17.5	17.1	17.6
Ripley	5b	8	73	135	124	158	9.8	6.8	15.7
St. Charles		B	72	175	208	117	14.0	16.3	5.5
St. Clair		3	84	96	100	93	-1.4	0	-2.4
St. Francois	5a	8	73	137	147	82	10.3	12.2	-6.8
St. Louis		B	72	164	176	74	13.2	14.7	-9.7
St. Louis City		B	72	No rural population					
Ste. Genevieve	5a	6	72	163	171	155	16.0	15.7	16.5
Saline		1	85	108	120	99	2.1	4.4	-.3
Schuyler		2	71	96	80	116	-1.0	-6.1	4.6
Scotland		2	71	90	88	92	-2.7	-3.6	-2.0
Scott		9	76	201	196	208	23.4	22.6	24.6
Shannon	5b	8	73	135	135	133	10.3	9.4	12.1
Shelby		2	71	100	92	108	.1	-2.3	2.6
Stoddard		9	76	197	169	220	24.3	17.3	30.0
Stone	5b	7	73	134	129	139	9.1	7.3	11.1
Sullivan		2	71	96	81	110	-1.1	-7.1	3.1
Taney	5b	7	73	130	140	109	8.9	11.0	3.3
Texas	5b	7	73	139	157	122	11.3	13.9	7.8
Vernon		3	84	84	53	120	-5.2	-15.7	6.5
Warren		6	72	117	140	88	4.9	10.1	-4.2
Washington	5a	5	73	181	201	125	22.5	26.7	8.4
Wayne	5b	8	73	128	144	96	9.4	13.4	-1.5
Webster		7	73	133	143	125	9.2	9.9	8.5
Worth		2	71	111	106	114	3.0	1.7	4.1
Wright	5b	7	73	153	143	158	14.8	11.2	16.8
North Dakota									
Adams		1	105	194	191	198	19.8	17.7	22.2
Barnes		3	90	159	127	173	16.3	7.8	20.1
Benson	5b	3	90	170	152	187	17.7	13.9	20.8
Billings		1	105	---	---	---	---	---	---
Bottineau		3	90	153	153	153	14.9	13.8	15.8
Bowman		1	105	163	143	---	13.6	9.5	---
Burke		2	90	185	203	166	20.3	21.8	18.3
Burleigh		2	90	158	162	156	12.6	11.9	13.1
Cass		4	89	141	137	143	10.9	10.0	11.6
Cavalier		3	90	152	152	153	13.7	13.7	13.7
Dickey		5	91	159	126	194	15.9	7.6	24.1
Divide		2	90	175	215	136	14.9	22.1	7.5
Dunn	5b	1	105	229	146	286	27.0	12.9	33.3
Eddy	5b	3	90	148	166	128	12.7	17.3	7.2
Emmons		2	90	192	135	251	19.3	9.8	25.4
Foster		3	90	163	140	---	15.4	11.6	---
Golden Valley		1	105	219	---	---	25.5	---	---
Grand Forks 5/		4	89	176	233	138	14.7	17.9	10.4
Grant		1	105	194	132	240	22.3	9.8	28.6
Griggs		3	90	130	123	137	8.1	6.8	9.4
Hettinger		1	105	246	184	313	28.6	17.7	39.1
Kidder		2	90	206	154	248	23.3	13.1	30.3
La Moure		3	90	154	138	165	12.1	8.5	14.9
Logan		2	90	191	109	297	21.3	3.4	31.5

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
North Dakota--Continued									
McHenry		3	90	170	143	199	17.6	12.3	22.0
McIntosh		2	90	110	72	180	2.8	-9.0	16.0
McKenzie	5b	1	105	180	159	198	16.3	11.6	20.8
McLean	5b	2	90	203	174	245	22.4	17.6	28.0
Mercer	5b	1	105	178	168	196	17.5	18.0	16.7
Morton		1	105	162	113	218	15.2	3.8	24.7
Mountrail	5b	2	90	180	196	158	16.4	18.6	13.0
Nelson	5b	3	90	156	139	17[illegible]	14.3	10.0	18.3
Oliver		1	105	250	---	---	27.6	---	---
Pembina		4	89	166	159	174	16.9	14.7	20.0
Pierce		3	90	198	---	211	24.0	---	26.1
Ramsey	5b	3	90	123	155	102	6.3	14.1	.7
Ransom		5	91	130	142	116	8.7	13.1	4.4
Renville		3	90	188	212	173	20.9	23.2	19.1
Richland	5b	5	91	126	100	147	7.5	.1	12.4
Rolette	5b	3	90	239	218	283	33.3	29.6	39.7
White				166	106	258	16.8	1.8	34.7
Nonwhite				394	391	---	63.1	63.0	---
Sargent	5b	5	91	154	120	178	14.4	6.1	19.4
Sheridan		2	90	203	---	196	23.4	---	21.8
Sioux	5b	1	105	267	272	---	33.2	26.5	---
Slope		1	105	197	---	---	24.3	---	---
Stark		1	105	221	141	309	25.2	10.1	37.2
Steele		3	90	110	97	117	2.8	-.7	4.8
Stutsman		3	90	170	159	177	17.7	17.3	17.9
Towner		3	90	140	94	201	10.8	-1.7	21.9
Traill		4	89	135	107	174	9.5	2.2	18.3
Walsh		4	89	137	124	148	9.8	6.3	12.6
Ward 5/		3	90	189	245	138	15.8	18.9	10.2
Wells		3	90	133	95	187	8.8	-1.5	18.6
Williams		2	90	188	214	142	17.6	21.1	9.9
South Dakota									
Aurora		3	92	213	---	185	25.6	---	18.8
Beadle		2	91	168	199	156	17.2	23.6	14.4
Bennett	5b	1	104	171	---	---	15.3	---	---
Bon Homme	5b	3	92	167	168	166	15.2	14.9	15.6
Brookings		4	87	152	163	148	14.5	15.8	14.0
Brown		2	91	137	124	146	9.9	7.0	11.9
Brule	5b	3	92	140	---	127	10.3	---	7.2
Buffalo	5b	3	92	---	---	---	---	---	---
Butte		1	104	148	146	150	11.6	10.7	12.3
Campbell		2	91	137	88	178	9.7	-4.1	17.1
Charles Mix	5b	3	92	162	188	141	16.7	22.1	11.6
Clark		2	91	142	143	140	11.2	11.6	10.8
Clay		5	85	133	---	125	8.5	---	7.1
Codington		4	87	143	124	154	11.6	6.1	14.9
Corson	5b	1	104	203	188	221	23.0	19.5	27.3
Custer		1	104	122	141	---	5.3	8.7	---
Davison		3	92	151	---	154	13.4	---	15.3
Day		2	91	140	144	135	11.1	12.4	9.9
Deuel		4	87	136	110	154	9.8	3.0	14.0
Dewey	5b	1	104	203	240	---	23.1	30.5	---
Douglas		3	92	191	147	216	21.1	11.6	25.9
Edmunds		2	91	159	119	206	14.9	5.8	23.0
Fall River		1	104	205	219	---	22.3	24.4	---
Faulk		2	91	117	120	114	5.3	7.6	3.7
Grant		4	87	155	159	153	14.8	17.1	13.8
Gregory	5b	3	92	145	92	213	13.1	-2.6	26.4
Haakon	5b	1	104	149	231	85	14.1	33.6	-4.6
Hamlin		4	87	127	101	151	7.5	.4	12.7
Hand		2	91	174	158	183	17.7	11.9	22.1
Hanson		3	92	171	112	214	17.7	4.0	23.7
Harding		1	104	202	---	---	20.8	---	---
Hughes	5b	2	91	152	131	---	13.4	8.4	---
Hutchinson		3	92	119	77	167	5.4	-8.1	15.2
Hyde	5b	2	91	120	---	---	4.8	---	---
Jackson		1	104	---	---	---	---	---	---
Jerauld		3	92	136	124	144	10.0	6.9	11.9
Jones		1	104	153	---	---	14.9	---	---
Kingsbury		4	87	131	111	152	8.8	3.5	13.6
Lake		5	85	153	133	162	13.9	8.7	16.1
Lawrence		1	104	112	150	48	4.0	13.8	-21.6
Lincoln		5	85	142	169	127	10.6	15.1	7.4

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
South Dakota--Continued									
Lyman	5b	1	104	135	111	166	8.9	2.9	15.8
McCook		3	92	143	148	140	12.2	13.7	11.2
McPherson		2	91	139	88	209	9.6	-3.8	20.7
Marshall	5b	2	91	136	134	137	10.5	10.5	10.6
Meade 5/	5b	1	104	151	134	173	11.8	7.5	17.8
Mellette	5b	1	104	163	---	---	15.8	---	---
Miner		3	92	151	149	151	14.5	14.9	13.9
Minnehaha		5	85	150	172	129	11.3	14.1	7.9
Moody		5	85	190	222	167	24.0	33.0	17.8
Pennington 5/		1	104	233	255	172	17.6	18.0	16.1
Perkins	5b	1	104	178	166	191	16.6	14.4	18.7
Potter		2	91	179	185	---	16.8	18.3	---
Roberts	5b	4	87	115	101	123	4.5	.3	6.4
Sanborn		3	92	148	---	126	12.5	---	8.0
Shannon	5b	1	104	235	238	---	31.4	31.7	---
White				---	---	---	---	---	---
Nonwhite				278	287	---	41.3	41.8	---
Spink		2	91	156	109	209	13.4	2.5	24.2
Stanley	5b	1	104	---	---	---	---	---	---
Sully		2	91	158	---	---	13.5	---	---
Todd	5b	1	104	202	209	---	22.8	28.3	---
White				---	---	---	---	---	---
Nonwhite				248	251	---	41.1	43.9	---
Tripp	5b	3	92	181	---	161	18.0	---	14.3
Turner		5	85	123	99	146	6.3	-.2	11.6
Union		5	85	145	157	136	12.2	14.6	10.1
Walworth		2	91	144	105	193	12.9	1.7	22.9
Washabaugh	5b	1	104	---	---	---	---	---	---
Yankton		5	85	85	37	146	-4.4	-22.3	11.5
Ziebach	5b	1	104	192	---	---	17.2	---	---
Nebraska									
Adams		5	93	83	57	116	-5.2	-14.1	4.7
Antelope		3	92	125	106	138	7.3	1.9	11.1
Arthur		1	104	---	---	---	---	---	---
Banner		2	106	---	---	---	---	---	---
Blaine		1	104	---	---	---	---	---	---
Boone	5b	3	92	124	113	132	7.4	4.4	9.5
Box Butte		2	106	142	---	130	9.9	---	8.2
Boyd		3	92	143	120	161	12.4	6.3	16.7
Brown		1	104	111	96	---	3.1	-1.0	---
Buffalo	5b	3	92	166	199	131	18.0	26.2	8.7
Burt	5b	6	85	120	119	123	6.1	5.7	6.7
Butler		5	93	136	113	162	10.1	4.2	15.7
Cass		7	85	138	143	133	9.6	10.5	8.5
Cedar		6	85	155	105	195	15.4	1.6	24.0
Chase		2	106	135	125	151	9.4	6.9	13.0
Cherry		1	104	173	---	176	15.4	---	15.7
Cheyenne		2	106	159	141	179	13.7	9.1	19.7
Clay		5	93	141	133	156	11.6	9.4	15.4
Colfax		3	92	99	71	116	-.2	-9.2	4.2
Cuming	5b	6	85	133	74	171	8.7	-8.6	16.6
Custer	5b	3	92	135	138	134	9.8	10.2	9.5
Dakota		6	85	157	217	119	13.9	23.1	5.6
Dawes		1	104	127	123	131	7.1	6.9	7.3
Dawson	5b	3	92	162	187	153	16.0	20.3	14.3
Deuel		2	106	122	96	---	6.4	-1.0	---
Dixon	5b	6	85	123	92	148	7.0	-2.4	14.2
Dodge		6	85	167	147	191	14.7	10.2	19.9
Douglas		B	85	245	268	173	27.7	29.8	18.3
Dundy		4	93	164	146	---	15.4	11.6	---
Fillmore		5	93	120	120	121	5.8	5.5	6.3
Franklin		4	93	126	131	121	7.3	8.2	6.4
Frontier		4	93	121	94	148	5.7	-2.1	10.3
Furnas		4	93	126	113	147	7.5	3.8	12.7
Gage		7	85	141	142	139	10.0	9.8	10.1
Garden		1	104	117	---	103	4.8	---	.9
Garfield	5b	1	104	114	108	---	4.1	2.9	---
Gosper		4	93	107	---	82	1.9	---	-4.9
Grant		1	104	---	---	---	---	---	---
Greeley	5b	3	92	140	127	148	11.3	8.3	13.3
Hall		3	92	150	194	118	12.7	18.2	6.1
Hamilton		5	93	150	97	173	12.3	-.9	16.4
Harlan		4	93	105	94	118	1.5	-1.9	5.4

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Nebraska--Continued									
Hayes		4	93	131	—	142	9.0	---	12.5
Hitchcock		4	93	121	102	151	6.3	.8	14.2
Holt		1	104	138	95	176	10.3	-1.6	17.3
Hooker		1	104	96	—	—	-1.4	---	—
Howard	5b	3	92	153	188	137	13.3	17.5	10.4
Jefferson		5	93	113	128	106	3.8	7.2	1.9
Johnson		7	85	122	113	133	6.3	4.0	8.5
Kearney		4	93	134	138	129	8.5	9.7	7.2
Keith		2	106	140	159	125	10.1	15.7	6.1
Keya Paha		1	104	96	—	—	-.9	—	—
Kimball		2	106	208	—	—	18.1	—	—
Knox		3	92	133	112	150	9.5	4.3	12.7
Lancaster 5/		A	85	140	149	127	8.0	8.2	7.5
Lincoln		3	92	146	140	152	10.8	9.4	12.1
Logan		1	104	—	—	—	—	—	—
Loup	5b	1	104	—	—	—	—	—	—
McPherson		1	104	—	—	—	—	—	—
Madison		3	92	101	79	136	.3	-6.6	9.7
Merrick		3	92	126	124	129	7.6	7.1	8.1
Morrill		2	106	126	98	167	7.2	-.5	15.1
Nance	5b	3	92	103	79	121	.8	-6.2	5.8
Nemaha		7	85	127	144	112	7.2	11.0	3.7
Nuckolls		4	93	133	137	130	8.7	10.8	7.6
Otoe		7	85	112	97	122	3.5	-.7	6.3
Pawnee		7	85	116	119	114	5.1	5.9	4.5
Perkins		2	106	139	87	206	10.3	-3.9	23.0
Phelps		4	93	119	—	124	5.3	—	6.4
Pierce		3	92	148	120	175	12.9	5.4	19.6
Platte		3	92	166	175	160	15.1	16.3	14.3
Polk		5	93	114	104	123	4.0	1.4	6.1
Red Willow		4	93	129	130	129	8.0	8.1	8.0
Richardson		7	85	127	138	119	7.3	9.7	5.7
Rock		1	104	110	110	—	3.1	3.8	—
Saline		5	93	82	76	88	-5.8	-8.0	-3.8
Sarpy 5/		B	85	271	323	132	19.2	20.7	8.3
Saunders		7	85	123	134	115	6.2	8.4	4.6
Scotts Bluff		2	106	188	182	194	18.7	18.2	19.3
Seward		5	93	144	180	108	11.2	18.2	2.3
Sheridan		1	104	159	185	133	14.2	20.1	8.0
Sherman	5b	3	92	105	64	131	1.6	-11.6	8.9
Sioux		1	104	105	—	115	1.6	—	4.6
Stanton		3	92	163	180	154	15.9	18.5	14.4
Thayer		5	93	113	87	152	3.7	-4.3	12.5
Thomas		1	104	—	—	—	—	—	—
Thurston	5b	6	85	155	189	116	14.2	21.9	4.5
Valley	5b	3	92	141	136	147	11.1	10.2	12.0
Washington		6	85	118	106	126	5.0	1.6	7.4
Wayne		6	85	129	—	126	8.1	—	7.2
Webster		4	93	126	108	144	7.5	2.4	12.5
Wheeler	5b	1	104	—	—	—	—	—	—
York		5	93	151	160	147	12.7	12.5	12.8
Kansas									
Allen		7	84	101	123	77	.6	6.9	-8.6
Anderson		7	84	124	148	116	7.4	12.7	5.2
Atchison		6	85	165	253	96	16.8	32.2	-1.3
Barber		1	103	123	109	149	6.1	2.6	12.6
Barton		2	103	145	167	125	12.2	16.2	7.7
Bourbon		7	84	119	160	105	6.6	17.9	2.0
Brown		6	85	104	82	125	1.3	-6.0	7.3
Butler		5	83	173	191	142	16.7	18.3	12.4
Chase		5	83	107	89	133	2.2	-3.3	8.2
Chautauqua		5	83	115	111	125	4.5	3.2	7.4
Cherokee	5a	8	83	129	136	120	8.4	9.8	6.2
Cheyenne		2	103	151	91	230	13.0	-2.7	27.3
Clark		1	103	118	112	—	4.9	3.2	—
Clay		3	94	117	144	106	4.8	10.2	1.9
Cloud		3	94	126	142	115	8.3	11.9	5.1
Coffey		7	84	109	113	106	3.1	3.8	2.3
Comanche		1	103	143	130	—	10.5	8.1	—
Cowley		5	83	117	124	111	4.8	5.5	3.6
Crawford	5a	8	83	118	135	88	5.2	8.8	-4.2
Decatur		2	103	119	103	140	5.8	1.0	11.2
Dickinson		3	94	121	138	106	6.4	10.4	2.0

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Kansas--Continued									
Doniphan		6	85	110	115	104	3.2	4.8	1.3
Douglas		6	85	177	231	136	16.5	20.7	10.6
Edwards		2	103	118	108	140	5.5	2.4	11.9
Elk		5	83	107	104	110	2.4	1.5	3.6
Ellis		2	103	208	205	213	22.9	22.9	22.8
Ellsworth		2	103	138	146	125	9.6	11.1	7.1
Finney		2	103	241	—	226	24.0	—	26.1
Ford		1	103	137	109	191	9.9	2.8	20.8
Franklin		7	84	117	147	97	5.3	13.1	-1.0
Geary 5/		5	83	450	663	148	27.2	28.6	14.6
Gove		2	103	157	109	—	15.4	3.1	—
Graham		2	103	136	148	119	7.9	9.4	5.0
Grant		1	103	171	—	—	15.1	—	—
Gray		1	103	163	153	175	14.5	12.6	17.2
Greeley		1	103	137	—	—	10.0	—	—
Greenwood		5	83	109	117	98	3.0	5.5	-.6
Hamilton		1	103	115	98	—	4.0	-.5	—
Harper		3	94	120	108	129	5.6	2.0	9.1
Harvey		3	94	165	169	160	16.3	15.9	17.1
Haskell		1	103	128	96	—	6.9	-1.1	—
Hodgeman		2	103	174	—	200	17.6	—	25.8
Jackson		6	85	139	133	141	11.4	8.6	12.9
Jefferson		6	85	141	169	112	11.8	17.7	4.0
Jewell		4	93	125	106	137	7.2	1.8	11.0
Johnson 5/		B	85	187	233	112	14.9	17.8	3.7
Kearny		1	103	170	161	—	15.6	14.0	—
Kingman		3	94	133	97	159	9.7	-.8	15.6
Kiowa		2	103	109	119	90	2.6	4.9	-3.0
Labette		8	83	134	138	127	9.8	10.6	8.5
Lane		2	103	123	—	—	4.8	—	—
Leavenworth 5/		6	85	93	92	99	-1.3	-1.4	-.3
White				103	104	100	.7	.8	0
Nonwhite				25	24	—	-13.1	-13.0	—
Lincoln		2	103	104	91	118	1.3	-2.7	5.2
Linn		7	84	106	96	115	2.0	-1.0	5.3
Logan		1	103	159	154	—	14.2	13.2	—
Lyon		5	83	116	103	129	4.9	1.2	8.3
McPherson		3	94	149	131	162	12.5	7.9	16.1
Marion		3	94	124	106	147	6.8	1.6	14.3
Marshall		4	93	106	87	125	1.8	-3.9	6.9
Meade		1	103	151	148	158	12.0	10.4	15.2
Miami		7	84	108	89	126	2.5	-3.1	8.1
Mitchell		2	103	136	128	145	10.4	8.9	11.7
Montgomery		8	83	128	163	94	8.5	16.6	-1.9
Morris		5	83	117	126	112	5.4	8.1	4.0
Morton		1	103	187	185	—	17.5	18.0	—
Nemaha		6	85	141	142	139	10.8	11.1	10.6
Neosho		8	83	117	132	103	5.5	9.9	1.2
Ness		2	103	143	117	199	11.5	5.5	19.7
Norton		4	93	116	82	149	5.6	-6.5	15.2
Osage		7	84	131	138	122	8.5	9.7	6.7
Osborne		2	103	107	96	120	1.9	-.9	5.7
Ottawa		3	94	101	119	79	.5	5.7	-7.9
Pawnee		2	103	87	63	129	-3.3	-10.4	7.3
Phillips		4	93	120	107	128	6.0	2.2	8.1
Pottawatomie		5	83	113	106	121	3.5	1.7	6.5
Pratt		2	103	112	110	114	3.4	2.7	4.3
Rawlins		2	103	128	138	120	7.1	8.2	6.0
Reno		3	94	138	144	129	10.0	10.9	8.3
Republic		4	93	102	96	105	.6	-1.2	1.7
Rice	5b	3	94	148	139	167	12.1	10.1	16.5
Riley 5/		5	83	413	650	119	29.2	32.9	5.8
Rooks		2	103	154	154	152	13.6	12.8	14.5
Rush		2	103	139	130	153	9.6	7.6	12.6
Russell		2	103	101	93	113	.5	-2.3	4.2
Saline 5/		3	94	241	387	82	18.6	24.5	-5.7
Scott		1	103	—	—	—	—	—	—
Sedgwick		A	94	204	212	182	19.7	19.6	20.5
Seward		1	103	227	—	—	25.2	—	—
Shawnee 5/		C	85	213	271	112	18.2	21.3	3.9
Sheridan		2	103	131	96	178	8.1	-1.3	16.4
Sherman		2	103	118	—	105	4.9	—	1.5
Smith		4	93	101	105	98	.5	1.4	-.5
Stafford		2	103	118	161	71	5.0	13.7	-10.1

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Kansas--Continued									
Stanton		1	103	135	---	---	7.5	---	---
Stevens		1	103	---	---	---	---	---	---
Sumner		3	94	155	180	128	13.7	17.9	8.2
Thomas		2	103	117	---	132	5.2	---	9.3
Trego		2	103	142	---	134	11.1	---	13.4
Wabaunsee		5	83	109	161	75	2.8	15.1	-8.6
Wallace		1	103	203	---	---	24.5	---	---
Washington		4	93	124	104	139	7.6	1.4	12.4
Wichita		1	103	171	120	---	16.5	6.4	---
Wilson		8	83	101	97	104	.4	-.8	1.4
Woodson		7	84	99	107	93	-.1	2.1	-2.6
Wyandotte		B	85	207	222	---	18.8	20.1	---
White				221	238	---	19.8	21.2	---
Nonwhite				100	---	---	0	---	---
Delaware									
Kent 5/	5b	1	15	188	206	125	12.7	13.3	7.4
White				188	210	121	12.2	12.9	6.4
Nonwhite				189	189	---	16.3	16.0	---
New Castle		A	15	165	170	134	13.9	14.3	10.3
White				169	174	137	14.2	14.5	11.3
Nonwhite				136	139	---	10.5	11.6	---
Sussex	5b	1	15	150	161	120	11.2	12.5	6.0
White				144	158	115	10.1	11.9	4.5
Nonwhite				171	170	---	14.9	14.3	---
Maryland									
Allegany	5a	1	27	162	166	110	14.4	14.9	3.8
Anne Arundel 5/		A	19	217	222	159	17.3	17.4	15.3
White				227	235	139	17.8	18.2	10.3
Nonwhite				184	180	---	15.0	13.9	---
Baltimore		A	19	188	198	119	17.7	18.9	5.7
White				186	196	118	17.2	18.3	5.5
Nonwhite				224	226	---	31.3	33.3	---
Baltimore City		A	19	No rural population					
Calvert	5b	3	19	181	171	208	19.0	16.7	25.2
White				141	130	174	9.7	7.2	18.0
Nonwhite				252	253	---	35.2	35.9	---
Caroline		4	15	128	134	114	7.5	8.6	4.3
White				126	132	113	6.7	7.7	4.1
Nonwhite				138	143	---	10.9	11.8	---
Carroll		C	16	128	125	139	6.8	5.9	11.1
White				132	130	141	7.6	6.7	11.8
Nonwhite				70	74	---	-8.9	-7.6	---
Cecil 5/	5b	4	15	218	226	146	22.4	23.3	11.5
White				225	235	147	23.4	24.5	11.7
Nonwhite				134	134	---	7.7	7.9	---
Charles 5/		3	19	259	266	230	28.6	28.5	29.4
White				228	251	150	21.6	23.4	12.3
Nonwhite				324	295	---	46.8	42.1	---
Dorchester	5a	4	15	99	102	85	-.3	.8	-5.0
White				87	88	84	-3.6	-3.2	-5.4
Nonwhite				135	146	---	9.7	12.5	---
Frederick		2	16	187	185	196	17.1	15.9	21.7
White				187	183	201	16.9	15.4	22.6
Nonwhite				190	215	---	19.7	23.4	---
Garrett	5b	1	27	178	173	187	18.1	16.3	23.3
Harford 5/		2	16	232	254	143	20.0	21.0	11.7
White				239	264	144	20.5	21.6	12.3
Nonwhite				173	179	---	13.8	14.8	---
Howard		C	16	175	180	145	13.6	13.8	12.0
White				173	179	135	13.1	13.5	9.1
Nonwhite				189	185	---	18.1	16.1	---
Kent		4	15	142	137	156	10.1	8.7	14.0
White				145	134	166	10.3	7.7	15.7
Nonwhite				136	145	---	9.5	11.2	---
Montgomery		B	19	195	196	185	19.7	19.1	25.0
White				193	194	180	18.7	18.2	23.5
Nonwhite				207	204	---	25.8	24.9	---
Prince Georges 5/		B	19	210	221	153	19.1	19.7	13.7
White				207	221	129	17.2	18.3	7.2
Nonwhite				217	222	196	25.0	24.6	27.2
Queen Annes		4	15	136	129	158	9.0	7.3	14.2
White				127	118	152	6.9	4.6	13.2
Nonwhite				163	158	---	14.8	14.0	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Maryland--Continued									
St. Marys 5/		3	19	317	374	187	31.0	32.5	23.4
White				338	423	174	30.1	31.9	20.4
Nonwhite				257	256	---	36.1	35.9	---
Somerset	5b	4	15	143	148	126	10.7	11.2	8.5
White				118	114	130	4.4	3.2	9.2
Nonwhite				185	201	---	20.8	22.6	---
Talbot		4	15	135	121	203	9.3	5.8	24.2
White				121	102	194	5.4	.7	20.7
Nonwhite				172	163	---	19.8	17.1	---
Washington	5a	2	16	207	213	170	21.3	21.8	17.5
Wicomico		4	15	141	147	118	9.2	9.7	5.7
White				133	139	114	7.4	8.0	4.2
Nonwhite				167	171	---	15.3	15.2	---
Worcester		4	15	138	148	107	9.2	11.1	2.2
White				110	114	100	2.8	3.6	.2
Nonwhite				213	220	---	23.2	24.3	---
Virginia									
Accomack		9	15	132	140	99	8.5	10.1	-.3
White				107	113	87	1.9	3.4	-4.2
Nonwhite				180	184	---	20.6	21.0	---
Albemarle		5	19	203	211	165	19.8	19.9	18.6
White				213	227	159	20.3	20.8	16.6
Nonwhite				157	151	---	16.2	14.2	---
Alleghany		3	26	187	189	---	19.3	19.3	---
Amelia		6	20	155	249	111	15.7	30.2	4.0
White				138	---	96	10.6	---	-1.3
Nonwhite				173	---	131	21.6	---	10.9
Amherst		F	20	199	217	148	20.2	21.5	14.5
White				198	232	108	19.9	23.1	2.8
Nonwhite				203	174	---	21.3	15.6	---
Appomattox		6	20	175	181	168	16.6	15.2	19.1
White				170	188	149	15.4	15.6	15.0
Nonwhite				192	---	---	20.8	---	---
Arlington		B	19	No rural population					
Augusta		4	18	176	186	152	15.2	16.0	12.5
Bath		3	26	164	173	---	13.7	15.1	---
Bedford		6	20	166	185	137	16.2	18.1	11.9
White				157	180	126	13.9	16.6	8.5
Nonwhite				211	202	---	27.3	24.3	---
Bland		2	32	141	140	141	9.1	8.2	10.9
Botetourt		3	26	183	218	115	17.8	21.5	5.0
Brunswick		7	25	217	236	201	25.3	24.5	26.1
White				130	137	123	7.1	7.2	6.9
Nonwhite				314	345	288	41.7	40.9	42.7
Buchanan	5b	1	31	330	346	218	41.0	41.5	35.2
Buckingham		6	20	185	221	112	21.7	28.0	4.0
White				142	189	83	10.6	18.4	-5.7
Nonwhite				249	254	---	39.4	40.3	---
Campbell		F	20	194	215	156	17.6	18.1	16.1
White				179	212	124	14.4	16.5	7.3
Nonwhite				251	224	---	31.2	24.5	---
Caroline		8	15	189	211	125	17.7	20.9	6.0
White				150	153	143	10.1	10.3	9.8
Nonwhite				234	263	---	26.2	30.1	---
Carroll	5b	2	32	171	184	154	16.7	17.6	15.1
Charles City		8	15	252	273	---	28.0	29.1	---
White				---	---	---	---	---	---
Nonwhite				278	290	---	31.8	32.3	---
Charlotte		7	25	168	267	123	17.2	28.3	7.5
White				128	203	89	7.3	18.8	-3.5
Nonwhite				253	---	186	36.1	---	26.6
Chesterfield		C	20	223	232	138	21.2	21.6	13.3
White				220	227	155	19.9	19.9	18.6
Nonwhite				237	255	---	29.1	31.4	---
Clarke		4	18	189	190	---	18.9	19.2	---
Craig		3	26	118	121	---	4.8	5.5	---
Culpeper		5	19	160	172	128	14.2	15.9	8.2
White				138	149	111	9.2	11.0	3.4
Nonwhite				235	237	---	30.4	30.2	---
Cumberland	5b	6	20	159	201	126	16.9	24.1	8.8
White				107	---	124	2.1	---	7.6
Nonwhite				212	---	128	33.1	---	10.4

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Virginia--Continued									
Dickenson	5b	1	31	310	324	211	39.5	39.8	35.0
Dinwiddie		6	20	137	121	187	8.4	4.5	23.0
White				144	150	135	9.0	8.3	10.6
Nonwhite				134	111	254	8.1	2.7	35.7
Essex		8	15	169	169	170	13.8	13.1	16.1
White				155	175	---	11.5	13.8	---
Nonwhite				187	162	---	16.9	12.2	---
Fairfax		B	19	166	168	128	11.9	12.0	9.2
White				187	191	129	16.6	16.9	9.8
Nonwhite				64	63	---	-5.0	-5.2	---
Fauquier		5	19	163	160	167	14.2	12.9	17.2
White				161	168	149	13.3	13.3	13.2
Nonwhite				167	142	---	17.4	11.8	---
Floyd		3	26	185	197	179	19.3	16.6	21.5
Fluvanna	5b	6	20	147	172	103	12.4	16.5	1.2
White				135	153	108	9.5	13.2	2.6
Nonwhite				166	198	---	17.0	20.7	---
Franklin		7	25	218	221	215	24.5	22.6	28.2
White				213	226	195	23.1	23.0	23.2
Nonwhite				252	193	---	34.4	19.6	---
Frederick		4	18	168	177	134	14.0	14.7	10.2
Giles		3	26	212	231	136	25.4	27.6	11.6
Gloucester		8	15	153	162	---	12.5	14.0	---
White				158	168	---	13.3	14.9	---
Nonwhite				140	147	---	10.1	11.7	---
Goochland		6	20	176	182	156	15.4	15.5	15.1
White				129	139	---	6.0	7.2	---
Nonwhite				250	233	---	29.5	26.0	---
Grayson	5b	2	32	178	186	167	17.5	17.2	18.1
Greene		5	19	192	253	143	21.1	24.2	15.6
Greensville		10	21	212	249	176	28.3	32.7	22.5
White				142	168	117	10.3	14.1	5.0
Nonwhite				266	312	220	43.2	49.2	35.7
Halifax		7	25	220	238	211	25.5	24.3	26.2
White				179	205	164	15.9	16.4	15.5
Nonwhite				278	296	270	40.7	44.6	39.1
Hanover		8	15	198	228	115	20.4	23.8	4.8
White				163	183	114	12.6	14.6	4.2
Nonwhite				298	340	---	46.0	51.9	---
Henrico		C	20	164	168	114	12.1	12.4	4.2
White				165	169	118	11.6	11.8	5.8
Nonwhite				160	164	---	16.0	17.2	---
Henry		7	25	235	251	144	22.3	23.3	12.0
White				212	225	146	18.2	18.7	13.4
Nonwhite				309	335	---	36.7	40.2	---
Highland		3	26	128	---	85	8.1	---	-4.9
Isle of Wight		10	21	203	214	170	20.5	21.4	16.9
White				174	182	157	15.0	15.7	13.3
Nonwhite				234	245	---	26.4	26.9	---
James City		8	15	140	138	---	7.5	7.0	---
White				101	97	---	.1	-.4	---
Nonwhite				227	221	---	24.5	23.5	---
King and Queen		8	15	176	198	142	18.6	21.8	12.3
White				163	---	---	14.5	---	---
Nonwhite				188	188	---	23.0	22.7	---
King George		8	15	148	181	69	10.1	14.3	-11.9
King William		8	15	179	182	171	17.6	17.0	20.0
White				154	150	---	12.8	11.4	---
Nonwhite				216	223	---	24.1	23.5	---
Lancaster	5b	8	15	118	126	80	5.0	6.8	-6.5
White				96	102	---	-1.1	.6	---
Nonwhite				164	173	---	15.8	17.4	---
Lee	5a	1	31	219	240	185	30.8	35.7	22.8
Loudoun		5	19	164	177	138	14.4	15.9	10.5
White				153	163	134	12.0	13.1	9.4
Nonwhite				227	241	---	26.9	27.8	---
Louisa		6	20	139	171	90	10.8	16.8	-3.5
White				123	152	85	6.3	12.2	-5.1
Nonwhite				169	201	102	18.9	24.0	1.1
Lunenburg		7	25	181	184	179	18.3	16.6	20.4
White				155	158	151	12.3	11.4	13.4
Nonwhite				222	230	216	28.1	26.5	29.7
Madison		5	19	175	186	166	18.7	17.6	20.5
White				164	170	159	15.6	14.1	17.7
Nonwhite				220	---	---	32.7	---	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Virginia--Continued									
Mathews		8	15	106	111	---	1.9	3.4	---
White				96	101	---	-1.3	.3	---
Nonwhite				136	141	---	10.3	11.2	---
Mecklenburg		7	25	221	234	212	27.6	26.1	29.2
White				154	194	123	12.0	15.7	6.9
Nonwhite				309	286	327	49.5	46.4	51.8
Middlesex		8	15	110	113	---	3.3	4.2	---
White				93	92	---	-2.2	-2.5	---
Nonwhite				147	161	---	13.8	16.7	---
Montgomery		3	26	331	382	168	33.3	35.7	17.7
Nansemond		10	21	204	218	162	21.8	23.0	16.4
White				171	192	132	14.4	16.6	8.5
Nonwhite				231	233	215	27.9	27.4	31.3
Nelson		6	20	160	175	124	15.2	17.5	8.0
White				146	169	101	11.8	15.4	.5
Nonwhite				201	192	---	25.4	23.4	---
New Kent		8	15	154	156	---	10.9	11.0	---
White				142	---	---	8.9	---	---
Nonwhite				167	164	---	13.1	12.2	---
Norfolk		D	15	212	217	180	23.8	23.9	22.4
White				200	201	191	20.8	20.3	24.5
Nonwhite				239	250	---	30.7	32.0	---
Northampton		9	15	125	124	132	7.0	6.3	10.1
White				96	103	70	-.9	.8	-12.0
Nonwhite				157	147	198	15.2	12.7	24.7
Northumberland	5b	8	15	153	163	125	13.5	14.3	9.7
White				121	128	105	6.2	7.4	2.1
Nonwhite				226	233	---	25.1	23.7	---
Nottoway		6	20	155	154	159	13.8	13.0	16.5
White				120	113	136	5.4	3.4	10.1
Nonwhite				218	212	---	26.8	24.9	---
Orange		5	19	147	161	122	11.1	12.9	6.7
White				138	150	118	8.7	10.1	5.5
Nonwhite				179	189	---	20.6	22.2	---
Page		4	18	134	194	155	19.7	20.8	15.6
Patrick		7	25	206	252	167	22.1	24.3	18.8
Pittsylvania		7	25	230	234	225	25.9	23.7	29.4
White				189	199	175	18.2	17.8	19.0
Nonwhite				346	344	348	45.6	41.8	49.9
Powhatan		6	20	232	228	242	26.3	23.3	36.7
White				263	280	---	33.0	33.5	---
Nonwhite				181	139	---	15.7	6.8	---
Prince Edward		6	20	196	211	179	20.5	20.1	21.3
White				163	208	112	12.9	17.6	3.5
Nonwhite				246	214	---	34.3	25.2	---
Prince George 5/		10	21	395	454	171	25.8	26.3	19.3
White				416	479	---	24.1	25.1	---
Nonwhite				347	392	---	32.2	31.2	---
Prince William 5/		5	19	290	307	176	18.4	18.3	20.3
White				310	334	166	19.1	19.1	18.1
Nonwhite				175	165	---	11.7	10.2	---
Princess Anne 5/		D	15	315	337	167	27.1	27.4	21.5
White				331	363	149	27.1	27.7	16.8
Nonwhite				263	261	---	27.0	26.1	---
Pulaski		3	26	201	217	139	22.2	23.7	13.1
Rappahannock		5	19	173	231	88	17.2	25.3	-4.1
Richmond	5b	8	15	161	172	142	13.8	14.6	12.0
White				154	160	147	12.6	12.0	13.3
Nonwhite				176	---	---	16.8	---	---
Roanoke		A	26	164	165	153	13.3	13.0	17.3
White				159	161	143	12.1	11.9	14.2
Nonwhite				219	208	---	36.0	33.1	---
Rockbridge		3	26	203	249	121	20.1	24.9	5.9
Rockingham		4	18	203	227	160	19.4	21.1	15.0
Russell	5b	2	32	220	266	167	24.8	29.1	17.5
Scott	5b	2	32	200	222	177	21.7	22.6	20.5
Shenandoah		4	18	144	165	102	10.3	13.7	.6
Smyth		2	32	231	250	192	25.2	25.3	24.4
Southampton		10	21	239	259	213	27.1	28.1	25.5
White				205	249	146	19.4	22.9	11.6
Nonwhite				266	267	263	33.7	33.5	34.0
Spotsylvania		5	19	182	192	146	17.1	17.6	14.1
White				171	173	165	14.5	13.7	19.6
Nonwhite				228	264	---	27.7	33.0	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Virginia--Continued									
Stafford 5/		5	19	186	194	---	14.5	15.3	---
Surry		10	21	202	202	200	24.5	20.6	27.8
White				88	---	---	-3.3	---	---
Nonwhite				300	---	283	43.0	---	46.2
Sussex		10	21	211	207	219	25.8	24.8	27.6
White				152	150	156	11.7	10.9	13.3
Nonwhite				251	241	272	35.9	34.3	39.0
Tazewell		1	31	232	239	193	27.8	28.0	26.8
Warren		4	18	201	229	---	21.4	24.4	---
Washington		2	32	207	224	189	22.5	22.8	22.1
Westmoreland	5b	8	15	137	136	140	9.8	9.4	11.0
White				116	117	113	4.1	4.2	3.8
Nonwhite				164	158	---	17.2	15.7	---
Wise	5a	1	31	235	238	191	28.7	28.7	27.6
Wythe		2	32	188	211	150	21.4	24.8	14.5
York 5/		E	15	215	218	---	17.1	17.2	---
White				220	224	---	16.3	16.2	---
Nonwhite				202	205	---	20.2	20.6	---
West Virginia									
Barbour	5b	3	27	194	225	98	22.8	27.8	-.5
Berkeley		6	18	111	96	209	2.9	-1.0	23.7
Boone	5a	4	31	243	250	---	31.0	31.8	---
Braxton	5b	2	30	181	214	114	22.1	27.8	5.0
Brooke		1	29	178	184	---	16.5	17.1	---
Cabell	5a	B	30	182	185	158	17.4	17.7	14.8
Calhoun	5b	2	30	188	180	214	23.6	21.8	29.0
Clay	5b	2	30	259	273	---	33.8	34.7	---
Doddridge	5a	2	30	169	192	114	19.1	22.6	5.8
Fayette	5a	4	31	182	181	190	22.6	22.4	29.4
White				183	182	191	21.8	21.5	30.1
Nonwhite				176	176	---	28.5	28.8	---
Gilmer	5b	2	30	191	208	148	24.2	25.9	17.7
Grant	5b	5	26	190	183	203	20.5	18.0	25.5
Greenbrier	5a	5	26	175	169	216	18.6	16.9	29.1
White				180	174	215	19.4	17.8	29.0
Nonwhite				105	103	---	2.0	1.1	---
Hampshire	5b	5	26	188	206	144	21.0	23.1	13.4
Hancock		1	29	161	164	---	11.9	12.3	---
Hardy	5b	5	26	199	239	157	21.0	25.2	14.7
Harrison	5a	3	27	176	180	143	17.6	18.0	13.7
Jackson	5a	2	30	213	245	174	21.7	23.4	18.4
Jefferson		6	18	186	193	158	17.2	17.0	18.1
Kanawha	5a	C	31	223	224	194	24.7	24.7	25.4
White				223	224	194	24.2	24.2	25.4
Nonwhite				234	234	---	44.0	44.0	---
Lewis	5b	2	30	174	185	142	18.8	20.5	12.9
Lincoln	5b	2	30	245	252	219	31.8	31.7	32.2
Logan	5a	4	31	252	253	---	32.3	32.6	---
White				264	266	---	33.1	33.4	---
Nonwhite				146	146	---	18.3	18.3	---
McDowell	5a	4	31	238	238	---	32.3	32.4	---
White				267	267	---	34.1	34.2	---
Nonwhite				173	173	---	25.4	25.4	---
Marion	5a	3	27	167	169	138	16.2	16.5	10.8
White				170	172	141	16.5	16.8	11.4
Nonwhite				109	---	---	4.3	---	---
Marshall	5a	A	29	156	163	134	12.5	12.8	10.9
Mason	5a	2	30	184	178	198	18.9	16.8	25.0
Mercer	5a	4	31	220	223	193	25.7	25.5	28.4
White				225	229	195	26.0	25.7	29.2
Nonwhite				151	154	---	18.1	19.3	---
Mineral	5a	5	26	190	198	140	19.7	20.8	10.7
Mingo	5a	4	31	280	280	---	41.2	41.2	---
Monongalia	5a	3	27	183	188	137	19.2	20.0	10.6
Monroe	5a	5	26	186	194	175	19.7	19.7	19.8
Morgan	5b	6	18	152	148	---	12.1	11.2	---
Nicholas	5b	2	30	227	228	222	26.7	26.3	29.8
Ohio	5a	A	29	143	154	---	10.1	12.0	---
Pendleton	5b	5	26	158	205	131	15.1	22.6	9.2
Pleasants	5a	1	29	221	241	---	24.6	27.4	---
Pocahontas	5b	5	26	164	168	159	16.9	16.3	18.3
Preston	5b	3	27	188	195	162	21.0	21.5	18.7
Putnam	5a	2	30	208	213	183	22.1	22.4	20.3

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
West Virginia—Continued									
Raleigh	5a	4	31	206	208	155	26.2	26.6	16.6
White				213	216	152	26.9	27.3	16.0
Nonwhite				144	143	---	17.0	16.7	---
Randolph	5b	5	26	192	187	215	21.2	19.7	30.5
Ritchie	5a	2	30	144	147	132	13.2	13.6	11.5
Roane	5b	2	30	133	143	111	9.0	11.2	3.4
Summers	5b	5	26	178	192	142	19.2	21.2	12.7
Taylor	5a	3	27	191	214	---	24.8	29.4	---
Tucker	5b	5	26	217	228	---	25.6	28.7	---
Tyler	5a	1	29	163	174	134	15.8	17.0	11.4
Upshur	5b	2	30	190	220	127	22.4	25.8	10.2
Wayne	5a	B	30	228	229	216	29.6	29.5	30.0
Webster	5b	2	30	200	204	---	26.6	26.8	---
Wetzel	5a	1	29	157	168	97	14.7	16.8	-.9
Wirt	5a	2	30	161	165	154	15.6	14.9	16.7
Wood	5a	1	29	204	214	157	20.8	21.4	16.6
Wyoming	5b	4	31	315	312	---	39.6	39.2	---
North Carolina									
Alamance		3	25	219	237	172	22.0	22.5	19.7
White				204	226	136	18.4	19.8	10.6
Nonwhite				279	285	268	38.4	37.8	39.7
Alexander		2	33	222	252	174	21.1	21.9	19.0
Alleghany	5b	1	33	175	226	137	16.9	21.4	10.9
Anson	5b	5	34	260	267	246	34.7	33.4	38.3
White				206	218	184	22.6	22.6	22.7
Nonwhite				337	328	361	52.7	48.7	65.2
Ashe	5b	1	33	184	225	158	20.0	23.3	16.7
Avery	5b	1	33	212	241	152	26.0	29.3	16.0
Beaufort		10	22	214	215	213	26.2	24.7	29.0
White				186	182	190	18.9	16.4	22.3
Nonwhite				274	264	305	44.6	40.1	60.4
Bertie	5b	7	21	235	199	273	30.2	21.4	39.8
White				144	131	161	10.7	7.1	16.3
Nonwhite				343	302	375	49.1	40.3	56.1
Bladen	5b	11	22	263	247	282	34.9	29.4	42.9
White				222	228	217	28.1	25.8	31.5
Nonwhite				346	282	443	46.8	35.9	61.8
Brunswick		11	22	231	230	232	27.6	26.2	31.4
White				229	238	210	25.9	25.8	26.2
Nonwhite				233	216	---	31.2	27.0	---
Buncombe		A	33	183	190	158	17.9	18.0	17.3
Burke		2	33	200	203	169	19.7	19.8	18.4
White				202	204	177	19.8	19.8	20.1
Nonwhite				178	191	---	17.9	19.8	---
Cabarrus		4	34	239	275	148	26.3	29.4	13.5
White				236	284	120	25.2	29.7	5.9
Nonwhite				262	221	---	35.5	26.4	---
Caldwell		2	33	250	270	162	25.4	26.0	19.9
Camden		10	22	180	179	181	20.5	18.4	26.8
White				153	178	---	15.0	18.4	---
Nonwhite				235	---	---	29.6	---	---
Carteret 5/	5b	11	22	276	281	---	22.7	22.7	---
Caswell		3	25	245	253	241	31.5	27.5	34.9
White				192	209	182	20.1	17.6	22.6
Nonwhite				316	305	324	46.6	43.2	49.1
Catawba		4	34	235	255	154	23.5	24.7	15.2
White				229	247	153	22.3	23.4	14.4
Nonwhite				305	---	---	40.7	---	---
Chatham		4	34	203	231	166	22.8	25.2	18.2
White				170	207	136	15.7	19.2	10.5
Nonwhite				286	266	---	39.5	35.6	---
Cherokee	5b	1	33	214	237	141	26.2	28.4	14.4
Chowan	5b	7	21	249	355	185	32.0	43.1	21.8
White				138	---	99	8.8	---	-.2
Nonwhite				439	---	---	63.8	---	---
Clay	5b	1	33	186	198	175	22.7	21.7	24.0
Cleveland		5	34	233	248	206	26.8	26.7	26.8
White				207	235	160	21.6	23.5	16.4
Nonwhite				336	300	407	48.2	41.8	59.3
Columbus		11	22	253	224	284	30.5	25.5	35.6
White				233	215	248	25.2	21.2	28.5
Nonwhite				292	236	395	43.0	33.2	57.7

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
North Carolina—Continued									
Craven 5/		11	22	288	321	202	23.8	23.7	24.6
White				274	312	164	20.0	20.5	16.1
Nonwhite				329	348	290	40.5	40.2	41.7
Cumberland 5/	5a	9	23	541	668	220	36.0	36.4	31.7
White				605	773	179	35.2	36.2	21.8
Nonwhite				390	418	317	39.8	37.3	52.9
Currituck		10	22	154	149	—	12.8	11.2	—
White				154	137	—	12.8	8.7	—
Nonwhite				155	—	—	12.9	—	—
Dare 5/		10	22	121	121	—	5.2	5.1	—
Davidson		4	34	227	247	159	21.3	22.0	16.5
White				224	246	155	20.6	21.5	15.4
Nonwhite				259	254	—	32.6	31.0	—
Davie		4	34	202	224	150	19.7	20.8	14.9
Duplin		11	22	235	238	233	27.0	25.0	29.0
White				216	227	208	22.4	21.2	23.5
Nonwhite				272	255	290	36.5	32.5	41.0
Durham		F	25	185	193	151	16.6	17.1	14.1
White				163	174	119	12.0	13.0	5.7
Nonwhite				263	267	—	35.4	35.5	—
Edgecombe		8	24	296	319	277	40.3	40.6	40.0
White				226	281	178	26.0	30.9	19.7
Nonwhite				367	358	374	54.6	52.6	56.3
Forsyth		B	25	181	198	114	14.4	15.6	4.7
White				177	195	110	13.5	14.8	3.5
Nonwhite				237	250	—	31.9	33.1	—
Franklin	5a	6	2	198	185	208	24.1	18.2	29.4
White				160	151	167	13.3	10.0	16.8
Nonwhite				247	239	252	42.1	36.1	46.0
Gaston		5	34	230	240	136	23.3	24.2	9.7
White				226	238	120	22.2	23.4	5.6
Nonwhite				262	256	—	32.0	31.1	—
Gates	5b	7	21	196	212	175	23.1	25.2	20.2
White				115	125	104	4.1	6.5	1.3
Nonwhite				317	322	—	44.6	42.4	—
Graham	5b	1	33	196	196	195	23.2	21.3	26.6
Granville	5a	3	25	208	233	190	23.4	24.4	22.6
White				166	205	132	14.5	19.1	8.7
Nonwhite				271	301	258	36.5	36.8	36.4
Greene	5b	8	24	303	251	332	38.9	27.6	46.0
White				200	166	221	20.2	13.0	24.6
Nonwhite				459	387	496	64.5	46.7	75.7
Guilford		C	25	191	213	139	17.3	18.8	11.3
White				185	214	125	16.1	18.4	7.3
Nonwhite				222	207	—	25.1	21.5	—
Halifax	5b	7	21	274	239	314	36.0	25.8	51.7
White				159	165	147	12.2	12.8	10.8
Nonwhite				339	304	368	49.8	35.8	66.3
Harnett		6	24	245	263	225	27.5	27.7	27.2
White				235	264	205	25.2	26.5	23.3
Nonwhite				277	261	303	34.6	30.8	41.2
Haywood		1	33	207	237	152	21.4	23.2	15.7
Henderson		1	33	170	169	173	15.3	14.6	19.2
Hertford		7	21	250	241	262	32.5	30.3	35.3
White				203	196	210	18.7	16.0	22.1
Nonwhite				274	261	293	41.6	39.7	44.1
Hoke	5b	9	23	340	350	329	45.1	42.9	48.0
White				217	242	193	22.7	22.4	23.2
Nonwhite				434	421	454	61.3	58.4	65.1
Hyde	5b	10	22	156	187	105	14.8	21.4	1.6
White				144	180	—	10.7	17.0	—
Nonwhite				173	194	—	22.1	26.9	—
Iredell		4	34	202	214	177	20.1	20.3	19.5
White				192	204	163	18.0	19.0	15.4
Nonwhite				273	285	—	33.8	28.6	—
Jackson	5b	1	33	193	221	120	20.6	23.7	6.9
Johnston		6	24	243	246	241	28.4	25.9	30.5
White				231	232	230	25.2	22.7	27.2
Nonwhite				298	299	297	45.8	41.2	50.6
Jones		11	22	256	307	219	29.9	33.4	26.3
White				262	—	225	29.0	—	26.7
Nonwhite				249	284	—	31.0	34.7	—
Lee		6	24	243	270	210	27.7	27.3	28.6
White				218	228	206	23.2	21.0	27.2
Nonwhite				369	—	—	48.7	—	—

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
North Carolina—Continued									
Lenoir		8	24	314	339	285	36.9	36.9	37.0
White				299	351	234	31.9	34.7	27.0
Nonwhite				339	318	361	47.0	42.4	52.0
Lincoln	5b	5	34	220	217	226	22.7	20.2	30.0
White				212	212	213	20.7	18.9	26.2
Nonwhite				284	—	—	43.6	—	—
McDowell		2	33	200	210	114	20.5	21.6	4.9
Macon	5b	1	33	166	180	134	16.5	18.5	10.5
Madison	5b	1	33	247	322	210	30.7	40.1	25.1
Martin		7	21	241	230	249	32.2	27.8	35.4
White				177	179	177	18.0	16.1	19.6
Nonwhite				341	311	362	53.2	48.6	56.1
Mecklenburg		D	34	198	202	166	17.8	17.8	17.6
White				185	191	135	15.0	15.4	9.9
Nonwhite				273	263	—	37.5	35.4	—
Mitchell	5b	1	33	178	179	175	19.3	17.9	22.0
Montgomery		4	34	195	198	185	21.6	21.3	23.8
White				178	183	158	17.4	18.0	14.9
Nonwhite				260	255	—	38.4	33.8	—
Moore		9	23	211	213	205	23.7	22.9	26.1
White				198	194	209	20.3	18.1	26.7
Nonwhite				250	265	—	36.5	39.3	—
Nash		8	24	264	272	258	33.7	29.5	37.8
White				209	241	182	21.9	22.7	20.9
Nonwhite				354	339	362	53.8	47.1	57.6
New Hanover		11	22	179	185	—	15.7	16.4	—
White				179	186	—	14.7	15.4	—
Nonwhite				176	176	—	23.5	23.7	—
Northampton	5b	7	21	260	235	297	34.2	28.1	44.1
White				167	156	187	14.7	11.5	21.6
Nonwhite				337	310	372	49.5	43.8	57.0
Onslow 5/		11	22	668	765	260	45.6	46.6	33.7
White				735	868	243	46.2	47.4	31.0
Nonwhite				404	405	—	41.1	40.3	—
Orange		3	25	218	219	216	20.7	18.7	30.2
White				188	196	161	14.8	14.5	16.6
Nonwhite				297	287	318	37.6	32.4	53.1
Pamlico		11	22	204	226	142	25.2	27.5	14.7
White				181	200	131	20.0	22.6	10.3
Nonwhite				262	285	—	36.8	37.2	—
Pasquotank 5/		10	22	273	314	165	28.3	30.5	17.5
White				211	245	—	17.0	17.9	—
Nonwhite				365	390	—	48.6	50.1	—
Pender		11	22	211	262	146	26.8	32.9	13.7
White				168	201	135	17.2	21.5	10.9
Nonwhite				280	333	171	38.8	45.3	19.7
Perquimans		7	21	160	188	116	15.2	20.0	5.1
White				108	128	92	2.[illegible]	5.9	-2.5
Nonwhite				237	241	—	34.2	34.5	—
Person	5b	3	25	261	249	270	31.3	25.1	36.7
White				211	227	197	21.2	19.9	22.8
Nonwhite				367	—	386	54.4	—	55.4
Pitt	5b	8	24	260	258	261	32.6	30.3	34.7
White				225	227	223	23.4	21.5	25.4
Nonwhite				304	297	310	46.7	45.4	47.8
Polk		5	34	185	202	124	19.5	21.2	8.9
Randolph		4	34	197	216	148	18.6	19.8	13.4
White				188	206	142	17.1	18.3	11.9
Nonwhite				340	—	—	38.3	—	—
Richmond	5a	9	23	256	268	206	31.4	31.4	31.3
White				213	217	197	22.3	21.3	28.6
Nonwhite				352	377	—	53.4	55.3	—
Robeson		9	23	303	280	322	41.4	35.4	46.8
White				218	227	210	23.0	22.6	23.5
Nonwhite				358	319	387	54.6	47.0	60.2
Rockingham		3	25	202	204	200	19.9	17.3	24.8
White				194	201	186	18.2	16.1	22.5
Nonwhite				239	214	281	28.0	23.9	33.9
Rowan		4	34	206	215	163	20.6	21.0	17.6
White				197	209	139	18.2	19.2	11.0
Nonwhite				262	246	—	37.8	34.0	—
Rutherford		5	34	194	213	134	21.4	22.9	12.4
White				186	208	121	19.6	21.7	7.8
Nonwhite				279	264	—	40.5	36.0	—

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
North Carolina—Continued									
Sampson	5b	6	24	233	278	209	29.3	31.6	27.5
White				215	238	203	24.4	23.6	24.9
Nonwhite				269	351	220	40.4	47.7	33.9
Scotland		9	23	267	234	366	38.6	30.7	63.2
White				201	191	---	23.1	20.9	---
Nonwhite				367	318	457	63.2	49.8	90.2
Stanly		4	34	217	226	189	21.9	21.6	23.2
White				215	225	185	21.2	21.0	22.2
Nonwhite				239	232	---	29.7	27.6	---
Stokes		3	25	212	193	224	21.3	14.2	27.3
Surry		3	25	219	214	225	22.6	19.2	29.0
White				218	215	221	22.3	19.2	28.1
Nonwhite				238	---	---	27.6	---	---
Swain	5b	1	33	184	182	---	22.1	21.3	---
Transylvania		1	33	224	245	139	24.5	25.8	13.7
Tyrrell	5b	10	22	179	157	---	20.6	16.0	---
Union		5	34	234	274	189	26.1	27.0	24.3
White				215	256	168	22.2	24.0	18.8
Nonwhite				334	373	294	47.0	44.2	51.8
Vance	5a	3	25	247	256	240	31.2	28.2	34.7
White				198	222	170	20.8	21.7	18.9
Nonwhite				328	343	320	48.2	46.2	49.5
Wake		E	24	215	226	196	21.3	19.8	25.7
White				194	212	162	16.2	16.2	16.4
Nonwhite				259	259	258	35.2	30.9	43.6
Warren	5b	6	24	229	221	235	32.2	25.6	40.0
White				137	142	131	10.0	9.7	10.3
Nonwhite				311	306	315	49.6	40.0	59.2
Washington	5b	7	21	277	300	239	34.4	33.3	37.4
White				216	252	177	24.0	25.7	21.0
Nonwhite				372	350	---	48.5	40.8	---
Watauga	5b	1	33	203	239	178	24.6	26.8	22.2
Wayne 5/		8	24	254	263	242	23.5	19.7	32.3
White				273	361	201	23.2	22.6	24.6
Nonwhite				225	172	356	24.0	13.8	49.4
Wilkes		2	33	248	278	182	28.5	29.9	23.5
White				250	279	185	28.4	29.5	24.1
Nonwhite				233	---	---	31.6	---	---
Wilson		8	24	236	249	227	29.5	27.5	31.2
White				197	243	174	20.8	23.2	19.0
Nonwhite				303	256	349	45.1	34.0	56.6
Yadkin		3	25	179	201	157	16.5	17.0	15.7
Yancey	5b	1	33	224	278	177	27.4	31.2	22.1
South Carolina									
Abbeville		4	42	231	263	168	25.3	28.1	17.3
White				209	233	160	21.1	22.8	15.8
Nonwhite				288	345	---	36.4	42.8	---
Aiken	5b	B	35	236	232	257	25.6	23.3	42.2
White				213	223	157	19.8	20.2	16.5
Nonwhite				298	258	421	45.2	35.6	78.2
Allendale	5b	6	36	282	315	223	37.0	39.3	31.5
White				181	---	---	13.7	---	---
Nonwhite				346	370	---	57.8	63.0	---
Anderson		2	34	197	221	144	19.7	22.0	12.2
White				183	207	127	16.7	19.0	8.1
Nonwhite				263	294	210	35.5	41.2	25.1
Bamberg	5b	6	36	270	252	291	34.8	29.4	42.8
White				164	168	---	14.9	14.7	---
Nonwhite				366	330	409	49.3	40.4	62.2
Barnwell	5b	6	36	295	289	304	44.7	40.0	53.2
White				184	214	---	16.0	18.8	---
Nonwhite				419	380	---	93.7	89.3	---
Beaufort 5/	5b	6	37	887	957	---	77.7	79.2	---
White				1,439	1,573	---	83.4	84.8	---
Nonwhite				427	443	---	63.1	64.2	---
Berkeley	5b	8	37	304	327	233	43.0	43.6	39.7
White				244	264	162	26.8	28.0	18.1
Nonwhite				354	385	273	59.8	62.0	52.0
Calhoun	5b	6	36	269	229	320	41.3	30.6	57.0
White				152	155	144	13.6	12.8	14.6
Nonwhite				376	304	462	64.0	49.3	80.4
Charleston 5/		C	37	325	329	250	35.1	34.9	41.7
White				267	273	---	22.9	23.0	---
Nonwhite				396	401	---	55.9	55.6	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
South Carolina--Continued									
Cherokee		3	34	233	237	220	27.1	26.2	30.0
White				221	231	192	23.8	24.2	22.0
Nonwhite				285	271	---	45.6	39.0	---
Chester	5b	3	34	227	259	166	28.5	31.3	20.3
White				198	248	94	20.6	26.8	-1.8
Nonwhite				270	277	259	42.5	40.4	47.4
Chesterfield	5b	5	35	273	298	243	34.9	33.7	36.9
White				204	222	184	21.0	20.2	22.6
Nonwhite				469	507	421	74.4	75.0	73.5
Clarendon	5b	6	36	335	322	342	54.4	47.7	58.9
White				210	214	207	25.1	24.9	25.4
Nonwhite				409	415	406	72.3	66.9	75.1
Colleton	5b	8	37	232	260	175	30.9	34.6	21.2
White				176	196	141	16.8	19.4	11.0
Nonwhite				298	324	228	49.4	52.2	39.6
Darlington	5b	6	36	291	272	315	35.8	28.6	48.5
White				217	229	199	20.7	19.6	23.4
Nonwhite				406	362	446	63.8	53.1	74.2
Dillon		7	23	312	241	368	44.1	31.5	53.1
White				249	196	297	31.1	19.6	42.0
Nonwhite				400	316	457	62.3	56.6	65.0
Dorchester	5b	8	37	262	275	225	31.0	30.8	31.8
White				216	254	141	20.9	23.4	11.7
Nonwhite				309	293	---	43.2	39.4	---
Edgefield		4	42	250	260	230	33.4	32.5	35.8
White				147	182	95	10.8	15.7	-1.7
Nonwhite				354	331	---	55.1	49.0	---
Fairfield		4	42	221	225	209	28.5	26.8	36.1
White				146	164	---	11.7	14.9	---
Nonwhite				297	295	303	43.1	38.4	59.3
Florence		7	23	303	299	306	39.8	34.5	45.1
White				264	282	247	30.7	29.1	32.8
Nonwhite				362	332	381	55.5	48.0	60.2
Georgetown		8	37	388	409	337	51.5	49.9	57.2
White				301	329	247	32.4	31.1	37.5
Nonwhite				463	473	---	71.9	70.8	---
Greenville		D	34	215	222	169	19.7	19.8	18.9
White				205	215	132	17.7	18.4	8.9
Nonwhite				281	273	---	34.5	30.8	---
Greenwood		2	34	194	208	118	19.3	20.8.	5.9
White				168	184	90	14.1	15.9	-3.6
Nonwhite				261	274	---	33.2	34.8	---
Hampton	5b	6	36	246	258	200	32.5	33.3	28.2
White				173	180	---	17.0	18.2	---
Nonwhite				344	365	---	51.0	50.9	---
Horry 5/	5a	7	23	284	276	289	30.9	23.8	39.0
White				256	260	254	25.6	19.7	32.3
Nonwhite				376	319	436	50.9	39.3	64.1
Jasper	5b	8	37	247	269	144	35.4	39.8	12.0
White				178	193	---	17.4	20.5	---
Nonwhite				296	326	---	50.6	56.1	---
Kershaw	5b	5	35	276	280	268	32.1	29.9	40.8
White				237	252	189	23.4	23.6	22.4
Nonwhite				340	334	353	49.7	45.4	59.2
Lancaster	5b	3	34	245	269	161	27.2	29.0	17.2
White				209	238	117	20.0	22.4	5.5
Nonwhite				356	364	---	52.5	53.8	---
Laurens		2	34	215	231	166	25.0	26.2	20.1
White				202	225	123	22.2	24.8	7.8
Nonwhite				254	253	254	33.9	31.4	39.4
Lee	5b	6	36	348	322	362	48.5	39.9	53.9
White				207	---	173	20.5	---	16.9
Nonwhite				438	366	475	67.2	56.0	72.3
Lexington		A	35	236	243	208	25.8	26.1	24.4
White				228	235	197	23.4	23.8	21.4
Nonwhite				277	279	---	39.8	39.0	---
McCormick	5b	4	42	265	277	---	34.2	34.7	---
White				214	251	---	25.1	32.0	---
Nonwhite				311	303	---	41.7	37.0	---
Marion		7	23	354	294	395	51.7	38.9	60.8
White				271	247	284	36.0	28.6	40.6
Nonwhite				430	327	519	65.4	46.6	80.5
Marlboro	5b	6	36	282	286	278	37.4	33.5	42.4
White				233	260	191	25.9	28.2	21.3
Nonwhite				337	331	340	51.8	44.0	57.7

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
South Carolina--Continued									
Newberry		4	42	225	239	198	28.9	29.7	27.3
White				176	192	152	17.3	18.4	14.9
Nonwhite				308	309	---	50.3	48.7	---
Oconee		1	34	300	332	202	33.2	34.2	27.6
White				302	334	198	32.7	33.9	25.7
Nonwhite				276	---	---	40.5	---	---
Orangeburg	5b	6	36	299	307	288	41.3	38.5	45.8
White				201	240	153	20.7	23.7	14.5
Nonwhite				373	359	389	57.4	51.8	65.2
Pickens		1	34	233	247	167	24.1	24.4	21.3
White				228	243	166	23.5	23.7	21.4
Nonwhite				292	295	---	32.5	33.5	---
Richland 5/		A	35	498	535	161	44.5	45.5	18.6
White				716	812	105	48.0	49.5	1.7
Nonwhite				291	292	---	36.5	36.0	---
Saluda		4	42	199	217	178	22.6	22.4	23.2
White				158	181	135	12.7	14.5	9.9
Nonwhite				281	277	---	45.7	38.9	---
Spartanburg		2	34	210	220	152	21.3	22.0	15.4
White				197	207	142	18.7	19.4	12.4
Nonwhite				275	291	202	35.3	36.3	28.5
Sumter 5/	5b	6	36	362	399	315	33.9	28.6	50.7
White				341	435	154	21.3	22.1	14.6
Nonwhite				379	359	398	57.6	49.9	65.9
Union		3	34	189	184	223	19.8	17.8	38.1
White				146	153	---	10.2	11.1	---
Nonwhite				323	292	---	51.5	42.8	---
Williamsburg	5b	7	23	366	380	358	54.6	47.1	59.5
White				242	269	225	27.6	25.9	29.0
Nonwhite				440	467	429	72.6	66.4	75.8
York		3	34	224	238	173	24.9	26.4	17.9
White				207	231	116	20.3	23.0	4.4
Nonwhite				259	253	277	36.2	36.0	37.2
Georgia									
Appling		8	38	274	362	240	38.9	46.5	34.8
Atkinson		8	38	255	218	---	34.2	27.9	---
Bacon		8	38	216	204	---	27.2	24.1	---
Baker	5b	7	41	258	---	248	35.8	---	36.1
White				---	---	---	---	---	---
Nonwhite				245	---	---	40.8	---	---
Baldwin	5b	4	42	407	498	---	65.5	75.3	---
White				384	470	---	58.9	66.7	---
Nonwhite				440	---	---	76.1	---	---
Banks	5b	3	42	193	243	128	21.8	27.1	9.7
Barrow	5b	3	42	192	224	126	20.9	24.4	8.8
Bartow		1	43	230	246	192	25.0	26.0	21.9
Ben Hill		7	41	225	232	---	27.5	28.6	---
Berrien		8	38	227	273	199	29.1	35.3	24.5
Bibb		F	35	240	235	---	23.9	22.5	---
White				217	215	---	19.2	18.7	---
Nonwhite				343	329	---	49.5	44.0	---
Bleckley		6	36	231	241	222	27.9	27.8	28.2
Brantley		9	37	267	240	322	39.0	32.6	51.8
Brooks		8	38	251	244	254	35.7	31.3	38.1
White				187	172	195	20.0	16.7	21.9
Nonwhite				348	---	340	60.5	---	66.0
Bryan	5b	9	37	216	247	---	26.0	28.8	---
Bulloch	5b	8	38	231	254	216	29.9	30.3	29.5
White				176	205	158	18.3	21.3	15.9
Nonwhite				381	---	390	55.9	---	61.1
Burke	5b	6	36	263	259	269	44.4	41.0	48.7
White				152	171	129	13.5	16.0	9.0
Nonwhite				327	315	340	64.0	61.0	67.2
Butts		4	42	217	219	210	28.5	26.6	33.7
White				153	147	---	14.3	11.6	---
Nonwhite				328	---	---	47.3	---	---
Calhoun	5b	7	41	175	180	159	22.1	22.7	19.8
White				109	110	---	2.5	3.0	---
Nonwhite				224	233	---	38.3	37.7	---
Camden		9	37	188	192	---	20.0	20.5	---
White				161	168	---	13.1	13.9	---
Nonwhite				216	216	---	28.5	28.5	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Georgia--Continued									
Candler		8	38	192	193	192	22.5	20.6	25.1
White				138	133	145	9.6	6.9	13.4
Nonwhite				333	---	---	53.5	---	---
Carroll	5a	3	42	179	192	156	18.2	18.3	17.7
White				157	172	131	13.3	14.3	10.4
Nonwhite				360	---	---	51.7	---	---
Catoosa		1	43	202	225	106	20.5	22.9	2.2
Charlton		9	37	241	242	---	27.7	26.4	---
Chatham		E	37	185	186	---	16.1	16.0	---
White				188	187	---	16.0	15.8	---
Nonwhite				177	182	---	16.1	16.6	---
Chattahoochee 5/	5b	C	35	995	1,017	---	33.9	33.9	---
Chattooga		1	43	218	234	171	22.2	23.8	15.8
Cherokee		3	42	182	187	158	17.6	18.1	14.3
Clarke		4	42	226	239	---	19.6	19.9	---
White				219	240	---	17.2	18.4	---
Nonwhite				253	---	---	34.6	---	---
Clay	5b	7	41	202	200	---	26.5	26.3	---
White				134	---	---	9.4	---	---
Nonwhite				275	---	---	42.9	---	---
Clayton		B	42	262	265	---	26.1	25.8	---
Clinch		9	37	177	199	---	21.1	25.3	---
Cobb		B	42	232	238	143	19.7	20.0	12.8
White				235	242	143	19.7	20.0	12.3
Nonwhite				197	198	---	19.5	19.4	---
Coffee		8	38	212	184	233	25.4	17.7	32.0
White				195	174	209	22.1	16.1	26.5
Nonwhite				287	---	---	38.3	---	---
Colquitt		8	38	232	236	228	27.6	23.3	32.5
White				221	229	215	25.1	22.1	28.5
Nonwhite				300	---	---	45.7	---	---
Columbia 5/		4	42	271	290	---	27.8	28.3	---
White				262	286	---	23.4	24.3	---
Nonwhite				285	298	---	37.9	37.8	---
Cook		8	38	199	194	205	21.8	21.6	21.9
Coweta	5b	4	42	189	193	166	20.6	20.3	22.1
White				152	158	122	12.1	12.6	8.2
Nonwhite				300	289	---	43.7	41.0	---
Crawford		5	35	177	201	---	19.5	22.0	---
White				101	109	---	.3	2.4	---
Nonwhite				291	308	---	38.4	38.8	---
Crisp	5b	7	41	195	224	162	23.2	26.2	18.4
Dade		1	43	236	279	---	23.2	26.5	---
Dawson	5b	2	33	234	---	---	24.9	---	---
Decatur		7	41	207	251	156	23.9	27.2	17.4
White				177	243	122	15.9	21.0	6.9
Nonwhite				258	260	---	40.6	38.5	---
De Kalb		B	42	204	203	---	18.4	18.2	---
White				196	197	---	16.9	16.9	---
Nonwhite				266	257	---	31.8	30.4	---
Dodge		6	36	226	222	232	28.3	26.0	31.6
White				195	215	170	21.4	23.3	18.1
Nonwhite				341	---	---	53.7	---	---
Dooly	5b	7	41	228	174	270	30.8	16.6	43.5
White				161	144	179	14.7	9.7	20.9
Nonwhite				320	---	369	53.1	---	66.2
Dougherty 5/	5b	7	41	311	328	---	23.2	23.0	---
White				324	354	---	18.0	18.5	---
Nonwhite				293	291	---	43.2	42.6	---
Douglas		3	42	183	191	---	18.3	18.5	---
Early	5b	7	41	225	228	225	33.7	33.6	34.0
White				185	218	161	21.3	26.4	16.6
Nonwhite				264	236	302	47.6	40.9	55.5
Echols		9	37	132	---	---	9.0	---	---
Effingham		9	37	223	227	212	25.6	25.3	26.8
White				218	235	---	23.2	25.4	---
Nonwhite				233	213	---	30.6	25.1	---
Elbert	5b	4	42	219	220	220	26.2	24.0	30.2
White				167	177	152	14.6	15.5	13.2
Nonwhite				365	---	---	58.0	---	---
Emanuel		8	38	205	189	224	24.7	21.2	28.9
White				187	167	213	19.3	15.5	24.0
Nonwhite				250	---	---	41.5	---	---
Evans		8	38	246	---	200	32.1	---	27.0

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Georgia—Continued									
Fannin		2	33	228	233	---	29.2	29.7	---
Fayette		4	42	189	182	208	21.3	19.1	28.6
Floyd		1	43	178	177	185	15.7	14.9	23.5
White				193	193	191	17.6	16.8	24.3
Nonwhite				87	86	---	-4.1	-4.3	---
Forsyth	5b	3	42	224	253	189	24.9	24.9	24.9
Franklin	5b	3	42	199	227	159	20.4	22.0	16.8
Fulton		B	42	213	214	208	21.9	21.3	29.1
White				200	200	199	19.5	18.9	27.0
Nonwhite				338	340	---	42.6	42.2	---
Gilmer	5b	2	33	173	185	135	17.5	18.9	11.1
Glascock	5b	5	35	172	149	---	19.4	13.1	---
Glynn 5/		9	37	350	351	---	32.4	32.5	---
Gordon	5b	1	43	205	205	205	19.4	17.2	26.5
Grady		7	41	190	197	186	25.0	23.8	25.7
White				155	198	141	15.7	21.1	13.1
Nonwhite				302	---	---	52.5	---	---
Greene		4	42	210	208	---	28.4	26.1	---
White				148	141	---	12.8	10.9	---
Nonwhite				283	298	---	45.0	42.6	---
Gwinnett		B	42	220	235	153	22.6	23.0	18.9
Habersham	5b	2	33	283	298	190	36.4	37.9	23.7
Hall		3	42	205	214	167	20.1	20.4	18.0
Hancock	5b	4	42	263	262	265	37.7	33.7	50.3
White				134	133	---	7.6	7.0	---
Nonwhite				326	334	313	53.1	48.2	66.8
Haralson		3	42	213	219	193	23.7	23.8	22.9
Harris		4	42	206	219	---	26.9	28.5	---
White				123	133	---	7.0	9.5	---
Nonwhite				326	335	---	46.9	46.0	---
Hart	5b	4	42	209	256	159	24.4	31.0	15.1
White				195	223	161	21.9	26.7	15.4
Nonwhite				275	---	---	34.0	---	---
Heard	5b	3	42	182	214	119	21.0	25.6	7.0
Henry	5b	4	42	219	228	190	25.3	24.8	28.0
White				169	177	139	15.2	15.8	12.0
Nonwhite				329	345	---	45.6	42.6	---
Houston 5/		G	41	315	343	228	30.1	30.0	30.2
White				291	323	---	24.1	24.9	---
Nonwhite				373	400	---	50.7	53.4	---
Irwin		7	41	197	204	193	25.2	25.8	24.9
Jackson		3	42	219	249	159	25.3	27.8	17.4
Jasper	5b	4	42	210	213	---	24.3	24.3	---
White				171	181	---	16.3	18.7	---
Nonwhite				253	244	---	32.3	29.0	---
Jeff Davis		8	38	260	293	219	35.2	37.9	31.1
Jefferson	5b	6	36	228	247	180	31.7	33.8	24.7
White				152	169	110	12.9	15.6	3.2
Nonwhite				318	341	264	54.4	56.7	47.5
Jenkins	5b	6	36	262	203	313	35.7	23.6	45.4
White				237	---	---	26.6	---	---
Nonwhite				289	---	---	49.1	---	---
Johnson	5b	6	36	222	239	191	26.9	27.6	25.2
White				197	228	152	21.2	23.9	15.3
Nonwhite				287	---	---	42.3	---	---
Jones	5b	4	42	211	230	---	22.5	25.0	---
White				150	159	---	11.1	12.5	---
Nonwhite				299	325	---	36.3	38.4	---
Lamar		4	42	201	248	133	25.8	29.8	14.3
Lanier		8	38	173	168	184	19.5	16.9	26.1
White				208	250	---	25.2	27.9	---
Nonwhite				113	80	---	4.5	-7.7	---
Laurens	5b	6	36	217	254	178	24.7	27.6	20.3
White				178	216	140	16.3	20.2	10.5
Nonwhite				311	343	276	46.3	46.1	46.6
Lee	5b	7	41	260	230	286	32.7	23.3	43.7
White				137	---	---	7.6	---	---
Nonwhite				392	---	---	60.5	---	---
Liberty 5/		9	37	350	358	---	29.6	29.9	---
White				414	426	---	24.2	24.1	---
Nonwhite				304	311	---	39.1	40.1	---
Lincoln	5b	4	42	247	338	131	31.1	36.2	13.2
Long		9	37	226	237	---	27.1	27.1	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Georgia--Continued									
Lowndes 5/		8	38	229	241	206	22.3	20.8	28.0
White				210	233	158	17.8	18.3	15.7
Nonwhite				285	273	—	40.4	33.6	—
Lumpkin	5b	2	33	270	312	—	32.5	34.4	—
McDuffie		4	42	241	241	241	26.8	24.9	32.4
White				211	229	—	20.7	22.5	—
Nonwhite				283	—	—	36.0	—	—
McIntosh	5b	9	37	262	263	—	34.2	34.5	—
White				210	211	—	23.1	23.6	—
Nonwhite				319	319	—	46.2	46.2	—
Macon	5b	7	41	257	254	261	40.6	36.9	45.7
White				145	154	136	13.1	13.2	13.2
Nonwhite				376	356	400	64.1	60.2	68.5
Madison		3	42	194	202	183	21.5	21.1	22.3
Marion	5b	5	35	263	270	—	37.9	36.9	—
White				192	—	—	22.1	—	—
Nonwhite				336	—	—	52.9	—	—
Meriwether	5b	4	42	201	201	200	25.1	22.8	32.8
White				132	135	120	7.9	8.1	6.4
Nonwhite				279	286	263	44.8	41.4	54.3
Miller		7	41	213	179	250	25.5	19.2	31.4
White				206	182	227	22.5	17.1	27.2
Nonwhite				227	—	—	34.4	—	—
Mitchell		7	41	228	236	225	28.3	26.2	29.5
White				189	—	167	19.9	—	17.3
Nonwhite				281	—	332	39.2	—	47.9
Monroe		4	42	212	234	160	27.8	29.5	21.3
White				163	177	—	17.9	19.4	—
Nonwhite				289	309	—	39.2	39.5	—
Montgomery	5b	8	38	194	204	174	21.6	21.3	21.9
Morgan		4	42	217	192	234	28.3	17.5	39.4
White				195	—	195	22.7	—	29.7
Nonwhite				247	—	—	36.0	—	—
Murray	5b	1	43	234	260	181	25.7	27.8	19.7
Muscogee 5/		C	35	461	466	—	27.2	27.1	—
White				565	579	—	28.0	28.0	—
Nonwhite				282	280	—	24.0	23.9	—
Newton		4	42	235	247	186	28.4	28.9	25.6
White				202	220	—	21.1	23.5	—
Nonwhite				348	—	—	55.7	—	—
Oconee		4	42	170	188	148	17.8	18.6	16.2
Oglethorpe	5b	4	42	202	227	169	25.7	28.0	21.4
White				133	147	113	9.3	11.4	4.8
Nonwhite				368	—	—	54.0	—	—
Paulding	5a	3	42	198	215	116	21.0	23.4	4.9
Peach		7	41	252	250	—	29.3	26.4	—
White				215	—	—	20.7	—	—
Nonwhite				288	—	—	39.4	—	—
Pickens		2	33	192	211	—	18.2	19.4	—
Pierce		9	37	191	162	229	22.1	15.2	30.6
Pike		4	42	205	203	213	26.6	25.5	29.6
White				166	175	—	16.8	18.6	—
Nonwhite				269	—	—	42.3	—	—
Polk	5a	1	43	206	203	220	23.6	22.3	30.8
White				194	191	207	21.0	19.7	27.8
Nonwhite				286	—	—	39.9	—	—
Pulaski	5b	7	41	224	—	218	26.7	—	34.0
Putnam		4	42	222	242	—	25.1	25.1	—
Quitman	5b	7	41	245	—	—	38.5	—	—
Rabun	5b	2	33	214	233	—	27.3	29.8	—
Randolph	5b	7	41	169	217	131	20.0	32.4	9.3
White				117	—	—	4.5	—	—
Nonwhite				208	—	148	34.1	—	16.5
Richmond 5/		D	35	615	656	—	39.8	40.3	—
White				688	746	—	41.0	41.7	—
Nonwhite				342	335	—	31.7	30.4	—
Rockdale		4	42	236	217	—	28.2	22.5	—
Schley	5b	7	41	194	168	—	26.3	18.7	—
Screven	5b	6	36	240	246	234	35.9	34.0	38.2
White				178	191	166	17.5	18.4	16.5
Nonwhite				301	292	311	59.0	51.1	70.7
Seminole		7	41	247	—	235	33.0	—	30.9
Spalding		4	42	200	208	—	21.3	22.2	—
White				179	187	—	17.3	18.4	—
Nonwhite				325	---	---	41.6	---	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Georgia--Continued									
Stephens		3	42	202	218	148	21.5	22.6	14.8
Stewart	5b	7	41	228	202	—	31.2	24.4	—
White				135	138	—	9.1	10.0	—
Nonwhite				281	243	—	42.9	32.4	—
Sumter	5b	7	41	245	305	198	35.3	38.0	31.6
White				209	289	132	25.1	32.9	10.7
Nonwhite				282	325	254	46.9	45.6	47.9
Talbot	5b	4	42	212	206	—	29.9	28.7	—
White				192	187	—	24.9	24.1	—
Nonwhite				223	215	—	32.6	30.8	—
Taliaferro	5b	4	42	219	249	—	32.5	36.9	—
Tattnall		8	38	123	96	172	4.5	-.6	20.7
White				140	127	153	7.7	3.9	16.0
Nonwhite				98	69	—	-.4	-6.0	—
Taylor	5b	5	35	205	233	159	25.4	29.0	17.5
White				164	194	122	17.1	21.4	7.8
Nonwhite				287	—	—	38.5	—	—
Telfair	5b	6	36	182	169	201	20.9	15.6	30.7
White				158	153	163	14.6	11.3	19.6
Nonwhite				246	196	—	37.5	24.3	—
Terrell	5b	7	41	241	264	224	38.2	37.6	38.6
White				127	—	96	8.3	—	-1.3
Nonwhite				345	—	342	60.9	—	68.5
Thomas		8	38	157	141	187	15.9	11.7	23.5
White				125	111	155	7.3	3.4	14.7
Nonwhite				242	238	249	35.7	32.1	41.5
Tift		7	41	259	271	237	35.6	37.0	33.1
White				228	276	184	26.8	31.5	20.8
Nonwhite				310	268	—	53.6	44.4	—
Toombs	5b	8	38	220	276	195	28.7	31.3	26.9
Towns	5b	2	33	262	315	—	37.8	44.6	—
Treutlen	5b	6	36	200	215	175	23.8	25.5	20.0
Troup		4	42	183	198	114	19.6	21.5	4.9
White				165	181	89	15.2	17.5	-4.0
Nonwhite				244	258	—	35.0	36.4	—
Turner		7	41	214	223	203	26.1	30.7	21.6
Twiggs	5b	5	35	248	231	—	30.2	25.7	—
White				208	—	—	20.3	—	—
Nonwhite				275	241	—	38.1	29.9	—
Union	5b	2	33	156	193	115	14.5	20.5	4.9
Upson		4	42	171	177	—	16.3	17.2	—
White				161	171	—	13.7	15.4	—
Nonwhite				195	190	—	23.4	22.1	—
Walker		A	32	193	211	116	18.3	19.7	5.8
Walton	5b	4	42	192	191	193	21.5	19.6	25.6
White				153	166	129	12.5	14.0	8.6
Nonwhite				330	—	—	53.4	—	—
Ware		9	37	217	209	236	23.3	20.0	32.5
Warren	5b	4	42	229	244	195	31.1	31.1	31.0
White				139	181	—	8.7	16.3	—
Nonwhite				302	300	—	52.5	46.3	—
Washington	5b	5	35	210	219	197	28.7	28.3	29.7
White				158	159	158	15.3	14.3	17.3
Nonwhite				267	285	238	43.1	43.1	43.1
Wayne	5b	9	37	243	257	218	31.3	31.0	32.3
Webster	5b	7	41	286	—	—	42.3	—	—
Wheeler	5b	6	36	242	235	250	36.5	33.5	40.1
White	5b	2	33	217	233	186	23.7	23.3	24.5
Whitfield		1	43	213	225	159	21.8	22.1	19.2
Wilcox		7	41	194	193	195	25.0	26.2	23.2
White				174	165	184	18.7	17.0	20.4
Nonwhite				244	238	—	44.2	45.0	—
Wilkes	5b	4	42	207	230	177	30.0	32.5	25.6
White				155	144	—	14.5	11.6	—
Nonwhite				276	—	—	53.6	—	—
Wilkinson		5	35	185	194	—	19.3	20.1	—
White				125	130	—	6.1	6.8	—
Nonwhite				284	294	—	38.6	38.2	—
Worth	5b	7	41	243	207	271	34.0	25.9	39.9
White				200	161	240	22.3	14.7	28.9
Nonwhite				297	—	301	51.1	—	52.9

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Florida									
Alachua		3	38	241	249	181	28.5	29.3	20.7
White				237	248	171	25.6	26.6	17.5
Nonwhite				249	252	---	36.7	36.9	---
Baker		3	38	207	194	---	20.3	16.3	---
Bay 5/		1	40	296	301	---	20.8	21.0	---
Bradford		2	40	192	201	---	20.0	20.2	---
Brevard 5/		4	39	158	164	---	9.0	9.5	---
White				159	165	---	9.1	9.8	---
Nonwhite				144	143	---	6.9	6.7	---
Broward		G	39	137	130	---	6.6	5.3	---
Calhoun	5b	1	40	229	232	---	29.5	28.8	---
Charlotte		6	39	68	67	---	-10.5	-10.5	---
Citrus		5	39	100	104	---	.2	1.3	---
Clay 5/		2	40	256	268	---	25.0	25.8	---
Collier		6	39	129	131	---	7.2	7.7	---
Columbia		3	38	215	226	192	27.6	27.4	28.1
White				245	294	166	29.3	32.8	19.6
Nonwhite				166	137	---	22.9	12.9	---
Dade 5/		C	39	177	182	115	11.9	12.3	4.1
White				180	185	109	12.5	12.9	2.7
Nonwhite				156	156	---	8.1	7.9	---
De Soto		5	39	100	84	---	.1	-4.4	---
Dixie		2	40	168	178	---	15.5	17.0	---
Duval 5/		A	40	248	252	170	20.4	20.4	21.1
White				263	268	168	21.4	21.4	20.8
Nonwhite				133	131	---	7.2	7.0	---
Escambia 5/		D	40	319	324	231	29.6	29.6	29.0
White				323	328	---	28.6	28.5	---
Nonwhite				298	304	---	37.3	38.0	---
Flagler		4	39	128	134	---	6.6	7.6	---
Franklin	5b	1	40	173	173	---	18.1	18.2	---
Gadsden		3	38	253	263	215	34.3	35.2	30.1
White				177	208	122	17.6	21.6	6.7
Nonwhite				298	286	---	43.9	41.5	---
Gilchrist		3	38	158	111	---	16.7	3.1	---
Glades		6	39	113	113	---	2.5	2.4	---
Gulf		1	40	176	174	---	17.4	17.2	---
Hamilton		3	38	227	223	236	30.5	29.4	33.6
White				213	232	---	26.1	28.7	---
Nonwhite				245	210	---	37.5	30.7	---
Hardee		5	39	172	198	117	16.1	19.6	5.2
Hendry		6	39	174	155	---	15.9	12.6	---
White				200	176	---	20.6	17.1	---
Nonwhite				137	126	---	8.4	6.1	---
Hernando		5	39	105	100	---	1.4	.1	---
Highlands		5	39	147	148	---	12.1	12.3	---
Hillsborough 5/		B	39	172	179	132	14.5	14.9	10.1
White				171	179	127	14.3	14.9	8.7
Nonwhite				198	185	---	17.8	15.6	---
Holmes	5b	3	38	222	242	187	28.5	31.3	22.6
Indian River		4	39	116	113	---	4.5	3.5	---
White				114	109	---	3.8	2.5	---
Nonwhite				131	134	---	8.2	9.2	---
Jackson	5b	3	38	291	321	228	41.0	42.9	35.4
White				263	305	181	34.7	38.7	22.8
Nonwhite				373	367	392	59.8	55.2	73.9
Jefferson	5b	3	38	174	167	203	19.8	17.3	32.8
White				109	95	---	2.6	-1.2	---
Nonwhite				246	251	---	37.4	37.0	---
Lafayette	5b	3	38	178	---	---	9.5	---	---
Lake		5	39	113	113	110	3.3	3.3	3.4
White				112	112	112	3.5	3.5	3.8
Nonwhite				121	123	---	2.6	2.7	---
Lee		6	39	109	110	---	2.6	2.9	---
White				105	106	---	1.6	1.9	---
Nonwhite				150	150	---	11.6	11.9	---
Leon		3	38	177	173	222	14.4	13.3	33.5
White				151	151	--	8.9	8.8	---
Nonwhite				240	232	---	31.5	28.3	---
Levy		2	40	146	148	137	13.3	13.6	11.9
White				127	125	135	7.9	6.9	12.0
Nonwhite				207	208	---	31.1	32.7	---
Liberty	5b	1	40	133	138	---	9.0	9.9	---
Madison		3	38	215	194	250	27.4	21.7	37.6
White				158	118	208	14.2	4.3	28.0
Nonwhite				319	299	---	49.8	44.9	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Florida—Continued									
Manatee		6	39	96	93	---	-1.0	-2.2	---
Marion		5	39	163	161	183	16.0	15.1	22.7
White				153	149	177	12.7	11.8	19.8
Nonwhite				194	193	---	26.3	25.7	---
Martin		6	39	88	90	---	-3.7	-3.1	---
White				79	80	---	-6.9	-6.4	---
Nonwhite				157	160	---	14.1	15.3	---
Monroe 5/		6	39	126	127	---	5.5	5.7	---
Nassau		2	40	192	191	---	20.2	19.5	---
Okaloosa 5/		1	40	293	301	237	21.9	21.1	36.6
Okeechobee		6	39	418	461	---	61.4	67.5	---
Orange 5/		E	39	193	198	120	15.1	15.4	5.7
White				197	204	109	16.0	16.6	2.6
Nonwhite				170	167	---	10.6	10.1	---
Osceola		5	39	136	130	---	9.1	7.3	---
Palm Beach		F	39	152	149	---	9.3	8.7	---
White				147	142	---	9.9	8.8	---
Nonwhite				164	166	---	8.4	8.5	---
Pasco		5	39	125	124	131	7.4	6.9	10.8
White				119	116	132	5.9	5.1	11.1
Nonwhite				211	213	---	15.9	16.3	---
Pinellas		B	39	91	89	---	-2.3	-2.9	---
Polk		5	39	168	173	123	13.7	14.2	7.5
White				174	182	113	14.7	15.6	4.3
Nonwhite				140	134	---	8.4	7.1	---
Putnam		2	40	160	164	---	15.2	15.8	---
White				150	155	---	11.9	12.7	---
Nonwhite				192	192	---	27.2	27.4	---
St. Johns		2	40	156	155	---	12.9	12.6	---
White				140	135	---	9.5	8.5	---
Nonwhite				202	209	---	21.4	22.1	---
St. Lucie		4	39	112	115	83	3.3	4.2	-5.6
Santa Rosa 5/		D	40	279	310	151	25.0	25.9	15.7
Sarasota		6	39	82	83	---	-5.9	-5.5	---
Seminole		E	39	165	166	---	13.3	13.4	---
White				165	166	---	12.5	12.6	---
Nonwhite				166	167	---	16.9	17.1	---
Sumter		5	39	151	165	88	13.8	16.7	-3.9
White				134	153	62	9.7	13.9	-14.6
Nonwhite				228	210	---	29.1	26.6	---
Suwannee	5b	3	38	203	222	192	26.2	33.0	22.6
Taylor		2	40	216	231	---	24.2	25.8	---
Union		3	38	89	87	---	-1.8	-2.1	---
White				101	104	---	.3	.6	---
Nonwhite				65	54	---	-6.3	-7.9	---
Volusia		4	39	113	116	76	3.7	4.3	-9.3
White				105	107	76	1.5	2.0	-9.4
Nonwhite				210	211	---	29.1	29.3	---
Wakulla		1	40	175	178	---	19.6	20.5	---
Walton	5b	1	40	176	178	168	20.0	19.0	24.6
Washington	5b	1	40	188	191	181	22.2	21.9	23.7
Kentucky									
Adair	5b	5	44	191	226	171	21.9	26.8	18.5
Allen	5b	5	44	116	156	103	4.8	14.0	1.1
Anderson		6	45	131	146	120	7.9	11.1	5.4
Ballard	5a	1	53	128	164	95	7.6	14.6	-1.5
Barren	5b	4	53	146	154	143	10.9	11.6	10.7
Bath	5b	6	45	168	212	122	16.4	23.6	6.4
Bell	5a	9	31	292	310	---	43.8	45.9	---
Boone		6	45	189	236	121	18.0	22.4	6.3
Bourbon		7	45	187	222	161	20.8	26.2	15.9
Boyd	5a	C	30	330	359	---	40.8	44.5	---
Boyle	5a	6	45	150	139	174	10.6	7.6	19.4
Bracken		6	45	141	144	138	9.7	9.8	9.7
Breathitt	5a	9	31	289	280	306	41.1	36.6	51.5
Breckinridge	5b	3	52	145	116	165	12.2	3.9	18.8
Bullitt		3	52	206	203	216	21.0	19.3	28.2
Butler	5b	3	52	151	177	133	13.9	16.0	10.1
Caldwell	5a	3	52	152	170	139	13.5	15.7	11.6
Calloway	5b	1	53	126	179	101	7.7	15.4	.3
Campbell		B	46	191	208	139	19.7	21.0	12.8
Carlisle	5b	1	53	129	126	132	7.6	5.9	10.2
Carroll		6	45	163	166	160	17.3	16.2	18.2
Carter	5a	8	31	223	237	201	27.4	27.8	26.5

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Kentucky--Continued									
Casey	5b	5	44	224	245	217	30.4	29.1	31.0
Christian 5/	5a	4	53	281	370	136	25.0	28.3	10.3
White				309	425	143	26.9	30.5	12.0
Nonwhite				191	227	104	16.5	19.4	1.4
Clark		7	45	195	291	126	20.7	30.7	7.8
Clay	5a	8	31	349	363	327	44.3	42.6	47.8
Clinton	5b	5	44	224	261	200	25.3	26.8	24.0
Crittenden	5b	3	52	149	191	90	12.6	19.1	-3.6
Cumberland	5b	5	44	155	169	148	14.5	14.6	14.4
Daviess		2	51	244	263	221	29.0	26.9	33.1
Edmonson	5b	3	52	201	212	192	26.1	25.9	26.3
Elliott	5a	8	31	223	247	217	27.5	21.5	30.7
Estill	5a	8	31	188	179	201	23.1	20.2	28.0
Fayette		E	45	165	176	146	11.3	11.2	11.8
White				174	187	153	13.1	13.1	13.1
Nonwhite				104	114	---	.7	2.0	---
Fleming		6	45	147	137	155	12.9	10.2	15.0
Floyd	5a	9	31	269	266	---	36.7	35.8	---
Franklin		6	45	174	215	130	15.8	19.1	9.2
Fulton	5b	1	53	169	163	181	18.6	16.9	22.4
Gallatin		6	45	133	147	121	8.4	10.5	6.4
Garrard	5a	6	45	162	188	153	15.4	18.9	14.0
Grant		6	45	152	127	179	12.7	6.6	20.1
Graves	5a	1	53	127	158	105	7.6	13.2	1.8
Grayson	5a	3	52	202	258	181	26.1	31.0	23.3
Green	5b	3	52	152	136	161	12.2	7.7	15.2
Greenup	5a	8	31	221	214	243	23.9	21.7	33.0
Hancock		3	52	141	118	168	10.9	5.4	16.4
Hardin 5/	5a	3	52	553	733	173	35.0	36.5	20.3
White				562	762	177	35.5	37.0	20.9
Nonwhite				442	483	---	28.9	30.0	---
Harlan	5a	9	31	251	255	---	36.2	36.7	---
White				260	265	---	36.9	37.5	---
Nonwhite				142	142	---	18.6	18.6	---
Harrison		7	45	145	188	130	11.3	20.1	7.8
Hart	5b	3	52	163	154	169	14.6	11.9	16.8
Henderson	5a	D	51	172	191	141	15.7	17.2	11.8
Henry		6	45	137	138	137	10.2	9.1	11.4
Hickman	5b	1	53	129	130	127	7.6	8.3	6.8
Hopkins	5a	3	52	161	179	111	14.9	17.9	3.6
Jackson	5a	8	31	228	278	197	29.0	31.2	26.8
Jefferson		A	46	210	221	123	20.3	21.2	7.4
White				215	227	119	20.8	21.7	6.4
Nonwhite				138	135	---	10.3	9.2	---
Jessamine		7	45	148	168	136	10.7	12.5	9.3
Johnson	5a	9	31	239	248	206	30.9	30.8	31.2
Kenton		B	46	184	200	112	18.3	20.2	3.8
Knott	5a	9	31	327	331	309	46.8	45.6	55.4
Knox	5a	9	31	267	292	197	38.3	40.8	28.6
Larue	5a	3	52	138	178	113	9.5	15.6	4.0
Laurel	5a	8	31	204	213	195	27.3	27.8	26.6
Lawrence	5b	8	31	179	227	112	21.4	30.2	4.0
Lee	5b	8	31	193	203	171	25.3	25.4	24.6
Leslie	5a	9	31	350	393	---	48.1	50.3	---
Letcher	5a	9	31	267	265	---	37.9	37.3	---
Lewis	5b	8	31	224	284	174	27.0	31.6	20.7
Lincoln	5a	5	44	178	184	174	19.3	18.6	20.1
Livingston	5b	3	52	139	151	121	10.7	12.9	6.5
Logan	5b	4	53	145	137	148	11.3	7.5	13.3
Lyon	5b	3	52	96	100	91	-.6	0	-3.1
McCracken	5a	1	53	175	187	125	15.5	16.7	7.7
McCreary	5b	9	31	308	318	---	46.8	48.5	---
McLean		2	51	137	136	138	9.9	8.4	12.5
Madison	5a	6	45	162	182	145	15.7	18.0	13.1
Magoffin	5a	8	31	224	239	208	27.7	26.8	28.8
Marion		6	45	284	309	272	35.9	36.0	35.9
Marshall	5a	1	53	155	174	122	12.1	13.6	7.4
Martin	5a	9	31	287	289	---	42.7	42.0	---
Mason		6	45	167	204	135	15.8	21.3	9.6
Meade 5/	5a	3	52	243	301	142	20.5	22.5	11.9
Menifee	5b	8	31	193	---	193	25.6	---	27.6
Mercer	5a	7	45	124	121	126	6.4	5.4	7.1
Metcalfe	5b	5	44	121	119	121	6.1	4.4	6.8
Monroe	5b	5	44	177	181	175	19.2	18.5	19.7

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Kentucky--Continued									
Montgomery		6	45	216	253	192	26.4	29.7	23.5
Morgan	5b	8	31	208	254	185	25.4	28.5	23.2
Muhlenberg	5a	3	52	178	181	171	19.8	20.0	19.0
Nelson	5b	6	45	222	241	203	25.3	24.4	26.7
Nicholas		6	45	146	150	143	11.6	12.4	10.9
Ohio		3	52	147	143	154	13.5	11.6	17.2
Oldham	5b	6	45	150	158	129	8.7	8.8	8.7
Owen		6	45	137	92	165	9.6	-2.1	16.5
Owsley	5b	8	31	231	232	232	29.9	31.1	29.4
Pendleton	5b	6	45	146	287	98	11.8	33.5	-.6
Perry	5a	9	31	268	277	---	36.4	37.5	---
Pike	5a	9	31	275	281	182	36.7	37.2	25.3
Powell	5b	8	31	197	196	200	24.2	23.3	26.5
Pulaski	5b	5	44	196	219	182	22.2	22.1	22.2
Robertson		6	45	154	---	163	13.8	---	17.1
Rockcastle	5a	5	44	211	224	197	26.5	27.0	26.0
Rowan	5a	8	31	229	253	197	30.1	31.8	26.9
Russell	5b	5	44	185	246	151	21.2	30.7	14.2
Scott	5b	7	45	141	184	121	11.2	18.0	6.7
Shelby		6	45	180	178	181	16.4	14.2	18.1
Simpson	5b	4	53	146	---	141	11.8	---	11.4
Spencer		6	45	186	188	186	19.2	16.6	21.0
Taylor		3	52	167	237	140	16.0	23.0	11.5
Todd	5a	4	53	162	175	147	15.7	18.2	12.7
White				159	180	139	14.6	18.1	10.7
Nonwhite				177	---	---	23.3	---	---
Trigg	5a	4	53	162	199	136	15.2	19.4	10.8
Trimble		6	45	146	157	140	11.5	11.9	11.2
Union		2	51	170	175	157	18.0	19.0	15.6
Warren	5b	4	53	175	204	161	17.9	21.1	15.9
Washington		6	45	188	164	201	21.3	13.9	25.8
Wayne	5b	5	44	239	262	224	29.9	30.2	29.5
Webster	5a	2	51	121	130	110	5.6	6.8	3.3
Whitley	5a	9	31	211	227	169	30.4	33.2	21.5
Wolfe	5b	8	31	194	276	149	25.8	40.4	15.2
Woodford		7	45	166	183	152	15.3	17.1	13.6
Tennessee									
Anderson		D	32	216	225	145	24.4	25.3	14.2
Bedford		5	54	139	160	120	10.2	13.9	6.0
Benton	5b	2	60	152	169	126	13.9	16.5	8.3
Bledsoe	5b	7	31	276	361	166	39.1	51.0	18.0
Blount		D	32	207	216	178	23.5	23.5	23.4
Bradley		8	32	232	254	176	25.0	25.2	24.5
Campbell	5a	8	32	228	239	179	30.6	32.7	20.9
Cannon		6	44	173	171	174	17.1	14.2	20.1
Carroll		2	60	142	144	139	11.7	11.4	12.0
White				136	149	124	10.1	12.0	7.7
Nonwhite				179	115	---	24.8	5.9	---
Carter		8	32	229	244	186	26.9	28.1	22.5
Cheatham		4	53	175	179	169	17.5	15.7	21.2
Chester		2	60	175	171	178	18.3	16.3	19.6
Claiborne	5a	8	32	203	243	177	24.0	28.6	20.2
Clay	5b	6	44	214	202	224	26.9	23.8	29.4
Cocke	5b	8	32	222	273	185	24.6	28.4	20.6
Coffee		6	44	193	226	166	21.7	22.8	20.2
Crockett		1	61	168	163	170	18.8	14.8	21.7
White				149	160	144	13.9	13.9	13.9
Nonwhite				252	---	295	39.7	---	53.9
Cumberland	5b	7	31	221	234	204	29.3	29.3	29.4
Davidson		B	54	182	196	119	15.8	16.9	6.2
White				196	215	117	17.6	19.0	5.8
Nonwhite				82	77	---	-5.3	-6.7	---
Decatur	5b	2	60	138	166	104	10.1	15.5	1.3
De Kalb	5b	6	44	169	202	148	15.9	17.2	14.4
Dickson	5b	3	44	172	213	132	17.5	22.1	10.2
Dyer		1	61	169	151	188	18.4	13.6	23.2
Fayette	5b	1	61	242	216	252	36.1	24.9	41.8
White				239	189	273	29.0	16.4	39.5
Nonwhite				243	238	245	40.5	33.9	42.8
Fentress	5b	7	31	289	315	235	43.8	46.5	36.7
Franklin		6	44	209	242	162	22.6	25.0	17.1
Gibson		1	61	157	153	159	14.6	12.2	16.5
White				148	148	148	12.1	10.7	13.3
Nonwhite				212	---	230	30.8	---	36.3

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Tennessee--Continued									
Giles		5	54	163	169	160	17.1	16.4	17.4
White				154	157	152	14.3	13.1	15.1
Nonwhite				217	---	201	35.8	---	31.6
Grainger	5b	8	32	187	295	138	19.2	34.4	9.6
Greene	5a	8	32	188	248	162	18.2	22.5	15.3
Grundy	5b	7	31	198	206	---	21.4	22.6	---
Hamblen		8	32	182	233	133	16.5	21.9	8.5
Hamilton		C	32	203	215	109	19.8	21.0	3.0
White				203	216	106	19.7	21.0	2.1
Nonwhite				200	196	---	22.3	21.4	---
Hancock	5b	8	32	212	---	189	24.5	---	20.0
Hardeman	5b	1	61	148	109	198	13.5	2.6	27.0
White				147	124	181	12.0	6.1	21.1
Nonwhite				150	83	219	16.1	-5.8	35.3
Hardin	5b	2	60	161	188	128	16.4	20.5	9.4
Hawkins		8	32	202	215	190	21.5	19.8	23.8
Haywood	5b	1	61	226	212	228	33.0	26.0	34.3
White				187	---	177	22.6	---	21.5
Nonwhite				254	---	260	40.3	---	41.7
Henderson		2	60	158	158	159	13.7	11.7	15.1
Henry		2	60	117	143	98	5.2	10.3	-.6
White				118	143	100	5.3	10.1	0
Nonwhite				112	---	---	4.1	---	---
Hickman	5b	3	44	185	204	154	17.1	19.2	13.4
Houston	5b	3	44	168	149	---	17.3	12.0	---
Humphreys	5b	3	44	182	201	148	19.0	21.4	13.6
Jackson	5b	6	44	152	168	146	14.7	15.5	14.2
Jefferson		8	32	192	238	152	19.0	22.1	14.4
Johnson	5b	8	32	198	263	166	23.0	29.4	18.3
Knox		D	32	182	194	123	17.1	18.3	7.7
White				185	199	122	17.7	18.9	7.5
Nonwhite				70	66	---	-9.6	-11.4	---
Lake	5b	1	61	192	164	221	22.3	15.2	29.9
White				203	171	240	24.6	16.5	34.1
Nonwhite				153	---	---	13.8	---	---
Lauderdale	5b	1	61	173	163	180	18.6	12.6	24.1
White				152	164	144	14.0	13.7	14.3
Nonwhite				221	161	250	27.4	10.3	40.8
Lawrence		3	44	223	240	210	26.6	25.9	27.5
Lewis		3	44	188	172	---	19.8	16.9	---
Lincoln		5	54	178	190	171	19.3	20.1	18.7
Loudon		8	32	195	188	208	20.4	17.9	26.3
McMinn		8	32	205	210	199	23.0	21.7	25.3
McNairy	5b	2	60	179	181	177	18.6	16.1	22.4
Macon	5b	6	44	131	172	114	8.2	15.2	4.3
Madison		1	61	190	188	193	22.3	19.3	25.4
White				150	177	124	12.1	15.5	7.1
Nonwhite				278	220	314	45.5	34.9	50.7
Marion	5b	7	31	207	224	107	24.1	26.4	2.6
Marshall		5	54	136	172	109	9.7	16.3	3.0
White				139	197	105	10.2	19.5	1.8
Nonwhite				117	---	---	6.3	---	---
Maury		5	54	174	240	124	16.7	25.1	6.8
White				179	262	123	17.0	26.2	6.4
Nonwhite				150	163	---	14.5	18.2	---
Meigs		8	32	212	205	220	27.5	24.5	31.5
Monroe		8	32	250	266	232	31.4	30.6	32.7
Montgomery 5/		4	53	327	515	133	30.3	35.9	10.2
White				336	533	138	31.1	36.6	11.5
Nonwhite				284	436	---	26.3	32.3	---
Moore		5	54	133	---	132	8.6	---	9.1
Morgan	5a	7	31	185	192	155	17.0	16.9	17.3
Obion		1	61	149	148	151	13.2	12.0	14.6
Overton	5b	6	44	193	240	158	22.1	26.1	17.3
Perry	5b	3	44	164	188	120	15.1	20.2	5.1
Pickett	5b	6	44	240	---	265	29.3	---	36.5
Polk		8	32	221	215	---	25.0	23.7	---
Putnam	5b	6	44	183	194	165	18.3	19.1	16.6
Rhea	5b	8	32	206	217	178	25.3	25.5	24.4
Roane	5a	8	32	242	259	171	25.7	27.0	17.9
Robertson	5b	4	53	156	172	145	14.1	17.2	11.8
White				158	175	144	14.1	17.2	11.4
Nonwhite				146	---	150	14.5	---	14.3
Rutherford 5/		5	54	158	166	147	10.4	9.5	13.1
White				160	173	143	10.5	10.1	11.7
Nonwhite				145	130	---	9.8	5.4	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Tennessee--Continued									
Scott	5b	7	31	267	271	---	36.4	36.8	---
Sequatchie	5b	7	31	290	351	---	36.5	42.6	---
Sevier	5b	8	32	187	220	161	19.0	19.9	17.8
Shelby 5/		A	61	359	407	215	44.3	46.7	31.7
White				442	520	142	48.1	52.6	11.5
Nonwhite				241	223	284	34.9	28.6	52.1
Smith	5b	5	54	130	161	114	7.9	13.2	4.2
Stewart		3	44	157	176	130	14.0	17.6	8.1
Sullivan		8	32	231	247	173	21.7	22.2	18.5
Sumner		4	53	161	198	124	15.0	20.5	7.2
White				160	203	122	14.6	20.3	6.8
Nonwhite				163	174	---	19.4	21.7	---
Tipton	5b	1	61	210	221	203	26.7	23.9	28.8
White				206	213	201	23.9	21.0	27.1
Nonwhite				215	243	205	32.1	35.0	31.0
Trousdale		5	54	175	---	162	17.7	---	16.7
Unicoi	5b	8	32	219	226	201	24.3	23.9	25.7
Union	5b	8	32	223	283	191	26.1	28.6	23.9
Van Buren	5b	7	31	180	233	---	20.1	29.9	---
Warren		6	44	190	218	162	21.2	25.7	15.9
Washington		8	32	215	251	168	22.4	25.2	16.9
Wayne	5b	3	44	203	184	240	23.6	18.6	34.4
Weakley		2	60	132	155	114	8.8	13.0	4.4
White	5b	6	44	208	218	200	22.2	22.7	21.7
Williamson		5	54	176	206	155	18.2	21.4	15.1
White				178	214	152	18.8	23.0	14.7
Nonwhite				166	---	---	14.5	---	---
Wilson		5	54	140	145	135	10.0	9.9	10.2
White				133	138	129	8.4	8.2	8.5
Nonwhite				182	---	---	21.6	---	---
Alabama									
Autauga	5b	5	56	199	221	165	25.3	27.8	20.4
White				160	165	151	15.0	15.2	14.8
Nonwhite				249	310	17[illegible]	39.2	46.3	26.9
Baldwin		8	58	200	203	188	22.5	22.7	22.0
White				189	190	187	19.8	19.3	21.6
Nonwhite				242	245	---	34.0	34.2	---
Barbour	5b	9	41	207	181	241	29.2	20.9	41.9
White				161	156	167	15.2	12.4	19.6
Nonwhite				256	205	331	47.0	31.9	69.3
Bibb	5b	5	56	177	178	170	20.5	20.5	19.8
White				151	152	---	13.7	13.9	---
Nonwhite				271	273	---	43.4	42.1	---
Blount	5b	2	55	185	181	190	20.2	16.5	24.7
Bullock	5b	6	57	232	257	211	38.7	39.1	38.2
White				148	---	---	11.2	---	---
Nonwhite				264	273	256	53.4	52.8	54.0
Butler	5b	9	41	230	258	182	33.0	35.2	27.3
White				165	199	113	16.4	21.5	4.5
Nonwhite				348	352	---	63.2	58.4	---
Calhoun 5/		3	43	243	257	176	23.0	23.0	23.3
White				241	255	174	22.3	22.2	22.9
Nonwhite				271	275	---	31.3	31.3	---
Chambers		4	42	185	221	92	19.7	24.3	-2.7
White				160	178	85	13.0	15.5	-5.1
Nonwhite				223	309	97	31.8	43.9	-.9
Cherokee	5b	3	43	201	221	186	20.2	20.3	20.1
Chilton	5b	5	56	198	209	173	22.4	23.3	19.9
White				198	210	171	22.2	23.2	19.5
Nonwhite				204	204	---	23.9	24.0	---
Choctaw	5b	7	59	205	212	185	26.8	26.8	26.7
White				169	187	117	16.1	18.5	5.5
Nonwhite				247	245	251	42.9	40.7	48.6
Clarke	5b	7	59	208	242	129	27.3	31.2	11.1
White				169	209	95	16.6	21.9	-1.6
Nonwhite				251	273	180	39.7	41.5	30.6
Clay	5b	4	42	189	223	123	21.3	25.7	7.7
Cleburne		4	42	169	191	122	15.2	17.5	7.1
Coffee		9	41	205	202	207	24.6	21.1	27.9
White				192	197	190	22.0	19.1	24.6
Nonwhite				286	---	---	40.7	---	---
Colbert		1	55	241	249	214	28.8	29.8	24.9
White				237	251	190	26.1	27.8	19.4
Nonwhite				259	243	---	43.5	40.6	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Alabama--Continued									
Conecuh	5b	9	41	219	236	192	31.2	33.0	27.7
White				178	184	168	18.1	18.1	17.9
Nonwhite				273	296	230	54.7	55.7	51.9
Coosa	5b	4	42	187	204	128	21.4	23.8	9.3
White				149	168	90	13.3	17.0	-3.7
Nonwhite				306	304	---	39.1	37.8	---
Covington		9	41	158	173	139	15.6	17.5	12.5
Crenshaw	5b	9	41	197	192	205	23.8	21.4	28.7
White				175	175	175	17.9	17.0	19.6
Nonwhite				260	243	---	42.5	35.0	---
Cullman	5b	2	55	214	224	206	26.0	23.7	28.1
Dale 5/		9	41	236	279	155	19.3	19.9	16.5
White				221	268	137	16.5	17.6	11.0
Nonwhite				347	---	---	47.7	---	---
Dallas 5/	5b	6	57	282	275	289	36.6	28.4	55.8
White				211	224	---	13.9	13.5	---
Nonwhite				312	312	312	58.2	52.7	64.2
De Kalb	5b	2	55	194	202	188	21.8	20.9	22.8
Elmore	5b	5	56	202	216	171	23.5	23.4	24.0
White				177	190	148	16.9	17.4	15.4
Nonwhite				258	280	218	41.5	40.6	44.6
Escambia		8	58	185	179	206	20.4	18.3	29.5
White				189	188	189	21.4	20.0	25.5
Nonwhite				177	164	---	18.5	15.4	---
Etowah	5a	3	43	208	219	178	23.1	23.8	20.7
Fayette	5b	5	56	185	228	142	20.9	26.1	13.1
Franklin		5	56	183	190	173	20.7	19.5	22.8
Geneva		9	41	181	197	164	19.7	20.8	18.1
Greene	5b	6	57	237	238	236	39.5	42.1	37.4
White				81	---	---	-6.6	---	---
Nonwhite				286	302	272	50.7	57.1	45.7
Hale	5b	6	57	215	203	228	31.7	27.1	38.1
White				158	145	173	14.0	10.1	19.7
Nonwhite				242	231	255	42.0	37.4	48.4
Henry		9	41	207	250	174	29.2	37.7	21.9
White				157	249	113	14.4	29.4	3.9
Nonwhite				272	252	295	52.9	47.6	58.9
Houston		9	41	213	241	183	26.2	30.9	20.4
White				188	212	164	20.6	24.6	16.0
Nonwhite				318	349	---	48.6	53.5	---
Jackson	5b	2	55	224	235	214	27.1	24.6	30.2
Jefferson		A	43	199	200	162	20.6	20.7	18.4
White				201	204	157	19.8	19.9	16.8
Nonwhite				187	186	---	26.2	25.9	---
Lamar	5b	5	56	168	154	191	16.6	12.7	24.5
Lauderdale		1	55	205	207	202	22.4	20.6	26.4
White				220	220	221	24.2	21.6	29.7
Nonwhite				101	115	---	.3	5.5	---
Lawrence		1	55	261	234	298	31.5	25.0	41.0
White				266	241	293	29.6	23.3	38.1
Nonwhite				247	213	---	42.1	32.8	---
Lee		4	42	245	270	167	29.1	30.3	22.2
White				164	185	76	13.7	16.8	-7.9
Nonwhite				401	478	261	53.6	54.0	51.6
Limestone	5b	1	55	244	248	240	30.0	27.6	32.8
White				237	238	236	27.3	23.4	31.7
Nonwhite				267	274	259	41.0	43.5	37.9
Lowndes	5b	6	57	298	325	271	47.2	45.7	49.6
White				133	152	---	8.8	11.3	---
Nonwhite				367	420	322	61.4	63.2	59.6
Macon	5b	5	56	151	122	247	15.3	6.5	49.5
White				133	108	---	9.9	2.4	---
Nonwhite				155	125	258	16.3	7.2	56.0
Madison 5/		F	55	246	279	212	23.7	21.5	28.9
White				241	298	179	21.5	21.5	21.6
Nonwhite				264	213	311	33.3	21.1	47.5
Marengo	5b	6	57	224	226	221	33.0	31.1	36.3
White				153	166	133	12.5	14.1	9.3
Nonwhite				258	254	262	44.8	41.6	50.1
Marion	5b	5	56	184	179	193	20.5	18.2	26.5
Marshall	5b	2	55	177	198	165	17.7	17.3	18.0
Mobile		D	58	204	207	175	20.9	21.0	19.8
White				224	233	168	23.2	23.7	18.3
Nonwhite				157	154	---	14.0	13.3	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Alabama--Continued									
Monroe		9	41	237	278	177	35.1	39.9	25.1
White				162	192	120	15.8	20.2	6.8
Nonwhite				328	376	251	58.5	63.3	48.1
Montgomery		C	57	241	245	231	28.5	25.4	38.9
White				148	146	151	8.0	6.7	13.6
Nonwhite				315	335	282	52.1	49.9	57.8
Morgan		1	55	207	206	209	22.5	19.6	27.5
White				205	201	211	21.9	18.7	27.3
Nonwhite				235	---	---	30.2	---	---
Perry	5b	6	57	228	241	215	36.8	37.0	36.8
White				166	180	152	16.9	17.4	16.2
Nonwhite				260	271	249	49.1	50.3	47.8
Pickens	5b	5	56	221	233	205	28.9	27.7	31.1
White				190	214	150	20.2	22.6	14.4
Nonwhite				269	269	269	44.6	39.0	52.1
Pike		9	41	223	243	205	30.5	32.4	28.5
White				191	227	159	22.2	29.0	15.4
Nonwhite				283	271	293	47.2	38.6	57.2
Randolph		4	42	191	225	154	21.7	24.4	17.1
White				155	187	123	13.5	17.0	7.5
Nonwhite				410	---	---	62.9	---	---
Russell	5b	B	35	285	275	311	39.6	35.7	51.4
White				195	207	---	21.4	23.2	---
Nonwhite				350	343	360	51.9	47.2	60.8
St. Clair	5b	3	43	190	190	186	21.5	21.1	23.8
White				186	185	192	20.3	19.5	24.8
Nonwhite				212	224	---	29.1	30.9	---
Shelby	5b	3	43	194	205	105	20.5	21.9	1.9
White				188	200	103	18.6	20.1	1.2
Nonwhite				224	229	---	31.4	32.1	---
Sumter	5b	6	57	225	199	261	35.1	26.5	47.9
White				139	163	---	10.1	14.8	---
Nonwhite				258	216	310	45.9	32.8	62.7
Talladega		3	43	226	231	205	28.3	27.7	32.0
White				186	193	152	20.0	20.7	15.6
Nonwhite				341	347	---	49.4	45.8	---
Tallapoosa		4	42	173	177	158	18.0	17.5	20.6
White				146	155	114	11.5	12.5	5.2
Nonwhite				249	243	---	35.6	31.6	---
Tuscaloosa		E	56	212	240	143	23.4	25.0	15.5
White				200	233	113	19.7	22.5	4.5
Nonwhite				248	260	222	38.2	35.9	46.8
Walker	5a	3	43	185	191	135	21.0	21.9	11.3
White				186	193	137	20.7	21.6	12.0
Nonwhite				172	177	---	25.3	26.7	---
Washington	5b	7	59	254	265	218	33.5	32.9	37.0
White				256	276	211	31.6	31.1	33.6
Nonwhite				250	250	---	37.8	36.3	---
Wilcox	5b	6	57	305	296	317	51.7	45.3	62.6
White				172	198	---	19.5	24.8	---
Nonwhite				369	360	379	65.8	56.8	78.5
Winston	5b	5	56	217	222	211	25.7	24.0	28.8
Mississippi									
Adams		3	59	233	248	170	26.8	26.9	25.5
White				266	281	---	24.0	25.0	---
Nonwhite				205	214	---	31.7	30.6	---
Alcorn		4	60	229	236	224	28.6	25.6	31.6
Amite	5b	3	59	205	195	217	29.4	25.0	36.2
White				124	128	121	7.1	7.3	6.9
Nonwhite				308	277	349	57.2	47.4	71.7
Attala	5b	6	59	178	176	179	24.5	20.7	27.3
White				124	138	113	7.3	10.7	4.5
Nonwhite				262	262	261	52.4	42.8	57.4
Benton	5b	2	61	223	164	263	29.1	16.4	36.6
White				175	151	202	17.3	13.5	20.9
Nonwhite				307	---	323	50.6	---	55.5
Bolivar	5b	1	76	235	205	260	38.5	30.9	44.4
White				199	184	214	21.2	17.4	25.3
Nonwhite				249	214	275	48.3	41.3	52.7
Calhoun	5b	4	60	189	154	236	22.7	13.9	34.4
White				167	129	217	17.2	7.3	30.4
Nonwhite				268	238	---	42.4	37.9	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Mississippi—Continued									
Carroll	5b	2	61	210	207	212	30.7	26.3	33.6
White				128	131	126	8.6	8.7	8.3
Nonwhite				322	---	297	56.2	---	56.5
Chickasaw	5b	5	57	209	253	181	28.0	31.4	24.7
White				184	237	146	21.2	26.1	15.1
Nonwhite				252	---	234	39.9	---	36.8
Choctaw	5b	6	59	137	139	135	12.8	12.9	12.4
White				109	105	114	3.2	2.0	5.0
Nonwhite				256	---	---	47.2	---	---
Claiborne	5b	3	59	197	204	182	27.5	26.3	30.0
White				89	---	---	-3.5	---	---
Nonwhite				245	243	244	38.5	34.1	51.0
Clarke	5b	6	59	188	187	189	23.1	21.5	29.3
White				172	170	178	18.2	16.0	27.0
Nonwhite				219	217	---	33.7	33.2	---
Clay	5b	5	57	229	236	224	32.6	30.9	35.0
White				178	161	200	19.0	13.7	26.9
Nonwhite				277	325	242	46.5	51.5	41.7
Coahoma		1	76	233	209	260	38.2	30.9	46.3
White				164	162	166	15.9	15.2	17.1
Nonwhite				254	226	282	46.3	38.1	54.6
Copiah	5b	3	59	217	267	165	33.0	37.5	24.8
White				183	239	126	21.4	28.4	9.1
Nonwhite				248	292	200	45.2	46.9	41.7
Covington	5b	6	59	199	209	192	23.4	21.9	24.8
White				182	226	153	18.8	22.8	14.7
Nonwhite				237	174	292	35.4	19.2	49.3
De Soto	5b	2	61	222	228	215	29.1	25.9	33.4
White				182	229	115	17.3	22.6	4.6
Nonwhite				250	228	267	39.7	30.5	47.9
Forrest		7	58	209	246	91	25.3	30.0	-3.6
White				191	229	80	19.7	24.2	-7.7
Nonwhite				261	295	---	48.3	53.6	---
Franklin	5b	3	59	163	157	189	17.4	15.5	26.6
White				146	147	---	11.6	11.1	---
Nonwhite				186	168	---	28.6	23.1	---
George		7	58	212	206	226	23.7	19.9	33.5
Greene	5b	7	58	211	225	181	25.5	26.5	22.7
Grenada	5b	2	61	213	220	205	26.3	24.2	30.2
White				197	205	---	17.6	17.1	---
Nonwhite				228	240	219	39.4	42.0	37.2
Hancock	5b	8	58	168	169	---	17.8	17.8	---
Harrison 5/		8	58	174	173	---	13.9	13.5	---
White				175	174	---	13.8	13.2	---
Nonwhite				162	164	---	16.9	17.3	---
Hinds		A	59	254	279	214	38.1	38.3	37.7
White				202	222	151	22.1	23.4	16.5
Nonwhite				292	334	243	52.8	56.2	47.3
Holmes	5b	2	61	233	250	219	41.6	42.5	40.6
White				168	205	111	20.0	29.7	3.6
Nonwhite				262	280	250	51.9	51.0	52.6
Humphreys	5b	1	76	247	244	251	39.5	38.5	41.4
White				221	208	---	28.4	26.3	---
Nonwhite				259	260	256	46.0	44.9	48.2
Issaquena	5b	1	76	167	185	152	21.6	24.2	18.7
White				---	---	---	---	---	---
Nonwhite				159	---	---	22.0	---	---
Itawamba		4	60	184	205	162	19.2	20.8	16.9
Jackson		8	58	221	218	---	22.4	21.8	---
Jasper	5b	6	59	201	213	183	25.4	26.1	24.1
White				135	139	129	8.6	8.6	8.5
Nonwhite				291	307	266	49.5	50.1	48.2
Jefferson	5b	3	59	191	204	163	27.1	30.4	19.7
White				100	115	---	.1	4.3	---
Nonwhite				237	247	213	41.0	44.1	33.7
Jefferson Davis	5b	6	59	228	237	220	32.3	28.9	36.0
White				158	175	142	14.9	15.3	14.3
Nonwhite				311	341	294	53.2	54.0	52.7
Jones	5b	6	59	227	222	242	26.9	24.5	34.6
White				217	221	206	23.7	22.9	26.3
Nonwhite				285	226	---	50.8	37.6	---
Kemper	5b	6	59	239	253	231	37.7	35.0	39.4
White				155	199	128	15.3	21.9	9.3
Nonwhite				321	---	320	59.0	---	62.0

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Mississippi--Continued									
Lafayette	5b	4	60	179	179	178	22.0	18.8	24.5
White				117	142	99	5.0	10.2	-.3
Nonwhite				289	---	302	49.0	---	56.1
Lamar		7	58	230	247	191	28.4	28.7	27.4
White				219	234	187	25.1	24.8	25.8
Nonwhite				292	---	---	51.5	---	---
Lauderdale		6	59	173	185	143	18.4	19.5	14.4
White				135	148	96	8.7	11.2	-1.1
Nonwhite				265	281	---	40.9	40.0	---
Lawrence	5b	6	59	192	245	140	24.0	29.4	14.5
White				154	232	87	14.2	25.7	-4.4
Nonwhite				279	---	---	47.4	---	---
Leake	5b	6	59	200	186	208	26.3	18.5	32.2
White				138	154	127	10.0	11.8	8.3
Nonwhite				335	---	351	60.7	---	71.4
Lee		5	57	169	199	143	17.6	19.5	14.7
White				153	199	112	13.5	18.7	4.6
Nonwhite				229	197	255	32.7	23.8	40.5
Leflore	5b	1	76	261	205	286	39.4	21.9	49.7
White				156	137	185	12.8	8.2	20.1
Nonwhite				310	312	310	53.7	40.8	57.7
Lincoln	5b	3	59	202	230	152	24.3	26.8	17.3
White				184	205	152	19.0	20.0	16.6
Nonwhite				261	294	---	44.9	49.7	---
Lowndes 5/		5	57	252	301	204	26.4	24.9	30.2
White				228	313	111	18.3	22.1	3.3
Nonwhite				291	270	303	50.9	40.8	57.9
Madison	5b	2	61	225	220	228	34.7	28.8	40.6
White				137	141	131	9.8	9.8	9.4
Nonwhite				263	277	256	46.9	43.2	49.7
Marion	5b	6	59	223	247	195	30.6	33.0	27.0
White				180	215	137	20.1	26.4	10.3
Nonwhite				346	364	334	60.7	54.0	69.0
Marshall	5b	2	61	226	179	247	34.1	20.2	40.8
White				166	156	175	16.6	12.5	21.1
Nonwhite				253	200	270	43.2	29.4	47.2
Monroe		5	57	204	246	171	24.9	27.7	21.4
White				162	212	111	14.0	20.3	3.3
Nonwhite				298	371	266	54.2	60.9	50.2
Montgomery		6	59	173	165	178	21.7	17.1	25.9
White				128	155	109	8.4	13.2	3.4
Nonwhite				246	---	294	42.2	---	54.7
Neshoba	5b	6	59	193	245	169	25.5	28.7	23.0
White				159	201	139	16.6	20.5	13.4
Nonwhite				344	---	289	60.6	---	54.9
Newton	5b	6	59	184	219	153	21.0	25.1	16.1
White				179	220	144	19.0	23.4	13.3
Nonwhite				195	218	175	26.6	30.3	22.6
Noxubee	5b	5	57	240	210	260	37.1	25.7	47.2
White				135	131	144	9.1	7.7	11.9
Nonwhite				302	323	293	55.2	49.0	58.2
Oktibbeha	5b	5	57	349	461	188	39.1	42.7	25.9
White				401	565	102	34.7	40.1	.7
Nonwhite				296	333	255	48.6	51.0	45.0
Panola	5b	2	61	199	162	221	27.3	16.7	34.1
White				146	144	147	11.9	9.7	14.0
Nonwhite				240	179	274	41.0	26.4	47.6
Pearl River		7	58	195	210	160	23.4	25.2	18.0
Perry	5b	7	58	188	197	167	23.1	24.5	19.8
White				200	217	167	25.1	27.9	19.0
Nonwhite				157	155	---	17.1	16.0	---
Pike	5b	3	59	200	211	172	27.2	27.1	27.9
White				177	198	127	20.1	22.6	10.4
Nonwhite				227	226	228	36.0	32.6	49.8
Pontotoc	5b	4	60	175	156	191	20.4	14.0	26.4
White				153	137	166	14.7	9.4	19.6
Nonwhite				325	---	---	55.2	---	---
Prentiss	5b	4	60	187	196	182	21.9	22.2	21.8
Quitman	5b	1	76	216	187	241	33.6	25.1	41.3
White				207	176	230	25.9	16.7	34.1
Nonwhite				221	193	249	40.0	32.0	47.2
Rankin		6	59	145	131	194	11.4	7.5	29.0
White				140	145	122	9.4	9.9	6.7
Nonwhite				151	114	289	14.3	3.9	60.1

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Mississippi--Continued									
Scott	5b	6	59	190	195	184	23.0	22.5	23.5
White				157	178	135	14.3	17.6	10.0
Nonwhite				255	232	275	42.2	35.7	48.0
Sharkey	5b	1	76	223	216	228	35.9	28.1	42.7
White				171	---	134	17.7	---	12.2
Nonwhite				251	220	268	48.4	37.3	54.7
Simpson	5b	6	59	180	183	176	20.7	18.7	24.8
White				137	160	99	9.4	13.4	-.3
Nonwhite				296	259	336	51.4	36.1	73.1
Smith	5b	6	59	192	203	183	23.2	23.3	23.0
White				156	183	135	14.8	19.5	10.1
Nonwhite				424	---	---	67.7	---	---
Stone		7	58	239	247	---	30.7	32.4	---
Sunflower	5b	1	76	219	198	257	28.8	21.7	46.1
White				173	156	207	16.4	11.4	30.1
Nonwhite				244	222	283	36.6	28.5	55.2
Tallahatchie	5b	1	76	217	224	210	34.1	35.6	32.4
White				192	255	145	21.6	29.9	12.5
Nonwhite				231	211	259	44.0	40.0	48.5
Tate	5b	2	61	240	228	244	34.8	26.8	38.1
White				185	---	184	20.7	---	23.8
Nonwhite				287	---	288	47.0	---	47.4
Tippah	5b	4	60	170	154	175	19.8	12.5	23.2
White				153	154	152	14.9	12.1	16.4
Nonwhite				267	---	---	48.1	---	---
Tishomingo		4	60	163	173	153	16.5	15.5	18.4
Tunica	5b	1	76	215	189	230	32.3	21.8	39.8
White				196	156	---	20.2	11.4	---
Nonwhite				220	206	226	37.0	29.3	40.9
Union		4	60	176	201	163	19.3	21.5	18.0
Walthall	5b	6	59	203	232	189	27.0	25.4	28.3
White				146	162	136	11.9	12.4	11.4
Nonwhite				311	---	276	56.0	---	57.7
Warren	5b	3	59	167	164	---	18.7	17.7	---
White				159	159	---	14.0	14.0	---
Nonwhite				176	169	---	25.5	23.1	---
Washington 5/	5b	1	76	261	278	230	33.7	32.0	38.7
White				230	237	211	18.7	16.7	28.0
Nonwhite				278	302	238	49.1	51.6	44.2
Wayne		6	59	204	241	151	25.4	30.2	15.3
White				171	195	135	16.9	20.4	10.1
Nonwhite				283	347	---	46.5	52.9	---
Webster	5b	6	59	159	161	158	16.5	15.6	17.7
White				126	145	106	7.4	11.1	2.1
Nonwhite				300	---	---	56.6	---	---
Wilkinson	5b	3	59	201	211	179	28.9	28.7	29.8
White				129	153	---	8.6	14.0	---
Nonwhite				247	253	237	41.1	39.0	46.8
Winston	5b	6	59	200	215	193	26.1	24.0	27.6
White				136	172	122	9.4	13.2	6.8
Nonwhite				331	278	367	59.8	45.9	69.4
Yalobusha	5b	2	61	198	189	204	28.4	23.0	32.3
White				132	169	103	9.2	17.2	1.0
Nonwhite				295	---	319	56.5	---	65.0
Yazoo	5b	2	61	210	189	225	31.0	21.4	40.1
White				152	164	139	13.8	13.8	13.7
Nonwhite				257	222	275	46.8	34.6	53.2
Arkansas									
Arkansas		7	75	177	162	192	18.7	15.1	22.5
White				159	132	184	13.7	7.5	19.7
Nonwhite				238	---	---	40.0	---	---
Ashley	5b	6	80	209	219	191	29.3	28.4	31.8
White				211	245	143	25.6	28.8	15.0
Nonwhite				207	177	273	38.3	27.4	62.2
Baxter	5b	9	73	119	109	163	6.1	3.0	17.6
Benton		1	82	126	144	110	8.4	12.5	3.8
Boone	5b	9	73	142	136	150	12.4	10.1	15.7
Bradley		6	80	186	223	136	22.3	28.0	11.4
White				179	249	109	18.7	28.7	3.0
Nonwhite				201	---	---	32.0	---	---
Calhoun	5a	6	80	142	141	---	12.4	12.1	---
White				141	138	---	11.4	10.7	---
Nonwhite				143	147	---	14.9	15.0	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Arkansas--Continued									
Carroll		9	73	114	108	122	4.4	2.5	6.9
Chicot	5b	8	76	224	255	202	34.2	46.1	27.0
White				212	200	218	25.8	24.2	26.6
Nonwhite				236	298	179	48.5	71.2	27.9
Clark	5b	6	80	172	193	130	19.0	21.2	11.6
White				160	182	119	15.0	17.3	7.5
Nonwhite				204	214	---	31.2	32.0	---
Clay		7	75	191	172	210	21.6	16.2	27.2
Cleburne	5b	9	73	133	117	160	9.0	4.8	16.9
Cleveland	5b	6	80	172	192	136	20.1	23.6	11.8
Columbia	5b	5	80	153	178	82	15.6	20.5	-7.8
White				110	134	51	3.0	8.4	-20.7
Nonwhite				222	241	---	39.3	41.9	---
Conway	5b	3	74	189	225	150	24.6	29.9	16.3
White				163	197	130	17.6	22.8	10.4
Nonwhite				294	---	---	50.0	---	---
Craighead		7	75	205	190	215	24.8	19.6	28.6
Crawford	5b	2	74	158	163	141	15.5	16.5	12.3
Crittenden	5b	8	76	222	212	246	34.3	30.7	43.2
White				229	203	303	29.9	23.3	50.9
Nonwhite				219	215	226	36.7	35.3	39.9
Cross		7	75	249	223	283	34.7	30.1	39.9
White				225	178	283	28.7	20.0	37.4
Nonwhite				336	---	---	57.1	---	---
Dallas		6	80	192	200	---	26.2	26.8	---
White				178	171	---	22.2	19.5	---
Nonwhite				217	244	---	33.0	37.3	---
Desha	5b	8	76	208	235	185	31.0	35.2	26.4
White				216	275	178	29.2	37.1	22.3
Nonwhite				199	203	193	33.5	33.0	33.7
Drew	5b	6	80	201	204	195	26.6	25.6	29.0
White				185	197	160	21.3	22.3	18.7
Nonwhite				235	219	---	38.9	34.1	---
Faulkner	5b	3	74	160	158	162	15.5	13.8	18.6
White				160	155	167	15.1	12.9	19.2
Nonwhite				158	---	---	19.3	---	---
Franklin	5b	2	74	133	137	123	9.6	10.1	8.2
Fulton	5b	9	73	125	140	111	7.8	11.1	4.1
Garland		4	81	125	126	111	7.4	7.8	3.9
Grant	5b	6	80	163	167	---	16.0	16.4	---
Greene		7	75	201	161	218	26.0	15.0	30.7
Hempstead		5	80	131	155	94	10.2	17.2	-1.8
White				113	125	97	3.9	7.3	-.8
Nonwhite				163	197	---	24.5	34.7	---
Hot Spring	5b	4	81	157	173	105	13.8	16.0	1.9
Howard		5	80	132	136	123	9.5	10.1	7.9
Independence	5b	3	74	145	155	131	12.8	14.2	10.1
Izard	5b	9	73	121	142	96	6.0	10.1	-1.4
Jackson	5b	7	75	200	234	166	25.1	30.5	18.6
White				196	218	175	23.4	25.9	20.5
Nonwhite				228	---	---	40.3	---	---
Jefferson		8	76	231	225	250	30.3	28.2	37.1
White				239	234	266	25.6	24.4	32.6
Nonwhite				222	212	242	38.9	38.0	40.2
Johnson	5b	2	74	136	168	92	10.9	17.5	-2.9
Lafayette	5b	5	80	185	180	201	24.3	22.5	31.7
White				182	175	---	20.3	18.7	---
Nonwhite				188	186	---	30.4	28.6	---
Lawrence	5b	7	75	208	192	229	27.4	23.1	33.2
Lee	5b	8	76	245	236	248	36.7	33.8	37.7
White				238	---	227	30.3	---	28.2
Nonwhite				250	213	261	41.8	31.9	44.7
Lincoln	5b	8	76	150	144	160	12.1	9.0	21.9
White				125	130	117	5.7	5.5	6.1
Nonwhite				177	157	226	20.6	13.5	49.2
Little River	5b	5	80	154	163	141	15.2	15.6	14.5
White				145	173	102	11.7	16.5	.8
Nonwhite				175	---	---	26.9	---	---
Logan	5b	2	74	123	114	138	7.5	4.6	12.9
Lonoke		7	75	174	150	206	19.8	13.4	29.3
White				158	139	189	15.8	10.7	23.9
Nonwhite				256	---	264	40.8	---	50.2
Madison	5b	9	73	168	205	146	19.6	24.6	15.3
Marion	5b	9	73	112	80	160	4.2	-6.9	18.4

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Arkansas--Continued									
Miller		5	80	166	186	120	20.2	25.1	7.0
White				167	190	114	18.7	23.5	4.9
Nonwhite				164	174	---	26.9	32.8	---
Mississippi 5/		8	76	250	259	233	32.2	31.6	33.7
White				254	272	222	30.2	30.0	30.4
Nonwhite				240	230	276	39.6	36.9	48.2
Monroe		7	75	191	179	202	25.6	22.5	28.8
White				153	142	170	13.9	11.1	18.1
Nonwhite				233	240	227	41.1	44.8	38.4
Montgomery	5b	4	81	132	150	95	9.9	14.4	-1.7
Nevada		5	80	146	155	127	14.6	16.4	9.7
White				97	110	77	-.8	3.1	-8.7
Nonwhite				276	237	---	49.5	39.1	---
Newton	5b	9	73	196	181	212	28.0	21.3	36.8
Ouachita	5a	6	80	167	169	153	18.9	18.6	20.5
White				148	149	---	12.4	12.3	---
Nonwhite				202	208	---	33.4	33.2	---
Perry	5b	4	81	162	219	82	16.7	26.6	-6.4
Phillips	5b	8	76	246	228	263	37.8	31.8	44.0
White				235	239	231	30.6	27.0	36.0
Nonwhite				252	221	280	43.2	36.9	48.3
Pike		4	81	145	148	134	12.2	12.5	11.3
Poinsett		7	75	253	239	266	33.1	27.4	39.5
White				252	242	261	31.5	26.3	37.1
Nonwhite				263	---	---	54.8	---	---
Polk	5b	4	81	139	146	127	11.4	12.8	8.7
Pope	5b	2	74	147	156	130	13.1	14.4	10.1
Prairie		7	75	140	153	119	10.9	13.7	5.8
White				139	156	115	10.4	14.0	4.4
Nonwhite				144	---	---	13.8	---	---
Pulaski		A	74	205	205	207	21.8	20.9	31.1
White				206	206	209	19.9	19.1	29.9
Nonwhite				203	203	---	31.9	31.4	---
Randolph	5b	3	74	154	155	154	15.9	16.9	15.3
St. Francis		8	76	215	200	229	31.7	25.6	38.2
White				186	182	191	20.3	19.0	22.2
Nonwhite				233	217	244	41.2	33.4	47.1
Saline		4	81	117	117	---	4.4	4.3	---
White				130	131	---	7.4	7.6	---
Nonwhite				28	28	---	-23.6	-23.6	---
Scott	5b	4	81	124	151	75	7.4	14.3	-9.1
Searcy	5b	9	73	171	184	162	19.1	20.4	18.1
Sebastian		2	74	181	196	138	20.2	22.0	12.9
Sevier	5b	4	81	148	161	119	14.6	17.8	6.5
Sharp	5b	3	74	125	111	139	8.4	3.7	13.6
Stone	5b	9	73	155	163	147	15.8	16.2	15.2
Union		6	80	148	152	108	13.4	14.1	2.9
White				124	127	---	6.7	7.3	---
Nonwhite				210	217	---	31.9	33.1	---
Van Buren	5b	9	73	124	129	118	7.3	8.3	5.8
Washington		1	82	141	163	117	11.3	14.8	5.7
White	5b	3	74	161	172	142	16.5	18.0	13.2
Woodruff	5b	7	75	196	176	230	26.1	22.0	32.4
White				172	155	207	18.9	15.7	24.2
Nonwhite				239	221	264	41.4	36.8	47.6
Yell	5b	2	74	135	125	160	10.2	7.1	18.7
White				134	126	154	10.2	7.7	17.2
Nonwhite				153	---	---	8.9	---	---
Louisiana									
Acadia	5b	7	78	216	247	186	27.0	30.2	22.9
White				211	259	165	25.3	30.7	18.0
Nonwhite				254	---	---	41.0	---	---
Allen	5b	7	78	181	181	181	20.3	20.1	21.3
White				172	170	181	17.7	17.1	21.0
Nonwhite				224	228	---	32.1	33.3	---
Ascension	5b	6	77	233	235	---	26.7	26.4	---
White				238	240	---	25.5	25.3	---
Nonwhite				224	225	---	29.9	29.1	---
Assumption		6	77	229	239	---	28.2	29.8	---
White				195	213	---	19.6	22.1	---
Nonwhite				282	274	---	45.0	43.7	---
Avoyelles	5b	3	76	179	180	178	19.9	18.5	22.0
White				160	170	148	15.0	15.5	14.1
Nonwhite				246	216	285	38.1	31.4	45.8

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Louisiana--Continued									
Beauregard		8	79	183	189	156	17.8	18.6	13.7
Bienville		4	80	151	154	137	16.9	17.4	14.5
White				108	117	---	2.5	5.4	---
Nonwhite				202	199	---	35.2	33.0	---
Bossier		A	76	184	198	113	20.6	23.0	4.4
White				188	210	---	17.6	20.0	---
Nonwhite				180	188	---	24.3	26.8	---
Caddo		A	76	193	202	146	21.4	22.0	16.5
White				166	172	91	13.1	13.9	-2.7
Nonwhite				239	267	170	42.2	46.8	26.8
Calcasieu 5/		D	78	237	251	110	21.5	22.4	3.4
White				239	255	111	21.0	22.0	3.7
Nonwhite				227	230	---	25.7	26.1	---
Caldwell		4	80	160	154	173	17.7	14.7	25.6
White				149	141	167	13.8	11.0	22.1
Nonwhite				193	---	---	30.6	---	---
Cameron		7	78	156	153	---	11.3	10.6	---
Catahoula	5b	2	76	216	225	202	28.8	28.2	29.8
White				210	241	176	24.1	25.5	21.6
Nonwhite				225	207	---	39.5	33.7	---
Claiborne		4	80	177	184	162	24.1	24.1	24.3
White				144	151	125	13.7	15.1	9.4
Nonwhite				210	219	192	34.2	33.2	37.0
Concordia	5b	2	76	202	20[illegible]	197	23.4	21.4	28.1
White				171	182	152	14.8	14.9	14.6
Nonwhite				248	239	---	39.7	35.1	---
De Soto		8	79	182	194	152	24.9	26.6	19.4
White				133	145	99	9.4	12.2	-.3
Nonwhite				221	234	190	38.4	39.5	35.1
East Baton Rouge		C	58	257	266	183	26.7	26.9	23.8
White				212	210	---	17.0	16.1	---
Nonwhite				366	397	---	62.6	66.1	---
East Carroll	5b	2	76	273	306	257	41.6	43.9	40.2
White				235	---	242	28.4	---	33.8
Nonwhite				307	---	271	56.5	---	47.6
East Feliciana	5b	5	58	92	87	142	-2.2	-3.7	15.7
White				54	52	---	-13.4	-14.1	---
Nonwhite				137	134	150	10.8	9.5	20.5
Evangeline	5b	3	76	200	184	221	24.4	20.6	29.2
White				159	156	163	14.8	13.7	16.3
Nonwhite				354	304	406	56.7	50.3	62.2
Franklin	5b	2	76	208	209	207	30.1	26.1	33.2
White				158	169	151	16.0	14.8	17.1
Nonwhite				315	282	337	61.1	56.0	64.2
Grant		4	80	194	194	---	23.2	22.9	---
White				192	191	---	22.4	22.0	---
Nonwhite				206	206	---	26.5	26.3	---
Iberia		6	77	222	228	198	23.0	23.1	23.1
White				215	224	187	20.6	20.4	22.0
Nonwhite				235	236	---	28.7	29.3	---
Iberville		6	77	185	187	---	20.8	20.9	---
White				159	158	---	12.7	12.2	---
Nonwhite				205	208	---	29.0	29.1	---
Jackson		4	80	202	200	---	25.2	24.5	---
White				198	195	---	21.8	21.0	---
Nonwhite				209	207	---	34.7	34.1	---
Jefferson		B	58	221	221	---	18.9	18.9	---
Jefferson Davis		7	78	218	234	189	26.2	28.8	21.2
Lafayette	5b	3	76	220	242	186	20.0	18.8	24.1
White				197	240	115	15.4	17.7	4.7
Nonwhite				300	249	354	38.9	25.0	59.3
Lafourche		6	77	239	245	197	22.9	23.3	19.1
White				238	247	179	22.4	23.0	16.8
Nonwhite				248	231	---	27.5	26.5	---
La Salle		4	80	153	160	---	13.1	14.4	---
White				159	168	---	14.1	15.7	---
Nonwhite				109	109	---	3.2	3.2	---
Lincoln		4	80	160	167	125	16.8	18.0	8.6
White				135	137	---	9.8	9.8	---
Nonwhite				206	214	---	29.3	31.4	---
Livingston	5b	5	58	207	212	187	23.7	23.1	27.1
Madison	5b	2	76	199	194	202	29.2	25.1	32.0
White				176	---	154	23.5	---	18.8
Nonwhite				223	---	256	34.8	---	44.4

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Louisiana--Continued									
Morehouse		2	76	219	222	215	28.0	26.3	31.1
White				200	223	146	21.1	23.5	12.9
Nonwhite				239	220	255	37.2	32.4	41.2
Natchitoches	5b	1	76	215	204	242	31.3	28.9	36.6
White				190	193	182	24.1	24.3	23.6
Nonwhite				254	225	303	42.8	39.2	47.5
Orleans		B	58	No rural population					
Ouachita		E	76	227	233	195	26.6	26.7	26.3
White				218	225	169	24.1	24.4	21.1
Nonwhite				271	271	---	40.1	41.3	---
Plaquemines		5	58	242	247	---	22.5	22.6	---
White				226	235	---	16.8	17.4	---
Nonwhite				264	263	---	35.0	34.1	---
Pointe Coupee		3	76	213	233	168	28.8	32.4	19.4
White				126	143	9[illegible]	6.8	10.4	-1.6
Nonwhite				330	337	305	56.9	58.0	53.1
Rapides 5/		1	76	183	181	192	17.2	16.5	24.3
White				188	191	165	17.1	17.1	17.6
Nonwhite				166	152	---	17.6	14.1	---
Red River	5b	1	76	179	182	167	23.6	24.2	20.8
White				161	167	---	17.7	18.5	---
Nonwhite				206	202	---	32.7	32.8	---
Richland		2	76	199	183	211	28.9	22.8	33.9
White				185	154	206	22.1	12.8	29.8
Nonwhite				218	216	220	40.2	39.6	40.7
Sabine	5b	8	79	176	176	175	22.1	22.3	21.1
White				174	179	154	20.9	22.1	15.8
Nonwhite				183	167	---	27.8	23.2	---
St. Bernard		B	58	211	217	---	19.8	20.4	---
St. Charles		5	58	225	225	---	22.7	22.2	---
White				225	223	---	20.1	19.4	---
Nonwhite				227	231	---	30.4	31.0	---
St. Helena		5	58	231	226	241	32.3	29.2	38.0
White				156	177	122	14.6	19.3	6.1
Nonwhite				332	295	---	53.7	41.3	---
St. James		6	77	226	232	---	27.6	27.9	---
White				178	181	---	16.5	16.5	---
Nonwhite				286	296	---	42.5	43.7	---
St. John the Baptist	5b	6	77	247	252	---	31.3	32.1	---
White				224	233	---	22.5	23.5	---
Nonwhite				261	263	---	38.1	38.9	---
St. Landry	5a	3	76	239	215	270	32.0	25.4	41.3
White				184	200	163	19.5	20.3	18.1
Nonwhite				319	238	419	50.0	35.3	64.1
St. Martin	5b	6	77	245	249	239	30.8	28.2	37.2
White				215	225	197	25.8	24.4	29.9
Nonwhite				324	314	---	41.5	37.5	---
St. Mary		6	77	237	234	---	27.8	26.9	---
White				246	237	---	24.4	22.2	---
Nonwhite				227	230	---	23.1	34.4	---
St. Tammany		5	58	184	191	114	20.2	21.5	4.3
White				163	169	112	15.4	16.4	3.8
Nonwhite				261	269	---	37.2	39.0	---
Tangipahoa	5a	5	58	194	200	177	23.4	24.0	21.3
White				183	189	171	20.3	20.8	19.2
Nonwhite				221	224	---	31.6	31.5	---
Tensas	5b	2	76	216	211	222	32.9	29.0	39.0
White				186	188	---	19.4	17.0	---
Nonwhite				235	226	248	45.5	41.8	50.4
Terrebonne		6	77	282	288	---	30.5	31.2	---
White				287	297	---	28.5	29.3	---
Nonwhite				267	266	---	37.8	37.8	---
Union		4	80	184	194	147	22.1	23.4	15.4
White				173	180	148	18.3	19.2	14.7
Nonwhite				210	220	---	31.8	32.8	---
Vermilion		7	78	156	179	126	13.2	15.9	7.8
White				143	161	119	10.1	12.4	5.8
Nonwhite				308	---	---	43.6	---	---
Vernon	5b	8	79	173	173	172	20.0	18.6	26.1
Washington	5b	5	58	218	205	241	29.1	25.1	36.9
White				195	174	235	22.8	17.0	35.1
Nonwhite				284	303	256	49.8	55.9	41.4
Webster	5b	4	80	171	182	128	18.3	19.1	11.7
White				155	167	112	12.8	13.9	5.1
Nonwhite				201	206	---	32.0	32.0	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Louisiana--Continued									
West Baton Rouge		6	77	202	197	---	22.2	21.2	---
White				195	180	---	17.7	14.7	---
Nonwhite				207	211	---	27.7	28.8	---
West Carroll	5b	2	76	214	237	196	29.4	26.0	24.8
White				205	249	177	26.0	38.1	20.0
Nonwhite				249	210	---	45.7	35.2	---
West Feliciana		5	58	189	165	---	12.5	8.7	---
White				136	141	---	4.1	4.4	---
Nonwhite				218	178	---	18.8	12.1	---
Winn		4	80	192	214	97	25.2	29.1	-1.2
White				186	207	---	21.5	24.6	---
Nonwhite				212	236	---	45.1	53.0	---
Oklahoma									
Adair	5b	10	82	169	193	125	20.8	26.5	8.4
White				163	176	137	18.4	22.0	11.3
Nonwhite				191	248	---	28.7	40.8	---
Alfalfa		2	94	116	144	88	5.2	12.1	-4.2
Atoka	5b	9	81	158	166	148	17.3	19.0	14.7
Beaver		1	103	174	185	164	17.2	17.8	16.5
Beckham		4	101	116	117	115	5.1	5.1	5.1
Blaine		2	94	109	131	88	2.9	8.8	-3.8
Bryan		7	96	146	162	122	14.1	18.0	7.6
Caddo		4	101	153	157	149	15.0	15.1	14.8
White				146	141	153	12.6	10.8	15.7
Nonwhite				209	253	---	36.5	47.7	---
Canadian		D	94	198	347	100	19.8	33.0	.2
Carter		7	96	128	131	113	8.6	9.3	4.7
Cherokee	5b	10	82	177	212	125	22.4	29.6	8.6
White				147	171	115	13.9	19.2	5.0
Nonwhite				369	---	---	67.4	---	---
Choctaw	5b	7	96	158	175	132	18.4	23.9	10.1
White				143	151	132	12.9	15.1	9.8
Nonwhite				210	239	---	45.6	54.6	---
Cimarron		1	103	194	170	---	17.9	13.3	---
Cleveland		B	95	180	199	146	18.4	20.1	14.0
Coal	5b	6	95	110	114	104	3.9	5.2	1.6
Comanche 5/		4	101	495	612	180	29.9	30.5	22.5
White				511	654	180	30.2	30.9	22.3
Nonwhite				406	429	---	28.3	28.3	---
Cotton		4	101	154	215	101	15.0	27.3	.3
Craig		3	83	87	54	153	-4.0	-14.2	15.1
Creek		C	95	182	196	140	20.9	22.5	14.0
White				183	202	131	20.5	22.7	10.9
Nonwhite				170	157	---	24.4	20.5	---
Custer		1	103	135	124	144	9.4	6.2	12.2
Delaware	5b	10	82	130	127	134	9.4	8.2	11.6
White				122	110	138	7.2	3.5	13.0
Nonwhite				191	---	---	21.3	---	---
Dewey		1	103	96	74	128	-1.4	-9.6	8.7
Ellis		1	103	134	113	157	9.2	3.6	16.1
Garfield 5/		2	94	138	179	94	8.0	13.0	-1.7
Garvin		5	95	143	154	127	11.9	13.8	8.5
Grady	5b	4	101	146	172	122	12.6	17.8	6.6
Grant		2	94	116	115	117	4.9	4.2	5.6
Greer	5b	4	101	178	227	133	21.7	28.5	11.7
Harmon		4	101	147	---	118	14.8	---	6.4
Harper		1	103	144	111	216	9.9	2.5	24.6
Haskell	5b	8	95	156	150	166	16.6	14.0	21.2
Hughes	5b	6	95	139	151	125	13.6	16.9	9.0
Jackson		4	101	143	164	122	11.4	14.2	7.2
Jefferson		7	96	146	138	165	13.0	10.5	18.9
Johnston	5b	7	96	156	167	118	17.7	20.9	6.2
Kay		2	94	128	161	93	8.4	15.6	-2.3
Kingfisher		2	94	124	136	119	6.6	8.6	5.6
Kiowa		4	101	131	125	140	9.2	7.2	12.1
Latimer	5b	9	81	176	181	164	22.3	21.8	24.0
Le Flore	5b	9	81	174	176	170	21.2	21.5	20.4
Lincoln	5b	5	95	124	136	108	7.7	10.5	2.9
Logan		5	95	122	144	95	7.2	13.5	-1.6
White				103	110	97	1.3	3.4	-1.1
Nonwhite				216	---	---	34.9	---	---
Love	5b	7	96	156	172	135	15.7	17.1	13.0
McClain	5b	5	95	189	183	198	22.6	20.3	25.8

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Oklahoma--Continued									
McCurtain	5b	9	81	180	187	163	22.1	23.2	19.1
White				163	168	152	16.8	17.5	15.1
Nonwhite				248	257	---	47.8	48.2	---
McIntosh	5b	8	95	164	167	159	19.8	20.1	19.4
White				145	148	143	14.2	13.9	14.6
Nonwhite				231	216	---	40.7	37.1	---
Major		2	94	124	113	132	7.5	3.8	10.5
Marshall	5b	7	96	106	60	---	2.1	-3.2	---
Mayes	5b	3	83	173	185	155	19.7	22.4	15.5
Murray	5b	7	96	143	156	114	12.5	15.1	4.7
Muskogee	5a	8	95	185	182	195	22.2	20.8	26.8
White				198	193	210	23.0	21.2	28.3
Nonwhite				154	156	146	19.0	19.1	---
Noble		2	94	109	129	100	2.9	8.3	0
Nowata	5b	3	83	161	167	154	15.5	17.2	13.3
Okfuskee	5b	6	95	181	224	118	26.9	35.9	7.7
White				149	183	114	16.1	22.3	5.8
Nonwhite				251	282	---	51.6	59.6	---
Oklahoma		B	95	160	172	109	16.5	19.0	3.1
White				148	156	116	13.0	14.6	5.1
Nonwhite				245	---	---	48.3	---	---
Okmulgee	5a	8	95	151	146	170	15.3	13.6	21.8
White				146	141	164	12.9	11.1	20.2
Nonwhite				169	164	---	25.1	24.4	---
Osage		A	83	146	144	151	12.3	12.0	13.8
Ottawa	5b	3	83	156	164	137	15.0	16.4	11.2
Pawnee		5	95	119	122	114	6.3	7.1	5.1
Payne		5	95	143	161	120	12.4	15.5	7.0
Pittsburg	5a	9	81	169	187	129	20.2	25.3	8.7
Pontotoc	5b	6	95	140	136	152	11.7	10.0	16.7
Pottawatomie		5	95	144	139	155	13.0	11.6	16.1
Pushmataha	5b	9	81	111	128	87	4.1	9.0	-5.2
Roger Mills		1	103	139	151	131	10.9	14.5	8.7
Rogers	5b	3	83	168	186	143	17.0	19.2	12.9
Seminole	5b	6	95	150	157	134	15.6	16.7	12.3
White				130	137	113	9.8	11.8	4.7
Nonwhite				267	---	---	38.7	---	---
Sequoyah	5b	8	95	194	211	154	26.0	29.9	16.3
White				196	216	153	26.1	30.3	16.0
Nonwhite				178	---	---	25.0	---	---
Stephens		7	96	153	159	133	13.8	14.8	9.7
Texas		1	103	178	187	164	18.1	18.1	18.2
Tillman		4	101	162	167	157	17.1	19.9	14.4
Tulsa		A	83	207	221	131	22.0	23.3	10.1
White				209	224	128	21.7	23.2	8.7
Nonwhite				180	182	---	27.7	26.2	---
Wagoner	5b	8	95	184	197	165	22.0	23.8	19.0
White				195	213	169	22.1	24.4	18.2
Nonwhite				151	151	---	21.4	20.3	---
Washington		3	83	153	163	121	13.4	15.0	6.7
Washita 5/		4	101	174	245	125	14.1	18.2	7.3
Woods		1	103	119	118	120	5.5	4.6	6.4
Woodward		1	103	96	77	121	-1.2	-7.0	7.0
Texas									
Anderson	5b	12	80	144	143	146	14.5	13.5	16.8
White				135	137	132	11.0	11.1	10.9
Nonwhite				164	158	173	24.2	21.0	29.9
Andrews		5	102	102	---	---	7.2	---	---
Angelina	5b	13	79	156	166	114	13.7	14.8	5.6
Aransas 5/		11	98	95	96	---	-1.0	-.9	---
Archer		K	101	84	80	---	-4.7	-6.2	---
Armstrong		4	103	127	---	---	7.3	---	---
Atascosa		11	98	209	230	171	26.6	30.4	18.7
Austin		14	78	108	115	98	2.6	4.5	-.6
White				96	105	85	-1.0	1.5	-4.8
Nonwhite				154	139	---	20.3	14.7	---
Bailey		5	102	175	---	190	14.8	---	19.4
Bandera		2	100	112	138	77	4.3	11.6	-9.1
Bastrop		9	80	125	130	121	8.7	9.3	8.0
White				87	78	93	-4.3	-7.1	-2.3
Nonwhite				237	---	---	45.4	---	---
Baylor		6	101	93	---	84	-1.9	---	-4.6
Bee 5/		11	98	294	363	187	32.2	34.7	24.2

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Texas--Continued									
Bell 5/		8	97	339	476	116	29.1	33.1	5.3
White				340	494	116	30.5	35.3	5.3
Nonwhite				333	336	---	18.2	18.3	---
Bexar 5/		F	98	211	233	142	19.8	21.1	12.0
Blanco		2	100	140	162	122	11.3	14.9	7.3
Borden		6	101	---	---	---	---	---	---
Bosque		7	96	107	113	99	2.5	4.0	-.2
Bowie	5b	12	80	163	170	140	16.5	17.1	13.5
White				161	172	130	15.2	16.4	10.1
Nonwhite				167	163	---	21.3	19.7	---
Brazoria		14	78	162	166	141	10.5	10.3	13.5
White				172	178	139	12.7	12.8	12.2
Nonwhite				127	125	---	3.9	3.2	---
Brazos		9	80	194	214	182	24.3	27.3	22.5
White				183	---	184	19.2	---	20.8
Nonwhite				212	---	---	38.1	---	---
Brewster		1	108	124	---	---	5.6	---	---
Briscoe		4	103	172	168	---	15.7	15.1	---
Brooks		3	98	235	---	---	30.1	---	---
Brown		6	101	117	109	130	5.6	3.1	10.8
Burleson		9	80	130	136	123	9.8	11.0	8.3
White				124	135	114	7.2	9.4	4.8
Nonwhite				143	136	---	17.8	14.7	---
Burnet		7	96	138	163	93	10.8	16.4	-2.3
Caldwell		10	97	150	163	137	14.2	17.2	11.0
Calhoun 5/		14	78	270	316	---	25.4	27.0	---
Callahan		6	101	120	147	75	5.8	11.6	-9.4
Cameron		15	99	236	262	192	27.2	29.4	22.4
Camp	5b	12	80	154	164	---	17.0	19.2	---
Carson		4	103	199	205	---	18.4	18.4	---
Cass	5b	12	80	148	140	186	13.2	10.5	28.7
White				137	136	143	9.5	8.7	15.4
Nonwhite				175	149	---	25.2	17.2	---
Castro		4	103	271	---	288	27.7	---	28.0
Chambers		14	78	170	173	---	15.5	15.7	---
Cherokee	5b	12	80	140	163	90	12.4	17.2	-4.0
White				128	148	85	8.4	12.9	-5.5
Nonwhite				183	216	---	28.0	32.9	---
Childress		6	101	97	---	111	-.8	---	4.2
Clay		6	101	122	144	100	6.4	11.8	0
Cochran		5	102	210	---	198	23.9	---	22.0
Coke		2	100	172	192	---	17.5	20.3	---
Coleman		6	101	111	139	83	4.0	12.8	-6.2
Collin		C	97	145	184	101	12.4	19.4	.5
White				140	185	93	11.2	19.3	-2.4
Nonwhite				216	---	---	27.7	---	---
Collingsworth	5b	6	101	136	---	136	11.4	---	11.5
Colorado		14	78	144	171	107	11.6	17.6	2.0
White				131	161	101	7.6	13.3	.4
Nonwhite				190	189	---	30.1	30.6	---
Comal		2	100	108	128	93	2.3	7.1	-2.2
Comanche		7	96	95	94	96	-1.5	-2.1	-1.2
Concho		2	100	130	148	105	9.1	14.8	1.6
Cooke		7	96	133	129	135	9.7	8.1	10.9
Coryell 5/		7	96	396	642	105	44.2	54.1	2.1
Cottle		6	101	123	119	128	6.6	5.3	8.5
Crane		5	102	---	---	---	---	---	---
Crockett		16	100	---	---	---	---	---	---
Crosby		5	102	195	170	230	20.7	16.2	26.4
Culberson		1	108	230	---	---	22.7	---	---
Dallam		4	103	137	---	---	10.0	---	---
Dallas		C	97	190	203	133	17.2	18.2	10.0
White				192	209	131	17.6	18.8	9.7
Nonwhite				174	176	---	14.8	14.8	---
Dawson		5	102	147	139	154	9.9	7.8	11.4
Deaf Smith		4	103	219	231	210	24.9	26.4	23.6
Delta	5b	8	97	118	109	135	6.2	3.1	11.1
Denton		0	96	132	149	110	9.1	12.2	3.8
De Witt		11	98	125	187	100	8.1	22.6	0
Dickens		6	101	145	164	119	12.1	16.0	5.8
Dimmit	5b	3	98	249	292	---	30.0	35.1	---
Donley		6	101	110	113	106	3.3	4.0	2.2
Duval		3	98	176	163	209	20.8	17.3	30.1
Eastland		7	96	98	91	107	-.5	-2.9	2.4

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Texas--Continued									
Ector		5	102	207	212	---	18.5	19.3	---
Edwards		16	100	117	135	---	4.8	10.7	---
Ellis		C	97	139	171	102	10.6	16.7	.9
White				127	152	100	7.4	12.3	0
Nonwhite				193	253	116	25.6	34.6	6.3
El Paso 5/		A	108	482	524	296	22.6	21.8	36.9
Erath		7	96	101	109	96	.6	3.2	-1.4
Falls	5b	8	97	122	144	97	7.5	13.8	-1.1
White				102	115	91	.7	4.6	-3.0
Nonwhite				179	186	---	27.5	29.4	---
Fannin		8	97	126	141	110	7.8	10.7	3.5
Fayette		10	97	101	112	92	.4	3.8	-2.8
White				95	100	93	-1.4	0	-2.5
Nonwhite				139	162	---	15.1	21.9	---
Fisher		6	101	128	104	140	8.1	1.2	11.5
Floyd		4	103	187	210	170	17.4	23.6	13.5
Foard		6	101	102	109	---	.6	2.9	---
Fort Bend		14	78	181	186	174	15.7	13.6	20.9
White				174	185	161	13.1	12.2	17.1
Nonwhite				203	190	228	24.5	19.3	39.2
Franklin	5b	12	80	109	116	99	2.9	5.2	-.3
Freestone	5b	9	80	148	181	100	15.9	23.1	0
White				109	132	80	3.0	9.2	-8.2
Nonwhite				214	251	---	37.4	43.2	---
Frio	5b	11	98	216	203	---	27.3	25.0	---
Gaines		5	102	241	240	243	24.8	23.9	26.1
Galveston		M	78	168	173	---	15.2	15.9	---
Garza		6	101	208	---	---	24.4	---	---
Gillespie		2	100	117	139	108	5.4	10.0	2.9
Glasscock		16	100	---	---	---	---	---	---
Goliad		11	98	147	145	149	11.4	10.5	12.3
Gonzales		10	97	123	140	106	7.3	12.2	1.9
White				116	135	98	4.9	10.3	-.5
Nonwhite				165	---	---	22.8	---	---
Gray		4	103	122	122	---	6.1	6.0	---
Grayson 5/		8	97	122	136	96	5.9	8.3	-1.4
Gregg	5b	12	80	124	130	75	7.4	9.0	-11.8
White				107	112	65	2.3	3.8	-17.2
Nonwhite				193	205	---	26.0	27.8	---
Grimes		9	80	138	166	116	12.2	18.6	5.8
White				137	189	105	11.0	22.7	1.8
Nonwhite				141	140	---	14.7	12.6	---
Guadalupe 5/		10	97	133	148	113	8.6	10.8	4.3
Hale		4	103	206	200	211	21.4	23.7	19.7
Hall		6	101	241	185	---	30.2	20.0	---
Hamilton		7	96	93	88	95	-2.1	-3.0	-1.8
Hansford		4	103	187	154	---	16.2	10.9	---
Hardeman		6	101	90	87	95	-3.5	-4.5	-1.9
Hardin		13	79	162	161	---	15.9	15.6	---
White				163	162	---	15.7	15.4	---
Nonwhite				156	154	---	17.3	16.5	---
Harris		G	78	176	181	144	16.3	16.8	11.9
White				175	179	144	15.7	16.2	12.0
Nonwhite				187	188	---	20.9	21.6	---
Harrison	5b	12	80	180	193	128	23.4	25.1	12.3
White				152	166	87	13.7	16.0	-5.3
Nonwhite				214	228	167	38.0	39.8	29.5
Hartley		4	103	95	---	---	-1.2	---	---
Haskell		6	101	123	126	121	6.3	5.9	6.6
Hays		2	100	141	152	122	11.3	13.7	6.6
Hemphill		4	103	128	137	---	7.7	9.2	---
Henderson	5b	12	80	120	133	91	6.2	9.6	-3.3
White				99	101	95	-.2	.3	-1.6
Nonwhite				243	306	---	44.7	56.6	---
Hidalgo		15	99	259	304	189	27.0	28.9	21.9
Hill		8	97	125	117	138	7.8	5.7	10.8
White				122	110	140	6.8	3.3	11.2
Nonwhite				141	151	---	15.1	18.6	---
Hockley		5	102	209	211	208	22.4	21.6	23.0
Hood		7	96	120	127	103	5.5	7.7	.9
Hopkins	5b	12	80	97	126	81	-.8	7.5	-6.5
Houston	5b	12	80	149	165	120	10.4	11.3	7.2
White				112	124	94	2.6	3.8	-2.0
Nonwhite				246	266	---	35.1	36.6	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Texas--Continued									
Howard 5/		5	102	146	154	129	8.8	8.9	8.7
Hudspeth		1	108	214	225	---	22.0	24.1	---
Hunt		8	97	146	156	136	12.7	13.6	11.5
Hutchinson		4	103	208	213	---	22.2	22.4	---
Irion		16	100	---	---	---	---	---	---
Jack		7	96	85	96	75	-4.9	-1.2	-9.0
Jackson		14	78	172	182	160	18.0	18.4	17.6
Jasper	5b	13	79	178	186	136	19.9	20.9	12.4
White				170	176	138	17.5	18.2	12.8
Nonwhite				213	222	---	30.3	32.0	---
Jeff Davis		1	108	---	---	---	---	---	---
Jefferson		H	78	189	199	---	18.8	20.0	---
Jim Hogg		3	98	---	---	---	---	---	---
Jim Wells		11	98	183	228	129	19.4	26.1	8.4
Johnson		B	96	148	163	124	12.4	14.6	7.5
Jones		P	101	131	150	119	9.2	13.6	6.2
Karnes		11	98	146	119	162	13.0	5.7	17.0
Kaufman		8	97	140	172	97	11.9	19.6	-.9
White				134	176	87	9.9	19.0	-4.5
Nonwhite				162	161	---	20.5	22.2	---
Kendall		2	100	120	133	95	5.3	8.3	-1.3
Kenedy	5b	3	98	---	---	---	---	---	---
Kent		6	101	112	---	---	3.4	---	---
Kerr		2	100	67	63	86	-10.5	-11.8	-4.5
Kimble		16	100	134	179	74	8.9	17.4	-8.9
King		6	101	---	---	---	---	---	---
Kinney	5b	16	100	194	---	---	20.3	---	---
Kleberg 5/		3	98	396	607	189	38.9	42.7	26.2
Knox		6	101	131	137	122	8.1	9.1	6.4
Lamar	5b	8	97	129	143	114	9.9	13.3	5.7
White				109	125	93	3.1	7.5	-2.8
Nonwhite				265	---	---	54.3	---	---
Lamb		5	102	176	168	185	16.0	15.9	16.1
Lampasas		7	96	111	196	56	3.5	21.1	-17.7
La Salle		3	98	188	---	---	23.7	---	---
Lavaca		10	97	122	130	119	7.0	8.0	6.4
Lee		9	80	101	150	82	.6	12.8	-6.8
White				97	137	80	-.9	9.4	-7.1
Nonwhite				117	---	---	6.5	---	---
Leon	5b	9	80	106	98	119	2.3	-.4	7.7
White				95	98	91	-1.5	-.6	-3.5
Nonwhite				125	100	---	10.2	0	---
Liberty		14	78	197	196	201	22.3	21.7	25.1
White				205	211	180	22.4	23.0	19.6
Nonwhite				176	157	---	21.8	16.7	---
Limestone	5b	8	97	157	196	101	19.3	28.1	.8
White				141	180	94	13.9	23.0	-2.4
Nonwhite				212	236	---	36.8	41.2	---
Lipscomb		4	103	138	136	---	8.5	8.5	---
Live Oak		11	98	191	231	137	21.2	25.7	11.7
Llano		2	100	59	49	---	-15.0	-19.6	---
Loving		1	108	---	---	---	---	---	---
Lubbock 5/		L	102	208	234	190	19.0	18.6	19.2
Lynn		5	102	170	144	186	16.5	12.8	18.2
McCulloch	5b	2	100	118	153	92	6.0	13.7	-2.9
McLennan		D	97	129	138	112	8.3	10.0	4.0
White				124	132	111	6.6	7.9	3.7
Nonwhite				160	165	---	18.8	20.3	---
McMullen		3	98	---	---	---	---	---	---
Madison	5b	9	80	134	137	130	9.2	8.6	10.2
White				108	104	112	2.2	1.0	4.2
Nonwhite				209	---	---	28.0	---	---
Marion	5b	12	80	164	177	---	20.9	23.4	---
White				156	185	---	16.6	21.7	---
Nonwhite				170	173	---	24.5	24.7	---
Martin		5	102	205	---	162	19.9	---	13.6
Mason		2	100	106	115	92	2.0	5.2	-2.6
Matagorda		14	78	181	213	134	20.7	25.2	11.0
White				167	202	124	16.6	21.5	7.7
Nonwhite				241	---	---	42.0	---	---
Maverick 5/	5b	3	98	170	---	---	11.0	---	---
Medina		2	100	169	217	112	18.6	26.7	4.3
Menard		16	100	164	157	---	15.9	14.9	---
Midland		5	102	156	169	---	12.4	14.5	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Texas--Continued									
Milam		8	97	135	166	112	10.8	17.7	4.3
Mills		7	96	100	88	107	0	-3.6	2.7
Mitchell		6	101	140	144	138	12.5	12.8	12.5
Montague		7	96	105	123	79	1.6	6.2	-7.4
Montgomery	5b	13	79	145	150	115	13.5	14.6	5.3
White				139	143	119	11.6	12.4	6.7
Nonwhite				170	178	---	23.1	25.0	---
Moore		4	103	269	262	---	26.0	25.0	---
Morris	5b	12	80	152	157	---	13.3	14.1	---
White				122	130	---	5.2	7.0	---
Nonwhite				233	226	---	38.9	36.0	---
Motley		6	101	99	84	123	-.2	-5.7	8.4
Nacogdoches	5b	12	80	135	154	105	10.7	14.6	2.0
White				126	149	93	7.9	13.0	-2.7
Nonwhite				173	168	---	21.2	19.7	---
Navarro		8	97	108	125	89	2.9	7.9	-4.1
White				95	117	73	-1.7	5.3	-11.2
Nonwhite				157	148	---	18.7	15.9	---
Newton	5b	13	79	168	185	---	18.9	21.9	---
White				152	167	---	14.3	17.1	---
Nonwhite				209	224	---	30.6	33.9	---
Nolan		6	101	161	157	167	14.8	12.3	19.3
Nueces		N	98	233	233	234	25.1	23.6	29.4
Ochiltree		4	103	---	---	---	---	---	---
Oldham		4	103	---	---	---	---	---	---
Orange		H	78	194	199	---	19.0	19.6	---
Palo Pinto 5/		7	96	133	138	113	8.7	9.6	4.5
Panola	5b	12	80	153	181	117	15.8	20.3	6.9
White				128	159	91	8.3	14.3	-3.3
Nonwhite				210	230	---	34.5	35.0	---
Parker 5/		7	96	175	187	157	15.9	15.9	16.0
Parmer		4	103	204	187	227	19.3	18.8	19.9
Pecos		1	108	200	207	---	16.9	17.9	---
Polk	5b	13	79	154	154	---	16.0	16.0	---
White				129	126	---	8.7	8.2	---
Nonwhite				225	227	---	33.8	34.7	---
Potter		J	103	125	127	---	6.6	5.9	---
Presidio		1	108	146	129	---	11.5	7.7	---
Rains	5b	12	80	109	131	95	3.4	10.2	-1.7
Randall		J	103	180	---	171	17.1	---	17.2
Reagan		16	100	88	---	---	-3.9	---	---
Real		16	100	147	---	---	12.5	---	---
Red River	5b	12	80	141	175	99	13.1	21.2	-.4
White				124	165	78	7.7	17.9	-8.3
Nonwhite				215	208	---	37.3	35.0	---
Reeves		1	108	187	205	---	12.8	16.4	---
Refugio		11	98	191	198	---	20.8	21.9	---
Roberts		4	103	---	---	---	---	---	---
Robertson	5b	9	80	119	125	107	6.5	8.1	2.9
White				104	106	100	1.2	1.8	.3
Nonwhite				143	144	---	17.1	17.6	---
Rockwall		8	97	140	141	138	10.8	10.0	13.3
Runnels		6	101	125	112	135	7.1	3.7	9.1
Rusk	5b	12	80	131	138	103	10.1	11.8	1.2
White				111	122	64	3.5	6.8	-14.7
Nonwhite				194	189	---	30.2	27.3	---
Sabine	5b	13	79	144	166	76	13.5	18.2	-10.9
White				144	168	---	13.3	18.3	---
Nonwhite				143	---	---	14.3	---	---
San Augustine	5b	13	79	156	153	160	16.8	15.4	19.4
San Jacinto	5b	13	79	159	180	112	17.9	23.7	4.0
White				139	151	---	11.5	15.0	---
Nonwhite				182	217	---	26.2	34.9	---
San Patricio		11	98	261	299	197	32.6	35.5	25.5
San Saba		2	100	116	---	96	5.6	---	-1.3
Schleicher		16	100	143	133	---	11.0	8.7	---
Scurry		6	101	192	198	185	21.8	22.8	20.8
Shackelford		6	101	93	117	---	-2.1	5.1	---
Shelby	5b	12	80	136	149	116	11.1	13.4	6.3
White				119	130	104	6.0	8.4	1.6
Nonwhite				208	215	---	32.0	30.1	---
Sherman		4	103	106	92	---	1.7	-2.4	---
Smith	5b	12	80	139	150	92	10.7	12.8	-3.1
White				124	136	81	6.8	9.1	-7.5
Nonwhite				175	183	---	20.9	22.6	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Texas--Continued									
Somervell		7	96	104	130	---	1.5	7.4	---
Starr	5b	3	98	182	180	190	18.8	16.6	26.6
Stephens		6	101	80	65	103	-7.6	-13.8	1.5
Sterling		16	100	---	---	---	---	---	---
Stonewall		6	101	151	156	---	13.5	13.6	---
Sutton		16	100	---	---	---	---	---	---
Swisher		4	103	214	---	227	24.1	---	25.7
Tarrant		B	96	171	178	143	15.5	16.3	11.1
Taylor		P	101	140	167	100	10.8	16.0	.2
Terrell	5b	16	100	182	---	---	13.8	---	---
Terry		5	102	251	---	236	26.4	---	24.7
Throckmorton		6	101	94	100	85	-1.9	.2	-6.3
Titus	5b	12	80	110	124	86	3.4	7.0	-5.4
Tom Green		2	100	130	88	188	7.8	-3.2	20.6
Travis 5/		E	97	175	190	138	13.6	14.1	11.6
White				176	192	135	13.1	13.7	10.3
Nonwhite				169	176	---	19.3	18.5	---
Trinity	5b	13	79	126	122	141	8.7	7.0	14.4
White				115	112	122	5.1	4.0	8.3
Nonwhite				173	152	---	21.6	16.0	---
Tyler	5b	13	79	136	146	89	11.2	13.4	-4.6
White				129	139	85	9.2	11.7	-6.2
Nonwhite				177	181	---	19.4	20.0	---
Upshur	5b	12	80	137	156	83	10.7	14.5	-7.1
White				121	136	82	6.5	9.6	-7.3
Nonwhite				200	232	---	26.1	31.3	---
Upton		16	100	196	196	---	18.2	17.7	---
Uvalde		16	100	145	153	128	11.5	13.3	7.5
Val Verde 5/	5b	16	100	352	444	---	22.3	25.2	---
Van Zandt	5b	12	80	116	128	92	5.1	8.2	-3.0
White				111	123	91	3.7	6.6	-3.6
Nonwhite				174	---	---	25.8	---	---
Victoria		14	78	171	183	154	17.1	16.8	17.8
Walker		13	79	90	89	96	-2.7	-2.9	-1.3
White				80	78	---	-5.1	-5.5	---
Nonwhite				103	103	---	1.0	1.0	---
Waller	5b	14	78	183	225	94	20.3	26.1	-2.3
White				124	158	85	7.1	14.3	-5.4
Nonwhite				262	283	---	32.8	33.6	---
Ward		1	108	179	187	---	15.9	17.0	---
Washington		10	97	122	153	104	7.5	15.4	1.7
White				90	110	83	-3.2	2.9	-6.3
Nonwhite				216	203	---	35.3	31.1	---
Webb 5/	5a	3	98	141	167	---	6.8	9.6	---
Wharton		14	78	192	193	191	22.7	21.3	25.5
White				200	202	196	23.3	22.1	25.6
Nonwhite				170	169	173	20.6	19.0	25.1
Wheeler		6	101	147	160	130	12.4	14.8	8.8
Wichita		K	101	129	147	98	8.0	11.2	-.5
Wilbarger		6	101	120	115	126	6.0	4.8	7.5
Willacy		15	99	220	246	175	22.5	27.4	14.1
Williamson		8	97	138	165	119	10.9	17.1	5.8
White				130	156	112	8.6	14.9	3.7
Nonwhite				246	---	---	37.1	---	---
Wilson		11	98	170	194	129	16.6	21.2	7.7
Winkler		5	102	225	222	---	23.2	22.4	---
Wise		7	96	134	154	112	9.6	13.3	4.1
Wood	5b	12	80	141	151	122	13.1	14.8	8.7
White				140	143	134	12.6	12.5	12.8
Nonwhite				145	---	---	16.9	---	---
Yoakum		5	102	245	---	---	23.3	---	---
Young		6	101	89	117	56	-3.6	5.4	-17.2
Zapata 5/	5b	3	98	145	169	---	11.3	15.8	---
Zavala		3	98	211	268	---	24.8	33.4	---
Montana									
Beaverhead		1	109	95	101	88	-1.4	.5	-3.4
Big Horn	5b	3	106	222	197	255	25.4	21.4	29.9
White				173	116	224	15.5	4.2	22.4
Nonwhite				306	---	---	41.4	---	---
Blaine	5b	2	105	157	149	174	14.1	13.5	15.0
Broadwater		1	109	136	118	---	9.4	5.3	---
Carbon	5b	3	106	158	149	170	15.3	12.6	19.5
Carter		4	104	196	---	---	21.0	---	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Montana--Continued									
Cascade 5/		2	105	233	330	110	19.2	23.4	3.0
Chouteau	5b	2	105	168	169	169	14.6	16.1	13.5
Custer 5/		4	104	251	---	137	31.4	---	7.9
Daniels	5b	2	105	165	188	---	16.9	21.6	---
Dawson		2	105	212	258	175	21.6	24.2	18.3
Deer Lodge	5b	1	109	103	103	---	.9	.9	---
Fallon		2	105	257	---	---	24.0	---	---
Fergus		2	105	174	155	187	15.8	12.0	18.4
Flathead	5a	1	109	169	180	138	14.9	15.7	11.4
Gallatin		1	109	212	238	170	19.0	20.3	15.9
Garfield		4	104	---	---	---	---	---	---
Glacier	5b	2	105	196	231	110	18.7	23.8	2.5
White				107	128	---	1.5	5.3	---
Nonwhite				310	349	---	38.5	43.3	---
Golden Valley		4	104	---	---	---	---	---	---
Granite		1	109	137	132	---	9.8	8.8	---
Hill	5b	2	105	232	239	218	22.6	23.6	20.7
Jefferson		1	109	184	204	---	19.1	21.5	---
Judith Basin		2	105	113	---	110	3.5	---	2.6
Lake	5b	1	109	169	194	134	18.4	23.6	10.0
Lewis and Clark		1	109	146	146	147	9.8	9.0	13.2
Liberty		2	105	179	---	---	15.0	---	---
Lincoln	5a	1	109	182	195	---	15.0	16.1	---
McCone		2	105	219	---	---	23.3	---	---
Madison		1	109	156	144	179	14.5	12.1	18.3
Meagher		1	109	124	129	---	6.2	7.3	---
Mineral		1	109	194	181	---	20.8	17.6	---
Missoula	5b	1	109	170	182	125	12.8	13.4	7.9
Musselshell	5b	4	104	125	---	---	8.0	---	---
Park	5b	1	109	141	147	133	8.5	9.6	6.9
Petroleum		4	104	---	---	---	---	---	---
Phillips	5b	2	105	140	125	160	10.2	6.4	15.5
Pondera	5b	2	105	179	129	225	17.3	6.5	27.1
Powder River		4	104	180	---	---	18.0	---	---
Powell		1	109	106	84	---	1.7	-4.2	---
Prairie		2	105	262	---	---	32.3	---	---
Ravalli	5b	1	109	143	155	127	12.5	14.3	9.1
Richland		2	105	173	168	178	17.7	16.4	18.9
Roosevelt	5b	2	105	236	212	285	26.3	21.4	36.7
Rosebud	5b	4	104	157	176	118	13.8	18.3	4.4
Sanders	5b	1	109	142	151	120	10.4	11.6	6.1
Sheridan	5b	2	105	222	185	263	21.7	15.4	28.4
Silver Bow	5a	1	109	138	143	---	9.9	10.8	---
Stillwater		3	106	169	195	135	16.9	22.7	8.9
Sweet Grass		4	104	150	128	---	12.0	8.1	---
Teton		2	105	198	220	177	21.2	24.1	18.0
Toole		2	105	181	187	---	15.4	17.2	---
Treasure		4	104	---	---	---	---	---	---
Valley 5/	5b	2	105	200	209	183	15.9	15.3	17.5
Wheatland		4	104	106	115	---	2.0	4.6	---
Wibaux		2	105	---	---	---	---	---	---
Yellowstone	5b	3	106	236	239	232	23.9	22.7	26.3
Yellowstone Nat'l Park (part)		1	109	---	---	---	---	---	---
Idaho									
Ada		3	112	183	190	168	16.8	16.7	17.1
Adams		1	109	154	155	---	13.1	12.8	---
Bannock	5b	4	112	207	219	181	22.5	24.4	18.0
Bear Lake		4	112	169	180	---	18.0	19.4	---
Benewah	5b	2	110	113	114	---	3.7	4.1	---
Bingham	5b	4	112	233	234	232	28.0	24.8	31.4
Blaine		1	109	137	109	---	8.4	2.2	---
Boise		1	109	---	---	---	---	---	---
Bonner	5b	1	109	161	171	135	15.6	16.9	11.0
Bonneville		4	112	245	253	238	26.3	21.9	32.1
Boundary	5b	1	109	142	142	143	11.2	9.8	15.0
Butte		1	109	213	217	---	21.6	20.8	---
Camas		1	109	---	---	---	---	---	---
Canyon		3	112	196	240	166	21.5	26.5	17.1
Caribou	5b	4	112	249	213	---	28.3	21.7	---
Cassia		3	112	224	251	210	26.0	27.3	25.2
Clark		1	109	---	---	---	---	---	---
Clearwater	5b	1	109	139	134	---	9.2	7.7	---
Custer		1	109	212	202	---	22.8	22.6	---

See footnotes at end of table.

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Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Idaho--Continued									
Elmore 5/		1	109	317	347	---	21.2	21.2	---
Franklin		4	112	289	---	311	41.1	---	47.8
Fremont		4	112	266	288	243	35.2	42.2	28.5
Gem		3	112	178	200	167	20.5	21.3	20.0
Gooding		3	112	185	193	181	22.7	18.6	25.5
Idaho	5b	1	109	163	144	200	15.2	10.7	24.1
Jefferson		4	112	252	290	224	29.9	30.7	29.1
Jerome		3	112	198	---	198	20.5	---	21.1
Kootenai	5b	2	110	196	200	180	20.7	20.8	20.5
Latah		2	110	139	165	106	10.0	14.7	1.9
Lemhi		1	109	137	---	148	8.3	---	11.1
Lewis	5b	2	110	140	192	55	9.8	18.9	-16.7
Lincoln		3	112	187	161	---	19.5	14.1	---
Madison		4	112	232	---	245	32.5	---	36.5
Minidoka		3	112	325	261	375	35.9	24.5	45.5
Nez Perce	5b	2	110	159	178	137	15.4	20.3	9.7
Oneida		4	112	226	---	---	28.7	---	---
Owyhee		3	112	152	128	176	11.2	6.4	15.6
Payette		3	112	159	183	136	15.9	18.9	11.8
Power	5b	4	112	192	196	---	19.4	19.7	---
Shoshone	5b	1	109	157	155	---	12.4	12.0	---
Teton		4	112	253	---	---	39.0	---	---
Twin Falls		3	112	180	191	172	17.7	18.2	17.3
Valley		1	109	153	158	---	10.6	10.1	---
Washington		3	112	140	113	156	11.7	3.7	16.5
Wyoming									
Albany		1	109	151	184	---	10.9	16.8	---
Big Horn	5b	2	106	191	179	219	22.5	20.1	27.8
Campbell		2	106	135	---	149	7.7	---	10.9
Carbon		1	109	123	130	105	5.9	7.7	1.2
Converse		2	106	119	150	78	5.2	13.8	-6.0
Crook		2	106	155	123	189	10.9	4.2	20.3
Fremont	5b	2	106	207	208	206	20.2	18.7	23.9
White				184	168	216	15.7	12.0	24.6
Nonwhite				320	---	---	44.8	---	---
Goshen		2	106	210	165	244	21.9	14.0	27.0
Hot Springs	5b	2	106	114	91	---	4.3	-3.0	---
Johnson		2	106	147	---	---	9.1	---	---
Laramie 5/		2	106	191	199	151	15.2	16.0	10.1
Lincoln	5b	1	109	192	178	240	21.1	18.5	28.9
Natrona		1	109	159	169	---	11.8	13.1	---
Niobrara		2	106	132	122	---	7.9	5.7	---
Park		2	106	182	149	213	18.6	11.0	25.8
Platte		2	106	149	168	113	12.9	17.1	3.8
Sheridan		2	106	115	103	147	4.4	.9	12.3
Sublette		1	109	120	106	---	3.9	1.1	---
Sweetwater		1	109	132	140	---	7.0	8.1	---
Teton	5b	1	109	134	122	---	7.7	5.3	---
Uinta		1	109	175	150	---	19.9	14.2	---
Washakie		2	106	247	---	---	28.4	---	---
Weston		2	106	197	193	---	19.4	18.2	---
Yellowstone Nat'l Park (part)		1	109	---	---	---	---	---	---
Colorado									
Adams		A	103	170	204	123	14.0	17.5	6.3
Alamosa	5b	2	109	203	185	---	23.1	17.5	---
Arapahoe		A	103	191	197	174	17.5	17.5	18.1
Archuleta		2	109	166	180	---	16.3	19.7	---
Baca		5	107	168	119	275	15.9	5.1	33.5
Bent		5	107	94	82	119	-1.3	-4.4	4.6
Boulder		D	106	158	162	145	12.5	12.5	12.5
Chaffee		1	109	214	240	---	26.2	30.2	---
Cheyenne		4	103	155	139	---	14.1	11.3	---
Clear Creek	5b	1	109	100	92	---	.1	-2.2	---
Conejos	5b	2	109	233	224	259	33.4	30.8	41.7
Costilla	5b	2	109	295	276	---	41.3	40.0	---
Crowley		5	107	163	165	---	17.0	18.0	---
Custer		5	107	---	---	---	---	---	---
Delta		2	109	151	137	177	13.9	10.7	19.3
Denver		A	103	No rural population					
Dolores		2	109	92	95	---	-1.6	-1.0	---
Douglas		4	103	156	133	---	12.2	6.6	---
Eagle		1	109	126	138	---	5.9	8.0	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Colorado--Continued									
Elbert		4	103	114	---	113	4.2	---	4.2
El Paso 5/		B	103	408	490	86	29.0	31.3	-4.0
Fremont	5b	5	107	219	226	---	25.7	25.8	---
Garfield		1	109	146	155	123	11.7	13.8	6.3
Gilpin	5b	1	109	---	---	---	---	---	---
Grand		1	109	133	134	---	8.3	8.2	---
Gunnison		1	109	166	---	---	12.7	---	---
Hinsdale		1	109	---	---	---	---	---	---
Huerfano	5b	5	107	132	161	107	10.6	17.6	2.6
Jackson		1	109	101	82	---	.5	-5.6	---
Jefferson		A	103	192	210	100	19.6	21.7	.1
Kiowa		4	103	208	---	---	21.4	---	---
Kit Carson		4	103	162	134	240	15.3	9.4	27.2
Lake		1	109	250	---	---	17.9	---	---
La Plata		2	109	200	213	180	22.7	22.8	22.3
Larimer		3	106	169	169	170	16.0	15.8	16.6
Las Animas	5b	5	107	190	209	147	23.4	27.3	13.3
Lincoln		4	103	151	88	279	11.2	-2.8	33.7
Logan		3	106	208	203	212	22.1	19.8	24.0
Mesa		2	109	162	178	132	15.9	17.5	11.1
Mineral		1	109	---	---	---	---	---	---
Moffat		1	109	185	---	---	15.4	---	---
Montezuma		2	109	179	218	133	18.8	24.2	9.8
Montrose		2	109	197	202	188	18.6	18.7	18.3
Morgan		3	106	182	206	167	17.8	19.8	16.1
Otero		5	107	195	195	194	20.9	20.1	22.7
Ouray		1	109	153	---	---	14.2	---	---
Park		1	109	94	---	---	-1.6	---	---
Phillips		4	103	140	148	129	11.3	14.8	7.1
Pitkin		1	109	160	134	---	10.8	6.2	---
Prowers		5	107	186	171	200	19.8	16.2	23.0
Pueblo		C	107	223	240	185	25.2	26.2	21.9
Rio Blanco		1	109	181	167	---	15.2	13.1	---
Rio Grande		2	109	187	190	178	21.9	23.8	17.7
Routt		1	109	149	155	140	12.2	12.9	10.9
Saguache		2	109	165	184	---	16.3	21.2	---
San Juan		1	109	---	---	---	---	---	---
San Miguel		2	109	147	150	---	9.5	9.7	---
Sedgwick		3	106	153	173	---	12.7	16.5	---
Summit		1	109	142	145	---	7.5	7.8	---
Teller	5b	1	109	91	96	---	-2.7	-1.0	---
Washington		4	103	155	138	170	13.0	9.1	16.6
Weld		3	106	186	169	211	18.9	15.9	22.9
Yuma		4	103	138	115	173	9.9	4.4	16.6
New Mexico									
Bernalillo 5/	5b	A	109	246	252	---	22.8	22.8	---
Catron	5b	1	109	130	133	---	8.3	8.6	---
Chaves 5/		3	108	300	359	185	22.4	23.3	18.0
Colfax	5b	2	107	247	274	---	34.3	40.2	---
Curry 5/		2	107	256	344	143	20.4	22.9	11.5
De Baca		2	107	178	201	---	18.6	22.7	---
Dona Ana 5/		3	108	279	306	216	23.7	24.5	21.0
Eddy		3	108	218	207	245	23.8	21.6	29.4
Grant		3	108	187	186	---	19.7	19.6	---
Guadalupe	5b	2	107	264	316	---	34.5	40.4	---
Harding		2	107	---	---	---	---	---	---
Hidalgo		3	108	---	---	---	---	---	---
Lea		3	108	208	227	164	19.1	21.1	13.2
Lincoln		3	108	154	162	125	13.7	15.4	6.9
Los Alamos		1	109	---	---	---	---	---	---
Luna		3	108	166	141	---	14.0	9.2	---
McKinley	5b	1	109	342	373	266	36.8	42.4	23.8
White				266	---	---	22.0	---	---
Nonwhite				362	387	289	41.5	46.5	28.2
Mora	5b	2	107	227	228	---	36.4	36.7	---
Otero 5/	5b	3	108	255	273	---	15.0	15.3	---
Quay		2	107	158	130	174	16.1	8.0	21.0
Rio Arriba	5b	1	109	288	295	---	36.6	37.1	---
Roosevelt		2	107	172	171	172	19.0	17.8	19.5
Sandoval	5b	1	109	243	259	---	33.5	35.5	---
White				226	248	---	28.0	31.2	---
Nonwhite				260	270	---	39.5	40.1	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
New Mexico--Continued									
San Juan	5b	1	109	286	290	273	33.2	31.5	40.0
White				247	262	---	23.3	23.8	---
Nonwhite				321	322	320	44.2	42.3	48.9
San Miguel	5b	2	107	224	239	174	27.7	28.6	22.8
Santa Fe	5b	1	109	212	213	---	19.4	19.3	---
Sierra		3	108	66	69	---	-11.2	-11.1	---
Socorro	5b	3	108	224	255	---	31.4	36.4	---
Taos	5b	1	109	273	271	---	39.8	39.6	---
Torrance	5b	2	107	219	218	---	27.6	27.4	---
Union		2	107	143	---	156	11.8	---	15.3
Valencia	5b	1	109	264	269	227	29.4	29.1	32.1
White				271	287	---	29.9	30.8	---
Nonwhite				243	220	---	27.9	23.4	---
Arizona									
Apache	5b	1	113	301	302	296	38.5	37.5	44.1
White				212	217	---	20.6	21.7	---
Nonwhite				333	339	314	45.4	44.5	49.6
Cochise 5/		2	114	200	206	152	15.2	15.4	11.6
Coconino	5b	1	113	218	193	330	25.7	20.5	48.3
White				108	105	---	2.1	1.3	---
Nonwhite				355	353	360	47.1	45.3	50.9
Gila	5b	1	113	172	171	---	16.2	16.1	---
White				153	153	---	12.3	12.5	---
Nonwhite				254	249	---	30.8	29.8	---
Graham	5b	2	114	294	330	197	43.3	46.8	29.4
Greenlee		2	114	264	295	---	29.0	32.3	---
Maricopa 5/	5b	A	114	186	184	195	14.6	13.5	21.0
White				183	180	193	13.9	12.9	20.3
Nonwhite				230	242	208	23.4	22.7	25.6
Mohave	5b	1	113	105	110	---	1.7	3.1	---
Navajo	5b	1	113	292	274	416	39.2	35.3	68.7
White				209	201	---	25.3	23.5	---
Nonwhite				343	328	410	46.4	42.2	69.5
Pima 5/	5b	B	114	181	179	195	16.6	16.2	20.2
White				175	171	---	15.3	14.6	---
Nonwhite				209	227	---	23.5	26.9	---
Pinal	5b	2	114	194	192	204	17.5	16.7	21.8
White				202	189	288	18.1	16.0	29.9
Nonwhite				170	206	106	15.5	19.6	2.1
Santa Cruz		2	114	192	200	---	20.0	21.7	---
Yavapai		1	113	127	124	---	7.0	6.5	---
Yuma 5/	5b	2	114	177	170	207	11.2	9.5	22.8
White				183	185	172	11.3	10.6	15.9
Nonwhite				150	104	---	10.3	.9	---
Utah									
Beaver	5b	3	113	170	168	---	18.0	17.9	---
Box Elder		1	112	216	209	225	24.3	20.8	30.6
Cache		1	112	203	198	215	25.4	23.4	31.5
Carbon	5b	3	113	212	202	---	26.7	24.9	---
Daggett		3	113	---	---	---	---	---	---
Davis 5/		2	112	267	298	202	24.8	24.2	27.8
Duchesne	5b	3	113	196	159	251	23.3	14.7	35.9
Emery	5b	3	113	183	180	---	21.8	20.0	---
Garfield	5b	3	113	180	180	---	18.3	18.3	---
Grand	5b	3	113	---	---	---	---	---	---
Iron		3	113	195	237	---	22.3	30.0	---
Juab	5b	3	113	172	173	---	21.1	21.6	---
Kane		3	113	202	195	---	23.5	21.7	---
Millard		3	113	192	187	203	26.6	25.0	30.3
Morgan		1	112	194	---	---	21.4	---	---
Piute		3	113	---	---	---	---	---	---
Rich		1	112	---	---	---	---	---	---
Salt Lake		A	112	262	260	271	24.6	23.0	34.9
San Juan	5b	3	113	282	267	---	26.9	24.6	---
Sanpete	5b	1	112	171	163	---	20.5	18.8	---
Sevier		1	112	186	180	---	22.3	20.9	---
Summit	5b	1	112	212	202	---	26.6	24.5	---
Tooele 5/		3	113	207	206	---	16.9	15.5	---
Uintah	5b	3	113	232	276	179	26.4	29.7	20.2
Utah		2	112	247	276	200	31.5	32.9	28.2
Wasatch	5b	1	112	---	---	---	---	---	---
Washington		3	113	215	215	---	29.6	29.8	---

See footnotes at end of table.

Table 13.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Utah--Continued									
Wayne		3	113	209	---	---	29.5	---	---
Weber		B	112	245	258	213	29.2	28.4	32.0
Nevada									
Churchill 5/		1	113	193	248	116	19.6	27.5	4.2
Clark 5/		A	113	159	157	---	8.7	8.2	---
Douglas		1	113	135	150	---	8.0	10.8	---
Elko		1	113	130	127	142	8.0	7.5	9.5
Esmeralda		1	113	---	---	---	---	---	---
Eureka		1	113	---	---	---	---	---	---
Humboldt 5/		1	113	119	148	---	4.2	9.7	---
Lander		1	113	146	---	---	12.3	---	---
Lincoln	5b	1	113	132	136	---	9.9	10.8	---
Lyon		1	113	142	159	---	8.0	10.3	---
Mineral 5/	5b	1	113	188	188	---	17.9	17.8	---
Nye 5/		1	113	79	73	---	-5.1	-6.6	---
Ormsby		1	113	271	270	---	27.3	26.9	---
Pershing		1	113	90	96	---	-2.6	-.9	---
Storey		1	113	---	---	---	---	---	---
Washoe 5/	5b	1	113	161	163	---	10.0	9.9	---
White Pine		1	113	140	143	---	10.3	10.7	---
Washington									
Adams		7	110	155	146	173	12.9	11.9	14.2
Asotin		7	110	179	216	---	20.7	27.5	---
Benton		6	111	200	201	195	19.9	19.2	23.1
Chelan	5a	5	111	151	154	141	12.9	13.2	12.0
Clallam	5b	1	118	129	130	123	7.4	7.4	7.8
Clark		C	119	163	172	140	15.6	16.1	13.7
Columbia		7	110	122	153	---	5.8	11.2	---
Cowlitz		4	119	210	215	178	23.2	23.1	24.6
Douglas	5a	7	110	165	195	108	14.5	18.7	2.5
Ferry	5b	8	109	185	218	---	19.3	22.1	---
Franklin		7	110	295	243	349	31.4	24.4	38.1
Garfield		7	110	184	156	---	21.2	14.4	---
Grant 5/		7	110	208	187	281	15.4	11.8	30.3
Grays Harbor	5a	1	118	154	151	180	13.2	12.4	20.0
Island 5/		2	118	231	255	125	19.3	20.0	9.7
Jefferson	5b	1	118	114	115	---	3.9	4.0	---
King		A	119	174	177	145	15.1	15.2	12.8
White				175	178	145	15.0	15.2	12.6
Nonwhite				154	157	---	18.2	19.1	---
Kitsap		3	119	157	161	105	14.2	14.8	1.9
White				159	161	112	14.4	14.8	4.2
Nonwhite				127	---	---	8.3	---	---
Kittitas	5b	6	111	145	158	115	11.7	13.7	4.9
Klickitat	5b	6	111	142	157	119	10.1	11.5	6.5
Lewis	5a	4	119	168	180	144	18.2	18.8	16.3
Lincoln		7	110	125	118	140	6.2	4.4	10.1
Mason		1	118	133	135	---	9.0	9.3	---
Okanogan	5b	5	111	151	160	132	12.8	14.0	9.4
Pacific	5b	1	118	122	128	---	6.3	7.5	---
Pend Oreille	5b	8	109	139	143	125	10.3	10.8	8.3
Pierce 5/		B	119	199	211	113	13.9	14.4	4.6
White				200	212	115	14.6	15.1	5.1
Nonwhite				185	195	---	7.8	8.2	---
San Juan	5b	2	118	87	67	---	-4.6	-12.5	---
Skagit	5a	2	118	139	136	149	9.2	8.3	12.8
Skamania		4	119	122	108	---	5.5	2.0	---
Snohomish		E	118	182	188	143	16.7	17.2	12.1
Spokane 5/		D	110	213	251	138	19.2	21.1	11.2
Stevens	5b	8	109	160	171	149	15.8	16.6	14.7
Thurston		4	119	167	172	148	15.9	16.1	15.0
Wahkiakum		1	118	132	149	---	8.6	11.9	---
Walla Walla		7	110	148	155	132	12.2	13.2	9.5
Whatcom		2	118	153	139	179	13.3	9.6	21.5
Whitman		7	110	158	148	170	14.0	11.6	17.4
Yakima	5a	6	111	193	213	170	21.4	23.3	18.4
White				196	219	168	21.7	24.0	17.9
Nonwhite				156	136	190	16.5	10.6	25.9
Oregon									
Baker		4	113	145	136	155	10.0	7.6	13.3
Benton		2	119	168	188	112	14.2	16.2	4.0

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Oregon--Continued									
Clackamas	5b	A	119	154	172	115	13.9	16.7	5.2
Clatsop 5/	5b	1	118	122	124	107	5.9	6.2	2.5
Columbia	5b	1	118	155	165	121	14.6	16.2	7.2
Coos		1	118	154	165	100	11.9	13.5	.2
Crook		4	113	195	205	176	20.1	19.9	20.6
Curry		1	118	153	159	---	11.0	11.8	---
Deschutes		4	113	157	178	123	15.4	18.8	7.5
Douglas		1	118	182	188	154	18.1	18.0	18.6
Gilliam 5/		3	110	111	106	---	2.4	1.4	---
Grant		4	113	144	156	---	10.1	12.3	---
Harney		4	113	142	152	---	9.9	12.3	---
Hood River	5b	2	119	146	151	135	11.2	12.2	9.0
Jackson		1	118	122	118	147	6.1	4.9	14.4
Jefferson	5b	4	113	218	210	---	23.9	22.4	---
Josephine	5b	1	118	142	150	114	11.0	12.2	4.9
Klamath 5/		4	113	187	189	180	16.8	16.1	20.0
Lake		4	113	134	157	---	8.4	13.0	---
Lane		B	119	174	185	128	16.4	17.6	8.5
Lincoln	5b	1	118	117	115	---	4.9	4.5	---
Linn	5b	2	119	191	211	151	19.4	20.8	14.7
Malheur		4	113	193	208	183	22.4	24.1	21.2
Marion	5b	2	119	176	193	147	19.2	21.6	14.0
Morrow		3	110	118	120	111	4.5	5.0	3.1
Multnomah		A	119	153	156	137	12.9	13.0	11.7
Polk		2	119	178	201	142	19.1	21.7	13.4
Sherman	5b	3	110	189	---	---	11.1	---	---
Tillamook		1	118	183	174	219	19.2	17.0	27.6
Umatilla		3	110	164	177	129	15.6	18.1	7.8
Union		4	113	144	165	103	11.0	15.4	1.0
Wallowa		4	113	141	146	131	10.3	10.6	9.6
Wasco	5b	3	110	130	151	93	7.5	11.2	-2.1
Washington		A	119	151	160	129	12.5	13.4	9.4
Wheeler		4	113	116	138	---	4.4	9.9	---
Yamhill	5b	2	119	146	170	112	13.0	17.3	4.4
California									
Alameda		A	117	111	106	---	2.4	1.2	---
Alpine		9	113	---	---	---	---	---	---
Amador		9	113	273	288	---	41.5	44.4	---
Butte		4	116	151	157	127	12.6	13.2	9.1
Calaveras		9	113	124	130	---	6.9	8.3	---
Colusa		4	116	137	143	107	10.1	11.9	2.1
Contra Costa		A	117	210	220	112	20.4	21.4	3.9
White				215	225	117	20.9	21.8	5.2
Nonwhite				125	136	---	6.3	8.4	---
Del Norte	5b	1	118	153	156	---	10.8	11.2	---
El Dorado		9	113	117	121	85	4.1	4.8	-5.3
Fresno		E	116	196	216	168	20.5	23.1	16.3
White				202	226	170	21.3	24.3	16.6
Nonwhite				142	132	157	10.9	9.0	13.5
Glenn		4	116	139	165	120	9.0	12.1	5.6
Humboldt		1	118	184	192	119	15.7	16.6	5.6
White				182	190	115	15.3	16.1	4.5
Nonwhite				247	---	---	30.6	---	---
Imperial		8	115	120	113	143	3.9	2.5	12.2
White				127	116	179	5.1	2.8	19.5
Nonwhite				68	90	41	-12.1	-3.2	-27.5
Inyo		9	113	110	108	---	2.7	2.3	---
Kern 5/		J	116	188	184	211	16.9	15.7	25.6
White				19[illegible]	195	220	18.4	17.3	26.8
Nonwhite				80	78	---	-5.0	-5.2	---
Kings		6	116	213	232	181	23.2	25.4	19.0
White				216	239	183	23.5	25.8	19.3
Nonwhite				177	184	---	19.6	21.8	---
Lake		1	118	100	105	77	.2	1.8	-8.7
Lassen	5b	9	113	134	139	---	8.0	8.7	---
Los Angeles		F	115	148	154	86	10.4	11.3	-4.5
White				148	155	83	10.6	11.6	-5.6
Nonwhite				146	143	---	7.9	7.3	---
Madera		6	116	187	202	170	20.7	22.3	18.6
White				194	210	177	21.6	22.7	20.3
Nonwhite				139	---	---	12.0	---	---
Marin 5/		A	117	192	198	156	16.0	16.2	14.2
Mariposa		9	113	92	99	---	-2.0	-.1	---

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
California—Continued									
Mendocino	5a	1	118	136	139	116	8.6	9.0	5.5
White				137	140	115	8.8	9.2	5.3
Nonwhite				122	—	—	5.9	—	—
Merced 5/		5	116	203	227	160	18.7	20.3	14.5
White				210	241	160	19.8	21.9	14.5
Nonwhite				138	134	—	8.2	6.9	—
Modoc		9	113	134	111	165	8.1	2.6	16.5
Mono		9	113	108	100	—	1.4	0	—
Monterey 5/		3	117	326	367	107	26.8	28.5	2.2
White				359	400	122	29.1	30.6	5.9
Nonwhite				145	170	46	7.5	10.2	-21.8
Napa		2	117	96	96	97	-1.0	-1.0	-1.0
Nevada		9	113	129	124	—	8.0	6.6	—
Orange 5/		F	1[illegible]	212	228	131	18.4	19.4	8.6
Placer		9	113	110	113	96	2.7	3.4	-1.1
White				109	113	81	2.3	3.4	-6.0
Nonwhite				130	—	—	9.8	—	—
Plumas	5b	9	113	127	129	—	6.6	7.0	—
Riverside 5/	5b	H	115	138	142	110	7.9	8.4	3.1
White				144	149	108	9.0	9.6	2.6
Nonwhite				90	86	—	-2.1	-2.9	—
Sacramento 5/		C	116	182	183	174	12.9	12.3	18.9
White				196	199	180	14.7	14.1	20.4
Nonwhite				82	71	—	-3.8	-5.8	—
San Benito	5b	3	117	166	169	159	16.8	17.6	14.9
San Bernardino 5/	5b	H	115	157	161	103	11.0	11.5	1.3
White				156	161	101	11.1	11.7	.4
Nonwhite				164	161	—	9.6	9.1	—
San Diego 5/		G	115	338	391	97	33.7	36.5	-1.1
White				339	392	98	34.3	37.1	-.7
Nonwhite				306	372	—	25.1	27.5	—
San Francisco		A	117	No rural population					
San Joaquin		D	116	157	170	128	13.0	14.6	8.2
White				174	199	130	15.9	18.4	8.8
Nonwhite				71	63	106	-10.3	-13.4	2.1
San Luis Obispo		3	117	136	142	106	9.3	10.6	1.8
White				136	141	109	9.1	10.2	2.4
Nonwhite				152	176	—	12.9	17.0	—
San Mateo		A	117	110	113	90	2.7	3.3	-4.0
Santa Barbara 5/		K	115	197	214	111	14.8	15.9	3.5
White				203	219	119	15.7	16.7	5.6
Nonwhite				114	135	—	2.2	5.0	—
Santa Clara		B	117	190	224	135	19.2	22.7	10.3
White				201	233	144	20.8	23.8	12.5
Nonwhite				109	125	98	2.7	6.6	-.6
Santa Cruz		3	117	115	120	84	4.6	5.8	-6.1
White				118	123	83	5.2	6.4	-6.6
Nonwhite				84	81	—	-6.6	-7.9	—
Shasta		9	113	167	172	119	14.6	15.5	5.3
Sierra	5b	9	113	106	102	—	1.9	.7	—
Siskiyou	5b	9	113	118	126	81	4.6	6.2	-6.1
Solano 5/		A	117	197	220	138	11.3	11.3	10.9
White				204	226	145	12.2	12.2	12.6
Nonwhite				139	—	—	4.2	—	—
Sonoma		2	117	144	158	99	11.3	13.8	-.3
White				142	156	97	11.0	13.5	-.8
Nonwhite				214	—	—	25.0	—	—
Stanislaus	5a	5	116	165	178	140	15.3	16.9	11.3
Sutter		4	116	156	170	135	12.5	14.0	9.8
Tehama		4	116	143	150	129	10.9	11.6	9.0
Trinity	5b	9	113	127	133	—	5.9	7.1	—
Tulare		6	116	180	188	162	19.2	20.2	16.4
White				195	210	164	21.4	23.2	16.7
Nonwhite				69	54	140	-12.9	-20.9	11.9
Tuolumne		9	113	122	122	—	5.9	5.9	—
Ventura 5/		7	115	168	177	115	12.0	12.7	4.6
White				171	181	115	12.4	13.2	4.6
Nonwhite				102	100	—	.5	.1	—
Yolo		4	116	146	167	93	10.8	14.4	-2.0
White				162	190	96	13.7	17.7	-1.1
Nonwhite				45	39	—	-21.7	-25.0	—
Yuba 5/		4	116	227	282	112	21.1	24.7	3.7
Alaska 6/									

See footnotes at end of table.

Table 13.—Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties, 1960-70 -Continued

(Ratios and rates not shown for county residence and color groups with fewer than 100 departures)

State and county	ARA status 1/	State economic area number 2/	Economic subregion number 2/	Replacement ratios 3/			Replacement rates 4/		
				Rural	Rural nonfarm	Rural farm	Rural	Rural nonfarm	Rural farm
Hawaii									
Hawaii	5b	1	121	121	111	178	6.4	3.6	22.4
White				170	163	---	13.9	12.7	---
Nonwhite				115	105	173	4.9	1.6	22.1
Honolulu 5/		A	121	375	387	183	27.2	27.3	21.6
White				845	870	---	31.2	31.4	---
Nonwhite				201	201	203	20.2	19.9	25.2
Kalawao and Maui		1	121	122	114	232	6.5	4.4	35.7
White				146	154	---	10.7	12.2	---
Nonwhite				118	108	---	5.6	2.7	---
Kauai		1	121	119	115	---	5.5	4.6	---
White				183	179	---	15.1	14.7	---
Nonwhite				110	107	---	3.3	2.3	---

1/ Designation of counties eligible for Federal assistance under Sections 5a and 5b of the Area Redevelopment Act as of February 1963. Section 5a counties are typically large labor market areas and were designated only on the basis of high unemployment rates. Section 5b counties are typically rural and small town areas and were designated on the basis of the incidence of low income, low farm income, low production farms, unemployment, previous status as "rural development counties", or status as Indian Reservations.

2/ According to the 1960 classification of the Bureau of the Census.

3/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

4/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

5/ Counties in which members of the armed forces constituted 10 percent or more of the total male labor force.

6/ Replacement ratios and rates were not computed for the election districts of Alaska.

Table 14.--Rural, rural-nonfarm, and rural-farm Spanish-surname and other white males, 20-64: Number in working-age group in 1960, entrants and departures, and replacement ratios and rates, 1960-70, for five Southwestern States

(Figures rounded to thousands without adjusting to group totals)

Residence and State	Spanish surname					Anglo				
	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Replacement ratios 3/	Replacement rates 4/	Males 20-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Replacement ratios 3/	Replacement rates 4/
	Thou.	Thou.	Thou.			Thou.	Thou.	Thou.		
RURAL	183.2	82.2	29.2	282	28.9	1182.7	422.2	268.7	157	13.0
Arizona	15.8	5.1	1.7	302	21.4	54.1	18.3	11.2	164	13.1
California	64.7	21.7	9.7	224	18.5	505.3	181.5	105.7	172	15.0
Colorado	9.9	6.3	1.9	328	43.9	104.4	38.7	23.0	168	15.0
New Mexico	24.3	13.6	4.5	301	37.3	44.4	15.6	8.1	193	16.9
Texas	68.3	35.5	11.3	313	35.4	474.4	168.2	120.8	139	10.0
RURAL NONFARM 5/	145.0	63.4	22.2	286	28.4	917.1	323.9	188.8	172	14.7
Arizona	14.3	4.4	1.5	284	19.9	47.7	15.6	9.6	163	12.6
California	54.0	17.2	7.5	230	17.9	433.0	154.5	84.5	183	16.2
Colorado	7.9	5.1	1.5	340	45.6	73.7	26.3	15.3	172	15.0
New Mexico	20.7	11.8	3.8	308	38.4	35.4	12.1	5.8	209	17.8
Texas	48.0	24.9	7.8	318	35.6	327.2	115.4	73.7	157	12.8
RURAL FARM	38.2	18.8	7.0	269	31.0	265.6	98.4	79.8	123	7.0
Arizona	1.5	.7	.1	484	35.1	6.4	2.6	1.6	168	16.6
California	10.7	4.5	2.2	204	21.6	72.3	27.0	21.1	128	8.2
Colorado	2.0	1.2	.4	286	37.1	30.7	12.4	7.7	160	15.2
New Mexico	3.6	1.8	.7	258	31.0	9.0	3.5	2.3	153	13.4
Texas	20.3	10.6	3.5	302	34.9	147.2	52.8	47.1	112	3.9

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade.
2/ Persons who will leave the working-age group through death or reaching retirement age.
3/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.
4/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.
5/ Rural nonfarm adjusted to include farm group quarters (bunkhouses, etc.)

Table 15.--Rural-farm males, 20-64: Replacement ratios and rates, 1960-70, by color, for counties grouped by median income 1/

(Ratios and rates not shown for classes with fewer than 100 departures)

Median 1959 rural-farm family and unrelated individual income classification	Replacement ratios 2/			Replacement rates 3/		
	Total	White	Nonwhite	Total	White	Nonwhite
Total	160	150	266	16.6	13.9	45.4
Under $1,000	242	168	265	42.3	19.5	49.7
1,000 - 1,999	199	161	293	27.5	17.2	51.7
2,000 - 2,999	154	148	242	15.4	13.6	39.4
3,000 - 3,999	149	148	195	13.5	13.3	26.9
4,000 - 4,999	149	149	157	13.5	13.5	16.3
5,000 - 5,999	141	140	146	11.4	11.3	13.6
6,000 and over	144	145	---	11.1	11.2	---

1/ Income of families and unrelated individuals from the 1960 Census of Population; excludes Alaska and Hawaii.

2/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

3/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

Table 16.--Rural, rural-nonfarm, and rural-farm males, 20-64: Replacement ratios and rates, by color, for counties grouped by ARA designation, for the United States, regions, and divisions, 1960-70 1/

Area	Rural			Rural nonfarm			Rural farm		
	ARA eligible 5(a) counties	ARA eligible 5(b) counties	Noneligible counties	ARA eligible 5(a) counties	ARA eligible 5(b) counties	Noneligible counties	ARA eligible 5(a) counties	ARA eligible 5(b) counties	Noneligible counties
REPLACEMENT RATIOS 2/									
United States	179	184	174	185	189	183	155	174	156
White	178	169	170	185	178	179	151	152	150
Nonwhite	202	261	224	191	249	215	247	280	252
Northeast	162	153	157	163	153	158	149	152	153
North Central	163	152	157	174	155	165	133	147	147
South	220	200	195	233	209	207	179	186	168
White	219	178	186	234	194	202	169	153	151
Nonwhite	232	266	240	220	255	231	269	283	266
West	164	181	180	171	186	188	148	165	154
New England	165	161	161	168	161	162	121	158	149
Middle Atlantic	160	149	156	161	149	156	157	150	154
East North Central	165	155	167	177	158	175	133	149	150
West North Central	151	147	147	160	150	148	129	144	145
South Atlantic	212	235	208	222	246	214	188	214	189
White	213	205	196	221	227	207	170	163	161
Nonwhite	248	318	253	234	304	239	292	338	296
East South Central	230	200	199	259	210	217	168	190	168
White	233	179	193	262	197	216	170	160	157
Nonwhite	171	255	229	191	244	223	103	267	241
West South Central	192	163	172	186	170	187	204	149	144
White	172	150	165	177	159	182	161	134	137
Nonwhite	239	215	213	208	211	215	318	225	207
Mountain	166	202	187	175	203	194	130	197	174
Pacific	164	161	177	170	169	186	149	128	141
REPLACEMENT RATES 3/									
United States	17.3	20.0	16.2	17.6	19.5	16.5	15.5	21.2	15.2
White	17.0	16.2	15.2	17.4	16.7	15.7	14.3	14.8	13.6
Nonwhite	26.0	40.4	28.1	22.9	35.4	25.0	39.6	50.3	40.3
Northeast	13.1	12.4	12.3	13.1	12.1	12.1	13.3	14.6	14.1
North Central	14.6	13.3	13.4	15.9	13.2	13.7	9.9	13.3	13.0
South	25.6	24.2	20.0	26.5	23.9	20.3	21.6	24.9	18.9
White	24.9	18.4	17.7	26.2	19.9	18.7	19.0	15.5	14.3
Nonwhite	33.5	43.2	32.2	30.1	38.1	28.8	43.8	51.6	43.5
West	15.1	16.9	16.3	15.6	16.8	16.8	13.6	17.4	14.4
New England	12.9	13.5	13.4	13.3	13.2	13.3	6.2	16.1	13.6
Middle Atlantic	13.2	11.8	12.0	13.0	11.4	11.7	15.0	14.0	14.2
East North Central	14.9	13.6	14.7	16.2	13.3	15.1	10.0	14.1	13.7
West North Central	13.1	12.7	11.7	14.2	12.9	11.2	9.4	12.4	12.4
South Atlantic	23.7	28.6	21.0	24.9	28.0	20.5	23.6	30.3	23.3
White	23.5	21.9	18.3	24.2	23.6	18.7	19.0	17.4	16.5
Nonwhite	37.0	48.6	32.7	33.6	42.9	28.7	47.0	59.1	46.7
East South Central	27.0	24.8	21.3	29.5	24.1	22.2	18.9	25.8	19.1
White	27.4	18.8	19.6	29.9	20.1	21.1	19.3	17.0	15.8
Nonwhite	17.3	42.9	33.2	20.1	37.0	29.7	1.1	49.8	41.6
West South Central	23.3	17.4	16.9	21.3	18.0	18.5	28.4	15.9	12.7
White	17.8	13.5	15.1	18.0	14.7	16.9	17.4	10.9	10.8
Nonwhite	38.1	33.9	29.8	31.0	31.7	28.9	53.7	39.8	33.5
Mountain	14.1	20.9	17.9	14.9	20.4	17.9	9.0	23.1	17.8
Pacific	15.2	12.8	15.7	15.6	13.5	16.4	13.9	8.7	11.6

1/ Counties grouped by ARA eligibility criteria, Area Redevelopment Act, Sections 5a and 5b designations as of February 1963; includes Alaska and Hawaii. 2/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade. 3/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

APPENDIX A

METHOD OF DEVELOPING REPLACEMENT RATIOS AND RATES [7]

Male replacement ratios or rates for a specified period rest on three numbers: (1) The number of males in the working-age group at the beginning of the period, (2) the number of "entrants", or the number of young men in the population who can be expected to reach working age and survive to the end of the period, and (3) the number of "departures", or men in the working-age group who can be expected to die or reach retirement age during the period. If the number of persons at each age is known, the approximate number of persons who can be expected to die during a decade and the number who can be expected to survive to the end of a decade can be computed by applying appropriate survival or death ratios. In computing replacement measures of the type presented in this report, migration to or from a population is not taken into account, as the intent is to approximate potential replacement of a population group, as constituted at the beginning of a period.

When the numbers of entrants and departures have been estimated, the replacement measures are obtained by relating the two groups to each other and to the population in the working age. The replacement ratio is the ratio of the expected number of entrants into the specified working-age group during the decade to the expected number of departures resulting from death or from reaching retirement age during that decade. The replacement rate is the number of entrants minus the number of departures as a percentage of the number in the specified working age at the beginning of the decade.

In each case, the number of entrants is the number of persons who reach the beginning age of the working-age group at some time during the decade and survive to the end of the decade. For working age 20-64, for example, the entrants are the males who were 10-19 years of age at the beginning of the decade and who are expected to survive to ages 20-29 at the end of the decade. The departures are the persons leaving the working age through death or reaching retirement age. For this working-age group, the departures include the number of males 20-54 years old at the beginning of the decade who are expected to die during the decade plus the number of males 55-64 at the beginning of the decade. All of this latter group will either die or are assumed to retire on reaching their 65th birthday. The fact that some persons do not cease active participation in gainful employment on reaching retirement age is not taken into account, nor is the fact that some persons of working age do not engage in any gainful activity.

[7] Adapted in part from (2).

BASIC POPULATION DATA

[Refer to tables 17, 18, and 19.]

Rural Males, 1960-70 Decade.-- The population data utilized in the computation of the numbers of entrants and departures from the specified working-age groups and the related ratios and rates came from the UNIVAC tapes basic to 1960 Census of Population, General Social and Economic Characteristics (7). These data are from a 25 percent sample. The tapes provided the necessary information on the age, sex, and color composition of the population of counties for the residence classifications, rural-nonfarm and rural-farm.

Use of the tapes made available certain information not published in Census volumes, such as age and color of farm and rural-nonfarm males for all counties, without regard to population size. Thus, it was possible to compute the replacement measures for all counties, and for larger areas which could be summed from appropriate county data.

Data on age by sex and color for the total rural and rural-nonfarm population based on the 25 percent sample have not been published by the Bureau of the Census for counties. Consequently, the rural-nonfarm figures used for this report may differ from those which can be derived from Census publications by subtracting the farm figures,

which are based on the 25 percent sample, from rural figures, which are based on complete counts. The county rural-nonfarm data from the tapes did, however, sum to the total rural-nonfarm figures published for each State. Data for replacement measures for the total rural population for each county were derived by summation from the farm and rural-nonfarm computations. Similar data for other areas were obtained by summation of county estimates of entrants and departures.

In computing replacement measures for the farm population of Spanish surname it was necessary to estimate and subtract the farm Spanish-surname population living in group-quarters (bunkhouses, etc.) in order to render the Spanish-surname data comparable to the data from which the nonwhite and total white measures were computed. Farm persons in group-quarters had been inadvertently excluded from the farm population on the Census tape records used in computation of the replacement measures for this report. Group-quarters persons had been properly included in the data for the farm Spanish-surname population. Only the replacement measures for Arizona and California were significantly affected by this adjustment, since those States were the only ones with large numbers of Spanish-surname farm males in group-quarters.[8]

Rural Males, 1950-60 Decade.--The population data utilized in the computation of the number of entrants and departures from the working-age group 20-64 for the rural-nonfarm, and farm residence groups in the nine geographic divisions came from the U.S. Census of Population, Characteristics of the Population, 1950 (6). Data for replacement measures for the total rural population and for the regions and the United States were obtained by summation from the farm and rural-nonfarm computations for divisions.

Influence of Numbers of Entrants and Departures on Replacement Measures.--A great part of the difference in replacement ratios and rates for the two decades results from differences in the numbers of entrants. Table 17 contains the numbers of entrants into the working-age groups from each of three age cohorts at the beginning of the period for rural males.

Differences in the number of entrants are in part explained by the varying birth rates during the periods in which these cohorts of young men were born. Birth rates are not available for the rural population, but the crude birth rates for the total populations (table 18) indicate differences in numbers of entrants in the age groups that might be expected. The cohort aged 10-14 in 1950 might be expected to be smaller than that in 1960, as the average birth rate for the period corresponding to their birth year was smaller. On the other hand, the cohort aged 20-24 would be expected to be larger at the earlier census, since birth rates were higher at the time the persons in the earlier cohort were born. The difference between the number of entrants in the group aged 15-19 in the two decades is not large, even though there was a rather large difference in birth rates during the two periods when they were born. The fact that the two groups are not different is probably largely the result of differential migration.

Changes in the departures from the working age and the size of the working-age group itself also affect the level of the replacement ratio and rate. Changes in numbers of departures between the two decades are not as easily accounted for as changes in entrants, but are largely due to long-range effects of outmigration on the age distribution, rather than changes in mortality. In every case, except for white males in the South, the numbers of departures from the working ages were smaller in the latter decade or just about the same in the two decades (table 19). Thus, the overall rise in replacement ratios is a result of increased numbers of entrants and decreased numbers of departures. For the age group 20-64 in the United States as a whole, the entrants were 8 percent higher and the departures were 3 percent lower in 1960-70 than they were in 1950-60. This relative increase of entrants and decrease of departures shows up in all regions except in the South. There, although the number of white entrants increased, the number of departures also increased, accounting for the drop in the replacement ratio for the white rural males of the South from 192 to 187.

The effects of migration on the potential replacement of rural males may be inferred through comparison of the numbers of entrants from the age groups 10-14, 15-19, and 20-24 in a specified decade, and are even more apparent from the numbers of entrants in the same age cohort, those 10-14 in 1950-60 and 20-24 in 1960-70. The latter group decreased about 38 percent

[8] About 76 percent of all rural-farm white persons in group-quarters in the United States were persons of Spanish surname in the 5 Southwestern States.

Table 17.--Rural males: Entrants into working-age groups during 1960-70 and 1950-60, by color and age at the beginning of the decade, for conterminous United States and regions 1/

(Figures rounded to thousands without adjusting to group totals)

Area and color	Entrants, 1960-70 by age at beginning of decade			Entrants, 1950-60 by age at beginning of decade		
	10-14 years	15-19 years	20-24 years	10-14 years	15-19 years	20-24 years
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
TOTAL						
United States	2,908	2,365	1,590	2,571	2,319	1,927
Northeast	444	333	221	325	300	280
North Central	844	651	415	708	623	517
South	1,301	1,108	740	1,274	1,140	898
West	320	273	213	265	256	232
WHITE						
United States	2,554	2,074	1,409	2,216	2,017	1,700
Northeast	436	325	214	318	293	272
North Central	832	639	404	696	613	507
South	983	854	595	950	870	704
West	302	256	196	251	242	217
NONWHITE						
United States	354	291	180	356	302	227
Northeast	7	8	7	7	8	8
North Central	12	12	11	11	10	11
South	317	254	146	323	270	193
West	18	17	17	14	14	15

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade.

Table 18.--United States (birth registration area): Average birth rates by color, for time periods roughly corresponding to the birth dates of males in specified age cohorts

Age cohort	Approximate year of birth	Average birth rate 1/ (per 1,000 population)		
		Total	White	Nonwhite
10-14 in 1960	1945-49	24.1	23.4	30.3
15-19 in 1960	1940-44	21.2	20.4	27.5
20-24 in 1960) 10-14 in 1950)	1935-39	18.8	18.0	25.9
15-19 in 1950	1930-34	19.7	18.9	26.6
20-24 in 1950	1925-29	23.2	22.4	30.9

1/ Simple averages of the birth rates for specified years.

Based on data from U.S. Department of Health, Education, and Welfare, National Vital Statistics Division, Vital Statistics of the United States, 1959 (10)

Table 19.--Rural males: Departures from specified working-age groups during 1960-70 and 1950-60, by color and age at the beginning of the decade, for conterminous United States and regions 1/

(Figures rounded to thousands without adjusting to group totals)

Area and color	1960-70					1950-60				
	Total departures for working age		Deaths and retirement			Total departures for working age		Deaths and retirement		
			Deaths for ages		Retirement persons, 55-64 years			Deaths for ages		Retirement persons, 55-64 years
	20-64 years	25-64 years	20-24 years	25-54 years		20-64 years	25-64 years	20-24 years	25-54 years	
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
TOTAL										
United States	2,983	2,957	26	675	2,282	3,073	3,040	33	727	2,313
Northeast	491	487	3	112	375	495	490	4	110	381
North Central	950	944	6	198	746	1,012	1,004	8	212	792
South	1,208	1,195	13	287	908	1,206	1,189	17	322	867
West	334	330	3	77	253	361	357	4	83	274
WHITE										
United States	2,714	2,693	21	592	2,100	2,775	2,750	25	617	2,133
Northeast	481	478	3	109	369	485	481	4	106	375
North Central	936	930	6	194	737	998	990	7	207	783
South	981	972	9	218	754	948	938	10	227	711
West	315	313	3	71	241	344	341	3	76	264
NONWHITE										
United States	269	264	5	83	181	298	290	8	110	180
Northeast	9	9	2/	3	6	9	9	2/	3	5
North Central	14	14	2/	4	10	14	14	2/	5	9
South	228	224	4	69	154	258	251	7	95	156
West	18	18	1	6	12	17	16	1	7	10

1/ Persons who will leave the working-age group through death or reaching retirement age.
2/ Less than 500.

between the two decades. Reclassification of areas from rural to urban tends to obscure the effects of migration somewhat, but the decrease in numbers of entrants within the cohort was too large to be accounted for by either residence reclassification, mortality, or under-enumeration. The extent of reclassification of population by residence class cannot be determined exactly, but probably about 100,000 rural males aged 10-14 in 1950 lived in territory that was reclassified as urban in 1960. This would mean that, even if some allowance is made for mortality, nearly 900,000 young men from the 1950 age cohort 10-14 had migrated from the rural population between 1950 and 1960.

As a result of outmigration, which is most frequent between ages 18 and 25, replacement ratios for the 25-64 working-age group are lower than those for persons 20-64, which in turn are lower than the replacement ratios for the working-age group 18-64. For the 1960-70 decade the replacement ratios for rural males were 134, 177, and 189, respectively, for the three working-age groups. The decline of the ratios with age is indicative of a tendency among young rural males to move to urban areas or at least to go into nonagricultural work. By the time they reach age 25, most rural males will probably have taken whatever job opportunities are available to them, and any who have not found opportunities as rural residents will have sought work elsewhere.

Rural-Farm Males, 1950-60 and 1940-50 Decades. -- The number of farm males by 5-year age groups used in the computation of replacement ratios and rates for 1950-60 are from: Bureau of the Census, U.S. Census of Population: 1950, Characteristics of the Population. Parts 1-50, tables 49 and 49a (6).

Data for 1940-50 are from Sixteenth Census of the United States, 1940, Characteristics of the Population, Parts 1-7, tables 7, 27, and 27a (5).

Comparability of Rural-Farm Population Data for 1940, 1950, and 1960. --(Refer to tables 20 and 21.) Because of changes in definition and census procedures there are some differences in the farm population as enumerated by the Bureau of the Census in 1940, 1950, and 1960. In 1940 and 1950, persons were classified in the farm population if they lived in rural areas and answered "yes" to the question: "Is this house on a farm (or ranch)?", except that in 1950 persons who paid cash rent for house and yard only were excluded. Replacement measures for the 1950-60 decade are thought to be only slightly affected, if at all, by the exclusion of persons living in places for which they paid cash rent, and thus 1940-50 and 1950-60 ratios and rates would seem to be directly comparable.

In 1960, persons were classified as living on a farm in accordance with answers given to questions about acreage and value of products sold; persons paying cash rent for house and yard only were again excluded. As has been reported in other publications, the 1960 Census count of rural-farm population appears to have been lower than might have been expected. The current Population Survey of April 1960 indicated that there were about 15,669,000 persons living on farms, while only 13,475,000 rural-farm persons were enumerated in the 1960 Census of Population.

Current Population Survey data for March 1960 on the farm population reveals that the effect of the change in definition appears to have been to raise replacement ratios and rates somewhat for nonwhites over what might have been expected had the previous definitions and procedures been continued. Measures for the white farm population do not appear to have been affected by the changes, at least at the U.S. level. Within the four major regions, there have been differential effects due to definition change.

Table 20 indicates that replacement ratios for nonwhites are about 13 percent higher under the new definition than under the old, utilizing Current Population Survey data. A greater difference, 27 percent, is shown between ratios for the nonwhites, using new definition data from the 1960 Census of Population and data for March 1960 from the Current Population Survey. This is due to differences in enumeration procedures and in sampling variability in the Census and the Current Population Survey. The 1960 Census of Population classified a large number of nonwhite persons as living off farm whose reported occupation was farm operator, while on the other hand the Current Population Survey had larger sampling variability due to the small size of the sample and the relative geographic concentration of the nonwhite farm population.

As the detailed age data show (table 21), the difference in the ratios for nonwhites is due to a larger under-count of young people in the 1960 Census of Population,

Table 20.--Rural-farm males, 20-64: Comparison of entrants and departures during 1960-70, computed from 1960 Census of Population and March 1960 Current Population Survey, (old and new definitions of farm population), by color and age

Age	Rural-farm male population, 1960						Entrants 1/ and departures 2/ 1960-70					
	White			Nonwhite			White			Nonwhite		
	Current Population Survey			Current Population Survey			Current Population Survey			Current Population Survey		
	New definition	Old definition	Census	New definition	Old definition	Census	New definition	Old definition	Census	New definition	Old definition	Census
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
Total	6,899	8,598	6,153	1,391	1,681	803						
0-4	583	745	562	225	271	119						
5-9	741	918	643	211	272	119						
10-14	762	935	690	226	266	120	753	924	682	222	262	119
15-19	688	849	593	154	191	97	677	836	584	150	186	95
20-24	345	442	269	92	84	45	5	7	4	3	3	1
25-29	325	398	239	72	76	28	6	7	4	3	3	1
30-34	306	397	288	23	25	27	9	11	8	1	2	2
35-39	391	477	347	47	56	30	17	21	14	4	5	2
40-44	437	552	387	61	85	34	30	38	24	8	10	4
45-49	468	585	433	87	97	38	52	65	46	15	17	6
50-54	422	496	401	47	62	35	71	84	65	12	15	8
55-59	383	480	366	39	55	33	383	480	366	39	55	33
60-64	376	457	311	25	40	24	376	457	311	25	40	24
65 and over	672	867	625	82	101	53						

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade.
2/ Persons who will leave the working-age group through death or reaching retirement age.

Table 21.--Rural-farm males, 20-64: Comparison of replacement ratios and rates, 1960-70, computed from 1960 Census of Population and March 1960 Current Population Survey, (old and new definitions of farm population), by region and color

Area and color	Replacement ratios, 1960-70 1/			Replacement rates, 1960-70 2/		
	Current Population Survey		Census	Current Population Survey		Census
	New definition	Old definition		New definition	Old definition	
United States	170	167	160	18.8	18.3	16.6
White	151	150	150	13.9	13.8	13.9
Nonwhite	338	299	266	53.1	51.4	45.4
Northeast	113	106	152	4.1	1.9	13.9
North Central	155	153	146	14.5	14.1	12.8
South	205	202	176	27.9	27.4	21.3
White	162	170	153	17.3	19.0	15.1
Nonwhite	350	303	274	58.2	54.5	47.6
West	141	133	156	11.0	8.8	14.9

1/ The replacement ratio is the expected number of entrants into the age group 20-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.

2/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 20-64 years at the beginning of the decade, on the assumption of no migration during the decade.

compared with the Current Population Survey. As a result, the nonwhite entrants to working-age group 20-64 as computed from the Census data, are only 58 percent of those computed from Current Population Survey data, whereas the departures are 74 percent.

In spite of the problems described above, the ratios for nonwhites for the 1960-70 decade, computed from the 1960 Census of Population data, can be used to analyze the trends between the 1950-60 and 1960-70 decades. The direction of the difference in potential replacement is the same; whichever set of data were used, nonwhite ratios were higher in the 1960-70 decade than those in the earlier decade. However, the amount of difference between 1950-60 and 1960-70 is probably understated to some extent when ratios for 1960-70 decade based on 1960 Census of Population data are used.

As indicated in table 20, replacement measures for the total white farm population are also affected somewhat by procedural changes in classifying the farm population. At the U.S. level only slight differences are shown. This is partly fortuitous, because differences do appear in replacement measures in some of the regions using the Current Population Survey old and new definition data and the 1960 Census of Population new definition data. In regions outside the South, where the total population includes a larger proportion of nonwhites, the greatest differences appear in regions

where the farm population is relatively small.

SURVIVAL RATIOS FOR REPLACEMENT MEASURES

[Refer to table 22.]

1960-70 Decade.--Survival and mortality ratios used in computing the numbers of entrants and departures for all areas and residence categories for which replacement measures are presented in this report are based on an extrapolation to 1965 of male survival trends from 1949-51 to 1959. Separate ratios were developed for white and nonwhite males.

Survival ratios were computed for males by color for the age groups 10-14, 15-19, and 20-24. For the age groups 20-24 through 50-54, the complements of survival ratios--i.e., mortality ratios--were developed. For the working-age group 20-64, survival ratios for age groups 10-14 and 15-19 were utilized to compute entrants, and death ratios for ages 20-54 were utilized to compute deaths expected to occur during the decade. For the working-age group 25-64, survival ratios for ages 15-19 and 20-24 were applied to numbers of persons in these ages, as were death ratios to the ages 25-54.

Basic computations were made at the county level. For other areas, numbers of entrants and departures were obtained by summing entrants and departures for constituent counties.

Survival ratios for the total white population were used in computing replacement measures for white persons of Spanish surname, and other white persons in the five Southwestern States. It was realized that such ratios are not strictly applicable to the Spanish-surname population, because it is likely that persons of Spanish surname

Table 22.--Males, 20-64: Survival and death ratios, midpoint of 1960-70 decade, for age-color groups

Age			Male survival ratios		Male death ratios	
			White	Nonwhite	White	Nonwhite
At beginning of period		At end of period				
10-14	to	20-24	.988774	.986838	.011226	.013162
15-19	to	25-29	.985395	.979433	.014605	.020567
20-24	to	30-34	.985345	.970747	.014655	.029253
25-29	to	35-39	.983389	.959433	.016611	.040567
30-34	to	40-44	.973154	.943033	.026846	.056967
35-39	to	45-49	.960794	.920429	.039206	.079571
40-44	to	50-54	.936826	.890829	.063174	.109171
45-49	to	55-59	.893262	.843872	.106738	.156128
50-54	to	60-64	.837818	.774839	.162182	.225161

Survival and death ratios were based on an extrapolation to 1965 of male survival trends from 1949-51 to 1959. Life table data utilized were from U.S. Department of Health, Education, and Welfare, National Vital Statistics Division, Vital Statistics of the United States, 1959 (10) and National Office of Vital Statistics, Vital Statistics - Special Reports, United States Life Tables, 1949-51 (11).

in most areas are, in general, subject to somewhat higher mortality than the general white population. Adequate survival ratios for the Spanish-surname population, however, are not available, nor are complementary survival ratios available for the residual Anglo population.

1950-60 Decade[9].--Survival ratios employed in computing replacement measures for all areas for 1950-60 are based on data in Vital Statistics Special Report, National Summaries, Abridged Life Tables, United States, 1950 (12). Survival ratios for white and nonwhite males by 5-year age groups were developed on high-medium- and low-mortality assumptions and adjusted to the midpoint of the decade. Survival ratios based on the medium assumptions were used throughout the computations for the replacement measures.

White and nonwhite ratios for the United States were used for all areas in the South. Outside the South, one survival ratio was used for each 5-year age group. The survival ratio for each age group was obtained by weighting the ratios for the whites and nonwhites by the percentage each color group comprised of the rural-farm population in that age group outside the South. Mortality ratios related to specific age groups were complements of the survival ratios for those ages.[10] [11]

1940-50 Decade.--The survival ratios used in computing the replacement ratios for 1940-50 were computed from data in the Vital Statistics Special Report, United States Abridged Life Tables, 1930-1939 (Preliminary) by Geographic Divisions, Color, and Sex (13). Ten-year survival ratios for the age groups 10-14, 15-19, 20-24, 25-54, and 55-59 were computed from the stationary population for each geographic division. To obtain the survivors during the decade 1940-50 in each age group, ratios for the division were used for each State in that division. For States in divisions outside the South, survival ratios for white males were applied to total farm males. In the South, survival ratios for white and nonwhite males were applied separately to white and nonwhite farm males.

COMPUTATION OF REPLACEMENT RATIOS AND RATES

[Refer to table 23.]

In computing numbers of entrants and departures during 1960-70 for the working-age group 20-64, the following steps were taken:

1. Estimates of expected number of entrants.--Ten - year survival ratios were applied to the farm and rural-nonfarm males aged 10-14 and 15-19 in 1960, to obtain an estimate of the number who would survive to 1970 and thus be in the working ages 20-29 in 1970. The sum of the survivors in these two age groups are the entrants.

2. Estimates of expected number of departures.--Ten-year death ratios (complements of survival ratios) were applied to the 1960 farm and rural-nonfarm male population aged 20-54 by 5-year age groups to obtain estimates of the number of males expected to die within the decade 1960-70. The sum of the deaths in these age groups is added to the number of farm and rural-nonfarm males aged 55-64 in 1960. All of the latter group would leave the working-age group between 1960 and 1970, either through death or through reaching retirement age. The sum of the number of expected deaths and the population aged 55-64 in 1960 is the total departures.

3. The entrants and departures for farm males and rural-nonfarm males were summed to obtain corresponding figures for the total rural population. Basic computations were made for counties, and the number of entrants and departures for constituent counties were summed to obtain figures for larger areas.

4. Replacement ratio.--The ratio of entrants to departures yields the replacement ratio.

5. Replacement rate.--The expected net change in number of males in selected working ages during the decade expressed as a percentage of the working-age population at the beginning of the period is the replacement rate. For example, the net change in the number of persons in the

[9] Discussions of some of the problems in selection and use of survival ratios used for the replacement measures computations are included in Lee, Everett S. and Bowles, Gladys K., "Selection and Use of Survival Ratios in Population Studies" (3).

[10] The survival ratios for the 1950-60 project were developed under the direction of Helen R. White.

[11] An indication of differences among selected States in replacement ratios obtained in using survival ratios with high and low assumptions regarding mortality, compared with those with medium mortality assumptions in 1950-60, is given in the article by Lee and Bowles (3).

working age 20-64 is the difference between those males 10-19 in 1960 who survive to 1970 (the entrants) and those persons 20-64 in 1960 who die or reach retirement age by 1970 (the departures). To obtain the replacement rate, the net change is divided by the total number of males who were 20-64 in 1960.

6. Table 23 illustrates the computational procedures for replacement ratios and rates for rural males for the working age 20-64 for the 1960-70 decade.

Table 23.--Rural-farm (or nonfarm) males, 20-64: Computational procedure for replacement ratios and rates, 1960-70

Age in 1960	Number of males 1960		Survival or death ratios		Survivors, deaths, and retirements, 1970		
	White	Nonwhite	White	Nonwhite	White	Nonwhite	Total
	(1)	(2)	(3)	(4)	(5)=(1) x (3)	(6)=(2) x (4)	(7)=(5) +(6)
			Survival ratios				
a. 10-14							
b. 15-19							
			Death ratios				
c. 20-24							
d. 25-29							
e. 30-34							
f. 35-39							
g. 40-44							
h. 45-49							
i. 50-54							
			Retirement and death ratios				
j. 55-59			1.000000				
k. 60-64			1.000000				
					White	Nonwhite	Total
Working age 20-64							
A. Entrants (a + b 1970)							
B. Deaths and retirements (c+d+e+f+g+h+i +j+k 1970)							
C. Net available (A - B)							
D. Males 20-64, 1960 (c+d+e+f+g+h+ i+j+k 1960)							
E. Ratio A ÷ B x 100							
F. Rate C ÷ D x 100							

APPENDIX B

REPLACEMENT MEASURES FOR RURAL MALES AGED 18-64, BY COLOR AND RESIDENCE, 1960-70 DECADE

[Refer to tables 24-28.]

Tables 24-28 contain replacement ratios and rates for rural males aged 18-64, by color and rural residence, for the United States, regions, geographic divisions, and States. These measures were computed in the same fashion as those presented in the body of this report, except that the number of entrants comprised the survivors to 1970 of boys aged 8-17 in 1960, and departures comprised previously computed departures from working ages 20-64 plus deaths to males aged 18-19. They have been restricted in coverage to large areas because of a lack of sufficient age data for the farm and rural-nonfarm population for smaller areas.

Replacement measures for males aged 18-64 were computed in order to provide a better measure of the potential labor supply in rural areas before the age at which most migration begins. Obviously, any choice of a beginning age is largely arbitrary, since some migration occurs at every age. However, age 18 was chosen because it is (1) the modal terminal age for high school attendance, (2) the age of full-time entry into the labor force for many persons, and (3) the age when large-scale migration from rural areas begins.

For the United States as a whole, replacement measures for males aged 18-64 were consistently somewhat higher than those for males aged 20-64. The ratios for this younger working-age group for all rural, rural-nonfarm, and farm males were 189, 197, and 171, respectively, as compared with 177, 184, and 160 for males aged 20-64. This difference was also reflected in slightly higher replacement rates for males 18-64.

These higher ratios and rates, which show up in both color groups, result from increases in the numbers of entrants rather than any significant variation in numbers of departures, as mortality among these young males is very low. For example, among total rural males, the number of entrants for the working-age group 18-64 is about 390,000 higher than the number of entrants for working age 20-64, while the number of departures for the 2 working ages differed by only 13,000.

In effect, the data shown in this report for entrants 10-19 years old and a working-age group of 20-64 years are conservative and understate the replacement ratios (and to a lesser extent the rates) that would have been obtained by use of the 18-64 working-age group throughout.

Table 24.--Rural males, 18-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 18-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	14,301.7	13,024.2	1,277.6	5,694.3	4,985.7	708.6	3,010.9	2,729.7	281.2
Northeast	2,370.6	2,322.9	47.7	858.3	842.7	15.6	492.2	482.8	9.4
North Central	4,225.1	4,158.6	66.5	1,651.1	1,627.5	23.7	953.6	939.5	14.1
South	5,908.9	4,881.0	1,027.9	2,529.4	1,911.8	617.7	1,215.2	985.2	230.0
West 4/	1,692.5	1,597.2	95.3	627.8	592.2	35.7	335.2	316.9	18.3
New England	662.3	654.0	8.3	239.1	237.3	1.8	134.0	132.8	1.2
Middle Atlantic	1,708.3	1,668.9	39.4	619.2	605.4	13.8	358.2	350.0	8.2
East North Central	2,559.7	2,519.5	40.3	1,002.8	990.9	12.0	550.4	541.8	8.6
West North Central	1,665.4	1,639.1	26.2	648.3	636.6	11.7	403.2	397.6	5.5
South Atlantic	2,937.6	2,376.3	561.3	1,225.8	898.6	327.3	551.8	438.9	113.0
East South Central	1,558.7	1,303.1	255.6	707.9	541.4	166.5	331.3	268.3	63.0
West South Central	1,412.7	1,201.6	211.0	595.7	471.8	123.9	332.1	278.1	54.0
Mountain	602.9	560.0	43.0	246.4	224.4	22.0	117.6	110.0	7.6
Pacific 4/	1,089.6	1,037.3	52.3	381.4	367.8	13.6	217.6	206.9	10.7
New England									
Maine	122.6	121.5	1.1	47.4	47.1	.2	26.5	26.4	.1
New Hampshire	67.1	66.7	.4	24.1	24.0	5/	14.8	14.8	5/
Vermont	62.1	61.9	.2	24.7	24.7	5/	13.9	13.8	5/
Massachusetts	229.1	225.2	3.8	79.7	78.9	.9	44.2	43.7	.6
Rhode Island	32.7	32.1	.6	10.9	10.8	.1	6.0	5.9	5/
Connecticut	148.7	146.5	2.2	52.3	51.8	.5	28.5	28.2	.4
Middle Atlantic									
New York	652.0	636.7	15.3	239.4	234.9	4.5	140.3	137.5	2.8
New Jersey	191.4	179.5	11.9	63.1	58.4	4.7	39.9	37.3	2.6
Pennsylvania	864.9	852.7	12.2	316.7	312.2	4.6	178.1	175.2	2.8
East North Central									
Ohio	672.7	660.9	11.8	270.0	266.4	3.6	136.1	133.6	2.5
Indiana	461.3	457.5	3.7	177.5	176.8	.7	97.2	96.4	.8
Illinois	517.6	508.3	9.3	187.6	185.2	2.4	118.4	116.4	2.0
Michigan	542.7	529.9	12.8	217.1	213.5	3.6	111.7	109.1	2.7
Wisconsin	365.4	362.8	2.6	150.6	149.0	1.6	87.0	86.4	.7
West North Central									
Minnesota	331.2	328.6	2.7	137.8	136.3	1.5	81.1	80.4	.6
Iowa	332.6	332.2	.4	132.8	132.7	.1	81.5	81.2	.2
Missouri	385.2	376.2	9.1	142.5	138.1	4.3	93.8	91.6	2.1
North Dakota	107.6	105.2	2.4	45.5	44.0	1.5	24.6	24.1	.4
South Dakota	107.3	102.5	4.8	43.6	40.8	2.8	25.6	24.7	1.0
Nebraska	169.9	168.0	1.9	64.2	63.6	.6	42.0	41.6	.4
Kansas	231.4	226.5	4.9	81.9	81.0	.9	54.7	53.9	.8
South Atlantic									
Delaware	43.1	36.5	6.5	14.2	11.9	2.3	7.9	6.6	1.3
Maryland	244.0	209.6	34.4	84.6	69.8	14.8	44.8	37.7	7.1
Virginia	471.4	376.9	94.5	187.1	141.3	45.8	91.1	71.7	19.5
West Virginia	285.6	275.4	10.1	135.1	129.2	5.9	62.1	58.8	3.3
North Carolina	729.5	577.4	152.1	310.6	216.0	94.6	129.3	99.9	29.4
South Carolina	353.6	243.8	109.8	170.4	92.6	77.8	60.5	39.3	21.2
Georgia	457.7	358.1	99.6	199.3	136.6	62.7	86.4	65.8	20.6
Florida	352.7	298.5	54.3	124.4	101.2	23.2	69.6	59.0	10.6
East South Central									
Kentucky	440.3	422.5	17.8	189.3	183.5	5.9	90.0	85.9	4.1
Tennessee	447.0	409.6	37.4	185.6	165.6	20.0	91.9	82.8	9.1
Alabama	360.1	276.7	83.4	170.8	115.2	55.6	76.1	56.4	19.7
Mississippi	311.3	194.3	117.0	162.2	77.1	85.0	73.3	43.2	30.1
West South Central									
Arkansas	248.5	206.8	41.7	115.8	87.8	27.9	62.7	50.9	11.8
Louisiana	290.8	209.0	81.7	136.6	85.8	50.9	62.0	42.5	19.5
Oklahoma	229.7	211.2	18.5	92.6	82.1	10.5	57.1	52.1	5.0
Texas	643.6	574.6	69.0	250.7	216.1	34.6	150.3	132.6	17.7
Mountain									
Montana	88.8	84.6	4.3	35.8	33.4	2.4	18.3	17.5	.8
Idaho	91.1	89.4	1.6	39.8	39.1	.7	18.9	18.6	.3
Wyoming	39.6	38.6	1.0	15.2	14.6	.6	8.2	8.0	.2
Colorado	123.3	121.1	2.2	49.7	49.0	.7	25.3	25.0	.3
New Mexico	85.2	73.7	11.5	36.8	30.8	5.9	14.6	12.7	1.9
Arizona	92.4	73.7	18.6	35.1	24.9	10.3	16.3	12.9	3.4
Utah	54.9	53.3	1.6	26.3	25.6	.7	10.8	10.5	.3
Nevada	27.6	25.5	2.1	7.8	7.0	.8	5.2	4.8	.4
Pacific									
Washington	255.9	247.4	8.5	94.9	92.4	2.6	51.8	50.4	1.4
Oregon	178.5	176.2	2.3	72.9	71.7	1.2	40.9	40.5	.5
California	655.2	613.7	41.5	213.6	203.7	9.9	124.9	116.0	8.9
Alaska	52.8	41.8	11.0	12.5	7.5	4.9	5.3	3.7	1.5
Hawaii	51.8	22.7	29.1	15.1	4.1	11.0	9.4	1.5	7.9

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 25.--Rural-nonfarm males, 18-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 18-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	10,758.2	9,806.5	951.7	4,110.9	3,633.0	477.9	2,084.6	1,884.7	199.9
Northeast	2,123.0	2,077.3	45.7	756.9	742.0	14.9	429.3	420.4	8.9
North Central	2,766.4	2,707.0	59.3	1,039.7	1,019.9	19.8	569.6	557.7	11.9
South	4,403.1	3,673.7	729.4	1,802.3	1,401.8	400.5	819.5	663.6	155.9
West 4/	1,364.4	1,284.9	79.5	486.2	458.0	28.2	252.4	237.9	14.4
New England	613.6	605.4	8.2	219.1	217.4	1.7	121.0	119.8	1.2
Middle Atlantic	1,509.4	1,471.9	37.5	537.8	524.6	13.2	308.3	300.6	7.7
East North Central	1,877.0	1,839.1	37.9	714.8	703.9	10.9	369.5	361.8	7.7
West North Central	889.4	868.0	21.5	325.0	316.0	9.0	200.1	195.9	4.2
South Atlantic	2,355.3	1,941.9	413.4	934.5	714.8	219.6	408.5	328.1	80.3
East South Central	1,038.4	883.7	154.7	450.1	359.5	90.7	193.8	158.1	35.7
West South Central	1,009.4	848.1	161.3	417.7	327.5	90.2	217.2	177.4	39.8
Mountain	450.8	416.0	34.8	177.7	160.2	17.5	82.7	76.8	5.9
Pacific 4/	913.6	868.9	44.8	308.6	297.9	10.7	169.7	161.1	8.6
New England									
Maine	110.1	109.0	1.1	41.6	41.4	.2	23.0	22.9	.1
New Hampshire	62.0	61.7	.4	22.0	22.0	5/	13.4	13.4	5/
Vermont	48.8	48.6	.2	19.0	19.0	5/	10.7	10.6	5/
Massachusetts	219.3	215.5	3.8	76.2	75.3	.8	41.6	41.0	.6
Rhode Island	31.6	31.1	.6	10.5	10.4	.1	5.7	5.6	5/
Connecticut	141.8	139.6	2.2	49.9	49.4	.5	26.6	26.2	.4
Middle Atlantic									
New York	563.9	549.3	14.6	203.6	199.3	4.3	117.7	115.1	2.6
New Jersey	176.5	165.5	11.1	58.1	53.6	4.4	35.8	33.4	2.4
Pennsylvania	769.0	757.1	11.9	276.1	271.7	4.4	154.9	152.1	2.7
East North Central									
Ohio	536.9	525.7	11.2	212.8	209.4	3.4	99.9	97.6	2.3
Indiana	334.2	330.7	3.5	124.8	124.1	.7	61.6	61.0	.7
Illinois	363.4	354.5	8.9	127.8	125.5	2.3	76.9	75.1	1.8
Michigan	426.0	414.1	11.9	166.0	162.9	3.1	81.1	78.7	2.4
Wisconsin	216.5	214.1	2.4	83.4	82.0	1.4	50.0	49.4	.6
West North Central									
Minnesota	171.1	168.6	2.6	66.8	65.5	1.3	39.4	38.8	.6
Iowa	152.0	151.7	.3	56.3	56.2	.1	37.1	37.0	.1
Missouri	236.8	230.5	6.2	84.5	82.0	2.5	49.5	48.1	1.4
North Dakota	51.1	49.1	2.0	20.5	19.4	1.1	11.9	11.6	.3
South Dakota	50.8	46.7	4.1	19.5	17.0	2.5	11.9	11.1	.8
Nebraska	84.0	82.4	1.6	30.0	29.5	.5	20.3	20.0	.3
Kansas	143.7	139.0	4.7	47.2	46.5	.8	30.0	29.2	.7
South Atlantic									
Delaware	37.1	31.0	6.1	11.9	9.8	2.1	6.2	5.0	1.2
Maryland	213.8	183.2	30.6	72.2	59.4	12.8	37.1	31.0	6.1
Virginia	366.9	293.9	73.0	142.0	108.5	33.4	64.1	49.7	14.4
West Virginia	253.7	243.7	10.0	121.0	115.2	5.9	53.5	50.2	3.3
North Carolina	528.5	432.9	95.6	207.4	153.7	53.8	82.6	64.9	17.6
South Carolina	273.3	199.4	73.9	121.4	73.1	48.3	42.2	28.5	13.6
Georgia	356.9	283.4	73.5	146.5	104.1	42.4	60.7	46.3	14.4
Florida	325.2	274.5	50.7	111.9	91.0	20.9	62.1	52.4	9.7
East South Central									
Kentucky	295.2	281.6	13.6	125.8	121.5	4.3	52.2	49.3	2.9
Tennessee	292.9	272.2	20.7	117.2	107.9	9.3	52.0	47.3	4.7
Alabama	260.9	201.6	59.4	118.4	81.4	37.0	50.2	36.9	13.3
Mississippi	189.4	128.3	61.1	88.7	48.6	40.1	39.4	24.6	14.9
West South Central									
Arkansas	165.4	137.5	27.8	73.3	55.8	17.5	39.4	31.6	7.7
Louisiana	233.3	170.3	63.0	106.1	68.6	37.4	46.9	32.0	14.9
Oklahoma	157.3	142.2	15.0	62.7	54.1	8.6	35.7	31.9	3.8
Texas	453.5	398.1	55.4	175.6	148.9	26.7	95.2	81.8	13.4
Mountain									
Montana	59.1	55.6	3.5	23.6	21.5	2.1	11.5	10.9	.6
Idaho	56.7	55.6	1.1	22.9	22.5	.5	10.8	10.6	.2
Wyoming	27.4	26.6	.8	10.2	9.8	.4	5.6	5.4	.1
Colorado	88.6	86.8	1.8	34.4	33.9	.4	17.0	16.8	.2
New Mexico	69.7	60.3	9.5	30.1	25.2	4.9	11.3	9.7	1.6
Arizona	80.2	65.2	15.1	29.2	21.2	8.0	13.8	11.2	2.6
Utah	44.5	43.2	1.2	20.4	19.9	.5	8.3	8.1	.2
Nevada	24.5	22.7	1.8	6.7	6.1	.6	4.4	4.1	.3
Pacific									
Washington	211.0	203.4	7.5	75.0	72.9	2.1	39.7	38.6	1.1
Oregon	140.9	139.1	1.8	57.2	56.3	.9	30.2	29.9	.4
California	561.8	526.3	35.5	176.4	168.7	7.7	99.7	92.6	7.1
Alaska	52.2	41.3	10.9	12.2	7.3	4.9	5.2	3.6	1.5
Hawaii	49.1	22.3	26.8	13.6	4.0	9.6	8.7	1.4	7.2

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 26.--Rural-farm males, 18-64: Number in working-age group in 1960, and entrants and departures during 1960-70, by color, for United States, regions, divisions, and States

(Figures rounded to thousands without adjusting to group totals)

Area	Males 18-64, 1960			Entrants, 1960-70 1/			Departures, 1960-70 2/		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
United States 3/	3,543.5	3,217.6	325.9	1,583.3	1,352.6	230.7	926.3	845.0	81.3
Northeast	247.6	245.6	2.0	101.4	100.7	.7	62.9	62.4	.5
North Central	1,458.7	1,451.6	7.2	611.4	607.5	3.9	384.0	381.8	2.2
South	1,505.8	1,207.3	298.5	727.2	510.0	217.2	395.8	32[illegible]	74.1
West 4/	328.1	312.3	15.8	141.6	134.1	7.5	82.8	79.0	3.9
New England	48.7	48.6	5/	20.0	19.9	5/	13.0	13.0	5/
Middle Atlantic	198.9	197.0	1.9	81.4	80.8	.7	49.9	49.4	.5
East North Central	682.8	680.4	2.4	288.0	286.9	1.1	180.9	180.0	.9
West North Central	776.0	771.2	4.8	323.3	320.6	2.7	203.1	201.7	1.3
South Atlantic	582.3	434.4	147.9	291.4	183.7	107.6	143.3	110.7	32.6
East South Central	520.3	419.4	100.9	257.8	181.9	75.9	137.5	110.2	27.3
West South Central	403.3	353.5	49.7	178.0	144.4	33.7	114.9	100.7	14.2
Mountain	152.1	143.[illegible]	8.2	68.8	64.2	4.6	34.9	33.2	1.7
Pacific 4/	176.0	168.4	7.6	72.8	69.9	2.9	47.9	45.8	2.1
New England									
Maine	12.5	12.5	5/	5.8	5.7	5/	3.5	3.5	5/
New Hampshire	5.0	5.0	5/	2.1	2.1	5/	1.4	1.4	5/
Vermont	13.3	13.3	5/	5.7	5.7	5/	3.2	3.2	5/
Massachusetts	9.8	9.7	5/	3.6	3.5	5/	2.6	2.6	5/
Rhode Island	1.1	1.1	5/	.4	.4	5/	.3	.3	5/
Connecticut	7.0	6.9	5/	2.5	2.5	5/	1.9	1.9	5/
Middle Atlantic									
New York	88.2	87.4	.8	35.8	35.6	.2	22.6	22.5	.2
New Jersey	14.9	14.0	.9	5.0	4.8	.3	4.1	3.9	.2
Pennsylvania	95.8	95.6	.3	40.6	40.5	.1	23.2	23.1	5/
East North Central									
Ohio	135.8	135.1	.6	57.2	57.0	.2	36.2	36.0	.2
Indiana	127.1	126.9	.2	52.7	52.7	5/	35.5	35.4	5/
Illinois	154.2	153.8	.4	59.8	59.7	.1	41.4	41.3	.1
Michigan	116.8	115.8	.9	51.1	50.6	.5	30.7	30.3	5/
Wisconsin	148.9	148.7	.2	67.2	67.0	.2	37.0	36.9	5/
West North Central									
Minnesota	160.1	160.0	.1	71.0	70.9	.1	41.7	41.6	5/
Iowa	180.6	180.5	5/	76.5	76.4	5/	44.3	44.3	5/
Missouri	148.5	145.6	2.8	57.9	56.1	1.8	44.3	43.5	.8
North Dakota	56.6	56.2	.4	25.0	24.7	.3	12.6	12.5	5/
South Dakota	56.5	55.8	.7	24.1	23.8	.3	13.7	13.5	.2
Nebraska	85.9	85.6	.3	34.2	34.1	5/	21.7	21.6	5/
Kansas	87.8	87.5	.3	34.7	34.6	5/	24.8	24.7	5/
South Atlantic									
Delaware	6.0	5.5	.5	2.3	2.1	.2	1.7	1.6	.1
Maryland	30.2	26.5	3.7	12.3	10.3	2.0	7.7	6.7	.9
Virginia	104.5	83.0	21.5	45.1	32.7	12.4	27.0	21.9	5.1
West Virginia	31.9	31.8	.1	14.1	14.0	5/	8.6	8.6	5/
North Carolina	201.0	144.5	56.4	103.2	62.3	40.9	46.8	35.0	11.8
South Carolina	80.3	44.4	35.9	49.0	19.5	29.5	18.3	10.8	7.5
Georgia	100.8	74.7	26.1	52.8	32.5	20.3	25.8	19.5	6.3
Florida	27.5	24.0	3.6	12.6	10.2	2.4	7.5	6.6	.9
East South Central									
Kentucky	145.1	140.9	4.1	63.5	61.9	1.6	37.8	36.6	1.2
Tennessee	154.1	137.3	16.8	68.4	57.7	10.7	40.0	35.5	4.4
Alabama	99.1	75.1	24.0	52.4	33.7	18.6	25.9	19.5	6.4
Mississippi	122.0	66.0	56.0	73.5	28.5	45.0	33.8	18.6	15.2
West South Central									
Arkansas	83.2	69.3	13.9	42.5	32.0	10.4	23.3	19.2	4.1
Louisiana	57.5	38.8	18.7	30.6	17.1	13.4	15.1	10.5	4.6
Oklahoma	72.5	68.9	3.5	29.9	28.0	1.9	21.4	20.2	1.2
Texas	190.1	176.5	13.6	75.1	67.2	7.9	55.1	50.8	4.3
Mountain									
Montana	29.7	28.9	.8	12.2	11.9	.3	6.7	6.6	.2
Idaho	34.4	33.9	.5	16.8	16.6	.2	8.1	8.0	.1
Wyoming	12.2	12.0	.3	4.9	4.8	.1	2.7	2.6	5/
Colorado	34.7	34.3	.4	15.3	15.0	.2	8.2	8.2	5/
New Mexico	15.5	13.5	2.0	6.6	5.6	1.0	3.4	3.0	.4
Arizona	12.1	8.6	3.6	5.9	3.7	2.2	2.5	1.7	.8
Utah	10.4	10.1	.4	5.9	5.6	.2	2.5	2.4	5/
Nevada	3.1	2.7	.3	1.0	.9	.1	.8	.7	5/
Pacific									
Washington	45.0	43.9	1.0	20.0	19.5	.5	12.1	11.8	.3
Oregon	37.6	37.1	.5	15.7	15.4	.3	10.7	10.6	5/
California	93.4	87.4	6.1	37.1	35.0	2.2	25.2	23.4	1.8
Alaska	.6	.5	5/	.2	.2	5/	.1	5/	5/
Hawaii	2.7	.4	2.4	1.5	.1	1.4	.7	5/	.6

1/ Persons who will reach the working-age group at some time during the decade and survive to the end of the decade. 2/ Persons who will leave the working-age group through death or reaching retirement age. 3/ Includes Alaska and Hawaii. 4/ Excludes Alaska and Hawaii. 5/ Less than 100.

Table 27.--Rural, rural-nonfarm, and rural-farm males, 18-64: Replacement ratios, by color, for United States, regions, divisions and States, 1960-70 1/

(Ratios not shown for areas with fewer than 100 departures)

Area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
United States 2/	189	183	252	197	193	239	171	160	284
Northeast	174	175	166	176	177	167	161	161	150
North Central	173	173	168	183	183	166	159	159	175
South	208	194	269	220	211	257	184	159	293
West 3/	187	187	195	193	192	195	171	170	194
New England	178	179	147	181	182	144	153	153	---
Middle Atlantic	173	173	169	174	174	171	163	163	143
East North Central	182	183	140	193	194	141	159	159	128
West North Central	161	160	211	162	161	213	159	159	205
South Atlantic	222	205	290	229	218	273	203	166	330
East South Central	214	202	264	232	227	254	187	165	278
West South Central	179	170	229	192	185	226	155	143	238
Mountain	210	204	291	215	208	298	197	194	265
Pacific 3/	175	178	127	182	185	125	152	153	137
New England									
Maine	179	178	216	181	181	202	163	162	---
New Hampshire	162	162	---	164	164	---	145	144	---
Vermont	178	178	---	178	179	---	177	177	---
Massachusetts	180	181	151	183	184	151	135	135	---
Rhode Island	182	183	---	184	185	---	140	139	---
Connecticut	183	184	138	187	188	138	128	128	---
Middle Atlantic									
New York	171	171	165	173	173	166	158	158	138
New Jersey	158	156	183	162	160	188	123	122	133
Pennsylvania	178	178	161	178	179	160	175	175	---
East North Central									
Ohio	198	199	146	213	215	150	158	158	108
Indiana	183	183	95	202	204	104	148	149	---
Illinois	159	159	121	166	167	123	144	145	100
Michigan	194	196	134	205	207	132	167	167	150
Wisconsin	173	172	242	167	166	245	182	181	---
West North Central									
Minnesota	170	170	230	170	169	238	170	170	---
Iowa	163	163	69	152	152	72	173	173	---
Missouri	152	151	205	171	170	188	131	129	234
North Dakota	185	183	338	172	167	342	198	197	---
South Dakota	170	165	288	163	153	311	176	176	173
Nebraska	153	153	173	148	147	194	158	158	---
Kansas	150	150	107	158	159	107	140	140	---
South Atlantic									
Delaware	180	181	175	192	196	177	136	134	163
Maryland	189	185	209	195	192	209	161	154	210
Virginia	205	197	236	222	218	233	167	149	244
West Virginia	217	220	177	226	229	179	163	164	---
North Carolina	240	216	322	251	237	305	221	178	347
South Carolina	282	235	368	288	256	354	267	180	392
Georgia	231	208	304	241	225	295	205	167	324
Florida	179	172	219	180	174	215	168	154	276
East South Central									
Kentucky	210	213	144	241	246	150	168	169	130
Tennessee	202	200	219	225	228	197	171	162	243
Alabama	225	204	282	236	221	279	202	173	289
Mississippi	221	179	282	225	198	270	217	154	295
West South Central									
Arkansas	185	173	236	186	176	226	182	167	255
Louisiana	220	202	260	226	214	251	202	163	291
Oklahoma	162	157	212	176	170	226	140	138	165
Texas	167	163	195	184	182	199	136	132	185
Mountain									
Montana	196	192	301	205	198	327	182	181	202
Idaho	210	210	196	212	212	208	207	208	175
Wyoming	184	182	273	184	181	304	185	184	---
Colorado	197	196	261	202	202	225	186	184	---
New Mexico	251	243	306	268	261	311	197	187	283
Arizona	216	193	304	212	189	309	238	216	288
Utah	244	243	258	245	245	245	239	237	---
Nevada	149	145	212	153	148	223	128	124	---
Pacific									
Washington	183	183	185	189	189	189	165	165	168
Oregon	178	177	255	189	189	239	147	145	---
California	171	176	112	177	182	109	148	149	123
Alaska	236	201	320	236	201	319	225	---	---
Hawaii	161	270	140	156	276	133	214	---	221

1/ The replacement ratio is the expected number of entrants into the age group 18-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade. 2/ Includes Alaska and Hawaii. 3/ Excludes Alaska and Hawaii.

Table 28.--Rural, rural-nonfarm, and rural-farm males, 18-64: Replacement rates, by color, for United States, regions, divisions, and States, 1960-70 1/

(Rates not shown for areas with fewer than 100 departures)

Area	Rural			Rural nonfarm			Rural farm		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
United States 2/	18.8	17.3	33.5	18.8	17.8	29.2	18.5	15.8	45.9
Northeast	15.4	15.5	13.1	15.4	15.5	13.1	15.5	15.6	12.3
North Central	16.5	16.5	14.4	17.0	17.1	13.3	15.6	15.6	23.1
South	22.2	19.0	37.7	22.3	20.1	33.5	22.0	15.6	47.9
West 3/	17.3	17.2	18.3	17.1	17.1	17.3	17.9	17.7	23.0
New England	15.9	16.0	6.9	16.0	16.1	6.5	14.3	14.2	---
Middle Atlantic	15.3	15.3	14.4	15.2	15.2	14.6	15.9	15.9	10.6
East North Central	17.7	17.8	8.4	18.4	18.6	8.3	15.7	15.7	10.2
West North Central	14.7	14.6	23.5	14.0	13.8	22.1	15.5	15.4	29.4
South Atlantic	22.9	19.3	38.2	22.3	19.9	33.7	25.4	16.8	50.7
East South Central	24.2	21.0	40.5	24.7	22.8	35.5	23.1	17.1	48.1
West South Central	18.7	16.1	33.1	19.9	17.7	31.2	15.7	12.3	39.3
Mountain	21.4	20.4	33.6	21.1	20.0	33.4	22.3	21.6	34.5
Pacific 3/	15.0	15.5	5.6	15.2	15.7	4.8	14.1	14.3	10.6
New England									
Maine	17.0	17.0	12.1	16.9	17.0	10.6	17.8	17.7	---
New Hampshire	13.8	13.8	---	13.9	13.9	---	12.9	12.5	---
Vermont	17.4	17.5	---	17.1	17.2	---	18.6	18.6	---
Massachusetts	15.5	15.6	7.5	15.8	15.9	7.5	9.5	9.5	---
Rhode Island	15.0	15.2	---	15.1	15.4	---	11.0	10.6	---
Connecticut	16.0	16.2	6.3	16.4	16.6	6.4	7.8	7.8	---
Middle Atlantic									
New York	15.2	15.3	11.6	15.2	15.3	11.8	14.9	15.0	7.8
New Jersey	12.1	11.7	18.1	12.6	12.2	18.9	6.3	6.1	8.8
Pennsylvania	16.0	16.1	14.1	15.8	15.8	13.9	18.2	18.2	---
East North Central									
Ohio	19.9	20.1	9.7	21.0	21.3	10.1	15.5	15.5	2.9
Indiana	17.4	17.6	-.9	18.9	19.1	.8	13.5	13.6	---
Illinois	13.4	13.5	4.5	14.0	14.2	4.7	11.9	12.0	0
Michigan	19.4	19.7	7.1	19.9	20.3	6.3	17.5	17.5	17.7
Wisconsin	17.4	17.3	36.0	15.4	15.2	34.0	20.3	20.2	---
West North Central									
Minnesota	17.1	17.0	30.7	16.0	15.8	29.9	18.3	18.3	---
Iowa	15.4	15.5	-15.3	12.6	12.7	-12.6	17.8	17.8	---
Missouri	12.6	12.4	24.4	14.8	14.7	19.1	9.2	8.6	36.1
North Dakota	19.5	18.9	42.9	16.8	15.8	41.0	21.9	21.6	---
South Dakota	16.7	15.7	37.8	14.9	12.5	41.4	18.4	18.4	16.4
Nebraska	13.1	13.1	14.1	11.6	11.5	17.0	14.6	14.7	---
Kansas	11.7	12.0	1.2	12.0	12.4	1.1	11.3	11.3	---
South Atlantic									
Delaware	14.7	14.6	15.1	15.4	15.5	15.1	10.1	9.7	15.0
Maryland	16.3	15.3	22.5	16.4	15.5	21.8	15.4	13.6	27.8
Virginia	20.4	18.5	27.9	21.2	20.0	26.1	17.3	13.0	34.0
West Virginia	25.6	25.6	25.5	26.6	26.7	25.8	17.1	17.2	---
North Carolina	24.8	20.1	42.9	23.6	20.5	37.8	28.1	18.9	51.5
South Carolina	31.1	21.9	51.6	29.0	22.4	46.9	38.2	19.6	61.2
Georgia	24.7	19.8	42.2	24.1	20.4	38.2	26.8	17.4	53.7
Florida	15.6	14.1	23.3	15.3	14.1	22.0	18.5	15.0	42.3
East South Central									
Kentucky	22.6	23.1	10.1	24.9	25.6	10.5	17.7	18.0	8.7
Tennessee	21.0	20.2	29.1	22.3	22.3	22.1	18.5	16.2	37.6
Alabama	26.3	21.3	43.1	26.2	22.1	40.0	26.7	19.0	50.7
Mississippi	28.6	17.5	46.9	26.0	18.7	41.3	32.5	15.1	53.1
West South Central									
Arkansas	21.4	17.9	38.6	20.5	17.6	35.1	23.0	18.5	45.7
Louisiana	25.7	20.7	38.3	25.4	21.5	35.7	26.9	17.1	47.0
Oklahoma	15.5	14.2	29.9	17.2	15.6	31.9	11.7	11.2	21.6
Texas	15.6	14.5	24.5	17.7	16.9	23.9	10.5	9.3	26.6
Mountain									
Montana	19.8	18.9	37.4	20.4	19.1	41.0	18.5	18.4	21.7
Idaho	22.9	22.9	19.8	21.4	21.4	21.4	25.4	25.5	16.8
Wyoming	17.5	17.0	34.7	17.1	16.5	37.9	18.4	18.3	---
Colorado	19.8	19.8	19.4	19.6	19.7	13.5	20.3	20.0	---
New Mexico	26.0	24.6	34.9	27.1	25.8	35.2	21.2	19.4	33.3
Arizona	20.4	16.2	37.0	19.2	15.3	36.1	28.4	23.2	41.0
Utah	28.2	28.3	27.5	27.2	27.3	23.6	32.8	32.5	---
Nevada	9.3	8.5	19.2	9.5	8.7	19.9	7.4	6.5	---
Pacific									
Washington	16.9	17.0	13.9	16.7	16.8	13.2	17.6	17.5	19.4
Oregon	17.9	17.7	31.8	19.1	19.0	29.7	13.3	13.0	---
California	13.5	14.3	2.5	13.7	14.5	1.7	12.8	13.2	6.8
Alaska	13.6	9.0	31.0	13.5	8.9	30.7	22.5	---	---
Hawaii	11.0	11.4	10.7	10.0	11.3	8.8	30.0	---	32.3

1/ The replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 18-64 years at the beginning of the decade, on the assumption of no migration during the decade. 2/ Includes Alaska and Hawaii. 3/ Excludes Alaska and Hawaii.

APPENDIX C

REPLACEMENT MEASURES ADJUSTED FOR LABOR FORCE PARTICIPATION, FOR RURAL MALES, 1960-70 DECADE

[Refer to table 29.]

The conventional replacement measures in the body of this report do not take into account several factors which would be considered in developing more refined measures of potential labor supply and replacement. Entrants and departures were defined according to age; actual labor-force participation was not considered. Among persons defined as entrants in conventional replacement measures, there are some who are already members of the labor force before they reach the arbitrarily assigned age of entry; others for various reasons will never enter the labor force; and still others will delay entry into the labor force because of prolonged education, etc. Conversely, among those in the working-age group, there are men who are not in the labor force because of early retirement, physical or mental handicaps, or extended school attendance.

Any procedure for attempting to account for these factors requires assumptions about labor-force participation and retirement which cannot be made with precision for small areas, especially in large-scale computations. At the national level it is possible, however, to produce somewhat more refined measures by utilizing estimates of survivors of persons in the labor force in 1960 along with estimates of persons in the labor force among the total number in each age cohort which survive to 1970.

This procedure takes into account the following: (1) Some labor-force participation of persons in the entrants group at the beginning of the period, (2) some deaths to these young persons in the labor force, (3) increased but not complete labor-force participation of all persons in the younger age cohorts over time, (4) nonparticipation in the labor force of some older persons in the departures group, (5) decreased labor-force participation of late middle-aged persons over time and (6) nonretirement of some persons on reaching age 65.

Adjusted Replacement Measures.--The procedure utilized for the adjusted estimates reduces both the number of entrants and the number of departures, in comparison with those obtained by the conventional replacement ratios estimating technique. For the 1960-70 decade, the adjusted number of entrants into the labor force was 5.4 million while the number of departures through death and ceasing labor-force activity was 2.9 million. The numbers compare with 5.7 million entrants and 3.0 million departures in the conventional method based on the 18-64 working-age group. A replacement ratio of 186 was obtained for the total rural male population when account is taken of labor-force participation, compared with a ratio of 189 obtained under the conventional procedures--very little difference indeed. The adjusted rural rate of 17.6 compared closely with the conventional rate of 18.8 (table 29).

Equally small differences were noted among ratios and rates for rural-nonfarm and farm males. The only difference of any significant amount occurred among nonwhite farm males. The ratio for this group based on entrants and departures adjusted for labor-force participation was 257, compared with a ratio of 284 for the working-age group 18-64, using the conventional procedure. The corresponding rates were 37.2 and 45.9, respectively.

To further refine the replacement measures, an attempt could be made to estimate expected changes in employment opportunities in the major industries in the farm and rural-nonfarm residence classes. This becomes very difficult for several reasons, and is beyond the scope of this report. The number of persons in the labor force in a residence class cannot be equated with the number of employment opportunities in that class, as both farm and rural-nonfarm people are employed outside their residence areas. For instance, 31 percent of males living on farms in 1960 had their principal employment in nonfarm work, and 66 percent of all persons performing some agricultural labor for pay in 1964 lived in nonfarm places at the end of the year. Also, a sizable, but unknown proportion of persons living in rural-nonfarm places work in urban places or on farms. A more important factor in further adjustments or refinements, is that trends in employment opportunities in agriculture and in the rural-nonfarm places are difficult to anticipate.

In conclusion, it can be noted that the adjusted measures yield somewhat smaller numbers of both entrants and departures from the working-age group, compared with

Table 29.--Rural, rural-nonfarm, and rural-farm males, conventional and adjusted replacement measures: Number in working-age group in 1960, entrants and departures, and replacement ratios and rates, 1960-70, by color, United States

(Figures rounded to thousands without adjusting to group totals)

Residence and color	Conventional					Adjusted for labor-force participation				
	Males 18-64, 1960	Entrants, 1960-70 1/	Departures, 1960-70 2/	Replacement ratios 3/	Replacement rates 4/	Males 14 years old and over in labor force, 1960	Entrants, 1960-70 5/	Departures, 1960-70 6/	Replacement ratios 7/	Replacement rates 8/
	Thou.	Thou.	Thou.			Thou.	Thou.	Thou.		
RURAL	14,301.7	5,694.3	3,010.9	189	18.8	14,028.1	5,350.4	2,881.5	186	17.6
White	13,024.2	4,985.7	2,729.7	183	17.3	12,903.7	4,753.8	2,634.7	180	16.4
Nonwhite	1,277.6	708.6	281.2	252	33.5	1,124.4	596.5	246.8	242	31.1
RURAL NONFARM	10,758.2	4,110.9	2,084.6	197	18.8	10,209.1	3,890.7	2,009.4	194	18.4
White	9,806.5	3,633.0	1,884.7	193	17.8	9,418.9	3,497.5	1,841.7	190	17.6
Nonwhite	951.7	477.9	199.9	239	29.2	790.2	393.2	167.6	235	28.5
RURAL FARM	3,543.5	1,583.3	926.3	171	18.5	3,818.9	1,459.7	872.1	167	15.4
White	3,217.6	1,352.6	845.0	160	15.8	3,484.7	1,256.3	793.0	158	13.3
Nonwhite	325.9	230.7	81.3	284	45.9	334.2	203.4	79.1	257	37.2

1/ Persons who will reach the working-age group 18-64 at some time during the decade and survive to the end of the decade.
2/ Persons who will leave the working-age group 18-64 through death or reaching retirement age.
3/ The conventional replacement ratio is the expected number of entrants into the age group 18-64 years per 100 expected departures resulting from death or from reaching retirement age, on the assumption of no migration during the decade.
4/ The conventional replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number in the age group 18-64 years at the beginning of the decade, on the assumption of no migration during the decade.
5/ Persons who will survive to the end of the decade and be in the labor force at that time.
6/ Persons in the labor force in 1960 who will leave it at some time during the decade through death or ceasing labor-force participation.
7/ The adjusted replacement ratio is the expected number of entrants into the labor force per 100 expected departures resulting from death or from ceasing labor-force participation, on the assumption of no migration during the decade.
8/ The adjusted replacement rate is the number of entrants minus the number of departures expressed as a percentage of the number of persons in the labor force at the beginning of the decade, on the assumption of no migration during the decade.

those derived from the conventional procedure. The numbers derived from the adjusted procedures are probably somewhat more realistic than those from the conventional procedure, because they take into account several factors not dealt with in the latter. But the close correspondence of national replacement ratios computed by the two methods suggests that the values obtained for the 18-64 age group by the conventional method for smaller areas are generally adequate proxies for more refined measures. The conventional figures based on the 20-64 age group tend to understate the replacement potential somewhat, because the entrants group aged 10-19 has already been affected by some net outmigration at ages 18 and 19.

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This glossary of terms related to vocational education provides a basis for common understanding of terms and thus facilitates communication among professional educators and lay citizens concerned about the development of meaningful vocational programs in their communities. The glossary is organized around the following topics: Vocational Education--General Terms, Types of Programs, Reimbursable Programs, Practical Arts, Types of Facilities, and Vocational Education Legislation. (CH)

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Laymen's Glossary of Vocational Education Terms

The Manpower Planning and Development Commission
The Welfare Federation of Cleveland
Cleveland, Ohio 44115

1969

MPDC

> THE MANPOWER PLANNING AND DEVELOPMENT COMMISSION

The Manpower Planning and Development Commission of The Cleveland Welfare Federation provides a central resource for community manpower planning in Greater Cleveland. It brings together the thinking of the community's many elements – business, industry, education, labor, government, welfare, minority, civic and neighborhood groups – to plan the kind of manpower-related programs and services that represent the best for each interest and the community.

The Commission identifies and provides information on local needs and problems relating to employment and training in order to develop informed and concerned citizen leadership. It promotes cooperative planning and action toward solution of these problems thru appropriate public and/or private programs and organizations.

Two major manpower goals for the Greater Cleveland Community have been identified by MPDC as:

a) The development of employability of all individuals to their potential, and

b) The development of opportunities for using such abilities in productive and/or meaningful employment.

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MPDC

FOREWORD

This GLOSSARY OF VOCATIONAL EDUCATION TERMS has been prepared by the Manpower Planning and Development Commission of Cleveland in an effort to help resolve the confusion which exists in the use of terminology related to vocational education.

It is the sincere hope of the educators and laymen on the MPDC Task Force, under whose direction this publication was prepared, that the GLOSSARY will provide a basis of common understanding of vocational education terms, and thus facilitate communication among professional educators and laymen who are concerned about the development of meaningful vocational programs in their community.

Laymen's Glossary of Vocational Education Terms

INTRODUCTION

Great emphasis has been placed recently on "vocational education." Educators, businessmen, politicians and many others have become interested and involved in developing local or community-wide "vocational education" plans.

Development of these plans, however, has frequently been marked with controversy and confusion, much of it created by misunderstanding or lack of understanding of the technical terms used in this specialized area of education. Too often the intelligent layman encounters difficulty in cutting his way thru a vast jungle of technical information to arrive at a basic understanding of the essential problems.

Even school administrators and teachers, not to mention parents, are understandably confused by reference to terms such as industrial arts, vocational education, occupational education, work-study programs, cooperative training, DCT, BOE and DE.

To provide a basis of common understanding of terms, and thus facilitate communication among professional educators and lay citizens concerned about the development of meaningful vocational programs in their community, the Manpower Planning and Development Commission has compiled a GLOSSARY of TERMS related to VOCATIONAL EDUCATION.

The need for such a glossary was confirmed by the lack of available common terminology through the U. S. Office of Education, Educational Research Council of America, the Ford Foundation and the Great Cities for School Improvement Research Council.

It is not the intention of the Commission to standardize on common terms, though this may be a desirable objective, but rather to provide for an understanding, in laymen's language, of commonly used vocational education terms. The Manpower Planning and Development Commission believes that this is an essential first step toward the constructive participation and valuable support of informed citizens in providing quality vocational education in their community which is relevant to the world of work.

General Terms

OCCUPATIONAL EDUCATION

– a generic term usually applied to the broad range of educational experiences which relate to preparing for a career. It includes, but is not confined to, development of manual skills, and at all educational levels. It perceives vocational education not as a separate discipline, but as part of an occupational education experience in which vocational and academic training are integrated by means of both verbal and non-verbal experiences relating learning to reality.

Occupational emphasis at the elementary school level is oriented toward teaching respect for work and encouraging children to want to do some type of work. At the junior high level the occupational emphasis is on providing to all students an orientation to the world of work thru exploratory programs and experiences to assist them in making an occupational choice. Vocational education, with reference to the development and acquisition of skills and knowledge in relation to semi-skilled, skilled, technician and paraprofessional occupations, is provided at the point in the student's education when a reasonable occupational choice has been made and the individual is motivated to prepare for employment.

> VOCATIONAL EDUCATION

– that part of an educational experience which has a primary purpose of equipping persons for useful employment in semi-skilled, skilled, technical and paraprofessional occupations. Programs are designed to serve the needs of two distinct groups: first, youth and adults who are preparing to enter occupations in the areas noted above, and second, adults who have entered upon employment and desire upgrading or retraining.

Vocational education provides not only the technical knowledge and work skills necessary for employment, but also develops abilities, attitudes, work habits and appreciations which contribute to a satisfying and productive life. Its contribution is the blending of theoretical knowledge with the practical experiences and requirements of entry jobs, recognizing the nature of the world of work.

In a general sense, vocational programs may be classified into two categories:

a) Vocational education programs that are reimbursable from state and/or federal vocational education funds.

b) Vocational education programs that are not reimbursable from state and/or federal vocational education funds.

–Reimbursable Vocational Education Programs. If this type of training is conducted by a public school or teacher training institution and under contract and in accordance with the State Plan for Vocational Education approved by the U. S. Office of Education, and meets state standards of staff and time allotment, as well as standards for equipment and facilities in the case of area vocational schools, it is eligible to receive funds from the state (from state and federal vocational education appropriations).

Typical high school vocational education programs approved in Ohio are vocational agriculture, business and office education, distributive education, vocational home economics, and trade and industrial education. According to Ohio standards, participation in these programs is usually restricted to the last two years of the student's educational program. Such programs are denoted as "reimbursable vocational education programs".

–Non-reimbursable Vocational Education Programs. While all high school courses offering semi-skilled or skilled training are approved by and receive funds from the State Board of Education, all are not eligible to receive additional state or federal funds for vocational education. For example, if the curriculum organization, facilities, equipment, qualifications of instructional staff or student goals do not meet the State Board standards for vocational education, additional funding for vocational education is affected. The fact that the State Vocational Education Division identifies as "vocational education" the programs which meet the standards set by the State Board of Education for eligibility for additional assistance, while local schools identify both reimbursed and non-reimbursed as "vocational education", makes for confusion.

It is advisable in oral and written communications, therefore, to initially identify which basis is being used.

> **INDUSTRIAL EDUCATION**

– a generic term applying to all types of education related to industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

> **TECHNICAL EDUCATION**

– a program planned to prepare people to work in paraprofessional occupations as support personnel for professional persons. Emphasis is on understanding of the principles of science, functions of mathematics, and principles of technology as applied to modern design, production, business operation, distribution, and service. In Ohio and several other states, reimbursable technical education is limited to post-high school education.

– **Technician** is a worker on a level between the skilled tradesman and the professional scientist, or engineer or professional manager. His technical knowledge permits him to assume some duties formerly assigned to professional persons who are graduates of baccalaureate courses, such as graduate engineer, scientist, computer programmer or manager.

> **VOCATIONAL GUIDANCE**

– the process of assisting individuals to understand their capabilities and interests, choose a suitable vocation, and prepare for, enter, and make successful progress in it.

> **OCCUPATIONAL INFORMATION**

– systematically organized data used by vocational guidance personnel and vocational teachers to help persons make a vocational choice. Material concerns nature of the work, duties, responsibilities, and compensations involved in the various vocations, including information about employment outlook, promotional opportunities and entrance requirements.

Types of Programs

ADULT VOCATIONAL PROGRAMS

– instruction offered day or evening to adults or out-of-school youth over 16 years who are engaged in or are preparing to enter an occupation. Chiefly of an upgrading, updating, or retraining nature, offered on a part-time or full-time basis.

> APPRENTICE PROGRAMS

– an organized system for providing the manipulative skills and technical or theoretical knowledge needed for competent performance in skilled occupations. Usually involves cooperation among school, labor, and management, since apprentices learn the skills of the craftsman through on-the-job work experiences and the related information in the classroom, most commonly in cooperation with the public schools vocational program. Minimum terms and conditions of apprenticeship regulated by state and local statutes or agreements.

–**Joint Apprenticeship Council** is a group of representatives of employers and labor, organized to cooperate with vocational schools in setting up, conducting, and maintaining standards for apprenticeship programs.

> COOPERATIVE PROGRAMS

–for persons enrolled in a school and who, through a cooperative arrangement between the school and employers, receive part-time vocational instruction in the school and on-the-job training through part-time employment. Provides for alternation of study in school with a job in industry or business, the two experiences planned and supervised by school and employer so that each contributes definitely to the student's development in his chosen occupation. Work periods and school attendance may be on a half day basis (most common procedure), or on alternate days, weeks, or through other time periods. Hours of work must be during the school day and equal to or exceeding hours spent in school during the regular school year. Used in all phases of vocational education. With the exception of Work Study Programs (see page 10), it is expected that the job is of sufficient complexity to justify the full length of the cooperative program as a learning period.

> **WORK EXPERIENCE PROGRAMS**

—employment undertaken as part of the requirements of a school course and designed to provide planned experiences, in the chosen occupation, which are supervised by a teacher-coordinator and the employer. The emphasis is upon work experience, often for the less able student.

> **WORK STUDY PROGRAMS**

—a program administered by a local educational agency and available to in-school and/or out-of-school youth. Students are in classes part-time and working part-time, alternating by half days, or days or weeks. For state vocational education reimbursement, in-school students (15-20 years) from low-income families must be enrolled full-time in an approved vocational education program, and not employed more than 15 hours per week. Under this program money is provided from federal and local funds to pay students for productive work performed for public non-profit agencies. The goal is to keep the student enrolled in a vocational program so that he can become self-supporting.

> **LEVELS OF TRAINING FOR GAINFUL EMPLOYMENT**

—**Occupational Training** for single skill or semi-skilled occupations at the job entry service or helper level.

—**Vocational Training** for skilled occupations at the job entry operator level. Training includes approximately ¾ time skill development and approximately ¼ time related technology.

—**Technical Training in High School** includes approximately ¾ time technical training and approximately ¼ time related skills. Job entry at the technician aide level. Not applicable in Ohio and several other states. (See Technical Education - page 8).

—**Technical Training in Post-High School Programs,** usually two years beyond high school. Often offered thru technical institutes, community colleges and branch universities. Training for paraprofessional occupations requiring technical knowledge as well as skill. Training is approximately ¾ time technology study and ¼ time skill training, with the emphasis more on instruments and testing equipment than on tools or skills. Preparation includes education in mental concepts and special occupational "know how" and "know why", as well as "doing".

Reimbursable Programs

Vocational Education Courses Eligible For Reimbursement From State And Federal Vocational Education Funds If They Meet State Standards Of Curriculum, Staff, Time Allotment, Equipment and Facilities.

> AGRI-BUSINESS EDUCATION

–educational courses which embrace a cluster of agricultural occupations relating to the business and/or management phases of manufacturing, servicing, processing and distributing the products going into and/or coming from nursery and farm products.

> AGRICULTURAL EDUCATION

–training for occupations involving producing, processing, distributing and servicing nursery and farm products and equipment. Examples include: agriculture, forestry, gardening, landscaping and groundskeeping, horticulture, and soil and water management.

> BUSINESS AND OFFICE EDUCATION (BOE)

–series of related and required courses leading to vocational competency in office occupations in areas such as: stenography, typing, filing and related work; bookkeeping, computing and accounting; material and production recording; reproduction; personnel and training administration; and data processing.

–**Cooperative Office Education (COE)** is a cooperative program of instruction in business and office education in which the student combines in-school business and office courses with out-of-school on-the-job related experience and employment in business. (See Cooperative Programs - page 9).

> DISTRIBUTIVE EDUCATION (DE)

–a cooperative program of instruction in marketing, merchandising, and management in retail, wholesale and service occupations. (See Cooperative Programs - page 9).

> OCCUPATIONAL WORK EXPERIENCE (OWE)

–a cooperative vocational education program usually conducted for students unable to achieve in regular vocational or academic programs. Students are in school one half day during which they are enrolled in regular required courses. In the remaining half day the students are placed for work experience on semi-skilled or service level jobs that do not require a long training period. Students are under the direction of an Occupational Work Experience teacher-coordinator who instructs them for two periods of related in-school instruction and maintains liaison with the employer. (See Cooperative Programs - Page 9).

> VOCATIONAL HOME ECONOMICS EDUCATION

–a program of instruction to assist students to understand and solve problems in home and family living, and to prepare for employment in occupations involving knowledge and skills in home economics subjects, such as: child care; clothing and food service; home and institutional service; and home furnishings and equipment.

> TRADE AND INDUSTRIAL EDUCATION

–instruction which is planned to develop basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers employed in industry. This is generally accomplished thru specific skill courses such as: auto mechanics, carpentry, cosmetology, radio and TV, and machine shop, or thru diversified cooperative training.

–**Diversified Cooperative Training (DCT)** is a cooperative type high school trade and industrial course in which students are given supervised work experience in any one of a variety of occupations, combined with related classroom instruction. Designed especially for smaller schools with limited vocational education staff or in communities where the need for workers is too limited to justify separate courses for each occupation. Usually under direction of the trade and industrial education division and supervised by a teacher-coordinator, who might, for example, be supervising the work experience of several students in a number of different areas of work, such as welding, drafting, sheet metal trades and home economics. (See Cooperative Programs - page 9).

Practical Arts

Non-Reimbursable through State Vocational Education Funds

> PRACTICAL ARTS EDUCATION

–a type of functional education predominantly manipulative in nature which provides learning experiences in leisure-time interests, consumer knowledge, creative expression, family living, manual skills, technological information, and similar outcomes of value to all. Includes industrial arts, non-vocational business education, non-vocational home economics and non-vocational agriculture.

–**Exploratory Courses** are practical arts subjects designed to provide the student with a broad, general, over-all view of the knowledges and skills involved in a field of learning or an occupation. Pre-vocational courses which provide students with exploratory and introductory experiences in a wide range of occupations to serve as an aid in choosing a vocation.

–**Home Economics Education** is a program of instruction planned to assist individuals to understand and solve problems in home and family living. Subject matter areas include: child development; family relationships; food and nutrition; clothing and textiles; family economics and home management; housing, home furnishings and equipment; and family health.

–**Industrial Arts Education** is one of the practical arts offering instructional shopwork of a non-vocational type which provides general educational experiences centered around the industrial and technical aspects of life today and offers orientation in the areas of appreciation, production, consumption, and recreation through actual experiences with materials and goods. Also serves as exploratory experiences helpful in the choice of a vocation. Since this is considered general education experience and not "vocational education", it is not eligible for vocational education funds.

Types of Facilities

AREA VOCATIONAL SCHOOL OR PROGRAM
(Also called JOINT VOCATIONAL SCHOOL)

–a school or program involving a large geographical territory, usually including more than one local basic school administrative unit. May be a separate school facility with its own tax-base and board, or a program within a comprehensive high school in which students from another(s) school district or school system participate under an area program agreement. (Cleveland's Skill Centers in their comprehensive high schools are approved as Area Vocational Programs). Offers specialized training to high school students preparing to enter the labor market. May also provide vocational or technical education to persons who have completed or left high school and are available for full-time study. Reimbursable with vocational education funds if: 1) it meets state standards of staff, facilities, equipment and time allotment; 2) offers five (5) or more areas of vocational instruction; and 3) incorporates students from more than one school attendance district.

> **COMPREHENSIVE HIGH SCHOOL**

–a secondary school with a number of departments (e.g., college preparatory, general, vocational) offering a diversified program to meet needs of pupils with varying interests and abilities.

> **JUNIOR COLLEGE**

–an institution of higher education offering the first two years of college instruction, technical education and adult programs. Frequently grants an associate degree but not a bachelor's degree. Curricula includes transfer and/or terminal programs (the latter with an immediate employment objective) at the post-secondary instructional level. May include adult education programs. An independently organized institution (public or non-public), or an institution which is part of the public school system or of an independently organized system of junior colleges.

> OPPORTUNITY SCHOOL

–a term applied to a school providing specialized courses to meet widely varied adult needs such as those of illiterates, applicants for naturalization, workers needing retraining, or adults seeking various types of vocational training.

> RESIDENTIAL VOCATIONAL EDUCATION PROGRAM

–residential vocational school for youth (14-20 years) for whom living outside their own homes is conducive to an effective vocational training experience. Priority for federal funds for planning, construction and operation goes to areas of high drop-out rates. May be operated by the local school district or the state.

> TECHNICAL INSTITUTE

–a school at post-high school level which offers technical education in one or more fields to prepare people for employment in paraprofessional positions which lie between skilled workers and professional scientists or engineers. (See Technical Training - page 10).

> TRADE SCHOOL

–a public or private vocational school which trains youth and adults in one or more skilled or semi-skilled trades. May provide general education also. (See Vocational School - page 15).

> VOCATIONAL SCHOOL

–a public or private school organized separately to offer training in one or more areas of vocational education (e.g. agriculture, business education, home economics, trades and industry) skilled or semiskilled trades or occupations. May provide general education also. Designed to meet needs of high school students preparing for employment and to provide upgrading or extension courses for those who are employed. (See Area Vocational School - page 14 and Trade School - page 15).

Vocational Education Legislation

VOCATIONAL EDUCATION AMENDMENTS ACT – 1968

(Public Law 90-576)

–authorizes increased funds to carry out the purpose of the Vocational Education Act of 1963 (see page 17) as response to the Nation's need for more and better educational programs to prepare people for work and to upgrade them in their present jobs. Funds, available after July 1, 1969, will be for:

- high school youth and persons who have completed or left high school who need vocational training or retraining
- vocational education in high schools and for post-secondary vocational programs
- vocational training thru arrangements with private vocational training institutions
- vocational education for the disadvantaged and for the physically handicapped
- exemplary programs, with special emphasis to youth with academic, socio-economic or other handicaps
- consumer and homemaking education
- expansion of cooperative vocational education programs
- extension of work-study programs for vocational students needing financial assistance to remain in school
- vocational guidance and counseling
- research
- ancillary services, such as teacher training, supervision, program evaluation, demonstration and experimental programs, development of instructional materials, and improved State administration

- training and development programs for teaching personnel, including full-time advanced study, exchanges of teaching personnel between business, industrial and other public or private employment, in-service teacher education and short term institutes
- construction of area vocational education school facilities
- planning, construction, equipment and operation of residential vocational schools
- National Advisory Council and State Advisory Councils.

The Vocational Education Act of 1963 and the George-Barden Act (see page 18) are, in effect, repealed by these 1968 Amendments. The Smith-Hughes Act (see page 18) is not repealed, though the only feature remaining is the appropriating language.

A State Plan (see page 18), prepared by the State Department of Education, must be approved by the U.S. Office of Education as a basis for securing federal vocational education funds under this Act.

> **VOCATIONAL EDUCATION ACT - 1963 (Public Law 88-210)**

–authorizes federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the states–those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps–will have ready access to vocational training or retraining which is of high quality, realistic in light of actual or anticipated opportunities for gainful employment, and suited to their needs, interests, and ability to benefit from such training.

> **GEORGE-BARDEN ACT**

–federal law enacted in 1946 and subsequently amended which provides for "grants-in-aid to states for use in vocational programs which meet certain minimum standards in agriculture, health occupations,home economics, distributive education, trade and industrial education, and vocational guidance."

> **SMITH-HUGHES ACT**

–the basic federal vocational education act of 1917, which established principles of federal financial aid and cooperation with states in promoting public vocational education (not leading to a baccalaureate degree) in agriculture, trades and industries, and home economics for persons 14 and over. Includes permanent appropriation.

> **STATE BOARD FOR VOCATIONAL EDUCATION**

–an agency, created by a state, having major responsibility for administration and general supervision of vocational education in that state. Responsible for maintaining certain minimum standards in expenditure of federal funds allotted to the state for vocational education.

> **STATE PLAN**

–agreement between a state board for vocational education and the U. S. office of Education describing: (a) vocational education programs developed by the state to meet its own purposes and conditions, and (b) conditions under which the state will use federal vocational educational funds (such conditions must conform to federal acts and official policies of the U.S. Office of Education). The State Plan must be approved by the U.S. Office of Education.

> **U.S. OFFICE OF EDUCATION**

–a division within the federal government's Department of Health, Education and Welfare for advancing the cause of education thru out the nation. The Division of National and Technical Education within the Office of Education is responsible for administration of the vocational education Acts, including allocation of federal funds to the states for vocational education.

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MPDC

This LAYMEN'S GLOSSARY OF VOCATIONAL EDUCATION TERMS was prepared under the practical guidance and leadership of the following Manpower Planning and Development Commission Task Force composed of professional educators and knowledgeable laymen:

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*HOME ECONOMICS EDUCATION; *FEDERAL PROGRAMS; *FAMILY PLANNING; FAMILY LIFE EDUCATION; SEX EDUCATION; FEDERAL LEGISLATION; FAMILY PROBLEMS; *COMMUNITY SERVICES; HEALTH NEEDS; *HEALTH SERVICES; FEDERAL AID

The United States ranks fifteenth among nations in infant mortality rate, with prematurity, mental retardation, organic handicaps, and birth rates highest among the poor. The average low income family has over twice as many children as families with adequate income, but children from large families are least likely to gain the education that will help them escape poverty. Federal legislation has given impetus to nationwide family planning effort, and made it possible to draw upon public resources for the provision of services, for training personnel, and for expanding research. The booklet describes (1) health, referral and guidance services, (2) information and technical assistance, (3) the responsibility of public education to provide sex education for youth and adults, (4) training of professional and nonprofessional personnel, (5) grants and financial assistance for various types of family planning programs, and (6) research. The appendix contains policy statements, family planning objectives, and financial obligations. (FP)

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FOREWORD

Although other news has made more headlines, history will undoubtedly record the adoption of a public policy on family planning as one of the most significant events of the 1960's.

Once it was recognized that everyone —not merely those who could afford to pay—should have freedom of choice on this issue, the way was opened for public as well as private resources to be used to equalize opportunities to space children and to determine the size of families.

Laws and regulations were initiated or changed at all levels of government; public programs and policies were drastically revised.

Such actions were long overdue. The United States ranks 15th among Nations in its infant mortality rate. This and other problems related to childbearing are most prevalent in low-income groups, the groups that have had least access to family planning opportunities. Prematurity rates tend to be higher in low-income areas and prematurity not only affects infant mortality but is also closely related to mental retardation and other organic handicaps. Birth rates are also higher among the poor. The average low-income family has over twice as many children as families with adequate incomes. And children in such large families are least likely to gain the education that will help them escape from poverty.

A public policy in support of family planning makes it possible to draw upon public resources for the provision of services, for training the large numbers of professional, technical and auxiliary personnel needed in family planning programs, and for expanding research in both the biological and behavioral aspects of human reproduction and fertility control.

The involvement of the Federal government has been accelerating and, in 1968, President Johnson, in his Health Message to Congress, placed *first* among his proposed health goals for the Nation "to reduce sharply the inexcusably high rate of infant mortality in the United States." To advance this goal, the President also announced that he had directed the Secretary of Health, Education and Welfare to establish a Center for Population Research in the National Institute of Child Health and Human Development.

Presidential policy has been matched by legislative and executive actions, including assignment of administrative priority in the Department of Health, Education, and Welfare. The foundations have now been laid for a nationwide effort commensurate with the need. To achieve this goal will require support from persons in all parts of the nation and in many walks of life. Their efforts must be part and parcel of the broader effort to improve the health and well being of all Americans.

The task was clearly described by the former Secretary of the Department of Health, Education, and Welfare, John W. Gardner, in describing the mission of the Department: "That mission is to strive toward the elimination of all the conditions that stunt individual growth or impair human dignity. It is to foster

the strengths and capabilities that enable individuals to function as free and responsible citizens. It is to create the institutional arrangements that enable individuals to have greater freedom of choice."

Speaking of freedom of choice as it relates specifically to family planning, the present Secretary of Health, Education, and Welfare, Wilbur J. Cohen, said: "A major national goal is to assure each individual freedom of information and freedom to choose how he wishes to live. In moving toward the family planning aspects of this goal, each individual must be guaranteed the full right to choose—and the right to all the family planning information he needs to make an intelligent choice."

The purpose of this booklet is to serve as a guide to the Federal programs related to family planning. It is addressed to:

. . . health and welfare workers whose daily jobs put them in touch with the individuals who want, but do not know how to get or utilize, family planning services.

. . . teachers and counsellors who can help young people to develop wholesome attitudes about sex and responsible parenthood.

. . . researchers whose work can fill the gaps in knowledge which still retard progress.

. . . educators in universities and other training centers who prepare the health, welfare, educational and research manpower required to more fully achieve our goals.

Through the concerted efforts of these specialists, making optimum use of the increasing Federal financial and other assistance, family planning can become a practical reality for all who wish to use it.

The main body of this report describes both new and traditional aid to these groups and to the organizations that employ them. The appendix contains the record of the increasing Federal commitment—in policy, in program emphasis, in funds. While the contents are not all-inclusive, we believe they will prove useful to all who are interested in opportunities for greater service to this crucial cause.

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INTRODUCTION

In recent years, Congress has enacted many laws to enable the Federal government to give impetus to the nationwide family planning effort and has appropriated increasing sums of money for this purpose.

Some of the most significant legislation was enacted in 1967. For example, the Child Health Act of 1967 specifically states that not less than six percent of grants to public agencies for maternal and child health and for maternity and infant care projects must be used for family planning. The law also authorizes grants to voluntary agencies for family planning projects. In addition, the law provides that 10% of the authorization for child health programs is to be allocated for research and for the training of personnel.

The 1967 public welfare amendments to the Social Security Act require States to offer family planning services to appropriate persons who receive financial assistance through the Federally aided program of Aid to Families with Dependent Children—a program that serves more than 4 million adults and children. Under the same law, Federal funds can be used to help pay for the cost of extending this service to other women who have in the past or may in the future need AFDC payments.

The 1967 Partnership for Health Amendments to the Public Health Service Act provide for more flexible use of formula and project grants. The Surgeon General, in his priority statement for the program, has identified family planning as an important aspect of comprehensive health services needed throughout the Nation.

These new laws as well as older legislation—such as the various laws authorizing grants-in-aid to States, dating back to the Social Security Act of 1935, and including some of the public health legislation for research and training—make it possible for non-Federal agencies to put a new or added emphasis on family planning by allocating to this purpose more of the Federal grants they share.

In addition, the Medicaid legislation of 1965 provides Federal support for reimbursing private physicians, hospitals and other medical personnel and facilities that offer family planning services.

Other Congressional action that has helped to extend family planning aid to the needy at home and abroad include the Economic Opportunity Act and a Congressional directive encouraging the Agency for International Development to support family planning.

ACTION BY MAJOR FEDERAL AGENCIES

With added authorizations and funds from Congress, a number of Federal departments and agencies have developed new programs and expanded existing ones. Some of these programs provide family planning services directly

to persons entitled to Federally financed medical care; most of the Federal programs, however, are designed to strengthen the service, training, research and other family planning activities of non-Federal groups.

The largest direct service program of the Federal government is operated by the Department of Defense which, since 1967, has made family planning services available to all military personnel and their dependents.

The Office of Economic Opportunity has also placed a national emphasis on family planning in neighborhood health centers and other health services which it supports in low income areas.

Other Federal agencies such as the Departments of Agriculture and Labor have sensitized farm, labor and other special groups to their opportunities for advancing the family planning movement. For example, the Labor Department includes family planning in some of their Manpower Development and Training programs. The Department of State, especially through AID, has assisted other countries with their family planning programs and has also given institutional support to U.S. programs. The Department of Interior supports family planning services in the trust territories.

The major Federal agency dealing with family planning activities, however, is the Department of Health, Education, and Welfare. It not only cooperates with other Federal agencies in reaching special domestic and foreign publics, but also carries the main Federal responsibility for enhancing family planning opportunities throughout the United States.

Programs of the Department of Health, Education, and Welfare

This Department provides direct family planning services to some of the civilian groups for whom it is authorized to give medical care: American Indians, Alaskan natives, members of the Coast Guard and of the Public Health Service Commissioned Corps and their dependents. Through its operation of the Federal Employees Health Program, it also offers counseling and referral service to any civilian employee of the Federal government who requests it.

The Department's broader responsibility, however, is to promote non-Federal activities by providing financial, technical and other assistance to many different types of organizations and individuals: Parent and youth organizations, schools and universities, hospitals and health departments, community health, education, and welfare agencies—and to the educational, health, medical, welfare, civic and other leaders who, individually and collectively, must carry on many tasks related to family planning.

The Department's activity in this field has been steadily intensified since January 1966, when the Secretary of Health, Education, and Welfare first announced the Department's policy of conducting and supporting research, training, service and other activities which would help to assure that all Americans would have a genuinely free choice about family planning.

In January 1968 the Secretary designated family planning as one of the Department's *priority* programs and established a unit on population and family planning in the Office of the Assistant Secretary for Health and Scientific Affairs. The new unit was made responsible for stimulating and coordinating all the Department's family planning activities and for working cooperatively with other Federal agencies and with public and voluntary agencies throughout the Nation.

The Department's operating agencies that, directly or indirectly, contribute to the goal of responsible parenthood are:

*The Social and Rehabilitation Service,** which sees that family planning aid is available to women who receive public assistance and supports medically oriented family planning services in low income areas;

*The Health Services and Mental Health Administration** which assists State and local health agencies in expanding service and training programs and gives direct service to groups entitled to receive medical care from the Federal government;

The National Institutes of Health which conduct and support research, research training and programs of financial assistance to medical and other health professions schools.

*The Consumer Protection and Environmental Health Service** which, through its Food and Drug Administration, is responsible for seeing that contraceptive drugs are not put on the market until they meet safety and effectiveness standards and for seeing that they are accurately labeled;

The Office of Education which, through its ongoing programs, provides financial and technical assistance to States and communities that wish to include family life and sex education programs in their schools, and institutions of higher education.

* Many programs in these agencies predated the 1967–68 reorganization of HEW which created the new administrative units. However, the support they offer is listed throughout this report under their present administrative structure.

To Give *All* Women a Choice

THE GREAT MAJORITY of families in this country have long had freedom of choice about the size of their families and the spacing of their children. It is the very poor who have been denied this freedom, partly because they did not understand that scientific methods make family planning possible, but mainly because there were no convenient services available and they had no means of paying for the necessary services and supplies.

Consequently, in supporting service activities, the Department of Health, Education, and Welfare concentrates upon the poor who require subsidized services. There are an estimated five million women in this target group. About one-half million of them received subsidized services through Federally aided programs in 1967. Private funds supported services for an additional 300,000. Available data are not adequate to indicate how many more of the 5 million women desire services but have been unable to get them.

To serve even this proportion of the target group, agencies have had to expand tremendously. One large maternity hospital that gave family planning service to only 3 families in 1958 now gives this service to more than 10,000 women a year. In another urban hospital, attendance at family planning clinics jumped from 5,000 in 1964 to 12,000 in 1966. In a Southern rural State, family planning services in health departments are four times as numerous as they were two years ago.

While such records are commendable, they are meaningless to the millions of women who are still unable to get the service they need and who will continue to have unwanted pregnancies—at the rate of almost a half-million a year—until there are genuinely adequate facilities in every part of the Nation.

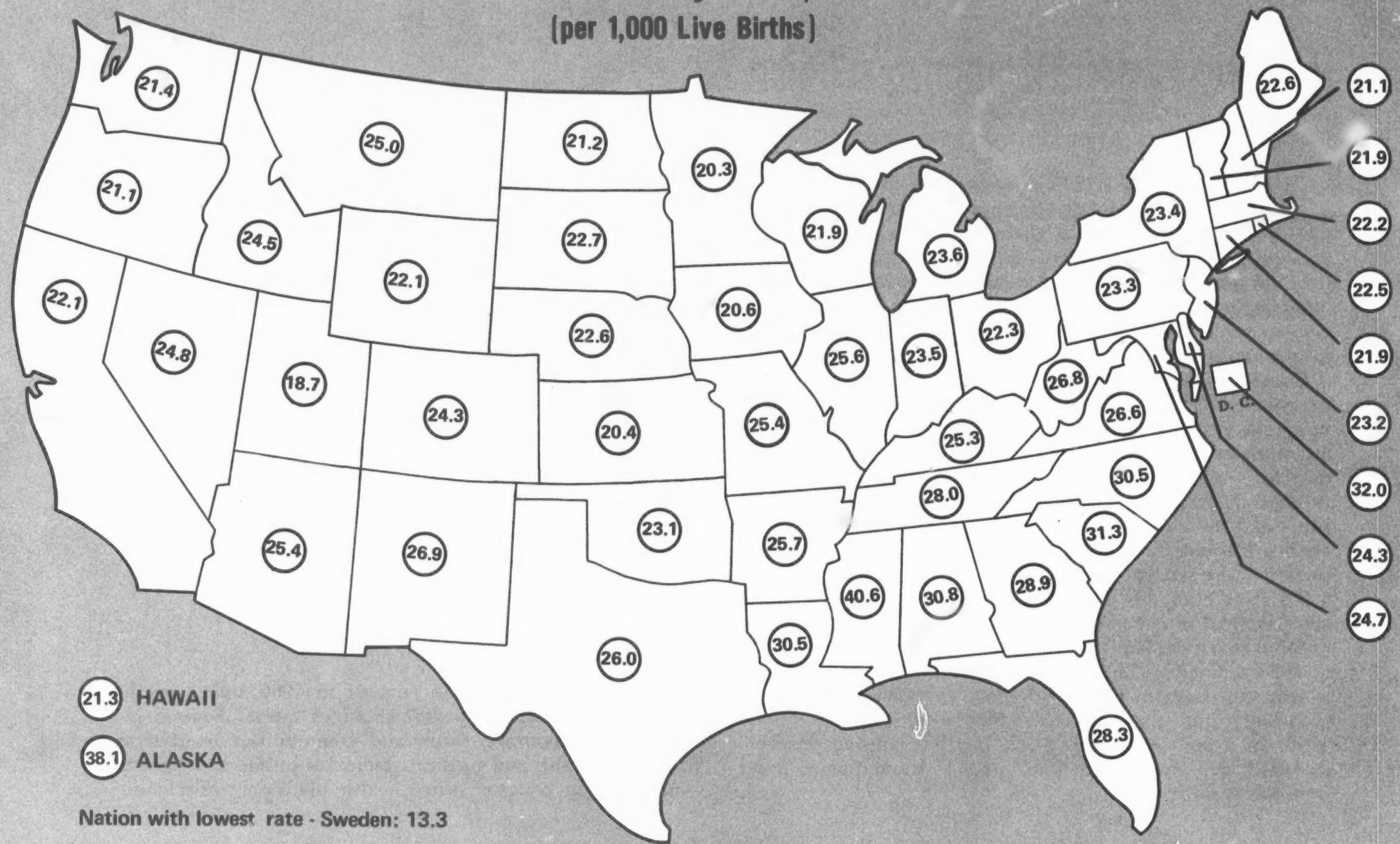
Public and voluntary health and welfare agencies, as well as private physicians and health facilities, are counted on to fill the gap. Many Federal aids are available to help them do so rapidly. The only basic requirement for all such aid is that there be no element of coercion. Women using subsidized services must be free to accept or reject the opportunity to plan their pregnancies without fear that they may be penalized if they reject it. They should also be given free choice about which of the methods they wish to use.

Ways in which the Federal government supports family planning services throughout the Nation include:

Comprehensive Health Services

Public Health legislation enacted in 1966 and strengthened by amendments in 1967 provides special Federal incentives to encourage States and communities to analyze their total health and medical resources—public and private—and develop comprehensive health plans for orderly ex-

Infant Mortality Rates, 1965
(per 1,000 Live Births)



Nation with lowest rate - Sweden: 13.3

pansion to meet the priority health needs of their people. Planning grants, formula grants to State health departments, and project grants to public and non-profit private agencies are all used to further this objective.

Family planning is one of the six programs which the Surgeon General declared to be of high priority in all parts of the nation. He stated that special attention should be given to it in State and local planning programs and that the use of Federal funds in support of such services should be encouraged.

This priority, which became effective November 7, 1967, emphasizes the goal of making family planning an integral part of comprehensive health services which assure essential services to all people in all parts of the country.

MATERNAL AND CHILD HEALTH

Maternal and child health funds (allocated to State health departments on a formula basis set by Congress) and maternity and infant care project grants are the major sources of Federal support for family planning services. More than a quarter of a million women received information and supplies for family planning from their health department's maternal and child health programs in 1967.

These programs have particularly emphasized services in rural areas where they are badly needed. A sample survey recently revealed that almost twice as many couples in rural areas as in urban areas had not sought or planned their last conception. In rural white families with incomes of under $2000, the average number of births per woman is 48% higher than for the Nation as a whole; for rural non-white women it is 156% higher.

The Child Health Act of 1967 assures further expansion of maternal and child health programs. The new law requires State health departments to include family planning in the plans they submit to the Children's Bureau when they apply for maternal and child health grants. It also requires that at least 6 per cent of the Federal appropriations for maternal and child health be invested in family planning activities. By July 1, 1975, State Health departments, if they wish to continue to receive these Federal grants, must be able to show that family planning services are available in all parts of the State.

Federal support made available through the maternity and infant care project funds was authorized by the Mental Retardation amendments of 1963. These funds support prenatal, maternity and postnatal care for women who are likely to have complications related to childbearing and who live in low income areas. The projects have been particularly helpful to women in areas of the cities where both birth rates and infant mortality rates are very high.

The funds enable public health agencies to provide, or to pay private facilities to provide, high quality care for women and their babies and thus reduce the risk of prematurity and other complications which are major causes of mental retardation and other congenital handicaps. Family planning is an important part of the service in the 54 maternity and infant care projects that are now operating. By mid-1967, more than 103,000 women had been served by these projects.

THE MEDICAID PROGRAM

In dollar terms, the greatest potential source of Federal support for voluntary organizations, as well as for private physicians who give family planning services, is the Federally aided Medicaid program that is now operating in a large majority of the States.

Authorized in 1965, as Title 19 of the Social Security Act, the program makes it possible to pay usual and customary fees for physicians' services. In-patient and out-patient hospital care are also covered. If States choose to include family planning services under Medicaid, the cost of the necessary drugs or devices must be included.

In States that operate Medicaid programs, all persons receiving financial assistance through the Federally aided public assistance programs must be covered. States have the option of extending the benefits of Medicaid to the "medically needy," i.e., persons who would be eligible for public assistance except that their incomes provide enough for them to live on but not enough to pay for medical care.

Since the Federal government pays 50 to 83 percent of the cost of Medicaid programs (States with the lowest per capita incomes receive the highest percentages) many States will be able to use the program to finance the cost of service and supplies for women served by the Aid to Families with Dependent Children program. Thus, in Medicaid States, any family planning center, clinic, hospital or other private facility can be reimbursed for the cost of serving eligible women.

VOLUNTARY AGENCIES

Most Federal grants for non-governmental activities support the training programs and research and demonstration projects described in subsequent sections of this report.

However, considerable sums of Federal money are available to voluntary organizations for extending family planning services. Most of these grants are available to non-Federal public agencies as well as to privately supported programs.

For example, the Child Health Act of 1967 makes it possible for Federal grants to be paid to planned parenthood agencies, private hospitals and other voluntary organizations for service programs. This support is on the same basis (75% of cost) that was formerly authorized only for public maternal and child health programs.

In allotting these funds, the Children's Bureau will give priority to organizations that have efficient and effective, medically oriented programs for women who would otherwise be unable to get the help they need. Programs that operate in any of the 42 counties which have 400 or more excess infant deaths per year (above a rate of 18.3 per 1000 live births) will be given special consideration.

MEDICAL MANAGEMENT

In supporting programs that provide direct family planning services, whether they are conducted under voluntary or public auspices, HEW stresses the importance of medical management. There are several reasons for this requirement:

The use of oral contraceptives has been associated with a number of discomforting side effects including some serious adverse reactions. Good medical management of a family planning program that employs oral contraceptives is essential to assure consideration of the prescribing information provided in the drugs' approved labeling. The labeling required by the Food and Drug Administration and used by all U.S. manufacturers of oral contraceptives includes notes on adverse reactions and other pertinent data. Labeling requirements—which are carefully reviewed by a committee of specialists—are changed whenever new data indicate the need.

Patients should have a pre-treatment physical examination. This is especially important when oral contraceptives are used because women with known or suspected cancer of the breast or reproductive tract and women with a history of blood clotting diseases should not be given the drugs. The pre-treatment examination is beneficial to all women as a disease detection measure. For example, at a maternity and infant care project in Chicago, more than 100 active cases and 640 potential cases of diabetes and 17 cases of cancer of the cervix were discovered among women who had not known they had these health problems.

Continued medical supervision is also necessary, particularly for women who use oral drugs, since use of such

drugs should be discontinued at the earliest signs of blood clotting disorders. Women with certain other health conditions also need careful observation because the drugs sometimes cause fluid retention which may aggravate certain conditions such as epilepsy, migraine, asthma, cardiac or kidney disease.

Referral and Guidance Services

In addition to helping to pay for direct services and supplies furnished by health departments, voluntary health agencies, hospitals, and private physicians, Federal funds also support programs that help women to learn about and use these services. The principal sources of Federal support for referral and guidance programs are the National Institute of Mental Health, through its funds for Community Mental Health Centers, and the Assistance Payments Administration, through its grants to public welfare agencies that administer Aid to Families with Dependent Children and child welfare programs.

COMMUNITY MENTAL HEALTH CENTERS

Community mental health centers now in operation, as well as new applicants for Federal construction and staffing grants, are being encouraged by the National Institute of Mental Health to include consultation on family planning as part of their comprehensive mental health services programs. Special training programs in the family planning field are being made available to mental health center staff members who, in turn, will be available for consultation with staffs of other community agencies.

PUBLIC WELFARE DEPARTMENT

The public agencies that administer public assistance and child welfare programs serve a large segment of the population who desire, but are least apt to have family planning services available.

In fact, many of the problems that bring people into these welfare agencies stem from unmet family planning needs.

The added responsibility of supporting another child may be the "last straw" that causes a father to decide to desert his family. Poor health induced by having too many babies too close together may be a major reason why a mother loses control over her children, with resulting problems of truancy, delinquency and neglect. And while teenagers need a broad range of services, their problems are intensified when they result in births out of wedlock.

For many years it has been possible for public welfare departments to use Federal grants to pay for family planning counseling and for contraceptives. However, few States have emphasized family planning in their welfare programs and, in some States, staffs have been forbidden to broach the subject to public assistance recipients.

Federal Requirements and Support

The recent trend toward more emphasis on family planning is expected to accelerate as a result of the 1967 Federal legislation which requires agencies that administer the Federally aided public assistance program of Aid to Families with Dependent Children to offer family planning services. This requirement, effective July 1, 1968, makes public welfare staffs responsible not only for offering family planning services to the mothers in these families but also for developing plans for the welfare of children or other members of the household which will prevent or minimize the danger of out-of-wedlock pregnancy.

Because these families are dependent on the AFDC program for all or most of their incomes, the Federal law contains special safeguards to assure that participation in family planning programs will be entirely voluntary, that

no woman will feel that her right to continue to receive financial assistance will be endangered if she refuses to use family planning services.

About a million women who receive assistance for themselves and their families could receive information about family planning as a result of this legislation. If States wish to, they can also extend the service to other women who have received AFDC payments in the past or whose incomes are so low that they are likely to qualify for such aid in the future.

Comprehensive Programs Needed

To encourage public welfare agencies to make their programs as comprehensive and helpful as possible, Federal funds can be used to pay 85 percent of the cost of family planning services during the first year (until July 1, 1969) and 75 percent for all subsequent years.

Public welfare agencies can receive this support for a very broad range of services. These include the counseling and information which a caseworker or case aide might give; payment of transportation to a physician, health department or family planning clinic; payment of fees and for contraceptive supplies; arrangements for the care of children while the mother goes for family planning service; follow-up with the agency or physician to whom the mother was referred. If necessary, a public welfare department can even set up its own unit for providing family planning information and supplies.

Obviously, to be of maximum value, the public welfare department must offer family planning opportunities as a part of a much broader program of social and rehabilitation services. Study after study has proved that only as people gain real hope of attaining a better life for themselves and their children do they see family planning as one of the ways of enabling them to do so.

Information and Technical Assistance

To assist public and private agencies, institutions and organizations, the Department issues guidelines, manuals, handbooks and non-technical publications. These range from instructions about applying for grants, to descriptions of how successful programs were organized and operated, to pamphlets for people of limited reading ability.

Personal assistance is also available. For example, the Communicable Disease Center is currently training a group of its staff members in the techniques of evaluating family planning programs so that they will be able to assist State and local public health agencies in this important aspect of their programs. And Regional consultants from the Department's various health and welfare programs visit States frequently and can be consulted on family planning as well as other activities that receive Federal support. Often, upon request, staff members from either Regional or Headquarters offices are available to participate in meetings, conferences or institutes.

For the Parents of Today and Tomorrow

IDEALLY, preparation for responsible parenthood begins in very early childhood. Many of today's parents, however, failed to receive the kind of sex education that enables them to pass on wholesome attitudes about sex to their children.

A survey of parents in a Southern city revealed that 90% of them wanted their children to receive better guidance on sex matters than they had received and wanted the schools to assume more responsibility for providing accurate information. A public opinion poll in a Western city produced similar results—90% of those polled wanted sex education in the schools. Adults also need sex and family life education.

Education for all age groups is therefore essential to the success of family planning programs and many types of Federal aid are available to help education, health, and welfare agencies and other organizations to provide it.

The basis upon which the Department's Office of Education, through its various grant programs, can support family life and sex education has been outlined in a policy statement issued by the Commissioner of Education in

1966. He announced that the Office of Education "will support family life education and sex education as an integral part of the curriculum from pre-school to college and adult levels; it will support training for teachers and health and guidance personnel at all levels of instruction; it will aid programs designed to help parents carry out their roles in family life education and sex education; and it will support research and development in all aspects of family life education and sex education."

Other important sources of support—particularly for public and voluntary health and welfare agencies—are the demonstration grants described in a later section of this report.

Student Programs

The major sources of Federal aid for schools everywhere stem from 1965 legislation which, since 1966, has brought almost $4 billion Federal dollars into the elementary and secondary schools of the Nation.

One of the results of the Federal aid has been that all State departments of public instruction now have one or more persons who are specifically assigned to help local schools with sex education programs.

Federal grants to State education agencies are also used to enable public and private elementary and secondary schools to purchase textbooks and other instructional materials for both teachers and children.

Additional grants for administering and operating sex education programs for special groups of children are also available. These groups include children in low-income areas, children in State schools for the handicapped, neglected or delinquent children who are in institutions, and children of migrant workers.

Other sources of financial support for schools and colleges may be provided by project funds (for example, dropout prevention projects), and by training, research and demonstration grants, all of which are described in later sections of this report.

Other Assistance for Youth Programs

Increasingly, parents, teachers, social workers, youth leaders, parole officers and others who play an influential role in the lives of today's teenagers can look to the Department for helpful material.

A few Departmental publications of interest to such persons are already available: the report of a national survey, "Comprehensive Programs for School Age Pregnant Girls," by the Children's Bureau; numerous fact sheets and reference lists issued by the Office of Education.

With the greater emphasis the Department is now placing upon family planning, sex education, and related activities, more facts, opinions and other helpful information should be available soon.

For example, one of the most difficult issues educators and other youth leaders face today is the question of what, if any, responsibility they should assume for making contraceptive information available to teenagers.

Under the leadership of the Deputy Assistant Secretary for Population and Family Planning, recognized leaders of the professional groups most concerned with this issue are considering its medical and legal as well as its ethical aspects. Their goal is to develop a collection of expert opinion that will be useful to all who have hitherto looked in vain for material that might help them to handle the problem constructively.

Other mechanisms used by the Department to expedite the sharing of experience and information by persons in all parts of the Nation include the sponsorship of special conferences, meetings and workshops. Insofar as time and funds permit, Federal staff who have specialized in various

facets of educational and other youth programs also provide consultation to organizations that request it.

Adult Programs

National surveys reveal that the lower the parents' educational level, the more likely they are to have more children than they desire. Among couples who reported that their last child was unwanted were 10 percent of the white and 20 percent of the non-white couples in which the wife had a college education. The comparable percentages for couples in which the wife had only a grade school education were over 30 percent for white; 45 percent for non-white.

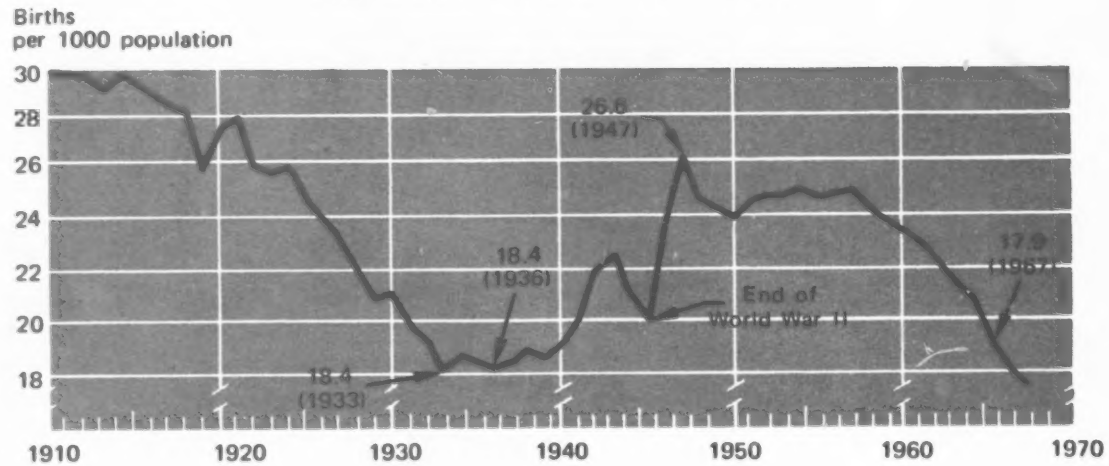
This low educational level of many of the women who have not been able to avoid unwanted pregnancies makes it difficult to interest them in family planning programs.

One approach is through the Adult Basic Education Program authorized by the Economic Opportunity Act and administered by the Office of Education. The Office of Education awards grants to State departments of public instruction which, in turn, can finance local public and other non-profit organizations that conduct such programs. These agencies can, if they wish to, give a priority to the inclusion of the topic of family living in their basic education programs.

Other methods which have proved effective include mothers' clubs for women who are receiving public assistance; door-to-door contacts by neighborhood workers, visiting nurses, settlement workers and volunteers; mobile clinics in low income areas; and introduction of the topic by physicians, teachers, social workers and other counselors during the course of professional consultations with individuals or groups.

Since almost any type of grant made by the Department of Health, Education, and Welfare to any type of organization for family planning activities can be used to include a public education component, those applying for such grants may wish to round out their programs by including this aspect in their plan or proposal.

U.S. BIRTH RATE, 1910 - 1967



Manpower for Expanded Programs

MOST professional people are familiar with the various contraceptive techniques—the pill, the IUD, the rhythm method, the condom, the diaphragm etc.—but relatively few are equipped to carry out the many and varied tasks required if family planning service is to become genuinely available to all adults who desire it.

Teachers report that they neither know how nor what to teach about family life and sex to children at different age levels.

Social workers complain of a language barrier—if they use the client's terms, she is shocked, if they use anatomical terms, she does not understand them.

Physicians and nurses also find that they need more than their basic professional training to enable them to reach out and help the parents who need family planning service.

And even if all these and others who are now engaged in occupations where they can help with family planning were adequately prepared to do so, there would still be acute personnel shortages. Moreover, many supporting services are necessary which involve researchers, demographers, statisticians, and others. They, too, need help in adapting their basic training to the needs of broad based, comprehensive family planning activities. Consequently, training that relates specifically to family planning should be an integral part of professional training.

Training for Professional Personnel

Through the financial and other support for training activities provided by HEW agencies, institutions of higher education as well as other public and voluntary organizations can receive assistance for many types of training programs. They include:

In-Service training for staffs of health and welfare agencies: For example, the Social and Rehabilitation Service has prepared a three-day training course in family planning. It is designed to be used by staff development workers in public welfare departments to train caseworkers who are now required to offer family planning services in the Aid to Families with Dependent Children program.

Another type of training for employees of health and welfare agencies was supported in Florida: key staff members of county health and welfare agencies participated in a State conference and then held similar conferences in their own counties.

Summer Training Programs: For example, the National Institute of Mental Health recently held a summer training course on sex education for school teachers.

The NIMH is also stimulating appropriate training programs, conducted by mental health professionals, for

clergymen, public health nurses, social workers and others whose work brings them in direct contact with people who may have need for information and services related to family planning.

Short-Term Institutes: Literally hundreds of such institutes on different topics are supported. Some are sponsored by universities and professional schools, some by public and voluntary organizations of professional or civic leaders. The support sometimes includes payment of stipends to those who attend the institute.

Workshops and Seminars: Recently the Department's Health Services and Mental Health Administration enabled Planned Parenthood of Maryland to hold a workshop and two special seminars on family planning for staffs of both public and voluntary health and welfare agencies.

Conferences: Illustrative of the special conferences on family planning made possible by Federal support is the conference which was jointly sponsored by the National Institute of Mental Health and the Population Crisis Committee. It was a pioneering effort to discuss the relationships of family planning and mental health. Proceedings of that conference are summarized in a brochure, *Family Planning and Mental Health,* published by the Population Crisis Committee, Washington, D.C.

Formal Training: Extensive support is given for regular courses in institutions of higher education, particularly graduate courses in schools of medicine, public health, nursing, education and other professional schools. These funds help to pay faculty salaries, travel, consultant and guest lecture fees, equipment and other essentials for a successful teaching program. Sometimes they also help to pay outside institutions and agencies that give field training to students.

Through grants to the schools as well as through direct aid, students are also given financial assistance. Stipends, fellowships, paid educational leaves, residencies and apprenticeships are representative of this type of aid.

The agencies of the Department that administer such grants include the Office of Education, the Social and Rehabilitation Service, the Health Services and Mental Health Administration and the National Institutes of Health—the nature of the training determining which agency has funds to support it.

Priorities for Training Aid

Because family planning has high priority in the activities of the Department, requests for support for training programs that relate to family planning receive special consideration. The types of people for whom training opportunities will be supported include research workers in both the physical and behavioral sciences, demographers, and statisticians as well as practitioners in all the professions that serve the family planning movement.

In part as a result of Federal aid, a number of major universities have established Population Centers which specialize in preparing students for full-time careers in family planning and population dynamics.

Training for Non-Professionals

Expanded family planning programs will require many staff members who do not need professional training but who will be more useful if they have had some training or orientation related to work in a family planning center or clinic. Nurse's aides, clerks, typists, switchboard operators, receptionists are only a few of the many whose services play an important part in the operation of successful family planning programs.

When given close supervision, these workers not only

perform the useful role of making the availability of family planning services known to people of similar background, but will also alert them to the importance of seeking information and aid from professional, medically oriented programs.

The Work Experience and Training Program and the Manpower Development and Training Program (both of which are administered jointly by the Department of Health, Education, and Welfare and the Department of Labor) afford many opportunities for States and communities to channel the Federal funds they receive for these programs into training and placing selected workers in family planning programs.

Grants from the Bureau of Adult and Vocational Education of the Office of Education to State Departments of Vocational Education can be used to broaden training courses. Some background in family life and sex education is particularly important to students who will work in schools, hospitals and other service agencies.

Incorporation of family life and sex education in training programs for the underskilled has a dual value: it not only builds a pool of labor for agencies with family planning programs to draw upon, but is also a way of reaching many of the people who most need and are least apt to get such information from other reliable sources.

SOURCES OF INFORMATION

The Department's support of training activities is based upon the premise that family planning and family life and sex education should be an integral part of everyone's educational experience. Consequently, although funds and other assistance are available for training that deals exclusively with these topics, major emphasis is placed upon their inclusion in the training given to all who can make a contribution to the advancement of family planning. Incorporation of family planning content into the warp and woof of the Nation's total educational activity will make a far greater impact than isolated efforts.

For this reason the training opportunities described in this section merely indicate a few of the ways the Department can assist in the national effort to expand skills and knowledge in the field of family planning.

To Test New Knowledge

DEMONSTRATION grants are a method of financing projects that not only provide a variety of services to people but, in doing so, test out innovative ideas and approaches.

Most of the Department's operating agencies have project grant authority, and which one finances a particular project usually depends upon the type of professional skills that are predominant in the project. For example, a school drop-out project would be supported by the Office of Education, a project for bringing family planning information to the disadvantaged by the Social and Rehabilitation Service, a clinic project by the Health Services and Mental Health Administration.

The essential ingredients of a project, whether conducted under public or private auspices, are that it clearly delineate what problems it will cope with, describe how it departs from traditional methods, and include a sound system for measuring results.

Evaluation is particularly important because the only real justification for investing Federal funds in testing new ideas is their value to other people in other communities who are faced with the problem the project is designed to solve. Therefore, soundly-based definitions of what constitutes success and clearcut measurements against these definitions are important.

Other important factors that influence selection of projects are the competence of the project director and his staff and the facilities and other resources which the sponsoring agency is willing to invest in the project.

Most project opportunities are open to both public and voluntary organizations. Many will finance projects which are jointly sponsored by two or more agencies—public, voluntary, or a combination of both. The following examples show the great variety of activities that are supported under the Department's numerous demonstration grant programs:

Models for Service Programs

What guidelines should a family planning program follow in defining its goals? What specific features of a program make the greatest impact upon the goals selected? The School of Public Health at the University of North Carolina has a project grant to design and test a series of model service programs which will combine successful program elements in different ways to achieve different goals.

While there are many goals that can be achieved through family planning—increased family stability, better health for mothers and children, the ability to afford better housing, more educational and vocational opportunities, etc.—the planners of the North Carolina project have selected four which they consider to be of particular importance to programs in low income areas: prevention of unwanted pregnancies; reduction of illegitimacy rates; reduction of infant mortality rates; and reduction of dependency.

It is expected that this project will yield material that will help new service programs to avoid a trial and error period in developing their procedures. It should also help existing programs to map out adjustments that will help them to expand.

Mobilization of Community Leaders

Grambling College in Grambling, Louisiana, with support from a project grant, is testing out a program which enlists many different kinds of people—clergymen, teachers, social workers, members of parent and civic groups—in a concerted effort to collect and spread information about family planning and other problems of family life.

Programs for School Age Pregnant Girls

Project grants from various HEW sources—the Office of Education, the Social and Rehabilitation Service, and the Health Services and Mental Health Administration—have enabled 35 communities to set up comprehensive projects for girls who drop out of school because of pregnancy.

In many of these communities, it had been the custom to expel the girls from school as soon as their pregnancies were discovered so that they could not continue their education even if they wished to do so. Whether they got any other type of service—even medical—depended upon their own initiative.

While the comprehensive service projects have had different features and emphasis in each community, all have included continuing education for the girls, medical care (often including family planning) and social service.

As the projects have yielded increasingly impressive findings, more communities are making it possible for teenage pregnant girls to continue their education before and after their babies are born. One most encouraging result is that such programs seem to prevent additional out-of-wedlock pregnancies. For example, a study in New Haven, Connecticut of 100 school-girls who received no special attention during their first pregnancy revealed that all but five had subsequent out-of-wedlock pregnancies. Within five years, these 100 girls had produced 340 babies. In a New York City comprehensive project, by contrast, only 11 of the 500 girls enrolled in the project became pregnant again within a two-year period.

Proposals for these projects have been initiated by different agencies: sometimes school people start them and enlist the cooperation of other groups; sometimes they are started by the health or the welfare agencies.

Genetic Counseling Clinics

One of the by-products of medical advances is that hereditary health problems tend to become more prevalent as more people with such problems live to childbearing age. Lack of counseling service prevents some parents who have had a congenitally handicapped child from having a second child even when they could safely do so. More often, however, parents continue to produce children who have hereditary handicaps because they do not understand the problem.

Two genetic counseling demonstration clinics—one at Johns Hopkins University in Baltimore, and the other at Washington University in St. Louis—are receiving project grants authorized by the "Partnership for Health" amendments of the Public Health Service Act to test out ways of helping parents who are faced with genetic problems.

Use of Indigenous Workers

The Planned Parenthood League of Alabama is using demonstration funds for a project which will enable them to compare the relative effectiveness of professional and non-professional workers in providing family planning information to women in eight rural, low income counties of that State.

The Planned Parenthood Association of New York is also using indigenous workers in a project which receives Federal support. The task of these workers is to interest Negro

and Puerto Rican mothers of new-born infants in returning to the hospital for family planning services.

A third project involving the use of neighborhood women in family planning programs is being conducted by the Muscogee County Health Department in Columbus, Georgia. Some of the neighborhood women work in rural areas, others in urban communities so that the project will produce data on the cost and effectiveness of this approach in both rural and urban settings.

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The above examples illustrate only a few of the many ways public and voluntary agencies are using project funds to find new and better ways of bringing people the services they need.

New Types of Project Grants

Recent legislation has given the Department additional authority to support special types of projects. These include:

Dropout Prevention Projects

1967 amendments to the Elementary and Secondary Education Act authorize the Office of Education to award grants or contracts to local education agencies in areas where there is a high percentage of school dropouts. The purpose is to develop innovative programs to reduce the dropout problem. Almost half of the teen-age girls who drop out of school do so because of pregnancy or early marriage. Based on current trends, it is estimated that 80,000 girls under 17 years of age will have out-of-wedlock pregnancies this year.

Experiments with Systems of Payment

A new program to encourage experimental work by private physicians as well as by private hospitals and health agencies was authorized by 1967 amendments to the Social Security Act. Its purpose is to find better ways of reimbursing private physicians and health facilities for services to patients whose care is paid from Medicare, Medicaid, or Maternal and Child Health funds.

Experiments with payments for Medicaid and Maternal and Child Health patients can include family planning services and projects that do so have an added chance of being supported because comprehensiveness of the plan is one of the key factors considered in awarding the grants. Projects must be designed to demonstrate how health care costs can be modified at the same time that the quality of care is maintained or improved.

Projects in Health Programs

Since the enactment of the Comprehensive Health Planning and Health Services Act in 1966, formula grants for public health services and project grants for health services development, under the Act, must be used in accordance with such plans as have been developed by the State Comprehensive Health Planning Agency. This applies not only to the grants given to State health departments but also to the project grants which are awarded to public and non-profit private agencies. There are dual opportunities in this program: to set up a comprehensive health project which includes family planning, or to set up a special family planning project which fits into a much broader community or neighborhood health program.

Grants to Aid Migrant Workers

Because the health problems of migrant workers have been so seriously neglected, Congress has singled them out for special grant authorizations. Under an amendment to the Public Health Act, funds are available for health projects which include family planning for migrants and their

families. Under an amendment to the Vocational Rehabilitation Act, Federally supported projects may include family planning for handicapped migrant workers and non-handicapped members of their families, provided the service contributes to the rehabilitation of the handicapped person.

Public Projects

Some project grants are available only to tax-supported agencies. While local public agencies usually receive a share of the grants paid to State agencies, the advantage of a project grant to a local agency is that it offers additional support for special work. Usually the local agency initiates the project and enlists the support of the State agency in developing and endorsing it. Sometimes the State agency takes the initiative, however, and searches out a progressive and cooperative local agency to undertake the project.

An important source of support for projects in local public welfare agencies is the demonstration grant program administered by the Assistance Payments Administration. The purpose of this program is to test out ways of improving the operation of public assistance programs. Projects that involve family planning activities will receive special consideration.

SUPPORT FOR FAMILY PLANNING MATERIALS

Through the regular grants to State education, health, and welfare agencies, as well as through project and contract funds, Federal aid can support the production of textbooks, popular and professional publications, films and other materials needed for sex education and family planning programs. Production of such materials can also be supported as an element of a broader project.

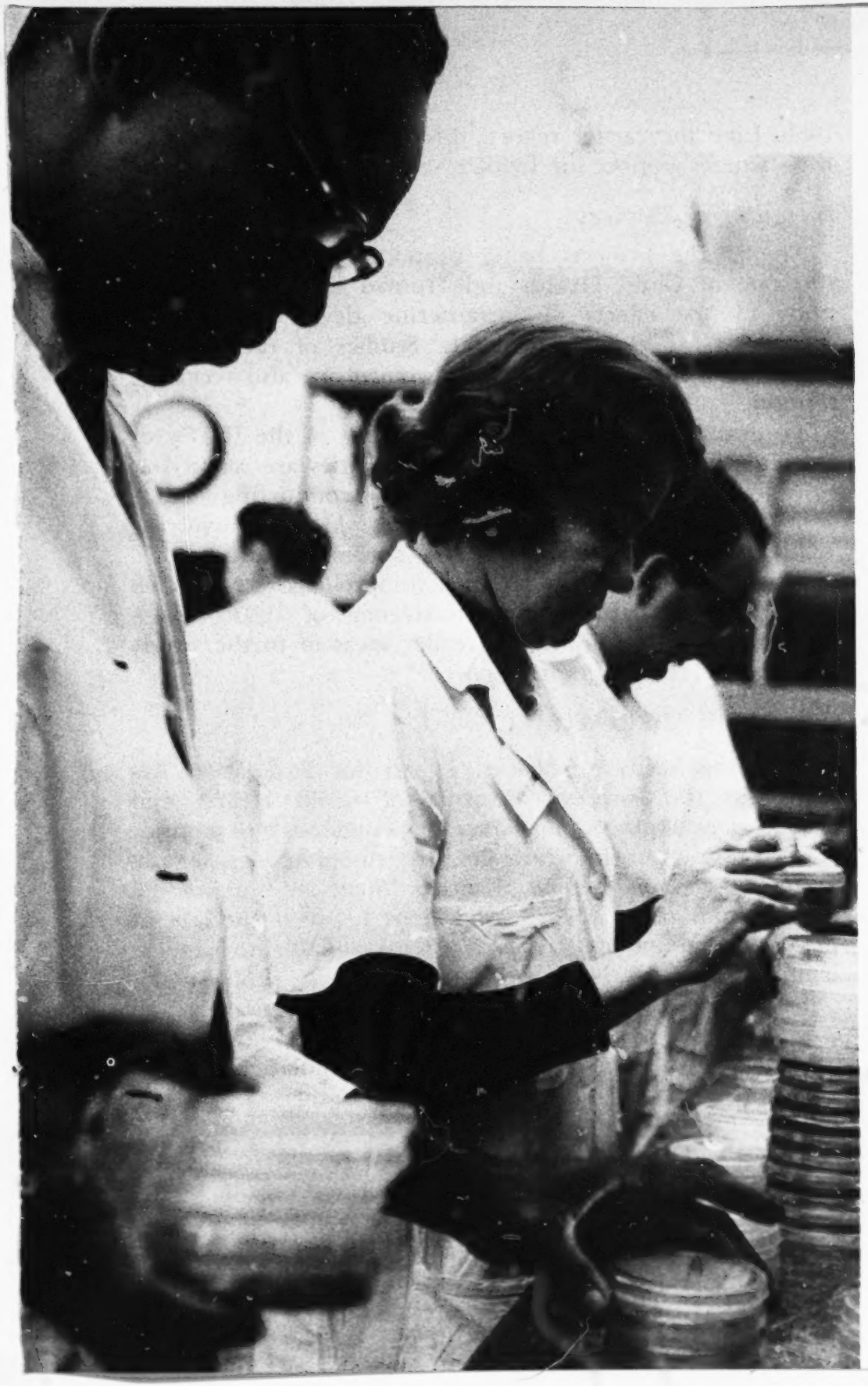
Extent of Assistance

The financial support given to projects varies considerably but usually covers from 75 percent to 100 percent of the cost.

In addition, staff members of the Department help in various ways to assure the success of the project. For example, at present several Epidemic Intelligence Officers from the Communicable Disease Center who have received special training in the evaluation of family planning programs have been assigned to assist in the evaluation of some of the Federally aided demonstration projects. Specialists in designing projects are also available to assist in planning projects.

Pooling Grants

Often, by pooling grants from a number of sources, family planning can be incorporated as an integral part of broader community programs. For example, the Model Cities Demonstration programs should include some plan for serving people, especially those in low-income groups, who want family planning help. Project grants from HEW sources for family planning can thus supplement the funds received from the Department of Housing and Urban Development. The very fact that the applications to HEW and to HUD fit together increases the likelihood that both projects will be approved for funds. Grants from the Office of Economic Opportunity are another good example of support that can be pooled with HEW grants to help finance projects that include family planning. Grant resources within the Department of Health, Education, and Welfare can also be pooled.



For Better Methods, Better Programs

ONLY RECENTLY have the sophisticated research techniques of modern science begun to be applied to family planning problems to any appreciable extent. For accelerated progress, major breakthroughs in both the physical and behavioral sciences are urgently needed.

Improved Methods

Basic research on the reproductive processes is needed to pave the way for applied research which may develop a variety of contraceptive techniques so that each couple may choose a safe and effective method which is acceptable to them.

Since the end result of such research might be a method without a product and thus have no commercial value, government financing is important. Consequently, this is an area of special interest to the Department's Institute of Child Health and Human Development.

To speed the development of such a method—or of other improved methods such as a pill that could be taken only once a month—this Institute has worked out a plan for the

sequential award of contracts. Contracts will be awarded for studies of the reproductive process which seem most likely to yield clues for simple control methods. Contracts will then be awarded for development of drugs or devices based on the new knowledge, if these are needed, and also for field tests and trials.

Studies of Existing Methods

Through the research grants awarded by the National Institute of Child Health and Human Development and through contracts awarded by the Department's Food and Drug Administration, support is given for research to provide more complete knowledge of the effects and safety of oral contraceptives and intrauterine devices.

Oral Contraceptives

Several NICHD-supported projects deal with the effects of oral contraceptives on blood coagulation and the cardiovascular system, with metabolic changes, and with other possible effects both on women and on any children they may subsequently bear.

The Food and Drug Administration is supporting an epidemiological study at Johns Hopkins University on the long range effects of the use of oral contraceptives to determine the relationship between the use of contraceptive drugs and blood clotting. The results of this study will be pooled with those of similar studies supported by the National Institutes of Health and non-Federal research installations to arrive at an even closer estimate of the full effect of oral contraceptives when used by women continuously for many years.

An earlier FDA report on all known effects of oral contraceptives is now being up-dated and is to be issued in 1969. Like the earlier report, this revision should indicate areas where support for further studies is most important.

Intrauterine Devices

Among the projects being supported by the National Institute of Child Health and Human Development is a study of the effects of intrauterine devices on several species of experimental animals. Studies of the systemic effects of intrauterine devices in women are also receiving support.

To evaluate the safety and effectiveness of the IUD's for women who live where no medical facilities are readily accessible, the Division of Indian Health is conducting a study at its Indian Hospital at Gallup, New Mexico, involving 1800 women who have received IUD's from the hospital.

The FDA has recently issued a comprehensive report on the mechanism, safety, and effectiveness of IUD's which will suggest to the discerning reader areas of further study which might receive grant support.

A BROAD APPROACH

With the newly established Center for Population Research in the National Institute of Child Health and Human Development, plans are now underway to support broader studies in the whole field of demography and population as well as family planning. Such studies are extremely important as the gap widens between the size of population and the natural resources available to support it. Although this is generally considered a problem for other countries, it is also a threat to this Nation. While family planning reduces the hazard, the fact remains that the groups which contribute most to the population increase are not the poor, who are a minority of the total population, but the majority group of more affluent people who have always had ready access to family planning services.

More Effective Programs

Lack of money or knowledge about contraceptive methods are by no means the only reasons why many people have children they do not really want. Some teenagers have babies out of wedlock because of mixed-up feelings about themselves or their relationship with their parents. To men in some cultures their fertility may symbolize their virility. Women likewise sometimes want many babies for reasons that have little to do with either the satisfactions or responsibilities of motherhood.

A whole complex of guilt and other emotional problems surround the issue of having or not having babies, and very often the baby who is brought into the world as a result of them in turn develops mental and emotional problems.

There are also emotional, as well as environmental, factors which affect the consistent use of preventive measures.

For all of these reasons, more knowledge about personal, cultural and social problems is needed if family planning service programs are to be improved.

Consequently, a considerable part of the Department's research support for family planning studies is invested in projects that utilize the behavioral sciences.

For example, under the Cooperative Research and Demonstration Grants Program of the Social and Rehabilitation Service, two projects are supported which deal directly with the social and psychological aspects of family planning in low income families. Several Children's Bureau grants also support the study of special behavioral problems. An example is a project at Tulane University School of Medicine which includes a search for ways of sustaining contraceptive practices among women who, for health reasons, should have no more babies.

A major source of support for behavioral studies is the National Institute of Mental Health, a unit of the Department's Health Services and Mental Health Administration. Studies supported by NIMH grants include an analysis of family planning attitudes in a village in India and studies of the psychological effects of certain surgical procedures such as vasectomy and therapeutic abortion.

Many other projects supported by NIMH, although not specifically related to family planning, should yield knowledge that will be helpful to it. For example, in studies on communication and decision-making within families, NIMH research is designed to provide the knowledge and support needed by every family for success in a complicated and rapidly changing environment. Studies on motivation within families and on birth order are also in progress.

STUDIES OF EDUCATIONAL METHODS

Even when there are no personal reasons for resistance to family planning services, programs may be limited in their effectiveness because of the teaching methods that are used. In this field, too, there are many unknowns about the learning process in general and particularly about barriers to learning that prevail among specific age, ethnic and other special groups.

The Office of Education is a major source of support for both basic research on the learning process and applied research on teaching materials.

Types of projects in which the Office of Education is interested include the development of educational programs and materials which deal not only with human reproduction but also with psychological, sociological, and economic factors that affect individual, family and community life. Another area of interest is research leading to improved methods of preparing educational personnel to teach family life, sex education, and population topics.

POPULATION STUDIES

People engaged in almost any aspect of family planning work need statistics and demographic data to guide them in the continuing process of mapping out goals and developing and evaluating programs. Much of this basic data—birth rates, infant mortality rates, fetal deaths, marriage and divorce statistics, etc.—is collected by the Department's National Center for Health Statistics.

However, the Center is also interested in special studies and surveys that are particularly pertinent to the fields of family planning and population. In connection with such studies, the Center sometimes contracts with outside organizations that are particularly well equipped to do certain types of work. For example, the University of North Carolina is currently under contract to carry out a survey of recently married couples to obtain information that is not available through marriage certificates.

Illustrative of the value of obtaining increasing amounts of specialized data and relating them to family planning programs is the Center's data on first births. By following up on the statistical data, it has been found that some 70 percent of couples do not use family planning services until after the birth of their first child. The result is that a baby frequently arrives before the couple is prepared either financially or emotionally to take on this additional responsibility. The need for special efforts to include family planning in the marriage counseling given by the clergy, social workers, parents and others has been highlighted by this knowledge. As a result of greater emphasis, there has recently been a rapid increase in the number of newly-weds who practice family planning.

A Two Way Operation

IN KEEPING with the traditional patterns of the Federal government, its main role in the family planning movement is to stimulate and support activities initiated and performed by State and local governments, voluntary organizations, and private citizens.

However, certain needs common to all who are involved in family planning can best be performed if data are centrally collected by the Federal government and then disseminated to all who need it. The ability of the government to perform this task is directly dependent upon the cooperation of all who have the pieces of information which are required to compile the whole picture.

This cooperation is particularly important in the following areas:

Uniform Service Reports

In cooperation with Planned Parenthood-World Population and with various Federal agencies, such as the Office of Economic Opportunity, the Department's unit on Population and Family Planning is developing a uniform reporting system. If used by all family planning service agencies, it can yield information that all can use for comparative purposes, for measurement of progress, for establishment of priorities and other activities that require the type of hard data that have hitherto been lacking.

After the standard report form has been completed and pre-tested, it will be available to all clinics, family planning centers, hospitals and other organizations that offer family planning services. It is hoped that it will be used throughout the Nation by 1969.

Revised Certificate of Live Birth

Valuable data for family planning will be available if all jurisdictions promptly adopt the revised version of the Standard Certificate of Live Birth developed by the National Center for Health Statistics in 1967. This certificate provides information on child spacing and on the educational status of the parents, an indicator that has proved extremely useful in fertility research.

The Center will also need cooperation in its sample surveys, such as the one designed to collect economic, social and other characteristics of parents which are helpful in fertility studies.

Analysis of Dependent Families

With public assistance agencies required to offer family planning in the Aid to Families with Dependent Children Program, special data are needed in order to pinpoint priorities and improve the quality of this service. Consequently, State and local public assistance agencies are now being asked to submit certain information on out-of-wedlock births on an annual basis.

Oral Contraceptive Reporting System

Comprehensive information on adverse reactions to oral contraceptives is extremely important not only to protect the health of women but also to enable manufacturers to improve their products. The Department's Food and Drug Administration serves as a clearing house for the collection and dissemination of such information. In this effort, the consistent and conscientious cooperation of all physicians is needed.

Sources Of Further Information

DETAILS about most types of Federal programs that assist non-Federal organizations in their family planning activities are developed cooperatively with representatives of State, and, when appropriate, voluntary agency personnel and are sent to the State public agency that is most involved. For example, information about health programs is sent to the State health department, social services and welfare information to the State welfare department, material on education to the State education agency.

The information supplied to these State agencies usually includes requirements that must be met by voluntary as well as public agencies that wish to receive Federal aid. Manuals, guidelines, and samples of both popular and professional publications that might be helpful to voluntary and public local agencies are also sent to the State agency. Arrangements for personal consultation with HEW staff members on a local as well as a State problem are usually also made through the State agency.

Except for research aid, which is usually paid directly to the research installation by the Federal agency, funds are largely controlled by the State agencies. They have leeway in determining what share of the Federal grants they receive will be invested in activities that relate to family planning. The State agency's endorsement or recommendation also influences the selection of local projects which will receive direct Federal aid.

Consequently, the State agency is a good first point of contact for local organizations and agencies that want financial support, information, or other aid in establishing or expanding any type of service, educational, or professional training program that in any way relates to family planning or to family life and sex education.

National voluntary or professional organizations, institutions of higher education interested in research or in the training of professional personnel, and others who need aid or information which is not readily available from their State agencies, can communicate directly with the Federal agency either through its regional offices (see inside back cover for their addresses and the States they serve) or through its Federal headquarters. Addresses of the headquarters of the major units of the Department of Health, Education, and Welfare whose activities have been referred to in this report are:

CONSUMER PROTECTION AND ENVIRONMENTAL HEALTH SERVICE

Food and Drug Administration
2221 Jefferson Davis Highway
Arlington, Virginia 22202

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

Office of Comprehensive Health Planning
8120 Woodmont Avenue
Bethesda, Maryland 20014

National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20015

National Center for Health Statistics
330 Independence Avenue, S.W.
Washington, D.C. 20201

Communicable Disease Center
Atlanta, Georgia 30333

Bureau of Direct Health Services
7915 Eastern Avenue
Silver Spring, Maryland 20910

NATIONAL INSTITUTES OF HEALTH

Institute of Child Health and Human Development
9000 Rockville Pike
Bethesda, Maryland 20014

Bureau of Health Manpower
800 N. Quincy Street
Arlington, Virginia 22203

OFFICE OF EDUCATION
(FOR FAMILY LIFE AND SEX EDUCATION)

Bureau of Elementary and Secondary Education
Bureau of Educational Personnel Development
Bureau of Higher Education Fellowships
Bureau of Research
Bureau of Adult, Vocational, and Library Programs

(address for all):

400 Maryland Avenue, S.W.
Washington, D.C. 20202

SOCIAL AND REHABILITATION SERVICE

Children's Bureau
Rehabilitation Services Administration
Assistance Payments Administration
Medical Services Administration

(address for all):

330 Independence Avenue, S.W.
Washington, D.C. 20201

IF YOU WISH general information or are not sure which State or Federal agency can be of assistance to you, get in touch with:

Deputy Assistant Secretary for Population and Family Planning
Office of the Assistant Secretary for Health and Scientific Affairs
330 Independence Avenue, S.W.
Washington, D.C. 20201

In using any of these addresses, insert U.S. Department of Health, Education, and Welfare above the name of the agency or office.

A Rewarding Effort

By working together and pooling ideas and resources to the fullest feasible extent, it is possible for the large, scattered, and growing army of men and women in the family planning movement to make an impressive impact upon the quality of life in our society.

Federal aids will serve their purpose if they promote unity and coordination among this army and at the same time encourage greater individual initiative and action.

Progress in the past five years has been truly phenomenal and is gaining momentum every year. The time should soon come when the arrival of each new baby will be welcomed as a deeply desired event.

APPENDIX

1966 Policy Statement

1968 Policy Statement

Family Planning Objectives

Financial Obligations

MOTHERS OF TOMORROW
Will They Have a Chance To Plan?

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C. 20201

OFFICE OF THE SECRETARY

January 24, 1966

MEMORANDUM

TO HEADS OF OPERATING AGENCIES

Subject: Departmental Policy on Population Dynamics, Fertility, Sterility and Family Planning

The policy of this Department is to conduct and support programs of basic and applied research on the above topics; to conduct and support training programs; to collect and make available such data as may be necessary; to support, on request, health programs making family planning information and services available; and to provide family planning information and services, on request, to individuals who receive health services from operating agencies of the Department.

The objectives of the Departmental policy are to improve the health of the people, to strengthen the integrity of the family and to provide families the freedom of choice to determine the spacing of their children and the size of their families.

Programs conducted or supported by the Department shall guarantee freedom from coercion or pressure of mind or conscience. There shall be freedom of choice of method so that individuals can choose in accordance with the dictates of their consciences.

The Department will make known to State and local agencies that funds are available for programs of the sort described above, but it will bring no pressure upon them to participate in such programs.

Each agency shall assure the effective carrying out of this policy, the regular evaluation of programs and the reporting of information on programs to this office.

The Assistant Secretary for Health and Scientific Affairs will serve as the focal point for Departmental policy and program coordination; will review and evaluate policies and programs; will conduct liaison with other Departments; and will cooperate with interested public and private groups.

SECRETARY

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C. 20201

OFFICE OF THE SECRETARY

January 31, 1968

MEMORANDUM

TO HEADS OF OPERATING AGENCIES

Subject: Family Planning Policy

The policy of this Department was defined in my statement of January 24, 1966. The purpose of this statement is to outline the next steps which the Department must take to extend and improve family planning services.

Family planning has been established as a priority program within the Department. Each operating agency will utilize its existing authorities to the maximum to promote the development of family planning services.

The immediate objective is to extend family planning services to all those desiring such services who would not otherwise have access to them. Plans for comprehensive health

services including maternal and child health must include consideration of the need for family planning services.

Beneficiaries of assistance programs or other money payments should be fully informed of the availability of family planning services, but their eligibility for benefits should be in no way dependent upon their acceptance or refusal of contraceptive advice.

Family planning programs conducted or supported by the Department shall guarantee freedom from coercion or pressure of mind or conscience.

A second major objective is to meet the manpower needs in the family planning field.

Third, we must expand research and research training in the biomedical and behavior aspects of fertility control.

Fourth, we must continue to assure the safety and effectiveness of contraceptives.

Finally, we must increase public and individual understanding of family life and sex education.

Each agency of this Department shall pursue these objectives within its authorized area of responsibility. The Secretary's office will work with the agencies to coordinate programs within the Department, with other Federal departments, and with State, local and private agencies.

The agencies of the Department are expected to provide for regular evaluation of their programs and reporting on programs. The Department, working with other departments and voluntary agencies, will develop a system of uniform reporting as a basis for evaluation of progress in the provision of quality services and for the determination of future policies and programs.

The Deputy Assistant Secretary for Population and Family Planning in the Office of the Assistant Secretary for Health and Scientific Affairs, will serve as the focal point for departmental policy and program coordination; will review and evaluate policies and programs; will conduct liaison with other departments; will cooperate with interested public and private groups; and will issue a statement of actions required to achieve these objectives within the Department.

SECRETARY

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C. 20201

OFFICE OF THE SECRETARY

January 31, 1968

MEMORANDUM

TO HEADS OF OPERATING AGENCIES

Subject: Family Planning Program Objectives

This memorandum is a follow-up of the Secretary's policy directive of January 31, 1968.
Departmental goals of improving maternal and child health and strengthening family life through family planning activities will be implemented by the operating agencies of the Department. Relevant to these goals, the objectives of family planning programs are to:

- assist parents in attaining and maintaining the family size they desire;
- assist families in spacing their children;
- decrease infant and maternal mortality and morbidity;
- decrease out-of-wedlock births;
- decrease the incidence of prematurity;
- decrease the incidence of mental retardation and congenital defects;
- improve understanding of family life and human sexuality.

In order to attain the above Department objectives, program activities of the operating agencies should be aimed towards:

SERVICES: Making family planning information and services available and accessible to all in the population who desire and need them. Programs of high quality will be expanded to meet all family planning needs by 1973 by utilizing the full authority and skills of each operating agency of the Department.

To achieve service objectives, it is necessary:

1. To guarantee freedom from coercion or pressure of mind or conscience, both in relation to acceptance of services and choice of method, in family planning programs conducted or supported by the Department.

2. To accelerate the promotion and support of family planning services to meet the needs of all those desiring such services. This includes development and delivery of services through hospitals, clinics or private physicians to those groups of the population for whom medical care would not be otherwise available, including those for whom the Department has direct responsibility.

3. To encourage all comprehensive maternal and child health programs to include voluntary family planning as an integral part of the program.

4. To assure that beneficiaries of assistance programs or other money payment programs are informed about family planning service, but that eligibility for benefits is in no way dependent upon their acceptance or refusal of contraceptive advice.

5. To measure services rendered by establishing a uniform automated record system on a nationwide basis, and by providing the data essential for evaluation of results through combined voluntary and governmental efforts.

6. To evaluate scope and effectiveness of family planning services as related to community needs and availability of health and welfare services through such methods as appropriate sample surveys.

TRAINING: Meeting the manpower needs in health, social services, information and education related to research, education and service needs. In this rapidly developing field, programs will range from academic careers in research and training to short-term training for community health and welfare aides.

To achieve training objectives, it is necessary:

1. To encourage institutions responsible for the professional education of personnel in health, welfare and education fields to include in their curricula, when appropriate, population dynamics, human sexuality, fertility regulation and related subjects.

2. To develop demographers, statisticians and related social and behavioral scientists to work in concert with other family planning professional groups.

3. To develop and support special training courses of long or short-term duration for personnel involved in the delivery of family planning services.

4. To support training of social workers, nurses, teachers, clergy, guidance personnel and others in order to aid progress designed to develop further opportunities for family life and sex education.

5. To offer appropriate training in order to extend the utilization of auxiliary or volunteer personnel.

6. To evaluate the effectiveness of teaching programs and educational methods in meeting the broad demands of the field.

RESEARCH: Accelerating the expansion of research and research training in the biomedical and broad behavioral

aspects of fertility, sterility and family planning in order to provide the basis for effective, acceptable family planning programs. Basic research is needed to increase our knowledge of all facets of human reproduction and of psychological responses to matters concerning reproduction. Applied research is needed to use this knowledge in developing additional methods of fertility control that are safe and effective and in sufficient variety to permit freedom of choice to the individual, and in finding ways to promote acceptance of family planning both as a general concept and as a personal commitment. Such research will complement the efforts of foundations and other private organizations.

To achieve training objectives it is necessary:

1. To encourage basic biomedical research on the anatomical, endocrinological, and physiological aspects of reproduction; pharmacological studies on the action of contraceptive drugs and their potential side effects; physiological research on the mechanism of action of intrauterine devices; and investigations of endocrinological aspects of behavior.

2. To promote demographic studies that will provide baselines for measuring population growth rates, distribution, migration and related phenomena.

3. To encourage studies in the behavioral and social sciences of factors which affect attitudes toward age of marriage, size of family, timing of family development and the delivery and acceptance of family planning services.

4. To offer opportunities for study of the influence of interrelated social, psychological, economic and anthropological characteristics and the institutional and cultural factors they entail, upon attitudes toward family planning, premarital relations and problems of illegitimacy.

5. To enlarge program research directed toward increasing effectiveness in the organization and delivery of services and the utilization of scarce resources.

PUBLIC EDUCATION AND UNDERSTANDING: Increasing opportunities for sex education and public understanding of family life.

To achieve the objectives of improving public education and understanding, it is necessary:

1. To provide all young people with adequate knowledge of human reproduction and information regarding modern scientific advances in the field of contraception and its meaning in relation to child spacing and responsible parenthood.

2. To assist communities and educational institutions which wish to initiate or improve programs in family life education as an integral part of curriculum from preschool to college and adult levels.

3. To promote family planning information and counseling as an integral part of the services of health and welfare agencies and to encourage the inclusion of family planning and family life education in the activities of youth-serving agencies and adult education programs.

4. To stimulate appropriate mass media to activate general interest in family planning.

5. To study effectiveness of communication among the various target groups including the consumer of family planning services.

KATHERINE B. OETTINGER, *Deputy Assistant Secretary for Population and Family Planning*

Approved:

PHILIP R. LEE, M.D., *Assistant Secretary for Health and Scientific Affairs*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
FAMILY PLANNING ACTIVITIES

Financial Obligations, FY 1965—FY 1969

AGENCY AND PROGRAM	FISCAL YEAR 1965	1966	1967	1968	(Requested) 1969
			(in dollars)		
Total, Department of Health, Education, Welfare	8,652,000	13,380,000	19,719,000	28,172,000	56,297,000
SOCIAL AND REHABILITATION SERVICE					
Maternal and child health and welfare:					
Maternal and child health services formula grants to States	1,500,000	1,800,000	2,500,000	2,500,000	2,500,000
Special project grants for maternity and infant care	350,000	1,200,000	2,500,000	2,500,000	21,000,000
Research and training	100,000	600,000	500,000	500,000	500,000
Child health research and demonstration	———	———	———	———	250,000
Public Assistance:					
Social services	1,000,000	2,000,000	3,000,000	6,300,000	8,300,000
Medical assistance	500,000	1,000,000	1,500,000	3,000,000	4,500,000
Cooperative research to prevent and reduce dependency	———	———	———	200,000	200,000
Subtotal, Social and Rehabilitation Service	3,450,000	6,600,000	10,000,000	15,000,000	37,250,000
PUBLIC HEALTH SERVICE:					
Bureau of Health Manpower training grants	72,000	81,000	199,000	361,000	362,000
National Center for Health Statistics	———	———	———	———	450,000
Partnership for Health	———	———	125,000	171,000	391,000
National Institute for Child Health and Human Development	4,289,000	5,257,000	7,219,000	8,113,000	12,086,000
Bureau of Health Services:					
Community Health Services	———	———	———	56,000	200,000
Patient care and special health services	———	———	———	160,000	220,000

AGENCY AND PROGRAM	1965	1966	FISCAL YEAR 1967	1968	(*Requested*) 1969
			(*in dollars*)		
PUBLIC HEALTH SERVICE: (Continued)					
Indian health	110,000	152,000	181,000	273,000	320,000
National Institute of Mental Health	167,000	416,000	481,000	554,000	635,000
Bureau of Disease Prevention training grants	———	———	20,000	20,000	57,000
Subtotal, Public Health Service	4,638,000	5,906,000	8,225,000	9,708,000	14,721,000
OFFICE OF EDUCATION:					
Elementary and Secondary Education:					
Supplementary educational centers and services	———	63,000	502,000	1,485,000	2,062,000
Grants to States for guidance, counseling, and testing	233,000	233,000	233,000	233,000	233,000
Dropout prevention programs	———	———	———	———	50,000
Higher Education:					
Grants to States for community service and continuing education	———	175,000	225,000	315,000	440,000
Prospective elementary and secondary teacher fellowships	———	72,000	121,000	121,000	162,000
Adult basic education programs	317,000[1]	317,000[1]	317,000	644,000	800,000
Grants to States for vocational education	14,000	14,000	14,000	14,000	14,000
Subtotal, Office of Education	564,000	874,000	1,412,000	2,812,000	3,761,000
FOOD AND DRUG ADMINISTRATION					
Research contracts	———	———	82,000	652,000	565,000
Subtotal, Food and Drug Administration	———	———	82,000	652,000	565,000

[1] Funds transferred from OEO

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REGION III 220 - 7th Street, N.E. Charlottesville, Virginia 22901	District of Columbia, Kentucky, Maryland, North Carolina, Virginia, West Virginia, Puerto Rico, Virgin Islands
REGION IV Room 404 50 Seventh Street, N.E. Atlanta, Georgia 30323	Alabama, Florida Georgia, Mississippi, South Carolina, Tennessee
REGION V Room 712 New Post Office Bldg. 433 West Van Buren Street Chicago, Illinois 60607	Illinois, Indiana, Michigan, Ohio, Wisconsin
REGION VI 601 East 12th Street Kansas City, Missouri 64106	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
REGION VII 1114 Commerce Street Dallas, Texas 75202	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
REGION VIII 9017 Federal Office Bldg. 19th and Stout Street Denver, Colorado 80202	Colorado, Idaho, Montana, Utah, Wyoming
REGION IX Federal Office Building 50 Fulton Street San Francisco, California 94102	Alaska, Arizona, California, Hawaii, Nevada, Oregon, Washington, Guam, American Samoa

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The report is based upon data from state and local employers and from the National League for Nursing. On January 1, 1966, more than 8,800 national, state, and local agencies and universities employed over 42,000 professional nurses for public health work, three-fourths of whom were reported by 5,209 local boards of education and 2,210 local health departments. The period 1946 to 1966 showed an 83 percent overall increase in the number of nurses working in public health. Increases in part-time work by professional nurses was evident in all types of agencies. The 870 licensed practical nurses employed full-time were more than two and one-half times the number reported in 1960. In addition to summary data in Section I on numbers and types of agencies, numbers of professional and licensed practical nurses, and the academic and public health nursing preparation of nurses in national agencies and universities, the report, in succeeding sections, presents: state distributions of the various agencies and the nurses employed in them, the marital status and age group of the nurses, and the size of local agencies; details of the educational preparation of nurses in administrative and staff positions in state and local agencies; and detailed information on practical nurses. (JK)

VT 008 162

NURSES
in Public Health

Number, educational preparation, and other characteristics of nurses employed for public health work in the United States, Puerto Rico, the Virgin Islands and Guam ■ January 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Introduction

This report of the twenty-third census of nurses in public health presents statistics on the distribution, educational qualifications, and other characteristics of nurses employed full time and part time for public health work by local, State, and national health agencies, universities and boards of education as of January 1, 1966, in the United States, Puerto Rico, the Virgin Islands and Guam. Previous reports were made annually from 1937 through 1953, in 1955, in 1957, and biennially beginning in 1960. All of these reports are based on data collected from State and local employers of public health nurses and verified by the directors of public health nursing in the State health departments. They are compiled by the Public Health Service, Division of Nursing, which also collects information from national agencies. The data on university faculty members whose primary responsibility is public health nursing are reported by the National League for Nursing.

Section I of this 1966 report contains summary information on numbers and types of agencies employing nurses for public health work, the numbers of professional and licensed practical nurses employed full time and part time for this work, and the academic and public health nursing preparation of those employed in national agencies and universities. The remaining sections of the report are concerned only with the State and local agencies, and the characteristics and educational preparation of the nurses employed in these agencies.

State distributions of the various agencies and the nurses employed in them, the position, marital status and age group of the nurses, and the size of local agencies are contained in Section II.

Section III shows details of the educational preparation of nurses in administrative and staff positions in State and local agencies and Section IV is concerned with data on licensed practical nurses.

Method of Collecting Data

The census is a complete enumeration of nurses employed for public health work in the United States and territories. Many State directors of nursing maintain a current register of nurses employed for public health work in their States by employing agency, location, and position. Others contact the individual agencies when reports are required. For the census reports prior to 1966, each State director summarized the information for her State by type of employing agency and forwarded these State summaries to the Division of Nursing, Public Health Service, for compilation.

In 1965 the reporting form was revised and the data precoded so that individual agencies might list each nurse employed on January 1, 1966, either by name or identifying number and enter her position, educational preparation, and other characteristics. The completed lists for each agency were checked and forwarded by the State directors of nursing to the Division of Nursing, Public Health Service, where they were edited manually.

Inconsistencies were cleared and corrected through the Public Health Service Regional Nursing Consultants and the State directors. Data were then punched into cards from which State printouts and summaries were made and tabulations completed for the country.

Comparability

The changes in design and precoding of the form have little effect on the comparability between 1966 and previous counts. There are a number of differences, however, in the number, content and interpretation of certain items.

The present 50 States and the District of Columbia have been included in the census of public health nurses since the first report in 1937. Puerto Rico was added in 1942, the Virgin Islands in 1944, and Guam in 1964.

Established home care programs were counted separately from other agencies in 1966, as were the local health departments and other local official agencies. The definition of combination services was expanded to include integrated and amalgamated agencies.

For 1966 there were fewer local official agencies than in previous years in some States where health departments, formerly serving only one county, have combined into a single agency serving several counties or a health district. The current trends in relating health manpower statistics to standard metropolitan areas have also been considered. In this report, however, as well as in the previous counts, the nurses are included with the State where the employing agency is located, regardless of whether or not the nurses visit homes across State boundaries.

Beginning with the 1960 report, the number of local official agencies has been increased by one agency in those States where State Health Department nurses are assigned to local areas unless the assignments are made to existing local agencies. The jurisdictions affected are Maine, Rhode Island, Vermont, Delaware, Pennsylvania, District of Columbia, Puerto Rico, Wyoming, Alaska, and Nevada. From 1951 through 1957 the nurses employed by a State health department were counted with the State agency personnel regardless of where they were assigned. Prior to 1951 and in the census reports after 1957 these

nurses had been counted with local official agencies if they were detailed to work at the local level. The difference in reporting is evident in table 2 where the number of nurses reported working full time in State agencies in 1955 is considerably higher than the number for other years.

Age group, marital status, and initial nursing program were added in 1966 to personnel data which previously included only position, employment status, and highest educational credential.

The terminology used in previous reports for defining clinic nurse positions or those supplementing the work of the public health nurses has been changed to "staff with non-public health nursing duties." The meaning of the term as set up for this report, however, was given various interpretations. Because of this, the totals shown in the tables for staff nurses in 1966 include those performing non-public health nursing duties as well as those performing public health nursing duties. Therefore, it was necessary to adjust the corresponding figures for previous years shown in the trend tables to include all staff positions.

Preparation for public health nursing has been redefined to reflect current educational curricula. The term "Program Approved for Public Health Nursing" remains the same as in former years; i.e., a program approved by the National League for Nursing for the preparation of nurses for beginning public health nursing positions. Since 1964, baccalaureate programs must be approved for public health nursing in order to be accredited. The difference in the definition is in the terms signifying the nurse's preparation in an approved program. In previous reports nurses were counted as prepared in public health if they had, (1) completed an approved program, or (2) acquired at any time 30 or more semester hours of college credits obtained in, or accepted by, an approved program. For this report the term "30 or more semester hours" was changed to read "required hours of college credit." Nurses who have a public health certificate or who completed the required course in an accredited program are counted as having completed public health nursing preparation. Those with some hours of college credits in an approved program, but with less than the required number, are counted as having "incomplete" preparation.

Nurses Included in the Census, 1966

- Registered nurses employed to perform public health nursing duties by official and nonofficial State and local agencies and boards of education.

- Registered nurses employed by these agencies to perform non-public health nursing duties essential to public health work in clinics and in homes.

- Nurses employed in established home care programs, such as hospital-based, coordinated, group practice, and other programs to provide nursing care to patients in the home or to coordinate and maintain continuity of patient care between hospital or other institution and the home.

- Licensed practical nurses employed to assist in public health work in the clinic or in the home.

Nurses not Included in the Census, 1966

- Nurses employed by hospitals, colleges, and other institutions, except as indicated above.

- Nurses employed by industries.

- Nurses who are receiving their field experience with a State or local agency.

- Nurses on educational leave on January 1, 1966.

Nursing school faculty members whose principal responsibility is teaching public health nursing are reported by the National League for Nursing and are included only in tables 1, 2, and 3 of this report. When the inventory of all registered nurses is made, these nurses are counted in the field of nursing education. 1/

Nurses in Federal agencies and national organizations also are included only in tables 1, 2, and 3. In the inventory of all registered nurses, they are counted with other fields.

1/ Marshall, Eleanor D., and Moses, Evelyn B. The Nation's Nurses. Inventory of Professional Registered Nurses. New York: American Nurses' Association, 1965.

SECTION 1

United States Summaries

On January 1, 1966, more than 8,800 national, State, and local agencies and universities in the United States, Puerto Rico, the Virgin Islands, and Guam employed over 42,000 professional and practical nurses for public health work.

Three-fourths of these nurses were reported by 5,209 local boards of education and 2,210 local health departments (table 1, p. 10).

The 1,023 nurses in national agencies and universities are included only in this first section of the census report.

The 20-year period from 1946 to 1966 shows an 83 percent overall increase in numbers of professional nurses working full time in public health. Most of this increase has been in local boards of education, which have more than tripled their numbers of school nurses since 1946. Other local agencies have increased their numbers working full time by only 43 percent (figure 1, p. 9).

Increases in the numbers of professional nurses working part time are evident in all types of agencies. Their numbers have more than doubled since they were first counted 6 years ago.

Licensed practical nurses show only a minimal growth in numbers working part time, but the 870 licensed practical nurses employed full time for public health work in 1966 is more than two and one-half times the number reported in 1960 (table 2, p. 11).

More than 85 percent of the faculty members who teach public health nursing as their major responsibility in universities throughout the country have the educational qualifications recommended for their positions; i.e., a master's or higher degree with complete public health nursing preparation. Eighteen also hold doctoral degrees.

Nearly 70 percent of the 493 nurses engaged in public health work for the national agencies have at least a baccalaureate degree with complete public health nursing preparation. Four of these nurses have doctoral degrees.

Among all nurses employed for public health work in national agencies and universities, almost two-thirds have master's degrees, and more than 60 percent have both a master's degree and complete public health nursing preparation (table 3, p. 12).

Among the 903 nurses with baccalaureate and higher degrees who are employed full time for public health work in national agencies and universities, 89 percent had completed public health nursing preparation. Among those with graduate degrees the proportion was slightly more than 94 percent. Only 2 percent reported incomplete public health nursing preparation, and almost 9 percent were in the group with no public health nursing preparation or public health nursing preparation not reported (table 3).

In the period from 1960 to 1966, there has been a 52 percent increase in the numbers of public health nursing faculty in universities, and a 13 percent decrease in numbers of nurses employed for public health work in national agencies.

The distribution of nurses employed for public health work among national, State, and local agencies has shown little change in the period between 1960 and 1966.

Almost 95 percent of the total public health nursing work force is employed by agencies at the local level. State agencies employ 3 percent, and national agencies and universities employ a little more than 2 percent.

Figure 1 - Professional nurses employed full time for public health work in local health agencies and boards of education, selected years 1946 - 1966

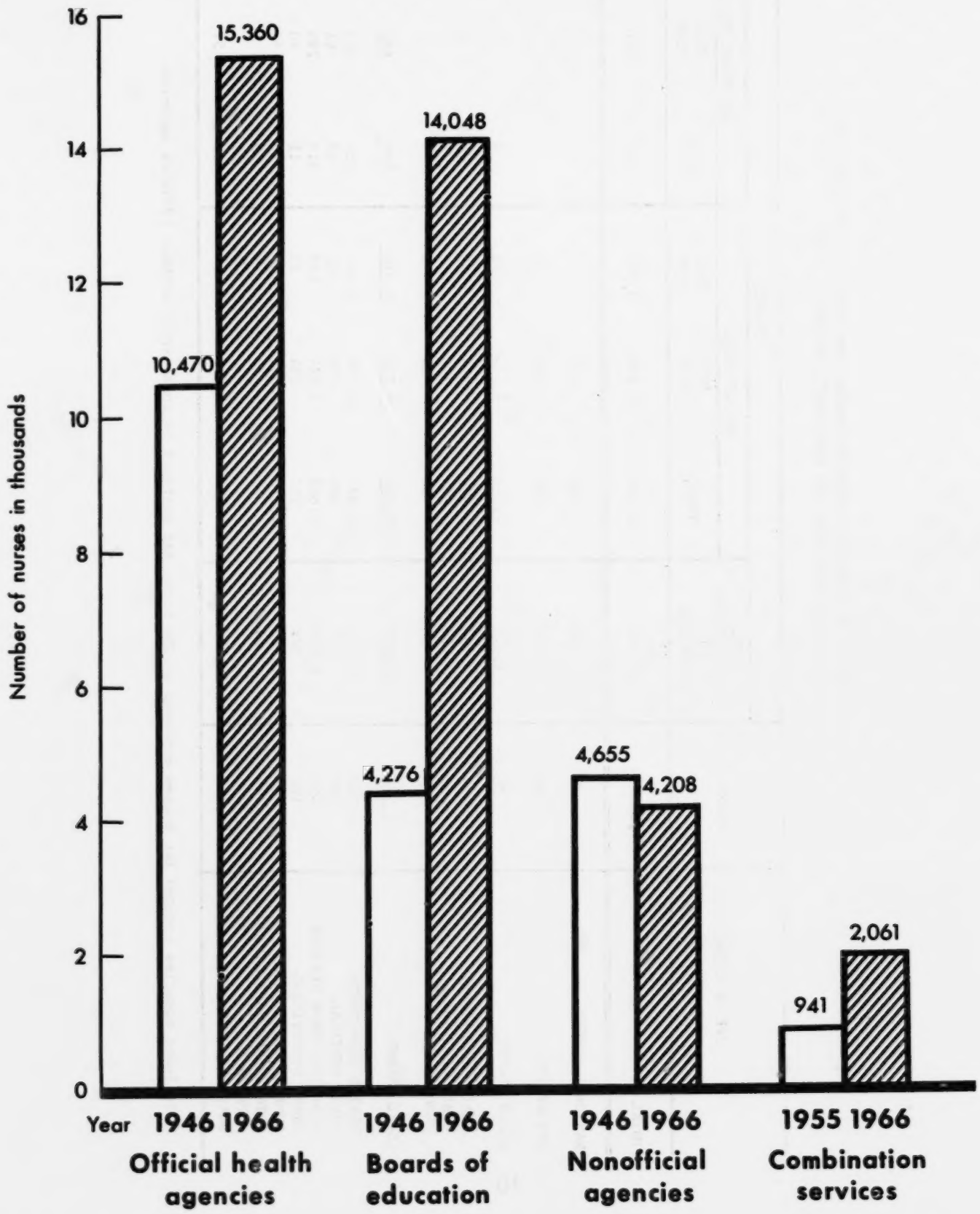


Table 1 --TOTAL NUMBER OF AGENCIES EMPLOYING NURSES FOR PUBLIC HEALTH WORK AND NURSES EMPLOYED FULL TIME AND PART TIME, JANUARY 1, 1966

TYPE OF AGENCY	AGENCIES	NURSES						
		TOTAL PROFESSIONAL AND PRACTICAL	PROFESSIONAL			LICENSED PRACTICAL		
			TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME
TOTAL	8,853	42,161	41,254	37,884	3,370	907	870	37
NATIONAL AGENCY	9	493	490	487	3	3	3	-
UNIVERSITY	180	530	530	504	26	-	-	-
STATE AGENCY	92	1,219	1,214	1,183	31	5	4	1
HEALTH DEPARTMENT	54	983	979	959	20	4	4	-
OTHER OFFICIAL	30	206	205	200	5	1	-	1
NONOFFICIAL	8	30	30	24	6	-	-	-
LOCAL AGENCY [a]	8,572	39,919	39,020	35,710	3,310	899	863	36
HEALTH DEPARTMENT	2,210	16,226	15,872	14,730	1,142	354	343	11
OTHER OFFICIAL	293	753	690	630	60	63	61	2
VISITING NURSE SERVICE	651	4,920	4,607	3,924	683	313	296	17
OTHER NONOFFICIAL	107	328	317	284	33	11	10	1
COMBINATION SERVICE	85	2,305	2,210	2,061	149	95	92	3
ESTABLISHED HOME CARE PROGRAM	17	47	42	33	9	5	4	1
BOARD OF EDUCATION	5,209	15,340	15,282	14,048	1,234	58	57	1

[a] Includes agencies counted for nurses employed by the State and assigned to local areas without official agencies.

Table 2 --NURSES EMPLOYED FULL TIME AND PART TIME FOR PUBLIC HEALTH WORK BY TYPE OF AGENCY, SELECTED YEARS, 1946 - 1966

TYPE OF AGENCY	PROFESSIONAL NURSES[a]						LICENSED PRACTICAL NURSES[b]			
	FULL TIME				PART TIME[b]		FULL TIME		PART TIME	
	1946	1955	1960	1966	1960	1966	1960	1966	1960	1966
TOTAL	20,672	27,112[c]	32,145[d]	37,884	1,592	3,370	333	870	23	37
NATIONAL AGENCY	325	523	565	487	NA	3	-	3	-	-
UNIVERSITY			332	504	NA	26	-	-	-	-
STATE AGENCY	946	1,451	1,067	1,183	9	31	-	4	-	1
HEALTH DEPARTMENT	946	1,250	857	959	2	20	-	4	-	-
OTHER OFFICIAL		172	182	200	1	5	-	-	-	1
NONOFFICIAL		29	28	24	6	6	-	-	-	-
LOCAL AGENCY	19,401	24,659	30,181	35,710	1,583	3,310	333	863	23	36
HEALTH DEPARTMENT	10,470	11,789	13,788	14,730	597	1,142	143	343	9	11
OTHER OFFICIAL				630		60		61		2
VISITING NURSE SERVICE	4,655	4,193	3,901	3,924	313	683	157	296	11	17
OTHER NONOFFICIAL			267	284	23	33	-	10	-	1
COMBINATION SERVICE	e	941	1,165	2,061	27	149	33	92	3	3
ESTABLISHED HOME CARE PROGRAM	NA	NA	NA	33	NA	9	NA	4	NA	1
BOARD OF EDUCATION	4,276	7,736	11,060	14,048	623	1,234	-	57	-	1

NA - Data not available.

[a]Includes all professional nurses employed for public health work in health agencies, schools, clinics, and homes.
[b]Nurses working part time and licensed practical nurses were not reported prior to 1960.
[c]Total includes 479 clinic nurses not distributed by type of agency.
[d]Includes 295 supplemental nurses: 221 in local health departments and other official agencies, 53 in visiting nurse services, and 21 in combination services.
[e]Reported with local official agencies.

Table 3--PROFESSIONAL NURSES EMPLOYED FOR PUBLIC HEALTH WORK IN NATIONAL AGENCIES AND UNIVERSITIES, BY HIGHEST DEGREE OR CREDENTIAL AND PUBLIC HEALTH NURSING PREPARATION, JANUARY 1, 1966

AGENCY	TOTAL	GRADUATE DEGREE					BACCALAUREATE					ASSOCIATE DEGREE OR DIPLOMA					OTHER OR NOT SPECIFIED
		TOTAL	PHN PREPARATION				TOTAL	PHN PREPARATION				TOTAL	PHN PREPARATION				TOTAL
			COMPLETE	INCOMPLETE	NONE	NOT REPORTED		COMPLETE	INCOMPLETE	NONE	NOT REPORTED		COMPLETE	INCOMPLETE	NONE	NOT REPORTED	
FULL TIME																	
TOTAL	994	640	603	8	13	16	263	202	12	25	24	77	8	15	10	44	14[a]
AMERICAN NURSES' ASSOCIATION	1	1	1	•	•	•	•	•	•	•	•	•	•	•	•	•	•
AMERICAN RED CROSS	45	13	7	•	6	•	28	12	3	13	•	4	2	2	•	•	•
ARMY NURSE CORPS	71	22	21	1	•	•	45	45	•	•	•	4	•	4	•	•	•
NATIONAL LEAGUE FOR NURSING	8	7	7	•	•	•	1	1	•	•	•	•	•	•	•	•	•
NAVY NURSE CORPS	75	1	•	•	•	1	22	3	3	1	15	52	2	8	1	41	•
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE																	
CHILDREN'S BUREAU	12	12	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PUBLIC HEALTH SERVICE	111	92	84	2	6	•	16	15	•	1	•	2	1	•	1	•	1
VETERANS ADMINISTRATION	167	42	40	•	1	1	106	90	1	10	5	15	3	1	8	3	4[a]
UNIVERSITIES (180)	504	450	431	5	•	14	45	36	5	•	4	•	•	•	•	•	9
PART TIME																	
TOTAL	29	16	16	•	•	•	12	4	3	•	5	•	•	•	•	•	1
NATIONAL AGENCIES	3	2	2	•	•	•	1	1	•	•	•	•	•	•	•	•	•
UNIVERSITIES	26	14	14	•	•	•	11	3	3	•	5	•	•	•	•	•	1

[a]Includes 3 practical nurses.

SECTION 2

Agency Data and Nurse Characteristics

Sixty percent of the State and local agencies reporting employment of professional nurses for full-time or part-time work in public health are local boards of education. In 1966 they employed 38 percent of the nurses reported.

New York, California, Pennsylvania, and New Jersey led the country in total numbers of professional nurses. However, the ratio of full-time nurses per 100,000 population, as shown below, is highest in Public Health Service Region I with 28.4 nurses per 100,000 population, or one nurse for 3,524 people. The range among the regions is from 13.3 nurses to 28.4 nurses per 100,000 population.

PHS REGION	Resident population 1/ 7/1/65 (in thousands)	Professional nurses employed full time in public health - 1/1/66		
		Number	Ratio/100,000 population	Population per nurse
I	11,146	3,163	28.4	3,524
II	36,973	10,017	27.1	3,691
III	21,356	3,459	16.2	6,174
IV	22,382	2,976	13.3	7,521
V	38,231	5,555	14.5	6,882
VI	15,858	2,199	13.9	7,211
VII	19,554	2,838	14.5	6,890
VIII	4,669	872	18.7	5,354
IX	26,377	5,814	22.0	4,537
United States and territories	196,546	36,893	18.8	5,327

1/ Sources: U.S. Bureau of the Census, Current Population Reports. Series P-25, No. 350, Oct. 5, 1966. Population of territories from Series P-25, No. 358, Jan. 18, 1967.

Sixty-nine percent of the local official agencies employ from one to four full-time nurses. More than 5 percent of the local official agencies employ no full-time nursing personnel and only about 25 percent employ more than 5 full-time nurses (figure 2, p. 15).

Among the voluntary agencies, more than 60 percent employ from one to four nurses, 6 percent employ no full-time nurse, and about one-third employ more than 5 full-time nurses.

Of the local boards of education reporting size of agency, nearly 15 percent have no full-time professional nurse on the staff. Among all of the 6,903 local agencies reporting size, the median falls in the one-nurse agencies.

The supervisor/staff ratio computed for full-time personnel is approximately the same in 1966 as it was in 1964: 1 supervisor to 13 staff nurses. If all administrative personnel; i.e., directors and consultants as well as supervisors, are included in the calculations, the ratio is approximately 1 to 7 staff.

Every State except Alaska now employs at least one nurse who works in public health on a part-time basis. Licensed practical nurses are employed in all except six States and the Virgin Islands (table 9, p. 21).

Questions on age and marital status of nurses in the public health field were asked for the first time in the 1966 census. California, which maintains an ongoing record of its nurses, does not request information on marital status. Therefore, the 4,363 nurses employed for public health work in California make up the greater portion of the group whose marital status is unknown. Two-thirds of all nurses who reported marital status were married, 12 percent were widowed, separated or divorced, and about 21-1/2 percent were single. Nearly 90 percent of the part time-nurses were married.

Among the nurses employed full time, the majority of staff nurses were married. This was not true of the administrative group, however, where the distribution according to marital status followed a different pattern. Among full-time nurse administrators, 43 percent were single, 41 percent were married, and 16 percent were widowed, divorced, or separated.

Fifty-nine percent of all nurses employed for public health work were between 40 and 59 years of age. Of the administrative personnel working full time, the percentage was higher (69 percent) and among staff nurses it was slightly lower (58 percent of professional nurses and 54 percent of licensed practical nurses).

Figure 2 - Distribution of local health agencies by number of professional nurses employed full time, January 1, 1966

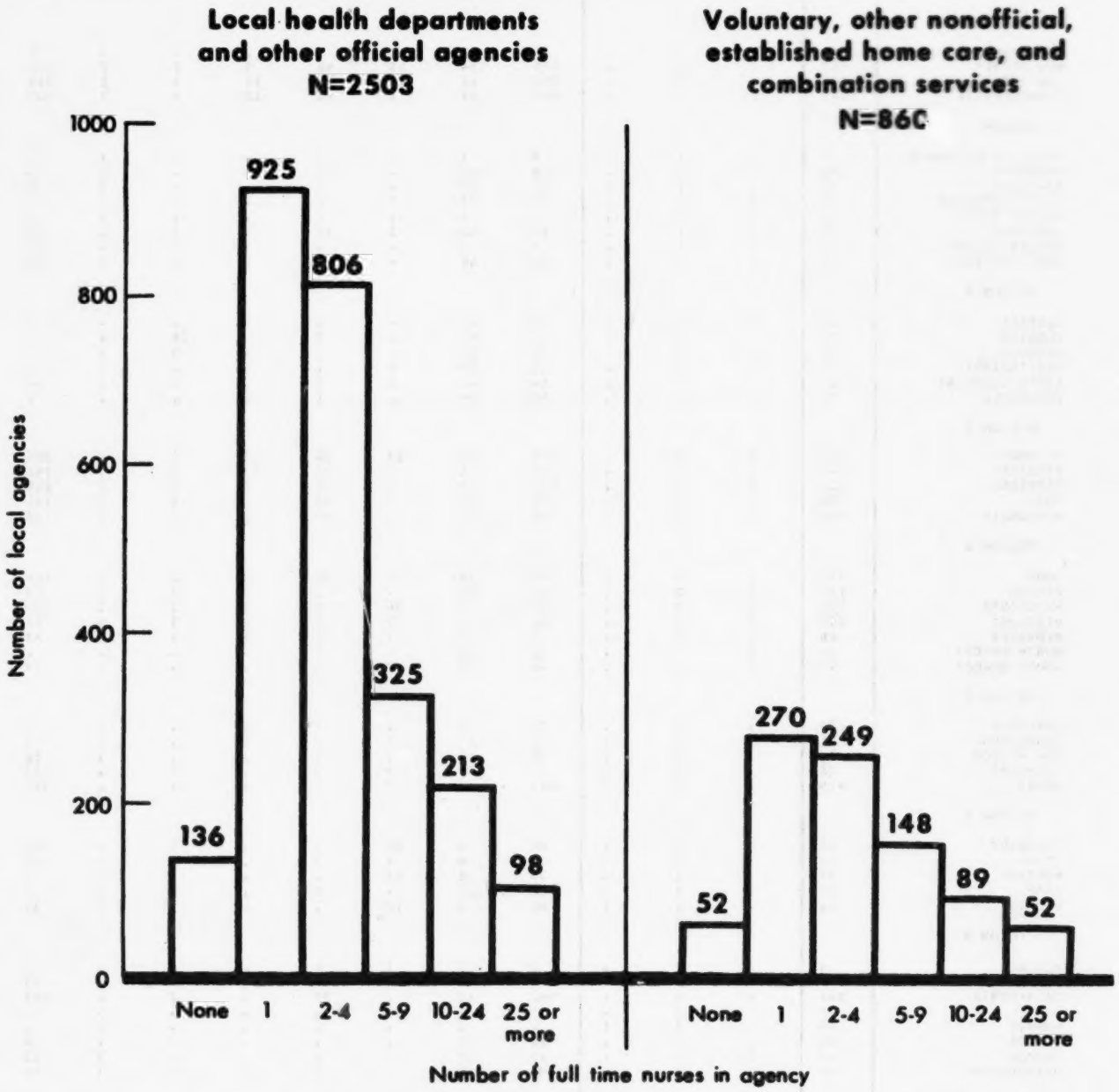


Table 4--NUMBER OF AGENCIES EMPLOYING PROFESSIONAL NURSES FULL TIME AND/OR PART TIME FOR PUBLIC HEALTH WORK, BY TYPE OF AGENCY, JANUARY 1, 1966

REGION AND STATE	TOTAL	STATE AGENCY			LOCAL AGENCY							
		TOTAL	OFFICIAL	NON-OFFICIAL	TOTAL	HEALTH DEPARTMENT	OTHER OFFICIAL	VISITING NURSE SERVICE	OTHER NON-OFFICIAL	COMBINATION SERVICE	ESTABLISHED HOME CARE	BOARD OF EDUCATION
TOTAL	8664	92	84	8	8572[a]	2210	293	651	107	85	17	5209
REGION 1												
CONNECTICUT	215	2	2	•	213	18	23	81	•	2	•	89
MAINE	84	1	1	•	83	24	2	19	2	•	•	36
MASSACHUSETTS	541	2	2	•	539	155	5	126	8	1	2	242
NEW HAMPSHIRE	99	2	1	1	97	4	•	42	2	•	•	49
RHODE ISLAND	64	1	1	•	63	6	•	24	2	•	•	31
VERMONT	51	1	1	•	50	•	6	3	14	•	•	27
REGION 2												
DELAWARE	12	1	1	•	11	5	•	1	1	•	•	4
NEW JERSEY	687	2	2	•	685	154	15	46	5	2	2	461
NEW YORK	892	2	2	•	890	62	13	34	11	5	1	764
PENNSYLVANIA	1047	2	2	•	1045	43	2	81	10	3	1	905
REGION 3												
DIST. OF COLUMBIA	4	1	1	•	3	1	•	1	•	•	•	1
KENTUCKY	131	3	3	•	128	116	•	1	5	•	•	6
MARYLAND	32	1	1	•	31	24	•	1	•	•	1	5
NORTH CAROLINA	83	1	1	•	82	79	1	•	•	2	•	•
PUERTO RICO	6	1	1	•	5	5	•	•	•	•	•	•
VIRGINIA	80	1	1	•	79	46	1	12	•	1	•	19
VIRGIN ISLANDS	3	1	1	•	2	2	•	•	•	•	•	•
WEST VIRGINIA	67	3	3	•	64	49	•	1	1	1	•	12
REGION 4												
ALABAMA	79	4	3	1	75	67	•	2	1	•	•	5
FLORIDA	79	2	2	•	77	40	•	8	•	28	•	1
GEORGIA	59	1	1	•	58	52	•	1	•	1	•	4
MISSISSIPPI	78	1	1	•	77	76	•	•	•	•	1	•
SOUTH CAROLINA	65	1	1	•	64	48	•	2	•	•	•	14
TENNESSEE	56	1	1	•	55	45	•	1	3	•	•	6
REGION 5												
ILLINOIS	550	2	2	•	548	43	83	32	7	3	•	380
INDIANA	243	2	2	•	241	64	7	11	14	2	1	142
MICHIGAN	204	2	1	1	202	58	2	15	7	3	2	115
OHIO	356	3	3	•	353	147	9	18	2	6	•	171
WISCONSIN	198	3	2	1	195	121	•	19	2	•	•	53
REGION 6												
IOWA	235	2	2	•	233	46	•	16	•	2	•	169
KANSAS	127	2	2	•	125	40	•	1	•	1	•	83
MINNESOTA	192	3	3	•	189	8	54	3	•	2	1	121
MISSOURI	207	2	2	•	205	70	2	3	2	1	2	125
NEBRASKA	48	1	1	•	47	3	•	•	•	1	•	43
NORTH DAKOTA	21	1	1	•	20	20	•	•	•	•	•	•
SOUTH DAKOTA	47	1	1	•	46	25	2	•	•	•	•	19
REGION 7												
ARKANSAS	79	2	2	•	77	75	•	1	•	•	•	1
LOUISIANA	71	1	1	•	70	63	1	2	1	•	•	3
NEW MEXICO	71	1	1	•	70	10	1	1	2	•	•	56
OKLAHOMA	78	4	2	2	74	48	3	•	•	3	•	20
TEXAS	415	2	2	•	413	69	2	3	2	•	•	337
REGION 8												
COLORADO	68	1	1	•	67	6	20	•	•	7	•	34
IDAHO	33	1	1	•	32	6	4	•	•	2	•	20
MONTANA	34	1	1	•	33	6	21	•	•	•	•	6
UTAH	32	1	1	•	31	29	•	1	•	•	•	1
WYOMING	44	2	1	1	42	1	10	•	•	•	•	31
REGION 9												
ALASKA	4	1	1	•	3	1	1	•	•	•	•	1
ARIZONA	70	1	1	•	69	12	2	•	•	•	•	53
CALIFORNIA	546	4	4	•	542	41	•	32	•	2	•	467
GUAM	2	1	1	•	1	1	•	•	•	•	•	•
HAWAII	4	2	1	1	2	1	•	•	•	•	1	•
NEVADA	23	1	1	•	22	13	•	•	•	•	•	9
OREGON	52	3	3	•	49	33	1	1	1	•	1	12
WASHINGTON	96	1	1	•	95	29	•	3	2	4	1	56

[a]An additional local agency was added in those States where nurses employed by the State were assigned to local areas.

Table 5--PROFESSIONAL NURSES EMPLOYED FULL TIME OR PART TIME FOR PUBLIC HEALTH WORK BY TYPE OF EMPLOYING AGENCY, JANUARY 1, 1966

REGION AND STATE	TOTAL	STATE AGENCY			LOCAL AGENCY							
		TOTAL	OFFICIAL	NON-OFFICIAL	TOTAL[a]	HEALTH DEPARTMENT	OTHER OFFICIAL	VISITING NURSE SERVICE	OTHER NON-OFFICIAL	COMBINATION SERVICE	ESTABLISHED HOME CARE	BOARD OF EDUCATION
TOTAL	40234	1214	1184	30	39020	15672	690	4607	317	2210	42	15282
REGION 1												
CONNECTICUT	1057	38	38	•	1019	187	45	465	•	20	•	302
MAINE	190	5	5	•	185	99	2	41	2	•	•	41
MASSACHUSETTS	1776	50	50	•	1726	557	9	546	12	8	7	585
NEW HAMPSHIRE	249	5	3	2	244	41	•	70	9	•	•	124
RHODE ISLAND	291	10	10	•	281	37	•	136	3	•	•	105
VERMONT	110	7	7	•	103	•	44	9	16	•	•	34
REGION 2												
DELAWARE	228	2	2	•	226	40	•	27	4	•	•	155
NEW JERSEY	2258	39	39	•	2219	514	37	376	6	16	6	1264
NEW YORK	5369	59	59	•	5310	1869	62	596	106	169	2	2486
PENNSYLVANIA	3246	21	21	•	3225	451	3	494	20	277	3	1977
REGION 3												
DIST. OF COLUMBIA	243	11	11	•	232	144	•	43	•	•	•	45
KENTUCKY	408	44	44	•	364	315	•	16	26	•	•	7
MARYLAND	928	14	14	•	914	822	•	41	•	•	3	48
NORTH CAROLINA	666	15	15	•	651	571	1	•	•	79	•	•
PUERTO RICO	439	22	22	•	417	417	•	•	•	•	•	•
VIRGINIA	755	24	24	•	731	474	2	52	•	60	•	143
VIRGIN ISLANDS	37	2	2	•	35	35	•	•	•	•	•	•
WEST VIRGINIA	210	43	43	•	167	112	•	4	2	10	•	39
REGION 4												
ALABAMA	332	35	34	1	297	260	•	23	4	•	•	10
FLORIDA	925	40	40	•	885	485	•	102	•	293	•	5
GEORGIA	746	43	43	•	703	581	•	32	•	48	•	42
MISSISSIPPI	259	14	14	•	245	242	•	•	•	•	3	•
SOUTH CAROLINA	320	33	33	•	287	249	•	10	•	•	•	28
TENNESSEE	476	20	20	•	455	424	•	9	3	•	•	19
REGION 5												
ILLINOIS	1823	50	50	•	1773	424	157	241	49	57	•	845
INDIANA	757	15	15	•	742	238	8	96	22	31	1	346
MICHIGAN	1207	36	26	10	1171	610	5	190	14	111	4	237
OHIO	1587	42	42	•	1545	719	14	194	2	226	•	390
WISCONSIN	759	23	15	8	736	518	•	142	3	•	•	73
REGION 6												
IOWA	439	19	19	•	420	64	•	68	•	35	•	253
KANSAS	395	28	28	•	367	123	•	8	•	32	•	204
MINNESOTA	609	32	32	•	577	37	95	35	•	75	1	334
MISSOURI	756	54	54	•	702	247	4	65	2	12	2	370
NEBRASKA	147	2	2	•	145	11	•	•	•	36	•	98
NORTH DAKOTA	74	6	6	•	68	68	•	•	•	•	•	•
SOUTH DAKOTA	99	5	5	•	94	33	26	•	•	•	•	35
REGION 7												
ARKANSAS	190	27	27	•	163	143	•	6	•	•	•	14
LOUISIANA	354	29	29	•	325	277	1	23	1	•	•	23
NEW MEXICO	263	9	9	•	254	91	10	8	5	•	•	140
OKLAHOMA	328	24	19	5	304	121	16	•	•	74	•	93
TEXAS	1764	23	23	•	1741	575	3	48	2	•	•	1113
REGION 8												
COLORADO	492	17	17	•	475	46	27	•	•	224	•	178
IDAHO	109	9	9	•	100	40	4	•	•	17	•	39
MONTANA	106	19	19	•	87	36	35	•	•	•	•	16
UTAH	178	23	23	•	155	143	•	11	•	•	•	1
WYOMING	79	7	6	1	72	4	21	•	•	•	•	47
REGION 9												
ALASKA	80	2	2	•	78	48	2	•	•	•	•	28
ARIZONA	531	13	13	•	518	132	44	30	•	•	•	312
CALIFORNIA	4363	52	52	•	4311	1589	•	319	•	82	•	2321
GUAM	29	8	8	•	21	21	•	•	•	•	•	•
HAWAII	124	11	8	3	113	108	•	•	•	•	5	•
NEVADA	103	2	2	•	101	49	•	•	•	•	•	52
OREGON	349	16	16	•	333	244	13	13	1	•	2	60
WASHINGTON	623	15	15	•	608	167	•	16	3	218	3	201

[a] Nurses employed by a State Health Department and assigned to local areas are counted with local agencies.

Table 6--NUMBER OF AGENCIES EMPLOYING PROFESSIONAL NURSES FULL TIME FOR PUBLIC HEALTH WORK, BY TYPE OF AGENCY, JANUARY 1, 1966

REGION AND STATE	TOTAL	STATE AGENCY			LOCAL AGENCY							
		TOTAL	OFFICIAL	NON-OFFICIAL	TOTAL	HEALTH DEPARTMENT	OTHER OFFICIAL	VISITING NURSE SERVICE	OTHER NON-OFFICIAL	COMBINATION SERVICE	ESTABLISHED HOME CARE	BOARD OF EDUCATION
TOTAL	7955	91	84	7	7864[a]	2095	272	612	97	84	15	4689
REGION 1												
CONNECTICUT	198	2	2	•	196	18	20	79	•	2	•	77
MAINE	70	1	1	•	69	22	2	18	2	•	•	25
MASSACHUSETTS	466	2	2	•	464	134	4	118	7	1	2	198
NEW HAMPSHIRE	70	2	1	1	68	4	•	27	1	•	•	36
RHODE ISLAND	63	1	1	•	62	6	•	24	2	•	•	30
VERMONT	42	1	1	•	41	•	5	3	12	•	•	21
REGION 2												
DELAWARE	12	1	1	•	11	5	•	1	1	•	•	4
NEW JERSEY	534	2	2	•	532	97	12	45	5	2	2	369
NEW YORK	891	2	2	•	889	61	13	34	11	5	1	764
PENNSYLVANIA	1041	2	2	•	1039	43	2	76	9	3	1	905
REGION 3												
DIST. OF COLUMBIA	4	1	1	•	3	1	•	1	•	•	•	1
KENTUCKY	129	3	3	•	126	115	•	1	4	•	•	6
MARYLAND	31	1	1	•	30	24	•	1	•	•	•	5
NORTH CAROLINA	83	1	1	•	82	79	1	•	•	2	•	•
PUERTO RICO	6	1	1	•	5	5	•	•	•	•	•	•
VIRGINIA	80	1	1	•	79	46	1	12	•	1	•	19
VIRGIN ISLANDS	3	1	1	•	2	2	•	•	•	•	•	•
WEST VIRGINIA	67	3	3	•	64	49	•	1	1	1	•	12
REGION 4												
ALABAMA	75	3	3	•	72	65	•	2	1	•	•	4
FLORIDA	78	2	2	•	76	40	•	8	•	27	•	1
GEORGIA	59	1	1	•	58	52	•	1	•	1	•	4
MISSISSIPPI	77	1	1	•	76	75	•	•	•	•	1	•
SOUTH CAROLINA	65	1	1	•	64	48	•	2	•	•	•	14
TENNESSEE	56	1	1	•	55	45	•	1	3	•	•	6
REGION 5												
ILLINOIS	485	2	2	•	483	41	80	30	6	3	•	323
INDIANA	215	2	2	•	213	61	7	11	13	2	1	118
MICHIGAN	187	2	1	1	185	58	1	15	7	3	2	99
OHIO	321	3	3	•	318	137	9	16	2	6	•	148
WISCONSIN	179	3	2	1	176	121	•	17	1	•	•	37
REGION 6												
IOWA	175	2	2	•	173	46	•	16	•	2	•	109
KANSAS	114	2	2	•	112	39	•	1	•	1	•	71
MINNESOTA	162	3	3	•	159	8	50	3	•	2	1	95
MISSOURI	183	2	2	•	181	69	2	3	2	1	1	103
NEBRASKA	39	1	1	•	38	3	•	•	•	1	•	34
NORTH DAKOTA	21	1	1	•	20	20	•	•	•	•	•	•
SOUTH DAKOTA	43	1	1	•	42	25	2	•	•	•	•	15
REGION 7												
ARKANSAS	79	2	2	•	77	75	•	1	•	•	•	1
LOUISIANA	71	1	1	•	70	63	1	2	1	•	•	3
NEW MEXICO	69	1	1	•	68	10	1	1	2	•	•	54
OKLAHOMA	77	4	2	2	73	47	3	•	•	3	•	20
TEXAS	402	2	2	•	400	66	2	3	1	•	•	328
REGION 8												
COLORADO	61	1	1	•	60	6	17	•	•	7	•	30
IDAHO	28	1	1	•	27	6	4	•	•	2	•	15
MONTANA	31	1	1	•	30	6	19	•	•	•	•	5
UTAH	27	1	1	•	26	24	•	1	•	•	•	1
WYOMING	34	2	1	1	32	1	10	•	•	•	•	21
REGION 9												
ALASKA	4	1	1	•	3	1	1	•	•	•	•	1
ARIZONA	67	1	1	•	66	12	2	2	•	•	•	50
CALIFORNIA	521	4	4	•	517	41	•	32	•	2	•	442
GUAM	2	1	1	•	1	1	•	•	•	•	•	•
HAWAII	4	2	1	1	2	1	•	•	•	•	1	•
NEVADA	21	1	1	•	20	13	•	•	•	•	•	7
OREGON	48	3	3	•	45	30	1	1	1	•	1	11
WASHINGTON	85	1	1	•	84	28	•	2	2	4	1	47

[a] An additional local agency was added in those States where nurses employed by the State were assigned full time to local areas.

Table 7--PROFESSIONAL NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK BY TYPE OF EMPLOYING AGENCY, JANUARY 1, 1966

REGION AND STATE	TOTAL	STATE AGENCY			LOCAL AGENCY							
		TOTAL	OFFICIAL[a]	NON-OFFICIAL	TOTAL[a]	HEALTH DEPARTMENT	OTHER OFFICIAL	VISITING NURSE SERVICE	OTHER NON-OFFICIAL	COMBINATION SERVICE	ESTABLISHED HOME CARE	BOARD OF EDUCATION
TOTAL	36893	1183	1159	24	35710	14730	630	3924	284	2061	33	14048
REGION 1												
CONNECTICUT	890	38	38	•	852	166	36	365	•	19	•	266
MAINE	167	5	5	•	162	91	2	37	2	•	•	30
MASSACHUSETTS	1568	50	50	•	1518	516	6	462	10	7	6	511
NEW HAMPSHIRE	169	5	3	2	164	40	•	46	2	•	•	76
RHODE ISLAND	273	10	10	•	263	37	•	119	3	•	•	104
VERMONT	96	7	7	•	89	•	42	8	12	•	•	27
REGION 2												
DELAWARE	193	2	2	•	191	40	•	20	2	•	•	129
NEW JERSEY	1955	39	39	•	1916	439	30	311	6	13	5	1112
NEW YORK	4908	59	59	•	4849	1569	55	511	106	141	2	2465
PENNSYLVANIA	2961	21	21	•	2940	425	2	417	16	266	3	1811
REGION 3												
DIST. OF COLUMBIA	239	11	11	•	228	144	•	39	•	•	•	45
KENTUCKY	394	42	42	•	352	305	•	16	24	•	•	7
MARYLAND	793	14	14	•	779	694	•	37	•	•	•	48
NORTH CAROLINA	651	15	15	•	636	557	1	•	•	78	•	•
PUERTO RICO	396	22	22	•	374	374	•	•	•	•	•	•
VIRGINIA	741	21	21	•	720	474	2	43	•	59	•	142
VIRGIN ISLANDS	36	2	2	•	34	34	•	•	•	•	•	•
WEST VIRGINIA	209	42	42	•	167	112	•	4	2	10	•	39
REGION 4												
ALABAMA	305	33	33	•	272	238	•	21	4	•	•	9
FLORIDA	902	40	40	•	862	483	•	86	•	288	•	5
GEORGIA	737	39	39	•	698	576	•	32	•	48	•	42
MISSISSIPPI	255	14	14	•	241	239	•	•	•	•	2	•
SOUTH CAROLINA	313	33	33	•	280	248	•	7	•	•	•	25
TENNESSEE	464	20	20	•	444	413	•	9	3	•	•	19
REGION 5												
ILLINOIS	1668	50	50	•	1618	398	150	211	43	55	•	761
INDIANA	692	15	15	•	677	223	8	83	20	28	1	314
MICHIGAN	1085	35	25	10	1050	558	3	157	12	104	4	212
OHIO	1452	42	42	•	1410	656	13	177	2	217	•	345
WISCONSIN	658	19	15	4	639	477	•	112	2	•	•	48
REGION 6												
IOWA	357	18	18	•	339	64	•	60	•	34	•	181
KANSAS	348	26	26	•	322	108	•	8	•	31	•	175
MINNESOTA	505	32	32	•	473	27	85	35	•	70	1	255
MISSOURI	691	52	52	•	639	230	3	63	2	9	1	331
NEBRASKA	135	2	2	•	133	11	•	•	•	35	•	87
NORTH DAKOTA	73	6	6	•	67	67	•	•	•	•	•	•
SOUTH DAKOTA	90	5	5	•	85	31	26	•	•	•	•	28
REGION 7												
ARKANSAS	187	26	26	•	161	142	•	5	•	•	•	14
LOUISIANA	346	29	29	•	317	269	1	23	1	•	•	23
NEW MEXICO	257	9	9	•	248	87	10	8	5	•	•	138
OKLAHOMA	317	22	18	4	295	118	16	•	•	68	•	93
TEXAS	1731	23	23	•	1708	564	3	47	1	•	•	1093
REGION 8												
COLORADO	448	17	17	•	431	45	24	•	•	210	•	152
IDAHO	97	9	9	•	88	36	4	•	•	17	•	31
MONTANA	95	18	18	•	77	32	30	•	•	•	•	15
UTAH	166	21	21	•	145	134	•	10	•	•	•	1
WYOMING	66	7	6	1	59	4	21	•	•	•	•	34
REGION 9												
ALASKA	80	2	2	•	78	48	2	•	•	•	•	28
ARIZONA	503	12	12	•	491	129	44	29	•	•	•	289
CALIFORNIA	4145	51	51	•	4094	1525	•	284	•	82	•	2203
GUAM	28	8	8	•	20	20	•	•	•	•	•	•
HAWAII	121	11	8	3	110	107	•	•	•	•	3	•
NEVADA	97	2	2	•	95	46	•	•	•	•	•	49
OREGON	303	15	15	•	288	209	11	13	1	•	2	52
WASHINGTON	537	15	15	•	522	151	•	9	3	172	3	184

[a] Nurses employed by a State Health Department and assigned to local areas are counted with local agencies.

Table 8 --FREQUENCY DISTRIBUTION OF LOCAL AGENCIES BY NUMBER OF PROFESSIONAL NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK
JANUARY 1, 1966

NUMBER OF FULL-TIME NURSES IN AGENCY	TOTAL FULL-TIME NURSES	NUMBER OF LOCAL AGENCIES BY TYPE					
		TOTAL	LOCAL HEALTH DEPARTMENTS AND OTHER OFFICIAL	VISITING NURSE SERVICE	OTHER NONOFFICIAL AND ESTABLISHED HOME CARE	COMBINATION	BOARD OF EDUCATION
TOTALS	35,710	8,572	2,503	651	124	85	5,209[a]
NO FULL-TIME NURSE	-	708	136	39	12	1	520
1	2,881	2,881	925	201	67	2	1,686
2- 4	5,108	1,936	806	197	35	17	881
5- 9	5,020	782	325	125	5	18	309
10- 24	5,934	404	213	65	4	20	102
25- 49	3,757	107	50	14	1	13	29
50- 99	3,700	57	29	8	-	11	9
100 OR MORE	5,034	28	19	2	-	3	4
SIZE OF AGENCY NOT REPORTED	4,276	1,669	-	-	-	-	1,669[a]

[a]New York and Pennsylvania reported total numbers of boards of education or school systems. It is assumed that all of these employed at least one full-time nurse.

Table 9--NURSES EMPLOYED FULL TIME AND PART TIME FOR PUBLIC HEALTH WORK IN STATE AND LOCAL AGENCIES BY POSITION, JANUARY 1, 1966

REGION AND STATE	FULL TIME							PART TIME						
	TOTAL	ADMINISTRATOR	CONSULTANT		SUPERVISOR	STAFF		TOTAL	ADMINISTRATOR	CONSULTANT		SUPERVISOR	STAFF	
			GENERALIZED	SPECIALIZED[a]		PROFESSIONAL	LICENSED PRACTICAL			GENERALIZED	SPECIALIZED[a]		PROFESSIONAL	LICENSED PRACTICAL
TOTAL	37760	1196	194	770	2438	32295	867	3378	21	3	48	63	3206	37
REGION 1														
CONNECTICUT	899	29	6	8	66	781	9	170	1	•	1	5	160	3
MAINE	168	8	1	2	11	145	1	23	•	•	•	•	23	•
MASSACHUSETTS	1605	46	10	41	114	1357	37	212	1	•	13	1	193	4
NEW HAMPSHIRE	170	3	•	2	14	150	1	80	•	•	•	1	79	•
RHODE ISLAND	285	12	•	9	18	234	12	18	1	•	•	•	17	•
VERMONT	97	4	•	4	5	83	1	14	•	•	•	•	14	•
REGION 2														
DELAWARE	202	3	•	•	9	181	9	35	•	•	•	2	33	•
NEW JERSEY	1970	60	17	11	100	1767	15	304	2	•	3	5	293	1
NEW YORK	5061	104	11	61	340	4392	153	462	3	•	1	4	453	1
PENNSYLVANIA	3007	72	•	26	152	2711	46	285	•	•	3	5	277	•
REGION 3														
DIST. OF COLUMBIA	264	8	•	12	19	200	25	4	•	•	•	•	4	•
KENTUCKY	406	11	5	23	15	340	12	14	•	•	1	•	13	•
MARYLAND	803	14	3	19	68	689	10	136	•	•	•	2	133	1
NORTH CAROLINA	651	11	5	8	35	592	•	15	•	•	•	•	15	•
PUERTO RICO	470	4	•	24	43	325	74	44	1	•	2	27	13	1
VIRGINIA	755	15	6	6	57	657	14	14	•	•	3	•	11	•
VIRGIN ISLANDS	36	1	•	1	2	32	•	1	•	•	•	•	1	•
WEST VIRGINIA	209	7	•	14	12	176	•	1	•	•	•	•	1	•
REGION 4														
ALABAMA	306	12	4	22	21	246	1	30	1	•	1	•	25	3
FLORIDA	906	52	4	28	98	720	4	24	•	•	1	•	22	1
GEORGIA	760	36	7	17	46	631	23	9	•	•	1	•	8	•
MISSISSIPPI	255	1	5	6	13	238	•	4	•	•	•	•	4	•
SOUTH CAROLINA	316	24	•	11	18	260	3	9	•	•	•	•	7	2
TENNESSEE	497	10	4	5	38	407	33	11	•	•	•	1	10	•
REGION 5														
ILLINOIS	1753	65	19	35	125	1426	85	159	1	•	3	1	150	4
INDIANA	710	[illegible]	5	13	51	597	18	65	•	1	1	•	63	•
MICHIGAN	1134	66	9	39	101	870	49	124	1	1	2	1	117	2
OHIO	1499	65	9	37	133	1208	47	136	1	•	2	1	131	1
WISCONSIN	678	17	6	8	80	547	20	103	1	•	•	2	98	2
REGION 6														
IOWA	362	26	2	4	13	312	5	83	•	•	1	•	81	1
KANSAS	349	10	9	15	16	298	1	47	1	•	2	1	43	•
MINNESOTA	520	27	7	24	25	422	15	105	2	•	•	•	102	1
MISSOURI	697	11	•	19	36	625	6	67	1	1	2	•	61	2
NEBRASKA	141	5	•	2	6	122	6	14	•	•	•	•	12	2
NORTH DAKOTA	73	2	•	4	8	59	•	2	•	•	•	•	1	1
SOUTH DAKOTA	96	3	2	2	4	79	6	9	•	•	•	•	9	•
REGION 7														
ARKANSAS	188	4	1	6	11	165	1	3	•	•	•	•	3	•
LOUISIANA	352	5	7	22	22	290	6	9	•	•	•	•	8	1
NEW MEXICO	264	4	•	15	10	228	7	6	•	•	•	•	6	•
OKLAHOMA	327	14	•	14	14	275	10	11	•	•	1	1	9	•
TEXAS	1770	38	4	27	86	1576	39	33	•	•	1	•	32	•
REGION 8														
COLORADO	464	25	3	35	31	354	16	44	•	•	1	2	41	•
IDAHO	98	1	•	4	7	85	1	13	•	•	•	•	12	1
MONTANA	100	1	•	8	9	77	5	11	•	•	•	•	11	•
UTAH	167	6	7	11	10	132	1	12	•	•	1	•	11	•
WYOMING	66	2	•	3	6	55	•	13	•	•	•	•	13	•
REGION 9														
ALASKA	80	2	•	1	7	70	•	•	•	•	•	•	•	•
ARIZONA	517	8	3	5	27	460	14	28	•	•	•	•	28	•
CALIFORNIA	4145	183	11	29	185	3737	•	218	1	•	•	•	217	•
GUAM	31	2	•	•	6	20	3	1	•	•	•	•	1	•
HAWAII	125	2	•	4	15	100	4	3	1	•	•	•	2	•
NEVADA	99	5	•	•	5	87	2	6	•	•	•	•	6	•
OREGON	311	10	2	7	28	[illegible]	8	48	•	•	1	1	44	2
WASHINGTON	546	16	•	17	47	457	9	86	1	•	•	•	85	•

[a]See Table 23 for areas of responsibility.

Table 10--MARITAL STATUS AND AGE GROUP OF NURSES EMPLOYED FOR PUBLIC HEALTH WORK BY TYPE OF POSITION, JANUARY 1, 1966

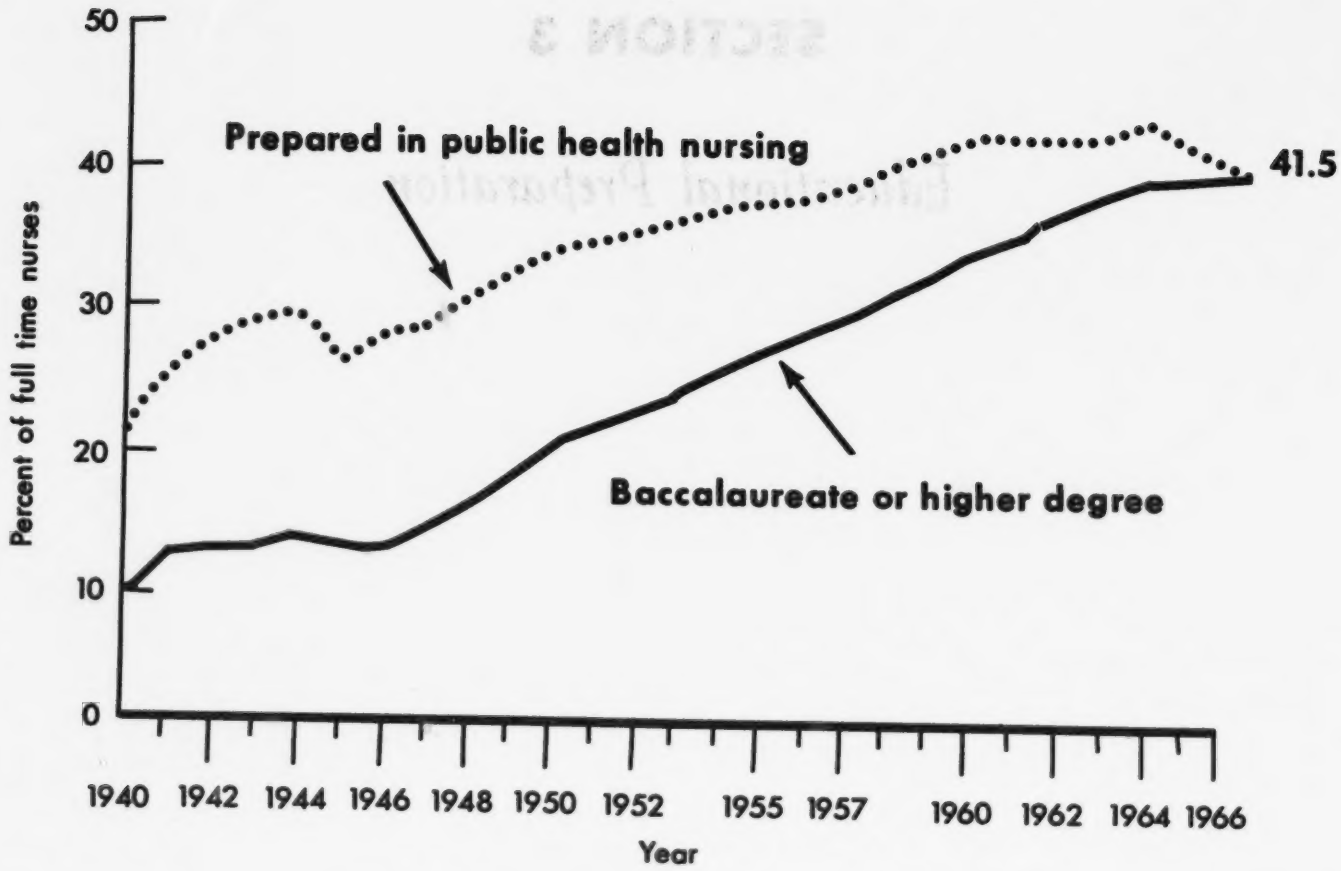
MARITAL STATUS AND AGE GROUP	TOTAL	FULL TIME				PART TIME			
		TOTAL	ADMINIS-TRATIVE[a]	STAFF		TOTAL	ADMINIS-TRATIVE[a]	STAFF	
				PROFES-SIONAL	LICENSED PRACTICAL			PROFES-SIONAL	LICENSED PRACTICAL
TOTAL	41136	37760	4598	32295	867	3378	135	3206	37
UNDER 30	6357	6076	211	5725	140	281	10	270	1
30-39	7139	6254	557	5470	227	885	44	834	7
40-49	12819	11551	1308	9969	274	1268	43	1217	8
50-59	11461	10756	1866	8698	192	705	26	664	15
60 AND OVER	2870	2668	636	2001	31	202	10	186	6
AGE NOT REPORTED	492	455	20	432	3	37	2	35	.
SINGLE	7856	7720	1795	5776	149	136	14	118	4
UNDER 30	2276	2250	91	2096	63	26	2	23	1
30-39	1221	1197	243	923	31	24	4	19	1
40-49	1435	1420	439	956	25	15	2	13	.
50-59	1952	1923	684	1219	20	29	3	25	1
60 AND OVER	951	909	336	565	8	42	3	38	1
AGE NOT REPORTED	21	21	2	17	2	.	.	.	.
MARRIED	24305	21481	1704	19197	580	2824	105	2692	27
UNDER 30	3308	3075	104	2903	68	233	8	225	.
30-39	4683	3891	224	3498	169	792	36	751	5
40-49	8898	7779	544	7027	208	1119	34	1080	5
50-59	6361	5790	699	4963	128	571	22	536	13
60 AND OVER	984	882	131	745	6	102	4	94	4
AGE NOT REPORTED	71	64	2	61	1	7	1	6	.
WIDOWED, DIVORCED, OR SEPARATED	4493	4293	689	3469	135	200	14	180	6
UNDER 30	128	122	4	110	8	6	.	6	.
30-39	554	525	41	457	27	29	3	25	1
40-49	1222	1159	188	930	41	63	7	53	3
50-59	1904	1848	329	1476	43	56	1	54	1
60 AND OVER	681	635	127	492	16	46	3	42	1
AGE NOT REPORTED	4	4	.	4	.	.	.	.	.
NOT REPORTED	4484	4266	410	3853	3	218	2	216	.
UNDER 30	645	629	12	616	1	16	.	16	.
30-39	681	641	49	592	.	40	1	39	.
40-49	1264	1193	137	1056	.	71	.	71	.
50-59	1244	1195	154	1040	1	49	.	49	.
60 AND OVER	254	242	42	199	1	12	.	12	.
AGE NOT REPORTED	396	366	16	350	.	30	1	29	.

[a] Administrative includes directors, assistant directors, special administrative positions, consultants, and supervisors.

SECTION 3

Educational Preparation

Figure 3. -- Educational preparation of nurses employed full time for public health work in State and local agencies, 1940 - 1966



Of the 36,704 full-time nurses employed for public health work who reported highest degree or credential in 1966, more than 41 percent had baccalaureate or higher degrees. This represents a dramatic increase over the past 20-year period. There has been a steady, though less dramatic, rate of increase in the proportion of nurses having completed public health nursing preparation in the same period. In 1946 when only 12.7 percent of the nurses in public health had degrees, more than twice that proportion (28 percent) had completed preparation in public health nursing. In 1966 the proportion of nurses having degrees and the proportion having completed public health nursing preparation converged at 41.5 percent (figure 3). This trend is the natural result of two factors: discontinuance of specialized programs in public health nursing through which many diploma graduates achieved preparation in public health nursing, and the National League for Nursing accreditation requirement of public health nursing preparation in baccalaureate degree programs.

In the United States and territories almost 38 percent of the professional nurses employed full time for public health hold a baccalaureate or higher degree and have also completed public health nursing preparation. This is an increase of nearly 2 percent since 1964, and nearly 6 percent since 1960. In 1964, 15 States, Guam, and the District of Columbia exceeded the national average. In 1966, 17 States and the District of Columbia were above the national rate.

Of the 40,234 nurses employed full time and part time for public health work, approximately equal proportions are at either end of the public health nursing preparation scale (39.8 percent with completed preparation and 39.5 percent with no preparation). Between these two groups is the 20 percent with incomplete preparation. Less than 1 percent did not report public health nursing preparation. Slightly more than one-third of the total public health nursing work force are graduates of associate degree or diploma programs with no preparation in public health nursing. More than one-fourth of the total have at

least a baccalaureate degree with approved public health nursing preparation. A little more than 5 percent have both a graduate degree and approved public health nursing preparation, and a similar proportion hold baccalaureate degrees with no public health nursing preparation (table 13, p. 31).

More than three-fourths of the nurses in administrative, consultative, and supervisory positions in State and local health agencies report completion of an approved program of public health nursing preparation, and 72 percent hold baccalaureate or higher degrees. Roughly one-fourth of the nurses in administrative positions lack the academic preparation for the positions they hold. Among staff nurses, 37 percent have baccalaureate or higher degrees and 36 percent have completed public health nursing preparation (table 12, p. 30).

At the local agency level, more than 42 percent of staff nurses, and almost 13 percent of the administrative, consultative, and supervisory group of nurses are employed by boards of education. Slightly more than half of the administrative group, and one-third of the staff nurses employed in boards of education are prepared in public health nursing. In all other local health agencies, (official, nonofficial, combination, and home-care programs) the percentage of nurses prepared in public health nursing is higher (almost 79 percent of the administrative group and 38 percent of staff nurses, tables 14-17, pp. 32-35).

Eighty percent of all staff nurses with graduate degrees are employed by boards of education.

Of the 31 nurses in public health work who hold doctoral degrees, 18 are in universities, 4 are in national agencies, 8 are in State agencies, and 1 is in a local agency.

Most of the nurses working part time in public health are graduates of associate degree or diploma programs and have no preparation in public health nursing. Very few nurses with graduate degrees work part time (table 18, p. 36).

In the period 1962-1966, the number of graduates of collegiate basic programs approved for public health nursing who were employed for public health work nearly doubled. There was a 91 percent increase in full-time public health employment among nurses with collegiate basic degrees, and the number of these nurses who work part time increased four and one-half times (table 20, p. 38).

By contrast, the total numbers of graduates of collegiate basic programs approved for public health nursing during the same 4-year period increased about 58 percent. 1/

More than two-thirds of the nurses with earned credit beyond their highest credential are graduates of diploma programs. Almost 12 percent have earned credit beyond the baccalaureate degree, and 2 percent have credit beyond the graduate degree. More than one-half of the nurses whose highest credential is a diploma have earned additional credit (table 21, p. 39).

Since 1962 there has been almost a 32 percent increase in the number of full-time consultant nurses employed for public health work. The numbers of specialized consultants increased more sharply than the numbers of generalized consultants and shifts in emphasis are evident in the areas of specialty, as shown below:

Full-time consultants	1962		1966	
	Number	Percent	Number	Percent
Total	732	100.0	964	100.0
Generalized . . .	175	23.9	194	20.1
Specialized . . .	557	76.1	770	79.9

From 1962 to 1966, there was an almost 67 percent increase in the number of school health consultants, 54 percent increase in maternal and child health consultants, and 36 percent increase in mental retardation consultants. There were fewer specialized consultants in the areas of education, civil defense, orthopedics, occupational health, hospital, nursing home, and chronic illness in 1966 (table 23, p. 41).

1/ National League for Nursing. State Approved Schools of Professional Nursing, 1963, and State-Approved Schools of Nursing - R.N., New York, The League, 1967.

New areas of specialty appeared in the 1966 census with the reporting of 276 specialized consultants in geriatrics, physical therapy, 2/ and specialized project and categorical programs. However, there were differences in reporting consultant specialties between the two census years. In 1966, only the primary specialty was indicated; in 1962, secondary as well as primary specialty responsibility was reported.

About 57 percent of the consultant nurses are employed by State agencies. Of the 43 percent employed by local agencies, more than half are in official agencies, 18 percent are in nonofficial agencies, about 19 percent are in combination agencies, and 8 percent are employed by boards of education.

2/ Physical therapy appeared in the 1962 census report as a secondary responsibility of specialized consultation.

Table 11--PERCENT OF FULL-TIME PROFESSIONAL NURSES HOLDING BACCALAUREATE OR HIGHER DEGREES AND PERCENT PREPARED IN PUBLIC HEALTH NURSING[a]: 1946, 1955, 1966

REGION AND STATE	NUMBER REPORTING HIGHEST DEGREE OR CREDENTIAL			PERCENT WITH BACCALAUREATE OR HIGHER DEGREE			NUMBER REPORTING PHN PREPARATION			PERCENT WHO COMPLETED APPROVED PHN PREPARATION		
	1946	1955	1966	1946	1955	1966	1946	1955	1966	1946	1955	1966
TOTALS	20138	26508[b]	36704	12.7	26.8	41.5	20138	26508[b]	36766	28.0	36.8	41.5
REGION 1												
CONNECTICUT	544	649	889	13.2	28.7	35.3	544	649	890	23.2	25.0	33.4
MAINE	135	148	167	7.4	13.5	15.6	135	148	167	25.2	38.5	38.9
MASSACHUSETTS	1236	1389	1564	4.0	19.2	24.5	1236	1389	1568	16.3	21.9	29.1
NEW HAMPSHIRE	131	164	168	2.3	7.9	10.7	131	164	169	12.2	21.3	12.4
RHODE ISLAND	212	215	270	9.0	17.2	28.5	212	215	273	18.4	26.5	33.3
VERMONT	78	93	96	9.0	15.1	22.9	78	93	96	23.1	35.5	49.0
REGION 2												
DELAWARE	75	185	193	5.3	7.0	17.6	75	185	191	20.0	43.8	21.5
NEW JERSEY	1056	1568	1931	8.0	18.8	33.5	1056	1568	1940	17.0	27.4	38.3
NEW YORK	3077	3700	4900	15.0	37.0	54.8	3077	3700	4880	33.3	54.4	56.8
PENNSYLVANIA	1573	1940	2932	5.0	19.9	46.8	1573	1940	2949	11.4	17.7	25.3
REGION 3												
DIST. OF COLUMBIA	173	216	238	27.7	62.0	54.2	173	216	238	65.3	60.6	75.2
KENTUCKY	299	289	379	6.7	9.7	18.7	299	289	393	13.7	15.2	21.9
MARYLAND	375	497	790	8.0	19.3	34.6	375	497	793	17.3	23.9	39.5
NORTH CAROLINA	343	525	651	8.5	16.2	22.3	343	525	651	29.7	35.4	33.0
PUERTO RICO	325	421	396	0.3	3.1	10.1	325	421	396	12.9	24.0	15.4
VIRGINIA	321	499	741	10.6	19.8	28.2	321	499	740	46.4	47.5	31.8
VIRGIN ISLANDS	16	19	36	0.0	15.8	33.3	16	19	35	6.3	15.8	25.7
WEST VIRGINIA	106	162	209	5.7	13.6	12.0	106	162	209	22.6	19.1	12.9
REGION 4												
ALABAMA	195	227	303	7.2	10.1	19.8	195	227	305	20.5	19.3	24.3
FLORIDA	288	470	901	12.2	17.2	32.2	288	470	899	30.9	32.8	38.7
GEORGIA	330	547	735	8.5	16.3	18.1	330	547	737	22.7	27.4	24.3
MISSISSIPPI	154	222	255	6.5	9.0	7.5	154	222	255	17.5	15.3	11.4
SOUTH CAROLINA	235	237	313	3.0	11.4	16.9	235	237	312	16.6	22.4	26.6
TENNESSEE	272	331	462	11.0	18.1	20.8	272	331	459	27.9	35.0	34.9
REGION 5												
ILLINOIS	1104	1254	1659	10.2	19.5	37.3	1104	1254	1666	19.7	33.6	40.8
INDIANA	384	528	691	12.8	29.7	44.6	384	528	690	28.4	35.6	43.5
MICHIGAN	783	854	1085	17.4	34.9	42.2	783	854	1085	51.1	51.9	42.6
OHIO	1005	1214	1440	13.0	22.5	31.9	1005	1214	1449	22.3	25.8	32.3
WISCONSIN	431	519	658	9.0	27.2	38.8	431	519	657	21.8	41.2	55.9
REGION 6												
IOWA	224	280	352	13.8	19.6	25.3	224	280	355	35.3	33.2	26.5
KANSAS	177	243	348	10.2	20.2	24.1	177	243	346	26.0	28.0	18.8
MINNESOTA	385	480	504	29.6	46.2	68.5	385	480	504	50.6	64.6	78.4
MISSOURI	391	469	682	16.9	22.8	25.4	391	469	686	29.9	33.5	19.2
NEBRASKA	102	116	135	22.5	35.3	48.1	102	116	135	30.4	21.6	22.2
NORTH DAKOTA	48	58	73	18.8	12.1	21.9	48	58	73	50.0	32.8	38.4
SOUTH DAKOTA	37	40	90	10.8	22.5	38.9	37	40	90	35.1	37.5	48.9
REGION 7												
ARKANSAS	112	122	184	4.5	16.4	13.6	112	122	178	25.0	41.0	29.8
LOUISIANA	242	274	346	10.7	11.3	24.6	242	274	345	25.5	19.3	29.9
NEW MEXICO	77	139	257	16.9	29.5	45.1	77	139	256	51.9	50.4	50.0
OKLAHOMA	139	203	303	12.2	16.3	18.8	139	203	305	33.8	24.6	26.6
TEXAS	423	922	1726	14.2	22.2	35.6	423	922	1722	19.6	19.5	31.9
REGION 8												
COLORADO	172	253	448	21.5	49.0	61.8	172	253	448	35.5	44.7	54.9
IDAHO	62	77	95	16.1	16.9	38.9	62	77	97	43.5	32.5	38.1
MONTANA	53	58	95	9.4	29.3	51.6	53	58	95	60.4	53.4	58.9
UTAH	98	128	161	9.2	21.1	45.3	98	128	166	44.9	35.9	63.3
WYOMING	23	40	66	26.1	27.5	36.4	23	40	66	43.5	30.0	47.0
REGION 9												
ALASKA	37	46	73	32.4	76.1	87.7	37	46	80	62.2	87.0	86.3
ARIZONA	135	209	502	11.9	32.5	31.3	135	209	503	35.6	28.2	36.6
CALIFORNIA	1419	2583	4142	24.9	45.6	71.0	1419	2583	4140	34.9	50.6	60.0
GUAM	.	.	28	.	.	21.4	.	.	28	.	.	17.9
HAWAII	84	89	116	22.6	32.6	53.4	84	89	121	73.8	93.3	92.6
NEVADA	19	25	96	31.6	36.0	52.1	19	25	97	63.2	52.0	53.6
OREGON	130	179	302	34.6	52.0	65.2	130	179	302	78.5	78.8	73.2
WASHINGTON	293	393	528	27.6	44.8	66.7	293	393	536	65.9	73.0	72.6

[a]In 1946 and 1955 nurses were considered prepared in public health if they had completed 30 or more hours in a program approved for public health nursing. In 1966, they were counted as prepared if they had completed the required hours of college credit in, or accepted by, a program approved for public health nursing.

[b]Includes 479 clinic registered nurses assumed to have a nursing diploma without public health preparation.

Table 12--PERCENT OF FULL-TIME ADMINISTRATIVE[a] AND PROFESSIONAL STAFF NURSES HOLDING BACCALAUREATE OR HIGHER DEGREES, AND PERCENT PREPARED IN PUBLIC HEALTH NURSING, JANUARY 1, 1966

REGION AND STATE	NUMBER REPORTING HIGHEST CREDENTIAL		PERCENT WITH BACCALAUREATE OR HIGHER DEGREE		NUMBER REPORTING PHN PREPARATION		PERCENT WHO COMPLETED APPROVED PHN PREPARATION	
	ADMINISTRATIVE	STAFF	ADMINISTRATIVE	STAFF	ADMINISTRATIVE	STAFF	ADMINISTRATIVE	STAFF
TOTALS	4564	32140	72.3	37.1	4592	32174	77.3	36.4
REGION 1								
CONNECTICUT	109	780	75.2	29.7	109	781	78.9	27.0
MAINE	22	145	63.6	8.3	22	145	81.8	32.4
MASSACHUSETTS	211	1353	56.4	19.5	211	1357	70.1	22.8
NEW HAMPSHIRE	18	150	38.9	7.3	19	150	31.6	10.0
RHODE ISLAND	38	232	81.6	19.8	39	234	84.6	24.8
VERMONT	13	83	53.8	18.1	13	83	76.9	44.6
REGION 2								
DELAWARE	12	181	66.7	14.4	12	179	100.0	16.2
NEW JERSEY	187	1744	73.3	29.2	188	1752	73.9	34.5
NEW YORK	516	4384	90.5	50.6	516	4364	93.0	52.5
PENNSYLVANIA	250	2682	79.2	43.8	250	2699	76.8	20.5
REGION 3								
DIST. OF COLUMBIA	39	199	92.3	46.7	39	199	87.2	72.9
KENTUCKY	42	337	66.7	12.8	54	339	72.2	13.9
MARYLAND	102	688	88.2	26.6	104	689	92.3	31.5
NORTH CAROLINA	59	592	83.1	16.2	59	592	96.6	26.7
PUERTO RICO	71	325	43.7	2.8	71	325	69.0	3.7
VIRGINIA	84	657	58.3	24.4	84	656	63.1	27.7
VIRGIN ISLANDS	4	32	100.0	25.0	4	31	75.0	19.4
WEST VIRGINIA	33	176	42.4	6.2	33	176	48.5	6.2
REGION 4								
ALABAMA	58	245	46.6	13.5	59	246	52.5	17.5
FLORIDA	182	719	56.6	26.0	182	717	70.3	30.7
GEORGIA	106	629	69.8	9.4	106	631	87.7	13.6
MISSISSIPPI	25	230	60.0	1.7	25	230	84.0	3.5
SOUTH CAROLINA	53	260	56.6	8.8	53	259	81.1	15.4
TENNESSEE	57	405	57.9	15.6	57	402	84.2	27.9
REGION 5								
ILLINOIS	241	1418	65.6	32.4	242	1424	70.7	35.7
INDIANA	94	597	76.6	39.5	95	595	66.3	39.8
MICHIGAN	215	870	79.1	33.1	215	870	76.3	34.3
OHIO	239	1201	61.5	26.1	243	1206	63.4	26.0
WISCONSIN	111	547	70.3	32.4	111	546	82.9	50.4
REGION 6								
IOWA	43	309	58.1	20.7	45	310	53.3	22.6
KANSAS	50	298	36.0	22.1	50	296	50.0	13.5
MINNESOTA	83	421	84.3	65.3	82	422	89.0	76.3
MISSOURI	66	616	72.7	20.3	65	621	61.5	14.8
NEBRASKA	13	122	92.3	43.4	13	122	84.6	15.6
NORTH DAKOTA	14	59	57.1	13.6	14	59	100.0	23.7
SOUTH DAKOTA	11	79	81.8	32.9	11	79	100.0	41.8
REGION 7								
ARKANSAS	22	162	59.1	7.4	21	157	90.5	21.7
LOUISIANA	56	290	42.9	21.0	56	289	58.9	24.2
NEW MEXICO	29	228	86.2	39.9	29	227	89.7	44.9
OKLAHOMA	42	261	52.4	13.4	40	265	77.5	18.9
TEXAS	155	1571	65.8	32.7	155	1567	69.7	28.2
REGION 8								
COLORADO	94	354	74.5	58.5	94	354	74.5	49.7
IDAHO	12	83	58.3	36.1	12	85	91.7	30.6
MONTANA	18	77	88.9	42.9	18	77	94.4	50.6
UTAH	29	132	82.8	37.1	34	132	94.1	55.3
WYOMING	11	55	81.8	27.3	11	55	90.9	38.2
REGION 9								
ALASKA	10	63	100.0	85.7	10	70	100.0	84.3
ARIZONA	43	459	81.4	26.6	43	460	74.4	33.0
CALIFORNIA	408	3734	82.1	69.7	408	3732	78.7	58.0
GUAM	8	20	75.0	0.0	8	20	62.5	0.0
HAWAII	21	95	90.5	45.3	21	100	100.0	91.0
NEVADA	10	86	90.0	47.7	10	87	90.0	49.4
OREGON	47	255	87.2	61.2	47	255	97.9	68.6
WASHINGTON	78	450	85.9	63.3	80	456	88.8	69.7

[a]Administrative includes directors, assistant directors, special administrative positions, consultants, and supervisors.

Table 13 --TOTAL NUMBERS OF PROFESSIONAL NURSES EMPLOYED FOR PUBLIC HEALTH WORK IN ALL STATE AND LOCAL AGENCIES, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	40234	16008	2141	10412	3361	8197	128	980	7037	15891	182	2062	13605	138	6	50	59
REGION 1																	
CONNECTICUT	1057	337	66	234	36	321	14	31	276	399	2	12	385	.	.	.	.
MAINE	190	68	7	17	44	61	2	.	59	61	.	2	59	.	.	.	.
MASSACHUSETTS	1776	478	85	257	133	437	4	35	397	860	3	18	839	1	.	.	1
NEW HAMPSHIRE	249	24	4	10	9	80	1	3	76	144	.	3	141	1	.	1	.
RHODE ISLAND	291	97	18	56	20	137	.	6	131	57	.	1	56	.	.	.	.
VERMONT	110	48	3	18	27	14	.	.	14	48	.	2	46	.	.	.	.
REGION 2																	
DELAWARE	228	44	4	22	18	91	.	4	87	91	.	5	86	2	.	2	.
NEW JERSEY	2258	806	114	388	290	819	17	97	696	616	6	57	544	17	1	12	4
NEW YORK	5369	2930	465	1777	683	579	5	50	524	1832	53	450	1329	28	.	1	22
PENNSYLVANIA	3246	784	116	497	164	732	14	153	554	1715	25	618	1060	15	2	7	4
REGION 3																	
DIST. OF COLUMBIA	243	182	27	92	63	16	.	5	11	44	.	7	37	1	.	.	.
KENTUCKY	408	89	12	53	15	24	.	4	16	294	1	4	287	1	.	.	1
MARYLAND	928	333	52	211	69	217	.	5	211	378	2	21	354	.	.	.	.
NORTH CAROLINA	666	218	19	100	99	288	1	22	265	160	.	4	156	.	.	.	.
PUERTO RICO	439	66	3	36	27	9	.	1	8	364	.	2	362	.	.	.	.
VIRGINIA	755	239	26	162	51	130	.	10	120	385	1	13	371	1	.	1	.
VIRGIN ISLANDS	37	9	4	5	.	5	.	1	4	22	.	1	21	1	.	1	.
WEST VIRGINIA	210	27	6	9	12	24	.	1	23	159	1	8	150	.	.	.	.
REGION 4																	
ALABAMA	332	76	4	48	24	120	.	6	112	136	1	2	133	.	.	.	.
FLORIDA	925	352	34	236	81	152	1	10	141	418	1	10	407	3	1	1	1
GEORGIA	746	180	29	91	58	139	1	5	133	427	.	7	420	.	.	.	.
MISSISSIPPI	259	29	6	11	12	9	.	.	9	221	.	2	219	.	.	.	.
SOUTH CAROLINA	320	83	13	35	35	140	.	3	137	96	.	1	95	1	.	1	.
TENNESSEE	475	165	12	74	79	67	.	5	62	238	1	8	227	5	.	.	5
REGION 5																	
ILLINOIS	1823	695	114	424	156	510	3	57	445	616	1	35	577	2	.	1	1
INDIANA	757	307	59	212	35	244	6	29	209	204	.	9	195	2	.	1	1
MICHIGAN	1207	488	75	343	70	162	1	4	157	557	12	46	499	.	.	.	.
OHIO	1587	493	71	323	97	487	6	49	422	603	4	26	573	4	.	1	3
WISCONSIN	759	395	14	242	139	219	.	16	203	144	.	4	140	1	.	1	.
REGION 6																	
IOWA	439	104	10	60	31	144	.	18	126	188	.	7	179	3	.	1	2
KANSAS	395	71	8	49	14	141	3	27	111	180	.	6	174	3	.	1	1
MINNESOTA	609	435	29	335	70	77	1	9	67	96	.	5	91	1	.	1	.
MISSOURI	756	137	23	98	10	180	4	36	138	434	1	17	415	5	.	4	1
NEBRASKA	147	30	1	25	4	28	1	7	19	89	.	33	56	.	.	.	.
NORTH DAKOTA	74	28	3	10	15	7	.	.	7	39	.	3	36	.	.	.	.
SOUTH DAKOTA	99	44	6	24	14	24	.	2	22	31	.	4	27	.	.	.	.
REGION 7																	
ARKANSAS	190	53	5	17	31	7	.	.	7	120	.	2	118	10	.	1	6
LOUISIANA	354	104	9	71	24	45	.	.	45	204	.	7	197	1	.	.	1
NEW MEXICO	263	129	21	73	35	42	4	13	25	91	1	4	86	1	.	1	.
OKLAHOMA	328	84	10	38	32	101	.	3	96	131	.	8	123	12	.	2	2
TEXAS	1764	555	48	430	73	307	13	49	245	893	5	67	820	9	2	6	1
REGION 8																	
COLORADO	492	257	59	185	13	89	11	27	51	146	1	7	138	.	.	.	.
IDAHO	109	39	2	28	7	8	.	4	4	62	.	7	55	.	.	.	.
MONTANA	106	59	7	42	10	8	.	.	8	39	1	2	36	.	.	.	.
UTAH	178	108	10	65	29	19	.	1	17	51	.	1	50	.	.	.	.
WYOMING	79	36	8	18	10	11	.	1	10	32	.	1	31	.	.	.	.
REGION 9																	
ALASKA	80	69	9	54	1	5	.	.	5	6	.	1	3	.	.	.	.
ARIZONA	531	186	25	113	48	104	2	16	85	241	2	3	236	.	.	.	.
CALIFORNIA	4363	2581	298	2088	195	495	12	129	354	1282	55	484	743	5	.	.	2
GUAM	29	5	1	4	.	.	.	.	.	24	.	1	23	.	.	.	.
HAWAII	124	114	5	59	50	1	.	.	1	9	.	.	3	.	.	.	.
NEVADA	103	53	13	33	6	17	.	3	14	33	.	2	31	.	.	.	.
OREGON	349	248	21	187	39	24	.	8	16	76	.	7	69	1	.	1	.
WASHINGTON	623	437	48	323	54	80	1	15	62	105	2	5	97	1	.	1	.

Table 14 --ADMINISTRATORS, CONSULTANTS, AND SUPERVISORS EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN ALL LOCAL AGENCIES EXCEPT BOARDS OF EDUCATION, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	3211	2524	797	1360	352	374	12	54	298	310	7	33	269	3	.	1	2
REGION 1																	
CONNECTICUT	82	66	29	33	4	13	.	.	13	3	.	.	3	.	.	.	.
MAINE	16	15	3	5	7	1	1	.	.	.	.	.	.	.	.	.	.
MASSACHUSETTS	135	100	28	41	31	20	.	4	16	15	.	1	14	.	.	.	.
NEW HAMPSHIRE	12	3	1	2	.	4	.	1	3	5	.	.	5	.	.	.	.
RHODE ISLAND	26	23	9	12	1	3	.	.	3	.	.	.	.	.	.	.	.
VERMONT	6	5	.	4	1	.	.	.	.	1	.	.	1	.	.	.	.
REGION 2																	
DELAWARE	10	10	2	4	4	.	.	.	.	.	.	.	.	.	.	.	.
NEW JERSEY	132	92	44	37	11	23	2	4	16	17	1	2	14	.	.	.	.
NEW YORK	425	405	184	201	20	9	1	1	7	11	.	1	10	.	.	.	.
PENNSYLVANIA	196	168	53	94	21	12	1	1	10	16	.	3	13	.	.	.	.
REGION 3																	
DIST. OF COLUMBIA	28	23	9	14	.	1	.	1	.	4	.	1	3	.	.	.	.
KENTUCKY	31	19	2	6	2	8	.	3	2	4	.	1	3	.	.	.	.
MARYLAND	90	83	36	37	10	2	.	1	.	5	2	1	1	.	.	.	.
NORTH CAROLINA	44	44	6	28	10	.	.	.	.	.	.	.	.	.	.	.	.
PUERTO RICO	59	41	.	22	19	2	.	.	2	16	.	1	15	.	.	.	.
VIRGINIA	59	37	11	21	5	14	.	.	14	8	.	.	8	.	.	.	.
VIRGIN ISLANDS	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WEST VIRGINIA	7	2	.	2	.	3	.	.	3	2	.	1	1	.	.	.	.
REGION 4																	
ALABAMA	40	20	1	13	6	10	.	.	9	10	.	.	10	.	.	.	.
FLORIDA	160	109	20	64	25	23	1	3	19	28	.	1	27	.	.	.	.
GEORGIA	69	59	9	35	15	6	.	.	6	4	.	1	3	.	.	.	.
MISSISSIPPI	11	7	.	3	4	3	.	.	3	1	.	.	1	.	.	.	.
SOUTH CAROLINA	22	18	4	9	5	2	.	.	2	2	.	.	2	.	.	.	.
TENNESSEE	40	31	5	17	9	3	.	.	3	6	1	.	5	.	.	.	.
REGION 5																	
ILLINOIS	156	102	30	49	23	40	.	11	29	14	.	1	13	.	.	.	.
INDIANA	60	36	8	26	1	16	1	5	10	8	.	2	6	.	.	.	.
MICHIGAN	173	133	40	83	10	16	.	1	15	24	2	5	17	.	.	.	.
OHIO	188	121	34	69	18	52	1	6	41	14	.	1	13	1	.	.	1
WISCONSIN	89	72	6	51	15	13	.	1	12	4	.	.	4	.	.	.	.
REGION 6																	
IOWA	26	9	4	3	.	11	.	2	9	6	.	2	4	.	.	.	.
KANSAS	24	13	3	5	5	7	.	.	7	4	.	.	4	.	.	.	.
MINNESOTA	29	28	8	17	3	1	.	.	1	.	.	.	.	.	.	.	.
MISSOURI	44	27	4	22	1	11	2	2	7	5	.	2	3	1	.	1	.
NEBRASKA	10	10	1	8	1	.	.	.	.	.	.	.	.	.	.	.	.
NORTH DAKOTA	8	8	.	3	5	.	.	.	.	.	.	.	.	.	.	.	.
SOUTH DAKOTA	4	4	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.
REGION 7																	
ARKANSAS	3	.	.	.	.	.	.	.	.	2	.	.	2	1	.	.	1
LOUISIANA	26	10	3	4	3	7	.	.	7	9	.	1	8	.	.	.	.
NEW MEXICO	19	17	5	10	2	.	.	.	.	2	.	.	2	.	.	.	.
OKLAHOMA	19	13	2	7	4	2	.	.	2	4	.	1	3	.	.	.	.
TEXAS	102	77	7	58	12	11	.	4	7	14	.	.	14	.	.	.	.
REGION 8																	
COLORADO	74	51	22	27	2	7	.	1	6	16	.	2	14	.	.	.	.
IDAHO	5	5	.	2	3	.	.	.	.	.	.	.	.	.	.	.	.
MONTANA	6	5	.	4	1	1	.	.	1	.	.	.	.	.	.	.	.
UTAH	17	17	1	12	4	.	.	.	.	.	.	.	.	.	.	.	.
WYOMING	3	3	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.
REGION 9																	
ALASKA	7	7	4	3	.	.	.	.	.	.	.	.	.	.	.	.	.
ARIZONA	24	21	10	11	.	2	1	.	1	1	.	.	1	.	.	.	.
CALIFORNIA	287	252	116	119	17	12	1	2	9	23	1	2	20	.	.	.	.
GUAM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
HAWAII	14	14	2	10	2	.	.	.	.	.	.	.	.	.	.	.	.
NEVADA	5	5	4	.	1	.	.	.	.	.	.	.	.	.	.	.	.
OREGON	34	34	7	22	5	.	.	.	.	.	.	.	.	.	.	.	.
WASHINGTON	53	48	15	28	3	3	.	.	3	2	.	.	2	.	.	.	.

Table 15--PROFESSIONAL STAFF NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN ALL LOCAL AGENCIES EXCEPT BOARDS OF EDUCATION, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	18451	7020	212	5015	1761	4141	8	228	3891	7264	8	217	7027	26	1	6	18
REGION 1																	
CONNECTICUT	504	169	9	147	12	150	2	11	137	185	.	4	181	.	.	.	.
MAINE	116	39	1	10	28	43	.	.	43	34	.	.	34	.	.	.	.
MASSACHUSETTS	872	207	5	142	57	222	1	12	208	443	.	8	435	.	.	.	.
NEW HAMPSHIRE	76	11	1	4	6	33	.	1	32	32	.	.	32	.	.	.	.
RHODE ISLAND	133	33	.	25	7	62	.	3	59	38	.	.	38	.	.	.	.
VERMONT	56	33	.	12	21	2	.	.	2	21	.	1	20	.	.	.	.
REGION 2																	
DELAWARE	52	21	.	13	8	17	.	.	17	14	.	1	13	.	.	.	.
NEW JERSEY	672	140	2	107	31	256	1	7	246	275	.	7	268	1	.	.	1
NEW YORK	1959	1243	45	824	371	361	.	24	337	353	.	5	348	2	.	.	2
PENNSYLVANIA	933	326	7	210	106	345	.	13	331	262	.	12	250	.	.	.	.
REGION 3																	
DIST. OF COLUMBIA	155	103	7	74	22	14	.	4	10	38	.	5	33	.	.	.	.
KENTUCKY	314	37	1	29	7	15	.	.	14	261	1	3	255	1	.	.	1
MARYLAND	641	196	6	142	47	184	.	2	182	261	.	16	245	.	.	.	.
NORTH CAROLINA	592	158	4	67	87	281	1	20	260	153	.	4	149	.	.	.	.
PUERTO RICO	315	9	.	5	4	2	.	.	2	304	.	1	303	.	.	.	.
VIRGINIA	519	128	3	99	26	80	.	5	75	311	1	10	300	.	.	.	.
VIRGIN ISLANDS	32	6	1	5	.	4	.	.	4	21	.	1	20	1	.	1	.
WEST VIRGINIA	121	6	.	1	5	12	.	.	12	103	1	7	95	.	.	.	.
REGION 4																	
ALABAMA	223	31	.	16	15	98	.	3	94	94	1	1	92	.	.	.	.
FLORIDA	697	212	6	159	47	114	.	6	108	368	.	9	359	3	1	1	1
GEORGIA	587	86	.	47	37	120	.	4	116	381	.	5	376	.	.	.	.
MISSISSIPPI	230	8	.	2	6	6	.	.	6	216	.	2	214	.	.	.	.
SOUTH CAROLINA	233	38	1	16	21	126	.	2	124	69	.	1	68	.	.	.	.
TENNESSEE	385	108	2	46	60	59	.	5	54	217	.	8	209	1	.	.	1
REGION 5																	
ILLINOIS	701	208	3	121	84	233	.	14	216	259	.	10	248	1	.	.	1
INDIANA	303	89	1	62	26	114	.	4	110	99	.	1	98	1	.	1	.
MICHIGAN	665	219	5	177	37	100	.	.	100	346	2	18	326	.	.	.	.
OHIO	877	229	5	175	48	287	1	16	265	360	.	10	350	1	.	.	1
WISCONSIN	502	259	1	150	108	167	.	11	156	76	.	1	75	.	.	.	.
REGION 6																	
IOWA	132	42	.	25	16	40	.	4	36	49	.	.	48	1	.	.	1
KANSAS	123	16	.	13	3	46	.	5	41	61	.	1	60	.	.	.	.
MINNESOTA	189	170	3	145	21	5	.	2	3	14	.	.	14	.	.	.	.
MISSOURI	264	31	.	30	1	85	.	7	78	145	.	2	143	3	.	2	1
NEBRASKA	36	17	.	15	2	4	.	.	4	15	.	5	10	.	.	.	.
NORTH DAKOTA	59	14	.	5	9	7	.	.	7	38	.	3	35	.	.	.	.
SOUTH DAKOTA	53	31	2	17	12	16	.	1	15	6	.	1	5	.	.	.	.
REGION 7																	
ARKANSAS	144	32	.	8	24	3	.	.	3	106	.	2	104	3	.	.	3
LOUISIANA	268	67	1	53	13	20	.	.	20	180	.	4	176	1	.	.	1
NEW MEXICO	91	50	1	31	18	11	.	2	9	30	.	.	30	.	.	.	.
OKLAHOMA	183	38	4	18	16	73	.	2	71	70	.	4	66	2	.	.	2
TEXAS	513	146	2	116	28	84	1	11	72	282	1	5	276	1	.	.	1
REGION 8																	
COLORADO	205	110	6	97	7	24	.	5	19	71	.	2	69	.	.	.	.
IDAHO	52	21	.	16	3	5	.	2	3	26	.	3	23	.	.	.	.
MONTANA	56	25	.	20	5	6	.	.	6	25	.	1	24	.	.	.	.
UTAH	127	69	1	43	25	16	.	1	15	42	.	.	42	.	.	.	.
WYOMING	22	13	.	7	6	2	.	.	2	7	.	.	7	.	.	.	.
REGION 9																	
ALASKA	43	41	2	33	1	.	.	.	.	2	.	.	.	.	.	.	.
ARIZONA	178	107	7	65	35	29	.	1	28	42	.	.	42	.	.	.	.
CALIFORNIA	1604	1191	50	1056	85	107	.	14	93	304	1	27	276	2	.	.	1
GUAM	20	.	.		.	.	.	.	.	20	.	.	20	.	.	.	.
HAWAII	96	88	1	41	46	1	.	.	1	7	.	.	2	.	.	.	.
NEVADA	41	19	1	15	2	2	.	.	2	20	.	.	20	.	.	.	.
OREGON	202	150	7	117	25	7	.	1	6	45	.	2	43	.	.	.	.
WASHINGTON	285	180	8	142	24	41	1	3	37	63	.	4	58	1	.	1	.

Table 16 --ADMINISTRATORS, CONSULTANTS, AND SUPERVISORS EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN BOARDS OF EDUCATION, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	465	240	104	101	34	119	12	31	76	106	9	39	58	.	.	.	.
REGION 1																	
CONNECTICUT	14	8	5	2	1	3	.	.	3	3	.	1	2	.	.	.	.
MAINE	1	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.
MASSACHUSETTS	29	15	8	5	2	4	.	1	3	10	.	1	9	.	.	.	.
NEW HAMPSHIRE	4	1	.	.	.	2	1	.	1	1	.	1	.	.	.	.	.
RHODE ISLAND	4	1	1	.	.	3	.	.	3	.	.	.	.	.	.	.	.
VERMONT	1	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.
REGION 2																	
DELAWARE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NEW JERSEY	22	13	5	5	3	7	2	1	4	2	.	2	.	.	.	.	.
NEW YORK	32	18	9	5	4	1	.	.	1	13	3	3	7	.	.	.	.
PENNSYLVANIA	33	8	7	1	.	6	3	2	1	19	2	11	6	.	.	.	.
REGION 3																	
DIST. OF COLUMBIA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KENTUCKY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MARYLAND	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
NORTH CAROLINA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PUERTO RICO	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VIRGINIA	6	3	2	.	1	2	.	1	1	1	.	.	1	.	.	.	.
VIRGIN ISLANDS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WEST VIRGINIA	2	.	.	.	.	1	.	.	1	1	.	.	1	.	.	.	.
REGION 4																	
ALABAMA	3	1	.	1	.	1	.	1	.	1	.	.	1	.	.	.	.
FLORIDA	2	1	.	1	.	1	.	.	1	.	.	.	.	.	.	.	.
GEORGIA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MISSISSIPPI	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SOUTH CAROLINA	1	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.
TENNESSEE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
REGION 5																	
ILLINOIS	39	25	13	9	3	8	.	.	8	6	.	2	4	.	.	.	.
INDIANA	20	15	6	9	.	4	1	1	2	1	.	.	1	.	.	.	.
MICHIGAN	15	10	4	6	.	1	.	1	.	4	.	1	3	.	.	.	.
OHIO	14	4	1	1	2	9	.	3	6	1	.	.	1	.	.	.	.
WISCONSIN	4	3	1	2	.	1	.	.	1	.	.	.	.	.	.	.	.
REGION 6																	
IOWA	7	3	.	2	1	4	.	1	3	.	.	.	.	.	.	.	.
KANSAS	7	.	.	.	.	5	.	2	3	2	.	.	2	.	.	.	.
MINNESOTA	23	21	5	12	4	2	.	1	1	.	.	.	.	.	.	.	.
MISSOURI	5	1	1	.	.	3	1	1	1	1	.	.	1	.	.	.	.
NEBRASKA	2	.	.	.	.	1	1	.	.	1	.	1	.	.	.	.	.
NORTH DAKOTA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SOUTH DAKOTA	2	2	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.
REGION 7																	
ARKANSAS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LOUISIANA	1	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.
NEW MEXICO	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OKLAHOMA	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
TEXAS	36	15	7	7	1	11	.	1	10	10	.	1	9	.	.	.	.
REGION 8																	
COLORADO	3	3	2	.	1	.	.	.	.	.	.	.	.	.	.	.	.
IDAHO	2	1	.	1	.	.	.	.	.	1	.	.	1	.	.	.	.
MONTANA	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
UTAH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WYOMING	1	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.
REGION 9																	
ALASKA	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
ARIZONA	13	5	.	4	1	3	.	1	2	5	1	1	3	.	.	.	.
CALIFORNIA	97	45	20	20	5	31	3	11	17	21	3	13	5	.	.	.	.
GUAM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
HAWAII	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NEVADA	3	2	1	1	.	.	.	.	.	1	.	1	.	.	.	.	.
OREGON	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WASHINGTON	12	10	4	3	3	2	.	2	.	.	.	.	.	.	.	.	.

Table 17--PROFESSIONAL STAFF NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN BOARDS OF EDUCATION, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	13583	4556	595	3037	898	2752	85	587	2064	6180	141	1642	4373	95	5	38	31
REGION 1																	
CONNECTICUT	252	35	12	14	9	86	11	10	65	131	1	6	124	.	.	.	.
MAINE	29	8	.	1	7	12	.	.	12	9	.	.	9	.	.	.	.
MASSACHUSETTS	482	100	24	48	28	147	1	14	132	235	3	4	228	.	.	.	.
NEW HAMPSHIRE	72	4	1	3	.	28	.	1	27	40	.	.	40	.	.	.	.
RHODE ISLAND	100	24	3	10	10	63	.	3	60	13	.	1	12	.	.	.	.
VERMONT	26	4	.	1	3	9	.	.	9	13	.	1	12	.	.	.	.
REGION 2																	
DELAWARE	129	8	1	2	5	68	.	4	64	51	.	3	48	2	.	2	.
NEW JERSEY	1090	464	39	209	204	415	10	72	330	197	4	37	150	14	1	12	1
NEW YORK	2433	1048	184	629	235	88	3	18	67	1271	49	437	785	26	.	1	20
PENNSYLVANIA	1778	227	33	165	26	304	9	130	157	1235	23	565	635	12	2	6	2
REGION 3																	
DIST. OF COLUMBIA	45	42	.	2	40	1	.	.	1	1	.	1	.	1	.	.	.
KENTUCKY	7	1	.	.	1	.	.	.	.	6	.	.	6	.	.	.	.
MARYLAND	47	21	1	14	6	20	.	2	18	6	.	.	6	.	.	.	.
NORTH CAROLINA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PUERTO RICO	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VIRGINIA	136	53	5	29	19	29	.	3	26	53	.	3	50	1	.	1	.
VIRGIN ISLANDS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WEST VIRGINIA	37	3	.	1	2	4	.	.	4	30	.	.	30	.	.	.	.
REGION 4																	
ALABAMA	6	1	.	1	.	3	.	1	2	2	.	.	2	.	.	.	.
FLORIDA	3	.	.	.	.	2	.	1	1	1	.	.	1	.	.	.	.
GEORGIA	42	.	.	.	.	9	1	1	7	33	.	1	32	.	.	.	.
MISSISSIPPI	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SOUTH CAROLINA	24	2	.	1	1	5	.	1	4	16	.	.	16	1	.	1	.
TENNESSEE	19	2	.	1	1	3	.	.	3	10	.	.	8	4	.	.	4
REGION 5																	
ILLINOIS	722	297	59	202	36	194	2	28	162	230	1	16	211	1	.	1	.
INDIANA	294	148	38	104	6	88	4	17	67	57	.	4	53	1	.	.	1
MICHIGAN	197	79	11	54	14	22	1	.	21	96	4	16	76	.	.	.	.
OHIO	331	85	7	59	18	104	4	22	78	141	2	11	128	1	.	1	.
WISCONSIN	44	16	1	8	7	14	.	3	11	13	.	1	12	1	.	1	.
REGION 6																	
IOWA	174	25	2	16	7	64	.	10	54	84	.	4	79	1	.	1	.
KANSAS	168	20	3	16	1	68	1	18	49	78	.	4	74	2	.	1	1
MINNESOTA	232	152	4	116	32	48	1	3	44	32	.	1	31	.	.	.	.
MISSOURI	326	46	10	30	5	63	1	23	39	216	1	9	206	1	.	1	.
NEBRASKA	85	2	.	1	1	20	.	7	13	63	.	25	38	.	.	.	.
NORTH DAKOTA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SOUTH DAKOTA	26	2	.	2	.	7	.	1	6	17	.	2	15	.	.	.	.
REGION 7																	
ARKANSAS	14	.	.	.	.	1	.	.	1	8	.	.	8	5	.	1	1
LOUISIANA	22	3	.	3	.	16	.	.	16	3	.	.	3	.	.	.	.
NEW MEXICO	137	52	8	29	15	28	4	11	13	56	.	4	52	1	.	1	.
OKLAHOMA	92	12	1	4	3	24	.	1	21	48	.	1	47	8	.	.	.
TEXAS	1057	292	27	231	30	196	12	32	152	561	4	59	497	8	2	6	.
REGION 8																	
COLORADO	149	66	14	49	3	47	11	20	16	36	.	3	33	.	.	.	.
IDAHO	29	4	.	4	.	2	.	1	1	23	.	2	21	.	.	.	.
MONTANA	14	8	.	7	1	.	.	.	.	6	1	.	5	.	.	.	.
UTAH	1	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.
WYOMING	33	8	2	4	2	6	.	1	5	19	.	1	18	.	.	.	.
REGION 9																	
ALASKA	27	18	2	16	.	5	.	.	5	4	.	1	3	.	.	.	.
ARIZONA	276	41	2	28	11	64	1	12	50	171	1	2	168	.	.	.	.
CALIFORNIA	2106	946	84	780	82	329	8	100	221	828	47	414	367	3	.	.	1
GUAM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
HAWAII	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NEVADA	46	24	6	15	3	13	.	3	10	9	.	1	8	.	.	.	.
OREGON	52	25	2	18	5	13	.	6	7	13	.	2	11	1	.	1	.
WASHINGTON	172	138	9	110	19	20	.	7	13	14	.	.	14	.	.	.	.

Table 18 --TOTAL NUMBERS OF PROFESSIONAL NURSES EMPLOYED PART TIME FOR PUBLIC HEALTH WORK IN STATE AND LOCAL AGENCIES, BY PUBLIC HEALTH NURSING PREPARATION AND HIGHEST DEGREE OR CREDENTIAL, JANUARY 1, 1966

(Nurses whose highest credential was not specified are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	COMPLETED PHN PREPARATION				INCOMPLETE PHN PREPARATION				NO PHN PREPARATION				PHN PREPARATION NOT REPORTED			
		TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL			TOTAL	HIGHEST CREDENTIAL		
			GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA		GRADUATE DEGREE	BACCALAUREATE	ASSOC. DEGREE OR DIPLOMA
TOTAL	3341	762	43	502	208	699	5	62	624	1869	7	115	1743	11	•	2	8
REGION 1																	
CONNECTICUT	167	40	4	29	7	55	1	9	45	72	1	1	70	•	•	•	•
MAINE	23	3	•	1	2	3	•	•	3	17	•	1	16	•	•	•	•
MASSACHUSETTS	208	21	1	12	8	35	1	2	32	151	•	3	148	1	•	•	1
NEW HAMPSHIRE	80	3	•	1	2	11	•	•	11	65	•	2	63	1	•	1	•
RHODE ISLAND	18	6	1	3	2	6	•	•	6	6	•	•	6	•	•	•	•
VERMONT	14	1	•	1	•	1	•	•	1	12	•	•	12	•	•	•	•
REGION 2																	
DELAWARE	35	3	•	2	1	6	•	•	6	26	•	1	25	•	•	•	•
NEW JERSEY	303	63	3	19	39	118	2	13	100	120	1	8	108	2	•	•	2
NEW YORK	461	159	8	96	53	119	•	7	112	183	•	4	179	•	•	•	•
PENNSYLVANIA	285	39	6	22	10	61	•	4	55	182	•	26	156	3	•	1	2
REGION 3																	
DIST. OF COLUMBIA	4	3	•	2	1	•	•	•	•	1	•	•	1	•	•	•	•
KENTUCKY	14	3	•	2	1	1	•	1	•	10	•	•	10	•	•	•	•
MARYLAND	135	20	•	14	6	10	•	•	10	105	•	4	101	•	•	•	•
NORTH CAROLINA	15	3	•	1	2	5	•	•	5	7	•	•	7	•	•	•	•
PUERTO RICO	43	5	•	2	3	•	•	•	•	38	•	•	38	•	•	•	•
VIRGINIA	14	4	•	4	•	1	•	•	1	9	•	•	9	•	•	•	•
VIRGIN ISLANDS	1	•	•	•	•	•	•	•	•	1	•	•	1	•	•	•	•
WEST VIRGINIA	1	•	•	•	•	•	•	•	•	1	•	•	1	•	•	•	•
REGION 4																	
ALABAMA	27	2	•	•	2	2	•	•	2	23	•	1	22	•	•	•	•
FLORIDA	23	4	•	4	•	3	•	•	3	16	•	•	16	•	•	•	•
GEORGIA	9	1	•	•	1	1	•	•	1	7	•	•	7	•	•	•	•
MISSISSIPPI	4	•	•	•	•		•	•	•	4	•	•	4	•	•	•	•
SOUTH CAROLINA	7	•	•	•	•	1	•	•	1	6	•	•	6	•	•	•	•
TENNESSEE	11	5	•	4	1	2	•	•	2	4	•	•	4	•	•	•	•
REGION 5																	
ILLINOIS	155	16	•	7	9	32	•	4	28	107	•	6	101	•	•	•	•
INDIANA	65	7	•	5	2	19	•	1	18	39	•	2	37	•	•	•	•
MICHIGAN	122	26	2	15	9	23	•	2	21	73	•	4	69	•	•	•	•
OHIO	135	25	3	12	10	31	•	2	29	78	1	2	75	1	•	•	1
WISCONSIN	101	28	•	19	9	23	•	1	22	50	•	2	48	•	•	•	•
REGION 6																	
IOWA	82	10	•	5	5	23	•	1	22	48	•	1	47	1	•	•	1
KANSAS	47	6	•	6	•	8	1	2	5	32	•	1	31	1	•	•	•
MINNESOTA	104	40	2	30	8	20	•	2	18	44	•	1	43	•	•	•	•
MISSOURI	65	5	3	2	•	12	•	2	10	48	•	3	45	•	•	•	•
NEBRASKA	12	•	•	•	•	2	•	•	1	10	•	2	8	•	•	•	•
NORTH DAKOTA	1	•	•	•	•		•	•	•	1	•	•	1	•	•	•	•
SOUTH DAKOTA	9	•	•	•	•	1	•	•	1	8	•	1	7	•	•	•	•
REGION 7																	
ARKANSAS	3	•	•	•	•	•	•	•	•	2	•	•	2	1	•	•	1
LOUISIANA	8	1	•	1	•	•	•	•	•	7	•	1	6	•	•	•	•
NEW MEXICO	6	1	•	1	•	3	•	•	3	2	•	•	2	•	•	•	•
OKLAHOMA	11	3	•	3	•	1	•	•	1	7	•	1	6	•	•	•	•
TEXAS	33	5	•	3	2	4	•	•	4	24	•	2	22	•	•	•	•
REGION 8																	
COLORADO	44	11	2	9	•	11	•	1	10	22	1	•	21	•	•	•	•
IDAHO	12	2	•	2	•	1	•	1	•	9	•	1	8	•	•	•	•
MONTANA	11	3	•	2	1	1	•	•	1	7	•	1	6	•	•	•	•
UTAH	12	3	2	1	•	1	•	•	1	8	•	1	7	•	•	•	•
WYOMING	13	5	•	4	1	2	•	•	2	6	•	•	6	•	•	•	•
REGION 9																	
ALASKA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ARIZONA	28	2	1	1	•	6	•	2	4	20	•	•	20	•	•	•	•
CALIFORNIA	218	97	3	91	3	15	•	2	13	106	3	28	75	•	•	•	•
GUAM	1	•	•	•	•	•	•	•	•	1	•	•	1	•	•	•	•
HAWAII	3	2	1	1	•	•	•	•	•	1	•	•	•	•	•	•	•
NEVADA	6	1	•	1	•	2	•	•	2	3	•	•	3	•	•	•	•
OREGON	46	27	•	24	3	3	•	•	3	16	•	3	13	•	•	•	•
WASHINGTON	86	48	1	38	5	14	•	3	9	24	•	1	23	•	•	•	•

Table 19--PROFESSIONAL NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN STATE AND LOCAL AGENCIES, BY HIGHEST DEGREE OR CREDENTIAL AND PUBLIC HEALTH NURSING PREPARATION, JANUARY 1, 1966

(Nurses whose public health nursing preparation was unknown are included only in the totals. Therefore cross totals may differ from the sums of the parts.)

REGION AND STATE	TOTAL	GRADUATE DEGREE				BACCALAUREATE				ASSOCIATE DEGREE OR NURSING DIPLOMA				HIGHEST CREDENTIAL NOT REPORTED			
		TOTAL	PHN PREPARATION			TOTAL	PHN PREPARATION			TOTAL	PHN PREPARATION			TOTAL	PHN PREPARATION		
			COM-PLETED	INCOM-PLETE	NONE		COM-PLETED	INCOM-PLETE	NONE		COM-PLETED	INCOM-PLETE	NONE		COM-PLETED	INCOM-PLETE	NONE
TOTAL	36893	2402	2098	123	175	12823	9910	918	1947	21479	3153	6413	11862	189	85	44	38
REGION 1																	
CONNECTICUT	890	76	62	13	1	238	205	22	11	575	29	231	315	1	1	.	.
MAINE	167	9	7	2	.	17	16	.	1	141	42	56	43	.	.	.	.
MASSACHUSETTS	1568	90	84	3	3	293	245	33	15	1181	125	365	691	4	3	1	.
NEW HAMPSHIRE	169	5	4	1	.	13	9	3	1	150	7	65	78	1	1	.	.
RHODE ISLAND	273	17	17	.	.	60	53	6	1	193	18	125	50	3	3	.	.
VERMONT	96	3	3	.	.	19	17	.	2	74	27	13	34	.	.	.	.
REGION 2																	
DELAWARE	193	4	4	.	.	30	20	4	4	159	17	81	61	.	.	.	.
NEW JERSEY	1955	132	111	15	5	514	369	84	49	1265	251	596	436	24	12	6	6
NEW YORK	4908	515	457	5	53	2171	1681	43	446	2214	630	412	1150	8	3	.	.
PENNSYLVANIA	2961	151	110	14	25	1222	475	149	592	1559	154	499	904	29	6	9	12
REGION 3																	
DIST. OF COLUMBIA	239	27	27	.	.	102	90	5	7	109	62	11	36	1	.	.	.
KENTUCKY	394	13	12	.	1	58	51	3	4	308	14	16	277	15	9	4	2
MARYLAND	793	54	52	.	2	219	197	5	17	517	63	201	253	3	1	1	1
NORTH CAROLINA	651	20	19	1	.	125	99	22	4	506	97	260	149	.	.	.	.
PUERTO RICO	396	3	3	.	.	37	34	1	2	356	24	8	324	.	.	.	.
VIRGINIA	741	27	26	.	1	182	158	10	13	532	51	119	362	.	.	.	.
VIRGIN ISLANDS	36	4	4	.	.	8	5	1	1	24	.	4	20	.	.	.	.
WEST VIRGINIA	209	7	6	.	1	18	9	1	8	184	12	23	149	.	.	.	.
REGION 4																	
ALABAMA	305	5	4	.	1	55	48	6	1	243	22	110	111	2	.	2	.
FLORIDA	902	37	34	1	1	253	232	10	10	611	81	138	391	1	1	.	.
GEORGIA	737	30	29	1	.	103	91	5	7	602	57	132	413	2	2	.	.
MISSISSIPPI	255	6	6	.	.	13	11	.	2	236	12	9	215	.	.	.	.
SOUTH CAROLINA	313	13	13	.	.	40	35	3	1	260	35	136	89	.	.	.	.
TENNESSEE	464	13	12	.	1	83	70	5	8	366	76	66	225	2	.	.	2
REGION 5																	
ILLINOIS	1668	118	114	3	1	500	417	53	29	1041	147	417	476	9	1	5	3
INDIANA	692	65	59	6	.	243	207	28	7	383	33	191	158	1	1	.	.
MICHIGAN	1085	86	73	1	12	372	328	2	42	627	61	136	430	.	.	.	.
OHIO	1452	77	68	6	3	383	311	47	24	980	87	393	498	12	2	10	.
WISCONSIN	658	14	14	.	.	241	223	15	2	403	130	181	92	.	.	.	.
REGION 6																	
IOWA	357	10	10	.	.	79	55	17	6	263	26	104	132	5	3	.	2
KANSAS	348	10	8	2	.	74	43	25	5	264	14	106	143	.	.	.	.
MINNESOTA	505	28	27	1	.	317	305	7	4	159	62	49	48	1	1	.	.
MISSOURI	691	25	20	4	1	148	96	34	14	509	10	128	370	9	6	2	1
NEBRASKA	135	2	1	1	.	63	25	7	31	70	4	18	48	.	.	.	.
NORTH DAKOTA	73	3	3	.	.	13	10	.	3	57	15	7	35	.	.	.	.
SOUTH DAKOTA	90	6	6	.	.	29	24	2	3	55	14	21	20	.	.	.	.
REGION 7																	
ARKANSAS	187	5	5	.	.	20	17	.	2	159	31	7	116	3	.	.	.
LOUISIANA	346	9	9	.	.	76	70	.	6	261	24	45	191	.	.	.	.
NEW MEXICO	257	26	21	4	1	90	72	13	4	141	35	22	84	.	.	.	.
OKLAHOMA	317	10	10	.	.	47	35	3	7	246	32	95	117	14	4	2	.
TEXAS	1731	68	48	15	5	547	427	49	65	1111	71	241	798	5	4	.	1
REGION 8																	
COLORADO	448	68	57	11	.	209	176	26	7	171	13	41	117	.	.	.	.
IDAHO	97	2	2	.	.	35	26	3	6	58	7	4	47	2	2	.	.
MONTANA	95	8	7	.	1	41	40	.	1	46	9	7	30	.	.	.	.
UTAH	166	8	8	.	.	65	64	1	.	88	29	16	43	5	4	1	.
WYOMING	66	8	8	.	.	16	14	1	1	42	9	8	25	.	.	.	.
REGION 9																	
ALASKA	80	9	9	.	.	55	54	.	1	9	1	5	3	7	5	.	2
ARIZONA	503	28	24	2	2	129	112	14	3	345	48	81	216	1	.	1	.
CALIFORNIA	4145	359	295	12	52	2580	1997	127	456	1203	192	341	668	3	.	.	.
GUAM	28	1	1	.	.	5	4	.	1	22	.	.	22	.	.	.	.
HAWAII	121	4	4	.	.	58	58	.	.	54	50	1	3	5	.	.	5
NEVADA	97	13	13	.	.	37	32	3	2	46	6	12	28	1	1	.	.
OREGON	303	21	21	.	.	176	163	8	4	105	36	13	56	1	1	.	.
WASHINGTON	537	50	47	1	2	302	285	12	4	176	49	53	74	9	8	.	1

Table 20--GRADUATES OF COLLEGIATE BASIC PROGRAMS APPROVED FOR PUBLIC HEALTH NURSING WHO WERE EMPLOYED FOR PUBLIC HEALTH WORK, JANUARY 1, 1962, 1964, and 1966

REGION AND STATE	1962			1964			1966		
	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME
TOTAL	2316	2267	49	3481	3336	145	4604	4328	276
REGION 1									
CONNECTICUT	93	90	3	264	238	26	150	126	24
MAINE	5	5	•	3	3	•	4	4	•
MASSACHUSETTS	83	80	3	118	114	4	126	116	10
NEW HAMPSHIRE	4	4	•	•	•	•	8	6	2
RHODE ISLAND	15	15	•	39	39	•	29	26	3
VERMONT	12	12	•	9	9	•	12	11	1
REGION 2									
DELAWARE	1	1	•	2	2	•	13	13	•
NEW JERSEY	49	49	•	71	69	2	137	126	11
NEW YORK	355	346	9	505	496	9	663	621	42
PENNSYLVANIA	112	110	2	149	131	18	154	141	13
REGION 3									
DISTRICT OF COLUMBIA	56	55	1	73	73	•	68	67	1
KENTUCKY	7	7	•	15	15	•	32	31	1
MARYLAND	72	71	1	95	93	2	128	120	8
NORTH CAROLINA	21	21	•	27	26	1	45	45	•
PUERTO RICO	•	•	•	•	•	•	•	•	•
VIRGINIA	42	42	•	50	50	•	109	107	2
VIRGIN ISLANDS	•	•	•	3	3	•	4	4	•
WEST VIRGINIA	3	3	•	1	1	•	2	2	•
REGION 4									
ALABAMA	13	13	•	12	12	•	17	16	1
FLORIDA	38	38	•	82	82	•	138	136	2
GEORGIA	21	20	1	21	21	•	39	39	•
MISSISSIPPI	•	•	•	2	2	•	3	3	•
SOUTH CAROLINA	4	4	•	10	10	•	14	14	•
TENNESSEE	25	22	3	36	33	3	42	39	3
REGION 5									
ILLINOIS	59	59	•	65	64	1	149	142	7
INDIANA	15	15	•	34	34	•	106	101	5
MICHIGAN	55	50	5	85	83	2	148	141	7
OHIO	120	116	4	204	190	14	218	212	6
WISCONSIN	38	35	3	64	55	9	85	75	10
REGION 6									
IOWA	17	17	•	57	36	21	36	30	6
KANSAS	4	4	•	31	31	•	32	27	5
MINNESOTA	110	106	4	131	123	8	182	160	22
MISSOURI	19	18	1	36	33	3	40	36	4
NEBRASKA	3	3	•	8	8	•	15	15	•
NORTH DAKOTA	1	1	•	4	4	•	4	4	•
SOUTH DAKOTA	1	1	•	6	5	1	10	10	•
REGION 7									
ARKANSAS	9	9	•	12	12	•	11	11	•
LOUISIANA	10	10	•	21	21	•	51	51	•
NEW MEXICO	9	9	•	4	4	•	25	24	1
OKLAHOMA	4	3	1	5	5	•	22	21	1
TEXAS	72	72	•	87	87	•	185	181	4
REGION 8									
COLORADO	90	90	•	153	149	4	142	134	8
IDAHO	•	•	•	2	1	1	16	14	2
MONTANA	•	•	•	8	7	1	18	16	2
UTAH	43	42	1	45	44	1	38	37	1
WYOMING	11	9	2	9	7	2	13	9	4
REGION 9									
ALASKA	22	22	•	24	24	•	23	23	•
ARIZONA	12	12	•	64	64	•	62	60	2
CALIFORNIA	440	435	5	596	584	12	746	725	21
GUAM	•	•	•	•	•	•	2	2	•
HAWAII	7	7	•	13	13	•	22	21	1
NEVADA	18	18	•	23	23	•	25	24	1
OREGON	7	7	•	26	26	•	100	87	13
WASHINGTON	89	89	•	77	77	•	141	122	19

Table 21--PROFESSIONAL NURSES EMPLOYED FULL TIME FOR PUBLIC HEALTH WORK IN STATE AND LOCAL AGENCIES, BY HIGHEST DEGREE OR CREDENTIAL, AND NUMBER WITH EARNED CREDIT BEYOND THIS CREDENTIAL, JANUARY 1, 1966

REGION AND STATE	TOTAL		GRADUATE DEGREE		BACCALAUREATE		ASSOCIATE DEGREE		NURSING DIPLOMA		NOT SPECIFIED	
	TOTAL	WITH ADDITIONAL CREDIT	TOTAL	WITH ADDITIONAL CREDIT	TOTAL	WITH ADDITIONAL CREDIT	TOTAL	WITH ADDITIONAL CREDIT	TOTAL	WITH ADDITIONAL CREDIT	TOTAL	WITH ADDITIONAL CREDIT
TOTAL	36893	16528	2402[a]	813	12823	4374	180	73	21299	11166	189	102
REGION 1												
CONNECTICUT	890	345	76	25	238	54	•	•	575	265	1	1
MAINE	167	73	9	1	17	2	•	•	141	70	•	•
MASSACHUSETTS	1568	690	90	22	293	89	4	•	1177	576	4	3
NEW HAMPSHIRE	169	94	5	3	13	4	•	•	150	86	1	1
RHODE ISLAND	273	134	17	8	60	16	•	•	193	107	3	3
VERMONT	96	52	3	1	19	3	•	•	74	48	•	•
REGION 2												
DELAWARE	193	133	4	•	30	7	•	•	159	126	•	•
NEW JERSEY	1955	1160	132	57	514	219	22	11	1263	859	24	14
NEW YORK	4908	3125	515	275	2171	1080	22	9	2192	1761	8	•
PENNSYLVANIA	2961	1941	151	43	1222	662	6	3	1553	1212	29	21
REGION 3												
DIST. OF COLUMBIA	239	103	27	11	102	24	•	•	109	68	1	•
KENTUCKY	394	65	13	•	58	13	1	1	307	46	15	5
MARYLAND	793	376	54	13	219	51	10	3	507	307	3	2
NORTH CAROLINA	651	367	20	1	125	13	1	•	505	353	•	•
PUERTO RICO	396	85	3	•	37	16	•	•	356	69	•	•
VIRGINIA	741	184	27	•	182	29	2	•	530	155	•	•
VIRGIN ISLANDS	36	7	4	2	8	•	•	•	24	5	•	•
WEST VIRGINIA	209	63	7	2	18	6	1	1	183	54	•	•
REGION 4												
ALABAMA	305	123	5	2	55	9	•	•	243	110	2	2
FLORIDA	902	364	37	9	253	52	5	2	606	300	1	1
GEORGIA	737	246	30	5	103	24	3	1	599	215	2	1
MISSISSIPPI	255	23	6	•	13	2	3	•	233	21	•	•
SOUTH CAROLINA	313	199	13	6	40	13	1	1	259	179	•	•
TENNESSEE	464	175	13	5	83	26	•	•	366	144	2	•
REGION 5												
ILLINOIS	1668	940	118	63	500	232	1	•	1040	642	9	3
INDIANA	692	334	65	32	243	97	4	1	379	204	1	•
MICHIGAN	1085	416	86	19	372	83	14	5	613	309	•	•
OHIO	1452	552	77	17	383	116	3	•	977	409	12	10
WISCONSIN	658	341	14	6	241	91	•	•	403	244	•	•
REGION 6												
IOWA	357	170	10	3	79	28	3	2	260	133	5	4
KANSAS	348	187	10	8	74	40	18	16	246	123	•	•
MINNESOTA	505	183	28	8	317	90	1	•	158	85	1	•
MISSOURI	691	264	25	15	148	63	3	1	506	176	9	9
NEBRASKA	135	73	2	1	63	40	•	•	70	32	•	•
NORTH DAKOTA	73	27	3	1	13	5	•	•	57	21	•	•
SOUTH DAKOTA	90	60	6	3	29	12	•	•	55	45	•	•
REGION 7												
ARKANSAS	187	4	5	•	20	1	•	•	159	3	3	•
LOUISIANA	346	94	9	4	76	12	•	•	261	78	•	•
NEW MEXICO	257	155	26	7	90	26	•	•	141	122	•	•
OKLAHOMA	317	155	10	5	47	16	2	•	244	128	14	6
TEXAS	1731	696	68	41	547	206	31	13	1090	432	5	4
REGION 8												
COLORADO	448	207	68	34	209	86	•	•	171	87	•	•
IDAHO	97	41	2	1	35	11	•	•	58	28	2	1
MONTANA	95	28	8	•	41	10	•	•	46	18	•	•
UTAH	166	82	8	1	65	30	1	•	87	48	5	3
WYOMING	66	31	8	2	16	2	•	•	42	27	•	•
REGION 9												
ALASKA	80	44	9	5	55	28	•	•	9	9	7	2
ARIZONA	503	243	28	8	129	47	2	1	343	186	1	1
CALIFORNIA	4145	526	359	•	2580	327	16	2	1187	197	3	•
GUAM	28	3	1	•	5	2	•	•	22	1	•	•
HAWAII	121	53	4	•	58	4	•	•	54	49	5	•
NEVADA	97	57	13	9	37	20	•	•	46	28	1	•
OREGON	303	148	21	9	176	81	•	•	105	57	1	1
WASHINGTON	537	287	50	20	302	154	•	•	176	109	9	4

[a]Includes 9 with doctorate and 2393 with master's degree.

Table 22 --TOTAL NUMBER OF SPECIALIZED CONSULTANTS BY TYPE OF EMPLOYING AGENCY AND EDUCATIONAL PREPARATION, JANUARY 1, 1966

(Includes 770 working full time and 48 part time)

HIGHEST EDUCATIONAL CREDENTIAL BY PUBLIC HEALTH NURSING PREPARATION	TOTAL	STATE AGENCY				LOCAL AGENCY							
		TOTAL	HEALTH DEPART-MENT	OTHER OFFI-CIAL	NON-OFFI-CIAL	TOTAL	HEALTH DEPART-MENT	OTHER OFFI-CIAL	VISITING NURSE SERVICE	ESTAB-LISHED HOME CARE	OTHER NON-OFFI-CIAL	COMBI-NATION SERVICE	BOARD OF EDUCATION
TOTAL	818	469	376	91	2	349	183	11	41	•	21	65	28
PH PREPARED	575	375	309	64	2	200	111	5	31	•	8	39	6
PH INCOMPLETE	85	37	26	11	•	48	23	3	4	•	5	6	7
PH NONE	156	56	40	16	•	100	49	3	6	•	8	20	14
PH NOT REPORTED	2	1	1	•	•	1	•	•	•	•	•	•	1
DOCTORATE													
PH PREPARED	1	•	•	•	•	1	1	•	•	•	•	•	•
PH INCOMPLETE	•	•	•	•	•	•	•	•	•	•	•	•	•
PH NONE	•	•	•	•	•	•	•	•	•	•	•	•	•
PH NOT REPORTED	•	•	•	•	•	•	•	•	•	•	•	•	•
MASTERS													
PH PREPARED	275	181	162	19	•	94	44	3	21	•	1	23	2
PH INCOMPLETE	8	5	2	3	•	3	2	•	1	•	•	•	•
PH NOT REPORTED	11	9	8	1	•	2	•	•	1	•	•	1	•
PH NONE	•	•	•	•	•	•	•	•	•	•	•	•	•
BACCALAUREATE													
PH PREPARED	238	154	114	39	1	84	53	2	9	•	3	13	4
PH INCOMPLETE	20	11	7	4	•	9	3	•	1	•	2	1	2
PH NONE	16	9	6	3	•	7	1	•	2	•	1	3	•
PH NOT REPORTED	1	1	1	•	•	•	•	•	•	•	•	•	•
ASSOCIATE DEGREE													
PH PREPARED	2	•	•	•	•	2	2	•	•	•	•	•	•
PH INCOMPLETE	3	•	•	•	•	3	3	•	•	•	•	•	•
PH NONE	•	•	•	•	•	•	•	•	•	•	•	•	•
PH NOT REPORTED	•	•	•	•	•	•	•	•	•	•	•	•	•
DIPLOMA													
PH PREPARED	53	38	32	5	1	15	11	•	1	•	•	3	•
PH INCOMPLETE	50	20	17	3	•	30	14	3	2	•	1	5	5
PH NONE	128	38	26	12	•	90	47	3	3	•	7	16	14
PH NOT REPORTED	1	•	•	•	•	1	•	•	•	•	•	•	1
OTHER OR UNKNOWN													
PH PREPARED	6	2	1	1	•	4	•	•	•	•	4	•	•
PH INCOMPLETE	4	1	•	1	•	3	1	•	•	•	2	•	•
PH NONE	1	•	•	•	•	1	1	•	•	•	•	•	•
PH NOT REPORTED	•	•	•	•	•	•	•	•	•	•	•	•	•

Table 23--CONSULTANT NURSES IN STATE AND LOCAL PUBLIC HEALTH AGENCIES BY PRIMARY AREA OF RESPONSIBILITY, 1962 AND 1966

PRIMARY AREA OF RESPONSIBILITY	1962[a]	1966		
		TOTAL	FULL TIME	PART TIME
TOTALS	732	1015	964	51
GENERALIZED	175	197	194	3
SPECIALIZED	557	818	770	48
EDUCATION	27	19	19	-
COMMUNICABLE	63	66	66	-
CIVIL DEFENSE	8	4	4	-
ACCIDENT PREVENTION	1	-	-	-
MATERNAL AND CHILD HEALTH	72	111	111	-
MENTAL HEALTH	47	48	47	1
MENTAL RETARDATION	11	16	15	1
ORTHOPEDIC	102	86	85	1
OCCUPATIONAL HEALTH	29	19	19	-
SCHOOL HEALTH	15	25	25	-
HOSPITAL	29	27	26	1
NURSING HOME	66	38	33	5
CHRONIC[b]	77	71	69	2
GERIATRICS	-	8	8	-
PHYSICAL THERAPY	-	18	15	3
SPECIALIZED PROJECT AND CATEGORICAL PROGRAM	-	250	216	34
OTHER SPECIALTY	10	12	12	-

[a]Data on consultants working part time were not reported in 1962.
[b]Chronic includes cancer, heart disease, other chronic and rehabilitation in both years. Rheumatic fever, counted under "Other" in 1962, is included with "Chronic" in 1966.

SECTION 4

Licensed Practical Nurses

Of the 904 licensed practical nurses employed for public health work, 96 percent are full-time employees. Nearly all are employed by local agencies, as shown by the following table:

	Number	Percent
Total	904	100.00
AGENCY		
State	5	0.55
Local	899	99.45
Official	417	46.13
Nonofficial	329	36.39
Combination	95	10.51
Board of education . . .	58	6.42

Other characteristics of the licensed practical nurses working in public health are discussed in the preceding sections of this report.

TABLE 24 --LICENSED PRACTICAL NURSES EMPLOYED FULL TIME AND PART TIME FOR PUBLIC HEALTH WORK BY TYPE OF EMPLOYING AGENCY, JANUARY 1, 1966

REGION AND STATE	TOTAL	FULL TIME					PART TIME				
		STATE AGENCY	LOCAL AGENCY				STATE AGENCY	LOCAL AGENCY			
			OFFICIAL	NON-OFFICIAL	COMBI-NATION	BOARD OF EDUCATION		OFFICIAL	NON-OFFICIAL	COMBI-NATION	BOARD OF EDUCATION
TOTAL	904	4	404	310[a]	92	57	1	13	19[b]	3	1
REGION 1											
CONNECTICUT	12	•	•	9	•	•	•	•	3	•	•
MAINE	1	•	1	•	•	•	•	•	•	•	•
MASSACHUSETTS	41	1	•	35	•	1	•	1	3	•	•
NEW HAMPSHIRE	1	•	•	1	•	•	•	•	•	•	•
RHODE ISLAND	12	•	•	12	•	•	•	•	•	•	•
VERMONT	1	•	1	•	•	•	•	•	•	•	•
REGION 2											
DELAWARE	9	•	2	7	•	•	•	•	•	•	•
NEW JERSEY	16	•	•	6	2	7	•	•	1	•	•
NEW YORK	154	•	58	92	3	•	•	1	•	•	•
PENNSYLVANIA	46	•	5	30	9	2	•	•	•	•	•
REGION 3											
DIST. OF COLUMBIA	25	•	16	9	•	•	•	•	•	•	•
KENTUCKY	12	•	•	•	•	12	•	•	•	•	•
MARYLAND	11	•	•	8	•	2	•	•	1	•	•
NORTH CAROLINA	•	•	•	•	•	•	•	•	•	•	•
PUERTO RICO	75	2	72	•	•	•	•	1	•	•	•
VIRGINIA	14	•	7	•	5	2	•	•	•	•	•
VIRGIN ISLANDS	•	•	•	•	•	•	•	•	•	•	•
WEST VIRGINIA	•	•	•	•	•	•	•	•	•	•	•
REGION 4											
ALABAMA	4	•	•	•	•	1	•	3	•	•	•
FLORIDA	5	•	1	2	1	•	1	•	•	•	•
GEORGIA	23	1	7	•	5	10	•	•	•	•	•
MISSISSIPPI	•	•	•	•	•	•	•	•	•	•	•
SOUTH CAROLINA	5	•	•	1	•	2	•	•	1	•	1
TENNESSEE	33	•	33	•	•	•	•	•	•	•	•
REGION 5											
ILLINOIS	85	•	70	14	•	1	•	2	2	•	•
INDIANA	18	•	10	5	3	•	•	•	•	•	•
MICHIGAN	51	•	5	38	6	•	•	•	2	•	•
OHIO	48	•	23	9	15	•	•	•	1	•	•
WISCONSIN	22	•	8	12	•	•	•	•	2	•	•
REGION 6											
IOWA	6	•	•	4	1	•	•	•	1	•	•
KANSAS	1	•	1	•	•	•	•	•	•	•	•
MINNESOTA	16	•	4	4	7	•	•	1	•	•	•
MISSOURI	8	•	4	•	•	2	•	1	1	•	•
NEBRASKA	8	•	•	•	6	•	•	•	•	2	•
NORTH DAKOTA	1	•	•	•	•	•	•	1	•	•	•
SOUTH DAKOTA	6	•	6	•	•	•	•	•	•	•	•
REGION 7											
ARKANSAS	1	•	•	1	•	•	•	•	•	•	•
LOUISIANA	7	•	1	•	•	5	•	•	1	•	•
NEW MEXICO	7	•	7	•	•	•	•	•	•	•	•
OKLAHOMA	10	•	6	•	4	•	•	•	•	•	•
TEXAS	39	•	24	8	•	7	•	•	•	•	•
REGION 8											
COLORADO	16	•	•	•	16	•	•	•	•	•	•
IDAHO	2	•	•	•	1	•	•	•	•	1	•
MONTANA	5	•	5	•	•	•	•	•	•	•	•
UTAH	1	•	1	•	•	•	•	•	•	•	•
WYOMING	•	•	•	•	•	•	•	•	•	•	•
REGION 9											
ALASKA	•	•	•	•	•	•	•	•	•	•	•
ARIZONA	14	•	9	2	•	3	•	•	•	•	•
CALIFORNIA	•	•	•	•	•	•	•	•	•	•	•
GUAM	3	•	3	•	•	•	•	•	•	•	•
HAWAII	4	•	4	•	•	•	•	•	•	•	•
NEVADA	2	•	2	•	•	•	•	•	•	•	•
OREGON	10	•	8	•	•	•	•	2	•	•	•
WASHINGTON	9	•	•	1	8	•	•	•	•	•	•

[a]Includes 4 nurses in established home care programs.
[b]Includes 1 nurse in an established home care program.

Table 25--LICENSED PRACTICAL NURSES EMPLOYED FULL TIME AND PART TIME FOR PUBLIC HEALTH WORK, BY TYPE OF EMPLOYING AGENCY, MARITAL STATUS, AND AGE GROUP, JANUARY 1, 1966

REGION AND STATE	TOTAL	FULL TIME					PART TIME				
		STATE AGENCY	LOCAL AGENCY				STATE AGENCY	LOCAL AGENCY			
			OFFICIAL	NON-OFFICIAL	COMBI-NATION	BOARD OF EDUCATION		OFFICIAL	NON-OFFICIAL	COMBI-NATION	BOARD OF EDUCATION
TOTAL	904	4	404	310[a]	92	57	1	13	19[b]	3	1
UNDER 30	141	•	65	61	10	4	•	1	•	•	•
30-39	234	1	118	80	15	13	•	2	5	•	•
40-49	282	1	126	94	36	17	•	2	3	3	•
50-59	207	2	87	61	22	20	1	5	8	•	1
60 AND OVER	37	•	8	14	6	3	•	3	3	•	•
AGE NOT REPORTED	5	•	•	•	3	•	•	•	•	•	•
SINGLE	151	1	41	85	15	5	•	3	1	•	•
UNDER 30	64	•	21	36	5	1	•	1	•	•	•
30-39	32	•	7	22	1	1	•	•	1	•	•
40-49	25	1	3	14	5	2	•	•	•	•	•
50-59	21	•	10	7	2	1	•	1	•	•	•
60 AND OVER	9	•	•	6	2	•	•	1	•	•	•
AGE NOT REPORTED	2	•	•	•	2	•	•	•	•	•	•
MARRIED	607	3	300	182	51	44	1	7	16	2	1
UNDER 30	68	•	38	23	4	3	•	•	•	•	•
30-39	174	1	97	48	11	12	•	2	3	•	•
40-49	213	•	106	66	23	13	•	1	2	2	•
50-59	141	2	56	45	11	14	1	3	8	•	1
60 AND OVER	10	•	3	•	1	2	•	1	3	•	•
AGE NOT REPORTED	1	•	•	•	1	•	•	•	•	•	•
WIDOWED, DIVORCED, OR SEPARATED	141	•	60	43	24	8	•	3	2	1	•
UNDER 30	8	•	5	2	1	•	•	•	•	•	•
30-39	28	•	14	10	3	•	•	•	1	•	•
40-49	44	•	17	14	8	2	•	1	1	1	•
50-59	44	•	20	9	9	5	•	1	•	•	•
60 AND OVER	17	•	4	8	3	1	•	1	•	•	•
AGE NOT REPORTED	•	•	•	•	•	•	•	•	•	•	•
NOT REPORTED	3	•	3	•	•	•	•	•	•	•	•
UNDER 30	1	•	1	•	•	•	•	•	•	•	•
30-39	•	•	•	•	•	•	•	•	•	•	•
40-49	•	•	•	•	•	•	•	•	•	•	•
50-59	1	•	1	•	•	•	•	•	•	•	•
60 AND OVER	1	•	1	•	•	•	•	•	•	•	•
AGE NOT REPORTED	•	•	•	•	•	•	•	•	•	•	•

[a]Includes 4 nurses in established home care programs.
[b]Includes 1 nurse in an established home care program.

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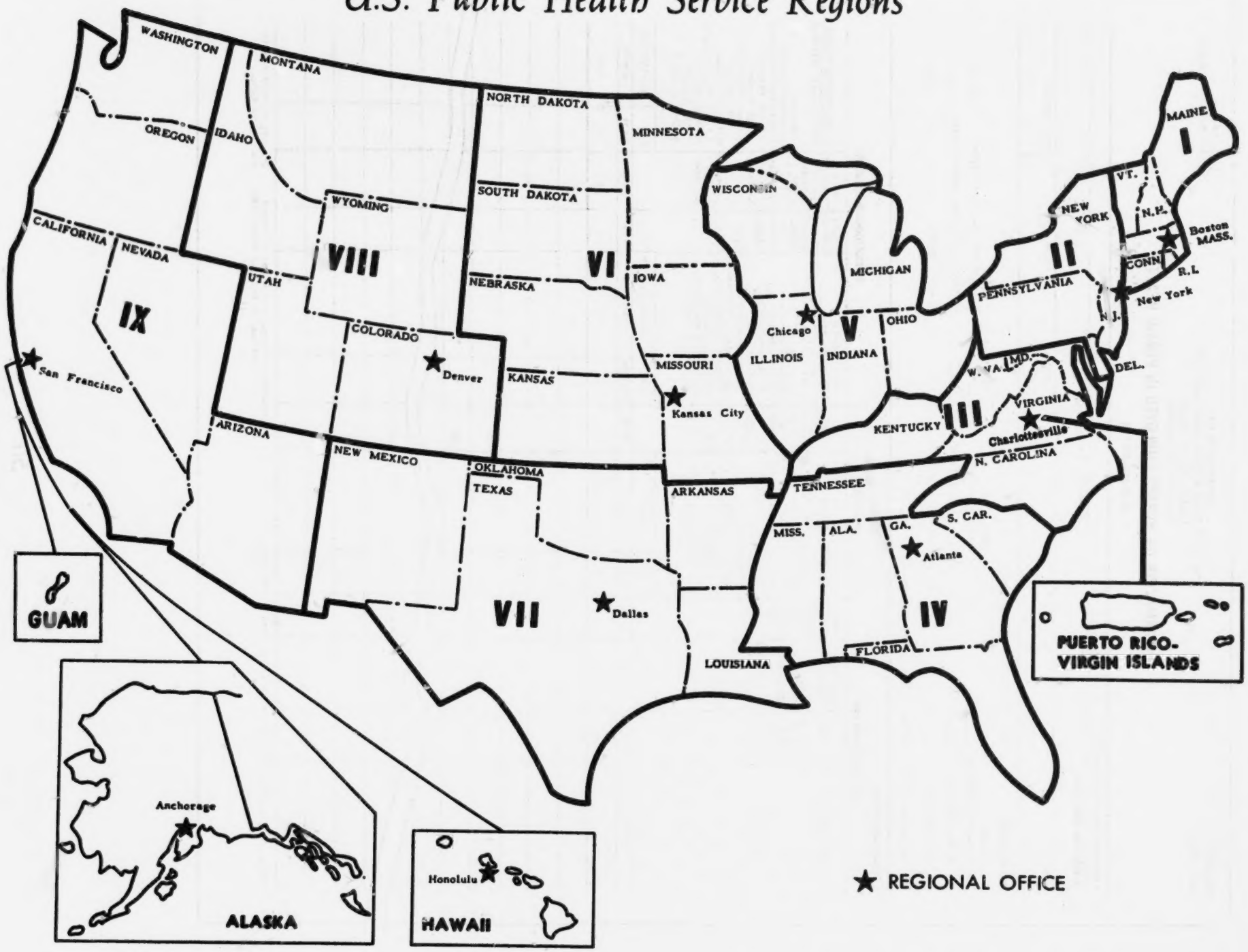
APPENDIX

U.S. Public Health Service Regions



48/49

PHS-298
REV. 9-65

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
DIVISION OF NURSING

Form Approved
Budget Bureau No. 68-R692

INFORMATION ON NURSES EMPLOYED IN PUBLIC HEALTH

CC1 = 9 2-7 AS OF JANUARY 1, 19__

I IDENTIFYING INFORMATION

A. REPORTING AGENCY NAME	ADDRESS (Street No.)	CITY

COUNTY	STATE	ZIP CODE	PHS REGION	DATE PREPARED

CC 8-9
B. TYPE AGENCY Check (X) Only One: State or Local

State
01 Health Department _____
02 Other Official _____
03 Non-Official _____

Local
04 Health Department _____
05 Visiting Nurse Service _____
06 Combination Service _____
07 Established Home Care Program _____
08 Board of Education (School System) _____
09 Other (Specify) _____

CC10
C. Does Agency Have Nursing Care of Sick at Home Program: 1. Yes ____ 2. No ____.

II PERSONNEL DATA

A. BIOGRAPHICAL DATA				B. POSITION			C. EDUCATIONAL PREPARATION					
IDENTIFICATION (Name or Number)	AGE 1. <-20 2. 20-29 3. 30-39 4. 40-49 5. 50-59 6. 60-+	MARITAL STATUS 1. Single 2. Married 3. Divorced or Separated 4. Widowed	EMPLOYMENT STATUS 1. Full Time 2. Part Time	TITLE OR FUNCTION 01. Director 02. Asst. Director 03. Consultant (Gen.) 04. Consultant (Special.; Specify Field) 05. Supervisor 06. Staff-PHN 07. Staff-Non-PHN 08. Other PHN Position (Specify) 09. Other Non-PHN Position (Specify)		INVOLVED IN NURSING CARE OF SICK AT HOME 1. Yes 2. No	HIGHEST DEGREE OR CREDENTIAL (Specify year highest level obtained) 01. Doctorate-Nursing 02. Doctorate-Non-Nsg. 03. Masters-Nursing 04. Masters-Non-Nsg. 05. Baccalaureate-Nsg. 06. Baccalaureate-Non-Nsg. 07. Associate Degree-Nsg. 08. Diploma-Nursing 09. Pract. Nurse Certif. 10. Other or Unknown		CREDIT EARNED BEYOND HIGHEST DEGREE OR CREDENTIAL 1. Yes 2. No	PUBLIC HEALTH NURSING PREPARATION 1. Complete 2. Incomplete 3. None 4. Unknown	INITIAL NURSING PROGRAM (Specify year obtained) 1. Masters 2. Bacca-PH Approved 3. Bacca-Non-PH Approved 4. Assoc. Degree-NLN Approved 5. Assoc. Degree-Non-NLN Approved 6. Nursing Diploma 7. Pract. Nsg-NLN Approv. 8. Pract. Nsg-Non-NLN Approved 9. Other or Unknown	
				Code	Specify		Code	Year Obtained			Code	Year Obtained
CC 11-14	CC 15	CC 16	CC 17	CC 18-19	CC 20-21	CC 22	CC 23-24	CC 25-26	CC 27	CC 28	CC 29	CC 30-31
EXAMPLE: Mary Jones	4	3	1	09	PH Coordinator	2	04	1960	2	1	2	1954
01												
02												
03												
04												
05												
06												
07												
22												
23												
24												
25												

Page ____ of ____ Pages (Please use additional forms if necessary)

Distribution: Original to Division of Nursing
One copy to Regional Office (PHS)
One copy to State Director
One copy to Agency

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service
Division of Nursing

INFORMATION ON NURSES EMPLOYED IN PUBLIC HEALTH
As of January 1, 19 ___

Instructions for Completing Form

GENERAL

THE SET OF FOUR FORMS REQUIRES NO CARBON PAPER

A separate form is to be completed for each agency which administers a public health nursing service or research program.

All professional and licensed practical nurses on the payroll of the reporting agency as of January 1, except those on educational leave, are to be listed on the form. Nurses receiving a salary from multiple sources are listed only by the agency providing administrative direction.

To avoid duplicate counts, list each nurse only once. Nurses working for more than one agency are counted only by the agency under whose administration they are employed. Agencies purchasing nursing service through a contract do not list the nurses rendering the service; the agency providing (supplying) the service lists them.

Nurses who are assigned from State or Federal agencies to a local area are to be listed with the agency to which they are assigned, regardless of the source of their salaries. Nurses assigned to special projects are listed by the agency responsible for the project.

Public health nursing students receiving field experience are excluded.

Use additional sheets as necessary to list nurses' identification data. If more than one sheet is used, only name and address of the agency are needed as identifying information on the additional sheets. At bottom of sheet enter appropriate page number.

The State Director of Nursing retains a copy of each completed form for her files and one for the reporting agency, and returns all others to the Public Health Service Regional Office, where one copy is held, the other forwarded to the Division of Nursing, Public Health Service.

SPECIFIC

Item numbers correspond to those on the form.

I B. TYPE AGENCY

Use the following definitions; check only one: State or Local.

STATE

Health Department: A health agency supported by tax funds and administered by a unit of State government.

Other Official: An agency other than the State Health Department, supported by tax funds and administered by a unit of State government. (State Welfare Department, State Mental Health Commission, etc.).

Non-Official Agency: All voluntary State agencies: Tuberculosis Association, Junior League, religious groups, Red Cross, etc.

LOCAL

A multiple-county district or unit is considered to be one agency.

Health Department: A health agency supported primarily by tax funds, administered by a county, city or other local unit of government, and having as major responsibilities prevention and control of disease, and community education. It may or may not offer therapeutic nursing services.

Visiting Nurse Service: A voluntary (non-official) agency administered by a citizens' group, and usually financed by earnings and contributions, community chest, and united funds, which has as one of its primary functions the care of the sick at home.

Combination Service: Program administered jointly by a voluntary and an official agency, supported by tax funds, community chest and united funds, earnings and contributions, in which preventive and therapeutic services are rendered by a single staff of nurses. Include in this group integrated or amalgamated agencies.

Established Home Care Program: Program administered by agency other than VNA, combination or official agency in which nurses are employed to provide nursing care to patients in the home. Include "organized", group practice, hospital based, coordinated, industrial and other home care programs, regardless of location.

Board of Education: A board of education, public school, school district, or parochial school.

Other (Specify): Enter in this space any other type of agency which administers a public health nursing service or research program. Explain if indicated.

I C. NURSING CARE OF THE SICK AT HOME

Does reporting agency include in its program a service of direct nursing care to patients at home? The care at home may be provided through an extension of services of official or non-official agencies.

II PERSONNEL DATA

ENTER for each professional and licensed practical nurse listed, appropriate code in each column. Nurses working under the administrative direction of an agency, regardless of receiving salary from multiple sources and/or dividing their time among multiple agencies, are counted only once. SPECIFY other data as requested. See example.

A. BIOGRAPHICAL INFORMATION

Identification (Name or Number): May be entered if desired for local use. The Division of Nursing, Public Health Service needs only the individual characteristics; age, marital status, employment status.

Employment Status

Full Time: Regular employee, working 35 hours or more per week, or whatever is accepted by agency as a work week. (Code 1 in column).

Part Time: Regular employee, working less than an agency work week. (Code 2 in column). (The school nurse employed by a school system is considered a full time employee if she works full time during the accepted school year.)

B. POSITION

Title or Function: Level at which nurse is functioning or devoting more than 50% of her time.

If titles or positions in your agency do not conform to those in the column headings on this form (i.e. director), enter a code for each nurse performing these functions, regardless of title.

It is recognized that few positions can be classified as 100% administration, consultation, etc. In situations where there is a question as to how a nurse should be classified, the judgment of the Director of Nursing will be accepted.

Consultant: If specialized consultant, enter code and specialty in appropriate column. (MCH, Cardiac, etc.). If more than one specialty, indicate one preferred area.

Staff-PHN: Nurse performing staff level public health nursing duties regardless of preparation, specialization or place of employment.

Staff-Non-PHN: Nurse supplementing the work of the PHN in clinics or patients' homes.

Other PHN Position) Any nursing position that does not fit in the above
Other Non-PHN Position) categories should be specified, with code.

Involved in Nursing Care of Sick at Home: If agency offers nursing care of sick at home, code 1 for each nurse rendering nursing care at home, regardless of whether on a full or part time basis.

C. EDUCATIONAL PREPARATION

There are four columns relating to this area. Each column will require an answer for each nurse listed. If the nurse has never received additional preparation beyond the initial nursing program, then the first and last columns will have similar answers.

Highest Degree or Credential: Indicate ONLY the highest level attained and specify year obtained.

Nursing: Include only the highest degree or credential specified as having a nursing major.
Non-Nursing: Applies to a pre- or post-basic degree in any field other than nursing; includes MPH, DPH.
Other or Unknown: Example - preparation in a foreign country whose certification does not comply with the terminology of the U.S.

Credit Earned Beyond Highest Degree or Credential: Indicate whether or not credit, in addition to the highest degree obtained, has been earned through enrolling in a university-sponsored program.

Public Health Nursing Preparation: Public health nursing preparation is counted only if it was obtained in or accepted by a program accredited by the National League for Nursing for the preparation of students for beginning PHN positions. Nurses with degrees will be counted as "prepared in public health" if they have completed a baccalaureate program approved for PHN, or have at any time completed required hours of college credit in, or accepted by, a program approved by the National League for Nursing. Certain positions in public health, as the hospital nursing consultant or the clinical nurse, do not require public health nursing preparation. One purpose of this count is to learn the number of nurses working in this area who are and who are not prepared in public health.

Completed: Nurse has a public health certificate, or has completed the required course in a program acredited by the National League for Nursing.
Incomplete: Nurse has less than the required number of college credits approved for Public Health Nursing.

Initial Nursing Program: Enter code indicating the type of program in which nursing preparation was first completed and specify year obtained.

Baccalaureate - PH Approved: Program approved by the National League for Nursing.

Associate Degree) Practical Nursing): Some programs are accredited only by the state, regional or other local accrediting body, others by National League for Nursing; indicate whether or not program was accredited by National League for nursing.
Other or Unknown: Example - preparation in a foreign country whose certification does not comply with the terminology of the U.S.

Rev. 9/65

☆U. S. GOVERNMENT PRINTING OFFICE : 1967 O - 268-516

VT 008 204

Hughes, Ruth P., And Others

Speeches Presented at the Annual Vocational Convention of the American Vocational Association (62nd, Dallas, Tex., December 12-13, 1968). Home Economics Division Meeting.

MF AVAILABLE IN VT-ERIC SET.

Pub Date - Dec68 27p.

*SPEECHES; *OCCUPATIONAL HOME ECONOMICS; *TEACHER EDUCATION; *INSTRUCTIONAL MATERIALS; WORKING WOMEN; INTERACTION PROCESS ANALYSIS

A research project designed to prepare students for the dual role of homemaker and wage earner was summarized by Ruth P. Hughes in her presentation for the Annual Convention of the American Vocational Association. The unit of study was presented as a curriculum package containing several short units of instruction on: (1) Why Women Became Homemakers and Wage Earners, (2) Making Decisions About Employment, (3) Cost of Employment, (4) Provision of Child Care, and (5) Money Management. The package included a workbook, study sheets, program instruction, slides, transparencies, and list of publications, field trips, outside speakers, and class surveys. Evaluation data reported in tabular form indicate that students made significant gains, however attitudes did not change. The curriculum package was concluded to be useful to a variety of teachers and to have contributed to student learning in classes which included large numbers of less able students. A paper presented by J.W. Bell discusses interaction analysis as a means of improving teacher effectiveness. In the past, teacher traits and pupil gains have been measured as criteria of teacher effectiveness. Recent efforts concentrate on a study of teacher behavior. Interaction analysis is one of the tools devised to describe the consequences of classroom behavior and provide feedback. Teachers develop an openness to supervision because the teacher's behavior and his desired ideal behavior are being discussed, not the teacher or the bias of the supervisor. (FP)

VT 008 204

ED036657

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Speeches Presented At The

62nd Annual Vocational Convention

Of The

American Vocational Association

Dallas, Texas

December 12-13, 1968

Home Economics Division Meetings

VT008204

EVALUATION OF A CURRICULUM PACKAGE

"PREPARATION FOR A DUAL ROLE"

Summary, tables, and illustrative objectives from a paper prepared for presentation at the annual convention of the American Vocational Association, December 12, 1968, Dallas, Texas

Ruth P. Hughes, Associate Professor
Home Economics Education
Division of Family Resources
West Virginia University
Morgantown, West Virginia

Among the problems affecting the family is that of the changing role of the homemaker with reference to her position as both a homemaker and a wage earner. Documentation of the increasing importance of the dual role: homemaker-wage earner does not need elaboration. What needs to be stressed is the necessity for helping high school students to understand the role and its implications for the young girl today. Thus "Preparation for the Dual Role: Homemaker-Wage Earner" was selected as a topic which would have relevance and meaning for junior and seniors girls. The unit of study was presented as a curriculum package containing several short units of instruction which, although taught consecutively for the research project, could be used later as the teacher desired. Other criteria were: the materials used should be difficult for teachers to devise themselves or to obtain from other sources; the curriculum should include some concepts which were either new to students or which involved some reorganization of existing concepts. The investigators believed, too, that the package would provide an opportunity to suggest matter content well beyond more traditional areas.

Topics included were:

1. Why Women Became Both Homemakers and Wage Earners
   Historical Background
   Employed Women Today

2. Making the Decision About Employment of the Homemaker

3. Costs of Employment

4. Provision for Care of Children

5. Management of Money

The model for the behaviorally stated objectives was the Taxonomy of Educational Objectives: Cognitive and Affective Domains (Bloom, et al, 1956; Krothwohl, et al, 1964). Only at the first three main levels, with major sublevels of 1 and 2, were used. Illustrations of objectives, related learning experiences, and test questions are attached included.

Subjects, primarily girls, were 604 high school juniors and seniors enrolled in the home economics classes in which the unit of instruction was used. The 32 classes were taught by 29 teachers in 26 schools through different regions of New York State. The variety of schools included big city, small city, central rural, suburban, and area vocational. Nine of the teachers, each with one class and each in a different school, formed the pilot group which helped plan and test the curriculum. One hundred of the students were in this group.

Materials prepared for the package included a workbook, study sheets, programmed instruction, slides, transparencies, commerical and extension publications, and suggestions for such additions as field trips, outside speakers, and class surveys.

Three strategies were used to evaluate the curriculum package: a continuous assessment during the pilot use of the materials, judgments by all teachers of the worth of the package after they had used it in their classrooms, and measurement of student gain scores as the result of instruction.

Teachers judged the package by means of a descriptive rating scale for which a 3 rating was acceptable, 5 most desirable, and 1 not acceptable. Tables based on the five categories follow:

Table 1

Overall Response to Project (n=29)

Overall Response	Mean Rating	Range	Number of Ratings below Acceptable
Total for category (acceptable = 9)	12.6	9 - 15	0
Items in category (acceptable = 3)			
Willingness to re-use package	4.4	3 - 5	0
Instruction materials	4.3	3 - 5	0
Methods of presentation	3.9	3 - 5	0

Table 2

Evaluation of Teaching Materials (n=27)

Teaching Materials	Mean Rating	Range	Number of Ratings below Acceptable
Total for category (acceptable = 30)	36.4	23 - 49	4
Items in category (acceptable = 3)			
All materials		1 - 5	5
Child care slides	3.2	1 - 5	6
Decision making slides	3.4	1 - 5	5
Transparencies	3.5	1 - 5	4
Programmed instruction	3.1	1 - 5	8
Budget game	3.4	1 - 5	5
Work sheets	3.4	1 - 5	3
Publications (commercial/government)	3.6	2 - 5	4
Tests	3.4	1 - 5	5
Workbook (homemaker-wage earner)	3.9	1 - 5	2

Table 3

Student Behavioral Response (n=29)

Student Behavioral Response	Mean Rating	Range	Number of Ratings below Acceptable
Total for category (acceptable = 12)	14.7	10 - 19	3
Items in categoyr (acceptable = 3)			
Interest shown	3.6	2 - 5	1
Understanding of subject matter	3.4	2 - 5	2
Participation in lessons	3.9	3 - 5	0
Awareness of implications for selves	3.8	1 - 5	2

Table 4

Evaluation of Each Topic (n=29)

Evaluation of Each Topic	Mean Rating	Range	Number of Ratings below Acceptable
Total for category (acceptable = 18)	24.3	15 - 30	4
Items in category (acceptable = 3)			
Topic 1 - Why Women Became Both Homemakers and Wage Earners	4.4	2-5	1
Topic 2 - Decision Making	3.9	1 - 5	2
Topic 3 - Costs of Employment	3.9	1 - 5	4
Review and Transition	3.8	2 - 5	1
Topic 4 - Provision for Care of Children	4.3	3 - 5	0
Topic 5 - Management of Money	4.0	2 - 5	5

Table 5

Teaching Methods (n=29)

Teaching Methods	Mean Rating	Range	Number of Ratings below Acceptable
Total for category (acceptable = 18)	22.6	16 - 30	2
Items in category (acceptable = 3)			
Programmed instruction	3.4	1 - 5	7
Transparencies	4.1	2 - 5	1
Slides	3.9	2 - 5	3
Work sheets	4.0	3 - 5	0
Suggestions for speakers	3.4	1 - 5	5
Printed materials	4.0	2 - 5	1

As evidenced by scores on equivalent forms of an achievement test administered pre and post, both pilot and main study students made significant gains. As revealed by scores on a self report inventory, attitudes did not change. However, student

comments during interviews, and teacher comments about student interest in the materials both indicated that an affective impact had been made.

For the most part, data from the study support the statement that the curriculum package was useful to a variety of teachers and made a real contribution to the learning of students in classes which included large numbers of the academically less able.

Objectives, Learning Experiences, and Evaluation
(An Example of Interrelationship)

The following were developed for the topic, "Costs of Employment," which formed part of a larger unit of study: "Preparation for the Dual Role: Homemaker - Wage Earner." The model for development and evaluation of the unit was the Taxonomy of Educational Objectives: Cognitive and Affective Domains.

The illustrations below are excerpts from the objectives, learning experiences, and written evaluations prepared for teachers' use with the topic.

Numbers refer to taxonomy levels.

1.2 Cognitive objectives:

Knows sources and methods for determining costs of employment in time, money, energy.

1.2 Affective objective:

Student accepts idea of measuring costs of employment.

Learning Experience:

Teacher presents a transparency showing the hours spent in homekeeping in families with full time homemakers and in families with employed homemakers. Discussion includes pointing out what the differences might be and the importance of family attitudes toward the differences.

Achievement test question:

Employment of the homemaker has costs which can be measured in terms of

1) time, effort, money
2) skills, resources, attitudes
3) goals, resources, alternatives
4) time, money, skills

Attitude test question (agree or disagree)

It's probably a good idea to see what it costs a family to have the homemaker work.

2.2 Cognitive objective:

Interprets costs of employment in terms of overall relationships among the three cost; for example, because there is less time at home, the employed homemaker may have to spend more for food.

2.2 Affective objective:

Student expresses interest in the topic by seeking persons with whom to discuss the topic and/or by making pertinent comments in class.

Learning Experience:

Calculate time costs of various household tasks for own family. Determine dollar value of this work. Relate to implications for family members if homemaker is employed.

Achievement test question:

Suppose a working wife was willing to spend money in order to save herself time and effort. Which would she do?

1) Buy only the best quality meat, fruits, and vegetables.
2) Buy what looks appetizing without spending time to make shopping lists.
3) Buy prepared and partially prepared foods.
4) Buy home-grown foods in season to freeze for later use.

Attitude test question: (agree or disagree)

If I were a homemaker considering employment, I would try to figure what the costs of employment would be.

3.0 Cognitive objective:

To be able to determine ways of reducing and/or eliminating the work of housekeeping and the costs of employment; to be able to do this while considering the value system of the family in question.

3.0 Affective objective:

Student independently assesses dual role cases (from interviews done previously) in terms of costs of employment.

Learning experience:

Students used data from interviews with employed homemakers and/or from speakers' presentations to class to determine costs of employment and family attitudes toward them in those particular instances.

Achievement test question:

Flora works during the week, and must do quite a few household tasks on Saturday. Even though Sam helps her, she finds that between her household tasks and taking careoof the baby, she gets very tired. One of Sam's friends who works on management made the following suggestions. Which one is BEST for Flora to use?

1) Do all the hard jobs first.
2) Make a strict time plan and stick to it.
3) Avoid all interruptions.
4) Do similar kinds of tasks together.

Attitude test question:

Studying about costs of homemaker employment was valuable and worthwhile to me.

NEW YORK STATE COLLEGE OF HOME ECONOMICS
A Statutory College of the State University
CORNELL UNIVERSITY
Ithaca, New York

Department of Home Economics Education

SIMULATION GAME: EVALUATION OF EFFECTIVENESS ON SELECTED COGNITIVE AND AFFECTIVE PUPIL BEHAVIOR[1]

The simulation budgeting game which was used as the basis of this study was developed as an integral part of the curriculum package, "Preparation for a Dual Role: Homemaker-Wage Earner". The sample of students used in the research could be classified for the most part as academically poorer students. The study was done using the past test only control group experimental design with twelve pairs of home economics classes in ten schools in New York State. Within a school one class was randomly assigned to be the control and the other the treatment and the pair were taught by the same teacher.

The hypotheses tested in this study were that students participating in the simulation game would:

1. reveal more interest in the subject matter
2. learn more facts and principles of information
3. have a more positive attitude toward the subject matter
4. have longer retention of the subject matter

than would students participating in a more conventional classroom activity.

A case study was used to teach the same principles as the game in a more conventional manner.

The two way unweighted means analysis of variance was used to test student scores from five instruments for significance of differences among teachers and methods. The instruments were an interview schedule, rating scale, questions from a final achievement test, items from an attitude scale and a multiple choice test used to test for retention. The F ratio for the teachers was significant (.05 level) on all instruments except the interview schedule which had no significant F ratios. The treatment F ratio for the rating scale was highly significant (.005 level).

On the basis of these analyses it appears necessary to reject for this study all but the first hypothesis.

A comparison of the means of the subgroups for each of the measures showed that the experimental sections had higher mean scores than the control sections for each of the measures except the interview schedule. This indicated a trend although the F ratios were now significant.

[1] Presented by Nancy Miller, Home Economics Education, New York State College, Cornell University, Ithaca, New York at the 62nd Annual Vocational Convention, Dallas, Texas, December 12, 1968.

Analysis of Variance

Source	F ratio				
	Retention	Attitude	Final	Interview	Rating Scale
Teacher	9.04*	2.36*	3.90*	0.93	2.11*
Treatment	0.51	2.13	1.72	0.09	11.75**
Interaction	0.90	0.77	0.88	1.20	0.29

*significant at .05 level
**significant at .005 level

Means of Subgroups

School	Retention			Attitude		
	Control	Experimental	Average	Control	Experimental	Average
1	15.86	13.44	14.65	9.57	9.81+	9.69
2	14.31	14.80+	14.55	8.73	10.11+	9.42
3	15.00	14.29	14.64	9.00	9.43+	9.21
4	14.45	14.32	14.39	9.71	9.29	9.50
5	10.48	11.73+	11.10	8.45	8.79+	8.62
6	15.09	14.31	14.70	9.73	10.08+	9.90
7	13.29	14.31+	13.80	9.25	9.55+	9.40
8	12.00	12.38+	12.19	9.75	10.00+	9.88
9	12.95	13.63+	13.29	10.00	10.20+	10.10
10	8.77	9.58+	9.18	9.00	9.14+	9.07
11	11.71	12.94+	12.33	9.69	9.55	9.62
12	13.08	14.11+	13.60	9.50	9.10	9.30
Average	13.08	13.32	13.20	9.36	9.59	9.48

School	Final		
	Control	Experimental	Average
1	5.00	4.13	4.56
2	4.46	4.45	4.46
3	4.00	4.43+	4.21
4	4.70	5.00+	4.85
5	3.67	3.57	3.62
6	5.27	5.23	5.25
7	4.47	5.00+	4.74
8	4.38	5.00+	4.69
9	3.60	4.00+	3.80
10	5.22	5.64+	5.43
11	3.63	4.72+	4.17
12	4.42	4.10	4.26
Average	4.40	4.61	4.50

+ higher score of pair

School	Interview Control	Interview Experimental	Interview Average	Rating Scale Control	Rating Scale Experimental	Rating Scale Average
1	23.33	19.00	21.17	11.67	13.33+	12.50
2	20.33	21.33+	20.83	13.67	15.33+	14.50
3	22.33	22.00	22.17	9.67	13.67+	11.67
4	19.67	20.67+	20.17	13.33	13.00	13.17
5	20.33	20.00	20.17	10.00	12.67+	11.33
6	19.67	23.33+	21.50	14.00	19.00+	16.50
7	20.67	20.33	20.50	11.67	13.33+	12.50
8	22.33	21.33	21.83	13.33	17.33+	15.33
9	21.67	21.33	21.50	10.67	13.67+	12.17
10	19.33	19.67+	19.50	8.67	11.67+	10.17
11	22.00	21.33	21.67	11.00	13.67+	12.33
12	21.33	21.00	21.17	14.33	16.33+	15.33
Average	21.08	20.94	21.01	11.83	14.42	13.12

+ higher score of pair

Correlations between I.Q. and Measures

	Correlation Coefficients				
	Retention	Attitude	Final	Interview	Rating Scale
Control	.328944	.227490	.352854	.1328828	-.164948
Experimental	.318974	.158369	.240756	-.075801	-.051014

IMPROVING TEACHING EFFECTIVENESS THROUGH INTERACTION ANALYSIS

Paper given to the Home Economic Section
American Vocational Education Association
Dallas, Texas - December 13, 1968
James W. Bell - Associate Professor of Secondary Education
Arizona State University - Tempe, Arizona

Dr. Gerthon Morgan who spoke earlier at your conference says that we are faced with some very brutal facts. One is that no human being is becoming what he might become; and another is that too many people are willing to settle far short of what might be developed in human potential. Our society has many ills and is ineffective for many people. However, we teachers are the one professional group in society that has every boy and girl for a specified time during the most formative period in their growth and development. We have the opportunity to influence people and to do something about our society as we help each individual reach his potential.

Jerome Bruner in the Process of Education put it this way--the objective of education is to help each student achieve his optimum intellectual development. Thus we have the responsibility for working with all youngsters at their achievement level and take them as far as we can in every type of growth. Good teachers work continually at this, but almost everyone needs help. It has been my observation that home economics teachers do much to help youngsters and your conference theme--the Individualization of Learning--will encourage you to try even harder and hopefully has given you some further ideas on how to accomplish the goal.

The attainment of this basic educational goal--to help each individual reach his potential--is the story of learning and the story of learning is the story of the becoming of each individual person. However, there are

conditions that influence learning and if we are to be effective teachers we must improve the conditions that influence growth, development, and learning. The conditions are many and involve all phases of education.

This seems to be the age of showing or defining things in terms of models. A conceptual model which has helped me understand the critical variables in the teaching-learning art was produced by Lawrence Downey in his book the Secondary Phase of Education.

(Show Transparency - Model)

The model shows the educative process to have three basic dimensions--the substantive, or what is taught; the behavioral, or the human dynamics involved; and the environmental, or physical setting.

The substantive is your subject field which includes the content and the strategies of inquiry or how new knowledge is discovered and acquired. The strategy may be analytical, experimental, empirical or some other mode of inquiry. There has been much work and many research studies in recent years in this area with new curriculum proposals and a search for the structure of knowledge. We will continue in this area as we search for the role of the disciplines in general education and as we move toward greater individualization of learning.

The environmental dimension includes (1) the organization for learning--such as a 6-3-3 or an 8-4 or a non-graded plan; using rigid time periods or some form of flexible scheduling; self contained classroom or team teaching; and so on (2) the physical conditions--such as hotness or coldness, bare walls and etc.--and (3) technology--such as the use of films, overhead projector, video tape recorders and etc. This dimension also influences learning as does the substantive and is being continually researched and improved.

The third dimension is the behavioral and is complex and interrelated; however, Downey has given us three components on which to focus. First, the individual learner and his quest for knowledge which involves what the learner can do and what he wants to do. Second, the group climate which reminds us that the individual learners school life is a series of relationships with other people. Many have written about the "good" climate--that it should be nonthreatening and open and a place where a person can probe the experiences at hand for their full meaning without fear of being judged inadequate, socially unacceptable, or dumb--yet John Holt in a recent comprehensive study found that children were afraid to take a chance or give an honest opinion; afraid of failing; afraid of disappointing or displeasing the many anxious adults around them. The third component is the teacher influence or role in the classroom. I believe that the most important condition in learning for boys and girls is the quality of relationships or interactions that each has. Certainly the teacher has a major influence in coordinating and providing these interactions.

Interaction analysis, the central topic of my work with you this morning has been an outgrowth of the search for an effective social-emotional climate in the classroom. It is simply a tool or system for analyzing the influence patterns of the teacher through the verbal interactions that take place. Before proceeding to discuss and demonstrate interaction analysis, I'd like to involve you in a common problem--how to help a teacher to improve. I'm going to play a short tape of a classroom and you imagine that this is your student teacher if you are a regular classroom teacher or it may be a first year teacher if you are a department head or just any teacher if you are a consultant in your school.

As you listen think how you would go about trying to help this teacher or talk to her. This tape is of a teacher in the inner-city and is fairly clear. I hope you can all hear it.

(Play tape)

I'm sure each of you could find something to talk to this teacher about following the observation and many of you would think of things which I did not. I might start out by saying I enjoyed the lesson or I liked the bulletin boards or something on a positive nature. Then tell her I felt she was a little too negative in her overall approach, that she was too autocratic and anxious to jump on the kids which probably led to limited participation on their part. I might tell her I think she should stand up to teach--that's a bias of mine.

I might have taken some form of a rating scale with me, such as Ryans, and used this.

(Show transparency and give a few ratings for the teacher)

In using a form such as this, you observe a teacher and then make judgement on the various items listed. It is a common fallacy that a person can judge a teacher by watching him teach. Dozens of studies reveal the inaccuracy of supervisors ratings when compared to pupil learning. Most supervisors go into the classroom to see if the teacher is behaving effectively which means the way they believe he should behave.

Our teacher in the episode might be thinking or respond this way following my departure. I don't really know what Dr. Bell is talking about. He seems to be rather vague and I need some concrete suggestions. We don't communicate on the same level.

What we're going to do now is take a look at one system of Interaction Analysis--the Flanders-Amidon system. There are many others, in fact, in the six volumes of Mirrors for Behavior edited by Anita Simon and Gil Boyer at Temple University, at least 25 instruments of classroom observation were identified and reviewed. Some systems, such as Bellack, Gallagher, and Taba, are primarily cognitive systems; other such as Flanders, Hough, and Amidon are primarily affective systems; and still others, such as the Oscar, are multi-dimensional in nature. Thus you see that various systems have differing purposes. I work with the Flanders system because it is designed to give teachers objective feedback in this critical area of teacher influence and classroom climate.

There are three basic assumptions that I believe you must recognize in using interaction analysis. The first one we have already discussed in some detail.

1. The behavior of the teacher in the classroom is only one factor in the teaching-learning process (Downey Model).

2. A teacher can be helped to define more accurately his own concept of desirable or ideal teacher behavior and subsequently to modify his behavior in the direction of the ideal. However, changes in behavior are personal and only the teacher can change his own behavior.

3. Verbal behavior of an individual is an adequate sample of total behavior. Interaction analysis is concerned with verbal behavior for two reasons. First it can be observed with a higher degree of

reliability than non-verbal behavior. Second, research has indicated that, while teaching is more than talking, the predominant instructional behavior of the teacher is talk. Studies indicate that in the typical classroom someone is talking about 70% of the time and of that talk it is the teacher about 70% of the time.

A question which may be in your mind at this point is "Why study teacher behavior?" I think this question relates to another more basic question which is--What is teacher effectiveness? Teacher effectiveness can be defined as the degree to which the teacher produces those effects toward which the teaching is or should be directed. After 50 years of research and study one can point to very few outcomes that can safely be used to certify, hire and grant tenure to teachers or to help teachers to improve their effectiveness. For many years we investigated teacher traits only to find that we could not be specific in naming the traits. We have used pupil gain as a criterion of teacher effectiveness, but for various reasons it is also inadequate. For example, measures are inadequate for some types of growth; how much growth can be attributed to one teacher; and some teachers have short term as opposed to long term effect on students. If the students gained a lot, we felt the teacher was good but didn't know why.

Recent efforts to answer the question of teacher effectiveness have focused on the process or a study of teacher behavior. Interaction analysis is one of the tools devised to work in this area to get teachers to look at what they are doing. It really works. It can help describe the consequences of our classroom behavior and provide us feedback. The feedback tells us if we are successful in attaining better student contacts. With repeated observations, at least three of 20 minutes length are recommended, a pattern is revealed and teachers gain insight about their own style of teaching.

They learn what type of influence they are using and how to control their use of behavior. They become conscious of the importance of their verbal patterns and they become more open to innovation and suggestions.

The Flanders system has 10 categories. Some of you have copies of a handout which show these.

(SHOW TRANSPARENCY)

(Part 4 #3)

(Part 5 #1)

(Part 5 #2 for questions)

(DISCUSS CATEGORIES)

In using this system a trained observer classifies all classroom verbal communication into one of the categories at an average rate of one number every three seconds. The numbers are recorded in a sequence in a column. It is important to maintain an even tempo and even more important to be accurate. An observer will need approximately 8 to 10 hours of training to use the system correctly. He may use a live classroom or a taped recording as each has some advantages and disadvantages. In either case the observer should spend several minutes orienting himself to the setting before he begins to classify the verbal interaction. The observer stops classifying whenever it would be inappropriate to use the Flanders system such as a shift into seat work or a management function. Occasionally, he may write down marginal notes to explain events in the classroom.

Ground rules have been established to help us be more accurate and objective. We use 7 rules whereas in the last publication I saw of Flanders and Amidon they had 15 listed. I'll only mention two at this time. One

CATEGORIES FOR INTERACTION ANALYSIS

Encourages student talk and increases his freedom of action	INDIRECT INFLUENCE	1.* ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included. I will try to understand - no teacher value. Reflects or clarifies emotion
		2* PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying, "um hm?" or "go on" are included. Teacher gives approval. "I like what you are saying" "a good idea"
		3.* ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category five. No element of teacher value. Your ideas is considered or discussed. Gives students feeling that their ideas are sensible by using them.
		4.* ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer. Broad or narrow type
Increases teacher participation which results in less freedom of action for students	DIRECT INFLUENCE	5.* LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions.
		6.* GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply. Results or is expected to result in observable behavior on students part.
		7.* CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
	STUDENT TALK	8.* STUDENT TALK--RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.
		9.* STUDENT TALK INITIATION: talk by students which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category. Response to broad question - How is student showing initiative?
		10.* SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

*There is NO scale implied by these numbers. Each number is classificatory, it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale.

states that the observer records each change of cateogory. Regular recording procedure calls for the writing of a category mumber every three seconds; however, if a change of category occurs during the three second interval, each cateogry is recorded. The second rule states that the observer is not concerned with teacher intent or with his own biases. The crucial criterion for categorizing teacher statements is its effect on the students and the observer is trained to discern this effect.

You should have a tally sheet like this.

(TRANSPARENCY - TALLY SHEET)

I'm going to play a tape with a few short teaching episodes and we will practice on them. You need to memorize very quickly the number that corresponds to each cateogory.

(PLAY TAPE - BELL CATEGORIZE #1)

(Practice on 2 or 3 more)

After a lesson has been categorized by a trained observer, the data must be summarized so they can be interpreted. This is done by entering the numbers as tallies into a 10 row by 10 column table called a matrix. The numbers are entered into the matrix two at a time with the first number of each pair indicating the row of the matrix and the second the column.

(TRANSPARENCY - MATRIX - Part 4 #6)

(List of numbers - Part 4 #7)

All tallies enter the matrix as a series of overlapping pairs. A completed matrix after approximately 20 minutes of recording would look something like this.

(TRANSPARENCY - PART 4 #12)

The completed matrix divides into special areas for interpretation. Various percentages and ratios may be computed and teaching patterns identified as the teacher working with another person or by herself seeks feedback on her teaching behavior. We can find the percentage of teacher talk, student talk, and time spent in silence and confusion.

(TRANSPARENCY - PART 4 #14)

From the first 7 categories of teacher talk we can compute the ratio which comparies the approximate time spent in indirect influence which encourages student participation as opposed to direct influence which restricts student freedom.

(TRANSPARENCY - PART 4 #16)

This also shows the grand total of tallies which is used to compute the percentage of tallies in each category.

Area A is a block of 9 cells which focus on the positive emotional factors of teacher-pupil contacts and teacher statements which recognize the student.

(TRANSPARENCY - PART 4 #17)

Area B is a block of 4 cells that indicate the continued use of directions and criticism and transitions between these two categories. The two transition cells are particularly reliable indicators of discipline problems.

The content cross is represented by rows 4 and 5 and columns 4 and 5. It indicates the focus on the intellectual aspects of classroom interaction or the promotion of subject matter learning whereas the other areas of teacher

talk are basically motivation and control.

(TRANSPARENCY - Part.4 #18)

Rows 8 and 9, columns 1 to 7 have particular significance because they reveal the immediate response of the teacher at the moment students stop talking.

(TRANSPARENCY - Part 4 #19)

If the teacher responds in the indirect area or columns 1, 2, 3, 4 we know that student talk is being encouraged. The difference between superficial, short praise or classification and praise or classification that is more carefully developed is easily seen by comparing tallies in this area with tallies in Area A, particularly the 2-2 and 3-3 cells which show sustained use of each category.

If the teacher response in rows 8 and 9 is in columns 5, 6, or 7, the teacher is restricting student participation and freedom by giving his own opinion, further information, directions, or criticizing the students. Research with this tool has shown that in general teachers tend to criticize a 9 or student initiated idea and to praise an 8 or direct student response to a teacher question. The cells outlined in red represent extended student talk of the 8 category, response to the teacher, and 9 category, student initiated talk, or transitions between the two.

There are actually 100 categories or cells represented in the matrix. The 10 cells on a diagonal from the 1-1 cell to the 10-10 cell are called steady state cells and indicate that the speaker persists in a particular communication category for longer than three seconds. The other 90 cells are transition cells or movement from one category to another.

Many other facts and relationships may be identified from the matrix data. As an example, individual cells may be examined for useful information. Any column, which shows what preceeded that category, and any row, which shows what followed the use of that category, may also provide useful information.

Another important way for the teacher to look at the data is to identify the pattern or patterns of influence. This identifies the most characteristic moves made by the teacher in verbal behavior and can be compared to the pattern desired by the teacher.

(Reshow TRANSPARENCY - Part 4 #18)
Point out patterns of 4-9-4; 4-9-3-4; 4-8-4

You can see from this limited interpretation that there is much feedback of data from the matrix. A possible disadvantage of this system for many teachers is the work involved. It is time consuming to observe, tally data, and interpret the data. It can only be overcome by meeting the conditions necessary for any change to occur - (1) a desire to understand and improve one's own behavior, and (2) a willingness to put forth the time and effort.

One innovation to reduce the time and work that I have seen is used by Don Covey, Phoenix High School Social Science Consultant.

(TRANSPARENCY)

He records data directly into the matrix and has it immediately available for discussion with the teacher. If someone has not already developed a mechanical gaget to work with interaction analysis, I'm sure it is only a matter of time.

I would now like to spend a few minutes with you in re-listening to the earlier tape and discussing the situation again with the teacher.

(PLAY TAPE)

(TRANSPARENCY of tallies)

Audience may tally if they desire or watch the tallies on the transparency.

(TRANSPARENCY of matrix)

As we talk with the teacher, who also knows about interaction analysis, we discuss various aspects of the interaction. Such things as 12 tallies in the 4-8 cell, 5 tallies in the 7-7 cell, teacher response to student talk, lack of tallies in area A, and a pattern of 4-8-2-4. The teacher might say that she wanted more student initiated ideas which she could clarify and build upon. In other words a 4-9-3 pattern. Discuss with the teacher ways of moving from the actual to the intended pattern and possibly try a skill session to develop the necessary behavior. In my undergraduate and graduate classes at Arizona State University we coordinated the study of interaction analysis with the use of micro-teaching and video tape recording. After the student identifies various behaviors he practices on them with his peers and finds that he can not only change his behavior but control his use of it. The data of successive observations becomes a record of progress which may be maintained and reviewed. Teachers develop an openness to supervision because the teachers behavior and his desired ideal behavior are being discussed not the teacher or the biases of the supervisor. A common language which is better understood has been established.

Many research studies involving the use of Interaction Analysis with student teachers and inservice teachers have been reported in the past six or eight years. A summary of the findings show that teachers of various subject matter areas who have been taught interaction analysis in comparison with similar groups not having interaction analysis show these differences:

1. They take more time to accept and use student ideas
2. They encourage more pupil initiated talk
3. They use less criticism and directions
4. They make more use of indirect response to student talk
5. They have a more generally indirect teaching style

The students of teachers trained in interaction analysis when compared to students of teachers not so trained have a more positive attitude toward their teacher and the classroom in general. Various studies have found significant differences in achievement in favor of students taught by teachers having interaction analysis or who have an indirect teaching style. Some studies have shown very little or no significant difference on the test over subject content. I have no research proof but feel strongly that students of indirect teachers have other gains associated with a democratic society and good mental health that are not measured by the achievement tests used in these studies.

In summary, in using interaction analysis the individual teacher or someone in a supervisory capacity may help the teacher state the objectives behaviorally in terms of categories and patterns; collect data either through an observer or a tape of your own teaching; analyze the data by comparing the actual matrix to the desired; experiment with behavior; re-evaluate to

see if the new behavior attained the desired result; and continue to work toward the original or a modified ideal behavior.

Keep in mind that the Flanders system of interaction analysis is designed for a specific area of the teaching-learning act and that other systems such as cognitive, content analysis, and media analysis are available or being developed to help teachers gain in effectiveness in other areas.

VT 008 413

Guidelines for Submitting Occupational Research and Development Proposals.

New York State Education Dept., Albany. Bureau of Occupational Education Research
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 68 15p.

*GUIDELINES; *EDUCATIONAL RESEARCH; *VOCATIONAL EDUCATION; *RESEARCH PROPOSALS; RESEARCH NEEDS; RESEARCH OPPORTUNITIES; STATE DEPARTMENTS OF EDUCATION; RESEARCH COORDINATING UNITS; *PROJECT APPLICATIONS; METHODOLOGY NEW YORK

To promote, manage, evaluate, and disseminate occupational research under the vocational education acts, project priorities were assigned with primary emphasis on programs concerning inner-city youth and curriculum development in new and unique occupational areas. Other areas considered for funding are: (1) disadvantaged youth, (2) computer instruction and development, (3) increased utilization of equipment, (4) high school curriculums and teacher education, (5) joint ventures between education and Department of Defense to improve vocational education, (6) ways of projecting occupational manpower needs, (7) teacher accreditation for newer occupations, (8) desegregation plans in occupational fields, (9) spin-off benefits of vocational education courses, (10) visual aids, (11) bibliographies, (12) career choices, (13) cost analysis studies in vocational education, (14) summer institutes for teachers, (15) evaluation and/or demonstration projects, and (16) adult education research. Specific guidelines for the development of a proposal document are included, as well as the research purposes and objectives of the vocational acts and the research coordinating unit. (DM)

VT 008 413

GUIDELINES

FOR SUBMITTING

OCCUPATIONAL RESEARCH and DEVELOPMENT PROPOSALS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of Occupational Education Research
Albany, New York 12224

VT 008 413

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GUIDELINES FOR SUBMITTING OCCUPATIONAL

RESEARCH AND DEVELOPMENT PROPOSALS

Introduction

The Bureau of Occupational Education Research of the New York State Education Department has been designated by the U.S. Office of Education as the Research Coordinating Unit (RCU) for New York State. The Bureau is responsible for the promotion, management, evaluation, and dissemination of occupational research under the Vocational Education Act of 1963, and its recent amendments in 1968. Section 131 (a) of the amendments provides funds for grants and contracts which may be used for:

1. research in vocational education;

2. training programs designed to familiarize persons involved in vocational education with research findings and successful pilot and demonstration projects in vocational education;

3. experimental, developmental, and pilot programs and projects designed to test the effectiveness of research findings;

4. demonstration and dissemination projects;

5. the development of new vocational education curricula; and

6. projects in the development of new careers and occupations, such as:

   a. research and experimental projects designed to identify new careers in such fields as mental and physical health, crime prevention and correction, welfare, education, municipal services, child care, and recreation requiring less training than professional positions and to delineate within such career roles with the potential for advancement from one level to another;

   b. training and development projects designed to demonstrate improved methods of securing the involvement, cooperation, and commitment of both the public and private sectors toward the end of achieving greater coordination and more effective implementation of programs for the employment of persons in the fields described in subparagraph a., including programs to prepare professionals (including administrators) to work effectively with aides; and

c. projects to evaluate the operation of programs for the training, development, and utilization of public service aides, particularly their effectiveness in providing satisfactory work experiences and in meeting public needs.

Purposes of the RCU

1. To identify the research and development needs in occupational education.

2. To encourage the conduct of needed research projects.

3. To provide technical consultation upon request.

4. To disseminate published studies in occupational research.

5. To maintain records of ongoing occupational and related studies.

6. To maintain a library of research reports and briefs.

7. To encourage and assist in adoption of innovation.

8. To assist in program evaluation.

9. To publish a monthly newsletter with information on ongoing projects and related events in the area of vocational education.

Objectives of the RCU

1. To conduct research projects for such purposes as: determining the occupational needs of the disadvantaged; providing for the dissemination of occupational information; evaluating professional services and educational structures; assisting in the development of current and future curriculum.

2. To coordinate statewide occupational research efforts on the part of schools, 2-year colleges, universities, other State agencies, and private research organizations.

3. To provide all educational agencies in the State with such consultative services as the development of occupational education research proposals for State and/or Federal funding and the evaluation of existing programs.

4. To disseminate the results of occupational education research, pilot, demonstration, and experimental programs by means of summary reports to professional groups and other branches of the State Education Department, inclusion in the ERIC System, as well as by articles to professional journals.

5. To coordinate, analyze, and transmit information requested by the USOE through the Federal Reporting System supplied, upon request, by the New York State Basic Educational Data System (BEDS) and supplemented, when necessary, by the RCU staff.

6. To cooperate on an interstate basis with other RCUs and education agencies by sponsoring such activities as regional workshops in an effort to solve mutual problems and develop closer ties to provide for mutual reinforcement.

7. To prepare evaluation designs and techniques for schools, universities, and other educational agencies in cooperation with other units in the Office of Research and Evaluation.

8. To function as a service unit to the Office of Occupational Education by providing research and evaluation services.

Project Priorities

Certain priorities will be given to programs concerning inner-city youth and curriculum development in new and unique occupational areas. Other areas considered are as follows:

1. Disadvantaged youth (socioeconomic, culturally deprived, emotionally disturbed, physically handicapped)

2. Computer instruction and development

3. Increased utilization of equipment

4. High school curriculums and teacher education

5. Joint ventures between education and department of defense to improve vocational education

6. Ways of projecting for training in occupations and educational manpower needs

7. Teacher accreditation for newer occupations

8. Desegregation plans in occupational fields

9. Spin-off benefits to vocational education courses

10. Visual aids

11. Bibliographies

12. Career choices

13. Cost analysis studies in vocational education

14. Summer institutes for teachers

15. Evaluation and/or demonstration projects

16. Adult education research

Proposal Document

The following format should be followed in submitting proposals to the Bureau of Occupational Education Research:

1. Cover Page - Nothing precedes this page. It should contain the following information:

   a. Heading (proposal for _____)

   b. Title (be concise; avoid obscure jargon)

   c. Sponsor

   d. Principal Investigator

   e. Approved By

   f. Duration of Project (from - to)

   g. Funds Requested

   h. Date of Submission

SAMPLE COVER PAGE

PROPOSALS FOR RESEARCH AND/OR RELATED ACTIVITIES
SUBMITTED TO THE BUREAU OF OCCUPATIONAL EDUCATION
RESEARCH UNDER THE FEDERAL VOCATIONAL EDUCATION
ACT OF 1968

Title: Identification of research and development needs of the New York State Education Department

Sponsor: Bureau of Occupational Education Research
New York State Education Department
Albany, New York 12224

Principal Investigator: John Jones
John Jones
Associate Professor of Research
Phone: 518-123-4567

Approved by: Samuel S. Smith
Samuel S. Smith, President

Duration of project: July 1, 19__ to June 30, 19__

Funds requested: $8,965

Date of submission: April 15, 19__

SAMPLE COVER PAGE

SAMPLE COVER PAGE

2. Body of Proposal

a. Problem - The problem is an interrogative sentence or statement that asks: "What relation exists between two or more variables?" The statement should be succinct and summarize the point being studied. The problem statement implies that testing or experimentation will yield an answer. It should be remembered that the purpose and/or aims of a study may differ from the problem. The most common error made concerning the problem statement is the usage of too general terms. Limit the problem to one which your research can solve.

b. Definition of Terms - Unusual terminology used in the study should be defined.

c. Objectives - Include aims and purposes which the study will explore. The proposal should have well-defined objectives that can be carried out in predetermined periods of time. The significance of the activity for educational improvement beyond the local setting should be included.

d. Related Research - The proposal must reflect the necessary knowledge of the area to be studied. It is important that the initiator be familiar with previous research, articles, and information relative to the area of study to be undertaken. A supported and well documented review of the literature which supports the need for the proposal should be cited. The review should illustrate (in a smooth-flowing manner) what has been done, is going on, and projected in the field. It should lead the reader to the need or rationale for the proposed project. Professional opinion supported by published or unpublished documents may be included.

e. Hypotheses or Questions - Hypotheses are always in the form of a declarative sentence. They are statements about the relations between variables and state clearly their testing potentiality. Hypotheses state concepts or theories in a testable or near-testable form. Generally speaking, hypotheses are predictions which the investigator makes concerning the outcomes of the study. When a study is concerned with experimentation not based or directly related to an existing theory, it is best that "questions" be used. The null hypothesis form is acceptable.

f. Procedures - This section depicts what is to be done and how it will be accomplished in order to test each hypothesis or question. It is usually the most carefully read section of the proposal. Sequential steps stated in the research design may include:

(1) Population or Universe - is the larger group from which representative samples to be studied are selected. The characteristics of the population are an operational definition of the group to whom the study is generalizable.

(2) Sample - is a particular group of people or observations which are selected for investigation. This group or groups are selected from the universe by employing a specific sampling technique, i.e., stratified, area, cluster sampling, randomized, etc. The description and nature of the technique used should be concise but thorough.

A sample should be of sufficient size to make the study meaningful and the results generalizable. Provide as much descriptive information as possible concerning the sample.

(3) Design - Indicates how and by what methods the researcher proposes to answer the problem. He should choose a design which best fits his problem. Some

studies may use such techniques as case studies, questionnaires, analytical tapes, etc. Experimental studies indicate how the situation will be structured to control variables and/or administer treatment.

(4) Data - List the kinds of data to be gathered and describe the measures to be used. Indicate their appropriateness. Explain the methods of data collection.

(5) Instrumentation - The instruments chosen for use in the study must measure the variables for which the researcher seeks an answer. The measures must have psychometric characteristics, i.e., the required validity (measures consistently the same variable repeatedly), and objectivity (no discrepancy on evaluation). If published or previously tested instruments are to be used, evidence of validity and reliability coefficients should be appended to the proposal along with copies of the instruments.

(6) Analysis of Data - The method(s) or technique(s) used to analyze the data should be consistent with the objectives and the design. A step by step description of how the data is to be handled to reach logical conclusions should be stated. Statistical techniques are those mathematical procedures used to treat the data collected in order to answer the hypothesis or questions. One or more techniques may be employed depending on the amounts and kinds of data and/or instruments used. Examples of techniques are chi square, t-test, analysis of variance, etc.

g. Appendix - Included in the appendix is anything which would disrupt the reader's logical flow of understanding while reading the body of the proposal but would clarify or add to his knowledge of particular areas, i.e., copies of instruments, definitions of specific variables.

3. Time Schedule

On a separate sheet a timetable for the duration and completion of the project should be estimated. Incorporated into the timetable should be three or four dates when an interim project report is to be submitted to the Bureau of Occupational Education Research Project Director. Release of funds is dependent upon receipt of these reports. They need not be of great length, but should accurately reflect the status of the project at the due date. (Refer to page 9 - Progress Reports)

4. Personnel

List name, title, and a brief statement of the educational background and occupational experience of the principal investigator who will be directly in charge of the project. The investigator must have at his disposal qualified personnel to carry out the objectives of the study. Include a similar sketch for any other key personnel (such as the person who will perform statistical analyses or write the report). General duties of key personnel should be stated briefly.

5. Budget

On a separate page estimate the cost of the proposed study. The budget must show funds needed beyond those normally considered for regular instructional or management programs. Allocated funds are not considered as outright grants but allowable costs for actual proposal expenses incurred against approved budget estimates. Allowable costs include the following:

a. Personnel Salaries

(1) Consultants and other professionals on full-time, part-time, per diem, or hourly basis.

Costs for research design, data gathering, and other services necessary to document the research study. (Avoid unnecessary personnel. Keep in mind the economic efficiency of the proposal in that the sponsoring agency may have personnel with expertise who may be consulted without fees.)

(2) Secretarial assistance. Clerical work on a part-time, per diem, or hourly basis.

b. Travel and Lodging

(1) Fares, purpose of travel, and number of days involved.

(2) Estimated mileage or public conveyance at the rate customarily paid by the sponsoring institution.

(3) Lodging on a per diem basis at the rate customarily paid by the sponsoring institution.

c. Supplies

(1) Stationery, supplies, postage.

(2) Duplicating and printing by the sponsoring institution. (Where no facilities exist, the Bureau of Occupational Education Research will supply this service.)

(3) Telephone

d. Fringe Benefits

(1) Retirement
(2) Social Security
(3) Health Insurance
(4) Workmen's Compensation

e. Miscellaneous - Includes all other legitimate costs associated with development of the project which are not listed elsewhere. All such costs must be itemized.

THE FOLLOWING ADDITIONAL STEPS ARE REQUIRED OF

THOSE INVESTIGATORS WHOSE PROPOSALS ARE ACCEPTED FOR FUNDING

6. Progress Reports

a. Interim reports of progress are to be submitted periodically during the project as noted in the time schedule.

b. The report should include:

(1) Mention of problems encountered as well as progress accomplished

(2) Copies of newly devised data collection instruments

(3) Evidence of reliability and validity testing

(4) Appropriate information concerning the steps taken toward the successful completion of the project

7. Final Report

Before final payment can be made, a final report and abstract must be submitted to the Bureau of Occupational Education Research and accepted. This report is due on or before July 1.

The final report represents an essential part in the Bureau's attempt to promote wide dissemination of research findings to other research agencies, school administrators, teachers, and interested laymen.

a. All materials, including final reports, produced under research grants or contract are placed under public domain.

b. Two copies (double spaced) of draft should be forwarded to the Bureau for editing prior to the submission of the formal final report. One of these will be returned and will contain suggested changes. A copy of typing instructions to make the work conform to the requirements of the New York State Publications Bureau will be supplied at this time.

8. Abstract - Includes the major aims, specific objectives of the proposal, a condensation of the procedures followed, and a precise but capsule summary of the results obtained. Although the abstract appears at the beginning of a report, it should be written after the final report has been developed. The abstract should present the highlights of the study (in 250 words or less) giving the reader an accurate key to the function of the research reported.

VT 008 436
Glenn, John
Projections for Correctional Programs in Education for Arizona Department of Corrections.

Arizona State Dept. of Vocational Education, Phoenix
Arizona Div. of Vocational Rehabilitation, Phoenix
MF AVAILABLE IN VT-ERIC SET.
Arizona Research Coordinating Unit, 1333 West Camelback, Phoenix, Arizona 85013.
Pub Date - 11Apr69 65p.

*VOCATIONAL REHABILITATION; *CORRECTIVE INSTITUTIONS; *VOCATIONAL EDUCATION; *GENERAL EDUCATION; *PROGRAM IMPROVEMENT; PROGRAM EVALUATION; PRISONERS; EDUCATIONAL ATTITUDES; EDUCATIONAL FACILITIES; INDIVIDUAL CHARACTERISTICS; SOCIAL CHARACTERISTICS; ACADEMIC ASPIRATION
ARIZONA

The primary purpose of this study was to describe the status of the current vocational education and general education programs in the correctional institutions of Arizona and to evaluate the potential of each institution and its inmates for improved educational programs. This study was concerned only with educational programs offered in the Arizona state prison at Florence and the Arizona state industrial school at Fort Grant. Data were collected by interview, personal records, and personal observation. Data presented in this study indicate: (1) that current educational programs are serving only about 20 percent of the inmates who have a need for educational upgrading, (2) that there is both a need and a desire on the part of the inmates for additional vocational offerings at both institutions, and (3) that the present administrative arrangements for the vocational programs between a junior college and a correctional system provide a viable mechanism for operating educational programs in correctional institutions. (CH)

VT 008 436

P89

C1

PROJECTIONS for CORRECTIONAL PROGRAMS in EDUCATION

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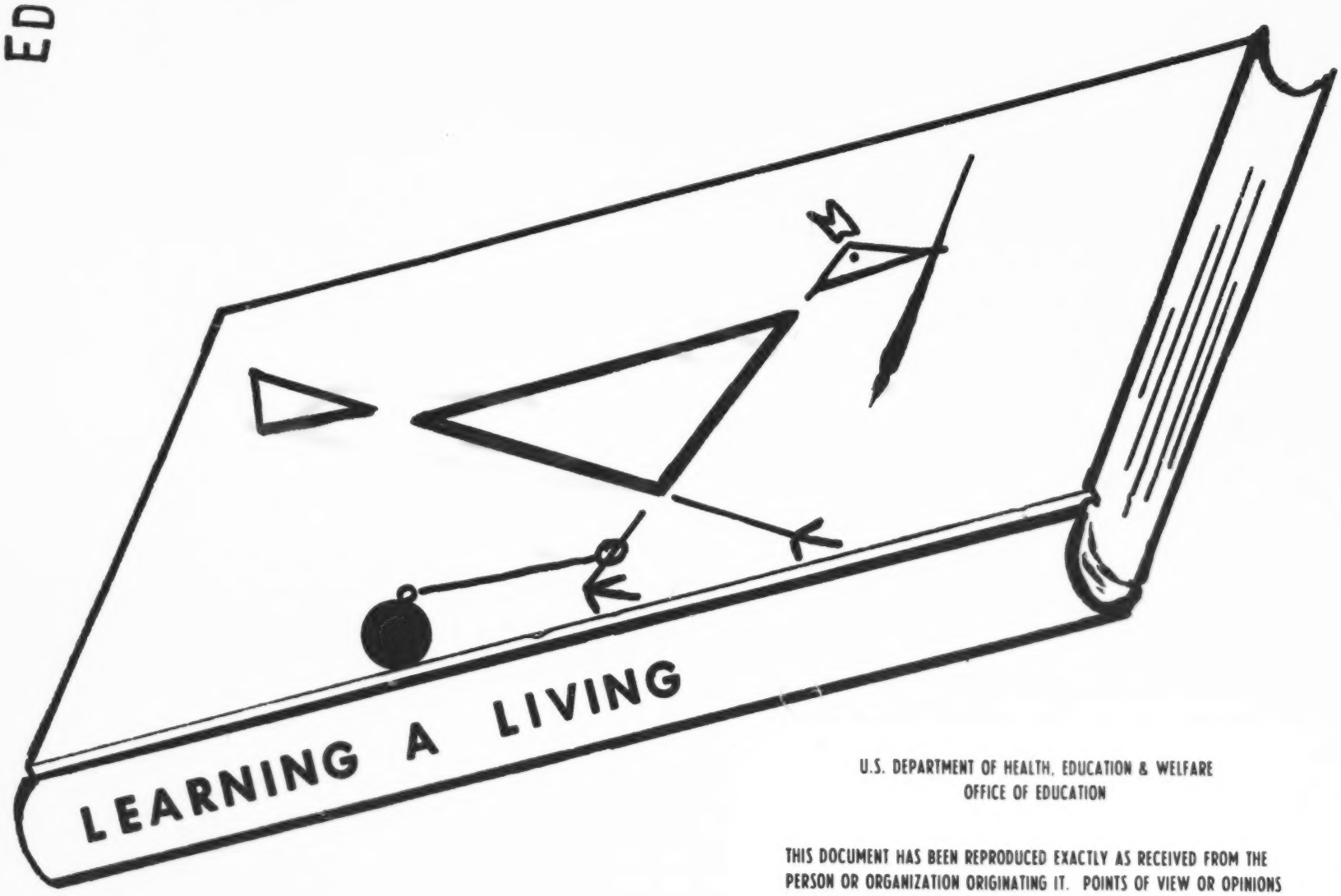

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOR ARIZ. DEPT. OF CORRECTIONS

by

JOHN GLENN

VT008436

This study was financed through the joint cooperation of the Arizona State Department of Vocational Education (J. R. Cullison, Director), and the Arizona Division of Vocational Rehabilitation (M.W. Holdship, Director).

Additional copies of this report may be obtained by contacting the Arizona Research Coordinating Unit, 1333 West Camelback, Phoenix, Arizona, 85013 (Dr. A. Lee, Director).

April 11, 1969

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SECTION I

INTRODUCTION

Statement Of The Problem

In order to provide background information for those who are reading this report, but yet not directly involved, some information concerning the nature and origin of this problem will be briefly discussed. The author of this report was contacted late in January, 1969, by the Assistant State Director of Vocational Education with a request for assistance in acquiring information upon which to base decisions concerning the extent and direction of future cooperation between the Arizona Department of Corrections and other interested State and Federal agencies in educational projects being conducted in Arizona Institutions of Corrections.

Shortly thereafter, a proposal was submitted to the Assistant State Director of Vocational Education suggesting priorities of study. Financial and personnel arrangements necessary to conduct such a study were made by the Director of the Arizona Research Coordinating Unit in cooperation with the participating governmental agencies.

The ancient theory that damage and injury to persons and property can be more effectively reduced by using prisons for punishment and retribution must necessarily be accompanied by a reference to their rehabilitation theory of penology, since many points in each theory are dichotomous. Although this debate on the punitive versus the rehabilitation theory has been the object of numerous writings and discussions by both laymen and experts, it has recently become one-sided in favor of the rehabilitation theory. Nevertheless, the argument has not been conclusively ended in the majority of industrial and pre-industrial countries. Writings in favor of the punishment theory by currently recognized penologists are extremely rare. However, those that do exist would insist that the objective of such punishment be purposeful rather than merely retributive.

As previously implied, it is apparent that currently prominent penologists in this country are generally agreed that the

prisons of our country will best serve the purpose assigned to them by society if their major emphasis is on correction and treatment, rather than punishment and retribution. This assumption is supported not only in many major writings, but also is evident in various other ways. For example, a great number of state institutions which were formerly called penitentiaries have adopted the term correctional institution to correspond with newer philosophy and objectives. Arizona is indeed fortunate in that the top echelon administrative staff in the system of corrections have exhibited through their actions that they believe wholeheartedly in the correctional theory.

Although very few authorities would claim that the rehabilitation process could even remotely hope for 100% effectiveness in every case, they are in general agreement that a substantial percentage of the incorrigible cases may be helped in their adjustment to the prison environment. The new State Director of Corrections in Arizona has, through his willingness to cooperate, exhibited a desire to strive for optimum efficiency in rehabilitating those convicted of crimes against society.

In almost every case, this same desire and spirit of cooperation has been expressed and carried out by the administrative staff at the institutional level.

Purpose Of The Study

The primary purposes of this study were to describe the status of the present educational programs in the correctional institutions of Arizona and to further evaluate the potential of each institution and its inmates for additional offerings which might be possible. In other words, an attempt was made to collect, tabulate, and analyze to a limited extent, those data which would permit the cooperating agencies to more objectively ascertain the extent and the direction of future cooperation between the Arizona Department of Corrections and these cooperating agencies. More specifically, the study was concerned with providing answers to the following questions:

1. What is the status of the general education program?

2. What is the status of the vocational education program?

3. What are the inmates' perceptions of the quality of correctional institution educational programs as compared to other organized educational experiences they have had?

4. What factors, other than ability, do inmates express as potential barriers to occupational entrance and advancement?

5. What needs are exhibited for general education among the inmates in the state correctional institutions?

6. What vocational education needs are exhibited by the inmates in Arizona correctional institutions?

7. What is the potential for success in general in vocational education programs by the inmates?

8. What structural and functional barriers exist to prohibit extended and improved educational programs in the correctional institutions of Arizona?

9. What do the inmates perceive as their greatest educational needs?

Limitations Of The Study

This study was concerned only with educational programs offered in the Arizona State Prison at Florence and the Arizona State Industrial School at Ft. Grant.

The completeness and accuracy of the information and data recorded on educational and personnel records were limiting factors, as were the extent and accuracy of responses of the participants to be questioned on the information forms and the interview schedules.

Although information concerning educational programs and instructional staff members was parametric in nature, inmate information at both the Arizona State Prison and the Arizona State Industrial School was limited to the extent that the random sample selected was representative of the inmate population as a whole.

Sources Of Data And Method Of Study

Data for this study were obtained from the following sources:

(1) information from the inmates of the two institutions was obtained by interview utilizing the services of researchers employed by the Arizona Research Coordinating Unit: (2) information from the personal records on the inmate population; (3) information contained in the organizational data sheets for the respective programs was obtained through interviews with educational personnel at the institutions; (4) personal observation of the researcher.

The Assistant State Director of Vocational Education obtained preliminary clearance to conduct this investigation from; (1) the State Director of Corrections, (2) the Director of the vocational program at the Arizona State Industrial School, Mr. Edwin Sorensen,

Eastern Arizona Junior College; (3) the Director of the vocational program in Arizona State Prison at Florence (Mr. Dale Gibson, Central Arizona State College).

A random sample of the inmate population of each institution was selected for inmate information purposes. Data which reflect inmate opinions and inmate personal information was derived from these samples.

Related Research

A review of the literature revealed, as far as the researcher could ascertain, no study devoted solely to prison education. An extensive review of books and professional journals of penology in related fields revealed widespread concern with education as a method of inmate rehabilitation. However, for the purpose of this brief study, only those few studies which are related in either content or methodology have been reviewed. The relatively short period of time the rehabilitative philosophy has gained wide acceptance tends to have limited the amount of research that has been completed. The even shorter length of time that federal agencies have been participating in these programs further reduces the amount of material available.

A considerable number of studies have been completed which are directly concerned with the parole movement and parole effectiveness, and indirectly connected with numerous elements which contribute to the success of the parole. One of the elements which contributes to the success of the parole has been correctional education. Although a few small studies have been directed at certain phases of educational programs, the majority of research which was reviewed has been done as an appendage to some other major area of interest.

Research which was reviewed is divided into the four following categories: (1) need for education; (2) intellectual ability; (3) motivation; (4) prison education and recidivism. These topics appear to be the major areas of research in the field of correctional education. Category number one is concerned with ascertaining whether or not the typical inmate has a genuine need for general and vocational education advancement. Category number two is concerned with the inmate's intellectual capacity to effectively participate in educational programs. Category three is concerned with the inmate's desire to participate and four, with the effects these programs have on recidivism. This study will be directly concerned with the first three categories as they apply to Arizona. Unfortunately, it is impossible to do any effective research into the fourth category, that of prison education and its effect on recidivism, since Arizona correctional institutions have not been engaged in educational efforts long enough to objectively evaluate their effort on the basis of recidivism.

Need For Education. An extensive study of prison parole systems in related influences was recently completed and reported in book form. This long-term study was financed by the Ford Foundation and directed by Dr. Daniel Glaser, a research sociologist at the University of Illinois. This book, The Effectiveness Of A Prison And Parole System,[1] was based on extensive observation, large number of interviews, and the study of numerous case records. Several assistants spent an entire year in each of five different institutions of the Federal Prison Service and the second year in several U.S. probation and parole offices. The research methods involved some thousands of federal prisoners and ex-prisoners.

Although this research dealt with many parole and related topics, the sections on prison education and work for prisoners are related to this study in a few respects. Dr. Glaser reported that prison inmates in his sample had a median educational level of the fifth or sixth grade. He also found that from ten to more than thirty percent of the inmate population, depending on the institution, were classified as functional illiterates. One-sixth of the sample of 1965 Federal prison releasees had not advanced beyond the fourth grade, including one-fourth of the releasees who were 41 years of age or older.

A study by Price Chenault reported in Contemporary Correction[2] in 1951 indicated that only 1 to 3 percent of the men in prison at that period had completed high school.

Intellectual Ability. Studies have been conducted to ascertain the intellectual ability or capacity of the inmate population to participate in, and profit from, educational experiences. One pertinent study conducted by the State of New York Department of Corrections and reported in 1961 indicated that, although inmates were educationally deficient, they were not markedly different from the general population with respect to intelligence. They reported that their sample had a median I.Q. of 101.2 with 1.5% less than 60 I.Q.; 11%, 60 through 69; 13.2%, 80 through 89; 21.5%, 90 through 99; 24.8%, 100 through 109; 18.5%, 110 through 119; 8.1%, 120 through 129; 1.5%, 130 or higher.[3]

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[1]Glaser, Daniel, The Effectiveness Of A Prison And Parole System, (New York: Bobbs-Merrill Company, 1964), p. 9.

[2]Chenault, Price. "Education," Contemporary Correction, (New York: McGraw-Hill, 1951), p. 44.

[3]New York Department of Corrections, Educational Achievement Project On Male Adolescent Offenders, June 1957 through May,1958 (Albany, New York, 1961), p. 33.

Motivation. Most studies on prison educational programs have measured motivation indirectly or by the voluntary participation rate. Whether this voluntary participation does indeed give a true reflection of an aspiration for self betterment, or is just the result of extrinsic pressure, or taking the path of least resistance, has yet to be discovered. It may only be that the school opportunity is the most attractive alternative open to the inmate. However, data presented in this study in later sections would tend to negate this theory. The educational programs are not inherently attractive and intrinsic motivation to participate is often not forthcoming. Therefore, the most immediate assumption would be that voluntary participation would indeed indicate motivation.

In Glaser's study, a card containing the following nine statements was presented to the inmate interviewees under the heading "What An Inmate Might Try To Get Or Do In Prison And Why:" (1) getting the most comforts and the most pleasant assignments possible in prison in order to "do" the "easiest time" possible; (2) keeping from being "pushed around" or given a hard time by other inmates; (3) avoiding segregation or other prison punishment; (4) learning a trade or getting more school credit, to help get a better job on the outside; (5) improving abilities or knowledge for some reason other than getting a job; (6) learning how to commit crime more successfully; (7) getting one of the paying jobs in prison; (8) being more conscientious about religion; (9) trying to improve oneself psychologically.[4]

Item number four was among the first three choice(s) of 94% of the inmates at the Ashland, Kentucky, Prison. It was the first choice of 67% of the inmates at Leavenworth Penitentiary. Even though item number four had a low first choice rate (53%) at one maximum security prison, it was still the major interest expressed by inmates in all the prisons in the study.

A study by Roger Gwartney on educational program completion at El Reno Federal Reformatory in Oklahoma found the following school problem data to be of significance:

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[4]Glaser, op. cit., p. 265.

[5]Gwartney, Roger L. "Literacy Training At El Reno Reformatory" Journal of Correctional Education, Vol. 17, No. 4, (Oct., 1965), pp. 23-25.

Enrollments	297
Completion	134
Terminations (totals)	104
Releases	42
Transfers	34
Lack of ability to progress	3
Removed for adjustment reasons	14
Reached the limit of learning ability	44

These data present the following pictures; (1) percent of completion, 45; (2) percent of terminations, 35; (3) percent remaining in program, 20. The researcher rated the motivation to complete a program as extremely high since most of the unsuccessful completions were due to factors beyond the inmates' control.[5]

Prison Education And Recidivism. One of the foremost criteria used to evaluate the success of correctional institution educational programs has been the effect the educational program has on recidivism rates. One of the earliest, and most thorough, based on a sample of 1,762 men paroled from a Wisconsin institution in the 1936 to 1941 period, indicated that recidivism rates were considerably lower for men enrolled in educational programs than for those not so enrolled.[6]

The study conducted at the Michigan State Prison in 1962 by S. J. Saden consisted of a comparison of students and non-students in a follow-up of 1,000 parolees between 1945 and 1949. In this study, 74% of the students had successful paroles as opposed to 64% of the non-students. The author reported this difference to be statistically significant at the .01 level.[7]

Glaser did a variation of the above mentioned investigation. He compared parole failure with duration of prison school attendance in three categories: none; under 6 months; seven months or more. When contrasted in this manner, the difference was significant at the .01 level. The length of the inmate school attendance was positively correlated with parole success.[8]

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[6]Schnur, Alfred C. "The Educational Treatment Of Prisoners And Recidivism," American Journal of Sociology, Vol. 54, No. 2 (Sept., 1945), pp. 142-147.

[7]Saden, S. J. "Correctional Research At Jackson Prison," Journal Of Correctional Education, Vol. 15, No. 4, (Oct., 1962) pp. 22-26.

[8]Glaser, Daniel. The Effectiveness Of A Prison And Parole System, (New York: Bobbs-Merrill Company, 1964), p. 278.

Another major study of parole success in relation to education employed another variation in method. A. W. Cochran, in a tightly controlled study, found a difference in the parole success rates of program participants and non-participants to be significant at the .01 level. He then made comparisons between selected types of courses to ascertain whether or not one or more showed a greater differential effect on the parole success rate. The four groups concerned were: (1) literacy classes; (2) secondary classes; (3) correspondence classes; (4) vocational classes. Although relatively high differences were discovered, none were statistically significant.[9]

Need For The Study

The number of Americans to become prisoners in some type of public confinement centers annually is over the 2 million mark. According to various sources, between 92 and 99% of this number are eventually released. Most of these releases occur within three years after confinement.[10] Precise figures are not available as to the number of reconfinements. John Martin suggests that recidivism rate is between 60 and 70%.[11] Estimated figures of between 2/3 and 3/4 recidivism abound in the literature of criminology and related fields.

Although these recidivism rates have been suggested as being too high by recent authorities, slightly lower figures would not be consoling to the criminologist, the sociologist, the educator, and collectively, the taxpayers. A recidivism rate as low as 50% would still indicate that rehabilitative efforts have yet to approach excellence. Programs and efforts to lower the return rates and raise rehabilitative success rates may be discovered by the trial and error method, but research on new methods and evaluation of existing practices offer a great deal of promise. The fact that the concerned agencies in Arizona were interested enough in the future of the inmates in the educational programs to conduct this study is meritorious in itself.

Fiscal and time limitations will not permit a comprehensive analysis of all the data collected in this report by the author of this report. It must be assumed, and rightly so, that the panel to which this report is directed has had sufficient experience to interpret the information and utilize it effectively in light of the objective of their particular agencies.

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[9]Cochran, A. W. "Is Education Of Value To The Inmate?" Journal Of Correctional Education, Vol. 17, No.2,(April,1965), p. 22.

[10]Glaser, Daniel. op. cit., p. 3.

[11]Martin, John B. Break Down The Walls,(New York: Ballentine Books, 1954), pp. 233-234.

SECTION II

STATUS OF THE VOCATIONAL EDUCATION PROGRAMS IN ARIZONA CORRECTIONAL INSTITUTIONS

As previously mentioned, the best single measure of the effectiveness of any vocational education program is the degree of success which its graduates achieve. More specifically, the following four items offer specific criteria upon which program effectiveness may ultimately be evaluated:

1. How many of the program graduates are placed in the occupation for which they were trained?

2. How do the program graduates progress as compared to those who have not had such training?

3. To what extent does the program help alleviate the local inequities in labor supply and demand?

4. To what extent does the program decrease previous recidivism rates?

The reader can readily understand why no objective evaluation of Arizona's Correctional Institution Vocational Programs can be undertaken, when he realizes the programs have been in operation for less than one year. In this brief period, there have not been sufficient program graduates released from prison to warrant such an evaluation.

Information presented in prose form in this section of the report will be correlated with data presented in the organizational data sheets found at the end of this section. This information is not intended to be as evaluative in nature as it is descriptive. It is hoped that this material will provide the reader with some basic insights into the basic structure and organization of the vocational education programs.

In each topic presented, the author will attempt to offer a brief explanation of the rationale for including such material, and will project a brief analysis of the information. No attempt will be made to offer a comprehensive analysis of the data. Time will not permit such an extensive analysis and it should be left up to the responsible officer in each of the participating governmental agencies to interpret the data in light of their own basic objectives.

Item one presented on the data sheets at the end of the chapter indicates that neither the vocational program at Arizona State Industrial School or the vocational program at Arizona State

Prison is compulsory in nature. While no correctional agency in the nation forces an inmate who lacks job skill to participate in vocational education programs, almost all of them highly recommend that the inmate participate in such programs, especially if he exhibits a potential for success in rehabilitation. A variety of intrinsic types of motivation are employed to get the inmate to realize the importance of having saleable occupational skills upon release. However, it would be just short of disaster if all inmates at Arizona State Prison who have the potential for succeeding in a vocational program were to suddenly be motivated to participate, since presently training opportunities exist for about 10% of the potential.

Item two of the vocational data sheets indicates that both of the vocational programs in the Arizona Department of Corrections require general education prerequisites to program participation. Both of these requirements seem to be quite realistic, in that a good basic education is generally necessary for success in most growing occupational fields.

The diagnostic instruments which are used for screening potential vocational students at both institutions appear to be appropriate as basic instruments. These instruments are the same used by the Bureau of Employment Security on a national basis and for which long-term norms have been established. Although the General Aptitude Test Battery was not previously used at Arizona State Prison, the writer is informed that all incoming inmates will be given this test, and efforts will be made to test older inmates who did not have a previous opportunity. Although the inmate is released from other duties to participate in educational programs in these institutions, if he so requests, it is sometimes unwise (from a job security or financial standpoint) for him to do so. This problem will be undertaken later in this unit.

Items number six through eleven presented on the data sheet at the end of this section indicate that the instructional staff members in the vocational programs of these two institutions not only meet the minimum academic and occupational requirements for certification, but frequently have gone steps beyond that in their educational preparation. Although below the Arizona average salary for teachers, the fringe benefits offered these instructors in lieu of salary act as an equalizer. It is suggested that, at the present, starting salaries do not appear to be a deterent in attracting additional vocational staff members or in retaining the current staff.

The potential that exists for earning a salary by certain inmates at the Arizona State Industrial School at Ft. Grant appears to have the potential for providing negative motivation to upgrade oneself vocationally. A young inmate at this institution who comes from an economically depressed home situation would find the possibility of earning some money while confined somewhat more attractive than going to school and doing without certain luxuries. A number of inmates at this institution expressed this as a reason for not attending the vocational program. This situation <u>does not</u> exist at the Arizona State Prison at Florence.

As indicated in item fifteen, legal, financial and administrative provisions exist for operating a placement service for vocational program graduates who are being released from prison. If the program which has been planned is put into operation, Arizona will have a correctional institution placement service much superior to the one which now operates in the federal system of prisons. At present in the federal system, there are only a total of 12 employment placement officers; 7 are employed in regular federal penal institutions and 5 in special pre-release guidance centers. Although many parole officers try to assist parolees in finding jobs, they have such a large case load in many cases that they are unable to provide the necessary individual attention. The provisions for graduate follow-up programs which are indicated in item 16 are an essential part of the total vocaticnal program. Unless the inmate graduate can be followed up, realistic program evaluation and revision is next to impossible.

Although administrators of both educational programs indicated that vocational counseling was provided for potential vocational students prior to their selection of a training area, it was indicated that this service was being conducted by other agencies at the present. Presently, the vocational counseling at the Arizona State Industrial School at Ft. Grant is being conducted by the vocational education coordinator. Although this person has done an admirable job to date, he is not a certified vocational counselor. It was indicated that budget provisions had been made to hire 3 guidance counselors for the Arizona State Prison. However, upon further inquiry, it was learned that none of the 3 are designated specifically as vocational counselors.

ORGANIZATIONAL DATA SHEET FOR ARIZONA CORRECTIONAL INSTITUTIONS

Vocational Education Programs

Item	Arizona State Prison	Ft. Grant
1. Is vocational education compulsory for any inmate	No	No
2. Are there general education prerequisites to vocational program participation	Yes (G.E.D. or H.S.)	Yes (8th grade)
3. Diagnostic instruments used for screening students in the vocational program	C.A.T.,G.A.T.B.,Otis	G.A.T.B.
4. Are these test- given to all potential vocational students	Yes	Yes
5. Is the inmate released from other duties to participate in the vocational program	Yes	Yes
6. How many certified instructors teach in the vocational program	4	9
7. What is the average annual salary of the vocational instructional staff	N/A	$6.637.00
8. What is the range of salaries of the vocational instructional staff	N/A	$5200-$7600
9. How many vocational instructors are at the Masters & 1 year level	3	0
10. How many of the vocational instructors are at the Bachelors Degree level	0	0

ORGANIZATIONAL DATA SHEET FOR ARIZONA CORRECTIONAL INSTITUTIONS

Vocational Education Programs (Contd.)

Item	Arizona State Prison	Ft. Grant
11. How many of the vocational instructors are at the 0-2 years of college level	1 1	8
12. Is it possible for an inmate to earn money working in either prison industries, or on contract jobs	No	Yes (maximum $48 per month)
13. Does the inmate student receive a financial stipend	No	No
14. To what extent does the loss of income affect vocational enrollment	N/A	Very much
15. Do legal, financial and administrative provisions exist for operating a placement service for vocational program graduates	Yes	Yes
16. Are graduate follow-up programs to be utilized	Yes	Yes
17. Is vocational counseling provided to potential vocational students prior to selection of their training area	Yes	Yes
18. How many certified guidance counselors are employed by the institution	None(budgeted for three)	None
19. Who is currently providing the vocational counseling service	Vocational Rehabilitation	Vocational Coordinator

SECTION III

STATUS OF THE GENERAL EDUCATION PROGRAMS IN ARIZONA CORRECTIONAL INSTITUTIONS

Disadvantaged juveniles and adults are characterized by a variety of distinctive educational, personal,social, and occupational handicaps. Programs which are designed to train these institutionalized offenders only in occupational skills more frequently than not meet with failure. This failure is not inevitable. It is merely the result of the violation of one of the basic tenets of sound vocational education; that is--optimum efficiency in the vocational education of a student is nearly impossible without first providing a sound, basic general education. The adult inmate who can not read Dick and Jane can hardly be expected to read an automotive repair manual. The inmate who has not mastered basic mathematics can not hope to comprehend a Descriptive Geometry course essential for being a top-notch draftsman. While it may appear to some to be unnecessary to include this rationale as justification for including this general education section in the study, it is suggested that there are still many in educational circles (academicians not excluded) who would say "If he can't succeed in basic general education, send him to vocational education."

Although the agencies which will be acting as primary consumers of this information are not directly concerned with general education, it was deemed essential that at least basic descriptions of existing general education programs be provided, since this is the foundation upon which vocational education must build.

As in the previous section, the author of this report will attempt to offer a brief explanation of the rationale for including such material and project a brief analysis of such information. However, objectives of the study and time limitations will not permit a comprehensive analysis of the data.

The material presented in this section is designed to cover those educational programs located at the Arizona State Prison at Florence and the Arizona State Industrial School at Ft. Grant. In the Arizona State Prison, an institution containing approximately 1650 males and 65 females, the highest general education grade level which is actually taught is the eighth grade. At Ft. Grant, the Arizona State Industrial School, a medium security institution of 308 males, pedagogically organized classes are taught up to and including the twelfth grade.

Item four in the organizational data sheet presented at the end of this section indicates that only 160 of the 1650 inmates at Arizona State Prison are enrolled in the general education program, (roughly 10%). At Ft. Grant, over 131 of the 308 males are enrolled in the educational programs (constituting over 32%). Some of the reasons for this extreme difference in percentages of attendance can be seen in items 5a and 5b. While no attendance in educational programs is compulsory at the Arizona State Prison, school attendance until achievement of 8th grade diploma, or until released from the institution, is mandatory at Ft. Grant.

In both institutions, the inmate is released from duties upon request to participate in the general education programs. Students in the general education program at Arizona State Prison attend class for an average of three hours per day, while at Ft. Grant an eight-hour educational day is standard practice.

In line with recent trends in adults basic education, specialized workbook and textbook materials are utilized at Arizona State Prison for the adult learner. At Ft. Grant, standard elementary and secondary education textbooks, such as are used in the public schools, are utilized. As indicated in item number 10, both institutions utilize the California Achievement Test to ascertain student grade placement. Although educational personnel at both institutions indicated that 8th grade diplomas and G.E.D. certificates were issued, the name of the correctional institution does not appear on these documents.

As in the vocational education programs in institutions, the instructional staff in general education appeared to be well qualified and do meet the basic minimum requirements for State teacher certification in their respective teaching area.

In item number 22, it is indicated that there are 6,000 volumes in the Arizona State Industrial School library and 12,000 volumes in the Arizona State Prison library. When investigated, it was discovered that, at present, no budget is authorized for replenishing and upgrading library materials. The quality and quantity of the volumes in the library depend generally upon sporadic contributions from various agencies and philanthropic groups.

In order to supplement the institutional libraries, arrangements have been made by these institutions for inter-library loans with other institutions and State agencies.

As indicated in items 25 and 26, existing classroom facilities are adequate for present enrollments in both general and vocational education programs in both institutions. However, administrators in both institutions indicated that expansion of either program (vocational or general education) would require additional building facilities.

The last two items in the organizational data sheet warrant considerable attention from the reader. It is indicated here that while 75% of the adolescent inmates at Ft. Grant with less than

an 8th grade education are enrolled in the educational program, only 32% of those with less than a high school education are enrolled in a corresponding program. At Arizona State Prison, only 25% of the adult inmates who have less than an 8th grade education are enrolled in educational programs, and only 20% of those with less than 12th grade education are enrolled in a corresponding program. Is it because they do not have the potential for success in these programs? This will be discussed in later sections.

ORGANIZATIONAL DATA SHEET FOR ARIZONA CORRECTIONAL INSTITUTIONS

General Education Programs

Item	Arizona State Prison	Ft. Grant
1. Institutional classification	Maximum security	Minimum security
2. Institutional population	1645 males,63 females	308 males
3. Highest grade level taught	8th grade	12th grade
4. Present general education enrollment	160	131
5. Is general education attendance compulsory	No	Yes
5a. What part is compulsory	None	8th grade diploma
6. Is the inmate released from duties to participate in the general education program	Yes	Yes
7. Average number of class hours per day attended by full time students	3 hours	8 hours
8. Average number of class hours per day attended by part-time students	N/A	4 hours
9. Public school textbooks used	No(adult basic)	Yes
10. Diagnostic instruments used to determine grade placement	California Ach. Test	S.R.A. I.Q. Calif. Achievement Test
11. Is high school diploma awarded for completion of requirements	Yes (Dept. of Publ. Inst.)	Yes

ORGANIZATIONAL DATA SHEET FOR ARIZONA CORRECTIONAL INSTITUTIONS
General Education Programs (Contd.)

Item	Arizona State Prison	Ft. Grant
12. Is the program accredited by North Central Association	No	No
13. Number of full time instructors	3	13
14. Number of part-time instructors	0	3
15. Are all instructors certified	Yes	Yes
16. Average annual salary	$9,999 (12 months)	$5,280 _9months)
17. Instructional staff salary range	$8,400-$10,200	$5,280-$5,280
18. How many of the instructors are at the Master's degree & 1 year level	2	0
19. How many of the instructors are at the Masters level	0	0
20. How many of the instructors are at the Bachelors degree level	1	0
21. Approximately how many volumes are in the institution library	12,000	6,000
22. Are library facilities always available to inmate students	Yes	Yes
23. Are arrangements for inter-library loans operational	Yes	Yes

ORGANIZATIONAL DATA SHEET FOR ARIZONA CORRECTIONAL INSTITUTIONS

General Education Programs

Item	Arizona State Prison	Ft. Grant
24. Approximately how many volumes are borrowed through this loan arrangement annually	2,000	1,000
25. Are classroom facilities adequate for existing enrollments	Yes	Yes
26. Are facilities available for a considerably expanded program	No	No
27. What percent of the inmate population with less than eighth grade education is enrolled in the educational program	25%	75%
28. What percent of the inmate population with less than 12th grade education is enrolled in the educational program	20%	32%

SECTION IV

EDUCATIONALLY SIGNIFICANT PERSONAL AND SOCIAL CHARACTERISTICS OF INMATES IN ARIZONA CORRECTIONAL INSTITUTIONS

The prisoner who leaves an Arizona correctional institution to enter or re-enter the labor force is handicapped by a lack of socially acceptable occupational skills, as well as his criminal record. Roughly 5% of the total correctional institution population of Arizona are released from prison each month. This amounts to approximately 100 people from both institutions. If those among that 100 who are occupationally ill-equipped are not given an opportunity to upgrade their work skills and knowledge, it is very likely that they will return to these institutions to again be supported by the taxpayers. This statement is supported by the Department of Corrections statistics which indicate that well over 50% of the people confined are there for at least the second time. When the public permits an inmate to leave such an institution no better equipped to enter the labor force than when he entered, it makes it extremely difficult for this inmate to find employment in a society which already has an abundance of unskilled labor. The inmate's lack of education and no vocational skills, coupled with a long history of unemployment, undoubtedly contribute to his inability to adjust to the world of work and are apparently significant factors in the high rate of return (recidivism) which was previously discussed. While the annual cost to the taxpayers for maintaining our nationwide penal system has been estimated at over 2 billion dollars, only a very small percentage of this amount is currently being utilized for educational purposes.

In addition to the inmates' lack of occupational skills, his general education and resulting social behavior often leave much to be desired. To assume that his associations with other inmates during confinement will improve these deficiencies is of questionable logic.

Forgetting the humanistic approach to the question, the economic implications of the problem necessitate rapid action. The purpose of this section is to present educationally significant information regarding the characteristics and background of the inmates in correctional institutions of Arizona in order to design educational programs to fit the needs of this particular group. More specifically, questions under consideration are; (1) Is an educational need indicated by the various educational levels of Arizona inmates at time of confinement? (2) What various age groups are represented in a correctional institution of Arizona? (3) Does the average length of sentence permit enough time to educationally upgrade the inmate, yet provide enough

time at completion of sentence to justify the cost of such training? (4) Will the type of crime for which the inmate was committed hinder successful employment after training and release? (5) How many people are dependant upon these inmates for economic support? (6) To what geographic areas will these inmates return? (7) What previous occupational experiences have the inmates of Arizona institutions had?

The number of daily entrances and releases processed by the Records Division of these institutions hinder the collection of data on a stable population. For this reason, data presented in this section of the report were derived from the records of inmates who were randomly selected as the sample for this study.

Educational Levels Of Arizona Inmates

The task of describing the educational levels represented by Arizona correctional institution inmates involved two methods of reporting. The large discrepancy between education levels the inmates claimed to have completed, and the level his test scores indicated necessitated this double form of presentation.

The figures shown in Table I indicate the range of educational levels which the inmates in the male section of Arizona State Prison reported to have completed prior to confinement. Unverified claims of educational achievements necessitate the reporting of these data as "education claimed". It is interesting to note that only approximately 26% of the inmates even claimed to have completed at least the 12th grade. On the basis of claims alone, this would indicate that there are almost 3/4 of the inmates in Arizona State Prison who have a remote potential for educational upgrading. Well over 1/3 claim to have completed less than the 8th grade. Table II indicates the claimed educational level of female adult inmates in the Arizona State Prison for the sample selected. While the claimed educational achievement of the female inmates is considerably higher than that of the males, a definite need for educational upgrading still exists.

Table III presents the claimed educational levels of juvenile inmates of Arizona correctional institutions. In this sample, the entire sample population claimed less than high school education. The educational levels which the same three groups scored on the California Achievement Test are revealed in Tables IV,V and VI. At this point, it should be mentioned that these standardized tests generally indicate that grade equivalents up to 10.0 may be considered to reflect accurately the achievement in various subjects of pupils of designated grade status. Beyond 10.0 however, the grade equivalents assigned to the scores are derived by a process of extrapolation and generally cannot be interpreted as signifying the performance typical fo the indicated grade placement....The grade equivalents beyond 10.0 are, however, comparable from sub-

grade placement and is always assigned to the score having a given percentile rank in the 9th grade distribution.

Although over 1/4 of the adult male inmates claimed to have completed the 12th grade or higher, scores on the C.A.T. indicate that only one person, or 2.5% of the population, actually test-out at this level. It is also interesting to note that almost 1/2 (47%) of the adult inmate population test-out at 7th grade or below in achievement.

Data are incomplete for the adult female population, since some of the older females in the sample had not been administered this particular diagnostic instrument.

With respect to realistic claims, it would appear that the claims of the inmates of Arizona State Industrial School are much more in line with their actual achievement than that of the adult inmates. Still, almost 2/3 of the population of Arizona State Industrial School test-out at the 8th grade level or below. In concluding this particular phase of this section, it is interesting to note that the inmate population not only claim to be more "average" than they tested, but even claim to be more "average" than the entire population of the country with respect to grade level achievement. Over 60% of the inmate population claimed to have completed more than the 8th grade but less than the 12th grade. However, only about 38% of the national population falls in this category. In so far as the lack of completion of a basic secondary education would be an indicator of need for additional upgrading education, it would seem apparent that these institutions offer fertile ground.

TABLE I

CLAIMED EDUCATIONAL LEVELS OF MALE ADULT INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Highest Grade Completed	Claim Frequency	Per Cent
16+	1	.53
15	0	.00
14	5	2.65
13	4	2.13
12	40	21.28
11	21	11.17
10	20	10.64
9	25	13.29
8	27	14.36
7	15	7.99
6	8	4.26
5	6	3.19
4	8	4.26
3	1	.53
2	1	.53
1	0	.00
0	6	3.19
Totals	188	100.00

TABLE II

CLAIMED EDUCATIONAL LEVELS OF FEMALE ADULT INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Highest Grade Completed	Claim Frequency	Per Cent
12	3	23.07
11	2	15.38
10	2	15.38
9	0	.00
8	3	23.07
7	2	15.38
6	1	7.69
Totals	13	99.97*

*Uneven due to rounding of figures

TABLE III

CLAIMED EDUCATIONAL LEVELS OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Highest Grade Completed	Claim Frequency	Per Cent
11	12	20.00
10	20	33.33
9	20	33.33
8	8	13.33
Totals	60	99.99*

*Uneven due to rounding of figures

TABLE IV

MEDIAN SCORES ON CALIFORNIA ACHIEVEMENT TEST OF ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Intervals	Frequency	Per Cent
12.5-12.9	1	2.50
12.0-12.4	0	.00
11.5-11.9	1	2.50
11.0-11.4	3	7.50
10.5-10.9	2	5.00
10.0-10.4	4	10.00
9.5- 9.9	5	12.50
9.0- 9.4	2	5.00
8.5- 8.9	3	7.50
8.0- 8.4	0	.00
7.5- 7.9	7	17.50
7.0- 7.4	4	10.00
6.5- 6.9	2	5.00
6.0- 6.4	2	5.00
5.5- 5.9	1	2.50
5.0- 5.4	1	2.50
4.5- 4.9	2	5.00
4.0- 4.4	0	.00
Totals	40	100.00

TABLE V

MEDIAN SCORES ON CALIFORNIA ACHIEVEMENT TEST OF ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Intervals	Frequency	Per Cent
10.5-10.9	0	.00
10.0-10.4	1	50.00
9.5- 9.9	0	.00
9.0- 9.4	0	.00
8.5- 8.9	1	50.00
8.0- 8.4	0	.00
Totals	2	100.00

TABLE VI

MEDIAN SCORES ON CALIFORNIA ACHIEVEMENT TEST OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Intervals	Frequency	Per Cent
12.0-12.4	0	.00
11.5-11.9	1	1.67
11.0-11.4	2	3.33
10.5-10.9	3	5.00
10.0-10.4	1	1.67
9.5- 9.9	6	10.00
9.0- 9.4	4	6.66
8.5- 8.9	1	1.67
8.0- 8.4	4	6.66
7.5- 7.9	7	11.67
7.0- 7.4	8	13.33
6.5- 6.9	6	10.00
6.0- 6.4	8	13.33
5.5- 5.9	4	6.66
4.5- 4.9	4	6.66
4.0- 4.4	1	1.67
3.5- 3.9	0	.00
Totals	60	99.98*

*Uneven due to rounding of figures

The occupational experiences of inmates prior to incarceration are indicated in Tables VII, VIII and IX. This type of information provides the planners of future occupational programs with aluable insights. Over one-half of the entire prison population have been employed in occupations which require little or no training, whereas only one-tenth of the national labor force were working in these categories during the last census (1960). Persons at this particular skill level have a consistantly higher unemployment rate than those employed in other occupational categories. In Arizona, only 1 out of 10 inmates have ever held employment in one of the stable-employment categories (a. professional, technical and kindred workers; b. managers, officials and proprietors; c. clerical and sales workers; d. craftsmen and kindred). In contrast, almost 4 out of 10 workers are employed in these stable categories on a national basis.

These data would tend to indicate that unless training is provided for this majority that need training or re-training, many of the inmates will be released only to return to a life of occupational misery resulting in economic distress (one of the prime causes of recidivism).

TABLE VII

OCCUPATIONAL EXPERIENCES OF ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Occupational Category	Number	Per Cent
Professional, technical, and kindred workers	10	5.20
Managers, officials, and proprietors, including farm	0	.00
Clerical and sales workers	9	4.69
Craftsmen, foremen, and kindred workers	61	31.77
Operatives and kindred workers	2	1.04
Service workers, including private household	25	13.02
Laborers (except mine) and farm laborers and farmers	85	44.27
Totals	192	99.99*

*Uneven due to rounding of figures

TABLE VIII

OCCUPATIONAL EXPERIENCES OF ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Occupational Category	Number	Per Cent
Professional, technical, and kindred workers	1	7.69
Managers, officials, and proprietors, including farm	0	.00
Clerical and sales workers	2	15.38
Craftsmen, foremen, and kindred workers	2	15.38
Operatives and kindred workers	1	7.69
Service workers, including private household	6	46.15
Laborers (except mine) and farm laborers and farmers	1	7.69
Totals	13	99.98*

*Uneven due to rounding of figures

TABLE IX

OCCUPATIONAL EXPERIENCES OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Occupational Category	Number	Per Cent
Professional, technical, and kindred workers	0	.00
Managers, officials, and proprietors, including farm	0	.00
Clerical and sales workers	0	.00
Operatives and kindred workers	1	2.70
Service workers, including private household	14	37.84
Laborers (except mine) and farm laborers and farmers	22	59.46
Totals	37	100.00

As indicated in Tables X, XI, XII, approximately one-fourth of the population of Arizona State Prison is between the age of 18-25, the critical period in life when most young people are starting their careers and beginning their families. Almost 18% of the total prison population in Arizona consists of teenagers. This is extremely disturbing in light of the fact that this group is being exposed to an environment of distorted values and attitudes during these formative years,-an environment which can scar them for the remainder of their lives. National statistics also indicate that the younger a person is at the time of their first arrest, the more likely they are to receive a second conviction. A person below age 18 arrested for the first time has a 40% chance for recidivism, whereas, a person who is over age 35 at the time of the first conviction has less than a 10% chance for recidivism.

This discourse is not intended to present the reader with an elementary course in criminal statistics, but rather to indicate the need for programs of a rehabilitative nature for the many young people in our institutions.

TABLE X

AGES OF ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Ages	White	Per Cent	Non-White	Per Cent	Total Number	Total Per Cent
51-	7	7.00	6	6.59	13	6.81
41-50	15	15.00	17	18.68	32	16.75
36-40	15	15.00	12	13.19	27	14.14
26-35	42	42.00	29	31.87	71	37.17
17-25	21	21.00	27	29.67	48	25.13
0-16	0	.00	0	.00	0	.00
Totals	100	100.00	91	100.00	191	100.00

TABLE XI

AGES OF ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Ages	White	Per Cent	Non-White	Per Cent	Total Number	Total Per Cent
51-	1	11.11	-	-	1	7.69
41-50	1	11.11	1	25.00	2	15.38
36-40	-	-	-	-	-	
26-35	3	33.33	2	50.00	5	38.46
17-25	4	44.44	1	25.00	5	38.46
0-16	-	-	-	-	-	
Totals	9	99.99*	4	100.00	13	99.99*

*Uneven due to rounding of figures

TABLE XII

AGES OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Ages	White	Per Cent	Non-White	Per Cent	Total Number	Total Per Cent
17-18	10	40.00	13	37.14	23	38.33
15-16	15	60.00	22	62.86	37	61.67
Totals	25	100.00	35	100.00	60	100.00

In addition to age, and other important factors which must be considered in a rehabilitation program for correctional institutions, are the amount of time required for training, and the number of productive years an individual has left at the completion of such a rehabilitation program. These factors are essential in determining the economic practicality of engaging the inmate in a general and vocational education rehabilitation program. Tables XIII and XIV contain figures for sentence length of the age groups reported in Tables X, XI and XII. The sentences vary in length from two years to life for the majority of incarcerated individuals. A few unusual sentence patterns have occured among the inmates, but not in great enough frequency to warrant the inclusion of additional categories for them.

Approximately 20% of the individuals incarcerated in Arizona prisons have sentences greater than 10 years in length. At the other extreme, almost 60% of the inmates have sentences which are five years or less. Of this group of inmates with sentences of five years or less, only 23 (approximately 20%) are over age 40. In the group who have sentences of 10 years or less than 15% are over age 40. These data would tend to indicate that at least 80% of the inmates in Arizona correctional institutions will still be young enough when they are released from prison to make vocational rehabilitation an economic feasability.

TABLE XIII

LENGTH OF SENTENCE IN RELATION TO AGE FOR ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Sentence in Years	Age Groups						Total Number	Total Per Cent
	51-up	41-50	36-40	26-35	17-25	0-16		
2	3	8	7	23	22	0	63	33.16
3	0	2	1	10	7	0	20	10.53
4	0	4	2	6	6	0	18	9.47
5	0	6	1	3	2	0	12	6.32
6	0	3	3	5	1	0	12	6.32
7	0	4	0	2	1	0	7	3.60
8	0	0	2	3	0	0	5	2.63
10	0	1	0	8	5	0	14	7.36

TABLE XIII (Contd.)

LENGTH OF SENTENCE IN RELATION TO AGE FOR ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Sentence in Years	Age Groups 51-up	41-50	36-40	26-35	17-25	0-16	Total Number	Total Per Cent
15	2	0	2	5	0	0	9	4.74
20	0	1	3	1	1	0	6	3.16
40	1	0	4	0	0	0	5	2.63
99	2	0	0	0	0	0	2	1.05
Life	5	3	1	5	3	0	17	8.95
Totals	13	32	26	71	48	0	190	100.00

TABLE XIV

LENGTH OF SENTENCE IN RELATION TO AGE FOR ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Sentence in Years	Age Groups 51-up	41-50	36-40	26-35	17-25	0-16	Total Number	Total Per Cent
2	0	0	0	2	1	0	3	23.07
3	0	0	0	1	2	0	3	23.07
5	0	1	0	0	0	0	1	7.69
8	0	0	0	1	1	0	2	15.38
10	0	0	0	1	0	0	1	7.69
15	0	1	0	0	0	0	1	7.69
17	0	0	0	0	1	0	1	7.69

TABLE XIV (Contd.)

LENGTH OF SENTENCE IN RELATION TO AGE FOR ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Sentence in Years	Age Groups 51-up	41-50	36-40	26-35	17-25	0-16	Total Number	Total Per Cent
99	0	0	0	0	0	0	0	
Life	1	0	0	0	0	0	1	7.69
Totals	1	2	0	5	5	0	13	99.97*

*Uneven due to rounding of figures

Studies which have been conducted to ascertain employer attitude toward the employment of former inmates have been relatively uniform in their findings. One of the most recent studies to deal with this topic was conducted by Gerald Farkas. Of the employers in his survey who are willing to hire a former inmate, a majority stated exceptions for men convicted of certain types of crimes. The type of felonies which are mentioned with greatest frequency are: (1) narcotics violations; (2) crimes of a sexual nature; (3) homicide.[12]

In light of these facts, it would seem important to consider the types of felonies for which the inmate population of the Arizona system of corrections have been committed. The number of men convicted for the various types of felonies are indicated in Tables XV, XVI, and XVII. It should be noted that of all of the different types of convictions reported, only approximately 25% were incarcerated for crimes which, according to research done in this area, would lead to difficulty in obtaining employment after their release.

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[12]Farkas, Gerald, "Industrial Employer Attitudes Toward Hiring Men With Criminal Records," Personnel Administrators, (July-August, 1961), pp.6-7.

[13]Glaser, Daniel. op. cit., p. 352.

These future potential employers are possibly unaware that rapists and murderers have a greater statistical possibility of having successful parole than almost all other types of parolees.[13] Nevertheless, more than 75% of all convictions were of the type in which employers generally express confidence.

TABLE XV

FELONY CONVICTIONS OF ADULT MALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Type of Felony	Number Convicted	Per Cent of Total Population
Homicide	29	14.87
Robbery	30	15.38
Sex Crimes	15	7.69
Assault	16	8.21
Burglary (and Breaking and Entering)	44	22.56
Auto Theft	20	10.26
Other Larceny	0	
Narcotics Violations	14	7.18
Escape	1	.51
Forgery	16	8.21
Other Offenses	10	5.13
Totals	195	100.00

TABLE XVI

FELONY CONVICTIONS OF ADULT FEMALE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Type of Felony	Number Convicted	Per Cent of Total Population
Homicide	5	41.67
Robbery	0	.00
Sex Crimes	0	.00
Burglary (and Breaking and Entering)	1	8.33
Auto Theft	1	8.33
Forgery	5	41.67
Totals	12	100.00

TABLE XVII

FELONY CONVICTIONS OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Type of Felony	Number Convicted	Per Cent of Total Population
Homicide	0	.00
Robbery	16	9.04
Sex Crimes	1	.56
Assault	10	5.65
Burglary (and Breaking and Entering)	38	21.47
Auto Theft	30	16.95

TABLE XVII (Contd.)

FELONY CONVICTIONS OF JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Type of Felony	Number Convicted	Per Cent of Total Population
Other Larceny	10	5.65
Narcotics Violations	12	6.78
Escape	0	.00
Forgery	0	.00
Other Offenses	60	33.90
Totals	177	100.00

The data reported for number of dependents of inmates is covered in Table XVIII. Of the inmates who reported one or more dependents, there was a total of 254 dependents, or a mean of approximately 3.5 children per inmate. These data are related to the need of the inmate to obtain sufficient general education and job skills in order for him to qualify for an occupation which will provide an income sufficient for him and his dependents. These type of data have economic implications in that through successful occupational training and subsequent employment, there would be a possibility for eliminating the necessity of having to support the inmate and his dependent wife and children through some type of public financial assistance program.

TABLE XVIII

NUMBER OF DEPENDENTS REPORTED BY INMATES

Number of Dependents	Adult Male	Per Cent	Adult Female	Per Cent
11	1	1.38	0	
9	2	2.78	1	14.29
8	2	2.78	0	

TABLE XVIII (Contd.)

NUMBER OF DEPENDENTS REPORTED BY INMATES

Number of Dependents	Adult Male	Per Cent	Adult Female	Per Cent
7	2	2.78	0	
6	2	2.78	0	
5	5	6.94	1	14.29
4	18	25.00	1	14.29
3	19	26.39	1	14.29
2	8	11.11	1	14.29
1	13	18.06	2	28.55
Totals	72	100.00	7	100.00

The number of inmates who will continue to reside in the State of Arizona upon completion of their sentence cannot be predicted with absolute accuracy due to the ever increasing rate of mobility of our population in general. However, one of the most reliable predictors in the past has been their place of residence prior to confinement.

The residence of inmates prior to confinement is indicated in Table XIX. It is extremely interesting to note that of the 1708 men reported, well over 75% were from the two Arizona metropolitan districts of Maricopa County and Pima County. Almost 60% originated from Maricopa County. This information is essential to those who will be setting up additional vocational programs in order that the programs selected will be representative of occupations generally found in a district to which the inmate is likely to return. Naturally, if less than 20% will be returning to agrarian areas of the State, it would be unlikely that a large number of agriculturally oriented programs should be included. By the same token, if the majority are returning to the industrial centers of the State, we must naturally look to those occupations commonly found in this type of area.

TABLE XIX

PERCENTAGE OF INMATE POPULATION COMMITTED FROM EACH COUNTY

County	Number	Per Cent
Apache	9	.53
Cochise	35	2.05
Coconino	31	1.81
Gila	18	1.05
Graham	18	1.05
Greenlee	3	.18
Maricopa	961	56.27
Mohave	34	1.99
Navajo	51	2.99
Pima	350	20.49
Pinal	45	2.63
Santa Cruz	18	1.05
Yavapai	29	1.70
Yuma	106	6.21
Totals	1708	100.00

TABLE XX

GENERAL APTITUDE TEST BATTERY AREA MEAN SCORES FOR JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Area	Mean Score Frequency
Intelligence	35
Verbal	12

TABLE XX (Contd.)

GENERAL APTITUDE TEST BATTERY AREA MEAN SCORES FOR JUVENILE INMATES OF ARIZONA CORRECTIONAL INSTITUTIONS

Area	Mean Score Frequency
Numerical	24
Spatial	15
Form Perception	45
Clerical Perception	33
Motor Coordination	88
Finger Dexterity	44
Manual Dexterity	166
Total	462

SECTION V

INMATE PERCEPTIONS OF THE REHABILITATION PROGRAM

In this section of the report, information will be presented which should offer the reader some insights into the inmates' perception of the rehabilitation programs, its problems, and limitations.

Student Placement And Follow-up. Even though the inmate student earnestly attempts to upgrade himself educationally and occupationally, he often experiences difficulty in obtaining a job after his release from prison The problem becomes more serious for those who are applying for a parole, since it is generally standard procedure to require the inmate to provide proof of employment possibility before his parole request can be approved. Although many factors affect the inmate student's ability to secure employment, one major obstacle is his lack of contact with the outside world of work. Obviously, an inmate who is about to be released from prison must make attempts to find employment prior to his release, whether he is going out on parole status or straight time. If employment is not found, obviously a releasee would not be able to support himself and thereby would be subject to pressures which may lead again to crime and return to prison. A study of parolee earnings in Virginia over a 12 year period and the proportion of parolee violations shows a direct relationship between low earnings and high parole violations. For example, more than 40% of the releasees who have had monthly incomes of less than $50 violated parole as compared with 10% of the releasees who earn more than $275 a month.[14]

The lack of skill of the ex-prisoner is compounded by the prevalence of local, state, and federal restrictions on their employment. As an example, restrictions may hinder getting an automobile operator's or chauffeur's license in a number of states; or getting a government job or working in a business which is associated even remotely with alcoholic beverages. Thus, an ex-convict may be denied employment in a hotel or restaurant which handles alcoholic beverages, even though the inmate is not in contact with them. The ex-convict frequently finds it difficult in many states to obtain a barber's permit. Such is the case in Arizona. An interesting paradox appears at this point. While the Federal government is pouring hundreds of thousands of dollars and offering encouragement for rehabilitation programs in correctional institutions, it also prohibits contractors who hold Federal government contracts from hiring ex-convicts.

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[14] The Virginia Parole System-An Appraisal Of Its First Twelve Years, (Charlottesville, Virginia: Bureau of Public Administration, University of Virginia, May, 1955) p. 106.

These restrictive employment patterns prevail, in varying degrees, in most states in the country.

In addition, a number of bonding companies refuse to provide bonds for ex-prisoners. This prohibits the ex-prisoner from finding jobs in financial institutions, insurance companies, and any other agency which requires bonding. Both of these forementioned economic activities represent two of the more rapidly expanding areas of employment.

As mentioned in an earlier section of this study, legal and financial provisions exist for providing a placement service for inmates who are graduates of the vocational education program. The author of this report thought it would be interesting to find out what the inmates thought about an institutional placement service. During the interviews with the inmates selected in the sample, they were asked if they would be willing to utilize the services of an institutional placement service. The results of this part of the survey are presented in Table XXI. It is indeed interesting to note that over 90% of all the inmates interviewed expressed a high degree of willingness for this type of placement service and indicated that they would be willing to utilize these services.

TABLE XXI

NUMBER AND PERCENT OF INMATES IN ARIZONA CORRECTIONAL INSTITUTIONS EXPRESSING WILLINGNESS TO UTILIZE AN INSTITUTIONAL PLACEMENT SERVICE

Institution	Inmates Interviewed	Would Participate Number
Men's Prison, Florence	136	112
Women's Prison, Florence	9	7
Juvenile Prison, Ft. Grant	37	30
Totals	182	149

In one Arizona institution, Arizona State Industrial School, it is possible for the inmates to earn a financial stipend by engaging in certain types of approved employment while confined. The effect which this has on participation in the educational programs is presented in Table XXII. It is interesting to note

this possibility of extra pay is indicated as discouragement for entering the educational program. Of the 60 boys interviewed at the Arizona State Industrial School, 26 stated that this factor discouraged them from participating in an educational program to a great extent. Twenty-seven stated that pay possibilities had some effect on their decision not to participate. Less than 5% of the boys interviewed at Ft. Grant indicated that the possibility of pay elsewhere affected their decision not to enter a program.

TABLE XXII

INMATE OPINIONS OF THE EXTENT TO WHICH HIGHER PAY RATES IN PRISON INDUSTRIES DISCOURAGE EDUCATIONAL PARTICIPATION

	Very Much Number	Some Number	Very Little Number	None Number
Juvenile Prison, Ft. Grant	26	27	4	3
Totals	26	27	4	3

One important factor which must be considered in establishing vocational education programs is the perceived needs and desires of the groups to be served. Granted, this is only one criteria, but an extremely important one. If programs are designed and facilities built and equipped for programs that the inmates have nc interest in, the chances for success are extremely remote. For this reason, the inmates which were interviewed were asked: "What occupation would you prefer to receive training in which is not presently taught at your institution?" The results of this question are presented in Tables XXIII,XXIV and XXV. It is interesting to note that at the Arizona State Industrial School at Ft. Grant, only four boys out of the total sample responded to this question. This would seem to indicate that the inmates are satisfied with the existing offerings to a great extent. Another interesting, but disheartening point which was uncovered in this interview was that of the adult females in the sample: The highest frequency on any occupational choice was in an occupation which is prohibited by Arizona law at the present time. This occupation is that of cosmetologists as indicated in Table XXIV.

Several interesting things were uncovered in the interviews with the adult male inmates at Florence. The occupation mentioned with the greatest frequency by the male inmates: that of

automechanics and welding, are currently being offered at that institution. These programs are not only being offered, but also the author would rank them among the best that we have in the State with respect to quality. For that reason, it is extremely interesting that over 25% of the men in the sample stated that the reason they were not engaged in occupational education was because the programs they desired were not being offered. One of the two possibilities seem possible: (1) the inmates are unaware of the opportunities that exist for them in the institution; or (2) there is a need for expanding popular programs which are over crowded and limit enrollment. Most of the occupations stated as preference appeared to be realistic choices which were well within the reach of the average inmate at Arizona State Prison.

TABLE XXIII

JUVENILE INMATES PREFERENCE OF TRAINING WHICH IS NOT PRESENTLY TAUGHT

Preferred Classes	Frequency	Per Cent
Bakery	1	25.00
Upholstery	1	25.00
Plating	1	25.00
Laundry or Fry Cook	1	25.00
Totals	4	100.00

TABLE XXIV

ADULT FEMALE INMATES PREFERENCE OF TRAINING WHICH IS NOT PRESENTLY TAUGHT

Preferred Classes	Frequency	Per Cent
Beauty School*	5*	55.56
Hotel Clerk	1	11.11
Lab Technician (hospital)	1	11.11
Switchboard	1	11.11
Totals	9	100.00

*Arizona laws prohibit persons convicted of a felony from entering this occupation.

TABLE XXV

ADULT MALE INMATES PREFERENCE OF TRAINING WHICH IS NOT PRESENTLY TAUGHT

Preferred Classes	Frequency	Per Cent
Art	4	3.48
Auto Mechanics -Welding	29	25.21
Barber*	2	1.74
Blue Printing	1	.87
Bookkeeper*	1	.87
Business Courses	3	2.61
Butcher	2	1.74
Carpenter	6	5.21
Commercial Artist	1	.87
Computer Data	5	4.35
Construction	3	2.61
Cook	5	4.35
Diesel Truck Driving	3	2.61
Draftsman	4	3.48
Electrician	12	10.43
Entertainer	1	.87
Gemology	1	.87
Heavy Equipment & Maintenance	8	6.95
Janitor	1	.87
Masonary	4	3.48
Medical Technology	1	.87
Mining Engineer	1	.87
Music Composition	1	.87

TABLE XXV

ADULT MALE INMATES PREFERENCE OF TRAINING WHICH IS NOT PRESENTLY TAUGHT (Contd.)

Preferred Classes	Frequency	Per Cent
Need Schooling	2	1.74
Photography	2	1.74
Plumber	2	1.74
Printer	1	.87
Radio Broadcasting	1	.87
Radio Repairman	1	.87
Refrigeration & Heating	2	1.74
Service Station Operator	1	.87
Tailoring	1	.87
Work at Golf Course	1	.87
Youth Counselor	2	1.74
Totals	115	100.00

*These occupations and possibly others would be impossible under existing laws due to bonding, etc.

Employment handicaps which had been previously experienced or were anticipated are listed for the readers convenience in Tables XXVI, XXVII and XXVIII. As might well be expected, the reason which was cited with the greatest frequency was that of the criminal record. The handicap which had the greatest frequency among all inmates was the lack of job training. A lack of general education had the third highest frequency among the list of anticipated post-release employment handicaps. It would appear that the inmates have a realistic perception of what is facing them when they are released from the institution.

TABLE XXVI

POST-RELEASE EMPLOYMENT HANDICAPS CITED BY ADULT MALE INMATES OF FLORENCE CORRECTIONAL INSTITUTION

Type of Handicap	Number	Per Cent
Lack of General Education	32	18.93
Age	10	5.92
Health and Physical Disability	6	3.55
Lack of Job Training	37	21.89
Criminal Record	59	34.91
No Handicaps Anticipated	22	13.02
Serving Long Term	3	1.78
Totals	169	100.00

TABLE XXVIII

POST-RELEASE EMPLOYMENT HANDICAPS CITED BY ADULT FEMALE INMATES OF FLORENCE CORRECTIONAL INSTITUTION

Type of Handicap	Number	Per Cent
Health and Physical Disability	1	6.67
Lack of Job Training	1	6.67
Criminal Record	9	60.00
No Handicaps Anticipated	1	6.67
Lack of General Education	2	13.32
Age	1	6.67
Totals	15	100.00

TABLE XXVIII

POST-RELEASE EMPLOYMENT HANDICAPS CITED BY JUVENILE INMATES OF FT. GRANT CORRECTIONAL INSTITUTION

Type of Handicap	Number	Per Cent
Lack of General Education	19	32.20
Age	10	16.95
Health and Physical Disability	2	3.39
Lack of Job Training	5	8.47
Criminal Record	20	33.90
Speech	1	1.69
No Handicaps Anticipated	1	1.69
Too Lazy	1	1.69
Totals	59	99.98*

*Uneven due to rounding of figures

The reasons which were cited by inmates for non-participation in either general of vocational education programs are presented in Tables XXIX, XXX and XXXI. In this part of the interview, the inmate was presented an opportunity to give an "open-ended" answer. As can be seen by the tables, the variety and number of responses are indicative of real thought on the part of the inmates about this question. It is interesting to note that only about 6% of the inmates in Arizona correctional institutions felt that they already had enough education and, therefore, did not need additional upgrading. The second response listed in Table XXIX (courses which suit my needs are not offered) has the highest response frequency of any of the reasons cited by adult male inmates for non-participation in the correctional programs. This correlates with the extremely long list of occupations which inmates desired to be taught presented in Table XXV. At present, there are only three opportunities for inmates at Arizona State Prison to receive vocational training. It would seem apparent that the inmates, as well as other interested parties, are aware of the inadequacy of three offerings. Only 4% of the inmates stated that they didn't have enough time left to make such training feasible.

TABLE XXIX

REASONS CITED BY ADULT MALE INMATES FOR NON-PARTICIPATION IN CORRECTIONAL INSTITUTION EDUCATION PROGRAMS

Inmate's Response	Frequency	Per Cent
Feel I have enough education	8	6.45
Courses which suit my needs are not offered	66	53.22
Prison counselor did not encourage me	9	7.26
Working in prison is more profitable	3	2.42
Quality of instruction is poor	18	14.52
Courses filled up	6	4.84
Couldn't get into welding	4	3.23
Not enough time	5	4.03
Need general education	2	1.61
Starting classes at present	3	2.42
Totals	124	100.00

TABLE XXX

REASONS CITED BY ADULT FEMALE INMATES FOR NON-PARTICIPATION IN CORRECTIONAL INSTITUTION EDUCATION PROGRAMS

Inmate's Response	Frequency	Per Cent
Courses which suit my needs are not offered	3	60.00
Quality of instruction is poor	1	20.00
Haven't had an opportunity	1	20.00
Totals	5	100.00

TABLE XXXI

REASONS CITED BY JUVENILE INMATES FOR NON-PARTICIPATION IN CORRECTIONAL INSTITUTION EDUCATION PROGRAMS

Inmate's Response	Frequency	Per Cent
Courses which suit my needs are not offered	3	37.50
Working in prison is more profitable	3	37.50
Quality of instruction is poor	2	25.00
Totals	8	100.00

SECTION VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Conclusions

To the extent that the data are valid, and the samples selected for the study are representative of the institutional population as a whole, the following conclusions seem to be warranted.

Educational levels of the inmate population in Arizona correctional institutions indicate that there is a definite need for general education upgrading. Since the major portion of vocational education in public schools is offered after the 8th grade, and only about 50% of the inmate population claimed to have attended school beyond this level, a majority of the inmates appear to be in need of some type of vocational as well as general education preparation.

The average age and length of sentence of inmates appear to provide enough time for the inmate to obtain a considerable amount of education in occupational upgrading. The average sentence length normally will permit the inmate to have a sufficient number of productive years left when he completes his sentence.

Although inmates convicted for certain types of crime are often not accepted by employers who normally hire ex-convicts, it is concluded that the number of inmates in Arizona prisons with this handicap is not large enough to have a detrimental effect on the efforts of a well-organized educational program.

Although the general education programs which are currently being provided in these institutions offer a quality type of program, there are many inmates who definitely need educational upgrading and are not participating in the program. The extremely low participation rates indicate that the educational phase of the rehabilitation program is not reaching even a minority of the inmate population.

A number of factors may have contributed to this inadequate participation rate. The author would suggest that at the Arizona State Industrial School the possibility of earning pay by those who do not participate would be one of these factors. Naturally, another factor is the fact that they only have facilities for about

10% of the inmates to participate in a general educational program at Arizona State Prison. Inmate indifference to self-betterment must also be cited as a factor. However, this can be overcome by proper application of intrinsic motivation.

No one factor can be objectively labeled as the sole, or major, contributor to this situation, since all factors which were mentioned contribute to the problem. Even if all inmates who have the ability for, and are in need of, educational upgrading could be induced to participate, the existing facilities, equipment and teachers at the time of the study were inadequate to handle the numbers involved. As a group, the instructional staff involved in the education programs in the Arizona correctional institutions at this time are at least equal to or better than those found in the public school classrooms of Arizona. Provisions must be made to insure that this type of instructional personnel is attracted for additional programs.

Unrealistic inmate decisions to neglect the opportunities for educational upgrading suggest that improvement in the vocational and educational guidance services of these institutions is needed.

Although each of the institutions surveyed had libraries, the quality of these facilities generally needed improvement. Budgets are not presently available for such improvement. Low participation rates and high demand suggest that the vocational programs at the Arizona State Prison are definitely in need of expansion. Research which has been done in the field, and the opinions reflected by inmates indicate the necessity for making the placement program, which has been planned, operational.

Recommendations

As previously mentioned, the author of this report has no intentions of offering far reaching recommendations. The task of an indepth analysis of the data presented will be left up to each of the participating agencies, so that they might interpret the data in light of the objectives of their particular governmental agency.

The author will, however, present a few basic recommendations which have resulted from his interpretation of the data, personal observations, and contacts with inmates and administrators of the educational programs.

1. The inmate need for educational and occupational upgrading, and the low participation rates, imply a definite need for additional emphasis on inmate participation in education by custodial and educational personnel in the Arizona Department of Corrections.

2. The services of certified guidance counselors should be provided to assist incoming inmates in making realistic occupational and educational plans.

3. Any situations which do not affect security of the institution but which tend to discourage inmates from obtaining occupational and educational upgrading should be seriously re-appraised in view of the harmful effects they have had on the inmate's motivation to participate in educational programs. While short-term financial savings may be greater, the long-range investment may be lost, since inmates may be discouraged from attempts at rehabilitation.

4. The parolee and the straight time releasee needs for a placement service should be taken into consideration immediately. Separate or combined efforts of the Department of Corrections and the Probation and Parole Board to implement such a service would greatly affect the inmate in his transition from convict to responsible employee. The effectiveness of rehabilitation attempts is lessened if the inmate has no opportunity to utilize the occupational skills he has acquired.

5. Definite arrangements for a comprehensive follow-up of graduates of these programs who have been released into the labor market should be planned immediately and carried out on a continual basis. A more realistic evaluation of objectives of the educational programs and revision of curricula could be accomplished with data collected from former inmate students. This type of information is also valuable as public relations material.

6. Present student-teacher ratios which are in effect in most of the education programs should be continued. Much of the success which the programs have achieved so far is due to the amount of individual attention the instructor can give these educationally and vocationally retarded students.

7. The participating governmental agencies should encourage and/or underwrite a parametric study of employer attitudes toward hiring ex-convicts in Arizona. Such a study would serve three basic purposes: (1) ascertain employer attitudes toward hiring ex-convicts trained in certain occupations; (2) locate potential placement sites for future graduates; (3) offer immeasurable public relations values for expanded programs.

8. One of the educational personnel in each of the programs should be designated as the educational public relations officer for that institution. This person should be responsible for insuring the complete coverage of the var-

ious educational innovations as presented to the public through the various media in Arizona.

9. Data presented in this study indicate that the general education program at the major state institutions is presently serving only about 20% of the inmates who have a need for educational upgrading. It is recommended that these programs of general education be expanded and that a concentrated effort be made to encourage the educationally deficient inmate to participate. Attempts which are made to encourage inmates to participate in vocational education without first having a sufficient general educational background are in violation of one of the basic premises of a sound vocational education program.

10. Data presented in this study indicate that there is both a need and a desire on the part of the inmate for additional vocational offerings at both institutions. However, if priorities must be established which will conform with financial limitations, it is recommended that the bulk of any additional new programs be directed toward the Arizona State Prison at Florence. This recommendation is made in light of the fact that the Arizona State Industrial School at Ft. Grant currently has almost three times as many vocational programs as the Arizona State Prison, yet is only serving 1/5 the number of people.

11. The present administrative arrangements for the vocational programs between a junior college and a correctional system appears to have many advantages. It is recommended that this present arrangement be continued indefinitely and provisions be made which will insure that the junior college personnel involved have adequate time for the supervision and administrative duties necessary. Any directives which are issued to instructors of these vocational programs should be channeled through the junior college personnel in charge of the program. Multiple administration of teaching activities by the various concerned agencies would lead to confusion.

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*GUIDANCE PROGRAMS; *OCCUPATIONAL GUIDANCE; *EDUCATIONAL GUIDANCE; *COMPARATIVE EDUCATION; *FOREIGN COUNTRIES; GUIDANCE OBJECTIVES; GUIDANCE FUNCTIONS; GUIDANCE PERSONNEL; GUIDANCE SERVICES; QUESTIONNAIRES; OCCUPATIONAL INFORMATION; VOCATIONAL FOLLOWUP; ADMINISTRATIVE ORGANIZATION

The purpose of this study was to provide comprehensive descriptive information for use by administrators and workers in comparative education. It is neither a treatise on the theory and methods of guidance nor a discussion of the role belonging to the educational advisor and guidance counselor and is therefore not intended for specialists. Data were collected by a questionnaire submitted to 73 countries representative of all continents, all systems of education, and all stages of economic and social developments. Sections of the questionnaire concerned: (1) nature, structure, and regulations, (2) methods and techniques, (3) staff, (4) international action, (5) plans for the future, and (6) miscellaneous. Findings of the study include: (1) A general system of vocational guidance has been established for a long time in 55 percent of the countries which sent replies for the inquiry, (2) The current concept of guidance requires close collaboration between those responsible for education and those responsible for labor and employment, and (3) Information on the vocations is playing an increasingly important role both within and outside the school. (CH)

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XXVI th INTERNATIONAL CONFERENCE ON PUBLIC EDUCATION

GENEVA 1963

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THE ORGANIZATION OF EDUCATIONAL AND VOCATIONAL GUIDANCE

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RESEARCH IN COMPARATIVE EDUCATION

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INTRODUCTION

It was originally intended that this comparative study be restricted to consideration of the organization of vocational guidance and it was for such purpose that the questionnaire was drawn up before being sent in June, 1962, to the Ministries of Education. It was soon realised, however, that guidance these days is but one part of a wider concept which, under the name of guidance or counselling (in French, *orientation*), includes educational guidance, vocational information, individual assistance to pupils for guiding them generally in life and, finally, advice on the choosing of a vocation.

This research concerning the organization of educational and vocational guidance in 73 countries and offering a comprehensive picture of the efforts made in this field is not intended for specialists. It is neither a treatise on the theory and methods of guidance nor a discussion of the role belonging to the educational adviser and guidance counsellor. Literature on the subject is both significant and plentiful. The study, however, may be of value to workers in comparative education and to responsible authorities. It should also facilitate the task of the XXVIth International Conference on Public Education when it is invited to adopt a recommendation on the matter.

From the quantity of data collected it is possible to make certain observations and thus give a general idea of the relevant situation in the 73 countries which replied to the questionnaire and which are representative of all continents, all systems of education and all stages of economic and social development:

(1) Educational and vocational guidance is passing through a stage of active evolution although the extent of development varies from one country to another. Its purpose everywhere is both to employ all means capable of ensuring the individual's development and at the same time to satisfy the vocational needs of the day. These require that increasingly effective use be made of human resources, not only by the recruitment of manpower and qualified personnel for the different vocations but also by avoiding the waste due to mistaken choices and to the individual's maladjustment in his vocation.

(2) This new concept of guidance requires close collaboration between those responsible for education and those responsible in regard to labour and employment as well as with all authorities which are concerned with vocational training and the health and welfare of the young. Furthermore, in many countries it is considered that guidance services can act as agents in ensuring the connection between educational planning and economic planning.

(3) A general system of vocational guidance has been established for a long time in 55% of the countries which sent replies for the inquiry. Although in these countries vocational guidance continues to be of use for placement in employment and for selection the concept of it is evolving and becoming wider in the way indicated above. In most of the other countries a system of educational and vocational guidance, more or less generalised, either has recently been established or is now being organized. Only nine countries state that they have not yet been able to deal with the matter.

(4) Educational guidance is usually understood to mean the services given by school counsellors and by members of the teaching staff, who follow

the pupils in their development and help them to solve their personal problems. It is also involved in the system's structure itself in the guise of observation classes, guidance stages and differentiated programmes. A few examples will be found in the national reports although the data collected in this latter connection is too fragmentary to permit of useful comparisons for the present study. The question would be worth further consideration in a subsequent study as there seems to be here a solution which is being adopted more and more.

(5) As regards the procedures employed in guidance, two main tendencies may be distinguished: *(a)* analysis of the subject's abilities by means of psychological methods of observation and measurement which require the organization of special services; *(b)* employment of essentially educational methods which consist of integrating educational guidance with the teaching itself by the introduction of vocational information and of early experiences in work as well as by observation of the child during his progress in school work.

(6) Information on the vocations is playing an increasingly important role both within and outside the school. Various means are employed for informing not only the pupils but also the teachers, the parents and the general public (lectures, brochures, newspapers, films, radio and, to a less extent, television). In several countries, however, this informative action still leaves something to be desired.

(7) According to the replies it would seem that even when accompanied by an attempt at persuasion, guidance never tends to become coercion. The advice given may be accepted or rejected and in the final analysis the individual remains free to choose.

(8) In most of the countries it seems that difficulty is experienced in following those who have received guidance. Except in a few cases neither the staff nor the technical means of checking are available for appraising the results of the guidance.

(9) The staff responsible for giving vocational guidance are not always specialised. Only in some fifteen countries is previous training for the task a requirement. In most cases university degrees are required but initial training in the specialised work of guidance takes place on the spot and by means of in-service courses. Half of the countries concerned make provision for this further training but except for those in which the teachers are automatically responsible for giving the guidance there is usually a shortage of guidance staff. Plans consequently aim at improvement in the recruitment of staff as well as in their training.

(10) Some fifty countries wish to receive, particularly from international organizations, assistance for the development of their educational and vocational guidance systems. Their desire is mainly for scholarships to permit of study abroad and for visits by experts to assist in organizing the services and in training guidance staff on the spot.

Thanks are hereby extended to the Ministries of Education which once again have been kind enough to cooperate by replying to the questionnaire.

Rachel GAMPERT
Member of the Research Division
of the International Bureau of Education

QUESTIONNAIRE ADDRESSED TO THE MINISTRIES OF EDUCATION

A. Nature, Structure and Regulations

1. If vocational guidance exists in your country, what are its aims and nature?
2. Do vocational guidance *services* exist in your country? Are these services governed by official provisions? If so, what are the main points of these provisions?
3. *(a)* Are these services official, semi-official or private?
   (b) Do private services and an official system exist side by side?
4. Which authorities are responsible for the organization and financing of official vocational guidance services (educational or other authorities, at the national, regional and local level)?
5. By whom are private vocational guidance services organized and financed?
6. Is there cooperation between vocational guidance and other services (educational, economic, social, medical, employment, etc.)?
7. When no specialized services exist, how, in practice, is the vocational guidance of young people carried out?
8. *(a)* Is vocational guidance compulsory at any given moment of the schooling period? For whom?
   (b) Is it given free of charge?
9. How far does vocational guidance take into account the present and foreseeable needs of the national economy and of the labour market? What are its relations with the various sectors concerned in the country's development?

B. Methods and Techniques

10. What are the techniques most generally employed in vocational guidance examinations (psycho-technical examinations, interviews, medical examinations, social inquiries, consultation of the school record, tests of aptitude, attainment, motivation, vocational interest, etc.)?
11. How is information on the various professions communicated (brochures, guides, lectures, television, films, radio, publications, etc.)?
12. Do vocational guidance services deal with the choice of a vocational school, placement in apprenticeship, registration in an employment office, etc.?
13. Is the advice given by the vocational guidance services followed up by e.g. informative and persuasive action with regard to the children, their families and their teachers?
14. Do vocational guidance services follow the careers of the young people they have assisted and concern themselves with their integration in the professional sector chosen, etc.?

C. Staff

15. What is the composition of the staff of a vocational guidance service at the different levels?

16. By what criteria is such staff selected and appointed?

17. If there are staff specialized in vocational guidance, what training have they received?

18. What are the conditions of service of specialized vocational guidance staff?

19. With what other category of specialists may the situation and remuneration of this staff be compared?

20. What steps are taken in your country for the information and further training of vocational guidance workers in service?

D. International Action

21. Has your country received international assistance in the field of vocational guidance? If so, of what kind?

22. Does your country wish to receive assistance from foreign countries or international organizations in the field of vocational guidance (visits from experts, scholarships for future guidance workers, etc.)?

E. Plans for the Future

23. Please describe your country's requirements in the field of vocational guidance.

24. Are measures contemplated for the further development of vocational guidance services, either in quantity or quality (evaluation of results achieved, research services, etc.)?

F. Miscellaneous

25. Please add any additional information you consider useful.

26. Please send with your reply the main legal texts and if possible the main documents and publications which have been issued in your country in the field of vocational guidance.

COMPARATIVE STUDY

I. Nature of Guidance

The following questions are included in this chapter: Is there any educational and vocational guidance, what are its aims, for whom is it intended and what is the nature of its organization?

It is to be noted first that of the 73 countries which replied to the questionnaire some forty only (or 55%) have had for a long time a general system of educational or vocational guidance. In the others, that is some thirty, the situation is as follows: *(a)* educational and vocational guidance has been introduced only lately and the services are for the most part still at an experimental stage (7 countries); *(b)* the matter is under consideration and a system is being organized involving often experiments at a few pilot schools or at certain types of school (14 countries); *(c)* the matter is not yet being dealt with or only very occasionally (9 countries).

It can thus be seen that the questions of educational and vocational guidance is a current one in nearly all of the countries considered in the inquiry. In only nine, that is slightly over 12%, is the question apparently not arousing any general interest as at the moment there are matters of more immediate concern.

As regards the aims of guidance, whether the countries be ones already with long practical experience of it or ones in which it has only recently been organized, they are defined almost everywhere in the same way, as will be seen in the table hereunder and by perusal of the reports. In a principal endeavour to help the individual (pupil or adult) choose his course of study or his vocation and adjust himself generally to life, his aptitudes and interests are revealed by various means, he is taught to know himself and is given information concerning the various opportunities open to him. In addition, there is a social and economic aim which is more or less pronounced depending on the country. At the same time as freedom of choice is respected, vocational guidance is expected to ensure better distribution of qualified personnel and of manpower in accordance with the particular country's needs for development. (This matter will be dealt with again in a later chapter.)

Although the aims are the same on the whole, different tendencies are observed in countries where guidance is organized systematically.

(1) Educational guidance and vocational guidance are distinct from one another. Vocational guidance, the older, is dealt with by special services which are connected with employment offices rather than with schools. It does not follow, however, that these services are concerned only with adults and young people who are seeking employment. They help also adolescents who have still to complete their schooling and have difficulty in finding their path. On the other hand, educational guidance, a more recent concept, is organized so as to be given in various ways, namely, guidance or observation stages or classes, advice to pupils, differentiated syllabuses, preliminary vocational training. Such is the case in some twenty countries, Austria, Belgium,

Denmark, Finland, France, German Federal Republic, Greece, Italy, Luxembourg, Malaya (Federation of), Morocco, Netherlands, New Zealand, Norway, Philippines, Portugal, Spain, Sweden, Switzerland, Tunisia.

In Belgium there are not only vocational guidance bureaux, already in existence for a long time, but also psycho-medical social aid centres set up in 1947 and intended to help the pupil resolve his personal problems and thus adjust himself, not straight away to a vocation, but to life in general. In some of the above-mentioned countries there is a tendency to include in the same service both kinds of guidance. In France, for instance, a wider concept of guidance has evolved. Set up in 1922 and at the beginning strictly vocational these services have since 1959 become " educational and vocational guidance centres ". Italy, where since 1920 vocational guidance has existed, reorganized her services on a national scale in 1950 by similarly setting up educational and vocational guidance centres.

(2) Education has a " polytechnical " basis and vocational guidance is an integral part of the school programme from the primary school (in particular, as from the 5th year) onwards. During school activities the pupils are given initial training in work, learn to know the various trades and vocations and, when the time comes for taking a decision regarding the future, make a choice with full knowledge of relevant factors. As regards the teachers, they will have followed the progress of the pupils sufficiently for advising the latter in accordance with their aptitudes and interests and while taking into account the needs of production. There are thus not any educational and guidance services in the strict sense and all the education is in fact a guidance for work. This is the system mainly in eight countries (Bulgaria, Byelorussia, Czechoslovakia, Hungary, Japan, Rumania, U.S.S.R., United Arab Republic).

On the other hand, Japan reports the existence of vocational guidance services attached to the employment security bureaux, which are concerned mainly with young persons who are seeking employment for the first time as well as with the physically handicapped.

(3) There is continuity between educational guidance and vocational guidance but the guidance is not necessarily connected with work and production as in the previous group. In schools it takes the form of services which may be consulted. It helps the pupils firstly to know themselves and solve their personal problems, includes the study of their tastes and aptitudes and then furnishes them with advice on the choice of their studies as well as of their vocation. This system has been particularly developed in the United States. It exists also in Canada, Israel, the Republic of South Africa, the United Kingdom (England and Wales, Scotland) and, to a certain extent, in India and Mexico.

All of the systems just described are organized by the state. In 23 countries, that is almost a third, a contribution to the development of educational and vocational guidance is made also by private initiative.

Comparative Table

Austria. Vocational guidance has existed for 40 years. Its aim is to help pupils and the young in general, as well as adults, in the choice of a vocation. General vocational

guidance and individual advice. Close connection with educational and school guidance. There are nine regional labour bureaux, each corresponding to a province, and 90 local labour bureaux having vocational guidance services. These services are public. There are no private services.

Belgium. Vocational guidance bureaux and psycho-medical social aid centres (the latter in existence since 1947). Two psycho-technical centres have been set up by the Ministry of Labour and one by the Ministry of Defence. An experiment with guidance stages (pupils aged 12 to 15 years) which cover the three years of study following the primary school course. Common programme and a choice between three courses. Possibility of changing from one course to another and provision of special courses enabling pupils to adjust to the new course chosen. At the end of three years the pupils are required to choose between the different sections of the senior secondary school course.

Brazil. Vocational guidance is intended to help the individual, whether adolescent or adult, to become adjusted both to vocational life and to life in the home, at school and in society. Due consideration given to his abilities and tastes as well as to his economic and social situation. Official, semi-official and private services but they are still few in number.

Bulgaria. All education linked to life and to the circuit of production. General education has a polytechnical basis. Education through work is provided at workshops connected with primary schools. Circles, each for encouraging interest in one subject, are organized at every primary school. Young technicians' and young naturalists' clubs. Eight-year primary school followed by the four-year polytechnical secondary school or the technicum.

Byelorussia. Vocational guidance is an integral part of the whole process of education from the 5th to the 8th school year. There are no separate services for vocational guidance.

Cambodia. The problem of educational and vocational guidance is becoming urgent. As a first step in preparation for guidance a psycho-technical section was set up at the directorate of educational services.

Canada. Guidance must assist the student to understand himself, to know about educational opportunities and the world of work as well as to realise the educational paths which lead to occupational goals. In seven of the ten provinces the Departments of Education have guidance services. Many semi-official and private services.

Central African Republic. A centre for the study of questions relating to work and to vocational training set up in 1960 and reorganized in 1962.

Chad. Vocational guidance not undertaken systematically. The only vocational guidance service is at the psycho-technical section of the Labour Office. Vocational selection rather than guidance. No educational guidance.

China (Republic of). Advice and help to students at schools of various levels. At secondary schools the Placement and Advanced Education Council settles problems related to the selection and guidance of students. Vocational guidance, in its true sense, for students taking courses in industrial arts at junior high schools is starting to be organized. Vocational guidance which has a social aim is given at employment services. There are no private services.

Colombia. Connected with the Ministry of National Education is a vocational guidance section which studies needs, draws up programmes, conducts inquiries in relation to educational psychology and vocational guidance. No organized system of services other than those for pupils in the two final years at the national colleges of secondary education in Bogota. A few private services. In the absence of services young people can apply directly to the Ministry of Education.

Congo (Leopoldville). Interruption since 1960 in the development of vocational guidance. At the present only one centre, which is engaged mainly in psycho-technical studies and research as well as in educational guidance and selection. Two-year " guidance stage ", for detecting aptitudes and interests, after the six-year primary school course.

Costa Rica. The following school services are provided: *(a)* an educational and vocational guidance service; *(b)* a social service; *(c)* a health service. At secondary and vocational schools the guidance work is still only at an initial stage. Vocational guidance services have recently been established at the university.

Czechoslovakia. New educational concept of " education with choice of a vocation in view " adopted since the year 1962-1963 by all basic schools. Integrated with all school

and extra-curricular activities it coordinates the needs of the community with the interests and aptitudes of the individual.

Dahomey. Beginning made in 1958 with educational and vocational guidance. While making the pupil realise his own aptitudes, the aim is to help him in his choice of vocation or higher level school. The National Educational Institute has a section for statistics, information and educational and vocational guidance.

Denmark. Vocational guidance services in connection with the employment exchanges. General guidance consisting of occupational information given to pupils in the top form at primary and secondary schools. Guidance of handicapped children by school psychologists. Beginning being made with a system of social and educational guidance provided by special school counsellors.

Ecuador. Educational and vocational guidance services which are for the exclusive use of technical colleges. They assist the pupil in his choice of the special branch best suited to his aptitudes and interests.

El Salvador. Educational and vocational guidance services for pupils doing the first stage of the secondary school course at five pilot centres. Help for pupils in knowing their capacities and in adjusting to the school, social and home environments. Help for teachers in order that they may take individual differences into account. Information about the opportunities for study and work.

Finland. Vocational guidance is intended, by study of the individual's personal characteristics and attitudes, to assist him in his vocational choice. Pre-vocational guidance for pupils from 14 to 17 years of age in higher grades at " civic schools " and lower secondary schools.

France. Vocational guidance services located throughout this country since 1922 and, after various decrees relating to their development, taken over by the state under the act of 24th May, 1951. Since 1955 their role has no longer been confined to *vocational* guidance and in 1959 they become " *educational* and *vocational* guidance centres ". The observation stage (first two years following the five-year elementary stage) enables the observation of the pupils' aptitudes.

Gabon. An educational and vocational guidance bureau is being set up. It will be under the responsibility of the Ministry of National Education. At present certain psychotechnical examinations at private schools are being financed by the Chamber of Commerce.

German Federal Republic. Advice and information for pupils leaving primary, middle and secondary schools as well as for students attending establishments of higher education. Assistance to adults who change their vocation and to the handicapped. There are only public vocational guidance services.

Ghana. Established in 1955, a youth employment service is being operated by the Labour Secretariat. The service has so far been unable to provide vocational guidance although the latter is included among its functions. Decision taken in 1960 to reorganize this service and, with technical assistance from the ILO, to establish a national system of vocational guidance in connection with middle and secondary schools as well as with local employment centres. Careers masters in some secondary schools. Some work in personnel selection at the Institute of Education of the University College of Ghana.

Greece. The aim of vocational guidance is to help adolescents choose a vocation and prepare for it. The 3rd class at secondary schools has since 1962 been used as a guidance class for orienting the pupils towards the sections of the senior secondary school or towards a vocational school. Proposed introduction of an individual record system applicable to children at primary schools. Model vocational guidance centre operating under the Ministry of National Education. Psycho-technical research centre as well as employment offices operating under the Ministry of Labour. No private services.

Guatemala. The Department of Educational and Vocational Guidance is concerned with the guidance of pupils receiving secondary education. At the San Carlos University is a vocational guidance and selection section for examining students when they enter. No private services but a proposal for extending to private schools the official service.

Haiti. No vocational guidance services, but pre-apprenticeship centres, controlled by the Department of National Education, and home economics centres annexed to primary schools.

Hungary. Vocational guidance is an integral part of the school programme from the 5th to the 8th class at general schools and in the four classes at lycées and includes an introduction to the problems of human work, the particulars of the various vocations as well as advice on the vocations best suited to the pupils' interests and abilities. In addition to the teaching and guidance given by the class teacher, advantage taken of opportunities which the instruction in various subjects offers for giving vocational information and guidance. In difficult cases either an advisory group of the Ministry of Labour or a neurological service is consulted.

Iceland. No provision as a special service at Icelandic schools. Since 1960 the matter is being examined. Course for secondary school teachers (autumn 1962). Vocational guidance days (for pupils from 14 to 17 years old) organized at schools in Reykjavik and other towns by municipalities, industrial firms and Rotary Clubs.

India. Guidance is intended to help in the individual's educational and vocational development and concerns the choice of both his course of study and his vocation. Official as well as private services.

Iran. Not yet any vocational guidance services. In the meantime some occasional steps to provide educational and vocational guidance.

Ireland. No educational and vocational guidance in the strict sense, but advice given by teachers as a normal part of the educational work in primary, secondary and vocational schools. Lectures given at secondary (grammar) schools by specialists in various fields. An educational psychologist for male pupils at vocational schools in Dublin City. Arrangements for expansion of this scheme and for appointment of an assistant educational psychologist.

Israel. Educational guidance at schools and vocational guidance at employment offices. Both types of guidance are carried out under the supervision of the National Institute for Educational Counselling and Vocational Guidance. One private vocational guidance bureau.

Italy. Vocational guidance provided locally since 1920. Organized from 1950 onwards on a national scale and from two aspects, namely educational guidance and vocational guidance. Educational and vocational guidance centres. Work psychology centres.

Ivory Coast. Present reorganization of the service which is concerned with vocational selection and guidance as well as with study and documentation. Guidance secondary schools with an observation stage (1st and 2nd year classes) after which the pupils are directed to classes for classical and modern secondary education and for technical education.

Japan. Vocational guidance at lower and upper secondary schools and at Public Employment Security Offices. At school the guidance is provided as part of the curriculum and helps the student to know about the occupations and select a course of life appropriate to his abilities and qualities. At the employment security offices special assistance is given to those who are seeking employment for the first time and to the physically handicapped.

Jordan. No vocational guidance service but, for the benefit of students, a counselling service established by the Ministry of Education. Vocational guidance given to students by the instructors in arts and crafts subjects.

Korea (Republic of). Vocational guidance is only at a beginning stage. Its aims are to help the individual in choosing an occupation suited to his abilities and interests as well as in adjusting to it and, as a result of satisfactory vocational adjustment, to ensure maximum use of human resources. Three categories of services but they are not functioning satisfactorily: (1) general guidance services at secondary schools; (2) services at colleges and universities; (3) employment exchange services and, at the national university, the student guidance centre. Some industrial enterprises and private schools make occasional provision for vocational guidance.

Kuwait. No vocational guidance services provided under the educational system. The population is small and all citizens easily find work.

Laos. In primary education the programme is divided into centres of interest based on the vocations. In the final year of the second stage of the primary school course and in final classes at secondary schools specific provision is made for vocational guidance. For Laotian students arriving in France a three-month guidance stage to assist them in choosing their higher level studies.

Liberia. No vocational guidance services yet. Pilot guidance programme initiated in five junior and senior high schools.

Luxembourg. An official vocational guidance service attached to the National Labour Office. Two private educational and vocational guidance services. Educational guidance now being organized. In the meantime there is an educational guidance centre which has been operating since 15th September, 1962, at the classical lycée in Diekirch.

Malaya (Federation of). Vocational guidance aimed at providing information about the vocations and at guiding pupils towards those most appropriate to their abilities and interests, while having regard to the requirements and opportunities of the different vocations. Official and private services.

Mali. Since 1962 the psycho-technical service of the Ministry of Education has been responsible for educational guidance in classes (6th and 5th) of the observation stage. A national guidance board and class boards for the 6th classes.

Mexico. An educational guidance department at the National Polytechnical Institute. Psychological study of pupils' abilities in order finally to help them in choosing a vocation. Ensuring of the harmonious growth of the personality and producing men able to be useful to their environment. Official, semi-official and private services.

Monaco. Vocational guidance, a matter of concern to the public authorities, is being organized. In the meantime at meetings held for parents French vocational guidance counsellors furnish information about the vocations. Exhibitions. A lycée teacher is responsible for providing the pupils with educational and vocational guidance.

Morocco. Since 1922 vocational guidance has existed but only since 1947 has it been organized systematically. Its purpose is to guide the pupil towards the vocation best suited to his aptitudes, knowledge and tastes, due consideration being given to the needs of the community.

Netherlands. Vocational guidance includes advice and information on careers, on opportunities of employment and on the requisite study and training. Teacher counsellors for pupils in the 6th year at some primary schools. At high schools the pupils, after a stage (one or two years) common to all, take either the gymnasium course or the secondary school course. As a result of the new law the common first year is becoming increasingly like a guidance class. Government services (national or municipal) and private services (subsidised or not).

New Zealand. Vocational guidance is aimed at helping the pupil plan his educational programme and eventually, with the comprehensive relevant information given to him, choose a career. An official service and a few private consultants.

Niger. No vocational guidance service yet but plans under consideration.

Nigeria. A service concerned with the measurement of intelligence and aptitude as well as with educational and vocational guidance and counselling. Careers officers at secondary schools.

Norway. Vocational guidance is aimed at assisting young people to choose the education and occupation which meet their wishes, interests and needs. There are vocational guidance services under the responsibility of the Labour Directorate. No private services.

Panama. Guidance services for pupils in the first stage of the secondary school course at six pilot schools. Aim is to help the pupil choose his course of study and his vocation in accordance with his abilities and in relation to his economic and social environment. Group guidance given two or three hours a week at other schools.

Paraguay. Has no guidance services.

Peru. Departments of educational psychology at public schools, both primary and secondary; vocational guidance services at a few private schools and at schools of higher education.

Philippines. Assistance to students in their choice of both a course of study and an occupation. Information and research on the occupations. Assistance to school leavers in finding employment and in receiving satisfaction from it. Improving the curricula of vocational schools. In elementary schools much of the vocational guidance is aimed at developing good habits. Vocational guidance services at secondary schools. There are also private services.

Poland. Preparation of the young for choosing a vocation is one of the school's tasks. On the other hand there are special vocational guidance services for pupils who are obliged to take aptitude examinations as well as for the physically or mentally handicapped.

Portugal. Educational and vocational guidance as well as vocational selection. Official and private services.

Rumania. Vocational guidance, a matter of major concern to the organs of government, is intended to ensure the development of the pupils' personalities in accordance with their interests and aptitudes, provide the ranks of specialists necessary to production and promote a love for the chosen vocation.

Senegal. A national vocational guidance centre in operation since 1960. No private services.

Sierra Leone. No vocational guidance services. Advice given by various departments and organizations, for example by the office of the secretary who is responsible for the recruitment and training of government service staff. Educational guidance not systematically organized either. A sole secondary technical school, which is for boys and girls. At Freetown a technical institute for boys having a one-year pre-apprenticeship course for guiding the pupils into the trades for which they show aptitude.

Somalia. Vocational guidance not yet organized in this country. Steps contemplated for doing so with due consideration to the future requirements of the national economy and of the labour market.

Spain. Beginnings with vocational guidance in 1918 at Barcelona and in 1923 at Madrid. Official institutes of applied psychology and psycho-technology in the provinces, in Barcelona and in Madrid (the national institute). A few private services. Educational guidance in the course of being organized.

Sweden. Vocational guidance is organized in accordance with the recommendation of the I.L.O. Guidance of a more general kind in the upper stage (last four years) of the nine-year school. Three-week pre-apprenticeship during the 8th year. Differentiated curricula during the 9th year.

Switzerland. Vocational guidance makes it easier for young people and their parents to choose a vocation wisely. Assistance to adults who have not received vocational training or who desire a change of vocation. The services are cantonal. Educational guidance being increasingly developed (guidance stages or classes, pre-vocational training classes, guidance at the end of compulsory education and at the end of the secondary school course).

Tunisia. Three official guidance services: *(a)* Centre for Educational, University and Vocational Guidance and Documentation; *(b)* Vocational Guidance and Selection Centre; *(c)* Child Psychology Laboratory at the School and University Information Service.

Turkey. Vocational guidance exists but is not organized systematically. Young persons may apply to the psycho-technical laboratory of the teacher training college where teachers are trained for technical education. In four cities there are offices concerned with the vocational choice made by pupils prior to entering secondary and vocational schools. Certain amount of individual educational guidance. At primary schools the teaching includes lessons dealing with work and practical training in workshops is organised at secondary schools. No private services.

South Africa (Republic of). Comprehensive guidance (known as "counselling" or "guidance") is received by pupils throughout their schooling and embraces educational and vocational guidance as well as psychological guidance and other counselling needed by the pupil. The services are provided by the education departments. At some universities there are vocational guidance services or services which give advice and guidance. Vocational guidance at the National Institute of Personnel Research and at the Employment Service.

USSR. Under the law of 16th April, 1959, on the strengthening of the link between school and life, vocational guidance is an integral part of the education and instruction, being included in the teaching of the different subjects and given during a variety of school and extra-curricular activities. At the same time the special aptitudes of the pupils are discovered and developed, while consideration is given to the particular needs of the region. The work in vocational guidance is begun in the 5th class and intensified in the 9th to 11th classes.

United Arab Republic. Vocational guidance is aimed at raising the standard of production and at placing workers in the employment best suited to their interests and abilities. Choice of curricula for pupils in the 1st year at technical secondary schools. Technical and practical studies introduced on a trial basis in some experimental schools with a view to improvement in vocational guidance. Official, semi-official and private services.

United Kingdom. England and Wales, Scotland. Educational or school guidance given in most of the schools and related to differentiation of curricula. Vocational guidance for young people up to the age of 18 years and at the stage of transition from school to work. Provided under provisions governing the Youth Employment Service. Private services for older pupils or for special cases. *Northern Ireland.* Set up in 1962, the Youth Employment Service is intended to help young people choose a career and to help employers with the selection and recruitment of their young staff members as well as to place the young in employment and review their progress in it. No private services.

United States. Guidance, in addition to including educational and vocational guidance, is concerned with other developmental needs. Assists not only the student but also teachers, parents, school administrators, etc. Guidance and counselling services are widely established at secondary school level. Some services at elementary schools. Vocational guidance is taking place at higher education institutions, in adult education programmes, in vocational re-training programmes and at technical schools.

Upper Volta. No vocational guidance service yet. At the end of the primary school course and during the secondary school course there is guidance and selection according to school achievement and examination results and in relation to the present and foreseeable needs in the various vocations.

Yugoslavia. Vocational guidance of various kinds has existed since 1929 and provision was made for its future development under a law of June, 1960, relating to the placement of workers in employment. Under the 1958 general law dealing with education, primary schools are given an important role in educational and vocational guidance. Vocational guidance includes two kinds of action, namely information andl advising. No private services.

II. Compulsory Nature and Free Provision

A distinction must be made here between educational guidance and vocational guidance in its true sense. When educational guidance takes the form of observation stages, differentiated syllabuses, preliminary guidance, or of courses dealing with the vocations and integrated in the curriculum, it naturally follows that this guidance is free of charge and compulsory.

On the other hand, vocational guidance is usually optional when it consists of individual examinations. It may be compulsory in certain particular cases, for example those of contemplated apprenticeship agreements or of very young employees (Belgium, France, Luxembourg, Portugal, Yugoslavia). In Peru, vocational guidance is compulsory in the selection of pupils for higher education or for positions. In the United Kingdom (Northern Ireland) it is compulsory for pupils in their final year of school.

Guidance services which are under the responsibility of the state are free of charge in nearly all of the countries. A modest charge is sometimes made for the cost of tests or of the psychological examination (Guatemala, Israel, Republic of Korea, Peru). On the other hand, where private services are provided, fees, sometimes rather high even, are payable (Colombia, United States). In Belgium the private services subsidised by the state are free of charge.

Comparative Table

Austria. Vocational guidance not made compulsory by any law. Nevertheless, all pupils completing their compulsory education are reported to the vocational guidance services, which are free of charge.

Belgium. Vocational guidance not compulsory during the school years. It is compulsory for apprenticeship agreements. Free of charge at state services and at those subsidised by the state. Fees are payable at some private institutions.

Brazil. Guidance is not compulsory and usually free of charge. Fees are payable at some private services.

Byelorussia. Vocational guidance is free of charge and compulsory like the whole system of education.

Canada. Guidance is free of charge and compulsory at secondary level in grades 9 to 13 and often in primary grades 7 and 8 as well.

Central African Republic. The services of the Centre which is concerned with questions of vocational training and of work are free of charge and not compulsory.

Chad. Vocational guidance is free of charge and not compulsory.

China (Republic of). Vocational guidance is compulsory at schools in which it has been introduced experimentally. It is free of charge.

Colombia. No compulsion. The official services are free of charge but the private services are very expensive.

Congo (Leopoldville). Vocational guidance is not compulsory.

Costa Rica. Guidance is free of charge and not compulsory. Available to all pupils in the 2nd stage of the secondary school course.

Czechoslovakia. Free of charge and compulsory like all education at the basic schools.

Dahomey. Educational and vocational guidance is normally compulsory for pupils aged 12 to 14 years (lower secondary level) and for those in final classes at secondary level. It is free of charge.

Denmark. Occupational information is compulsory in all types of school. Individual vocational guidance is free of charge and not compulsory.

El Salvador. Guidance is free of charge and not compulsory.

Finland. Vocational guidance is free of charge and optional but the preliminary guidance is compulsory.

France. Educational and vocational guidance services are available to pupils at all levels of the different categories of education. A certificate (issued free of charge) from a vocational guidance centre is compulsory for young persons under 17 years of age who are employed in a concern of any kind at all.

German Federal Republic. Vocational guidance is free of charge and optional.

Greece. Vocational guidance is free of charge and optional.

Guatemala. Guidance is compulsory whether provided at secondary level or at the university. In the former case it is free of charge but in the latter a very small contribution is required.

Hungary. Vocational guidance is necessarily free of charge and compulsory since it is incorporated in the general education.

India. Guidance is not compulsory.

Iran. Free of charge.

Israel. Vocational guidance is optional. Educational guidance is provided wherever services exist and is received mainly in the 8th year of the elementary school course. Guidance is free of charge except for a small fee in cases of psychological examination.

Italy. Advice free of charge and optional.

Ivory Coast. Guidance is free of charge and compulsory in the observation stages.

Japan. Vocational guidance at secondary schools is included in the compulsory curriculum. At universities is when requested given to students seeking work. In general no fee is charged.

Korea (Republic of). Vocational guidance is included in the compulsory programme both at secondary schools (as from the 3rd year) and at colleges and universities. Services generally free of charge but students requested to pay the cost of test materials.

Luxembourg. Vocational guidance is compulsory for young people who enter into an apprenticeship agreement or commence a course of technical or vocational training. Guidance is free of charge.

Malaya (Federation of). Vocational guidance services are free of charge and not compulsory.

Mali. Vocational guidance is not compulsory. Educational guidance is given automatically in the observation stage. Since 1962 the pupils in 6th classes are given group tests which are free of charge.

Mexico. Guidance is free of charge and compulsory at pre-vocational level.

Morocco. Vocational guidance is compulsory at the end of the primary school course and at the end of the junior stage of the secondary school course.

Netherlands. Vocational guidance is voluntary. The services, both government and private ones, generally charge a fee.

New Zealand. Vocational guidance is not compulsory. It is free of charge at the official service. Private consultants charge fees.

Nigeria. Educational and vocational guidance is free of charge and not compulsory.

Norway. Individual vocational guidance is optional. The "careers classes" in the final three years at the new nine-year schools are compulsory.

Panama. Guidance is free of charge for all pupils in the first stage of the secondary school course.

Peru. Vocational guidance is compulsory only in the selection of students for admission to higher education institutions and in the selection of employees. It is free of charge at public schools. Fees are payable in the case of the selection examinations for admission to higher education institutions.

Philippines. To a certain degree compulsory when students are being selected for admission to technical and vocational secondary schools and when, in general education secondary schools, they are choosing between the college preparatory course and the vocational courses.

Poland. Schools are required to help each pupil choose a vocation when he is leaving school but pupils are not obliged to take an aptitude examination. Vocational guidance is free of charge.

Portugal. Vocational guidance is optional. It is compulsory only in the case of certain official services and is then free of charge.

Rumania. Vocational guidance is free of charge and compulsory for pupils as from the 5th class and particularly from the 7th to the 11th classes.

Senegal. Vocational guidance is free of charge and not compulsory.

Spain. Vocational guidance is not compulsory.

Sweden. The collective vocational guidance given during the 8th and 9th years is compulsory. Individual vocational guidance is optional. Guidance is free of charge.

Switzerland. Vocational guidance is free of charge and optional. Educational guidance is free of charge and compulsory.

Tunisia. Educational guidance is free of charge and compulsory for all secondary school pupils in the 1st and 3rd years.

Turkey. Vocational guidance is free of charge and optional.

South Africa (Republic of). School guidance is free of charge and compulsory for pupils from 13 to 18 years of age.

USSR. Vocational guidance is included in the general programme and is therefore free of charge and compulsory.

United Arab Republic. Vocational guidance is compulsory at technical schools inasmuch as it is given by reason of the nature of the programmes and entrance tests. Trend towards the introduction of vocational guidance during the final years of schooling.

United Kingdom. England and Wales, Scotland. Vocational guidance is not compulsory. The official service is free of charge. *Northern Ireland.* Compulsory for all pupils in their last year of school. Free of charge.

United States. Guidance services are compulsory in the sense that they are provided as part of the regular educational services. Generally speaking they are free of charge since provided as part of the total educational programme. Fees are payable for private services.

Yugoslavia. Vocational guidance is not yet compulsory during primary schooling. It is sometimes compulsory for apprentices and always free of charge.

III. Organization and Financing

The official authorities most directly concerned with educational and vocational guidance are naturally the education authorities and the authorities responsible for the labour sector. This is readily seen from a perusal of the table hereunder but it is also found that there is a tendency for the education authorities to be given the primary role, particularly when guidance is being developed at schools. Of the 56 countries which furnished information in this connection 45 (or 80%) mention the Ministry of Education (alone or in collaboration with other ministries) as being responsible for educational and vocational guidance whereas the Ministry of Labour is referred to in only 15 (or 26%) of the replies.

In countries where educational guidance and vocational guidance are distinct from one another the guidance provided at schools (by way of consultative services, preliminary guidance, guidance stages, etc.) is under the responsibility of the Ministry of Education whereas the vocational guidance services, often attached to employment offices, are under the responsibility of the Ministry of Labour or other ministries, for instance those of social affairs (Finland, in the case of the handicapped, Republic of Korea, Sweden, Tunisia), of communications and public works (Finland) and industry (U.A.R.).

When there is continuity between educational guidance and vocational guidance the responsibility for the organization and financing usually belongs to the Ministry of Education. In the case of the United States, however, mention is made of vocational guidance services which are organized by the employment service of the federal Department of Labour. In Hungary, vocational guidance is under the responsibility of the Ministry of Labour in collaboration with the National Planning Office and the Ministry of Education. In the United Kingdom (England and Wales, Scotland) the Central Youth Employment Executive, which is the principal authority in the matter, includes representatives from the Ministry of Labour and from the Ministry of Education but is financed by the Ministry of Labour. At local level the Ministry of Labour assumes responsibility for 75% of the expenditure incurred by the vocational guidance services which the education authorities provide. In the case of countries which make no reference to the education authorities, it would seem that their replies have been focussed on vocational guidance. Thus the authority mentioned as having the sole responsibility is in Austria the Ministry of Social Affairs, in the Central African Republic the Ministry of Social Affairs, Labour, Youth and Sport, in Chad the National Manpower Office, in the German Federal Republic the Federal Institute for Placement in Employment and Unemployment Insurance, in Luxembourg and Norway the Ministry of Labour, in the Netherlands the Ministry of Social Affairs and Public Health (in some cases other ministries) and in Yugoslavia the Worker Employment Agency.

As regards private services, some have mainly a philanthropic purpose and are organized by Churches, youth movements, women's organizations, educational institutions, welfare services, etc. Others have a more utilitarian purpose, being required to assist with the selection of workers, and are organized by trades-halls and undertakings as well as by vocational associations and bodies. Finally there are the consultations given by private persons who, acting in a professional capacity, provide guidance. In a few countries some

private services are subsidised by the state (Belgium, Finland, India, Netherlands, Switzerland).

In order to restrict the size of the following table, mention is made first and without comments of the principal authority responsible for the organization and financing of guidance services. Details are given wherever powers are shared or in certain particular cases.

Comparative Table

Austria. Federal Ministry for Social Affairs.

Belgium. The Ministry of National Education and Culture is responsible for the state services and subsidises the provincial and communal services. Private services are organized by associations or individuals. Services which conform with the official provisions are sub- sidised.

Brazil. The official services are under the control of the different states. No national official service. A few semi-official or private bodies of a national character have regional departments with vocational guidance services.

Byelorussia. The Ministry of Education, its local agencies and the schools. Active part taken by the enterprises, kolkhozes, sovkhozes and public associations.

Canada. Provincial Departments of Education. The semi-official or private services are under the responsibility of institutions for rehabilitation of the disabled, religious organizations or private organizations which operate on a commercial basis.

Central African Republic. Responsibility for the development of the centre which is concerned with the study of questions relating to work and to vocational training belongs to the Ministry of Social Affairs, Labour, Youth and Sport, the Labour Directorate and the National Assembly, which votes the funds.

Chad. The Labour Office, a public body which is autonomous as regards its finances. In 1961 a financial grant by the government to the psycho-technical section.

China (Republic of). The Ministry of Education is responsible for the educational and vocational guidance which is provided at schools. The Ministry of the Interior is responsible for the employment services.

Colombia. The Ministry of Education. The private services are financed by the institutions which organize them.

Congo (Leopoldville). Ministry of National Education and Fine Arts.

Costa Rica. The Ministry of Public Education is responsible for the development of guidance work at schools.

Czechoslovakia. Ministry of Culture and Instruction.

Dahomey. Educational and vocational guidance is given under the responsibility of the National Educational Institute, which is financed by the Ministry of Education.

Denmark. The Ministry of Labour is responsible for the vocational guidance services, the Ministry of Education for the educational and vocational guidance which is given at schools.

Ecuador. Ministry of Education as well as rectors and vice-rectors of technical colleges.

El Salvador. Director General of Secondary Education at the Ministry of Education.

Finland. Regional and local vocational guidance offices under the responsibility of the Ministry of Communication and Public Works. The Ministry of Education and the Central Board of schools are responsible in regard to preliminary vocational guidance. The Ministry for Social Affairs has charge of vocational guidance services intended for the handicapped and assists financially the private services of this kind.

France. Ministry of National Education and the regional, departmental and local education authorities. The private services are set up by trades-halls or by vocational associations or groups.

German Federal Republic. The federal institute which is in charge of placement in employment and of unemployment insurance, together with its regional and local offices.

Greece. Ministry of National Education and Ministry of Labour.

Guatemala. Ministry of Public Education and San Carlos University.

Hungary. Ministry of Labour in collaboration with the National Planning Office and the Ministry of Education.

India. The Union Ministry of Education and the state education departments are responsible for the school official guidance services. The Union Ministry of Labour and Employment and the state labour departments are responsible for the services at employment exchanges. Responsibility for the private services belongs to religious, charitable, social welfare or educational organizations, which are also assisted financially by the state.

Iran. The education authorities.

Israel. The National Institute for Educational Counselling and Vocational Guidance organized jointly by the Ministry of Education and Culture and the Ministry of Labour. The private vocational guidance bureau is maintained by " Hadassah ", the Women's Zionist Organization of America.

Italy. The educational and vocational guidance centres are administered under the responsibility of the Ministry of Education by the provincial technical education authorities. The work psychology centres are administered under the responsibility of the Ministry of Labour and Social Welfare by the National Association for Protection from Accident.

Ivory Coast. Specialised service belonging to the current affairs directorate of the Ministry of National Education.

Japan. The vocational guidance provided at schools is dealt with at the Ministry of Education by the vocational education section attached to the secondary education bureau and at local level by the teaching supervision section of the prefectural boards of education. The Ministry of Labour is responsible for the employment security offices.

Korea (Republic of). At central level the supervision bureau of the Ministry of Education and at local level the school principals. Responsibility for the employment exchange centres belongs to the Ministry of Health and Social Affairs.

Luxembourg. Ministry of Labour. One private service is organized by *Action familiale et populaire*, the other by the Emile Metz Institute for the benefit of its own pupils and the apprentices engaged at the *Aciéries Réunies.*

Malaya (Federation of). Ministry of Labour and Ministry of Education. The private services are organized by benevolent associations, etc.

Mali. The Ministry of Education is financially responsible for the psycho-technical service.

Mexico. Public Education Secretariat and the schools.

Morocco. Since 1961 the Documentation and Guidance Bureau has been a bureau of the Planning and School Record Service of the Ministry of National Education. A guidance and scholarships section at each of the planning bureaux belonging to the ten " delegations " of the Ministry of National Education.

Netherlands. There are government services at the district labour offices controlled by the employment office of the Ministry of Social Affairs and Public Health. Some employment bureaux are under the responsibility of other ministries (Ministry of defence, of transport, etc.). Private services are the responsibility of private persons or institutions and are sometimes subsidised by the government.

New Zealand. Department of Education. The private consultants are not controlled by the state.

Nigeria. The federal and the regional ministries of education.

Norway. Labour Directorate.

Panama. The guidance services have been transferred from the Directorate of Vocational Education to the National Directorate of Secondary Education of the Ministry of Education. The services organized at private schools are not subject to any requirements.

Peru. National Institute of Educational Psychology. Cooperative service for employment together with the Ministry of Labour and Home Affairs. At local level the school principals.

Philippines. The national Director of Public Schools, the provincial superintendents of schools, the local school head. Responsibility for the private services belongs to educational or health institutions.

Poland. At regional level the vocational guidance services are organized and financed by the education authorities in the *voivodies*, at central level the Ministry of Education is responsible.

Portugal. The Ministry of National Education and the Ministry of Overseas Territories. The private services are financed by the undertakings themselves.

Rumania. The service which, under the Ministry of Education, is concerned with educational activities.

Senegal. Minister for Technical and Vocational Education and Personnel Training.

Spain. Ministry of National Education (general directorate of labour education) and the National Institute of Applied Psychology and Psycho-Technology.

Sweden. The Ministry of Social Affairs, the Ministry of Education, the National Labour Market Board, the national boards of general and vocational education, the county labour boards and school boards, the local school boards and labour exchanges.

Switzerland. Financial support from the Confederation to the cantonal official, semi-official and private services, which are united in the Swiss Association for Vocational Guidance and the Protection of Apprentices.

Tunisia. The guidance and documentation centre is controlled by the State Secretariat for National Education, the guidance and selection centre by the State Secretariat for Public Health and Social Affairs, the child psychology centre and the information service by the French Cultural Section in Tunisia.

Turkey. Ministry of National Education.

South Africa (Republic of). At national level the Department of Education, Arts and Science, the Department of Bantu Education and the Department of Labour, at provincial level each of the four provincial education departments.

USSR. Ministry of Education and its local agencies.

United Arab Republic. Intention to establish a national organization which will be responsible for the planning and coordination of vocational guidance services. Some official services are government departments administered by ministries (those of education, higher education, industry, etc.) and others are independent public bodies, while there are also semi-governmental services attached to public foundations. The private services are controlled by workers' associations, women societies, etc.

United Kingdom. England and Wales, Scotland. At national level the Central Youth Employment Executive, on which are represented the Ministry of Labour, the Ministry of Education and the Scottish Education Department. Financing by the Ministry of Labour. At local level either the local education authorities provide vocational guidance services approved by the Ministry of Labour, which reimburses 75% of the expenditure incurred, or the Ministry of Labour itself provides the services. Private services are not subsidised. *Northern Ireland.* The service is subsidised by the Ministry of Labour and National Insurance (80%) and by the local education authorities (20%).

United States. Organization and financing by local school authorities, with grants allocated by state departments of education, which are assisted by the federal Office of Education. Consultative services maintained by state education departments and the federal Office of Education. Vocational guidance services organized also by the Employment Service (under the Department of Labour) and by private bodies (church groups, youth organizations, etc.).

Yugoslavia. The Worker Employment Office and the vocational guidance permanent commissions appointed by it.

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IV. Cooperation with other Services and Relations with the Labour Market

The two matters dealt with here seem to be sufficiently connected to warrant treatment in the same chapter instead of separately.

(a) *Cooperation with other services.* For vocational guidance to be effective, whether it be provided within or outside the school, there must be cooperation on the one hand between the guidance services and the various school services and on the other hand between the guidance services and the employment services. Some countries have composite agencies for ensuring a connection between the school and work, such being the case in the four Scandinavian countries as well as in Belgium, France, Hungary, Luxembourg, the Netherlands and the United Kingdom.

In France, for example, the vocational guidance and documentation commission includes representatives of all the ministries concerned as well as of the trade-union and employer organizations. The improvement boards connected with each guidance centre consist of members who represent the Ministry of Labour, the pupils' parents, the local communities and the vocational organizations.

In Belgium a national mixed commission ensures cooperation between the guidance services and the employment services, although in order to avoid any influence on the advice given, the services operate independently of the schools and other institutions concerned with vocational training or with placement in employment.

On the other hand, provision is made for collaboration with bodies which are concerned with health since the doctor's advice is very often required in vocational guidance examinations. There are thus frequent contacts between the vocational guidance services and the medical services. Attention is drawn to this in the replies of some twenty countries.

Other services or institutions with which more or less close cooperation is established and which are mentioned in the replies are the following: economic and social services; services and organizations which are concerned with vocational training; youth welfare offices; organizations of young workers; trade-union and employer organizations; commercial and industrial undertakings, etc.

Nine (or 16%) of the 58 countries which answered the question consider that cooperation between the different services still leaves something to be desired. They are generally countries in which a system of educational and vocational guidance has just begun to be organized.

(b) *Relations with the labour market.* At the present time the role played by vocational guidance in the economic development of countries is of growing importance. Owing to the increased rapidity of industrial and technical development as well as to the ever growing need for qualified manpower and specialist personnel it is necessary to make efficient use of resources or, in other words, to undertake economic planning. In order to avoid waste it is important that everyone be oriented towards the employment which is suited to his aptitudes and tastes while at the same time the interests of the

particular country must be served. As seen in the previous chapter the utilitarian purpose of vocational guidance is more or less emphasised by the different countries but it can be seen that almost everywhere the vocational guidance services endeavour to establish contact with employment offices and to keep themselves informed on fluctuations in the labour market in so far as information can be obtained concerning the present and foreseeable needs.

In the replies of the following 12 countries emphasis is laid on the relation which exists between vocational guidance and the economic development plan: Byelorussia, Czechoslovakia, Dahomey, Hungary, Ivory Coast, Japan, Republic of Korea, Nigeria, Poland, Rumania, USSR, United Arab Republic.

Belgium reports the existence of an " employment market " service at the Ministry of Labour as well as of an economic programming office and a " white paper " published by the Ministry of National Education on employment in the scientific and technical sectors.

In other countries, studies and research on current and future manpower needs are carried out not only by the labour bureaux and the chambers of commerce but also by cultural organizations. In the United States, for example, this kind of research is undertaken by universities and the federal Office of Education.

In her reply, Denmark mentions that the vocational guidance service consults all interested parties (schools, parents, labour market bodies) but that it must not serve for encouraging the recruitment for any particular vocation. The same principle is mentioned by New Zealand and the United Kingdom.

Some twelve countries listed in the following table recognise that they have not yet been able to deal systematically with the relations between vocational guidance and the labour market. In most cases they do not yet possess any agencies capable of collecting the necessary information.

Comparative Table

Austria. Collaboration with schools and education authorities, health services, vocational training services concerned, employers' and workers' associations. The federal Ministry for Social Affairs collaborates with the undertakings and the employers' and workers' associations in order to forecast manpower needs. The regional labour bureaux periodically provide statistical forecasts.

Belgium. In order that advice may not be influenced by others the services are administered independently of the schools and of institutions which are concerned with vocational training or the placement in employment. Mixed national commission for ensuring cooperation with the employment services. Bulletins of the Employment Office received by the vocational guidance bureaux and psycho-medical social aid centres. Service known as *Marché de l'emploi* (Employment Market) at the Ministry of Labour. Economic programming office. " White paper " on employment in scientific and technical sectors published in 1959 by the Ministry of National Education and information kept up to date.

Brazil. Cooperation inadequate. Role of vocational guidance still unimportant for this country's economy and labour market.

Byelorussia. Cooperation by the Ministry of Education with the Ministry of Higher, Specialised Secondary, and Vocational Education, the Ministry of Health, the National Economic Council, the workers' soviets and the local agencies. Strict national economic plan under which are determined the needs in personnel for the various sectors.

Canada. Statistical information on the labour market is issued by the National Employment Service.

Central African Republic. The services cooperate within the vocational training advisory commission.

Chad. No cooperation between the psycho-technical section and the other services. The needs of the labour market will not be specified until the plan of economic and social development has been prepared.

China (Republic of). Cooperation between the services. In vocational guidance, as and when it is being developed, consideration will be given to the needs of the national economy.

Colombia. Cooperation in connection with information. The vocations of most value for this country are advised but there is no coordination between the different sectors involved.

Congo (Leopoldville). Cooperation with the school services and with the centres provided for young people who are without work. At present the unemployment is hindering economic development.

Costa Rica. Cooperation not yet sufficiently systematic. Research in regard to manpower needs only just beginning.

Czechoslovakia. Collaboration between all those who represent social, educational, economic and medical interests. The central commission which advises the Ministry of Education and Culture includes representatives from the Commission for the Plan, the ministries of health and of agriculture, construction, fuel and energy, the educational research institutes, the schools, the youth union, etc.

Dahomey. Cooperation with the social, educational, medical, economic and employment services. In guidance due account is taken of the four-year development plan and of information provided by the chambers of commerce.

Denmark. Coordination ensured by the Vocational Guidance Board between the vocational guidance agencies, the schools, the authorities responsible for vocational training, the industrial organizations and the employment agencies. Nevertheless, vocational guidance must not be employed to increase recruitment for any particular vocations.

Ecuador. Relations with the Planning Office and the Ministry of Public Works.

El Salvador. Cooperation as development is effected. Coordination with the labour market is contemplated under the plan of educational reform.

Finland. Close cooperation between the vocational guidance services and the education authorities and under the coordinating influence of the National Council of Vocational Guidance. Cooperation also with the Central Medical Board, the school doctors and the employment services. Although remaining free in their choice, young people are given information about plans of economic development and about the labour market.

France. Cooperation ensured by the guidance councils at the level of the class, the department (province) and the Ministry. The vocational guidance and documentation Commission includes representatives of all the ministries concerned as well as of trade-unions and business interests. For each educational and vocational guidance centre there is an improvement board on which are represented the Ministry of Labour, pupils' parents, the local communities and the vocational organizations. Collaboration between the guidance centres and the employment services, which latter furnish information on the state of the labour market and on employment opportunities.

German Federal Republic. Collaboration with the schools, the parents' committees, the health offices, the professional and trade associations, the youth welfare services, the social services, those who are responsible for vocational training, etc. The employment offices keep themselves informed on the general and particular needs in regard to manpower.

Greece. Collaboration with the medical and school services as well as with the Ministry of Coordination and the National Statistics Office.

Guatemala. Cooperation with the education, economic, social, medical and employment services. Educational planning will ensure closer relations with the labour market.

Hungary. The vocational guidance board connected with the Ministry of Labour is a coordinating agency between all the authorities concerned with vocational guidance. Close contacts maintained in regard to national economic plans in order that present and foreseeable manpower needs may be taken into account.

India. Collaboration between the services and close relations with the labour market.

Israel. Collaboration with the school management and teaching staff, the school physician, the school nurse, the social worker, etc. Collaboration received by the vocational counsellors from the employment services and others who are concerned with youth welfare. A national manpower council set up in 1961 to prepare forecasts.

Italy. Direct contact with the local education authorities, the work psychology centres and the labour and employment offices. In vocational guidance, attention given to economic requirements and the needs of the labour market. As regards educational guidance, long term forecasts are difficult due to the lack of national economic planning and to the great mobility of labour sources.

Ivory Coast. Cooperation with the education, economic, social and medical services and the manpower office. In vocational guidance, consideration is given to local absorption of manpower and to forecasted employment in relation to national economic development.

Japan. Cooperation between the schools and the employment security offices. Cooperation between education authorities and those concerned with labour. Development programmes connected with the ten-year plan for doubling the national income and relating to manpower are taken into account by the vocational guidance services.

Korea (Republic of). Cooperation provided for but not yet adequate. Vocational guidance necessary to the implementation of the five-year economic development plan. Economic planning closely coordinated with educational planning. Vocational planning will also help to solve the unemployment problem.

Liberia. Some investigations and studies to determine the needs of the labour market are being made by the ILO, economic research groups, the Ministry of Education and the Booker Washington Institute, a vocational secondary school.

Luxembourg. Liaison between the schools and the vocational guidance service of the National Labour Office is ensured by a school pre-vocational guidance service for which the Ministry of National Education is responsible. Cooperation with the employment services is ensured by reason of the connection with the National Labour Office.

Malaya (Federation of). Organization is taking place in regard both to cooperation between the services and to relations with the labour market.

Mali. Cooperation with the education services. Relations with the labour market not yet possible.

Mexico. The " labour exchange " set up by the educational guidance department is conducting studies on the vocations and on the labour market.

Morocco. The Documentation and Guidance Bureau has relations with the Ministry of Health's health service as well as with the vocational training services of the different ministries and the important undertakings. This bureau is kept informed by the statistics bureau about studies on forecasts concerning employment. Guidance is thus a means of ensuring efficient use of the nation's intellectual resources.

Netherlands. There is a centre for promoting contact between industry and education. Cooperation between the different services and labour bureaux. Efficient use of available manpower is related to present and foreseeable needs.

New Zealand. Close cooperation between the Vocational Guidance Service and secondary schools as well as with the divisions and departments concerned with child welfare, young workers, etc. This official service keeps in close touch with the Department of Labour in order to be informed on trends of the labour market but the interests of the pupil are placed before those of the national economy.

Niger. The numbers of pupils enrolled at the few establishments of technical education are related to this country's present and foreseeable needs.

Nigeria. Cooperation between the vocational guidance service and the other services. Close connection with the " manpower planning " project.

Norway. Collaboration between the Labour Directorate and the council which is concerned with experiments in school. A coordinating council with members appointed by the Ministry of Church and Education and the Ministry of Labour. Vocational guidance services are kept informed of employment opportunities and other matters connected with the labour market and collaborate with the employment services.

Panama. Cooperation to a limited extent. Data from the census concerning industry and commerce and from inquiries on the vocations.

Peru. Cooperation between the educational services but inadequate connection with the welfare, health and similar authorities. Collaboration between the Ministry of Labour and Home Affairs and the centres which deal with manpower and the selection of personnel. Selection services at senior institutes and in some industries.

Philippines. Consultation of educational, social, medical and employment services when necessary. Contacts with employment agencies concerning employment opportunities and with various bureaux (commerce and industry, labour, agricultural extension, etc.) concerning economic growth. Revision of vocational training programmes in accordance with manpower needs and the resources of the different regions.

Poland. Cooperation with schools, medical services and employment services. At central level, cooperation with the Ministry of Higher Education, the Ministry of Health, the Work and Wages Committee, the Trade-Unions Council and the planning agencies. Information collected on the situation of the labour market and on needs in qualified personnel with collaboration by local planning and employment bodies.

Portugal. Cooperation with other services. Contact with the labour market and with the various sectors which are concerned with this country's development.

Rumania. Collaboration with all the services belonging to the Directorate of General Education as well as with the General Directorate of Vocational and Technical Education, the State Planning Committee, the education directorates under which the vocational and technical schools operate and the Union of Young Workers. Assistance in the planned development of the national economy and in providing the skilled workers required for each sector of production.

Senegal. Consideration in vocational guidance is given to problems of unemployment and the further training of certain categories of workers.

Spain. Cooperation between the services in connection with the work of the Ministry of National Education.

Sweden. Cooperation between the educational services and employment services. Consultation of local medical services. National committee consisting of representatives from the labour and the general and vocational education boards. Consultation of the forecasting branch of the National Labour Market Board.

Switzerland. Cooperation with all services, the employment services included. Vocational guidance is based on the present and foreseeable needs of the economy and the labour market.

Tunisia. Practical collaboration between the bodies mentioned in the preceding table. Guidance is related to forecasts regarding needs and the labour market.

South Africa (Republic of). Cooperation with psychological and medical services and with the Department of Labour. Needs of the labour market are taken into account as far as possible. A list of careers open to young people is prepared bi-annually by the Department of Labour and circulated to secondary schools.

USSR. Collaboration by the Ministry of Education with the Ministry of Higher and of Specialised Secondary Education, the state committee for technical vocational education, the Ministry of Health, the Ministry of Culture, the National Economic Council, the trade-unions and the workers' councils. Pupils are allotted to the different study branches by the planning bodies with due consideration to present and future development in culture and the national economy.

United Arab Republic. Cooperation both between the vocational guidance services themselves and with educational, economic, social, medical and employment agencies. Close coordination of vocational guidance with economic development plans. The programmes are based on research studies concerning future manpower needs.

United Kingdom. England and Wales, Scotland. Connection between education and employment is ensured by the National Youth Employment Council. Collaboration by vocational guidance services with the schools, parent-teacher associations, school inspectors, the youth service, factory doctors, probation officers, the Federation of British Industries, etc. The vocational guidance officer keeps himself informed on manpower needs while having

regard to the individual's development. Equal responsibility to the individual, the employer and the country.

United States. Use made of all resources available for advising the pupil, for example the federal employment service, the health and social agencies, etc. At schools, cooperation between the guidance service and the health, psychological, social, etc. services. The counsellors are informed on manpower needs. Information furnished by the federal Department of Labour (Bureau of Labour Statistics and its Office of Manpower, Automation and Training). Research carried out by universities, the National Association of Manufacturers, labour organizations and the federal Office of Education.

Upper Volta. The Ministry of National Education has a list drawn up on manpower needs in regard to the various vocations. The University Statistics Bureau informs on opportunities of employment.

Yugoslavia. The vocational guidance commission coordinates all activity concerned with vocational guidance. The employment bureau cooperates with the education services. Cooperation with social welfare services is being developed. At local level, particularly close collaboration with primary schools and assistance both in vocational information and in the preparation of teachers. The federal institute for the development of educational and teaching matters has handbooks compiled on vocational information. The personnel services of the undertakings collaborate with the employment service but their information is insufficient on the manpower situation. Studies are to be carried out concerning present and future needs.

V. Procedures and Practices

Of the 58 countries which furnished information in this connection, 52 employ methods of psychological diagnosis. In three countries the introduction of psychological methods is under consideration and tests capable of application in the country concerned are being designed. In the other three countries no use is made of psychological methods and guidance is based essentially on methods which are observational and informative or which involve early experiences in work.

Generally speaking it can be seen that where there is discontinuity between educational guidance and vocational guidance, psychological testing is employed in vocational guidance and educational guidance consists rather of individual consultations, observation stages and differentiated programmes. When there is continuity between educational guidance and vocational guidance, methods of psychological measurement are employed as from the schooling years.

The psychological methods include both individual examination by means of tests, questionnaires, etc. and group testing. Employment of such tests is more or less wide-spread according to the particular country. Several replies point out that it depends upon needs and the particular case. For example, in Austria, Denmark, the German Federal Republic and Norway tests are employed only when necessary.

The most frequently mentioned tests are aptitude tests and intelligence tests. In several countries use is made also of the questionnaire (or inventory) concerning vocational interest.

The individual record, often known as " cumulative " and in which the pupil's progress is followed during his schooling, is frequently referred to as an indispensable source for guidance work. It receives special mention in the replies of several countries, namely Canada, Finland, the Federation of Malaya, Mali, the Republic of South Africa, Tunisia (guidance record), the United

States and Yugoslavia (pupil's file), but it does not follow that the individual record system is not in use elsewhere. The following countries mention, for example, the school record, which in many cases plays the role of the individual record: Austria, Congo (Leopoldville), German Federal Republic, Iran, Israel, Italy, Ivory Coast, Japan, Switzerland.

Furthermore, the psychological examination is never employed alone, being always supplemented with information furnished by the school and by the parents. Depending upon the particular case, a medical examination as well as social and family inquiries are also conducted. Either specifically or by implication the medical examination is referred to by half of the 58 countries which answered the question. Although the social or family inquiry is mentioned by only some fifteen countries it is quite possible that wherever there is a well organized system of guidance based on thorough knowledge of the " client " an endeavour is made to learn his family circumstances and the conditions of his life.

The three countries listed in the following table and which employ only educational methods in guidance work are Czechoslovakia, Rumania and the USSR. In a previous chapter it has already been seen that in these countries guidance is integrated with the education system itself. All of the teaching helps to give the pupil initial experience of work, to inform him about the different vocations and to develop in him a love and respect for work. The teachers act as advisers and guides with the parents' collaboration. They keep themselves informed on the needs of production while nevertheless respecting the pupil's freedom of choice. Although in her schools Hungary too makes use of methods which are essentially educational, she has in addition, for special cases, a neurological service which employs various psycho-technical tests.

Comparative Table

Austria. Interviews. Records kept by teachers. Consultation of school reports and the reports of school doctors. When requested, a report from the psychological service and a certificate from the medical service of the labour bureau. Use of tests and of diagnostic methods.

Belgium. Psycho-metric examination, diagnostic examination, individual examination, special examination. Various group and individual tests (mental level, aptitude, interest, personality, behaviour). Social inquiry. Medical examination.

Brazil. Psycho-technical examinations; tests of aptitude, motivation and attainment; personality tests; interviews; questionnaires on interests; consultation of school results; medical examinations.

Cambodia. An endeavour to design tests for determining grade level of pupils at primary and secondary schools but lack of qualified staff.

Canada. Intelligence tests, group tests of achievement, tests in mathematics and in reading, tests of interest, aptitude, etc. Cumulative record system under which each pupil's card, transferable from one school to another, shows his complete history during his schooling.

Central African Republic. Employment of the most currently used techniques.

Chad. Various tests of verbal and practical intelligence.

China (Republic of). In the schools, tests of achievement, intelligence, aptitude and interest. In vocational guidance, interviews, medical examinations, achievement tests, the school record.

Colombia. Tests of aptitude, attainment and vocational interest, family and school questionnaires, questionnaires on character traits, interviews with the pupil and his parents.

Congo (Leopoldville). In vocational guidance, group examinations of a psycho-technical type. In educational guidance, the school record. The School Reform Commission contemplates the employment of aptitude and attainment tests upon entrance and completion of the guidance stage.

Costa Rica. Interviews, home visiting, tests of aptitude, attainment and vocational interest.

Czechoslovakia. Educational method (not psychological or diagnostic) consisting of *(a)* preparation for work, included in the teaching of the different subjects dealing with human activity, *(b)* general information about the various vocations and *(c)* individual interviews with the pupils and their parents.

Dahomey. Psycho-technical examinations, medical inspection, school results and inquiry concerning the pupils' vocational interests. Consultation of a national scholarships commission consisting of teachers and of representatives of the different vocational sectors.

Denmark. Personal interviews and, when required by circumstances, a medical examination and psychological tests.

Ecuador. Record card in the case of each pupil. Tests for revealing his aptitudes and interests.

El Salvador. Interviews, questionnaires, self-histories, socio-metric procedures, tests of aptitude, personality and interest.

Finland. Questionnaires addressed to the pupil, his parents, his teachers and the school doctors. Cumulative record of the pupil. Continuous health control and special medical examinations. Aptitude and ability tests, projective methods, etc.

France. File containing *(a)* results of psycho-technical examinations, *(b)* records of interviews with parents and with the child, *(c)* a medical record, *(d)* the school record, *(e)* a social record based on investigation. The observation stage provides for opportunities of transfer from one kind of education to another in accordance with the teacher's observations and the guidance council's suggestions.

German Federal Republic. Interviews, the school record, school doctors' opinions and the certificates prepared by teachers. When necessary, an examination by the medical service of the employment office as well as an aptitude test.

Greece. In respect of each case a file containing *(a)* results of psycho-technical examinations and medical examinations, *(b)* information relating to the family and environment, *(c)* school data and the particulars noted during the personal interview. In educational guidance a battery of aptitude tests.

Guatemala. Psychological tests which are of common use in vocational guidance and selection. Study of the whole personality.

Hungary. Essentially educational methods: group or individual conversations; lessons on work and the vocations; visits to factories; exhibitions. The child neurologists and the work psychology specialists make use of psycho-technical methods, an aptitude examination, work tests and various other tests as well as of various measuring instruments. Social inquiries. Medical examination.

India. Employment of techniques which are in current use.

Iran. Interviews, medical examinations, consultation of school records, tests of aptitude and attainment.

Israel. Guidance is a continuing process. Psycho-technical examinations, tests of ability and of interests, interviews as well as, sometimes, medical examinations and the consultation of school records.

Italy. Medical examination, psycho-metric examination, social inquiry. Interviews with the parents and the pupil. Consultation of the school record.

Ivory Coast. Interviews, psycho-technical examinations, medical examinations, social inquiries, the school record, tests of aptitude and attainment.

Japan. At schools, use of intelligence tests, tests of vocational interest and of vocational aptitude; observation; interviews; school records; autobiographies; study of family circumstances; medical examination, etc. At employment offices: questionnaires concerning the pupil; tests of interest and aptitude; examination of technical skill; tests for the handicapped.

Jordan. Designing of aptitude tests with a view to better selection for the various sections of secondary education.

Korea (Republic of). Tests of aptitude and intelligence, personality tests, interviews, interest inventories, the school record, inquiry concerning the home environment.

Luxembourg. Interviews, psycho-technical examinations, the reports from the pre-vocational guidance service. Psycho-technical laboratory at the Emile Metz Institute. Individual guidance at the association *Action familiale et populaire.* At the educational guidance centre in Diekirch, use made of group tests (German) and individual tests.

Malaya (Federation of). Cumulative records and the testing of aptitude and interest.

Mali. Group testing, a guidance record sheet, an inquiry concerning the social and economic situation in each region. Intelligence tests and, less often, of aptitudes. Before long, tests of interest and socio-metric group studies. Case of each pupil discussed by the class boards. Close contacts with the child and with his family.

Mexico. Psycho-technical examinations. No medical examination but social inquiries. Consultation of the school record. Depending on the case, tests of aptitude, attainment, vocational interest.

Morocco. "Mass" guidance methods. Medical examination, the school record, group tests of attainment and aptitude.

Netherlands. Individual and group examinations. Various tests and examination procedures of the day. Contacts with the family, church authorities, youth movements and the teachers.

New Zealand. Employment of the most current techniques, including tests.

Nigeria. Employment of the most current techniques.

Norway. Regular interviews and the consultation of school reports, testimonials from previous employers and statements from teachers, etc. If the case arises, psychological tests at institutes of vocational guidance and personnel psychology.

Panama. Interviews, questionnaires, the school record, self-histories, medical examinations, social inquiries, tests of aptitude and vocational interest, etc. The tests are usually those designed in the U.S.A. and adapted for use in Spanish.

Peru. Personality tests, tests of intelligence, attainment and vocational interest, socio-economic inquiries, the pupil's cumulative record, interviews. Assistance by the National Institute of Educational Psychology is given in research and the preparation of tests.

Philippines. All the teachers take part in the guidance and understanding of students through observation, interviews and testing. Formal counselling is conducted by guidance counsellors.

Poland. Investigation of vocational desires, questionnaires on interests and tastes, interviews with the pupil and his parents, social inquiries, medical examination, psychological and attainment tests. Particulars relating to the progress of the pupil and his work are collected by the vocations counsellor.

Portugal. Interviews, psycho-technical examinations, tests of aptitude, attainment, motivation, vocational interest, etc.

Rumania. No use made of tests or psycho-technical methods. The information on the vocations and on the different branches of production and culture should enable the pupils to choose. Methods employed: direct observation; educational experimentation; discussions between pupils and teachers; the pupils' work; the school record, etc. Respect for the pupil's individual characteristics and natural propensities.

Senegal. The usual techniques.

Sierra Leone. At its technical training school the Sierra Leone Development Company utilises aptitude tests in order to guide the trainees in the various trades with which it is concerned.

Spain. Psycho-technical examinations, medical examinations, the school record, aptitude tests, interviews, questionnaires on interests, etc.

Sweden. Employment of the most current techniques.

Switzerland. Personal interview. The school record and, sometimes, the medical record. Intelligence tests, examinations for measurement of attainment in individual cases.

Tunisia. Psycho-technical procedures are employed at the guidance and selection centres. At schools, an observation record as from the 6th primary school year and continued in the guidance file as from the first secondary school year.

Turkey. In vocational guidance, group tests and individual psycho-motory tests. In individual educational guidance: interviews with parents; medical examination; psychological examination by means of tests; investigations on economic, social and family conditions; school achievement tests. Teachers' observations based on a questionnaire.

South Africa (Republic of). Current techniques and interviews. Cumulative record cards of school leavers may be consulted by the Department of Labour. A special vocational guidance battery of tests is used by this department.

USSR. No entrance examination for 9th year classes, admission taking place according to pupils' desires and subject to presentation of the necessary documents. Entrance examination for admission to establishments of specialised secondary education and to those of higher education.

United Arab Republic. All current types of techniques and tests.

United Kingdom. England and Wales, Scotland. At schools, careers teachers available for consultation and for furnishing information. In vocational guidance the seven-point plan drawn up by the National Institute of Industrial Psychology and assessing physical make-up, attainments, general intelligence, special aptitudes, interests, disposition, circumstances. Use made of school reports, medical reports and the information given by parents. Psycho-technical tests sometimes. *Northern Ireland.* Interviews, school and medical records, occasional tests of aptitude.

United States. Standardised tests and inventories (general aptitude tests, interest inventories, checklists, etc.) followed by tests of specific vocational ability. Cumulative record folder.

Yugoslavia. Group and individual psychological examination in order to set up the pupil's file. Medical examination. Contacts with the parents and teachers. Interviews with the pupil.

VI. Information on the Vocations

From what has already been noted it naturally follows that information on the vocations is developped particularly in those countries where guidance is integrated in the school programme and where vocational information constitutes one of the bases of the guidance. For further details the reader is therefore referred to the reports of these countries, in particular to those of Byelorussia, Czechoslovakia, Hungary, Rumania and the USSR. He will note the role which in these countries not only the teachers but also the parents play in informing about the vocations.

Whether in the case of these countries or others the means employed for informing the young, the parents and the general public about the various vocations may be classified as follows:

(a) *Academic means of informing (lectures, discussions, courses, etc.).* Of the 56 countries listed in the table hereunder 46 mention such means of information. Apart from the above mentioned countries, in which vocational information is an integral part of the teaching, there are also the following countries where such means of information are included in the school programme: Finland and Switzerland (pre-vocational guidance), Republic of Korea (in connection with the social studies), Norway (lectures to pupils), Philippines (incidentally during the instruction), Turkey (by way of experiment).

In addition, series of lectures are arranged for pupils, particularly for those in their final years of school. Such lectures are usually intended also for the pupil's parents (for example in Austria, Belgium, France, German Federal Republic, Iceland, Italy, Morocco, United Kingdom, Switzerland).

Mention should also be made here of the talks given to the pupils by specialists, skilled workers, persons who have distinguished themselves in their respective fields (for example in Byelorussia, Hungary, Peru, Poland, Rumania, USSR).

(b) *Means of a practical nature.* By this is meant first of all the commented visits which are made to undertakings or to higher education institutions and during which the pupils learn on the spot the kind of work or study open for them to choose. Such visits too provide an opportunity for the pupils to meet skilled workers. This means is reported in the replies of some twenty (or a third) of the countries which answered the question.

A more concrete means of providing information is the practical work, of varying length, which pupils are encouraged to take during their schooling and which gives them the opportunity of receiving practice in certain trades. This " education by work " is particularly developed in the people's democracies but cases in which aolescents are offered opportunities of practical work are reported also in the replies of Denmark, Finland, the Netherlands (for students), the Republic of South Africa (in Natal) and Switzerland.

There are also in some countries young technicians' clubs as well as extra-scholastic activities which provide initial experiences in practical work.

(c) *Audio-visual means.* Exhibitions, mobile or not mobile, on the vocations are reported in the replies of the following countries: Austria, Byelorussia, the German Federal Republic, Nigeria, Panama, Poland (including technical museums), the USSR (including the central polytechnical museum) and the United Kingdom (Northern Ireland).

As regards films, radio and television, these three techniques or one or other of them are employed as a medium of vocational information in some 35 countries (68 % of the countries listed in the table). In the reply from Italy reference is made to weekly broadcasts given by the radio and television station throughout the school year.

(d) *Publications on the vocations.* Of the 56 countries included in the table 52 make mention of regular or occasional publications on the vocations (guides, brochures, special reviews, information bulletins, newspaper articles, etc.). In some countries (Austria, France, the United Kingdom and the United States, for example) such literature seems to be very plentiful whereas in others it is rather scarce. It may be published by official authorities (ministries of education, labour or social affairs, jointly or separately), by vocational organizations, by social welfare bodies or by certain firms as a means of publicity.

In Austria mention is made of a series " School and Vocation " published jointly by the federal Ministry of Education and Ministry of Social Affairs. In Colombia the vocational guidance section publishes three kinds of guides respectively on the universities, educational guidance and vocational guidance. In Denmark an occupational dictionary is published by the Directorate of

Labour. In France a considerable quantity of documentary material is collected and distributed by the University Bureau of educational and vocational statistics and documentation. In the Netherlands, besides the publications of the Ministry of Education and Ministry of Social Affairs there are those of the Industry and Education Contact Centre.

Sometimes in schools information brochures and leaflets are distributed free of charge for the benefit of the pupils, parents and teachers (Austria, Denmark, Morocco, Norway, Republic of South Africa). Finally there is the wall news-sheet which is mentioned in the replies of Byelorussia, Morocco and Panama.

In 10 countries (approximately 18%) vocational information either does not exist in any of its forms or else is limited to a few occasional publications.

Comparative Table

Austria. Sessions organized by the vocations counsellors in order that pupils in the final classes may be given information. Lantern slides, documentary films, the radio and television. In towns, organization of exhibitions and of visits to undertakings and technical schools. Articles contributed by vocations counsellors, handbooks compiled. Series " School and Vocation " published jointly by the federal Ministry of Education and Ministry for Social Affairs. Vocational guidance brochure made available free of charge to pupils leaving school and an information leaflet received by the parents.

Belgium. Vocational pamphlets, radio and television sessions, film showing, series of lectures for parents and pupils. Since 1958, distribution of the fortnightly bulletin *Ecoles et Professions.*

Brazil. Lectures, forums, visits to schools and to concerns, publication of articles in the newspapers. Publications sent to schools and to concerns.

Byelorussia. Lectures and practical demonstrations at schools. Films, radio, television. Visits to enterprises. Study groups and schoolchildren's clubs. Mobile exhibitions. Wall news-sheets. Meetings with representatives of the various vocations. Activity of the extra-scholastic institutions. Active part taken by parents in making known their own vocations.

Canada. Lectures, films, radio, television and publications. " Career Days " in the schools.

Central African Republic. Publications, radio broadcasts and occasional films.

Chad. Not organized.

China (Republic of). Vocational guidance handbook, job cards, etc.

Colombia. Lectures and various publications (" University Guide ", " Educational Guidance ", " Vocational Guidance ") contributed by the vocational guidance section.

Costa Rica. Occasional information by means of lectures, radio, television, newspapers and publications.

Czechoslovakia. Information included in school programme. Brochures, newspaper and other articles, wall bulletins and, occasionally, radio or television. Sense of work given by means of visits to undertakings with sometimes the possibility of doing some practice there. Exploitation projects of the pioneers, activities organized by pupils in order to benefit the community.

Dahomey. Lectures at schools in addition to the radio, publications and inquiries.

Denmark. From the vocational guidance service, documentation on the vocations. Occupational dictionary issued by the Directorate of Labour, which makes use also of publications, films, the radio, television, meetings and conferences. For schoolchildren, " practice in the trade " arrangements, theory and visits to undertakings.

Ecuador. Interviews, visits, lectures, films, documentation. An educational and vocational information bulletin published by the Ministry of Public Education.

El Salvador. Handbooks, lectures, visits to work centres.

Finland. Information given during preliminary vocational guidance instruction. Booklets, film strips, films. Visits to work places and to schools. Sometimes practice work during school time.

France. Special periodicals, brochures, articles in the press, radio, television, addresses to school-children and parents. Documentation compiled by the university Bureau of educational and vocational statistics and documentation.

German Federal Republic. Interviews with pupils who are finishing their schooling, meetings for their parents, series of lectures for pupils. Exhibitions, films, slides, articles, radio, television, commented visits, etc.

Greece. Information given by teachers. Brochures published sometimes.

Guatemala. Lectures, vocational brochures, audio-visual media.

Hungary. Information is given continuously as the schooling proceeds. Few publications. Addresses during the final threee months of schooling are given to young people and their parents by experts from the Ministry of Labour. Lectures by persons who have distinguished themselves in their work.

India. Guides, lectures, publications.

Israel. Programme now being developed. To include briefs, radio broadcasts, public lectures, etc.

Italy. Tracts, folders, vocational brochures, organized lectures in connection with the " schools for parents ". Weekly broadcast throughout the school year by the radio and television station.

Ivory Coast. Information campaign now being organized.

Japan. Handbooks on the vocations and information on the labour market. Films, slides, television, radio, etc. Visits to firms and arranging of lectures and seminars. The activities of the Japan Vocational Guidance Society are subsidised by the government.

Jordan. Lectures, articles.

Korea (Republic of). Research with a view to improvement in information on the vocations. Data published by the Central Educational Research Institute. Guides, lectures, films, television, radio. At schools, information during " social studies " courses.

Luxembourg. Brochures and guides published by *Action familiale et populaire* and by the Ministry of National Education. Lectures organized by the National Labour Office, which also publishes a year book on vocational training.

Malaya (Federation of). Brochures, guides, lectures, films, radio, publications.

Mali. Documentary material on opportunities open is distributed to primary school inspectors and school principals.

Mexico. " Profesiogrammes ", films, television, lectures, publications, etc.

Morocco. Lectures given on vocational opportunities to pupils in their final year of the secondary school course. Prospectuses distributed in final classes at primary schools. Talks given to pupils completing the lower stage of the secondary school course. A " Guidance Week " for pupils in their final year of the primary school course. Wall bulletin. Information furnished by the central service. Plans for the use of radio, television and films.

Netherlands. Publications of the Ministry of Education, Arts and Sciences and the Ministry of Social Affairs. Employment of radio and television. Activity of the Industry and Education Contact Centre (student employment, information on careers, information for teachers and pupils at secondary schools).

New Zealand. Lectures given to school leavers. Vacation courses organized. Arranging of visits to places of employment and for interviews with employers. Vocational brochures and periodicals.

Nigeria. Brochures, talks, discussions, exhibitions, visits, radio, conferences, etc.

Norway. Vocational brochures distributed free of charge and as proposed by the Labour Directorate, students' organizations, manufacturing companies and the trade-

unions. Lectures and courses at schools. Use of radio and, less frequently, television. An occupational card-index and a list of schools are made available to the employment offices and the schools.

Panama. Lectures, films, exhibitions, radio, newspaper articles, wall bulletins, public discussions, forums, brochures, guides, information leaflets on the vocations and on courses of study.

Peru. Brochures on the establishments of higher learning and of vocational training. Talks given by professionals. Visits. Guide-books on the vocations.

Philippines. Monographs, brochures, conferences, plant tours. Information given incidentally during the process of instruction.

Poland. Lectures, films, radio, television, publications, brochures, papers of various kinds, visits to undertakings, vocational schools, exhibitions and technical museums, encounters with skilled workers and with staff of vocational and higher schools.

Portugal. Brochures, lectures, television, films, publications.

Rumania. Illustrated guides published on behalf of the Ministry of Education. Radio, films, television. Visits arranged to factories and practical experience given in connection with the school work. Lectures for the parents and pupils, etc. Activity of the youth organizations, which arrange encounters with skilled workers and with men of science, etc. Articles in children's newspapers.

Senegal. Action so far little developed as yet and limited to documentation on technical education.

Spain. Lectures, brochures, pamphlets.

Sweden. Brochures, guides, lectures, television, films, radio, etc.

Switzerland. Pre-vocational guidance given at school. Meetings of parents. Visits to enterprises. Short practical courses. Lectures, the press, radio, television, publications, lists of vocations.

Tunisia. Activity of the guidance and documentation centre: brochures, guides, information bulletins, specially assigned teachers at middle and secondary schools.

Turkey. Experiment in information at some ten primary and secondary schools. Visits to institutions and undertakings. Films, lectures illustrated by slides.

South Africa (Republic of). Brochures, lectures, films, the radio (sometimes), visits having vocational interest. In Natal a scheme of pre-job experience for school leavers. A magazine " My Career " published by the Department of Labour and distributed to secondary schools.

USSR. Important place allotted to vocational information both within and outside the school. Thorough knowledge given of each vocation, its requirements, difficulties and opportunities. Guides, brochures, films. Use made of the newspapers, radio and television. Contacts with skilled workers and with the learned. Pioneers' clubs, young technicians' centres, the cultural establishments, various exhibitions, competitions. Visits to factories and workshops. Evenings on " Our future ". Central polytechnical museum. Active cooperation of parents.

United Arab Republic. Television, radio, newspapers, magazines, guides.

United Kingdom. England and Wales, Scotland. The Central Youth Employment Executive publishes booklets, leaflets, guides, handbooks, a periodical bulletin, etc. It makes use of films and film strips. Distribution of publications produced by the Her Majesty's Forces, different firms and professional bodies. Discussions and displays. Talks to parents and pupils are given in schools, by radio and on television. Visits to industrial and scientific establishments. *Northern Ireland.* Leaflets, lectures, exhibitions.

United States. Information programmes sponsored by occupational and professional groups and implemented by means of the radio, television, newspapers, films, brochures, etc. Information material also produced by certain firms and procured by schools and employment counsellors. Research and studies conducted by the federal Department of Labour.

Yugoslavia. At primary schools, information given on the vocations and the latter's requirements. Lectures with slides and films. Brochures. Radio and television not yet much employed.

VII. Follow-up Practices

In this chapter are brought together a number of questions which indicate how far the action of vocational guidance extends. Is it limited to vocational guidance in its strict sense, that is to advising on the abilities and aptitudes of the client or is it subsequently concerned with the choosing of a vocational school, the placement in apprenticeship, the registration at an employment office, etc.? Is the advice given accompanied by informative or persuasive action with the pupils and those surrounding them? Finally, do the vocational guidance services follow the cases in their chosen paths and thus check the results of the guidance given?

The first question did not produce very conclusive answers. It was not always interpreted well and apparently some countries which answered in the affirmative merely repeated the aims of vocational guidance, namely to help in the choosing of studies or of a vocation. We shall consequently not dwell on this question.

As regards the next question, all the replies emphasise that respect is observed for the individual's freedom of choice. Care is taken not to exert any pressure or constraint on the pupil, his family or his teachers. Even when for several years informative and persuasive action is continued it would seem that there is no obligation to follow the advice given. Rumania and the USSR state that due to the lengthy process of training the young with a vocation in view, the pupils are led to make a free and conscious choice with full knowledge of their aptitudes and of the various opportunities open to them. The reply from Czechoslovakia, however, does indicate that this training ensures a distribution of young people among the vocations and thus the school becomes an important instrument in state planning. In Dahomey the receiving of a national scholarsip is becoming increasingly dependent on what effect is given to advice received. There is a tendency for the guidance to be more strict on account of being related to the particular country's needs.

The third question, regarding follow-up of those who have received guidance, raises a problem which is causing concern to many countries but for which no country, other than some twenty of the 55 which answered the question, seems to have found a solution which is either more or less satisfactory. In the reply received from Belgium there is reference to the action of the national employment office in ensuring the " vocational protection " of young people at work. The replies of Finland, France, Luxembourg and the Philippines mention that provision is made for fresh guidance in cases of necessity.

Inquiries are now being conducted in some countries (for example in Canada and the United States) in order to learn what is becoming of those who have received guidance, what is their distribution among the different schools and vocations and to what extent the advice has been followed. According to the United States reply such inquiries are useful in indicating the effectiveness of guidance methods.

Often the systematic follow-up of persons who have received guidance is prevented by obstacles for which those persons themselves are responsible (in not furnishing sufficient information to staff from whom they have received guidance) as well as by their wide dispersion and, above all, by lack of qualified staff and of the financial and technical means required for organizing such a follow-up system.

Comparative Table

Austria. Assistance in the choosing of apprenticeship or a vocational school and then in the finding of employment. A written report on the pupil's aptitudes is delivered to him and his parents. Follow-up action confined to certain cases (scholarship holders, the handicapped and other special cases).

Belgium. Advice in some cases but the choice of a school is free. Action sometimes in regard to registration at an employment office. Apprenticeship agreements the concern of the Apprenticeship Secretariat of the Ministry for the Middle Classes. Informative and persuasive action during an oral interview. The protection of young people at work is ensured by the national employment office.

Brazil. Assistance with the choosing of a vocational school, the placement in employment, vocational re-adjustment and vocational selection. Informative and persuasive action with the young people and, less often, with their families and teachers.

Byelorussia. Every endeavour to enable parents to have information on the vocations open to their children. Young graduates are placed by the ministries and departments through their employment agencies and required to work for at least three years where assigned.

Canada. Informative but not persuasive action. Annual surveys to ascertain the progress of students in the courses chosen.

Central African Republic. Assistance in the choosing of a vocational school. Follow-up of those assisted and attention to their integration in the vocational sector.

Chad. Selection of candidates for courses at the rapid vocational training centre. No possibility for following up those who receive guidance.

China (Republic of). Informative and persuasive action with the pupils, their families and teachers. Not yet possible to follow up those assisted.

Colombia. No obligation to accept advice. Freedom of choice. Difficulty of keeping contacts with those who receive guidance.

Congo (Leopoldville). Selection on admission to certain vocational schools. Plan for collaboration with the employment offices.

Costa Rica. Advice on the question of entering the university or embarking upon a vocation. Pupils are followed up after leaving vocational schools.

Czechoslovakia. " Education with choice of a vocation in view " ensures distribution of young people throughout the vocations. The school thus becomes an important instrument in state planning.

Dahomey. Choice of school, placement in apprenticeship, registration in an employment office. Award of a national scholarship more and more dependent upon acceptance of the advice given. Tendency to relate guidance closely to this country's needs by making it stricter. The pupils assisted are followed up during their schooling and while in Dahomey. If they go to France they are followed up by the guidance service of the Overseas Students' Office.

Denmark. For the placement in apprenticeship and the choice of vocational school there is collaboration between the vocational guidance service and the employment service. The cases are not yet followed up systematically.

Ecuador. Both information and advice given. Pupils who obtain their school certificate are followed up and helped to find employment.

El Salvador. Assistance with the choosing of a school, placement in apprenticeship and registration at an employment office. Those assisted are followed up to a considerable extent.

Finland. Advice but without persuasive action. Freedom of choice. Those assisted are followed up as far as possible and, when necessary, supplementary counselling is provided.

France. Advice given but freedom of choice. The guidance services follow the progress of the pupils throughout their schooling (primary, secondary, technical and vocational levels). If necessary, re-examination during the apprenticeship.

German Federal Republic. Assistance in connection with entry of a vocational school and later on with the finding of employment. Freedom of choice, no pressure is exerted.

Greece. Assistance with the choice of a vocation and with the placement in apprenticeship. Persuasive action during the interview which completes the vocational guidance examination.

Guatemala. Occasional assistance with the choice of a vocational school, placement in apprenticeship and registration at an employment office. Informative and persuasive action without affecting the individual's freedom. Those who receive guidance are not followed up systematically.

Hungary. Advice given by teachers to the young and parents, whose decisions nevertheless remain free. Inquiries to keep track of former pupils. Statistics showing the number of pupils in the different schools and vocations.

India. Assistance with the choice of a vocation, placement in apprenticeship and registration in an employment office. Follow-up work not yet systematic.

Israel. Advice is given on further studies and on employment and in certain cases is accompanied by informative and persuasive action. Young people assisted are not yet followed up by the vocational guidance services but the professional organizations for youth do some supervision.

Italy. Assistance with the choice of apprenticeship or a vocational school Persuasive action with families and teachers. Freedom of decision except in special cases. Those who have received guidance are followed up in their study or vocation.

Ivory Coast. Vocational guidance is partly concerned with the examinations for entrance to technical schools. The advice given is usually followed.

Japan. Orientation towards positions, vocational schools and training centres most appropriate to abilities. Advice, exchange of information with families. Secondary schools follow the careers of graduates in their employment and study. When necessary the offices follow up those assisted and help with their adaptation to work.

Korea (Republic of). Assistance with the choice of a school, placement in apprenticeship and finding of employment. Insufficient staff and time to permit of informative or persuasive action. Impossibility of following up the pupils in their vocations.

Luxembourg. Choice of a vocational school and the commencing of an apprenticeship. Informative and persuasive action but no compulsion. Fresh guidance if necessary.

Malaya (Federation of). Assistance with the placement in apprenticeship and registration at an employment office.

Mali. Contacts with representatives of the parents' association and with teachers.

Mexico. Placement in employment through the Labour Exchange. Informative and psychological action with families, pupils and community. Those who receive guidance are not followed up after their integration in the vocational sector.

Morocco. Individual record system since 1961 enabling follow-up of pupils and an effective appraisal of the tests employed.

Netherlands. Assistance in the choice of career and of the training. Placement in occupations and in apprenticeships is arranged by the employment services of the labour offices. Informative and persuasive action with the children, their families and teachers. At the present no systematic follow-up of those who have been advised.

New Zealand. Assistance with the choice of a school or of apprenticeship. Informative action but the pupil and his parents are free to take the advice or not. Owing to lack of staff only a limited amount of follow-up work.

Nigeria. As far as possible there is informative and persuasive action with regard to those receiving guidance.

Norway. Assistance when necessary with application for positions or scholarships and with placement in apprenticeship. Clients are followed up only in cases of necessity.

Panama. Consideration given to the desires of the pupils, parents and teachers. Intended provision for follow-up action.

Peru. Assistance and advice in the choice of vocation but no compulsion. Interviews with parents. Impossibility of following up those who have received guidance.

Philippines. Assistance in the choice of occupations or courses, but the decision is reached by the student. Certain persuasion when there is deficiency in insight or intelligence. Those who receive guidance are followed up and if necessary given further help.

Poland. Assistance with the choosing of an occupation but not with the registration at an employment service. Interview with the pupil and his parents for the purpose of leading them to a decision while leaving them free to accept the advice or not. The vocational guidance services follow up those who receive guidance.

Portugal. Choosing of a vocational school and placement in apprenticeship. Informative and persuasive action with the young people, their families, their teachers and the employers. Follow-up of those who receive guidance.

Rumania. The choosing of a vocation is the final outcome of a whole process of training the young with their vocation in view. The pupil chooses freely, fully aware of his interests and aptitudes and with sound theoretical and practical knowledge. No employment services as all young people become entitled to a position in the field of production. No unemployment. Growing need for manpower and specialist personnel. The teachers follow the careers of former pupils and their vocational integration but difficulties of adaptation are rare.

Senegal. The National Vocational Guidance Centre follows up pupils in technical education establishments and advises on the vocational courses to be taken and on the award of scholarships.

South Africa (Republic of). School guidance services deal with the choice of a vocational school. The Department of Labour deals with placement in apprenticeship and with registration in an employment office. Neither persuasive action nor pressure, freedom to accept or reject the advice offered. No follow-up service but attempts made to keep track of school leavers and, if necessary, to help them.

Spain. The vocational guidance work involves close relations with the vocational schools and schools which offer emergency training courses and is intimately connected with placement in apprenticeship. Informative action with young people, their families and, if necessary, their teachers.

Sweden. Advice on vocational schools and on apprenticeship. No persuasive action. Follow-up not possible.

Switzerland. Assistance with the finding of employment or a school. Freedom of choice. The services follow up those assisted and have concern for their vocational integration.

Tunisia. The guidance and documentation centre guides pupils who are unsuccessful in secondary schools towards a specialised school, an " accelerated training " centre or an employment office. Informative and persuasive action but no pressure. Cases who receive guidance are usually followed up until their vocational integration.

Turkey. Choice made by the pupil and influenced by teachers and the family.

USSR. Due to the information given, the young people make a free and conscious choice. The young person obtains employment in the vocation chosen. He is surrounded by care and attention and enjoys certain privileges. During the first years of employment the schools take an interest in their former pupils.

United Arab Republic. Advice on choice of a vocational school, assistance with apprenticeship agreements and with the placement in employment. Those who receive guidance are followed during their vocational integration.

United Kingdom. England and Wales, Scotland. Information and advice concerning the vocational schools but the choice is left to the individual. Assistance, as a necessary preliminary, is offered with placement. Those assisted are followed until they are satisfactorily settled in their employment. Information, if necessary, is given on appropriate courses of further education. The guidance officer keeps in contact with the young worker until the age of 18 years.

United States. Freedom of choice but continuous action by the counsellor in order to help the student make a decision, whether it be a question of apprenticeship training, voca-

tional school or higher level study. Students are followed up for at least one year. Special studies are conducted in order to reveal where the students proceed and thus to enable the guidance programmes to be evaluated.

Yugoslavia. Vocational guidance helps in the choice of a vocational school. The worker employment institutions ensure the vocational or apprenticeship training of young people and find employment for them. Freedom of decision. Due to the small number of guidance officers it is not possible to follow up all those who receive guidance.

VIII. Staff in Charge of Guidance

We have grouped in one table all the questions relevant to staff responsible for vocational guidance; this will provide an overall view of all matters concerned with staff, whose situation is still badly defined in many countries.

From the data supplied we are able to make the following notes:

(a) *Composition of staff and recruitment.*

The composition of guidance services staff varies considerably, not only from country to country, but also within a country. It may be limited to one or two civil servants, specialised or not, or take in a team of specialists with well-defined functions. The most complete service is that headed by a psychologist or psycho-technician, assisted by vocations counsellors or guidance officers, a medical staff (doctor, nurses), social welfare workers and possibly of an educational counsellor, a statistician, a documentalist, without mentioning operators and office assistants. Such a model service appears to exist in only a dozen countries, and is generally only a central service, the staff of local services being very small. However, where the services consist only of a psychologist and some technicians, this does not preclude collaboration from doctors, social welfare workers or teaching staff whenever this is necessary.

In fifteen countries, guidance of pupils at school is entrusted to teacher counsellors, either full or part-time. Such counsellors are used especially in the United States. Nor should we forget those countries whose school teachers carry out guidance functions as part of their ordinary school work, without the necessity of employing specialised staff.

Few countries supplied information on recruitment requirements for such staff. Some require a special certificate or university degrees, as will be seen later, but it seems that experience, personal qualities and the necessary capacity for the work count as much as or more than certificates themselves.

(b) *Training and further training.*

Here also considerable differences exist. Previous specialised training is governed by regulations or generalised only in the following countries: Austria, Belgium, Canada, Denmark, German Federal Republic, Finland, France, Greece, Netherlands, Norway, Peru, Portugal, Spain, Sweden and the United States. More often than not, counsellors and guidance officers are trained by their own experience on the spot in their particular sphere.

Some countries (about fifteen) demand or prefer university education in the case of candidates to higher posts in a guidance service, or even also for counsellors. Among these, Belgium requires four years of study leading to a degree or even a doctorate in guidance and vocational selection.

Elsewhere, the university degrees required are a degree or doctorate in psychology, education, or social studies, with specialisation in vocational guidance where this is obtainable. As far as guidance services depending on the Ministry of Labour are concerned, degrees in political economy or law are more often required (Denmark for example).

There are also in some countries independent institutes where students can be trained in vocational guidance. In France, for example, there is the National Institute for Vocational Guidance; in Greece the special School for Vocational Guidance staff from the Ministry of Labour; in Morocco the Training Centre for Counsellors in Planning and Educational Guidance, set up in 1962; in the United Kingdom, Birkbeck College in London; in Switzerland the Institute of Applied Psychology at Zurich and the Institute of Educational Sciences at Geneva.

Other countries state that short or long courses on educational and vocational guidance are given, but such courses do not appear to be generalised and are sometimes only given at infrequent intervals. Some countries have no specialised training, requiring only pedagogical training, which often includes courses on vocational guidance.

As to the further training of guidance officers, it appears all the more necessary, specialised training not being generalised, and the problems of vocational guidance being in a continuous state of evolution. Courses, seminars, study courses, meetings, study trips, etc. are organized in 37 of the 54 replying countries (68 %).

(c) *Conditions of service.*

Nowhere apparently are there any conditions of service made specially for counsellors and guidance officers. When attached to official bodies, they are treated as state servants and, following the nature of the services, are under the responsibility of the Ministry of Labour or the Ministry of Education. In the majority of replying countries, they are assimilated to teaching staff and enjoy mostly the same conditions of service and salary scales as secondary teachers. Sometimes they are granted a supplementary allowance, since their working day is longer, and holidays shorter (Canada, United States, Yugoslavia, for example).

Comparative Table

Austria. Vocations counsellors, psychologists, assistant personnel. Basic training in the activities of a labour bureau (vocational guidance, finding of employment, insurance against unemployment). Special theoretical and practical training in the particular tasks of vocations counsellors. In-service training of vocations counsellors and of psychologists by means of courses, interviews while on duty, discussion days, seminars, meetings. The vocations counsellor is considered as a civil servant belonging to the " high-ranking technical services ". The vocational guidance service directors, the counsellors of baccalaureate holders, and the psychologists, have a higher status. At schools the careers masters form part of the teaching staff.

Belgium. Directing counsellors, counsellors, nurses, doctors, vocational guidance assistants, assistants in psychology, welfare workers. Selection by the Ministry of National Education from among the list of applicants. Appointments in private offices are made by the administrative board of the office. Requirements for directing counsellors and counsellors are a university four-year course, a degree in vocational guidance and selection, in psychological science or in applied psychology. The degree in educational science is accepted

for counsellors. For assistants, a certificate of proficiency for the duties of counsellor or vocational guidance assistant or the respective diploma for employment as welfare counsellor, welfare worker, psychology assistant, welfare nurse or social hygiene nurse. Training and further training is related to the inspection. Conditions of service those of " science teachers and assimilated teaching staff ". In accordance with their diplomas the same salaries as secondary school principals and teachers.

Brazil. The staff varies from one service to another. At the Selection and Vocational Guidance Institute of the Vargas foundation in Rio de Janeiro, two divisional heads, the head of the administrative service, six doctors, nine technical assistants, an education technical officer, a male nurse, a statistician, thirteen administrative assistants, three messengers. The specialist staff take a four-year course in psychology at a university. Courses, seminars and practical courses organized by official and private institutions. Specialist staff have conditions of service equivalent to those of secondary school teachers. Better remuneration at private services.

Byelorussia. No provision of special staff for vocational guidance. Task undertaken by school principals and teachers. Problems and methods of vocational guidance discussed by the school commissions and by meetings of teachers. Documentation made available to teachers by the offices which are concerned with pedagogical matters. Vocational guidance dealt with in the courses and seminars held for the further training of teachers.

Canada. In seven provinces the Department of Education has a guidance director and one or more assistants. Arts degree with major in psychology, testing, etc. Teaching experience. Post-graduate courses in pedagogy and guidance. Summer courses conducted by some of the provincial departments and leading to special certificates which qualify for guidance work. Specialists in guidance are paid the same salaries as specialist teachers.

Central African Republic. A head, who is a psycho-technical officer and former teacher, a doctor who is a specialist in medicine relating to work, together with secretariat staff. Further training by means of lectures, technical reviews, etc. The head and the doctor are French technical assistance officials.

Chad. A woman counsellor chosen for her knowledge of work problems. Elementary certificate and first two parts of the senior certificate. Further training in France. An official of the Labour Office. Situation and remuneration similar to those of an assistant technical instructor.

China (Republic of). Industrial arts teachers, other teachers and the vocational guidance staff. Courses organized by the departments of education and of industrial education. No conditions of service of their own for the specialist staff.

Colombia. The vocational guidance section consists of a head who is a psychologist as well as of two other psychologists, an assistant, a social worker and a records officer. The specialist staff are few. They received their training abroad by obtaining ordinary or doctor's degrees in psychology, education or educational science. Special courses in vocational guidance have recently been introduced at this country's psychology faculties. No special conditions of service.

Congo (Leopoldville). A Congolese assistant director with special training, a Unesco expert and a technical adviser who both have studied at the Institute of Educational Sciences in Geneva, three teachers receiving practical training in vocational guidance. No particular conditions of service. The Congolese staff have the same conditions and salaries as administrative officials.

Costa Rica. At secondary education level, teachers and welfare workers. At higher level, university graduates. No special training except in the case of vocational guidance services at universities. Scholarships for further training. Same salaries as teachers.

Czechoslovakia. The counsellors are chosen from among the teachers. The training is given by groups of specialists who themselves have been trained at regional further training institutes and who once or twice a year are given instruction on guidance problems by officials belonging to the research institutes, the Ministry of Education and Culture, the Ministry of Health and the Planning Commission. Special remuneration. Conditions of service now being defined.

Dahomey. The section consists of the Institute's director, a teacher with a diploma in psychology and education, two office employees. Specialist staff trained at French universities. Courses of further training in France. Conditions of service the same as for teachers.

Denmark. At the vocational guidance division of the Directorate of Labour there are administrative officers, a pedagogical adviser, a psychological adviser, the editors and the contributors to the occupational dictionary, psychologists. At the local employment exchanges, 70 guidance officers of whom 26 are full-time officers. Staff of the vocational guidance division are required to have taken courses in law, psychology or political economy. Vocational guidance officers of the local services are appointed on the recommendation of the local employment exchange. Prior special training not required subject to possession of the necessary qualifications and experience. Special courses arranged for vocational guidance officers by the Directorate of Labour. Same conditions of service as for primary school teachers.

Ecuador. Vocational guidance is undertaken by teachers, who take occasional refresher and further training courses in vocational guidance. The conditions of service of teachers.

El Salvador. No specialist staff. Counsellors are chosen from among secondary school teachers. Additional training by means of vacation courses for guidance counsellors.

Finland. Senior and junior vocational guidance officers. At schools, liaison teachers are responsible for cooperating with vocational guidance officials. Master of Arts degree, or university degree which is equivalent, with highest marks in psychology and then in some education or social subject. Special course in vocational guidance together with practice work at a vocational guidance service. The liaison teachers have received guidance training during or in addition to their training as teachers. In-service courses, various meetings and conferences for vocational guidance officers. Same rights and duties as civil servants. The salary of a senior vocational guidance officer is equivalent to that of a senior teacher at a secondary school or a captain in the army.

France. At national level a general inspector of vocational guidance and at academy level one or more such inspectors. At each guidance centre: a director; educational and vocational guidance counsellors; doctors with diplomas in vocational guidance; a social welfare worker; administrative staff. The inspectors are recruited by competitive examination among the directors and counsellors. The counsellors are recruited from among holders of the diploma in vocational guidance counselling. They must have both baccalaureates and then take a two-year course at a special institute. Teachers for the observation stage are chosen by the rectors and receive special training in psychology and education. Day seminars for keeping the guidance counsellors informed and for their professional improvement. Conditions of service which are of general application to civil servants. Guidance inspectors rank on a level with inspectors of education, while the directors and counsellors may be compared with secondary school teachers.

German Federal Republic. Vocational guidance is given by specialists who are holders of a certificate for technical proficiency or persons who have completed courses at a social workers' school or a technical school or who have acquired experience in economics, education, administration, social work and work for young people. One year of special training followed by one year of practical experience. Continuous in-service training for guidance officers. The counsellors are officials of the Federal Institute for placement in employment and unemployment insurance. Their salaries depend upon their qualifications.

Greece. At schools the guidance is given by specialised teachers. Counsellors are attached to the employment offices. The teachers have had five years' teaching experience and received at the teacher training college a special training in vocational guidance. Special school of vocational guidance for guidance officers of the Ministry of Labour. Teacher counsellors have the service conditions of teachers. Guidance officers of the Ministry of Labour belong to the first category of government servants.

Guatemala. Psychologists, doctors, educators, social workers. At the university the guidance staff are recruited and selected by competitive examination. The heads of guidance services hold degrees obtained abroad in psychology and education with special study of guidance. They are government servants in the same category as teaching staff. Courses of further training arranged by the Ministry of Public Education in collaboration with Unesco.

Hungary. No specialists. The teachers have taken courses at higher level to be able to teach in final classes of the general school. Officials of the territorial councils and those of the Ministry of Labour, Ministry of Education or National Planning Office hold a degree (or diploma) in either education or economics. Some psychologists at the Ministry of Labour hold degrees.

India. The number of counsellors and technical assistants varies from one state to another. Schools have school counsellors or career masters who are appointed by special committees. University degrees are required. Three-month training courses and three-week refresher courses for guidance officers at employment exchanges. Newsletters, special magazines, etc. Conditions of service the same as for other government servants. Specialist staff may be compared with professors, lecturers and readers at universities.

Iran. An average professional training. Certain examinations. Special courses organized from time to time by the Ministry of National Education.

Israel. Persons, namely psychologists and employment counsellors, holding academic degrees in psychology. The latter obtain their degrees in this country or abroad, some receiving experience during their work, others specialising in guidance. The employment counsellors receive three months' preliminary training and continuous in-service training. Meetings as well as the in-service courses are organized by the National Guidance Institute. The status and remuneration of the psychologists may be compared with those of government employees having similar academic training. Employment counsellors may be compared with other workers in the Employment Service.

Italy. A psychologist director, vocational guidance counsellors, school or work doctors, welfare workers. The directors and counsellors receive their training at a university institute of psychology, the welfare workers theirs at a school of social work. At a few large centres two or three-year courses are held for vocational guidance counsellors. Meetings organized by the Italian Educational and Vocational Guidance Association. Situation the same as that of teachers whose appointment has not been confirmed.

Ivory Coast. A service chief, psychologist and documentary officer belonging to the French technical assistance body, Ivory Coast staff (two vocational guidance counsellors and the secretariat members). Both long practical experience in guidance in countries which are developing and adequate professional training are required. Specialised training received at the National Vocational Guidance Institute in Paris. Proposed conditions of service now under consideration.

Japan. The vocational guidance consultants organize the vocational guidance work in the schools and advise the teachers. In the employment offices, vocational guidance is given by the employment officers. Central guidance officers at the Ministry of Labour, local guidance officers at the prefectures. Vocational guidance consultants at schools are appointed by the boards of education from among the teachers. Employment officers are appointed by the Employment Security Bureau of the Ministry of Labour. A teacher certificate in vocational guidance or a certain practical knowledge in vocational guidance. In-service courses, organized by the Ministry of Education and the boards of education, seminars, group study, exchange of information on vocational guidance. For the employment officers, training organized by the Ministry of Labour.

Korea (Republic of). Counsellors chosen from among the teachers at each school and who undertake vocational guidance in addition to teaching. The few professional counsellors received their training abroad. In-service courses for counsellors engaged at secondary schools are held by the Central Research Institute of Seoul City. The counsellors receive the same salaries as the other teachers. Guidance workers at colleges or universities work full time and are remunerated like the professors. The situation and remuneration of the staff at employment exchange centres are equivalent to those of other civil servants.

Luxembourg. No specialists in vocational guidance. One psychologist with a degree and, for certain cases, a psychologist also with a degree, is attached to the pre-vocational guidance service. The other staff members have no special training.

Malaya (Federation of). A vocational guidance organizer at the Ministry. In the schools, careers masters. No definite criteria for selection. No special training but a course being planned.

Mali. A woman psycho-technical officer, appointed on her qualifications. Psycho-technical diploma at the Faculty of Medicine in Algiers. Training at the National Vocational Guidance Institute in Paris. Continual contact with the institute and with the French Pedagogical Institute. Subscription to different reviews dealing with educational psychology. Contract with the French Ministry of Cooperation. Conditions of service the same as those of teachers engaged in the technical assistance.

Mexico. Clinical psychologists, social workers, educators, psychiatrists, doctors. Appointment based on professional training and personal attributes. Guidance to be included among the fields for the doctor's degree in psychology at the national university.

Morocco. Counsellors, who are either graduates of a vocational guidance institute or hold degrees in psychology, teachers acting as counsellors, teachers acting as assistants, students receiving practice. A centre for the training of planning advisers and educational guidance counsellors was set up in 1962 (see particulars in the report). For further training, discussion days and the technical library of the central service. Proposed conditions of service providing the same category as that of secondary school teachers.

Netherlands. University graduate (psychologist, educator or social worker) at the head of the service. Vocational advisers specially trained by means of a three-year course held under the auspices of the Labour Office and the Central Committee for Vocational Guidance Cooperation. In-service training for advisers who are in government service. Conditions of service the same as those of employees in other government offices and who are classified in three categories (university, secondary, elementary).

New Zealand. Chief vocational guidance officer at the Department of Education, vocational guidance officers at each centre. In addition, some 250 " careers advisers ", who are secondary school teachers. Preferably a university degree with study of psychology or education or else with teaching experience. After appointment, vocational guidance staff receive " on the job " training and take a guided course of reading. Conferences and refresher courses. Conditions of service those of government servants.

Nigeria. At the federal Ministry, one vocational guidance officer who is working with careers masters in secondary schools. In the Western Region a vocational guidance instructor. Two officers attached to the social service in the Northern Region. Prior training required in educational psychology, statistics, psychometry, administration, knowledge of juvenile employment and experience of the local education system. Guidance staff are government employees with the same conditions of service as education officers.

Norway. The vocational guidance division of the Labour Directorate, the institutes of vocational guidance and industrial psychology and the county employment offices all possess staff specialised in vocational guidance (see details in the report). Qualified as teachers, psychologists or social workers. Three special courses each of four weeks to be taken by the vocational guidance officers. Seminars arranged by the Scandinavian Association of vocational guidance officers and by the International Vocational Guidance Association. The salaries may be compared with those of teachers (see details in the report).

Panama. Two national women inspectors of educational and vocational guidance, the principals of the six pilot secondary schools, the twelve teacher counsellors who are engaged in educational and vocational guidance. University degree in education. Teaching experience and satisfactory moral reputation. Two courses, respectively on the basic principles of guidance and on procedures in acquiring knowledge of the individual. The two women inspectors took courses in Chile and Puerto Rico. Teacher counsellors furnished with works on guidance. Discussion meetings every fortnight. The women inspectors have the same conditions of service as government administrative officials. The teacher counsellors are members of the teaching staff.

Peru. The head of the department of educational psychology together with teacher "guardians" and school guidance officers. Special study of educational psychology and at least five years' experience in teaching. Further training by means of lectures, talks, seminars, publications. Conditions of service those of teachers. Salaries those of secondary school assistant teachers and primary school principals.

Philippines. At each vocational school a guidance committee including six of the teachers chosen by the principal on the basis of their training in guidance. The guidance counsellor, if any, acts as the executive secretary.

Poland. Psychologists and doctors. Degree in psychology after a five-year course at a university. Courses of further training organized for guidance officers by the Ministry of Education. Special bulletin « Theory and Practice in Vocational Guidance ». Same rights and salaries as those of teachers.

Portugal. Vocational guidance counsellors and doctors. Two-year course at the Vocational Guidance Institute. Further training by means of lectures, visits, practical courses abroad. Government officials. Situation and remuneration those of teachers.

Rumania. No specialised staff as educational and vocational guidance constitutes one of the duties of all teachers and is included in their professional training. The latter is furthered by the reading of articles in educational reviews, the studies in publications of

scientific institutions, etc. Attention to vocational guidance is given by the further training institutes.

Senegal. A head, three guidance counsellors, a psycho-technical assistant, an assistant teacher, a welfare worker. The counsellors are trained at French vocational guidance institutes The conditions of service now being drawn up in regard to technical education apply to guidance counsellors, whose situation and remuneration may probably be compared with those of employees in French official services.

South Africa (Republic of). In the provinces there are generally specialist guidance officers for organizing and directing the guidance and counselling services. At schools, guidance teachers or teacher counsellors, who are chosen from among the teachers. At federal level the psychological services of the Department of Education, Arts and Science have for special schools 45 psychologists working under an " inspector psychologist ". At the psychological service of the Department of Bantu Education an inspector psychologist together with 14 assistants all teachers. As from 1963 a vocational guidance officer for the organizing of vocational guidance services. At the Department of Labour the employment division has a head, who is assisted by professional officers. Selection according to suitable qualifications rather than special degrees (advanced study in psychology, experience in guidance work, a certificate for teaching). Degree in education or psychology a recommendation. Vacation courses, refresher courses, correspondence tuition, part-time advanced classes. The teacher counsellors have the same conditions of service as other teachers; the guidance teachers also except that they are on duty longer and have shorter vacations. Vocational guidance specialists at the Department of Labour are subject to the same conditions as are professional officers in the public service. The salaries of vocational advisers may be compared with those of high school or teacher training college principals.

Spain. At least a director (who is a psychologist), a doctor and a statistician. Appointment by means of competitive examination. Courses given at the school of psychology and psycho-technology (University of Madrid) and leading to a degree in psychology. Courses recently organized by the vocational guidance officers' union. Refresher and further training courses begun at the national Institute of Applied Psychology. Service conditions governed by the regulations of this institute. Salaries depending on university training.

Sweden. Some 300 specially trained vocational guidance teachers, plus a hundred other specially trained persons at labour exchanges. Pedagogic, social and psychological training. In-service training in the matter of vocational guidance. Vocational guidance officers are civil servants and may be compared with teachers.

Switzerland. Over three hundred official vocational guidance services with 230 men counsellors and 109 women counsellors, some full time and some part time; 50 private counsellors. Special training not required but both a feeling of being called for the task and the aptitudes as well as a general training. Appointments preferably to applicants who agree to take a previous four-week course. Training provided at the Universities of Fribourg and Geneva and at the Institute of Applied Psychology in Zurich. Courses of training and further training organized by the Swiss Association for Vocational Guidance. National and cantonal conferences. A special review on « Vocational Guidance and Training ». Speaking generally the conditions of service are for full-time counsellors those of middle (lower secondary) school teachers and for part-time counsellors those of vocational school teachers.

Tunisia. Teacher guidance officers, guidance counsellors, psycho-technicians, « operating » psycho-technicians. A state diploma for the profession of educational and vocational guidance counsellor. The operating psycho-technicians are secondary school graduates or the holders of the course diploma for the profession. The counsellors are trained at the National Vocational Guidance Institute in Paris. Further training at the Studies and Education Training Centre in Tunis. The counsellors and psycho-technicians receive the same remuneration as that of secondary school teachers, the operating psycho-technicians the same as that of primary teachers.

Turkey. The laboratory at the higher normal school has a staff consisting of a head (a professor of psychology) and an assistant. There are ten school counsellors, six guidance counsellors, five school psychologists, 290 teacher psychologists and five guidance doctors. Occasional summer vacation courses for teachers who are responsible for giving guidance.

U.S.S.R. No specialists in vocational guidance. The work is undertaken by teachers together with school doctors, apprentices' instructors, the social organizations and the pupils'

parents. A university degree necessary for higher education establishments. At the teacher training institutes, talks on questions of vocational guidance. The salaries of teachers are based on standard of education and length of service.

United Arab Republic. Usually a director, an assistant director, the service's departmental heads, the specialists, inspectors, clerical staff. Training at a social work institute. Master's and doctor's degrees at the psychology and sociology departments of the university arts faculties. Post-graduate training at universities in the United States and the United Kingdom. In-service training organized by the vocational guidance agencies. Scholarships and leave for study abroad. Conditions of service those applicable to university graduates in the civil service. Special salary scale.

United Kingdom. At national level the members of the National Youth Employment Council. At regional level a regional representative and careers advisory officers, the latter mainly for grammar school pupils. The training received by vocational guidance staff varies. They may hold either a university degree (or diploma) in social studies, including psychology, or teaching qualifications. Experience and practical training are important. Special courses are arranged for careers masters. For the further training of vocational guidance officers there are every year six five-day courses in the technique of vocational guidance. Courses at Birkbeck College and correspondence courses, the latter leading to a diploma in vocational guidance. Official and unofficial vacation courses. Conditions of service similar to those of teachers or local government officers.

United States. School guidance counsellors at most secondary schools. Some are engaged full-time in guidance work, while others have teaching duties as well. The requirements for appointment vary from state to state. In all states some specialised preparation is required, generally including teacher preparation or teaching experience. The specialised courses include study in vocational information, individual analysis and pupil appraisal, study planning, counselling procedures and techniques, tests and measurements, statistics, child growth and development, psychology of normal and abnormal behaviour. In-service training organized locally with the participation of consultants from the Department of Education and with the collaboration of colleges and universities. Generally, conditions of service those of teachers although sometimes with shorter vacations. Same salary scale. Sometimes the salaries of counsellors are slightly higher on account of their specialisation and more years of service.

Yugoslavia. No vocational guidance specialists but teachers responsible for giving vocational information, psychologists, doctors, educators, social workers. Selection by an admissions board and on the basis of a competitive examination. The doctors are not always specialists. The psychologists hold a faculty of arts diploma in psychology. Guidance officers receive their training while in service (courses, seminars, consultations, compulsory practice period at a vocational guidance institution). Seminars also for those having the task of giving vocational information and for the psychologists and doctors concerned with vocational guidance. Conditions of service those of government servants. Basic salary that of teachers but the bonuses are larger.

IX. Plans for the Future

From the preceding information, it can be seen that educational and vocational guidance, as we have tried to define this at the beginning, is in course of considerable expansion. Efforts are being made everywhere to improve methods and means, even in those countries where these seem already well established. In those countries lacking the necessary resources to give this the full impetus and to attain all the young who should benefit from it, more and more efforts are being made to fill in the gaps.

The table below demonstrates this. The projects most frequently quoted (that is in about half the 55 countries replying to this question) are concerned with extending the services, improving the methods and techniques and the training of specialised staff.

By the term extending the services, we mean firstly their geographical extension so that they are spread over the different parts of the country, and touch especially the rural areas, services being very often localised in a few large cities. Secondly, to reach a greater number of pupils, due to the introduction of guidance in a larger number of different types of schools and classes.

As to the methods employed, efforts are being made to expand vocational information and documentation, to improve equipment and material and, when tests are used, to better them by adapting them to the especial needs of the country. Efforts are also being made to seek out more rational methods of evaluation of the results of guidance and to keep track of the subjects so guided.

The lack of specialised staff is felt in this field as in any other relatively new field. Projects are thus being worked out to improve and intensify this training. It is proposed to increase the number of courses and also institutions which train guidance staff and psychologists and to offer teachers the possibilities of initiation into guidance work.

Alongside these projects, research is also being undertaken; on the one hand, in the field of applied psychology and guidance methods (sometimes experimentally in pilot-centres); and on the other hand, into the professions themselves, manpower needs and the labour market. This is related to the tendency mentioned in the first chapter, that of tightening the links between education and work.

Comparative Table

Austria. Necessity of extending vocational guidance aid both upwards and downwards, that is (1) by continued guidance and vocational assistance during employment and (2) by an early systematic preparation for vocational life by the school (polytechnical course in the 9th year). Importance of vocational guidance for adults who wish to improve their vocational situation by taking supplementary vocational courses. Development of scientific research in the field of the vocations and labour.

Belgium. Five-year plan for extending the network of centres which provide psychomedical social aid. Since 1960 an additional six centres opened each year.

Brazil. Necessity for the training of technicians and specialist doctors, the development of scientific research as well as for larger subsidies to be received in order that additional services may be set up and the equipment improved. Courses arranged by universities so that psychologists and vocational guidance officers may be trained. Setting up of guidance services at secondary schools. In the state of Minas Gerais a plan for extending to all towns the service of vocational guidance.

Byelorussia. The present system is giving complete satisfaction.

Canada. Plans for the training of more guidance personnel, of whom there are not enough. The guidance services programme is receiving a high degree of priority from the education authorities. Impetus given by the agreements between federal and provincial authorities to the construction of vocational schools.

Central African Republic. The Study Centre on work questions, whose head is also head both of the vocational training centre and of the manpower office, will develop its activities as soon as he is able to devote all his time to it.

Chad. Vocational guidance cannot be developed until the needs of the labour market are known.

China (Republic of). Setting up of institutions for the training of vocational guidance workers and of psychologists. Better testing system. Extension of vocational guidance to all junior high schools.

Colombia. Projects contemplated for developing and improving the services, for the training of staff and for improving their conditions of service, but owing to insufficient provision in the budget the projects cannot be carried out at the present.

Congo (Leopoldville). The centre at Leopoldville is to become a national centre for applied educational and psychological research. Promotion of psychological and educational testing in order to effect a better allotment of pupils among the different types of post-primary education.

Costa Rica. Proposed reorganization of the educational system with provision for a divided secondary school course. Guidance will then be essential.

Dahomey. Lack of the qualified staff and technical material necessary for the work of the service to be extended to the whole country.

Denmark. The provision for vocational information is to be improved by better training of the teachers concerned. Special assistance for handicapped pupils. Psychological assistance for the vocational guidance service.

Ecuador. The number of specialised staff to be increased, the equipment and training to be improved. Project for setting up an institute for research concerning both the labour market and educational and vocational guidance. Extension of the service to the 6th class in primary schools and to the classical colleges. Adaptation of new tests, etc.

El Salvador. Development of vocational guidance services to be effected both at regional and at national level.

Finland. Network of local offices to be extended and the necessary personnel to be trained. Improvement of the equipment, tests and information material.

France. Aim at increasing from 750 (the present figure) to 2,000 the number of guidance counsellors. Intended development plan.

German Federal Republic. Improvement in regard to *(a)* knowledge and information on the vocations, *(b)* human knowledge, *(c)* methods in individual guidance, *(d)* coordination and the vocational standards (by the award of scholarships, etc.). Higher qualifications and the training of specialist staff.

Ghana. According to the report of the United Kingdom expert (report published in 1962 by the I.L.O.) the new service must ensure cooperation between the employment and education services. The preliminary work has included: (1) a pilot scheme of vocational guidance at three middle schools in Kumasi; (2) collection of occupational information; (3) training of staff by means of courses held for labour inspectors with a view to their transfer to vocational guidance work. Progressive extension of the service so that by 1966 all middle and secondary schools will be included.

Greece. Development in regard to documentation and the means of information on the vocations.

Guatemala. Integral educational planning embracing guidance and involving the gradual implementation of projects until 1975. The development of guidance services sometimes encounters a certain lack of public understanding.

Haiti. Proposed setting up of five guidance centres and five employment offices as well as the intended appointment of a general secretary for vocational guidance who will be responsible to the vocational and technical education section of the general directorate of national education. Urgent need for better distribution of the labour force in relation to the general interest of this country. Lack of money.

Hungary. Guidance work at schools is still only in its initial stages but is being developed. Use made of ordinary teaching (particularly physics, chemistry, technical, agricultural and commercial subjects) to give a picture of working life. Better possibilities of aptitude testing and a more complete literature on the vocations.

India. Plans for increasing the number of trained personnel, for developing the vocational guidance programmes and for improving the material.

Iran. Need for specialised staff and for tests adapted to this country. Plans for the setting up of official services for which the local education authorities will be responsible.

Israel. Programme for training and further training courses, which are organized by the National Guidance Institute in collaboration with the Ministry of Labour, the Ministry

of Health or the Immigration Absorption Department. Survey and studies with a view to improving and extending the educational and vocational guidance services.

Italy. Increasing the number of services and improving the professional status of their staff.

Japan. Improving the quality and increasing the quantity of vocational guidance services. Developing the university courses of training in this field.

Korea (Republic of). Research and development in vocational guidance. Training of specialists. Centres for training and in-service training. Development of the services.

Laos. After manpower needs have been studied by the manpower sub-committee it will be possible to give guidance to pupils at the different levels, introduce vocational courses and make adequate provision for scholarships.

Liberia. Possible extension of the guidance classes to include all junior high schools. Need to develop vocational guidance in connection with the selection of young people for academic and vocational education. Plans for a testing programme being drawn up by the Ministry of Education with the aid of the United States.

Luxembourg. Reorganization of the National Labour Office with the provision of qualified guidance officers. Development of the educational and vocational guidance service operating under the Ministry of National Education. The educational reform project provides for guidance stages and for systematic educational guidance.

Malaya (Federation of). Six-month course at the beginning of 1963 for experienced teachers and school administrators.

Mali. Proposal to set up at the Ministry of Education both a central service, having several vocational guidance counsellors, and a vocational selection service. Establishing a documentary file and estimating the needs in regard to each vocation and each sector of activity. Two Malian specialists being trained at the Vocational Guidance Institute in Paris.

Mexico. Guidance services to be set up in smaller towns. Three additional posts of specialist psychologist to be created at the guidance department.

Monaco. Proposed adoption of the French system with observation stage. Census concerning the openings which exist in the public administrative services, private industry, certain professions, as well as for senior technicians, and subsequent compilation of an annual list.

Morocco. Present system of guidance to be made of general application in the final year of the secondary school course.

Netherlands. Improvement and extension of the research services.

New Zealand. The number of guidance officers and careers advisers as well as of centres is to be increased in proportion to the population and with a view to reaching the rural schools and the Maoris.

Nigeria. Need in each of this country's regions for a guidance service with trained staff and suitable equipment.

Norway. Permanent courses for the teachers who are to give vocational information at schools. Development of the institutes of vocational guidance and industrial psychology. Careers films. Closer cooperation between the schools and the employment services.

Panama. Provision of guidance services to be made general at all junior secondary schools.

Peru. Necessity for training additional vocational guidance officers. Expansion of the curriculum applied in the training of educational psychologists at the National Institute of Educational Psychology.

Philippines. Proposed construction of locally-oriented tests. Need of funds for the purchase of materials and to enable the dissemination of information. Eight pilot research and guidance centres to be organized between 1962-1963 and 1966-1967 in vocational schools. Regional surveys of occupations and resources with a view to making guidance more effective.

Poland. Vocational guidance at a stage of full development. Systematic and long-term plan for increasing the network of services and for extending the research work.

Portugal. Steps contemplated for development.

Rumania. As well as education in general, vocational guidance is being continuously improved.

Senegal. Need for staff and premises for increasing the activity of the national centre and for setting up services in the principal towns.

South Africa (Republic of). More intensive vocational guidance for pupils at vocational schools and technical colleges is being planned by the Department of Education, Arts and Science. Expansion of psychological services and vocational guidance services. Better examination of those who receive guidance. Publication of a manual on careers for the Bantus. Proposed vocational guidance training for secondary school teachers. Compiling of tests for Bantu secondary schools and university colleges by the Bureau of Educational and Social Research. This bureau is responsible in a general way for standardizing psychological and scholastic tests and undertakes psychological surveys on vocational training and on employment.

Spain. Financial obstacles. Projects for reorganizing the institutes of applied psychology and for the introduction of educational and vocational guidance as from the first year at industrial schools and technical colleges.

Sweden. Training of specialised personnel and improvement of psycho-technical tests.

Switzerland. Development gratifying but increased funds necessary for *(a)* permitting of further improvement in results, *(b)* increasing the number of full-time counsellors, *(c)* improving their training and their conditions of service, *(d)* development of vocational guidance at universities, in mountainous areas and for the cripples and *(e)* improvement of methods and techniques.

Turkey. Proposed vocational guidance service for primary school leavers. A testing and research service being set up at the Ministry of National Education with assistance from the United States.

USSR. Larger provision of popular reading matter on matters connected with vocational guidance. Scientific research in this field being developed as a result of collaboration between all the institutions concerned.

United Arab Republic. Establishing of a national organization for the promotion and coordination of vocational guidance programmes. Training of specialists. Development in measurement procedures and standardised tests.

United Kingdom. England and Wales, Scotland. Improving the training of youth employment officers and extending the services. Research concerning methods of evaluation. Wider use of psychological testing. *Northern Ireland.* Ensuring the efficient operation of the service which has just been established.

United States. Since the 1958 law, constant progress in guidance but there is still need for a larger number of counsellors and for them to be provided with more adequate physical facilities (space, equipment, materials). Growing activity of guidance supervisory personnel, who promote in-service training, encourage research and arrange meetings. At the federal level, activity of the Guidance and Counselling Programs Branch of the Office of Education (regional conferences on the theme « Improving the quality of guidance services »). National conference proposed.

Upper Volta. A vocational guidance service is to be instituted.

Yugoslavia. Steps taken for *(a)* developing the vocational guidance centres, *(b)* giving uniformity to the working methods, *(c)* standardizing the tests, *(d)* devising better follow-up methods, *(e)* special training of vocational guidance personnel by means of university courses, *(f)* developing both the medical aspect of vocational guidance and research and documentation on the vocations.

X. International Action

Out of the sixty-four countries who replied to the question concerning their receipt of, or their wish to receive, international assistance in vocational guidance matters, fifteen (or 23%) stated that they had no need of this type

of assistance. This does not mean that they are not interested in international cooperation in this field. On the contrary, most of them desired more frequent contacts with other countries to exchange information and documentation. They send their experts abroad to gather information or to render assistance, and readily welcome foreign specialists to their countries in their turn. It is desired, generally speaking, that there should be more international conferences, seminars, study courses, and even publications on educational and vocational guidance.

The other forty-nine countries, three quarters of the total of countries appearing in the table below, do require assistance from other countries, or international organizations. Such assistance would be aimed at the realisation of some of the projects enumerated in the preceding chapter. More than half these countries have already benefited, occasionally or regularly, from assistance, either in the form of scholarships, or the visits by experts, sometimes of both. The twelve countries who received scholarships all wish this form of assistance to continue, especially for study trips, and training abroad of specialised staff. It must be added that 27 countries would also like to receive scholarships assistance, not having received this up to now. In brief, 39 countries (or 60%) out of 64, would like to receive scholarships for their future guidance officers or for the further training of those now in service.

As for the visits by experts, 19 countries have benefited from their collaboration, either to organize services, or for the training of staff in the country itself. These experts have been supplied from Unesco, the International Labour Organization, the Inter-American Cooperation Service, French Technical Assistance, and others. Their mission has been completed in half the countries in question; 9 among them request that such assistance continue. But to these 9 countries must be added 19 others who also request the visits by experts. In brief, 28 countries (43%) need experts to organize or improve their vocational guidance system.

Finally, nine countries state that international assistance would be useful for equipping their services; psycho-technical material, documentation, various publications, etc. and possibly funds for purchases thereof.

It should be mentioned that some replies lay stress on the urgency with which international assistance is needed in the field of educational and vocational guidance.

Comparative Table

Austria. Scholarships for travel and study received by vocations counsellors and psychologists, as well as grants to take part in congresses and international seminars. Scholarships for study abroad will still be appreciated but, generally speaking, the assistance of foreign specialists is not desired in Austria.

Belgium. International assistance not received and not desired.

Brazil. Apart from scholarships no international assistance received. A desire for further scholarships and for assistance from experts.

Bulgaria. No international assistance received. Desire to be kept informed of results obtained in the most advanced countries.

Byelorussia. No international assistance received.

Cambodia. Assistance during a few months from a Japanese expert. Need for staff, apparatus and a completely equipped laboratory for development of the psycho-technical section.

Central African Republic. Assistance desired for training of Central African guidance workers.

Chad. Cooperation of a French psycho-technical mission. International assistance desired but not until the planning of economic and social development has re-examined the needs.

China (Republic of). No international assistance received. Scholarships desired for guidance workers.

Colombia. Only a few scholarships received so far. Great need of assistance. Scholarships desired for the special training and preparation of staff indispensable to the development of the services.

Congo (Leopoldville). Assistance received from Unesco experts. Still need for experts from international organizations or foreign countries, scholarships to enable training of guidance officers, visits of doctors acquainted with inspection of work and of vocational guidance as well as for psycho-technical material.

Costa Rica. Scholarships received from Unesco and the International Agency for Progress. Need of scholarships, experts and material both for the development of research in regard to vocational requirements and manpower needs and for the training of qualified staff.

Czechoslovakia. A desire to exchange publications with other countries and to purchase foreign publications. Suggestion for publication of an international review on guidance problems and for a meeting of leading officials from various countries.

Dahomey. Wishes foreign countries' assistance (laboratory psycho-metric tests and equipment, exchanges together with subscriptions to specialised reviews, gifts of French, English, Spanish and possibly German literature, scholarships for future guidance officers).

Denmark. Close studies made of the systems in different countries, especially the other Scandinavian countries. Participation of Danish vocational guidance officers and members of the vocational guidance division in courses given abroad on educational and vocational guidance.

Ecuador. Scholarships received and still needed, as well as experts.

El Salvador. A Unesco adviser collaborated in the organization of guidance services. Scholarships and further assistance from experts needed for training of specialised staff.

Finland. Some scholarships received and more needed for study of the organization of vocational guidance services in other countries. Close cooperation with other Scandinavian countries.

France. International assistance not received and not desired.

Gabon. International assistance desired (experts, scholarships and material).

German Federal Republic. International assistance not received and not desired. Exchange of experience with experts from other countries and international organizations gretaly appreciated.

Ghana. Assistance from the International Labour Organization and visit by a United Kingdom expert (see Table IX).

Greece. A few scholarships and assistance from an expert received by the Ministry of Labour. Scholarships also desired by the Ministry of Education.

Guatemala. Assistance received from experts sent by Unesco and the Inter-American Service for Educational Cooperation. Further training of Guatemalan specialists abroad.

Haiti. All kinds of international assistance greatly needed for organizing vocational guidance.

Hungary. No assistance received from international organizations. Study trips to the German People's Republic, Poland and Czechoslovakia.

India. Assistance of experts and scholarships received and still desired.

Iran. Assistance from a Unesco expert in 1958. Such assistance still needed as well as scholarships for the training of guidance workers.

Israel. In 1955 assistance of an expert from the International Labour Office was received for the organizing of the Employment Service. In 1961 assistance of a consultant from the United States, for the « Hadassah » bureau. Desire mainly for scholarships.

Italy. Scholarships from other countries or from international organizations would be appreciated.

Ivory Coast. Technical assistance received and still needed in regard to staff and material. Desire for participation in international conferences and for documentation on guidance and selection in developing countries.

Japan. A professor of Columbia University, New York, was invited as chief lecturer to a seminar on vocational guidance organized in the summer 1961. Japan is desirous of obtaining scholarships for the training of future guidance workers. International exchange of information and materials in the field should be further developed.

Jordan. A scholarship received from the United States for training of the person in charge of the counselling service. Great need of experts as well as of scholarships for training staff in educational and vocational guidance and for building up a counselling service in the schools.

Korea (Republic of). Great need of assistance from foreign countries or international organizations, especially scholarships and experts.

Liberia. Assistance received from the United States and the International Labour Organization. Assistance still greatly needed from international organizations and foreign countries, especially funds, experts and guidance workers as well as scholarships for trainees.

Luxemburg. International assistance not desired until the vocational guidance service has been reorganized.

Malaya (Federation of). Assistance of a Canadian expert received under the Colombo Plan. Scholarships needed for the overseas training of guidance workers.

Mali. French technical assistance. Experts and scholarships for training abroad still needed.

Mexico. International assistance in the field of vocational guidance not yet received but greatly desired.

Morocco. French assistance satisfactory. The training centre will make it possible to limit the number of technical assistants from abroad. Assistance still desired (experts, books, technical materials, scholarships for short term practical training) for the training of guidance workers.

Netherlands. No international assistance received. Contacts with other countries have been made through international bodies such as the European Economic Community.

New Zealand. No formal assistance from overseas but advice from a professor from London University. This country wishes to learn from the experience of other countries and welcomes the opportunity of making personal contacts with similar services abroad. No financial assistance needed from abroad at the present time.

Niger. No international assistance received yet for vocational guidance. Scholarships, experts and financial help needed for the rapid setting up of a service.

Nigeria. Assistance needed for overseas training.

Norway. No international assistance received. Desire for scholarships to enable vocational guidance officers to study vocational guidance systems in other countries.

Panama. At the University of Panama a course was given under the auspices of the Inter-American Cooperative Service by a professor from Puerto Rico. Assistance provided by a United States expert from the international agency for the economic development of Latin America. Desire for experts to work on the spot and for further scholarships to permit of study abroad.

Peru. No international assistance received. Desire for assistance from experts and for scholarships.

Philippines. No international assistance received in this field. Desire mainly for scholarships to enable guidance supervisors first to study abroad and then help with the further training of guidance counsellors.

Poland. No international assistance received. Scholarships desired for psychologists who are in service.

Portugal. No international assistance received.

Rumania. International assistance not needed. Visits to various countries for exchange of experience. In favour of international cooperation for exchange of information, research and experience on vocational guidance problems.

Senegal. Specialists staff members provided at the beginning by French technical assistance. No other assistance received from abroad.

South Africa (Republic of). International assistance not received and not desired.

Spain. No international assistance received. Spain contributed to the setting up of the International Association for Vocational Guidance. Two Spanish experts were sent abroad to accomplish missions. Foreign experts would be welcome in this country. Desire for scholarships to enable training abroad and for assistance from Unesco for the extension of the National Institute of Applied Psychology and Psycho-Technology.

Sweden. No international assistance received. Exchanges with other countries are appreciated.

Switzerland. No international assistance received. Owing to pressure of work, vocation counsellors have not been able to take advantage of scholarships offered.

Tunisia. No international assistance received.

Turkey. Desire for scholarships to enable study abroad.

U.S.S.R. Encourages collaboration and mutual assistance at international level through participating in international seminars as well as in the exchange of visits and materials.

United Arab Republic. Visits by experts, scholarships for study abroad. Desire for further assistance (fellowships, experts, tools, technical material) from other countries or from international organizations.

United Kingdom. Northern Ireland. No international assistance received. Interest in receiving information about developments in other countries.

United States. Usefulness of international cooperation and of meetings between experts from different countries. The United States welcomes the visits of experts and sends her staff abroad to study promising developments.

Upper Volta. No international assistance received so far. Desire for experts and scholarships to enable guidance workers to be trained.

Yugoslavia. International assistance not received but desired (batteries of tests, apparatus and electronic machines, equipment for documentation, books and reviews, as well as experts and scholarships).

INDIVIDUAL STUDIES

(73 countries)

AUSTRIA

From the reply sent by the federal Ministry of Education

Foreword

Vocational guidance has existed in Austria for over 40 years. During the occupation, effect was given in Austria to two German laws, namely that of 16th July, 1927, dealing with placement in employment and with unemployment insurance and the law of 5th November, 1935, dealing with placement in employment and in apprenticeship as well as with vocational guidance. As regards vocational guidance, the placement in apprenticeship and placement in employment, these laws are still in force in Austria by virtue of a law of 1st May, 1945, on legislation for the transition period.

In 1947 the federal Ministry for Social Affairs and the federal Ministry of Education agreed upon the distinction to be made between the tasks belonging to vocational guidance and those of the school as well as upon collaboration regarding the preparation of adolescents for choosing a vocation at the end of their schooling.

Structure and Regulations

Nature of guidance. The aim of vocational guidance is to help not only pupils who are finishing their schooling but also the young in general and adults when they are required to choose a vocation or to change their vocation. Such guidance provides them with general vocational information and individual vocational guidance including advice and, in addition, helps them to obtain the desired training, in particular by bringing about their placement in apprenticeship.

The tasks of educational and school guidance, guidance which cannot be separated from vocational guidance, belong to those who are known as " education and school " teachers or counsellors. It is thus understandable why vocational guidance in its wider sense can be undertaken only with close collaboration between professional teachers and counsellors, that is between the schools and the labour bureaux.

Compulsory nature and free provision. There is no legal provision requiring pupils or adolescents to consult a vocational guidance service. Nevertheless, under an arrangement between the Ministry for Social Affairs and the Ministry of Education all pupils completing their compulsory general education are reported in the final year to the vocational guidance service. For the benefit of such pupils the vocational guidance services and the schools collaborate in providing vocational information by various means.

Vocational guidance services are free of charge.

Organization and financing. The vocational guidance services are public. There are no private vocational guidance services.

As the official central body the federal Ministry for Social Affairs is responsible for the organization and financing of vocational guidance and issues instructions and directives in regard to the matter.

Each of the nine regional labour bureaux, whose respective territory corresponds to a federal province *(Land)*, is specially concerned not only with questions of a general nature and of principle but also with certain particular tasks such as vocational guidance for students and baccalaureate holders and for the handicapped.

At local administrative level 90 labour bureaux have vocational guidance services.

Cooperation between the services. At all administrative levels the vocational guidance services collaborate with a number of other agencies, in particular with schools and education authorities, health services, vocational training services concerned, employers' and workers' associations.

Relations with the labour market. The federal Ministry for Social Affairs collaborates with the undertakings concerned as well as with employers' and workers' associations in order to forecast manpower needs.

In accordance with the instructions of the federal Ministry for Social Affairs the regional bureaux periodically make statistical forecasts of manpower requirements. Such forecasts are mainly short-term ones but sometimes they indicate certain trends in respect of a longer period. In the preparation of forecasts consideration is given to the points of view of employers' and workers' associations as well as to the information which the associations furnish.

Procedures and Practices

Techniques employed. In individual guidance the interview is the method most frequently employed. In addition, the vocations counsellors make use, confidentially, of the observations which teachers at general education schools record for the benefit of the vocational guidance services. School reports are regularly made available to the counsellors and in many cases the reports of school doctors are communicated to the vocational guidance service.

According to the requirements of each case the counsellor may request also to be furnished, confidentially, with a report from the psychological service and a certificate from the medical service of the labour bureaux.

In their psychological examination the labour services make use of different tests and methods for diagnosing the personality, interests and inclinations of the subject who is receiving guidance.

Information on the vocations. In collaboration with the schools the vocations counsellors belonging to the labour bureaux arrange meetings at which the pupils during the final years of their compulsory schooling are given vocational information. In addition to various apparatus such as lantern slides, documentary films on the vocations are employed for the purpose. In towns and large localities not only exhibitions providing vocational information but also visits to undertakings and technical schools are arranged for pupils who are about to leave school.

Regional and local vocations counsellors take part in programmes of information broadcast by radio or television in connection with youth programmes. They also collaborate in the compilation of handbooks and contribute articles to the daily and technical papers. Similarly the counsellors collaborate in the writing of the issues in the series " School and Vocation " published jointly by the federal Ministry of Education and Ministry for Social Affairs.

A brochure on the choosing of a vocation is published by the federal Ministry for Social Affairs and is made available free of charge to all pupils leaving school. Parents of these pupils receive a special leaflet of information.

Follow-up practices. Once the choice has been made the vocations counsellors continue to help the subject who has received guidance whether he has chosen to begin an apprenticeship or to attend a vocational school.

By way of information the vocations counsellors furnish an opinion concerning the aptitudes of the pupil who has consulted them. They deliver a written report both to him and his parents and with the latter's permission this report is delivered also to the undertaking at which the apprenticeship is to be given.

For technical reasons it is not possible to follow up all the subjects who are guided and action must be confined to certain specific cases, for instance the apprentices who hold an official scholarship for vocational training, the handicapped or young people whose career must be followed for special reasons.

STAFF

Composition and selection of staff. The staff employed in vocational guidance services consist of vocations counsellors as well as of psychologists and assistant personnel.

Training and further training. Like all those employed at labour bureaux the vocations counsellors receive a basic training which, attested by a final examination, covers the different kinds of activity undertaken by regional and local labour bureaux (vocational guidance, finding of employment, insurance against unemployment). Furthermore, in their particular field they are given special theoretical training which takes the form of courses, practical experience at the place of work and a practical introduction to their particular tasks. The career masters have been specially trained for the purpose.

The in-service training of vocations counsellors and of psychologists is effected by means of courses, interviews while on duty, discussion days. Such staff also attend seminars and working meetings and have the benefit of specially prepared documentation.

Conditions of service. The vocations counsellor is regarded officially as a civil servant belonging to what are known as " high-ranking technical services " with B status.

The positions of vocational guidance service director, counsellor of baccalaureate holders, psychological service psychologist all belong to the category known as " vocational guidance higher services " having A status.

The conditions of service and the remuneration of vocations counsellors and of psychologists are equivalent to those of other civil servants in the general administrative services.

Plans for the Future

The methods employed so far in vocational guidance constitute on the whole an aid for the choosing of a vocation and for the immediate integration of young people into vocational life when they leave school.

Nevertheless, owing to the greater requirements of modern economy, the growing complexity of vocational activity as well as to technical innovations in the labour process, this aid must be extended both downwards and upwards. In a downward direction not only vocational information but also education for vocational life must be introduced rather early. Consequently, the school will assume new educational and teaching tasks, which will consist of a systematic preparation for vocational life. With this in view the new law just promulgated introduces a polytechnical course in the 9th school year. In an upward direction it will be necessary for vocational guidance to be extended to include not only continued guidance but also appropriate vocational assistance during employment.

Greater importance will be given in the future to vocational guidance for adults. By making use of what is called the " second road to training " and thus taking supplementary vocational courses adults will have an opportunity of improving their vocational situation. They will consequently need the assistance of vocations counsellors and of psychologists and it will be necessary to contemplate the provision of evening consultations for persons who are occupied during the day.

Scientific research in the field of knowledge about the vocations and labour will also receive increased attention in the future. In connection with administration regarding labour a psychological research centre has recently been set up to operate in conjunction with the regional labour bureau in Steiermark, Graz, under the direction and supervision of the federal Ministry for Social Affairs.

International Action

Scholarships for travel and study have sometimes been received from international organizations by vocations counsellors and by psychologists for the purpose of enabling them to examine the operation of relevant services abroad. With the aid of grants some members of such staff have been able to take part in congresses and international seminars.

In the future too scholarships for study or further training abroad will be appreciated but, generally speaking, the assistance of foreign specialists is not desired in Austria.

BELGIUM

From the reply sent by the Ministry of National Education and Culture

Structure and Regulations

Nature of guidance. There are vocational guidance bureaux. In addition, psycho-medical social aid is provided at centres, the first of which were set up in 1947 by the Belgian government. Such centres were soon afterwards set up also by communal and provincial authorities, by associations of public authorities and by private persons.

The procedures traditionally employed by the vocational guidance counsellor are no longer adequate and it is necessary that to psychology the medical and sociological disciplines be linked. This is what has been achieved by the psycho-medical social aid centre where, together in a single unit, the doctor, nurse, psychologist and welfare worker have the task, in particular, of providing secondary school pupils with protection of a psychological, medical and social kind by making it possible for them actually to obtain the vocational training chosen and, whenever necessary, to vary the branch of study originally begun.

Mention should also be made not only of the two psycho-technical centres set up by the Ministry of Labour with a view to the guidance of young people who apply to its employment services but also of the youth welfare service and the psycho-technical centre which the Ministry of Defence has for the selection of militiamen.

At 26 establishments of general secondary education and 6 establishments of technical secondary education an experiment is being carried out with guidance stages which cover the three years of study following the primary school course.

In these guidance classes, where the pupils are normally aged between 12 and 15 years and which embrace the humanities junior stage, there is no longer any differentiation between Latin, modern or technical sections. All pupils have a common programme as well as a choice between three additional courses (Latin course, technical course, so-termed modern course in which mathematics and mother tongue are allotted places).

The common programme includes elementary knowledge for pupils who choose the Latin course as well as for the others. Pupils are able to change from one course to another during the first year, at the end of the first year or at the end of the second year and in such cases special courses are provided in order that they may become adjusted to the new course chosen. At the end of three years the pupils are required to choose between the different sections of the senior level secondary school course.

Compulsory nature and free provision. Vocational guidance is not compulsory during the schooling years. Nevertheless, it is required that a vocational guidance examination be taken by every young person who wishes to learn a vocation under an apprenticeship agreement.

Consultations and examinations at state services and at those subsidised by the state are free of charge. Fees are payable only at private institutions which are not subsidised by the state.

Organization and financing. The vocational guidance services are operated under official provisions which have been revised in recent years.

The current provisions are contained in a royal decree of 13th August, 1962, relating to the psycho-medical social aid centres and the educational and vocational guidance bureaux. These provisions apply not only to official services but also to private services.

The official bureaux and centres are organized and financed by the state, the provinces and the communes (acting either separately or in inter-communal groups).

The private vocational guidance services are organized by either real or fictitious persons. Those services which conform with the provisions contained in the royal decree of 13th August, 1962, are subsidised by the state. The financing of the others must be arranged by themselves.

Cooperation between the services. In order that advice may be objective and that when given by vocational guidance services it may not be influenced by outside bodies, the administration of the bureaux and centres must be independent of the administration not only of school establishments but also of any institution which is concerned with vocational training, placement in employment or with social or school health protection.

It was intended that cooperation with the employment services should be undertaken by a mixed national commission and by regional commissions but only the national commission has been set up so far and it sits very seldom. Cooperation at the present takes place mainly through direct contact; the employment services request the bureaux for expert opinions in regard to vocational guidance and the bureaux send their clients who are seeking work to the employment service.

In some places there is cooperation between the vocational guidance services and the following bodies: the national office for placement and unemployment (O.N.P.C.); health centres; employment centres; the apprenticeship secretariat; the national disabled soldiers' organization (ONIG); the national ex-servicemen's organization (ONAC); the national organization for orphans as a result of work (ONOT); the Ministry of Health.

Relations with the labour market. All the vocational guidance bureaux and psycho-medical social aid centres receive the weekly and monthly bulletins of the Employment Office.

The Ministry of Labour has just set up a special service under the name of *Marché de l'emploi* (Employment Market) and the studies produced by this service will be made public throughout the bureaux and centres. Set up two years ago, an economic programming office will furnish general directives within the next few months.

In connection with employment in scientific and technical sectors the Ministry of National Education and Culture had an important investigation carried out and in 1959 the findings were published in a " white paper " which was made available to the centres and bureaux. For their part the centres and bureaux endeavour to collect data in order that the information may be kept up to date.

Procedures and Practices

Techniques employed. The following examinations are given: psycho-metric examination; diagnostic examination; individual examination; special examination for the handicapped. In the case of the latter one, use is made of various group and individual tests in order to identify several characteristics (mental level, interests, individual aptitudes, personality, reasons for behaviour). For the diagnostic examination an analysis by means of social inquiry is made of the family situation and of the attitudes manifested in social and school relationships. In addition, the directing counsellor should be able to refer to explicit findings of a medical examination for the purpose of both vocational guidance and psychological protection.

The teachers make no use either of attainment tests or of aptitude tests. All the psychological and guidance work is carried out at the psycho-medical social aid centres and they remain entirely responsible for the psychological protection of the pupils.

Information on the vocations. Such information is provided in the following ways: publication of vocational brochures; showing of films; information sessions broadcast by television and radio; series of lectures delivered at the schools for the benefit of parents and pupils.

Since 1958 the Vocational Guidance Service has been distributing information by means of a fortnightly bulletin " *Ecoles et Professions* " (Schools and Vocations).

Follow-up practices. The vocational guidance services may advise pupils to proceed to a vocational or technical section in cases where general courses of study are not to be recommended but no action is taken as regards the choice of a school.

When the occasion arises these services deal with registration at an employment office. In regard to apprenticeship agreements, there is a body which, placed under the responsibility of the Ministry for the Middle Classes and called the Apprenticeship Secretariat, is concerned with the establishing of contacts and with ensuring the protection of young persons engaged under apprenticeship agreements.

The advice given by vocational guidance services is offered simply as such. The psycho-medical social aid centres provide pupils with psychological protection throughout their vocational training at school during the secondary level course.

Informative and persuasive action with families, or possibly with the child, always takes the form of an oral interview at the bureau itself.

Contact is made with the teachers in order to be prepared for repercussions which the psychological knowledge of the case may have on the teaching.

The protection of young people at work is ensured as a result of the vocational protection which the national employment office provides for them as from the time of their application for engagement.

Staff

Composition and selection of staff. The technical staff at the bureaux and centres includes directing counsellors, counsellors and assistants (nurses,

vocational guidance assistants, assistants in psychology, welfare workers). Each service has a clerk for attending to current administrative tasks. One or more half-time doctors are attached to each bureau.

As regards the staffing of the state centres, selection is made by the Ministry of National Education and Culture from among the list of applicants.

In the case of the provincial and communal services, either the provincial government or the communal authorities appoint the staff.

Appointments to the staff of private offices are made by the administrative board of the office concerned.

Training and further training. A directing counsellor must be holder of a degree in vocational guidance and selection, in psychological science or in applied psychology. Such degrees are obtained after a four-year course at a university. A counsellor must be holder of the same degrees or of the degree in educational science, which is also obtained after a four-year course at a university. As regards the assistants, they are required to possess one of the following: a certificate awarded, in conformity with the royal decree of 22nd October, 1936, for proficiency to assume the duties of counsellor or of vocational guidance assistant; the welfare counsellors' diploma; a welfare worker's diploma awarded in conformity with the royal decree of 28th February, 1952; an assistant's diploma in psychology, awarded by an establishment which is organized, subsidised or recognised by the state; the welfare nurses' diploma; the nurses' diploma in social hygiene.

The universities provide training for staff who are to assume the duties of directing counsellor or counsellor psychologist.

The bachelor's degree in vocational guidance and selection was instituted under a royal decree of 13th January, 1947, and involves a four-year course of study.

The doctor's degree in vocational guidance and selection was created under a royal decree of 14th January, 1956; the relevant examination, which must be taken not less than one year after the bachelor's degree has been obtained, involves the presentation of both an original dissertation and a thesis.

The vocational guidance assistants receive their training at special schools, for admission to which it is necessary to hold a certificate for teaching at senior secondary education level. The course is a two-year one.

As regards the state services and in connection with the inspection, a centre for training and further training has been set up and it is thus possible for university acquired theory to receive practical application and for initial instruction to be given in new techniques and in group work.

Conditions of service. The conditions of service of specialised staff at the vocational guidance bureaux and psycho-medical social aid centres correspond to those of science teachers and comparable teaching staff.

The directing counsellors, counsellors and assistants receive the same salaries as those of secondary school principals and teachers holding diplomas (university, senior technical, secondary technical) of equivalent standard.

Plans for the Future

In order that parents may be free to choose between official and free services the government has accepted a five-year plan relating to the extension of the network of state centres which provide psycho-medical social aid.

Every year since 1960 has seen the opening of six additional centres.

International Action

This country has not received and does not wish to receive international assistance in the field of educational and vocational guidance.

BRAZIL

From the reply sent by the Ministry of Education and Culture

Structure and Regulations

Nature of guidance. In Brazil the vocational guidance is intended for adolescents and adults. Adolescents are oriented towards vocational schools according to their aptitudes, abilities, tastes as well as their personality traits and with due consideration being given to their economic and social situation. In the case of adults, the vocational guidance helps them to choose from among various offers of work the one which seems best suited to their circumstances and personal characteristics.

The guidance is essentially of a psychological kind since its purpose is to help the individual to become adjusted not only to vocational life but also to life in the home, at school and in society.

There are official and semi-official services as well as private ones but they are as yet few in number. Legislative provisions apply only to the official services.

Compulsory nature and free provision. Vocational guidance is not compulsory, partly owing to the lack of specialists capable of devoting themselves to the task and partly because the government has problems of a more urgent nature to solve in regard to education of the people. Vocational guidance is free of charge not only at official services but also at semi-official and private services when these are provided for persons who are employed at a particular concern. Fees are payable in the other cases.

Organization and financing. The few official services in existence are under the control of the different constituent states and the governments of these states are responsible for organizing and financing such of these services as operate within their respective territories. There are no federal services of an official kind.

A few semi-official or private bodies of a national character have regional departments in which vocational guidance services are operating. The following are examples: the Selection and Vocational Guidance Institute of the Getulio Vargas Foundation at Rio de Janeiro; the national service for business apprenticeship (SENAC); the national service for industrial apprenticeship (SENAI). Other concerns (banks, railways, industries) have vocational guidance services which are engaged in recruiting the personnel as well as in advising the young people and orienting them towards the vocational school or the type of work most appropriate to their aptitudes, interests and characters.

Cooperation between the services. Such cooperation is still inadequate.

Relations with the labour market. Owing to its limited field of action and to the small number of existing services vocational guidance does not yet play an important role in regard to this country's economy and the labour

market. Relations with the various sectors concerned in the country's development are unfortunately not organized in a systematic way.

Procedures and Practices

Techniques employed. The means generally employed are: psycho-technical examinations; tests of aptitude, motivation and attainment; personality tests; interviews; questionnaires relating to interests; consultation of school results; medical examinations.

Information on the vocations. Publications are sent to the schools and to the official and private concerns. Other means employed for giving information are: lectures; forums; meetings among professionals; visits to schools and to commercial and industrial concerns; publication of articles in the newspapers.

Follow-up practices. The assistance is usually concerned with the choosing of a vocational school, the placement in employment, vocational re-adjustment at the same concern or elsewhere as well as with vocational selection.

Informative and persuasive action is taken with the young people and, although less often, with their families and teachers.

In certain cases the careers of those who have received guidance are followed.

Staff

Composition and selection of staff. The staff varies from one service to another. The Selection and Vocational Guidance Institute of the Getulio Vargas Foundation, Rio de Janeiro, consists of the following: an administration section; a guidance division with three sections (one for children, one for adolescents and one for adults); a selection division; a medical service; a psychological service; a library; a statistics and research section. Apart from the head the staff of the institute includes the following members: two divisional heads; the head of the administrative service; six doctors; nine technical assistants; an education technical officer; a male nurse to assist the electro-encephalographic operator; a statistician; thirteen administrative assistants; three messengers.

The staff for official services are selected by means of competitive examination. In the case of semi-official and private services the selection is made by means of interviews and consideration is given to previous experience and university training.

Training and further training. The specialist staff have taken four-year courses in psychology at a university.

To provide further training the official, semi-official and private institutions organize special courses, seminars and congresses, as well as practical courses of varying length.

Conditions of service. The conditions of service applicable to specialist staff are equivalent to those of higher level staff. The situation and remuneration of such staff at official services can be compared with the situation and

remuneration of secondary school teachers. The specialists at private services are usually better paid.

Plans for the Future

For development of guidance it will be necessary to train technicians and specialists doctors, develop scientific research, including study of the labour market, prepare technical material as well as to receive larger official subsidies for enabling additional services to be set up and the equipment to be improved.

For some years the universities have arranged courses for the training of psychologists and vocational guidance officers. The Ministry of Education and Culture is encouraging the setting up of vocational guidance services at secondary schools in this country. The government in the state of Minas Gerais is gradually implementing a plan for extending to all towns the advantages offered by vocational guidance services.

International Action

Apart from scholarships, Brazil has not received international assistance in the field of vocational guidance.

She wishes to receive further scholarships and have assistance from experts. The experts would be able to help very much in connection with the courses which, for the training of psychologists and vocational guidance officers, are to be organized at Brazilian universities, for example in the states of Minas Gerais, São Paulo, Guanabara, Rio Grande do Sul and Pernambuco.

BULGARIA

From the reply sent by the Ministry of Foreign Affairs

Nature of Guidance

The whole system of public education is linked to life and to the circuit of production. As a result there is no need for vocational guidance services in the strict sense.

In order to prepare pupils for choosing a vocation, education through work, alongside general education with a polytechnical basis, has been introduced as from the primary school years. This education through work is provided at workshops which are set up in connection with primary schools and the pupils there learn, among other things, to work with paper, wood and metals, also needlework, housewifery, elementary electronics and the principles of rural economy. There the children engage in practical work which allows them to make the most of their aptitudes.

Furthermore, at every primary school, circles are organized to encourage interest in chemistry, physics, literature, history, geography, music, ballet, model aeroplanes, natural history, etc. and according to their aptitudes the pupils are at liberty to join them.

The young technicians' and young naturalists' clubs also play a leading part in the vocational guidance given to the young. According to their respective aptitudes the latter are trained in various special areas: radio engineering; motor vehicles and tractors; model aeroplanes and boats; agriculture; gardening; husbandry, etc.

Provision is made in the curriculum for 13 days to be devoted every year to excursions: visits to factories and larger concerns as well as to sites and monuments, etc.

After the eight years of the primary school course the pupils continue their schooling during four years (9th to 12th class) at a polytechnical secondary school (selecting in addition to the general education subjects one of the 66 special branches provided) or else at a technicum or technical vocational school. On completion of the course at the polytechnical secondary school the pupil is awarded a final certificate as well as a certificate attesting his capability and entitling him to pursue in the system of production the special branch of work which he has studied.

After the technicum or secondary school the young people can take a competitive examination with a view to proceeding to a higher education establishment and irrespective of the type of secondary school which they have attended. On admission they study the special branch which they choose and are trained for joining high ranking staff in the economic and cultural fields.

International Action

This country has not as yet received international assistance in the field of guidance to young people. She would like to be kept informed not only of the publications which deal with the matter but also of the results obtained in the most advanced countries.

BYELORUSSIA

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of Guidance. The vocational guidance of schoolchildren occupies an important place among all the educational measures provided both for consolidating the binding relationship between the school and everyday life and for promoting " education through work ". Such guidance is an integral part of the whole process of education from the 5th to the 8th school year. During the 5th and 6th years the pupils are given general ideas about the main groups of vocations (those in industry, agriculture, building, transport, regular services, cultural fields, etc.). During the 7th and 8th years a study is made of the vocations which particularly attract pupils as well as of those which are of special importance to a particular region. An endeavour is made to ensure that the choice of a vocation is consistent with the interest manifested by the pupil as well as with his abilities, his state of health and his physical attributes, while at the same time consideration is given to the demand in the different districts for specialists. There are consequently no separate services for vocational guidance.

Compulsory nature and free provision. As it constitutes part of the whole system of education, vocational guidance is free of charge and compulsory.

Organization and financing. The Ministry of Education, its local agencies and the schools are the authorities directly responsible for the organization of vocational guidance. In addition, business firms, *kolkhozes, sovkhozes* and public associations take an active part in such guidance.

Provision for all measures taken in connection with vocational guidance work is made in the local budget and in that of the central government.

Cooperation between the services. The Ministry of Education and its local agencies cooperate with the Ministry of Higher, Specialised Secondary, and Vocational Education, the Ministry of Health, the National Economic Council and its local agencies as well as with the executive committees of the workers' soviets.

Relations with the labour market. Engineers, technicians and skilled workers are trained in accordance with a strict national economic plan under which are determined the needs in personnel for the various branches of the economy. This plan concerning foreseeable needs underlies activity in connection with vocational guidance.

Procedures and Practices

Information on the vocations. Lectures and practical demonstrations are given at schools. Use is made of films, radio and television. Nature trips are arranged and visits are made to business firms. The pupils take part in the activities of scientific and technical study groups attached to schools as well as in schoolchildren's clubs, etc. Meetings are arranged with scholars and writers as well as with progressive workers in industry, agriculture and other constructive activity. Engineers, technicians, students and skilled workers are invited to give pupils some idea of vocational techniques. In addition to various exhibitions of pupils' technical and artistic work, mobile exhibitions with stands representing the vocations are organized. There are discussions both of books and films dealing with various vocations and of wall news-sheets specially published concerning the vocations in the region.

A part in informing the young about the vocations is taken also by the institutions of an extra-scholastic nature (young technicians' and young naturalists' centres, etc.).

In talks held on the moral and other qualities required for any particular vocation the parents take an active part and they offer advice to pupils who desire it. The parents' committees at the schools assist with the publication of wall posters, the organizing of visits to the parents' places of work as well as with the setting up of stands which reflect the activity of workers in various vocations.

In collaboration with the state publishing house the pedagogical institute of scientific research prepares and publishes *ad hoc* documentary material. University professors, professors of education and psychology at the pedagogical institutes (higher level teacher training schools) and instructors engaged at secondary vocational level take part in this work.

Follow-up practices. The Ministry of Education, the Ministry of Higher, Specialised Secondary, and Vocational Education, as well as their local agencies, supervise the recruitment of young people in school establishments and assist with the choice of vocations.

School principals and teachers endeavour in every way to give parents an opportunity of obtaining information on the vocations open to their children.

According to their special training, young graduates are placed as a matter of course by the ministries and departments and receive every care and attention; they are assisted and enjoy certain privileges and advantages. Without special dispensation from the Ministry to which they are responsible the graduates are required to work for at least three years at their place of assignment.

Staff

Composition and selection of staff. There are no special ranks of staff responsible for giving vocational guidance. This task is undertaken by school principals and teachers, who for the purpose take as guiding principles the directives contained in the letter of the Ministry of Education on " vocational guidance to pupils in general schools ".

Training and further training. Problems of vocational guidance are discussed by the school commissions which are concerned with methods as well as by meetings of classroom teachers and teachers of the same subject. In this way teachers learn of the procedures employed in vocational guidance and are kept informed concerning the various groups of vocations embraced by the region's whole economy. In the different districts the offices concerned with pedagogical matters not only help teachers to procure all useful documentation but also provide them with necessary knowledge about the various vocations.

Such matters are included in the programmes of courses and seminars at the institutes which provide further training for teachers. These institutes study the best experiments carried out in this field by schools and extra-scholastic establishments and undertake the dissemination of results.

International Action

Byelorussia has not received any international assistance in the matter of vocational guidance. The present system is giving complete satisfaction.

CAMBODIA

From the reply sent by the Ministry of National Education

Nature of Guidance

At the present time the problem of vocational guidance is becoming urgent on account of this country's industrialisation but no service either public or private has been set up so far. As regards educational guidance, the matter is being studied and preparations are being made for it.

A first step was taken with the setting up of a psycho-technical section at the directorate of educational services. This section is endeavouring to design tests for determining grade level of pupils at primary and secondary schools but difficulty in continuing with such work is being experienced due to lack of qualified staff.

International Action

A Japanese psycho-technical expert, sent to Cambodia for a six-month period under the Colombo Plan, was unable to complete his work owing to lack of time and apparatus.

The requisites for effective development of the psycho-technical section are: (1) a mission comprising one psycho-technical expert, one statistician, one educator, for a period of one year with possibility of extension to two years; (2) the necessary apparatus for the preparation of test standardisation; (3) a completely equipped psycho-technical laboratory; (4) documentation on the technical organization and the operation of this kind of laboratory as well as on the research work of psycho-technicians in various countries.

CANADA

From the reply furnished by the Canadian Education Association from information supplied by the provincial Departments of Education

Structure and Regulations

Nature of guidance. Although the subject of guidance is a complex one and there is across Canada great variation in the handling of it, there is general agreement among Canadian educators that the student must be assisted (1) to understand himself, (2) to know about educational opportunities and the world of work, (3) to realise the educational paths which are required in order to reach the various occupational goals.

Vocational guidance is an integral part of the school programme in seven of the ten provinces. As early as 1943 some Departments of Education established services for it. In addition, many official, semi-official and private agencies have set up psychological services and vocational guidance services.

Compulsory nature and free provision. Vocational guidance is compulsory in most large school systems in Canada and is provided without charge to pupils at secondary level in grades 9 to 13 and, in many cases, in primary grades 7 and 8 as well.

Organization and financing. As seen above, the Departments of Education are responsible for the vocational guidance services in the schools. There are three groups of semi-official and private agencies which have services either for vocational guidance or of a psychological nature: (1) agencies such as the Society for Crippled Children, the Rehabilitation Foundation for the Disabled and some provincial departments of rehabilitation provide services free of charge to persons physically or mentally impaired; (2) organizations of international renown (the Young Men's and Young Women's Christian Association Counselling Services, the Jewish Vocational Service, Family Service Bureaux, Big Brothers, the John Howard Society); (3) private organizations which operate on a commercial basis.

Relations with the labour market. The National Employment Service regularly issues statistical information on the labour market. In order to intensify the training of students in skills sought by the labour market the federal government has expanded its technical and vocational training agreement with the ten provinces so that for the period from 1st April, 1961, to 31st March, 1963, it has assumed 75% of the capital cost of new buildings and additions for technical and vocational schools. Between 1st April, 1961, and 15th July, 1962, a total of 395 million Canadian dollars was allotted for the construction and equipment of such schools.

Procedures and Practices

Techniques employed. In school guidance services tests of various kinds are used: intelligence tests; group tests of achievement; interest inventories; aptitude tests, etc. Tests in mathematics and to determine comprehension and speed in reading are regularly given. Competent teachers have always used tests to reveal students' weaknesses in the basic subjects and thus to enable remedial measures to be taken.

In most school systems the testing programme is carried out by the director of guidance, the school principal or the classroom teachers. The tests are usually scored locally, although in British Columbia and Nova Scotia arrangements may be made to have tests scored on machines in the Department of Education.

In Ontario, aptitude tests prepared by the Department of Educational Research of the College of Education and achievement tests prepared in two or three subjects by the Department of Education are administered to all students in the 12th grade. The scoring is done by the Department of Educational Research, which will also provide scoring service for tests in grades 8, 9 and 10 if requested.

In Nova Scotia and British Columbia the central Departments of Education carry out special testing projects from time to time on a province-wide basis and thus a provincial norm can be determined for comparison with the national norm. When tests are administered locally, the Department of Education generally provides services for the interpretation of the results.

Some Departments of Education have established a cumulative record card system which is uniform. On a pupil's card, which is transferable from one school to another, may be found his complete history from pre-school days until the time of his leaving school.

Counselling is an important part of the guidance programme. The counsellor plans long-range goals with the student, examines the latter's difficulties, makes referrals to health clinics and establishes liaison with parents, senior schools and the universities. Personal and behaviour problems are also dealt with as they arise.

Information on the vocations. Information on the various professions is communicated by means of lectures, films, radio, television and publications. Many schools arrange " Career Days ", when a physician, a dentist, a lawyer, an engineer, etc. will go to the school to discuss with the students the different professions, the university entrance requirements, the length of courses, the prospects of employment and in general the advantages and limitations.

Follow-up practices. In the vocational guidance classes the students learn about the various types of schools, the apprenticeship system and the employment services. The knowledge, however, is informative only and not accompanied by persuasive action. A student may be advised but the final choice must be left to him and his parents.

Surveys are conducted annually to ascertain the success of students in the courses chosen. The Dominion Bureau of Statistics compiles an annual report on withdrawals from school which is widely discussed and commented.

Staff

Composition and selection of staff. In seven of the ten provinces in Canada the central Departments of Education have directors of guidance. In these provinces the directors of guidance are assisted by one to four specialists.

Training and further training. The directors and their assistants hold arts degrees with majors in psychology, testing, etc. All have had several years of successful teaching experience and the majority have taken post-graduate courses in pedagogy and guidance. Many of the private agencies employ psychologists and other personnel trained in testing and counselling.

Summer courses in guidance are conducted each year by a number of provincial Departments of Education. Teachers who complete the courses are awarded special certificates which qualify them for guidance work.

Conditions of service. Specialists in guidance who are employed in school systems are paid, for the most part, the same salaries as those of specialists in subject areas (English, geography, science, etc.).

Plans for the Future

Such plans must involve the training of many more guidance personnel as is shown by several facts. Canada's population has increased and continues to increase at an unprecedented rate. Since the end of the second world war more than 2 million immigrants have been admitted into this country. The school population in 1962 was the highest in the history of the nation. Automation requires employees with specific skills. Although there is a large number of highly trained men in the traditional trades there are not enough in those areas which require the new skills created by automation and by advancing technology.

The educationists are cognisant of the fact that more and more competent persons must be trained in guidance. Some provinces are planning to conduct courses for the purpose during the summer of 1963 for the first time. In other provinces there is increasing interest among teachers and the enrolments have been increasing steadily. Alert and vital guidance departments must keep abreast of trends and practices in guidance and counselling procedures. Many of them engage in experimental and research studies in this connection. The Director of Guidance for Ontario reports more than 300 such studies at the present time in that province. Many students select topics in guidance for theses at the masters and doctoral levels.

In conclusion it may be said that the guidance services programme is receiving a high degree of priority from the education authorities. The new vocational training agreements between the federal and provincial authorities have given great impetus to the construction of vocational schools and already it is demanded that more guidance be given in order to assist students.

CENTRAL AFRICAN REPUBLIC

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. A centre for the study of questions relating to work and to vocational training was set up in 1960 and reorganized under a decree of 17th February, 1962, dealing with the organization of the Labour Directorate, manpower and social security. The centre's task is to study problems connected with productivity and with promotion of the worker. It is engaged in research and documentation on workers (in particular the young ones), the environment and the vocations as well as on the methods and programmes of social and vocational training, the conditions of workers and the mutual adjustment between man and work. In addition, it gives opinions and advice relative to choice of vocation (previous medical and psycho-technical examination) and promotion of the worker as well as to both placement in employment and re-classification of workers, the unemployed, delinquents and persons with diminished capacities. The centre offers assistance to public groups and private concerns with a view to improvement in the installation and vocational adjustment of their employees. It is also concerned with the training of personnel.

The study centre is an official service. There are no similar services of a private nature.

Compulsory nature and free provision. Vocational guidance is not compulsory. It is free of charge.

Organization and financing. The authorities responsible for organizing and financing the centre are the National Assembly, which votes the funds required for operation, the Ministry of Social Affairs, Labour, Youth and Sport and the head of the study centre.

Cooperation between the services. Within the vocational training advisory commission the different educational, economic, social and similar services meet in order to examine with representatives of the employers and workers all questions which relate to employment and to vocational guidance.

Relations with the labour market. The centre set up for study of questions relating to work is so far only in a beginning stage. Applications, however, for assistance are often received by it not only from the administrative services but also from concerns belonging to the private sector.

Procedures and Practices

Techniques employed. The techniques employed are those which are in most current use elsewhere.

Information on the vocations. Information on the subject of the vocations is given by means of radio broadcasts, publications and occasional films.

Follow-up practices. The choosing of a vocational school is dealt with by the work questions study centre. The centre follows up those who have received guidance and concerns itself with their integration in the vocational sector.

Staff

Composition and selection of staff. As regards the work questions study centre, its staff consists of a head and a doctor, together with a secretariat. Staff members are recruited according to formal qualifications possessed.

Training and further training. The head was formerly a teacher and holds a psycho-technical officer's diploma, while the doctor is a specialist in the field of medicine relating to work. The staff are given information and further training by means of lectures, technical reviews, etc.

Conditions of service. The staff is set up by French technical assistance officials. Member of the staff can be compared with service heads in the different ministries.

Plans for the Future

The work questions study centre is in need of additional staff for the development of its activities. Hitherto the psycho-technical officer, who is the centre's head, has been at the same time the head both of the vocational training centre and of the manpower office. It is, however, expected that as from October, 1962, he will be able to devote all his time to the study centre.

International Action

It is considered desirable that Central African vocational guidance officers be trained by means of international assistance. At the present, however, it is not possible to specify the number of scholarships required.

CHAD

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Vocational guidance is provided in Chad but owing to a shortage of qualified staff it cannot be undertaken systematically. The only body with a vocational guidance service is the Labour Office, which has a psycho-technical section. Moreover, this section's work is aimed at selecting candidates for competitive and other examinations or for specific positions rather than at providing systematic vocational guidance. There is no provision for educational guidance.

Compulsory nature and free provision. Vocational guidance is not compulsory. The services of the Labour Office are free of charge.

Organization and financing. The Labour Office is a national public body which is autonomous as regards its finances. There are no regional or local bureaux responsible for vocational guidance. In 1961 the Chad government made a grant of 1,000,000 CFA francs to the psycho-technical section. During 1962 the section was operated with the office's own resources.

Cooperation between the services. There is no systematic cooperation between the psycho-technical section of the Labour Office and the other services. At the request of the education service, however, a certain number of pupils at lower secondary level were submitted by the Labour Office to a psycho-technical examination.

Relations with the labour market. Current needs both of the economy and of the labour market are as yet ill-defined. When the plan of economic and social development has been drawn up these needs will be specified.

Procedures and Practices

Techniques employed. With the materials at its disposal the psycho-technical section is able to administer tests of verbal and practical intelligence as well as tests of attainment (number, spelling), attention, memory, movement dissociation, etc.

Information on the vocations. Information concerning the vocations is not organized.

Follow-up practices. The psycho-technical section carries out a selection among candidates for the rapid courses of vocational training provided at the Fort-Lamy centre in the following: sheet metal work and welding; electricity in buildings; machines; motor cars; radio and electricity.

The section has insufficient resources for following up those who receive guidance. Pupils at the rapid training centre, whether or not they are successful in the final examination, are easily placed in employment by reason of the shortage of specialised manpower.

Staff

Composition and selection of staff. At the psycho-technical section there is a woman counsellor who is responsible in her task to the director of the Labour Office. She was chosen on account of her knowledge of work problems.

Training and further training. The above-mentioned counsellor, who holds the elementary certificate and first two parts of the senior certificate, has completed courses of further training during one week at the Educational Studies and Research Centre in Paris and during two weeks at the Issy psycho-technical practice establishments.

Conditions of service. Specialised staff are engaged on the spot and employed under a contract with the Labour Office. Their situation and remuneration may be compared with those of an assistant technical instructor.

Plans for the Future

Measures contemplated for development of vocational guidance services are dependent upon knowledge in regard to needs of the labour market.

International Action

Chad has profited from the cooperation of a French psycho-technical mission. She wishes to receive assistance from foreign countries or international organizations but such assistance can be contemplated only when the economic and social development plan now under consideration has revealed this country's underlying needs.

CHINA (Republic of)

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Educational guidance with a view to helping students solve problems connected with their studies and daily life has been a practice for a long time at schools of various levels. Apart from appointing guidance experts for this task the schools nominate a teacher to each class in order that he may keep close contact with students. In the case of secondary schools the Placement and Advanced Education Council has been set up for settling problems related to the selection and guidance of students.

A programme for vocational guidance in its true sense is just being started. Its aim is to explore the individual aptitudes and interests of students who are taking courses in industrial arts at junior high schools and thus help such students to prepare for their future occupations. This service is of an educational nature and is provided by way of experiment at a few schools.

On the other hand, vocational guidance is given at the employment services but these are few in number. The aim of such guidance is mainly social, that is to help people find work. The guidance is not concerned with education.

Compulsory nature and free provision. Vocational guidance is compulsory at a few junior high schools where it has been introduced experimentally. It is free of charge.

Organization and financing. The Ministry of Education is responsible for the organization and financing of educational guidance and vocational guidance at junior high schools. The Ministry of the Interior is responsible for the employment services where vocational guidance is given. There are no private vocational guidance services.

Cooperation between the services. There is cooperation between the services.

Relations with the labour market. Vocational guidance is still at an experimental stage. As and when it is developed the foreseeable needs of the national economy and of the labour market will certainly be considered.

Procedures and Practices

Techniques employed. In educational guidance generally, tests of achievement, intelligence, aptitude and interest are employed. In vocational guidance examinations use is made of the following techniques : interviews; medical examinations; consultation of the school record; some achievement tests.

Information on the vocations. For informing the students, in the classroom, about the various occupations use is made of a handbook on vocational guidance as well as of job cards, etc.

Follow-up practices. The advice given by vocational guidance officers is followed up by informative and persuasive action with the pupils, their families and their teachers.

It is not yet possible to follow the careers of those who receive guidance.

STAFF

Composition and selection of staff. The persons responsible for giving the vocational guidance are the industrial arts teachers, the other teachers and the vocational guidance staff.

Training and further training. Educational and vocational guidance courses are organized by the Department of Education and the Department of Industrial Education.

Conditions of service. The specialised staff have not as yet their own conditions of service.

PLANS FOR THE FUTURE

This country needs not only institutions for the training of vocational guidance workers and of psychologists but also a better testing system. If the present experiment is successful, vocational guidance will be extended to all junior high schools.

INTERNATIONAL ACTION

The Republic of China has not received international assistance in this field. She wishes to receive such assistance, especially in the form of scholarships for guidance workers.

COLOMBIA

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Connected with the Ministry of National Education is a vocational guidance section which has for aim the following: to study this country's problems and needs in the matter of vocational guidance; to draw up guidance programmes for public and private schools; to conduct psychological inquiries for educational purposes; for the benefit of teachers, to lay down standards in applied psychology and see to their application; to design model questionnaires and examinations for the use of education establishments which undertake the guidance and selection of pupils; to collaborate with the Division of Higher Education and Teacher Training with a view to the drawing up of syllabuses in educational psychology.

There is no organized system of vocational guidance services. The only official services at present in operation are those intended for pupils in the two final years at the national colleges of secondary education in Bogota. Only one service, namely the pilot service at the " Camilo Torres " college, is beginning guidance with pupils who are in their first year. There are also a few private services but they are concerned with a limited proportion of the school population.

In the absence of services the young people who desire advice of a vocational guidance kind apply directly or in writing to the Ministry of Education, which furnishes information to the best of its ability. Application may also be made to private guidance officers, who are to be found in some of the larger cities.

Compulsory nature and free provision. There is no compulsion in connection with guidance. The official services at the national colleges are free of charge. The private services are very expensive and consequently of avail only to pupils from well-to-do families.

Organization and financing. The Ministry of Education is responsible at national level for the official vocational guidance services and there are no regional or local services.

The private services are financed by the institutions themselves which organize them. Those who administer them adopt their own procedure. There are no rules governing the matter.

Cooperation between the services. So far the only cooperation between the services has taken place in connection with information.

Relations with the labour market. An endeavour is made to direct the young towards those vocations which are of most value to this country, that is to say towards careers which are connected with Colombia's present develop-

ment. The relations, however, between the various sectors involved in this development have not yet been coordinated.

Procedures and Practices

Techniques employed. The techniques most usually employed in vocational guidance are the following: tests of aptitude, attainment and vocational interest; questionnaires dealing with character traits; medical examinations; personal, family and school questionnaires; consultation of the school record; interviews with the subject receiving guidance and with his parents.

Information on the vocations. The vocational guidance section arranges lectures for informing the pupils, teachers and parents. It also has a guide and two brochures published: (a) " University Guide " which, intended for young persons who complete their secondary education, not only describes the various careers existing in this country but also indicates the universities and institutes where the necessary training may be received; (b) " Educational Guidance " describing for young pupils who complete their primary education not only the different branches of secondary education but also the careers open to those who complete four years of the secondary school course; (c) " Vocational Guidance ", a brochure intended both to inform members of teaching staff about problems which arise and to enlist teachers' collaboration.

Follow-up practices. While giving the young people sufficient opportunity of choice the existing services are mainly concerned with directing them towards the university professions, although when the occasion arises the young are directed towards training of a practical kind.

Those who receive guidance are not obliged to accept the advice of the guidance officers. Nevertheless, the majority of them follow the path suggested, although there are cases where, mainly for economic reasons, influence exerted by the family or by teachers may prevent the young person from choosing a vocation in accordance with his interests and aptitudes.

It is difficult to keep in contact with those who are given guidance but the service endeavours to follow them up in order that it may be able to improve its own methods.

Staff

Composition and selection of staff. At the present time the vocational guidance section consists of a head who is a psychologist as well as of two other psychologists, a social worker, a psychologist's assistant and a records officer. This staff is far from sufficient for carrying out its allotted tasks. A project exists for the complete reorganization of this section in order that it may become an institute capable of successfully fulfilling the mission assigned to it by the Ministry.

The head and the psychologists are required to hold a university degree in psychology and to have had practical experience in vocational guidance. The other members of the staff have taken the courses necessary for their duties. Appointments are made for a trial period of one year.

Training and further training. In this country only a small number of the staff are persons with special training. They received this training abroad by

obtaining an ordinary or doctor's degree in psychology, education or educational science. In order to speed up the training of necessary staff the faculties of psychology in this country have recently introduced special courses in vocational guidance.

Conditions of service. There are no special conditions of service for guidance officers. The salaries of the psychologists and guidance officers are not commensurate with the responsibilities of their task.

Plans for the Future

This country's main requirements in the field of vocational guidance are as follows: (1) reorganization of the vocational guidance section in order that it may possess the staff and means necessary for the development of its work; (2) setting up in the country's various regions, and putting into operation, six institutes for the study of psychology and of vocational guidance; (3) allocation of increased funds for vocational guidance; (4) training of sufficient staff both in educational psychology and in educational and vocational guidance and, for the purpose, not only assistance to the psychology faculties but also the award of larger scholarships; (5) reclassification of the civil and administrative service staff with a view to improvement of their salary scale; (6) introduction not only of regulations with application to the profession of guidance officer but also of conditions of service which guarantee its rights and protect its work.

The vocational guidance section has drawn up an extensive plan for improving its own work during the coming years. As regards development of the services, everything depends upon the economic situation. Increased funds cannot be allocated in the budget at present and contemplated projects must be postponed.

International Action

Apart from some scholarships this country has not received international assistance for its vocational guidance services. Such assistance is considered very necessary. The Ministry wishes to have available a sufficient number of scholarships in order that the staff indispensable to the development of the psychology and vocational guidance services may be given special training and prepared for their tasks.

CONGO (Leopoldville)

From the reply sent by the Ministry of National Education and Fine Arts

Structure and Regulations

Nature of guidance. The re-structured system of post-primary education includes a two-year " guidance stage " which follows the six-year primary school course. The programme of this stage is the same for all kinds of post-primary school and has among its aims that of enabling the aptitudes and interests of the pupil to be detected, by means of systematic observation, before he is oriented towards a general secondary school, a technical school or a vocational school.

In order to encourage pupils to manifest their aptitudes and interests, and in relation to " centres of interest ", the programme provides both for individual tasks and for group work. Provision is also made for free related activities.

Vocational guidance in its strict sense is provided for in the system and from 1957 until July, 1960, was actually given. The changes brought about by independence were followed by a staff shortage which has caused activities to be restricted and at present there is only one official vocational guidance centre, which is situated at Leopoldville. The work of the centre embraces the following: psycho-technical studies and research; educational guidance and selection; vocational guidance; conversations in which psychological, educational, medical and social factors are involved.

At the few private undertakings or semi-official agencies which adopt the practice of " vocational selection " the administrative responsibility for the latter belongs to a more general service which is concerned with staff and manpower.

Compulsory nature and free provision. Vocational guidance is not compulsory.

Organization and financing. The vocational guidance centre situated at Leopoldville is organized and financed by the Ministry of National Education and Fine Arts.

Cooperation between the services. Educational guidance and selection as well as the supervision in regard to the reform of secondary education (1st and 2nd years of the guidance stage) constitute important aspects of the cooperation between the school services and the centre. Applications for their pupils to be given guidance are made to the vocational guidance centre by the educational and welfare services which are provided for young people who are without work.

Relations with the labour market. In vocational guidance at the present time the data is not available for due consideration to be given to needs of the economy and of the labour market. There is so much unemployment that vocational guidance inevitably becomes selection.

Procedures and Practices

Techniques employed. The Reform Commission has adopted a type of individual school record which is to serve as model and make it possible to record systematically the teachers' observations in regard to the aptitudes and interests of pupils, their traits of character as well as their educational capabilities.

The same commission is now studying problems connected with the employment of aptitude tests and attainment tests when pupils are being selected on their entrance to the guidance stage and particularly when they are being oriented on completion of the stage.

At present the only examinations given at the vocational guidance centre are group ones of a psycho-technical type; they include aptitude tests and attainment tests.

Information on the vocations. The centre does not undertake the task of informing about the vocations. The reorganization of the documentation service, however, is now under consideration.

Follow-up practices. The vocational guidance centre selects the pupils on their admission to certain vocational schools and it is then that an endeavour is made to orient them according to their aptitudes. Consideration is now being given to a project for collaboration between the centre and the employment offices situated in Leopoldville.

Staff

Composition and selection of staff. At the present time the staff of the vocational guidance centre consists of the following: an assistant director sectional head; a Unesco expert on vocational guidance; a technical adviser; three teachers receiving practical training in the field of vocational guidance; office personnel.

Training and further training. The assistant director sectional head is the only specially trained Congolese person employed at the centre. Both the Unesco expert and the technical adviser have studied at the Institute of Educational Sciences, University of Geneva. As regards the teachers, they were chosen on account of their training in education, which is expected to provide a basis for their understanding of fundamental psycho-technical procedures.

The question of further training does not arise as there are no trained guidance officers serving.

Conditions of service. There are no conditions of service which have particular application to the specialised staff of the vocational guidance service. The Congolese staff now employed at the centre have conditions and salaries similar to those of officials in the other sectors of administration.

Plans for the Future

In order to promote psychological and educational testing and thus help considerably to bring about the better allotment of pupils among the different types of post-primary education, provision has been made for close collabora-

tion between the education authorities and the authorities responsible for implementing the reform, on the one hand, and the pilot educational and vocational guidance centre at Leopoldville on the other. The centre is to become a national centre for applied educational and psychological research and with this in view it has already begun establishing a network of provincial correspondents for extending the use of tests at as many school establishments as possible.

In addition to this task the centre is required to help with the supervision in regard to the new primary and secondary school syllabuses and in view of this it has already prepared a certain number of tests covering the syllabuses in French and mathematics for the first year of the guidance stage.

International Action

In the field of vocational guidance the Congolese Republic has received international assistance in the person of a Unesco expert and a second expert is expected to arrive very shortly.

This country is in need of much assistance from foreign countries or from international organizations such as Unesco or the International Labour Organization: visits by experts with a view both to the adaptation of psychological techniques and to the training of test operators; visits by doctors who are informed concerning the inspection of work and of vocational guidance; the award of scholarships to enable the training of future guidance officers. This country has need also of psycho-technical material.

COSTA RICA

From the reply sent by the Ministry of Public Education

Structure and Regulations

Nature of guidance. According to article 22 of the general law dealing with education the following services shall be provided for the assistance of schoolchildren: (a) an educational and vocational guidance service for investigating the aptitudes and interests of pupils and helping the latter to choose courses of study in accordance with their abilities in order that their proper emotional and social development may be ensured; (b) a social service which shall concern itself with family and social conditions and enable the school's work to be extended to the home and the community; (c) a health service.

As regards the guidance work, this is still only at an initial stage but it can be safely said that in secondary education the services place the emphasis on educational guidance while in vocational education it is mainly a question of vocational guidance.

At higher education level also, principally at the university, vocational guidance services have recently been established.

Compulsory nature and free provision. Educational and vocational guidance is not compulsory. It is available to all pupils in the 2nd stage (4th and 5th years) of the secondary school course. It is also free of charge.

Organization and financing. The guidance services are organized by each institution in accordance with directives issued by the Ministry of Public Education.

Cooperation between the services. Although recognised as a principle to be observed, such cooperation should be of a closer and more systematic nature. There is already cooperation with the population statistics and census service as well as with the University of Costa Rica.

Relations with the labour market. Research in regard to vocational needs and to manpower is only just beginning.

Procedures and Practices

Techniques employed. The following means are employed: interviews, home visiting, tests of aptitude, attainment and vocational interest.

Information on the vocations. The giving of such information is not organized systematically. There are occasional lectures, radio and television broadcasts, newspaper articles and certain publications.

Fellow-up practices. The guidance services deal with the question of entering the university or of embarking upon a vocation. Informative and

persuasive action is taken. Pupils are followed up when they leave vocational education institutions.

Staff

Composition and selection of staff. At the level of secondary education the task of guidance is carried out by teachers and by welfare workers who possess the requisite gifts and qualities. At higher level the guidance is given by university graduates.

Training and further training. For educational guidance at secondary education level no special training is required. Persons, however, who at higher level are engaged in vocational guidance, receive special training. There are scholarships which enable guidance officers to receive further training.

Conditions of service. Guidance officers have the same salary scale as that of teaching staff.

Plans for the Future

The whole educational system is in the process of being reorganized. The secondary school course is to be divided, after its three-year first stage, into three sections (science, literature, vocational activities). Guidance will consequently play an essential role and it will be necessary to increase the number of teachers and assistants as well as to improve the curricula and the guidance services themselves.

International Action

Scholarships have been received by this country from Unesco and from the International Agency for Progress. Courses have been given by Unesco experts.

International assistance is still necessary, particularly at a time when the reform and reorganization of the educational system is being prepared and when vocational guidance is acquiring every day an importance which is increasing in proportion to the country's economic and social development. Costa Rica is in need of scholarships, experts and material both for the development of research in regard to vocational requirements and manpower needs and for the training of qualified staff.

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CZECHOSLOVAKIA

From the reply sent by the Ministry of Education and Culture

Structure and Regulations

Nature of guidance. Since the school year 1962-1963 all schools of nine-year general education have adopted the new educational concept known as " education with choice of a vocation in view ". Education is here conceived as a long-term educational process which develops step by step and in relation to the pupils' age throughout their schooling. It follows naturally that the choice of a vocation is made during the final years of the course at the nine-year school and that this choice is based on the adolescent's thoughtful and deliberate decision.

This new school has a closer connection with life and provides the young with all the conditions which are required for the unfoldment and expression of their interests, aptitudes, capacity for work, etc. This education with choice of a vocation in view is expected to ensure a better distribution of young people among the various vocations and at the same time guarantee a vocational satisfaction to the individual who has chosen his vocation in accordance with his tastes and abilities.

Education with choice of a vocation in view is reflected in each of education's component parts and is integrated both with all the subjects taught and with all the extra-scholastic activities (field trips, work for the country's benefit, activities of the clubs, pioneers' organization, youth centres, Organization of Czechoslovak Youth, etc.). School principals and teaching staff should never lose sight of the problem which education with choice of a vocation in view constitutes. Knowing their pupils well, they are able to make use of the different methods and types of education and teaching, in order to provide systematic guidance for those in their charge. The conscious choosing of a vocation consists of harmonising the objective and subjective aspects involved, that is of reconciling the interests and needs of the community with the interests and aptitudes of each pupil. It must be remembered that to a large extent man's aptitudes, particularly during his early years, can be moulded intentionally and that his vocational interests can be encouraged and developed according to a plan.

Compulsory nature and free provision. As seen above, education with choice of a vocation in view is integrated with the educational system practised at all basic schools and it is consequently compulsory and provided free of charge.

Organization and financing. The Ministry of Culture and Instruction as well as its regional and district agencies are responsible for the organization and financing of education with choice of a vocation in view at nine-year schools.

Cooperation between the services. There is close collaboration between all those who represent the social, educational, economic and medical interests

which may influence the choice of a vocation. The central commission responsible for advising in the field of education serves as an advisory body to the Ministry of Education and Culture and its members include representatives of the following institutions which take part in finding a solution to the problem: Commission for the Plan; Ministry of Health; Ministry of Agriculture, Construction, Fuel and Energy; educational research institutes; schools; Union of Czechoslovak Youth, etc.

Relations with the labour market. Education with choice of a vocation in view is based on a long-term view of this country's economic advancement and on the numerical situation in regard to man-power.

Procedures and Practices

Techniques employed. As education with choice of a vocation in view is based on an educational principle its techniques are usually different from those involved in the psychological and diagnostic concept of guidance. Such education comprises the following aspects: (a) general training for physical and intellectual work (particularly important role of knowledge which during education is acquired about human activity); (b) general information about the various vocations, the aptitudes required, the working conditions, etc.; (c) individual interviews which, held with the pupils and their parents, are based on thorough knowledge of the pupil and in which the results of regular medical consultations are taken into account.

Information on the vocations. In addition to the information given during education, brochures are published on the apprenticeship schools and specialised schools. Information is also provided by means of films, the daily papers, economic and technical reviews, wall bulletins. Radio and television are also occasionally employed. In order that the pupils may gain a sense of work there are visits to industrial undertakings where in some cases it may be possible for the pupils to perform certain work and talk on the spot with the workers. Mention may be made too of sponsorship accepted by the undertakings, exploitation projects managed by the pioneers, " twinning " of a class with a socialist work brigade, activities organized by the pupils for the benefit of the community, etc.

Follow-up practices. In accordance with the new concept of education, whether the young persons continue their study at higher schools, become apprenticed or are offered employment the school is becoming the factor to have principal influence on their distribution throughout the vocations and in 1962 the Ministry of Education and Culture issued regulations relating to this distribution. The school is thus given a new task and becomes an important instrument in state planning.

Staff

Composition and selection of staff. For education with choice of a vocation in view the counsellors are selected by school principals from among the teachers who are best qualified from the vocational and educational standpoint as well as from that of their political training.

Training and further training. The training of counsellors takes place at the schools themselves and is undertaken by a group of regional specialist lecturers who have received their knowledge at regional institutes provided for the further training of teachers and who are given instruction once or twice every year on current guidance problems by officials of the central institutions which, in regard to education with choice of a vocation in view, are responsible for giving direction. These officials belong to the educational and psychological research institutes in Prague and Bratislava, the Ministry of Education and Culture and the Ministry of Health as well as to the Planning Commission.

Conditions of service. At the present time the counsellors engaged as such at schools receive a special allowance. Their task will soon be defined more precisely from the point of view of its content and organization and it is intended either to reduce the number of teaching hours for teachers engaged in " education with choice of a vocation in view " (in which case the salary would remain unchanged) or else to pay such teachers a special fixed amount.

International Action

The Czechoslovak Socialist Republic is interested in the exchange of publications with other countries and would like to procure certain publications itself. In particular she would like to receive reports of the addresses which were delivered in Paris at the 1962 International Congress on Educational and Vocational Guidance. An international review dealing with the problem of research and experimentation in this field would be of great benefit. It would be helpful if a meeting were to be held for officials from the leading services in various countries in order that questions relating to the system of guidance in education might be discussed.

DAHOMEY

From the reply of the National Educational Institute under the Ministry of National Education and Culture

Structure and Regulations

Nature of guidance. In 1958 a beginning was made with educational and vocational guidance. In such guidance the aim is to assist pupils in their choice of vocation or in their entry to a higher level school and, while they are not automatically forced to accept specific choices, an endeavour is made to have them realize their real aptitudes.

Responsibility for guidance belongs to the National Educational Institute's section for statistics, information and educational and vocational guidance (formerly university information and statistics bureau).

Compulsory nature and free provision. Since 1960, as a result of a memorandum issued by the Ministry of National Education, educational and vocational guidance has been compulsory not only in final classes from which the pupils proceed to higher education and schools of advanced studies but also in primary school classes where the pupils contemplate taking technical courses (training centres and technical lycée). In other words guidance is normally compulsory at lower secondary level (pupils aged 12 to 14 years) and at the level of the secondary school final classes (pupils aged 20 to 21 and over). Guidance is free of charge.

Organization and financing. The service is official. It constitutes a section of the National Educational Institute, which latter is financed under the budget of the Ministry of Education. The director of the institute is responsible for the common budget covering all the sections.

Cooperation between the services. Cooperation takes place between the educational and vocational guidance section and other services, namely the social and educational services (cases for fresh guidance and for placement, inquiries regarding information, etc.), economic and employment services (investigations concerning the vocations, studies of the labour market, etc.), medical services (medical examinations, physical aptitudes, conflicting evidence, etc.).

Relations with the labour market. In guidance an account is taken of this country's present needs as studied in the four-year development plan. Guidance is also based on information provided from the private sector (chambers of commerce).

Procedures and Practices

Techniques employed. Guidance is based on data furnished by psychotechnical examinations and the medical inspection as well as on school results (school certificate, baccalaureate).

Taking into account all these particulars and the desires of the pupils as expressed in an inquiry concerning their vocational interests, the vocational guidance officer makes suggestions to them regarding their choice. Before his final advice is given these suggestions are discussed before a national scholarships commission consisting of teachers and of responsible persons from the country's different vocational sectors.

Information on the vocations. Vocational information is communicated by the following means: lectures given at schools by the director of the educational institute or by experts from different vocational circles; radio broadcasts (schools and vocations, schools for parents); adaptation and publication of brochures compiled by the University Statistics Bureau, Paris, on the schools of advanced studies and different vocations; inquiries concerning the vocational choice and desires of pupils.

Follow-up practices. The guidance services deal with the choice of vocational school, placement in apprenticeship, registration in employment office, etc.

The advice given is being followed more and more by pupils as they would otherwise risk losing a national scholarship. Stricter guidance closely related to this country's needs is contemplated for pupils by the government and the services which are concerned with the four-year plan.

The pupils assisted are followed up during their schooling if they proceed with their studies in Dahomey. Those who go to France are followed up by the educational and vocational guidance service of the Overseas Students' Office in Paris.

Owing to the mistrust manifested by the interested parties themselves, checking up and the giving of fresh guidance are not easy. By systematically following up pupils directed to take technical training it is intended to study on the spot the reliability of forecasts.

Staff

Composition and selection of staff. The staff of the educational institute's guidance section is composed of the following: the institute's director, who is responsible for the choosing and interpretation of tests; an outside teacher with a diploma received for courses in psychology and education; two office employees.

This staff is chosen on the basis both of the university degrees held and of the interest which the applicant has in this kind of work.

Training and further training. The specialised staff receive their training at French universities (psychology degree in the case of the director, psychology course diploma in the case of his assistant). Such staff take courses of further training in France.

Conditions of service. The conditions of service of the staff may be compared with those of teachers.

Plans for the Future

Like all the other sections (educational research, libraries, audio-visual methods) the guidance section is in need of qualified staff and technical material. It is necessary for the present staff to be strengthened by three or four guidance officers in order that the section's work may be extended to the territory as a whole. The central service stationed at Porto-Novo should regularly send itinerant missions into the interior and there is a consequent need for special vehicles furnished with technical material.

A preparatory report for the 1962 congress of the Dahomey Unity Party (government party) emphasised the necessity of "equipping the National Educational Institute's guidance service so that it may be able to carry out the research work necessary for adapting psycho-technical tests with a view to improvement in their employment".

International Action

Dahomey would like to receive aid from foreign countries in regard to the following: laboratory psycho-metric tests and equipment; exchanges on a non-payment basis together with subscriptions to reviews specially dealing with psychology and education; gifts of French, English, Spanish and possibly German technical literature; scholarships for future guidance officers.

DENMARK

From the reply sent by the Directorate of Labour

Structure and Regulations

Nature of guidance. Vocational guidance services are provided in connection with the public employment exchanges. There are no private services. General guidance consisting of occupational information is given to pupils in the top form at primary and secondary schools. A system of social and educational guidance, provided by special school counsellors, is at present being developed.

Compulsory nature and free provision. Occupational information is not only a compulsory part of the instruction given to top form pupils in all types of schools (Primary School Act, 1958 and Secondary School Act, 1958) but also forms part of the various types of youth education (Youth Education, 1960). Individual vocational guidance is not compulsory but it is free of charge.

Organization and financing. The responsibility for vocational guidance belongs to the Ministry of Labour. At the local level the public employment exchanges deal with the matter. The Ministry of Education and the local education authorities are responsible for implementation of the clauses under which the compulsory occupational information is given to pupils when leaving primary schools and secondary schools.

Cooperation between the services. The Vocational Guidance Board serves as a coordinating body between all agencies which are concerned with vocational guidance (public employment service, the schools, authorities responsible for vocational training, industrial organizations). Medical officers are available to assist in the individual vocational guidance.

Relations with the labour market. The principle of the individual's free choice implies that vocational training and guidance ought not to be used as propaganda to increase recruitment for certain occupations.

The different educational authorities and the federations of workers' and employers' organizations are represented on the Vocational Guidance Board. Other interests also are represented where required. The vocational guidance service stresses the importance of vocational training being organized in cooperation with the parties concerned, including the schools, the labour market organizations and the parents.

Procedures and Practices

Techniques employed. The introductory vocational training given during schooling helps the pupils to realize their personal qualifications and interests. It includes practical occupational experience (in the year 1961-1962 out of the 80,000 top form pupils 10,000 participated in " practice in the trade " arrangements for one or two weeks), theoretical education and the visits to certain undertakings.

When the time comes for actually choosing an occupation there is individual guidance consisting of a personal conversation and, as circumstances may require, a medical examination and psychological tests. In 1961-1962, out of 30,000 clients receiving individual guidance 5,600 were referred for psychological testing.

Information on the vocations. In addition to the information given about schools the vocational guidance service provides documentation on different occupations. At all vocational guidance offices as well as at schools and libraries there is an occupational dictionary which is issued by the Directorate of Labour. Furthermore, the directorate provides information through publications, films, the radio, television, meetings and conferences.

Follow-up practices. As the guidance service is part of the employment service, the placement in apprenticeship and the choice of vocational school are frequently carried out with collaboration between these two services but only the employment service will deal with the registration of people in search of work.

The advice given to the pupil is often the result of conferences arranged with him, his family and teachers on the basis of the information furnished from these respective sources.

The cases are to some extent followed up but until now not systematically.

Staff

Composition and selection of staff. On the staff of the vocational guidance division of the Directorate of Labour there are administrative officers, a pedagogical adviser, a psychological adviser, editors as well as the contributors to the occupational dictionary and other publications, psychologists.

As at 1st December, 1962, there where 70 vocational guidance officers, including 11 women, attached to the vocational guidance sections of the 31 local employment exchanges. Of these 70 guidance officers 26 are full-time officers. The others devote between 12 and 24 hours a week to vocational guidance. Three employment exchanges have only full-time vocational guidance officers, 9 have full-time and part-time officers, while the remaining 19 have only part-time officers.

Members of the vocational guidance division of the Directorate of Labour are selected from among persons who have taken courses at university or similar level in law, psychology or political economy.

Vocational guidance officers are appointed as officers of the employment service by the Directorate of Labour. They are recruited on recommendations which the manager of the employment exchange concerned makes after consultation with the local education authorities.

The post of vocational guidance officer is not restricted to persons with a particular training but is open to those who, in view of their training, attributes and previous employment, are considered as qualified to discharge their functions and to improve themselves professionally by means of the courses organized for vocational guidance officers. Among such officers now employed, 41 have received a training college education (most of them being primary school teachers), 8 have had university education, 4 have been trained at institutes of higher education, 9 have been trained as social workers and 8 have had other education.

Training and further training. The vocational guidance officers have participated in courses which, arranged by the Directorate of Labour, include training in methods and techniques of vocational information and vocational guidance, occupational and educational information, psychology, pedagogy, medicine, social information.

Conditions of service. Vocational guidance officers have the same conditions of service as have primary school teachers.

Plans for the Future

It is intended to implement fully the school legislation on compulsory vocational guidance in all types of schools and this will presuppose better training for the teachers concerned. Special assistance for handicapped pupils is also contemplated. Psychological assistance to the vocational guidance service is being developed.

International Action

Denmark has received no international assistance in the establishing of the vocational guidance service but close studies have been made of the systems in different countries, especially the other Scandinavian countries.

The government attaches great importance to the possibility of sending the vocational guidance officers and the members of the vocational guidance division of the Directorate of Labour to participate abroad in courses on educational and vocational guidance.

ECUADOR

From the reply sent by the Ministry of Public Education

Structure and Organization

Nature of the services. Since 1953, educational and vocational guidance services have been operating in this country. They are annexed to the Division of Technical Education and are for the exclusive use of the technical colleges.

Official provisions govern the functioning of these services, whose principal aim is to assist and guide pupils in the choosing of the special branch best suited to their individual aptitudes, interests and capabilities in view of their integration in economic and community life.

There are only official services.

Organization and financing. The services are placed under the control of both the Ministry of Education and the rectors and vice-rectors of the technical colleges.

Coordination with the labour market. In guidance the present and foreseeable needs of the economy and of the labour market are taken into account to a certain extent, while relations are maintained with the Planning Office and the Ministry of Public Works.

Procedures and Practices

Techniques employed. A record card is set up in the case of each pupil. His sensory reactions are studied and tests are carried out in order to reveal his aptitudes and interests.

Information on the vocations. Interviews, visits and lectures are arranged and use is made of films and documentary material. An educational and vocational information bulletin is published by the technical education and vocational guidance division of the Ministry of Public Education.

Follow-up practices. Both advice and information are given and those pupils who obtain their school certificate are followed up and helped to find employment.

Staff

Composition and training of staff. There is no specialised staff for vocational guidance, which is undertaken by teachers. Of these, 82% have had teaching experience and taken courses at the teacher training college, 10% have studied at higher or university level, while 8% have had teaching experience in addition to university training.

Refresher and further training courses in vocational guidance are occasionally provided for these three groups of teachers.

Conditions of service. The salary scale fixed in the case of teaching staff applies to all the teachers, that is to say the category to which they belong is determined by their formal qualifications and their years of service.

Plans for the Future

It is necessary to increase the number of specialised staff, provide additional psycho-technical equipment and improve the teachers' knowledge in the field of guidance. Consideration is being given to the following projects: (a) setting up of an institute for research concerning both the labour market and educational and vocational guidance; (b) organization of proficiency courses and in-service courses; (c) extending the benefit of guidance services to the sixth class in primary schools and to the classical colleges; (d) introduction of regulations to govern the selection for admission to secondary education colleges; (e) development of the services at the technical experimentation centres; (f) adaptation of new psycho-technical tests and publication of informatory and propaganda pamphlets.

International Action

Ecuador has received assistance from abroad in the form of scholarships. She would like such assistance to be supplemented by visits from experts and by the granting of a larger number of scholarships in order that the different guidance services may be specialised.

EL SALVADOR

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Educational and vocational guidance services began operating on a trial basis, in respect of pupils doing the first stage of the secondary school course, at five pilot centres distributed throughout various regions of this country. The aim of these centres is to help pupils know their own capabilities, to ensure that teachers perform their educative task by taking individual differences into account, to inform pupils about the opportunities for study and work in the locality and in the rest of the country, to watch over pupils' normal development within the school, social and home environments.

Compulsory nature and free provision. The guidance is not compulsory and is given free of charge.

Organization and financing. The services are officially placed under the responsibility of the Director General of Secondary Education at the Ministry of Education. There are no private services.

Cooperation between the services. Such cooperation is established as development of the services is effected.

Relations with the labour market. Coordination with the labour market does not yet exist but is contemplated under the plan of educational reform.

Procedures and Practices

Techniques employed. In order that the pupils may be understood and given guidance accordingly, use is made of the following means: observation, interviews, questionnaires, self-histories, socio-metric procedures, aptitude tests, personality tests, tests of interest.

Information on the vocations. For informing about the vocations there are handbooks, lectures, visits to work centres.

Follow-up practices. Wherever vocational guidance services exist they deal with the choosing of a school, placement in apprenticeship, registration at an employment office, etc. To a considerable extent they follow up those whom they have assisted.

Staff

Owing to the lack of specialised staff it is necessary to select from among secondary school teachers those who show the required qualifications. They are given additional training and are able to take vacation courses held for guidance counsellors.

Plans for the Future

It is necessary for the development of vocational guidance services to be effected not only at regional level but also at national level. They would then help to ensure a better distribution of staff throughout the different vocations.

International Action

A Unesco adviser collaborated in the organization and implementation of the plans relative to guidance.

This country desires not only further assistance from experts with a view to organizing and developing the services but also scholarships to ensure the training of specialised staff.

FINLAND

From the reply sent by the Ministry of Communication and Public Works

Structure and Regulations

Nature of guidance. Vocational guidance is intended to assist the individual in solving problems related to his vocational choice and progress. Attention is paid to the personal characteristics and aptitudes of the subject who is receiving guidance and to the relation which they have to occupational opportunity. Vocational guidance includes not only assistance to him in finding employment but also follow-up action during his vocational development.

Prior to receiving vocational guidance properly so called, pupils in the higher grades at "civic schools" and lower secondary schools are given systematic preliminary vocational guidance. These pupils are between 14 and 17 years of age.

Compulsory nature and free provision. Vocational guidance is free of charge and optional. The preliminary vocational guidance is included in the compulsory curriculum at schools and is given during one or two hours a week.

Organization and financing. Vocational guidance is governed by official provisions which came into force on 1st January, 1961. For the purposes of vocational guidance the country is divided into eleven districts or regions each of which has one regional office and from two to nine local guidance offices. At the beginning of January, 1963, there were 11 regional offices and 16 local offices. About fifty more local offices are still to be established. At the present about 45% of the population comes under the influence of the activity exercised by the vocational guidance offices, the figure being about 80% in the cities.

The direction and supervision as well as the financing of vocational guidance come under the responsibility of the Ministry of Communication and Public Works and are attended to within this ministry by the Bureau of Vocational Guidance.

The Ministry of Education and the Central Board of Schools finance the preliminary vocational guidance given at school within the educational programme.

On the other hand the official vocational guidance services provided for invalids and other physically handicapped persons by rehabilitation organizations are under the supervision of the Ministry for Social Affairs. The Institute of Occupational Health, the Invalids Foundation and the Foundation for Rehabilitation of Lung Invalids also provide vocational guidance services for which they receive financial aid from the Ministry for Social Affairs.

Cooperation between the services. The vocational guidance services and education authorities are in continuous and close cooperation with each other.

Liaison teachers chosen from among the school staff have the duty of delivering certain teachers' statements to the vocational guidance officials and of informing the parents on these matters. The National Council of Vocational Guidance acts as a coordinating body at national level between the vocational guidance authorities and school authorities.

As regards cooperation between vocational guidance authorities and the medical authorities, the Central Medical Board is responsible for the medical examinations of pupils who apply for vocational guidance. School doctors give to vocational guidance officials reports on the physical fitness and the general condition of health of schoolchildren.

As vocational guidance services and general employment services are under the supervision of the same Ministry the respective regional and local offices are in close collaboration with each other, although they work independently as parallel bodies.

Cooperation between the vocational guidance services and the economic and social services is restricted to mutual assistance between experts.

Relations with the labour market. The aim is to give young people impartial information on commercial and industrial life and on the development of the labour market but decisions which could be considered desirable from the point of view of the national economy are not forced upon them. Vocational guidance officials try, as much as possible, to make use of information available from the authorities responsible for economic, social and cultural planning on the national level. They also communicate this information to the young persons who, however, remain entirely free in their choice of an occupation.

Procedures and Practices

Techniques employed. Information relative to the individual aptitude of the pupil is found out by means of questionnaires addressed to the pupil himself, his parents, his teachers and the school doctors. The statements of teachers are based on the pupil's cumulative record. The school doctor's statements are based on the continuous health control and on special medical examinations. Vocational guidance officers, who all are psychologists, make considerable use of aptitude and ability tests. They also utilise projective methods, attitude and interest questionnaires and the practice of holding interviews.

Information on the vocations. Such information in schools is given mainly within the framework of preliminary vocational guidance instruction. This instruction is based on textbooks and on booklets dealing with vocations, the vocational schools, the labour market and scholarships. Use is made of films and film strips, while visits are arranged to different work places and to schools. In some cases this preliminary vocational guidance is completed by practice work in various commercial and industrial occupations during school time. Educational radio and television programmes have few subjects which relate to vocational guidance. There is also a lack of booklets dealing with particular occupations.

Follow-up practices. The vocational guidance services must as far as possible assist vocational schools in choosing pupils. This assistance has

hitherto been limited but suitable methods for its improvement are being developed.

The employment services do not usually deal with vocational guidance but, since adults have the same right to vocational guidance as young people, employment offices can send their clients to a vocational guidance office in order that advice may be received.

Because the individual is completely free to choose his occupation the advice is not generally followed by informative or persuasive action.

The vocational guidance officers have to follow up the young people they have advised and thus assist them, as far as possible, to overcome any difficulties they may be experiencing as well as ascertain whether the occupations chosen are proving suitable. This follow-up with supplementary vocational counselling is continued until the persons in question are definitely settled in their vocations.

STAFF

Composition and selection of staff. The vocational guidance staff consists of senior and junior vocational guidance officers. The senior officers act as chiefs of the local vocational guidance offices. In regional offices, chief officers and district inspectors are in charge of matters related to administration, planning and training.

In matters of youth employment the vocational guidance officers are assisted by youth employment officers.

At schools, liaison teachers are appointed from among the teaching staff and are responsible for the vocational information given in school.

Training and further training. Vocational guidance officers must have a Master of Arts degree, or a university degree which is equivalent, with highest marks firstly in psychology and then in some education or social subject. They must also take a special training course in vocational guidance and do practice work at a vocational guidance service.

Youth employment officers must have a diploma from a higher vocational school, be familiar with labour market conditions and possess personal suitability for youth employment work.

Liaison teachers are not required to have any special qualifications according to law but they are usually regular teachers in the school. They receive vocational guidance training either in connection with their ordinary teacher training or during separate courses lasting about two weeks.

In-service training of vocational guidance officers takes place in the form of various courses, meetings and conferences.

Conditions of service. Vocational guidance officers are civil servants and have the same rights and duties as these. The hours of work are 37 per week and the length of the yearly vacation is from 26 to 36 days.

A senior vocational guidance officer has the same salary as the senior teacher of a secondary school (that is to say the same remuneration as is received by a captain in the army). A junior vocational guidance officer receives a lower salary.

Youth employment officers receive salaries which are eleven grades lower than those of senior vocational guidance officers and which are equivalent to the salaries of assistant nurses in a hospital.

Plans for the Future

The most immediate objectives in the development of vocational guidance are as follows: extension of the network of local vocational guidance offices in order to reach the whole country; necessary training of personnel; development of the services in order that they may fulfil their purpose better; improvement of the instruments such as information material and psychological tests.

Achievement of the above-mentioned goals depends largely on the training capacity of universities and other institutions where vocational guidance officers take their degrees as well as on the funds available.

International Action

With the exception of some scholarships granted for study abroad, international assistance in the field of vocational guidance has neither been asked for nor received by Finland.

Scholarships for studying the organization of vocational guidance services in other countries would be useful and greatly appreciated.

Vocational guidance has been organized, and will in the future continue to be developed, in accordance with Recommendation No. 87 approved by the International Labour Organization on 1st July, 1949, and in close cooperation with the other Scandinavian countries, Denmark, Norway and Sweden.

FRANCE

From the reply sent by the Ministry of National Education

STRUCTURE AND REGULATIONS

Nature of guidance. Vocational guidance services are located throughout the territory of metropolitan France and operate under several official provisions: decree of 26th September, 1922, instituting vocational guidance; order-in-council of 24th May, 1938, governing the structure of vocational guidance and training; order of December, 1945, setting up regional vocational guidance secretariats; memorandum of 3rd January, 1946, relating to the operation of vocational guidance secretariats; order of 27th June, 1947, setting up a vocational guidance and documentation commission; act of 24th May, 1951, concerning the taking control, by the state, of public vocational guidance inspectorates and centres; decree of 10th October, 1955, concerning implementation of the act of 24th May, 1951, and specifying *inter alia* that vocational guidance centres " are intended to provide adolescents, families and social services with aid in resolving every guidance problem ". Under a decree of 6th January, 1959, dealing with educational reform, the role of the centres was extended to embrace assistance at the level of the observation stage and it was specified that they be known as " educational and vocational guidance centres " and " that at all levels pupils are entitled to the advice of the centres, which are intended to serve all categories of education." This means that the role performed by educational guidance, followed by vocational guidance, is now closely integrated with the role performed by education as a whole.

Following the five-year elementary stage the observation stage covers the 1st and 2nd years of the lower secondary stage (VIth and Vth classes) and involves the observation of pupils' aptitudes during the normal sequence of their school work.

Compulsory nature and free provision. According to article 8 of the decree of 24th May, 1938, no child aged under 17 years can be employed in an industrial, trade, commercial or public concern unless he has received a certificate, which is issued *free of charge*, from a vocational guidance centre. The certificate should at least indicate the occupation or occupations which have been adjudged dangerous for the child's health.

At all levels of the different categories of education the advice of educational and vocational guidance services is thus available to pupils.

Organization and financing. There are both public centres and private centres for educational and vocational guidance. Either directly or through teachers these services succeed in reaching all young people who need to be

guided. The authorities responsible for the organization and financing of official educational and vocational guidance services are at national level the Ministry of National Education and at regional, departmental and local levels the authorities responsible for educational services.

Private vocational guidance centres are set up by trades-halls or by vocational associations or groups which have been legally constituted (decrees of 22nd February, 1938 and 18th February, 1939).

Cooperation between the services. Whenever it considers useful, the guidance council set up for each class or group of classes included in the observation stage requests the cooperation of the educational and vocational guidance centre in the *département* (province). A departmental council, whose composition and operation are governed by ministerial decree, is set up under the chairmanship of the academy inspector. A ministerial board is set up for guidance and has the minister as chairman. This board, consisting of the general directors of education and persons chosen by the minister on account of their competency and experience, has the task not only of promoting organization in regard to the observation and guidance but also of encouraging improvement in regard to relevant procedure.

The vocational guidance and documentation commission consists of members representing respectively several ministries (those of national education, finance, labour, agriculture, health, national economy, as well as of industry and commerce and of reconstruction and urbanism), the General Confederation of Labour, the French Confederation of Christian Workers, the General Confederation of French Employers and the national trade-union of persons engaged in technical education (article 6 of the order of 27th June, 1947, as amended by the order of 4th September, 1947).

Furthermore, there is an improvement board for each public educational and vocational guidance centre (Technical Education Law, articles 135 and 144 and the orders of 30th April, 1958 and 6th January, 1962). The membership of these boards includes local representatives of the following: Ministry of Labour; pupils' parents; local communities; vocational organizations (employers, wage earners, skilled workers).

Relations with the labour market. Under article 31 of the decree of 2nd September, 1939, it is provided that the public employment services and the vocational guidance centres shall assist each other in placing children in employment under the best conditions. The public employment offices are required to transmit to the vocational guidance secretariat in the department all useful papers which they can collect concerning the state of the labour market and to indicate *inter alia* for each vocation the number of positions offered through them and the number of those which they have been unable to fill.

PROCEDURES AND PRACTICES

Techniques employed. Each file of the type in current use contains the following: results of various psycho-technical examinations (tests of grade, attainment, manual ability); record of interviews with parents; record of interviews with the child; medical record compiled by a doctor who is a spe-

cialist in educational and vocational guidance; school record kept by the teacher; social record based on investigation.

As regards the observation stage, the procedure is as follows: at the end of the first three months the guidance council gives to families its first opinion on the type of study which seems best suited to the child's aptitudes. The decision rests with the family. At the end of the school year the guidance council either confirms that the branch selected is suitable or else suggests a change of branch. At the end of the observation stage those pupils who choose the kind of education suggested for them continue in it with complete freedom. Those who prefer another kind of education must take a public examination intended to determine their aptitude for the education chosen. Beyond the observation stage and in all categories of education there is continuous observation and guidance throughout the schooling. Opportunities are provided for transfer from one kind of education to another.

Under the direction of a class master the guidance council encourages, coordinates and controls the observation work which the teachers carry out concerning pupils' aptitudes; the council arranges useful contacts with the parents and, at the end of the stage, clarifies the situation for them when they are choosing between the different kinds of education.

Information on the vocations. All possible media are employed: special periodicals on educational and vocational guidance; articles on vocations or on children's schools; press releases; newspaper articles (ordinary papers and children's papers); school files (at all educational levels, namely primary, secondary and technical); special radio and television broadcasts; addresses by guidance counsellors to schoolchildren and their parents.

The university bureau of educational and vocational statistics and documentation makes available to educators and parents as well as to the students and pupils at education establishments the documentation necessary for educational and vocational guidance to be given.

Follow-up practices. The guidance services give practical advice on the ways available to the child for doing his study and training. Both the child and his family remain free to choose the way which corresponds to his tastes, particular ideas and the time which he can devote to study, etc.

The guidance services follow the pupils' progress at the school establishments (primary, secondary, technical and vocational) throughout the period of the schooling.

Children are re-interviewed as often as necessary whether they return to the service of their own accord or are sent back by members of the teaching staff. If necessary, the guidance services re-examine and re-direct apprentices during the training period.

STAFF

Composition and selection of staff. The staff of the guidance services consists of, at national level, a general inspector of vocational guidance, at the academy level one or more inspectors of vocational guidance and at departmental and local levels, in each guidance centre, the following: a director; educational and vocational guidance counsellors; doctors who hold diplomas in vocational guidance; a social welfare worker; administrative staff.

The general inspector is appointed by the Minister in accordance with the usual rules governing the appointment of general inspectors of education. Guidance inspectors are recruited by means of competitive examination among guidance directors and counsellors over 30 years of age who have completed more than five years of service in guidance work. Directors of guidance centres are selected from among counsellors who are over 30 years of age and who have completed more than five years of service in guidance work. Counsellors are recruited by means of competitive examination among holders of the state diploma in vocational guidance counselling who are at least 35 years old.

In the observation stage the teachers may be primary or secondary school teachers or be engaged in technical education. They are selected by the rectors on the advice of an academy commission which is composed of inspectors of the academy concerned and who are assisted by teachers representing the different categories of education involved in the observation stage.

Training and further training. To obtain the state diploma in guidance counselling it is necessary to have both baccalaureates and then to take a two-year course at a special institute and pass a final examination. This special course involves not only the study of several main subjects (physiology, psychology, pediatrics, psychiatry, political economy, general pathology, workers' health, vocational selection, labour market and manpower needs, vocational techniques, techniques of vocational guidance, organization of vocational guidance) but also various practical courses.

Teachers for the observation stage receive special training in psychology and education. Day seminars to keep guidance counsellors informed and permit of their professional improvement are arranged regularly (several times a year by each academy and approximately every two or three years at national level).

Conditions of service. All staff employed in public educational and vocational guidance services are civil servants and consequently enjoy the conditions of service which are of general application in the case of civil servants.

Guidance inspectors rank on a level with inspectors of education (primary education, technical education, physical education and sport), while the directors and counsellors may be compared with secondary school teachers who hold degrees.

Plans for the Future

According to a fairly recent study it is desirable for France to have at least 2,000 guidance counsellors. At present there are 750 approximately.

For some years now some 50 positions of counsellor have been created each year. Under a development plan it is intended to increase the number of such positions during the next few years.

International Action

This country has not received and does not wish to receive international assistance in this field.

GABON

From the reply sent by the Ministry of National Education

Plans for the Future

An educational and vocational guidance bureau is in the course of being set up now. It will be concerned with the guidance of pupils who, having completed their primary schooling, must select a branch of the secondary school course (classical or modern lycée). In the 4th year further guidance is available with a view to a possible change of branch or to being directed towards training of a more concrete nature.

The bureau will be organized and financed by the Ministry of National Education. A certain number of private schools of vocational type invoke the services of psycho-technicians but do not possess any real section. Such guidance is carried out by means of financial assistance from the Chamber of Commerce.

The staff will be chosen in accordance with customary criteria (university degree and, above all, experience in the matter of educational guidance and vocational selection). A Gabonese who recently returned from France is holder of two complete diplomas in experimental and applied psychology relating to vocational guidance and selection; the diplomas were received from the National School of Arts and Crafts at the University of Paris. It is also intended to set up a research section for the evaluation of results obtained.

International Action

This country has not so far received international assistance in the field in question. It would particularly like to have scholarships for its future guidance staff, equipment in regard to material as well as experts for giving training on the spot.

GERMAN FEDERAL REPUBLIC

From the reply sent by the Permanent Conference of Ministers of Education

Structure and Regulations

Nature of guidance. The role of vocational guidance is to give advice and information on the vocations. Its primary aim is to assist the individual but, in addition, consideration is given to the development of the labour market and to the requirements of the economy. Vocational guidance services are made use of particularly by pupils leaving primary, middle and secondary schools, by baccalaureate holders and by students at higher education establishments. Vocational guidance is also available for adults who are called upon to change their vocation and for persons whose working capacity has been diminished owing to mental or physical handicap.

The essential provisions relating to vocational guidance and to placement in apprenticeship are embodied in articles 35 and 44-53 of the act dealing with placement in employment and with unemployment insurance.

Compulsory nature and free provision. It is optional whether use be made of the services provided for vocational guidance and for placement in apprenticeship (placement for the purpose of vocational training) and they are free of charge.

Organization and financing. Since 1918 vocational guidance has been regarded as a task belonging to the public authorities and it is now in the hands of a single autonomous body, namely the federal institute for placement in employment and unemployment insurance, which is responsible for the organization and financing.

This federal institute consists of a central office as well as of regional and local employment offices; operating in conjunction with these latter are some 550 annexed offices and vocational guidance specialists are in charge of them also. The federal institute is placed under the supervision of the Minister for Labour and Social Affairs.

There are no private vocational guidance services.

Cooperation with the other services. The vocational guidance services collaborate with the following institutions, etc.: (a) the general education schools and the parents' committees (Directives for collaboration between vocational guidance services and the schools, 27th November, 1930); (b) the health offices and in particular the school doctors (Order of the federal Minister for the Interior, 26th July, 1938); (c) those responsible for vocational training, as well as the professional and trade associations (Directives of the 12th April, 1950); (d) those services which encourage vocational training, the official and private services which are concerned with youth welfare, the other social services for the benefit of the young.

Relations with the labour market. The employment offices keep themselves informed both on the general needs of the economy in regard to recruitment of manpower and on the particular manpower needs in regard to the different vocations.

Procedures and Practices

Techniques employed. Knowledge about the aptitudes and desires of those who are receiving guidance is based upon the school record, school doctors' opinions and the certificates prepared by teachers. Searching interviews are held and, depending on the case, an examination, to be made by the medical service of the employment office, may be called for as well as a psychological test of aptitudes.

Information on the vocations. Vocational guidance at schools of general education takes the form mainly of interviews (conducted as part of the school programme) with the pupils who are required to choose a vocation. In addition, the following activities are arranged: meetings for the parents of pupils who are about to finish their schooling; various series of lectures on the vocations, for pupils at secondary and higher level education establishments; exhibitions devoted to the vocations; showing of films and slides; publication of articles in newspapers; radio and television talks; lectures by teachers as well as by economic groups and associations; commented visits to undertakings.

Follow-up practices. As it is optional whether use be made of the vocational guidance services no pressure is exerted to ensure that the advice given is followed.

The services of the federal institute lend their assistance so that effect may be given to the advice received; they not only use their influence with the vocational training establishments in order to benefit the recipients of guidance but also help the latter to find positions on completion of their training.

Staff

Composition and selection of staff. The task of giving guidance belongs to vocational guidance specialists, namely: (a) qualified employees of the federal institute who hold, if possible, the second certificate for technical proficiency or other equivalent certificate; (b) other persons who have completed courses either at a social workers' school or a technical school or else who have acquired corresponding knowledge and experience in the fields of economics, education and administration or in other fields of social work and work for young people.

Training and further training. Special training usually takes a year and is followed by at least one year of practical experience. Steps have been taken at local, regional and federal levels to provide continuous in-service training for guidance officers.

Conditions of service. The vocational guidance counsellors are officials of the federal institute for placement in employment and unemployment insurance. Depending on their qualifications, they are considered as specialists belonging to a high-ranking category of public servant.

Plans for the Future

Practical measures are taken regularly for improvement in regard to the following: (a) knowledge and information on the vocations; (b) human knowledge; (c) methods in individual guidance; (d) coordination with vocational training establishments; (e) vocational standards, including the award of scholarships to enable vocational training to be received by young persons capable and desirous of acquiring a training but whose parents cannot, for financial reasons, undertake the expenditure involved.

In addition, an effort is made to interest qualified persons in vocational guidance work, to ensure that they receive a complete course of training and, in a general way, to improve the special training of all those who collaborate, including the experts (psychologists, educational counsellors of school graduates, special counsellors).

International Action

The German Federal Republic has not received and does not wish to receive international assistance in the field of vocational guidance.

On the other hand, she continues to be very interested in the exchange of experience with other countries or with international organizations which are engaged in this field.

GHANA

From the reply sent by the Ministry of Education and Social Welfare

Nature of Guidance

A Youth Employment Service was established in 1955 and its operation constitutes one of the functions of the Labour Secretariat, which has administrative and financial responsibility for the service. Policy for and general control of the service are in the hands of the Youth Employment Executive Committee, which is composed of representatives of the Labour Secretariat, the Ministry of Education and Social Welfare and the Establishment Secretariat. The Commissioner of Labour is chairman of the committee.

Although the giving of vocational guidance is one of its functions the service has so far concentrated on helping young people to find occupations. In 1960, conscious of the plight of those leaving the middle schools and of the need to mobilise talent and skill for an expanding national economy, the government of Ghana decided to reorganize the Youth Employment Service and to establish a national system of vocational guidance in connection with middle schools and secondary schools as well as with local employment centres. The International Labour Organization, of which Ghana is a member, was asked for technical assistance with this project and acceded to the request by assigning to the task an expert who, an official of the Ministry of Labour in the United Kingdom, arrived in Ghana in October, 1960, and left in November of the following year.

No private or voluntary bodies are concerned with vocational guidance but some secondary schools have careers masters or counsellors. Some work in the field of personnel selection has been done by the Institute of Education of the University College of Ghana.

Plans for the Future

The report on the preliminary work carried out by the United Kingdom expert, with assistance from a Ghanaian expert, was published in 1962 by the International Labour Organization and makes it possible to envisage the form which the new service will take. While the main responsibility will rest with the Labour Secretariat and its employment service, the Labour Secretariat and the Ministry of Education and Social Welfare are agreed that no effective system of vocational guidance can operate unless there is close cooperation both nationally and locally between the employment and education services.

Among some preliminary work already carried out mention may be made of a pilot scheme for vocational guidance organized in Kumasi with the cooperation of the regional education officer, the district education officers and the staff and pupils of three middle schools. In connection with the scheme, all the pupils in the middle four forms were given a battery of psychological

tests. Preliminary work was carried out also in relation to occupational information and the training of staff. Courses were held for labour inspectors with a view to their transfer to vocational guidance work.

The report contains recommendations for the reorganization of the vocational guidance service and for its progressive extension by 1966 to all middle and secondary schools.

GREECE

From the reply sent by the Ministry of National Education and Religion

Structure and Regulations

Nature of guidance. **The aim of vocational guidance is to help adolescents in their choice of a vocation and in their preparation for it. The Ministry of National Education has a model vocational guidance centre and the Ministry of Labour a psycho-technical research centre as well as employment offices.**

Since 1962 the vocational guidance centre of the Ministry of National Education has been concerned also with educational guidance and at grammar schools the 3rd class (pupils aged 15 years) is now used as a guidance class for channelling the pupils towards one of the six sections of the senior grammar school or towards a vocational school. In addition, the centre is studying the possibility of introducing an individual record system applicable to children at primary schools. The record would furnish information on the pupil's physical, psychological and educational development as well as on his social situation and should thus not only help to resolve the problems connected with his school progress and his behaviour but also enable him to be guided, on completion of his primary education, towards the schools which are most suitable for him.

Compulsory nature and free provision. **Vocational guidance is free of charge but not compulsory.**

Organization and financing. **The Ministries of National Education and of Labour are the authorities responsible for the financing of vocational guidance services. No private services exist.**

Cooperation between the services. **There is cooperation between the vocational guidance services and the medical and school services.**

Relations with the labour market. **There is collaboration with the Ministry of Coordination and with the National Statistics Office.**

Procedures and Practices

Techniques employed. **In the case of each person receiving guidance a file is set up containing: (a) results of psycho-technical examinations which are carried out by means of tests of intelligence, aptitude, personality, vocational interest; (b) results of medical examinations; (c) information relating to the family and to the social, cultural and economic environments of the person concerned; (d) school data and the particulars noted during the personal interview. For the educational guidance given in the 3rd class at grammar schools a battery of aptitude tests is employed but no use is made of attainment tests.**

Information on the vocations. The pupils are furnished with necessary information by the teachers who are responsible for giving the vocational guidance. Brochures also are sometimes published on the vocations.

Follow-up practices. The vocational guidance services deal mainly with the choice of a vocation and the placement in apprenticeship. Persuasive action is exerted during the interview which completes the vocational guidance examination.

Staff

Composition and selection of staff. At the schools the pupils are given vocational guidance by teachers who have had special training in vocational guidance. In addition, counsellors are attached to the employment offices of the Ministry of Labour.

Training and further training. The teacher counsellors have had at least five years' teaching experience. Moreover, special training in vocational guidance has been received by them at the teacher training college. The guidance officers engaged by the Ministry of Labour have taken vocational guidance courses at a special school.

The guidance officers now serving received their training recently and are not in need of further training for the present.

Conditions of service. Teacher counsellors have the service conditions of teachers. The guidance officers under the control of the Ministry of Labour belong to the first category of government servants.

Plans for the Future

Although there are over 400 teachers who have specialised in vocational guidance it is not possible, owing to lack of informational means, for vocational guidance to be provided at more than a few dozen grammar schools. Development is consequently intended in regard both to documentation on the vocations and to means of informing the public.

International Action

The Ministry of National Education has not received any international assistance in this field and would like principally to receive scholarships. The Ministry of Labour has profited from the assistance of an expert and the award of certain scholarships.

GUATEMALA

From the reply sent by the Ministry of Public Education

Structure and Regulations

Nature of guidance. Placed under the control of a council belonging to the Ministry of Public Education, namely the Technical Council for National Education, since 1957 the Department of Educational and Vocational Guidance has been concerned with the guidance of pupils who are receiving secondary education.

In addition, at its student aid service the San Carlos University opened in 1958 a vocational guidance and selection section which is responsible for examining from the psychological, biological and sociological points of view all students when they enter the university.

Compulsory nature and free provision. Whether provided at the level of secondary education or at the university, vocational guidance is compulsory. The services of the educational and vocational guidance department at the Ministry of Public Education are free of charge. For those provided by the vocational guidance and selection section of the San Carlos University a very small contribution is required.

Organization and financing. The authorities responsible for the organization and financing of vocational guidance services are thus the San Carlos University and the Ministry of Public Education. There are no private services, although a few schools provide at their own expense a guidance service and the Ministry of Public Education is contemplating the possibility of extending to private schools the service of educational and vocational guidance.

Cooperation between the services. There is cooperation between the vocational guidance services and the education, economic, social, medical and employment services.

Relations with the labour market. The present and foreseeable needs of the national economy and of the labour market are taken into account as far as possible. The proposed integral planning of education will help to ensure that education and guidance be more closely related to all the vital forces of the nation.

Procedures and Practices

Techniques employed. Use is made of the psychological tests now being applied in the field of vocational guidance and selection. Tests are regarded as means and not as ends in themselves. It is considered that the whole personality of the one who is receiving guidance should be the subject of a study in which the sum total of the psychological, biological and sociological factors are taken into account.

Information on the vocations. Use is made of audio-visual methods as well as of lectures, vocational brochures and diagrammatic representation.

Follow-up practices. In certain special cases and to a limited extent the vocational guidance services deal with the choice of a vocational school, placement in apprenticeship and registration at an employment office.

The advice given by vocational guidance services is both informative and persuasive in character although the freedom of the individual is respected in so far as it is not prejudicial to community interests.

Those who receive guidance are not followed up systematically.

Staff

Composition and selection of staff. Both in the guidance services of the Ministry of Public Education and in that of the San Carlos University the basic staff consists of psychologists, doctors, educators and social workers. Guidance staff members at the San Carlos University are recruited and selected by means of competitive examination.

Training and further training. At the Ministry and at the university the heads of guidance services hold degrees obtained abroad in psychology and education with special study of guidance. The assistant staff usually consists of students who are studying psychology or education at the San Carlos University arts faculty and who have, in most cases, taken guidance courses abroad, particularly at Puerto Rico.

Courses of further training are arranged by the Ministry of Public Education in collaboration with Unesco.

At the San Carlos University, vocational guidance and selection is studied as part of the courses in education and psychology, including vocational psychology. The question of creating at the university a doctor's degree in vocational guidance has been under consideration for some time.

Conditions of service. In their capacity of government servants, guidance staff belong to the same category as teaching staff and the conditions are governed by the general law dealing with education.

Plans for the Future

Education is at present being planned in an integral way and in relation to this country's economic and social situation by the Technical Council for National Education with the assistance of national and foreign specialised bodies. Projects, the gradual implementation of which will take until 1975, are contemplated.

As in the case of all new services, the development of guidance services sometimes encounters both a certain lack of understanding and criticism on the part of persons who, due to insufficient knowledge of vocational guidance, are unable to appreciate its advantages.

International Action

In Guatemala the origin of vocational guidance goes back to a series of lectures which Professor Emilio Mira y Lopez was invited to deliver in 1947 at

the San Carlos University on vocational guidance. Following these lectures and after a competitive examination a scholarship was awarded to a Guatemalan student to enable him to go to Brazil and study at the Institute of Vocational Selection and Guidance in Rio de Janeiro. In 1949 Guatemala was host country to the first Congress of Latin-American Universities, which adopted in particular a resolution on the necessity of organizing vocational guidance and selection services at all universities in Latin America. As already noted it was not until 1958 that the San Carlos University was able to give effect to the resolution.

Guatemala has received international assistance in the form of visits from experts sent by Unesco and the Inter-American Service for Educational Co-operation and Guatemalan specialists have had further training abroad.

As regards vocational education, Guatemala is particularly desirous of receiving scholarships to enable qualified staff to be trained.

HAITI

From the reply sent by the Records Office of the Department of National Education

Nature of Guidance

Although an increasing need is being felt in Haiti for vocational guidance there is not yet any agency either official or private whose aim is to assist pupils, on their completion of the primary or secondary school course, with the choice of a vocation which is best suited to their aptitudes and corresponds to the situation of the labour market.

Nevertheless, in this country's principal towns there are establishments which prepare pupils for vocational training and which, without systematically guiding them towards a vocation, give them a taste for work. With the exception of the re-education centre at present responsible to the Institute of Social Welfare the above-mentioned establishments are controlled by the Department of National Education. Furthermore, 33 domestic economy centres have been annexed to primary schools.

Plans for the Future

This country would benefit greatly from the provision of vocational guidance. On the one hand certain vocations are crowded and it is becoming difficult to employ school leavers as they graduate from vocational schools. On the other hand an insufficiently skilled and increasingly large labour force is invading the labour market and discouraging the real technicians.

Consequently the government intends to take action for inducing young people to choose vocations which correspond to economic, social or cultural needs. For the purpose it contemplates setting up five guidance centres, that is one for each department (administrative district), and five employment offices. It also intends to appoint a general secretary for vocational guidance and he, under the responsibility of the vocational and technical education section, will have control of the said centres. The sum to be allocated for these vocational guidance services amounts to 223,160 gourdes but it cannot for the present be included in the Republic's budget in view of the financial situation.

International Action

In the field of vocational guidance this country is particularly anxious to receive international assistance in the form both of visits from experts and of scholarships. In addition, there is an urgent need for contributions of material and money.

HUNGARY

From the replies sent by the Ministry of Labour and the Ministry of Cultural Affairs

Structure and Regulations

Nature of guidance. Vocational guidance of the young has constituted since 1961 an integral part of the school programme and provision for it extends to all pupils attending lycées or general schools. It is included among the tasks belonging to teachers, in particular the class teachers. There are no institutes or separate services for dealing with the matter. The programme is designed so that pupils may during four years (that is to say from the 5th class until the 8th class at general schools or in the four classes at lycées which prepare pupils for the baccalaureate) learn the problems of human work and the particulars of the various vocations. Before completing their studies the pupils receive individual advice about the vocations best suited to their interests and their abilities.

Guidance with a view to the choice of a vocation is received alongside the lessons which are given by the class teacher and it is also embraced in the other areas of the educational and teaching task of the school. In addition, advantage is taken of all relevant opportunities offered in connection with the instruction in the various subjects.

In dealing with difficult cases where pupils manifest certain mental or physical handicaps the teachers are entitled to consult the neurological service which belongs to welfare centres of the state health service and has doctors and psychologists on its staff. In doubtful cases they can also ask for assistance from an advisory group of the Ministry of Labour and after medical opinion and searching psycho-technical examinations this group gives its advice concerning the subject's aptitudes and his choice of a vocation.

Compulsory nature and free provision. Vocational guidance is free of charge and compulsory since it is organically incorporated in the educational and teaching work at lycées and general schools, notably in the lessons given by the class teacher. The pupils, however, are not obliged to accept the advice given and can, freely, either make application to take any higher course of study or, with assistance of the employment offices, seek any employment.

Organization and financing. Vocational guidance is centrally administered by the Ministry of Labour in close collaboration with the National Planning Office and with the Ministry of Education.

The direct administration of vocational guidance work is undertaken by the divisional * councils and the labour section, not only in close collaboration with the cultural section responsible for supervision of the schools but also in accordance with the directives of the Ministry of Labour.

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* Reference is to administrative divisions.

Cooperation between the services. Connected with the Ministry of Labour there is a vocational guidance board acting as coordinating agency between all the authorities which are concerned with vocational guidance. The board's membres are delegated by the following: the Ministers; the council chairmen for the capital and the divisions; the National Council of Trade Unions; the leaders of the Youth Council and Council of Women.

Relations with the labour market. In vocational guidance it is necessary that present and foreseeable manpower needs be taken into account and, consequently, close contact is maintained with the economic situation. Under national economic plans the number of pupils who may be admitted to the different schools is fixed from year to year in the same way as is the number by which the undertakings and institutions are allowed to increase their staff during the year.

Procedures and Practices

Techniques employed. Guidance at schools is based essentially on educational methods, which consist of group or individual conversations, lessons on work and the vocations, visits to factories and undertakings, exhibitions, etc. The teacher may, however, also have resort to examinations which are necessary for judging the pupil's vocational aptitudes and his state of health.

Modern psycho-technical methods are, simultaneously with personality testing, employed by the child neurologists working at welfare centres of the state health service and particularly by the specialists in work psychology who are engaged by the Ministry of Labour. Pupils are given an aptitude examination which covers all details of vocational aptitude and various tests are administered for investigation of the personality as well as for identifying the intellectual aptitudes and vocational interests. There is also provision for work tests, while use is made of materials and various equipment for the measurement of attentiveness, motor control, manual dexterity, tactile sensitiveness, sense of balance, strength of balance, physical strength, etc.

The social circumstances are studied first by the teachers. The laboratory makes a more thorough examination by means of inquiries concerning the living conditions. Provision is made for the medical examination to be conducted firstly in connection with the school medical service and then in connection with the state health service.

Information on the vocations. As already noted, the pupils are informed continuously about the vocations as the schooling proceeds and in particular during lessons given by the class teacher. Moreover, the latter arranges study trips to factories and cultural institutions. There are relatively few publications dealing with the vocations but it is intended to publish a series of brochures describing the different vocations, particularly those which are not much favoured by the young. Every year during the final quarter before the end of the school work, experts from the Ministry of Labour or from the organizations of the territorial councils address young people and their parents on the vocations which may be chosen as well as on the opportunities for higher level study and for placement in employment. The experts are ready to answer any questions asked by their audience.

The schools occasionally invite to deliver lectures certain professionals who occupy important positions or who have distinguished themselves in their work,

for example the chief engineer of a neighbouring factory, the local doctor, a turner decorated by the government for his work, etc.

Follow-up practices. The class teacher's action is confined to the advice and guidance which he gives to the young and parents, who remain free to make the decision which suits them.

Every year an inquiry is carried out in order to learn what has happened to pupils who have received guidance and advice. In addition, on the basis of the questions put to young people who have left general schools annual statistics are compiled showing the number of pupils per region (so that it is possible to make comparisions between the urban regions and the rural regions) who proceed to secondary schools, apprentices' schools and health schools or who are placed in the various branches of the national economy. These statistics permit of conclusions which provide a basis for decisions of policy in regard to culture and the vocations.

Staff

Composition and selection of staff. As regards teachers who are engaged in vocational guidance at schools, they have all, since it is a question of the final classes of the general school, taken courses at higher level. Officials of the territorial councils hold, some of them a degree (or diploma) granted in education or philosophy by a higher level school or a university, others a degree from an economics university. Officials who direct the service at the Ministry of Labour, Ministry of Education or National Planning Office are in some cases professors with degrees in philosophy or education, in other cases holders of economics degrees. The group of work psychologists includes psychologists who hold degrees.

There are no special provisions governing the appointment of the teachers or directing staff engaged in guidance.

Training and further training. From what has already been mentioned it is seen that there is no training of vocational guidance specialists strictly so called. The class teacher is furnished by the school management with teaching material (brochures on how to resolve the guidance problems which may arise, on how to identify the aptitudes of rural youth, etc.).

Conditions of service. Teachers do not receive any additional allowance for guidance work. Such work is part of their educational task and is included in the number of weekly lessons which they are required to give.

Plans for the Future

Guidance work at schools is still only in its initial stages. It is to be developed further, mainly from the qualitative point of view. It is intended that by means of lessons in certain subjects (particularly physics and chemistry) as well as through technical, agricultural and commercial knowledge the pupils shall acquire a complete picture of working life.

It is also intended to develop the possibilities of aptitude testing and to publish literature of a more complete nature on the various vocations.

INTERNATIONAL ACTION

In the field of vocational guidance, Hungary has not received any assistance from international organizations. Study trips have been made to the German People's Republic, Poland and Czechoslovakia. There is appreciation of books and brochures published in Austria and Switzerland on features of the different vocations.

ICELAND

From the reply sent by the Ministry of Education

Nature of Vocational Guidance

Vocational guidance is not yet provided as a special service in Icelandic schools but under a resolution passed by parliament in 1960 the matter is being examined. A course for secondary school teachers is planned for 1962 in the autumn.

For some years vocational guidance days have been organized at schools in Reykjavik and other towns by municipalities, industrial undertakings and Rotary Clubs. These days are intended for pupils from 14 to 17 years old but are not compulsory.

INDIA

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. In principle, educational and vocational guidance are part ofsecondary education. Actually, however, not more than one per cent of the schools have a guidance programme, the latter usually providing, in the final four classes, for a regular class period devoted to guidance.

There are also vocational guidance services, some of which are provided at employment exchanges, while others are private. Vocational guidance services are not governed by any special official provisions.

Compulsory nature and free provision. At the present time vocational guidance is not compulsory at any stage of the schooling period.

Organization and financing. The Union Ministry of Education and the state education departments are responsible for organizing and financing the school guidance services. The Union Ministry of Labour and Employment and the state labour departments are responsible for the vocational guidance services in employment exchanges.

Private vocational guidance services are organized and financed by ecclesiastical, charitable, social service and educational organizations. The Union Ministry of Education has a scheme of financial assistance for these organizations.

Cooperation between the services. There is cooperation between vocational guidance services and other services.

Relations with the labour market. In view of the planned economy of the country and the necessity of obtaining the required manpower for the various projects and industries vocational guidance is coordinated with manpower goals and objectives.

Procedures and Practices

Techniques employed. The following are the most generally employed techniques: interviews; consultation of the school record; tests of aptitude, attainment, vocational interest, etc.

Information on the vocations. Information on various professions is communicated through guides, lectures and publications.

Follow-up practices. Vocational guidance services sometimes deal with the choice of a vocational school, placement in apprenticeship and registration in an employment office.

The follow-up work is yet to be done systematically. It is now being carried out mainly for research purposes.

STAFF

Composition and selection of staff. There is no uniformity in the composition of the staff of vocational guidance services. They usually have one director, a few counsellors and technical assistants, the number of which latter varies from one state to another.

At the school level, guidance service is carried out by a school counsellor or " career masters ".

Qualified candidates are usually interviewed and appointed by special selection committees.

Training and further training. Specialised staff in the field of guidance have degrees ranging from Doctorate to Master's degree.

Short in-service training courses are sometimes organized. In addition there are newsletters, special magazines, etc. For guidance officers in employment exchanges three-month training courses and three-week refresher courses are being conducted.

Conditions of service. The conditions of service of specialised vocational guidance staff in government service are the same as those of other government servants. Their situation can be compared with that of professors, readers and lecturers at universities.

PLANS FOR THE FUTURE

As far as school guidance services are concerned, this country requires at present one full-time counsellor for each of 120 multi-purpose schools and one " career master " for each of the high (secondary grammar) schools. As regards the employment exchanges, so far only 90 out of the 336 have vocational guidance services.

The most immediate needs are trained personnel, adequate and efficient material as well as sufficient funds in order that vocational guidance programmes may be developed. Measures are contemplated for further development, both quantitative and qualitative, of such guidance.

INTERNATIONAL ACTION

In the field of vocational guidance, India has received international assistance in the form both of visits by foreign experts and of scholarships for higher training in this field.

She wishes to receive further assistance of this kind.

IRAN

From the reply sent by the Ministry of National Education

Nature of Vocational Guidance

There are not as yet any vocational guidance services but some steps have been taken in this direction, notably in the field of educational guidance. Consideration is now being given to relatively important plans for the setting up of official vocational guidance services. Local education authorities will be responsible for such services.

Pending the setting up of these services vocational guidance work is being carried out in an empirical way. Such guidance is free of charge. The procedures employed are the following: interviews; medical examinations; consultation of the school records; tests of aptitude and attainment, etc.

Staff

Those responsible for giving vocational guidance are selected from among personnel who have received an average professional training. They are required to take certain examinations. Special courses for them are held from time to time by the Ministry of National Education.

Plans for the Future

The organizing of official vocational guidance services is thus contemplated. There will be need for specialised staff and for tests adapted to this country.

International Action

In the field of vocational guidance this country has received international assistance in the form of visits, during 1958, from Unesco experts. She wishes not only further assistance of this kind but also scholarships for future vocational guidance officers.

IRELAND

From the reply sent by the Department of Education

Nature of Guidance

Although educational and vocational guidance is not systematically organized it is undertaken as a normal part of the educational work in primary, secondary and vocational schools. Such guidance takes the form of advice by teachers to their pupils, both collectively and individually, as to their further education or their choice of career. For vocational guidance there are no school services in the strict sense.

The managers of secondary (grammar) schools periodically invite specialists in various fields of industrial, economic and social activity to give talks and lectures to the pupils in order to supplement the work done by the teachers.

There is a full-time professionally trained educational psychologist attached to the committee which administers the vocational schools in the capital, Dublin City. Among his duties are to offer advice and guidance to the male pupils attending these schools as to the most suitable careers for them and as to their further courses of study. This scheme is as yet only in the experimental stage but arrangements are already in train for its expansion and for the appointment of an assistant educational psychologist.

ISRAEL

From the reply sent by the Ministry of Education and Culture

Structure and Regulations

Nature of guidance. Educational guidance is provided at schools and vocational guidance at employment offices. This educational and vocational guidance is official and is carried out under the supervision of the National Institute for Educational Counselling and Vocational Guidance. One private vocational guidance bureau is maintained by a women's organization.

Compulsory nature and free provision. Vocational guidance is not compulsory. As regards educational guidance, it is provided wherever guidance bureaux exist and one may say that about half of the pupils who complete the final year of elementary schooling (8th grade) receive at present minimal guidance.

Vocational guidance at employment offices is free of charge. A small fee has to be paid if a psychological examination is required. The cost of guidance at schools is included in a global fee paid by parents for school services (books, meals, etc.).

Organization and financing. The National Institute for Educational Counselling and Vocational Guidance was founded jointly by the Ministry of Education and Culture and the Ministry of Labour. Establishment of educational guidance services is the responsibility of education departments of the local authorities. Vocational guidance services are organized by local and regional labour exchange bureaux.

The one private vocational guidance bureau is maintained by " Hadassah ", the Women's Zionist Organization of America. There are a few private guidance counsellors who charge a fee for their services.

Cooperation between the services. The psychologists belonging to the guidance services work in close cooperation with the school management, teaching staff, school physician, school nurse, regional social worker, etc. In the employment offices the vocational counsellors are in constant contact with the placement officers, the guidance bureaux and the probation officers for youth, etc.

Relations with the labour market. A national manpower council was established last year and one of its responsibilities is to prepare forecasts in regard to the demand for trained manpower in different areas.

Procedures and Practices

Techniques employed. The emphasis is essentially upon guidance as a process and not as a one-time examination. The techniques generally used are as follows: psycho-technical examinations including tests of ability and interests; interviews and, in some localities, also medical examinations. Consultation of school records is considered desirable but can be used only in schools which are provided with guidance services.

Information on the vocations. A comprehensive programme of information on the vocations is now being developed and it will include briefs, radio broadcasts, public lectures, etc.

Follow-up practices. The guidance given to pupils in the 8th grade includes counselling regarding either further studies in a school (secondary academic, agricultural, vocational, etc.) or employment. Labour exchange bureaux guide as to professions, training facilities and adaptation to work.

In certain places informative and persuasive action is used with regard to the children, their families and their teachers.

Vocational guidance services do not yet " follow up " the young people assisted but the professional organizations for youth check on their adaptation to work.

Staff

Composition and selection of staff. Vocational guidance centres are staffed with personnel holding academic degrees in psychology. Such personnel are selected on the basis both of professional training and of personality.

Training and further training. Employment counsellors receive three months' preliminary training and continuous in-service training. Those with degrees received in psychology from universities in this country and abroad gain experience during their work. Some of these counsellors have specialised in counselling and vocational guidance abroad.

The National Institute for Educational Counselling and Vocational Guidance organizes national, regional or local meetings for the professional staff. The Institute and the Employment Service are also responsible for the in-service training of employment counsellors. A concentrated training workshop is held every year for three or four weeks. The courses are given during 820 hours of which 370 are allotted to in-service training during three periods of the year. The courses consist partly of individual work and partly of lectures and exercises.

Conditions of service. The status and remuneration of psychologists working in guidance centres can be compared with those of government employees having similar academic training. Employment counsellors may be compared with other workers in the Employment Service.

Plans for the Future

In the guidance bureaux there is a shortage of psychologists who have an academic background.

The programme which the Institute for Educational Counselling and Vocational Guidance has at present for the training and further training of counsellors and psychologists includes the following: (1) begun during the school year 1961-1962, two-year courses, organized in the three universities and financed by the Institute, for the training of teacher counsellors; (2) training which, for vocational counsellors, is organized and financed by the Ministry of Labour according to the programme approved by the Institute; (3) training and in-service training of psychologists and including practical and theoretical training which for new immigrant psychologists is undertaken jointly by the Institute, the Mental Hygiene Wing of the Ministry of Health and the Immigration Absorption Department; (4) the following tasks with which the Institute is assisted by various committees: *(a)* carrying out a national survey of the educational and vocational services in schools; *(b)* fixing not only of work norms in the psychological stations which deal *inter alia* with educational and vocational counselling but also of the limits and scope of their duties; *(c)* examination of the guidance process, evaluation of results and determination of new ways and means of vocational guidance; *(d)* setting up of regional stations which will serve several settlements while seeing to it that an adequate professional level is kept.

International Action

In 1955 an expert from the International Labour Office was in this country for one year to develop the system of employment counselling and vocational guidance which has since been introduced in the Employment Service. In 1961 the " Hadassah " bureau had the services of a consultant from the United States for five months.

International assistance is desired mainly in the form of scholarships for present and future guidance workers.

ITALY

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. For about fifty years vocational guidance has had supporters in Italy but not until 1920 were the first institutions opened. The initiative in these cases was due to certain communal administrative authorities or certain university institutes and was essentially local. From 1950 onwards the problem received consideration on a national scale and this in two directions, one of which concerned educational guidance and inspection, the other the vocational guidance and training of young persons who on completion of their compulsory education were anxious to seek a vocation.

The services which have developed during recent years in the principal cities are on the one hand the educational and vocational guidance centres and on the other hand the work psychology centres. Both kinds of service may be considered as semi-official institutions. At present there are no guidance offices which are really private.

Compulsory nature and free provision. The guidance services offered are free of charge and optional. Their aim is simply to provide advice for the young and their parents.

Organization and financing. The educational and vocational guidance centres are administered by the technical education authorities in the different provinces and come indirectly under the responsibility of the Ministry of Education. The work psychology centres are administered by the National Association for Protection from Accident and come indirectly under the responsibility of the Ministry of Labour and Social Welfare. There are not as yet any official clauses which apply to the educational and vocational guidance centres.

Cooperation between the services. The educational and vocational guidance centres are concerned almost exclusively with pupils attending schools and consequently are in direct and continuous contact with the local education authorities. The work psychology centres collaborate with the regional and provincial labour offices, to which latter the employment offices also are responsible.

As and when local needs and circumstances arise, arrangements are made for other forms of contact and collaboration between institutions which are concerned with assistance to young people but it is not found necessary to make special provision in the matter.

Relations with the labour market. In the field of vocational guidance, in the latter's true sense, much attention is given to economic requirements and to the needs of the labour market and for this reason close relations exist between the work psychology centres and the labour offices. As regards educa-

tional guidance, the forecasts cover a two to five-year period and cannot be determinant factors as there is an absence of national economic " programming" (planning) and the sources of labour are particularly mobile.

Procedures and Practices

Techniques employed. The techniques in use at the guidance centres are those usually employed in other countries and include a medical examination, a psycho-metric examination and a social investigation. In addition, in all cases the school record is consulted and interviews are held with the parents and the interested parties. The psycho-metric testing relates essentially to the attitude profile, the intensity and bias of vocational interests as well as to the principal traits of character.

Information on the vocations. Tracts, folders and vocational brochures are published. Series of lectures are organized in connection with the " schools for parents ". Almost throughout the school year the Italian radio and television station devotes one broadcast a week to questions of vocational guidance.

Follow-up practices. The vocational guidance services help with the choice in regard to apprenticeship or a vocational school.

The furnishing of information is followed by persuasive action exerted upon the families and teachers but in all cases such action consists solely of advice. Except in special circumstances the young people and their families remain entirely free to make their own decision.

Endeavours to follow up the subjects who have received guidance are made by the various vocational guidance centres, either for checking the extent to which the advice has been followed or else for learning how the subject is adjusting himself to the study or vocational occupation which he has chosen.

Staff

Composition and selection of staff. In all cases the staff at the centres consists of the following: a psychologist director; one or more vocational guidance counsellors; one or more school or work doctors; one or more welfare workers.

Training and further training. The directors and counsellors have taken courses at a university institute of psychology, the welfare workers a course at a school of social work. At a few large centres two-year or three-year courses are held for vocational guidance counsellors.

Annual meetings as well as congresses and some in-service courses are organized by the Italian Educational and Vocational Guidance Association.

Conditions of service. The guidance centres do not have any legal recognition and the staff are engaged in the same way as teachers whose appointment has not been confirmed. On the other hand as regards the staff at the work psychology centres belonging to the National Association for Protection from Accident, semi-official conditions and special regulations apply to them.

Plans for the Future

It is hoped to increase the number of services as well as to coordinate and make specific the professional status of their staff. An official plan is contemplated.

International Action

Assistance from other countries or from international organizations would undoubtedly be of value, particularly if provided in the form of scholarships.

IVORY COAST

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. The service concerned with vocational selection and guidance, as well as with study and documentation, has aims which are specified in an order of 7th June, 1962, and is responsible for the following tasks: information at universities and schools; liaison between school establishments; examinations of a psycho-pedagogical nature and those for guidance purposes; selection of pupils at the various levels of schooling. This official service is in the course of being reorganized. There are no private services concerned with vocational guidance.

Certain guidance secondary schools have an observation stage (1st and 2nd year classes). On completion of the 2nd year the pupils are directed to 3rd year classes for classical and modern secondary education and for technical education.

Compulsory nature and free provision. Guidance is compulsory and free of charge in the observation stages.

Organization and financing. The vocational selection and guidance service is henceforth one of the specialised services belonging to the current affairs directorate of the Ministry of National Education.

Cooperation between the services. There is effective cooperation between the guidance service and the education, economic, social and medical services and the manpower office.

Relations with the labour market. In vocational guidance, consideration is given both to local absorption of manpower and to forecasted employment in relation to national economic plans.

Procedures and Practices

Techniques employed. The following procedures are utilized in guidance: psycho-technical examinations; interviews; medical examinations; social inquiries; consultation of the school record; tests of aptitude and attainment.

Information on the vocations. A campaign for furnishing information is now being organized (radio, publications, lectures, guidance week).

Follow-up practices. The vocational guidance service has a part in the examinations held for entrance to primary level technical establishments. The individuals and bodies concerned usually follow the advice given.

STAFF

Composition and selection of staff. The guidance service is composed of a service chief, psychologist and documentary officer belonging to the French technical assistance body as well as of the Ivory Coast members (two vocational guidance counsellors and the secretariat staff).

Specialised staff are required to possess both long practical experience in guidance in countries which are developing and adequate professional training.

Training and further training. Specialised training is received at the National Vocational Guidance Institute in Paris. At present no provision is made for courses of further training within the country.

Conditions of service. Proposed conditions of service, based on those of vocational guidance staff in France, are now under consideration.

INTERNATIONAL ACTION

This country has thus received French technical assistance. Needs have not, however, been entirely provided for in the matter either of staff or of psycho-technical material. The Ivory Coast wishes not only to take part in international meetings but also to receive documentation on vocational guidance and selection in developing countries.

JAPAN

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Vocational guidance is provided both at schools and at what are known as Public Employment Security Offices. Under the School Education Law and the regulations by means of which this law is enforced, as well as in accordance with the course syllabuses, vocational guidance is given as constituting part of the curriculum at lower and upper secondary schools. The purpose is that of helping the students not only to know about the occupations but also to select a course of life appropriate to their abilities and qualities and to follow an occupation which is significant and gives personal satisfaction. Such guidance is carried out mainly by vocational consultants with the help of teachers and is given not only as forming part of extra-curricular activity but also in relation to the regular subjects. Is is also given, at any convenient occasion, in the form of individual counselling or interview.

The employment security offices, set up in accordance with the Employment Security Law, are concerned with vocational guidance, placement in employment, unemployment insurance, etc.

The vocational guidance provided by the employment security offices aims at giving to people who seek employment not only practical training but also advice and other assistance necessary for selecting a position and becoming adapted to it. Assistance is especially given to those who are seeking employment for the first time or who are physically handicapped.

Compulsory nature and free provision. Vocational guidance at secondary schools is given as forming part of the compulsory curriculum to all of the pupils. At universities and colleges, vocational guidance is when requested given to students seeking work. In general no fee is charged for vocational guidance.

Organization and financing. The vocational guidance provided at schools is dealt with at the Ministry of Education by the Vocational Education Section attached to the Lower and Upper Secondary Education Bureau and at local level by the Teaching Supervision Section of prefectural boards of education.

As regards the administration and financing of the employment security offices, the Ministry of Labour is responsible and by order of the Minister the prefectural governors supervise directly the offices concerned.

Cooperation between the services. There is close cooperation between schools and employment security offices in the matter of vocational guidance. Both, especially in the case of pupils leaving school, cooperate with each other in giving to them the advice and guidance necessary for selection of a vocation, in making efforts to place them in employment, in following them up, etc.

There is also cooperation between the education authorities and the authorities which are concerned with labour administration.

Relations with the labour market. In 1960 the government put into effect a plan aimed at doubling the national income within ten years in order to attain full employment by development of industry and to raise the nation's living standard. Under this plan various development programmes relating to the manpower necessary in the industrial and social fields are now in operation.

Taking these programmes into consideration the vocational guidance services assist individuals and at the same time endeavour to ensure that the vocations selected not only meet the social and economic needs of the country but also contribute to the advancement and prosperity of national life.

Procedures and Practices

Techniques employed. At schools the following means are employed in order that teachers may understand their students fully and that students may know themselves fully: psychological tests (intelligence tests, vocational aptitude tests, Uchida-Kraepelin test, test of vocational interest, etc.); observation; personal interviews; consultation of school records; autobiographies; diaries; study of family circumstances; physical examination, etc.

In vocational guidance carried out at the employment security offices the following means are generally employed: study of application and other forms containing statements by applicants themselves and their teachers regarding physical condition, academic record, family circumstances, etc.; vocational interest and aptitude tests; examination of technical skill; tests for the handicapped, etc.

Information on the vocations. Schools and employment security offices distribute handbooks on vocations, information on the labour market, as well as other material dealing with employment, and make use of films, slides, television, radio, etc. In addition, visits are made to industrial firms and the latter sponsor lectures and seminars.

A private organization, the Japan Vocational Guidance Society, has been established to assist both in the distribution of information on vocational guidance and in the improvement of such guidance. The organization's activities are subsidised by the government.

Follow-up practices. As regards applicants for positions, the schools and employment security offices introduce them to employers and help them to enter vocational schools and training centres most appropriate to their abilities and needs.

There is not only individual and group counselling but also exchange of information between families and schools as well as between schools and employment security offices.

Secondary schools follow the careers of their graduates both at places of work and at higher level schools.

When necessary the officials of the employment security offices follow up those they have assisted and endeavour to ensure their adaptation to the work.

Staff

Composition and selection of staff. It is provided by law that lower and upper secondary schools shall have vocational guidance consultants, who under the direction of the school principal shall take charge of affairs relative to the

organization of vocational guidance at the schools. Actually, it is particularly the classroom teachers who give vocational guidance to their students directly with the help of other teachers and who in the task receive advice from the vocational guidance consultants.

At universities and colleges there is no special staff for vocational guidance but generally those who are in charge of student personnel services undertake vocational guidance with the help of the professors.

Vocational guidance specialists of the Ministry of Education and teacher consultants of prefectural boards of education conduct research, give consultations and maintain liaison concerning vocational guidance at schools.

In the employment security offices the employment officers and other staff attend to vocational guidance under the direction and supervision of the office chiefs. Employment officers give advice and assistance from their professional and technical standpoints and, when necessary, undertake guidance directly with the help of other officials concerned.

Central guidance officers of the Ministry of Labour and local guidance officers of the prefectures prepare and manage programmes concerning vocational guidance and give advice to organs concerned.

Vocational guidance consultants at schools are appointed by the boards of education from among members of the teaching staff.

Employment officers are appointed by the director of the Employment Security Bureau of the Ministry of Labour from among staff members who have wide experience and sufficient professional knowledge in the fields of vocational guidance and the placement in employment.

Training and further training. Among the vocational guidance consultants, those who hold a teacher certificate in vocational guidance have finished university or college education with credits for study in this field; the others have a certain practical knowledge in vocational guidance.

When government officials are appointed as employment officers they are required to receive for a certain period a training conducted by the Ministry of Labour. This training aims at giving them professional and technical knowledge on vocational security, including vocational guidance.

As regards further training, the Ministry of Education and the boards of education prepare and distribute to schools information and other materials concerning vocational guidance. They also hold in-service courses for teachers in charge of vocational guidance. In addition, seminars, group study and the exchange of information are organized for teachers. At universities and colleges, meetings are held for studying the methods and techniques of vocational guidance.

The Ministry of Labour and the prefectural offices sponsor seminars and in-service courses for employment officers of the employment security offices and for other staff in charge of vocational guidance in order to give them over-all training in affairs concerning vocational guidance and the security of employment.

Conditions of service. The vocational guidance consultants are selected from among teachers and have teaching hours which are accordingly reduced by a half. The other conditions of service are the same as those of the other teachers.

As the employment officers are public officers their conditions of service are the same as those of other government officials.

Plans for the Future

The Ministry of Education is now contemplating practical measures for improving the quality and increasing the quantity of vocational guidance counsellors in schools. At the same time the universities and colleges are considering measures for developing the courses and for the training of specialists in the field of vocational guidance.

International Action

From July to August, 1961, the Ministry of Education, the Japan Vocational Guidance Society and two universities jointly sponsored in Tokyo and Kobe the seminar on vocational guidance to which Professor Donald E. Super of Columbia University, New York, was invited as chief lecturer.

Japan is desirous of obtaining scholarships for the training of future guidance workers. International exchange of information and materials in the field of vocational guidance should be further developed.

JORDAN

From the reply sent by the Ministry of Education

Nature of Guidance

No vocational guidance service in the strict sense exists in Jordan but the Ministry of Education recently established for the benefit of students a counselling service the person engaged in which was sent abroad on a scholarship to study in this field.

Practical vocational guidance is given to students in the 9th grade by the instructors in arts and crafts subjects. Such instructors receive brief knowledge about the labour market by taking field trips to factories when teacher training sessions are held during summer vacations.

Information on various trades is communicated either by lectures to students or by articles published in the local newspapers and magazines.

The Ministry of Education is at present developing aptitude tests with a view to improvements in selection for the various sections of secondary education (scientific, literary, agricultural and commercial).

International Action

The above-mentioned scholarship was granted by the United States for a period of nine months and represents the only assistance received up till now in this field. Jordan is in great need of experts as well as of many scholarships, in connection with not only vocational guidance but also educational guidance, so that it may be possible to build up both a counselling service in the schools and a selected staff.

KOREA (Republic of)

From the reply sent by the Ministry of Education

Introduction

In the Republic of Korea, vocational guidance is only at a beginning and preparatory stage but on account of the increasing need for this kind of service it is hoped to find the necessary means for developing the services rapidly. Improvement is being effected in two ways, firstly by the creation of general guidance services at secondary schools as well as at colleges and universities, secondly by the development of vocational guidance work at the placement service which the Ministry of Health and Social Affairs has organized in order to meet the demand for human resources in various fields of industry.

Structure and Regulations

Nature of guidance. The aims of vocational guidance in Korea can be summarised as follows: (1) to help the individual in choosing an occupation which is suited to his abilities, aptitudes and interests and in preparing for, entering upon and adjusting to it; (2) as a result of every individual's satisfactory vocational adjustment, to ensure maximum use of human resources.

The guidance services are generally official. Most of them, however, are not functioning very satisfactorily on account of difficulties in staffing and financing. The services are of three categories: (1) services providing vocational guidance, as a part of general guidance, at public secondary schools; (2) analogous services at colleges and universities; (3) the 41 employment exchange services.

The Student Guidance Centre at Seoul National University is the most important university service and can be regarded as this country's " brain and coordinating centre " in the matter of guidance. As regards vocational guidance in its strict sense, the centre provides *(a)* a " part-time job placement service " for students, *(b)* a vocational counselling service, *(c)* a service for furnishing information on the characteristics, opportunities, conditions and requisite qualifications pertaining to the various occupations. An important problem, however, is that of improving the service which the centre provides for the vocational placement of graduates. Most of the other colleges and universities have vocational guidance committees.

There are no private vocational guidance services but some large industrial enterprises and private schools (vocational high schools, colleges, universities) have made provision for vocational guidance, although here too the means are inadequate.

Compulsory nature and free provision. Vocational guidance is included in the compulsory programme at secondary schools as from the third year of the middle school course. Emphasis in this guidance is given to exploration

of the individual's vocational aptitude. At high schools as well as at colleges and universities vocational guidance is an integral part of the programme.

Vocational guidance is generally free of charge. Often, however, students are requested to pay the costs of test materials employed.

Organization and financing. The authorities responsible for vocational guidance services at public schools are, at central level, the supervision bureau of the Ministry of Education and at local level the principals of the different schools, which receive financial support for the purpose from the supervisors. Responsibility for the employment exchange centres belongs at central level to the labour bureau of the Ministry of Health and Social Affairs and at local level to the social affairs section in each province.

Cooperation between the services. The law provides for cooperation between vocational guidance services and other services (educational, economic, social, medical, employment, etc.) but practices in regard to such cooperation still remain to be improved.

Relations with the labour market. A five-year plan of economic development was established by the government in 1960 with a view to solving the urgent problems in this country. Vocational guidance is indispensable to the implementation of the plan and for ensuring a supply of able engineers and technicians. The Economic Planning Board has investigated the question of technical manpower resources and in 1961 established in connection with the five-year economic development plan a five-year complementary plan relating to the demand for technical manpower. In addition, the Economic Planning Board is conducting a large inquiry on the classification and standardisation of various occupations in this country and by 1963 the inquiry will be finished. Economic planning and educational planning are closely coordinated and since 1962 the investment for development of vocational education has increased rapidly.

Vocational guidance should also help to resolve the unemployment problem, which is one of the important problems in this country. Social stability and security largely depend upon the development of vocational guidance services.

Procedures and Practices

Techniques employed. The techniques generally employed in vocational guidance examinations are the following: tests of aptitude and intelligence; personality tests; interest inventories; interviews, etc. The school record also is consulted and there is inquiry concerning the home environment.

Information on the vocations. Information on occupations is not furnished systematically in this country but research in this field has been conducted by some agencies. The Central Educational Research Institute, for example, has publicised some data on the subject. Information on professions is also being given by means of guides, lectures, films, television and the radio. At secondary schools provision is made for such information to be given in connection with the social studies.

Follow-up practices. The vocational guidance services deal with the choice of a school for further education (vocational or academic) and help graduates

to find employment. Vocational high schools deal with placement in apprenticeship.

The counsellors are still too few to permit of them undertaking informative or persuasive action with regard to the children, families and teachers. Planning in regard to such action is now in progress at the Student Guidance Centre of the Seoul National University. On account of heavy teaching loads the counsellors at secondary schools are hardly able to take such action. In many secondary schools the teachers are cooperating with the counsellors but it is difficult to influence families as these tend to have aspirations which are higher than those justified by the abilities of their children.

It is not possible to follow up the pupils sufficiently well to ensure their vocational adjustment in all cases.

STAFF

Composition and selection of staff. Counsellors at secondary schools are chosen from among members of the teaching staff.

At present this country does not have specialised counsellors in the field of vocational guidance. The few professional counsellors, who are working at the central service or at colleges and universities, received their training abroad. Some obtained Master of Arts or Doctor of Philosophy degrees in the United States.

Training and further training. An in-service training course for counsellors engaged at secondary schools is held by the Central Educational Research Institute and the Research Institute of Seoul City under the auspices of the Ministry of Education. The course has been attended by 200 teachers who came from all over the country and who were chosen by reason of their vocational experience, teaching experience and experience in guidance.

This course is of 360 hours extending over a period of several months and its curriculum includes the following: personality psychology; human development; psychological testing; educational sociology; psychology of learning; personality and adjustment; organization and administration of guidance; vocational guidance; principles of guidance; educational statistics; mental hygiene; educational philosophy; educational evaluation; case work; counselling; workshops.

Conditions of service. Counsellors at secondary schools are usually loaded with more than 16 teaching hours a week apart from their guidance work. Guidance workers at colleges and universities, however, are full-time professors who are highly qualified in the field of guidance and counselling.

The officers of the local employment exchange centres under the Ministry of Health and Social Affairs are not professional workers and are burdened with many clerical duties.

Guidance workers at colleges or universities are employed on a full-time basis and receive the same remuneration as that of other professors who possess equivalent degrees and experience. The remuneration of secondary school counsellors is equivalent to that of the other teachers. The situation and remuneration of staff at the 41 employment exchange centres are equal to those of other civil servants who have equivalent qualifications.

Plans for the Future

The most urgent requirements in the field of vocational guidance are the following: (1) scientific investigation and systematic collection of information on the various occupations; (2) training of specialists in the field of vocational guidance; (3) setting up of centres for the training and in-service training of vocational guidance workers; (4) strengthening of the administrative organization and of the operation of vocational guidance services.

As noted above, vocational guidance is only at a beginning stage and it is not yet possible to evaluate the results already achieved in this field.

International Action

Korea has not received any international assistance in the field of vocational guidance. Foreign experts, however, have visited this country to help with the development of the services. At the present beginning stage of vocational guidance in Korea this country is greatly in need of assistance from foreign countries or international organizations. She wishes to receive, in particular, not only scholarships for training future guidance workers but also visits from experts.

KUWAIT

From the reply sent by the Ministry of Education

In educational organization no provision is yet made for vocational guidance. The population is small and consequently all citizens find work easily.

LAOS

From the reply sent by the Ministry of National Education

Nature of Vocational Guidance

Under the reform now being carried out in national education, primary education constitutes a kind of vocational guidance inasmuch as the programme is divided into centres of interest most of which are based on a study of the vocations.

In the final year (6th class) of the second stage of the primary school course the curriculum specifically provides for vocational guidance and one of the centres of interest (a month) has as aim the vocational guidance of the pupils and deals with the vocations. In final classes at secondary schools provision is made for courses of an analogous nature.

As regards higher education, since 1962 the Laotian students arriving in France have been required to take a three-month guidance stage which enables them to choose with knowledge of all relevant facts the school or faculty most appropriate to their abilities and to their vocations.

Plans for the Future

A manpower sub-committee has been set up and is composed of representatives from the ministries responsible respectively for education, planning, public works, etc. By means of this committee the short and long-term needs in regard to manpower will be determined. On the basis of the findings it will be possible to give guidance to pupils at the different levels (primary, secondary, vocational, higher), to introduce new courses in the various sectors and in the provinces where most needed as well as to apply a realistic policy in regard to scholarships.

LIBERIA

From the reply sent by the Department of Public Instruction

Nature of Guidance

This year a pilot guidance programme was initiated in five junior and senior high schools in Monrovia under the direction of the testing and guidance division of the Department of Education. These programmes have been in the form of periods or classes for guidance and have for purpose to serve as an experiment for (1) determining the interest of students in a school programme, (2) determining the value of the programme in giving to the students general knowledge of the various courses and vocations, (3) trying out the appropriateness and difficulty of the guidance materials.

At present no vocational guidance services exist but there is a great desire that one be organized on an official and national basis in the near future.

Plans for the Future

The guidance classes were started in April, 1962, one month before the close of the first semester of the school year. It is thus too early to evaluate the results. If these trial programmes prove successful it is intended that similar programmes be established in all of this country's junior high schools.

In connection with its new reorganization the Department of Public Instruction anticipates setting up a Student Personnel Services Division, which will be staffed with three Liberians trained abroad as specialists in testing and guidance.

The government is anxious to develop vocational guidance to link up with the developing vocational training scheme. A vocational guidance programme will aid in the selection of young people for the academic and vocational education training schemes now being planned with the assistance of experts from the United States and the International Labour Organization.

Some attempts to determine the needs of the labour market are being made by the International Labour Organization, economic research groups and the evaluation and supervision division of the Ministry of Education. A survey of high-level manpower has been made and the Booker Washington Institute, the only vocational secondary school, has undertaken to survey employment opportunities as well as to establish a placement and follow-up programme for graduates.

International Action

As seen above, the United States and the International Labour Organization are assisting in the development of vocational training. Furthermore, plans for a testing programme are being drawn up by the Ministry of Education with the aid of the United States. Trainees are being sent abroad for training in order that upon their return this programme may be executed.

This country is greatly in need of assistance from international organizations and foreign countries in the field of vocational guidance. Her urgent needs are for funds, experts and guidance workers as well as for scholarships for trainees.

LUXEMBOURG

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. A vocational guidance service is attached to the National Labour Office. This official service was set up under a law of 30th June, 1945. There are also two private educational and vocational guidance services.

Educational guidance of a more general nature is now being organized. In the meantime there is an educational guidance centre which has been operating since 15th September, 1962, at the classical lycée in Diekirch. The pupils who receive counselling and guidance there are aged from 12 to 19 or 20 years.

Compulsory nature and free provision. Young people who on completion of their primary education enter into an apprenticeship agreement or decide upon a course of technical or vocational training are, before being allowed to study their chosen vocation, required to be examined by the vocational guidance services. Guidance is free of charge.

Organization and financing. The official vocational guidance service forms part of the National Labour Office which is under the control of the Ministry of Labour. The cost of this service is borne entirely by the State. One of the private services is organized and financed by a non-governmental association *Action familiale et populaire.* The other is organized and financed by the Emile Metz Institute (a private vocational school at Dommeldange) for the benefit of its own pupils and the apprentices engaged at the ARBED *(Aciéries Réunies de Burbach Eich Dudelange).*

Cooperation between the services. Cooperation as regards education (particularly primary education) and the vocational guidance service of the National Labour Office is ensured by a school pre-vocational guidance service for which the Ministry of National Education is responsible. This service was set up under an order of 2nd February, 1949, and has the task of providing a liaison between the schools at the different educational levels and the vocational guidance service of the National Labour Office.

Relations with the labour market. There is cooperation between the employment services and the vocational guidance service due to the fact that the latter is attached to the National Labour Office. When advice is offered in the process of vocational guidance, consideration must be given on the one hand to market needs as regards employment, on the other hand to the aptitudes and vocational desires of those receiving guidance.

Procedures and Practices

Techniques employed. The most usual procedures employed in vocational guidance are interviews, psycho-technical examinations and the consultation of reports furnished by the pre-vocational guidance service. The vocational guidance service at the Emile Metz Institute is provided with an important psycho-technical laboratory and, in addition, has recourse to aptitude and attainment tests. As regards individual guidance, this is provided particularly by the guidance service of the association *Action familiale et populaire.*

As there are not yet any standardised tests for the Luxembourg population, use is made, especially at the Diekirch centre, of certain German group tests as well as of any other test suitable in individual cases.

Information on the vocations. Brochures and guides have been published, *Berufe für alle* by *Action familiale et populaire* and *Schulen für alle* by the Ministry of National Education. The vocational guidance service of the National Labour Office regularly organizes in the country's larger localities lectures for the benefit or primary school pupils, their parents and teachers. Every year it publishes a guide dealing with the opportunities provided for vocational training.

Follow-up practices. The vocational guidance is concerned with the choice of a vocational school and with the commencing of an apprenticeship. If those being guided choose a vocation which involves an apprenticeship the vocational guidance service either deals itself with their placement or directs them to the other services of the National Labour Office.

In vocational guidance there is informative and persuasive but not compulsory action with regard to the pupils, families and teachers.

The vocational guidance service of the National Labour Office is concerned only with the choice of a vocation and, in case of failure, with any fresh guidance. The guidance provided by the psycho-technical laboratory at the Emile Metz Institute continues throughout the training period.

Staff

Composition and selection of staff. The vocational guidance service of the National Labour Office has not yet a specialised staff. It has actually one psychologist with a degree and, for certain cases, a psychologist who is attached to the pre-vocational guidance service and who holds a degree. The other staff members are either intermediate ranking civil servants or else certain employees who although not possessing any special training have acquired some practical experience in vocational guidance work.

Plans for the Future

A documentation, educational guidance and pre-vocational guidance service, the establishment of which was provided for by a ministerial regulation of 3rd April, 1962, is in the course of being set up under the Ministry of National Education. After having collected the necessary documentation, this service

will commence at the beginning of next year to organize systematically educational guidance in the different sectors of education.

The educational reform project, now under consideration, provides for guidance stages as well as for systematic educational guidance.

In the bill dealing with the reorganization of the National Labour Office, provision is made for this service to have guidance officers who hold degrees.

International Action

Luxembourg has not received international assistance in the matter of guidance. Prior to any assistance, it will be necessary to wait until the vocational guidance service of the National Labour Office has been reorganized on a legal basis.

MALAYA (Federation of)

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. The aim of vocational guidance is to provide information about the occupations and to orient pupils towards those most appropriate to their abilities and interests, while at the same time having regard to the requirements and opportunities of the occupations and careers. There are official services and private ones. The services are not governed by official provisions.

Compulsory nature and free provision. Vocational guidance is free of charge and not compulsory.

Organization and financing. The authorities responsible for the organization and financing of the official services are the Ministry of Labour (youth employment service) and the Ministry of Education (vocational guidance section). The private services are organized and financed by the Rotary Club, the Youth Christian Workers, the Young Women's Christian Association or the youth clubs.

Cooperation between the services. A vocational guidance coordinating body is in the course of being established.

Relations with the labour market. Improvement is being effected in regard to such relations.

Procedures and Practices

Techniques employed. The following techniques are employed: establishing of cumulative records; assessment of scholastic abilities; testing of aptitude and interest.

Information on the vocations. This is communicated by means of brochures, guides, lectures, films, radio and publications.

Follow-up practices. Vocational guidance services deal with placement in apprenticeship and with registration at an employment office. After the present reorganization of the system it will be possible to follow up those who have been assisted.

Staff

Composition and selection of staff. At national level the Ministry has a vocational guidance organizer. At school level, career masters give vocational guidance under the supervision of state education officers. Such staff are not selected according to any definite criteria.

Training and further training. No special training is received. A special further training course for vocational guidance supervisors and trainers is being planned.

Plans for the Future

Among the measures contemplated for the further training of staff is a six-month intensive course to be held at the Specialist Teachers Training Institute from January to June, 1963, for experienced teachers and school administrators.

International Action

Under the Colombo Plan the Federation of Malaya has received from Canada the assistance of an expert on vocational guidance. The federation wishes to receive also scholarships for the overseas training of guidance workers.

MALI

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Ever since the schools re-opened in 1962 there has been at the Ministry of Education in Bamako a psycho-technical service which assumes responsibility for educational guidance at the level of the classes (6th and 5th) which form part of the observation stage.

In addition, guidance boards for the 6th classes were set up under a decree of 15th February, 1961, and include not only a national board but also class boards which operate at each establishment. The chairman of the national guidance board is the Minister of Education. This board meets at the end of each school year in order to examine the school records kept in respect of the pupils. The psycho-technical service is an official service. There is not in this country any other service of the kind.

Compulsory nature and free provision. Vocational guidance is not compulsory. Only in the classes of the observation stage at secondary education establishments is educational guidance given automatically. In this guidance an endeavour was made last year to orient the pupils towards the different branches of education. Since 1962 it has been possible to base this practice on the results of group tests (of level and aptitude) administered to all pupils in 6th classes. These examinations are free of charge.

Organization and financing. The psycho-technical service was organized by the Ministry of Education and payment for purchases of material is provided for in the Ministry's ordinary budget. Everything is centralised at the Ministry and there is no responsibility at regional or local level.

Cooperation between the services. Cooperation with the education services takes place either at the monthly or quarterly meetings of the class boards or else in the course of frequent exchanges and contacts with the establishment principals.

It is hoped to develop exchanges with medical circles and thus obtain additional details for the psychological portrait of the African child and adolescent.

Relations with the labour market. There have been no such relations as yet but provision has been made for cooperation to take place as soon as the guidance service is furnished with all that is necessary for initiating the exchanges with this sector.

Procedures and Practices

Techniques employed. The service is concerned much more with educational guidance than with vocational guidance. It is not possible to employ

any technique other than that of group testing as one person alone has the task of examining all the 6th classes (representing a total of about 2000 pupils) throughout the country. In the case of each visit a regional inquiry is carried out in order that test findings may be interpreted within the social and economic context of the particular region.

On the basis of models in current use the psycho-technical service has designed a guidance record sheet which constitutes the essential component of the pupil's cumulative record during the observation stage. To begin with and owing to lack of time the tests have been concerned only with the pupil's intellectual level and, less frequently, his aptitudes. It is hoped that, as from the imminent re-opening of the schools, a means will be found for carrying out tests of interest and study of groups according to socio-metric methods. The case of each pupil is discussed at meetings of the class boards and it is ensured that on the human level close contacts shall be made with the child himself and with his family.

Information on the vocations. During the school year the service collected documentary material on the opportunities offered at the different levels, particularly in the case of girls. This material was transmitted to primary school inspectors and school principals with a recommendation that they make as much use of it as possible.

Follow-up practices. Through the class boards and the national guidance board it is possible to ensure valuable contacts with the representatives of the parents' association, who seem to be quite ready to encourage the work of the vocational guidance service. Similarly, any advice offered at the monthly or quarterly meetings in secondary education establishments has always been followed with the utmost good will by the principals and teachers.

Staff

Composition and selection of staff. During this first year of its operation the service consists of only one person and she, a psycho-technical officer appointed on the basis of her formal qualifications, is directly responsible to the academy inspector and to the Minister. Her services have been made available as part of French technical assistance.

Training and further training. The woman psycho-technical officer received her training at the national vocational guidance institute in Paris after having obtained a psycho-technical diploma at the Faculty of Medicine in Algiers. She maintains continual contact with the institute as well as with the French national pedagogical institute and is a subscriber to different reviews dealing with educational psychology.

Conditions of service. The psycho-technical officer was engaged under a contract concluded with the Ministry for Cooperation, in Paris, for a two-year term which may be renewed. Her conditions of service are the same as those of teachers engaged in the technical assistance.

Plans for the Future

It is considered necessary for a central service to be set up at the Ministry of Education in Bamako. This service would include several vocational

guidance counsellors one of whom would have the sole task of establishing a documentary file and, in collaboration with the ministries respectively responsible for labour, social matters and the planning of estimating the needs in regard to each vocation and each sector of activity. A parallel vocational selection service could operate along-side this service. Each of the counsellors would be responsible for a given geographic region.

As a result of the experience and results obtained from this first year of investigation and of psycho-technical examination it has been possible not only to assess with more accuracy the level and kind of testing which should be applied in this country but also to adapt certain conventional European tests.

In either one year or two the service will include two Malian specialists who, by means of a scholarship received from the French Ministry for Co-operation, will have taken the regular courses at the national vocational guidance institute.

International Action

Mali has thus been aided under French technical assistance. She would like to be able to develop her vocational guidance service either by means of visits from experts or through the training of her students abroad.

MEXICO

From the reply sent by the Public Education Secretariat

Structure and Regulations

Nature of guidance. At the National Polytechnical Institute there is an educational guidance department whose aim is to study and come to know the pupils from the point of view of their general personality, their intellectual ability, their social environment and their economic situation. The results of this psychological study, effected for educational purposes concerning pupils' aptitudes, provide a basis for the work of educational guidance, the final object of which is to make it easier for the pupil to choose a vocation. The guidance should ensure the harmonious development of the child's personality and produce individuals who not only possess technical knowledge but who are men capable of performing useful and productive work both for themselves and for the society in which they are situated.

There are official, semi-official and private services.

Compulsory nature and free provision. Guidance is compulsory at the pre-vocational level and is given free of charge.

Organization and financing. The authorities responsible for the organization and financing of guidance services are the Public Education Secretariat and the schools in general.

Coordination with the labour market. The educational guidance department has set up a " labour exchange " and is conducting studies on the vocations and on the labour market. This service is very useful but is non-official in its operation.

Methods and Techniques

Techniques employed. Psycho-technical examinations are employed for the selection and classification of pupils when they arrive. There is no medical examination but social investigations are carried out in order that the socio-economic situation of the pupils may be learned. The school record is consulted when considered necessary. Depending on the particular case, use is made of tests for determining the aptitudes, attainment level and vocational interests. Psychological examinations are given and in special cases there is clinical investigation.

Information on the vocations. Such information is carried out by means of printed " profesiogrammes " as well as with the aid of films, television, lectures, publications, etc.

Follow-up practices. The services do not deal with the choosing of a vocational school but they endeavour to bring about the placement in employment through the Labour Exchange.

The work carried out to inform the families, pupils and community, as well as work in regard to mental health, is fundamental. Those who receive guidance are not followed up after their integration in the vocational sector.

Staff

Composition and selection of staff. The staff of the services consists of the following: clinical psychologists; social workers; educators; psychiatrists; doctors interested in guidance work. Staff members are chosen and appointed according to their professional training and personal attributes.

Training and further training. The basic training includes elementary work in educational psychology. Special training in guidance is received by means of practical guidance work.

It is intended to include guidance among the fields which may be chosen for the doctor's degree in psychology at the National University.

Plans for the Future

The guidance services have but recently been set up and exist only in the larger towns. It is intended to set them up also in towns of less importance.

The guidance department has proposed to the Ministry of Finance that three additional posts be created: (a) psycho-technician, a post to be occupied for 18 hours a week, at a salary of 200 pesos, by a psychology student; (b) clinical psychologist, a post to be occupied for 18 hours a week, at a salary of 1,250 pesos, by a professor of psychology who has been engaged at a guidance service; (c) counsellor psychologist, a post to be occupied for 18 hours a week, at a salary of 1,700 pesos, by doctors of psychology and education who have had some practical experience at a guidance service.

International Action

Mexico has not so far received assistance in the field of vocational guidance and is desirous of doing so.

MONACO

From the reply sent by the Government Adviser for the Interior

Nature of Guidance

Vocational guidance has been for several years a problem of concern to the public authorities and before long a satisfactory solution will certainly be found, due in particular to the setting up in 1960 of a directorate for education and for cultural and youth activities.

In the meantime, meetings are held for families once a year and at them vocational guidance counsellors, usually French, explain to those present the future needs of industry, commerce and the professions. From time to time, moreover, the lycée or the state education establishments organize large exhibitions having vocational guidance as the topic.

In addition a teacher employed at the lycée, and who has qualified in history and geography, is at present responsible for providing the pupils with educational and vocational guidance. The parents are able to obtain from him all particulars concerning careers opportunities.

Plans for the Future

The future educational reform providing for a system rather similar in structure to the French system (observation stage, etc.) will bring about very considerable progress in this field.

Other measures will take effect very shortly. A veritable census will be taken over a ten-year period concerning the openings which exist in the public administrative services and private industry in the Principality.

The documentary data thus collected will be forwarded to the students' association in the Principality with a view to the organizing of lectures and debates which students and baccalaureate candidates will be invited to attend.

At the same time a study will be carried out for determining what steps should be taken to encourage or discourage in Monaco the entry into certain professions (medicine, pharmacy, architecture, the bar, etc.). Measures are also contemplated for introducing an administrative reform in order to encourage law and arts students to choose vocations in the public service.

When the different inventories have been taken, a list of vacant public posts and of vacancies in private employment will be compiled in June every year. At the same period, meetings will be arranged at government level between not only those responsible for the young but also representatives of students in order to learn both of possible openings and of the desires manifested by those interested. Furthermore, regular and frequent contacts will be established with employers' and employees' vocational organizations with a view to determining what direction should be given to technical education.

MOROCCO

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Ever since 1922 vocational guidance has existed in Morocco but only since 1947 has it been organized systematically.

The purpose of such guidance may be defined as follows: to guide the child, or adolescent, towards the kind of vocational activity which is best suited to his aptitudes, knowledge and tastes, due consideration being given to the needs of the national community, in order that his personality may unfold to its utmost and that moreover he may contribute to the common good.

Compulsory nature and free provision. Vocational guidance is free of charge. It is compulsory at two levels: (1) at the end of the primary school course and with a view to the pupils' entry (average age 12-14 years) to secondary education establishments; (2) at the end of the junior stage of the secondary school course and with a view to the pupils' admission (average age 16-17 years) to one of the special sections of the senior stage.

Taken by committees which are composed of teachers and a guidance consellor, the decisions in guidance are of a compulsory nature for the pupils.

In addition, at the end of the second school quarter it is compulsory for the councils of teachers to report cases of maladjustment in regard to school work and what are known as " examinations for eventual fresh guidance " are carried out systematically.

At the request of families individual examinations may be carried out doing the year.

In 1962 the number of pupils who received guidance was 47,288 at the first guidance stage and 6,132 at the second while, in view of the rapid increase in the amount of schooling, the corresponding figures for 1963 will be much higher.

Organization and financing. Until 1959 responsibility in the matter of vocational guidance belonged to the technical education service of the Ministry of National Education. In 1959 a central administrative agency for coordinating the work of six guidance centres, that is to say the Documentation and Guidance Bureau *(B.D.O.)*, was established. In 1961 the *B.D.O.* became one of the bureaux constituting the Planning and School Record Service of the Ministry of National Education.

It is to this service that the inspectors of planning and guidance (three in number at present) are, each in his particular district, responsible for the technical supervision of the regional agencies. The guidance centres ceased their existence in 1962 and the regional agencies are now the planning bureaux belonging to the ten " delegations " of the Ministry of National Education. Each planning bureau consists of four sections (statistics, school record,

guidance, scholarships) and its territorial responsibility extends to the whole of the " delegation " (one or more provinces) of which it forms part.

Cooperation between the services. The Documentation and Guidance Bureau has regular relations with the Ministry of Health's health service, the latter being responsible for the medical examinations carried out for guidance purposes, and is also in contact with the vocational training services of the different ministries as well as with important industrial undertakings.

Relations with the labour market. From the aspect of economic and social development, guidance is considered as a means of ensuring that better use is made of the nation's intellectual resources and naturally it is a centre of attention at the service which is responsible for educational planning.

Through the statistics bureau, which also forms part of the Planning and School Record Service, the Documentation and Guidance Bureau is kept informed about studies which, on forecasts concerning employment, are carried out by the division which deals with economic coordination and with the planning by the Ministry of National Economy.

Procedures and Practices

Techniques employed. In view of the requirements for development, the ever increasing numbers of cases to be examined and the reduced number of specialists the vocational guidance services have been led to devise " mass " guidance methods. At both guidance stages the examination includes a medical examination, group tests of attainment and aptitude, consultation of the school record, study of the desires manifested by the person concerned as well as of information furnished by teachers.

Information on the vocations. The educational, vocational and university documentation which the central service compiles is widely disseminated.

During 1962 the following provision was made: 19 lectures on vocational opportunities and which were attended by 2,354 pupils in their final year of the secondary school course; 200,000 prospectuses (in Arabic and French), distributed in final classes at primary schools and in certain classes at secondary level; talks prepared by the *B.D.O.* and given by secondary school teachers to 6,300 pupils completing the lower stage of the secondary school course and by primary school teachers (during a " Guidance Week ") to 80,000 pupils in their final year of the primary school course; brochures distributed on opportunities in teaching and on the various institutions for higher education; the wall bulletin " *B.D.O. Informations* ", publishing reports on the different careers, information on the examinations, competitive examinations, scholarships, etc. and which was sent every fortnight to 3,700 addresses (in 1963 this bulletin is to be published in both Arabic and French). In addition, the central service alone replied to 3,944 requests for information. In 1963 it is intended to make use of radio, television and films.

Follow-up practices. An individual record system was specially instituted in 1961 for the first time to enable pupils to be followed up and it will also enable a more effective appraisal to be made of the tests employed.

STAFF

Composition and selection of staff. The staff at the guidance services consists of: counsellors, who are either graduates of a vocational guidance institute or hold degrees in psychology; teachers acting as counsellors; teachers acting as assistants; students receiving practice in counselling; students from the training centre.

Training and further training. A centre for the training of planning advisers and educational guidance counsellors was set up in March, 1962, at Rabat. The standard for admission is that of the baccalaureate and most of those who enter are members of teaching staff.

The course takes three years and the second year is devoted to practice work, during which the students are required to carry out actual responsibilities at the central or regional services.

The syllabus of the training course has been drawn up in relation to the requirements of a developing country and the principal subjects and practical work deal with the following: psychology; the psychology and medicine of guidance; the study of vocations and the organization of labour; the techniques of administrative organization; the techniques of documentation and information; educational organization; statistical methods; economy; sociology; population.

For their information and their further training the technical library of the central service is available to counsellors who are serving and discussion days are arranged.

Conditions of service. Certain conditions of service for application in the case of specialised staff have been proposed and under them the counsellors (first in the ranking list) would belong to the category of secondary school teacher.

PLANS FOR THE FUTURE

Needs in the field of vocational guidance are continually increasing on account of the development in school education at all levels.

In order to complete the now existing system the intention is to make it of general application as regards pupils in the final year of the secondary school course and thus, by helping them to choose the most suitable courses of study, avoid mistakes in guidance which might have a detrimental effect both for the individual and for the community.

INTERNATIONAL ACTION

The only assistance received by Morocco in the field of vocational guidance results from the agreements concluded with France in regard to cultural cooperation. At the present time it is sufficient.

As a result of the setting up of the training centre a reduction in the number of foreign technical assistants as from 1964 can be contemplated.

Assistance in the following forms could be given straight away in connection with the training of counsellors: visits by specialists whose mission is to give instruction; books for the library; technical equipment. It is also desirable that new counsellors be granted scholarships to enable them to take short courses of study.

NETHERLANDS

From the reply sent by the Ministry of Education, Arts and Sciences

Structure and Regulations

Nature of guidance. The aim of vocational guidance is to give advice on the choice either of a school, of a line of study or of a career as well as to give information on the features of various occupations, on the appropriate training and on the opportunities of employment. Such advice and information can be given either individually or at meetings specially arranged for the purpose for the benefit of the pupils, their parents and the teachers.

As regards educational guidance, at some primary schools there are teacher-counsellors for pupils in the sixth year. At all high schools a choice is offered: the course begins with a stage (one or two years) which is the same for all pupils and after which they become separated in two groups, some taking the gymnasium course (four or five years) and others the secondary school course (three or four years). The first common year is becoming increasingly like a guidance and observation class with the introduction of the new system of secondary education under the law of 14th February, 1962, dealing with the organization of post-primary education.

Advice concerning the choice of a school and career is provided by national and municipal government services and private services (whether subsidised or not) as well as by schools.

Compulsory nature and free provision. The giving of information and advice on vocations is voluntary. Parents are at liberty to apply for such information or not.

Advice given by the schools is free of charge. The vocational guidance bureaux, both government and private ones, generally charge a fee.

Organization and financing. Since January, 1948, there have been government vocational guidance services at the 86 district labour offices controlled by the Government Employment Office, which is a section of the Ministry of Social Affairs and Public Health. The responsibility for government employment bureaux not under the jurisdiction of the Ministry of Social Affairs and Public Health belongs to the ministries concerned (for example the Ministry of Defence or the Ministry of Transport, Water Control and Public Works). Municipal authorities are responsible for their own bureaux where these exist.

Private vocational guidance services are organized and financed by private persons and institutions and, in a number of cases, are subsidised by the government.

Cooperation between the services. After the second world war the Industry and Education Contact Centre was founded. It promotes contact between

trade and industry and the education authorities. There is cooperation between the different services, particularly between the district labour offices, the other government bureaux and the bureaux of large municipalities.

Relations with the labour market. The services endeavour to " put the right man in the right place " and to make efficient use of the available manpower while taking into account the present situation and anticipated developments.

Procedures and Practices

Techniques employed. A distinction is made between individual examinations and group examinations for choice of school and for vocational guidance. The usual examination procedures of the day are employed in collaboration with a number of specialists (psychologists, educators, psychiatrists, social workers, children's doctors, etc.). The methods used depend upon the case and upon the staff available. The applicants for guidance are observed and tested and contact is established with the family, church authorities, youth movements and the teachers in order to ensure that the advice given takes all the relevant factors into consideration.

Information on the vocations. Information on various careers is contained in some government publications (for example those of the Ministry of Education, Arts and Sciences and the Ministry of Social Affairs). Some of these publications are on specific subjects (for example the training of teachers) and others contain general information (for example the opportunities for study open to secondary school leavers). In addition, radio and television are employed.

The Industry and Education Contact Centre introduces young people to industry by arranging the employment of students and by regularly furnishing information on careers to teachers and pupils at secondary schools. It also publishes manuals on career guidance.

As far as elementary schools are concerned, information is usually given to parents when the children reach the highest standard (approximately at the age of 12 years). At secondary schools the advice is given during the years which precede specialisation (pupils at the age of 15 or 16 years) and during the last year at school.

Follow-up practices. The services influence the choice of career and of appropriate training. Placement in occupations and in apprenticeships, as well as consultations with employers, are arranged by the employment services of the district labour offices. Informative and persuasive action is generally taken with regard to the children, their families and their teachers.

In a small number of cases a check is made in order to learn whether the advice given has been taken and what are the results. There are plans to make such checks more systematically.

Staff

Composition and selection of staff. There is generally a university graduate (psychologist, educator or educator social worker) at the head of the service. The examinations at government institutions and subsidised private institutions

are conducted by specially trained vocational advisers in collaboration with a psychologist.

Training and further training. The vocational advisers take a three-year course which is held under the auspices of the Government Labour Office and the Central Committee for Vocational Guidance Cooperation. The course includes information about the careers and about the methods and techniques used for the various examinations.

In-service training is provided for vocational guidance advisers who are in government service.

Conditions of service. The conditions of employment in government vocational guidance services are those applicable to employees in other government offices. The private services have received from the Central Committee for Vocational Guidance Cooperation instructions which correspond roughly to the regulations applicable to government service.

The legal position and the salaries of employees in the government vocational guidance services can be compared with those of other officials who, according to their qualifications, are classified in three categories, namely university, secondary and elementary. The advisers are classified, according both to the capacity in which they are employed and to their qualifications, either in the first category (university trained psychologists) or in the second (non-university trained vocational guidance advisers).

Plans for the Future

An endeavour is being made to improve and extend the research services.

International Action

The Netherlands has not received international assistance in this field. Contacts with other countries have been made through international bodies such as the European Economic Community.

NEW ZEALAND

From the reply sent by the Department of Education

Structure and Regulations

Nature of vocational guidance. The aims of vocational guidance in New Zealand are to help the pupil plan his educational programme and eventually choose a suitable career related to his interests, abilities, aptitudes and temperament. One of the most important tasks of the vocational guidance services is to ensure that the material available to parents and children for assisting them to reach a decision on a career is as comprehensive as possible.

Compulsory nature and free provision. Vocational guidance is never compulsory. Advice given by the official vocational guidance service is free of charge. Private consultants charge fees.

Organization and financing. The Vocational Guidance Service was established a little over thirty years ago under the general provisions of the 1914 Education Act and its amendments. This official service forms a part of the Department of Education, by which it is organized and financed. It has branches in the six main cities and deals with the great majority of cases, although some young people seek advice from the psychology or education faculties at universities or from private consultants. The latter are few in number and there is no provision for the control or licensing of them by the state.

Cooperation between the services. There is close cooperation between the Vocational Guidance Service and secondary schools, the Child Welfare Division and the psychological service of the Department of Education, the Department of Labour, the Department of Maori Affairs, the probation service of the Department of Justice, etc.

Relations with the labour market. The vocational Guidance Service is essentially concerned with the interests of the pupil and not with those of the national economy. A guidance officer will of course point out to a pupil the advantages of taking up an occupation in a developing rather than a declining industry. The Vocational Guidance Service consequently keeps in close touch with the Research Division of the Department of Labour, which is able to indicate trends in the labour market.

Procedures and Practices

Techniques employed. The techniques most generally employed in vocational guidance are the following: interviews; consultation of cumulative school records and of school reports; tests of intelligence, aptitude, attainment and vocational interest (administered either at school or by the service itself).

Information on the vocations. Lectures are given and films are shown to groups of school leavers. A recent development has been the organization of vacation courses for senior pupils in secondary schools. These courses normally extend over a week and provide for such pupils a picture of employment possibilities in a wide range of occupations.

The official service always has up-to-date information available about educational facilities as well as about the training required, bursaries, pay, prospects, etc. for a great variety of occupations. The service has some 170 information leaflets on careers. It also publishes three periodicals: " The Vocational Guidance Supplement ", which contains information on apprenticeships, bursaries and allowances as well as on further training; " Next Year ", which is designed to help pupils and their parents plan a suitable secondary school course; " Your Career ", for helping secondary school pupils who are about to leave school. In addition, vocational guidance officers arrange for pupils to visit places of employment and to interview employers.

Follow-up practices. The Vocational Guidance Service assists with the choice of a vocational school or of apprenticeship. There is a shortage of labour in New Zealand and employment agencies are in very little use. The service maintains a register of employers who are in need of young employees.

The Vocational Guidance Service will provide further advice if this is sought. It should, however, be emphasised that the service merely gives advice, which latter the pupil and his parents may take or not as they please.

The Vocational Guidance Service is not large and can do only a limited amount of follow-up work.

STAFF

Composition and selection of staff. The Vocational Guidance Service is headed by the chief vocational guidance officer, who is responsible to the Chief Inspector of Secondary Schools of the Department of Education. The six vocational guidance centres in the main cities employ from four to tne vocational guidance officers, depending on the number of young people in the area to be served. There is also clerical staff in each centre. In addition, there are some 250 " careers advisers " who are attached to the larger secondary schools. Although these persons are classroom teachers they spend part of their time advising pupils on future careers. Vocational guidance officers visit the careers advisers at least twice a year . There are men and women guidance officers and careers advisers; the men deal with boys, the women with girls.

Training and further training. Applicants for vocational guidance positions must have a good educational background, preferably either with a university degree for which psychology or education was studied or else with teaching experience. After appointment they receive " on-the-job " training for one and a half years. They take a guided course of reading on following matters: the history of vocational guidance in New Zealand and overseas; the principles of psychology, with special reference to adolescents; the theory, administration and interpretation of tests of intelligence (general), aptitudes, interests, etc. Trainees who have not studied education up to advanced stage at a university are encouraged to do so and all of them are helped to obtain

a sound knowledge of the country's education system. They are expected to become familiar with the following matters: the work of specialist branches of the Department of Education (psychological service, child welfare service, visiting teacher service, etc.); adult education; examination requirements, bursaries, scholarships, university degrees and diplomas; legislation affecting such groups as the indigent, the delinquent and the incapacitated.

Trainees accompany vocational guidance officers on visits to schools, assist at interviews and conduct interviews under supervision. They learn to gather, classify and use information on the types of vocational activity available to young people.

Trainees learn also how to make use of psychological tests. They study and prepare full case histories and follow up certain cases. They attend meetings and courses for careers advisers and are given practice in public speaking.

Conferences and refresher courses are held from time to time for vocational guidance officers and provide an opportunity for the exchange of views and experiences.

Conditions of service. The Vocational Guidance Service forms part of a government department and vocational guidance officers have the conditions of service which apply to other government servants.

Plans for the Future

The number of young people at school continues to increase and the number of vocational guidance officers and careers advisers will need to be increased proportionately. It may then be possible to have a larger number of vocational guidance centres and give better service to schools which are out of town. More attention will be given to the problems of young Maori people and it is hoped to recruit a larger proportion of Maori vocational guidance officers.

The government is constantly reviewing this country's needs in the field of vocational guidance and, in order to meet them, organizing the development of the service.

International Action

The Vocational Guidance Service has received no formal assistance from overseas but in 1953 a professor from London University reviewed the service informally. Partly as a result of his suggestions a research and testing officer who had for many years served on the staff of the National Institute of Industrial Psychology, London, was appointed to the service.

The Vocational Guidance Service has, under the Colombo Plan, provided training for students from Asia.

New Zealand is anxious to learn from the experience of other countries and would welcome the opportunity of making personal contacts with similar services abroad, either through visits of overseas experts to New Zealand or through overseas visits of New Zealanders. At the present time, however, New Zealand has no intention of applying for financial assistance from abroad.

NIGER

From the reply sent by the Ministry of National Education

Nature of Guidance

There is not yet any vocational guidance service in Niger but a proposed plan is under consideration. At the present the pupils and their parents receive advice from the school principals.

Technical education is provided at a few establishments and the numbers of pupils enrolled in the different sections are related to the present and foreseeable needs of this country. Those who are responsible for this education maintain close relations with the Ministry of Labour.

International Action

Niger has not received any assistance in connection with the organizing of vocational guidance. The necessity for a vocational guidance service is becoming increasingly evident and, consequently, assistance in this field and in the following form would be much appreciated: scholarships, the visit by an expert and, above all, financial aid to enable sufficiently rapid implementation of the plan for the setting up of a centre. The estimated cost of the latter (construction of premises and purchase of necessary equipment) is 8 million C.F.A. francs.

NIGERIA

From the reply sent by the Federal Ministry of Education

Structure and Regulations

Nature of guidance. In the Ministry of Education there is a vocational guidance service which is concerned with the measurement of intelligence, interest and aptitude as well as with research and educational and vocational guidance and counselling. Furthermore, there are careers officers in most secondary schools and there is now a guidance instructor at the Ibadan teacher training college.

Compulsory nature and free provision. Vocational guidance is free of charge and not compulsory.

Organization and financing. The vocational guidance services are organized and financed by the Federal Ministry of Education and by the regional Ministries of Education. There are no private services.

Cooperation between the services. There is cooperation between the vocational guidance service of the Ministry of Education and the other services.

Relations with the labour market. Vocational guidance is actively concerned with the " manpower planning " project which is related to this country's educational, economic and technical development. The national economy and manpower needs are fully considered but the service is unfortunately limited in its activity.

Procedures and Practices

Techniques employed. The techniques employed are those in most current use elsewhere.

Information on the vocations. This is communicated by means of brochures, talks, discussions, exhibitions, visits, radio, conferences, etc.

Follow-up practices. The vocational guidance services do not as yet deal with the choice of a vocational school, placement in apprenticeship or registration at an employment office but expect to do so eventually. As far as is possible with their limited personnel these services take informative and persuasive action with regard to the children, the families and the teachers. Similarly, they endeavour to follow up those they have assisted.

Staff

Composition and selection of staff. At Lagos, the federal capital, one vocational guidance officer is working with careers masters and mistresses

who are engaged in secondary schools and who form the Careers Guidance Council. There is a vocational guidance instructor and a guidance council in the Western Region. Two officers are attached to the social welfare service in the Northern Region.

Training and further training. Vocational guidance staff are required to have received training in education and administration and to possess not only knowledge of juvenile employment but also sufficient experience of the local education system.

Conditions of service. The guidance staff are government employees and have conditions of service which are the same as those of assistant secretaries, assistant administrative officers and the education officers.

Plans for the Future

A widely established guidance service is needed in each of this country's four regions in order that all sections of the community may benefit. For such a service the requisites are the following: enough and trained staff; testing, guidance and counselling equipment, including a library, etc.

International Action

Up to the present this country has not received assistance in the field of vocational guidance but some limited training arrangements are offered now. It is desired that such assistance be developed as the overseas trained personnel could then organize local training programmes suited to the country's needs.

NORWAY

From the reply sent by the Labour Directorate

Structure and Regulations

Nature of guidance. There are vocational guidance services for assisting young people to meet their wishes, interests and needs when choosing an occupation and education.

The vocational guidance services are governed by the Act of 27th June, 1947 and the amending Acts of 14th December, 1956 and 2nd June, 1960. In regulations laid down by the Labour Directorate the following tasks are underlined as being specially important for the vocational guidance services: keeping themselves informed of employment prospects, of facilities for education and training, of opportunities for financial assistance, etc.; establishing, in cooperation with local education authorities, vocational guidance in schools; trying, through their own observation and by collecting information from parents, teachers and others, to get an impression of the client's interests, ability, character and health as well as social and economic background (when necessary the vocational guidance officer may be assisted by an institute of vocational guidance and personnel psychology and by medical or other specialists); giving statistical returns and reports in accordance with instructions from the Labour Directorate.

Compulsory nature and free provision. Individual vocational guidance is optional. At the new nine-year schools the " careers classes " are compulsory. These classes are included in the curriculum during the 7th year (10 lessons), the 8th year (30 lessons) and 9th year (20 lessons).

Organization and financing. All the vocational guidance services are official. The Labour Directorate is responsible for the organization and financing of them. There are no private services.

Cooperation between the services. The Labour Directorate and the Council for experiments in school *(Forsöksrådet)* contact each other in all questions concerning vocational guidance and vocational orientation at schools. Since 1955 a permanent coordinating council composed of members appointed by the Ministry of Church and Education and by the Ministry of Labour has been working on problems in the field of vocational guidance.

Relations with the labour market. The vocational guidance services are kept informed of the development in different trades as well as of vacancies and other problems connected with the labour market. Furthermore, they assist the employment services, particularly in connection with the employment of juveniles and the placement of disabled persons.

Procedures and Practices

Techniques employed. The estimation made by the vocational guidance officer is based on regular interviews as well as on the interpretation of school reports, testimonials from previous employers and statements from teachers.

If desirable—and possible—the client is submitted to psychological tests, which are given at institutes of vocational guidance and personnel psychology where trained psychologists are engaged.

Information on the vocations. Brochures are proposed by the Labour Directorate, students' organizations, manufacturing companies, trade-unions and other bodies and distributed free of charge to pupils in the 7th and 8th grades as well as to those in the gymnasium. Lectures are given to pupils in elementary schools (7th school year), continuation schools (8th and 9th school years), secondary schools (9th and 10th school years) and the gymnasium (12th school year), both by teachers and by vocational guidance officers.

The vocational orientation programme at the new nine-year comprehensive schools (which will replace the system of separate elementary, continuation and secondary schools) is based on the brochures and publications received from the Labour Directorate.

The television system in Norway is relatively new. Nine programmes for schools have been broadcasted as an experiment and only one of these was a vocational guidance programme.

Three series of programmes, each lasting approximately half a year, have been broadcasted by radio on vocational guidance. Apart from this, vocational guidance officers often produce short radio programmes. These programmes are broadcasted locally and thus reach certain districts.

An occupational card-index has been prepared by the Labour Directorate and provides a kind of encyclopedia of information on about 400 occupations or types of work. The card-index is sent to all employment offices. Schools and other institutions may subscribe to it. In addition, a list of the country's leading schools with their syllabuses is sent to the employment offices, the schools and institutions.

Follow-up practices. When necessary, the vocational guidance services assist young people with their application for positions or scholarships as well as with their placement in apprenticeship. There is conscious avoidance of everything which savours of pressure on the young people. Only when it is obvious that their plans are unrealistic does the vocational guidance officer try to lead them in another direction. Due to lack of time the clients are followed up only when there is reason to believe that they will need further help.

Staff

Composition and selection of staff. The vocational guidance division of the Labour Directorate is composed of the chief, an educational consultant, a psychological consultant, four vocational guidance officers or secretaries, office clerks. At the institutes of vocational guidance and industrial psychology (numbering 5) there are the five chiefs, eight psychologists and two vocational guidance officers (these will be transferred to employment offices). The county employment offices (numbering 18) have each a vocational guid-

ance officer. These officers coordinate the vocational guidance activities whithin the county and are responsible for the cooperation with schools.

Of the 110 district employment offices 45 have a section for vocational guidance and youth employment. There are 58 vocational guidance officers employed at these offices.

Training and further training. The vocational guidance officers are usually qualified teachers, psychologists or social workers. Staff at the vocational guidance institutes are qualified psychologists. Applicants are selected by interview.

All persons engaged as vocational guidance officers must take three special courses, each of four weeks, and have practical work. Psychologists attached to the vocational guidance institutes take an additional course in industrial psychology.

As regards further training, Norwegian vocational guidance officers participate in the seminars which are arranged by the Scandinavian association of vocational guidance officers. Norway is usually represented at the international seminars arranged by the International Association for Vocational Guidance.

Conditions of service. Salaries and working conditions of vocational guidance officers may be compared with those of teachers. According to the " state salary scale " the grade is 14 or 17 for vocational guidance officers, between 9 and 19 for teachers in elementary schools and continuation schools and between 13 and 21 for teachers in secondary schools and the gymnasium. The salaries of the teachers are based on weekly working hours, special training and practical experience. The vocational guidance officers work 40 hours a week and have three weeks' vacation a year.

Plans for the Future

It is considered that permanent courses should be established for teachers who are going to give vocational orientation at schools. It is hoped to develop the institutes of vocational guidance and industrial psychology. A series of career films for use in schools is being planned. It is intended to establish county coordinating councils to ensure cooperation between the schools and the employment services at local level.

International Action

Norway has not received any international assistance. She is thankful for help from other countries and is specially interested in obtaining scholarships that enable her vocational guidance officers to study vocational guidance systems in other countries.

PANAMA

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Guidance services are provided for pupils in the first stage of the secondary school course at six pilot schools. Officially created under a decree issued in 1958, these services are aimed at helping the pupil to know himself and, while account is taken of his economic and social environment, to choose his course of study and his vocation in accordance with his abilities. Services of this kind are now being organized at two private schools.

In the absence of specialised services at other schools the teachers take the place of counsellors and in most cases adopt the practice of group guidance, which is given during two or three hours a week.

Compulsory nature and free provision. The guidance is free of charge. It is provided for all pupils in the first stage (first three years) of the secondary school course.

Organization and financing. At the beginning the guidance services were under the control of the Directorate of Vocational Education but they have now been assigned to the National Directorate of Secondary Education. At national level the authorities responsible for the organization and financing of these services are the Minister of Education, the Deputy-Minister, the National Director of Secondary Education and the central inspectors of educational and vocational guidance. At local level those responsible are the secondary college principals and the teachers appointed at each college.

Private schools are free to organize their services in their own way. At the Institute of Educational Psychology the guidance service is directed by the principal and vice-principal of the institute. At the Jesuit Fathers' Xavier College and at the Augustine Fathers' Saint Augustine College the services are organized by specialist teachers.

Cooperation with other services. To a limited extent there is cooperation with the other services.

Relations with the labour market. Data furnished by the national census concerning industry and commerce and by inquiries relative to the vocations are expected to enable manpower needs to be taken into account.

Procedures and Practices

Techniques employed. The following are the most usual means employed for coming to know the pupil: interviews; medical examinations; social inquiries; consultation of the school record; tests of aptitude and of vocational interest; self-histories; general questionnaires; personal characteristics assess-

ment schedules, etc. In most cases the psychological tests are those designed in the United States and adapted for use in Spanish.

Information on the vocations. In order to furnish information of a social and economic kind, use is made of brochures, guides, lectures, films, exhibitions, radio broadcasts, newspaper articles, wall bulletins, public discussions and forums. In addition, leaflets containing information on vocations and on courses of study are distributed.

Follow-up practices. Under the guidance programmes which have been in operation at the pilot schools since July, 1961, consideration is given to the desires of the pupils, parents and teachers.

In a projected plan for the development of educational and vocational guidance, provision is made for follow-up action in regard to subjects who receive guidance. At the José Guardia Vega College (2nd commercial stage) a study is now being carried out and the results will be made known to the other colleges.

STAFF

Composition and selection of staff. The persons who are directly concerned with educational and vocational guidance are the national women inspectors of educational and vocational guidance, the principals of the six pilot secondary schools and the twelve teacher counsellors who are engaged in educational and vocational guidance.

Staff responsible for the giving of guidance are required to possess a teacher's degree obtained after a university course in education. Consideration is also given to the applicant's experience in teaching at primary and secondary education level as well as to the standard both of his services and of his moral reputation.

Training and further training. Two courses have been held for the training of guidance staff, one on the basic principles of guidance, the other on the procedures available for acquiring a knowledge of the individual. A third course is to deal with procedures in furnishing social and economic information. The two women inspectors of educational and vocational guidance took special courses abroad (one in Chile and the other at Puerto Rico) by means of Unesco scholarships.

In order that they may keep themselves informed and improve themselves professionally, the teacher counsellors have received a collection of some twenty works by authors well known in the field of guidance. In addition, discussion meetings are held every fortnight for laying down the standards to be observed in the work at each school.

Conditions of service. Conditions of service are being drawn up and will be submitted for consideration and approval to the National Director of Secondary Education. The women inspectors have the same conditions of service as have government administrative officials. The teacher counsellors must accept the school hours and are entitled to three months' holiday.

Plans for the Future

It is hoped that the provision of guidance services will become general at all first stage secondary level colleges, which are thirty in number. The six existing services reach only 6000 pupils out of the 24,296 who are attending the official schools and not counting the 17,875 pupils at private colleges.

International Action

At the University of Panama during the summer quarter of 1960 a course held under the auspices of the Inter-American Cooperative Service was attended by 42 secondary teachers.

From October, 1960, until May, 1962, an expert from the international agency for the economic development of Latin America provided this country with technical assistance. He worked with the two national inspectors (women) on the training of staff.

This country wishes to obtain not only further scholarships to permit of study in countries which are at the forefront in this field but also assistance from experts working on the spot.

PARAGUAY

From the reply sent by the Ministry of Education and Religion

In Paraguay there are not at the present time any educational or vocational guidance services at the level of either primary or secondary education.

PERU

From the reply sent by the Ministry of Public Education

Structure and Regulations

Nature of guidance. Although not of a compulsory nature, vocational guidance is regarded as forming part of the general guidance which the pupil receives. Vocational guidance is given mainly at public schools, both primary and secondary, which have departments of educational psychology as well as at a few private schools and the centres of higher education, as a means of selecting the applicants.

According to definitions which were given at various meetings organized for the purpose the aims and working methods of vocational guidance should result in coordination of those educational activities which help to direct young people towards the vocations and vocational training centres most appropriate to their abilities and circumstances.

The departments of educational psychology at state schools constitute the subject of a high level decree (No. 24 of 25th July, 1956) the terms of which, together with other provisions such as the regulations dealing with secondary education, have as purpose the setting up and organization of vocational guidance services.

Compulsory nature and free provision. Vocational guidance is compulsory only in the selection of applicants for admission to institutions of higher education and in the selection of workers and other employees who solicit a particular position. It is never compulsory at secondary schools.

Guidance is free of charge at public schools. Fees, however, are payable in the case of examinations for selection in regard to entrance of higher education institutions.

Organization and financing. At national level the authorities responsible for organizing the official vocational guidance services are: *(a)* the head of the vocational guidance department of the National Institute of Educational Psychology; *(b)* the head of the cooperative service for employment together with the Ministry of Labour and Home Affairs. At local level the school principals are the authorities responsible for organizing the official services.

The private vocational guidance services are financed by the institution which organizes them and are supervised by the Ministry of Public Education.

Cooperation between the services. Although there is cooperation between the various educational services the connection with the welfare, health and similar authorities leaves something to be desired.

Relations with the labour market. The symposiums which were held on the subject of vocational guidance emphasised the importance of studying the labour market and this matter was again discussed at the seminars on the planning of this country's economy and development.

The Ministry of Labour and Home Affairs has a cooperative service which is concerned with employment and which collaborates with the various centres that deal with the matter of manpower and the selection of personnel. There are analogous services at such senior institutes as the Naval College and the school for air-force officers. A few industries and vocational training centres have services for the selection of personnel.

Procedures and Practices

Techniques employed. In guidance examinations the techniques most generally employed are the following: personality tests, tests of intelligence, attainment and vocational interest; socio-economic inquiries; consultation of the pupil's cumulative record; interviews.

Through its vocational guidance department the National Institute of Educational Psychology gives assistance to educational institutions in their work of guidance and selection, prepares vocational tests and questionnaires and carries out research work in this field.

Information on the vocations. The following means are employed for furnishing information about the vocations: brochures on the institutions of higher learning and other centres of vocational training; talks given by persons who are outstanding in their own vocations; visits to centres of work and of vocational training; guide-books relating to the various vocations.

Follow-up practices. The object of the advice given by the vocational guidance services is not only to inform pupils about the opportunities of employment but also, with study concerning the past record of the individual as basis, to assist the latter in drawing up a future plan in accordance with his interests and abilities. The advice is offered by way of suggestion and is by no means of a compulsory nature.

The work in guidance includes the arranging of meetings with parents in order to keep them informed on the guidance work already accomplished and to encourage their collaboration. In difficult or doubtful cases private interviews with the parents are arranged.

Owing to the absence of coordinating work between secondary schools and higher education establishments, it is not possible to follow up those who have received guidance.

Staff

Composition and selection of staff. At experimental primary schools the head of the department of educational psychology has charge of the guidance services. At official and private secondary schools which have a department of educational psychology the head of this department deals with the matter in collaboration with a team consisting of teacher " guardians " and of school guidance officers.

At establishments of higher education the student aid department is under the responsibility of a professor.

Training and further training. It is required that the person responsible for guidance at primary and secondary schools be a teacher or professor who has specialised in educational psychology and had at least five years' experience

in teaching. Such persons are required to take three series of vacation courses including practical work during the school year.

As regards the further training of vocational guidance specialists, lectures and talks are arranged, seminars are held for the discussion of certain problems and studies are published on the subject of vocational guidance.

Conditions of service. In their capacity as teachers the educational psychologists enjoy the conditions of service applicable to teachers. The situation and salaries of these specialists can be compared, at the level of secondary education, with those of assistant teachers and at experimental primary schools with those of primary school principals.

Plans for the Future

Additional vocational guidance officers are required for work at the services which are being organized in the various localities with a view to assisting not only schoolchildren but also young persons who are seeking employment or who desire a change of vocation.

In order to encourage the development of vocational guidance services the curriculum applied in the training of educational psychologists has been expanded at the National Institute of Educational Psychology, to which a certain number of selected teachers are admitted every year.

International Action

Peru has not received international assistance for the National Institute of Educational Psychology. She wishes not only to have assistance from experts but also to receive scholarships for the training of specialists in educational psychology.

PHILIPPINES

From the reply sent by the Department of Education

Structure and Regulations

Nature of guidance. In the Philippines the aims of vocational guidance are as follows: *(a)* to help students choose both a course of study and an occupation in accordance with their aptitudes and possibilities; *(b)* to collect information, carry out studies concerning occupations and interpret the results of such studies; *(c)* to develop in students the attitudes, concepts and insights desired for success in the careers for which they are preparing; *(d)* to help school leavers (graduates and " drop-outs ") to find employment; *(e)* to help in their respective occupations those of them who are employed; *(f)* to enrich and revise the curricula of vocational schools and of vocational training programmes in general education secondary schools.

In the elementary schools much of the vocational guidance work is incidental and aims at developing not only the correct attitude toward work but also habits of neatness, orderliness and safety and the wise utilisation of leisure time. At secondary education level the vocational guidance services are characterised by activities and practices which help to attain the aims listed above.

Compulsory nature and free provision. Vocational guidance is compulsory to a certain degree when students are being selected for admission to technical and vocational secondary schools. In general education secondary schools students about to complete the second year are re-appraised and are assisted in choosing between the college preparatory course and the vocational courses provided in the third and fourth years. They are assisted also in choosing between these vocational courses.

Organization and financing. The authorities responsible for the vocational guidance services are at national level the Director of Public Schools, at the provincial or city division level the superintendent of schools and at local school level the school head.

The private services are organized and financed mainly by educational or health institutions.

Cooperation between the services. In vocational guidance, use is made of educational, social, medical and employment services when advisable.

Relations with the labour market. It is for vocational guidance to ensure that vocational and educational training programmes respond to the needs of students as well as to the manpower needs both of the school's service area and of the country in general. Advantage is taken of information obtained

from employment agencies, on employment opportunities, as well as from branch bureaux (commerce and industry, labour, agricultural extension, etc.) concerning economic growth.

Procedures and Practices

Techniques employed. Every staff member of a school is an active participant in the guidance of students and seeks to understand them through testing, observation and interviews. Formal counselling is conducted by guidance counsellors.

Information on the vocations. Such information is disseminated through occupational monographs, brochures, career conferences and plant tours as well as, incidentally, during the process of instruction.

Follow-up practices. Vocational guidance assists the student to understand himself and choose an occupation appropriate to his aptitudes but the decision is arrived at by him himself. In the case of an individual who is deficient in insight or in the intelligence required for making a wise choice there is certain persuasion, which may extend even to influencing the family and teachers.

Vocational guidance services follow up those who receive guidance and thus are able not only to help the latter but also to gain information for the revision of curricula.

Staff

Composition and selection of staff. At every vocational school there is a guidance committee which includes six members whom the principal selects from among the school staff on the basis as far as possible of training in guidance. The chairman is elected by the group. The school guidance counsellor, if any, acts as the executive secretary.

Plans for the Future

The construction of locally-oriented psychological tests is contemplated. There is also need of funds for the purchase of materials and equipment to enable the dissemination of occupational and educational information.

In order to improve the competencies of guidance counsellors eight pilot research and guidance centres are to be organized during a five-year period (1962-1963 to 1966-1967) in selected vocational schools serving eight different regions. These centres will play an effective role both in connection with vocational guidance programmes and in the promotion of regional research.

To assist vocational and general education secondary schools in providing effective vocational guidance which is responsive to the needs both of students and of the labour market, regional surveys of resources and occupations were started this school year.

International Action

This country has not received international assistance in the field of vocational guidance. She would like particularly to receive scholarships for guidance supervisors. By study and observation of functioning vocational guidance programmes these supervisors will be able to do much in improving the competencies of guidance counsellors through in-service education and supervisory visits.

POLAND

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. The essential objective of vocational guidance, that is to say the preparation of the young for choosing a vocation, is one of the tasks of the school, as is specified in the law of 15th July, 1961, dealing with the development of the Polish system of education and instruction. Such guidance is actually of a pre-vocational nature and is provided for all pupils leaving primary or secondary schools. On the other hand there are special vocational guidance services whose task is defined in an order issued on 16th April, 1958, by the Minister of Education. These services are provided for assisting parents, guardians and teachers in giving guidance to children. In addition, they examine for vocational aptitude young people who have a particular need for advice from a vocational guidance officer. These services deal also with guidance both for young persons who are disabled physically or afflicted with illnesses and for the mentally handicapped.

Compulsory nature and free provision. The schools are required to help each pupil choose a vocation when he is leaving school, whether primary or secondary, but pupils are not obliged to take special examinations of vocational aptitude before being admitted to a vocational school or higher level school. Vocational guidance is free of charge.

Organization and financing. The vocational guidance services are state services. They are organized and financed by the education authorities at *voïvodie* level and their activity extends to all primary and secondary schools in the sector. The Ministry of Education is responsible for vocational guidance throughout the whole country.

Cooperation between the services. Vocational guidance services collaborate with the schools, medical services and employment services. At central level there is cooperation with the Ministry of Higher Education, the Ministry of Health, the Work and Wages Committee, the central Trade Unions Council and the planning agencies.

Relations with the labour market. Vocational guidance services collaborate with the local bodies engaged upon economic planning and with the employment services by keeping themselves informed on the present and foreseeable situation of the labour market and on needs in the matter of qualified personnel.

Procedures and Practices

Techniques employed. At examinations for vocational aptitude the following methods are adopted: investigation of vocational desires; questionnaires

relating to interests and tastes; interviews with the subject and with his parents or guardian; social inquiry; medical examination; psychological tests; attainment tests.

In addition, the vocations counsellor collects particulars relating to the pupil himself, his school progress, his behaviour and his activity at hobby circles, technical circles and in the home. The counsellor also analyses the pupil's work, for example his written composition, his drawing, the work he carries out in school workshops, etc.

Information on the vocations. Such information is provided by means of the following: lectures; films; broadcasts by radio and television; informative publications on the vocations; vocational brochures; articles in the daily papers, children's papers and the educational periodicals; visits to industrial undertakings, vocational schools, exhibitions and technical museums; meetings with skilled workers representing various fields of economic life as well as with instructors engaged in vocational education or at higher level schools, etc.

Follow-up practices. Vocational guidance services deal with the choosing of a vocational school but not with registration of the young at an employment service.

When the aptitude test is completed the vocations counsellor has an interview with the pupil and his parents and indicates to them not only the vocation but also the branch of study which would be most appropriate for the pupil. The aim of this interview is to harmonise the points of view. The vocations counsellor endeavours to create an atmosphere in which both the pupil and his parents accept the counsellor's suggestion as if it were their own decision. The pupil and his parents are left entirely free to avail themselves or not of the advice and opinions given to them.

The vocational guidance services follow up those to whom guidance is given, take an interest in the progress made by them in their study and examine as well as help to solve the difficulties which they encounter. In this way the vocations counsellor is able to check the results of his examination.

Staff

Composition and selection of staff. Psychologists and doctors are included on the staff at vocational guidance services.

Training and further training. Psychologists employed at vocational guidance services are required to have taken a five-year course leading to a degree in psychology. The course is taken at universities.

The further training of guidance officers who are serving is ensured by means of courses organized by the Ministry of Education. There is a special bulletin " Theory and Practice in Vocational Guidance " for such staff.

Conditions of service. The vocational guidance psychologists are treated on the same basis as members of teaching staff. They have the same rights and the same salaries.

Plans for the Future

Vocational guidance is at a stage of full development in Poland. There is a systematic increase in the network of services and a long-term plan for development has been prepared. Measures are to be taken for increasing the number of services and for extending and intensifying the research work.

International Action

Poland has not benefited from international assistance in the field of vocational guidance. She would gladly accept scholarships for psychologists who are in service.

PORTUGAL

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Vocational guidance includes educational guidance, vocational guidance and vocational selection. There are official services and private services.

Compulsory nature and free provision. Vocational guidance is optional. It is free of charge when the official services require that examinations be given.

Organization and financing. The Ministry of National Education and the Ministry of Overseas Territories are the authorities responsible for official vocational guidance services. The private services are financed by the undertakings themselves.

Cooperation between the services. There is cooperation between the vocational guidance services and other services.

Relations with the labour market. In vocational guidance the economy of the labour market is taken into account and contact is maintained with the various sectors which are concerned with this country's development.

Procedures and Practices

Techniques employed. In vocational guidance examinations the techniques in most common use are the following: psycho-technical examinations; interviews; tests of aptitude, attainment and motivation as well as of vocational interest; personality profiles, etc.

Information on the vocations. Such information is given by means of brochures, lectures, television, films and publications.

Follow-up practices. Vocational guidance services deal with the choosing of a vocational school and with placement in apprenticeship.

The advice which vocational guidance services give is followed by informative and persuasive action with the young people, their families, their teachers and the undertakings.

The vocational guidance services follow up those who receive guidance and, in addition, concern themselves with their integration in the vocational sector chosen.

Staff

Composition and selection of staff. The staff at vocational guidance services consists of vocational guidance counsellors and doctors. The staff members are chosen and appointed on the basis of their qualifications and civil status.

Training and further training. The specialised staff receive their training at the Vocational Guidance Institute by taking either several practical courses or a two-year course, on completion of which the title of vocational guidance expert is obtained.

For informing the guidance officers who are serving and for their further training there are not only lectures but, in addition, visits and practical courses abroad are arranged.

Conditions of service. Specialised staff of vocational guidance services belong to the ranks of government officials.

The situation and remuneration of such staff are equivalent to the situation and remuneration of teachers.

Plans for the Future

Steps are contemplated for developing the vocational guidance services.

International Action

Portugal has not received any assistance in the field of vocational guidance.

RUMANIA

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Constituting one of the matters of major concern to the organs of government, the educational and vocational guidance of pupils is intended to ensure the maximum development of the pupils' personalities in accordance with their interests and aptitudes, provide the ranks of specialists necessary for the increase in production and promote in the pupils a love for the vocation which they have chosen.

Compulsory nature and free provision. Guidance is free of charge and compulsory for all pupils as from the 5th class in the primary school but particularly from the 7th to the 11th class (or possibly 12th) when the question of choosing a vocation becomes increasingly important.

Organization and financing. The service which, for the central administrative authority of the Ministry of Education, is concerned with educational activities deals also with guidance and is financed by the Ministry.

Cooperation between the services. The above-mentioned educational activities service belongs to the Directorate of General Education and, in connection with the latter's work, collaborates with all of its other services as well as with the following bodies: the General Directorate of Vocational and Technical Education; the State Planning Committee; the education directorates of the ministries under which the vocational and technical schools operate; the Union of Young Workers.

Relations with the labour market. One of the principal aims of vocational guidance is to assist with the planned development of the national economy. The state plan in respect of the period 1960-1965 provides for the training of the number of skilled workers, as well as of technicians and engineers, required in each sector of production for the whole period. The ministries concerned have consequently taken the steps necessary for increasing the number of pupils at vocational schools, technical schools and the establishments of higher education.

Procedures and Practices

Techniques employed. No use is made of vocational guidance examinations or of psycho-technical methods which make it possible, by means of percentages, to determine which vocation is best suited to the aspirant's abilities.

All pupils are free to choose the vocation for which they have a preference depending on how much knowledge they have of the importance possessed

by the different branches of production and culture. It is unnecessary to mention that the vocation chosen must be compatible with their particular intellectual and physical aptitudes as well as with their interests.

Tests as a method by which the child's psycho-somatic characteristics may be studied are unknown in the schools. Methods employed are direct observation, educational experimentation, discussions between pupils and teachers, analysis of the pupils' work and of the school record, etc. The educational principle which demands respect for the pupil's individual characteristics and natural propensities is applied continually in all educational practice.

Information on the vocations. On behalf of the Ministry of Education various illustrated guides are published in order to inform pupils and parents about the opportunities offered for study at vocational, technical and higher level schools.

The State Radio and Television Committee arranges regular broadcasts for the benefit of young people who have completed their secondary education. Television is employed for showing films which stimulate children's interest in the different vocations and illustrate various aspects of manual and intellectual work.

To give the pupils a contact with the sectors of production the following means are employed: for pupils attending schools of general education, compulsory visits are arranged to factories; collaboration between the undertakings and schools in regard to the pupils' vocational activity; practical work prescribed in the curricula; lectures for the pupils and parents, etc.

In addition, vocational guidance is received not only through the efforts of the youth associations, which arrange meetings between the children and skilled workers, the heros of " Socialist Labour ", men of science, etc., but also by means of the newspapers intended for youth and children.

Follow-up practices. The choosing of a vocation is neither the handiwork of caprice nor the result of momentary preference but the final outcome of a whole process of training school youth with their future vocation in view. The pupil acquires a sound body of theoretical and practical knowledge which enables him to make a decision and choose his vocation freely.

Moreover, the necessity of special provision for employment services does not arise in this country. All young people who have completed a course at a vocational school and obtained their diploma are entitled to a position in the field of production. Unemployment does not exist as socialist production is continually increasing and developing and consequently there is a growing need for manpower and specialist personnel.

The informative and persuasive action taken with regard to children is not in the nature of propaganda but is directly related to their systematic training and to the development of their personalities throughout the period of their study.

In connection with the problems arising in vocational guidance the teachers work with the pupils and parents themselves and follow the pupil's integration in the vocational sector chosen. It is in fact very rare for pupils to change their ideas as regards choice of a vocation. The schools maintain close relations with their former pupils and for the purpose a list is kept both of the schools and of the vocational sectors in which they work.

Staff

Composition and selection of staff. Educational and vocational guidance constitutes one of the duties which belong to all teachers. There is no specialised staff for the task.

Training and further training. As a result of provision made by the Directorate of Educational Activities the orientation of pupils towards the different vocations is included in the professional training of future teachers and consequently takes place within the context of their teaching.

In the Bulletins of the Ministry of Education and with a view to vocational guidance as well as to the distribution of young people who have completed the courses at the various education establishments, the Directorate of Educational Activities publishes instructions not only for the education sections in the different regions, districts and urban centres but also for teachers. The latter are also able to consult various reviews, such as the " Pedagogical Review " and " The Education Gazette ", as well as other publications. In addition, the very complex problems of vocational guidance are studied and analysed by different scientific institutions, the results of whose work are published and are made available to teachers. " Educational Readings " provide a means for particularly experienced teachers to present the positive results obtained in practice from vocational guidance.

Problems of vocational guidance receive particular attention also from the institutes at which teachers are given further training.

Plans for the Future

Vocational guidance constitutes a particularly important task under the system of education from the aspect of preparing the young for life. At the same time as the education of young generations is being continuously improved, the whole action of vocational guidance also is being improved.

International Action

Rumania does not need international assistance. Exchanges of experience have been possible during visits made to different countries.

The Rumanian People's Republic is in favour of collaboration between states with a view to the exchange of information, experience and studies.

SENEGAL

From the reply sent by the Ministry of Technical and Vocational Education and Personnel Training

Structure and Regulations

Nature of guidance. Since October, 1960, a national vocational guidance centre has been operating. A decree of 14th March, 1962, deals specifically with the centre's organization and operation.

Compulsory nature and free provision. Vocational guidance consultation is not compulsory although certain intervention or action on the part of the national vocational guidance centre is of a systematic nature (for example the part it takes in the recruitment of students for admission to the different establishments of technical education). All the services given by the national vocational guidance centre are free of charge.

Organization and financing. The state is responsible for the organization and financing of the national vocational guidance centre. Under a law of 16th June, 1959 and a decree of 12th July, 1960, the Minister for Technical and Vocational Education and Personnel Training was given the responsibility for the provision of vocational information and guidance, pre-vocational training and the psycho-technical tasks relating to work. There is no private service.

Relations with the labour market. The national vocational guidance centre is usually associated with the study of problems relating to the elimination of unemployment, the further training of workers engaged in private industry, the further training of typists and secretaries employed in administrative departments and the organizing of practical courses in connection with the training for certain vocations.

Procedures and Practices

Techniques employed. The usual techniques are ordinarily employed at the national vocational guidance centre, although the type and content of examinations and other procedures are adapted to the needs which must be satisfied and to the problems which must be resolved.

Information on the vocations. As vocational guidance is of recent institution the provision for information on the vocations is not fully developed as yet. Documentation concerning technical education has received principal attention (talks and newspaper articles).

Follow-up practices. The national vocational guidance centre follows up those pupils who are admitted to technical education establishments. It is

consulted both concerning the respective vocational courses which the students should take and in regard to the awarding of scholarships.

Staff

Composition and selection of staff. At the present the national vocational guidance centre consists of a head, three guidance counsellors, a psychotechnical assistant, an assistant teacher, a social worker and a typist stenographer.

Training and further training. The counsellors receive their training at French vocational guidance institutes. At present, two of the counsellors are in training.

Conditions of service. The conditions of service now being drawn up in regard to technical education are to apply to guidance counsellors. The situation and remuneration of the latter may perhaps be compared with those of employees in French public services.

Plans for the Future

It is intended to increase the number of services in cities other than Dakar, the city in which the national vocational guidance centre has its headquarters. It is also intended to set up vocational guidance services gradually in the capitals of the administrative regions. The most urgent needs relate to staff and premises.

International Action

The specialist staff members of the national vocational guidance centre were at the beginning provided by French Technical Assistance.

No consideration has yet been given to assistance of the kind mentioned in the questionnaire.

SIERRA LEONE

From the reply sent by the Ministry of Education

Nature of Guidance

Special services dealing with vocational guidance do not exist. There are, however, various departments and organizations which offer guidance in the matter of vocational training. Mention may be made, for instance, of the office of the secretary who is responsible for the recruitment and training of staff for the government service.

In regard to educational guidance, it does not exist on a large scale either. There are no differentiated classes at secondary level but there is one secondary technical school and at it the boys are prepared for careers at sub-professional and professional levels in engineering, the girls for domestic work and for employment in offices. The Freetown Technical Institute admits from 40 to 50 boys (aged 16 years) to a one-year pre-apprenticeship course during which an attempt is made to grade the pupils into the trades for which they show aptitude. There are no guidance centres.

Aptitude tests have been developed at the technical training school (not supported financially by the government) of the Sierra Leone Development Company at Marampa. The company admits trainees (aged 16 to 20 years) and utilises these tests in order to guide them in the various trades (building, lathe turning, maintenance of earth-moving equipment, etc.) with which it is concerned.

SOMALIA

From the reply sent by the Ministry of Education

Vocational guidance has not so far been organized systematically in this country, but steps have been taken to remedy the situation as vocational guidance would be of great service to the young generation and would enable the foreseeable needs of the national economy and of the labour market to be satisfied.

SOUTH AFRICA (Republic of)

From the reply sent by the National Bureau of Educational and Social Research, Department of Education, Arts and Science

Structure and Regulations

Nature of guidance. Representing one aspect of a systematic educational process, guidance of a comprehensive nature is received by all pupils throughout their school career. Thus, through what is known in the Transvaal as " counselling " and in Natal as " guidance " the pupil is helped by group and individual methods to discover and develop his own potentialities and to prepare himself for playing a useful part in society.

School guidance in general embraces vocational guidance, educational guidance and other psychological guidance which every pupil needs at some stage of his school career. The counselling services in the Transvaal comprise: educational counselling; personal and social counselling; family counselling; counselling in connection with recreation; vocational guidance.

Guidance services are provided both by the provincial education departments and by those at national level. There are no private services.

Some universities also have, in their child guidance institutes or clinics which operate under faculties of education, vocational guidance services for secondary or high school pupils.

Student advisory services have been established at most universities. At some universities extensive guidance services have been introduced and these too help students to solve personal, social and vocational problems.

The National Institute of Personnel Research, a research laboratory of the South African Council for Scientific and Industrial Research, renders a limited service in the field of vocational guidance and may be consulted by parents, doctors, psychiatrists, employers, principals, teachers and students.

The Employment Service for which the Department of Labour is responsible is required to make provision for vocational counselling for all work seekers, in particular those leaving school.

Compulsory nature and free provision. School guidance is compulsory at the secondary and high school level (i.e. 13 to 18 years) for boys and girls attending provincial schools, schools under the Department of Bantu Education and special schools under the Department of Education, Arts and Science. Such guidance is free of charge.

Organization and financing. At national level the Department of Labour, Department of Education, Arts and Science, Department of Bantu Education and at provincial level the four provincial education departments of the Transvaal, Cape Province, Orange Free State and Natal are respectively responsible for the vocational guidance services.

Cooperation between the services. There is cooperation between educational and vocational guidance services, psychological services, medical services and the Department of Labour whenever necessary.

Relations with the labour market. The needs of the labour market are taken into account as far as possible, and in cooperation with the Department of Labour, by guidance services operating under education departments. The Department of Labour bi-annually undertakes an occupational manpower survey. From these and other surveys and from other data the general trends of the labour market may be deduced. This information is taken into consideration not only in career descriptions circulated to all schools which have school leaving standards but also both by individual vocational counsellors and by employment officers of the Department of Labour.

Procedures and Practices

Techniques employed. Current techniques are employed to a greater or lesser extent by education departments. The Transvaal Education Department particularly makes use of the following: intelligence and aptitude tests; interviews; medical examinations where necessary; consultation of school records; personal questionnaires; interest questionnaires. The Department of Labour has access to cumulative record cards of school leavers and to work records of work seekers. This Department also makes use of a special vocational guidance battery of standardised tests in addition to various other tests of interest, motivation and personality. Interviews are used throughout the guidance process.

Information on the vocations. In general, information is communicated by means of brochures, visits of vocational interest, lectures, films, publications and, to a lesser extent, the radio. In Natal there is a scheme under which, during winter and summer vacations, the provincial administration offers to potential school leavers pre-job experience in fields approximating their educational level and interests.

The Department of Labour publishes a magazine entitled " My Career " which is distributed to all secondary and high schools. It also communicates information by means of brochures, pamphlets, exhibitions, films and the radio.

Follow-up practices. School guidance services conducted by education departments generally deal with the choice of a vocational school. In addition, registration at an employment office is effected by means of the cumulative record cards which in respect of school leavers the principals of schools forward to the Department of Labour. This department deals with placement in apprenticeship and with registration in an employment office.

No persuasive action or pressure is brought to bear on pupils, parents or relatives, such persons being free to accept or reject the advice offered.

In general, no follow-up service exists. In Natal, however, every attempt is made to keep track of school leavers in order that the effectiveness of guidance work may be estimated. In the Cape Province the school guidance officers are ready to give help to past pupils who come for it in regard to their careers, study problems or personality difficulties.

In its after-care the Department of Labour has special regard to problem cases. When it advises a person to follow a certain career it assists him in finding employment if required to do so.

STAFF

Composition and selection of staff. The composition of the staff belonging to the guidance services of the education departments varies from one province to another. In the Transvaal Education Department there are four guidance officers for the psychological and counselling services. The actual guidance services at high schools are carried out by guidance teachers, of whom there are 160 at present. The services in Natal and the Orange Free State are similar to those just mentioned. In the Cape Province all secondary and high schools are visited by school guidance officers, of whom there were 20 in 1960. To help them in their task a member of the school staff concerned is nominated as teacher counsellor. The school guidance service of the education department is under the charge of six " organisers of special subjects and school guidance ", who in their turn work under the head of the psychological service.

The Department of Education, Arts and Science has psychological services through which vocational guidance is given at industrial schools for children in need of care, reform schools for juvenile delinquents and special schools for the physically handicapped. Vocational guidance is part of the psychological treatment received by pupils at these schools. In 1960 at such schools there were 45 psychologists working under the leadership and supervision of an " inspector psychologist ".

The psychological service of the Department of Bantu Education at present comprises an inspector psychologist and 14 trained Bantu test officers all of whom are certificated teachers. Testing programmes are carried out by these officers working under the supervision of the inspector psychologist, at the end of the primary school course, with a view to selecting pupils for vocational and secondary schools and for later placement in employment. A post for a vocational guidance officer has been established and from the beginning of 1963 he will organize vocational guidance services in this department.

In the Department of Labour the Division of Employment and Vocational services is provided with a head who is assisted by professional officers.

Persons with the minimum specified qualifications are selected on the basis of personal suitability for the work, whilst higher academic qualifications and suitable experience are recommendations.

Training. The training required varies. In the Cape Province the organisers of special classes and school guidance must have a thorough grounding in the various branches of psychology and a knowledge of work in regard to special classes. Experience of vocational guidance and clinical work is a strong recommendation for selection. School guidance officers have to be certificated teachers with at least five years' teaching experience, thoroughly bilingual and competent to apply intelligence, scholastic and other standardised tests. Advanced study in psychology and training and experience in vocational guidance or child guidance are strong recommendations.

In the Transvaal, guidance officers must have a recognised teachers' certificate, a degree and a minimum of 12 years' recognised teaching experience. Post-graduate study in education or psychology is a recommendation. " Guidance teachers " at schools in the Transvaal are usually experienced teachers and a degree in education or a course in psychology is a strong recommendation.

For appointment as a professional officer in the Division of Employment and Vocational Services of the Department of Labour the minimum qualifications are a bachelor's degree with psychology as a major subject.

Further training. From time to time the various education departments organize vacation courses and refresher courses in guidance. Teachers may, moreover, improve their qualifications by undertaking further studies by means of correspondence tuition or part-time classes on completion of which they receive recognition in the form of remuneration and seniority.

Vocational guidance officers in the Department of Labour are given training on the job and in addition are encouraged to further their studies in an allied psychological field.

The University of South Africa provides correspondence tuition by means of which teachers in service and other persons in employment may study for degrees in education and in psychology. An honours degree in counselling psychology is specifically provided by this university.

In addition, persons in employment who reside in university centres may avail themselves of the facilities for part-time post-graduate study in education and psychology provided by residential universities.

Conditions of service. The guidance teachers are subject to the same conditions of service as other teachers in the province except that the former are usually on duty during ordinary office hours and in some cases during short vacations. Specialists in vocational guidance at the Department of Labour are subject to the same conditions as those obtaining for professional officers in the public service.

The guidance teachers are remunerated and treated in their capacity as teachers. In three of the provinces, specialists in guidance may be compared with principals of high schools of specific grades. In the Orange Free State the remuneration of a vocational adviser is equivalent to that of a principal of a teacher training college. The salaries of professional officers in the Vocational Guidance Division of the Department of Labour are comparable with those of assistant teachers at schools and lecturers at teacher training colleges.

Plans for the Future

Guidance services are continually being expanded in accordance with the needs of the country and the availability of trained personnel.

The Department of Education, Arts and Science is planning more intensive vocational guidance for pupils in vocational schools (technical high, commercial high and homecraft high schools) and in technical colleges.

The Department of Bantu Education is expanding its psychological services. Furthermore, the appointment of a vocational guidance officer to organize at Bantu schools vocational guidance services will bring about the compilation of a manual entitled " Careers for the Bantu " for the use of

guidance teachers in schools. It is moreover envisaged that training in vocational guidance be instituted for teachers and that a trained guidance teacher be appointed at every secondary school.

The Bureau of Educational and Social Research, a division under the Department of Education, Arts and Science, is responsible for compiling and standardising psychological and scholastic tests. It serves the various provincial and state departments of education, the Department of Labour as well as other instances. Largely due to the ever increasing number of pupils at Bantu schools and higher education institutions a section at the bureau, in cooperation with the Department of Bantu Education, concentrates only on the development of tests for use in Bantu schools and separate tests are compiled for each of the seven ethnic groups. A section was established in October, 1962, to compile tests for use at schools and university colleges for Coloureds and Asiatics. It is intended in time to make provision for: tests of general intelligence; a battery of differential aptitude tests; a battery of scholastic tests in different subject fields; diagnostic tests in certain basic school subjects; interest tests or questionnaires; personality tests or questionnaires; biographical questionnaires; attitude scales.

The research bureau in addition undertakes national surveys some of which have concerned vocational training and the employment of personnel. A survey dealing with the vocational interests of pupils has also been completed.

International Action

This country has not received and does not wish to receive international assistance in the field of educational and vocational guidance.

SPAIN

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Beginnings were made in Spain with vocational guidance between the year 1918, in Barcelona, and the year 1923 in Madrid. Out of these beginnings grew the institutes of applied psychology and psychotechnology, some of them in the provinces but the main ones in Barcelona and Madrid (the national institute). These institutes are official. On the other hand there are a few private services at some colleges and industrial undertakings.

Vocational guidance is given particularly at industrial schools and technical colleges *(enseñanza laboral)*.

As regards educational guidance, it is in the course of being organized and is to be dealt with in a ministerial order.

Compulsory nature and free provision. Vocational guidance is not compulsory.

Organization and financing. The authorities responsible for the vocational guidance services are as regards administration the Ministry of National Education (general directorate for labour education) and as regards technical matters the National Institute of Applied Psychology and Psycho-Technology.

Cooperation between the services. The cooperation between the services takes place in connection with the work of the Ministry of National Education.

Procedures and Practices

Techniques employed. The following are the means most generally employed: psycho-technical examinations; medical examinations; consultation of the school record; aptitudes tests; questionnaires concerning interests; interviews; (when required) supplementary examination by a clinical psychologist. The tests and other means of exploration are prepared by the National Institute of Applied Psychology and Psycho-Technology.

Information on the vocations. Information about the vocations is given not only at lectures arranged for the purpose but also by the publication of brochures and pamphlets.

Follow-up practices. In vocation guidance not only are close relations maintained with the vocational schools but the work is also intimately connected with placement in apprenticeship and there is collaboration with schools which offer emergency training courses.

The vocational guidance services take action to inform the young people, their families and, if necessary, their teachers.

As regards following up the young who have received guidance, the necessary means are lacking.

Staff

Composition and selection of staff. The minimum staff at any vocational guidance service consists of a head who is a psychologist as well as of a doctor who has specialised in vocational guidance and a secretary statistician.

Selection of staff members depends on the results of a competitive examination the board for which is appointed by the Ministry and includes professors from the national institute.

Training and further training. Specialist vocational guidance staff are trained by means of courses which are given at the School of Psychology and Psycho-Technology, University of Madrid, and lead to a degree in psychology. The vocational guidance officers' union recently organized for such officers a course which so far has no connection with the services of the Ministry of National Education.

Refresher and further training courses have begun at the national institute of applied psychology.

Conditions of service. The staff have service conditions which are governed by the regulations of the national institute of applied psychology. The salaries of specialists depend upon the latter's university training.

Plans for the Future

The obstacles encountered in the development of vocational guidance are essentially of an economic kind. It is difficult to offer staff the salaries which are commensurate with qualifications.

There are projects for reorganizing the institutes of applied psychology and it is intended to introduce educational and vocational guidance as from the first year of the courses at industrial schools and technical colleges *(enseñanza laboral)*.

International Action

Spain has not received international assistance in the field of vocational guidance. She ranks, however, among the countries which contributed most to the setting up of the International Association for Vocational Guidance. In addition, she has sent two experts abroad to accomplish missions.

Spanish specialists would be glad to have the collaboration of any foreign experts who may come to work in this country. Spain is also desirous of receiving scholarships in order that her future vocational guidance officers may be sent abroad to study.

Assistance from Unesco would be particularly valuable for extending the work of the National Institute of Applied Psychology and Psycho-Technology, which latter is to move into a new and more spacious building.

SWEDEN

From the reply sent by the Ministry of Education and Ecclesiastical Affairs

Structure and Regulations

Nature of guidance. The aims of the vocational guidance services are those defined in Recommendation No. 87 of the International Labour Organization.

On the other hand, guidance of a more general kind is given in schools. Under the present system the nine-year school (pupils aged from 7 to 15-16 years) consists of two stages, a lower stage and an upper stage. This latter is composed of the final four school years and can be considered as a guidance stage. Beginning with the sixth year, guidance is given by way of orientation. During the eighth year the children are all given the experience of three weeks' pre-apprenticeship in the kind of work which interests them. During the ninth year the curricula are differentiated and the pupil can choose between them according to his future vocation.

Compulsory nature and free provision. The collective vocational guidance which is given during the 8th and 9th years is compulsory. Individual vocational guidance is optional. Guidance is free of charge.

Organization and financing. The following are the authorities responsible in regard to pre-vocational and vocational guidance: the Ministry of Social Affairs; the Ministry of Education; the National Labour Market Board; the national boards of general and vocational education; the county labour boards and county school boards; the local school boards and local labour exchanges.

Cooperation between the services. There is cooperation mainly between educational services and employment services. Local medical services also are consulted. Cooperation at national level is effected through a committee consisting of representatives from the National Labour Board and the national boards of general and vocational education. Locally, a number of vocational guidance teachers are remunerated partly by the local labour exchange and partly by the local school board.

Relations with the labour market. A special forecasting branch at the office of the National Labour Market Board is in contact with the different sectors concerned in the country's development.

Procedures and Practices

Techniques employed. The techniques which elsewhere are in most general use are employed also in Sweden.

Information on the vocations. The means employed are brochures, guides, ectures, television, films, radio, etc.

Follow-up practices. Information is given on suitable vocational schools and on the opportunities for apprenticeship.

No persuasive action is taken with the children, their families or their teachers.

Owing to lack of personnel it is not possible to follow up the young people who have received guidance.

Staff

Composition and selection of staff. At present there are some 300 specially trained vocational guidance teachers, plus about one hundred other specially trained persons at local labour exchanges. It is planned to increase the total to 900 approximately.

Training and further training. Staff are selected from among applicants with pedagogic, social and psychological training as well as suitable personality. There is provision for in-service training in the matter of vocational guidance.

Conditions of service. Vocational guidance officers are regarded as civil servants and have a salary range of 1609 to 2946 Swedish crowns a month plus benefits. Their situation may be compared with that of teachers.

Plans for the Future

Measures are contemplated for the training of a greater number of specialised personnel and for the improvement of psycho-technical tests. As a result the vocational guidance services will be developed from both the quantitative and the qualitative point of view.

International Action

Sweden has not received international assistance in this field. There is a desire for such assistance on an exchange basis.

SWITZERLAND

From the reply sent by the Information Centre for Educational Matters

Structure and Regulations

Nature of guidance. The aim of vocational guidance is to assist parents and young people by making it easier for them to choose a vocation wisely. At the same time the young are guided towards those groups of vocations for which they are particularly endowed. Vocational guidance plays a role also in the concern for adults who have not received vocational training or who desire a change of vocation.

Vocational guidance is organized throughout Switzerland but is a matter dealt with by the cantons and in which all action is based on cantonal laws or regulations.

As regards educational guidance, it is receiving an increasingly large place and embraces action at three periods: (1) division of pupils into either two or three groups (stages or classes for guidance or observation) according to their aptitudes and vocational intentions; (2) development of the final primary classes into pre-vocational training classes; (3) educational guidance, in the strict sense, not only at the end of compulsory education (and, according to the case, involving promotion examinations, employment of attainment tests, etc.) but also at the end of the secondary school course and with a view to guiding the pupils in connection with their university study. Educational guidance of a general nature is given mainly during the final two or three years (12 to 15 years of age) of compulsory education but the pupils may be divided as from the age of 10, 11 or 12 years, according to the canton, that is to say between the 3rd and 6th school years. The class teacher advises the parents. Later the pupil is able to change from one division to another according to his development. There is thus here in fact, even if the term " guidance stage " is not employed, a first period of guidance.

Compulsory nature and free provision. Vocational guidance is not compulsory whereas educational guidance, or " pre-guidance ", which is given in final primary classes, has a compulsory nature. Vocational or educational guidance is free of charge except in the case of special service (trips, special opinions of experts, etc.) which is provided only at the request and expense of the client.

Organization and financing. Although the vocational guidance services are organized on a cantonal basis, they are supported financially by the Confederation (at present 25% of the salaries of full-time staff but larger provision is to be made under the new law dealing with vocational training). Furthermore, there are semi-official and private services which, when officially re-

cognized, may be subsidised like the official services. Others (applied psychology institutes or private psychologists) are engaged on their own account. All these services, official, semi-official or private, are combined in the Swiss Association for Vocational Guidance and the Protection of Apprentices.

Cooperation between the services. In vocational guidance there is collaboration with the other services (educational, economic, medical, employment, etc.) which are concerned with the persons who receive guidance.

Relations with the labour market. The current and foreseeable needs of the economy and of the labour market provide criteria which indicate the direction in general and individual vocational guidance. By lectures, exchanges of information, as well as regular contacts with all sectors concerned in this country's development, an endeavour is made to forecast the different opportunities.

Procedures and Practices

Techniques employed. Vocational guidance centres on the personal interview. Account is always taken of the school record and, in some cantons, also of the medical record. Provision is made for intelligence tests, as well as for examinations to measure attainment, in individual cases (approximately 40 *conseillers de profession* (vocation counsellors) are psychologists who hold degrees). Serious cases are always submitted to a psychologist.

Information on the vocations. Such information is furnished in the following ways: pre-vocational guidance given at school; meetings of parents-individual and group visits to enterprises; short practical courses *(Schnupper; lehre);* publications; lists of vocations; the press; radio and television; lectures.

Follow-up practices. The view is held that the giving of advice is not enough and that it is important to support as far as possible the realisation of intended plans. The young person is consequently helped to find employment or a vocational school, etc. Nevertheless, it is always for the young person and his parents to make the final choice of a vocation and it is they who accept responsibility for the outcome of the choice. Each is entirely free to seek vocational guidance or not.

The guidance services follow up the clients guided and have concern for their vocational integration. (In Geneva, for example, an up-to-date record of each child is kept from the age of 15 to 20 years, that is from the end of his compulsory education until his coming of age).

Staff

Composition and selection of staff. At present in Switzerland there are 308 official vocational guidance services with 230 men counsellors and 109 women counsellors (not including administrative staff). Of these 339 persons 95 (28%) are working full time, 77 (23%) are engaged simultaneously in another youth service and 167 (49%) are employed part time. They are

mainly teachers. It can be seen that the number of full-time counsellors is increasing (from 1948 to 1961 an increase from 11 to 28%). These figures do not include the 50 private counsellors (men and women) who are engaged at a particular school.

According to directives given by the Swiss Association for Vocational Guidance and the Protection of Apprentices, in agreement with the cantonal authorities concerned and the federal Office for Industry, the Arts and Crafts and Labour, the opportunity of becoming a vocation counsellor should be open to anyone who feels really called by such task and whose aptitudes and general training seem to make him capable of undertaking it.

Training and further training. Future counsellors are not required to possess previous special training. It is, however, recommended that authorities appoint to positions of vocation counsellor only applicants who agree to take, at the expense of the public authorities, a four-week course, if possible before entering upon guidance work, and then a second course of like duration towards the end of the first year.

Counsellors, both men and women, are trained at the Universities of Fribourg and Geneva as well as at the Institute of Applied Psychology in Zurich and by means of courses which the Swiss Association for Vocational Guidance provides. These six-week courses are held principally for part-time counsellors. Endeavours have been made since 1959 to arrange three-month courses and it is intended to develop still more this training.

Further training courses are organized by the Swiss association. At national level the counsellors are brought together by conferences during the spring and autumn. There are also cantonal meetings in the large cantons. A special review *Orientation et formation professionnelles* (Vocational Guidance and Training) with supplements is published every month.

Conditions of service. The conditions of service of the staff vary considerably from canton to canton but generally speaking the full-time counsellors may be compared with teachers at middle (lower secondary) schools, the part-time counsellors with teachers at vocational schools.

Plans for the Future

Vocational guidance has developed in Switzerland in a gratifying way as a result of the devotion, idealism and competence possessed by vocation counsellors. An increase in financial resources is now considered necessary in order to permit of further improvement in results but regard must be had to the country's federal structure.

The following measures form part of the improvement contemplated by the Swiss Association for Vocational Guidance: larger number of positions of full-time counsellor and general increase in the number of staff engaged at many of the services; improvement in the selection, training and further training of vocation counsellors as well as in their conditions of service; development of university vocational guidance; development of vocational guidance in mountainous areas; improvement in vocational guidance for the crippled; improved methods and techniques; closer collaboration with schools; simpler administrative procedure in regard to scholarships.

International Action

Switzerland has not received international assistance in this field. Owing to the excessive amount of work for vocation counsellors it has not been possible to take advantage of the scholarships offered.

TUNISIA

From the reply sent by the State Secretariat for National Education

Structure and Regulations

Nature of guidance. There are three guidance services in Tunisia: *(a)* The Centre for Educational, University and Vocational Guidance and Documentation, whose function is to undertake all studies and employ all means with a view to guiding children and adolescents towards both the course of study and the vocation which are best suited to their respective personalities, tastes, as well as physical and intellectual aptitudes and in relation to the nation's needs and the opportunities of employment. This centre may be required to conduct any inquiries on the opportunities and future prospects of employment. *(b)* The Vocational Guidance and Selection Centre, which is responsible for guiding the young towards the pre-apprenticeship centres and for placing apprentices directly in workshops under employers. *(c)* The Child Psychology Laboratory and the School and University Information Service, whose task is to guide and document those school establishments for which the French Embassy is responsible.

All these services are official. In addition, at certain large undertakings (for example the company *Ciments artificiels tunisiens*) there are private services for selecting the workers and apprentices.

Compulsory nature and free provision. Educational guidance is compulsory and free of charge for all secondary school pupils (1st and 3rd years).

Organization and financing. The guidance and documentation centre was set up under a decree of 18th August, 1961, and is controlled by the State Secretariat for National Education.

The guidance and selection centre was set up under a decree of 29th December, 1955, and is controlled by the State Secretariat for Public Health and Social Affairs.

Both the child psychology centre and the school and university information service are controlled by the French Cultural Section in Tunisia.

The private guidance and selection services are operated exclusively for the undertaking concerned and consequently are organized and financed by it.

Cooperation between the services. In practice there is cooperation and collaboration between the various above-mentioned bodies, especially in regard to the means employed.

Relations with the labour market. Guidance of the young is given according to prospects under the Plan and is related to forecasts regarding needs and the labour market.

Procedures and Practices

Techniques employed. Psycho-technical procedures are employed at the guidance and selection services only, whereas education establishments take account mainly of the educational and personal data contained in the guidance files.

Since the educational reform (decree of 4th November, 1958) an observation record has been kept for every child as from his 6th year in the primary school and is continued in the guidance file as from his first year in the secondary school. There is a teacher guidance officer for each of the first year classes and he has an hour a week for attending to this file. At every secondary level establishment a guidance council meets periodically in order to study each case and, in accordance with the file information, guide the pupils towards the special branches (general, economic, technical).

Information on the vocations. Vocational information is provided by the Centre for Educational, University and Vocational Guidance and Documentation (brochures, guides, information bulletins, specially assigned teachers at all lower secondary or secondary education establishments).

Follow-up practices. The guidance and documentation centre concerns itself in a practical way with those who are unsuccessful in the lower secondary and secondary school courses and guides them towards a specialised school (fine arts, sport institute, etc.), an " accelerated training " centre or an employment office.

The guidance and documentation centre has an informative and persuasive role with regard to the children and their families but any solution suggested is done so by way of advice and without constraint. The cases who receive guidance are usually followed up until their integration in the vocational sector chosen.

Staff

Composition and selection of staff. Guidance staff consist of teacher guidance officers, guidance counsellors, psycho-technicians, " operating " psycho-technicians, office staff.

The counsellors and psycho-technicians are recruited from among holders of the state diploma for the profession of educational and vocational guidance counsellor or equivalent diploma.

The " operating " psycho-technicians are recruited by means of competitive examination among secondary school graduates or the holders of the course diploma for the profession.

Training and further training. The counsellors receive their training at the National Vocational Guidance Institute in Paris. The operating psycho-technicians attend practical courses on the spot.

Staff members are able to receive further training in Tunis at the Studies and Education Training Centre, which latter is under the control of the higher normal (teacher training) school.

Conditions of service. The conditions of service of the staff are laid down in three decrees dated 29th December, 1955, 18th August, 1961, and 23rd Octo-

ber, 1962, respectively. The remuneration of the counsellors and psycho-technicians is the same as that of secondary school teachers, while the remuneration of operating psycho-technicians is the same as that of primary teachers.

Plans for the Future, International Action

Tunisia has not received any international assistance in the field of guidance. Every request for experts and scholarships is made within a perspective vision of the ten-year Plan.

TURKEY

From the reply sent by the Ministry of National Education

Structure and Regulations

Nature of guidance. Vocational guidance is intended to help and guide young people in their choice of a vocation according to their individual aptitudes. Although such guidance is not systematically organized in Turkey, approximately a thousand young persons, mainly pupils from the lycées, apply of their own volition for vocational guidance at the psycho-technical laboratory of the Ankara teacher training college where teachers are trained for technical education. Moreover, in Istambul, Izmir, Adana and Ankara there are offices concerned with the vocational choice made by pupils prior to their entry to secondary and vocational schools.

A certain amount of individual educational guidance is given by teachers and it consists of assistance to the pupil in his adjustment to the school environment and to his situation in life. At primary schools the classroom teachers endeavour to give practical guidance by means of lessons dealing with work. At lycées and secondary schools there are workshops in which the pupils can have practical experience.

Compulsory nature and free provision. The guidance is free of charge and optional.

Organization and financing. The operation of the offices concerned with vocational choice is related to the work of the Ministry of National Education. There is no private vocational guidance service.

Procedures and Practices

Techniques employed. In vocational guidance, use is made of group tests and individual psycho-motory tests. In individual educational guidance the procedure adopted is as follows: (*a*) interviews with parents in order to obtain information about the child; (*b*) medical examination carried out by the school doctor; (*c*) psychological examination by means of tests; (*d*) investigations for appraisal of the economic, social and family conditions; (*e*) application of tests for measurement of school achievement. At all schools the observations of teachers who give guidance are based upon a questionnaire relating to the pupil's physical and psychological characteristics.

Information on the vocations. By way of an experiment at some ten establishments (primary schools, junior and senior lycées) schoolchildren receive information about a certain number of vocations. Visits in connection with guidance are arranged in order that pupils may be given a preparation for life at work or for further study. Films are employed and lectures illustrated

by slides are arranged. Part of the material is supplied by the Educational Film Centre and its agents in the different towns.

Follow-up practices. In taking up vocations young people are guided by their own choice and are influenced by teachers or the family.

Staff

Composition and selection of staff. The staff at the psycho-technical laboratory of the higher normal school where teachers are trained for technical education consists of a laboratory head (a professor of psychology) and an assistant.

At the present time there are five educational guidance centres, ten school counsellors, six guidance counsellors, five school psychologists, 290 teacher psychologists and five guidance doctors.

Training and further training. From time to time, summer vacation courses are taken by teachers who at schools are responsible for the giving of guidance. Such teachers cannot be regarded as specialists possessing thorough knowledge in the matter of individual psychology and social psychology.

Plans for the Future

It is intended to establish a vocational guidance service for assisting pupils who are completing their primary education. A testing and research service is now being set up at the Ministry of National Education with assistance from the United States.

International Action

Scholarships are needed in order that staff members who are concerned with these matters may go abroad for further training.

UNION OF SOVIET SOCIALIST REPUBLICS

From the reply sent by the Ministry ot Education of the RSFSR

Structure and Regulations

Nature of guidance. Under article 1 of the law dealing with the strengthening of the link between the school and life and with the further development of the public education system, which law was passed on 16th April, 1959, it is provided that the schools shall acquaint the pupils with the different kinds of work and help them to discover their aptitudes as well as to make a conscious choice of their future vocations. Under a decree issued on 3rd July, 1961, by the Council of Ministers of the RSFSR it is required of the Councils of Ministers in the autonomous republics, the executive committees in the territories (regions) and the local education authorities that they give to this provision practical application in eight-year schools and secondary schools.

Vocational guidance as organized in accordance with these legal clauses is an integral part of the education and instruction. It is included in the teaching of the different subjects and given during practical work at school and outside the school, as well as during a variety of socially useful activities which are performed by the pupils. The arousing of vocational interest in pupils proceeds alongside the discovery and development of their special aptitudes, due consideration being given to their health and their physical capacities. The work in vocational guidance begins as from the 5th class in order to help the pupils to make a wise choice of their special courses of study in the 9th to 11th classes.

Particular importance is attached to publicity in favour of those vocations which are most necessary to the regions, territories and autonomous republics concerned.

Compulsory nature and free provision. From the above remarks it can be seen that vocational guidance is included in the school's general programme, which latter is free of charge and compulsory.

Organization and financing. The whole system of vocational guidance is under the control of the state and covered by the state budget. There are no private services.

The task of organizing the work in vocational guidance belongs to the Ministry of Education and its local agencies as well as to the schools.

Cooperation between the services. The Ministry of Education collaborates closely with the following authorities and bodies: the Ministry of Higher and of Specialised Secondary Education; the State Committee for Technical Vocational Education; the Ministry of Health; the Ministry of Culture; the National Economic Council; the Central Council of Trade-unions; the executive committees of the workers' councils.

Relations with the labour market. Allotment of pupils according to the different branches of study is undertaken by the state planning bodies which, for the purpose, take into consideration the needs and prospects of development in the various branches of culture and national economy.

Procedures and Practices

Techniques employed. The admission of pupils to classes in the 9th year (when vocational guidance in its true sense begins) is not preceded by an entrance examination but takes place according to the desires of pupils and subject to presentation of the necessary documents as well as to a medical examination.

On the other hand, an entrance examination must be taken for admission both to establishments of specialised secondary education and to establishments of higher education. Before admission to technical vocational schools the applicant is interviewed.

Information on the vocations. While at school, the pupils are made familiar with the different branches of Soviet work. They are made to understand the significance of each vocation and they learn to respect the one chosen by them. They are shown not only what aptitudes and qualities are indispensable for that vocation but also the difficulties which are met by those who are engaged in such and such branch.

Guides, brochures and films dealing with the vocations are published every year by the Ministry of Education, the USSR State Committee for Technical Vocational Education, the Ministry of Higher and of Specialised Secondary Education and their local agencies. Use is also made of the newspapers, radio and television.

At schools the teachers recommend pupils to read popular science literature. The pupils are also shown films and given research work to carry out in the fields which interest them. They are placed in contact with men who have been an honour to their vocation. The interests and abilities of pupils are developed through different clubs organized by the schools and parents, as well as through the pioneers' clubs and the young technicians' centres. The clubs arrange exhibitions, competitions, lecture evenings, etc.

During visits to factories and workshops the pupils become acquainted with the tasks of the workers at the place of work. Evenings are arranged on the topic of " what to become? ". Meetings with representatives of the different vocations are also arranged. Books and films on the vocations are discussed and special numbers of wall bulletins are issued on the vocations which predominate in certain regions. There are " open days " at schools, technicums and higher education establishments. The authorities of the central polytechnical museum organize meetings at the museum buildings between schoolchildren and learned specialists.

These collective activities are supplemented by personal interviews and by conversations with the pupils and their parents.

The parents take an active part in the work of vocational guidance and in the giving of information about the vocations. They assist at the meetings and visits, discuss with the pupils individually or in groups on the vocations which interest the young people, aid with the arranging of exhibitions, etc.

Follow-up practices. By means of all these activities the young people are helped to make a free and conscious choice of the course and of the education establishment which are suited to their interests.

After the young person has specialised he obtains employment in the vocation chosen. He is surrounded by care and attention on the part of the local organizations and enjoys certain privileges and advantages. During the first years of vocational integration the schools and other education establishments continue to take an interest in their former pupils.

Staff

Composition and selection of staff. There are no specialists engaged solely in vocational guidance. Such work is undertaken by school principals, teachers and school doctors, as well as by the foremen who instruct apprentices, and with active collaboration on the part of social organizations and the pupils' parents. In this vocational guidance work all are guided by the recommendations of the Ministry of Education as well as, for certain particular questions, by recommendations from institutes belonging to the academies of educational and medical science.

Training and further training. All categories of teachers are required to have taken special advanced courses. A university degree or a scientific diploma is necessary in addition for professors at establishments of higher education.

Special institutes provide teachers with further training, which is given in the form of courses, seminars, series of lessons, which may or may not require the teachers to interrupt their professional work, as well as by means of special talks on questions of vocational guidance. Particular attention is given to exchange of practical experience, to study of the most recent progress in science and technology as well as to meetings with scholars and select workers.

Conditions of service. Salaries of teachers are determined in accordance with scales which are laid down by the government and based on standard of education and length of service. Teachers engaged at establishments where vocational guidance is given belong to the highly paid category of workers.

Plans for the Future

Despite the existence of many books on matters connected with the choice of vocation a larger provision of popular material for pupils and parents is greatly needed.

In order still further to improve and develop vocational guidance, planned work in scientific research is carried out in collaboration with the following: institutes belonging to the academies of educational and medical science; publishing houses; radio and television broadcasting stations; museums and libraries; institutes for the further training of teachers; doctors; representatives of the schools.

This country's vocational guidance system corresponds to the tasks which have been set and satisfies not only the requirements of pupils and parents but also the social needs of the present period.

International Action

The USSR encourages collaboration and mutual assistance at international level through participating in international seminars as well as in the exchange both of visits by specialists and of literature and films.

UNITED ARAB REPUBLIC

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. The aims of vocational guidance are to raise the standard of production in the different fields and to place workers in the employment which best accords with their interests and abilities. In seeking to choose the right persons for the right places vocational guidance favours the individual's stability and security and raises the degree of efficiency.

At technical secondary schools the pupils in the first year have at the age of 15 years a choice of curricula. In the following two years they take courses which lead to the vocation selected.

Technical and practical studies are introduced on a trial basis in some experimental general preparatory and secondary schools. One of the objectives of these experimental schools is to bring about both improvement in vocational guidance programmes and a wider application of them to the general body of students.

It is also hoped that students unable to continue their studies at preparatory or secondary level will find in practical courses the necessary minimum training for practical life.

There are official, semi-official and private vocational guidance services.

Compulsory nature and free provision. Vocational guidance is compulsory at technical schools inasmuch as it is given by reason of the very nature of the programmes and entrance tests. Due consideration, however, is given to the desires of parents and students.

Education authorities are making nowadays a concerted effort in order that the final years of compulsory primary education may be years of intensive vocational guidance. There is also a strong tendency to extend the period of compulsory education.

Vocational education is free of charge.

Organization and financing. The government intends to establish a national organization which will be responsible for the planning and coordination of vocational guidance services. In the meantime the official services are organized under ministerial orders.

Some of these services are governmental departments administered by different ministries while others are independent public bodies. In addition, there are semi-governmental services attached to public foundations. The private services are conducted by workers' associations, feminine societies, etc.

The official authorities responsible for the organization of vocational guidance are: (*a*) the Civil Service Commission; (*b*) the ministries concerned (Ministry of Education, Ministry of Higher Education, Ministry of Industry,

etc.); (*c*) the local authorities in each district. The private services are financially independent. In certain cases they receive financial aid from some of the ministries as well as from the local authorities.

Cooperation between the services. There is cooperation between the agencies which work in the field of guidance and other agencies whether they are educational, economic, social, medical or employment agencies.

Relations with the labour market. Consideration for the development of vocational guidance programmes is related to national plans for economic development as well as for increasing the standards of production and thus programmes of vocational guidance are based on research studies and statistical analysis concerning future manpower needs.

Procedures and Practices

Techniques employed. All types of current techniques and tests are being used. Their choice is largely the responsibility of the vocational guidance officer and depends on the particular case and on the particular objectives of the vocational guidance programme.

Information on the vocations. Information about the different vocations is publicised by means of television, broadcasting, newspapers and magazines. In addition, responsible agencies publish guides containing information about the vocations.

Follow-up practices. Vocational guidance services advise the subjects receiving guidance, help direct them to a vocational school and discuss with them not only the terms of apprenticeship contracts but also their placement in employment. The services follow their integration in the professional sector chosen.

Staff

Composition and selection of staff. Vocational guidance services are usually composed of the following: a director, an assistant director, heads of the different departments of the service, staff members specialised in the different fields of vocational guidance, inspectors, administrative and clerical staff.

In the choice and nomination of personnel two criteria are used: (1) academic degree in vocational guidance (at least B.A. and a post-graduate degree in sociology, industrial psychology, etc.); (2) previous experience and record of research in the field.

Training and further training. At a special institute of social work the vocational guidance personnel are trained during a four-year course which leads to the B.A. degree. The departments of psychology and sociology in the arts faculties of the universities grant M.A. and Ph.D. degrees in the field. An increasing number of specialists have received post-graduate training at universities in the United States and the United Kingdom.

In-service training programmes are organized by the different vocational guidance agencies. Scholarships and study leave are granted for further study

at foreign universities and for visits to vocational guidance centres in other countries.

Conditions of service. Vocational guidance personnel enjoy the conditions of service which are applicable in the case of university graduates engaged in the civil service and include a special salary scale with bi-annual allowances and, usually every four years, grade promotion. Additional allowances are granted to personnel having M.A. or Ph.D. degrees. Doctors and engineers engaged at vocational guidance services receive special allowances.

Plans for the Future

The most important needs can be summarised as follows: (a) the establishment of a national organization that will be responsible for the promotion and coordination of vocational guidance programmes at all levels and in the different fields; (*b*) a greater number of specialists in the field through expansion of the existing programmes for their training; (*c*) the designing of more measurement procedures and standardised tests adapted to the cultural and national needs and characteristics of this country.

International Action

The United Arab Republic has received international assistance in the form of visits by experts and scholarships for study abroad. She accepts any aid offered unconditionally by any country or international organization in the field of vocational guidance whether such aid be in the form of fellowships, technical material and tools, visits by experts, etc.

UNITED KINGDOM

England and Wales, Scotland

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. Educational or school guidance is given in most of the schools. It is usually a function performed by the teaching staff and the headmaster in consultation with the pupil and the parent. In some schools the youth employment officer is invited to give talks to pupils and parents and very occasionally he may play a part in individual advice to pupils on the choice of courses.

The guidance is related to differentiation of curricula. Some choice of curriculum is in nearly all schools offered for pupils who intend to stay to the age of 16 years or beyond and is increasingly offered for those who will leave at 15 years. For those intending to leave at 15 or 16 years the choice is made with conditions of apprenticeship in mind but the courses themselves are rarely associated with a particular kind of employment, although there are a few cases of pre-apprenticeship courses for the building, leather and printing trades.

Vocational guidance in the strict sense is provided for young people up to the age of 18 years and at the stage of transition from school to work and consists of giving not only information about opportunities available in further education and the occupations but also advice on the most suitable courses of education and training for careers in industry, commerce or the professions.

Vocational guidance is provided under the provisions governing the Youth Employment Service and which are contained in the 1948 Employment and Training Act. There are also private services, which tend, however, to cater for the older and more able pupils or for special problem cases.

Compulsory nature and free provision. Vocational guidance is not compulsory. The official service is free of charge.

Organization and financing. At national level, vocational guidance is organized by the Central Youth Employment Executive, on which the Ministry of Labour, Ministry of Education and Scottish Education Department are represented. The services are financed by the Ministry of Labour. At local level, 127 of the 181 Local Education Authorities provide vocational guidance services approved by the Ministry of Labour, which reimburses 75% of the expenditure incurred. In the remaining areas the service is provided by the Ministry of Labour itself.

The private vocational guidance services do not receive any grant from public funds. Many professional bodies have their own vocational guidance services.

Cooperation between the services. Connection between education and employment is ensured by the National Youth Employment Council, which consists of the following: representatives of the education authorities as well as of the teaching profession, the employers and workers and the local youth employment committees; independent members chosen for their special knowledge and experience of problems affecting young people.

There is cooperation between vocational guidance services and the schools (particularly careers masters and mistresses), parent-teacher associations, school inspectors, the youth service, establishments of further education, the armed forces cadet organizations, factory doctors, probation officers, Borstal Institutions, Children's Officers, inspectors of the Ministry of Pensions and National Insurance, Rotary Clubs, the Federation of British Industries, Ministry of Labour specialist officers, etc.

Relations with the labour market. One of the duties of a vocational guidance officer is to help to ensure that essential occupations are adequately manned and he takes into account national and local industrial trends as well as prospects of continuous employment. His business is primarily, however, to steer boys and girls according to their capabilities and interests. He has an equal responsibility to the individual seeking guidance, to the employer and to the country.

Procedures and Practices

Techniques employed. At every school there are one or several teachers known as careers teachers, whose function is to obtain and display information and give advice on careers as well as to be available for discussion with any pupil or parent who may want help. Such discussions usually take place outside ordinary school hours. In the most favourable circumstances a small room is used as an office for advice and documentation on careers, although much may be left to the initiative of the pupil in the actual use of the information or indeed of the services of the careers teacher.

In vocational guidance in its strict sense the seven-point plan of the National Institute of Industrial Psychology is widely used. It is a system of assessing physical make-up, attainments, general intelligence, special aptitudes, interests, disposition, and circumstances. Use is made in it of school reports, medical reports, information from parents and interviews. Psycho-technical tests are sometimes used.

Routine medical examinations are carried out in schools and special medical examinations are called for where necessary. Parents are always invited to supply information about their children by attending the interview or by completing part of a questionnaire.

Information on the vocations. The Central Youth Employment Executive publishes and distributes information on the various professions by means of booklets, leaflets and wall sheets, a periodical bulletin, films and film strips, a guide with a special loose-leaf edition and, additionally, by means of handbooks and manuels for officers in the youth employment service. Many schools use this material in their planned programmes of vocational information.

Other publications on the same subject produced by Her Majesty's Forces, different firms or professional bodies are also distributed. Talks

are given in schools to parents and pupils as well as on radio and television. Visits to industrial, commercial and scientific establishments are encouraged.

Follow-up practices. Information is given about suitable courses available but the choice of a school is left to the individual, who is advised to make application to more than one vocational school owing to the competition for entry. Applicants receiving vocational guidance are offered placement services and registration in an employment office is offered as a necessary preliminary to placement.

As regards unofficial vocational guidance services, practices differ. Some of the services may recommend certain vocational schools and offer to introduce applicants for placement. They may also recommend registration at an employment office.

The official vocational guidance service keeps in touch with the assisted boys and girls after they have entered employment and until they are satisfactorily settled. After the choice of employment is made or when it is being made the youth employment officer or the careers teacher, or both, may supply information on appropriate courses of further education, both general and vocational. The officer keeps in contact with the young worker until the age of 18 years.

Official vocational guidance officers wherever possible follow the careers of young people they have assisted, although the amount of help they can give depends on the cooperation of the applicant and the employer. The officer would help with any difficulty in integration if invited to do so.

Staff

Composition and selection of staff. At national level, the National Youth Employment Council is composed of the following: a chairman; five members in administrative grades; two of Her Majesty's Inspectors of Schools; other inspectors; a psychologist; executive and clerical officers. At regional level, staff include a regional representative, executive and clerical officers and Careers Advisory Officers who are responsible for vocational guidance connected mainly with pupils in grammar schools. At local level, staff consist of a principal or county youth employment officer, other youth employment officers and clerical staff.

Training and further training. The training received by vocational guidance staff varies and could include one or more of the following: (*a*) departmental experience and training in dealing with adult employment; (*b*) " on the job " training in vocational guidance; (*c*) full-time courses of varying length according to qualifications and experience; (*d*) university degree or diploma in social studies including psychology; (*e*) teaching qualifications; (*f*) courses leading to the diploma in vocational guidance. Special courses are arranged for careers masters and mistresses.

For the further training of vocational guidance officers there are every year six five-day courses in the technique of vocational guidance. There is also both a one-month residential course held each year at Birkbeck College in London and a correspondence course which leads to the diploma in vocational guidance and is sponsored by the Institute of Youth Employment Officers. Vacation courses are promoted by official and unofficial vocational guidance services.

Plans for the Future

Measures are contemplated for the following: improving the training provided for youth employment officers; extending the vocational guidance services in order to reach more older pupils and students in colleges of further education; increasing the youth employment officers' knowledge of opportunities in further education; obtaining a greater evaluation of the results of vocational guidance given. The possible advantages of a wider use of psychological testing in special cases is being examined.

Northern Ireland

From the reply sent by the Ministry of Education

Structure and Regulations

Nature of guidance. The Youth Employment Service Board, which has been set up under an act of 1961, is responsible for the establishment and development of a comprehensive Youth Employment Service (a guidance and employment service for young people) throughout the country. Youth employment officers are based in the main centres of population and area youth employment committees will be appointed to advise the board as to the discharge of its functions in the respective areas.

The principal functions of the Youth Employment Service are: *(a)* to help boys and girls in choosing a career and in finding suitable employment; *(b)* to help employers in the selection and recruitment of staff between 15 and 18 years of age; *(c)* to place young people in employment and to review their progress in it.

The service was established in 1962 and is only " in embryo ". An advisory service was in operation in Belfast from 1948 to 1962 but it did not deal with the placement of young people in employment. There are no private guidance services in this country but use is made of private services operating in Great Britain.

Compulsory nature and free provision. Guidance must be offered to all pupils during their last year of school and is free of charge.

Organization and financing. The Youth Employment Service is aided by grants from the Ministry of Labour and National Insurance (80%) and from the eight local education authorities (20%).

Cooperation between the services. Such cooperation is intended.

Relations with the labour market. This aspect is still to be explored.

Procedures and Practices

Techniques employed. The means employed are interviews, occasional tests of aptitude and the consultation of school records (including medical records).

Information on the vocations. Such information is communicated by means of leaflets, lectures and exhibitions as well as during interviews. Additional means may be employed as the service develops.

Follow-up practices. Action in this regard is intended. The youth employment offices keep in touch with young workers from the time they leave school until when they reach the age of 18 years. The object is to ascertain whether they are in satisfactory employment and to acquaint them with the facilities for further education.

Staff

Composition and selection of staff. The staff envisaged consists of a director, a deputy director, three senior youth employment officers, 30 youth employment officers as well as administrative and clerical staff.

Training and further training. For the post of director the candidates are expected to possess a university degree and to have had wide experience of work in guidance and in youth employment. Senior youth employment officers are required to possess a university degree and to have had suitable experience. For the post of youth employment officer the candidates are required to be at least 23 years of age and to hold the Grammar School Senior Certificate, the General Certificate of Education or equivalent. They are also required either *(a)* to hold a degree, the diploma in vocational guidance, an approved social science qualification or a diploma in public, municipal or government administration or *(b)* to be qualified teachers or to have completed satisfactorily a course of training for the Youth Employment Service or *(c)* to have received other appropriate further education or training or *(d)* to have had experience in relevant gainful employment.

The board organized a short intensive course for the training of staff. Selected officers were sent to Great Britain to take recognised courses in vocational guidance (for example the course at Birkbeck College, London).

Conditions of service. The persons appointed will be required to devote their entire time to their task. The conditions of service will be those which are applicable to established officers of the board and which are subject to the approval of the Ministry of Labour and National Insurance and the Ministry of Finance. The situation of the staff envisaged may be compared with that of teachers or local government officers.

Plans for the Future

For the moment the principal concern is that of ensuring the efficient operation of the service which has just been established. Plans and needs have not yet been formulated.

International Action

Northern Ireland has not received international assistance in this field. The Youth Employment Service Board would be interested to receive information about developments in other countries in the field of vocational guidance.

UNITED STATES

From the reply sent by the Office of Education

INTRODUCTION

Guidance in the United States began as vocational guidance. The Committee on Vocational Guidance which functioned as a part of the Commission on the Reorganization of Secondary Education reported in 1918 that " vocational guidance should be a continuous process designed to help the individual to choose, to plan his preparation for, to enter upon, and to make progress in an occupation ". During the succeeding years the emphasis in guidance has been primarily vocational. This concept was given additional impetus through the George-Barden Vocational Act passed in 1946 by Congress. According to this act, funds can be used for support of vocational guidance programmes in public secondary schools and as a consequence almost all states established guidance services in state vocational education programmes. As guidance activities came to be located more completely within school programmes the trend has been to broaden the concept of guidance to include as functions of guidance the planning and progress of the pupil's studies.

Vocational guidance is now considered one aspect of a total guidance programme. Guidance has been extended to encompass not only the pupil's vocational needs but his other developmental needs as well. It has been realised that in the process of development there are certain critical times at which the individual is ready and needs to achieve particular kinds of learning. Guidance assists in this process. The responses which follow have, principally, public secondary schools as frame of reference. Increasingly, however, vocational guidance is associated with continuing education and taking place at higher education institutions, in adult education programmes, vocational re-training programmes as well at the growing number of both public and private vocational technical schools. The 1958 Public Law 85-864 provides for the development of vocational education programmes and support of vocational guidance in connection with these programmes is recognised.

Objectives of American education have been stated in many different ways, all of which reflect the needs of the individual and society. The distribution of individual needs in relation to those of society has not been a matter of conscious concern in the vocational guidance process. Renewed emphasis upon science and technology is reflected in the growth of automation and the changing occupational structure. As a result of problems arising in a changing society, a new dimension of social responsibility is being introduced into the vocational guidance function and it may be that such guidance will have to take into account to an increasing extent the numbers and locations of existing opportunities with reference to available manpower supply.

Structure and Regulations

Nature of guidance. Generally speaking, guidance is based on recognition *(a)* not only of the importance and uniqueness of every individual but also of the necessity of taking into account his needs, interests and special aptitudes, *(b)* that all students at all educational levels, regardless of kinds and level of ability, must be served, *(c)* that in the normal process of achieving maturity all students are confronted with two major developmental tasks, namely educational development and vocational choice and that consequently vocational development parallels individual development, *(d)* of the principal of freedom of choice, it being assumed that every individual has or can develop sufficient maturity to make sound judgments based upon the logical relationships between facts about himself and his environment; freedom of choice is a basic principle of guidance.

Provision in guidance is made for facilitating the administrative, curricular and instructional functions by assisting not only children but also teachers and other professional staff concerned. School administrators are assisted in planning a school programme which will meet the educational needs of the students, the community and the nation. Teachers are assisted in adapting instructional methods and materials to facilitate the maximum development of each student. Parents are assisted in understanding the characteristics of their children and in the consequent planning of the latter's education and vocational future. Assistance also is provided not only in the articulation of elementary, secondary and higher education programmes but also in the effective utilisation of other school and community services such as psychological services, psychiatric services, social work services and health services.

Guidance services are widely established in the state and local school systems. In many cases students may receive the benefit of such services at the elementary or secondary school level. Approximately 75% of secondary school students have guidance available to them. Organized guidance services include (1) a service for gathering individual information about the pupil, including results from standardised tests, (2) a service for providing information about the occupational situation and opportunities, (3) a counselling service which, on the basis of information about the student and his environment, leads him to understand himself realistically and to select appropriate educational and vocational goals, (4) a placement service and a follow-up service.

Compulsory nature and free provision. In a large number of schools students are recipients of services provided by the school guidance staff as part of the regular educational services. Only in this sense is vocational guidance compulsory. However, even when school guidance services are available, all students may not necessarily receive special counselling.

Generally speaking there is no direct charge for guidance services since they are provided as part of the total educational programme. Fees are paid for services which are provided by privately operated agencies.

Organization and financing. In the United States, responsibility for public education resides in the states. Each state exercises sovereign authority in the matter of education and usually delegates the responsibility for operating public elementary and secondary schools to local school districts. The organization and financing of local educational programmes, including guid-

ance services, are responsibilities of the local school authorities. The 1958 Public Law 85-864 authorized federal grants to state Departments of Education to assist in the organization of programmes of guidance,counselling and testing at public secondary schools and testing at non-public secondary schools. Furthermore, state grants may be allocated for assistance with local programmes. State education departments as well as the federal Office of Education maintain guidance staff for the purpose of providing local school systems with consultative services in matters of programme organization.

In addition to the agencies which operate within the framework of public education, other agencies promote and support guidance services. The Employment Service, which functions under the Department of Labour, provides a network of employment service offices which have vocational guidance services available for persons seeking employment in the labour market. Church groups too are concerned with vocational guidance, primarily for the benefit of the church youth. National youth organizations provide vocational guidance services to an extent varying with locality and available qualified personnel.

Cooperation between the services. Guidance is recognised as a key function in assisting individuals to achieve a socially productive and personally satisfying way of life. School guidance personnel make use of appropriate community resources in helping students. The United States Employment Service, for example, is a resource for job information and placement. The counsellor often consults health and other social agencies when dealing with certain problems. Within the school setting, guidance services are included among a number of services which assist pupils (health services, psychological services, social work services, etc.).

Relations with the labour market. The changing occupational structure, economic and employment trends and current manpower needs are all matters of vital concern to school counsellors. The federal Department of Labour through its Bureau of Labour Statistics and its Office of Manpower, Automation and Training compiles and distributes information of this type, for example in the Occupational Outlook Handbook. Other information resources include economic research reports from institutions of higher education, the National Association of Manufacturers, labour organizations, and government agencies such as the federal Office of Education, in the Department of Health, Education and Welfare, and the federal Department of Commerce.

All sectors of the nation's social, economic and cultural structure are becoming more aware of the need for full utilisation of human resources and that opportunities for self-expression and creativity are important to this end. Vocational guidance as a process for making a career choice is accepted by business and industry as well as by educational and social institutions both public and private.

Procedures and Practices

Techniques employed. Various types of standardised tests and inventories are employed: scholastic aptitude tests; intelligence tests; achievement tests; interest inventories and checklists, etc. Tests which measure abilities for specific vocations are given after the general areas of interest have been iden-

tified. A widely used test that identifies vocational aptitude is the General Aptitude Test Battery, which consists of 12 sections: intelligence, verbal aptitude, numerical aptitude, spatial aptitude, form perception, clerical perception, motor coordination, finger dexterity, manual dexterity. This test battery is most helpful to students who plan to enter the labour market, especially those who do not complete high school or who do not plan to complete a post-high-school programme. This test is available to students in a number of schools as well as at employment centres. One other device used to facilitate student appraisal is the cumulative record folder, which gives information concerning the student's background including not only a teacher evaluation of a number of personality characteristics but also often an autobiography of the student. With much pertinent information at hand the guidance counsellor is in an excellent position to assist the student in making a decision regarding his life work.

Information on the vocations. Many occupational and professional groups have organizations representing their particular interests and often sponsor programmes for making their occupation or profession known to the public through the radio, television, newspapers, etc. They also furnish information by means of brochures, films and pamphlets attractive to young people, who can obtain in the published material of these organizations such information as entrance requirements in the vocation, possibilities for advancement, living conditions, salaries and a geographical distribution of employment. There are also commercial firms that specialise in the development of occupational and professional information which is procured by schools and employment counsellors. The federal Department of Labour plays an important role in gathering and disseminating occupational information through research and surveys and in providing a steady supply of pertinent, factual data to school counsellors. In some instances local studies are made.

Follow-up services. The " cumulative record folder ", which begins in early elementary school and follows the student through secondary school, is a vital tool for the counsellor in helping a student make a decision, whether it be a question of apprenticeship training, vocational school or higher level study. The guidance counsellor always respects an individual's right to make his own occupational choice. However, the counsellor takes special interest in the progress of the student as the latter moves towards his objective and considerable time is given to him and his parents in order to interpret all the information concerning him. The counsellor often recommends possible choices, which may be accepted or rejected by the student. On principle the school guidance counsellor does not coerce or persuade any individual.

One of the basic functions of the school counsellor is to " follow up " former students and is performed in order to determine specifically what happens to students after their high school graduation as well as to those terminating their education before graduation. By mail, telephone, personal visits, as well as by information from friends or relatives, students are followed up for at least one year. It would be ideal if the counsellor could keep in touch with them for several years but, at the present time, limited personnel and increased school enrolments prevent the fulfilment of such an objective. Many counsellors conduct follow-up studies that reveal the number of students who go on to colleges and universities, join the military service, accept imme-

diate employment or get married. This information aids in evaluation and is used to strengthen guidance programmes.

STAFF

Composition and selection of staff. Secondary schools employ, whenever possible, a school guidance counsellor. In 1961, such counsellors numbered 34,357, some of them having teaching assignments, others devoting full time to guidance. The number of counsellors employed by any one school varies according to funds available and the number of students. A ratio which has generally been accepted as standard is one counsellor for 300 students but the actual ratio ranges from one counsellor for less than 300 students to one counsellor for more than 1,000 students.

The criteria by which school counsellors are selected and appointed depend upon requirements which vary from state to state. Forty-two states require at least 30 hours of graduate preparation in guidance courses, 46 states require counsellors to hold certificates issued by the state Department of Public Instruction, while in all 50 states some specialised preparation is required. Generally, there are two basic prerequisites: *(a)* teacher preparation, *(b)* teaching experience.

Training and further training. The school counsellor of a secondary school is usually a person with a professional preparation for performing the guidance functions within the school. Over 400 universities and colleges grant a master's degree in guidance and counselling and such preparation is rapidly becoming the accepted standard for school counsellors. The courses include work in vocational and occupational information, individual analysis and pupil appraisal, study planning, counselling procedures and techniques, tests and measurements, statistics, child growth and development, psychology of normal and abnormal behaviour. Study in related areas such as sociology, economics, anthropology and demography is encouraged.

Within each of the 50 states the Department of Education has the responsibility of encouraging local school systems in developing more effective guidance programmes and helping schools to improve their programmes and personnel. It is a common practice for local schools to ask the state Department of Education for consultants to participate in an in-service training programme. Local systems may also plan for this purpose with colleges and universities.

Conditions of service. A school counsellor's specific duties are assigned by the school administrator and vary somewhat from school to school. As already noted, some counsellors have part-time teaching responsibilities while others devote full time to their guidance functions. Generally, counsellors are employed under a contractual arrangement much the same as teachers. In some instances counsellors work two or more weeks longer than teachers in order to carry on such functions as pre-registration and admission as well as follow-up activities.

The salaries of school counsellors are determined by the local school salary schedule for teachers and supervisors. The basic salary of the counsellor depends upon his preparation beyond the bachelor's degree level, his

years of service and the length of time he is employed per year. On account of their specialisation and depending on their years of service the counsellors in a few local school systems are allowed salaries which are slightly higher than those of teachers.

Plans for the Future

In order that guidance functions may be carried out satisfactorily the number of counsellors must be adequate (the recommended counsellor-student ratio of 1 to 300 is frequently not achieved and a ratio of 1 to 550 is the average). It is important also that adequate physical facilities be supplied in regard to space, equipment and materials. It is desirable that the guidance unit provide an appropriately equipped reception area, private counselling rooms, conference room for such uses as case conferences and individual testing, multipurpose room for group testing and procedures as well as for exhibits, in-service training activities, etc.

Nevertheless, since the 1958 Public Law 85-864 was enacted much progress has been achieved. There has been an increase of 80% in the number of full-time counsellors in secondary schools, such number having risen from 12,000 to 21,800 approximately. The states are working to improve the quality of the services. During the past few years there has been a substantial increase in the number of guidance supervisory personnel at both state and local levels. State supervisors promote in-service training, encourage research, evaluate and approve local programmes, take the leadership in bringing together lay and professional consultants, etc. During fiscal year 1961 the Guidance and Counselling Programmes Branch of the federal Office of Education sponsored throughout the nation a series of regional conferences on the theme " Improving the quality of guidance services ". These conferences were attended by supervisory and counsellor education personnel from all the states and territories and resulted in the development of guidelines to assist in the continuing improvement of quality in school guidance programmes. A national conference is anticipated in the near future in order to evaluate and further refine these guidelines.

International Action

The United States is interested to receive the benefits of international cooperation in this field. Help has been derived from participation of United States experts at international conferences, seminars, meetings of experts as well as from the exchange of ideas and information on various educational problems with educators overseas. The visits of experts from other countries have been another avenue of professional exchange.

The United States would always welcome the visits of experts from other countries and would encourage opportunities for U.S. leaders to go to other countries to study promising educational developments.

UPPER VOLTA

From the reply sent by the Ministry of National Education

Nature of Vocational Guidance

In Upper Volta there is no specialised service for vocational guidance but educational guidance is in effect given in the following ways: *(a)* at the end of the primary school course and according to their achievement both during it and at examinations the pupils are guided towards secondary education establishments, technical schools or the courses held for the training of assistant primary teachers; *(b)* during the secondary school course the pupils are if necessary re-oriented towards courses of technical education or of teacher training; *(c)* on completion of the secondary school course the pupils are awarded scholarships to enable advanced study leading to vocations which are useful for this country.

At the request of the Ministry of National Education a report has been drawn up on present and foreseeable needs in regard to the various vocations within the public and private sectors. In the guidance given to pupils these needs are taken into account.

A master from the Lycée in Ouagadougou has charge of the University Statistics Bureau and he furnishes pupils with information about the opportunities and gives them any advice which may be helpful in choosing a vocation.

Plans for the Future

A vocational guidance service is to be set up.

International Action

No international assistance has been received in the field of vocational guidance. This country wishes to receive assistance in the form of visits by experts and in that of scholarships for future counsellors.

YUGOSLAVIA

From the reply sent by the Education and Culture Secretariat of the Federal Executive Council

Introduction

Vocational guidance has had in this country a long tradition. In Belgrade as early as 1929 a section for the psycho-metric and medical examination of apprentices was being operated in connection with the Central Health Institute. In 1930 the Institute of Criminology belonging to the Belgrade faculty of law had a psycho-metric laboratory for the vocational guidance of young delinquents. In 1931, centres were set up in both Belgrade and Zagreb for vocational guidance and in 1938 a similar centre was set up in Ljubljana.

In 1952 these centres were reorganized subsequent to a conference convened in Belgrade by the federal Labour Institute.

In 1960 under the law relating to services (employment bureaux) which are concerned with the placement of workers in employment such services were established on a new basis and the various existing forms of vocational guidance were combined into a single service for the placement of workers in employment.

Structure and Regulations

Nature of guidance. Assistance in the choosing of a vocation constitutes one of the tasks belonging to primary schools (1958 general law dealing with education). The specific nature of this obligation is set out in the 1959 law on primary schools (Chapter I, art. 7) as follows: " In order to accomplish their role the primary schools shall collaborate with the family, with the youth, cultural, economic and other social organizations as well as with the vocational guidance centres and the vocational associations, institutions and services ".

Article 27 of the same law proceeds: " In collaboration with vocational guidance institutions the primary schools shall help the parents and pupils when it is time to choose a school for further study and when it is time to choose a vocation. For the purpose they shall take into consideration the pupil's propensities and follow his development as well as furnish information on the nature and conditions of the work involved in the various kinds of schools and vocations ".

It is furthermore emphasised in article 43 that the teachers shall follow the individual development of the pupils and learn their propensities in order to be able, by educational and other steps, to guide them in the choosing of activities which are appropriate both to their personal development and to social needs. This article thus shows not only the special importance of so-called " free activities " having in view the further guidance at secondary schools but also the teacher's role in the selecting of such activities.

As regards vocational guidance in its strict sense, it is linked up with the activity of the worker employment services and its aim is to assist the young and adults in choosing the fields of work which are most appropriate to their psycho-physiological attributes.

The vocational guidance process includes two kinds of action, namely information and advice. Vocational information consists of furnishing particulars about the vocations as well as about the opportunities both for vocational training and for being placed in employment. Such information is helpful also to the schools and parents. As regards the advice, it is based on psychological and medical examinations in order that guidance towards a vocation may be given. It also deals with prior qualifications, re-education, adjustment to work.

Compulsory nature and free provision. Vocational guidance is not yet compulsory during primary schooling, which lasts eight years. At some of the local institutions concerned with the placement of workers in employment, such guidance is compulsory in the case of apprentices who are required to be furnished with the advice of a vocational guidance service before entering into an apprenticeship agreement.

Vocational guidance is entirely free of charge.

Organization and financing. The vocational guidance centres are services of a public nature operating in conjunction with the worker employment institutions. There are no private vocational guidance institutions.

As regards the vocational guidance permanent commissions, their members are appointed by the board which administers the worker employment institution. These members are nominated by the educational, health and economic agencies, organizations and institutions as well as by social and political organizations (trade-unions, Socialist Alliance, People's Youth, Women's Social Activity Conference).

In the constituent people's republics not only the conditions under which the local worker employment institutions may carry out vocational guidance but also the working methods of the permanent vocational guidance commissions are governed by regulation.

The worker employment institution is responsible for the organization and financing of the vocational guidance services.

Cooperation between the services. One of the tasks of the vocational guidance permanent commission is to coordinate the activity of the different agencies, institutions and organizations which are concerned with vocational guidance.

Furthermore, the workers' employment bureau cooperates with the education services and to a certain extent with the public health and social welfare services.

At local level there is particularly close collaboration between the employment bureau and the primary schools. As contribution to the programme of vocational information the bureau provides lecturers (specialists from secondary schools, speakers from economic organizations), procures audio-visual facilities for the lectures and furnishes the schools with propaganda material. In conjunction with the Education Institute it also arranges seminars and consultations for the benefit of primary teachers who are concerned with vocational information.

At national level the federal institute for the development of educational and teaching matters has recently engaged in certain activity connected with the publication of handbooks on the work of giving vocational information.

As regards relations with the public health service, steps have been taken with a view to developing the medical aspect of vocational guidance. Incidentally, the contribution made by the social worker to the work of the team is appreciated particularly and considered as extremely useful. This explains why an endeavour is being made to introduce into syllabuses at schools of social studies some basic knowledge about vocational guidance.

Relations with the labour market. The personnel services of the undertakings apply to the worker employment service when they are in need of manpower or when it is a question of the vocational training or prior qualification of the manpower engaged. At the moment, however, personnel needs in the different vocations are known only in outline and from the national point of view. It is intended that a national commission be given the task of preparing a study on the entire country's future needs in the matter of personnel.

Procedures and Practices

Techniques employed. In order to set up the subject's file the " counsellor " bases his work on his knowledge in the fields of psychology, sociology and economics as well as on the practical experience which his knowledge of the school environment has given him.

The counsellor, who is a psychologist, carries out firstly a group psychological examination in regard to the general intellectual level, examining if necessary the specific aptitudes, the interests and what has been learned, and secondly an individual psychological examination which gives more precision to the results already obtained from the group examination (psychometric or personality test, etc.). He has the medical examination carried out by a doctor.

The counsellor bases his appraisal of school achievement both on the pupil's file and on the advice of the teaching staff.

Provision is made for the work at vocational guidance centres to be carried out by a team of specialists (psychologist, doctor, social worker, person responsible for vocational information).

Contacts with the parents and teachers constitute an important part of the counsellor's work and his contacts with the pupils and adults often necessitate several conversations.

Information on the vocations. At primary schools information is given on the vocations and their requirements as regards the psychological and physiological attributes necessary to the worker, on the opportunities for vocational training and obtaining employment as well as on the prospects of advancement in the vocation.

In addition, lectures dealing with the vocations and illustrated with slides and films are arranged. Prospectuses and brochures are published. Radio and television are as yet not much employed in this field.

Follow-up practices. Vocational guidance extends to the giving of assistance in the choice of a vocation and, if necessary, guidance is given when the

pupil proceeds to a secondary school after his compulsory primary schooling. Freedom of decision is ensured, however, whether the latter rests with the parents or with the subject who is receiving guidance.

Until the age of 18 years all young people must register at the local worker employment institutions, which are required to ensure their vocational or apprenticeship training. These institutions find employment for them and follow them up in connection with their integration in the vocation chosen.

Due, however, to the small number of guidance officers it is not yet possible to follow up all the subjects who receive guidance.

Staff

Composition and selection of staff. The staff of worker employment bureaux which have vocational guidance centres consists of members responsible for giving vocational information as well as of psychologists, doctors, educators and social workers. In each of the six constituent republics the worker employment services are staffed with members responsible for giving vocational information as well as psychologists and, possibly, doctors.

Applicants are selected on the basis of a competitive examination and by an admissions board functioning at all the employment bureaux.

Training and further training. There is no staff which is specialised in vocational guidance and consequently no previous training is provided for guidance officers. In Slovenia a higher school has recently been set up in order to train those persons who are responsible for giving vocational information.

The doctors engaged at these services are not always specialists in the field. As regards the psychologists, they hold a faculty of arts diploma in psychology and usually have specialised in industrial psychology.

Guidance officers receive their training while in service (courses, seminars, consultations, compulsory period of practice at vocational guidance institutions). Seminars and consultations are arranged also for those who have the task of giving vocational information and for the doctors concerned with vocational guidance.

The Yugoslav Vocational Guidance Association publishes particularly important documentation.

Conditions of service. The remuneration of vocational guidance staff is governed by the law relating to government servants. The basic salary of those who give vocational information and of the psychologists is the same as that of primary and secondary teachers but the bonuses for study, years of service, etc. are larger in the case of guidance officers. The salaries of the doctors are the same as those of doctors engaged in the public health services. Most of the doctors who collaborate with the worker employment institutions do so on a voluntary basis and only a small number of them are engaged permanently.

Plans for the Future

Steps have been taken with a view to the following: (*a*) developing the network of vocational guidance centres; (*b*) further training of future guidance officers by provision both for scholarships to psychology students and for periods of practice to be spent by such students at vocational guidance centres;

(*c*) giving uniformity to the working methods employed on Yugoslav territory (standardisation and approval of the new tests, revision of the tests being employed, devising of better follow-up methods); (*d*) possible setting up of a centre for the special training of those responsible for giving vocational guidance in connection with the university faculties; (*e*) setting up of a Yugoslav commission for developing the medical aspect of vocational guidance; (*f*) setting up of an institute for research and documentation on the vocations.

International Action

Yugoslavia has not so far received international assistance in the field of vocational guidance. She is ready to receive, either from foreign countries or from international organizations, such aid in forms such as the following: batteries of tests (tests of attainment, aptitude and personality); apparatus and electronic machines for the compilation of statistics relating to the data obtained from psychological and medical examinations; equipment for documentation; books, reviews and brochures published abroad, etc.

Yugoslavia also desires visits by experts and that scholarships be awarded to enable the training of vocational guidance personnel.

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There are several crucial areas of educational concern where change must be effected soon. For example, the relevancy of education; the overwhelming majority of the instruction offered in our elementary and secondary schools today is directed toward the student who will go to college. However, 60 percent of the youngsters in our school system never go to college. There is a need for realistic evaluation; in the area of evaluation, our educational system falls woefully short. Sensitivity to change must be accomplished by some sort of a realistic and continuous evaluation. To improve inner city educational difficulties, we must accept the extra cost of providing vocational or technical education, and recognize the wisdom of investing tax dollars in meaningful educational programing today rather than unemployment benefits later. Job placement for college entrance must be the responsibility of the school, and must be done well. Perhaps we need some new approach like professional reimbursement based on the degree to which a student's objectives are met, giving school staff a very personal stake in the indivioual success of each student. The american system of education is the best in the world, but must be made even better. (CH)

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VOCATIONAL EDUCATION IN A NEW SOCIETY

BY

Aaron J. Miller

As science and technology changes today's world of employment, the educational needs of society are also changing. If one looks at the economy of the United States just seventy years ago, one would find a predominately rural economy where the majority of our citizens lived and worked on the farm; and at that time, farming had not changed a great deal from the several preceding generations. The educational needs for the majority of the people at that time were reading, writing and ciphering (or arithmetic as we call it today). The majority of jobs in this country were jobs of "work" measured in physical effort, and man's work was evaluated in terms of the amount that he could produce through sheer physical effort.

In the rural economy of that day and time a person could be served effectively by the educational system by going to school, mastering the

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Presented at the "Current Crisis in Education" Conference, Jane Addams Vocational High School, Cleveland, Ohio, April 19, 1969, by Dr. Aaron J. Miller, Coordinator for Development and Training, The Center for Vocational and Technical Education, The Ohio State University.

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degree of academic skill that he felt necessary to read, communicate, and hold a job, and then leave the system at most any point and obtain a job in the mill, mine, factory, or farm. Our educational system was ideally geared to that level of technological, industrial and agricultural development.

The spectrum of jobs in America at that day and time ranged from a predominance of jobs requiring a great deal of physical effort and repetitive skills requiring little formal training to the small minority of white collar technical and professional jobs requiring high school or some college training. The educational system was such that it trained only the most persistent for the professional jobs or for college entry. Those who dropped out (or were pushed out) of the system at various points along the way found some type of suitable employment. The schools and the labor market were ideally suited to each other. The educational system was designed to drop people out along the academic way; and, the job market was designed to accommodate workers at all levels - from the unskilled laborer to the professional.

However, that type of labor market has long ceased to exist.

It is interesting to compare the labor market of some 69 years ago (around the turn of the century) to today. At the turn of the century, 60 percent of the existing jobs were for laborers, service workers, and farm workers. By 1960, the percentage of people in these categories had dropped from 60 percent down to 25 percent of the labor force. It now appears, based upon present labor statistics, that by 1970 only 20 percent of the jobs available in this country will be held by laborers, unskilled service workers, and farm workers; and of this 20 percent only 5 percent of the jobs will be held by common laborers. What this means is, that jobs for the unskilled laborer, (where little or no special training is required) will soon be nearly extinct.

As jobs for the unskilled cease to exist, new jobs are being created in areas where special training and education is required. For example, in the next five years, jobs that fall within the area of technical, clerical, sales, and highly skilled will increase between 30 percent to 65 percent. Indications are that the demand for laborers will remain at about the same percentage of the labor force as today. However, farm workers will

decrease by 28 percent within the next five years. In view of these trends, it is apparent that the largest increase in jobs will occur in occupations that require the most education and training.

The point that needs to be made by looking at our recent technological change and its reflected change in our nation's occupational structure is simply this, with rare exception the children and young people in our schools today will have to be gainfully employed in some occupation to be in the mainstream of our new society. To be gainfully employed in most any job that exists today or that will emerge tomorrow, one will have to be purposefully trained for job entry. Further, the social mechanism that must adequately meet this training need for all youth is the public school system.

Therefore, it is my thesis that if a crisis exists in education today, and it does, it is fundamentally caused by our educational system's seeming inability to change rapidly enough to meet its' new obligations. This is not to say that change is not taking place in the system -- it is. However, for a myriad of reasons, the inertia

of the system is great and any change in philosophy, curriculum, or mechanics of operation is by-and-large, dangerously slow.

I would now like to briefly discuss several crucial areas of educational concern and their interface with vocational-technical education. These are areas where, in my judgment, change must be effected, and soon.

The Relevancy of Education

The overwhelming majority of the instruction offered in our elementary and secondary schools today is directed toward the student who will go to college. And, I might add, the schools are doing a good job for these college bound students. The fact is, however, that 60 percent of the youngsters in our school system never go to college. In fact, if we look at the data we find that three out of every ten children drop out of school before high school graduation. If we further look at the 40 percent who go on to a college program, we find that only half of these graduate with a baccalaureate degree. This means that 80 percent of our youth in the present educational

system will leave that system and enter the labor market without the "coveted" college degree; yet our present educational system is designed and geared toward college entry and completion.

More than a few of our youth have difficulty in appreciating the logic of an education that isn't consistent with their goals and objectives. Despite the propaganda about the importance of staying in school, they drift out of the system in droves. In the past, these students have simply disappeared from the educational system and have been assimilated into the work force. Those kinds of jobs that would hide today's educational failures are simply not available.

It is easy to become alarmed at what seems to be growing student militancy in many of our educational institutions today. What is particularly distressing is to see student unrest in our nation's high schools and junior high schools. However, today's junior and senior high school youngsters are not as uninformed and naive as we might suspect. It is not difficult to see the changing labor market which requires one to have certain kinds of educational skills before one can

hope to find meaningful employment. It is also easy to see the discontinuity between a realistic education for these kinds of goals and the oftentime sterile, uninteresting, and totally inappropriate curriculum which is available in school. It just may be that the militant reaction of students against a rigorously inappropriate educational system which provides many nonfunctional hurdles may contribute more to overcoming the inertia against educational change than anything else we might imagine.

The critical issue is one of modifying our present curriculum so that it will not only prepare one for the realistic demands of citizenship but also prepare one for the first rung of work on an occupational ladder no matter where one leaves the educational system. If you interpret this as an indictment against general education, you are right. If general education is defined as an education which is unrelated to the real world of occupational preparation, then I say that general education prepares one for general unemployment in today's new society.

It is not only possible but essential that our schools provide an "organic" type of curriculum that prepares the youngster for post high school training options and also does it in such a way that vocational

or occupational education is an integrated facet of the program. Such a program will enable any youngster who drops out of the system, at any point before college graduation, a fair opportunity to find and hold a meaningful job.

Such a system may sound idealistic and impossible. Let me assure you, it is idealistic but not impossible. Such programs are being designed today.

Need for Realistic Evaluation

For any systematic operation that is dependent upon public support to sustain itself for any extended period of time, that operation -- or the business, industry, government, or education -- must be sensitive to the desires and needs of the people or consumers who foot the bill. This sensitivity to change must be accomplished by some sort of a realistic and continuous evaluation. In this area of evaluation, our educational system falls woefully short.

In the past, most of our evaluation has been in terms of looking at the percentage of those who finish high school, or the number of merit scholarship winners in a high school. Seldom do we ever see any

data on such simple but important things as how many high school students say they are going to college while in high school and then how many of this group actually enter college and ultimately finish college. Resistance to more detailed evaluation of the educational system is generally based upon the premise that the real value of education cannot be assessed until years later, and that appropriate resources and methods generally aren't available for long range evaluation studies of this type.

While long range evaluation studies are important, short term-immediate-evaluation is equally important. If business or industry were to look only at whether the product or appliance that they manufacture is in use a generation from the time of sale, this interesting bit of knowledge would not help them in the design of a saleable product on today's market. What they need to know today is the present degree of sales volume, consumer acceptance, and cost-benefit ratios. We must have this kind of evaluation in education.

Let us look, for example, at what youngsters generally do in regard to school termination. They either 1) go into the labor market or 2) go on to some form of higher education. Then, on that basis, let us evaluate

the school (faculty, staff and administration), on the degree to which youngsters -- when they leave the school system, whether at formal graduation or before -- are able to get an appropriate job or be admitted to an appropriate college, university or post-secondary educational institution.

With regard to job placement from school, a recent national study shows that the most effective job placement agency for high school graduates is the school itself. This national study showed that the school proved to be a much more effective placement agency than referring students to employment security agencies, unions, local civic groups, or leaving the student to his or her own devices. I feel (as many others do) that job placement or college entrance must be the responsibility of the school. If we say we are preparing students for one of these two roles, then let's critically evaluate ourselves on this basis.

At the risk of sounding facetious and being considered a heretic, let me suggest a wild new approach for professional reimbursement based upon the degree to which a student's objectives are met. In this system,

we would first agree that the overwhelming majority of our high school graduates would either enter the labor market or go on to college or some form of post high school education. Therefore, the faculty, staff and administration of the school would be reimbursed depending upon the degree to which these objectives were met. This reimbursement might take this form:

1. All of the teachers in the high school would be paid some base salary which would be 50 percent of their total, possible annual salary.

For example, a teacher whose total possible salary might be $10,000 a year would be paid a $5,000 salary base. The teacher would then receive anywhere from 0 percent to 100 percent of the other $5,000 at the end of the year depending upon the percentage of the teacher's former students who graduated from high school divided by the total number of former students the teacher could have had in that graduating class if none had dropped out. This would give each teacher, regardless of what they taught, a very personal stake in the individual success of each student with whom they had contact.

2. All guidance counselors in this system would be paid on a piece rate system.

The guidance counselor would be responsible for the occupational guidance and counseling of each student but more importantly perhaps, the actual job placement or college admission of each student that was assigned to them. They would, therefore, be paid on a piece rate basis according to the number of students assigned to them who were actually employed upon graduation or entered college upon graduation. For example, if only 90 percent of the students who wanted a job or to go to college could be placed in either alternative spot, then the guidance counselor would be paid only 90 percent of a predetermined fixed maximum annual rate.

3. The administrative staff in this system would be paid a percentage of their annual salary no greater than the lowest percentage of salary received by either the teachers or counselors.

For example, if the minimum percentage of possible annual reimbursement for any faculty group was 85 percent for the year, then the administrative staff of that school would be paid no more than 85 percent of their maximum fixed annual rate.

A reinforced scheme such as this might motivate us to make our programs and curriculum objectives congruent with existing social needs.

Lack of Vocational-Technical Education in the Inner City and Urban Areas.

There is a critical need for more and much better vocational-education programs in our large urban areas -- particularly in the inner city areas. There isn't a major city in the north where the inner city dropout rate is less than 40 percent between grades 9 to 12. I am convinced that the availability of meaningful and relevant vocational and technical education program alternatives in these major cities would substantially reduce this rate.

It seems to be a paradox that the fewest number of vocational programs and enrollment opportunities are where they are needed most -- in the inner city. Yet if we look at the programs that are already there, we find that, many times, the classes are only half full.

A close examination of this paradoxical problem reveals the following general sub problems:

1. There are not nearly enough vocational and technical program offerings available in the inner city for the residents who want and need them.

2. The programs that are available are many times outdated and teaching is done with obsolete equipment.

3. Admission requirements are such that the programs reject many of the students who could benefit most by the programs; or, are designed so that if a student doesn't achieve at some pre-determined level of excellence, he is shifted back to an academic program for which the student has no interest and his "dropout" is virtually assured.

4. Guidance counselors are reluctant to counsel students into vocational programs feeling that such a program choice might close the door on a student's later decision to go to college (no matter how remote that possibility might be). However, let me say that with the present state of some of the existing inner city programs, guidance counselors cannot be blamed for this reluctance.

5. School administrators are reluctant to put money in new or better equipped vocational programs until enrollments increase (however, enrollments can't increase until a better variety and higher quality programs are available).

To break the cycle of vocational program suffocation, a positive commitment must be made by the faculty and administration alike. To break this cycle, in my judgment we must recognize the following:

1. It will cost about twice as much to provide a good vocational or technical education to a high school student compared with a college preparatory curriculum.

2. A small investment of tax dollars in meaningful and relevant educational programming today has much greater cost benefit than the multiplied tax dollars paid in unemployment compensation and welfare benefits later on.

While I have mentioned what, in my judgment, are some of the critical problem areas in education in general and vocational-technical education in particular, I do not mean to imply that the total educational system

with its many interfaces is in shambles. This is not the case. I believe that the American system of education is the best in the world. However, we must be sensitive to its shortcomings and strive to make the total system better.

Nowhere else in the world are so many demands made upon education as in the United States. In this country we expect our system of public education to:

1. Provide a broad general education.
2. Prepare for useful citizenship.
3. Prepare for gainful employment in some occupation.
4. Provide for continuing and adult education, and
5. Serve as an instrument for social and moral change.

This is a tall order, but it must be met; and, I'm confident that it will be done. However, if we within the present public education system cannot provide these five essential services, I am further confident that some more responsive agency or publicly supported mechanism will do the job for us.

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VT 008 470
Graf, Rolland W.
Student Utilization of Facilities Kenosha Technical Institute, First Semester, 1968-69.

Kenosha Technical Inst., Wis.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 8Jan69 10p.

*SPACE UTILIZATION; *TECHNICAL INSTITUTES; *EDUCATIONAL FACILITIES; *FACILITY UTILIZATION RESEARCH; FACILITY CASE STUDIES
*KENOSHA TECHNICAL INSTITUTE

The purpose of this study was to determine the student utilization of the total school facility, utilization by laboratories or classrooms, and utilization by building for Kenosha Technical Institute. Based on a 40-hour week, 48 percent of the periods and 34 percent of the student stations were utilized. These figures were up 6 and 7 percent respectively from the previous year. (EM)

VT 008 470

ED036657

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C.1

STUDENT UTILIZATION OF FACILITIES

KENOSHA TECHNICAL INSTITUTE

FIRST SEMESTER 1968-69

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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January 8, 1969

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VT008470

PURPOSE

The purpose of this study is to determine student utilization of rooms and student stations at Kenosha Technical Institute during the first semester 1968-69 school year. Knowledge of student utilization provides a vehicle for self study of present utilization and a means of predicting future facility needs. The student utilization study was conducted during an eight hour time period (8:00 a.m.-4:00 p.m.) for a period of one week, October 14-18.

For the purpose of this study, the facility complex was divided into three categories:

1. Utilization (room and student station) of the total facility.
2. Utilization according to laboratories and classrooms as separate facilities.
3. Utilization by building
   a. Academic - rooms numbered 100 and 200
   b. Science - rooms numbered 300
   c. Industrial - rooms numbered 400

Table I represents the total number of rooms utilized in the instructional process at Kenosha Technical Institute. Column 1 lists the rooms in numerical order according to laboratories, classrooms, and buildings.

The available student stations are listed in Column 2 by room and week. That is to say, the number of desks or stations available in each room multiplied by forty which is the number of hours encompassed by the study.

The student stations utilized each week (Column 3) when divided by the available stations (Column 2) produces the percentage of student stations utilization (Column 4). Example, room 105 has 1400 available stations divided into 579 utilized stations equal 42 percent student station utilization. The total number of periods room 105 is utilized each week is twenty-four (24) divided by forty (40) available hours equals 60 percent room utilization.

An utilization comparison is available when one considers that the minimum standards of utilization adopted by the Coordinating Committee for Higher Education are as follows:

Classrooms: 30 hours per week utilization during daylight periods at 67% capacity.

Teaching Laboratories: 24 hours per week at 80% of station capacity.

TABLE I

TOTAL FACILITY UTILIZATION

	Col. 1	Col. 2		Col. 3	Col. 4	Col. 5	Col. 6
	Room No. Classroom	No. of Available Student Stations per/rm	per/wk	Total No. of Student Stations used per week	% of Student Station Utilization	Total No. of Periods Room Used in a 40 hour week	% of Room (Period) Utilization
Academic Building	105	35	1400	579	42	24	60
	106	35	1400	394	28	14	35
	107	35	1400	257	18	9	23
	108	29	1160	274	24	19	48
	109	43	1720	342	20	16	40
	110	31	1240	190	15	11	28
	111	35	1400	814	58	27	68
	112	35	1400	487	37	19	48
	113	35	1400	339	24	23	58
	117	34	1360	910	67	35	88
	118	92	3680	575	16	18	45
	126	35	1400	558	40	24	60
	127	35	1400	591	42	26	65
	128	35	1400	489	35	31	78
	205	35	1400	423	30	15	38
	206	35	1400	285	20	12	30
	207	35	1400	486	35	18	45
	208	25	1000	354	35	26	65
	209	43	1720	797	46	26	65
	210	26	1040	665	64	27	68
	211	35	1400	579	41	22	55
	212	35	1400	345	25	15	38
	213	35	1400	422	30	20	50
	219	34	1360	412	30	20	50
	220	33	1320	350	27	15	38
	221	25	1000	479	48	21	53
	227	35	1400	474	34	17	43
	228	35	1400	496	35	20	50
	229	35	1400	264	19	12	30
	230	60	2400	808	34	25	63
	234	33	1320	1,143	87	24	60
	236	80	3200	862	27	19	48
	237	30	1200	385	32	17	43
	238	25	1000	693	69	21	53

TABLE I (Cont'd.)

	Col. 1	Col. 2		Col. 3	Col. 4	Col. 5	Col. 6
	Room No. Classroom	No. of Available Student Stations per/rm	per/wk	Total No. of Student Stations used per week	% of Student Station Utilization	Total No. of Periods Room Used in a 40 hour week	% of Room (Period) Utilization
	LABORATORY						
Academic Building	150	18	720	194	27	14	35
	151	12	480	168	35	14	35
	217	12	480	84	18	7	18
	218	44	1760	195	14	10	25
	235	19	760	279	36	13	33
	239	30	1200	194	16	12	30
	240	10	400	480	120	12	30
	242A	35	1200	523	44	18	45
	245	46	1840	575	51	30	75
	248	31	1240	370	30	20	50
	249	24	960	295	31	20	50
	LABORATORY						
Science Building	314	24	960	537	56	25	63
	315	24	960	362	38	19	48
	318	32	1280	207	16	9	23
	321	21	840	235	28	17	43
	322	21	840	170	20	14	35
	327	48	1920	384	20	20	50
	328	20	800	124	16	8	20
	329	19	760	182	24	16	40
	331	24	960	114	12	12	30
	333	16	640	36	6	3	8
	334	16	640	148	23	12	30
	336	12	480	45	9	3	8
	337	12	480	36	8	3	8

TABLE I (Cont'd.)

Col. 1	Col. 2		Col. 3	Col. 4	Col. 5	Col. 6
Room No. Classroom	No. of Available Student Stations per/rm	per/wk	Total No. of Student Stations used per week	% of Student Station Utilization	Total No. of Periods Room Used in a 40 hour week	% of Room (Period) Utilization
CLASSROOM						
420	26	1040	356	45	28	70
432	26	1040	637	61	34	85
LABORATORY						
407	16	640	365	57	30	75
413	20	800	650	81	35	88
414	16	640	540	61	34	85
416	16	640	350	55	23	58
417	16	640	276	43	16	40
419	10	400	164	18	24	60
422	20	800	362	45	22	55
423	10	400	132	33	10	25
433	24	960	383	40	31	78
608	16	640	286	45	23	58

Industrial Building

The data pertaining to facility utilization in total is given in Table II. Labs and classrooms are utilized 48 percent of the available time with 34 percent of the student stations capacity during the 40 hour time period.

TABLE II

STUDENT UTILIZATION OF TOTAL FACILITY

Total Available Periods Per Week	2,800
Total Period Utilized Per Week	1,331
= 48% Period Utilization	
Total Student Stations Avaialble Per Week	82,160
Total Student Stations Utilized Per Week	27,959
= 34% Student Stations Utilization	

The total facility is divided into laboratories and classrooms in Table III. The laboratories are utilized 43 percent of the 40 period week at 33 percent capacity. The average number of periods each laboratory is used per week is 17.03. The classrooms are utilized 52 percent of the 40 period week with a 35 percent student capacity. The average number of periods utilized each week per classroom is 20.83.

TABLE III

LABORATORY, CLASSROOM UTILIZATION

Laboratory	
Available Periods Per Week	1,360
Period Utilization Per Week	579
= 43% Laboratory Utilization	
Student Stations Available Per Week	29,160
Student Stations Utilized Per Week	9,445
= 33% Student Stations Utilization	
Classrooms	
Available Rooms (Periods) Per Week	1,440
Period Utilizations Per Week	750
= 52% (Period) Utilization	
Student Stations Available Per Week	53,000
Student Stations Utilized Per Week	18,514
= 35% Student Station Utilization	

The K.T.I. campus consists of four buildings. It may be of interest to determine student utilization of each separate building. The information pertaining to three of the buildings (academic, science, and industrial) is given in Table IV. The fourth building is not listed because of its specific utilization by the horticulture program.

TABLE IV

BUILDING UTILIZATION

Academic Building

Available Periods Per Week	1,800
Room Utilization Per Week	858
= 48% Room Utilization	
Student Stations Available Per Week	61,960
Student Stations Utilized Per Week	20,878
= 34% Student Station Utilization	

Science Building

Available Rooms (Period), Per Week	520
Room Utilization Per Week	161
= 31% Room Utilization	
Student Stations Available Per Week	11,560
Student Stations Utilized Per Week	2,580
= 22% Student Station Utilization	

Industrial Building

Rooms Available Per Week	440
Rooms Utilized Per Week	287
= 65% Room Utilization Per Week	
Student Stations Available Per Week	8,000
Student Stations Utilized Per Week	4,214
= 53% Student Station Utilization	

CONCLUSIONS

According to this study, there is 48 percent room utilization with 34 percent student station capacity at Kenosha Technical Institute for the first semester of the 1968-69 school year. This compares with 42 percent room utilization with 27 percent student station capacity for the first semester, 1967-68--an increase of 6 percent room utilization and 7 percent student station utilization.

Again, as in the preceding school year (1967-68), the industrial building had the highest student utilization and the science building had the lowest utilization.

Along with the increased enrollments, implementation of innovative scheduling and teaching methods have led to the increased facility utilization.

The average number of class periods utilized each 40 hour week per classroom is 20.83; per laboratory is 17.03. This is a utilization increase of three and one-half periods per classroom and one period per laboratory each week when compared with the 1967-68 data.

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Graf, Rolland W.
A Study of the Functions and Job Entry Skills of the 1968 Dental Assistant Graduates at Kenosha Technical Institute.

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MF AVAILABLE IN VT-ERIC SET.
Pub Date - 8Aug68 13p.

*HEALTH OCCUPATIONS EDUCATION; *DENTAL ASSISTANTS; *VOCATIONAL FOLLOWUP; DENTAL TECHNICIANS; CURRICULUM DEVELOPMENT; INSTRUCTIONAL IMPROVEMENT; *VOCATIONAL ADJUSTMENT; *EMPLOYER ATTITUDES; EMPLOYMENT EXPERIENCE; GRADUATE SURVEYS; QUESTIONNAIRES; ENTRY WORKERS
*KENOSHA TECHNICAL INSTITUTE

The 1-year dental assistant program is intended to prepare graduates to function as a dental assistant, laboratory technician, or secretary. Questionnaires were sent to each of 11 graduates of the first program after an employment period of approximately 6 months to determine: (1) in what capacities graduates were employed, (2) how employers rated the performance of the graduates, (3) where employers felt more or less emphasis should be placed in the curriculum, and (4) what skills and knowledge the employers thought should be added. One graduate had chosen not to work. Two others chose to work in other areas where they were able to obtain higher salaries--one in a newspaper office and one as a nurse aide in a state institution. Employers of seven of the eight other graduates returned the questionnaire. Two were employed as dental assistants, one in a combined capacity as a dental assistant and secretary, and four in combined capacities as dental assistants, secretaries, and laboratory technicians. A majority of the ratings indicated a high degree of satisfaction with the overall performance of the graduates. Replies relating to the preparation of individual trays and casting of inlay patterns suggested re-evaluation of the teaching of these techniques. The most frequent area suggested for increased curriculum emphasis was that of mixing rubber base and porcelain materials. (JK)

VT 008 471

C.1.

ED036657

A1,81

A STUDY OF THE FUNCTIONS AND JOB ENTRY SKILLS OF THE 1968 DENTAL ASSISTANT GRADUATES AT KENOSHA TECHNICAL INSTITUTE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT008471

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CHAPTER I

INTRODUCTION

In January, 1967 a one year educational program for dental assistants was initiated at the Kenosha Technical Institute, Kenosha, Wisconsin, in an attempt to provide the dental profession with trained paradental personnel. The graduates of the program could serve as dental assistants in clinics and dentists' offices, as laboratory technicians, and/or as secretaries who were trained in office skills and were familiar with dental terminology. The students were to be given a general training so that they could function in any one of the above mentioned areas or any combination thereof.

The training consisted of classroom work, recitation, and campus laboratory experience, after which students were placed in cooperating dentist's offices in the Kenosha area for a three week practicum period to gain on-the-job experience. The students were under the immediate supervision of the cooperating dentists and/or their assistants. The class instructor provided educational guidance and tutelage during her visits to the various offices. The first class graduated in January, 1968 and had been employed for approximately six months at the time of this study.

Statement of the problem

The purpose of this study was to determine (1) in what capacity each graduate was employed: dental assistant, laboratory technician, or secretary, or any combination of these positions, (2) how well the employers felt graduates performed upon entering the job, (3) where in the curriculum the employers felt more or less emphasis should be placed, and (4) what skills and knowledge the employers thought shoud be added in future curriculum changes.

Importance of the study

The Kenosha Technical Institute is concerned with improving and updating curriculum to better prepare students with job entry skills. Being a new offering, the dental assistants' program was recognized as one in which course content may need certain adjustments, additions, and deletions to better serve the needs of the students and dental community.

This study was based on information from employers who hired graduates of the dental assistant program to determine the competencies demonstrated by the graduates. By determining the needs of the employers and then providing them with competent employees, this new program would satisfy the needs of the employers, employees, and ultimately, the community.

Technique

The survey technique was employed to gather data from the employers to determine how they thought the new graduates had performed upon job entry. A questionnaire (Appendix A) was designed utilizing the dental assistants' curriculum guide and the cooperation of Miss Leslie Thelen, program chairman. Selected items from the guide were written and the respondents asked to check one of four classifications: highly satisfactory, satisfactory, unsatisfactory, or does not apply. The respondents were also provided the opportunity to answer questions about where more or less emphasis should be placed in the curriculum, what additional units should be added, and space was provided for additional comments.

CHAPTER II

THE SURVEY

A questionnaire was sent to eight employers who had provided job entry employment to the graduates of the medical assistants' program. Of the eleven graduates, one had chosen not to work, one is employed in a newspaper office, and one is a nurses' aide at a state institution. The latter two graduates are working in areas other than dental assisting because of financial reasons: they were able to obtain a higher salary. Seven of the eight employers returned the questionnaire for a 87% response.

The functions of the dental assistants were divided into three classifications: dental assisting, laboratory, and secretary. Table I represents the areas of responsiblilities reported for the seven graduates. Four performed in all three functions, two as dental assistants only, and one as dental assistant and secretary.

TABLE I

NUMBER OF GRADUATES EMPLOYED IN VARIOUS FUNCTIONS

FUNCTION	NUMBER
Dental Assisting	2
Dental Assisting and Secretary	1
Dental Assisting, Secretary, and Laboratory	4
Total	7

To the question of dental assistants confidence in assuming responsibility, four employers indicated highly satisfactory; two indicated satisfactory; and only one indicated unsatisfactory.

Table II indicates the responses concerning the knowledge of various laboratory techniqes.

TABLE II

NUMBER OF DENTAL ASSISTANTS DISPLAYING KNOWLEDGE OF VARIOUS LABORATORY TECHNIQUES

TECHNIQUE	HIGHLY SATISFACTORY	SATISFACTORY	UNSATISFACTORY	DOES NOT APPLY
Model pouring and trimming	3		1	3
Preparation of base plates and wax-bite rims	1	1	1	4
Equipment maintenance	2	3		2
X-Ray development and mounting	4	3		
Preparation of individual trays		2		5
Preparation and casting of inlay patterns				7

The majority of the dentists indicated little needed application in the last two areas. This may suggest that dental assistants are not expected to prepare individual trays and cast inlay patterns. The responses also indicated a high degree of satisfaction with the "x-ray development and mounting" techniques demonstrated by the graduates. It appears that this laboratory technique was required by all of the employers.

According to the responses, the graduates had an adequate preparation in the described functions listed in Table III. The majority of the dentists (86%) were either highly satisfied or satisfied with the performance of the graduates. The responses to item four on the questionnaire all indicated the need of proficiency in the described functions since none of the dentists responded in the "does not apply" column.

TABLE III

NUMBER OF GRADUATES HAVING PREPARATION FOR DENTAL ASSISTING FUNCTIONS

FUNCTION	HIGHLY SATISFACTORY	SATISFACTORY	UNSATISFACTORY	DOES NOT APPLY
Proper use of impression materials	3	3	1	
Proper seating & positioning of patients	4	2	1	
Sterilization & care of instruments	4	2	1	
Use of instruments and basic set-ups	3	3	1	
Preparation of amalgam, silicates & cements	3	3	1	
Use of an oral evacuating system	4	2	1	

All of the respondents indicated that the new dental assistants had an understanding of their relationship and responsibility to the employer; only one graduate was rated unsatisfactory in establishing good rapport with patients. In this particular case, the dentist commented that the girl is of a nature and temperament wholly unsuitable for this type of work.

Two of the graduates were rated unsatisfactory in "adequate knowledge of dental terminology" and "an understanding of billing and banking procedures". Of the many skills rated on the survey the above mentioned were the only ones rated unsatisfactory by more than one dentist. The unsatisfactory ratings suggest the need of placing additional emphasis on the two mentioned skills in future dental assisting classes.

The majority of the graduates were rated as having a good understanding of proper telephone technique, filing procedures, adequate typing skills, skill in oral and written communications, adequate knowledge of appointment control, and knowledge of specialities in dentistry.

All of the dental assisting functions and skills described in the survey (with the exception of the techniques listed in Table II) were rated as being needed in a dental practice by a majority of the surveyed dentists. Consequently, the portion of the curriculum (defined by most of the survey items) appears to be adequate for the preparation of dental assistants and will require little or no change.

In response to the questions about which areas of the curriculum should receive less emphasis, two dentists cited casting and anatomy as two areas requiring less emphasis. One dentist felt most lab work is not performed in dental offices, therefore, little emphasis should be placed on waxing and casting patterns.

Another question asked where more emphasis should be placed in the curriculum. Three dentists suggested more knowledge of mixing materials such as rubber base, porcelain, and silicon. Two dentists indicated the need for more emphasis on proper technique of x-ray taking and mounting. Another suggested more emphasis on collection procedures and some bookkeeping systems.

The most prominent response to the question -- What functions should be added to the program to better prepare the dental assistants? -- was a suggestion for more active work in a dentist office prior to graduation.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS:

The number of subjects in this study was limited to the eleven January, 1968 graduates of the dental assistant program. Because of this, the conclusions and recommendations are derived from and pertain only to the first graduating class.

The high frequency of "does not apply" ratings pertaining to knowledge of various laboratory technique suggest a reevaluation of the value of some of these techniques in the dental assistant curruiculum. Two techniques, in particular, should be given special attention -- preparation of individual trays and casting of an inlay pattern.

The most frequent suggested area of increased curriculum emphasis was the knowledge of mixing rubber base and poreclain materials.

A majority of the ratings indicated a high degree of satisfaction with the over all performance of the graduates. Four of the seven respondents expressed a specific satisfaction with the employed dental assistant.

RECOMMENDATIONS:

To assist students in program selection leading to an occupational choice and to possibly eliminate graduates from selecting other areas of employment because of higher finanical rewards, prospective dental assistant students should be alerted to the beginning salary range of employed dental assistants.

Reevaluation of the curriculum in the following areas should be considered by the dental assistant faculty and advisory committee:

1. preparation of indiviaual trays
2. preparation and casting of an inlay pattern
3. clincial office practice
4. x-ray taking and mounting
5. mixing of rubber base, porcelain and silicon materials

Future studies of dental assistant graduates are recommended to determine the proficiency of job entry skills, the initial salary range of employed dental assistants, and the skills utilized on the job.

APPENDIX

APPENDIX A

DENTAL ASSISTANTS SURVEY

In your office the Dental Assistants perform the following function(s):

Dental Assisting_____ Laboratory_____ Secretarial_____

Please check the following items according to how well you feel the Dental Assistant was prepared to perform the various functions upon entering your employ. A check in the last column, "DOES NOT APPLY", will indicate that the Dental Assistant need not perform the function in your practice.

	HIGHLY SATIS.	SATIS.	UNSATIS.	DOES NOT APPLY
1. The Dental Assistant displayed confidence in assuming responsibility.	_____	_____	_____	_____
2. The Dental Assistant had adequate knowledge of aseptic technique.	_____	_____	_____	_____
3. The Dental Assistant had knowledge of the following laboratory techniques:				
a. Model pouring & trimming	_____	_____	_____	_____
b. Preparation of base plates and wax-bite rims	_____	_____	_____	_____
c. Equipment maintenance	_____	_____	_____	_____
d. X-ray development & mounting	_____	_____	_____	_____
e. Preparation of individual trays	_____	_____	_____	_____
f. Preparation and casting of an inlay pattern	_____	_____	_____	_____
4. The Dental Assistant had preparation for the following functions:				
a. Proper use of impression materials	_____	_____	_____	_____
b. Proper seating & positioning of patients	_____	_____	_____	_____
c. Sterilization & care of instruments	_____	_____	_____	_____
d. Use of instruments and basic set-ups	_____	_____	_____	_____
e. Preparation of amalgam, silicates & cements	_____	_____	_____	_____
f. Use of an oral evacuating system	_____	_____	_____	_____
5. The Dental Assistant was able to establish good rapport with patients.	_____	_____	_____	_____
6. The Dental Assistant had adequate knowledge of dental terminology.	_____	_____	_____	_____
7. The Dental Assistant had a good understanding of proper telephone technique.	_____	_____	_____	_____
8. The Dental Assistant had an understanding of billing and banking procedures.	_____	_____	_____	_____

Dental Assistants Survey (Continued)

	HIGHLY SATIS.	SATIS.	UNSAT.	DOES NOT APPLY
9. The Dental Assistant had an understanding of filing procedures.	_____	_____	_____	_____
10. The Dental Assistant had adequate typing skills (letters, forms, etc.).	_____	_____	_____	_____
11. The Dental Assistant had an understanding of her relationship and responsibility to her employer.	_____	_____	_____	_____
12. The Dental Assistant was skilled in oral and written communications.	_____	_____	_____	_____
13. The Dental Assistant had adequate knowledge of appointment control.	_____	_____	_____	_____
14. The Dental Assistant had knowledge of the specialties in dentistry and her role within these.	_____	_____	_____	_____

15. In which areas of the above should the school place <u>less</u> emphasis?

16. In which areas of the above should the school place <u>more</u> emphasis?

17. What functions should be <u>added</u> to the program to better prepare the Dental Assistant?

18. Other comments please.

VT 008 472
Graf, Rolland W.
Teacher Service Schedules Second Semester, 1968-69.

Kenosha Technical Inst., Wis.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 10Mar69 11p.

*TEACHING LOAD; *STUDENT TEACHER RATIO; *VOCATIONAL EDUCATION TEACHERS; *TECHNICAL INSTITUTES; TEACHING ASSIGNMENT; WORKING HOURS; TEACHER DISTRIBUTION
*KENOSHA TECHNICAL INSTITUTE

Information relating to the work load of 50 full time instructional staff members at Kenosha Technical Institute was compiled. Four categories of data were collected: number of clock hours in the classroom per week, total enrollment in classes taught per week, student contact hours, and number of different subjects taught. The means for the four data categories were 16 clock hours, 88 students, 311 contact hours, and three preparations respectively. The pupil-teacher ratio per class was 19.44 to one. All of the means were below those of the previous year. Raw data are included. (EM)

VT 008 472

ED036657

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TEACHER SERVICE SCHEDULES

SECOND SEMESTER 1968-69

KENOSHA TECHNICAL INSTITUTE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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March 10, 1969

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VT008472

PURPOSE

The purpose of this study is to compile and examine the teacher service schedules at Kenosha Technical Institute (second semester of the 1968-69 school year). A teacher service schedule includes the time and energy a teacher must expend in fulfilling duties and responsibilities relating directly to the task of teaching.

For the purpose of this study, service schedule is measured in terms of:

a. Number of clock hours in the classroom per week.

b. Total enrollment in classes taught per week.

c. Student contact hours.

d. Number of different subjects taught.

SAMPLE GROUP

For the purpose of this report, the K.T.I. faculty was divided into two groups:

Instructors considered in the study includes (N=50): all faculty members (full-time contract) whose primary function is classroom instruction at K.T.I. In this study, this group will be referred to as faculty, or contract instructors. This group is identical to the faculty studied during the first semester, 1968-69. Although additional faculty have been employed, only the original fifty were examined to insure a true comparison.

Instructors not considered in the study includes: teacher assistants, interns, coordinators, and other faculty members whose service schedule varies to the extent that a ratio factor or additional consideration would be needed to allow for comparison. Teachers assuming duties during the second semester were also not considered.

INSTRUCTORS

The information pertaining to the contract teachers (N=50), second semester 1968-69, is listed in Table I. The mean clock hours per week is 16.00 with a standard deviation of 3.11. This indicates that sixty-eight percent of the faculty's number of clock hours per week falls in the range of 12.89 to 19.11. Rounding off, a range of 13-19 clock hours is indicated for the majority of the instructors.

The average* number of students contacted during a week is 88.04 (col. 2). The average student contact hours per week is 310.98 (col. 3). The average number of preparations is 3.06.

The means are listed in Table I for each of the four aspects of the service load. The standard deviation is also listed. A range represting sixty-eight percent of the faculty can be calculated by adding and subtracting one standard deviation from the mean.

Range Representing 68% of Service Schedules

Number of Preparations:	2 - 4
Clock hours per week:	13 - 19
Students contacted per week:	46 - 130
Student contact hours per week:	205 - 416

* The mean is used to indicate the average.

Faculty service schedules in entirety are an important consideration but a breakdown by major areas would allow further comparisons of service schedules. For this reason, the data in Table I was divided into four major areas according to program and teaching responsibility.

General Education (G): instructors in the Law Enforcement program and those not directly responsible for a specific program.

Business Education (B): instructors in the following programs: Marketing, Accounting, Court and Conference Reporting, Data Processing, Horticulture, and Secretarial Science.

Trade and Industry (T): instructors in Fluid Power, Industrial Production, Mechanical Design, Machine Tool Operations, Welding, and automotive programs.

Home Economics and Health Occupations (H): instructors in Interior Decoration, Dental and Medical Assistants programs.

TABLE I

Contract Instructors

Teacher	Col. 1 Clock hrs./wk.	Col. 2 Total enrollment in classes taught/week	Col. 3 Student contact hrs./wk.	Col. 4 Number of preparations
		GENERAL EDUCATION		
G-1	17	68	294	3
G-2	17	154	462	3
G-3	19	136	376	4
G-4	18	141	390	2
G-5	15	160	480	1
G-6	17	78	347	2
G-7	13	68	214	4
G-8	17	120	324	2
G-9	15	138	394	1
G-10	15	175	525	2
G-11	14	56	199	3
G-12	15	162	486	3
G-13	16	165	465	4
G-14	16	81	265	4
	$\bar{x}$ = 16.0	$\bar{x}$ = 121.57	$\bar{x}$ = 372.93	$\bar{x}$ = 2.71
		HOME ECONOMICS AND HEALTH OCCUPATIONS		
H-1	17	136	357	3
H-2	14	53	141	3
H-3	13	53	209	2
H-4	8	44	132	2
H-5	13	65	197	3
	$\bar{x}$ = 13.0	$\bar{x}$ = 70.2	$\bar{x}$ = 207.2	$\bar{x}$ = 2.60

TABLE I (Continued)

Teacher	Col. 1 Clock hrs./wk.	Col. 2 Total enrollment in classes taught/week	Col. 3 Student contact hrs./wk.	Col. 4 No. of preparations
		BUSINESS EDUCATION		
B-1	13	159	472	4
B-2	14	81	252	3
B-3	15	29	130	3
B-4	13	62	290	2
B-5	15	77	330	4
B-6	12	113	333	4
B-7	16	124	349	4
B-8	17	98	438	2
B-9	17	52	380	2
B-10	15	75	351	3
B-11	17	156	522	3
B-12	6	61	183	2
B-13	18	137	411	3
B-14	18	55	175	4
B-15	15	43	160	4
B-16	19	56	258	3
B-17	16	44	222	2
B-18	19	96	372	4
B-19	19	88	364	5
	$\bar{x}$ = 15.47	$\bar{x}$ = 84.53	$\bar{x}$ = 315.37	$\bar{x}$ = 3.21

TABLE I (Continued)

Teacher	Col. 1 Clock hrs./wk.	Col. 2 Total enrollment in classes taught/week	Col. 3 Student contact hrs./wk.	Col. 4 No. of preparations
		TRADE AND INDUSTRY		
T-1	19	88	345	2
T-2	17	87	366	3
T-3	14	81	302	2
T-4	19	45	257	4
T-5	15	68	249	4
T-6	16	32	194	3
T-7	23	34	195	4
T-8	26	47	292	4
T-9	16	76	262	4
T-10	18	82	289	4
T-11	18	81	318	4
T-12	16	22	231	3
	$\bar{x}$ = 18.08	$\bar{x}$ = 61.92	$\bar{x}$ = 275.0	$\bar{x}$ = 3.42
TOTAL	$\bar{x}$ = 16.00	$\bar{x}$ = 88.04	$\bar{x}$ = 310.98	$\bar{x}$ = 3.06
	σ = 3.11	σ = 42.3	σ = 105.5	σ = .94

Teacher-pupil ratio/class = 19.44

Total contract teachers (N=50)

Average Service Schedules

General Education

Clock hours per week	16.0
Students contacted per week	121.57
Student contact hours per week	372.93
Preparations	2.71

Home Economics and Health Occupations

Clock hours per week	13.0
Students contracted per week	70.2
Student contact hours per week	207.2
Preparations	2.6

Business Education

Clock hours per week	15.47
Students contacted per week	84.53
Student contact hours per week	315.37
Preparations	3.21

Trade and Industry

Clock hours per week	18.08
Students contacted per week	61.92
Student Contact hours per week	275.0
Preparations	3.42

CONCLUSIONS

According to this study, the average (mean) teaching service schedule (second semester, 1968-69) for contract teachers is:

1. Number of teaching hrs./wk. = 16.00
2. Number of students contacted/wk. = 88.04
3. Number of student contact hrs./wk. = 310.98
4. Number of different subject preparations = 3.06
5. Teacher-pupil ratio/class = 19.44

This method of measuring faculty work load considers only the assigned classroom functions. Although essential to classroom instruction, measures of such activities as student supervision, research, public and professional services, out of class preparations, and student counseling have not been considered in this study.

A comparison of the 1967-68 and 1968-69 service schedules indicate a decreasing trend in the average teacher service schedule.

Average Teacher Service Schedule

	1967-68		1968-69	
	1st Sem. N = 36	2nd Sem. N = 38	1st Sem. N = 50	2nd Sem. N = 50
Clock hrs./wk.	18.13	18.0	17.12	16.0
Students contacted/wk.	107.77	94.0	102.76	88.04
Student contact hrs.	379.52	348.0	375.66	310.98
No. of preparations	3.16	4.0	2.94	3.06

The average number of clock hours has decreased from 18.13 to 16.0. The average number of students contacted each week has decreased from 107.77 to 88.04. The average number of student contact hours has decreased from 379.52 to 310.98.

The average number of preparations is similar for the four semesters.

An inspection of the four teaching areas indicates that the average Trade and Industry service schedule is more demanding than the other three. The average Trade and Industry service schedule has more clock hours in the classroom or lab each week and a higher number of class preparations. The later is indicative of a high number of different subjects taught by each teacher.

The 1968-69 results again indicate a trend of similar schedules for both semesters. A teacher having a schedule below or above the average schedules during the first semester will have a similar schedule in the second semester. Consequently, the disparity of service schedules increase when both semesters are considered.

The nature of the demands made upon each instructor are different, making it extremely difficult to analyze which of the four factors (service schedule) should be given more significance; or which should be given less significance. Although some consideration is suggested for different methods of instructional presentation, little evidence is available to suggest the importance of one factor over another. An effort should be made to develop equitable service schedules for all of the faculty.

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This workshop was to help vocational rehabilitation personnel, juvenile court judges, and probation officers become more knowledgeable of the characteristics, the rehabilitation needs, and current program development for those youthful offenders handicapped by physical or mental disability. Position papers, which are included in this report, were presented by legal, educational, sociological, and psychological authorities in the field of delinquency to facilitate an understanding of the implications which these disciplines have for vocational rehabilitation. A related document is VT 008 532 in this issue. (CH)

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Edited by

Reuben J. Margolin

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CHAPTER I - INTRODUCTION

Why A Workshop on the Juvenile Court and Vocational Rehabilitation?

In many respects the workshop on the Juvenile Court and Vocational Rehabilitation was a pioneering venture. For one thing, it signalized in no uncertain terms that the Vocational Rehabilitation Administration was ready to take on the challenge that was confronting America with mounting delinquency manifestations. It was also a significant first step in bringing together key professional people from rehabilitation and the juvenile court to examine the problems of delinquency and to make recommendations for the rehabilitation of delinquent youth.

Two vital factors were responsible for the emergence and the success of this workship. One was the persistent willingness of the Vocational Rehabilitation Administration to chart new Programs to meet new needs. Certainly through the medium of P.L. 565 of 1965, the Vocational Rehabilitation Administration had a tool possessed by no other health and welfare agency— a tool which provides the security and anchorage in life (which makes it so necessary in converting) youth from pathologic delinquency to socially and economically useful citizens), Through the Federal-State program of Vocational Rehabilitation a variety of measures such as testing, couseling, physical restoration and psychiatric services, training, education, and job placement were also available to help make the rehabilitation plan a reality.

The other vital factor was the increasing sense of social responsibility reflected in the duties carried out by the juvenile court judges and likewise by the probation officers. It seems natural to perceive the juvenile court judge as someone with a tremendous amount of power, who sits in judgment of some

unfortunate youth caught in a tangled web of circumstances. To some extent, this is true, but it is more appropriate to regard the judge's role as one in which all the pertinent data regarding the youth's behavior and background is carefully weighed and evaluated in order to determine what is best for the youngster's healthy growth and development. As one juvenile court judge with penetrating insight remarked when discussing one of the cases under his charge, he did not wish to sentence an exceptionally bright boy to industrial school for fear that it would commit him to a life of crime. Another judge describing the case of a mentally retarded youth who came before him repeatedly for minor thefts sagely commented that punitive measures were unworkable for this boy because he did not realize what he was doing, nor did he intend harm to anyone. Such a youngster he felt would be better off in a rehabilitation program with sheltered work offerings. With such forward-looking thinking the climate was ripe for a workshop of this type based upon a foundation of cooperative effort.

Northeastern University was very pleased to have the opportunity for co-sponsoring this workshop with the Vocational Rehabilitation Administration. Previous co-sponsored institutes and workshops led to many fruitful relationships in diverse facets of rehabilitation. The purpose of this workshop was for vocational rehabilitation personnel, juvenile court judges, and probation officers to become more knowledgeable of the characteristics, the rehabilitation needs and current program development of those youthful offenders handicapped by a physical or mental disability. It was intended that this workshop would provide for an exchange of information between judges, probation officers, and vocational rehabilitation persons and would be the impetus for cooperative relationships

between the division of vocational rehabilitation and the juvenile courts.

Attendance to the institute was by invitation. The Planning Committee blocked out the key geographical areas in New England to which the invitations should be issued. It was also decided that from any one location a team of three should receive an invitation - namely a juvenile court judge, a probation officer, and a rehabilitation counselor. Research documents the idea that the team approach has a greater impact in the back home situation. Seven such teams accepted our invitation, and a total of thirty people attended the institute. The remaining nine participants were composed of school adjustment counselors, child welfare workers, and members of our planning committee.

In planning the program, the committee felt very strongly that there should be both a conceptual and a pragmatic tinge. Bridging the gap between theory and practice was considered essential for successful vocational rehabilitation. Thus, the format for the program included both position papers and reports of successful programs in rehabilitating delinquents. Resource persons embraced specialists in both delinquency and rehabilitation.

In regards to the position papers, the planning committee expressed the sentiment that legal, educational, sociological, and psychological authorities in the field of delinquency could provide us with a broad understanding of the dynamics of delinquency, thus enabling us to determine how these disciplines may have implications for Vocational Rehabilitation. There was little concern that these experts were relatively unfamiliar with the process of vocational rehabilitation. Their participation in the institute was considered important for three reasons. 1) It would provide a firm conceptual foundation for

vocational rehabilitation programs in delinquency. 2) It would highlight the need for an interdisciplinary approach to solving problems of delinquency. 3) It would orient the presenting experts from these other disciplines to the field of vocational rehabilitation and its potential for rehabilitating delinquents.

Thus the position papers, though excellent treatises, reflect, with one exception, minimal understanding of the complexities and the broad scope of the vocational rehabilitation programs. The introductory commentaries preceding each position paper are an attempt to link the broad general conceptual formulations to the specifics of vocational rehabilitation.

The presentation of successful approaches to the rehabilitation of the delinquent greatly stimulated the participants and served to charge them with optimism for the future. Although the literature is scarce on successful programs in working with delinquents, these presentations underscored the success potential when vocational rehabilitation became a member of the team. Three different approaches were graphically and comprehensively depicted: a) a half-way house program under the sponsorship of the juvenile court in Denver, Colorado, b) a cooperative relationship between a state vocational rehabilitation agency and a family court in Rhode Island, c) a community program by Goodwill Industries in Springfield, Massachusetts. Unfortunately, the papers cannot possibly authentically reproduce vivid enthusiasm of the panel members in their intimate discussion of their programs.

Finally, a statement by a representative from the Vocational Rehabilitation Administration on the far-reaching possibilities of the 1965 Vocational Rehabilitation amendments put the objectives of the institute in perspective.

It became quite clear that the kinds of programs and cooperative relationships that can be developed are limited only by the ingenuity of those developing them. This latter point is crucial. The judges, most of them hearing about the amendments for the the first time, displayed virginal enthusiasm over the implications of the amendments for their work with delinquents. Some rehabilitation counselors, however, nearly destroyed this emerging ebullience by asserting that the ideas expressed by the juvenile court people were unworkable within the limits of the law. Mark Twain once said that pessimism is only the name that men of weak nerves give to wisdom. Speaking in this light, an official from the Vocational Rehabilitation Administration cautioned these reluctant counselors that they seemed to be more inflexible than the law intended them to be.

It is unfortunate that not all that goes on in a conference can be captured and put into print. The discussions following each of the presentations were priceless. A serious omission of this publication is the healthy exchange that occurred in these discussions and the vital issues that were raised. Informal "bull sessions" also had their value. Undoubtedly no one will ever forget the outstanding spontaneous expressions of opinion on "glue sniffing" that predominated the convivial session in the local night club after the formal sessions were concluded for the day.

Whether this workshop has had any real or enduring impact it is difficult to determine at this time. Following the workshop at least two judges have made some exploratory efforts to get together with their state rehabilitation agency. We suspect also that judges and probation officers will make greater use of their state rehabilitation agencies as a resource. At any rate we hope that readers of this publication will find the materials within it valuable sources for in-service training and class-

room teaching. Cooperative relationships between the juvenile court and the state vocational rehabilitation agencies are only in their incipient phases. Perhaps the constructive use of these curriculum materials will contribute an optimistic note to a future of much needed extended developments between these two agencies.

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Chapter II

Educational Aspects of Delinquency:

Its Implications for Vocational Rehabilitation

by William C. Kvaraceus

Commentary

In this paper Dr. Kvaraceus points out the significance of the school as a central resource in dealing with problems of delinquency. He cautions, however, against the delusion that school programs can be a panacea. Three basic factors are underlined in school programs which can help it become an effective agent of delinquency prevention:

1. Striving towards being a better school. In this way the school can provide a therapeutic climate for the growth and development of healthy personalities.

2. Spotting and helping potential delinquents.

3. Aiding in the rehabilitation of those youngsters already delinquent by working closely with the police, probation, court, and clinic.

The paper calls our attention to the danger that strong school and community pressures for pupil excellence may lead to a neglect of the deviant or the poor learner in order to preserve the academic reputation of the school. Kvaraceus stresses the significance of what he calls the vocational rehabilitation program in providing the therapeutic climate necessary for those pupils needing special help. He tends to equate vocational education with vocational rehabilitation but actually they represent two distinct programs. Vocational education is an integral aspect of the school's curriculum. Vocational rehabilitation, on the other hand, is the responsibility of a

State rehabilitation agency with emphasis on encouraging the individual to become a socially and economically useful citizen commensurate with his abilities and disabilities. However, the point that he makes is equally applicable to both programs: namely, that the school must be concerned with all pupils, even norm violators. This means that the objectives of character development, worthy use of leisure, vocational training, worthy family membership, civic and social competency must be for all pupils.

Herein lies the basic challenge of the schools which have direct implications for Vocational Rehabilitation.

Finally, Kvaraceus stresses the idea that the school must procure and maintain certain special and essential services for those youngsters manifesting learning difficulties or emotional disturbances which may be a prelude to delinquency. He states that the school must not hesitate to call for assistance upon the school nurse, school doctor, guidance counselor, psychologist and case worker. He even sees the need for a new kind of professional, a social analyst, someone who would help us understand the social and cultural currents in the community. Unfortunately, there is no mention of the need for a rehabilitation counselor in this process. Such a person is ideally equipped to work with the school, especially in those situations where delinquency has been identified as maladjusted behavior and as needing some therapeutic intervention. There has been an increasing trend for State rehabilitation agencies to establish cooperative agreements with systems to rehabilitate physically and mentally handicapped pupils preparing either for a college career or a job in the community. Through these cooperative agreements the rehabilitation counselor works very closely with the school

and provides the handicapped student with therapeutic services necessary to assure a productive life. Kvaraceus urges that the school improve its partnership role within the total cummunity complex of health and welfare agencies. Initiating a cooperative relationship with the State vocational rehabilitation agency is a good place to start, especially as it concerns the rehabilitation of the delinquent.

Educational Aspects of Delinquency:

Its Implications for Vocational Rehabilitation[1]

In mobilizing community forces for prevention and control of juvenile delinquency, the social planner intuitively looks to the school as a major--if not central--resource. The schools have all the children of all the people; they receive the child early and maintain a close and intimate relationship with him for an extended period of time; they have trained personnel to deal with children and youth; they aim to develop integrated and socially effective citizens; they are found in every community; and they still enjoy the active support of the community at large.

The temptation is ever-present to make of the school an omnibus agency to serve any community endeavor. The school, as one agency, cannot hope to be everything to every child. The school is not a hospital; it is not a clinic; it is not a community warehouse for disturbed or disturbing children and youth; nor is it an adolescent ghetto or limbo. The unique and special role of the school is to be found in its teaching-learning function aimed at agreed upon objectives.

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[1] This paper has been based in large part on earlier research and writings of the author. A recent publication, Anxious Youth: Dynamics of Delinquency (Columbus, Ohio: Charles E. Merrill Books, Inc.,1966) expands the points of view expressed in this paper. Acknowledgment is made also to earlier publications including: Juvenile Delinquency: A Problem for the Modern World, Paris: UNESCO, 1964; Forecasting Juvenile Delinquency, New York; Harcourt, Brace and World,Inc.,1956; The Community and the Delinquent, New York: Harcourt, Brace and World,Inc., 1954; and Juvenile Delinquency and the School, New York; Harcourt, Brace and World, Inc., 1945.

Educational Aspects of Delinquency

Keeping in focus this unique and special function and recognizing the fact that most of the delinquents' difficulties stem from forces and antecedents outside the school, just what can be expected of the school staff in community programs aimed at curbing delinquency? What is the potential role of the classroom teacher, the school administrator, and the school counselor? In answering these questions, I shall try to avoid listing educationally irrelevant duties and activities for unsuspecting but willing school administrators and teachers in the name of delinquency prevention and control.

The school picture of the delinquent youngster, as reported in the controlled studies, has generally revealed him standing in bad school posture, if not in educational bankruptcy. His report card shows many failures; he is over-age for his grade; his attitudes toward school are negative and heavily charged with hate; he changes schools frequently; he is caught and squeezed in the academic vise of a book-centered curriculum for which he has little intellectual promise and less interest, with the result that he becomes the teacher's worst motivational problem; he intends to leave school as soon as the law will allow, or sooner; and he is frequently truant in a temporary recess from his unsatisfactory, frustrating, and degrading school situation. While he represents a severe headache to the school, the school represents an even greater headache to him.

The exact nature of the school's roles (there is more than one role pattern) in prevention and control of delinquency will depend upon a clear differentiation among the varieties of delinquents that can be found along the norm-violating spectrum.

Educational Aspects of Delinquency

We need to differentiate, in program planning, between the delinquent whose major behavioral determinants stem from factors under the skin, i.e., those who show some pathology, and those delinquents whose determinants can be traced to dictates in the culture and subculture, i.e., those whose superego is delinquency identified. (The reader will, of course, note the implied false dichotomy.) Most delinquents represent a mixture of types, but the school's preventive program must be planned with reference to the locus of the antecedents of delinquent behavior. More often, they are to be found outside the domain of the school.

The school can make its contribution in delinquency prevention and control at three operational levels. The "good school" will make its primary (or basic) contribution by becoming a "better school." At the second level, the school can help to prevent delinquency by spotting and helping those youngsters who are exposed or vulnerable to delinquent expression and who may be sparking signals of future difficulty in living within legal norms. On the third level, the schools can aid in the rehabilitation of those youngsters who are already delinquent and who may be on probation or parole by working closely with police, probation, court, and clinic. Strictly speaking, this would imply only a tertiary role for those engaged in vocational rehabilitation programs. But this is much too narrow and restrictive a role in which to cast the total educational apparatus of the school. Hence, the following practices will identify "the better school," with particular reference to those adaptations which can relate to prevention and control of norm violations at all three levels.

1. The school must provide a positive, therapeutic, and reconstructionist climate for the malbehaving child. There are four mood orientations that can be found in varying degree in every school and community. They include: the punitive-retaliatory mood, the positive-humanistic mood, the therapeutic mood, and the cultural-reconstructionist mood.

The punitive-retaliatory orientation is the dominant mood in most schools and communities today. The man-in-the-street, many classroom teachers, and some professional workers with youths and families want to deal with the delinquent by striking back at him and his parents. This is the "get tough" and "treat them rough" school of thought. It includes all those who advocate the greater use of the paddle or night stick, the curfew, and suspension and exclusion from school. The underlying theme is that the young offender (and his parents) should not be tolerated. Rather they should be made to suffer, Having suffered, the delinquent is expected to have learned a lesson that he is not to violate any norms again. Illustrations of the strength of this mood can be found in the recent NEA reports studying working conditions of teachers. The Number Two problem cited by teachers concerned the reluctant and recalcitrant learner. (The Number One problem was over-large class size.) Forty-five per cent of the teachers urged that some provision be made outside the regular classroom for these disturbed or disturbing nonlearners, and forty-eight per cent of the principals endorsed this move. Even the Conant report on the high school subtly, if not wisely, urged that these youngsters might be eased out of school at the age of 14, if they could not or would not learn.

The positive-humanistic mood is also visible in many schools and classrooms. This orientation considers the delinquent not so much a problem child as a child with a problem. The conviction is expressed that there are causes or reasons for the norm violation and that the delinquent is in need of a helping hand rather than the back of the hand. But the school-community effort generally ends up by approaching the delinquency problem via the media of a new playground, an essay contest, or the appointment of a kindly old assistant principal to work with young boys and girls who get in trouble.

The orientation dominant with the professional workers in dealing with the delinquents and their families can be found in the therapeutic mood. Here the underlying premise is that the youthful offender suffers interpsychic conflicts stemming largely from forces under the skin and/or interpersonal relationships in the family. The plea is made to procure adequate psychological, psychiatric, and case-work services. An answer soon shapes up in the form of the child guidance center. The conviction is that the delinquent is sick and he is to be treated as a patient.

The fourth orientation, only recently seen in a few of the larger urban centers, can be described as the cultural-reconstruction mood. This approach assumes that the basic problem in many--if not most--delinquency cases involves values and value systems. The cultural and subcultural determinants of behavior are studied, and the norm violator is viewed as reacting to the demands and the standards set up within his primary reference group as found in the family, gang, neighborhood, school, and community. Within this approach, it is the youngster's

essential and intimate reference group that is viewed as the patient. Concern is expressed for the child's rule book as found in his milieu. Community forces--home, church, school, club--regard themselves as "change agents." This approach, only now making itself felt, promises a much needed supplement to the more traditional school-community efforts.

Today many schools caught in the press of the educational critics demanding more and better mathematicians, scientists, and linguists appear more than willing to sell any malbehaving nonlearner down the river to preserve the academic reputation of the school. Little hope or help can be forthcoming from schools that are devoid of redemptive love, that fail to provide a therapeutic climate, and that have little or no effect on the behavior or way of life of those it is committed to change through the educational growth process.

Vocational rehabilitation programs can provide the understanding, enabling, and therapeutic climate for those youngsters who are bothered or bothersome, but they should do this without dropping their true educational function or without so specializing their educational program as to downgrade the student by placing a low ceiling on his potential and thus truncating his career line. I shall return to this concern again.

2. School personnel must work to develop greater differentiation of curriculum and instruction. In differentiating the curriculum, attention must be given to the current structure of the monolithic upper-middle-class curriculum, which assumes that all high school pupils will become daily readers of the New York Times, will subscribe to the Saturday Review, and will eventually turn out to be worthy alumni of some university or college--preferably of the Ivy League. Attention must be directed to

the development of a meaningful curriculum for the nonmobile or stable lower-class youngster for whom middle-class goals do not represent reasonable or realistic goals. The core of this revised curriculum should center around the communications skills, leisure-time pursuits, husband-wife relationships, child-rearing skills, and beginning job competencies. Universal secondary education will remain an American myth under present curriculum conditions. Indications are that the holding power of the public schools, presently graduating 60-70 out of 100 persons 17 years of age annually, has probably reached its peak. Unless the curriculum is broadened, for many youngsters the American school will remain an ordeal to be sweated out.

In a rapidly changing socio-economic-political scene, the schools must remain experimantal, flexible, and fluid. Many critics of the American schools in the Rickover-Bestor tradition are urging "change and improvement" by regressing to the college-preparatory curriculum riveted to the "hard-core subjects" of mathematics, science, and languages. At most, slightly less than half the youth (a generous estimate) have the ability to profit from this traditional emphasis. This highly recommended and prestigious science-math-language diet will regurgitate defeat and frustration for most youngsters and will emit an early school dropout. Dropping our of school has been known to overlap with delinquency.

The great danger to the student in vocational rehabilitation programs is that the curriculum is so modified and so thinned out that the youngster spends most of his time with the jig saw making door stops or with reading materials one level above

the comic book. Courses that take on a "practical" and "utilitarian" complexion and that prepare the youngsters only for a rote and standardized occupation can be so lacking in the intellectual and ideational area as to degrade and demean a student's self-concept. Unless the vocational rehabilitation offerings widen occupational horizons and uplift self-esteem, they will neither educate nor rehabilitate.

In addition to its time-honored function of transmitting the heritage and of developing the rational powers, the modern school must view itself as an agency for cultural renewal and change. The objectives of character development, worthy use of leisure, vocational training, worthy family membership, and civic and social competency must be placed in proper perspective as we raise the question, "What are we educating for?" and as we re-examine the objectives of the school against the needs of all pupils, including the serious norm violators, and the needs of our urbanized and technological society. Here is the major challenge to those planning vocational rehabilitation programs.

Furthermore, school objectives must be stated and evaluation of the school's program should be made in terms of development of new and desirable behaviors or the modification of old and undesirable behaviors. If schools can modify the behaviors of large masses of children, thereby changing the culture (the way of life), they may ultimately live up to their potential as an agent for cultural renewal and change. Otherwise the schools must fact the imminent danger of becoming the most expensive irrelevancy of the twentieth century.

3. School staffs must direct their efforts to improving the subliminal or covert curriculum as found in the culture and subculture of the school. This is the way of life that sets up norms telling the youngster how to act and how not to act. Like the lower part of the iceberg, this hidden curriculum often provides more effective learning experiences than are forthcoming from the visible curriculum. The culture of the school society is frequently characterized by sex-crossed activities, delayed and postponed responsibility, learning by clock and by calendar, homogeneous age groupings, undetermined or unspecified goals, external controls, compulsory learning. All these combine to make up a way of school life which varies from school to school and from community to community, but which is always effective in determining how a pupil will behave or misbehave. If we separate and segregate the young offenders into special classes, we can run the risk of reinforcing an already strongly reinforced norm-violating culture. Care should be taken to keep delinquents in the mainstream of school-life activities. To draw them off by themselves in special programs can tend to overaccentuate minor and temporary behavioral deviation.

4. The surrogate role of the teacher must be maximized. Who wants to be like the teacher? Many teachers do, and more could, serve as imitable examples in the old tradition of hero models and by developing strong interpersonal relationships. With the threat of oversized classrooms, teaching machines, and listless mentors, anonymity, impersonality, and boredom can combine to emit a school dropout, if not a delinquent. This means that the instructor in the vocational rehabilitation program

will need to serve as a true hero model. But he will not be able to serve in this capacity if he feels he has little status or prestige and if he himself suffers from low self-concept.

5. For those youngsters who manifest learning difficulties and symptoms of emotional disturbance, the school must procure and maintain certain special and essential services. The teacher's time and competencies are limited. (So, too, with those in vocational rehabilitation.) He needs the help of the school nurse, school doctor, counselor, psychologist, case worker. To the usual array of services, we need to add those of a social analyst. Drawn from the disciplines of sociology and cultural anthropology, this functionary would aim to help school personnel to understand the society of the school and the cultural and subcultural currents within the school and the community. This social scientist would be concerned primarily with the dynamics of behavior as found in the individual's milieux. This worker would serve as a strong complement to the psychologists or guidance workers who tend to concern themselves almost exclusively with psychic determinants of behavior.

6. Early identification of pupils vulnerable or exposed to the development of delinquent behavior can best be carried on in the school agency. While there is no prediction tool, table, or test that can be used in a perfunctory way today to spot the future delinquent; some youngsters give many hints of incipient delinquency and can be readily identified for referral and help.

they also have problems. When a problem-laden teacher meets a problem-laden pupil, watch out for behavioral explosions. Teaching a large class of different and often difficult pupils day in and day out makes unusual demands on the teaching personality. When the going gets rough, teachers need ready access to an accepting and understanding administrator or counselor to whom they can gripe, beef, remonstrate, and unload. If relationships with the staff are positive and of a nonjudgmental nature, these functionaries should be able to play the therapeutic-listening role of the good administrator or supervisor. In this way, the principal's office can become a comfortable listening post or haven for the overworked, hard-pressed, harassed, and unhappy teacher. This is the easiest form of counseling and one that can do the least damage. If no one on the teaching staff ever comes by to discuss his problems with the administrator or supervisor on his own initiative, it is probably the administrator who needs help.

8. The school must improve its partnership role within the total community complex of health and welfare agencies. The school cannot remain an isolated agency. It must coordinate its efforts with those of other youth and family welfare and recreation agencies. There are many covert conflicts in school and community that drain off the administrators' and teachers' energies which should be better applied to helping the norm-violating youngsters. Many of these conflicts can be found along the following bipolar dimensions: action vs. theory, rehabilitation vs. retaliation, centralization of services vs. localization of services, subjectivity vs. objectivity, student activity vs. student passivity. Lack of any real coordination or teamwork can frequently be attributed to these subliminal

In a three-year prediction study involving a careful before-and-after design in grades 7,8,and 9, which I have reported in Exceptional Children,[2] the prediction scales employed failed to meet the stringent tests of functional and statistical significance set up in the research design around the criterion of norm-violating behavior. Nevertheless, this study did indicate that the behavioral observations and ratings of experienced junior high school teachers showed more promise as a method of identifying the future norm violators than did the psychological scales. Few youngsters become delinquent overnight. In the long sequitur of behavior, the alert teacher gets many hints of future difficulties, for "nothing predicts behavior like behavior." By drawing the predelinquent into the rehabilitation program early, the vocational specialists may play a preventive role.

This same study also pointed up the fact that junior high school youngsters who fall into the lowest of poorest reading group tend to show a heavy preponderance of norm violations. Reading ability, whether it be cause or effect, must be taken into account as a potential factor closely tied in with the delinquency symptom. Attention to the poorest readers in the vocational rehabilitation effort may enable the community to focus on a group of youngsters who are already, or who will be, showing behavioral disturbances.

7. The principal, school counselor, and school social worker must provide therapeutic counseling for the staff. Teachers are persons and, like their pupils,

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[2] William C. Kvaraceus. "Forecasting Delinquency: A Three-Year Experiment," Exceptional Children, 27 (April,1961), 429-35.

conflict-issues.

In summary, there is no one thing that the school or the vocational rehabilitation program alone can do that will make any great difference in the delinquency story. In a sense, the school's responsibility toward the delinquent does not differ from its responsibility to every and any learner or nonlearner, The juvenile delinquent is not a statistic. The juvenile delinquent is a growing and sensitive person. He has a face and a name -- and feelings. He is surrounded, like other children, by parents, peers, teachers, and youth workers. All of these individuals are in a strategic position to help him or to hurt him. The juvenile delinquent does not live in a vacuum. He learns, he plays, and he works in a culture or subculture. The realities that he must face and the values that he inherits are seldom of his own making or shaping. Yet he must learn to face his reality, to adjust to it, and sometimes even to change it, if he is to survive in the depths of the big decaying city or even in the highly waxed environment of a new suburbia. Not unlike the terrible plight of the "little boys for little chimneys" of Charles Dickens's day, the modern delinquent caught in the impersonal and technological culture of today's society represents a big boy struggling in a big school chimney. The opportunity and the responsibility to help the norm violator rest not just with every youth and family worker but with every American citizen, and especially with every parent and school worker. The vocational rehabilitation instructor can be one of these school workers.

Chapter III

Psychological Aspects of Delinquency

Implications for Vocational Rehabilitation

By Joseph L. Massimo

Commentary

Rehabilitation counselors should study this paper very carefully because of the important implications that it has for their work with delinquent clients. This paper should also be of value to juvenile court judges, probation officers, and others in understanding the central role of work in the rehabilitation of the delinquent. Dr. Massimo also provides us with an excellent understanding of the developmental forces in adolescence and how normal behavior may merge into delinquent manifestations.

Clearly characterized are the dilemmas and the emotional upheavals confronting the adolescent. All of us are familiar with these conflicts of dependence vs. independence, of whether or not to accept social values, the problems of sexual identification, and the anxieties in the educational and vocational planning for the future. The delinquent's confusing search for identity and his anti-social behavior have a long developmental history which Massimo points out is the result of disturbances in socialization which have not been mastered.

As he cautions, and rehabilitation counselors certainly should take heed, vocational rehabilitation with delinquents is carried on during the adolescent period while the roots of anti-social orientation develop much earlier. Therefore, if there is to be effective therapeutic intervention, it is essential to understand the complex psychological factors involved in the evolution of the delinquent character.

The focal idea of this paper is on the crucial significance of employment for

adolescent delinquents, not only because it facilitates needed identity function, but because it can be used as a fulcrum for intensive therapeutic intervention. However, he points out that work alone does not solve problems. If programs of vocational training or job placement do not have intensive counseling incorporated in the program, the delinquent is likely to suffer the insults of temporary employment and repetitive job hunting. Dr. Massimo is essentially making a plea for a comprehensive approach to the problem with techniques which are flexible and adaptable. The delinquent, he points out, may need a variety of services ranging over a field including pre-employment counseling focusing on job readiness, remedial education to overcome academic handicaps, work which will satisfy therapeutic needs, and psychotherapy (when he needs it) to handle crisis situations or to deal with personal problems. It is his conviction that the counselor must play the role of a central significant figure, playing many functional roles such as helper, defender, friend, father figure, etc. which permit him to tie all the strands of therapy together and therby providing a process where continual assistance is available to the delinquent.

The commentator is impressed with the similarity of this program to that of the Member Employee program which was carried on by the Veterans Administration in the recent past. In this latter program, which was for the rehabilitation of chronic schizophrenic patients, the counseling psychologist served as the central significant figure carrying out role responsibilities identical to those described by Massimo. In the forty Veterans Administration hospitals that conducted these programs, all of them reported unusual success. In the Brockton Veterans Administration Hospital, for example, where the commentator was the central significant figure in charge of the program, eight hundred chronic schizophrenic patients from a fifty-bed unit were successfully rehabilitated in a seven year period.

With two such contrasting programs (rehabilitation of delinquents and rehabilitation of chronic schizophrenics) utilizing a similar approach and reporting successful application, it would seem that this portends a unique opportunity and challenge to rehabilitation counselors. Through their counseling and coordinative functions, they should be able to serve delinquent clients in such a way that the centrality of their role in the rehabilitation process constitutes, in itself, prime therapeutic intervention. Likewise, the paper by Massimo should provide to both juvenile court judges and probation officers a more optimistic outlook for the rehabilitation of delinquents in their charge. It is hoped that when judicial prerogatives are exercised in dealing with the delinquent, it will be in the direction of the wide variety of alternatives that can now successfully spell rehabilitation.

Psychological Aspects of Delinquency: Implications for Vocational Rehabilitation

The literature on delinquency abounds with theoretical formulations concerning the psychological factors involved in the etiology of this pressing social problem. A review of these positions and various theories suggests that the psychological factors underlying chronic delinquent behavior involve problems in object relationships, psychosexual development, and disturbances in social functioning. Typically, the delinquent adolescent is seen as having been unable to achieve a sense of personal identity and experiencing a kind of self-diffusion. Their basic problems are reflected in antisocial behavior patterns, lack of control over impulses, contempt for authority, a derogatory self-concept, and a concomitant arresting of learning and of the formation of positive interpersonal relationships.

In most recent years theoretical stances have expanded and it is now generally recognized that antisocial behavior is an end product of a variety of personal and social milieus, motives, role models, self-images and psychological archetypes.

The purpose of this paper will be to focus on the most crucial psychological factors and their implications for vocational rehabilitation, as they apply to the adolescent period, since it appears that during these years delinquent behavior often reaches a peak. It should be remembered, however, that the roots of the antisocial orientation are imbedded in an earlier time of life and that the profound and complex psychological, sociological, and psysiological stresses of adolescence, which occur in a great variety of ways in different individuals, serve to precipitate the delinquent behavior in its most abrasive forms during this later stage of development.

Adolescence and Delinquency

Adolescence is a developmental period characterized by intense emotional upheaval. Among the major developmental tasks with which the adolescent must cope, these four stand out: (1) resolution of conflicts concerning independence and dependence, (2) acceptance of social values, (3) identification with the biologically determined sex role, and (4) determination of educational and vocational future. It is not possible here to explore all those that are directly relevant to the problem of antisocial behavior.

Psycho-Sexual Conflict in Adolescence

Of the many developmental problems the adolescent faces, no one can be considered in isolation. Each is interwoven and interrelated with the others. However, the psycho-sexual conflicts of this period are most crucial and provide a natural introduction to a discussion of the most fundamental task of adolescence--the formation of self-identity.

According to psychoanalytic theory, adolescence represents, in part, a recapitulation of an earlier sexual struggle at a time when the psychic apparatus has acquired a potential for direct discharge of sexual tension in real life. The early phase of this period is ushered in by the anatomical and physiological changes of puberty. As the reproductive organs begin to function, poorly understood impulses arise and the adolescents previous capacity to cope with them, in terms of reality demands, appears weakened. The intrapsychic equilibrium becomes disrupted as psychological mechanisms of adjustment are threatened by the impact of these new impulses and the intensification of older ones. All of the adolescent's energy is turned toward coping with sexual urges and forceful attempts are often made to break from the family bonds, thereby controlling the impulses associated with parental objects and hopefully banishing forever

threatening fantasies.

The adolescent seeks new relationships in a self-centered effort to alleviate anxiety, receive gratification, and establish his sexual identity. He struggles to achieve some kind of heterosexual harmony but often finds himself inadequate and uncomfortable in a role to which he is not yet accustomed. As a result of these inner stresses he lives in a state of constant ambivalence, marked by quickly rising enthusiasm changing to utter hopelessness, a yearning for freedom coupled with an urge to remian dependent and feelings of compassion which oscillate with a deep sense of anger. Adults are often regarded as cold, stupid, and rejecting and the adolescent may be enraged by the unvarying demands that he "grow up." He tries to achieve manhood but is not immediately successful and may flounder in his efforts, unable to see himself in the role of a full bargaining member of society. (In today's modern world the nature of the encompassing adult community and the obvious contradictions it represents, makes this position even more difficult to achieve.)

These conflicts are but one aspect of a basic over-all struggle for self-definition. In essence, the achievement of this personal identity is the primary task of adolescence. Erikson states this concept succinctly:

> ...identity is the awareness of the fact that there is a self-sameness and continuity to the ego's synthesizing methods and that these methods are effective in safe-guarding the sameness and continuity of one's meaning for others. (1959)

The psychological structure of the adolescent is the composite result of the multiple aspects of this process.

Identity Formation and the Development of Antisocial Character

Faced with physiological revolution, the adolescent attempts to consolidate his role and achieve a personal identity. It is during this period that decisions must

be made which will lead to a clearer self-definition, to certain irreversible role patterns, and to commitments for life, or conversely to a fragmented sense of self. The potentiality for transformation of character is increased during this phase of development and when physical stability is attained at a relatively mature level, the personal characteriological structure formed during adolescence is revealed and remains typical of the individual throughout life.

Whatever may be the initial manifestation of adolescence, very shortly the more aggressive attack upon life problems--the striving for autonomy, biological identity, and social emancipation--results in the so-called typical behavior of the adolescent. The swaggering teenager, expressing his aggressive feelings through pronounced rebellion and shaggy arrogance, is a familiar sight. Oftentimes he appears to be a second-rate player eagerly overacting his part in an effort to achieve stardom, or, in another sense, arrive at manhood. Bodily changes increase his drive for masculinity and the concept of strength and muscular development are paramount factors in male identity. The masculine role is associated with aggressiveness and the adolescent asserts himself through feats of daring and exploits which often run contrary to the expectations of the adult society.

With continued support and the opportunity to achieve a sense of autonomy, the tendency to act out delinquently gradually subsides and a welcomed identity begins to emerge. Conflicts in interpersonal relations decrease and the adolescent approaches psychological adulthood with the ability to set controls and limits upon his own impulses and behavior.

The achievement of this identity, however, cannot come about unless basic trust in the goodness and predictability of people and life was established during early

childhood. Erikson suggests that this identity develops out of the gradual integration of accumulated childhood identifications which lead to a "successful alignment of the individual's basic drives with his endowment and his opportunities." (1959) Self-esteem develops as one grows in the conviction that he is learning the steps necessary to master social reality. The child recognizes that his individual way of dealing with experience is gratifying and a successful "variant of the way other people around him master experience and recognize such masters." (1959)

If the child has been denied these experiences and the nature of early interpersonal relationships has been pathological, the achievement of identity becomes virtually impossible. In adolescence such youngsters experience identity-diffusion, for they are unable to attain a sense of self-recognition and esteem. By the age of sixteen they are likely to view themselves as stupid and generally worthless, a self-image that may be disguised behind the protective facade of belligerent, self-assured and indifferent behavior characteristics of the delinquent personality.

The antisocial adolescent's behavior patterns have a long developmental history and are the result of disturbances in socialization which have not been mastered. Numerous rejections and various degrees of deprivation experienced within the family cause continual frustration and contaminate their early years of development. The groundwork for personal identity is never laid and defective adaptational patterns eventually become manifest in acute social conflict.

In general, this behavior is in the form of uncontrollable, malicious, and aggressive acts toward the property and person of others. The delinquent's impulse life is primitive with all sense of perspective overruled by a dominant emphasis on concrete, short-range goals. No guilt seems to be experienced and the delinquent shows

little concern for the rights and feelings of others. The basic conflicts of these adolescents become particularly clear when they are confronted with the demands for social conformity placed upon them by the traditional middle class school. Usually they have long-standing records of truancy and scholastic failure, precursors of more serious antisocial behavior as young adults.

As a result of the delinquent's need to achieve immediate gratification, people in authority, in fact all symbols of authority and restraint, are perceived as sadistic and depriving. Established limits are looked upon with deep hostility as consequence of their hedonistic orientation. Authority figures are seen in extremes--they are either cruel, merciless dictators or ineffectual, weak tools of society. A distorted negative attitude is generalized to all adults, especially those in positions of authority.

Antisocial behavior becomes more than an attempt to cope with the vicissitudes of adolescence; it becomes a style of life, dictated by the stresses of a tenuous existence and traceable to the pathology of early relationships. Feelings of loss and intense fears of vulnerability are defended against by overt aggressive behavior. The delinquent's radical closing-up, total narcissism, provocative smugness, and utter denial of guilt, may cover and serve to counteract the anxiety created by an ever-threatening identity diffusion.

It should be noted that for some children, particularly from lower socio-economic areas, the goals they are taught to value and the methods adapted for obtaining them, quite often result in what is called deviant behavior by the larger segment of society, but which represents, within the youngster's own isolated social milieu, an adjustment that could be viewed as evidence of an appropriate identity. (Sociologists

point out that this occurs in only a small number of cases and that there are many young people from similar socio-economic conditions who do not demonstrate antisocial patterns of behavior. It is also suggested that no segment of our subculture places a positive value on delinquency per se or establishes a set of standards which elicit illegal behavior.) For such children, however, gross conflict occurs between the fragile identity they have found in their own social group and that which is expected of them in the larger society to which they must eventually relate in order to achieve the more highly desired objectives.

Given the complex psychological factors which appear to be involved in the evolution of the delinquent character, attention should now be turned to the problems of intervention. The discussion will concern itself primarily with these factors as related to adolescence and their implications for vocational rehabilitation.

The Role of Employment in the Treatment of Delinquents

In more primitive societies the rites de passage of young people into adulthood exhibit varying degrees of severity which clearly separate the men from the boys. For adolescents in our culture, entry into manhood is less clearly marked and in many ways more painful. The goal seems distant and nebulous with limited means available for its attainment. In competitive American society, however, meaningful work is a symbol of entrance into the man's world and is considered a fundamental requirement for maturity. Work mastery in any culture also seems to be the backbone of identity formation.

Although there has been a great deal of research on occupational aspirations as related to identity formation in adolescence, there is a minimal amount of material dealing with the actual work experience of the adolescent period. Fourth, the work

experience offers an opportunity to learn to deal with adults and to identify with more adult tasks by getting actively involved in adult-like experience. Fifth, the work experience can serve as an opportunity for the channeling and draining of the intense sexual and aggressive energies of adolescents into constructive activity. Sixth, the experience in work also can contribute to the formation of sexual identity as boys take jobs associated with masculinity--girls, jobs associated with the feminine role. Seventh, jobs can help test out new skills that are being developed, and test, against reality, new concepts that have arisen.

For adolescent delinquents, employment has a crucial role, not only because it facilitates needed identity formation through the ways outlined above but because it can be used as a fulcrum for intensive therapeutic intervention.

Recent delinquency-prevention programs, especially those in deprived areas where the employment structure has been limited, have attempted to increase the availability of jobs and the use of job placement as an integral part of the treatment program for delinquent adolescents. However, most of these programs have also been aware that delinquents have more severe problems than just lack of employment. Most delinquents are far behind their age-grade level. Their basic skills in reading and arithmetic are very meager. (Studies have demonstrated that their intelligence is usually in the normal range.) Thus, having done poorly in school, they are academically unprepared for most work situations. Delinquents also have poor social skills. They find it difficult to deal with the authority figure of a boss and to organize their energies toward constructive activity with people. Added to this are the many personality factors previously discussed that make it most difficult for chronic adolescent delinquents to succeed on the job. These include their marked impulsivity, low frustration

tolerance, a very concrete attitude toward the world, limited time sense, inability to plan, much focus on action, and a great fear of dependency in any situation where there might be closeness to people. Although work is often conceived of by the delinquent as preferable to continuing in school, he thus has few assets that would serve to sustain him in an employment situation. As a result of the many difficulties that delinquent adolescents have, work alone is not able to solve their problems. Therefore, programs of vocational training or job placement that do not have intensive counseling incorporated in the program usually result only in temporary employment and repetitive job hunting. For that reason, although in planning a program for delinquents work may be seen as a goal, it is necessary to include other services. The delinquent adolescent, for example, needs pre-employment counseling focusing on job readiness. Severely handicapped academically, he also needs a remedial education program individually tailored to his needs and related to his work performance, so that his skills can be maintained and improved. He needs a program that also offers psychotherapeutic help when his work experience has resulted in difficulty or when he may have to discuss certain personal problems. Because of his limited time sense and inability to withstand frustration, he also needs support immediately at times of crisis and in the place of difficulty, not at hours structured as weekly interviews and set up according to a preconceived schedule by a professional person in an office setting. In essence, he needs a comprehensive, vocationally oriented treatment program involving vocational assistance, remedial education, and intensive psychological counseling. In this program these techniques must be utilized in a flexible, combined approach and offered by a single practitioner with job placement serving as a matrix for the other therapeutic efforts.

This author recently reported a research study (1963) and follow-up (1966) aimed

toward reaching and treating the adolescent delinquent through the use of this type of program. The program was initiated within 24 hours after the boy dropped out of school or was expelled from school for anti-social activity as well as academic failure. All of the boys had been on probation at least once and had long records of delinquent activity. When the initial contact was made at a time and place selected by the boy, all the boys agreed to explore the possibilities of receiving help in getting a job. In this way, these delinquents who characteristically rejected any academic or counseling program within the usual settings, seemed able to become involved and be motivated to some degree. To assist a boy in getting and keeping a job, his expectations and attitudes with regard to work were developed and explored. Often these expectations were grossly unrealistic, the youngster perceiving himself either as an omnipotent worker or as a helpless scapegoat. His attitudes were examined within the counseling situation. (We know this is necessary because many delinquents are incapable of relating to fellow workers, still less so to the authoritative figure of the employer. The supervisor's demands are seen as unfair and intolerable. As a consequence, they constantly seek opportunities to leave the position, especially in circumstances that will enable them to project the blame for their failure onto others.)

A job was sought when it was felt that the youngster was generally prepared to venture onto this new therapeutic course. Haphazard placement would have serious ramifications both for the delinquents and for the employer.

In the past, antisocial adolescents have often been placed in any job available, regardless of its appropriateness, so long as it met federal and state laws for youth employment. For placement to be therapeutically effective it must involve more than this. The jobs should not be randomly selected. Those available should be carefully

screened by the counselor in the light of his specific knowledge of the delinquent's aptitudes and interests.

The delinquent should not be forced into a job, although economic necessity may make immediate employment an urgent matter. Whenever possible, the youngster and counselor select a work role which seems most appropriate. The young worker is helped to understand that this is his job, not the counselor's, and that he is free to reject or leave the position when such action is indicated.

The benefits that can be gained on the job are unattainable or negated unless the delinquent is continually helped with basic personality problems. Patterson, speaking of the emotionally disturbed patient, recognized this need. "Both problems (vocational and psychological)", he has written, "must be worked on concurrently--a counselor trained and skilled must carry on both aspects of rehabilitation." (1958, pg. 206) The treatment of antisocial adolescents requires the same blending of techniques. Acquiring a job does not terminate the counseling; it provides a concrete milieu needed for meaningful and intensive consideration of conflicts, purposes, and attitudes. Accepting help becomes less threatening and the delinquent's desire to succeed in his new capacity of employee motivates him to explore personal and academic shortcomings.

Events on the job expose unrealistic dispositions, denials, and contradictions which are appraised in the counseling sessions. The counseling activity tends to become intensified through the realities encountered at work. The personal interaction is not seen as an abstraction by the delinquent, for it is now focused on an aspect of his everyday experience. New insights can be gradually synthesized within the personality and subjected to immediate testing on the job.

In this program the counselor tried to establish himself as important to the boy

without fostering the dependence that frequently is associated with psychotherapy. Flexibility in technique and service was maintained. The urgency of the problems that arise in the lives of disturbed adolescents requires immediate action, support, and concrete help. This flexibility must be carried over into all aspects of the program. Ordinary clinical counseling methods are inadequate, for these adolescents require unusual amounts of time and effort. The length as well as the content of interviews must be determined in relation to the delinquent's primary needs. Sessions may vary in duration from fifteen minutes to two hours and be held on a weekly or even daily basis depending on the nature of the individual problem. These meetings are not always conducted within an office setting; in fact, many take place in public parks, local stores, or while riding in the counselor's automobile.

The counselor also varied his involvement in terms of the boy's ability to handle close relationships. He got involved in all aspects of the boy's activities when appropriate and could be reached day or night. Motility and action rather than words were often used as methods of communicating. That is, the counselor and boy took many trips and would frequently do things together while talking. Job finding, court appearances, pleasure trips, driving lessons, locating and buying a car, dentist appointments, shopping for clothes, opening a bank account, were all activities that were done jointly by the counselor and the delinquent. All contact was on a one-to-one basis. (Although small groups eventually formed.) When the boy failed on the job the counselor worked with him to understand the sources of his failure and to help him select another job that was in line with his changing interests, abilities, and goals. Throughout the employment experience counseling was consistently related to the problems encountered at work.

An additional aspect of this multiple approach involved intensive help in the inflicted area of learning. The counselor, who was cognizant of the youngster's psychological state, was best qualified to determine the timing and structure of this activity. As the delinquent's self-image improved and personal difficulties began to unravel in the counseling interaction, more energy became available for investment in learning. Holding a job offered a variety of opportunities for academic pursuits. Studies of taxation, budgeting, interest, percentage, driver's manuels, menus, reading, spelling, and other related subjects became pragmatic. Through such endeavors the tutorial activity was made meaningful and therapeutic. Continued work experience and intensive counseling exposed new vistas for learning that could be approached with mutual enthusiasm. The delinquent became increasingly aware that the counselor was a significant other who could help him succeed in various areas where he had previously failed, and this served to solidify the all important relationship.

The unique aspect of this program was that the parts of treatment program--vocational assistance and job placement, the teaching of academic skills, and individual counseling--were not divided according to "departments" in which one individual or section of an agency took over one responsibility and function while another handled a different area. All of these activities were part of the work of a single professional who prepared the boy for entrance into the working world, and continued to work with him until he was able to take over responsibilities himself. Thus, the traditional roles of psychotherapist, remedial educator, vocational counselor, were combined, as the counselor was willing to undertake that particular activity which was most appropriate at a given time.

Although there has been general acceptance of the close interaction between emo-

tional and academic difficulties, practitioners have not attempted to treat them as a unitary problem. A combined approach was considered to run counter to a long-term effort to give counseling an identity separate from teaching. It is suggested here that both techniques can successfully be used within a relationship and that, in fact, they must be so applied in order to help mitigate the learning problems of these specific adolescents.

Two additional aspects of this program must be considered. One is that this effort took place in suburban communities where gang structures were loose and an individual approach was most appropriate in dealing with delinquent activity (unlike areas where social deterioration is great and delinquent behavior can be seen as more related to social disorganization than individual difficulties). Opportunities for employment were available and the problem was that the boys were not able to take advantage of the opportunities present in the community because of their intense personality difficulties. Many of the boys, for example, had attempted to join boy's clubs, YMCA, and other agencies, but had been forced to leave because of their provocativeness and their anti-social behavior.

A second feature of this program was that no formal employment service was used. The counselor was aware of the community and its resources. He would, therefore, on an informal basis, mutually explore with the boy the possibilities for employment. They then went out together to attempt to find suitable jobs, in this way experiencing together the frustrations as well as the successes of job seeking.

The effectiveness of the program described was evaluated for 10 delinquent boys who were treated and 10 who were not treated (Massimo and Shore 1963). Significant changes occurred in the treated boys in the areas of personality attitudes, job per-

formance, reduction in anti-social activity, and performance on academic achievement tests. The untreated group demonstrated severe deterioration in these areas during the same period of time. The 1966 follow-up study (Massimo and Shore) has provided evidence that the youngsters served by this program maintained their gains and, in fact, continued to improve while the comparison group members evidenced further decline.

The program described raises many important issues for the future. How do you train counselors to carry out this approach? The need to draw upon the skills and knowledge of several disciplines as they relate to these adolescents and their specific needs at a given time, indicates the necessity for multidisciplined training for those interested in working with this group of young people. Are there certain personality qualifications that are necessary for counselors to be able to learn such techniques? Would this same approach be equally as successful in other settings? How can a program of this kind be modified and integrated into the counseling programs of schools (to reach these youngsters before they leave), or community agencies such as settlement houses, family service centers, vocational placement offices and probation departments? Some of these questions are being explored at the present time.

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Chapter IV

Some Sociological Aspects of Delinquency: Implications for Vocational Rehabilitation

by Stephen Schafer

Commentary

The paper by Dr. Schafer places the importance of work in sociological perspective. He traces the origin of work in a penal setting from that of prison labor for punishment purposes to that which is primarily therapeutic and rehabilitative. It is interesting that work in mental hospitals has followed a similar course from that of exploiting the patient to work, which is essentially therapeutic and rehabilitative. In those early days, the aim of work was to keep the prisoner so occupied that it would prevent discontent and acting out. In today's institution work is increasingly accepted as a part of the vocational rehabilitation program.

Dr. Schafer points out that, actually, vocational rehabilitation has a long and venerable history with offenders, giving as an example the interest of Pope Clenear XI in this area. Yet, paradoxically, little if anything has been done for delinquent youth. He quotes the National Crime Commission report, which states that "any young person meets a number of problems when he sets out to find a job. He must learn where and how to look, decide what to look for, and finally, make himself acceptable." As a result, Schafer stresses the significant idea that before the delinquent is released from the institution he should be helped to acquire employability.

This statement from the Crime Commission report and the follow up comment by Schafer underlines the importance of rehabilitation counseling with delinquent youth. They need all kinds of help in preparation for social and economic responsibility and

and the rehabilitation counselor is in a peculiarly strategic position to mobilize resources to help the delinquent. Cooperative agreements between the juvenile court and state rehabilitation agencies will bring the rehabilitation counselor on the scene and the process of implementation can begin with dispatch.

In the commentator's opinion, Schafer's major contribution in this paper is his analysis of the societal role of work in understanding delinquency. It is not, he suggests, a mere expenditure of energy solely for earning an income, although that is important. Work is not an end in itself, but rather there is a motivational valuation of work which influences what you do as a result of the fruits of your labor. For example, an individual could buy narcotics rather than food and thus perpetuate his pathological addiction.

Therefore, those who work with delinquents must understand the significance of work. Inadequate vocational rehabilitation leads to a lack of inculcation of positive values. It also leads to rolelessness. The rolelessness of delinquents underscores Schafer's major thesis: namely, that work has social significance and the individual's production is part of his social role. This concept should be an important lesson for the rehabilitation counselor. Sometimes he approaches vocational rehabilitation with a narrow and even provincial orientation to the meaning of work.

It is well for the rehabilitation counselor and others to remember, as Schafer has so eloquently expressed, that vocational rehabilitation is not just job training and placement. It should be a means of attracting the delinquent away from his delinquent subculture through accessible highways to the mainstream of community life. Work is an instrument of social solidarity and the way to keep a group maintained and functional. Delinquents must be helped to understand the significance of work in this

broader sense - that work is not only an individual act, but also a part of the social responsibility.

"Thank God every morning when you get up that you have something to do that day which must be done, whether you like it or not. Being forced to work, and forced to do your best, will breed in you temperance and self control, diligence and strength of will, cheerfulness and content, and a hundred virtues which the idle never know."

(Charles Kingsley - Letter)

Some Sociological Aspects of Delinquency--

Implications for Vocational Rehabilitation

The galley slaves were probably not the first convicts, nor were they the last, to be forced to productive work. "In the actual management of the galleys, the predominant aim was to obtain the greatest possible benefit from the labor."[1] From the Biblical times to the operation of Nazi concentration camps, the history of man presents abundant evidence of utilizing the captives' labor for the captors' own ends. The chronicle of human affairs for thousands of years is a rich source of examples of individuals and whole groups of people who were said to be guilty and, if not massacred, were ruthlessly forced to work for the profit of the actual ruling power.

The basic idea upon which this sort of penal labor was founded did not relinquish the intent to punish by cruelty and brutality, it just coupled the physical torture of the convict with the economic advantage of those who decided his guilt. The administrators of this "punishment" simply found their revengeful spirit convenient to be employed for gainful purposes.

Prison labor, in general, has always been supported by the popular understanding of punishment: "the public believes, ... that prisoners should work -- and work hard."[2] Ever since John Howard two centuries ago proposed to make men diligent in order to make them honest,[3] the idleness of the prisoners has been taken by the lay attitude for some privilege of the incarcerated men, and the forced labor for a part of the sensual wrong they deserve to suffer as the price of their crime. The man in the street, also many prison administrators, have been inclined to identify hard work with a means of correction and reformation. The seventeenth century Quaker criminal codes stipulated hard labor in a "house of correction" for all serious crimes but homicide (mur-

der was punishable by death), and even immorality and sex offenses, smoking in the streets, riotous sports, stage-plays, playing at cards and lotteries, or drunkenness may have ended with some stay in a workhouse. Today many immoralities are tolerated, riotous sports are practiced, and a number of poor plays are performed without penalty; but in numerous penal systems compulsory work remained an integral part of the punishment. For example, in the Soviet Union the sanction against those who avoid socially useful work is the exile for two to five years with forced physical labor;[4] or the English Detention Centres for young offenders provide a deliberately unpleasant tough physical training.[5]

The basic idea of this approach to making prisoners work is, in a certain dubious sense, therapeutic in nature. Certainly, the element of retribution is not missing from this understanding of the prison labor either, but the magical influence of rugged work on the evil in the lawbreaker has been a dominant consideration.

Prisoners, in general, do not resent their working behind the prison bars, as long as the kind and extent of work is good for occupying their time and mind, but hardly more than that. The prison administration, again in general, prefers to make the prisoners busy, in the hope that this diverts their attention from discontent and rioting. These two complementary attitudes helped to reduce the brutality of the revengeful spirit as well as the ultraist trust in the reformative force of hard work, combined the moderate modes of these two basic ideas with an economic outlook, and developed the prison factory.

In 1790 the Walnut Street Jail in Philadelphia introduced a system of productive-reformative prison labor, in 1819 the Auburn prison in New York succeeded in getting legislative approval to a lucrative program, and in 1826 Sing Sing adopted the idea

of this new method of making busy the convicts. Other states followed the example; outside contractors have been used, products sold to state-supported institutions, open markets approached, prisoners employed in public works, and other modes have been applied to stimulate and improve the prison industry. Farming, automobile plate making, preparation of chewing tobacco, furniture repair, road construction, and a variety of other jobs have been introduced to the incarcerated men. However, as a result of the depression and unemployment in the 30's, and due to the pressure of unions and outside business, much of the production and sale of goods have been prohibited. Now, "prisoners can labor only at prison maintenance tasks, and in supplying goods and services for other government agencies."[6]

Nevertheless, the present day students of the crime and delinquency problem are concerned primarily with institutional work as part of a vocational rehabilitation program; and neither labor as the retaliation of an outraged society, nor hard work as a therapy per se, nor the operation of a prison factory would reflect what vocational rehabilitation should really mean. "Vocational rehabilitation" is a rather long term and covers a complex concept with several interrelated strands; commonly it is understood as the restoration of efficiency in fitting the person to make his livelihood again.

Pope Clement XI was probably among the first who attempted a sort of primitive "vocational rehabilitation" for "bad" boys. In 1704 he established in Rome the "Hospice of San Michele," where he wanted to render them virtuous by hard work; however, at the same time, he gave them trade-training and, thus, connected corrective discipline with useful vocational learning. In 1773, at Ghent in Flanders, Hippolyte Vilain developed a maison de force where, again, the objective of hard work was not only correc-

tion or reformation, but also to teach the inmates a trade; vocational instruction was emphasized to equip the prisoners with the potential of earning their living after released from this workhouse. In fact, San Michele and Ghent followed up the Amsterdam, Dresden, and Hamburg experiments a century before, and should have been the beginnings of a new era; yet the idea of vocational rehabilitation could not gain solid ground and in this respect little if anything was done for the delinquent youth.

In 1788 the Philanthropic Society of London distributed a small group of delinquent children to the care of families where agriculture was the way through which these youths were supposed to learn how to earn an honest living.[7] Later on, the Society established asylums for this purpose. In 1822 the German Adalbert Recke-Vollmarstein organized an institution at Düsselthal, near Düsseldorf, where some trades and farming were taught to delinquent and neglected children. Americans, interested in penal reform and having visited Europe, impressed by the enthusiasm of John Griscon, a New Jersey Quaker, established a House of Refuge for nine children in 1825 in New York, the second such institution opened in Boston in 1826, and the third one in Philadelphia in 1828 -- all aimed at a "factory" combined with education. However, "some of these early Houses of Refuge were little more than prisons, in spite of the glowing language used in the reports and the press of the day, and despite the well-meaning superintendents and boards of directors."[8]

Even when the cottage type of institutions for juvenile delinquents developed, the decisive importance of the vocational rehabilitation of children was not really recognized. Among the first institutions of the kind, established by the French Demetz at Tours, the English Brenton in London, and the German Wichern at Horn, or in the first in this country for girls at Lancaster, Massachusetts in 1854, and for boys

at another Lancaster, this one in Ohio, in 1858 -- none can be distinguished as a promoter of the cause of vocational rehabilitation of delinquents. Today, most of our institutions provide at least some trade-training; yet, in spite of many commendable endeavors, the institutional teaching of trades, in general, is indeed not a perfect expression of what vocational rehabilitation should mean.

Vocational rehabilitation is generally viewed as the preparation of the institutionalized child to taking up at least some simple job after released and, at best, as finding him an opportunity of making a minimum income. In most of the cases, its rather mechanical operation lacks conceptual understanding and "vocational rehabilitation" is not really placed in the wholeness of the treatment program. The President's National Crime Commission pointed out that "many institutions, especially those for juveniles have counselors, teachers, and chaplains whose charge it is to aid in the process of rehabilitation, but their limited role and number typically make significant rehabilitative efforts impossible. Shops and farms or other work activities too often are operated primarily because of their value to the state and conducted in a fashion useless for instruction in skills and habits needed to succeed in the community."[9]

The National Crime Commission found that there is an absence of good industrial programs, and the inmates do not learn the habit of working independently and with dispatch. Indolence and lethargy characterize the institutional environment, and in the given circumstances useful jobs cannot be learned. The goods made by the inmates tend to be inferior in design and workmanship to those available from private enterprise. Delivery is unreliable, and the products frequently cost more than similar items that are privately produced. The Commission recommended that "states should work together and with the Federal Government to institute modern correctional industries programs

aimed at rehabilitation of offenders through instilling good work habits and methods."[10]

The President's National Crime Commission suggested that "any young person meets a number of problems when he sets out to find a job. He must learn where and how to look, decide what to look for, and finally, make himself acceptable. If he is a school dropout or has a delinquency record, those problems are significantly more serious."[11] In other words, the juvenile delinquent, before released from the institution, ought to acquire his "employability" -- the rehabilitative essence that he is supposed to learn in the institution. Is that all that can be expected from the vocational rehabilitative teaching of the institutional administration? Is the preparation for getting and holding a steady job -- that is, employability -- what should be meant by "vocational rehabilitation"?

The answer to this question leads us to the problem of the societal role of work in the understanding of delinquency, and is subject to the qualification that work itself does not work if it is a mere expenditure of energy and only an application of effort to secure the financial prerequisities of living.

Certainly, nobody would doubt the importance of the institutional instruction in skills. Having been trained in a trade, mainly if good work habits and promising opportunities go with it, the possibilities of a person's becoming a public charge are considerably weakened if not nullified. The juvenile delinquent, after having institutional treatment and equipped with these skills and habits, re-enters the free society with a fair chance of earning an income which can be spent freely at any rational pursuit of his self-interest. He may buy food for eating well, or clothing for good appearance, but, also, he may spend his income on alcohol, narcotics, or a knife to facilitate on act of violence. "The concern with rewards for performance rather than

with worthy accomplishment itself or with success rather than with achievement among the largest segment of the population makes it clear that work is not viewed as an end itself."[12] Whether he utilizes his earned income for food or clothing, or for alcohol, narcotics or a knife, is strongly dependent on the motivating valuation of work in its societal context and his selection of success rewards for work performance, as attached to the trade-training by the vocational rehabilitation process. If he has been taught only the skills of a trade and has been equiped only with knowing how to apply effort to secure the financial conditions of living, this would leave the delinquent alone with alternatives to choose without instilled guidance as to the societal meaning of work and the value of different kinds of success.

Under these circumstances there is a rather dangerous chance for such youths; inadequate vocational rehabilitation may result in a lack of constructive ambitions or positive values. The only alternatives available must be destructive in nature. The workhouses and similar institutions of the past failed probably because of their teaching work without teaching what work should mean. Instruction in skills, if reduced to the goal of securing livelihood, would result in an individualistic compartmentalization of work so that the delinquent could not see beyond his personalized sphere. This is the youth who may know when to plant corn, how to lubricate a car, or what tool is to be used for shoe-soling, and cannot perceive and comprehend the meaning of his work and his role in working. He does not know that his work, whatever it may be, has social significance, and his production is part of his social role.

In other words, "rolelessness" may develop instead of "roleness"; because of his inadequate vocational rehabilitation the delinquent youth cannot determine his work-duties for his society, and so cannot identify those constructive roles he would other-

wise play.

Most delinquents feel they have specialized roles to which they are socialized and which provide them with aspirations which are positive from the viewpoint of the subculture in which they are socialized, even if they appear to us negative and destructive in nature. Many delinquents come from "delinquent subcultures" where the delinquent activity is a dominant requirement for the role performance and work is understood only in terms of a source of pecuniary assistance to satisfy the subcultural aspirations. Cloward and Ohlin suggest that as long as the delinquent finds satisfaction in his associations with this subculture, the delinquent behavior can be expected to continue: "his actions are integrated with the actions of other members who rely on him to carry out his role."[14] As long as the delinquent works only to utilize a pecuniary source, he does not contribute to the organic solidarity of the society, but may exploit the fruits of his vocational rehabilitation for the ends of his subcultural ambitions and aspirations.

Given the roleless state, the delinquent's lack of recognition of the positive societal value of work prohibits the formation of the positive understanding of his labor; if the delinquent youth, thus, turns to destructive ambitions, this is then not so much a matter of choice among alternatives, but the only option available to him. It is naturally conceivable that there are delinquents who, even though they received adequate vocational rehabilitation and understand work, find that their problem-solving efforts are blocked and so engaged in delinquent behavior. Also, it is quite clear to the students of the delinquency problem that vocational rehabilitation is but one of the many factors which influence the presence or absence of delinquency. Generally speaking, however, most delinquents are recruited from the group of those who have never

been taught to the understanding that work is not only for producing momentary means to secure the maintenance of an individual and to satisfy his individual aspirations, but, perhaps first of all, it is a functional expression of social solidarity. Many vocational rehabilitation processes fail because they teach only trade skills and habits, but miss to start the rebuilding with the conceptual foundations of work which have been often so grievously undermined in the delinquent subculture. "The most fundamental approach with the deprived person is to show him that ideas and theories have practical merit."[15]

As a general formula, work is not and cannot be isolated at any given time to any individual, unless it becomes meaningless. Work is an instrument of social solidarity and the way how to keep a group maintained and functional. At the same time, it is an instrument of social control in developing in the individual worker -- if he understands his work in this context -- the feeling of closer belonging to his society and thus responsibility for conformity to its value and norm system. The roleless delinquent, even after institutionalized, violates the norms not because he has been inadequately rehabilitated, but he may not violate the norms if an adequate vocational rehabilitation makes him understand what his work means to his society and what his working responsibility is for his society.

Both society and its rehabilitative institutions can draw no comfort from teaching trades to delinquents and offering them job opportunities -- without teaching him the importance of work and offering him this participation in the functioning of the society. Without that, work in its social significance and his role related to his work would appear to him as alien and external phenomena or concepts with which he is unfamiliar and the rationale of which is incomprehensible to him. The delinquent may

know that his society expects him to work, he just does not know why. Vocational rehabilitation should not teach only trade skills and habits, and should not be content with finding opportunities and placing the former delinquent in a job, but, also, or perhaps primarily, should teach the youth to the understanding that work is not only an individual act but also a part of the social responsibility.

FOOTNOTES

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Chapter V

Legal Aspects of Delinquency

Implications for Rehabilitation

by Ted Rubin

Commentary

Judge Ted Rubin's paper should prove to be a milestone in the rehabilitation of the delinquent. It is a courageous presentation of a model for rehabilitation which is not only well conceptualized, but even more significant, Judge Rubin has applied these principles in his practice as a juvenile court judge. It may seem unusual that a judge rather than a rehabilitation specialist is pioneering in the rehabilitation of the delinquent, but in his paper Judge Rubin clearly points out that the juvenile court, in concept, has as one of its ideals, rehabilitation for the child.

However, the model, for a variety of reasons, has not worked well in this respect, and we are informed that vocational rehabilitation services have not basically entered into juvenile court rehabilitation programs. Fortunately, developments in recent years from two allied fields, mental health and mental retardation, point up the possibilities for the future in juvenile delinquency rehabilitation. Judge Rubin calls our attention to an interesting factor: namely, parents' groups, and other organizations have organized to speak out on behalf of the mentally ill and the mentally retarded. No such groups have spoken out for delinquent youth. Nevertheless, he asserts that a lot can be done if rehabilitation agencies, the juvenile court, and other services work together in developing effective approaches to reaching the delinquent.

The central thesis of Judge Rubin's presentation is, whereas in the past vocational rehabilitation services have not been utilized by the juvenile court, it is vital that the rehabilitation counselor and vocational rehabilitation join the rehabilitation team of the juvenile court. This concept represents a modern advance which may have challenging implications for the role of the juvenile court in the future. But Judge Rubin is not satisfied with vocational rehabilitation just joining the team. He insists that vocational rehabilitation must embark on an aggressive case finding approach to provide services not only for the delinquent, but for his family as well. Such an approach is a radical departure which many leaders in rehabilitation now feel is essential, regardless of the disability. It is a recognition of the impact of social systems upon the rehabilitation of the disabled client. Unfortunately, many rehabilitation counselors cannot see the importance of the social systems approach, or purposely choose to ignore its relevance.

Through such an expanded role, it would be possible for vocational rehabilitation to take a more diverse and creative route to rehabilitating the delinquent. As one example that Judge Rubin offers, it would be possible to prepare parents who are occupational failures to become respectable, consistent wage earners. A father not functioning as an adequate family provider is raising a potentially delinquent son.

We are just in the early phases of cooperative relationships between the juvenile court and vocational rehabilitation. As this tendency continues to grow, as grow it must, we can look forward to outstanding accomplishments. Successful outcomes as a result of rehabilitation partnerships have been a heart-warming story in the rehabilitation of all disabilities, whether they be physical, mental, or social.

Legal Aspects of Delinquency:

Juvenile Courts and Vocational Rehabilitation

The Juvenile Court, in concept, represents an ideal model for the official consideration of juvenile offenders: To remove juvenile law violators from the criminal court to a less traumatic setting so as to achieve I)Rehabilitation for the child, and 2) Protection to the community. Different judges and different communities have differing ideas as to which of these two objectives receives a higher priority.

The Juvenile Court is a secondary agency which generally receives children into its jurisdiction upon referral from police departments, parents, and educational and social agencies. It generally receives three to five per cent of a community's youthful population into its intake division each year. In contrast, a school represents a primary agency which by law serves virtually all children within its statutory age provisions.

Delinquency and criminal statistical research indicates that vastly more delinquency and crime occurs than is actually brought officially to the attention of the courts.[I] Full enforcement of laws would result in such vast numbers of prosecutions in juvenile and criminal courts that it would be virtually impossible to process, adjudicate, service, institutionalize, or rehabilitation so many offenders.[2]

I. See Murphy, Shirley and Witmer, The Incidence of Hidden Delinquency, I6 Am. J. Orthopsychiatry (I946), 686-696, which reported as a "conservative estimate" that II4 underprivileged boys ages II-I5 years, admitted to 6,4I6 infractions of the law during a five year period while only 95 of these violations (less than I½%) had become a matter of official complaint. Also see the Challenge of Crime in a Free Society (President's Commission on Law Enforcement and Administration of Justice (I967) 2I 22.

2. See Breitel, Controls in Criminal Law Enforcement, 27 U. Chi. L.R. 427 (I960) which states that under full enforcement, "...the criminal law would be ordered but intolerable."

At each stage of the juvenile and adult correctional process, discretion is exercised by police, prosecutors, courts, and post-sentence agency personnel as to whether or not known violators should be brought to official consideration. It is generally believed that police officers "lecture and release" in excess of 50 per cent of known violators without formal filing. The minor nature of the offenses, a previously "clean" record, apparent parental responsibility, community attitudes and practices, and the availability of other service agencies for the referral of these offenders, are all factors in the exercise of police discretion. District Attorneys exercise further discretion as to the decision to file and frequently decide not to prosecute for such reasons as insufficient evidence, a private settlement, the unwillingness of a complaining witness to testify. Many juvenile courts maintain intake divisions which screen out up to a third of the filings, settling these matters either by informal couseling, referral to other community agencies, or in recognition of insufficiency of evidence of non-severity of offense. Juvenile court judges represent a further screening step and may utilize the wide discretion given them to dismiss cases for similar reasons. Probation counselors frequently use informal methods to handle probation violations. For those children institutionalized in delinquency facilities, the institutional administration frequently handles violations by its inmates through internal discipline devices without further court filing. Juvenile parole administrations similarly adjust violations by parolees without suspension or revocation of parole or a new court filing.

The model of the juvenile court represented the effort to link legal process with the social sciences and helping services to provide a maximal rehabilitation

effort with juvenile offenders. However, it has been clearly documented that probation staffs are often insufficiently trained and possess excessive case loads; that cooperating child placing agencies have insufficient foster home and group placement facilities available to assist the court in making the best arrangement for the particular child; that community mental health clinics are more willing to diagnose delinquent children than to treat them,[3] and that public clinic and private psychiatric and psychological skills have not been adapted affectively toward low income delinquent youth; that family counseling services are primarily oriented toward middle-class, motivated families and are not important adjuncts to juvenile court rehabilitation plans; that community centers and recreation agencies are not sufficiently geared toward meeting the needs of more "acting out" or more "acting in" delinquent youth; that schools have consistently refused to tool up and meet the basic needs of under-achieving, non-conforming delinquent youth; that job training programs have little tolerance for delinquent youth who are inconsistent in their attendance, performance, and proficiency in the training programs; that vocational rehabilitation services have not basically entered into juvenile court rehabilitation programs; that juvenile delinquency institutions are often seriously lacking in their program effectiveness with the youth they are to serve; and that juvenile parole agents are frequently limited to a control function. In short, although many children have undoubtedly been significantly aided by juvenile courts and allied agencies. far too many children have unnecessarily slipped through this process without really being helped, and have in fact been damaged.

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3. See Teele and Levine, Acceptance of Emotionally Disturbed Children by Psychiatric Agencies, Howard University (1962).

Criticism of the juvenile correctional system has heightened in recent years. Researchers have cited the ineffectiveness of the rehabilitation methods used; lawyers and legal scholars have demonstrated that the courts and other components of the juvenile system have ignored legal and constitutional procedures in processing children; there has also been an expanded community concern over rising delinquency rates. In part, the evidence represents an affirmative reply to Judge Orman Ketcham's statement, ...have we not substituted "governmental for parental neglect?"[4]

Developments during the past five years from two allied fields point the directions for the future in juvenile delinquency work. I) Extended community mental health services have brought earlier and more effective treatment to persons suffering significant emotional disturbance. This, combined with more varied mental hospital programs such as the day hospital, family treatment groups, and after-care services including half-way houses, has reversed the trend toward "bigger and worse" state mental hospitals and has allowed thousands of persons to remain in the community or otherwise undergo briefer mental hospitalization. 2) Expanded community services for mentally retarded persons, including special public school classes, publicly subsidized private classrooms for the mentally retarded, sheltered workshops, parent counseling and other programs, have enabled vast numbers of mentally retarded persons to avoid long term custodial care in state mental retardation institutions. Both of these progressive movements have in part resulted from effective citizen groups which have increasingly spoken out for more enlightend treatment and a greater allocation of resources to better serve these client groups.

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4. Ketcham, The Unfulfilled Promise of the Juvenile Court, in Justice for the Child (Rosenheim-Ed.), 22, 27 (I962).

But to date, too few people have spoken out in behalf of youthful offenders. Their parents are not organized as are the parents of mentally retarded children, to lobby in their behalf. There is no organization of ex-youthful offenders, as with Alcoholics Anonymous, to work toward better laws and more intelligent consideration for the juvenile delinquent. Lawyers seldom appear in juvenile courts, so relatively few cases are brought to higher court attention and until very recently the movement toward the effective treatment of the juvenile offender has not had the powerful backing of the U. S. Supreme Court as with civil rights cases. Further, daily newspapers consistently undermine efforts for more intelligent treatment of youthful and adult offenders by demanding harsh handling and simplistic "solutions."

Despite this, progress is being made on many levels in preventing juvenile delinquency and in treating the offender. The Office of Juvenile Delinquency and Youth Development, U. S. Department of Health, Education and Welfare, has, during the past five years, inaugurated myriad innovative and demonstration projects to aid such youth and to improve the training for personnel working in this field. The War on Poverty has made a beginning to involve the poor in their futures, thereby strengthening the child's family and neighborhood. Greater attention has been revited on the need to eradicate the urban slum and ghetto. Massive study effort by the President's Commission on Law Enforcement and the Administration of Justice, and by the Joint Commission on Correctional Manpower and Training are assessing serious problem areas and offer promise of improved and expanded methods of counterattack. The swelling number of professional persons in these and related fields are asking basic questions as to why we are not more effective with these

youngsters and their families. The serious attacks on the welfare system express fundamental discouragement with this effort of the mid 1930's to eliminate massive social problems. The public school systems are increasingly under attack for their failures to effectively educate all children. High unemployment and the threat of more millions of unemployed persons due to automation and the ultimate termination of Viet Nam hostilities, point toward a further crisis that is of grave concern.

It is now clear: The juvenile courts will experience a legal renaissance whereby legal procedures will be adhered to more scruplously in the future. This should not, however, negatively impair the important discretion which juvenile court judges have now regarding the treatment planning for a child offender. Community attitudes, despite occasional hysteria, generally tolerate minor deviations by a child (especially a middle class child) because he is a child and is not expected to adhere to as high a behavioral standard as an adult.

Within this space, it is incumbent that rehabilitation agencies, court staffs and other services develop improved measures to reach a child in the community without the necessity for his removal. That juvenile court does best which individualizes its youth to the fullest and which has the widest array of alternative counseling and placement services available for the needs of the particular child at the particular time. Except for the juvenile who murders, and some states even lift this exception, no mandatory sentences are required for a particular delinquency offense. Probation is the rule rather than the exception and once a decision is made to grant probation, the great opportunity to reach a child meaningfully is allowed. Although we think that youthful offenders, like adult offenders,

"should have known better," a juvenile court judge, at least in jurisdictions of significant population, has far more choice in reaching his dispositional decision with the child. In contrast to the adult system where the alternatives are essentially probation, fine, or incarceration, the juvenile system can draw upon its better trained and less overburdened probation staff, the mental health services attached to larger city courts, community mental health clinics, private family service agencies, private and public group care facilities, volunteers, relative placements, youth opportunity centers, school social work services, private and public recreation agencies, and others, to join the ateempt to help the child.

Some states say, by statute, that one offense represents delinquency and allows a judge to remove a child from the community. Other states require more than one offense. However, every state requires that the best interest and welfare of the child should be a primary concern of the juvenile court. And the important point is that the judges are given wide latitude in seeking to effect rehabilitation.

In the past, Vocational Rehabilitation services have not in general been utilized with juvenile delinquents within the court's jurisdiction. They have been essentially limited to those who are paroled or otherwise released from delinquency institutions. Although the child's parents may receive services if they meet statutory and adminstrative requirements, it is this speaker's opinion that there has been an insufficient reaching out from Vocational Rehabilitation agencies toward these families, as well as insufficient clarification to juvenile court staffs as to the hospital availability of Vocational Rehabilitation agencies.

The question being asked is, if Vocational Rehabilitation waits until the post-institutional phase, might its services not be less effective than if they were offered earlier? The limitation in referring such youthful offenders to the rehabilitation department is limited only by present regulations and the absence of communication between these services. Can't we device ways to more totally rehabilitate a child and his family at the fist sign of trouble?

It is clear that the juvenile court should have the primary community responsibility for servicing juvenile delinquents. The departments of welfare are seen as having the same primary responsibility with dependent and neglected children. However, it is vital that Vocational Rehabilitation join the rehabilitation team of the juvenile court and aggressively widen its service provisions to the delinquent and his family. The particular role of Vocational Rehabilitation will need to be more clearly ascertained; but it should be. Such an expanded role could include:

I. Provide half-way houses for young delinquent whose chance for rehabilitation will be greatly enhanced if they are temporarily removed from less-than-adequate-homes, but whose offense against society and whose personal needs do not warrant correctional institutionalization.

2. Provide special pre-vocational opportunities and education for those children whose regular school experiences have not been geard to their needs, interests, and abilities, and who will almost certainly become first dropouts, and then unemployable or underemployable.

3. Expose under-motivated and perhaps cynical young delinquents to vocational opportunities for which they can prepare themselves, but the existence of which were either previously unknown to them, or -in their eyes unobtainable.

4. Assist young delinquents in establishing for themselves realistic vocational goals. Many delinquents either see themselves as being automatically shut out from tomorrow's job market, or they establish for themselves such high aspirations that at some point they must recognize the fact that in "shooting for the moon", they have failed to prepare themselves for that which is obtainable.

5. Prepare parents who are occupational failures to become respectable, consistent wage earners. A father who is not functioning as an adequate family provider is a father who is raising a potentially delinquent son. A depressed and impoverished mother is a mother who is raising a potentially delinquent child. These people may not come to your Vocational Rehabilitation office. You must find a way to go out to them.

As society has become more complex, the services provided by many agencies have proliferated with frequent non-coordination and chaos. But there is no reason why all of us cannot talk better with each other and work better with each other to score higher when we measure how good a job we are really doing.

Chapter VI

Practical Applications

Successful Programs in Rehabilitating the Delinquent

Commentary

This institute would not be complete without an account of some successful approaches to the rehabilitation of the delinquent. The participants were impressed not only with the description of these programs, but also with the enthusiasm and dedication of those presenting their projects. They demonstrated quite vividly that commitment, intense ego involvement, call it what you will, is essential for successful rehabilitation with most difficult clientele. The projects were innovative and yet they were not in the sense that many of these ideas have been around for a long time. Nevertheless, the daring displayed in initiating these programs and the ingenuity shown in their implementation suggests that these are examples of creativity in problem solving.

The family court team idea described by the panel consisting of the team itself (the family court judge, the probation officer, the rehabilitation counselor, and the district vocational rehabilitation supervisor) brings home forcefully the effectiveness of the team approach when it is really operational. There is much talk in rehabilitation about the need for a team approach, and so little practice of team effort. It is refreshing, therefore, to hear about one that is really working. Their statistics corroborate their contention.

Quite unique in this project is the establishment of a student social service unit in an agency without an ongoing program. It demonstrates again that old adage that "necessity is the mother of invention." Those in rehabilitation as well

as the health and welfare field in general will always be confronted by personnel shortages, financial difficulties, and equipment and facility lacks. Consequently, there must be a readiness to show ability to be flexible and creative so that our programs will not suffer by these obstacles.

The Springfield Goodwill Industry's program represents a different approach than the Rhode Island Family Court Team.

The interesting feature of this project is that a community organization has taken the initiative to mobilize community resources for the rehabilitation of the delinquent. Furthermore, it is a comprehensive vocational rehabilitation program embracing testing and evaluation, prevocational work adjustment, on the job training, and involvement of community support to maintain the rehabilitation of the delinquent in the community. The Springfield Goodwill's pursuit toward rehabilitation goals is another example of a team endeavor. However, the key factor here is that one organization serves as the central significant organization in carrying out the rehabilitation plan while other agencies either serve as referral agents or provide collaborative services as necessary.

Although this agency feels that the program is effective, it does not choose to stand still on its laurels. The mark of a qualitative program is a willingness to continually improve its programs despite a high incidence of successful experience. Thus, the report reveals that Springfield Goodwill has taken stock of its assets and deficits and has made specific recommendations to enhance their program. Constructive self evaluation is healthy for ensuring auspiciously favorable rehabilitation outcomes.

The Family Court Team in Rhode Island

The relationship of the Division of Vocational Rehabilitation with the Rhode Island Family Court began on an informal basis in 1958. At that time, referrals were received from the Court by agency personnel and were processed in the normal manner.

While working with these juveniles, the rehabilitation counselors noticed that similar roadblocks to successful rehabilitation kept appearing. The success rate with this type of case was not too high, and counselors were constantly frustrated in their attempts at rehabilitation with these clients. The probation counselors and court personnel were also running into similar difficulties. Much discussion took place among those concerned, and it was the consensus that the parents of the clients were integral figures in the rehabilitation planning. Most of the juveniles came from broken or extremely stressful home situations, and the maladjustment of many of the parents seemed to be contributing to the maladjustment of the children. Therefore, it was felt that the team approach would be the ideal manner for evaluating and recommending treatment programs for the clients and their families. By combining probation counselors and rehabilitation counselors along with a psychiatrist and psychiatric social worker, the Agency could provide a multi-disciplined team which could effectively deal with the social, psychological, medical and vocational problems of the clients and their families. As a result, the Vocational Rehabilitation - Family Court Team was established in 1962.

The Team presently consists of a psychiatrist, a vocational rehabilitation

supervisor, two rehabilitation counselors (male and female) and a psychiatric social worker. The probation counselor for the particular client being discussed always attends the meeting along with any other professionals who are involved with the client and his family. The Family Court Judge who referred the particular client and the Chief Judge are also invited to attend the meeting.

The psychiatrist, after interviewing the client privately, provides his clinical impressions of the client, and of the parents who are seen by the entire Team. His knowledge of psycho-dynamics and psychopathology adds a good deal of professional depth to the Team in its discussion and recommendations.

The psychiatric social worker is a valuable asset in diagnosing the sociological problems of the family and also in treating these problems along witn psychological difficulties. The social worker usually becomes involved with the client's family prior to the Team discussion. A complete social-medical history is taken, and this is presented in summary form at the Team meeting. When casework is recommended for one or both parents, which happens frequently, the social worker provides this indispensable service. The social worker is also an integral person in arranging services for the family through other social agencies. While providing casework for the parents, the social worker keeps in constant touch with the rehabilitation counselor working with the client.

There is also a student social service unit, under the direct supervision of a trained professional, in the Vocational Rehabilitation agency. The unit is jointly sponsored by Boston College and Simmons College, making use of Vocational Rehabilitation grants to provide traineeships for graduate students. The unit was established in 1961 with an intention to provide more adequate field work instruction in rehabilitation agencies for their social work students and also to identify rehabilitation concepts which should be integrated into the curriculum

of a school of social work. This was the first time that the cooperating schools had established a unit in an agency without an on-going social work program. The student unit operated on the principle that social work would facilitate the client's use of Vocational Rehabilitation services. This unit has been of invaluable assistance to the Agency as a whole and to the Family Court Team in particular. The students' function is the same as that of the psychiatric social worker, and they fill a tremendous gap due to the large number of referrals to the Team and the time limitation on the psychiatric social worker. When the Team has been without a social worker, as is the case at the present, the case work and diagnostic services provided by the students have enabled the Team to continue to function adequately. Therefore, the students have successfully augmented and at times assumed the services provided by the psychiatric social worker.

There are two rehabilitation counselors who work with the Family Court and function as members of the Team. There is a male counselor who works with the boys and a female counselor who works with the girls. Both of these people provide intensive counseling for their clients and also work closely with the other Team members in coordinating services for the clients and their families. These two people along with the social worker and psychiatrist are the core members of the Family Court Team which has so effectively dealt with the multiple problems of these juveniles.

The Vocational Rehabilitation supervisor coordinates the activities of the Team and each week summarizes the Team discussion and recommendations for distribution to the members and court personnel.

The program serves boys and girls 14 to 18 years of age brought before the Family Court and who are either physically or emotionally disabled. Although

working with all eligible juveniles, the Team is primarily concerned with first offenders because of its interest in reversing the delinquency process in these particular juveniles. The goal of the program has been and will continue to be the provision of a full professional team approach in evaluating problems and and potentials and in planning the kinds of restorative and training services best suited to these clients. The program extends intensive treatment and counseling for the client along with social casework for both the client and his family. The Team also gives a more complete view of the juveniles' problems to the rehabilitation and probation counselors.

The Family Court Team re-emphasizes and demonstrates the interest of the Rhode Island Division of Vocational Rehabilitation in "PREVENTIVE" rehabilitation. Through this Team and even more dramatically, through its School Project, the Division has shown how early detection and treatment of physical and emotional problems can help the adolescent to avoid a life of personal, social, vocational, and occupational maladjustment.

The services of the Team as a whole are primarily consultative to the special area of juvenile delinquency and in particular to the individual rehabilitation counselors working with the young clients. Inasmuch as the Team members are studying the client and the problems with which he is involved, there is some involvement in the diagnostic area. However, the main responsibility of the Team is to provide the counselor with a greater awareness of the total problems involved and also to help him plan a treatment program that is comprehensive and effective. When a program has been initiated for the client, the Team members continue to consult with the rehabilitation counselor in order to review the progress that the client may be making, or the problems which may be evolving and furnish him professional advice on how to best relate these developments. The same advice-giving and consultation is provided the psychiatric social worker who might

be encountering obstacles while attempting to work with the client's family. In fact, as a matter of Team policy, the counselors and social worker periodically report on the progress or current status of all clients who have been before the Team. If there seems to be a need for detailed discussion and client contact, the Team will recommend that the client and his family come to a future Team meeting. In this way there is a continuous evaluation and consultation on a Team case until the rehabilitation objective has been achieved. Even at that time there is a final review of the client's situation before the case is "closed rehabilitated."

The majority of referrals to the Family Court Team are made by Family Court judges when a child appears before them for a misdemeanor. They are keenly aware of the multiple problems of these youngsters and quite astutely, they recognize the particular cases which can benefit from the services provided by the special Team and the Division of Vocational Rehabilitation. The probation counselors, upon becoming familiar with the function of the Team, also made many referrals.

Once referral has been made to Vocational Rehabilitation, the counselor arranges for the client and his parents to come in for an interview. At that time they are advised of the Team and its function. They are also advised that the social worker will contact them for an appointment. They counselor also indicates to them that a general medical examination and projective testing will be authorized for the client. When all the diagnostic studies have been completed, they will be contacted for an appointment for the Team meeting.

In addition to the above information, the counselor sends for school records and also attempts to contact teachers in order to gain their impressions.

When all the above-mentioned material has been obtained, the counselor sets the date for Team discussion of the client's case. At the same time, the counselor

contacts the probation counselor and all other individuals in order to insure that they will be able to attend the meeting. Through experience, it has been found that by involving all interested parties, the Team discussion is more fruitful and complete. In addition to this personal contact, all interested parties also receive a copy of the Team agenda at least a week in advance.

The Team meets once a week for four hours and usually discusses no more than two new cases because at least two hours are required to present background material, interview the client and his parents and make appropriate recommendations. Initially the Team had attempted to see four new referrals each week, but found that they just couldn't adequately deal with that many cases in the time alloted.

The team recommendations are interpreted to the client and his family by the rehabilitation counselor and/or social worker after the Team meeting has taken place.

Since the majority of the young clients have some sort of emotional problem, the recommendation is usually intensive psychotherapy and supportive counseling, Day Care, residential placement, and concomitant casework services for the parents. In many cases, it is found that the child is simply reacting to the emotional problems of his parents who are sometimes severely disturbed. In these instances, referral to Vocational Rehabilitation is recommended along with supportive counseling for the child.

In September of 1966 it was reported that forty of the boys and girls, who had been evaluated by the Team, had been rehabilitated into employment and many more to school adjustment during fiscal 1966. It was also reported that more than two hundred adolescents were receiving such services as psychiatric treatment, physical restoration services, guidance, counseling, vocational testing, and vocational training. It was also noted that the Team had worked with fifty families to bring about a better relationship between juvenile delinquents and their parents.

During the current fiscal year, the Team did not reorganize until November, and at the present writing, the Team has worked with sixteen clients. They have been handicapped by the lack of a social worker, but they have been able to utilize the members of the student unit in working with most of these cases. However, it is hoped that a social worker will be found in the near future because the students are necessarily limited in the number of cases which they can work with.

It is the feeling of most people who have been associated with the Team that it has been effective in dealing with the multiple problems of disabled youth. It is also felt that the Team can be made more effective and, in time, it is hoped that this will be accomplished. The ideal situation has been described in this report. In actuality, the two counselors who work with the Team are overloaded with cases and, as a result, the amount of counseling which they can provide is somewhat limited. The fact that the Team is without a social worker also is a limiting factor. Both of these factors tend to limit the effectiveness of the Team. These situations should be remedied in the near future by the addition of the required personnel.

THE SPRINGFIELD GOODWILL INDUSTRIES'

PROGRAM FOR THE REHABILITATION OF YOUTHFUL OFFENDERS

I. Purposes and Objectives

Springfield Goodwill Industries' acknowledgement of and genuine concern for juvenile delinquency represents a unique extension of rehabilitation services. At the time of inception no other Goodwill Industries in the nation had developed a program designed to offer delinquents prevocational work adjustment.

When consideration was first given to a possible rehabilitation program for youthful offenders, it was learned through surveys that delinquents were in dire need of attention. It was further indicated that little had been done to rehabilitate the delinquent by other community agencies through work programs. In addition, Springfield court records and statistics revealed that there was a relatively high rate of recidivism among delinquents in the Springfield area.

The purpose of the proposed program was to develop a methodology to improve the stability of employment and significantly reduce the recidivism of youthful offenders. The Springfield Goodwill Industries' concept of the need to work with the delinquent was recognized by the federal government when the following objectives were formulated and proposed.

(a) Provision of vocational evaluation and on-the-job training for youths who have violated the law and are under the jurisdiction of the courts. The mobilization of resources in the community for support, assistance, and participation in the rehabilitation of youthful offenders. An analysis of environmental, interpersonal and personality relationships with others, productivity in the work situation and adjustment to standards of the community.

II. Environment of setting conducive to Rehabilitation

To be involved in the study, it was determined that an individual had to have a police record and be 16 to 21 years of age. The majority of youths were referred to Springfield Goodwill by other agencies in the community. The youthful offender was initially absorbed into an on-going industrial installation which, at that time, employed approximately 300 persons. The following activities were included: general laundry work, textiles, shoe repair, small electrical appliance repair, heavy electrical appliance repair, woodworking, furniture reapir, upholstery, radio and television repair, subcontract work for various manufacturers.

III. Method of Rehabilitation within this Environment

The methodology used to accomplish the aforementioned objectives included: recruitment, intake, development of case histories, psychological evaluation, vocational evaluation, planning a program for the client, individual counseling, group counseling, placement, follow-up activities, community involvement and support, and on-the-job training.

A wealth of information would be obtained on each youthful offender and later used as a guide to determine if any general patterns emerged.

IV. A Youthful Offender demonstration or pilot project exploring the advantages of a prevocational work adjustment training concept.
(Previous Project 1½ year duration 1964-66)

(a) Overview of procedures and subsequent findings.

Having considered the objectives, the environment and the method of rehabilitation for the pilot program, the rehabilitation staff concentrated on the exploration of the advantages of a prevocational work adjustment training concept.

Prevocational work adjustment is achieved at that point when the youthful offender has adjusted to the general work situation and has developed proper work traits of workers.

Data was obtained on characteristics of the youthful offenders in the following categories:

An overview of the general characteristics of the 67 youthful offenders warrants that these youths be termed juvenile delinquents. Their ages range from 14 to 23 and all were found guilty of at least one crime. Analysis of other characteristics revealed the following:

1. A total of 19% of the 67 clients were Negro and 81% were White. The percentage of 19 is considered a fair representation of the number of court referrals who are Negro.

2. A total of 27% were born out of state and 73% were born in Massachusetts.

3. A total of 48% were from lower class neighborhoods; 34% from middle class neighborhoods; and 18% had no permanent place of residence.

4. The mean age of inception of crime was 15.5; the range 12 to 20 years of age. Crimes against property were the most frequent. Major crimes were auto theft, burglary and larceny.

5. A total of 22 youthful offenders were handicapped because of injuries received in auto accidents, convulsive disorders, brain damage and emotional disturbances.

(b) Conclusions

There was little difficulty in securing jobs for the youthful offenders. It is believed that this was due in large measure to the support that the project provided the youthful offender and his employer. With the method of operation employed by the project staff, it was found that the youths who completed the program stayed on the job for at least six

months. Less recidivism accompanied this relatively stable employment. The effectiveness of the program is further substantiated by the higher recidivism of youths who dropped out of the program.

It is concluded that work adjustment is a necessary phase in the vocational rehabilitation of the youthful offender. Appropriate work habits were far less developed in those youths who left the program following work evaluation.

Conclusions regarding the general characteristics of these youths are the following:

1. The youthful offenders have a low tolerance for interpersonal relationships. The offender will communicate with others on a superficial level and involve himself in self-oriented activity.

2. The school and home ineffective with these youthful offenders in terms of their ability to transmit educational values and ideals.

3. Masculine identification was not available in the families of the 67 delinquents enrolled in the program. In most cases the father was either not present or very weak in relation to the female figure of the household.

(c) Recommendations

Results indicate that those who remained in the program and those who dropped out were significantly differentiated in terms of birthplace, neighborhood, and in the types of previous crimes committed. Those who dropped out of the program were highly mobile in terms of place of residence, lived in lower class neighborhoods, and tended to commit more crimes that were classified as disturbances of the peace, sex offense, stubborn child and truancy. In the future these individuals who have these characteristics should be worked with more closely in an attempt to prevent their dropping out. Recommendations for further study include the following:

1. Family orientation: Frequent home visits should be made in order that the parents become involved in the rehabilitation of their youngster. Exploration of the effectiveness of group counseling is also suggested.

2. Involvement with supervisors: The methods supervisors use in handling the youthful offenders should be explored.

3. Establishment of new referral sources: Possible referral sources for the future include County Sherrif Offices, Massachusetts Rehabilitation Commission, Juvenile Delinquency Commission and Community Juvenile Police Bureau.

4. Testing: Incorporation of other test batteries as determined by staff consultants.

5. Job development: Institute bi-weekly visits to the unit by personnel managers of local industry and obtain specifications on employment openings for preplacement work experiences.

V. A current Youthful Offender Project proposing a prototype project applicable to all communities dealing with the training, employment, reduction of recidivism of the youthful offender.

In addition to the previous program, we are exploring the most effective means of developing family involvement in the program and, thereby, providing additional support to the youthful offender. Development of family involvement has already entered its fourth and final stage. Those stages used to develop family support to the youthful offenders are as follows:

(a) Home visits were made weekly to the parents or guardians to gain support for the program.

(b) A personal interview with the parent or guardian at the Goodwill location during designated hours to further support the value of the program.

(c) Bi-monthly parent group meetings designed to increase mutual support of their son or daughter involved in the youthful offender program.

(d) The separation of fathers and mothers into two different groups designed for their development of a role which would be conducive to their son's or daughter's rehabilitation.

An all-new experiemental and demonstration feature of this current project relates to developing relationships between youthful offenders and supervisors. Results from our previous project seem to indicate that once a youth establishes an interpersonal relationship with a supervisor he also acquires acceptable work traits. The following procedures have been initiated in order that this objective may be achieved.

Phase I. Evaluation and Testing: The assimilated tasks are administered during the first week of the client's enrollment. These tasks continue to consist of sorting, assembly, packing, ins epction and clerical tasks. They are administered to all new enrollees by the Vocational Evaluator. The test battery remains the same, i.e., Wechsler Adult Intelligence Scale, Picture Interest Inventory, Task of Emotional Development Test, and the Draw-A-Person Test. These psychological and vocational interest tests are administered by the Vocational Counselors during the first week the client is enrolled in the project.

Phase II. Work adjustment: Initially the youthful offenders in the current project were placed in four different departments - five days each - as part of their work evaluation. This phase of the evaluation has been postponed until after the necessary work adjustment period. Reasons for changes in procedure include:

1. The establishment of an interpersonal relationship between client and supervisor was prevented by recurrent changes in department placement.

2. The evaluation procedure (placement in four different departments) seemed to reinforce previous work behaviors of going from one job to another, and thereby increase job mobility and also job instability.

3. It was deemed that the warm interpersonal relationship between the youthful offender and supervisor should be established as soon as possible. Therefore, clients are placed in a department closely related to his long-range vocational goals.

Phase III. Post Evaluation: When youthful offenders have completed work adjustment training and have been judged to be capable of holding an on-the-job training position, he is then assigned to four different departments in Goodwill. The purpose of this is to obtain research data and to see if that youth can take different kinds of supervision.

Phase IV. On-the-Job-Training - The youthful offenders subsequently placed in on-the-job training position in competitive industry within the community.

First Project Statistics:

Total Enrolled in Project

Female - 2 Male - 65

Age: 16-17 - 19
18-21 - 45
22-23 - 3

Race: White - 54
Negro - 13

Education:
Special Classes - 5
6-8 - 30
9-12 - 32

Remained in program on-The-Job training, employment or returned to school. - 44

Dropouts - 22 (19 of the dropouts incurred recidivism)

Sources of referral - District Court

CURRENT PROJECT

VI. STATISTICS

1. Total enrolled in Project: 37

Female - 3 Male - 34

Age: 16-17 - 19
18-21 - 15
22 - 3

Race: White - 24
Negro - 13

Education:
Special Classes - 5
1-4 - 1
5-8 - 11
9-12 - 20

Head of Household: 5

Welfare Recipient: 1

In Goodwill Evaluation - Work Adjustment - 24
On-the-Job-Training - 3
Hospitalized - 1
Violation of Probation - 3
Working - 2
Dropouts - 4

Sources of Referral:

Superior Court - 12
District Court - 7
Youth Service Board- 7
Parole Officers - 1
Conn. Rehab. Bureau- 1
Youth Opportunity - 9

Chapter VII

The Juvenile Court and Vocational Rehabilitation - Possibilities of Corporative Relationships

By Dorothy Singer

My comments this afternoon are designed to provide you with a greater familiarity on the various special granting programs in the Vocational Rehabilitation Administration. It is our hope that one of these approaches may prove effective for you in launching services for the juvenile delinquent and the youthful offender in you State. Most of what I shall be saying has been voiced by Miss Switzer, Mr. Hunt and others in the Vocational Rehabilitaion Administraiton -- but I believe that a review of these special granting programs may help you move along at a more rapid pace when you return to your own communities and begin your program planning.

The four grant programs I shall describe are 1) Expansion grants, 2) Research and Demonstration Grants 3) Innovation Grants and 4) Cooperative Agreements. Although I shall be discussing special grant programs, I do not wish to leave an impression with you that services to the youthful offender or delinquent can only be provided by a specially funded project.

Since the inception of the public vocational rehabiliation program, there have been many disabled persons served who could be classified as "public offenders". Many state agencies have accepted offenders as clients in providing itinerant visits to correctional institutions by vocational rehabilitaion counselors. In addition, many persons who are technically in this group are declared eligible for vocational rehabilitation services and therefore served under another disability category. Included here would be many of the alcoholics and narcotic addicts. Nevertheless, until the last four years, no state rehabilitation agency has systematically undertaken to serve the offender group as such in a comprehensive manner.

The recent years have witnessed a remarkable upsurge of interest in vocational rehabilitation services to this group. In these past four years, the Vocational Rehabilitation Administration has funded approximately 30 projects in which the public offender was the focus of the study. These projects utilize a wide range of special techniques varying from the installation of vocational rehabilitation units in reformatories and prisons to the use of surgical procedures to aid the rehabilitation of disabled offenders. Currently underway is a series of coordinated research projects developed in cooperation with the Federal Bureau of Prisons to determine the appropriate time for intervention of the vocational rehabilitation counselor in the correctional process. These projects represent probably one of the largest efforts on the part of the Vocational Rehabilitation Administration to study intensively one particular group.

I mention these projects because I believe you can see that the emphasis has been for the most part on the adult offender. It is rather interesting that this conference is the first of its kind in which we are attempting to develop a dialogue between the juvenile court judge, his staff, and the vocational rehabilitation agency. We hope that the proceedings of this conference will be the catalyst for many more conferences throughout the country and eventually an integration of vocational rehabilitation services into the juvenile court system. I want to assure you that the limited activity to date does not, in any way, indicate "policy" on the part of the Vocational Rehabilitation Administration. We shall be happy to entertain your innovative or creative ideas for programs relating to the vocational rehabilitation of the juvenile delinquent.

I shall describe first the Expansion Grants which was the method of funding utilized for Judge Rubin's project which he presented this morning. The 1965

Amendments to the Vocational Rehabilitation Act include authority for Federal grants to pay part of the cost of projects which will expand services to the disabled -- where this promises a substantial increase in the number of persons vocationally rehabilitated. This exciting new authority permits both State vocational rehabilitation agencies and other public and private non-profit organizations to undertake a direct expansion of services to the vocationally handicapped.

The major emphasis of Expansion projects must be on service projects which will lead to an increase in the number of persons rehabilitated. We are particularly interested in those projects emphasizing increased services to persons with heart disease, cancer, and stroke, -- also projects which will provide increased services to the disabled in prisons or those who are involved in public offenses and finally projects which are designed to meet the needs of young, disabled individuals.

It is evident that projects for the juvenile delinquent do meet the criteria, in two instances, for Expansion Grants. Some of the programs which have been funded under Expansion Grants have been programs between the school system and the vocational rehabilitation agency -- or the rehabilitation agency and a welfare department. We have established vocational evaluation units making possible the employment of additional staff in a workshop or rehabilitation facility under Expansion Grants. It is possible to develop a project involving the schools, the juvenile court, and the vocational rehabilitation agency. I think you can see from the few programs I have tioned that there is a variety of ways you can be effective in promoting the vocational rehabilitation of the juvenile delinquent by meshing the efforts of different community agencies.

By law, there are certain restrictions regarding Expansion Grant monies. The funds cannot be used for the construction or a substantial alteration of rehabilitation facilities, workshops, or other buildings. Research and staff training are not acceptable budget items.

Of considerable interest to you, of course, is the ratio of matching funds. These are on a 90-10 basis, 90 per cent Federal and 10 per cent matched by the applicant. Expansion grants may be funded up to three years.

If the applicant of an Expansion Grant is not a state rehabilitation agency, the application must have the approval and recommendation of the state agency which must indicate how the proposed project will expand the number of persons being vocationally rehabilitated. You can obtain the applications and guidelines from your state rehabilitation agency. We urge all potential applicants to work closely with their state agency in developing special projects. When the application is in final form, it is submitted to the Regional Office for our review and approval. In evaluating a request for an Expansion Grant we would study the project in relation to other programs in the state and the region giving full consideration to program needs and disability groups. An expansion grant application can be filed at any time during the year.Our review in the Regional Office usually takes from four to six weeks, assuming that there are not numerous revisions necessary.

Next, let us talk about our Research and Demonstration Grant Program. This program also provides partial support for projects which we believe hold promise of making a contribution to the solution of vocational rehabilitation problems which may be common to many states. The studies may, as with Expansion Grants, be located in a variety of settings such as schools, workshops, reformatories, houseing projects, and juvenile courts.

The major principle in the research and demonstration program is to discover new principles and concepts basic to the understanding of the rehabiliaation process and then to translate this knowledge into approved services. There are three types of grants available: research, demonstration, and special facilities for two or more states. I believe the demonstration grant is most pertinent to us today. The criteria for the demonstration grant is that (1) the proposed service is new -- or is in a setting that has not been explored before; (2) the procedures you are attempting to demonstrate can be generalized and are applicable to other settings;(3) the proposed procedure is not only new but desirable; and finally; (4) the project plan provides for a systematic evaluation of the effectiveness of the proposed procedures. I think it is the last point which sometimes surprises some of our applicants who believe that because a project is a demonstration project, the research component for evaluating the procedure is unnecessary.

Because of the broad nature and requirements of the national rehabilitation program, projects are approved in a wide range of areas including psychology, sociology, economics, social work, and community organization.

All applications which provide direct service to handicapped persons must have the prior approval of the director of the state rehabilitation agency. Therefore, we recommend early planning and consultation with the state rehabilitation agency. There is nothing more annoying to the state director than having a person arrive at the director's door the last day before a filing deadline, and asking him to please sign his project "now" because he has to have his application in Washington the following day. Another practice we still see, though less frequently, is the agency which develops a research and demonstration grant which provides for a state agency counselor on the staff and yet there has

been no communication between the applicant and the state director. We do urge, whenever possible, that the rehabilitation counselors on a project be from the state agency. We believe this is one way of insuring cooperative work between the two agencies and a method of integrating this service into an ongoing program of the rehabilitation agency when the project is completed.

The ratio of Federal to applicant funds is not stated in our legislation, but at the present time applicant support ranges from 10 to 25 per cent. One final note -- the staff in the Regional Office is available to you for consultation on research and demonstration grants. We shall be happy to make available to you the guidelines and the application forms. Usually the applicant submits a draft to us for our comments and we may meet two or three times before the final draft is ready to go to Washington.

The next type of grant is called the Innovation Grant and is available to the state rehabilitation agency only. Innovation grants are authorized under Section 3 of the Vocational Rehabilitation Act. The Innovation Grant is to be used as the name implies -- to provide an innovative or creative program. This allows the state agency to test out or try new types of service programs without having to reduce the funds for the ongoing rehabilitation programs. It is anticipated that states will vary in the kinds of programs they develop because of the differences which may already exist in their programs. The Innovative Grants provide the opportunity of developing programs over and above what the rehabilitation agency is currently sponsoring not just to expand their present activities. Although it is to be new and innovative, the agency must present a series of planned activities in terms of the organization, staffing, and standards of services.

The Innovation Grants must be focused on projects for the severely disabled such as those with heart, cancer, and stroke -- or the cerebral palsied, deaf, or deaf blind -- retarded blind -- and this is of importance to you -- projects which might provide an evaluation unit in a state penal institution, or possibly a rehabilitation unit in a housing project or some similar type of poverty setting. The Connecticut Division of Vocational Rehabilitation has an Innovation Grant which is providing evaluation services to the inmates in the jails of Hartford.

Innovation Grants are of five year's duration. In certain states, not all of the innovation monies have been utilized which is something you may wish to be aware of in your planning with the state rehabilitation director. I say this to both the judges and probation officers as well as the rehabilitation people present who are frequently faced with the unmet needs in the field.

Finally and last we come to the Cooperative Agreements. This is based on the principle of third party funds. There is no special language for third party funds -- there is no magic to third party funds, but the use of third party funds does involve considerable innovation in government since it means having agencies working together in new patterns of administration which don't fit into normal bureaucratic programming and operations.

We are discussing a device for earning the unused Federal vocational rehabilitation funds. Since they are Federal vocation rehabilitation funds, they must be spent under the supervision of the vocational rehabilitation agency and according to the approved State Plan. In other words, the money must be spent for the services the vocational rehabilitation agency can normally provide. Let us take an example of how the Federal funds might be earned through a cooperative agreement between the vocational rehabilitation agency and a state school for

the retarded. Since I had the experience of developing one in that type of setting, I'd like to use that as an illustration. In this particular school there was a partial vocational rehabilitation program -- partial in the sense that superivisors of the school industries were assuming responsibility for training residents with the goal of training them so that they might eventually move into employment in the community. Although there were work supervisors, there was no staff available for coordinating these work areas,no method of structuring the work program with an increasing and intensification of the work program and of evaluating the students in the work program. There was no social worker available to work with the families in planning for the resident's return to the community -- and there were no funds for specialized training following their release. In addition, the one rehabilitation counselor was so burdened with "in- house" activities, that he could not develop the necessary community resources for traveling and for job placement.

The state school and the rehabilitation agency developed a narrative describing the diagnostic and evaluation services, the training within the school's industries, counseling, parent counseling, job try-outs in the community and placement. The role and responsibilities of each agency were clearly delineated.

We were able to identify the amount of time the work supervisors were engaged in vocational reaabilitation training -- the time the Director of Education and Training was spending in specific rehabilitation activities and the vocational rehabilitation counselor's time. We also determined the amount of time the occupational therapist devoted to pre-vocational evalu tions and the psychologist's time in administering psychological evaluations to determine vocational potential.

The value of all these services approximately $15,000. This was certified by the superintendent of the state school in agreement with the state rehabil-

itation agency director. These $15,000 of state funds -- or third party funds could earn the unused Federal vocational rehabilitation funds at the same ratio as other Section 2 funds, that is, three to one or $45,000 for the $15,000. This $45,000 goes to the state rehabilitation agency for the particular vocational rehabilitation program at the state school. The money allowed the division of vocational rehabiliation to employ the coordinator of a vocational rehabilitation unit in the state school, a full time rehabilitation counselor, a part time social worker, and funds to purchase all the other necessary services such as training, speech reading, (which we found to be needed by many of the residents who had marked hearing losses) and any additional physical restoration services. As you can see, this is a somewhat unique approach to the utilization of Federal funds which is made possible in those states where the legislature has not appropriated sufficient funds to earn all the Federal money allocated to a state.

In Region I this year only Connecticut and Rhode Island are earning all of their Federal monies through state appropriation. I urge you to pursue the opportunities possible under cooperative agreements.

APPENDIX

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Curriculum Materials Developed from a Conference on Effective Approaches to the Rehabilitation of the Disabled Public Offender.

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*CONFERENCE ON EFFECTIVE APPROACHES TO THE REHABILITATION OF THE DISABLED PUBLIC OFFENDER, BOSTON, MAY 10-12, 1966

Counseling methods, rehabilitation planning, and placement techniques applicable for maximum rehabilitation of public offenders were the focus of this workshop. The specific purposes include: (1) to explore methods for attaining a cooperative relationship between state vocational rehabilitation agencies and correctional institutions, (2) to examine principles and counseling methods that might make for the most effective rehabilitation of the public offender, and (3) to indicate some of the practical needs of the correctional institution for rehabilitating public offenders. Participants represented the various fields of rehabilitation, corrections, probation, parole, and law enforcement. Thirteen presentations survey treatment of the offender and methods of rehabilitation. A related document is VT 008 522 in this issue. (CH)

VT 008 532

Curriculum Materials

Developed from a Conference on

EFFECTIVE APPROACHES TO THE REHABILITATION OF THE DISABLED PUBLIC OFFENDER

Edited by

REUBEN J. MARGOLIN
KARL LARSON
RALPH VERNILE, JR.

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

The publication of these curriculum materials comes at a most opportune time. Our nation is finally aroused over the urgency of the nation's crime problem and wants to do something about it. This concern is reflected in the President's message on crime which recommends an all-out attack on the problem. The importance of rehabilitating the penal offender is a key point in the crime report. It emphasizes the fact that we spend too much money on custody and very little on rehabilitation. Now that the idea of the criminal being possessed by devils is being replaced by the idea of psychological and social disability, correctional rehabilitation becomes a strategic force for converting anti-social behavior into constructive channels. Through such action we increase the likelihood of a safer and saner society. In this respect congratulations must be offered to the Vocational Rehabilitation Administration for its pioneering and imaginative role in correctional rehabilitation. It has boldly accepted the challenge of decreasing the depth of ignorance and the lack of solutions to the crime problem. Northeastern University is grateful to the Vocational Rehabilitation Administration for its willingness to provide a short term training grant to run this most significant institute. We hope that the publication of these materials will stimulate action toward more and better correctional rehabilitation programs.

This publication is the first of two that we plan to publish in the area of correctional rehabilitation. The second publication will be devoted to the problems of rehabilitating the juvenile delinquent and the curriculum materials that have been developed from a conference conducted by Northeastern University on the Juvenile Court and Vocational Rehabilitation.

PREFACE

The public offender is a failure in society. He has failed his family, he has failed in his job, and he has even failed as a criminal. When the offender is incarcerated, the problem arises: What to do with the offender, not only in prison, but upon parole or discharge from prison. The offender is a man that must be rehabilitated or habilitated. In theory, rehabilitation of the offender actually starts the moment the individual is incarcerated. Plans for his parole or discharge are being made. Who is to handle and start his rehabilitation? Will it be the psychiatrist, psychologist, the social worker, the parole officer, the rehabilitation counselor or the community, or will it be all of them, or any combination of them working as a team.

The problem of the public offender does not actually start when he is imprisoned, but prior to incarceration. He is a public offender only because he has been apprehended, tried, convicted, and sentenced. Dr. Myrl Alexander recently stated that "Crime and delinquency came out of the Ghetto, whether it be Harlem or Appalachia". Three-quarters of the crimes committed today in the United States are committed by people who have already been in prison. Dr. Alexander further states that approximately 15% of the prisoners in Federal penitentiaries have diagnosable mental illnesses and that 85% have no diagnosable mental illness, but have some emotional problem. Therefore, does it not follow that something can be done at least for the 85% by way of "Rehabilitation" or habilitation, with strong possibilities for the other 15% also.

At this institute it was further indicated that the vocational education program in federal penitentiaries is now being revamped so that men imprisoned will receive useable vocational training. Upon release, they will be able to be employed at a beneficial trade in a labor market that has a definite calling for certain types of employment.

The importance of rehabilitation of the public offender is recognized by Congress in setting up H. R. 2263, "A bill to provide for an objective, thorough, and nationwide analysis and re-evaluation of the extent and means of resolving the critical shortage of qualified manpower in the field of correctional rehabilitation".[1]

One very important and salient factor presents itself. What has been done and what can be done by way of community relations to educate the public towards the rehabilitation of the public offender. Some of the possible answers to this question could be: Can the offender produce, and can they take their place in Society? There should be a cooperative program between the various agencies of corrections, rehabilitation, parole, probation and law enforcement. If the public were not more fully aware of the problem, that is confrontation by the offender with the public with greater frequency, perhaps the public would realize that the offender has made a mistake for which he was apprehended and punished.

Until recently no one had given any real thought to the rehabilitation of the public offender. However, the public offender now becomes eligible under

1. Corrective Rehabilitation Study Act of 1965 - H. B. 2263

Federal Law[2] for rehabilitation services. It gives the offender a legal basis in terms of eligibility.

1. He must have a physical or mental disability which results in functional limitation or limitation in activities.

2. The functional limitation must result in a substantial handicap to employment and

3. There must be a reasonable expectation that vocational rehabilitation services may render the individual fit to engage in a remunerative occupation.

This application of the law to the rehabilitation of the public offender has opened up an area so immense that none of today's experts really know where it will take us. Is it easier to rehabilitate a public offender than to rehabilitate the physically and mentally handicapped? Only the passage of time can answer this question.

With the foregoing in mind let us now reflect upon the objectives and purposes of this institute as were established by the distinguished Planning Committee.

The Primary Objectives

To determine effective pre-planning for maximum rehabilitation prior to release through advanced counseling methods and coordinated institutional community relationship. It is hoped that such an effective approach will provide the disabled offender, upon his release, the maximum rehabilitation service possible. Since this approach will speed the offender's readiness for employment, the major attention in this workshop will focus on counseling methods, rehabilitation planning, and placement techniques.

The Purpose

To indicate some of the practical needs of the correctional institutions for rehabilitating the penal offender through the proper and effective uses of rehabilitation resources and the State Vocational Rehabilitation Agency.

To examine principles and counseling methods that might make for the most effective rehabilitation of the handicapped penal offender beginning in the institution and continuing in the community after his release or parole.

To explore methods for attaining a cooperative relationship between state vocational rehabilitation agencies and correctional institutions.

The response to the invitation to attend this institute was most gratifying The Faculty and participants not only came from all of the New England

States, but from Georgia, Washington, D.C., Illinois, and Kansas. The participants represented the various fields of Rehabilitation, Corrections, Probation, Parole, and Law Enforcement.

Benjamin Tessler
Attorney-at-law
Workshop participant

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INTRODUCTION

Let me take this chance to welcome you to this institute, which we are very much excited about. The planning committee which developed this institute worked with it and also developed the weather for it.

This is a working institute and knowing the people that set up this institute I know that you will work. You will get together to talk, discuss, and share ideas. The background of this institute is interesting. About a year ago, Professor Larson became intrigued with the penal offender and the rehabilitation of the penal offender. On the basis of this then, Professor Larson and myself went out to visit various prisons in the state and worked closely with Commissioner Gavin. At that time he was with Walpole prison. We did a great deal of talking with Commissioner Gavin and talking with people in the prisons to find out what actually is going on. What is it that Northeastern University could do? The welcoming hand that we received when we went out to work with these people was tremendous.

Our thought was that these people were forgotten men and women. What can be done to facilitate the rehabilitation of these people? Something has to be done because our society is becoming more enlightened, and wants to do something for these people. What, therefore, was the best thing that we could do? Where could or should we begin? The needs are tremendous. A recent television film called the "Mark" pointed up the need. It is one of the best films, in my opinion, about the rehabilitation of a person who has been in prison. It drove home so vividly to me that the individual in prison can be rehabilitated. What happened to this individual when he was out in Society? There was a lack of understanding by the community to recognize the fact that there was an individual that needed some kind of acceptance. His rehabilitation was jeapordized as a result. Our first step toward implementation of our ideas was to organize a planning committee. The planning committee was composed of representatives from the local universities, department of corrections, Massachusetts Rehabilitation Commission and Vocational Rehabilitation Administration. This planning committee did a great deal of work, came up with the purpose of the institute, and the program that reflected the purpose.

The general purpose of this institute will be to determine effective preplanning for maximum rehabilitation prior to release through advanced counseling methods and coordinated institutional-community relationships. It is hoped that such an effective approach will provide the disabled offender, upon his release, the maximum rehabilitation service possible. Since this approach will speed the offender's readiness for employment, the major attention in this workshop will focus on counseling methods, rehabilitation planning, and placement techniques. Specifically, we will:

1. Examine principles and counseling methods that might make for the most effective rehabilitation of the handicapped penal offender beginning in the institution and continuing in the community after his release or parole.

2. Explore methods for making effective Regional Identical Memorandum 62-21 which sets forth a plan for attaining a cooperative relationship between State Vocational Rehabilitation Agencies and Correctional Institutions.

These then are the purposes of the institute which I hope will stimulate your thinking for the next three days.

Now an institute, such as this, with the planning committee and all the work that has gone into it doesn't happen very easily. We certainly want to extend our thanks to the Vocational Rehabilitation Administration for its generosity in providing us with a short term training grant. Special appreciation must be extended to Ryrie Koch and Richard Grant of the Vocational Rehabilitation Administration who were most helpful in establishing this institute.

Working with the planning committee produced for me an educational experience. I learned a great deal as I worked with the committee. It was an experience in getting together with people in the field, Ruby Margolin, Dorothy Singer, Dr. Cottle from Boston College, and others. These are people that worked, developed, and set up an institute which certainly promises to be one of the best. We hope the ideas that emerge from this institute will lead to long term programs that will enhance the rehabilitation of the penal offender.

Dr. Lawrence A. Allen
Dean of the University College
Northeastern University

CHAPTER I

VOCATIONAL REHABILITATION ADMINISTRATION

by

J. Warren Perry

It is my great pleasure to be with you this afternoon and to talk to you about the Vocational Rehabilitation Administration and its role and relationship to the field of correction. But first, I want to bring you the warm, good wishes of our Commissioner, Miss Mary E. Switzer, and her aspirations and confidence in the success of this Institute.

The purpose of this conference is a significant one since it will bring together in this Region the combination of rehabilitation, correctional, university and State and Federal governmental representatives for the purpose of exploring the possibilities for developing joint programs which will lead to better rehabilitation services for the public offender. Means of increasing the number of qualified manpower in this field, and to investigate new methods, supported by new research techniques which will help us accomplish this goal will be discussed. One cannot help but feel a sense of excitement when one contemplates the implications of this meeting. The outcome can be that literally hundreds of public offenders may be restored to useful, responsible and productive citizenship.

Though this will be old hat for my rehabilitation colleagues, I feel compelled to give a brief historical sketch of the development of the vocational rehabilitation program and the philosophical concepts upon which it is based.

Historical Development of Rehabilitation

The public program of vocational rehabilitation for the disabled was established shortly after the close of the First World War. Public demand for a civilian program emerged immediately after the needs of disabled soldiers had been considered. Among the voluntary non-governmental organizations which took an active part in advocating rehabilitation was the Red Cross Institute for Crippled and Disabled Men, founded in New York City in 1917. Twelve States passed their own laws establishing rehabilitation programs before the Federal Statute was enacted, and in 1918 -- one month before the law authorizing a rehabilitation program for soldiers was passed -- Massachusetts became the first State in the Union to adopt a vocational rehabilitation law for civilians.

The first national program of Federal-State cooperation to restore disabled men and women became a reality when in 1920 the Vocational Rehabilitation Act, (Public Law, 236, 66th Congress), commonly known as the Smith-Fess Act, was passed.

In this initial program, jointly financed and developed by the Federal and State governments, the services for the handicapped consisted of special assistance in job training, counseling and guidance for the disabled person, provision or artificial limbs and other prosthetic appliances were needed, and placement in a suitable job. While this range of services falls far short of those utilized today in the restoration of disabled people today, it represented a first important step forward in a national effort to restore more disabled people to useful work. By 1938 all of the 48 States were participating in this program.

OVR-VRA

Former Secretary Celebrezze announced on January 28, 1963, a reorganization within the Department of Health, Education, and Welfare, which renamed the Office of Vocational Rehabilitation Administration (VRA), and Miss Switzer's title, and corresponding top staff, was changed from Director to the first Commissioner of Vocational Rehabilitation.

This new organization gave recognition to the increasing importance of the vocational rehabilitation program and it gave the Vocational Rehabilitation Administration the mandate to function as an independent operating agency within the Department.

This reorganization of the Vocational Rehabilitation Administration, then, placed it in the same relationship as the other five major units of the Department: Public Health Service, Office of Education, Food and Drug Administration, Social Security Administration, and the Welfare Administration.

Well, let's begin with the philosophical concepts upon which the rehabilitation program are based:

(1) The principle of equality of opportunity for all citizens imposes an obligation upon the American people to provide specialized services for persons who are disabled, in order that they may be physically, mentally, and vocationally prepared to compete for a job and participate in the privileges and responsibilities of American citizenship.

(2) To discharge this responsibility requires a public program of vocational rehabilitation in which all disabled adults, regardless of type of disability, geographical location or other factors beyond their control, may have equal opportunities for services.

(3) Such a public program can be best conducted as a joint effort of the Federal government, the respective States and territories, and their local governmental units, in which the costs are shared, the States and local government provides technical aid and national leadership for the total effort.

(4) And finally, rehabilitation is a practical expression of the basic concept of human dignity and the worth of the individual. Probably no one has expressed this concept more simply or clearly than John Galsworthy: "A niche of usefulness and self-respect exists for every man, however handicapped, but that niche must be found for him. To carry the process of restoration to a point short of this is to leave the cathedral without a spire. To restore him and with him the future of our countries, that is sacred work".

The benefits which flow from effective rehabilitation services, provided widely to reach as many disabled individuals as possible, are threefold: First, rehabilitation restores hope and confidence in the disabled men and women themselves, giving life a new meaning for them. Secondly, it demonstrates to all the people, in a practical way, that every citizen however difficult his circumstances,

has a chance to make his life useful and satisfying. And finally, it brings into the productive strength of a country thousands of workers who might otherwise be a drain upon the national company.

Number of Rehabilitations

Last year approximately 135,000 individuals were rehabilitated by the Federal-State program. And the goal of 200,000 has already been set for the near future.

New Patterns of Providing Vocational Rehabilitation Service

As a result of research and demonstrations of vocational potential, several new patterns of service have been utilized in the Vocational Rehabilitation State program. As you will see, many of these reveal the Vocational Rehabilitation Administration's efforts and commitments to work closely and attempt to integrate our program with other major Federal and State programs.

Selective Service

New efforts to rehabilitate Selective Service Rejectees were initiated in 1964. At least six State Rehabilitation agencies have set up cooperative working agreements with their counter parts in Selective Service. These agreements are effective in bringing to attention many disqualified registrants who can benefit from vocational rehabilitation services. In view of the large percentage of Selective Service registrants who are disqualified on the basis of physical and mental disability, the Vocational Rehabilitation Administration is cooperating with the National Headquarters of the Selective Service in drafting guidelines to assist other States in developing cooperative agreements and effective working agreements for vocational rehabilitation of disabled rejectees through the Nation.

Public Education Agencies

The most prevalent rehabilitative activity for disabled youths consists of cooperative programs involving vocational rehabilitation and education agencies, especially special education. All but four States reported active participation in such programs in 1964. The major part of such projects is the delivery of vocational rehabilitation services for these youths by providing counseling and placement. Disabled school dropouts are being studied in many states.

Disabled Public Assistance Recipients and Other Low-Income Groups

The vocational rehabilitation program has, since its inception, served thousands of disbaled persons who might well be classified as public offenders. Special attention to this group was sporadic, however, both in State agency activity and in the Federal end of the program until about 1961. In that year we began to see a marked upsurge of interest within the State agencies in the problems which confront the public offender. Simultaneously, there was a sharp upward trend in the number of applications for research and demonstration support in the area of correctional rehabilitation. These changes, you will note, paralled the increase in national

awareness of the crucial problem of crime and delinquency.

Later in the program, Dick Grant will discuss the Vocational Rehabilitation Administration's new legislation and the implications of these amendments for the correctional field.

Using 1961 as a baseline year, then, I will very briefly describe four avenues of activity in corrections. These are (1) State Agency activities, (2) research and demonstration projects, (3) training activities, and (4) the Correctional Rehabilitation Study Act of 1965.

A. State Agency Activities

Under the basic support of the Vocational Rehabilitation Act, many State rehabilitation agencies have inaugurated programs to provide services to the public offender, both adult and juvenile. Such programs vary in scope from the assignment of part-time counselors to correctional institutions, to the installation in reformatories of comprehensive vocational rehabilitation units, including a full array of personnel, equipment, and services. State agencies now have cooperative programs with both State and Federal correctional institutions and probation offices, as well as with State training and municipal courts.

During the week, I know that individual programs supported by Vocational Rehabilitation Administration grants will be discussed.

The mounting national concern about the persistence of poverty and chronic economic deprivation reached new dimensions in 1964. The extensive Public Welfare Ammendments of 1963 stressed "rehabilitation instead of relief". The President, in a message to Congress in 1964, outlined a major nationwide war on poverty, and the Congressional consideration of the grave problems resulted in enactment of the Economic Opportunity Act in August of 1964. Vocational rehabilitation programs have long been concerned with the poverty associated with disability and have put a considerable portion of their effort into rehabilitation of the disabled receiving public support.

Specific activities included initiation of projects, training of State rehabilitation and welfare personnel in cooperative methods, strengthening of inter-program relationships and assignment of special counselors to serve public assistance clients. Several States have assigned vocational rehabilitation counselors to work exclusively with welfare clients in cooperation with the welfare department in that State. By the end of 1964, 23 demonstration projects for vocational rehabilitation of disabled public assistance clients were approved by the National Advisory Council. Key personnel of State vocational rehabilitation and welfare agencies have attended short-term training courses together to increase their mutual knowledge of the principles and operation of their respective programs, to enhance their skills in serving disabled welfare clients, and to make their joint work more effective. It is expected that the State vocational rehabilitation agencies will fill an increasingly significant role in community efforts to combat the poverty, deprivation and unemployment suffered by disabled people. Time does not permit a delineation of new patterns for working with the blind, the deaf and hard of hearing, the mentally retarded, and the mentally ill.

In order to provide a backdrop against which the participants can view the proceedings of the next three days, I should like to briefly describe some of the activities of the State-Federal rehabilitation program in the area of corrections. Actually, the public offender is but the last of a series of disability groups to receive special attention from vocational rehabiltation. Many years ago, our program began to expand its emphasis beyond service to the orthopedically disabled and to provide specialized service to such disability groups as the mentally ill and the mentally retarded. So it might have been predicted that this program, which has a forty-seven year history of service to the disabled, would ultimately adapt its resources to the offender group. Nevertheless, there is a special kind of challenge as we embark on this new venture, and we look to those of you in the correctional and academic setting to assist us in every way possible.

B. Research and Demonstration

Some of the most advanced work in correctional rehabilitation is being conducted under the research and demonstration authority of the Vocational Rehabilitation Administration. It is to these projects that we look for guidance in terms of future program development.

Since 1961, the Vocational Rehabilitation Administration has funded thirty research and demonstration projects with a correctional focus. Some grants have been made to State vocational rehabilitation agencies under this authority to permit them to explore and develop techniques for adapting rehabilitation services to offenders. Other grants have gone to hospitals, universities, and private non-profit organizations. Examples of research and demonstration projects in this area include a program at Montefiore Hospital in New York City where plastic surgeons remove scars, tatoos, and facial disfigurements that may have contributed to anti-social attitudes in the offender; and a Minnesota project where parolees from the State reformatory are given intensive vocational services at the Minneapolis Rehabilitation Center.

The most far-reaching demonstration program is the one inaugurated in November, 1965 to serve Federal offenders. Actually this is a series of eight projects in which state vocational rehabilitation agencies provide intensive service to offenders at Federal probation offices and Federal correctional institutions. The purpose is to evaluate the effectiveness of vocational rehabilitation services to this group over a three-year period, and to develop patterns of service that can be adopted by the State agencies. Thsi series is a collaborative effort involving the co-operation and participation of the Federal Probation Service,the U.S. Bureau of Prisons, and the U.S. Board of Parole.

C. Training Activities

Both long and short-term grants have been made by the Vocational Rehabilitation Administration to support training in the area of correctional rehabilitation. An outstanding example of the former is in the field of social work where, through grants to schools of social work, trainees are given supercised field work experience in correctional institutions or probation offices. In addition, practicum experience in correctional settings has also been provided by Vocational Rehabilitation Administration supported universities which train rehabilitation counselors. There undoubtedly will be more of this in the future. Under short-term training authority, three institutes focussed on rehabilitation of the public offender have been conducted. This institute is an example of our short-term training activities.

D. Correctionsl Rehabilitation Study Act and National Council on Correctional Manpower and Training

Public Law 89-178 amended the Vocational Rehabilitation Act to make special project grants for conducting a program of research and study of the personnel practices and needs in the field of correctional rehabilitation, and of the availability and adequacy of the educational and training resources for persons in, or preparing to enter, this field. Thus, the Vocational Rehabilitation Administration becomes the funding agent through which grants will be made to evaluate and plan strategies for overcoming the critical shortage of skilled correctional manpower in the Nation. You will be pleased to know that on March 18, the National Council on Correctional Manpower and training approved a grant to the co-sponsor of this Institute, Joint Commission on Correctional Manpower and Training, to carry out the purposes of this Act. Dr. Prigmore will discuss the operation of the Joint Commission in detail this afternoon. Last fall the 89th Congress passed a law which extends the legislative base of State-Federal vocational rehabilitation program for the first time since 1954. This was Public Law 89-333, the Amendments to the Vocational Rehabilitation Act. The act also has the effect of giving recognition to the significance of vocational rehabilitation in the Nation's battle against crime and delinquency.

Finally, I would like to talk with you of the role that each one of you can play in this total program or rehabilitation -- and the personal challenge that each of us must accept if we are to fulfill this role effectively.

The world today, especially our American world, is divided into these individuals who have a commitment to something beyond their own material concern and those who do not.

Albert Schweitzer puts it well: "Reverence for life", he says, "does not allow the scholar to live for his science alone, even if he is very useful to the community in so doing. It does not permit the artist to exist only for his art, even if he gives inspiration to many by its means. It refuses to let the businessman imagine that he fulfills all legitimate demands from all that they should sacrifice a portion of their own lives for others."

This Dr. Schweitzer has demonstrated by his own life in Africa, and those of you meeting here at some point in your lives have decided that this is important -- by the training and experiences and service you have sought and rendered-- for I can think of few professions where "care for others" is as uniquely dramatized as in the kinds of jobs in which all of you are engaged.

In his book, The American Presidency, Clinton Rossiter ends his study of the various presidents with a list of the qualities a man must have or cultivate to be an effective president. I'm going to take the liberty of paraphrasing these qualities since I feel that they are necessary for any man -- or woman -- who aspires in professional and personal growth. How do you stack up with this list?

1. Bounce: A person must have that extra elasticity that makes it possible for him to thrive a tough diet of work and responsibility.

2. Affability: The person of whom I speak must have a heart that is not only stout but warm. You have to care deeply about people and their feelings.

3. Political Skill: I am not thinking of the skill in winning elections; I am speaking of the ability to persuade others to accept you as a professional person. I am thinking of the skill in convincing others that you have the professional capacity to merit their respect in you, your profession, and in your job.

4. A Sense of History: Appreciation of what has gone before; in research this is essential, but for all professional persons the knowledge of the history of your own field and work places you above those who live only in the present.

5. The Newspaper Habit: Not in the literal sense. The professional person, and all of us, need not only to be interested in the history of the past but must be attuned to current events and the future. A professional person must not be cut off from the reality of today; he needs to know what his colleagues are thinking and doing.

6. Finally, Sense of Humor: Wherever we are, whatever our job, this quality is important. One must be ready to smile at one's own errors and ready to chuckle with your colleagues, for a sense of humor adds warmth and dignity to life.

As public servants, our task in Vocational Rehabilitation Administration is to administer Federal funds as wisely as we can, always bearing in mind the true function of the law and purpose of our program: to convert dependency into competence and independence. And an independent human being, in the finest sense, is the one who makes his own way, fits into the community in which he lives, and contributes as much to society as he takes from it.

We must constantly recognize that progress demands change, and we must take courage that there is great excitement in being involved in assisting in creating this change.

"Two men looked out from their prison bars---
The one saw mud and the other stars."

May the time spent together here at Andover Inn be a significant experience for all of you, and may we keep our eyes on the stars of cooperation, coordination, and communication in our programs for the rehabilitation of the public offender.

CHAPTER II

THE DISABLED PUBLIC OFFENDER IN FEDERAL INSTITUTIONS

by
Myrl Alexander

In 1961, when I retired as Assistant Director of the Bureau of Prisons, I recall saying that I was retiring because, after 31 years in this field, I felt that there were places where greater contributions could be made rather than continuing there in management work. I said there would come a day, maybe long after I was in my grave, perhaps 20 or 30 years hence, when the world would recognize that the offender is a person who is a product of societal conditions, that he was a disabled person, and that there would be a great national effort in this field, just as we saw it taking place in the field of mental health. It would not occur in our time, as we continued to operate the Federal Prison system. I thought I would get out of this work for the rest of my life.

I was offered the job of director for the study of crime, delinquency, and corrections at Southern Illinois University. I prophesied that in 20 to 25 years there would be a great national ferment in this field. Now, 4½ years later, it has happened and we are right in the heart of it. This great ferment that is taking place not only in our country, but throughout the world, is one that is born of our times. We are being asked at every turn: Why crime and delinquency; why are three-fourths of the crimes being committed by people who have already been subjected to your correctional processes, have been in prison, have been on probation, or parole; why aren't your methods more effective; what can we do to stop this waste- economic waste, human waste? These questions are being asked, not only in this country, but all over the world.

In Stockholm at the United Nations Congress on Prevention of Crime and Treatment of Offenders, our colleagues and friends from the new African states, Southeast Asia, and Latin America who are becoming industrialized and organized, want to know how to avoid the American and Western European experiences. They ask if juvenile delinquency and crime are necessary concomitants of organization and industrialization in a new, modern, complex society.

The same questions are being posed and discussed from all sections of the world. We begin to realize that in this field we aren't talking about developing nations of Africa and developed nations of Western Europe and United States, because actually we are all developing in this field. This is one of the great human social problems in all recorded history that still lacks adequate solutions. We are at the stage of recognizing our inadequacies, the need for completely new methods, because, to date we have substantially failed.

When we look at the whole problem of crime and delinquency, we recognize that the ultimate answer must be in prevention. It must be in some of these vast community programs, that we are now developing whether we fight war on poverty or whether we call it education for the culturally deprived, or whatever it is. Prevention offers the best hope, but prevention again is something that is a Utopian dream no matter how much we work with it. We will

continue to have people who commit crime and delinquency, and when this happens we need vastly improved law enforcement. Great advances will occur when the substantially greater number of offenders that are apprehended are processed through correctional programs that intervene in their criminal career. As long as we do not have complete prevention, then we must reduce the recidivism rate, which is tremendously high.

Three-fourths of the crime in this country is committed by people who have been in our institutions and are on probation or parole. In his crime message last year, the President said, "Until we can stop this repeated in and out of courts and prisons, we will never be able to solve the problem of crime and delinquency in our society." He put a mandate on our whole society with a primary emphasis upon correctional programs and correctional administrators to devise innovative methods of intervention in delinquent and criminal careers. It is as simple as that. When we begin to say,"Well, what can we do now, what is there that we have not tried?", we gain a new perspective.

We know that man throughout the century has tried to solve the problem of crime and delinquency in various ways. Millions of people have been executed, transported half way around the world for the remainder of their lives, have worked on galleys, have been mutilated - all in the name of solving or preventing the problem of crime and delinquency. It has been done within theological concepts, social concepts, ethical, and moral concepts, within sheer brutality; and we have tried and tried for many years to solve it but without too much success. We are determined to say,"All right, solve it in our generation."

It was less than 200 years ago that a giant step forward was taken. The prison was created as a substitute for the older methods. Here in our own country the prison was created in the latter part of the 18th century. There was subscription to the idea that the old methods of massive punishment for a fairly simple kind of unacceptable behavior, was too much. What we should do is impose punishment and pain only to the extent that it is greater than the pleasure the offender received from committing the crime. It was felt that this would solve the problem by the use of disciplining, sentencing, and institutionalizing.

The Quakers advised in the early days that instead of decapitating offenders or exiling them, we put them in a room by themselves. They suggested putting offenders in these rooms for a specified period of time - maybe one, two, or three years - and leave them with a Bible without any communication with the outside world. The offender can, through introspection, in prayer and thinking, realize the error of his ways and become penitent. Thus the derivation of the word penitentiary. It was a great step forward. Now we have experimented with prisons for over 200 years. The prison is an experiment in the long view, in the long historical view. Through the years there have been modifications that led to the development of parole and probation. We have been dominated these past 200 years, a short period of time, by the prison and by sentencing as our method and means of controlling crime and the criminal.

What about the characteristics of prison population? During the past year, we have set forth a few simple facts about the federal prison population.

The mental age of our offenders when distributed on a curve is precisely that of the general population. There are both mental defectives and geniuses. The curve is bell-shaped.

Educationally, our population last year was a little over 5 years behind the general population. Ninety-two per cent of all offenders committed to federal prisons last year had no employable skill. About 15 per cent of all offenders in our federal institutions have some diagnosable mental illness ranging from a severe neurosis to full psychosis. The other side of the coin is that 85 per cent present no diagnosable mental illness.

Now, there is a wide range of emotional problems but, those who say to me, "If you just had 200 psychiatrists in the federal prison system, you would solve all the problems," are wrong in my opinion. We do not need any high-powered 10-year research period to come up with enough handles to go to work on. We now begin to get a picture that is pretty well known to all of us, of the school dropouts, the people who have no work skills and are unemployed. To combat educational deficiencies and lack of employment skills we have instituted great programs of education and vocational training in our federal institutions. In the past, we have not been operating correctional education. Instead we have been running prison schools. Courses have been taught that are nothing more than a duplication of those in public schools. A 28-year-old person with average intelligence and testing fifth grade on educational achievement tests starts to study, "Ada throws the ball, Rover catches the ball and brings it back." This is not correctional education but this is what we have been doing.

Therefore, we are going through a complete re-examination of our educational programs. We have now half a dozen very interesting, innovative research programs for the remotivation of people who dropped out of school at 13 or 14 or 15 and now may be 18 or 19, or they may even be 27, 28, or 29. How do you remotivate these people? This is the thing we are beginning to work on. In vocational education, we have been spending $1,750,000 of our appropriated money. There is only one test of the efficiency of a vocational education program in the federal prisons, and that is - How many people are going out and being employed usefully and staying on jobs for which they were trained?

We looked at an airplane mechanics school, for example, at Chillicothe, Ohio, in which we were spending $120,000 a year. This program was held up as a great example of vocational education to all of the country. In one year only three people returned to employment. Although these three were actually on a job and were continuing to hold the jobs, it was obvious that because of the small number rehabilitated, the venture was not worth too much. And so, what are we doing now? Clay Products Manufacturers Association came to us and said, "We are only producing 60 per cent of our plant capacity all over the country because there aren't enough brick layers and tile setters. Can you help train them?" We go to unions, and they help also. We are now training programmers for A D P work, workers in horticultural landscape for new apartments and factory complexes. This is something that is badly needed.

And so it goes. We are discovering in our two tire-recapping plants that we are training for a highly employable, sought-after skill. In one plant we have - in a reformatory - we are recapping plant tires for airplanes and trucks

actually used in Vietnam. Now, this means they are pretty good recaps. For every tire recapper we train now, most of them start at about $3.50 an hour. For every one of those we turn out, there are twenty-five jobs waiting. This is a lot different from training a so-called airplane mechanic or taking a 19 year-year-old kid and in a year and a half training him to be a cabinetmaker, which he never really becomes; or a plumber, which he never becomes.

As we critically reexamine the role of our case workers, counselors, guidance people, we realize that they no longer can spend 75 per cent of their time writing social histories and progress reports, and precious little time devoted to more practical situations. Through this kind of critical re-examination, we begin to realize that the work that we have spent our lives doing is suddenly changed. Our job is to intervene in criminal careers, to stop recidivism. This is the goal of our improved correctional education. As a result we found that we have 2500 offenders in federal institutions perfectly capable of doing work in higher education, many along up to the doctoral degree. We have 55 people right now going out of the institutions to junior colleges or to universities while they are serving sentences. We have junior college programs now in seven or eight institutions.

The great majority of parole violations - the great majority of new crimes - are committed within three to six months after release. You begin to say, "Why, why" and when you say "Why," you begin to realize that we have operated a strictly, dichotomous correctional system. In prison you go to group-therapy sessions, you go to education classes, and you get your vocational training. All at once, there comes a magic date, parole, or sentence served.

On that magic date, at that magic moment, at 9:00 in the morning, the offender is discharged from the institution. Even though they have improved substantially, raised their level of education, and now have an employable skill, the community is still reluctant to employ them. We have to begin to build all kinds of bridges to break down the dichotomy between the prison and the community.

Last year, we went to Congress and asked for legislation passed unanimously in both houses. In the Senate - it was on a consent calendar, and in the House, it passed on roll call unanimously. The bill provides three simple things:

1. We are authorized to permit any inmate to go into the community, work, or study, during work or study hours, and return to the institution at night.

2. We are authorized to grant furloughs for purposes of visiting the deathbed of a dying relative, to attend a funeral, to seek employment, to study, or for any other purpose deemed appropriate, for up to 30 days.

3. We are authorized to extend the limits for offenders, not only for furlough and work release, but to community residential centers such as half way houses.

The bill was the most important prison legislation passed in 30 years by the Federal Government. It opens all the doors, and the gates, and the walls for us to do whatever we need and want to do in pursuit of intervention in criminal careers.

Today, as I am standing here we have made a simple beginning. We have about 550 people going in and out at every institution, including Atlanta, Leavenworth, and youth institutions - far more in youth institutions, of course. We have had more than 200 people given furloughs, many of them for death-bed visits or funerals, but also for other purposes, to seek employment, to go to take a two-week technical course 300 miles from the institution. They come back when the technical course is over. We have not lost a man on a furlough yet. That is not a reflection on how well it is working yet. It suggests that we are very careful in our diagnostic procedures. We are losing about two or three per cent of our people on work release, primarily because they can not resist the call of the tavern around the corner from the shop.

Part of the significant thing is not work release or furlough at all, because we will not use it for the white-collar criminal who has already an employable skill, and is in the prison because he fudged on his income tax or something. We will not use it, by and large, for the person who already has a work skill, because, as I suggested, 92 per cent do not have; but we are using these devices to bridge the gap and break down the barrier between the community and the institution, as most of our people are going out to work as apprentices. They reach a level at which the union or the state law will issue an apprentice's certificate. They go out to work and come back at night.

A week ago Sunday I was down in Danbury; was talking with one 48-year-old offender. I talk a lot about youth and young adults because these are our prime targets. Now, here was a 48-year-old man, a five-year man, twice sentenced for narcotics, a Negro from Harlem, who came in with his G.E.D. test showing fifth grade, I.Q. 126, and no skill. He had lived all his life in the ghetto. Today, three years after sentencing, he has a high school certificate; he has learned electronic welding. He is making $4.16 an hour on work release, and in the last five months he has saved $2,500. This fellow is typical of the older offender who can develop with this type of training.

In Marion, Illinois, there is an institution which, was built as a replacement for Alcatraz. It is a new federal maximum security prison. For the past two years, we have been using it for the most difficult youthful offenders. They organize the shakedown squad for payoffs. Some are sexual deviates; some are the knife-carrying kind; some are always attempting to escape. Until the present time, we have been transferring them to penitentiaries. Now we are transferring them to Marion. They are tough youngsters.

The median age at that institution is about 23 years. By developing an intensive education program at Southern Illinois University, putting in intensive psychiatric program, intensive industrial and vocational training programs, we hope that we can, through a saturation program of this sort, mount a kind of program of intervention, that will be far more successful than any we have had before. We are already beginning to get some good results. For instance, a young fellow 17 years of age came to our El Reno, Oklahoma reformatory in 1958. He had been there three months, when he got a knife, put it through a school teacher that came to work at night, tried to escape, got six more years for attempted kidnapping or abduction, was transferred to an institution at La Tuna, Texas. He escaped from there; he got three more years for escaping, and was transferred to Leavenworth. Unfortunately, about that time Alcatraz was being closed. He was headed straight for Alcatraz.

Two years ago, when we announced that this was the kind of offender we were going to handle at Marion, the warden at Leavenworth looked over 2300 cases, and said, "This is number one." This is number one, and he went to Marion. What happened? We do not quite know. Clinical psychologists worked with him. There was a young person on the education staff with whom he developed a friendship. He completed high school within a year. He originally tested about eighth grade level. This February we put him on work release. He is a student at Southern Illinois University, going over in the morning and coming back at night. The parole board has granted him a parole, for full-time studies. Out of a possible 5.0 average he scored 4.9.

All of us in this work can recite exciting stories such as this one. One of our problems is that as we move into these completely new things, we have to break down walls in the community. In doing so we have found the kind of support that we never expected. General Electric has an experimental project costing around $300,000. They are training EDP programmers in the Atlanta Penintentiary. Another firm is putting in a complete auto mechanics shop, including specialized courses in transmissions and automobile electric distribution systems. At Danbury, Dictaphone has put in trainers and is training people for some of the technical operations in factories, here and in New York. Union people all over the country are working with us. There are two or three brick-laying schools. Union people come in and help instruct, along with our own instructors.

People say, "Well, you're gambling the whole bit on vocational education." This is not true. There are many who do require the therapy of clinical psychologists, and psychiatrists. We have a hospital in Springfield, Missouri, for intensive psychiatric problems. We have psychiatrists at our major institutions, not only to treat the mentally ill, but also to help guide the offenders who are going through these programs. One of the interesting things we are finding is that more than half of the men who go out on work release to try their new skill in an actual working setting in the community have problems - and they are profound - oftentimes manifested in the first week. In an institution the offender is under a skillful, interested, properly motivated trades instructor who says, "Now Jimmy boy, you don't try to do it that way; you do it this way, and that's it. Now you're coming along." When he goes out into the community on that job the foreman comes around and says, "Get that right, or get off the job." And he reacts by saying, "I quit!" Or a workman next to him says, "Look out there, Bud." They have all kinds of problems because they have never worked in an actual working situation, and they do not know how to act.

We have tripled the number of employment placement specialists and counselors who work with the offender in and out of the institutions. We are developing intensive vocational projects in a number of institutions. We will use them flexibly, transferring inmates to institutions that are nearest the community in which they will be released for work. These projects are in their early stages. We are building into these projects evaluation and research.

I am convinced that our country is ready and willing, and wants to accept a kind of corrections program that holds promise for successful intervention in delinquent, criminal careers. Change does not occur easily. There are those who say, "Put prisoners behind bars and keep them there." Yet, if we are going to generate effective rehabilitation, then we have to move in positive directions.

One of the most hopeful signs all over the country is typified by this institute at Northeastern University. Correctional institutions are building bridges not only to the community, but also with universitites. I was tempted to talk to you. The evolving relationship between university and correctional practice is interesting. In our 30-odd institutions, we now have 11 that have training units from schools of social work. We do not have a single institution now that is not developing working relationships with higher education, in personnel training, research, or in designing new education or vocational programs within our institutions.

Recently the president of a midwestern university asked us to create an institute of correctional education which will train people specifically in the college of education for the whole field of correction education, establish a kind of staff which can provide a consulting service in education and vocational education, and develop demonstration programs in education or vocational training programs in institutions. At least a dozen universities that two years ago never thought of corrections, now are planning to develop some kind of correctional institutes or centers.

Relationships with courts are improving. Under a new federal law passed a few years ago, federal courts can commit offenders for study and observation before sentence is finally determined. If this is done, the director of the Bureau of Prisons must give a recommendation for sentence. We handled nearly 900 of these last year from federal courts, and I almost begin to feel like a judge because I know that in 80 per cent of the cases, the judges have carried out our recommendations. And, we can use far more flexibility with half-way houses and community residential centers. Until those who control the sentence and those who practice corrections move closer together - and this is happening now increasingly between the courts and corrections - we will not move too far.

The Federal Government has been very helpful to us. What would we do without the Vocational Rehabilitation Administration? What would we do without the National Institute of Mental Health. What would we do without manpower development and the Department of Labor which is getting ready with a massive program to train 5000 inmates of federal, state, and local institutions.

From the vantage point of Washington, we do see what is happening. And this is critically important. I know that you in the New England states have an interstate compact similar to the interstate compact of 13 western states. These cooperative relationships are milestones of progress and they are only the beginning.

CHAPTER III

THE PUBLIC OFFENDER AS CLIENT

by

Daniel Glaser

There are two major reasons why it is difficult to indicate concisely the distinguishing attributes of the public offender as a client. The first is that public offenders are extremely diverse. The second is that they are not a clearly distinct species, completely different from other human beings, or from other vocational rehabilitation clients. Nevertheless, I shall concentrate here on delineating those features which distinguish them most from other vocational rehabilitation clients.

The most important difference, is that which is most obvious. This is that the public offender has been officially pronounced delinquent or criminal. The fact that he committed an illegal act does not always distinguish him from most of the rest of us, for few of us have not committed seriously illegal acts at one time or another. The fact remains that he was convicted and given an official record for his offences is a major difference, however, because of its social consequences.

Over 80% of those persons who are committed to prisons or training schools, or who receive probation terms in the criminal courts, have been convicted of taking someone else's property. In most cases this taking was by stealth, either as simple larceny or theft, or by breaking and entering (burglary). Some have acquired other persons funds or property by frauds, such as forgeries, embezzlement, or confidence games, and some by force or threat of force, that is, by robbery. The remaining minority have been committed only for acts of violence, either in expression of hostility or in search of sexual satisfaction. A residual percentage, varying considerably in different parts of the country, are committed for miscellaneous illegal activity, such as trafficking in narcotics, bootlegging liquor, or providing various illegal services.

It is traditional for vocational rehabilitation counsellors to think of deficiencies in ability as the targets for their remedial concerns, rather than criminality. In recent years, in dealing with psychiatric clients, counsellors have also considered unstable emotions and misperceptions of reality, as disabilities. Most public offenders are physically without gross defect, and their deviant mentality with respect to crime does not fit clearly into commonly used categories of psychiatric disability. Therefore, if public offenders are disabled physically or psychiatrically, they are atypical as offenders. However, they will also be atypical as vocational counselling clients because they are public offenders.

Studies have demonstrated that delinquents and criminals usually seek legitimate vocational pursuits on release from confinement. In response to attitude questionnaires, they will attach as much importance to having a steady job as non-delinquents do. The difference is that they generally do not have as much objection to illegitimate alternatives to a conventional job as most of the rest of the population does. They value the same goals in life as the rest of the population, but they accept both legitimate and illegitimate means for procuring these goals. The main problem in their rehabilitation is that crime generally has been rewarding to them in the short run, and they are likely to rationalize their failures to have persistent success at it. Not only has it been rewarding

financially, but most important, it has been socially and psychologically rewarding, in giving them a sense of their own competence, and in providing approval and recognition from other delinquents. In addition, they generally have a history of failure and humiliation in their efforts to pursue a legitimate income. These experiences have especially significant implications for those people who became public offenders at an early age.

Most public offenders are relatively young, or they have had an offense record which began when they were young. Indeed, those who do not become involved in crime until they are in middle or old age usually do not have vocational problems. Half of the arrests for felonies in this country are of persons 18 or younger. For released public offenders at any age, the earlier they acquire a criminal record, the more likely they are to commit further crimes.

Criminals are generally as mature in biological development, and in development of many social skills, as non-criminals. What distinguishes their criminal careers is the experience of some interruption from the usual sequence of cultural conditioning through which people normally progress from childhood to adulthood. This is a sequence of changes from dependence on others and few responsibilities as children, to independence with responsibilities in adulthood. The earlier an individual interrupts the sequence of steps through which he passes normally for this change, the more difficult it becomes for him to achieve legitimate adult self-sufficiency.

In countries having the greatest industrialization and urbanization, such as the United States, young people go through an especially long period of adolescence between childhood and adulthood. In countries with less technological development, or in our country in the 19th Century, the transition from the childhood role as student to an adult role was mediated by apprenticeship employment immediately after leaving school, which generally was in the early teen years. However, the education of youth and their independence on adults now extends later than ever, and adult influence on their behavior in this period now is much less continuous and extensive than it was under the apprenticeship system.

Young people in highly urbanized and industrialized socities are especially likely to spend most of their waking hours in a purely adolescent social world. This world develops its own standards of behavior, and provides sources of personal gratification different from those of the adult world. When a distinctively adolescent social response preoccupies a youth with activities and values inconsistent with those required for adult self-sufficiency, they impede his preparation for independence in a law abiding adult life.

Home, school, places of employment and churches are among the major institutions which prepare adolescents for the roles they must successfully pursue to achieve a normal adult life. It has been observed that adolescents who are neglected or are treated with hostility by parents, who are retarded or at conflict at school and who cannot find employment in structured legitimate activities during their leisure hours, are likely to provide satisfaction for each other by joint participation in delinquent activities. They are likely to attach high value to crime, fighting, drug use or other activities which they can pursue with some sense of distinction, because these satisfactions compensate for the failure they suffer in conventional pursuits and social life. However,

the involvement in delinquent activities further impairs their preparation for self-subsistent, satisfying, and legitimate adult life.

This group basis for most initial delinquency should not be neglected in counseling the public offender. Eighty to ninety percent of the offenses referred to juvenile courts involve two or more juveniles as associates. As offenders become older, the proportion who have co-defendents in their crimes diminishes somewhat, but this is mostly a characteristic of professional techniques in crime. The mutual social support in rationalizing initial crime establishes an individual commitment to a morality in which their offenses do not disturb their conscience. Each involvement in crime and each experience of arrest and confinement is likely to increase a person's estrangement from legitimate associates and family members at the same time that it increases their contact, enhances their prestige, and promotes their self-esteem in delinquent and criminal social circles.

The earlier an offender leaves home, the greater this estrangement is likely to be. Some years ago I demonstrated that violation or non-violation of parole by young felons in Illinois could be predicted more accurately by knowledge of when they first left home for six months or more than by the prognosis made by psychologists or sociologists from their case studies. The large number of adolescents and youths in the current United States population, reflecting the post World War II boom in the birth rate is the primary factor in our current high crime rate. It also means that in future years we shall have a large population in the middle and late adult years who have had a background of criminality and correctional experience.

Although we pointed out at the outset the fallacy of lumping all types of criminals together as though all their offenses were identical in nature or causation, there are many respects in which the public offenders acquire common attributes by virtue of the fact they they share a common experience of conviction and acquisition of a correctional record. Jails, training schools, and prisons treat all offenders in a predominantly similar manner regardless of differences in the nature of their offense, and this gives them all many similar problems after their correctional experience even when they were dissimilar before conviction. All grounds for imprisonment lead to the same status of ex-convict.

The typical delinquent is the product of a selection process which began in early childhood by socially segregating him from "good kids" and identifying him with "bad kids." He gradually developed an adjustment in delinquents' circles where he was successful so that he had a stake in delinquency and crime, and resisted efforts to make him maladjusted there. Often he has had pride in his delinquent circles and reputation, which were in sharp contrast with his experiences in the conventional social world. Thus he becomes adapted to a delinquent way of life and often rationalizes it, seeing everyone's life as a "racket" and corrupted. The further he advances in this kind of socialization, the more difficult it is to reverse the process.

When offenders suffer problems in school, family and employment and in penal institutions, they adapt to such difficulties, but this adaptation often involves the development of skills in dealing with counselors for the purpose of misleading and manipulating them. By their success in talking persons in authority out of imposing sanctions, or into granting them unearned privileges, they often gained not only these rewards but prestige among other deliquents. All of these experiences impede their normal preparation for a responsible adulthood and constitute major social disabilities.

The typical public offender is physically highly capable, and has adequate resources of intelligence, role playing ability and even impulse control. The problem is to persuade him to use these capacities for legitimate purposes. This is a problem of giving him confidence in his success in conventional alternatives to crime, both success in terms of remuneration and success in terms of approval by persons whose response he will value. For rehabilitation to be secure a "stake in conformity" must be developed in a public offender, which he will be anxious not to jeapordize by delinquency and crime.

In counselling public offenders, the use of ex-offenders often has been extremely valuable, as they cannot so readily be mislead by offenders -- they have used the same tricks themselves, and they are examples of successful change. More important, this serves a major rehabilitative function for the ex-offenders. The best way for them to cope with feelings of guilt they are likely to develop for their crimes as they become rehabilitated, which they may have had but suppressed earlier, is to give them the experience of performing good deeds. Helping others is guilt relieving, and it also commits the helper further to anti-criminal values. The use of the product of a problem to cope with the solution of the problem has been demonstrated as effective in the treatment of alcoholics, narcotic addicts and psychiatric patients. It is especially significant in services for the public offender.

In the long run what Menninger has called the "theory of friendship" still is basic to the rehabilitation of offenders. This means a friendship with persons committed to legitimate pursuits. For most offenders these are most likely to be older persons, including work supervisors and counsellors. The main danger in dealing with the public offender is that he will develop pseudo-friendships with these individuals, using them in order to mislead them, and thus developing a contempt for them. The danger is still greater where contempt is in the counsellor. What is needed for rehabilitation is friendship plus mutual respect in the counselling relationship.

CHAPTER IV

INSTITUTIONAL TREATMENT AND REHABILITATION
by
Dr. Joseph Satten

It's a pleasure to be here, and to have the opportunity of raising, again, some of the issues I think are important. The things I think are important are not necessarily the things that other psychiatrists feel are important, and certainly not the things that many psychoanalysts think are important. I like to think of myself as representing a breed of psychiatrists and psychoanalysts that are increasingly finding allies in the concept of the community psychiatrist or psychoanalyst interested in the community, rather than being exclusively concerned with what goes on in psychology of the individual. At the same time, I must say I am chagrined at the ease with which what goes on within the individual tends to be dismissed in so many circles, particularly in corrections. I want to keep focusing before you the fact that our job is ultimately that of changing the attitude of a single individual, and we have to think of our programs and even the mass programs in terms of their effect on the individual. There will never be enough of us professional people to do the kinds of individual treatment job that we know can be done with these individuals, even if we were living in the best of ideal worlds.

Dr. Neiberg referred to an increasing shift in the type of patients that the doctors and psychoanalysts in private practice see. We are no longer seeing so many of the classical so-called neuroses and psychoses. We are seeing more character problems in our daily practice. Yet many of our state hospitals are, in fact, behind the times by virtue of their reluctance and inability to deal with some of these patients who in fact do present themselves. I would tend to differ slightly with Dr. Neiberg in this matter. They do present themselves, and they do not break off treatment at the first opportunity. Rather, they respond quickly and sensitively to the fact that the treaters do not want to have them around, and they are very sensitive about these issues.

Dr. Glaser referred to some of the so-called manipulators and some of the so-called paranoid people who are the most difficult, and I grant that they are. I would like to suggest that behind the facade of manipulateness, and behind the behavior of so many of these inmates is a running away from a kind of internal disorganization, and often that running away is solved for them by being considered bad, by being considered provocative, and that establishes an equilibrium in which they are comfortable. The greatest discomfort comes in some of these when the staff does not accept their self labeling as bad , and in fact looks at and finds the evidence of anxiety and fear that they are struggling to run away from.

One of the great advantages in my opinion of the entry of vocational rehabilitation into the field of corrections is that it offers a practical compromise, and a by-pass to come of the acrimonious debate that has gone on between the clinicians and the correctional people for such a long time.

The introduction to the concept of disability or the role of the disabled rather than the role of the sick one or the role of the evil one has certain

advantages. The advantage is, we are dealing, when we talk of the disabled one, with a current state of affairs, and we are not especially concerned from the moral point of view, how he got to be disabled. We are concerned from the point of view of changing him, and this enables us immediately to move into the question of what can be done for him, and with him, and what can be done to help him do for himself some of the things that he has managed to avoid doing all these years.

Within this frame of reference the question constantly comes up. What are the roles of the different professions and who does what to whom, and under what circumstances? I would like to suggest, that the role of the clinicians, in this area, is primarily that of diagnosis, primarily that of trying to evaluate what prison inmates need, and within that realm of diagnosis, perhaps picking up some of the more difficult cases, but allowing the entire institution, as it were, to participate in the treatment program. Treatment is one of the simplest things to do relatively speaking, if you have some degree of understanding of the person. Many people can do treatment, and many people do. The field of psychiatry is beginning to realize how much of this treatment process can, in fact, be delegated while psychiatry is being more and more in the position of providing advice and consultation services to all groups of people, ranging from ministers, including even housewives, to be able to do counseling and psychotherapy of a sort for certain groups of patients, whose needs, after diagnosis can be met by these other groups. The big issue, therefore, is, 1. That of diagnosis, that of understanding what is going on within the individual. 2. Within the institution, that of helping create a climate within which the individual prisoners can grow and change, can be habilitated, and here again, I would agree with Dr. Neiberg, this is primarily the problem, I have stated on many occasions, as he has, that we are dealing essentially with failures, with people who have a special vulnerability, certain special inabilities. They may be disabled in addition to their psychological disabilities, socially and culturally, by virtue of belonging to minority groups, the virtue of living in an area of high delinquency, by virtue of cultural deprivation. Certainly, they have most of these social disabilities which need to be understood. Among them, are feelings of worthlessness, plus some of the things that Dr. Neiberg mentioned, and also including a sense of irrational guilt in so many of these cases. These have to be understood. Now, this does not mean that the large majority of them need individual psycho-therapy, far from it, I think, only a small minority do.

The importance of psycho-therapy services, I think, goes beyond what Dr. Neiberg suggested. The importance of psycho-therapy services are a little bit like the importance of the medical services, or the support medical services in a combat unit. It has a morale value. Troops can go into battle, and do better, when they know they have a good medical team behind them, in case they get wounded. Similarly the value of a psycho-therapy service in a correctional setting extends to all the men, even those that do not use it, because they know it is there and can be used, even though they will not admit it at the time. The big difficulty, as I see it, is that, we clinicians, we psychiatrists, and psychologists are trying to get the correctional systen to adopt some of the attitudes of the mental health system, or the mental health system at its best. At its worst, we have mental hospitals that are every bit as bad as the correctional institutions that we criticize. However, the goals that the treating professions have are extremely important, and they do reflect themselves in the institutions.

In many respects, our correctional systems, some of them anyway, are equivalent to the primitive stage in medicine, because so much of their programs really may be considered to be creating mental illness. They attempt to degrade people, they attempt to break their spirit, as if this was the only way to deal with a rebel and a violator. Important is a development of an attitude or an ethic, really, of not hurting these people. Just as important is the development of an atmosphere of real interest in the prisoner, which, in essence means, if I can use the phrase, an attitude of welfare, rather than warfare toward the individual.

I think I have a beef to pick with many correctional people, who should know better. They tend to agree with the law enforcement people who take the position that the wood shed is the way to get people to change, and that meeting aggression with counter aggression is the way you get people to change. They do not listen too much to us soft hearted clinicians and treatment people. I think they are more apt to listen to the practical and tough minded correctional people, who make the same points. Correctional people who do not agree with this point of view have not spoken up enough, in rebuttal, to some of these law enforcement positions.

The attitude of welfare is important, because, when you are dealing with somebody who is alienated from you, the more you do to alienate him further, the more difficult your job is going to be. Parole begins the moment the man is arrested. The rehabilitation program begins the moment the individual has contact with the community forces that deal with his law violation.

Another point, in what the institution needs to offer, has to do with question of controls. I would like to attack the myth of permissiveness. Clinicians do not talk of permissiveness as an end in itself. When we talk of permissiveness, we mean the permissiveness that allows for self-control, both yours and the offender's. It is a simple matter to strike out at the offender when he loses control over himself. The staff has to constantly work on self-control because we are all human, we can slip back into attitudes that are harmful to the offender.

Finally, a treatment institution, has to recognize that the staff has needs as well. A treatment program that is not geared to the needs of the staff, as well as to the needs of the inmates, will not succeed. Some of the things that the staff needs, are architectural needs. The institution has to be built in such a way, that the staff can relax with a degree of permissiveness that is allowed to the patient or the prisoner. In other words, they do not have to feel that if they relax, and give the prisoner some freedom of movement, that there is going to be the danger of running away. Another need of the staff is, that of having other staff around, so that the staff is not constantly overburdened. The staff needs, also, to have reasonably good relations with each other. There needs to be enough staff, and staff with some degree of openness and tolerance that will accept different ideological points of view.

The final need is the opportunity for the individuals to make mistakes, and learn from the mistakes. We mean, the controls that are established externally, say in an institution, need to become a part of the man's psychology in thinking and behavior, before he can be released into the community, where these controls are non-existent. Permissiveness, in a sense, means taking calculated

risks within an institution, so you see how much responsibility a man can take, how much anxiety he can handle, and helping him develop ways of dealing with himself, with others, in a situation, in which his every move is not so hemmed in, that his failures are not apparent to him. We want his failures to become apparent to him, and to us, and to help him deal with his own failures.

Equally important, the staff themselves, have to become, what we clinicians call, identification figures. They have to be the people the prisoners learn from, just like children learn from what their parents do. The patients in hospitals, and the inmates of correctional institutions, in fact, do learn from what the staff does. It is one of the most shocking things to an individual to hear his children repeat back, in another context, some of the things he said when he did not know they were listening. It is equally shocking to hear patients report back what staff has said or done, when staff was not aware that patients were listening or paying attention. Of course, the extreme example, which is diminishing, although I can not say it has disappeared completely from the American correctional scene, is the institution with corrupt guards, and the institution that resorts to violence. There used to be a time that this was relatively common on the American correctional scene. You cannot help a man to be honest, when you are in fact corrupt, and expect him to be honest. Again let me emphasize, staff must have the freedom to do things, to take risks, without the feeling, if a mistake is made, heads will roll. An opportunity is thus provided to make careful judgments. Of course, staff being human might also make mistakes, and there might be a runaway or there might be an escape. However, related to the opportunity to make mistakes, as a parallel obligation, the obligation that the staff has to learn from their mistakes, and not to keep making the same mistakes over and over again.

Let me simply conclude by saying, what is most needed within the institutions are the opportunities to have staff that can diagnose or evaluate the needs of the individual prisoners. Total staff within the institution must have the understanding and the skills to deal with their charges, particularly with the aggression that these patients or inmates bring in their relationships to staff. In this way these prisoners can be accepted and dealt with constructively, in spite of what they do, in spite of their provocative and hostile and aggressive behavior toward staff, because, only by the staff not responding aggressively to this provocation, can the prisoners really come to grips with themselves and their own disabilities.

Unless we break this cycle in which we constantly give them grounds to rationalize their aggressive behavior, then we will not succeed.

CHAPTER V

SOME OBSERVATIONS ON THE REHABILITATION OF THE PUBLIC OFFENDER

by
Norman A. Neiberg

In a short presentation such as this it is rather difficult to give more than an over-view on the issues of the treatment and rehabilitation of the public offender. By treatment, I mean not just psychotherapy but rather any systematic program designed to produce behavioral change. By rehabilitation, I mean the endeavor to bring the individual back to a prior existing level of more adequate performance.

The panel this morning is divided between institutional and post-institutional care. For the sake of discussion this is a logical division. In the real world programs that are split between institutional and post-institutional are not continuous and the inmate or parolee tends to receive poorer care. The management of the public offender is a continuous process evolving through many kinds of administrative structures called probation, correction or parole. The simple and hard fact is that the people are the same, only the administration agencies are different. In the language of correction the parole process begins the day a man comes to the institution; and correction begins at the level of apprehension.

My own experience has been in treatment programs involving psychotherapy as the major treatment modality. A speaker earlier this morning mentioned what I call "observer bias"; in our instance this means that each profession working in corrections tends to see the narrow contribution that his profession makes as being the crucial factor that will bring about a change in the overall behavior or the overall adjustment of inmates. This I believe to be the height of unenlightened conceit. My own experience in corrections has been that the offenders need so much from so many kinds of sources that to pin the hope of their rehabilitation on any one kind of program, be it vocational rehabilitation, be it psychotherapy, or be it religion, doesn't make any sense. For the vast majority of inmates, any one approach will not give you the results that you wish to get. The implication of this for greater coordination and teamwork to replace the all too frequent lip service is obvious.

I would like to talk briefly about the kinds of people who come into our care. The adult offenders, as I see them, are primarily, in psychiatric jargon, character disorders. They are people who along almost any dimension of their existence, be it vocational, marital, religious, educational, etc., are failures. Most of our men are real, genuine, human failures. As a matter of fact, even along the dimension of criminality, they are failures - because they get caught. Of course, some of them have unconscious motivations to get caught and thereby cared for. The point is that even at their vocation - if you pardon the stretching of the word - they are failures. The problem, as I see it, is not so much the problem of rehabilitation; it is the problem of habilitation. There is a vast difference between these two processes. Rehabilitation, as you know, means bringing someone back to a prior level of adjustment. Habilitation means taking them to ground that they have never covered before. The latter is a more complicated process and a more difficult task. Yet the latter is the major task of the correctional process.

There are aspects of character problems that have a great deal to do with the kind of programming that ought to make sense. At a meeting last week a colleague of mine said: "In the main, corrections tries to adapt people to fit into institutions, and that at its best mental health tries to adapt institutions to fit people." I think this the black and white of the issue. It has to do with differences in philosophy and it has to do with the kinds of people that we are caretakers of. There are characteristics of character problems which permeate the correctional system.

For example, one of the things is the value of hard work. Character disorders tend to be people who take because they have never learned to work or that they can earn by the dint of their labor. The implication of this for vocational work is profound. It means that not only do you have to teach many of the inmates particular job skills to fit into the market place, but also you must teach them how to work. For example, computor technology is very important nowadays and it will obviously be an expanding user of labor. In Massachusetts' corrections, we don't teach this skill. I know that California does. It is obviously a place where a realistic investment in training would pay off. But teaching this technical skill to inmates is not enough. Beyond that lies the whole issue of a work ethic which many of the men who go to correction do not have. They haven't yet learned this particular thing. It is difficult to teach this to people, especially when you have four people assigned to every machine in the shop, when the level of production within the institution is such that what is required bears no relationship to civilian requirements, when you don't have people learning slowly to work eight hours a day because that is what civilian life requires. It seems that corrections has two tasks. One is specific skill training, and the other is development of a work ethic within the framework of corrections.

Another aspect of character disorders is that people who go to prisons have a great deal of need for immediate gratification and immediate reward, and have a great deal of trouble in setting goals that are far distant in the future. When most of us started on our graduate education, we had our goals set ten or fifteen years ahead. Inmates can't do this. They need to learn to inhibit their needs for impulse gratification and come to grips with the world as it really exists around them. There are many kinds of experiences in a prison which, if they are allowed to have them, will help to train people in this particular way. Oftentimes in prison the caretaking and the custody is so complete that the opportunities to try don't exist, and without the opportunity to try there really can be no learning. I am making a sort of plea that in some aspects the more open a system the prison is within the confines of reality, the more habilitative potential it has. Corrections in some ways learned this a long time ago as witnessed by the progression from the silent system to the work system to the kind of polygot programming that we now have.

A final point that I would like to make is the place of a psychotherapy or a mental health program in a correctional facility; its meaning to the staff and to the inmates. Any mental health service that goes into a correctional facility and sets as its task to work only with staff or only with the inmate population had best not waste its time going in. The mental health worker is essentially an outsider as the Department of Mental Health is in corrections or parole. As an outsider, you enter a system in a kind of equilibrium, and if you pay attention to only one side of the balance you will soon meet all

kinds of resistances from the other side, and your work will tend to be undercut. I feel it to be basic that you must work with both sides of the social system if you are trying to be a change agent, one who is trying to help other people to improve their job performance.

Inmates, as a class, have by and large been very poorly treated by the Department of Mental Health prior to their coming to prison. By poorly treated, I do not mean that they haven't been observed, that they haven't been seen in mental hospitals on court order; what I mean is that the inmate himself has made very little voluntary use of mental health facilities as long as he remains free in the community. I think this is primarily because the symptom behavior of inmates is such that they handle their anxiety by committing their criminal acts, and other kinds of acts, and as long as they are free to do this their anxiety is somehow contained and they don't show up in mental hygiene clinics or hospitals. If they do, they break treatment after one or a very few interviews. If they are in mental hospitals, they often leave against medical advice. As you know, mental hospitals are rather loathe to take acting-out character problems. Mental hospitals are behind the spirit of the times in this respect.

When an inmate comes to prison, it may indeed be for the first time in his life that he is contained enough so that he experiences some kind of limit setting procedure and begins to consciously experience anxiety, discomfort, and the impossibility of doing things the way he is used to doing them. This is, I think best illustrated with criminals who have problems with drinking and then commit crimes when they are drunk. When you have these men confined in prison and they are away from alcohol, it is very rapid in a treatment program that this type of man will say to you: "I know how I feel now. If I could have a drink, everything would be fine." You know his personal tranquilizer is now gone and he begins to have to face himself internally.

From my own professional bias, be it with those inmates who volunteer for treatment or with those who are sent on mandatory grounds, the psychotherapy programs in Massachusetts' institutions are having an increasing and meaningful impact. At the very least they offer some of the best opportunities to get at basic motivation patterns and begin to free people up enough to use other programs in the institution. If the psychotherapy program does not help a man take advantage of the prison environment, then I don't believe it will help the man take advantage of his civilian environment. I mention this because all too frequently programs feel they are in competition with each other when in reality programs within corrections are supportive to each other.

Treatment programs in an institution should be designed to assist inmates in coming to grips with the environment they are in, to take what good they can from it, and to learn from it, the goal being a more satisfactory adjustment on their return to civilian life - a reality for over 95 per cent of the persons incarcerated.

CHAPTER VI

PAID EMPLOYMENT

A Key Psychological Factor in the Successful Treatment and Rehabilitation Program for the Confined Public Offender

by

by John J. Brennan

Not only is there a close analogy between confinement in a mental hospital and a penal institution, even the treatment given is comparable. Formerly, a patient entered a mental hospital under a judicial commitment. So, too, did the public offender who was sent to a penal institution. In each instance, such confinement was, and still is, one that causes a great deal of stigma to the person involved. Consider also that a patient is sent to a mental hospital for the purpose of protecting him and the community. A similar reason could be advanced for sending a person to a penal institution. Likewise, whereas formerly the treatment of prisoners was mainly punitive and retaliative, the emphasis now in both hospitals and penal institutions is, or at least should be, upon rehabilitation. Again, the discharge of a patient is a matter for determination by the administrative officials of the mental hospital. This to a substantial degree is also true of prisoners who are released by the officials charged with the management of the correctional institution.

Formerly, when a patient arrived at the mental hospital little effort was made to effect his rehabilitation. Today the mental hospital treatment approach has both a positive psychological and preventive aspect. The purpose of such a program is to change the behavior of the individual so that he will not only be able to return to the community at an early date but also do so at the best possible level of adjustment so that he may be able at once to manage his own affairs and to conform to the standards of the community. Even before the advent of tranquilizing drugs, significant improvements had been made in this direction. Meaningful paid work programs had been established which served to motivate the patient, reduce tensions, restore his confidence and feeling of security and convince him that he could both return to his previous environment and full employment with complete acceptance by the community provided only that he conformed to its standards.

Unfortunately, for the most part, penology still concerns itself with custodial care and the punitive approach whereby an attempt is made to induce the offender to behave in conformity with prevailing standards of society. But it cannot be denied that a program which emphasizes tension-reducing, motivating and stimulating work is considerably in advance of that prevailing in the typical correctional institution of today. Even though in former times penologists recognized the advantages of the workhouse and that considerable correctional activity could be accomplished through work assignments, they somehow failed to keep abreast of advances and the whole procedure has fallen into poorly trained and poorly motivated hands. With the increasing professionalization of correctional procedures, such a situation should not have been allowed to occur.

Even in those penal institutions where work programs are in force, pay for work performed is extremely low - sometimes as low as 38¢ a day. It should be evident that not only is such a low rate of remuneration not psychologically motivating, it may instead give rise to a great deal of hostility. Moreover, such microscopic wages do not provide sufficient funds to enable the prisoner

to make a fresh start when released. What makes matters even worse is the fact that the work available within the penal institution is not closely associated with the industrial activities pursued in the community to which the prisoner belongs. In many cases the work and training provided have long since actually been dropped in present day industry to be replaced by more modern techniques including that of automation. In such instances, it is virtually impossible to find its counterpart in the surrounding communities.

Through strenuous efforts the Bedford VA Hospital has endeavored to overcome the negative effects of work programs and placed the emphasis upon their positive values. For example, the work provided to the patients consists of current industrial projects brought in by various firms in the surrounding community who also furnish the proper tools used in their manufacture. The patients are then paid standard wages either hourly or on a piece-work basis. None receives less than the national minimum scale. The payment of standard wages heightens the self-concept of the workers and eliminates the tendency on the part of some employers to characterize the patient as a sub-standard employee thus continuing him at a lower wage even after his production rate has reached normal levels. These pecuniary rewards usually give the patient an opportunity to accumulate working capital previous to his discharge which markedly enhances his chances for successful readjustment to life outside the hospital.

Since the problems and needs with respect to rehabilitation of inmates of mental hospitals and penal institutions are similar in so many respects, it would seem that the rehabilitation techniques now practiced by the progressive mental hospital could be applied with equal success to penal institutions with but minor modifications. For example, the Bedford VA Hospital has established training and work programs under three varying types of supervision.

(1) First there is the Modified Community Employment Project to which a recently entered patient may be assigned. Under this supervisory plan, the patient performs industrial activities within the hospital for standard wages.

(2) Often, however, a patient whom the hospital staff feels can be safely at large in the community is assigned directly to the Community Employment Project in which he is transported under hospital supervision to his work site each morning where he works side by side with other workers in the plant. These workers serve as models of the type of behavior he must follow or be dropped from employment and be returned to the hospital to work within its walls.

(3) A third program is the Day Work-Night Hospital Program which permits the patient to leave the hospital for an 8-hour day and then return to the hospital for housing and treatment. In this program, the employer assumes the supervisory functions and reports back to the hospital treatment team. With this information, it becomes possible for the treatment team to determine just when the patient is ready to be discharged to the community at the earliest possible date.

The counseling psychology staff functions at all times closely with industries outside the hospital and follows the patient's efforts toward rehabilitation throughout. From time to time the personnel from industries outside the hospital also familiarize themselves with the work patients do in the Modified Community Employment Project. To be successfully administered these programs consistently involve a close relationship between the hospital staff, employers, labor organizations and the community as a whole.

It should be evident that a similar group of programs could be employed in the penological field. Obviously in many instances it would not be proper to allow certain prisoners complete independence until they had been carefully observed and guided as they advanced through the various work programs. But this also applies to many individuals in the hospital population with a history of criminal offenses. Patients who do not conform to standards have to be moved backward rather than advanced and some may even have to be dropped altogether and returned to activities within the hospital.

In conclusion may we suggest that comprehensive and adequate institutional work programs may be justified in penal institutions on such grounds as the following:

(1) The trauma of confinement is markedly reduced.
(2) There is a lessening of hostility toward society on the part of the person, confined "against his will," through tension reduction as a consequence of useful work.
(3) The development of "prison psychosis " through meaningful employment and constructive planning is appreciably minimized.
(4) Adequately paid work activities, which in time become functionally autonomous, crowd out and supersede tendencies to dwell on the details of the crime with plans to improve the technique in the belief that detection will be less likely when the next opportunity for a repetition of the criminal act presents itself.
(5) The work experience results in a greater readiness for outside employment and an improved attitude toward holding a full-time job in industry upon discharge. (Often a hospitalized patient is offered employment upon his discharge by the employer who has followed the patient's progressive improvement during his period of hospitalization.)
(6) The desire and tendency to escape imprisonment is lessened because the prisoner realizes he has much to gain by completing the program and receiving the funds he has earned. (It has been experienced in hospitals that fewer patients have left on elopement status.)

CHAPTER VII

PROGRAMS OF MASSACHUSETTS REHABILITATION COMMISSION IN REHABILITATING THE PENAL OFFENDER

by
John Levis

I want to speak to you briefly on the program of rehabilitation of the public offender as we, in the State Rehabilitation agency see it. You know, traditionally, we are an organization that worked with the physically disabled, and it wasn't until about ten years ago, that any emphasis was given to a program for rehabilitating the mentally disabled. When we first became involved in the program of rehabilitating the mentally disabled, we had great fears, great trepidation, we were worried, we didn't feel that we knew much about it. But, when we reviewed the past, we learned that, over the years of working with physically disabled people, their prime difficulty was not physical, but emotional, and we had worked successfully in this area. This gave us courage, made us a little bolder, a little more confident and we went into the field of attempting to help people to become rehabilitated who had psychiatric disabilities. We have had a reasonable amount of success in this area, but we find that, today, we are in the same position with the problem of the rehabilitation of the public offender, that we were ten years ago with the rehabilitation of the mentally disabled.

A few years ago the Vocational Rehabilitation Administration and the United Prison Association co-sponsored a conference up at Chicopee, concerned with the rehabilitation problems of the public offender. It brought together people from corrections, parole, probation and rehabilitation for the first time. We talked about the problems of correction, parole, probation and rehabilitation, and we became acquainted with each other. We found out that there were many things that we could do together, if we could get together.

Following this conference, we had a few more meetings in smaller groups with people concerned with the problem, leading up to a full one-day conference that was held at Framingham, when we brought many people in Massachusetts, concerned with correction, parole, and rehabilitation together. This was a most productive conference, and as a result, we began to work with each other on an informal basis.

At a follow-up conference of supervisory staff of Corrections and Rehabilitation, the Deputy Commissioner of Corrections outlined the functioning of the treatment unit at the Correctional Institution at Walpole. We decided that this might be a good place to start, a good place to learn what the problems were, not to learn the problems so that we could have a reason for not doing something, but to learn the problems so we would know where to begin, what to attack, how to go about this whole program of bringing together corrections people, parole people, and rehabilitation people in order to help the public offender to become rehabilitated. I say help them to become rehabilitated, because we do not rehabilitate them. No one, in our estimation, rehabilitates anybody. People rehabilitate themselves, and all we can do is give them the tools with which to do the job. If anyone thinks that he can rehabilitate anybody else, challenge him to rehabilitate somebody who doesn't want to be rehabilitated. With this thought in mind, the correctional institution at Walpole, appeared to be a good place to start, because the people in the treatment unit at Walpole were there voluntarily. They asked to go into the

treatment unit because they wanted help. The Rehabilitation Commission sends a man down once a week to meet the treatment unit staff of psychologists, psychiatrists, psychiatric social worker, and others concerned with the unit. The group discusses likely candidates for a rehabilitation program, considering motivation, need for help, probable date of release and other factors.

Over the course of a year, getting on to a year and a half now, we have taken eight, a very, very small number, but in these eight people, I think we have learned what most of our problems are going to be in the future.

One of the advantages at Walpole was the availability of medical information, psychiatric information, and psychological testing, all furnished by the institution. These are requisites for the Rehabilitation Commission. We must have these reports in order to accept clients for rehabilitation services. So, that was all built in; that made it easy for us.

During the year and a half working with eight people, we have come up with some problems;
First of all, we have to work with the inmates on the basis that they may get paroled, so we selected those that the group thought had a good probability of getting paroled within a year. Unfortunately, of the eight we had, I think five were denied when they came up for parole. This, of course, we are going to discuss with Mr. McCormack of the Parole Board one of these days. However, of the others we have worked with, three have come out, and all three have gone back, gone back to the institution, either for new offences or for violation of their parole. So, the question is what are we going to do now? We hope that this doesn't mean that we are going to say we can't work with people coming out on parole, so forget it. We hope that we will be able to build a program so that when the fellow does go back, if he does in the future, that we will be able to continue work with him until the time when he can come out again. We have learned some of the reasons why they fail, and these are areas that we will be very much aware of in the future.

We took another program at the county correctional institution at Billerica, The Billerica House of Correction. We found out at the Billerica House of Correction that had very little in the records. We could not get medical information, psychiatric information, or psychological testing. It was not available. So, we decided, we would bring staff into the Institution to do it. We brought doctors in to do the necessary medical examinations for us, we brought psychiatrists in to do the necessary psychiatric evaluation, and we brought psychologists in to do the necessary testing. I think we spent an average of $75.00 for this evaluation on each of ten inmates. We are not complaining about this. We don't mind doing it. If it is not there, we don't mind obtaining it. However, we find that the program from institution to post-institution is something we have to be concerned with. It seems that when there is no rehabilitation program within the institution, there is not much chance of there being one outside of the institution.

Of the ten people that we accepted, five returned, either with violation of parole, or new offenses before any program outside the institution could be initiated for them. We don't know what happended to three of them when they came out; we could never catch up with them. We don't have the same club that the parole officers have; our program is voluntary on the part of the inmate. If people want help, we will help them, and if they don't, there isn't much we can do. We can motivate them, or try to motivate them if they come to

us, especially, if we can't find them. We think one of the two remaining will be successful. We have grave doubts about the other one, but so far he has managed to satisfy the conditions of his parole, or somebody hasn't paid attention to him, or they don't know. Anyway, he is out and so far as we know, he has a fifty-fifty chance of staying out.

So, one out of the ten has been successful. If we are going into the rehabilitation of inmates in county correctional institutions, we are going to have to get together with someone in corrections, and start rehabilitation procedures while the inmates are still within the institution.

This is not too different from the experience we have had with state mental patients in the years past. Ruby Margolin has had it; John Brennan has had it; we have had it. If you wait until the individual comes out the door of the state mental hospital, you will have a very, very poor chance of getting him rehabilitated. So I would lend great support to this business of starting rehabilitation the day the individual first comes to the attention of the authorities. This is something we hope to work on with probation, corrections, with parole, and we hope that within the next year certainly to have a very active program going because we are beginning to see ways and means now that we will be able to get funds to do it with.

So far, what we have done is a trial run by a few people in order that we may gain some knowledge of the problems to be encountered in structuring rehabilitation programs for the public offender.

CHAPTER VIII

POSTINSTITUTIONAL REHABILITATION OF THE PENAL OFFENDER: A COMMUNITY EFFORT

by
Reuben J. Margolin, Ed. D.*

Perhaps the greatest area of neglect in the field of rehabilitation is concern for the penal offender. Rehabilitation programs within most penal institutions are either very poor or nonexistent. A recent U.S. Department of Labor publication reveals the massive extent of this neglect.

> Although more than 100,000 persons leave Federal and State prisons each year, few of them receive the kind of training, while in prison, which would enable them to compete successfully for jobs. An even larger number of releasees, many of them teenaged youths, leave correctional institutions in cities and towns where modern training programs are, for the most part, not available. Most penologists emphasize that the purposes of imprisonment should be rehabilitation rather than punishment and that training and education are important instruments for rehabilitation. Our society, however, has not provided the facilities and personnel needed to develop the work skills of prisoners. [1]

The community has not granted top priority to the rehabilitation of the penal offender. Instead, the tendency has been to blot the problem out of our collective memory. Rehabilitation workers, those best trained to handle the problems of deviance and disability, also tended to avoid working with the penal offender. However, the reality and the pressures of our times are forcing society to become concerned not only with the prevention of crime but also with the task of transforming the offender into a responsible citizen. The rehabilitation of the penal offender is a joint effort involving the offender, the professional worker, and the community. Unless the community accepts its responsibility and indeed plays a strategic role, successful rehabilitation of the offender will be jeopardized.

There is no need to cite the dramatic and increasing crime statistics, nor is it necessary to elaborate upon the daily consequences to the average citizen. The high recidivism rate of the offender is well known. These facts are too familiar to all of us. It is the pressing nature of these circumstances, combined with the trend of the times as reflected in the philosophy of the Great Society, which now makes the rehabilitation of the penal offender crucial.

A Model for Rehabilitation

The predominance of a custodial orientation among penal officials poses a major obstacle to the development of rehabilitation programs. Even those favorably disposed toward rehabilitation are sometimes overwhelmed by the enormity of the task. Yet, is there a better alternative? The majority of offenders, and this includes lifters, will eventually be discharged from prison. Without rehabilitation it is better than chance that the dischargee will leave the institution with his criminal behavior patterns more deeply entrenched. In addition, he will more than likely be shunned like

1. U.S. Department of Labor, Manpower Administration, Manpower Research, Bulletin No.8, April 1966.

* Reprinted with permission from: Federal Probation Quarterly, March 1967, 21(1), 46-50.

the plague by respectable society; and as a result, the stage is set for the reenactment of criminal behavior, only this time with more bitterness and frustration. It is virtually impossible to correct these antisocial patterns without rehabilitation because a substantial number of the offenders are socially and mentally sick.

The pyschiatric model for rehabilitation is one from which we can learn a great deal, borrow, and build upon. Great strides have been made in the successful rehabilitation of the psychiatric patient. Today we accept the idea that the rehabilitated mental patient can return to employment and to family living. However, this crowning achievement was not attained without a struggle. Resistances came from within the psychiatric profession as well as from the community. On the other hand, there were dedicated professionals and nonprofessionals who relentlessly pursued the rehabilitation goal and demonstrated what could be done.

In many respects the problem of rehabilitating the penal offender is similar to that of rehabilitating the psychiatric patient. In both situations unpredictable behavior patterns constitute a central problem. One of the major tasks, then, is to encourage more stable behavior; otherwise, it would be difficult to establish realistic goals for the individual. Both situations require the establishment of a rehabilitation plan which would include measures to satisfy psychodynamic needs as well as job objectives. Thus the rehabilitation plan embraces necessary physical restorative treatment, guidance, testing, counseling, pre-vocational exploration, work conditioning, job training, placement, and follow-up.

Goals of Rehabilitation

Undoubtedly the most important element in the rehabilitation of either the psychiatric patient or penal offender is the matter of trust. Those that work with these clients must have a firm conviction what basically all human beings have a deepseated drive toward health and normalcy. We must provide every opportunity for a trusting relationship, for without it rehabilitation cannot succeed. Penal offenders must change from an antisocial to a socially acceptable identity with all that such identity implies--work, family living, social and civic participation. To help the penal offender establish a new identity is probably the major mission of rehabilitation.

Although there are similarities, the rehabilitation of the penal offender is more difficult than that of the psychiatric patient. Society needs scapegoats, something to feel moral about, and successful rehabilitation may choke off a convenient avenue for expressing moral indignation. This feeling of righteousness may be a reflection of the need to project our own larcenous impulses upon someone else.

Some questions may be raised about the great risk involved in rehabilitating offenders. Failure rates may be high for a number of reasons, but the major cause is that few institutions have adequately developed comprehensive rehabilitation programs. The trend toward the increasing use of work-release programs is an important step in the right direction. Through this procedure prisoners are released during the day to work on jobs in nearby communities and return to prison at night for confinement. Although the work-release plan is not new, having begun with Wisconsin's Huber Law of 1913, it is gaining increasing significance today because of its integral relationship to the total rehabilitation process. Work-release programs are now in operation in the Federal Bureau of Prisons (Prisoner Rehabilitation Act of 1965) and at least half of our 50 states.[2]

2. Stanley E. Grupp, "Work Release and the Misdemeanant," Federal Probation, June 1965, pp. 6-12.

Similarly, the Manpower Development and Training Program being conducted in cooperation with the U.S. Department of Labor at the District of Columbia's Lorton Youth Center holds great promise.[3] If creative rehabilitation is unavailable, the offender will find it difficult to function effectively in the community. The failures may cause consternationn and public outcry and even a demand to return to the safety of the custodial institution. But let us never forget the community is being insulted every day by un aggravated incidents of crime, often by recidivists who in almost all cases were untreated in the prison.

It is axiomatic that if the offender is to be successfully returnded to employment in the community, rehabilitation measures must begin in the penal institution. Furthermore, it must continue for a long period after discharge. To begin a rehabilitation program generally will not work. The moment he enters prison, hope should be communicat d through the potential of rehabilitation. Each individual should receive a thorough assessment to determine what he needs to meet in a socially acceptable way the demands of daily living in the community. A careful schedule of therapy and activity should be planned for each individual. This may include psychotherapy, group therapy, recreation, education, prevocational exploration, specific job training, and vocational counseling. All of these activities must be related to a central rehabilitation goal; otherwise, these activities become fragmented and meaningless.

The Community Plays a Strategic Role as a Therapeutic Partner

When the offender is ready to leave the institution, the employer in industry must be taken in as a therapeutic partner.[4] The employer must be made cognizant of the ex-offender's special problems. We must recognize that all our hard work within the institution can go down the drain if we do not have both ample job opportunities and understanding employers. The offender, incidentally, should be thoroughly prepared for the stress, strain, and frustrations involved in job hunting. Role playing is the best medium through which this preparation can be accomplished.

Some people may feel that cracking employer resistance may be too overwhelming and thankless a task. I cannot agree with this point of view. Employers will hire discharged penal offenders if a proper case for the job prospect is presented and if evidence can be provided that adequate rehabilitation treatment was received within the institution.

The author's experience of placing over 700 mental patients on jobs in industry is a substantiation of this hypothesis. A number of these patients had been confined in

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3. Thomas R. Sard, "A Chance on the Outside," American Education, April 1966, pp. 29-32.

4. The concept of the employer as a therapeutic partner was described by the author in a number of articles of which the following are representative:
"The Former Mental Patient, An Untapped Labor Source," Personnel, Journal of American Management Association, January 1961.
"How an Employer Can Help Mental Patients," Rehabilitation Record, May-June 1964.
"Ex-Mental Patient Succeeds: A Tribute to His Employer," Rehabilitation Record, March-April 1966.

both mental hospitals and penal institutions. Four individuals particularly stand out as examples of successful rehabilitation as a result of a joint therapeutic partnership between industry and the hospital. Since their discharge from the military service, they spent most of their lifetime alternating between prisons and mental hospitals depending upon the circumstances under which they were apprehended. One was a confidence man with a flair for fleecing; another was a car thief who delighted in banging up the cars after they were stolen; a third, and ex-professional boxer, was arrested 35 times for assault and battery while under the influence of liquor; and a fourth was convicted with a history of rape. Among them they represent over 60 years of confinement. All four, after a thorough rehabilitation program in which the employer was directly involved, were placed on jobs in the community. They are still working after a 7-year period and have remained out of trouble, also.

Just as the employer has been successfully involved as a therapeutic partner, other community agents can play a similar constructive role. The horizons of the penal offender would be greatly expanded if institutions and agencies such as civic clubs, churches, unions, fraternal organizations, educational, recreational, and governmental agencies were to band together to provide the supportive framework for the offender to take his rightful place in society. Psychiatric rehabilitation has been primarily successful because community support has been mobilized in this way.

Here are a few examples of how community elements can be utilized as therapeutic partners. The chambers of commerce and other organizations with industrial affiliations can be a fertile medium for developing employer involvement in the rehabilitation of the penal offender. The author found that by developing a cooperative relationship with a local chamber of commerce, serious obstacles to employment opportunities were eliminated. The approach was simple. Each month the executive director would invite five employers to a luncheon meeting with a rehabilitation representative from the psychiatric hospital. A single case was presented and discussed in detail. Job placement assistance for this particular was asked for either through their own firms or employment leads elsewhere. These monthly meetings achieved the goal of selective job placement without too much difficulty. An identical format was employed in working with volunteer organizations that sent their members to volunteer their services in the hospital.

Churches can perform a more vital function than they now assume. For example, clergymen can reintroduce the offender into the mainstream of living through church suppers and other church-related programs. Unfortunately, some clergymen adopt a moralistic and even condemnatory outlook which has the effect of driving the offender away from the church.

Big Brother can be a strong stabilizing force with offenders. This is especially true of those in their teens and twenties. The emotional deprivation experienced by these individuals through rejection is quite pronounced and traumatic. Acceptance by societal representatives is essential. Because the ability to accept a person regardless of one's dubious past is so vital, Big Brothers must be carefully selected for qualities of understanding, empathy, and firmness. The latter is important because individuals treading on uncertain grounds will always test their benefactors.

Unions can play a central role in breaking down employment barriers if they can be encouraged to accept a rehabilitation philosophy. With offenders who have retained their union membership, no difficulty is generally encountered with eliciting union cooperation for participation in the rehabilitation process. Major blocks occur when entrance into an apprenticeship program or union membership is sought for the first

time. In the author's experience pressure must be exerted at the local level in order to remove prejudicial and discriminating practices. In some cases he was very successful but in others he met a wall of resistance. Nevertheless, the fact that some unions did accept the challenge is indicative of the need to relentlessly pursue the goal of engaging unions as therapeutic partners.

In a similar vein, schools and universities must open their doors to offenders with academic potential. Admission criteria must be made more flexible because many of these individuals suffer from erratic school performance. Scholarship and other financial assistance must be readily available. Counseling through university services should be offered when necessary prior to entrance and during matriculation. In one university, for example, where a scholarship was given to a penal offender, five counseling sessions were necessary to prepare this individual for admission. This person had a need to express his fears and anxieties about going back to school after many years, to deprecate himself for past sins, and to receive assurance that he would receive acceptance and support in the academic environment. If schools and universities can be magnanimous in this way, undoubtedly much productive talent would be salvaged.

Government agencies can be very helpful in the rehabilitation process. One of the most important developments in recents years is the growing interest of state rehabilitation agencies in rehabilitating the penal offender. Cooperative agreements between state vocational rehabilitation agencies and state correction departments have paved the way for more comprehensive programs in penal institutions. At the Federal level the Vocational Rehabilitation Administration has provided grants for research and demonstration as well as for short-term training institutes. Through one of its grants it established the Joint Commission of Correctional Manpower and Training which plans to make extended studies in this area and to offer recommendations for solving some of the persistent problems.

A community effort must also include wide participation from community citizens. All other areas dim in significance if citizen participation is neglected. Many a successful rehabilitation within a penal institution has been undone because of vindicative attitude in the community, legal restrictions, and just plain misunderstanding. The correctional field needs to embark on a project similar to the mental health and mental retardation planning programs which are helping to bring about so many needed changes in these two fields. A correctional planning program would recruit citizen task forces to tackle such problems as helping the offender get a job when bonding companies will not provide bond, removing impediments in our states which prohibit convicted persons from obtaining employment in trades in which they are skilled, and removing from many of our states the criminal registration ordinances which demean the offender beyond reason and make it difficult or impossible for rehabilitation to follow to a successful conclusion. The rehabilitation process is stymied unless an aroused citizenry exerts the necessary pressure upon lawmakers, our trade associations, and others who continue archaic inhibitory practices.

Followup is essential if rehabilitation is to be successful. This process should not be too difficult to carry out because a structure already exists in the parole system. Followup procedures should be carried out for a minimum period of a year and longer if necessary. Actually, the services of the parole officer or whoever does the followup should be available whenever the ex-offender seeks help. There should be two major phases to the followup, namely, periodic regular followup and crisis intervention. Periodic regular followups are necessary to evaluate the individual's progress and to assist him in building a firm foundation for community living. Crisis intervention is necessary

because stresses and strains do mount up; and with the fragile egos of so many of the ex-offenders, they may find it difficult or even impossible to cope with critical situations without some assistance. Followup, if skillfully employed, represents a wise investment of the professional's time.

Summary and Conclusions

In summary, rehabilitation, if it is to be effective, must begin the moment an offender enters the penal institution. A favorable emotional atmosphere should be established in which the cultural expectation is that the offender has a chance of succeeding in rehabilitation. In this respect, we must develop a trust in the inmate's ability to respond to rehabilitation measures. A complete evaluation must be given to determine which psychodynamic needs and vocational goals can be met and through what rehabilitation activities. The rehabilitation program must be continued in the community buttressed by periodic regular followups and crisis intervention. Employers and other community resources must be involved as therapeutic partners. If this combination of steps is pursued the chances are good that the ex-offender can secure employment. However, we must not delude ourselves that employment opportunities can be obtained without faith in the offender and without dedication and commitment to the idea that rehabilitation must be initiated without delay and is a crucial factor in each case. In the final analysis, extensive citizen involvement will provide the pillars of support for successful rehabilitation.

CHAPTER IX

SUMMARY OF DAY'S PROCEEDINGS
by
George Goldin

All of you would agree, I hope, that much has been said today both interesting and pertinent which will hopefully influence the future of correctional rehabilitation.

We first approached the problem today with a sociological analysis of the corrections system in which it was pointed out that the public offender is stigmatized, branded, and in a sense legitamized as an offender. He faces many problems when he leaves the institution. Dr. Glaser reminded us that the penal offender has many similarities to the non-public offender. In effect, he has many of the same ideals and aspirations relative to becoming a success. Dr. Glaser took a positive point of view and pointed out that the deviant drives of the offender can be converted in socially acceptable directions if we capitalize on his strengths and utilize these assets for his rehabilitation. He warns us that in our present correctional system the public offender becomes further educated to crime, and that crime for him, in his current state, is a successful adjustment, and that he adjusts, in effect, to the culture of crime. So long as he considers himself a success in this way, his criminal behavior pattern is perpetuated.

Unfortunately, in prison the offender is trained in skills that he is unable to use when he comes out. He lives in the world of the institution which is not geared to reality. Thus, when he does leave the institution, when he is paroled, he finds himself unequiped to deal with the stresses, tensions, problems, and vocational demands of the outside world. Thus, he is motivated negatively to return to the life of crime in which he was successful. And, he develops a self image in which he is successful in crime and unsuccessful in legitimate pursuits.

Having analyzed the sociological implications of our current correctional system, we then went into some of the possibilities in which the public offender could be helped. Dr. Prigmore pointed out that interdisciplinary effort was most important. All the main disciplines involved in the helping professions must work together in the rehabilitation of the public offender. This cooperation does not exist. Instead there is fragmentation of service, with little communications between the disciplines.

He also pointed out that it was important to give the public offender a measure of self-determination, something which he does not always have. While we are much dedicated to self-determination in working with non-public offenders, for example mental patients, we are reluctant to encourage self-determination among public offenders. The opprotunity to make decisions is crucial to career development. Vocational choices should not be imposed upon the offender as is often done. Career opportunities should be devloped through counseling.

But, Dr. Prigmore, perhaps, was most emphatic that there was a need for a comprehensive approach to the problem of rehabilitation of the public offender. This could be accomplished through multiservice centers that could provide the various services needed. These developments must be worked on if we are to increase the effectiveness of our rehabilitation of the public

offender.

Dr. Neiberg brought out very distinctly that many of us professionals wear professional blinders. That is to say, we do not learn very much about what other professions are doing, how we can cooperate, and coordinate our efforts with other disciplines. This point was stressed many times today.

Dr. Neiberg also pointed out that the world of the institution is an unrealistic world, making it difficult for the public offender to adjust to reality when he gets out. Much of the work which goes on in the institution, for the public offender, is not goal directed, not vocationally directed. He called our attention to custodial dependency that is produced and is inherant in the organizational structure of the institutions now caring for the public offender. Because of the very nature of incarceration, many of what might be considered legitimate, independent strivings are thwarted, because they upset the routine and administrative procedures which, must of necessity, take place within a custodial institution. Therefore, we develop in the public offender a custodial type of personality which does not serve him when he moves into the community. He returns to a life of crime to overcome his frustrations at being unprepared for postinstitutional living.

We were further warned that in this age of environmental manipulation we do not discount the importance of psychodynamics and intrapsychic factors. There is often a vague dividing line between where the psychological ends and the social begins, or where the social ends and the psychological begins. However, it was emphasized that both social and psychological factors, that is, the opportunity structure and intrapsychic factors are both important because intrapsychic factors influence the ability of the individual to use the opportunities which are presented to him when he enters the community. An effective integrated program is possible when we pay attention to both social and psychological factors.

Dr. Satten further pointed out that those people responsible for the treatment frequently rejected the public offender and were not truly committed to rehabilitation. And this, of course, would have many psychodynamic reasons which we do not have time to go into. He felt that one of the solutions for the shortage of personnel in the treatment of the public offender was the use of nonprofessional workers under appropriate supervision. This broad approach regards all individuals who came in contact with the public offender as potentially having a therapeutic impact upon him. He pointed out that the correctional institution could create mental illness and could do a lot more harm than it did good. Unless a welfare (therapeutic) atmosphere is created to permeate throughout the correctional institution, improvement could not occur and many would even regress.

Dr. Satten discussed the offender's right to fail and to make mistakes. Just because a public offender did not make it the first time, just because it took several attempts to rehabilitate him, he should not be written off or considered hopeless. This right to fail also applied to the professionals and nonprofessionals who work in the correctional field. They must try new, dynamic approaches with the right to fail. Certainly, if the right to fail is not possible, all creative efforts are blocked because all creativity depends upon experimentation and experimentation depends on our feeling that failure is not the worst thing in the world and is just another step, another means to our goal.

Finally, Dr. Satten emphasized the importance of people both in and out

of the correctional institution serving as role models for the public offender. Correctional people could not function therapeutically if they were not sources of identification for the public offender. Much of what is gained in treatment comes from the identification with a role model.

Dr. Margolin stressed the importance of faith in the public offender, faith in his ability to reform and be successfully rehabilitated. This faith is communicated, and insincerity quickly detected. If you have real faith and commitment to the treatment of the public offender, he will respond to it positively.

It was stressed by Dr. Margolin and others that rehabilitation must be started in the institution immediately, carried on throughout the institutional stay of the individual, and must include an extended followup period following the individual's leaving the institution. Rehabilitation is a long-term process. The individual offender must feel that someone cares and will help him with his problems. He is not just released, left high and dry to deal with an environment he considers hostile, one which he could not deal with in the first place.

Dr. Brennan pointed out, very forcibly, that there is a need for action in working with the public offender. One had to communicate a strong interest within an action frame of reference. Perhaps, most important, the individual working with the public offender had to be willing to take the rap for the public offender's failures, without himself becoming fragmented, and to try again. This was certainly a practical application of the faith concept expressed by Dr. Margolin.

Mr. Levis stressed the idea that the success of rehabilitation depended on the self-motivation of the individual. Therapists and people from the outside could help create motivation, but unless the individual was ready to relate, and ready to become motivated, he could not do so. Mr. Levis also placed great emphasis upon the continuity of the rehabilitation process.

Finally, in our afternoon deliberations, many controversial issues were stressed. The whole problem of who was motivated was examined. It was pointed out that what appeared on the surface to be motivation was not necessarily such, and what appeared as a lack of motivation may be just the opposite. By being diagnostic and by probing below the surface, greater understanding of the motivation process could be gained. It was emphasized that treatment had to be broad, and included many attributes. Psycho-therapy was only part of treatment, and that many people and many services were involved in treatment. A therapeutic atmosphere had to be created within the institution and outside of it, if the public offender was to make progress and become rehabilitated.

It was agreed that to make some of these changes on the practice and clinical level, there would have to be changes on the administrative level. The organization would have to be modified so therapeutic changes could be included. If administrative changes, bold administrative changes are not made in the organization, little can be accomplished on the practice level to help the public offender.

Considerable discussion was devoted to whether or not treatment could be forced, or should be mandatory. It was felt that mandatory treatment with the constructive use of authority could be beneficial. Such authority structure applied firmly, fairly, and consistently, could provide a framework in which the public offender could know what his status and progress is at all times.

Finally, there was a discussion of the role of the vocational rehabilitation counselor in rehabilitating the public offender. Potentially, the rehabilitation counselor could be most helpful to the public offender as he moves toward successful rehabilitation. However, before that can occur, there must be better communication and education between the counselor and the correctional staff member because both were not cognizant of what the other had to offer. There were diverse opinions as to when the rehabilitation counselor should enter the picture. It was felt by all present that irregardless of his point of entry, he could make a very basic and strong contribution if he approached his task diagnostically. As emphasized by Dr. Margolin, the VR counselor could be a strategic force in mobilizing therapeutic partners in the community to help rehabilitate the public offender.

To sum up---

1. Whatever we do, it has to be done on a firm diagnostic basis. We have to understand our case. We have to understand the psychodynamics, social dynamics, life style and the life history of the offender, so that we can move forward on an objective basis.

2. We have to mobilize all resources at our command, both within the institution, and outside the institution, to produce for the public offender a constellation of forces which will be most beneficial in helping him to readjust in what is to him an alien world.

3. We must adapt our pluralistic system of the helping professions, to provide cooperative, coordinative relationships, whereby everyone moves toward the one goal of producing a therapeutic, helpful, accepting climate for the public offender, thus enhancing his rehabilitation.

CHAPTER X

COOPERATIVE ARRANGEMENTS BETWEEN THE STATE VOCATIONAL REHABILITATION AGENCY AND VARIOUS STATE INSTITUTIONS

by
Charles Kinnard

I am going to talk about a cooperative program and its financing between the state vocational rehabilitation agency and various state institutions. Now, I say various state institutions because that's the way our regional, identical memorandum 6521 is written. But, I am going to use it only in reference to how it is with the state training schools in penitentiaries for public offenders.

This program attempts to present an acceptable method for capturing additional federal funds, without an additional appropriation of state funds. The purpose is to permit the services of the vocational rehabilitation program to be extended in suitable quality and quantity to state institutions such as correctional schools and penitentiaries for offenders. The passage of public law 333 provides a new matching formula that results in a substantial increase in federal funds. However, the allotment base will be increased too. We're going to be talking about Section II and Section III funds. This is federal terminology that we use with the states in order to identify the source of these funds. We have other sections that are used. The base allotment that is given to a state is X number of dollars, and then the state has to put up X number of dollars to meet this, if they want to capture all these federal funds. However, what has been going on here in New England is that nobody ever captures all these federal funds except in the state of Rhode Island. That is, they have been matching enough state funds to capture all the federal funds that are available. In all the New England states, there will be and there is, at the present time, money available. For example, in fiscal '66 under public law 565, and this is the law we were working under before we had the new law come into effect on November 8, the allotments in Massachusetts and Vermont respectively are $3,277,090 and $556,124. In fiscal 1968 under public law 333, the allotment in Massachusetts will be over 9 million dollars, which is three times what it was in '66. And, in New Hampshire it will be $952,433 which is not quite 50 percent increase or 100 percent more increase rather doubling it. So, you can see there is going to be more money available, and as we say here, certainly new sources of state funds must be found to capture the many federal dollars.

This program is a comprehensive state-federal program of vocational rehabilitation and is the one tax supported program charged with primary responsibility for the vocational rehabilitation of the physically and mentally handicapped. Most dramatic advances in recent years have been made in the relationship between the public program of vocational rehabilitation and the many agencies, public and private, also concerned with diagnosing, treating, rehabilitating handicapped men and women. No single disease or group of diseases create any greater problem of dependency on our society than the especially difficult physical or mental disability treated in public institutions for whom services therein have not been clearly defined or established to a significant degree. Cooperative programs, already operating in some states show that they are sound and result in more and better services to the clients. Therefore, a cooperative program between the state vocational rehabilitation agency, providing a vocational rehabilitation unit within the state institution and state training school including penitentiaries for public offenders constitutes a new approach, a great promise.

In considering the public offender as a candidate for vocational rehabilitation programs, the offender, as an offender, cannot be considered automatically eligible for vocational rehabilitation services. There are, however, many institutionalized offenders who have clearcut disabilities such as mental retardation, psycosis, and psychoneurosis, upon which eligibility can be based. For those who have no flagrant physical or mental condition, eligibility may, with intensive psychiatric or psychological evaluation be shown to have describable emotional disabilities, which are both limiting and handicapping, thereby meeting the eligibility requirements of the state-federal program. Assuming that disability exists, the decision to declare the institutionalized defender eligible for services will be based on the judgment of feasibility. That is, on the probability that rehabilitation services starting now will put him in a job upon release. Now, these programs should be initiated in states where a specific agreement for cooperation between the state rehabilitation agency and state institutions can be negotiated. As a second requirement, the institution at which the program is to operate should exhibit a positive and supportive attitude, towards such a new undertaking and be prepared to carry out its obligations in such a cooperative program. Such an attitude must begin with a top man or superintendent. These programs should be characterized as vocational rehabilitation units and be under the rehabilitation agency. The self-contained community is structured so that it can be used on a planned basis for adjustment, prevocational evaluation, and tryout and actual work experience programs, as well as movement and therapy programs.

As for the program of services to a rehabilitation unit, the rehabilitation unit will be responsive for evaluating the vocational potential of selected patients. For those patients thus found eligible it will be responsible to provide vocational rehabilitation services required by each patient to achieve his vocational objective. The unit shall be fully integrated within the institution being able to take maximum advantage of the community resources that are available to the vocational rehabilitation agency.

The vocational evaluation, the determination of the vocational objective and the rehabilitation plan are a joint effort via team conferences, of all services of the institution. The vocational rehabilitation counselor, after using these resources will develop the rehabilitation plan with the client.

The following are the services that may be provided through the rehabilitation unit when needed and available.

1. Necessary medical, surgical, psychological, psychiatric, and hospital services including specialists' examination when indicated.

2. For rehabilitation diagnostic purposes, psychiatric, psychological, social, educational, and employment study. Also, other evaluation services to identify the client's work needs and to assess the the client's work potential. Among other techniques, this may include use of planned work activities within the institution.

3. Individual counseling and guidance to develop a rehabilitation plan with an employment objective compatible with the client's physical and mental capacities, interests and abilities.

4. Physical, occupation, speech and hearing therapy as part of treatment.

5. Personal adjustment training to meet the needs of daily living necessary for employment such as travel to and from work, to develop proper work habits, and to change personal attitudes which interfere with vocational and social adjustment.

6. Training for suitable jobs through colleges, or vocational schools within the community, tutorial training, or a few correspondence courses.

7. Maintenance and transportation incidental to a rehabilitation service.

8. On the job training in the local community where the client's assets could be utilized or job tryout experience in the institution itself.

9. Occupational tools, we hope we buy the right tools, equipment, licenses as necessary to utilize or apply a skill.

10. Selected placement in a suitable job including self employment or establishment in a small business enterprise.

11. Follow-up after placement to be sure that the rehabilitated worker has adjusted to his job to his own satisfaction and to that of his employer.

The general supervision and control by the state vocational rehabilitation agency includes the following:

1. The eligibility of the clients is determined by the VR counselor.

2. Rehabilitation plans for services are made by the vocational rehabilitation counselor.

3. Authorizations for expenditures for services can be done only by the VR counselors or the VR agency.

However, it should be understood that in this cooperative arrangement the therapeutic aspects of the program within the unit will operate under the administrative control of the institution superintendent. The vocational rehabilitation unit should be a distinct administrative service unit within the general institution organization having its own supervisory staff, facilities or physical space, and definite scope of responsibility. Within the terms of this specific agreement for cooperation referred to above, the director of the vocational rehabilitation agency and the superintendent of the cooperating institution will jointly establish control and supervise all administrative and operation policies of the unit. The cooperative operational plan would be for the state vocational rehabilitation services on an organized and systematic basis to compliment and extend the existing program.

The goal of the program would be to rehabilitate and restore in a vocational sense any patients of these institutions who have potential for such rehabilitation. This presumes that the patient is sufficiently treated and socially restored that he is also able to be vocationally restored. The term rehabilitation and restoration together imply the entire process from vocational evaluation and diagnosis through counseling, physical restoration and training to successful job placement and adjustment.

What are the responsibilities of the institution? Well, the need for an effective partnership between the institution and vocational rehabilitation agency towards a goal of a truly adequate rehabilitation program for treated patients has been stressed early in this document. In making this workable partnership, it is important that each agency recognize and respect the others' primary field of operation. The vocational rehabilitation agency should scrupulously avoid duplicating, in any way, the treatment services provided patients by the institution either in institutional settings or as out-patients. Likewise, the institution should seek to avoid a vocational preparation and adjustment services which comprise the natural province of the vocational agency. In this program, the specific responsibilities of a cooperating institution are as follows:

1. Provision and/or psychiatric services required by the patient population of institution as ordinarily found in the state institution.

2. All maintenance and related services provided to patients of the institution will be the responsibility of the institution.

3. The institution will provide suitable quarters, including day to day maintenance services, utilities, basic telephone service, and housekeeping to house the staff and activity of the vocational rehabilitation unit.

4. The institution will continue to provide to all patients necessary follow-up after discharge and will be responsible for social services to both institutionalized and discharged patients and their families, if these are already established services.

5. So far as facilities permit, the institution will follow a progressive care plan that will permit optimate grouping of patients that will permit participation in the direction of social and vocational rehabilitation.

6. The institution will establish appropriate programs of staff orientation and training that will create a favorable climate for rehabilitation and which will prepare each staff member having contact with patients for their role in the rehabilitation program.

7. The institution will reorient the traditional patient-work program so that the various jobs required for the operation of the institution will be utilized for full therapeutic and vocational advantages of the patient.

8. The superintendent of the institution will assign a physician of the institution's staff if such a position exists to serve as a medical consultant in the vocational rehabilitation unit and as principal liason between the unit and the other medical staff, if any, of the institution.

In summary, the responsibility of the vocational rehabilitation agency revolves around the eligibility requirements of the State-Federal program which are governed by regulations that specify that, to be eligible for service, an individual must have a physical or mental disability and meet the previously described conditions.

The limitation must result in a substantial handicap to employment. There must be a reasonable exception that vocation rehabilitation services may render the individual fit to engage in a remunitive occupation. The vocational rehabilitation agency will provdie the services that may be found in a rehabilitation unit; also the agency will provide the unit supervisor, counselors, and case service monies as needed. How are we going to finance this?

The vocational rehabilitation unit, being an integral part of the service program in a state rehabilitation agency shall be financed in the same manner as other functions of the program, mainly through the use of state and federal matching funds, as required under section 2 and section 3 of Public Law 333, the Federal Vocation Rehabilitation Act.

Commitments for financing the unit shall be on an annual budget basis to insure continuity of operations. To receive federal matching funds, the state agencies must provide state funds equal to the state's share of planned expenditures as provided for in the federal act. The state funds may be in the form of direct appropriations to the state rehabilitation agency, or funds made available by allotment or transfer from a general department or appropriation, or funds made available to the state agency by any unit of state government, or in the form of contributions from private organizations or individuals for expenditure by and at sole discretion of the state agency. Salaries or portions thereof for the time institution personnel spent in vocational rehabilitation activities under the direction and supervision of the vocational rehabilitation agency will be considered state funds for the purpose of claiming federal financial participation under Section II and Section III of the Vocational Rehabilitation Act, provided such acts are vocational rehabilitation services which are not presently included in the institution's program of services and will increase vocational rehabilitation resources and opportunities that are covered in the approved state plan. For all part-time personnel of the vocational rehabilitation unit assigned by the institution, time sheets indicating actual time spent performing duties in the rehabilitation unit under the direction and supervision of the vocational rehabilitation agency will have to be kep for federal audit. The activities of all institution staff assigned to the vocational rehabilitation unit will consist of intensified services based on individual plans whose focus will be the achievement of maximum vocational rehabilitation goals.

The superintendent's salary will not be included for time in a prorated salary equivalent. His services will not be claimed as they do not involve the direct relationship to patient services in the vocation rehabilitation unit.

The institution shall provide and maintain suitable quarters for the unit including heat, light, water, janitorial service, office equipment, supplies, and basic telephone service; charge of long distance calls shall be charged to Vocational Rehabilitation in accordance with policies of the agencies. These institutions' expenditures may be used as a further basis for matching funds and included in the accounting procedure.

Fiscal administration and accounting shall be in accordance with a system agreed upon by the institution and the state vocational rehabilitation agency in accordance with pertinent state laws, regulations, and procedures. Institution staff participation involved in carrying out the activities of the rehabilitation unit are measurable by time. The time measured is converted into a dollar value on the basis of salary rates actually paid. The combined

value of these services together with the value of office and instruction space, furniture, and equipment set aside exclusively for vocation rehabilitation use is certified by the appropriate official to the state vocational rehabilitation agency as institutional funds which in turn are then certified by the state vocational rehabilitation agency to the federal vocational rehabilitation administration as equated state tax money to be matched by federal funds. The federal funds thus obtained by state vocational rehabilitation agencies are then expended on staff and vocational rehabilitation services. Control of the case service expenditure rests with the vocational rehabilitation supervisor and is in conformity with the state plan and policies of the state vocational rehabilitation agency. Just let me say, for every equated dollar that is put up, you will get $3.00 in federal funds back.

CHAPTER XI

ALTO PROJECT
Atlanta, Georgia
by
W. A. Crump

It is an honor for me to have this opportunity to address this group representing our state agency and Dr. Jarell, my boss, who is a pioneer in this area of providing rehabilitation services to the public offender.

The vocational rehabilitation of the public offender is based, as we see it, on the premise that behavior is influenced by genetic and environmental factors and that behavior can be modified through the provision of adequate services. During the past 18 years, the Georgia office of vocational rehabilitation has been cooperating in the provision of rehabilitation services to public offenders at the United States Penitentiary in Atlanta. For several years, we have had a counselor assigned to work with referrals from the state prison at Reedsville. In conference with Governor Sanders on June 19, 1963 he requested that Dr. Jarell present a plan for the rehabilitation of handicapped young offenders at the Georgia Industrial Institute in Alto, Georgia. This population, about 800, at that time were in the age range from 16 to 20. Assistance in the development of the plan was given by instructors and professors at the local university in the areas of psychology, sociology, psychiatry, and criminology. A ten per cent sample was evaluated from the population. This sample included every 9th case out of the 800. Out of the group of 80, 1/3 of the whites and 1/2 of the negroes tested within the bounds of mental retardation, 1/3 of the sample group had disabling personality disturbances, and about 10 to 15 per cent of the sample was potentially psychotic. Physical problems were found in approximately 10 per cent of this group. Now, obviously these disabilities were not mutually exclusive because some had multiple disabilities. On the basis of this sampling, we concluded that approximately 70 per cent of the population at Alto was eligible for vocational rehabilitation services. Experience has demonstrated that this was a conservative estimate. As a result of these findings, Governor Sanders, Dr. Jarell, and the Director of the Board of Corrections decided to introduce the vocational rehabilitation process, philosophy, and services at the Georgia Industrial Institute at Alto. A vocational rehabilitation administration planning grant enabled the agency to assemble a blue ribbon resource committee and secure consultation in program development from individual members representing corrections, penology, criminology, sociology, vocational rehabilitation, psychology, psychiatry, medicine, industry, education, social work, recreation, and research. Members of this committee, vocational rehabilitation staff members, and staff members from the board of corrections visited and studied some of the more modern correction programs in the country including California, New York, Washington, D.C., and Kansas. During these field trips we were impressed with many aspects of the correctional programs. We learned about security, the con-man, the rap partner, the convict code, and so forth. We learned also that public offenders are people.

At Meninger Foundation, Dr. Satten helped us recognize critical areas of possible conflict in philosophies in cooperative programs. On October 1, 1963, the first step in a cooperative rehabilitation program with the state was initiated with a small vocational rehabilitation staff at the Georgia Industrial Institute at Alto. The program had and continues to have three objectives: service, in-service training, and research. Under the terms of the agreement

with the Board of Corrections, Georgia Industrial Institute is responsible for maintenance, including food, shelter, clothing, medical care, and custody. Vocational rehabilitation is responsible for the provision of indicated vocational rehabilitation services to individuals who are physically or mentally disabled, provided the disability constitutes a vocational handicap, and provided the individual can benefit from such service to the extent of entering gainful employment. A second major step became a reality when Governor Sanders, Dr. Jarell, and Colonel Bersin, Director of Board of Corrections in Georgia, dedicated the cooperatively financed $5,000,000 vocational rehabilitation center at Alto on April 20, 1965. The vocational rehabilitation center contains approximately 30,000 square feet of space which is utilized for the following purposes: a diagnostic and evaluation unit, a major work sample unit, a rehabilitation residence for 132 inmate clinets, cafeteria, and office space for a supervisor, three rehabilitation specialists, six rehabilitation counselors, four work evaluators, three correctional officers, one consultant each in medicine, social work, sociology, three part-time psychiatrists, and seven part-time psychologists. This staff of 31, not all there at the same time, as you know, is providing rehabilitation services to 663 clients out of a population of approximately 11,000 at the present time. As you would infer from this staffing, clients receive a wide range of services in the program.

Each week Alto receives approximately 20 new inmates. These are referred en mass to vocational rehabilitation. At that time, one of the counselors or rehabilitation specialists brings them together in a group, and reviews vocational rehabilitation services with them. Depending upon their particular interest in a service, they are evaluated. We give them an opportunity, however, to express an interest in the service after it has been explained to them. Those who express an interest in rehabilitation services, approximately 99 per cent of them, receive an individual interview from one of the counselors or specialists who at the same time or soon thereafter begins with some vocational type testing. The next step is to secure a psychological evaluation from the individual, including projective tests, and if the projective tests indicate the presence of a severe mental problem, then these are evaluated by the psychiatrists.

We are bringing into the institution most of the clinical services that are needed in the program. We do have staffing for some of these which we have been unable to fill but, it is possible to get them on a one to two day per week basis.

Following the testing and interviewing, clients are scheduled into the TOWER system. They work through the various work samples which enable us to determine the vocational area they show the most apptitude. It takes approximately three weeks to process them through this unit.

TOWER system stands for:
T- tests; O- observation; W- work sample; E- evaluation; R-rehabilitation. This particular system was developed at ICD in New York where is was validated. It is now being utilized throughout the country in various settings. However, we have modified the system for this setting. Where you have a population of low educational level, it is necessary to make modifications. As a result we get some indication of vocational aptitude. Observations made by various people including the supervisor of work details, the counselors and others contribute to this vocational evaluation.

Following the evaluation, the client and the counselor review the findings. The counselor explains to the client what the various results mean. He may not go into his I.Q. score or his projected test results, but helps him to begin to see himself as he is. This period is one of the most critical stages in our work with the public offender. After we have completed the evaluation, the client must be confronted with what we have found, not in an accusing manner, but just to face facts, as we know them at this time. It helps him to face reality. At this point, a rehabilitation plan is developed for the client. The plan is developed in consultation with many people. Reports from the correction officer who has seen him night and day over the past several weeks, from the work evaluators, from the other counselors, and his teachers help to determine the nature of the rehabilitation plan. The plan might contain a number of services. One may be attendance in school half of the day; another may be to participate in some type of prevocational training indicated through the vocational training tests; another would be to participate in group counseling on a sustained bases; others may include work details of various types, and here is where we had one of our first problems. How do you assign a client to a job on the basis of his need when the institution over the years has developed a pattern of filling these positions? The problem is to reconcile individual therapeutic with institutional needs. We are making some progress in this respect. When the rehabilitation plan is accepted, the client is brought into the vocational rehabilitation residence.

Group counseling is a critical service which each client receives. The client also receives individual counseling. Group counseling is very helpful to us in this cooperative program. The Counselors, specialists, and work evaluators all serve as group leaders. Hopefully, correctional officers will soon be leading groups. All group leaders are supervised by a psychiatrist and a clinical psychologist. Group leaders meet weekly to discuss their problems with the clinical psychologist. Through this type of supervision and training a fairly sophisticated staff of group leaders are being developed.

We found it desirable and necessary to initiate an activities of daily living program. The evaluator administers certain types of tests, check lists, primarily, as to what the client can do socially and personally. Situations are then set up for the client to actually practice these activities that are often foreign to many of the clients, such a simple thing as ordering from a menu or knowing where to put the knife or fork. These help them to develop self-confidence. In this process, the evaluator eats with the client. The staff has no special tables.

When we built the building, we had a wall in between, the whites on one side, the negroes on the other. This year we knocked down the walls. The residence is also now integrated. This is halpful to both white and negro, because it does stimulate and motivate them.

A part of the clients plan usually includes what we call, prevocational training. This is an assignment to a job within the institution, not make believe work, but assigned on the basis of his needs. A job description has been developed for each of these jobs. Both the client and the supervisor have a copy of this job description. The supervisor evaluates the client's performance and feeds back to the counselor. The counselor and his client talk about problems and progress. All of these activities are considered prevocational exploration because few of these boys really know how to work or have proper work habits. Most emphasis is placed on developing basic worker

traits and skills that will be needed regardless of the type of work entered into subsequent to their release.

At present there are 87 training stations within the institution. As the client has problems, he can always come back to his counselor. When the counselor detects problems he will call in the client to deal with them b fore they get out of hand.

A positive attitude is maintained toward the client which is the essence of our rehabilitation philosophy. The clients respond to this approach of friendly, positive, and understanding treatment. When you work with these clients you cannot deceive these clients. You must be forthright and direct when you work with them.

The institution has developed a prerelease program in which the clients participate. Resource people from various agencies are invited to explain to clients the current practices in social security, welfare, and the laws which they should be familiar with prior to their release.

Counseling with these clients is intensified at this time. The case is then transferred to the field. Getting a client a job prior to his release or as soon as he gets home is crucial. If he does well on the job, then training and job upgrading can follow. At this time the case is transferred to the counselor in his home community. Hopefully, recidivism will thus be prevented.

Because the trained staff located at the center is in close proximity to the University of Georgia, it has enabled a consumation of agreements with the departments of psychology, sociology, social work, and rehabilitation counseling. Each of these departments has trainees in the institution.

Research is one of the major services of the center. At the present time, there are two projects: one in brain wave patterns, and one on immates perception of selected social roles. Two other projects have been planned -- one, a project to establish a rate of recidivism prior to the entry of rehabilitation on the scene at Alto, and a detatooed project to see what effect removal of the tatoo has on the motivation of clients. We anticipate the development of a research project to develop a base expectancy scale for vocational rehabilitation clients.

With two years of experience, we are not beginning to identify features of rehabilitation which may have particular significance in the field of correction.

1. The accumulation of social information egarding the criminal behavior as a special form of personal and social disability.
2. The understanding of dynamic forces in the offenders, leading to the particular form of criminal behavior expressed.
3. The powerful impact of personal relationships between the professional counselor, correctional officer, others, and the public offender.
4. The particular understanding of counselor-client relations in order to produce a sense of human dignity and personal value within the framework of organized community living.
5. The usefulness of group counseling, both in attuning professional rehabilitation personnel to the needs of the offender. And, in providing the offender with an experience of healthy,inter-personal communication in an

organized group.

Through success and experiences in work sampling, prevocational training, job placement, followup services, clients become aware of how to function and participate as productive members of organized society.

Vocational rehabilitation with its already established lines of relationship with other community agencies, such as health, education, welfare, labor, etc., has been able to mobilize services to the point of maximum effectiveness within the framework of the correctional institution and in the community.

On the basis of five followup quarterly reports on clients transferred to local counselors only 10 of the 137 clients served through this cooperative program have been returned to custody. These initial results, less than 7 percent recidivism are encouraging tend to substantiate the proposition that most public offenders can be rehabilitated through joint effort.

The Alto project is serving as an example of joint efforts between rehabilitation, Board of Corrections, and Board of Pardon and Parole, related agencies, and the community services, and has thus far demonstrated favorable response to a cooperative program.

In the development of the Great Society, correctional rehabilitation must be given a high priority and that it continue to be a most urgent and challenging frontier of the future.

CHAPTER XII

OVERVIEW OF VOCATIONAL REHABILITATION ADMINISTRATION'S INVOLVEMENT IN CORRECTIONAL REHABILITATION

by

Richard Grant

This presentation will be devoted to a discussion of some of the additional possibilities that exist now, as a result of the 1965 Vocational Rehabilitation amendments. As Dr. Kinnard explained the programs such as those at Alto, are conducted under Section II of the vocational rehabilitation act. This section, is the area in which there are the greatest dollar amounts for programs of service. As a result of the new amendments, the dollar amounts are increased appreciably under Section II. And, it is going to be a real problem for many of the states to come up with the funds necessary to earn all of the federal moneys that will be available. Twelve hundred million dollars this year, $250,000,000 next year $400,000,000 in 1968 will be available to the state agencies under Section II. So, obviously we hope that many more programs such as the Alto program will be coming into being as a result of Section II of the act. The amendments that passed last fall, in a way, merely supplement the basic legislation that we have operated under since 1954. When Dr. Perry made his presentation the first day of the conference, he told you about such things as research grants and training grants. This authority still exists, and it exists with dollar amounts that are increased above and beyond what they used to be. Thus, when I comment on these few special provisions of the new amendments, remember that these other authorities still exist, and we hope will be used for purposes of correctional rehabilitation in increasing numbers in the future. It should be kept in mind that corrections is just one of the areas that will be competing for funds under the new act. There are many disabilities groups served by vocational rehabilitation. Mental health organizations, the mental retarded organizations, the tuberculous groups, heart-cancer-stroke groups all will be competing for these funds. It should be our concern at this institute that corrections gets its fair share of these new programs and new amounts of money.

Let's first look at the provisions pertaining to the determination of vocational potential. The public offender must still meet the three basic conditions of eligibility before the state agencies can provide service to him. This means that the offender must have a physical or mental disability; there must be a vocational handicap resulting from the disability, and that there be a reasonable expection that vocational rehabilitation services may make him employable. Eligibility determination in the case of the offender, must must be established on the basis of an individual evaluation, as it is with any disabled person, With this in mind, it should be noted that the new amendments have the effect of clarifying the question of eligibility and, moreover, of liberalizing the entire concept of eligibility, as it relates to the offender group.

First of all, Section 401 of the regulations, makes it clear that behavioral disorders are included within the definition of mental disability. Such behavioral disorders are derived by deviant social behavior or impaired ability to carry out normal relationships with family and community which may result from vocational, educational, cultural, social, environmental, or other factors. This broad interpretation would seem to qualify the penal offender assuming that the majority of public offenders, at least a high percentage of them, would be included in this overall concept of behavioral

disorders. For vocational rehabilitation purposes, however, this disability must be specified by a psychiatric or psychological evaluation. This means that a diagnosis of behavioral disorder must be made by a psychiatrist or a psychologist before the counselor can be satisfied that the offender, does in fact, suffer from this disability. Assuming a mental or physical disability exists, the decision to declare him eligible is ultimately based on the judgement of feasibility, that is, on the probability that that service will put the client on the job. And here again, the amendments make it easier for the state agencies to arrive at a decision of feasibility. The purpose of the new provision for extended evaluation is very valuable in this respect. It is now possible to provide the full array of rehabilitation services for a specified period of time before a decision on feasibility is made. In the case of the offender, this will mean that all diagnostic services, all training services, all physical restoration services,etc., may be provided for a specified period of time. And, the offender's response will serve as a basis for decision as to eligibility for additional services. This may seem complicated but, it has a great deal of meaning to rehabilitation personnel. Thus, this new resource, the extended evaluation provision, will make it much easier for the state agencies to work with the public offender.

There are other kinds of provisions in the new amendments which relate to vocational rehabilitation for the public offender. The so-called innovation grants that replaced the old extension and improvement grants by a series of grants to states have two general purposes.

1. First the development of methods of techniques which are new in the state for providing vocational rehabilitation.

2. Projects to serve individuals who have catastrophic or a particularly severe disability.

It has not been determined yet whether the behavioral disorders are considered within the catastrophic disability area. By catastrophic disabilities, the congress intended for the agencies to be serving such groups as cancer patients, extremely, severely disabled cardiac patients, extremely disable orthapedically handicapped people, people in these kinds of categories. Still, in view of the innovation grants, the first objective of these grants, namely, the establishment of new methods in and techniques within a state will no doubt qualify these grants for programs in the area of correctional rehabilitation, since many states have no such programs in existence. The states that do have programs are mostly quite minimal. These innovation grants are made to stake vocational rehabilitation agencies, and federal funds for them are alloted on the basis of population. The federal share for the first three years of the projects is 90 per cent and for the remaining two years it's 75 per cent. Because of this favorable matching ratio, a state may launch a new rehabilitation program for offenders with a minimum investment of state dollars. Such programs might include, for example, the installation of Vocational Rehabilitation units at correctional institutions such as, the Alto program. Or, similar kinds of unite might be built into juvenile institutions. A specialty that might be built under the provisions of innovation grants is a program with parole and probation. To do this, a state agency may use its own funds or those transferred from another agency. There are many possible uses of innovation grants for correctional rehabilitation. It should be emphasized that these grants are made to state rehabilitation agencies, not to correctional agencies, or mental hospitals, The money goes to the state rehabilitation agency itself. But, the state agency in turn can put programs into other agencies and institutions through the use of the funds. It is actually a good way for

building cooperative programs between the state rehabilitation agency and other agencies.

A second kind of grant that came into existence are the so called expansion grants. These grants are available to both state agencies and voluntary non-profit agencies. They are made for the purpose of rehabilitating larger numbers of disabled people. Expansion is, therefore, intended to mean increasing the number of programs which promise to substantially augment the number of people who are vocationally rehabilitated. Federal financial participation in expansion grants is limited to three years and cannot exceed 90 per cent. If the applicant is a private, nonprofit agency, it must consult with the state vocational rehabilitation agency and with the appropriate regional representative in the development of its proposal. The significance of expansion grants to the field of correction will probably lie in their availability to private, nonprofit agencies, in the correctional field. For example, it is conceivable that such organizations as The United Prison Association, National Council on Crime and Delinquency, The American Correctional Association, Osbourne Society, and the John Howard Association, might develop special programs to supplement those of the state agency. One such possbility might be a placement project in which the private correctional agency would use expansion grant funds to hire specially trained staff to develop job placements for offenders, referred by the state Vocational Rehabilitation agency or by other agencies.

The expansion grants can also be used to do the same kind of thing that we talked about under innovation grants, namely the installation of special rehabilitation units. The only problem is that dollar amounts under expansion grants are relatively small and each state's allotment of expansion grants is considerable less than it is for innovation grants, and much less that it is for Section II basic support moneys.

Moving on now to another provision, namely, Section 12 of the new act which provides for construction of rehabilitation facilities. The new amendments authorize the use of federal funds to help construct new rehabilitation centers and workshops. Under the old act, funds could be used for remodeling or rennovation of existing buildings, for use as rehabilitation facilities. But now, federal funds can be used to build new facilities. Moreover, these funds can now be used for initial staffing of rehabilitation facilities. Mr. Crump in his talk pointed out how the new Alto unit was built next to the educational unit. This was because through the use of Section II funds, it was necessary that Vocational Rehabilitation moneys be spent, not for new construction, but only for remodeling and rennovation. This authority is still available and this kind of building can still be done under Section II. However, under the new Section 12, moneys now are available for brick and mortar construction from the ground up. Unfortunately, the dollar amounts at this time are not great for construction. In fiscal '67 there is $7,000,000 for example for the whole nation. So, you can see that with $7,000,000 we can't build a great number of rehabilitation facilities, throughout the country. However, we expect that these amount will increase appreciably as time goes by. And, some of the states are already talking about using construction moneys for correctional purposes. In South Carolina there is a proposal to build a vocational rehabilitation center on the grounds of the new youth correction center at Holly Hill, South Carolina using Section 12 moneys if and when they are available. The staffing component under this thing is interesting, too. It's possible to provide additional staff under this new authority. In connection with construction effort the new act authorizes federal grant assistance in the cost of the initial staffing of rehabilitation facilities

in workshops, including not only those constructed through this grant program, but other facilities and workshops constructed with other financing after the date of the enactment of the new act. Federal assistance with initial staffing is authorized with a maximum of 75 per cent of the staffing costs in the first year, 60 per cent in the second year, 45 per cent in the third, and 30 per cent in the fourth and final year. So, I would urge that those of you in correctional rehabilitation in New England to think seriously of using the possibilities of this particular construction authority in terms of how you might be able to adapt this authority to your own use.

Perhaps the greatest proportion of dollars and the greatest amount of emphasis of the new amendments is in this area of rehabilitation facilities and workshops. For example, there are special grants for workshop improvement that provide for training services, special workshop improvement grants, and technical assistance for managers of sheltered workshops.

There is one possibility however, that the project development grant might be of interest to the correctional and rehabilitation people. These are grants that are made to supplement and to assure that the construction grant moneys are spent effectively. These are, in effect, planning grants that are given where needed to aid project sponsors in developing well conceived plans for construction of centers or workshops. These are small grants used just for planning purposes to develop rehabilitation facilities.

The limitations imposed on the development of correctional rehabilitation programs are only those that exist in our own imagination. In terms of dollar amounts, we've never had it so good and the only real limitations are those that we impose on ourselves by lack of ingenuity and creativity. I hope we can start in New England to take full advantage of the new amendments and the existing authority and really build some sound, positive, constructive, correctional rehabilitation.

CHAPTER XIII

SUMMARY REVIEW--SOME RANDOM REFLECTIONS OF A PARTICIPANT

by

Benedict S. Alper *

This conference is one of the best I have ever attended. The quality of the people, the diversity, the professionalism, the literateness of this group, is quite extraordinary. Your idea of having speakers also as participants, coming up here to the podium, going back to sit as participants, is excellent. I would say to others who plan a conference that this should serve as a prototype--it is an excellent way of getting people and ideas together in a most congenial setting.

I made a little tally (I was a statistician at one time) to see how we line up as to professions. There are 21 correctional people here, 15 from vocational rehabilitation, and 7 from universities. This has an interesting aspect, which I will touch on briefly at the end.

Well, what were we concerned with in this institute? What is the population, as they say in statistics, who are the offenders? I thought there was a very interesting discussion on whether offenders are like other people, or whether we are like offenders. It is a sign that our attitude toward the offender has changed. One of the reasons for the change is, because delinquency which we used to think of a a lower class phenomenon is today also a middle class phenomenon. It is like mental health. There used to be a time, when if you had somebody mentally disturbed in your family, you locked him up. You fed him quietly through a dark door, and hoped that nobody else would know about it, because this meant a taint in the family blood for which you were ashamed. Today we have opened those doors, not only in our homes and in our minds, but opened them in mental hospitals as well, and we have an entirely different attitude--as a result--toward mental health.

We have now, I think, a growing acceptance of the idea of what constitutes criminality, too. Offenders are no longer a special breed. When a group of kids, as eighteen of them did in Long Island about a year and a half ago, swing on a chandelier in a gorgeous mansion and engage in destructive behavior, is that not delinquency? When you have the priveleged section of our youth, the college students, widely indulged in narcotics, who are the offenders? When we talk about percentages of offenders--who are are they, people who get convicted and sentenced? If so, you must realize that you are talking about only a very small part of this very wide spectrum of antisocial, illegal activity.

There is a very interesting study done by Sophia Robison, a very well known person in the delinquency field. Under a National Institute of Mental Health grant, a study was made of the so-called respectable population, to get people to tell about their own early anti-social history. Almost everyone, including those in this room, have participated in some acts which would be designated as delinquent if they were apprehended.

The new attitude towards offenders is that they are not a special sub-species of humanity--like Lomboroso's idea of the stigmata: the length of the lobe of the ear or the tattoo is no longer the exclusive characteristic of the offender. But, as Myrl Alexander pointed out, the big problem in corrections is that 75% of those

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who do get caught and are incarcerated go back into lives of crime. This was why he emphasized that new and innovating methods for treating the convicted offender are desperately needed. Richard Grant stressed this point also when he stated that the new amendments to the Vocational Rehabilitation Act are stressing innovative measures for dealing with correctional problems. The Georgia state plan , rehabilitating penal offenders, described by Mr. Crump is an example of the advanced thinking and action possible under these new amendments.

As was pointed out, the average age of offenders is 30, and their IQ's are average--which upsets the old criminologists who said crime is due to lack of intelligence. They are 5 years retarded in school, which brings them squarely into our concern, and 92 percent of them are non-employable, or have no employable skills. Yet, 85 percent of them as Alexander asserts are not mentally disturbed. This is the challenge which confronts us by this population.

There was some discussion of terms--between rehabilitation, as against habilitation. It seems to me that all of this is rehabilitation. Because I believe that all of us start out in life with a certain Potential, I don't think we need to talk about habilitation, I think we can use the word rehabilitation without apologizing for it, because what we a trying to make these people into, is what they started out to be, before the stresses of environment or accident, or family or what not made them into the anti-social people who are now our concern. The big problem in corrections is how to remotivate the offender. It is good that vocational rehabilitation people are now interested in the rehabilitation of the penal offender.

There is a new ferment in the field. This is all part of a new philosophy, and I think we are very fortunate--those of us who are practitioners--to be engaged in a field which is opening up with exciting possibilities. The field today has not only dignity but satisfaction as well. In the light of the progress that has been made in attitudes, the adaptation of vocational rehabilitation to corrections is a logical outcome.

For the interesting thing to me, as I sat around and listened to the men in this room, is the spirit under which these things are being done. I think it was Emerson who said, "Every institution is the length and shadow of an individual." I haven't been in Dr. Brennan's hospital, and I haven't been in any of the institutions of Mr. Woodhull, and I don't know anything about the prisons that Mr. Basinas runs in Maine, but people with their kind of spirit are going to run good institutions, and are going to successfully apply vocational rehabilitation to penal offenders in prison.

Corrections today concerns itself with prevention, as well as with treatment. It is within this philosophy that work rather than prison labor is being developed. I listed, while Bill Crump was talking, the disciplines that are involved in his Georgia penal rehabilitation program. He referred to education, recreation, vocational training, medicine, psychiatry, psychology, social work, classification, custody, and religion.

I did not realize until this Conference that some 50 millions of dollars are available in Federal funds for vocational rehabilitation throughout the counrty. Dick Grant told us of the money that was available for innovations, for planning, for buildings, for staff. Several participants privately spoke to me during these past few days about the dangers inherent in this Federal control. However, the flexibility of fifty separate and distinct state jurisdictions minimize this possibility. More important are the possibilities for experimentation and program development as a result of the availability of such funds.

Vocational rehabilitation people have an excellent opportunity to influence the industrial programs within the institution, bringing to them what they know of the outside. This is really bringing the community back into the institution. Those of you who are in vocational rehabilitation work can render the prison a real service along these lines.

This brings us to a most challenging question, of course: is there danger that vocational rehabilitation will take over corrections? While I have been in this field a long time I don't mind saying that I think we have not done a very good job of it. If any other field handled their problem with the failure rate that we have in penology, I think there would have been a hue and cry to abolish the system a long time ago.

One of the reasons, I often think, why we are still in the prison business is because prisons are, as someone once said, frozen penology. Nobody wants to buy and old prison--they are very costly to replace, they are fixed investments--what can you do with an outmoded penitentiary? Because we have these huge Bastilles, we go grinding out failures one after the other. I don't mind saying that if vocational rehabilitation can do a better job that correctional people have up to this point, they are most welcome. For I am convinced that the philosophy of vocational rehabilitation--the total rehabilitation of a man, physically and mentally and vocationally--has really been the professed aim of corrections for a long time. Correctional and vocational rehabilitation can, by their fruitful collaboration, bring many innovations into a field which has to date seen very little in the way of success.

I would like to cite, for example, a project called SERVE, recently started in New York City under a Vocational Rehabilitation Administration grant which observes all offenders as they come into a New York City prison, selecting those with tattoos and obvious physical defects, for whom corrective or plastic surgery might be indicated. This is the outgrowth of work done by a plastic surgeon on the staff at Sing Sing who had a theory that there was a close correlation between physical defects, disfigurements, and anti-social conduct. This project has an evaluative research program built into it from the outset. Of the offenders who come to its attention, some will receive only surgical or medical aid; some will receive social assistance; some will receive vocational training and guidance; some will receive all of these services; some will receive none. This research and demonstration project represents a significant milestone in the rehabilitation of the penal offender.

This conference has stressed repeatedly, and rightly so, that theory and action should be brought together. Dr. Neiberg's excellent suggestion that after this Conference closes, there should be a meeting of state official in corrections, mental health, probation, parole, and vocational rehabilitation, to work out methods for improving our programs as discussed here these past few days should be implemented as soon as possible. Careful thought should be given as to how we can take advantage of Federal funds now available for these purposes. The new spirit of co-ordination between Federal and State authorities among the six New England states was well demonstrated by Commissioner Woodhull's description of the newly-formed Correctional Council of the six Commissioners of Correction who come together from time to time for a discussion of problems of mutual concern. Public and private agencies, lay and religious, academic and governmental are also included in this coordination. The ecumenical spirit now prevails in the correctional field, I think, because (a) the problem is greater than it ever had been, and (b) there is greater hopefulness and ferment than has existed previously.

This Conference brought out the importance of the police understanding what

rehabilitation can do for the offenders whose control and apprehension is clearly a police function. For the police realize, too, that ultimately prevention is the only solution to this problem, and that in this area they have a role and a responsibility as well.

Dr. Prigmore's discussion of the need for manpower training in the correctional field gave us some significant insights. Dr. Prigmore's Joint Commission on Correctional Manpower and Training, may yet turn up a new generation of more enlightened correctional personnel who will embody the rehabilitative and nonpunitive approach which we have been stressing in this institute.

I thought Alexander's historical description of penal progress was most helpful for understanding the new attitude of community responsibility in rehabilitating the penal offender. In one short century, we are actually taking the prisoner from the institution out into the community. These new programs such as work release and furloughs is a recognition that crime starts in the community, and it will not suffice for the community to dispose of the problem by sending the offender off into exile somewhere. The rehabilitation of the penal offender is ultimately completed in the community.

This Conference has made a noteworthy contribution in bringing together theory and practice. Yet no one should be surprised at this result because, after all, the Institute took place under the aegis of Northeastern University which has pioneered in cooperative education featuring alternate periods of study and work by its students. This institute was but a further application of this basic approach in education to the conducting of a seminar in a specialized field.

Someone once said that nothing succeeds like an idea whose time has come. By reason of the issues which we have considered here this week, it is fair to say that there is a new spirit abroad, a new ferment in the correctional field, compounded in equal quantities of impatience with the past and confidence in some enlightened innovative measures for the future.

APPENDIX

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A very sincere thanks to the following people who gave so willingly of their time as a member of the Planning Committee for this Institute.

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VT 008 588

Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School. Summary of Quarterly Technical Reports.

American Institutes for Research, Pittsburgh, Pa.
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*PROJECT ABLE; NEW QUINCY VOCATIONAL TECHNICAL SCHOOL; MASSACHUSETTS

Quarterly technical reports for Development and Evaluation of an Experimental Curriculum for the New Quincy (Massachusetts) Vocational-Technical School are summarized. The complete quarterly technical reports (1-10) have been processed as documents ED 024 749 and ED 024 750 (VT 001 392 and VT 001 393, respectively, appearing in ARM Fall 1968), ED 013 318 (VT 992 219, appearing in ARM Spring 1968), and in this issue, ED 024 751 through ED 024 754 (VT 001 394 through VT 001 397), ED 024 767 (VT 004 848), ED 028 306 (VT 008 451), and VT 006 859. (CH)

VT 008 588

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DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL.

Project No. 5-0009
Contract No. OE-5-85-019

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SUMMARY OF QUARTERLY TECHNICAL REPORTS

VT008588

American Institutes for Research
Pittsburgh, Pennsylvania

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM
FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

Project No. 5-0009

Contract No. O.E.-5-85-019

QUARTERLY TECHNICAL REPORTS:

First Quarterly Technical Report — 30 June 1965
Development and Evaluation of an Experimental Curriculum For the New Quincy (Mass.) Vocational-Technical School.

Second Quarterly Technical Report — 30 September 1965
The Problem of Defining Objectives.

Third Quarterly Technical Report — 31 December 1965
Curriculum Implications of the Study of Objectives.

Fourth Quarterly Technical Report — 31 March 1966
A Vocational Guidance Plan for Junior High School.

Fifth Quarterly Technical Report — 30 June 1966
The Roles, Characteristics, and Development Procedures For Measures of Individual Achievement.

Sixth Quarterly Technical Report — 30 September 1966
The Development of Learning Units

Seventh Quarterly Technical Report — 31 December 1966
The Sequencing of Learning Units

Eighth Quarterly Technical Report — 31 March 1967
Problems Relating to the Development And Implementation of a Vocational Curriculum

Ninth Quarterly Technical Report — 30 June 1967
Development and Tryout of a Junior High School Student Vocational Plan.

Tenth Quarterly Technical Report — 31 May 1968
The Mathematics Curriculum.

Eleventh Quarterly Technical Report — 31 January 1969
The Electronics Curriculum

FIRST QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

30 June 1965

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, summarizes the technical progress of Project ABLE during its first quarter of operation, 1 April to 30 June 1965. A brief overview of the project is presented first. Then, following in order, are a report summary, a short review of project organization and schedules, discussions of specific technical topics and, finally, plans for next quarter. A number of appendixes supply details relevant to topics covered in the body of the report.

REPORT SUMMARY

This report summarizes technical progress to 30 June 1965. Activity during this initial period has been concentrated in behavior analysis and guidance program development. Identification, selection, and description of jobs for inclusion in the training program has begun in nine vocational areas and significant progress has been achieved in five of the areas. The present Quincy guidance program has been described and guidance objectives to support the new curriculum are under development. In its first meeting 26 June, the Advisory Panel reviewed the aims, procedures, and expected outcomes of the project and agreed upon procedures for development of instructional objectives. It is expected that during the next quarterly period the behavior analysis will be substantially completed, analysis of requirements in mathematics and social studies will begin, instructional and guidance objectives will be prepared in first form for review by the Advisory Panel.

Joseph S. Ficarotto

SECOND QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Problem of Defining Objectives

30 September 1965

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its second quarter of operation, 1 July through 30 September 1965. A brief overview of the project is presented first, followed by a report summary which includes a short review of technical schedules. The major portion of the report is devoted to consideration of educational objectives and includes a discussion of criteria for objectives followed by sections on defining instructional objectives in Project ABLE and on objectives for the guidance program. Plans for next quarter are outlined.

REPORT SUMMARY

During the present reporting period, technical activity has been concentrated on development of project objectives for instruction and for the guidance program. The objectives sought are unambiguous statements of successful student performance which include the criteria of success and the important conditions under which the performance is to take place. Before such objectives can be selected, a logical structure must be developed through which specific objectives can be related to the broad educational goals of the curriculum. This report reviews criteria for objectives, describes the necessary logical structure, and illustrates its application in Project ABLE. In addition, the development of objectives for the guidance program is reviewed and related to the development of instructional objectives.

During the immediately preceding quarter, activity centered on vocational analysis and review of guidance program needs, work which was an essential preliminary to the development of objectives. During next quarter, the Advisory Panel will review objectives so far developed, objectives will be revised and augmented, and derivation of topic objectives will begin.

Joseph S. Nicastro

THIRD QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

Curriculum Implications of the Study of Objectives

31 December 1965

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its third quarter of operation, 1 October through 31 December 1965. A brief overview of the project is presented first, followed by a report summary. The major sections of the report concern (a) the curriculum implied by the preceding study of objectives and (b) the development of topic objectives. Plans for next quarter are outlined.

REPORT SUMMARY

During the present reporting period, the principal technical activity has been the selection of a curriculum and the development of topic objectives within each course of study. In prior months, work on objectives emphasized the development of comprehensive maps of the total set of objectives applicable to a vocational-technical curriculum for Quincy. Once the domains of educational objectives were mapped, the task became one of selecting specific objectives for the curriculum from the very large number available. When the curriculum had been selected and planned, objectives for topics within the curriculum could be defined. This report summarizes the curriculum implications of our study of objectives, outlines a curriculum for the vocational-technical school, discusses the rationale of topic objectives and the procedures for deriving them, and reviews the major practical problems encountered.

During the next quarter, derivation of topic objectives will continue, development of instructional materials, methods, aids and procedures will begin, and detailed plans for the Junior High guidance program will be completed.

Joseph S. Nicastro

FOURTH QUARTERLY TECHNICAL REPORT

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

A Vocational Guidance Plan for Junior High School

31 March 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its fourth quarter of operation, 1 January through 31 March 1966. A brief overview of the project is presented first, followed by a report summary. The major portion of the report is devoted to presentation of the vocational guidance plans for junior high school students. Project plans for next quarter are outlined.

REPORT SUMMARY

During the present reporting period, technical activity centered on the derivation of topic objectives for each course of study and on the completion of junior high school guidance program plans. Since the work in vocational analysis and in curriculum development, including the derivation of topic objectives, has been described in previous reports, the present report is devoted to the guidance program which has been developed concurrently with the other project activities. This report reviews the procedure being followed to develop the guidance program, summarizes the status of program development, identifies and discusses the principles employed to guide planning for the junior high program, and describes the junior high plan for achieving each objective of the guidance program.

During the next quarter, instructional materials, methods, aids, and procedures, as well as performance measures, will be under development. In addition, development of junior high materials to support the guidance program and guidance staff training will begin.

Joseph V. Uccello

FIFTH QUARTERLY TECHNICAL REPORT

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Roles, Characteristics, and Development Procedures for Measures of Individual Achievement

30 June 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its fifth quarter of operation, 1 April through 30 June 1966. A brief overview of the project is presented first, followed by a report summary. The major portion of the report is a discussion of the development of performance measures to be used to assess students' achievement of the objectives of instruction. Project plans for next quarter are outlined.

REPORT SUMMARY

During the present reporting period, technical activity was directed primarily to (1) continued development of junior high guidance program materials and completion of arrangements for program implementation, (2) completion of course and topic objectives in some curriculum areas, and (3) the beginning of development of measures for verifying students' achievement of instructional objectives. The present report is concerned with achievement measures. It reviews the curriculum structure and instructional methods which have been planned and identifies a number of important roles for which achievement measures are needed. The technical requirements for measures employed in those roles are examined and the procedures for developing such measures are discussed.

During the next quarter, test development will occupy a greater proportion of total activity. Selection and development of instructional materials, aids, and procedures will continue concurrent with the development of measures. Junior high guidance preparations will be completed and the program will be initiated.

Joseph V. Pleasure

SIXTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Development of Learning Units

30 September 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its sixth quarter of operation, 1 July through 30 September 1966. A brief overview of the project is presented first, followed by a report summary. The major portion of the report is a discussion of the development of learning units by which students acquire the capabilities that are the objectives of instruction.

REPORT SUMMARY

During the present reporting period, technical activity concentrated on (1) completion of materials, staff training, and implementation arrangements for the junior high guidance program and start of the program in all junior high grades, (2) development of measures for assessing student achievement of instructional objectives, and (3) the design of learning units for the curriculum. The present report is devoted to the problems, procedures, and principles of developing learning units. It reviews the process whereby learning units necessary to the achievement of objectives are identified, describes the principles and methods for the design of learning units, and discusses some implications of the resulting curriculum for the teaching and administrative functions.

During the next quarter, the design of learning units and the related measures of achievement will constitute a major portion of the technical activity. In addition, procedures for evaluation of the junior high guidance program will be devised, development of senior high guidance objectives will continue, and the Advisory Panel will meet to review products and to consider the problems of implementing the program.

SEVENTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Sequencing of Learning Units

31 December 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its seventh quarter of operation, 1 October through 31 December 1966. A brief overview of the project is presented first, followed by a report summary. The major portion of the report addresses the problem of selecting sequences for learning units such that students acquire the desired performance capabilities systematically and efficiently.

REPORT SUMMARY

During the present reporting period, technical activity emphasized (1) continued tryout of the junior high school guidance program and development of procedures and devices for its evaluation, (2) development of measures for assessing student achievement of instructional objectives, and (3) preparation of learning units. This report on the problems of designing effective sequences for learning provides a sequel to the preceding quarterly report on the design of learning units. Major sections of the report consider: the gross sequence established by general curriculum policies, the specific sequence requirements due to the structure of objectives, major factors affecting the efficiency of learning sequences, and empirical test and revision of the initial sequence design.

During the next quarter, the design and sequencing of learning units and the development of the accompanying achievement measures will absorb a major portion of project activity. In addition, the collection of data for evaluation of the junior high guidance program now in tryout will continue, development of senior high guidance program plans and materials will continue, and plans for teacher training will be outlined.

EIGHTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

Problems Relating to the Development and Implementation of a Vocational Curriculum

March 1967

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its eighth quarter of operation, 1 April through 30 June 1966. A brief overview of the project is presented first, followed by a report summary. The major portion of the report is a discussion of the development of performance measures to be used to assess students' achievement of the objectives of instruction.

REPORT SUMMARY

This report describes the problems encountered while designing, developing, and implementing an experimental curriculum in a vocational-technical school. There are several dangers inherent in such a discussion because there is always a tendency to blame the inevitable inadequacies of the experimental program on the other fellow.

The failure to meet specific requirements of project development derives from a number of sources, some of which can be attributed to gaps or loopholes in the proposed methodology and some of which are the result of the unexpected. When each step is satisfied according to the plan, the resulting product usually has a greater chance of being implemented effectively in a live school setting. However, any design that fails to leave room for adjusting to the unforseen is lacking in itself. The realities of the implimentation phase almost always reveal significant gaps in the design and development phases--the largest gap usually being the failure to prepare an adequate design for implementation.

The initial enthusiasm associated with involvement in an experimental curriculum must be maintained through the tedious work of development and implementation. When any part of the process is separated from the whole, the loss of perspective which develops results in actions which often negate or impede the forward movement of the effort. The "old" ways are always near, and may be retrieved to fill any gap appearing in the new design. Although this may be necessary at times, such fixes tend to be retained rather than serving as a temporary filler until the innovative step is formalized and tested. Experience has demonstrated that this often becomes the case and it further diverts the outcomes from the original project goals. The description of the problem should be followed by suggestions for solving the problem. However, in most instances, the solution can be derived from the original specifications of the project methodology. Thus, there is a tendency to rewrite previous discussions which dealwith specific aspects of the problem. In fact, the problems usually represent

deviations from the proposed scheme. When methodology is properly applied, the resulting product will probably meet the rigid criteria established within the framework of original project specification.

The problems discussed in the report are divided into four major sections:

I: General Curriculum Development
II: Development of Specific Learning Units
III: Implementation
IV: Tryout and Revision

In some cases, problems associated with one section reappear, or may be solved in later sections. There are recurrent problem trends which persist, however, regardless of attempts to control or eliminate them. Many of these are associated with personnel change occuring through the development phase. Particular sets of skills and attitudes are required to maintain consistent progress toward project goals. Training new personnel or re-training persons who have been on leave from the project for any duration limits the effectiveness of the products.

It is necessary to point out from the beginning that the responsibility for failure in any given dimension is a joint one. Inexact or incomplete coordination yields results which lack structural coherence and strength. Once the problems have been defined clearly, preventive courses of action can be specified and implemented.

It is hoped that the resulting report will specify problem dimensions with enough clarity to yield constructive resolutions for those attempting similar project efforts.

NINTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

Development and Tryout of a Junior High School Student Vocational Plan

30 June 1967

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its ninth quarter of operation, 1 April through 30 June 1966. A brief overview of the project is presented first, followed by a report summary. This report describes the preliminary tryout of a Student Vocational Plan for junior high school. Project plans for the following quarter are also outlined.

REPORT SUMMARY

During this reporting period, technical activity centered on the development of learning units and of proficiency measures for vocational and academic courses of study.

The outline of a vocational guidance program for junior high school students was presented in the Fourth Quarterly Technical Report. This report describes the steps taken to translate the objectives into an operating program, to conduct the preliminary tryout of the Student Vocational Plan, and to establish a basis for immediate and long-term evaluation of the program.

In summary, this report reviews the significant characteristics of the guidance program, and describes the materials developed to support that program. Staff preparation, tryout procedures, and plans for future program implementation and evaluation are also described.

Activity in the next quarter will focus on the continued development of learning units and accompanying proficiency measures, arrangements for teacher preparation in using experimental curriculum materials, development of instruments to monitor the introduction of materials in the classrooms, and completion of guidance program revision and implementation in junior high schools.

TENTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Mathematics Curriculum

31 May 1968

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FOREWARD

This report, submitted in compliance with Article 3 of the contract, report on technical activities of Project ABLE during its tenth quarter of operation, 1 April through 30 June 1968. A brief overview of the project is presented first, followed by a report summary. The major portion of the report addresses the problem of developing the mathematics curriculum learning units.

REPORT SUMMARY

During the present reporting period, technical activity concentrated on (1) crystalization of: curriculum unit topics, semester objectives, sequences of learning units, and syllabi for specific vocational areas, in mathematics, (2) analysis of the verbal and mathematical aptitude, ability and achievement characteristics of the mathematics student at Quincy, and (3) the development and testing of learning units in mathematics. The present report presents the history of this activity. It traces the development of the mathematics curriculum and displays the end product from its theoretical conception, to the identification of learning units, the establishment of semester objectives, the sequencing of the learning units, the formation of syllabi in specific vocational areas, the analysis of the learner population and the actual writing and testing of learning units. This report also includes a rationale for the curriculum as a whole and a rationale for the semester objectives.

During the next quarter, the development of curricula in the form of writing and testing learning units in other academic areas will constitute the major portion of technical activity. In addition, evaluation of the senior class guidance program will continue.

ELEVENTH QUARTERLY TECHNICAL REPORT

Project No. 5-0009

Contract No. OE-5-85-019

DEVELOPMENT AND EVALUATION OF AN EXPERIMENTAL CURRICULUM FOR THE NEW QUINCY (MASS.) VOCATIONAL-TECHNICAL SCHOOL

The Electronics Curriculum

31 January 1969

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

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FOREWORD

This report, submitted in compliance with Article 3 of the contract, reports on technical activities of Project ABLE during its eleventh quarter of operation, 1 October through 31 December 1968. A brief overview of the project is presented first, followed by a report summary. The major sections of the report concern (a) the derivation of objectives for grades 10 and 11, and (b) the implementation and present evaluation of the grade 11 curriculum.

REPORT SUMMARY

This report describes the development, implementation, interim evaluation, and the probable future of the Project ABLE first and second level electronics curricula. The development stage of the project included the selection of jobs for training, the analysis of incumbent tasks, and the stating of course objectives in behavioral terms. The development stage was completed with the preparation of instructional materials which would lead the student, at his own rate, to the accomplishment of the stated objectives.

Implementation of the program, with continuing student and material evaluation, was the next phase (and well underway at the time of the preparation of this report). Most of the 18 students involved have accepted the responsibility for learning, and have demonstrated improved work and study habits. Student interest and progress is encouraging even to the casual observer. The attainment of objectives according to available data, has in some cases been lower than the established standards. However, revisions of the study materials and a refinement of the performance evaluations, according to recent tests, should remedy the problem areas.

Evaluation and revision of the materials on the basis of performance data will take place upon completion of the 1968-69 school year. Revised programs for 1969-70 will be operational for all first and second level students. The third level programs are presently under development and will undergo a limited test during the 1969-70 school year. Implementation of operational programs for fall of 1969 will include: (1) a non-graded electronics department for vertical and horizontal transfer irrespective of the school calendar, (2) a flexible program of individualized scheduling and course selection, (3) a limited test of the third level radio-television repairman and electronics technician programs, (4) the beginning of a third level cooperative work study program.

VT 008 668

Facilities and Equipment for Trade and Industrial Education Programs.

Ohio State Dept. of Education, Columbus. Trade and Industrial Education Service
MF AVAILABLE IN VT-ERIC SET.
Ohio Trade and Industrial Education Service, Instructional Materials Laboratory, The Ohio State University, 1885 Neil Avenue, Columbus, Ohio 43210 ($2.65).
Pub Date - 66 140p.

*TRADE AND INDUSTRIAL EDUCATION; *EDUCATIONAL FACILITIES; *SCHOOL SHOPS; *SCHOOL PLANNING
OHIO

Those responsible for initial planning of trade and industrial education facilities will find in this bulletin authoritative information to help them comply with Ohio standards. Major sections are (1) Board Policy Decisions, (2) Clarification of Planning Personnel Functions, (3) The Quest for Quality, (4) Critical Problems in Shop Planning, (5) Guiding Principles for Specific Shops, (6) The Quest for Reason, (7) Essential Communication with the Architect, (8) Recommendations for Policy and Planning Committees, and (9) Equipment Lists. For architectural specifications this bulletin should be supplemented with The American Vocational Association publication "Developing Educational Specifications for Vocational and Practical Arts Facilities." (EM)

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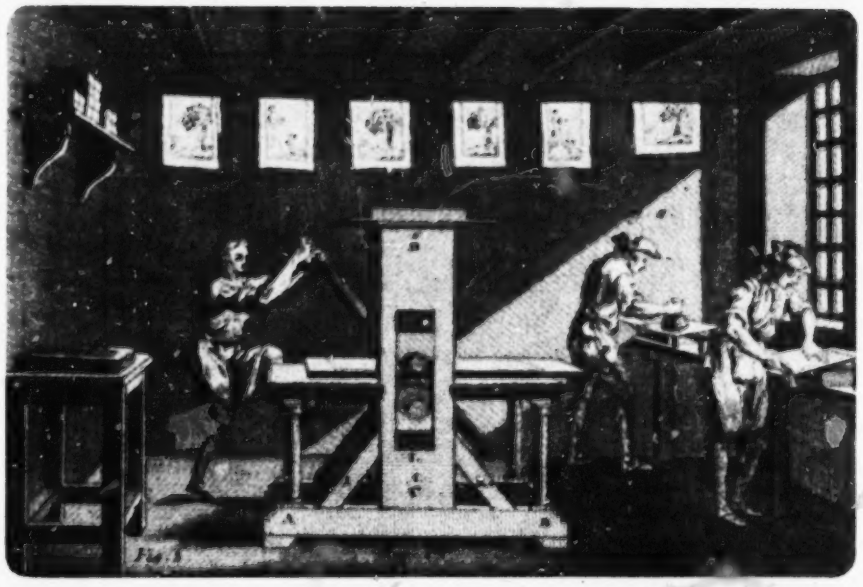

State Department of Education
Division of Vocational Education

Ohio Trade and Industrial Education Service

E. E. Holt Superintendent of Public Instruction
Byrl R. Shoemaker Director, Vocational Education

VT003068

PREFACE

This publication, which provides general guidelines to the development of instructional facilities in sixteen Vocational fields, culminates approximately twenty years of experience and work on the part of state and local Trade and Industrial Education personnel in Ohio.

Immediately following World War II, the supervisory staff of the state's Trade and Industrial Education Service recognized the potential need for some type of direction to new facility planning. As a result, the staff began to develop general specifications in a very limited number of vocations, including Auto Mechanics, Machine Shop and Practical Nursing. The greatest success, and most complete guide, was in the Automotive Service Shop area. Almost all of the new auto mechanics facilities constructed in Ohio since 1950 reflect the recommended guidelines developed by the staff.

The second major effort to provide useful tips to vocational facility planning and construction was made on the national level by the efforts of a joint committee of the American Vocational Association and the American Association of Architects in Washington. This work culminated in a publication entitled Developing Educational Specifications for Vocational and Practical Arts Facilities.

The greatest service provided by this joint effort was in alerting Vocational personnel to the general procedures and practices for working cooperatively with architects, contractors, school administrators, advisory committees and school staff in effectively planning for appropriate facilities to meet predetermined educational goals.

The idea for this current publication was germinated in the state Policy and Planning Committee for Ohio's Trade and Industrial Education program becuase of the tremendous program growth evident in the foreseeable future.

A major effort thus resulted in funds being approved for a study of the experience of those local Vocational supervisors who had lived and worked through the planning and construction of new Trade and Industrial facilities.

This publication thus reflects not only the ideas and opinions of those involved in its preparation, but also the trials and tribulations of many local administrators who had been required to live through a Vocational shop construction program without benefit of any resource such as this book is intended to provide.

Each Trade and Industrial Education program is specific and unique as it reflects each occupational area and must be given under physical conditions that stimulate contemporary, real life situations, both in the skill development and the technical skills appropriate to the pre-determined purpose of the program.

If each local administrator who is faced with the planning of new Trade and Industrial facilities will follow the step-by-step procedure recommended in this publication, he and his teaching staff will find that the results will contribute greatly to an efficient and effective program of Vocational instruction.

Robert M. Reese, Director
Trade and Industrial Education
The Ohio State University

FOREWORD

For many years the Trade and Industrial Education Service has needed an instrument which would provide some guide lines for those school systems planning new facilities. In the past, suggestions for facilities and equipment have been pieced together by drawing upon the experiences of others. With the growth of Trade and Industrial Education, and, with the increasing State and Federal support for providing facilities there has been an even greater demand for a ready reference instrument.

In the past many important items concerning the sound construction and instructional limitations were overlooked by the planners of facilities. By the same token the equipment purchased sometimes did an inadequate job for the instructional purpose. Frequently, facilities have been constructed only to find the intended equipment would not fit through the entrances, nor pattern into a workable space within the shop or laboratory.

The intent of this manual is not to provide a stereotyped approach to shop planning, but rather, to serve as a guide. Many of the suggestions included in this manual refer to those items which are overlooked in the planning stage. Sometimes the overlooked items have been expensive in terms of effective teaching.

Of special importance in this manual are items relating to the physical layout in terms of size. Equally important are recommendations concerning height of ceilings, size of entrances, lighting requirements, storage requirements, and many of the "taken for granted" items of shop planning.

Also included within this manual is a suggested equipment list for each area of instruction. It must be remembered, however, that the objective of the course of instruction will have an immediate effect upon the type of equipment used for instructional purposes. The lists, therefore, serve as a basic guide as well as give some idea as to costs.

No attempt was made to include suggested floor plans of facilities in this manual. The descriptions offered will be of great assistance to the architect in developing his plans.

It is our sincere desire that those who are charged with the responsibility of planning shop facilities will benefit by referring to this manual.

Harry F. Davis, State Supervisor
Trade and Industrial Education

ACKNOWLEDGMENT

Over the years, countless articles on shop planning have been published in such magazines as the *American Vocational Journal, School Shop, Industrial Arts and Vocational Education*, and *The American School Board Journal*. These articles, however, have represented the viewpoints and philosophy of a single school system or of a single author. The Office of Education in the Department of Health, Education, and Welfare has published a number of authoritative publications on shop planning usually based on the work of committees.

This manual may be the first example of an attempt to gather objective data from a large number of experienced teachers and supervisors of trade and industrial education and vocational school administrators regarding the basic space and equipment requirements of a number of different instructional areas. While the information provided by each individual who was questioned may represent a subjective opinion, that opinion was based on actual experience in the situation being evaluated, and has been combined with those of many others to provide a "consensus of opinion".

The following persons contributed significantly to the preparation of this manual: Stephen Andrasko, H. B. Armstrong, C. H. Ayers, William Baker, Jr., W. K. Baldridge, F. E. Batholow, R. E. Berens, Henry Berger, James M. Blyth, J. E. Bromback, W. W. Chambers, R. M. Cowles, R. E. Cukr, F. J. Ditymer, Neil Ensminger, John Ephraim, T. J. Fait, J. E. Fattlar, Harold Figley, R. M. Gardner, S. N. Guckenheimer, Jack E. Haeter, R. F. Haynes, R. G. Haines, Eugene Hart, R. A. Heintzelman, Clarence Heslar, A. P. Hill, and Clair Hites.

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If any contributor's name was omitted from the above listing it has been entirely unintentional.

The data submitted to the State Staff, Trade and Industrial Education Service, for consideration was compiled and analyzed by W. K. Dunton, presently Director of Vocational and Industrial Education for the Warren City Schools, Warren, Ohio. The underlying philosophy of school shop planning proposed in this manual is based on Mr. Dunton's personal experiences in developing the educational specifications for forty different shops for the Piqua and Warren, Ohio schools. Mr. Dunton has also

served as chairman of the joint committee of The American Institute of Architects and the American Vocational Association that prepared the bulletin *Developing Educational Specifications for Vocational and Practical Arts Facilities,* and has been empolyed by a number of boards of education in Ohio and other states as a shop planning consultant.

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INTRODUCTION

Trade and industrial education provides instruction for the development of basic manipulative skills, safety judgment, technical knowledge, and related job information to prepare persons for useful employment in trade and industrial occupations.

Training in trade and industrial education enables young men and women in high school to enter employment as advanced learners. It also enables adults who are already employed to advance in their chosen fields and retrains those who are temporarily unemployed.

The basic principle of trade and industrial education is learning by doing. The needs of the individual worker are the foundations upon which all instruction is based.

One of the basic needs of youth is the development of salable skills and knowledge. Trade and industrial education can make effective contributions to the attainment of this objective and, in addition, by instilling desirable work habits and social attitudes, which contribute to the overall development of the individual as an active member of society.

In preparing to plan facilities, it must be clearly understood at the outset that all programs of trade and industrial education are unique to the occupational area for which they are designed and must take place under physical conditions that simulate current, real-life situations at the skill levels appropriate to the purpose of the training to be given. In no other phase of education is the adequacy of the facility a greater factor in determining the effectiveness of the program than in trade and industrial education. Nor is there any other phase of education in which the plan for the facility depends as greatly on the purpose of the program and on the methods of instruction to be employed.

PURPOSE OF MANUAL

The purpose of this bulletin is to provide authoritative information that will help boards of education, school administrators, vocational directors, supervisors of trade and industrial education, and others responsible for the initial educational planning of trade and industrial facilities formulate plans that will comply with the standards of the State Trade and Industrial Education Service within the Division of Vocational Education.

This manual will not treat extensively the procedures involved in the development of educational specifications for transmittal to the architects, but does not indicate any intent to minimize their importance. Use of this manual should, in fact, be supplemented by use of the Americal Vocational Association publication *Developing Educational Specifications for Vocational and Practical Arts Facilities* that was prepared with the American Institute of Architects.

PRELIMINARY ACTION

The first step must be taken before any facility planning efforts can be accepted by the Trade and Industrial Education Service is to determine the need of the community for trade and industrial education, and the interest of the community in having such a program offered. There are well established procedures for making these determinations.

The publication of the Guidance Services Section of the State Department of Education, *Course Selection and Career Planning*, will serve as an ideal reference for organizing the necessary occupational information program. Also, their *Vocational Planning Questionnaire* is a valid instrument for determining student interest in the fields of work that might be offered locally.

Similarly, the Trade and Industrial Education Service has developed very efficient and relatively simple survey procedures to determine the extent of the need for training in various occupational areas of the trades and industries of a community.

Both of these techniques are fully described in the publication: *Let's Find Out Through a Trade and Industrial Community Survey*, developed by the Trade and Industrial Education Service of the State Department of Education and available from the Trade and Industrial Instructional Materials Laboratory, the Ohio State University.

BOARD POLICY DECISIONS

All details of a proposed program of trade and industrial education should be made matters of formal board policy by the local board of education, but only after thorough consideration is given to every aspect of the planning process. In this chapter, an attempt has been made to detail, in sequential order, the various facets of a trade and industrial education program that should be considered and eventually made part of a formal resolution passed by the local board.

POSITION OF THE SUPERVISOR

If a new program of trade and industrial education is being planned for a community, the Trade and Industrial Education Service considers it essential that a qualified supervisor be employed early enough for him to take an active part in the preparation of policies the superintendent will recommend to the board for adoption.

Once employed, the *Manual of Operations* indicates that not more than 10% of the supervisor's time should be given to general administrative and management functions. However, the planning of a new facility requires virtually the full time of the supervisor, as must be recognized by board policy.

The board must also define the relationship of the supervisor to the planning process.

BASIC LINES OF RESPONSIBILITY IN COOPERATIVE PLANNING

Based on the results of a questionnaire submitted to trade and industrial supervisors, vocational directors, and vocational school principals in the 17 Ohio cities where trade and industrial facilities have been constructed since 1950, the chart on the opposite page was prepared to graphically depict the basic lines of responsibility and cooperative planning relationships that have been found to be most effective.

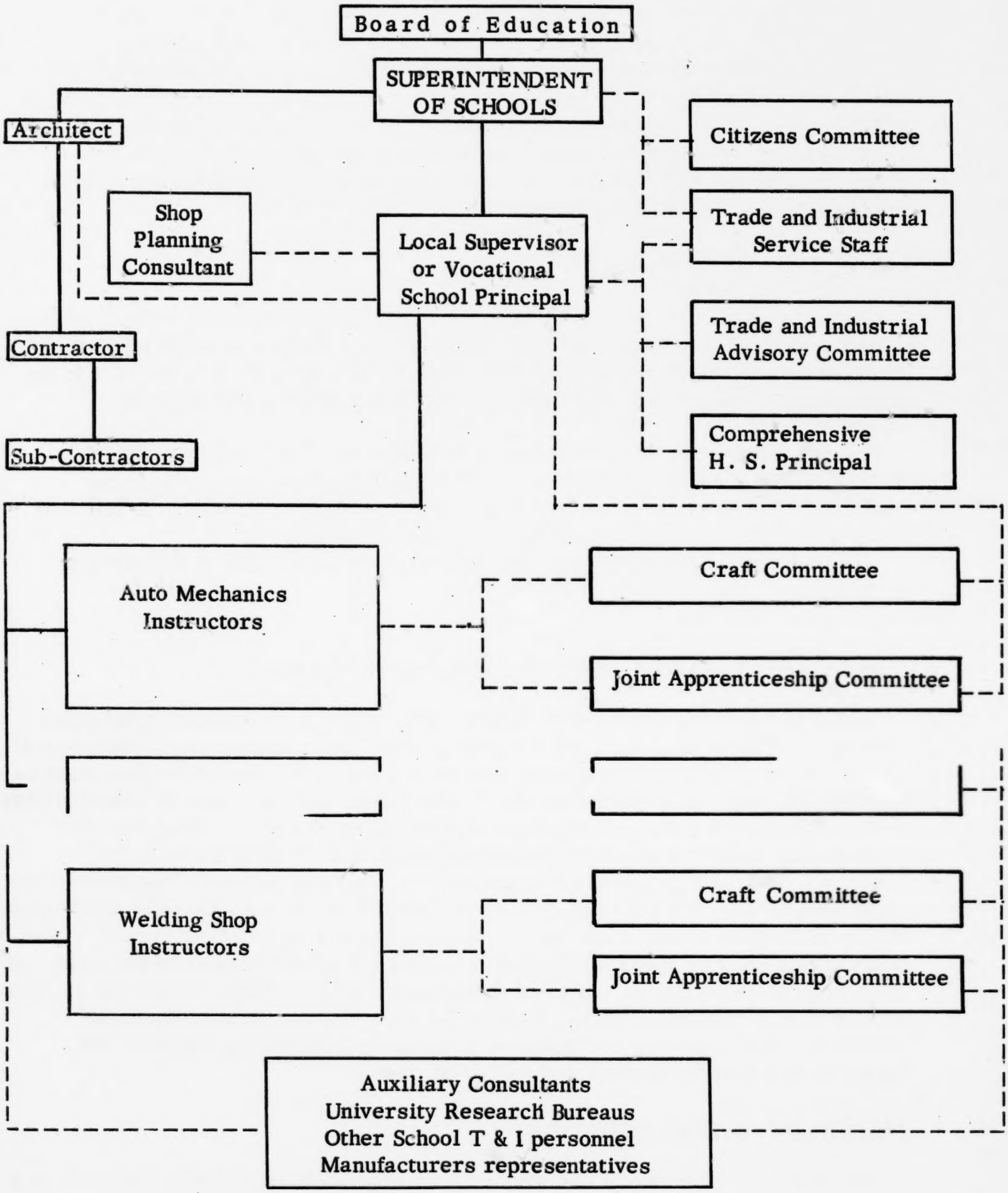
It may be noted that the chart closely parallels both of those shown in the American Vocational Association's publication: *Developing Educational Specifications for Vocational and Practical Arts Facilities.* The principle difference lies in the relationship of the Trade and Industrial Education Service staff to the building planning project. One chart in this bulletin shows a cooperative state staff relationship while the other, as is the case in some states, shows an authoritative relationship. Though the relationship in Ohio is not authoritative, it should be noted that the *Manual of Operations* indicates that satisfactory facilities are a factor in determining eligibility for approval as a vocational trade and industrial course.

POSITION OF ADVISORY COMMITTEES

The status and function of advisory committees should be formally approved as a policy by the board of education.

Employer and employee groups have a vital interest in trade and industrial

ORGANIZATION FOR SHOP PLANNING



Solid lines indicates lines of responsibility. Dotted lines indicate cooperative planning relationships.

education and should, therefore, be consulted by school authorities regarding the establishment and conduct of such training, in order that instruction may be organized to meet industrial requirements. The counsel of representative advisory committees, composed of equal representation of employers and employees with selected consultants, is needed in such areas as counseling and guidance, course content, qualifications of instructors, proper and adequate equipment, and standard practices in the occupation for which instruction is offered. In shop planning, for example, one of the principle functions of an advisory committee is to recommend the equipment required to provide the necessary skill development. But, in the establishment and operation of any trade and industrial education program, it is required by the *Manual of Operations* that advisory committees be utilized in order that instruction may be on a sound basis. To this end, the American Vocational Association makes available an extremely valuable publication entitled *Vocational Advisory Committees*.

OCCUPATIONAL AREAS

The trade or industrial occupational areas in which training should be offered must be formally acted upon by the board. This decision should be based on the survey of community need and student interest.

TYPES OF PROGRAMS

The types of programs to be offered must also be approved by the board before preliminary planning of the facility can start. The numbers of shops and the total number of classrooms required for those shops depends upon the types of program approved by the board.

Ohio offers a variety of trade and industrial education programs. They provide sufficient flexibility to meet practically every training need arising in any local community. For purposes of general classification, these programs can be grouped into two major categories: 1) high school preparatory programs and 2) post secondary and adult programs, as follows:

HIGH SCHOOL PREPARATORY PROGRAMS

Program Type	Program Description
1.1	A Grade A program (15 hours of skill development and 7 1/2 hours of technical instruction weekly for two years) for highly skilled occupations which provides the maximum opportunity for development of a high degree of employability.
1.2	A Grade B program (15 hours of skill development and 3 3/4 hours of technical instruction weekly for two years) for skilled occupations which provides skill development opportunities equal to the Grade A program but reduces the time allotted for technical competency by 50 per cent.

Program Type	Program Description
1.3	A Grade C program (15 hours of combined skill development and technical instruction weekly for two years) for skilled occupations which require less time devotion to the development of manipulative skills and/or technical information. The related instruction is offered by the shop or laboratory instructor as an integral part of the shop or laboratory experience.
1.4	An ungraded program of training for single or semi-skilled occupations which may operate for less than the school year of 9 months and for less than 30 hours per week without the requirement that at least one half of the school week be spent in skill development (shop). This program is intended to provide employability in a very limited range of skills.
	COOPERATIVE PROGRAMS
2.1	A Grade A cooperative program offered during the senior year for students who have had a minimum of one year of trade and industrial education in a Type 1.1, 1.2, or 1.3 program (15 hours skill development and 7 1/2 hours technical instruction weekly for two years) with the exception that the skill development experiences are provided outside the school.
2.2	A Grade B (Diversified) cooperative program for skilled and limited skilled occupations (15 hours skill development and 7 1/2 hours technical study weekly, generally for 12th grade only) which provides for the development of employability of a group of students representing a variety of occupations but operating as a vocational class. The skill development experiences are provided outside the school.
2.3	An ungraded occupational work experience program for selected limited ability students in unskilled or semi-skilled occupations (15 hours work experience and 7 1/2 hours occupational instruction weekly) which leads to successful adjustment to the world of work. The work experiences are provided outside the school.
	POST SECONDARY & ADULT PROGRAMS
5.1	A Grade A preparatory program (25 hours per week for 72 weeks) which leads to employability in the highly technical occupations at the para-professional level.

Program Type	Program Description
5.2	A Grade A preparatory program for adults in skilled and licensed occupations (includes practical nursing) which develops skills and technical knowledge required for the occupation. (Minimum standard of 12 hours per week required).
5.3	A Grade C preparatory program for adults in single or semi-skilled occupations. (Minimum standard of 8 hours per week required).
	ADULT SUPPLEMENTAL
6.1	An ungraded program of skill development and/or technical instruction which extends or supplements present employment experience of the individual in semi-skilled, skilled or technical occupations. (Normal range or course length 36 hours).
6.2	A Grade A extension program for skilled occupations which provides for the development of technical competency in apprentices. May include skill development of a specialized nature. (Minimum of 144 hours per year required).

NUMBER OF STUDENTS

So too, the maximum number of students each shop and each classroom is to serve must be a matter of formal board policy. The vital importance of making this policy decision, even in the early planning stages, cannot be overemphasized; as the number of students to be served by each shop and each classroom affects the required size of each shop and the amount of equipment necessary to provide a satisfactory learning experience. Although the *Manual of Operations* states that enrollment can vary in size from twenty to twenty-five in preparatory programs, the Trade and Industrial Education Service believes that the minimum of twelve requires an unwise expenditure of funds and the maximum of twenty-five inhibits that high degree of individualized instruction so essential to a good program.

Programs for adults are frequently carried on in shops, classrooms and laboratories planned for preparatory programs, the only exception being when non-public school facilities are used or in large cities where the expenditure for special, separate facilities can be justified.

EQUIPMENT REQUIREMENTS

Procedures for determining equipment requirements and equipment specifications should also be made a matter of formal board policy. As previously indicated, the advisory committees are logically in the best position to recommend what equipment is required in a shop. The matter of specification preparation, however, is best handled by the local supervisor with the help of the Trade and Industrial Education Service consultants and the teachers of each specific occu-

pational area. The Trade and Industrial Education Service recommends a long-range equipment replacement policy be established in conjunction with determining the policies covering the initial equipping of the entire facility.

COST ESTIMATES

If possible, board policy should also include adoption of estimated construction and equipment costs. The Trade and Industrial Education Service considers it particularly desirable for this action to be taken before the board's formal proposal of a bond issue or other fund raising activity. It is also considered wise that the required amounts be indicated in the publicity prepared for use in securing public approval of the project.

PRESENTATION TO THE BOARD

Prior to presentation of these policies for the formal approval of the local board of education, they should be submitted to the state supervisor of trade and industrial education. He will, in turn, determine whether or not the proposed program complies with the policies, and standards of organization and administration as set forth in the *Manual of Operations*.

The formal adoption of board policies covering all facets of a new program of trade and industrial education can best be accomplished by preparing a single bulletin detailing the entire proposal and presenting it for approval and adoption, before actual facility planning begins. Such a bulletin should detail the relationship between groups and individuals responsible for the planning process, the trade and occupational areas in which instruction is to be offered, the type of programs to be made available, the number of students involved, equipment requirements and cost estimates.

CLARIFICATION OF FUNCTIONS

The Trade and Industrial Education Service considers it highly desirable that this publication detail in an authoritative manner the functional relationships between all personnel who should be involved in facility planning. The necessity of clarifying the positions of those involved in planning a trade and industrial education program can best be demonstrated by the following:

There are trade and industrial facilities in Ohio where architectural plans and specifications, or even buildings, were completed before the local supervisor was employed, others where the local supervisor had no part in the preparation of the educational specifications nor opportunity to consult with the architects on either preliminary or final plans, others where advisory committees were not consulted on equipment requirements, others where educational specifications were prepared by consultants unfamiliar with the policies and generally accepted procedures of trade and industrial education, others where experienced trade and industrial teachers were not permitted a part in planning; and still others where the state staff of the Trade and Industrial Education Service was not consulted, where their advice was disregarded.

Without exception, these oversights resulted in the construction of facilities that do not permit an educational program of the quality the sponsoring board of education or the community had every right to expect. In fact, these situations represent the motivating factor behind the Trade and Industrial Education Service's decision that this publication was so vitally necessary.

The following statements are included to define and/or clarify the functions of all who should be involved in planning trade and industrial education facilities.

THE LOCAL BOARD OF EDUCATION

The American Association of School Administrators included in their Twenty-seventh Yearbook, *American School Buildings*, two statements of particular relevance:

> The function of the board of education in the planning of any phase of a school plant is what it is in all school administration: the formulation of policy and the careful selection of an executive and staff capable of assisting the board in formulating policies and executing the decisions agreed upon. In addition, the board of education has the implied responsibility of seeing that the planning results in marked educational improvements and progress for the community.

THE SUPERINTENDENT

The second statement that merits quoting here deals with the responsibilities of the superintendent.

> The superintendent is the chief executive officer of all building planning, surveys, and procedures. *It is his responsibility to see that capable assistance and special services are provided in carrying out these plant planning procedures.*

THE LOCAL SUPERVISOR

The *Manual of Operations* of the Trade and Industrial Education Service of the State Department of Education specifically states that in an approved program of trade and industrial education some of the duties of the local supervisor are to:

> Determine plans and location of shops; prepare and approve equipment lists; determine shop and equipment layout; prepare and administer the budget; and supervise the installation of equipment.

The carrying out of these duties involves the charted relationships with state staff members; general, craft and joint apprenticeship advisory committees; special shop and auxiliary space consultants; the building principal in the vocational or comprehensive high school; and experienced vocational teachers. In all of these relationships, the local supervisor is to be directly responsible to the superintendent of schools.

When planning facilities for a comprehensive high school, special attention must be given to permit, not only compliance with the state time allotment standards for preparatory programs, but the proper interrelation with the established class time, activity program, and assembly schedule of the school. These are not always simple, but they are problems that must be resolved before it can be definitely ascertained that the planned facilities will function satisfactorily.

ADVISORY COMMITTEES

The *Vocational Advisory Committees,* publication of the American Vocational Association, cites the long history of the many important functions and effective uses of the general, craft and joint apprenticeship advisory committees. All three types are important and useful in facility planning.

The great degree of importance attached to the use of such committees by the Trade and Industrial Education Service is demonstrated by the following quotation from the *Manual of Operation*:

> Employer and employee groups have a vital interest in trade and industrial education, and should, therefore, be consulted by school authorities regarding the establishment and conduct of such training in order that instruction may be organized to meet industrial requirements. The counsel of representative advisory committees, composed of equal representation of employers and employees with selected consultants, is needed in such areas as counseling and guidance, course content, qualifications of instructors, *proper and adequate equipment and standard practices in the occupation for which instruction is offered.*
>
> *In the establishment* and operation *of trade and industrial education programs, it is required that advisory committees be utilized* in order that instruction may be on a sound basis.

STATE STAFF

The function of the state staff of the Trade and Industrial Education Service in the planning and implementing of a new vocational education program is three fold: 1) to assist the local board of education in determining those areas in which instruction is to be provided: 2) to aid in the planning of adequate facilities, assuring compliance with minimum standards of both space and equipment; and 3) to review and approve the total plans for the new facility.

A member or members of the state supervisory staff should be involved at the earliest possible date in the planning process to discuss with the local school authorities the possibilities for trade and industrial education, the ways in which to determine need, the various types of programs available to serve a variety of needs, the recruitment or re-assignment of a competent and experienced trade and industrial educator to follow through in the planning stages of the program, the serious mistakes that have been made by other centers, and the latest trends and developments in vocational trade and industrial education.

It cannot be overemphasized that early contacts with the state vocational staff in trade and industrial education may well pay valuable dividends to a local community planning to expand its vocational education offerings.

ARCHITECTS

The American Institute of Architects in a brochure entitled "School Plant Studies" points out that:

> In the usual school planning program, the architect should serve as an administrative extension of the superintendent of schools. In this relationship, it is important that his duties and responsibilities be defined. To assure full coordination and complete harmony, the following procedures and responsibilities should be carefully set forth in the architectural program: scope of architectural services, service available from

the architect and the school, method of submitting and content of preliminary drawings, procedures for reconciling differences of opinion, and methods of selecting equipment.

This publication also points out that "budget and contents of buildings are prerogatives of the educator, while arrangements and finish are natural and necessary functions of the architect." This statement parallels the statement in the American Vocational Association - American Institute of Architects' *Developing Educational Specifications for Vocational and Practical Arts Facilities,* that "Architects do not want educators to aspire to be designers; educators do not want architects to be educators." The state Trade and Industrial Education Service believes that most poor school shops are the result of educators doing the designing, or of educators forcing architects to guess at requirements made by the educational program on a facility by failing to provide adequate educational specifications and requirements.

CONSULTANTS:

An article entitled "The Role of the Consultant in School Shop Planning" that was published in the March 1960 issue of *Industrial Arts and Vocational Education* gives more detail regarding their functions, uses, and values than is possible in this manual. The task of planning facilities for trade and industrial education is far more complicated than for any other school area. Only in the very largest cities, with a complete and extensively experienced staff of trade and industrial supervisory and teaching personnel, can it be assumed that outside help will not be essential.

While the state Trade and Industrial Education Service can supply limited consultant assistance, it must be recognized that the best possible source of extensive consultant assistance is to be found among local supervisors of trade and industrial education who have experience, gained by participation in facility planning and construction programs. If consultant service is to be of the greatest possible value, it should be secured as early in the planning process as possible, preferably as soon as the surveys are complete and discussion begun on projected program cost.

If consultants are retained, they should be responsible directly to the superintendent and report to the board of education only through the superintendent. As an American Institute of Architects publication points out, they should not be expected to prepare educational specifications independently of local efforts.

THE QUEST FOR QUALITY

In preparing to develop this manual, the Trade and Industrial Education Service expressed concern that, although many articles on shop planning have been published, nearly all such articles reflect the opinions of a single individual, or the staff of a single school system, or of a single department.

In order that this manual might be as valuable and as authoritative as possible, it was decided to secure a consensus of opinion - a compilation of the experiences of supervisors in charge of trade and industrial education programs and representative shop teachers from the 17 Ohio cities where facilities have been planned, built, and "tested-by-use" during the past 12 years. These 17 facilities include 103 different trade and industrial education programs and nearly 200 different shops.

Concepts of what is acceptable and what is desirable in total facilities were established from detailed questionnaires sent to local supervisors and principals in all 17 cities. The guiding theories for the specific shops detailed later in this manual were secured from more than 100 experienced shop teachers in these cities. The recommendations that will be made in this manual concerning communication with the architect are based on conferences with, and questionnaries completed by, the 12 local supervisors who actually participated in the planning of their facilities. These represent conclusions based, not only on successful accomplishment, but on a recognition of those factors that have contributed to less satisfactory results as well.

The general concepts underlying all shop planning as determined for this manual do not, in some instances, differ greatly from those long accepted by school administrators, architects, and trade and industrial educators. There are, however, other instances that do differ, perhaps because of their novelty, or their "too industrial appearances," or their underlying principle that function must be given greater weight than the exterior design of a building.

THE GEOGRAPHICAL LOCATION of the comprehensive high school and the city vocational high school has long been determined by the population density of the students to be served. This rule will not, however, always apply for the area vocational school, because of transportation system problems and more particularly because of the desirability of proximity to industrial service and supply centers.

THE LOCATION OF SHOPS IN A BUILDING is not a matter of exterior design but of space requirements and relationships between shops and classrooms. Shop widths different from classroom widths; the frequent necessity of having ceiling heights and/or floor levels differ from those in the rest of the building; accessibility from the outside for delivery, for scrap disposal, for adult night class use; as well as the necessity for sound insulation from other parts of the building - all of these reasons make a separate wing almost essential.

THE SHOPS AND CLASSROOMS MUST BE ADAPTABLE. Shops as well as classrooms must be planned to permit effective use by trade extension and apprentice groups. These needs can usually be satisfied by providing adequate, separate, and safe storage for tools, instructional materials, work in process, and clothing. Complete information on the types of programs, number of classes, and the number of students is essential in planning the necessary adaptability.

CLASSROOMS FOR RELATED INSTRUCTION ARE DIFFERENT. Well-planned, related classrooms differ not only from the usual academic classrooms but frequently, from each other. Their size depends upon the type of instruction and the type of instructional materials to be used and stored safely, on how many one day-trade occupational area classes will use the room, and on the maximum number of students per class as determined by school policy. While related classrooms *must* be on the same floor and *should* be near the specific shop they serve, the problem of adequate acoustics must be considered in determining their proximity to noisy shops.

Good trade and industrial instruction depends as greatly on demonstration facilities as *any other science class.* Doors to hallways must be large enough to admit demonstration equipment. For example, the collision service teacher will need to bring an auto body, mounted on a dolly, into the classroom. Virtually every utility - including variable phase and voltage power, compressed air, gas, water, oxygen and acetylene - may be required in the classroom if they are used in the shop served by that classroom. Such utilities also require corresponding safety provisions.

FLEXIBILITY AND "EXPAND-ABILITY" are talked and written about more frequently than they are needed, provided; or used, when provided. The engineering of adequate mechanical services to permit expansion of the building is common practice. Groups meeting to discuss this manual recalled in their collected experiences 50 interior walls so designed that they could be moved, but only one that ever had been moved. There is a state that has built a large number of area schools with all shops large enough to house any type of trade and industrial education program. This plan certainly permits flexibility, but the wisdom of such a large expenditure for space is considered extremely questionable.

However, one way of providing flexibility is by surface mounting all mechanicals and using bus ducts and flexible connectors in preference to bringing power under the floor and stubbing up power recepticles in fixed positions.

THE SELF-CONTAINMENT OF EACH SHOP is a relatively new development in shop planning in Ohio, but has been reported as highly desirable by every supervisor and teacher who has this provision as well as those for whom this advantage was not provided. To have a small toilet room, a drinking fountain, washing and locker facilities, and a telephone in each shop is highly advantageous both from the standpoint of safety and student supervision. With a shop so equipped, there is no reason for either students or teacher to leave the shop during a class period.

A small conference room for each shop is also considered a wise use of space. The many management and record keeping functions of the trade and industrial teacher, and the need of individual instruction in a quiet area during a shop period justify the additional construction cost in the opinion of all supervisors and teachers reporting in answer to the survey.

The Trade and Industrial Education Service strongly recommends that a *all future trade and industrial shops be planned for complete self-containment.*

THE NECESSITY FOR ADEQUATE PROTECTION OF SHOP EQUIPMENT, MATERIAL AND SUPPLIES is, according to the reports of many local supervisors, a recognition that they have more difficulty incorporating in the planning process than any other. The extremely high value of equipment that can so easily be reduced to no value whatsoever by a single act of vandalism, and the ease of disposal of costly, small tools,

supplies, and precision instruments must be regarded as a problem requiring greater precautions than those taken for other parts of a school building by the usual protective measures.

The consensus of opinion of the state Trade and Industrial Education Service staff, local supervisors and teachers surveyed is that the following standards are vitally important, and provision for their inclusion in the educational specifications and building plans must be made:

1. Outside protective lighting that is on more often and is of a greater intensity than is customary for most school buildings must be provided for should be time-clock controlled.
2. If tool and supply storage rooms are next to an exterior wall and have windows in them, the windows should have the type of frame that is usually called "escape proof".
3. If, as is commonly practiced, teachers are held responsible for the care and protection of tools, precision instruments, and consumable materials and supplies, there should be some rooms that cannot be opened with a master key or can be opened only with a separate master key over which rigid control must be maintained.
4. Similarily, power control panels must be located and provided with such locking systems that only the shop teachers can control machine power. This is especially important if valuable and delicate equipment is to be given proper care or if untrained and unauthorized personnel are to be prevented from making unsafe use of the machinery during periods when school is not in session.

SHOP SAFETY is not an administrative responsibility that can be deferred until the shop is in operation and then discharged by a directive to teachers to "establish a safety program". Perhaps because of the implications of the employer's responsibility under the Workmen's Compensation Law, current industrial construction practices and legal requirements are greatly in advance of the construction practices and requirements of the schools.

This manual cannot begin to detail or even summarize the provisions of the Industrial Commission of Ohio *Bulletin 203, Specific Requirements and General Safety Standards for Workshops and Factories;* and *Bulletin 202, Specific Safety Requirements for Building and Construction Work;* but these publications should be given greater consideration in planning school shops than has been the usual practice. Representatives of the Division of Safety and Hygiene of the Commission are available as consultants, and the Superintendent of the Division has offered his department's services on this highly important phase of facility planning.

CRITICAL PROBLEMS IN SHOP PLANNING

SPACE COSTS MONEY. This fact, more than any other, represents the most important reason why the survey of community needs and student interest; the board's formal adoption of policies covering the proposed program; and the preliminary space and equipment cost estimates *should* all be completed before the bond issue is submitted to the votors. Unless these things are done first, programs may have to be cut back, shops eliminated, space curtailed or equipment specifications cut, resulting in a program that does not meet the minimal requirements for safety and satisfactory instruction.

In order to assist boards of education in making early estimates of the space needed and the probable cost of trade and industrial education facilities, a number of states have prepared "*guides*" or "*manuals*" indicating "desirable, average and minimum" standards in terms of the number of square feet per pupil for 'heavy', 'medium' or 'light' shops. While the competence of those preparing such bulletins cannot be questioned, the 12 Ohio local supervisors of trade and industrial education, who have most recently been involved in the actual planning and construction of facilities, urge that such standards be disregarded because they are too general.

It is interesting to note, for instance, that the different states do not all classify the same shop in the same category; that, for certain shops, some states have larger "minimum" requirements than some of the other states define as "desirable"; and that several of the states thoughtfully add that the content of the course and the size and type of equipment used will cause some variation in the recommendations.

Ascertaining instructional space requirements can no longer be calculated on the square feet required per student. The space requirement of each shop is an individual problem. The size must be based on the number of students, the type of program, the course content, and the method of instruction.

The state Trade and Industrial Education Service felt no need to repeat in this publication the techniques involved in determining space requirements that are so fully described in the American Vocational Association - American Institute of Architects publication: *Developing Educational Specifications for Vocational and Practical Arts Facilities.* Although the section of this bulletin on specific shops will make reference to the average size of a certain kind of shop in Ohio, and the opinion of the state staff and the teachers using these shops as to their adequacy, any school involved in shop planning that has gone beyond the preliminary stages is strongly urged to examine and use the procedures detailed in this AVA-AIA publication.

ESTIMATING CONSTRUCTION COSTS FROM SPACE REQUIREMENTS differs for shops in two very important ways from the way in which space-cost estimates are made for other portions of a school. This is of vital consideration during the period of cost estimate determination for a bond issue or tax levy.

In a shop wing the ratio of net instructional space requirements to gross building area may be 1.20 or lower as compared with the 1.34 or higher that applies to the rest of the building and is often mistakenly applied to the shop area for estimating purposes. Secondly, there are many reasons why the same square foot

or cubic foot cost factor for the rest of the structure is not applicable to the shop area. Industrial type construction, exposed mechanicals, less expensive heating and lighting installations, less tile and plaster, larger rooms, all serve to reduce unit cost.

DETERMINATION OF EQUIPMENT COSTS should involve little, if any, estimating. It is a specialized task that must be done for each individual shop or laboratory based on the equipment requirements, the type of program, course content, the number of students to be enrolled, and the methods of instruction.

If specifications are properly prepared and manufacturer's quotations secured, the only "estimating" that has to be done involves guessing how much the bids - if bids must be taken - will differ from the manufacturers' quotations. A board of education cannot economize on equipment. Reducing expenditure for equipment simply means reducing the educational opportunities being offered to the students and the service provided to the community. It is considered vital by all experienced, local supervisors that advisory committees should be intensively involved in this - one of the critical problems in shop planning.

GUIDING PRINICIPLES FOR SPECIFIC SHOPS

Because of the extremely diverse character of the facilities required to offer training in trade and industrial education shops ranging alphabetically from auto mechanics to welding and numerically from Type 1.1 to Type 6.2, the educational planning and the architectural design of each shop presents problems different from those of any other shop.

Whereas there are long established principles regarding such factors as length-to-width ratios, essential all-shop visibility, the flow of work, accessibility to materials and supplies, location and adequacy of lighting, etc; they will not be detailed in this manual since they are, it is hoped, thoroughly understood by all architects and trade and industrial personnel.

It should be noted, however, that many of these principles do not apply to shops specifically planned for full-time use only by apprentices. Some other exeptions will be noted in connection with specific shops.

PRINCIPLES APPLICABLE TO SPECIFIC SHOPS and the criteria that the state Trade and Industrial Education Service believe must be satisfied are based on objective *evaluations of the shops* made by experienced trade and industrial teachers.

In some instances, such as auto mechanics and machine trades, as many as 12 shops were evaluated by the 24 teachers. At the other extreme, foundry trades and chef's training were each evaluated by the one teacher in the only shop in operation in Ohio. It should be noted as adding validity to the opinions expressed in this manual that *more than half of the teachers participating in the survey, making the evaluations and suggestions, were teaching in shops planned by their predecessors.*

AUTOMOTIVE MECHANICS. The mean "work area" of Ohio's auto shops is 4991.4 square feet, but it should be noted that the average area of the four most recently constructed in Ohio is 6238 square feet. This increase is presumably due to the planners of the last four having made studies of the adequacy of the space provided in the eight shops built earlier. On the average, these 12 shops also have 1522 square feet of auxiliary space in many cases on decks or mezzanines over offices or in supply rooms and special equipment areas.

Whereas the minimum acceptable width, based on 60° angular parking which is considered by all reporting teachers to be essential, is 56'; a width of more than 60' will result in unutilized space. Minimum stall width is 11' except for stalls containing lifts where 15' must be provided.

Almost without exception teachers recommend floor exhaust systems, with stainless steel hoses. Even those questioned who are using overhead systems stated that they would prefer the other. Two lifts are considered adequate by the state Trade and Industrial Education Service, but teachers reported that they would like three or even four. The better auto shops have "drive thru aisles" with power operated overhead doors at both ends of the shop. Several of Ohio's shops and many recently constructed garges have under-the-floor radiant heating systems providing 50% of the total heat requirements because so much of the student learning activities takes place at floor level. This type of radiant heating is recommended in the service garage planning manuals provided by all major automobile manufacturers for their

franchised dealers. Center floor drains are, in the opinion of all teachers, essential from the standpoint of good housekeeping. A compressed air and water supply at each car stall, specially located auxiliary lighting, scrap and used oil disposal, safe storage of flammable liquids, and outside phone service are also considered essential. So too, an enclosure for the safe storage of incoming and completed work is considered necessary by all teachers; although, at present only two Ohio schools have made this provision.

AUTO COLLISION SERVICE. Although shops of this type are not as common as auto mechanics shops, the current demand for trained workers in auto collision service is even greater than in the other areas of automotive services. Planners must understand that *automotive mechanics and auto collision service are two different trades, and therefore require different facilities, equipment, and usually different instructors. Only a teacher with a most unusual experience background could be certified to teach both trades.*

The total space required for an an auto collision service course is comparable to the auto mechanics area; but, in most schools where both exist, the collision shop is usually slightly smaller. Arrangement and design problems for the two shops differ greatly. Because jobs are moved less frequently, perpendicular parking is not too great a handicap; but minimum stall width is 15'. The most difficult design problem concerns locating the 15' x 30' spray painting booth in such a manner that cars can readily be driven in, and at the same time so as to permit small group observation through the vision panels while avoiding interference with all other shop areas.

The amount of auxiliary space required for a collision shop cannot be over estimated. This statement is literally true, in the opinion of both the state Trade and Industrial Education Service and the teachers interviewed in Ohio programs and in seven programs in other states. While tool, conference, and supply spaces are comparable to other shops, and need for space to store the component parts of auto bodies, "reck racks" and demonstration assemblies poses a difficult problem. Adequate open deck space of 1000 square feet or more, with removable railing sections and a hoist appears to be the best solution suggested by teachers.

As in an automotive mechanics shop, a collision service shop requires a safe storage receiving area that, because of the unsightly appearance of in-coming total wrecks, would be better, screened from view by an ornamental wall or shrubbery.

A separate space that is *absolutely safe* must be provided for lacquer storage and mixing; such space, in the opinion of experienced shop operators, should be an entirely separate, small, completely fireproof building. The dispersal of lacquer fumes and spray from the booth and booth exhaust must be very carefully engineered for compliance with the standards of the National Fire Protection Association and the National Board of Fire Underwriters Association.

While the greatest cost factor in establishing an automotive collision repair program is the necessary size of the shop, it must be recognized that to equip such a shop adequately will require at least $30,000 including essential small tools.

CARPENTRY. There are only a limited number of Ohio programs in carpentry, and they vary greatly in method and purpose. In perhaps no other trade does the *method of instruction have greater bearing on facility planning.* Present Ohio programs in carpentry involve the actual construction of a residence with the work of the other crafts being contracted except where the school also has in-school electrician programs, plumbing courses, or programs in other building trades. This type of carpentry program usually calls for only a cabinet-making shop in the school building, although there are schools in other states with facilities for doing their own mill work. In some cases, quarter-scale model construction in the school is a part of the program.

Because of the wide differences in the possible methods of instruction in this field, it is difficult to generalize regarding space requirements. However, it may be suggested that to provide room for adequate cabinet-making machinery, sufficient storage, bench and assembly space, and an area for construction of quarter-scale framing models, one school system provided a shop area of 3600 square feet with an additional 1400 square feet of deck space for lumber storage, washing and locker facilities. It should also be noted that, for quarter-scale model construction, the ceiling height should not be less than 18 feet.

In planning either a millroom or a cabinet shop, depending on the type of instruction to be provided, it should be noted that, in many of the schools visited, the most frequent complaint of teachers was the inadequancy of the exhaust system. The catalog-rated, exhaust requirements of woodworking machinery are seldom based on 100% utilization and are too often based on 100% efficiency of operation. Neither usually exists in actual operation and must, therefore, be carefully considered by the heating and ventilating engineers.

There is possibly no other trade in which greater importance is attached to involving the joint apprenticeship committee in the planning of a facility for an in-school program. Without such involvement, the program will have little chance of success since in virtually every city, a graduate must become a registered apprentice to be employed in the carpentry trade.

The method of program operation will greatly effect the amount of money required for equipment, but to install equipment comparable in size and quality to that used in the trade will cost at least $12,000 with an additional sum of from $1,000 to $1,500 required for quality hand tools.

COMMERCIAL COOKING. In Ohio there are a number of quite different programs and even a greater range nationwide that are usually grouped under this single occupational title. While one school has *tearoom training*, another has *commercial cooking*; a third has *tearoom and cafeteria and food service*; and a fourth has *Chef's training*. All of their facilities are different, but there are certain common factors that have bearing on initial planning for all such programs.

As in other areas, after community need and student interest are determined, the advisory committee must determine content and scope of the instruction to be provided.

The facility provided must include every type of food preparation and service equipment used in the plants of prospective employers, must permit training in the techniques of food preparation used by those employers, and must afford an opportunity for serving a significant number of meals to a reasonable number of customers on at least an every-other-day basis to make the training situation realistic.

Special attention is called to a rather common misconception that such training can be provided in a school cafeteria. It is the considered opinion of the state Trade and Industrial Education Service Staff that no school cafeteria facility can serve satisfactorily for such training.

In the initial space-cost planning stages, it is suggested that 800 square feet be considered the minimum for the food preparation area, 580 square feet for storage and other auxiliary spaces; and not less than 1000 square feet for a food service facility which must be so located as to provide easy access from outside the building, preferably from a reserved parking lot.

Although obviously dependent on the type of program which is to be offered, the Trade and Industrial Education Service suggests basing cost estimates on a figure of about $14,000.

COSMETOLOGY. As in all trade training areas where entrance into the occupation is contingent upon the possession of a state license, *facilities must have the approval of the state board empowered to grant such licenses.*

The specific requirements for instructional space and equipment, and for auxiliary space and its use are detailed in the *Rules and Regulations* of the State Board of Cosmetology which are supplementary to Section 4713.01 and 4713.99 of the *Revised Code of Ohio.* Preliminary plans should be submitted to that board for consideration and final plans for approval. Since, as is often the case in such regulations, the space requirements are minimums, they must be exceeded to permit high quality instruction. It is suggested that the preliminary listing of space requirements for determing cost estimates should include 3000 square feet for instructional and auxiliary space be used for this facility.

The location of this facility in relation to the customer parking area and ease of accessibility from outside the building must be given early consideration during the architect's preparation of the first design sketches.

Many lists of required equipment for trade and industrial education shops may be evaluated on the basis of the degree to which they equal the size, type and quality of the equipment being used by prospective employers. Cosmetology is an exception to that rule. It is the considered belief of the state Trade and Industrial Education Service that, not only from the standpoint of instruction, but also from the standpoint of public relations with clientele, the school facility be "the best beauty shop in town".

Adequate equipment for a cosmetology clinic will range in cost from $9,000 to $10,000 but it must also be recognized that the square or cubic foot construction cost of the facility will be greater than most trade shops, since the clinic must be attractive to what ever public is to be served.

DENTAL ASSISTANT. A survey of the Dental Assistants program in Ohio indicates that not enough emphasis has been placed on adequate floor space and major equipment necessary to do a creditable job of instruction in this highly specialized area.

All equipment should be similar to that used in the profession but of a quality equal to, if not better than equipment used commercially.

For twenty-four students an absolute minimum of 1400 square feet of floor space is required. The lecture and laboratory areas need to be connected. The laboratory area should be 20' x 25' and so designed that the instructor will have a view of both areas from any location. A dressing room adjoining or attached to the lab and lecture area should have a minimum of 200 square feet. A dark room for the development of X-ray films is also necessary for this program and should have a minimum of 100 feet.

To provide the quality and amount of equipment needed for a satisfactory, dental assistant training program, from $15,000 to $16,000 will be required.

MECHANICAL DRAFTING. A survey of the mechanical drafting shops in Ohio revealed, that, almost without exception, teachers felt strongly that the size of drafting tables and the total shop space in present programs were too small to permit the type of instruction expected by the perspective employers of their graduates. This limitation which exists in recently planned shops is particularly surprising in view of architects' familiarity with drafting requirements and, therefore, must be blamed on the educational planners' decisions as to the size of drafting tables to be installed - decisions that may have been forced by an unrealistic limitation on the amount of money that could be spent to equip the shop.

It is the belief of the Trade and Industrial Education Service student tables should never be smaller than the standard 37½" x 60" board size.

All tables must be equipped with drafting machines and/or parallels depending on the common practice of local employers. In the case of drafting machines it is considered wise to purchase at least one for left-handed student use. Schools must also provide adequate provisions for filing prints and tracings.

Reproducing machines should be similar to those used in industry. A capacity of only 36" is limiting; 48" is satisfactory; and, on occasion, 60" is desirable.

To provide space for twenty-four 60" tables and essential auxiliary space, a minimum of 2400 square feet of floor space is required, and that amount is sufficient only if the room is at least 28 feet wide. A difference, either plus or minus, in the lateral dimension may make a difference in the total space required. It must also be noted that student capacity cannot be increased to 25 or 26 by adding a table or two without adding inordinately to the total space required and to the cost of construction.

It should also be noted that the use of overhead projection equipment in drafting instruction is becoming more common and is apparently very effective as evaluated by limited research. Thus, the height of the drafting room has become very important. A height of less than 10 feet seriously hampers instruction by this method.

Based on minimum standards of acceptability for a mechanical drafting shop to accomodate twenty-four students, the Trade and Industrial Education Service has found that the necessary equipment will cost about $10,000.

BASIC ELECTRICITY AND ELECTRONICS. There are presently 23 trade and industrial "electricity" shops in Ohio's high school programs and eight "electronics" laboratories in Ohio's post-high school technical education programs.

The high school programs range from basic electricity through motors and controls, radio and television, to some called electronics. (These differences are graphically illustrated by their quite different equipment lists in the appendix to this manual.) To propose a single set of desirable planning standards for such a wide range is not feasible. Again it is a case of determining community needs and student interest, course content, scope and sequence, and methods of instruction to determine equipment, spaces and utilities required; and, from that information, determine the facility space-cost requirements.

A survey of the various kinds of electrical facilities built recently indicated an average shop area of just over 2000 square feet. The range in size was greater than in other shops; but, the fact that most teachers reported satisfaction with the available space, indicated that the *space had been planned to fit the content and scope of the specific program,* which as indicated varies widely throughout the state.

By the same survey teachers in the electrical areas generally indicated that lack of adequate auxiliary space, particularly for the storage of instructional materials, supplies, jobs or experiments in process, and instructional aids and assemblies seriously handicapped their operation and the effectiveness of instruction.

MACHINE TRADES. The mean "work area" of Ohio's 12 newest machine shops is 2960 square feet with a range of from 1672 to 4000 square feet. It should be noted, however, that the average for the four most recently constructed facilities is 3755 square feet; that the teachers of the school with 1672 report that they need 3300; and those with a shop of 1920 square feet that has almost no auxiliary space report that they need 6000, including auxiliary space.

The Trade and Industrial Education Service recommends that the preliminary space cost estimate should be 3600 square feet with any later revisions based on the total space required for the number and various sizes of machines and other equipment recommended by the craft advisory committee.

Except in the newest machine shops, where extensive use has been made of relatively inexpensive deck or mezzanine space, teachers, surveyed invariably reported the need for greater auxiliary space than had been provided. Supervisors indicated the importance of *safe* auxiliary storage spaces from not only the standpoint of protection for students from the dangers involved in storing such supplies as flammable oils, but *safe* from the standpoint of preventing easy theft of precision instruments and high value tools.

Supervisors in a number of Ohio's programs suggested that emergency power cut-off switches were desirable in all shops using rotating machines, reciprocating machines, or electrical power at danger levels, but insisted this be made a requirement for machine shops. Machine shop teachers were unanimous in their recommendation that such switches be installed in sufficient number to assure that at no

place in the shop would the teacher ever be more than 30' from such vital safety devices.

Teachers of shops having bus ducts with fuse boxes attached to the *side* of the ducts were strong in their recommendation that systems with the box on the bottom of the duct are prefereable. The systems using the latter design permit no uncertainty as to whether or not the lines to a specific machine are carrying current at times when maintenance or repair work is being done.

Ohio had at the time of this study, 48 machine shops; but there was a great variation in the types and sizes of the machine tools in some of them. This bulletin has recommended and emphasized in many places the vital importance of organizing and using the services of craft and other advisory committees to determine the content of a course and the equipment required for instruction. The machine shop is no exception to this rule. However, because it is the most costly of all vocational shops to equip, the Trade and Industrial Education Service urges administrators and supervisors to recognize from the beginning *the extreme degree to which the quality of the instruction provided will depend upon the quality of the equipment provided,* to recognize the basic, nationwide similarity in course content, and to be aware of the equipment cost factor.

The Trade and Industrial Education Service recommends the amount of $140,000 as the minimum for which a new 20 student-station machine shop can be adequately equipped for an acceptable training program. One Ohio machine shop, considered by many to be one of the best in the country, contains equipment of an appraised value of over $300,000, for which the board of education in that city spent only $131,000 for the "basic essential equipment". The balance of equipment in this shop was secured from government surplus for use in the supplementary and "duplication-for-the-sake-of-convenience" category. It should be noted, however, that government surplus equipment is not now being made available in the amounts that were common at the time this shop was equipped.

Some school machine shops are lathe-heavy because of the old trade adage that "the lathe is the only machine that can reproduce itself". Consequently many shops lack adequate milling equipment, and few shops have adequate grinding equipment in the surface, tool, internal and external categories. Precision grinding cannot be taught without adequate heat-treating equipment.

PRACTICAL NURSING. At present Ohio's public education programs for practical nurses are adult programs and are being operated in space not expressly planned for this utilization.

As in all trade training areas where entrance into the occupation is contingent upon the possession of a state license, *facilities must have the approval of the state board empowered to grant such licenses.* The specific requirements for offices, classrooms, laboratories, libraries, and clincial areas are stated in the *Rules and Recommendations for Schools of Practical Nursing* of the State Board of Nursing Education and Nurse Registration which is supplementary to Sections 119.01 to 119.13, inclusive, of the *Revised Code of Ohio* It should be noted that these requirements assume adequate storage space. Mere assumptions regarding space requirements seldom become a part of the architect's plans. Space for adequate storage must also be specified.

Since these regulations do not specify minimum floor area, it is suggested that schools planning such programs include in the preliminary space-cost estimates 2800 square feet for instructional and auxiliary uses. Housing requirements include a nursing arts laboratory with acid-proof, double, stainless steel sinks; a related classroom; a home economics laboratory; library-study facilities; and an office-conference room. A private office for the coordinator with an adjoining room for the program secretary can be included if desired. This minimum assumes that classroom space to be used during the clinical period will be provided in the participating hospitals.

Approximately $7500 for major equipment and $2500 for minor equipment is needed. About $500 should be budgeted for drugs and teaching supplies for the first year.

PRINTING. While automation has had a profound influence on many industries, it has probably had its greatest effect on the printing industry. Not only because of the the many rapid changes being made, but also because entrance into the trade is nearly always based on an apprenticeship, special emphasis is again placed on the utilization of a craft committee (joint apprenticeship committee) in formulating plans for a printing program and the required facilities.

The two most recently constructed trade and industrial printing facilities in Ohio utilize 4203 square feet of floor space in one case and 7407 in the other. The staff of the first school reports that their facility was orginially planned as an industrial arts shop and is entirely inadequate, especially in regard to type and amount of equipment, and that their storage facility of 88 square feet is less than one-tenth what they would recommend. The report from the second school emphasized that their system has central warehousing facilities,and paper storage is not included in the more than seven-thousand square feet of space they use for instruction.

The Trade and Industrial Education Service is emphatic in recommending that a trade and industrial printing program must not be based on the premise that its principal function is to serve as a job-shop for the board of education or even for the school building in which it is housed. To provide a good training program some production work is necessary, but excessively long runs, an over-emphasis on printing forms, and "front office" pressures make it difficult to match what is taught to what should be taught and seriously lower the quality of the instructional program.

Because of the rapidy changing methods of production and the wide variation in possible course content, it is not considered wise to suggest space and cost figures for inclusion in even the most preliminary estimates. In this trade the advisory committees must begin work even earlier in the planning process than in other trades. Once general objectives have been determined by the committee, much material that will be helpful in the detailed planning is available from the Educational Council of the Graphic Arts Industry.

As will be apparent from examinations of the suggested equipment list for printing, it is considered unwise by the State Trade and Industrial Education Service to suggest any range of total equipment cost. It is necessary that the advisory committee determine the extent, type and size of equipment required to provide the training appropriate to the needs of the community.

Committee members have visited shops that have less than $25,000 invested in equipment; on the other hand, one of country's best vocational printing departments, located in another state, has nearly $1,000,000 worth of equipment.

RADIO AND TELEVISION SERVICE. More and more surveys of community needs are revealing manpower shortages in these two service trades. At present, only three Ohio cities offer training directed specifically toward radio and television service. There are, however, many graduates of other trade and industrial electrical programs in Ohio who enter these occupations and succeed as a result of their basic training.

One of the best facilities in the country planned for this purpose has one particular feature that illustrates dramatically the importance of the advisory committee's attention to minute, planning details - their built-into-the-wall, interference prevention, protective copper screening. This is obviously an essential feature of well planned facilities, but few schools have included it in their plans and specifications.

Each of Ohio's three shops for radio and television service has 1280 square feet of instructional space; 80 square feet of auxiliary space; and 280 square feet for storage. Some visitors to these facilities have considered them minimal in terms of space requirements, but the teachers using the shops consider them satisfactory. Special, separate storage is suggested for high-cost test equipment, and there are areas that require special acoustical treatment.

SHEET METAL. The tremendous increase in the refrigeration, air conditioning and climate-control industries, as well as the great advances made in the type of fasteners and methods of fastening sheet metal installations, have brought about numerous changes in this trade.

Although jurisdictional controversies may develop out of trade combinations, there appears to be a trend to combine some areas in this general category at the high school preparatory level. The craft to which the graduate is apprenticed or the firm by which he is employed, may require only some parts of his total background, but it may be considered wise to cross lines in communities where advisory and joint apprenticeship committees are agreeable to such a program.

Space and equipment needed will vary greatly in programs of this type, but for preliminary space-cost calculations the Trade and Industrial Education Service believes that 4000 square feet shoud be considered minimum. It must be kept in mind that fabrication includes assembly; that assembly requires open area; and that fabrication and assembly of miniatures or models does not constitute adequate training.

From $17,000 to $18,000 will be required for adequately equipping a sheet metal shop.

WELDING. Four trade and industrial welding shops have been included in recent Ohio construction. In no other trade area do teachers report greater dissatisfaction with particular features of their shops than in welding. It appears that every report of dissatisfaction resulted from one of two counts.

First, either the mechanical engineers who determined the exhaust requirements were not fully informed by the school regarding what welding and cutting actively would take place in the shop, or they depreciated the school's requirements on the basis of their own judgement. The result has been inadequate exhaust installations

requiring expensive, extensive, and in one case, virtually impossible changes.

Second, the influence of tradition that has dictated the construction of *closed booths* in several schools has made good instruction, safety practice, and student supervision far more difficult for the teacher than is necessary. The Trade and Industrial Education Service urges all schools planning welding shops to give careful consideration to the following recommendations:

1. Provide sufficient wall space for eighteen 5' x 6' booths and two 5' x 9' booths. This may require a shop that violates the $1\frac{1}{2}$ to 1 length to width ratio.
2. Facilities for both arc and gas welding should be made in each booth rather than using center-of-the-shop space for gas welding, as has long been traditional. The shop should have 20, not 40, stations.
3. Booths should not be curtained, but have open fronts; partitions should not be constructed nearer than 28" to the floor; and the top of the booths should be open. This type of booth permits better instruction, easier student supervision, and better housekeeping. It also requires that all personnel entering or working in the shop wear proper eye protection.
4. Steel storage, at ground level, should be at least 22' deep and preferably in line with the overhead door.
5. Carefully studied provision for scrap storage prior to disposal *outside the shop* must be called to the attention of the architects early in the planning process, as it is a design problem that will have to be met and dealt with.
6. Safe outside tank storage must also be given attention, early in the planning process.
7. Lighting over booths must be placed at the back of the booth, not at the back of the student.
8. The exhaust system must be so designed that in the event of inadequate results, a change can be made by merely changing motor and fan capacity without any revision in the duct work.
9. Overhead welding cannot be taught if the learner must look up into the sun. If the open-top-booth recommendation is followed, any windows above such booths will interfere with instruction unless they are in the North wall.

Preliminary space-cost estimates may be based on 4500 square feet of instructional and auxiliary space. The actual cost of equipping one welding shop, considered by some to have almost ideal equipment, was $29,000; possibly $18,000 could be used in preliminary cost estimates.

THE QUEST FOR REASON

An adage of long standing, but forgotten origin, is that "all school buildings are built three times: once in the minds of the educators, once on the drawing boards of the architects, and, finally, with bricks and mortar by the contractors".

Assuming the soundness of the educators' hopes and the adequacy of the financing, it is amazing; in trade and industrial education, at least; how much and how often the realities of the *third* building differ from the visualization of the *first*. Whether the fault lies with trade and industrial education personnel, with school administrators, or with the architects is immaterial. The fault does exist and all too often results in mediocre facilities which do not permit adequate instructional programs.

A detailed analysis of the teachers' evaluations of their shops in the 15 newest buildings was scatter-gram correlated with the supervisors' reports of locally established methods of communication between supervisors and architects, the planning phases in which supervisors were permitted to take part, the follow-up and checking procedures permitted them, and the degree of influence they were permitted in the various phases of the total planning process.

THE REPORTS OF THE SUPERVISORS SHOWED NO COMMON METHOD OF COMMUNICATION WITH THE ARCHITECTS, little similarity between the planning phases in which each was permitted to take part, follow-up and checking procedures ranging from none at all to the maximum possible and amazing variations in the degree to which local supervisors influenced the facility plans for the program with which they were expected to serve the youth and the industries of the community.

The comparison of the teachers' shop evaluations with the reports of participation by the supervisors reveals that a single, inescapable conclusion must be drawn:

> **The extent to which trade and industrial education personnel and advisory committees participate in all phases of facility planning, from the preparation of preliminary education specifications to the approval of final plans and specifications, will be in direct proportion to the extent to which the facility planned will satisfactorily serve its purpose.**

THE TRADE AND INDUSTRIAL EDUCATION SERVICE ASSUMES for the purposes of this publication, that *that the fault lies with trade and industrial education personnel.* In part this fault is to be corrected by more rigid requirements for the adequacy of the facility as a prerequisite to program approval and in part by establishing standards that will define more completely, the local supervisor's function and responsibility in facility planning. For either of these changes to achieve their maximum potential, communication and communication procedures must be greatly improved.

ESSENTIAL COMMUNICATION WITH THE ARCHITECT

Again, it must be clearly understood that the program-planning function of educators is separate from the facility-designing function of architects. But it must be understood, with even greater clarity, that the facility designed must permit the effective operation of the planned program. Keeping these two functions completely separate but fully correlated depends upon the relationship between the local supervisor and the architect - a relationship established by the superintendent of schools.

Almost all modern facility planning begins with educational specifications submitted by the superintendent to the board of education for formal approval as "a program of requirements" to be given the architect. Procedures for developing these preliminary plans for trade and industrial education facilities are fully explained in the publication *Developing Educational Specifications for Vocational and Practical Arts Facilities* which the local supervisor should use as a supplement to this manual.

An example of a simplified set of forms, developed by one Ohio school system for gathering from staff members and recording the preliminary information required to prepare educational specifications, is included in Appendix A to this manual. In use it has been effective and uncomplicated.

IDEAL EDUCATION SPECIFICATIONS DO NOT INSURE PERFECT TRADE AND INDUSTRIAL FACILITIES. Translating written educational specifications to architectural, mechanical, and engineering drawings is comparable to translating from one language to another. Unless both persons understand both languages, there must be an interpreter. In this case, the interpreter must be a competent member of trade and industrial education personnel, capable of reading the architect's and engineer's drawings, and determining whether they comply with the approved educational specifications.

Meeting these mutual needs for interpretation depends greatly on personal conferences and personal relationships that must be arranged or established by the superintendent of schools. The recommended first step is a meeting between the superintendent, architect, and trade and industrial education personnel to determine the procedure for communication and the mutually preferred method and time requirements for presenting information needed by the architect.

It may be assumed that adequately prepared educational specifications will provide the architect with space requirements and relationships, floor loadings, both general and specific utility requirements, detailed mechanical services, major built-ins and specific recommendations of provisions for flexibility, and complete detailed equipment lists regardless of whether or not the equipment is to be a part of the contract.

Once the architect's work moves from desk to drawing table, "interpretation" becomes a matter of "checking". Supervisors in three of Ohio's new facilities reported that no opportunity was provided them for checking any except the final floor plans; and, in one case, that was done only after the construction contract had been awarded. An old maxim of persons long familiar with shop planning states that

"Preliminary plans have a peculiar way of becoming final plans". This maxim should not be forgotten.

COMMUNICATION WITH ARCHITECTS HAS BEEN REPORTED AS DIFFICULT by so many local supervisors that the Trade and Industrial Education Service considers it essential to include in this manual a recommendation of the specific stages during the planning process when it is considered essential for the local supervisor to be in direct and personal communication with the architect. There are nine major items that should be checked at different stages of the planning process. These are:

1. Cooperative checking of preliminary floor plans against preliminary space requirements.
2. Cooperative checking of preliminary room arrangement.
3. Cooperative checking of preliminary equipment layout.
4. Cooperative checking of preliminary mechanicals and sections against tentatively approved equipment layout and room arrangement.
5. Cooperative checking of preliminary specifications.
6. Cooperative checking of final plans before submission to board of education for formal approval.
7. Cooperative checking of final specifications before submission to board of education for formal approval.
8. Cooperative checking of all sub-contractors' shop drawings prior to the architect's approval.
9. Cooperative checking of both the preliminary and the final "punch list". (The "punch list" is that list of items the owner finds unsatisfactory once the contractor considers the work completed.)

THE DEGREE OF INFLUENCE attached to the local supervisor's presentation of the educational specifications, his suggestions regarding the construction of the facility, and his criticisms of the proposed plans varies greatly, according to the survey from the different cities. In a number of cases there appeared to be high correlation between the degree of influence and the extent to which advisory committees were utilized. There were reports from supervisors who worked directly with the architects; while, in an unbelievably extreme case, there was one supervisor who got his first look at the building plans in the contractor's field office after construction had started.

Local supervisors, reporting their participation in facility planning, rated their influence on the nine major points at which cooperative checking is suggested in four categories. The categories were: 1) all reasonable requests included, 2) requests included if supported by the superintendent, 3) requests given some consideration, and 4) requests given no consideration. Again, using the scattergram technique to relate shop quality as evaluated by teachers to the degree of influence factor as reported by supervisors, there appears to be a rather high correlation.

By general classification, the schools where teachers were best satisfied were the schools where the local supervisor's efforts had been influential at all nine major checking points. The least satisfied were the teachers in schools where the supervisor reported having had little influence at any point.

Between the two extremes, supervisor influence appears to have been divided into two categories: men who had full opportunity to work during the preliminary stages but no chance to check final plans, specifications, mechanicals, or sub-contractors' shop drawings; and men who had not worked on preliminaries, but were asked to check the finals only when the chances were very remote of making revisions needed for compliance with educational specifications.

Based on the study of the experiences and the results reported in this manual and while recognizing that neither this nor any other bulletin yet published presents ready-made answers to shop planning problems, the Trade and Industrial Education Service recommends strongly that school administrators and architects concerned with planning the construction of trade and industrial facilities, rely on the local supervisor fulfilling his responsibilities as detailed in this manual.

RECOMMENDATIONS OF

POLICY AND PLANNING COMMITTEE

The Trade and Industrial Education Services recommends with greater urgency than for any other recommendation, that, because the task of planning trade and industrial facilities is so relatively unique, those charged with this responsibility should:

1. Utilize fully the aid of the State Trade and Industrial Education Service.
2. Define the planning responsibilities to make the greatest possible utilization of the local supervisor.
3. Establish advisory committees early and use them fully.
4. Plan a program of visitation for administrators, architects, teachers, and advisory committee members to outstanding trade and industrial facilities.
5. Hire experienced teachers of the trade in other cities as consultants, if teachers have not yet been employed locally for a new trade program.
6. If a shop planning consultant is needed, employ one as early as possible who has had actual, personal experience in trade and industrial facility planning.
7. Settle for nothing less than the best.

EQUIPMENT LISTS

BASED ON AN ENROLLMENT OF 20 STUDENTS

AUTO MECHANICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Air Compressor, 5 H.P., 120 gal. tank size, 72 1/2" long, 27" wide 58" height, 3 phase motor, 60 cycle, 220 volt.	1	$ 839.00	$ 839.00
2	Air hoses, 25' length, 1/4" I.D., 5 ply red, complete with 1/4" pipe fittings and equipped with "quick disconnects"	4	5.93	23.72
3	Analyzer - complete	1	1,300.00	1,300.00
4	Arbor press, 3 ton ratchet type, single leverage, hand operated	1	100.00	100.00
5	Battery equipment:			
	Battery, storage 6 volt	1	20.00	20.00
	Battery, storage 12 volt	1	20.00	20.00
	Carrier	2	1.26	2.52
	Charger, tube rectifier type, 6 and 12 volt	1	150.00	150.00
	Charger, fast, 6 and 12 volt	1	106.00	106.00
	Hydrometer	1	1.35	1.35
	Servicer, water container, tools and syringe	1	12.95	12.95
6	Bench, foreman's; 24" x 36" x 48" high with cabinet base	1	76.50	76.50
7	Bench, metal work; 30" x 60" x 32" high with shelf, back and end stops	10	51.00	510.00
8	Bins, revolving 4 shelf unit, metal	1	81.75	81.75
9	Boring Bar, complete	1	800.00	800.00
10	Brake, bleeder	1	43.92	43.92
11	Brake shop, complete	1	1,499.00	1,499.00
12	Cabinet, 2 door steel storage; 18" x 36" x 72" with lock	4	60.00	240.00

AUTO MECHANICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
13	Cable, extension, 3 conductor moulded rubber covered, 14 ga. min. (heavy duty)			
	Primary, single conductor, 6 and 12 volt	100'	20.80	20.80
	Secondary, 7 MM	100'	7.50	7.50
	Starter, 6 and 12 volt, - 25'	1	5.96	5.96
14	Cart Service	4	28.80	115.20
15	Cleaner, hy-pressure steam jenny	1	597.00	597.00
16	Containers:			
	Can, safety gasoline, 5 gal., non-spill sealed, trigger type pouring lip	2	8.50	17.00
	Can, waste, 12" x 15" with legs and spring lift cover	4	9.50	38.00
17	Cord, extension, reel type; gravity action mechanism; impact resistant, pistol grip phenolic handle, swing open guard, one piece hanger hook, 7 amps 125 volt, 30' cord	6	23.95	143.70
18	Covers:			
	fender	10	4.95	49.50
	seat	6	4.25	25.50
19	Crane, Rugger; 1/2 ton capacity with extension boom	1	415.00	415.00
20	Creeper:			
	flat, 16" x 36" with dippsey doodle casters	4	13.32	53.28
	seat, with casters	4	10.50	42.00
21	Drill, electric, portable; 1/4" heavy duty	1	49.50	49.50
22	Drill, electric portable; 1/2" heavy duty	1	75.00	75.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
23	Drill, press; 15" variable speed, floor model with 6" spindle, including 1 drill press vise	1	285.00	285.00
24	Flaring tool kit; 3/16" to 5/8" O.D. tubing size, double flare plus tube cutter	1	11.90	11.90
25	Grinder, bench; 1/2 H.P. heavy duty, 5/8" diameter shaft, 7" x 1" wheels (1 fine, 1 coarse)	1	149.00	149.00
26	Growler	1	32.00	32.00
27	Hoist; I beam trolley with 1 ton chain hoist, alloy steel chain and drop forged swivel hook, load brake	1	194.50	194.50
28	Hydro Clean-O-Matic, complete	1	597.00	597.00
29	Hydrometer float, auto radiator calibrated for permanent anti-freeze with a thermometer	1	9.80	9.80
30	Jacks:			
	Hand, hydraulic; 1 1/2 ton capacity	1	12.60	12.60
	Hand, hydraulic; 8 ton capacity	1	15.00	15.00
	Service, hydraulic; 2 ton capacity minimum height 4", maximum height 24"	1	153.60	153.60
	Transmission, hydraulic	1	310.00	310.00
	Twin saddle; automatic safety locks, hydraulic, 1 1/2 ton capacity minimum height 10", maximum height 40"	1	173.50	173.50
31	Lathe, 10" metal, cabinet metal, 36" between centers, hardened bed	1	1,088.00	1,088.00
32	Lifts, twin post, air-oil operated full hydraulic, 11,000 lbs. capacity	2	1,248.00	2,496.00

AUTO MECHANICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
33	Lubrication equipment; 4 reel - 3 pump greasing outfit complete	1	1,520.00	1,520.00
34	Stands:			
	Engine, 360° swing, caster mount with locking device	1	145.00	145.00
	Pylon, 5 ton capacity, adjustable	1 pair	24.50	24.50
	Service	6 pair	16.00	96.00
35	Timing light, 6 - 12 volt, deluxe	1	32.50	32.50
36	Tire Service; electric, air complete	1	389.50	389.50
37	Valve reconditioning equipment, complete	1	880.00	880.00
38	Vise, machinists; heavy duty, swivel base with steel slide, 4" wide jaws, opening 6"	2	47.20	94.40
39	Vise, machinists; shielded slide, swivel base with 4 1/2" wide jaws opening 7 1/2"	2	57.60	115.20
40	Welding equipment, oxy-acetylene, complete with tanks cart, gauges, hoses and assorted tips	1	203.00	203.00
41	Wheel alignment equipment, Bear set 128	1	159.00	159.00
42	Wheel balancer, dynamic, complete with weights	1	328.00	328.00
43	Wheel balancer, air, complete with weights	1	124.00	124.00
44	Wrench, air impact; 1/2" square drive, 5/8" bolt size capacity, 6 sockets and metal case	1	151.50	151.50
			Sub-Total...	$17,272.15

HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Bolt cutter, 14"	1	$ 11.35	$ 11.35
2	Bolt cutter, 30"	1	20.00	20.00
3	"C" Clamps			
	3"	2	6.45	12.90
	6"	2	10.76	21.52
	8"	1	13.65	13.65
	10"	1	17.15	17.15
4	Calipers, 6" - inside spring nut release, screw thread adjustment	3	2.85	8.55
5	Calipers, 6" - O.D. spring nut release, screw thread adjustment	3	2.85	8.55
6	Chisels:			
	Cape 1/4" - 6 1/2" long	6	1.55	9.30
	Cold 1/2" - 8" long	6	2.59	15.54
	Diamond Point 1/4" - 6 1/2"	6	1.35	8.10
7	Dies:			
	Machine screw - 1 set: 6-32NC, 6-40NF, 8-32NC, 8-36NF, 10-24NC, 10-32NF, 12-24NC, 12-28NF	8	1.30	10.40
	National standard - adjustable round split dies forming American standard thread 7/16" thickness, 1 5/16" outside diameter, 1 set; 1/4"-20NC, 5/16"-18NC, 3/8"-16NC, 7/16"-14NC, 1/2"-13NC, 9/16"-12NC, 5/8"-11NC, 3/4"-10NC, 1/4"-28NF, 5/16"-24NF, 3/8"-24NF, 2 7/16"-20NF, 1/2"-20NF, 9/16"-18NF, 5/8"-18NF, 3/4"-16NF	16	2.10	33.60
	Die Stock, machine screw, to hold 13/16" O.D. round adjustable machine screw die	2	2.40	4.80

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Die stock, national standard, to hold 7/16" thick 1 5/16" O.D. national standard die	2	2.40	4.80
	Tap and die set NF 1/4" to 1"	1	39.15	39.15
	Tap and die set NC 1/4" to 1"	1	39.15	39.15
8	Dividers - 6" stiff spring tapered spool, high quality spring steel legs with replaceable needlepoints	3	5.50	16.50
9	Drills:			
	Fractional, 1/16" thru 1/2", by 64ths, high-speed steel, straight shank	1	39.00	39.00
	Numbered, 0 thru 80, high-speed steel, straight shank - taper shank 5/8" to 1" by 16ths - letter size drills, 1 set with stand	1	47.75	47.75
10	Extension cord, (not lights) 20' sections	3	2.10	6.30
11	Files: (with handles)			
	10" flat bastard	3	2.11	6.33
	10" half round bastard	3	2.46	7.38
	10" round bastard	3	1.91	5.73
	10" hand smooth	3	2.51	7.53
	10" mill smooth	3	2.06	6.18
	ignition point	6	.20	1.20
	regulator joint	6	.20	1.20
	6" saw, extra slim taper thread	6	.45	2.70
	14" flat bastard	3	3.16	9.48
12	Gauges: (general)			
	Cylinder dial indicator	1	25.00	25.00
	Feeler set, flat	6	3.40	20.40
	Feeler set, wire	1	1.50	1.50
	Screw thread	2	3.90	7.80
	(pressure)			
	Automatic transmission	1	9.00	9.00
	Compression	1	40.00	40.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Cooling system	1	8.95	8.95
	Tire	1	4.00	4.00
	Vacuum and fuel pump	1	50.00	50.00
13	Hammers:			
	Ball pein 4 oz.-32 oz.	12	4.00	48.00
	Plastic and soft face	3	3.55	10.65
	Two way	3	5.25	15.75
	Sledge, 8 lb.	3	5.40	16.20
14	Hones:			
	Piston pin, 47/64" to 1 5/16"	1	29.50	29.50
	Cylinder bore, 2 1/2" to 4 1/8"	1	64.70	64.70
	Brake cylinder	1	25.00	25.00
15	I - bar clamp, 3'	1	6.00	6.00
16	I - bar clamp, 6'	1	10.00	10.00
17	Lining up bar, 12"	1	1.60	1.60
18	Micrometers:			
	Inside diameter, range 1 1/2" to 8"	1 set	32.00	32.00
	Outside diameter, sizes 0-1", 1-2", 2-3", 3-4", 4-5"	1 each	80.00	80.00
19	Measure:			
	1 qt. oil, flexible spout	2	1.50	3.00
	1 gal. oil, flexible spout	2	3.00	6.00
20	Oil stone, complete in wooden case	1	11.65	11.65
21	Piston ring tools:			
	Compressor	1	3.15	3.15
	Groove Cleaner	1	.85	.85
	Remover and installer	1	3.49	3.49
22	Pliers:			
	Thin nose slip joint, 6 1/2" long	6	1.85	11.10
	Thin blunt nose slip joint, 6 3/4" long	6	2.49	14.94

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Diagonal cutting, 7 1/2" long	6	4.49	26.94
	Heavy duty diagonal, 7" long	6	4.09	24.54
	Long chain nose, 6 1/2" long	6	3.55	21.30
	Long needle nose, 6 3/4" long	6	3.75	22.50
	Curved thin needle nose, 6" long	6	4.19	25.14
	Needle nose side cutting, 6 3/4" long	6	4.09	24.54
	Long reach needle nose, 7 3/4" long	2	4.05	8.10
	General utility, 9" long	6	3.25	19.50
	Self-energizing gear lock, 9 1/2" long	6	3.75	22.50
	Lineman's side cutting, 8 1/2" long	2	5.65	11.30
	Lever wrench, 1 1/2" capacity, 8" long	6	3.25	19.50
	Hose Clamp	2	2.04	4.08
	Snap ring, standard	2	1.80	3.60
	Snap ring truarc, internal-external (12 pliers)	1	28.47	28.47
23	Pullers:			
	Battery cable	1	4.59	4.59
	Slide hammer	1	12.50	12.50
	Steering wheel	1	5.00	5.00
	Wheel	1	12.50	12.50
24	Punches:			
	Drive pin, 8" knurled hardened steel, set of 8: 1/16" diameter to 5/16" diameter	1	10.50	10.50
	Center, 1/4" x 6 1/4" forged alloy steel hammer tested, knurled handle	6	1.09	6.54
25	Reamers, set expandable 15/32" to 1 1/2"	1	154.00	154.00
26	Ridge reamer	1	25.00	25.00
27	Rivet buster	1	2.05	2.05
28	Saw, hand hack, adjustable frame	6	4.15	24.90
29	Scale, steel 3'	2	7.00	14.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
30	Screw drivers:			
	Standard set, 6 pcs.	12	12.31	147.72
	Phillips head set, 6 pcs.	12	11.91	142.92
	Clutch head attachments, assorted	10	2.00	20.00
31	Screw extractor, straight shank, deep fluted blade, hardened tool steel set of six	1	10.00	10.00
32	Scriber, 1/8" diameter 10" double point hardened tool steel	2	2.50	5.00
33	Snips, tin:			
	straight	2	6.75	13.50
	curved	2	8.65	17.30
34	Soldering copper, electric, 200 W.	2	10.15	20.30
35	Soldering gun, 200 W.	2	13.95	27.90
36	Square, combination; 12" blade with protractor head	1	14.40	14.40
37	Stamps, steel:			
	3/16" figures 1-0	1	2.60	2.60
	3/16" letters, A to Z	1	8.00	8.00
38	Taps:			
	Machine screw taps - hand tap, plug type, straight fluted, high quality carbon steel fine ground thread, 1-set: 6-32NC, 6-40NF, 8-32NC, 8-36NF, 10-24NC, 10-32NF, 12-24NC, 12-28NF	2 each	3.00	6.00
	N.C. Standard-hand tap, plug type, national coarse standard thread, high quality carbon heat treated steel, 1-set: 1/4"-20, 5/16"-18, 3/8"-16, 7/16"-14, 1/2"-13, 9/16"-12	2 each	4.45	8.90

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	National fine standard, hand tap, plug type high quality carbon treated steel, 1-set: 1/4"-28, 5/16"-24, 3/8"-24, 7/16"-20, 1/2"-20, 9/16"-18, 3/4"-16	2 each	6.45	12.90
	National Standard Pipe, 1/8", 1/4", 3/8"	2 each	2.86	5.72
39	Tap Wrench:			
	T-handle, adjustable chuck machine screw tap wrench	2	2.40	4.80
	T-handle adjustable vise jaw, for holding machine screw tap size 6-32 to 12-28	2	1.05	2.10
	National Standard tap wrench, adjustable vise jaw, tap size 1/4" to 3/4"	2	11.30	22.60
40	Tape, flexible, steel, 50'	1	6.70	6.70
41	Terminal kit and crimping tool	1	7.59	7.59
42	Tool set for carburetors	2	55.30	110.60
43	Wrenches, allen, 6" long	2 sets	1.50	3.00
44	Wrenches, box; 12-pt., set, (10 wrenches in set)	6	37.35	224.10
45	Wrench Drive Adapter:			
	3/8" female and 1/2" male	6	1.55	9.30
	3/8" square male and 1/2" square female	6	1.55	9.30
46	Wrenches, electrical:			
	Open double end, thin, 13/64" thru 3/8" openings	1 set	8.66	8.66
	Socket set same as above, 13/64" thru 1/4" openings	1 set	11.38	11.38

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
47	Wrench handle - 1/2" drives:			
	Flex	1	7.25	7.25
	Speed	1	5.09	5.09
48	Wrenches, open end and combination box wrench set; 9 wrenches in set	6	24.08	144.48
49	Wrenches, socket:			
	1/2" drive, 7/16" thru 1 1/4" openings, 16 pc. set in box	12	47.73	572.76
	3/4" drive, large sockets, complete	1	198.64	198.64
50	Wrench, tappet adjusting: 7/16" single open end 1/2" single open end 9/16" single open end (2 each in set)	4 sets	11.50	46.00
51	Wrench Torque:			
	0-120 in./lbs., 3/8" drive	1	20.00	20.00
	10-75 ft./lbs., 3/8" drive	1	22.63	22.63
	0-150 ft./lbs., 1/2" drive	1	22.10	22.10
	10-150 ft./lbs., 1/2" drive	1	25.00	25.00
52	Wrench, pipe:			
	6"	1	1.60	1.60
	10"	1	2.80	2.80
	18"	1	6.00	6.00
	24"	1	11.19	11.19
53	Wrench, adjustable 22 1/2° angle, 10" long	6	4.35	26.10
54	Wrench, adjustable, 22 1/2° angle, 15" long	6	9.75	58.50
55	Ark-O-Graph (metal marker electric)	1	4.50	4.50
56	Grinding wheel dresser	1	1.50	1.50
57	Special tools			400.00

AUTO MECHANICS HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
59	Tool Boxes; 23 1/32" x 8 1/2" x 9 1/2"	24	14.99	359.76
			Sub-Total...	$ 4,348.80
			Grand-Total...	$21,620.95

AUTO COLLISION SERVICE

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Anvil, shop; 150 lbs.	1	$ 63.00	$ 63.00
2	Bench, foreman's 24" x 36" x 48" high with cabinet base	1	76.50	76.50
3	Bench, steel, 30" x 60"; constructed of heavy gauge steel; sliding doors; nylon roller bearings; recessed handles; cylinder lock; adjustable shelves; back and end stops	12	115.05	1,380.60
4	Bench, welding; gas and arc; angle iron legs, reinforced with diagonal braces; top and shelf measure 36" x 36"; 36" high shield sides and back; top covered with firebrick; 14" x 24" x 5"; bench drawer	1	89.35	89.35
5	Bins, revolving 4 shelf unit	1	81.75	81.75
6	Booth, paint spray; auto-truck model; solid back; paint arrestor exhaust system; 28' inside working depth; vapor type fluorescent type light fixtures; exhaust outlet on the top of booth vented to outside; pneumatic safety switch; automatic control kit draft gauge and filters	1	4,317.50	4,317.50
7	Brake, bleeder	1	43.92	43.92
8	Brake, sheet metal; capacity 16 gauge bending length 36"; angle max. 135° depth of box 3"; back gauge adjustment 0"-24"; complete with cabinet floor stand	1	525.00	525.00
9	Cabinet, 2 door steel storage; 18" x 36" x 72" with lock	4	60.00	240.00

AUTO COLLISION SERVICE

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
10	Cabinet, paint; all steel; 4 adjustable shelves; double locking door; cylinder lock and cam type closers locking both top and bottom 36" x 75" x 21"	1	75.00	75.00
11	Carts, service	4	28.80	115.20
12	Charger, battery 50/100 amps	1	149.95	149.95
13	Cleaner, hy-pressure steam jenny	1	597.00	597.00
14	Compressor, air; 220 volt; 60 cycle; 3 phase; 2 H.P. with manual overload starter	1	671.50	671.50
15	Cord, extension, reel type; gravity action locking mechanism; impact resistant; pistol grip phenolic handle; swing open guard; one piece hanger hook; 7 amps; 125 volts; 30' cord	6	23.95	143.70
16	Crane, Rugger; 1/2 ton capacity	2	375.00	750.00
17	Creeper, flat 16" x 36" with dippsy doodle casters	4	13.32	53.28
18	Creeper, seat	4	10.50	42.00
19	Drill, electric, portable; 1/4" heavy duty	1	49.50	49.50
20	Drill, electric, portable; 1/2" heavy duty	1	75.00	75.00
21	Drill, press; 15" variable speed; floor model with 6" spindle, including 1 drill press vise	1	285.00	285.00
22	Dozer, damage; porto-matic pump complete with stands; frame checking fixtures and gauges	1	1,220.00	1,220.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
23	Grinder; pedestal; 2-6 x 3/4" wheels on 1/2" shaft; adjustable tool rest and wheel guard 1725 R.P.M.; 115 volt; single phase 1/3 H.P. Motor	1	137.00	137.00
24	Hoist, chain; solid alloy steel gear train is center planetary type; alloy steel chain and drop forged swivel hook; load brake; 2 ton capacity trolley fits 7"-24 I beam	1	319.00	319.00
25	Jack service; hydraulic; 2 ton capacity; minimum height 4"; max. height 24"	2	153.60	307.10
26	Jack, twin saddle; automatic safety locks; hydraulic; 1 1/2 ton capacity minimum height 10" max. height 40"	1	173.50	173.50
27	Lift, twin post; air-oil operated full hydraulic; 11,000 lbs. capacity	2	1,248.00	2,496.00
28	Machine, frame straightening; complete with tools and gauges	1	5,624.00	5,624.00
29	Nibbler; cuts 14 gauge sheet iron and soft metal at 2' per minute head swivels 360° circle without turning machine; 115 volt motor; one cutter-head; extra punch; extra die; spanner wrench and lubricant	1	155.00	155.00
30	Press, arbor; 3 ton capacity; hand operated	1	100.00	100.00
31	Sander, orbited; heavy duty	2	99.50	199.00
32	Sander, polisher, 7" disc; heavy duty complete with rubber backing pad; side handle; wrench; speed 5000 R.P.M.	4	97.50	390.00
33	Sander, polisher, 9" disc; same as #32	4	102.50	410.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
34	Slip roll forming machine; 2" x 36 " with encased steel machine cut compensating gears	1	130.00	130.00
35	Spot drying lamps	2	90.00	180.00
36	Spray equipment:			
	Air transformer	1	61.00	61.00
	Dusting guns	2	5.40	10.80
	Pressure feed spray guns	2	55.00	110.00
	Suction feed spray guns at	2	41.50	83.00
	Cup attachments 8 oz. capacity	2	9.75	19.50
	Pressure feed paint tank 2 gal. capacity	2	116.00	232.00
	Sections air hose, 8' x 1/4" with 1/4" connections	4	3.22	12.88
	Sections fluid hose, 8' x 3/8" with 3/8" connections	4	5.76	23.04
	Sections air hose, 8' x 5/16" with 1/4" connections	4	3.58	14.32
	Sections air hose, 6' x 7/16" with 1/4" and 3/8"	4	4.70	18.80
	Total for spray equipment			$ 583.34
37	Stand, pylon; 5 ton capacity adjustable	1 pair	24.50	24.50
38	Stand, safety	6 pair	16.00	96.00
39	Unishear; cuts 14 gauge steel at 15' per minute; high speed alloy steel blades; aluminum housing 115 volt motor; complete with wrenches; clearance gauges; lubricant and pair of blades	1	130.00	130.00
40	Vise, machinists; heavy duty, swivel base with steel slide; jaws 4" wide open 6"	2	47.20	94.40
41	Vise, machinists; shielded slide swivel base with 4 1/2" wide jaws, opening 7 1/2"	2	57.60	115.20

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
42	Vise, pipe; 1/8" to 3" capacity	1	17.40	17.40
43	Welder, arc; 180 amps at 25 volt 20% cuty cycle; operates on 230 volts, single phase; power factor correction; complete with 6' 3 - wire primary cable, 1-3 prong plug and wall receptacle, 2 welding cable plugs, on-off switch, carrying handle, 20' #4 electrode cable, electrode holder, 15' #4 gound cable with lug and welding helmet	1	165.00	165.00
44	Welder, oxy-acetylene; complete with tanks, cart, gauges, hoses and assorted tips	1	203.00	203.00
45	Wrench, air impact; 1/2" square drive; 5/8" bolt size capacity; 6 sockets and metal case	1	151.50	151.50
			Sub-Total...	$23,245.69

AUTO COLLISION SERVICE | HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Aligning punch - 16" long	6	$ 2.39	$ 14.34
2	Center punch - 6 1/4" long	6	1.09	6.54
3	Prick punch - 5 1/4"	6	.89	5.34
4	Pin Punch; Set of 7; 47 1/4" x 1/16" to 47 1/2" x 1/4"	2	7.38	14.76
5	Starting punch; 6 1/2" long	6	1.09	6.54
6	Cape Chisels; 6 1/2" long	6	1.55	9.30
7	Diamond point chisel; 6 1/2" long	6	1.35	8.10
8	Cold Chisel; 8" long	6	2.59	15.54
9	Drift Punch; 10 1/4" long	6	1.79	10.74
10	Thin Nose slip joint pliers; 6 1/2" long	6	1.85	11.10
11	Thin bunt nose slip joint pliers; 6 3/4" long	6	2.49	14.94
12	Diagonal cutting pliers; 7 1/2" long	6	4.49	26.94
13	Heavy-duty diagonal cutting plier; 7" long	6	4.09	24.54
14	Long chain nose plier; 6 1/2" long	6	3.55	21.30
15	Long needle nose plier; 6 3/4" long	6	3.75	22.50
16	Curved thin needle nose pliers; 6" long	6	4.19	25.14
17	Needle nose side cutting pliers; 6 3/4" long	6	4.09	24.54
18	Long reach needle nose plier; 7 3/4" long	2	4.05	8.10

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
19	General utility pliers; 9" long	6	3.25	19.50
20	Self-energizing gear-lock plier; 9 1/2" long	6	3.75	22.50
21	Lineman's side cutting pliers; 8 1/2" long	2	5.65	11.30
22	Lever wrench pliers; 1 1/2" capacity 8" long	6	3.25	19.50
23	Multi-Leverage, straight cut snips; 9 7/8" long	6	5.19	31.14
24	Duckbill snips; 12 3/4" long	6	4.89	29.34
25	Straight snips; 10"	6	3.59	21.54
26	Combination pattern snips; 12 3/4" long	6	4.99	29.94
27	Hacksaw, adjustable	6	4.15	24.90
28	"C" Clamp; 3" capacity	4	6.45	25.80
29	"C" Clamp; 6" capacity	4	10.76	43.04
30	"C" Clamp; 8" capacity	2	13.65	27.30
31	"C" Clamp; 10" capacity	2	17.15	34.30
32	Adjustable wrench, 22 1/2° angle 10" long	6	4.35	26.10
33	Adjustable wrench, 22 1/2° angle 15" long	6	9.75	58.50
34	Pipe wrench; 14" long	2	4.59	9.18
35	Pipe wrench; 24" long	1	11.19	11.19

AUTO COLLISION SERVICE HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
36	12-pt. box wrench set; 10 wrenches in kit	6	37.35	224.10
37	Combination box and open end wrench set;	6	24.08	144.48
38	Obstruction 12-pt. box wrench 3 sizes	1	8.93	8.93
39	Ball pein hammer; 4 oz.	3	3.25	9.75
40	Ball pein hammer; 8 oz.	3	3.45	10.35
41	Ball pein hammer; 12 oz.	3	3.59	10.77
42	Ball pein hammer; 1 lb.	3	3.89	11.67
43	Ball pein hammer; 2 lb.	1	4.75	4.75
44	Plastic-tip hammer	6	3.55	21.30
45	Two-Way hammer	3	5.25	15.75
46	Body and fender hammer set; including 1 upholsterers; 1 dinging; 4 finishing; and 2 pecking hammers per set	12	37.58	450.96
47	Body and fender tool set; including 1 egg-shaped dolly, 1 general purpose dolly, 1 radius dolly, 1 bead dolly, 1 shrinking dolly, 1 semi-elliptical heel dolly per set	6	34.32	205.92
48	Flexible flat straight file with handle	48	12.34	592.32
49	Conventional type pry bar 24" long	6	4.79	28.74
50	Rolling head bar; 18" long	3	4.09	12.27
51	Heavy-duty steel-end 12 point bod wrench; 11 assorted sizes	1	123.49	123.49

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
52	Slide-hammer puller set	1	68.42	68.42
53	Wheel lug nut wrench; 21 1/2" long	2	3.59	7.18
54	Hollow head screw wrench set	24	1.19	28.56
55	Tube cutter set	1	15.03	15.03
56	Socket set, 1/2" square drive; 16 pc. set in box	24	47.73	1,145.52
57	Socket set, 3/4" square drive, complete	1	198.64	198.64
58	Hex nut drivers kit; 7 drivers	1	11.50	11.50
59	Screw extractor set; 5 extractors	1	6.89	6.89
60	Phillips screw driver set; 6 pcs.	12	11.91	142.92
61	Standard Screwdriver set; 6 pcs.	12	12.31	147.72
62	Tap and die set; 1/4" to 1/2" U.S.S. and S.A.E. (screw plate)	1	35.00	35.00
63	Drill bit set; 1/16" to 1/2"	2	30.00	60.00
64	Pipe taps; 1/8", 1/4", 3/8" and 1/2"	1	6.00	6.00
65	Wheel puller, car	1	12.50	12.50
66	Rivet Buster	2	2.05	4.10
67	Bolt cutter; 14"	1	11.35	11.35
68	Bolt cutter; 30"	1	20.00	20.00
69	Solder paddles, set of 3	10	3.57	35.70
70	1 qt. oil measure; flexible spout	2	1.50	3.00
71	1 gal. oil measure; flexible spout	2	3.00	6.00

AUTO COLLISION SERVICE HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
72	Anti-freeze tester	1	8.00	8.00
73	Oily waste cans; 10 gal.	4	9.50	38.00
74	Safety cans, 5 gal.	2	8.50	17.00
75	Disc cutter	1	13.75	13.75
76	Drain pans	3	3.75	11.25
77	Covers, fenders and seats	12	4.25	51.00
78	Tool boxes; 23 1/32" x 8 1/2" x 9 1/2"	24	14.99	359.76
			Sub-Total...	$ 5,055.71
	Miscellaneous items including: special hand tools, files, blades cutter, bits, etc.	24 Students		1,000.00
			Grand Total..	$29,301.40

CARPENTRY SHOP

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Bench, foreman's with cabinet base	1	$ 76.50	$ 76.50
2	Benches; 54" x 60" with cabinet bases and vises	8	236.00	1,888.00
3	Builder's kit, complete	1	121.77	121.77
4	Drill, All-Purpose with accessories	1	85.00	85.00
5	Drill, electric 1/4" chuck	1	46.75	46.75
6	Drill floor model, 15" capacity with mortising attachment chisels and bits	1	196.70	196.70
7	Drill, Impact with accessories	1	140.25	140.25
8	Drill, Press 15" capacity standard floor model	1	285.50	285.50
9	Grinder, wet tool on stand complete with guards	1	141.40	141.40
10	Jointer, 6"; 3/4 H.P., 3 phase motor with over-load protection	1	301.50	301.50
11	Jointer, 12"; direct motor drive 3 H.P., 220/440 volt, 3 phase motor, Magnetic switch standard equipped	1	1,303.00	1,303.00
12	Miter box with 28" x 5" saw	1	69.00	69.00
13	Nailer, complete	1	64.60	64.60
14	Planer, 8" x 24" single surface direct or belted drive, 5 H.P., 3 phase, 208/440 volt motor with magnetic controls extra set of 4 knives	1	2,452.80	2,452.80
15	Plane, power; hand operated, 16" complete with carbide cutters	1	143.00	143.00

CARPENTRY SHOP

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
16	Router, hand, complete with base, light, wrench, 1 1/4 H.P. motor, including dovetail attachments, selected bits and templates	1	179.60	179.60
17	Sander, 3" x 24" belt, 115 volt motor, dust collector, 10' cord	1	169.50	169.50
18	Sander, 6" belt and 12" disc complete with 1 H.P. motor and accessories	1	325.65	325.65
19	Sander, portable belt 3" x 23 3/4"	1	170.00	170.00
20	Sander, orbital type, finishing	1	99.50	99.50
21	Saw, 20" band; table size 24" x 24" direct motor drive, 2 H.P., 3 phase 208/440 volt motor and accessories	1	831.00	831.00
22	Saw, Jig 24" x 5" complete with all standard equipment	1	330.00	330.00
23	Saw, Portable 8" electric	1	160.00	160.00
24	Saw, Radial 14" with medium arm, 220/440 volt, 3 phase, 60 cycle motor and completely equipped	1	865.05	865.05
25	Saw, sabre, heavy duty with 4 blades	1	47.60	47.60
26	Saw, tilting arbor, 12", complete with rip fence, miter gauge, 38" x 48" table, motor, pulley, blade guard with splitter and anti-kickback, motor cover overload switch, 7 saw blades, dado insert plate and dado head and groovers	1	994.00	994.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
27	Shaper, single spindle; 24" x 36" table, 1 H.P., 3 phase motor, miter gauge, clamp attachment, stub spindle, fence guard and assorted size spindle and cutters	1	573.85	573.85
28	Trimmer, Veneer with accessories	1	72.25	72.25
			Sub-Total...	$12,133.77

CARPENTRY SHOP

HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Expansive bits #21 - 5/8" to 1 3/4"	3	3.15	9.45
2	Expansive bits #22 - 7/8" to 3"	3	3.50	10.50
3	Bits, power wood 3/8" to 1"	6 sets	3.95	23.70
4	Brace, 8" wood, ratcher, self-centering chuck	6	11.65	69.90
5	Boxes, tool	24	5.50	132.00
6	Chisels	6 sets	10.50	63.00
7	Drill, yankee push	6	6.50	39.00
8	Hammer, 13 oz. nail (curved)	24	3.00	72.00
9	Hammer, 16 oz. rip (straight)	24	3.00	72.00
10	Level, 2 ft. aluminum	6	5.96	35.76
11	Level, 4 ft. aluminum	4	10.51	42.04
12	Level, 6 ft. aluminum	1	16.17	16.17
13	Nail set	24	.49	11.76
14	Plane, block	12	4.49	53.88
15	Plane, jack 14"	6	8.16	48.96
16	Plane, smooth 9"	6	7.53	45.18
17	Rule, 6' folding	24	2.50	60.00
18	Saw, 8 pt. hand	24	6.56	157.44
19	Saw, 11 pt. hand	12	6.56	78.72
20	Screw driver, 6"	24	.93	22.32
21	Screw driver, 10"	24	1.33	31.92

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
22	Screw driver, Phillips #2	24	.67	16.08
23	Screw driver, Yankee	6	6.60	39.60
24	Square, Carpenter	24	2.53	60.72
25	Square, Combination	24	2.80	67.20
26	Bevel-Sliding 8"	6	2.90	17.40
			Sub-Total...	$ 1,328.02
	Miscellaneous items including: dusters, blades, files, hand screws, clamps, goggles, bits, special items, etc.	24 students		1,000.00
			Grand Total	$14,461.79

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COMMERCIAL COOKING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Booster, electric (hot water)	1	$ 200.00	$ 200.00
2	Disposal with pre-rinse spray	1	261.00	261.00
3	Freezer, reach-in stainless steel (45 cu. ft.) with lock	1	1,340.00	1,340.00
4	Deep fryer, double basket, electric with filter	1	408.00	408.00
5	Dish washer with attachments	1	2,060.00	2,060.00
6	Power Mixer, 20 qt. with slicer, dicer and shredder attachments and 30 qt. bowl	1	967.50	967.50
7	Oven, 4 deck with bake and roast compartments	1	750.00	750.00
8	Peeler, portable 15-20 lbs., capacity	1	195.00	195.00
9	Pan rack, stainless steel, ceiling mounted	1	190.00	190.00
10	Standard gas range with 10 burners, 2 ovens and a 4 burner grill	1	486.00	486.00
11	Broiler, stainless steel	1	980.00	980.00
12	Grill, stainless steel 24" x 30"	1	160.00	160.00
13	Refrigerator, stainless steel, 4 door reach-in with lock	1	1,016.00	1,016.00
14	Server, hot food and roll (bun warmer)	1	80.00	80.00
15	Stainless steel sink, with 2 - 24" x 24" tubs, 30" drain each end	1	326.50	326.50
16	Stainless steel sink with 3 - 24" x 24" tubs, 30" drain each end	1	350.00	350.00

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COMMERICAL COOKING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
17	Gravity feed meat slicer	1	420.75	420.75
18	Table, bakers with portable bins and stainless steel top	1	355.00	355.00
19	Table, clean dish, stainless steel top	1	190.00	190.00
20	Table, cooks with 3 bar pan rack and stainless steel top	1	300.00	300.00
21	Table, salad; stainless steel top and tool drawers	1	190.00	190.00
22	Table, soiled dish, stainless steel top	1	190.00	190.00
23	Steam table, electric with assorted pans	1	536.00	536.00
24	Toaster, 8 slice	1	256.00	256.00
25	Twin 3 electric coffee urn 24" x 14" on stand	1	523.00	523.00
			Sub-Total...	$12,730.75
	Miscellaneous kitchen equipment including: pots and pans, knives, hand tools, stock pots, serving implements utensils for cleaning and garbage and trash containers	24 Students		1,000.00
			Grand Total	$13,730.75

COSMETOLOGY

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Shampoo bowl with spray attachments, strainer and vacuum breaker	6	$ 72.00	$ 432.00
2	Shampoo chairs with leg rest	6	75.00	450.00
3	Mannequins with holders (one for each Junior student)	24	45.00	1,080.00
4	Hair dryers, chrome; with mercomatic switch	12	99.00	1,188.00
5	Dryer chair	12	31.00	372.00
6	Double dresserettes (at least 20 work stations)	6	170.00	1,020.00
7	Styling chairs (4 hydraulic)	20	53.00	1,060 00
8	Manicuring tables, flexible lamps and aluminum shade	6	42.00	252.00
9	Manicuring stools with casters	6	21.00	126.00
10	Waste containers, covered (2 for each double dresserette)	12	4.00	48.00
11	Heat caps	2	8.50	17.00
12	High frequency (complete)	1	21.50	21.50
13	Infra red lamp (single)	1	26.50	26.50
14	Bulletin board (for displaying price list and shop license)	1	12.00	12.00
15	Patron chairs	4	35.00	140.00
16	Coat rack	1	38.00	38.00
17	Mirror	1	25.00	25.00
			Sub-Total..	$ 7,168.00

COSMETOLOGY

FACIAL AREA

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Facial chair	3	$ 116.00	$ 348.00
2	Water supply (bowl with hot and cold water)	1	35.00	35.00
3	Mirror	1	14.00	14.00
4	Waste container	1	4.00	4.00
			Sub-Total...	$ 401.00

DISPENSARY

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Double sink with drain area	1	$ 170.00	$ 170.00
2	Wall cabinets (places over sink)	1	70.00	70.00
3	Dry sterilizers	2	35.00	70.00
4	Wet sterilizers	2	2.00	4.00
5	Supply cabinet (2 door metal cabinets with lock)	3	48.00	144.00
6	Soiled towel container, covered	2	4.00	8.00
7	Waste container, covered	1	4.00	4.00
			Sub-Total	$ 470.00

COSMETOLOGY

MISCELLANEOUS - REQUIRED BY STATE BOARD OF COSMETOLOGY

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	File cabinet, 4 drawer metal with lock	2	$ 42.00	$ 84.00
2	Waste container	2	4.00	8.00
3	Water supply (classroom)	1	35.00	35.00
4	Anatomy and bacteriology charts (complete set)	1	140.00	140.00
5	Student tools and equipment (service for 48 students)	(24)	40.00	960.00
			Sub-Total...	$ 1,227.00
			Grand Total	$ 9,266.00

DENTAL ASSISTANTS

MAJOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Amalgmator, dental, 110 volt 60 cycle	1	$ 75.00	$ 75.00
2	Blowtorch, alcohol	1	13.00	13.00
3	Cabinet, instrument with sink cutout, complete with top, sink and faucets	2	617.25	1,234.50
4	Casting machine, centrifugal, for inlays	1	87.70	87.70
5	Compressor, air	1	260.00	260.00
6	Dental chair, motor operated with style B dental mats	2	1,177.50	2,355.00
7	Dental unit with air rotor and acuvision light	2	2,305.00	4,610.00
8	Engine, bench	1	79.50	79.50
9	Furnace, inlay	1	70.00	70.00
10	Handpiece, contra-angle F F - N with double air/water spray, permanently attached	1	50.00	50.00
11	Handpiece, contra-angle, long sleeve amalgam condensing, complete set, for #10 handpiece	1	32.00	32.00
12	Handpiece, prophylaxis, contra-angle D, with long sleeve for #10 handpiece	1	18.00	18.00
13	Handpiece, straight dental, round nose, high speed, #10	1	85.00	85.00
14	Investor, vacuum, with accessories	1	225.00	225.00
15	Lathe with (2) splash pans	1	92.50	92.50
16	Model Trimmer	1	110.00	110.00

DENTAL ASSISTANTS MAJOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
17	Mobile Pelvac	1	325.00	325.00
18	Operating dental stool	2	35.00	70.00
19	Pulp tester, testing vital and non-vital teeth	1	150.00	150.00
20	Sterilizers:			
	Cold	2	16.00	32.00
	Pelton & Crane Omni-Clave with dry heat door	1	336.00	336.00
	Pelton, oil	1	45.00	45.00
21	Stone, sharpening, dental instruments	1	15.00	15.00
22	Student bench - including 6 sets of air and gas jets, 6 electric receptacles, sink with hot and cold water and drain, 32" high x 12' long x 24" deep; accommodate 6 students	3	175.00	525.00
23	Timer, internal, mechanical	2	3.00	6.00
24	Vibrator	2	23.50	47.00
25	Waste receivers	2	25.00	50.00
26	X-ray, wall mounted	2	1,125.00	2,250.00
27	X-ray, developing tank with thermometer and timer	1	96.25	96.25
28	X-ray, film hangers	6	2.95	17.70
29	X-ray, view box	1	25.00	25.00
30	X-ray, film dispenser	2	15.00	30.00
31	X-ray, safelight, radiographic, adjustable with 5 1/2" dia filter	1	15.00	15.00
32	X-ray, apron, protective	2	25.00	50.00
			Sub-Total...	$13,482.15

MINOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Bowls, rubber	10	$ 1.50	$ 15.00
2	Burner, Bunsen, 6N	2	3.75	7.50
3	Saw, coping with blades	1	1.55	1.55
4	Napkin holder	4	1.00	4.00
5	Syringe, irrigating	2	2.50	5.00
6	Sani trays	6	.25	1.50
7	Mosquito haemostat	2	4.75	9.50
8	5" Haemostat	1	5.00	5.00
9	6" Needle holder	1	6.70	6.70
10	Dean scissors	1 pair	7.50	7.50
11	Curved scissors	1 pair	5.60	5.60
12	D.E. Black cut instrument	2	2.60	5.20
13	B A P Instrument	1	3.75	3.75
14	27 S. Burnisher	1	2.25	2.25
15	Woodson Plast. instrument	2	3.00	6.00
16	Roach carver	1	3.75	3.75
17	Plaster bin	1	14.50	14.50
18	Chamois wheel	1	1.50	1.50
19	4" - 30 ply rag wheel	2	.35	.70
20	B-12 Brush wheel	6	.35	2.10
21	B-25 Brush wheel	2	.65	1.30

DENTAL ASSISTANTS MINOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
22	Torno forceps	4	18.50	74.00
23	Bone gauges	2	4.00	8.00
24	Parkell R.T. picks	3	2.75	8.25
25	#52 Gauge	1	4.00	4.00
26	#1 BB process trimmer	1	4.00	4.00
27	H.F. Elevator	2	5.75	11.50
28	Austin retractor	1	5.50	5.50
29	Cotton pliers	6	1.50	9.00
30	Lucas puretice	1	3.75	3.75
31	Pearson trimmers	2	1.00	2.00
32	Bench block holder	1	1.50	1.50
33	Carbides	12	1.55	18.60
34	Surgical carbides	6	2.00	12.00
35	F.K. mirrors	6	1.46	8.76
36	Plain mirror	3	1.05	3.15
37	Patient hand mirror	1	2.95	2.95
38	8 A.R.D. Clamp	1	1.65	1.65
39	Small felt cones	12	.085	1.00
40	Medium felt cones	2	.35	.70
41	F.G. Diamond	6	8.00	48.00
42	Large flexihold	1	1.75	1.75

DENTAL ASSISTANTS MINOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
43	Coe perforated trays, upper and lower, set of 6	2 sets	14.50	29.00
44	Coe flex syringe	1	8.00	8.00
45	Dry clave tips	1 set	14.50	14.50
46	Mercury gauge	1	7.50	7.50
47	Paper cup dispenser	4	3.50	14.00
48	Ruby diamond sharpener	1	1.25	1.25
49	Saliva ejectors, metal	2	2.50	5.00
50	Dispenser for celodent	2	1.00	2.00
51	Amalgam capsules	6	1.10	6.60
52	Wax spatula	6	3.50	21.00
53	Stone spatula	6	2.50	15.00
54	Knives	6	1.00	6.00
55	Boxes reamers, root canal 1-6 Style B	2	2.50	5.00
56	Boxes reamers, root canal 1-6 Style D	2	2.50	5.00
57	Boxes files, root canal 1-6 Style B	2	1.50	3.00
58	Boxes files, root canal 7-12 Style D	2	2.00	4.00
59	Broaches root canal - Medium	2 pkg.	1.50	3.00
60	Root canal broach holder	4	1.00	4.00
61	Root canal pliers, grooved	2	10.50	21.00

DENTAL ASSISTANTS MINOR EQUIPMENT – 2 OPERATORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
62	Aluminum trays, upper and lower, (set of 6)	2	15.90	31.80
63	Amalgam carrier, lever type, regular	2	3.50	7.00
64	Amalgam carrier, lever type, Dol regular	2	3.50	7.00
65	Amalgam carrier, plunger type with nylon tip, jumbo	2	5.75	11.50
66	Amalgam carrier, plunger type with nylon tip, regular	2	5.25	10.50
67	Prophy kit	1	23.20	23.20
68	Bur blocks	2	1.05	2.10
69	C/A P.F. Burs	4	.35	1.40
			Sub-Total...	609.31
	Miscellaneous hand tools and minor equipment			500.00
	Supplies			500.00
			Grand-Total	$15,091.46

MECHANICAL DRAFTING

LABORATORY

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Drawing tables - student adjustable 37 1/2" x 60" minimum, with drawer unit	24	$ 120.00	$ 2,880.00
2	Stools, draftsman, adjustable; with wooden backs and glides	24	19.40	465.60
3	Drawing table - instructor, adjustable; 42" x 72" with 2 tool drawers and 6 file drawers with chair	1	305.00	305.00
4	Drafting machine, track type; 40" top rail	4	167.00	668.00
5	Drafting machine, with 12" scale, 18" straight edge and indexing device	20	73.00	1,460.00
6	Parallel straight edge 36"	6	18.00	108.00
7	Blue print metal file cabinet; 5 drawers per section 45 1/2" long x 33 3/4" deep x 17 1/8" high	3	140.00	420.00
8	Closed base for blue print file cabinet	1	16.00	16.00
9	Dazio Whiteprinter, 42" capacity	1	595.00	595.00
10	Tracing table, 30" x 36"	1	218.00	218.00
11	Metal storage cabinet, 2 doors with lock; 21" deep x 36" wide x 72" high	2	52.00	104.00
12	Planning table, 30" x 30" x 72"	1	51.00	51.00
13	Projector, overhead transparency; with 6' x 8' screen	1	280.50	280.50
			Sub-Total...	$ 7,571.10

MECHANICAL DRAFTING

STUDENT EQUIPMENT

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Paper cutter	1	$ 2.10	$ 2.10
2	Drawing sets, student	24	31.50	756.00
3	Draftsman pencil sharpener	1	8.25	8.25
4	Trace pointer	1	3.50	3.50
5	Proportional divider	1	23.00	23.00
6	Protractor	1	24.00	24.00
7	Lettering set (complete)	1	120.00	120.00
8	T-square, 24" double faced, transparent edge	12	3.35	40.20
9	T-square, 30" double faced, transparent edge	12	4.10	49.20
10	Scales, combination, plastic	24	2.00	48.00
11	Triangles, 30° x 60° x 10" with finger lifts	12	.85	10.20
12	Triangles, 45° x 10" with finger lifts	12	1.25	15.00
13	Miscellaneous drafting equipment including: pencils, lead holders, lead, cleaners, brushes, erasers, ink, templets, curves, and paper	24 Students		500.00
			Sub-Total..	$ 1,599.45
			Grand Total	$ 9,170.55

BASIC ELECTRICITY AND ELECTRONICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Audio signal with sine and square wave	12	$ 60.00	$ 720.00
2	Bench, pressed board top with short side and end rails, storage cabinet below	12	120.00	1,440.00
3	AC isolation transformers with variac	12	100.00	1,200.00
4	DC high voltage, low current and metered 0 to 400 V. DC at 150 M.A.	12	85.00	1,020.00
5	DC low voltage, high current and metered 0 to 30 V. DC at 15 Amp.	12	60.00	720.00
6	Multimeter, 20,000 ohms per volt	12	35.00	420.00
7	Oscilloscope, 5", wide band and calibrated low sweep speeds	12	150.00	1,800.00
8	RF Signal generators, measured output	2	60.00	120.00
9	Tool kits - student utility including soldering guns, pliers and several hand tools	12	20.00	240.00
10	Vacuum tube volt meters, large face, with probe at	12	50.00	600.00
	GENERAL TEST EQUIPMENT			
	Impedance bridge	1	75.00	75.00
	Mutual conductance tube checker	1	150.00	150.00
	Capacitor tester, wide voltage range	1	50.00	50.00
	Transistor tester, large current	1	60.00	60.00
			Grand Total	$ 8,615.00

ELECTRICITY - ROTATING EQUIPMENT

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Power supply for rotating equipment including the following: 1 DC Ammeter with 0-100 range; 1 DC Voltmeter with 0-150 volt range; power available -0-125 volts DC continuously variable at 80 amp 3 phase rectified; 3 phase 208 volts 60 cycle, 20 amp, to each of three AC motor control panels; power input - 120/208 volts, 3 phase, 4 wire, 60 cycle AC; current requirements under full load-100 amp. Safety features: All circuits are protected against overload-20 amp breakers control the AC power to the 3 MG sets, 3 pole, 100 amp AC main input breaker, a 3 pole 32 amp AC input breaker to the variac transformer and a 2 pole 90 amp DC output breaker	1		$ 3,786.00
2	Squirrel-Cage induction motor generator set: 5 HP 208 volts, 3 phase, 60 cycle at 1200 R.P.M. motor with metal guards and color coded motor windings. DC generator to produce 125 volts at 1200 R.P.M. rated at 2 KW, metal guards and color coded windings	1		3,976.00
3	AC switchboard for motor generator set to include: 3 ammeters, voltmeter with transfer switch, polyphase indicating wattmeter, magnetic starter and input breaker	1		1,495.00

ELECTRICITY - ROTATING EQUIPMENT

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
4	DC switchboard for motor generator set to include: field ammeter and armature ammeter, voltmeter with D.P.D.T. transfer switch, input and output supply breakers and definite time automatic DC starter	1		1,276.00
5	Wound-Rotor slip - Ring Motor generator set DC machine cradled as a dynamometer: 5 H.P., 208 volts, 3 phase, 60 cycle at 1200 R.P.M. motor with metal guards and color coded motor windings. DC generator to produce 125 volts at 1200 R.P.M. rated at 2 KW, metal guards and color coded windings	1		5,032.40
6	AC switchboard for motor generator set to include: 3 ammeters, voltmeter and transfer switch, magnetic starter and R.P.M. indicator, 3 phase speed control resistor and input breaker	1		1,512.00
7	DC switchboard for motor generator set to include: field ammeter, armature ammeter, voltmeter and D.P.D.T. transfer switch, input and output supply breakers and manual 4 point starter	1		1,400.00
8	Synchronous motor generator set complete with exciter: 5 H.P., 208 volts, 3 phase, 60 cycles at 1200 R.P.M., metal guards, color coded motor windings. Exciter to be 125 volts DC rated at 0.5 KW with metal guards and color coded motor windings. D.C. generator to produce 125 volt at			

ELECTRICITY - ROTATING EQUIPMENT

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	1200 R.P.M. rated at 2 KW, metal guards and color coded motor windings	1		4,838.40
9	AC switchboard for motor generator set to include: synchronizing lamps, 3 AC ammeters, voltmeter and frequency meter, voltage regulator to adjust output voltage, polyphase power-factor meter and input and output supply breakers	1		2,632.00
10	DC switchboard for motor generator set to include: field ammeter, armature ammeter, voltmeter with D.P.D.T. transfer switch, field rheostat and 3 point manual starter, input and output supply breakers	1		1,288.00
11	Exciter switchboard for motor generator set in include: field ammeter, armature ammeter, voltmeter with D.P.D.T. transfer switch, field rheostat and 2 point manual starter, input and output supply breakers	1		1,136.80
12	High tension transformer, 110 volt to 10,000 volt, 60 cycle	1		82.32
			Grand Total	$28,454.92

INDUSTRIAL ELECTRONICS

(This equipment will support the list covering basic electricity and electronics-basic items have not been repeated - to teach industrial electronics you must purchase the basic equipment as listed).

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Amperes rule apparatus	1	$ 4.00	$ 4.00
2	Basic electricity kit	1	39.95	39.95
3	Cathode ray tube	1	18.25	18.25
4	Charles law apparatus	1	16.50	16.50
5	Class room thermometer	1	9.50	9.50
6	Compass	1	3.00	3.00
7	Conductometer	1	4.20	4.20
8	Crow model 30 series	1	800.00	800.00
9	Crow model S-23	1	300.00	300.00
10	Crow model 700	1	1,260.00	1,260.00
11	Dry cell battery kit	1	14.00	14.00
12	Electrical equivalent heat apparatus	1	34.25	34.25
13	Electro scope	1	4.25	4.25
14	Experimental fluorescent kit	1	14.60	14.60
15	Galvanoscope	1	5.25	5.25
16	Hand spectroscope	1	45.00	45.00
17	Jolly ballance	1	26.50	26.50
18	Liquid pressure gage	1	5.25	5.25
19	Leydes jar	1	5.45	5.45
20	Kundts apparatus	1	17.25	17.25
21	Magnets	6	3.00	18.00

INDUSTRIAL ELECTRONICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
22	Magnetism study kit	1	30.70	30.70
23	Magnetometer	1	17.50	17.50
24	Manometer	1	18.50	18.50
25	Model galvanometer	1	31.00	31.00
26	Model motor/generator	1	35.00	35.00
27	Molecular demonstration tube	1	4.50	4.50
28	Newton scale	1	2.50	2.50
29	Optical kit	1	35.00	35.00
30	Piezoelectric demonstrator	1	39.50	39.50
31	Polaroid experiment	1	50.00	50.00
32	Radio meter	1	2.70	2.70
33	Solar cell project kit	1	10.95	10.95
34	Stroboscope	1	170.00	170.00
35	Timer	1	28.00	28.00
36	Tuning fork	1	3.95	3.95
37	Tyndall apparatus	1	27.00	27.00
38	Vacuum manometer	1	30.00	30.00
39	Vande graff generator	1	40.00	40.00
40	Watts governor	1	16.25	16.25
41	Wimshurst electrostatic machine	1	78.50	78.50
42	Wheatstone bridge	1	18.50	18.50

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
43	Counting:			
	Photoelectric cell	1	2.75	2.75
	Inductive sensing	1	25.00	25.00
	Ultrasonic sensing	1	20.00	20.00
44	Dimension:			
	Ultrasonic thickness gauge	1	300.00	300.00
45	Flow rate:			
	Turbine flow meter	1	85.00	85.00
	Hot wire anemometer	1	150.00	150.00
46	Frequency:			
	Rate meter	1	35.00	35.00
47	Humidity:			
	Liquid level measure	1	15.00	15.00
	Slingsyacometer	1	25.00	25.00
48	Illumination:			
	Dimming control	1	3.50	3.50
	Photo multiplui	1	12.50	12.50
	Photo tube	1	5.00	5.00
	Stroboscope	1	187.00	187.00
49	Motor control:			
	Phase control bridge, solid state	1	50.00	50.00
	Amplidyne	1	200.00	200.00
50	Position control:			
	Saturable transformer	1	15.00	15.00
	Split field motor	1	10.00	10.00
	Split phase motor	1	15.00	15.00
	Synchro	1	100.00	100.00
51	Sensors - Pressure			
	Bellows	1	15.00	15.00
	Bourdon tube	1	2.50	2.50
	Strain gauge	1	5.00	5.00

INDUSTRIAL ELECTRONICS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
52	Speed:			
	Chronograph	1	40.00	40.00
	R.P.M. (Tachometer)	1	30.00	30.00
53	Temperature:			
	Thermometer, resistance	1	2.75	2.75
	Thermocouple	1	2.50	2.50
	Thermistor	1	6.00	6.00
	Bolometer	1	50.00	50.00
	Pyrometer	1	75.00	75.00
54	Time Delay:			
	Time delay relay and sequence timer	1	40.00	40.00
55	Welder			
	Ignitron	1	15.00	15.00
	Peaking transformer	1	4.00	4.00
			Grand Total	$ 4,860.25

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Air Compressor, 150 lbs. maximum pressure with 60 gal. tank, 2 cylinders complete with 2 H.P. 3/60/220 volt motor, starter and automatic pressure release	1	$ 636.00	$ 636.00
2	Arbor press, 3 ton ratchet type, single leverage	1	100.00	100.00
3	Bench, foreman's; 24" x 36" x 48" high with cabinet base	1	76.50	76.50
4	Benches, machinists, top size 72" x 36" x 2 1/4" laminated rock maple with steel end splines, supported on a base unit consisting of 6 parts drawers and 6 wide lockers at $230.00; 5 benches equipped with 3 1/2" x 5 1/2" swivel base machinists vises at $39.20 and 5 equipped with 4" x 6" swivel base heavy duty machinists vises at $47.20	10 Benches 5 Vices 5 Vices	230.00 39.20 47.20	2,300.00 196.00 236.00
5	Benches, 30" x 32" x 60" steel base, machine bench	4	102.25	409.00
6	Drill press, 15" variable speed, floor model with 6" spindle, including 1 drill press vise	1	285.00	285.00
7	Drill press 20" floor model with #3 M.T. spindle at $698.00; Accessories: 1/2" drill chuck, 4 1/2" drill vise and mechanical power quill feed	1	844.50	844.50
8	Drill, radial; geared head, 16 speeds with selection from 36 to 900 R.P.M.; 3' arm; 12' diameter column; power elevation to ram and drill head; 5 H.P. 3/60/220 volt motor and magnetic reversing controls at $5700.00			

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Accessories: automatic tapping attachment, power ram reverse, power table elevation, coolant system and light	1	6,850.00	6,850.00
9	Drill, Sensitive, 14" standard bench model; spindle speeds from 4100 to 10,000 R.P.M.; 1/3 H.P. 1/50/220 volt, 2850, R.P.M. motor; chuck capacity .025 to 1/4"; 4 1/2" drill vise	1	304.80	304.80
10	Grinder, carbide tool; pedestal base; table to tilt 30° and 45°; standard equipment; 1/2 H.P. 3/60/220 volt motor with magnetic controls; 4 silicon carbide wheels, 1" x 6" x 1" face of 60, 80, 100 and 120 grit.	1	306.00	306.00
11	Grinder, 10" pedestal; double end; cast iron base; 1 H.P. 3/60/220 volt motor, magnetic starter, overload protection; wheel guard; spark shield; tool rests; tool trays; water pot; illuminated eyeshields and 1 fine and 1 coarse 10" grinding wheel.	1	208.00	208.00
12	Grinder, surface, 6" x 12"; hand feed; longitudinal table travel 14", cross travel 7"; spindle speed 3450 R.P.M.; Wheel size 7" x 1/2" x 1 1/4"; 1/2 H.P. 3/60/220 volt, 3600 R.P.M. motor with manual switch Accessories: hard chrome ways, diamond nib, splash guards, coolant tank, pump motor, dust collector and permanent magnetic chuck.	1	2,285.00	2,285.00
13	Lathe, 13" variable speed; 42: center distances; backgeared; quick change gear box; fame hardened ways; hard			

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	chrome carriage cross slide, cross-feed and compound screws with compensating crossfeed nut; torque type safety clutch; 10 to 1 ratio drive - speeds from 40 to 2000 R.P.M.; R.P.M. spindle speed indicator; 2 H.P. 3/60/208 volt motor with magnetic reversing starter and 5 push buttons; safety switches; head and tailstock center; sleeves; small dog plate; tool-post and thread dial at $3,500.00 each	8	3,500.00	28,000,00
	Accessories: 2-6", 3 jaw universal chuck; 8-6", 4 jaw chuck; 4-live centers with #3 M.T. arbors; 1 jacob rubberflex collet chuck; 4-sets (10) collets from 1/16" to 1 1/16" 4-dog plates; 4 steady rests; 8 dogs bent tails, assorted sizes; 4 follower rests; 4 face plates; 4 tool holders sets, (consists of 3 turning, 2 cut-off, 1 knurling, 1 threading, and 1 boring tool); 4 micrometer carriage stops; 4 L/H high speed tool holders; 6 drill chucks and arbors, 1/2" capacity; 36 L/H high speed cutters Accessories	accessories as listed	3,557.00	3,557.00
14	Double axis hydraulic tracing unit, (fitted to lathe a factory)	1	1,565.00	1,565.00
15	Lathe, 15" precision high speed; 42" center distance; dual drive transmission providing 12 spindle speeds from 100 to 3600 R.P.M.; 4 spindle accurate to .0001 total indicator runout; 60 pitch gear box; lead screw reverse; double locked tapered carriage; flame hardened ways; automatic lubrication of carriage, cross slide and ways; 5 H.P. 2 speed 3/60/220 volt motor with brake;			

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	1 magnetic starter; electric tachometer; chip pan; centers; sleeves; standard tool post; thread chasing dial; small dog plate and wrenches at $4,840.00 Accessories: 10-3 jaw chuck; 12 - 4 jaw chuck; concentric live centers; drill chuck and arbor; handwheel collet attachment; set of (18) collets 1/8" to 2 1/4" by 16ths; lamp; large face plate coolant system (complete); micrometer carriage stop; follower rest; tool post turret; telescopic taper attachments; 6 - 1/2" L/H high speed cutters	1	7,365.70	7,365.70
16	Lathe, 13" turret, standard equipment, 2 speed geared motor with magnetic controls; pushlight magnetic controls for turret: main line disconnect switch; American standard A 1-6 spindle; hardened ways, cross slide dove tails; 6 station bed turret with power feed box; double tool post cross slide with power feed and front and rear tool blocks; 60 pitch gear box with lead screw reverse; thread chasing dial; chrome dials with sequence clips; one-shop lubrication system; complete coolant system; 5 H.P. 2 speed, 900/1800 R.P.M., 3/60/220 volt motor at $6,018.00 Accessories: 1 set (16 collets 1/16" to 1" by 16ths) 1-6", 3 jaw universal chuck, 1 - 6", 4 jaw chuck, 1-adjustable tool holder, 1-plain tool holder, 1-drill socket, 1-bar turner, 1-floating reamer holder, 1-live center, 1-revolving stock stop, 1-cutter boring bar	1	6,881.55	6,881.55

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
17	Milling machine, horizontal, 8" x 36" working surface; spindle nose #40 N.S. taper; 1800 R.P.M. motor provides direct drive spindle speeds from 475 to 1575 R.P.M. and in gear speeds from 140 to 520 R.P.M.; 25" longitudinal table travel; 15" vertical knee travel 3 H.P. 3/1800 R.P.M. motor switch with over-load protection; reversing drum switch; arbor support; draw bar: taper gibs; chrome plated dials; wrenches at $4,650.00 each	2	4,650.00	9,300.00
	Accessories: 1-self-contained gusher coolant system; 2-6 1/2" x 4" x 2" milling machine vises; 2-standard arbors; 1-end mill adapter with #40 taper shank (1/2", 3/4", 5/8", 1"); 1-taper sleeve #40 taper to #3 M.T.; 1-boring head, offset type, 10" capacity, #75 with #5 and #1 adapter for #40 and R 8 tapers; 1-6 1/2" dividing head; 1 set (6) basic horizontal milling cutter, #1, 1" hold; 1 set (5) plain cutters, 3 1/2" dial, 1" hold, 1/2" - 2" face; 1 set (6) side milling cutters, 3" dia. x 1" hold x 1/4" - 1/2"F.; 1 set (6) slitting cutters, #200, A-B-C, plain and side clip clearance; 1 set (4) R/H and L/H 45° and 60°, 2 3/4" dia. x 1" hole single angle cutters, 1 set (4) concave and convex cutters; 1 set (4) corner rounding cutters, R/H and L/H	accessories as listed		3,192.00
18	Vertical head to convert one of the above horizontal mills into a combination mill	1	550.00	550.00

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
19	Milling machine, vertical, 8" x 36" working surface; dial graduated in .001 spindle nose #9 B & S taper standard; 3/4 H.P., 1800 R.P.M. motor gives spindle speeds from 250 to 3400 R.P.M.; 25" longitudinal table travel; 8" cross table travel; 15" vertical knee travel; 4" vertical quill travel; compound swivel overarm; anti-friction bearing draw bar; wrenches at $1,300.00 Accessories: powerfeed head complete: powerfeed table; 5" swivel base milling machine vise; 6 1/2" heavy duty dividing head, 0"-1/2" jacobs chuck with R 8 arbor; set (11) R 8 tapered shank collets 1/8"-3/4" by 16ths; set (4) R 8 collets as above (3/8", 5/8", 1/2", 3/4") offset boring head, complete; set (4) 1/2" x 3" T-bolts; 9" rotary table; 1 each single end R/H, 4 flute end mills, 1/8" to 1/2" by 16ths; plus 5/8", 3/4", 1", 1 each double end R/H 4 flute end mills less 1" size; 1 each ball nose R/H 2 flute end mills as above; 1 each Woodruff keyseat cutters 1/2" shank, 3/8"D. x 1/8"F, 1/2"D. x 1/8"F, 5/8"D. x 3/16"F., 3/4D. x 1/4"F., 1 1/8"D. x 7/32F., 1 each corner rounding end mill, 1/16", 3/32", 1/8", 5/32", 3/16", 1/4".	1	3,046.10	3,046.10
20	Saw, 20" metal band: speed selector for dialing variable speeds from 40 to 4600 S.F.M.; table 24" x 25" designed to tilt 45° right, 15° left on 6" trunnion with hand wheel lock and 90° positive stop; blade tension adjustment; 1 1/2 H.P., 3/60/220 volt motor and magnetic control with 3 blades at $969.00.			

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Accessories: Magnetic starter; pushbutton station; rip fence; work lamp; miter gauge: band saw blade welder and grinder; chip blower; #55 angle guide block set; #50 ball bearing guide set: circle cutter unit; 110 volt transformer and welder transformer.	1	1,500.50	1,500.50
21	Saw, power hack, capacity 6" x 7" with extra blades (14" x 1" moly steel)	1	302.80	302.80
22	Shaper, 13 1/2" metal; variable speed; backgeared; toolroom crank type shaper with swivel table and table support; table to have 6 automatic cross feeds in either direction and 7" vertical travel; variable speed drive of 12 to 180 strokes per minute; disc clutch; 1 1/2H.P., 3/60/220 volt motor; magnetic controls; swivel base vise; tool post; crank handle; wrenches; #40 shaper tool and #47 shaper extension tool	1	4,459.18	4,459.18
23	Screw plate, set to include taps, dics, collets for N.C. 1/4 - 20 to 1 - 8; N.F. 1/4 - 28 to 1 - 14 plus tap wrench	1	263.00	263.00
24	Surface plate, 24" x 36" precision ground	1	350.00	350.00
			Sub-Total..	$85,375.33

MACHINE TRADES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Gauges and Measuring Instruments:			
	0" to 1" micrometer	12	17.80	213.60
	1" to 2" micrometer	6	19.50	117.00
	Micrometer set R.L. 0" to 3"	1	69.55	69.55
	Micrometer set R.L. 0" to 6"	1	97.75	97.75
	12" vernier calipers with case	2	82.00	164.00
	18" vernier height gauge with case	3	198.00	594.00
	6" vernier calipers with case	2	73.50	147.00
	Set micrometer depth gauges 4" base 0" to 6"	1	42.90	42.90
	Set small hole gauges .125 to .500	1	15.95	15.95
	Set telescopic hole gauges 5/16" to 2 1/8"	1	18.20	18.20
	6" scales to read in .000 (.020)	12	2.00	24.00
	6" scales to read in fraction	12	1.85	22.20
	12" combination set and protractor	1	28.05	28.05
	6" outside calipers	6	2.85	17.10
	6" inside calipers	6	2.85	17.10
	6" morp. calipers	6	4.70	28.20
	Snap Go-No-Go 0" to 1/2"	2	13.00	26.00
	Hole Go-No-Go gauge .050	2	16.00	32.00
	Set radius gauges 1/64" to 1/2"	1	15.05	15.05
	Screw thread micrometer 0" to 1/8" (22-30 threads)	1	33.40	33.40
	Thickness gauge .0015 to .015	4	3.40	13.60
	Screw pitch thread gauge 4 to 42 threads per in.	4	3.90	15.60
	Steel flexible tapes 8' graduated in 32nds	24	1.85	44.40
	Standard dial depth indicator .001 to .050	1	52.50	52.50
	Last work test indicator with goose neck .001 to .030	1	23.75	23.75
	Set inside micrometer with case 2" to 8"	1	27.40	27.40
	12" angle block	1	126.00	126.00
	Set VEE blocks 3" x 3 1/2" x 6"	2	96.00	192.00
	2 1/2" C. Clamps	6	1.28	7.68
	3" C. Clamps	6	1.34	8.04
			Sub-Total..	$ 2,234.02

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Miscellaneous bits, cutters, hand tools, gauges instruments, etc. (not itemized)			
			Sub-Total..	4,000.00
	Student Tools (Est. $100.00 per student)	24 students		2,400.00
			Grand Total	$91,775.33

MACHINE TRADES *OPTIONAL*

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Comparator, optical; floor model type 18" projection screen with 50 x magnification lens. Accessories: 2 additional lens and adaptors; micrometer screws; surface illumination; set of centers; VEE block and clamps; swivel table; protractor screens.	1	3,000.00	3,000.00
2	Furnace, heat treating and tempering; electric; 8" x 8" 18" chamber size; bench model; 220 volts; 9 KW; 3 phase; metal fume hood vented to outside with exhaust fan enclosed	1	1,525.00	1,525.00
3	Grinder, universal cylindrical with standard equipment; 1 - 14" x 1" x 5" grinding wheel; motor driven headstock providing speeds up to 600 R.P.M.; table mounted trueing device with diamond; portable motor driven coolant system; suitable 3/60/220-440 motor and controls at $9,875.00 Accessories: 3" steady rest; 5" steady rest; 6" face plate; 12" face plate; draw-in collet attachment less collets; internal grinder assembly - standard 5/8" series to take wheels up to 1" diameter complete with 1 H.P. motor, spindle speeds of 24,000 R.P.M.; spindle extension, 3 - 1" x 3/4" x 1/4" grinding wheels; 8" - 4 jaw independent chuck.	1	12,398.00	12,398.00
4	Grinder, 8" x 24" hydraulic surface; hydraulic table traverse and cross feed; 3 H.P. anti-friction bearing spindle, direct drive to 1800 R.P.M.; hydraulic pump and tank complete with 1 1/2 H.P. motor 110 volt			

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	control circuit; 12" x 1" x 3" grinding wheel; sleeve; guard; diamond holder, light; wrenches and lubricant at $7,800.00 Accessories: Wet grinding attachment (complete); diamond; automatic saddle reverse permanent magnetic chuck	1	9,379.00	9,379.00
5	Grinder, tool and cutter, for right or left hand operation; 15" longitudinal table travel; 6 1/2" cross travel; 7" head travel; head tilts or swivels for clearance angles on mills, reamers, cutters and form tools; belt driven spindle speed 3200-4500 R.P.M.; 1/2 H.P. 3/60/220 volt, 1750 R.P.M. motor with manual switch; attachments; universal face mill attachment; reducing collets; plain L/H tailstock; R/H tailstock with spring lever adjustment; diamond holder; center height gauges, wrenches; tool rest holder; lip rests; guards and 3 wheels at $1,575.00 Accessories: 2 spindle extension; 1-4" dia. 3-jaw chuck; internal grinding attachment; tilting swivel vise; equipment to convert face mill grinding attachment into motor drive headstock (complete)	1	2,054.50	2,054.50
6	Milling machine, vertical - same as item #18 (1 to be required 1 to be optional)	1	1,300.00	1,300.00
7	Numerically controlled N/C drill; 3 H.P. spindle drive; #4 M.T. spindle bore; 90-4500 R.P.M. variable spindle speed range; all transistorized electronic control			

MACHINE TRADES *OPTIONAL*

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	cabinet with tape reader; automatic advancement of tape and positioning of table and carriage to new position when quill returns; 3/60/220/440 volt motor and fused disconnect. Features: simultaneous positioning of both axes; instantaneous electronic zero set; full floating zero; plus and minus numerically controlled movements; plus and minus three speed jogging; quantizer feedback; indicator light; automatic tape rewind; ball bushing ways, table and carriage at $11,295.00	1	11,295.00	11,295.00
	Accessories:			
	Automatic repeat cycle-			2,200.00
	Milling and Boring Ability			990.00
	Coolant System			295.00
	Accuset Zero Locator			395.00
	Nesting Block Set			195.00
	Set-up Fixtures Set			150.00
	Maintenance Kit			495.00
	Total for Drill and Accessories			$ 16,015.00
	Grand Total for Optional Equipment			$ 45,671.50
	Grand Total for All Equipment			$137,446.83

PRACTICAL NURSING

PRE-CLINICAL AREA Vocational School

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Nursing Skills Laboratory Set-Up			
1	All electric bed complete with mattress and side rails	1		$ 700.00
	Bedside stand	1		57.24
	Overbed table	1		70.00
			Sub-Total..	827.24
2	All electric bed complete with mattress and side rails	1		700.00
	Electromatic bed complete with mattress and side rails	1		570.00
	Bedside stands	2	57.24	114.48
	Overbed tables	2	70.00	140.00
			Sub-Total	1,524.48
3	Hi-Lo beds complete with mattresses and side rails	6	275.00	1,650.00
	Bank of 6 beds, aluminum tubing, hardware, fittings, tags, carriers to enclose same; cubicle hooks, and curtains for same	1		271.00
	Bedside stands	6	57.24	343.44
	Overbed tables	6	70.00	420.00
			Sub-Total..	2,684.44
4	Examination table	1		391.50
	Treatment cabinet	1		135.00
	Operator's stool	1		27.00
	Instrument cabinet	1		213.75
	Waste receptacle	1		9.90
	Instrument table	1		50.85
	Beam Scale	1		65.00
	Double-bowl sink and counter space	1		150.00
			Sub-Total..	1,043.00
5	Wide arm chairs, 15" x 22" desk top and book compartment, 17" seat height	30	11.25	337.50
	Desk with chair	1		212.95
	Knee control sink, single bowl	1		150.00
	Lectern	1		54.50
			Sub-Total..	754.95

PRACTICAL NURSING PRE-CLINICAL AREA – Vocational School

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Instructional Equipment to Include:			
	Bedford hospital demonstration doll	1		365.00
	Chase hospital dolls	2	247.50	495.00
	Aquamatic K-Pad, 17" x 24" with motor control unit	1		59.00
	Kardex file with cards for same complete	1		89.00
	Stethoscopes	8	3.90	31.20
	Double teaching stethoscope	1		8.40
	Folding wheelchairs	4	75.50	302.00
	Foley catheters, size #15	4	2.85	11.40
	Arm/Foot soaks	3	28.15	84.45
	Instrument table	1		351.00
	Funnels, 3 each - 3" x 4 1/8"	6		16.50
	Footboard complete with anti-rotation support	1		45.00
	Sphygmomanometers-			
	Baumanometer	2	45.50	91.00
	Tycos Hook Cuff	6	13.00	78.00
	Fracture bedpan	1		9.35
	Water pitcher and tray set, stainless steel	10	12.75	127.50
	Emesis basins - stainless steel	10	2.25	22.50
	Urinals - stainless steel	10	10.70	107.00
	Catheter trays - stainless steel	2	4.25	8.50
	Catheter trays - stainless steel	2	9.90	19.80
	Solution pitchers, stainless steel	6	9.90	59.40
	Irrigators with handles, 2 qt. size, stainless steel	10	9.05	90.50
	Dressing jars, stainless steel:			
	6 1/8" x 7 1/4"	2	9.65	19.30
	4 1/8" x 5 3/4"	2	6.75	13.50
	Graduates, stainless steel:			
	500 CC (marked with ounces and CC)	4	4.60	18.40
	1000 CC (marked with ounces and CC)	4	6.15	24.60
	Forceps jars, stainless steel, 7 1/4" x 2 1/8"	4	7.15	28.60
	Thermometer jars, stainless steel	12	2.25	27.00
	Solution bowls, 6 oz. size	12	1.15	13.80

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Solution bowls, 8 oz. size	12	1.26	15.12
	Instrument trays, stainless steel, 12 1/4" x 7 5/8" x 2 1/8"	6	5.75	34.50
	Forceps - sponge holding, stainless, Forester straight, 9 1/2"	6	6.70	40.20
	Snap shut-off clamps	2 doz.	2.00	4.00
	5 - in - 1 connectors	24	.40	9.60
	Bent vaginal hard rubber pipes	2 doz.	1.75 a dozen	3.50
	Irrigating nozzels, 5", 10 M.M.	4 doz.	8.00 a dozen	32.00
	Conductive rubber supply tubing, 5/16" x 3/32"; box of 25 ft.	2 boxes	5.00	10.00
	Davol throat ice bags	6	2.30	13.80
	Davol ice caps	6	2.20	13.20
	Tomac folding stopper bottles, amber gum	6	2.60	15.60
	Invalid ring cushions with covers	6	4.25	25.50
	Robinson soft rubber catheters: 14", 16", 18"	2 each	5.18 a dozen	7.77
	Speed-Pak compress heaters	2	109.95	219.90
	Ace bandages, 3"	12		10.56
	Ace bandages, 4"	12		13.32
	Thermostatically controlled hot plate	2	22.50	45.00
			Sub-Total..	3,130.27
	Grand Total for Pre-Clinical Area			$ 9,964.38

PRACTICAL NURSING

CLINICAL AREA (To Be Housed In Cooperating Hospital)

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Equipment			
	All electric bed complete with mattress and side rails	1		$ 700.00
	Footboards with anti-rotation support	1		45.00
	Unit Furniture & Equipment			
	Bath and P.M. basins, stainless steel	2	5.70	
	Emesis basins	1	2.25	
	Bedpans	1	11.40	
	Urinal	1	10.70	
	Water pitcher and tray set	1	12.75	
	Fracture bedpan	1	9.35	
	Bedside stand	1	57.24	
	Overbed table	1	70.00	
	Straight chair	1	15.80	200.89
	OB Perineal light	1		19.25
	Transfer forceps, 8" with holders	1		7.00
	Stethoscope, single	1		3.90
	Sphygmomanometer, Baumanometer	1		45.50
	Treachostomy tubes, #7	1		6.75
	Laryngectomy tubes	1		7.25
	Mibbs-Abbott tubes	1		7.45
	Canton tubes	1		8.00
	Levine tubes	1		[illegible]
	Foley Catheters Sizes 14, 16, 18	2 each	10.56 a dozen	5.28
	Ace bandages, 3"	12		10.56
	Ace bandages, 4"	12		13.32
			Sub-Total..	1,080.55
2	Audio-Visual Equipment and Teaching Aids to Include:			
	Movie projector	1		500.00
	Slide boxes for 2" x 2" slides	1		20.00
	Overhead projector	1		337.00
	Chase hospital doll with trach. opening, female model	1		247.50
	Chase newborn doll, 20"	1		30.00
	Two-door steel storage cabinets with locks	1		48.00
			Sub-Total..	1,182.50

PRACTICAL NURSING CLINICAL AREA (To Be Housed In Cooperating Hospital)

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
3	Office and Classroom Equipment to Include:			
	Stencil file with hangers	1		20.00
	Filing cabinet, 4 drawer metal with lock, legal size	1		47.50
	Desk with chair	1		212.95
	Typewriter with stand	1		168.25
	Bookcase with glass doors	2	96.00	192.00
	Card file, 3" x 5"	1		30.00
			Sub-Total..	670.70
	Grand-Total for Clinical Area and Pre-Clinical Area			$ 2,933.75
				$12,898.13

PRINTING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Automatic cylinder press - bed size approximate 15" x 18" for maximum sheet size 12" x 18", automatic feed, all rolls, jogger, safety switches, two chase, counter, 220 volt, 3 - phase motor, magnetic starting switch and push-button control	2	$ 3,995.00	$ 7,990.00
2	Binder, with punch, for plastic binding	1	375.00	375.00
3	Bookbinding bench - maple top 1 3/4" x 28" x 96", 2 steel base cabinets 22" deep x 36" wide x 31" high, double sliding doors, two adjustable shelves each, no drawer, sand enamel finish	1	153.00	153.00
4	Bookbinding unit - bookbinding vise and accessories, standing press, 24" paper cutter, backing hammer, 10" back saw, 1/4" book drill, pair book-binder shears, 1 doz. bookbinder needles, 5 bookbinder knives, bone folder, starting kit of bookbinding supplies	1	128.00	128.00
5	Can, safety, 5 gal., non-spill sealed, trigger type pouring lip	2	8.50	17.00
6	Cans, waste, 12" x 15" with legs and spring lift cover	4	9.50	38.00
7	Chair - for Varityper	1	82.00	82.00
8	Contact printer, up to 5" x 7", four masking bands, red masking light, 110 volt cord and plug, complete with bulb	2	22.50	45.00

PRINTING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
9	Enlarger - for negatives from 35 MM to 4" x 5", F 4.5 lens, masking easel for paper up to 11" x 14", complete with carriers, timer, bulb, cord and plug	1	137.20	137.20
10	Exposure frame, flip top model	1	540.00	540.00
11	Filing cabinets, 4 drawer, steel with lock	2	45.00	90.00
12	Film drying cabinet, 30" x 20" x 25", thermostatic control, 110 volt	1	420.00	420.00
13	Folder - hand feed, maximum sheet size 12" x 18" for two parallel folds, 110 volt AC motor with heavy duty on-off switch	1	480.00	480.00
14	Galley cabinet - steel construction, capacity 50 galleys 8 3/4" x 13" in two tiers, galley openings numbered 1 to 50, sand enamel finish	1	49.25	49.25
15	Graphic camera - 4 1/2" x 5" with coupled range finder regular lens board with 4.5 lens, synchronized for flash, transistorized electronic flash unit, regular back for cut film, polaroid roll film back, extra extension for close copy work	1	242.70	242.70
16	Imposing table - standard 39" x 51" with storage space for furniture, galleys and chase, cast iron surface, sand enamel finish	1	854.00	854.00
17	Lectrojog - AC jogger	1	110.00	110.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
18	Linotype - 3 magazines, model #8, serial number 30,000 or higher, change pot from gas to electric, used	1	5,000.00	5,000.00
19	Loader processing and storing photo-direct positive working masters	1	1,067.50	1,067.50
20	Make ready table - standard 17" x 32", steel construction, sand enamel finish	1	235.00	235.00
21	Metering-Machine - hand operated	1	54.00	54.00
22	Negative and stripping table - 20" x 24" complete with fluorescent lights for 110 volt AC, ball grained glass top	2	99.00	198.00
23	Number machines - for regular platen press set-up	2	20.00	40.00
24	Offset press - 10" x 15" sheet size complete with automatic feed, counter, jogger, inking unit and fountain, serrating unit, all inking rollers, blanket, cylinder, 110 volt single phase motor with load protection switch and push button control	2	3,508.50	7,017.00
25	Padding press - for 22" paper, with extra large pressure unit	1	77.50	77.50
26	Paper cutter - 26 1/2" capacity, hand clamp, double hand safety control, precision magnified tape measurement, hydraulic action on cutter, 220 volt, 3 - phase motor	1	1,787.55	1,787.55
27	Paper drill - table model	1	248.50	248.50
28	Paper punch - hand lever type for holes up to 1/4"	1	59.50	59.50

PRINTING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
29	Perforator - 24" foot operated	1	150.00	150.00
30	Pilot hand press units - pilot hand press, 3 - 6 1/2" x 10" chase, 2 cast rollers, 4 roller trucks, type cabinet 24" deep x 48" long x 31" high, for pilot press including 8 job cases, stone, and complete set of starting accessories, furniture, 8 fonts assorted types, spaces, quads, leads, slugs, 6" composing stick, 10" composing stick, 2 - 12" line gauges, 12 - #1 quoins, 2 quoin keys, gauge pins, tweezers, 4 assorted tubes of job ink	1	840.70	840.70
31	Platen press - 10 x 15 with single disc, ink fountain, throw-off, grippers, 3 sensi-steel chase, delivery table, belt guard, brake, 220 volt, 3 - phase motor magnetic starter and push button switch	2	735.00	1,470.00
32	Print dryer, 23" x 28" drying surface for glossy or matte prints, built in squeegee, thermostatic control 120° to 160°	2	135.00	270.00
33	Proof press - cylinder press type to handle forms up to 12" x 18", complete with floor stand and brazers	1	450.00	450.00
34	Rapid printer - for making plates up to 13" x 18" completely enclosed automatic arc-lamp, rubber lanket, vacuum release valve, vacuum pressure control, vacuum gauge and timer	1	310.00	310.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
35	Rubber stamp press unit - capacity 3" x 5", automatic heat control and pressure platens for 110 volt AC operation, one type chase and supplies to make 80 to 100 rubber stamps	1	150.00	150.00
36	Saw, trimming, power driven	1	125.00	125.00
37	Silk screen unit - 2 - 12" x 18" printing frames, 2 - 9" x 12" printing frames, 2 - 11" squeegee, 2 - 8" squeegee, 9 pints assorted dry poster ink, 1 quart poster ink thinner, 1 pint stencil filler, 1 pint filler remover, 1 film cutting knief, 1 ink mixing knife, 5 yards stencil film, 2 rolls stencil tape	4	49.00	196.00
38	Six months supplies for press room and camera	1	500.00	500.00
39	Steel storage cabinet, for offset plates - steel construction, hinged top, hangers and 100 brackets for 17" x 23" plates	1	62.00	62.00
40	Steel storage shelving - 24" deep x 36" wide x 87" high, open type with diagonal braces, top and bottom and seven shelves, sand enamel finish	8	35.00	280.00
41	Stitcher - 1/2" to 3/4" capacity, floor model, 110 volt operation	1	850.00	850.00
42	Stools - for stripping tables	2	21.00	42.00
43	Stripping and register tools	1	100.00	100.00
44	Storage cabinet - steel, 2 door with lock, 18" x 36" x 72"	1	62.00	62.00
45	Table, for tipmaster	1	109.35	109.35

PRINTING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
46	Tipmaster, glue tipper with seven collating trays and one carton tip out glue	1	850.00	850.00
47	Tool set - combination box and open end, 9 standard sizes 7/16" to 1"	1	15.00	15.00
48	Tools and supplies	1	300.00	300.00
49	Type cabinets - double tier, two-way sloping top, 2 wells cases, 19 standard California job cases, steel construction, lead and slug case, galley dumps, sand enamel finish	3	637.75	1,913.25
50	Varityper - deluxe model	1	3,165.00	3,165.00
51	Vertical camera - film capacity up to 14" x 17" and copy size up to 18" x 23", enlargement 3 x and reduction 2 x, F 6.8 lens, 110 volt operation, vacuum film holder, vacuum pump, 110 volt single phase AC operation	1	4,800.00	4,800.00
52	Work organizer	1	139.50	139.50
53	Workbench units - 12 gauge steel top 30" wide x 72" long, mounted on two heavy duty double sliding doors, base units 21" deep x 36" wide x 31" high, 2 adjustable shelves each, master keyed locks, sand enamel finish	4	125.00	500.00
			Grand Total	$45,185.50

RADIO AND TELEVISION SERVICE

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	ANTENNA SYSTEM			
1	50' tower with antenna rotor	1		
2	Antenna, FM	1		
3	Antenna, UHF; with booster to 300 ohm UHF line to provide sufficient power to each bench and demonstration table (multiple antenna installation may be necessary in weak signal area.)	1		
4	Antenna, VHF; with transformer to 75 ohm co-ax cable; combination amplifier, 40 db minimum booster and distributor; 75 ohm co-ax cable to each bench and demonstration table; and matching transformer to conver to 300 ohms	1	$ 750.00	$ 750.00
5	Bench, metal top covered with masonite; 36" x 72"; with 12" back shelf 24" above surface; 24" cabinet bases at each end; 6 grounded cuplex outlets controlled from lighted safety switch; and flush mounted feed thru UHF and VHF outlets	12	150.00	1,800.00
6	Battery eliminator power supply, for automobile radio; 0-15 V DC at 15 amp	1	60.00	60.00
7	Cabinet; 2 door steel storage 18" x 36" x 72" with lock	2	48.00	96.00
8	Capacitor testor; low voltage scale, for electrolytics and standard	2	50.00	100.00
9	Five tube radio chassis kit; for AM receiver laboratory; all band superhetrodyne	24	40.00	960.00

RADIO AND TELEVISION SERVICE

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
10	FM and television sweep generator with variable and Xtal markers	2	68.00	136.00
11	FM stereo signal generator	1	100.00	100.00
12	Impedance bridge; stereo	1	70.00	70.00
13	Multimeter, utility; 20 K per vol., AC-DC ohm current	12	30.00	360.00
14	Radio frequency signal generator calibrated output, Xtal check	4	57.00	228.00
15	Regulated power supply, high voltage; for tube circuits; 0-400 V. DC at 125 MA 0-100 V. DC at 1 MA bias 6.3V. AC at 4 amp filament	12	85.00	1,020.00
16	Regulated power supply, low voltage; for transistor circuits; 0-50V.DC at 1.5 amp	12	115.00	1,380.00
17	Resistance/capacitance decade box, substitution box	2	25.00	50.00
18	Sine and square wave signed generator calibrated output	4	52.00	208.00
19	Table, instructor's demonstration; wood top; 36" x 72" x 36" high; full metal cabinet base with 2 sliding doors and lock	1	135.00	135.00
20	Television chassis kit, black and white; vacuum tube, with kine	12	170.00	2,040.00
21	Television chassis kit, color; vacuum tube with kine	4	375.00	1,500.00
22	Television color bar generator; self syne	1	65.00	65.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
23	Testor, rejuvenator; picture tube	1	50.00	50.00
24	Transformer, isolation, variable	12	50.00	600.00
25	Transistor analizer laboratory with chart	1	55.00	55.00
26	Transistor testor-incircuit with chart	1	30.00	30.00
27	Vacuum tube checker; cynamic with chart	1	50.00	50.00
28	Vacuum tube checker; mutual conductance with chart	1	150.00	150.00
29	Vacuum tube volt meter; large scale AC-DC-ohm	12	50.00	600.00
30	Wide band 5" oscilloscope with prube	12	127.00	1,524.00
			Sub-Total...	$14,117.00
	TOOLS			
31	Student tool kit; with soldering iron wire strippers, diagonal side cutters, long nose pliers, 3 screw drivers, soldering aid, and 5 nut drivers	12	17.00	204.00
32	Radio alignment tool kit, with plastic screw driver and hex-wrenches	12	10.00	120.00
33	Miscellaneous hand tools to accommodate 24 students			500.00
			Sub-Total...	$ 824.00
			Grand Total	$14,941.00

SHEET METAL

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Bench, foreman's; 24" x 36" x 48" high with cabinet base	1	$ 76.50	$ 76.50
2	Bench, sheet metal; 40" x 96" x 33 1/4" high with 2 - 8" x 30" stake plate, 2 shelves; rock maple edge grain laminated top, bolt reinforced, edges reinforced, with 2 1/4"x2 1/4" angle iron	4	265.00	1,060.00
3	Bench, work; 30" x 72" x 32" high metal top, legs, stringer, shelf, back and end stops	10	53.75	537.50
4	Bender, capacity; rounds 5/8" flats 14" x 2", tubes 1"; accessories to include 3/16" radius pin, 1/2" radius pin (std.), 1" radius collar, 2" radius collar, zero radius block, 1 square block grooved radius collar for 3/4" O.D. tubing to a radius, clevis clamp for 3/4" O.D. tubing, follow block for 3/4" O.D. tubing - 9" length, forming roller for use in tube bending, and scroll collar	1	381.00	381.00
5	Brake, box and pan: nose bars are quickly interchangeable; radius bends can be made with round nose bars; full length nose bar can be used in place of the individual nose bars for each size finger; tubular shapes can be formed by extending nose bars between fingers; full set of box and pan jaws with U1, nose bars; bending bars, U5, U6, and angle bar SS; stop guage and wrenches; 72" length capacity; 14 gauge capacity; 8" extension fingers	1	1,170.00	1,170.00

SHEET METAL

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
6	Brake and folder, combination; working length 42"; 20 gauge capacity; front gauge range 1/4" - 3/4"; back gauge range 1/4" - 10"; clamping bar width 6 1/2", height 4 1/4"; lift of clamping bar 1"	1	592.00	592.00
7	Combination rotary machine; 7" throat and arbors designed to utilize crimping, beading, edging and offset rolls; 24 gauge capacity; crimping capacity 26 gauge	1	142.00	142.00
8	Crimping and beading machine; 1 pair beading rolls, straight crimping rolls, spacing collar: bench mounted; 20 gauge capacity	1	116.00	116.00
9	Folder, adjustable bar; hand operated; working length 42"; capacity, 20 gauge mild steel; gauging range 3/32" to 1"; widths of folds at capacity 3/16" to 1"; round folds for wire, max. diameter 1/4"	1	550.00	550.00
10	Holder, universal stake; with beakhorn, blowhorn, creasing and horn, double seaming, conductor, candle mould and needle case stakes	1	165.00	165.00
11	Machine, burring with 1 1/2" pair C burring rolls	1	55.25	55.25
12	Machine, combination with 1 pair A and B turning rolls	1	72.00	72.00
13	Machine, deep throat beading, crimping and other roll operations; 3/8" single and 1" Ogee bead rolls; hand operated; capacity 18 gauge; slitting cutters and collars; extension gauge for crimping rolls; extension gauge			

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	for turning burring - wiring - elbow edging; spacing collars; extension guide rest.	1	345.00	345.00
14	Machine, double seaming, double throat; for double seaming flat bottoms on straight or flared cylinder bodies; mild steel capacity 26 gauge; maximum depth 15 1/2"; 2 3/4" lower seaming roll	1	300.00	300.00
15	Machine, elbow edging with #1 elbow edging rolls	1	52.50	52.50
16	Machine, notching; foot operated for square, rectangular and V notches; furnished with 2" x 2" punch and die; 20 gauge capacity	1	340.00	340.00
17	Machine, combination notcher; floor model; splay-cut capacity 16 gauge; pierce-cut capacity 18 gauge; maximum notch 6" x 6"	1	315.00	315.00
18	Machine, groover; back geared for heavy work; direct drive for light metal; complete with 2 flattening rolls and 3 grooving rolls: 5/16", 7/16", 9/16", and 1"; bench model; capacity 22 gauge; groove work to 42" in length; gear ratio 3.4:1; hand operated	1	485.00	485.00
19	Machine, roll forming; 3" rolls are furnished with all three rolls driven; rear roll has 3 full length longitudinal grooves; machine operates through back shaft at 4:1 gear reduction; 2 handles supplied for heavy capacity forming; 34" welded steel cabinet stand; capacity 15-18 gauge mild steel; nominal cutting length 42"	1	556.00	556.00

SHEET METAL

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
20	Machine, roll forming; 3" power roll forming designed for speed and easy opearation; rear roll provided with 3 full length longitudinal grooves; 3-rolls driven; foot switch for forward-reverse control; positive chain drive; 34" working height; steel cabinet base; capacity 16-18 gauge mild steel; nominal cutting length 48"; 10:1 gear ratio	1	1,156.00	1,156.00
21	Machine, setting down; capacity 18 gauge iron and lighter with seams up to 1/2"	1	155.00	155.00
22	Machine, slip roll forming; 2" x 36"; with encased steel machine cut compensating gears	1	130.00	130.00
23	Machine, turning with 1 pair each A thin and B thick turning rolls	1	57.00	57.00
24	Machine, wiring with 1 pair D wiring rolls	1	52.50	52.50
25	Plate, stake bench; 8" x 37 1/2"	4	30.00	120.00
26	Punch and shear with 1/4", 5/16", 3/8" punch and die set; combined punching and slitting; punching capacity 3/8" hole in 5/16" iron; will center 10" sheets; capacity for shearing, will cut sheet iron, 8 gauge; length of cut 6"; cut bar iron 1/4" x 1 1/4", 3/8" x 3/4" or 1/2" square	1	400.00	400.00
27	Shear, compound lever; bench model; capacity: mild steel for slitting 3/16" for trimming 1/4"; bar iron 5/16" x 2"; blade length 4 1/2"; gap 2"; throat 9"; gauge rod 14 1/2"	1	149.00	149.00

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
28	Shear, cut-off; for slitting 10 gauge flat sheets lr 1/4" x 1 1/2" band iron; rod cutter capacity 1/2" diameter; hold-down and adjustable gauge included; capacity 10 gauge mild steel; length of cut 7 3/4"	1	285.00	285.00
29	Shear, ring and circle; for cutting inside and outside circles; graduated scale on bed enables operator to quickly adjust clamping head for desired diameter of circle and eccentric lever on clamping head provides quick insertion and removal of blanks; capacity 20 gauge mild steel; cutting depth 10"; clamping head 30 1/2"; hand operated	1	278.00	278.00
30	Shear, rotary slitting; power driven; depth of cutting head permits slitting to the center of a 36" wide sheet; capacity 16 gauge; 3 1/16" cutters; 1/2 H.P. Motor	1	570.00	570.00
31	Shear, squaring; foot operated; 8-foot shear has fixed frame casting; moving parts are welded steel construction; cutting action has mechanical advantage of 6 to 1; parallel back gauge; cam actuated holddown; front gauge; front arms; side gauge; bevel gauge; capacity 18 gauge mild steel; nominal cutting length 96"	1	1,596.00	1,596.00
32	Shear, utility; nibblers; for irregular cutting; outside and inside nibbling; shearing and rod cutting; bench mounted	1	76.50	76.50

SHEET METAL

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
33	Stakes:			
	38" beakhorn	1	65.00	65.00
	2 1/2" x 4 1/2" bevel edge square	1	22.00	22.00
	1 1/8" bottom	1	12.00	12.00
	28" candle mould	1	32.00	32.00
	27" common blowhorn	1	39.00	39.00
	2 1/2" x 4 1/2" common square	1	12.00	12.00
	28" conductor	1	30.00	30.00
	2 1/2" x 4 1/2" coppersmith square	1	15.00	15.00
	19" creasing, with horn	1	36.00	36.00
	30 1/2" double seaming with 4 heads	1	60.00	60.00
	29" double seaming, single head	1	44.00	44.00
		Total Cost	of Stakes. . . .	$ 367.00
34	Welder, AC only; 180 amps; 25 volts; 20% duty cycle; 2 welding current range; continuous current control; simple crank-type current control; ample open circuit voltage; with power factor correction, casters and accessory kit	1	185.00	185.00
35	Welder, AC/DC; amps: 180 AC, 150 DC 25 volts; 40% duty cycle; provides AC or DC welding current; 2 welding current ranges on AC; continuous current control; selenium recifier; weld stabilizer; power factor correction to reduce K.V.A. demand load; standard equipment includes connectors for electrode and ground leads and a 3 wire primary cable and accessory kit	1	340.00	340.00
36	Welder, portable electric spot; 1/8" combined thickness capacity; 115 volt; 1 pair standard 12" tongs with standard tips	1	183.00	183.00
37	Welder, spot; floor model; 25 K.V.A; 220 volt; will handle 2 thickness of			

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	19 gauge steel; 36" stroke; foot operated; sequence timer heat control; accessories kit	1	1,134.00	1,134.00
			Sub-Total, . .	$14,544.75

SHEET METAL

HAND TOOLS

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
	Riveting hammer 1" face	12	$ 3.90	$ 46.80
	Riveting hammer 7/8" face	12	3.75	45.00
	Riveting hammer 3/4" face	12	3.75	45.00
	Setting hammer 7/8" face	12	3.75	45.00
	Scratch awl 6 1/2" long	12	1.02	12.24
	Double cutting shear 10" -1 5/8" cut	12	9.70	116.40
	Snip, laid blade 3"	8	6.75	54.00
	Snip, bull dog 2"	8	9.75	78.00
	Snip, hawk's bill 3"	8	8.65	69.20
	Shear, bench 4"	1	58.33	58.33
	Wing dividers 6"	6	3.75	22.50
	Wing dividers 8"	6	4.10	24.60
	Wing dividers 10"	6	4.65	27.90
	Wing dividers 12"	6	4.95	29.70
	Hand seamers, 3 1/2" forged	6	6.00	36.00
	Hand seamers, 6 7/8" malleable	6	13.50	81.00
	Rivet set, 00 & 0	6	2.16	12.96
	Rivet set, 1 & 2	6	1.88	11.28
	Rivet set, 3	6	1.88	11.28
	Rivet set, 4	6	1.72	10.32
	Rivet set, 5 & 6	6	1.50	9.00
	Rivet set, 7 & 8	6	1.39	8.34
	Hand groovers 3/8"	6	3.02	18.12
	Hand groovers 5/16"	6	3.02	18.12
	Hand groovers 7/32"	6	2.92	17.52
			Sub-Total...	$ 908.61
	Miscellaneous items including: special hand tools, files, bits, soldering coopers, brushes, etc.			1,500.00
	Student tools			1,000.00
			Grand Total	$17,953.36

WELDING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Bench, foreman's; metal 24" x 36" x 48" high with cabinet base	1	$ 76.50	$ 76.50
2	Bench, gas welding; top frame 3'6" x 5'6" x 2'8" high constructed of 11 gauge steel plate welded to 2" x 2" x 1/4" angle iron; covered with fire brick (approximate size 2 1/2" x 4 1/2" x 8 1/2"; steel storage shelf located 12" from floor constructed of 11 gauge steel plate also welded to angle iron frame; 16 gauge steel plate shield sides 5'6" x 2'6" and a divider 3'6" x 2'6" placed in the center of the 5'6" dimension forming two welding areas, shields are reinforced with 1/2" standard black pipe	4	596.00	2,384.00
3	Bench, solder; 72" long x 48" wide x 32" high, top is 1 1/4" plywood covered with asbestos, base is hard maple frame constructed, bench equipped with furnace shelf, steel drawer, 2 - 2 burner soldering furnaces complete with pilot light and shut-off valve	1	210.00	210.00
4	Bender, pipe, hydraulic; maximum piston pressure 50,000 lbs., bends 1 1/4", 1 1/2", 2", 2 1/2" and 3" conduit and pipe	1	212.50	212.50
5	Boothes, arc welding; 5' wide x 6' deep x 6'6" high, constructed of 16 gauge steel sides and back, welded to 2" x 2" x 1 1/4' angle iron frame, front covered by canvas curtain; table in booth 30" x 5' x 2'8" high constructed of 2" x 2"x1/4" angle iron covered with 1/2" steel plate, with steel storage shelf of 11 gauge steep plate located 12" from floor	8	545.00	4,360.00

WELDING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
6	Brake, combination box and pan; 12 gauge capacity, 72" length capacity, 6" finger extensions, nose bars are quickly interchangeable, radius bends can be made with round nose bars, full length nose bar can be used in place of the individual nose bars for each finger size, tubular shapes formed by extending nose bar between fingers, standard equipment full set of box and pan jaws with U1 nose bars, bending bars, U5, U6 and angle bar S S; stop gauge and wrenches	1	1,188.00	1,188.00
7	Former slip roll; 42" sheet width capacity, 24 gauge capacity, crank operated, gripping rolls clearance 1/2", steel gears, bench or floor mounted	1	160.00	160.00
8	Grinders, 10" pedestal; double end, cast iron base, 1 H.P. 3/60/220 volt motor, magnetic starter, overload protection, wheel guard, spark shield, tool rest, tool tray, water pot, illuminated eye-shield and 1 fine and 1 coarse 10" grinding wheel	2	216.00	432.00
9	Press drill; 15" variable speed, floor model with 6" spindle including 1 drill press vise	1	285.00	285.00
10	Press, arbor; single leverage, bench model, 1 1/2 ton capacity, 9" diameter work capacity	1	100.00	100.00
11	Saw, power hack; capacity 6" x 7" with extra blades (14" x 1" moly steel)	1	302.80	302.80

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
12	Welder, spot; portable, watercooled, manually operated with standard equipment including 1 pair of 18" x 90° standard tongs	1	525.00	525.00
13	Rectified series current ultra-graph complete (frame machining process)	1	985.00	985.00
14	Welder, spot; portable, complete with pair electro standard 12" tips	1	183.00	183.00
15	Grinder, portable; hand electric 9" x 1/4" stone with spin-on-hub weld remover	2	97.00	194.00
16	Tables, planning; 40" wide x 31" high x 8' long, wood top and legs	2	105.00	210.00
17	300 Amp AC -DC Heliwelder including heliweld pack, foot control, and argon regulator complete	1	1,428.00	1,428.00
18	Benches, sheet metal; 40" x 96" without openings, for stake plate	2	285.00	570.00
19	5" Machinist vise, swivel base	2	60.00	120.00
20	3" Machinist vise, stationary base	1	40.00	40.00
21	Master oxygen acetylene welding unit complete	1	134.50	134.50
22	Manifold system; 1 oxygen manifold (3 to 5 cyl.), 1 oxygen regulator, 8 oxygen station regulator, 1 acetylene manifold (2 to 5 cyl.), 1 acetylene regulator, 8 acetylene station regulator, 8 - 10' sets twin hose with couplings, 8 light weight torches with #4, #12, and #30 heads	1	665.70	665.70

WELDING

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
23	Canopy of 10 gauge galvanized steel 6' wide 24" long to cover the 4 - 2 student gas welding benches plus 8 arc welding benches; each canopy to include 2 exhaust fans located in top and linked to outside by galvanized steel pipe. Area to be lighted over each welding station. Completely installed	2	800.00	1,600.00
24	Tungsden inert gas welder with wire feeder; 250 amps 100% duty cycle rated constant voltage. D.C. welder with 7 slope selections complete	1	1,426.25	1,426.25
25	Hardess tester, portable with accessories	1	350.00	350.00
26	Tensile testing machine complete with accessories and stand	1	450.00	450.00
27	Sigma - 300 amp welding unit complete power supply, wire feed unit, pull gun and accessories	1	1,680.00	1,680.00
28	AC/DC Arc Welder; heavy duty, variable transformer, 15 to 300 amp. 220 volt single phase complete with hook-up cord and plug, 25' electrode cable, 20' ground cable, headshield and electrode holder	8	540.00	4,320.00
29	Two door storage cabinet, steel; 24" x 36" x 7' with lock	3	62.00	186.00
			Sub-Total	$24,778.25

TOOLS AND ACCESSORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
1	Carpenters steel square, 2'	4	$ 7.15	$ 28.60
2	Center punches	12	.55	6.60
3	Chipping hammers	5	2.60	13.00
4	C Clamps, deep throat	4	9.60	38.40
5	Cold chisels	12	.56	6.72
6	Combination squares, 12"	10	9.12	91.20
7	Crescent wrenches, 10"	2	6.69	13.38
8	Electrode holders	6	6.60	39.60
9	Face shields (clear plastic)	10	3.85	38.50
10	Flints	4 bx.	.60/ bx	2.40
11	Files	12	1.65	19.80
12	Filter cover glass	100	8.50/ C	8.50
13	Filter lenses	32	1.10	35.20
14	Ground clamps	6	4.60	27.60
15	Head shields	10	12.10	121.00
16	Pliers, combination, 10"	12	1.27	21.00
17	Sledge, 3 lb.	1	5.55	5.55
18	Soapstone marking pencils	48	.15	7.20
19	Steel rules, 6' (sliding)	12	1.05	12.60
20	Steel tapes	6	.90	5.40
21	Strikers	12	.35	4.20

WELDING TOOLS AND ACCESSORIES

ITEM	DESCRIPTION	QUANTITY	APPROX. UNIT COST	TOTAL COST
22	Tip cleaners	12 sets	1.85/ set	22.20
23	Try-squares, 10" x 6"	6	4.80	28.80
24	Welding curtains	8	9.60	76.80
25	Welding helmets	16	11.20	179.20
26	50' x 1/4" O.D. Welding hose with connectors	1	26.84	26.84
27	Welding gloves	30 pr.	4.10	123.00
28	Wing dividers, 8"	2	4.30	8.60
29	Wire brushes	12	.60	7.20
30	Misc. hand tools for students	30		400.00
31	Misc. metal, gas and rod			2,500.00
			Sub-Total...	$ 3,919.09
			Grand Total	$28,697.34

APPENDIX A

SIMPLIFIED EDSPEC INFORMATION COLLECTION

Educational specifications, prepared by or for many schools, often present an imposing array of factual material, sometimes include much duplication, and usually frighten the teacher to whom they are shown when accompanied by the statement that "We must now prepare educational specifications for our proposed new building".

One school system on Ohio, where the local supervisor of trade and industrial education had considerable experience, in the planning process and as a consultant, developed a very simple system of gathering the necessary data. Permission had been secured to reproduce it in outline form in this manual.

It should be noted that this short outline may be expanded into the 10 to 12 pages needed, depending on the space required for each section. Users report that duplicating sections I, II and III in different colors simplifies use by the architects or work by those charged with the responsibility of editing or limiting teacher committee or advisory committee requests.

EDUCATIONAL SPECIFICATIONS OUTLINE

I. Type of shop or related classroom.
- A. Group(s) that will be accomodated.
- B. Number of persons in group(s).
- C. What methods of instruction are planned for use in this room.
- D-1. Required furniture and/or equipment.
- D-2. How much space will be required.
- D-3. How was the space requirement determined.
- E-1. Desirable built-in features.
- E-2. Desirable location relationships of built-in features.
- F. Desired location of this room in relation to other shops or rooms and reasons why this location is desired.
- G-1. Required *special* lighting, power, ventilating or other mechanical service peculiar to this room.
- G-2. Reason(s) why the above special service(s) is (are) required.
- H-1. Describe any desired *special* physical arrangements or features.
- H-2. Explain why these are desired.
- I. Describe and explain all *special* features essential to safety.

II. Type of auxiliary room.
- A. Function of the room and relationship to shop or classroom its serves.
- B. Preferred location in relation to instructional room and reasons why this location is preferred.
- C. Size and type of groups to accomodate or material to be stored.

D. Types of activities for which provision must be made
E. Required furniture.
F. Desirable built-in features.
G-1. Required *special* lighting, power, ventilating or other mechanical service peculiar to this room.
G-2. Reason(s) why the above special service(s) is (are) required.
H-1. Describe any desired special physical arrangements or features.

APPENDIX B

The purpose of this section is not to propose a definite statement regarding the equipment, machines and tools essential for each shop in order to provide an acceptable teaching situation or desirable learning environment for trade and industrial classes. Instead, this section is intended only to serve as a guide-line for administrators, supervisors, teachers and advisory committees during the most preliminary part of the consideration given to determining the equipment required for any one of the shops enumerated.

The function of the advisory committee has been emphasized many times in the body of this manual; as it relates to determining course content, scope and sequence; and as it affects services to the industries of the community. The advisory committee, when fully informed regarding all the facets of trade and industrial education and working under the leadership of the local supervisor, is most capable of determining what equipment, machines and tools are essential to meet the needs of the students and the community.

The formal policy on class enrollment must be established by the board of education before equipment needs can be determined. The number of student stations to be provided is basic to determining every other number: number of machines, number of tools, number of work spaces, number of benches, and even the number of square feet in the shop and in the related classroom. Exactly what constitutes a student station may become controversial unless a clear-cut definition is established and approved early in the planning process. Such a definition, recommended by the Policy and Planning Committee, is included and explained in the AVA-AIA publication: *Developing Educational Specifications for Vocational and Practical Arts Facilities.* The tool and equipment lists preceding have been based on an enrollment of 20 students.

A formal policy requiring each student to own his own set of basic tools has many advantages, and consideration of the adoption of such policy is urged by the Policy and Planning Committee. A graduate must have these tools before he can be employed in the trade, and having them during the training period has many advantages: pride in and care for tools is increased; less instructional and learning time is lost going to the tool crib or waiting for the proper tool to be available; and the simulation of the true industrial work situation is greatly increased. One Ohio school started such a program 11 years ago under a policy by which the board of education made the initial purchases, and the students met or exceeded a required payment each grading period. During the 11 years no student has failed to meet his obligations, and a number of other schools have adopted this policy since its effectiveness and practicability have been proven.

This practice of student-owned tools is mentioned because the "small tool cost estimates" in the equipment lists *do not include these costs* which vary from $40.00 to $110.00 per student in the different shops.

The value of using the equipment lists, machine and tool will be in direct proportion to the user's recognition of their purposes, which are:

1. To provide the administrator, unfamiliar with trade and industrial education, with a full understanding of the importance attached by the Policy and Planning Committee to the adequacy of equipment;
2. To serve as a starting point for advisory committee discussions of requirements based on scope, content and sequence of instruction to be provided; and
3. To serve as a comparison check list to assist the local supervisor in determining student-station adequacy.

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Wall, James E.
Relating Some Sociological Concepts to Vocational Education.

Illinois Research and Development Coordinating Unit, Springfield
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep68 17p.; Paper presented at a conference on "Making Vocational Education Research Relevant," Springfield, Illinois, September 23-24, 1968.

*VOCATIONAL EDUCATION; *EDUCATIONAL RESEARCH; SOCIOLOGY; *EDUCATIONAL CHANGE; *SCHOOL COMMUNITY RELATIONSHIP; INTERAGENCY COOPERATION; CITIZEN PARTICIPATION; LEADERSHIP; OCCUPATIONAL MOBILITY; SPEECHES; *RESEARCH NEEDS; RELEVANCE (EDUCATION)
ILLINOIS RESEARCH COORDINATING UNIT

Changes in vocational education would be furthered by attention to other disciplines, as well as to the broad field of education. Particularly important is the discipline of sociology and, within sociology, the "interaction conception of community" or the view of community as a configuration of activities and groups, with elements of place, population, and institutions providing the necessary background. Change can be brought about by an ever greater quality of interaction. Effective cooperation needs to be established among the various levels and agencies of government and education and lay citizen groups. Some general notions which should be considered in future research and development programs are: (1) Because of the complexity of vocational education problems and the degree of social concern for them, carefully designed research should have high priority, (2) Research interpretation is critically important because it entails both translation of action concerns into research problems and translation of research findings into action strategies. Several research assumptions seem appropriate: (1) Vocational education involves multi-factor problems which require multi-factor solutions, (2) Priority should be given to in-depth and longitudinally designed studies, and (3) Both empirical generalizations and articulation of applicable theory are relevant. (JK)

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C.1

RELATING SOME SOCIOLOGICAL CONCEPTS TO VOCATIONAL EDUCATION*

by

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THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

INTRODUCTION

The theme of this conference is "Making Vocational Education Research Relevant." A question arises immediately: Making it relevant to what? Relevant to change, either in order to plan or direct change, or just to cope with it? The assumption is made here that the conference discussions have focused, more or less, on attempts that have been, or should be made to utilize research findings for implementing change in vocational education programs. A further assumption is that the consensus prevails among those present that implementing change in vocational education, like implementing change in other types of social institutions, involves social action and social policy.

The major objective of this paper, therefore, is to attempt to conceptualize vocational education change in terms of locality or community processes. The effort requires interpretation of various theoretical formulations; thus, it should elicit and actually does solicit critical reaction.

Why Concern with Change?

A relevant question is: Why be concerned with change in vocational education? An answer frequently given is that the "function" of the

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school is becoming more comprehensive. The school is expected: (1) to develop the capacity of the individual to learn; (2) to share with the family the responsibility to develop the capacity of the individual to live in the culture; (3) to prepare the individual to earn a living; and (4) to increase its responsibility from preparation to earn a living to retraining as technological progress changes the conditions of employment.

Another answer to the question lies in other numerous changes taking place in our environment, such as: (1) population increases and shifts, (2) technological progress, (3) social mobility of individuals and groups, and finally (4) new understandings of how intelligence and learning ability are developed.

A third answer might be described as being that of increasing and strengthening of professional commitment. This answer can be elaborated as follows. The Declaration of Purpose in Section 1 of the Vocational Education Act of 1963 broadens the commitment of all vocational educators. This commitment is to make some form of occupational education readily accessible "to persons of all ages in all communities." Implicit in this commitment is a demand by society-at-large and the desire of at least a few vocational educators to make some needed changes in current programs and to develop new ones which are tailored to the needs of today's youth and adults.

Another relevant question then seems to be: How can curricula be revised to impart a broad understanding, to both youth and adults, of the world in which we live and work; and, simultaneously, to develop skills and knowlege specific enough to afford entry of youth into and advancement of adults in the labor force? Although a somewhat oversimplified question, it focuses on the highly complex problem of change. Thus, the

question demands extensive elaboration and interpretation if adequate answers are to be derived.

The breadth of commitment manifest in the Vocational Education Act of 1963 has raised some concern about making vocational education more now than ever before an integral part of the total education program. Some concern has been voiced about the lack of development of leaders who would have the so-called "broader vision" for adequately administering vocational education as an integral part of a total education program. The inplication here seems to be that vocational educators should become as knowledgable as possible about more and different areas of education, but always to remain within the field of education. While expansion of one's knowledge of various aspects of education is highly commendable, the writer submits that, generally speaking, most vocational educators--even while gaining the "broader vision" afforded through study of other, more general aspects of education--still hinder their professional maturation processes by restricting themselves to a single-discipline orientation. Hence, one inference of this presentation is that bringing about changes in vocational education would be furthered by increased consideration being given to disciplines other than just education.

Psychology, political science, anthropology, economics, and sociology are among these other disciplines. The presentation to follow is oriented largely to the contributions of sociologists, and more specifically to those of sociologists who have specialized in the study of community. These contributions need amplification to further develop our insights into social phenomena, because whatever most challenges society and communities ultimately will ramify into the educational system.

Prior to departure into the main concepts treated in this paper, one point needs clarification, and that is the distinction between "what is"

(descriptive or scientific) and "what should be" (normative or ethical). This distinction is relevant to discussions concerning change because normative judgments usually run rampant in such discussions. It is hoped that the ensuing information will be of value in making normative judgments, as well as in analyzing descriptive data.

THE COMMUNITY CONCEPT

Like many other fields within the discipline of sociology, the study of community has a relatively long history and various theories have been advanced. Most studies of community have been of the "community context" nature.[1] These focused on space, a community with a well-defined boundary. Or, they considered community from the ecological viewpoint, how people relate to their environment. Others focused on cultural configurations in efforts to determine the extent to which community existed.

Because of the growth in large scale organizations, corporations, and even government bureaucracies, most studies of social units within the last few years have focused on state, regional, national, or international levels. Thus, the terms "locality" or "community" are not in common usage by some social researchers. To these researchers, community is used in a rural context and denotes only the one-room school neighborhood, or a rural village or hamlet with less than 100 students in its high school. In order to be of relevance to education and vocational education, and the changes needed in the field, the community concept must have much broader implications. As treated in this presentation, it will have universal application, from village to metropolitan area.

The treatment of the concept community in this paper can be partially justified by looking at some of the negative results of economic development and the concomitant expansion of large scale organizations, which

include expansion of many school systems. One negative aspect is the growing rate of social and personal disorganization (alienation, frustration, anomie), which seems to have been brought about partially by the decline of essential primary groups, such as the family, church, other neighborhood groupings, and even schools in some instances. It is believed by many observers that the rates of increase in major crimes--which indeed have exceeded rates of economic growth--are a direct result of the decline of primary groups. Thus, any serious analysis of efforts to change vocational education must include attention to factors in socialization of the individual, especially youth, as well as to processes for increasing production and meeting concomitant changes in the labor force and the occupational structure.

An Interactional Perspective

This particular presentation will focus on the "interactional conception of community"[2] which considers "the presence and effectiveness of the interactional networks which make possible integrated action on the common concerns of life."[3] Assumed here are two things: (1) that change can best take place through "integrated action" of individuals and agencies; and (2) that vocational education is, or should be, one of the "common concerns of life." The interactional conception of community allows one to view community in terms of a configuration (social field) of activities and groups, with the elements of place, population, and institutions providing the necessary background. This approach begins with a place---village, town, metropolis, or a trade area---but rapidly focuses on actions and activity---associations and agencies, programs and projects. The element of collective action is emphasized here. The topic of change and the subject of making vocational education research relevant

to reality may be seen through this framework.

As indicated before, place, population, and institutions provide the necessary background; they are "givens". The town or city is there because population and its consequential institutions exist. Censuses and other routine data gathering efforts produce much in the way of descriptive materials about the families, schools, churches, organizations, and economic aspects of places, towns, and metropolitan areas. While necessary, the accumulation of these descriptive data does not in itself produce change in community and school. Thus, the critical index of whether or not community in an interactional or associational sense exists is what happens in a place when disaster or crisis occurs. If strong, integrated leadership action is displayed, this indicates that an ssociational community exists. Conversely, if most or all problem solving and decision making rests with outside agencies, then the extent to which associational community exists would be proportionate.

A possible analogy can be drawn here between reaction to disaster or crisis and reaction to new educational ideas or innovations. Many new educational ideas and innovations, incidentally, have been generated as a result of recognition of impending crises, or at least to trends and events which approach crisis proportions. This analogy is best illustrated through an example as follows: Suppose that routine follow-up of graduates from a local high school reveals a high degree of incongruency between what they received in the way of education and the work they participate in after graduation. The problem is in general terms that many schools, large and small, meet minimum standards but not the educational needs of their students. The notion is proposed to implement a cooperative occupational education program as an effort to improve congruency between education and occupational behavior.

Cooperative occupational education then becomes the innovation in focus. My proposition would be this: The extent to which and rapidity with which this innovation is adopted and institutionalized will be directly proportionate to the extent to which interactional or associational community exists, as well as the extent to which the total education program is an integral part of that community. As an integral part of the community, there will be "cultivation of a social and educational climate that is congenial to change in the schools."[4]

The interactional community concept likewise implies that not only does a pattern of order and effective cooperation need to be established and/or strengthened among various levels and agencies of government, school districts, state school offices, universities, and federal agencies; but equally strong, if not stronger, linkages should be established with lay citizen groups, and similar organizations and associations that are vitally concerned with overall change and progress. The study of the patterns and linkages involves community structure and citizen involvement and participation. One of the prime considerations in occupational education research and development should be the explication of whether, and/or the degree to which, capable leadership and voluntary participation in organizations and community affairs exist in those situations where we hope to get innovations adopted. This indicates a need to recruit the assistance of more community sociolgists into our research and development programs in occupational education.

Levels of the Interactional Perspective

Already mentioned have been the elements of defining the interactional community. These were: (1) community as a configuration concerning ways of life, achievement of collective goals through fellowship and sharing of basic beliefs and values; (2) community as place and

people, the ecological and the demographic; and (3) community as collective action, focusing on process, behavioral in nature.

Corresponding to these three elements of definition are respective levels needed for accurate analysis and understanding of community. These levels are: (1) the institutional or cultural; (2) the ecological; and (3) the interactional. Three key concepts at the interactional level are the actor, the association, and the action. Social structure derives from the roles of leaders and other actors as they are interrelated in associations. Social process derives from analysis of actions.

Differentiation Between Group and Institution

To gain deeper insight into the main topic of this paper---the interactional community---the distinction should be made between group and institution. Institutions as used here are cultural patterns, the accepted ways of meeting needs. They are common answers to collective problems. Groups on the other hand are associations of people serving as vehicles for the behavioral aspects of the instituion. The distinction is best made by example. For instance, education as an institution is expressed in legal codes, rules, guidelines, and other well-established practices. Physical aspects are its buildings, equipment, transportation facilities, personnel records, etc. The groups or associations that express the educational institution are the student body or individual classes, the school board, the PTA, etc. The faculty also is a group and must be categorized into sub-groups for accurate analysis of their special roles.

Meeting Basic Societal Needs

Briefly mentioned here will be the three basic needs that must be met by all societies, large or small--the local ones, the communities, and even the larger national ones. These universal needs are production,

socialization, and social control.

Economic institutions have as their primary focus production and the interrelated process of distribution, with decisions being made in the market place which is sometimes viewed as the community of work. By contrast, the processes of socialization, especially those dealing with the young, take place largely in the primary groups (family, church, and school), or what is referred to by some as the community of residence. Social Control operates wherever human action takes place. Informal controls are dominant in primary groups, whereas legal and law enforcement controls are prominent in the larger society.

In a free-enterprise system like ours the central economic institution is the market, which, like interactional community, knows no geographical boundaries and might best be understood from the interactional perspective. The main point to be understood here is that very few, if any, market decisions of any consequence are made in a given locality, especially the small community. The same might be said regarding educational decisions about innovations; few of any great consequence are made locally. True, decisions to adopt an innovation might be made locally; but the normative decision of what that innovation ought to be, or what it ought to have been before it reached the local school, likely was made elsewhere. One major obstacle to the creation of an attitudinal-behavioral atmosphere in local schools that is conducive to change may be the fact that innovations usually are communicated downward from a few leaders and are not, therefore, a synthesis of the thinking of societies that are being served by the schools. Most behavioral scientists believe the seeds of change lie within the social structure itself.

One of the most frustrating dilemmas is that on the one hand vocational education seeks to serve economic institutions (production), and

on the other it is administered and directed through socialization processes and institutions. And to add to this complexity, certain measures of social control are exerted over its operations. When we begin planning for change this situation then causes vocational education to be faced not with a dilemma, but a trilemma.

Because such problems exist they give rise to possible inter-institutional conflict where, for instance, the economic institution criticizes education for the improper preparation of youth for the world of work. Such criticism has caused some vocational educators to ask for more cost-benefit* studies to be made in an effort to determine how best to prepare an efficient worker. Cost-benefit studies have a definite contribution to make to the overall evaluation effort. But it is well known that some things cannot be expressed in monetary terms. For instance, it is extremely difficult to put a dollar value on certain aspects of job satisfaction, personal dignity afforded by work, individual commitment to task completion, and the like. Because of the limitations of cost-benefit studies, another type has been suggested, the cost-effectiveness** study. Focused on efficient attainment of objectives, cost-effectiveness studies usually fail to treat in sufficient depth the processes by which the objectives are established at the outset of an action program. It is worthwhile to note here that objectives usually are derived through an interactional process, the consideration of which demands attention to structure, leadership, styles of action, etc.

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*Cost-benefit analyses provide means for comparing resources (cost) of a specific project with the results (dollar benefits) likely to be obtained.

**Cost-effectiveness anylyses provide means for measuring the extent to which resources allocated to a specific objective under each of several alternatives actually contribute to accomplishing that objective, so that different ways of attaining the objective can be compared.

Scope of Change Producing Projects

Many times the projects initiated to bring about change in vocational education programs frequently are related to a larger, more inclusive community process, such as a health action program, an economics action project, or an education action project designed to improve the total school system. The extent to which a project involves local institutions other than education and vocational education will determine whether it is a community or a noncommunity project. For example, a project to change the format of student report cards is not a community action project. On the other hand, a project to initiate a cooperative education program, which might involve possibly the economic, medical, and other similar institutions, would be classified as a community project. When related to community, the extent of effectiveness of a change producing vocational education project will be based primarily on its scope.

Scope has the following dimensions: (1) the degree of comprehensiveness of interests pursued and needs met; (2) the degree to which action is identified with the locality, even though external resources may be used; (3) the relative number, status, and degree of involvement of local residents; (4) the relative number and significance of local associations involved; (5) the degree to which the action maintains or changes the local society; and (6) the extent of organization of the action, both local and external agencies being considered.

Leadership and Action Style

Two of the most important variables in analyzing behavior connected with any project that is designed to produce change are (1) leadership and (2) action style.

Leadership roles are defined as contributions by individuals to task accomplishment or to maintenance of relationships among actors through

behavior in one or more phases of a project. Roles within a project may be differentiated according to phase and according to the level of influence exerted by the actor in a given phase.

Two types of roles are distinguishable: (1) those of the generalized leader and (2) those of the limited interest leader. The generalized leader participates in many projects and possibly more comprehensive projects, and is likely to be involved in several phases of the action. The behavior of generalized leaders provides the continuity that is so necessary for identifying community structure. Their behavior likewise provides the means through which the community structure can be related to a given project, such as some type of project designed to improve vocational education.

The limited interest leader participates in a single project, or sometimes in many projects all of which reflect a single interest. An example of a limited interest leader is best portrayed by the local agent of a national or state bureaucracy. He usually is motivated to play his role more because of occupational requirements than because of his general commitments to the local society. Another type of limited interest leader is the technical expert, whose participation often is solicited by other actors because of his skill in a particular activity. Limited interest leaders, especially those who play skill roles, tend to contribute more to task accomplishment than to maintenance of local social relationships.

Thus, it seems reasonable to suggest that these types of leaders be adequately identified in localities where change producing projects in vocational education are to be initiated. But too often in the past we have confused those who comprise the power structure for those who comprise the true leadership structure.

It is a well-known fact that youth educated in one community will find work in other communities. Better employment opportunities require better training. Schools traditionally have been the principal public means of introducing youth to a broader world than home. Self-centered or unenlightened local control---power structures of various types---may mean that those who make policies and decisions are not cognizant of future demands for skills which should be developed by occupational education programs in local schools. Local public school decisioners may be generally familiar with occupations, but they may have virtually no comprehension of the skills needed for working in them. Most of these kinds of decisioners are concerned only with budgeting and personnel; they usually focus on problems they know they can solve, not those that need to be solved. The power structure type of local control, as opposed to a leadership structure, may resist all change and not permit the educational program to look outward and forward.

The style of action mentioned here refers to the quality of relationships among leaders and other participants. Styles of action can be best seen by using the polar types which have been described in many case studies of planned change. At one end of the continuum is found consensus which is characterized by agreement among participants as to goals and strategies; and easy communication through identifiable coordinating structures in the school and the community. Lying at the other end of the continuum is dissensus with its characteristic disagreement among participants, interaction primarily through cliques or factional associations, and limited communication. The extent of success of innovativeness in school and community depends in large measure on the ability of local vocational educators to accurately locate their schools and communities on such a continuum. This seems to be a prerequisite to, or

at least the first step in, plotting change strategies for local schools.

SUGGESTIONS RELATING TO RESEARCH IN VOCATIONAL EDUCATION

Implicit in the foregoing have been some suggestions for making vocational education research relevant to reality. By way of a summary of this presentation, some general notions will be mentioned which should be considered in future research and development programs and projects in vocational education.

Vocational education problems are complex and there exists great social concern for them, all of which places high priority on carefully designed research in the behavioral sciences. This priority calls for continuing interaction and communication between administrators and educators and researchers. Their individual roles are highly complementary.

The relation of science to action may be described as a research interpretation process. The process calls for research problems to be drawn from the vocational education milieu, for theory and methodology to be brought to bear on the problems, and for the resultant findings to be interpreted and applied through action programs. The process of interpretation is of critical importance because it involves both translation of action concerns into research problems, and translation of research findings into action strategies.

Research Assumptions

Several assumptions seem appropriate to research needs in vocational education. One assumption is that the area of vocational education comprises multi-factor problems which require multi-factor solutions. Research must consider the configurational aspects of the environment needing change. Identification must be made of multi-dimensional types of individuals rather than concentrate on single-factor definitions and unidimensional

models. An illustrative example of the unidimensional approach is where curriculum planning is based only on a simple job census and job projection survey. Another is where area vocational complexes are erected solely on the criterion that money happened to be available for construction.

A second assumption is that priority should be given to depth and longitudinally designed studies as opposed to superficial, one-time surveys. Favored most are organized programs of research with coordination of many specific projects conducted simultaneously over time. This would seem to be a basic aim of most of the RCU's.

A final assumption is that both inductive and deductive processes---both empirical generalization and articulation of applicable theory---are relevant in research design. Too often we confuse the deductive process with the tendency to plan and justify programs based on intuition or tradition and to evaluate in terms of what we feel we can do rather than in terms of what we actually have done.

Mobility Studies Related to Vocational Education

Vocational education seeks to help others adapt to change, to develop their mobility potential. Studies are needed to determine the process through which general skills are acquired. Research is needed on the relevance of vocational and technical education programs to the needs and potentials of those it seeks to serve. The importance of vocational education as a channel of mobility should be examined through longitudinal, panel-type studies. Some studies of this type are being conducted. But what are needed are the types that begin with preschool experience and conduct interviews during primary, junior high, and senior high years, and follow-up after graduation and/or dropout. Such studies would yield data on the effects of vocational education on the development of occupational and other aspirations, and the processes by which adaptation was made, as well as the extent to which

aspirations were attained. Studies of this type are viewed as part of a continuing program of evaluation.

Mobility studies are especially needed in vocational education programs which are to serve persons who fall in one of the categories used to describe the disadvantaged. From the community standpoint, studies are needed for classification of areas in terms of mobility channels and rates, shape and rigidity of class structures,and nature and effectiveness of community action structures. Individuals and families need to be classified in terms of their mobility potential. For example, research is needed to determine the proportion of a disadvantaged population for whom organic or functional deficiencies prevent mobility, the proportion who are able but lack motivation, and the proportion who are motivated to achieve but lack opportunities. Following such research, curriculums could be designed to meet need differentials of the various groups.

Mobility studies are needed which deal comprehensively with the quality, as well as the quantity, of formal participation in organizations. Research is needed to specify possible differentials in kinds of membership organizations and their relation to mobility channels, depths of involvement in organizations, and the structure of membership organizations in terms of leadership, role differentiation, and program. Participation is an important expression of social rank and a useful indicator of mobility potential.

Finally, it would seem that most any type of research effort that relates vocational education to community-wide research and development actions would fit into the overall strategies that are designed to bring about change. The implications of this presentation, then, have been that change can be brought about by ever greater quality of interaction.

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*ADULT VOCATIONAL EDUCATION; *VOCATIONAL RETRAINING; *CULTURALLY DISADVANTAGED; *EDUCATIONAL STRATEGIES *MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS; MDTA PROGRAMS

The problems of adaptation faced by overseas companies in training foreign nationals with little industrial experience are not unlike those confronting persons responsible for conducting programs for training and retraining poorly educated individuals from culturally different environments, such as city slums or the hills and valleys of Appalachia. American migrants from these areas who move to urban locations face cultural and communication difficulties. Cut off from kinship relationships, they are as insecure as are the illiterate peoples in the less-developed parts of the world when they move into an industrial environment. Poor communication, lack of experience in industrial work environments, little motivation for work derived from years of frustration because of few training opportunities, illiteracy, little or no training are some of the problems with which American companies had to deal in training nationals in less-developed areas of the world. Many of these same problems will have to be met by American trainers in working with the persons to be trained in recently sponsored Federal training programs. The experience of United States companies abroad indicates that most of these problems can be overcome if an honest effort is made to understand differences in cultural patterns and the reasons for the handicaps of culturally deprived groups. (AUTHOR)

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Implications for Domestic Programs

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MANPOWER ADMINISTRATION
Office of Manpower, Automation and Training

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OFFICE OF MANPOWER, AUTOMATION AND TRAINING
SEYMOUR L. WOLFBEIN, DIRECTOR

Training Foreign Nationals For Employment With U.S. Companies In Developing Countries

Implications for Domestic Programs

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF LABOR: W. WILLARD WIRTZ, Secretary
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Office of Manpower, Automation and Training

PREFACE

Under the Manpower Development and Training Act of 1962, the Secretary of Labor is required to develop and compile information relating to manpower requirements, development, and utilization in the United States. Training and retraining of the unemployed to equip them for employment has become a major element of the Nation's manpower policy.

This bulletin discusses attitudes and techniques found successful in developing and training foreign nationals for employment with U.S. companies operating in developing nations. It emphasizes the problems facing companies working with individuals from culturally different environments. Some of the problems encountered and the lessons learned may provide valuable insights to those currently engaged in training and retraining programs for American workers from culturally deprived areas.

It is not designed to give guidance in how to develop and administer specific programs, but rather to stimulate the development of new ways of adapting known methods and experiences to new and challenging conditions facing us in this country.

The bulletin is based on literature dealing with the activities of U.S. companies in training workers abroad. It was prepared by Philomena M. Mullady, under the supervision of Lewis H. Earl, Chief of Foreign Manpower and Automation Research, Office of Manpower, Automation and Training.

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INTRODUCTION

The unique experience and know-how accumulated by many American companies in training hundreds of thousands of foreign nationals in developing countries for a wide variety of jobs may provide some valuable insights to those currently engaged in training and retraining culturally deprived Americans with little education and work practice.

Experience indicates that American companies need to adjust training programs and even job content in order to utilize fully the capabilities of the workers they train. Ingenuity and imagination are often required to develop flexible programs to meet various social and cultural problems. American training experts have to find ways to demonstrate their respect for and understanding of persons whose cultural backgrounds, way of living, and social and religious customs are different from ours to develop the proper climate for training.

Above all, the trainers have to overcome the problem of the different attitudes toward work of people of other cultures—many of whom have had little contact with industrial experience. In order to get workers to seek training and assume responsibilities, ways have to be devised of motivating them.

Because of differences in languages and cultures, it is essential that effective systems of communications be established between the trainers and those being trained.

Having accepted training as a basic necessity for building and operating an establishment overseas, some U.S. companies in the developing countries are often faced with the social responsibility for contributing to the development of the region and its human resources through training. Legal requirements and public relations considerations often lead to the wider view that capital investments abroad should include investments in education, health facilities, and other services needed to build local communities near their installations.

LESSONS LEARNED

American managers of overseas companies have developed increased appreciation of the contributions of behavioral scientists (psychologists, sociologists, anthropologists, and political scientists). Many of the findings of these scientists have been tested in strange environments and proved to be helpful to American trainers. Techniques to motivate people and to establish a favorable climate for training have been applied. The studies by behavioral scientists of the psychological and social forces that operate in group and social status relationships and the informal leadership patterns found in small social groups have all contributed to the solutions of problems.

Many of the training staff personnel going to foreign countries have to be given special training. Although opinions differ as to its value, some of the larger companies, and many men with wide experience overseas, believe that sensitivity training is vital. Such training in human relations is designed to make the individual more aware of his actions and reactions to different situations and how they affect others. The individual is supposed to develop a better understanding of his own motives, value systems, and prejudices, and of those of other peoples.

American managers usually learn that they can not import intact the U.S. methods and techniques of selection and training. The necessity for adapting and tailoring programs and methods to new conditions requires the developing of custom-made tests that completely eliminate cultural factors and language differences. Intelligence, aptitude, and personality tests (such as linear spatial perception, manipulative dexterity, hand and eye coordination, steadiness, and ability to follow directions) which may be valid for employees in the United States, are not necessarily suited to people of other cultures. Norms need to be found for each country and each test validated for its new environment. Many companies devise special tests taking into account the linguistic background, the symbols and other aspects of the culture, education, training, and experiences of the nationals. Whereas most young persons in the United States are accustomed to testing, tests may be a new experience for workers in many countries. Behavioral scientists on the staffs of some companies with far-flung operations develop tests for applicants who cannot read or write. Oral tests in colloquial language are used in some countries.

Successful interviewing of foreign nationals as prospective students for training demands that interviewers have cultural empathy with the persons interviewed. The personality of the interviewer and the tendency to base judgments on U.S. standards often tend to influence the results of the interview. Multiple interviews are frequently used to offset personal bias.

The kind of supervision, the monetary rewards, the status of the trainer, self-esteem, social approval, the disciplines imposed by the job may all influence the success of the training program.

Workers from nomadic, agricultural, or handicraft backgrounds often find it difficult to comply with the attendance and punctuality requirements in industrial training or work. High absenteeism and turnover rates often cause management serious difficulties. Providing motivation for these workers calls for knowledge of their cultures.

When an individual from a nonindustrial background migrates to an industrial situation,

he does not understand the new cultures and its ways. The new community does not provide the stability and security of his previous kinship relationships. He feels cut off and surrounded by strangers and does not know whom to trust. The behavioral scientists have pointed out that the insecure worker tends to react in various ways, even returning to his home, in order to build his feeling of security.

In areas where generations of illiterate people have lived in frustration, the attitude that there is no possibility of improvement in their world prevails because the forces for change are beyond the control of the individual or his society. What in some areas seems to be laziness or apathy, has been found by biologists and psychologists not to be innate in the people but may be conditioned by malnutrition and lack of opportunities.

An understanding of the reasons for these attitudes and for the workers' reluctance to accept any responsibility enables the trainer gradually to motivate workers through the achievement of small victories and his attitude of respect for their abilities. The trainer frequently find it necessary to develop simpler units of instruction for employees with little or no industrial experience and education. For example, in training automotive maintenance personnel the units of practice used are very small. Instead of a unit devoted to repairing carburetors, there may be several: disassembly, functions of the float, functions of gaskets, linkage, effects of foreign matter in fuel, adjustments, etc. Each becomes a formal unit with formal promotion to the next unit in recognition of a job element which has been mastered. Companies operating in every part of the world have been able to transform apathetic, disorganized people into dynamic members and leaders of industrial installations and communities. The opportunities to learn—which open up vistas of a better job, greater security of employment, higher income, and a chance for continuing advancement—are strong inducements to take training and to continue self-development.

The ability to make themselves understood and to understand others through written, oral, and nonverbal communication has to be developed by all overseas personnel, but especially by those engaged in training foreign nationals. The ability to put across ideas clearly and persuasively is found to require more than just an understanding of the fundamentals of the local language. For precise communication of meaning, one must also know the culture and its interpretations of words and gestures. Common U.S. colloquialisms, as well as the frankness and brevity on which we tend to pride ourselves, can be completely misunderstood in another culture. In many countries great pride is taken in eloquent and profuse oratory. Face-to-face discussions depend upon psychological identification between trainer and trainee not merely learning the language but being willing and wanting to understand the ideas of the other person.

Local language differences, especially in countries where there are several languages or dialects, add another dimension to the communications problems. Trainers and training materials must be prepared in the language of the trainee.

SCOPE OF TRAINING

The countries in which American companies have plants are in various stages of social, economic, and industrial development. They range from less-developed areas of Africa and Asia to the most advanced countries of Europe. The planning, development, and administration of training programs for nationals in the overseas operations in less-developed areas are complicated by many factors. In many countries, schools are almost nonexistent or completely inadequate, especially in regions where plantations, oil wells, and refineries are located. The same company may have to develop many different training programs to meet great extremes in training requirements.

In the less-developed countries, many American companies are faced, at the beginning of their operations, with the necessity of establishing, maintaining, and operating schools, sometimes even training the teachers to staff the schools. This is necessary because the operations are isolated from towns or villages where there are schools or because the country has not yet developed a free, public education system. Language and cultural differences sometimes complicate the operation of the schools.

Schools are often used for part of the training program for company employees during or after working hours, depending on the program. Literacy training, in the language of the area, and then in English if the employees wish, and in arithmetic, is usually given by the United States employers in practically all of the developing nations. Training in nutrition and hygiene is generally included in the basic programs in the least economically-developed countries, with both the workers and their wives attending these classes.

Many workers in the developing countries have to be taught in company training centers to use even the simplest tools. In the mines in Africa, for example, workers have had to be taught how to use shovels and wheelbarrows, because such things are unknown in their culture. Workers and managers are taught not only those fundamentals but also how to perform the more complex jobs that evolve with increased economic development and accelerated technological growth. The thousands of new plants and other establishments organized by United States companies abroad since World War II serve as training centers. Some of the trained workers move into government jobs or local enterprises which offer higher pay or advancement in order to secure such trained personnel. Thus, the know-how imparted by U.S. companies' training is passed on to other local workers. Many companies purposely train more workers than they need—a sort of private foreign-aid program to build national good will for themselves and for the United States.

In many areas of the world, foreign owned or managed firms are required to employ local workers. The laws and regulations in some countries require that major percents of the workers of an enterprise be nationals. Managers of U.S. companies abroad do not have a completely free choice in the selection of workers or in their discharge. These restrictions with respect to employment often give greater emphasis to the importance of training local employees. The training requirements imposed on U.S. companies in some cases extend to providing schools for the children and families as well as the workers. Most U.S. companies stress that their overseas management personnel train national replacements as rapidly as possible.

Thus, all of the problems faced in training workers in this country are found in the overseas operation, plus many more. In planning

and developing any training program, a company needs to estimate its manpower requirements months or years ahead and schedule training programs to meet these needs. The inventory of key men is periodically reviewed and their performance appraised to make sure they are developing rapidly enough to meet the needs. Most workers are trained through work assignments and job rotation to broaden their experience, and through coaching and counseling by their immediate supervisors. Although much of the training by U.S. companies abroad seems to be concentrated on the unskilled plantation employee, the refinery workers, the factory workers, and the more skilled craftsmen, the office worker is also included in most of the programs.

BASIC TRAINING

As a general rule, some type of training is given to the new, inexperienced worker before he is put in any job. In a plantation operation, he is taught the simple, unskilled job in about a week, under an experienced trainer. He also receives and learns how to use his equipment, is assigned to housing, and to the group with which he will work. In the petroleum industry, it may take twice as long to orient the worker, teach him safety, hygiene, and numbers and measurements he will use on the job. This period serves also as a time for developing information about the aptitudes and interest of the new worker, so that the company can assess his potential for training. In white-collar occupations, for example, retail salesmen, it may take several months to teach the worker such fundamentals as arithmetic and how to operate a cash register before he can be put on the job.

SPECIAL PROGRAMS

Some U.S. companies have gone to considerable effort to make sure that talents possessed by national workers are used and that they are not overlooked or neglected. Attempts have been made to determine the individual's strengths and weaknesses and programs have been developed to utilize his abilities. Counseling and guidance is often given by supervisors or members of the training staff, where there are such specialists. Periodic reports of progress are reviewed.

Specially elected individuals from the local labor force may be sent at company expense to local schools or colleges, to schools or international training centers in nearby countries, or to the United States to receive advanced training. Many companies are especially interested in engineering and other technical training, as well as in management development, because of the great shortages of such personnel in industrially-developing countries, and even in some of the highly-industrialized countries.

TYPES OF TRAINING

Before the company assigns an employee to training designed to enable him to do a better job or advance to a higher job, it determines that he has the intelligence, the interest, the willingness to put forth the effort required; that he is reliable; and that he has demonstrated his ability to perform in a lower job and in previous training programs. Testing and interviews are used for some of these assessments.

Some companies give the worker training, to improve his performance in a specific job. Others require him to take training so that he can acquire greater knowledge and skill in order to qualify for a better job. The company generally pays for all time devoted to training to learn the job or advance on the job. Usually the program is carefully tailored to the worker's training needs, with the aid of the training department staff and the foreman or other supervisory personnel. Trainees may spend part of their time in a classroom where they receive basic or elementary training, supplemented by on-the-job training and work experience.

JOB-RELATED TRAINING

U.S. companies provide short-term training programs for semiskilled jobs and other types of work not requiring lengthy training. In addition, some longer apprenticeship training is given to workers expected to perform craft jobs.

Workers are trained on the job in the desired skill, with coaching by trained and experienced foreman. The amount of time devoted to training, the methods used, and the amount and type of off-the-job classroom instruction are systematically planned to meet the needs of the workers and the regular work of the department. The workers are given opportunities to apply what they learn, and eventually they are made a part of the regular workforce.

Some workers, such as Indians in South and Central America, learn manual skills very quickly under good training. According to some companies, workers whose culture does not provide the experience in the use of their hands for the manipulation of things, find it more difficult to learn manual skills. The experience of American companies indicates, however, that in all countries, people are able to learn manual skills. Moreover, many can become highly competent skilled craftsmen, supervisors, and managers.

OTHER TRAINING

Some companies provide workers the opportunity for self-improvement after working hours. Training programs are offered to workers who are sufficiently interested in advancement to want to broaden their knowledge on their own time. The training is generally provided at no cost to the student. Classrooms, teachers, supplies, and equipment needed for training are paid for by the companies.

Programs of this type are given for inexperienced, uneducated workers who come from isolated areas, as well as for those who have been employed for longer periods in industrial centers and have over the years developed themselves through such programs. In the highly industrialized countries of Europe, through such training many workers have moved up from the ranks of blue-collar workers through white-collar levels to top management. This mobility has also been possible in the Near East, Latin America and other less-developed areas.

TRAINING METHODS

The training techniques used by many American companies in developing countries (as well as in highly industrialized countries) are similar to those used in the United States. For overseas operation, however, the methods of training are carefully adapted to the specific group of workers. Conferences, lectures, assigned readings, demonstrations, skill practices, coachings, movies, radios, and other visual aids, case studies and role playing are all used. Because of the scarcity of teachers, the use of radios, teaching machines, tape recorders, and TV programs has been developed by the home office training staff and provided to the overseas installations. Correspondence courses also have been provided by the home office, usually being secured from agencies which supply home study courses.

BLUE-COLLAR WORKERS

Many of the oil companies, which have been operating in the less-developed countries for a long time, have formalized programs to develop the skills needed in blue-collar types of occupations. For example, a completely inexperienced and untrained young man who has only a primary education is selected on the basis of tests for which national norms have been developed, and which have been validated for his specific group.

If the worker demonstrates that he has only limited abilities, he will be trained for a specific job. If, however, he is found capable of moving into higher jobs, he may follow a 5-year program designed to give him job mobility. The first 2 years he spends full time at the company's industrial training center taking courses in his native language, English, mathematics, engineering science, engineering drawing, workshop practice, laboratory practice, and other subjects. The next 2 years he continues these studies on a part-time basis and spends the rest of his time at work in the operating departments, eventually specializing in one, depending on his abilities and interest. At intervals, he is tested to determine his progress before he can go on. When he has completed his program, he will take competitive examinations. This program is designed to turn out highly skilled, competent men capable of moving up in the organization.

WHITE-COLLAR WORKERS

Training in stenography, typing, clerical operations, bookkeeping, and accounting is given through the training centers and home-study courses. Some companies send selected workers to a nearby country where formal training in office work is available. Girls as well as boys are included in these programs.

Many U.S. companies require large numbers of white-collar workers in their overseas operations. For example, clerical workers are needed by insurance, shipping, and warehousing operations. One company has a 9-month commercial program: 3 months are spent full-time at the training center, three-fourths of the remaining time is spent at the center, and one-fourth in a department in actual work experience. The students at the center are taught English, commercial arithmetic, typing, use of office machines, bookkeeping, office methods, and office practices. The student is tested at intervals of 3 months to determine progress.

On satisfactory completion of each period, he is permitted to proceed.

SUPERVISORY PERSONNEL

Training in supervision and leadership is as important as training in the skilled occupation for advancement to positions of responsibility in management.

The methods and techniques originated in connection with Training Within Industry (TWI), which was developed in the United States during World War II, appear to have strongly influenced supervisory training in American companies in many countries. They have been modified to meet conditions and translated into many languages.

TWI was designed to provide a realistic adaptation of known methods to meet the urgent manpower requirements of mushrooming war industries. It provided intensive coaching to develop men and women of widely different educational and industrial backgrounds into effective supervisors in the shortest possible time. Job Relations Training, to develop skill in leadership; Job Methods Training, to teach the supervisor how to plan and schedule the work; and Job Instruction Training, to enable inexperienced supervisors to teach their workers how to do the job, were the three fundamental skills universally taught.

The streamlining training procedures used in TWI have provided a guide for adapting many successful U.S. programs to meet the widely differing conditions found in developing countries. One such custom-tailored program is the training of technicians to be put in charge of highly complex oil drilling and refining installations. Men with no mathematical training, technological background, or formal education, have been successfully trained for technician jobs. The algebraic equations entailed in the usually required periodic checking and adjusting of instruments have been replaced by reference tables which give all the answers needed by the technician.

SUMMARY

The problems of adaptation faced by overseas companies in training foreign nationals with little industrial experience are not unlike those confronting persons responsible for conducting programs for training and retraining poorly educated individuals from culturally different environments, such as city slums or the hills and valleys of Appalachia. American migrants from these areas who move to urban locations face cultural and communication difficulties. Cut off from kinship relationships, they are as insecure as are the illiterate peoples in the less-developed parts of the world when they move into an industrial environment.

Poor communication, lack of experience in industrial work environments, little motivation for work derived from years of frustration because of few training opportunities, illiteracy, little or no training are some of the problems with which American companies had to deal in training nationals in less-developed areas of the world. Many of these same problems will have to be met by American trainers in working with the persons to be trained in recently sponsored Federal training programs.

The experience of United States companies abroad indicates that most of these problems can be overcome if an honest effort is made to understand differences in cultural patterns and the reasons for the handicaps of culturally deprived groups. Imagination and ingenuity are required in adapting programs to the special needs of trainees. In this, the behavioral scientists' contribution can be invaluable. Success in the programs now in operation and those to be undertaken should be assured if respect and understanding are shown by the trainers for Americans who have not hitherto been able to participate fully in the country's economic, educational, and social development.

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WHERE TO GET MORE INFORMATION

Copies of this publication or additional information on manpower programs and activities may be obtained from the U.S. Department of Labor's Manpower Administration in Washington, D.C., or in any of the field locations listed below.

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